Hart Engineering Corporation

SUBMITTAL:
11317-01

PROJECT: 9900. - Veolia/Taunton WWTF Phase 1 Improvements **DATE: 12/20/2021**

SUBMITTAL: 11317-01 - Scum Concentrator
REVISION: 0
STATUS: Eng
SPEC #: 11317

TO:
Michael Andrus
Beta Group Inc.
6 Blackstone Place
Lincoln, RI 02865
MAndrus@BETA-Inc.com

FROM:
Ryan Murphy
Hart Engineering Corporation
800 Scenic View Drive
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Item	Revision	Description	Status	Date Sent	Date Returned
11317-01	0	Scum Concentrator	Eng	12/20/2021	
Notes:					

Additional Notes:

Status Codes
1-APP – No Exceptions Taken
2-ANR – Make Corrections Noted
3-R&R – Revise and Resubmit
4-REJ – Rejected
5-IPO – For Information Purposes Only
6-NRR – Not Required for Review
ENG – Submitted to Engineer

Sincerely,
Hart Engineering Corporation

_____ DATE: 12/20/2021

D O C U M E N T T R A N S M I T T A L

EnviroCare International

507 Green Island Road
American Canyon, CA 94503 USA
Tel. 707.638.6800
Fax. 707.638.6898

Address Email to: jason_parks@envirocare.com

Date: December 17, 2021 **ECI Job No.:** 1194

Company: Hart Companies / Total Mechanical Services Corp.
Attention: Ryan Murphy

Cc: Katryna Wilson

Project: City of Taunton, MA Wastewater Treatment Facility Phase 1 Improvements – Submittal "For Customer Approval" #1

Total Mechanical Services Corporation Project No.: 2021-26

	Document Name	Doc. No.	Sheet	Date	Rev	Code
1	****Submittal Cover ****					
	Cover Letter		3	12/17/21	0	FA
2	****Drawings****					
	Instrument and Control Legend	C000-1185	1 of 1	12/16/21	0	FA
	Process and Instrumentation Diagram	C100-1185	1 of 1	12/16/21	0	FA
	Model 60-500 Scum Concentrator GA	C300-1185	1 of 1	12/16/21	0	FA
	Model 60-500 Scum Concentrator Contact Surface Layout	C350-1185	1 of 1	12/16/21	0	FA
	Concentrator Tank FRP Odor Containment Covers	C550-1185	1 of 1	12/16/21	0	FA
	Scum Concentrator LCP-700 Enclosure Front Elevation	C700-1185	1 of 1	12/16/21	0	FA
	Scum Concentrator LCP-700 Enclosure Back Panel Layout	C701-1185	1 of 1	12/16/21	0	FA
	Control Panel Power Distribution 480VAC Three Line	C702-1185	1 of 2	12/16/21	0	FA
	Control Panel Power Distribution Transformer 480/120 & E-Stop	C702-1185	2 of 2	12/16/21	0	FA
	Wiring Diagram Motor Control - Skimmer	C703-1185	1 of 4	12/16/21	0	FA
	Wiring Diagram Motor Control - Mixer	C703-1185	2 of 4	12/16/21	0	FA
	Wiring Diagram Motor Control - Scum Pump	C703-1185	3 of 4	12/16/21	0	FA
	Wiring Diagram Motor Control - Scum Heater	C703-1185	4 of 4	12/16/21	0	FA
	Wiring Diagram Levels & Alarms	C704-1185	1 of 2	12/16/21	0	FA
	Wiring Diagram PLC SCADA Interface	C704-1185	2 of 2	12/16/21	0	FA
	Holding Tank Heater Junction Box & Terminal Layout	C710-1194	1 of 1	12/16/21	0	FA
	Heater Wiring	C711-1194	1 of 1	12/16/21	0	FA

D O C U M E N T T R A N S M I T T A L

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3	****Catalog Cuts****				
	Equipment List with Catalog Cuts	438	12/17/21	0	FA

Comments: One (1) electronic copy in .pdf submitted For Customer Approval via FTP download. Please see the cover letter for clarifications and deviations to the specification that were addressed in the RFI, but not responded to. Please review and approve.

Submitted by:

Jason T. Parks
EnviroCare International, Inc.

Shipping Address: (VIA FTP Download)

Total Mechanical Services Corp.
1 Park Place
Plymonth, MA 02360
Tel.: 508.746.1183

Legend:

FYI For Your Information
FA For Customer Approval
FC Certified for Construction
AB As Built

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Address Email to: jason_parks@envirocare.com

Date: December 17, 2021 **ECI Job No.:** 1194

Company: Hart Companies
Attention: Ryan Murphy

Cc: Katryna Nilson

Project: City of Taunton, MA Wastewater Treatment Facility Phase 1 Improvements – Scum Concentrator

Total Mechanical Services Corporation
Project No.: 2021-26

This document is intended to acompany the FA#1 approval submittal submitted dated december 17th, 2021. The document is to clarify additions, deletions, and deviations from the Wastewater Treatment Facility Phase 1 Improvements Specification Section 11317 regarding the Scum Concentrator for the Taunton, MA, wastewater treatment facility. The statements below are in conjunction to the request for information, RFI#1, previously sent, November 4, 2021, which went unanswered, and EnviroCare Proposal 4173P99 Rev. 2. A copy of RFI#1 can be found in the Appendix of this document.

1. Section 11317-2.02-B, refers to a filter as part of the scum concentrator system. A filter is not part of the EnviroCare scum concentrator system as described by Proposal 4173P99 Rev. 2. Filters should not be installed in the scum supply line because they are prone to clogging as scum FOG is full of many different floatable materials. EnviroCare recommends that a grinder or macerator, not in EnviroCare's scope, be installed upstream of the scum concentrator.

2. Section 11317-2.03-A, states the concentrator tank material of construction to be 1/4" thick steel. The EnviroCare design is 1/4" thick 304L stainless steel for the concentrator tank as per Proposal 4173P99 Rev. 2. This point is to clarify that the tank will be fabricated out of stainless steel not carbon steel.

3. Section 11317-2.03-A, refers to a recirculation connection as part of the concentrator tank. Recirculation is to bring concentrated scum from the pump discharge back to the concentrator tank inlet via external piping. No additional tank connection connections are needed because the recirculation is done in piping the is not in EnviroCare's scope. Please accept this clarification for a recirculation connection.

4. Section 11317-2.03-A and Section 11317-2.03-B, states that piping connections to the concentrator tank be flanged Schedule 40 piped PVC. All concentrator tank connections are Schedule 40 piped 304L stainless steel with ANSI 150# raised faced weld neck flanges (RFWN). Please accept this material of construction deviation.

5. Section 11317-2.03-B, states the holding thank material of construction to be 3/16" thick steel. The EnviroCare design is 3/16" thick 304L stainless steel for the holding tank as per Proposal 4173P99 Rev. 2. This point is to clarify that the tank will be fabricated out of stainless steel not carbon steel.

6. Section 11317-2.04-D, does not state a duty or manufacturer for FOG pump. EnviroCare has selected a Netzsch progressive cavity FOG pump with a duty of 5gpm at 50psi, which is consistent

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with EnviroCare's standard design. To change the selected scum pump may necessitate a change order.

7. Section 11317-2.05-A, states the control panel is to be factory installed. EnviroCare is supplying the control panel, LCP-700, free standing on legs for installation in the field at location of end user choosing near scum concentrator system. See drawing C700-1194 for installation information. Wiring to field instrumentation and suppled motors is to be completed by the installation contractor. See drawings C703-1194 sheets 1 thought 4 and C704-1194 sheets 1 through 2 for wiring and terminal details. The factory installed panel as specified will prohibit access to equipment for monitoring and maintenance. Please accept this deviation.

8. Section 11317-2.05-A.c.ii, states that two (2) motor run indicator lights are to be included on the contol panel. The scum concentrator system has three (3) motors: skimmer drive, mixer and FOG pump. EnviroCare has provided a running light for each of the three motors on control panel LCP-700. In addition, a running light for the scum heaters is also included. Please accept this addition to the control panel with no additional charges.

9. Section 11317-2.05-A.d, states that the control panel is to house the motor starter for the FOG pump. The scum concentrator system has two additional motors that require starters and strip heaters that require a contactor. The motor starters for each motor listed above and the contactor for the scum heaters are supplied and installed in control panel LCP-700 by EnviroCare to make the scum concentrator was a complete turnkey system. Each motor and the heater junction box, JB710< (factory installed on the scum holding tank frame) are to be wired to the control panel by the installation contractor. See drawings C703-1194 sheets 1 thought 4 for wiring and terminal details. Please except this addition to the control panel with no additional charges.

10. Section 11317-2.05-A.f, indicates that the skimmer speed adjustment is to be included with the control panel door. The EnviroCare has designed the skimmer drive with a SEW Varimot variable speed gear motor. The Varimot utilizes a maintenance free friction disk that allows for infinitely variable manual speed control from a hand wheel mounted directly on the gear motor. EnviroCare requests a deviation from having a speed adjustment in the control panel door as the adjustment is on the gear motor drive. The speed adjustment for this system is "set and forget". See skimmer drive catalog cut for details. Please accept the deviation in method of skimmer drive speed control.

11. Section 13321-1.16-M, states two (2) signals from the scum concentrator local control panel are to be wired to PLC I/O:
    a. Scum Concentrator run status (YI-7401B)
    b. Scum Concentrator Alarm (YA-7401)

    Terminals (120VAC dry contacts) for the above signals are provided in control panel LCP-700, see drawing C704-1194 sheet 2 of 2 for details of all signals. In addition to the required signals, the following signals have been provided for future interface with plant controls:
    c. Skimmer
        i. Skimmer in AUTO
        ii. Skimmer start command
        iii. Skimmer running

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iv. Skimmer overload fault
v. Skimmer torque fault
vi. Input – Skimmer remote start

d. Mixer
   i. Mixer in AUTO
   ii. Mixer start command
   iii. Mixer running
   iv. Mixer overload fault
   v. Input – Mixer remote start

e. Scum Pump
   i. Scum Pump in AUTO
   ii. Scum Pump start command
   iii. Scum Pump running
   iv. Scum Pump overload
   v. Scum Pump seal water low flow fault
   vi. Input – Scum Pump remote start

f. Scum Heater
   i. Heater enable command
   ii. Heater running
   iii. Heater overload fault
   iv. Heater over temperature fault
   v. Input – Heater remote enable

g. Scum Tank Level
   i. Scum Tank

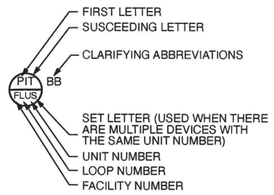
12. Section 13321 does not include an access platform for the scum concentrator. A self-supporting access platform, to be supplied and installed by others, is required to access the concentrator tank top elevation, adjust to the weir height and skimmer speed, as well as, perform routine monitoring, maintenance and cleaning on the scum concentrator system. The top of grating for the access platform should be at an approximate elevation of 58.36', as shown on the general arrangement drawing C300-1194.

Please do not hesitate to contact us via phone or email to discuss any of these points, as we would like to facilitate the review and approval process.

Prepared by:

Jason Parks
EnviroCare International, Inc.

INSTRUMENT IDENTIFICATION EXAMPLE SYMBOLS



INSTRUMENT SOCIETY OF AMERICA TABLE

FIRST LETTER			SUCCEEDING LETTERS		
LETTER	PROCESS OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		USERS CHOICE	USERS CHOICE	USERS CHOICE
C	USERS CHOICE			CONTROL	
D	DENSITY	DIFFERENTIAL			
E	VOLTAGE		PRELIMINARY ELEMENT (SENSOR)		
F	FLOW RATE	RATIO (FRACTION)			
G	USERS CHOICE		GLASS, GAUGE VIEWING DEVICE	GATE	
H	HAND (MANUAL)				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN		CONTROL STATION	
K	TIME, SCHEDULE	TIME RATE OF CHANGE			
L	LEVEL		LIGHT (PILOT)		LOW
M	MOTION	MOMENTARY			MIDDLE
N	TORQUE		USERS CHOICE	USERS CHOICE	USERS CHOICE
O	USERS CHOICE		ORIFICE, RESTRICTION		
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD OR PRINT		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL		
X	UNCLASSIFIED	X-AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE OR PRESCENCE	Y-AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z-AXIS		DRIVE ACTUATOR UNCLASSIFIED,	
				FINAL CONTROL ELEMENT	

EXAMPLE: PDIT = DIFFERENTIAL PRESSURE INDICATING TRANSMITTER, TDRC = DIFFERENTIAL TEMPERATURE RECORDING CONTROLLER

ABBREVIATIONS TABLE

A/I	ANALOG INPUT SIGNAL	LSLL	LEVEL SWITCH LOW LOW	TI	TEMPERATURE INDICATOR
A/O	ANALOG OUTPUT SIGNAL	M	MOTOR	TIC	TEMPERATURE INDICATING CONTROLLER
AH	AIR HEADER	MA	MANUAL / AUTO	TIR	TEMPERATURE RECORDER
AI	AIR INLET	MCC	MOTOR CONTROL CENTER	TSH	TEMPERATURE SWITCH, HIGH
BO	BY OTHERS	MH	MANHOLE / ACCESS DOOR	TT	TEMPERATURE TRANSMITTER
D/I	DIGITAL INPUT SIGNAL	MS	MOTOR STARTER	UC	TORQUE CLUTCH
D/O	DIGITAL OUTPUT SIGNAL	O/O	ON/OFF	USH	HIGH TORQUE SWITCH
DCS	DISTRIBUTIVE CONTROL SYSTEM	OF	OVERFLOW	VBV	WATER BLOCK VALVE
DISC	DISCONNECT	OF	OVERFLOW DRAIN	WH	WATER HEADER
DN	DRAIN	PAH	PRESSURE ALARM HIGH	WI	WATER INLET
ECI	ENVIROCARE INTERNATIONAL, INC	PB	PUSH BUTTON	YL	INDICATOR LIGHT
EV	ELECTRIC VALVE	PCV	PRESSURE CONTROL VALVE, AIR	ZSC	LIMIT SWITCH CLOSED
F	FLOW TUBE	PDI	PRESSURE DIFFERENTIAL INDICATOR	ZSO	LIMIT SWITCH OPEN
FA	FOUL AIR DUCT	PDIT	dP INDICATING TRANSMITTER		
FCV	FLOW CONTROL VALVE	PDT	PRESSURE DIFFERENTIAL TRANSMITTER		
FE	FLOW ELEMENT	PE	PRESSURE ELEMENT		
FI	FLOW INDICATOR	PI	PRES. INDICATOR		
FIT	FLOW INDICATING TRANSMITTER	PIT	PRES. INDICATING TRANSMITTER		
FLT	FAULT	PRV	PRESSURE REDUCING VALVE		
FSL	FLOW SWITCH, LOW	PSC	PUMP SPEED CONTROL		
HE	HEATING ELEMENT	PSH	PRESSURE SWITCH, HIGH ALARM		
HOA	HAND/OFF/AUTO SELECTOR SWITCH	PSL	PRESSURE SWITCH, LOW ALARM		
HS	HAND SWITCH	RST	RESET		
HV	HAND VALVE	S	STARTER		
IE	CURRENT MEASUREMENT	S/S	START/STOP		
LCP	LOCAL CONTROL PANEL	SC	SPEED CONTROL		
LH	LIME HEADER	SCR	SILICON CONTROL RECTIFIER		
LS	LEVEL SWITCH	SI	SPEED INDICATION		
LSH	LEVEL SWITCH HIGH	SV	SOLENOID VALVE		
LSHH	LEVEL SWITCH HIGH HIGH	TCV	TEMPERATURE CONTROL VALVE		
LSL	LEVEL SWITCH LOW	TE	TEMPERATURE ELEMENT		

GENERAL INSTRUMENT SYMBOLS

- ICP 1 — INCINERATOR CONTROL PANEL
- LCP XXX — FIELD MOUNTED
- DCS XXX — PANEL MOUNTED OPERATOR ACCESSIBLE
- MCC XXX — MCC MOUNTED
- JUNCTION BOX

PROCESS SYMBOLS

- WATER FLOW — xxx GPM
- GAS FLOW — xxx ACFM
- TEMP — xxx °F
- PRESSURE — xxx PSI
- PRESSURE — xxx "WC

VALVE SYMBOLS

- BACK FLOW PREVENTER
- BACK PRESSURE RELIEF
- BALL, NO, NC
- BALL CHECK
- BUTTERFLY
- DIAPHRAGM
- FLOAT
- GATE
- GLOBE
- KNIFE
- MOTORIZED
- MULTIPORT
- NEEDLE
- PINCH
- PLUG
- PRESSURE CONTROL (CONTROLLED SIDE)
- PRESSURE REGULATING (REGULATED SIDE)
- PRESSURE RELIEF
- SOLENOID, 2-WAY
- SOLENOID, 3-WAY
- SWING CHECK
- VACUUM RELEASE
- BLOCK & BLEED

APPURTENANCE SYMBOLS

- DRAIN
- DRAIN FILTER
- DUPLEX STRAINER
- FLANGED CONNECTION (###)
- FLEX HOSE
- FLOAT TRAP (T)
- ORIFICE PLATE
- PIPE REDUCER
- PIPE PLUG
- QUICK DISCONNECT
- SIMPLEX STRAINER
- UNION
- Y-STRAINER

DEVICE & INSTRUMENT SYMBOLS

- ACTUATOR, ELECTRIC (M)
- ACTUATOR, PNEUMATIC
- POSITIONER, I/P
- ANALYZING INSTRUMENT
- DIAPHRAGM ISOLATOR
- FLOAT SWITCH
- MAGNETIC FLOWMETER (F)
- ORIFICE FLOWMETER
- THERMOCOUPLE
- PRESSURE SWITCH

EQUIPMENT SYMBOLS

- BLOWER
- COMPRESSOR
- FAN
- HEATER
- MIST ELIMINATOR, CHEVRON
- MIST ELIMINATOR, MESH
- MIXER
- MOTOR (M)
- PUMP, DIAPHRAGM
- PUMP, HORIZONTAL
- PUMP, PERISTALTIC
- PUMP, PISTON
- PUMP, POSITIVE DISPLACEMENT
- PUMP, VERTICAL CENTRIFUGAL
- SPRAY LANCE
- VENTURI TUBE

OTHER SYMBOLS

- ##/## — LINE SIZE
- MW — MANWAY
- ### — REFERENCE, PAGE/SHEET
- SW — SEAL WATER
- TEST — TEST PORT
- TIE IN — TIE IN POINT

LINE LEGEND

- PRIMARY PROCESS / PIPING
- PNEUMATIC SIGNAL
- SENSING LINE SIGNAL
- ELECTRICAL SIGNAL
- NETWORK SIGNAL
- SCOPE BY ECI
- EXISTING / BY OTHERS
- BOUNDARY LIMIT
- INSULATED LINE / BY OTHERS
- HEAT TRACING

DOCUMENT RELEASE

☐ Preliminary issue ☐ Certified for Construction
☒ For Customer Approval ☐ As Built
BY R.Mc DATE 12/16/21

SYM	REVISION DESCRIPTION	BY	APP	DATE

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TITLE: **INSTRUMENT AND CONTROL LEGEND**

DRAWN	DCH	DATE	10.26.21
DESIGN	JTP	DATE	10.26.21
CHECK	JTP	DATE	10.26.21
APPR.	RAY	DATE	10.26.21
SCALE	NONE		

CLIENT: TOTAL MECHANICAL SERVICE CORPORATION

PROJECT: TAUNTON WASTEWATER TREATMENT FACILITY IMPROVEMENTS 1 - MODEL 60-500 SCUM CONCENTRATOR

CONTRACT NO. 1194 ISO E

DRAWING NO. C100-1194 SHEET 1 OF 1 REV 0

PLANT CONTROL SYSTEM (120VAC DRY CONTACTS)

SCUM CONCENTRATOR RUN STATUS (YI-7401B) — PCS

SCUM CONCENTRATOR ALARM (YA-7401) — PCS

SCUM CONCENTRATOR CONTROL PANEL, LCP-700
SEE DWG. C700-1194

SKIMMER CONTROL

MA	START	STOP	RUN	OVL FLT	TRQ FLT	FLT RST
HS SS11	GPB PB11	RPB PB12	GL PL12	AL PL13	AL PL14	BPB PB13

MIXER CONTROL

MA	START	STOP	RUN	OVL FLT	FLT RST
HS SS21	GPB PB21	RPB PB22	GL PL22	AL PL23	BPB PB23

SCUM PUMP CONTROL

MA	START	STOP	RUN	OVL FLT	SEAL FLT	FLT RST
HS SS31	GPB PB31	RPB PB32	GL PL32	AL PL23	AL PL34	BPB PB33

SCUM HEATER CONTROL

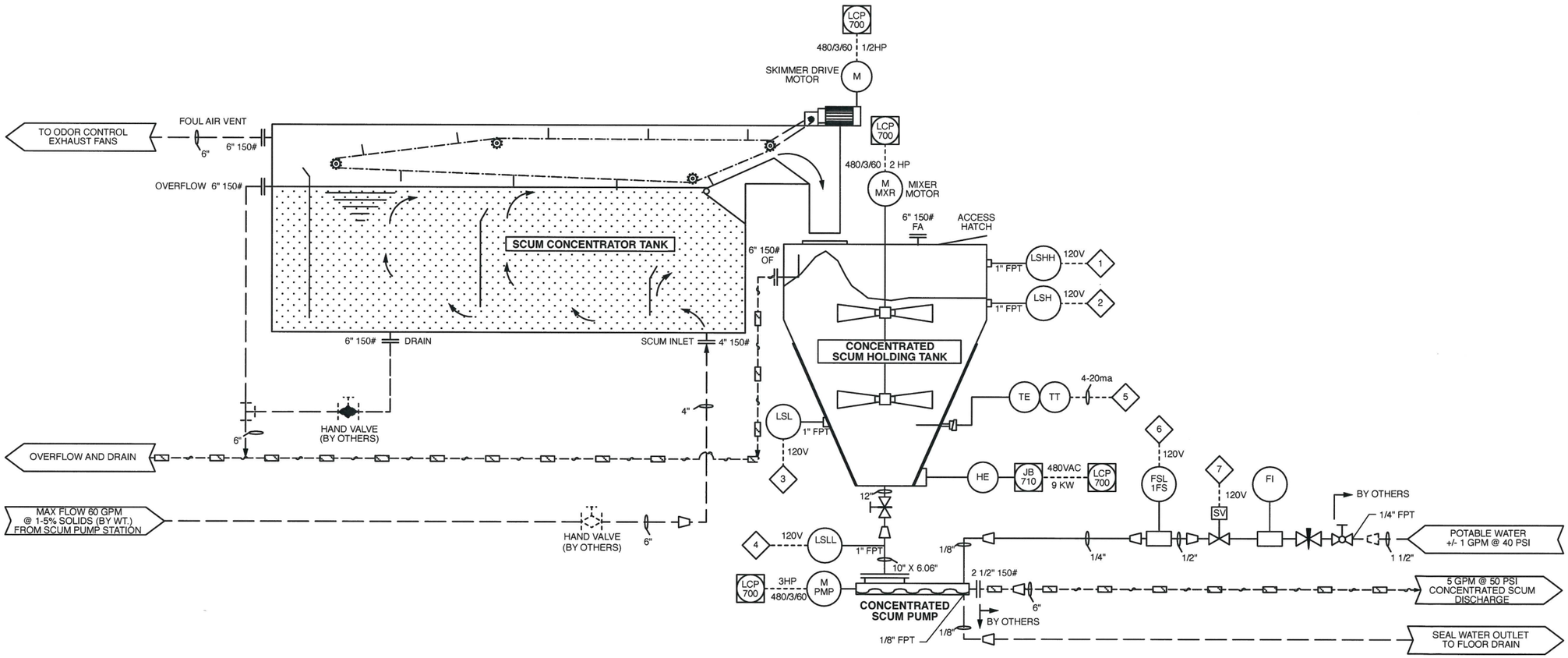
RUN	OVL FLT	TEMP CONTROL	TEMP FLT	FLT RST
GL PL42	AL PL43	TIC 01	AL PL44	BPB PB43

HOLDING TANK LEVEL

HIGH/HIGH FLT	HIGH FLT	LOW FLT	LOW/LOW FLT
AL PL81	AL PL82	AL PL83	AL PL84

SYSTEM CONTROL

POWER	MCC RESET	MCC POWER	E-STOP
WL PL1	BPB PBR	GL PL2	RPB ES1



TOTAL MECHANICAL SERVICE CORPORATION PO NO. 2021-26, SPECIFICATION SECTION: 11317

NOTES:

1. ONE (1) MODEL 60-500 SCUM CONCENTRATOR BY ENVIROCARE TO REPLACE EXISTING SCUM CONCENTRATOR. INSTALLATION BY OTHERS. SEE DWG. C300-1194 FOR GENERAL ARRANGEMENT.
2. ALL WIRING TO/FROM ELECTRICAL COMPONENTS AND LCP SUPPLIED AND INSTALLED BY OTHERS.
3. MOTOR STARTER FOR SKIMMER DRIVE, MIXER, SCUM PUMP, AND CONTACTOR FOR HEATERS SUPPLIED AND INSTALLED IN CONTROL PANEL LCP-700 AND WIRED BY OTHERS TO MOTORS AND HEATER JUNCTION BOX.
4. ALL FIELD DEVICES WITH DISSIMILAR SIGNAL POWER SHOULD BE RUN IN SEPARATE CONDUIT:
   A. 480VAC CONDUIT
   B. 120VAC CONDUIT
   C. 4-20 mA CONDUIT

DOCUMENT RELEASE

☐ Preliminary Issue ☐ Certified For Construction
☒ For Customer Approval ☐ As Built
BY R.M. DATE 12/16/21

SYM	REVISION DESCRIPTION	BY	APP	DATE
1				
2				
3				
4				

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TITLE: **PROCESS & INSTRUMENTATION DIAGRAM**

DRAWN	DCH	DATE	10.26.21
DESIGN	JTP	DATE	10.26.21
CHECK	JTP	DATE	10.26.21
APPR	RAY	DATE	10.26.21
SCALE	NONE		

CLIENT: **TOTAL MECHANICAL SERVICE CORPORATION**

PROJECT: **TAUNTON WASTEWATER TREATMENT FACILITY IMPROVEMENTS 1 - MODEL 60-500 SCUM CONCENTRATOR**

CONTRACT NO. 1194

DRAWING NO. C100-1194

SHEET 1 OF 1

REV 0

MATERIALS OF CONSTRUCTION

CONC. TANKAGE:	1/4" THK, 304L-SS
HOLDING TANKAGE:	3/16" THK, 304L-SS
CONC. TANK STRUCTURAL:	A36-CS
HOLDING TANK STRUCTURAL:	A36-CS
STAINLESS STEEL FINISH:	SANDBLAST SSPC-SP6
CONC. TANK COVER:	FRP
SKIMMER SHAFT:	C-1018 CS
SPROCKETS:	H-78 NYLON, 2.609" PITCH
CHAIN:	PC-78 ACETAL, MODEL 78 2.609" PITCH
BLADE:	NEOPRENE, DURO. 50
BLADE SUPPORT:	304-SS
DRIVE SPROCKET:	STEEL WITH FLAME HARDENED TEETH
DRIVE CHAIN:	STEEL, ASA NO. 80 ROLLER CHAIN
CHAIN GUARD:	304L-SS, 14GA FRONT, 12GA BACK
WEIR ASSEMBLY:	304L-SS
WEIR CHAIN:	STAINLESS STEEL, ASA NO.80 ROLLER CHAIN
HEAT SHIELD:	14GA 304L-SS
INSULATION:	2" THK. FIBERGLASS
KNIFE GATE VALVE:	316-SS BODY & GATE
PLATFORM:	**BY OTHERS**
GRATING:	**BY OTHERS**
STAIRCASE / LADDER:	**BY OTHERS**

DESIGN PARAMETERS

INFLUENT:	PRIMARY CLARIFIER SCUM
CONCENTRATION:	1-5% SOLIDS
RETENTION TIME:	33.3 MINUTES
RATE:	60 GPM
SEPARATION AREA:	41 SQ.FT
SOLIDS LOADING RATE:	1.46 GPM/SQ.FT @ DESIGN
CONC. TANK VOLUME:	2000 GALLONS
SKIMMER SPEED:	2.5 - 11.5 FPM (VARIABLE)
EFFLUENT:	50% SOLIDS / 50% WATER
SCUM TANK VOLUME:	500 GALLONS
HEATER CAPACITY:	9 KW
SCUM TANK HEATED AREA:	(12) STRIP HEATERS IN CONICAL SECTION

SHIPPING SUB-ASSEMBLIES:

THE FOLLOWING IS A SUMMARY OF THE MAJOR SYSTEM COMPONENTS AND HOW THEY WILL SHIP:

A. ONE (1) MODEL 60 CONCENTRATOR TANK, SKIMMER, WEIR, ECT FACTORY ASSEMBLED

B. ONE (1) MODEL 60 CONCENTRATOR TANK FRAME

C. LOT CONC. TANK FRP ODOR CONTAINMENT COVERS

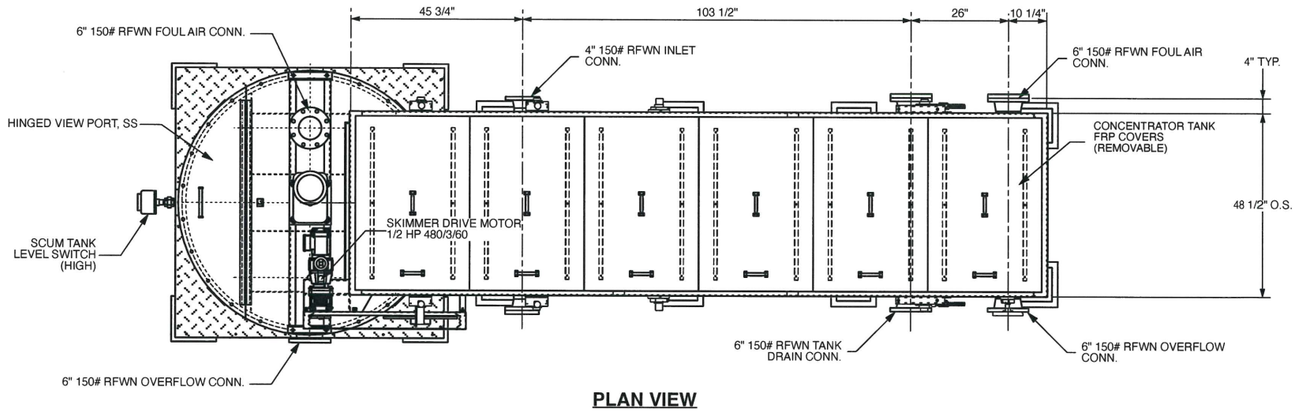
D. ONE (1) HOLDING TANK WITH FRAME AND COVER HEATING ELEMENTS, HEAT SHIELD, KNIFEGATE FACTORY ASSEMBLED.

E. ONE (1) SCUM PUMP

F. LOT HOLDING TANK INSTRUMENTATION AND SCUM PUMP SEAL WATER INSTRUMENTATION AND ACCESSORIES.

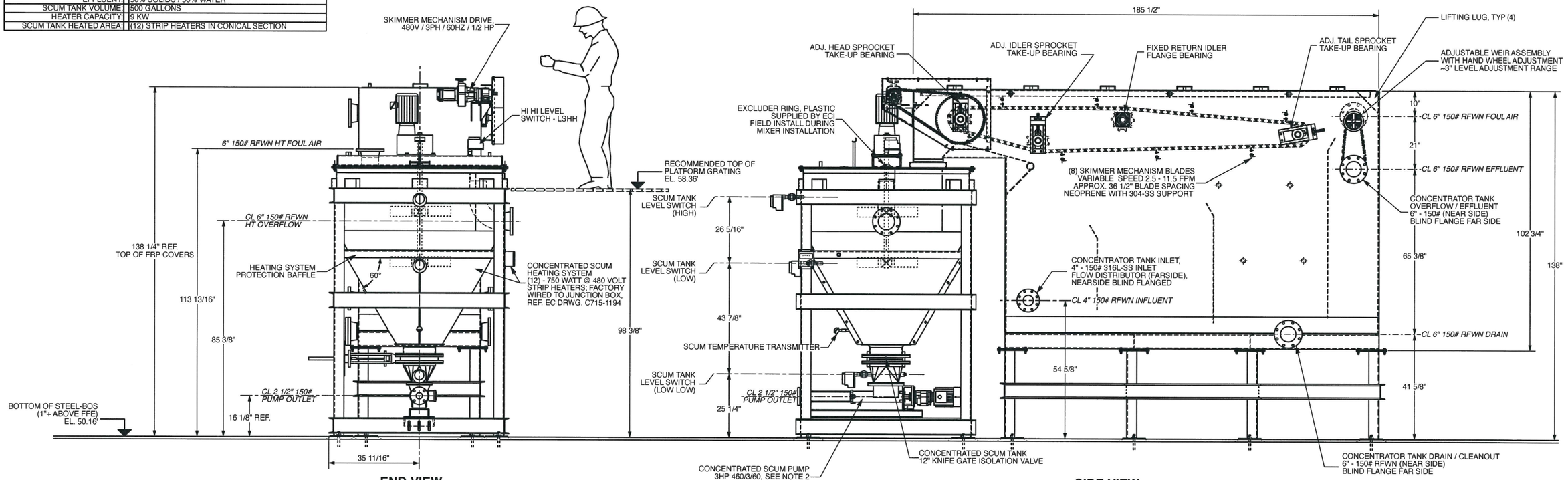
G. SPARE PARTS: TWO (2) BEARING ASSEMBLIES FOR SKIMMER TAKE-UPS, TWO (2) COLLECTOR CHAIN SPROCKETS, ONE (1) SKIMMER DRIVE CHAIN, AND ONE (1) SET REPLACEMENT WIPER BLADES

H. ONE (1) SCUM CONCENTRATOR CONTROL PANEL (LCP-700)



PLAN VIEW

END VIEW



SIDE VIEW

TOTAL MECHANICAL SERVICE CORPORATION PO NO. 2021-26, SPECIFICATION SECTION: 11317

NOTES:

1. ONE (1) MODEL 60-500 SCUM CONCENTRATOR ASSEMBLY SUPPLIED BY ENVIROCARE AND INSTALLED BY OTHERS.
2. PROGRESSIVE CAVITY PUMP SUPPLIED BY ENVIROCARE AND INSTALLED BY OTHERS.
3. ACCESS PLATFORM SUPPLIED AND INSTALLED BY OTHERS.
4. SEE DRAWING C100-1194 FOR PROCESS & INSTUMENTAION DETAILS.
5. SEE DRAWING C350-1194 FOR ASSEMBLY LAYOUT AND ANCHOR BOLT / LOADING DETAILS.
6. SEE DRAWING C700-1194 FOR SCUM CONCENTRATOR CONTROL PANEL DETAILS.

DOCUMENT RELEASE

☐ Preliminary Issue ☐ Certified for Construction
☒ For Customer Approval ☐ As Built
BY RAY DATE 12/16/21

SYM	REVISION DESCRIPTION	BY	APP	DATE

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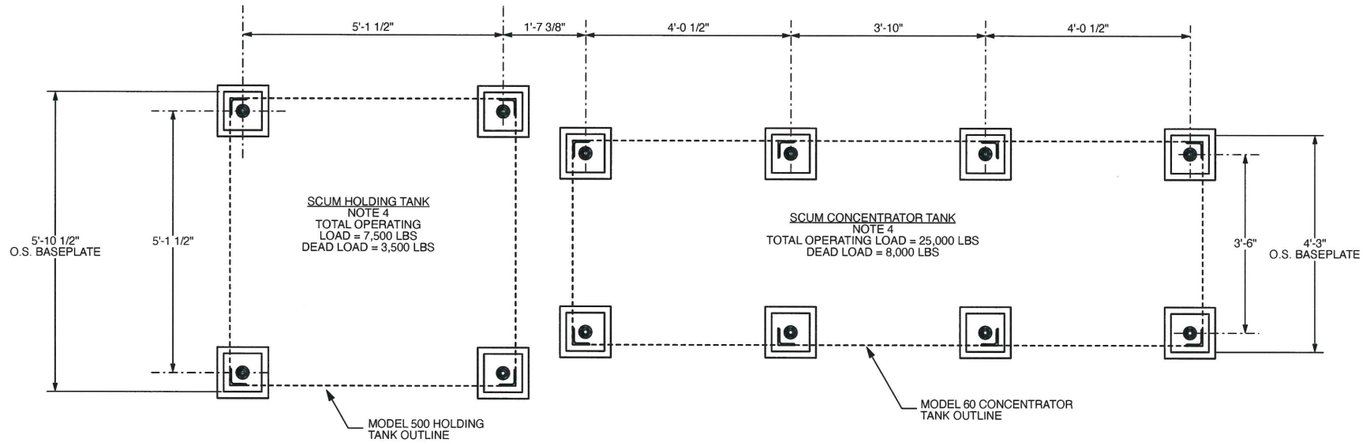
EnviroCare International
507 Green Island Road, American Canyon, CA 94503
Tel: 707/638.6800 Fax: 707/638.6898

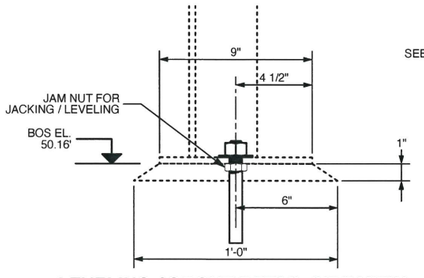
TITLE: **MODEL 60-500 SCUM CONCENTRATOR GENERAL ARRANGEMENT**

DRAWN	DCH	DATE	10.26.21
DESIGN	JTP	DATE	10.26.21
CHECK	JTP	DATE	10.26.21
APPR.	RAY	DATE	10.26.21
SCALE	NONE		

CLIENT: **TOTAL MECHANICAL SERVICE CORPORATION**
PROJECT: **TAUNTON WASTEWATER TREATMENT FACILITY IMPROVEMENTS 1 - MODEL 60-500 SCUM CONCENTRATOR**
CONTRACT NO. 1194
DRAWING NO. C300-1194
ISO A
SHEET 1 OF 1
REV 0

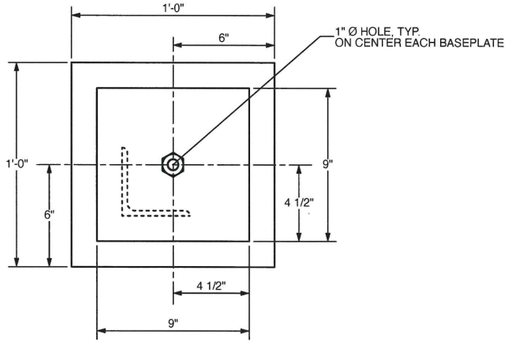


SCUM CONCENTRATOR ANCHOR BOLT LAYOUT PLAN VIEW



SEE NOTES 4 & 5

LEVELING / GROUT DETAIL SIDE VIEW



LEVELING / GROUT DETAIL PLAN VIEW

TOTAL MECHANICAL SERVICE CORPORATION PO NO. 2021-26, SPECIFICATION SECTION: 11317

NOTES:

1. SEE DRAWING C100-1194 FOR SCUM CONCENTRATOR PROCESS & INSTRUMENTATION DIAGRAM.
2. SEE DRAWING C300-1194 FOR SCUM CONCENTRATOR GENERAL ARRANGEMENT DETAILS.
3. 12 - 3/4" X 8"L EXPANSIONS ANCHORS SUPPLIED BY CONTRACTOR. RECOMMENDED BOLTS ARE HILTI KWIK BOLT EXPANSION ANCHOR 3/4" X 8" EMBEDMENT, 316-SS.
4. CONCRETE PIERS & PAD IS AS SUGGESTED DESIGN. FINAL DESIGN TO BE DETERMINED AND EXECUTED BY CONTRACTOR.

DOCUMENT RELEASE

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BY RAY DATE 12/16/21

SYM	REVISION DESCRIPTION	BY	APP	DATE

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EnviroCare International
507 Green Island Road, American Canyon, CA 94503
Tel: 707/638.6800 Fax: 707/638.6898

TITLE: **MODEL 60-500 SCUM CONCENTRATOR CONTACT SURFACE LAYOUT**

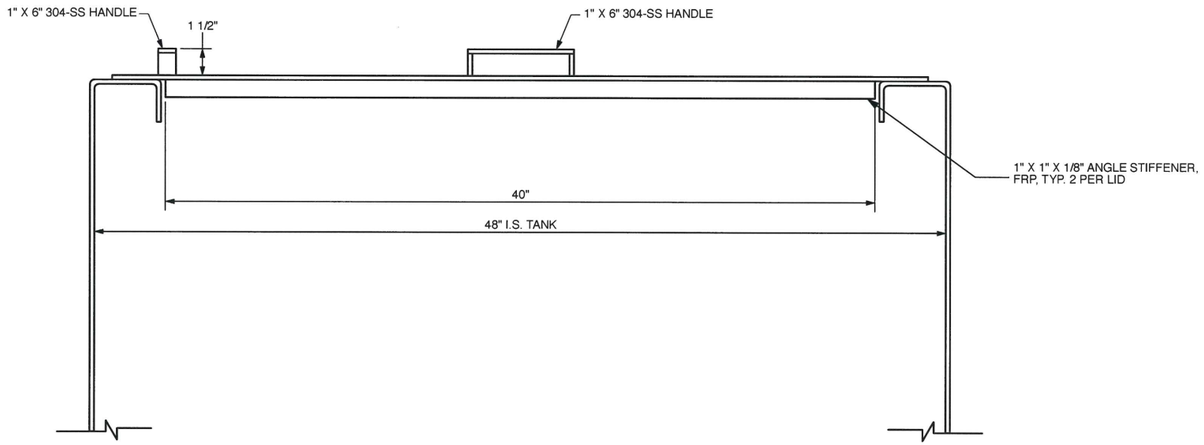
DRAWN	DCH	DATE	10.26.21
DESIGN	JTP	DATE	10.26.21
CHECK	JTP	DATE	10.26.21
APPR	RAY		10.26.21
SCALE	NONE		

CLIENT: **TOTAL MECHANICAL SERVICE CORPORATION**

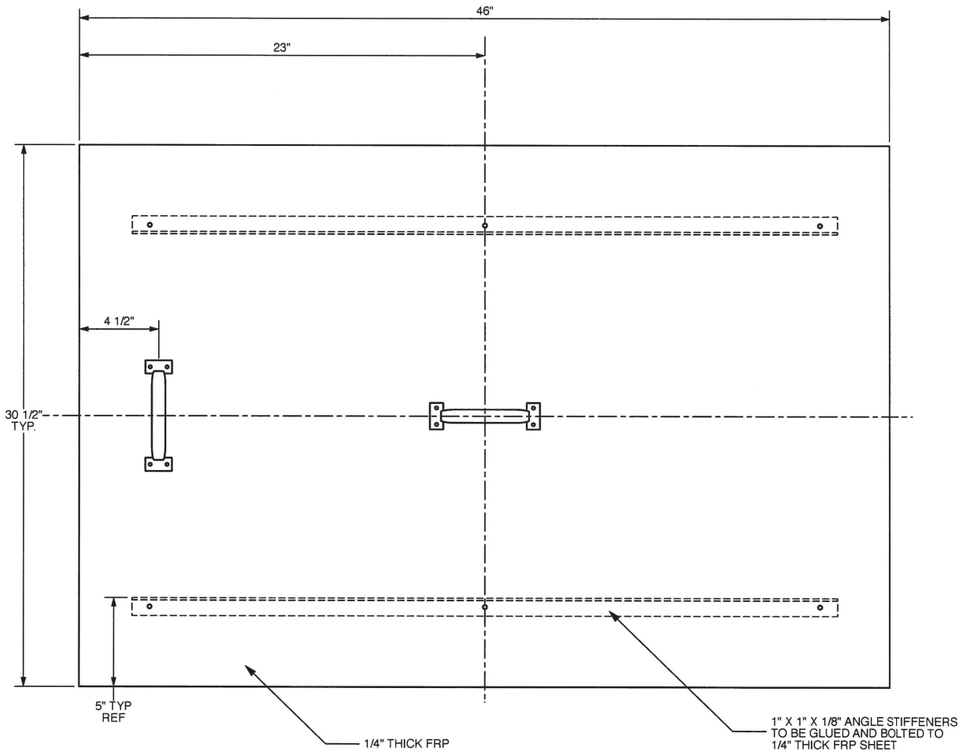
PROJECT: **TAUNTON WASTEWATER TREATMENT FACILITY IMPROVEMENTS 1 - MODEL 60-500 SCUM CONCENTRATOR**

CONTRACT NO. 1194 ISO A

DRAWING NO. C350-1194 SHEET 1 OF 1 REV 0



ODOR CONTAINMENT COVER ELEVATION VIEW



ODOR CONTAINMENT COVER PLAN VIEW

TOTAL MECHANICAL SERVICE CORPORATION PO NO. 2021-26, SPECIFICATION SECTION: 11317

NOTES:

1. QTY. SIX (6) FRP ODOR CONTAINMENT COVERS, SUPPLIED BY ENVIROCARE AND INSTALLED BY OTHERS.

   ESTIMATED WEIGHT EA. : 20 LBS.
2. THE LIDS ARE CUSTOM MANUFACTURED USING 1/4" THICK FRP SKIN AND AND ANGLE STIFFENER WITH PREMIUM GRADE VINYL ESTER RESIN.
3. THE COVERS ARE DESIGNED TO BE INDIVIDUALLY REMOVED EASILY FOR MONITORING THE PROCESS AND MAINTENANCE.
4. WORK WITH DRAWING C300-1194.

DOCUMENT RELEASE

☐ Preliminary Issue ☐ Certified for Construction
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BY RAY DATE 12/16/21

SYM	REVISION DESCRIPTION	BY	APP	DATE
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EnviroCare International
507 Green Island Road, American Canyon, CA 94503
Tel: 707/638.6800 Fax: 707/638.6898

TITLE: **CONCENTRATOR TANK FRP ODOR CONTAINMENT COVERS**

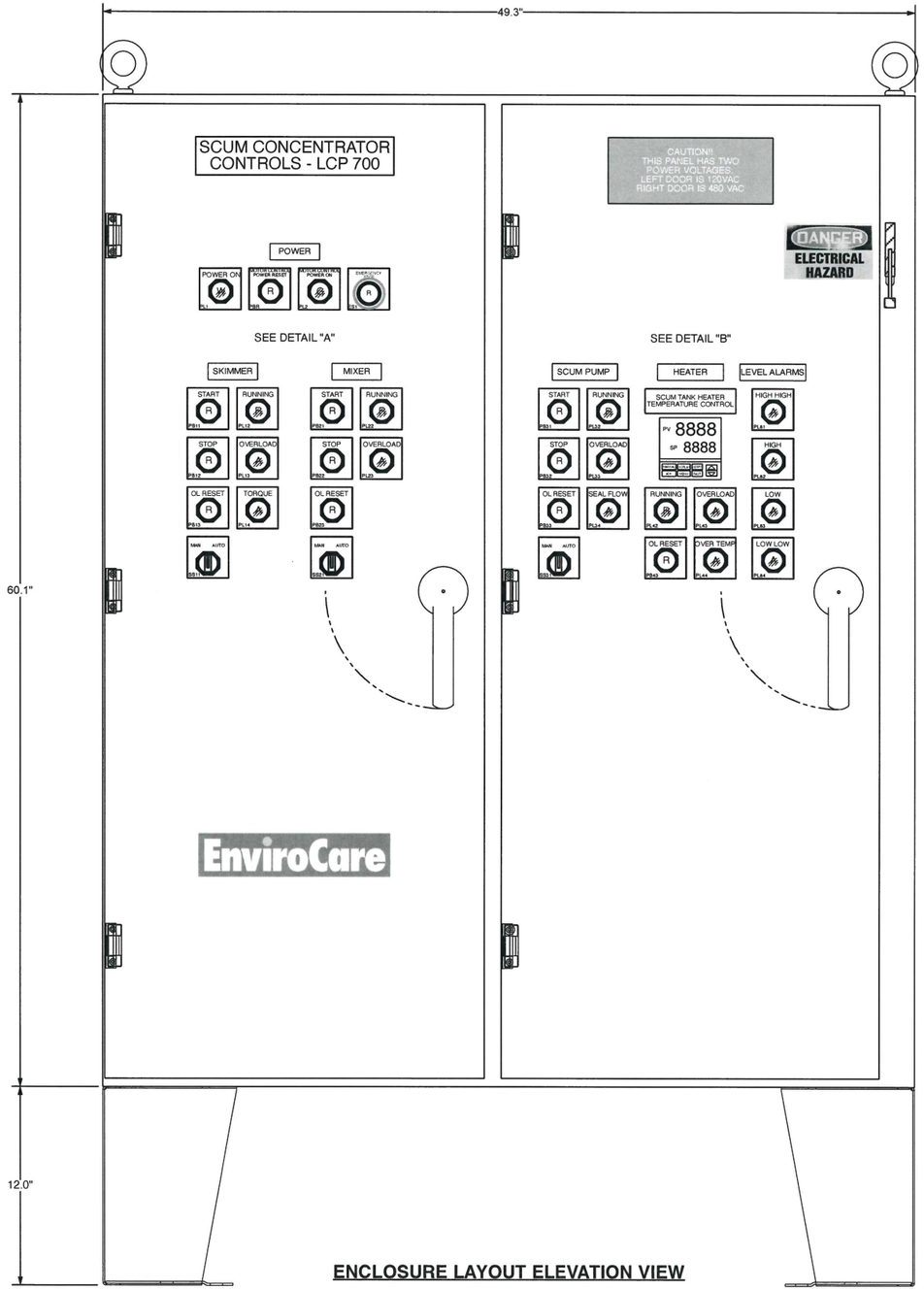
DRAWN	DCH	DATE	10.29.21
DESIGN	JTP	DATE	10.29.21
CHECK	JTP	DATE	10.29.21
APPR	RAY		10.29.21
SCALE	NOTED		

CLIENT: **TOTAL MECHANICAL SERVICE CORPORATION**

PROJECT: **TAUNTON WASTEWATER TREATMENT FACILITY IMPROVEMENTS 1 - MODEL 60-500 SCUM CONCENTRATOR**

CONTRACT NO. 1194 | ISO A

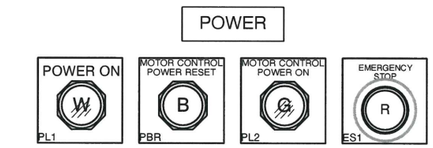
DRAWING NO. C550-1194 | SHEET 1 OF 1 | REV 0

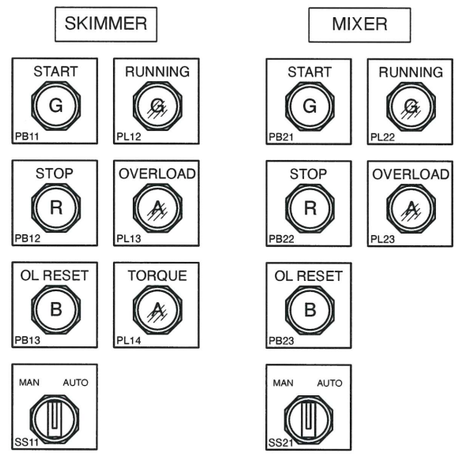


ENCLOSURE LAYOUT ELEVATION VIEW

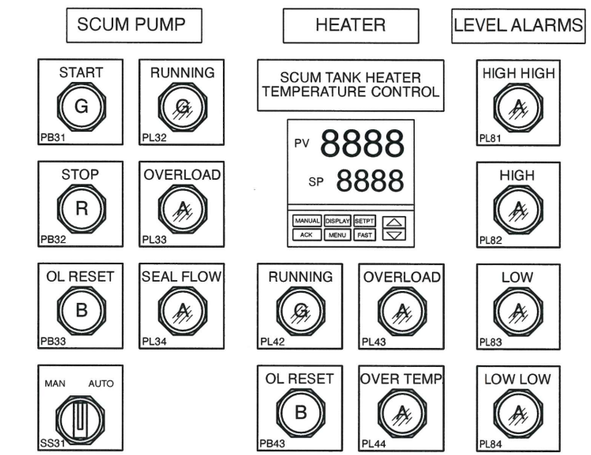
SCUM CONCENTRATOR CONTROLS - LCP 700

CAUTION!!
THIS PANEL HAS TWO
POWER VOLTAGES:
LEFT DOOR IS 120VAC
RIGHT DOOR IS 480 VAC

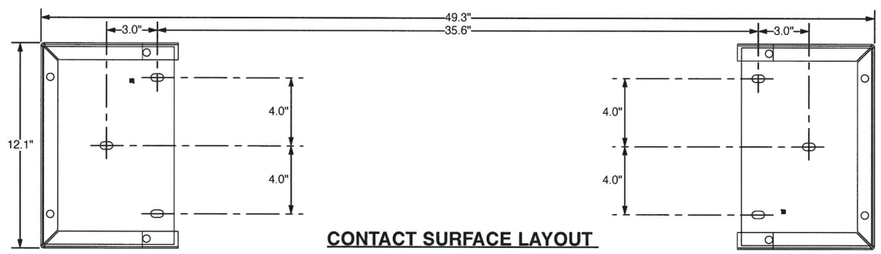




DETAIL A



DETAIL B



CONTACT SURFACE LAYOUT

TOTAL MECHANICAL SERVICE CORPORATION PO NO. 2021-26,
SPECIFICATION SECTION: 11317

U.S. PATENT NO.: 4,194,888
U.S. PATENT NO.: 6,719,829
U.S. PATENT NO.: 5,759,233
U.S. PATENT NO.: 5,279,646
OTHER U.S. PATENTS PENDING

NOTES:

1. THIS DRAWING IS REPRESENTATIVE OF ONE (1) LOCAL CONTROL PANEL. ONE (1) TOTAL PANEL IS SUPPLIED BY ENVIROCARE.
2. THE LOCAL CONTROL PANEL IS STANDALONE AND COMES WITH FLOORSTAND. MOUNT SHADED FROM DIRECT HEAT RADIATION.
3. ENCLOSURE IS NEMA 4X AND 304 SS. HOFFMAN PN# A60HX4912SSLPQT. APPROX. WEIGHT 630 LBS.
4. CONTROL PANEL IS LABELLED UL 508A.
5. ALL ASSOCIATED FIELD INSTRUMENTS WILL BE INSTALLED AND WIRED TO THE LOCAL CONTROL PANEL BY OTHERS.
6. ALL SHOWN MOTORS ARE FACTORY INSTALLED BUT WIRED TO LOCAL CONTROL PANEL BY OTHERS.
7. SEE DRAWING C701-1194 FOR BACK PANEL LAYOUT.

DOCUMENT RELEASE

☐ Preliminary Issue ☐ Certified for Construction
☒ For Customer Approval ☐ As Built
BY R.M. DATE 12/6/21

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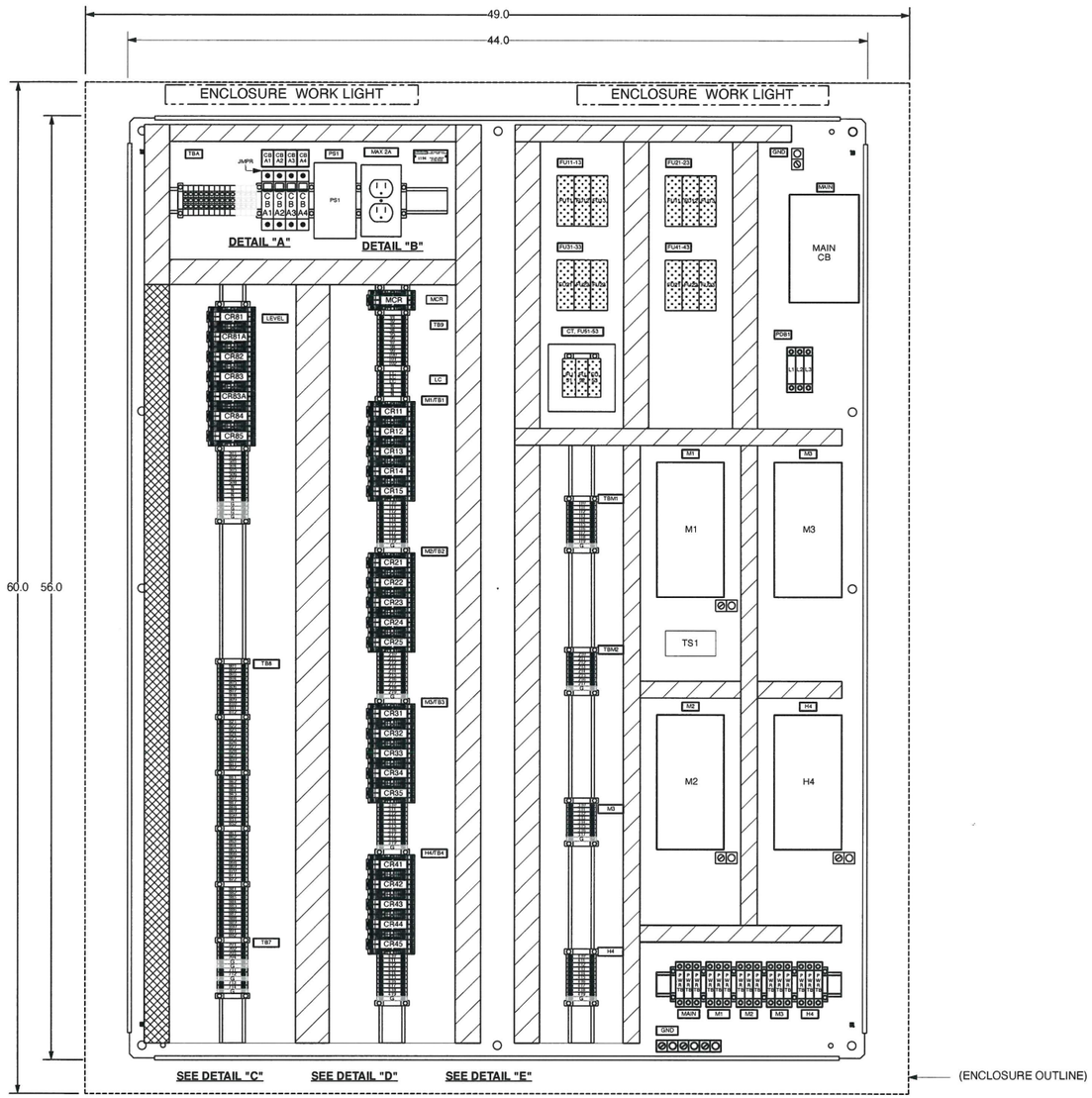
EnviroCare International
507 Green Island Road, American Canyon, CA 94503
Tel: 707/638.6800 Fax: 707/638.6898

TITLE: SCUM CONCENTRATOR LCP-700 ENCLOSURE FRONT ELEVATION

DRAWN: MP	DATE: 11.04.21	CLIENT: TOTAL MECHANICAL SERVICE CORPORATION	
DESIGN: MP	DATE: 11.04.21		
CHECK: JTP	DATE: 11.04.21	PROJECT: CITY OF TAUNTON WWTP, MA SCUM CONCENTRATOR CONTROL PANEL	
APPR: RAY	DATE: 11.04.21	CONTRACT NO: 1194	SIZE: D
SCALE: NONE		DRAWING NO: C700-1194	SHEET 1 OF 1 REV 0



BACK PANEL LAYOUT

TOTAL MECHANICAL SERVICE CORPORATION PO NO. 2021-26,
SPECIFICATION SECTION: 11317

U.S. PATENT NO.: 4,194,888
U.S. PATENT NO.: 6,719,829
U.S. PATENT NO.: 5,759,233
U.S. PATENT NO.: 5,279,646
OTHER U.S. PATENTS PENDING

NOTES:

= FIELD WIRING
= INTERNAL WIRING
= PANEL WIRING
= SKID WIRING
= FIELD WIRING
- REPRESENTS PANEL TERMINAL
- REPRESENTS LINE REFERENCE
- REPRESENTS DEVICE TERMINAL

DOCUMENT RELEASE

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BY R.Ray DATE 12/16/21

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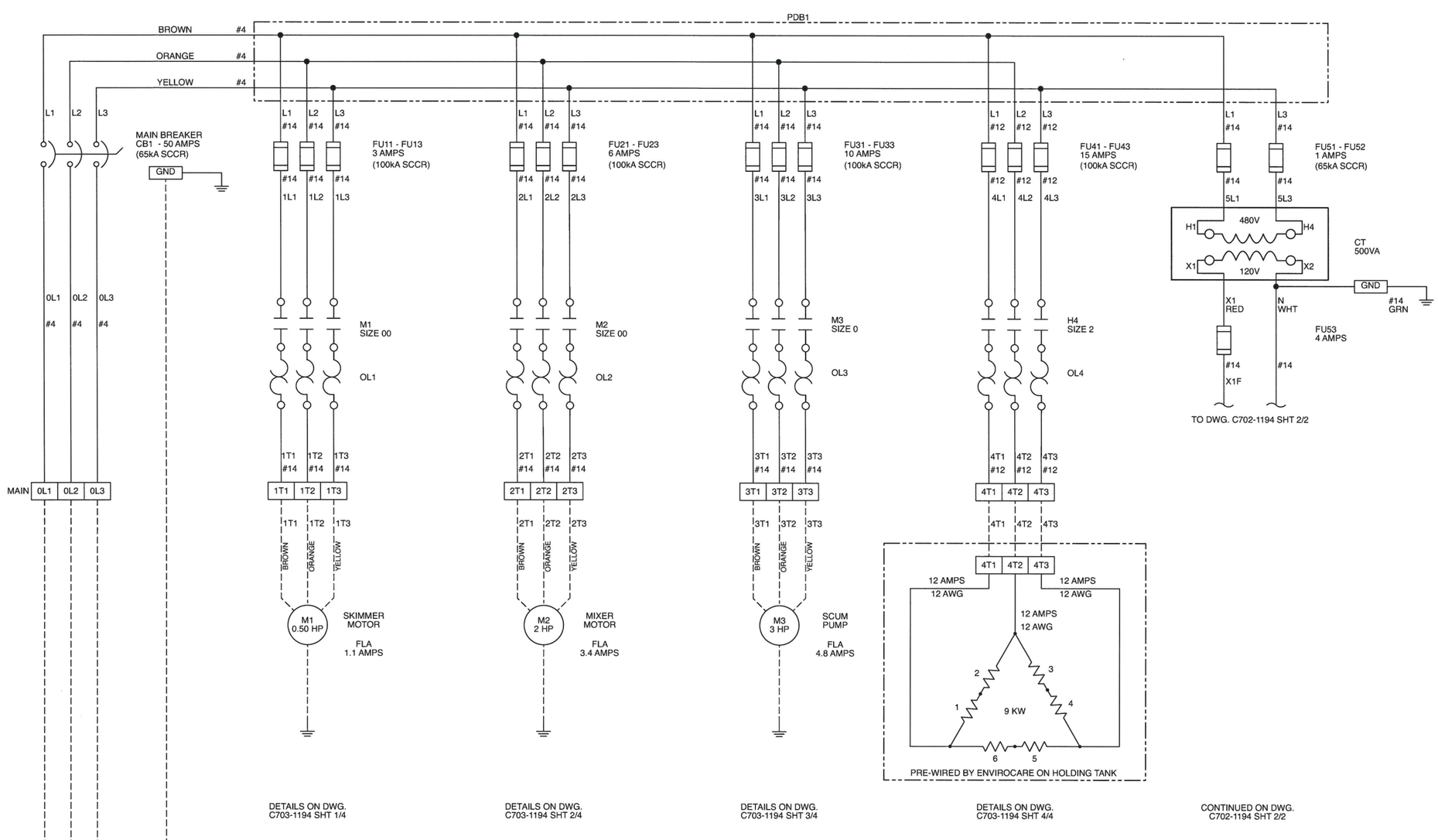
EnviroCare International
507 Green Island Road, American Canyon, CA 94503
Tel: 707/638.6800 Fax: 707/638.6898

TITLE: SCUM CONCENTRATOR LCP-700
ENCLOSURE BACK PANEL LAYOUT

DRAWN	MP	DATE	11.04.21
DESIGN	MP	DATE	11.04.21
CHECK	JTP	DATE	11.04.21
APPR.	RAY	DATE	11.04.21
SCALE	NONE		

CLIENT: TOTAL MECHANICAL SERVICE CORPORATION
PROJECT: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR CONTROL PANEL
CONTRACT NO. 1194
ISO E
DRAWING NO. C701-1194
SHEET 1 OF 1
REV 0



TOTAL MECHANICAL SERVICE CORPORATION PO NO. 2021-26,
SPECIFICATION SECTION: 11317

U.S. PATENT NO.: 6,719,829
U.S. PATENT NO.: 5,759,233
U.S. PATENT NO.: 5,279,646
OTHER U.S. PATENTS PENDING

NOTES:

- ——— = PANEL WIRING
- - - - = SKID WIRING
- – – – = FIELD WIRING
- ▭ - REPRESENTS PANEL TERMINAL
- ⬡ - REPRESENTS LINE REFERENCE
- ○ - REPRESENTS DEVICE TERMINAL
- [1] - CUT SHIELD, FOLD BACK, HEAT SHRINK
- [2] - MOUNT IN FRONT DOOR

DOCUMENT RELEASE

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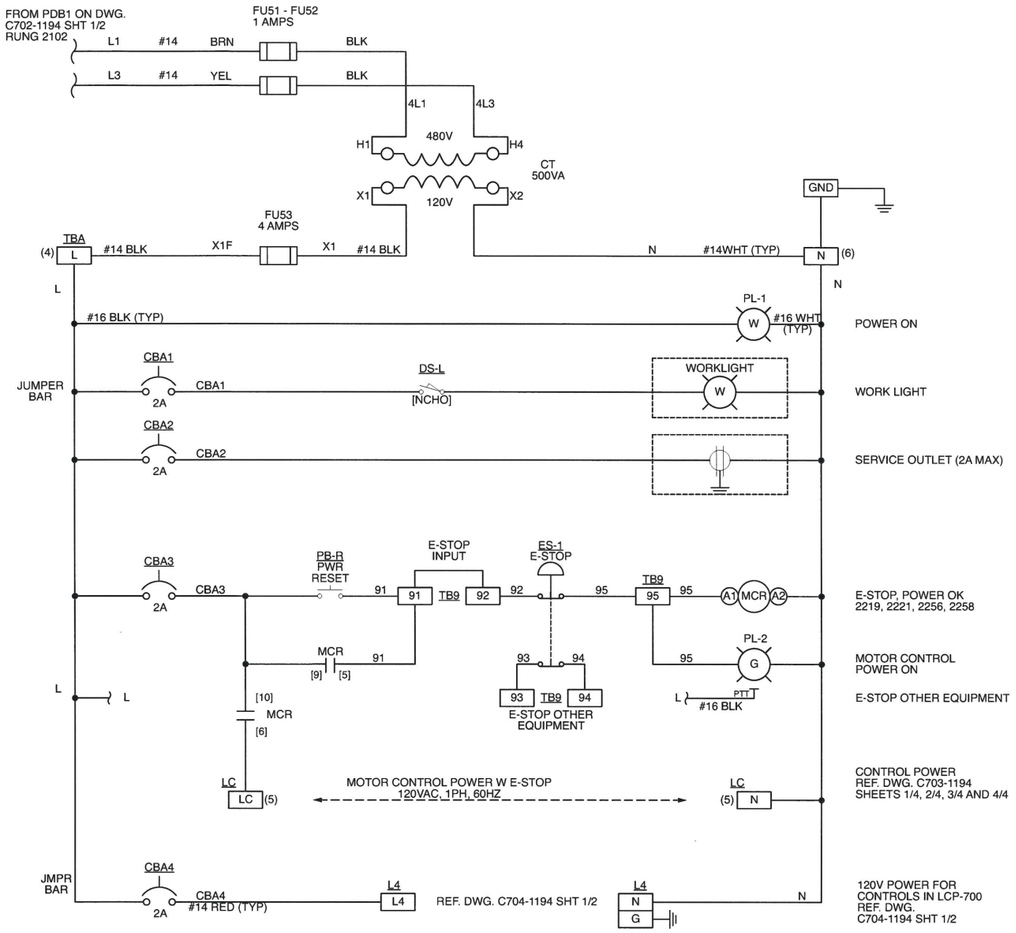
EnviroCare International
507 Green Island Road, American Canyon, CA 94503
Tel: 707/638.6800 Fax: 707/638.6898

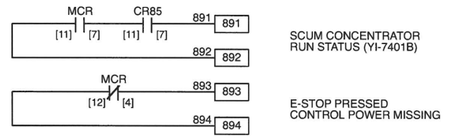
TITLE: CONTROL PANEL POWER DISTRIBUTION 480VAC THREE LINE

DRAWN	MP	DATE	11.04.21
DESIGN	MP	DATE	11.04.21
CHECK	JTP	DATE	11.04.21
APPR	RAY	DATE	11.04.21
SCALE	NONE		

CLIENT: TOTAL MECHANICAL SERVICE CORPORATION
PROJECT: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR CONTROL PANEL
CONTRACT NO: 1194
DRAWING NO: C702-1194
SHEET 1 OF 2
REV 0

MOTOR CONTROL IN 480 V SECTION (RIGHT DOOR) LCP-4100A





NOTES:

- ——— = PANEL WIRING
- – – – = SKID WIRING
- – – – = FIELD WIRING
- ▭ - REPRESENTS PANEL TERMINAL
- ⬡ - REPRESENTS LINE REFERENCE
- ○ - REPRESENTS DEVICE TERMINAL
- [1] - CUT SHIELD, FOLD BACK, HEAT SHRINK
- [2] - MOUNT IN FRONT DOOR

DOCUMENT RELEASE

☐ Preliminary Issue ☐ Certified for Construction
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BY RAS DATE 12/16/21

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TOTAL MECHANICAL SERVICE CORPORATION PO NO. 2021-26,
SPECIFICATION SECTION: 11317

U.S. PATENT NO.: 6,719,829
U.S. PATENT NO.: 5,759,233
U.S. PATENT NO.: 5,279,646
OTHER U.S. PATENTS PENDING

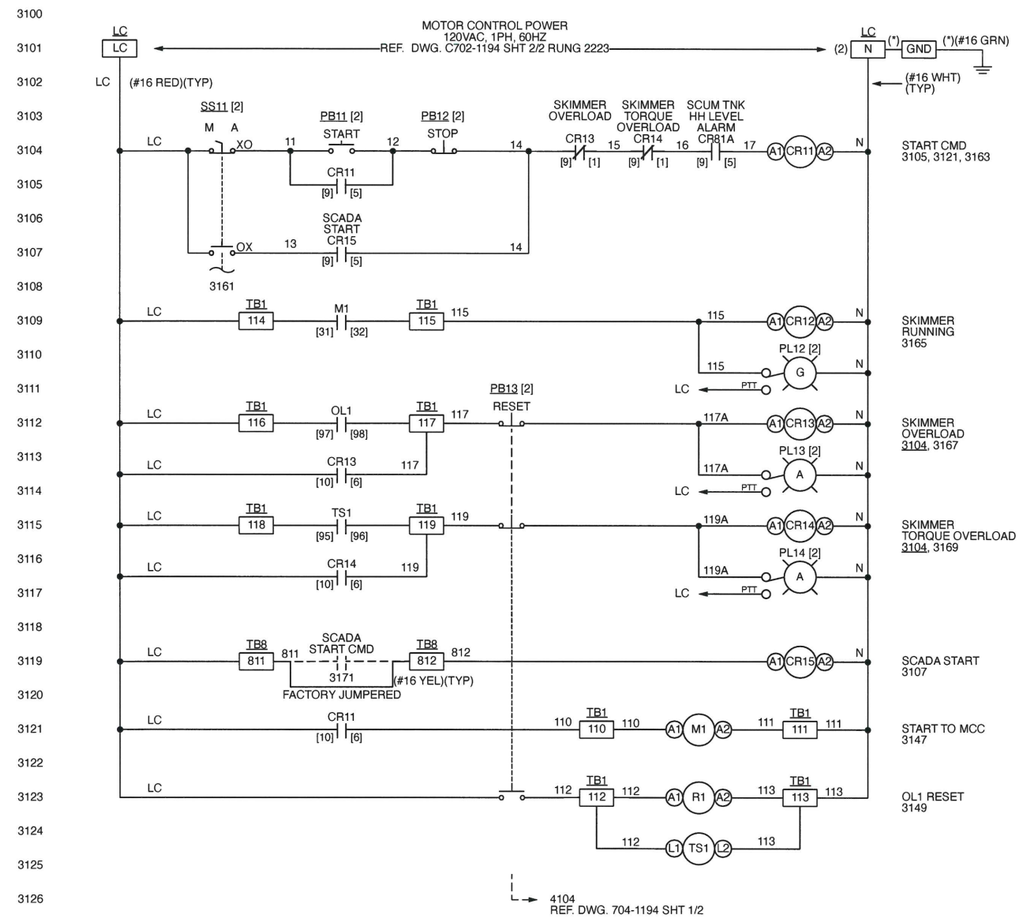
EnviroCare International
507 Green Island Road, American Canyon, CA 94503
Tel: 707/638.6800 Fax: 707/638.6898

TITLE: CONTROL PANEL POWER DISTRIBUTION TRANSFORMER 480/120 & E-STOP

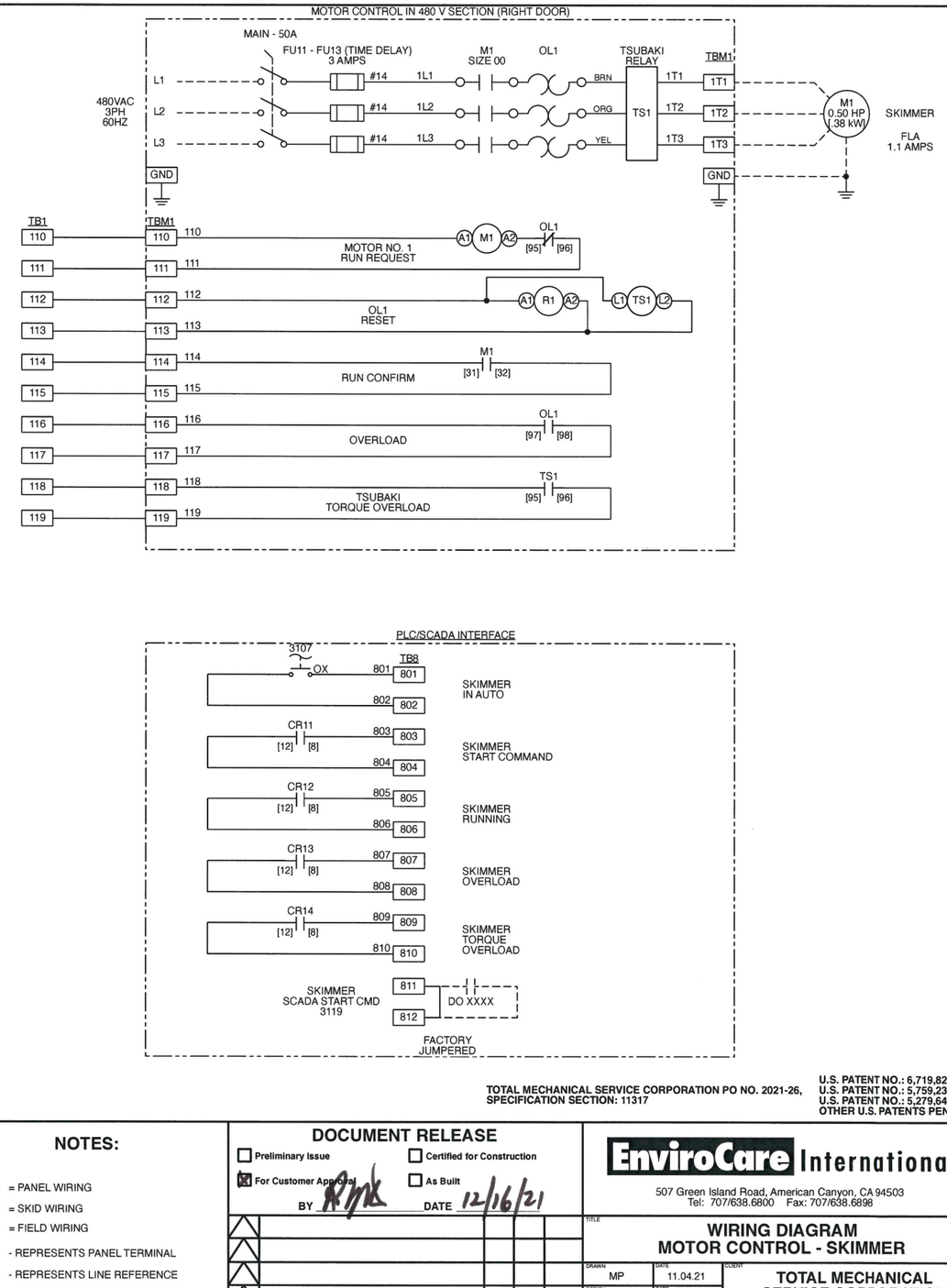
DRAWN	MP	DATE	11.04.21
DESIGN	MP	DATE	11.04.21
CHECK	JTP	DATE	11.04.21
APPR	RAY	DATE	11.04.21
SCALE	NONE		

CLIENT: TOTAL MECHANICAL SERVICE CORPORATION
PROJECT: CITY OF TAUNTON WWTP, MA SCUM CONCENTRATOR CONTROL PANEL
CONTRACT NO.: 1194
ISO'E
DRAWING NO.: C702-1194
SHEET 2 OF 2
REV 0

MOTOR CONTROL IN 120 V SECTION (LEFT DOOR)



MOTOR CONTROL IN 480 V SECTION (RIGHT DOOR)



PLC/SCADA INTERFACE

TOTAL MECHANICAL SERVICE CORPORATION PO NO. 2021-26,
SPECIFICATION SECTION: 11317

U.S. PATENT NO.: 6,719,829
U.S. PATENT NO.: 5,759,233
U.S. PATENT NO.: 5,279,646
OTHER U.S. PATENTS PENDING

NOTES:

- ——— = PANEL WIRING
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- - - - - = FIELD WIRING
- ▭ - REPRESENTS PANEL TERMINAL
- ⬡ - REPRESENTS LINE REFERENCE
- ○ - REPRESENTS DEVICE TERMINAL
- [1] - CUT SHIELD, FOLD BACK, HEAT SHRINK
- [2] - MOUNT IN FRONT DOOR

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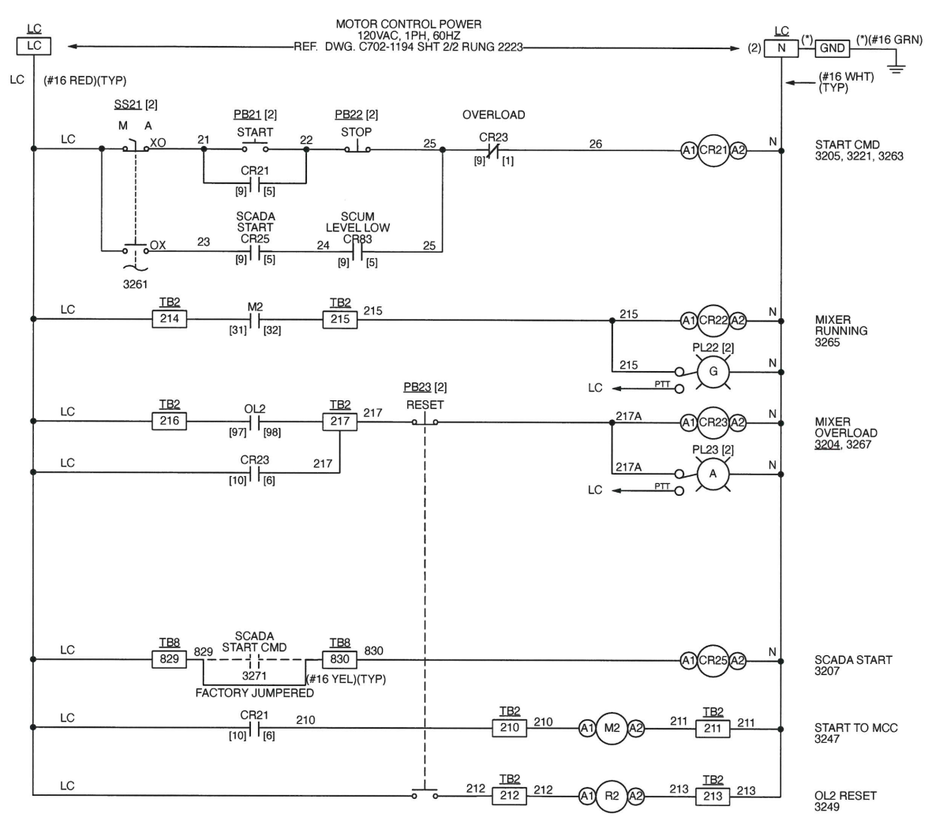
EnviroCare International
507 Green Island Road, American Canyon, CA 94503
Tel: 707/638.6800 Fax: 707/638.6898

TITLE: **WIRING DIAGRAM MOTOR CONTROL - SKIMMER**

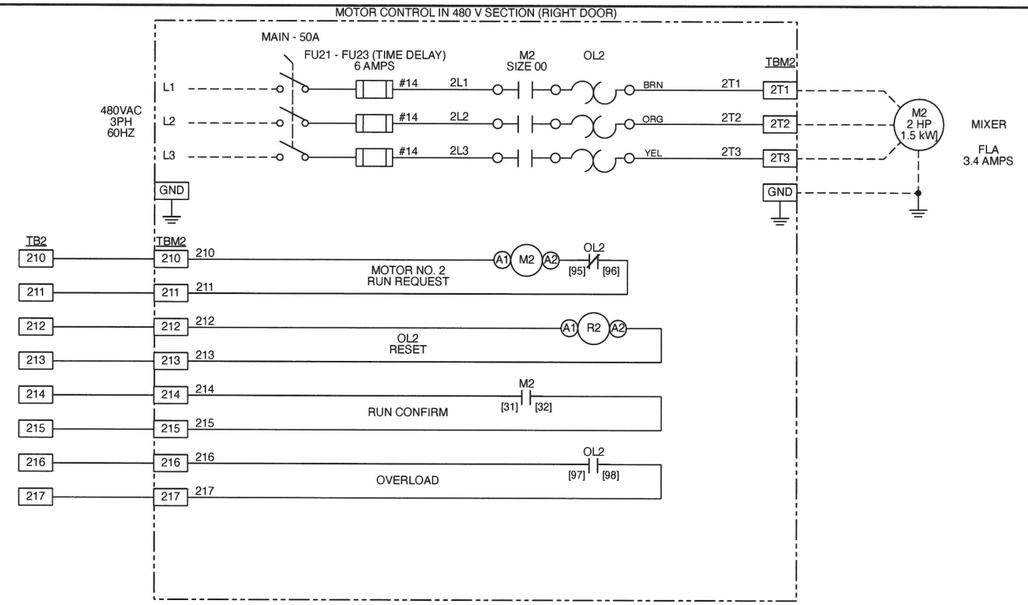
DRAWN	MP	DATE	11.04.21
DESIGN	MP	DATE	11.04.21
CHECK	JTP	DATE	11.04.21
APPR	RAY	DATE	11.04.21
SCALE	NONE		

CLIENT: **TOTAL MECHANICAL SERVICE CORPORATION**
PROJECT: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR CONTROL PANEL
CONTRACT NO. 1194
DRAWING NO. C703-1194
SIDE
SHEET 1 OF 4
REV 0

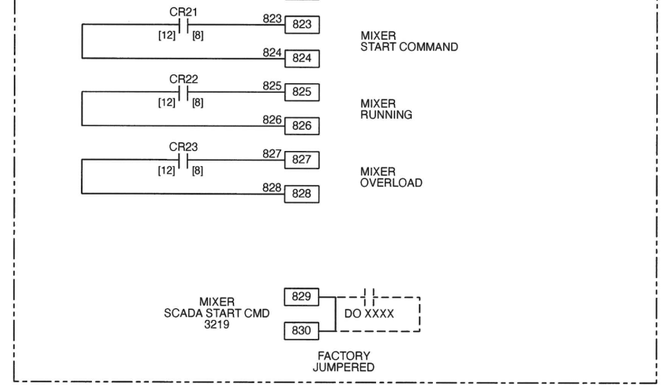
MOTOR CONTROL IN 120 V SECTION (LEFT DOOR)



MOTOR CONTROL IN 480 V SECTION (RIGHT DOOR)



PLC/SCADA INTERFACE



TOTAL MECHANICAL SERVICE CORPORATION PO NO. 2021-26,
SPECIFICATION SECTION: 11317

U.S. PATENT NO.: 6,719,829
U.S. PATENT NO.: 5,759,233
U.S. PATENT NO.: 5,279,646
OTHER U.S. PATENTS PENDING

NOTES:

- ——— = PANEL WIRING
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- ▭ - REPRESENTS PANEL TERMINAL
- ⬡ - REPRESENTS LINE REFERENCE
- ○ - REPRESENTS DEVICE TERMINAL
- [1] - CUT SHIELD, FOLD BACK, HEAT SHRINK
- [2] - MOUNT IN FRONT DOOR

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☑ For Customer Approval ☐ As Built
BY RAY DATE 12/16/21

SYM	REVISION DESCRIPTION	BY	APP	DATE

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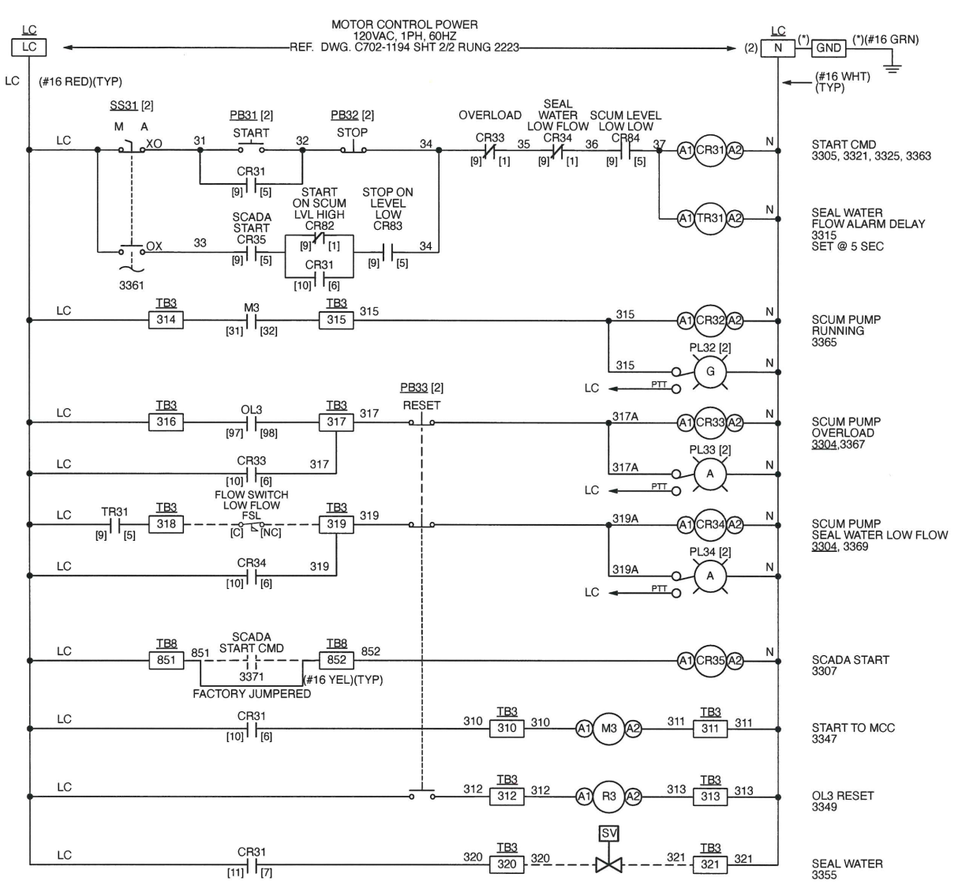
507 Green Island Road, American Canyon, CA 94503
Tel: 707/638.6800 Fax: 707/638.6898

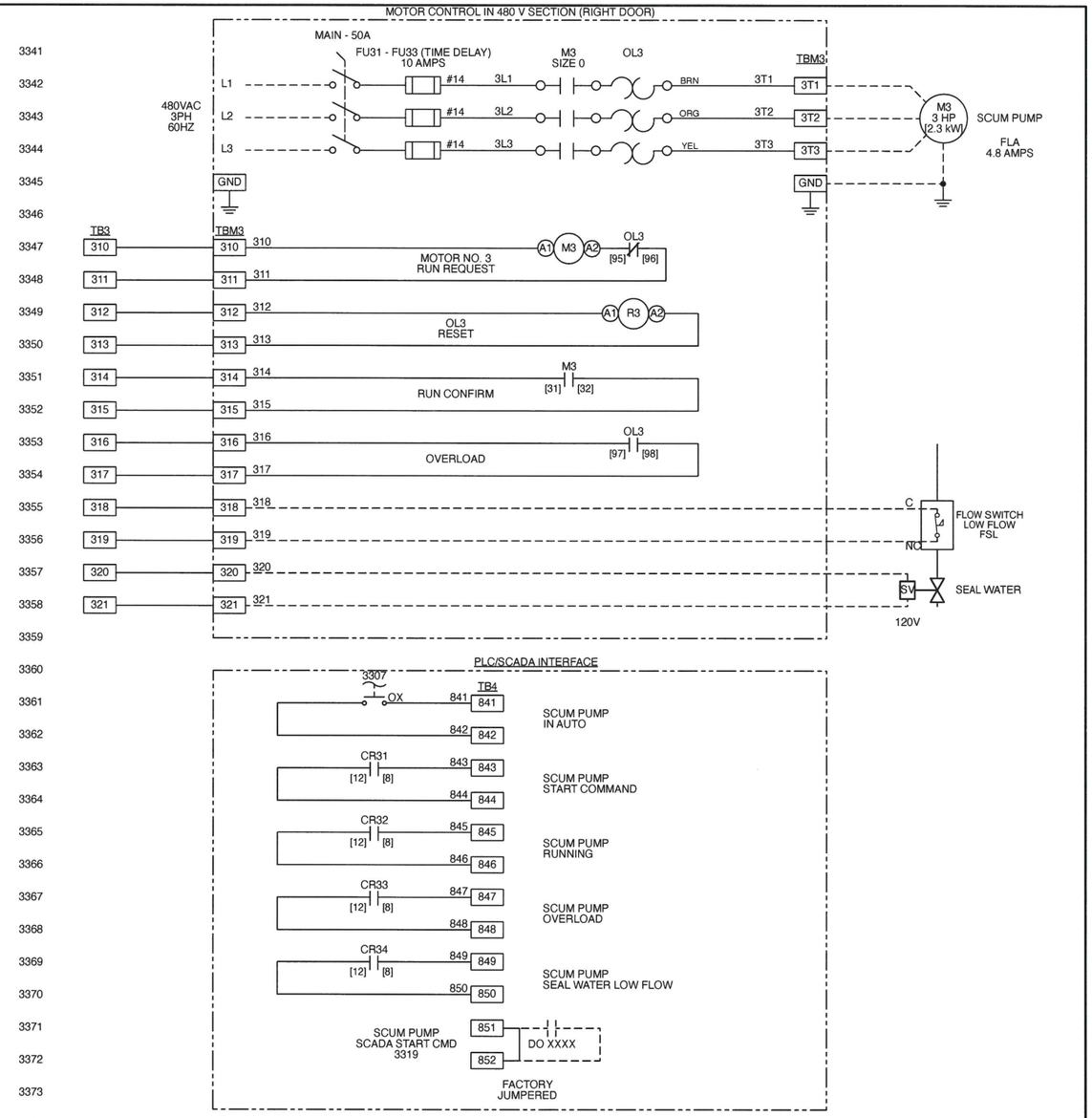
TITLE: **WIRING DIAGRAM MOTOR CONTROL - MIXER**

DRAWN MP	DATE 11.04.21	CLIENT	TOTAL MECHANICAL SERVICE CORPORATION
DESIGN MP	DATE 11.04.21		
CHECK JTP	DATE 11.04.21	PROJECT	CITY OF TAUNTON WWTP, MA SCUM CONCENTRATOR CONTROL PANEL
APPR RAY	DATE 11.04.21	CONTRACT NO 1194	SIZE
SCALE NONE		DRAWING NO C703-1194	SHEET 2 OF 4 REV 0

MOTOR CONTROL IN 120 V SECTION (LEFT DOOR)



MOTOR CONTROL IN 480 V SECTION (RIGHT DOOR)



TOTAL MECHANICAL SERVICE CORPORATION PO NO. 2021-26,
SPECIFICATION SECTION: 11317

U.S. PATENT NO.: 6,719,829
U.S. PATENT NO.: 5,759,233
U.S. PATENT NO.: 5,279,646
OTHER U.S. PATENTS PENDING

NOTES:

- ——— = PANEL WIRING
- - - - - = SKID WIRING
- – – – – = FIELD WIRING
- ▭ - REPRESENTS PANEL TERMINAL
- ⬡ - REPRESENTS LINE REFERENCE
- ○ - REPRESENTS DEVICE TERMINAL
- [1] - CUT SHIELD, FOLD BACK, HEAT SHRINK
- [2] - MOUNT IN FRONT DOOR

DOCUMENT RELEASE

☐ Preliminary Issue ☐ Certified for Construction
☑ For Customer Approval ☐ As Built
BY RAY DATE 12/16/21

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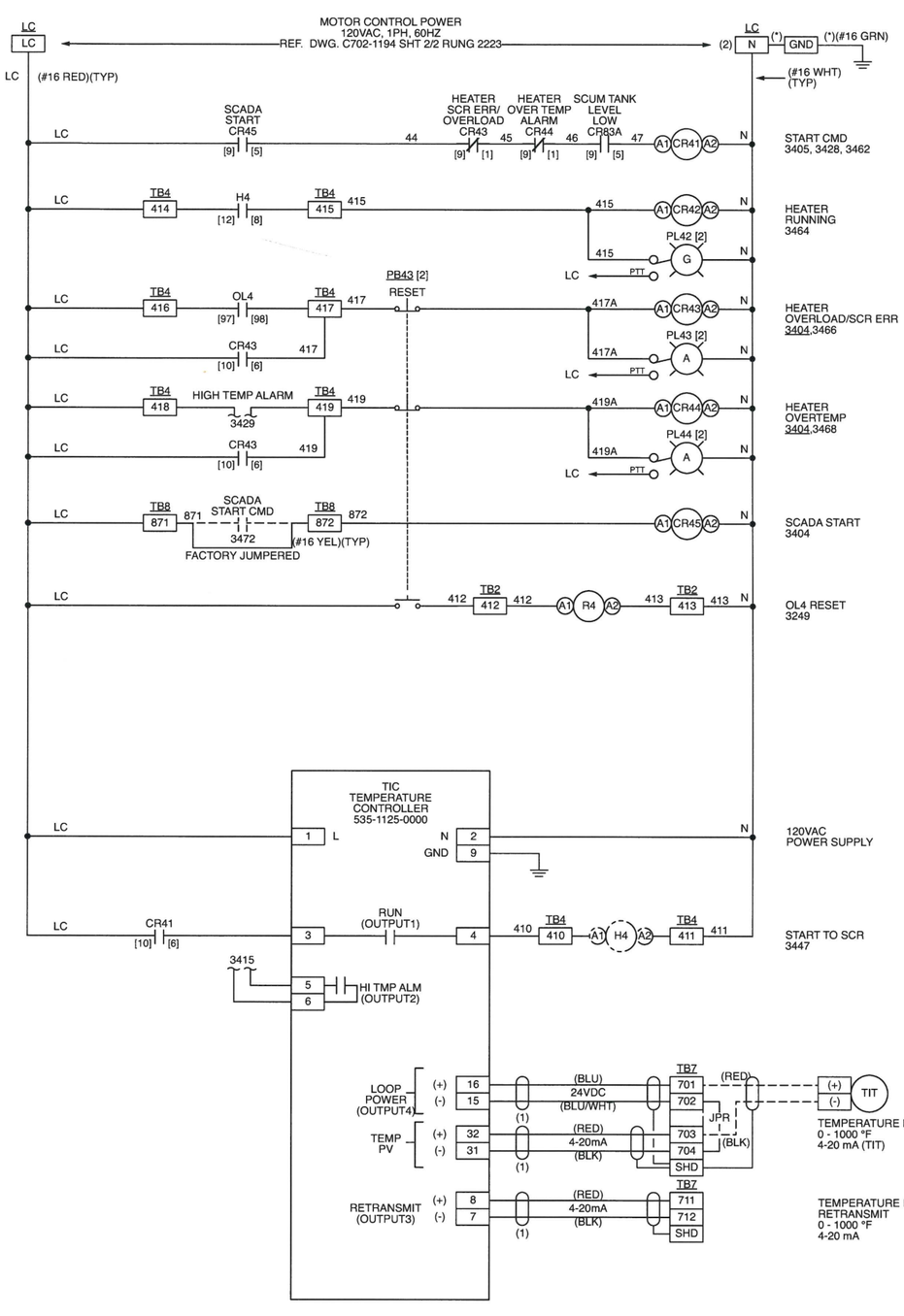
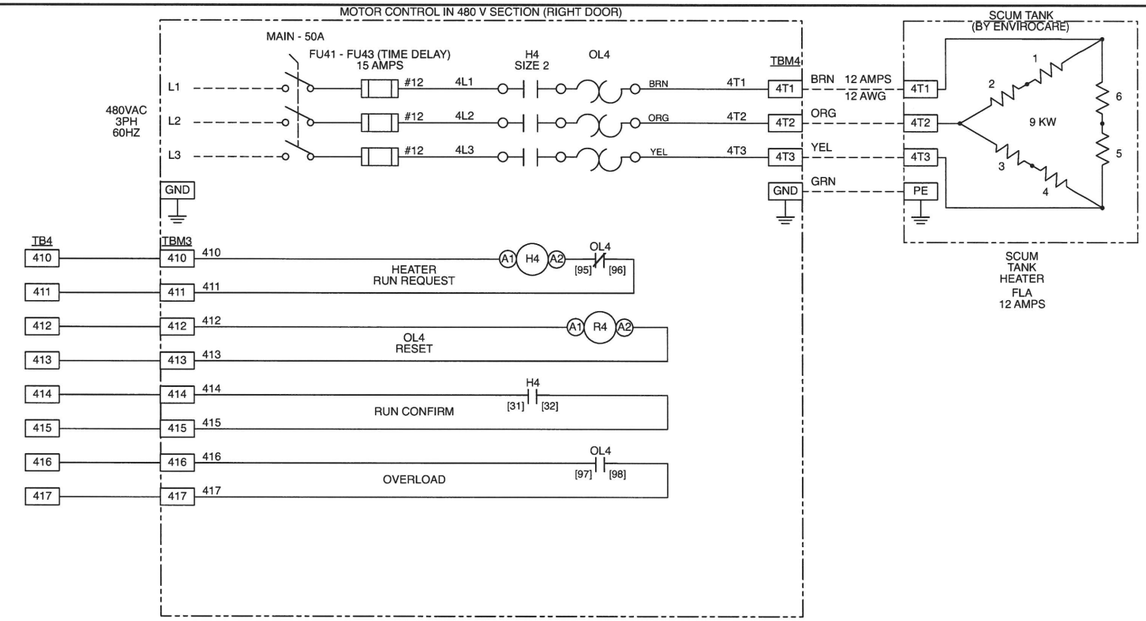
TITLE: **WIRING DIAGRAM MOTOR CONTROL - SCUM PUMP**

DRAWN: MP	DATE: 11.04.21	CLIENT: TOTAL MECHANICAL SERVICE CORPORATION	
DESIGN: MP	DATE: 11.04.21		
CHECK: JTP	DATE: 11.04.21	PROJECT: CITY OF TAUNTON WWTP, MA SCUM CONCENTRATOR CONTROL PANEL	
APPR: RAY	DATE: 11.04.21	CONTRACT NO.: 1194	ISO
SCALE: NONE		DRAWING NO.: C703-1194	SHEET 3 OF 4 REV 0

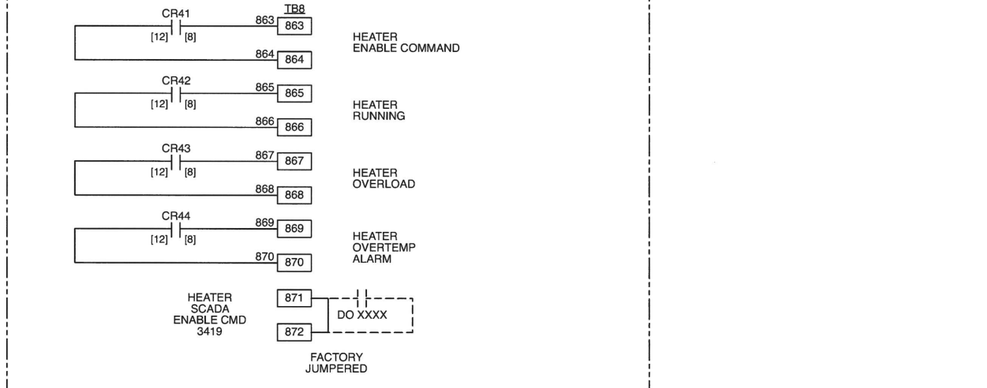
MOTOR CONTROL IN 120 V SECTION (LEFT DOOR)



MOTOR CONTROL IN 480 V SECTION (RIGHT DOOR)



PLC/SCADA INTERFACE



TOTAL MECHANICAL SERVICE CORPORATION PO NO. 2021-26,
SPECIFICATION SECTION: 11317

U.S. PATENT NO.: 6,719,829
U.S. PATENT NO.: 5,759,233
U.S. PATENT NO.: 5,279,646
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- [2] - MOUNT IN FRONT DOOR

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BY RJA DATE 12/16/21

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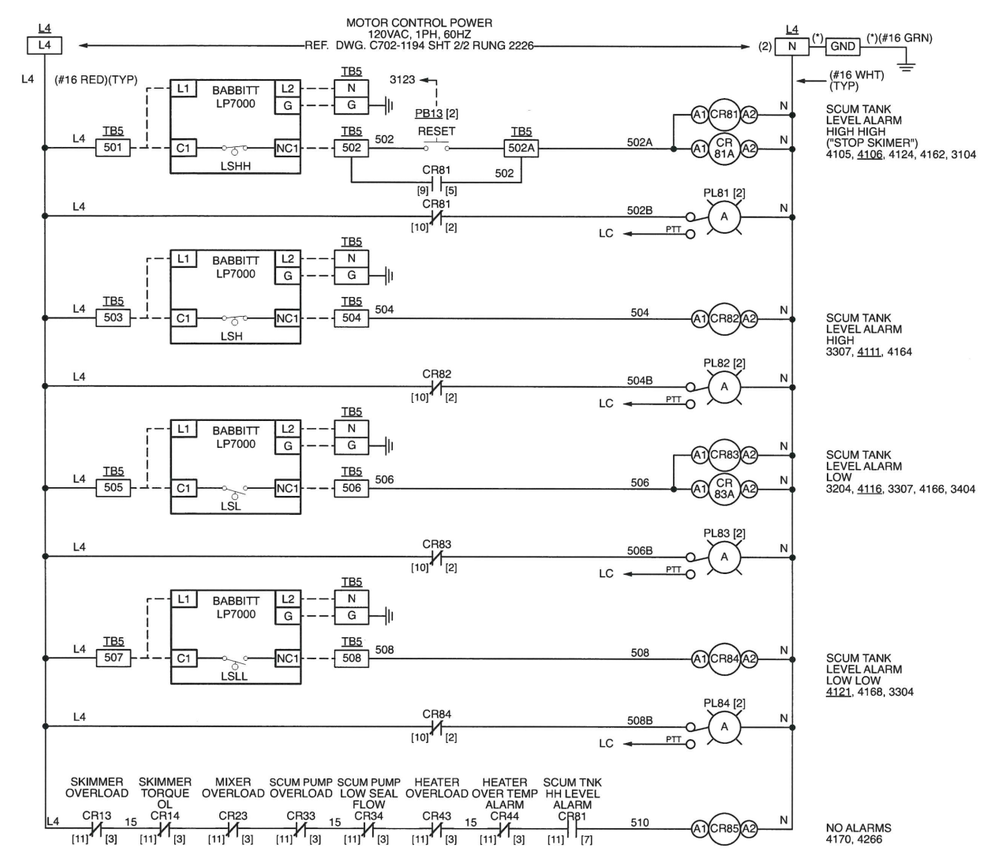
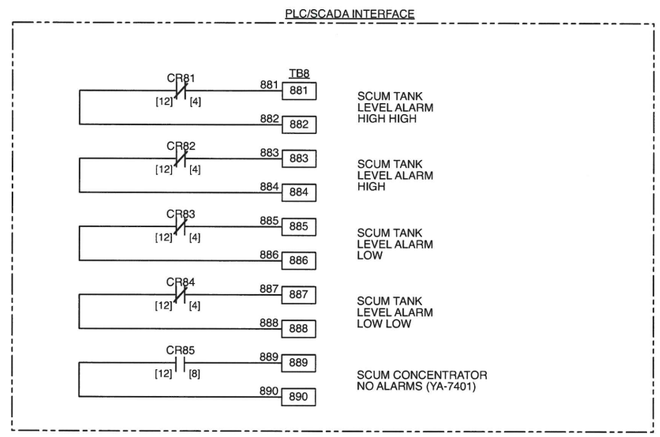
TITLE: WIRING DIAGRAM
HEATER CONTROL - SCUM HEATER

DRAWN	MP	DATE	11.04.21
DESIGN	MP	DATE	11.04.21
CHECK	JTP	DATE	11.04.21
APPR	RAY	DATE	11.04.21
SCALE	NONE		

CLIENT: TOTAL MECHANICAL SERVICE CORPORATION
PROJECT: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR CONTROL PANEL
CONTRACT NO. 1194
DRAWING NO. C703-1194
SHEET 4 OF 4
REV 0

MOTOR CONTROL IN 120 V SECTION (LEFT DOOR)





TOTAL MECHANICAL SERVICE CORPORATION PO NO. 2021-26,
SPECIFICATION SECTION: 11317

U.S. PATENT NO.: 6,719,829
U.S. PATENT NO.: 5,759,233
U.S. PATENT NO.: 5,279,646
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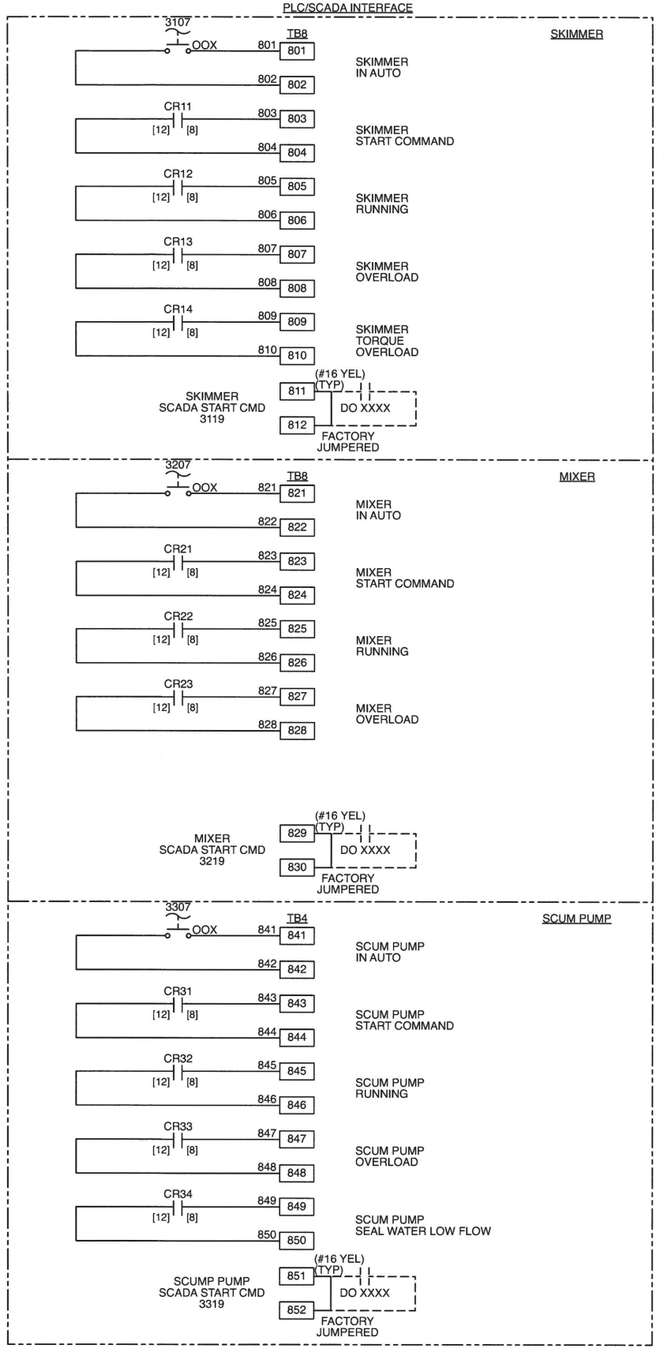
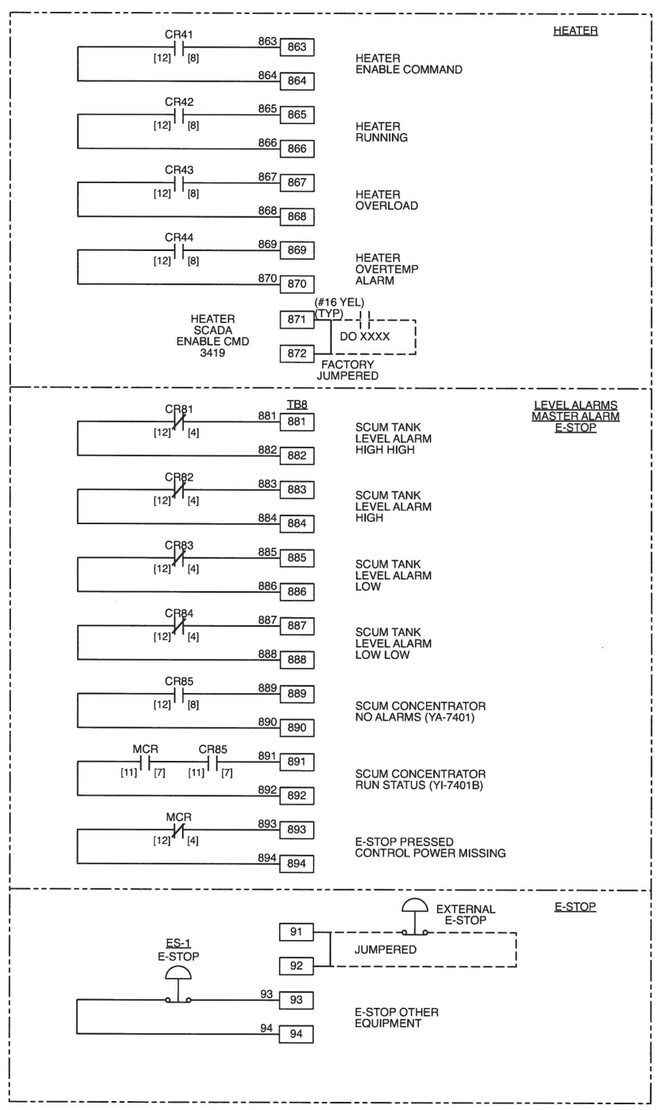
Tel: 707/638.6800 Fax: 707/638.6898

TITLE: WIRING DIAGRAM LEVELS & ALARMS

DRAWN	MP	DATE	11.04.21
DESIGN	MP	DATE	11.04.21
CHECK	JTP	DATE	11.04.21
APPR	RAY	DATE	11.04.21
SCALE	NONE		

CLIENT: TOTAL MECHANICAL SERVICE CORPORATION
PROJECT: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR CONTROL PANEL
CONTRACT NO. 1194
ISO E
DRAWING NO. C704-1194
SHEET 1 OF 2
REV 0





TOTAL MECHANICAL SERVICE CORPORATION PO NO. 2021-26,
SPECIFICATION SECTION: 11317

U.S. PATENT NO.: 6,719,829
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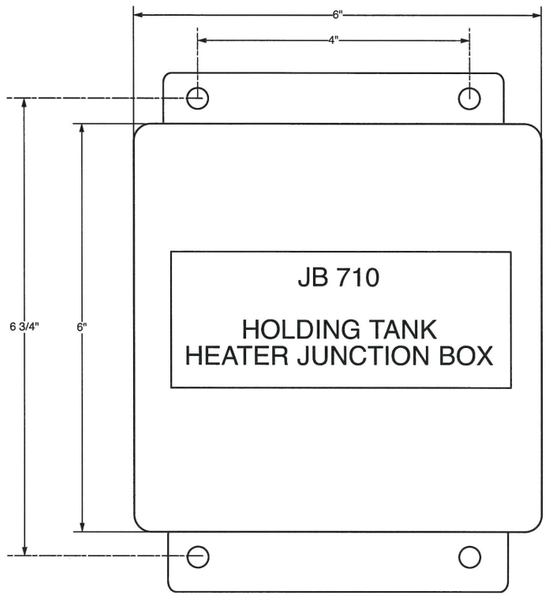
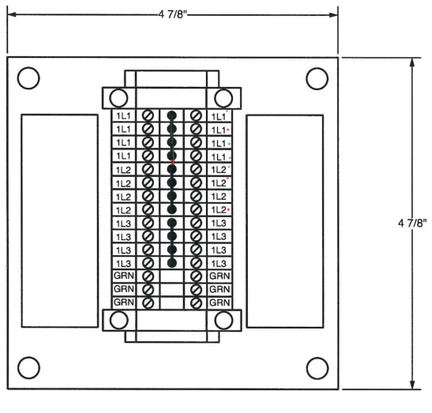
TITLE: WIRING DIAGRAM PLC SCADA INTERFACE

DRAWN	MP	DATE	11.04.21
DESIGN	MP	DATE	11.04.21
CHECK	JTP	DATE	11.04.21
APPR	RAY	DATE	11.04.21
SCALE	NONE		

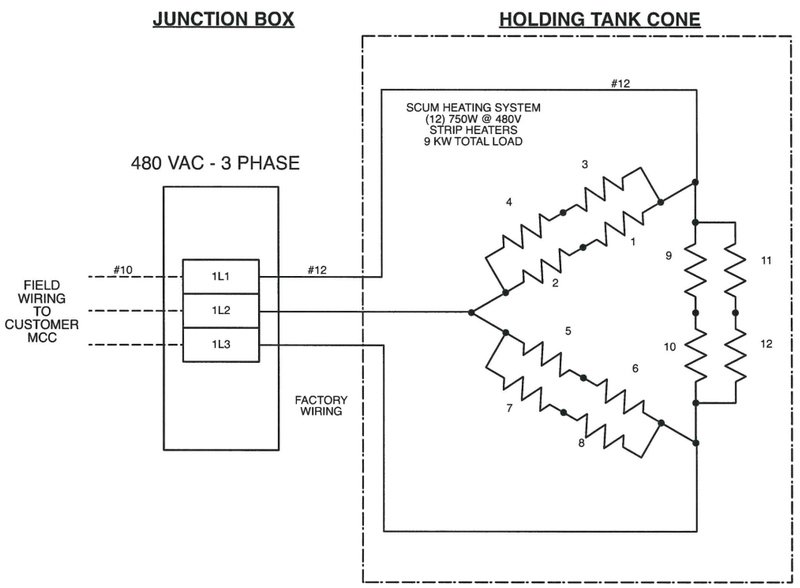
CLIENT: TOTAL MECHANICAL SERVICE CORPORATION
PROJECT: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR CONTROL PANEL
CONTRACT NO: 1194
DRAWING NO: C704-1194
SHEET 2 OF 2
REV 0



ENCLOSURE
HOFFMAN - A-606CHNF



BACK PANEL



SCHEMATIC

TOTAL MECHANICAL SERVICE CORPORATION PO NO. 2021-26,
SPECIFICATION SECTION: 11317

U.S. PATENT NO.: 6,719,829
U.S. PATENT NO.: 5,759,233
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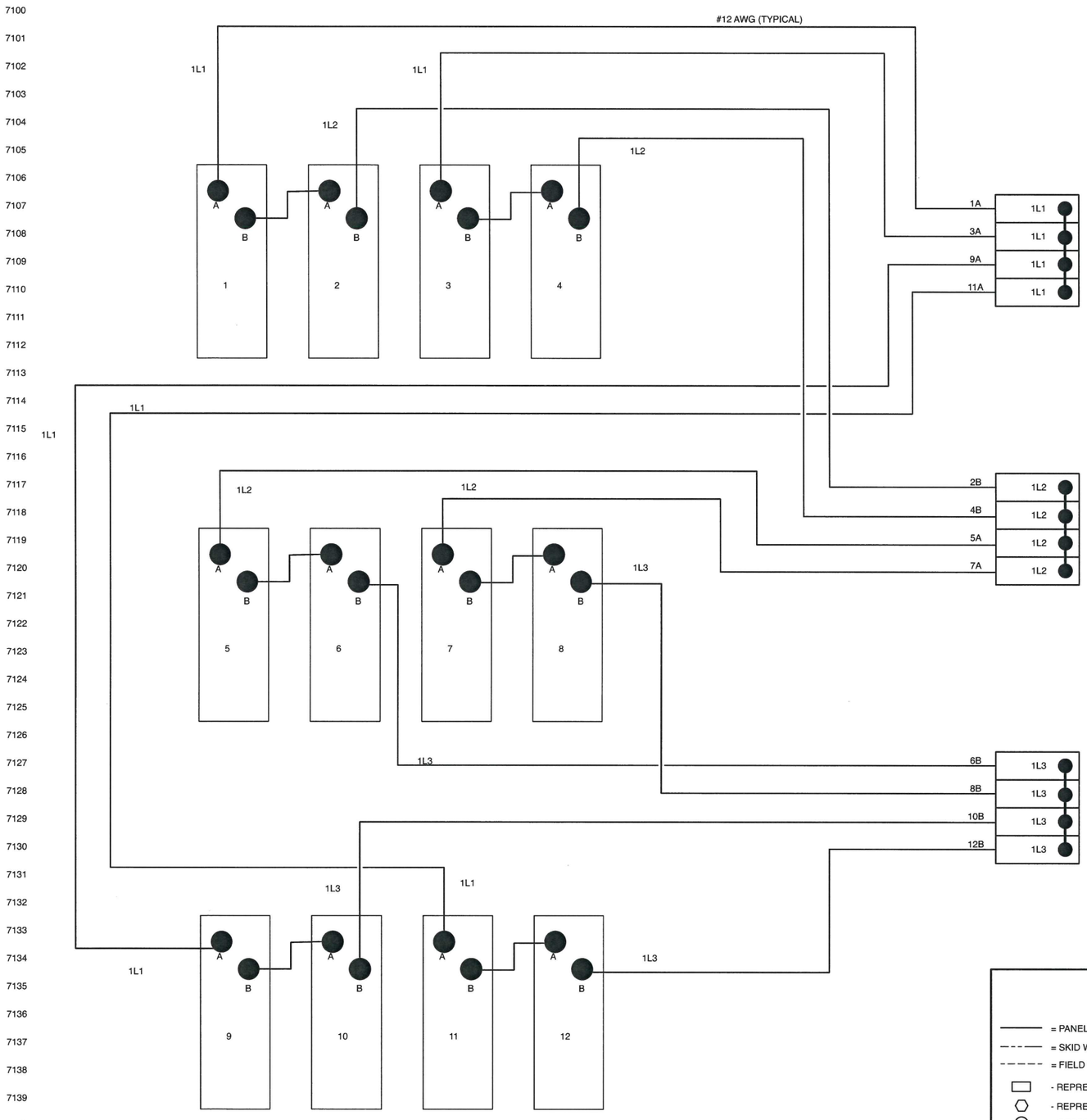
Tel: 707/638.6800 Fax: 707/638.6898

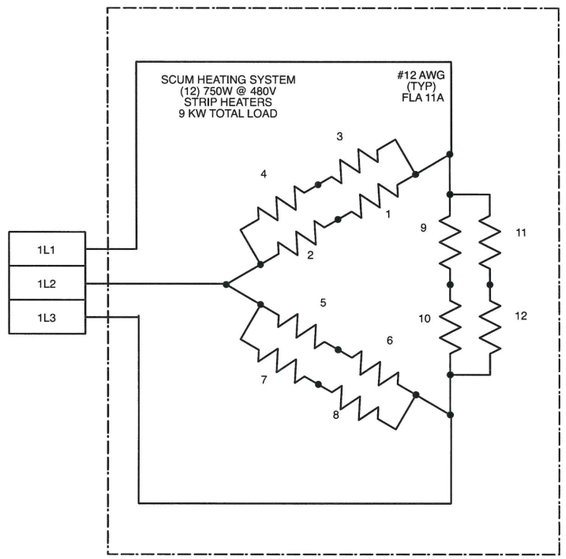
TITLE: **HOLDING TANK HEATER JUNCTION BOX & TERMINAL LAYOUT**

DRAWN	MP	DATE	11.04.21
DESIGN	MP	DATE	11.04.21
CHECK	JTP	DATE	11.04.21
APPR	RAY	DATE	11.04.21
SCALE	NONE		

CLIENT: **TOTAL MECHANICAL SERVICE CORPORATION**
PROJECT: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR CONTROL PANEL
CONTRACT NO. 1194
DRAWING NO. C710-1194
SIZE D
SHEET 1 OF 1
REV 0



HOLDING TANK CONE
STRIP HEATER WIRING DIAGRAM



HOLDING TANK CONE

TOTAL MECHANICAL SERVICE CORPORATION PO NO. 2021-26,
SPECIFICATION SECTION: 11317

U.S. PATENT NO.: 6,719,829
U.S. PATENT NO.: 5,759,233
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BY R.Ray DATE 12/16/21

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Tel: 707/638.6800 Fax: 707/638.6898

TITLE: HOLDING TANK STRIP HEATER WIRING

DRAWN	MP	DATE	11.04.21
DESIGN	MP	DATE	11.04.21
CHECK	JTP	DATE	11.04.21
APPR	RAY	DATE	11.04.21
SCALE	NONE		

CLIENT: TOTAL MECHANICAL SERVICE CORPORATION
PROJECT: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR CONTROL PANEL
CONTRACT NO. 1194
ISO
DRAWING NO. C711-1194
SHEET 1 OF 1
REV 0

EnviroCare International

Scum Concentrator Equipment List

Revision 0: December 17, 2021

Contractor: Total Mechanical Service Corporation
PO No.: 2021-26
Project: Taunton Wastewater Treatment Improvements Phase 1, Model 60-500 Scum Concentrator

Specification Section	Tag Number	Instrument Name	Mfr	Model / P/N	Section
		Concentrator Tank Components			
11317		Skimmer Drive	SEW	R37 D16B DRN71M4/DH	10
11317		Skimmer Drive-chain	Rex/Diamond	ASA 80 STEEL	8
11317		Skimmer Drive/Driven Sprockets	Dodge	105112 / 105131	3
11317		Skimmer Flight Carrying Chain / F2 / Sprockets	Can-Am	PC78 / PC78-F2 / PC78-C10T	2A,2B,2C
11317		Take-up Bearing / Frame	Dodge	NS-400X6-TUFR / 125158	4
11317		Idler Bearing / Weir Shaft Bearing	Dodge	124103 / 124213	5
11317		Torque Switch (Skimmer Drive MCC)	Tsubaki	TSBSS05	13
		Holding Tank Components			
11317		Mixer	Sharpe	2N2-17	11
11317		Level Switch - Low/Low, Low, High	Babbitt	LS7000-115VAC-H-6"	1
11317		Level Switch - High/High	Babbitt	LS7000-115VAC-H-9"	1
11317		Scum Temperature Sensor	Therm-x	XTMS809-K-12-STR09	12
11317		Temperature Transmitter	Rosemount	248HANAN0NSQ4	9
11317		Strip Heater Element	Chromalox	OT-3007-121275	3
11317		Scum Discharge Knife Gate Valve	Orbinox	20-3636R(E) -12	7
		Concentrated Scum Pump			
11317		Scum Pump	Netzsch	NM038BO02S12B	6A
11317		Scum Pump Seal Water Flow Switch	Flotect	V6EPB-B-S-LF	6B
11317		Scum Pump Seal Water Needle Valve	W.E. Anderson	HNV-SSS32B	6C
11317		Scum Pump Seal Water Flow Indicator	Dwyer	VFB-85	6D
11317		Scum Pump Seal Solenoid Valves	Asco	8262H208MS-120/60	6E
		Scum Concentrator Control Panel Components			
11317	N/A	A-B, CONTROL RELAYS, 4PDT	ALLEN BRADLE`	700-HC24A1	101
11317	N/A	A-B, 4PDT, TIMER RELAY, 0.1SEC - 10 MIN.	ALLEN BRADLE`	700-HNC44AA12	101
11317	N/A	A-B, CONTROL RELAY, SOCKET	ALLEN BRADLE`	700-HN103	101
11317	N/A	A-B, TIMER RELAY, SOCKET	ALLEN BRADLE`	700-HN103	101
11317	N/A	A-B, 120V CIRCUIT BREAKER, 1A	ALLEN BRADLE`	1492-SM1C010	102
11317	N/A	A-B, 120V CIRCUIT BREAKER, 2A	ALLEN BRADLE`	1492-SM1C020	102
11317	N/A	A-B, 120V CIRCUIT BREAKER, 3A	ALLEN BRADLE`	1492-SM1C030	102
11317	N/A	A-B, 120V CIRCUIT BREAKER, 5A	ALLEN BRADLE`	1492-SM1C050	102
11317	N/A	NOT USED			103
11317	N/A	A-B, SELECTOR SWITCH, 2 POSITION	ALLEN BRADLE`	800H-HR2B	104
11317	N/A	A-B, SELECTOR SWITCH, 3 POSITION	ALLEN BRADLE`	800H-JR2B	105
11317	N/A	A-B, EMERGENCY STOP - RED	ALLEN BRADLE`	800H-FRXT6A4	106
11317	N/A	A-B, PUSH BUTTON - GREEN	ALLEN BRADLE`	800H-AR1A	107
11317	N/A	A-B, PUSH BUTTON - BLACK	ALLEN BRADLE`	800H-AR2A	107
11317	N/A	A-B, PUSH BUTTON - RED	ALLEN BRADLE`	800H-AR6A	107
11317	N/A	A-B, PUSH-TO-TEST PILOT LIGHT - AMBER	ALLEN BRADLE`	800H-QRTH2A	108
11317	N/A	A-B, PUSH-TO-TEST PILOT LIGHT - BLUE	ALLEN BRADLE`	800H-QRTH2B	108
11317	N/A	A-B, PUSH-TO-TEST PILOT LIGHT - GREEN	ALLEN BRADLE`	800H-QRTH2G	108
11317	N/A	A-B, PUSH-TO-TEST PILOT LIGHT - RED	ALLEN BRADLE`	800H-QRTH2R	108
11317	N/A	A-B, PUSH-TO-TEST PILOT LIGHT - WHITE	ALLEN BRADLE`	800H-QRTH2W	108
11317	N/A	A-B LEGEND PLATE FOR 800H OPERATORS	ALLEN BRADLE`	800H-W100AE	109
11317	N/A	A-B LEGEND PLATE FOR 800H-FRXT6A4, E-S	ALLEN BRADLE`	800H-W797A	109
11317	N/A	A-B, W4 STD TERMINAL BLOCK	ALLEN BRADLE`	1492-J4	110
11317	N/A	A-B, W4 STD GROUND BLOCK	ALLEN BRADLE`	1492-JG4	110
11317	N/A	A-B, W4 FUSE BLOCK, 24V LED BFI	ALLEN BRADLE`	1492-WFB424	111
11317	N/A	A-B, W4 FUSE BLOCK, 120Vac LED BFI	ALLEN BRADLE`	1492-WFB4250	111
11317	N/A	A-B, W4 DISCONNECT BLOCK	ALLEN BRADLE`	1492-JDK4	111
11317	N/A	A-B END ANCHOR	ALLEN BRADLE`	1492-EAJ35	112
11317	N/A	A-B END BARRIER FOR STANDARD TERMINAL	ALLEN BRADLE`	1492-EB3	113

EnviroCare International

Scum Concentrator Equipment List

Revision 0: December 17, 2021

Contractor: Total Mechanical Service Corporation
PO No.: 2021-26
Project: Taunton Wastewater Treatment Improvements Phase 1, Model 60-500 Scum Concentrator

Specification Section	Tag Number	Instrument Name	Mfr	Model / P/N	Section
11317	N/A	A-B, 1 METER DIN RAIL	ALLEN BRADLE	199-DR1	114
11317	N/A	NOT USED			115
11317	N/A	BUSSMANN, FUSE BLOCKS	BUSSMANN	MJ60030-CR	116
11317	N/A	BUSSMANN, FUSES, 3A	BUSSMANN	LPJ-3	116
11317	N/A	BUSSMANN, FUSES, 6A	BUSSMANN	LPJ-6	116
11317	N/A	BUSSMANN, FUSES, 10A	BUSSMANN	LPJ-10	116
11317	N/A	BUSSMANN, FUSES, 15A	BUSSMANN	LPJ-15	116
11317	N/A	EATON CONTROL TRANSFORMER, 480/120, 5	EATON	C0500E2AFB	117
11317	N/A	HOFFMAN, NEMA 4X, ENCLOSURE, 60x49x18	HOFFMAN	A60HX4918SSLPQT	118
11317	N/A	HOFFMAN, BACKPANEL FOR ABOVE	HOFFMAN	A60P48	118
11317	N/A	HOFFMAN, WORK LIGHT, 15 IN, LED, MAGI	HOFFMAN	LEDA1M35	118
11317	N/A	HOFFMAN, DOOR SWITCH	HOFFMAN	ALFSWD	118
11317	N/A	LITTELFUSE, 480/120 TRANSFORMER PRIMAI	LITTELFUSE	KLDR-001 1/4	119
11317	N/A	LITTELFUSE, 480/120 TRANSFORMER SECON	LITTELFUSE	FLM-4	119
11317	N/A	MARATHON, POWER DISTRIBUTION BLOCK, 1	MARATHON	132X580	120
11317	N/A	PANDUIT 1"W X 3"H WIREWAY,WHITE, G TYPE	PANDUIT	G1X3LG6	121
11317	N/A	PANDUIT 1" COVER, WHITE	PANDUIT	C1WH6	121
11317	N/A	PANDUIT 2"W X 3"H WIREWAY,WHITE, G TYPE	PANDUIT	G2X3LG6	121
11317	N/A	PANDUIT 2" COVER, WHITE	PANDUIT	C2WH6	121
11317	N/A	PANDUIT 3"W X 3"H WIREWAY,WHITE, G TYPE	PANDUIT	G3X3LG6	121
11317	N/A	PANDUIT 3" COVER, WHITE	PANDUIT	C3WH6	121
11317	N/A	PANDUIT GROUND BAR, 12 PORT	PANDUIT	UGB2/0-414-12	122
11317	N/A	PANDUIT GROUND BAR, STAND-OFF KIT	PANDUIT	UGB-IN-SO	122
11317	N/A	NOT USED			123
11317	N/A	NOT USED			124
11317	N/A	SQUARED, MAIN DISCONNECT, CABLE MECH.	SQUARED	9422CSF30	125
11317	N/A	SQUARED, MAIN DISCONNECT, CB MECHANIS	SQUARED	9422RQ1	125
11317	N/A	SQUARED, MAIN DISCONNECT, HANDLE MEC	SQUARED	9422-A2	125
11317	N/A	SQUARED, MAIN CIRCUIT BREAKER 50A	SQUARED	HJ36050	126
11317	N/A	SQUARED, MOTOR STARTER, SIZE 00	SQUARED	8536SAO1V02H31S	127
11317	N/A	SQUARED, MOTOR STARTER, SIZE 0	SQUARED	8536SBO1V02H31S	127
11317	N/A	SQUARED, MOTOR STARTER, SIZE 2	SQUARED	8536SDO1V02H31S	127
11317	N/A	SQUARED, OVERLOAD PROTECT & REMOTE	SQUARED	9999RR04	127
11317	N/A	SQUARED, POWER BLOCKS FOR MOTOR & M	SQUARED	9080LBA361101	128
11317	N/A	WEIDMUELLER, DIN RAIL MNT OUTLET, 15A, (	WEIDMUELLER	6720005422	129
11317	N/A	ZERUST CORROSION INHIBITOR	ZERUST	VC-2-1	130
11317	N/A	POWERS, TEMPERATURE ADVANCED PID CO	POWERS	535-1125-0000	131

Project:

- Taunton WTF Improvements Phase 1, Model 60-500 Scum Concentrator

Specification Section(s):

- 11317

Instrument Location:

- Holding Tank

Instrument Name:

- Level Switch

Instrument Tag Number(s):

- LSL, LSLL, LSH, LSHH

Manufacturer(s):

- Babbitt International

Model / Part Number(s):

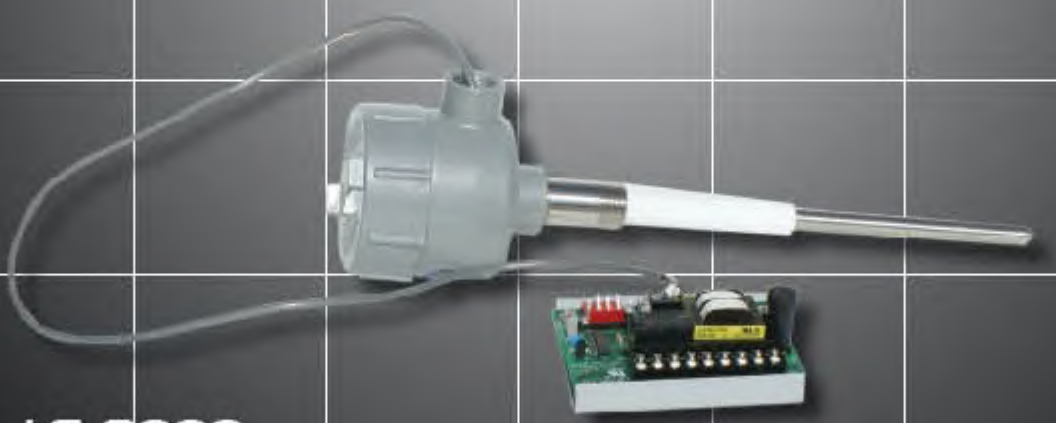
- LS7000-115VAC-H-6" , LS7000-115VAC-H-11" (LSHH Only)

BABBITT
LEVEL SWITCHES

GUARANTEED
PERFORMANCE
& RELIABILITY

LS 6000

LS 7000

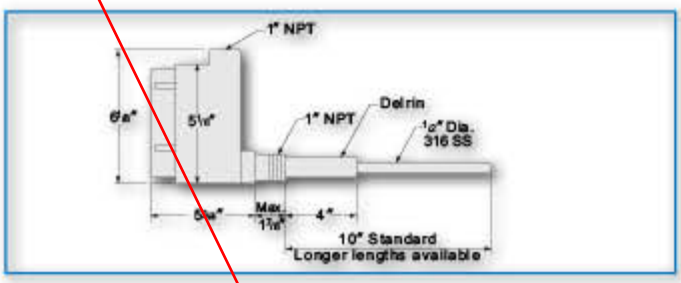


LS 8000

LS 6000 Level Switch

Low Cost, High Performance

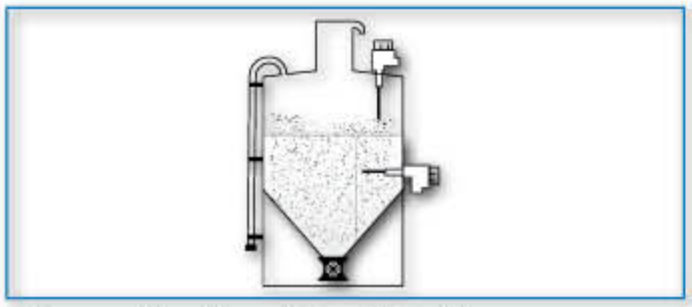
The LS 6000 level switch is an excellent general purpose level control. This unit can sense all liquids and difficult to measure dry materials.



Like all Babbitt International level switches, the LS 6000 employs a radio frequency (RF) balanced impedance bridge to sense the presence or absence of products. This technique provides the ability to ignore significant product build-up on the probe and is very stable over wide temperature swings, thus eliminating the need for seasonal recalibration.

All electronics are housed in an explosion proof enclosure and all necessary calibration adjustments and indicators are on-board, so all you need to calibrate the LS 6000 is a small screwdriver.

The probe is very rugged and made of ½" diameter 316 stainless steel. If a probe is too long, just cut it off with a saw. Or, if you require a longer probe, simply weld on additional rods. Probes of all lengths are available from the factory.

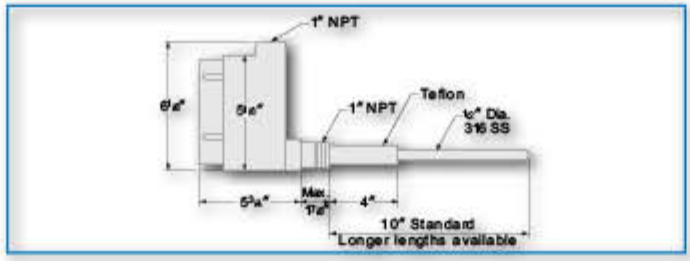


- Senses Liquid and Dry Materials
- Ignores Significant Product Build-up
- Simple Calibration
- Failsafe Electronics
- 5 AMP, DPDT Relay Output

LS 7000 Level Switch

Most Versatile Level Switch Available

The LS 7000 level switch has all the features and reliability of the LS 6000, plus features that make it the most versatile level control on the market today.

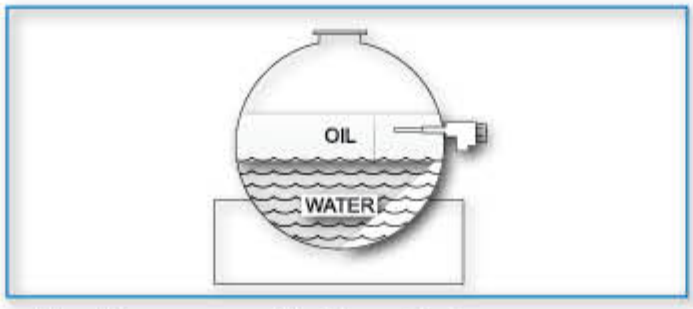


Every standard unit has an on-board fuse and surge suppressor to protect the electronics from improper supply voltages.

A built in static arrestor protects the circuitry from hostile bin environments created by static prone materials such as plastic pellets.

An on-board test switch combined with modular electronics makes troubleshooting and repair a snap. Of course, every unit is backed by our two year warranty.

The time delay allows the user to select ON DELAY or OFF DELAY operation. This timing range is adjustable from 1/8 second to 2 hours. The timer can be used to ignore wave action in a tank, or the timer can be used to pump down a sump with a single probe.

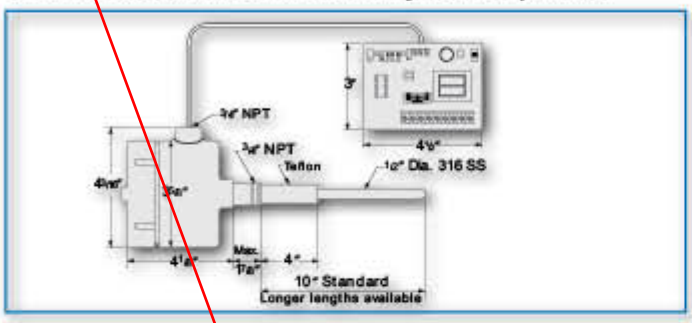


- User Programmable Time Delay
- On-Board Fuse and Spike Suppression
- Built-in Static Protection
- Failsafe High or Low Level
- On-Board Test Switch

LS 8000 Remote Mounted Level Switch

Remote Mount the Electronics up to One Mile from the Probe

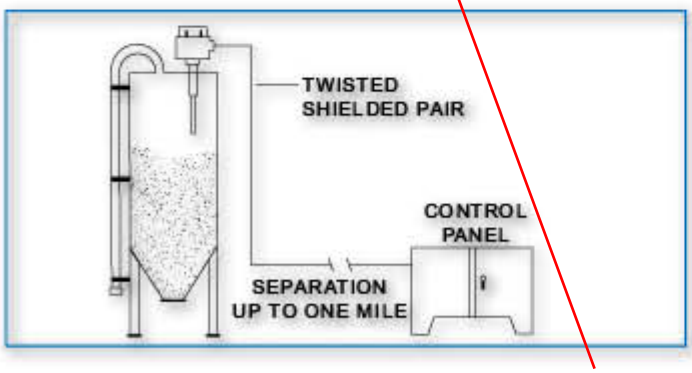
The LS 8000 remote mounted level switch is the perfect choice when it is unsafe or inconvenient to mount the electronics directly to the probe.



The probe consists of a maintenance free, epoxy encapsulated transmitter in an explosion proof housing. The transmitter is connected to a receiver with a twisted, shielded pair of wires (Belden 8761 or equal). The receiver board is wired to the supply voltage and has all the necessary calibration adjustments; failsafe and time delay adjustments, and the relay output.

It is possible to calibrate the LS 8000 without climbing a tall tank, or a probe can be located up to one mile from the nearest supply voltage.

The remote mounting does not sacrifice the reliability, stability or performance that makes Babbitt International level switches famous.



- Class I, Group C & D; Class II, Group E, F & G
- Inexpensive Interconnect Cable
- Failsafe High or Low Level
- Adjustable Time Delay
- Optional Enclosures for Receiver

Common Features

- Ignores significant product build-up
- Solid state, no moving parts
- Simple installation and calibration
- Modular electronics easily replaced
- Probe length easily field modified
- Explosion proof housing standard
- Rugged construction handles roughest products

Liquids

Wastewater
Oils
Acids
Slurries
Fuels
Caustics

Dry/Solids

Fly Ash
Cement
Plastics
Flour
Powders
Sand
Grains
Wood Chips

Interfaces

Oil/ Water
Foam/ Liquid

Applications

- High/Low Level Alarm
- Auto Tank Filling
- Dry pump protection
- Sump Controls
- Plugged Chute Protection

Optional Configurations Include

- Stainless Steel Enclosures
- Tri-Clamp Process Connections
- Flexible Cable Probes

Specifications

ELECTRICAL	LS 6000	LS 7000	LS 8000
Power	115 VAC (+/- 15%), 50/60 HZ, 2 WATTS - STANDARD (12 VDC, 24 VDC, OR 230 VAC OPTIONAL)		
Output	2 FORM C Contacts, DPDT relay, 5 Amp Resistive @ 125, 230 VAC; 30 VDC		
On-Board Fuse	250mA	250mA	250mA
Selectable Failsafe	High or Low Level	High or Low Level	High or Low Level
Time Delay	N/A	Select: On or Off Delay Adj: 1/8 Sec - 2 Hrs	Select: On or Off Delay Adj: 1/8 Sec - 2 Hrs
MECHANICAL	**LS 6000**	**LS 7000**	**LS 8000**
Vessel Entry	1" NPT	1" NPT	3/4" NPT
Conduit Entry	1" NPT	1" NPT	3/4" NPT
Probe	1/2" Diameter Stainless Steel Standard (Halar/ Other Coatings Optional)		
Insulator	Delrin	Teflon	Teflon
Housing	Explosion proof, Copper Free, Cast Aluminium		Transmitter: Explosion Proof Receiver: Track Mounted PC Optional Enclosures
ENVIRONMENTAL	**LS 6000**	**LS 7000**	**LS 8000**
Hazardous Area	Class I Group C,D Class II, Group E, F, G	Class I Group C,D Class II, Group E, F, G	Class I Group C, D; Class II, Group E, F, G
Temp: Electronics	-40°F to 185°	-40°F to 185°	-40°F to 185°
Temp: Probe	-30°F to 250°	-30°F to 450°	-30°F to 450°
Pressure: Probe	1500 PSI @ 75° F (Higher on Request)		
Special Materials of Construction Available			

Specifications Subject to Change Without Notice

Distributed by:

WARRANTY
Every unit is warranted for two years against defects in material or workmanship. See Owners Manual for details.

BABBITT INTERNATIONAL, INC.
P.O. Box 70094
Houston, Texas USA
Toll-Free: (800) 835-8012 • Local: (713) 467-4438

www.babbittlevel.com

APPLICATION PERFORMANCE GUARANTEE If within 60 days of purchase, our product does not perform according to our claims and was properly installed in an approved application that does not exceed the stated performance specifications, the unit may be returned for full credit. © 2009 Babbitt International Inc. LS 4-Series 09A

Project:

- Taunton WTF Improvements Phase 1, Model 60-500 Scum Concentrator

Specification Section(s):

- 11317

Instrument Location:

- Concentrator Tank

Instrument Name:

- Skimmer Chain

Instrument Tag Number(s):

- N/A

Manufacturer(s):

- Can-am

Model / Part Number(s):

- PC78

CAN-AM CHAINS

CHAINS
SPROCKETS
PLASTICS
BEARINGS
WHAT'S NEW
MAINTENANCE
CATALOGS PDF
WASTEWATER

PC-78 STANDARD / PC-78 CAMEL BACK

PC78

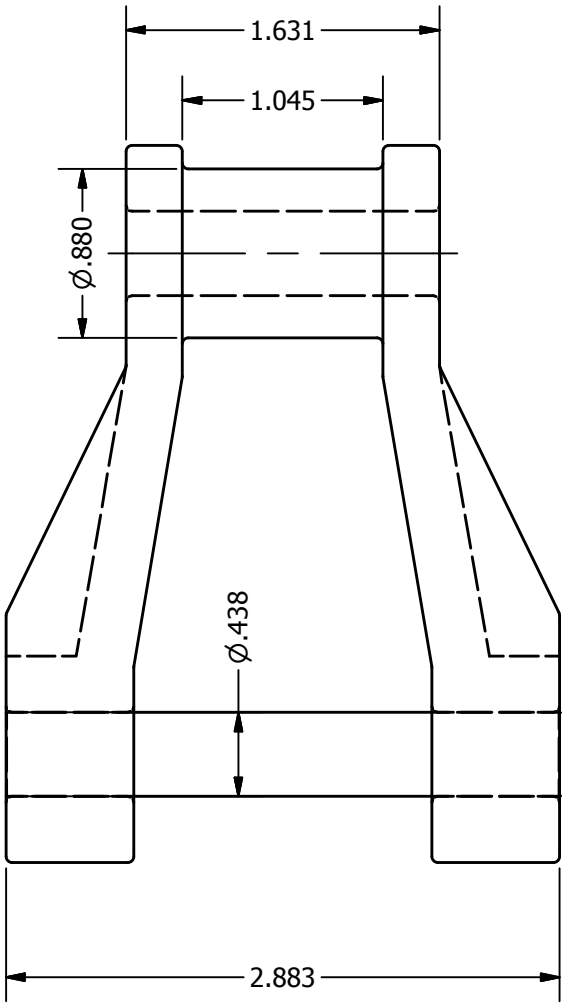
PC78CB

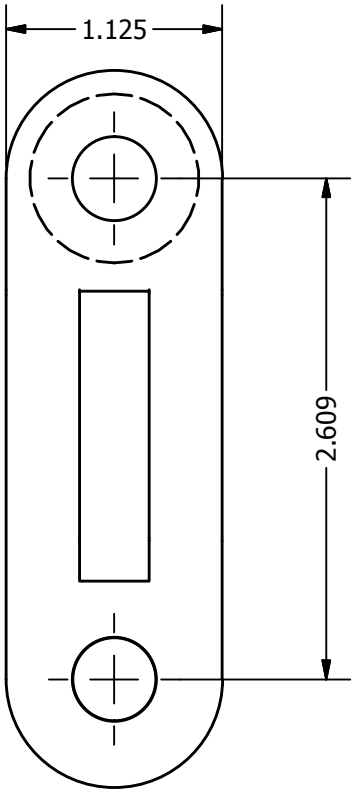
2.609 ACETAL CHAINS

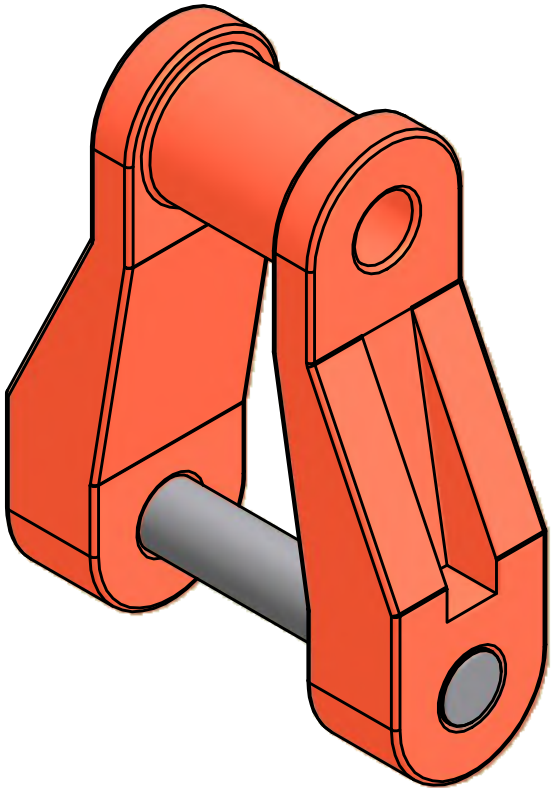
CAN-AM Acetal chains are designed for use in non-marking and corrosive applications. They are great alternatives to conventional steel chains, when conditions demand the unique features.

CAN-AM Acetal chains are used in and around dip tanks, finished lumber, and sewage treatment, just a couple of examples of environments that call for alternative solutions**.**

Specifications:
Ultimate Strength: 5,000#
Lengths: 10 ft
Material: Acetal
Packaging: 50 ft/box
Pins: Stainless Steel
Color: Safety Orange







CAN-AM GROUP	DRAWN JANELL ZWEIG	11/27/2007	BRANCH
	CUSTOMER		
	TITLE PC78 CHAIN		
MAT'L ACETAL	DESCRIPTION ACETAL CHAIN W/ STAINLESS STEEL PINS		
DWG NO			REV

Project:

- Taunton WTF Improvements Phase 1, Model 60-500 Scum Concentrator

Specification Section(s):

- 11317

Instrument Location:

- Concentrator Tank

Instrument Name:

- Skimmer Chain F2 Attachment

Instrument Tag Number(s):

- N/A

Manufacturer(s):

- Rex

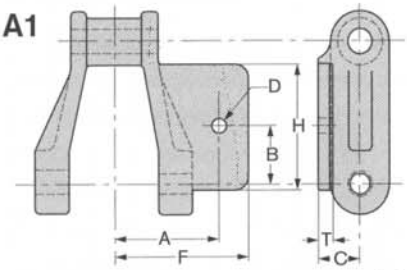
Model / Part Number(s):

- NH78 F2

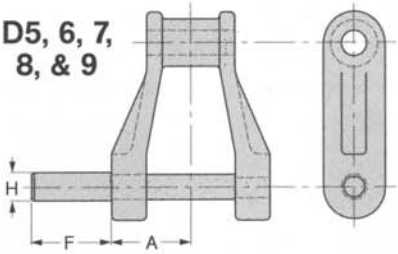
POLYMERIC CHAINS AND ACCESSORIES

STRAIGHT RUNNING CHAINS – Attachments

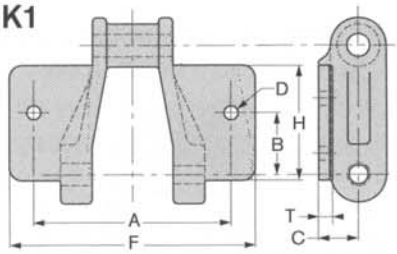
A1



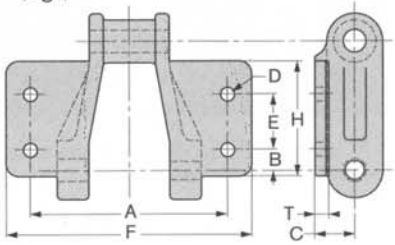
D5, 6, 7, 8, & 9



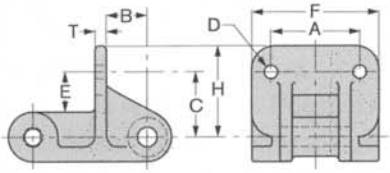
K1



K2



F2



DIMENSION TABLE

Attachments Dimensions (Inches) and Weights (Pounds)												
Rex Chain No.	A	B	C	D①		E	F	H	T	Weight Per Foot Lbs.	Link Weight W/O Pins Per 100 Pieces	Pin Weight Per 100 Pieces
				Bolt Dia.	Bolt Hole							
A1												
NH45	1.63	.38	.69	1/4	.28	–	2.00	1.47	.19	1.4	9	4.5
NH78	1.94	1.06	.81	1/4	.28	–	2.50	2.31	.25	1.7	25	11.8
NH82	2.13	1.00	.88	1/4	.28	–	2.69	2.25	.31	2.4	44	17.8
D5												
NH45	1.09	–	–		–	–	1.50	.31	–	1.1	7	7.7
D6												
NH45	1.09	–	–		–	–	1.50	.38	–	1.2	7	9.2
NH77	1.09	–	–		–	–	1.50	.38	–	1.3	13	11.2
D7												
NH45	1.09	–	–		–	–	1.50	.44	–	1.3	7	10.8
NH78	1.44	–	–		–	–	1.50	.44	–	1.7	20	18.2
NH82	1.66	–	–		–	–	1.50	.44	–	2.6	43	24.2
D8												
NH45	1.09	–	–		–	–	1.50	.50	–	1.5	7	12.8
NH78	1.44	–	–		–	–	1.50	.50	–	1.8	20	20.1
NH82	1.66	–	–		–	–	1.50	.50	–	2.7	43	26.1
D9												
NH45	1.09	–	–		–	–	1.50	.56	–	1.6	7	15.0
NH78	1.44	–	–		–	–	1.50	.56	–	1.9	20	22.4
NH82	1.66	–	–		–	–	1.50	.56	–	2.8	43	28.3
F2												
NH78	2.03	.94	1.47	1/4	.28	.90	2.90	2.06	.25	1.7	25	11.8
NH82②	2.22	1.25	1.91	1/4	.28	1.25	3.28	2.50	.38	2.5	46	17.8
K1												
NH45	3.25	.38	.69	1/4	.28	–	4.00	1.47	.19	1.2	12	4.5
NH78	4.00	1.25	.81	1/4	.28	–	5.00	2.31	.25	1.9	30	11.8
NH82	4.25	1.00	.88	1/4	.28	–	5.38	2.25	.31	2.6	49	17.8
K2												
NH45	3.25	–	.69	1/4	.28	.81	4.00	1.47	.19	1.2	12	4.5
NH78	4.00	.41	.81	1/4	.28	1.13	5.00	2.31	.25	1.9	30	11.8
NH82	4.25	.34	.88	1/4	.28	1.31	5.38	2.25	.31	2.6	49	17.8

☐ Shaded attachments are most commonly used and are more readily available.
① Style of hole: round.
② Custom bolt-on attachment available – contact Rexnord.

A attachments are available right hand and left hand.
A, F, and K attachments are available blank (no holes), with holes as shown, or as required.

Note: Dimensions are subject to change. Certified dimensions of ordered material are furnished upon request.

Project:

- Taunton WTF Improvements Phase 1, Model 60-500 Scum Concentrator

Specification Section(s):

- 2C

Instrument Location:

- Concentrator Tank

Instrument Name:

- Skimmer Sprocket

Instrument Tag Number(s):

- N/A

Manufacturer(s):

- Can-am

Model / Part Number(s):

- PC78-C10T

CAN-AM®

CAN-AM CHAINS

Northex™ 81X - H78 Nylon Sprockets (2.609" PITCH)

NEW

AVAILABLE IN 9,12,13,14 TOOTH PROFILES

Features & Benefits:

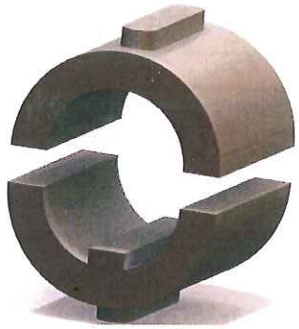
- Light-weight
- Long-lasting
- Quiet
- Cost-effective
- Super strong GSM nylon
- Northane 75DM self-lubricating replaceable / interchangeable bearing inserts fit a variety of shaft sizes
- Alignment tabs on split line add strength
- Increases chain life
- Split for easy installation and replacement
- ASME / ANSI Standard tooth profile
- 2 Grease fittings (optional)

AVAILABLE BORE SIZES:

1-7/16" (107)	c/w 3" THROUGH BORE
1-15/16" (115)	c/w 3" OR 4" THROUGH BORE
2-3/16" (203)	c/w 3" OR 4" THROUGH BORE
2-7/16" (207)	c/w 3" OR 4" THROUGH BORE
2-15/16" (215)	c/w 3" THROUGH BORE

KEYED DRIVE HUBS:

Cast from ZA12 for light to medium duty drive applications



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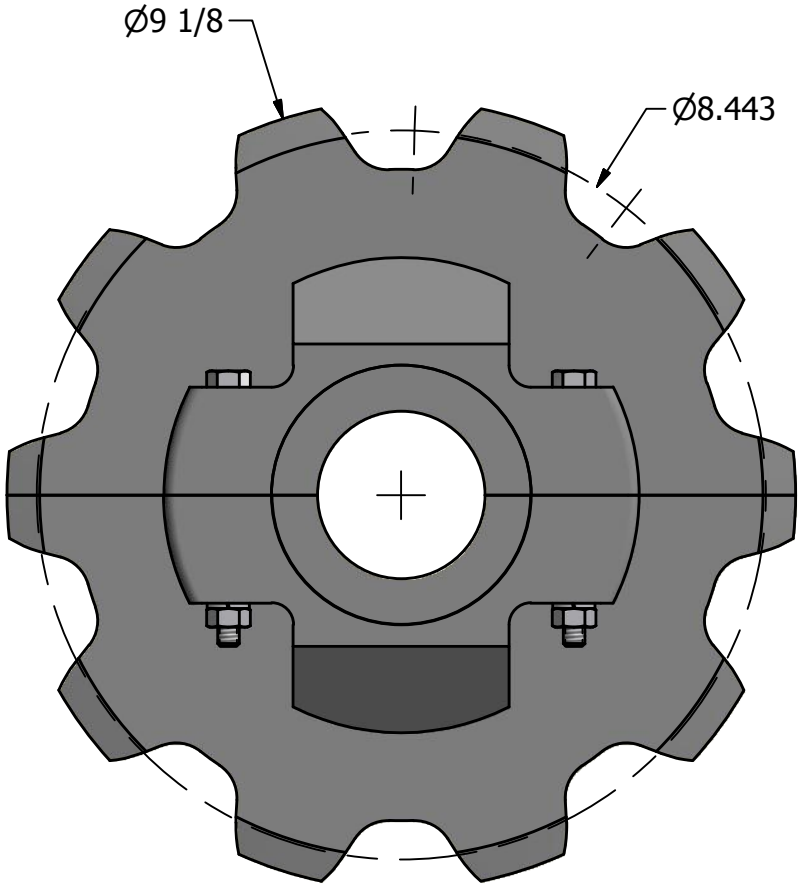
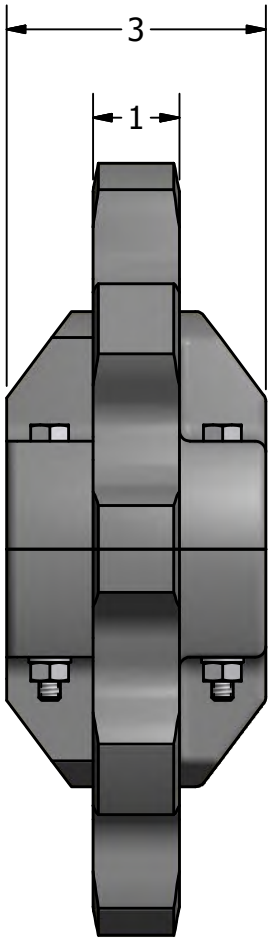
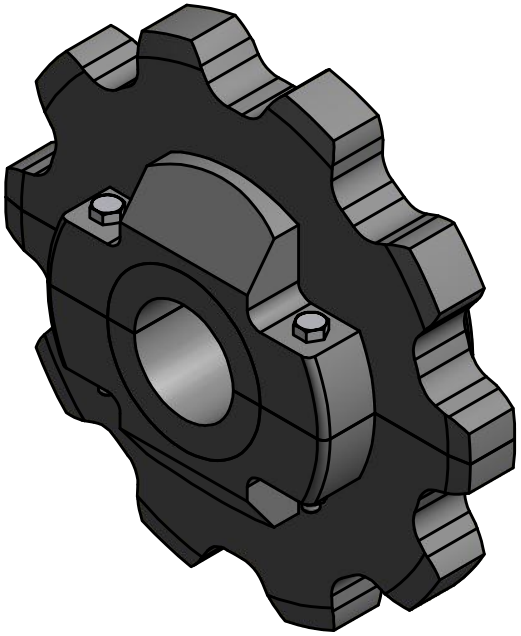
Telephone: (705) 647-5366

Quebec Branch
667 Avenue Godin, Ville de Vanier, P.Q. G1M 3E6
Telephone: (418) 681-1411







CONCEPT DRAWING

CAN-AM CHAINS

DRAWN JANELL ZWEIG	3/3/2010	MAT'L
TITLE PC78 C10T SPLIT NYLON SPROCKET		
DWG NO	REV	SHEET 1 OF 1

Project:

- Taunton WTF Improvements Phase 1, Model 60-500 Scum Concentrator

Specification Section(s):

- 11317

Instrument Location:

- Holding Tank

Instrument Name:

- Strip Heater Element

Instrument Tag Number(s):

- N/A

Manufacturer(s):

- Chromalox

Model / Part Number(s):

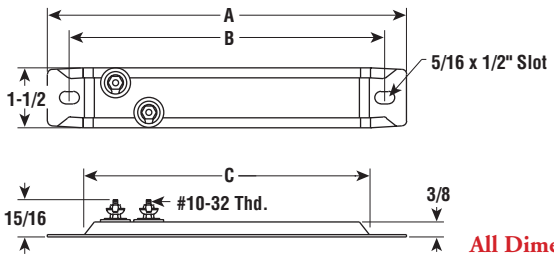
- OT-3007-121275

OT

1-1/2" Wide Two Offset Terminals, One End

- **7-1/2 - 47-1/2" Lengths**
- **150 - 2,250 Watts**
- **120 and 240 Volt**
- **6 - 27 W/In²**

Dimensions



All Dimensions in Inches

Applications

Strip heaters are used for heat transfer by conduction or convection to heat liquids, air, gases and surfaces. See guidelines in the Strip Heater Overview section.

Specifications and Ordering Information

Dimensions (In.)			Rust-Resisting Iron Sheath							Chrome Steel Sheath							Wt. (Lbs.)
						120V		240V					120V		240V		
A	B	C	Watts	W/In²	Model	Stock	PCN	Stock	PCN	Watts	W/In²	Model	Stock	PCN	Stock	PCN	
7-1/2	6-1/2	6	150	11	**OT-715**	S	129314	S	129322	200	15	**OT-702**	S	129613	S	129621	0.5
8	7	6-1/2	150	10	**OT-815**	S	129330	S	129349	250	17	**OT-802**	S	129630	S	129648	0.56
8	7	6-1/2	175	12	**OT-817**	S	129357	S	129365	400	27	**OT-804**	S	129656	S	129664	0.56
10-1/2	9-1/2	9	250	10	**OT-1025**	S	129373	S	129381	350	15	**OT-1003**	S	129672	S	129680	0.75
10-1/2	9-1/2	9	—	—	—	S	—	—	—	400	17	**OT-1004**	S	129699	S	129701	0.88
12	11	10-1/2	250	8	**OT-1225**	S	129390	S	129402	250	8	**OT-1202**	S	129710	S	129728	0.88
12	11	10-1/2	—	—	—	S	—	—	—	350	14	**OT-1203**	S	129736	S	129744	0.88
12	11	10-1/2	—	—	—	S	—	—	—	500	17	**OT-1205**	S	129752	S	129760	0.88
14	13	12-1/2	300	8	**OT-1430**	S	129410	S	129429	500	14	**OT-1405**	S	129779	S	129787	1
15-1/4	14-1/4	13-3/4	325	8	**OT-1532**	S	129437	S	129445	500	12	**OT-1505**	S	129795	S	129808	1.13
17-7/8	16-7/8	16-3/8	350	6.5	**OT-1835**	S	129453	S	129461	500	10	**OT-1805**	S	129816	S	129824	1.38
17-7/8	16-7/8	16-3/8	375	7	**OT-1837**	S	129470	S	129488	750	15	**OT-1807**	S	129832	S	129840	1.38
17-7/8	16-7/8	16-3/8	500	10	**OT-1850**	S	129496	S	129509	1,000	19	**OT-1801**	S	129859	S	129867	1.38
19-1/2	18-1/2	18	350	6	**OT-1935**	S	129517	S	129525	500	9	**OT-1905**	S	129875	S	129883	1.5
19-1/2	18-1/2	18	500	8	**OT-1950**	S	129533	S	129541	750	13.5	**OT-1907**	S	129891	S	129904	1.5
19-1/2	18-1/2	18	—	—	—	S	—	S	—	1,000	18	**OT-1901**	S	129912	S	129920	1.5
21	20	19-1/2	500	8	**OT-2150**	S	129550	S	129568	750	12	**OT-2107**	S	129939	S	129947	1.63
23-3/4	22-3/4	22-1/4	500	7	**OT-2450**	S	129576	S	129584	500	7	**OT-2405**	S	129955	S	129963	1.81
23-3/4	22-3/4	22-1/4	750	10	**OT-2475**	S	129592	S	129605	750	10	**OT-2407**	S	129971	S	129980	1.81
23-3/4	22-3/4	22-1/4	—	—	—	—	—	—	—	1,000	14	**OT-2401**	S	129998	S	130008	1.81
23-3/4	22-3/4	22-1/4	—	—	—	—	—	—	—	1,500	19	**OT-2415**	S	129226	S	129234	1.81
25-1/2	24-1/2	24	500	6	**OT-2550**	S	121005	S	121013	750	9	**OT-2507**	S	121208	S	121216	2.06
25-1/2	24-1/2	24	750	9	**OT-2575**	S	121021	S	121030	1,000	13	**OT-2501**	S	121224	S	121232	2
26-3/4	25-3/4	25-1/4	700	8	**OT-2670**	S	121048	S	121056	1,000	12	**OT-2601**	S	121240	S	121259	2.19
26-3/4	25-3/4	25-1/4	750	9	**OT-2675**	NS	121064	S	121072	—	—	—	—	—	—	—	2.19
30-1/2	29-3/8	28	750	8	**OT-3075**	S	121080	S	121099	750	8	**OT-3007**	S	121267	S	121275	2.38
30-1/2	29-3/8	28	—	—	—	—	—	—	—	1,000	11	**OT-3001**	S	121283	S	121291	2.38
30-1/2	29-3/8	28	—	—	—	—	—	—	—	1,250	13	**OT-3012**	S	—	S	121304	2.38
33-1/2	32-3/8	31	750	7	**OT-3375**	S	121101	S	121110	750	7	**OT-3307**	S	121312	S	121320	2.69
35-7/8	34-3/4	33-1/2	1,000	9	**OT-3610**	S	121128	S	121136	1,500	13	**OT-3601**	S	121339	S	121347	2.88
38-1/2	37-1/2	36	800	6	**OT-3880**	S	121144	S	121152	1,000	8	**OT-3801**	S	121355	S	121363	3.19
38-1/2	37-1/2	36	1,000	8	**OT-3810**	S	121160	S	121179	1,500	12	OT-3815	NS	121371	S	121380	3.19
42-1/2	41-3/8	40	1,250	9	**OT-4312**	S	121187	S	121195	1,500	11	**OT-4315**	S	121398	S	121400	3.38
47-7/8	46-3/4	45-3/8	—	—	—	—	—	—	—	1,350	9	**OT-4813**	S	—	S	121419	3.75
47-7/8	46-3/4	45-3/8	—	—	—	—	—	—	—	2,250	14	**OT-4822**	S	—	S	121427	3.75

Stock Status: **S** = stock NS = non-stock
To Order—Specify model, PCN, watts, volts and quantity.

Project:

- Taunton WTF Improvements Phase 1, Model 60-500 Scum Concentrator

Specification Section(s):

- 11317

Instrument Location:

- Concentrator Tank

Instrument Name:

- Idler Flanged Bearing

Instrument Tag Number(s):

- N/A

Manufacturer(s):

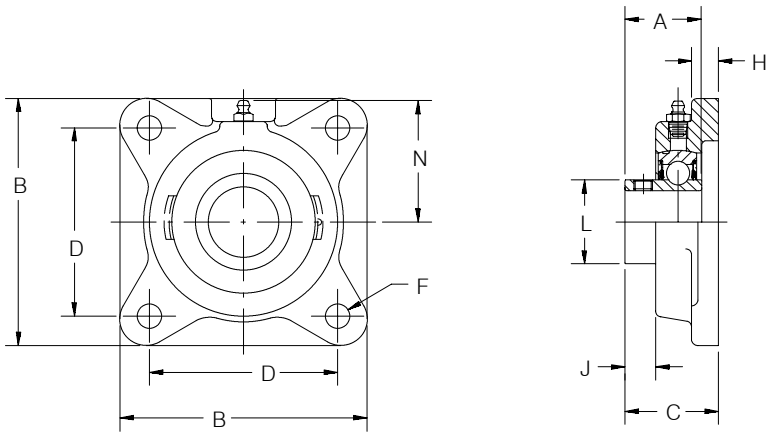
- Dodge

Model / Part Number(s):

- 124213

Setscrew Ball Bearings

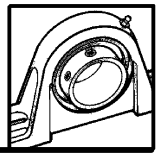
SC NORMAL DUTY 4–BOLT FLANGE BEARINGS



Series	Shaft Size	Relube		No–Lube/Sealed for Life (–NL)		With Flingers	
		Part Number	Description	Part Number	Description	Part Number	Description
203	1/2 5/8 *17mm*	**124048** **124049** ***125885***	F4B-SC-008 F4B-SC-010 *F4B-SC-17M*	@ @ @	F4B-SC-008–NL F4B-SC-010–NL *F4B–SC–17M–NL*	@ @ @	F4B-SC-008–FF F4B-SC-010–FF *F4B–SC–17M–FF*
204	1/2 5/8 3/4 13/16 *20mm*	**124098** **124099** **124100** **124567** ***125886***	F4B-SC-008L F4B-SC-010L F4B-SC-012 F4B-SC-013 *F4B–SC–20M*	@ @ **052010** @ @	F4B-SC-008L–NL F4B-SC-010L–NL F4B-SC-012–NL *F4B–SC–20M–NL*	@ **054528** **050917** @ @	F4B-SC-008L–FF F4B-SC-010L–FF F4B-SC-012–FF F4B–SC–013–FF *F4B–SC–20M–FF*
205	7/8 15/16 1 *25mm*	**124101** **124102** **124103** ***125887***	F4B-SC-014 F4B-SC-015 F4B-SC-100 *F4B–SC–25M*	@ **126524** **126525** @	F4B-SC-014–NL F4B-SC-015–NL F4B-SC-100–NL *F4B–SC–25M–NL*	@ @ **123007** @	F4B-SC-014–FF F4B-SC-015–FF F4B-SC-100–FF *F4B–SC–25M–FF*
206	1-1/16 1-1/8 1-3/16 1-1/4 *30mm*	**124218** **124204** **124205** **123173** ***125888***	F4B-SC-101 F4B-SC-102 F4B-SC-103 F4B-SC-104S *F4B–SC–30M*	@ **126526** **050834** **051987** @	F4B-SC-101–NL F4B-SC-102–NL F4B-SC-103–NL F4B-SC-104S–NL *F4B–SC–30M–NL*	@ **125156** **125148** @ @	F4B-SC-101–FF F4B-SC-102–FF F4B-SC-103–FF F4B-SC-104S–FF *F4B–SC–30M–FF*
207	1-1/4 1-5/16 1-3/8 1-7/16 *35mm*	**124206** **124219** **124207** **124208** ***125889***	F4B-SC-104 F4B-SC-105 F4B-SC-106 F4B-SC-107 *F4B–SC–35M*	**126528** @ **052009** **050835** @	F4B-SC-104–NL F4B-SC-105–NL F4B-SC-106–NL F4B-SC-107–NL F4B–SC–35M–NL	**052508** @ @ **057696** @	F4B-SC-104–FF F4B-SC-105–FF F4B-SC-106–FF F4B-SC-107–FF *F4B–SC–35M–FF*
208	1-1/2 1-5/8 *40mm*	**124209** **124210** ***125890***	F4B-SC-108 F4B-SC-110 *F4B–SC–40M*	**051991** **052008** @	F4B-SC-108–NL F4B-SC-110–NL F4B–SC–40M–NL	**054523** @ @	F4B-SC-108–FF F4B-SC-110–FF *F4B–SC–40M–FF*
[illegible]	1-5/8 1-11/16	**125170** **124211**	F4B-SC-110L F4B-SC-111	@ @	F4B-SC-110L–NL F4B-SC-111–NL	@ **057850**	F4B-SC-110L–FF F4B-SC-111–FF
CONCENTRATOR TANK IDLER BEARING				**126531** @	F4B-SC-112–NL *F4B–SC–45M–NL*	**054839** @	F4B-SC-112–FF *F4B–SC–45M–FF*
210	1-15/16 2 *50mm*	**124213** ~~**124214**~~ ***125892***	F4B-SC-115 ~~F4B-SC-200~~ *F4B–SC–50M*	**051992** **050867** @	F4B-SC-115–NL F4B-SC-200–NL *F4B–SC–50M–NL*	**124564** **050169** @	F4B-SC-115–FF F4B-SC-200–FF *F4B–SC–50M–FF*
211	2 2-3/16 2-1/4 *55mm*	**126192** **124215** **124216** ***125893***	F4B-SCM-200 F4B-SC-203 F4B-SC-204 *F4B–SC–55M*	**052004** **052007** **052006** @	F4B-SCM-200–NL F4B-SC-203–NL F4B-SC-204–NL *F4B–SC–55M–NL*	**126132** **124921** @ @	F4B-SCM-200–FF F4B-SC-203–FF F4B-SC-204–FF *F4B–SC–55M–FF*
212	2-1/4 2-7/16 *60mm*	**126283** **124217** ***125894***	F4B-SCM-204 F4B-SC-207 *F4B–SC–60M*	**126537** **050843** @	F4B-SCM-204–NL F4B-SC-207–NL *F4B–SC–60M–NL*	**054482** **124728** @	F4B-SCM-204–FF F4B-SC-207–FF *F4B–SC–60M–FF*
214	2-1/2 2-11/16 *70mm*	**126195** **124261** ***125895***	F4B-SCM-208 F4B-SC-211 *F4B–SC–70M*	@ @ @	F4B-SCM-208–NL F4B-SC-211–NL *F4B–SC–70M–NL*	**126326** @ @	F4B-SCM-208–FF F4B-SC-211–FF *F4B–SC–70M–FF*
215	2-15/16 *75mm*	**124220** ***125896***	F4B-SC-215 *F4B–SC–75M*	**052291** @	F4B-SC-215–NL *F4B–SC–75M–NL*	@ @	F4B-SC-215–FF *F4B–SC–75MFF*

@ Assemble to order

FEATURE/BENEFITS SETSCREW BALL BEARINGS PAGE B2–2	HOW TO ORDER/ NOMENCLATURE PAGE B2–4	SELECTION PAGE B2–5	



Setscrew Ball Bearings

SC NORMAL DUTY 4–BOLT FLANGE BEARINGS

Series	Shaft Size	Weight lbs. *kgs.*	A	B	C	D	F Bolt Dia.	H	J	L	N
203	1/2 5/8 *17mm*	1.1 1.0 *0.5*	1 *25.4*	3 *76.2*	1-3/16 *30.2*	2-1/8 *54.0*	3/8 *M10*	7/16 *11.1*	11/32 *8.7*	31/32 *24.6*	1-11/16 *42.9*
204	1/2 5/8 3/4 13/16 *20mm*	1.8 1.7 1.6 1.5 *0.8*	1-5/32 *29.4*	3-3/8 *85.7*	1-3/8 *34.9*	2-1/2 *63.5*	3/8 *M10*	7/16 *11.1*	25/64 *9.9*	1-1/8 *28.6*	1-15/16 *49.2*
205	7/8 15/16 1 *25mm*	2.0 1.9 1.8 *0.9*	1-3/16 *30.2*	3-3/4 *95.3*	1-23/64 *34.5*	2-3/4 *69.9*	7/16 *M10*	1/2 *12.7*	25/64 *9.9*	1-5/16 *33.3*	2-1/16 *52.4*
206	1-1/16 1-1/8 1-3/16 1-1/4 *30mm*	2.9 2.8 2.7 2.6 *1.3*	1-25/64 *35.3*	4-1/4 *108.0*	1-17/32 *38.9*	3-1/4 *82.6*	7/16 *M10*	1/2 *12.7*	15/32 *11.9*	1-37/64 *40.1*	2-3/16 *55.6*
207	1-1/4 1-5/16 1-3/8 1-7/16 *35mm*	4.0 3.9 3.8 3.7 *1.7*	1-17/32 *38.9*	4-3/4 *120.7*	1-3/4 *44.5*	3-5/8 *92.1*	1/2 *M12*	9/16 *14.3*	17/32 *13.5*	1-27/32 *46.8*	2-7/16 *61.9*
208	1-1/2 1-5/8 *40mm*	4.8 4.7 *2.1*	1-11/16 *42.9*	5-1/8 *130.2*	1-7/8 *47.6*	4 *101.6*	1/2 *M12*	9/16 *14.3*	17/32 *13.5*	2-3/64 *52.0*	2-3/8 *60.3*
209	1-5/8 1-11/16 1-3/4 *45mm*	6.1 6.0 5.9 *2.7*	1-23/32 *43.7*	5-3/8 *136.5*	1-15/16 *49.2*	4-1/8 *104.8*	1/2 *M14*	5/8 *15.9*	17/32 *13.5*	2-7/32 *56.4*	2-3/4 *69.9*
210	1-15/16 2 *50mm*	6.7 6.6 *3.0*	1-3/4 *44.5*	5-5/8 *142.9*	2 *50.8*	4-3/8 *111.1*	1/2 *M16*	5/8 *15.9*	17/32 *13.5*	2-7/16 *61.9*	2-7/8 *73.0*
211	2 2-3/16 2-1/4 *55mm*	9.3 9.0 8.9 *4.1*	1-27/32 *46.8*	6-1/2 *165.1*	2-5/32 *54.8*	5-1/8 *130.2*	5/8 *M16*	11/16 *17.5*	9/16 *14.3*	2-23/32 *69.1*	3-1/4 *82.6*
212	2-1/4 2-7/16 *60mm*	11.1 10.6 *6.0*	1-63/64 *50.4*	6-7/8 *174.6*	2-9/32 *57.9*	5-5/8 *142.9*	5/8 *M16*	11/16 *17.5*	9/16 *14.3*	2-31/3 *75.4*	3-1/2 *88.9*
214	2-1/2 2-11/16 *70mm*	16.0 15.4 *6.9*	2-15/64 *56.8*	7-3/8 *187.3*	2-3/4 *69.9*	5-7/8 *149.2*	5/8 *M16*	11/16 *17.5*	9/16 *14.3*	3-5/16 *84.1*	3-11/16 *93.7*
215	2-15/16 *75mm*	17.6 *8.0*	2-9/32 *57.9*	7-3/4 *196.9*	2-57/64 *73.4*	6 *152.4*	3/4 *M18*	1 *25.4*	41/6 *16.34*	3-5/8 *92.1*	3-7/8 *98.4*

DIMENSIONS
SC INSERTS
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MODIFICATIONS
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RELATED PRODUCTS
PAGE B2–43

Project:

- Taunton WTF Improvements Phase 1, Model 60-500 Scum Concentrator

Specification Section(s):

- 11317

Instrument Location:

- Concentrator Tank

Instrument Name:

- Take-up Bearing / Frame

Instrument Tag Number(s):

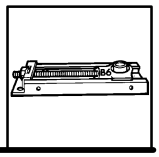
- N/A

Manufacturer(s):

- Dodge

Model / Part Number(s):

- 013112 / 125158



Take-up Frames–NS

TAKE-UP BEARINGS FOR NARROW SLOT BALL BEARING TAKE-UP FRAMES

SETSCREW BALL BEARINGS - INCH

SC Normal Duty Narrow Slot Take-Up Bearings

Shaft Size	Part Number	Bearing Description	Weight lbs.	Take-Up Frame No. Ref.	A	L
1/2 5/8 3/4	**125328** **125329** **125050**	NSTU-SC-008 NSTU-SC-010 NSTU-SC-012	1.6 1.5 1.4	NS-210	1-5/32	2-9/64
7/8 15/16 1	**125365** **125051** **125052**	NSTU-SC-014 NSTU-SC-015 NSTU-SC-100	1.7 1.6 1.5	NS-210	1-3/16	2-3/16
1-1/16 1-1/8 1-3/16 1-1/4	**125366** **125367** **125153** **123174**	NSTU-SC-101 NSTU-SC-102 NSTU-SC-103 NSTU-SC-104S	2.9 2.8 2.6 2.5	NS-308	1-25/64	2-11/32
1-1/4 1-5/16 1-3/8 1-7/16	**125154** **125368** **125369** **125155**	NSTU-SC-104 NSTU-SC-105 NSTU-SC-106 NSTU-SC-107	2.8 2.7 2.6 2.5	NS-308	1-35/64	2-15/32
1-1/2 1-5/8	**125156** **125370**	NSTU-SC-108 NSTU-SC-110	4.7 4.6	NS-400	1-11/16	3-1/64
1-5/8 1-11/16 1-3/4	@ **125157** **125371**	NSTU-SC-110L NSTU-SC-111 NSTU-SC-112	4.9 4.8 4.7	NS-400	1-23/32	3-3/64
1-15/16 2	**125158** **125372**	NSTU-SC-115 NSTU-SC-200	4.9 4.8	NS-400	1-3/4	3-5/64
2 2-3/16 2-1/4	**135171** **125160** **125373**	NSTU-SCM-200 NSTU-SC-203 NSTU-SC-204	6.8 6.6 6.5	NS-407	1-27/32	3-9/64
2-1/4 2-7/16	**135172** **125162**	NSTU-SCM-204 NSTU-SC-207	8.7 8.4	NS-415	1-63/64	3-15/64

@ Assembled to order.

SETSCREW BALL BEARINGS - INCH

SCM Medium Duty Narrow Slot Take-Up Bearings

Shaft Size	Part Number	Bearing Description	Weight lbs.	Take-Up Frame No. Ref.	A	L
1	**135102**	NSTU-SCM-100	3.0	NS-308	1-25/64	2-11/32
1-3/16 1-1/4	**135081** **125154**	NSTU-SCM-103 NSTU-SC-104	2.9 2.8	NS-308	1-17/32	2-31/64
1-7/16	**135105**	NSTU-SCM-107	4.7	NS-400	1-11/16	2-31/32
1-1/2	**135106**	NSTU-SCM-108	5.0	NS-400	1-23/32	3
1-11/16 1-3/4	**135107** **135170**	NSTU-SCM-111 NSTU-SCM-112	5.3 5.2	NS-400	1-3/4	3-12/32
1-15/16 2	**135109** **135171**	NSTU-SCM-115 NSTU-SCM-200	7.0 6.8	NS-407	1-27/32	3-7/64
2-3/16 2-1/4	**135111** **135172**	NSTU-SCM-203 NSTU-SCM-204	8.9 8.7	NS-415	1-63/64	3-3/16

SETSCREW BALL BEARINGS- METRIC

SC Normal Duty Narrow Slot Metric Take-Up Bearings

Shaft Size mm	Part Number	Bearing Description	Weight kg	Take-Up Frame No. Ref.	A	L
20	**125900**	NSTU-SC-20M	0.6	NS-210	1-5/32	2-9/64
25	**125901**	NSTU-SC-25M	0.7	NS-210	1-3/16	2-3/16
30	**125902**	NSTU-SC-30M	1.2	NS-308	1-25/64	2-11/32
35	**125903**	NSTU-SC-35M	1.2	NS-308	1-35/64	2-15/32
40	**125904**	NSTU-SC-40M	2.1	NS-400	1-11/16	3-1/64
45	**125905**	NSTU-SC-45M	2.1	NS-400	1-23/32	3-3/64
50	**125906**	NSTU-SC-50M	2.2	NS-400	1-3/4	3-5/64
55	**125907**	NSTU-SC-55M	3.0	NS-407	1-27/32	3-9/64
60	**125908**	NSTU-SC-60M	4.9	NS-415	1-63/64	3-15/64

D–LOK BALL BEARINGS

Shaft Size mm	Part Number	Bearing Description	Weight kg	Take-Up Frame No. Ref.	A	L
3/4	**052626**	NSTU–DL–012	1.4	NS210	1–9/32	2–17/32
1–7/16	**053493**	NSTU–DL–107	2.5	NS308	1–3/4	3–9/32

SETSCREW BALL BEARINGS – METRIC

SCM MEDIUM DUTY NARROW SLOT METRIC TAKE-UP BEARINGS

Shaft SIze mm	Part Number	Bearing Description	Weight kg	Take-Up Frame No. Ref.	A	L
25	**125980**	NSTU-SCM-25M	1.2	NS-308	1-25/64	2-11/32
30	**125981**	NSTU-SCM-30M	1.3	NS-308	1-17/32	2-31/64
40	**125982**	NSTU-SCM-35M	2.2	NS-400	1-11/16	2-31/32
35	**125983**	NSTU-SCM-40M	2.3	NS-400	1-23/32	3
45	**125984**	NSTU-SCM-45M	2.4	NS-400	1-3/4	3-1/32
50	**125985**	NSTU-SCM-50M	3.2	NS-407	1-27/32	3-7/64
55	**125986**	NSTU-SCM-55M	4.0	NS-415	1-63/64	3-3/16

DIMENSIONS SC NARROW SLOT PAGE B2–80	DIMENSIONS SCM NARROW SLOT INCH PAGE B2–84		

Take-up Frames–NS

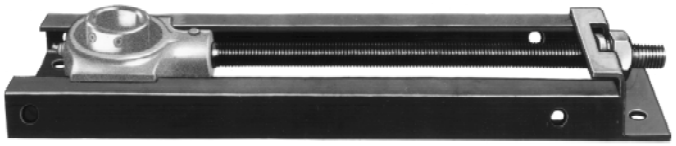
TAKE-UP BEARINGS FOR NARROW SLOT BALL BEARING TAKE-UP FRAMES

ECCENTRIC COLLAR BALL BEARINGS - INCH

SXV Intermediate Duty Narrow Slot Take-Up Bearings

Shaft Size	Part Number	Bearing Description	Weight lbs.	Take-Up Frame No. Ref.	A	L
3/4	**131186**	NSTU-SXV-012	1.30	NS-210	1-7/32	2-11/32
7/8 15/16 1	**131187** **131188** **131189**	NSTU-SXV-014 NSTU-SXV-015 NSTU-SXV-100	1.73 1.63 1.53	NS-210	1-7/32	2-21/64
1-1/16 1-1/8 1-3/16 1-1/4	**131190** **131191** **131192** **131193**	NSTU-SXV-101 NSTU-SXV-102 NSTU-SXV-103 NSTU-SXV-104S	2.93 2.83 2.63 2.53	NS-308	1-13/32	2-15/32
1-1/4 1-5/16 1-3/8 1-7/16	**131194** **131195** **131196** **131197**	NSTU-SXV-104 NSTU-SXV-105 NSTU-SXV-106 NSTU-SXV-107	2.83 2.73 2.63 2.53	NS-308	1-17/32	2-9/16
1-1/2	**131198**	NSTU-SXV-108	4.73	NS-400	1-23/32	3-5/32
1-11/16 1-3/4	**130340** **130341**	NSTU-SXV-111 NSTU-SXV-112	4.83 4.73	NS-400	1-23/32	3-5/32
1-15/16 2	**130342** **130343**	NSTU-SXV-115 NSTU-SXV-200	4.93 4.83	NS-400	1-23/32	3-5/32
2 2-3/16	**130344** **130345**	NSTU-SXV-200L NSTU-SXV-203	6.83 6.63	NS-407	1-23/32	3-5/16

NARROW SLOT BALL BEARING TAKE-UP FRAMES



Frame Size Description	Part No.	Wt. (Lbs.)
NS-210X6-TUFR	**038109**	5.5
NS-308X6-TUFR NS-308X12-TUFR	**038110** **038111**	5.8 8.0
NS-400X6-TUFR NS-400X9-TUFR NS-400X12-TUFR NS-400X18-TUFR	**038112** **038113** **038114** **038115**	9.2 11.3 12.5 16.3
NS-407X9-TUFR NS-407X18-TUFR	**038116** **038117**	13.1 18.6
NS-415X9-TUFR NS-415X18-TUFR	**038118** **038119**	15.5 19.0

ECCENTRIC COLLAR BALL BEARINGS - INCH

SXR Normal Duty Narrow Slot Take-Up Bearings

Shaft Size	Part Number	Bearing Description	Weight lbs.	Take-Up Frame No. Ref.	A	L
3/4	**131154**	NSTU-SXR-012	1.5	NS-210	1-23/32	2-35/64
7/8 15/16 1	**131156** **131157** **131158**	NSTU-SXR-014 NSTU-SXR-015 NSTU-SXR-100	1.7 1.6 1.5	NS-210	1-3/4	2-37/64
1-1/16 1-1/8 1-3/16	**131159** **131160** **131161**	NSTU-SXR-101 NSTU-SXR-102 NSTU-SXR-103	2.9 2.8 2.6	NS-308	1-29/32	2-21/32
1-1/4 1-5/16 1-3/8 1-7/16	**131163** **131164** **131165** **131166**	NSTU-SXR-104 NSTU-SXR-105 NSTU-SXR-106 NSTU-SXR-107	3.0 2.8 2.7 2.5	NS-308	2-1/64	2-3/4
1-1/2	**131167**	NSTU-SXR-108	5.0	NS-400	2-7/32	3-11/32
1-5/8 1-11/16 1-3/4	**131170** **131171** **131172**	NSTU-SXR-110 NSTU-SXR-111 NSTU-SXR-112	5.4 5.2 5.0	NS-400	2-7/32	3-11/32
1-15/16 2	**131175** **131177**	NSTU-SXR-115 NSTU-SXR-200	5.7 5.3	NS-400	2-15/32	3-15/32
2 2-3/16	@ **131180**	NSTU-SXR-200L NSTU-SXR-203	7.4 7.2	NS-407	2-13/16	3-45/64
2-1/4 2-7/16	**131182** **131185**	NSTU-SXR-204 NSTU-SXR-207	10.0 9.0	NS-415	3-1/16	3-29/32

@ Assembled to order.

SETSCREW BALL BEARINGS - INCH

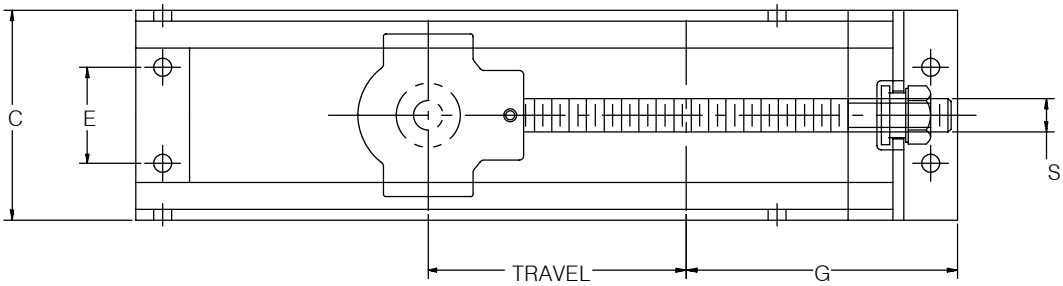
VSC Intermediate Duty Narrow Slot Take-Up Bearings

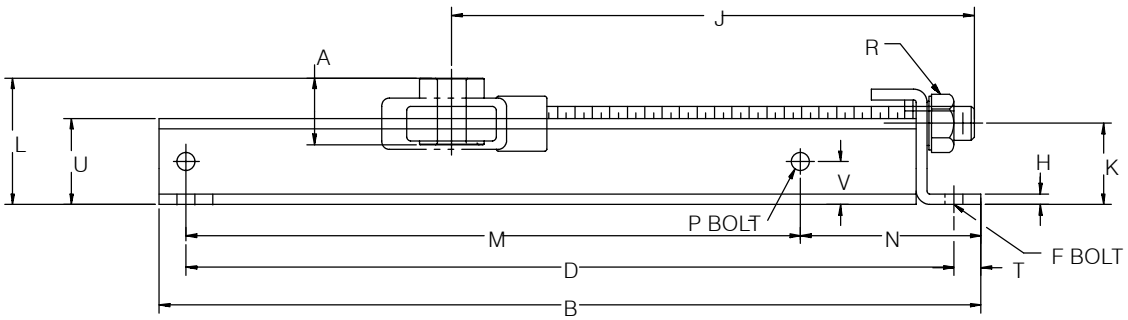
Shaft Size	Part Number	Bearing Description	Weight lbs.	Take-Up Frame No. Ref.	A	L
3/4	**125533**	NSTU-VSC-012	1.25	NS-210	1-1/16	2-9/64
7/8 15/16 1	**125534** **125535** **125536**	NSTU-VSC-014 NSTU-VSC-015 NSTU-VSC-100	1.68 1.58 1.48	NS-210	1-3/32	2-11/64
1-1/8 1-3/16 1-1/4	**125537** **125538** **125540**	NSTU-VSC-102 NSTU-VSC-103 NSTU-VSC-104S	2.78 2.58 2.48	NS-308	1-19/64	2-5/16
1-1/4 1-3/8 1-7/16	**125539** **125541** **123680**	NSTU-VSC-104 NSTU-VSC-106 NSTU-VSC-107	2.78 2.58 2.48	NS-308	1-7/16	2-7/16
1-1/2	**125542**	NSTU-VSC-108	4.68	NS-400	1-9/16	2-31/32
1-11/16 1-3/4	**125543** **125544**	NSTU-VSC-111 NSTU-VSC-112	4.78 4.68	NS-400	1-19/32	3
1-15/16 2	**125545** **125546**	NSTU-VSC-115 NSTU-VSC-200	4.88 4.78	NS-400	1-5/8	3-1/32
2 2-3/16	**125547** **125548**	NSTU-VSC-200L NSTU-VSC-203	6.78 6.58	NS-407	1-23/32	3-31/32

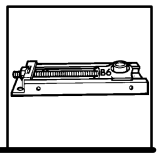
DIMENSIONS SXV NARROW SLOT PAGE B3–62	DIMENSIONS SXR NARROW SLOT PAGE B3–56	DIMENSIONS VSC NARROW SLOT PAGE B2–32	DIMENSIONS NARROW SLOT T.U. FRAME PAGE B13–10

Take-up Frames–NS

NARROW SLOT BALL BEARING TAKE-UP FRAMES







Take-up Frames–NS

NARROW SLOT BALL BEARING TAKE-UP FRAMES

Frame Description	Part No.	Wt. (Lbs.)	A	B	C	D	E	F Base Bolt		G	H
								No.	Dia.		
NS-210x6-TUFR	**038109**	5.5		13-5/8	3-13/16	12-1/8	1-5/8	4	1/2	4-7/8	1/4
NS-308x6-TUFR	**038110**	5.8		13-5/8	4-11/16	12-1/8	2-1/4	4	1/2	5-3/8	1/4
NS-308x12-TUFR	**038111**	8.0		19-5/8		18-1/8					
NS-400x6-TUFR	**038112**	9.2	See Table	14-9/16		13-1/16					
NS-400x9-TUFR	**038113**	11.3	On Page	18-5/8	6-1/16	17-1/8	2-1/2	4	1/2	6	1/4
NS-400x12-TUFR	**038114**	12.5	B13–8 –	20-9/16		19-1/16					
NS-400x18-TUFR	**038115**	16.3	B13–9	27-5/8		26-1/8					
NS-407x9-TUFR	**038116**	13.1		19-1/8	6-1/2	17-3/8	2-3/4	4	5/8	7-1/8	5/16
NS-407x18-TUFR	**038117**	18.6		28-1/8		26-3/8					
NS-415x9-TUFR	**038118**	15.5		19-1/8	7	17-3/8	3	4	5/8	7-3/8	5/16
NS-415x18-TUFR	**038119**	19.0		28-1/8		26-3/8					

Frame Description	J	K	L	M	N	P Side Bolt		R Hex	S	T	U	V	Channel
						No.	Dia.						
NS-210x6-TUFR	11-1/32	1-13/32		9-5/16	3-9/16	4	1/2	1-5/16	3/4-10	3/4	1-1/2	3/4	1-1/2 x 9/16 x 3/16
NS-308x6-TUFR	10-13/16	1-13/32		9-5/16	3-9/16	4	1/2	1-5/16	3/4-10	3/4	1-1/2	3/4	1-1/2 x 9/16 x 3/16
NS-308x12-TUFR	16-13/16			15-5/16									
NS-400x6-TUFR	11-1/16		See Table	10-1/16									
NS-400x9-TUFR	14-1/16	1-7/8	On Page	14-1/8	3-3/4	4	5/8	1-1/2	7/8-9	3/4	2	1	2 x 1 x 3/16
NS-400x12-TUFR	17-1/16		B13–8 –	16-1/16									
NS-400x18-TUFR	23-1/16		B13–9	23-1/8									
NS-407x9-TUFR	15-19/32	1-7/8		14-1/8	4-1/4	4	5/8	1-5/8	1-8	1	2	1	2 x 1 x 3/16
NS-407x18-TUFR	24-19/32			23-1/8									
NS-415x9-TUFR	15-27/32	1-7/8		14-1/8	4-1/4	4	5/8	1-5/8	1-8	1	2	1	2 x 1 x 3/16
NS-415x18-TUFR	24-27/32			23-1/8									

Project:

- Taunton WTF Improvement Phase 1, Model 60-500 Scum Concentrator

Specification Section(s):

- 11317

Instrument Location:

- Concentrator Scum Pump

Instrument Name:

- Scum Pump

Instrument Tag Number(s):

- N/A

Manufacturer(s):

- Netzsch

Model / Part Number(s):

- NM038BO02S12B

NETZSCH Pumps North America, LLC
Exton, PA. 19341

Technical Pump Quotation

Check us out

NEMO® Model
NM038BO02S12B

Quote:	MFZ-B000434700
Date:	12/1/2021
Project:	Thickened Scum Pump

Product:		***Content***	***nominal***	***minimum***	***maximum***
Name / Composition			Thickened wastewater scum		
Product temperature	approx.	°F	85-150		180*
Specific gravity			Not Given		
Particle size		mm	Not Given		
pH value			Not Given		
Solids content (w/w)	approx.	%TS		30	50
Dynamic viscosity		CPS	Not Given		
Abrasive	assumed		Low		

*Hot water for wash cycle, once per day

"Materials of construction are only recommended based on the information provided. Customer needs to verify materials will be compatible with the process fluid or application."

Application details:		***Content***	***nominal***		
Flow rate (Q)	approx.	GPM	5		
Differential pressure		PSI	50		
Suction pressure	assumed	PSI	Flooded		
Discharge pressure	approx.	PSI	50		
Pump operating speed	approx.	RPM	95		
Sliding velocity	approx.	ft./s	0.7		
Frequency	approx.	Hz	60		
Power required at drive shaft	approx.	HP	1.6		
Running torque	approx.	ft./lbs.	17.3		
Starting torque	approx.	ft./lbs.	36.3		

Assembly specification	Installation:	Horizontal

General operating conditions	
Installation area	Inside
Ambient Temperature	Approx. 20°C / 70 F
Humidity	up to 75%
Application type	Continuous operation
Operating hours per day	8
Service voltage	3ph, 60hz, 460V

Painting	Coating system	NETZSCH System 1
	Pump Color	RAL7031 (blue grey)/NCS3555B60G (teal)
	Drive Color	RAL7031 (blue grey)
	Baseplate Color	RAL7031 (blue grey)
	Paint Manufacturer	Intergard 345
	Coating Layers	1 Primer and 1 Top coat
	Total Coating Thickness	6 mils

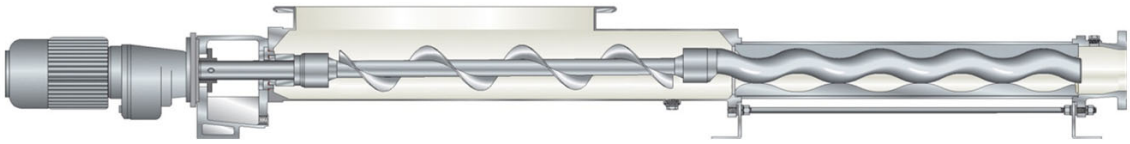
Operating and Maintenance Instructions

Standard documentation in accordance with the 98/37/EG Machinery Directive.

Request the Operating and Maintenance at https://www.netzschusa.com/distributors/OM.html

NETZSCH Pumps North America, LLC
Exton, PA. 19341

Pump: NM038BO02S12B



Picture is for reference only and may not be exact model specified

Characteristics and benefits of the NEMO® BO pump:

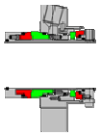
1) suitable for all media from watery to pasty
2) suitable for waste water sludge up to 15% solid content
3) feeding auger on coupling rod to increase total efficiency
4) feeding rate approx. 170%
5) robust design
6) joints sealed to the product

General characteristics	
name plate on the pump	in English (Stainless steel)
direction of rotation	To the left, counter clockwise(as viewed from drive end)

Pump Pedestal	Cast Iron 0.6025 / EN-GJL-250

Pump housing / End connection	
Housing material	Carbon Steel SAE 1020
Housing Connection position	Vertically Upwards (as viewed from drive end)
Function of housing connection	Suction Connection
Function of end connection	Discharge Connection
Suction Connection design	Open Throat with Hopper
Nom. dia. & pressure for pump housing	**13" X 13"**
Discharge Connection design	standard
Nom. dia. & pressure of discharge flange	2.5" 150# FF ANSI Flange per ASME 16.5B
Housing seals	FKM

Shaft seal	
Design	Double Cartridge seal, buffer fluid system req'd
Shaft seal type	Eagle-Burgmann CARTEX-DN15/E15
Shaft seal materials	Inboard: SiC v SiC faces, Viton Elastomers, 316SS hardware - Q1Q1VMG Outboard: Carbon v SiC faces, Viton Elastomers, 316SS hardware - BQ1VMG
Flush/Quench Connection:	1/8" NPT



Rotating parts	
Extension shaft Material	Stainless Steel SAE 420
Coupling Rod Material	Stainless Steel SAE 420
Coupling Rod Design	With Auger
Auger Material	Stainless Steel SAE 420

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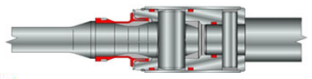
Exton, PA. 19341

Joints	
Joint type	Pin Joint with SM Joint Seal
Joint sealing material	Buna/SAE 316 Stainless Steel
Joint lubrication	Mineral Oil



Rotor	
Rotor material	Alloy Steel SAE 4140, hard chrome plated
Rotor Size	40°C Undercut
Temperature range	85-120°F

Stator	
Stator material	NEMOLAST® S61L / S62L (Buna)

"Materials of construction are only recommended based on the information provided. Customer needs to verify materials will be compatible with the process fluid or application."

Drive	
IEEE841 Severe duty Motor	
Manufacturer	Baldor
Type	VECP83661T-4
Speed min/max (rpm)	175/1750
Power (HP)	3
Frequency (Hz)	60
Frame size	182TC
Voltage (V)	460
Poles/phase	4/3
Protection/insulation	IP56/F
Gear reducer	
Manufacturer	Nord
Type	SK372.1F-180TC
Flange diameter (mm)	200
Shaft diameter (mm)	30
Cross drill diameter (mm)	8
Cross drill position–measured from IEC face according to WN0146	33
Output speed min/max (rpm)	10/95
Ratio	18.4

Baseplate:	Carbon Steel SAE 1020 - Trapazodial Design		
Arrangement	Inline		
Options	☑ 4" Grout Holes	☐ Anchor bolts	☐ Casters and handle bar
	☐ Lifting lugs	☑ 1" Drip Rim w/ 1" NPT drain plug	

Approximate Weights – (lbs.)	
Bareshaft Pump	125
Complete Assembly	306

Additional Documentation	**Testing**	
None	Standard Factory Test	☑
	Hydrostatic Test	☐
	Run Test	☐
	Performance Test	☐
	Other: _____	☐

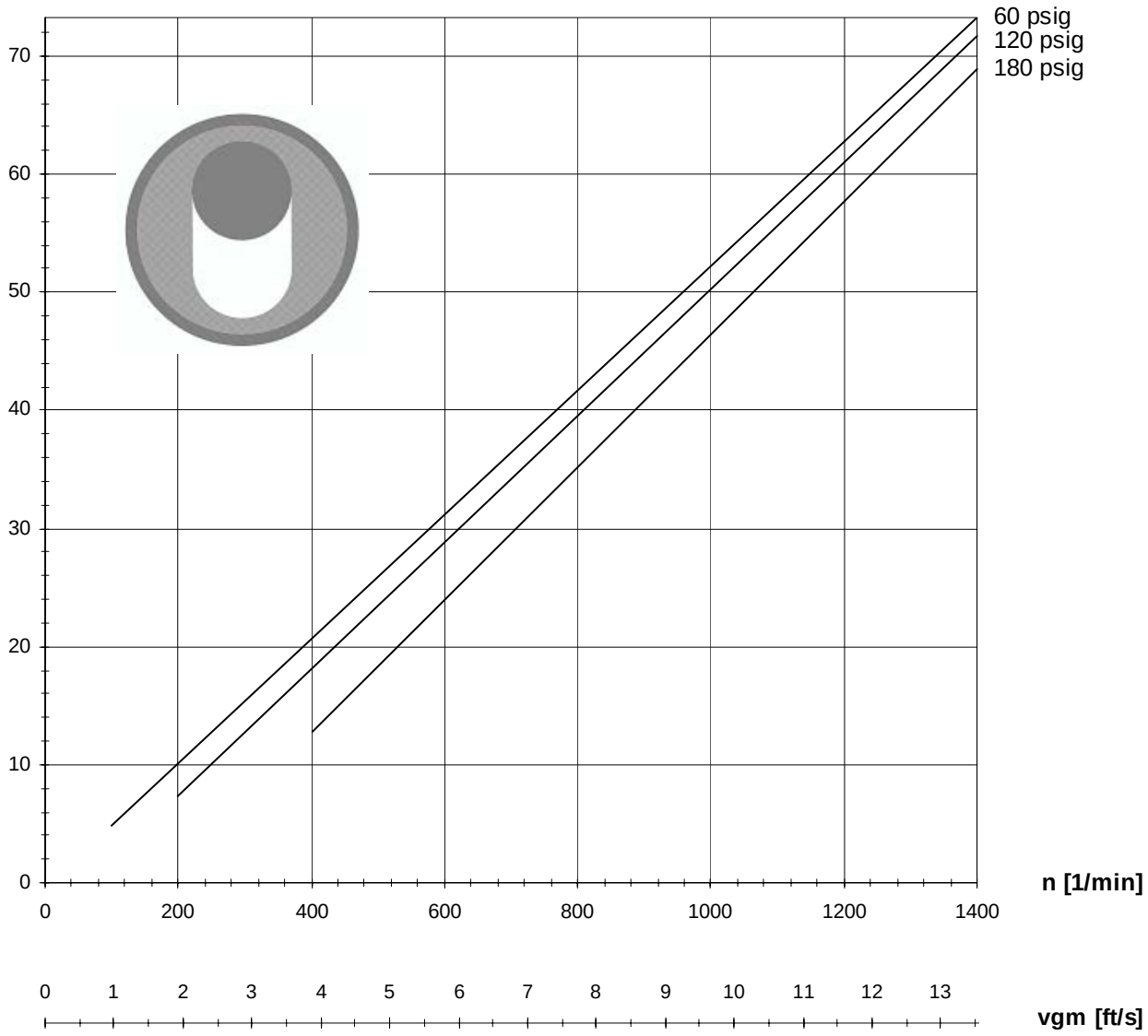
NM038--02S

Performance Curve

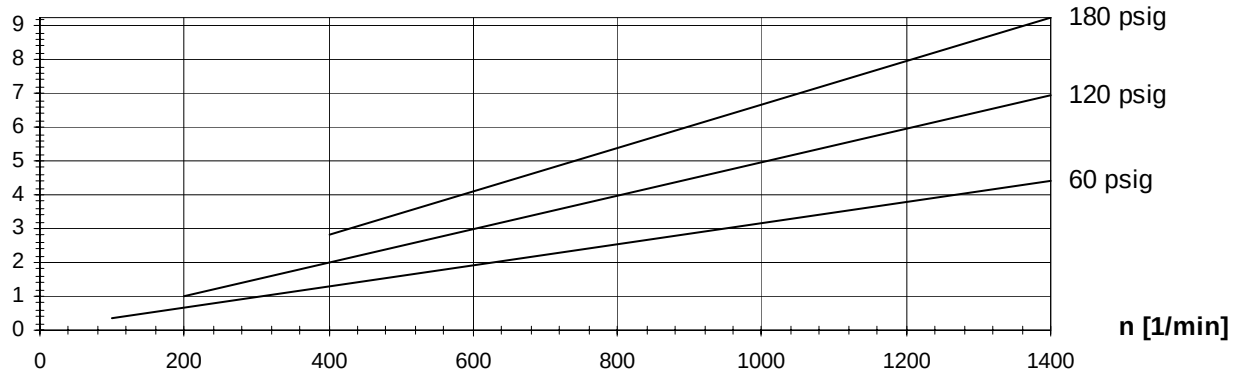
elastomer quality: standard

NETZSCH

GPM



HP



starting torque T(L) = 36,26 lbft

pressure	T
60 psig	18,5 lbft
120 psig	28,12 lbft
180 psig	36,26 lbft

Valid for water (1 cP) at 20 °C (70 °F). Tolerances are in accordance with VDMA 24284 (+10%/-5%).

Project:
• Taunton WTF Improvement Phase 1, Model 60-500 Scum Concentrator

Specification Section(s):
• 11317

Instrument Location:
• Concentrator Scum Pump - Seal Water

Instrument Name:
• Seal Water Flow Switch

Instrument Tag Number(s):
• N/A

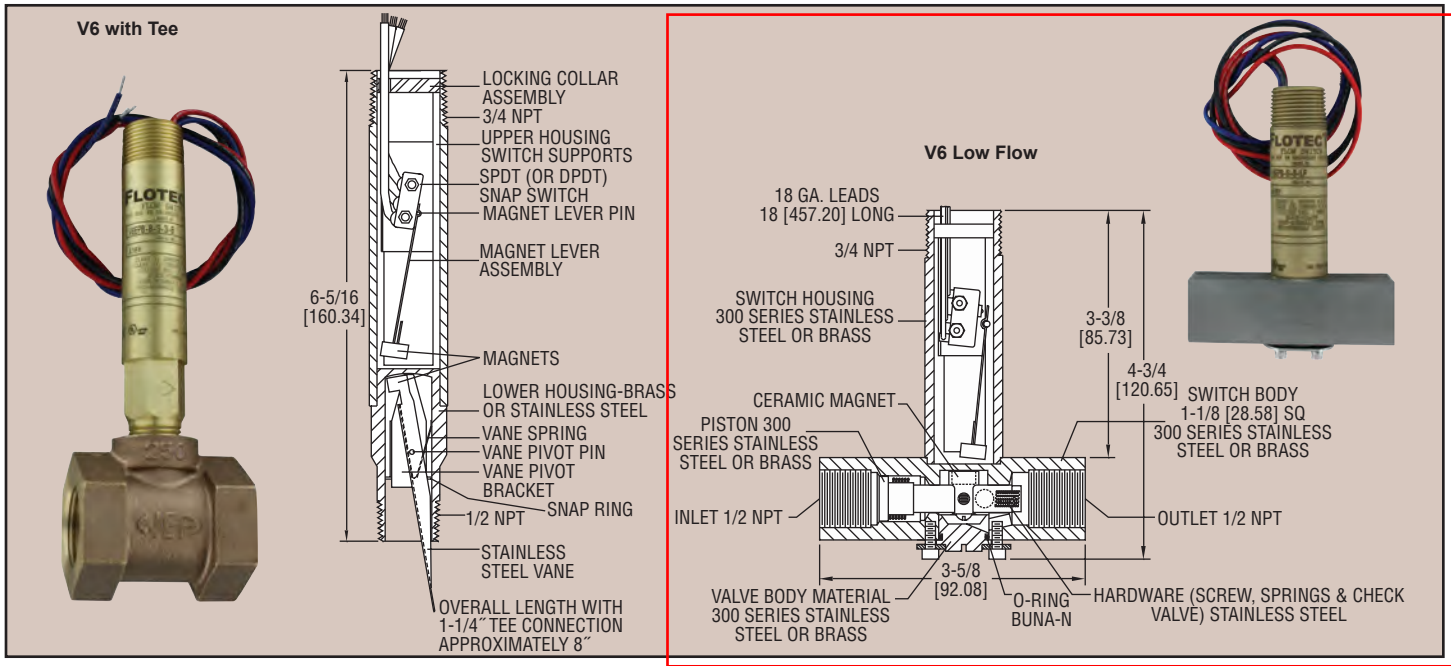
Manufacturer(s):
• Dwyer

Model / Part Number(s):
• V6EPB-B-S-LF

Series V6

FLOTECT® Mini-Size Flow Switches

Monitor flow in 1/2″ to 2″ pipe, Explosion-proof



Surprisingly compact, the Series V6 Flotect® Flow Switch is engineered to specifically monitor liquid, gas, or airflows. Operation is simple and dependable with no mechanical linkage as the flow switch is magnetically actuated. The lower body holds the flow vane and one magnet, which controls the switch actuating magnet in the separate upper housing. In most applications the switch is normally off with the pipeline flow forcing the vane against the vane spring. As the flow decreases the vane spring pushes back the vane, actuating the switch to signal an alarm or shutdown. Tees are available for installation in pipelines from 1/2″ to 2″, with bushings added the unit is easily adapted to 1/4″ and 3/8″ piping.

FEATURES

- Leak proof lower body machined from bar stock
- Choice of models in a tee with calibrated vane or field adjustable trimmable vane
- Weatherproof
- Explosion-proof (listing included in specifications)
- Electrical assembly can be easily replaced without removing the unit from the installation so that the process does not have to be shut down
- High pressure rating of 1000 psig (69 bar) with brass body and 2000 psig (138 bar) on the 316 SS body (see specifications)
- Low flow model offers field adjustable set point
- Easy installation, simply insert the tee in the pipeline and complete electrical connections

APPLICATIONS

- Protects pumps, motors and other equipment against low or no flow
- Controls sequential operation of pumps
- Automatically starts auxillary pumps and engines
- Shuts down burner when air flow through heating coil fails
- Controls dampers according to flow

SPECIFICATIONS

Service: Gases or liquids compatible with wetted materials.
Wetted Materials: Standard V6 Models: Vane: 301 SS; Lower Body: brass or 303 SS; Magnet: ceramic; Other: 301, 302 SS; Tee: brass, iron, forged steel, or 304 SS.
V6 Low Flow Models: Lower Body: brass or 303 SS; Tee: brass or 304 SS; Magnet: ceramic; O-ring: Buna-N standard, Fluoroelastomer optional; Other: 301, 302 SS.
Temperature Limits: -4 to 220°F (-20 to 105°C) Standard, MT high temperature option 400°F (205°C) (MT not UL, CSA, ATEX, IECEx or KC) ATEX Compliant AT, IECEx IEC Option and KC (KC Option), Ambient Temperature -4 to 167°F (-20 to 75°C) Process Temperature: -4 to 220°F (-20 to 105°C).
Pressure Limit: Brass lower body with no tee models 1000 psig (69 bar), 303 SS lower body with no tee models 2000 psig (138 bar). Brass tee models 250 psi (17.2 bar), iron tee models 1000 psi (69 bar), forged and stainless steel tee models 2000 psi (138 bar), low flow models 1450 psi (100 bar).
Enclosure Rating: Weatherproof and Explosion-proof. Listed with UL and CSA for Class I, Groups A, B, C and D; Class II, Groups E, F, and G. (Group A on stainless steel body models only).
ATEX CE 0344 II 2 G Ex d IIC T6 Gb Process Temp≤75°C Alternate Temperature Class T5 Process Temp≤90°C, 115°C (T4) Process Temp ≤105°C consult factory. EC-type Certificate No.: KEMA 04ATEX2128.
ATEX Standards: EN 60079-0: 2009; EN 60079-1: 2007.
IECEx Certified: For Ex d IIC T6 Gb Process Temp≤75°C Alternate Temperature Class T5 Process Temp≤90°C, 115°C (T4) Process Temp≤105°C consult factory.
IECEx Certificate of Conformity: IECEx DEK 11.0039;
IECEx Standards: IEC 60079-0: 2007; IEC 60079-1: 2007;
Korean Certified (KC) for: Ex d IIC T6 Gb Process Temp≤75°C;
KTL Certificate Number: 2012-2454-75.
Switch Type: SPDT snap switch standard, DPDT snap switch optional.
Electrical Rating: UL models: 5A @125/250 VAC. CSA, ATEX and IECEx models: 5A @ 125/250 VAC (V~); 5A res., 3A ind. @ 30 VDC (V⎓). MV option: .1A @ 125 VAC (V~). MT option: 5A @125/250 VAC (V~). [MT option not UL, CSA, ATEX or IECEx].
Electrical Connections: UL models: 18 AWG, 18″ (460 mm) long. ATEX/CSA /IECEx models: terminal block.
Upper Body: Brass or 303 stainless steel.
Conduit Connections: 3/4″ male NPT standard, 3/4″ female NPT on junction box models.
Process Connection: 1/2″ male NPT on models without a tee.
Mounting Orientation: Switch can be installed in any position but the actuation/deactuation flow rates in the charts are based on horizontal pipe runs and are nominal values.
Set Point Adjustment: Standard V6 models none. Without tee models vane is trimmable. Low flow models are field adjustable in the range shown. See set point charts on opposite page.
Weight: 2 to 6 lb (.9 to 2.7 kg) depending on construction.
Options not Shown: Custom calibration, bushings, PVC tee, reinforced vane, DPDT relays.
Agency Approvals: ATEX, CE, CSA, IECEx, UL.

Example	V6	EP	B-B	S	2	B	MT	V6EPB-B-S-2-B-MT flow switch; brass body, brass tee with 3/4″ NPT connections, SPDT snap switch, and high temperature option
Series	V6							Series V6 flow switch
Construction		EP						Explosion proof
Body			B-B					Brass
			S-S					SS
Circuit (Switch)				S				SPDT
				D				DPDT
Tee Connection Size					1			1/2″ NPT
					2			3/4″ NPT
					3			1″ NPT
					4			1-1/4″ NPT
					5			1-1/2″ NPT
					6			2″ NPT
					LF			Low Flow Model (1/2″ NPT connections)
Tee Material						MI		Iron
						FS		Forged Steel
						B		Brass
						S		SS
						0		No tee, field trimmable vane**
								(For LF Model no tee material chosen, tee material matches body choice)
Options							CSA	CSA approved construction with junction box*
							AT	ATEX compliant construction with junction box
							IEC	IECEx certified construction with junction box
							MV	Gold contacts on snap switch for dry circuits (see specifications for ratings)
							MT	High temperature option rated 400°F (205°C) (see specifications for ratings)*
							VIT	Fluoroelastomer O-rings in place of Buna-N on low flow models

*Options that do not have ATEX.

**Vane will be trimmed to the connection size. If full field trimmable vane is desired, must select with tee connection size 6.

V6 Set Point Charts - Factory Installed Tee

Approximate Actuation-Deacuation Flow Rates for Air. Upper figures are SCFM, Lower figures in LPM		
Pipe Size	**Actuate**	**Deactuate**
1/2″	6.50 180	5.00 120
3/4″	10.0 300	8.00 240
1″	14.0 420	12.0 360
1-1/4″	21.0 600	18.0 540
1-1/2″	33.0 960	30.0 840
2″	43.0 1200	36.0 1020

Approximate Actuation-Deactuation Flow Rates for Cold Water. Upper figures are GPM, Lower figures in LPM		
Pipe Size	**Actuate**	**Deactuate**
1/2″	1.50 5.667	1.00 3.83
3/4″	2.00 7.5	1.25 4.67
1″	3.00 11.33	1.75 6.67
1-1/4″	4.00 15.17	3.00 11.3
1-1/2″	6.00 22.67	5.00 18.9
2″	10.00 37.83	8.50 32.2

V6 Low Flow Set Point Chart

Min-Max Flow Rates in 1/2″ Pipe		
Media	**Actuate**	**Deactuate**
GPM-Water	.04-0.75	.03-0.60
LPM-Water	.15-2.84	.11-2.27
SCFM-Air	.18-2.70	.15-2.0
LPS-Air	.09-1.3	.07-.95

Pressure drop (head loss) is a function of both set point and flow rate. Typically, pressure drop at actuation flow rate listed will be 5-10 psid (.34-.69 bar). Pressure drops at other flow rates will vary in proportion to the (change in flow).

Model	Size	Body	Tee
V6EPB-B-S-1-B	1/2″	Brass	Brass
V6EPB-B-S-2-B	3/4″	Brass	Brass
V6EPB-B-S-3-B	1″	Brass	Brass
V6EPB-B-S-4-B	1-1/4″	Brass	Brass
V6EPB-B-S-5-B	1-1/2″	Brass	Brass
V6EPB-B-S-6-B	2″	Brass	Brass
V6EPB-B-S-1-MI	1/2″	Brass	Iron
V6EPB-B-S-2-MI	3/4″	Brass	Iron
V6EPB-B-S-3-MI	1″	Brass	Iron
V6EPB-B-S-4-MI	1-1/4″	Brass	Iron
V6EPB-B-S-5-MI	1-1/2″	Brass	Iron
V6EPB-B-S-6-MI	2″	Brass	Iron
V6EPS-S-S-1-FS	1/2″	SS	FS
V6EPS-S-S-2-FS	3/4″	SS	FS
V6EPS-S-S-3-FS	1″	SS	FS
V6EPS-S-S-4-FS	1-1/4″	SS	FS
V6EPS-S-S-5-FS	1-1/2″	SS	FS
V6EPS-S-S-6-FS	2″	SS	FS
V6EPS-S-S-1-S	1/2″	SS	SS
V6EPS-S-S-2-S	3/4″	SS	SS
V6EPS-S-S-3-S	1″	SS	SS
V6EPS-S-S-4-S	1-1/4″	SS	SS
V6EPS-S-S-5-S	1-1/2″	SS	SS
V6EPS-S-S-6-S	2″	SS	SS
V6EPB-B-S-6-0	No Tee	Brass	None
V6EPS-S-S-6-0	No Tee	SS	None
V6EPB-B-S-LF	1/2″	Brass	LF, Brass
V6EPS-S-S-LF	1/2″	SS	LF, SS

Project:
• Taunton WTF Improvement Phase 1, Model 60-500 Scum Concentrator

Specification Section(s):
• 11317

Instrument Location:
• Concentrator Scum Pump - Seal Water

Instrument Name:
• Seal Water Flow Valve

Instrument Tag Number(s):
• N/A

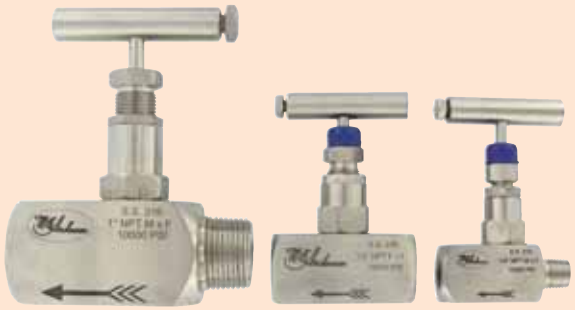
Manufacturer(s):
• W.E. Anderson

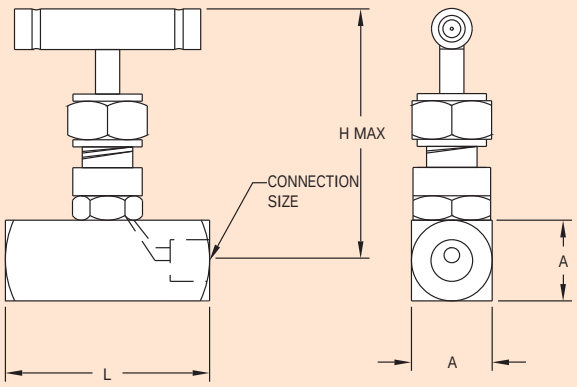
Model / Part Number(s):
• HNV-SSS32B

Series HNV

Needle Valve

For Use with Gas and Liquids, Pressures Up to 6000 psi





DIMENSIONS in (mm)

CONNECTION	A	L	H	CONNECTION	A	L	H	CONNECTION	A	L	H
1/8˝ F x F		1-31/32 (50.01)		3/8˝ F x F		2-3/8 (60.33)		3/4˝ F x F		2-61/64 (59.13)	
1/8˝ M x F	7/8 (22.3)	2-11/64 (55.17)	2-3/8 (60.33)	3/8˝ M x F	63/64 (25)	2-9/16 (65.09)	2-9/16 (65.09)	3/4˝ M x F	1-1/2 (38.10)	3-5/32 (80.17)	3-23/64 (85/33)
1/8˝ M x M		2-3/8 (60.33)		3/8˝ M x M		2-49/64 (70.25)		3/4˝ M x M		3-23/64 (85.33)	
1/4˝ F x F		2-3/8 (60.33)		1/2˝ F x F		2-9/16 (65.09)		1˝ F x F		3-23/64 (85.33)	
1/4˝ M x F	63/64 (25)	2-9/16 (65.09)	2-9/16 (65.09)	1/2˝ M x F	1-17/64 (32.15)	2-49/64 (70.25)	2-49/64 (70.25)	1˝ M x F	1-25/32 (45.24)	4-7/64 (104.38)	3-3/4 (95.25)
1/4˝ M x M		2-49/16 (70.25)		1/2˝ M x M		2-61/64 (59.13)		1˝ M x M		4-9/64 (105.17)	

Series HNV Needle Valve is a barstock style needle valve that is designed for controlling low flow rates of liquids or gases. The valve series features fine threading and large seat area to ensure precise flow control. Wetted materials are 316 SS and PTFE making these ideal for use with corrosives. The HNV has been tested to assure vibration and thermal stability.

Body includes a lock pin to prevent accidental bonnet disengagement. The HNV is available in male x male, male x female, and female x female connections from 1/8˝ to 1˝. Tee handle is constructed of 316 SS and allows low torque operation.

FEATURES

- Solid Barstock Body
- 6000 psi (431 bar) Pressure Rating
- Panel Mountable
- Bubble Tight Shutoff
- Bonnet Lock Pin

APPLICATIONS

Test stands, laboratories, mobile equipment, hydraulic systems, sampling systems, metering service, and corrosives.

SPECIFICATIONS

Service: Gases and liquids compatible with wetted materials.
End Connections: NPT.
Wetted Materials: 316 SS and PTFE packing.
Pressure Limits: 6000 psi (431 bar) @ 200°F (93°C). 4000 psi (276 bar) @ 464°F (240°C).
Temperature Limits: 464°F (240°C).
Other Materials: Handle: 316 SS.
Options: Contact the factory for tube and BS connections, other materials of construction, NACE certified, and round handwheel handles.

HNV Needle Valve			
Pipe Size	Female X Female	Female X Male	Male X Male
	Model	Model	Model
1/8˝	HNV-SSS31B	HNV-SSS21B	HNV-SSS11B
1/4˝	HNV-SSS32B	HNV-SSS22B	HNV-SSS12B
3/8˝	HNV-SSS33B	HNV-SSS23B	HNV-SSS13B
1/2˝	HNV-SSS34B	HNV-SSS24B	HNV-SSS14B
3/4˝	HNV-SSS35B	HNV-SSS25B	HNV-SSS15B
1˝	HNV-SSS36B	HNV-SSS26B	HNV-SSS16B

Valves

Project:
• Taunton WTF Improvement Phase 1, Model 60-500 Scum Concentrator

Specification Section(s):
• 11317

Instrument Location:
• Concentrator Scum Pump - Seal Water

Instrument Name:
• Seal Water Flow Meter

Instrument Tag Number(s):
• N/A

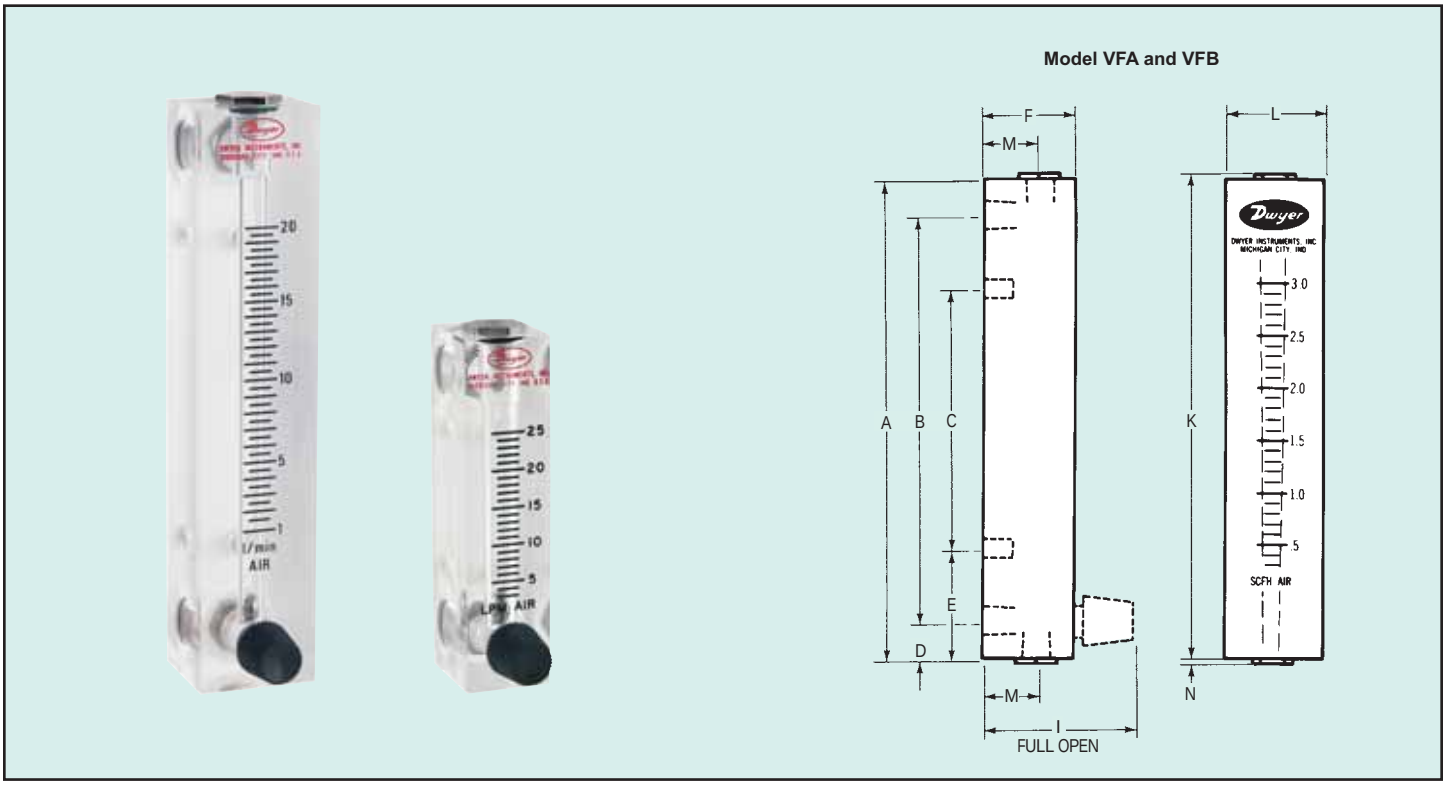
Manufacturer(s):
• Dwyer

Model / Part Number(s):
• VFB-85

Series VFA & VFB

Visi-Float® Flowmeters

Used to Indicate or Manually Control Air or Water Flow



The Visi–Float® flowmeter bodies are cut and precision machined from solid, clear acrylic plastic blocks. This construction not only produces a handsome finished product, but permits complete visual inspection. As a result, the Visi-Float® flowmeters are especially popular for medical and laboratory equipment applications.

Scales are easy to read – The front scale location and white background provides excellent visibility. The direct reading scales are hot stamped into the plastic and will not wear off. Mid-range calibration is established with a master flowmeter. Accuracy is ±5% of full scale for VFA models, ±3% for VFB. Scales average 2" long on the VFA models, 4" long on VFB.

Durable and attractive construction – The machined acrylic bodies of the Visi-Float® flowmeters are practically unbreakable. Fabrication is backed by over 60 years of experience in acrylic instrument machining. The tapered bore is precision machined to a smooth surface that provides perfect visibility of the indicating float. The VFA and VFB models are available with either brass or stainless steel inlet and outlet connections and are tapped for 1/8˝ NPT thread. VFB models 85 and 86 have either 1/4˝ back or 3/8˝ end connections. All standard models employ Buna-N "O" rings for leak proof operation and are available with either back or end connections for horizontal or vertical piping. Precision metering valves in brass or stainless steel are available for most VFA and VFB models.

Easy installation – All Visi-Float® flowmeters have metal mounting inserts on rear for panel mounting. They can also be supported directly by system piping.

Dimension-In-Inches		
	Model VFA	**Model VFB**
A	4	6-1/2
B	3 (1/8 female NPT)	5-1/2 (1/8 female NPT)
C	1-5/8 (10-32 Thread)	3-1/2 (10-32 thread)
D	1/2	1/2
E	1-3/16	1-1/2
F	1-1/4	1-1/4
I	2-1/16 (BV or SSV)	2-1/16 (BV or SSV)
K	4-3/32	6-19/32
L	1	1-3/8
M	3/4 (EC)	3/4(EC)
N	3/32 (EC)	3/32 (EC)

Quality Dwyer Products Online at: www.GlobalTestSupply.com sales@GlobalTestSupply.com

Special Multi-Column Visi-Float® Flowmeters
Perfect for OEM applications, Visi-Float® flowmeters can be custom made with up to 10 columns in a single block of acrylic plastic.
Available with or without valves. Consult factory for more information.

OEM Specials – Special flowmeter designs can be supplied to meet a wide range of requirements and specific applications. These include: on-off plunger and push-to-test valves, special gas or fluid calibration, special ranges, scales, name brand or other identification. Pointer flags can be furnished for instant visual reference. For specific information, please supply an outline of your requirements.

SPECIFICATIONS
Service: Compatible gases & liquids.
Wetted Materials:
Body: Acrylic plastic.
O-ring: Buna-N (Fluoroelastomer available).
Metal Parts: Brass standard, stainless steel optional.
Float: Stainless steel, black glass, aluminum, K Monel depending on range.
Temperature & Pressure Limits:
Without Valve: 100 psig (6.9 bar) @ 150°F (65°C);
150 psig (10 bar) @ 100°F (38°C).
With Valve: 100 psig (6.9 bar) @ 120°F (48°C).
Accuracy: VFA = 5% of full scale; VFB = 3% of full scale.
Process Connection: 1/8″ female NPT. VFB ranges 85 and 86 have 1/4″ NPT back connections or 3/8″ NPT end connections. These ranges not available with brass valves.
Scale Length: VFA 2″ typical length; VFB 4″ typical length.
Mounting Orientation: Mount in vertical position.
Weight: VFA: 4.0-4.8 oz (.11-.14 kg). VFB: 7.2-8.8 oz (.20-.25 kg).

How To Order
Series—Range No.—Valve—Option
Example: VFA-9-BV
Series VFA with 20-200 SCFH Air Range & Brass Valve

VFA Series

Model	Description
VFA-X	Standard VFA
VFA-X-SS	VFA with Stainless Metal Wetted Parts
VFA-X-BV	VFA with Brass Valve
VFA-X-SSV	VFA with Stainless Steel Valve
VFA-X-EC	VFA with End Connections
VFA-X-EC-SS	VFA with End Connections and Stainless Steel Metal Wetted Parts

OPTIONS & ACCESSORIES
-PF, Red ABS Plastic Pointer Flag
-VIT, Fluoroelatomer O-rings
RKA, Pressure Regulator

Popular Ranges

Model VFA — 2" Scale			
Range No.	**Range SCFH Air**	**Range No.**	**Range LPM Air**
1	.1-1	21	.06-0.5
2	.2-2	22	.15-1
3	.6-5	23	.6-5
4	1-10	24	1-10
5	2-20	25	3-25
6	4-30	26	6-50
7	5-50	27	10-100
8	10-100		
9	20-200		
	CC Water per min.		**Gal. Water per hour**
32	6-50	41	.6-5
33	10-100	42	2-10
34	20-200	43	3-20
		44	8-40

VFB Series

Model	Description
VFB-X	Standard VFB
VFB-X-SS	VFB with Stainless Metal Wetted Parts
VFB-X-BV	VFB with Brass Valve
VFB-X-SSV	VFB with Stainless Steel Valve
VFB-X-EC	VFB with End Connections
VFB-X-EC-SS	VFB with End Connections and Stainless Steel Metal Wetted Parts

OPTIONS & ACCESSORIES
-PF, Red ABS Plastic Pointer Flag
-VIT, Fluoroelastomer O-rings
RK-VFB, Pressure Regulator

Popular Ranges

Model VFB — 4" Scale			
Range No.	**Range SCFH Air**	**Range No.**	**LPM Air**
50	.3-3	65	.2-4
91⁺	1-10	66	1-10
51⁺	2-20	67	1-20
52	4-40	68	3-30
53⁺	10-100	69	4-40
54⁺	10-150		**CC/Min. Water**
55⁺	20-200	82	2-30
	SCFM Air		**GPH Water**
90	.3-3	80⁺	.5-12
	CC/Min. Air	83⁺	1-20
60	100-1000	84	6-40
		81	6-60
			GPM Water
		85*	.2-2
		86*	.6-5

⁺ For dual range models in English and Metric add "D" to end of Range No.
* Ranges 85 and 86 consult factory. Not available with brass valve.

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Project:
• Taunton WTF Improvement Phase 1, Model 60-500 Scum Concentrator

Specification Section(s):
• 11317

Instrument Location:
• Concentrator Scum Pump - Seal Water

Instrument Name:
• Seal Water Flow ON/OFF

Instrument Tag Number(s):
• N/A

Manufacturer(s):
• ASCO

Model / Part Number(s):
• 8262H208MS-120/60

Features

- Welded core tube provides higher pressure ratings
- Reliable, proven design with high flows
- Small poppet valves for tight shutoff
- Wide range of elastomers for specialty service applications
- Mountable in any position
- Tapped mounting holes in body standard

Construction

Valve Parts in Contact with Fluids		
Body	Brass	Cast 304 Stainless Steel
Seals and Discs	NBR or Cast UR	
Core Tube	305 Stainless Steel	
Core and Plugnut	430F Stainless Steel	
Springs	302 Stainless Steel	
Shading Coil	Copper	Silver

Electrical

Watt Rating and Power Consumption				Spare Coil Part No.			
	AC			General Purpose		Explosionproof	
DC Watts	Watts	VA Holding	VA Inrush	AC	DC	AC	DC
10.6	6.1*	16	30	238210	238510	238214	238514
18.6	9.1*	20	45	238210	238510	238214	238514
11.6	10.1	25	50	238610	238910	238614	238914
22.6	17.1	40	70	238610	238910	238614	238914

Standard Voltages: 24, 120, 240, 480 volts AC, 60 Hz (or 110, 220 volts AC, 50 Hz). 6, 12, 24, 120, 240 volts DC. Must be specified when ordering.
Other voltages available when required.

*On 50 hertz service, the rating for the 6.1/F solenoid is 8.1 watts, and the rating for the 9.1/F solenoid is 11.1 watts.

Solenoid Enclosures

Standard: Watertight, Types 1, 2, 3, 3S, 4, and 4X.

Optional: Explosionproof and Watertight, Types 3, 3S, 4, 4X, 6, 6P, 7, and 9. (To order, add prefix "EF" to catalog number)

See Optional Features Section for other available options.

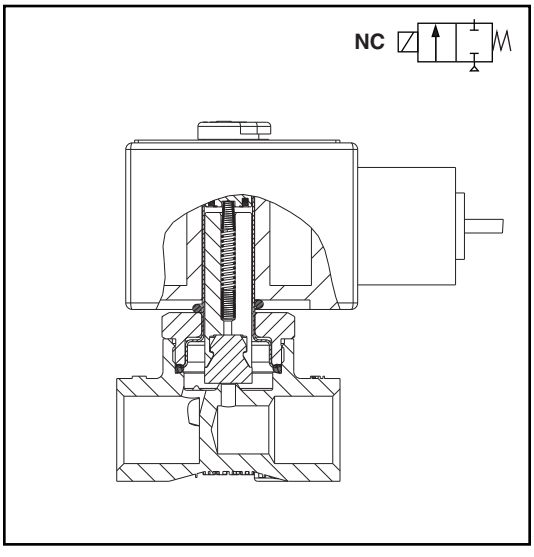
Options

Mounting bracket (suffix MB)
Quarter-turn manual operator with screw slot (suffix MS)
Panel mount (prefix GP for conduit; *consult ASCO for other electrical connections*)
Vacuum service (suffix VVM, VVH; *see Vacuum Section for more details.*)
Oxygen service (suffix N)
Silicone Free (suffix SF)

Elastomers: FKM (suffix V), Ethylene Propylene (suffix E), CR (suffix J), PTFE* (suffix T), Low Temp NBR** (suffix A)

Note: *PTFE reduces pressure rating by 25% (i.e. 750 psi reduced to 560 psi)
** For Low Temp. NBR, fluid temperature range is -40˚F to 167˚F (only for valves with 10.1, 17.1, 11.6, and 22.6 watt coils).

Refer to Engineering Section for fluid and temperature compatibility.



Nominal Ambient Temp. Ranges

The nominal limitation of 32°F (0°C) is advisable for any valve that might contain moisture (water vapor).

AC: -13˚F to 131˚F (-25˚C to 55˚C)

DC: -13˚F to 104˚F (-25˚C to 40˚C)
-13˚F to 131˚F (-25˚C to 55˚C)

Note: Max ambient for explosionproof (EF) is 125˚F (52˚C) for AC, 131˚F (55˚C) for DC.

Optional: For AC, the max. ambient temperature is 140˚F (60˚C) with Class H coil (with or without prefix EF)

Refer to Engineering Section for details.

Approvals

CSA certified. UL listed, as indicated. Safety Shutoff Valves FM approved. Meets applicable CE directives. *Refer to Engineering Section for details.*

ATEX/IECEx certified with prefix "EV" as listed. *Refer to Optional Features Electrical Section for details.*

2/2 SERIES 8262 8263

ASCO®

Specifications (English units)

Pipe Size (in)	Orifice size (in)	Cv Flow Factor	Operating Pressure Differential (psi)									Max. Fluid Temp. °F		Catalog Number		Const. Ref.	UL Listing	Watt Rating/ Class of Coil Insulation	
			Max. AC@131°F			Max. DC@104°F			Max. DC@131°F										
			Air-Inert Gas	Water ②	Lt. Oil @ 300ssu	Air-Inert Gas	Water ②	Lt. Oil @ 300ssu	Air-Inert Gas	Water ②	Lt. Oil 300ssu	AC	DC	Brass	Stainless Steel			AC	DC
NORMALLY CLOSED (Closed when de-energized), NBR Disc																			
1/8	3/64	0.06	2200	2200	1700	-	-	-	-	-	-	140	-	-	8262H175 ①	1	●	10.1/F	-
1/8	3/64	0.06	-	-	-	2000	2000	1725	1900	1900	1700	-	140	-	8262H176 ①	1	●	-	22.6/H
1/8	3/64	0.06	-	-	-	1500	1500	1500	1500	1500	1500	-	140	8262H089 ①	-	1	●	-	22.6/H
1/8	3/64	0.06	2025	1710	825	965	745	720	920	700	675	140	140	-	8262H079 ①	2	●	9.1/F	18.6/H
1/8	3/64	0.06	1500	1350	825	750	620	565	700	565	530	140	140	8262H096 ①	-	2	●	6.1/F	10.6/H
1/8	3/64	0.06	1500	1350	825	-	-	-	-	-	-	140	-	-	8262H173 ①	2	●	6.1/F	-
1/8	3/64	0.06	1500	1500	1500	1170	1145	945	1000	965	855	140	140	8262H099 ①	-	1	●	10.1/F	11.6/H
1/8	3/64	0.06	750	750	725	750	640	550	750	600	500	180	180	8262H001	8262H012	2	❍	6.1/F	10.6/H
1/8	3/32	0.21	720	410	410	610	410	410	600	410	400	180	180	8262H277	8262H178	1	❍	17.1/F	22.6/H
1/8	3/32	0.21	-	-	-	290	290	270	240	240	255	180	180	-	8262H177 ③	1	❍	-	11.6/H
1/8	3/32	0.21	500	350	325	295	210	205	285	200	195	180	180	8262H011	-	2	❍	9.1/F	18.6/H
1/8	3/32	0.21	370	330	190	235	160	160	215	150	145	180	180	8262H014	8262H015	2	❍	6.1/F	10.6/H
1/8	1/8	0.35	500	380	355	275	275	235	250	250	225	180	180	8262H105	8262H174	1	❍	17.1/F	22.6/H
1/8	1/8	0.35	340	300	215	-	-	-	-	-	-	-	180	-	8262H179	1	❍	10.1/F	-
1/8	1/8	0.35	275	260	195	165	130	130	155	120	120	180	180	8262H016	-	2	❍	9.1/F	18.6/H
1/8	1/8	0.35	185	180	120	130	110	95	120	100	90	180	180	8262H002	8262H006	2	❍	6.1/F	10.6/H
1/4	3/64	0.06	2200	2200	1700	1170	1145	945	1000	965	855	140	140	-	8262H214 ①	3	●	10.1/F	11.6/H
1/4	3/64	0.06	1500	1500	1500	1170	1145	945	1000	965	855	140	140	8262H200 ①	-	3	●	10.1/F	11.6/H
1/4	3/64	0.06	1500	1500	1500	1500	1500	1500	1500	1500	1500	140	140	8262H107 ①	-	3	●	17.1/F	22.6/H
1/4	3/64	0.06	-	-	-	2000	2000	1725	1900	1900	1700	-	140	-	8262H181 ①	3	●	-	22.6/H
1/4	3/64	0.06	1500	1350	825	750	620	530	700	565	495	140	140	8262H106 ①	8262H180 ①	4	●	6.1/F	10.6/H
1/4	3/64	0.06	750	750	725	750	640	550	750	600	500	180	180	8262H019	8262H080	4	❍	6.1/F	10.6/H
1/4	3/32	0.21	720	410	410	610	410	410	600	410	400	180	180	8262H109	8262H183 ③	3	❍	17.1/F	22.6/H
1/4	3/32	0.21	590	410	410	290	290	270	240	240	225	180	180	8262H108	8262H182 ③	3	❍	10.1/F	11.6/H
1/4	3/32	0.21	500	350	270	295	210	205	285	200	195	180	180	8262H021	-	4	❍	9.1/F	18.6/H
1/4	3/32	0.21	370	330	160	235	160	160	215	150	145	180	180	8262H020	8262H086	4	❍	6.1/F	10.6/H
1/4	1/8	0.35	500	380	355	275	275	235	250	250	225	180	180	8262H110	8262H185 ③	3	❍	17.1/F	22.6/H
1/4	1/8	0.35	340	300	215	130	125	115	110	105	100	180	180	8262H232	-	3	❍	10.1/F	11.6/H
1/4	1/8	0.35	340	300	215	-	-	-	-	-	-	180	-	-	8262H184 ③	3	❍	10.1/F	-
1/4	1/8	0.35	275	260	150	165	130	120	155	120	115	180	180	8262H023	-	4	❍	9.1/F	18.6/H
1/4	1/8	0.35	185	180	90	130	110	90	120	100	85	180	180	8262H022	8262H007	4	❍	6.1/F	10.6/H
1/4	5/32	0.52	300	210	210	135	135	135	115	115	115	180	180	8262H112	8262H187 ③	3	❍	17.1/F	22.6/H
1/4	5/32	0.52	210	200	145	65	63	63	55	54	54	180	180	8262H202	-	3	❍	10.1/F	11.6/H
1/4	5/32	0.52	210	200	145	-	-	-	-	-	-	180	180	-	8262H220 ③	3	❍	10.1/F	-
1/4	5/32	0.52	150	140	100	95	75	75	85	72	70	180	180	8262H113	-	4	❍	9.1/F	18.6/H
1/4	5/32	0.52	100	100	55	72	60	55	67	53	52	180	180	8262H111	8262H186	4	❍	6.1/F	10.6/H
1/4	7/32	0.73	125	125	125	70	70	70	65	65	65	180	180	8262H114	8262H188	3	❍	17.1/F	22.6/H
1/4	7/32	0.73	100	100	100	35	35	35	30	30	30	180	180	8262H208	-	3	❍	10.1/F	11.6/H
1/4	7/32	0.73	100	100	100	-	-	-	-	-	-	180	-	-	8262H226	3	❍	10.1/F	-
1/4	7/32	0.73	55	54	40	38	33	31	35	30	28	180	180	8262H013	8262H036	4	❍	6.1/F	10.6/H
1/4	9/32	0.88	90	90	90	53	50	47	48	46	44	180	180	8262H212	8262H230	3	❍	17.1/F	22.6/H
1/4	9/32	0.88	65	75	60	25	25	22	22	22	20	180	180	8262H210	-	3	❍	10.1/F	11.6/H
1/4	9/32	0.88	65	75	60	-	-	-	-	-	-	180	-	-	8262H189	3	❍	10.1/F	-
1/4	9/32	0.88	36	36	33	27	23	21	24	22	20	180	180	8262H090	8262H038	4	❍	6.1/F	10.6/H
3/8	1/8	0.35	500	380	355	275	275	160	250	250	150	180	180	8263H115	8263H191	5	❍	17.1/F	22.6/H
3/8	1/8	0.35	340	300	215	130	125	85	110	105	75	180	180	8263H232	-	5	❍	10.1/F	11.6/H
3/8	1/8	0.35	340	300	215	-	-	-	-	-	-	180	-	-	8263H190	5	❍	10.1/F	-
3/8	1/8	0.35	275	260	140	165	130	110	155	120	105	180	180	8263H003	-	6	❍	9.1/F	18.6/H
3/8	1/8	0.35	185	180	90	130	110	80	120	100	75	180	180	8263H002	8263H330	6	❍	6.1/F	10.6/H
3/8	5/32	0.52	300	210	195	135	135	100	115	115	90	180	180	8263H118	8263H193	5	❍	17.1/F	22.6/H
3/8	5/32	0.52	210	185	100	65	63	50	55	54	44	180	180	8263H200	-	5	❍	10.1/F	11.6/H
3/8	5/32	0.52	210	185	100	-	-	-	-	-	-	180	-	-	8263H331 ③	5	❍	10.1/F	-
3/8	5/32	0.52	150	140	80	95	75	75	85	72	70	180	180	8263H117	-	6	❍	9.1/F	18.6/H
3/8	5/32	0.52	100	100	50	72	60	55	67	53	52	180	180	8263H116	8263H192	6	❍	6.1/F	10.6/H
3/8	7/32	0.73	125	100	100	70	70	70	65	65	65	180	180	8263H206 ③	8263H332	5	❍	17.1/F	22.6/H
3/8	7/32	0.73	100	86	70	35	35	35	30	30	30	180	180	8263H124	-	5	❍	10.1/F	11.6/H
3/8	7/32	0.73	100	86	70	-	-	-	-	-	-	180	-	-	8263H195	5	❍	10.1/F	-
3/8	7/32	0.73	55	54	29	38	33	31	35	30	28	180	180	8263H119	8263H194	6	❍	6.1/F	10.6/H
3/8	9/32	0.88	100	85	70	53	50	47	48	46	44	180	180	8263H210	8263H333	5	❍	17.1/F	22.6/H
3/8	9/32	0.88	65	63	47	-	-	-	-	-	-	180	180	8263H125	8263H197	5	❍	10.1/F	-
3/8	9/32	0.88	35	32	21	27	23	21	24	22	20	180	180	8263H054	8263H196	6	❍	6.1/F	10.6/H

① Only available with UR disc, limits min. ambient temp. to 32˚F (0˚C). ② Water rating, CSA certified up to 232 psi. ③ ATEX/IECEx certified with prefix "EV".
● = General Purpose Valve, ❍ = Safety Shutoff Valve

Specifications (Metric units)

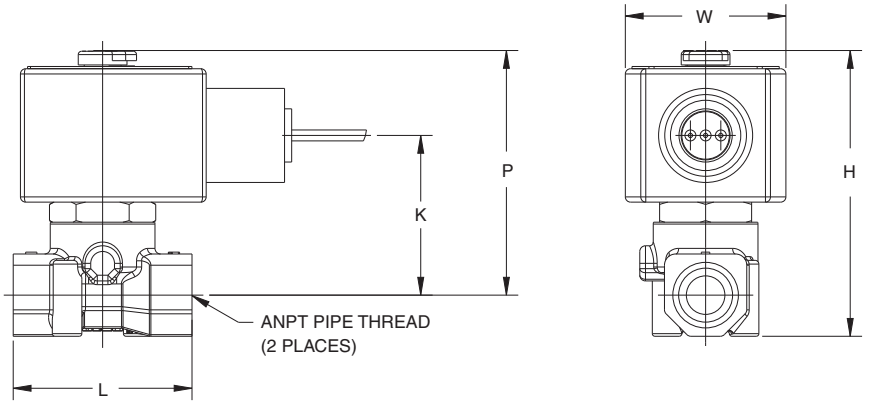
Pipe Size (in)	Orifice size (mm)	Kv Flow Factor (m^3/h)	Operating Pressure Differential (bar)									Max. Fluid Temp. °C		Catalog Number		Const. Ref.	UL Listing	Watt Rating/ Class of Coil Insulation	
			Max. AC@55°C			Max. DC@40°C			Max. DC@55°C										
			Air-Inert Gas	Water ②	Lt. Oil @ 300ssu	Air-Inert Gas	Water ②	Lt. Oil @ 300ssu	Air-Inert Gas	Water ②	Lt. Oil 300ssu	AC	DC	Brass	Stainless Steel			AC	DC
NORMALLY CLOSED (Closed when de-energized), NBR Disc																			
1/8	1.2	0.05	152	152	117	-	-	-	-	-	-	60	-	-	8262H175 ①	1	●	10.1/F	-
1/8	1.2	0.05	-	-	-	138	138	119	131	131	117	-	60	-	8262H176 ①	1	●	-	22.6/H
1/8	1.2	0.05	-	-	-	103	103	103	103	103	103	-	60	8262H089 ①	-	1	●	-	22.6/H
1/8	1.2	0.05	140	118	57	67	51	50	63	48	47	60	60	-	8262H079 ①	2	●	9.1/F	18.6/H
1/8	1.2	0.05	103	93	57	52	43	39	48	39	37	60	60	8262H096 ①	-	2	●	6.1/F	10.6/H
1/8	1.2	0.05	103	93	57	-	-	-	-	-	-	60	-	-	8262H173 ①	2	●	6.1/F	-
1/8	1.2	0.05	103	103	103	81	79	65	69	67	59	60	60	8262H099 ①	-	1	●	10.1/F	11.6/H
1/8	1.2	0.05	52	52	50	52	44	38	52	41	34	82	82	8262H001	8262H012	2	❍	6.1/F	10.6/H
1/8	2.4	0.18	50	28	28	42	28	28	41	28	28	82	82	8262H277	8262H178	1	❍	17.1/F	22.6/H
1/8	2.4	0.18	-	-	-	20	20	19	17	17	18	-	82	-	8262H177 ③	1	❍	-	11.6/H
1/8	2.4	0.18	34	24	20	20	14	14	20	14	13	82	82	8262H011	-	2	❍	9.1/F	18.6/H
1/8	2.4	0.18	26	23	13	16	11	11	15	10	10	82	82	8262H014	8262H015	2	❍	6.1/F	10.6/H
1/8	3.2	0.30	34	26	24	19	19	16	17	17	16	82	82	8262H105	8262H174	1	❍	17.1/F	22.6/H
1/8	3.2	0.30	23	21	15	-	-	-	-	-	-	82	-	-	8262H179	1	❍	10.1/F	-
1/8	3.2	0.30	19	18	13	11	9	9	11	8	8	82	82	8262H016	-	2	❍	9.1/F	18.6/H
1/8	3.2	0.30	13	12	8	9	8	7	8	7	6	82	82	8262H002	8262H006	2	❍	6.1/F	10.6/H
1/4	1.2	0.05	152	152	117	81	79	65	69	67	59	60	60	-	8262H214 ①	3	●	10.1/F	11.6/H
1/4	1.2	0.05	103	103	103	81	79	65	69	67	59	60	60	8262H200 ①	-	3	●	10.1/F	11.6/H
1/4	1.2	0.05	103	103	103	103	103	103	103	103	103	60	60	8262H107 ①	-	3	●	17.1/F	22.6/H
1/4	1.2	0.05	-	-	-	138	138	119	131	131	117	-	60	-	8262H181 ①	3	●	-	22.6/H
1/4	1.2	0.05	103	93	57	52	43	37	48	39	34	60	60	8262H106 ①	8262H180 ①	4	●	6.1/F	10.6/H
1/4	1.2	0.05	52	52	50	52	44	38	52	41	34	82	82	8262H019	8262H080	4	❍	6.1/F	10.6/H
1/4	2.4	0.18	50	28	28	42	28	28	41	28	28	82	82	8262H109	8262H183 ③	3	❍	17.1/F	22.6/H
1/4	2.4	0.18	41	28	28	20	20	19	17	17	16	82	82	8262H108	8262H182 ③	3	❍	10.1/F	11.6/H
1/4	2.4	0.18	34	24	19	20	14	14	20	14	13	82	82	8262H021	-	4	❍	9.1/F	18.6/H
1/4	2.4	0.18	26	23	11	16	11	11	15	10	10	82	82	8262H020	8262H086	4	❍	6.1/F	10.6/H
1/4	3.2	0.30	34	26	24	19	19	16	17	17	16	82	82	8262H110	8262H185 ③	3	❍	17.1/F	22.6/H
1/4	3.2	0.30	23	21	15	9	9	8	8	7	7	82	82	8262H232	-	3	❍	10.1/F	11.6/H
1/4	3.2	0.30	23	21	15	-	-	-	-	-	-	82	-	-	8262H184 ③	3	❍	10.1/F	-
1/4	3.2	0.30	19	18	10	11	9	8	11	8	8	82	82	8262H023	-	4	❍	9.1/F	18.6/H
1/4	3.2	0.30	13	12	6	9	8	6	8	7	6	82	82	8262H022	8262H007	4	❍	6.1/F	10.6/H
1/4	4.0	0.45	21	14	14	9	9	9	8	8	8	82	82	8262H112	8262H187 ③	3	❍	17.1/F	22.6/H
1/4	4.0	0.45	14	14	10	4	4	4	4	4	4	82	82	8262H202	-	3	❍	10.1/F	11.6/H
1/4	4.0	0.45	14	14	10	-	-	-	-	-	-	82	-	-	8262H220 ③	3	❍	10.1/F	-
1/4	4.0	0.45	10	10	7	7	5	5	6	5	5	82	82	8262H113	-	4	❍	9.1/F	18.6/H
1/4	4.0	0.45	7	7	4	5	4	4	5	4	4	82	82	8262H111	8262H186	4	❍	6.1/F	10.6/H
1/4	5.6	0.63	9	9	9	5	5	5	4	4	4	82	82	8262H114	8262H188	3	❍	17.1/F	22.6/H
1/4	5.6	0.63	7	7	7	2	2	2	2	2	2	82	82	8262H208	-	3	❍	10.1/F	11.6/H
1/4	5.6	0.63	7	7	7	-	-	-	-	-	-	82	-	-	8262H226	3	❍	10.1/F	-
1/4	5.6	0.63	4	4	3	3	2	2	2	2	2	82	82	8262H013	8262H036	4	❍	6.1/F	10.6/H
1/4	7.1	0.76	6	6	6	4	3	3	3	3	3	82	82	8262H212	8262H230	3	❍	17.1/F	22.6/H
1/4	7.1	0.76	4	5	4	2	2	2	2	2	1	82	82	8262H210	-	3	❍	10.1/F	11.6/H
1/4	7.1	0.76	4	5	4	-	-	-	-	-	-	82	-	-	8262H189	3	❍	10.1/F	-
1/4	7.1	0.76	2	2	2	2	2	1	2	2	1	82	82	8262H090	8262H038	4	❍	6.1/F	10.6/H
3/8	3.2	0.30	34	26	24	19	21	11	17	19	10	82	82	8263H115	8263H191	5	❍	17.1/F	22.6/H
3/8	3.2	0.30	23	21	15	9	9	6	8	7	5	82	82	8263H232	-	5	❍	10.1/F	11.6/H
3/8	3.2	0.30	23	21	15	-	-	-	-	-	-	82	82	-	8263H192	5	❍	10.1/F	-
3/8	3.2	0.30	19	18	10	11	9	8	11	8	7	82	82	8263H003	-	6	❍	9.1/F	18.6/H
3/8	3.2	0.30	13	12	6	9	8	6	8	7	5	82	82	8263H002	8263H330	6	❍	6.1/F	10.6/H
3/8	4.0	0.45	21	14	13	9	9	7	8	8	6	82	82	8263H118	8263H193	5	❍	17.1/F	22.6/H
3/8	4.0	0.45	14	13	7	4	4	3	4	4	3	82	82	8263H200	-	5	❍	10.1/F	11.6/H
3/8	4.0	0.45	14	13	7	-	-	-	-	-	-	82	-	-	8263H331 ③	5	❍	10.1/F	-
3/8	4.0	0.45	10	10	6	7	5	5	6	5	5	82	82	8263H117	-	6	❍	9.1/F	18.6/H
3/8	4.0	0.45	7	7	3	5	4	4	5	4	4	82	82	8263H116	8263H192	6	❍	6.1/F	10.6/H
3/8	5.6	0.63	9	7	7	5	5	5	4	4	4	82	82	8263H206 ③	8263H332	5	❍	17.1/F	22.6/H
3/8	5.6	0.63	7	6	5	2	2	2	2	2	2	82	82	8263H124	-	5	❍	10.1/F	11.6/H
3/8	5.6	0.63	7	6	5	-	-	-	-	-	-	82	-	-	8263H195	5	❍	10.1/F	-
3/8	5.6	0.63	4	4	2	3	2	2	2	2	2	82	82	8263H119	8263H194	6	❍	6.1/F	10.6/H
3/8	7.1	0.76	7	6	5	4	3	3	3	3	3	82	82	8263H210	8263H333	5	❍	17.1/F	22.6/H
3/8	7.1	0.76	4	4	3	-	-	-	-	-	-	82	-	8263H125	8263H197	5	❍	10.1/F	-
3/8	7.1	0.76	2	2	1	2	2	1	2	2	1	82	82	8263H054	8263H196	6	❍	6.1/F	10.6/H

① Only available with UR disc, limits min. ambient temp. to 32°F (0°C). ② Water rating, CSA certified up to 16 bar. ③ ATEX/IECEx certified with prefix "EV".
● = General Purpose Valve, ❍ = Safety Shutoff Valve

Dimensions: inches (mm)

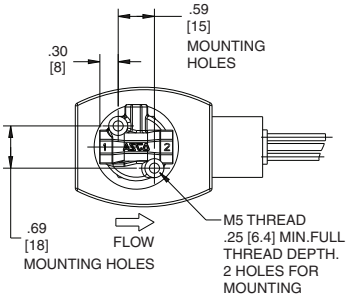
Const. Ref.		H	K	L	P	W
1	ins	3.05	1.71	1.19	2.69	1.95
	mm	77	43	30	68	50
2	ins	2.85	1.60	1.19	2.50	1.69
	mm	72	41	30	63	43
3	ins	3.12	1.79	1.56	2.76	1.95
	mm	79	45	40	70	50
4	ins	2.96	1.72	1.56	2.60	1.69
	mm	75	44	40	66	43
5	ins	3.20	1.79	1.88	2.77	1.95
	mm	81	45	48	70	50
6	ins	3.03	1.72	1.88	2.60	1.69
	mm	77	44	48	66	43

Const. Ref. 1-6

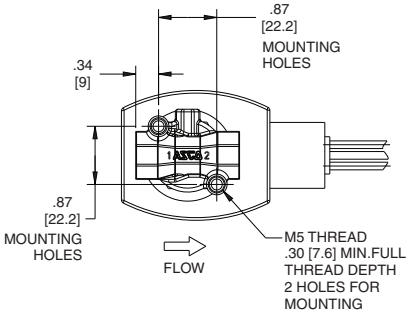


Mounting Dimensions

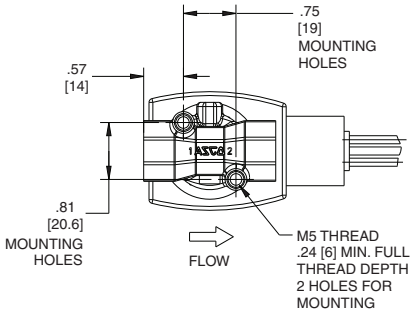
Const. Ref. 1, 2
(1/8" Pipe)



Const. Ref. 3, 4
(1/4" Pipe)



Const. Ref. 5, 6
(3/8" Pipe)



Note: Mounting holes will accept a standard #10-32 machine screw.

Project:

- Taunton WTF Improvements Phase 1, Model 60-500 Scum Concentrator

Specification Section(s):

- 11317

Instrument Location:

- Holding Tank

Instrument Name:

- Knifegate Valve

Instrument Tag Number(s):

- N/A

Manufacturer(s):

- Orbinox

Model / Part Number(s):

- 20-3636R(E) -12

MODEL 20

ORBINOX
VALVULAS · VALVES

HEAVY DUTY KNIFE GATE VALVE

The 20 model knife gate is a optionaly bi-directional lug type valve designed according to MSS-SP-81 and TAPPI TIS 405-8 for industrial service applications.
The design of the body and seat assures non-clogging shutoff on suspended solids in industries such as:

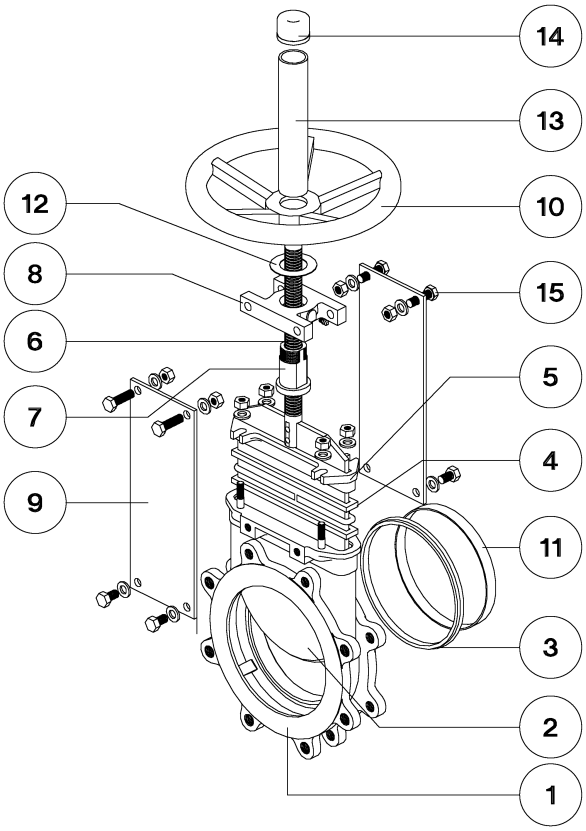
- Pulp and Paper
- Chemical plants
- etc.
- Power plants
- Wastewater
- Mining
- Food and Beverage

Sizes: 2" - 24" (larger diameters on request)

Working pressure: 2" - 24" : 150 psi

Standard flange connection: DIN PN 10 and ANSI B16.5 (class 150)

All valves are tested prior to shipping in accordance with the standard developed by the Quality Control department at ORBINOX.



STANDARD PARTS LIST

Part:	Stainless Steel:
1- Body	CF8M
2- Gate	AISI 316
3- Seat	~~Metal or~~ Resilient EPDM
4- Packing	NT
5- Gland Follower	CF8M
6- Stem	AISI 303
7- Stem Nut	Bronze
8- Yoke	Carbon Steel (2" - 6") S.G. Iron (8" - 24")
9- Support Plates	Carbon Steel - Epoxy Coated
10- Handwheel	Steel (2" - 12") S.G. Iron (14" - 24")
11- Seat Retainer Ring	AISI 316
12- Thrust Washer	Bronze
13- Stem Protector	Carbon Steel - Epoxy Coated
14- Cap	Plastic

MODEL 20

ORBINOX
VALVULAS-VALVES

DESIGN FEATURES

BODY:
One piece integrally cast stainless steel body with reinforced ribs in larger diameters for extra body strength.
Internal cast gate wedges and guides allows for tighter shutoff.
Port design according to MSS-SP-81 and Tappi TIS 405-8.
Internal design avoids any build up of solids that would prevent valve from closing.

GATE:
Standard AISI 316 stainless steel gate.
Gates polished and lapped for a greater seal between the packing and the seat.
Bottom of the gate edge is machined to a bevel to cut through solids for a tighter seal in the closed position.

SEAT: (resilient)
Unique design that mechanically locks the seat in the internal of the valve body with a stainless steel retainer ring.
Standard EPDM; also available in different materials such as Viton, PTFE, etc.

PACKING:
Standard braided PTFE impregnated fibre with EPDM o-ring for better shutoff, with an easy access packing gland ensuring a tight seal
Long-life braided packing is available in a wide range of materials.

STEM:
The standard stainless steel stem offers a long corrosion resistant life.
A grease nipple is fitted located on the handwheel assembly to lubricate the stem whilst operating the valve for easier operation and a longer life.
For rising stem handwheel actuators only, a stem protector is provided for additional protection against dust while the valve is in the open position.

ACTUATORS:
All actuators supplied by Orbinox are interchangeable, and supplied with a standard mounting kit to allow for installation on site.

YOKE & SUPPORT PLATES:
Made of EPOXY coated steel (stainless steel available on request).
Compact design makes it extremely robust even in the most severe conditions.

EPOXY COATING:
The epoxy coating on all **ORBINOX** cast iron and carbon steel valve bodies and components is electrostatic applied making the valves corrosion resistant with a high quality finished surface.
The **ORBINOX** standard colour is RAL-5015 blue.

GATE SAFETY PROTECTION:
ORBINOX automated valves are provided with gate guards in accordance with EU Safety Standards.
The design feature prevents any objects from getting caught accidentally while the gate is moving.

MODEL 20

OTHER OPTIONS

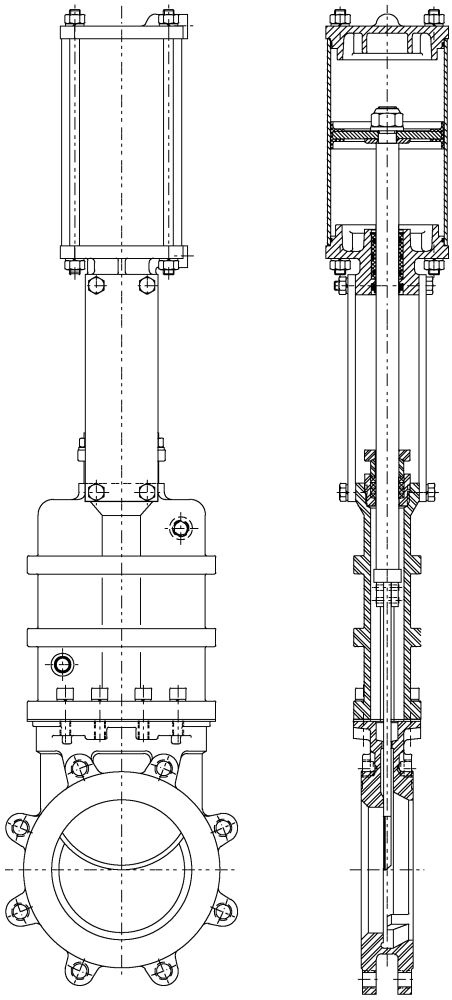
Bonnet:
Assures tight sealing to atmosphere for use with hazardous gas or fluids.
Reduces packing maintenance.

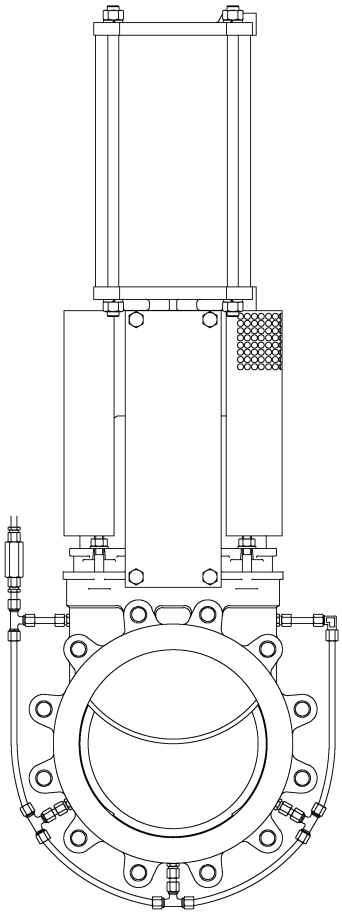
V-port:
60 degree and pentagonal port design.
Selection depends on type of fluid control desired.

Flush ports:
Allows for cleaning of solids trapped within the body cavities that can obstruct the flow or prevent the valve from closing fully.
Purging can be with air, steam, liquids, etc. depending on the process.

Other materials of construction:
Special alloys such as AISI 317, 254SMO, Hastelloys, Titanium, etc.

Fabricated valves:
Orbinox is equipped for in house fabrication of special valves.
Depending on the design, diameter, pressures, material of construction, etc.,





SURFACE TREATMENTS

Valve components can be protected or coated for a longer life expectancy, depending on the application and the service conditions.

At ORBINOX, S.A. we can offer treatments and coatings for the valve components to improve the properties against **abrasion** (stellite, polyurethane....), **corrosion** (Halar, Rilsan, galvanised....) and **adherence** (polishing, PTFE....).

We recommend to consult our technical department.

MODEL 20

ACTUATOR TYPES

- Handwheel (rising & non-rising stem)
- ~~Chainwheel~~
- ~~Lever~~
- ~~Bevel Gear~~
- ~~Others (square nut....)~~
- ~~Electric~~
- ~~Double Acting Pneumatic~~
- ~~Single Acting Pneumatic~~
- ~~Hydraulic~~

All actuators supplied by ORBINOX are interchangeable.

FAIL SAFE SYSTEMS

Used on pneumatic actuated valves,

SINGLE ACTING / SPRING RETURN

Available in DN 50 to DN 200
Supply Pressure: Minimum 5 kg/cm^2
Maximum 7 kg/cm^2
Options: - Fail open
- Fail closed

SINGLE ACTING / VOLUME TANK

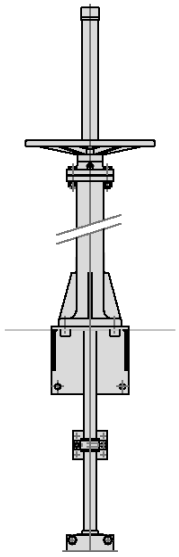
Available in all sizes.
Supply Pressure: Minimum 3.5 kg/cm^2
Maximum 7 kg/cm^2

Options: - Pneumatic Failsafe
- Electropneumatic Failsafe

ACCESSORIES

- Mechanical stops
- Locking device
- Actuator manual override
- Solenoid valves
- Positioners
- Limit switches
- Electric controls
- Floor stands
- Stem extensions

Wide range of valve extensions available.



For further information about fail safe systems and valve extensions, please see EX chapter.

We recommend to consult our technical department.

MODEL 20

ORBINOX
VALVULAS · VALVES

SEAT / SEALS

Material	Max.Temp.(ºC)	Aplications
Metal / Metal	>250	High temp. Low tightness.
EPDM (E)	120	Acids and non mineral oils.
Nitrile (N)	120	Resistance to petroleum products.
Viton (V)	200	General chemical service.
		High temperature.
Silicone (S)	250	Food service. / High temperature.
PTFE (T)	250	Corrosion resistance.

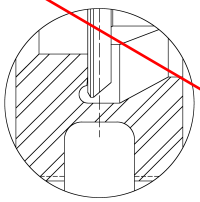
More details and other materials under request.

PACKING

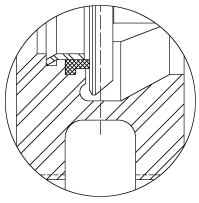
Material	Max. Temp. (ºC)	pH
Tallowed cotton (AH)	50	6 - 8
Dry cotton (AS)	50	6 - 8
PTFE impregn. natural fibre (NT)	120	4 - 12
PTFE impregn. synth. fibre (ST)	240	2 - 13
Braided PTFE (TH)	260	0 - 14
Graphited (AG)	300	4 - 12
Ceramic fibre (FC)	1200	—

NOTE: all types include an elastomere O-ring (same material as seal), excluding TH, AG and FC.

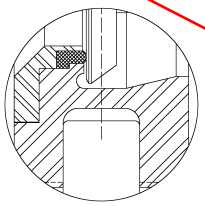
SEAT TYPES



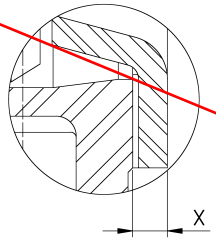
METAL / METAL
Used for high temperature or in applications where tight shutoff is not required.



RESILIENT, TYPE "A"
The standard resilient seat design consists of an elastomer seal locked to the valve body with a replaceable stainless steel retainer ring.
Temperature limitations according to seat material selected. Consult the above chart or our technical department for more information.



RESILIENT, TYPE "B"
The reaplaceable reinforced seal retainer ring (available in AISI 316, Ni-hard, CA-15,...) protects the seat in abrasive services.
Temperature limitations according to seat material selected. Consult the above chart or our technical department for more information.



DEFLECTION CONE "C"
Deflects the media away from any internal exposed parts of the valve such as gate guides, seat, etc....
Different types of material available such as AISI 316 stainless, CA15, Ni-Hard, etc....
Face to face dimensions increase:

DN 50 to DN 250 = 9mm
DN 300 to DN 600 = 12mm

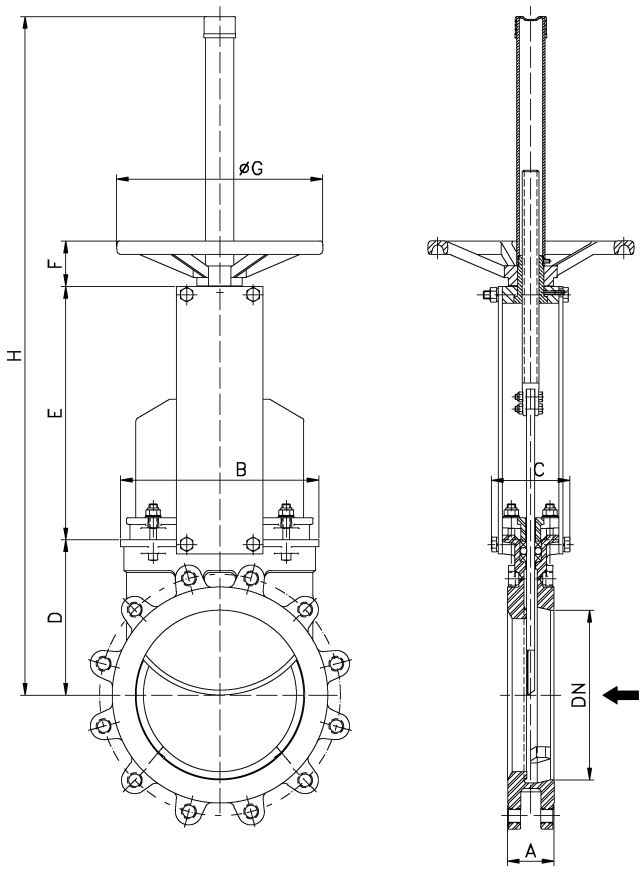
MODEL 20

ORBINOX
VALVULAS · VALVES

HANDWHEEL (rising stem)

Standard handwheel actuator.

- Consists of:
  - Handwheel: Epoxy coated Cast Iron or Steel (DN 50 to DN 300)
  - Stem
  - Stem nut
  - Stem protector
  - Grease nipple
- Available in DN 50 to DN 600
- Options (on request):
  - Chainwheel
  - Non-rising stem
  - Locking Device
  - Extensions



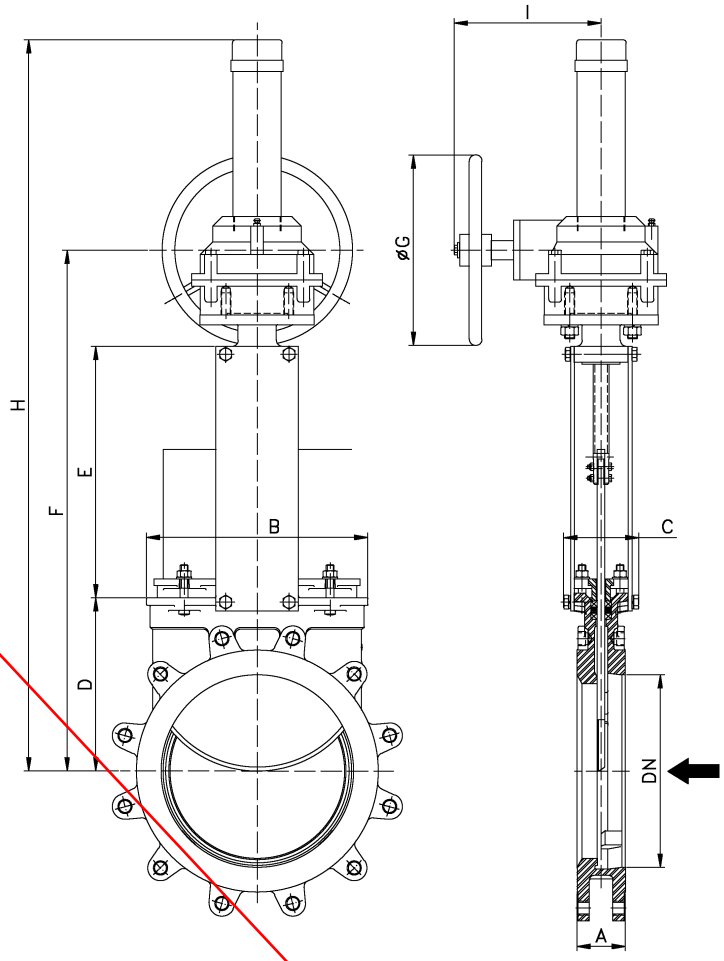
DN (“/mm.)	A	B	C	D	E	F	ØG	H	Weight (kg.)
2”/50	47,8	124	90	98	142	48	200	436	8
3”/80	50,8	149	90	119	168	48	200	476	10
4”/100	50,8	169	90	139	193	48	200	521	12,5
5”/125	57,2	169	104	150	217	52	250	607	16
6”/150	57,2	195	104	165	243	52	250	647	20
8”/200	69,8	247	118	203	318	63	300	828	32
10”/250	69,8	298	118	233	354	63	300	994	47
12”/300	76,2	349	118	273	396	63	410	1076	65
14”/350	76,2	393	193	312	465	68	410	1277	95
16”/400	89	441	193	347	512	68	410	1359	122
18”/450	89	483	197	382	552	68	550	1509	160
20”/500	114,2	542	197	431	611	68	550	1617	202
24”/600	114,2	637	197	501	697	68	550	1883	290

MODEL 20

ORBINOX
VALVULAS · VALVES

GEAR

- Recommended for valves larger than DN 350 and working pressures greater than 3.5 bars.
- Consists of:
  - Stem
  - Yoke
  - Bevel Gear Actuator with Handwheel (Standard Ratio 4:1)
- Available in DN 200 to DN 600.
- Options:
  - Chainwheel
  - Non-rising Stem
  - Locking Device
  - Extensions



DN (“/mm.)	A	B	C	D	E	F	ØG	H	I
8”/200	69,8	247	118	203	318	675	310	1016	250
10”/250	69,8	298	118	233	354	741	310	1082	250
12”/300	76,2	349	118	273	396	823	410	1164	250
14”/350	76,2	393	193	312	465	943	410	1584	250
16”/400	89	441	193	347	512	1025	410	1666	250
18”/450	89	483	197	382	552	1100	550	1741	250
20”/500	114,2	542	197	431	611	1208	550	1849	250
24”/600	114,2	637	197	501	697	1364	550	2005	250

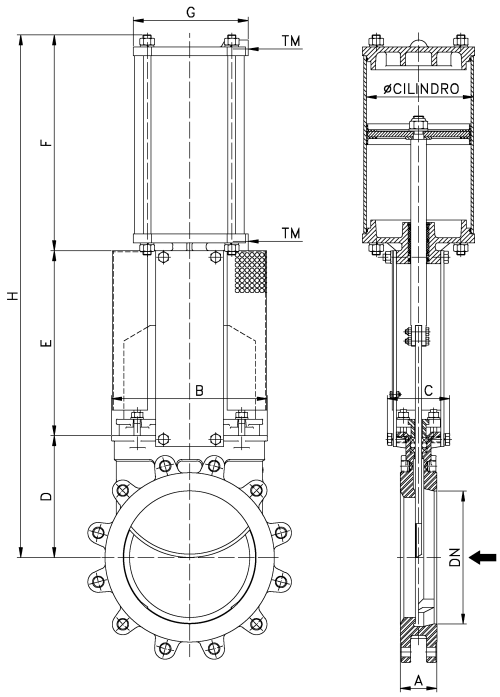
ORBINOX reserves the right to change specifications without notice.

MODEL 20

ORBINOX
VALVULAS · VALVES

PNEUMATIC CYLINDER

- The standard pneumatic actuator (double acting on-off cylinder) consists of:
  - Aluminium jacket and covers
  - Stainless (AISI 304) piston rod
  - Nitrile coated steel piston
- Available in DN 50 to DN 600
- Supply Pressure: minimum 3.5 kg/cm² - maximum 7 kg/cm²
- For valves installed in a horizontal position, we recommend U-type support plates and/or actuator support.
- Options:
  - Hard anodised jacket and covers
  - Over / Under sized cylinder
  - Stainless jacket and covers
  - Manual override
  - Fail safe systems
  - Travel stops
- Instrumentation (on request):
  - Positioners
  - Flow regulators
  - Solenoid valves
  - Air preparation units



DN ("/mm.)	A	B	C	D	E	F	G	H	Weight (kg.)	Standard Cyl	Connect
2"/50	47,8	124	90	98	142	170	95	410	10	C80/62	1/4" G
3"/80	50,8	149	90	119	168	203	95	496	12	C80/95	1/4" G
4"/100	50,8	169	90	139	193	224,5	115	556,5	15	C100/115	1/4" G
5"/125	57,2	169	104	150	217	267	140	634	21	C125/143	1/4" G
6"/150	57,2	195	104	165	243	292	140	700	27	C125/168	1/4" G
8"/200	69,8	247	118	203	318	355	175	876	46	C160/220	1/4" G
10"/250	69,8	298	118	233	354	413	220	1000	70	C200/270	3/8" G
12"/300	76,2	349	118	273	396	463	220	1132	89	C200/320	3/8" G
14"/350	76,2	393	193	312	465	540,5	277	1317,5	135	C250/375	3/8" G
16"/400	89	441	193	347	512	590,5	277	1449,5	162	C250/425	3/8" G
18"/450	89	483	197	382	552	660,5	382	1594,5	212	C300/475	1/2" G
20"/500	114,2	542	197	431	611	710,5	382	1752,5	290	C300/525	1/2" G
24"/600	114,2	637	290	501	697	810,5	382	2008,5	375	C300/625	1/2" G

ORBINOX reserves the right to change specifications without notice.

MODEL 20

ORBINOX
VALVULAS · VALVES

ELECTRIC ACTUATOR

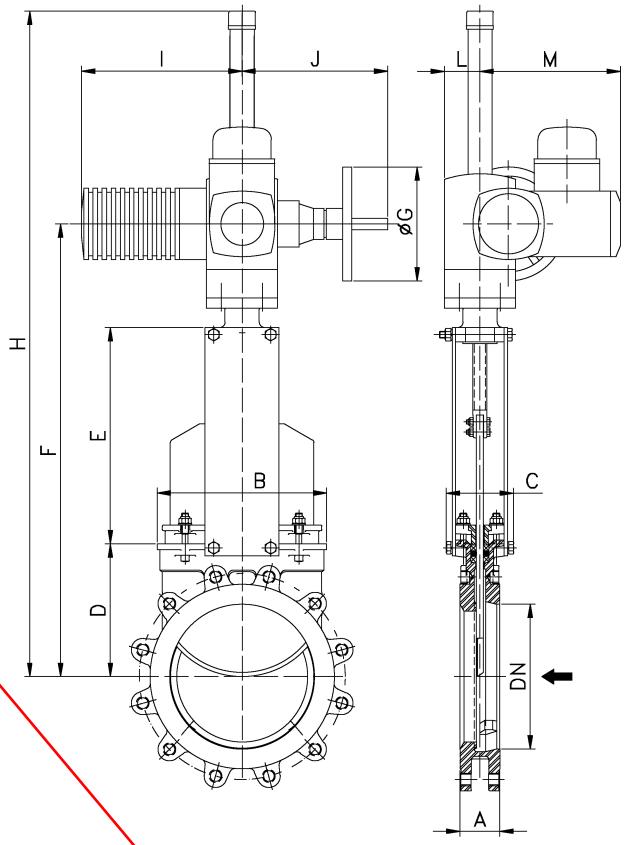
- Consists of:
  - Electric motor
  - Rising stem
  - Motor support yoke flange
    (Acc. to ISO 5210 / DIN 3338)

- The standard electric motor is equiped with:
  - Manual emergency operation
  - Limit switches (open / closed)
  - Torque switches

- Available in DN 50 to DN 600

- Wide range of types and marks available to meet customer's needs.

- Option:
  Non rising stem



DN (“/mm.)	A	B	C	D	E	F	ØG	H	I	J	L	M	Stem ø x pitch	Torque(Nm)
2”/50	47,8	124	90	98	142	393	140	763	265	234	62	237	20 x 4	20
3”/80	50,8	149	90	119	168	440	140	810	265	234	62	237	20 x 4	25
4”/100	50,8	169	90	139	193	485	140	855	265	234	62	237	20 x 4	30
5”/125	57,2	169	104	150	217	521	160	890	265	250	62	237	20 x 4	40
6”/150	57,2	195	104	165	243	561	160	931	265	250	62	237	20 x 4	50
8”/200	69,8	247	118	203	318	703	200	1083	282	256	65	247	20 x 4	60
10”/250	69,8	298	118	233	354	769	200	1149	282	256	65	247	25 x 5	70
12”/300	76,2	349	118	273	396	851	200	1231	282	256	65	247	25 x 5	80
14”/350	76,2	393	193	312	465	971	200	1651	282	256	65	247	25 x 5	90
16”/400	89	441	193	347	512	1053	200	1733	282	256	65	247	35 x 6	105
18”/450	89	483	197	382	552	1173	315	1863	385	325	90	285	35 x 6	120
20”/500	114,2	542	197	431	611	1281	315	1971	385	325	90	285	35 x 6	160
24”/600	114,2	637	197	501	697	1437	315	2127	385	325	90	285	35 x 6	210

ORBINOX reserves the right to change specifications without notice.

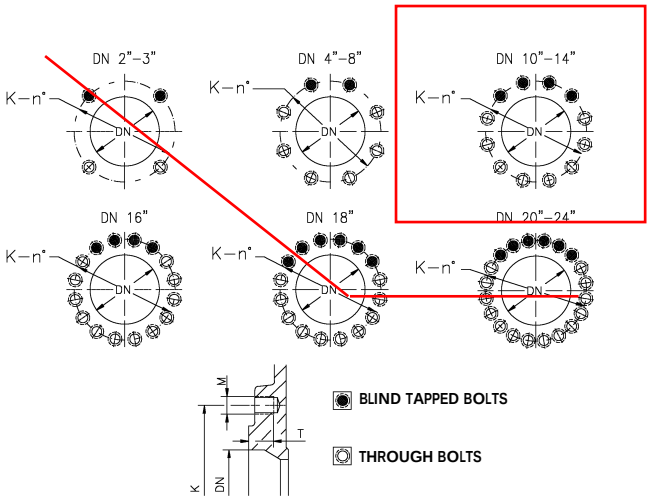
MODEL 20

ORBINOX
VALVULAS · VALVES

FLANGE AND BOLTING DETAILS

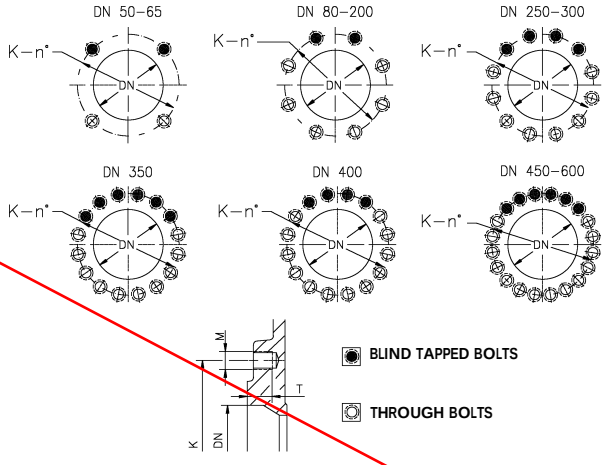
ANSI B16.5, class 150

DN	K	nº	M	T	
2"	4 3/4"	4	5/8" UNC	5/16"	2 - 2
2 1/2"	5 1/2"	4	5/8" UNC	5/16"	2 - 2
3"	6"	4	5/8" UNC	11/32"	2 - 2
4"	7 1/2"	8	5/8" UNC	11/32"	2 - 6
5"	8 1/2"	8	3/4" UNC	11/32"	2 - 6
6"	9 1/2"	8	3/4" UNC	15/32"	2 - 6
8"	11 3/4"	8	3/4" UNC	15/32"	2 - 6
10"	14 1/4"	12	7/8" UNC	15/32"	4 - 8
12"	17"	12	7/8" UNC	15/32"	4 - 8
14"	18 3/4"	12	1" UNC	19/32"	4 - 8
16"	21 1/4"	16	1" UNC	19/32"	4 - 12
18"	22 3/4"	16	1 1/8" UNC	19/32"	6 - 10
20"	25"	20	1 1/8" UNC	7/8"	6 - 14
24"	29 1/2"	20	1 1/4" UNC	7/8"	6 - 14



DIN PN10

DN	K	nº	M	T	
50	125	4	M-16	8	2 - 2
65	145	4	M-16	8	2 - 2
80	160	8	M-16	8,7	2 - 6
100	180	8	M-16	8,7	2 - 6
125	210	8	M-16	8,7	2 - 6
150	240	8	M-20	10,3	2 - 6
200	295	8	M-20	12	2 - 6
250	350	12	M-20	12	4 - 8
300	400	12	M-20	12	4 - 8
350	460	16	M-20	15	6 - 10
400	515	16	M-24	15	4 - 12
450	565	20	M-24	15	6 - 14
500	620	20	M-24	22,2	6 - 14
600	725	20	M-27	22,2	6 - 14



Project:

- Taunton WTF Improvements Phase 1, Model 60-500 Scum Concentrator

Specification Section(s):

- 11317

Instrument Location:

- Concentrator Tank

Instrument Name:

- Skimmer Drive Chain

Instrument Tag Number(s):

- N/A

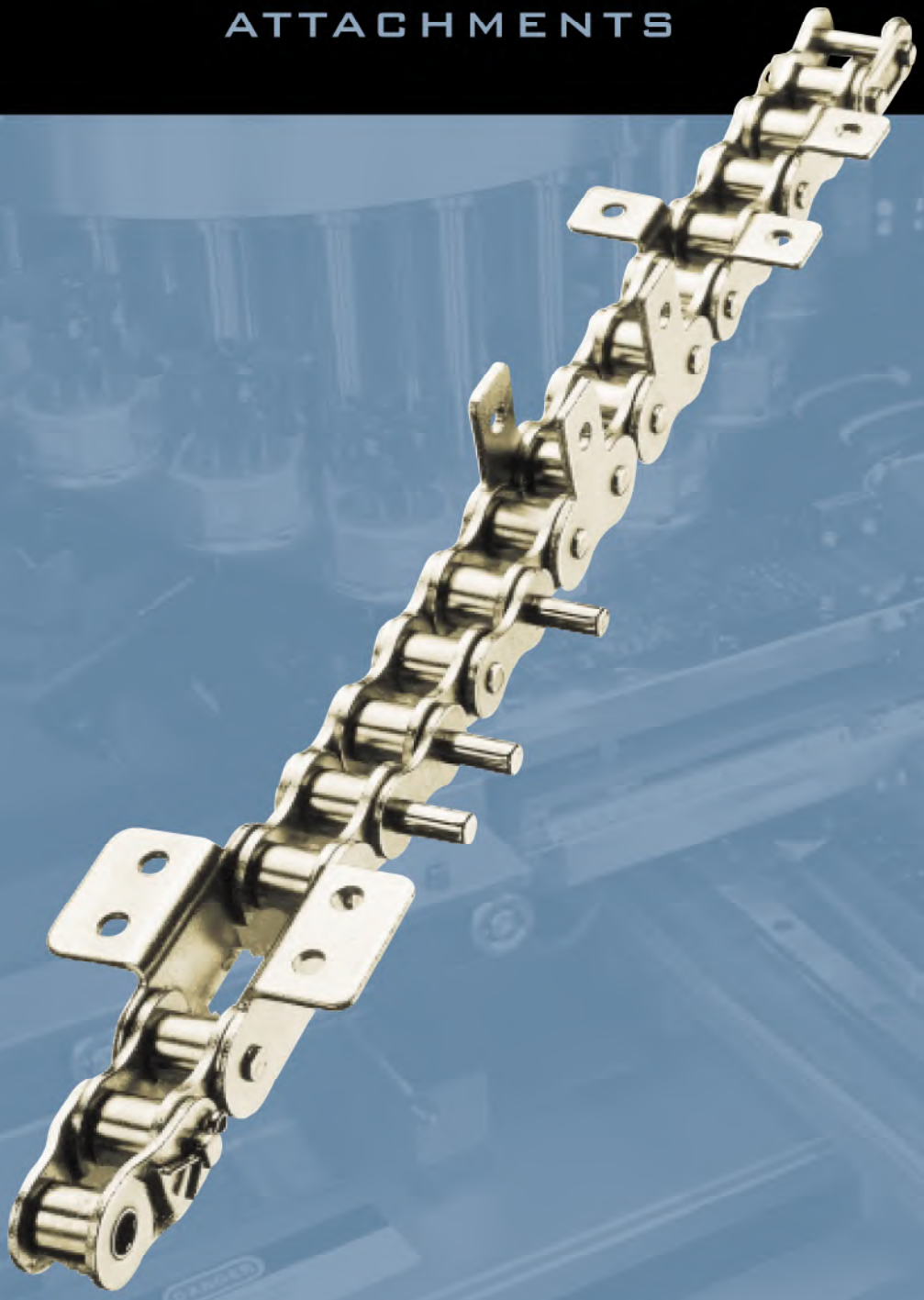
Manufacturer(s):

- Rex/Diamond

Model / Part Number(s):

- ASA 80 STEEL

PRECISION ROLLER CHAIN WITH INDUSTRY STANDARD ATTACHMENTS



Rexnord

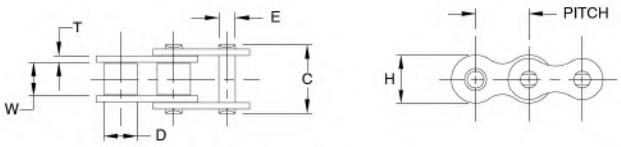
ROLLER CHAIN DIMENSIONS

Rex® and Link-Belt® Roller Chains have dominated the power transmission industry for over 125 years. These brand names are synonymous with high quality and superior performance.

The standard attachment chain market is one that has been served by Rexnord for years focusing on a core product offering that has become the industry standard. Rexnord's precision roller chain is manufactured in an ISO9001 environment by men and women who have unique expertise and unparalleled dedication to providing a quality product on time – every time.

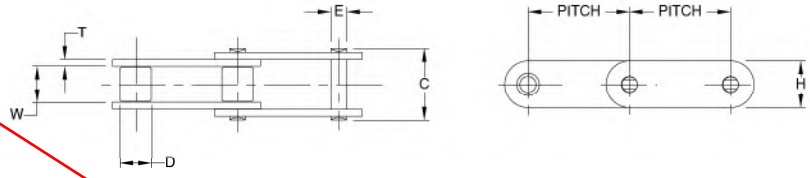
Consult your Rexnord salesperson or service center for program details on large quantity purchases and leadtime requirements.

We look forward to servicing your standard attachment needs.



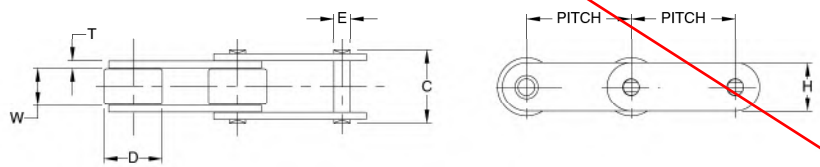
STANDARD SERIES ROLLER CHAIN

Size	Pitch	Dimensions-Inches					Pin Diam.	Average Ultimate Tensile Strength Lbs.	Average Weight Per Foot Lbs.
		Roller/Bushing		Over-All Width	Link-Plate				
		Width	Diameter		Height	Thickness			
		W	D	C	H	T	E		
35	0.375	0.188	0.200	0.461	0.359	0.050	0.141	2,600	0.220
40	0.500	0.312	0.312	0.634	0.473	0.060	0.156	4,300	0.390
50	0.625	0.375	0.400	0.800	0.591	0.080	0.200	7,166	0.720
60	0.750	0.500	0.469	1.000	0.709	0.094	0.234	9,923	1.070
80	1.000	0.625	0.625	1.286	0.949	0.125	0.312	17,640	1.870



CONVEYOR SERIES - STANDARD ROLLER

Size	Pitch	Dimensions-Inches					Pin Diam.	Average Ultimate Tensile Strength Lbs.	Average Weight Per Foot Lbs.
		Roller/Bushing		Over-All Width	Link-Plate				
		Width	Diameter		Height	Thickness			
		W	D	C	H	T	E		
C2040	1.000	0.312	0.312	0.634	0.742	0.060	0.156	4,290	0.340
C2050	1.250	0.375	0.400	0.799	0.591	0.080	0.200	7,040	0.580
C2060H	1.500	0.500	0.469	1.130	0.677	0.125	0.234	9,790	1.010
C2080H	2.000	0.625	0.625	1.413	0.945	0.156	0.312	16,500	1.600



CONVEYOR SERIES - LARGE ROLLER

Size	Pitch	Dimensions-Inches					Pin Diam.	Average Ultimate Tensile Strength Lbs.	Average Weight Per Foot Lbs.
		Roller/Bushing		Over-All Width	Link-Plate				
		Width	Diameter		Height	Thickness			
		W	D	C	H	T	E		
C2042	1.000	0.312	0.625	0.634	0.742	0.060	0.156	4,290	0.580
C2052	1.250	0.375	0.750	0.799	0.591	0.080	0.200	7,040	0.900
C2062H	1.500	0.500	0.875	1.130	0.677	0.125	0.234	9,790	1.460
C2082H	2.000	0.625	1.125	1.413	0.945	0.156	0.312	16,500	2.450

NOTE: DIMENSIONS SUBJECT TO CHANGE

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For over 100 years the dedicated people of Rexnord have delivered excellence in quality and service to our customers around the globe. Rexnord is a trusted name when it comes to providing skillfully engineered products that improve productivity and efficiency for industrial applications worldwide. We are committed to exceeding customer expectations in every area of our business: product design, application engineering, operations and customer service.

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Project:
• Taunton WTF Improvement Phase 1, Model 60-500 Scum Concentrator

Specification Section(s):
• 11317

Instrument Location:
• Holding Tank

Instrument Name:
• Temperature Transmitter

Instrument Tag Number(s):
• N/A

Manufacturer(s):
• Rosemount

Model / Part Number(s):
• 248HANAN0NSQ4

Product Data Sheet
August 2014
00813-0100-4825, Rev KC

Rosemount 248 Temperature Transmitter

- Basic temperature transmitter offers a reliable solution for temperature monitoring points.
- Standard transmitter design provides flexible and reliable performance in process environments.
- Experience lower over-all installation costs when compared to wiring sensor directly, reducing the need for expensive extension wires and multiplexers.
- Explore the benefits of a Complete Point Solution from Rosemount Temperature.

ROSEMOUNT

EMERSON.
Process Management

Rosemount 248 Temperature Transmitter

Basic temperature transmitter offers a cost effective solution for temperature monitoring points

- DIN B style head mount transmitter
- Variety of DIN B enclosure options
- Rail mount
- HART®/4-20 mA protocol
- Single sensor capability with universal sensor inputs (RTD, T/C, mV, ohms)

Standard transmitter design provides flexible and reliable performance in process environments

- Offers improved measurement accuracy and reliability over direct-wiring a sensor to the digital control system for a lower overall installation cost
- One-year stability rating reduces maintenance costs
- Open/short sensor diagnostics assist with detecting issues in the sensor loop
- Compensation for ambient temperatures enhances transmitter performance

Explore the benefits of a complete point solution from Rosemount Temperature Measurement

- An “Assemble To Sensor” option enables Emerson to provide a complete point temperature solution, delivering an installation-ready transmitter and sensor assembly
- Emerson offers a selection of RTDs, thermocouples, and thermowells that bring superior durability and Rosemount reliability to temperature sensing, complementing the Rosemount Transmitter portfolio

Experience global consistency and local support from numerous worldwide Rosemount Temperature manufacturing sites

- World-class manufacturing provides globally consistent product from every factory and the capacity to fulfill the needs of any project, large or small
- Experienced Instrumentation Consultants help select the right product for any temperature application and advise on best installation practices
- An extensive global network of Emerson service and support personnel can be on-site when and where they are needed

Contents

Rosemount 248 Temperature Transmitter

Rosemount 248 Head Mount Temperature Transmitter

The Rosemount 248 Temperature Transmitter has a standard transmitter design that provides flexible and reliable performance in process environments.

Transmitter features include:

- HART/4-20 mA Communication Protocol
- DIN B style head mount and rail mount transmitter types
- Variety of DIN B enclosure options
- Sanitary Connection Heads available (Option Code F and S)
- 3-Point Calibration Certificate (Option Code Q4)
- Assemble to Sensor options (Option Code XA)

Specification and selection of product materials, options, or components must be made by the purchaser of the equipment. See page 10 for more information on Material Selection.

Table 1. Rosemount 248 Head Mount Temperature Transmitter

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.
The Expanded offering is subject to additional delivery lead time.

Model	Product description		
248	Temperature Transmitter		
Transmitter type			
H	DIN B Head Mount		★
Transmitter output			
A	4–20 mA with digital signal based on HART Protocol		★
Product certifications		**Enclosure option codes permitted**	
E5	FM Explosion-Proof	A, U, G, H	★
I5	FM Intrinsic Safety and Class I, Division 2	A, B, U, N, G, S, H	★
K5	FM Intrinsic Safety, Explosion-Proof, and Class I, Division 2	A, U, G, H	★
I6	CSA Intrinsic Safety and Class I, Division 2	A, B, U, N, G, H	★
K6	CSA Intrinsic Safety, Explosion-Proof, and Class I, Division 2	A, U, G, H	★
E1	ATEX Flameproof	A, U, G, H	★
I1	ATEX Intrinsic Safety	A, B, U, N,C, G, S, H	★
ND	ATEX Dust	A, U, G, H	★
N1	ATEX Type n	A, U, G, H	★
NC[1]	ATEX Type n Component	N	★

Table 1. Rosemount 248 Head Mount Temperature Transmitter

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.
The Expanded offering is subject to additional delivery lead time.

E7	IECEx Flameproof and Dust	A, U, G, H		★
I7	IECEx Intrinsic Safety	All options		★
N7	IECEx Type n	A, U, G, H		★
NG	IECEx Type n Component	N		★
KM	Technical Regulations Customs Union (EAC) Flameproof, Intrinsic Safety	A, G, H, U		★
IM	Technical Regulations Customs Union (EAC) Intrinsic Safety	All options		★
EM	Technical Regulations Customs Union (EAC) Flameproof	A, G, H, U		★
E3	China Flameproof	A, G, H, N		★
I3	China Intrinsic Safety	A, G, H, N		★
NA	No Approval	All options		★
Enclosure		**Material**	**IP rating**	
A	Connection Head	Aluminum	IP66/68	★
B	BUZ Head	Aluminum	IP65	★
C	BUZ Head	Polypropylene	IP65	★
G	Connection Head	SST	IP66/IP68	★
H	Universal Head (Junction Box)	SST	IP66/IP68	★
U	Universal Head (Junction Box)	Aluminum	IP66/IP68	★
N	No Enclosure	N/A	N/A	★
F	Sanitary Connection Head, DIN A	Polished SST	IP66/IP68	
S	Sanitary Connection Head, DIN B	Polished SST	IP66/IP68	
Conduit entry size[(2)]				
1[(3)]	M20 x 1.5 (CM20)			★
2	1/2-inch NPT			★
0	No Enclosure			★
Assemble to options				
XA	Sensor Specified Separately and Assembled to Transmitter			★
NS	No Sensor			★

Options (include with selected model number)

Alarm level configuration		
A1	NAMUR alarm and saturation levels, high alarm	★
CN	NAMUR alarm and saturation levels, low alarm	★
5-point calibration		
C4	5-Point Calibration (requires the Q4 option code to generate a Calibration Certificate)	★

Table 1. Rosemount 248 Head Mount Temperature Transmitter

★ The Standard offering represents the most common options. The starred options (★) should be selected for best delivery.
The Expanded offering is subject to additional delivery lead time.

Calibration certificate		
Q4	Calibration Certificate (3-point calibration)	★
External ground		
G1	External Ground Lug Assembly	★
Line filter		
F6	60 Hz Line Voltage Filter	★
Conduit electrical connector		
GE(2)(4)	M12, 4 pin, Male Connector (eurofast®)	★
GM(2)(4)	A-size Mini, 4 pin, Male Connector (minifast®)	★
External label		
EL	External Label for ATEX Intrinsic Safety	★
Cover chain option		
G3	Cover Chain	★
Software configuration		
C1	Custom Configuration of Date, Descriptor and Message (requires CDS with order)	★
Extended product warranty		
WR3	3-year warranty	★
WR5	5-year warranty	★
Typical model number: 248H A I1 A 1 DR N080 T08 EL U250 CN		

(1) The 248H with ATEX Type n Component Approval is not approved as a stand alone unit, additional system certification is required. Transmitter must be installed so it is protected to at least the requirements of IP54.

(2) All process connection threads are 1/2in. NPT, except for Enclosure Codes H and U with Conduit Entry Code 1 and Sensor Type Code NS.

(3) For enclosures H and U with the XA option specified, a 1/2-in. NPT to M20 x 1.5 thread adapter is used.

(4) Available with Intrinsically Safe approvals only for FM Intrinsically Safe or Non-Incendive approval (Option Code I5). To maintain NEMA 4X rating, it must be installed according to Rosemount Drawing 03151-1009.

Transmitter Specifications

Functional specifications

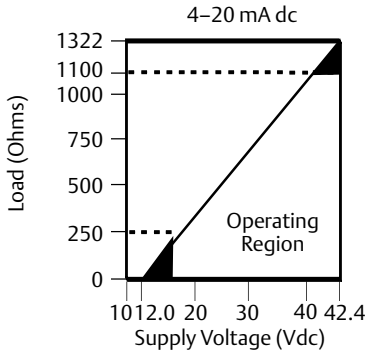
Inputs
User-selectable; sensor terminals rates to 42.4 Vdc. See "Transmitter accuracy and ambient temperature effects" on page 12 for sensor options.

Output
2-wire 4–20 mA, linear with temperature or input; digital output signal superimposed on 4–20 mA signal, available for a Field Communicator or control system interface.

Isolation
Input/output isolation tested to 500 Vac rms (707 Vdc) at 50/60 Hz.

Power supply
An external power supply is required for HART devices. The transmitter operates on 12.0 to 42.4 Vdc transmitter terminal voltage with load resistance between 250 and 1100 ohms. A minimum of 17.75 Vdc power supply is required with a load of 250 ohms. Transmitter power terminals are rated to 42.4 Vdc.

Maximum load = 40.8 x (supply voltage – 12.0)



Humidity limits
0–99% relative humidity, non-condensing

NAMUR recommendations
The 248 meets the following NAMUR recommendations:

- NE 21 – Electromagnetic compatibility (EMC) for Process and Laboratory Apparatus
- NE 43 – Standard of the signal level breakdown information of digital transmitters
- NE 89 – Standard of temperature transmitters with digital signal processing

Transient protection
The optional Rosemount 470 Transient Protector prevents damage from transients induced by lightning, welding, heavy electrical equipment, or switch gears. Refer to the 470 Product Data Sheet (document number 00813-0100-4191) for more information.

Temperature limits
Operating Limit

- –40 to 85 °C (–40 to 185 °F)

Storage Limit

- –50 to 120 °C (–58 to 248 °F)

Turn-on time
Performance within specifications in less than 5.0 seconds after power is applied to transmitter, when damping value is set to zero seconds.

Update rate
Less than 0.5 seconds

Damping
32 seconds maximum. 5 seconds default

Custom alarm and saturation levels
Custom factory configuration of alarm and saturation levels is available with option code C1 for valid values. These values can also be configured in the field using a Field Communicator.

Recommended minimum measuring span
10 K

Software detected failure mode
The values at which the transmitter drives its output in failure mode depends on whether it is configured to standard, custom, or NAMUR-compliant (NAMUR recommendation NE 43) operation. The values for standard and NAMUR-compliant operation are as follows:

Figure 1. Operation Parameters

	Standard [1]	NAMUR NE43-compliant[1]
Linear Output	3.9 ≤ I ≤ 20.5	3.8 ≤ I ≤ 20.5
Fail High	21 ≤ I ≤ 23 (default)	21 ≤ I ≤ 23 (default)
Fail Low	I ≤ 3.75	I ≤ 3.6

(1) Measured in milliamperes.

Certain hardware failures, such as microprocessor failures, will always drive the output to greater than 23 mA.

Physical specifications

Material selection

Emerson provides a variety of Rosemount product with various product options and configurations including materials of construction that can be expected to perform well in a wide range of applications. The Rosemount product information presented is intended as a guide for the purchaser to make an appropriate selection for the application. It is the purchaser's sole responsibility to make a careful analysis of all process parameters (such as all chemical components, temperature, pressure, flow rate, abrasives, contaminants, etc.), when specifying product, materials, options and components for the particular application. Emerson Process Management is not in a position to evaluate or guarantee the compatibility of the process fluid or other process parameters with the product, options, configuration or materials of construction selected.

Conformance to specification [±3σ (Sigma)]

Technology leadership, advanced manufacturing techniques, and statistical process control ensure specification conformance to at least ±3σ.

Field Communicator connections

Communication Terminal: clips permanently fixed to the terminals

Materials of construction

Electronics housing

Reinforced GE polyphenylene oxide glass

Universal (option code U and H) and Rosemount connection (option code A and G) heads

- Housing: Low-copper aluminum (option codes U and A)
- Stainless Steel (option codes G and H)
- Paint: Polyurethane
- Cover O-Ring: Buna–N

BUZ head (option code B)

- Housing: Aluminum
- Paint: Aluminum lacquer
- O-Ring Seal: Rubber

Mounting

The 248R attaches directly to a wall or a DIN rail. The 248H installs in a connection head or universal head mounted directly on a sensor assembly or apart from a sensor assembly using a universal head. The 248H can also mount to a DIN rail using an optional mounting clip (see Table 7).

Weight

Code	Options	Weight
248H	Headmount Transmitter	42 g (1.5 oz)
248R	Railmount Transmitter	250 g (8.8 oz)
U	Universal Head	520 g (18.4 oz)
B	BUZ Head	240 g (8.5 oz)
C	Polypropylene Head	90 g (3.2 oz.)
A	Rosemount Connection Head	524 g (18.5 oz)
S	Polished Stainless Steel (SST) Head	537 g (18.9 oz)
G	Rosemount Connection Head (SST)	1700 g (60 oz)
H	Universal Head (SST)	1700 g (60 oz)

Enclosure ratings

The Universal (option code U) and Rosemount Connection (option code A) Heads are NEMA 4X, IP66, and IP68. The Universal Head with $^1/_2$ NPT threads is CSA Enclosure Type 4X. The BUZ head (option code B) is NEMA 4 and IP65.

Performance specifications

Electromagnetic compatibility (EMC)
NAMUR NE21 Standard

The Rosemount 248 meets the requirements for NAMUR NE21 Rating.

Susceptibility	Parameter	Influence
ESD	• 6 kV contact discharge • 8 kV air discharge	None
Radiated	• 80 – 1000 MHz at 10 V/m AM	None
Burst	• 1 kV for I.O.	None
Surge	• 0.5 kV line–line • 1 kV line–ground (I.O. tool)	None
Conducted	• 150 kHz to 80 MHz at 10 V	None

CE mark

The 248 meets the requirements listed in IEC 61326-1:2006 and IEC 61326-2-3:2006.

Power supply effect

Less than ±0.005% of span per volt

Vibration effect

Tested to the following with no effect on performance per IEC 60770-1, 1999:

Frequency	Vibration
10 to 60 Hz	0.21 mm displacement
60 to 2000 Hz	3 g peak acceleration

Stability

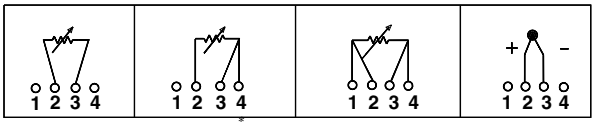
For RTD and thermocouple inputs the transmitter will have a stability of ±0.1% of reading or 0.1 °C (whichever is greater) for twelve months

Self calibration

The analog-to-digital measurement circuitry automatically self-calibrates for each temperature update by comparing the dynamic measurement to extremely stable and accurate internal reference elements.

Sensor connections

Rosemount 248 Sensor connections diagram



2-wire RTD and V | 3-wire* RTD and V | 4-wire RTD and V | T/C and mV

* Rosemount Inc. provides 4-wire sensors for all single element RTDs. You can use these RTDs in 3-wire configurations by leaving the unneeded leads disconnected and insulated with electrical tape.

(5) JIS 1604, 1981.

(6) Edison Curve No. 7.

(7) Edison Copper Winding No. 15.

(8) Total CJC accuracy for thermocouple measurement: ±0.5 °C.

(9) NIST Monograph 175, IEC 584.

(10) Fixed accuracy for NIST Type B is ±5.4 °F (±3.0 °C) from 212 to 572 °F (100 to 300 °C).

(11) Fixed accuracy for NIST Type K is ±1.3 °F (±0.7 °C) from -292 to -130 °F (-130 to -90 °C).

(12) DIN 43710.

(13) ASTME 988-96.

(13) Accuracy and Ambient Temperature Effects are tested and verified down to -51 °C (-60 °F) for LT option.

Transmitter accuracy example

When using a Pt 100 (a = 0.00385) sensor input with a 0 to 100 °C span, use the greater of the two calculated values. In this case, the accuracy would be +/-0.2 °C.

Transmitter temperature effects example

Transmitters can be installed in locations where the ambient temperature is between –40 and 85 °C (–40 and 185 °F). In order to maintain excellent accuracy performance, each transmitter is individually characterized over this ambient temperature range at the factory.

When using a Pt 100 (a = 0.00385) sensor input with a 0–100 °C span at 30 °C ambient temperature:

- Temperature Effects: 0.006 °C x (30 - 20) = 0.06 °C

Total transmitter error

Worst Case Transmitter Error: Accuracy + Temperature Effects = 0.2 °C + 0.06 °C = 0.26 °C

Total Probable Transmitter Error: $\sqrt{0.2^2 + 0.06^2} = 0.21°C$

Product Certifications

Approved Manufacturing Locations

Rosemount Inc. – Chanhassen, Minnesota, USA
Rosemount Temperature GmbH – Germany
Emerson Process Management Asia Pacific – Singapore

European Directive Information

A copy of the EC Declaration of Conformity can be found at the end of the Quick Start Guide. The most recent revision of the EC Declaration of Conformity can be found at www.rosemount.com.

Ordinary Location Certification from FM Approvals

As standard, the transmitter has been examined and tested to determine that the design meets the basic electrical, mechanical, and fire protection requirements by FM Approvals, a nationally recognized test laboratory (NRTL) as accredited by the Federal Occupational Safety and Health Administration (OSHA).

North America

E5 FM Explosionproof, Dust-Ignitionproof, and Nonincendive

Certificate: 3016555

Standards Used: FM Class 3600:1998, FM Class 3611:2004, FM Class 3615:1989, FM Class 3810:2005, ANSI/ISA 60079-0:2009, ANSI/ISA 60079-11:2009, IEC 60529: 2001, NEMA - 250: 1991

Markings: XP CL I, DIV 1, GP B, C, D; DIP CL II/III, DIV 1, GP E, F, G when installed per Rosemount drawing 00248-1065. T5(-40 °C ≤ Ta ≤ +85 °C); NI CL1, DIV 2, GP A, B, C, D T6(-40 °C ≤ Ta ≤ +40 °C), T5(-40 °C ≤ Ta ≤ +75 °C) when installed per Rosemount drawing 00248-1055; Type 4X; IP66/68.

I5 FM Intrinsic Safety and Nonincendive

Certificate: 3016555

Standards Used: FM Class 3600:1998, FM Class 3610:2010, FM Class 3611:2004, FM Class 3810:2005, ANSI/ISA 60079-0:2009, ANSI/ISA 60079-11:2009, IEC 60529: 2001, NEMA - 250: 1991

Markings: IS CL I/II/III, DIV 1, GP A, B, C, D, E, F, G; NI CL1, DIV 2, GP A, B, C, D T6(-40 °C ≤ Ta ≤ +40 °C), T5(-40 °C ≤ Ta ≤ +75 °C) when installed per Rosemount drawing 00248-1055; Type 4X; IP66/68.

Special Conditions for Safe Use (X):

1. When option d=N (No Enclosure), the Model 248 Transmitter shall be installed in an enclosure meeting the requirements of ANSI/ISA S82.01 & S82.03 or other applicable ordinary location standards.
2. Option d must not equal N (No enclosure) or B (Buz Head) to maintain a Type 4X rating.
3. Option d must not equal N (No Enclosure) to maintain a Type 4 Rating.

I6 CSA Intrinsic Safety and Division 2

Certificate: 1091070

Standards Used: CAN/CSA C22.2 No. 0-M90, CSA Std. C22.2 No. 25-1966, CAN/CSA C22.2 No. 94-M91, CAN/CSA C22.2 No. 157-92, CSA C22.2 No. 213-M1987, C22.2 No 60529-05

Markings: IS CL I, DIV 1 GP A, B, C, D when installed per Rosemount drawing 00248-1056; Suitable for CL I DIV 2 GP A, B, C, D when installed per Rosemount drawing 00248-1055; T6(-50 °C ≤ Ta ≤ +40 °C), T5(-50 °C ≤ Ta ≤ +60 °C); Type 4X, IP66/68 for enclosure options “A”, “G”, “H”, “U”;

K6 CSA Explosionproof, Intrinsic Safety, and Division 2

Certificate: 1091070

Standards Used: CAN/CSA C22.2 No. 0-M90, CSA Std. C22.2 No. 25-1966, CSA Std. C22.2 No. 30-M1986, CAN/CSA C22.2 No. 94-M91, CSA Std. C22.2 No.142-M1987, CAN/CSA C22.2 No. 157-92, CSA C22.2 No. 213-M1987, C22.2 No 60529-05

Markings: XP CL I/II/III, DIV 1, GP B, C, D, E, F, G when installed per Rosemount drawing 00248-1066; IS CL I, DIV 1 GP A, B, C, D when installed per Rosemount drawing 00248-1056; Suitable for CL I DIV 2 GP A, B, C, D when installed per Rosemount drawing 00248-1055; T6(-50 °C ≤ Ta ≤ +40 °C), T5(-50 °C ≤ Ta ≤ +60 °C); Type 4X, IP66/68 for enclosure options “A”, “G”, “H”, “U”; Seal not required.

Europe

E1 ATEX Flameproof

Certificate: FM12ATEX0065X

Standards Used: EN 60079-0: 2012, EN 60079-1: 2007, EN 60529:1991 +A1:2000

Markings: ⟨Ex⟩ II 2 G Ex d IIC T6...T1 Gb, T6(-50 °C ≤ Ta ≤ +40 °C), T5...T1(-50 °C ≤ Ta ≤ +60 °C);

See Table 4 at the end of the Product Certifications section for Process Temperatures.

Special Conditions for Safe Use (X):

1. See certificate for ambient temperature range.
2. The non-metallic label may store an electrostatic charge and become a source of ignition in Group III environments.
3. Guard the LCD display cover against impact energies greater than 4 joules.
4. Consult the manufacturer if dimensional information on the flameproof joints is necessary.

I1 ATEX Intrinsic Safety

Certificate: Baseefa03ATEX0030X

Standards Used: EN 60079-0: 2012, EN 60079-11: 2012

Markings: ⟨Ex⟩ II 1 G Ex ia IIC T5/T6 Ga, T5(-60 °C ≤ Ta ≤ +60 °C), T6(-60 °C ≤ Ta ≤ +80 °C)

See Table 5 at the end of the Product Certifications section for Entity Parameters.

Special Conditions for Safe Use (X):

1. The apparatus must be installed in an enclosure which affords it a degree of protection of at least IP20. Non-metallic enclosures must have a surface resistance of less than 1GΩ; light alloy or zirconium enclosures must be protected from impact and friction when installed.

N1 ATEX Type n - Transmitter only

Certificate: Baseefa13ATEX0045X

Standards Used: EN 60079-0:2012, EN 60079-15:2010

Markings: ⟨Ex⟩ II 3 G Ex nA IIC T5/T6 Gc, T5(-60 °C ≤ Ta ≤ +80 °C), T6(-60 °C ≤ Ta ≤ +60 °C);

Special Condition for Safe Use (X):

1. The Model 248 Temperature Transmitter must be installed in a suitably certified enclosure such that it is afforded a degree of protection of at least IP54 in accordance with IEC 60529 and EN 60079-15.

NC ATEX Type n - Temperature Assembly

Certificate: BAS00ATEX3145

Standards Used: EN 60079-0:2012, EN 60079-15:2010

Markings: ⟨Ex⟩ II 3 G Ex nA IIC T5 Gc (-40 °C ≤ Ta ≤ +70 °C);

ND ATEX Dust

Certificate: FM12ATEX0065X

Standards Used: EN 60079-0: 2012, EN 60079-31: 2009, EN 60529:1991 +A1:2000

Markings: ⟨Ex⟩ II 2 D Ex tb IIIC T130 °C Db, (-40 °C ≤ Ta ≤ +70 °C); IP66

Special Conditions for Safe Use (X):

1. See certificate for ambient temperature range.
2. The non-metallic label may store an electrostatic charge and become a source of ignition in Group III environments.
3. Guard the LCD display cover against impact energies greater than 4 joules.
4. Consult the manufacturer if dimensional information on the flameproof joints is necessary.

Technical Regulations Customs Union (EAC)

KM, IM, EM Contact an Emerson Process Management representative for additional information

International

E7 IECEx Flameproof

Certificate: IECEx FMG 12.0022X

Standards Used: IEC 60079-0:2011, IEC 60079-1:2007-04, IEC 60079-31:2008

Markings: Ex d IIC T6...T1 Gb, T6(-50 °C ≤ Ta ≤ +40 °C), T5...T1(-50 °C ≤ Ta ≤ +60 °C); Ex tb IIIC T130 °C Db, (-40 °C ≤ Ta ≤ +70 °C); IP66;

See Table 4 at the end of the Product Certifications section for Process Temperatures

Special Conditions for Safe Use (X):

1. See certificate for ambient temperature range.
2. Guard the LCD display cover against impact energies greater than 4 joules.
3. Consult the manufacturer if dimensional information on the flameproof joints is necessary.

I7 IECEx Intrinsic Safety

Certificate: IECEx BAS 07.0086X

Standards Used: IEC 60079-0:2011, IEC 60079-11:2011

Markings: Ex ia IIC T5/T6 Ga, T5(-60 °C ≤ Ta ≤ +80 °C) T6(-60 °C ≤ Ta ≤ +60 °C)

See Table 5 at the end of the Product Certifications section for Entity Parameters

Special Condition for Safe Use (X):

1. The apparatus must be installed in an enclosure which affords it a degree of protection of at least IP20. Non-metallic enclosures must have a surface resistance of less than 1GΩ; light alloy or zirconium enclosures must be protected from impact and friction when installed.

N7 IECEx Type n - Transmitter only

Certificate: IECEx BAS 13.0029X

Standards Used: IEC 60079-0:2011, IEC 60079-15:2010

Markings: Ex nA IIC T5 Gc; T5(-40 °C ≤ Ta ≤ +70 °C)

Special Conditions for Safe Use (X):

1. The Model 248 Temperature Transmitter must be installed in a suitably certified enclosure such that it is afforded a degree of protection of at least IP54 in accordance with IEC 60529 and IEC 60079-15.

NG IECEx Type n - Temperature Assembly

Certificate: IECEx BAS 07.0055

Standards Used: IEC 60079-0:2011, IEC 60079-15:2010

Markings: Ex nA IIC T5/T6 Gc; T5(-60 °C ≤ Ta ≤ +80 °C), T6(-60 °C ≤ Ta ≤ +60 °C)

China

E3 China Flameproof

Certificate: GYJ11.1534;

Standards Used: GB3836.1-2010, GB3836.2-2010

Markings: Ex d IIC T6 Gb (-40 °C ≤ Ta ≤ +65 °C)

Special Conditions of Use (X):

1. Ambient temperature range is: -40 °C ≤ Ta ≤ +65 °C.
2. The earth connection facility in the enclosure should be connected reliably.
3. During installation, there should be no mixture harmful to flameproof housing.
4. During installation in hazardous location, cable glands, conduits and blanking plugs, certified by state-appointed inspection bodies with Ex d IIC Gb degree, should be used.
5. During installation, use and maintenance in explosive gas atmospheres, observe the warning "Do not open when energized".
6. End user is not permitted to change any components inside, but to settle the problem in conjunction with manufacturer to avoid damage to the product.
7. When installation, use and maintenance of this product, observe the following standards:

   GB3836.13-1997 "Electrical apparatus for explosive gas atmospheres Part 13: Repair and overhaul for apparatus used in explosive gas atmospheres".

   GB3836.15-2000 "Electrical apparatus for explosive gas atmospheres Part 15: Electrical installations in hazardous area (other than mines)".

   GB3836.16-2006 "Electrical apparatus for explosive gas atmospheres Part 16: Inspection and maintenance of electrical installation (other than mines)".

   GB50257-1996 "Code for construction and acceptance of electric device for explosion atmospheres and fire hazard electrical equipment installation engineering".

I3 China Intrinsic Safety

Certificate: GYJ11.1535X

Standards Used: GB3836.1-2010, GB3836.4-2010

Markings: Ex ia IIC T5/T6; T5(-60 °C ≤ Ta ≤ +80 °C), T6(-60 °C ≤ Ta ≤ +60 °C)

See Table 5 at the end of the Product Certifications section for Entity Parameters.

Special Conditions for Safe Use (X):

1. Symbol "X" is used to denote specific conditions of use:
   a. The enclosure may contain light metal, attention should be taken to avoid ignition hazard due to impact or friction.
   b. The apparatus must be installed in an enclosure which affords it a degree of protection of at least IP20. Non-metallic enclosures must have a surface resistance of less than 1GΩ.
2. The relation between T code and ambient temperature range is:

T code	Temperature range
T6	-60 °C ≤ Ta ≤ +60 °C
T5	-60 °C ≤ Ta ≤ +80 °C

3. Intrinsically Safe parameters:
   HART loop terminals (+ and -)

Maximum input voltage U_i (V)	Maximum input current I_i (mA)	Maximum input power: P_i (W)	Maximum internal parameters	
			C_i (nF)	L_i (mH)
30	130	1.0	3.6	0

The above supply must be derived from a linear supply.

Sensor terminals (1 to 4)

Maximum output voltage U_o (V)	Maximum output current I_o (mA)	Maximum output power: P_o (W)	Maximum internal parameters	
			C_i (nF)	L_i (mH)
45	26	290	2.1	0

Sensor terminals (3 to 6)

Group	Maximum external parameters	
	C_o (nF)	L_o (mH)
IIC	23.8	23.8
IIB	237.9	87.4
IIA	727.9	184.5

4. The product should be used with Ex-certified associated apparatus to establish explosion protection system that can be used in explosive gas atmospheres. Wiring and terminals should comply with the instruction manual of the product and associated apparatus.
5. The cables between this product and associated apparatus should be shielded cables (the cables must have insulated shield). The shielded has to be grounded reliably in non-hazardous area.
6. End user is not permitted to change any components inside, but to settle the problem in conjunction with manufacturer to avoid damage to the product.
7. When installation, use and maintenance of this product, observe the following standards:

   GB3836.13-1997 "Electrical apparatus for explosive gas atmospheres Part 13: Repair and overhaul for apparatus used in explosive gas atmospheres".

   GB3836.15-2000 "Electrical apparatus for explosive gas atmospheres Part 15: Electrical installations in hazardous area (other than mines)".

   GB3836.16-2006 "Electrical apparatus for explosive gas atmospheres Part 16: Inspection and maintenance of electrical installation (other than mines)".

   GB50257-1996 "Code for construction and acceptance of electrical device for explosion atmospheres and fire hazard electrical equipment installation engineering".

N3 China Type n

Certificate: GYJ101095

Standards Used: GB3836.1-2000, GB3836.8-2003

Markings: Ex nA nL IIC T5 (-40 °C ≤ Ta ≤ +70 °C)

Special Conditions for Safe Use (X):

1. 248 type Temperature Assembly using temperature sensor type 65, 68, 183, 185 are certified.
2. The ambient temperature range is: (-40 °C ≤ Ta ≤ +70 °C).
3. Maximum input voltage: 42.4V.
4. Cable glands, conduit or blanking plugs, certified by NEPSI with Exe or Ex n protection type and ½-14NPT or M20x1.5 thread type, should be used on external connections and redundant cable entries.
5. Maintenance should be done in non-hazardous location.
6. End user is not permitted to change any components inside, but to settle the problem in conjunction with manufacturer to avoid damage to the product.
7. When installation, use and maintenance of this product, observe the following standards:

   GB3836.13-1997 "Electrical apparatus for explosive gas atmospheres Part 13: Repair and overhaul for apparatus used in explosive gas atmospheres".

   GB3836.15-2000 "Electrical apparatus for explosive gas atmospheres Part 15: Electrical installations in hazardous area (other than mines)".

   GB3836.16-2006 "Electrical apparatus for explosive gas atmospheres Part 16: Inspection and maintenance of electrical installation (other than mines)".

   GB50257-1996 "Code for construction and acceptance of electrical device for explosion atmospheres and fire hazard electrical equipment installation engineering".

Combinations

K5 Combination of E5 and I5

Tables

Table 4. Process Temperatures

Temperature class	Ambient temperature	Process temperature w/o LCD display cover (°C)			
		No ext.	3"	6"	9"
T6	-50 °C to +40 °C	55	55	60	65
T5	-50 °C to +60 °C	70	70	70	75
T4	-50 °C to +60 °C	100	110	120	130
T3	-50 °C to +60 °C	170	190	200	200
T2	-50 °C to +60 °C	280	300	300	300
T1	-50 °C to +60 °C	440	450	450	450

Table 5. Entity Parameters

	HART loop terminals + and -	Sensor terminals 1 to 4
Voltage U_i	30 V	45 V
Current I_i	130 mA	26 mA
Power P_i	1 W	290 mW
Capacitance C_i	3.6 nF	2.1 nF
Inductance L_i	0 mH	0 µH

Table 6. Intrinsic Safety Parameters

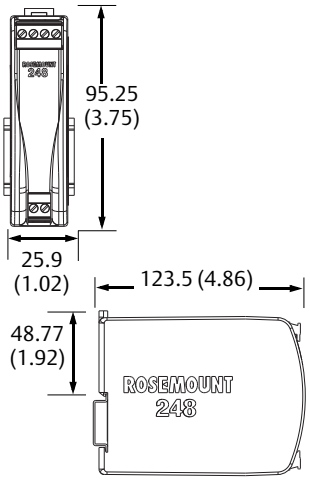
Terminals	Input parameters					Output parameters				
	U_i, *V	I_i, *mA	P_i, *W	L_i, µH	C_i, nF	U_o, V	I_o, mA	P_o, mW	L_o, µH	C_o, µF
+and-	30	130	1	0	3.6	N/A	N/A	N/A	N/A	N/A
1-4	N/A	N/A	N/A	0	2.1	45	26	290	N/A	N/A

Special Conditions for Safe Use (X):

1. Transmitter installation and operation must follow requirements and special conditions for safe use given in operation manuals.
2. Transmitters must be powered by intrinsic safety barriers having certificate of compliance.
3. Electrical parameters shown on the intrinsic safety barrier, together with connecting cable parameters, should correspond to input intrinsic safety parameters of sensors and transmitters.
4. Transmitter housing is made of aluminum alloy, thus to prevent ignition from sparks caused by friction or collision of parts it is required to protect sensor and transmitter housing against mechanical shocks when installing them in Zone 0.
5. Transmitters to be mounted with no connection head should be installed within an enclosure rated at IP 20 per GOST 14254-96 at least.

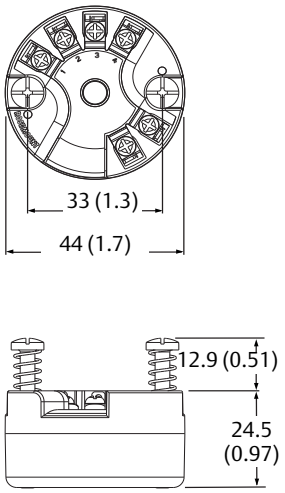
Dimensional Drawings

Rosemount 248R Railmount Transmitter



Rosemount 248H Headmount Transmitter

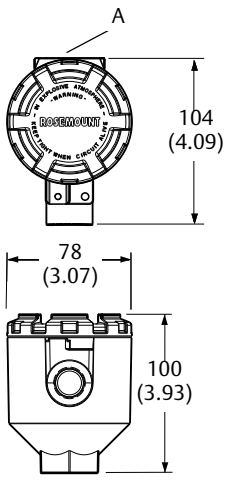
(enlarged)



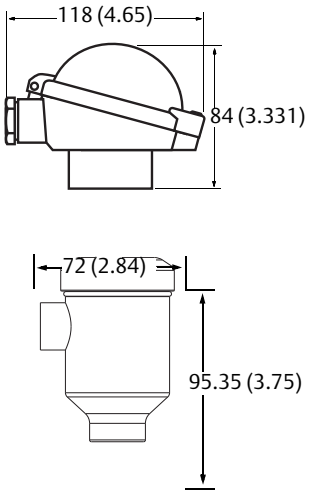
Dimensions are in millimeters (inches).

Enclosures

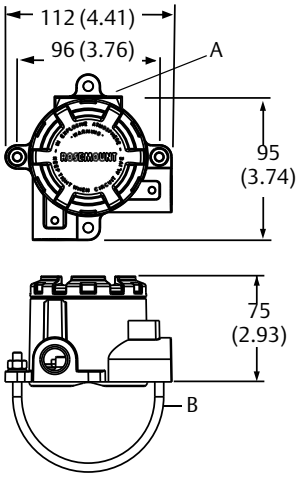
Connection head[1]



BUZ and polypropylene heads (option codes B and C) and Mini SST head (option code S)



Universal head[2] (option codes H and U)



Dimensions are in millimeters (inches).
A. Approval Label
B. SST “U” Bolt Mounting, 2-in. Pipe

(1) If ordering the transmitter with a DIN style sensor, it is recommended that the enclosure be ordered within the sensor model (Product Data Sheet 00813-0200-2654) rather than within the transmitter model, in order to drive necessary parts.

(2) A “U” Bolt is shipped with each universal head unless a sensor is ordered assembled to the enclosure. However, since the head can be integrally mounted to the sensor, it may not need to be used.

Rosemount 248 Configuration Interface Specifications

Configuration software(1)

The Rosemount 248 PC-based configuration software for the Rosemount 248 allows comprehensive configuration of the transmitters. Used in conjunction with various Rosemount or user-supplied hardware modems, the software provides the tools necessary to configure the 248 Transmitters including the following parameters:

- Process Variable
- Sensor Type
- Number of Wires
- Engineering Units
- Transmitter Tag Information
- Damping
- Alarming Parameters

Configuration hardware

The 248 Configuration Interface has 3 hardware options as follows:

Software only
(Part #: 00248-1603-0002)

Customer must provide appropriate communications hardware (modem, power supply, etc.).

Serial HART modem and software

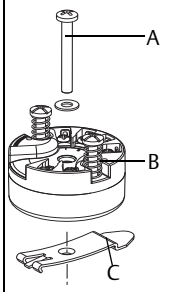
- (Part #: 00248-1603-0004)
- Serial HART modem
- Customer must provide separate loop power supply and resistor.
- Requires PC serial port.
- *Suitable for use with powered loops.*

USB HART modem and software

- (Part #: 00248-1603-0003)
- USB (Universal Serial Bus) HART modem
- Customer must provide separate loop power supply and resistor.
- Requires PC with USB port.
- *Suitable for use with powered loops.*

(1) The Rosemount configuration software is compatible with Windows™ XP, Windows 7 32-bit and Windows 7 64-bit. It is not compatible with Windows NT and Windows 2000.

Table 7. Rosemount 248 Transmitter Accessories

	Part description	Part number
 A. Mounting Hardware B. Transmitter C. Rail Clip	Aluminum Alloy Universal Head – M20 Entries	00644-4420-0002
	Aluminum Alloy Universal Head – 1/2 NPT Entries	00644-4420-0001
	Aluminum Alloy Rosemount Connection Head – M20 Conduit Entry, M24 Instrument Entry	00644-4410-0023
	Aluminum Alloy Rosemount Connection Head – 1/2 NPT Conduit Entry and M24 Instrument Entry	00644-4410-0013
	Aluminum Alloy BUZ Head – M20 Conduit Entry, M24 Instrument Entry	00644-4196-0023
	Aluminum Alloy BUZ Head – M20 Conduit Entry and 1/2 NPT Instrument Entry	00644-4196-0021
	Aluminum Alloy BUZ Head – 1/2 NPT Conduit Entry	00644-4196-0011
	External Ground Screw Assembly Kit	00644-4431-0001
	Kit, Hardware for Mounting a 248 to a DIN Rail (see left picture-top hat rail, symmetric)	00248-1601-0001
	Standard Cover for Universal or Rosemount Connection Heads	03031-0292-0001
	Snap Rings Kit (used for assembly to DIN Plate Style sensor)	00644-4432-0001
	Rosemount 248 Programming Software (CD)	00248-1603-0002
	Rosemount 248 Programming Kit - Serial connection	00248-1603-0004
	Rosemount 248 Programming Kit - USB connection	00248-1603-0003

Hardware tag

- 20 characters maximum
- Transmitter enclosure, sensor, and thermowell if applicable will be tagged in accordance with customer requirements

Software tag

- The transmitter can store up to 8 characters. If no characters are specified, the first 8 characters of the hardware tag are the default.

Configuration

When ordering a transmitter and sensor assembly in one model number, the transmitter will be configured for the sensor that is ordered.

When a transmitter is ordered alone, the transmitter will be shipped as follows (unless specified):

Sensor type	RTD, Pt 100 (α=0.00385, 4-wire)
4 mA value	0 °C
20 mA value	100 °C
Damping	5 seconds
Output	Linear with temperature
Failure mode	High/Upscale
Line voltage filter	50 Hz
Tag	See Hardware tag

Options

The following table lists the requirements necessary to specify a custom configuration.

Option code	Requirements/specification
C1: Factory Configuration Data (CDS required)	Date: day/month/year Descriptor: 16 alphanumeric characters Message: 32 alphanumeric character Analog Output: Alarm and saturation levels
A1: NAMUR-Compliant, High Alarm	See Figure 1 on page 9.
CN: NAMUR-Compliant, Low Alarm	See Figure 1 on page 9.
Q4: Calibration Certificate	Will include 3-Point calibration at 0, 50, and 100% analog and digital output points
C4: Five Point Calibration	Will include 5-point calibration at 0, 25, 50, 75, and 100% analog and digital output points. Use with Calibration Certificate Q4.
F6: 60 Hz Line Filter	Calibrated to a 60 Hz line voltage filter instead of 50 Hz filter

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00813-0100-4825, Rev KC, 08/14

ROSEMOUNT

EMERSON.
Process Management

Project:

- Taunton WTF Improvements Phase 1, Model 60-500 Scum Concentrator

Specification Section(s):

- 11317

Instrument Location:

- Concentrator Tank

Instrument Name:

- Skimmer Drive

Instrument Tag Number(s):

- N/A

Manufacturer(s):

- SEW

Model / Part Number(s):

- R37 D16B DRN71M4/DH

Catalog designation

R37 D16B DRN71M4/DH
Helical gearmotors R..DRN.. (IE3)

Click these icons for further information in Online Support

Reference data

Transaction	: 418543749
Item	: 100

Product data

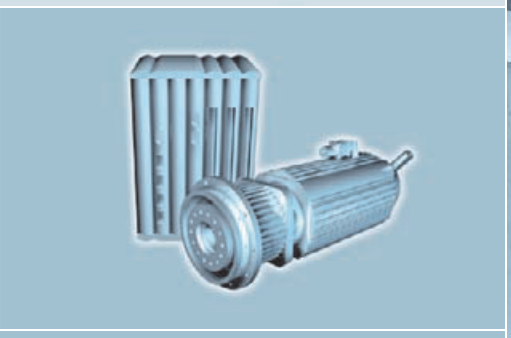
Speed [r/min]	: 1730 / 4.0 - 20
Total ratio [i]	: 105,28 / infinite
Output torque [Nm]	: 200 / 138
Output torque [lb-in]	: 1770 / 1220
Mounting position	: M1
Term.box.pos.[°] / cable entry	: 180 (L) / normal
Lubricant / -volume [l]	: CLP 220 Miner.Oil / 0,30
Lubricant volume [US gal]	: 0.080
Condensation drain hole	: DH - drain hole
Corrosion protection	: Yes
Surface protection	: OS2 to technical data sheet 01802__94
Paint coat	: Top coat RAL5001 (green blue)
Gear unit	: R37
Output shaft end	: 1.000x1.97 inch
Output shaft design	: with keyway/with key
Documentation no. A	: 26865351
Parts list	: 012630997
Gear unit	: D16B
Ratio range [1:]	: 5
Position remote contr. [°]	: 270
Documentation no. A	: 19368410
Parts list	: 152620594 / 15321386
Motor	: DRN71M4/DH
Motor power [kW]	: 0.37
Motor power [HP]	: 0.50
Motor frequency [Hz]	: 60
Cyclic duration factor S1-S10	: S1
Motor voltage [V] / conn. type	: 230/460 double star/star
Rated current [A]	: 1,83 / 0,91
cos phi	: 0,62
Wiring diagram	: R76 / 680430506
Thermal cl.[°C]/Enclosure[IP]	: 155(F) / 66
Service factor motor	: 1.15
International efficiency class	: IE3
Efficiency	
at 50/75/100% Pn [%]	: 74,3 / 77,7 / 78,5
Design specification	: USA (UR) /Canada (CSA)
CE mark	: No
EISA identification	: Yes, conform to EISA
K.V.A.code	: K

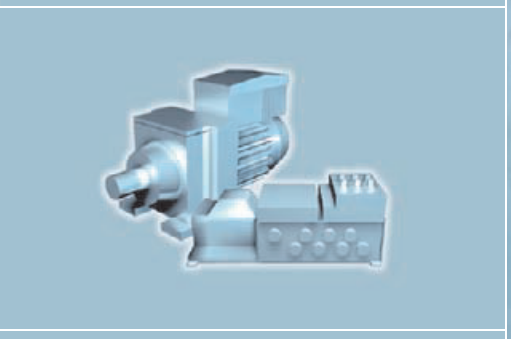
The present product information does not represent a quotation in legal terms. Technical data must be confirmed in a final technical verification. This verification is performed when creating the quotation/order. A legally binding contract requires an order issued by the ordering party and an order confirmation issued by SEW-EURODRIVE GmbH & Co KG.
Created on: 12/3/2021 9:30:49 PM CEST

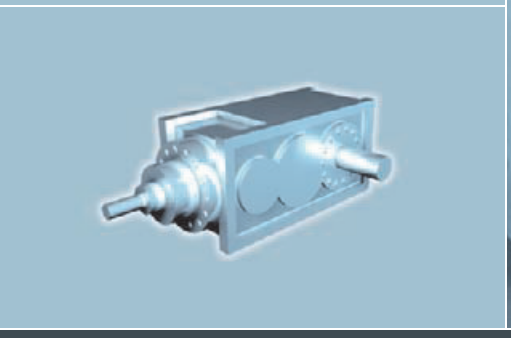
Terminal box	: Terminal box lower part made of aluminum
	: with tapped hole 2xNPT 1/2"
CT speed range	: 300-1800RPM
Documentation no. A	: 25957074
	: 26861313
	: 26864282
Spare parts list	: You can find the SWPL (spare and wearing
	: parts list) under the serial number in
	: the Online Support.
Nameplate	: English / Imperial units
Nameplate position	: 270°
Opera.instr. A lang./quantity	: English / 0
Parts list/language/quantity	: English / 0
Commodity code	: 85015100
Weight	: 35.00 kg

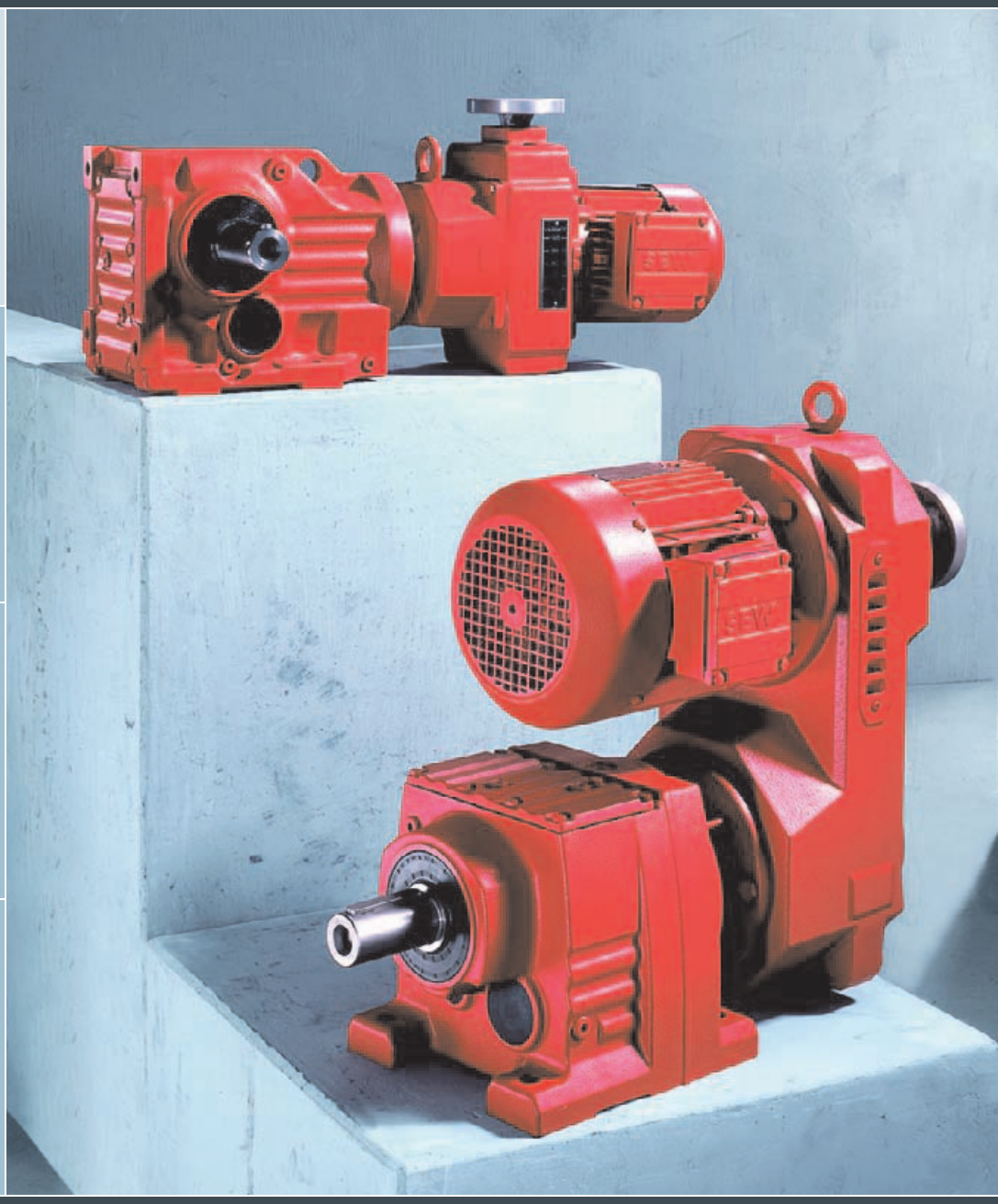
The present product information does not represent a quotation in legal terms. Technical data must be confirmed in a final technical verification. This verification is performed when creating the quotation/order. A legally binding contract requires an order issued by the ordering party and an order confirmation issued by SEW-EURODRIVE GmbH & Co KG.
Created on: 12/3/2021 9:30:49 PM CEST

SEW EURODRIVE









Variable Speed Gearmotors

A3.D03

Edition 08/2004
11230126 / EN

Catalog

SEW EURODRIVE

Contents

Contents

1 The SEW-EURODRIVE Group of Companies

SEW-EURODRIVE Introduction

SEW-EURODRIVE is a leading company in the global market for electrical drive engineering. Its global presence, extensive product range and broad spectrum of services make SEW-EURODRIVE the ideal partner for the machinery and plant construction industry when it comes to providing drive systems for demanding applications.

SEW-EURODRIVE possesses many years of experience in drive engineering which it puts to good use when developing, producing and selling all its drives with components drawn from mechanical and electrical engineering and electronics.

The company headquarters are in Bruchsal, Germany. Components for the SEW-EURODRIVE modular drive system are manufactured to the highest quality standards in production plants sited in Germany, France, Finland, the United States, Brazil and China. The individual drive systems are assembled with a consistently high quality standard and very short delivery times from stocked components in our assembly plants located in more than 30 industrialized countries all over the world. SEW-EURODRIVE sales, consulting, customer and spare parts services are available in more than 50 countries around the globe.

The product range

- Gearmotors, gear units and motors
  - Helical gear units/gearmotors
  - Parallel shaft helical gear units/gearmotors
  - Helical-bevel gear units/gearmotors
  - Helical-worm gear units/gearmotors
  - Spiroplan® right-angle gearmotors
  - Planetary gearmotors
  - Industrial gear units
  - Low backlash gear units/gearmotors
  - Brake motors
  - Drives for overhead trolley systems
  - Geared torque motors
  - Pole-changing gearmotors
  - Aseptic gearmotors

- Electronically controlled drives with
  - MOVITRAC® frequency inverters
  - MOVIDRIVE® drive inverters
  - MOVIDYN® servo controllers
  - Technology and communication options for the inverters
  - Asynchronous AC motors and AC gearmotors
  - Asynchronous and synchronous servomotors and geared servomotors
  - DC motors, brake motors and gearmotors
  - Synchronous and asynchronous linear motors

- Components for decentralized installation
  - MOVIMOT® gearmotors with integrated frequency inverter
  - MOVI-SWITCH® gearmotors with integrated switching and protection function
  - Field distributors, fieldbus interfaces

- Mechanical variable speed drives
  - VARIBLOC® wide V-belt variable speed gearmotors
  - VARIMOT® friction disc variable speed gearmotors

- Explosion-proof drives to ATEX 100a for category 2 and category 3

- Services
  - Technical consulting
  - Application software
  - Seminars and training
  - Extensive technical documentation
  - Worldwide customer service

Content of the catalog

This catalog describes VARIBLOC® and VARIMOT® variable speed gearmotors. It contains project planning notes, mounting positions, technical data, selection tables and dimension sheets for standard variable speed gearmotors.
The catalog also provides notes on using variable speed gearmotors in potentially explosive atmospheres.
Please refer to separate catalogs for information about other SEW products:

Other catalogs

- Gearmotors
- Gear units
- Low backlash planetary gear units
- Geared servomotors
- Pole-changing gearmotors
- Drives for overhead trolley systems
- Explosion-proof drives
- MOVIMOT® Gearmotors
- Compact gear units
- Planetary gearmotors
- DAS Aseptic drives

2 Product Description and Overview of Types

Variable speed gearmotors

VARIBLOC® and VARIMOT® variable speed gearmotors are simple and robust drives used for infinitely variable mechanical speed control in a setting range from 1:3 to 1:8. They can be combined with SEW AC motors and reduction gear units to produce variable speed drives with a low output speed and high output torque.

Application areas

Variable speed gearmotors are low-cost drives with speed and torque values that can be individually adapted by mounting helical, parallel shaft helical, helical-bevel and helical-worm gear units. They are used in simple materials handling and process engineering applications such as in the chemicals industry, the construction materials industry and in foodstuffs and luxury goods production.

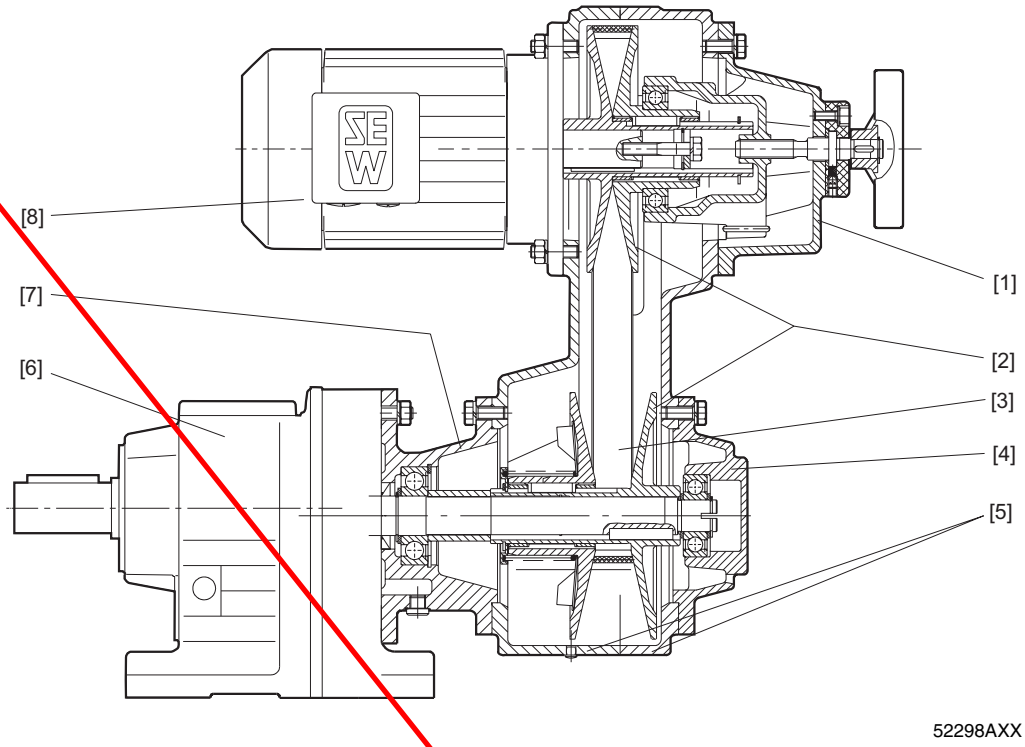
The advantages at a glance

- Robust with increased starting torque
- Large permitted overhung loads of the reduction gear units
- Large number of finely spaced gear ratios of the reduction gear unit, depending on size
- Speed can be adjusted either manually or by remote control
- Speed can be selected even when at a standstill (only VARIMOT®)

Explosion-proof variable speed gearmotors

SEW-EURODRIVE also supplies VARIBLOC® and VARIMOT® variable speed gearmotors for use in potentially explosive atmospheres according to directive 94/9/EC (ATEX 100a). Please contact SEW-EURODRIVE if required.

2.1 VARIBLOC® variable speed gearmotor



[1] Control head for front adjustment
[2] Variable pulleys
[3] Wide V-belt
[4] Bearing cover
[5] Two-part pulley housing
[6] Reduction gear unit connected at the output end
[7] Output flange
[8] Driving motor

SEW VARIBLOC® variable speed gearmotors are low-maintenance wide V-belt variable speed units with flange-mounted AC motors.

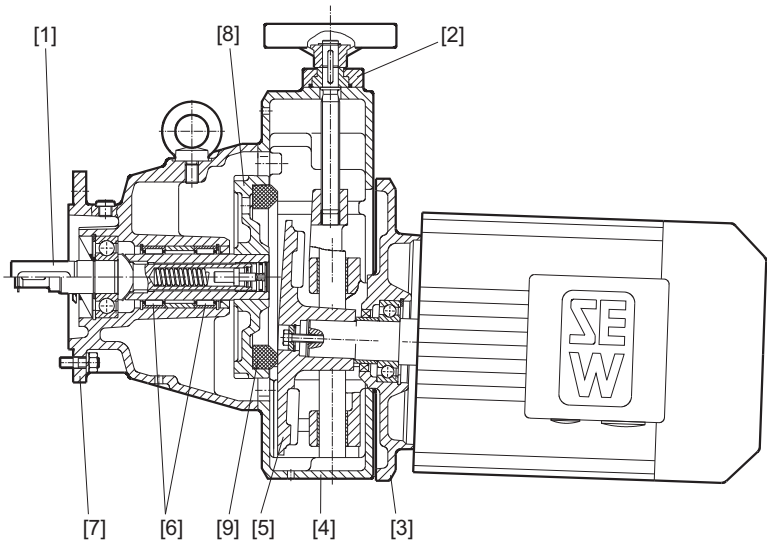
They are used for infinitely variable speed control. They are adjusted using a constrained adjustable variable pulley and a spring-loaded variable pulley. The transmission element is a double-toothed, raw-edged wide V-belt according to DIN 7719.

The speed can be adjusted mechanically, e.g. with a handwheel, or electromechanically using a variable motor.

The setting range (1:3 to 1:8) can be extended further by mounting pole-changing motors. VARIBLOC® variable speed gear units are not allowed to be operated with 2-pole motors or at 2-pole speed.

The power flow is U-shaped (type VU) or Z-shaped (type VZ). This means the drives can easily be adapted to different machine designs. The units can easily be converted from one configuration to the other by swapping over the output flange and bearing cover of the
VARIBLOC®.

2.2 VARIMOT® variable speed gearmotor



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[1] Complete output shaft
[2] Plate
[3] Adjusting plate
[4] Housing cover
[5] Driving pulley
[6] Needle roller bearing
[7] Housing
[8] Complete hollow shaft
[9] Friction ring

SEW VARIMOT® variable speed gearmotors (type D) are maintenance-free friction disc gear units with flange-mounted AC motors with or without a brake.

They are used for infinitely variable speed control. The power flow is from the motor via the cone pulley on a shaft, and onto a friction ring to the output shaft. The contact pressure between the driving pulley and the friction ring required for torque transmission is established automatically depending on the torque.

The speed can be adjusted mechanically, e.g. with a handwheel, or electromechanically using a variable motor.

The setting range (1:4 to 1:5) can be extended further by mounting pole-changing motors.

2.3 General information

Power output and torque

The details on power and torque given in the catalog refer to mounting position M1 and similar mounting positions, where the input gear stage does not completely run under oil. In addition, the gearmotors are assumed to be standard versions with standard lubrication and under normal ambient conditions.

Please note that the motor power shown in the gearmotor tables is subject to selection. However, the output torque at the required output speed are essential for the application.

Speeds

The quoted output speeds of the variable speed gearmotors with reduction gear unit on the output end are recommended values. You can calculate the rated output speed from the output speed of the control unit and the gear unit reduction ratio. Please note that the actual output speed depends on the motor load and the supply system conditions.

Noise levels

The noise levels of all variable speed gearmotors are well within the maximum permissible noise levels set forth in the VDI guideline 2159 for gear units and EN 60034 for motors.

Coating

The variable speed gearmotors are painted with "blue gray" machine paint RAL 7031 as per DIN 1843 as standard. Special coatings are available on request.

Surface protection

If required, all variable speed gearmotors can also be supplied with special surface protection (OS1/2/3) for applications in extremely humid and chemically aggressive environments. The following table gives an overview of possible protection types.

	Standard	OS1	OS2	OS3	Z
Description	– 1 x dip primer – 1 x one-pack topcoat	– 1 x dip primer – 1 x two-pack base coat – 1 x two-pack varnish	– 1 x dip primer – 2 x two-pack base coat – 1 x two-pack varnish	– 1 x dip primer – 2 x two-pack base coat – 2 x two-pack varnish	Before coating: Surface recesses are sprayed with a rubber filling
Standard coat thickness	ca. 50 -70 µm	ca. 120 -150 µm	ca. 170 -210 µm	ca. 220 - 270 µm	-
Application	– Normal ambient conditions – Relative humidity below 90 % – Surface temperature up to 120 °C – Corrosivity category C1[1)]	– Low environmental pollution – Relative humidity max. 95 % – Surface temperature up to 120 °C – Corrosivity category C2 [1)]	– Medium environmental pollution – Relative humidity up to 100 % – Surface temperature up to 120 °C – Corrosivity category C3 [1)]	– High environmental pollution – Relative humidity up to 100 % – Surface temperature up to 120 °C – Corrosivity category C4 [1)]	Special procedure in addition to OS1/2/3 to avoid corrosion of surface recesses of units installed in particularly harsh environments.

1) according to DIN EN ISO 12 944-2

Corrosion protection

In addition to the standard type, SEW offers the following corrosion protection solutions for VARIBLOC® and VARIMOT® variable speed gear units:

- All unmachined internal surfaces have a special coating
- Corrosion protection for variable pulleys in VARIBLOC®
- Hard chromium plated driving pulley in VARIMOT®
- Fastening parts made from non-rusting material

The dimensions of the terminal box on motors with additional internal corrosion protection (feature KS) differ slightly from those of the standard type. Please request a special dimension sheet if required.

Weights angaben

Please note that all weights shown in the catalog exclude the oil fill for the variable speed gearmotors. The weight varies according to gear unit design and gear unit size. The lubricant fill is dependent on the mounting position, and consequently it is impossible to make any generally valid statements.
Please refer to "Lubricants" in the "Design and Operating Notes" section for recommended lubricant fill quantities depending on the mounting position. The exact weight is given in the order confirmation.

Air admission and accessibility

The variable speed gearmotors must be mounted on the driven machine in such a way that both axially and radially there is enough space left for unimpeded air admission and for the purposes of maintenance of the brake and, if necessary, for service work on the variable speed gear unit. Please also refer to the notes on the motor dimension sheets in this regard.

2.4 Variable speed gearmotor versions

R, F, K, S gearmotors

The following table shows available types of helical (R), parallel shaft helical (F), helical-bevel (K) and helical-worm (S) variable speed gearmotors.

Version	Variable speed gearmotors			
	Helical (R)	Parallel shaft (F)	Helical-bevel (K)[1]	Worm (S)
Foot-mounted	•	•	•	•
B5 flange	•	•	•	•
Foot-mounted/B5 flange	•[2]	•	•[3]	–
Hollow shaft with keyway	–	•	•	•
Hollow shaft with shrink disc	–	•	•	•
Splined hollow shaft	–	•	•	–
Hollow shaft with keyway + foot-mounted	–	•	•	–
Hollow shaft with shrink disc + foot-mounted	–	•	•	–
Splined hollow shaft + foot-mounted	–	•	•	–
Hollow shaft with keyway + B5 flange	–	•	•	•
Hollow shaft with shrink disc + B5 flange	–	•	•	•
Splined hollow shaft + B5 flange	–	•	•	–
Hollow shaft with keyway + B14 flange	–	•	•	•
Hollow shaft with shrink disc + B14 flange	–	•	•	•
Splined hollow shaft + B14 flange	–	•	•	–

- • Available as standard version
- – Not available

1) Helical-bevel and helical-worm variable speed gearmotors are also available with an additional torque arm

2) Only with R27 - R87 gearmotors

[3] Only with K127 - K157 gearmotors

NOCO® fluid against corrosion protection

As standard, all shaft-mounted gearmotors are supplied with NOCO® fluid, a paste that prevents contact corrosion. Use this paste in accordance with the instructions in the gear unit operating instructions. It facilitates service and stripping down jobs.

RM gearmotors

RM variable speed gearmotors are a special type of helical variable speed gearmotor with an extended output bearing hub. They are specifically designed for agitating applications and can be used in applications subject to high overhung and axial loads as well as flexural torque. The remaining data correspond to the standard helical variable speed gearmotors (→ Sec. "RM gear units").

Multi-stage gearmotors

You can achieve particularly low output speeds by using multi-stage variable speed gearmotors with a multi-stage reduction gear unit. Such a step requires a helical gear unit as a second gear unit.

Brake motors

On request, SEW motors and gearmotors can be supplied with an integrated mechanical brake. The SEW brake is an electromagnetic disc brake with a DC coil that releases electrically and brakes using spring force. The brake can also be released mechanically if equipped with manual brake release. For this purpose, either a hand lever or a setscrew is supplied with the brake. The hand lever springs back automatically and the setscrew is lockable.

A significant feature of the brake is its very short length. The brake bearing end shield is a part of both the motor and the brake. The integrated construction of the brake motor permits particularly compact and sturdy solutions.

International markets

SEW-EURODRIVE is a member of the AGMA (American Gear Manufacturer's Association), and, as such, all its gear units and gearmotors conform to AGMA specifications.

We supply motors for connection conditions according to CSA and NEMA standards on request (registered with UL).

For the Japanese market, we offer motors conforming to JIS standards. Contact your sales representative to assist you in such cases.

2.5 Unit designations for variable speed gear units and options

Variable speed gear unit

VU..	VARIBLOC® variable speed gear unit with U-shaped power flow
VZ..	VARIBLOC® variable speed gear unit with Z-shaped power flow
D..	VARIMOT® variable speed gear unit
..B..	.. with corrosion protection

Optional additional features of VARIBLOC® variable speed gear units

/BMG	With mounted disc brake
../HF	.. with lockable manual brake release
../HR	.. with automatic manual brake release
/LVT	Adapter with hydraulic centrifugal coupling
/U	Non-ventilated
/C	With protection canopy (cannot be combined with display units)
/AR..WS	Adapter with torque limiting coupling and slip monitoring
/ANTRG..	Input shaft assembly

Adjustment device options

/EF	Electromechanical remote speed control
/EFV	Electromechanical remote speed control without variable motor
/EFPA	Electromechanical remote speed control with remote setting indicator
/EFP	Electrom. remote speed control with potentiometer without remote setting indicator (VARIBLOC® only)
/H	Control head with handwheel to DIN 950 (only VARIBLOC®)
/HS	Control head with handwheel and setting indicator
/K	Front adjustment with chain sprocket to DIN 8180
/NV	Control head with exposed shaft-end
/VR	Only adjusting ring (without control head, only VARIBLOC®)

Indicator options

/DA	Digital remote speed indicator
/FA	Analog remote speed indicator, 0 % ...100 % (only VARIBLOC®)
/FD	Analog remote speed indicator, special scale (only VARIBLOC®)
/FL	Analog remote speed indicator for encoder (only VARIBLOC® VU6 and VARIMOT®)
/GW	With AC tachogenerator, without indicator (only VARIBLOC®)
/IG	With encoder without indicator unit
/MU	With measuring transducer
/TW	Richt angle tachometer (only VARIBLOC®)
/TA	Axial tachogenerator (only VARIBLOC®)
/TV	With tacho mounting device (only VARIBLOC®)
/IGV	Prepared for encoder mounting
/IGUX	prepared for encoder mounting (only in explosion-protected areas)
/IGEX	with encoder (only in explosion-protected areas)
/WEX	with encoder (only in explosion-protected areas) and speed monitor

2.6 Gear unit designations

Helical gear units

R..	Foot-mounted version
RF..	Flange-mounted
R..F	Foot and flange-mounted
RM..	Flange-mounted with extended output bearing hub
RX..	Single-stage foot-mounted
RXF..	Single-stage flange-mounted
R..R..	Multi-stage gear units

Parallel shaft helical gear units

F..	Foot-mounted
FA..B	Foot-mounted with hollow shaft
FH..B	Foot-mounted with hollow shaft and shrink disc
FV..B	Foot-mounted with splined hollow shaft to DIN 5480
FF..	B5 flange-mounted
FAF..	B5 flange-mounted and hollow shaft
FHF..	B5 flange-mounted and hollow shaft with shrink disc
FVF..	B5 flange-mounted and splined hollow shaft to DIN 5480
FA..	Hollow shaft
FH..	Hollow shaft with shrink disc
FT..	Hollow shaft with TorqLOC® hollow shaft mounting system
FV..	Splined hollow shaft to DIN 5480
FAZ..	B14 flange-mounted and hollow shaft
FHZ..	B14 flange-mounted and hollow shaft with shrink disc
FVZ..	B14 flange-mounted and splined hollow shaft to DIN 5480
F..R..	Multi-stage gear units

Helical-bevel gear units

K..	Foot-mounted
KA..B	Foot-mounted and hollow shaft
KH..B	Foot-mounted and hollow shaft with shrink disc
KV..B	Foot-mounted and splined hollow shaft to DIN 5480
KF..	B5 flange-mounted
KAF..	B5 flange-mounted and hollow shaft
KHF..	B5 flange-mounted and hollow shaft with shrink disc
KVF..	B5 flange-mounted and splined hollow shaft to DIN 5480
KA..	Hollow shaft
KH..	Hollow shaft with shrink disc
KT..	Hollow shaft with TorqLOC® hollow shaft mounting system
KV..	Splined hollow shaft to DIN 5480
KAZ..	B14 flange-mounted with hollow shaft
KHZ..	B14 flange-mounted with hollow shaft and shrink disc
KVZ..	B14 flange-mounted with splined hollow shaft to DIN 5480
K..R..	Multi-stage gear units

Helical-worm gear units

S..	Foot-mounted
SF..	B5 flange-mounted
SAF..	B5 flange-mounted with hollow shaft
SHF..	B5 flange-mounted with hollow shaft and shrink disc
SA..	Foot-mounted and hollow shaft
SH..	Foot-mounted and hollow shaft with shrink disc
ST..	Hollow shaft with TorqLOC® hollow shaft mounting system
SAZ..	B14 flange-mounted with hollow shaft
SHZ..	B14 flange-mounted with hollow shaft and shrink disc
S..R..	Multi-stage gear units

K and S gear unit option

/T	With torque arm

F gear unit option

/G	With rubber buffer

2.7 Unit designations for AC motors and options

Standard AC motors, series

DR.., DT.., DV..	Attached motor for variable speed gear units

AC motor options

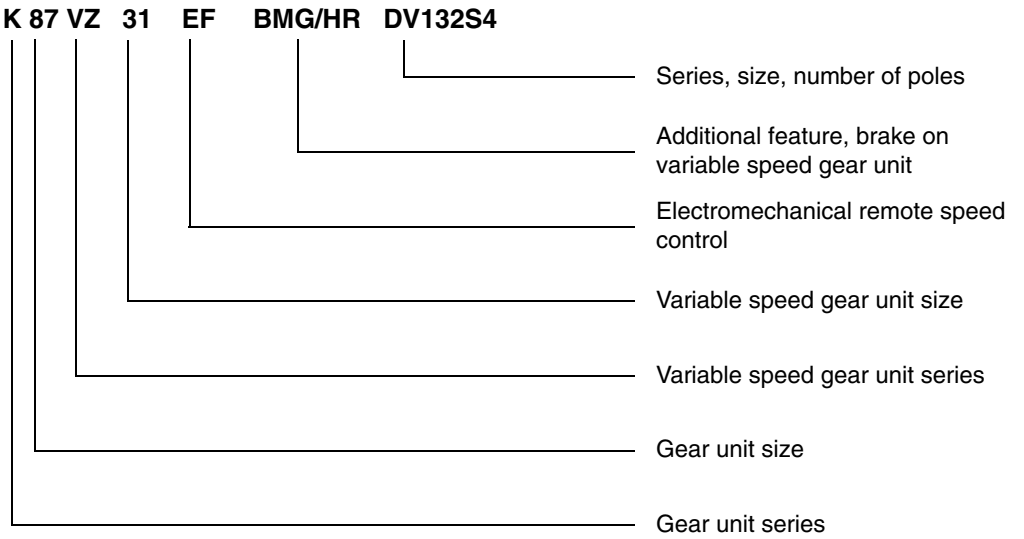
/BMG	Brake (reduced noise)
../HF	.. with lockable manual brake release
../HR	.. with automatic manual brake release
/C	Protection canopy for the fan guard
/TF	With thermistor sensor
/TH	With thermostat
/MSW..	MOVI-SWITCH® type (integrated circuit breaker and protective function)

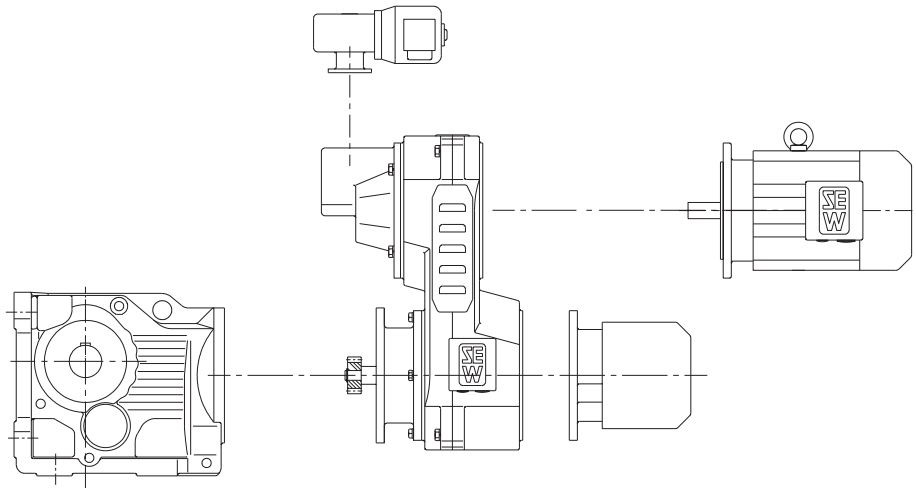
Plug connector on AC motor options

/IS	Integrated plug connector
/AMA1	HAN modular plug connector on terminal box with two-clamp closure
/AMD1	HAN modular plug connector on terminal box with one-clamp closure
/ASA1	HAN 10ES plug connector on terminal box with two-clamp closure
/ASD1	HAN 10ES plug connector on terminal box with one-clamp closure

2.8 Sample unit designation of a variable speed gearmotor

The unit designation of the variable speed gearmotor starts from the component on the output end. For instance, a VARIBLOC® variable speed gearmotor with a helical-bevel gear unit, brake with self-reengaging manual brake release and electromechanical remote speed control has the following unit designation:





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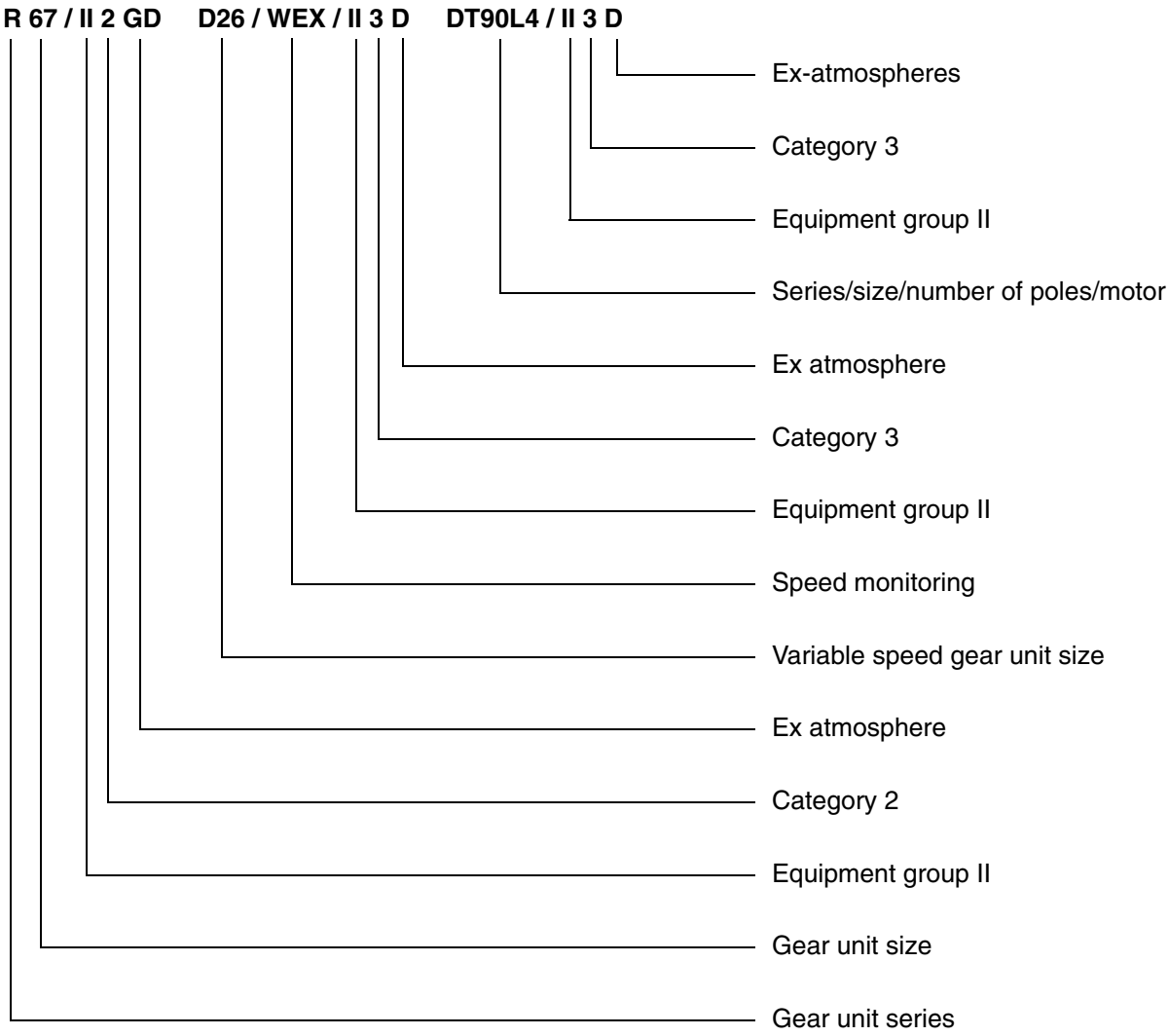
Example for an explosion-protected version:



3 Explosion protection to ATEX

3.1 Drive engineering to EU Directive 94/9/EC (ATEX 100a)

Why explosion protection?

Explosion protection for electrical and mechanical machinery is an important precaution for safeguarding people and all kinds of production, storage and distribution equipment whenever potentially explosive mixtures of combustible gases or dust and air may occur.

What does explosion protection achieve?

Explosion protection can mean preventing an explosive mixture from ever occurring at all. Explosion protection can also be achieved by preventing possible sources of ignition, e.g. hot surfaces and sparking, through designing components with a suitable size and by having constant monitoring in operation. Alternatively, suitable measures can be taken to prevent explosions being caused by existing sources of ignition (e.g. flameproof enclosure).

Harmonized European design provisions

EU directive 94/9/EC provides binding minimum requiremens to be applied within the European Union to equipment intended for use in potentially explosive atmospheres. In relation to drives, the directive covers motors as well as all other electrical and mechanical components such as gear units, mechanical variable speed gear units, brakes, forced cooling fans, integrated frequency inverters, sensors, actuators, and more.

Directive 94/9/EC defines the minimum requirements for units and divides the units into categories.

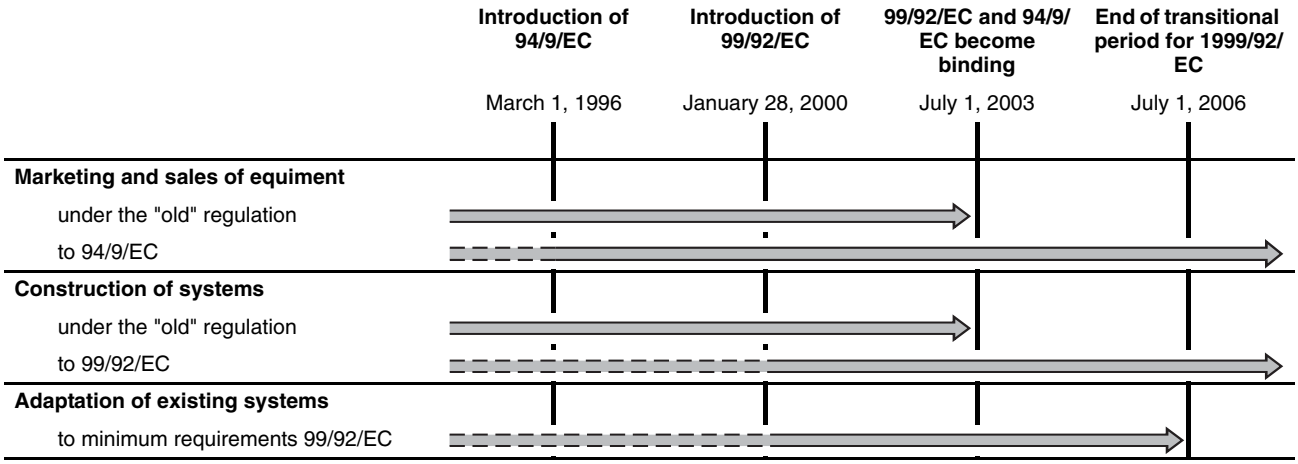
The requirements for production plants, division into zones and the assignment of equipment categories to zones are defined in EU Directive 1999/92/EC (ATEX 137).

Transitional periods

Since July 1, 2003, only directives 94/9/EC and 1999/92/EC have been mandatory in the EU. This comprehensive harmonization of explosion protection throughout the EU means that all remaining trade barriers between EU member states in this area will be removed.

A transition period up to June 30, 2006 has been granted for any equipment that came into use before June 30, 2003 and that did not yet comply with the new Directive 1999/92/EC at that time.

Transitional periods 94/9/EC and 1999/92/EC



CE

Naturally, EU Directive 94/9/EC also applies to all products which are manufactured outside the EU and imported into the EU. To indicate compliance with EU Directive 94/9/EC, explosion-proof devices will now also bear the CE mark on their nameplates.

In contrast to the regulations which also apply in parallel during the transitional period, explosion protection according to 94/9/EC applies to both electrical and mechanical equipment, and defines equipment categories for the first time.

1999/92/EC redefines the assignment of equipment categories to hazard zones.

Designations

The term **ATEX** (**At**mosphères **Ex**plosibles) has become common usage for the new directives. **ATEX 95** regulates all requirements for the characteristics of explosion-proof equipment, while **ATEX 137** is a directive for the protection of personnel potentially at risk during installation, operation and maintenance of equipment in hazardous areas.

Explosion-proof drives from SEW-EURODRIVE

Drives from SEW-EURODRIVE for potentially explosive atmospheres have the following characteristics:

- Included are all product areas from mains operated AC gearmotors and MOVIMOT® gearmotors with integrated frequency inverters through to controlled drives for particularly exacting applications.
- All components can be combined with one another according to the rules of the SEW-EURODRIVE modular concept.
- All drives satisfy typical market requirements in terms of their power range and functions.

3.2 Regulations

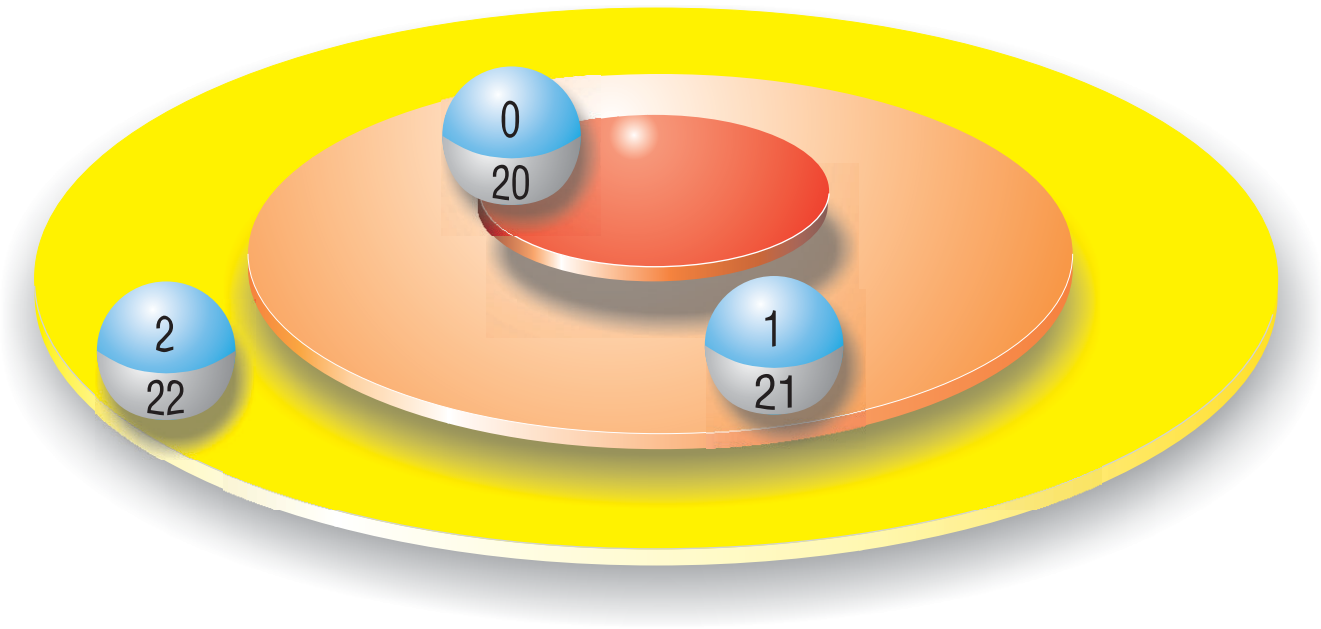
Zones in a potentially explosive atmosphere

According to EU Directive 99/92/EC (ATEX 137), the owner of the machine must divide potentially explosive atmospheres into zones.

Zone[1]		Probability of a potentially explosive atmosphere occuring
Gas	Dust	
0[2]	20[2]	Continuous, long-term, frequent, predominant in time
1	21	Occasional, in normal operation
2	22	Seldom, short-term

1) Only the gray boxes are relevant to drives from SEW-EURODRIVE.

2) Not relevant for electric drives.



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Division of explosion-proof equipment into categories

According to EU Directive 94/9/EC, explosion-proof equipment is divided into categories. The category specifies the protection level of the equipment, describes the operating conditions and makes it easier to assign permitted equipment to a zone. In addition to the degree of protection of enclosures (normal, high, very high), the directive distinguishes between G (gas) and D (dust) explosive atmospheres.

Category[1)]	Protection level	Guaranteed protection	Operating conditions
M1	Very high	With two independent preventive measures; two faults are allowed to occur independently of one another	Equipment continues to operate in the presence of a potentially explosive atmosphere
1	Very high	With two independent preventive measures; two faults are allowed to occur independently of one another	Equipment continues to operate in the presence of a potentially explosive atmosphere
M2	High	Suitable for normal operation and harsh operating conditions	Equipment is switched off in the presence of a potentially explosive atmosphere
2	High	One preventive measure; suitable for normal operation with the likeliness of frequent malfunctions, one fault is allowed to occur	Equipment continues to operate in the presence of a potentially explosive atmosphere
3	standard	Suitable for standard operation	Equipment continues to operate in the presence of a potentially explosive atmosphere

1) Only the gray boxes are relevant to drives from SEW-EURODRIVE.

Overview of explosion-proof equipment

	Equipment group I Mines, firedamp		Equipment group II Other areas with potentially explosive atmospheres due to gas or dust					
Category	M1	M2	1		2		3	
Ex atmosphere[1)]			G	D	G	D	G	D
Zone			0	20	1	21	2	22
Protection type **Motor** **Gear unit[2)]**					d, e, i, p ... (c, k ...)	(c, k ...)	n(A)	

1) G = Gas atmosphere, D = Dust atmosphere

2) Standardization of protection types for gear units has not yet been completed.

All gear units and motors offered by SEW-EURODRIVE for potentially explosive atmospheres are equipment group II units. SEW-EURODRIVE does not supply any drives for use in equipment group I (mining).

Potentially explosive atmospheres

Potentially explosive atmospheres are divided into gas and dust. The atmosphere is abbreviated as G (gas) or D (dust) in the type identification.

Protection types

Unit type	Type of protection[1)]	Norm	Description
Motors (electrical units)	d	EN 50014 + EN 50018	Flameproof enclosure
	e	EN 50014 + EN 50019	Increased safety
	i	EN 50014 + EN 50020	Intrinsic safety
	n / nA	EN 50014 + EN 50021	Non-sparking
	m	EN 50014 + EN 50028	Encapsulation
	o	EN 50014 + EN 50015	Oil immersion
	p	EN 50014 + EN 50016	Pressurized enclosure
	q	EN 50014 + EN 50017	Sand filling
	[2)]	EN 50014 + EN 50281	Dust explosion protection
Gear units (mechanical units)[3)]	b	EN 13463 parts 1 and 6	Protection by monitoring sources of ignition
	c	EN 13463 parts 1 and 5	Constructional safety
	d	EN 13463 parts 1 and 3	Flameproof enclosure
	fr	EN 13463 parts 1 and 2	Restricted breathing
	g	EN 13463 parts 1 and 4	Intrinsic safety
	k	EN 13463 parts 1 and 8	Liquid immersion
	p	EN 13463 parts 1 and 7	Pressurized enclosure

1) Only the gray boxes are relevant to drives from SEW-EURODRIVE.

2) No explicit protection types are defined for dust explosion protection.

3) Standardization of protection types for gear units (mechanical units) has not yet been completed.

Validity of the statement of conformance

The statement of conformance is a statement for demonstrating that a device complies with Directive 94/9/EC. The validity of this statement of conformance is bindingly linked to compliance with the operating instructions supplied with the explosion-proof unit (in particular maintenance and servicing measures and permitted ambient conditions, e.g. ambient temperature, unit heating from other customer's equipment). This is necessary for adequate risk minimization. The statement of conformance will be invalidated if the ambient conditions described in the operating instructions are not present.

The validity of the statement of conformance exclusively refers to the gear unit and motor types listed in the catalog. For customer-specific types, it is essential that you contact SEW-EURODRIVE!

3.3 Categories and protection types

Category 1 – Particularly high safety

SEW-EURODRIVE does not provide category 1 gear units and electric motors. Consequently, drives from SEW-EURODRIVE cannot be used for electrical drives in zone 0 and 20 within which potentially explosive atmospheres are to be expected on a continuous and long-term basis.

Category 2 – High safety

Units in category 2 are safe in terms of the expected unit malfunctions and are predominantly designed for zone 1 and 21 in which a potentially explosive mixture may occur. It goes without saying that they can also be used for zone 2 / 22.

Motors

Typical electrical drives of the II2G type for zone 1 are motors with the following protection types:

Protection type d – Flameproof enclosure

The housing is able to withstand the pressure even if an explosion occurs inside the motor. Gas which may escape is sufficiently cooled so it will not ignite a potentially explosive atmosphere outside the motor.

The units have ignition gaps to dissipate the pressure arising from an explosion. These ignition gaps are designed in such a way that escaping hot gases are sufficiently cooled by the time they emerge so they will not ignite a potentially explosive atmosphere outside the motor.

Protection type e – Increased safety

No source of ignition is present in normal operation and in the event of a foreseeable malfunction. This safety is achieved by design measures such as higher quality insulation systems or larger clearances. Normal operation is referred to as operation with the usual unit malfunctions.

Category 3 – Normal safety

Category 3 equipment is only intended for zone 2 or 22 where there is a low probability of potentially explosive atmospheres occurring.

Protection type n

Typical electrical drives of the II3G type for zone 2 (gas) are motors with protection type nA – non-sparking. The requirements of protection type n largely correspond to the requirements of protection type e, but for operation without malfunctions.

Gear units

Compliance with DIN EN 13463-1 must be guaranteed for gear units. In this category, no particular type of protection is required for gear units.

For more detailed information, please refer to the current "Explosion-Proof Drives" catalog.

3.4 Requirements for operating variable speed gear units in potentially explosive atmospheres

The following basically applies to all explosion-protected variable speed gear units:

- Permitted ambient temperature from -20 °C to +40 °C

3.5 VARIBLOC® in explosion-proof design

Approval basically only without

- Front adjustment
- Mounted BMG disc brake
- Adapter with torque limiting coupling and slip monitoring

Category	for zone	VARIBLOC® in Ex atmosphere
2G	1	• Sizes VU/VZ01 - VU/VZ41, VU51 **(not VU6)** • Operation basically with **speed monitor** • Starting compensation maximum 5 seconds • Switch-off when speed drops 10 % below minimum • Temperature class T3 • Control range 1:6
2D	21	• Sizes VU/VZ01 **B** - VU/VZ41**B non-ventilated (not VU51 and VU6)** • Operation basically with **speed monitor** • Starting compensation maximum 5 seconds • Switch-off when speed drops 10 % below minimum • Maximum surface temperature 200 °C • Control range 1:6 • **6-pole and 8-pole SEW motors have not yet been approved. Operation only possible with 6-pole or 8-pole non-SEW motors in category 2D.**
3G	2	• Sizes VU/VZ01 - VU/VZ41, VU51 **(not VU6)** • Operation also permitted without speed monitor • Temperature class T4 • Control range 1:6
3D	22	• Sizes VU/VZ01 - VU/VZ41, VU51 **(not VU6)** • Operation also permitted without speed monitor • Maximum surface temperature 135 °C • Control range 1:6

If overloading of the VARIBLOC® unit in category 3G or 3D may occur in normal operation, then a VARIBLOC® with activated speed monitor must be used!

3.6 VARIMOT® in explosion-proof design

Design for D16 - D46 in the various categories:

Category	for zone	VARIMOT® in Ex atmosphere
2G	1	• Operation basically with **speed monitor** • Starting compensation maximum 3 seconds • Switch-off when speed drops 10 % below minimum • Temperature class T3
2D	21	• **Safe operation not possible, no approval**
3G	2	• Operation also permitted without speed monitor • Temperature class T3
3D	22	• Operation also permitted without speed monitor • Maximum surface temperature 135 °C

If overloading of the VARIMOT® unit in category 3G or 3D may occur in normal operation, then a VARIMOT® with activated speed monitor must be used.

3.7 Drive selection for explosion protected designs

Unlike the "Explosion-Proof Drives" catalog, this catalog does not provide an overview of approved gearmotor combinations. If you require variable speed gear units in explosion-proof design, please contact SEW-EURODRIVE.

4 Project Planning for Variable Speed Drives

4.1 Additional documentation

In addition to the information in this catalog, SEW-EURODRIVE offers extensive documentation covering the entire topic of electrical drive engineering. These are mainly the publications in the "Drive Engineering - Practical Implementation" series as well as the manuals and catalogs for electronically controlled drives.

You will find additional links to a wide selection of our documentation in many languages for download on the SEW-EURODRIVE homepage (http://www.sew-eurodrive.com). The list below includes other documents that are of interest in terms of project planning. You can order these publications from SEW-EURODRIVE.

Gearmotors catalog

The SEW "Gearmotors" catalog provides information in the form of

- Project planning notes
- Technical data
- Selection tables
- Dimension sheets

It provides detailed information for selecting SEW gearmotors, AC (brake) motors and their accessories, as well as about their functional principles.

Operating instructions

The SEW "VARIBLOC®/VARIMOT® Variable Speed Gear Units and Options" operating instructions contain extensive safety notes as well as information about

- Installation
- Assembly
- Removal
- Startup
- Inspection
- Maintenance
- Troubleshooting

for SEW variable speed gear units as well as components on the input side and options.

Drive engineering - practical implementation

The "Drive Engineering - Practical Implementation, Drive Planning" publication contains extensive information about the properties, differentiating characteristics and fields of application of SEW drives. This publication contains the most important drive calculation formulae as well as detailed examples of the most frequent applications making the publication an important tool for project planning and an essential complement to SEW product catalogs.

The following chapters also contain important information about rating variable speed gear units. On request, we gladly provide the SEW PRODRIVE program which can be used for drive project planning on a PC. In addition, SEW is happy to offer additional advice.

4.2 Drive selection data for standard variable speed gearmotors

Certain data is essential to specify the components for your drive precisely. These are:

Data for drive dimensioning			Your entry
n_{a1}	Minimum output speed	[1/min]	
n_{a2}	Maximum output speed	[1/min]	
P_{a1} at n_{a1}	Output power at minimum output speed	[kW]	
P_{a2} at n_{a2}	Output power at maximum output speed	[kW]	
M_{a1} at n_{a1}	Output torque at minimum output speed	[Nm]	
M_{a2} at n_{a2}	Output torque at maximum output speed	[Nm]	
F_{Ra}	Overhung load on the gear unit output (in drives with input shaft assembly)	[N]	
F_{Aa}	Axial load on the gear unit output (in drives with input shaft assembly)	[N]	
n_e	Input speed (in drives with input shaft assembly)	[1/min]	
P_m at n_e	Input power = motor power	[kW]	
M_e at n_e	Input torque	[Nm]	
$M_{e\ max}$	Maximum input torque	[Nm]	
F_{Re}	Overhung load on gear unit input	[N]	
F_{Ae}	Axial load on gear unit input	[N]	
J_{load}	Mass moment of inertia to be driven	[10^{-4} kgm^2]	
R, F, K, S M1 - M6	Required gear unit type and mounting position (→ Sec. Mounting Positions)	-	
IP..	Required enclosure	-	
ϑ_{amb}	Ambient temperature	[°C]	
H	Altitude	[m above sea level]	
S.., ..%cdf	Duty type and cyclic duration factor (cdf) or exact load cycle can be entered.	-	
Z	Starting frequency; alternatively, exact load cycle can be specified	[1/h]	
V_{brake}	Operating voltage of the brake	[V]	
V_{motor}	Operating voltage of the motor	[V]	
M_B	Required braking torque	[Nm]	
M_R	Slip torque (AR)	[Nm]	

4.3 Drive selection data for explosion-proof standard variable speed gearmotors

Certain data is essential to specify the components for your drive precisely. These are:

Data for drive dimensioning			Your entry		
Potentially explosive mixture of air and		–			Gas
					Dust
Ambient atmosphere at the location where the drive will be used, divided into zones		–	**Gas**		1
					2
			Dust		21
					22 (non-conductive)
Category II2D equipment must be used if the ambient atomosphere is electro-conductive dust with specific electrical resistance $\rho \leq 10^3\ \Omega$!					22 (conductive)
Maximum permitted surface temperature with dust/air mixtures		–	**Dust**		T 120 °C
					T 140 °C
Temperature class with gas/air mixtures		–	**Gas**		T1
					T2
					T3
					T4
In the case of zone 1, the protection type is prescribed by the customer as		–	Flameproof enclosure (d)		
			Increased safety (e)		
Only with flameproof enclosure: Specify the explosion group		–			IIA
					IIB
					IIC
n_{amin}	Minimum output speed	[1/min]			
n_{amax}	Maximum output speed	[1/min]			
P_a at n_{amin}	Output power at minimum output speed	[kW]			
P_a at n_{amax}	Output power at maximum output speed	[kW]			
M_a at n_{amin}	Output torque at minimum output speed	[Nm]			
M_a at n_{amax}	Output torque at maximum output speed	[Nm]			
F_R	Overhung load on output shaft. Force application in center of shaft end is assumed. If not, please specify the exact application point giving the application angle and direction of rotation of the shaft for recalculation.	[N]			
F_A	Axial load (tension and compression) on output shaft	[N]			
J_{load}	Mass moment of inertia to be driven	[10^{-4} kgm^2]			
R, F, K, S, W M1 - M6	Required gear unit type and mounting position (→ Sec. Mounting Positions, Churning losses)	-			
IP..	Required enclosure	-			
ϑ_{amb}	Ambient temperature (with ambient temperatures < –20 °C and > 40 °C, please contact SEW-EURODRIVE)	[°C]			
H	Altitude	[m above sea level]			
S.., ..%cdf	Duty type and cyclic duration factor (cdf) or exact load cycle can be entered.	-			
Z	Starting frequency; alternatively, exact load cycle can be specified	[1/h]			
f_{mains}	Supply frequency	[Hz]			
V_{mot} V_{brake}	Operating voltage of motor and brake	[V]			
M_B	Required braking torque	[Nm]			
For inverter operation: Required control mode and setting range					

4.4 Project planning process for standard variable speed gearmotors

The following flowchart displays a schematic view of the procedure for project planning a project incorporating a variable speed gear unit with a component on the input side.

Necessary information about the machine to be driven
- Technical data and environmental conditions
- Starting frequency
- Travel cycle

↓

Calculation of the relevant application data
- Static, dynamic and regenerative power
- Speeds
- Torques
- Travel cycle

↓

Variable speed gearmotor selection
- Definition of the variable speed gearmotor size, gear unit reduction ratio and gear head unit type
- Check for gear unit utilization ($M_{a\ max} \geq M_{a\ (t)}$)

↓

Calculation of the data on the output shaft
- Output torque
- Output power
- Output speed
- Overhung loads and axial forces

↓

Variable speed gear unit options
- Monitoring functions (units, equipment)
- Brake for VARIBLOC®
- Control heads
- Indicator units
- Centering shoulder (only VARIBLOC® with input shaft assembly)

↓

Motor options
- Brake
- Plug connector
- TF temperature sensor monitoring

↓

Make sure that all requirements have been met.

In case of questions please contact SEW-EURODRIVE.

4.5 Project planning notes for standard variable speed gearmotors

The selection of variable speed gear units depends on various parameters. The most important project planning notes for
VARIBLOC® and VARIMOT® are shown in below table.

Criterion	VARIBLOC® (variable speed belt drive gear unit)	VARIMOT® (variable speed friction disc gear unit)
Power ranges	0.25kW ... 45 kW	0.25kW ... 11 kW
Setting range	1:3, 1:4, 1:5, 1:6, 1:7, 1:8 depending on the number of poles of the driving motor and the input power.	1:4, 1:5 depending on the number of poles of the driving motor and the input power.
Adjustment at standstill	Adjustment at standstill is not permitted because the belt tension is only adjusted automatically when the drive is running.	Adjustment at standstill is possible, however this should not be done too frequently in operation.
Load type	Also suitable for variable loads (load shocks due to material feed, etc.), damping by the belt.	Only suitable for constant load (e.g. conveyor belts); load shocks can cause the friction ring to slip and lead to surface damage.
Adjustment options	Handwheel or chain sprocket, electrical or hydraulic remote control.	Handwheel, electrical remote control.
Indicator units	Analog or digital indicator units, analog display with special scale is possible.	Analog or digital indicator units, analog display with special scale is possible, setting indicator on the housing.
Wear	The wide V-belt must be replaced after approx. 6000 h under rated load. The service life is considerably longer at lower loadings. The service life of the wide V-belt is reduced by higher ambient temperatures and harsher environmental conditions.	Low wear, it is not possible to provide specific information about replacement intervals.

Belt life

The service factors f_B and f_T (→ Sec. "Service factors") can be used for determining the minimum life L_{nB} (h) of the wide V-belt according to the following relationship:

$$L_{nB} = \frac{6000}{f_B \times f_T}$$

Abrasive dust or aggressive ambient air shorten the service life. The service life is extended by having a reduced setting range and a low belt flexing frequency.

4.6 Efficiency of SEW gear units

The efficiency of gear units is mainly determined by the gearing and bearing friction. Keep in mind that the starting efficiency of a gear unit is always less than its efficiency at operating speed. This factor is especially pronounced in the case of helical-worm gear units.

R, F, K gear units

The efficiency of helical, parallel shaft and helical-bevel gear units varies with the number of gear stages, between 94 % (3-stage) and 98 % (1-stage).

S gear units

The gearing of helical-worm gear units produces a high proportion of sliding friction. As a result, these gear units may have higher gearing losses than R, F or K gear units and thus be less efficient.

The efficiency depends on the following factors:

- Gear ratio of the helical-worm gear stage

- Input speed
- Gear unit temperature

Helical-worm gear units are designed as helical worm gear units which makes them significantly more efficient than straightforward worm gear units. The efficiency may reach $\eta < 0.5$ if the worm gear stage has a very high ratio step.

Self-locking

Retrodriving torques on helical-worm gear units produce a reverse efficiency of $\eta' = -2 - 1/h$, which is significantly less favorable than the forward efficiency h. The helical-worm gear unit is self-locking if the forward efficiency $\eta \leq 0.5$. A few helical-worm gear units with the largest gear ratio are statically self-locking, although not dynamically self-braking. Please contact SEW-EURODRIVE if you wish to make technical use of the braking effect of self-locking charcteristics.

Run-in phase

The tooth flanks of new helical-worm gear units are not yet completely smooth. That fact makes for a greater friction angle and less efficiency than during later operation. This effect becomes more apparent the greater the gear ratio. Subtract the following values from the listed efficiency during the running-in phase:

Worm	i range	η reduction
1 start	ca. 50 ... 280	ca. 12 %
2 start	ca. 20 ... 75	ca. 6 %
3 start	ca. 20 ... 90	ca. 3 %
4 start	-	-
5 start	ca. 6 ... 25	ca. 3 %
6 start	ca. 7 ... 25	ca. 2 %

The run-in phase usually lasts 24 hours. The helical-worm gear units achieve their listed rated efficiency values when:

- the gear unit has been run in completely,
- the gear unit has reached nominal operating temperature,
- the recommended lubricant has been filled in and
- the gear unit is working within the rated load range.

overhung load Determining overhung load

When determining the resulting overhung load, the type of transmission element mounted on the shaft end must be considered. The following transmission element factors f_Z also have to be considered for various transmission elements.

Transmission element	Transmission element factor f_Z	Comments
Gears	1.15	< 17 teeth
Chain sprockets	1.40	< 13 teeth
Chain sprockets	1.25	< 20 teeth
Narrow V-belt pulleys	1.75	Pre-tensioning influence
Flat belt pulleys	2.50	Pre-tensioning influence
Toothed belt pulleys	2.50	Pre-tensioning influence

The overhung load exerted on the gear shaft is then calculated as follows:

$$F_R = \frac{M_d \times 2000}{d_0} \times f_Z$$

F_R = Overhung load in N

M_d = Torque in Nm

d_0 = Mean diameter of the mounted transmission element in mm

f_Z = Transmission element factor

Permitted overhung load

The basis for determining the permitted overhung loads is the computation of the rated service life L_{H10} of the anti-friction bearings (according to ISO 281). For special operating conditions, the permitted overhung loads can be determined with regard to the modified service life L_{na} on request.

The permitted overhung loads F_{Ra} for the output shafts of foot-mounted gear units with a solid shaft are listed in the selection tables. Contact SEW-EURODRIVE in case of other versions.

The data refer to the radial force acting midway on the shaft end (with right-angle gear units on the A-side output). Worst case conditions have been assumed for the force application angle α and the direction of rotation.

- Only 50 % of the F_{Ra} value specified in the selection tables is permitted in mounting position M1 with wall attachment on the front face for K and S gear units.
- Foot and flange-mounted helical gear units (R..F): A maximum of 50 % of the overhung load F_{Ra} specified in the selection tables in the case of torque transmission via the flange mounting.

Higher permitted overhung loads

Higher output shaft loads are permitted if heavy duty bearings are installed, especially with R, F and K gear units. Exactly considering the force application angle α and the direction of rotation also makes it possible to achieve a higher overhung load. Contact SEW in such cases.

Definition of force application

Force application is defined according to the following figure:

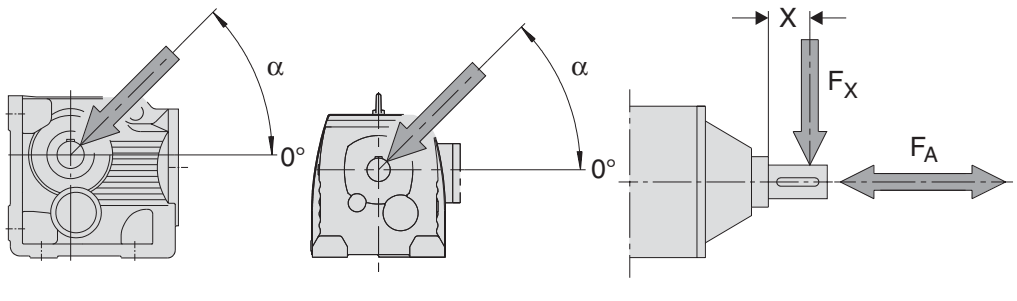


Figure 1: Definition of force application

F_X = Permitted overhung load at point x [N]

F_A = Permitted axial force [N]

Permitted axial forces

If there is no overhung load, then an axial force F_A (tension or compression) **on the output end amounting to 50 %** of the overhung load given in the selection tables is permitted.

- for helical gear units except for R..137... to R..167...
- for parallel shaft and helical-bevel gear units with solid shaft except for F97...
- for helical-worm gear units with solid shaft

Contact SEW-EURODRIVE for all other types of gear units and in the event of significantly greater axial forces or combinations of overhung load and axial force.

Overhung load conversion on the output side for off-center force application

The permitted overhung loads given in the selection tables must be calculated using the following formulae in the event of force application not in the center of the shaft end. The smaller of the two values F_{xL} (according to bearing service life) and F_{xW} (according to shaft strength) is the permitted value for the overhung load at point x. Note that the calculations apply to $M_{a\,max}$.

F_{XL} according to bearing service life

$$F_{xL} = F_{Ra} \bullet \frac{a}{b + x} \; [N]$$

F_{xW} from the shaft strength

$$F_{xW} = \frac{c}{f + x} \; [N]$$

F_{Ra} = Permitted overhung load (x = l/2) for foot-mounted gear units according to the selection tables in [N]

x = Distance from the shaft shoulder to the force application point in [mm]

a, b, f = Gear unit constants for overhung load conversion [mm]

c = Gear unit constant for overhung load conversion [Nmm]

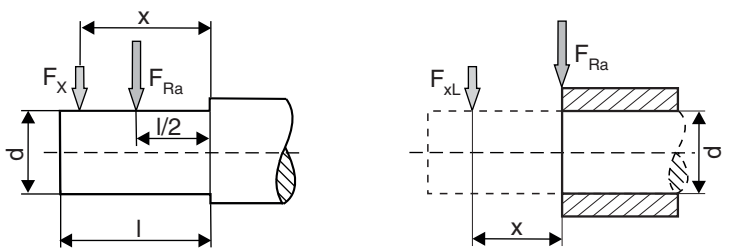


Figure 2: Overhung load F_x for off-center force application

Gear unit constants for overhung load conversion

Gear unit type	a [mm]	b [mm]	c [Nmm]	f [mm]	d [mm]	l [mm]
R27	106.5	81.5	1.56×10^5	11.8	25	50
R37	118	93	1.24×10^5	0	25	50
R47	137	107	2.44×10^5	15	30	60
R57	147.5	112.5	3.77×10^5	18	35	70
R67	168.5	133.5	2.51×10^5	0	35	70
R77	173.7	133.7	3.97×10^5	0	40	80
R87	216.7	166.7	8.47×10^5	0	50	100
R97	255.5	195.5	1.19×10^6	0	60	120
R107	285.5	215.5	2.06×10^6	0	70	140
R137	343.5	258.5	6.14×10^6	30	90	170
R147	402	297	8.65×10^6	33	110	210
R167	450	345	1.26×10^7	0	120	210
RX57	43.5	23.5	1.51×10^5	34.2	20	40
RX67	52.5	27.5	2.42×10^5	39.7	25	50
RX77	60.5	30.5	1.95×10^5	0	30	60
RX87	73.5	33.5	7.69×10^5	48.9	40	80
RX97	86.5	36.5	1.43×10^6	53.9	50	100
RX107	102.5	42.5	2.47×10^6	62.3	60	120
F37	123.5	98.5	1.07×10^5	0	25	50
F47	153.5	123.5	1.78×10^5	0	30	60
F57	170.7	135.7	5.49×10^5	32	35	70
F67	181.3	141.3	4.12×10^5	0	40	80
F77	215.8	165.8	7.87×10^5	0	50	100
F87	263	203	1.19×10^6	0	60	120
F97	350	280	2.09×10^6	0	70	140
F107	373.5	288.5	4.23×10^6	0	90	170
F127	442.5	337.5	9.45×10^6	0	110	210
F157	512	407	1.05×10^7	0	120	210
K37	123.5	98.5	1.41×10^5	0	25	50
K47	153.5	123.5	1.78×10^5	0	30	60
K57	169.7	134.7	6.8×10^5	31	35	70
K67	181.3	141.3	4.12×10^5	0	40	80
K77	215.8	165.8	7.69×10^5	0	50	100
K87	252	192	1.64×10^6	0	60	120
K97	319	249	2.8×10^6	0	70	140
K107	373.5	288.5	5.53×10^6	0	90	170
K127	443.5	338.5	8.31×10^6	0	110	210
K157	509	404	1.18×10^7	0	120	210
S37	118.5	98.5	6.0×10^4	0	20	40
S47	130	105	1.33×10^5	0	25	50
S57	150	120	2.14×10^5	0	30	60
S67	184	149	3.04×10^5	0	35	70
S77	224	179	5.26×10^5	0	45	90
S87	281.5	221.5	1.68×10^6	0	60	120
S97	326.3	256.3	2.54×10^6	0	70	140

Values for types not listed are available on request.

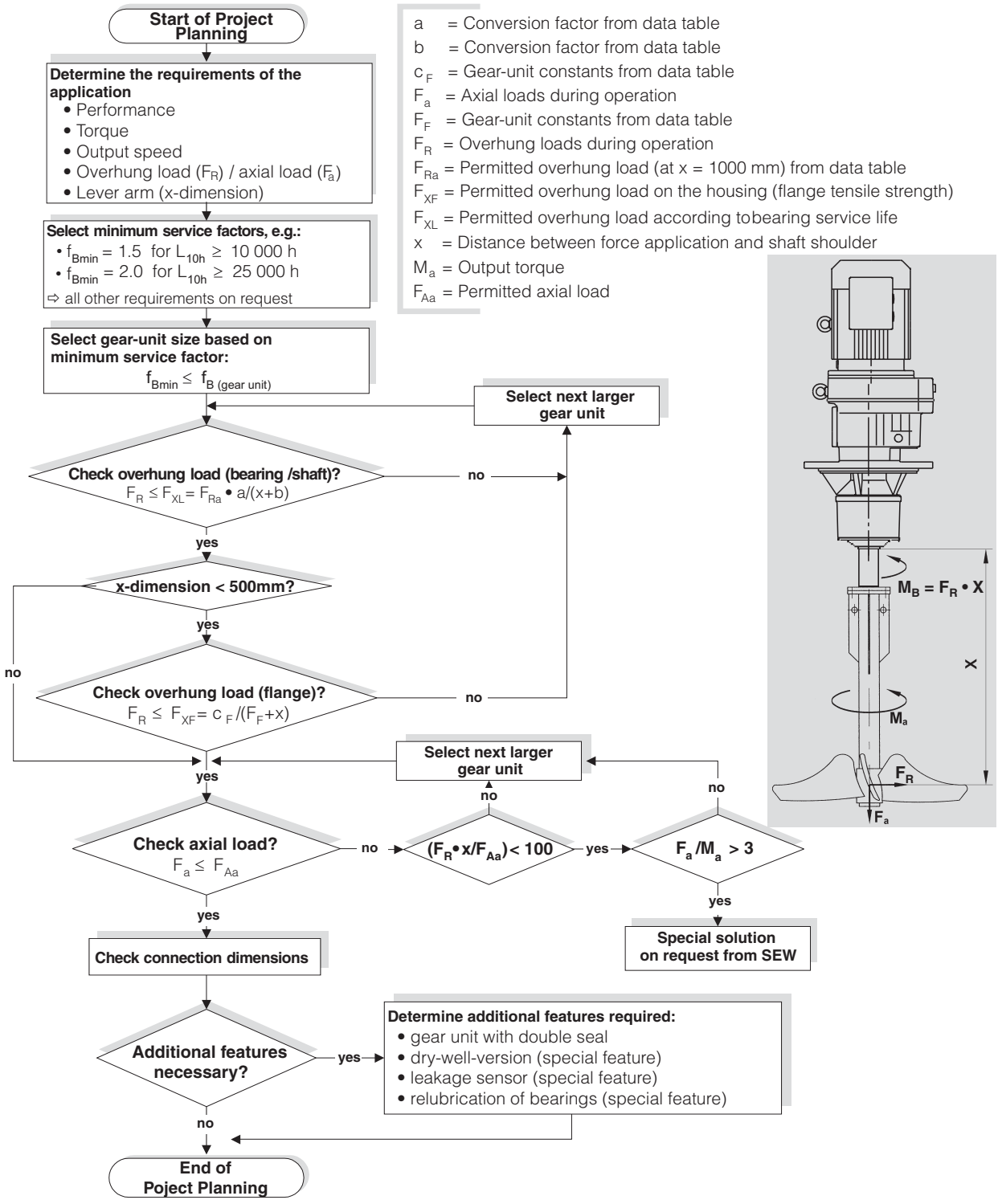
4.7 Permitted overhung loads of reduction gear units

R27 - R67

Gear unit type	P_m [kW]	F_{Ra}[N]									
		≤ 20 [1/min]	40 [1/min]	60 [1/min]	90 [1/min]	130 [1/min]	180 [1/min]	250 [1/min]	350 [1/min]	500 [1/min]	700 [1/min]
R27	0.25	4440	3640	3220	2840	2530	2280	2050	1840	1640	1470
	0.37	4360	3600	3200	2830	2520	2270	2050	1840	1640	1470
	0.55	3730	3440	3090	2750	2470	2240	2020	1820	1620	1460
	0.75	795	3240	2960	2670	2410	2190	1990	1800	1610	1450
	1.1		2950	2810	2570	2340	2140	1950	1770	1590	1430
	1.5		775	2120	2400	2230	2060	1900	1730	1560	1410
R37	0.25	5960	5350	4710	4140	3680	3310	2970	2660	2370	2120
	0.37	5900	5310	4680	4120	3660	3300	2970	2660	2360	2120
	0.55	5570	5170	4590	4060	3620	3270	2940	2640	2350	2110
	0.75	4400	4990	4470	3980	3570	3230	2910	2620	2340	2100
	1.1		4790	4330	3890	3500	3180	2880	2600	2320	2090
	1.5		3150	4110	3740	3400	3110	2830	2560	2300	2070
R47	0.25	6140	5480	4820	4230	3760	3380	3030	2720	2420	2160
	0.37	6120	5460	4800	4220	3750	3370	3030	2710	2410	2160
	0.55	6020	5340	4720	4170	3710	3350	3010	2700	2400	2150
	0.75	5830	5190	4630	4100	3670	3310	2990	2680	2390	2150
	1.1	5490	5030	4520	4030	3620	3280	2960	2670	2380	2140
	1.5		4750	4330	3910	3530	3220	2920	2630	2360	2120
	2.2		4430	4120	3760	3430	3150	2870	2600	2330	2100
	3.0			3750	3520	3260	3020	2780	2530	2290	2070
R57	0.25	8010	6880	6040	5290	4690	4220	3780	3390	3010	
	0.37	8000	6860	6020	5280	4680	4210	3780	3380	3010	
	0.55	7940	6760	5950	5240	4650	4190	3760	3370	3000	2680
	0.75	7840	6640	5870	5180	4620	4160	3740	3360	2990	2680
	1.1	7670	6500	5780	5120	4570	4130	3720	3340	2980	2670
	1.5	7250	6270	5630	5020	4500	4080	3690	3320	2960	2660
	2.2	4050	6010	5450	4900	4420	4020	3640	3290	2940	2640
	3.0		5550	5150	4700	4280	3920	3570	3230	2900	2620
	4.0		3650	4800	4460	4120	3800	3490	3170	2860	2590
	5.5			2880	4160	3910	3650	3380	3090	2810	2550
R67	0.25	9920	9940	9470	8290	7350	6600	5920	5300	4710	
	0.37	9880	9930	9410	8250	7320	6580	5910	5290	4700	4200
	0.55	9810	9910	9340	8200	7290	6560	5890	5270	4690	4200
	0.75	9640	9880	9260	8150	7250	6530	5870	5260	4680	4190
	1.1	8900	9810	9120	8060	7180	6480	5840	5240	4660	4180
	1.5	7540	9650	8960	7950	7110	6430	5800	5210	4640	4160
	2.2		8900	8680	7760	6980	6340	5730	5160	4610	4140
	3.0		7560	8360	7550	6830	6230	5650	5110	4570	4110
	4.0			7940	7270	6640	6090	5550	5030	4520	4080
	5.5				6880	6370	5890	5410	4930	4450	4030

4.8 RM gear units

Project planning You must take account of the higher overhung and axial loads when planning projects with RM helical gear units with extended bearing housing. Observe the following project planning procedure:



Permitted overhung loads and axial forces

The permitted overhung loads F_{Ra} and axial loads F_{Aa} are specified for various service factors f_B and nominal bearing service life L_{H10}.

f_{Bmin} = 1.5 / L_{H10} = 10 000 h

		n_a [1/min]							
		< 16	16-25	26-40	41-60	61-100	101-160	161-250	251-400
RM57	F_{Ra} [N]	400	400	400	400	400	405	410	415
	F_{Aa} [N]	18800	15000	11500	9700	7100	5650	4450	3800
RM67	F_{Ra} [N]	575	575	575	580	575	585	590	600
	F_{Aa} [N]	19000	18900	15300	11900	9210	7470	5870	5050
RM77	F_{Ra} [N]	1200	1200	1200	1200	1200	1210	1210	1220
	F_{Aa} [N]	22000	22000	19400	15100	11400	9220	7200	6710
RM87	F_{Ra} [N]	1970	1970	1970	1970	1980	1990	2000	2010
	F_{Aa} [N]	30000	30000	23600	18000	14300	11000	8940	8030
RM97	F_{Ra} [N]	2980	2980	2980	2990	3010	3050	3060	3080
	F_{Aa} [N]	40000	36100	27300	20300	15900	12600	9640	7810
RM107	F_{Ra} [N]	4230	4230	4230	4230	4230	4230	3580	3830
	F_{Aa} [N]	48000	41000	30300	23000	18000	13100	9550	9030
RM137	F_{Ra} [N]	8710	8710	8710	8710	7220	5060	3980	6750
	F_{Aa} [N]	70000	70000	70000	57600	46900	44000	35600	32400
RM147	F_{Ra} [N]	11100	11100	11100	11100	11100	10600	8640	10800
	F_{Aa} [N]	70000	70000	69700	58400	45600	38000	32800	30800
RM167	F_{Ra} [N]	14600	14600	14600	14600	14600	14700	-	-
	F_{Aa} [N]	70000	70000	70000	60300	45300	36900	-	-

f_{Bmin} = 2.0 / L_{H10} = 25,000 h

		n_a [1/min]							
		< 16	16-25	26-40	41-60	61-100	101-160	161-250	251-400
RM57	F_{Ra} [N]	410	410	410	410	410	415	415	420
	F_{Aa} [N]	12100	9600	7350	6050	4300	3350	2600	2200
RM67	F_{Ra} [N]	590	590	590	595	590	595	600	605
	F_{Aa} [N]	15800	12000	9580	7330	5580	4460	3460	2930
RM77	F_{Ra} [N]	1210	1210	1210	1210	1210	1220	1220	1220
	F_{Aa} [N]	20000	15400	11900	9070	6670	5280	4010	3700
RM87	F_{Ra} [N]	2000	2000	2000	2000	2000	1720	1690	1710
	F_{Aa} [N]	24600	19200	14300	10600	8190	6100	5490	4860
RM97	F_{Ra} [N]	3040	3040	3040	3050	3070	3080	2540	2430
	F_{Aa} [N]	28400	22000	16200	11600	8850	6840	5830	4760
RM107	F_{Ra} [N]	4330	4330	4330	4330	4330	3350	2810	2990
	F_{Aa} [N]	32300	24800	17800	13000	9780	8170	5950	5620
RM137	F_{Ra} [N]	8850	8850	8850	8830	5660	4020	3200	5240
	F_{Aa} [N]	70000	59900	48000	37900	33800	31700	25600	23300
RM147	F_{Ra} [N]	11400	11400	11400	11400	11400	8320	6850	8440
	F_{Aa} [N]	70000	60600	45900	39900	33500	27900	24100	22600
RM167	F_{Ra} [N]	15100	15100	15100	15100	15100	13100	-	-
	F_{Aa} [N]	70000	63500	51600	37800	26800	23600	-	-

Conversion factors and gear unit constants

The following conversion factors and gear unit constants apply to calculating the permitted overhung load F_{xL} at point x ¼ 1000 mm for RM gear units:

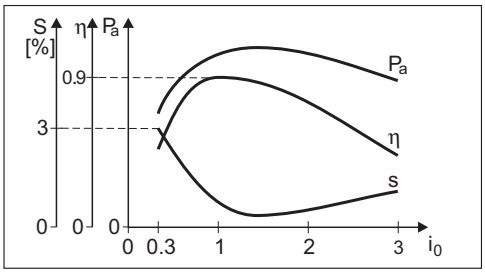
Gear unit type	a	b	c_F (f_B = 1.5)	c_F (f_B = 2.0)	F_F
RM57	1047	47	1220600	1260400	277
RM67	1047	47	2047600	2100000	297.5
RM77	1050	50	2512800	2574700	340.5
RM87	1056.5	56.5	4917800	5029000	414
RM97	1061	61	10911600	11124100	481
RM107	1069	69	15367000	15652000	554.5
RM137	1088	88	25291700	25993600	650
RM147	1091	91	30038700	31173900	756
RM167	1089.5	89.5	42096100	43654300	869

Additional weights of RM gear units

Type	Additional weight in addition to RF, related to the smallest RF flange ∆m [kg]
RM57	12.0
RM67	15.8
RM77	25.0
RM87	29.7
RM97	51.3
RM107	88.0
RM137	111.1
RM147	167.4
RM167	195.4

4.9 Standard variable speed gearmotor selection

In order to establish the correct size of variable speed drive, it is necessary to know the power required, the speed setting range, the ambient temperature, the installation altitude and the operating mode. The following figure shows the output power P_a, the efficiency η and the slip s as a function of the gear ratio i.



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Key

P_a	Output power
η	Efficiency
s	Slip
i_0	Variable speed gear unit ratio

$$i_0 = \frac{n_{a0}}{n_{e0}}$$

n_{a0} = Output speed without load
n_{e0} = Input speed without load

The figure above shows the profiles of P_a, s and η according to measurements on variable speed gear units with a load applied. The diagram shows there is a close correlation between efficiency and slip at the set ratio. There are no linear relationships here for mechanical reasons such as maximum friction between the belt (friction disc) and maximum circumferential velocity as well as speed-dependent friction factors. As a result, it is necessary to consider the specific application in order to enable a variable speed gear unit to be used optimally.

Dimensioning criteria

Mechanical variable speed gear units not only serve as speed converters but also as torque converters. As a result, their dimensions can be selected according to various criteria:

- Constant torque
- Constant power
- Constant torque and power (in partial speed ranges in each case)

The "Drive Engineering - Practical Implementation, Drive Planning" publication contains extensive information about this topic.

Selection according to the selection tables

Selecting a variable speed gear unit according to the information in the selection tables means that its capabilities will be optimally exploited. The reduction gear unit must be configured so the maximum occurring output torques can be transmitted.

If you do not want to fully exploit the available setting range of the variable speed gear unit, it is a good idea to position the speed range to be used at the top end of the overall speed range since this gives better efficiency. The slip of the variable speed gear unit is at its lowest in the top speed range and the transmissible power is at its largest.

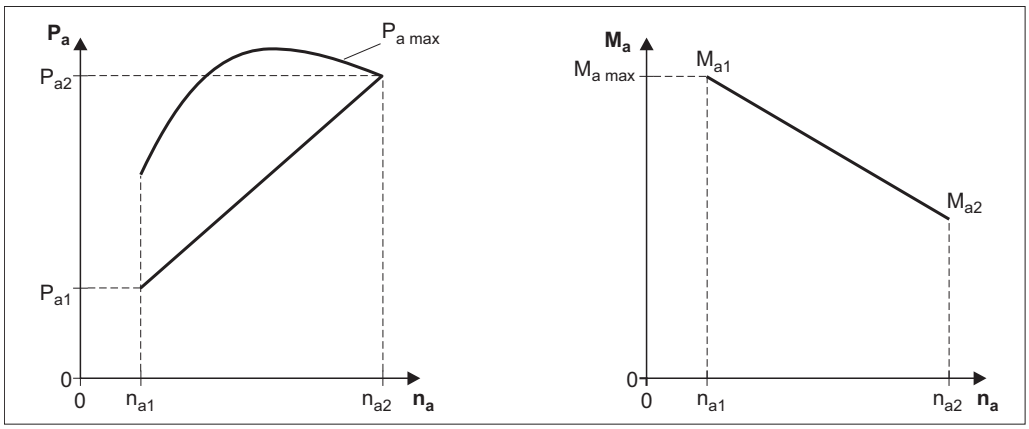

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Figure 3: Characteristic values of the variable speed gear unit (simplified representation)

Key

$P_{a\,max}$	Maximum output power (based on experiment)
P_{a1}	Minimum output power at n_{a1}
P_{a2}	Maximum output power at n_{a2}
n_{a1}	Minimum output speed
n_{a2}	Maximum output speed
$M_{a\,max}$	Maximum output torque of the variable speed gear unit
M_{a1}	Output torque at n_{a1}
M_{a2}	Output torque at n_{a2}

4.10 Service factors

It is essential to know exactly what the drive application is in order to select the correct size and type of drive. The operating conditions of the driven machine are represented by its duty cycle. Precise project planning work on the basis of the duty cycle demands extensive calculations to be performed. As a result, the effects of the driven machine on the gear unit and the variable speed gear unit are represented to an adequate degree of accuracy by the service factor f_B.

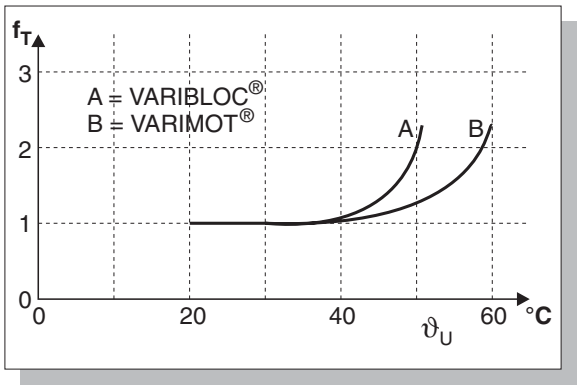
Service factor f_B for load type

A service factor of 0.8 f_B can be expected for a daily operating time of 2 hours.

Load type	f_B	Notes on Repair Procedure	Examples
I	1.0	Uniform, smooth operation	Fans, light conveyor belts, filling machines
II	1.25	Non-uniform operation with medium shocks	Hoists, balancing machines, crane trolleys
III	1.5	Highly non-uniform operation with powerful shocks	Heavy mixers, roller tables, punching machinery, stone crushers

Factor f_T at elevated ambient temperature

The load on the variable speed gear unit must be reduced at elevated ambient temperature. The following diagram shows the required factor f_T at elevated ambient temperature J_{amb}.



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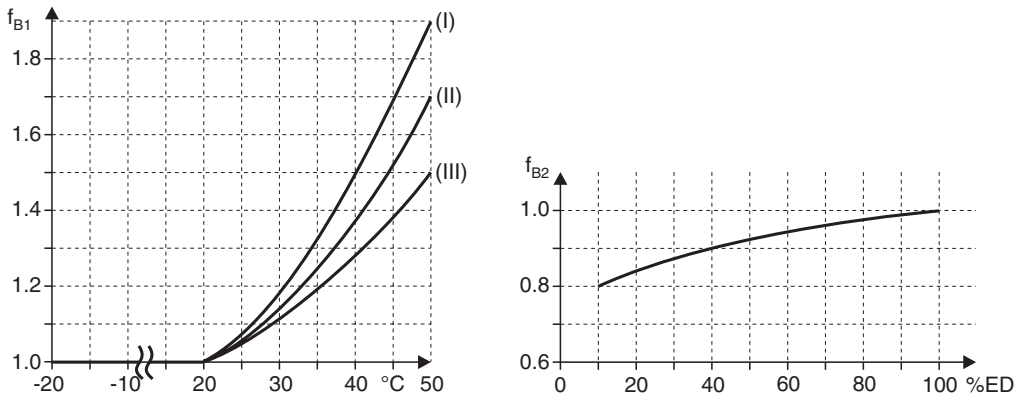
The variable speed gear unit must be selected for the factor $f = f_B \times f_T$ larger than the original calculation.

Special considerations for helical-worm gear units

With helical-worm gear units, it is necessary to take account of the service factor f_B and, in addition, the influence of ambient temperature above 20 °C in terms of the load type I, II and III (service factor f_{B1}) as well as the cyclic duration factor (service factor f_{B2}).

The additional service factors f_{B1} and f_{B2} can be determined by referring to the following diagrams. The load type is taken into consideration in f_{B1} in the same way as in f_B.



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The cyclic duration factor (cdf) is calculated using the following formula:

$$\text{ED (\%)} = \frac{\text{Time under load in min/h}}{60} \bullet 100$$

Contact SEW-EURODRIVE in case of temperatures below –20 °C ($\rightarrow$ f_{B1}).

The total service factor for a variable speed gearmotor in conjunction with a helical-worm gear unit is calculated as follows:

$$f_{Btot} = f_B \bullet f_{B2} \bullet f_{B3}$$

In this case, the larger of the two factors f_T and f_{B1} is used for f_{B3}.

Starting frequency of variable speed gear units

Variable speed gearmotors are designed for continuous operation. Variable speed drives with a high starting frequency are preferably designed as electronically controlled AC or DC drives.

Note the following points for the special application of increased starting frequency:

VARIBLOC® and VARIMOT® variable speed gear units will operate reliably and can be expected to have a normal service life even given frequent load variations. The maximum permitted number of starts is higher than that of the particular motor. The additional mass moment of inertia J_Z to be accelerated by the motor is calculated using the following equation:

$$J_Z = J_1 + \frac{n_a^2}{n_n^2} \bullet (k \bullet J_1 \bullet i_G^2 + J_{ext})$$

Key

J_Z [kgm^2]	Mass moment of inertia to be accelerated
J_1 [kgm^2]	Mass moment of inertia of the driving variable pulley or drive disk
n_a [1/min]	Output speed in the range n_{a1} to n_{a2} (n_{a2} = most unfavorable speed setting)
n_n [1/min]	Rated speed of the motor
k	Coefficient according to table
i_G	Ratio of the reduction gear unit on the output end (if there is no reduction gear unit: $i_G = 1$)
J_{ext} [kgm^2]	External mass moment of inertia

Variable speed gear unit Type	J_1 [10^{-4} kgm^2]	k
VU/VZ01	12.52	1.1
VU/VZ11	29.78	1.1
VU/VZ21	39.72	1.22
VU/VZ31	209.65	1.1
VU/VZ41	456.48	1.6
VU51	917.94	1.56
VU6	2529	2.1
D/DF16	23	0.77
D/DF26	74	0.84
D/DF36	280	1.08
D/DF46	597	1.21

4.11 Protection and monitoring of standard variable speed gearmotors

The WS option described in this section is not available for explosion-proof variable speed gearmotors.

Overload protection

The motor protection system, regardless of what type is installed, does not protect the gear units connected to the motor output. An adapter with a torque limiting coupling (AR) can be used with variable speed gear units to limit the mechanical torque and protect the gear stages connected on the output end.

Slip monitor /WS

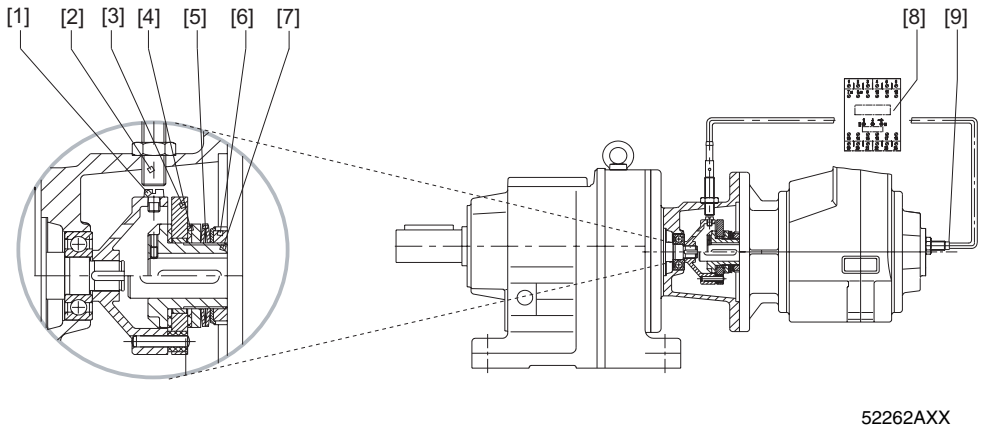


Figure 4: Adapter with torque limiting coupling and slip monitor /WS

[1] Trigger cam
[2] Encoder (adapter)
[3] Driving disc
[4] Friction ring pads
[5] Cup springs
[6] Slotted round nut
[7] Friction hub
[8] Slip monitor /WS
[9] Encoder IG

Connection

The encoder is connected to the monitor using a 2 or 3-core cable (depending on the encoder type).

- Maximum cable length: 500 m with a line cross section of 1.5 mm^2
- Standard incoming cable: 3-core / 2 m
- Route the signal lines separately (not in multicore cables) and shield them if necessary
- Enclosure: IP40 (terminals IP20)
- Operating voltage: 220 V_{AC} or 24 V_{DC}
- Maximum switching capability of the output relay: 6 A (250 V_{AC})

Terminal assignment WS

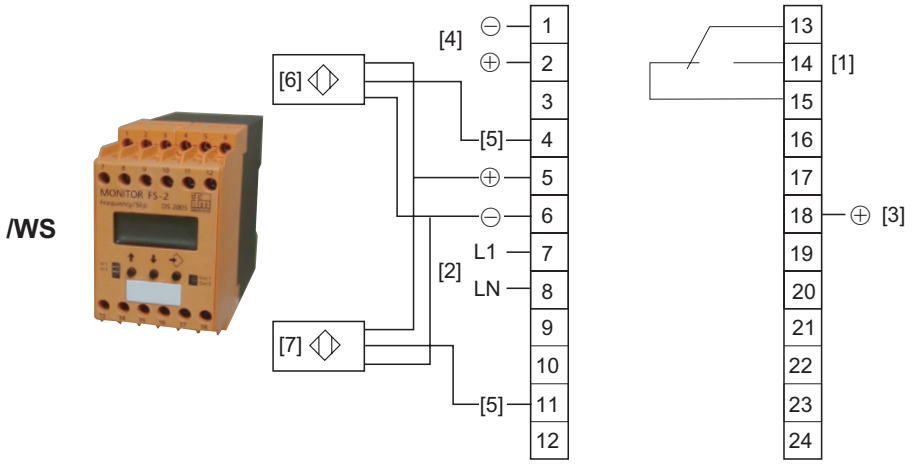


Figure 5: Terminal assignment/WS

[1] Relay output
[2] Supply voltage 230 V_{AC} (47 Hz ... 63 Hz)
[3] External slip reset
[4] Supply voltage 24 V_{DC}
[5] Signal
[6] Encoder 1
[7] Encoder 2
[/WS] slip monitor

Dimensions WS

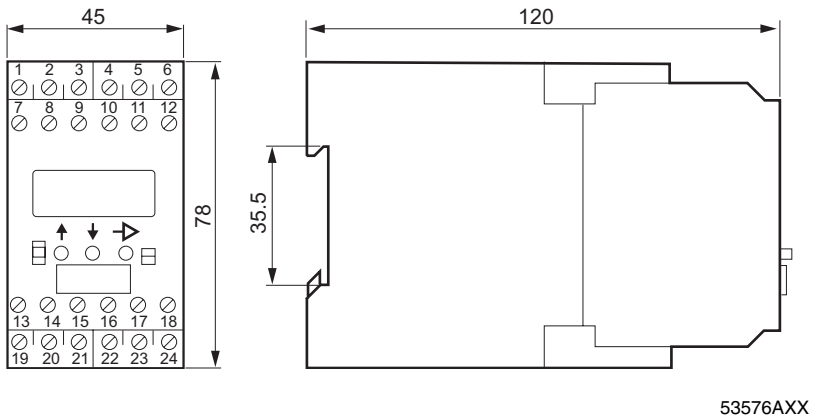
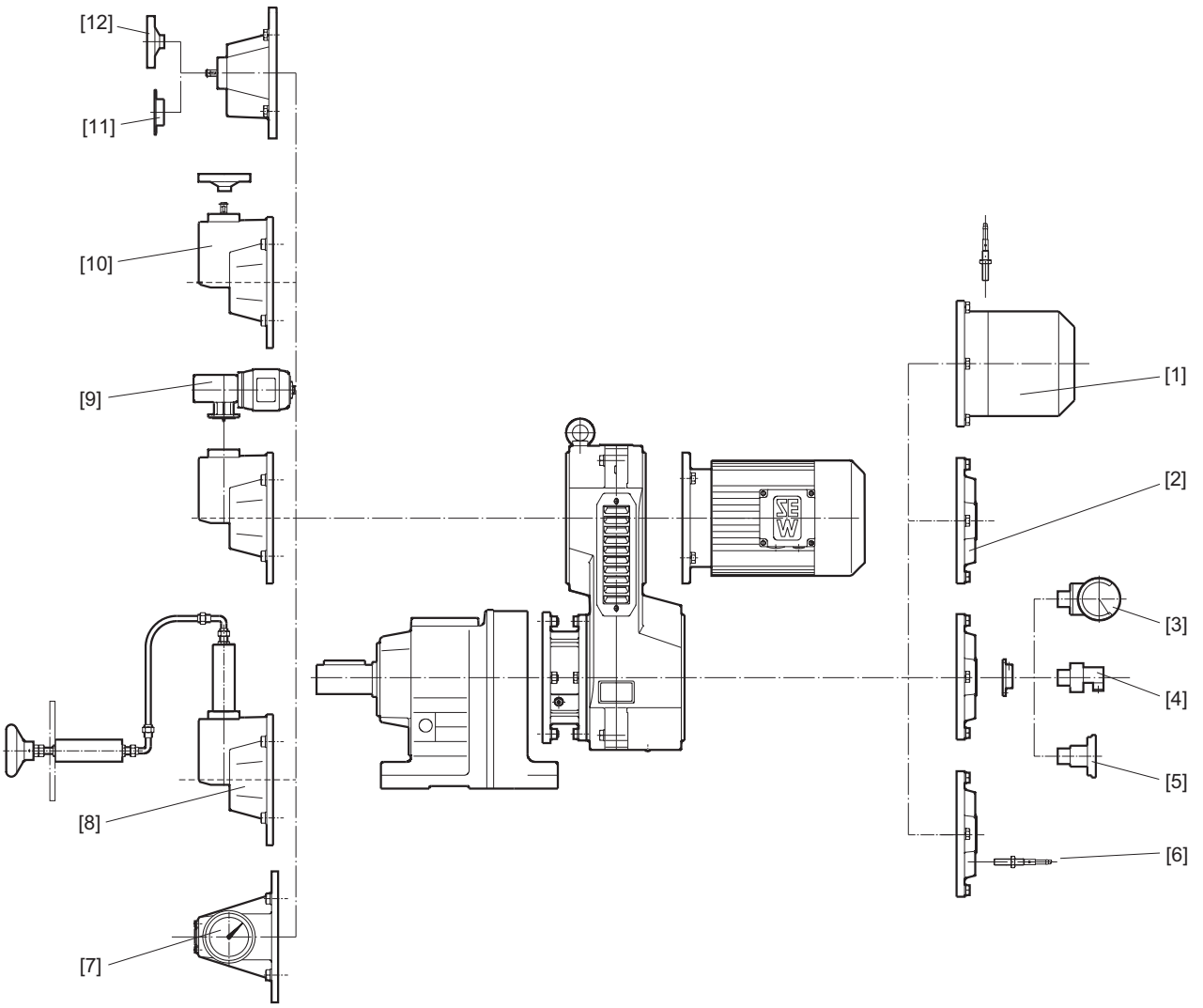


Figure 6: Dimensions /WS

4.12 VARIBLOC® options

Standard VARIBLOC®



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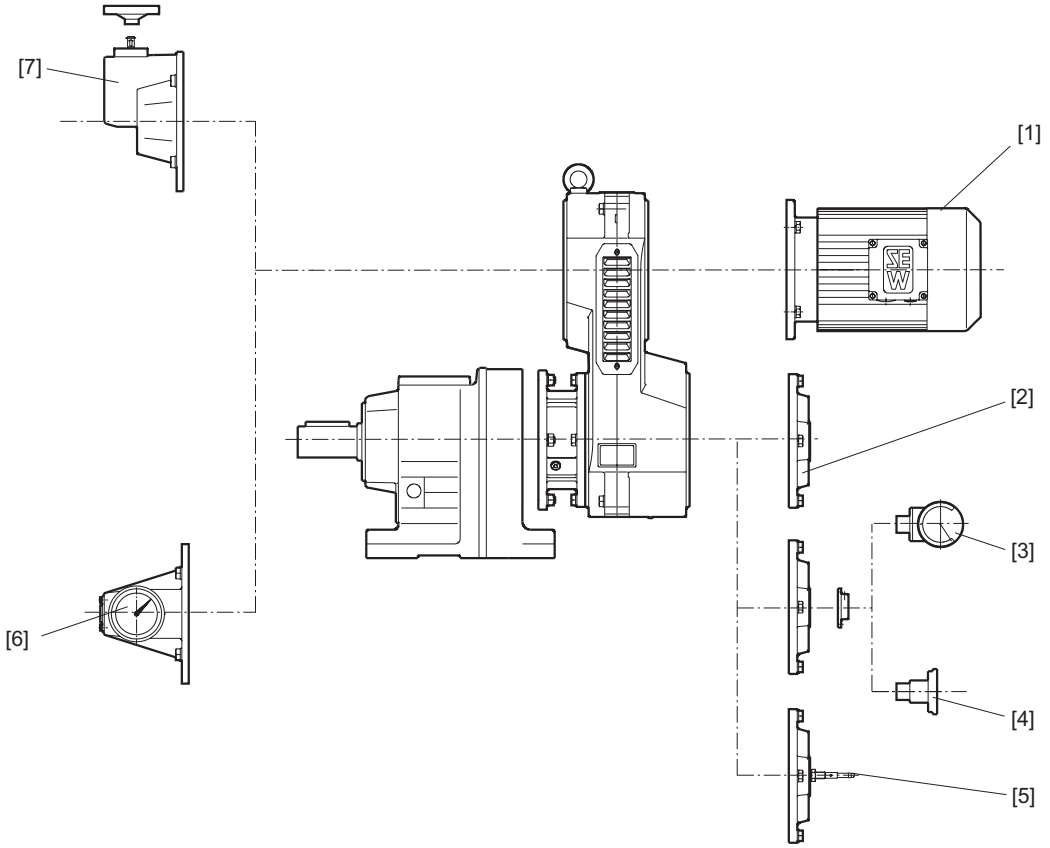
[1] Brake BM(G) (with tachogenerator IG)
[2] Bearing cover
[3] Rightangled tachometer TW
[4] AC tachogenerator GW
[5] Axial tachogenerator TA
[6] Tachogenerator IG
[7] Control head with handwheel and setting indicator HS
[8] Hydraulic setting unit HY
[9] Electromechanical remote speed control EF
[10] Control head with hand wheel H / with exposed shaft end NV
[11] Front adjustment with chain sprocket
[12] Front adjustment with handwheel (standard version)

Explosion-proof VARIBLOC®



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[1] Driving motor
[2] Bearing cover with M12x1 tapped hole (standard equipment)
[3] Rightangle tachometer TW
[4] Axial tachogenerator TA
[5] Voltage encoder IGEX
[6] Control head with handwheel and setting indicator HS
[7] Control head with hand wheel H (standard type) / with exposed shaft end NV

VARIBLOC® with brake

If VARIBLOC® is used with a brakemotor, the brake torque listed in the following table must not be exceeded for safety reasons!

If operating VARIBLOC® with mass acceleration factors of > 10, VARIBLOC® must be used with a brake.

Type	Max. permitted braking torque of the motor [Nm]
VU/VZ01	5
VU/VZ11	10
VU/VZ21	20
VUVZ31	40
VU/VZ41	75

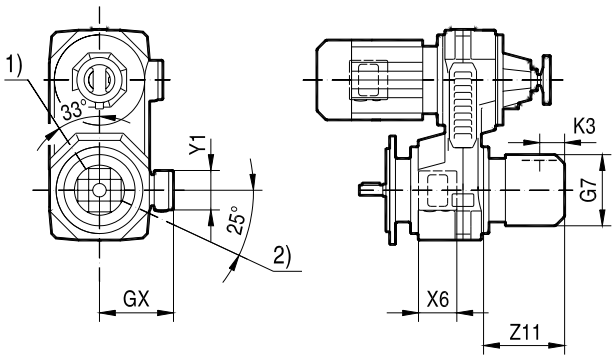
If the VARIBLOC® variable speed gear unit cannot be combined with a brakemotor for reasons of safety, a safe solution can be achieved by mounting the BMG brake onto the output shaft of the variable speed gear unit.

VARIBLOC® with a brake is only availalble with manual brake release (BMG/HF or BMG/HR). The brake rectifier is installed in a special terminal box on the VARIBLOC® housing. Standard supply voltages are 230 V_{AC} und 400 V_{AC}.

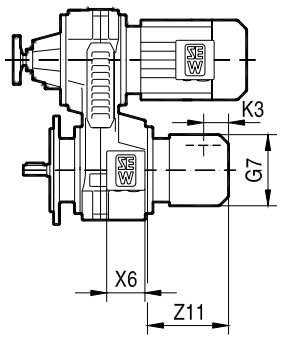
Dimensions VU/VZ with brake

12 006 001

VU..



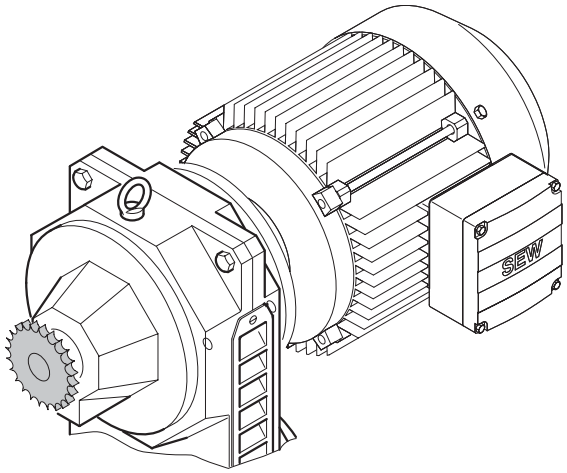
VZ..



1) Manual brake release HF or HR for brake
2) Connection hole for proximity-type speed measurement FL

	Brake type	$M_{B\ max}$ [Nm]	GX [mm]	G7 [mm]	K3 [mm]	X6 [mm]	Y1 [mm]	Z11 [mm]
VU/VZ01 BMG/HF (HR)	BMG05	5	152	145	59	106	109	168
VU/VZ11 BMG/HF (HR)	BMG1	10	155	145	59	106	109	176
VU/VZ21 BMG/HF (HR)	BMG2	20	177	197	69	106	109	211
VU/VZ31 BMG/HF (HR)	BMG4	40	205	197	69	106	109	225
VU/VZ41 BMG/HF (HR)	BMG8	75	237	221	97	106	109	255

Front adjustment with chain sprocket



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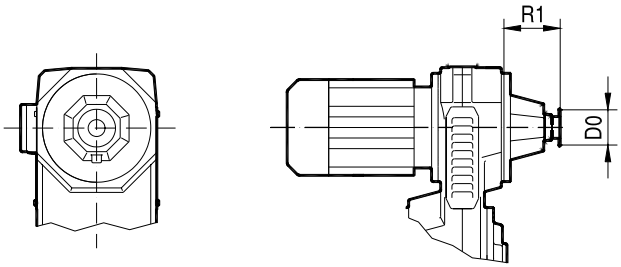
CW direction of rotation on the chain sprocket means an increase in speed.

Dimensions

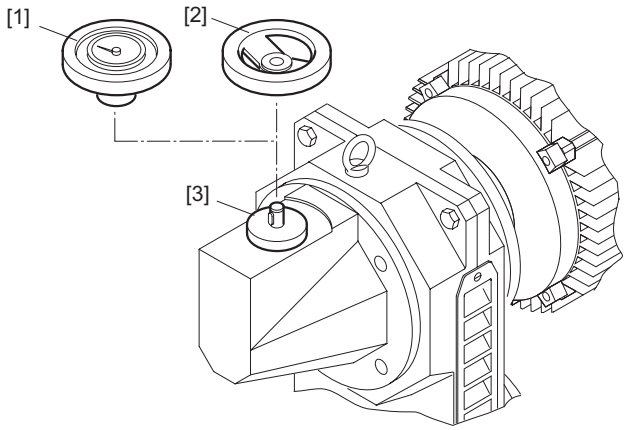
12 001 001



	R1	D0	1)	2) DIN 8187	3) 1:4	3) 1:6	3) 1:8	4) [Nm]
VU/VZ01 K	82	81.19	20	12.7x3.3	-	10	-	1.8
VU/VZ11 K	99	81.19	20	12.7x3.3	-	12	13	2.7
VU/VZ21 K	106	81.19	20	12.7x3.3	-	15	16	4.0
VU/VZ31 K	129	81.19	20	12.7x3.3	-	18	19	6.5
VU/VZ41 K	160	121.5	30	12.7x3.3	-	18	-	9.0
VU51 K	195	121.5	30	12.7x3.3	-	20	-	12.0
VU6 K	158	254.8	63	12.7x3.3	27	-	-	17.0

1) Number of teeth
2) Single row roller chain
3) Chain sprocket rotation for setting range
4) Torque needed for adjustment

Exposed shaft end NV, Handwheel with setting indicator HS



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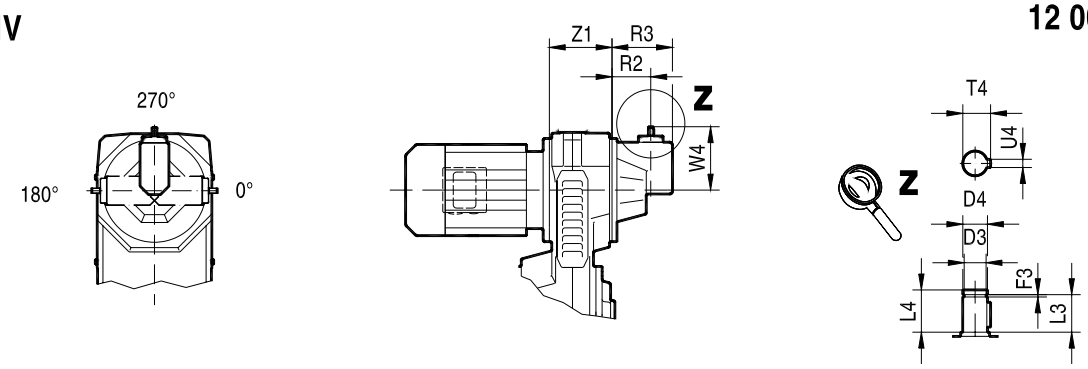
[1] Handwheel with setting indicator HS
[2] Handwheel H
[3] Exposed shaft end NV

The control heads can be swiveled to the positions shown in the following dimensional diagram. Specify the required position in your order. CW direction of rotation on the handwheel H means an increase in speed. The handwheel with setting indicator HS only functions when the adjustment spindle is horizontal.

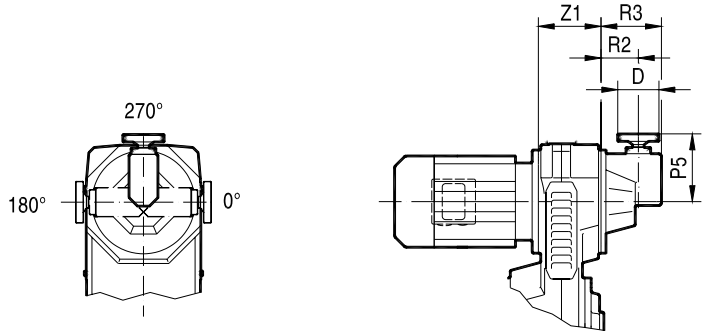
Dimensions NV, H, HS

NV

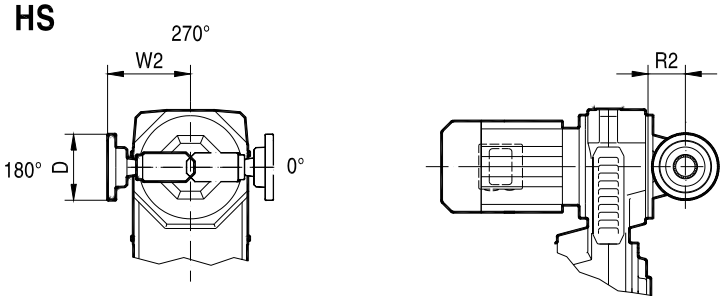
12 002 001



H



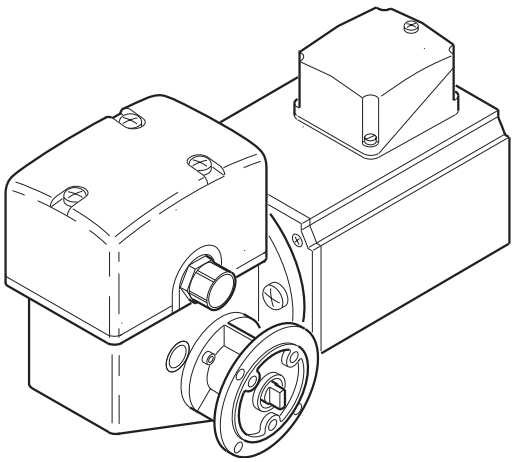
HS



	D	D3	D4	F3	L3	L4	P5	R2	R3	T4	U4	W2	W4	2) 1:4	2) 1:6	2) 1:8	1) [Nm]
VU/VZ01 NV/H/HS	100	11.5	12	1.1	18.2	20.5	119	60	112.5	13.5	4	144	103	-	7	-	1.8
VU/VZ11 NV/H/HS	100	11.5	12	1.1	18.2	20.5	119	60	112.5	13.5	4	144	103	-	10	11	2.7
VU/VZ21 NV/H/HS	100	11.5	12	1.1	18.2	20.5	138.5	75	129.5	13.5	4	163.5	122.5	-	11	13	4.0
VU/VZ31 NV/H/HS	100	11.5	12	1.1	18.2	20.5	165	94	146.5	13.5	4	190	149	-	14	15	6.5
VU/VZ41 NV/H/HS	160	17	18	1.3	21.4	25	202	122	190	20.5	6	235	185	-	14	-	9.0
VU51 NV/H/HS	160	17	18	1.3	21.4	25	216	134	200	20.5	6	249	199	-	17	-	12.0
VU6 NV/H/HS	160	17	18	1.3	21.4	25	225	156	230	20.5	6	253	210	18	-	-	17.0

1) Torque needed for adjustment
2) Handwheel rotations for setting range

Electromechanical remote speed control EF/EFPA



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Electromechanical remote speed control consists of a servo motor which, in the EFPA type, is supplemented by an indicator unit. This indicator unit can be installed in a control cabinet. Speed changes resulting from load fluctuations are not shown on the display.

The electromechanical remote speed control EF/EFPA is designed for maximum 40 % cdf and and a starting frequency of < 20 cycles per hour. The minimum and maximum speeds are determined by setting the two limit switches. The control unit can be swiveled to the positions shown in the following dimension drawing (270° = standard position).

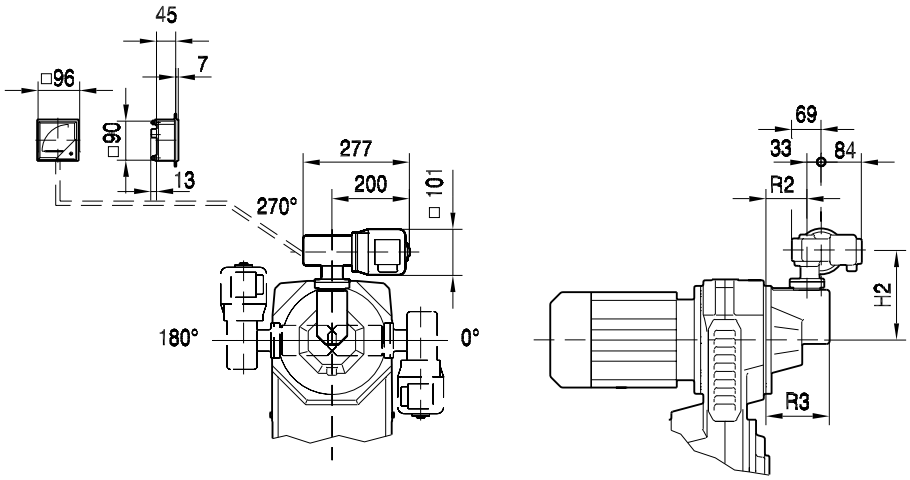
Electromechanical remote speed adjustment is not suitable for automatic control but only for occasional adjustment.

Technical data

VARIBLOC® type	Adjustment device	Variable motor Type	P_m [W]	U [V_{AC}]	f [Hz]	I [A_{AC}]	n_a [1/min]	Enclosure	Part number
VU/VZ01 - 41	**EF/EFPA**	DM90-60K + E13 with potentiometer	75	230/400	50	0.76/0.44	25	IP55	150 292 1
VU51									
VU6									

Dimensions EF/ EFPA

12 003 01 01



	H2	R2	R3	1) 1:4	1) 1:6	1) 1:8
VU/VZ01 EF/EFPA	159	60	112.5	-	17	-
VU/VZ11 EF/EFPA	159	60	112.5	-	22	24
VU/VZ21 EF/EFPA	178.5	75	129.5	-	26	31
VU/VZ31 EF/EFPA	205	94	146.5	-	36	39
VU/VZ41 EF/EFPA	236	122	190	-	34	-
VU51 EF/EFPA	250	134	200	-	41	-
VU6 EF/EFPA	260	156	230	46	-	-

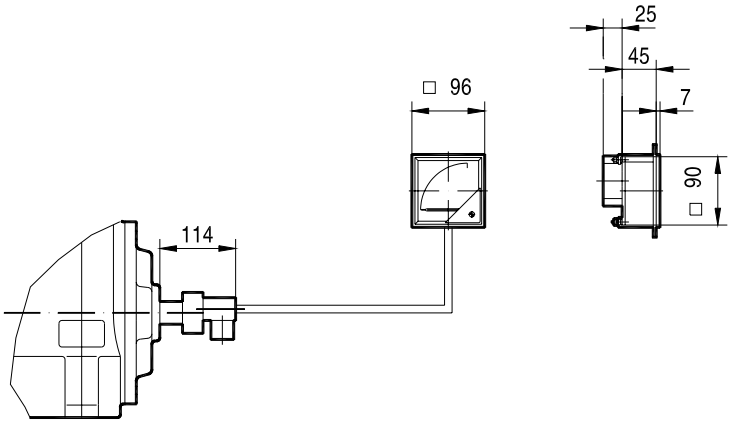
1) Adjustment time in seconds for setting range

Analog remote speed indicators FA, FD

The analog remote speed indicators FA and FD comprise the AC tachogenerator GW mounted to the VARIBLOC® with 10 V / 1000 1/min ánd the indicator unit size 96. The indicator unit with the scale 0 % ...100 % (only FA) or with individual customer-specific scale (only FD) is matched to the mounted AC tachogenerator GW. FA and FD are used in VU/VZ01-41 and VU51.

Dimensions FA, FD

12 014 001

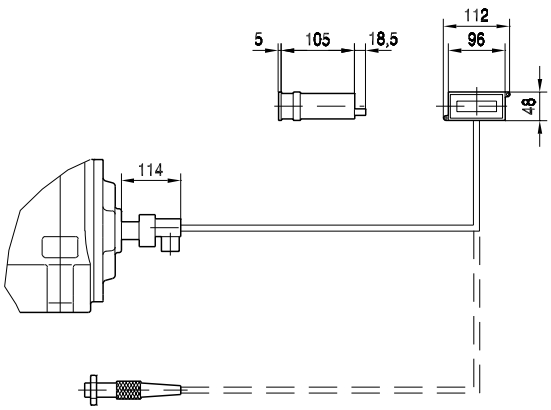


Digital remote speed indicator DA

The digital indicator unit DA with its 4-digit display (red 7-segment LEDs) is used for connecting to the AC tachogenerator GW in the VU/VZ01-41 and VU51 or to the encoder IG in the VU/VZ01-41BMG and VU6. The unit is suitable for use as a time-based counter for representing all measured quantities which have a measurement signal in the form of a frequency as pulses or as an AC voltage. The universal adjustment function for the calibration values makes it possible to assign the input frequency (speed of the output shaft of the variable speed gear unit) to the required display.

Dimensions DA

12 015 001

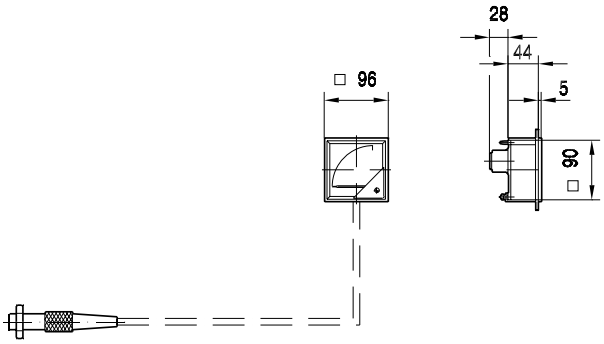


Remote speed indicators FL

VARIBLOC® VU6 and VU/VZ01 - 41BMG are exclusively equipped with a proximity-type encoder IG for speed measurement. This means the analog remote speed indicator FL can be used. FL is equipped for mains connection 220 V / 50 Hz and has a size 96 indicator unit (scale 0 % ... 100 %). Note that the maximum cable length is 100 m and the maximum cable resistance is
3 ohms.

Dimensions FL

12 016 001

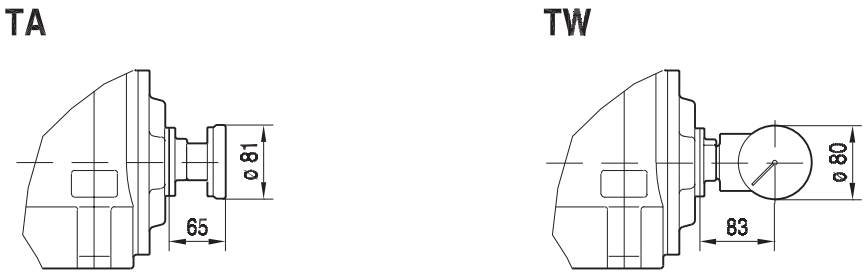


Axial tachogenerator TA, rightangled tachometer TW

Tachos TA or TW can be fitted as an alternative to the AC tachogenerator GW. They are equipped with scales for CW and CCW operation. The scale values are configured according to the customer's requirements.

Dimensions TA, TW

12 017 001



Special VARIBLOC® designs

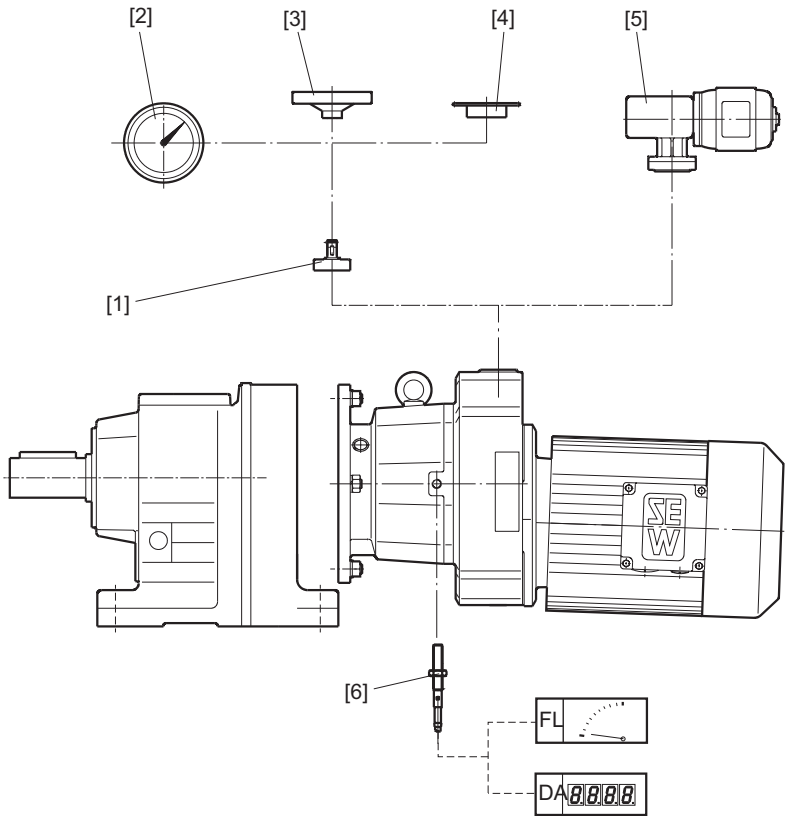
The VARIBLOC® drive can be especially accurately adapted to the available installation space by swiveling the variable speed gear unit to different 45° positions in relation to the reduction gear unit.

Ventilation of VARIBLOC®

The basic version of VARIBLOC® variable speed gear units are ventilated to provide better heat dissipation. The drawn-in cooling air emerges through openings on the side. On request (option pricing) VARIBLOC® VU/VZ01...41 variable speed gear units can also be supplied as non-ventilated, completely enclosed versions (designation VU/VZ..U, → Selection tables, Sec. "VUF/VZF..").

4.13 VARIMOT® options

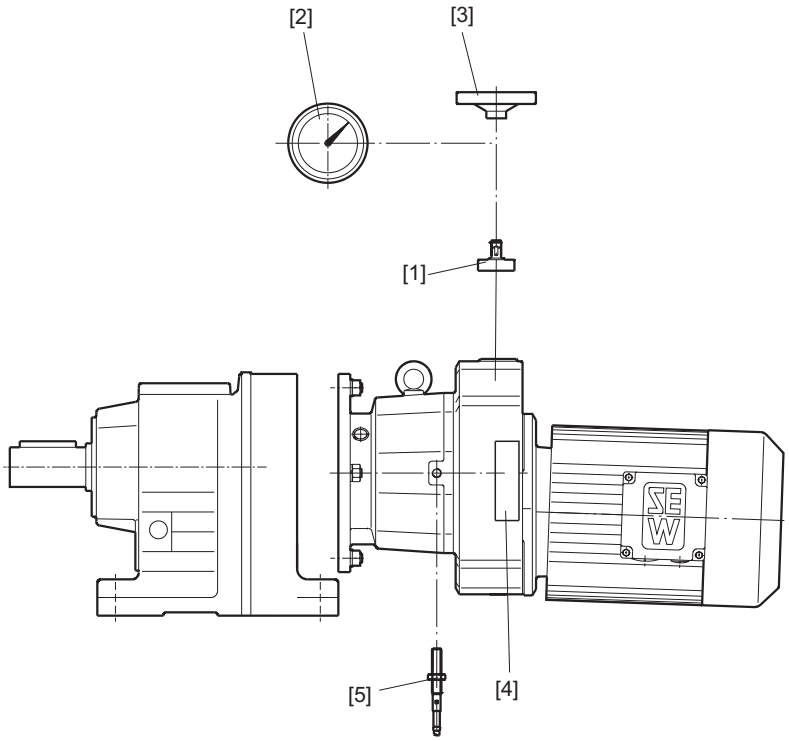
Standard VARIMOT®



52302AXX

[1] Control head with exposed shaft end NV
[2] Control head with handwheel and setting indicator HS
[3] Front adjustment with handwheel (standard version)
[4] Control head with chain sprocket K
[5] Electromechanical remote control EF and EFPA (with remote setting indicator)
[6] Tachogenerator IG with analog/digital remote speed indicator FL/DA

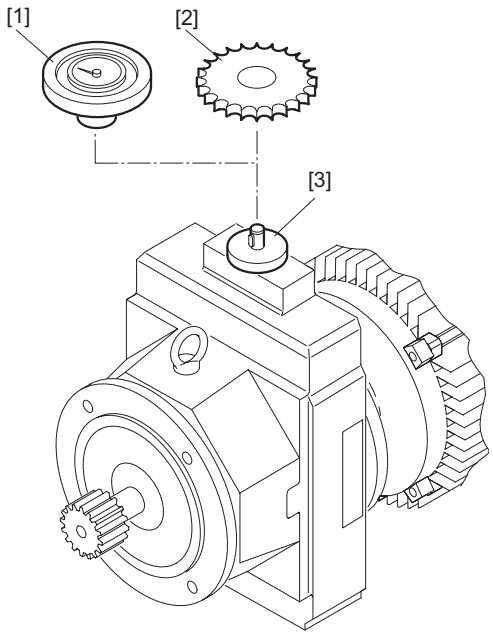
Explosion-proof VARIMOT®



52019AXX

[1] Control head with exposed shaft end NV
[2] Control head with handwheel and setting indicator HS
[3] Front adjustment with handwheel (standard version)
[4] Display scale
[5] Voltage encoder IGEX

Adjustment with chain sprocket K, with exposed shaft end NV or with handwheel with setting indicator HS



52304AXX

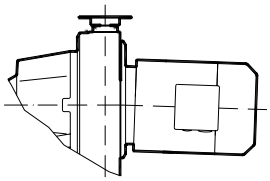
[1] Handwheel with setting indicator HS
[2] Chain sprocket K
[3] Exposed shaft end NV

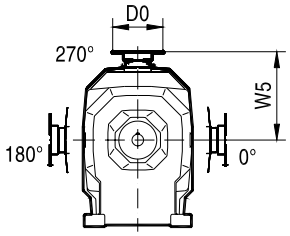
CCW direction of rotation on the adjustment spindle means an increase in speed. The handwheel with installed setting indicator HS only functions when the adjustment spindle is horizontal.

Dimensions K, NV, HS

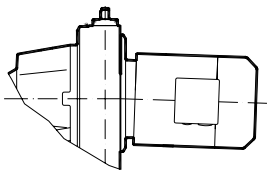
12 004 001

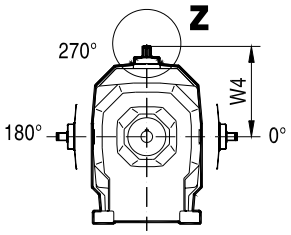
K

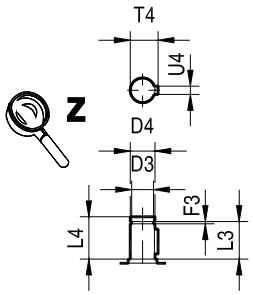




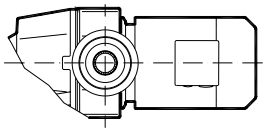
NV

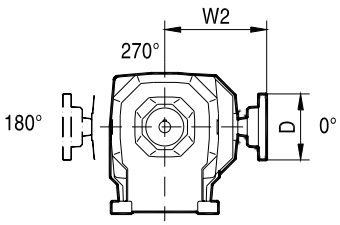






HS

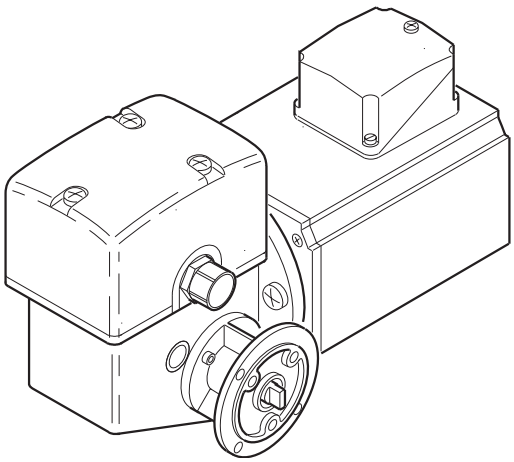




	D	D0	D3	D4	F3	L3	L4	T4	U4	W2	W4	W5	1)	2) DIN 8187	3)	4) [Ncm]
D16 K/NV/HS	100	81.19	11.5	12	1.1	18.2	20.5	13.5	4	184	149.5	146	20	12.7x3.3	25.5	150
D26 K/NV/HS	100	81.19	11.5	12	1.1	18.2	20.5	13.5	4	217	179.5	179	20	12.7x3.3	34	250
D36 K/NV/HS	160	121.5	17	18	1.3	21.4	24	20.5	6	265	219	215	30	12.7x3.3	29	450
D46 K/NV/HS	160	121.5	17	18	1.3	21.4	24	20.5	6	295	246	240	30	12.7x3.3	31	800

1) Number of teeth
2) Single row roller chain
3) Spindle rotation for entire setting range
4) Torque needed for adjustment

Electromechanical remote speed control EF/EFPA



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Electromechanical remote speed control consists of a servo motor which, in the EFPA type, is supplemented by an indicator unit. This indicator unit can be installed in a control cabinet. Speed changes resulting from load fluctuations are not shown on the display.
The electromechanical remote speed control EF/EFPA is designed for maximal 40 % cdf and a starting frequency of < 20 cycles per hour. The minimum and maximum speeds are determined by setting the two limit switches. The control unit can be swiveled to the positions shown (270° = normal position).
The setting indicator is located at either 0° or 180° when the control head is in its normal position. Specify the position of the control unit and, if required, the setting indicator and the voltage of the variable motor in your order.

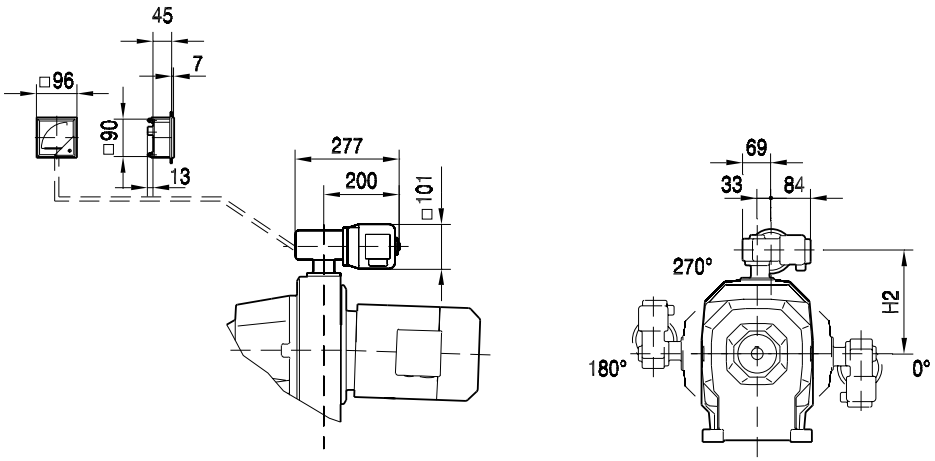
Electromechanical remote speed adjustments are not suitable for automatic control but only for occasional adjustment.

Technical data

VARIMOT® type	Adjustment device	Variable motor								
		Type	P_m [W]	U [V_{AC}]	f [Hz]	I [A_{AC}]	n_a [1/min]	Enclosure	Part number
D16...D46	**EF/EFPA**	DM90-60K + E13 with potentiometer	75	230/400	50	0.76/0.44	69	IP55	150 283 2

Dimensions EF/ EFPA

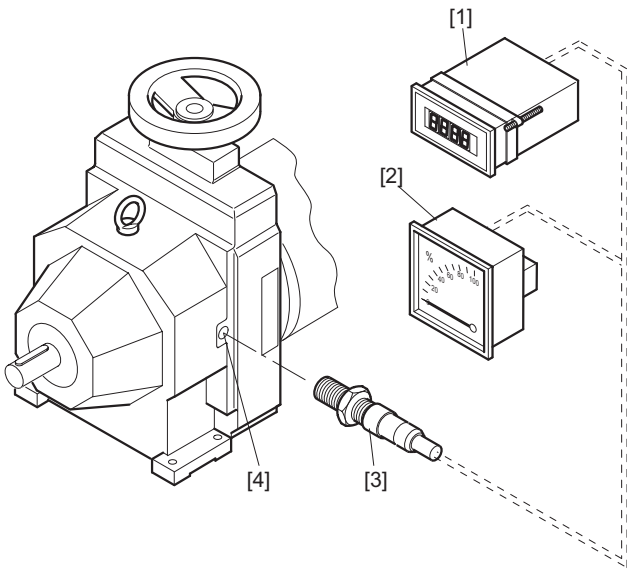
12 005 01 01



	H2	1)
D16 EF/EFPA	202	22
D26 EF/EFPA	232	29
D36 EF/EFPA	268	25
D46 EF/EFPA	293	27

1) Adjustment time in seconds

Encoder IG, remote speed indicators FL and DA



52305AXX

[1] Display DA
[2] Remote speed indicator FL
[3] Voltage encoder IG (3)

The analog remote speed indicator FL [2] and the digital indicator DA [1] operate in conjunction with a proximity-type tachogenerator IG [3] mounted on the left or right side of VARIMOT®.

The following types are possible:

1. IG:
   - The scope of delivery for this type only includes the tachogenerator IG [3] without indicator unit FL [2] or DA [1].
2. FL:
   - In this type, the tachogenerator IG [3] with analog remote speed indicator FL [2] is included in the scope of delivery.
3. DA:
   - In this type, the tachogenerator IG [3] with digital remote speed indicator DA [1] is included in the scope of delivery.
4. IGV:
   - In this type, the housing of the variable speed gear unit has a tapped hole M16x1 [4] for accommodating a tachogenerator.

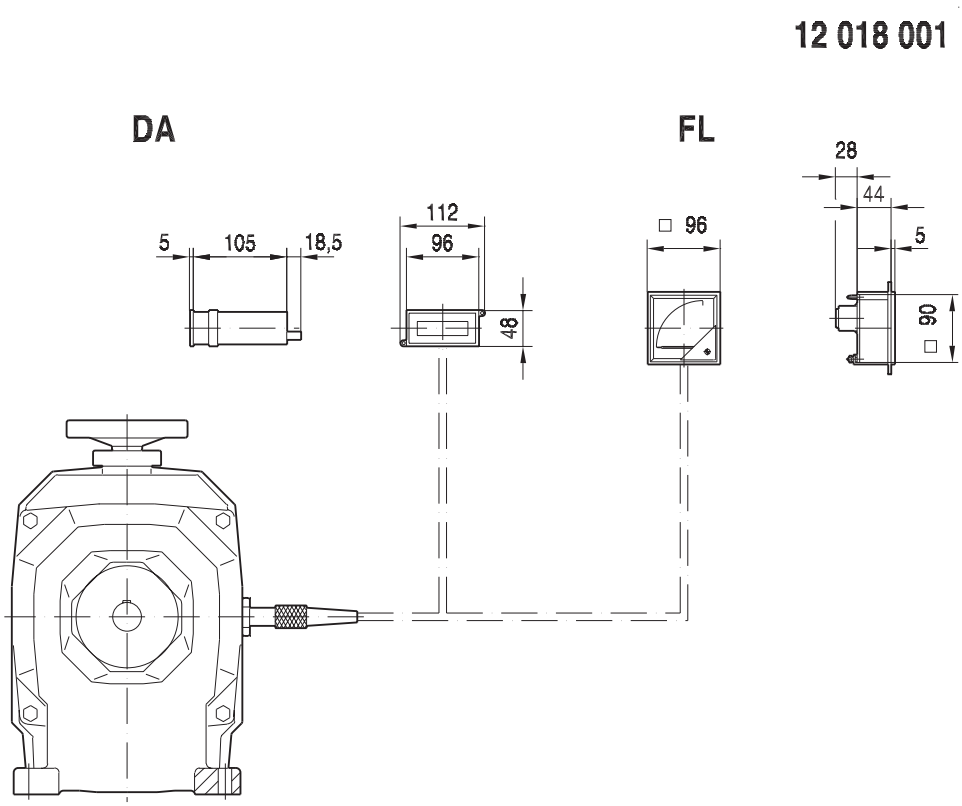
Remote speed indicator FL

The analog remote speed indicator FL with encoder IG and a suitable switchboard measuring instrument size 96 with display scale 0 – 100 % can also be supplied with special scale notation. Note that the maximum cable length is 100 m and the maximum cable resistance is 3 ohms.

Digital remote speed indicator DA

The digital indicator unit DA with 4-digit display is used for connecting to the encoder IG on VARIMOT®. The unit is suitable for use as a time-based counter for representing all measured quantities which have a measurement signal in the form of a frequency as pulses or as an AC voltage.

Dimensions DA, FL



5 Mounting Positions

5.1 General information on mounting positions

Mounting position designation: SEW-EURODRIVE differentiates between six mounting positions M1...M6 for variable speed gearmotors. The following figure shows the position of the variable speed gearmotor in mounting positions M1...M6.

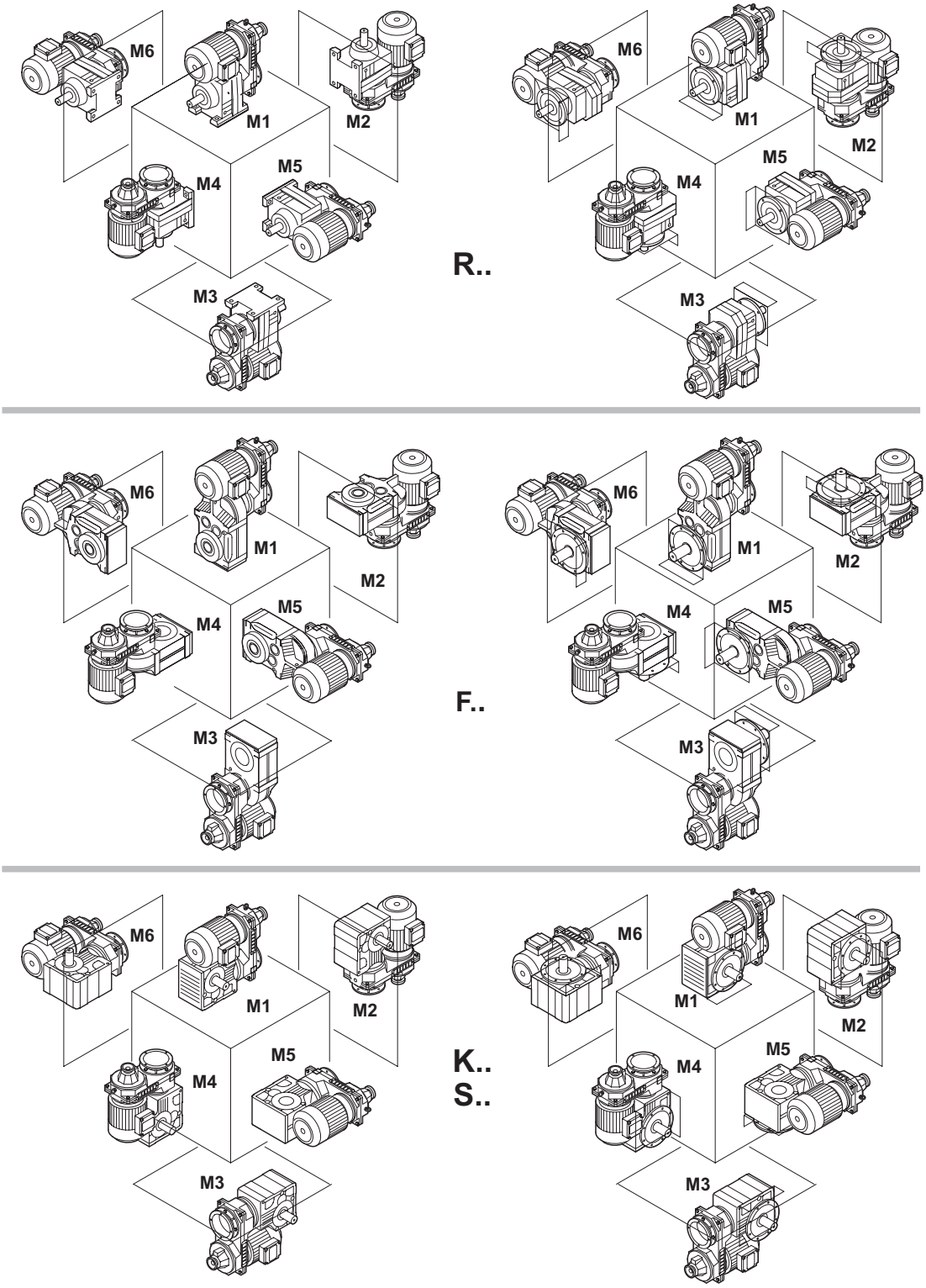


Figure 5: Mounting positions M1...M6

5.2 Important order information

The following order information is required in addition to the mounting position to exactly determine the design of the drive:

- Position of the handwheel or adjusting device (0°, 90°, 180° or 270°) in VARIBLOC® and VARIMOT® variable speed gear units can be selected as required
- Position of the setting position indicator in VARIMOT® variable speed gear units: 0°, 180° or 0° + 180°

Position of the VARIBLOC® variable speed gear unit VU/VZ

Only those combinations listed in the section "Combination overviews VARIBLOC® and Gear Units" (gear unit – variable speed gear unit – motor) are available. If a VARIBLOC® is to be delivered in one of the inclined mounting positions X, Y or Z opposite the gear unit as defined in that section, the desired inclined mounting position designation has to be added to the mounting position designation (e.g. M1X).

Position of motor terminal box and cable entry

Possible positions of the terminal box are 0°, 90°, 180° or 270° as viewed onto the fan guard = B-end.
The position of the cable entry can be selected as well. Available positions are "X" (= standard position), "1", "2" or "3."

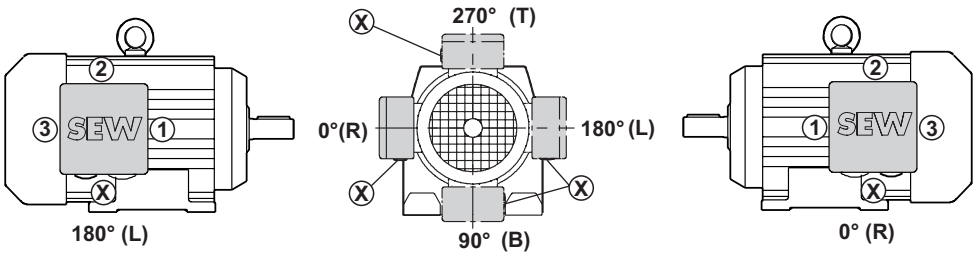


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Figure 6: Position of terminal box and cable entry

Unless indicated otherwise, you will receive the terminal box type 0° with "X" cable entry. We recommend selecting cable entry "2" for mounting position M3.

Important: For **DR63** motors, **only** cable entries Ⓧ and **"2"** are possible.
Exception: This restriction does not apply with the IS plug connection.

Direction of rotation of the drive with a backstop

If the drive has a backstop RS, it will be necessary to indicate the direction of rotation for the drive. The following definition applies:

Looking onto the output shaft:	Clockwise (CW) = Rotating clockwise Counterclockwise (CCW) = Rotating counterclockwise

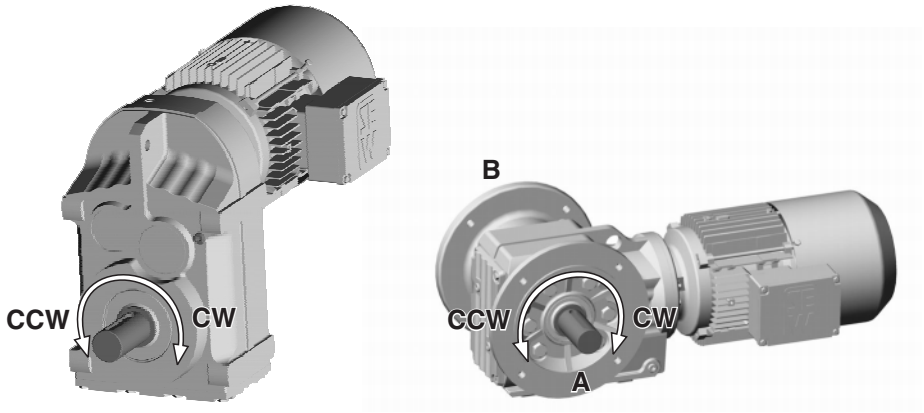

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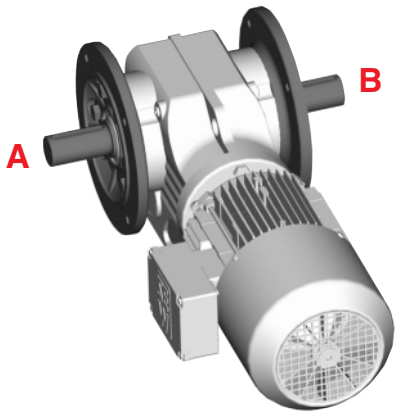
Figure 7: Direction of rotation of output

In right-angle gear units, it is also necessary to indicate if the direction of rotation is given looking onto the A or B end.

Position of the output shaft and the output flange

In right-angle gear units, it is also necessary to indicate the position of the output shaft and the output flange:

- A or B or AB



02585BXX

Figure 8: Position of the output shaft and the output flange

Position of the output end in right-angle gear units

In shaft mounted right-angle gear units with a shrink disc, it is also necessary to indicate whether the A or B end is the output end. In figure 13, the A end is the output end. The shrink disc is located opposite the output end.

In shaft mounted right-angle gear units, the output end is equivalent to the shaft position of right-angle gear units with solid shaft.

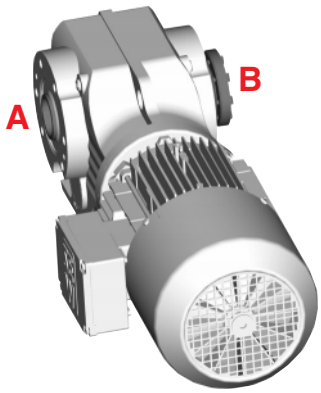


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Figure 9: Position of the output end

You will find the permitted mounting surfaces (= hatched area) in the mounting position sheets (page 107 and following pages).

Example: Only the mounting surface at the bottom is possible with helical-bevel gear units K167/K187 in mounting positions M5 and M6.

Sample orders

Type (examples)	Mounting position	Shaft position	Flange position	Position of terminal box	Position of cable entry	Direction of rotation of output
K47DT71D4/RS	M2	A	-	0°	"X"	CW
SF77DV100L4	M6	AB	AB	90°	"3"	-
KA97DV132M4	M4	B	-	270°	"2"	-
KH107DV160L4	M1	A	-	180°	"3"	-
KAF67A	M3	A	B	-	-	-

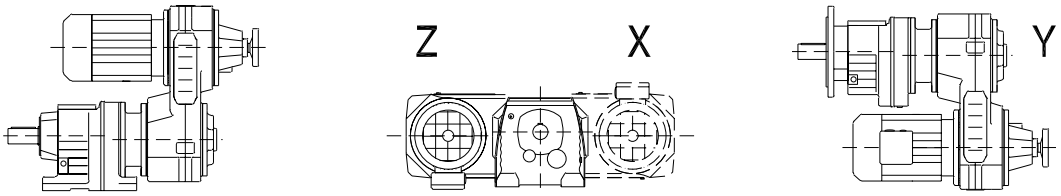
Change in mounting position

Make sure to read the following information when you operate the gearmotor in a mounting position other than the one indicated in the order:

- Adjust lubricant fill quantity to match the new mounting position
- Adjust position of breather valve
- For helical-bevel gearmotors: Contact the SEW-EURODRIVE customer service prior to changing to mounting position M5 or M6 and when changing from M5 to M6 or vice versa.
  EURODRIVE einschalten.
- For helical-worm gearmotors: Contact the SEW-EURODRIVE customer service when changing to mounting position M2.

5.3 Overview of standard VARIBLOC® and gear unit combinations

Standard VARIBLOC® VU.. with helical gear unit



Type	VU01	VU11	VU21	VU31	VU41	VU51	VU6	VU01	VU11	VU21	VU31	VU41	VU51	VU6	VU01	VU11	VU21	VU31	VU41	VU51	VU6
R27	1							1													
RF27	1							1							1						
R37	1	1						1	3												
RF37	1	1						1	1						1	1					
R47	1	1	1					1	1	1	1										
RF47	1	1	1					1	1	1					1	1	1				
RX57	1	1	1					1	1	1											
RXF57	1	1	1					1	1	1						1					
R57	1	1	1	1				1	1	1	1										
RF57	1	1	1	4				1	1	1	4					1	1	4			
RX67	1	1	1					1	1	1											
RXF67	1	1	1						1	1						3	1				
R67	1	1	1	1				2	1	1	1										
RF67	1	1	1	1				2	1	1	1				2	1	1	1			
RX77		1	1	1					1	1	1										
RXF77		1	1	1					1	1	1					3	1				
R77		1	1	1	1				1	1	1	1									
RF77		1	1	1	1				1	1	1	1				1	1	1	1		
RX87			1	1	1					1	1	1									
RXF87			1	1	1						1	1						1	1		
R87			1	1	1	1				1	1	1	1								
RF87			1	1	1	1				1	1	1	1					1	1	1	
RX97				1	1	1					1	1	1								
RXF97				1	1	1					1	1	1						1	1	
R97				1	1	1					1	1	1								
RF97				1	1	1					1	1	1						1	1	
RX107					1	1						1	1								
RXF107					1	1						1	1							1	
R107					1	1	1					1	1	1							
RF107					1	1	1					1	1	1					1	1	1
R137						1	1						1	1							
RF137						1	1						1	1							1
R147						1	1						1	1							
RF147						1	1						1	1							1
R167							1							1							
RF167							1							1							1

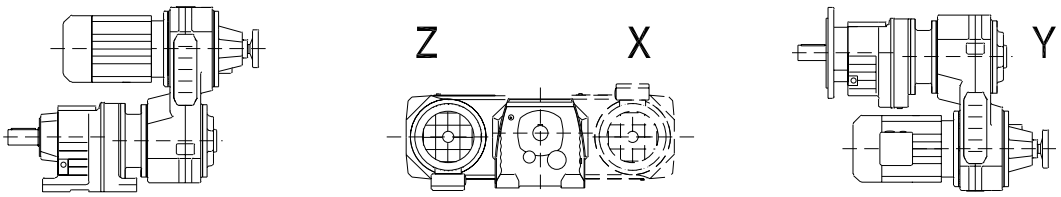
1) Combination possible without restriction

2) Combination possible with DR63 only

3) Combination possible with DT80 only

4) Combination possible with DV112 only

Standard VARIBLOC® VU.. with two helical gear units



Type	VU01	VU11	VU21	VU31	VU41	VU51	VU6	VU01	VU11	VU21	VU31	VU41	VU51	VU6	VU01	VU11	VU21	VU31	VU41	VU51	VU6
R47R37	1	1						1	1												
RF47R37	1	1						1	1						1	1					
R57R37	1	1						1	1												
RF57R37	1	1						1	1						1	1					
R67R37	1	1						1	1												
RF67R37	1	1						1	1						1	1					
R77R37	1	1						1	1												
RF77R37	1	1						1	1						1	1					
R87R57	1	1	1	1				1	1	1	1										
RF87R57	1	1	1	1				1	1	1	1					1	1	1			
R97R57	1	1	1	1				1	1	1	1										
RF97R57	1	1	1	1				1	1	1	1					1	1				
R107R77		1	1	4	1				1	1	4	1									
RF107R77		1	1	4	1				1	1	4	1				1	1	4	1		
R137R77		1	1	4	1				1	1	4	1									
R137R77		1	1	4	1				1	1	4	1				1	1	4	5		
R147R77		1	1	4	5				1	1	4	5									
RF147R77		1	1	4	5				1	1	4	5				1	1	4	5		
R147R87			1	1	1	1					1	5	1								
RF147R87			1	1	1	1					1	5	1					1	5		
R167R97				1	1	1					1	1	6								
RF167R97				1	1	1					1	1	6						1	6	
R167R107					1	1	1					1	1	1							
RF167R107					1	1	1					1	1	1					1	1	1

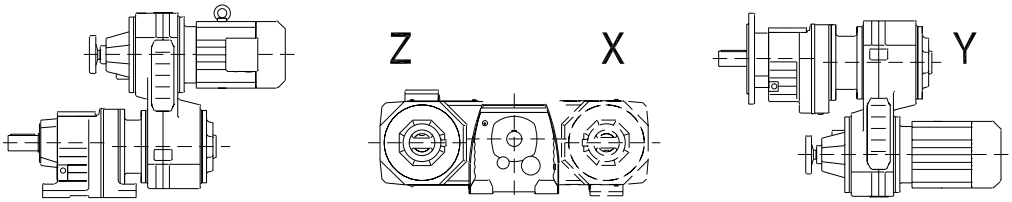
1) Combination possible without restriction

4) Combination possible with DV112 only

5) Combination possible with DV132M only

6) Combination possible with DV160L only

Standard VARIBLOC® VZ.. with helical gear unit

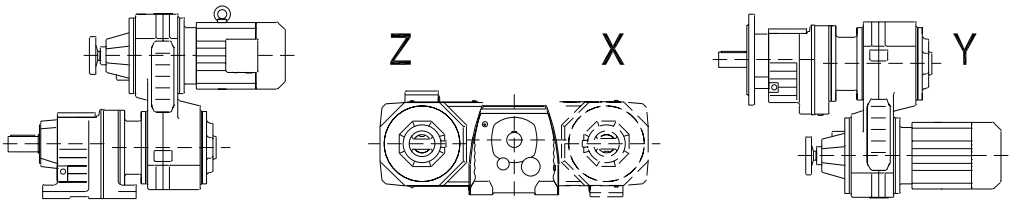


Type	VZ01	VZ11	VZ21	VZ31	VZ41	VZ01	VZ11	VZ21	VZ31	VZ41	VZ01	VZ11	VZ21	VZ31	VZ41
R27	1					1									
RF27	1					1					1				
R37	1	1				1	1								
RF37	1	1				1	1				1	1			
R47	1	1	1			1	1	1	1						
RF47	1	1	1			1	1	1	1		2	1	1	1	
RX57	1	1	1			1	1	1							
RXF57	1	1	1			1	1	1			2	1	1		
R57	1	1	1	1		1	1	1	1						
RF57	1	1	1	1		1	1	1	1		2	1	1	1	
RX67	1	1	1			1	1	1							
RXF67	1	1	1			1	1	1			2	1	1		
R67	1	1	1	1		1	1	1	1						
RF67	1	1	1	1		1	1	1	1		2	1	1	1	
RX77		1	1	1			1	1	1						
RXF77		1	1	1			1	1	1			1	1	1	
R77		1	1	1	1		1	1	1	1					
RF77		1	1	1	1		1	1	1	1		1	1	1	1
RX87			1	1	1			1	1	1					
RXF87			1	1	1			1	1	1				1	1
R87			1	1	1			1	1	1					
RF87			1	1	1			1	1	1			2	1	1
RX97				1	1				1	1					
RXF97				1	1				1	1				2	1
R97				1	1				1	1					
RF97				1	1				1	1				2	1
RX107					1					1					
RXF107					1					1					2
R107					1					1					
RF107					1					1					2

1) Combination possible without restriction

2) Combination only possible in conjunction with control head (NV, H, HS, EF)

Standard VARIBLOC® VZ.. with two helical gear units



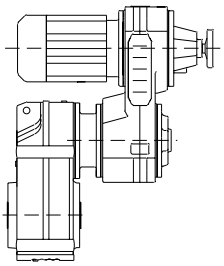
Type	VZ01	VZ11	VZ21	VZ31	VZ41	VZ01	VZ11	VZ21	VZ31	VZ41	VZ01	VZ11	VZ21	VZ31	VZ41
R47R37	1	1				1	1								
RF47R37	1	1				1	1				1	1			
R57R37	1	1				1	1								
RF57R37	1	1				1	1				1	1			
R67R37	1	1				1	1								
RF67R37	1	1				1	1				1	1			
R77R37	1	1				1	1								
RF77R37	1	1				1	1				1	1			
R87R57	1	1	1	1		1	1	1	1						
RF87R57	1	1	1	1		1	1	1	1		1	1	1	1	
R97R57	1	1	1	1		1	1	1	1						
RF97R57	1	1	1	1		1	1	1	1		1	1	1	1	
R107R77		1	1	1	1		1	1	1	1					
RF107R77		1	1	1	1		1	1	1	1		1	1	1	1
R137R77		1	1	1	1		1	1	1	1					
RF137R77		1	1	1	1		1	1	1	1		1	1	1	1
R147R77		1	1	1	1		1	1	1	1					
RF147R77		1	1	1	1		1	1	1	1		1	1	1	1
R147R87			1	1	1			1	1	1					
RF147R87			1	1	1			1	1	1			2	1	1
R167R97				1	1				1	1					
RF167R97				1	1				1	1				2	1
R167R107					1					1					
RF167R107					1					1					2

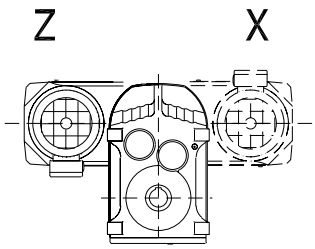
1) Combination possible

2) Combination only possible in conjunction with control head (NV, H, HS, EF)

3) Gear unit must be mounted on a base

Standard VARIBLOC® VU.. with parallel shaft helical gear unit



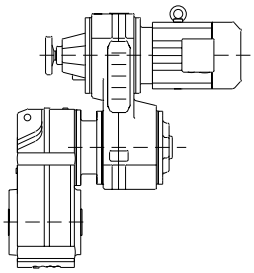


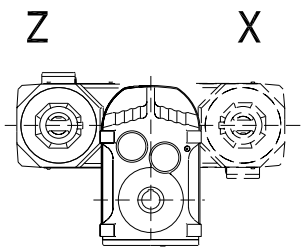
Type	VU01	VU11	VU21	VU31	VU41	VU51	VU6	VU01	VU11	VU21	VU31	VU41	VU51	VU6
F37	1	1						1	1					
FF37	1	1						1	1					
FA37	1	1						1	1					
F47	1	1						1	1					
FF47	1	1						1	1					
FA47	1	1						1	1					
F57	1	1	1	1				1	1	1	1			
FF57	1	1	1	1				1	1	1	1			
FA57	1	1	1	1				1	1	1	1			
F67	1	1	1	1				1	1	1	1			
FF67	1	1	1	1				1	1	1	1			
FA67	1	1	1	1				1	1	1	1			
F77		1	1	1	1				2	1	1	1		
FF77		1	1	1	1				2	1	1	1		
FA77		1	1	1	1				2	1	1	1		
F87			1	1	1	1					1	1	1	
FF87			1	1	1	1					1	1	1	
FA87			1	1	1	1					1	1	1	
F97				1	1	1						1	1	
FF97				1	1	1						1	1	
FA97				1	1	1						1	1	
F107					1	1	1					1	1	1
FF107					1	1	1					1	1	1
FA107					1	1	1					1	1	1
F127						1	1						1	1
FF127						1	1						1	1
FA127						1	1						1	1
F157						1	1							1
FF157						1	1							1
FA157						1	1							1

1) Combination possible without restriction

2) Combination possible with DT80 only

Standard VARIBLOC® VZ.. with parallel shaft helical gear unit

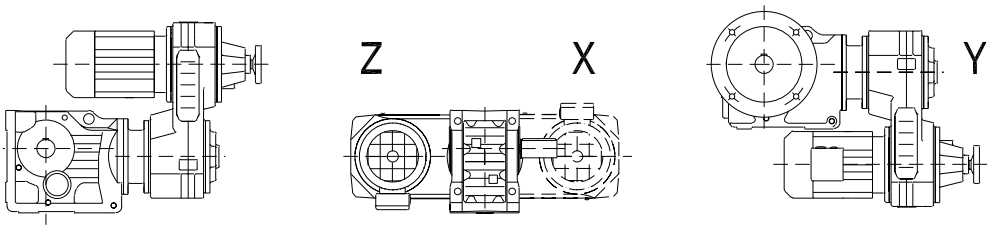




Type	VZ01	VZ11	VZ21	VZ31	VZ41	VZ01	VZ11	VZ21	VZ31	VZ41
F37	1	1				1	1			
FF37	1	1				1	1			
FA37	1	1				1	1			
F47	1	1				1	1			
FF47	1	1				1	1			
FA47	1	1				1	1			
F57	1	1	1	1		1	1	1	1	
FF57	1	1	1	1		1	1	1	1	
FA57	1	1	1	1		1	1	1	1	
F67	1	1	1	1		1	1	1	1	
FF67	1	1	1	1		1	1	1	1	
FA67	1	1	1	1		1	1	1	1	
F77		1	1	1	1		1	1	1	1
FF77		1	1	1	1		1	1	1	1
FA77		1	1	1	1		1	1	1	1
F87			1	1	1			1	1	1
FF87			1	1	1			1	1	1
FA87			1	1	1			1	1	1
F97				1	1				1	1
FF97				1	1				1	1
FA97				1	1				1	1
F107					1					1
FF107					1					1
FA107					1					1

1) Combination possible without restriction

Standard VARIBLOC® VU.. with helical-bevel gear unit



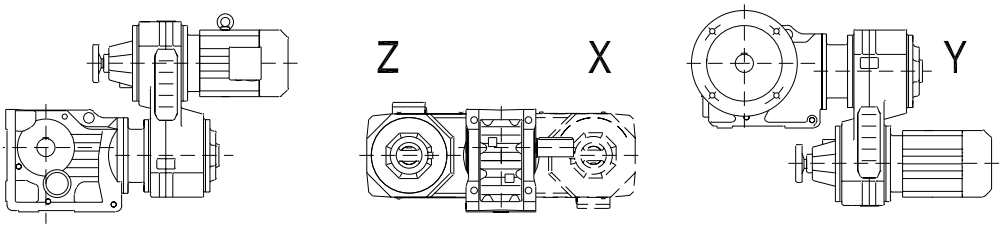
Type	VU01	VU11	VU21	VU31	VU41	VU51	VU6	VU01	VU11	VU21	VU31	VU41	VU51	VU6	VU01	VU11	VU21	VU31	VU41	VU51	VU6
K37	1	1						1	1												
KF37	1	1						1	1						1	1					
KA37	1	1						1	1						3	3					
K47	1	1	1					1	1	1											
KF47	1	1	1					1	1	1					1	1	1				
KA47	1	1	1					1	1	1					3	3	3				
K57	1	1	1	1				1	1	1	1										
KF57	1	1	1	1				1	1	1	1					1	1	1			
KA57	1	1	1	1				1	1	1	1					3	3	3			
K67	1	1	1	1				1	1	1	1										
KF67	1	1	1	1				1	1	1	1					1	1	1			
KA67	1	1	1	1				1	1	1	1					3	3	3			
K77		2	1	1	1				1	1	1	1									
KF77		2	1	1	1				1	1	1	1						1	1		
KA77		2	1	1	1				1	1	1	1						3	3		
K87				1	1	1				1	1	1	1								
KF87				1	1	1				1	1	1	1					1	1	1	
KA87				1	1	1				1	1	1	1					3	3	3	
K97				1	1	1					1	1	1								
KF97				1	1	1					1	1	1						1	1	
KA97				1	1	1					1	1	1						3	3	
K107					1	1	1					1	1	1							
KF107					1	1	1					1	1	1						1	1
KA107					1	1	1					1	1	1						3	3
K127						1	1						1	1							
KF127						1	1						1	1							1
KA127						1	1						1	1							3
K157							1							1							
KF157							1							1							1
KA157							1							1							1

1) Combination possible without restriction

2) Combination possible with DT80 only

3) Contact SEW-EURODRIVE if you want to install a torque arm

Standard VARIBLOC® VZ.. with helical-bevel gear unit



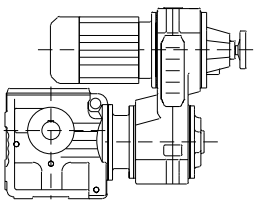
Type	VZ01	VZ11	VZ21	VZ31	VZ41	VZ01	VZ11	VZ21	VZ31	VZ41	VZ01	VZ11	VZ21	VZ31	VZ41
K37	1	1				1	1								
KF37	1	1				1	1				1	1			
KA37	1	1				1	1				3	3			
K47	1	1	1			1	1	1							
KF47	1	1	1			1	1	1			1	1	1		
KA47	1	1	1			1	1	1			3	3	3		
K57	1	1	1	1		1	1	1	1						
KF57	1	1	1	1		1	1	1	1		2	1	1	1	
KA57	1	1	1	1		1	1	1	1			3	3	3	
K67	1	1	1	1		1	1	1	1						
KF67	1	1	1	1		1	1	1	1		2	1	1	1	
KA67	1	1	1	1		1	1	1	1			3	3	3	
K77		1	1	1	1		1	1	1	1					
KF77		1	1	1	1		1	1	1	1		1	1	1	1
KA77		1	1	1	1		1	1	1	1		2/3	3	3	3
K87			1	1	1			1	1	1					
KF87			1	1	1			1	1	1			2	1	1
KA87			1	1	1			1	1	1			2/3	3	3
K97				1	1				1	1					
KF97				1	1				1	1				2	1
KA97				1	1				1	1				2/3	3
K107					1					1					
KF107					1					1					2
KA107					1					1					3

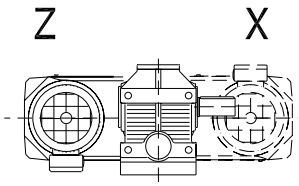
1) Combination possible without restriction

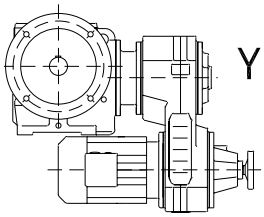
2) Combination only possible in conjunction with control head (NV, H, HS, EF)

3) Contact SEW-EURODRIVE if you want to install a torque arm

Standard VARIBLOC® VU.. with helical-worm gear unit





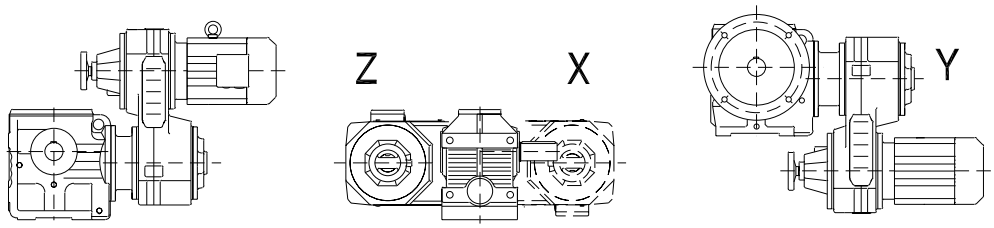


Type	VU01	VU11	VU21	VU31	VU41	VU51	VU01	VU11	VU21	VU31	VU41	VU51	VU01	VU11	VU21	VU31	VU41	VU51
S37	1						1											
SF37	1						1						1					
SA37	1						1						1					
S47	1	1					1	1										
SF47	1	1					1	1					1	1				
SA47	1	1					1	1					1	1				
S57	1	1					1	1										
SF57	1	1					1	1					1	1				
SA57	1	1					1	1					1	1				
S67		1	1	1			1	1	1	1								
SF67		1	1	1			1	1	1	1				1	1	1		
SA67		1	1	1			1	1	1	1				1	1	1		
S77		2		1	1			1	1	1	1							
SF77		2		1	1			1	1	1	1			2		1	1	
SA77		2		1	1			1	1	1	1			2		1	1	
S87				1	1	1			1	1	1	1						
SF87				1	1	1				1	1	1				1	1	1
SA87				1	1	1				1	1	1				1	1	1
S97					1	1				1	1	1						
SF97					1	1				1	1	1						
SA97					1	1				1	1	1					1	1

1) Combination possible without restriction

2) Combination possible with DT80 only

Standard VARIBLOC® VZ.. with helical-worm gear unit



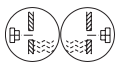
Type	VZ01	VZ11	VZ21	VZ31	VZ41	VZ01	VZ11	VZ21	VZ31	VZ41	VZ01	VZ11	VZ21	VZ31	VZ41
S37	1					1									
SF37	1					1					1				
SA37	1					1					1				
S47	1	1				1	1								
SF47	1	1				1	1				1	1			
SA47	1	1				1	1				1	1			
S57	1	1				1	1								
SF57	1	1				1	1				1	1			
SA57	1	1				1	1				1	1			
S67		1	1	1		1	1	1	1						
SF67		1	1	1		1	1	1	1			1	1	1	
SA67		1	1	1		1	1	1	1			1	1	1	
S77		1	1	1	1		1	1	1	1					
SF77		1	1	1	1		1	1	1	1		1	1	1	1
SA77		1	1	1	1		1	1	1	1		1	1	1	1
S87			1	1	1			1	1	1					
SF87			1	1	1			1	1	1				1	1
SA87			1	1	1			1	1	1				1	1
S97				1	1				1	1					
SF97				1	1				1	1					1
SA97				1	1				1	1					1

1) Combination possible without restriction

5.4 Key to mounting position sheets

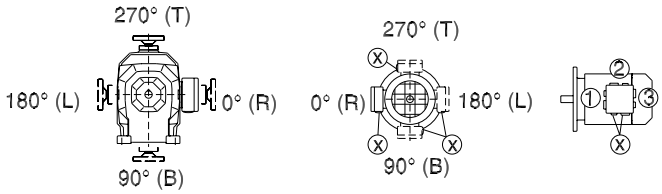
Symbols used

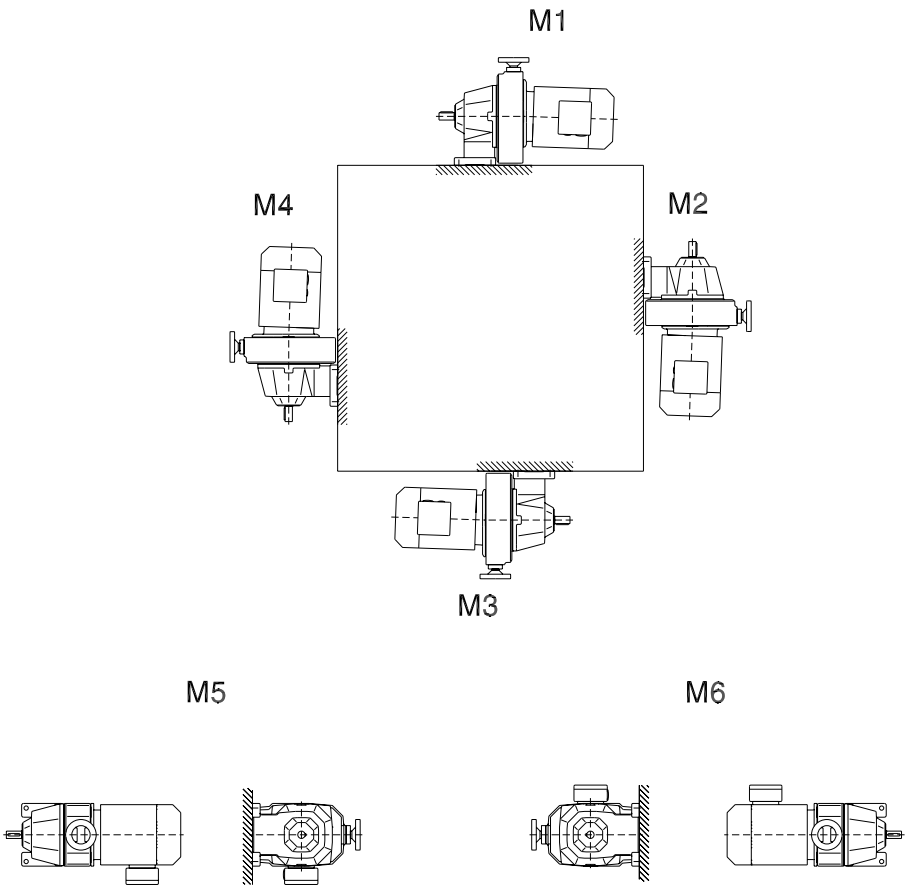
The following table shows the symbols used in the mounting position sheets and their meaning:

Symbol	Meaning
	Breather valve
	Oil level plug
	Oil drain plug
	Cable entry "standard position"

5.5 VARIMOT® D.. variable speed gear units

15 002 01 01





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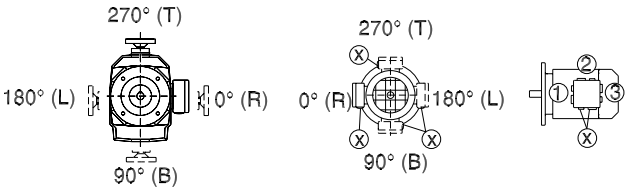
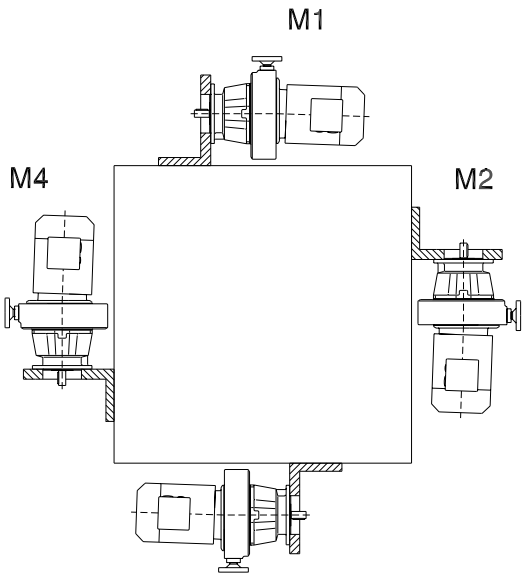
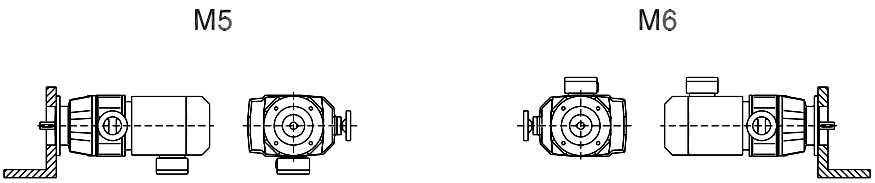
5.6 VARIMOT® DF... variable speed gear units

15 003 01 01







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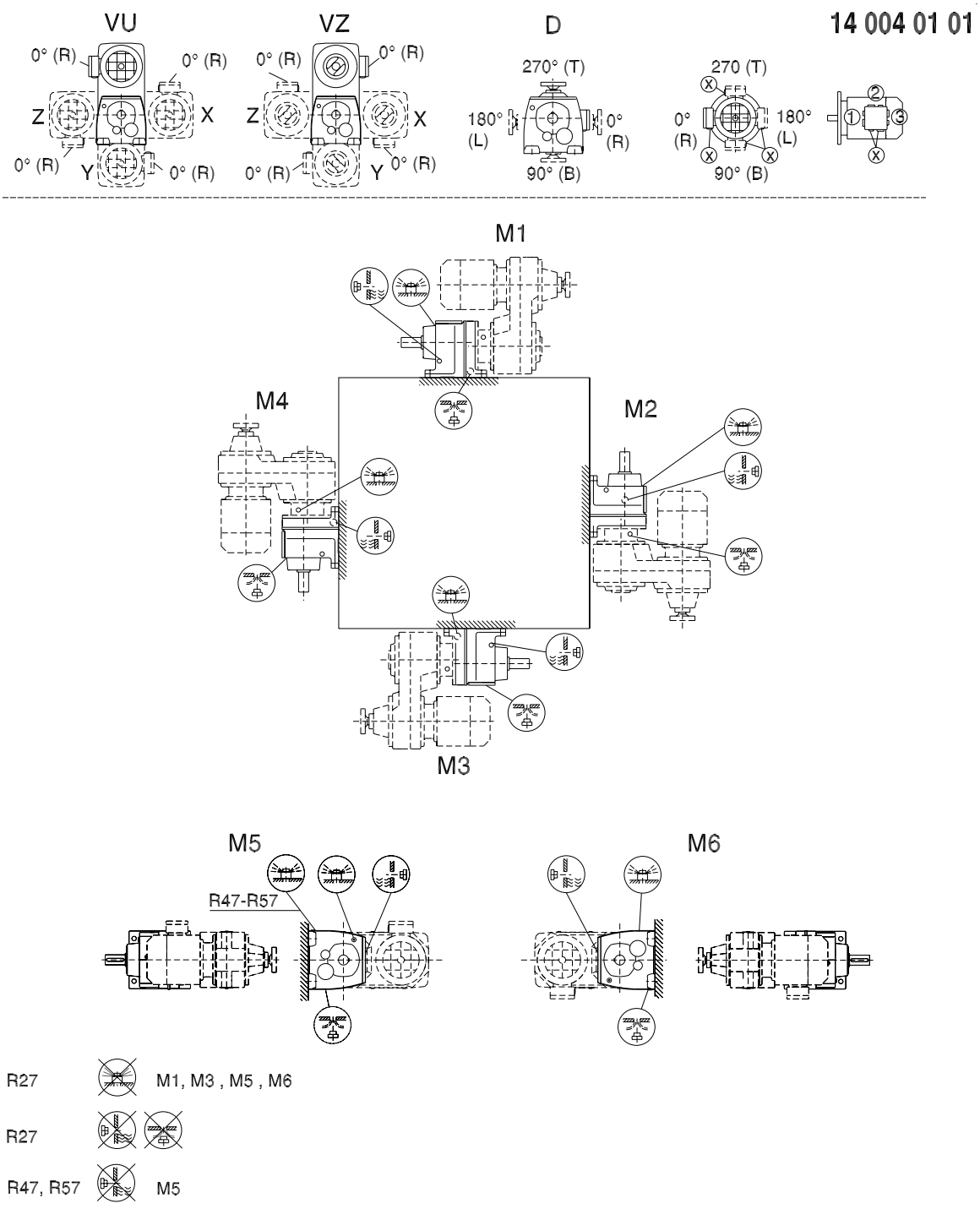
5.7 Variable speed gearmotors with helical gear unit

R27 - R167



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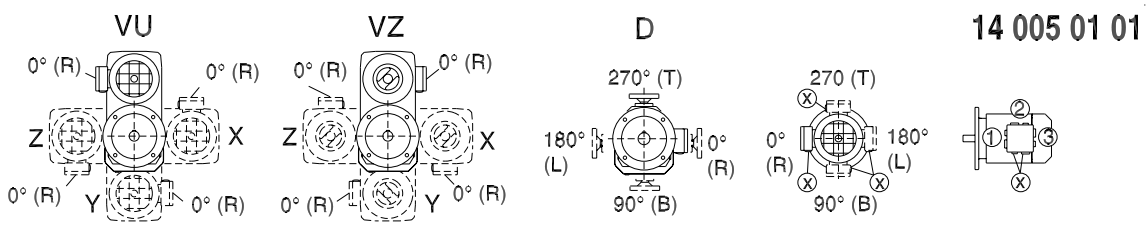
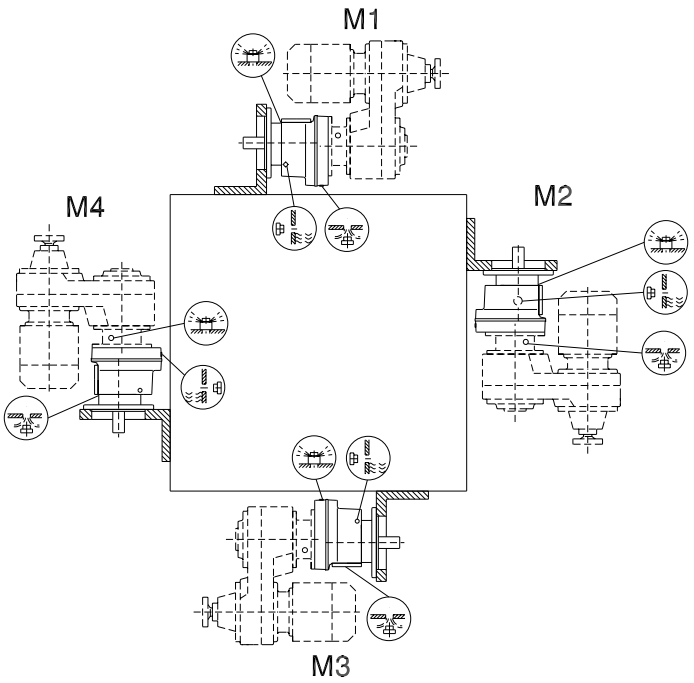
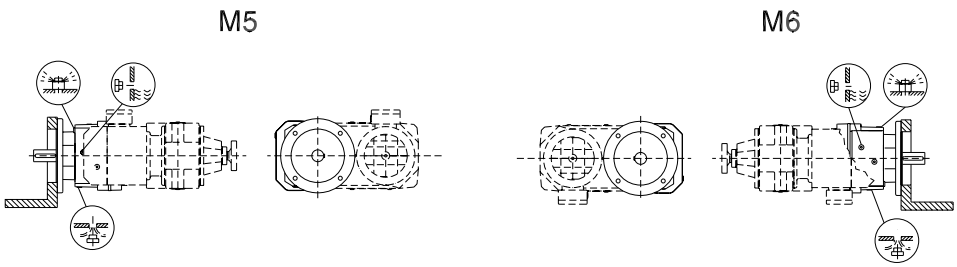
RF27 - RF167







RF27		M1, M3 , M5 , M6
RF27		
RF47, RF57		M5

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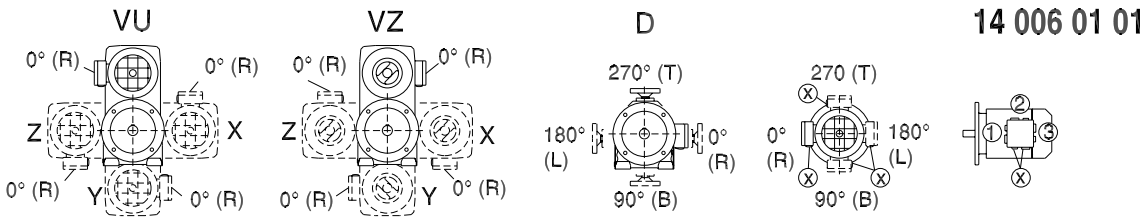
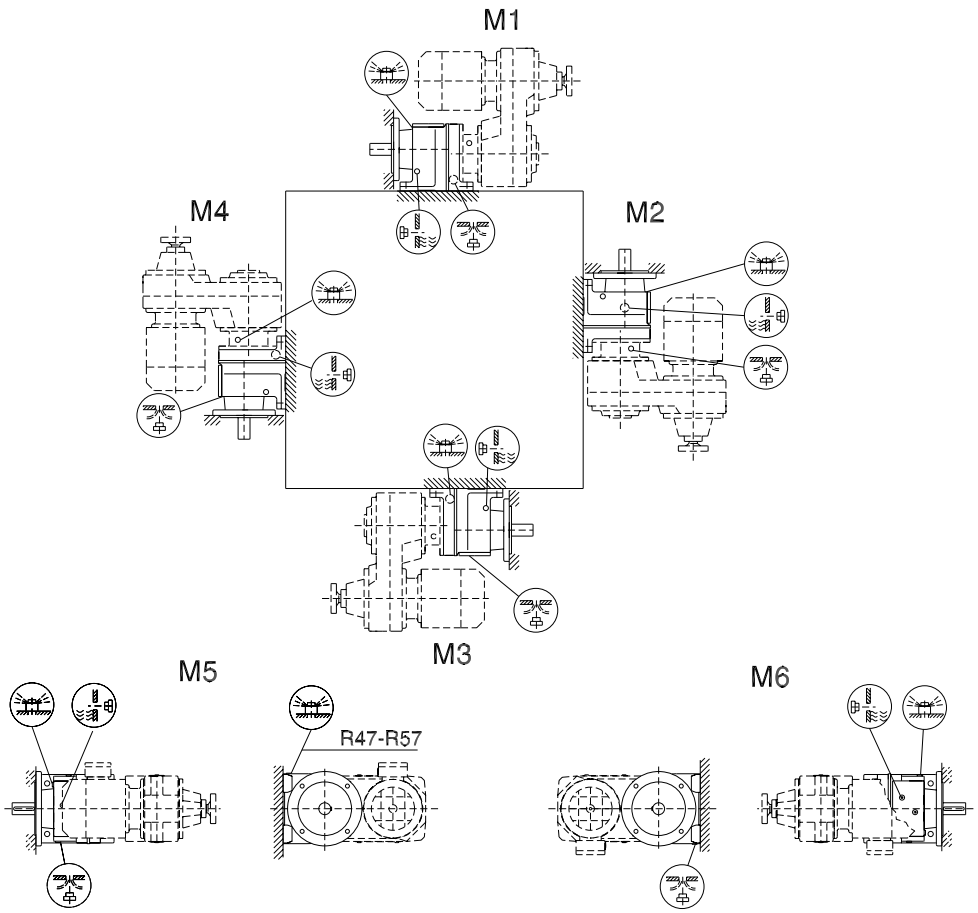
R27F - R87F





R27F		M1, M3 , M5 , M6
R27F		
R47F, R57F		M5

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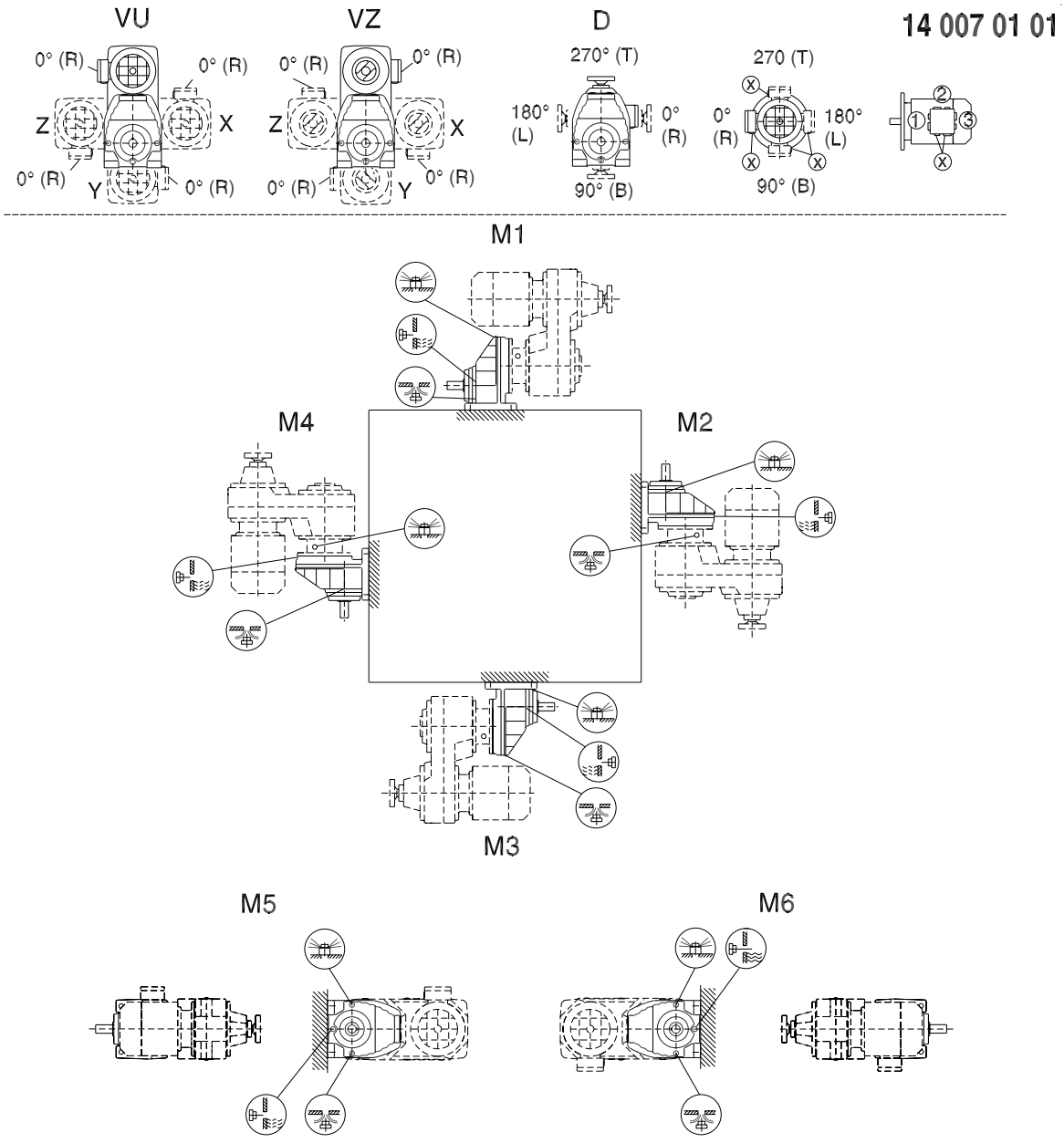
RX57-RX107



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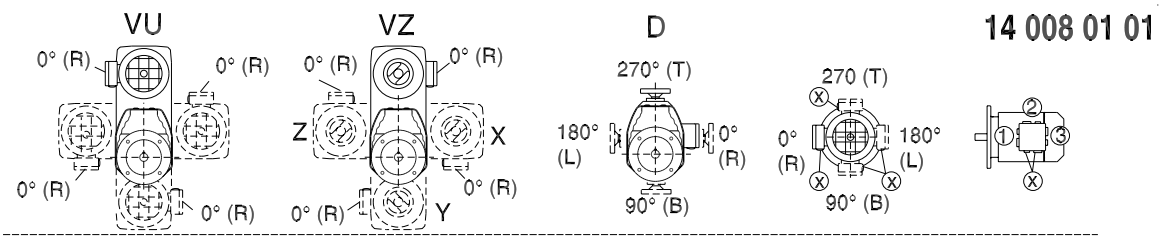
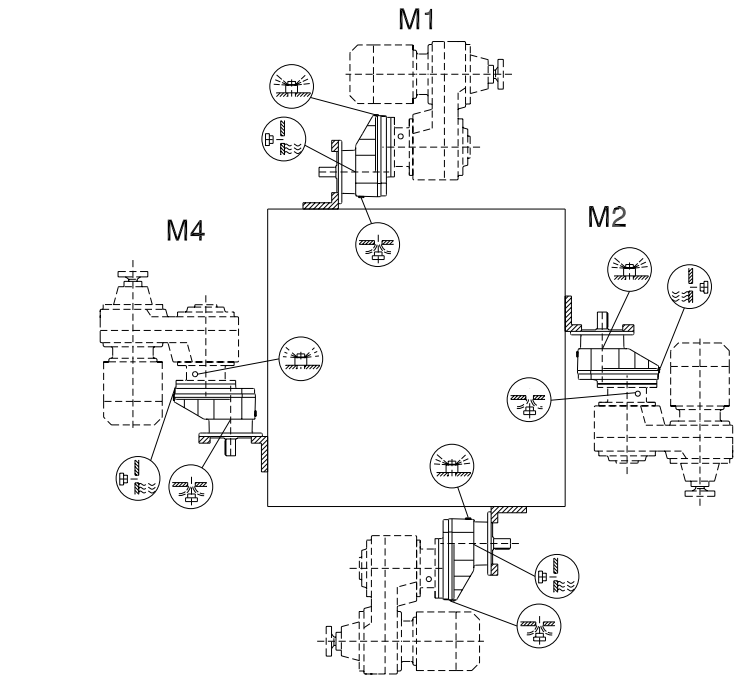
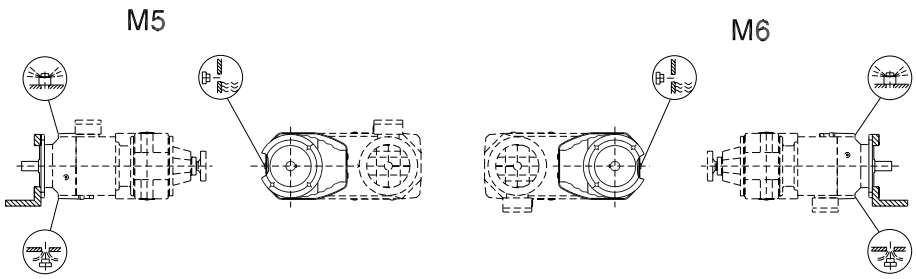
RXF57 - RXF107







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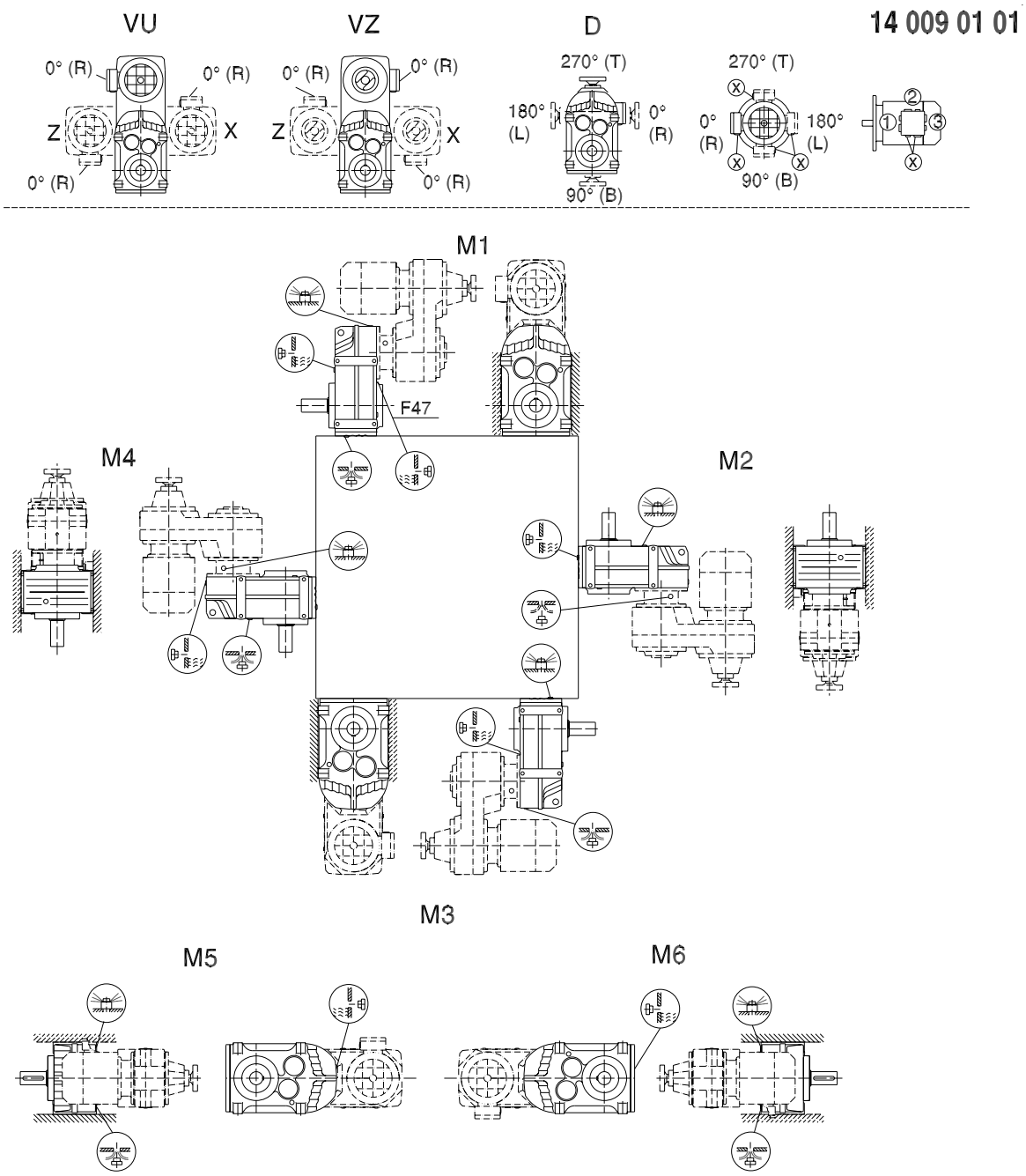
5.8 Variable speed gearmotors with parallel shaft helical gear unit

F/FA..B/FH27B - 157B, FV27B - 107B



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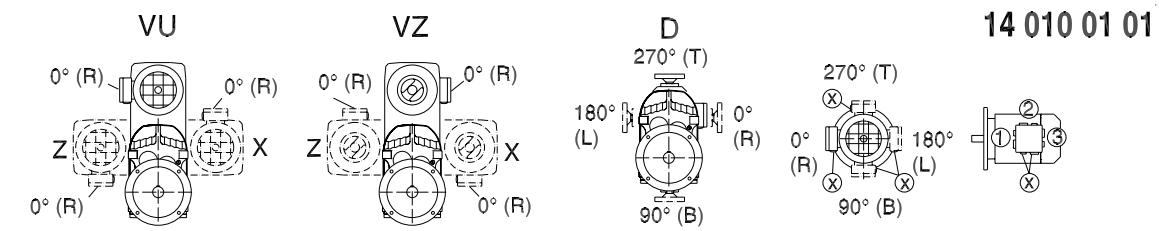
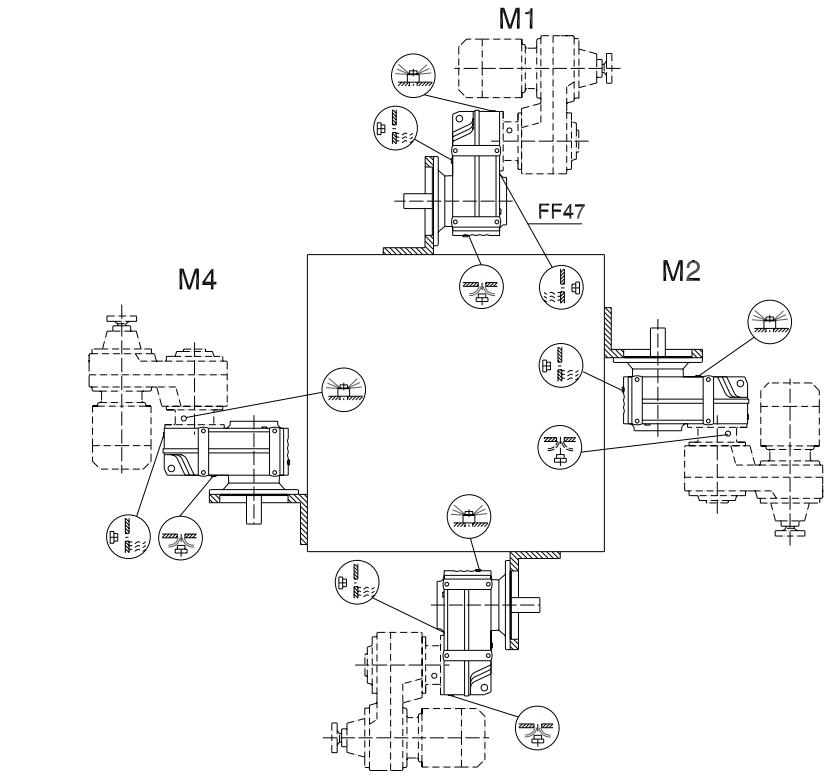
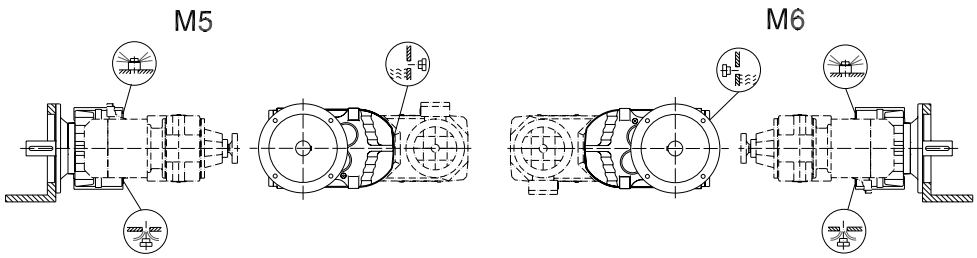
FF/FAF/FHF/FAZ/FHZ27 - 157, FVF/FVZ37 -107







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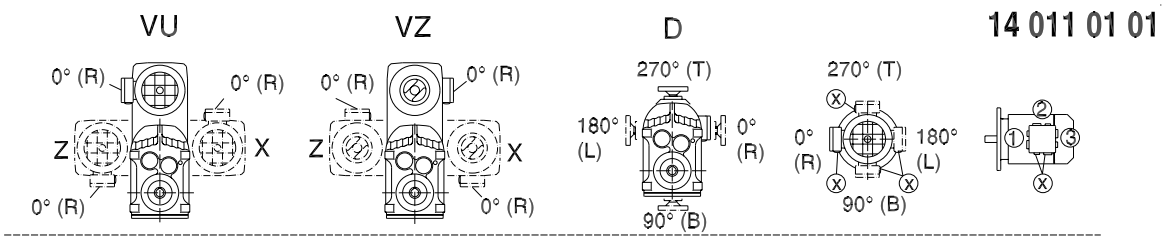
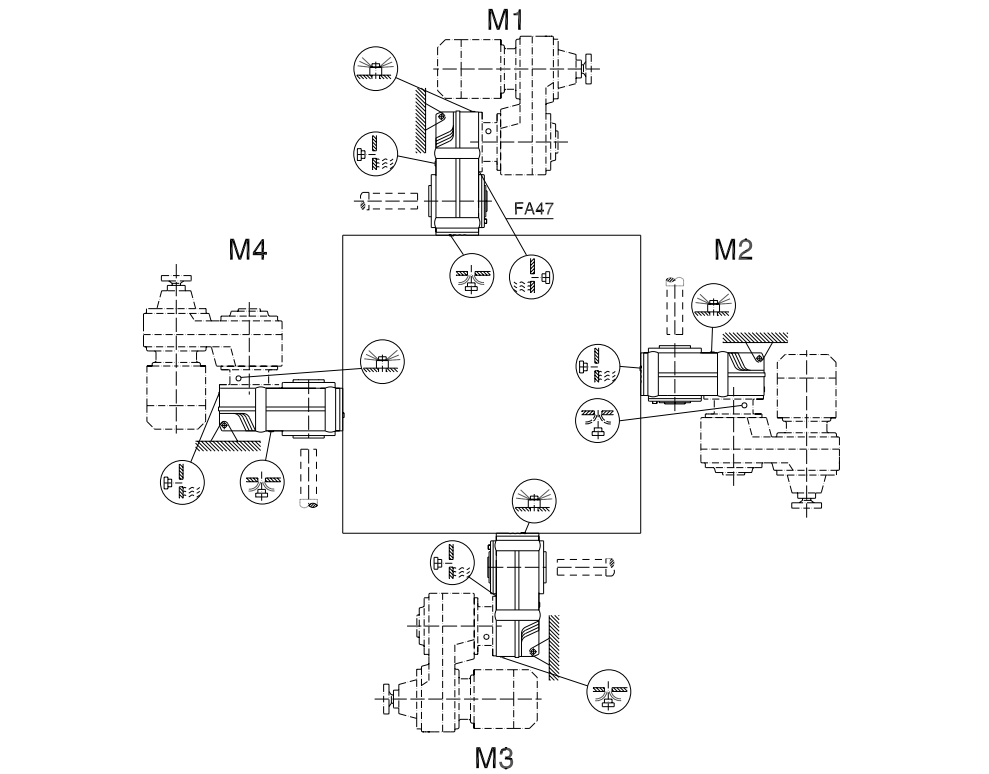
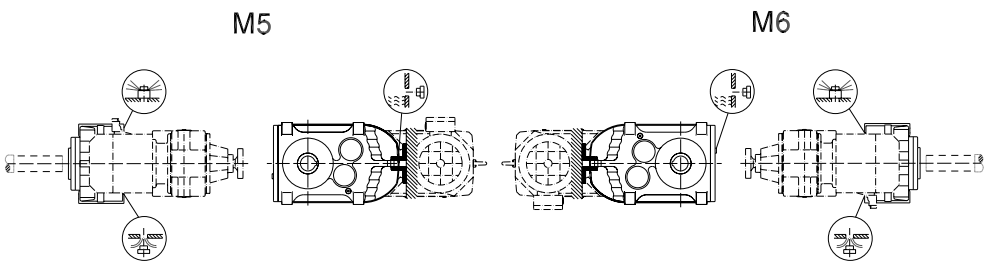
FA/FH27 - 157, FV27 - 107







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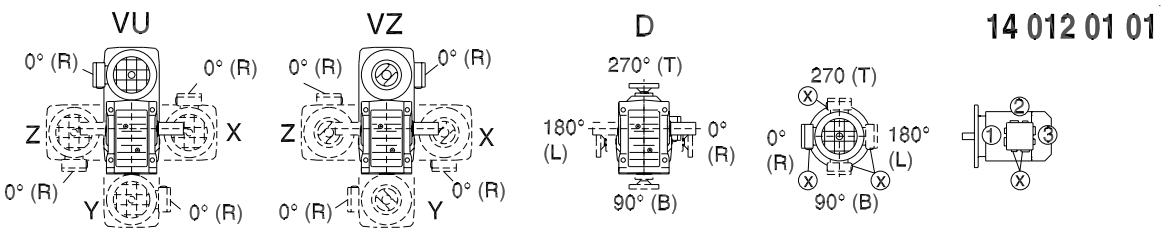
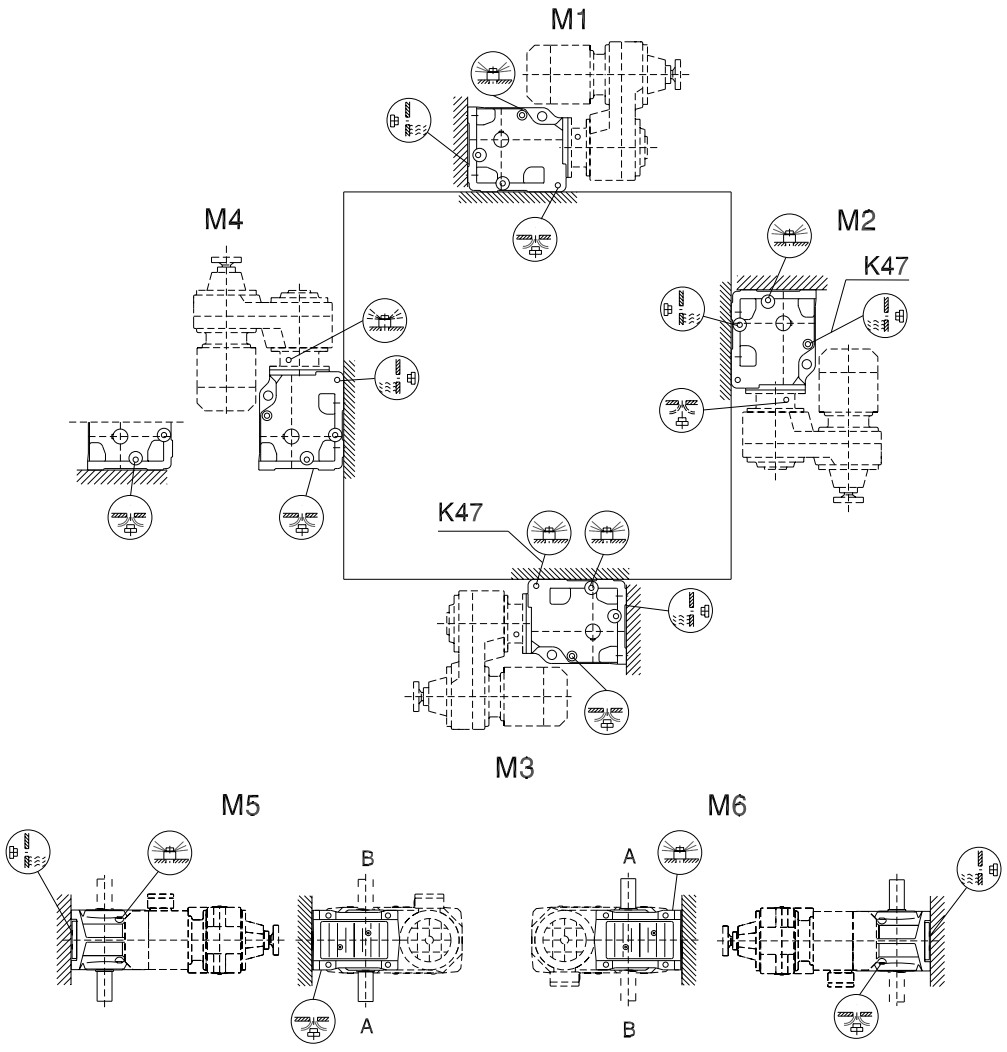
5.9 Variable speed gearmotors with helical-bevel gear unit

K/KA..B/KH37B - 157B, KV37B -107B





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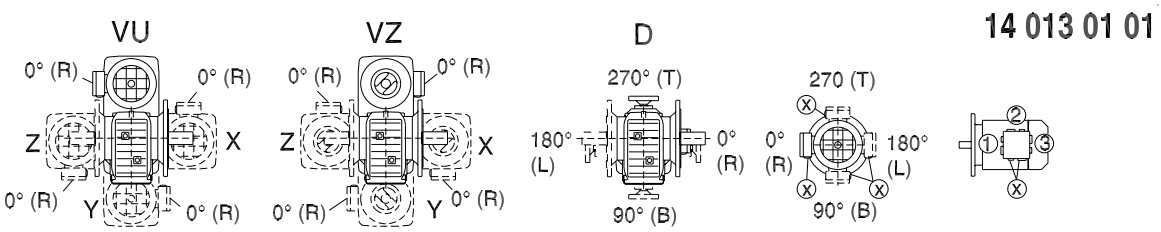
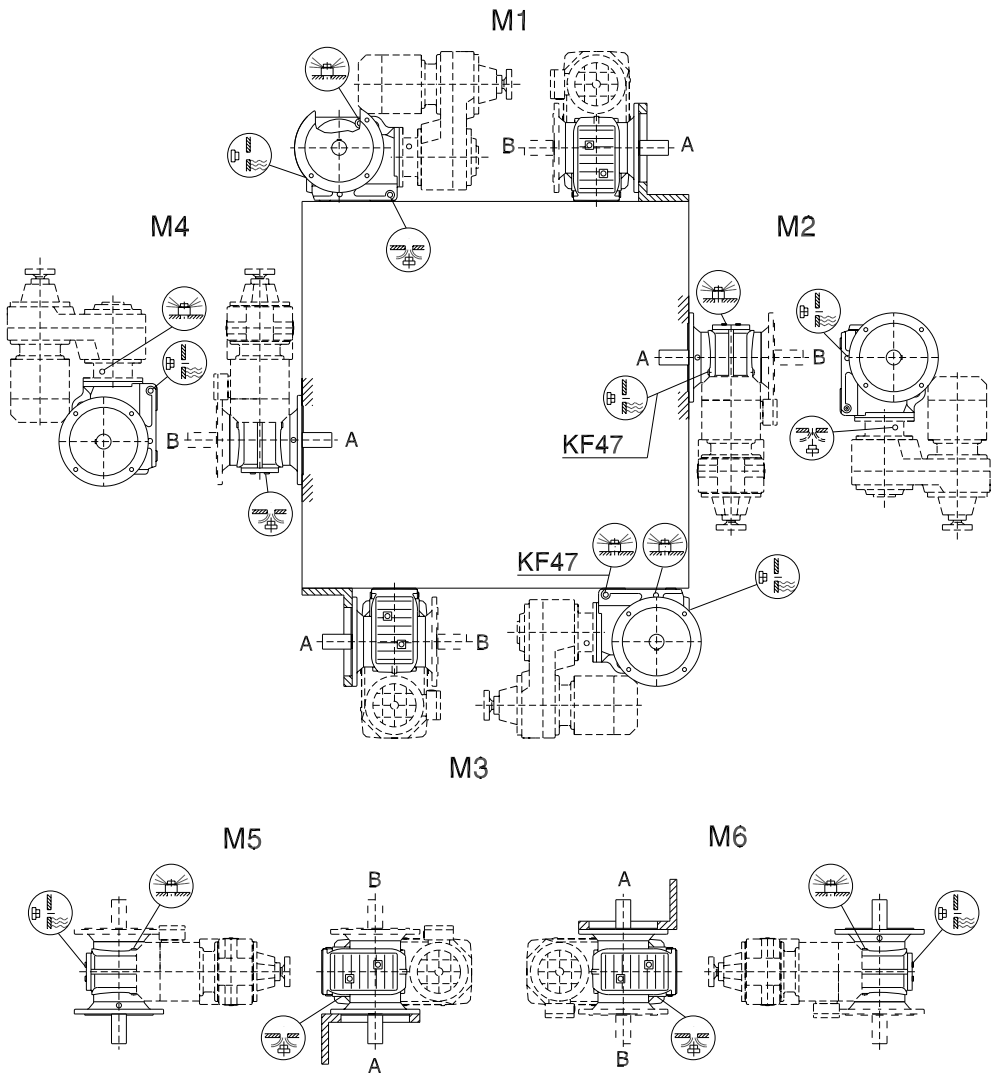
KF/KAF/KHF/KAZ/KHZ37-157, KVF/KVZ37-107





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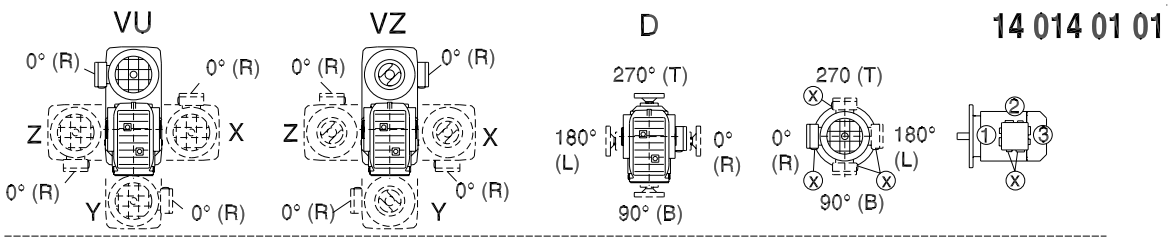
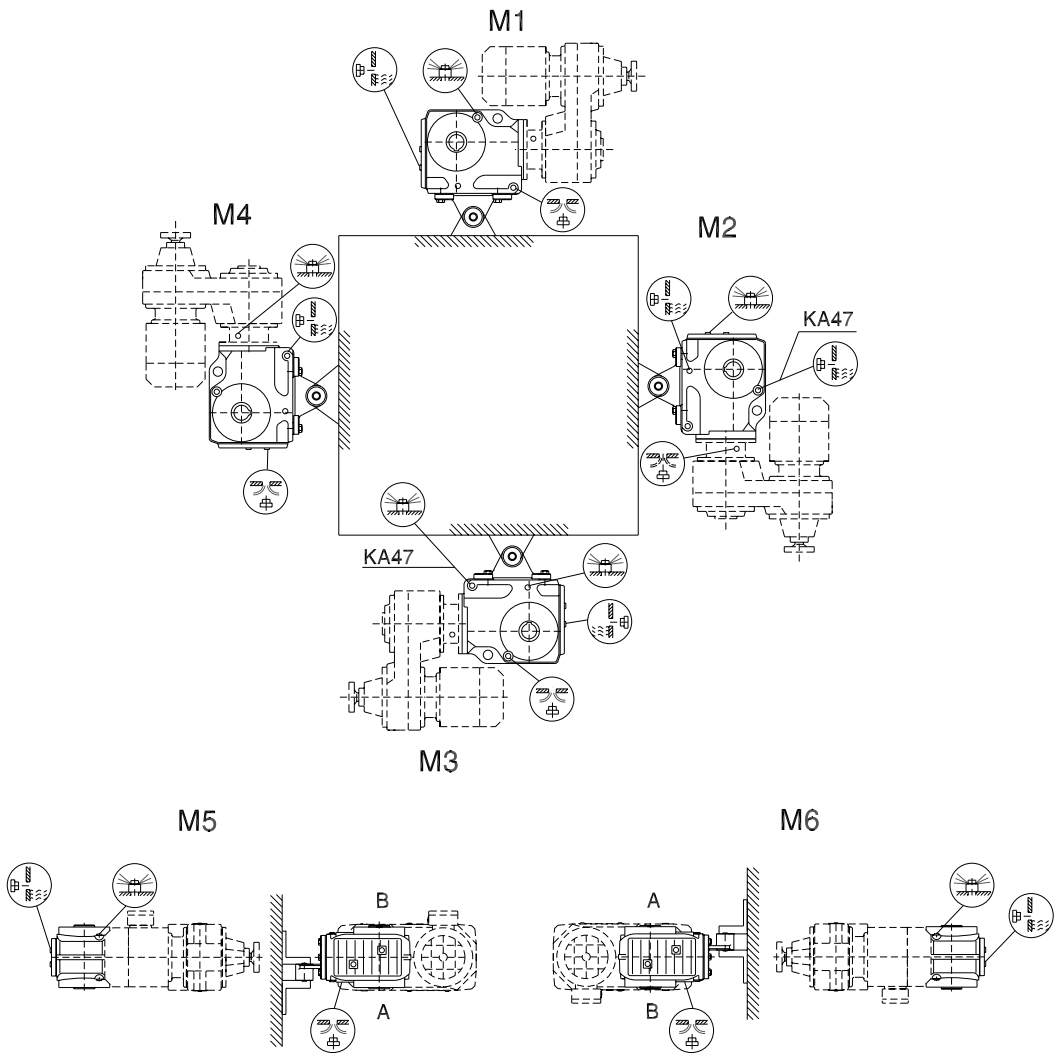
KA/KH37 - 157, KV37 - 107

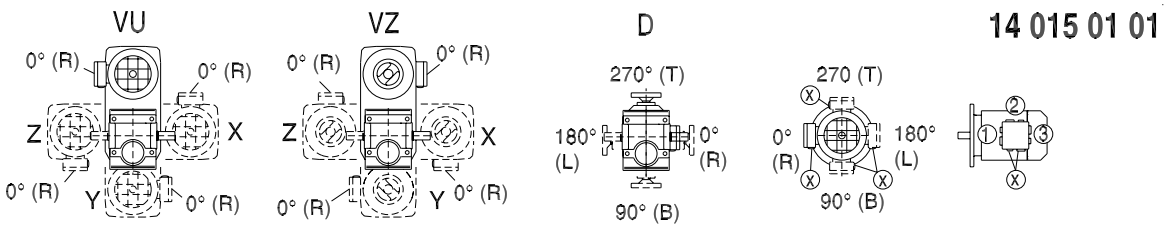


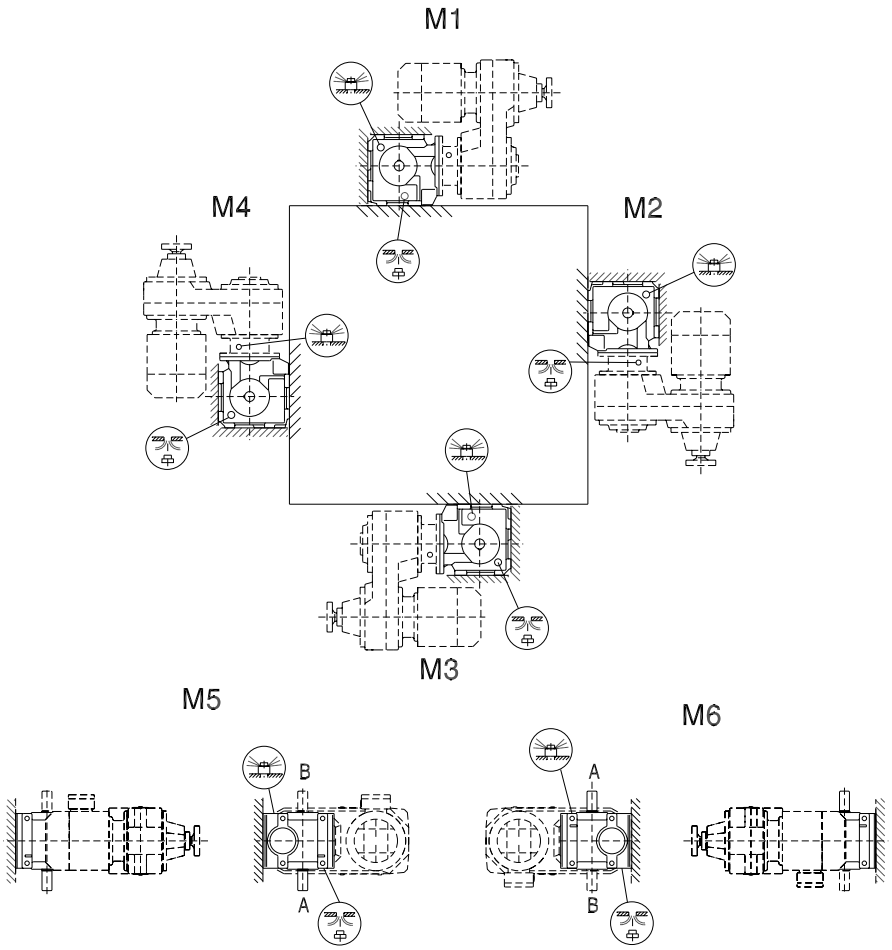


* → page 106

5.10 Variable speed gearmotors with helical-worm gear unit

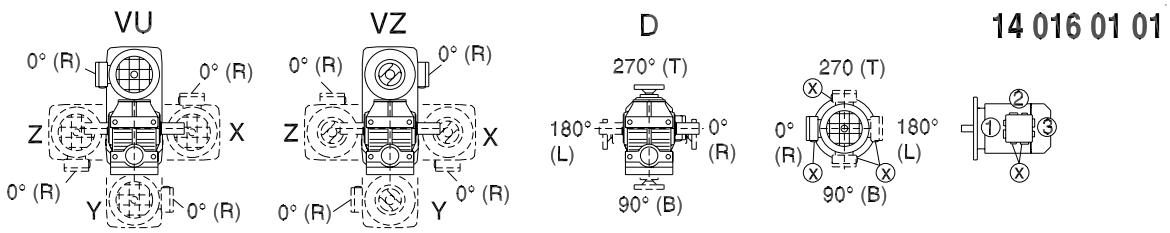
S37

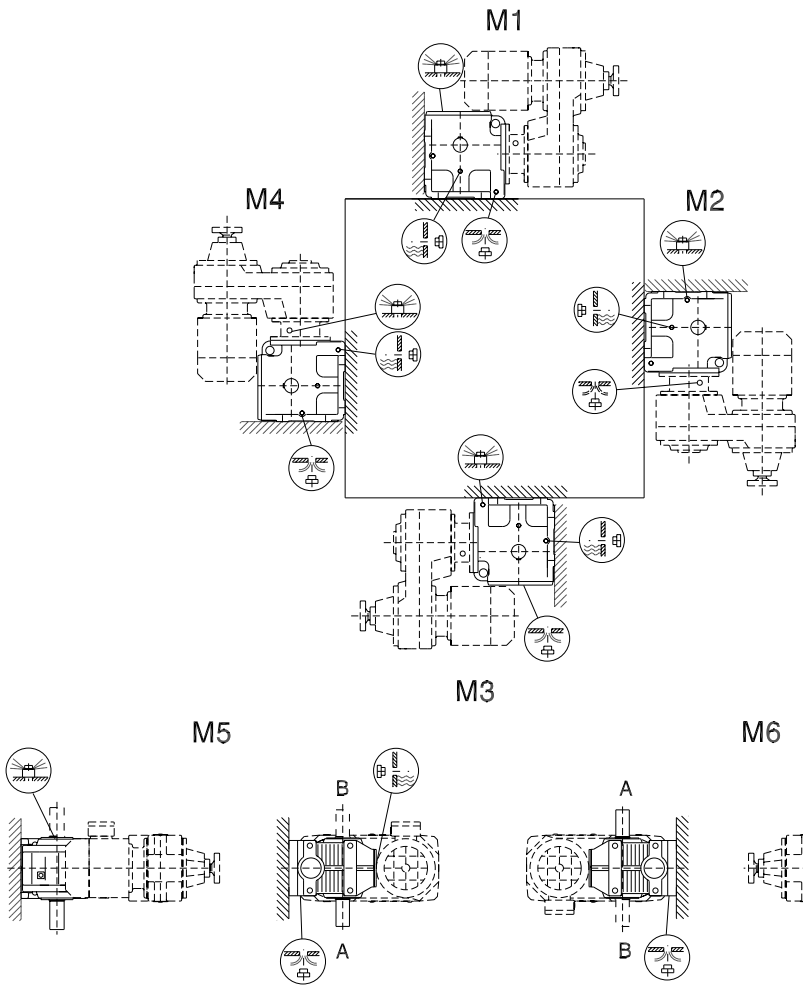




* → page 106

S47 - S97





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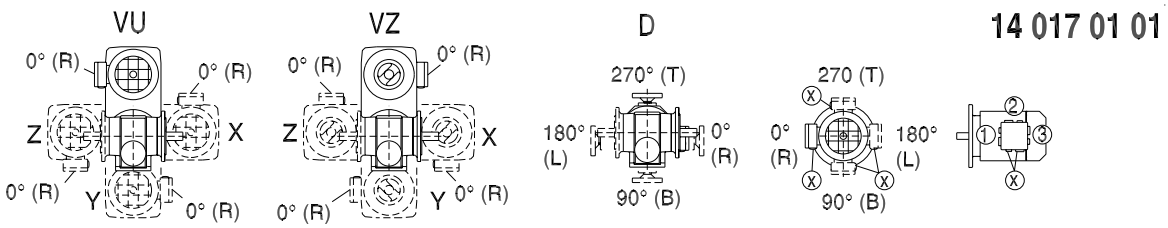
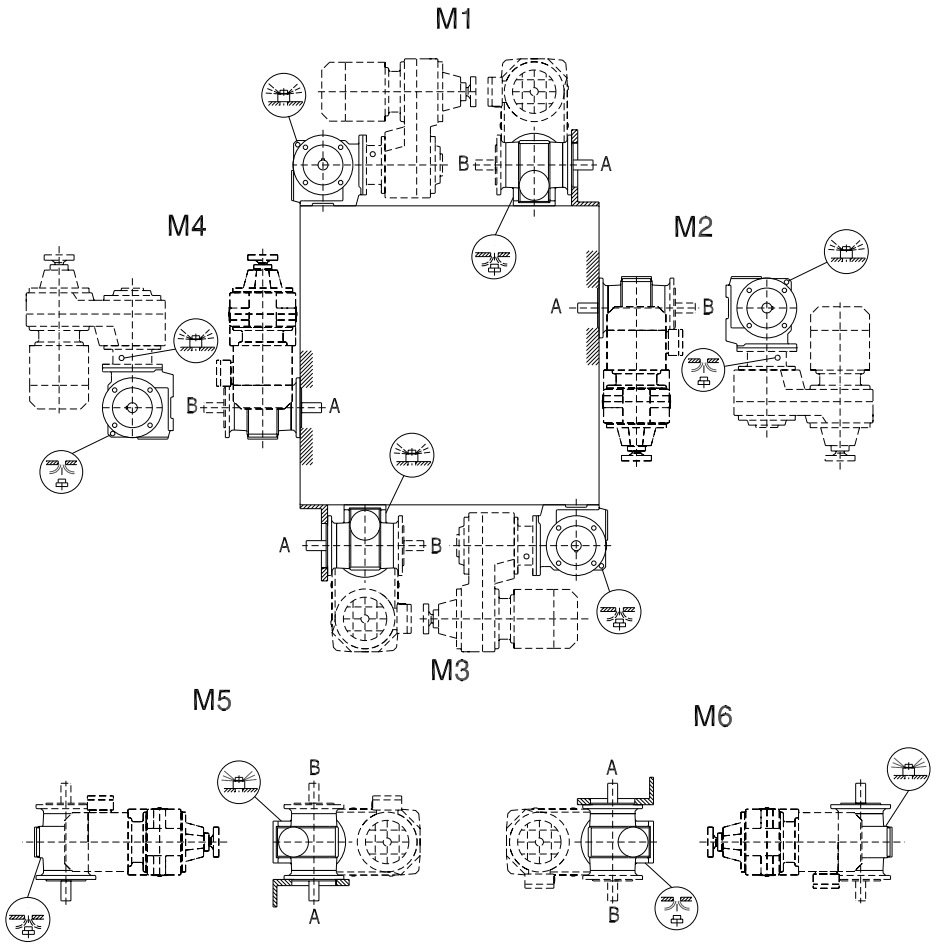
SF/SAF/SHF37





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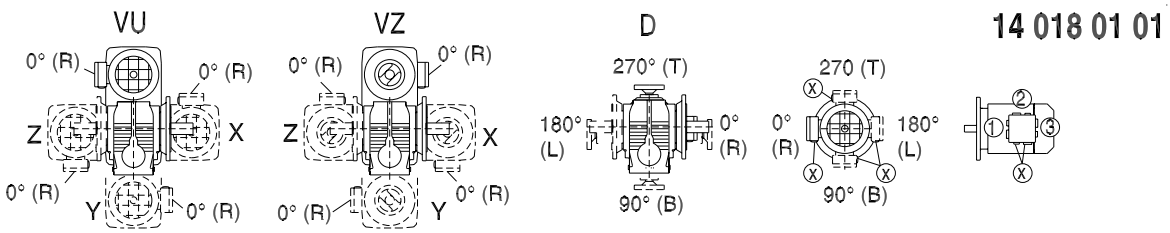
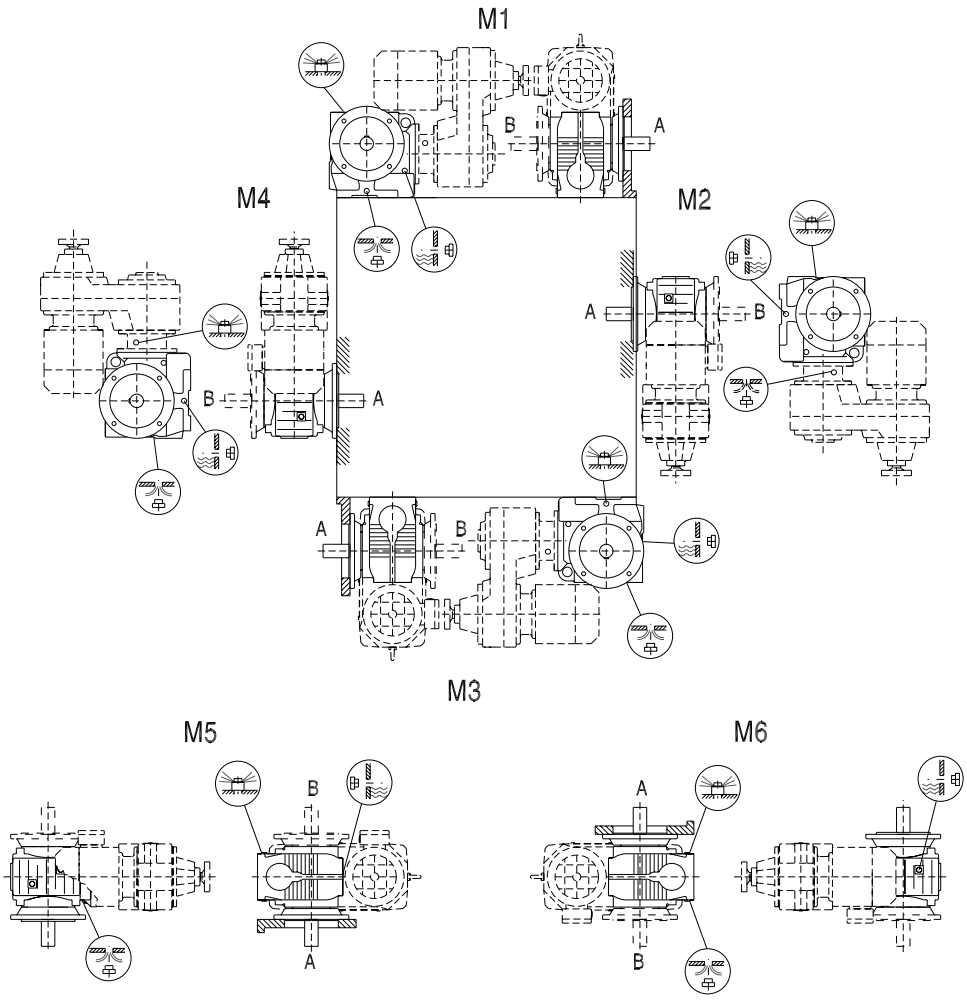
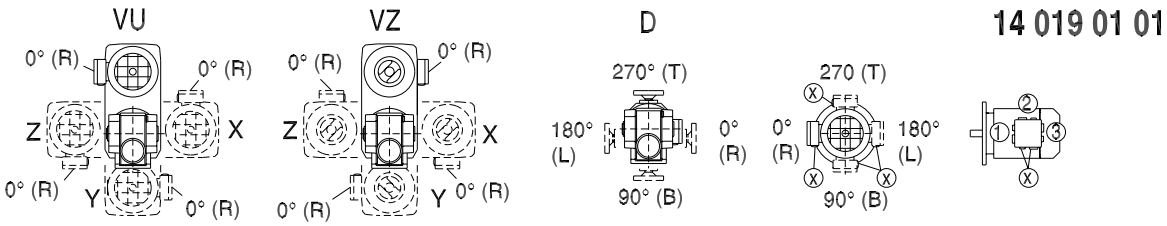
SF/SAF/SHF/SAZ/SHZ47 - 97

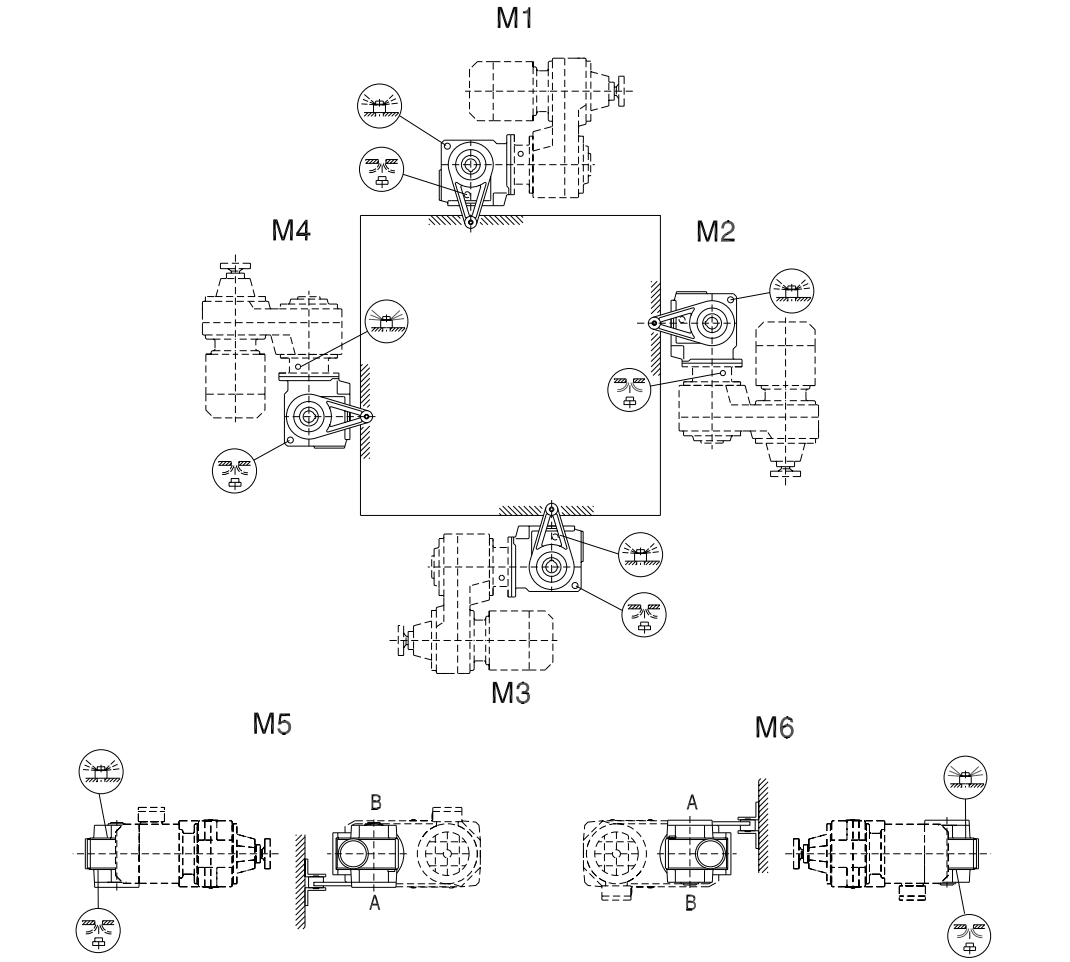




* → page 106

SA/SH37





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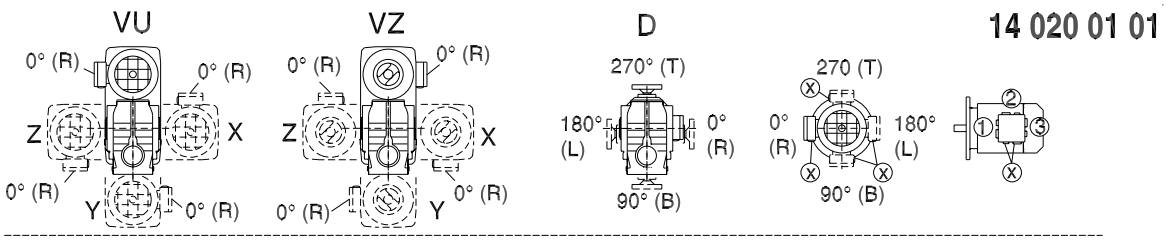
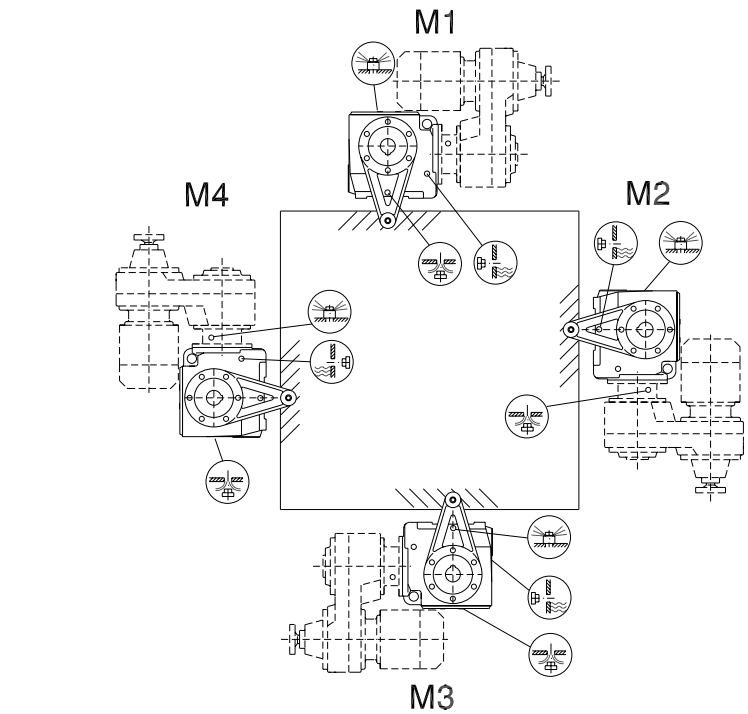
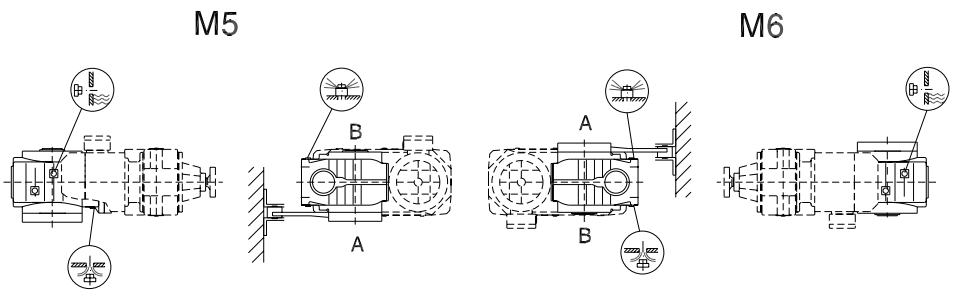
SA/SH47 - 97







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6 Design and Operating Notes

6.1 Lubricants

General information

Unless a special arrangement is made, SEW supplies the drives with a lubricant fill adapted for the specific gear unit and mounting position. The decisive factor is the mounting position (M1...M6, → Sec. "Mounting Positions and Important Order Information") specified when ordering the drive. You must adapt the lubricant fill in case of any subsequent changes made to the mounting position (→ Lubricant fill quantities).

Lubricant table

The lubricant table on the following page shows the permitted lubricants for SEW-EURODRIVE gear units. Please note the following key to the lubricant table.

Key to the lubricant table

Abbreviations used, meaning of shading and notes:

CLP	= Mineral oil
CLP PG	= Polyglycol (W gear units, conforms to USDA-H)
CLP HC	= Synthetic hydrocarbons
E	= Ester oil (water pollution danger category WGK 1)
HCE	= Synthetic hydrocarbons + ester oil (USDA - H1 certification)
HLP	= Hydraulic oil
	= Synthetic lubricant (= synthetic anti-friction bearing grease)
	= Mineral lubricant (= mineral-based anti-friction bearing grease)
1)	Helical-worm gear units with PG oil: Please contact SEW
2)	Special lubricant for Spiroplan® gear units only
3)	Recommendation: Select SEW $f_B \geq 1.2$
4)	Pay attention to critical starting behavior at low temperatures!
5)	Low-viscosity grease
6)	Ambient temperature
	Lubricant for the food industry
	Biodegradable oil (lubricant for use in agriculture, forestry and water resources)

Anti-friction bearing greases

The anti-friction bearings in gear units and motors are given a factory-fill with the greases listed below. SEW-EURODRIVE recommends regreasing anti-friction bearings with a grease fill at the same time as changing the oil.

	Ambient temperature	Manufacturer	Type
Anti-friction bearing in gear unit	-20 °C ... +60 °C	Mobil	Mobilux EP 2
	-40 °C ... +80 °C	Mobil	Mobiltemp SHC 100
Anti-friction bearing in motor	-20 °C ... +80 °C	Esso	Unirex EQ3
	-20 °C ... +60°C	Shell	Alvania RL3
	+80 °C ... +100 °C	Klüber	Barrierta L55/2
	-45 °C ... -25 °C	Shell	Aero Shell Grease 16[1)]
Special greases for anti-friction bearings in gear units:			
	-30 °C ... +40 °C	Aral	Aral Eural Grease EP 2
	-20 °C ... +40 °C	Aral	Aral Aralube BAB EP2

1) Recommended for continuous operation at ambient temperatures below 0 °C, for example in a cold storage.

The following grease quantities are required:

- For fast-running bearings (motor and gear unit input end): Fill the cavities between the rolling elements one third full with grease.
- For slow-running bearings (in gear units and at gear unit output end): Fill the cavities between the rolling elements two thirds full with grease.

6.2 Lubricant table for standard variable speed gearmotors

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	6)	DIN (ISO)	ISO,NLGI	Mobil®	Shell	KLÜBER LUBRICATION	ARAL	bp	Tribol	TEXACO	Optimol	FUCHS
R...	Standard -10 +40	CLP(CC)	VG 220	Mobilgear 630	Shell Omala 220	Klüberoil GEM 1-220	Aral Degol BG 220	BP Energol GR-XP 220	Tribol 1100/220	Meropa 220	Optigear BM 220	Renolin CLP 220
	-25 +80	CLP PG	VG 220	Mobil Glygoyle 30	Shell Tivela S 220	Klübersynth GH 6-220	Aral Degol GS 220	BP Enersyn SG-XP 220	Tribol 800/220	Synlube CLP 220	Optiflex A 220	
K...(HK...)	4) -40 +80	CLP HC	VG 220	Mobil SHC 630	Shell Omala HD 220	Klübersynth EG 4-220	Aral Degol PAS 220		Tribol 1510/220	Pinnacle EP 220	Optigear Synthetic A 220	Renolin Unisyn CLP 220
	4) -40 +40		VG 150	Mobil SHC 629	Shell Omala HD 150	Klübersynth EG 4-150				Pinnacle EP 150		
F...	-20 +25	CLP (CC)	VG 150 VG 100	Mobilgear 627	Shell Omala 100	Klüberoil GEM 1-150	Aral Degol BG 100	BP Energol GR-XP 100	Tribol 1100/100	Meropa 150	Optigear BM 100	Renolin CLP 150
	-30 +10	HLP (HM)	VG 68-46 VG 32	Mobil D.T.E. 13M	Shell Tellus T 32	Klüberoil GEM 1-68	Aral Degol BG 46		Tribol 1100/68	Rando EP Ashless 46	Optigear 32	Renolin CLP 150
	4) -40 +10	CLP HC	VG 32	Mobil SHC 624		Klüber-Summit HySyn FG-32				Cetus PAO 46		Renolin B 46 HVI
	4) -40 -20	HLP (HM)	VG 22 VG 15	Mobil D.T.E. 11M	Shell Tellus T 15	Isoflex MT 30 ROT		BP Energol HLP-HM 15		Rando HDZ 15		
S...(HS...)	Standard 0 +40	CLP (CC)	VG 680	Mobilgear 636	Shell Omala 680	Klüberoil GEM 1-680	Aral Degol BG 680	BP Energol GR-XP 680	Tribol 1100/680	Meropa 680	Optigear BM 680	Renolin CLP 680
	-20 +60	CLP PG	VG 680 1)		Shell Tivela S 680	Klübersynth GH 6-680		BP Enersyn SG-XP 680	Tribol 800/680	Synlube CLP 680		
	4) -30 +80	CLP HC	VG 460	Mobil SHC 634	Shell Omala HD 460	Klübersynth EG 4-460				Pinnacle EP 460		
	4) -40 +10		VG 150	Mobil SHC 629	Shell Omala HD 150	Klübersynth EG 4-150				Pinnacle EP 150		
	-20 +10	CLP (CC)	VG 150 VG 100	Mobilgear 627	Shell Omala 100	Klüberoil GEM 1-150	Aral Degol BG 100	BP Energol GR-XP 100	Tribol 1100/100	Meropa 100	Optigear BM 100	Renolin CLP 150
	-25 +20	CLP PG	VG 220 1)	Mobil Glygoyle 30	Shell Tivela S 220	Klübersynth GH 6-220			Tribol 800/220	Synlube CLP 220	Optiflex A 220	
	4) -40 0	CLP HC	VG 32	Mobil SHC 624		Klüber-Summit HySyn FG-32				Cetus PAO 46		
R...,K...(HK...), F...,S...(HS...)	4) -30 +40	HCE	VG 460		Shell Cassida Fluid GL 460	Klüberoil 4UH1-460 N	Aral Eural Gear 460				Optileb GT 460	
	-20 +40	E	VG 460			Klüberbio CA2-460	Aral Degol BAB 460				Optisynt BS 460	
W...(HW...)	Standard -20 +40	SEW PG	VG 460 2)			Klüber SEW HT-460-5						
	4) -40 +10	API GL5	SAE 75W90 (~VG 100)	Mobilube SHC 75 W90-LS								
	-20 +40	CLP PG	VG 460 3)			Klübersynth UH1 6-460						
R32 R302	-25 +60	DIN 51 818 5)	00	Glygoyle Grease 00	Shell Tivela GL 00	Klübersynth GE 46-1200				Multifak 6833 EP 00		
	Standard -15 +40		000 - 0	Mobilux EP 004	Shell Alvania GL 00		Aralub MFL 00	BP Energrease LS-EP 00		Multifak EP 000	Longtime PD 00	Renolin SF 7 - 041

6.3 Lubricant table for explosion-proof variable speed gearmotors

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	5) °C	DIN (ISO)	ISO,NLGI	Mobil®	Shell	Klüber Lubrication	ARAL	Tribol	TEXACO	Optimol	FUCHS
R...	3) -40 Standard +80	CLP HC	VG 220	Mobil SHC630	Shell Omala 220 HD	Klübersynth EG 4-220	Aral Degol PAS 220	Tribol 1510/220	Pinnacle EP 220	Optigear Synthetic A 220	Renolin Unisyn CLP 220
K...	3) -40 +40	CLP HC	VG 150	Mobil SHC629		Klübersynth EG 4-150			Pinnacle EP 150		
F...	3) -40 +10	CLP HC	VG 32	Mobil SHC 624		Klüber-Summit HySyn FG-32			Cetus PAO 46		
S..	3) -30 Standard +80	CLP HC	VG 460	Mobil SHC 634	Shell Omala 460 HD	Klübersynth EG 4-460			Pinnacle EP 460		
	3) -40 +10	CLP HC	VG 150	Mobil SHC 629		Klübersynth EG 4-150			Pinnacle EP 150		
	3) -40 0	CLP HC	VG 32	Mobil SHC 624		Klüber-Summit HySyn FG-32			Cetus PAO 46		
R...,K... F...,S...	3) -30 +40	HCE	VG 460		Shell Cassida Fluid GL 460	Klüberoil 4UH1-460	4) Aral Eural Gear 460			Optileb GT 460	
	-20 +40	E	VG 460			Klüberbio CA2-460	Aral Degol BAB 460			Optisynt BS 460	
W...	-20 Standard +40	SEW PG	1) VG 460			Klüber SEW HT-460-5					
	-20 +40	CLP PG	2) VG 460			Klübersynth UH1 6-460					

6.4 Lubricant fill quantities for variable speed gearmotors

The specified fill quantities are **recommended values**. The precise values vary depending on the number of stages and gear ratio. When filling, it is essential to check the **oil level plug since it indicates the precise oil capacity**.

The following tables show guide values for lubricant fill quantities in relation to the mounting position M1 ... M6.

Standard and explosion-proof variable speed gearmotors have the same lubricant full quantity.

Helical (R) gear units

RX..

Gear units	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
RX57	0.60	0.80	1.30	1.30	0.90	0.90
RX67	0.80	0.80	1.70	1.90	1.10	1.10
RX77	1.10	1.50	2.60	2.70	1.60	1.60
RX87	1.70	2.50	4.80	4.80	2.90	2.90
RX97	2.10	3.40	7.4	7.0	4.80	4.80
RX107	3.90	5.6	11.6	11.9	7.7	7.7

RXF..

Gear units	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
RXF57	0.50	0.80	1.10	1.10	0.70	0.70
RXF67	0.70	0.80	1.50	1.40	1.00	1.00
RXF77	0.90	1.30	2.40	2.00	1.60	1.60
RXF87	1.60	1.95	4.90	3.95	2.90	2.90
RXF97	2.10	3.70	7.1	6.3	4.80	4.80
RXF107	3.10	5.7	11.2	9.3	7.2	7.2

R.., R..F

Gear units	Fill quantity in liters					
	M1[1)]	M2[1]	M3	M4	M5	M6
R07	0.12	0.20	0.20	0.20	0.20	0.20
R17	0.25	0.55	0.35	0.55	0.35	0.35
R27	0.25/0.40	0.70	0.50	0.70	0.50	0.50
R37	0.30/0.95	0.85	0.95	1.05	0.75	0.95
R47	0.70/1.50	1.60	1.50	1.65	1.50	1.50
R57	0.80/1.70	1.90	1.70	2.10	1.70	1.70
R67	1.10/2.30	2.60/3.50	2.80	3.20	1.80	2.00
R77	1.20/3.00	3.80/4.10	3.60	4.10	2.50	3.40
R87	2.30/6.0	6.7/8.2	7.2	7.7	6.3	6.5
R97	4.60/9.8	11.7/14.0	11.7	13.4	11.3	11.7
R107	6.0/13.7	16.3	16.9	19.2	13.2	15.9
R137	10.0/25.0	28.0	29.5	31.5	25.0	25.0
R147	15.4/40.0	46.5	48.0	52.0	39.5	41.0
R167	27.0/70.0	82.0	78.0	88.0	66.0	69.0

1) The larger gear unit of multi-stage gear units must be filled with the larger oil volume.

Lubricant fill quantities for variable speed gearmotors

RF..

Gear units	Fill quantity in liters					
	M1[1)]	M2[1]	M3	M4	M5	M6
RF07	0.12	0.20	0.20	0.20	0.20	0.20
RF17	0.25	0.55	0.35	0.55	0.35	0.35
RF27	0.25/0.40	0.70	0.50	0.70	0.50	0.50
RF37	0.35/0.95	0.90	0.95	1.05	0.75	0.95
RF47	0.65/1.50	1.60	1.50	1.65	1.50	1.50
RF57	0.80/1.70	1.80	1.70	2.00	1.70	1.70
RF67	1.20/2.50	2.70/3.60	2.70	2.60	1.90	2.10
RF77	1.20/2.60	3.80/4.10	3.30	4.10	2.40	3.00
RF87	2.40/6.0	6.8/7.9	7.1	7.7	6.3	6.4
RF97	5.1/10.2	11.9/14.0	11.2	14.0	11.2	11.8
RF107	6.3/14.9	15.9	17.0	19.2	13.1	15.9
RF137	9.5/25.0	27.0	29.0	32.5	25.0	25.0
RF147	16.4/42.0	47.0	48.0	52.0	42.0	42.0
RF167	26.0/70.0	82.0	78.0	88.0	65.0	71.0

1) The larger gear unit of multi-stage gear units must be filled with the larger oil volume.

Parallel shaft helical (F) gear units

F.., FA..B, FH..B, FV..B

Gear units	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
F..27	0.60	0.80	0.65	0.70	0.60	0.60
F..37	0.95	1.25	0.70	1.25	1.00	1.10
F..47	1.50	1.80	1.10	1.90	1.50	1.70
F..57	2.60	3.50	2.10	3.50	2.80	2.90
F..67	2.70	3.80	1.90	3.80	2.90	3.20
F..77	5.9	7.3	4.30	8.0	6.0	6.3
F..87	10.8	13.0	7.7	13.8	10.8	11.0
F..97	18.5	22.5	12.6	25.2	18.5	20.0
F..107	24.5	32.0	19.5	37.5	27.0	27.0
F..127	40.5	54.5	34.0	61.0	46.3	47.0
F..157	69.0	104.0	63.0	105.0	86.0	78.0

FF..

Gear units	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
FF27	0.60	0.80	0.65	0.70	0.60	0.60
FF37	1.00	1.25	0.70	1.30	1.00	1.10
FF47	1.60	1.85	1.10	1.90	1.50	1.70
FF57	2.80	3.50	2.10	3.70	2.90	3.00
FF67	2.70	3.80	1.90	3.80	2.90	3.20
FF77	5.9	7.3	4.30	8.1	6.0	6.3
FF87	10.8	13.2	7.8	14.1	11.0	11.2
FF97	19.0	22.5	12.6	25.6	18.9	20.5
FF107	25.5	32.0	19.5	38.5	27.5	28.0
FF127	41.5	55.5	34.0	63.0	46.3	49.0
FF157	72.0	105.0	64.0	106.0	87.0	79.0

FA.., FH.., FV.., FAF.., FAZ.., FHF.., FHZ.., FVF.., FVZ.., FT..

Gear units	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
F..27	0.60	0.80	0.65	0.70	0.60	0.60
F..37	0.95	1.25	0.70	1.25	1.00	1.10
F..47	1.50	1.80	1.10	1.90	1.50	1.70
F..57	2.70	3.50	2.10	3.40	2.90	3.00
F..67	2.70	3.80	1.90	3.80	2.90	3.20
F..77	5.9	7.3	4.30	8.0	6.0	6.3
F..87	10.8	13.0	7.7	13.8	10.8	11.0
F..97	18.5	22.5	12.6	25.2	18.5	20.0
F..107	24.5	32.0	19.5	37.5	27.0	27.0
F..127	39.0	54.5	34.0	61.0	45.0	46.5
F..157	68.0	103.0	62.0	104.0	85.0	77.0

Helical-bevel (K) gear units

K.., KA..B, KH..B, KV..B

Gear units	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
K..37	0.50	1.00	1.00	1.25	0.95	0.95
K..47	0.80	1.30	1.50	2.00	1.60	1.60
K..57	1.20	2.30	2.50	2.80	2.60	2.40
K..67	1.10	2.40	2.60	3.45	2.60	2.60
K..77	2.20	4.10	4.40	5.8	4.20	4.40
K..87	3.70	8.0	8.7	10.9	8.0	8.0
K..97	7.0	14.0	15.7	20.0	15.7	15.5
K..107	10.0	21.0	25.5	33.5	24.0	24.0
K..127	21.0	41.5	44.0	54.0	40.0	41.0
K..157	31.0	62.0	65.0	90.0	58.0	62.0
K..167	33.0	95.0	105.0	123.0	85.0	84.0
K..187	53.0	152.0	167.0	200	143.0	143.0

KF..

Gear units	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
KF37	0.50	1.10	1.10	1.50	1.00	1.00
KF47	0.80	1.30	1.70	2.20	1.60	1.60
KF57	1.30	2.30	2.70	3.15	2.90	2.70
KF67	1.10	2.40	2.80	3.70	2.70	2.70
KF77	2.10	4.10	4.40	5.9	4.50	4.50
KF87	3.70	8.2	9.0	11.9	8.4	8.4
KF97	7.0	14.7	17.3	21.5	15.7	16.5
KF107	10.0	21.8	25.8	35.1	25.2	25.2
KF127	21.0	41.5	46.0	55.0	41.0	41.0
KF157	31.0	66.0	69.0	92.0	62.0	62.0

KA.., KH.., KV.., KAF.., KHF.., KVF.., KAZ.., KHZ.., KVZ.., KT..

Gear units	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
K..37	0.50	1.00	1.00	1.40	1.00	1.00
K..47	0.80	1.30	1.60	2.15	1.60	1.60
K..57	1.30	2.30	2.70	3.15	2.90	2.70
K..67	1.10	2.40	2.70	3.70	2.60	2.60

Gear units	Fill quantity in liters					
	M1	M2	M3	M4	M5	M6
K..77	2.10	4.10	4.60	5.9	4.40	4.40
K..87	3.70	8.2	8.8	11.1	8.0	8.0
K..97	7.0	14.7	15.7	20.0	15.7	15.7
K..107	10.0	20.5	24.0	32.4	24.0	24.0
K..127	21.0	41.5	43.0	52.0	40.0	40.0
K..157	31.0	66.0	67.0	87.0	62.0	62.0
K..167	33.0	95.0	105.0	123.0	85.0	84.0
K..187	53.0	152.0	167.0	200	143.0	143.0

Helical-worm (S) gear units

S..

Gear units	Fill quantity in liters					
	M1	M2	M3 [1]	M4	M5	M6
S..37	0.25	0.40	0.50	0.55	0.40	0.40
S..47	0.35	0.80	0.70/0.90	1.00	0.80	0.80
S..57	0.50	1.20	1.00/1.20	1.45	1.30	1.30
S..67	1.00	2.00	2.20/3.10	3.10	2.60	2.60
S..77	1.90	4.20	3.70/5.4	5.9	4.40	4.40
S..87	3.30	8.1	6.9/10.4	11.3	8.4	8.4
S..97	6.8	15.0	13.4/18.0	21.8	17.0	17.0

1) The larger gear unit of multi-stage gear units must be filled with the larger oil volume.

SF..

Gear units	Fill quantity in liters					
	M1	M2	M3 [1]	M4	M5	M6
SF37	0.25	0.40	0.50	0.55	0.40	0.40
SF47	0.40	0.90	0.90/1.05	1.05	1.00	1.00
SF57	0.50	1.20	1.00/1.50	1.55	1.40	1.40
SF67	1.00	2.20	2.30/3.00	3.20	2.70	2.70
SF77	1.90	4.10	3.90/5.8	6.5	4.90	4.90
SF87	3.80	8.0	7.1/10.1	12.0	9.1	9.1
SF97	7.4	15.0	13.8/18.8	22.6	18.0	18.0

1) The larger gear unit of multi-stage gear units must be filled with the larger oil volume.

SA.., SH.., SAF.., SHZ.., SAZ.., SHF.., ST..

Gear units	Fill quantity in liters					
	M1	M2	M3 [1]	M4	M5	M6
S..37	0.25	0.40	0.50	0.50	0.40	0.40
S..47	0.40	0.80	0.70/0.90	1.00	0.80	0.80
S..57	0.50	1.10	1.00/1.50	1.50	1.20	1.20
S..67	1.00	2.00	1.80/2.60	2.90	2.50	2.50
S..77	1.80	3.90	3.60/5.0	5.8	4.50	4.50
S..87	3.80	7.4	6.0/8.7	10.8	8.0	8.0
S..97	7.0	14.0	11.4/16.0	20.5	15.7	15.7

1) The larger gear unit of multi-stage gear units must be filled with the larger oil volume.

6.5 Installation/removal of gear units with hollow shafts and keys

- Always use the supplied NOCO® fluid for installation. The fluid prevents contact corrosion and facilitates subsequent removal.
- The key dimension X is defined by the customer, however X must be > DK.

Assembly

SEW-EURODRIVE recommends two variants for installation of gear units with hollow shaft and key onto the input shaft of the driven machine (= customer shaft):

1. Use the supplied fastening parts for installation.
2. Use the optional installation/removal kit for installation.

1. Supplied fastening parts

The following fastening parts are supplied as standard:

- Retaining screw with washer [2]
- Circlip [3]

Customer shaft

- The installation length of the customer shaft with contact shoulder [A] must be L8 - 1 mm.
- The installation length of the customer shaft without contact shoulder [B] must equal L8.

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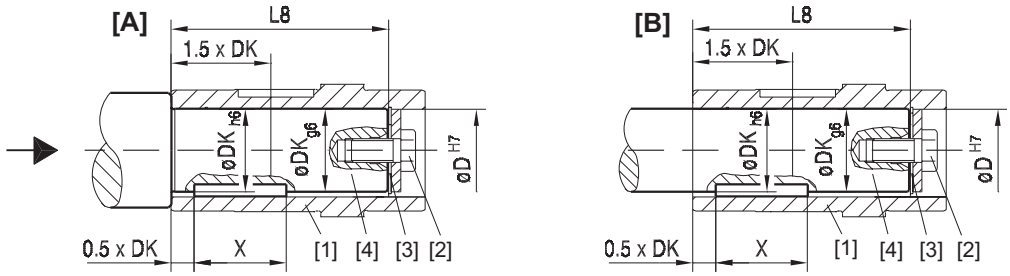

Figure 10: Customer shaft with contact shoulder [A] and without contact shoulder [B]

[1] Hollow shaft
[2] Retaining screw with washer
[3] Circlip
[4] Customer shaft

Dimensions and tightening torque

The retaining screw [2] must be tightened to the tightening torque MS given in the following table.

Gear unit type	D^{H7} [mm]	DK [mm]	L8 [mm]	MS [Nm]
SA..37	20	20	84, 106, 104	8
FA..27, SA..47	25	25	88, 105	20
FA..37, KA..37, SA..47 SA..57	30	30	105 132	20
FA..47, KA..47, SA..57	35	35	132	20
FA..57, KA..57 FA..67, KA..67 SA..67	40	40	142 156 144	40
SA..67	45	45	144	40
FA..77, KA..77, SA..77	50	50	183	40
FA..87, KA..87 SA..77, SA..87	60	60	210 180, 220	80
FA..97, KA..97 SA..87, SA..97	70	70	270 220, 260	80
FA..107, KA..107, SA..97	90	90	313, 313, 255	200
FA..127, KA..127	100	100	373	200
FA..157, KA..157	120	120	460	200

2. Assembly/ disassembly kit

You can also use the optional installation/removal kit for installation. You order the kit for the specific gear unit type(s) by quoting the part numbers in the table below. The scope of delivery includes:

- Spacer tube for installation without contact shoulder [5]
- Retaining screw for installation [2]
- Forcing washer for removal [7]
- Locked nut for removal [8]

The short retaining screw supplied as standard is not used.

Customer shaft

- The installation length of the customer shaft must be LK2. Do not use the spacer if the customer shaft **has a contact shoulder [A]**.
- The installation length of the customer shaft must be LK2. Use the spacer if the customer shaft **has a contact shoulder [B]**.

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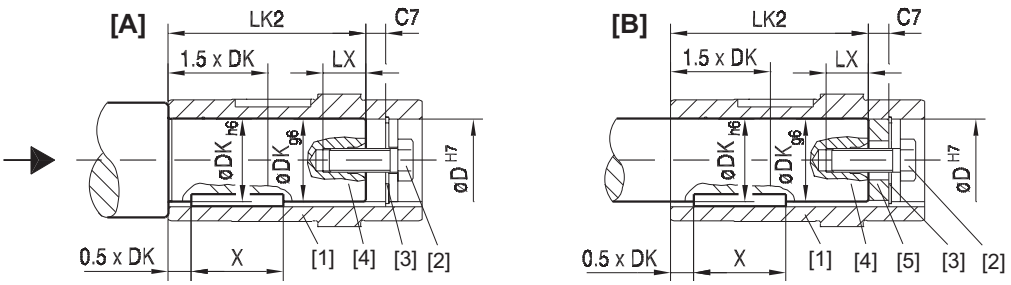

Figure 11: Customer shaft with contact shoulder [A] and without contact shoulder [B]

[1] Hollow shaft
[2] Retaining screw with washer
[3] Circlip
[4] Customer shaft
[5] Distance piece

Dimensions, tightening torques and part numbers

The retaining screw [2] must be tightened to the tightening torque MS given in the following table.

Type	D^{H7} [mm]	DK [mm]	LK2 [mm]	LX^{+2} [mm]	C7 [mm]	MS [Nm]	Part number installation/ removal kit
SA..37	20	20	72, 93 92	16	12	8	643 683 8
FA..27, SA..47	25	25	72, 89	22	16	20	643 684 6
FA..37, KA..37 SA..47, SA..57	30	30	89 89, 116	22	16	20	643 685 4
FA..47, KA..47, SA..57	35	35	114	28	18	20	643 686 2
FA..57, KA..57 FA..67, KA..67, SA..67	40	40	124 138, 138, 126	36	18	40	643 687 0
SA..67	45	45	126	36	18	40	643 688 9
FA..77, KA..77, SA..77	50	50	165	36	18	40	643 689 7
FA..87, KA..87 SA..77, SA..87	60	60	188 158, 198	42	22	80	643 690 0
FA..97, KA..97 SA..87, SA..97	70	70	248 198, 238	42	22	80	643 691 9
FA..107, KA..107 SA..97	90	90	287 229	50	26	200	643 692 7
FA..127, KA..127	100	100	347	50	26	200	643 693 5
FA..157, KA..157	120	120	434	50	26	200	643 694 3

Removal

Applies only if installation/removal kit was previously used for assembly (→ Fig. 11).

Proceed as follows for removal:

1. Loosen the retaining screw [6].
2. Remove the circlip [3] and, if used, the spacer tube [5].
3. Place the forcing washer [7] and the locked nut [8] between the customer shaft [4] and circlip [3] according to figure 11.
4. Re-install the circlip [3].
5. Re-install the retaining screw [6]. You can now push the gear unit off the shaft.

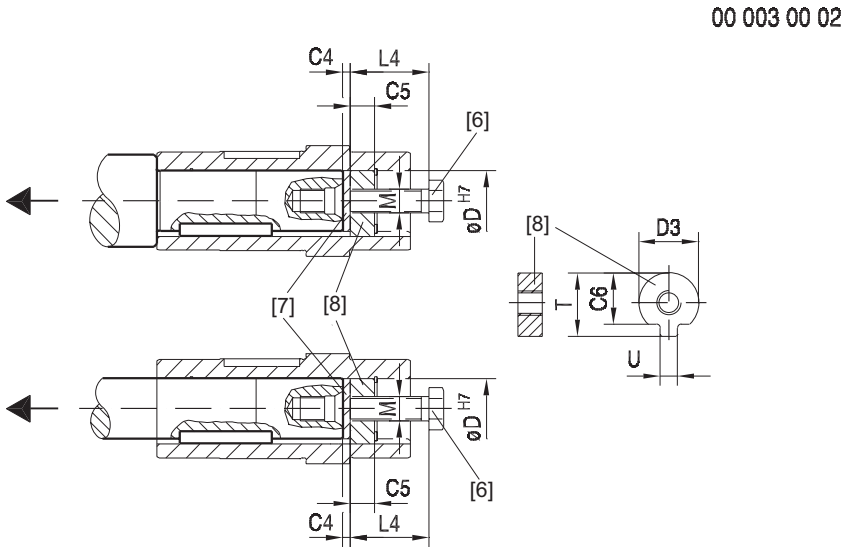

Figure 12: Removal

[6] Retaining bolt
[7] Forcing washer
[8] Locked nut for removal

Type	D^{H7} [mm]	M	C4 [mm]	C5 [mm]	C6 [mm]	$U^{-0.5}$ [mm]	$T^{-0.5}$ [mm]	$D3^{-0.5}$ [mm]	L4 [mm]	Part number installation/removal kit
SA..37	20	M6	5	6	15.5	5.5	22.5	19.7	25	643 683 8
FA27.., SA..47	25	M10	5	10	20	7.5	28	24.7	35	643 684 6
FA..37, KA..37, SA..47, SA..57	30	M10	5	10	25	7.5	33	29.7	35	643 685 4
FA..47, KA..47, SA..57	35	M12	5	12	29	9.5	38	34.7	45	643 686 2
FA..57, KA..57, FA..67, KA..67, SA..67	40	M16	5	12	34	11.5	41.9	39.7	50	643 687 0
SA..67	45	M16	5	12	38.5	13.5	48.5	44.7	50	643 688 9
FA..77, KA..77, SA..77	50	M16	5	12	43.5	13.5	53.5	49.7	50	643 689 7
FA..87, KA..87, SA..77, SA..87	60	M20	5	16	56	17.5	64	59.7	60	643 690 0
FA..97, KA..97, SA..87, SA..97	70	M20	5	16	65.5	19.5	74.5	69.7	60	643 691 9
FA..107, KA..107, SA..97	90	M24	5	20	80	24.5	95	89.7	70	643 692 7
FA..127, KA..127	100	M24	5	20	89	27.5	106	99.7	70	643 693 5
FA..157, KA..157	120	M24	5	20	107	31	127	119.7	70	643 694 3

6.6 Gear units with hollow shaft

Chamfers on hollow shafts

The following illustration shows the chamfers on parallel shaft helical and helical-bevel gear units with hollow shaft:

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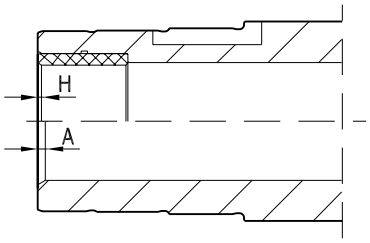

Figure 13: Chamfers on hollow shafts

Gear units	Version	
	with hollow shaft (A)	with hollow shaft and shrink disc (H)
F..27	2 × 30°	0.5 × 45°
F../K..37	2 × 30°	0.5 × 45°
F../K..47	2 × 30°	0.5 × 45°
F../K..57	2 × 30°	0.5 × 45°
F../K..67	2 × 30°	0.5 × 45°
F../K..77	2 × 30°	0.5 × 45°
F../K..87	3 × 30°	0.5 × 45°
F../K..97	3 × 30°	0.5 × 45°
F../K..107	3 × 30°	3 × 2°
F../K..127	5 × 30°	1.5 × 30°
F../K..157	5 × 30°	1.5 × 30°
KH167	-	1.5 × 30°
KH187	-	1.5 × 30°

Special motor/ gear unit combinations

Please note for parallel shaft helical gearmotors with hollow shaft (FA..B, FV..B, FH..B, FAF, FVF, FHF, FA, FV, FH, FT, FAZ, FVZ, FHZ):

- If you are using a customer shaft pushed through on the motor end, there may be a collision when a "small gear unit" is used in combination with a "large motor."
- Check the motor dimension G (see dimension sheets) to decide whether there will be a collision with a pushed-through customer shaft.

6.7 TorqLOC® mounting system for units with hollow shaft

Description of TorqLOC®

The TorqLOC® hollow shaft mounting system is used for achieving a non-positive connection between customer shaft and the hollow shaft in the gear unit. As a result, the TorqLOC® hollow shaft mounting system is an alternative to the hollow shaft with shrink disk, the hollow shaft with key and the splined hollow shaft that have been used so far.

The TorqLOC® hollow shaft mounting system consists of the following components:

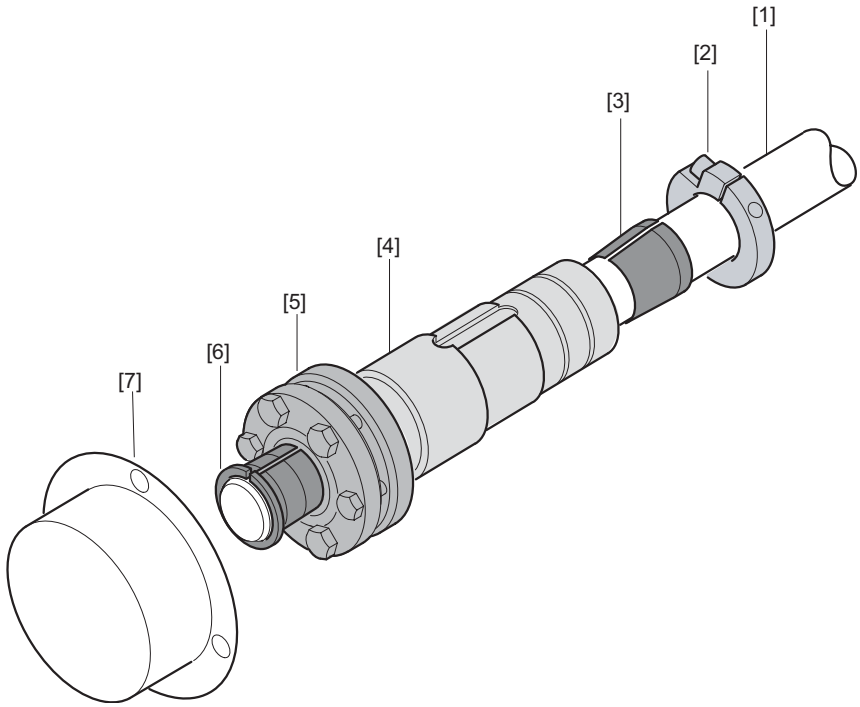

Figure 14: Components of the TorqLOC® hollow shaft mounting system

[1] Customer shaft
[2] Clamping ring
[3] Conical bronze bushing
[4] Hollow shaft in gear unit
[5] Shrink disc
[6] Conical steel bushing
[7] Fixed cover

Advantages of TorqLOC®

The TorqLOC® hollow shaft mounting system is characterized by the following advantages:

- Cost saving because the customer shaft can be made from drawn material up to quality h11.
- Cost saving because different customer shaft diameters can be covered by one hollow shaft diameter and different bushings.
- Simple installation since there is no need to accommodate any shaft connections.
- Removal is easy even after many hours of operation because the formation of contact corrosion has been reduced and the conical connections can easily be released.

Technical data

The TorqLOC® hollow shaft mounting system is approved for input torques of 92 Nm to 4300 Nm.

The following gear units are available with TorqLOC® hollow shaft mounting system:

- Parallel shaft helical gear units in gear unit sizes 37 to 97 (FT37 ... FT97)
- Helical-bevel gear units in gear unit sizes 37 to 97 (KT37 ... KT97)
- Helical-worm gear units in gear unit sizes 37 to 97 (ST37 ... ST97)

Available options

The following options are available for gear units with a TorqLOC® hollow shaft mounting system:

- Helical-bevel and helical-worm gear units with TorqLOC® (KT.., ST..): The "torque arm" (../T) option is available.
- Parallel shaft helical gear units with TorqLOC® (FT..): The "rubber buffer" (../G) option is available.

6.8 Option, offset hollow shaft with shrink disk

As an option, gear units with a hollow shaft and shrink disc (parallel shaft helical gear units FH/FHF/FHZ37-157, helical-bevel gear units KH/KHF/KHZ37-157 and helical-worm gear units SH/SHF47-97) can be supplied with a larger bore diameter D'.

As standard, D' = D.

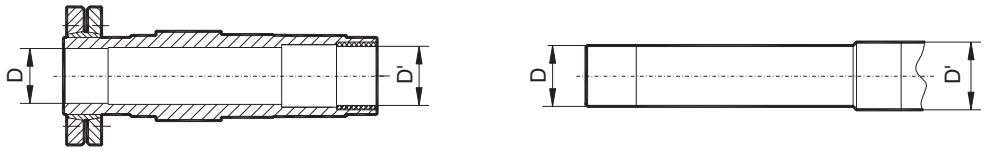

Figure 15: Optional bore diameter D'

Gear units	Bore diameter D / optionally D' [mm]
FH/FHF/FHZ37, KH/KHF/KHZ37, SH/SHF/SHZ47	30 / 32
FH/FHF/FHZ47, KH/KHF/KHZ47, SH/SHF/SHZ57	35 / 36
FH/FHF/FHZ57, KH/KHF/KHZ57	40 / 42
FH/FHF/FHZ67, KH/KHF/KHZ67, SH/SHF/SHZ67	40 / 42
FH/FHF/FHZ77, KH/KHF/KHZ77, SH/SHF/SHZ77	50 / 52
FH/FHF/FHZ87, KH/KHF/KHZ87, SH/SHF/SHZ87	65 / 66
FH/FHF/FHZ97, KH/KHF/KHZ97, SH/SHF/SHZ97	75 / 76
FH/FHF/FHZ107, KH/KHF/KHZ107	95 / 96
FH/FHF/FHZ127, KH/KHF/KHZ127	105 / 106
FH/FHF/FHZ157, KH/KHF/KHZ157	125 / 126

Diameter D / D' must be specified when ordering gear units with a shouldered hollow shaft (optional bore diameter D').

Sample order FH37 DT80N4 with hollow shaft 30/32 mm

Parallel shaft helical gear unit with shouldered hollow shaft

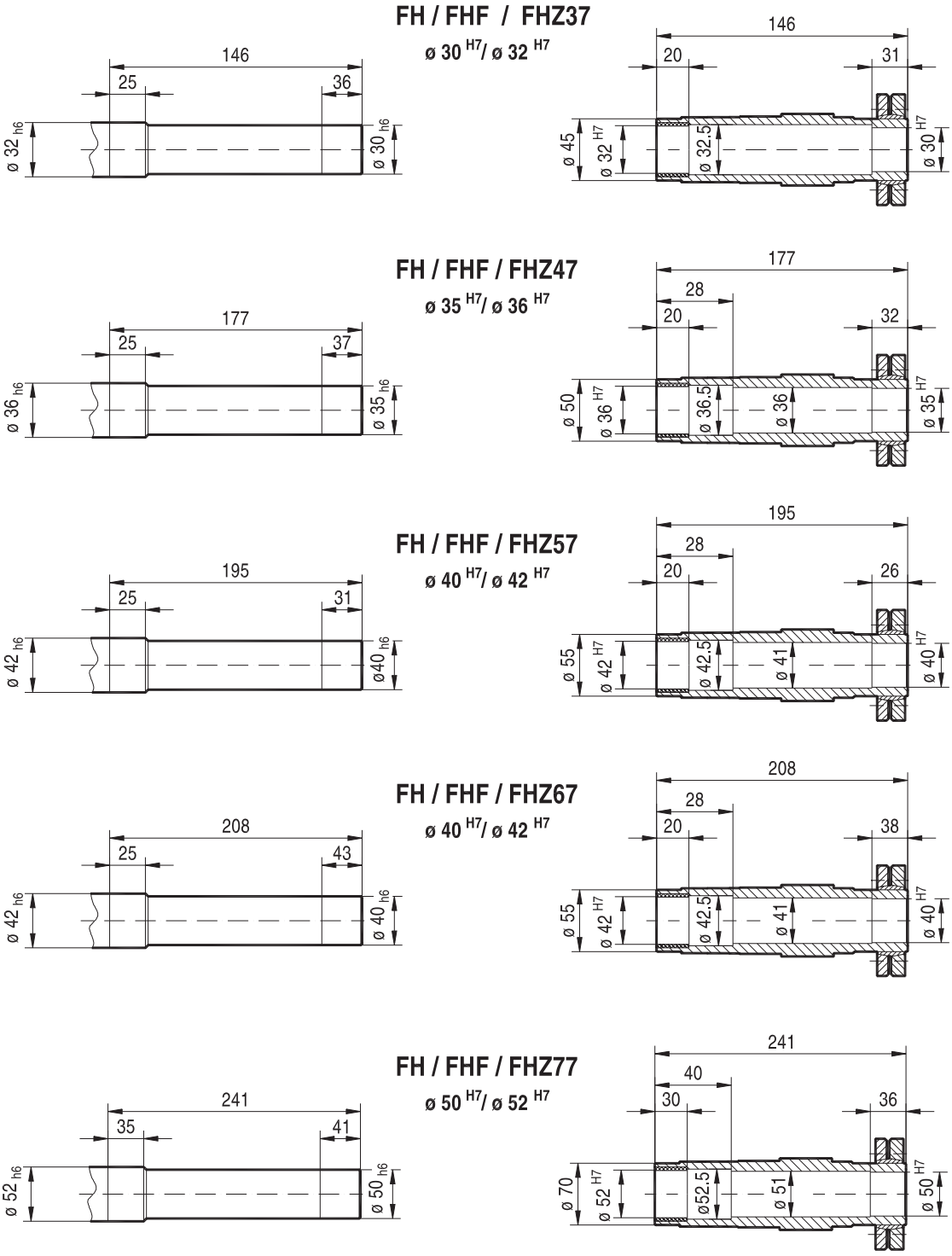

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Figure 16: Shouldered hollow shaft FH/FHF/FHZ37...77

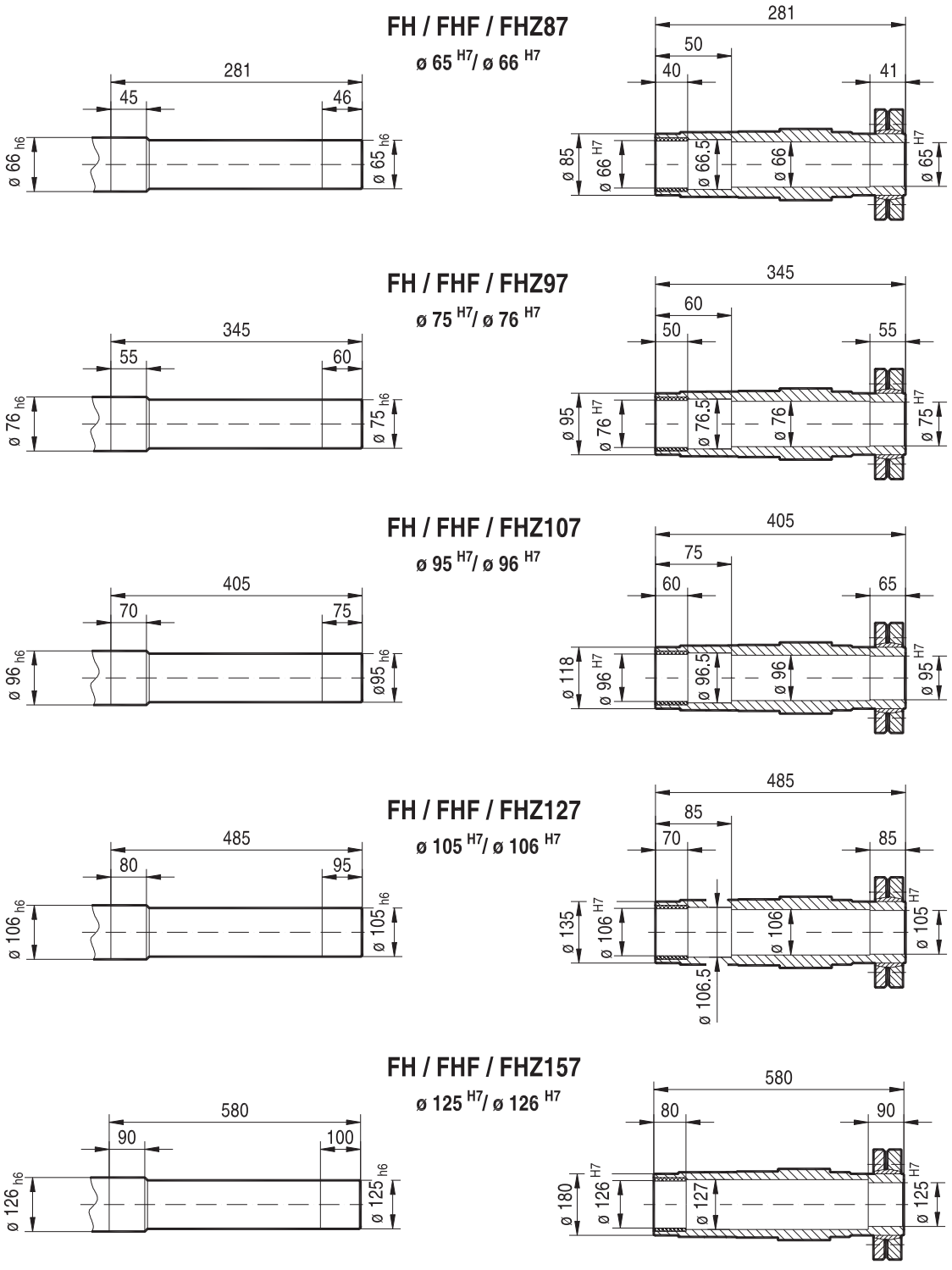

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Figure 17: Shouldered hollow shaft FH/FHF/FHZ87...157

Helical-bevel gear unit with shouldered hollow shaft

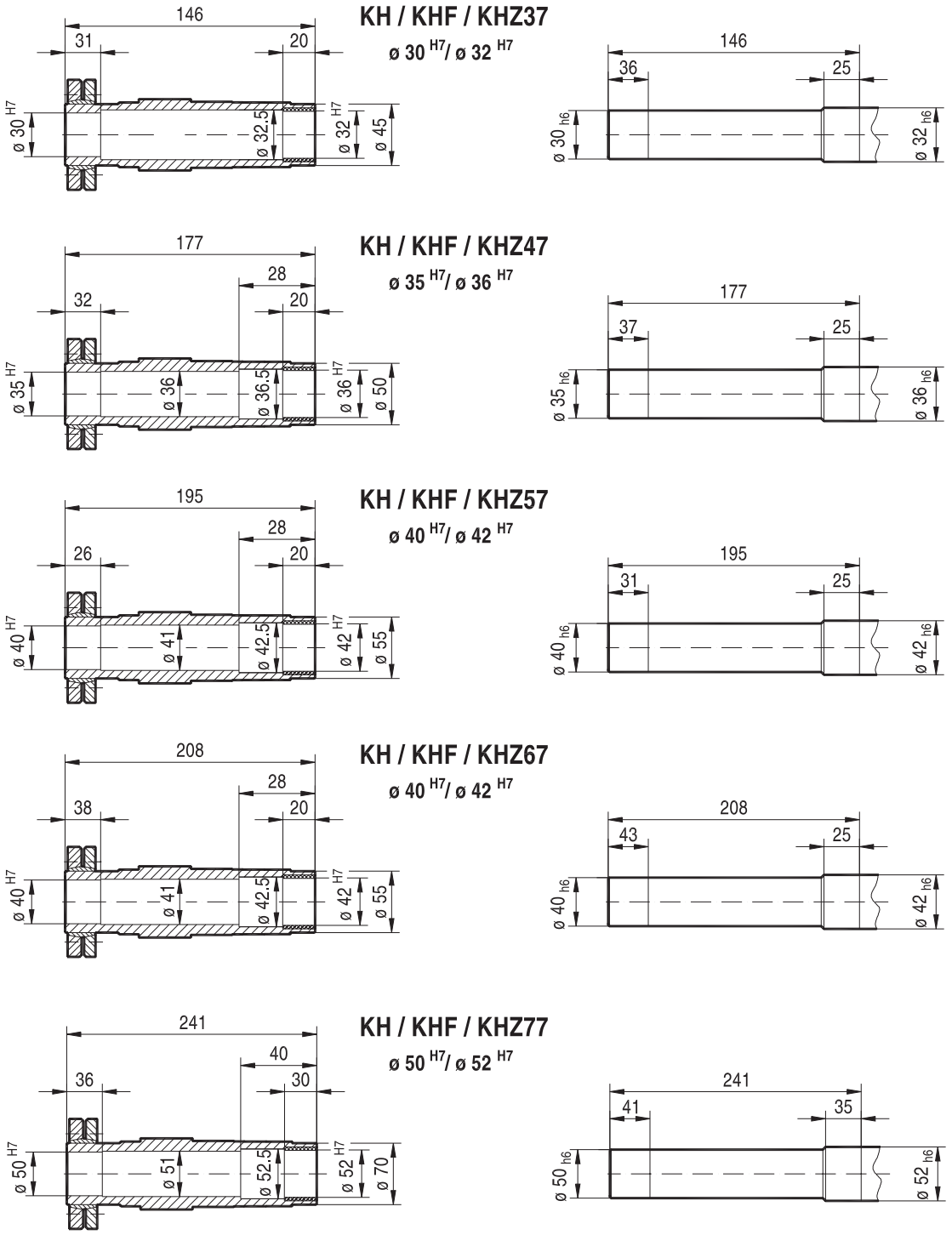

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Figure 18: Shouldered hollow shaft KH/KHF/KHZ37...77

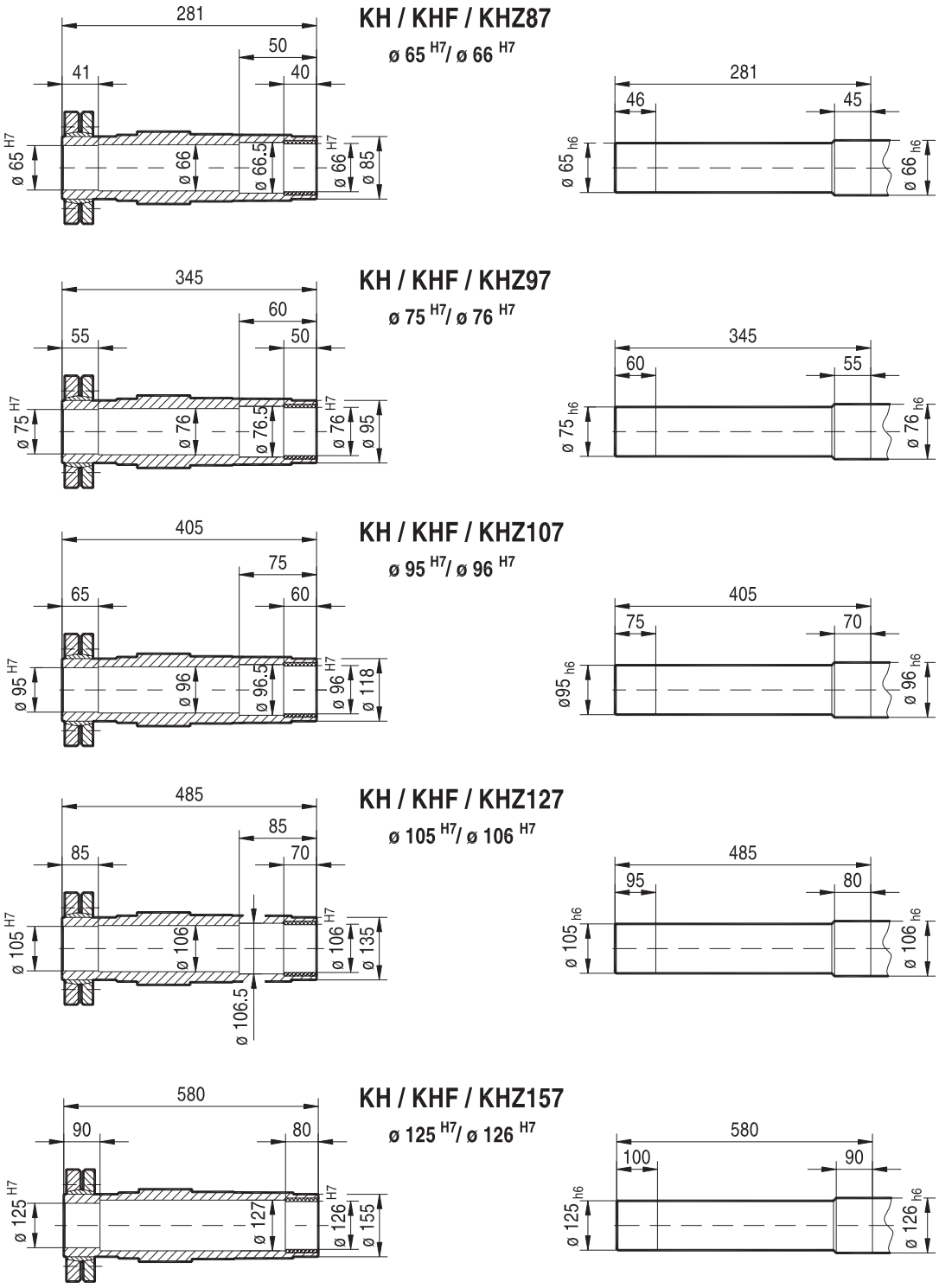

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Figure 19: Shouldered hollow shaft KH/KHF/KHZ87...157

Helical-worm gear unit with shouldered hollow shaft

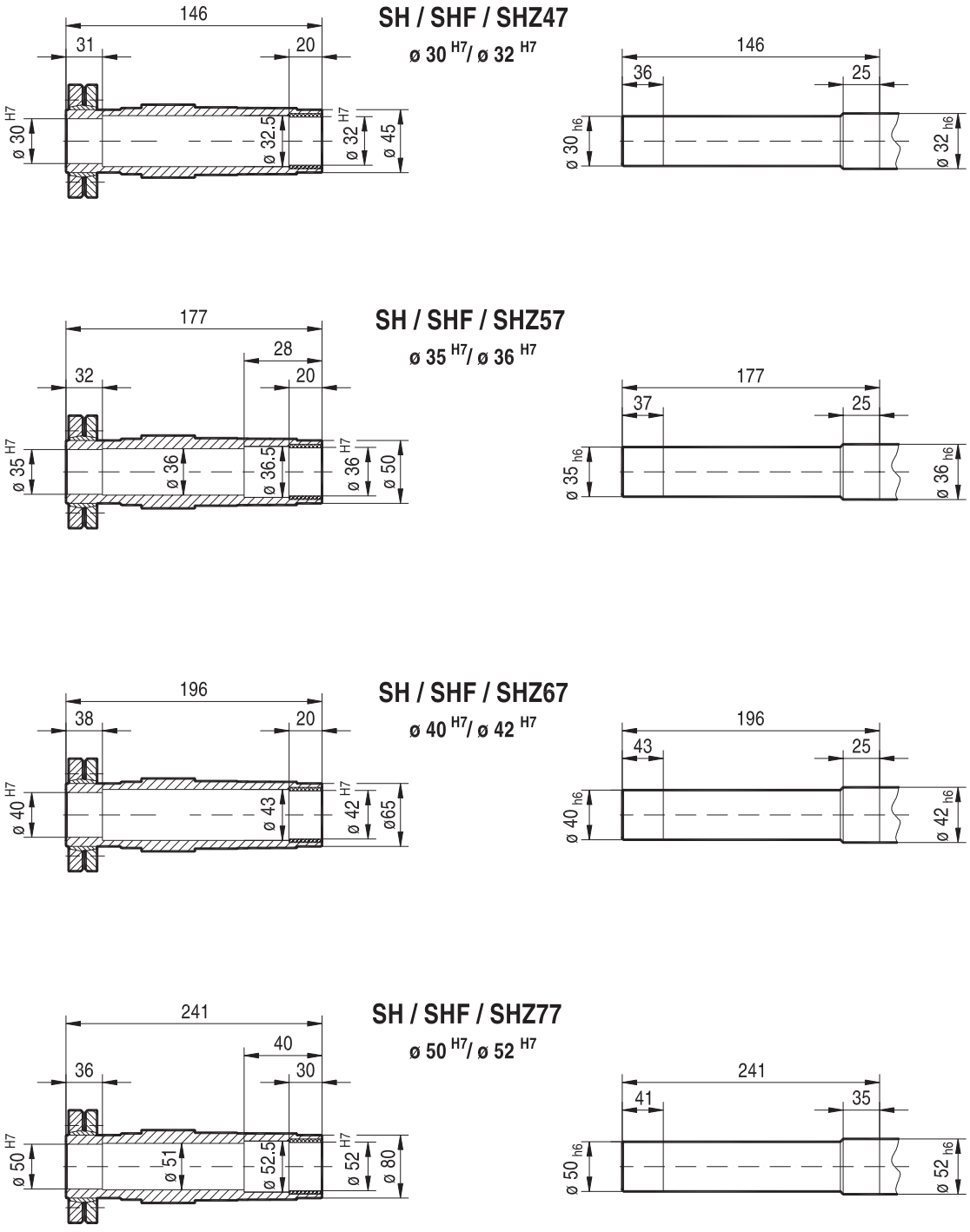

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Figure 20: Shouldered hollow shaft SH/SHF/SHZ47...77

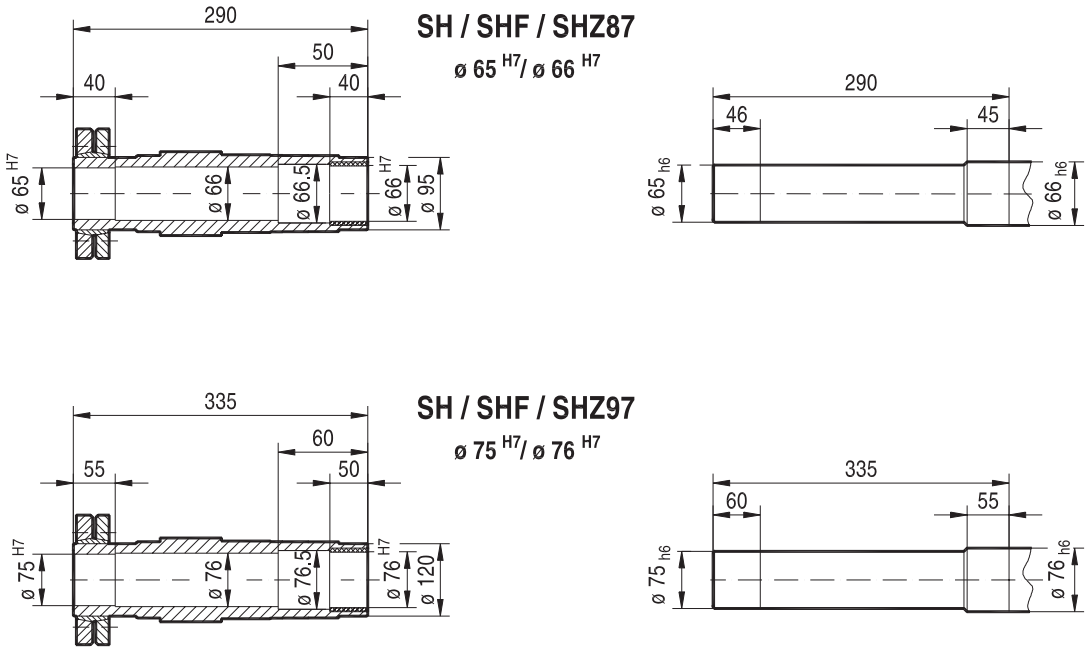

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Figure 21: Shouldered hollow shaft SH/SHF/SHZ87...97

6.9 Flange contours of the RF.. and R..F gear units

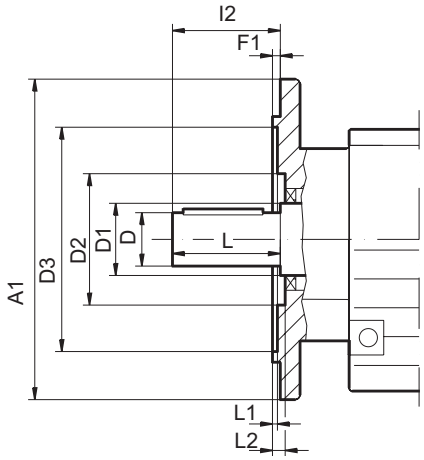

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Figure 22: Flange contours

Check dimensions L1 and L2 for selection and installation of output elements.

Type	A1	D	D1	D2		D3	F1	I2	S	L1		L2
				RF	R..F					RF	R..F	
RF27, R27F	120	25	30	54	54	66	3	50	50	1	1	6
	140				-	79	3			3	-	7
	160				-	92	3.5			3	-	7
RF37, R37F	120	25	35	60	63	70	3	50	50	5	4	7
	160				-	96	3.5			1	-	7.5
	200				-	119	3.5			1	-	7.5
RF47, R47F	140	30	35	72	64	82	3	60	60	4	1	6
	160				-	96	3.5			0.5	-	6.5
	200				-	116	3.5			0.5	-	6.5
RF57, R57F	160	35	40	76	75	96	3.5	70	70	4	2.5	5
	200				-	116	3.5			0	-	5
	250				-	160	4			0.5	-	5.5
RF67, R67F	200	35	50	90	90	118	3.5	70	70	2	4	7
	250				-	160	4			1	-	7.5
RF77, R77F	250	40	52	112	100	160	4	80	80	0.5	2.5	7
	300				-	210	4			0.5	-	7
RF87, R87F	300	50	62	123	122	210	4	100	100	0	1.5	8
	350				-	226	5			1	-	9
RF97	350	60	72	136		236	5	120	120	0		9
	450					320						
RF107	350	70	82	157		232	5	140	140	0		11
	450			186		316						
RF137	450	90	108	180		316	5	170	170	0		10
	550					416						
RF147	450	110	125	210		316	5	210	210	0		10
	550					416						
RF167	550	120	145	290		416	5	210	210	1		10
	660					517	6			2		11

6.10 Fastening of gear units

Use bolts of quality 8.8 to fasten gear units.

Exception

In case of the following flange-mounted helical gear units (RF..) and foot/flange-mounted helical gear units (R..F), use bolts of **quality 10.9** to fasten the customer flange to transmit the rated torque:

- RF37, R37F with flange ∅ 120 mm
- RF47, R47F with flange ∅ 140 mm
- RF57, R57F with flange ∅ 160 mm

6.11 Torque arms

Available torque arms

Gear units	Size					
	27	37	47	57	67	77
KA, KH, KV, KT	-	643 425 8	643 428 2	643 431 2	643 431 2	643 434 7
SA, SH, ST	-	126 994 1	644 237 4	644 240 4	644 243 9	644 246 3
FA, FH, FV, FT Rubber buffers (2 pcs.)	013 348 5	013 348 5	013 348 5	013 348 5	013 348 5	013 349 3

Gear units	Size				
	87	97	107	127	157
KA, KH, KV, KT	643 437 1	643 440 1	643 443 6	643 294 8	-
SA, SH, ST	644 249 8	644 252 8	-	-	-
FA, FH, FV, FT Rubber buffers (2 pcs.)	013 349 3	013 350 7	013 350 7	013 351 5	013 347 7

Torque arms for KH167.., KH187..

As standard, torque arms are not available for gear unit sizes KH167.. and KH187... Please contact SEW-EURODRIVE for design proposals if you require torque arms for these gear units.

6.12 Fixed covers

As standard, parallel shaft helical gear units, helical-bevel gear units and helical-worm gear units with hollow shafts and shrink disks from size 37 up to and including size 97 have a cover that turns with the unit. If for safety reasons fixed covers are required for these gear units, you can order them for the respective gear unit types by quoting the part numbers in the following tables. As standard, parallel shaft helical gear units and helical-bevel gear units with hollow shafts and shrink discs of size 107 and parallel shaft helical gear units of size 27 come equipped with a fixed cover.

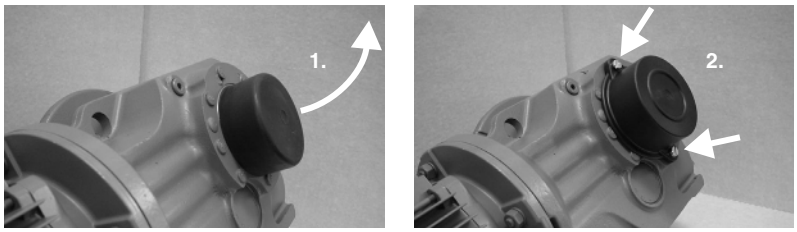

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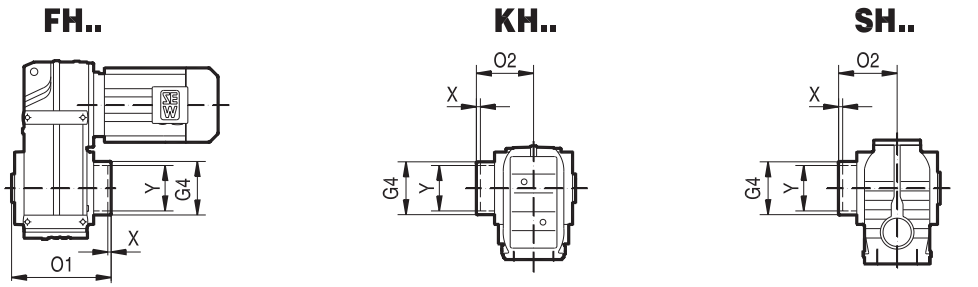
Figure 23: Replacing a rotating cover with a fixed cover

1. Pull off the rotating cover.
2. Install and fasten fixed cover.

Part numbers and dimensions



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Parallel shaft helical gearmotors	FH..37	FH..47	FH..57	FH..67	FH..77	FH..87	FH..97
Part number	643 513 0	643 514 9	643 515 7	643 515 7	643 516 5	643 517 3	643 518 1
Max. size of motor that can be mounted	DT80..	DT80..	DT80..	DV132S	DV160M	DV180..	DV180..
G4	78	88	100	100	121	164	185
O1	157	188.5	207.5	221.5	255	295	363.5
X	2	4.5	7.5	6	6	4	6.5
Y	75	83	83	93	114	159	174

Helical-bevel gearmotors[1)]	KH..37	KH..47	KH..57	KH..67	KH..77	KH..87	KH..97
Part number	643 513 0	643 514 9	643 515 7	643 515 7	643 516 5	643 517 3	643 518 1
G4	78	88	100	100	121	164	185
O2	95	111.5	122.5	129	147	172	210.5
X	0	1.5	5.5	3	1	2	4.5
Y	75	83	83	93	114	159	174

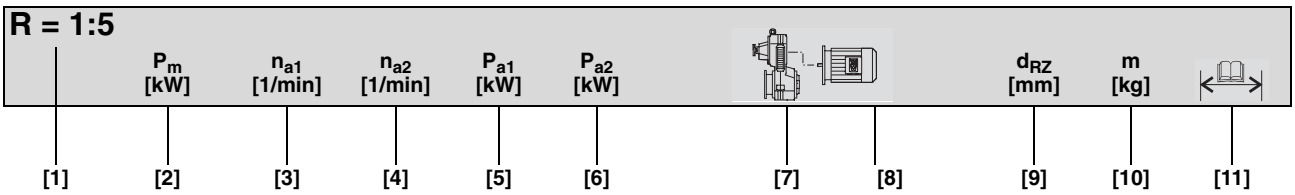
1) Not possible in foot-mounted helical-bevel gear units with hollow shafts and shrink discs (KH..B).

Helical-worm gearmotors	SH..37	SH..47	SH..57	SH..67	SH..77	SH..87	SH..97
Part number	643 512 2	643 513 0	643 514 9	643 515 7	643 516 5	643 517 3	643 518 1
G4	59	78	88	100	121	164	185
O2	88	95	111.5	123	147	176	204.5
X	1	0	1.5	3	1	0	0.5
Y	53	75	83	93	114	159	174

7 Important Information, Tables and Dimension Sheets

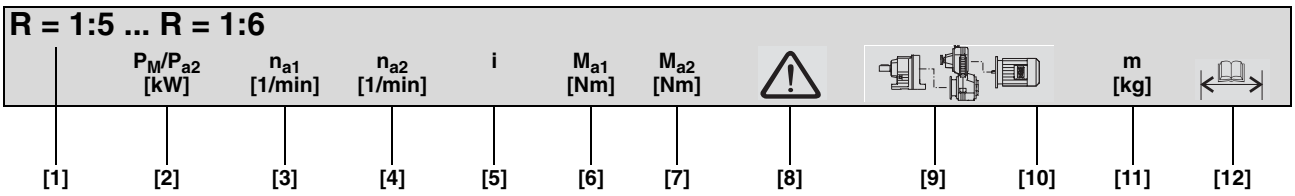
7.1 Structure of the selection tables

Example: Selection table for solo variable speed geared motors:



[1] Setting range
[2] Rated power of driving motor
[3] Minimum output speed
[4] Maximum output speed
[5] Output power at n_{a1}
[6] Output power at n_{a2}
[7] Variable speed gear unit type
[8] Motor type
[9] Diameter of pinion spigot
[10] Weight
[11] Dimension sheet page number

Example: Selection table for R, F, K and S variable speed gearmotors:



[1] Setting range
[2] Rated power of driving motor / output power at n_{a2} (only for R, F and K gear units)
[3] Minimum output speed
[4] Maximum output speed
[5] Gear unit reduction ratio (* Finite gear unit reduction ratio)
[6] Output torque at n_{a1}
[7] Output torque at n_{a2}
[8] Please refer to Sec. "Thermal limit power for variable speed gearmotors"
[9] Gear unit and variable speed gear unit size
[10] Motor type
[11] Weight
[12] Dimension sheet page number

Thermal limit power for variable speed gearmotors

The power values given in the selection tables for variable speed gearmotors are mechanical power limits. Depending on the mounting position, however, gear units may become thermally overloaded before they reach the mechanical power limit. For mineral oils, corresponding cases are indicated in the selection tables by having the mounting position specified (see the column shown in the illustration below).

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Please contact SEW if the mounting position you require is the same as one of those indicated. By considering the actual operating conditions, it will then be possible to recalculate the thermal limit rating based on the specific application. Alternatively, suitable measures can be taken (e.g. using a synthetic lubricant with higher thermal stability) to increase the thermal limit rating of the gear unit. The following data are required for recalculation:

Gear unit type .....

Output speed range [n_{a1} -n_{a2}] ..... 1/min **Gear ratio i** .....

Ambient temperature ..... °C **Cyclic duration factor cdf** ..... %

Power drawn [P] ..... kW

Installation location:.....
...in small, enclosed rooms
...in large rooms, halls
...in the open

Installation situation: .....
e.g. steel foundation, concrete foundation

7.2 Dimension sheet information

Scope of delivery

= Standard parts supplied by SEW.

= Standard parts not supplied by SEW.

Tolerances

Shaft heights

The following tolerances apply to the dimensions given:

h	≤ 250 mm	→ -0.5 mm
h	> 250 mm	→ -1 mm

Foot-mounted gear units: Check the mounted motor because it may project below the mounting surface.

Shaft ends

Diameter tolerance:

∅	≤ 50 mm	→ ISO k6
∅	> 50 mm	→ ISO m6

Center bores according to DIN 332, shape DR:

∅	= 7...10 mm	→ M3
∅	> 10...13 mm	→ M4
∅	> 13...16 mm	→ M5
∅	> 16...21 mm	→ M6
∅	> 21...24 mm	→ M8
∅	> 24...30 mm	→ M10
∅	> 30...38 mm	→ M12
∅	> 38...50 mm	→ M16
∅	> 50...85 mm	→ M20
∅	> 85...130 mm	→ M24
∅	> 130 mm	→ M30

Keys: according to DIN 6885 (domed type)

Hollow shafts

Diameter tolerance:

∅	→ ISO H7 measured with plug gauge

Multiple-spline shafts

Dm	= Measuring roller diameter
Me	= Check size

Flanges

Centering shoulder tolerance:

∅	≤ 230 mm (flange sizes A120...A300)	→ ISO j6
∅	> 230 mm (flange sizes A350...A660)	→ ISO h6

Up to three different flange dimensions are available for each size of VARIBLOC®, VARIMOT®, helical gear unit, AC (brake) motor and explosion-proof AC (brake) motor. Flange dimensions available for each size. The possible flanges per size are indicated in the relevant dimension sheets.

Lifting eyebolts, suspension eye lugs

The gear units and motors listed in the overview below are equipped with cast-on suspension eye lugs, screw-on suspension eye lugs or screw-on lifting eyebolts. All other gear unit or motor sizes are supplied without any special transport fixtures.

Gear unit/motor type	Screw-on,		cast-on suspension eye lugs
	lifting eyebolts	Eyebolts	
R..37-R..57	-	•	-
R..67-R..167	•	-	-
RX57-RX67	-	•	-
RX77-RX107	•	-	-
F..27-F..157	-	-	•
K..37-K..157	-	-	•
K..167-K..187	•	-	-
S..37-S..47	-	•	-
S..57-S..97	-	-	•
≥ DV112	•	-	-

Breather valves

The gear unit dimension drawings are always shown with screw plugs. The corresponding screw plug is replaced by an activated breather valve at the factory depending on the ordered mounting position M1...M6. This means the contour dimensions may be slightly different.

Shrink disc connection

Hollow shaft gear unit with shrink disc connection: If required, please request a detailed data sheet on shrink discs from SEW-EURODRIVE, data sheet no. 33 753 ..95.

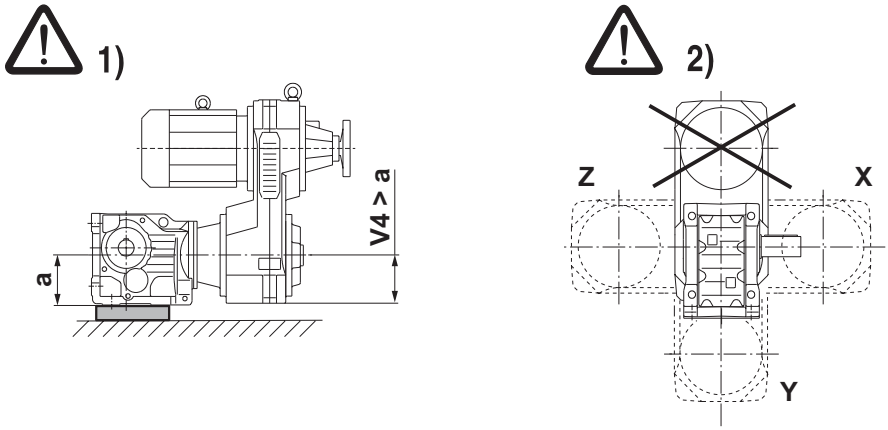
Splined hollow shaft

FV.. hollow shaft gear units in sizes 37 ... 107 and KV.. in sizes 37 ... 107 are delivered with a splined hollow shaft according to DIN 5480.

Rubber buffer for FA/FH/FV

f = Spring travel at $M_{a\ max}$

The following cases are identified in the dimension sheets for the variable speed gearmotors:



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1) Gear unit must be supported (dimension V4 ≥ shaft height a of the gear unit)
2) Only the specified inclined mounting positions are permitted

Motor dimensions

Brake motors

In brake motors, dimensions G1B apply instead of G1 and KB instead of K.

Special designs

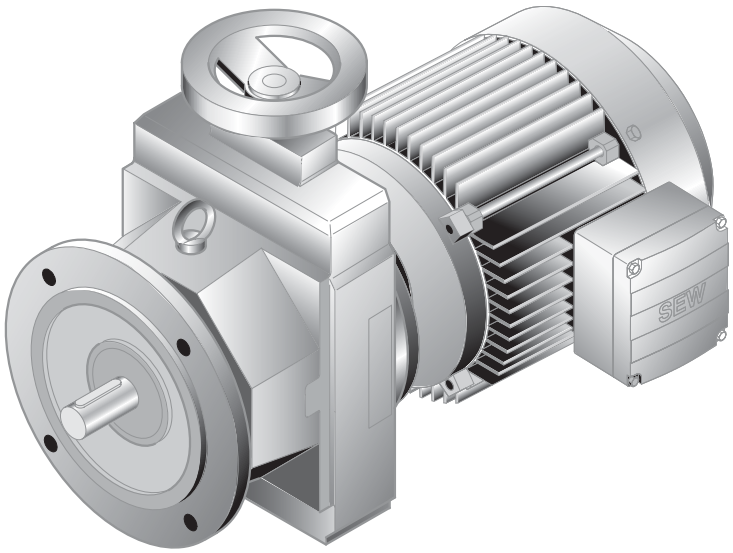
The dimensions of the terminal box on special designs such as KS or CSA may deviate from the standard dimensions.

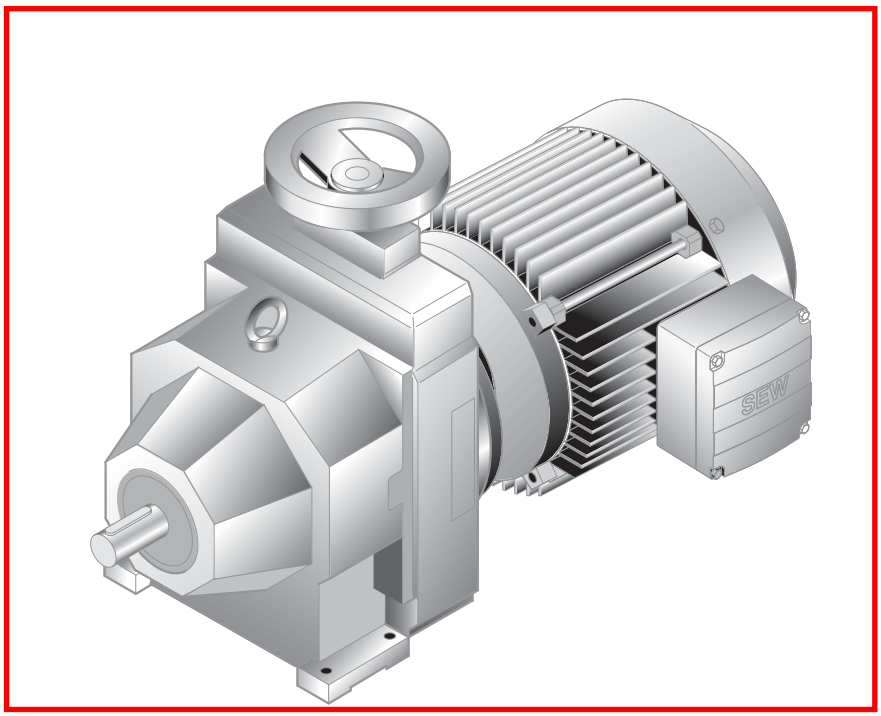
EN 50347

European standard EN 50347 became effective in August 2001. This standard adopts the dimension designations for three-phase AC motors of sizes 56 to 315M and flange sizes 65 to 740 from the IEC 72-1 standard.

13 D/DF..

13.1 D/DF..DT/DV..





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13.2 D/DF..DT/DV.. [kW]

R = 1:5

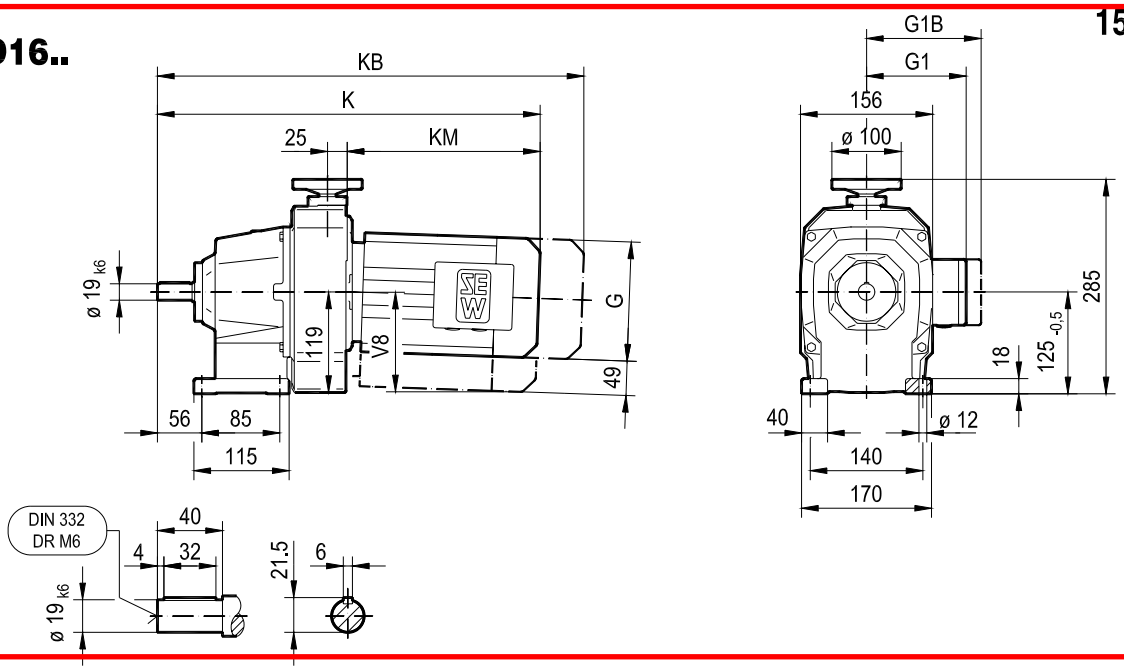
P_m [kW]	n_{a1}	-	n_{a2} [1/min]	P_{a1}	-	P_{a2} [kW]					d_{RZ} [mm]	m [kg]	
0.25	167	-	830	0.13	-	0.22	D DF	16 16	DT	80N8	10/12	24	384
	216	-	1075	0.16	-	0.22	D DF	16 16	DT	71D6	10/12	21	384
0.37	177	-	884	0.23	-	0.33	D DF	26 26	DT	90S8	14/16	41	385
	221	-	1100	0.17	-	0.33	D DF	16 16	DT	80K6	10/12	23	384
	338	-	1685	0.20	-	0.29	D DF	16 16	DT	71D4	10/12	21	384
0.55	177	-	884	0.28	-	0.49	D DF	26 26	DT	90L8	14/16	44	385
	221	-	1100	0.17	-	0.49	D DF	16 16	DT	80N6	10/12	24	384
	333	-	1660	0.26	-	0.45	D DF	16 16	DT	80K4	10/12	23	384
	662	-	3295	0.31	-	0.35	D DF	16 16	DT	71D2	10/12	21	384
0.75	180	-	897	0.28	-	0.67	D DF	26 26	DV	100M8	14/16	48	385
	234	-	1170	0.38	-	0.67	D DF	26 26	DT	90S6	14/16	41	385
	338	-	1685	0.26	-	0.63	D DF	16 16	DT	80N4	10/12	24	384
	662	-	3295	0.35	-	0.53	D DF	16 16	DT	80K2	10/12	23	384
1.1	160	-	802	0.67	-	0.98	D DF	36 36	DV	100L8	18/22	77	386
	240	-	1195	0.38	-	0.98	D DF	26 26	DT	90L6	14/16	44	385
	365	-	1820	0.57	-	0.93	D DF	26 26	DT	90S4	14/16	41	385
	662	-	3295	0.35	-	0.85	D DF	16 16	DT	80N2	10/12	24	384
1.5	165	-	826	0.69	-	1.4	D DF	36 36	DV	112M8	18/22	85	386
	216	-	1085	0.92	-	1.4	D DF	36 36	DV	100M6	18/22	75	386
	367	-	1835	0.57	-	1.3	D DF	26 26	DT	90L4	14/16	44	385
	703	-	3510	0.81	-	1.2	D DF	26 26	DT	90S2	14/16	41	385
2.2	165	-	826	0.69	-	2.0	D DF	36 36	DV	132S8	18/22	93	386
	221	-	1110	0.92	-	2.0	D DF	36 36	DV	112M6	18/22	85	386
	367	-	1835	0.57	-	1.9	D DF	26 26	DV	100M4	14/16	48	385
	711	-	3550	0.84	-	1.8	D DF	26 26	DT	90L2	14/16	44	385
3.0	221	-	1110	0.92	-	2.8	D DF	36 36	DV	132S6	18/22	93	386
	329	-	1650	1.4	-	2.6	D DF	36 36	DV	100L4	18/22	77	386
	659	-	3305	1.6	-	2.5	D DF	36 36	DV	100M2	18/22	75	386
4.0	334	-	1675	1.4	-	3.6	D DF	36 36	DV	112M4	18/22	85	386
	673	-	3375	1.6	-	3.4	D DF	36 36	DV	112M2	18/22	85	386

P_m [kW]	n_{a1}	-	n_{a2}	P_{a1}	-	P_{a2}					d_{RZ} [mm]	m [kg]	
R = 1:5													
5.5	**336**	-	**1685**	1.4	-	5.0	**D DF**	**36 36**	**DV**	**132S4**	18/22	93	386
	678	-	**3400**	1.6	-	4.8	**D DF**	**36 36**	**DV**	**132S2**	18/22	93	386
R = 1:4													
3.0	**203**	-	**806**	1.2	-	2.7	**D DF**	**46 46**	**DV**	**132M8**	22/28	145	387
4.0	**203**	-	**806**	1.2	-	3.6	**D DF**	**46 46**	**DV**	**132ML8**	22/28	155	387
	270	-	**1075**	1.7	-	3.6	**D DF**	**46 46**	**DV**	**132M6**	22/28	145	387
5.5	**200**	-	**795**	1.4	-	5.0	**D DF**	**46 46**	**DV**	**160M8**	22/28	160	387
	270	-	**1075**	1.7	-	5.0	**D DF**	**46 46**	**DV**	**132ML6**	22/28	155	387
7.5	**270**	-	**1075**	1.8	-	6.8	**D DF**	**46 46**	**DV**	**160M6**	22/28	160	387
	403	-	**1600**	2.8	-	6.8	**D DF**	**46 46**	**DV**	**132M4**	22/28	145	387
	817	-	**3250**	3.8	-	6.7	**D DF**	**46 46**	**DV**	**132M2**	22/28	145	387
9.2	**406**	-	**1615**	2.8	-	8.3	**D DF**	**46 46**	**DV**	**132ML4**	22/28	155	387
	814	-	**3235**	3.8	-	8.2	**D DF**	**46 46**	**DV**	**132ML2**	22/28	155	387
11.0	**406**	-	**1615**	2.8	-	10.0	**D DF**	**46 46**	**DV**	**160M4**	22/28	160	387
	817	-	**3250**	3.8	-	9.8	**D DF**	**46 46**	**DV**	**160M2**	22/28	160	387

13.3 D/DF..DT/DV.. [mm]

15 089 001

D16..



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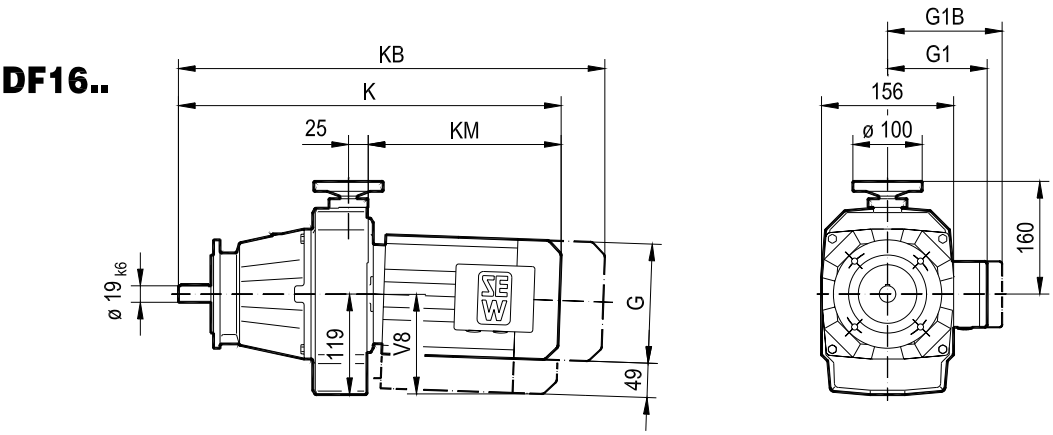

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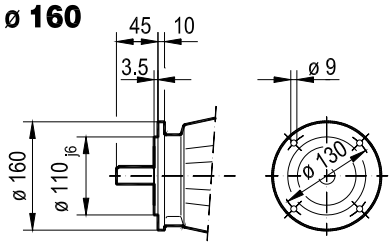
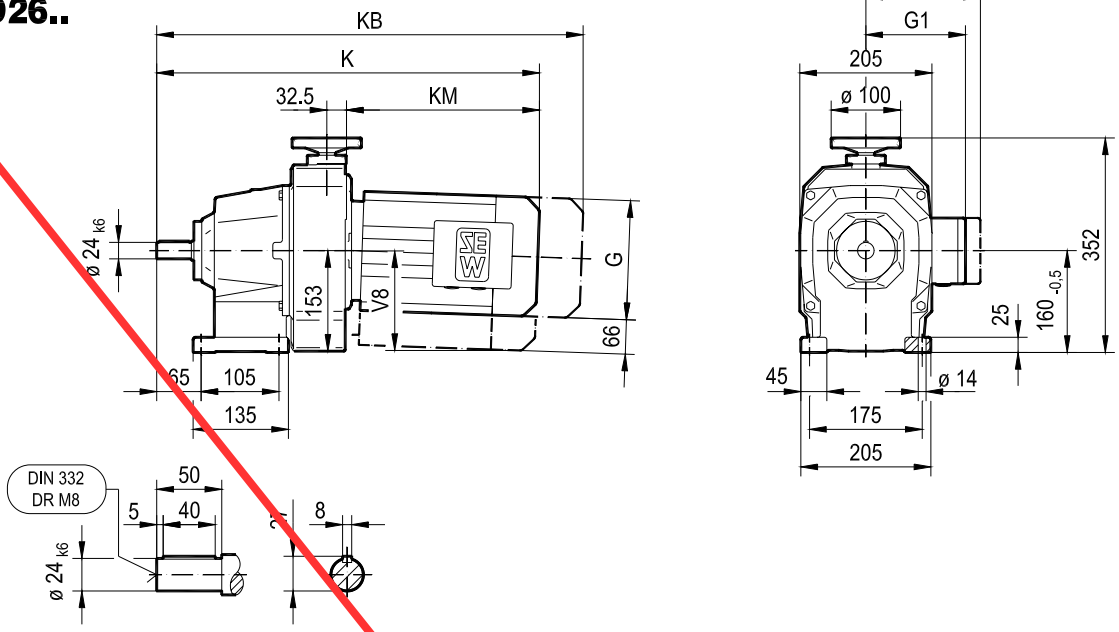


(→ 151)		G	G1	G1B	K	KB	KM	V8
D16	**DT71D**	145	122	127	431	495	198	116
DF16	**DT80..**	145	122	127	481	545	248	118

15 090 001

D26..



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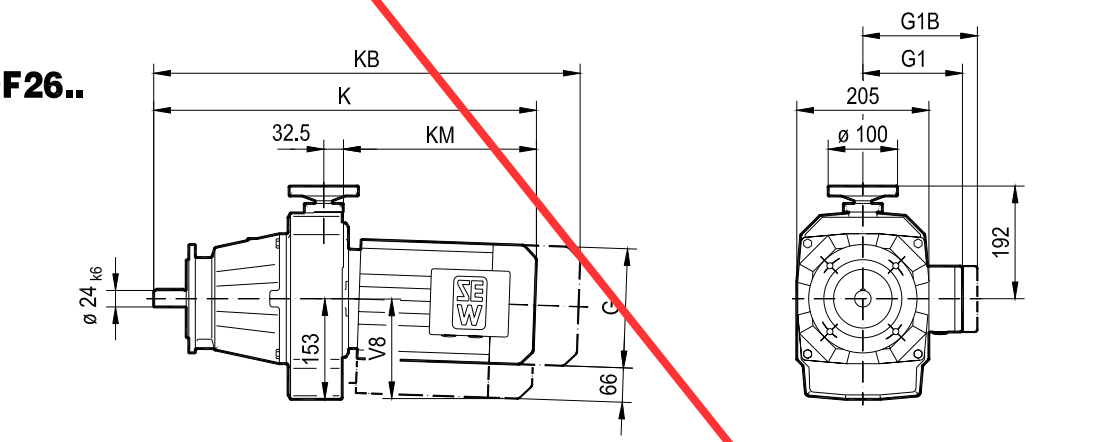

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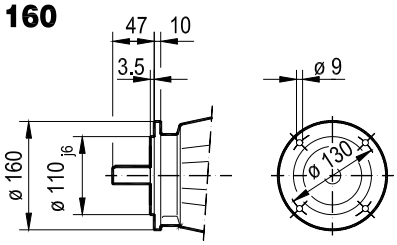

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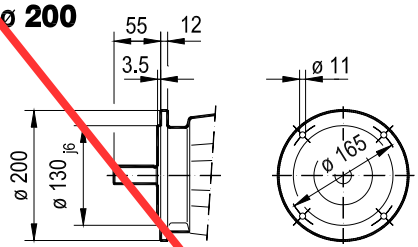
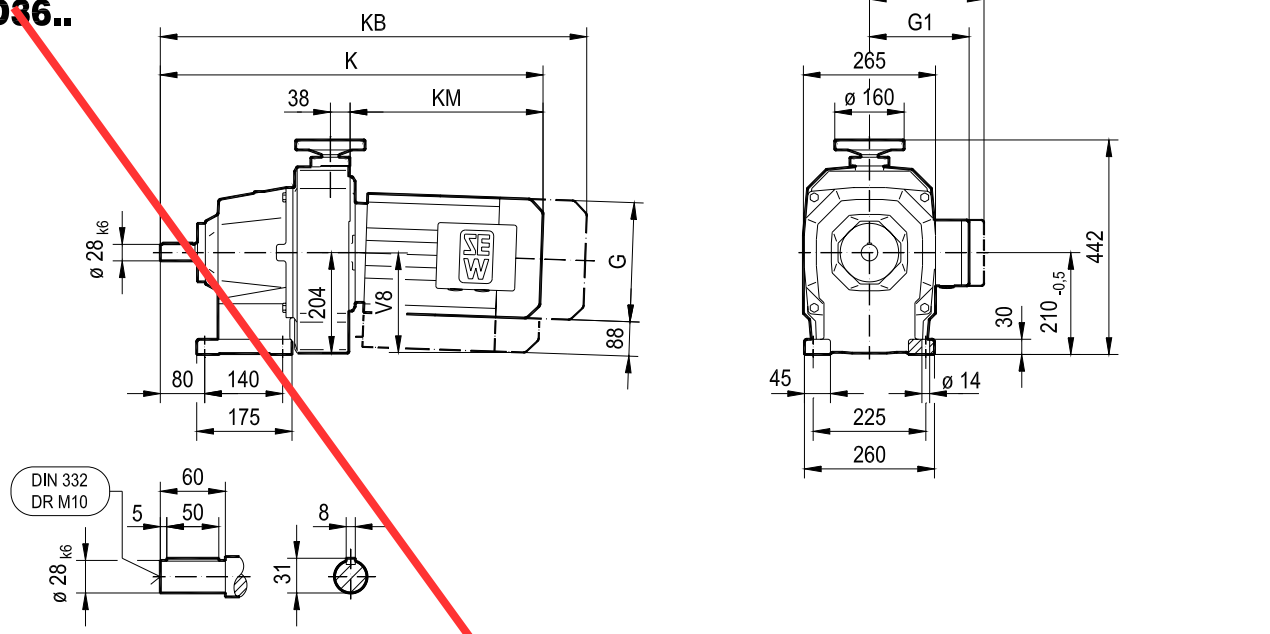


(→ 151)		G	G1	G1B	K	KB	KM	V8
D26 DF26	DT90..	197	154	161	523	608	248	154
	DV100M	197	166	166	573	658	298	156
	DV100L	197	166	166	603	688	328	158

15 091 001

D36..



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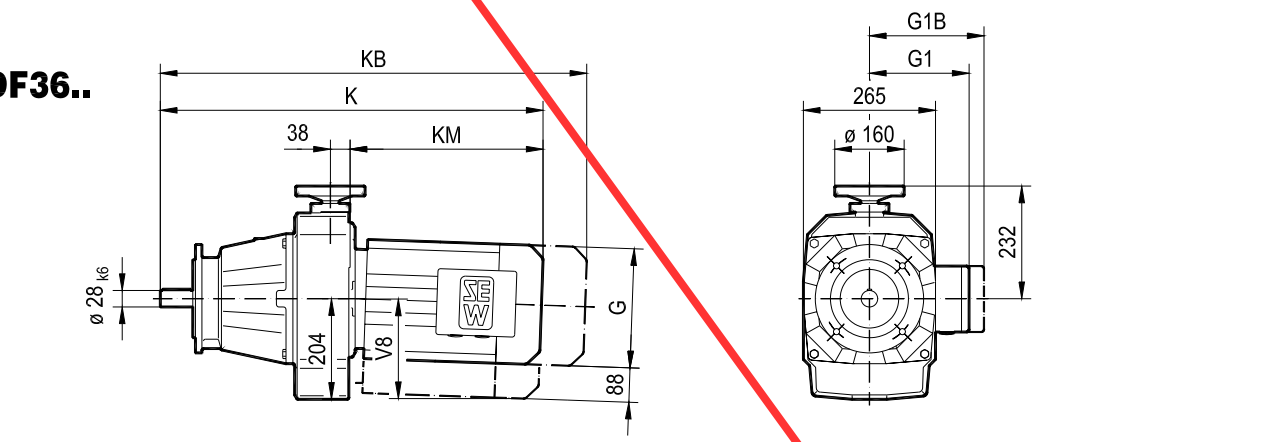

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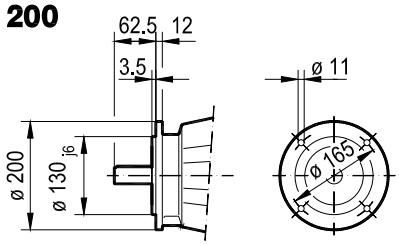

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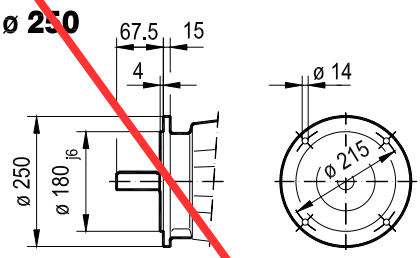
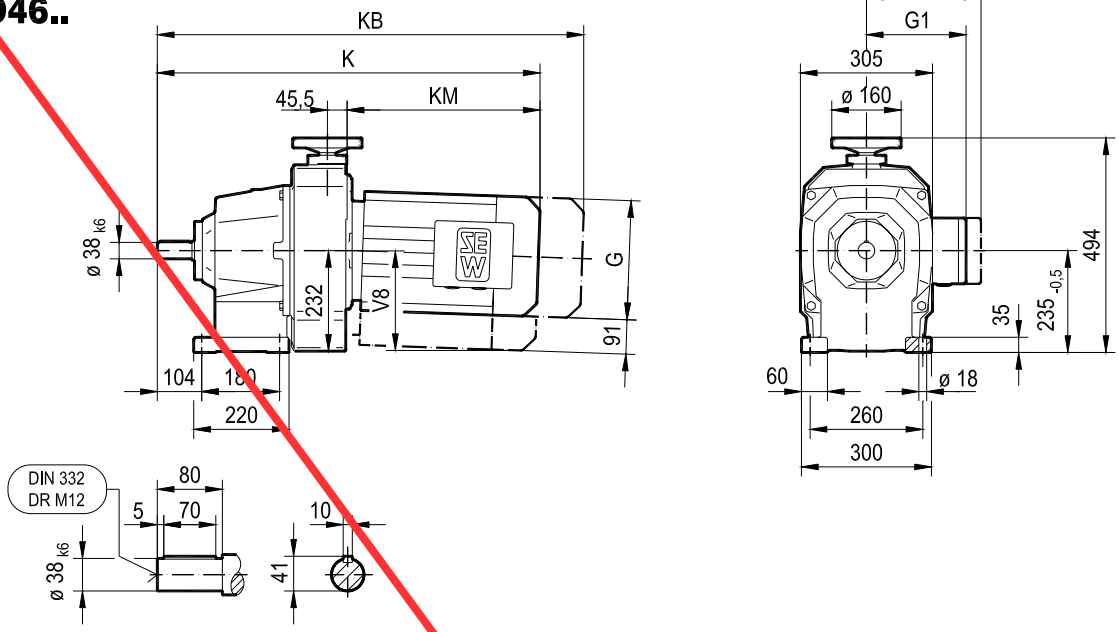


(→ 151)		G	G1	G1B	K	KB	KM	V8
D36 DF36	DV100M	197	166	166	655	740	309	184
	DV100L	197	166	166	685	770	339	184
	DV112M	221	179	182	678	758	332	196
	DV132S	221	179	182	723	803	377	198

15 092 001

D46..



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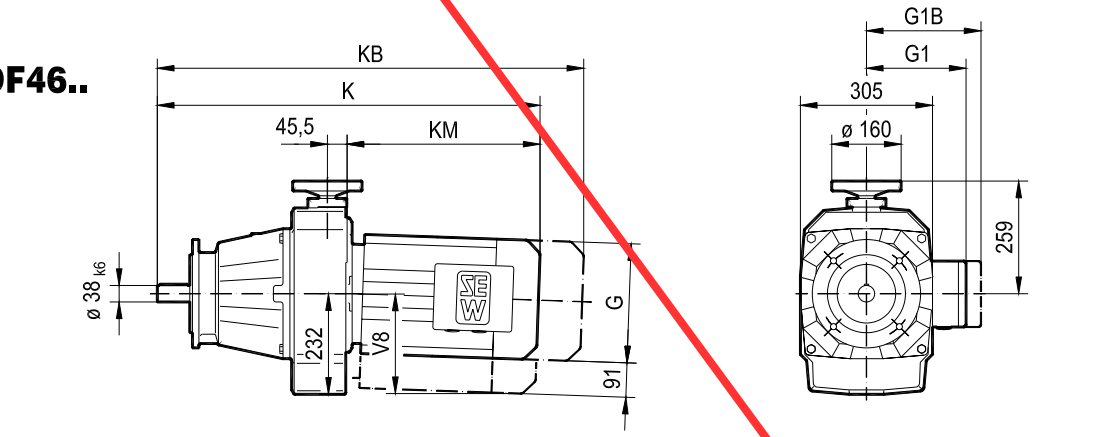

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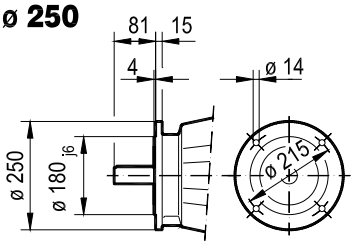

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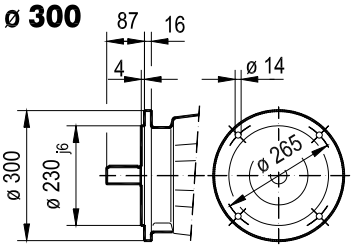

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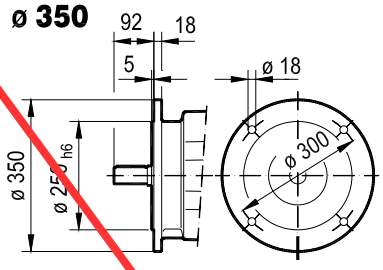
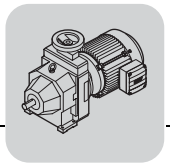


(→ 151)		G	G1	G1B	K	KB	KM	V8
D46 DF46	DV132M	275	230	230	824	936	388	235
	DV132ML	275	230	230	884	996	448	237
	DV160M	275	230	230	884	996	448	237



19 Abbreviation Key and Index

19.1 Abbreviation key

a, b, f	Constants for converting overhung loads	[mm]
c	Constant for converting overhung loads	[Nmm]
d_{RZ}	Pinion spigot diameter	[mm]
ED	Cyclic duration factor cdf	%
F_A	Axial force	[N]
F_{Aa}	Axial force acting on the output shaft	[N]
F_{Ae}	Axial force acting on the input shaft	[N]
f_B	Service factor = $M_{a\ max}/M_a$	–
F_R	Overhung load	[N]
F_{Ra}	Permitted overhung load (N) on output end, load applied to middle of shaft end	[N]
F_{Re}	Permitted overhung load (N) on input side, load applied to middle of shaft end	[N]
f_Z	Transmission element factor for calculating overhung load	–
H	Installation altitude	[m ü. NN]
i	Gear unit ratio	–
i_{ges}	Gear ratios in total	–
IP..	Enclosure	–
i_{sch}	Gear ratio of the worm gear stage	–
J	Mass moment of inertia	[10^{-4} kgm^2]
$J_{Adapter}$	Mass moment of inertia to be driven of the adapter	[10^{-4} kgm^2]
J_{Last}	Mass moment of inertia to be driven	[10^{-4} kgm^2]
ϑ_{Umg}	Ambient temperature	[°C]
m	Weight without lubricant fill, without brake	[kg]
M_a	Output torque	[Nm]
$M_{a\ max}$	Max. permitted output torque	[Nm]
M_B	Braking torque	[Nm]
$M_{B\ max}$	Max. braking torque	[Nm]
$M_{e\ max}$	Max. permitted input torque	[Nm]
M_R	Slip torque	[Nm]
MS	Tightening torque	[Nm]
n_a	Output speed	[1/min]
n_e	Input speed	[1/min]
n_n	Rated speed	[1/min]
P_a	Output power	[kW]
P_e 1)	Mathematical input power of gear unit	[kW]
P_m	Rated power of the driving motor	[kW]
S..	Duty type	–
S_N	Rated slip	[%]
U_{Bremse}	Operating voltage of brake (AT with brake)	[V]
Z	Starting frequency	[1/h], [c/h]
η	Forward efficiency	–
η'	Back-driving efficiency	–
φ **(/R)**	Circumferential backlash	[']

1) P_e is calculated from $M_{a\ max}$ with regard to the gear unit efficiency values under standard conditions (see Sec. Project Planning for Gear Units). Important: Exceeding $M_{a\ max}$ leads to irreparable damage of the gear unit!

19.2 Index

SEW EURODRIVE

NEW CATALOG

Variable Speed Gearmotors

(Effective as of August 2004)

SEW-EURODRIVE is presenting the new catalog **Variable Speed Gearmotors 2004**. We have further enhanced the contents to give you even more information and make it easier for you to use this catalog.

The main changes compared to the previous edition at a glance:

- **VARIBLOC® and VARIMOT® for potentially explosive atmospheres according to EU directive 94/9/EC (ATEX 100a) have been added.**
- **New TorqLOC® hollow shaft mounting system for gear units with hollow shaft.**
- **Revised lubricant table and lubricant fill quantities.**
- **New slip monitor WS.**

Let us show you that *Made by* **SEW-EURODRIVE** means global expertise in all matters of drive engineering, through

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Bruchsal, August 2004

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	Pyrénées	SEW-USOCOME 271, Lieu-dit Ninaut F-31190 Caujac	Tel. +33 5 61 08 15 85 Fax +33 5 61 08 16 44
	Sud-Atlantique	SEW-USOCOME 12, rue des Pinsons F-44120 Vertou	Tel. +33 2 40 80 32 23 Fax +33 2 40 80 32 13

Algeria			
Sales	**Alger**	Réducom 16, rue des Frères Zaghnoun Bellevue El-Harrach 16200 Alger	Tel. +213 21 8222-84 Fax +213 21 8222-84

Argentina			
Assembly **Sales** **Service**	**Buenos Aires**	SEW EURODRIVE ARGENTINA S.A. Centro Industrial Garin, Lote 35 Ruta Panamericana Km 37,5 1619 Garin	Tel. +54 3327 4572-84 Fax +54 3327 4572-21 sewar@sew-eurodrive.com.ar

Australia			
Assembly **Sales** **Service**	**Melbourne**	SEW-EURODRIVE PTY. LTD. 27 Beverage Drive Tullamarine, Victoria 3043	Tel. +61 3 9933-1000 Fax +61 3 9933-1003 http://www.sew-eurodrive.com.au enquires@sew-eurodrive.com.au
	Sydney	SEW-EURODRIVE PTY. LTD. 9, Sleigh Place, Wetherill Park New South Wales, 2164	Tel. +61 2 9725-9900 Fax +61 2 9725-9905 enquires@sew-eurodrive.com.au
Technical Offices	**Adelaide**	SEW-EURODRIVE PTY. LTD. Unit 1/601 Anzac Highway Glenelg, S.A. 5045	Tel. +61 8 8294-8277 Fax +61 8 8294-2893 enquires@sew-eurodrive.com.au
	Perth	SEW-EURODRIVE PTY. LTD. 105 Robinson Avenue Belmont, W.A. 6104	Tel. +61 8 9478-2688 Fax +61 8 9277-7572 enquires@sew-eurodrive.com.au
	Brisbane	SEW-EURODRIVE PTY.LTD. 1 /34 Collinsvale St Rocklea, Queensland, 4106	Tel. +61 7 3272-7900 Fax +61 7 3272-7901 enquires@sew-eurodrive.com.au

Austria			
Assembly **Sales** **Service**	**Wien**	SEW-EURODRIVE Ges.m.b.H. Richard-Strauss-Strasse 24 A-1230 Wien	Tel. +43 1 617 55 00-0 Fax +43 1 617 55 00-30 http://sew-eurodrive.at sew@sew-eurodrive.at
Technical Offices	**Linz**	SEW-EURODRIVE Ges.m.b.H. Reuchlinstr. 6/3 A-4020 Linz	Tel. +43 732 655 109-0 Fax +43 732 655 109-20 tb-linz@sew-eurodrive.at
	Graz	SEW-EURODRIVE Ges.m.b.H. Grabenstraße 231 A-8045 Graz	Tel. +43 316 685 756-0 Fax +43 316 685 755 tb-graz@sew-eurodrive.at
	Dornbirn	SEW-EURODRIVE Ges.m.b.H. Lustenauerstraße 27/1 A-6850 Dornbirn	Tel. +43 5572 3725 99-0 Fax +43 5572 3725 99-20 tb-dornbirn@sew-eurodrive.at

Bangladesh			
	Dhaka	Triangle Trade International Bldg-5, Road-2, Sec-3, Uttara Model Town Dhaka-1230 Bangladesh	Tel. +880 2 8912246 Fax +880 2 8913344

Belgium			
Assembly **Sales** **Service**	**Brüssel**	CARON-VECTOR S.A. Avenue Eiffel 5 B-1300 Wavre	Tel. +32 10 231-311 Fax +32 10 231-336 http://www.caron-vector.be info@caron-vector.be
Technical Office	**Vlaanderen**	CARON-VECTOR S.A. Industrieweg 112-114 B-9032 Gent (Wondelgem)	Tel. +32 92 273-452 Fax +32 92 274-155

Bolivia			
	La Paz	GRUPO LARCOS LTDA. Av. Jose Carrasco Not. 1398 Entre Hugo Estrada Y Av. Busch La Paz	Tel. +591 2 221808 Fax +591 2 220085 larcos@ceibo.entelnet.bo

Brazil			
Production **Sales** **Service**	**Sao Paulo**	SEW-EURODRIVE Brasil Ltda. Avenida Amâncio Gaiolli, 50 Caixa Postal: 201-07111-970 Guarulhos/SP - Cep.: 07251-250	Tel. +55 11 6489-9133 Fax +55 11 6480-3328 http://www.sew.com.br sew@sew.com.br
	Additional addresses for service in Brazil provided on request!		

Bulgaria			
Sales	**Sofia**	BEVER-DRIVE GMBH Bogdanovetz Str.1 BG-1606 Sofia	Tel. +359 2 9532565 Fax +359 2 9549345 bever@mbox.infotel.bg

Cameroon			
Sales	**Douala**	Electro-Services Rue Drouot Akwa B.P. 2024 Douala	Tel. +237 4322-99 Fax +237 4277-03

Canada			
Assembly **Sales** **Service**	**Toronto**	SEW-EURODRIVE CO. OF CANADA LTD. 210 Walker Drive Bramalea, Ontario L6T3W1	Tel. +1 905 791-1553 Fax +1 905 791-2999 http://www.sew-eurodrive.ca l.reynolds@sew-eurodrive.ca
	Vancouver	SEW-EURODRIVE CO. OF CANADA LTD. 7188 Honeyman Street Delta. B.C. V4G 1 E2	Tel. +1 604 946-5535 Fax +1 604 946-2513 b.wake@sew-eurodrive.ca
	Montreal	SEW-EURODRIVE CO. OF CANADA LTD. 2555 Rue Leger Street LaSalle, Quebec H8N 2V9	Tel. +1 514 367-1124 Fax +1 514 367-3677 a.peluso@sew-eurodrive.ca

Canada			
	Additional addresses for service in Canada provided on request!		

Chile			
Assembly **Sales** **Service**	**Santiago de Chile**	SEW-EURODRIVE CHILE LTDA. Las Encinas 1295 Parque Industrial Valle Grande LAMPA RCH-Santiago de Chile P.O. Box Casilla 23 Correo Quilicura - Santiago - Chile	Tel. +56 2 75770-00 Fax +56 2 75770-01 sewsales@entelchile.net

China			
Production **Assembly** **Sales** **Service**	**Tianjin**	SEW-EURODRIVE (Tianjin) Co., Ltd. No. 46, 7th Avenue, TEDA Tianjin 300457	Tel. +86 22 25322612 Fax +86 22 25322611 victor.zhang@sew-eurodrive.cn http://www.sew.com.cn
Assembly **Sales** **Service**	**Suzhou**	SEW-EURODRIVE (Suzhou) Co., Ltd. 333, Suhong Middle Road Suzhou Industrial Park Jiangsu Province, 215021 P. R. China	Tel. +86 512 62581781 Fax +86 512 62581783 suzhou@sew.com.cn
	Guangzhou	SEW-EURODRIVE (Guangzhou) Co., Ltd. No. 9, JunDa Road East Section of GETDD Guangzhou 510530 P. R. China	Tel. +86 20 82267890 Fax +86 20 82267891 sewguangzhou@sew.com.cn

China			
Technical Offices	**Beijing**	SEW-EURODRIVE (Tianjin) Co., LTD Room 1205/1206, Golden Corner Building, No. 129 Xuanwumen Xidajie, Xicheng District Beijing 100031	Tel. +86 10 66412026 Fax +86 10 66411017 beijing@sew.com.cn
	Chengdu	SEW-Eurodrive (Tianjin) Co. Ltd. Room 715, Sichuan International Building No. 206, Shun Cheng Avenue Chengdu 610015	Tel. +86 28 6521560 Fax +86 28 6521563 chengdu@sew.com.cn
	Fuzhou	SEW-Eurodrive (Tianjin) Co. Ltd. Unit D, 15/F, Oriental Hotel Fujian Fuzhou 350001	Tel. +86 591 7507596 Fax +86 591 7507285 fuzhou@sew.com.cn
	Jinan	SEW-Eurodrive (Tianjin) Co.Ltd. Room 2008-2009, Liang You Fu Lin Hotel No. 5, Luo Yuan Avenue Jinan 250063	Tel. +86 531 6412622 Fax +86 531 6412430 jinan@sew.com.cn
	Kunming	SEW-EURODRIVE (Tianjin) Co., Ltd Room 1401 Dong Yuan Business Building No. 464 Tuodong Road, Kunming Yunnan Province 650011	Tel. +86 871 3113677 Fax +86 871 3154454 kunming@sew.com.cn
	Nanjing	SEW-Eurodrive (Tianjing) Co.Ltd. Room 710, Jianda Plaza No. 223, North Zhongshan Road Nanjing 210009	Tel. +86 25 3346768 Fax +86 25 3346871 nanjing@sew.com.cn
	Shanghai	SEW-EURODRIVE (TIANJIN) CO., Ltd 16/F, E Block, Jinxuan Building No. 238 South Dandong Road Xuhui District Shanghai 200030	Tel. +86 21 64693534 Fax +86 21 64695532 shanghai@sew.com.cn
	Shenyang	SEW-EURODRIVE (Tianjin) Co., Ltd Shenyang OfficeRoom 0605 Koh Brother Building No. 21 Beijing Street Shenhe District Shenyang City, 110013	Tel. +86 24 22521596 Fax +86 24 22521579 shenyang@sew.com.cn
	Wuhan	SEW-Eurodrive (Tianjin) Co.Ltd. Room 911, Tai He Plaza Wusheng Road Wuhan 430033	Tel. +86 27 85712293 Fax +86 27 85712282 wuhan@sew.com.cn
	Xian	SEW-EURODRIVE (TIANJIN) Co., Ltd Rm 611, Fan Mei Building No. 1 Nan Guan Main Street Xian 710068, Shanxi Province	Tel. +86 29 7811327 Fax +86 29 7811327 xian@sew.com.cn

Colombia			
Assembly **Sales** **Service**	**Bogotá**	SEW-EURODRIVE COLOMBIA LTDA. Calle 22 No. 132-60 Bodega 6, Manzana B Santafé de Bogotá	Tel. +57 1 54750-50 Fax +57 1 54750-44 sewcol@andinet.com

Croatia			
Sales **Service**	**Zagreb**	KOMPEKS d. o. o. PIT Erdödy 4 II HR 10 000 Zagreb	Tel. +385 1 4613-158 Fax +385 1 4613-158 kompeks@net.hr

Czech Republic			
Sales	**Praha**	SEW-EURODRIVE CZ S.R.O. Business Centrum Praha Luná 591 CZ-16000 Praha 6 - Vokovice	Tel. +420 220121234 + 220121236 Fax +420 220121237 http://www.sew-eurodrive.cz sew@sew-eurodrive.cz

Czech Republic			
Technical Offices	**Brno**	SEW-EURODRIVE CZ S.R.O. Krenova 52 CZ -60200 Brno	Tel. +420 543256151 + 543256163 Fax +420 543256845
	Hradec Kralove	SEW-EURODRIVE CZ S.R.O. Technicka Kancelar - vychodni Cechy Svermova CZ-53374 Horni Jeleni	Tel. +420 466673711 Fax +420 466673634
	Klatovy	SEW-EURODRIVE CZ S.R.O. Technical Office Klatovy Kollarova 528 CZ-33901 Klatovy 3	Tel. +420 376310729 Fax +420 376310725

Denmark			
Assembly **Sales** **Service**	**Kopenhagen**	SEW-EURODRIVEA/S Geminivej 28-30, P.O. Box 100 DK-2670 Greve	Tel. +45 43 9585-00 Fax +45 43 9585-09 http://www.sew-eurodrive.dk sew@sew-eurodrive.dk
Technical Offices	**Aarhus**	SEW-EURODRIVEA/S Birkenhaven 45 DK-8520 Lystrup	Tel. +45 86 2283-44 Fax +45 86 2284-90
	Helsingør	SEW-EURODRIVEA/S Rømøvej 2 DK-3140 Ålsgårde	Tel. +45 49 7557-00 Fax +45 49 7558-00
	Odense	SEW-EURODRIVEA/S Lindelyvei 29, Nr. Søby DK-5792 Arslev	Tel. +45 65 9020-70 Fax +45 65 9023-09

Egypt			
	Cairo	Copam Egypt for Engineering & Agencies 33 El Hegaz ST, Heliopolis, Cairo	Tel. +20 2 2566-299 + 1 23143088 Fax +20 2 2594-757 copam@datum.com.eg

Estonia			
Sales	**Tallin**	ALAS-KUUL AS Paldiski mnt.125 EE 0006 Tallin	Tel. +372 6593230 Fax +372 6593231 veiko.soots@alas-kuul.ee

Finland			
Assembly **Sales** **Service**	**Lahti**	SEW-EURODRIVE OY Vesimäentie 4 FIN-15860 Hollola 2	Tel. +358 3 589-300 Fax +358 3 7806-211 http://www.sew-eurodrive.fi sew@sew-eurodrive.fi
Technical Offices	**Helsinki**	SEW-EURODRIVE OY Luutnantinaukio 5C LT2 FIN-00410 Helsinki	Tel. +358 3 589-300 Fax + 358 9 5666-311
	Vaasa	SEW-EURODRIVE OY Kauppapuistikko 11 E FIN-65100 Vaasa	Tel. +358 3 589-300 Fax +358 6 3127-470

Gabon			
Sales	**Libreville**	Electro-Services B.P. 1889 Libreville	Tel. +241 7340-11 Fax +241 7340-12

Great Britain			
Assembly **Sales** **Service**	**Normanton**	SEW-EURODRIVE Ltd. Beckbridge Industrial Estate P.O. Box No.1 GB-Normanton, West- Yorkshire WF6 1QR	Tel. +44 1924 893-855 Fax +44 1924 893-702 http://www.sew-eurodrive.co.uk info@sew-eurodrive.co.uk

Great Britain			
Technical Offices	**London**	SEW-EURODRIVE Ltd. 764 Finchely Road, Temple Fortune GB-London N.W.11 7TH	Tel. +44 20 8458-8949 Fax +44 20 8458-7417
	Midlands	SEW-EURODRIVE Ltd. 5 Sugar Brook court, Aston Road, Bromsgrove, Worcs B60 3EX	Tel. +44 1527 877-319 Fax +44 1527 575-245
	Scotland	SEW-EURODRIVE Ltd. Scottish Office No 37 Enterprise House Springkerse Business Park GB-Stirling FK7 7UF Scotland	Tel. +44 17 8647-8730 Fax +44 17 8645-0223

Greece			
Sales **Service**	**Athen**	Christ. Boznos & Son S.A. 12, Mavromichali Street P.O. Box 80136, GR-18545 Piraeus	Tel. +30 2 1042 251-34 Fax +30 2 1042 251-59 http://www.boznos.gr info@boznos.gr
Technical Office	**Thessaloniki**	Christ. Boznos & Son S.A. Maiandrou 15 562 24 Evosmos, Thessaloniki	Tel. +30 2 310 7054-00 Fax +30 2 310 7055-15

Hong Kong			
Assembly **Sales** **Service**	**Hong Kong**	SEW-EURODRIVE LTD. Unit No. 801-806, 8th Floor Hong Leong Industrial Complex No. 4, Wang Kwong Road Kowloon, Hong Kong	Tel. +852 2 7960477 + 79604654 Fax +852 2 7959129 sew@sewhk.com

Hungary			
Sales **Service**	**Budapest**	SEW-EURODRIVE Kft. H-1037 Budapest Kunigunda u. 18	Tel. +36 1 437 06-58 Fax +36 1 437 06-50 office@sew-eurodrive.hu

Iceland			
	Hafnarfirdi	VARMAVERK ehf Dalshrauni 5 IS - 220 Hafnarfirdi	Tel. +354 5 6517-50 Fax +354 5 6519-51 varmaverk@varmaverk.is

India			
Assembly **Sales** **Service**	**Baroda**	SEW-EURODRIVE India Pvt. Ltd. Plot No. 4, Gidc Por Ramangamdi · Baroda - 391 243 Gujarat	Tel. +91 265 2831021 Fax +91 265 2831087 mdoffice@seweurodriveindia.com

India			
Technical Offices	**Bangalore**	SEW-EURODRIVE India Private Limited 308, Prestige Centre Point 7, Edward Road Bangalore	Tel. +91 80 22266565 Fax +91 80 22266569 sewbangalore@sify.com
	Calcutta	SEW EURODRIVE INDIA PVT. LTD. Juthika Apartment, Flat No. B1 11/1, Sunny Park Calcutta - 700 019	Tel. +91 33 24615820 Fax +91 33 24615826 sewcal@cal.vsnl.net.in
	Chennai	SEW-EURODRIVE India Private Limited 2nd Floor, Hariram Building 16, College Road Chennai - 600 006, Tamil Nadu	Tel. +91 44 28214471 Fax +91 44 28214473
	Mumbai	SEW-EURODRIVE India Private Limited 312 A, 3rd Floor, Acme Plaza Andheri Kurla Road, Andheri (E) Mumbai	Tel. +91 22 28348440 Fax +91 22 28217858 sewmumbai@vsnl.net
	New Delhi	SEW-EURODRIVE India Private Limited 303 Kirti Deep, 2-Nangal Raya Business Centre New Delhi 110 046	Tel. +91 11 25611566 Fax +91 11 25513494
	Pune	SEW-EURODRIVE India Private Limited 206, Metro House 7 Mangaldas Road Pune 411001, Maharashtra	Tel. +91 20 26111054 Fax +91 20 26132337 sewpun@pn2.vsnl.net.in

Indonesia			
Technical Office	**Jakarta**	SEW-EURODRIVE Pte Ltd. Jakarta Liaison Office, Menara Graha Kencana Jl. Perjuangan No. 88, LT 3 B, Kebun Jeruk, Jakarta 11530	Tel. +62 21 5359066 Fax +62 21 5363686

Ireland			
Sales **Service**	**Dublin**	Alperton Engineering Ltd. 48 Moyle Road Dublin Industrial Estate Glasnevin, Dublin 11	Tel. +353 1 830-6277 Fax +353 1 830-6458

Israel			
	Tel-Aviv	Liraz Handasa Ltd. Ahofer Str 34B / 228 58858 Holon	Tel. +972 3 5599511 Fax +972 3 5599512 lirazhandasa@barak-online.net

Italy			
Assembly **Sales** **Service**	**Milano**	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Via Bernini,14 I-20020 Solaro (Milano)	Tel. +39 2 96 9801 Fax +39 2 96 799781 sewit@sew-eurodrive.it

Italy			
Technical Offices	**Bologna**	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Via Emilia,172 I-40064 Ozzano dell'Emilia (Bo)	Tel. +39 51 796-660 Fax +39 51 796-595
	Caserta	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Viale Carlo III-Parco Matilde A I-81020 S. Nicola la Strada (Caserta)	Tel. +39 823 450611 Fax +39 823 421414
	Firenze	RIMA Via Einstein, 14 I-50013 Campi Bisenzio (Firenze)	Tel. +39 55 898 58-21 Fax +39 55 898 58-30
	Roma	Elettromec Via Castel Rosso, 10 I-00144 Roma	Tel. +39 6 592 45-30 Fax +39 6 592 45-30
	Torino	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Filiale Torino c.so Unione Sovietica 612/15 - int. C I-11035 Torino	Tel. +39 11 3473780 Fax +39 11 3473783
	Verona	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Via P. Sgulmero, 27/A I-37132 Verona	Tel. +39 45 97-7722 Fax +39 45 97-6079

Ivory Coast			
Sales	**Abidjan**	SICA Ste industrielle et commerciale pour l'Afrique 165, Bld de Marseille B.P. 2323, Abidjan 08	Tel. +225 2579-44 Fax +225 2584-36

Japan			
Assembly **Sales** **Service**	**Toyoda-cho**	SEW-EURODRIVE JAPAN CO., LTD 250-1, Shimoman-no, Toyoda-cho, Iwata gun Shizuoka prefecture, 438-0818	Tel. +81 538 373811 Fax +81 538 373814 sewjapan@sew-eurodrive.co.jp
Technical Offices	**Fukuoka**	SEW-EURODRIVE JAPAN CO., LTD. C-go, 5th-floor, Yakuin-Hiruzu-Bldg. 1-5-11, Yakuin, Chuo-ku Fukuoka, 810-0022	Tel. +81 92 713-6955 Fax +81 92 713-6860 sewkyushu@jasmine.ocn.ne.jp
	Osaka	SEW-EURODRIVE JAPAN CO., LTD. B-Space EIRAI Bldg., 3rd Floor 1-6-9 Kyoumachibori, Nishi-ku, Osaka, 550-0003	Tel. +81 6 6444--8330 Fax +81 6 6444--8338 sewosaka@crocus.ocn.ne.jp
	Tokyo	SEW-EURODRIVE JAPAN CO., LTD. Izumi-Bldg. 5 F 3-2-15 Misaki-cho Chiyoda-ku, Tokyo 101-0061	Tel. +81 3 3239-0469 Fax +81 3 3239-0943 sewtokyo@basil.ocn.ne.jp

Korea			
Assembly **Sales** **Service**	**Ansan-City**	SEW-EURODRIVE KOREA CO., LTD. B 601-4, Banweol Industrial Estate Unit 1048-4, Shingil-Dong Ansan 425-120	Tel. +82 31 492-8051 Fax +82 31 492-8056 master@sew-korea.co.kr
	Busan	SEW-EURODRIVE KOREA Co., Ltd. No. 1720 - 11, Songjeong - dong Gangseo-ku Busan 618-270	Tel. +82 51 832-0204 Fax +82 51 832-0230 master@sew-korea.co.kr

Korea			
Technical Offices	**Daegu**	SEW-EURODRIVE KOREA Co., Ltd. No.1108 Sungan officete I 87-36, Duryu 2-dong, Dalseo-ku Daegu 704-712	Tel. +82 53 650-7111 Fax +82 53 650-7112 sewdaegu@netsgo.com
	DaeJeon	SEW-EURODRIVE KOREA Co., Ltd. No. 2017, Hongin offictel 536-9, Bongmyung-dong, Yusung-ku Daejeon 305-301	Tel. +82 42 828-6461 Fax +82 42 828-6463 sewdaejeon@netsgo.com
	Kwangju	SEW-EURODRIVE KOREA Co., Ltd. 4fl., Shinhyun B/D 96-16 Unam-dong, Buk-ku Kwangju 500-170	Tel. +82 62 511-9172 Fax +82 62 511-9174 sewkwangju@netsgo.com
	Seoul	SEW-EURODRIVE KOREA Co., Ltd. No.1104 Sunkyung officetel 106-4 Kuro 6-dong, Kuro-ku Seoul 152-054	Tel. +82 2 862-8051 Fax +82 2 862-8199 sewseoul@netsgo.com

Latvia			
Sales	**Riga**	SIA Alas-Kuul Katlakalna 11C LV-1073 Riga	Tel. +371 7139386 Fax +371 7139386 info@alas-kuul.ee

Lebanon			
Sales	**Beirut**	Gabriel Acar & Fils sarl B. P. 80484 Bourj Hammoud, Beirut	Tel. +961 1 4947-86 +961 1 4982-72 +961 3 2745-39 Fax +961 1 4949-71 gacar@beirut.com

Lithuania			
Sales	**Alytus**	UAB Irseva Merkines g. 2A LT-4580 Alytus	Tel. +370 315 79204 Fax +370 315 79688 irmantas.irseva@one.lt

Luxembourg			
Assembly **Sales** **Service**	**Brüssel**	CARON-VECTOR S.A. Avenue Eiffel 5 B-1300 Wavre	Tel. +32 10 231-311 Fax +32 10 231-336 http://www.caron-vector.be info@caron-vector.be

Malaysia			
Assembly **Sales** **Service**	**Johore**	SEW-EURODRIVE SDN BHD No. 95, Jalan Seroja 39, Taman Johor Jaya 81000 Johor Bahru, Johor West Malaysia	Tel. +60 7 3549409 Fax +60 7 3541404 kchtan@pd.jaring.my
Technical Offices	**Kota Kinabalu**	SEW-EURODRIVE Sdn Bhd (Kota Kinabalu Branch) Lot No. 2,1st Floor, Inanam Baru Phase III, Miles 5.1 /2, Jalan Tuaran, Inanam 89350 Kota Kinabalu Sabah, Malaysia	Tel. +60 88 424792 Fax +60 88 424807
	Kuala Lumpur	SEW-EURODRIVE Sdn. Bhd. No. 2, Jalan Anggerik Mokara 31/46 Kota Kemuning Seksyen 31 40460 Shah Alam Selangor Darul Ehsan	Tel. +60 3 5229633 Fax +60 3 5229622 sewpjy@po.jaring.my
	Kuching	SEW-EURODRIVE Sdn. Bhd. Lot 268, Section 9 KTLD Lorong 9, Jalan Satok 93400 Kuching, Sarawak East Malaysia	Tel. +60 82 232380 Fax +60 82 242380
	Penang	SEW-EURODRIVE Sdn. Bhd. No. 38, Jalan Bawal Kimsar Garden 13700 Prai, Penang	Tel. +60 4 3999349 Fax +60 4 3999348 seweurodrive@po.jaring.my

Mexico			
	Queretaro	SEW-EURODRIVE, Sales and Distribution, S. A. de C. V. Privada Tequisquiapan No. 102 Parque Ind. Queretaro C. P. 76220 Queretaro, Mexico	Tel. +52 442 1030-300 Fax +52 442 1030-301 scmexico@seweurodrive.com.mx

Morocco			
Sales	**Casablanca**	S. R. M. Société de Réalisations Mécaniques 5, rue Emir Abdelkader 05 Casablanca	Tel. +212 2 6186-69 + 6186-70 + 6186-71 Fax +212 2 6215-88 srm@marocnet.net.ma

Netherlands			
Assembly **Sales** **Service**	**Rotterdam**	VECTOR Aandrijftechniek B.V. Industrieweg 175 NL-3044 AS Rotterdam Postbus 10085 NL-3004 AB Rotterdam	Tel. +31 10 4463-700 Fax +31 10 4155-552 http://www.vector.nu info@vector.nu

New Zealand			
Assembly **Sales** **Service**	**Auckland**	SEW-EURODRIVE NEW ZEALAND LTD. P.O. Box 58-428 82 Greenmount drive East Tamaki Auckland	Tel. +64 9 2745627 Fax +64 9 2740165 sales@sew-eurodrive.co.nz
	Christchurch	SEW-EURODRIVE NEW ZEALAND LTD. 10 Settlers Crescent, Ferrymead Christchurch	Tel. +64 3 384-6251 Fax +64 3 384-6455 sales@sew-eurodrive.co.nz
Technical Office	**Palmerston North**	SEW-EURODRIVE NEW ZEALAND LTD. C/-Grant Shearman, RD 5, Aronui Road Palmerston North	Tel. +64 6 355-2165 Fax +64 6 355-2316 sales@sew-eurodrive.co.nz

Norway			
Assembly **Sales** **Service**	**Moss**	SEW-EURODRIVE A/S Solgaard skog 71 N-1599 Moss	Tel. +47 69 241-020 Fax +47 69 241-040 sew@sew-eurodrive.no

Pakistan			
Technical Office	**Karachi**	SEW-EURODRIVE Pte. Ltd. Karachi Liaison Office A/3, 1st Floor, Central Commercial Area Sultan Ahmed Shah Road Block 7/8, K.C.H.S. Union Ltd., Karachi	Tel. +92 21 4529369 Fax +92 21 4547365 seweurodrive@cyber.net.pk

Paraguay			
	Asunción	EQUIS S. R. L. Avda. Madame Lynchy y Sucre Asunción	Tel. +595 21 6721-48 Fax +595 21 6721-50 equisa@uninet.com.py

Peru			
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Assembly **Sales** **Service**	**Lodz**	SEW-EURODRIVE Polska Sp.z.o.o. ul. Techniczna 5 PL-92-518 Lodz	Tel. +48 42 67710-90 Fax +48 42 67710-99 http://www.sew-eurodrive.pl sew@sew-eurodrive.pl
Technical Office	**Katowice**	SEW-EURODRIVE Polska Sp.z.o.o. ul. Nad Jeziorem 87 PL-43-100 Tychy	Tel. +48 32 2175026 + 32 2175027 Fax +48 32 2277910
	Bydgoszcz	SEW-EURODRIVE Polska Sp.z.o.o. ul. Fordonska 246 PL-85-959 Bydgoszcz	Tel. +48 52 3606590 Fax +48 52 3606591
	Szczecinek	SEW-EURODRIVE Polska Sp.z.o.o. ul. Mickiewicza 2 pok. 36 PL-78-400 Szczecinek	Tel. +48 94 3728820 Fax +48 94 3728821

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Technical Offices	**Lisboa**	Tertir Edificio Lisboa Gabinete 119 P-2615 Alverca do Ribatejo	Tel. +351 21 958-0198 Fax +351 21 958-0245 esc.lisboa@sew-eurodrive.pt
	Porto	AV. D. AFONSO HENRIQUES, 1196-9° Sala 909 - Edificio Acia P- 4450 Matosinhos	Tel. +351 22 935038-3 Fax +351 22 935038-4 MobilTel. +351 9 332559110 esc.porto@sew-eurodrive.pt

Romania			
Sales **Service**	**Bucuresti**	Sialco Trading SRL str. Madrid nr.4 011785 Bucuresti	Tel. +40 21 230-1328 Fax +40 21 230-7170 sialco@sialco.ro

Russia			
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Technical Office	**Moskau**	ZAO SEW-EURODRIVE RUS-119180 Moskau	Tel. +7 095 9337090 Fax +7 095 9337094 mso@sew-eurodrive.ru
	Novosibirsk	ZAO SEW-EURODRIVE pr. K Marksa, d.30 RUS-630087 Novosibirsk	Tel. +7 3832 350200 Fax +7 3832 462544 nso@sew-eurodrive.ru

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	Richards Bay	SEW-EURODRIVE PTY LTD. 25 Eagle Industrial Park Alton Richards Bay P.O. Box 458 Richards Bay 3900	Tel. +27 35 797-3805 Fax +27 35 797-3819 dtait@sew.co.za

Spain			
Assembly **Sales** **Service**	**Bilbao**	SEW-EURODRIVE ESPAÑA, S.L. Parque Tecnológico, Edificio, 302 E-48170 Zamudio (Vizcaya)	Tel. +34 9 4431 84-70 Fax +34 9 4431 84-71 sew.spain@sew-eurodrive.es
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Thailand			
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Thailand			
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USA			
Assembly **Sales** **Service**	**San Francisco**	SEW-EURODRIVE INC. 30599 San Antonio St. Hayward, California 94544-7101	Tel. +1 510 487-3560 Fax +1 510 487-6381 cshayward@seweurodrive.com
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	Dallas	SEW-EURODRIVE INC. 3950 Platinum Way Dallas, Texas 75237	Tel. +1 214 330-4824 Fax +1 214 330-4724 csdallas@seweurodrive.com
	Additional addresses for service in the USA provided on request!		

Venezuela			
Assembly **Sales** **Service**	**Valencia**	SEW-EURODRIVE Venezuela S.A. Av. Norte Sur No. 3, Galpon 84-319 Zona Industrial Municipal Norte Valencia, Estado Carabobo	Tel. +58 241 832-9804 Fax +58 241 838-6275 sewventas@cantv.net sewfinanzas@cantv.net

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13 Technical data of the motors

INFORMATION

You find more information in the "AC Motors" catalog.

13.1 Key to the data tables

The following table lists the short symbols used in the "Technical data" tables.

P_N	Rated power
M_N	Rated torque
n_N	Rated speed
I_N	Rated current
cosφ	Power factor
$\eta_{50\%}$	Efficiency at 50% of the rated power
$\eta_{75\%}$	Efficiency at 75% of the rated power
$\eta_{100\%}$	Efficiency at 100% of the rated power
I_A/I_N	Starting current ratio
M_A/M_N	Starting torque ratio
M_H/M_N	Ramp-up torque ratio
M_K/M_N	Breakdown torque ratio
m_{Mot}	Mass of the motor
J_{Mot}	Mass moment of inertia of the motor
BE..	Brake used
Z_0 BG	Switching frequency for operation with BG brake controller
Z_0 BGE	Switching frequency for operation with BGE brake controller
M_B	Braking torque
m_{BMot}	Mass of the brakemotor
J_{BMot}	Mass moment of inertia of the brakemotor

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13.2 IE1 DR2S.. motors. 400 V, 50 Hz, 4-pole

13.2.1 Information on motors

DR2S.. motor type	P_N kW	M_N Nm	n_N min^{-1}	I_N 400 V A	cosφ	$\eta_{50\%}$ %	$\eta_{75\%}$ %	$\eta_{100\%}$ %	I_A/I_N	M_A/M_N M_H/M_N	M_K/M_N
DR2S56MR4[1)]	0.09	0.62	1380	0.35	0.61	43.9	51.4	54.8	3.0	2.8 2.8	2.9

1) DR2S56.. motors will be available in spring 2019.

13.2.2 Further information for motors and brakemotors

DR2S.. motor type	P_N kW	M_N Nm	n_N min^{-1}	m_{Mot} kg	J_{Mot} 10^{-4} kgm^2	BE..	Z_0 BG BGE h^{-1}	M_B Nm	m_{BMot} kg	J_{BMot} 10^{-4} kgm^2
DR2S56MR4[1)]	0.09	0.62	1380	[2)]	1.2	BE02	10000 -	0.8	[2)]	1.3

1) DR2S56.. motors will be available in spring 2019.
2) Only available as gearmotor

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13.3 IE3 DRN.. motors, 400 V, 50 Hz, 2-pole

13.3.1 Information for motors

Motor	P_N kW	M_N Nm	n_N min^{-1}	I_N A	cosφ	$\eta_{50\%}$ %	$\eta_{75\%}$ %	$\eta_{100\%}$ %	I_A/I_N	M_A/M_N M_H/M_N	M_K/M_N
DRN63MS2	0.18	0.63	2725	0.465	0.78	62.7	66.2	65.9	4.2	2.6 2.6	2.6
DRN63M2	0.25	0.87	2755	0.57	0.81	69.2	70.9	69.7	4.9	2.7 2.6	2.7
DRN71MS2	0.37	1.26	2810	0.87	0.78	70.7	73.8	73.8	5.4	3.1 2.7	3.1
DRN71M2	0.55	1.86	2825	1.24	0.81	75.7	78.0	77.8	5.9	3.2 3.0	3.2
DRN80MS2	0.75	2.5	2855	1.58	0.84	80.2	82.0	81.4	5.9	2.8 2.5	2.9
DRN80M2	1.1	3.65	2860	2.2	0.85	83.1	84.1	83.0	6.6	3.0 2.5	2.9
DRN90S2	1.5	4.95	2886	3.1	0.83	83.7	85.0	84.2	6.6	2.7 2.5	2.9
DRN90L2	2.2	7.2	2905	4.3	0.85	86.1	86.7	85.9	7.4	2.5 2.1	3.0
DRN100LM2	3	9.9	2894	5.8	0.85	88.9	88.7	87.2	7.7	3.3 2.6	3.5
DRN112M2	4	13	2948	7.5	0.86	88.1	88.7	88.1	10.6	2.9 1.3	3.3
DRN132S2	5.5	17.9	2935	9.4	0.92	90.3	90.2	89.2	10.0	3.0 2.1	3.7
DRN132S2	7.5	24.5	2936	14.1	0.85	90.6	90.8	90.1	9.6	3.3 2.0	3.4

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13.3.2 Further information for motors and brakemotors

Motor	P_N	M_N	n_N	m_{Mot}	J_{Mot}	BE..	Z_0 BG BGE	M_B	m_{BMot}	J_{BMot}
	kW	Nm	min^{-1}	kg	10^{-4} kgm^2		h^{-1}	Nm	kg	10^{-4} kgm^2
DRN63MS2	0.18	0.63	2725	4.9	2.95	BE03	5000 6000	1.3	6.8	3.63
DRN63M2	0.25	0.87	2755	5.8	3.76	BE03	4500 6000	1.7	7.6	4.44
DRN71MS2	0.37	1.26	2810	6.8	2.93	BE03	6000 3600	2.7	8.6	3.61
DRN71M2	0.55	1.86	2825	8	3.71	BE05	2600 5500	5	10	5.01
DRN80MS2	0.75	2.5	2855	11	18.5	BE05	1200 3400	5	15	20
DRN80M2	1.1	3.65	2860	14	24.1	BE1	1000 2600	7	18	25.6
DRN90S2	1.5	4.95	2886	20	53.1	BE1	600 1300	10	22	54.7
DRN90L2	2.2	7.2	2905	23	66.3	BE2	- 1000	14	27	71
DRN100LM2	3	9.9	2894	33	89.7	BE2	- 750	20	37	94.4
DRN112M2	4	13	2948	45	178	BE5	- 400	28	52	183
DRN132S2	5.5	17.9	2935	56	241	BE5	- 300	40	64	246
DRN132S2	7.5	24.5	2936	56	241	BE5	- 300	55	64	246

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13.4 IE3 DRN.. motors, 400 V, 50 Hz, 4-pole

13.4.1 Information on motors

Motor	P_N kW	M_N Nm	n_N min^{-1}	I_N A	cosφ	$\eta_{50\%}$ %	$\eta_{75\%}$ %	$\eta_{100\%}$ %	I_A/I_N	M_A/M_N M_H/M_N	M_K/M_N
DRN63MS4	0.12	0.83	1380	0.4	0.64	58.3	63.9	64.8	3.6	2.7 2.6	2.7
DRN63M4	0.18	1.25	1375	0.57	0.65	65.1	69.4	69.9	3.7	2.6 2.6	2.6
DRN71MS4	0.25	1.7	1405	0.72	0.66	70.1	73.5	73.5	4.3	2.5 2.3	2.5
DRN71M4	0.37	2.5	1415	1.02	0.66	74.3	77.3	77.3	4.8	2.8 2.4	2.8
DRN80MK4	0.55	3.65	1435	1.29	0.75	78.6	81.0	80.8	6.1	2.7 2.1	3.1
DRN80M4	0.75	4.95	1440	1.75	0.74	80.7	82.9	82.9	6.7	3.1 2.7	3.4
DRN90S4	1.1	7.2	1455	2.55	0.73	83.5	85.0	84.5	6.9	2.7 2.1	3.3
DRN90L4	1.5	9.8	1461	3.4	0.74	84.6	86.1	85.6	7.5	2.7 2.0	3.3
DRN100LS4	2.2	14.5	1450	4.75	0.76	86.4	87.5	86.9	7.1	2.9 2.2	3.3
DRN100L4	3	19.7	1456	6.4	0.76	87.3	88.3	87.8	8.2	3.4 2.3	3.7
DRN112M4	4	26	1464	7.9	0.81	88.6	89.4	88.7	8.2	2.4 1.6	3.6
DRN132S4	5.5	36	1461	10.5	0.84	90.6	90.6	89.6	8.3	2.8 2.2	3.5
DRN132M4	7.5	49	1468	15.2	0.78	90.8	91.1	90.4	7.8	3.1 2.4	3.3
DRN132L4	9.2	60	1470	18.7	0.77	90.8	91.6	91.0	8.4	3.7 1.8	3.7
DRN160M4	11	71	1473	21	0.81	91.1	91.7	91.4	7.3	2.6 2.2	3.0
DRN160L4	15	97	1474	29	0.80	91.9	92.5	92.1	8.0	3.0 2.0	3.4
DRN180M4	18.5	120	1478	33.5	0.85	92.8	93.1	92.6	9.5	3.6 2.9	3.6
DRN180L4	22	142	1477	38.5	0.87	93.4	93.6	93.0	9.6	3.5 2.1	3.4
DRN200L4	30	194	1480	56	0.82	93.3	93.9	93.6	8.2	2.9 2.5	3.3
DRN225S4	37	240	1482	64	0.88	94.3	94.4	93.9	8.4	3.0 2.3	2.7
DRN225M4	45	290	1482	81	0.85	94.1	94.5	94.2	8.8	3.0 2.2	2.7
DRN250M4	55	355	1482	104	0.80	94.4	94.8	94.6	8.2	4.0 2.5	2.9
DRN280S4	75	485	1482	143	0.79	94.9	95.3	95.0	7.6	3.7 2.6	2.9
DRN280M4	90	580	1481	161	0.84	95.4	95.6	95.2	7.7	3.6 2.0	2.7
DRN315S4	110	710	1488	189	0.87	95.4	95.7	95.5	6.7	2.9 2.1	3.1
DRN315M4	132	850	1487	230	0.87	95.6	95.9	95.6	6.5	2.7 2.0	2.9
DRN315L4	160	1030	1486	275	0.87	95.9	96.1	95.9	6.5	2.7 2.0	2.8
DRN315H4	200	1280	1489	355	0.84	95.4	96.0	96.0	8.1	3.7 2.8	3.8

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13.4.2 Further information on motors and brakemotors

Motor	P_N	M_N	n_N	m_{Mot}	J_{Mot}	BE..	Z_0 BG BGE	M_B	m_{BMot}	J_{BMot}
	kW	Nm	min^{-1}	kg	10^{-4} kgm^2		h^{-1}	Nm	kg	10^{-4} kgm^2
DRN63MS4	0.12	0.83	1380	4.9	2.95	BE03	10000 10000	1.7	6.8	3.63
DRN63M4	0.18	1.25	1375	5.8	3.76	BE03	10000 10000	2.7	7.6	4.44
DRN71MS4	0.25	1.7	1405	6.8	5.42	BE03	6200 9700	3.4	8.6	6.11
DRN71M4	0.37	2.5	1415	8	7.14	BE05	5000 9000	5	10	8.44
DRN80MK4	0.55	3.65	1435	11	17.1	BE1	3500 8500	7	14	18.6
DRN80M4	0.75	4.95	1440	14	24.7	BE1	3200 8200	10	18	26.2
DRN90S4	1.1	7.2	1455	20	54	BE2	2300 6000	14	24	58.7
DRN90L4	1.5	9.8	1461	23	67.2	BE2	2200 5800	20	27	71.9
DRN100LS4	2.2	14.5	1450	27	81.4	BE5	- 6100	28	33	87.4
DRN100L4	3	19.7	1456	34	112	BE5	- 3700	40	40	118
DRN112M4	4	26	1464	45	178	BE5	- 2900	55	52	183
DRN132S4	5.5	36	1461	56	241	BE11	- 2100	80	71	251
DRN132M4	7.5	49	1468	73	381	BE11	- 1100	110	91	403
DRN132L4	9.2	60	1470	81	439	BE20	- 980	150	110	490
DRN160M4	11	71	1473	115	817	BE20	- 900	150	145	877
DRN160L4	15	97	1474	130	1040	BE20	- 800	200	165	1100
DRN180M4	18.5	120	1478	155	1630	BE30	- 510	300	195	1770
DRN180L4	22	142	1477	170	1950	BE30	- 470	300	210	2090
DRN200L4	30	194	1480	280	2660	BE32	- 500	400	335	2890
DRN225S4	37	240	1482	310	4350	BE32	- 290	500	365	4580
DRN225M4	45	290	1482	310	4350	BE32	- 200	600	365	4580
DRN250M4	55	355	1482	460	7360	BE62	- 180	800	550	7960
DRN280S4	75	485	1482	520	8940	BE62	- 150	1000	600	9530
DRN280M4	90	580	1481	630	12000	BE62	- 79	1200	720	12600
DRN315S4	110	710	1488	870	23400	BE122	- 53	1600	1000	24400
DRN315M4	132	850	1487	890	24800	BE122	- 46	2000	1020	25800
DRN315L4	160	1030	1486	1020	28600	BE122	- 34	2000	1150	29600
DRN315H4	200	1280	1489	1130	35200	BE122	- 23	2000	1270	36200

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13.5 IE3 DRN.. motors, 400 V, 50 Hz, 6-pole

13.5.1 Information for motors

Motor	P_N kW	M_N Nm	n_N min^{-1}	I_N A	cosφ	$\eta_{50\%}$ %	$\eta_{75\%}$ %	$\eta_{100\%}$ %	I_A/I_N	M_A/M_N M_H/M_N	M_K/M_N
DRN63MR6	0.09	0.93	920	0.36	0.58	44.3	51.7	55.0	2.9	2.7 2.6	2.8
DRN63M6	0.12	1.32	870	0.4	0.71	51.9	57.5	57.7	2.6	1.9 1.8	1.9
DRN71MS6	0.18	1.88	915	0.55	0.69	59.4	63.7	63.9	3.4	1.9 1.9	2.2
DRN71M6	0.25	2.6	915	0.76	0.68	63.5	68.2	68.6	3.4	2.0 1.9	2.3
DRN80MK6	0.37	3.8	935	1.05	0.68	70.8	73.8	73.5	4.1	2.1 2.1	2.4
DRN90SR6	0.55	5.4	966	1.52	0.65	73.5	76.7	77.2	5.2	2.3 2.2	2.8
DRN90S6	0.75	7.5	957	2	0.68	77.4	79.8	78.9	4.8	2.0 2.0	2.4
DRN90L6	1.1	11	957	2.95	0.67	78.8	81.3	81.0	5.0	2.4 2.3	2.8
DRN100L6	1.5	14.9	961	4.1	0.63	80.7	82.8	82.5	4.7	2.2 2.2	2.9
DRN112M6	2.2	21.5	973	5.5	0.66	83.6	85.0	84.3	6.5	2.4 1.9	3.2
DRN132S6	3	29.5	974	7.4	0.66	84.8	86.0	85.6	6.2	2.6 2.5	3.4
DRN132S6	4	39.5	968	9.7	0.68	86.4	87.5	86.8	5.5	2.5 2.5	3.2
DRN132L6	5.5	54	975	13.8	0.64	86.9	88.3	88.0	5.6	2.7 2.5	2.8
DRN160M6	7.5	73	979	15.8	0.74	88.4	89.4	89.1	8.2	2.7 1.6	4.0

24832936/EN – 09/2018

13.5.2 Further information for motors and brakemotors

Motor	P_N kW	M_N Nm	n_N min^{-1}	m_{Mot} kg	J_{Mot} 10^{-4} kgm^2	BE..	Z_0 BG BGE h^{-1}	M_B Nm	m_{BMot} kg	J_{BMot} 10^{-4} kgm^2
DRN63MR6	0.09	0.93	920	5.8	6.47	BE03	12000 12000	2.1	7.6	7.16
DRN63M6	0.12	1.32	870	5.8	6.47	BE03	12000 12000	2.7	7.6	7.16
DRN71MS6	0.18	1.88	915	6.8	8.29	BE05	7000 12000	5	9.2	9.59
DRN71M6	0.25	2.6	915	8	10.4	BE05	5200 12000	5	10	11.7
DRN80MK6	0.37	3.8	935	11	17.1	BE1	3000 9000	10	14	18.6
DRN90SR6	0.55	5.4	966	20	54	BE2	2400 5000	14	24	58.7
DRN90S6	0.75	7.5	957	20	54	BE2	2400 5000	20	24	58.7
DRN90L6	1.1	11	957	23	67.4	BE5	2200 4400	28	29	73.4
DRN100L6	1.5	14.9	961	34	112	BE5	- 3400	40	40	118
DRN112M6	2.2	21.5	973	45	178	BE5	- 2500	55	52	183
DRN132S6	3	29.5	974	56	245	BE11	- 2300	80	71	256
DRN132S6	4	39.5	968	56	245	BE11	- 2100	80	71	256
DRN132L6	5.5	54	975	81	439	BE11	- 1700	110	100	461
DRN160M6	7.5	73	979	115	1290	BE20	- 1200	150	145	1350

24832936/EN – 09/2018

13.6 IE3 DRN.. motors, 400 V, 50 Hz, 8-pole

13.6.1 Information on motors

DRN.. motor type	P_N kW	M_N Nm	n_N min^{-1}	I_N A	cosφ	$\eta_{50\%}$ %	$\eta_{75\%}$ %	$\eta_{100\%}$ %	I_A/I_N	M_A/M_N M_H/M_N	M_K/M_N
DRN71MSR8	0.09	1.24	695	0.435	0.53	39.0	46.7	50.7	2.4	2.3 2.3	2.6
DRN71MS8	0.12	1.72	665	0.47	0.64	46.2	52.4	53.5	2.3	1.6 1.6	1.8
DRN80MK8	0.18	2.45	705	0.76	0.54	49.4	56.1	58.7	3.0	1.8 1.8	2.4
DRN80M8	0.25	3.4	702	1.02	0.53	55.8	62.0	64.1	3.1	2.0 1.9	2.3

13.6.2 Further information on motors and brakemotors

DRN.. motor type	P_N kW	M_N Nm	n_N min^{-1}	m_{Mot} kg	J_{Mot} 10^{-4} kgm^2	BE..	Z_0 BG BGE h^{-1}	M_B Nm	m_{BMot} kg	J_{BMot} 10^{-4} kgm^2
DRN71MSR8	0.09	1.24	695	6.8	8.29	BE03	6000 16000	2.7	8.6	8.98
DRN71MS8	0.12	1.72	665	6.8	8.29	BE03	6000 16000	2.4	8.6	8.98
DRN80MK8	0.18	2.45	705	11	17.1	BE05	5000 11500	5	14	18.6
DRN80M8	0.25	3.4	702	14	24.7	BE1	3700 10500	7	18	26.2

24832936/EN – 09/2018

Project:

- Taunton WTF Improvements Phase 1, Model 60-500 Scum Concentrator

Specification Section(s):

- 11317

Instrument Location:

- Holding Tank

Instrument Name:

- Mixer

Instrument Tag Number(s):

- N/A

Manufacturer(s):

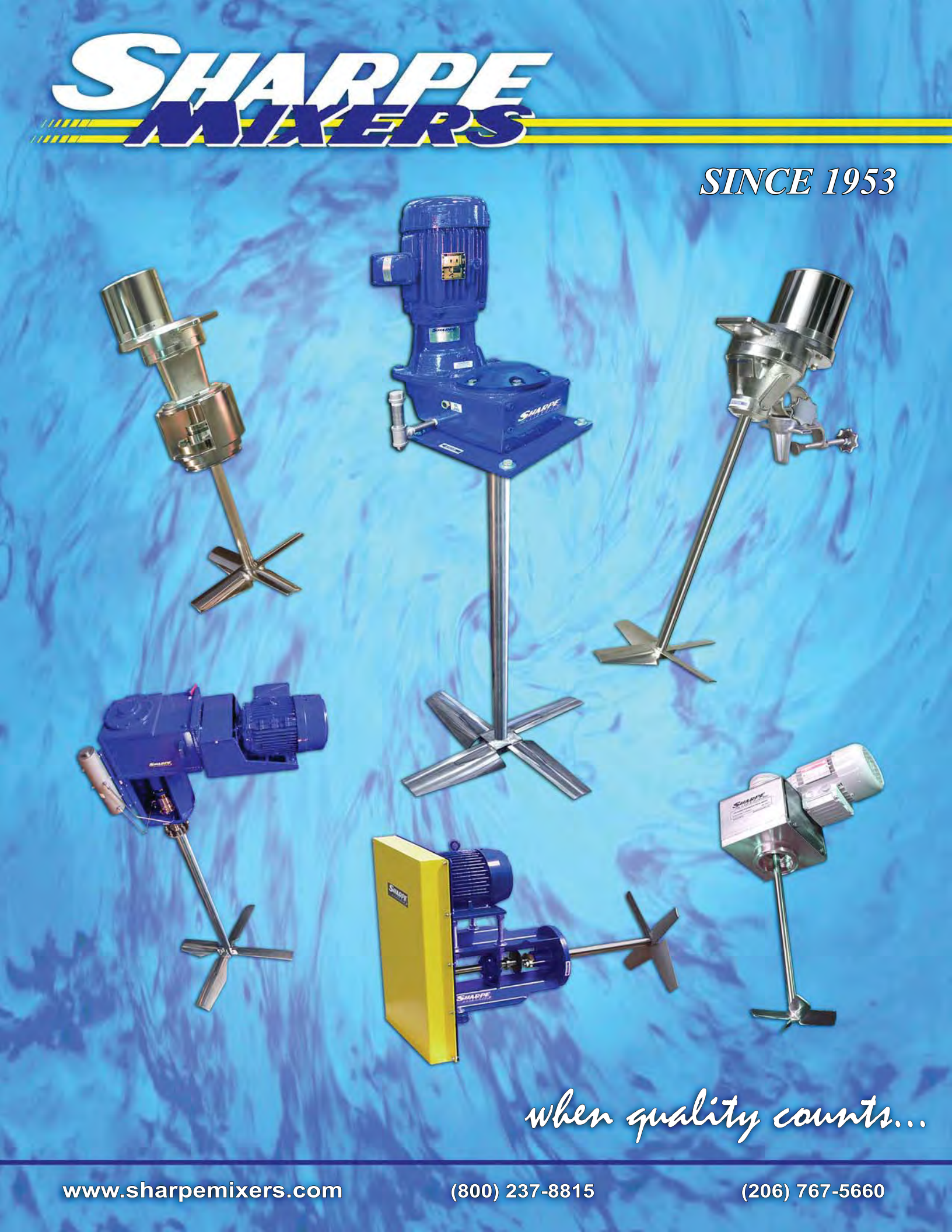
- Sharpe

Model / Part Number(s):

- 2N2-17

SHARPE MIXERS

SINCE 1953



when quality counts...

www.sharpemixers.com (800) 237-8815 (206) 767-5660

Sharpe Mixers
A Hayward Gordon Company
www.sharpemixers.com
P.O. Box 3906 - Seattle, WA 98124 - (800) 237-8815 (206) 767-5660

Date : November 19, 2021

Customer: **Envirocare**

Application :	**Scum Tank Mixer** — **ON-CENTER MOUNTING**
Design conditions :	Viscosity(cps): 500 , Sp.Grav: 1.00 Temp.: Ambient Pressure: Atmospheric
Tank dimensions :	66 Dia. Tank x 74.5 " overall height from mixer base to tank floor Tank Volume (gallons)= 600 Tank equipped with baffles " wide, " off wall
Liquid levels:	Design max (from tank floor): 69"; Min. Liquid Level: 45"

Equipment :	**N-SERIES HELICAL DRIVE TOP-ENTERING MIXER** Quantity : 1 **Mixer Model #** **2N2 -17**
Motor :	2.00 Horsepower, @ 1750 RPM, 3ph, 60Hz, 460volts IEEE841 TEFC 145TC Frame, Motor Furnished by Sharpe , Mounted by Sharpe Super-E efficient; 460 volt only Class 1, Div. 2 motor
Mixer Drive :	N2 Parallel Helical Gearbox 16.5:1 Ratio, Rated at 7.00 Horsepower
Mixer mounting :	Mounting Plate Furnished
Wetted Parts :	SS316
Shaft :	1.50 "Dia. X 44 " long from mounting base, turning @ 106 RPM Includes No In-Tank Shaft Coupling
Impellers :	***18 " min. opening required to install impeller*** 24.0 "dia AFT-455 Axial Flow Impeller 1-piece hub 24.0 "dia AFT-455 Axial Flow Impeller Pumping Down, Turning Clockwise Looking Down
	Ship Wt.,each= *300* lbs

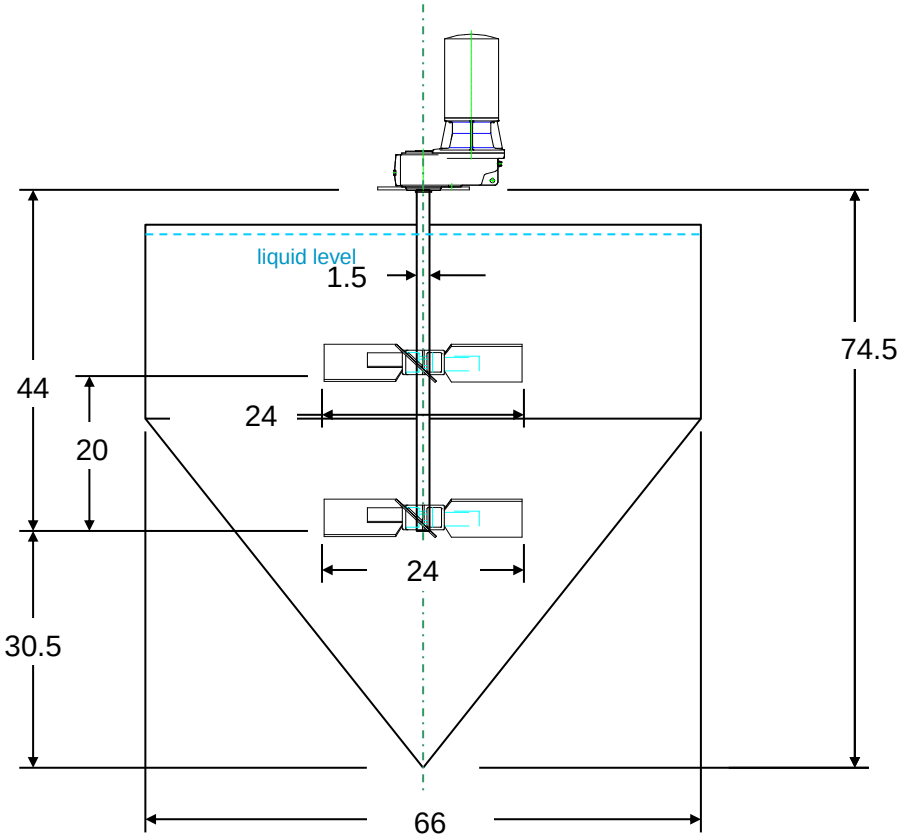
Q1QP-010620

Please address your order to:

Sharpe Mixers
P.O.Box 3906
Seattle,WA 98124

Note - This quote is valid for 30 days.
Any order placed as a result of this proposal is subject to Sharpe Mixers Terms and Conditions.

Sharpe Mixers



NOTES: Tank / Mixer Layout intended for scaled view of in-tank components only. Mixer drive proportions may vary slightly depending on motor type or other options. Please review drawing carefully and inform Sharpe Mixers immediately if any tank dimensions are inaccurate. Drawing generated by Sharpe Mixers Q1QP mixer selection program, Copyright 2005, Seattle, WA.

Mixer weight =	300 lbs	
Design Torque =	2057 lbs-in	
Design OHM =	3495 lbs-in	
est. full tank volume =	592 gal	*(2243 L)*
est. volume @ liquid level =	-93 gal	*-(350 L)*

SHARPE MIXERS

TOP ENTERING MIXER / TANK LAYOUT DETAIL

Mixer Model # ***2N2 -17*** ***Quantity:*** ***1***

Customer: ***Envirocare***

Application: ***Scum Tank Mixer***

Drawing # ***L1-56974 K1***

www.sharpemixers.com - P.O. Box 3906 Seattle, WA 98124 - (800) 237-8815 FAX (800) 767-5670

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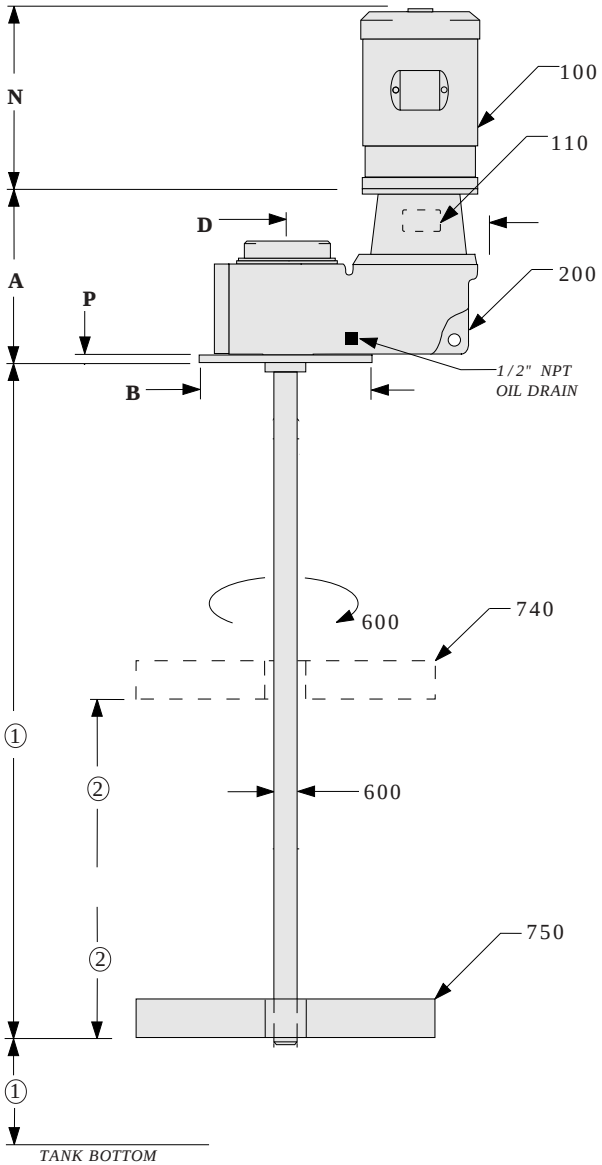
Drawing not to scale. Dimensions are for reference only. Use certified prints for construction. Dimensions in inches.



100 - MOTOR ①

110 - FLEXIBLE MOTOR COUPLING

200 - GEAR REDUCER ①

600 - SHAFT ①

740 - UPPER IMPELLER ②

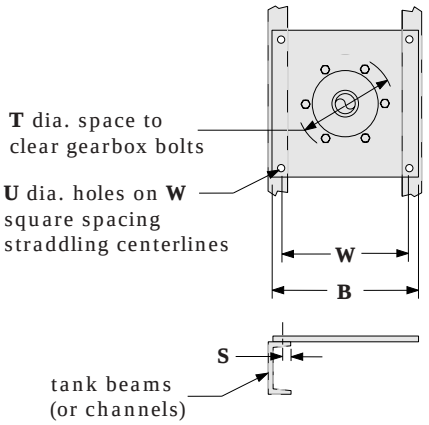
750 - LOWER IMPELLER ①

①Impeller(s), shaft and other details are dependent on specific application and will be described in the Quotation/Data Sheet.

② Items are optional and will be described in the Quotation/Data Sheet if provided

③Basic weight shown in lbs is for mixer drive only, less motor and wetted parts.

MOUNTING DETAIL
PLATE MOUNT
(furnished)



MOTOR DIM'S

HP *	NEMA FRAME	'N'	WT*
1/3 -2	56C	11	37
1-1.5	143TC	11.3	41
1.5-2	145TC	11.3	50
3	182TC	11.8	63
5	184TC	12.8	87
7.5	213TC	15	145
10	215TC	16.5	160
15	254TC	19.6	310
20	256TC	21.3	345
25	284TC	20.3	425
30	286TC	21.8	455
40	324TC	26.5	575
50	326TC	26.5	634

*NEMA frames shown are for 1750 rpm motors. Weights and Outline dimensions (A,B,D,M,N) are approximate.

OVERALL DIMENSIONS

	N1	N2	N3	N4	N5	N6	N7	N8	N9
A (MAX)	10.94	11.77	12.83	15.33	17.23	18.03	21.78	23.49	24.89
B	11	11	12	14	16	18	21	24	30
D	7.95	9.73	11.03	13.03	15	16.1	17.75	20.63	25.95
J (MAX)	5.75	6.25	7	8	9	12.5	12.5	13	15
P	.38	.38	.5	.63	.75	.88	1	1.25	1.5
S	.63	.63	.75	.75	.88	.88	.88	.88	1
T	5.5	6	7.5	8.75	9.5	11.75	13.25	15.5	17.25
U	.43	.43	.56	.56	.68	.88	.94	1.13	1.31
W	9	9	10.5	12	14	16	18	21	27
③ **WT**	60	90	120	190	270	430	600	850	1400

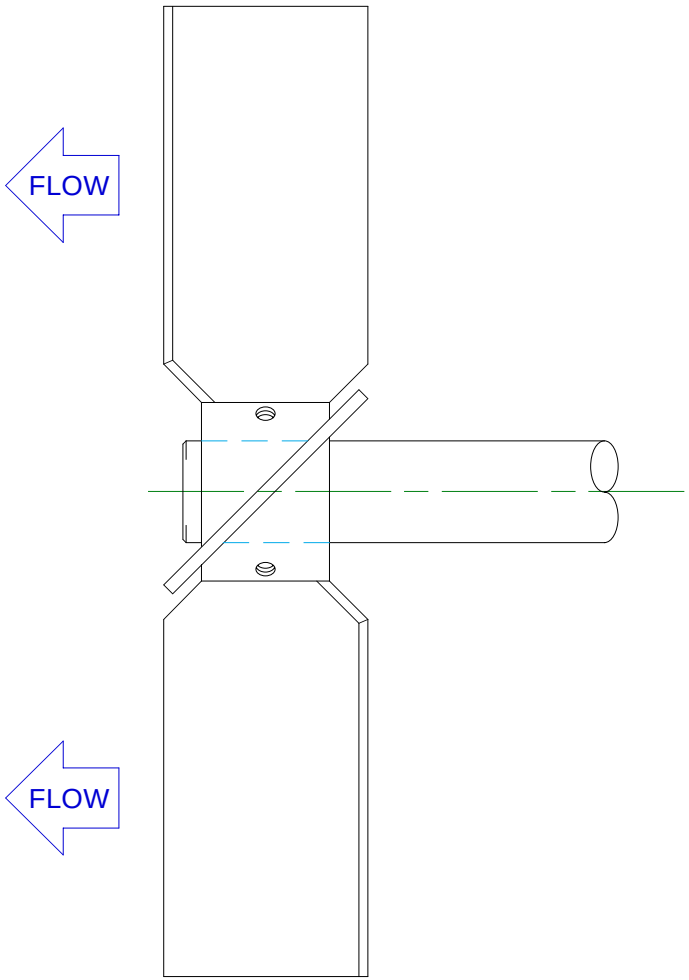
N - SERIES

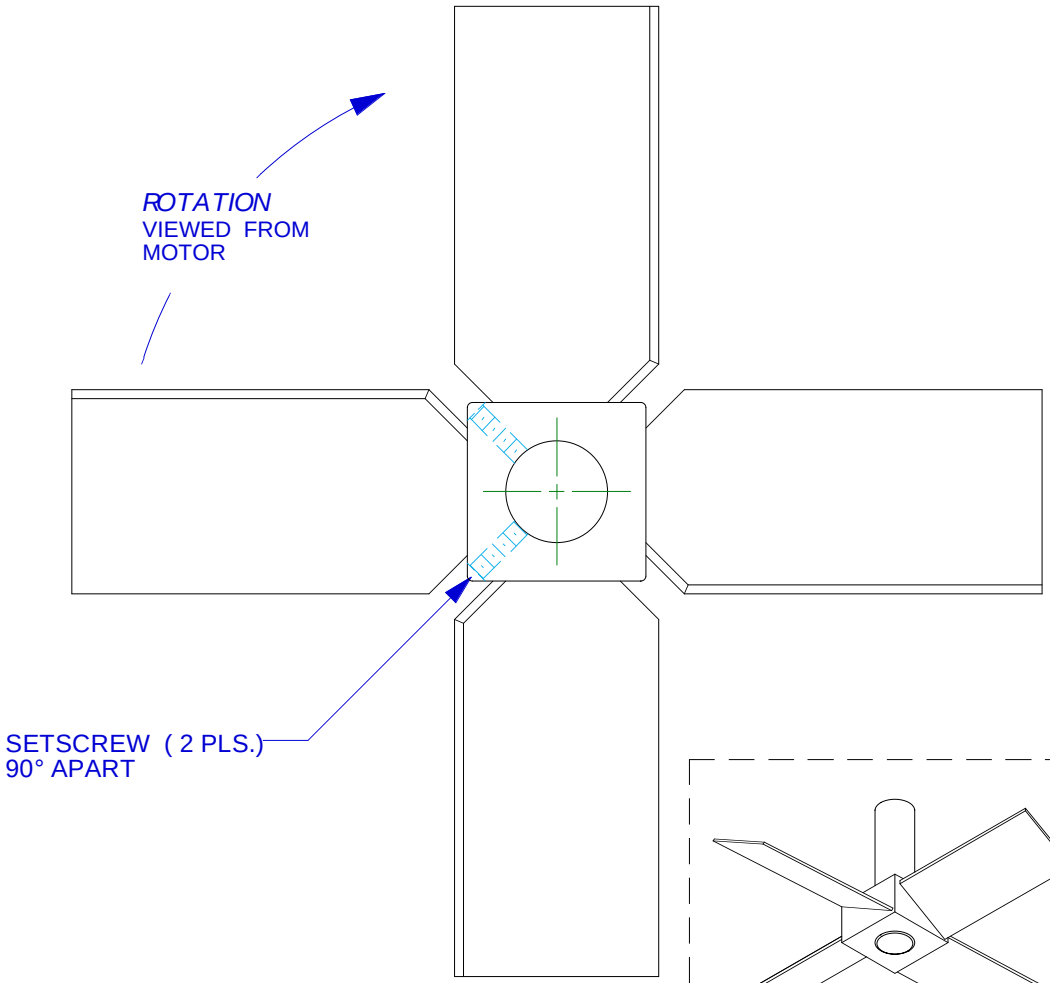
HOLLOW GEARBOX OUTPUT PLATE MOUNT W/ C-FACE MOTOR

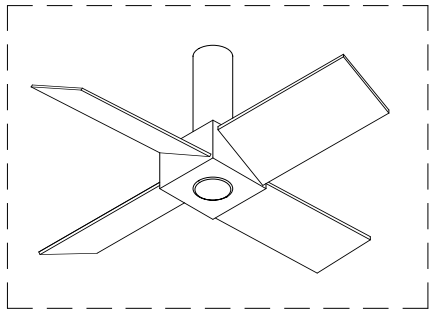
DWG NO.: S4617

CADD# N.PLATE.HOLLOW.CFACE.S 6-05

SHARPE MIXERS P.O. BOX 3906 SEATTLE, WA 98124 FAX (206) 767-9170 (206) 767-5660







4 BLADE 1-PIECE 45° AFT450 AXIAL FLOW TURBINE

(TWO SETSCREWS)

CUSTOMER:	SHARPE ORDER NO.:
CUST. P.O.#:	DWG NO.: A6249

drawn by: 5/99 revision: 0

SHARPE MIXERS P.O.BOX 3906 SEATTLE, WA. 98124 (206) 767-5660 FAX (206) 767-9170

Project:

- Taunton WTF Improvements Phase 1, Model 60-500 Scum Concentrator

Specification Section(s):

- 11317

Instrument Location:

- Holding Tank

Instrument Name:

- Temperature Element

Instrument Tag Number(s):

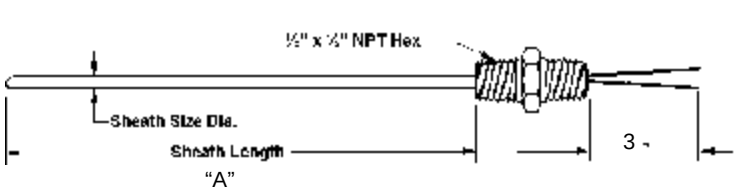
- N/A

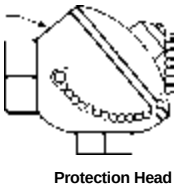
Manufacturer(s):

- ThermX

Model / Part Number(s):

- XTMS809-K-12-STR-9





	1	2		3	4		5	6		7		8	9	10	11
IP-			-			-			-		-				

1 **Calibration***

Iron Constantan	**J**
Chromel Alumel	**K**
Chromel Constantan	**E**
Copper Constantan	**T**

2 **Sheath Materials***

A 304SS	**Q** .. Inconel 600
F 316SS	**D** ... 310SS

3 **Sheath O.D. (in)***

18 ..... .125	**14** ..... .250
316 ... .188	**516** ..... .313

4 **Junction***

	Grounded	Ungrounded	Exposed
Single	**G**	**U**	**E**
Dual	**H**	**W**	**D**

*Dual ungrounded & exposed junctions are isolated

5 **Sheath Length "A"**

Specify in inches 6"

6 **Fittings**

See Table "B" for ordering code. 1/2" x 1/2" NPT SS fitting (code "A") is standard.

7 **Termination**

ST ..... Stripped Leads, 3" standard
..... Specify lead length in inches 9"
..... and "GG" or "TT" after code for
..... glass or teflon leads. ie.. **ST36TT**
CA ..... Cast Aluminum Head
CI ..... Cast Iron Head
NY ..... Nylon Head, Black
PW ..... Polypropylene Head, White
EX ..... Explosion Proof Head

8–**11** **Transmitter Option**

Omit if none needed. See ordering example. For detailed specifications, see Pg. 43 for IPAQ and APAQ transmitters

Industrial process thermocouples feature connection heads which provide superior dust and moisture protection. A variety of head styles are available depending upon your application. Optional head-mounted transmitters are also available.

PRICING						
*Basic (includes 1st 12" of sheath) *For dual element add $15 to basic		.062	.125	.188	.250	.313
		N/A	$26	$28	$31	$38
Add'l Sheath per inch Single Element	304SS	N/A	.15	.25	.45	.75
	Inc. 600	N/A	.20	.40	.55	1.05
Add'l Sheath Dual Element	304SS	N/A	.30	.40	.50	1.20
	Inc. 600	N/A	.35	.60	.80	1.30
Junction Adder	G,E,H	N/A	N/C	N/C	N/C	N/C
	U	N/A	$2	$2	$2	$2
	W,D	N/A	$6	$4	$4	$4
Protection Head Adder		CA	CI	NY	PW	EX
		$26	$26	$22	$25	$50
Fitting Adder		A	B	C,F,G	D	E
		N/C	$10	$5	$4	$9
Transmitter option add $99 for non-isolated or $189 for isolated.						

Table A
Standard Ranges

J	K	T
0 - 200°C	0 - 250°C	-50 - 100°C
0 - 500°C	0 - 500°C	0 - 200°C
0 - 760°C	0 - 1000°C	0 - 400°C
0 - 350°F	0 - 500°F	-60 - 200°F
0 - 1000°F	0 - 1000°F	0 - 400°F
0 - 1400°F	0 - 2000°F	0 - 760°F
Consult factory for other ranges.		

Table B FITTINGS

Thread	Material	Sheath OD	Order Code
1/2"x1/2"	316SS	.125" to .313"	A
1/2"x1/2"	316SS	.125" to .250"	*B
1/2"x1/2"	316SS	.125" to .313"	**C
1/2" Single	316SS	.125" to .313"	D
1/4"x1/4"	316SS	.188" to .250"	E
1/4" Single	304SS	.062" to .250"	F
1/8" Single	304SS	.062" to .250"	G

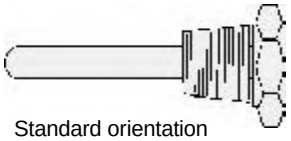
** Spring Loaded Assembly*
*** 316SS welded fitting*

Transmitter Ordering Example;

I	0	200	C

Transmitter option; 8. **I** = Isolated or **N** = Non-isolated
9. & 10. **Temp. Range** (see table A) 11. **°C** or **°F**

Standard orientation for single threaded fittings is threads facing process. Add "X" after fitting order code for backwards fitting (threads facing lead end).



Standard orientation shown

• Standard probe assemblies use 1/2"x1/2" NPT SS fitting brazed. Welded construction is available - use fitting code "C".
• Spring loaded assembly is not sealed at process fitting.

Project:

- Taunton WTF Improvement Phase 1, Model 60-500 Scum Concentrator

Specification Section(s):

- 11317

Instrument Location:

- Scum Concentrator Control Panel - LCP 700

Instrument Name:

- Torque Switch (Skimmer Drive MCC)

Instrument Tag Number(s):

- N/A

Manufacturer(s):

- Tsubaki

Model / Part Number(s):

- TSBSS05

TSUBAKI

EHFSB0506000A0

SHOCK RELAY®

TSBSB Series

INSTRUCTION MANUAL

⚠ WARNING

- Make sure you read this instruction manual thoroughly before installing, wiring, operating and inspecting this SHOCK RELAY
- Please make sure that this instruction manual accompanies the SHOCK RELAY to the end user.
- Please keep this instruction manual safe until this product is disposed of.
- Product specification is subject to change for improvement without notice.

TSUBAKI E&M

2015.3.1

CONTENTS

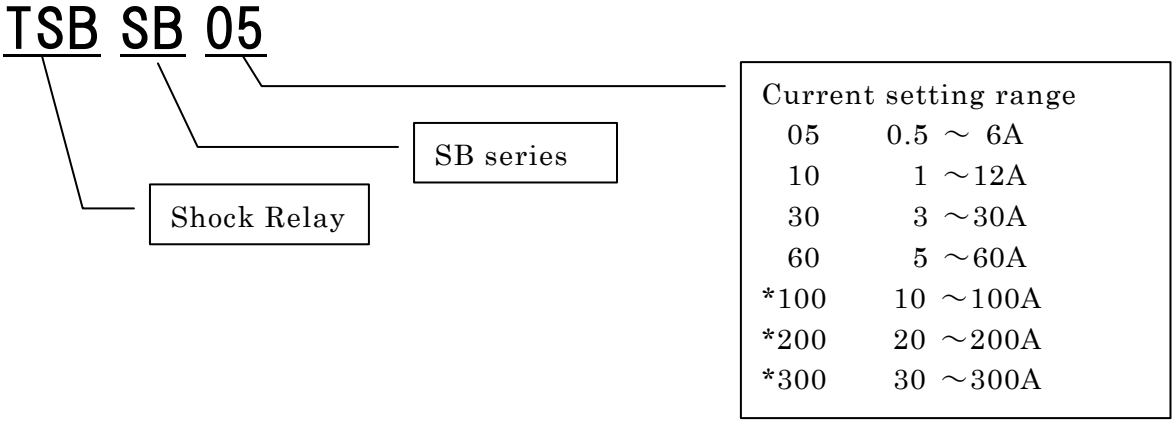
1. Preface

Thank you for purchasing the Shock Relay TSBSB series.
This instruction manual describes everything from installation to adjustment. Be sure to read this manual carefully before using your Shock Relay.

2. Checking the package

Upon receiving the Shock Relay, please check the following:
①Check whether the model and specification conform to what you ordered.
②Check to see no damages occurred during the delivery.
③Package: Shock Relay, Instruction Manual

＜Model Identification



*Following 3 models include main body and external CT
TSBSB100 ・・・ TSBSB05(Main body)+TSB2CT100(External CT)
TSBSB200 ・・・ TSBSB05(Main body)+TSB2CT200(External CT)
TSBSB300 ・・・ TSBSB05(Main body)+TSB2CT300(External CT

3. Safety precaution

●Please read this instruction manual thoroughly before using this Shock Relay.

In this instruction manual, the rank of safety requirements is divided into WARNING and CAUTION.

⚠ **WARNING**	Death or serious injury may result from product misuse due to not following the instructions.
⚠ **CAUTION**	Minor or moderate injury, as well as damage to the product may result from product misuse due to not following the instructions.

All warnings and instructions in this manual should be followed.

⚠ WARNING

●Follow safety related rules and regulations. (Ordinance on Industrial Safety and Health, etc.)

●In the case of installation, removal, maintenance, please follow the below requirements.

(1)Power off.

(2)To avoid falling accident, do not stand under the device.

(3)Tighten moving parts.

(4)Wear proper work clothes and protective equipment.

●When carrying out operation test or periodic inspection, make sure protective device functions properly.

●Megger testing is conditional, must be performed in accordance with instruction manual.

●Never operate under the live wire condition, power off before starting operation.

Electric Shock Risk.

●The wiring, operation, maintenance, check of Shock Relay must be performed by workers with expertise.

Electric Shock, Injury, Fire Risk.

⚠ CAUTION

●In case the instruction manual is not available, request to furnish one from the distributor or our sales office.

●Do not recompose or rebuild parts or units.

●Consumable parts (condenser, relay, etc.) are built in the products. Function check should be performed periodically. In the case of malfunction, contact the distributor for repair.

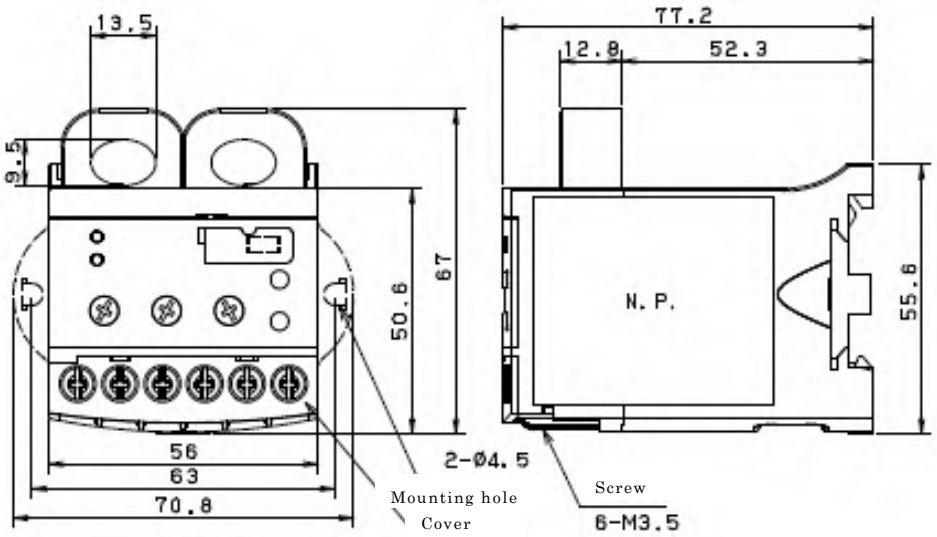
●Avoid usage in the corrosive gas environment. Sulfide gases (SO_2, H_2S) corrode cooper and cooper alloy used on PCBs and parts and cause the malfunction.

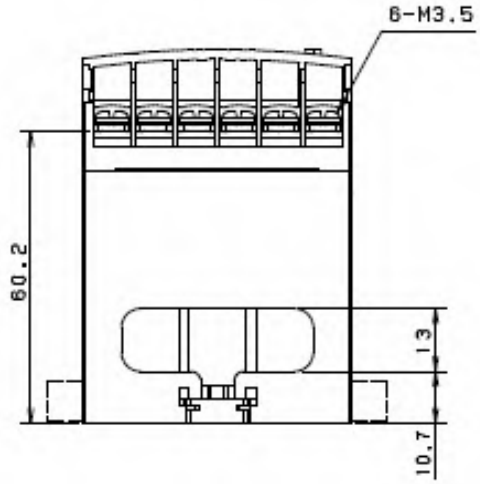
●Dirt and dust may result in overheat and fire, should be cleaned periodically.

●Products must be discarded in accordance with industrial waste rules.

4. Dimension

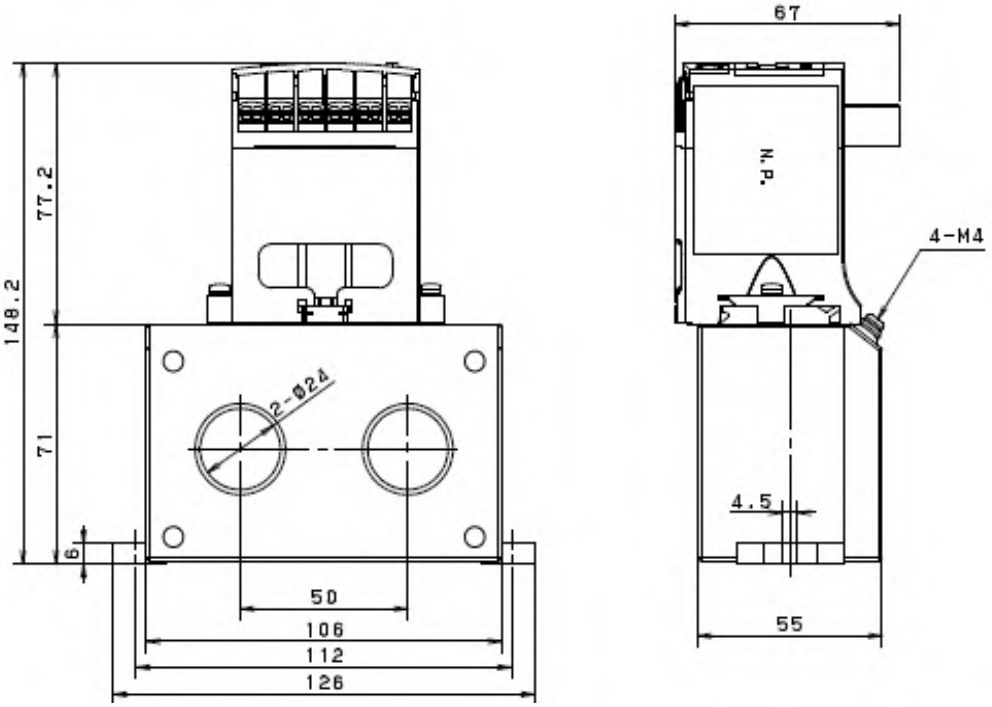
TSBSB05
TSBSB10
TSBSB30
TSBSB60





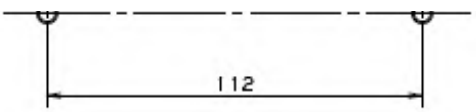
※ Install with 35mmDIN rail or mounting plate.

TSBSB100
TSBSB200
TSBSB300



CT and main unit is wired before shipment

Mounting hole dimension



5. Specifications

Content \ Model		TSBSB05	TSBSB10	TSBSB30	TSBSB60	TSBSB100	TSBSB200	TSBSB300
Current setting*1		0.5～6A	1～12A	3～30A	5～60A	10～100A	20～200A	30～300A
Time setting*1	Start Time	*2 0.2～10s						
	Shock Time	*2 0.2～5s						
Accuracy		±10%(Full Scale)						
Control Power Supply		24～240VAC/DC(Nonpolar)±10% 50/60Hz						
Maximum motor voltage		AC600V 50/60Hz *3						
Current sensing method		2 Integral Current Transformer						
Display		Monitoring state,「MON」 lamp on Overcurrent state,「OC」lamp on						
Output Relay	Contact constitution	1a1b						
	Contact rating	3A AC250V cosφ＝1						
	Recommend current (High-frequency operation)	0.2A or less AC250V cosφ＝0.4						
	Minimum allowable load*4	DC10V,10mA						
	Operation selecting*5	DIP switch selection SS:Normal operation/excitation; self-holding after trip SA:Abnormal/excitation; self-holding after trip						
	Expected life	80,000 times at rated load						
Ambient Environment	Operating temperature	－20～＋60℃						
	Storage temperature	－30～＋70℃						
	Humidity	45～85% RH without condensation						
	Altitude	2,000m or less						
	Pollution degree	Class 3, free from dust and corrosive gas						
	Vibration	5.9m／s^2 or less						
Insulation	Between casing and circuit	Over 10MΩ(DC500V Megger)						
Dielectric Strength	Between casing and circuit	AC2000V, 60Hz, 1min						
	Between contacts	AC1000V, 60Hz, 1min						
	Between circuits and contacts	AC2000V, 60Hz, 1min						
Protection structure		IP20						
Material	Case	Upper case:PA6, Lower case:PA66						
	Terminal cover	PA6						
Power Consumption		2W or less						
Mounting		35mmDIN rail or Panel						
Weight	Main body (External CT)	0.2 kg (0.5kg)						

*1. Current・Time setting ranges are settable ranges, not the upper or lower level of setting volume.
*2. The minimum value on the display is 1s, values smaller than 1s can be set with the dial.
*3. In the case of inverter drive, there is a possibility of malfunction due to the distortion of the current waveform. If the frequency is within the range of 30 to 60Hz, it can be used because the influence is minor.
*4. Be sure to input minute electric currents through the relay when inputting an output relay contact directly into the PLC (Programmable logic controller), because there is a risk of contact failure due to minute electric current.
*5. DIP switch is set on SS side when delivery.

6. Installation

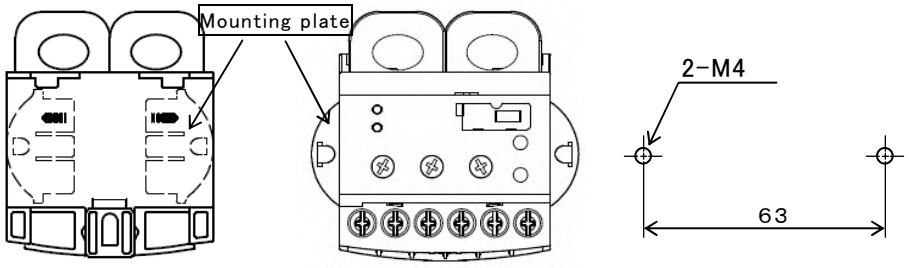
6.1 Environment

Install Shock Relay in the following environment.

⚠Caution	■Keep Shock Relay free from lint, paper, wooden chips, dirt, dust, metal scrap, etc. **Fire, Accident Risk**

6.2 Install with Screw

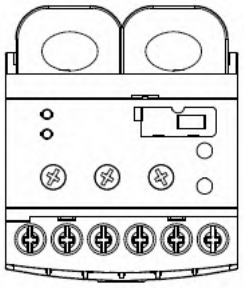
Pull out mounting plate and install Shock Relay to the panel.



6.3 Install to DIN rail

While pulling the hook to the arrow direction, install Shock Relay to 35mm DIN rail.

When remove, pull the hook to the arrow direction with flathead screwdriver.



7. Wiring

①Connect power supply to commercial power source. If device with harmonic noise, such as inverter is used, install an isolation transformer.

②Remove terminal cover and use crimp terminal to connect terminal block and wire.

Terminal block specification: M3.5 screw, installation torque:0.8~1.2N・m

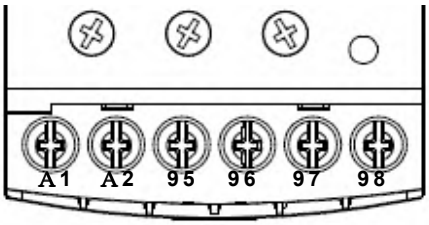
Appropriate wire size:ISO 0.75～4mm^2, AWG＃18～12 75℃ Copper wire, 2 wires are connected to 1 terminal.

③When wiring is finished, put back terminal cover, and check the following.

a. Is there any misconnection?
b. Have you forgotten to complete any connections?
c. Are there any abnormal conditions such as short-circuit or ground fault?

⚠WARNING	●Wiring must be performed by electricians. ●Power Off before starting. Shock Risk

8. Terminal Function



Terminal	Function	Contents
A1	Power supply	Connect to 24～240VAC/DC
A2		
95	Relay output	DIP switch：SS 95-96:normal/open, trip/close 97-98:nomal/close, trip/open DIP switch：SA 95-96:normal/close, trip/open 97-98:normal/open, trip/close
96		
97		
98		

9. Current Transformer (CT)

Select the number of wires passing through the CT (Current Transformer) by using the following table for best performance. The number of wires that pass through the CT is a rough standard used when the motor load factor ranges between 80～100%. In the case of low motor load factor, increase the number of passing through as needed.

For motors (small capacity, single-phase, abnormal voltage, etc.) not listed below, select Shock Relay and the number of wires' pass through according to set current values.

Main unit alone

	AC200VMotor			AC400VMotor		
Capacity (kW)	Motor Rate Current (A)	Shock Relay	No. of wires that pass through the CT hole	Motor Rate Current (A)	Shock Relay	No. of wires that pass through the CT hole
0.1	0.7	TSBSB05	4	—	—	—
0.2	1.8	TSBSB05	3	0.8	TSBSB05	4
0.4	2.5	TSBSB05	2	1.5	TSBSB05	3
0.75	4.0	TSBSB05	1	2.0	TSBSB05	2
1.5	7.0	TSBSB10	1	3.3	TSBSB05	1
2.2	10	TSBSB10	1	5.3	TSBSB05	1
3.7	16	TSBSB30	1	9.0	TSBSB10	1
5.5	25	TSBSB30	1	14	TSBSB30	1
7.5	30	TSBSB60	1	20	TSBSB30	1
11	50	TSBSB60	1	25	TSBSB30	1
15	—	—	—	30	TSBSB60	1
18.5	—	—	—	37	TSBSB60	1
22	—	—	—	50	TSBSB60	1

If wire passes the CT hole twice or more, it is necessary to convert the current scale value of CURRENT volume.

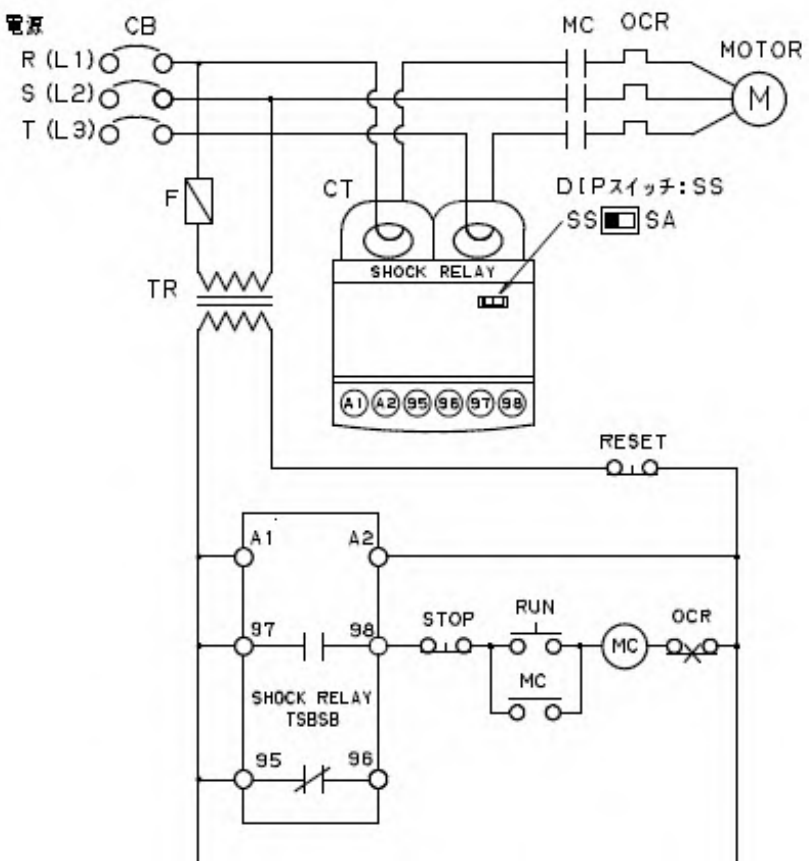
(EX) When a wire passes the CT hole twice, the value on the CURRENT value scale should be at half value.

With external CT（TSB2CT）

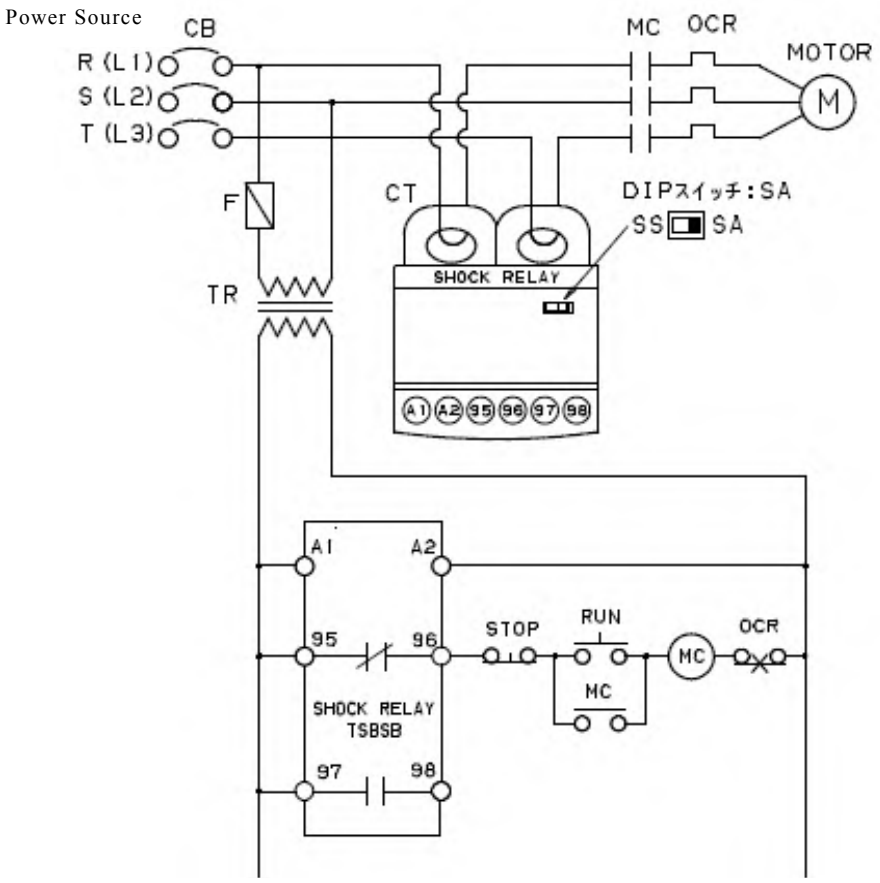
	AC200V Motor			AC400V Motor		
Capacity (kW)	Motor Rate Current (A)	Shock Relay	No. of wires that pass through the CT hole	Motor Rate Current (A)	Shock Relay	No. of wires that pass through the CT hole
15	55	TSBSB100	1	—	—	—
18.5	67	TSBSB100	1	—	—	—
22	78	TSBSB200	1	—	—	—
30	107	TSBSB200	1	54	TSBSB100	1
37	132	TSBSB200	1	66	TSBSB100	1
45	160	TSBSB300	1	80	TSBSB100	1
55	198	TSBSB300	1	99	TSBSB200	1
75	270	TSBSB300	1	135	TSBSB200	1
90	—	—	—	160	TSBSB200	1
110	—	—	—	192	TSBSB300	1
132	—	—	—	254	TSBSB300	1

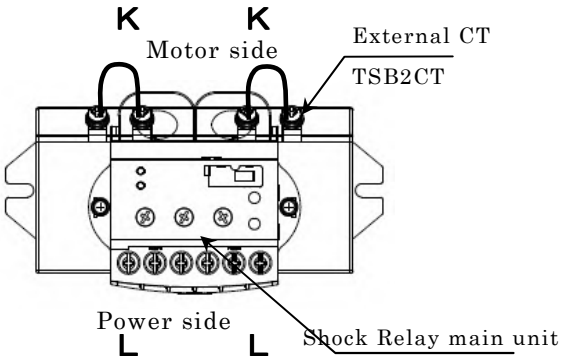
10. Connection Diagram

1）DIP switch SS



2) DIP Switch SA





Note) For TSBSB100～300, pass motor wires through external CT as shown above.

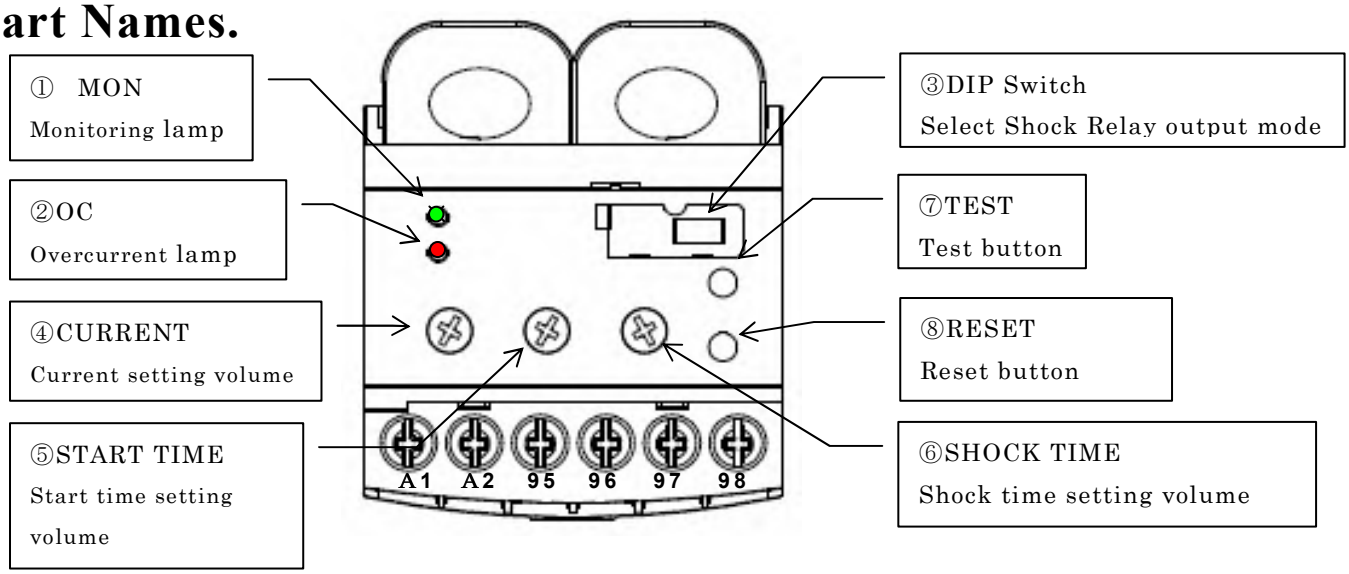
＊1. If necessary, set transformer (TR) according to the voltage of Shock Relay, Magnetic Contact (MC). Also, if device with harmonic noise, such as inverter is used, install an isolation transformer.

＊2. Power off when convert Shock Relay DIP switch.

＊3. Two wires out of three phases of the motor are passed through the Shock Relay's CT in the same direction.

＊4. Coil capacity of the electromagnetic contactor MC which output contact opens and closes should be less than 200VA when throwing, and less than 20VA when holding.

11. Part Names.



① MON ‥‥‥‥‥The lamp lights during normal monitoring conditions and turns off during Shock Relay output.

② OC ‥‥‥‥‥The lamp lights when present current exceeds set level.

③ DIP Switch ‥‥‥‥‥Select Shock Relay output mode.

SS: Normal / excitation, self-hold after trip.

SA: Normal / No excitation, automatically reset after trip.

To convert DIP stitch, open with flathead driver from the left side of cover.

Note) Power off when convert DIP switch.

④Current ‥‥Current setting volume

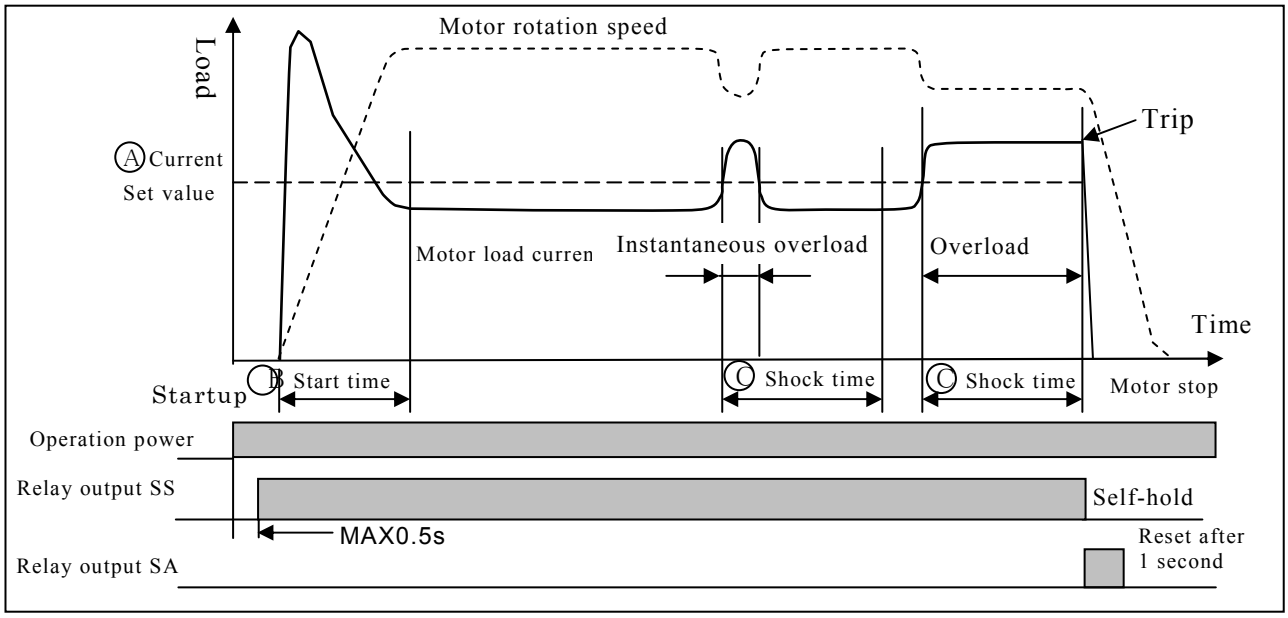
⑤Start Time ‥‥Start time setting volume (Mon and OC lamps flicker during start time.)

⑥Shock Time ‥‥Shock time setting volume

⑦TEST ‥‥Test Shock Relay operation. To test, press and hold the TEST button longer than the set START TIME or SHOCK TIME>

To check shock time, minimalize START TIME; to check START TIME, minimalize shock time.

⑧Rest ‥‥ Rest Shock Relay after trip. (Only works with DIP Switch SS)



Note) Shock Relay output mode varies with DIP switch selection.

12. Shock Relay Basic Function

Ⓐ Current (Operation current value)

When the motor current exceeds the present CURRENT value, Shock Relay detects the overload and trips.

Ⓑ Start Time (Start prohibiting time)

When the motor starts, there is a possibility that the motor current will exceed the set current value. To prevent Shock Relay from tripping due to the spike in start current, start time is set a little longer than motor startup period.

＊When overload takes place in the motor startup, Shock Relay trips after the total time of start time and shock time lapse.

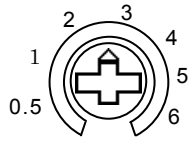
Ⓒ Shock Time (Continuous overload time)

When instantaneous overload occurs, motor current may exceed current set value. Shock time is set to not activate at instantaneous overload.

13. Volume Setting Step

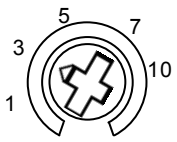
13.1 Setup before operation

・Current set volume



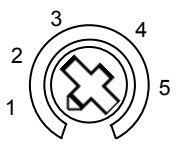
Set to motor rate current

・Start time set volume



Set to 3 seconds

・Shock time set volume



Set to the minimum

13.2 Start Time volume setting

①Start motor. In case that Shock Relay does not operate but motor operates, turn volume counterclockwise by slow degrees and set to the minimum.

②In case that Shock Relay operates, turn volume clockwise by slow degrees, prolong Start Time sequentially until motor operates, and set to the position where Shock Relay does not operate at the starting.

③ For settings beyond the scale, check operating time with TEST button.

13.3 Current volume setting

Turn volume counterclockwise until Shock Relay activates. Turn volume back (about 20～30%) clockwise to set.

13.4 Shock Time volume setting

Set Shock Time volume to the position at which Shock Relay will not trip due to instantaneous overload.

Preferably, set Shock Time to the minimum in accordance with the device property.

14. Troubleshooting

Trouble	Check	Result	Solution
Mon does not light	A1, A2 wiring	Incorrect wiring	Wire correctly
	A1, A2 voltage	Not between 24～240V	Supply 24～240V
Does not trip at current volume MIN.	Wiring of CT	Incorrect wiring	Wire correctly
	Press and hold TEST	Does not trip	Change Shock Relay
Instantly trip after startup.	Start Time setting	Set too short	Set properly
	Current setting	Set too low	Set properly
Trip at instantaneous overload.	Current setting	Set too low	Set properly
	Shock Time setting	Set too short	Set properly
Does not trip at overload	Current setting	Set too high	Set properly
	Shock Time setting	Set too long	Set properly
	Press and hold TEST	Does not trip	Change Shock Relay

If above contents are not applicable or the replacement of Shock Relay is necessary, please contact our sales office.

15. Maintenance

Maintenance and check must be performed in accordance with the following matters.

①To prevent an accident, keep the surrounding area clean and safe.

②Power off before the installation / connection of Shock Relay

③Comply with the 2-1-1 General Standard of “Ordinance on Labor Safety and Hygiene “.

16. Daily check

MON lamp (green) lights when Shock Relay is power on.

17. Periodic check

(1) Check whether there is any looseness in the installation of the Shock Relay and current transformer. (Every six months)

(2) Check relay output function by pressing the TEST button until it trips. (Every six months)

(3) Check relay output function by dialing CURRENT volume counterclockwise during motor operation. (Every six months)

(4) In the megger test, DC500V needs to be applied on the earth connection and circuit.
In the external circuit withstand voltage test, do not apply test voltage on Shock Relay. Same is with CT.

(5) The typical life span of electrolytic capacitor is about 10 years at an average ambient temperature of 30℃. It is recommended to overhaul or exchange for a new one before trouble occurs.

18. Warranty: Tsubaki E&M Co.: hereinafter referred to as "Seller" Customer: hereinafter referred to as "Buyer" Goods sold or supplied by Seller to Buyer: hereinafter referred to as Goods.

18.1 Warranty period without charge

Effective 18 months from the date of shipment or 12 months from the first use of Goods, including the installation of the Goods to the Buyer's equipment or machine – whichever comes first.

18.2 Warranty coverage

Should any damage or problem with the Goods arise within the warranty period, given that the Goods were operated and maintained according to the instructions provided in the manual, the Seller will repair and replace at no charge once the Goods are returned to the Seller.

This warranty does not include the following:

(1) Any costs related to removal of Goods from the Buyer's equipment or machine to repair or replace parts.
(2) Cost to transport Buyer's equipment or machines to the Buyer's repair shop.
(3) Costs to reimburse any profit loss due to any repair or damage and consequential losses caused by the Buyer.

18.3 Warranty with charge

Seller will charge for any investigation and repair of Goods caused by

(1) Improper installation by failing to follow the instruction manual.
(2) Insufficient maintenance or improper operation by the Buyer.
(3) Incorrect installation of the Goods to other equipment or machines.
(4) Any modifications or alterations of Goods by the Buyer.
(5) Any repair by engineers other than the Seller or those designated by the Seller.
(6) Operation in an environment not specified in the manual.
(7) Force Majeure or forces beyond the Seller's control such as natural disasters and injustices inflicted by a third party.
(8) Secondary damage or problems incurred by the Buyer's equipment or machines.
(9) Defective parts supplied or specified by the Buyer.
(10) Incorrect wiring or parameter settings by the Buyer.
(11) The end of life cycle of the Goods under normal usage.
(12) Losses or damages not liable to the Seller.

18.4 Dispatch service.

The service to dispatch a Seller's engineer to investigate, adjust or trial test the Seller's Goods is at the Buyer's expense.

EnviroCare International

SPEC. SEC. NO.	TAG NO.	COMPONENT DESCRIPTION	MFR.	MODEL / P/N	SECTION
		LCP-700, SCUM CONCENTRATOR LOCAL CONTROL PANEL			
11317	N/A	A-B, CONTROL RELAYS, 4PDT	ALLEN BRADLEY	700-HC24A1	101
11317	N/A	A-B, 4PDT, TIMER RELAY, 0.1SEC - 10 MIN.	ALLEN BRADLEY	700-HNC44AA12	101
11317	N/A	A-B, CONTROL RELAY, SOCKET	ALLEN BRADLEY	700-HN103	101
11317	N/A	A-B, TIMER RELAY, SOCKET	ALLEN BRADLEY	700-HN103	101
11317	N/A	A-B, 120V CIRCUIT BREAKER, 1A	ALLEN BRADLEY	1492-SM1C010	102
11317	N/A	A-B, 120V CIRCUIT BREAKER, 2A	ALLEN BRADLEY	1492-SM1C020	102
11317	N/A	A-B, 120V CIRCUIT BREAKER, 3A	ALLEN BRADLEY	1492-SM1C030	102
11317	N/A	A-B, 120V CIRCUIT BREAKER, 5A	ALLEN BRADLEY	1492-SM1C050	102
11317	N/A	NOT USED			103
11317	N/A	A-B, SELECTOR SWITCH, 2 POSITION	ALLEN BRADLEY	800H-HR2B	104
11317	N/A	A-B, SELECTOR SWITCH, 3 POSITION	ALLEN BRADLEY	800H-JR2B	105
11317	N/A	A-B, EMERGENCY STOP - RED	ALLEN BRADLEY	800H-FRXT6A4	106
11317	N/A	A-B, PUSH BUTTON - GREEN	ALLEN BRADLEY	800H-AR1A	107
11317	N/A	A-B, PUSH BUTTON - BLACK	ALLEN BRADLEY	800H-AR2A	107
11317	N/A	A-B, PUSH BUTTON - RED	ALLEN BRADLEY	800H-AR6A	107
11317	N/A	A-B, PUSH-TO-TEST PILOT LIGHT - AMBER	ALLEN BRADLEY	800H-QRTH2A	108
11317	N/A	A-B, PUSH-TO-TEST PILOT LIGHT - BLUE	ALLEN BRADLEY	800H-QRTH2B	108
11317	N/A	A-B, PUSH-TO-TEST PILOT LIGHT - GREEN	ALLEN BRADLEY	800H-QRTH2G	108
11317	N/A	A-B, PUSH-TO-TEST PILOT LIGHT - RED	ALLEN BRADLEY	800H-QRTH2R	108
11317	N/A	A-B, PUSH-TO-TEST PILOT LIGHT - WHITE	ALLEN BRADLEY	800H-QRTH2W	108
11317	N/A	A-B LEGEND PLATE FOR 800H OPERATORS	ALLEN BRADLEY	800H-W100AE	109
11317	N/A	A-B LEGEND PLATE FOR 800H-FRXT6A4, E-STOP	ALLEN BRADLEY	800H-W797A	109
11317	N/A	A-B, W4 STD TERMINAL BLOCK	ALLEN BRADLEY	1492-J4	110
11317	N/A	A-B, W4 STD GROUND BLOCK	ALLEN BRADLEY	1492-JG4	110
11317	N/A	A-B, W4 FUSE BLOCK, 24V LED BFI	ALLEN BRADLEY	1492-WFB424	111
11317	N/A	A-B, W4 FUSE BLOCK, 120Vac LED BFI	ALLEN BRADLEY	1492-WFB4250	111
11317	N/A	A-B, W4 DISCONNECT BLOCK	ALLEN BRADLEY	1492-JDK4	111
11317	N/A	A-B END ANCHOR	ALLEN BRADLEY	1492-EAJ35	112
11317	N/A	A-B END BARRIER FOR STANDARD TERMINALS	ALLEN BRADLEY	1492-EB3	113
11317	N/A	A-B, 1 METER DIN RAIL	ALLEN BRADLEY	199-DR1	114
11317	N/A	NOT USED			115
11317	N/A	BUSSMANN, FUSE BLOCKS	BUSSMANN	MJ60030-CR	116
11317	N/A	BUSSMANN, FUSES, 3A	BUSSMANN	LPJ-3	116
11317	N/A	BUSSMANN, FUSES, 6A	BUSSMANN	LPJ-6	116
11317	N/A	BUSSMANN, FUSES, 10A	BUSSMANN	LPJ-10	116
11317	N/A	BUSSMANN, FUSES, 15A	BUSSMANN	LPJ-15	116
11317	N/A	EATON CONTROL TRANSFORMER, 480/120, 500VA, WITH (3) FU	EATON	C0500E2AFB	117
11317	N/A	HOFFMAN, NEMA 4X, ENCLOSURE, 60x49x18 IN	HOFFMAN	A60HX4918SSLPQT	118
11317	N/A	HOFFMAN, BACKPANEL FOR ABOVE	HOFFMAN	A60P48	118
11317	N/A	HOFFMAN, WORK LIGHT, 15 IN, LED, MAGNETIC W. ON OFF	HOFFMAN	LEDA1M35	118
11317	N/A	HOFFMAN, DOOR SWITCH	HOFFMAN	ALFSWD	118
11317	N/A	LITTELFUSE, 480/120 TRANSFORMER PRIMARY, 1.25A	LITTELFUSE	KLDR-001 1/4	119
11317	N/A	LITTELFUSE, 480/120 TRANSFORMER SECONDARY, 4A	LITTELFUSE	FLM-4	119
11317	N/A	MARATHON, POWER DISTRIBUTION BLOCK, 1-TO-6	MARATHON	132X580	120
11317	N/A	PANDUIT 1"W X 3"H WIREWAY,WHITE, G TYPE	PANDUIT	G1X3LG6	121
11317	N/A	PANDUIT 1" COVER, WHITE	PANDUIT	C1WH6	121
11317	N/A	PANDUIT 2"W X 3"H WIREWAY,WHITE, G TYPE	PANDUIT	G2X3LG6	121
11317	N/A	PANDUIT 2" COVER, WHITE	PANDUIT	C2WH6	121
11317	N/A	PANDUIT 3"W X 3"H WIREWAY,WHITE, G TYPE	PANDUIT	G3X3LG6	121
11317	N/A	PANDUIT 3" COVER, WHITE	PANDUIT	C3WH6	121
11317	N/A	PANDUIT GROUND BAR, 12 PORT	PANDUIT	UGB2/0-414-12	122
11317	N/A	PANDUIT GROUND BAR, STAND-OFF KIT	PANDUIT	UGB-IN-SO	122
11317	N/A	NOT USED			123
11317	N/A	NOT USED			124
11317	N/A	SQUARED, MAIN DISCONNECT, CABLE MECHANISM	SQUARED	9422CSF30	125
11317	N/A	SQUARED, MAIN DISCONNECT, CB MECHANISM	SQUARED	9422RQ1	125
11317	N/A	SQUARED, MAIN DISCONNECT, HANDLE MECHANISM	SQUARED	9422-A2	125
11317	N/A	SQUARED, MAIN CIRCUIT BREAKER 50A	SQUARED	HJ36050	126
11317	N/A	SQUARED, MOTOR STARTER, SIZE 00	SQUARED	8536SAO1V02H31S	127
11317	N/A	SQUARED, MOTOR STARTER, SIZE 0	SQUARED	8536SBO1V02H31S	127
11317	N/A	SQUARED, MOTOR STARTER, SIZE 2	SQUARED	8536SDO1V02H31S	127
11317	N/A	SQUARED, OVERLOAD PROTECT & REMOTE RESET	SQUARED	9999RR04	127
11317	N/A	SQUARED, POWER BLOCKS FOR MOTOR & MAIN	SQUARED	9080LBA361101	128
11317	N/A	WEIDMUELLER, DIN RAIL MNT OUTLET, 15A, GFCI	WEIDMUELLER	6720005422	129
11317	N/A	ZERUST CORROSION INHIBITOR	ZERUST	VC-2-1	130
11317	N/A	POWERS, TEMPERATURE ADVANCED PID CONTROLLER	POWERS	535-1125-0000	131

CATALOG CUT SHEETS

SECTION: 101

EnviroCare International

507 Green Island Road
American Canyon, CA 94503, USA
Tel. 707.638.6800
Fax. 707.638.6898

Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

Manufacturer: ALLEN BRADLEY
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
N/A	A-B, CONTROL RELAYS, 4PDT	700-HC24A1
	A-B, CONTROL RELAYS, SOCKET	700-HN103
	A-B, 4PDT, TIMER RELAY, 0.1SEC - 10 MIN.	700-HNC44AA12
	A-B, TIMER RELAYS, SOCKET	700-HN103

Bulletin 700-HC — Miniature Ice Cube Relay

- 7 or 10 A contact ratings
- 2PDT or 4PDT
- Standard ON/OFF flag indicator
- Blade-style terminals
- Choice of standard silver nickel contacts, or silver nickel with gold-plated contacts for low-energy applications
- Options: LED, push-to-test with manual override option
- Tungsten UL Approvals
  4-Pole: 5A @ 24V DC
  2-Pole: 10A @ 24V DC

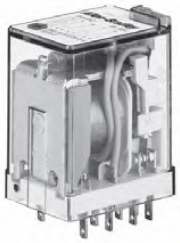
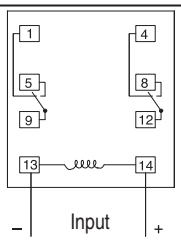
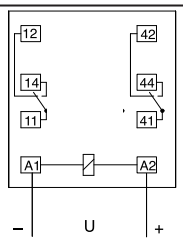
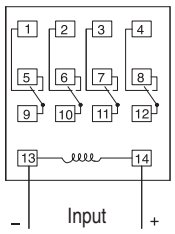
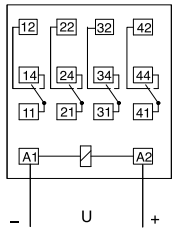
Table of Contents

Standards Compliance and Certifications

See Specification table in this section, page 9-37.

Product Selection

Bulletin 700-HC Miniature Square Base with Blade Terminals

	Description	Contact Rating	Wiring Diagrams U.S./Canada	Wiring Diagrams International	Coil Voltage	Cat. No. ✶ ❄
	2PDT 2-Pole 2 Form C Contacts: 10 A = AgNi Contacts	10 A C300 R300 Low energy rating; (10V, 10 mA) 100 mW	 *700-HN128*	 *700-HN103* *700-HN104*	12V DC	700-HC22Z12
					24V DC	**700-HC22Z24**
					24V AC	**700-HC22A24**
					120V AC	**700-HC22A1**
					240V AC	**700-HC22A2**
	4PDT 4-Pole 4 Form C Contacts: 7A = AgNiAu Gold Plated Contacts	7 A Low energy rating; (5V, 10 mA or 25V, 2 mA) 50 mW	 *700-HN128*	 *700-HN103* *700-HN104*	6V AC	700-HC14A06
					12V AC	700-HC14A12
					24V AC	**700-HC14A24**
					120V AC	**700-HC14A1**
					240V AC	**700-HC14A2**
					6V DC	700-HC14Z06
					12V DC	**700-HC14Z12**
					24V DC	**700-HC14Z24**
					48V DC	700-HC14Z48
					110V DC	700-HC14Z1
	4PDT 4-Pole 4 Form C Contacts: 7A = AgNi Silver Contacts	7 A C300 R300 Low energy rating; (10V, 10 mA) 100 mW			6V AC	700-HC24A06
					12V AC	**700-HC24A12**
					24V AC	**700-HC24A24**
					120V AC	**700-HC24A1**
					240V AC	**700-HC24A2**
					6V DC	700-HC24Z06
					12V DC	**700-HC24Z12**
					24V DC	**700-HC24Z24**
					48V DC	700-HC24Z48
					110V DC	**700-HC24Z1**

✶ LED Option: Add suffix **(-4)** to the selected Bulletin 700-HC Relay Cat. No. except for the 240V AC units, add **(-4L)**.
❄ Push-to-Test and LED Option: Add suffix **(-3-4)** to the selected Bulletin 700-HC Relay Cat. No., except for the 240V AC units, add **(-3-4L)**.

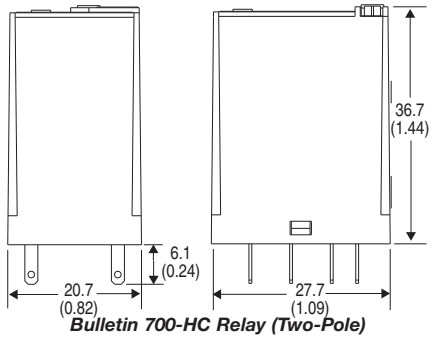
Specifications

Cat. No. 700-HC…								
Electrical Ratings								
Pilot Duty Rating ❄			NEMA C300, R300					
Rated Thermal Current (I_{th})			7 A and 10 A					
Rated Insulation Voltage (U_i)			250V IEC – 300V UL/CSA					
Contacts		Inductive	**700-HC_4**		**Hp**	**700-HC22**		**Hp**
			►][◄	◄][►		►][◄	◄][►	
		120V AC	15 A	1.5 A	1/8	15 A	1.5 A	1/3
		240V AC	7.5 A	0.75 A	1/3	7.5 A	0.75 A	3/4
		General Purpose	7 A, 277V AC			10 A, 277V AC		
		Resistive	7 A, 30V DC			10 A, 24V DC		
Min. Low Energy Permissible Load			100 mW (10V, 10 mA) - Silver Contacts 50 mW (5V, 10 mA or 25V, 2 mA) - Gold Contacts					
Permissible Coil Voltage Variation			Pickup:	80…110% of Nominal Voltage at 50 Hz 80…110% of Nominal Voltage at 60 Hz 80…110% of Nominal Voltage at DC		Must Dropout Voltage:	20% of Nominal Voltage at AC 10% of Nominal Voltage at DC	
			50 Hz			**60 Hz**		
Coil Consumption ±10%	AC Coils	Inrush	2.2 VA			1.6 VA		
		Sealed	1.3 VA			1.1 VA		
	DC Coils		1.0 W					
Max. Allowable Leakage			20% of VA (AC)					
			10% of W (DC)					
Design Specification/Test Requirements								
Electrical								
Dielectric Withstand Voltage		Pole-to-Pole	1000V					
		Contact to Coil	3600V					
		Contact to Frame	3600V					
Electrical Life (Cycles)			100 000 minimum					
Mechanical								
Degree of Protection (Open Type) IEC 529			IP 20 (Guarded Terminal Sockets)					
Mechanical Life Cycles			20 x 10^6 (AC) 50 x 10^6 (DC)					
Switching Frequency Operations			1800/HR					
Coil Voltages			See Product Selection					
Operating Time (ms)		Max. Pickup	10					
		Max. Dropout	3					
Maximum Operating Rate			8 cycles/s					
Environmental								
Temperature		Operating	–30…+55 °C					
			(–22…+131 °F)					
		Storage	–55…+85 °C					
			(–67…+185 °F)					
Altitude			2000 m (6560 ft)					
Insulating Material			Molded High Dielectric Material					
Enclosure			Transparent Dust Cover					
Contact Material			AgNi (700-HC2) AgNi + 5 µm All (700-HC1)					
Terminal Markings on Socket			In accordance with EN50 0005					
Sockets			700-HN103, -HN128, -HN104					
Certifications			cURus Recognized (File No. E14843, Guide NRNT2/NRNT8), cULus Listed when used with Bulletin 700-HN103, -HN104, and -HN128 sockets (File No. E14843, Guide NRNT/NRNT7), CE Marked, LR Certified					
Standards			UL 508, CSA 22.2 No. 14, EN/IEC 60947-4-1, EN/IEC 60947-5-1					

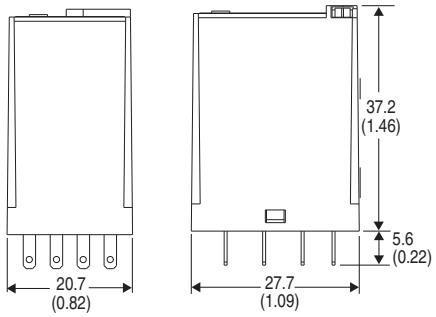
✶ Performance Data – See this catalog, Important 3.
❄ NEMA Rating Chart is in publication 700-SG003_-EN-P.

Approximate Dimensions

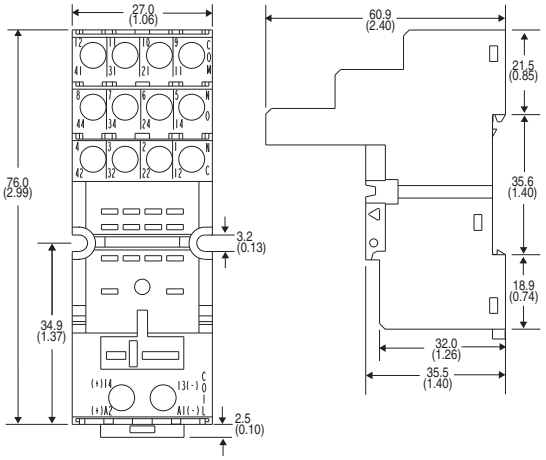
Approximate Dimensions are shown in millimeters (inches). Approximate Dimensions are not intended to be used for manufacturing purposes.



Bulletin 700-HC Relay (Two-Pole)

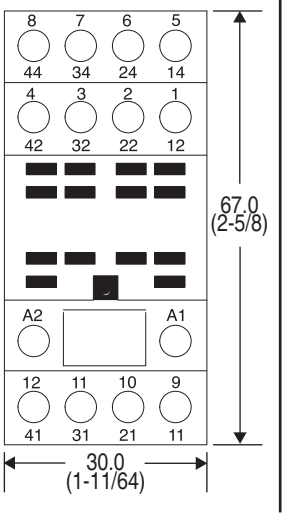


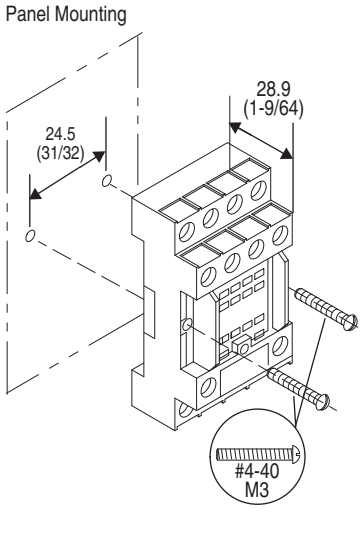
Bulletin 700-HC Relay (Four-Pole)



Cat. No. 700-HN104

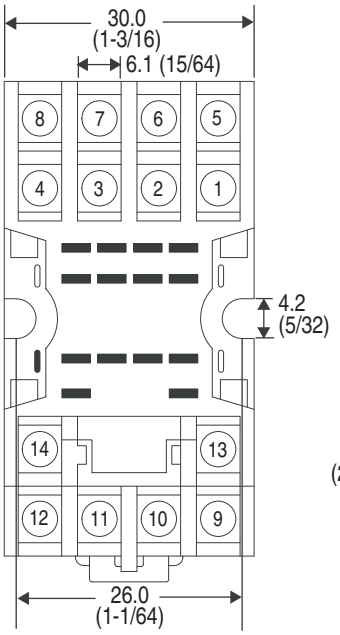
Single Wire: 0.2 mm²…2.5 mm² (#24 AWG…14 AWG)
Double Wire: 2 x 0.2 mm²…2 x2.5 mm² (2 x 24 AWG…2 x 14 AWG)
Wire Type: solid or stranded, copper only
Strip Length: 7 mm (9/32 in.), Torque: 0.5 N•m (4.4 lb•in)

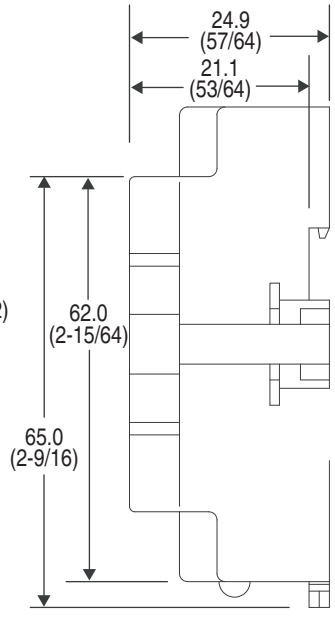




Cat. No. 700-HN103

Single Wire: 0.2 mm²…2.5 mm² (#24 AWG…14 AWG)
Double Wire: 2 x 0.2 mm²…2 x 1.5 mm² (2 x 24 AWG…2 x 16 AWG)
Wire Type: Solid or Stranded, Copper only
Strip Length: 8 mm (5/16 in.), Torque: 0.5 N•m (4.4 lb•in)





Cat. No. 700-HN128

Wire Size: 2 x 1.5mm² (#2-16 AWG…#1-20 AWG)
(Either Solid or Stranded)
Strip Length: 9 mm (3/8 in.) – Toque: 0.8 N•m (7 lb•in)

Bulletin 700-HNC — Miniature Timing Relay

- Miniature timer, perfect for converting Bul. 700-HC "Ice Cube" relays into timing relays
- 4 operating modes
- 4PDT contact output
- Timing range from 0.1 s…10 hr
- Socket mounted

Table of Contents

Standards Compliance and Certifications

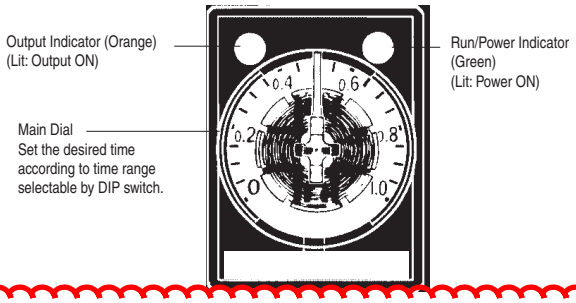
See Specification table in this section, page 9-75

Product Selection

Bulletin 700-HNC Miniature Timer with Multiple Time Ranges

Model	Timing Mode	Contact Output	Input Voltages	Timing Range	Socket Type	Cat. No.
 *Cat. No. 700-HNC*	On-Delay One Shot Repeat cycle, OFF-start Repeat cycle, ON-start	4PDT	12V DC	0.1 s…10 min	700-HN103 700-HN128	**700-HNC44AZ12**
				.1 min…10 hr		700-HNC44BZ12
			24V DC	0.1 s…10 min		**700-HNC44AZ24**
				0.1 min….10 hr		700-HNC44BZ24
			48V DC	0.1 s…10 min		700-HNC44AZ48
				0.1 min….10 hr		700-HNC44BZ48
			100…110V DC	0.1 s…10 min		**700-HNC44AZ11**
				0.1 min….10 hr		700-HNC44BZ11
			125V DC	0.1 s…10 min		700-HNC44AZ25
				0.1 min….10 hr		700-HNC44BZ25
			24V AC	0.1 s…10 min		**700-HNC44AA24**
				0.1 min…10 hr		700-HNC44BA24
			100…120V AC	0.1 s…10 min		**700-HNC44AA12**
				0.1 min….10 hr		700-HNC44BA12
			200…230V AC	0.1 s…10 min		**700-HNC44AA23**
				0.1 min….10 hr		**700-HNC44BA23**

General Timer Functions



Accessories

	Description	Pkg. Quantity	Cat. No.
 *Cat. No. 700-HN103*	**Screw Terminal Socket — Panel or DIN Rail Mounting.** **Guarded Terminal Construction** 14-Blade miniature socket for use with Bulletin 700-HNC timers.	10	**700-HN103**
 *Cat. No. 700-HN128*	**Screw Terminal Base Sockets — Panel or DIN Rail Mounting.** **Open Style Construction** 14-blade miniature socket for use with Bulletin 700-HNC timers.	10	**700-HN128**

Plug-in Timing Relays

Accessories/ Specifications

	Description	Pkg. Quantity	Cat. No.
 *Cat. No. 700-HN104*	**Screw Terminal Socket – Panel or DIN Rail Mounting. Guarded Terminal Construction** 14-blade miniature socket for use with Bulletin 700-HNC timers. This socket has coil and contact separation.	10	**700-HN104**
 *Cat. No. 700-HN263*	Retainer Clip for Cat. Nos. 700-HN103, -HN104 and -HN128 Sockets with Bulletin 700-HNC Timers. Secures Timer in Socket.	10	**700-HN263**

Specifications

Ratings			
Item	700-HNC		
Pilot Duty Rating	NEMA B300		
Pin type	Plug-in		
Operating voltage range	85%…110% of rated supply voltage (12V DC: 90%…110% of rated supply voltage)❄		
Reset voltage	10% min. of rated supply voltage‡		
Power consumption	24V AC:	Relay ON: Relay OFF:	1.5 VA (1.1 W) (at 24V AC, 60 Hz) 0.2 VA (0.1 W) (at 24V AC, 60 Hz)
	100…120V AC:	Relay ON: Relay OFF:	1.5 VA (1.3 W) (at 120V AC, 60 Hz) 0.8 VA (0.5 W) (at 120V AC, 60 Hz)
	200…230V AC:	Relay ON: Relay OFF:	1.8 VA (1.5 W) (at 230V AC, 60 Hz) 1.2 VA (0.9 W) (at 230V AC, 60 Hz)
	12V DC:	Relay ON: Relay OFF:	0.9 W (at 12V DC) 0.07 W (at 12V DC)
	24V DC:	Relay ON: Relay OFF:	0.9 W (at 24V DC) 0.07 W (at 24V DC)
	48V DC:	Relay ON: Relay OFF:	1.0 W (at 48V DC) 0.2 W (at 48V DC)
	100…110V DC:	Relay ON: Relay OFF:	1.3 W (at 110V DC) 0.3 W (at 110V DC)
	125V DC:	Relay ON: Relay OFF:	1.3 W (at 125V DC) 0.3 W (at 125V DC)
Control outputs	4PDT: 5 A at 250V AC, resistive load ($\cos\phi = 1$)		
Characteristics			
►][◄ Make	120V AC	30 A	
	240V AC	15 A	
◄][► Break	120V AC	3 A	
	240V AC	1.5 A	
Hp at 120V AC	1/6 Hp		
Hp at 240V AC	1/6 Hp		
Accuracy of operating time	±1% FS max. (1 s range: ±1%±10 ms max.)		
Setting error	±10%±50 ms FS max.		
Reset time	Min. power-opening time: 0.1 s max. (including halfway reset)		
Influence of voltage	±2% FS max.		
Influence of temperature	±2% FS max.		
Insulation resistance	100 mΩ min. (at 500V DC)		
Dielectric strength	2000V AC, 50/60 Hz for 1 min (between current-carrying terminals and exposed non-current-carrying metal parts)✶		
	2000V AC, 50/60 Hz for 1 min (between operating power circuit and control output)		
	2000V AC, 50/60 Hz for 1 min (between different pole contacts; 2-pole model)		
	1500V AC, 50/60 Hz for 1 min (between different pole contacts; 4-pole model)		
	1000V AC, 50/60 Hz for 1 min (between non-continuous contacts)		
Vibration resistance	Malfunction:10…55 Hz, 0.5 mm single amplitude		
Shock resistance	Malfunction:100 m/s² (approx. 10G)		
Ambient temperature	Operating:-10 °C…50 °C (with no icing)		
	Storage:-25 °C…65 °C (with no icing)		
Ambient humidity	Operating:35%…85%		
Life expectancy	Mechanical:10 000 000 operations min. (under no load at 1800 operations/hr)		
	Electrical:4PDT: 200 000 operations min. (3 A at 250V AC, resistive load at 1800 operations/hr)		

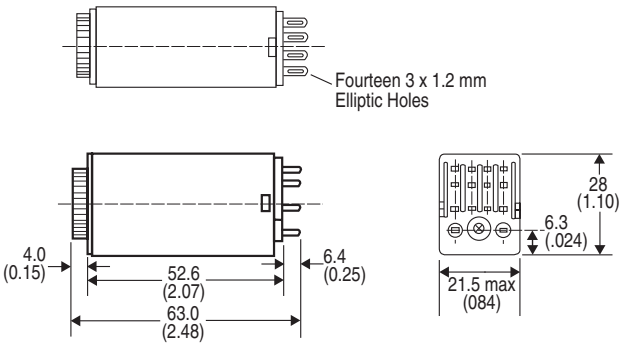
✶ Single-phase, full-wave-rectified power supplies can be used.

❄ When using the 700-HNC continuously in any place where the ambient temperature is in a range of 45 °C…50 °C, supply 90%…110% of the rated supply voltages supply 95%…110% with 12V DC type).

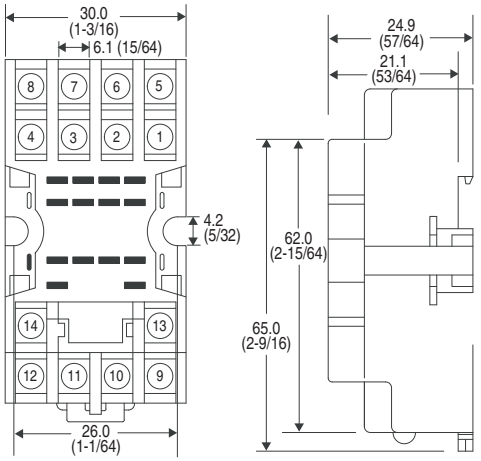
Approximate Dimensions

Approximate Dimensions are shown in millimeters (inches) where not specified. Approximate Dimensions are not intended to be used for manufacturing purposes.

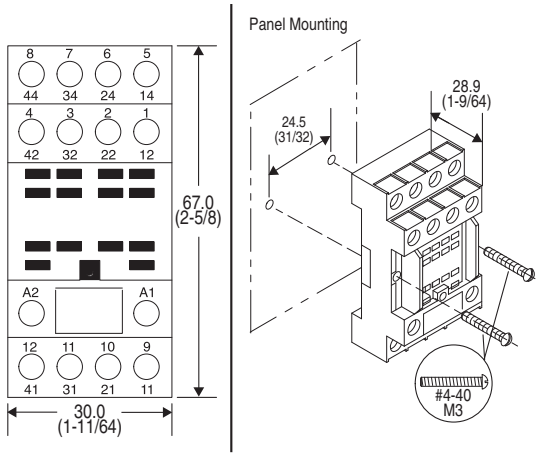
Timers
Front Mounting



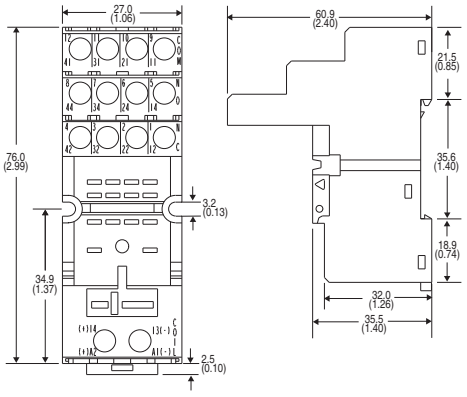
Cat.No. 700-HNC



Cat. No. 700-HN128∗
Wire Size: 2 x 1.5 mm² (#2-16 AWG…#1-20 AWG)
(Either Solid or Stranded)
Strip Length: 9 mm (3/8 in.) - Torque: 0.8 N•m (7 lb•in)



Cat. No. 700-HN103
Single wire: 0.2…2.5 mm² (#24 AWG…14 AWG)
Double wire: 2 x 0.2 mm²…2 x 1.5 mm² (2 x 24 AWG…2 x 16 AWG)
Wire type: solid or stranded, copper only
Strip length: 8 mm (5/16 in.), Torque: 0.5 N•m (4.4 lb•in)



Cat. No. HN-104
Single Wire: 0.2…2.5 mm² (#24 AWG…14 AWG)
Double Wire: 2 x 0.2 mm²…2 x2.5 mm² (2 x 24 AWG…2 x 14 AWG)
Wire Type: solid or stranded, copper only
Strip Length: 7 mm (9/32 in.), Torque: 0.5 N•m (4.4 lb•in)

∗ Total height of 700-HN128 + 700-HNC is 82.5 mm.

9

CATALOG CUT SHEETS

SECTION: 102

EnviroCare International

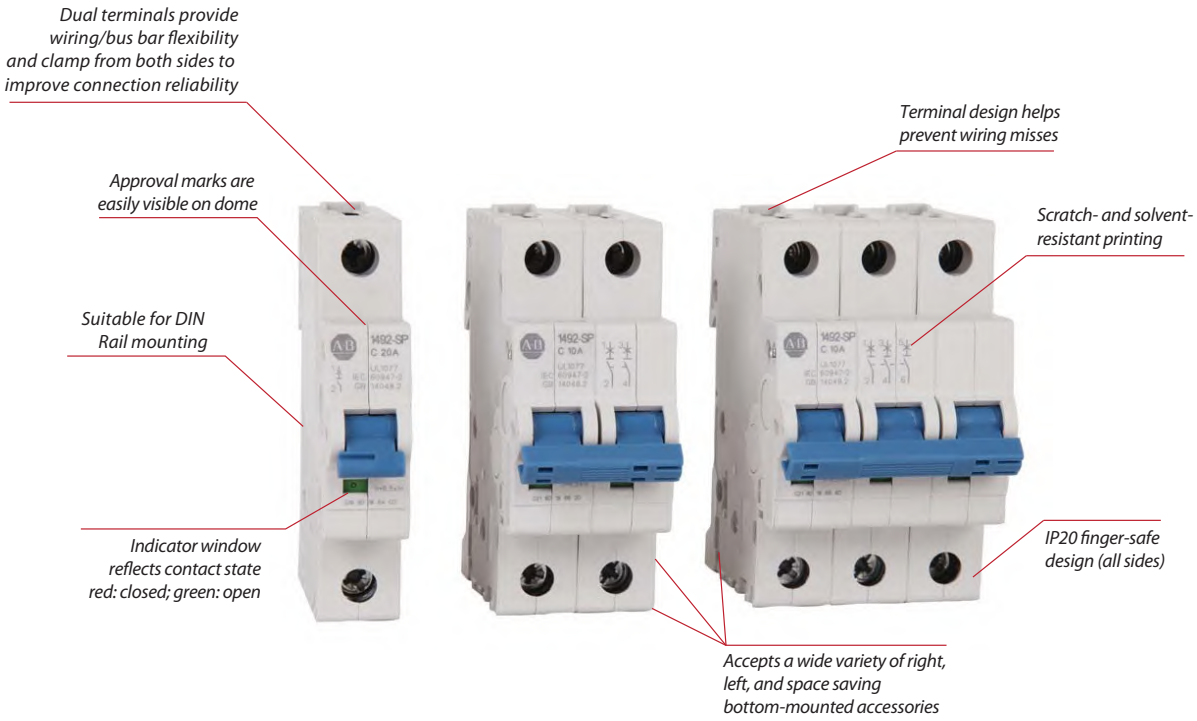
507 Green Island Road
American Canyon, CA 94503, USA
Tel. 707.638.6800
Fax. 707.638.6898

Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

Manufacturer: ALLEN BRADLEY
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
N/A	A-B, 120V CIRCUIT BREAKER, 2A	1492-SM1C020
	A-B, 120V CIRCUIT BREAKER, 3A	1492-SM1C030
	A-B, 120V CIRCUIT BREAKER, 5A	1492-SM1C050

1492-SP Supplementary Protectors



Bulletin 1492-SP thermal magnetic Supplementary Protectors provide overcurrent protection for equipment where branch circuit protection is already provided, or is not required. These devices are also Miniature Circuit Breakers as defined by IEC Standards.

These supplementary protectors are offered as a broad portfolio of pole variants, current ratings, and trip curves to match the appropriate level of protection for your application. They may be used with UL 508 Listed bus bars for convenience in panel assembly, a wide range of left-, right- and space saving bottom-mount accessories, and lock out attachments for safety during maintenance.

Features

- Current limiting
- Fast breaking time
- Existing installations can be easily upgraded to include an auxiliary using the bottom mounted auxiliary contact options, which require no DIN Rail space
- 40 °C calibration temperature (UL/CSA) eliminates need to derate for 508A industrial control panel installations
- Installation of up to six accessories on the same circuit breaker
- Superior shock and vibration resistance to prevent nuisance tripping
- Dual terminals allow a more secure connection of two wires, or both a wire and bus bar
- Terminal design helps prevent wiring misses by directing wires into the terminal openings, even while tightening
- Reversible line and load connections
- Single and multi-pole toggle mount lock out attachments available for Lockout/Tagout (LOTO)
- RoHS compliant and fully-recyclable device
- Suitable for extreme ambient conditions

1492-SP Supplementary Protectors	
Rated Voltage	UL/CSA: Max. 480Y/277V AC IEC: U_e 230/400V AC
Interrupting Capacity	UL/CSA: 5...10 kA IEC: 15 kA
Current Ratings	0.5...63 A
Poles	1, 2, 3, 1+N, 3+N
Trip Curves	B, C, D
Standards Compliance	UL 1077 CSA C22.2 No. 235 EN 60947-2 GB 14048.2
Certifications	UL Recognized, File No. E65138★ CSA Certified, File No. 259391 CE Marked CCC Certified VDE Certified RoHS Compliant

★ 1+N and 3+N devices are not UL recognized or CSA certified.

Catalog Number Explanation

Note: Examples given in this section are for reference purposes. This basic explanation should not be used for product selection; some combinations may not produce a valid catalog number.

1492	-	SPM	1	C	010	-	N
		a	***b***	***c***	***d***		***e***

a

Voltage Type	
Code	**Description**
SPM	AC Supplementary Protector

b

Poles	
Code	**Description**
1	1-Pole
2	2-Pole
3	3-Pole

c

Trip Curve	
Code	**Trip Curve**
B	Trip Curve B
C	Trip Curve C
D	Trip Curve D

d

Rated Current (I_n)	
Code	**Current [A]**
005	0.5
010	1
020	2
030	3
040	4
050	5
060	6
070	7
080	8
100	10
130	13
150	15
160	16
200	20
250	25
300	30
320	32
400	40
500	50
630	63

e

+ Neutral (available for 1+N and 3+N configurations)	
Code	**Description**
	Can be left blank
N	+ Neutral

Product Selection

1-Pole Supplementary Protectors

Photo/Wiring Diagram	Continuous Current Rating (I_n) [A]	Trip Curve B Resistive or Slightly Inductive 3...5 I_n Cat. No.	Trip Curve C Inductive 5...10 I_n Cat. No.	Trip Curve D Highly Inductive 10...20 I_n Cat. No.
  1-pole	0.5	1492-SPM1B005	1492-SPM1C005	1492-SPM1D005
	1	1492-SPM1B010	1492-SPM1C010	1492-SPM1D010
	2	1492-SPM1B020	1492-SPM1C020	1492-SPM1D020
	3	1492-SPM1B030	1492-SPM1C030	1492-SPM1D030
	4	1492-SPM1B040	1492-SPM1C040	1492-SPM1D040
	5	1492-SPM1B050	1492-SPM1C050	1492-SPM1D050
	6	1492-SPM1B060	1492-SPM1C060	1492-SPM1D060
	7	1492-SPM1B070	1492-SPM1C070	1492-SPM1D070
	8	1492-SPM1B080	1492-SPM1C080	1492-SPM1D080
	10	1492-SPM1B100	1492-SPM1C100	1492-SPM1D100
	13	1492-SPM1B130	1492-SPM1C130	1492-SPM1D130
	15	1492-SPM1B150	1492-SPM1C150	1492-SPM1D150
	16	1492-SPM1B160	1492-SPM1C160	1492-SPM1D160
	20	1492-SPM1B200	1492-SPM1C200	1492-SPM1D200
	25	1492-SPM1B250	1492-SPM1C250	1492-SPM1D250
	30	1492-SPM1B300	1492-SPM1C300	1492-SPM1D300
	32	1492-SPM1B320	1492-SPM1C320	1492-SPM1D320
	40	1492-SPM1B400	1492-SPM1C400	1492-SPM1D400
	50	1492-SPM1B500	1492-SPM1C500	1492-SPM1D500
	63	1492-SPM1B630	1492-SPM1C630	1492-SPM1D630

Specifications

Electrical Ratings			
Poles			1, 2, 3, 1+N, 3+N
Tripping characteristics			B, C, D
Rated current (I_n)			0.5...63 A
Rated frequency (f)			50/60 Hz
Rated insulation voltage U_i per IEC/EN 60664-1			250 V AC (phase to ground), 440V AC (phase to phase)
Overvoltage category			III
Pollution degree			3
Data per UL/CSA			
Rated voltage	1-pole	AC	277V AC
		DC	48V DC
	2-pole	AC	480Y/277V AC
		DC	96V DC
	3-pole	AC	480Y/277V AC
Rated interrupting capacity per UL 1077			≤ 32 A: 10 kA (AC); > 32 A: 5 kA (AC); 0.5...63 A: 10 kA (DC)
Application			Supplementary Protector for general use; application codes: TC1 , OL0, SC: U2 (AC), SC: U2 (DC), FW3 ♣
Reference temperature for tripping characteristics			40 °C
Electrical endurance			6,000 ops (AC), 6,000 ops. (DC) 1 cycle (1s - ON, 9s - OFF)
Data per IEC/EN 60947-2			
Rated operational voltage (U_e)		1-pole, 1+N	230V AC
		2-pole, 3-pole, 3+N	400V AC
Highest supply or utilization voltage (U_{max})	AC	1-pole, 1+N	253V AC
		2-pole, 3-pole, 3+N	440V AC
	DC★	1-pole	48V DC
		2-pole	96V DC
Min. operating voltage			12V AC, 12V DC
Rated ultimate short-circuit breaking capacity (I_{cu})			15 kA
Rated service short-circuit breaking capacity (I_{cs})			≤40 A: 11.25 kA >40 A: 7.5 kA
Rated impulse withstand voltage Uimp. (1.2/50µs)			4 kV (test voltage 6.2kV at sea level, 5kV at 2,000m)
Dielectric test voltage			2 kV (50/60Hz, 1 min.)
Reference temperature for tripping characteristics			30 °C
Electrical endurance 1 cycle (2s - ON, 13s - OFF, $I_n \leq 32A$), 1 cycle (2s - ON, 28s - OFF, $I_n > 32A$)			$I_n < 30A$: 20,000 ops (AC) $I_n \geq 30A$: 10,000 ops. (AC) 1,000 ops. (DC)

★ IEC DC ratings self-declared.

♣ 2-pole/3-pole single pole load: TC2.

Mechanical Data		
Housing		Insulation group II, RAL 7035
Indicator window		red ON/green OFF
Protection degree per EN 60529		IP20, IP40 in enclosure with cover
Mechanical endurance		20,000 operations
Shock resistance per IEC/EN 60068-2-27		25 g - 2 shocks - 13 ms
Vibration resistance per IEC/EN 60068-2-6		5g - 20 cycles at 5...150...5 Hz with load 0.8In
Environmental		
Environmental conditions (damp heat) per IEC/EN 60068-2-30		28 cycles with 55°C/90-96% and 25°C/95-100%
Ambient temperature Δ		-25...+55 °C
Storage temperature		-40...+70 °C
Installation		
Terminal		Dual terminal
Cross-section of conductors ◆ – solid, stranded (front/back terminal slot)	mm^2	35/35 mm^2
	AWG	18...4/18...10 AWG
Cross-section of conductors – flexible (front/back terminal slot)	mm^2	25/10 mm^2
Cross-section of bus bars (back terminal slot)	mm^2	10 mm^2
Tightening torque	N•m	2.8 N•m
	in•lb.	AWG 18...16: 8.85 in•lb. AWG 14...10:17.7 in•lb. AWG 8...4: 39.8 in•lb.
Screwdriver		No. 2 Pozidrive
Mounting		DIN rail (EN 60715, 35mm) with fast clip
Mounting position		Any
Supply		Optional
Approximate Dimensions and Weight		
Pole dimension (H x D x W)		88 x 69 x 17.5 mm
Pole weight		115 g (4.1 oz.)
Combination with Auxiliary Elements		
Auxiliary contact		Yes
Signal contact		Yes
Shunt trip		Yes

◆ 35mm^2 self-declared, not included in IEC/EN approval.

Δ Refer to the ambient temperature derating tables.

Power Loss Due to Current

Rated Current [A]	Power Loss Per Pole [W]		Rated Current [A]	Power Loss Per Pole [W]
0.5	1.4		13	2.3
1	1.4		15	2.4
2	1.8		16	2.5
3	1.6		20	2.5
4	1.8		25	3.2
5	1.9		30	3.5
6	2.0		32	3.7
7	1.1		40	4.5
8	1.5		50	4.5
10	2.1		63	5.4

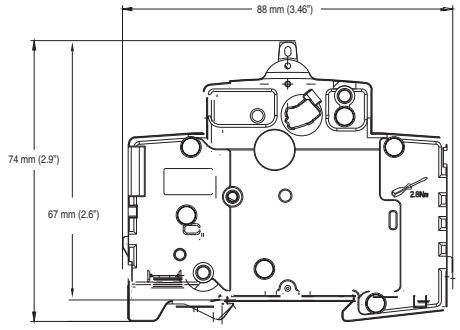
Zero-stack Derating

The installation of several miniature circuit breaker side by side with rated current on all poles requires a correction factor to the rated current (not required if spacers are used).

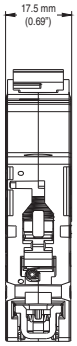
No. of Adjacent Devices	Factor
1	1
2,3	0.9
4,5	0.8
≥6	0.75

Approximate Dimensions

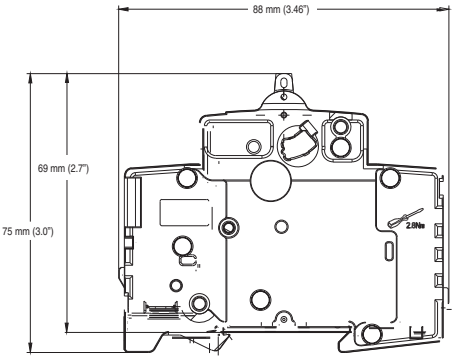
Note: Dimensions are shown in millimeters (inches). Dimensions are not intended for manufacturing purposes.



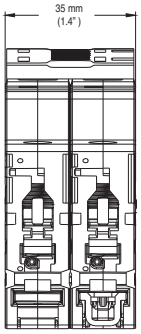
1-Pole



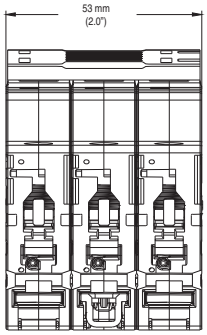
1-Pole



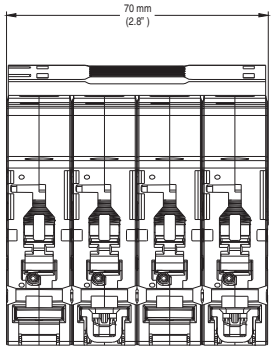
1 Pole + N, 2-, 3-, 3 Pole + N



1 Pole + N, 2-Pole



3-Pole



3-Pole + N

Ambient Temperature Derating

Note: Application below 0º C is for non-condensing atmosphere. Care should be taken for applications below 0 °C. These devices are not certified to operate correctly in the presence of ice.

Bulletin 1492-SP
Temperature Derating, UL
Reference temperature = 40 °C

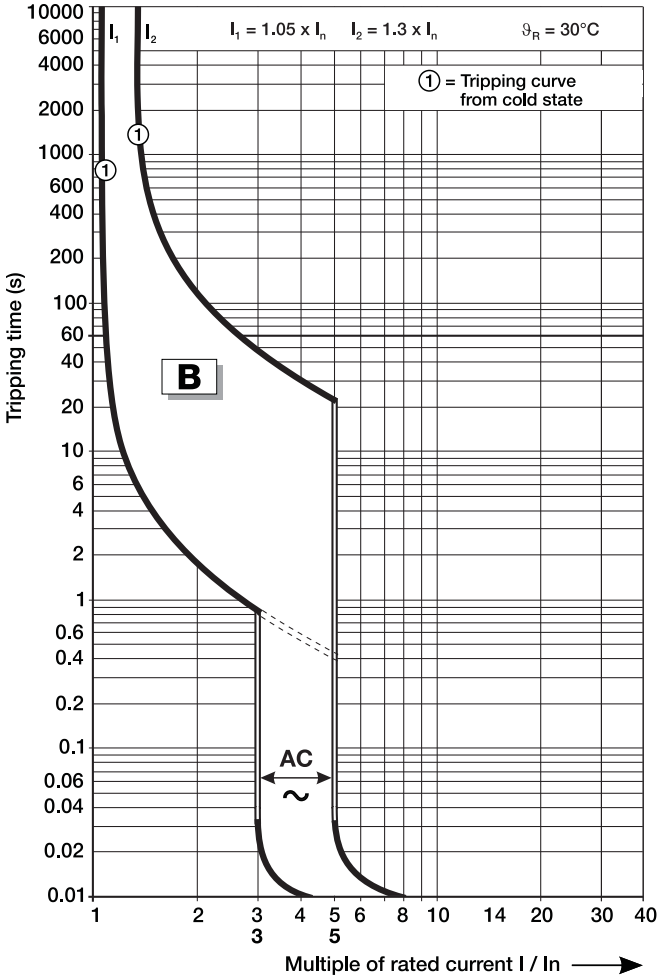
Current	Ambient temperature (°C)									
Rating [A]	-25	-20	-10	0	10	20	30	40	50	55
0.5	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5
1	1.2	1.2	1.2	1.1	1.1	1.1	1.0	1	1.0	0.9
2	2.5	2.4	2.4	2.3	2.2	2.1	2.1	2	1.9	1.9
3	3.7	3.7	3.6	3.4	3.3	3.2	3.1	3	2.9	2.8
4	5.0	4.9	4.7	4.6	4.4	4.3	4.1	4	3.9	3.8
5	6.2	6.1	5.9	5.7	5.6	5.4	5.2	5	4.8	4.7
6	7.4	7.3	7.1	6.9	6.7	6.4	6.2	6	5.8	5.7
7	8.7	8.6	8.3	8.0	7.8	7.5	7.3	7	6.7	6.6
8	9.9	9.8	9.5	9.2	8.9	8.6	8.3	8	7.7	7.6
10	12.4	12.2	11.9	11.5	11.1	10.7	10.4	10	9.6	9.4
13	16.1	15.9	15.4	14.9	14.4	14.0	13.5	13	12.5	12.3
15	18.6	18.3	17.8	17.2	16.7	16.1	15.6	15	14.4	14.2
16	19.8	19.6	19.0	18.4	17.8	17.2	16.6	16	15.4	15.1
20	24.8	24.4	23.7	23.0	22.2	21.5	20.7	20	19.3	18.9
25	31.0	30.6	29.6	28.7	27.8	26.9	25.9	25	24.1	23.6
30	37.2	36.7	35.6	34.4	33.3	32.2	31.1	30	28.9	28.3
32	39.7	39.1	37.9	36.7	35.6	34.4	33.2	32	30.8	30.2
40	49.6	48.9	47.4	45.9	44.4	43.0	41.5	40	38.5	37.8
50	62.0	61.1	59.3	57.4	55.6	53.7	51.9	50	48.2	47.2
63	78.2	77.0	74.7	72.3	70.0	67.7	65.3	63	60.7	59.5

Bulletin 1492-SP
Temperature Derating, IEC
Reference temperature = 30 °C

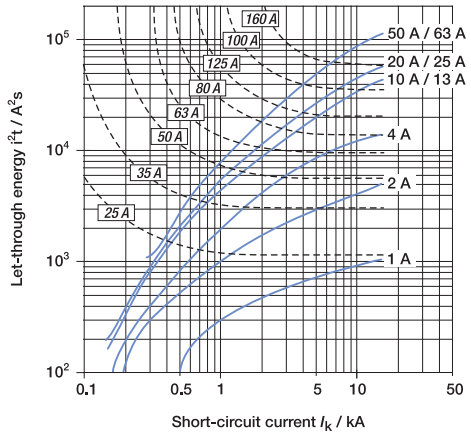
Current	Ambient temperature (°C)									
Rating [A]	-25	-20	-10	0	10	20	30	40	50	55
0.5	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5
1	1.2	1.2	1.1	1.1	1.1	1.0	1	1.0	0.9	0.9
2	2.3	2.3	2.2	2.2	2.1	2.1	2	1.9	1.9	1.9
3	3.5	3.5	3.4	3.3	3.2	3.1	3	2.9	2.8	2.8
4	4.7	4.6	4.5	4.4	4.2	4.1	4	3.9	3.8	3.7
5	5.8	5.8	5.6	5.5	5.3	5.2	5	4.9	4.7	4.6
6	7.0	6.9	6.7	6.5	6.4	6.2	6	5.8	5.6	5.6
7	8.2	8.1	7.8	7.6	7.4	7.2	7	6.8	6.6	6.5
8	9.3	9.2	9.0	8.7	8.5	8.2	8	7.8	7.5	7.4
10	11.7	11.5	11.2	10.9	10.6	10.3	10	9.7	9.4	9.3
13	15.1	15.0	14.6	14.2	13.8	13.4	13	12.6	12.2	12.0
15	17.5	17.3	16.8	16.4	15.9	15.5	15	14.6	14.1	13.9
16	18.6	18.4	17.9	17.4	17.0	16.5	16	15.5	15.0	14.8
20	23.3	23.0	22.4	21.8	21.2	20.6	20	19.4	18.8	18.5
25	29.1	28.8	28.0	27.3	26.5	25.8	25	24.3	23.5	23.1
30	35.0	34.5	33.6	32.7	31.8	30.9	30	29.1	28.2	27.8
32	37.3	36.8	35.8	34.9	33.9	33.0	32	31.0	30.1	29.6
40	46.6	46.0	44.8	43.6	42.4	41.2	40	38.8	37.6	37.0
50	58.3	57.5	56.0	54.5	53.0	51.5	50	48.5	47.0	46.3
63	73.4	72.5	70.6	68.7	66.8	64.9	63	61.1	59.2	58.3

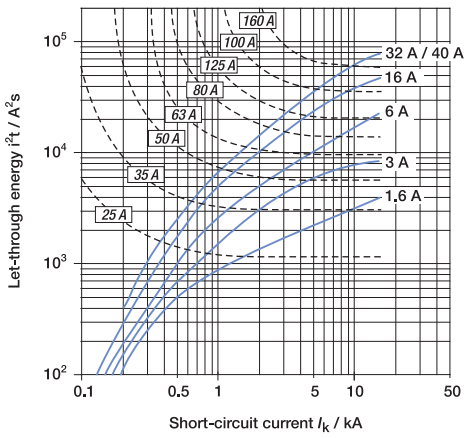
Tripping Characteristics

B Curve



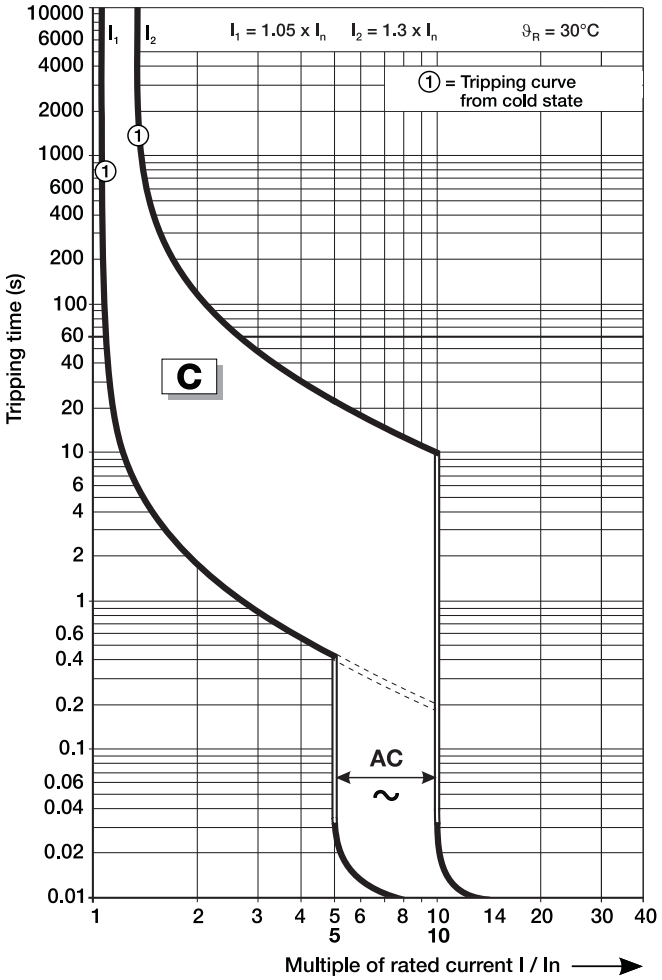
B and C Curve - 230/400V AC Let-through Energy



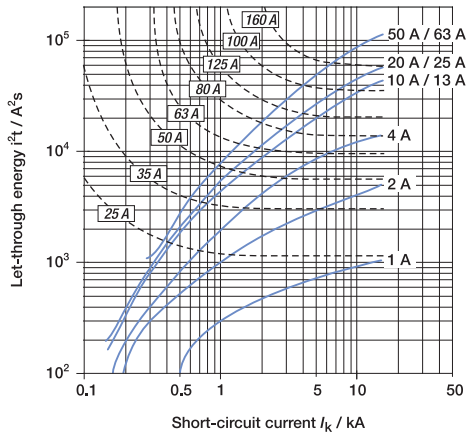


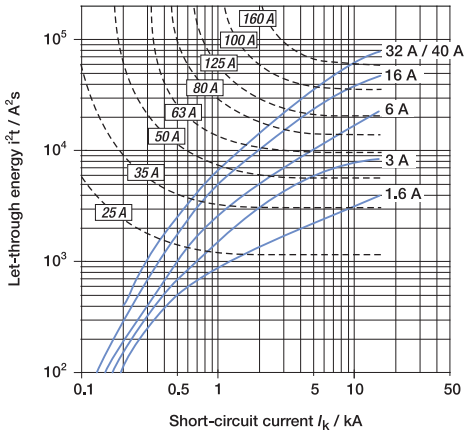
Tripping Characteristics

C Curve



B and C Curve - 230/400V AC Let-through Energy





CATALOG CUT SHEETS

SECTION: 103

EnviroCare International

507 Green Island Road
American Canyon, CA 94503, USA
Tel. 707.638.6800
Fax. 707.638.6898

Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

Manufacturer: NOT USED
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
N/A	SECTION NOT USED	

CATALOG CUT SHEETS

SECTION: 104

EnviroCare International

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American Canyon, CA 94503, USA
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Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
N/A	A-B, SELECTOR SWITCH, 2 POSITION	800H-HR2B

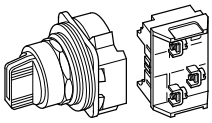
2-Position Selector Switch Devices, Non-Illuminated

Standard Knob Operator
Cat. No. 800T-H2A

Knob Lever Operator
Cat. No. 800T-H17A

Standard Knob Operator
Cat. No. 800H-HR2A

800 T ___ – HA 2 A
a b c d e



a

Protection Rating	
Code	Description
T	Metal, Type 4/13
H	Plastic, Type 4/4X/13

b

Finger-Safe Guards	
Code	Description
Blank	No guards
C	Guards on terminals

c

Knob Insert Colors		
800T Type 4/13	Description	800H Type 4/4X/13
Code		Code
H	White	HR
HX	Packet of colored inserts‡	HRX
Metal Wing Lever Colors♣		
Code	Color	Code
HA	Red	—
HG	Grey	—

d

Operator Type and Function	
Standard Knob	
Code	Operator Function
2	Maintained
4	Spring return from left§
5	Spring return from right
Knob Lever♣	
Code	Operator Function
17	Maintained
18	Spring return from left§
19	Spring return from right
Metal Wing Lever♣	
Code	Operator Function
11	Maintained
15	Spring return from left§
16	Spring return from right
Coin Slot♣	
Code	Operator Function
6	Maintained
7	Spring return from left
8	Spring return from right

e

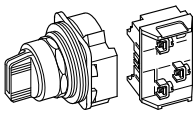
Contact Block(s)			
Code	Description		
	Contact Configuration	2-Position	
Blank	No contacts	—	—
Standard			
D1	1 N.O.	O	X
D2	1 N.C.	X	O
A	1 N.O. - 1 N.C.	O	X
		X	O
B	2 N.O. - 2 N.C.	O	X
		X	O
		O	X
		X	O
Max Duty (Horsepower Rated)Δ			
D1M	1 N.O.		
D2M	1 N.C.		
PenTUFF (Low Voltage)Δ			
D1V	1 N.O.		
D2V	1 N.C.		
AV	1 N.O. - 1 N.C.		
BV	2 N.O. - 2 N.C.		
Class1, Div. 2			
Logic ReedΔ			
D1R	1 N.O.		
D2R	1 N.C.		
AR	1 N.O. - 1 N.C.		
BR	2 N.O. - 2 N.C.		
Sealed SwitchΔ			
D1P	1 N.O.		
D2P	1 N.C.		
AP	1 N.O. - 1 N.C.		
BP	2 N.O. - 2 N.C.		
Stackable Sealed SwitchΔ			
D1Y	1 N.O.		
D2Y	1 N.C.		
AY	1 N.O. - 1 N.C.		
BY	2 N.O. - 2 N.C.		

‡ One insert of each color (blue, green, orange, red, and yellow).
§ Target tables are reversed from those shown.
♣ Only available on Bul. 800T, Type 4/13 operators.
Δ Contact target tables same as those listed for standard contact blocks.

2-Position Selector Switch Devices, Non-Illuminated (Bul. 800T only)

2-Position Cylinder Lock Operator
Cat. No. 800T-H33A

800 T ___ – H31 ___ A
a b c d e



a

Protection Rating	
Code	Description
T	Metal, Type 4/13

b

Finger-Safe Guards	
Code	Description
Blank	No guards
C	Guards on terminals

c

Key Removal Position	
Maintained	
Code	Operator Function
H31	Key removal — left
H32	Key removal — right
H33	Key removal — both
Spring Return From Left	
Code	Operator Function
H42	Key removal — right★
Spring Return From Right	
Code	Operator Function
H48	Key removal — left

d

Key Options for Cylinder LocksΔ			
Code	T Series Key No.	Code	T Series Key No.
Blank	D018 (Std. Key)	15	T112
03	D020	16	T115
04	D025	17	T324
05	D335	18	T382
06	D429	19	T404
07	D461	20	T171
08	D111	21	T484
09	D587	22	T547
10	D682	23	T569
11	D713	24	T692
12	D900	25	T752
13	D992	26	T178
14	D118	—	—

e

Contact Block(s)			
Code	Description		
	Contact Configuration	2-Position	
Blank	No contacts	—	—
Standard			
D1	1 N.O.	O	X
D2	1 N.C.	X	O
A	1 N.O. - 1 N.C.	O	X
		X	O
B	2 N.O. - 2 N.C.	O	X
		X	O
		O	X
		X	O
Max Duty (Horsepower Rated)			
D1M	1 N.O.		
D2M	1 N.C.		
Pen*TUFF* (Low Voltage)			
D1V	1 N.O.		
D2V	1 N.C.		
AV	1 N.O. - 1 N.C.		
BV	2 N.O. - 2 N.C.		
Class1, Div. 2			
Logic Reed♣			
D1R	1 N.O.		
D2R	1 N.C.		
AR	1 N.O. - 1 N.C.		
BR	2 N.O. - 2 N.C.		
Sealed Switch♣			
D1P	1 N.O.		
D2P	1 N.C.		
AP	1 N.O. - 1 N.C.		
BP	2 N.O. - 2 N.C.		
Stackable Sealed Switch♣			
D1Y	1 N.O.		
D2Y	1 N.C.		
AY	1 N.O. - 1 N.C.		
BY	2 N.O. - 2 N.C.		

★ Target tables are reversed from those shown.
♣ Contact target tables same as those listed for standard and Pen*TUFF* contact blocks.
Δ Device supplied with 2 keys. Replacement key part no. for standard D018 key is X-181170. Consult your local Rockwell Automation sales office or Allen-Bradley distributor for additional replacement key numbers.

CATALOG CUT SHEETS

SECTION: 105

EnviroCare International

507 Green Island Road
American Canyon, CA 94503, USA
Tel. 707.638.6800
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Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

Manufacturer: ALLEN BRADLEY
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
N/A	A-B, SELECTOR SWITCH, 3 POSITION	800H-JR2B

30.5 mm Push Buttons

Type 4/4X/13, Corrosion-Resistant/Watertight/Oiltight

2-Position Selector Switch Units, Non-Illuminated

Standard Knob Operator
Cat. No. 800H-HR2A

Contact Type	Contact Location		Operator Position		Operator Type M=Maintained S=Spring Return	Standard Knob
	Side	Contact	↖	↗		Cat. No.
No Contacts	—	—	—	—	M M	800H-HR2
					S→M	800H-HR4
					M←S	800H-HR5
1 N.O.	White	A	O	X	M M	800H-HR2D1
					S→M ❶	800H-HR4D1
					M←S	800H-HR5D1
1 N.O. - 1 N.C.	White	A B	O X	X O	M M	800H-HR2A
					S→M ❶	800H-HR4A
					M←S	800H-HR5A
2 N.O. - 2 N.C.	White Black	A B A B	O X O X	X O X O	M M	800H-HR2B
					S→M ❶	800H-HR4B
					M←S	800H-HR5B

Note: X=Closed/O=Open

❶ Target tables are reversed from those shown.

3-Position Selector Switch Units, Non-Illuminated

Standard Knob Operator
Cat. No. 800H-JR2A

Contact Type	Contact Location		Operator Position			Operator Type M=Maintained S=Spring Return	Standard Knob
	Side	Contact	↖	↑	↗		Cat. No.
No Contacts	—	—	—	—	—	M M M	800H-JR2
						S→M M	800H-JR4
						M M←S	800H-JR5
						S→M←S	800H-JR91
1 N.O. - 1 N.C.	White	A B	X O	O O	O X	M M M	800H-JR2A
						S→M M	800H-JR4A
						M M←S	800H-JR5A
						S→M←S	800H-JR91A
2 N.O. - 2 N.C.	White Black	A B A B	X O X O	O O O O	O X O X	M M M	800H-JR2B
						S→M M	800H-JR4B
						M M←S	800H-JR5B
						S→M←S	800H-JR91B

Note: X=Closed/O=Open

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Legend Plates — Page 107
Approximate Dimensions — Page 110

CATALOG CUT SHEETS

SECTION: 106

EnviroCare International

507 Green Island Road
American Canyon, CA 94503, USA
Tel. 707.638.6800
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Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

Manufacturer: ALLEN BRADLEY
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
N/A	A-B, EMERGENCY STOP - RED	800H-FRXT6A4

2-Position Red Trigger Action Twist-to-Release, Non-Illuminated

- Tamper resistant – front-of-panel mounting and non-removable operator head
- Compliant with global E-stop standards, including EN ISO 13850 and EN 60947-5-5

Cat. No. 800T-TFXJET6

Cat. No. 800T-TFXLET6

Cat. No. 800T-TFXK6

Cat. No. 800H-TFRXT6

800 T ___ – TFX T 6 D2

a b c d e

a

Protection Rating	
Code	Description
T	Metal, Type 4/13
H	Plastic, Type 4/4X/13

b

Finger-Safe Guards	
Code	Description
Blank	No guards
C	Guards on terminals

c

800T Type 4/13 Code	Description	800H Type 4/4X/13 Code
TFX	Standard (45 mm) mushroom head	TFRX
TFXJ	Jumbo (60 mm) mushroom head	TFRXJ
TFXJE	Jumbo (60 mm) mushroom head with "E-STOP"	TFRXJE
TFXK	45 mm mushroom head key release	—
TFXL	63 mm anodized aluminum head	—
TFXLE	63 mm anodized aluminum head with "E-STOP"	—

d

Release Function	
Code	Color
Blank	Key release♠
T	Twist release

e

Contact Block(s)			
Code	Operator Position		Description
	Out	In	
Blank	—	—	No contacts on operator
Standard			
D2	X	O	1 N.C.
A	O X	X O	1 N.O. - 1 N.C.
A4	X X	O O	2 N.C.
PenTUFF (Low Voltage)			
D2V	X	O	1 N.C.
AV	O X	X O	1 N.O. - 1 N.C.

Note: X = Closed/O = Open

♠ Configurable only with **FXK** head type.

CATALOG CUT SHEETS

SECTION: 107

EnviroCare International

507 Green Island Road
American Canyon, CA 94503, USA
Tel. 707.638.6800
Fax. 707.638.6898

Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

Manufacturer: ALLEN BRADLEY
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
N/A	A-B, PUSH BUTTON - GREEN	800H-AR1A
	A-B, PUSH BUTTON - BLACK	800H-AR2A
	A-B, PUSH BUTTON - RED	800H-AR6A

30.5 mm Push Buttons

Type 4/4X/13, Corrosion-Resistant/Watertight/Oiltight

Momentary Contact Push Button Units, Non-Illuminated

Booted Unit
Cat. No. 800H-R2A

Bootless Flush Head Unit
Cat. No. 800H-AR1A

Bootless Extended Head Unit
Cat. No. 800H-BR6A

Contact Type	Button Color	Booted	Bootless Flush Head	Bootless Extended Head
		Cat. No.	Cat. No.	Cat. No.
No Contacts	Green Black Red	800H-R1 800H-R2 800H-R6	800H-AR1 800H-AR2 800H-AR6	800H-BR1 800H-BR2 800H-BR6
1 N.O.	Green Black Red	800H-R1D1 800H-R2D1 800H-R6D1	800H-AR1D1 800H-AR2D1 800H-AR6D1	800H-BR1D1 800H-BR2D1 800H-BR6D1
1 N.C.	Green Black Red	800H-R1D2 800H-R2D2 800H-R6D2	800H-AR1D2 800H-AR2D2 800H-AR6D2	800H-BR1D2 800H-BR2D2 800H-BR6D2
1 N.O. - 1 N.C.	Green Black Red	800H-R1A 800H-R2A 800H-R6A	800H-AR1A 800H-AR2A 800H-AR6A	800H-BR1A 800H-BR2A 800H-BR6A
2 N.O. - 2 N.C.	Green Black Red	800H-R1B 800H-R2B 800H-R6B	800H-AR1B 800H-AR2B 800H-AR6B	800H-BR1B 800H-BR2B 800H-BR6B

Bootless Guarded Head
Cat. No. 800H-GR1A

Bootless Mushroom Head
Cat. No. 800H-DR6A

Jumbo Mushroom Head
Cat. No. 800H-DR6JA

Contact Type	Button Color	Bootless Guarded Head	Bootless Mushroom Head	Jumbo Mushroom Head
		Cat. No.	Cat. No.	Cat. No.
No Contacts	Green Black Red	800H-GR1 800H-GR2 800H-GR6	800H-DR1 800H-DR2 800H-DR6	800H-DR1J 800H-DR2J 800H-DR6J
1 N.O.	Green Black Red	800H-GR1D1 800H-GR2D1 800H-GR6D1	800H-DR1D1 800H-DR2D1 800H-DR6D1	800H-DR1JD1 800H-DR2JD1 800H-DR6JD1
1 N.C.	Green Black Red	800H-GR1D2 800H-GR2D2 800H-GR6D2	800H-DR1D2 800H-DR2D2 800H-DR6D2	800H-DR1JD2 800H-DR2JD2 800H-DR6JD2
1 N.O. - 1 N.C.	Green Black Red	800H-GR1A 800H-GR2A 800H-GR6A	800H-DR1A 800H-DR2A 800H-DR6A	800H-DR1JA 800H-DR2JA 800H-DR6JA

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Legend Plates — Page 107
Approximate Dimensions — Page 110

CATALOG CUT SHEETS

SECTION: 108

EnviroCare International

507 Green Island Road
American Canyon, CA 94503, USA
Tel. 707.638.6800
Fax. 707.638.6898

Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

Manufacturer: ALLEN BRADLEY
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
N/A	A-B, PUSH-TO-TEST PILOT LIGHT - AMBER	800H-QRTH2A
	A-B, PUSH-TO-TEST PILOT LIGHT - GREEN	800H-QRTH2G
	A-B, PUSH-TO-TEST PILOT LIGHT - RED	800H-QRTH2R
	A-B, PUSH-TO-TEST PILOT LIGHT - WHITE	800H-QRTH2W

30.5 mm Push Buttons

Pilot Lights

Pilot Light Devices*

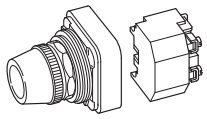
Transformer Type Pilot Light
Cat. No. 800T-P16R

Push-to-Test Pilot Light
Cat. No. 800T-PT16R

Type	Lamp Type	Volts	Color	Type 4/13 Pilot Light Cat. No.	Type 4/13 Push-to-Test* Cat. No.	Type 4/4X/13 Pilot Light Cat. No.	Type 4/4X/13 Push-to-Test* Cat. No.
Operator Only❄				800T-S00	**800T-SB00XX**	800H-SR00	800H-SRB00XX
Full Voltage‡	Incandescent	24V AC/DC	Red	**800T-Q24R**	**800T-QT24R**	**800H-QR24R**	**800H-QRT24R**
			Green	**800T-Q24G**	**800T-QT24G**	**800H-QR24G**	800H-QRT24G
			Amber	**800T-Q24A**	**800T-QT24A**	**800H-QR24A**	800H-QRT24A
	No Lamp	0…250V AC/DC	No Lens	800T-QN25	800T-QTN25	—	—
Universal‡	LED	12…130 V AC/DC	Red	**800T-QH2R**	**800T-QTH2R**	**800H-QRH2R**	**800H-QRTH2R**
			Green	**800T-QH2G**	**800T-QTH2G**	**800H-QRH2G**	**800H-QRTH2G**
			Amber	**800T-QH2A**	**800T-QTH2A**	**800H-QRH2A**	**800H-QRTH2A**
Transformer‡	Incandescent	120V AC, 50/60 Hz	Red	**800T-P16R**	**800T-PT16R**	**800H-PR16R**	**800H-PRT16R**
			Green	**800T-P16G**	**800T-PT16G**	**800H-PR16G**	**800H-PRT16G**
			Amber	**800T-P16A**	**800T-PT16A**	**800H-PR16A**	**800H-PRT16A**
	LED		Red	**800T-PH16R**	**800T-PTH16R**	**800H-PRH16R**	**800H-PRTH16R**
			Green	**800T-PH16G**	**800T-PTH16G**	**800H-PRH16G**	**800H-PRTH16G**
			Amber	**800T-PH16A**	**800T-PTH16A**	**800H-PRH16A**	**800H-PRTH16A**
	No Lamp		No Lens	800T-PN16	800T-PTN16	—	—

* Includes one standard Cat. No. 800T-XA (1 N.O. - 1 N.C.) contact block. For typical pilot light wiring diagrams, see page 10-65.
❄ Operator only supplied without power module, lamp, lens cap, or contact blocks.
‡ All pilot lights except push-to-test without sealed contacts and dual input transformer relay, are rated for Class 1, Division 2 applications.

800	T		–	P	T		16	G	AR (Push-to-Test)
	a	*b*		*c*	*d*	*e*	*f*	*g*	*h*



a

Protection Rating	
Code	Description
T	Metal, Type 4/13
H	Plastic, Type 4/4X/13

b

Finger-Safe Guards	
Code	Description
Blank	No guards
C	Guards on terminals

c

Power Module Type		
800T Type 4/13 Code	Description	800H Type 4/4X/13 Code
P	Transformer (or dual input)	PR
Q	Full voltage/ Universal	QR

d

Lamp Test Options	
Code	Description
Blank	No test option
T	Push-to-test
D	Dual input — diode♣
DT	Dual input — transformer relay

Note: Push-to-test supplied with factory jumpered contact block.

e

Illumination Options	
Code	Description
Blank	Incandescent
H	LED*

f

Voltage	
Transformer	
Code	Description
16	120V AC 50/60 Hz
26	240V AC 50/60 Hz
46	480V AC 50/60 Hz
56	600V AC 50/60 Hz
Full Voltage — Incandescent	
12	12V AC/DC
24	24V AC/DC
48	48V AC/DC
10	120V AC/DC
20	240V AC/DC
Universal — LED	
2	12…130V AC/DC
Dual Input	
16	120V AC
24	24V AC/DC (Dual input diode only)

g

Lens Color		
Code	Color	Glass Code♠
Blank	No lens	Blank
A	Amber	D
B	Blue	E
C	Clear	F
G	Green	H
R	Red	J
W	White	K

h

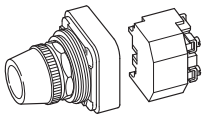
Contact Blocks (Push-to-test units only)	
Code	Description
Standard	
Blank	1 N.O. - 1 N.C.
Reduced Voltage	
AV	1 N.O. - 1 N.C.
Class 1, Div. 2/Zone 2	
Logic Reed	
AR	1 N.O. - 1 N.C.
Sealed Switch	
AP	1 N.O. - 1 N.C.
Stackable Sealed Switch	
AY	1 N.O. - 1 N.C.

* LED illumination option is not available with diode type dual input.
♣ Diode type dual input provides circuit isolation via opposing diodes. Not recommended for use with solid-state outputs.
♠ Glass lens available on 800T pilot lights only. Not available on push-to-test units.

Pilot Light Devices

Transformer Type Pilot Light
Cat. No. 800T-P16R

Push-to-Test Pilot Light
Cat. No. 800T-PT16R



800	T		–	P	T		16	G	AR
	a	*b*		*c*	*d*	*e*	*f*	*g*	*h*

(Push-to-Test)

a

Protection Rating	
Code	Description
T	Metal, Type 4/13
H	Plastic, Type 4/4X/13

b

Finger-Safe Guards	
Code	Description
Blank	No guards
C	Guards on terminals

c

Power Module Type		
800T Type 4/13	Description	800H Type 4/4X/13
Code		Code
P	Transformer (or dual input)	PR
Q	Full voltage/ Universal	QR

d

Lamp Test Options	
Code	Description
Blank	No test option▽
T	Push-to-test
D	Dual input — diode△♠
DT	Dual input — transformer relay♠

Note: Push-to-test supplied with factory jumpered contact block.

e

Illumination Options	
Code	Description
Blank	Incandescent
H	LED♣

f

Voltage	
Transformer	
Code	Description
16	120V AC 50/60 Hz
26	240V AC 50/60 Hz
46	480V AC 50/60 Hz
56	600V AC 50/60 Hz
Full Voltage — Incandescent	
12	12V AC/DC
24	24V AC/DC
48	48V AC/DC
10	120V AC/DC
20	240V AC/DC
Universal — LED	
2	12…130V AC/DC
Dual Input	
16	120V AC
24	24V AC/DC (Dual input diode only)

g

Lens Color		
Code	Color	Glass Code #
Blank	No lens	Blank
A	Amber	D
B	Blue	E
C	Clear	F
G	Green	H
R	Red	J
W	White	K

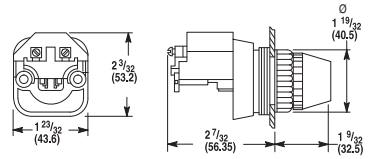
h

Contact Blocks (Push-to-test units only)	
Code	Description
Standard	
Blank	1 N.O. - 1 N.C.
Push/Pull (Low Voltage)	
AV	1 N.O. - 1 N.C.
Class 1, Div. 2	
Logic Reed	
AR	1 N.O. - 1 N.C.
Sealed Switch	
AP	1 N.O. - 1 N.C.
Stackable Sealed Switch	
AY	1 N.O. - 1 N.C.

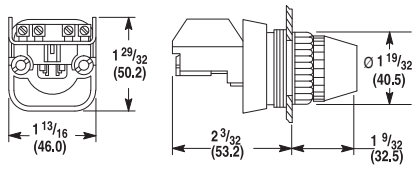
▽ Non-push-to-test pilot lights using the universal LED option cannot be ordered as Bul. 800HC or 800TC. The terminals are finger-safe as standard.
△ Diode type dual input provides circuit isolation via opposing diodes. Not recommended for use with solid-state outputs.
♠ Dual input devices (diode or transformer type) cannot be ordered as Bul. 800HC or 800TC. Finger-safe terminal guards are not available.
♣ LED illumination option is not available with diode type dual input.
Glass lens available on 800T pilot lights only. Not available on push-to-test units.

Dimensions in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.

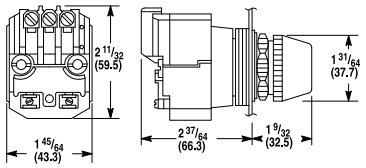
Push-to-Test Pilot Light and Illuminated Devices (Bul. 800H Only)



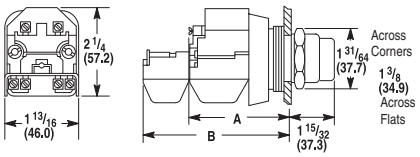
Transformer Type Pilot Light (Incandescent and LED)
Shipping Weight. 12 oz (0.34 kg)



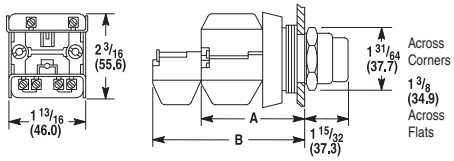
Full Voltage and Dual Input Diode Type Pilot Light (Incandescent, Neon, LED)
Shipping Weight. 5 oz (0.14 kg)



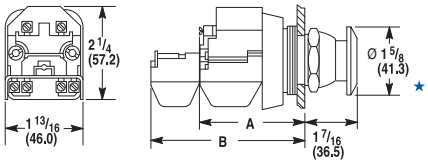
Dual Input Transformer Type Pilot Light
Shipping Weight. 14 oz (0.40 kg)



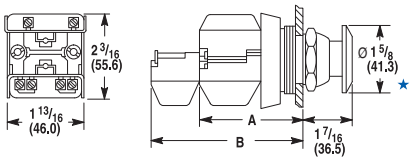
Push-to-Test Pilot Light and Illuminated Push Button
(Transformer Type: Incandescent, LED)



Push-to-Test Pilot Light and Illuminated Push Button
(Full Voltage: Incandescent, LED, Neon; and Dual Input Type)



Momentary Mushroom, Push-Pull and Twist or Pull Release Units
(Transformer Type: Incandescent, LED; Illuminated)



Momentary Mushroom, Push-Pull and Twist or Pull Release Units
(Full Voltage: Incandescent, LED, Neon; and Dual Input Illuminated)

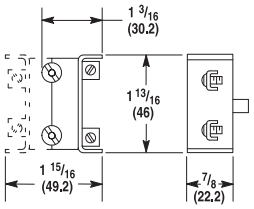
Push-to-Test Pilot Lights
Illuminated Push Buttons, Illuminated Push-Pull and Twist or Pull Release Push Buttons

Cat. No. Suffix‡	Description	Transformer Type			Full Voltage or Neon Type		
		Dimension		Shipping Weight	Dimension		Shipping Weight
D4	Transformer or Terminal Module and One Shallow Contact Block	A	2-5/32 (54.8)§	9 oz. (0.25 kg)	A	2-1/32 (51.6)♣	7 oz. (0.20kg)
A1 and A7	Transformer or Terminal Module, One Shallow Block and One Mini Contact Block	B	2-7/8 (73)	10 oz. (0.28 kg)	B	2-7/8 (73)	8 oz. (0.22 kg)
AP	Transformer or Terminal Module and One Sealed Switch Contact Block	B	2-29/32 (73.8)	10 oz. (0.28 kg)	B	2-29/32 (73.8)	8 oz. (0.22 kg)

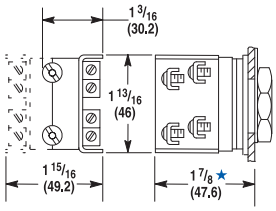
★ Jumbo mushroom versions are 2-1/4 in. (57.2 mm) diameter.
‡ Applies to illuminated push-pull push buttons only.
§ Dual input type pilot light dimension is 2-13/32 in. (61.1 mm).
♣ Dual input type pilot light dimension is 2-9/32 in. (57.9 mm).

Dimensions in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.

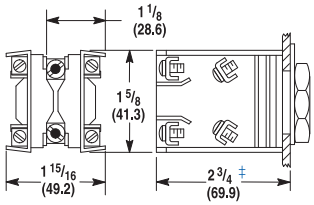
Blocks (Bul. 800T Only)



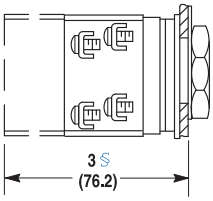
Mini Contact Block
7/8 (22.2) Deep



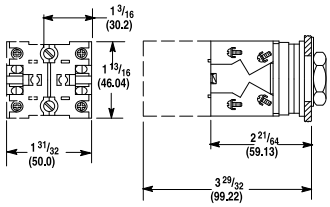
Shallow, PenTUFF,
and Logic Reed Contact Blocks
1-1/8 (28.6) Deep



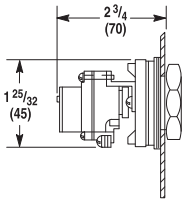
Sealed Switch Block
2 (50.8) Deep



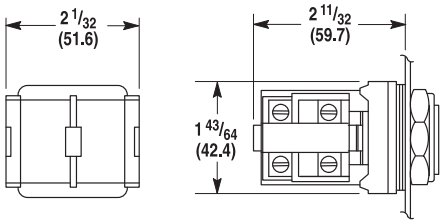
Tandem Mounting
(2 shallow contact
blocks stacked)



Stackable Sealed Switch Block
1.58 (40.1) Deep



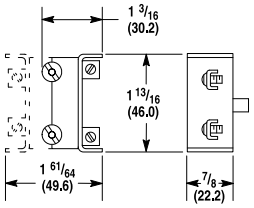
Time Delay Contact Block
(For Push Buttons Only)



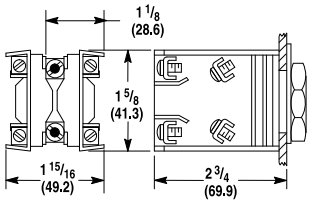
Snap Action Contact Block (For Push Button Only)

★ Dimension shown is for push buttons. Selector switch dimension is 2-1/32 in. (51.6 mm).
‡ Dimension shown is for push buttons. Selector switch dimension is 2-27/32 in. (72.2 mm).
§ Dimension shown is for push buttons. Selector switch dimension is 3-5/32 in. (80.2 mm).

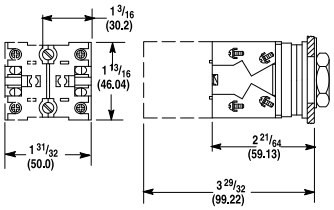
Blocks (Bul. 800H Only)



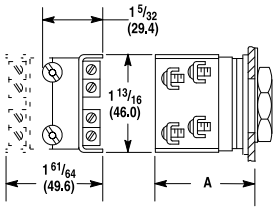
Mini Contact Block



Sealed Switch Block
2 (50.8) Deep



Stackable Sealed Switch Block
1.58 (40.1) Deep



Shallow, PenTUFF and Logic
Reed Contact Blocks

Dim.	Momentary Push Button	Maintained Push Button	Selector Switch
A	2 (50.8)	2 (50.8)	1-29/32 (48.4)

Operator Extension Behind Panel — When mounted with thrust washer, trim washer, or notched legend plate and correct number of rubber washers.

Specifications★

Electrical Ratings		
Contact ratings		Refer to the contact ratings tables on page 10-4.
Dielectric strength		2200V for one minute, 1300V for one minute (Logic Reed)
Electrical design life cycles		1,000,000 at max. rated load, 200,000 at max. rated load (Logic Reed)
Mechanical Ratings		
Vibration		10…2000 Hz, 1.52 mm displacement (peak-to-peak) max./ 10 G max. (except Logic Reed)
Shock		1/2 cycle sine wave for 11 ms ≥ 25 G (contact fragility) and no damage at 100 G
Degree of protection		Type 1/4/12/13 (800T); Type 1/4/4X/12/13 (800H); EN/IEC 60529 IP66/65
Mechanical design life cycles		
Push buttons	(Momentary, non-illuminated, flush and extended head)	10,000,000 min.
	(Momentary, illuminated)	250,000 min.
	(Push-pull/twist-to-release)	250,000 min. ‡
Selector switches	(Non-illuminated)	1,000,000 min.
	(Illuminated, key-operated)	200,000 min.
Potentiometers		25,000 min.
All other devices		200,000 min.
Contact operation		Shallow, mini, and low-voltage contact blocks: Slow, double make and break Logic Reed and sealed switch contact blocks: Single break magnetic
Wire gauge/Terminal screw torque		#18…14 AWG (#18…10 Max Duty) / 6…8 lb•in
Typical operating forces		
Operators without contact blocks		Flush, extended button, standard mushroom, jumbo plastic mushroom: 2 lbs max. Jumbo and extended aluminum mushroom head: 3.95 lbs max. Maintained selector switch: 3.6 in•lb max.
Spring return selector switches		3.6 in•lb to stop, 0.2 in•lb to return
Illuminated push buttons and push-to-test pilot lights		5 lb max.
2-position push-pull		8.0 lb max. push or pull
3-position push-pull		8 lb max. push to in position or pull to center position (15 lb max. pull to out position)
Twist-to-release or push-pull		9 lbs max. push or pull 30 in•oz max. twist, 6 in•oz minimum return
Potentiometer		Rotational torque 3…12 in•oz; stopping torque 12 in•lb (minimum)
Contact blocks	Standard	1 lb
	Logic Reed	1 lb max.
	Sealed switch	3 lb max. at 0.205 in. plunger travel
	Stackable sealed switch	1 lb max.
	MaxDuty	1.4 lb max.
	PenTUFF	1.4 lb max.
	Self Monitoring	1.6 lb
Environment		
Temperature range	Operating	-40…+131 °F (-40…+55 °C)
	Storage	-40…+185 °F (-40…+85 °C)
Note: Operating temperatures below freezing are based on the absence of moisture and liquids. Consult your local Rockwell Automation sales office or Allen-Bradley distributor for use in lower temperature applications.		
Humidity		50…95% RH from 77…140 °F (25…60 °C) per Procedure IV of MIL-STD-810C, Method 507.1 cycling test

★ **Performance Data** — Performance data given in this publication is provided only as a guide for the user in determining suitability and do not constitute a performance warranty of any kind. Such data may represent the results of accelerated testing at elevated stress levels, and the user is responsible for correlating the data to actual application requirements. ALL WARRANTIES AS TO ACTUAL PERFORMANCE, WHETHER EXPRESS OR IMPLIED, ARE EXPRESSLY DISCLAIMED.

‡ Illuminated Trigger Action E-stops are rated for 150,000 min. mechanical operations when using Cat. No. 800TC-XD4S Self-Monitoring Contact Blocks (SMCBs).

Standard Contact Ratings

Minimum: 24V, 24 mA

Maximum thermal continuous current I^{th} 10 A AC/2.5 A DC. Bulletin 800T units with 800T-XA contacts have ratings as follows:

Max. Opertnl. Volts U_e	Utilization Category		Rated Operational Currents		
	IEC	NEMA	Volts U_e	Make	Break
AC 600	AC-15	A600	120…600 72…120 24…72	7200VA 60 A 60 A	720VA 720VA 10 A
DC 600	DC-13	Q600	28…600 24…28★	69VA 2.5 A	

★ For applications below 24V/24 mA, Pen*TUFF* or Logic Reed contacts are recommended.

Sealed Switch Contact Ratings

Minimum: 5V, 1 mA

Maximum continuous current I_{th} 5 A. Bulletin 800T units have control circuit ratings with sealed switch contact blocks as follows:

Max. Opertnl. Volts U_e	Utilization Category		Rated Operational Currents		
	IEC	NEMA	Volts U_e	Make	Break
AC 600	AC-15	B600	120…600 0…120	3600VA 30 A	360VA 3 A
DC 300	DC-13	P300	24…300 0…24	138VA 5.0 A	

Stackable Sealed Switch Contact Ratings

Minimum: 5V, 10 mA (digital); 24V, 1 mA (analog)

Maximum continuous current I_{th} 2.5 A. Bulletin 800T units have control circuit ratings with sealed switch contact blocks as follows:

Max. Opertnl. Volts U_e	Utilization Category		Rated Operational Currents		
	IEC	NEMA	Volts U_e	Make	Break
AC 300	AC-15	C300	120…300 0…120	1800VA 15 A	180VA 1.5 A
DC 150	DC-13	Q150	24…150 0…24	69VA 2.5 A	

Logic Reed Contact Ratings

Minimum — DC: 5V, 1 mA
Maximum — DC: 30V, 0.06 A, AC: 150V, 0.15 A
Should only be used with resistive loads.

Materials Used in 800H Type 4X Operators

Thermoplastic Polyester (Fiberglass Reinforced)

- Bushings
- Mounting Rings
- Sockets

Thermoplastic Polyester

- Non-illuminated button caps

Transparent Amorphous Nylon

- Pilot light lens cap
- Illuminated button caps

Glass Filled Crystalline Nylon

- Thrust washer

Mineral Filled Nylon

- Trim washer

Nitrile (Synthetic Rubber)

- Gaskets and internal seals

Pen*TUFF*™ (Low Voltage) Contact Ratings

Minimum DC: 5V, 1 mA
Maximum thermal continuous current I_{th} 2.5 A AC/1.0 A DC. Bulletin 800T units with 800T-XAV contacts have ratings as follows:

Max. Opertnl. Volts U_e	Utilization Category		Rated Operational Currents		
	IEC	NEMA	Volts U_e	Make	Break
AC 300	AC-15	C300	120…300 0…120	1800VA 15 A	180VA 1.5 A
DC 150	DC-13	R150	24…150 0…24	28VA 1.0 A	

Snap Action Contact Ratings

Max. Opertnl. Volts U_e	Contact Rating Designation	Rated Operational Currents		
		Volts U_e	Make	Break
AC 300	A300	120…300 24…72	7200VA 60 A	720VA 10 A
DC 250	—	230…250 115…125	0.2 A 0.4 A	

MaxDuty Contact Rating

Maximum thermal continuous current I_{th} 24 A.
Pilot Duty — 120V AC, 12 A; 24V DC, 10 A
Motor Ratings — 120V AC, 1.5 Hp; 240V AC, 3 Hp; 24V DC, 10 A FLA/60 A LRA

Time Delay Contacts

Max. Opertnl. Volts U_e	Contact Rating Designation	Rated Operational Currents		
		Volts U_e	Make	Break
AC 120	B150	120	3600VA	360VA

Note: This device is not rated for DC applications.

Adjustment range: 0.5…15 s ± 25% I_{th} = 5 A

Standards Compliance

UL 508

CCC

Certifications

UL Listed
(File No. E14840, E10314
Guide No. NKCR, NOIV, NISD)

CSA Certified
(File No. LR1234, LR11924)

CSA C22.2, No. 14

CE Marked (EN/IEC 60947-5-1,
EN/IEC 60947-5-5,
EN ISO 13850)

CATALOG CUT SHEETS

SECTION: 109

EnviroCare International

507 Green Island Road
American Canyon, CA 94503, USA
Tel. 707.638.6800
Fax. 707.638.6898

Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

Manufacturer: ALLEN BRADLEY
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
N/A	A-B LEGEND PLATE FOR 800H-QRTH2W PILOT LIGHT WITH TEXT "POWER ON" ON DWG. C700-1194	800H-W100AE
	A-B LEGEND PLATE FOR 800H-FRXT6A4, E-STOP	800H-W797A

Legend Plates – Plastic, Type 4/4X/13 (800H)

Standard Legend Plate
Cat. No. 800H-W100

Jumbo Legend Plate
Cat. No. 800H-W100J

Automotive Legend Plate
Cat. No. 800H-W100A

Blank/Custom Legend Plates Type 4/4X			
	Standard	Jumbo	Automotive
Legend Plate Color	Cat. No.	Cat. No.	Cat. No.
Grey (Blank)	**800H-W100**	**800H-W100J**	**800H-W100A**
Red (Blank)	**800H-W300**	**800H-W300J**	800H-W300A
White (Blank)	**800H-W500**	**800H-W500J**	**800H-W500A**
Yellow (Blank)	800H-W700	800H-W700J	**800H-W700A**
Grey (with Custom Text)	800H-W100E	800H-W100JE	800H-W100AE
Red (with Custom Text)	800H-W300E	800H-W300JE	800H-W300AE
White (with Custom Text)	800H-W500E	800H-W500JE	800H-W500AE
Yellow (with Custom Text)	800H-W700E	800H-W700JE	800H-W700AE

Note: Include text with custom legends.

Custom Text Guidelines

Legend Size	Number of Lines	Maximum Number of Characters per Line
Standard	1 Line of 2 Lines of	13 13
Jumbo	5 Lines	13
Automotive	4 Lines	16

Potentiometer Legend Plate
Cat. No. 800H-W080

Potentiometer Legends	
Legend Marking	Cat. No.
Graduated Markings Only	**800H-W080**
SPEED	**800H-W081**
Custom Legend with Graduated Marking	800H-W080E

Cat. No. 800H-W196

Cat. No. 800H-W797A

Cat. No. 800H-W690

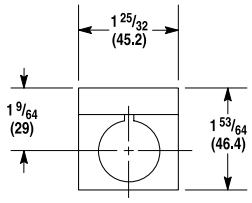
	Start/Stop Legend Plates	Emergency Stop Legend Plates	
	Grey	Yellow (Large Size)	Yellow IEC Ring
Type	Cat. No.	Cat. No.	Cat. No.
Push-to-Stop Pull-to-Start	**800H-W196**	**800H-W797A**	—
Blank	—	**800H-W700A**	**800H-W690**
Custom	800H-W100E	800H-W700AE	—

30.5 mm Push Buttons

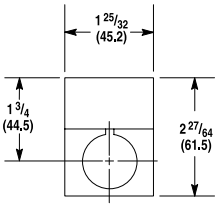
Approximate Dimensions

Dimensions in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.

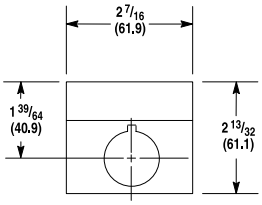
Legend Plate Dimensions (Bul. 800T Only)



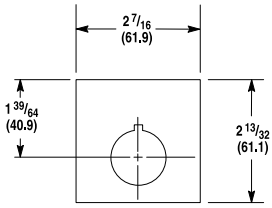
Standard Legend Plate



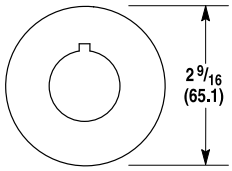
Jumbo Legend Plate



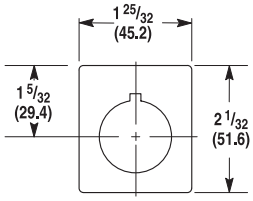
Large Legend Plate (Automotive Industry Type)



Large Size Push-Pull/Twist Legend Plate Cat. No. 800T-X647∗



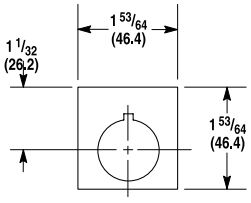
Round Cat. No. 800T-X646∗



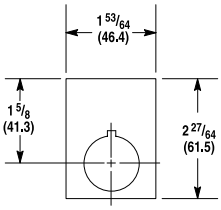
Cluster Pilot Light and 2-3-4 Way Switch Silver Legend Plate Cat. No. 800T-X619

∗ For panel mounting only. Not for use with Allen-Bradley enclosures.

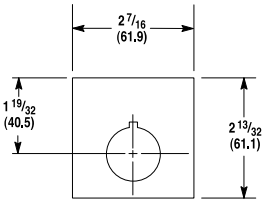
Legend Plate Dimensions (Bul. 800H Only)



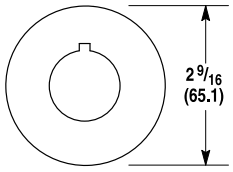
Type 4/4X Standard Legend Plate



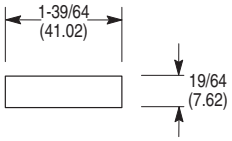
Type 4/4X Jumbo Legend Plate



Type 4/4X Large Legend Plate (Automotive Industry Type)



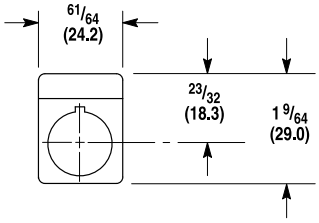
Type 4/4X Round



Type 4/4X Standard Legend Plate (Flip Lever Operators)

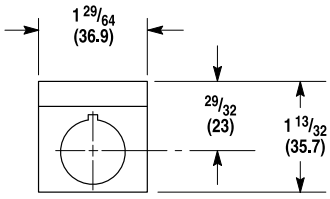
Legend Plate Dimensions (Bul. 800T 18 mm Pilot Lights Only)

Legend Plate for Small Pilot Light
Type A Legend



Cat. No. 800T-N515

Legend Plate for Small Pilot Light
Type B Legend



Cat. No. 800T-N516 (Automotive Industry Type)

10

CATALOG CUT SHEETS

SECTION: 110

EnviroCare International

507 Green Island Road
American Canyon, CA 94503, USA
Tel. 707.638.6800
Fax. 707.638.6898

Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

Manufacturer: ALLEN BRADLEY
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
N/A	A-B, W4 STD TERMINAL BLOCK	1492-J4
	A-B, W4 STD GROUND BLOCK	1492-JG4

Allen-Bradley

Terminal Block Specifications

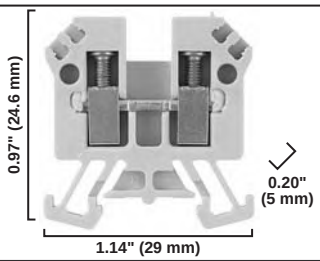
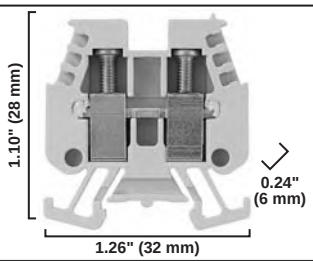
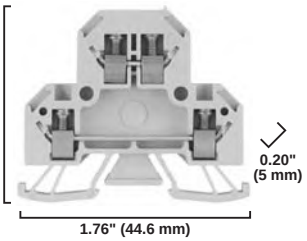
Bulletin Number 1492

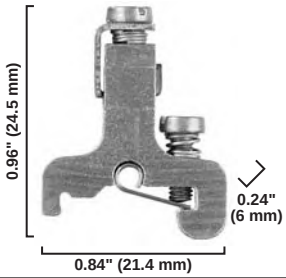
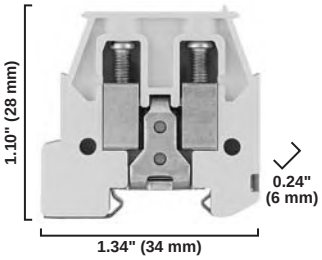
Additional Resources

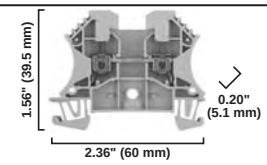
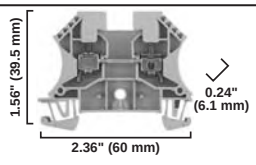
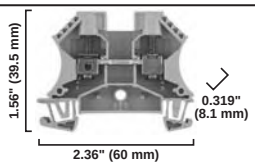
These documents contain additional information concerning related products from Rockwell Automation.

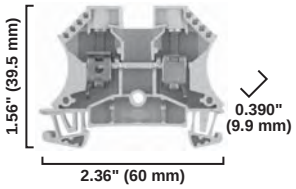
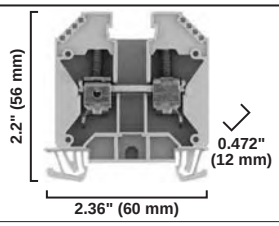
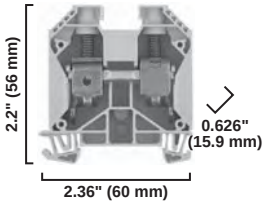
Resource	Description
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, http://www.ab.com	Provides declarations of conformity, certificates, and other certification details.

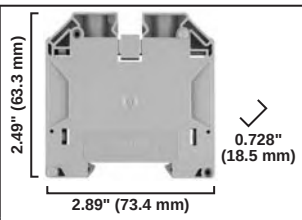
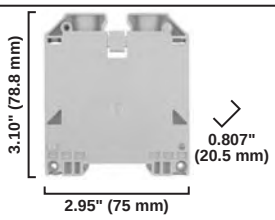
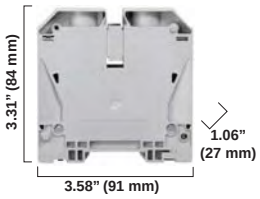
You can view or download publications at http://www.rockwellautomation.com/literature/. To order paper copies of technical documentation, contact your local Allen-Bradley distributor or Rockwell Automation sales representative.

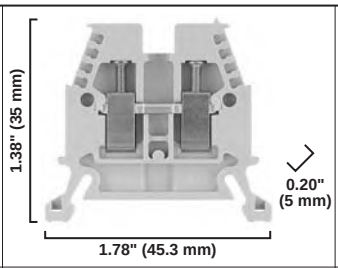
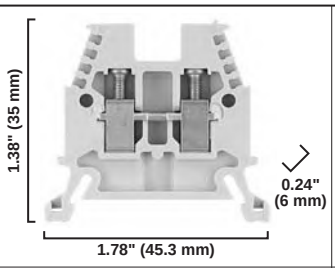
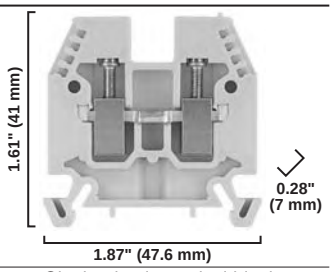
	1492-WM3				1492-WM4				1492-WMD1		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.											
Specifications	*Single-circuit mini terminal block.*				*Single-circuit mini terminal block.*				*Two-circuit mini terminal block.*		
Certifications	cULus	IEC	CSA	ATEX	cULus	IEC	CSA	ATEX	cULus	CSA	IEC
Voltage Rating	300V AC/DC	500V AC/DC	300V AC/DC	420V AC/DC	300V AC/DC	500V AC/DC	300V AC/DC	420V AC/DC	300V AC/DC	300V AC/DC	500V AC/DC
Maximum Current	15 A	24 A	15 A	24 A	20 A	32 A	20 A	32 A	15 A	15 A	17.5 A
Wire Range (Rated Cross Section)	#30…14 AWG	0.5…2.5 mm^2	#22…14 AWG	2.5 mm^2	#22…12 AWG	0.5…4.0 mm^2	#22…12 AWG	4.0 mm^2	#22…16 AWG		0.5…1.5 mm^2
Wire Strip Length	0.24 in. (6 mm)				0.39 in. (10 mm)				0.35 in. (9 mm)		
Recommended Tightening Torque	4.2…4.6 lb•in (0.47....0.52 N•m)				4.7…6.2 lb•in (0.53...0.70 N•m)				4.2…4.6 lb•in (0.47....0.52 N•m)		
Density	61 pcs/ft (200/m)				50 pcs/ft (166/m)				61 pcs/ft (200/m)		
Housing Temperature Range	-40…+195 °F (-40…+90 °C)				-40…+195 °F (-40…+90 °C)				-40…+195 °F (-40…+90 °C)		

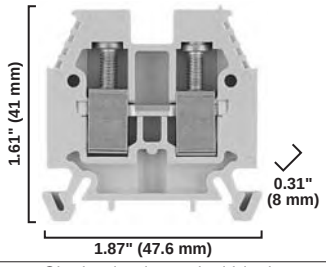
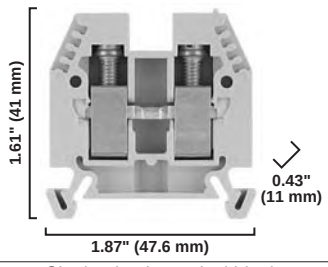
	1492-WMG3		1492-WMG4		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.					
Specifications	*Single-circuit mini grounding terminal block.*		*Single-circuit mini grounding terminal block.*		
Certifications	IEC		cULus	cULus	IEC
Maximum Current	Grounding		Grounding		
Wire Range (Rated Cross Section)	#14 AWG (2.5 mm^2)		#22…12 AWG		0.5…4.0 mm^2
Wire Strip Length	0.31 in. (8 mm)		0.39 in. (10 mm)		
Recommended Tightening Torque	6.2 lb•in (0.7 N•m)		5.3 lb•in (0.6 N•m)		
Density	50 pcs/ft (166 pcs/m)		50 pcs/ft (166 pcs/m)		
Housing Temperature Range	—		-40…+195 °F (-40…+90 °C)		

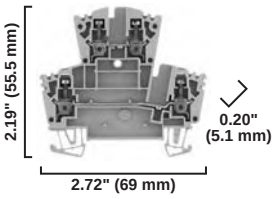
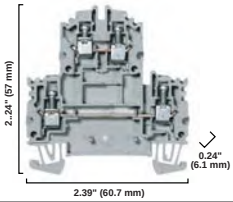
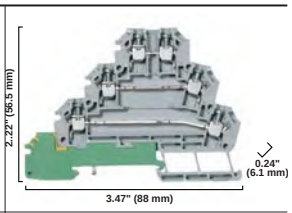
	1492-J3				1492-J4				1492-J6			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.												
Specifications	*Feed-through terminal block*				*Feed-through terminal block*				*Feed-through terminal block*			
Certifications	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX
Voltage Rating	600V AC/DC		800V AC/DC	550V AC/DC	600V AC/DC		800V AC/DC	690V AC/DC	600V AC/DC		800V AC/DC	550V AC/DC
Maximum Current	25 A	20 A	24 A	21 A	35 A	25 A	32 A	28 A	50 A		41 A	36 A
Wire Range (Rated Cross Section)	#28…12 AWG	#26…12 AWG	2.5 mm^2	2.5 mm^2 (#20…14 AWG)	#22…10 AWG	#26…10 AWG	4 mm^2	4 mm^2 (#20…12 AWG)	#22…8 AWG		6 mm^2	6 mm^2 (#20…10 AWG)
Wire Strip Length	0.39 in. (10 mm)				0.39 in. (10 mm)				0.47 in. (12 mm)			
Recommended Tightening Torque	4.5…7.1 lb•in (0.5…0.8 N•m)				9.0 lb•in (1.0 N•m)				14.2 lb•in (1.6 N•m)			
Density	59 pcs/ft (196 pcs/m)				49 pcs/ft (163 pcs/m)				37 pcs/ft (123 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

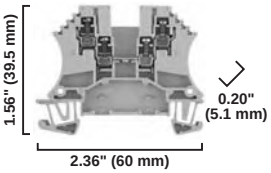
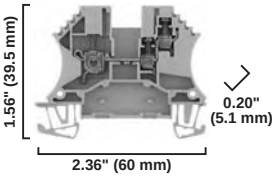
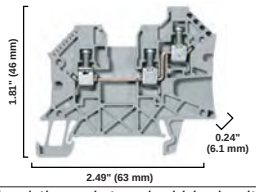
	1492-J10				1492-J16				1492-J35			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.												
Specifications	*Feed-through terminal block*				*Feed-through terminal block*				*Feed-through terminal block*			
Certifications	cULus	**CSA**	**IEC**	**ATEX**	cULus	**CSA**	**IEC**	**ATEX**	cULus	**CSA**	**IEC**	**ATEX**
Voltage Rating	600V AC/DC		1000V AC/DC	550V AC/DC	600V AC/DC		1000V AC/DC	690V AC/DC	1000V AC/DC	600V AC/DC	1000V AC/DC	690V AC/DC
Maximum Current	65 A	50 A	57 A	50 A	85 A		76 A	66 A	150 A	120 A	125 A	109 A
Wire Range (Rated Cross Section)	#18…6 AWG		10 mm^2	10 mm^2 (#16…8 AWG)	#18…4 AWG		16 mm^2	16 mm^2 (#16…6 AWG)	#12…1/0 AWG	#12…2 AWG	35 mm^2	35 mm^2 (#14…2 AWG)
Wire Strip Length	0.47 in. (12 mm)				0.63 in. (16 mm)				0.70 in. (18 mm)			
Recommended Tightening Torque	20.4 lb•in (2.3 N•m)				35.0 lb•in (4.0 N•m)				51.0 lb•in (5.8 N•m)			
Density	30 pcs/ft (100 pcs/m)				25 pcs/ft (83 pcs/m)				19 pcs/ft (62 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

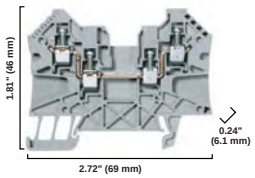
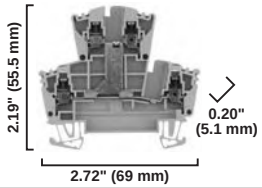
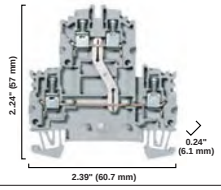
	1492-J50				1492-J70				1492-J120		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.											
Specifications	*Feed-through terminal block*				*Feed-through terminal block*				*Feed-through terminal block*		
Certifications	cULus	**CSA**	**IEC**	**ATEX**	cULus	**CSA**	**IEC**	**ATEX**	cULus	**CSA**	**IEC**
Voltage Rating	1000V AC/DC	600V AC/DC	1000V AC/DC	690V AC/DC	600V AC/DC		1000V AC/DC	690V AC/DC	1000V AC/DC		
Maximum Current	150 A		150 A	126 A	175 A	205 A	192 A	167 A	228 A	220 A	269 A
Wire Range (Rated Cross Section)	#10…1/0 AWG	#8…1/0 AWG	50 mm^2	#10…1/0 AWG 50 mm^2	#6…2/0 AWG		70 mm^2	#8…2/0 AWG 70 mm^2	#4…250 MCM AWG	#4…4/0 AWG	16…120 mm^2
Wire Strip Length	0.94 in. (24 mm)				0.87 in. (22 mm)				1.06 in. (27 mm)		
Recommended Tightening Torque	31.5 lb•in (3.6 N•m)				87.0 lb•in (9.8 N•m)				141.6 lb•in (16.0 N•m)		
Density	16 pcs/ft (54 pcs/m)				14 pcs/ft (48 pcs/m)				11 pcs/ft (37 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				-58...+248 °F (-50...+120 °C)		

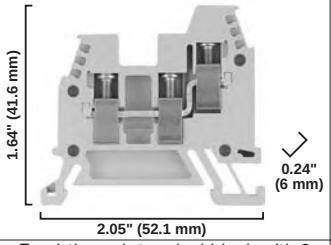
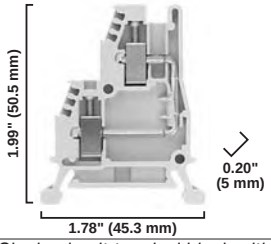
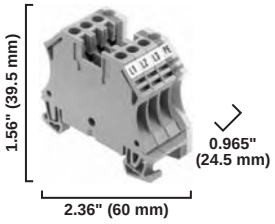
	1492-W3				1492-W4				1492-W6		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.											
Specifications	*Single-circuit terminal block.*				*Single-circuit terminal block.*				*Single-circuit terminal block.*		
Certifications	cULus	IEC	CSA	ATEX	cULus	IEC	CSA	ATEX	cULus	IEC	CSA
Voltage Rating	600V AC/DC	800V AC/DC	600V AC/DC	550V AC/DC	600V AC/DC	800V AC/DC	600V AC/DC	550V AC/DC	600V AC/DC	800V AC/DC	600V AC/DC
Maximum Current	20 A	24 A	20 A	24 A	30 A	32 A	30 A	32 A	40 A	41 A	40 A
Wire Range (Rated Cross Section)	#30…14 AWG	0.5…2.5 mm^2	#22…14 AWG	2.5 mm^2	#22…10 AWG	0.5…4.0 mm^2	#22…10 AWG	4.0 mm^2	#22…10 AWG	0.5…6.0 mm^2	#22…10 AWG
Wire Strip Length	0.39 in. (10 mm)				0.35 in. (9 mm)				0.47 in. (12 mm)		
Recommended Tightening Torque	5.0…5.6 lb•in (0.6 N•m)				5.0…5.6 lb•in (0.6 N•m)				5.6…6.8 lb•in (0.7 N•m)		
Density	61 pcs/ft (200 pcs/m)				50 pcs/ft (166 pcs/m)				43 pcs/ft (142 pcs/m)		
Housing Temperature Range	-40…+195 °F (-40…+90 °C)				-40…+195 °F (-40…+90 °C)				-40…+195 °F (-40…+90 °C)		

	1492-W10				1492-W16S			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.								
Specifications	*Single-circuit terminal block.*				*Single-circuit terminal block.*			
Certifications	cULus	IEC	CSA	ATEX	cULus	IEC	CSA	ATEX
Voltage Rating	600V AC/DC	800V AC/DC	600V AC/DC	550V AC/DC	600V AC/DC	800V AC/DC	600V AC/DC	550V AC/DC
Maximum Current	50 A	57 A	50 A	50 A	85 A	76 A	85 A	76 A
Wire Range (Rated Cross Section)	#22…8 AWG	10 mm^2	#22…8 AWG	0.5…10 mm^2	#14…4 AWG	16 mm^2	#14…4 AWG	2.5…16 mm^2
Wire Strip Length	0.51 in. (13 mm)				0.51 in. (13 mm)			
Recommended Tightening Torque	12.2…13.4 lb•in (1.4 N•m)				18…20 lb•in (2.1 N•m)			
Density	38 pcs/ft (125 pcs/m)				27 pcs/ft (90 pcs/m)			
Housing Temperature Range	-40…+195 °F (-40…+90 °C)				-40…+195 °F (-40…+90 °C)			

	1492-JD3				1492-JD4				1492-JT3M		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.											
Specifications	*Two-level, two-circuit feed-through terminal block*				*Two-level, two-circuit feed-through terminal block*				*Three-level, three-circuit terminal block with ground point*		
Certifications	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX	cULus	CSA	IEC
Voltage Rating	600V AC/DC	300V AC/DC	400V AC/DC	275V AC/DC	600V AC/DC	300V AC/DC	800V AC/DC	550V AC/DC	300V AC/DC		400V AC/DC
Maximum Current	20 A	10 A	24 A	21 A	35 A	30 A	32 A	28 A	10 A		24 A
Wire Range (Rated Cross Section)	#22…12 AWG	26…12 AWG	2.5 mm^2	2.5 mm^2 (20…14 AWG)	#26…10 AWG		0.5…4 mm^2	4 mm^2 (20…12 AWG)	#22…12 AWG	#26…10 AWG	0.5…2.5 mm^2
Wire Strip Length	0.39 in. (10 mm)				0.315 in. (8 mm)				0.28 in. (7 mm)		
Recommended Tightening Torque	4.5…7.1 lb•in (0.5…0.8 N•m)				4.5 lb•in (0.5 N•m)				4.4 lb•in (0.5 N•m)		
Density	59 pcs/ft (196 pcs/m)				49 pcs/ft (163 pcs/m)				49 pcs/ft (163 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)		

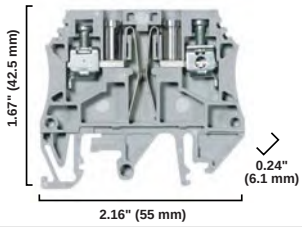
		1492-J2Q			1492-J3TW				1492-J4TW		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.											
Specifications		*Feed-through terminal block with 2 connection points on each side*			*Feed-through terminal block with 3 connection points, 2 on one side*				*Feed-through terminal block with 3 connection points, 2 on one side*		
Certifications		cULus	CSA	IEC	cULus	CSA	IEC	ATEX	cULus	CSA	IEC
Voltage Rating		300V AC/DC		800V AC/DC	300V AC/DC		800V AC/DC	550V AC/DC	600V AC/DC		500V AC/DC
Maximum Current		25 A	10 A	17.5 A	—				30 A		32 A
Maximum Current	Single Side	—			10 A	15 A	17.5 A	15 A	—	—	—
	Twin Side	—			20 A		24 A	21 A	—	—	—
Wire Range (Rated Cross Section)	Single Side	#22…12 AWG	#26…12 AWG	1.5 mm^2	#22…12 AWG	26…12 AWG	2.5 mm^2	2.5 mm^2 (#20…14 AWG)	#30…10 AWG		4 mm^2
	Twin Side	—			#22…12 AWG	26…12 AWG	1.5 mm^2	1.5 mm^2 (#20…16 AWG)			
Wire Strip Length		0.28 in. (7 mm)			Single Side: 0.39 in. (10 mm) Twin Side: 0.26 in. (7 mm)				0.39 in. (10 mm)		
Recommended Tightening Torque		4.5 lb•in (0.5 N•m)			Single Side: 7.0 lb•in (0.8 N•m) Twin Side:4.5 lb•in (0.5 N•m)				6.2 lb•in (0.7 N•m)		
Density		59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)				59 pcs/ft (196 pcs/m)		
Housing Temperature Range	Insulation Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)		

	1492-J4Q			1492-JD3C				1492-JD4C			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.											
Specifications	*Single-level feed-through terminal block with 2 connection points on each side*			*Two-level feed-through terminal block with commoning bar*				*Two-level feed-through terminal block with commoning bar*			
Certifications	cULus	CSA	IEC	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX
Voltage Rating	600V AC/DC		500V AC/DC	600V AC/DC	300V AC/DC	400V AC/DC	275V AC/DC	600V AC/DC	300V AC/DC	400V AC/DC	550V AC/DC
Maximum Current	30 A		32 A	20 A	10 A	24 A	21 A	35 A	30 A	32 A	28 A
Wire Range (Rated Cross Section)	#30…10 AWG		0.5…4 mm^2	#22…12 AWG	#26…12 AWG	2.5 mm^2	2.5 mm^2 (20…14 AWG)	#26…10 AWG		0.5…4 mm^2	4 mm^2 (20…12 AWG)
Wire Strip Length	0.39 in. (10 mm)			0.39 in. (10 mm)				0.28 in. (7 mm)			
Recommended Tightening Torque	6.2 lb•in (0.7 N•m)			4.5…7.1 lb•in (0.5…0.8 N•m)				4.5 lb•in (0.5 N•m)			
Density	49 pcs/ft (163 pcs/m)			59 pcs/ft (196 pcs/m)				49 pcs/ft (163 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

	1492-W4TW			1492-WR3			1492-J4M	
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.								
Specifications	*Feed-through terminal block with 3 connection points, 2 on one side*			*Single-circuit terminal block with terminals on common side.*			*Motor connection terminal block cluster with 3 feeds and ground*	
Certifications	cULus	CSA	IEC	cULus	CSA	IEC	Certifications on individual blocks (1492-J4, JG4)	
Voltage Rating	600V AC/DC	600V AC/DC	800V AC/DC	300V AC/DC		500V AC/DC		
Maximum Current	30 A	20 A	32 A	15 A		15 A		
Wire Range (Rated Cross Section)	#18…10 AWG	#22…12 AWG	0.5…4 mm^2	#22…14 AWG		0.5…2.5 mm^2	#22…10 AWG 4 mm^2	
Wire Strip Length	0.35 in. (9 mm)			0.39 in. (10 mm)			0.39 in. (10 mm)	
Recommended Tightening Torque	5.0…5.6 lb•in (0.6 N•m)			5.0…5.6 lb•in (0.6 N•m)			9.0 lb•in (1.0 N•m)	
Density	50 pcs/ft (166 pcs/m)			61 pcs/ft (200 pcs/m)			12 pcs/ft (40 pcs/m)	
Housing Temperature Range	-40…+195 °F (-40…+90 °C)			-40…+195 °F (-40…+90 °C)			-58…+248 °F (-50…+120 °C)	

1492-J4CTB

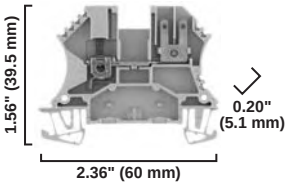
Dimensions are not intended to be used for manufacturing purposes.
Note: Height dimension is measured from top of rail to top of terminal block.



Specifications	*Single-level feed through block with circuit-break test/measurement plug capability*		
Certifications		**CSA**	**IEC**
Voltage Rating	300V AC/DC		500V AC/DC
Maximum Current	8 A		6 A
Wire Range (Rated Cross Section)	#26…10 AWG		0.5…4 mm^2
Wire Strip Length	0.394 in. (10 mm)		
Recommended Tightening Torque	4.4…7.1 lb•in (0.5…0.8 N•m)		
Density	49 pcs/ft (163 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)		

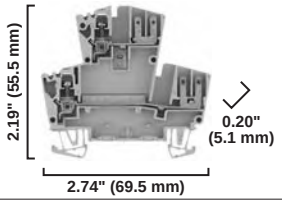
1492-J3F

Dimensions are not intended to be used for manufacturing purposes.
Note: Height dimension is measured from top of rail to top of terminal block.

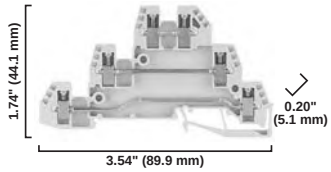
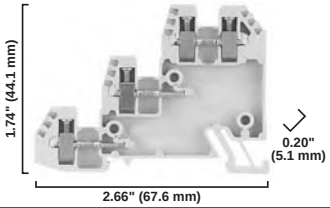


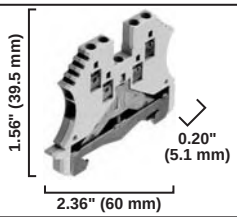
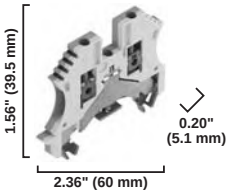
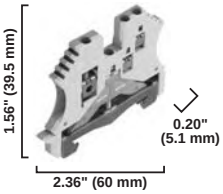
Specifications	*Feed-through terminal block with stab connections on one side*		
Certifications		**CSA**	**IEC**
Voltage Rating	300V AC/DC		500V AC/DC
Maximum Current	16 A	10 A	16 A (2 x 8)
Wire Range (Rated Cross Section)	#22…12 AWG	#26…12 AWG	2.5 mm^2
Wire Strip Length	0.39 in. (10 mm)		
Recommended Tightening Torque	4.5…7.1 lb•in (0.5…0.8 N•m)		
Density	59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)		

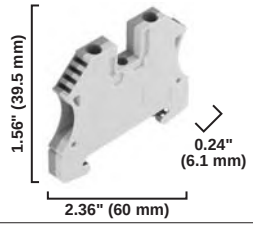
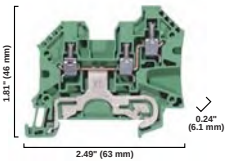
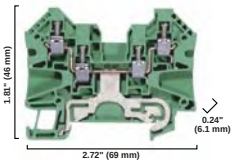
1492-JD3F

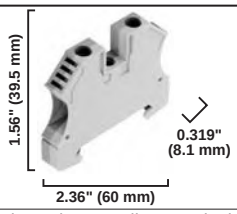
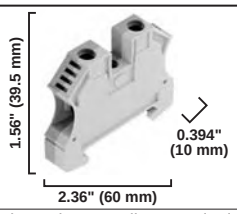


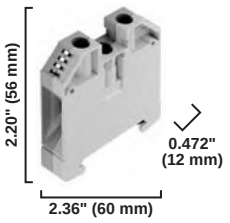
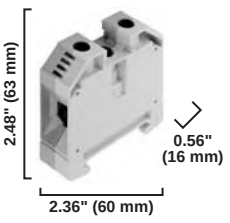
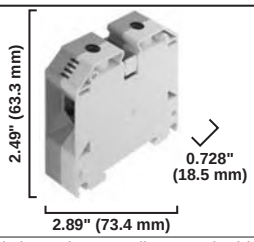
	Two-level, two-circuit feed-through terminal block with stab connections on one side		
		CSA	**IEC**
Voltage Rating	300V AC/DC		400V AC/DC
Maximum Current	10 A		16 A (2 x 8)
Wire Range (Rated Cross Section)	#22…12 AWG	#26…12 AWG	2.5 mm^2
Wire Strip Length	0.39 in. (10 mm)		
Recommended Tightening Torque	4.5…7.1 lb•in (0.5…0.8 N•m)		
Density	59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)		

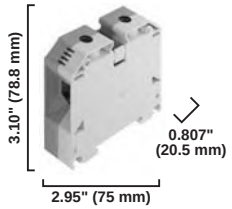
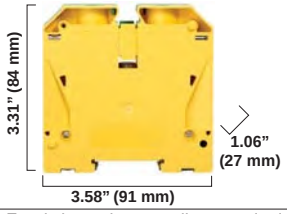
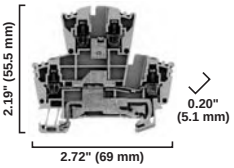
	1492-WTF3…			1492-WTS3…		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.						
Specifications	*Three-circuit terminal block.*			*Three-level sensor block.*		
Certifications		**CSA**	**IEC**		**CSA**	**IEC**
Voltage Rating	300V AC/DC		250V AC/DC	300V AC/DC		250V AC/DC
Maximum Current	10 A		24 A	10 A		24 A
Wire Range (Rated Cross Section)	#26…14 AWG		0.5…2.5mm^2	#26…14 AWG		0.5…2.5 mm^2
Recommended Tightening Torque	4.2…4.6 lb•in (0.5 N•m)			4.2…4.6 lb•in (0.5 N•m)		
Density	60 pcs/ft (197 pcs/m)			60 pcs/ft (197 pcs/m)		
Housing Temperature Range	-40…+195 °F (-40…+90 °C)			-40…+195 °F (-40…+90 °C)		
Indicator Type WTF3/WTS3	No indicator			No indicator		
WTF3LP/WTS3LP	Red LED for PNP devices (10…50V)			Red LED for PNP devices (10…50V)		
WTF3LN/WTS3LN	Red LED for NPN devices (10…50V)			Red LED for NPN devices (10…50V)		
Leakage Current WTF3/WTS3	—			—		
WTF3LP/WTS3LP	2.69 mA @ 50V			2.69 mA @ 50V		
WTF3LN/WTS3LN	2.69 mA @ 50V			2.69 mA @ 50V		
Wire Strip Length	0.31 in. (8 mm)			0.31 in. (8 mm)		

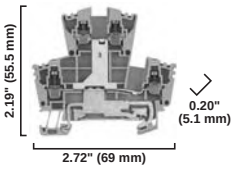
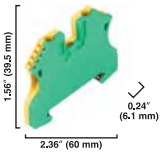
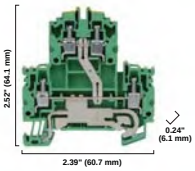
	1492-JG2Q			1492-JG3				1492-JG3TW			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.											
Specifications	*Feed-through grounding terminal block with 2 connection points on each side*			*Feed-through grounding terminal block*				*Feed-through grounding terminal block with 3 connection points, 2 on one side*			
Certifications		**CSA**	**IEC**		**CSA**	**IEC**	**ATEX**		**CSA**	**IEC**	**ATEX**
Voltage Rating	—	—	—	—	—	—	—	—	—	—	—
Maximum Current	Grounding			Grounding				Grounding			
Wire Range (Rated Cross Section)	#22…14 AWG		1.5 mm^2	#22…12 AWG		2.5 mm^2	2.5 mm^2 (#20…14 AWG)	Single Side: #22…12 AWG		2.5 mm^2	2.5 mm^2 (#20…14 AWG)
								Twin Side: #26…12 AWG		1.5 mm^2	1.5 mm^2 (#20…16 AWG)
Wire Strip Length	0.28 in. (7 mm)			0.39 in. (10 mm)				Single Side: 0.39 in. (10 mm) Twin Side: 0.28 in. (7 mm)			
Recommended Tightening Torque	5.0 lb•in (0.6 N•m)			7.1 lb•in (0.8 N•m)				Single Side: 7.1 lb•in (0.8 N•m)			
Mounting Torque — Center Screw	3.5…5.3 lb•in (0.4…0.6 N•m)			3.5…6.2 lb•in (0.4…0.6 N•m)				Twin Side: 4.5 lb•in (0.5 N•m)			
Density	59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)				59 pcs/ft (196 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

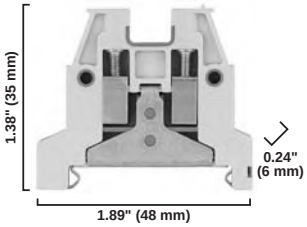
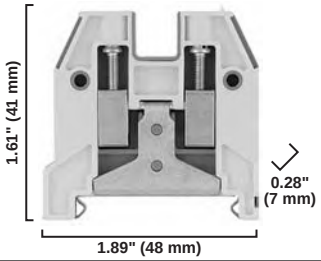
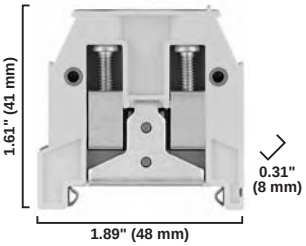
	1492-JG4				1492-JG4TW			1492-JG4Q		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.										
Specifications	*Feed-through grounding terminal block*				*Single-level grounding terminal block with 3 connection points, 2 on one side*			*Single-level grounding terminal block with two connection points on each sides*		
Certifications		CSA	IEC	ATEX		CSA	IEC		CSA	IEC
Voltage Rating	—	—	—	—	—			—		
Maximum Current	Grounding				Grounding			Grounding		
Wire Range (Rated Cross Section)	#22…10 AWG		4 mm^2	4 mm^2 (#20…12 AWG)	#30…10 AWG		0.5…4 mm^2	#30…10 AWG		0.5…4 mm^2
Wire Strip Length	0.39 in. (10 mm)				0.394 in. (10 mm)			0.394 in. (10 mm)		
Recommended Tightening Torque	9 lb-in (1.0 N•m)				6.2 lb•in (0.7 N•m)			6.2 lb•in (0.7 N•m)		
Mounting Torque - Center Screw	4.4…7.1 lb•in (0.5…0.8 N•m)				—			—		
Density	49 pcs/ft (163 pcs/m)				49 pcs/ft (163 pcs/m)			49 pcs/ft (163 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

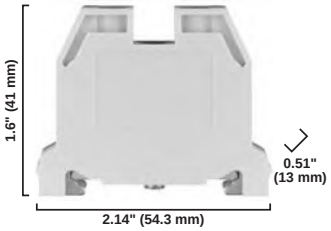
	1492-JG6				1492-JG10			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.								
Specifications	*Feed-through grounding terminal block*				*Feed-through grounding terminal block*			
Certifications		CSA	IEC	ATEX		CSA	IEC	ATEX
Voltage Rating	—	—	—	—	—	—	—	—
Maximum Current	Grounding				Grounding			
Wire Range (Rated Cross Section)	#22…8 AWG		6 mm^2	6 mm^2 (#20…10 AWG)	#16…6 AWG		10 mm^2	10 mm^2 (#16…8 AWG)
Wire Strip Length	0.47 in. (12 mm)				0.47 in. (12 mm)			
Recommended Tightening Torque	14.2 lb•in (1.6 N•m)				20.4 lb•in (2.3 N•m)			
Mounting Torque — Center Screw	4.4…8.9 lb•in (0.5…1.0 N•m)				4.4…8.9 lb•in (0.5…1.0 N•m)			
Density	37 pcs/ft (123 pcs/m)				30 pcs/ft (100 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

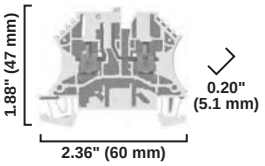
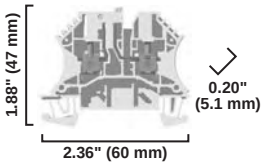
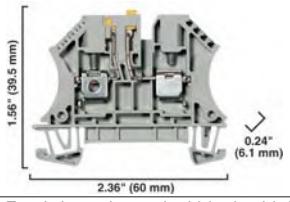
	1492-JG16				1492-JG35				1492-JG50			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.												
Specifications	*Feed-through grounding terminal block*				*Feed-through grounding terminal block*				*Feed-through grounding terminal block*			
Certifications		CSA	IEC	ATEX		CSA	IEC	ATEX		CSA	IEC	ATEX
Voltage Rating	—	—	—	—	—	—	—	—	—	—	—	—
Maximum Current	Grounding				Grounding				Grounding			
Wire Range (Rated Cross Section)	#24…4 AWG		16 mm^2	16 mm^2 (#16…6 AWG)	#12…1 AWG	#12…2 AWG	35 mm^2	35 mm^2 (#14…2 AWG)	#10… 1/0 AWG	#14… 1/0 AWG	50 mm^2	50 mm^2 (10…1/0 AWG)
Wire Strip Length	0.63 in. (16 mm)				0.70 in. (18 mm)				0.94 in. (24 mm)			
Recommended Tightening Torque	35.0 lb•in (4.0 N•m)				51.0 lb•in (5.8 N•m)				31.5 lb•in (3.6 N•m)			
Mounting Torque — Center Screw	10.6…21.2 lb•in (1.2…2.4 N•m)				10.6…21.2 lb•in (1.2…2.4 N•m)				17.7…35.4 lb•in (2.0…4.0 N•m)			
Density	25 pcs/ft (83 pcs/m)				19 pcs/ft (62 pcs/m)				16 pcs/ft (54 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

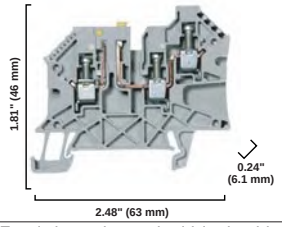
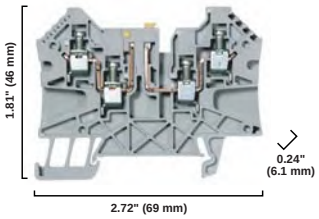
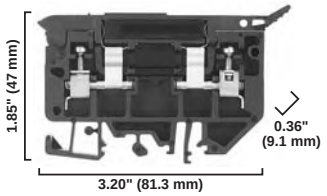
	1492-JG70				1492-JG120			1492-JDG3			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.											
Specifications	*Feed-through grounding terminal block*				*Feed-through grounding terminal block*			*Two-circuit terminal block with one feed-through and one grounding circuit*			
Certifications		**CSA**	**IEC**	**ATEX**		**CSA**	**IEC**		**CSA**	**IEC**	**ATEX**
Voltage Rating	—				—			300V AC/DC		400V AC/DC	275V AC/DC
Maximum Current	Grounding				—			20 A		24 A	21 A
Wire Range (Rated Cross Section)	#6…2/0 AWG		70 mm^2	70 mm^2 (#8…2/0 AWG)	#4…3/0 AWG	#4…4/0 AWG	16...95 mm^2	#22…12 AWG		2.5 mm^2	2.5 mm^2 (#20…14 AWG)
Wire Strip Length	0.87 in. (22 mm)				1.06 in. (27 mm)			0.39 in. (10 mm)			
Recommended Tightening Torque	87.0 lb•in (9.8 N•m)				88.5 lb•in (10 N•m)			4.5…7.1 lb•in. (0.5…0.8 N•m)			
Mounting Torque — Center Screw	17.7…35.4 lb•in (2.0…4.0 N•m)				—			—			
Density	14 pcs/ft (48 pcs/m)				11 pcs/ft (37 pcs/m)			59 pcs/ft (196 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)			

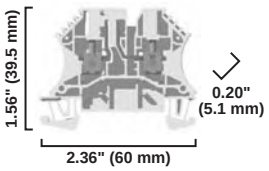
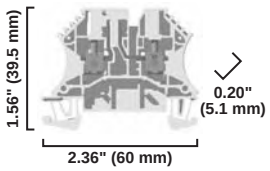
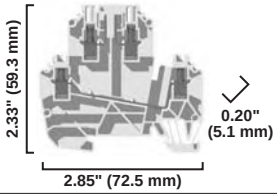
	1492-JDG3C				1492-JDG4				1492-JDG4C			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.												
Specifications	*Two-level grounding terminal block with commoning bar*				*Two-circuit terminal block with one feed-through and one grounding*				*Two-level grounding terminal block with commoning bar*			
Certifications		**CSA**	**IEC**	**ATEX**		**CSA**	**IEC**	**ATEX**		**CSA**	**IEC**	**ATEX**
Voltage Rating	—				600V AC/DC	300V AC/DC	800V AC/DC	550V AC/DC	—			
Maximum Current	Grounding				35 A	30 A	32 A	28 A	Grounding			
Wire Range (Rated Cross Section)	#22…12 AWG	#26…12 AWG	2.5 mm^2	2.5 mm^2 (#20…14 AWG)	#26…10 AWG		4 mm^2	4 mm^2	#26…10 AWG		4 mm^2	4 mm^2
Wire Strip Length	0.39 in. (10 mm)				0.31 in. (8 mm)				0.31 in. (8 mm)			
Recommended Tightening Torque	4.5…7.1 lb•in (0.5…0.8 N•m)				4.5…8.8 lb•in (0.5…1.0 N•m)				4.5…8.8 lb•in (0.5…1.0 N•m)			
Mounting Torque — Center Screw	—				—				—			
Density	59 pcs/ft (196 pcs/m)				49 pcs/ft (163 pcs/m)				49 pcs/ft (163 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

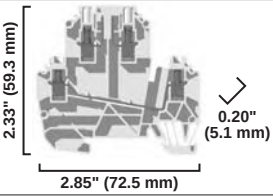
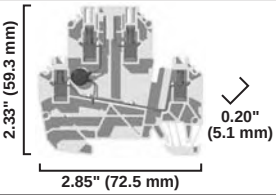
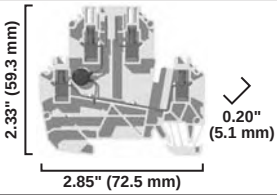
	1492-WG4				1492-WG6				1492-WG10S		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.											
Specifications	*Single-circuit grounding terminal block.*				*Single-circuit grounding terminal block.*				*Single-circuit grounding terminal block.*		
Certifications		**IEC**	**CSA**	**ATEX**		**IEC**	**CSA**	**ATEX**		**CSA**	**IEC**
Voltage Rating	—	—	—	—	—	—	—	—	—	—	—
Maximum Current	Grounding				Grounding				Grounding		
Wire Range (Rated Cross Section)	#22…12 AWG	4 mm^2	#22…12 AWG	4 mm^2	#22…10 AWG	6 mm^2	#22…10 AWG	6 mm^2	#22…8 AWG	#22…8 AWG	10 mm^2
Wire Strip Length	0.43 in. (11 mm)				0.47 in. (12 mm)				0.43 in. (11 mm)		
Recommended Tightening Torque	5.6…6.8 lb•in (0.7 N•m)				5.6…6.8 lb•in (0.7 N•m)				7.1 lb•in (0.8 N•m)		
Density	50 pcs/ft (166 pcs/m)				43 pcs/ft (142 pcs/m)				38 pcs/ft (125 pcs/m)		
Housing Temperature Range	-40…+195 °F (-40…+90 °C)				-40…+195 °F (-40…+90 °C)				-40…+195 °F (-40…+90 °C)		

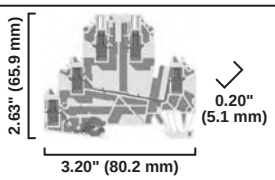
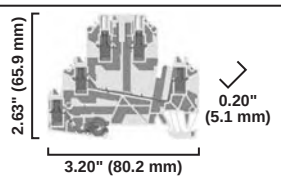
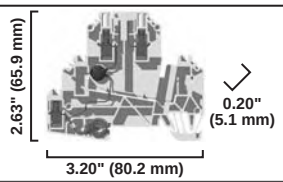
	1492-WG16S		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.			
Specifications	*Single-circuit grounding terminal block.*		
Certifications		**CSA**	**IEC**
Voltage Rating	—	—	—
Maximum Current	Grounding		
Wire Range (Rated Cross Section)	#14…4 AWG		2.5…16 mm^2
Wire Strip Length	0.51 in. (13 mm)		
Recommended Tightening Torque	18…20 lb•in (2.1 N•m)		
Center Screw Mounting Torque	10.6 lb•in (1.2 N•m)		
Density	27 pcs/ft (90 pcs/m)		
Housing Temperature Range	-40…+195 °F (-40…+90 °C)		

	1492-JKD3			1492-JKD3TP			1492-JKD4		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*Feed through terminal block with knife disconnect*			*Feed-through terminal block with knife disconnect and test screws*			*Feed-through terminal block with knife disconnect*		
Certifications		**CSA**	**IEC**		**CSA**	**IEC**		**CSA**	**IEC**
Voltage Rating	300V AC/DC		500V AC/DC	300V AC/DC		500V AC/DC	600V AC/DC	300V AC/DC	400V AC/DC
Maximum Current	10 A		24 A	10 A		24 A	22 A	10 A	32 A
Wire Range (Rated Cross Section)	#22…12 AWG		2.5 mm^2	#22…12 AWG		2.5 mm^2	#22…10 AWG		0.05…4.0 mm^2
Fuse Size (Dummy Fuse Supplied)	—			—			—		
Wire Strip Length	0.39 in. (10 mm)			0.39 in. (10 mm)			0.512 in. (13 mm)		
Recommended Tightening Torque	7.1 lb•in. (0.8 N•m)			7.1 lb•in. (0.8 N•m)			9.0 lb•in. (1.0 N•m)		
Density	49 pcs/ft (163 pcs/m)			49 pcs/ft (163 pcs/m)			49 pcs/ft (163 pcs/m)		
Housing Temperature Range	–58…+248 °F (–50…+120 °C)			–58…+248 °F (–50…+120 °C)			–58…+248 °F (–50…+120 °C)		

	1492-JKD4TW			1492-JKD4Q			1492-H7		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*Feed-through terminal block with knife disconnect; 3 connection points, 2 on one side*			*Feed-through terminal block with knife disconnect; 2 connection points on each side*			*Handle-style isolating terminal block*		
Certifications		**CSA**	**IEC**		**CSA**	**IEC**		**CSA**	**IEC**
Voltage Rating	600V AC/DC		500V AC/DC	600V AC/DC		500V AC/DC	300V AC/DC	300V AC/DC	500V AC/DC
Maximum Current	25 A		30 A	25 A		30 A	15 A	15 A	15 A
Wire Range (Rated Cross Section)	#30…10 AWG		0.5…4 mm^2	#30…10 AWG		0.5…4 mm^2	#30…10 AWG		0.5…4.0 mm^2
Fuse Size (Dummy Fuse Supplied)	—			—			1/4 x 1-1/4 in.		
Wire Strip Length	0.39 in. (10 mm)			0.39 in. (10 mm)			0.38 in. (9.7 mm)		
Recommended Tightening Torque	6.2 lb•in (0.7 N•m)			6.2 lb•in (0.7 N•m)			7.1 lb•in (0.8 N•m)		
Density	49 pcs/ft (163 pcs/m)			49 pcs/ft (163 pcs/m)			33 pcs/ft (109 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)			-40…+221 °F (-40…+105 °C)		

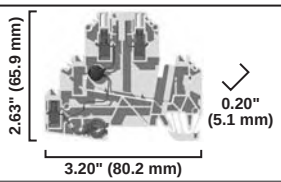
	1492-J3P			1492-J3PTP			1492-JD3P		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*Selectable component plug-in terminal block*			*Selectable component plug-in terminal block with test plug socket*			*Two Circuit selectable component plug-in terminal block*		
Certifications		CSA	IEC		CSA	IEC		CSA	IEC
Voltage Rating	600V AC/DC	300V AC/DC	500V AC/DC	300V AC/DC		500V AC/DC	300V AC/DC		500V AC/DC
Maximum Current	20 A	10 A	24 A	20 A	10 A	24 A	20 A		24 A
Wire Range (Rated Cross Section)	#30…12 AWG		2.5 mm^2	#30…12 AWG		2.5 mm^2	#24…12 AWG	#30…12 AWG	2.5 mm^2
Wire Strip Length	0.39 in. (10 mm)			0.39 in. (10 mm)			0.31 in. (8 mm)		
Recommended Tightening Torque	4.4 lb•in (0.5 N•m)			4.4 lb•in (0.5 N•m)			4.4 lb•in (0.5 N•m)		
Density	59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

	1492-JD3PTP			1492-JD3PSS			1492-JD3PSSTP		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*Two-circuit selectable component plug-in terminal block with test plug socket*			*Two-circuit selectable component plug-in terminal block with internal surge suppressor*			*Two-circuit selectable component plug-in terminal block with internal surge suppressor and test plug socket*		
Certifications		CSA	IEC		CSA	IEC		CSA	IEC
Voltage Rating	300V AC/DC		500V AC/DC	300V AC/DC		115V AC	300V AC/DC		115V AC/DC
Maximum Current	20 A		24 A	20 A		24 A	20 A		24 A
Wire Range (Rated Cross Section)	#24…12 AWG	#30…12 AWG	2.5 mm^2	#24…12 AWG	#30…12 AWG	2.5 mm^2	#24…12 AWG	#30…12 AWG	2.5 mm^2
Wire Strip Length	0.31 in. (8 mm)			0.31 in. (8 mm)			0.31 in. (8 mm)		
Recommended Tightening Torque	4.4 lb•in (0.5 N•m)			4.4 lb•in (0.5 N•m)			4.4 lb•in (0.5 N•m)		
Density	59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)			–58…+248 °F (–50…+120 °C)		

	1492-JDG3P			1492-JDG3PTP			1492-JDG3PSS		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*Two-circuit block with ground connection*			*Two-circuit block with test plug socket and ground connection*			*Single-circuit block with MOV to ground*		
Certifications		CSA	IEC		CSA	IEC		CSA	IEC
Voltage Rating	300V AC/DC		500V AC/DC	300V AC/DC		500V AC/DC	300V AC/DC		115V AC
Maximum Current	20 A		24 A	20 A		24 A	20 A		24 A
Wire Range (Rated Cross Section)	#24…12 AWG	#30…12 AWG	2.5 mm^2	#24…12 AWG	#30…12 AWG	2.5 mm^2	#24…12 AWG	#30…12 AWG	2.5 mm^2
Wire Strip Length	0.31 in. (8 mm)			0.31 in. (8 mm)			0.31 in. (8 mm)		
Recommended Tightening Torque	4.4 lb•in (0.5 N•m)			4.4 lb•in (0.5 N•m)			4.4 lb•in (0.5 N•m)		
Density	59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

1492-JDG3PSSTP

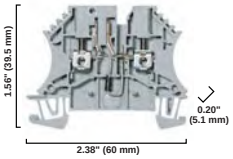
Dimensions are not intended to be used for manufacturing purposes.
Note: Height dimension is measured from top of rail to top of terminal block.



Specifications	*Single-circuit block with MOV to ground and test plug socket*		
Certifications		**CSA**	**IEC**
Voltage Rating	300V AC/DC		115V AC
Maximum Current	20 A		24 A
Wire Range (Rated Cross Section)	#24…12 AWG	#30…12 AWG	2.5 mm^2
Wire Strip Length	0.31 in. (8 mm)		
Recommended Tightening Torque	4.4 lb•in (0.5 N•m)		
Density	59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)		

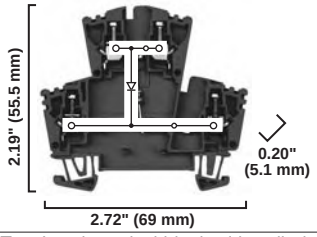
1492-J3DF

Dimensions are not intended to be used for manufacturing purposes.
Note: Height dimension is measured from top of rail to top of terminal block.



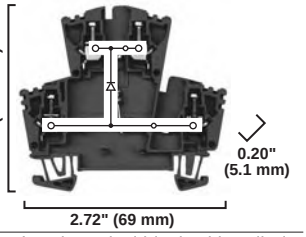
Specifications	*Single-level diode forward terminal block with test plug sockets*		
Certifications		**CSA**	**IEC**
Voltage Rating	300V AC/DC		500V AC/DC
Diode Reverse Voltage Rating	—		
Maximum Current	20 A	10 A	6 A
Diode Current★	—		
Resistor Type	—		
Resistor Value	—		
Current through Busbar	10 A	1 A	14 A
Wire Range (Rated Cross Section)	#26…12 AWG		0.5…2.5 mm^2
Wire Strip Length	0.394 in. (10 mm)		
Recommended Tightening Torque	4.4…6.2 lb•in (0.5…0.7 N•m)		
Density	59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)		

1492-JD3DF★

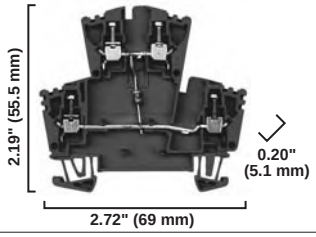
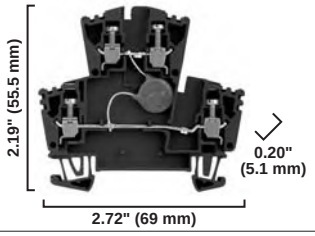


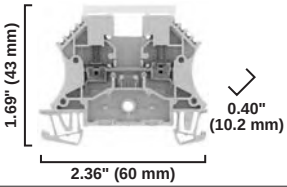
Specifications	*Two-Level terminal block with a diode in forward bias between the levels.*		
Certifications		**CSA**	**IEC**
Voltage Rating	600V AC/DC	300V AC/DC	400V AC/DC
Diode Reverse Voltage Rating	1000V		
Maximum Current	20 A	10 A	—
Diode Current★	1 A		
Resistor Type	—		
Resistor Value	—		
Current through Busbar	10 A		
Wire Range (Rated Cross Section)	#22…12 AWG	#26…12 AWG	2.5 mm^2
Wire Strip Length	0.39 in. (10 mm)		
Recommended Tightening Torque	4.5…7.1 lb•in (0.5…0.8 N•m)		
Density	59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)		

1492-JD3DR★

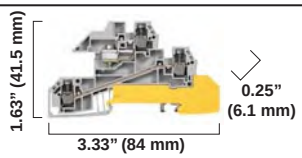
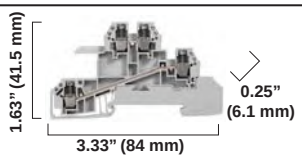
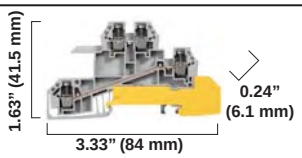


Specifications	*Two-Level terminal block with a diode in reverse bias between the levels.*		
Certifications		**CSA**	**IEC**
Voltage Rating	600V AC/DC	300V AC/DC	400V AC/DC
Diode Reverse Voltage Rating	1000V		
Maximum Current	20 A	10 A	—
Diode Current★	1 A		
Resistor Type	—		
Resistor Value	—		
Current through Busbar	10 A		
Wire Range (Rated Cross Section)	#22…12 AWG	#26…12 AWG	2.5 mm^2
Wire Strip Length	0.39 in. (10 mm)		
Recommended Tightening Torque	4.5…7.1 lb•in (0.5…0.8 N•m)		
Density	59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)		

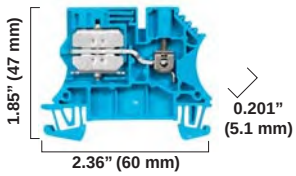
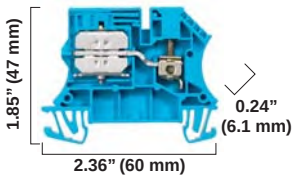
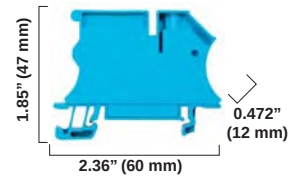
	1492-JD3RC001★			1492-JD3SS		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.						
Specifications	*Two-level terminal block with a 249 ohm resistor between the levels*			*Two-level terminal block with an MOV between the levels.*		
Certifications		**CSA**	**IEC**		**CSA**	**IEC**
Voltage Rating	600V AC/DC	300V AC/DC	400V AC/DC	600V AC/DC	115V AC/DC	
Resistor Type	Precision Wire Wound			—		
Resistor Value	249 Ω, 1/2 W			—		
Current through Busbar	20 A	10 A	—	20 A	10 A	24 A
Wire Range (Rated Cross Section)	#22…12 AWG	#26…12 AWG	2.5 mm^2	#22…12 AWG	#26…12 AWG	2.5 mm^2
Wire Strip Length	0.39 in. (10 mm)			0.39 in. (10 mm)		
Recommended Tightening Torque	4.5…7.1 lb•in (0.5…0.8 N•m)			4.5…7.1 lb•in (0.5…0.8 N•m)		
Density	59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

	1492-JTC3…	
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.		
Specifications	*Two circuit terminal block with current bars made of thermocouple material*	
Certifications	**IEC**	**ATEX**
Voltage Rating	—	55V AC/DC
Wire Range (Rated Cross Section)	#30…12 AWG 2.5 mm^2	#20...14 AWG 2.5 mm^2
Wire Strip Length	0.39 in. (10 mm)	
Recommended Tightening Torque	3.5…5.3 lb•in (0.4…0.6 N•m)	
Density	29 pcs/ft (98 pcs/m)	
Housing Temperature Range	-58…+248 °F (-50…+120 °C)	

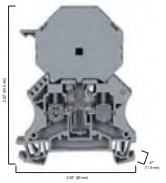
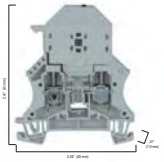
Neutral Disconnect and Installation Blocks

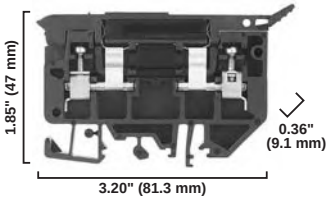
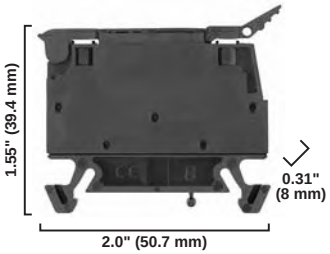
	1492-JDG3ND			1492-JD3N			1492-JDG3N		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*3-Level terminal block with neutral disconnect and ground connection*			*2-Level feed-through terminal block for installation applications*			*3-Level terminal block with 2 feed-through and ground connection*		
Certifications		**CSA**	**IEC**		**CSA**	**IEC**		**CSA**	**IEC**
Voltage Rating	300V AC/DC		400V AC/DC	300V AC/DC		400V AC/DC	300V AC/DC		400V AC/DC
Maximum Current	15 A	10 A	24 A	15 A	10 A	24 A	15 A	10 A	24 A
Wire Range (Rated Cross Section)	#22…12 AWG	#26…12 AWG	2.5 mm^2	#22…12 AWG	#26…12 AWG	2.5 mm^2	#22…12 AWG	#26…12 AWG	2.5 mm^2
Wire Strip Length	0.31 in. (8 mm)			0.31 in. (8 mm)			0.31 in. (8 mm)		
Recommended Tightening Torque	7.0 lb•in (0.8 N•m)			7.0 lb•in (0.8 N•m)			7.0 lb•in (0.8 N•m)		
Density	49 pcs/ft (163 pcs/m)			49 pcs/ft (163 pcs/m)			49 pcs/ft (163 pcs/m)		
Housing Temperature Range	-58...+248 °F (-50...+120 °C)			-58...+248 °F (-50...+120 °C)			-58...+248 °F (-50...+120 °C)		

Single-Circuit Neutral Disconnect Blocks

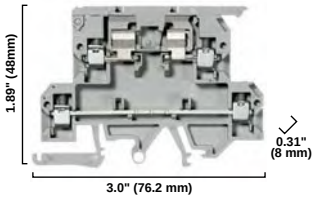
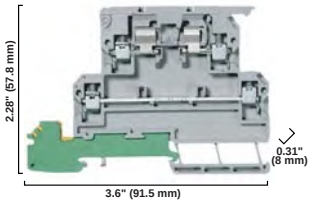
	1492-J3ND			1492-J4ND			1492-J16ND		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*Single-level screw neutral disconnect terminal block*			*Single-level screw neutral disconnect terminal block*			*Single-level screw neutral disconnect terminal block*		
Certifications		**CSA**	**IEC**		**CSA**	**IEC**		**CSA**	**IEC**
Voltage Rating	600V AC/DC		400V AC/DC	600V AC/DC		400V AC/DC	300V AC/DC		400V AC/DC
Maximum Current	25 A	20 A	24 A	35 A	25 A	32 A	65 A		76 A
Wire Range (Rated Cross Section)	#22…12 AWG	#26…12 AWG	2.5 mm^2	#22…10 AWG	#26…10 AWG	4 mm^2	#14…6 AWG		16 mm^2
Wire Strip Length	0.394 in. (10 mm)			0.394 in. (10 mm)			0.47 in. (12 mm)		
Recommended Tightening Torque	7.1 lb•in (0.5 N•m)			9.0 lb•in (1.0 N•m)			19.5 lb•in (2.2 N•m)		
Density	59 pcs/ft (196 pcs/m)			49 pcs/f (/163 pcs/m)			25 pcs/ft (83 pcs/m)		
Housing Temperature Range	-58...+248 °F (-50...+120 °C)			-58...+248 °F (-50...+120 °C)			-58...+248 °F (-50...+120 °C)		

Fuse Blocks

		1492-J6FB1...			1492-J6FB2...		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.							
Specifications		*Single-circuit fuse block with or without blown fuse indication*			*Single-circuit fuse block with or without blown fuse indication*		
Certifications		UL	**CSA**	**IEC**	UL	**CSA**	**IEC**
Voltage Rating	J6FB1/J6FB2	600V AC/DC		500V AC/DC	600V AC/DC		500V AC/DC
	J6FB124/J6FB224	10…36V AC/DC			10…36V AC/DC		
	J6FB148/J6FB248	30…70V AC/DC			30…70V AC/DC		
	J6FB1120/J6FB2120	60…150V AC/DC			60…150V AC/DC		
	J6FB1250/J6FB2250	100…250V AC/DC			100…250V AC/DC		
Maximum Current		10 A	16 A	6.3 A	10 A	10 A	6.3 A
Wire Range (Rated Cross Section)		#22…8 AWG	#20…8 AWG	6 mm^2	#22…8 AWG	#20…8 AWG	6 mm^2
Wire Strip Length		0.47 in. (12 mm)			0.47 in. (12 mm)		
Recommended Tightening Torque		10.6 lb•in (1.2 N•m)			14.2 lb•in (1.6 N•m)		
Density		25 pcs/ft (84 pcs/m)			38 pcs/ft (126 pcs/m)		
Housing Temperature Range		-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		
Leakage Current		≤ 0.5 mA at Nominal Voltage			≤ 0.5 mA at Nominal Voltage		
Fuse Size (not supplied)		1/4 x 1-1/4 in.			5 x 20 mm		

		1492-H...			1492-WFB4...		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.							
Specifications		*Single-circuit fusible terminal block with or without fuse indication.*			*Single-circuit fuse block with or without fuse indication.*		
Certifications		cULus	**CSA**	**IEC**	cULus	**CSA**	**IEC**
Voltage Rating	H6/WFB4	300V AC/DC		500V AC/DC	300V AC/DC		500V AC/DC
	H5/WFB424	10…57V AC/DC			10…57V AC/DC		
	H4/WFB4250	100…300V AC			85…264V AC		
Maximum Current		15 A			15 A		15 A ★
Wire Range (Rated Cross Section)		#30…12 AWG		0.5… 4 mm^2	#30…12 AWG		0.5…4 mm^2
Wire Strip Length		0.38 in. (9.7 mm)			0.31 in. (8 mm)		
Recommended Tightening Torque		7.1 lb•in (0.8 N•m)			2.65…5.3 lb•in (0.3…0.6 N•m)		
Density		33 pcs/ft (109pcs /m)			38 pcs/ft (125 pcs/m)		
Housing Temperature Range		-40…+195 °F (-40…+90 °C)			-40…+195 °F (-40…+90 °C)		
Indicator Type							
H6/WFB4		Non-Indicating			Non-Indicating		
H5/WFB424		Red LED			Red LED		
H4/WFB4250		Neon			Neon		
Leakage Current							
H6/WFB4		—			—		
H5/WFB424		2 mA @ 24V			2 mA @ 24V		
H4/WFB4250		2 mA @ 300V			2 mA @ 300V		
Fuse Size (Not Supplied)		1/4 x 1-1/4 in.			5 x 20 mm		

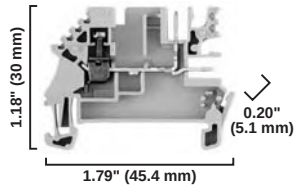
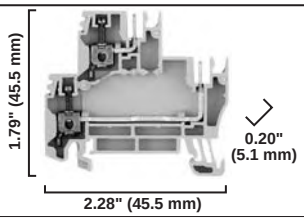
Feed-through Hinged Blocks

	1492-JD3FB...			1492-JDG3FB...		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.						
Specifications	*Two-level terminal block with feed-through circuit and hinged-arm fuse circuit*			*Three-Level terminal block with feed-through circuit, hinged-arm fuse circuit, and ground point*		
Certifications	UL	CSA	IEC	UL	CSA	IEC
Voltage Rating — JD3FB/JDG3FB	600V AC/DC	600V AC/DC	500V AC/DC	600V AC/DC	600V AC/DC	500V AC/DC
Voltage Rating — JD3FB24/JDG3FB24	10...36V AC/DC			10...36V AC/DC		
Voltage Rating — JD3FB48/JDG3FB48	30…70V AC/DC			30…70V AC/DC		
Voltage Rating — JD3FB120/JDG3FB120	60…150V AC/DC			60…150V AC/DC		
Voltage Rating — JD3FB250/JDG3FB250	100...250V AC/DC			100...250V AC/DC		
Maximum Current — Fuse Circuit	10 A	10 A	6.3 A‡	10 A	10 A	6.3 A‡
Maximum Current — Feed-through Circuit	20 A	25 A		20 A	25 A	
Wire Range (Rated Cross Section)	#22…12 AWG	#20…8 AWG	0.5…4 mm²	#22…12 AWG	#20…8 AWG	0.5…4 mm²
Wire Strip Length	0.35 in. (9 mm)			0.35 in. (9 mm)		
Recommended Tightening Torque	5.5 lb·in. (0.65 N·m)			5.5 lb·in. (0.65 N·m)		
Density	38 pcs/ft (125 pcs/m)			38 pcs/ft (125 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		
Leakage Current	≤ 0.5mA at Nominal Voltage			≤ 0.5mA at Nominal Voltage		
Fuse Size (Not Supplied)	5 x 20 mm			5 x 20 mm		

‡ IEC standards for 5 x 20 mm fuses do not include ratings above 6.3 A.

★ The Bulletin 1492-GMC marker carrier installs directly on the top of a 1492-EAJ35 end anchor or a 1492-ERL35 end retainer for group marking purposes.

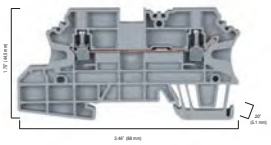
Plug-in Connection Blocks

	1492-JC3			1492-JDC3		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.						
Specifications	*Feed-Through terminal block with 2 plug-in comb connections on one side.*			*Two Circuit terminal block with plug-in comb connection on one side of each circuit.*		
Certifications	cULus	**CSA**	**IEC**	cULus	**CSA**	**IEC**
Voltage Rating	300V AC/DC		250V AC/DC	300V AC/DC		250V AC/DC
Maximum Current	20 A	10 A	10 A (2 x 8)	20 A (2 x 10)	24 A	17.5 A
Wire Range (Rated Cross Section)	#22…12 AWG	#26…12 AWG	2.5 mm²	#22…12 AWG	#26…12 AWG	2.5 mm²
Wire Strip Length	0.39 in. (10 mm)			0.39 in. (10 mm)		
Recommended Tightening Torque	4.5 lb•in (0.5 N•m)			4.5…7.1 lb•in (0.5…0.8 N•m)		
Density	59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

Process Terminal Blocks

1492-JP3

Dimensions are not intended to be used for manufacturing purposes.
Note: Height dimension is measured from top of rail to top of terminal block.



Specifications	Single-circuit feed-through process terminal block		
Certifications	UL	CSA	IEC
Voltage Rating	600V AC/DC		800V AC/DC
Maximum Current	20 A	26 A	24 A
Wire Range (Rated Cross Section)	#26…12 AWG		2.5 mm²
Wire Strip Length	0.39 in. (10 mm)		
Recommended Tightening Torque	4.4…5.3 lb·in. (0.5…0.6 N·m)		
Density	59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)		

1492-JPKD3 1492-JPGKD3 1492-JPGKD3TP

Dimensions are not intended to be used for manufacturing purposes.
Note: Height dimension is measured from top of rail to top of terminal block.

Specifications	Single-circuit, feed-through process terminal block with knife disconnect		Single-circuit, feed-through terminal block with knife disconnect and ground connection			Single-circuit, knife disconnect feed-through process terminal block with test screws and ground connection		
Certifications	cURus	**IEC**	UL	**CSA**	**IEC**	UL	**CSA**	**IEC**
Voltage Rating	600V AC/DC	500V AC/DC	300V AC/DC		500V AC/DC	300V AC/DC		500V AC/DC
Maximum Current	20 A	20 A	19 A	19 A	20 A	19 A	19 A	20 A
Wire Range (Rated Cross Section)	#26…12 AWG	2.5 mm²	#26…12 AWG		2.5 mm²	#26…12 AWG		2.5 mm²
Wire Strip Length	0.39 in. (10 mm)		0.39 in. (10 mm)			0.39 in. (10 mm)		
Recommended Tightening Torque	4.4...5.3 lb•in (0.5...0.6 N•m)		4.4...5.3 lb•in (0.5...0.6 N•m)			4.4...5.3 lb•in (0.5...0.6 N•m)		
Density	59 pcs/ft (196 pcs/m)		59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)		-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

1492-JP3FB 1492-JPG3FB

Dimensions are not intended to be used for manufacturing purposes.
Note: Height dimension is measured from top of rail to top of terminal block.

Specifications		Disconnect style single-circuit fusible terminal block with or without fuse indication			Disconnect style single-circuit fusible terminal block with or without fuse indication and ground connection		
Certifications		UL	**CSA**	**IEC**	UL	**CSA**	**IEC**
Voltage Rating §	JP3FB/JP3GFB	600V AC/DC		500V AC/DC	600V AC/DC		500V AC/DC
	JP3FB24/JP3G3FB24	10...36V AC/DC			10...36V AC/DC		
	JP3FB48/JP3G3FB48	30…70V AC/DC			30…70V AC/DC		
	JP3FB120/JP3G3FB120	60…150V AC/DC			60…150V AC/DC		
	JP3FB250/JP3G3FB250	100...250V AC/DC			100...250V AC/DC		
Maximum Current		17 A	17 A	6.3 A	17 A	17 A	6.3 A
Wire Range (Rated Cross Section)		#26…12 AWG	#26…12 AWG	2.5 mm²	#26…12 AWG		2.5 mm²
Wire Strip Length		0.39 in. (10 mm)			0.39 in. (10 mm)		
Recommended Tightening Torque		4.4…5.3 lb·in. (0.5…0.6 N·m)			4.4…5.3 lb·in. (0.5…0.6 N·m)		
Density		59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range		-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

Short-Circuit Current Ratings
Fuse Ratings

Cat. No.	Wire Range Cu [AWG]		Overcurrent Protection Fuse Required Class/Max. Current Rating [A]						Maximum Voltage [V]	SCCR, RMS SYM [A]
	Line	Load	J	T	RK1	RK5	G	CC		
1492-J3	14…12	14…12	30	30	—	—	30	30	600	100,000
1492-J3P										
1492-JD3SS										
1492-JD3										
1492-JD3C										
1492-JG3TW										
1492-JDG3C										
1492-JG3										
1492-J3F	14…12	14…12	30	30	—	—	30	30	300	100,000
1492-J3TW										
1492-JC3										
1492-JDC3										
1492-JKD3										
1492-JD3FB										
1492-JD3F										
1492-JDG3FB										
1492-JD3PSSTP										
1492-JD3PTP										
1492-JDG3P										
1492-JDG3PSS										
1492-JDG3PSSTP										
1492-JDG3PTP										
1492-JDG3										
1492-JD3PSS										
1492-JD3P										
1492-J4	14…10	14…10	60	60	30	—	60	30	600	100,000
1492-JG4										
1492-JKD4										
1492-J4TW										
1492-J4Q										
1492-JG4TW										
1492-JG4Q										
1492-JKD4TW										
1492-JKD4Q										
1492-JKD4TP										
1492-JD4C										
1492-JD4										
1492-JKD4QTP										
1492-JKD4TWTP										
1492-JSD4	14…10	14…10	60	60	30	—	60	30	300	100,000
1492-JKD4										
1492-J4CTB										
1492-J6	14…8	14…8	100	100	60	30	60	30	600	100,000
1492-JG6										
1492-J10	14…6	14…6	100	100	60	30	60	30	600	100,000
1492-JG10										
1492-J16	14…4	14…4	100	100	60	30	60	30	600	100,000
1492-JG16										
1492-J16ND										
1492-J35	12…1/0	12…1/0	200	200	100	30	60	30	600	100,000
1492-JG35										
1492-J50	6…1/0	6…1/0	200	200	100	30	60	30	600	100,000
1492-JG50										
1492-J70	1/0...3/0	1/0...3/0	400	400	200	100	60	30	600	100,000
1492-JG70										
1492-J120	4…4/0	4…4/0	400	400	200	100	60	30	600	100,000
1492-JG120										

Overcurrent Ratings

Cat. No.	Wire Range Cu [AWG] (Line and Load)	Overcurrent Protection Device Required	Max. Current [A]	SCCR, RMS Sym A 480Y/277V	SCCR, RMS Sym. A 600Y/347V
1492-J3	14…12	140M-D8E-__	16	65,000	30,000
1492-JG3TW		140M-C2E-B10		65,000	30,000
1492-J3P		140M-C2E-B16		65,000	30,000
1492-J3		140M-C2E-B25		65,000	30,000
1492-JD3		140M-C2E-B40		65,000	25,000
1492-JD3C		140M-C2E-B63		65,000	★
1492-JD3SS		140M-C2E-A__		65,000	30,000
1492-JDG3C		140M-C2E-C10		65,000	★
1492-JG3		140MC2E-C16		30,000	★
1492-J4	14…10	140M-F8E-__	32	65,000	30,000
1492-JG4		140M-D8E-C10		65,000	30,000
1492-J4TW		140M-D8E-C16		65,000	30,000
1492-J4Q		140M-D8E-C20		65,000	★
1492-JG4TW		140M-D8E-C25		30,000	★
1492-JG4Q		140M-D8E-B__		65,000	30,000
1492-JKD4TW		140M-C2E-B10		65,000	30,000
1492-JKD4Q		140M-C2E-B16		65,000	30,000
1492-JKD4TP		140M-C2E-B25		65,000	30,000
1492-JD4C		140M-C2E-B40		65,000	25,000
1492-JD4		140M-C2E-B63		65,000	★
1492-JKD4QTP		140M-C2E-C10		65,000	★
1492-JKD4TWTP		140M-C2E-C16		30,000	★
		140M-C2E-A__		65,000	30,000
1492-J6	14…8	140M-F8E-__	32	65,000	30,000
1492-JG6		140M-D8E-C10		65,000	30,000
		140M-D8E-C16		65,000	30,000
		140M-D8E-C20		65,000	★
		140M-D8E-C25		30,000	★
		140M-D8E-B__		65,000	30,000
		140M-C2E-B10		65,000	30,000
		140M-C2E-B16		65,000	30,000
		140M-C2E-B25		65,000	30,000
		140M-C2E-B40		65,000	25,000
		140M-C2E-B63		65,000	★
		140M-C2E-C10		65,000	★
		140M-C2E-C16		30,000	★
		140M-C2E-A__		65,000	30,000

★ Bulletin 140M does not have ratings at this voltage.

Cat. No.	Wire Range Cu [AWG] (Line and Load)	Overcurrent Protection Device Required	Max. Current [A]	SCCR, RMS Sym A 480Y/277V	SCCR, RMS Sym. A 300V+
1492-J3TW	14…12	140M-D8E-__	16	65,000	30,000
1492-JC3		140M-C2E-B10		65,000	30,000
1492-JDC3		140M-C2E-B16		65,000	30,000
1492-J3F		140M-C2E-B25		65,000	30,000
1492-JD3F		140M-C2E-B40		65,000	25,000
1492-JKD3		140M-C2E-B63		65,000	★
1492-JD3FB		140M-C2E-A__		65,000	30,000
1492-JDG3FB		140M-C2E-C10		65,000	★
1492-JD3PSSTP		140MC2E-C16		30,000	★
1492-JD3PTP					
1492-JDG3P					
1492-JDG3PSS					
1492-JDG3PSSTP					
1492-JDG3PTP					
1492-JDG3					
1492-JD3P					
1492-JD3PSS					
1492-JKD4	14…10	140M-F8E-__	32	65,000	30,000
1492-JSD4		140M-D8E-C10		65,000	30,000
1492-J4CTB		140M-D8E-C16		65,000	30,000
		140M-D8E-C20		65,000	★
		140M-D8E-C25		30,000	★
		140M-D8E-B__		65,000	30,000
		140M-C2E-B10		65,000	30,000
		140M-C2E-B16		65,000	30,000
		140M-C2E-B25		65,000	30,000
		140M-C2E-B40		65,000	25,000
		140M-C2E-B63		65,000	★
		140M-C2E-C10		65,000	★
		140M-C2E-C16		30,000	★
		140M-C2E-A__		65,000	30,000

Cat. No.	Wire Range Cu [AWG] (Line and Load)	Overcurrent Protection Device Required	Max. Current [A]	SCCR, RMS Sym A 480V+	SCCR, RMS Sym. A 600Y 347V+
1492-J10	14…10	140M-H8P-__	50	50,000	30,000
1492-JG10					
1492-J16	14…4	140M-H8P-__	100	30,000	30,000
1492-JG16					
1492-J16ND					
1492-J35	12…2	140M-H8P-__	100	50,000	30,000
1492-JG35					
1492-J50	2…1/0	140M-H8P-__	150	65,000	30,000
1492-JG50					

Cat. No.	Wire Range Cu [AWG] (Line and Load)	Overcurrent Protection Device Required	Max. Current [A]	SCCR, RMS Sym A 480V+	SCCR, RMS Sym. A 600V+
1492-J70	4…1/0	140U-J0X3	175	65,000	★
	1/0	140U-J0X3		★	30,000
1492-J120	2…3/0	140U-J0X3	228	65,000	30,000

★ Bulletin 140M does not have ratings at this voltage.
+ Voltage terminal block was tested at for respective SCCR

Allen-Bradley spring-clamp terminal blocks generally have been designed to meet the requirements of one or more regulatory bodies. Most products have also been tested per additional standards. The following is a listing of some of the regulatory bodies and standards which apply to Allen-Bradley spring-clamp terminal block products. See the particular product description for information on specific certifications and ratings.

(Underwriters Laboratories) — Allen-Bradley spring-clamp terminal blocks with one of these ratings have been tested by Underwriters Laboratories and meet the requirements of one or more of the following United States Standards:

- UL 486E — Equipment Wiring Terminals for Use with Aluminum and/or Copper Conductors
- UL 1059 — Standard for Terminal Blocks

Reference UL file E40735

(Underwriters Laboratories) — Allen-Bradley spring-clamp terminal blocks with this rating have been tested by Underwriters Laboratories and meet the requirements of one or more of the following Canadian Standards:

- CSA 22.2 No. 158 — Terminal Blocks

Reference UL file E40735

(Canadian Standards Association) — Allen-Bradley spring-clamp terminal blocks with this rating have been tested by the Canadian Standards Association and meet the requirements of the following Canadian Standard:

- CSA 22.2 No. 158 — Terminal Blocks

Reference CSA files 677896

Allen-Bradley spring-clamp terminal blocks listed in this catalog meet the requirements of the Low Voltage Directive put forth by the European Union. Devices have been tested and comply with one or more of the following European Norms:

- EN 60947-1 — Low Voltage Switchgear and Controlgear: General Rules
- EN 60947-7-1 — Low Voltage Switchgear and Controlgear: Terminal Blocks for Copper Conductors
- EN 60947-7-2 — Low Voltage Switchgear and Controlgear: Protective Conductor Terminal Blocks for Copper Conductors
- EN 60947-7-3 — Low Voltage Switchgear and Controlgear: Safety Requirements for Fuse Terminal Blocks

ATEX — Devices listed in this catalog with “ATEX” ratings meet the following European Norms per DEMKO or KEMA, Approval Certification Bodies for the European Union:

- EN 60079-0 — Electrical Apparatus for Potentially Explosive Atmospheres — General Requirements
- EN 60079-7 — Electrical Apparatus for Potentially Explosive Atmospheres — Increased Safety “e”

Contact your local Allen-Bradley distributor for a copy of the certificate.

Ex e II — Bulletin 1492-L terminal blocks in this catalog meet the following Canadian Standards per Underwriters Laboratories:

- CAN/CSA E60079-7 — Electrical Apparatus for Explosive Atmospheres — Part 0 — General Requirements
- CAN/CSA E60079-0 — Electrical Apparatus for Explosive Atmospheres — Part 7 — Increased Safety “e”

These products are suitable for Class I, Zone 1 Hazardous Locations. Reference UL file E187022. Contact your local Allen-Bradley distributor for more information.

AEx e II — Allen-Bradley spring-clamp terminal blocks with an “AEx e II” rating meet the following United States Standard per Underwriters Laboratories:

- UL 2279 — Standard for Electrical Equipment for Use in Class I, Zone 0, 1, and 2 Hazardous (Classified) Locations

These products are suitable for Class I, Zone 1 Hazardous Locations. Reference UL file E187022. Contact your local Allen-Bradley distributor for more information.

Lloyd’s Register — Bulletin 1492-L terminal blocks in this catalog have been certified for use in marine, off-shore, and industrial installations per the following standard:

- Lloyd’s Register Test Specification No. 1:1996

Contact your local Allen-Bradley distributor for a copy of the certificate.

The Allen-Bradley Line of Spring-Clamp Terminal Blocks…

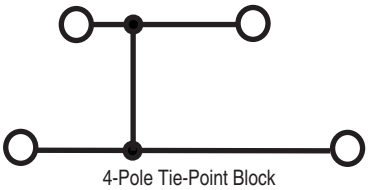
The Bulletin 1492-L line of internationally approved spring-clamp IEC-style terminal blocks offers a variety of products that can make any application:

- Fast — Reduces wiring time by more than 50%
- Practical — Requires only a flat-head screwdriver for easy installation. Maintenance-free, no need to retighten
- Reliable — Secure contact is durable under extreme conditions such as high-vibration applications

Products Available in the 1492-L Spring-Clamp Line

- **Feed-Through Blocks**, accommodating wire sizes from #30…#2 AWG (0.2…35 mm^2)
- **Grounding Blocks** for grounding a given circuit to the DIN Rail
- **Multi-Circuit Blocks** for doubling circuit wiring density
- **Isolation Blocks** for circuit isolation during testing and troubleshooting
- **Plug-In Style Terminal Blocks** accommodating component plugs, fuse plugs, and disconnect plugs
- **Sensor Blocks** for coordination of three-wire sensor groups with or without ground terminations
- **Electrical Component Blocks** which allow for the insertion of fixed components into control circuits. Components include diodes and surge suppression circuits

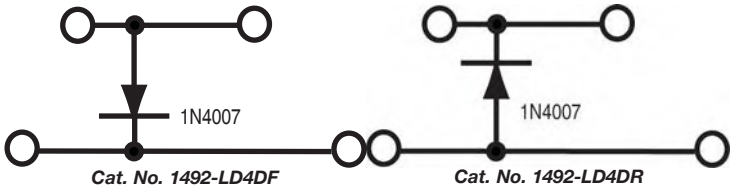
Tie-Point Block (Cat. Nos. 1492-LD2C, LD3C, LD4C)



4-Pole Tie-Point Block

Diode Block (Cat. Nos. 1492-LD4DF, 1492-LD4DR)

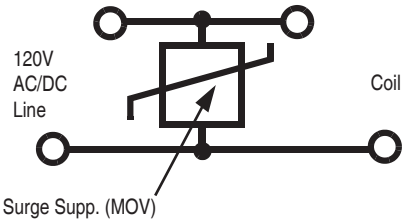
Uses a 1N4007 diode between the upper and lower levels for insertion into a control circuit. This block is useful in low voltage DC control circuits for directioning and suppression.



Cat. No. 1492-LD4DF *Cat. No. 1492-LD4DR*

Surge Suppression Block (Cat. No. 1492-LD4SS)

Provides a convenient means of incorporating transient suppression for relays, contactors and solenoids into a control system.



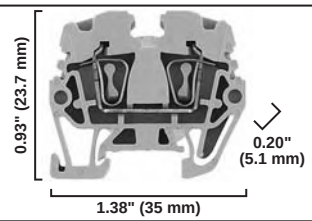
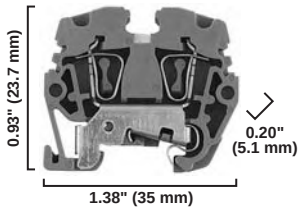
- **Test Blocks** for allowing a bank of pluggable terminal strips to be easily connected for test purposes
- A wide variety of snap-in markers are available for individual or group circuit identification
- A broad offering of accessories such as screwless end retainers, electrical warning plates, end barriers, protective stops and test plugs to provide exactly what the application requires
- Operating instructions (printed on an adhesive label), for fixing inside a panel
- **Mini-blocks** available in rail-mount or panel-mount configurations

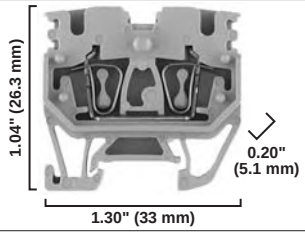
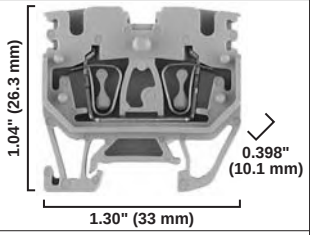
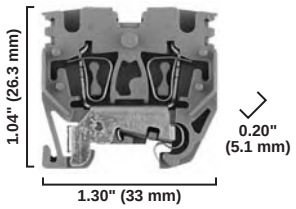
Materials and Design Features

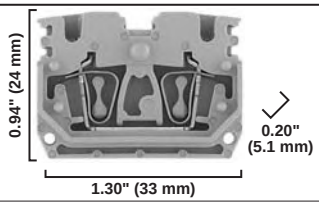
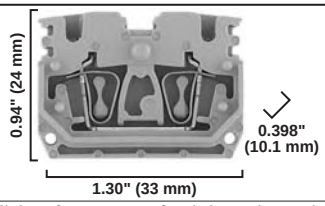
The 1492-L line is specially designed for safety, installation ease, and ruggedness. Features include:

- Tin-plated terminals and stainless steel spring clamps for resistance to corrosion and vibration
- Spring clamp design to minimize stress relaxation and maintain contact force, even under vibration
- Top wire entry for ease of installation
- Circuit testing with standard 2 mm diameter test probe or stackable test plugs on most spring-clamp blocks
- Insulation stops to ensure electrical connection when using smaller gauge wires
- Markers that are visible after terminal blocks are wired
- Multiple marking options
- Common profiles to minimize stocking of accessories
- Self-extinguishing, polymide 6.6 housing materials with a flammability rating UL 94-V0 (1492-R terminal blocks have a UL 94-V2 flammability rating)
- Screwless center jumpers to simplify jumpering terminals together

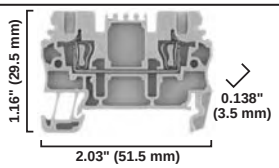
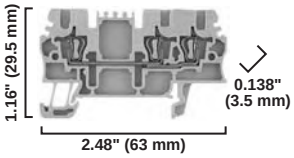
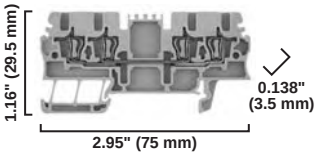
Note: To ensure proper wire termination, these blocks are designed to accept only **one** wire per terminal.

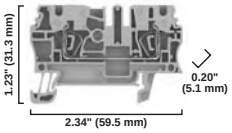
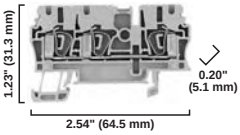
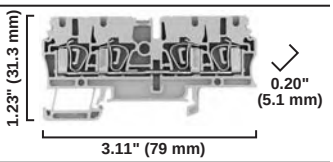
	1492-LMJ3				1492-LMJG3		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.							
Specifications	*Mini rail-mount, feed-through terminal block with jumper capability*				*Mini rail-mount grounding terminal block*		
Certifications	cULus	CSA	IEC	ATEX	cULus	CSA	IEC
Voltage Rating	600V AC/DC		500V AC/DC	275V AC/DC	—	—	—
Maximum Current	20 A		24 A	20 A	Grounding		
Wire Range (Rated Cross Section)	#26…12 AWG		2.5 mm²	#20…12 AWG	#26…12 AWG		2.5 mm²
Wire Strip Length	0.39 in. (10 mm)				0.39 in. (10 mm)		
Density	59 pcs/ft (196 pcs/m)				59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				–58…+248 °F (–50…+120 °C)		

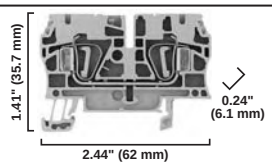
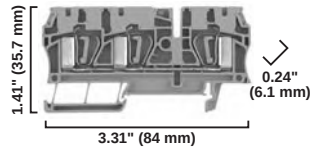
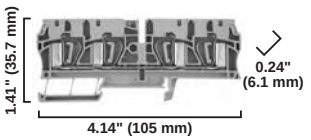
	1492-LM3			1492-LM3Q			1492-LMG3		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*Mini rail-mount, feed-through terminal block*			*Mini rail-mount, feed-through terminal block with 2 connection points on each side*			*Mini rail-mount grounding terminal block*		
Certifications	cULus	CSA	IEC	cULus	CSA	IEC	cULus	CSA	IEC
Voltage Rating	600V AC/DC		800V AC/DC	600V AC/DC		800V AC/DC	—	—	—
Maximum Current	20 A	25 A	24 A	20 A	25 A	24 A	Grounding		
Wire Range (Rated Cross Section)	#26…12 AWG		2.5 mm²	#26…12 AWG		2.5 mm²	#26…12 AWG		2.5 mm²
Wire Strip Length	0.39 in. (10 mm)			0.39 in. (10 mm)			0.39 in. (10 mm)		
Density	59 pcs/ft (196 pcs/m)			30 pcs/ft (99 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

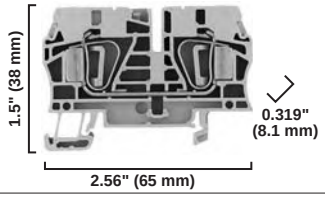
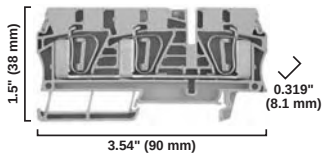
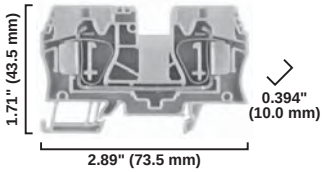
	1492-LMP3			1492-LMP3Q		
Dimensions are not intended to be used for manufacturing purposes. **Note:** One end block and one end barrier or two end barriers must be used on each end of a terminal bank to provide mounting slots.						
Specifications	*Mini surface mount feed-through terminal block*			*Mini surface mount, feed-through terminal block with 2 connection points on each side*		
Certifications	cULus	CSA	IEC	cULus	CSA	IEC
Voltage Rating	600V AC/DC		800V AC/DC	600V AC/DC		800V AC/DC
Maximum Current	20 A	25 A	24 A	20 A	25 A	24 A
Wire Range (Rated Cross Section)	#26…12 AWG		2.5 mm²	#26…12 AWG		2.5 mm²
Wire Strip Length	0.39 in. (10 mm)			0.39 in. (10 mm)		
Density	59 pcs/ft (196 pcs/m)			30 pcs/ft (99 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

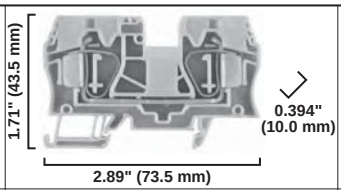
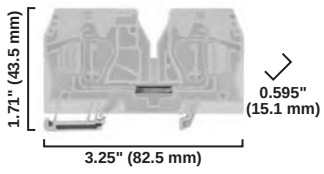
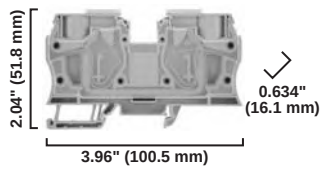
Mini-Blocks, Interlocking, 600V UL Rated

	1492-L2				1492-L2T				1492-L2Q			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.												
Specifications	*Feed-through terminal block*				*Feed-through terminal block with 2 connection points on one side*				*Feed-through terminal block with 2 connection points per side*			
Certifications	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX
Voltage Rating	300V AC/DC		500V AC/DC	550V AC/DC	300V AC/DC		500V AC/DC	550V AC/DC	300V AC/DC		500V AC/DC	550V AC/DC
Maximum Current	15 A	20 A	17.5 A	15 A	15 A	20 A	17.5 A	15 A	15 A	20 A	17.5 A	15 A
Wire Range (Rated Cross Section)	#26…14 AWG		1.5 mm^2	1.5 mm^2	#26…14 AWG		1.5 mm^2	1.5 mm^2	#26…14 AWG		1.5 mm^2	1.5 mm^2
Wire Strip Length	0.39 in. (10 mm)				0.39 in. (10 mm)				0.39 in. (10 mm)			
Density	87 pcs/ft (285 pcs/m)				87 pcs/ft (285 pcs/m)				87 pcs/ft (285 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				–58…+248 °F (–50…+120 °C)			

	1492-L3				1492-L3T				1492-L3Q			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.												
Specifications	*Feed-through terminal block*				*Feed-through terminal block with 3 connection points, 2 on one side*				*Feed-through terminal block with 2 points on each side*			
Certifications	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX
Voltage Rating	600V AC/DC		800V AC/DC	550V AC/DC	600V AC/DC		800V AC/DC	550V AC/DC	600V AC/DC		800V AC/DC	550V AC/DC
Maximum Current	25 A	27 A	24 A	21 A	25 A	27 A	24 A	21 A	25 A	27 A	24 A	21 A
Wire Range (Rated Cross Section)	#30…12 AWG	#26…12 AWG	2.5 mm^2	2.5 mm^2 (20…12 AWG)	#30…12 AWG	#26…12 AWG	2.5 mm^2	2.5 mm^2 (20…12 AWG)	#30…12 AWG	#26…12 AWG	2.5 mm^2	2.5 mm^2 (20…12 AWG)
Wire Strip Length	0.39 in. (10 mm)				0.39 in. (10 mm)				0.39 in. (10 mm)			
Density	59 pcs/ft (196 pcs/m)				59 pcs/ft (196 pcs/m)				59 pcs/ft (196 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				–58…+248 °F (–50…+120 °C)			

	1492-L4				1492-L4T				1492-L4Q			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.												
Specifications	*Feed-through terminal block*				*Feed-through terminal block with 3 connection points, 2 on one side*				*Feed-through terminal block with 2 connection points on each side*			
Certifications		CSA	IEC	ATEX		CSA	IEC	ATEX		CSA	IEC	ATEX
Voltage Rating	600V AC/DC		800V AC/DC	550V AC/DC	600V AC/DC		800V AC/DC	550V AC/DC	600V AC/DC		800V AC/DC	550V AC/DC
Maximum Current	33 A	35 A	32 A	28 A	33 A	35 A	32 A	28 A	33 A	35 A	32 A	28 A
Wire Range (Rated Cross Section)	#26…10 AWG		4 mm^2	4 mm^2 (20… 10 AWG)	#26…10 AWG		4 mm^2	4 mm^2 (20… 10 AWG)	#26…10 AWG		4 mm^2	4 mm^2 (20… 10 AWG)
Wire Strip Length	0.47 in. (12 mm)				0.47 in. (12 mm)				0.47 in. (12 mm)			
Density	49 pcs/ft (163 pcs/m)				49 pcs/ft (163 pcs/m)				49 pcs/ft (163 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

	1492-L6				1492-L6T				1492-L10			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.												
Specifications	*Feed-through terminal block*				*Feed-through terminal block with 2 connection points on one side*				*Feed-through terminal block*			
Certifications		CSA	IEC	ATEX		CSA	IEC	ATEX		CSA	IEC	ATEX
Voltage Rating	600V AC/DC		800V AC/DC	550V AC/DC	600V AC/DC		800V AC/DC	550V AC/DC	600V AC/DC		800V AC/DC	550V AC/DC
Maximum Current	50 A		41 A	36 A	50 A		41 A	36 A	60 A	55 A	57 A	50 A
Wire Range (Rated Cross Section)	#22…8 AWG	#20… 8 AWG	6 mm^2	6 mm^2 (20… 8 AWG)	#22…8 AWG	#20… 8 AWG	6 mm^2	6 mm^2 (#20… 10 AWG)	#16…6 AWG		10 mm^2	10 mm^2 (16… 8 AWG)
Wire Strip Length	0.51 in. (13 mm)				0.51 in. (13 mm)				0.70 in. (18 mm)			
Density	37 pcs/ft (123 pcs/m)				37 pcs/ft(123 pcs/m)				30 pcs/ft (99 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

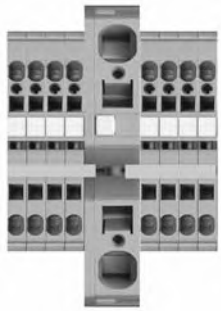
	1492-L16				1492-L16D*			1492-L35			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.											
Specifications	*Feed-through terminal block*				*Power distribution block with center jumper connection/feed*			*Feed-through terminal block*			
Certifications		CSA	IEC	ATEX		CSA	IEC		CSA	IEC	ATEX
Voltage Rating	600V AC/DC		800V AC/DC	550V AC/DC	600V AC/DC		500V AC/DC	600V AC/DC		800V AC/DC	690V AC/DC
Maximum Current	65 A		76 A	66 A	65 A		76 A	120 A		125 A	109 A
Wire Range (Rated Cross Section)	#14…4 AWG		16 mm^2	16 mm^2 (16… 6 AWG)	#14…4 AWG		16 mm^2	#12…2 AWG		35 mm^2	35 mm^2 14…2 AWG
Wire Strip Length	0.70 in. (18 mm)				0.70 in. (18 mm)			0.98 in. (25 mm)			
Density	25 pcs/ft (82 pcs/m)				20 pcs/ft (66 pcs/m)			18 pcs/ft (62 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)			

Feed Left:

Feed Right:

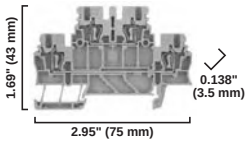
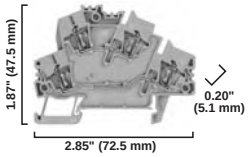
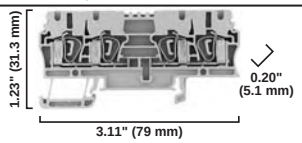
The Cat. No. 1492-L16D feed terminal allows wires with a cross section from 4…14 AWG and up to 16 mm² to be used. Using standard cross connections, the potential can be distributed to any number of terminals with smaller cross sections. The following tables show some variants for potential distribution of the supply, the required cross connection, and the maximum current. The maximum current for the single terminal block must not be exceeded.

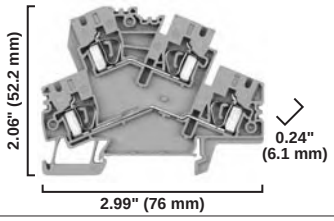
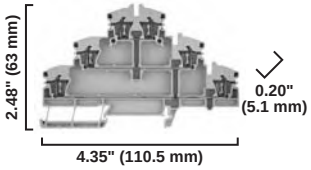
Feed Middle:

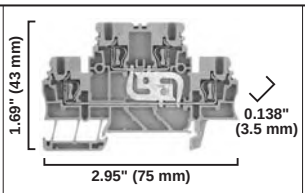
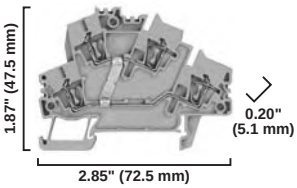
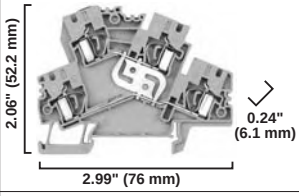


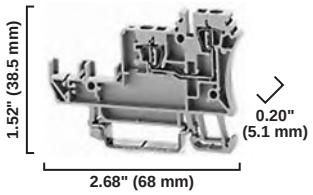
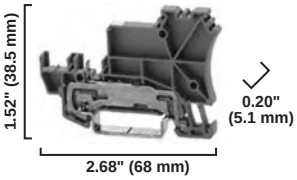
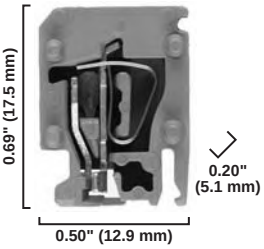
Feed Left				Feed Middle				Feed Right			
Feed Terminal	Feed	I_{max}	Jumper	Feed Terminal	Feed	I_{max}	Jumper	Feed Terminal	Feed	I_{max}	Jumper
1492-L3	4…14 AWG (16 mm²)	62 A	1492-CJK5-∗	1492-L3	#4…14 AWG (16 mm²)	76 A	1492-CJK5-∗	1492-L3	#4…14 AWG (16 mm²)	62 A	1492-CJK5-∗
1492-L3Q		62 A	1492-CJK5-∗	1492-L3Q		76 A	1492-CJK5-∗	1492-L3Q		62 A	1492-CJK5-∗
1492-L4		76 A	1492-CJK6-∗	1492-L4		76 A	1492-CJK6-∗	1492-L4		76 A	1492-CJK6-∗
								1492-L4T		76 A	1492-CJK6-∗
								1492-L4Q		76 A	1492-CJK6-∗
1492-L6		76 A	1492-CJL8-∗	1492-L6		76 A	1492-CJL8-∗	1492-L6		76 A	1492-CJL8-∗
								1492-L6T		76 A	1492-CJL8-∗

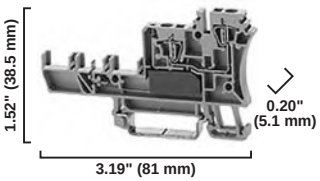
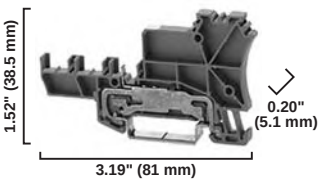
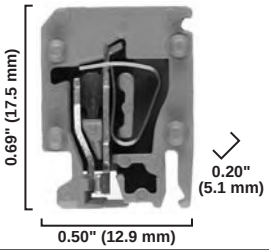
∗ See accessory section for availability of specific jumper pole configurations.

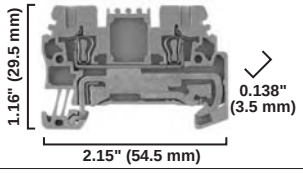
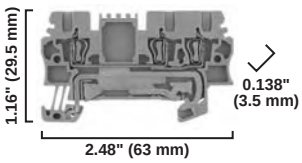
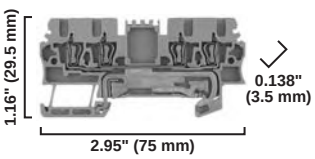
	1492-LD2			1492-LD3				1492-L3QS			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.											
Specifications	*Two-circuit feed-through terminal block*			*Two-circuit feed-through terminal block*				*Side-by-side two circuit terminal block*			
Certifications		**CSA**	**IEC**		**CSA**	**IEC**	**ATEX**		**CSA**	**IEC**	**ATEX**
Voltage Rating	300V AC/DC	600V AC/DC	500V AC/DC	600V AC/DC		800V AC/DC	550V AC/DC	600V AC/DC		800V AC/DC	550V AC/DC
Maximum Current	10 A		17.5 A	20 A	25 A	24 A	20 A	25 A	27 A	24 A	21 A
Wire Range (Rated Cross Section)	#28… 16 AWG		1.5 mm^2	#30… 12 AWG		2.5 mm^2	0.5…2.5 mm^2 (#20…14 AWG)	#26… 12 AWG		2.5 mm^2	2.5 mm^2 (20… 12 AWG)
Wire Strip Length	0.39 in. (10 mm)			0.39 in. (10 mm)				0.39 in. (10 mm)			
Density	87 pcs/ft (285 pcs/m)			59 pcs/ft (196 pcs/m)				59 pcs/ft (196 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

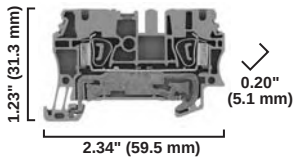
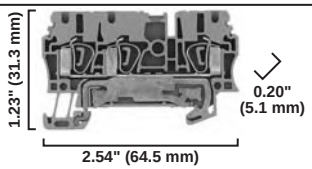
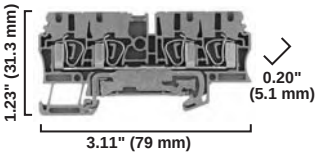
	1492-LD4			1492-LTF3		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.						
Specifications	*Two-circuit feed-through terminal block*			*Three-circuit feed-through terminal block with multiple cross connection points*		
Certifications		**CSA**	**IEC**		**CSA**	**IEC**
Voltage Rating	600V AC/DC		800V AC/DC	300V AC/DC		500V AC/DC
Maximum Current	25 A	30 A	32 A	15 A		20 A
Wire Range (Rated Cross Section)	#26…10 AWG		4 mm^2	#26…12 AWG		2.5 mm^2
Wire Strip Length	0.39 in. (10 mm)			0.39 in. (10 mm)		
Density	49 pcs/ft (163 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

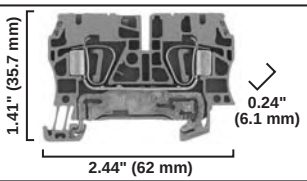
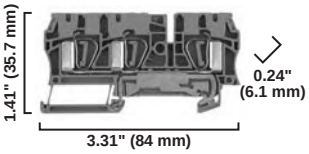
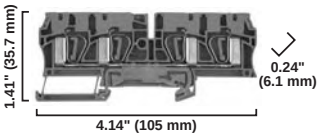
	1492-LD2C			1492-LD3C				1492-LD4C		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.										
Specifications	*Two-level feed-through terminal block with commoning bar*			*Two-level feed-through terminal block with commoning bar*				*Two-level feed-through terminal block with commoning bar*		
Certifications	UL	CSA	IEC	UL	CSA	IEC	ATEX	UL	CSA	IEC
Voltage Rating	300V AC/DC	600V AC/DC	500V AC/DC	600V AC/DC		800V AC/DC	550V AC/DC	600V AC/DC		800V AC/DC
Maximum Current	10 A		17.5 A	20 A	25 A	24 A	22 A	25 A	30 A	32 A
Wire Range (Rated Cross Section)	#28…16 AWG		1.5 mm²	#30…12 AWG		2.5 mm²	0.5…2.5 mm² (#20…14 AWG)	#26…10 AWG		4 mm²
Wire Strip Length	0.39 in. (10 mm)			0.39 in. (10 mm)				0.39 in. (10 mm)		
Density	87 pcs/ft (285 pcs/m)			59 pcs/ft (196 pcs/m)				49 pcs/ft (163 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)		

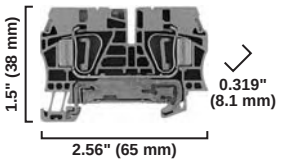
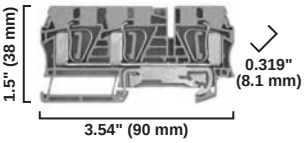
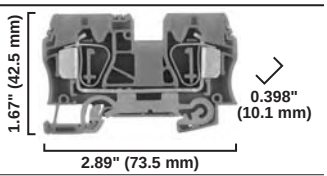
	1492-LS2-3∗ 1492-LS2-3L∗			1492-LSG2-3∗			1492-LS2-BR 1492-LS2-B 1492-LSG2		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*3 conductor sensor block base for plug in distribution blocks*			*3 conductor sensor ground block base for plug in distribution blocks*			*Plug in Distribution blocks — internally jumpered*		
Certifications	UL	CSA	IEC	UL	CSA	IEC	UL	CSA	IEC
Voltage Rating (without LED)	300V AC/DC		250V AC/DC	300V AC/DC		250V AC/DC	300V AC/DC		250V AC/DC
Voltage Rating (with LED)	5…30V AC/DC			—			5…30V AC/DC		
Maximum Current	10 A		17.5 A	10 A		17.5 A	10 A		17.5 A
Wire Range (Rated Cross Section)	#26…14 AWG		1.5 mm²	#26…14 AWG		1.5 mm²	#26…14 AWG		1.5 mm²
Wire Strip Length	0.31 in. (8 mm)			0.31 in. (8 mm)			0.31 in. (8 mm)		
Density	59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

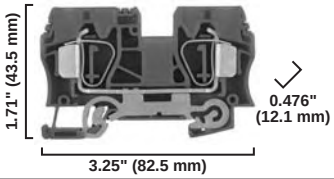
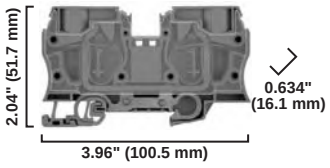
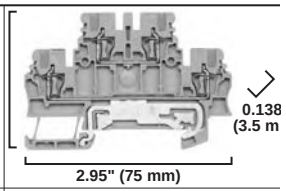
	1492-LS2-4★ 1492-LS2-4L★			1492-LSG2-4★			1492-LS2-BR 1492-LS2-B 1492-LSG2		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*4 conductor sensor block base for plug in distribution blocks*			*4 conductor sensor ground block base for plug in distribution blocks*			*Plug In Distribution blocks — internally jumpered*		
Certifications	cULus	CSA	IEC	cULus	CSA	IEC	cULus	CSA	IEC
Voltage Rating (without LED)	300V AC/DC		250V AC/DC	300V AC/DC		250V AC/DC	300V AC/DC		250V AC/DC
Voltage Rating (with LED)	5…30V AC/DC			—			5…30V AC/DC		
Maximum Current	10 A		17.5 A	10 A		17.5 A	10 A		17.5 A
Wire Range (Rated Cross Section)	#26…14 AWG		1.5 mm^2	#26…14 AWG		1.5 mm^2	#26…14 AWG		1.5 mm^2
Wire Strip Length	0.31 in. (8 mm)			0.31 in. (8 mm)			0.28 in. (7 mm)		
Density	59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

	1492-LG2				1492-LG2T				1492-LG2Q			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.												
Specifications	*Feed-through grounding terminal block*				*Feed-through grounding terminal block with 2 points on one side*				*Feed-through grounding terminal block with 2 points on each side*			
Certifications	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX
Voltage Rating	—	—	—	—	—	—	—	—	—	—	—	—
Maximum Current	Grounding				Grounding				Grounding			
Wire Range (Rated Cross Section)	#26…14 AWG		1.5 mm^2	1.5 mm^2 (20… 16 AWG)	#26…14 AWG		1.5 mm^2	1.5 mm^2 (20… 16 AWG)	#26…14 AWG		1.5 mm^2	1.5 mm^2 (20… 16 AWG)
Wire Strip Length	0.39 in. (10 mm)				0.39 in. (10 mm)				0.39 in. (10 mm)			
Density	87 pcs/ft (285 pcs/m)				87 pcs/ft (285 pcs/m)				87 pcs/ft (285 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

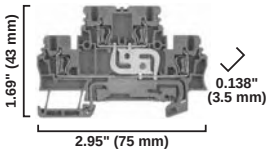
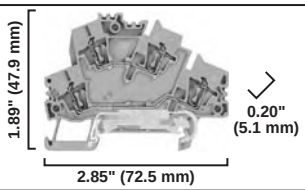
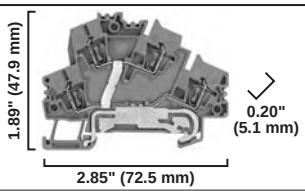
	1492-LG3				1492-LG3T				1492-LG3Q			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.												
Specifications	*Feed-through grounding terminal block*				*Feed-through grounding terminal block with 2 points on one side*				*Feed-through grounding terminal block with 2 points on each side*			
Certifications	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX
Voltage Rating	—	—	—	—	—	—	—	—	—	—	—	—
Maximum Current	Grounding				Grounding				Grounding			
Wire Range (Rated Cross Section)	#30…12 AWG	#26…12 AWG	2.5 mm²	2.5 mm² (20…12 AWG)	#30…12 AWG	#26…12 AWG	2.5 mm²	2.5 mm² (20…12 AWG)	#30…12 AWG	#26…12 AWG	2.5 mm²	2.5 mm² (20…12 AWG)
Wire Strip Length	0.39 in. (10 mm)				0.39 in. (10 mm)				0.39 in. (10 mm)			
Density	59 pcs/ft (196 pcs/m)				59 pcs/ft (196 pcs/m)				59 pcs/ft (196 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

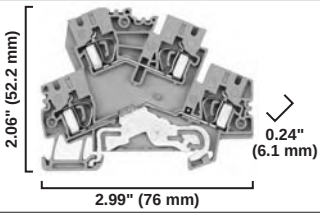
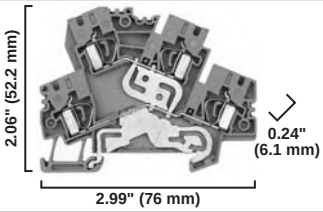
	1492-LG4				1492-LG4T				1492-LG4Q			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.												
Specifications	*Feed-through grounding terminal block*				*Feed-through grounding terminal block with 2 points on one side*				*Feed-through grounding terminal block with 2 points on each side*			
Certifications	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX
Voltage Rating	—	—	—	—	—	—	—	—	—	—	—	—
Maximum Current	Grounding				Grounding				Grounding			
Wire Range (Rated Cross Section)	#26…10 AWG		4 mm²	4 mm² (20…10 AWG)	#26…10 AWG		4 mm²	4 mm² (20…12 AWG)	#26…10 AWG		4 mm²	4 mm² (20…12 AWG)
Wire Strip Length	0.47 in. (12 mm)				0.47 in. (12 mm)				0.47 in. (12 mm)			
Density	49 pcs/ft (163 pcs/m)				49 pcs/ft (163 pcs/m)				49 pcs/ft (163 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

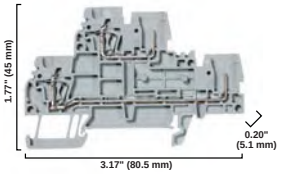
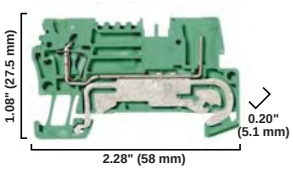
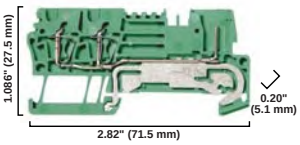
	1492-LG6				1492-LG6T				1492-LG10			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.												
Specifications	*Feed-through grounding terminal block*				*Feed-through grounding terminal block with 2 points on one side*				*Feed-through grounding terminal block*			
Certifications		CSA	IEC	ATEX		CSA	IEC	ATEX		CSA	IEC	ATEX
Voltage Rating	—	—	—	—	—	—	—	—	—	—	—	—
Maximum Current	Grounding				Grounding				Grounding			
Wire Range (Rated Cross Section)	#22…8 AWG	#20…8 AWG	6 mm^2	6 mm^2 (20… 8 AWG)	#22…8 AWG	#20…8 AWG	6 mm^2	6 mm^2 (20… 10 AWG)	#16…6 AWG		10 mm^2	10 mm^2 (16… 8 AWG)
Wire Strip Length	0.51 in. (13 mm)				0.51 in. (13 mm)				0.70 in. (18 mm)			
Density	37 pcs/ft (123 pcs/m)				37 pcs/ft (123 pcs/m)				30 pcs/ft (99 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

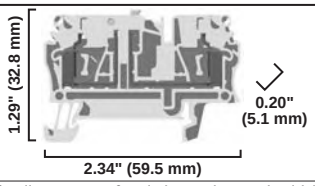
	1492-LG16				1492-LG35				1492-LDG2		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.											
Specifications	*Feed-through grounding terminal block*				*Feed-through grounding terminal block*				*Two-circuit terminal block with 1 feed-through and 1 ground circuit*		
Certifications		CSA	IEC	ATEX		CSA	IEC	ATEX		CSA	IEC
Voltage Rating	—	—	—	—	—	—	—	—	300V AC/DC		500V AC/DC
Maximum Current	Grounding				Grounding				10 A		17.5 A
Wire Range (Rated Cross Section)	#14…6 AWG	#14…4 AWG	16 mm^2	16 mm^2 (16… 6 AWG)	#12…2 AWG		35 mm^2	35 mm^2 (#14…2 AWG)	#28…16 AWG		1.5 mm^2
Wire Strip Length	0.70 in. (18 mm)				0.98 in. (25 mm)				0.31 in. (8 mm)		
Density	25 pcs/ft (82 pcs/m)				18 pcs/ft (62 pcs/m)				87 pcs/ft (285 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				–58…+248 °F (–50…+120 °C)		

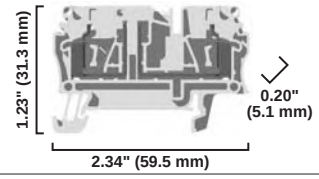
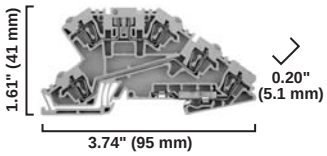
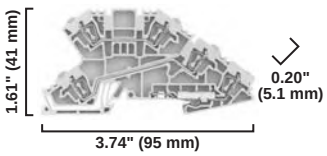
Grounding Blocks

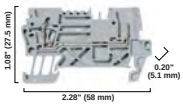
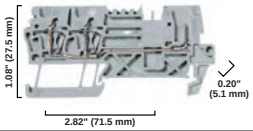
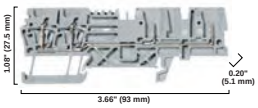
	1492-LDG2C			1492-LDG3				1492-LDG3C			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.											
Specifications	*Single-circuit, two-level grounding terminal block with 2 connection points on each side*			*Two-circuit grounding terminal block with 1 feed-through and 1 ground circuit*				*Single-circuit, two-level grounding terminal block with 2 connection points on each side*			
Certifications	cULus	CSA	IEC	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX
Voltage Rating	—	—	—	600V AC/DC		800V AC/DC	550V AC/DC	—	—	—	—
Maximum Current	Grounding			20 A	25 A	24 A	20 A	Grounding			
Wire Range (Rated Cross Section)	#28…16 AWG		1.5 mm^2	#26…12 AWG	#30…12 AWG	2.5 mm^2	0.5…2.5 mm^2 (#20…14 AWG)	#26…12 AWG	#30…12 AWG	2.5 mm^2	0.5…2.5 mm^2 (20…14 AWG)
Wire Strip Length	0.39 in. (10 mm)			0.39 in. (10 mm)				0.39 in. (10 mm)			
Density	87 pcs/ft (285 pcs/m)			59 pcs/ft (196 pcs/m)				59 pcs/ft (196 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

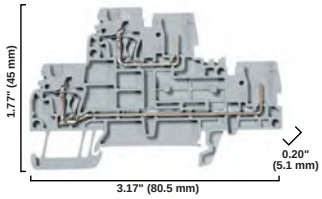
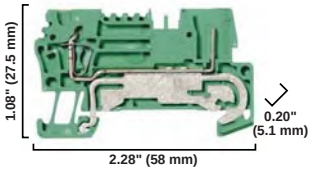
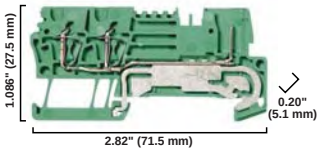
	1492-LDG4			1492-LDG4C		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.						
Specifications	*Two-circuit grounding terminal block with 1 feed-through and 1 ground circuit*			*Single-circuit, two-level grounding terminal block with 2 connection points on each side*		
Certifications	cULus	CSA	IEC	cULus	CSA	IEC
Voltage Rating	600V AC/DC		800V AC/DC	—	—	—
Maximum Current	25 A	30 A	32 A	Grounding		
Wire Range (Rated Cross Section)	#26…10 AWG		4 mm^2	#26…10 AWG		4 mm^2
Wire Strip Length	0.39 in. (10 mm)			0.39 in. (10 mm)		
Density	49 pcs/ft (163 pcs/m)			49 pcs/ft (163 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

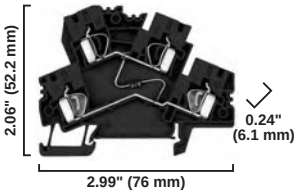
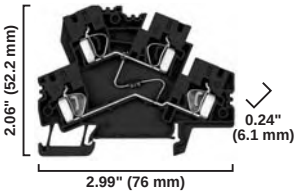
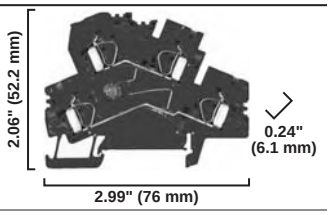
	1492-LD32P			1492-LG31P			1492-LG3T1P		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*Two-circuit terminal block with 1 fixed and 1 plug-in connection on each level. Plug-in connectors can be individual or grouped configurations.*			*Single-circuit grounding terminal block with 1 fixed and 1 plug-in connection.*			*Single-circuit grounding terminal block with 2 fixed and 1 plug-in connection.*		
Certifications		CSA	IEC		CSA	IEC		CSA	IEC
Voltage Rating	300V AC/DC		500V AC/DC	—		—	—		—
Maximum Current	20 A		24 A	Grounding			Grounding		
Limited Rating - Voltage❄	600V AC/DC		—	—			—		
Limited Rating - Current❄	5 A		—	—			—		
Wire Range (Rated Cross Section)	26… 12 AWG		0.5…2.5 mm^2	26… 12 AWG		0.5…2.5 mm^2	26… 12 AWG		0.5…2.5 mm^2
Wire Strip Length	0.394 in (10 mm)			0.394 in (10 mm)			0.394 in (10 mm)		
Density (Blocks per ft/m)	59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

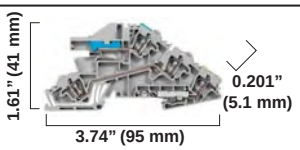
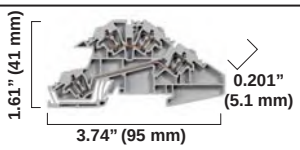
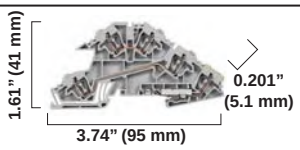
	1492-LKD3		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.			
Specifications	*Knife disconnect feed-through terminal block*		
Certifications		CSA	IEC
Voltage Rating	600V AC/DC		500V AC/DC
Maximum Current	20 A		24 A
Wire Range (Rated Cross Section)	#30…12 AWG		2.5 mm^2
Wire Strip Length	0.39 in. (10 mm)		
Density	59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)		

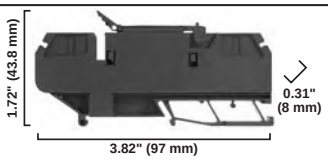
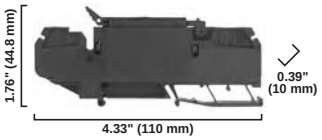
	1492-L3P			1492-LDG3P			1492-LDAG3		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*Single circuit plug-in component block for a variety of components*			*Terminal block with slot for plug-in component, feed-through circuit and 1 ground connection*			*Analog Loop Control Terminal Block with 2 Feed-Through Circuits and 1 Ground Connection*		
Certifications		**CSA**	**IEC**		**CSA**	**IEC**		**CSA**	**IEC**
Voltage Rating	600V AC/DC		500V AC/DC	300V AC/DC		250V AC/DC	300V AC/DC		250V AC/DC
Maximum Current	20 A		24 A	10 A		20 A	10 A		24 A
Wire Range (Rated Cross Section)	#30…12 AWG		4 mm^2	#26…12 AWG		2.5 mm^2	#26…12 AWG		2.5 mm^2
Wire Strip Length	0.39 in. (10 mm)			0.31 in. (8 mm)			0.31 in. (8 mm)		
Density	59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

	1492-L31P			1492-L3T1P			1492-L3Q2P		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*Single circuit terminal block with 1 fixed and 1 plug-in connection. Plug-in connectors can be individual or grouped configurations.*			*Single circuit terminal block with 2 fixed and 1 plug-in connection. Plug-in connectors can be individual or grouped configurations.*			*Single circuit terminal block with 2 fixed and 2 plug-in connections. Plug-in connectors can be individual or grouped configurations.*		
Certifications		**CSA**	**IEC**		**CSA**	**IEC**		**CSA**	**IEC**
Voltage Rating	300V AC/DC		500V AC/DC	300V AC/DC		500V AC/DC	300V AC/DC		500V AC/DC
Maximum Current	20 A		24 A	20 A		24 A	20 A		24 A
Limited Rating - Voltage‡	600V AC/DC		—	600V AC/DC		—	600V AC/DC	—	-
Limited Rating - Current‡	5 A		—	5 A		—	5 A	—	—
Wire Range (Rated Cross Section)	#26…12 AWG		0.5...2.5 mm^2	#26…12 AWG		0.5...2.5 mm^2	#26…12 AWG		0.5...2.5 mm^2
Wire Strip Length	0.394 in. (10 mm)			0.394 in. (10 mm)			0.394 in. (10 mm)		
Density	59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range	–58…+248 °F (–50…+120 °C)			–58…+248 °F (–50…+120 °C)			–58…+248 °F (–50…+120 °C)		

	1492-LD32P			1492-LG31P			1492-LG3T1P		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*Two- circuit terminal block with 1 fixed and 1 plug-in connection. Plug-in connectors can be individual or grouped configurations.*			*Single circuit grounding terminal block with 1 fixed and 1 plug-in connection.*			*Single circuit grounding terminal block with 2 fixed and 1 plug-in connection.*		
Certifications		**CSA**	**IEC**		**CSA**	**IEC**		**CSA**	**IEC**
Voltage Rating	300V AC/DC		500V AC/DC	—			—		
Maximum Current	20 A		24 A	Grounding			Grounding		
Limited Rating - Voltage❄	600V AC/DC		—	—			—		
Limited Rating - Current❄	5 A		—	—			—		
Wire Range (Rated Cross Section)	#26…12 AWG		0.5...2.5 mm²	#26…12 AWG		0.5...2.5 mm²	#26…12 AWG		0.5...2.5 mm²
Wire Strip Length	0.394 in. (10 mm)			0.394 in. (10 mm)			0.394 in. (10 mm)		
Density	59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range	–58…+248 °F (–50…+120 °C)			–58…+248 °F (–50…+120 °C)			–58…+248 °F (–50…+120 °C)		

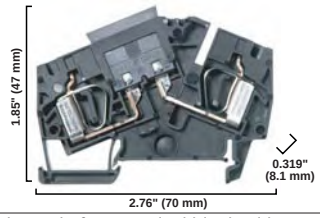
	1492-LD4DF			1492-LD4DR			1492-LD4SS⁎		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*Two-level terminal block with an IN4007 diode in forward bias between the 2 levels.*			*Two-level terminal block with an IN4007 diode in reverse bias between the 2 levels.*			*Two level terminal block with an MOV between the 2 levels.*		
Certifications		**CSA**	**IEC**		**CSA**	**IEC**		**CSA**	**IEC**
Voltage Rating	600V AC/DC		500V AC/DC	600V AC/DC		500V AC/DC	600V AC/DC	600V AC/DC	140V AC/DC
Maximum Current	25 A	30 A	32 A	25 A	30 A	32 A	120V	—	
Component Current/Wattage Rating⁎	1 A			1 A			25 A	30 A	32 A
Wire Range (Rated Cross Section)	#26…10 AWG		4 mm²	#26…10 AWG		4mm²	#26…10 AWG	26…10 AWG	4mm²
Wire Strip Length	0.39 in. (10 mm)			0.39 in. (10 mm)			0.39 in. (10 mm)		
Density	49 pcs/ft (163 pcs/m)			49 pcs/ft (163 pcs/m)			49 pcs/ft (163 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)			–58…+248 °F (–50…+120 °C)		

	1492-LDG3ND			1492-LD3N			1492-LDG3N		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*3-Level terminal block with neutral disconnect and ground connection*			*2-Level feed-through terminal block for installation applications*			*3-Level terminal block with 2 feed-through and ground connection*		
Certifications		**CSA**	**IEC**		**CSA**	**IEC**		**CSA**	**IEC**
Voltage Rating	600V AC/DC	300V AC/DC	400V AC/DC	600V AC/DC	300V AC/DC	400V AC/DC	600V AC/DC	300V AC/DC	400V AC/DC
Maximum Current	15 A	10 A	24 A	15 A	10 A	24 A	15 A	10 A	24 A
Wire Range (Rated Cross Section)	#26…12 AWG		2.5 mm²	#26…12 AWG		2.5 mm²	#26…12 AWG		2.5 mm²
Wire Strip Length	0.31 in. (8 mm)			0.31 in. (8 mm)			0.31 in. (8 mm)		
Density	59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)			59 per ft/196 per meter		
Housing Temperature Range	-58...+248 °F (-50...+120 °C)			-58...+248 °F (-50...+120 °C)			-58...+248°F (-50...+120°C)		

		1492-RFB4…			1492-RAFB4…		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.							
Specifications		*Single-circuit fuse terminal block with or without blown fuse indicator*			*Single-circuit fuse terminal block with or without blown fuse indicator*		
Certifications			**cUR**	**IEC**		**cUR**	**IEC**
Maximum Current		15 A*	15 A*	15 A*	12 A	12 A	12 A
Wire Range (Rated Cross Section)		#22…12 AWG	#22…12 AWG	0.5…4 mm²	#22…12 AWG	#22…12 AWG	0.5…4 mm²
Voltage Rating	RFB4/RAFB4	300V AC/DC		500V AC/DC	300V AC/DC		500V AC/DC
	RFB424/RAFB424	10…57V AC/DC			10…57V AC/DC		
	RFB4250/RAFB4250	85…264V AC			85…264V AC		
Indicator Type	RFB4/RAFB4	Non-indicating			Non-indicating		
	RFB424/RAFB424	LED			LED		
	RFB4250/RAFB4250	LED			LED		
Leakage Current	RFB4/RAFB4	—			—		
	RFB424/RAFB424	2 mA @ 24V			2 mA @ 24V		
	RFB4250/RAFB4250	1 mA @ 264V			1 mA @ 264V		
Fuse Size (Not Supplied)		5 x 20 mm			1/4 x 1 -1/4 in.		
Wire Strip Length		0.47 in. (12 mm)			0.47 in. (12 mm)		
Density		37 pcs/ft (125 pcs/m)			30 pcs/ft (100 pcs/m)		
Insulation Temperature Range		-4…+140 °F (-20…+60 °C)			-4…+221 °F (-40…+105 °C)		

1492-LAFB6

Dimensions are not intended to be used for manufacturing purposes.
Note: Height dimension is measured from top of rail to top of terminal block.

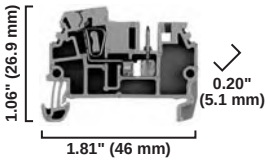


Specifications		*Single-circuit automotive style fuse terminal block with or without LED blown fuse indication*		
Certifications			**CSA**	**IEC**
Voltage Rating	-LAFB6	300V AC/DC		250V AC/DC
	-LAFB624	10…36V AC/DC		
Maximum Current		30 A	25 A	30 A
Wire Range (Rated Cross Section)		#22…12 AWG	#22… 10 AWG	0.5…6 mm^2
Wire Strip Length		0.394 in. (10 mm)		
Density		37 pecs/ft (123 pcs/m)		
Housing Temperature Range		-58…+248 °F (-50…+120 °C)		

Plug-in Connection Blocks

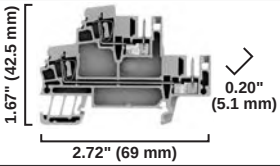
1492-LC3

Dimensions are not intended to be used for manufacturing purposes.
Note: Height dimension is measured from top of rail to top of terminal block.



Specifications	*Feed-through terminal block with plug in comb connection on one side.*		
Certifications		**CSA**	**IEC**
Voltage Rating	300V AC/DC		250V AC/DC
Maximum Current	10 A		16 A
Wire Range (Rated Cross Section)	#26…12 AWG		2.5 mm^2
Wire Strip Length	0.39 in. (10 mm)		
Density	59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)		

1492-LDC3

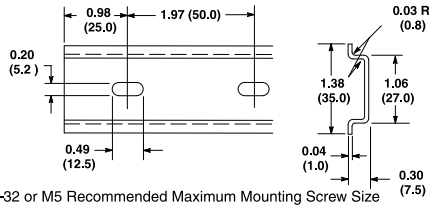
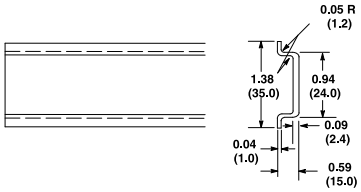
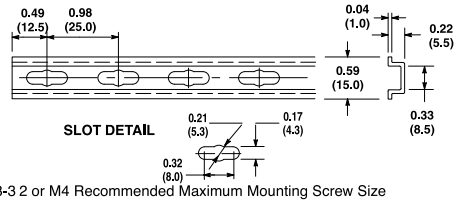
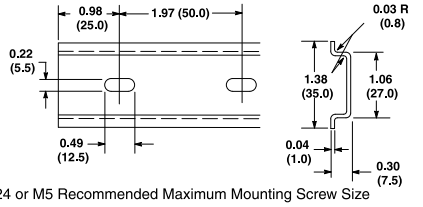
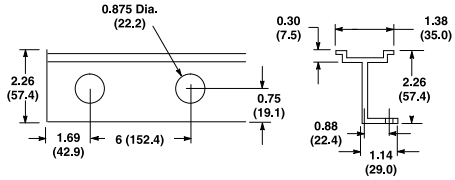
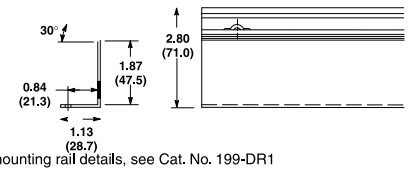
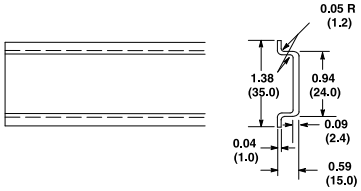
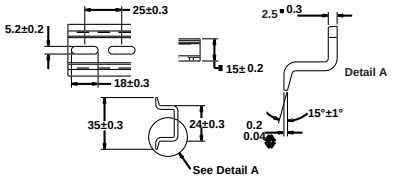


	Two Circuit terminal block with plug in comb connection on one side of each circuit		
Certifications		**CSA**	**IEC**
Voltage Rating	300V AC/DC		250V AC/DC
Maximum Current	10 A		16 A
Wire Range (Rated Cross Section)	#26…14 AWG		2.5 mm^2
Wire Strip Length	0.39 in. (10 mm)		
Density	59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)		

Short-Circuit Current Ratings — Fuse Ratings

Cat. No.	Wire Cu [AWG]		Overcurrent Protection Fuse Required Class/Max. Amp Rating						Maximum Voltage	SCCR, RMS SYM [A]
	Line	Load	J	T	RK1	RK5	G	CC		
1492-L3	14…12	14…12	30	30	—	—	30	30	600	100,000
1492-L3Q										
1492-L3T										
1492-LD3										
1492-L3QS										
1492-LMJ3										
1492-LMJG3										
1492-LKD3										
1492-L3P										
1492-LG3T										
1492-LG3Q										
1492-LG3										
1492-LD3C										
1492-LDG3C										
1492-LDG3										
1492-LC3	14…12	14…12	30	30	—	—	30	30	300	100,000
1492-LDC3										
1492-LDG3P										
1492-LDG3ND										
1492-LDG3N										
1492-LD3N										
1492-LD31P										
1492-LD3Q2P										
1492-LG31P										
1492-LG3T1P										
1492-L3T1P										
1492-LDG3FB										
1492-L4	14…10	14…10	60	60	30	—	30	30	600	100,000
1492-L4Q										
1492-L4T										
1492-LD4										
1492-LD4C										
1492-LG4										
1492-LG4T										
1492-LG4Q										
1492-LD4DFX2										
1492-L6	14…8	14…8	60	60	30	—	60	30	600	100,000
1492-L6T										
1492-LG6										
1492-LG6T										
1492-LAFB6	14…8	14…8	60	60	30	—	60	30	300	100,000
1492-L10	14…6	14…6	100	100	60	30	60	30	600	100,000
1492-LG10										
1492-L16	14…4	14…4	100	100	60	30	60	30	600	100,000
1492-LG16										
1492-L35	12…2	12…2	200	200	100	30	60	30	600	100,000
1492-LG35										

Mounting Rails

Cat. No.	Description	Pkg Qty.	Dimensions★
199-DR1 	Symmetrical Rail 35 mm x 7.5 mm 3.28 ft (1 m) long Zinc-Plated Clear Chromated Steel EN60715 **DIN #3**	10	 #10–32 or M5 Recommended Maximum Mounting Screw Size
199-DR2	Same as Cat. No. 199-DR1, but length = 2 m	20	
199-DR4 	Heavy Duty Symmetrical Rail 35 mm x 15 mm 3.28 ft (1 m) long Zinc-Plated Clear Chromated Steel EN60715 **DIN #3**	5	
1492-DR3 	Mini 15 mm x 5.5 mm Rail 3.28 ft (1 m) long Zinc-Plated Clear Chromated Steel EN60715 **DIN #2**	5	 #8-3 2 or M4 Recommended Maximum Mounting Screw Size
1492-DR5 	Symmetrical Rail 35 mm x 7.5 mm 3.28 ft (1 m) long Copper-Free Aluminum EN60715 For Bul. 1492 Terminal Blocks Only **DIN #3**	10	 #12–24 or M5 Recommended Maximum Mounting Screw Size
‡ **1492-DR6** 	Symmetrical Rail 35 mm x 7.5 mm 2.26 in. (57.4 mm) high 3.28 ft (1 m) long Copper-Free Aluminum For Bul. 1492 Terminal Blocks Only **DIN #3**	2	 Wire insulator plug for wire access through rail — use Heyco UB875
‡ **1492-DR7** 	Symmetrical Rail 35 mm x 7.5 mm 2.80 in. (71.0 mm) high 3.28 ft (1 m) long Angled 30° Zinc-Plated, Chromated Steel **DIN #3**	2	 For mounting rail details, see Cat. No. 199-DR1
1492-DR8 	Symmetrical Rail 35 mm x 15 mm 3.28 ft (1 m) long Copper EN60715 **DIN #3**	5	
§ **1492-DR9** 	Symmetrical Rail 35 mm x 15 mm 3.28 ft (1 m) long Zinc-Plated Clear Chromated Steel EN60715 **DIN #3**	5	

★ Dimensions shown in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.
‡ 0.218 x 0.50 in. (5.5 x 12.7 mm) slotted mounting holes every 3 in. (76.2 mm) starting 1.69 in. (42.9 mm) from end.
§ Dimensions in millimeters.

End Barriers

End barriers are required to provide the necessary insulation for the last terminal block in a group.

Dimensions Width x Length x Height	For Use With	Color	Pkg Qty.	Cat. No.
0.08 x 1.14 x 2.03 in. (2 x 28.9 x 51.5 mm)	1492-L2, LG2	Grey	50	**1492-EBL2**
		Blue	50	**1492-EBL2-B**
		Yellow	50	**1492-EBL2-Y**
0.08 x 1.14 x 2.48 in. (2 x 28.9 x 63 mm)	1492-L2T, LG2T	Grey	50	**1492-EBL2T**
		Blue	50	1492-EBL2T-B
		Yellow	50	**1492-EBL2T-Y**
0.08 x 1.14 x 2.95 in. (2 x 28.9 x 75 mm)	1492-L2Q, LG2Q	Grey	50	**1492-EBL2Q**
		Blue	50	**1492-EBL2Q-B**
		Yellow	50	1492-EBL2Q-Y
0.08 x 1.15 x 2.34 in. (2 x 29.1 x 59.5 mm)	1492-L3, LG3, LKD3, L3P	Grey	50	**1492-EBL3**
		Blue	50	**1492-EBL3-B**
		Yellow	50	**1492-EBL3-Y**
0.08 x 1.20 x 2.54 in. (2 x 30.6 x 64.5 mm)	1492-L3T, LG3T	Grey	50	**1492-EBL3T**
		Blue	50	**1492-EBL3T-B**
		Yellow	50	**1492-EBL3T-Y**
0.08 x 1.20 x 3.11 in. (2 x 30.6 x 79 mm)	1492-L3Q, L3QS, LG3Q	Grey	50	**1492-EBL3Q**
		Blue	50	**1492-EBL3Q-B**
		Yellow	50	**1492-EBL3Q-Y**
0.10 x 1.06 x 2.8 in. (2.5 x 27 x 71 mm)	1492-L31P, 1492-LG31P	Yellow	50	1492-EBL31P-Y
	1492-L3T1P, 1492-LG3T1P	Grey	50	1492-EBL3T1P
		Yellow	50	1492-EBL3T1P-Y
0.08 x 1.20 x 3.11 in. (2 x 30.6 x 79 mm)	1492-L3Q2P	Grey	50	1492-EBL3Q2P
0.10 x 1.76 x 3.17 in. (2.5 X 44.7 x 80.5)	1492-LD32P	Grey	50	1492-EBLD32P
0.08 x 1.37 x 2.44 in. (2 x 34.85 x 62 mm)	1492-L4, LG4	Grey	50	**1492-EBL4**
		Blue	50	**1492-EBL4-B**
		Yellow	50	**1492-EBL4-Y**
0.08 x 1.37 x 3.31 in. (2 x 34.85 x 84 mm)	1492-L4T, LG4T	Grey	50	**1492-EBL4T**
		Blue	50	1492-EBL4T-B
		Yellow	50	1492-EBL4T-Y
0.08 x 1.37 x 4.13 in. (2 x 34.85 x 105 mm)	1492-L4Q, LG4Q	Grey	50	**1492-EBL4Q**
		Blue	50	1492-EBL4Q-B
		Yellow	50	**1492-EBL4Q-Y**
0.08 x 1.45 x 2.56 in. (2 x 36.95 x 65 mm)	1492-L6, LG6	Grey	50	**1492-EBL6**
		Blue	50	1492-EBL6-B
		Yellow	50	**1492-EBL6-Y**
0.08 x 1.45 x 3.54 in. (2 x 36.95 x 90 mm)	1492-L6T, LG6T	Grey	50	**1492-EBL6T**
		Blue	50	1492-EBL6T-B
		Yellow	50	**1492-EBL6T-Y**
0.12 x 1.67 x 2.89 in. (3 x 42.5 x 73.5 mm)	1492-L10, LG10	Grey	20	**1492-EBL10**
		Blue	20	1492-EBL10-B
		Yellow	20	**1492-EBL10-Y**
0.12 x 1.71 x 3.25 in. (3 x 43.5 x 82.5 mm)	1492-L16, LG16	Grey	20	**1492-EBL16**
		Blue	20	1492-EBL16-B
		Yellow	20	**1492-EBL16-Y**
—	1492-LAFB6	Black	50	**1492-EBLAFB6**
0.08 x 1.65 x 2.95 in. (2 x 41.9 x 75 mm)	1492-LD2, LDG2, LD2C, LDG2C	Grey	50	**1492-EBLD2**
		Blue	20	1492-EBLD2-B
		Yellow	20	1492-EBLD2-Y
0.08 x 1.87 x 2.85 in. (2 x 47.5 x 72.5 mm)	1492-LD3, LD3C, LDG3, LDG3C	Grey	20	**1492-EBLD3**
		Blue	20	1492-EBLD3-B
		Yellow	20	**1492-EBLD3-Y**
0.08 x 2.05 x 2.99 in. (2 x 52 x 76 mm)	1492-LD4, LD4C, LDG4, LDG4C, LD4DF, LD4DR, LD4RB…, LD4SS	Grey	20	**1492-EBLD4**
		Blue	20	**1492-EBLD4-B**
		Yellow	20	1492-EBLD4-Y

End Barriers

Dimensions Width x Length x Height	For Use With	Color	Pkg Qty.	Cat. No.
0.20 x 0.94 x 1.31 in. (5.1 x 23.8 x 33.3 mm)	1492-LMP3, LMP3Q	Grey	50	**1492-EBLMP3**
		Blue	50	1492-EBLMP3-B
0.20 x 0.94 x 1.31 in. (5.1 x 23.8 x 33.3 mm)	1492-LM3, LM3Q, LMG3, LMP3E, LMP3QE	Grey	50	**1492-EBLM3**
0.06 x 0.97 x 1.38 in. (1.5 x 24.65 x 35 mm)	1492-LMJ3, LMJG3	Grey	50	**1492-EBLMJ3**
		Blue	50	1492-EBLMJ3-B
		Yellow	50	1492-EBLMJ3-Y
0.06 x 2.32 x 4.35 in. (1.5 x 59 x 110.5 mm)	1492-LTF3	Grey	20	**1492-EBLTF3**
0.06 x 2.69 x 1.77 in. (5 x 68.5 x 45 mm)	1492-LS2-3, LS2-3L, LSG2-3		50	**1492-EBLS2-3**
0.20 x 3.2 x 1.77 in. (5 x 81.5 x 45 mm)	1492-LS2-4, LS2-4L, LSG2-4		50	**1492-EBLS2-4**
0.06 x 1.81 x 3.74 in. (1.5 x 46 x 95 mm)	1492-LDAG3, LDG3P		20	**1492-EBLDAG3**
0.10 x 1.04 x 1.81 in. (2.5 x 26.4 x 46 mm)	1492-LC3		20	**1492-EBLC3**
0.10 x 1.65 x 2.72 in. (2.5 x 41.85 x 69 mm)	1492-LDC3		20	1492-EBLDC3
—	1492-LDG3ND, LD3N, LDG3N	Grey	20	**1492-BSPJLD3N**
—	1492-LDG3ND, LD3N, LDG3N	Blue	20	1492-BSPJLD3N-B

End Anchor/End Retainers

End anchors and end retainers mount at both ends of a group of terminal blocks to add rigidity to the terminal assembly and prevent sliding along the rails.

Photo	Dimensions Width x Length x Height	Tightening Torque	Markers	For Use With	Color	Pkg Qty.	Cat. No.
	0.31 x 2.20 x 1.85 in. (8 x 56 x 47 mm)	4.4 lb•in (0.5 N•m)	1492-M7X12 1492-M8X5	199-DR1, 199-DR2, 1492-DR4, 1492-DR5, 1492-DR6, 1492-DR7, 1492-DR8, 1492-DR9	Grey	100	**1492-EAJ35**
	0.48 x 2.20 x 2.48 in. (12.2 x 56 x 63 mm)	4.4 lb•in (0.5 N•m)	1492-M7X12 1492-M5X5	199-DR1, 199-DR2, 1492-DR4, 1492-DR5, 1492-DR6, 1492-DR7, 1492-DR8, 1492-DR9	Grey	50	**1492-EAHJ35**
	0.31 x 1.06 x 1.06 in. (8 x 27 x 27 mm)	3.5 lb•in (0.9 N•m)	1492-M5X5	1492-DR3	Grey	50	**1492-EAJ15**
	0.24 x 2.19 x 1.63 in. (6 x 55.6 x 41.5 mm)	—	1492-M5X10 1492-M5X5	199-DR1, 199-DR2, 1492-DR4, 1492-DR5, 1492-DR6, 1492-DR7, 1492-DR8, 1492-DR9	Grey	20	**1492-ERL35**
	0.20 x 0.96 x 0.75 in. (5 x 24.5 x 19 mm)	—	1492-M5X10 1492-M5X5	1492-DR3	Grey	20	**1492-ERL15**

Partition Plates and Separation Plates

Partition plates allow visual and electrical separation of terminal groups and provide the necessary electrical spacing between adjacent insulated jumpers or between exposed ends of cut jumpers.

Separation plates consist of flexible thermoplastic material and are used between terminal blocks to isolate adjacent center jumpers both visually and electrically.

Dimensions Width x Length x Height	For Use With	Color	Pkg Qty.	Cat. No.
Partition Plates				
0.118 x 3.15 x 2.48 in. (3 x 80 x 63 mm)	1492-JD3, JD3C, JD3F, JD3DF, JD3DR, JD3RC…, JD3SS	Grey	20	**1492-PPJD3**
0.005 x 3.54 x 2.51 in. (0.13 x 90.1 x 63.8 mm)	1492-JD3P…, JDG3P…	Beige	20	**1492-PPJD3P**
0.08 x 1.57 x 1.20 in. (2 x 40 x 30.5 mm)	1492-WM3, WM4, WMG3, WMG4	Grey	50	**1492-PPM3**
0.014 x 2.28 x 1.51 in. (0.35 x 58 x 38.3 mm)	1492-WMD1	Grey	50	**1492-PPMD1**
0.06 x 1.85 x 1.57 in. (1.5 x 47 x 40 mm)	1492-W3, W4, WG4	Grey	50	**1492-PP3**
0.06 x 2.17 x 1.81 in. (1.5 x 55 x 46 mm)	1492-W6, W10, W16S, W4TW, WG6, WG10S, WG16S	Grey	50	**1492-PP10**
0.014 x 2.88 x 1.85 in. (0.35 x 73.2 x 47.1 mm)	1492-WTF3…, WTS3…	Beige	50	**1492-PPTS3**
0.06 x 1.93 x 2.36 in. (1.5 x 49 x 60 mm)	1492-J3, J4, J6, J10, J2Q, J3TW, J3F, JG2Q, JG3, JG3TW, JKD3, JKD3TP, J3P, J3PTP, JTC3	Grey	20	**1492-EBJ16**
		Blue	20	**1492-EBJ16-B**
		Yellow	20	**1492-EBJ16-Y**
Separation Plates				
.014 x 1.76 x 1.57 in. (0.35 x 44.8 x 40.0 mm)	1492-W3, W4	Beige	50	**1492-SP3**
	All 1492-FPK2 Fuse Plugs	Beige	50	**1492-SPJ3**

Jumpers use the terminal block wire openings. Multi-pole jumpers can be cut into a smaller number of poles. Jumpers carry 100% of rated terminal block current. The back of IEC style jumpers are insulated with plastic. An adjacent partition plate provides the necessary electrical spacings between adjacent jumpers or between exposed ends of cut jumpers.

Center Jumpers — Screw Type

These center jumpers are insulated and are available in 2-…50-pole configurations. They mount with screws into the screw type terminal blocks.

Note: The following rules apply when going across different potentials with jumpers cut out:

- Always de-rate to 400V
- Always use a partition plate where a cut jumper strip may leave a live end exposed

Center Jumpers — Screwless Type

These center jumpers are insulated and are available in 2-…50-pole configurations. They mount without screws into the both Spring-Clamp terminal blocks and some screw terminal blocks.

Note: When using multiple screwless jumpers in 1492-J3, 1492-J2Q, or 1492-J4 terminal blocks, the following rules apply when going across different potentials with jumpers cut out:

- When using all 3 channels, or 2 side-by-side channels, de-rate to 125V
- When using 2 outside channels (leaving the center channel open), de-rate to 400V
- Always use a partition plate where a cut jumper strip may leave a live end exposed

Center Jumper Covers

Center jumper covers can be used as an extruded marking surface for circuit identification.

Center Jumper Configuration Plates

Photo	For Use With	Color	Pkg Qty.	Cat. No.
Center Jumper Spacer Plate				
	1492-L4 to 1492-L3Q, L3 1492-L6 to 1492-L3Q, L3	Grey	25	1492-LJS

Step-Down Distribution Jumpers

Photo	For Use With	Pkg Qty.	Cat. No.
	1492-J35 to 1492-J4 or J6	10	**1492-CJJ16SD68**
	1492-J16 to 1492-J4 or J6	10	**1492-CJJ12SD68**
	1492-J35 to 1492-J3	10	1492-CJJ16SD5
	1492-J16 to 1492-J3	10	1492-CJJ12SD5

Screw Type Center Jumpers

For Use With	Pkg Qty.	Cat. No.
1492-J3, JD3…, JDG3…, J2Q, J3TW, J3F, JD3F	50	**1492-CJJ5-2**
	50	**1492-CJJ5-3**
	50	**1492-CJJ5-4**
	20	**1492-CJJ5-10**
1492-J4, J4M	50	**1492-CJJ6-2**
	50	**1492-CJJ6-3**
	50	**1492-CJJ6-4**
	20	**1492-CJJ6-10**
1492-J6	50	**1492-CJJ8-2**
	50	**1492-CJJ8-3**
	50	**1492-CJJ8-4**
	20	**1492-CJJ8-10**
1492-J10	50	**1492-CJJ10-2**
	50	**1492-CJJ10-3**
	50	**1492-CJJ10-4**
	20	**1492-CJJ10-10**
1492-J16	20	**1492-CJJ12-2**
	20	**1492-CJJ12-3**
	20	**1492-CJJ12-4**
	10	**1492-CJJ12-10**
1492-J35	20	**1492-CJJ16-2**
	20	**1492-CJJ16-3**
	20	1492-CJJ16-4
	10	**1492-CJJ16-10**
1492-J50	10	**1492-CJJ18-2**
	10	1492-CJJ18-3
	10	1492-CJJ18-4
1492-J70	5	1492-CJJ20-2
	5	1492-CJJ20-3
	5	1492-CJJ20-4
1492-WM3	10	**1492-CJM5-2**
	10	**1492-CJM5-3**
	10	1492-CJM5-4
	10	1492-CJM5-5
	10	**1492-CJM5-10**
1492-W3, WM3, WR3, WTF3…, WTS3…	10	**1492-CJL5** (Link)
1492-WR3	5	**1492-CJD5-50**
	10	**1492-CJD5-2**
	10	**1492-CJD5-3**
	10	1492-CJD5-4
	10	1492-CJD5-5
	10	**1492-CJD5-10**

Note: Notching out one or more jumper poles, with the notched jumpers going across different potentials, will require de-rating to 400V.

For Use With	Pkg Qty.	Cat. No.
1492-WM4	5	**1492-CJD6-50**
	10	**1492-CJD6-2**
	10	**1492-CJD6-3**
	10	1492-CJD6-4
	10	1492-CJD6-5
	10	**1492-CJD6-10**
1492-WM4, W4TW	10	1492-CJLD6 (Link)
1492-W3	10	**1492-CJ5-2**
	10	**1492-CJ5-3**
	10	**1492-CJ5-10**
	20	**1492-CJCW5** (CJ Cover)★
1492-WTF3…, WTS3…	5	**1492-CJT5-50**
	10	**1492-CJT5-2**
	10	1492-CJT5-3
	10	1492-CJT5-4
	10	1492-CJT5-5
	10	**1492-CJT5-10**
1492-W4, W4TW	5	**1492-CJ6-50**
	10	**1492-CJ6-2**
	10	**1492-CJ6-3**
	10	**1492-CJ6-4**
	10	**1492-CJ6-5**
	10	**1492-CJ6-10**
1492-W4	10	**1492-CJL6** (Link)
1492-W4, W6, W10	20	**1492-CJCW6** (CJ Cover)
1492-W6	5	**1492-CJ7-40**
	10	**1492-CJ7-2**
	10	**1492-CJ7-3**
	10	**1492-CJ7-4**
	10	1492-CJ7-5
	10	**1492-CJ7-10**
1492-W6	10	1492-CJL7 (Link)
1492-W10	5	**1492-CJ8-40**
	10	**1492-CJ8-2**
	10	**1492-CJ8-3**
	10	1492-CJ8-4
	10	1492-CJ8-5
	10	**1492-CJ8-10**
1492-W10	10	**1492-CJL8** (Link)
1492-W16S	10	**1492-CJS11-2**
	10	**1492-CJS11-3**
	10	1492-CJS11-4
	10	**1492-CJS11-5**
	10	**1492-CJS11-10**

★ May only be used as a marking surface. May not be installed over center jumper.

Screwless Center Jumpers

For Use With	Color	Pkg Qty.	Cat. No.
1492-L2..., L2T, L2Q, LD2, LD2C	Yellow	60	**1492-CJL4-2**
		60	**1492-CJL4-3**
		60	**1492-CJL4-4**
		60	**1492-CJL4-5**
		20	**1492-CJL4-10**
1492-LM3, LC3, LDC3, LDAG3, LDG3P, JKD3..., J3P..., J3, J3TW (see Note)	Yellow	60	**1492-CJLJ5-2**
	Black	60	1492-CJLJ5-2-BL
	Yellow	60	**1492-CJLJ5-3**
	Yellow	60	**1492-CJLJ5-4**
		20	**1492-CJLJ5-5**
		20	**1492-CJLJ5-6**
		20	**1492-CJLJ5-7**
		20	**1492-CJLJ5-8**
		20	1492-CJLJ5-9
		20	**1492-CJLJ5-10**
	Red	20	**1492-CJLJ5-10-R**
	Black	20	**1492-CJLJ5-10-BL**
	Yellow	10	**1492-CJLJ5-50**
	Red	10	**1492-CJLJ5-50-R**
	Blue	10	1492-CJLJ5-50-B
	Black	10	**1492-CJLJ5-50-BL**
	White	10	**1492-CJLJ5-50-W**

For Use With	Pkg Qty.	Cat. No.
1492-RFB4	10	1492-CJR8-2
	10	1492-CJR8-3
	10	1492-CJR8-4
	10	1492-CJR8-5
	10	1492-CJR8-6
	10	1492-CJR8-7
	10	1492-CJR8-8
	10	1492-CJR8-9
	10	**1492-CJR8-10**
1492-RAFB4	10	1492-CJRA10-2
	10	1492-CJRA10-3
	10	1492-CJRA10-4
	10	1492-CJRA10-5

For Use With	Color	Pkg Qty.	Cat. No.
1492-J4, J4M (see Note)	Yellow	60	**1492-CJLJ6-2**
	Red	60	1492-CJLJ6-2-R
	Blue	60	1492-CJLJ6-2-B
	Black	60	1492-CJLJ6-2-BL
	Yellow	60	**1492-CJLJ6-3**
	Blue	60	1492-CJLJ6-3-B
	Black	60	1492-CJLJ6-3-BL
	Yellow	60	**1492-CJLJ6-4**
	Yellow	20	**1492-CJLJ6-10**
	Red	20	**1492-CJLJ6-10-R**
	Blue	20	**1492-CJLJ6-10-B**
	Black	20	**1492-CJLJ6-10-BL**
	Yellow	10	**1492-CJLJ6-41**
	Red	10	**1492-CJLJ6-41-R**
	Blue	10	1492-CJLJ6-41-B
	Black	10	1492-CJLJ6-41-BL
1492-L6, L6T, L16D	Yellow	60	**1492-CJL8-2**
		60	**1492-CJL8-3**
		60	**1492-CJL8-4**
		10	**1492-CJL8-32**
1492-L10	Yellow	25	**1492-CJL10-2**
1492-L16	Yellow	25	**1492-CJL12-2**
1492-L35	Yellow	10	**1492-CJL16-2**
1492-L3, L3T, L3Q, L3P, LD3, LD3C, LKD3, LTF3, LS2..., L16D	Yellow	60	**1492-CJK5-2**
		60	**1492-CJK5-3**
		60	**1492-CJK5-4**
		20	**1492-CJK5-5**
		20	**1492-CJK5-6**
		20	**1492-CJK5-7**
		20	**1492-CJK5-8**
		20	**1492-CJK5-9**
		20	**1492-CJK5-10**
		10	**1492-CJK5-50**
1492-L4, L4T, L4Q, LD4DF, LD4DR, LD4SS, LD4, LD4C, L16D	Yellow	60	**1492-CJK6-2**
		60	**1492-CJK6-3**
		60	**1492-CJK6-4**
		20	**1492-CJK6-5**
		20	**1492-CJK6-6**
		20	1492-CJK6-7
		20	**1492-CJK6-8**
		20	1492-CJK6-9
		20	**1492-CJK6-10**
		20	**1492-CJK6-20**

Side Jumpers

For Use With	Pkg Qty.	Cat. No.
1492-WM4, W4	50	**1492-N42**
1492-H4, H5, H6, H7	10	**1492-N49**
	10	★ **1492-SJS**
1492-W3, WR3	10	**1492-SJ5-10**
1492-JD3, JD3C, JD3F, JDG3, JD3DF, JD3DR, JD3SS, JDG3P	50	**1492-SJ5A-10**
1492-JD3, JD3C, JD3F, JDG3, JD3DF, JD3DR, JD3SS, JDG3P	50	**1492-SJ5A-24**
1492-JD3, JD3C, JD3F, JDG3, JD3DF, JD3DR, JD3SS, JDG3P	50	**1492-SJ5B-24**
1492-JD3, JD3C, JD3F, JDG3, JD3DF, JD3DR, JD3SS, JDG3P	50	**1492-SJ5B-10**
1492-WM4, W4, W4TW	10	‡ **1492-SJ6-10**
1492-JT3M	5	**1492-SJ6A-50**
1492-W10	10	**1492-SJ8-10**
1492-JD3FB, JDG3FB	50	**1492-SJ8A-4**
1492-JD3FB, JDG3FB	50	1492-SJ8A-3
1492-JD3FB, JDG3FB	50	1492-SJ8A-2
1492-LMP3, LMP3Q, LMJ3, LM3, LM3Q, LMP3E, LMP3QE	50	**1492-SJLM5-2**
1492-WMD1	10	§ **1492-SJMD5-12**
1492-WFB4, WFB424, WFB4250	10	**1492-SJFB8-10**
1492-WM3	10	**1492-SJM5-10**
1492-WTF3, WTS3, WTF3LP, WTS3LP, WTF3LP, WTF3LN, WTS3LN	10	**1492-SJT5-20-R**
1492-WTF3, WTS3, WTF3LP, WTS3LP, WTF3LP, WTF3LN, WTS3LN	10	**1492-SJT5-20-B**

Note: Side jumpers carry the same current rating as the terminal block used with it

★ Side jumper insulating sleeve only for use with Cat. No. 1492-N49

‡ Use jumper on single side of terminal block only

§ Uninsulated

Two-Level Jumper

For Use With	Pkg Qty.	Cat. No.
1492-LTF3 (Connects Two Levels within a 1492-LTF3 Terminal Block)	20	**1492-CJL5D**

Plugs and Other Accessories

Test plug sockets fit into the center bridge screw hole and allow easy connection of test plugs for circuit testing and troubleshooting.

Test Plugs — Spring-Clamp Terminal Blocks

2-…12-pole Quick Connection Euro style plugs.

Operating Instructions — Spring-Clamp Terminal Blocks

Cat. No. 1492-QCLABEL is an adhesive set of visual operating instructions that is intended for installation on the inside of a panel. It illustrates to maintenance personnel the correct operation of Spring-Clamp terminal blocks.

Insulation Stops — Spring-Clamp Terminal Blocks

Protective insulation stops prevent the insulation on conductors from being introduced into clamp and current bar area.

Test Plug Sockets, Test Plugs, Test Plug Adapters, and Test Adapters

Sockets★

Photo	Pkg Qty.	Cat. No.
	20	**1492-TPS23**
	50	**1492-TPS23L**
	50	1492-TPS4L

★ Required for testing Cat. No. 1492-J products with Cat. 1492-TP23 or 1492-TP40 test plugs.

Test Plugs

Photo	Pkg Qty.		Cat. No.
	20	‡	**1492-TP23**
	20	§	**1492-TP40**
	10	♣	**1492-TP28**
	25	♣	1492-TPCBM
	25	♣	1492-TPCMB

‡ Used in conjunction with Cat. No. 1492-TPS23 or 1492-TPS23L test sockets.
§ Used in conjunction with Cat. No. 1492-TPS4L socket.
♣ Used in conjunction with Cat. No. 1492-J4CTB terminal block.

Test Plug Adapters

Photo	Pkg Qty.	Cat. No.
	10	**1492-TA285**
	10	**1492-TA40**
	10	1492-TA40L
	25	1492-TPL5P

Test Plugs (Stackable)

Photo	Markers♣	Pkg Qty.	Cat. No.
	1492-M5X10, M5X5	25	**1492-TPJ5**
	1492-M5X10, M5X5	25	**1492-TPJ6**
	1492-M3X12, M3X5	25	**1492-TPL4**
	1492-M5X10, M5X5	25	**1492-TPL5**
	1492-M5X10, M5X5	25	1492-TPL6
	1492-M5X10, M5X5	25	1492-TPL8

♣ Marker cover screws.

Photo	Description	For Use With	Pkg Qty.	Cat. No.
	Jumper Notching Tool‡	1492-CJ…	1	**1492-T1**
	Unused Pin Cover on Connection Blocks	1492-JC3, JDC3	20	**1492-PCJC3**
	Disconnect Plug	1492-L3P, J3P…, JD3P…, JDG3P…, LD3R…	50	**1492-DPL**
	Plug-In Component Plug	1492-L3P, J3P…, JD3P…, JDG3P…, LD3R…	50	**1492-CPL**
 	Fuse Plug — without Blown Fuse Indication	1492-L3P, J3P…, JD3P..., JDG3P..., JP3, JPKD3, JPGKD3, JPGKD3TP, LD3R…, JP3FB..., JPG3FB...	20	Δ **1492-FPK2**
	Fuse Plug — 10…36V Blown Fuse Indication		20	Δ **1492-FPK224**
	Fuse Plug — 35…70V Blown Fuse Indication		20	Δ 1492-FPK248
	Fuse Plug — 60…150V Blown Fuse Indication		20	Δ **1492-FPK2120**
	Fuse Plug — 140…250V Blown Fuse Indication		20	Δ **1492-FPK2250**
	Fuse Lever — without indication	1492-JP3FB, JPG3FB, JPKD3, JPGKD3, JPGKD3TB	50	**1492-FJPK2**
	Fuse Lever w/LED — 10…36V		50	**1492-FJPK224**
	Fuse Lever w/LED — 35…70V		50	1492-FJPK248
	Fuse Lever w/LED — 60…150V		50	**1492-FJPK2120**
	Fuse Lever w/LED — 140…250V		50	**1492-FJPK2250**
	Mini-Block Jumper Insertion Tool§	1492-LM	1	1492-TAL5-2
	DIN Rail Adapter Plate for LMP3 Mini-Blocks	1492-LMP3	50	1492-MFLM
	Auxiliary Circuit Tap	1492-J50	5	1492-J50A
		1492-J70	5	**1492-J70A**
		1492-J120	5	1492-J120A
	Terminal Block screwdriver with hardened 3 mm diameter blade (Handle made from recycled material)	All 5…6 mm wide terminal blocks	5	**1492-N90**
	Wire cutting tool designed to attach directly to the shaft of the Cat. No. 1492-N90 screwdriver	1492-N90	1	**1492-KWC**

‡ Used to trim poles from center jumpers and side jumpers.
§ Used to install Cat. No. 1492-SJLM5-2 in mini blocks.
Δ Use 5 x 20 mm fuses and are rated for AC and DC.

Plug-In and Sensor Connection Blocks

Plug-In Connection Blocks ★

Photo	Wire Range	For Use With	Pkg Qty.	Cat. No.
	#22…12 AWG (2.5 mm²)	1492-JC3, JDC3, LC3, LDC3	100	**1492-QP5-2**
			100	**1492-QP5-3**
			100	**1492-QP5-4**
			50	**1492-QP5-5**
			50	**1492-QP5-6**
			50	1492-QP5-7
			50	**1492-QP5-8**
			50	**1492-QP5-9**
			50	**1492-QP5-10**
			50	1492-QP5-11
			50	**1492-QP5-12**

★ Tightening Torque: 3.5…4.4 lb•in. (0.4…0.5 N•m)

Sensor Connection Blocks

Photo	Wire Range	For Use With	Color	Pkg. Qty.	Cat. No.
	#26…14 AWG (1.5 mm²)	1492-LS2-3, LS2-3L, LSG2-3, LS2-4, LS2-4L, LSG2-4	Brown	100	**1492-LS2-BR**
			Blue	100	**1492-LS2-B**
			Green	100	**1492-LSG2**

Plug-In Connectors and Accessories for Flexible Configuration Blocks

Photo	Description	Color	Pkg. Qty.	Cat. No.
Individual Plug-in Connectors				
	Standard	Grey	50	1492-STP
	Grounded	Green	50	1492-STP-G
Ganged Connectors				
	Start plug	Grey	50	1492-SBSTP
	Middle plug	Grey	50	1492-GSTP
	End plug	Grey	50	1492-EBSTP
Accessories				
	Plug-in block locking element	Yellow	25	1492-STPLE
	Coding Element for keyed configuration	Yellow	50	1492-STPCE
	Strain Relief covering w plug-in blocks	Yellow	25	1492-STPSR

DIN Rail Receptacle

Convenient 15 A or 20 A power source designed to be installed in panels that will be used in North America and other locations that use the NEMA 5-15 socket (125V, 50/60 Hz).

Photo	Device Rating	Pkg Qty.	Cat. No.
Standard Duplex			
	15 A	1	**1492-REC15**
	20 A	1	1492-REC20
Ground Fault Circuit Interrupter (GFCI)			
	15 A	1	**1492-REC15G**
	20 A	1	**1492-REC20G**

Electrical Ratings			
		Standard Duplex	Ground Fault Circuit Interrupter (GFCI)
Certifications		c UL us LISTED	
		UL 508A, NEMA WD-6, NEMA 5-15R	
		UL498	UL 498, UL 943
Device Rating	15 A	15 Amp 125V	
	20 A	20 Amp 125V	
Operating Frequency		50/60 Hz	
Dielectric Voltage		Withstands 2000V per UL498	Withstands 1500V per UL498
Short-Circuit Current Rating		10 kA	10 kA
Environmental Ratings			
Operating Temperature Range		–31…+140 °F (–35…+60 °C)	
Storage Temperature Range		–13…+176 °F (–25…+80 °C)	
Mechanical Ratings			
Terminal Wire Sizes		#20…#10 AWG solid or stranded	
Terminal Torque		7 lb• in. (.79 N•m)	
Markers		1492-MS10X17	

Marking Solutions

Marking Solutions from Rockwell Automation enable efficient identification of terminal blocks and other components. The Allen-Bradley ClearMark™ Printer provides quality printing for high-volume users. The X-Y Plotter allows for flexible marking. Low-volume marking needs are supported by pre-printed and custom markers.

ClearMark Printer and Accessories

The ClearMark Printer provides quality printing in an easy-to-use format for high-volume marking needs. Used with AllenBradley ClearTools™ software, customers can create markers with basic numbering to sequences and images.

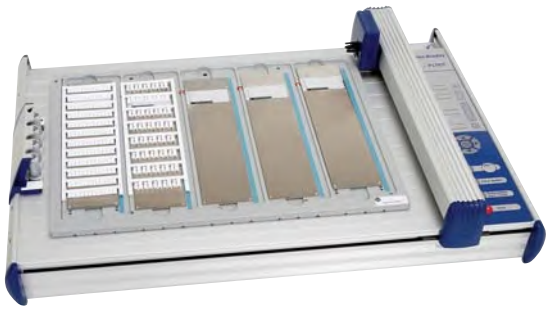
- Fast: Less than two minutes to print and set a full card
- Easy: Integrated feeder for up to 20 marker cards
- Low-maintenance: Will automatically cycle as needed to keep ink flowing
- Quality printing: 600 or 1200 dpi
- Color printing: Use spot color printing on white marker cards for visual distinction

System Requirements

- Operating system: Microsoft Windows 2000, XP or Vista
- Memory: 64 MB RAM
- Hard drive: 90 MB available space
- Processor: Pentium III or comparable
- Graphics: 800x600 pixels with 256 colors (ideal 1024x768 with 16-bit high color)

X-Y Plotter and Accessories

The flexible marking tool of the Allen-Bradley terminal block product line is the X-Y Plotter.



- Plot partial marker cards
- Load up to five cards at a time (mix and match)
- Easy to use AB-Plot software

System Requirements

- Operating system: Microsoft Windows 98, 2000, XP, or Vista
- Hard drive: 50 MB available space
- Processor: 80486
- Parallel or USB communication port

Blank Markers

Photo	For Use With	Markers per Card	Marker Size	Pkg Qty.	Cat. No.
Snap-In Individual Markers 1492-M	1492-L	100	3 x 5 mm	5	**1492-M3X5**
	1492-L	120	3 x 12 mm	5	**1492-M3X12**
	1492-J, L	200	5 x 5 mm	5	**1492-M5X5**
		144	5 x 8 mm	5	**1492-M5X8**
		144	5 x 10 mm	5	**1492-M5X10**
		144	5 x 12 mm	5	**1492-M5X12**
		96	5 x 15 mm	5	**1492-M5X15**
		20	5 x 30 mm	5	‡ **1492-M5X30**
	1492-J, L	200	6 x 5 mm	5	**1492-M6X5**
		120	6 x 10 mm	5	**1492-M6X10**
	1492-J, L, 1738 ArmorPoint™	120	6 x 12 mm	5	**1492-M6X12**
	1492-J, L	108	7 x 12 mm	5	**1492-M7X12**
		160	8 x 5 mm	5	**1492-M8X5**
	NEMA (1492-HM1, -HM2, -HM3) Terminal Blocks, 1492-CB Circuit Breakers	120	6 x 10 mm	5	**1492-MN81**
	NEMA (1492-HM3) Terminal Blocks, 1492-CB Circuit Breakers	40	10 x 10 mm	5	**1492-MN83**
	1492-W,R, 700-HA Relays	56	8 x 9 mm	5	**1492-MS8X9**
		56	8 x 12 mm	5	**1492-MS8X12**
	700-HN204, -HN205, Relay Sockets	40	8 x 17 mm	5	1492-MS8X17
	1667 PanelConnect™	40	9 x 20 mm	5	**1492-MS9X20**
	100-C, -D Contactors, 700-CF Relays, 140 Circuit Breakers, 193-E1, -E3	40	10 x 17 mm	5	**1492-MS10X17**
Snap-In Linked Markers 1492-MR	1492-J, -L	120	5 x 8 mm	5	**1492-MR5X8**
		120	6 x 8 mm	5	**1492-MR6X8**
		120	5 x 12 mm	5	**1492-MR5X12**
		120	6 x 12 mm	5	**1492-MR6X12**
		84	8 x 12 mm	5	**1492-MR8X12**
	1492-WM3, -WMD1	80	5 x 5 mm	5	**1492-MS5X5**
	1492-W, 700-HA, 800F Contact Block	80	5 x 9 mm	5	**1492-MS5X9**
	1492-W, 700-H Relays	80	5 x 12 mm	5	**1492-MS5X12**
	1492-W, -R, 700-H Relays	80	6 x 9 mm	5	**1492-MS6X9**
	1492-W, 700-H Relays	80	6 x 12 mm	5	**1492-MS6X12**
Snap-In Hinged Markers	1492-L	96	5 x 10 mm	5	**1492-MH5X10**
		96	5 x 15 mm	5	**1492-MH5X15**
		80	6 x 12 mm	5	**1492-MH6X12**
Cable Markers 1492-MW	**External Diameter (mm)**	**Markers per Card**	**Marker Size**	**Pkg. Qty.**	**Cat. No.**
	from 0.276 in. (from 7.0 mm)	32	9 x 24 mm★	5	**1492-MW9X24**
	from 0.276 in. (from 7.0 mm)	32	5 x 23 mm★	5	1492-MW10X23
	from 0.276 in. (from 7.0 mm)	32	8 x 23 mm★	5	1492-MW14X23
	from 0.276 in. (from 7.0 mm)	12	11 x 44 mm★	5	**1492-MW11X60**
	0.162…0.193 in. (41…4.9 mm)	32	5 x 21 mm§	5	1492-MW5-21
	0.185…0.229 (0.268) in. (4.7…5.8 [6.8] mm)	32	6 x 21 mm§	5	1492-MW6-21
	0.229…0.276 (0.335) in. (5.8…7.0 [8.5] mm)	32	7 x 21 mm§	5	1492-MW7-21

★ Requires cable ties.
‡ Requires Cat. No. 1492-GMC
§ Requires Cat. No. 1492-PLOTPLTA

Marking Systems

Blank Markers, Continued

Photo	For Use With	Markers per Card	Marker Size	Pkg Qty.	Cat. No.
Self-Adhesive Markers 1492-MAS 	Self-adhesive for any equipment	40	9 x 17 mm	5	**1492-MAS9X17**
	Bul. No. relays, self-adhesive for any equipment	40	6 x 15 mm	5	**1492-MAS6X15**
	1760-PICO GFX-70 Cont., self-adhesive for any equipment	40	9 x 11 mm	5	1492-MAS9X11
Wire Markers 1492-MWC	0.059…0.098 in. (2.0…3.5 mm)/White	40	4.25 x 21 mm	5	1492-MWC1-21
	0.078…0.138 in. (2.0…5.0 mm)/White	40	4.25 x 21 mm	5	1492-MWC3-21
	0.098…0.197 in. (2.0…5.0 mm)/White	24	6 x 21 mm	5	1492-MWC4-21
	0.059…0.098 in. (1.5…2.5 mm)/White	40	4.25 x 12 mm	5	**1492-MWC1-12**
	0.078…0.138 in. (2.0…3.5 mm)/White	40	4.25 x 12 mm	5	**1492-MWC3-12**
	0.098…0.197 in. (2.0…5.0 mm)/White	24	6 x 12 mm	5	**1492-MWC4-12**
Snap-In Individual Markers for Rockwell Automation products and Competitive Terminal BLocks 1492-MC	Wago	100	4 x 9 mm	5	1492-MCW4X9
	Phoenix, Entrlec, Telemacanique, Legrand	120	5 x 8 mm	5	**1492-MC5X8**
	Wieland and Telemecanique	100	5 x 12 mm	5	1492-MC5X12
	Wago	100	5 x 9 mm	5	**1492-MCW5X9F**
	Wago	100	5 x 9 mm	5	1492-MCW5X5
	Wago	100	5 x 5 mm	5	1492-MCW6X9
	Phoenix	100	4 x 5 mm	5	**1492-MC4X5**
	Bul. No. 1492-FB fuse holder and Phoenix	100	5 x 5 mm	5	**1492-MC5X5**
	Bul. No. 1492-FB fuse holder and Phoenix	100	6 x 5 mm	5	**1492-MC6X5**
	Bul. No. 700-HL relays, and Phoenix, Wieland, Entrelec, Telemacanique, Legrand	120	6 x 10 mm	5	**1492-MC6X10**
	Phoenix and Entrelec	100	8 x 10 mm	5	**1492-MC6X10**
	Phoenix	100	7 x 5 mm	5	1492-MC7X5
	Phoenix	100	5 x 4 mm	5	1492-MC5X4
	Siemens	64	7 x 10 mm	5	1492-MCS7X10
	Siemens	64	6 x 10 mm	5	1492-MCS6X10
	Siemens	80	5 x 10 mm	5	**1492-MCS5X10**
	Siemens	64	7 x 7 mm	5	1492-MCS7X7
	Siemens	80	5 x 8 mm	5	1492-MCS5X8
	Siemens	64	6 x 8 mm	5	1492-MCS6X8

1492 Pre-Printed Markers

Pre-printed markers are packaged in quantities of 5 with a minimum order quantity of 5 cards.

Catalog Number Explanation

1492 – M5x10 H 1-100

a *b* *c*

a

Marker Selection		
Code		
M3x5	MS6X9	MCS6X8
M3x12	MS6X12	MC6X10
M5x5	MS8X9	MCW1-12
M5x8	MS8X12	MCW3-12
M5x10	MS9X20	MCW4-12
M5x12	MS8X17	MAS9X17
M5x15	MS10X17	MAS6X15
M5X30	MC5X8	MAS9X11
M6x5	MC5X10	MW9X24
M6x10	MC5X12	MW10X23
M6x12	MCW4X9	MW14X23
M7x12	MCW5X9	MW11X60
M8x5	MCW5X9F	MW5-21
MR5X8	MCW5X5	MW6-21
MR6X8	MCW6X9	MW7-21
MR5X12	MC4X5	MWC1-21
MR6X12	MC5X5	MWC3-21
MR8x12	MC6X5	MWC4-21
MH5X10	MC8X10	MWC1-12B
MH5X15	MC7X5	MWC1-12R
MH6X12	MC5X4	MCW1-12Y
MMN81	MCS7X10	MWC3-12B
MN83	MCS5X10	MWC3-12R
MS5x5	MCS6X10	MWC3-12Y
MS5x9	MCS7X7	MWC4-12B
MS5X12	MCS5X8	MWC4-12R
		MWC4-12Y

b

Text Direction	
Code	Description
H	Horizontal Print
V	Vertical Print
HU	Horizontal Upside-down Print
VU	Vertical Upside-down Print
HR	Horizontal Print, reversed data for each column
VR	Vertical Print, reversed data for each column
HUR	Horizontal Upside-down Print, reversed data for each column
VUR	Vertical Upside-down Print, reversed data for each column
C	Custom

c

Printing Selection	
Straight Fill Printing	
Option 1-End will start at 1 and continue printing sequential numbers until the end of the card is reached.	
1-End	Sequential printing to end of card
L	Continuous printing "L" on card
L1	Continuous printing "L1" on card
L2	Continuous printing "L2" on card
L3	Continuous printing "L3" on card
U	Continuous printing "U" on card
V	Continuous printing "V" on card
W	Continuous printing "W" on card
PE	Continuous printing "PE" on card
GND	Continuous printing "GND" on card
Repeat Sequence Printing	
All Options in this section will print the defined sequence in a repeating fashion until all tags are filled. (Example - Option 1-100 with a marker selection of M5x10 will print 1-100 and 1-44.)	
1-10 -or- 11-20 -or- 21-30 -or- … -or- 491-500	Block of 10 sequential numbering. Blocks of 10 within a range from 1…500.
1-20 -or- 21-40 -or- 41-60 -or- … -or- 481-500	Block of 20 sequential numbering. Blocks of 20 within a range from 1…500.
1-50 -or- 51-100 -or- 101-150 -or- … -or- 451-500	Block of 50 sequential numbering. Blocks of 50 within a range from 1…500.
1-100 -or- 101-200 -or- … -or- 401-500	Block of 100 sequential numbering. Blocks of 100 within a range from 1…500.
Single Sequence Printing	
All options in this section will print the defined sequence 1 time only and will leave the rest of the marker tags blank. (Example - Option 1-100S with a marker selection of M5x10 will print 1-100 and leave 44 blank markers).	
1-10S -or- 11-20S -or- 21-30S -or- … -or- 491-500S	Block of 10 sequential numbering. Blocks of 10 within a range from 1…500.
1-20S -or- 21-40S -or- … -or- 481-500S	Block of 20 sequential numbering. Blocks of 20 within a range from 1…500.
1-50S -or- 51-100S -or- … -or- 451-500S	Block of 50 sequential numbering. Blocks of 50 within a range from 1…500.
1-100S -or- 101-200S -or- … -or- 401-500S	Block of 100 sequential numbering. Blocks of 100 within a range from 1…500.

Custom Printed Marker Cards

1. Download and install Clear Tools software available at http://ab.rockwellautomation.com/Terminal-Blocks/Marker-Printer#/tab4
   http://ab.rockwellautomation.com/Terminal-Blocks/Marker-Printer#/tab4

2. Create your custom marker card using the ClearTools software and save your file.

3. Place the custom order by adding the letter **"C"** to the end of the marker cat. no. (Example: If the custom marker that was created in Step 2 is Cat. No. 1492-M6X12, an order will be placed with the new Cat. No. 1492-M6X12**C**.) Then, document the order number for Step 4.

4. E-mail the custom marker file to **RAMilwCustomMarkers@ra.rockwell.com.** Include the following items:
   - Allen Bradley order number (in the subject of the e-mail)
   - Created file (attached to the e-mail)
   - Quantity (the number of needed copies of the file)
   - Company information (with a contact name and number in the e-mail)

Note: Minimum quantity is 1 card per order.

	Description	Pkg Qty.	Cat. No.
	End anchor top marker carrier	50	**1492-GMC**

Electrical Warning Plate Markers

Photo	For Use With	Color	Pkg Qty.	Cat. No.
  	1492-J	Yellow	25	**1492-EWPJ5**
	1492-J	Yellow	50	**1492-EWPJ8**
	1492-J	Yellow	50	1492-EWPJ12
	1492-J	Yellow	50	1492-EWPJ18
	1492-L	Yellow	20	**1492-EWPL5**
	1492-L	Yellow	20	1492-EWPL6
	1492-L	Yellow	20	1492-EWPL8
	1492-L	Yellow	20	1492-EWPL10
	1492-L	Yellow	20	1492-EWPL12
	1492-L	Yellow	20	1492-EWPL16
	1492-L	Yellow	20	1492-EWPL4
	1492-W	Yellow	10	1492-EWP5
	1492-W	Yellow	10	1492-EWP5-4
	1492-W	Yellow	10	1492-EWP6-4
	1492-W	Yellow	10	1492-EWP7
	1492-W	Yellow	10	1492-EWP7-4
	1492-W	Yellow	10	1492-EWP8
	1492-W	Yellow	10	1492-EWP8-4
	1492-W	Yellow	10	1492-EWP11
	1492-W	Yellow	10	1492-EWP11-4

Tie Point Terminal Blocks — Type JD3C, LD2C, LD3C, and LD4C

The total current flow through these terminal blocks (the sum of all inputs or the sum of all outputs) must not exceed the rated current for the device.

Description		Type	Rating
Maximum total current flow through the terminal block		LD2C	10 A
		JD3C, LD3C	20 A
		LD4C	25 A
Maximum working voltage		LD2C	300V
		JD3C, LD3C, LD4C	600V
Ambient temperature range	Operating	All	-4…+104 °F (-20…+40 °C)
	Storage	All	-40…+167 °F (-40…+75 °C)

Diode Terminal Blocks — Type JD3DR, JD3DF, LD4DF, and LD4DRΔ

Description		Symbol	Type	Rating
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage		V (RRM) V (RWM) V (R)	JD3DF, JD3DR, LD4DF, LD4DR	600V
Non-Repetitive Peak Reverse Voltage (Halfwave, single phase, 60 Hz)		V (RSM)	JD3DF, JD3DR, LD4DF, LD4DR	600V
RMS Reverse Voltage ‡		V (Rrms)	JD3DF, JD3DR, LD4DF, LD4DR	600V
Average Rectified Forward Current Single Phase, Resistive Load, 60 Hz		I (O)	All	1.0 A
Non-Repetitive Peak Surge Current (Surge applied at rated load)		I (FSM)	All	30 A (1 cycle)
Maximum Forward Voltage Drop [I (F) = 1.0 A]		V (F)	All	1.1V
Maximum Reverse Current		I (R)	All	10 µA
Ambient temperature range	Operating	T (A)	All	-4…+104 °F (-20…+40 °C)
	Storage	T (S)	All	-40…+167 °F (-40…+75 °C)

All parameters measured at 77 °F (25 °C).

Δ Performance Data — See this catalog, page Important-3. Performance data given in this catalog is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of accelerated testing at elevated stress levels and the user should correlate it to actual application requirements. Actual performance is subject to Allen-Bradley WARRANTY and LIMIT OF LIABILITY.

‡ The maximum voltage rating of the diode terminal blocks listed in the above table should not be exceeded even though the maximum reverse voltage rating of the diode alone is 1000V.

Surge Suppressor Performance Characteristics and Electrical Component DataΔ

Surge Suppressor Terminal Blocks	
Performance Characteristic	Cat. No. JD3SS, JD3PSS, JD3SSTP, JDG3PSS, JDG3PSSTP, LD4SS
Nominal Working Voltage (Volts AC or DC)	120
Maximum AC Working Voltage RMS Continuous (60 Hz)	140
Maximum DC Working Voltage Continuous	180
Maximum Clamping Voltage at Current I_p (8/20 µs Pulse)	360V I_p = 10 A
Maximum Voltage Rate of Rise Bulletin 100 Contactors Types A38…B180 Bulletin 500 Contactors & Starters, Size 0…5 Bulletin 700 Relays	—
Peak Current (8/20 µs Pulse)	1200 A
Typical Leakage Current at Nominal AC Working Voltage	< 0.1 mA
Metal Oxide Varistor (MOV) Maximum Clamping Voltage at Current Ip (8/20 µs Pulse) Maximum Transient Energy Maximum Power Dissipation	 10 J 0.25 W

Technical Specifications for Fuse Plugs♣

Characteristic	1492-FPK2	1492-FPK224	1492-FPK248	1492-FPK2120	1492-FPK2250
Indicator Type	Non-Indicating	LED	LED	LED	LED
Leakage Current	—	1.6 mA @ 24V	1.6 mA @ 24V	1.6 mA @ 24V	1.6 mA @ 264V
Working Voltage	Per Fuse Rating	10…36V AC/DC	35…70V AC/DC	60…150V AC/DC	140…250V AC
Fuse Size	5 x 20 mm				
Marker	1492-M5X5				

♣ IEC standards for 5 x 20 mm fuses do not include ratings above 6.3 A.

UL/CSA File and Guide Numbers Arranged by Base Cat. Nos.

Base Cat. No.	UL Number§		CSA Number	
	File	Guide	File	Class
1492-H4, -H5, -H6, -H7	E40735	XCFR2	LR67896	622801
1492-R	E40735 E187022	XCFR2 XCIB2 XCFR8	—	—
1492-RG	E160646 E40735 E187022	KDER2 XCFR2 XCIB2	—	—
1492-UF3	E40735	XCFR2	LR67896	622801
1492-W	E40735 E187022	XCFR2 XCIB2	LR67896 LR14074	622801 622801
1492-WG	E40735 E187022	XCFR2 XCIB2	LR67896 LR14074	622801 622801
1492-J	E40735	XCFR2 XCIB2	223923	622801 622801
1492-JG	E40735 E187022	XCFR2 XCIB2	223923	622801 622801
1492-L	E40735 E187022	XCFR2 XCIB2	223923	622801 622801
1492-LG	E40735 E187022	XCFR2 XCIB2	223923	622801 622801

§ These numbers are actually UL file and guide numbers, as these products are UL Recognized Components per Canadian Safety Standards (cUR).

Terminal Block Specifications

Cat. No.	Wire Size [AWG]																		
	#30	#28	#26	#24	#22	#20	#18	#16	#14	#12	#10	#8	#6	#4	#2	#1	1/0	2/0	3/0
	(0.05)	(0.08)	(0.13)	(0.21)	(0.33)	(0.5)	(0.75)	(1.5)	(2.5)	(4)	(6)	(10)	(16)	(25)	(35)	(40)	(50)	(70)	(80)
	Number of the Same Size Wires Per Terminal																		
1492-CA1	—	—	—	—	4	4	4	3	2	2	1	1	—	—	—	—	—	—	—
1492-CAM1	—	—	—	—	4	4	4	3	2	2	1	1	—	—	—	—	—	—	—
1492-H4	1	1	1	1	4	4	3	2	2	1	1	—	—	—	—	—	—	—	—
1492-H5	1	1	1	1	4	4	3	2	2	1	1	—	—	—	—	—	—	—	—
1492-H6	1	1	1	1	4	4	3	2	2	1	1	—	—	—	—	—	—	—	—
1492-H7	1	1	1	1	4	4	3	2	2	1	1	—	—	—	—	—	—	—	—
1492-HM3	—	—	—	—	4	4	4	3	2	2	1	1	—	—	—	—	—	—	—
1492-J10	—	—	—	—	4	4	4	4	3	2	1	1	1	—	—	—	—	—	—
1492-J16	—	—	—	—	—	—	1	4	4	3	2	1	1	1	—	—	—	—	—
1492-J2Q	—	—	4	4	4	3	1	1	1	1	—	—	—	—	—	—	—	—	—
1492-J3	4	4	4	4	4	4	3	3	2	1	—	—	—	—	—	—	—	—	—
1492-J35	—	—	—	—	—	—	—	—	3	3	3	2	2	1	1	1	1	—	—
1492-J3F	4	4	4	4	4	4	3	3	2	1	—	—	—	—	—	—	—	—	—
1492-J3P	4	4	4	4	3	3	3	3	2	1	—	—	—	—	—	—	—	—	—
1492-J3TW (single side)	4	4	4	4	4	4	3	3	2	1	—	—	—	—	—	—	—	—	—
1492-J3TW (twin side)	—	—	4	4	4	3	1	1	1	—	—	—	—	—	—	—	—	—	—
1492-J4	—	—	—	—	4	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-J4CTB	—	—	1	1	4	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-J4Q	1	1	1	1	1	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-J4TW	1	1	1	1	1	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-J50	—	—	—	—	—	—	—	—	—	—	1	2	2	1	1	1	1	—	—
1492-J6	—	—	—	—	4	4	3	3	3	2	1	1	—	—	—	—	—	—	—
1492-J6FB2	—	—	—	—	4	4	3	3	3	2	1	1	—	—	—	—	—	—	—
1492-J6FB224	—	—	—	—	4	4	3	3	3	2	1	1	—	—	—	—	—	—	—
1492-J6FB248	—	—	—	—	4	4	3	3	3	2	1	1	—	—	—	—	—	—	—
1492-J6FB2120	—	—	—	—	4	4	3	3	3	2	1	1	—	—	—	—	—	—	—
1492-J6FB2250	—	—	—	—	4	4	3	3	3	2	1	1	—	—	—	—	—	—	—
1492-J6FB1	—	—	—	—	4	4	3	3	3	2	1	1	—	—	—	—	—	—	—
1492-J6FB124	—	—	—	—	4	4	3	3	3	2	1	1	—	—	—	—	—	—	—
1492-J6FB148	—	—	—	—	4	4	3	3	3	2	1	1	—	—	—	—	—	—	—
1492-J6FB1120	—	—	—	—	4	4	3	3	3	2	1	1	—	—	—	—	—	—	—
1492-J6FB1250	—	—	—	—	4	4	3	3	3	2	1	1	—	—	—	—	—	—	—
1492-J70	—	—	—	—	—	—	—	—	5	5	5	2	2	2	1	1	1	1	1

Maximum number of multiple wire connections for copper conductors of the same cross-section and type for Allen-Bradley IEC Terminal Blocks.
Cat. Nos. 1492-L products are all recommended for one conductor per terminal. Wire range is defined in the cat. page for each of the products.

	Wire Size [AWG]																		
	#30	#28	#26	#24	#22	#20	#18	#16	#14	#12	#10	#8	#6	#4	#2	#1	1/0	2/0	3/0
	(0.05)	(0.08)	(0.13)	(0.21)	(0.33)	(0.5)	(0.75)	(1.5)	(2.5)	(4)	(6)	(10)	(16)	(25)	(35)	(40)	(50)	(70)	(80)
Cat. No.	Number of the Same Size Wires Per Terminal																		
1492-JC3	—	—	4	4	4	3	1	1	1	1	—	—	—	—	—	—	—	—	—
1492-JD3	4	4	4	4	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-JD3C	4	4	4	4	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-JD3DF	4	4	4	4	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-JD3DR	4	4	4	4	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-JD3F	4	4	4	4	4	4	3	1	1	1	—	—	—	—	—	—	—	—	—
1492-JD3FB	4	4	4	4	4	4	3	3	2	1	—	—	—	—	—	—	—	—	—
1492-JD3PSS	—	—	—	—	4	4	3	2	1	1	—	—	—	—	—	—	—	—	—
1492-JD3PSSTP	—	—	—	—	4	4	3	2	1	1	—	—	—	—	—	—	—	—	—
1492-JD3PTP	—	—	—	—	4	4	3	2	1	1	—	—	—	—	—	—	—	—	—
1492-JD3RB***	4	4	4	4	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-JD3RC001	4	4	4	4	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-JD3SS	4	4	4	4	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-JD4	—	—	1	1	1	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-JD4C	—	—	1	1	1	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-JDC3	4	4	4	4	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-JDG3	4	4	4	4	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-JDG3C	4	4	4	4	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-JDG3FB	4	4	4	4	4	4	3	3	2	1	—	—	—	—	—	—	—	—	—
1492-JDG3P	—	—	—	—	4	4	3	2	1	1	—	—	—	—	—	—	—	—	—
1492-JDG3PSS	—	—	—	—	4	4	3	2	1	1	—	—	—	—	—	—	—	—	—
1492-JDG3PSSTP	—	—	—	—	4	4	3	2	1	1	—	—	—	—	—	—	—	—	—
1492-JDG3PTP	—	—	—	—	4	4	3	2	1	1	—	—	—	—	—	—	—	—	—
1492-JDG4	—	—	1	1	4	4	3	3	2	1	1	Multiple wire values valid only for upper connectors of terminal block.							—
1492-JDG4C	—	—	1	1	4	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-JG10	—	—	—	—	4	4	4	4	3	2	1	1	1	—	—	—	—	—	—
1492-JG16	—	—	4	4	4	4	4	4	1	3	2	1	1	1	—	—	—	—	—
1492-JG2Q	—	—	4	4	4	3	1	1	1	—	—	—	—	—	—	—	—	—	—
1492-JG3	4	4	4	4	4	4	3	3	2	1	—	—	—	—	—	—	—	—	—
1492-JG35	—	—	—	—	—	—	—	—	3	3	3	2	2	1	1	1	—	—	—
1492-JG3TW single side)	4	4	4	4	4	4	1	1	1	1	—	—	—	—	—	—	—	—	—
1492-JG3TW twin side)	—	—	4	4	4	3	1	1	1	1	—	—	—	—	—	—	—	—	—

Terminal Block Specifications

Cat. No.	Wire Size [AWG]																		
	#30	#28	#26	#24	#22	#20	#18	#16	#14	#12	#10	#8	#6	#4	#2	#1	1/0	2/0	3/0
	(0.05)	(0.08)	(0.13)	(0.21)	(0.33)	(0.5)	(0.75)	(1.5)	(2.5)	(4)	(6)	(10)	(16)	(25)	(35)	(40)	(50)	(70)	(80)
	Number of the Same Size Wires Per Terminal																		
1492-JG4	—	—	—	—	4	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-JG4Q	1	1	1	1	4	4	3	3	3	2	1	—	—	—	—	—	—	—	—
1492-JG4TW	1	1	1	1	4	4	3	3	3	2	1	—	—	—	—	—	—	—	—
1492-JG50	—	—	—	—	—	—	—	—	—	—	1	2	2	1	1	1	1	—	—
1492-JG6	—	—	—	—	4	4	3	3	3	2	1	1	—	—	—	—	—	—	—
1492-JG70	—	—	—	—	—	—	—	—	5	5	5	2	2	2	1	1	1	1	—
1492-JKD3	4	4	4	4	3	3	3	3	2	1	—	—	—	—	—	—	—	—	—
1492-JKD3TP	4	4	4	4	3	3	3	3	2	1	—	—	—	—	—	—	—	—	—
1492-JKD4	—	—	—	—	4	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-JKD4Q	1	1	1	1	1	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-JKD4QTP	1	1	1	1	1	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-JKD4TP	—	—	—	—	4	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-JKD4TW	1	1	1	1	1	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-JKD4TWTP	1	1	1	1	1	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-JP3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1492-JP3FB	—	—	1	1	1	1	1	1	2	1	—	—	—	—	—	—	—	—	—
1492-JP3FB24	—	—	1	1	1	1	1	1	2	1	—	—	—	—	—	—	—	—	—
1492-JP3FB48	—	—	1	1	1	1	1	1	2	1	—	—	—	—	—	—	—	—	—
1492-JP3FB120	—	—	1	1	1	1	1	1	2	1	—	—	—	—	—	—	—	—	—
1492-JP3FB250	—	—	1	1	1	1	1	1	2	1	—	—	—	—	—	—	—	—	—
1492-JPG3	—	—	1	1	1	1	1	1	2	1	—	—	—	—	—	—	—	—	—
1492-JPG3FB	—	—	1	1	1	1	1	1	2	1	—	—	—	—	—	—	—	—	—
1492-JPG3FB24	—	—	1	1	1	1	1	1	2	1	—	—	—	—	—	—	—	—	—
1492-JPG3FB48	—	—	1	1	1	1	1	1	2	1	—	—	—	—	—	—	—	—	—
1492-JPG3FB120	—	—	1	1	1	1	1	1	2	1	—	—	—	—	—	—	—	—	—
1492-JPG3FB250	—	—	1	1	1	1	1	1	2	1	—	—	—	—	—	—	—	—	—
1492-JPGKD3	—	—	1	1	1	1	1	1	2	1	—	—	—	—	—	—	—	—	—
1492-JPGKD3TP	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1492-JPKD3	—	—	1	1	1	1	1	1	2	1	—	—	—	—	—	—	—	—	—
1492-JPO	—	—	4	—	1	1	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-JSD4	—	—	1	1	4	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-JT3M	4	4	4	4	4	4	3	3	2	1	—	—	—	—	—	—	—	—	—
1492-W10	—	—	—	—	4	4	4	4	3	2	1	1	—	—	—	—	—	—	—
1492-W16S	—	—	—	—	—	—	—	—	4	3	2	2	1	1	—	—	—	—	—
1492-W3	4	—	—	—	4	4	3	2	1	—	—	—	—	—	—	—	—	—	—
1492-W4	—	—	—	—	4	4	3	2	2	1	1	—	—	—	—	—	—	—	—
1492-W6	—	—	—	—	4	4	3	2	2	1	1	—	—	—	—	—	—	—	—
1492-WD4	—	—	—	—	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-WD4C	—	—	—	—	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-WG4	—	—	—	—	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-WG6	—	—	—	—	4	4	4	4	3	2	1	—	—	—	—	—	—	—	—
1492-WM3	4	—	—	—	4	3	2	1	1	—	—	—	—	—	—	—	—	—	—
1492-WM4	—	—	—	—	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-WMD1	—	—	—	—	2	1	1	1	—	—	—	—	—	—	—	—	—	—	—
1492-WMG4	—	—	—	—	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-WR3	—	—	—	—	4	4	3	2	1	—	—	—	—	—	—	—	—	—	—
1492-WTF3	—	—	4	4	4	4	3	2	1	—	—	—	—	—	—	—	—	—	—
1492-WTF3LN	—	—	4	4	4	4	3	2	1	—	—	—	—	—	—	—	—	—	—
1492-WTF3LP	—	—	4	4	4	4	3	2	1	—	—	—	—	—	—	—	—	—	—
1492-WTS3	—	—	4	4	4	4	3	2	1	—	—	—	—	—	—	—	—	—	—
1492-WTS3LN	—	—	4	4	4	4	3	2	1	—	—	—	—	—	—	—	—	—	—
1492-WTS3LP	—	—	4	4	4	4	3	2	1	—	—	—	—	—	—	—	—	—	—

Δ Performance Data — See this catalog, page Important- 3.
Performance data given in this catalog is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of accelerated testing at elevated stress levels and the user should correlate it to actual application requirements. Actual performance is subject to Allen-Bradley WARRANTY and LIMIT OF LIABILITY.

IEC Terminal Block SpecificationsΔ

Tie Point Terminal Blocks — Type JD3C, LD2C, LD3C, and LD4C

The total current flow through these terminal blocks (the sum of all inputs or the sum of all outputs) must not exceed the rated current for the device.

Description		Type	Rating
Maximum total current flow through the terminal block		LD2C	10 A
		JD3C, LD3C	20 A
		LD4C	25 A
Maximum working voltage		LD2C	300V
		JD3C, LD3C, LD4C	600V
Ambient temperature range	Operating	All	-4…+104 °F (-20…+40 °C)
	Storage	All	-40…+167 °F (-40…+75 °C)

Diode Terminal Blocks — Type JD3DR, JD3DF, LD4DF, and LD4DRΔ

Description		Symbol	Type	Rating
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage		V (RRM) V (RWM) V (R)	JD3DF, JD3DR, LD4DF, LD4DR	600V
Non-Repetitive Peak Reverse Voltage (Halfwave, single phase, 60 Hz)		V (RSM)	JD3DF, JD3DR, LD4DF, LD4DR	600V
RMS Reverse Voltage ‡		V (Rrms)	JD3DF, JD3DR, LD4DF, LD4DR	600V
Average Rectified Forward Current Single Phase, Resistive Load, 60 Hz		I (O)	All	1.0 A
Non-Repetitive Peak Surge Current (Surge applied at rated load)		I (FSM)	All	30 A (1 cycle)
Maximum Forward Voltage Drop [I (F) = 1.0 A]		V (F)	All	1.1V
Maximum Reverse Current		I (R)	All	10 µA
Ambient temperature range	Operating	T (A)	All	-4…+104 °F (-20…+40 °C)
	Storage	T (S)	All	-40…+167 °F (-40…+75 °C)

All parameters measured at 77 °F (25 °C).

Δ Performance Data — See this catalog, page Important-3. Performance data given in this catalog is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of accelerated testing at elevated stress levels and the user should correlate it to actual application requirements. Actual performance is subject to Allen-Bradley WARRANTY and LIMIT OF LIABILITY.

‡ The maximum voltage rating of the diode terminal blocks listed in the above table should not be exceeded even though the maximum reverse voltage rating of the diode alone is 1000V.

Surge Suppressor Performance Characteristics and Electrical Component DataΔ

Surge Suppressor Terminal Blocks	
Performance Characteristic	Cat. No. JD3SS, JD3PSS, JD3SSTP, JDG3PSS, JDG3PSSTP, LD4SS
Nominal Working Voltage (Volts AC or DC)	120
Maximum AC Working Voltage RMS Continuous (60 Hz)	140
Maximum DC Working Voltage Continuous	180
Maximum Clamping Voltage at Current I_p (8/20 µs Pulse)	360V I_p = 10 A
Maximum Voltage Rate of Rise Bulletin 100 Contactors Types A38…B180 Bulletin 500 Contactors & Starters, Size 0…5 Bulletin 700 Relays	—
Peak Current (8/20 µs Pulse)	1200 A
Typical Leakage Current at Nominal AC Working Voltage	< 0.1 mA
Metal Oxide Varistor (MOV) Maximum Clamping Voltage at Current Ip (8/20 µs Pulse) Maximum Transient Energy Maximum Power Dissipation	 10 J 0.25 W

Technical Specifications for Fuse Plugs♣

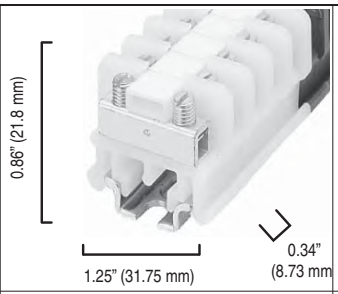
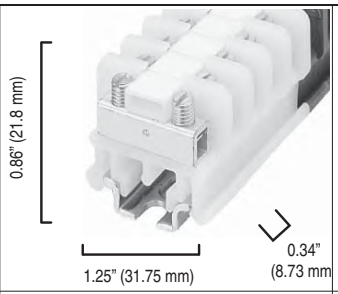
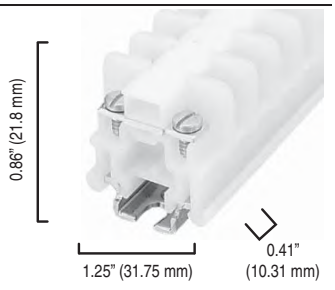
Characteristic	1492-FPK2	1492-FPK224	1492-FPK248	1492-FPK2120	1492-FPK2250
Indicator Type	Non-Indicating	LED	LED	LED	LED
Leakage Current	—	1.6 mA @ 24V	1.6 mA @ 24V	1.6 mA @ 24V	1.6 mA @ 264V
Working Voltage	Per Fuse Rating	10…36V AC/DC	35…70V AC/DC	60…150V AC/DC	140…250V AC
Fuse Size	5 x 20 mm				
Marker	1492-M5X5				

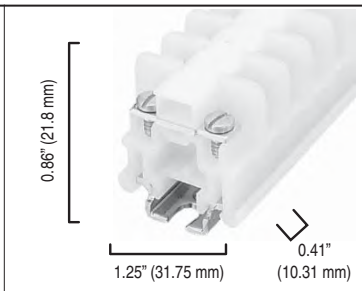
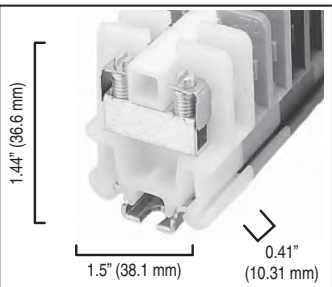
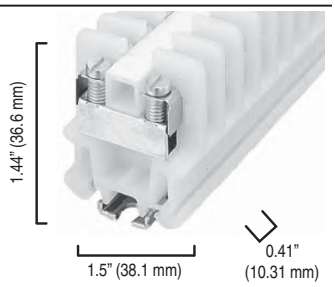
♣ IEC standards for 5 x 20 mm fuses do not include ratings above 6.3 A.

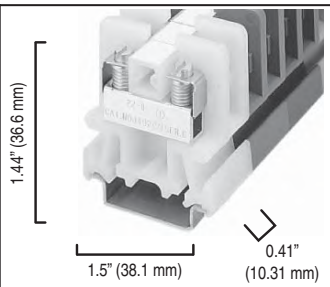
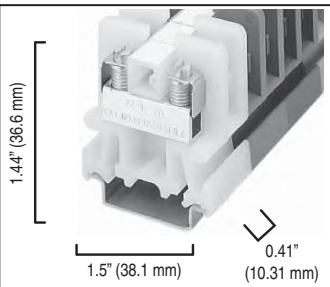
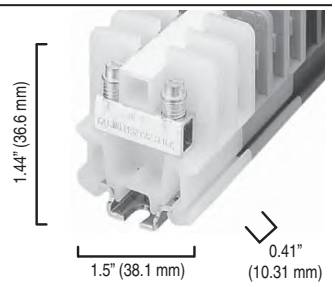
UL/CSA File and Guide Numbers Arranged by Base Cat. Nos.

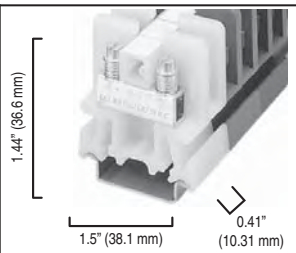
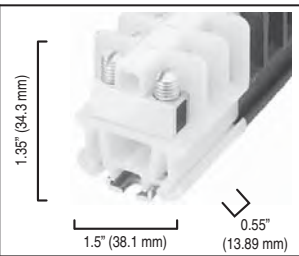
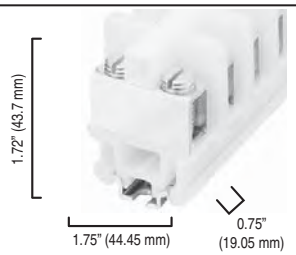
Base Cat. No.	UL Number§		CSA Number	
	File	Guide	File	Class
1492-H4, -H5, -H6, -H7	E40735	XCFR2	LR67896	622801
1492-R	E40735 E187022	XCFR2 XCIB2 XCFR8	—	—
1492-RG	E160646 E40735 E187022	KDER2 XCFR2 XCIB2	—	—
1492-UF3	E40735	XCFR2	LR67896	622801
1492-W	E40735 E187022	XCFR2 XCIB2	LR67896 LR14074	622801 622801
1492-WG	E40735 E187022	XCFR2 XCIB2	LR67896 LR14074	622801 622801
1492-J	E40735	XCFR2 XCIB2	223923	622801 622801
1492-JG	E40735 E187022	XCFR2 XCIB2	223923	622801 622801
1492-L	E40735 E187022	XCFR2 XCIB2	223923	622801 622801
1492-LG	E40735 E187022	XCFR2 XCIB2	223923	622801 622801

§ These numbers are actually UL file and guide numbers, as these products are UL Recognized Components per Canadian Safety Standards (cUR).

	1492-F1	1492-F2	1492-F3
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.			
Specifications	***Terminal block, tubular screw with pressure plate.***	***Terminal block, tubular screw without pressure plate.***	***Terminal block, screw terminal with #6 screw.***
Certifications	/CSA	/CSA	/CSA
Voltage Rating	300V AC/DC	300 V AC/DC	300 V AC/DC
Maximum Current	25 A	25 A	25 A
Wire Range (Rated Cross Section)	#22…#14 AWG (0.5…2.5 mm^2)	#22…#14 AWG (0.5…2.5 mm^2)	#22…#14 AWG (0.5…2.5 mm^2)
Wire Strip Length	0.38 in. (9.7 mm)	0.38 in. (9.7 mm)	Prepared Conductors Only
Recommended Tightening Torque	4…10 lb•in (0.5…1.1 N•m)	6…10 lb•in (0.7…1.1 N•m)	6…10 lb•in (0.7…1.1 N•m)
Density	35 pcs/ft (115 pcs/m)	35 pcs/ft (115 pcs/m)	30 pcs/ft (98 pcs/m)
Insulation Temperature Range	–40…+221 °F (–40…+105 °C)	–40…+221 °F (–40…+105 °C)	–40…+221 °F (–40…+105 °C)

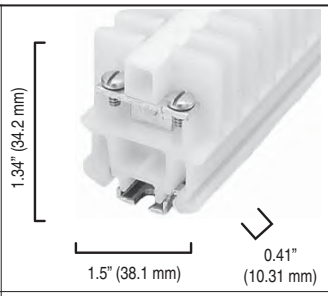
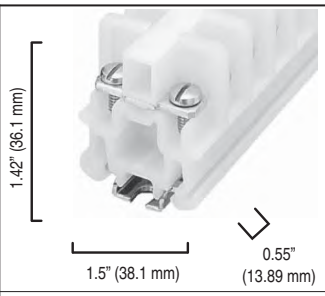
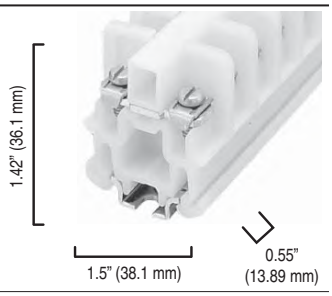
	1492-F8	1492-CA1	1492-CA1L
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.			
Specifications	***Terminal block, screw terminal with wire clamp.***	***Terminal block, tubular screw with pressure plate.***	***Terminal block, screw with large head, pressure plate.***
Certifications	/CSA	/CSA	/CSA
Voltage Rating	300V AC/DC	600V AC/DC	600V AC/DC
Maximum Current	25 A	55 A	55 A
Wire Range (Rated Cross Section)	#22…#14 AWG (0.5…2.5 mm^2)	#22…#8 AWG (0.5…10 mm^2)	#22…#8 AWG (0.5…10 mm^2)
Wire Strip Length	0.25 in. (6.4 mm)	0.38 in. (9.7 mm)	0.38 in. (9.7 mm)
Recommended Tightening Torque	6…14 lb•in (0.7…1.6 N•m)	8…16 lb•in (0.9…1.8 N•m)	8…16 lb•in (0.9…1.8 N•m)
Density	30 pcs/ft (98 pcs/m)	30 pcs/ft (98 pcs/m)	30 pcs/ft (98 pcs/m)
Insulation Temperature Range	–40…+221 °F (–40…+105 °C)	–40…+221 °F (–40…+105 °C)	–40…+221 °F (–40…+105 °C)

	1492-CAM1	1492-CAM1L	1492-CA2
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.			
Specifications	***Terminal block, tubular screw with pressure plate, multi-rail mountable.***	***Terminal block, screw with large head, pressure plate, multi-rail mountable.***	***Terminal block, tubular screw without pressure plate.***
Certifications	cULus/CSA	cULus/CSA	cULus/CSA
Voltage Rating	600V AC/DC	600V AC/DC	600V AC/DC
Maximum Current	55 A	55 A	55 A
Wire Range (Rated Cross Section)	#22…#8 AWG (0.5…10 mm^2)	#22…#8 AWG (0.5…10 mm^2)	#18…#8 AWG (1…10 mm^2)
Wire Strip Length	0.38 in. (9.7 mm)	0.38 in. (9.7 mm)	0.38 in. (9.7 mm)
Recommended Tightening Torque	8…16 lb•in (0.9…1.8 N•m)	8…16 lb•in (0.9…1.8 N•m)	10…16 lb•in (1.1…1.8 N•m)
Density	30 pcs/ft (98 pcs/m)	30 pcs/ft (98 pcs/m)	30 pcs/ft (98 pcs/m)
Insulation Temperature Range	–40…+221 °F (–40…+105 °C)	–40…+221 °F (–40…+105 °C)	–40…+221 °F (–40…+105 °C)

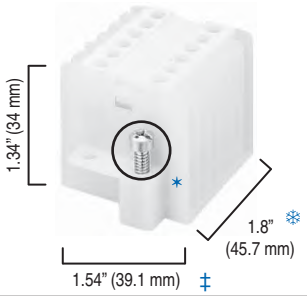
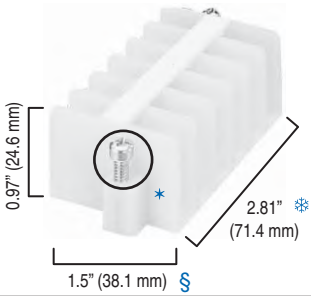
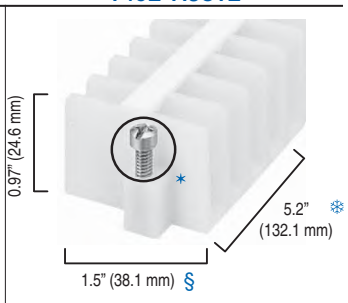
	1492-CAM2	1492-CD2	1492-CE2
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.			
Specifications	***Terminal block, tubular screw without pressure plate, multi-rail mountable.***	***Terminal block, tubular screw without pressure plate.***	***Terminal block, tubular screw without pressure plate.***
Certifications	cULus/CSA	cULus/CSA	cULus/CSA
Voltage Rating	600V AC/DC	600V AC/DC	600V AC/DC
Maximum Current	55 A	100 A	195 A
Wire Range (Rated Cross Section)	#18…#8 AWG (1…10 mm^2)	#14…#4 AWG (2.5…25 mm^2)	#12…#1/0 AWG (4…50 mm^2)
Wire Strip Length	0.38 in. (9.7 mm)	0.44 in. (11.2 mm)	0.69 in. (17.5 mm)
Recommended Tightening Torque	10…16 lb•in (1.1…1.8 N•m)	22…30 lb•in (2.5…3.4 N•m)	50 lb•in (5.6 N•m)
Density	30 pcs/ft (98 pcs/m)	22 pcs/ft (72 pcs/m)	16 pcs/ft (52 pcs/m)
Insulation Temperature Range	–40…+221 °F (–40…+105 °C)	–40…+221 °F (–40…+105 °C)	–40…+221 °F (–40…+105 °C)

Short-Circuit Current Ratings — Fuse Ratings

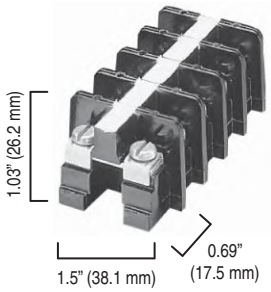
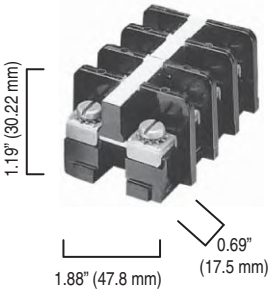
Cat. No.	Wire CU AWG		Overcurrent Protection Fuse Required Class/Max. Amp Rating						Maximum Voltage	SCCR, RMS SYM [A]
	Line	Load	J	T	RK1	RK5	G	CC		
1492-CAM1	14…8	14…8	60	60	30	—	50	30	600	100,000
1492-CD2	14…4	14…4	100	100	60	30	60	30	600	100,000
1492-CE2	12…1/0	12...1/0	100	100	60	30	60	30	600	100,000

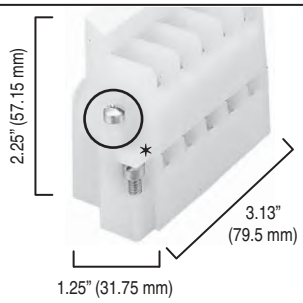
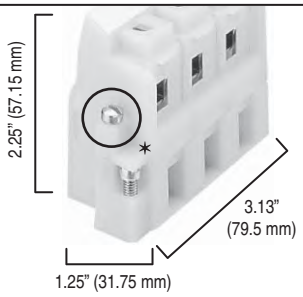
	1492-CA3	1492-CD3	1492-CD8
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.			
Specifications	***Terminal block, screw terminal with #6 screw.***	***Terminal block, screw terminal with #8 screw.***	***Terminal block, screw terminal with wire clamp.***
Certifications	/CSA	/CSA	/CSA
Voltage Rating	600V AC/DC	600V AC/DC	600V AC/DC
Maximum Current	20 A	35 A	35 A
Wire Range (Rated Cross Section)	#22…14 AWG (0.5…2.5 mm^2)	#22…10 AWG (0.5…6 mm^2)	#22…10 AWG (0.5…6 mm^2)
Wire Strip Length	Prepared Conductors Only★	Prepared Conductors Only★	0.38 in. (9.7 mm)
Recommended Tightening Torque	12 lb•in (1.4 N•m)	10…16 lb•in (1.1…1.8 N•m)	10…16 lb•in (1.1…1.8 N•m)
Density	30 pcs/ft (98 pcs/m)	22 pcs/ft (72 pcs/m)	22 pcs/ft (72 pcs/m)
Insulation Temperature Range	–40…+221 °F (–40…+105 °C)	–40…+221 °F (–40…+105 °C)	–40…+221 °F (–40…+105 °C)

★ Prepared conductors utilize ring, spade, or hook connectors.

	1492-HC6	1492-HJ86	1492-HJ812
Dimensions are not intended to be used for manufacturing purposes.			
Specifications	**High-density 6-pole panel mount terminal block. Can be interconnected to make 12- and 18-pole units.**	**Standard 6-pole panel mount block. Screw terminal with wire clamp.**	**Standard 12-pole panel mount block. Screw terminal with wire clamp.**
Certifications	/CSA	/CSA	/CSA
Voltage Rating	600V AC/DC	600V AC/DC	600V AC/DC
Maximum Current (per pole)	25 A	25 A	25 A
Wire Range (Rated Cross Section)	#30…#12 AWG (0.05…4 mm^2)	#16…#12 AWG (1.5…4 mm^2)	#16…#12 AWG (1.5…4 mm^2)
Wire Strip Length	0.38 in. (9.7 mm)	0.38 in. (9.7 mm)	0.38 in. (9.7 mm)
Recommended Tightening Torque	3…7 lb•in (0.3…0.8 N•m)	8…16 lb•in (0.9…1.8 N•m)	8…16 lb•in (0.9…1.8 N•m)
Insulation Temperature Range	–40…+221 °F (–40…+10 5°C)	–40…+221 °F (–40…+105 °C)	–40…+221 °F (–40…+105 °C)

★ #8-32 screw.
‡ Measurement between mounting screw centers.
§ Mounting screws are offset 0.31 in. (7.9 mm) from centerline.
♣ Mounting screws are offset 0.19 in. (4.76 mm) from centerline.

	1492-15T	1492-25T
Dimensions are not intended to be used for manufacturing purposes.		
Specifications	High temperature 1-pole panel mount block, wire clamp. Gangable for multi-pole installation.	High temperature 1-pole panel mount block, wire clamp. Gangable for multi-pole installation.
Voltage Rating	600V AC/DC	600V AC/DC
Maximum Current (per pole)	35 A	45 A
Wire Range (Rated Cross Section)	#16…12 AWG (1.5…4 mm^2)	#16…10 AWG (1.5…6 mm^2)
Wire Strip Length	0.38 in. (9.7 mm)	0.38 in. (9.7 mm)
Recommended Tightening Torque	10…16 lb•in (1.1…1.8 N•m)	10…16 lb•in (1.1…1.8 N•m)
Insulation Temperature Range	–40…+300 °F (–40…+149 °C)	–40…+300 °F (–40…+149 °C)

	1492-EC85	1492-ED103
Dimensions are not intended to be used for manufacturing purposes.		
Specifications	5-pole terminal block. Pulls apart to disconnect all poles from the circuit.	3-pole terminal block. Pulls apart to disconnect all poles from the circuit.
Certifications (See page 12-3)	/CSA	/CSA
Voltage Rating	600V AC/DC	600V AC/DC
Maximum Current (per pole)	25 A	60 A
Wire Range (Rated Cross Section)‡	#20…12 AWG (0.75…4 mm^2)	#14…4 AWG (2.5…25 mm^2)
Wire Strip Length	0.38 in. (9.7 mm)	0.38 in. (9.7 mm)
Recommended Tightening Torque	6…16 lb•in (0.7…1.8 N•m)	10…30 lb•in (1.1…3.4 N•m)
Insulation Temperature Range	–40…+22 °F (–40…+105 °C)	–40…+221 °F (–40…+105 °C)

★ #8-32 screw.

‡ Both terminal blocks accept 1 wire per terminal.

Mounting Rails

Mounting rails allow many blocks to be fastened in a panel with only a few screws to anchor the rail to the panel. Mounting rails allow easy installation and removal of a block in a row.

End Anchor/End Retainers

End anchors and end retainers mount at both ends of a group of terminal blocks to add rigidity to the terminal assembly and prevent sliding along the rails.

End Barriers

End barriers are required to provide the necessary insulation for the last terminal block in a group.

Side Jumpers

Side jumpers use the terminal block wire openings. Multi-pole jumpers can be cut into a smaller number of poles. 2-pole jumpers are also available for some blocks. All jumpers except the 1492-N21 carry 100% of rated terminal block current. The 1492-N21 carries 100 A. The backs of IEC-style jumpers are insulated with plastic. An adjacent partition plate provides the necessary electrical spacings between adjacent jumpers or between exposed ends of cut jumpers.

Fanning Strips

Fanning strips, used with the Cat. No. 1492-CA1, -CA2, and -CAM2 terminal blocks, keep wires in an orderly row and allow easy disconnect and reconnect of multiple adjacent wires.

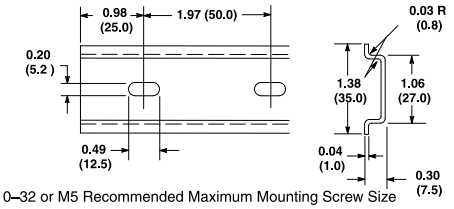
Marking Systems

Various marking systems are available to simplify circuit identification. NEMA blocks come with a painted surface; IEC blocks use snap-in markers. Markers are available in blank form for hand writing, pre-printed in ascending number format, or custom printed for unique requirements. Extended marking strips and adhesive labels are available for long circuit identifications. A group marking carrier for easy group terminal block identification is also available. Marking rods can be used with QuickClamp style terminal blocks to simplify mass solutions. Pre-printed, single-digit, alphanumeric marker tabs are also available.

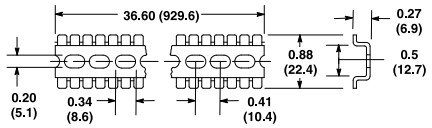
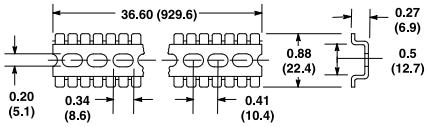
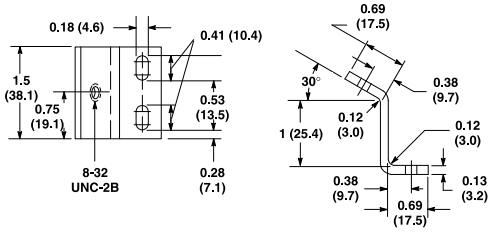
Specifications/Agency Approvals

In general, accessories for terminal blocks are not eligible for recognition by UL, CSA, or other third-party approval agencies. The suitability of the installation must be judged in the end use application due to the wide variety of possible uses. However, accessories are designed to meet, and are tested to, the terminal block assembly requirements such as electrical spacings, etc.

Mounting Rails

Cat. No.	Description	Pkg Qty.	Dimensions*
199-DR1	**DIN (#3) Symmetrical Rail** 35 mm x 7.5 mm x 1 m long Zinc-plated, yellow chromated EN50022 **DIN #3**	10	 #10–32 or M5 Recommended Maximum Mounting Screw Size
199-DR2	Same as 199-DR1, but length = 2 m	20	

* Dimensions shown in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.

Cat. No.	Description	Pkg. Qty.	Dimensions*
1492-N1	Breakaway Mounting Rail — 3 ft (0.91 m) long; scored every 0.203 in. (5.2 mm) so it will break off to the desired length	20	 #8-32 or M4 Recommended Mounting Screw Size
1492-N22	Rigid Mounting Rail — 3 ft (0.91 m) long	20	 #8-32 or M4 Recommended Mounting Screw Size
1492-N25	Mounting Rail Standoff Brackets — Used with Cat. No. 1492-N22 rigid mounting rail	20	

* Dimensions shown in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.

1492-N26		1492-N32		1492-N27		1492-N28		1492-N29	
									
External Mounting Feet		Internal Mounting Feet		Side Plate Extensions		18 in Bridge		12 in Bridge	
Cat. No.	Pkg. Quantity	Cat. No.	Pkg. Quantity	Cat. No.	Pkg. Quantity	Cat. No.	Pkg. Quantity	Cat. No.	Pkg. Quantity
1492-N26	1 Kit	**1492-N32**	1 Kit	**1492-N27**	1 Kit	**1492-N28**	1	1492-N29	1

Description — Stacking bridges are used with Style C, F, and H rail-mounted terminal blocks. They are designed to save panel space and increase terminal accessibility. Stacking bridge kits allow stacking of up to four terminal block strips. A stacking bridge consists of mounting feet, side plate extensions, and 12 in. or 18. in bridges.

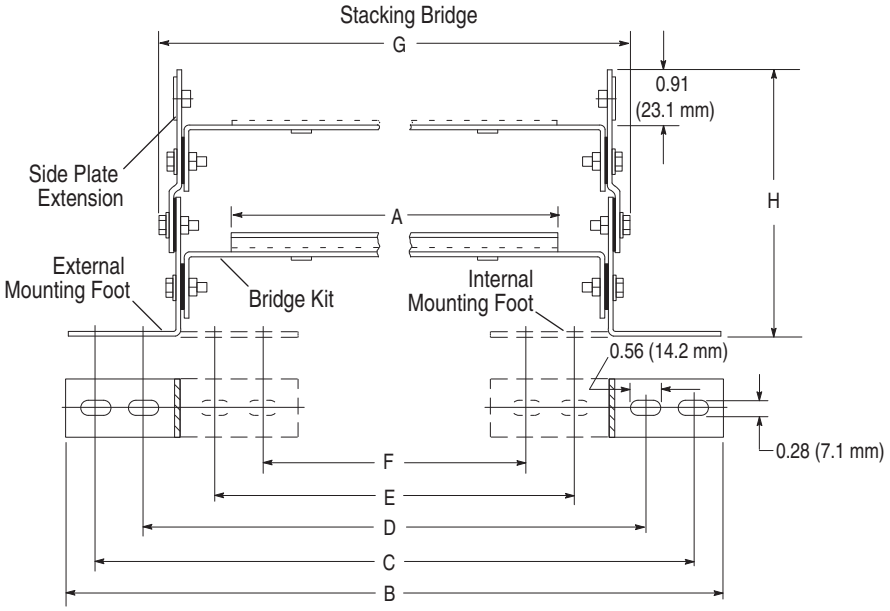
Note: **Rigid mounting rail is attached to the bridge.** Five kits are available to custom build stacking bridges as listed in the above table. **Fuse blocks, disconnect blocks, large Style C terminal blocks (Cat. No. 1492-CE2) and circuit breakers should only be mounted on the upper-most bridge of any assembly.**

Ordering Example — A typical ordering example for a **Two-Level 18 in. Stacking Bridge** is as follows:

- One **Cat. No. 1492-N26** or **1492-N32** mounting foot kit.
- One **Cat. No. 1492-N27** side plate extension kit, and two **Cat. No. 1492-N28** 18 in bridges.

Both 12 in. and 18 in. stacking bridges are built in this manner with up to four levels maximum.

Stacking Bridge



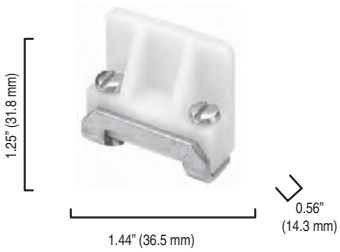
Stacking Bridge Size	A	B	C	D	E	F	G	H No. of Levels 1	2	3	4
12 in.	12.06 (306.3)	18.06 (458.7)	17 (431.8)	15.19 (385.8)	12.69 (322.3)	10.97 (278.6)	14.53 (369.1)	2.34 (59.5)	4.50 (114.3)	6.63 (168.4)	8.78 (223.0)
18 in.	18.63 (473.2)	24.06 (611.1)	23 (584.2)	21.19 (538.2)	18.69 (474.7)	16.97 (431.0)	20.53 (521.5)	2.34 (59.5)	4.50 (114.3)	6.63 (168.4)	8.78 (223.0)

Note: Dimensions in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.

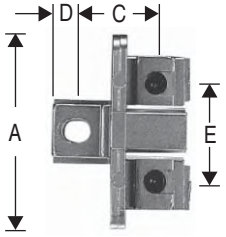
End Anchors

1492-EAHJ35

1492-N23

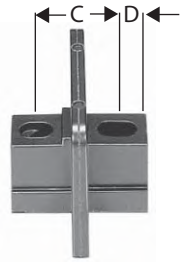


1492-15A, 1492-25A



A = Width
B = Height

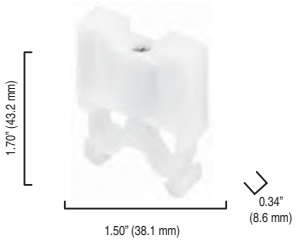
1492-15E, 1492-25E



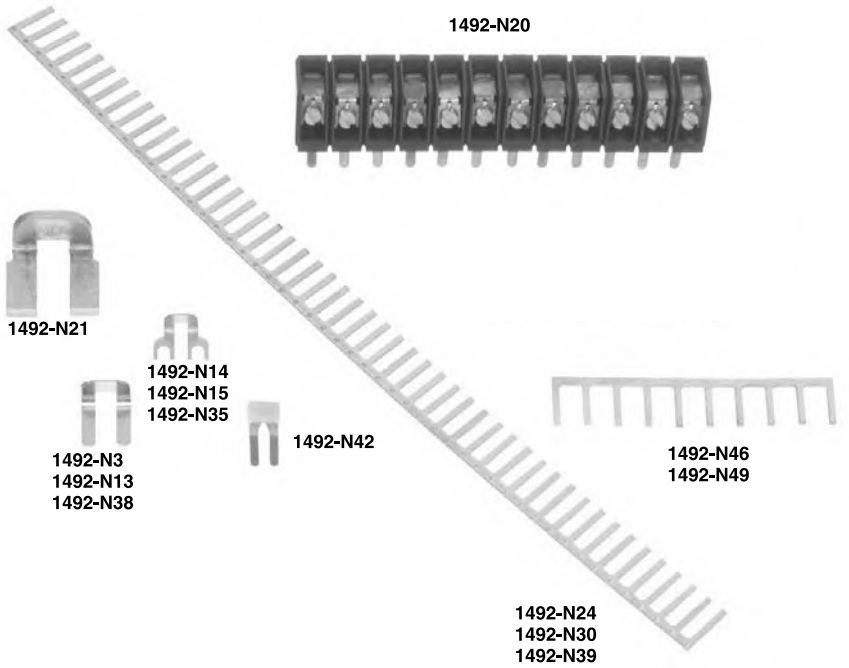
A = Width
B = Height

1492-N2

1492-N47

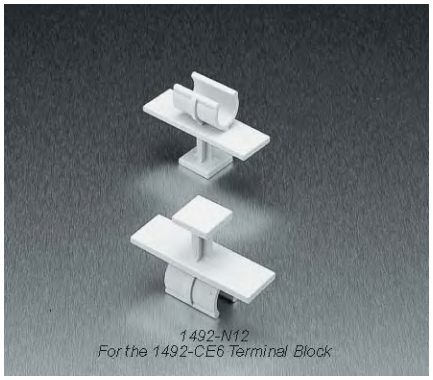


Cat. No.	A	B	C	D	E
1492-15A	1.5 in. (38.1 mm)	1.03 in. (26.2 mm)	0.594 in. (15.1 mm)	0.234 in. (5.9 mm)	0.75 in. (19.1 mm)
1492-15E	1.5 in. (38.1 mm)	1.03 in. (26.2 mm)	0.594 in. (15.1 mm)	0.234 in. (5.9 mm)	—
1492-25A	1.88 in. (47.8 mm)	1.19 in. (30.2 mm)	0.688 in. (17.5 mm)	0.203 in. (5.2 mm)	0.97 in. (24.6 mm)
1492-25E	1.88 in. (47.8 mm)	1.19 in. (30.2 mm)	0.688 in. (17.5 mm)	0.234 in. (5.9 mm)	—



* The 1492-SJS Insulating Sleeve reduces exposure to live parts on the 1492-N39 and 1492-N49. The 1492-SJS used with the 1492-N39 and 1492-H1 or 1492-HM1 provides IEC 947 IP2X finger protection.

Fuse Puller



Screwdriver and Marking Pen

Isolation Switch Plugs
Cat. No. 1492-ISOSW-1

Test Plug/Test Sockets

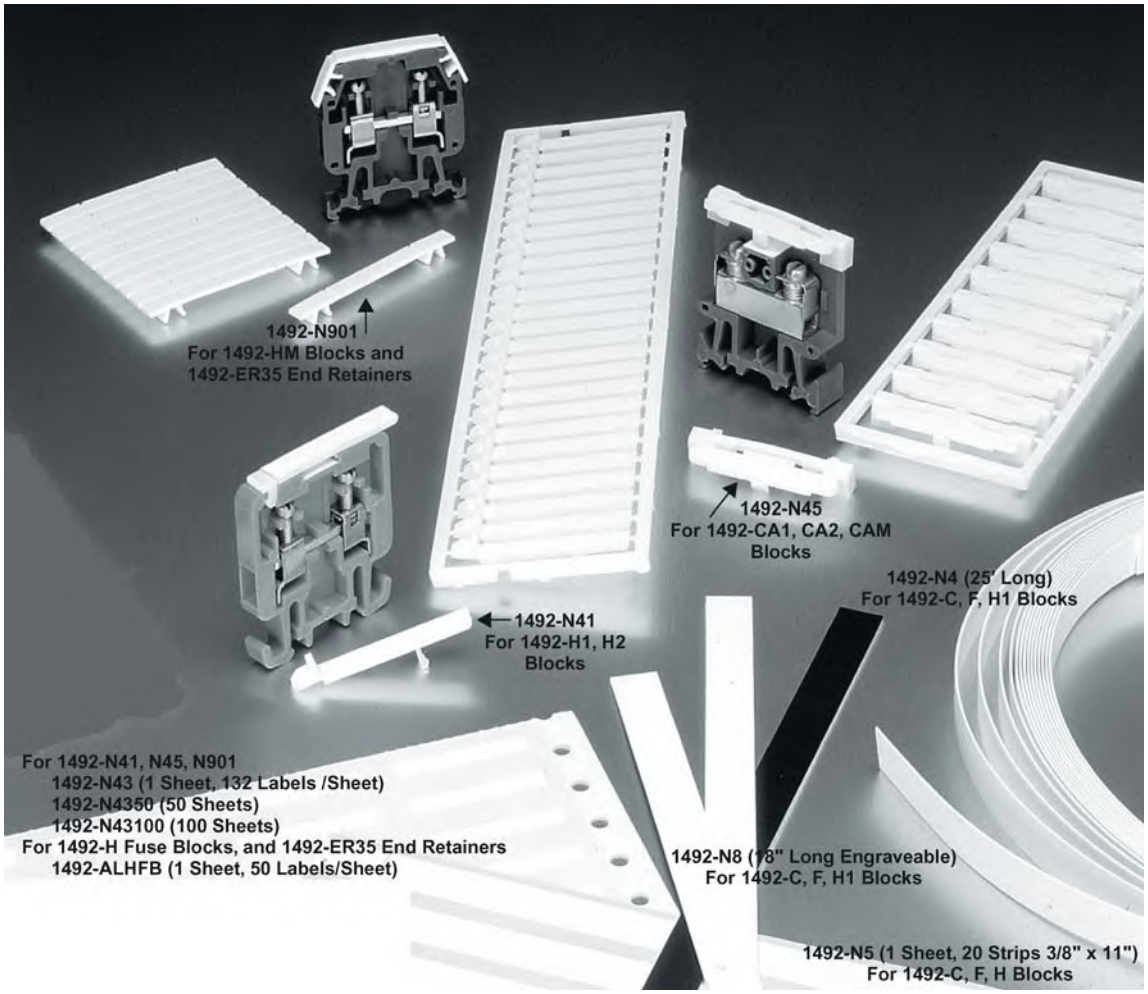
Cat. No. 1492-TP28

Cat. No. 1492-TA285

Cat. Nos. 1492-TA40, 1492-TA40L

Cat. No. 1492-TP15

Cat. No. 1492-TP23



Cat. No. 1492-N901 For 1492-HM Blocks and 1492-ER35 End Retainers

Cat. No. 1492-N45 For 1492-CA1, CA2, CAM Blocks

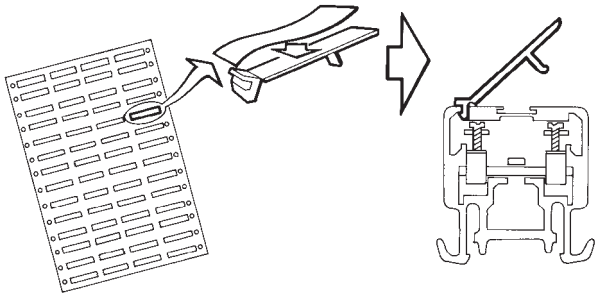
Cat. No. 1492-N41 For 1492-H1, H2 Blocks

Cat. No. 1492-N8 (18 in. Long Engraveable) For 1492-C, F, H1 Blocks

For Cat. Nos. 1492-N41, N45, N901
Cat. No. 1492-N43 (1 Sheet, 132 Labels /Sheet)
Cat. No. 1492-N4350 (50 Sheets)
Cat. No. 1492-N43100 (100 Sheets)
For Cat. Nos. 1492-H Fuse Blocks, and 1492-ER35 End Retainers
Cat. No. 1492-ALHFB (1 Sheet, 50 Labels/Sheet)

Cat. No. 1492-N5 (1 Sheet, 20 Strips 3/8 in x 11 in) For 1492-C, F, H Blocks

Placement of Label on Holder



Marker Cards

Cat. No.	No. of Labels/Card
1492-MS8X12	70
1492-MN81	—
1492-MN83	—

Cat. No.	Pkg Qty.
1492-ALHFB	1
1492-ALWFB	1
1492-N4	1
1492-N5	1
1492-N8	25
1492-N41	50
1492-N43	1
1492-N45	20
1492-N901	50
1492-N4350	1
1492-N43100	1

Multiple Wire Connection Combination for Stranded Copper Conductors of the Same Gross Section for Allen-Bradley Terminal Blocks

Terminal Blocks

Cat. No.	Wire Size AWG (mm²)					
	#22	#20 (0.5)	#18 (0.75)	#16 (1.5)	#14 (2.5)	#12 (4)
	Number of the Same-Size Wires Per Terminal					
1492-H4, -H5, -H6, -H7	4	4	3	2	2	1

Fingersafe Terminal Blocks

Cat. No.	Fingersafe Terminal Blocks							
	#22	#20 (0.5)	#18 (0.75)	#16 (1.5)	#14 (2.5)	#12 (4)	#10 (6)	#8 (10)
	Number of the Same-Size Wires Per Terminal							
∗ **1492-HM1**	4	4	3	2	2	1	—	—
∗ 1492-HM2	4	4	3	2	2	1	—	—
1492-HC6	4	4	3	2	2	1	—	—
∗ **1492-HM3**	4	4	4	3	2	2	1	1

∗ Dimensions for other colors are identical.

NEMA and IEC Terminal Block Component Specifications∗

Tie Point Terminal Blocks — Type HM2C and WD4C

ATTENTION

The total current flow through these terminal blocks (the sum of all inputs or the sum of all outputs) must not exceed the rated current for the device.

Description	Type	Rating
Maximum Total Current Flow Through the Terminal Block	H2C, HM2C	10 A
Maximum Working Voltage	H2C, HM2C	600V
Operating Ambient Temperature Range	All	-4…+104 °F (-20…+40 °C)
Storage Temperature Range	All	-40…+167 °F (-40…+75 °C)

Diode Terminal Blocks — Types H2D, HHM2D, WD2D, WD2DR, RD3DF and RD3DR

Description	Symbol	Type	Rating
Peak Repetitive Reverse Voltage	V (RRM)	H2D, HM2D	600V
Working Peak Reverse Voltage	V (RWM) V (R)	RD3DF, RD3DR WD4DF, WD4DR	300V
Non-Repetitive Peak Reverse Voltage (Halfwave, single-phase, 60 Hz)	V (RSM)	H2D, HM2D	600V
RMS Reverse Voltage❄	V (Rms)	H2D, HM2D	600V
Average Rectified Forward Current Single-Phase, Resistive Load, 60 Hz	I (O)	All	1.0 A
Non-Repetitive Peak Surge Current (Surge applied at rated load)	I (FSM)	All	30 A (1 cycle)
Maximum Forward Voltage Drop [*I* (f) = 1.0 A]	V (F)	All	1.1V
Maximum Reverse Current	I (R)	All	10 µA
Operating Ambient Temperature Range	T (A)	All	–4…+104 °F (–20…+40 °C)
Storage Temperature Range	T (S)	All	–40…+167 °F (–40…+75 °C)

❄ The maximum voltage rating of the diode terminal blocks listed in the above table should not be exceeded even through the maximum reverse voltage rating of the diode alone is 1000V.

All parameters measured at 77 °F (25 °C).

Resistor Terminal Blocks — Types H2RA, H2RB, H2RC, HM2RA, HM2RB, HM3RB∗

Description	Model Code Identifier	Rating
Resistor Type	A	Carbon Fixed Resistor‡
	B	Metal Film Resistor§
	C	Wire Wound Precision Resistor
Standard Resistance Range	A	1.0 (Ω)…100 M (Ω)
	B	1.0 (Ω)…4.75 M (Ω)
	C	249 (Ω)
Resistance Tolerance	A	± 5%
	B	± 1%
	C	± 1%
Power Rating (Resistor) Maximum Continuous Watts at 86 °F (30 °C) Ambient	A	0.5 W
	B	0.25 W
	C	0.5 W
Rated Continuous Working Voltage (Resistor)	A	0.5 x R or 300V Max.
	B	0.25 x R or 250V Max.
	C	0.5 x R or 250V Max.
Operating Ambient Temperature Range	All	–4…+104 °F (–20…+40 °C)
Storage Temperature Range	All	–40…+167 °F (–40…+75 °C)
Dielectric Withstanding Voltage (Resistor)	A	700V
	B & C	500V

∗ Performance Data — See this catalog, Important- 3.

‡ The power rating of the resistor block operating in ambient temperatures of 86…104 °F (30…40 °C) should be derated for maximum resistor life. The derating curve is linear between 86 °F (30 °C) and 104 °F (40 °C) where the power rating is 100% of specified power at 86 °F (30 °C) and 85% at 104 °F (40 °C).

§ For further information on resistor performance, consult your local Rockwell Automation sales office or Allen-Bradley distributor.

Resistor Codes for 1492-RD3RB..., -H2RB... and -HM2RB Terminal Blocks

Ordering Information

In order to complete the cat. no. for **1492-RD3RB..., 1492-H2RB, and 1492-HM2RB**, add the desired resistor code from the table below. Example: Cat. No. **1492-RD3RB101** is a resistor terminal block with a 100 (Ω) — 1/4 W resistor.

Resistor Value Ω	Resistor Code	Resistor Value Ω	Resistor Code	Resistor Value Ω	Resistor Code	Resistor Value Ω	Resistor Code
10	100	267	271	8250	822	0.221M	224
11	110	301	301	9090	912	0.243M	244
12.1	120	332	331	10 000	103	0.267M	274
13	130	357	361	11 000	113	0.301M	304
15	150	392	391	12 100	123	0.332M	334
16	160	432	431	13 000	133	0.357M	364
18.2	180	475	471	15 000	153	0.392M	394
20	200	511	511	16 200	163	0.432M	434
22.1	220	562	561	18 200	183	0.475M	474
24.3	240	619	621	20 000	203	0.511M	514
26.7	270	681	681	22 100	223	0.562M	564
30.1	300	750	751	24 300	243	0.619M	624
33.2	330	825	821	26 700	273	0.681M	684
35.7	360	909	910	30 100	303	0.75M	754
39.2	390	1000	102	33 200	333	0.825M	824
43.2	430	1100	112	35 700	363	0.909M	914
47.5	470	1210	122	39 200	393	1.0M	105
51.1	510	1300	132	43 200	433	1.1M	115
56.2	560	1500	152	47 500	473	1.24M	125
61.9	620	1620	162	51 100	513	1.3M	135
68.1	680	1820	182	56 200	563	1.5M	155
75	750	2000	202	61 900	623	1.62M	165
82.5	820	2210	222	68 100	683	1.82M	185
90.9	910	2430	242	75 000	753	2.0M	205
100	101	2670	272	82 500	823	2.21M	225
110	111	2940	302	90 900	913	2.43M	245
121	121	3320	332	0.10M	104	2.67M	275
130	131	3570	362	0.11M	114	3.01M	305
150	151	3920	392	0.121M	124	3.32M	335
162	161	4750	472	0.13M	134	3.57M	365
182	181	5110	512	0.15M	154	3.92M	395
200	201	5620	562	0.162M	164	4.32M	435
221	221	6810	682	0.182M	184	4.75M	475
243	241	7500	752	0.20M	204	249	001

Resistor Codes for 1492-H2RA… and -HM2RA Terminal Blocks

Ordering Information

In order to complete the cat. no. for **1492-H2RA…** and **1492-HM2RA**, add the desired resistor code from the table below. Example: Cat. No. **1492-H2RA101** is a resistor terminal block with a 100 (Ω) — 1/2 W resistor.

Resistor Value Ω	Resistor Code	Resistor Value Ω	Resistor Code	Resistor Value Ω	Resistor Code	Resistor Value Ω	Resistor Code	Resistor Value Ω	Resistor Code
1.0	10G	43	430	1800	182	75000	753	3.3M	335
1.1	11G	47	470	2000	202	82000	823	3.6M	365
1.2	12G	51	510	2200	222	91000	913	3.9M	395
1.3	13G	56	560	2400	242	0.10M	104	4.3M	435
1.5	15G	62	620	2700	272	0.11M	114	4.7M	475
1.6	16G	68	680	3000	302	0.12M	124	5.1M	515
1.8	18G	75	750	3300	332	0.13M	134	5.6M	565
2.0	20G	82	820	3600	362	0.15M	154	6.2M	625
2.2	22G	91	910	3900	392	0.16M	164	6.8M	685
2.4	24G	100	101	4300	432	0.18M	184	7.5M	755
2.7	27G	110	111	4700	472	0.20M	204	8.2M	825
3.0	30G	120	121	5100	512	0.22M	224	9.1M	915
3.3	33G	130	131	5600	562	0.24M	244	10M	106
3.6	36G	150	151	6200	622	0.27M	274	11M	116
3.9	39G	160	161	6800	682	0.30M	304	12M	126
4.3	43G	180	181	7500	752	0.33M	334	13M	136
4.7	47G	200	201	8200	822	0.36M	364	15M	156
5.1	51G	220	221	9100	912	0.39M	394	16M	166
5.6	56G	240	241	10 000	103	0.43M	434	18M	186
6.2	62G	270	271	11 000	113	0.47M	474	20M	206
6.8	68G	300	301	56 200	123	0.51M	514	22M	226
7.5	75G	330	331	12 000	133	0.56M	564	24M	246
8.2	82G	360	361	13 000	153	0.62M	624	27M	276
9.1	91G	390	391	15 000	163	0.68M	684	30M	306
10	100	430	431	18 000	183	0.75M	754	33M	336
11	110	470	471	20 000	203	0.82M	824	36M	366
12	120	510	511	22 000	223	0.91M	914	39M	396
13	130	560	561	24 000	243	1.0M	105	43M	436
15	150	620	621	27 000	273	1.1M	115	47M	476
16	160	680	681	30 000	303	1.2M	125	51M	516
18	180	750	751	33 000	333	1.3M	135	56M	566
20	200	820	821	36 000	363	1.5M	155	62M	626
22	220	910	911	39 000	393	1.6M	165	68M	686
24	240	1000	102	43 000	433	1.8M	185	75M	756
27	270	1100	112	47 000	473	2.0M	205	82M	826
30	300	1200	122	51 000	513	2.2M	225	91M	916
33	330	1300	132	56 000	563	2.4M	245	100M	107
36	360	1500	152	62 000	623	2.7M	275		
39	390	1600	162	68 000	683		305		

Surge Suppressor Performance Characteristics and Electrical Component Data*

Surge Suppressor Terminal Blocks			
Performance Characteristic	Cat. No. 1492-H2K024 1492-HM2K024	Cat. No. 1492-H2K120 1492-HM2K120	Cat. No. 1492-H2K240 1492-HM2K240
Nominal Working Voltage (Volts AC or DC) [V]	24	120	240
Maximum AC Working Voltage RMS Continuous (60 Hz) [V]	30	140	275
Maximum DC Working Voltage Continuous [V]	38	160	369
Maximum Clamping Voltage at Current Ip (8/20 µs pulse) [V]	92V I_p = 6 A	360V I_p = 14 A	710V I_p = 17 A
Maximum Voltage Rate of Rise Bulletin 100 Contactors Types A38…B180 Bulletin 500 Contactors & Starters, Size 0…5 Bulletin 700 Relays	—	<10 V/µs	<10 V/µs
Peak Current (8/20 µs pulse)	250 A	150 A	150 A
Typical Leakage Current at Nominal AC Working Voltage	1.0 mA	4.5 mA	10.0 mA
Metal Oxide Varistor (MOV) Maximum Clamping Voltage at Current Ip (8/20 µs Pulse) Maximum Transient Energy Maximum Power Dissipation	—	—	—

* Performance Data — See this catalog, Important 3.
Performance data given in this catalog is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of accelerated testing at elevated stress levels and the user should correlate it to actual application requirements. Actual performance is subject to WARRANTY and LIMIT OF LIABILITY.

Component Specifications

Characteristic	Suppressor Cat. No. 1492-H2K024 1492-HM2K024	Suppressor Cat. No. 1492-H2K120 1492-HM2K120	Suppressor Cat. No. 1492-H2K240 1492-HM2K240
Capacitor			
Nominal Value	0.10 µF	0.10 µF	0.10 µF
Tolerance	±20%	±20%	±20%
Maximum DC Working Voltage	500V DC	500V DC	500V DC
Metal Oxide Varistor (MOV)	92V	360V	710V
Maximum Clamping Voltage at Current I_p (8/20 µs Pulse)	I_p = 5 A	I_p = 10 A	I_p = 10 A
Maximum Transient Energy	1.8 J	12 J	23 J
Maximum Power Dissipation	0.25 W	0.25 W	0.25 W
Resistor			
Nominal Value	100 Ω	100 Ω	100 Ω
Tolerance	±20%	±20%	±20%
Power Rating	2 W at 104 °F (40 °C)	2 W at 104 °F (40 °C)	2 W at 104 °F (40 °C)

Technical Specifications for Fuse Plugs❄

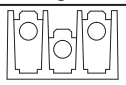
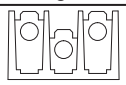
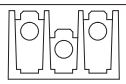
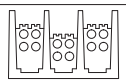
Characteristic	1492-FP4	1492-FP424	1492-FP4250
Indicator Type	Non-Indicating	LED	Neon
Leakage Current	—	2 mA @ 24V	1 mA @ 264V
Working Voltage	Per Fuse Rating	10…57V AC/DC	85…264V AC
Fuse Size (Not Supplied)	5 x 20 mm		

❄ Maximum current rating for the fuse plug is 10 A at 250V. IEC standards for 5 x 20 mm fuses do not include ratings above 6.3 A.

UL/CSA File and Guide Numbers

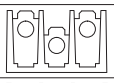
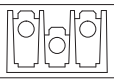
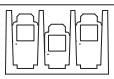
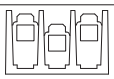
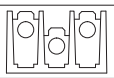
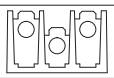
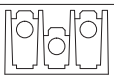
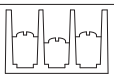
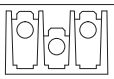
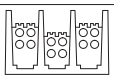
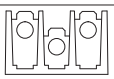
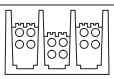
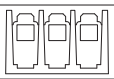
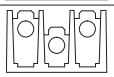
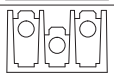
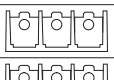
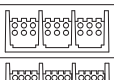
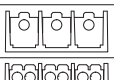
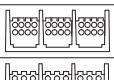
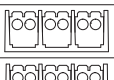
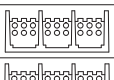
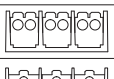
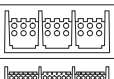
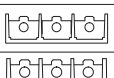
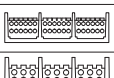
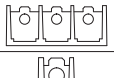
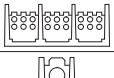
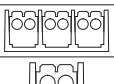
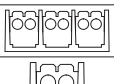
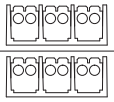
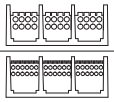
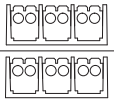
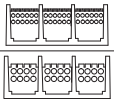
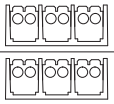
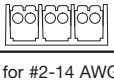
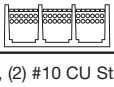
Base Cat. No.	UL Number File	UL Number Guide	CSA Number File	CSA Number Class
1492-CA, -CE, -CD	E40735	XCFR2	LR67896	6228-01
1492-CB	E65138	QVNU2	LR37712	9091-01
1492-CE6	E34648	IZLT2	LR67896	6228-01
1492-F	E40735	XCFR2	LR67896	6228-01
1492-FB	E34646	IZLT	LR70915	6225-01
1492-H1, -H2, -HM1, -HM2, -HM3	E40735	XCFR2	LR67896	6228-01
1492-H4, -H5, -H6, -H7	E40735	XCFR2	LR67896	6228-01
1492-HC6, -HJ	E40735	XCFR2	LR67896	6228-01

Bul. 1492-PD Open-Style Mini Blocks

Amperage	No. of Poles	Line			Load			High Fault SCCR Available	Flexible Copper Wire Connections	Mini Block	Power Block Cover
		Connector Diagram	Wire Range AWG (mm^2)	Wires per Pole	Connector Diagram	Wire Range AWG (mm^2)	Wires per Pole			Cat. No.	Cat. No.
115	3		#2…14 (35…2.5)★	1		#2…14 (35…2.5)★	1	Yes	Yes	**1492-PDM3111**	1492-PBC9
	3		#2…14 (35…2.5)★	1		#10…18 (6…0.75)	4	Yes	Yes	**1492-PDM3141**	1492-PBC9

★ Wire openings rated for #2-14 AWG are multiple wire rated: (2) #8 CU Str, (2) #10 CU Str, (2) #12 CU Str, and (2) #14 CU Str.

Bul. 1492-PD Open-Style

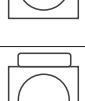
Amperage	No. of Poles	Line			Load			High Fault SCCR Available	Flexible Copper Wire Connectors		Cover
		Connector Diagram	Wire Range AWG (mm^2)	Wires per Pole	Connector Diagram	Wire Range AWG (mm^2)	Wires per Pole			Cat. No.♠	Cat. No.
115	1		#2…14 (35…2.5)★	1		#2…14 (35…2.5)★	1	Yes	Yes	**1492-50Y**	1492-PBC4
	3		#2…14 (35…2.5)★	1		#2…14 (35…2.5)★	1	Yes	Yes	**1492-50X**	1492-PBC1
150	3		1/0...#14 (50…2.5)	1		1/0...#14 (50…2.5)	1	—	Yes	**1492-PD3C111**	1492-PBC1
175	1		2/0…#14 (70…2.5)	1		2/0…#14 (70…2.5)	1	Yes	Yes	**1492-100Y**	1492-PBC4
	1		2/0…#14 (70…2.5)	1		1/4" Tap w/ Binding Screw	1	Yes	Yes	**1492-50YF**	1492-PBC4
	3		2/0…#14 (70…2.5)	1		2/0…#14 (70…2.5)	1	Yes	Yes	**1492-100X**	1492-PBC1
	3		2/0…#14 (70…2.5)	1		1/4' Tap w/ Binding Screw	1	Yes	Yes	**1492-50 XF**	1492-PBC1
	3		2/0…#14 (70…2.5)	1		#4…14 (25…2.5)‡	4	Yes	Yes	**1492-PD3141**	1492-PBC1
	3		2/0…#14 (70…2.5)	1		#4...14 (25…2.5)‡	4	Yes	Yes	**1492-PD3C141**	1492-PBC1
255	1		250 kcmil… #6 AWG (120…16 mm^2)	1		250 kcmil… #6 AWG (120…16 mm^2)	1	Yes	Yes	**1492-BE**	1492-PBC5
	3		250 kcmil…#6 (120…16)	1		250 kcmil…#6 (120…16)	1	Yes	No	**1492-PD3C112**	1492-PBC2
310	3		350 kcmil… #6 (185…16)	1		350 kcmil… #6 (185…16)	1	Yes	Yes	**1492-PD3113**	1492-PBC2
335	3		400 kcmil… #6 (185 …16)	1		#2…14 (35…2.5)★	6	Yes	Yes	**1492-PD3163**	1492-PBC2
	3		400 kcmil… #6 (185…16)	1		#2…14 (35…2.5)★	8	Yes	Yes	**1492-PD3183**	1492-PBC8
350	3		2/0…#14 (70…2.5)	2		#4…14 (25…2.5)‡	6	Yes	Yes	**1492-PD3263**	1492-PBC2
	3		2/0…#14 (70…2.5)	2		#4…14 (25…2.5)‡	6	Yes	Yes	**1492-PD3C263**	1492-PBC2
380	3		500 kcmil… #4 (240…25)	1		#2…14 (35…2.5)★	12	Yes	Yes	**1492-PD31123**	1492-PBC3
	3		500 kcmil…#4 (240…25)	1		#2…14 (35…2.5)★	6	Yes	Yes	**1492-PD3C163**	1492-PBC2
420	1		600 kcmil… #4 AWG (300…25 mm^2)	1		600 kcmil… #4 AWG (300…25 mm^2)	1	Yes	Yes	**1492-BF**	1492-PBC6
620	3		350 kcmil… #6 (185…16)	2		350 kcmil…#6 (185…16)	2	Yes	Yes	**1492-PD3226**	1492-PBC3
760	1		#4 AWG…500 MCM 25…240 mm^2	2		#4 AWG…500 MCM 25…240 mm^2	2	Yes	Yes	**1492-BG**	1492-PBC7
	3		500 kcmil… #6 (240…25)	2		#2/0…14 (70…2.5)	8	Yes	Yes	**1492-PD3287**	1492-PBC3
	3		500 kcmil… #6 (240…16)	2		#4…14 (25…2.5)‡	12	Yes	Yes	**1492-PD32127**	1492-PBC3
	3		500 kcmil…#4 (240…25)	2		2/0…14 (70…2.5)	8	Yes	Yes	**1492-PD3C287**	1492-PBC3
	3		500 kcmil…#4 (240…25)	2		#2…14 (35…2.5)★	12	Yes	Yes	**1492-PD3C2127**	1492-PBC3

★ Wire openings rated for #2-14 AWG are multiple wire rated: (2) #8 CU Str, (2) #10 CU Str, (2) #12 CU Str, and (2) #14 CU Str.

‡ Wire openings rated openings rated for #4-14 AWG are multiple wire rated: (2) #10 CU Str, (2 to 4) #12 CU Str, and (2 to 4) #14 CU Str.

♠ The **C** in the cat. no. designates copper terminals. The cat. nos. without the **C**, have aluminum connectors.

Bul. 1492-PDL Open-Style - Feeder Spacing

Amperage (Cu Wire) 75 ° C	No. of Poles	Line			Load			High Fault SCCR Available	Flexible Copper Wire Conn.	Cat. No.	Replacement Accessories	
		Connector Diagram	Wire Range AWG (mm2)	Openings per Pole	Connector Diagram	Wire Range AWG (mm^2)	Openings per Pole				Covers Cat. No.	Marking Strips Cat. No.
175	3		2/0…#14 (70…2.5)	1		2/0…#14 (70…2.5)	1	Yes	—	**1492-PDL3111**	1492-PDLC1	1492-PDLM1
	3		2/0…#14 (70…2.5)	1		#4…14 (25…2.5)★	4	Yes	—	**1492-PDL3141**		
	3		2/0…#14 (70…2.5)	1		1/4…20 stud	—	Yes	—	1492-PDL31S1		
	3		2/0…#14 (70…2.5)	1		#4…14 (25…2.5)★	6	Yes	—	**1492-PDL3161**		
335	3		400 kcmil…#6 (185…16)	1		#2…14 (35…2.5)	6	Yes	—	**1492-PDL3163**	1492-PDLC2	1492-PDLM2
	3		600 kcmil…#2 (300…35)	1		#2…14 (35…2.5) #2…14 (35…2.5) 1/0…#14 (55…2.5)★	3 3 3	Yes	—	**1492-PDL3194**		
	3		600 kcmil…#2 (300…35)	1		#4…14 (25…2.5)‡	12	Yes	—	**1492-PDL31124**		

★ Wire openings rated for #2-14 AWG are multiple wire rated: (2) #8 CU Str, (2) #10 CU Str, (2) #12 CU Str, and (2) #14 CU Str.
‡ Wire openings rated openings rated for #4-14 AWG are multiple wire rated: (2) #10 CU Str, (2 to 4) #12 CU Str, and (2 to 4) #14 CU Str.

Amperage (Cu Wire) 75 °C	No. of Poles	Line			Load			High Fault SCCR Available	Flexible Copper Wire Connections	Cat. No.♠
		Connector Diagram	Wire Range AWG (mm^2)	Openings per Pole	Connector Diagram	Wire Range AWG (mm^2)	Openings per Pole			
115	1		#2...#14 (35…2.5)	1		#2...#14 (35…2.5)§	1	Yes	Yes	Δ **1492-PDME1111**
	1		#2...#14 (35…2.5)	1		#10...#14 (6…2.5)	4	Yes	Yes	Δ **1492-PDME1141**
200	1		2/0...#14 (70…2.5)	1		2/0...#14 (70…2.5)♣	1	Yes	Yes	Δ **1492-PDE1112** Δ **1492-PDE1C112**
	1		2/0...#14 (70…2.5)	1		#2...#14 (35…2.5)§	4	Yes	Yes	Δ **1492-PDE1142** **1492-PDE1C142**
510	1		250 kcmil...#6 (120…16)	2		250 kcmil...#6 (120…16)	2	Yes	Yes (line side)	**1492-PDE1225** 1492-PDE1C225
335	1		400 kcmil...#6 (185…16) 2/0...#14 (70…2.5)	1		#2...#14 (35…2.5)§	8	Yes	Yes (line side)	**1492-PDE1183** **1492-PDE1C183**

§ Wire openings rated for #2-14 AWG are multiple wire rated: (2) #6 CU Str, (2) #8 CU Str, (2-4) #10 CU Str, (2 to 4) #12 CU Str, and (2 to 4) #14 CU Str.
♣ Wire openings rated for #2/0 -14 AWG are multiple wire rated: (2) #4 CU Str, (2) #6 CU Str, (2) #8 CU Str, (2) #10 CU Str, (2) #12 CU Str
& Flexible copper wire connections approved for flexible wire, stranding Classes G, H, I, K and DLO wire without the need for additional crimp connectors
♠ The **C** in the cat. no. designates copper terminals. The cat. nos. without the **C**, have aluminum connectors
Δ UL 1953 Listed E 313475 Guide QPQS

High Fault Short-Circuit Current Ratings

The following Ratings for “High Short Circuit Current Ratings” are based upon testing of the Power Terminal Block and Overcurrent Protective Device (OPD - either fuse or circuit breaker)wired in series and the combination of devices exposed to fault currents of the levels noted in the tables. For the Power Terminal Block to obtain the noted SCCR rating, the combination, including wiring, must suffer no damage and all wiring remain intact until the Overcurrent Protective Device, clears the fault.

For these ratings only one wire per terminal is used.

In some cases the wire size noted is less than the maximum capability of the Power Distribution Block, The noted wire size is the maximum permissible to obtain the noted SCCR rating with the noted Overcurrent Protective Device.

When a larger overcurrent protective device of the type or wire of different size is used, the Power Distribution Block has a 10,000 A SCCR withstand rating, per Table SB4.1 of UL Standard 508A.

The most up-to-date High SCCR ratings may be found via UL website, http://www.ul.com http://www.ul.com– Online Certifications Directory. For UL1059 certified Power Terminal Blocks, use file number E40735. For UL1953 listed devices the standard requires a 100,000 A minimum SCCR, use file number E313475

Bulletin 1492-PD High Fault SCCR Ratings With Fuses

Cat. No.	High Fault SCCR Ratings Conditions ★								SCCR ‡	
	Suitable Conductors § kcmil/AWG Copper Wire		Overcurrent Protection ♣ Fuse Required Class/Max. Amp Rating						RMS Sym A	Volts Max.
	Line	Load	J	T	RK1	RKS	G	CC		
1492-50X	2-6 Cu	2-6 Cu	300	300	200	100	60	30	100 000	600
	8-10 Cu	8-10 Cu	150	150	100	30	60	30	100 000	600
1492-50XF	2/0-6 Cu	2/0-6 Cu	200	200	200	100	60	30	100 000	600
	8-10 Cu	8-10 Cu	100	100	100	100	60	30	100 000	600
1492-50Y	2-6 Cu	2-6 Cu	300	300	200	100	60	30	100 000	600
	8-10 Cu	8-10 Cu	150	150	100	30	60	30	100 000	600
1492-50YF	2/0-6 Cu	2/0-6 Cu	200	200	200	100	60	30	100 000	600
	8-10 Cu	8-10 Cu	100	100	100	100	60	30	100 000	600
1492-100X	2/0-6 Cu	2/0-6 Cu	300	300	200	100	60	30	65 000	600
1492-100Y	2/0-6 Cu	2/0-6 Cu	300	300	200	100	60	30	65 000	600
1492-BE	250-6 Cu	250-6 Cu	300	300	200	100	60	30	100 000	600
1492-BF	600-2 Cu	600-2 Cu	600	600	—	—	—	—	100 000	600
			400	400	400	200	60	30	100 000	600
1492-BG	2)500-4 Cu	2)500-4 Cu	600	600	400	200	60	30	100 000	600
1492-PD3113	350-1/0 Cu	350-1/0 Cu	400	400	400	100	60	30	100 000	600
	350-6 CU	350-6 Cu	300	300	200	100	60	30	100 000	600
1492-PD3141	2/0-6 Cu	4-14 Cu	200	200	200	100	60	30	100 000	600
1492-PD3163	400-3/0 Cu	2-8 Cu	400	400	400	200	—	30	200 000	600
			600	—	—	—	60	—	100 000	600
	2/0-6 Cu	2-14 Cu	200	200	200	100	—	30	200 000	600
			—	—	—	—	60	—	100 000	600
1492-PD3183	400-3/0 Cu	2-8 Cu	400	400	400	200	60	30	100 000	600
	2/0-6 Cu	2-14 Cu	200	200	200	100	60	30	100 000	600
1492-PD31123	500-3/0 Cu	2-8 Cu	400	400	400	200	60	30	100 000	600
	2/0-4 Cu	2-14 Cu	200	200	200	100	60	30	100 000	600
1492-PD3263	2)2/0-2 Cu	4-8 Cu	400	400	400	100	60	30	100 000	600
	2)4-6 Cu	10-14 Cu	300	300	200	100	60	30	100 000	600
1492-PD3226	2)350-4 Cu	2)350-4 Cu	450	450	400	200	60	30	100 000	600
1492-PD3287	500-250 Cu	2/0-4 Cu	600	600	400	200	60	30	100 000	600
	4/0-4 Cu	2/0-10 Cu	600	600	—	—	—	—	50 000	600
			400	400	400	200	60	30	100 000	600
1492-PD32127	500-250 Cu	4-8 Cu	600	600	600	—	—	—	50 000	600
			400	400	400	200	60	30	100 000	600
	4/0-4 Cu	4-14 Cu	600	600	—	—	—	—	50 000	600
			400	400	400					
1492-PD3C112	250-6 CU	250-6 Cu	300	300	200	100	60	30	100 000	600
1492-PD3C141	2/0-6 Cu	4-14 Cu	200	200	200	100	60	30	100 000	600
1492-PD3C163	500-3/0 Cu	2-8 Cu	400	400	400	200	60	30	100 000	600
	2/0-4 Cu	2-14 Cu	200	200	200	100	60	30	100 000	600
1492-PD3C263	2/0-2 Cu	4-8 Cu	400	400	400	100	60	30	100 000	600
	4-6 Cu	10-14 Cu	200	200	200	100	60	30	100 000	600
1492-PD3C287	500-250 Cu	2/0-4 Cu	600	600	400	200	60	30	100 000	600
	4/0-4 Cu	2/0-6 Cu	600	600	—	—	—	—	50 000	600
			400	400	400	200	60	30	100 000	600
1492-PD3C2127	500-250 Cu	2-8 Cu	600	600	600	—	—	—	50 000	600
			400	400	400	200	60	30	100 000	600
	4/0-4 Cu	2-14 Cu	600	600	—	—	—	—	50 000	600
			400	400	400	200	60	30	100 000	600

With Circuit Breakers

Cat. No.	High Fault SCCR Ratings Conditions ★					
	Suitable Conductors § kcmil/AWG Copper Wire		Overcurrent Protection ♣ Allen-Bradley Circuit Breaker		SCCR, RMS, Sym A	Volts Max, AC
	Line	Load	Type	Map Amp		
1492-PD31123	350 - 4 Cu	2-14 Cu	140U-J3D3	250	35 000	480
	500 - 4 Cu	2-6 Cu	140U-K3D3	400	35 000	480
1492-PD3141	2/0 - 1 Cu	4-10 Cu	140U - J3D3, 140U - J6D3	250	22 000	480
	2-4 Cu	4-12 Cu	140U - J3D3, 140U - J6D3	250	22 000	480
	2-6 Cu	4-14 Cu	140U - H3C3	125	30 000	480
	6 Cu	14 Cu	140U - H3C3	125	50 000	480
1492-PDM3141	2-10 Cu	10-14 Cu	140U - H3C3, 140U - H6C3	125	25 000	480
1492-PD3163	400 - 3/0 Cu	2-8 Cu	140U - K6X3, 140U - K3X3	400	65 000	480
	4/0 - 4 Cu	2-12 Cu	140U - J6X3, 140U - J3X3	250	25 000	480

Bulletin 1492-PDL High Fault SCCR Ratings
With Fuses

Cat. No.	High Fault SCCR Ratings Conditions ★								SCCR ‡	
	Suitable Conductors § kcmil/AWG Copper Wire		Overcurrent Protection ♣ Fuse Required Class/Max. Amp Rating						RMS Sym A	Volts Max.
	Line	Load	J	T	RK1	RKS	G	CC		
1492-PDL3111	2/0-6 Cu	2/0-6 Cu	200	200	200	100	60	30	100 000	600
1492-PDL3141	2/0-6 Cu	4-14 Cu	200	200	200	100	60	30	100 000	600
1492-PDL3161	2/0-6 Cu	4-14 Cu	200	200	200	100	60	30	100 000	600
1492-PDL31S1	2/0-6 Cu	2/0-6 Cu	200	200	200	100	60	30	100 000	600
	8-10 Cu	8-10 Cu	100	100	100	30	60	30	100 000	600
1492-PDL3163	400-3/0 Cu	2-8 Cu	400	400	400	100	60	30	100 000	600
	2/0-6 Cu	2-14 Cu	200	200	200	100	60	30	100 000	600
1492-PDL3194	600-3/0 Cu	1/0-8 Cu	600	600	400	200	60	30	100 000	600
	2/0-2 Cu	2-14 Cu	200	200	200	100	60	30	100 000	600
1492-PDL31124	600-3/0 Cu	4-8 Cu	600	600	400	100	60	30	100 000	600
	2/0-2 Cu	4-12 Cu	200	200	200	100	60	30	100 000	600

With Circuit Breakers

Cat. No.	High Fault SCCR Ratings Conditions ★					
	Suitable Conductors § kcmil/AWG Copper Wire		Overcurrent Protection ♣ Allen-Bradley Circuit Breaker		SCCR, RMS, Sym A	Volts Max, AC
	Line	Load	Type	Map Amp		
1492-PDL3141	2/0-4 Cu	4-8 Cu	140U-J6, 140U-J0	250	50 000	480
	1/0-6 Cu	4-10 Cu	140U-H6, 140U-H0	125	50 000	480
1492-PDL3161	2/0-6 Cu	4-12 Cu	140U-H6, 140U-H0	125	50 000	480
	2/0-4 Cu	4-8 Cu	140U-J6, 140U-J0	250	35 000	480
1492-PDL3163	400-3 Cu	2-3 Cu	140U-K6	400	35 000	480
	350-4 Cu	2-8 Cu	140U-J6, 140U-J0	250	50 000	480
1492-PDL3194	600-2 Cu	4 Cu	140U-K6	400	35 000	480
	350-2 Cu	4-8 Cu	140U-K6, 140U-J0	250	50 000	480
1492-PDL31124	600-2 Cu	2-8 Cu	140U-K6	400	30 000	480
	350-2 Cu	2-8 Cu	140U-K6, 140U-J0	250	50 000	480

Bulletin 1492-PDE High Fault SCCR Ratings With Fuses

Cat. No.	High Fault SCCR Ratings Conditions ★								SCCR ‡	
	Suitable Conductors § kcmil/AWG Copper Wire		Overcurrent Protection ♣ Fuse Required Class/Max. Amp Rating						RMS Sym A	Volts Max.
	Line	Load	J	T	RK1	RKS	G	CC		
1492-PDE1111	2/0-6 Cu	2/0-6 Cu	300	300	200	100	60	30	100 000	600
1492-PDE1112	3/0-8 Cu (B-C)	3/0-8 Cu (B-C)	225	225	200	60	60	30	100,000	600
	2/0-8 Cu (G-I)	2/0-8 Cu (G-I)	300	300	200	100	60	30	100 000	600
1492-PDE1C111	2/0-6 Cu	2/0-6 Cu	300	300	200	100	60	30	100 000	600
1492-PDE1C112	3/0-8 Cu (B-C)	3/0-8 Cu (B-C)	225	225	200	60	60	30	100 000	600
	2/0-8 Cu (G-I)	2/0-8 Cu (G-I)	300	300	200	100	60	30	100 000	600
1492-PDE1141	2/0-6 Cu	2-14 Cu	300	300	200	100	60	30	100 000	600
1492-PDE1142	3/0-8 Cu (B-C)	2-8 Cu (B-C)	225	225	200	60	60	30	100 000	600
		8-14 Cu (B-C)	100	110	100	30	60	30	100 000	600
	2/0-8 Cu (G-I)	2/0-8 Cu (G-I)	225	225	200	60	60	30	100 000	600
		8-12 Cu (G-I)	100	110	100	30	60	30	100 000	600
1492-PDE1C141	2/0-6 Cu	2-14 Cu	300					30	100 000	600
1492-PDE1C142	3/0-8 Cu (B-C)	2-8 Cu (B-C)	225	225	200	60	60	30	100 000	600
		8-14 Cu (B-C)	100	110	100	30	60	30	100 000	600
	2/0-8 Cu (G-I)	2/0-8 Cu (G-I)	225	225	200	60	60	30	100 000	600
		8-12 Cu (G-I)	100	110	100	30	60	30	100 000	600
1492-PDE1183	400-3/0 Cu	2-8 Cu	400	400	400	200	60	30	100 000	600
	2/0-6 Cu	2-14 Cu	200	200	200	100	60	30	100 000	600
1492-PDE1C183	400-3/0 Cu	2-8 Cu	400	400	400	200	60	30	100 000	600
	2/0-6 Cu	2-14 Cu	200	200	200	100	60	30	100 000	600
1492-PDE1225	250-1/0 Cu	250-1/0 Cu	600	600	600	—	—	—	50 000	600
			400	400	400	200	60	30	100 000	600
	2-6 Cu	2-6 Cu	400	400	400	200	60	30	100 000	600
1492-PDE1C225	250-1/0 Cu	250-1/0 Cu	600	600	600	—	—	—	50 000	600
			400	400	400	200	60	30	100 000	600
	2-6 Cu	2-6 Cu	400	400	400	200	60	30	100 000	600
1492-PDM3111	2-6 Cu	2-6 Cu	200	200	200	100	60	30	100 000	600
	8-10 Cu	8-10 Cu	100	100	100	—	60	30	100 000	600
1492-PDME1111	2-14 Cu	2-14 Cu	175	225	100	30	60	30	100 000	600
1492-PDM3141	2-6 Cu	10-14 Cu	200	200	200	100	60	30	200 000	600
	8-10 Cu	14 Cu	100	100	100	30	60	30	100 000	600
1492-PDME1141	2-10 Cu (B-C) 4 - 10 Cu (G-K)	10-14 Cu (B-C) (G-K)	125	200	100	30	60	30	65 000	600

★ **Short-circuit Current Rating (SCCR) Conditions** — Terminal blocks are considered suitable for use on a circuit capable of delivering not more than the stated SCCR at the maximum voltage specified when protected by the maximum ampere and Class of overcurrent protective device noted in the individual Recognitions.

‡ **Short-circuit Current Rating, (SCCR)** when noted additional conditions are provided. When larger overcurrent protection devices of type, or wire of different size is used, the Power Terminal block as a 10,000 amp withstand rating. **Note** the rated wire range of terminals may exceed the restrictive wire range used to provide higher SCCR.

§ **Size Range of Line and Load** conductors suitable to maintain noted SCCR.

♣ **Maximum Size** of Line side overcurrent protection to provide noted SCCR.

Approximate Dimensions

Dimensions are in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.

1492-PD

Figure 1

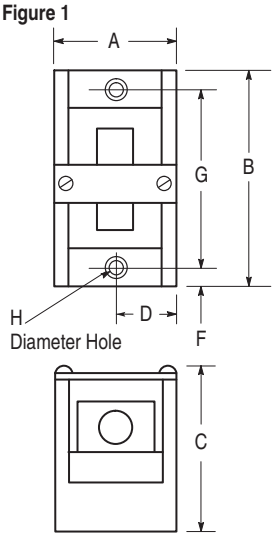


Figure 2

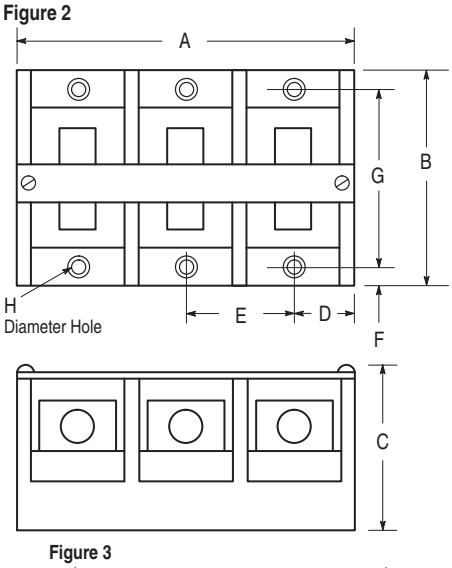
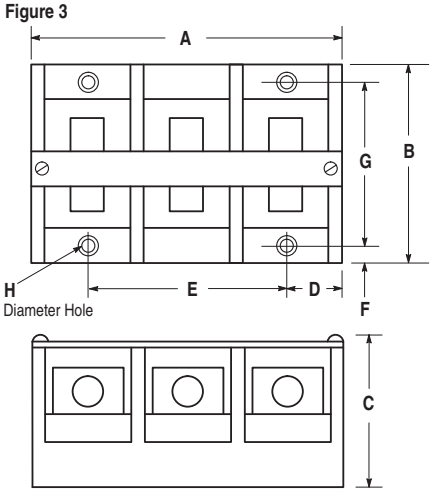


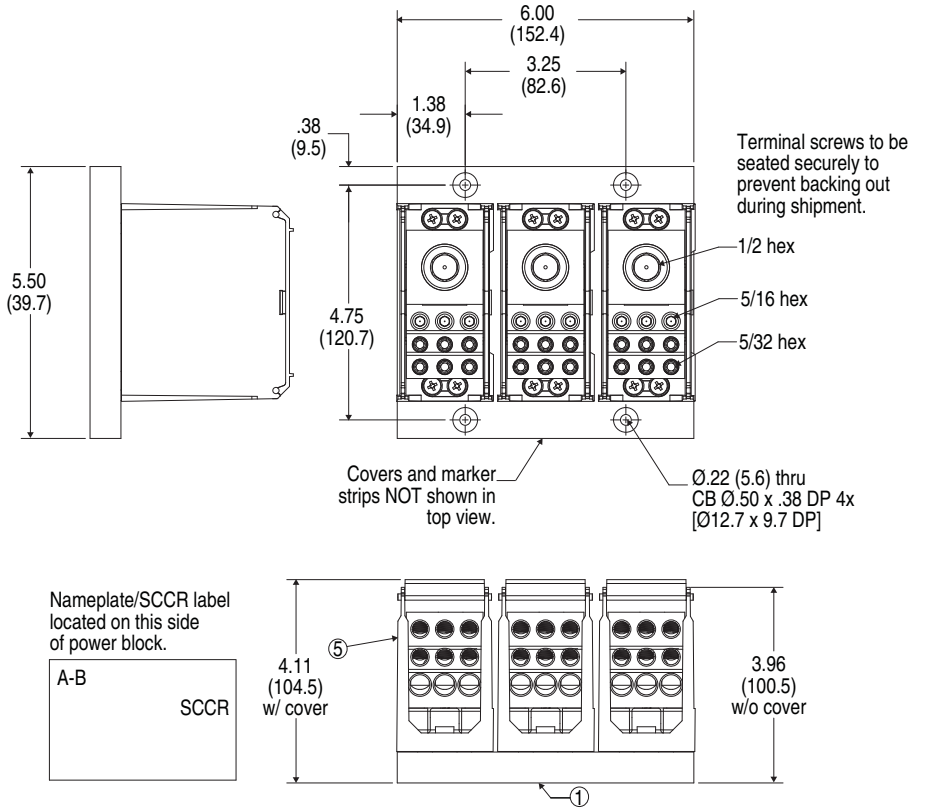
Figure 3



Cat. No.	Figure	A	B	C	D	E	F	G	H
1492-PDM3111	3★	2.03 (51.56)	2.29 (58.17)	1.62 (41.15)	0.38 (9.68)	1.27 (32.26)	0.19 (4.83)	1.93 (49.02)	0.201 (5.11)
1492-PDM3141	3★	2.03 (51.56)	2.29 (58.17)	1.62 (41.15)	0.38 (9.68)	1.27 (32.26)	0.19 (4.83)	1.93 (49.02)	0.201 (5.11)
1492-50Y	1	1.13 (28.7)	2.88 (73.15)	1.88 (47.8)	0.56 (14.22)	—	0.31 (7.87)	2.25 (57.15)	0.205 (5.21)
1492-100Y	1	1.13 (28.7)	2.88 (73.15)	1.88 (47.8)	0.56 (14.22)	—	0.31 (7.87)	2.25 (57.15)	0.205 (5.21)
1492-50X	3	2.75 (69.85)	2.88 (73.15)	1.88 (47.8)	0.56 (14.22)	1.62 (41.2)	0.31 (7.87)	2.25 (57.15)	0.205 (5.21)
1492-100X	3	2.75 (69.85)	2.88 (73.15)	1.88 (47.8)	0.56 (14.22)	1.62 (41.2)	0.31 (7.87)	2.25 (57.15)	0.205 (5.21)
1492-50XF	3	2.75 (69.85)	2.88 (73.15)	1.88 (47.8)	0.56 (14.22)	1.62 (41.2)	0.31 (7.87)	2.25 (57.15)	0.205 (5.21)
1492-50YF	1	1.13 (28.7)	2.88 (73.15)	1.88 (47.8)	0.56 (14.22)	—	0.31 (7.87)	2.25 (57.15)	0.205 (5.21)
1492-PD3C111	3	2.75 (69.85)	2.88 (73.15)	1.88 (47.8)	0.56 (14.22)	1.62 (41.2)	0.31 (7.87)	2.25 (57.15)	0.205 (5.21)
1492-PD3C141	3	2.75 (69.85)	2.88 (73.15)	1.88 (47.8)	0.56 (14.22)	1.62 (41.2)	0.31 (7.87)	2.25 (57.15)	0.205 (5.21)
1492-PD3141	3	2.75 (69.85)	2.88 (73.15)	1.88 (47.8)	0.56 (14.22)	1.62 (41.2)	0.31 (7.87)	2.25 (57.15)	0.205 (5.21)
1492-BE	1	1.94 (49.28)	4 (101.6)	2.72 (69.1)	0.97 (24.64)	—	0.31 (7.87)	3.38 (85.85)	0.203 (5.16)
1492-PD3C112	2	5 (127)	4 (101.6)	2.72 (69.1)	0.97 (24.64)	1.53 (38.86)	0.31 (7.87)	3.38 (85.85)	0.203 (5.16)
1492-PD3113	2	5 (127)	4 (101.6)	2.72 (69.1)	0.97 (24.64)	1.53 (38.86)	0.31 (7.87)	3.38 (85.85)	0.203 (5.16)
1492-PD3263	2	5 (127)	4 (101.6)	2.72 (69.1)	0.97 (24.64)	1.53 (38.86)	0.31 (7.87)	3.38 (85.85)	0.203 (5.16)
1492-PD3163	2	5 (127)	4 (101.6)	2.72 (69.1)	0.97 (24.64)	1.53 (38.86)	0.31 (7.87)	3.38 (85.85)	0.203 (5.16)
1492-PD3C163	2	5 (127)	4 (101.6)	2.72 (69.1)	0.97 (24.64)	1.53 (38.86)	0.31 (7.87)	3.38 (85.85)	0.203 (5.16)
1492-PD3C263	2	5 (127)	4 (101.6)	2.72 (69.1)	0.97 (24.64)	1.53 (38.86)	0.31 (7.87)	3.38 (85.85)	0.203 (5.16)
1492-BF	1	2.28 (57.91)	4.75 (120.65)	2.92 (74.2)	1.12 (28.45)	—	0.31 (7.87)	4.13 (104.9)	0.203 (5.16)
1492-PD3183	2	6.04 (153.42)	4.75 (120.65)	2.92 (74.2)	1.12 (28.45)	1.88 (47.75)	0.31 (7.87)	4.13 (104.9)	0.203 (5.16)
1492-BG	1	3.17 (80.25)	5.50 (139.7)	3.23 (82.0)	1.58 (40.13)	—	0.38 (9.68)	4.75 (120.65)	0.265 (6.73)
1492-PD31123	2	8.54 (216.92)	5.50 (139.7)	3.23 (82.0)	1.58 (40.13)	2.69 (68.58)	0.38 (9.68)	4.75 (120.65)	0.265 (6.73)
1492-PD3287	2	8.54 (216.92)	5.50 (139.7)	3.23 (82.0)	1.58 (40.13)	2.69 (68.58)	0.38 (9.68)	4.75 (120.65)	0.265 (6.73)
1492-PD32127	2	8.54 (216.92)	5.50 (139.7)	3.23 (82.0)	1.58 (40.13)	2.69 (68.58)	0.38 (9.68)	4.75 (120.65)	0.265 (6.73)
1492-PD3226	2	8.54 (216.92)	5.50 (139.7)	3.23 (82.0)	1.58 (40.13)	2.69 (68.58)	0.38 (9.68)	4.75 (120.65)	0.265 (6.73)
1492-PD3C2127	2	8.54 (216.92)	5.50 (139.7)	3.23 (82.0)	1.58 (40.13)	2.69 (68.58)	0.38 (9.68)	4.75 (120.65)	0.265 (6.73)
1492-PD3C287	2	8.54 (216.92)	5.50 (139.7)	3.23 (82.0)	1.58 (40.13)	2.69 (68.58)	0.38 (9.68)	4.75 (120.65)	0.265 (6.73)

★ No marker strip.

1492-PDL



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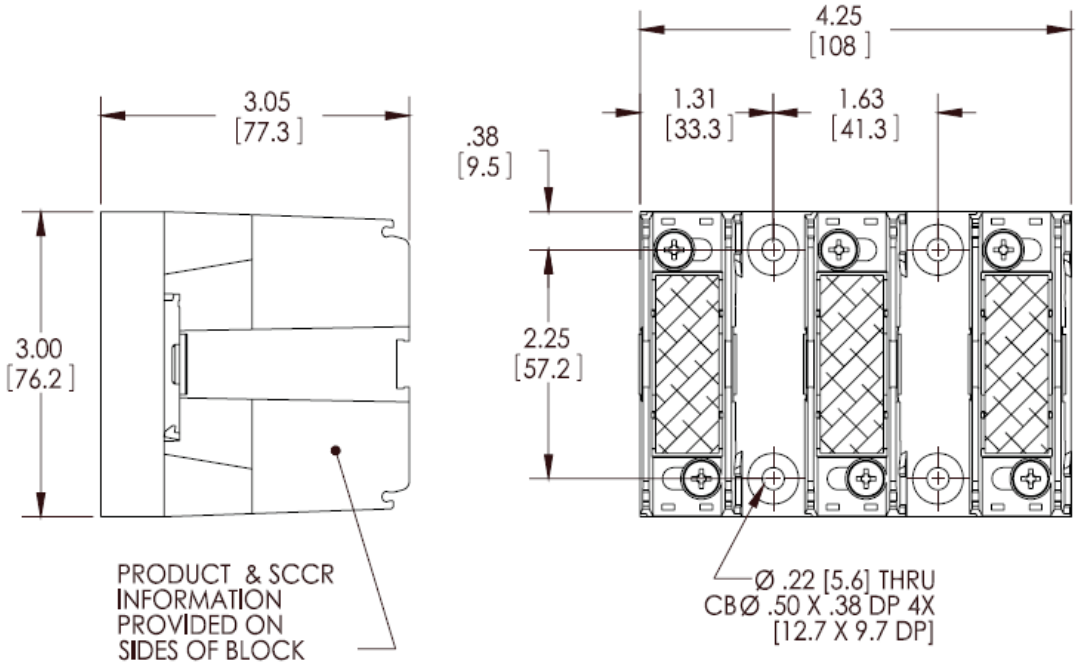

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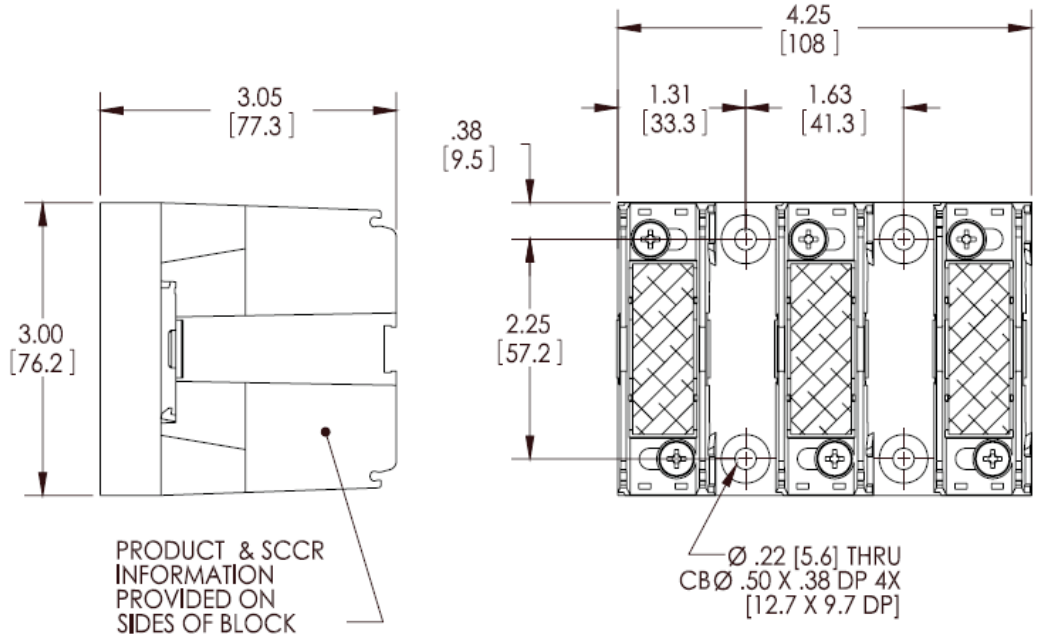

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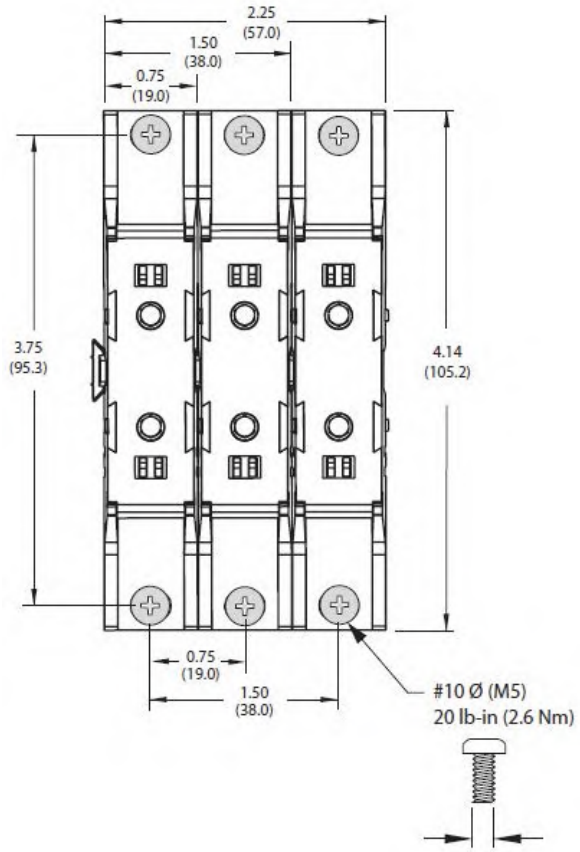
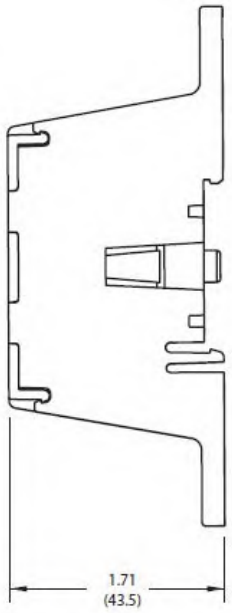
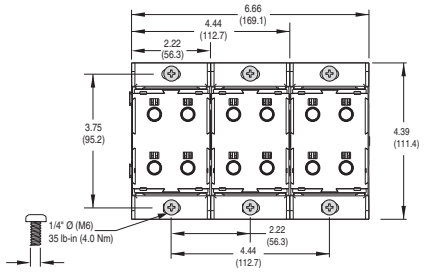
1492-PDE





Cat. Nos. 1492-PDME111 and 1492-PDME1141



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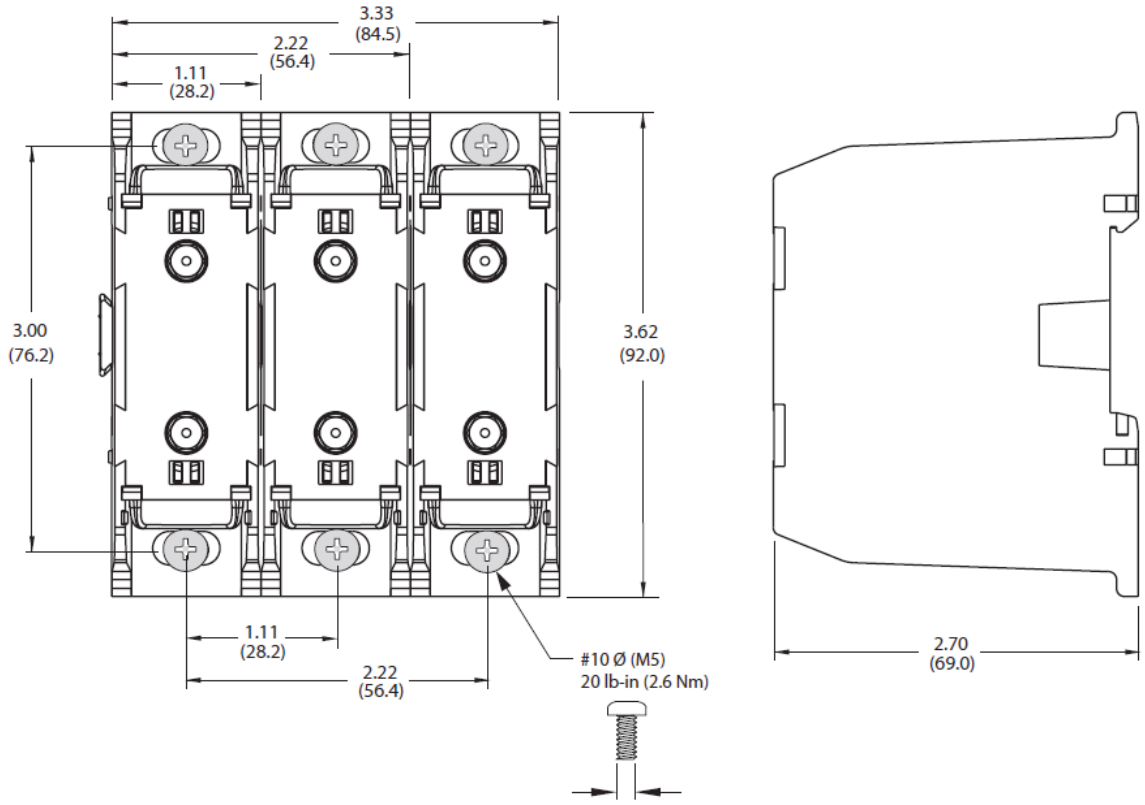

Cat. Nos. 1492-PDE1112, -PDE1C112, 1492-PDE1C12, 1492-PDE1142, 1492-PDE1C142

Important User Information

Read this document and the documents listed in the additional resources section about installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice.

If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

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CATALOG CUT SHEETS

SECTION: 111

EnviroCare International

507 Green Island Road
American Canyon, CA 94503, USA
Tel. 707.638.6800
Fax. 707.638.6898

Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

Manufacturer: ALLEN BRADLEY
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
N/A	A-B, W4 FUSE BLOCK, 24V LED BFI	1492-WFB424
	A-B, W4 FUSE BLOCK, 120Vac LED BFI	1492-WFB4250
	A-B, W4 DISCONNECT BLOCK	1492-JDK4

Allen-Bradley

Terminal Block Specifications

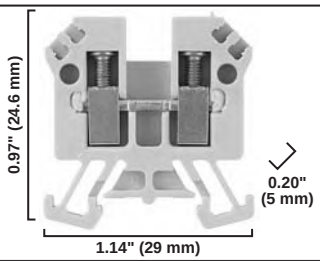
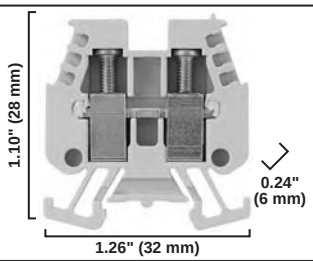
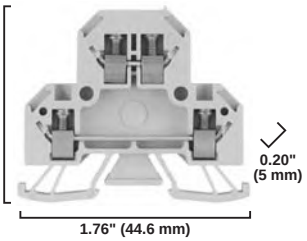
Bulletin Number 1492

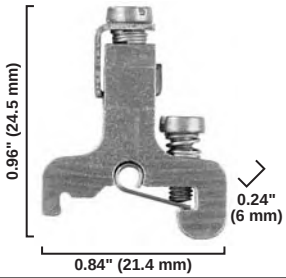
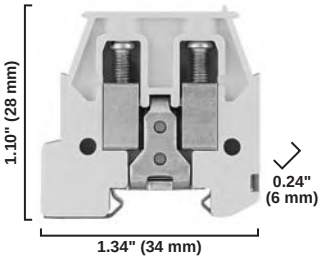
Additional Resources

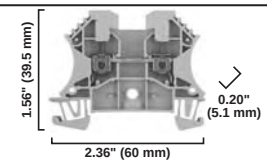
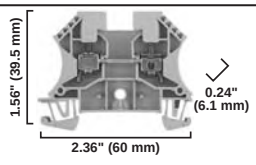
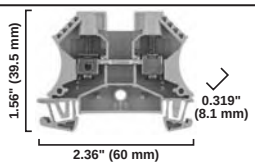
These documents contain additional information concerning related products from Rockwell Automation.

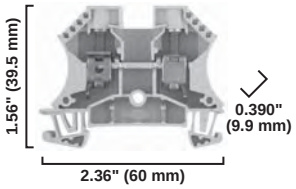
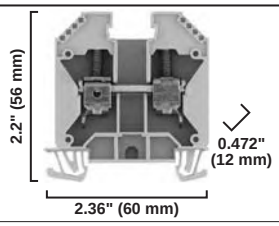
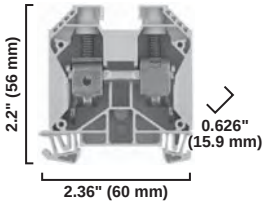
Resource	Description
Industrial Automation Wiring and Grounding Guidelines, publication 1770-4.1	Provides general guidelines for installing a Rockwell Automation industrial system.
Product Certifications website, http://www.ab.com	Provides declarations of conformity, certificates, and other certification details.

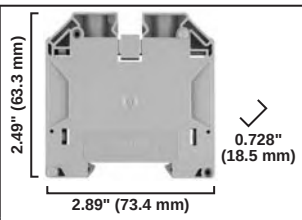
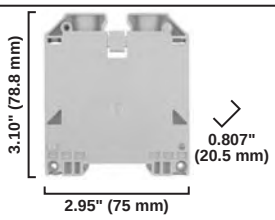
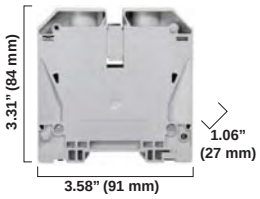
You can view or download publications at http://www.rockwellautomation.com/literature/. To order paper copies of technical documentation, contact your local Allen-Bradley distributor or Rockwell Automation sales representative.

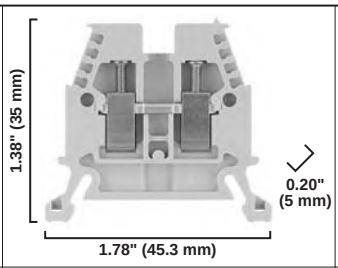
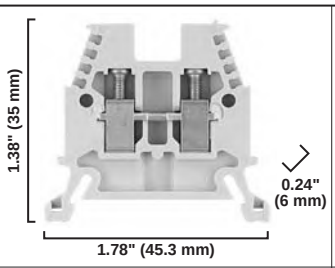
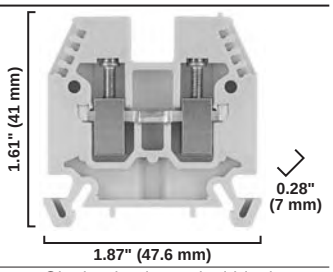
	1492-WM3				1492-WM4				1492-WMD1		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.											
Specifications	*Single-circuit mini terminal block.*				*Single-circuit mini terminal block.*				*Two-circuit mini terminal block.*		
Certifications	cULus	IEC	CSA	ATEX	cULus	IEC	CSA	ATEX	cULus	CSA	IEC
Voltage Rating	300V AC/DC	500V AC/DC	300V AC/DC	420V AC/DC	300V AC/DC	500V AC/DC	300V AC/DC	420V AC/DC	300V AC/DC	300V AC/DC	500V AC/DC
Maximum Current	15 A	24 A	15 A	24 A	20 A	32 A	20 A	32 A	15 A	15 A	17.5 A
Wire Range (Rated Cross Section)	#30…14 AWG	0.5…2.5 mm^2	#22…14 AWG	2.5 mm^2	#22…12 AWG	0.5…4.0 mm^2	#22…12 AWG	4.0 mm^2	#22…16 AWG		0.5…1.5 mm^2
Wire Strip Length	0.24 in. (6 mm)				0.39 in. (10 mm)				0.35 in. (9 mm)		
Recommended Tightening Torque	4.2…4.6 lb•in (0.47....0.52 N•m)				4.7…6.2 lb•in (0.53...0.70 N•m)				4.2…4.6 lb•in (0.47....0.52 N•m)		
Density	61 pcs/ft (200/m)				50 pcs/ft (166/m)				61 pcs/ft (200/m)		
Housing Temperature Range	-40…+195 °F (-40…+90 °C)				-40…+195 °F (-40…+90 °C)				-40…+195 °F (-40…+90 °C)		

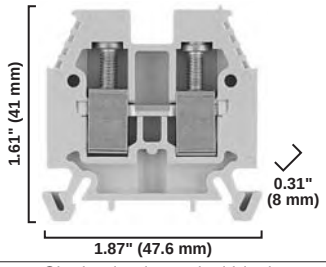
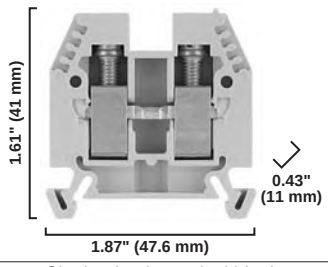
	1492-WMG3		1492-WMG4		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.					
Specifications	*Single-circuit mini grounding terminal block.*		*Single-circuit mini grounding terminal block.*		
Certifications	IEC		cULus	cULus	IEC
Maximum Current	Grounding		Grounding		
Wire Range (Rated Cross Section)	#14 AWG (2.5 mm^2)		#22…12 AWG		0.5…4.0 mm^2
Wire Strip Length	0.31 in. (8 mm)		0.39 in. (10 mm)		
Recommended Tightening Torque	6.2 lb•in (0.7 N•m)		5.3 lb•in (0.6 N•m)		
Density	50 pcs/ft (166 pcs/m)		50 pcs/ft (166 pcs/m)		
Housing Temperature Range	—		-40…+195 °F (-40…+90 °C)		

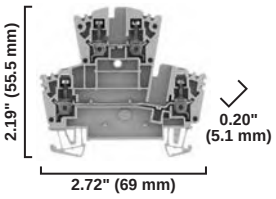
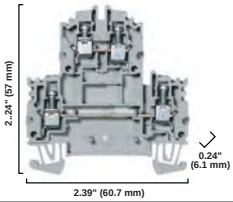
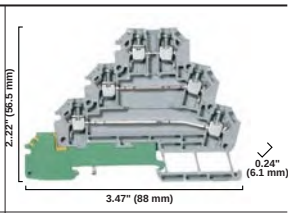
	1492-J3				1492-J4				1492-J6			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.												
Specifications	*Feed-through terminal block*				*Feed-through terminal block*				*Feed-through terminal block*			
Certifications	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX
Voltage Rating	600V AC/DC		800V AC/DC	550V AC/DC	600V AC/DC		800V AC/DC	690V AC/DC	600V AC/DC		800V AC/DC	550V AC/DC
Maximum Current	25 A	20 A	24 A	21 A	35 A	25 A	32 A	28 A	50 A		41 A	36 A
Wire Range (Rated Cross Section)	#28…12 AWG	#26…12 AWG	2.5 mm^2	2.5 mm^2 (#20…14 AWG)	#22…10 AWG	#26…10 AWG	4 mm^2	4 mm^2 (#20…12 AWG)	#22…8 AWG		6 mm^2	6 mm^2 (#20…10 AWG)
Wire Strip Length	0.39 in. (10 mm)				0.39 in. (10 mm)				0.47 in. (12 mm)			
Recommended Tightening Torque	4.5…7.1 lb•in (0.5…0.8 N•m)				9.0 lb•in (1.0 N•m)				14.2 lb•in (1.6 N•m)			
Density	59 pcs/ft (196 pcs/m)				49 pcs/ft (163 pcs/m)				37 pcs/ft (123 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

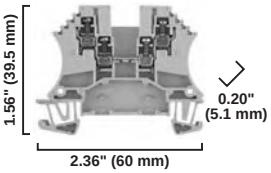
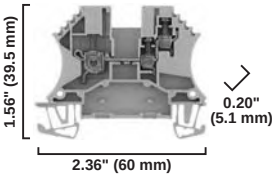
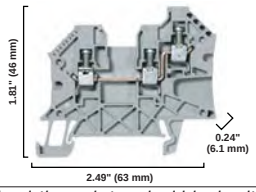
	1492-J10				1492-J16				1492-J35			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.												
Specifications	*Feed-through terminal block*				*Feed-through terminal block*				*Feed-through terminal block*			
Certifications	cULus	**CSA**	**IEC**	**ATEX**	cULus	**CSA**	**IEC**	**ATEX**	cULus	**CSA**	**IEC**	**ATEX**
Voltage Rating	600V AC/DC		1000V AC/DC	550V AC/DC	600V AC/DC		1000V AC/DC	690V AC/DC	1000V AC/DC	600V AC/DC	1000V AC/DC	690V AC/DC
Maximum Current	65 A	50 A	57 A	50 A	85 A		76 A	66 A	150 A	120 A	125 A	109 A
Wire Range (Rated Cross Section)	#18…6 AWG		10 mm^2	10 mm^2 (#16…8 AWG)	#18…4 AWG		16 mm^2	16 mm^2 (#16…6 AWG)	#12…1/0 AWG	#12…2 AWG	35 mm^2	35 mm^2 (#14…2 AWG)
Wire Strip Length	0.47 in. (12 mm)				0.63 in. (16 mm)				0.70 in. (18 mm)			
Recommended Tightening Torque	20.4 lb•in (2.3 N•m)				35.0 lb•in (4.0 N•m)				51.0 lb•in (5.8 N•m)			
Density	30 pcs/ft (100 pcs/m)				25 pcs/ft (83 pcs/m)				19 pcs/ft (62 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

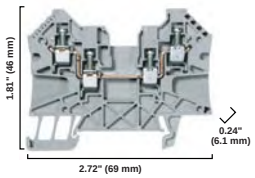
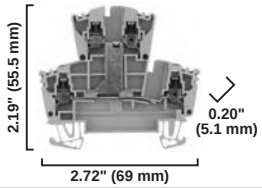
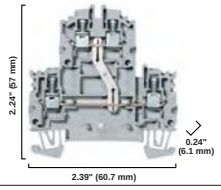
	1492-J50				1492-J70				1492-J120		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.											
Specifications	*Feed-through terminal block*				*Feed-through terminal block*				*Feed-through terminal block*		
Certifications	cULus	**CSA**	**IEC**	**ATEX**	cULus	**CSA**	**IEC**	**ATEX**	cULus	**CSA**	**IEC**
Voltage Rating	1000V AC/DC	600V AC/DC	1000V AC/DC	690V AC/DC	600V AC/DC		1000V AC/DC	690V AC/DC	1000V AC/DC		
Maximum Current	150 A		150 A	126 A	175 A	205 A	192 A	167 A	228 A	220 A	269 A
Wire Range (Rated Cross Section)	#10…1/0 AWG	#8…1/0 AWG	50 mm^2	#10…1/0 AWG 50 mm^2	#6…2/0 AWG		70 mm^2	#8…2/0 AWG 70 mm^2	#4…250 MCM AWG	#4…4/0 AWG	16…120 mm^2
Wire Strip Length	0.94 in. (24 mm)				0.87 in. (22 mm)				1.06 in. (27 mm)		
Recommended Tightening Torque	31.5 lb•in (3.6 N•m)				87.0 lb•in (9.8 N•m)				141.6 lb•in (16.0 N•m)		
Density	16 pcs/ft (54 pcs/m)				14 pcs/ft (48 pcs/m)				11 pcs/ft (37 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				-58...+248 °F (-50...+120 °C)		

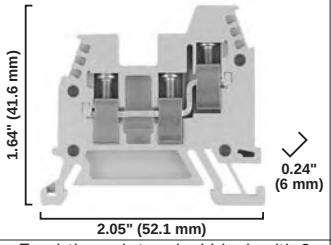
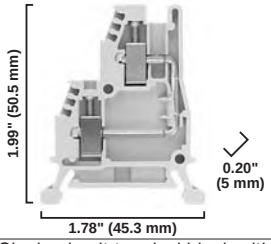
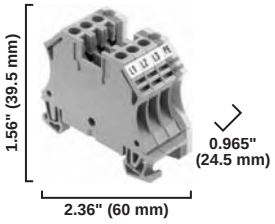
	1492-W3				1492-W4				1492-W6		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.											
Specifications	*Single-circuit terminal block.*				*Single-circuit terminal block.*				*Single-circuit terminal block.*		
Certifications	cULus	IEC	CSA	ATEX	cULus	IEC	CSA	ATEX	cULus	IEC	CSA
Voltage Rating	600V AC/DC	800V AC/DC	600V AC/DC	550V AC/DC	600V AC/DC	800V AC/DC	600V AC/DC	550V AC/DC	600V AC/DC	800V AC/DC	600V AC/DC
Maximum Current	20 A	24 A	20 A	24 A	30 A	32 A	30 A	32 A	40 A	41 A	40 A
Wire Range (Rated Cross Section)	#30…14 AWG	0.5…2.5 mm^2	#22…14 AWG	2.5 mm^2	#22…10 AWG	0.5…4.0 mm^2	#22…10 AWG	4.0 mm^2	#22…10 AWG	0.5…6.0 mm^2	#22…10 AWG
Wire Strip Length	0.39 in. (10 mm)				0.35 in. (9 mm)				0.47 in. (12 mm)		
Recommended Tightening Torque	5.0…5.6 lb•in (0.6 N•m)				5.0…5.6 lb•in (0.6 N•m)				5.6…6.8 lb•in (0.7 N•m)		
Density	61 pcs/ft (200 pcs/m)				50 pcs/ft (166 pcs/m)				43 pcs/ft (142 pcs/m)		
Housing Temperature Range	-40…+195 °F (-40…+90 °C)				-40…+195 °F (-40…+90 °C)				-40…+195 °F (-40…+90 °C)		

	1492-W10				1492-W16S			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.								
Specifications	*Single-circuit terminal block.*				*Single-circuit terminal block.*			
Certifications	cULus	IEC	CSA	ATEX	cULus	IEC	CSA	ATEX
Voltage Rating	600V AC/DC	800V AC/DC	600V AC/DC	550V AC/DC	600V AC/DC	800V AC/DC	600V AC/DC	550V AC/DC
Maximum Current	50 A	57 A	50 A	50 A	85 A	76 A	85 A	76 A
Wire Range (Rated Cross Section)	#22…8 AWG	10 mm^2	#22…8 AWG	0.5…10 mm^2	#14…4 AWG	16 mm^2	#14…4 AWG	2.5…16 mm^2
Wire Strip Length	0.51 in. (13 mm)				0.51 in. (13 mm)			
Recommended Tightening Torque	12.2…13.4 lb•in (1.4 N•m)				18…20 lb•in (2.1 N•m)			
Density	38 pcs/ft (125 pcs/m)				27 pcs/ft (90 pcs/m)			
Housing Temperature Range	-40…+195 °F (-40…+90 °C)				-40…+195 °F (-40…+90 °C)			

	1492-JD3				1492-JD4				1492-JT3M		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.											
Specifications	*Two-level, two-circuit feed-through terminal block*				*Two-level, two-circuit feed-through terminal block*				*Three-level, three-circuit terminal block with ground point*		
Certifications	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX	cULus	CSA	IEC
Voltage Rating	600V AC/DC	300V AC/DC	400V AC/DC	275V AC/DC	600V AC/DC	300V AC/DC	800V AC/DC	550V AC/DC	300V AC/DC		400V AC/DC
Maximum Current	20 A	10 A	24 A	21 A	35 A	30 A	32 A	28 A	10 A		24 A
Wire Range (Rated Cross Section)	#22…12 AWG	26…12 AWG	2.5 mm^2	2.5 mm^2 (20…14 AWG)	#26…10 AWG		0.5…4 mm^2	4 mm^2 (20…12 AWG)	#22…12 AWG	#26…10 AWG	0.5…2.5 mm^2
Wire Strip Length	0.39 in. (10 mm)				0.315 in. (8 mm)				0.28 in. (7 mm)		
Recommended Tightening Torque	4.5…7.1 lb•in (0.5…0.8 N•m)				4.5 lb•in (0.5 N•m)				4.4 lb•in (0.5 N•m)		
Density	59 pcs/ft (196 pcs/m)				49 pcs/ft (163 pcs/m)				49 pcs/ft (163 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)		

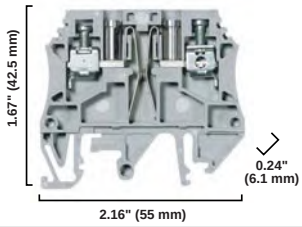
		1492-J2Q			1492-J3TW				1492-J4TW		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.											
Specifications		*Feed-through terminal block with 2 connection points on each side*			*Feed-through terminal block with 3 connection points, 2 on one side*				*Feed-through terminal block with 3 connection points, 2 on one side*		
Certifications		cULus	CSA	IEC	cULus	CSA	IEC	ATEX	cULus	CSA	IEC
Voltage Rating		300V AC/DC		800V AC/DC	300V AC/DC		800V AC/DC	550V AC/DC	600V AC/DC		500V AC/DC
Maximum Current		25 A	10 A	17.5 A	—				30 A		32 A
Maximum Current	Single Side	—			10 A	15 A	17.5 A	15 A	—	—	—
	Twin Side	—			20 A		24 A	21 A	—	—	—
Wire Range (Rated Cross Section)	Single Side	#22…12 AWG	#26…12 AWG	1.5 mm^2	#22…12 AWG	26…12 AWG	2.5 mm^2	2.5 mm^2 (#20…14 AWG)	#30…10 AWG		4 mm^2
	Twin Side	—			#22…12 AWG	26…12 AWG	1.5 mm^2	1.5 mm^2 (#20…16 AWG)			
Wire Strip Length		0.28 in. (7 mm)			Single Side: 0.39 in. (10 mm) Twin Side: 0.26 in. (7 mm)				0.39 in. (10 mm)		
Recommended Tightening Torque		4.5 lb•in (0.5 N•m)			Single Side: 7.0 lb•in (0.8 N•m) Twin Side:4.5 lb•in (0.5 N•m)				6.2 lb•in (0.7 N•m)		
Density		59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)				59 pcs/ft (196 pcs/m)		
Housing Temperature Range	Insulation Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)		

	1492-J4Q			1492-JD3C				1492-JD4C			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.											
Specifications	*Single-level feed-through terminal block with 2 connection points on each side*			*Two-level feed-through terminal block with commoning bar*				*Two-level feed-through terminal block with commoning bar*			
Certifications	cULus	CSA	IEC	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX
Voltage Rating	600V AC/DC		500V AC/DC	600V AC/DC	300V AC/DC	400V AC/DC	275V AC/DC	600V AC/DC	300V AC/DC	400V AC/DC	550V AC/DC
Maximum Current	30 A		32 A	20 A	10 A	24 A	21 A	35 A	30 A	32 A	28 A
Wire Range (Rated Cross Section)	#30…10 AWG		0.5…4 mm^2	#22…12 AWG	#26…12 AWG	2.5 mm^2	2.5 mm^2 (20…14 AWG)	#26…10 AWG		0.5…4 mm^2	4 mm^2 (20…12 AWG)
Wire Strip Length	0.39 in. (10 mm)			0.39 in. (10 mm)				0.28 in. (7 mm)			
Recommended Tightening Torque	6.2 lb•in (0.7 N•m)			4.5…7.1 lb•in (0.5…0.8 N•m)				4.5 lb•in (0.5 N•m)			
Density	49 pcs/ft (163 pcs/m)			59 pcs/ft (196 pcs/m)				49 pcs/ft (163 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

	1492-W4TW			1492-WR3			1492-J4M	
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.								
Specifications	*Feed-through terminal block with 3 connection points, 2 on one side*			*Single-circuit terminal block with terminals on common side.*			*Motor connection terminal block cluster with 3 feeds and ground*	
Certifications	cULus	CSA	IEC	cULus	CSA	IEC	Certifications on individual blocks (1492-J4, JG4)	
Voltage Rating	600V AC/DC	600V AC/DC	800V AC/DC	300V AC/DC		500V AC/DC		
Maximum Current	30 A	20 A	32 A	15 A		15 A		
Wire Range (Rated Cross Section)	#18…10 AWG	#22…12 AWG	0.5…4 mm^2	#22…14 AWG		0.5…2.5 mm^2	#22…10 AWG 4 mm^2	
Wire Strip Length	0.35 in. (9 mm)			0.39 in. (10 mm)			0.39 in. (10 mm)	
Recommended Tightening Torque	5.0…5.6 lb•in (0.6 N•m)			5.0…5.6 lb•in (0.6 N•m)			9.0 lb•in (1.0 N•m)	
Density	50 pcs/ft (166 pcs/m)			61 pcs/ft (200 pcs/m)			12 pcs/ft (40 pcs/m)	
Housing Temperature Range	-40…+195 °F (-40…+90 °C)			-40…+195 °F (-40…+90 °C)			-58…+248 °F (-50…+120 °C)	

1492-J4CTB

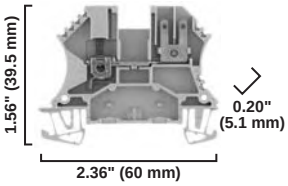
Dimensions are not intended to be used for manufacturing purposes.
Note: Height dimension is measured from top of rail to top of terminal block.



Specifications	*Single-level feed through block with circuit-break test/measurement plug capability*		
Certifications		**CSA**	**IEC**
Voltage Rating	300V AC/DC		500V AC/DC
Maximum Current	8 A		6 A
Wire Range (Rated Cross Section)	#26…10 AWG		0.5…4 mm^2
Wire Strip Length	0.394 in. (10 mm)		
Recommended Tightening Torque	4.4…7.1 lb•in (0.5…0.8 N•m)		
Density	49 pcs/ft (163 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)		

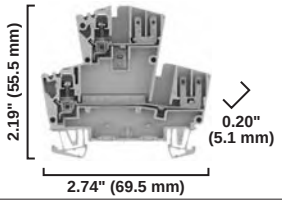
1492-J3F

Dimensions are not intended to be used for manufacturing purposes.
Note: Height dimension is measured from top of rail to top of terminal block.

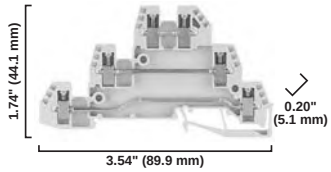
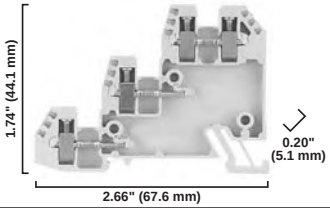


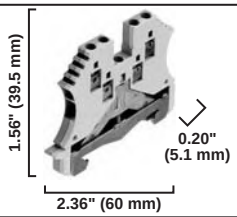
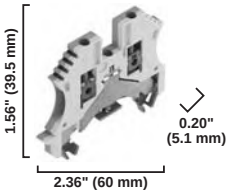
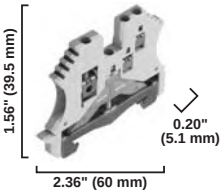
Specifications	*Feed-through terminal block with stab connections on one side*		
Certifications		**CSA**	**IEC**
Voltage Rating	300V AC/DC		500V AC/DC
Maximum Current	16 A	10 A	16 A (2 x 8)
Wire Range (Rated Cross Section)	#22…12 AWG	#26…12 AWG	2.5 mm^2
Wire Strip Length	0.39 in. (10 mm)		
Recommended Tightening Torque	4.5…7.1 lb•in (0.5…0.8 N•m)		
Density	59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)		

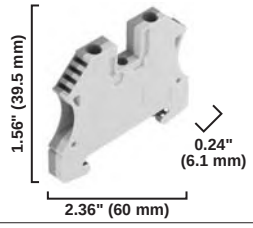
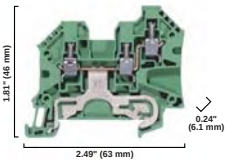
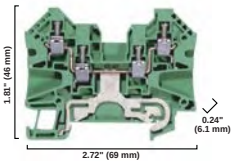
1492-JD3F

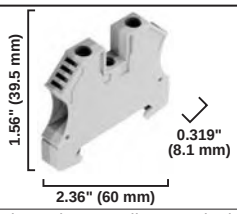
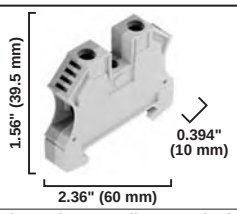


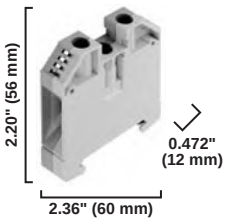
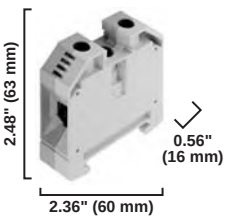
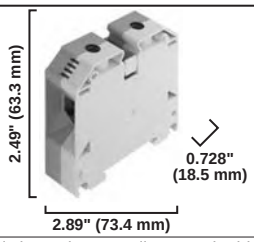
	Two-level, two-circuit feed-through terminal block with stab connections on one side		
		CSA	**IEC**
Voltage Rating	300V AC/DC		400V AC/DC
Maximum Current	10 A		16 A (2 x 8)
Wire Range (Rated Cross Section)	#22…12 AWG	#26…12 AWG	2.5 mm^2
Wire Strip Length	0.39 in. (10 mm)		
Recommended Tightening Torque	4.5…7.1 lb•in (0.5…0.8 N•m)		
Density	59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)		

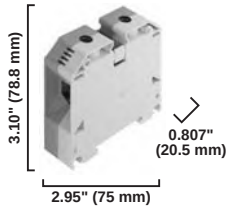
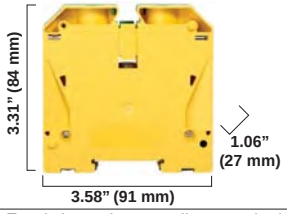
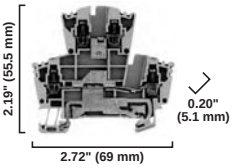
	1492-WTF3…			1492-WTS3…		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.						
Specifications	*Three-circuit terminal block.*			*Three-level sensor block.*		
Certifications		**CSA**	**IEC**		**CSA**	**IEC**
Voltage Rating	300V AC/DC		250V AC/DC	300V AC/DC		250V AC/DC
Maximum Current	10 A		24 A	10 A		24 A
Wire Range (Rated Cross Section)	#26…14 AWG		0.5…2.5mm^2	#26…14 AWG		0.5…2.5 mm^2
Recommended Tightening Torque	4.2…4.6 lb•in (0.5 N•m)			4.2…4.6 lb•in (0.5 N•m)		
Density	60 pcs/ft (197 pcs/m)			60 pcs/ft (197 pcs/m)		
Housing Temperature Range	-40…+195 °F (-40…+90 °C)			-40…+195 °F (-40…+90 °C)		
Indicator Type WTF3/WTS3	No indicator			No indicator		
WTF3LP/WTS3LP	Red LED for PNP devices (10…50V)			Red LED for PNP devices (10…50V)		
WTF3LN/WTS3LN	Red LED for NPN devices (10…50V)			Red LED for NPN devices (10…50V)		
Leakage Current WTF3/WTS3	—			—		
WTF3LP/WTS3LP	2.69 mA @ 50V			2.69 mA @ 50V		
WTF3LN/WTS3LN	2.69 mA @ 50V			2.69 mA @ 50V		
Wire Strip Length	0.31 in. (8 mm)			0.31 in. (8 mm)		

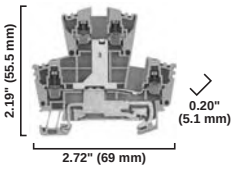
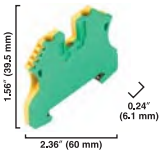
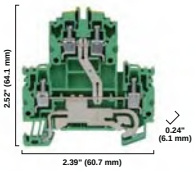
	1492-JG2Q			1492-JG3				1492-JG3TW			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.											
Specifications	*Feed-through grounding terminal block with 2 connection points on each side*			*Feed-through grounding terminal block*				*Feed-through grounding terminal block with 3 connection points, 2 on one side*			
Certifications		**CSA**	**IEC**		**CSA**	**IEC**	**ATEX**		**CSA**	**IEC**	**ATEX**
Voltage Rating	—	—	—	—	—	—	—	—	—	—	—
Maximum Current	Grounding			Grounding				Grounding			
Wire Range (Rated Cross Section)	#22…14 AWG		1.5 mm^2	#22…12 AWG		2.5 mm^2	2.5 mm^2 (#20…14 AWG)	Single Side: #22…12 AWG		2.5 mm^2	2.5 mm^2 (#20…14 AWG)
								Twin Side: #26…12 AWG		1.5 mm^2	1.5 mm^2 (#20…16 AWG)
Wire Strip Length	0.28 in. (7 mm)			0.39 in. (10 mm)				Single Side: 0.39 in. (10 mm) Twin Side: 0.28 in. (7 mm)			
Recommended Tightening Torque	5.0 lb•in (0.6 N•m)			7.1 lb•in (0.8 N•m)				Single Side: 7.1 lb•in (0.8 N•m)			
Mounting Torque — Center Screw	3.5…5.3 lb•in (0.4…0.6 N•m)			3.5…6.2 lb•in (0.4…0.6 N•m)				Twin Side: 4.5 lb•in (0.5 N•m)			
Density	59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)				59 pcs/ft (196 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

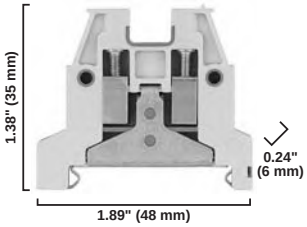
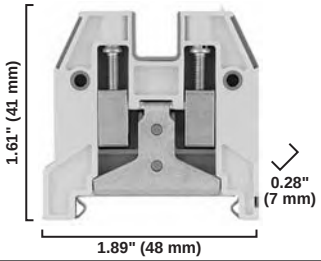
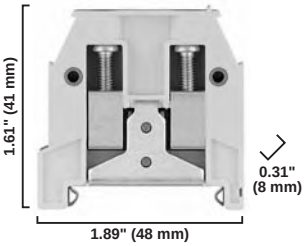
	1492-JG4				1492-JG4TW			1492-JG4Q		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.										
Specifications	*Feed-through grounding terminal block*				*Single-level grounding terminal block with 3 connection points, 2 on one side*			*Single-level grounding terminal block with two connection points on each sides*		
Certifications		CSA	IEC	ATEX		CSA	IEC		CSA	IEC
Voltage Rating	—	—	—	—	—			—		
Maximum Current	Grounding				Grounding			Grounding		
Wire Range (Rated Cross Section)	#22…10 AWG		4 mm^2	4 mm^2 (#20…12 AWG)	#30…10 AWG		0.5…4 mm^2	#30…10 AWG		0.5…4 mm^2
Wire Strip Length	0.39 in. (10 mm)				0.394 in. (10 mm)			0.394 in. (10 mm)		
Recommended Tightening Torque	9 lb-in (1.0 N•m)				6.2 lb•in (0.7 N•m)			6.2 lb•in (0.7 N•m)		
Mounting Torque - Center Screw	4.4…7.1 lb•in (0.5…0.8 N•m)				—			—		
Density	49 pcs/ft (163 pcs/m)				49 pcs/ft (163 pcs/m)			49 pcs/ft (163 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

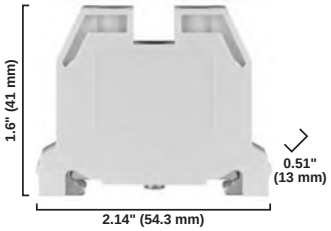
	1492-JG6				1492-JG10			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.								
Specifications	*Feed-through grounding terminal block*				*Feed-through grounding terminal block*			
Certifications		CSA	IEC	ATEX		CSA	IEC	ATEX
Voltage Rating	—	—	—	—	—	—	—	—
Maximum Current	Grounding				Grounding			
Wire Range (Rated Cross Section)	#22…8 AWG		6 mm^2	6 mm^2 (#20…10 AWG)	#16…6 AWG		10 mm^2	10 mm^2 (#16…8 AWG)
Wire Strip Length	0.47 in. (12 mm)				0.47 in. (12 mm)			
Recommended Tightening Torque	14.2 lb•in (1.6 N•m)				20.4 lb•in (2.3 N•m)			
Mounting Torque — Center Screw	4.4…8.9 lb•in (0.5…1.0 N•m)				4.4…8.9 lb•in (0.5…1.0 N•m)			
Density	37 pcs/ft (123 pcs/m)				30 pcs/ft (100 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

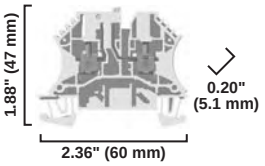
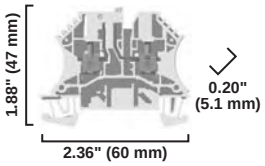
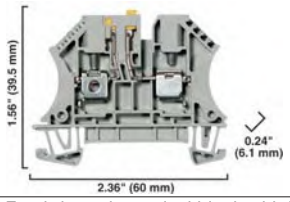
	1492-JG16				1492-JG35				1492-JG50			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.												
Specifications	*Feed-through grounding terminal block*				*Feed-through grounding terminal block*				*Feed-through grounding terminal block*			
Certifications		CSA	IEC	ATEX		CSA	IEC	ATEX		CSA	IEC	ATEX
Voltage Rating	—	—	—	—	—	—	—	—	—	—	—	—
Maximum Current	Grounding				Grounding				Grounding			
Wire Range (Rated Cross Section)	#24…4 AWG		16 mm^2	16 mm^2 (#16…6 AWG)	#12…1 AWG	#12…2 AWG	35 mm^2	35 mm^2 (#14…2 AWG)	#10… 1/0 AWG	#14… 1/0 AWG	50 mm^2	50 mm^2 (10…1/0 AWG)
Wire Strip Length	0.63 in. (16 mm)				0.70 in. (18 mm)				0.94 in. (24 mm)			
Recommended Tightening Torque	35.0 lb•in (4.0 N•m)				51.0 lb•in (5.8 N•m)				31.5 lb•in (3.6 N•m)			
Mounting Torque — Center Screw	10.6…21.2 lb•in (1.2…2.4 N•m)				10.6…21.2 lb•in (1.2…2.4 N•m)				17.7…35.4 lb•in (2.0…4.0 N•m)			
Density	25 pcs/ft (83 pcs/m)				19 pcs/ft (62 pcs/m)				16 pcs/ft (54 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

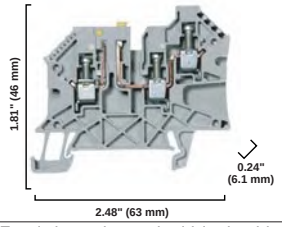
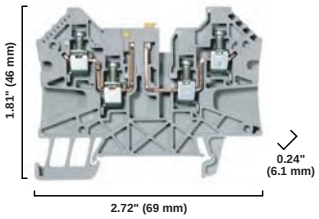
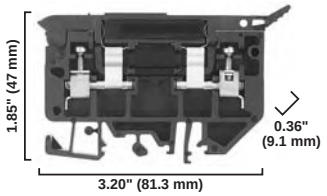
	1492-JG70				1492-JG120			1492-JDG3			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.											
Specifications	*Feed-through grounding terminal block*				*Feed-through grounding terminal block*			*Two-circuit terminal block with one feed-through and one grounding circuit*			
Certifications		**CSA**	**IEC**	**ATEX**		**CSA**	**IEC**		**CSA**	**IEC**	**ATEX**
Voltage Rating	—				—			300V AC/DC		400V AC/DC	275V AC/DC
Maximum Current	Grounding				—			20 A		24 A	21 A
Wire Range (Rated Cross Section)	#6…2/0 AWG		70 mm^2	70 mm^2 (#8…2/0 AWG)	#4…3/0 AWG	#4…4/0 AWG	16...95 mm^2	#22…12 AWG		2.5 mm^2	2.5 mm^2 (#20…14 AWG)
Wire Strip Length	0.87 in. (22 mm)				1.06 in. (27 mm)			0.39 in. (10 mm)			
Recommended Tightening Torque	87.0 lb•in (9.8 N•m)				88.5 lb•in (10 N•m)			4.5…7.1 lb•in. (0.5…0.8 N•m)			
Mounting Torque — Center Screw	17.7…35.4 lb•in (2.0…4.0 N•m)				—			—			
Density	14 pcs/ft (48 pcs/m)				11 pcs/ft (37 pcs/m)			59 pcs/ft (196 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)			

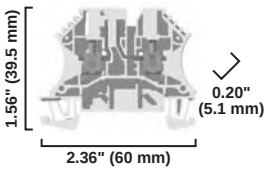
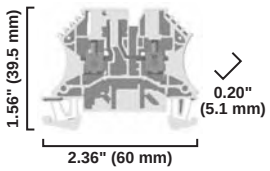
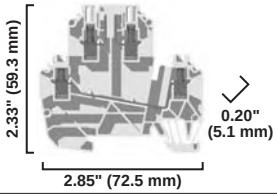
	1492-JDG3C				1492-JDG4				1492-JDG4C			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.												
Specifications	*Two-level grounding terminal block with commoning bar*				*Two-circuit terminal block with one feed-through and one grounding*				*Two-level grounding terminal block with commoning bar*			
Certifications		**CSA**	**IEC**	**ATEX**		**CSA**	**IEC**	**ATEX**		**CSA**	**IEC**	**ATEX**
Voltage Rating	—				600V AC/DC	300V AC/DC	800V AC/DC	550V AC/DC	—			
Maximum Current	Grounding				35 A	30 A	32 A	28 A	Grounding			
Wire Range (Rated Cross Section)	#22…12 AWG	#26…12 AWG	2.5 mm^2	2.5 mm^2 (#20…14 AWG)	#26…10 AWG		4 mm^2	4 mm^2	#26…10 AWG		4 mm^2	4 mm^2
Wire Strip Length	0.39 in. (10 mm)				0.31 in. (8 mm)				0.31 in. (8 mm)			
Recommended Tightening Torque	4.5…7.1 lb•in (0.5…0.8 N•m)				4.5…8.8 lb•in (0.5…1.0 N•m)				4.5…8.8 lb•in (0.5…1.0 N•m)			
Mounting Torque — Center Screw	—				—				—			
Density	59 pcs/ft (196 pcs/m)				49 pcs/ft (163 pcs/m)				49 pcs/ft (163 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

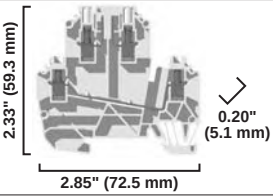
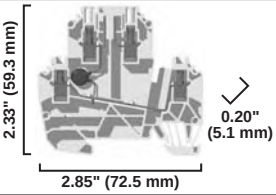
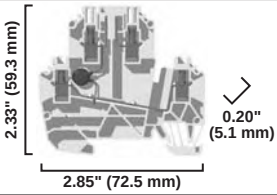
	1492-WG4				1492-WG6				1492-WG10S		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.											
Specifications	*Single-circuit grounding terminal block.*				*Single-circuit grounding terminal block.*				*Single-circuit grounding terminal block.*		
Certifications		**IEC**	**CSA**	**ATEX**		**IEC**	**CSA**	**ATEX**		**CSA**	**IEC**
Voltage Rating	—	—	—	—	—	—	—	—	—	—	—
Maximum Current	Grounding				Grounding				Grounding		
Wire Range (Rated Cross Section)	#22…12 AWG	4 mm^2	#22…12 AWG	4 mm^2	#22…10 AWG	6 mm^2	#22…10 AWG	6 mm^2	#22…8 AWG	#22…8 AWG	10 mm^2
Wire Strip Length	0.43 in. (11 mm)				0.47 in. (12 mm)				0.43 in. (11 mm)		
Recommended Tightening Torque	5.6…6.8 lb•in (0.7 N•m)				5.6…6.8 lb•in (0.7 N•m)				7.1 lb•in (0.8 N•m)		
Density	50 pcs/ft (166 pcs/m)				43 pcs/ft (142 pcs/m)				38 pcs/ft (125 pcs/m)		
Housing Temperature Range	-40…+195 °F (-40…+90 °C)				-40…+195 °F (-40…+90 °C)				-40…+195 °F (-40…+90 °C)		

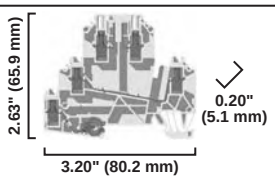
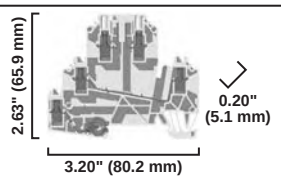
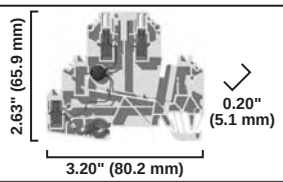
	1492-WG16S		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.			
Specifications	*Single-circuit grounding terminal block.*		
Certifications		**CSA**	**IEC**
Voltage Rating	—	—	—
Maximum Current	Grounding		
Wire Range (Rated Cross Section)	#14…4 AWG		2.5…16 mm^2
Wire Strip Length	0.51 in. (13 mm)		
Recommended Tightening Torque	18…20 lb•in (2.1 N•m)		
Center Screw Mounting Torque	10.6 lb•in (1.2 N•m)		
Density	27 pcs/ft (90 pcs/m)		
Housing Temperature Range	-40…+195 °F (-40…+90 °C)		

	1492-JKD3			1492-JKD3TP			1492-JKD4		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*Feed through terminal block with knife disconnect*			*Feed-through terminal block with knife disconnect and test screws*			*Feed-through terminal block with knife disconnect*		
Certifications		**CSA**	**IEC**		**CSA**	**IEC**		**CSA**	**IEC**
Voltage Rating	300V AC/DC		500V AC/DC	300V AC/DC		500V AC/DC	600V AC/DC	300V AC/DC	400V AC/DC
Maximum Current	10 A		24 A	10 A		24 A	22 A	10 A	32 A
Wire Range (Rated Cross Section)	#22…12 AWG		2.5 mm^2	#22…12 AWG		2.5 mm^2	#22…10 AWG		0.05…4.0 mm^2
Fuse Size (Dummy Fuse Supplied)	—			—			—		
Wire Strip Length	0.39 in. (10 mm)			0.39 in. (10 mm)			0.512 in. (13 mm)		
Recommended Tightening Torque	7.1 lb•in. (0.8 N•m)			7.1 lb•in. (0.8 N•m)			9.0 lb•in. (1.0 N•m)		
Density	49 pcs/ft (163 pcs/m)			49 pcs/ft (163 pcs/m)			49 pcs/ft (163 pcs/m)		
Housing Temperature Range	–58…+248 °F (–50…+120 °C)			–58…+248 °F (–50…+120 °C)			–58…+248 °F (–50…+120 °C)		

	1492-JKD4TW			1492-JKD4Q			1492-H7		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*Feed-through terminal block with knife disconnect; 3 connection points, 2 on one side*			*Feed-through terminal block with knife disconnect; 2 connection points on each side*			*Handle-style isolating terminal block*		
Certifications		**CSA**	**IEC**		**CSA**	**IEC**		**CSA**	**IEC**
Voltage Rating	600V AC/DC		500V AC/DC	600V AC/DC		500V AC/DC	300V AC/DC	300V AC/DC	500V AC/DC
Maximum Current	25 A		30 A	25 A		30 A	15 A	15 A	15 A
Wire Range (Rated Cross Section)	#30…10 AWG		0.5…4 mm^2	#30…10 AWG		0.5…4 mm^2	#30…10 AWG		0.5…4.0 mm^2
Fuse Size (Dummy Fuse Supplied)	—			—			1/4 x 1-1/4 in.		
Wire Strip Length	0.39 in. (10 mm)			0.39 in. (10 mm)			0.38 in. (9.7 mm)		
Recommended Tightening Torque	6.2 lb•in (0.7 N•m)			6.2 lb•in (0.7 N•m)			7.1 lb•in (0.8 N•m)		
Density	49 pcs/ft (163 pcs/m)			49 pcs/ft (163 pcs/m)			33 pcs/ft (109 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)			-40…+221 °F (-40…+105 °C)		

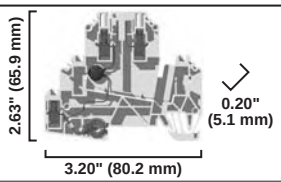
	1492-J3P			1492-J3PTP			1492-JD3P		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*Selectable component plug-in terminal block*			*Selectable component plug-in terminal block with test plug socket*			*Two Circuit selectable component plug-in terminal block*		
Certifications		CSA	IEC		CSA	IEC		CSA	IEC
Voltage Rating	600V AC/DC	300V AC/DC	500V AC/DC	300V AC/DC		500V AC/DC	300V AC/DC		500V AC/DC
Maximum Current	20 A	10 A	24 A	20 A	10 A	24 A	20 A		24 A
Wire Range (Rated Cross Section)	#30…12 AWG		2.5 mm^2	#30…12 AWG		2.5 mm^2	#24…12 AWG	#30…12 AWG	2.5 mm^2
Wire Strip Length	0.39 in. (10 mm)			0.39 in. (10 mm)			0.31 in. (8 mm)		
Recommended Tightening Torque	4.4 lb•in (0.5 N•m)			4.4 lb•in (0.5 N•m)			4.4 lb•in (0.5 N•m)		
Density	59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

	1492-JD3PTP			1492-JD3PSS			1492-JD3PSSTP		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*Two-circuit selectable component plug-in terminal block with test plug socket*			*Two-circuit selectable component plug-in terminal block with internal surge suppressor*			*Two-circuit selectable component plug-in terminal block with internal surge suppressor and test plug socket*		
Certifications		CSA	IEC		CSA	IEC		CSA	IEC
Voltage Rating	300V AC/DC		500V AC/DC	300V AC/DC		115V AC	300V AC/DC		115V AC/DC
Maximum Current	20 A		24 A	20 A		24 A	20 A		24 A
Wire Range (Rated Cross Section)	#24…12 AWG	#30…12 AWG	2.5 mm^2	#24…12 AWG	#30…12 AWG	2.5 mm^2	#24…12 AWG	#30…12 AWG	2.5 mm^2
Wire Strip Length	0.31 in. (8 mm)			0.31 in. (8 mm)			0.31 in. (8 mm)		
Recommended Tightening Torque	4.4 lb•in (0.5 N•m)			4.4 lb•in (0.5 N•m)			4.4 lb•in (0.5 N•m)		
Density	59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)			–58…+248 °F (–50…+120 °C)		

	1492-JDG3P			1492-JDG3PTP			1492-JDG3PSS		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*Two-circuit block with ground connection*			*Two-circuit block with test plug socket and ground connection*			*Single-circuit block with MOV to ground*		
Certifications		CSA	IEC		CSA	IEC		CSA	IEC
Voltage Rating	300V AC/DC		500V AC/DC	300V AC/DC		500V AC/DC	300V AC/DC		115V AC
Maximum Current	20 A		24 A	20 A		24 A	20 A		24 A
Wire Range (Rated Cross Section)	#24…12 AWG	#30…12 AWG	2.5 mm^2	#24…12 AWG	#30…12 AWG	2.5 mm^2	#24…12 AWG	#30…12 AWG	2.5 mm^2
Wire Strip Length	0.31 in. (8 mm)			0.31 in. (8 mm)			0.31 in. (8 mm)		
Recommended Tightening Torque	4.4 lb•in (0.5 N•m)			4.4 lb•in (0.5 N•m)			4.4 lb•in (0.5 N•m)		
Density	59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

1492-JDG3PSSTP

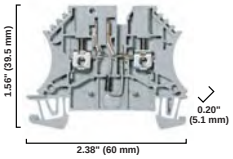
Dimensions are not intended to be used for manufacturing purposes.
Note: Height dimension is measured from top of rail to top of terminal block.



Specifications	*Single-circuit block with MOV to ground and test plug socket*		
Certifications		**CSA**	**IEC**
Voltage Rating	300V AC/DC		115V AC
Maximum Current	20 A		24 A
Wire Range (Rated Cross Section)	#24…12 AWG	#30…12 AWG	2.5 mm^2
Wire Strip Length	0.31 in. (8 mm)		
Recommended Tightening Torque	4.4 lb•in (0.5 N•m)		
Density	59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)		

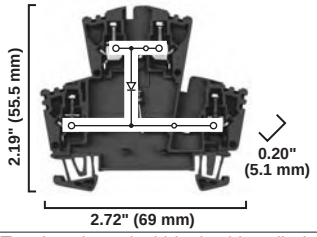
1492-J3DF

Dimensions are not intended to be used for manufacturing purposes.
Note: Height dimension is measured from top of rail to top of terminal block.



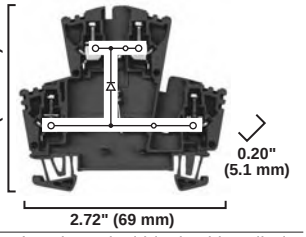
Specifications	*Single-level diode forward terminal block with test plug sockets*		
Certifications		**CSA**	**IEC**
Voltage Rating	300V AC/DC		500V AC/DC
Diode Reverse Voltage Rating	—		
Maximum Current	20 A	10 A	6 A
Diode Current★	—		
Resistor Type	—		
Resistor Value	—		
Current through Busbar	10 A	1 A	14 A
Wire Range (Rated Cross Section)	#26…12 AWG		0.5…2.5 mm^2
Wire Strip Length	0.394 in. (10 mm)		
Recommended Tightening Torque	4.4…6.2 lb•in (0.5…0.7 N•m)		
Density	59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)		

1492-JD3DF★

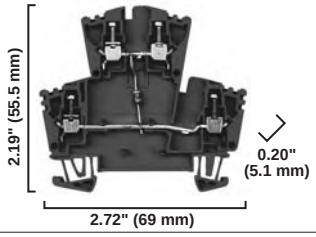
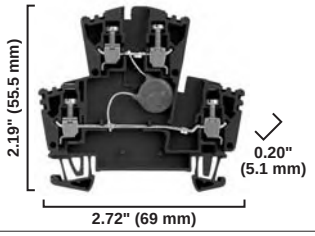


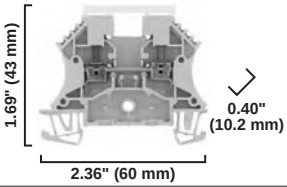
Specifications	*Two-Level terminal block with a diode in forward bias between the levels.*		
Certifications		**CSA**	**IEC**
Voltage Rating	600V AC/DC	300V AC/DC	400V AC/DC
Diode Reverse Voltage Rating	1000V		
Maximum Current	20 A	10 A	—
Diode Current★	1 A		
Resistor Type	—		
Resistor Value	—		
Current through Busbar	10 A		
Wire Range (Rated Cross Section)	#22…12 AWG	#26…12 AWG	2.5 mm^2
Wire Strip Length	0.39 in. (10 mm)		
Recommended Tightening Torque	4.5…7.1 lb•in (0.5…0.8 N•m)		
Density	59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)		

1492-JD3DR★

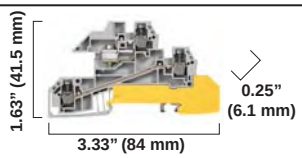
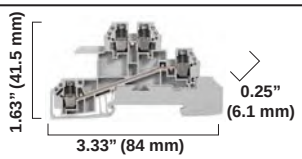
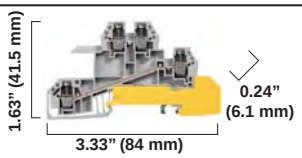


Specifications	*Two-Level terminal block with a diode in reverse bias between the levels.*		
Certifications		**CSA**	**IEC**
Voltage Rating	600V AC/DC	300V AC/DC	400V AC/DC
Diode Reverse Voltage Rating	1000V		
Maximum Current	20 A	10 A	—
Diode Current★	1 A		
Resistor Type	—		
Resistor Value	—		
Current through Busbar	10 A		
Wire Range (Rated Cross Section)	#22…12 AWG	#26…12 AWG	2.5 mm^2
Wire Strip Length	0.39 in. (10 mm)		
Recommended Tightening Torque	4.5…7.1 lb•in (0.5…0.8 N•m)		
Density	59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)		

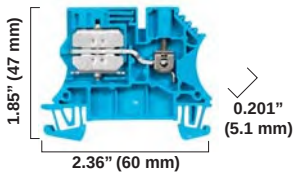
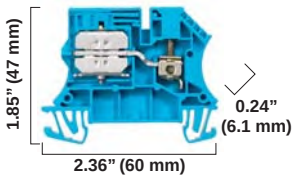
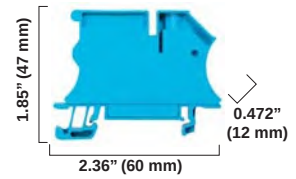
	1492-JD3RC001★			1492-JD3SS		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.						
Specifications	*Two-level terminal block with a 249 ohm resistor between the levels*			*Two-level terminal block with an MOV between the levels.*		
Certifications		**CSA**	**IEC**		**CSA**	**IEC**
Voltage Rating	600V AC/DC	300V AC/DC	400V AC/DC	600V AC/DC	115V AC/DC	
Resistor Type	Precision Wire Wound			—		
Resistor Value	249 Ω, 1/2 W			—		
Current through Busbar	20 A	10 A	—	20 A	10 A	24 A
Wire Range (Rated Cross Section)	#22…12 AWG	#26…12 AWG	2.5 mm^2	#22…12 AWG	#26…12 AWG	2.5 mm^2
Wire Strip Length	0.39 in. (10 mm)			0.39 in. (10 mm)		
Recommended Tightening Torque	4.5…7.1 lb•in (0.5…0.8 N•m)			4.5…7.1 lb•in (0.5…0.8 N•m)		
Density	59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

	1492-JTC3…	
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.		
Specifications	*Two circuit terminal block with current bars made of thermocouple material*	
Certifications	**IEC**	**ATEX**
Voltage Rating	—	55V AC/DC
Wire Range (Rated Cross Section)	#30…12 AWG 2.5 mm^2	#20...14 AWG 2.5 mm^2
Wire Strip Length	0.39 in. (10 mm)	
Recommended Tightening Torque	3.5…5.3 lb•in (0.4…0.6 N•m)	
Density	29 pcs/ft (98 pcs/m)	
Housing Temperature Range	-58…+248 °F (-50…+120 °C)	

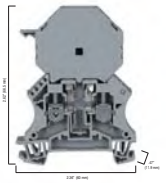
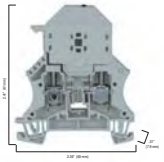
Neutral Disconnect and Installation Blocks

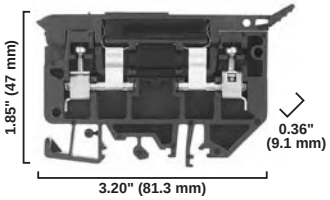
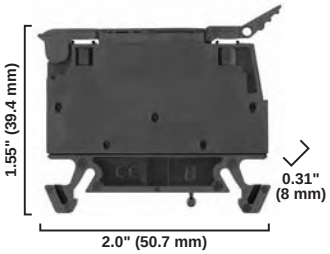
	1492-JDG3ND			1492-JD3N			1492-JDG3N		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*3-Level terminal block with neutral disconnect and ground connection*			*2-Level feed-through terminal block for installation applications*			*3-Level terminal block with 2 feed-through and ground connection*		
Certifications		**CSA**	**IEC**		**CSA**	**IEC**		**CSA**	**IEC**
Voltage Rating	300V AC/DC		400V AC/DC	300V AC/DC		400V AC/DC	300V AC/DC		400V AC/DC
Maximum Current	15 A	10 A	24 A	15 A	10 A	24 A	15 A	10 A	24 A
Wire Range (Rated Cross Section)	#22…12 AWG	#26…12 AWG	2.5 mm^2	#22…12 AWG	#26…12 AWG	2.5 mm^2	#22…12 AWG	#26…12 AWG	2.5 mm^2
Wire Strip Length	0.31 in. (8 mm)			0.31 in. (8 mm)			0.31 in. (8 mm)		
Recommended Tightening Torque	7.0 lb•in (0.8 N•m)			7.0 lb•in (0.8 N•m)			7.0 lb•in (0.8 N•m)		
Density	49 pcs/ft (163 pcs/m)			49 pcs/ft (163 pcs/m)			49 pcs/ft (163 pcs/m)		
Housing Temperature Range	-58...+248 °F (-50...+120 °C)			-58...+248 °F (-50...+120 °C)			-58...+248 °F (-50...+120 °C)		

Single-Circuit Neutral Disconnect Blocks

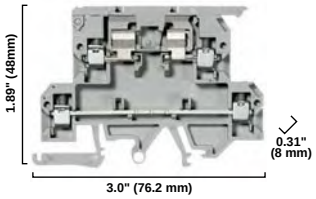
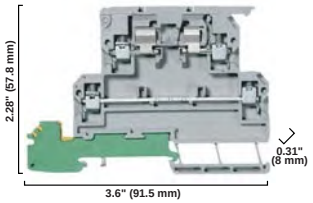
	1492-J3ND			1492-J4ND			1492-J16ND		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*Single-level screw neutral disconnect terminal block*			*Single-level screw neutral disconnect terminal block*			*Single-level screw neutral disconnect terminal block*		
Certifications		**CSA**	**IEC**		**CSA**	**IEC**		**CSA**	**IEC**
Voltage Rating	600V AC/DC		400V AC/DC	600V AC/DC		400V AC/DC	300V AC/DC		400V AC/DC
Maximum Current	25 A	20 A	24 A	35 A	25 A	32 A	65 A		76 A
Wire Range (Rated Cross Section)	#22…12 AWG	#26…12 AWG	2.5 mm^2	#22…10 AWG	#26…10 AWG	4 mm^2	#14…6 AWG		16 mm^2
Wire Strip Length	0.394 in. (10 mm)			0.394 in. (10 mm)			0.47 in. (12 mm)		
Recommended Tightening Torque	7.1 lb•in (0.5 N•m)			9.0 lb•in (1.0 N•m)			19.5 lb•in (2.2 N•m)		
Density	59 pcs/ft (196 pcs/m)			49 pcs/f (/163 pcs/m)			25 pcs/ft (83 pcs/m)		
Housing Temperature Range	-58...+248 °F (-50...+120 °C)			-58...+248 °F (-50...+120 °C)			-58...+248 °F (-50...+120 °C)		

Fuse Blocks

		1492-J6FB1...			1492-J6FB2...		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.							
Specifications		*Single-circuit fuse block with or without blown fuse indication*			*Single-circuit fuse block with or without blown fuse indication*		
Certifications		UL	**CSA**	**IEC**	UL	**CSA**	**IEC**
Voltage Rating	J6FB1/J6FB2	600V AC/DC		500V AC/DC	600V AC/DC		500V AC/DC
	J6FB124/J6FB224	10…36V AC/DC			10…36V AC/DC		
	J6FB148/J6FB248	30…70V AC/DC			30…70V AC/DC		
	J6FB1120/J6FB2120	60…150V AC/DC			60…150V AC/DC		
	J6FB1250/J6FB2250	100…250V AC/DC			100…250V AC/DC		
Maximum Current		10 A	16 A	6.3 A	10 A	10 A	6.3 A
Wire Range (Rated Cross Section)		#22…8 AWG	#20…8 AWG	6 mm^2	#22…8 AWG	#20…8 AWG	6 mm^2
Wire Strip Length		0.47 in. (12 mm)			0.47 in. (12 mm)		
Recommended Tightening Torque		10.6 lb•in (1.2 N•m)			14.2 lb•in (1.6 N•m)		
Density		25 pcs/ft (84 pcs/m)			38 pcs/ft (126 pcs/m)		
Housing Temperature Range		-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		
Leakage Current		≤ 0.5 mA at Nominal Voltage			≤ 0.5 mA at Nominal Voltage		
Fuse Size (not supplied)		1/4 x 1-1/4 in.			5 x 20 mm		

		1492-H...			1492-WFB4...		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.							
Specifications		*Single-circuit fusible terminal block with or without fuse indication.*			*Single-circuit fuse block with or without fuse indication.*		
Certifications		cULus	**CSA**	**IEC**	cULus	**CSA**	**IEC**
Voltage Rating	H6/WFB4	300V AC/DC		500V AC/DC	300V AC/DC		500V AC/DC
	H5/WFB424	10…57V AC/DC			10…57V AC/DC		
	H4/WFB4250	100…300V AC			85…264V AC		
Maximum Current		15 A			15 A		15 A ★
Wire Range (Rated Cross Section)		#30…12 AWG		0.5… 4 mm^2	#30…12 AWG		0.5…4 mm^2
Wire Strip Length		0.38 in. (9.7 mm)			0.31 in. (8 mm)		
Recommended Tightening Torque		7.1 lb•in (0.8 N•m)			2.65…5.3 lb•in (0.3…0.6 N•m)		
Density		33 pcs/ft (109pcs /m)			38 pcs/ft (125 pcs/m)		
Housing Temperature Range		-40…+195 °F (-40…+90 °C)			-40…+195 °F (-40…+90 °C)		
Indicator Type							
H6/WFB4		Non-Indicating			Non-Indicating		
H5/WFB424		Red LED			Red LED		
H4/WFB4250		Neon			Neon		
Leakage Current							
H6/WFB4		—			—		
H5/WFB424		2 mA @ 24V			2 mA @ 24V		
H4/WFB4250		2 mA @ 300V			2 mA @ 300V		
Fuse Size (Not Supplied)		1/4 x 1-1/4 in.			5 x 20 mm		

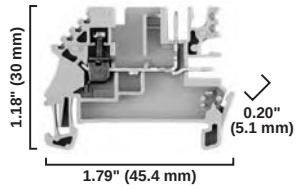
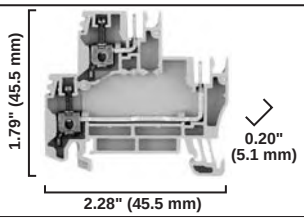
Feed-through Hinged Blocks

	1492-JD3FB...			1492-JDG3FB...		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.						
Specifications	*Two-level terminal block with feed-through circuit and hinged-arm fuse circuit*			*Three-Level terminal block with feed-through circuit, hinged-arm fuse circuit, and ground point*		
Certifications	UL	CSA	IEC	UL	CSA	IEC
Voltage Rating — JD3FB/JDG3FB	600V AC/DC	600V AC/DC	500V AC/DC	600V AC/DC	600V AC/DC	500V AC/DC
Voltage Rating — JD3FB24/JDG3FB24	10...36V AC/DC			10...36V AC/DC		
Voltage Rating — JD3FB48/JDG3FB48	30…70V AC/DC			30…70V AC/DC		
Voltage Rating — JD3FB120/JDG3FB120	60…150V AC/DC			60…150V AC/DC		
Voltage Rating — JD3FB250/JDG3FB250	100...250V AC/DC			100...250V AC/DC		
Maximum Current — Fuse Circuit	10 A	10 A	6.3 A‡	10 A	10 A	6.3 A‡
Maximum Current — Feed-through Circuit	20 A	25 A		20 A	25 A	
Wire Range (Rated Cross Section)	#22…12 AWG	#20…8 AWG	0.5…4 mm²	#22…12 AWG	#20…8 AWG	0.5…4 mm²
Wire Strip Length	0.35 in. (9 mm)			0.35 in. (9 mm)		
Recommended Tightening Torque	5.5 lb·in. (0.65 N·m)			5.5 lb·in. (0.65 N·m)		
Density	38 pcs/ft (125 pcs/m)			38 pcs/ft (125 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		
Leakage Current	≤ 0.5mA at Nominal Voltage			≤ 0.5mA at Nominal Voltage		
Fuse Size (Not Supplied)	5 x 20 mm			5 x 20 mm		

‡ IEC standards for 5 x 20 mm fuses do not include ratings above 6.3 A.

★ The Bulletin 1492-GMC marker carrier installs directly on the top of a 1492-EAJ35 end anchor or a 1492-ERL35 end retainer for group marking purposes.

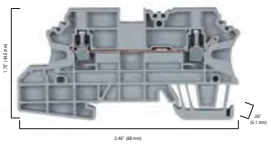
Plug-in Connection Blocks

	1492-JC3			1492-JDC3		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.						
Specifications	*Feed-Through terminal block with 2 plug-in comb connections on one side.*			*Two Circuit terminal block with plug-in comb connection on one side of each circuit.*		
Certifications	cULus	**CSA**	**IEC**	cULus	**CSA**	**IEC**
Voltage Rating	300V AC/DC		250V AC/DC	300V AC/DC		250V AC/DC
Maximum Current	20 A	10 A	10 A (2 x 8)	20 A (2 x 10)	24 A	17.5 A
Wire Range (Rated Cross Section)	#22…12 AWG	#26…12 AWG	2.5 mm²	#22…12 AWG	#26…12 AWG	2.5 mm²
Wire Strip Length	0.39 in. (10 mm)			0.39 in. (10 mm)		
Recommended Tightening Torque	4.5 lb•in (0.5 N•m)			4.5…7.1 lb•in (0.5…0.8 N•m)		
Density	59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

Process Terminal Blocks

1492-JP3

Dimensions are not intended to be used for manufacturing purposes.
Note: Height dimension is measured from top of rail to top of terminal block.



Specifications	Single-circuit feed-through process terminal block		
Certifications	UL	CSA	IEC
Voltage Rating	600V AC/DC		800V AC/DC
Maximum Current	20 A	26 A	24 A
Wire Range (Rated Cross Section)	#26…12 AWG		2.5 mm²
Wire Strip Length	0.39 in. (10 mm)		
Recommended Tightening Torque	4.4…5.3 lb·in. (0.5…0.6 N·m)		
Density	59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)		

1492-JPKD3 1492-JPGKD3 1492-JPGKD3TP

Dimensions are not intended to be used for manufacturing purposes.
Note: Height dimension is measured from top of rail to top of terminal block.

Specifications	Single-circuit, feed-through process terminal block with knife disconnect		Single-circuit, feed-through terminal block with knife disconnect and ground connection			Single-circuit, knife disconnect feed-through process terminal block with test screws and ground connection		
Certifications	cURus	**IEC**	UL	**CSA**	**IEC**	UL	**CSA**	**IEC**
Voltage Rating	600V AC/DC	500V AC/DC	300V AC/DC		500V AC/DC	300V AC/DC		500V AC/DC
Maximum Current	20 A	20 A	19 A	19 A	20 A	19 A	19 A	20 A
Wire Range (Rated Cross Section)	#26…12 AWG	2.5 mm²	#26…12 AWG		2.5 mm²	#26…12 AWG		2.5 mm²
Wire Strip Length	0.39 in. (10 mm)		0.39 in. (10 mm)			0.39 in. (10 mm)		
Recommended Tightening Torque	4.4...5.3 lb•in (0.5...0.6 N•m)		4.4...5.3 lb•in (0.5...0.6 N•m)			4.4...5.3 lb•in (0.5...0.6 N•m)		
Density	59 pcs/ft (196 pcs/m)		59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)		-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

1492-JP3FB 1492-JPG3FB

Dimensions are not intended to be used for manufacturing purposes.
Note: Height dimension is measured from top of rail to top of terminal block.

Specifications		Disconnect style single-circuit fusible terminal block with or without fuse indication			Disconnect style single-circuit fusible terminal block with or without fuse indication and ground connection		
Certifications		UL	**CSA**	**IEC**	UL	**CSA**	**IEC**
Voltage Rating §	JP3FB/JP3GFB	600V AC/DC		500V AC/DC	600V AC/DC		500V AC/DC
	JP3FB24/JP3G3FB24	10...36V AC/DC			10...36V AC/DC		
	JP3FB48/JP3G3FB48	30…70V AC/DC			30…70V AC/DC		
	JP3FB120/JP3G3FB120	60…150V AC/DC			60…150V AC/DC		
	JP3FB250/JP3G3FB250	100...250V AC/DC			100...250V AC/DC		
Maximum Current		17 A	17 A	6.3 A	17 A	17 A	6.3 A
Wire Range (Rated Cross Section)		#26…12 AWG	#26…12 AWG	2.5 mm²	#26…12 AWG		2.5 mm²
Wire Strip Length		0.39 in. (10 mm)			0.39 in. (10 mm)		
Recommended Tightening Torque		4.4…5.3 lb·in. (0.5…0.6 N·m)			4.4…5.3 lb·in. (0.5…0.6 N·m)		
Density		59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range		-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

Short-Circuit Current Ratings
Fuse Ratings

Cat. No.	Wire Range Cu [AWG]		Overcurrent Protection Fuse Required Class/Max. Current Rating [A]						Maximum Voltage [V]	SCCR, RMS SYM [A]
	Line	Load	J	T	RK1	RK5	G	CC		
1492-J3	14…12	14…12	30	30	—	—	30	30	600	100,000
1492-J3P										
1492-JD3SS										
1492-JD3										
1492-JD3C										
1492-JG3TW										
1492-JDG3C										
1492-JG3										
1492-J3F	14…12	14…12	30	30	—	—	30	30	300	100,000
1492-J3TW										
1492-JC3										
1492-JDC3										
1492-JKD3										
1492-JD3FB										
1492-JD3F										
1492-JDG3FB										
1492-JD3PSSTP										
1492-JD3PTP										
1492-JDG3P										
1492-JDG3PSS										
1492-JDG3PSSTP										
1492-JDG3PTP										
1492-JDG3										
1492-JD3PSS										
1492-JD3P										
1492-J4	14…10	14…10	60	60	30	—	60	30	600	100,000
1492-JG4										
1492-JKD4										
1492-J4TW										
1492-J4Q										
1492-JG4TW										
1492-JG4Q										
1492-JKD4TW										
1492-JKD4Q										
1492-JKD4TP										
1492-JD4C										
1492-JD4										
1492-JKD4QTP										
1492-JKD4TWTP										
1492-JSD4	14…10	14…10	60	60	30	—	60	30	300	100,000
1492-JKD4										
1492-J4CTB										
1492-J6	14…8	14…8	100	100	60	30	60	30	600	100,000
1492-JG6										
1492-J10	14…6	14…6	100	100	60	30	60	30	600	100,000
1492-JG10										
1492-J16	14…4	14…4	100	100	60	30	60	30	600	100,000
1492-JG16										
1492-J16ND										
1492-J35	12…1/0	12…1/0	200	200	100	30	60	30	600	100,000
1492-JG35										
1492-J50	6…1/0	6…1/0	200	200	100	30	60	30	600	100,000
1492-JG50										
1492-J70	1/0...3/0	1/0...3/0	400	400	200	100	60	30	600	100,000
1492-JG70										
1492-J120	4…4/0	4…4/0	400	400	200	100	60	30	600	100,000
1492-JG120										

Overcurrent Ratings

Cat. No.	Wire Range Cu [AWG] (Line and Load)	Overcurrent Protection Device Required	Max. Current [A]	SCCR, RMS Sym A 480Y/277V	SCCR, RMS Sym. A 600Y/347V
1492-J3	14…12	140M-D8E-__	16	65,000	30,000
1492-JG3TW		140M-C2E-B10		65,000	30,000
1492-J3P		140M-C2E-B16		65,000	30,000
1492-J3		140M-C2E-B25		65,000	30,000
1492-JD3		140M-C2E-B40		65,000	25,000
1492-JD3C		140M-C2E-B63		65,000	★
1492-JD3SS		140M-C2E-A__		65,000	30,000
1492-JDG3C		140M-C2E-C10		65,000	★
1492-JG3		140MC2E-C16		30,000	★
1492-J4	14…10	140M-F8E-__	32	65,000	30,000
1492-JG4		140M-D8E-C10		65,000	30,000
1492-J4TW		140M-D8E-C16		65,000	30,000
1492-J4Q		140M-D8E-C20		65,000	★
1492-JG4TW		140M-D8E-C25		30,000	★
1492-JG4Q		140M-D8E-B__		65,000	30,000
1492-JKD4TW		140M-C2E-B10		65,000	30,000
1492-JKD4Q		140M-C2E-B16		65,000	30,000
1492-JKD4TP		140M-C2E-B25		65,000	30,000
1492-JD4C		140M-C2E-B40		65,000	25,000
1492-JD4		140M-C2E-B63		65,000	★
1492-JKD4QTP		140M-C2E-C10		65,000	★
1492-JKD4TWTP		140M-C2E-C16		30,000	★
		140M-C2E-A__		65,000	30,000
1492-J6	14…8	140M-F8E-__	32	65,000	30,000
1492-JG6		140M-D8E-C10		65,000	30,000
		140M-D8E-C16		65,000	30,000
		140M-D8E-C20		65,000	★
		140M-D8E-C25		30,000	★
		140M-D8E-B__		65,000	30,000
		140M-C2E-B10		65,000	30,000
		140M-C2E-B16		65,000	30,000
		140M-C2E-B25		65,000	30,000
		140M-C2E-B40		65,000	25,000
		140M-C2E-B63		65,000	★
		140M-C2E-C10		65,000	★
		140M-C2E-C16		30,000	★
		140M-C2E-A__		65,000	30,000

★ Bulletin 140M does not have ratings at this voltage.

Cat. No.	Wire Range Cu [AWG] (Line and Load)	Overcurrent Protection Device Required	Max. Current [A]	SCCR, RMS Sym A 480Y/277V	SCCR, RMS Sym. A 300V+
1492-J3TW	14…12	140M-D8E-__	16	65,000	30,000
1492-JC3		140M-C2E-B10		65,000	30,000
1492-JDC3		140M-C2E-B16		65,000	30,000
1492-J3F		140M-C2E-B25		65,000	30,000
1492-JD3F		140M-C2E-B40		65,000	25,000
1492-JKD3		140M-C2E-B63		65,000	★
1492-JD3FB		140M-C2E-A__		65,000	30,000
1492-JDG3FB		140M-C2E-C10		65,000	★
1492-JD3PSSTP		140MC2E-C16		30,000	★
1492-JD3PTP					
1492-JDG3P					
1492-JDG3PSS					
1492-JDG3PSSTP					
1492-JDG3PTP					
1492-JDG3					
1492-JD3P					
1492-JD3PSS					
1492-JKD4	14…10	140M-F8E-__	32	65,000	30,000
1492-JSD4		140M-D8E-C10		65,000	30,000
1492-J4CTB		140M-D8E-C16		65,000	30,000
		140M-D8E-C20		65,000	★
		140M-D8E-C25		30,000	★
		140M-D8E-B__		65,000	30,000
		140M-C2E-B10		65,000	30,000
		140M-C2E-B16		65,000	30,000
		140M-C2E-B25		65,000	30,000
		140M-C2E-B40		65,000	25,000
		140M-C2E-B63		65,000	★
		140M-C2E-C10		65,000	★
		140M-C2E-C16		30,000	★
		140M-C2E-A__		65,000	30,000

Cat. No.	Wire Range Cu [AWG] (Line and Load)	Overcurrent Protection Device Required	Max. Current [A]	SCCR, RMS Sym A 480V+	SCCR, RMS Sym. A 600Y 347V+
1492-J10	14…10	140M-H8P-__	50	50,000	30,000
1492-JG10					
1492-J16	14…4	140M-H8P-__	100	30,000	30,000
1492-JG16					
1492-J16ND					
1492-J35	12…2	140M-H8P-__	100	50,000	30,000
1492-JG35					
1492-J50	2…1/0	140M-H8P-__	150	65,000	30,000
1492-JG50					

Cat. No.	Wire Range Cu [AWG] (Line and Load)	Overcurrent Protection Device Required	Max. Current [A]	SCCR, RMS Sym A 480V+	SCCR, RMS Sym. A 600V+
1492-J70	4…1/0	140U-J0X3	175	65,000	★
	1/0	140U-J0X3		★	30,000
1492-J120	2…3/0	140U-J0X3	228	65,000	30,000

★ Bulletin 140M does not have ratings at this voltage.
+ Voltage terminal block was tested at for respective SCCR

Allen-Bradley spring-clamp terminal blocks generally have been designed to meet the requirements of one or more regulatory bodies. Most products have also been tested per additional standards. The following is a listing of some of the regulatory bodies and standards which apply to Allen-Bradley spring-clamp terminal block products. See the particular product description for information on specific certifications and ratings.

(Underwriters Laboratories) — Allen-Bradley spring-clamp terminal blocks with one of these ratings have been tested by Underwriters Laboratories and meet the requirements of one or more of the following United States Standards:

- UL 486E — Equipment Wiring Terminals for Use with Aluminum and/or Copper Conductors
- UL 1059 — Standard for Terminal Blocks

Reference UL file E40735

(Underwriters Laboratories) — Allen-Bradley spring-clamp terminal blocks with this rating have been tested by Underwriters Laboratories and meet the requirements of one or more of the following Canadian Standards:

- CSA 22.2 No. 158 — Terminal Blocks

Reference UL file E40735

(Canadian Standards Association) — Allen-Bradley spring-clamp terminal blocks with this rating have been tested by the Canadian Standards Association and meet the requirements of the following Canadian Standard:

- CSA 22.2 No. 158 — Terminal Blocks

Reference CSA files 677896

Allen-Bradley spring-clamp terminal blocks listed in this catalog meet the requirements of the Low Voltage Directive put forth by the European Union. Devices have been tested and comply with one or more of the following European Norms:

- EN 60947-1 — Low Voltage Switchgear and Controlgear: General Rules
- EN 60947-7-1 — Low Voltage Switchgear and Controlgear: Terminal Blocks for Copper Conductors
- EN 60947-7-2 — Low Voltage Switchgear and Controlgear: Protective Conductor Terminal Blocks for Copper Conductors
- EN 60947-7-3 — Low Voltage Switchgear and Controlgear: Safety Requirements for Fuse Terminal Blocks

ATEX — Devices listed in this catalog with “ATEX” ratings meet the following European Norms per DEMKO or KEMA, Approval Certification Bodies for the European Union:

- EN 60079-0 — Electrical Apparatus for Potentially Explosive Atmospheres — General Requirements
- EN 60079-7 — Electrical Apparatus for Potentially Explosive Atmospheres — Increased Safety “e”

Contact your local Allen-Bradley distributor for a copy of the certificate.

Ex e II — Bulletin 1492-L terminal blocks in this catalog meet the following Canadian Standards per Underwriters Laboratories:

- CAN/CSA E60079-7 — Electrical Apparatus for Explosive Atmospheres — Part 0 — General Requirements
- CAN/CSA E60079-0 — Electrical Apparatus for Explosive Atmospheres — Part 7 — Increased Safety “e”

These products are suitable for Class I, Zone 1 Hazardous Locations. Reference UL file E187022. Contact your local Allen-Bradley distributor for more information.

AEx e II — Allen-Bradley spring-clamp terminal blocks with an “AEx e II” rating meet the following United States Standard per Underwriters Laboratories:

- UL 2279 — Standard for Electrical Equipment for Use in Class I, Zone 0, 1, and 2 Hazardous (Classified) Locations

These products are suitable for Class I, Zone 1 Hazardous Locations. Reference UL file E187022. Contact your local Allen-Bradley distributor for more information.

Lloyd’s Register — Bulletin 1492-L terminal blocks in this catalog have been certified for use in marine, off-shore, and industrial installations per the following standard:

- Lloyd’s Register Test Specification No. 1:1996

Contact your local Allen-Bradley distributor for a copy of the certificate.

The Allen-Bradley Line of Spring-Clamp Terminal Blocks…

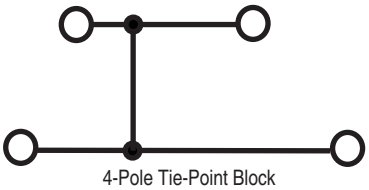
The Bulletin 1492-L line of internationally approved spring-clamp IEC-style terminal blocks offers a variety of products that can make any application:

- Fast — Reduces wiring time by more than 50%
- Practical — Requires only a flat-head screwdriver for easy installation. Maintenance-free, no need to retighten
- Reliable — Secure contact is durable under extreme conditions such as high-vibration applications

Products Available in the 1492-L Spring-Clamp Line

- **Feed-Through Blocks**, accommodating wire sizes from #30…#2 AWG (0.2…35 mm^2)
- **Grounding Blocks** for grounding a given circuit to the DIN Rail
- **Multi-Circuit Blocks** for doubling circuit wiring density
- **Isolation Blocks** for circuit isolation during testing and troubleshooting
- **Plug-In Style Terminal Blocks** accommodating component plugs, fuse plugs, and disconnect plugs
- **Sensor Blocks** for coordination of three-wire sensor groups with or without ground terminations
- **Electrical Component Blocks** which allow for the insertion of fixed components into control circuits. Components include diodes and surge suppression circuits

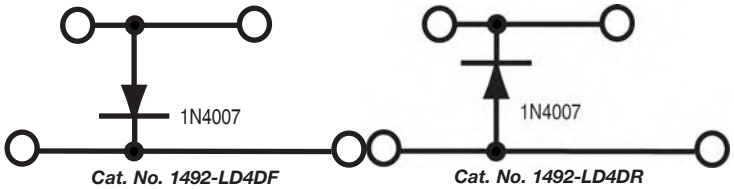
Tie-Point Block (Cat. Nos. 1492-LD2C, LD3C, LD4C)



4-Pole Tie-Point Block

Diode Block (Cat. Nos. 1492-LD4DF, 1492-LD4DR)

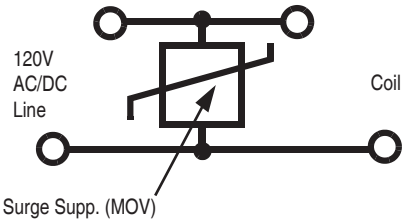
Uses a 1N4007 diode between the upper and lower levels for insertion into a control circuit. This block is useful in low voltage DC control circuits for directioning and suppression.



Cat. No. 1492-LD4DF *Cat. No. 1492-LD4DR*

Surge Suppression Block (Cat. No. 1492-LD4SS)

Provides a convenient means of incorporating transient suppression for relays, contactors and solenoids into a control system.



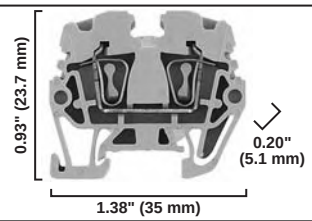
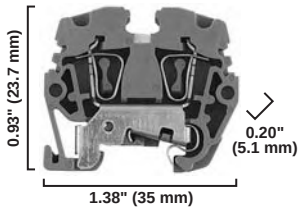
- **Test Blocks** for allowing a bank of pluggable terminal strips to be easily connected for test purposes
- A wide variety of snap-in markers are available for individual or group circuit identification
- A broad offering of accessories such as screwless end retainers, electrical warning plates, end barriers, protective stops and test plugs to provide exactly what the application requires
- Operating instructions (printed on an adhesive label), for fixing inside a panel
- **Mini-blocks** available in rail-mount or panel-mount configurations

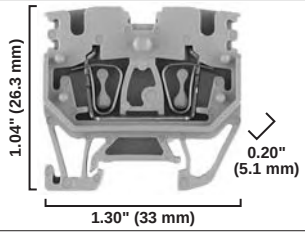
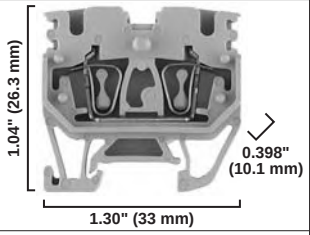
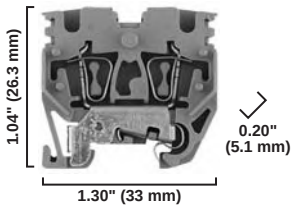
Materials and Design Features

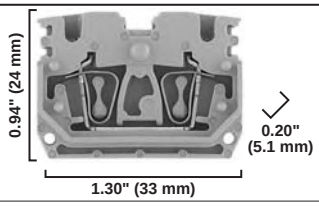
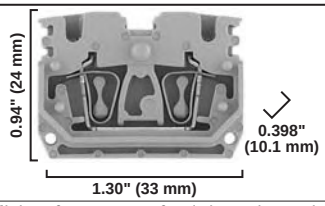
The 1492-L line is specially designed for safety, installation ease, and ruggedness. Features include:

- Tin-plated terminals and stainless steel spring clamps for resistance to corrosion and vibration
- Spring clamp design to minimize stress relaxation and maintain contact force, even under vibration
- Top wire entry for ease of installation
- Circuit testing with standard 2 mm diameter test probe or stackable test plugs on most spring-clamp blocks
- Insulation stops to ensure electrical connection when using smaller gauge wires
- Markers that are visible after terminal blocks are wired
- Multiple marking options
- Common profiles to minimize stocking of accessories
- Self-extinguishing, polymide 6.6 housing materials with a flammability rating UL 94-V0 (1492-R terminal blocks have a UL 94-V2 flammability rating)
- Screwless center jumpers to simplify jumpering terminals together

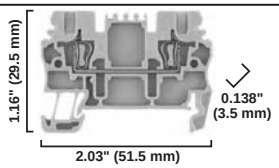
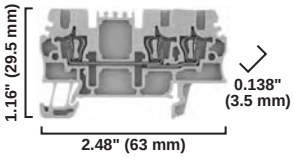
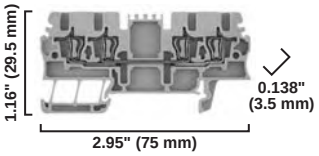
Note: To ensure proper wire termination, these blocks are designed to accept only **one** wire per terminal.

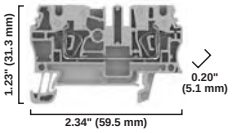
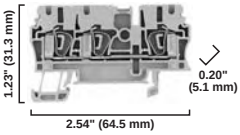
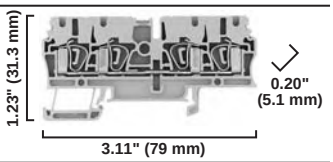
	1492-LMJ3				1492-LMJG3		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.							
Specifications	*Mini rail-mount, feed-through terminal block with jumper capability*				*Mini rail-mount grounding terminal block*		
Certifications	cULus	CSA	IEC	ATEX	cULus	CSA	IEC
Voltage Rating	600V AC/DC		500V AC/DC	275V AC/DC	—	—	—
Maximum Current	20 A		24 A	20 A	Grounding		
Wire Range (Rated Cross Section)	#26…12 AWG		2.5 mm²	#20…12 AWG	#26…12 AWG		2.5 mm²
Wire Strip Length	0.39 in. (10 mm)				0.39 in. (10 mm)		
Density	59 pcs/ft (196 pcs/m)				59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				–58…+248 °F (–50…+120 °C)		

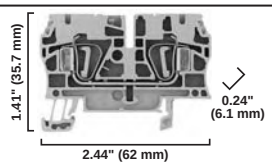
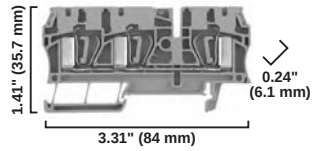
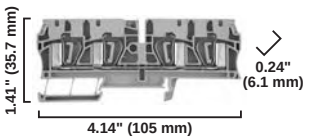
	1492-LM3			1492-LM3Q			1492-LMG3		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*Mini rail-mount, feed-through terminal block*			*Mini rail-mount, feed-through terminal block with 2 connection points on each side*			*Mini rail-mount grounding terminal block*		
Certifications	cULus	CSA	IEC	cULus	CSA	IEC	cULus	CSA	IEC
Voltage Rating	600V AC/DC		800V AC/DC	600V AC/DC		800V AC/DC	—	—	—
Maximum Current	20 A	25 A	24 A	20 A	25 A	24 A	Grounding		
Wire Range (Rated Cross Section)	#26…12 AWG		2.5 mm²	#26…12 AWG		2.5 mm²	#26…12 AWG		2.5 mm²
Wire Strip Length	0.39 in. (10 mm)			0.39 in. (10 mm)			0.39 in. (10 mm)		
Density	59 pcs/ft (196 pcs/m)			30 pcs/ft (99 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

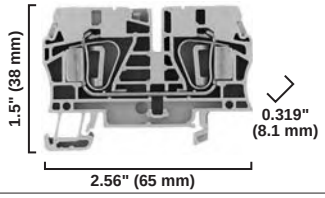
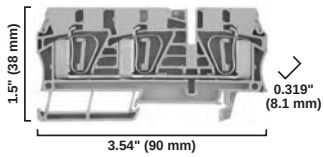
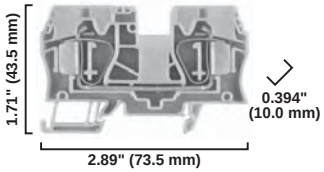
	1492-LMP3			1492-LMP3Q		
Dimensions are not intended to be used for manufacturing purposes. **Note:** One end block and one end barrier or two end barriers must be used on each end of a terminal bank to provide mounting slots.						
Specifications	*Mini surface mount feed-through terminal block*			*Mini surface mount, feed-through terminal block with 2 connection points on each side*		
Certifications	cULus	CSA	IEC	cULus	CSA	IEC
Voltage Rating	600V AC/DC		800V AC/DC	600V AC/DC		800V AC/DC
Maximum Current	20 A	25 A	24 A	20 A	25 A	24 A
Wire Range (Rated Cross Section)	#26…12 AWG		2.5 mm²	#26…12 AWG		2.5 mm²
Wire Strip Length	0.39 in. (10 mm)			0.39 in. (10 mm)		
Density	59 pcs/ft (196 pcs/m)			30 pcs/ft (99 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

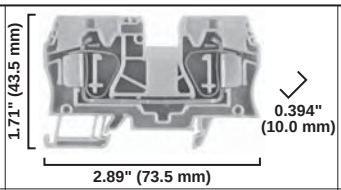
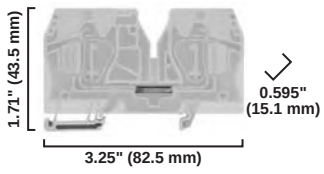
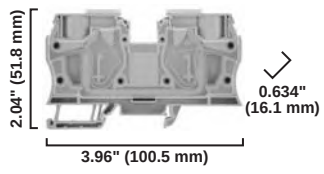
Mini-Blocks, Interlocking, 600V UL Rated

	1492-L2				1492-L2T				1492-L2Q			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.												
Specifications	*Feed-through terminal block*				*Feed-through terminal block with 2 connection points on one side*				*Feed-through terminal block with 2 connection points per side*			
Certifications	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX
Voltage Rating	300V AC/DC		500V AC/DC	550V AC/DC	300V AC/DC		500V AC/DC	550V AC/DC	300V AC/DC		500V AC/DC	550V AC/DC
Maximum Current	15 A	20 A	17.5 A	15 A	15 A	20 A	17.5 A	15 A	15 A	20 A	17.5 A	15 A
Wire Range (Rated Cross Section)	#26…14 AWG		1.5 mm^2	1.5 mm^2	#26…14 AWG		1.5 mm^2	1.5 mm^2	#26…14 AWG		1.5 mm^2	1.5 mm^2
Wire Strip Length	0.39 in. (10 mm)				0.39 in. (10 mm)				0.39 in. (10 mm)			
Density	87 pcs/ft (285 pcs/m)				87 pcs/ft (285 pcs/m)				87 pcs/ft (285 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				–58…+248 °F (–50…+120 °C)			

	1492-L3				1492-L3T				1492-L3Q			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.												
Specifications	*Feed-through terminal block*				*Feed-through terminal block with 3 connection points, 2 on one side*				*Feed-through terminal block with 2 points on each side*			
Certifications	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX
Voltage Rating	600V AC/DC		800V AC/DC	550V AC/DC	600V AC/DC		800V AC/DC	550V AC/DC	600V AC/DC		800V AC/DC	550V AC/DC
Maximum Current	25 A	27 A	24 A	21 A	25 A	27 A	24 A	21 A	25 A	27 A	24 A	21 A
Wire Range (Rated Cross Section)	#30…12 AWG	#26…12 AWG	2.5 mm^2	2.5 mm^2 (20…12 AWG)	#30…12 AWG	#26…12 AWG	2.5 mm^2	2.5 mm^2 (20…12 AWG)	#30…12 AWG	#26…12 AWG	2.5 mm^2	2.5 mm^2 (20…12 AWG)
Wire Strip Length	0.39 in. (10 mm)				0.39 in. (10 mm)				0.39 in. (10 mm)			
Density	59 pcs/ft (196 pcs/m)				59 pcs/ft (196 pcs/m)				59 pcs/ft (196 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				–58…+248 °F (–50…+120 °C)			

	1492-L4				1492-L4T				1492-L4Q			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.												
Specifications	*Feed-through terminal block*				*Feed-through terminal block with 3 connection points, 2 on one side*				*Feed-through terminal block with 2 connection points on each side*			
Certifications		CSA	IEC	ATEX		CSA	IEC	ATEX		CSA	IEC	ATEX
Voltage Rating	600V AC/DC		800V AC/DC	550V AC/DC	600V AC/DC		800V AC/DC	550V AC/DC	600V AC/DC		800V AC/DC	550V AC/DC
Maximum Current	33 A	35 A	32 A	28 A	33 A	35 A	32 A	28 A	33 A	35 A	32 A	28 A
Wire Range (Rated Cross Section)	#26…10 AWG		4 mm^2	4 mm^2 (20… 10 AWG)	#26…10 AWG		4 mm^2	4 mm^2 (20… 10 AWG)	#26…10 AWG		4 mm^2	4 mm^2 (20… 10 AWG)
Wire Strip Length	0.47 in. (12 mm)				0.47 in. (12 mm)				0.47 in. (12 mm)			
Density	49 pcs/ft (163 pcs/m)				49 pcs/ft (163 pcs/m)				49 pcs/ft (163 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

	1492-L6				1492-L6T				1492-L10			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.												
Specifications	*Feed-through terminal block*				*Feed-through terminal block with 2 connection points on one side*				*Feed-through terminal block*			
Certifications		CSA	IEC	ATEX		CSA	IEC	ATEX		CSA	IEC	ATEX
Voltage Rating	600V AC/DC		800V AC/DC	550V AC/DC	600V AC/DC		800V AC/DC	550V AC/DC	600V AC/DC		800V AC/DC	550V AC/DC
Maximum Current	50 A		41 A	36 A	50 A		41 A	36 A	60 A	55 A	57 A	50 A
Wire Range (Rated Cross Section)	#22…8 AWG	#20… 8 AWG	6 mm^2	6 mm^2 (20… 8 AWG)	#22…8 AWG	#20… 8 AWG	6 mm^2	6 mm^2 (#20… 10 AWG)	#16…6 AWG		10 mm^2	10 mm^2 (16… 8 AWG)
Wire Strip Length	0.51 in. (13 mm)				0.51 in. (13 mm)				0.70 in. (18 mm)			
Density	37 pcs/ft (123 pcs/m)				37 pcs/ft(123 pcs/m)				30 pcs/ft (99 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

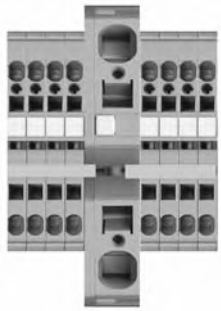
	1492-L16				1492-L16D*			1492-L35			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.											
Specifications	*Feed-through terminal block*				*Power distribution block with center jumper connection/feed*			*Feed-through terminal block*			
Certifications		CSA	IEC	ATEX		CSA	IEC		CSA	IEC	ATEX
Voltage Rating	600V AC/DC		800V AC/DC	550V AC/DC	600V AC/DC		500V AC/DC	600V AC/DC		800V AC/DC	690V AC/DC
Maximum Current	65 A		76 A	66 A	65 A		76 A	120 A		125 A	109 A
Wire Range (Rated Cross Section)	#14…4 AWG		16 mm^2	16 mm^2 (16… 6 AWG)	#14…4 AWG		16 mm^2	#12…2 AWG		35 mm^2	35 mm^2 14…2 AWG
Wire Strip Length	0.70 in. (18 mm)				0.70 in. (18 mm)			0.98 in. (25 mm)			
Density	25 pcs/ft (82 pcs/m)				20 pcs/ft (66 pcs/m)			18 pcs/ft (62 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)			

Feed Left:

Feed Right:

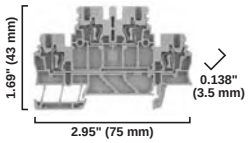
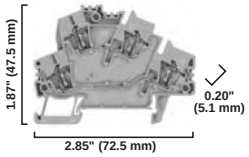
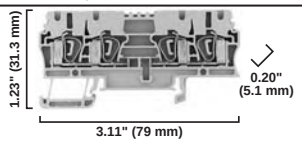
The Cat. No. 1492-L16D feed terminal allows wires with a cross section from 4…14 AWG and up to 16 mm² to be used. Using standard cross connections, the potential can be distributed to any number of terminals with smaller cross sections. The following tables show some variants for potential distribution of the supply, the required cross connection, and the maximum current. The maximum current for the single terminal block must not be exceeded.

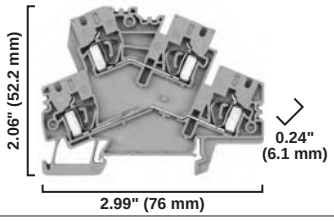
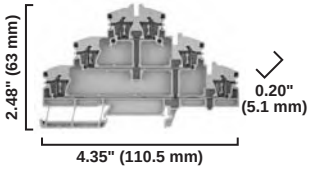
Feed Middle:

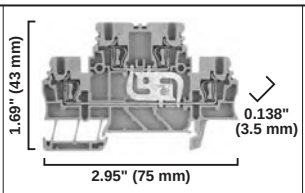
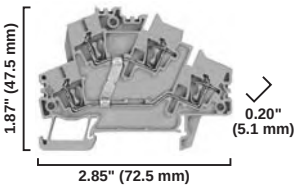
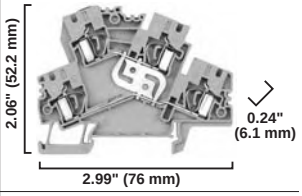


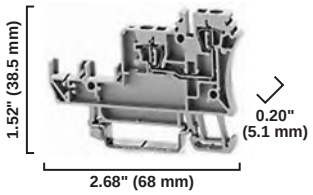
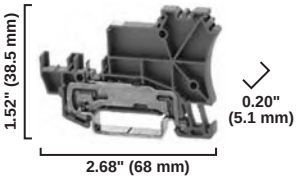
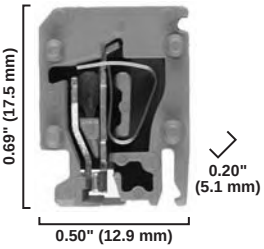
Feed Left				Feed Middle				Feed Right			
Feed Terminal	Feed	I_{max}	Jumper	Feed Terminal	Feed	I_{max}	Jumper	Feed Terminal	Feed	I_{max}	Jumper
1492-L3	4…14 AWG (16 mm²)	62 A	1492-CJK5-∗	1492-L3	#4…14 AWG (16 mm²)	76 A	1492-CJK5-∗	1492-L3	#4…14 AWG (16 mm²)	62 A	1492-CJK5-∗
1492-L3Q		62 A	1492-CJK5-∗	1492-L3Q		76 A	1492-CJK5-∗	1492-L3Q		62 A	1492-CJK5-∗
1492-L4		76 A	1492-CJK6-∗	1492-L4		76 A	1492-CJK6-∗	1492-L4		76 A	1492-CJK6-∗
								1492-L4T		76 A	1492-CJK6-∗
								1492-L4Q		76 A	1492-CJK6-∗
1492-L6		76 A	1492-CJL8-∗	1492-L6		76 A	1492-CJL8-∗	1492-L6		76 A	1492-CJL8-∗
								1492-L6T		76 A	1492-CJL8-∗

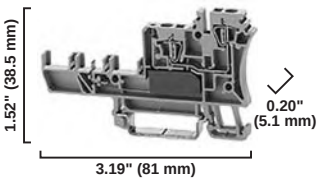
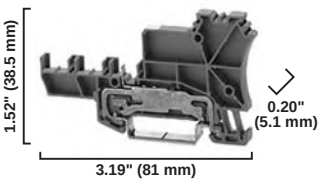
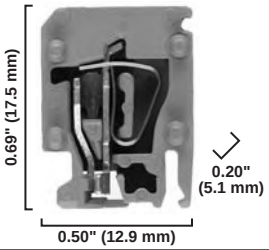
∗ See accessory section for availability of specific jumper pole configurations.

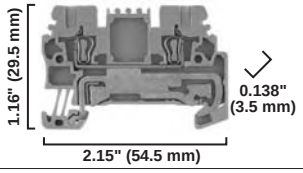
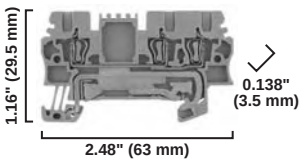
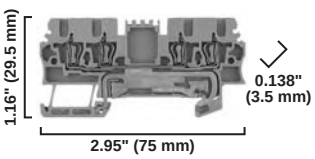
	1492-LD2			1492-LD3				1492-L3QS			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.											
Specifications	*Two-circuit feed-through terminal block*			*Two-circuit feed-through terminal block*				*Side-by-side two circuit terminal block*			
Certifications		**CSA**	**IEC**		**CSA**	**IEC**	**ATEX**		**CSA**	**IEC**	**ATEX**
Voltage Rating	300V AC/DC	600V AC/DC	500V AC/DC	600V AC/DC		800V AC/DC	550V AC/DC	600V AC/DC		800V AC/DC	550V AC/DC
Maximum Current	10 A		17.5 A	20 A	25 A	24 A	20 A	25 A	27 A	24 A	21 A
Wire Range (Rated Cross Section)	#28… 16 AWG		1.5 mm^2	#30… 12 AWG		2.5 mm^2	0.5…2.5 mm^2 (#20…14 AWG)	#26… 12 AWG		2.5 mm^2	2.5 mm^2 (20… 12 AWG)
Wire Strip Length	0.39 in. (10 mm)			0.39 in. (10 mm)				0.39 in. (10 mm)			
Density	87 pcs/ft (285 pcs/m)			59 pcs/ft (196 pcs/m)				59 pcs/ft (196 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

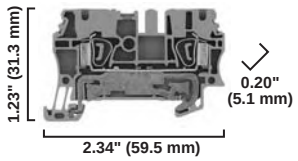
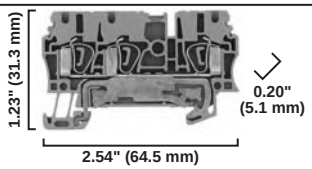
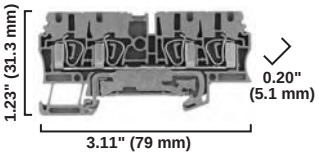
	1492-LD4			1492-LTF3		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.						
Specifications	*Two-circuit feed-through terminal block*			*Three-circuit feed-through terminal block with multiple cross connection points*		
Certifications		**CSA**	**IEC**		**CSA**	**IEC**
Voltage Rating	600V AC/DC		800V AC/DC	300V AC/DC		500V AC/DC
Maximum Current	25 A	30 A	32 A	15 A		20 A
Wire Range (Rated Cross Section)	#26…10 AWG		4 mm^2	#26…12 AWG		2.5 mm^2
Wire Strip Length	0.39 in. (10 mm)			0.39 in. (10 mm)		
Density	49 pcs/ft (163 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

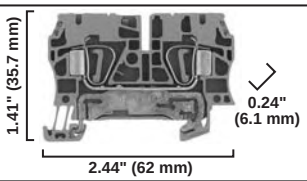
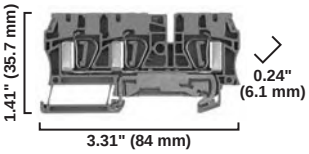
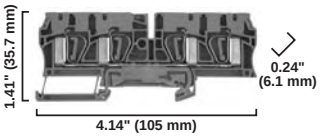
	1492-LD2C			1492-LD3C				1492-LD4C		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.										
Specifications	*Two-level feed-through terminal block with commoning bar*			*Two-level feed-through terminal block with commoning bar*				*Two-level feed-through terminal block with commoning bar*		
Certifications	UL	CSA	IEC	UL	CSA	IEC	ATEX	UL	CSA	IEC
Voltage Rating	300V AC/DC	600V AC/DC	500V AC/DC	600V AC/DC		800V AC/DC	550V AC/DC	600V AC/DC		800V AC/DC
Maximum Current	10 A		17.5 A	20 A	25 A	24 A	22 A	25 A	30 A	32 A
Wire Range (Rated Cross Section)	#28…16 AWG		1.5 mm²	#30…12 AWG		2.5 mm²	0.5…2.5 mm² (#20…14 AWG)	#26…10 AWG		4 mm²
Wire Strip Length	0.39 in. (10 mm)			0.39 in. (10 mm)				0.39 in. (10 mm)		
Density	87 pcs/ft (285 pcs/m)			59 pcs/ft (196 pcs/m)				49 pcs/ft (163 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)		

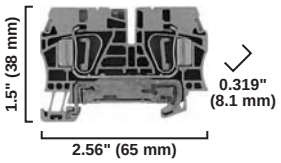
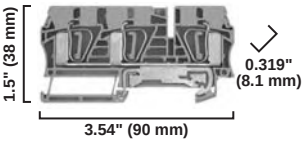
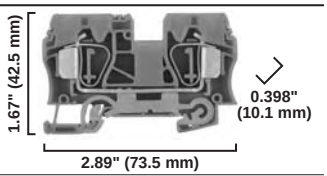
	1492-LS2-3∗ 1492-LS2-3L∗			1492-LSG2-3∗			1492-LS2-BR 1492-LS2-B 1492-LSG2		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*3 conductor sensor block base for plug in distribution blocks*			*3 conductor sensor ground block base for plug in distribution blocks*			*Plug in Distribution blocks — internally jumpered*		
Certifications	UL	CSA	IEC	UL	CSA	IEC	UL	CSA	IEC
Voltage Rating (without LED)	300V AC/DC		250V AC/DC	300V AC/DC		250V AC/DC	300V AC/DC		250V AC/DC
Voltage Rating (with LED)	5…30V AC/DC			—			5…30V AC/DC		
Maximum Current	10 A		17.5 A	10 A		17.5 A	10 A		17.5 A
Wire Range (Rated Cross Section)	#26…14 AWG		1.5 mm²	#26…14 AWG		1.5 mm²	#26…14 AWG		1.5 mm²
Wire Strip Length	0.31 in. (8 mm)			0.31 in. (8 mm)			0.31 in. (8 mm)		
Density	59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

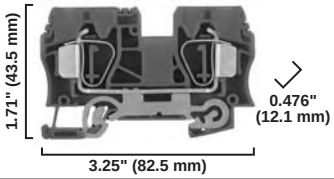
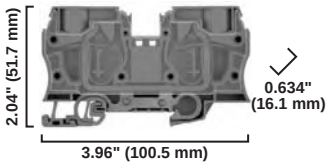
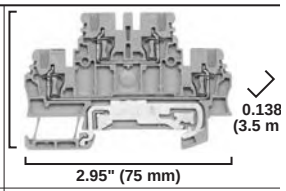
	1492-LS2-4★ 1492-LS2-4L★			1492-LSG2-4★			1492-LS2-BR 1492-LS2-B 1492-LSG2		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*4 conductor sensor block base for plug in distribution blocks*			*4 conductor sensor ground block base for plug in distribution blocks*			*Plug In Distribution blocks — internally jumpered*		
Certifications	cULus	CSA	IEC	cULus	CSA	IEC	cULus	CSA	IEC
Voltage Rating (without LED)	300V AC/DC		250V AC/DC	300V AC/DC		250V AC/DC	300V AC/DC		250V AC/DC
Voltage Rating (with LED)	5…30V AC/DC			—			5…30V AC/DC		
Maximum Current	10 A		17.5 A	10 A		17.5 A	10 A		17.5 A
Wire Range (Rated Cross Section)	#26…14 AWG		1.5 mm^2	#26…14 AWG		1.5 mm^2	#26…14 AWG		1.5 mm^2
Wire Strip Length	0.31 in. (8 mm)			0.31 in. (8 mm)			0.28 in. (7 mm)		
Density	59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

	1492-LG2				1492-LG2T				1492-LG2Q			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.												
Specifications	*Feed-through grounding terminal block*				*Feed-through grounding terminal block with 2 points on one side*				*Feed-through grounding terminal block with 2 points on each side*			
Certifications	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX
Voltage Rating	—	—	—	—	—	—	—	—	—	—	—	—
Maximum Current	Grounding				Grounding				Grounding			
Wire Range (Rated Cross Section)	#26…14 AWG		1.5 mm^2	1.5 mm^2 (20… 16 AWG)	#26…14 AWG		1.5 mm^2	1.5 mm^2 (20… 16 AWG)	#26…14 AWG		1.5 mm^2	1.5 mm^2 (20… 16 AWG)
Wire Strip Length	0.39 in. (10 mm)				0.39 in. (10 mm)				0.39 in. (10 mm)			
Density	87 pcs/ft (285 pcs/m)				87 pcs/ft (285 pcs/m)				87 pcs/ft (285 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

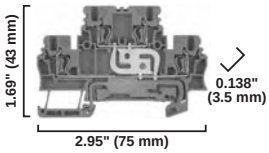
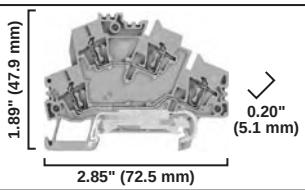
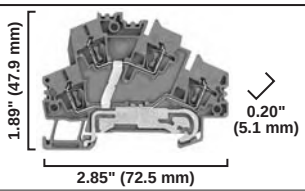
	1492-LG3				1492-LG3T				1492-LG3Q			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.												
Specifications	*Feed-through grounding terminal block*				*Feed-through grounding terminal block with 2 points on one side*				*Feed-through grounding terminal block with 2 points on each side*			
Certifications	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX
Voltage Rating	—	—	—	—	—	—	—	—	—	—	—	—
Maximum Current	Grounding				Grounding				Grounding			
Wire Range (Rated Cross Section)	#30…12 AWG	#26…12 AWG	2.5 mm²	2.5 mm² (20…12 AWG)	#30…12 AWG	#26…12 AWG	2.5 mm²	2.5 mm² (20…12 AWG)	#30…12 AWG	#26…12 AWG	2.5 mm²	2.5 mm² (20…12 AWG)
Wire Strip Length	0.39 in. (10 mm)				0.39 in. (10 mm)				0.39 in. (10 mm)			
Density	59 pcs/ft (196 pcs/m)				59 pcs/ft (196 pcs/m)				59 pcs/ft (196 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

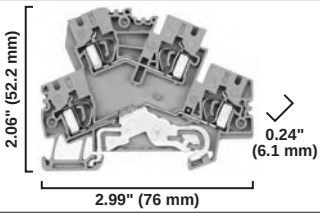
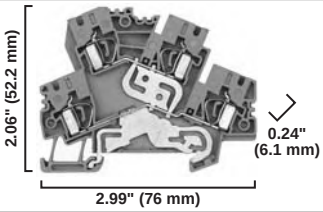
	1492-LG4				1492-LG4T				1492-LG4Q			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.												
Specifications	*Feed-through grounding terminal block*				*Feed-through grounding terminal block with 2 points on one side*				*Feed-through grounding terminal block with 2 points on each side*			
Certifications	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX
Voltage Rating	—	—	—	—	—	—	—	—	—	—	—	—
Maximum Current	Grounding				Grounding				Grounding			
Wire Range (Rated Cross Section)	#26…10 AWG		4 mm²	4 mm² (20…10 AWG)	#26…10 AWG		4 mm²	4 mm² (20…12 AWG)	#26…10 AWG		4 mm²	4 mm² (20…12 AWG)
Wire Strip Length	0.47 in. (12 mm)				0.47 in. (12 mm)				0.47 in. (12 mm)			
Density	49 pcs/ft (163 pcs/m)				49 pcs/ft (163 pcs/m)				49 pcs/ft (163 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

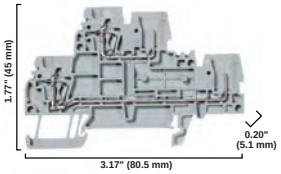
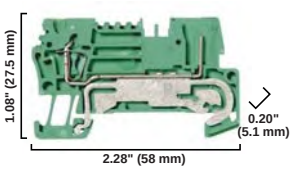
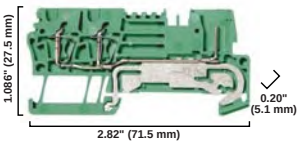
	1492-LG6				1492-LG6T				1492-LG10			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.												
Specifications	*Feed-through grounding terminal block*				*Feed-through grounding terminal block with 2 points on one side*				*Feed-through grounding terminal block*			
Certifications		CSA	IEC	ATEX		CSA	IEC	ATEX		CSA	IEC	ATEX
Voltage Rating	—	—	—	—	—	—	—	—	—	—	—	—
Maximum Current	Grounding				Grounding				Grounding			
Wire Range (Rated Cross Section)	#22…8 AWG	#20…8 AWG	6 mm^2	6 mm^2 (20… 8 AWG)	#22…8 AWG	#20…8 AWG	6 mm^2	6 mm^2 (20… 10 AWG)	#16…6 AWG		10 mm^2	10 mm^2 (16… 8 AWG)
Wire Strip Length	0.51 in. (13 mm)				0.51 in. (13 mm)				0.70 in. (18 mm)			
Density	37 pcs/ft (123 pcs/m)				37 pcs/ft (123 pcs/m)				30 pcs/ft (99 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

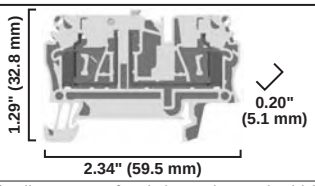
	1492-LG16				1492-LG35				1492-LDG2		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.											
Specifications	*Feed-through grounding terminal block*				*Feed-through grounding terminal block*				*Two-circuit terminal block with 1 feed-through and 1 ground circuit*		
Certifications		CSA	IEC	ATEX		CSA	IEC	ATEX		CSA	IEC
Voltage Rating	—	—	—	—	—	—	—	—	300V AC/DC		500V AC/DC
Maximum Current	Grounding				Grounding				10 A		17.5 A
Wire Range (Rated Cross Section)	#14…6 AWG	#14…4 AWG	16 mm^2	16 mm^2 (16… 6 AWG)	#12…2 AWG		35 mm^2	35 mm^2 (#14…2 AWG)	#28…16 AWG		1.5 mm^2
Wire Strip Length	0.70 in. (18 mm)				0.98 in. (25 mm)				0.31 in. (8 mm)		
Density	25 pcs/ft (82 pcs/m)				18 pcs/ft (62 pcs/m)				87 pcs/ft (285 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)				–58…+248 °F (–50…+120 °C)		

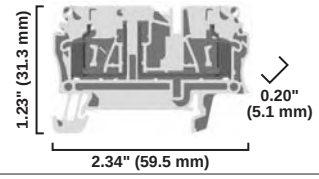
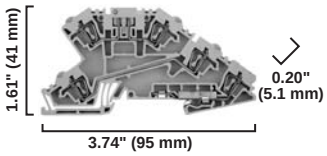
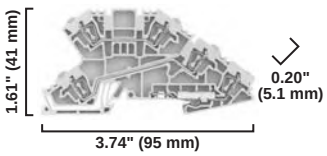
Grounding Blocks

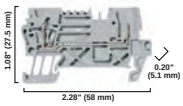
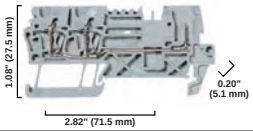
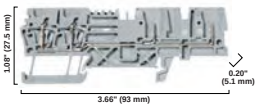
	1492-LDG2C			1492-LDG3				1492-LDG3C			
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.											
Specifications	*Single-circuit, two-level grounding terminal block with 2 connection points on each side*			*Two-circuit grounding terminal block with 1 feed-through and 1 ground circuit*				*Single-circuit, two-level grounding terminal block with 2 connection points on each side*			
Certifications	cULus	CSA	IEC	cULus	CSA	IEC	ATEX	cULus	CSA	IEC	ATEX
Voltage Rating	—	—	—	600V AC/DC		800V AC/DC	550V AC/DC	—	—	—	—
Maximum Current	Grounding			20 A	25 A	24 A	20 A	Grounding			
Wire Range (Rated Cross Section)	#28…16 AWG		1.5 mm^2	#26…12 AWG	#30…12 AWG	2.5 mm^2	0.5…2.5 mm^2 (#20…14 AWG)	#26…12 AWG	#30…12 AWG	2.5 mm^2	0.5…2.5 mm^2 (20…14 AWG)
Wire Strip Length	0.39 in. (10 mm)			0.39 in. (10 mm)				0.39 in. (10 mm)			
Density	87 pcs/ft (285 pcs/m)			59 pcs/ft (196 pcs/m)				59 pcs/ft (196 pcs/m)			
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)				-58…+248 °F (-50…+120 °C)			

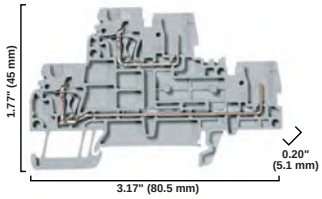
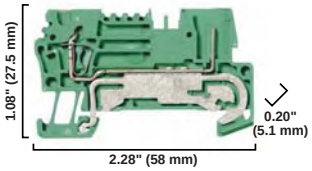
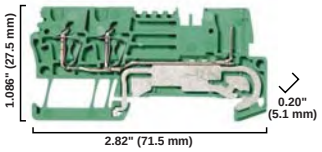
	1492-LDG4			1492-LDG4C		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.						
Specifications	*Two-circuit grounding terminal block with 1 feed-through and 1 ground circuit*			*Single-circuit, two-level grounding terminal block with 2 connection points on each side*		
Certifications	cULus	CSA	IEC	cULus	CSA	IEC
Voltage Rating	600V AC/DC		800V AC/DC	—	—	—
Maximum Current	25 A	30 A	32 A	Grounding		
Wire Range (Rated Cross Section)	#26…10 AWG		4 mm^2	#26…10 AWG		4 mm^2
Wire Strip Length	0.39 in. (10 mm)			0.39 in. (10 mm)		
Density	49 pcs/ft (163 pcs/m)			49 pcs/ft (163 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

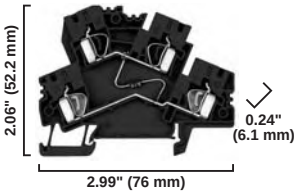
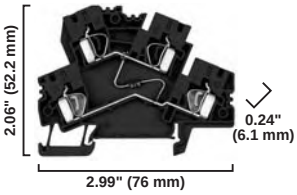
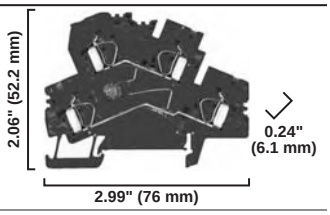
	1492-LD32P			1492-LG31P			1492-LG3T1P		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*Two-circuit terminal block with 1 fixed and 1 plug-in connection on each level. Plug-in connectors can be individual or grouped configurations.*			*Single-circuit grounding terminal block with 1 fixed and 1 plug-in connection.*			*Single-circuit grounding terminal block with 2 fixed and 1 plug-in connection.*		
Certifications		CSA	IEC		CSA	IEC		CSA	IEC
Voltage Rating	300V AC/DC		500V AC/DC	—		—	—		—
Maximum Current	20 A		24 A	Grounding			Grounding		
Limited Rating - Voltage❄	600V AC/DC		—	—			—		
Limited Rating - Current❄	5 A		—	—			—		
Wire Range (Rated Cross Section)	26… 12 AWG		0.5…2.5 mm^2	26… 12 AWG		0.5…2.5 mm^2	26… 12 AWG		0.5…2.5 mm^2
Wire Strip Length	0.394 in (10 mm)			0.394 in (10 mm)			0.394 in (10 mm)		
Density (Blocks per ft/m)	59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

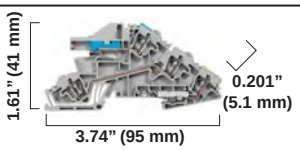
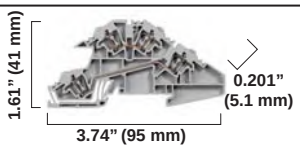
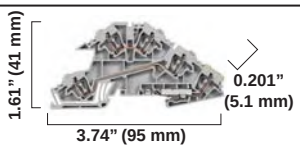
	1492-LKD3		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.			
Specifications	*Knife disconnect feed-through terminal block*		
Certifications		CSA	IEC
Voltage Rating	600V AC/DC		500V AC/DC
Maximum Current	20 A		24 A
Wire Range (Rated Cross Section)	#30…12 AWG		2.5 mm^2
Wire Strip Length	0.39 in. (10 mm)		
Density	59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)		

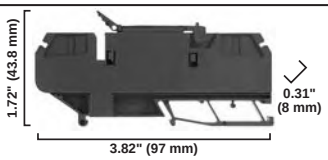
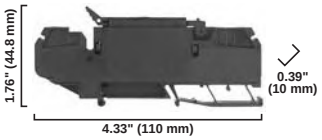
	1492-L3P			1492-LDG3P			1492-LDAG3		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*Single circuit plug-in component block for a variety of components*			*Terminal block with slot for plug-in component, feed-through circuit and 1 ground connection*			*Analog Loop Control Terminal Block with 2 Feed-Through Circuits and 1 Ground Connection*		
Certifications		**CSA**	**IEC**		**CSA**	**IEC**		**CSA**	**IEC**
Voltage Rating	600V AC/DC		500V AC/DC	300V AC/DC		250V AC/DC	300V AC/DC		250V AC/DC
Maximum Current	20 A		24 A	10 A		20 A	10 A		24 A
Wire Range (Rated Cross Section)	#30…12 AWG		4 mm^2	#26…12 AWG		2.5 mm^2	#26…12 AWG		2.5 mm^2
Wire Strip Length	0.39 in. (10 mm)			0.31 in. (8 mm)			0.31 in. (8 mm)		
Density	59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)		

	1492-L31P			1492-L3T1P			1492-L3Q2P		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*Single circuit terminal block with 1 fixed and 1 plug-in connection. Plug-in connectors can be individual or grouped configurations.*			*Single circuit terminal block with 2 fixed and 1 plug-in connection. Plug-in connectors can be individual or grouped configurations.*			*Single circuit terminal block with 2 fixed and 2 plug-in connections. Plug-in connectors can be individual or grouped configurations.*		
Certifications		**CSA**	**IEC**		**CSA**	**IEC**		**CSA**	**IEC**
Voltage Rating	300V AC/DC		500V AC/DC	300V AC/DC		500V AC/DC	300V AC/DC		500V AC/DC
Maximum Current	20 A		24 A	20 A		24 A	20 A		24 A
Limited Rating - Voltage‡	600V AC/DC		—	600V AC/DC		—	600V AC/DC	—	-
Limited Rating - Current‡	5 A		—	5 A		—	5 A	—	—
Wire Range (Rated Cross Section)	#26…12 AWG		0.5...2.5 mm^2	#26…12 AWG		0.5...2.5 mm^2	#26…12 AWG		0.5...2.5 mm^2
Wire Strip Length	0.394 in. (10 mm)			0.394 in. (10 mm)			0.394 in. (10 mm)		
Density	59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range	–58…+248 °F (–50…+120 °C)			–58…+248 °F (–50…+120 °C)			–58…+248 °F (–50…+120 °C)		

	1492-LD32P			1492-LG31P			1492-LG3T1P		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*Two- circuit terminal block with 1 fixed and 1 plug-in connection. Plug-in connectors can be individual or grouped configurations.*			*Single circuit grounding terminal block with 1 fixed and 1 plug-in connection.*			*Single circuit grounding terminal block with 2 fixed and 1 plug-in connection.*		
Certifications		**CSA**	**IEC**		**CSA**	**IEC**		**CSA**	**IEC**
Voltage Rating	300V AC/DC		500V AC/DC	—			—		
Maximum Current	20 A		24 A	Grounding			Grounding		
Limited Rating - Voltage❄	600V AC/DC		—	—			—		
Limited Rating - Current❄	5 A		—	—			—		
Wire Range (Rated Cross Section)	#26…12 AWG		0.5...2.5 mm²	#26…12 AWG		0.5...2.5 mm²	#26…12 AWG		0.5...2.5 mm²
Wire Strip Length	0.394 in. (10 mm)			0.394 in. (10 mm)			0.394 in. (10 mm)		
Density	59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)		
Housing Temperature Range	–58…+248 °F (–50…+120 °C)			–58…+248 °F (–50…+120 °C)			–58…+248 °F (–50…+120 °C)		

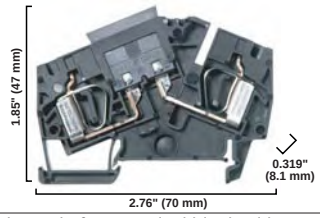
	1492-LD4DF			1492-LD4DR			1492-LD4SS⁎		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*Two-level terminal block with an IN4007 diode in forward bias between the 2 levels.*			*Two-level terminal block with an IN4007 diode in reverse bias between the 2 levels.*			*Two level terminal block with an MOV between the 2 levels.*		
Certifications		**CSA**	**IEC**		**CSA**	**IEC**		**CSA**	**IEC**
Voltage Rating	600V AC/DC		500V AC/DC	600V AC/DC		500V AC/DC	600V AC/DC	600V AC/DC	140V AC/DC
Maximum Current	25 A	30 A	32 A	25 A	30 A	32 A	120V	—	
Component Current/Wattage Rating⁎	1 A			1 A			25 A	30 A	32 A
Wire Range (Rated Cross Section)	#26…10 AWG		4 mm²	#26…10 AWG		4mm²	#26…10 AWG	26…10 AWG	4mm²
Wire Strip Length	0.39 in. (10 mm)			0.39 in. (10 mm)			0.39 in. (10 mm)		
Density	49 pcs/ft (163 pcs/m)			49 pcs/ft (163 pcs/m)			49 pcs/ft (163 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)			-58…+248 °F (-50…+120 °C)			–58…+248 °F (–50…+120 °C)		

	1492-LDG3ND			1492-LD3N			1492-LDG3N		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.									
Specifications	*3-Level terminal block with neutral disconnect and ground connection*			*2-Level feed-through terminal block for installation applications*			*3-Level terminal block with 2 feed-through and ground connection*		
Certifications		**CSA**	**IEC**		**CSA**	**IEC**		**CSA**	**IEC**
Voltage Rating	600V AC/DC	300V AC/DC	400V AC/DC	600V AC/DC	300V AC/DC	400V AC/DC	600V AC/DC	300V AC/DC	400V AC/DC
Maximum Current	15 A	10 A	24 A	15 A	10 A	24 A	15 A	10 A	24 A
Wire Range (Rated Cross Section)	#26…12 AWG		2.5 mm²	#26…12 AWG		2.5 mm²	#26…12 AWG		2.5 mm²
Wire Strip Length	0.31 in. (8 mm)			0.31 in. (8 mm)			0.31 in. (8 mm)		
Density	59 pcs/ft (196 pcs/m)			59 pcs/ft (196 pcs/m)			59 per ft/196 per meter		
Housing Temperature Range	-58...+248 °F (-50...+120 °C)			-58...+248 °F (-50...+120 °C)			-58...+248°F (-50...+120°C)		

		1492-RFB4…			1492-RAFB4…		
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.							
Specifications		*Single-circuit fuse terminal block with or without blown fuse indicator*			*Single-circuit fuse terminal block with or without blown fuse indicator*		
Certifications			**cUR**	**IEC**		**cUR**	**IEC**
Maximum Current		15 A*	15 A*	15 A*	12 A	12 A	12 A
Wire Range (Rated Cross Section)		#22…12 AWG	#22…12 AWG	0.5…4 mm²	#22…12 AWG	#22…12 AWG	0.5…4 mm²
Voltage Rating	RFB4/RAFB4	300V AC/DC		500V AC/DC	300V AC/DC		500V AC/DC
	RFB424/RAFB424	10…57V AC/DC			10…57V AC/DC		
	RFB4250/RAFB4250	85…264V AC			85…264V AC		
Indicator Type	RFB4/RAFB4	Non-indicating			Non-indicating		
	RFB424/RAFB424	LED			LED		
	RFB4250/RAFB4250	LED			LED		
Leakage Current	RFB4/RAFB4	—			—		
	RFB424/RAFB424	2 mA @ 24V			2 mA @ 24V		
	RFB4250/RAFB4250	1 mA @ 264V			1 mA @ 264V		
Fuse Size (Not Supplied)		5 x 20 mm			1/4 x 1 -1/4 in.		
Wire Strip Length		0.47 in. (12 mm)			0.47 in. (12 mm)		
Density		37 pcs/ft (125 pcs/m)			30 pcs/ft (100 pcs/m)		
Insulation Temperature Range		-4…+140 °F (-20…+60 °C)			-4…+221 °F (-40…+105 °C)		

1492-LAFB6

Dimensions are not intended to be used for manufacturing purposes.
Note: Height dimension is measured from top of rail to top of terminal block.

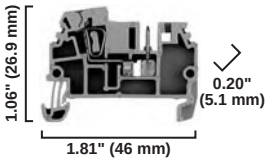


Specifications		*Single-circuit automotive style fuse terminal block with or without LED blown fuse indication*		
Certifications			**CSA**	**IEC**
Voltage Rating	-LAFB6	300V AC/DC		250V AC/DC
	-LAFB624	10…36V AC/DC		
Maximum Current		30 A	25 A	30 A
Wire Range (Rated Cross Section)		#22…12 AWG	#22… 10 AWG	0.5…6 mm^2
Wire Strip Length		0.394 in. (10 mm)		
Density		37 pecs/ft (123 pcs/m)		
Housing Temperature Range		-58…+248 °F (-50…+120 °C)		

Plug-in Connection Blocks

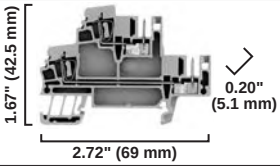
1492-LC3

Dimensions are not intended to be used for manufacturing purposes.
Note: Height dimension is measured from top of rail to top of terminal block.



Specifications	*Feed-through terminal block with plug in comb connection on one side.*		
Certifications		**CSA**	**IEC**
Voltage Rating	300V AC/DC		250V AC/DC
Maximum Current	10 A		16 A
Wire Range (Rated Cross Section)	#26…12 AWG		2.5 mm^2
Wire Strip Length	0.39 in. (10 mm)		
Density	59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)		

1492-LDC3

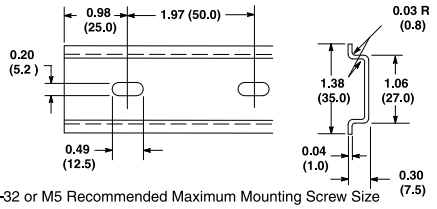
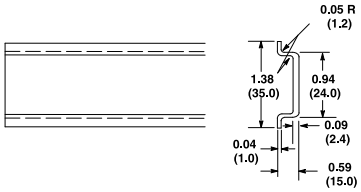
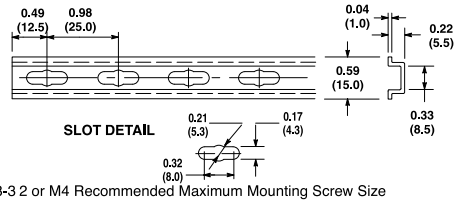
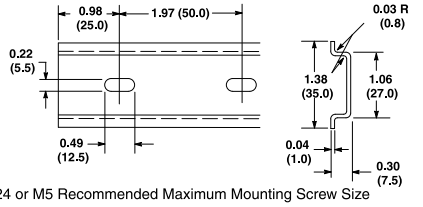
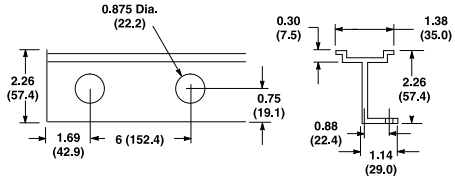
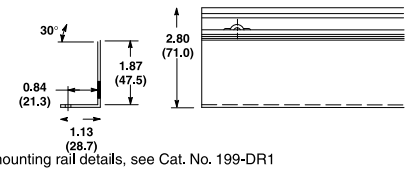
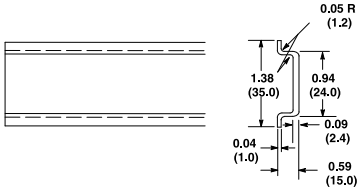
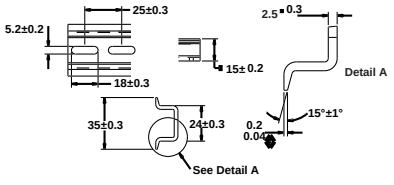


	Two Circuit terminal block with plug in comb connection on one side of each circuit		
Certifications		**CSA**	**IEC**
Voltage Rating	300V AC/DC		250V AC/DC
Maximum Current	10 A		16 A
Wire Range (Rated Cross Section)	#26…14 AWG		2.5 mm^2
Wire Strip Length	0.39 in. (10 mm)		
Density	59 pcs/ft (196 pcs/m)		
Housing Temperature Range	-58…+248 °F (-50…+120 °C)		

Short-Circuit Current Ratings — Fuse Ratings

Cat. No.	Wire Cu [AWG]		Overcurrent Protection Fuse Required Class/Max. Amp Rating						Maximum Voltage	SCCR, RMS SYM [A]
	Line	Load	J	T	RK1	RK5	G	CC		
1492-L3	14…12	14…12	30	30	—	—	30	30	600	100,000
1492-L3Q										
1492-L3T										
1492-LD3										
1492-L3QS										
1492-LMJ3										
1492-LMJG3										
1492-LKD3										
1492-L3P										
1492-LG3T										
1492-LG3Q										
1492-LG3										
1492-LD3C										
1492-LDG3C										
1492-LDG3										
1492-LC3	14…12	14…12	30	30	—	—	30	30	300	100,000
1492-LDC3										
1492-LDG3P										
1492-LDG3ND										
1492-LDG3N										
1492-LD3N										
1492-LD31P										
1492-LD3Q2P										
1492-LG31P										
1492-LG3T1P										
1492-L3T1P										
1492-LDG3FB										
1492-L4	14…10	14…10	60	60	30	—	30	30	600	100,000
1492-L4Q										
1492-L4T										
1492-LD4										
1492-LD4C										
1492-LG4										
1492-LG4T										
1492-LG4Q										
1492-LD4DFX2										
1492-L6	14…8	14…8	60	60	30	—	60	30	600	100,000
1492-L6T										
1492-LG6										
1492-LG6T										
1492-LAFB6	14…8	14…8	60	60	30	—	60	30	300	100,000
1492-L10	14…6	14…6	100	100	60	30	60	30	600	100,000
1492-LG10										
1492-L16	14…4	14…4	100	100	60	30	60	30	600	100,000
1492-LG16										
1492-L35	12…2	12…2	200	200	100	30	60	30	600	100,000
1492-LG35										

Mounting Rails

Cat. No.	Description	Pkg Qty.	Dimensions★
199-DR1 	Symmetrical Rail 35 mm x 7.5 mm 3.28 ft (1 m) long Zinc-Plated Clear Chromated Steel EN60715 **DIN #3**	10	 #10–32 or M5 Recommended Maximum Mounting Screw Size
199-DR2	Same as Cat. No. 199-DR1, but length = 2 m	20	
199-DR4 	Heavy Duty Symmetrical Rail 35 mm x 15 mm 3.28 ft (1 m) long Zinc-Plated Clear Chromated Steel EN60715 **DIN #3**	5	
1492-DR3 	Mini 15 mm x 5.5 mm Rail 3.28 ft (1 m) long Zinc-Plated Clear Chromated Steel EN60715 **DIN #2**	5	 #8-3 2 or M4 Recommended Maximum Mounting Screw Size
1492-DR5 	Symmetrical Rail 35 mm x 7.5 mm 3.28 ft (1 m) long Copper-Free Aluminum EN60715 For Bul. 1492 Terminal Blocks Only **DIN #3**	10	 #12–24 or M5 Recommended Maximum Mounting Screw Size
‡ **1492-DR6** 	Symmetrical Rail 35 mm x 7.5 mm 2.26 in. (57.4 mm) high 3.28 ft (1 m) long Copper-Free Aluminum For Bul. 1492 Terminal Blocks Only **DIN #3**	2	 Wire insulator plug for wire access through rail — use Heyco UB875
‡ **1492-DR7** 	Symmetrical Rail 35 mm x 7.5 mm 2.80 in. (71.0 mm) high 3.28 ft (1 m) long Angled 30° Zinc-Plated, Chromated Steel **DIN #3**	2	 For mounting rail details, see Cat. No. 199-DR1
1492-DR8 	Symmetrical Rail 35 mm x 15 mm 3.28 ft (1 m) long Copper EN60715 **DIN #3**	5	
§ **1492-DR9** 	Symmetrical Rail 35 mm x 15 mm 3.28 ft (1 m) long Zinc-Plated Clear Chromated Steel EN60715 **DIN #3**	5	

★ Dimensions shown in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.
‡ 0.218 x 0.50 in. (5.5 x 12.7 mm) slotted mounting holes every 3 in. (76.2 mm) starting 1.69 in. (42.9 mm) from end.
§ Dimensions in millimeters.

End Barriers

End barriers are required to provide the necessary insulation for the last terminal block in a group.

Dimensions Width x Length x Height	For Use With	Color	Pkg Qty.	Cat. No.
0.08 x 1.14 x 2.03 in. (2 x 28.9 x 51.5 mm)	1492-L2, LG2	Grey	50	**1492-EBL2**
		Blue	50	**1492-EBL2-B**
		Yellow	50	**1492-EBL2-Y**
0.08 x 1.14 x 2.48 in. (2 x 28.9 x 63 mm)	1492-L2T, LG2T	Grey	50	**1492-EBL2T**
		Blue	50	1492-EBL2T-B
		Yellow	50	**1492-EBL2T-Y**
0.08 x 1.14 x 2.95 in. (2 x 28.9 x 75 mm)	1492-L2Q, LG2Q	Grey	50	**1492-EBL2Q**
		Blue	50	**1492-EBL2Q-B**
		Yellow	50	1492-EBL2Q-Y
0.08 x 1.15 x 2.34 in. (2 x 29.1 x 59.5 mm)	1492-L3, LG3, LKD3, L3P	Grey	50	**1492-EBL3**
		Blue	50	**1492-EBL3-B**
		Yellow	50	**1492-EBL3-Y**
0.08 x 1.20 x 2.54 in. (2 x 30.6 x 64.5 mm)	1492-L3T, LG3T	Grey	50	**1492-EBL3T**
		Blue	50	**1492-EBL3T-B**
		Yellow	50	**1492-EBL3T-Y**
0.08 x 1.20 x 3.11 in. (2 x 30.6 x 79 mm)	1492-L3Q, L3QS, LG3Q	Grey	50	**1492-EBL3Q**
		Blue	50	**1492-EBL3Q-B**
		Yellow	50	**1492-EBL3Q-Y**
0.10 x 1.06 x 2.8 in. (2.5 x 27 x 71 mm)	1492-L31P, 1492-LG31P	Yellow	50	1492-EBL31P-Y
	1492-L3T1P, 1492-LG3T1P	Grey	50	1492-EBL3T1P
		Yellow	50	1492-EBL3T1P-Y
0.08 x 1.20 x 3.11 in. (2 x 30.6 x 79 mm)	1492-L3Q2P	Grey	50	1492-EBL3Q2P
0.10 x 1.76 x 3.17 in. (2.5 X 44.7 x 80.5)	1492-LD32P	Grey	50	1492-EBLD32P
0.08 x 1.37 x 2.44 in. (2 x 34.85 x 62 mm)	1492-L4, LG4	Grey	50	**1492-EBL4**
		Blue	50	**1492-EBL4-B**
		Yellow	50	**1492-EBL4-Y**
0.08 x 1.37 x 3.31 in. (2 x 34.85 x 84 mm)	1492-L4T, LG4T	Grey	50	**1492-EBL4T**
		Blue	50	1492-EBL4T-B
		Yellow	50	1492-EBL4T-Y
0.08 x 1.37 x 4.13 in. (2 x 34.85 x 105 mm)	1492-L4Q, LG4Q	Grey	50	**1492-EBL4Q**
		Blue	50	1492-EBL4Q-B
		Yellow	50	**1492-EBL4Q-Y**
0.08 x 1.45 x 2.56 in. (2 x 36.95 x 65 mm)	1492-L6, LG6	Grey	50	**1492-EBL6**
		Blue	50	1492-EBL6-B
		Yellow	50	**1492-EBL6-Y**
0.08 x 1.45 x 3.54 in. (2 x 36.95 x 90 mm)	1492-L6T, LG6T	Grey	50	**1492-EBL6T**
		Blue	50	1492-EBL6T-B
		Yellow	50	**1492-EBL6T-Y**
0.12 x 1.67 x 2.89 in. (3 x 42.5 x 73.5 mm)	1492-L10, LG10	Grey	20	**1492-EBL10**
		Blue	20	1492-EBL10-B
		Yellow	20	**1492-EBL10-Y**
0.12 x 1.71 x 3.25 in. (3 x 43.5 x 82.5 mm)	1492-L16, LG16	Grey	20	**1492-EBL16**
		Blue	20	1492-EBL16-B
		Yellow	20	**1492-EBL16-Y**
—	1492-LAFB6	Black	50	**1492-EBLAFB6**
0.08 x 1.65 x 2.95 in. (2 x 41.9 x 75 mm)	1492-LD2, LDG2, LD2C, LDG2C	Grey	50	**1492-EBLD2**
		Blue	20	1492-EBLD2-B
		Yellow	20	1492-EBLD2-Y
0.08 x 1.87 x 2.85 in. (2 x 47.5 x 72.5 mm)	1492-LD3, LD3C, LDG3, LDG3C	Grey	20	**1492-EBLD3**
		Blue	20	1492-EBLD3-B
		Yellow	20	**1492-EBLD3-Y**
0.08 x 2.05 x 2.99 in. (2 x 52 x 76 mm)	1492-LD4, LD4C, LDG4, LDG4C, LD4DF, LD4DR, LD4RB…, LD4SS	Grey	20	**1492-EBLD4**
		Blue	20	**1492-EBLD4-B**
		Yellow	20	1492-EBLD4-Y

End Barriers

Dimensions Width x Length x Height	For Use With	Color	Pkg Qty.	Cat. No.
0.20 x 0.94 x 1.31 in. (5.1 x 23.8 x 33.3 mm)	1492-LMP3, LMP3Q	Grey	50	**1492-EBLMP3**
		Blue	50	1492-EBLMP3-B
0.20 x 0.94 x 1.31 in. (5.1 x 23.8 x 33.3 mm)	1492-LM3, LM3Q, LMG3, LMP3E, LMP3QE	Grey	50	**1492-EBLM3**
0.06 x 0.97 x 1.38 in. (1.5 x 24.65 x 35 mm)	1492-LMJ3, LMJG3	Grey	50	**1492-EBLMJ3**
		Blue	50	1492-EBLMJ3-B
		Yellow	50	1492-EBLMJ3-Y
0.06 x 2.32 x 4.35 in. (1.5 x 59 x 110.5 mm)	1492-LTF3	Grey	20	**1492-EBLTF3**
0.06 x 2.69 x 1.77 in. (5 x 68.5 x 45 mm)	1492-LS2-3, LS2-3L, LSG2-3		50	**1492-EBLS2-3**
0.20 x 3.2 x 1.77 in. (5 x 81.5 x 45 mm)	1492-LS2-4, LS2-4L, LSG2-4		50	**1492-EBLS2-4**
0.06 x 1.81 x 3.74 in. (1.5 x 46 x 95 mm)	1492-LDAG3, LDG3P		20	**1492-EBLDAG3**
0.10 x 1.04 x 1.81 in. (2.5 x 26.4 x 46 mm)	1492-LC3		20	**1492-EBLC3**
0.10 x 1.65 x 2.72 in. (2.5 x 41.85 x 69 mm)	1492-LDC3		20	1492-EBLDC3
—	1492-LDG3ND, LD3N, LDG3N	Grey	20	**1492-BSPJLD3N**
—	1492-LDG3ND, LD3N, LDG3N	Blue	20	1492-BSPJLD3N-B

End Anchor/End Retainers

End anchors and end retainers mount at both ends of a group of terminal blocks to add rigidity to the terminal assembly and prevent sliding along the rails.

Photo	Dimensions Width x Length x Height	Tightening Torque	Markers	For Use With	Color	Pkg Qty.	Cat. No.
	0.31 x 2.20 x 1.85 in. (8 x 56 x 47 mm)	4.4 lb•in (0.5 N•m)	1492-M7X12 1492-M8X5	199-DR1, 199-DR2, 1492-DR4, 1492-DR5, 1492-DR6, 1492-DR7, 1492-DR8, 1492-DR9	Grey	100	**1492-EAJ35**
	0.48 x 2.20 x 2.48 in. (12.2 x 56 x 63 mm)	4.4 lb•in (0.5 N•m)	1492-M7X12 1492-M5X5	199-DR1, 199-DR2, 1492-DR4, 1492-DR5, 1492-DR6, 1492-DR7, 1492-DR8, 1492-DR9	Grey	50	**1492-EAHJ35**
	0.31 x 1.06 x 1.06 in. (8 x 27 x 27 mm)	3.5 lb•in (0.9 N•m)	1492-M5X5	1492-DR3	Grey	50	**1492-EAJ15**
	0.24 x 2.19 x 1.63 in. (6 x 55.6 x 41.5 mm)	—	1492-M5X10 1492-M5X5	199-DR1, 199-DR2, 1492-DR4, 1492-DR5, 1492-DR6, 1492-DR7, 1492-DR8, 1492-DR9	Grey	20	**1492-ERL35**
	0.20 x 0.96 x 0.75 in. (5 x 24.5 x 19 mm)	—	1492-M5X10 1492-M5X5	1492-DR3	Grey	20	**1492-ERL15**

Partition Plates and Separation Plates

Partition plates allow visual and electrical separation of terminal groups and provide the necessary electrical spacing between adjacent insulated jumpers or between exposed ends of cut jumpers.

Separation plates consist of flexible thermoplastic material and are used between terminal blocks to isolate adjacent center jumpers both visually and electrically.

Dimensions Width x Length x Height	For Use With	Color	Pkg Qty.	Cat. No.
Partition Plates				
0.118 x 3.15 x 2.48 in. (3 x 80 x 63 mm)	1492-JD3, JD3C, JD3F, JD3DF, JD3DR, JD3RC…, JD3SS	Grey	20	**1492-PPJD3**
0.005 x 3.54 x 2.51 in. (0.13 x 90.1 x 63.8 mm)	1492-JD3P…, JDG3P…	Beige	20	**1492-PPJD3P**
0.08 x 1.57 x 1.20 in. (2 x 40 x 30.5 mm)	1492-WM3, WM4, WMG3, WMG4	Grey	50	**1492-PPM3**
0.014 x 2.28 x 1.51 in. (0.35 x 58 x 38.3 mm)	1492-WMD1	Grey	50	**1492-PPMD1**
0.06 x 1.85 x 1.57 in. (1.5 x 47 x 40 mm)	1492-W3, W4, WG4	Grey	50	**1492-PP3**
0.06 x 2.17 x 1.81 in. (1.5 x 55 x 46 mm)	1492-W6, W10, W16S, W4TW, WG6, WG10S, WG16S	Grey	50	**1492-PP10**
0.014 x 2.88 x 1.85 in. (0.35 x 73.2 x 47.1 mm)	1492-WTF3…, WTS3…	Beige	50	**1492-PPTS3**
0.06 x 1.93 x 2.36 in. (1.5 x 49 x 60 mm)	1492-J3, J4, J6, J10, J2Q, J3TW, J3F, JG2Q, JG3, JG3TW, JKD3, JKD3TP, J3P, J3PTP, JTC3	Grey	20	**1492-EBJ16**
		Blue	20	**1492-EBJ16-B**
		Yellow	20	**1492-EBJ16-Y**
Separation Plates				
.014 x 1.76 x 1.57 in. (0.35 x 44.8 x 40.0 mm)	1492-W3, W4	Beige	50	**1492-SP3**
	All 1492-FPK2 Fuse Plugs	Beige	50	**1492-SPJ3**

Jumpers use the terminal block wire openings. Multi-pole jumpers can be cut into a smaller number of poles. Jumpers carry 100% of rated terminal block current. The back of IEC style jumpers are insulated with plastic. An adjacent partition plate provides the necessary electrical spacings between adjacent jumpers or between exposed ends of cut jumpers.

Center Jumpers — Screw Type

These center jumpers are insulated and are available in 2-…50-pole configurations. They mount with screws into the screw type terminal blocks.

Note: The following rules apply when going across different potentials with jumpers cut out:

- Always de-rate to 400V
- Always use a partition plate where a cut jumper strip may leave a live end exposed

Center Jumpers — Screwless Type

These center jumpers are insulated and are available in 2-…50-pole configurations. They mount without screws into the both Spring-Clamp terminal blocks and some screw terminal blocks.

Note: When using multiple screwless jumpers in 1492-J3, 1492-J2Q, or 1492-J4 terminal blocks, the following rules apply when going across different potentials with jumpers cut out:

- When using all 3 channels, or 2 side-by-side channels, de-rate to 125V
- When using 2 outside channels (leaving the center channel open), de-rate to 400V
- Always use a partition plate where a cut jumper strip may leave a live end exposed

Center Jumper Covers

Center jumper covers can be used as an extruded marking surface for circuit identification.

Center Jumper Configuration Plates

Photo	For Use With	Color	Pkg Qty.	Cat. No.
Center Jumper Spacer Plate				
	1492-L4 to 1492-L3Q, L3 1492-L6 to 1492-L3Q, L3	Grey	25	1492-LJS

Step-Down Distribution Jumpers

Photo	For Use With	Pkg Qty.	Cat. No.
	1492-J35 to 1492-J4 or J6	10	**1492-CJJ16SD68**
	1492-J16 to 1492-J4 or J6	10	**1492-CJJ12SD68**
	1492-J35 to 1492-J3	10	1492-CJJ16SD5
	1492-J16 to 1492-J3	10	1492-CJJ12SD5

Screw Type Center Jumpers

For Use With	Pkg Qty.	Cat. No.
1492-J3, JD3…, JDG3…, J2Q, J3TW, J3F, JD3F	50	**1492-CJJ5-2**
	50	**1492-CJJ5-3**
	50	**1492-CJJ5-4**
	20	**1492-CJJ5-10**
1492-J4, J4M	50	**1492-CJJ6-2**
	50	**1492-CJJ6-3**
	50	**1492-CJJ6-4**
	20	**1492-CJJ6-10**
1492-J6	50	**1492-CJJ8-2**
	50	**1492-CJJ8-3**
	50	**1492-CJJ8-4**
	20	**1492-CJJ8-10**
1492-J10	50	**1492-CJJ10-2**
	50	**1492-CJJ10-3**
	50	**1492-CJJ10-4**
	20	**1492-CJJ10-10**
1492-J16	20	**1492-CJJ12-2**
	20	**1492-CJJ12-3**
	20	**1492-CJJ12-4**
	10	**1492-CJJ12-10**
1492-J35	20	**1492-CJJ16-2**
	20	**1492-CJJ16-3**
	20	1492-CJJ16-4
	10	**1492-CJJ16-10**
1492-J50	10	**1492-CJJ18-2**
	10	1492-CJJ18-3
	10	1492-CJJ18-4
1492-J70	5	1492-CJJ20-2
	5	1492-CJJ20-3
	5	1492-CJJ20-4
1492-WM3	10	**1492-CJM5-2**
	10	**1492-CJM5-3**
	10	1492-CJM5-4
	10	1492-CJM5-5
	10	**1492-CJM5-10**
1492-W3, WM3, WR3, WTF3…, WTS3…	10	**1492-CJL5** (Link)
1492-WR3	5	**1492-CJD5-50**
	10	**1492-CJD5-2**
	10	**1492-CJD5-3**
	10	1492-CJD5-4
	10	1492-CJD5-5
	10	**1492-CJD5-10**

Note: Notching out one or more jumper poles, with the notched jumpers going across different potentials, will require de-rating to 400V.

For Use With	Pkg Qty.	Cat. No.
1492-WM4	5	**1492-CJD6-50**
	10	**1492-CJD6-2**
	10	**1492-CJD6-3**
	10	1492-CJD6-4
	10	1492-CJD6-5
	10	**1492-CJD6-10**
1492-WM4, W4TW	10	1492-CJLD6 (Link)
1492-W3	10	**1492-CJ5-2**
	10	**1492-CJ5-3**
	10	**1492-CJ5-10**
	20	**1492-CJCW5** (CJ Cover)★
1492-WTF3…, WTS3…	5	**1492-CJT5-50**
	10	**1492-CJT5-2**
	10	1492-CJT5-3
	10	1492-CJT5-4
	10	1492-CJT5-5
	10	**1492-CJT5-10**
1492-W4, W4TW	5	**1492-CJ6-50**
	10	**1492-CJ6-2**
	10	**1492-CJ6-3**
	10	**1492-CJ6-4**
	10	**1492-CJ6-5**
	10	**1492-CJ6-10**
1492-W4	10	**1492-CJL6** (Link)
1492-W4, W6, W10	20	**1492-CJCW6** (CJ Cover)
1492-W6	5	**1492-CJ7-40**
	10	**1492-CJ7-2**
	10	**1492-CJ7-3**
	10	**1492-CJ7-4**
	10	1492-CJ7-5
	10	**1492-CJ7-10**
1492-W6	10	1492-CJL7 (Link)
1492-W10	5	**1492-CJ8-40**
	10	**1492-CJ8-2**
	10	**1492-CJ8-3**
	10	1492-CJ8-4
	10	1492-CJ8-5
	10	**1492-CJ8-10**
1492-W10	10	**1492-CJL8** (Link)
1492-W16S	10	**1492-CJS11-2**
	10	**1492-CJS11-3**
	10	1492-CJS11-4
	10	**1492-CJS11-5**
	10	**1492-CJS11-10**

★ May only be used as a marking surface. May not be installed over center jumper.

Screwless Center Jumpers

For Use With	Color	Pkg Qty.	Cat. No.
1492-L2..., L2T, L2Q, LD2, LD2C	Yellow	60	**1492-CJL4-2**
		60	**1492-CJL4-3**
		60	**1492-CJL4-4**
		60	**1492-CJL4-5**
		20	**1492-CJL4-10**
1492-LM3, LC3, LDC3, LDAG3, LDG3P, JKD3..., J3P..., J3, J3TW (see Note)	Yellow	60	**1492-CJLJ5-2**
	Black	60	1492-CJLJ5-2-BL
	Yellow	60	**1492-CJLJ5-3**
	Yellow	60	**1492-CJLJ5-4**
		20	**1492-CJLJ5-5**
		20	**1492-CJLJ5-6**
		20	**1492-CJLJ5-7**
		20	**1492-CJLJ5-8**
		20	1492-CJLJ5-9
		20	**1492-CJLJ5-10**
	Red	20	**1492-CJLJ5-10-R**
	Black	20	**1492-CJLJ5-10-BL**
	Yellow	10	**1492-CJLJ5-50**
	Red	10	**1492-CJLJ5-50-R**
	Blue	10	1492-CJLJ5-50-B
	Black	10	**1492-CJLJ5-50-BL**
	White	10	**1492-CJLJ5-50-W**

For Use With	Pkg Qty.	Cat. No.
1492-RFB4	10	1492-CJR8-2
	10	1492-CJR8-3
	10	1492-CJR8-4
	10	1492-CJR8-5
	10	1492-CJR8-6
	10	1492-CJR8-7
	10	1492-CJR8-8
	10	1492-CJR8-9
	10	**1492-CJR8-10**
1492-RAFB4	10	1492-CJRA10-2
	10	1492-CJRA10-3
	10	1492-CJRA10-4
	10	1492-CJRA10-5

For Use With	Color	Pkg Qty.	Cat. No.
1492-J4, J4M (see Note)	Yellow	60	**1492-CJLJ6-2**
	Red	60	1492-CJLJ6-2-R
	Blue	60	1492-CJLJ6-2-B
	Black	60	1492-CJLJ6-2-BL
	Yellow	60	**1492-CJLJ6-3**
	Blue	60	1492-CJLJ6-3-B
	Black	60	1492-CJLJ6-3-BL
	Yellow	60	**1492-CJLJ6-4**
	Yellow	20	**1492-CJLJ6-10**
	Red	20	**1492-CJLJ6-10-R**
	Blue	20	**1492-CJLJ6-10-B**
	Black	20	**1492-CJLJ6-10-BL**
	Yellow	10	**1492-CJLJ6-41**
	Red	10	**1492-CJLJ6-41-R**
	Blue	10	1492-CJLJ6-41-B
	Black	10	1492-CJLJ6-41-BL
1492-L6, L6T, L16D	Yellow	60	**1492-CJL8-2**
		60	**1492-CJL8-3**
		60	**1492-CJL8-4**
		10	**1492-CJL8-32**
1492-L10	Yellow	25	**1492-CJL10-2**
1492-L16	Yellow	25	**1492-CJL12-2**
1492-L35	Yellow	10	**1492-CJL16-2**
1492-L3, L3T, L3Q, L3P, LD3, LD3C, LKD3, LTF3, LS2..., L16D	Yellow	60	**1492-CJK5-2**
		60	**1492-CJK5-3**
		60	**1492-CJK5-4**
		20	**1492-CJK5-5**
		20	**1492-CJK5-6**
		20	**1492-CJK5-7**
		20	**1492-CJK5-8**
		20	**1492-CJK5-9**
		20	**1492-CJK5-10**
		10	**1492-CJK5-50**
1492-L4, L4T, L4Q, LD4DF, LD4DR, LD4SS, LD4, LD4C, L16D	Yellow	60	**1492-CJK6-2**
		60	**1492-CJK6-3**
		60	**1492-CJK6-4**
		20	**1492-CJK6-5**
		20	**1492-CJK6-6**
		20	1492-CJK6-7
		20	**1492-CJK6-8**
		20	1492-CJK6-9
		20	**1492-CJK6-10**
		20	**1492-CJK6-20**

Side Jumpers

For Use With	Pkg Qty.	Cat. No.
1492-WM4, W4	50	**1492-N42**
1492-H4, H5, H6, H7	10	**1492-N49**
	10	★ **1492-SJS**
1492-W3, WR3	10	**1492-SJ5-10**
1492-JD3, JD3C, JD3F, JDG3, JD3DF, JD3DR, JD3SS, JDG3P	50	**1492-SJ5A-10**
1492-JD3, JD3C, JD3F, JDG3, JD3DF, JD3DR, JD3SS, JDG3P	50	**1492-SJ5A-24**
1492-JD3, JD3C, JD3F, JDG3, JD3DF, JD3DR, JD3SS, JDG3P	50	**1492-SJ5B-24**
1492-JD3, JD3C, JD3F, JDG3, JD3DF, JD3DR, JD3SS, JDG3P	50	**1492-SJ5B-10**
1492-WM4, W4, W4TW	10	‡ **1492-SJ6-10**
1492-JT3M	5	**1492-SJ6A-50**
1492-W10	10	**1492-SJ8-10**
1492-JD3FB, JDG3FB	50	**1492-SJ8A-4**
1492-JD3FB, JDG3FB	50	1492-SJ8A-3
1492-JD3FB, JDG3FB	50	1492-SJ8A-2
1492-LMP3, LMP3Q, LMJ3, LM3, LM3Q, LMP3E, LMP3QE	50	**1492-SJLM5-2**
1492-WMD1	10	§ **1492-SJMD5-12**
1492-WFB4, WFB424, WFB4250	10	**1492-SJFB8-10**
1492-WM3	10	**1492-SJM5-10**
1492-WTF3, WTS3, WTF3LP, WTS3LP, WTF3LP, WTF3LN, WTS3LN	10	**1492-SJT5-20-R**
1492-WTF3, WTS3, WTF3LP, WTS3LP, WTF3LP, WTF3LN, WTS3LN	10	**1492-SJT5-20-B**

Note: Side jumpers carry the same current rating as the terminal block used with it

★ Side jumper insulating sleeve only for use with Cat. No. 1492-N49

‡ Use jumper on single side of terminal block only

§ Uninsulated

Two-Level Jumper

For Use With	Pkg Qty.	Cat. No.
1492-LTF3 (Connects Two Levels within a 1492-LTF3 Terminal Block)	20	**1492-CJL5D**

Plugs and Other Accessories

Test plug sockets fit into the center bridge screw hole and allow easy connection of test plugs for circuit testing and troubleshooting.

Test Plugs — Spring-Clamp Terminal Blocks

2-…12-pole Quick Connection Euro style plugs.

Operating Instructions — Spring-Clamp Terminal Blocks

Cat. No. 1492-QCLABEL is an adhesive set of visual operating instructions that is intended for installation on the inside of a panel. It illustrates to maintenance personnel the correct operation of Spring-Clamp terminal blocks.

Insulation Stops — Spring-Clamp Terminal Blocks

Protective insulation stops prevent the insulation on conductors from being introduced into clamp and current bar area.

Test Plug Sockets, Test Plugs, Test Plug Adapters, and Test Adapters

Sockets★

Photo	Pkg Qty.	Cat. No.
	20	**1492-TPS23**
	50	**1492-TPS23L**
	50	1492-TPS4L

★ Required for testing Cat. No. 1492-J products with Cat. 1492-TP23 or 1492-TP40 test plugs.

Test Plugs

Photo	Pkg Qty.		Cat. No.
	20	‡	**1492-TP23**
	20	§	**1492-TP40**
	10	♣	**1492-TP28**
	25	♣	1492-TPCBM
	25	♣	1492-TPCMB

‡ Used in conjunction with Cat. No. 1492-TPS23 or 1492-TPS23L test sockets.
§ Used in conjunction with Cat. No. 1492-TPS4L socket.
♣ Used in conjunction with Cat. No. 1492-J4CTB terminal block.

Test Plug Adapters

Photo	Pkg Qty.	Cat. No.
	10	**1492-TA285**
	10	**1492-TA40**
	10	1492-TA40L
	25	1492-TPL5P

Test Plugs (Stackable)

Photo	Markers♣	Pkg Qty.	Cat. No.
	1492-M5X10, M5X5	25	**1492-TPJ5**
	1492-M5X10, M5X5	25	**1492-TPJ6**
	1492-M3X12, M3X5	25	**1492-TPL4**
	1492-M5X10, M5X5	25	**1492-TPL5**
	1492-M5X10, M5X5	25	1492-TPL6
	1492-M5X10, M5X5	25	1492-TPL8

♣ Marker cover screws.

Photo	Description	For Use With	Pkg Qty.	Cat. No.
	Jumper Notching Tool‡	1492-CJ…	1	**1492-T1**
	Unused Pin Cover on Connection Blocks	1492-JC3, JDC3	20	**1492-PCJC3**
	Disconnect Plug	1492-L3P, J3P…, JD3P…, JDG3P…, LD3R…	50	**1492-DPL**
	Plug-In Component Plug	1492-L3P, J3P…, JD3P…, JDG3P…, LD3R…	50	**1492-CPL**
 	Fuse Plug — without Blown Fuse Indication	1492-L3P, J3P…, JD3P..., JDG3P..., JP3, JPKD3, JPGKD3, JPGKD3TP, LD3R…, JP3FB..., JPG3FB...	20	Δ **1492-FPK2**
	Fuse Plug — 10…36V Blown Fuse Indication		20	Δ **1492-FPK224**
	Fuse Plug — 35…70V Blown Fuse Indication		20	Δ 1492-FPK248
	Fuse Plug — 60…150V Blown Fuse Indication		20	Δ **1492-FPK2120**
	Fuse Plug — 140…250V Blown Fuse Indication		20	Δ **1492-FPK2250**
	Fuse Lever — without indication	1492-JP3FB, JPG3FB, JPKD3, JPGKD3, JPGKD3TB	50	**1492-FJPK2**
	Fuse Lever w/LED — 10…36V		50	**1492-FJPK224**
	Fuse Lever w/LED — 35…70V		50	1492-FJPK248
	Fuse Lever w/LED — 60…150V		50	**1492-FJPK2120**
	Fuse Lever w/LED — 140…250V		50	**1492-FJPK2250**
	Mini-Block Jumper Insertion Tool§	1492-LM	1	1492-TAL5-2
	DIN Rail Adapter Plate for LMP3 Mini-Blocks	1492-LMP3	50	1492-MFLM
	Auxiliary Circuit Tap	1492-J50	5	1492-J50A
		1492-J70	5	**1492-J70A**
		1492-J120	5	1492-J120A
	Terminal Block screwdriver with hardened 3 mm diameter blade (Handle made from recycled material)	All 5…6 mm wide terminal blocks	5	**1492-N90**
	Wire cutting tool designed to attach directly to the shaft of the Cat. No. 1492-N90 screwdriver	1492-N90	1	**1492-KWC**

‡ Used to trim poles from center jumpers and side jumpers.
§ Used to install Cat. No. 1492-SJLM5-2 in mini blocks.
Δ Use 5 x 20 mm fuses and are rated for AC and DC.

Plug-In and Sensor Connection Blocks

Plug-In Connection Blocks ★

Photo	Wire Range	For Use With	Pkg Qty.	Cat. No.
	#22…12 AWG (2.5 mm²)	1492-JC3, JDC3, LC3, LDC3	100	**1492-QP5-2**
			100	**1492-QP5-3**
			100	**1492-QP5-4**
			50	**1492-QP5-5**
			50	**1492-QP5-6**
			50	1492-QP5-7
			50	**1492-QP5-8**
			50	**1492-QP5-9**
			50	**1492-QP5-10**
			50	1492-QP5-11
			50	**1492-QP5-12**

★ Tightening Torque: 3.5…4.4 lb•in. (0.4…0.5 N•m)

Sensor Connection Blocks

Photo	Wire Range	For Use With	Color	Pkg. Qty.	Cat. No.
	#26…14 AWG (1.5 mm²)	1492-LS2-3, LS2-3L, LSG2-3, LS2-4, LS2-4L, LSG2-4	Brown	100	**1492-LS2-BR**
			Blue	100	**1492-LS2-B**
			Green	100	**1492-LSG2**

Plug-In Connectors and Accessories for Flexible Configuration Blocks

Photo	Description	Color	Pkg. Qty.	Cat. No.
Individual Plug-in Connectors				
	Standard	Grey	50	1492-STP
	Grounded	Green	50	1492-STP-G
Ganged Connectors				
	Start plug	Grey	50	1492-SBSTP
	Middle plug	Grey	50	1492-GSTP
	End plug	Grey	50	1492-EBSTP
Accessories				
	Plug-in block locking element	Yellow	25	1492-STPLE
	Coding Element for keyed configuration	Yellow	50	1492-STPCE
	Strain Relief covering w plug-in blocks	Yellow	25	1492-STPSR

DIN Rail Receptacle

Convenient 15 A or 20 A power source designed to be installed in panels that will be used in North America and other locations that use the NEMA 5-15 socket (125V, 50/60 Hz).

Photo	Device Rating	Pkg Qty.	Cat. No.
Standard Duplex			
	15 A	1	**1492-REC15**
	20 A	1	1492-REC20
Ground Fault Circuit Interrupter (GFCI)			
	15 A	1	**1492-REC15G**
	20 A	1	**1492-REC20G**

Electrical Ratings			
		Standard Duplex	Ground Fault Circuit Interrupter (GFCI)
Certifications		c UL us LISTED	
		UL 508A, NEMA WD-6, NEMA 5-15R	
		UL498	UL 498, UL 943
Device Rating	15 A	15 Amp 125V	
	20 A	20 Amp 125V	
Operating Frequency		50/60 Hz	
Dielectric Voltage		Withstands 2000V per UL498	Withstands 1500V per UL498
Short-Circuit Current Rating		10 kA	10 kA
Environmental Ratings			
Operating Temperature Range		–31…+140 °F (–35…+60 °C)	
Storage Temperature Range		–13…+176 °F (–25…+80 °C)	
Mechanical Ratings			
Terminal Wire Sizes		#20…#10 AWG solid or stranded	
Terminal Torque		7 lb• in. (.79 N•m)	
Markers		1492-MS10X17	

Marking Solutions

Marking Solutions from Rockwell Automation enable efficient identification of terminal blocks and other components. The Allen-Bradley ClearMark™ Printer provides quality printing for high-volume users. The X-Y Plotter allows for flexible marking. Low-volume marking needs are supported by pre-printed and custom markers.

ClearMark Printer and Accessories

The ClearMark Printer provides quality printing in an easy-to-use format for high-volume marking needs. Used with AllenBradley ClearTools™ software, customers can create markers with basic numbering to sequences and images.

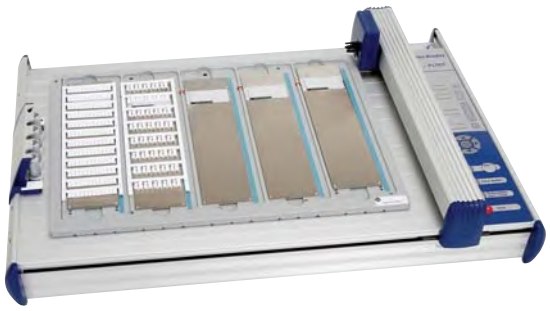
- Fast: Less than two minutes to print and set a full card
- Easy: Integrated feeder for up to 20 marker cards
- Low-maintenance: Will automatically cycle as needed to keep ink flowing
- Quality printing: 600 or 1200 dpi
- Color printing: Use spot color printing on white marker cards for visual distinction

System Requirements

- Operating system: Microsoft Windows 2000, XP or Vista
- Memory: 64 MB RAM
- Hard drive: 90 MB available space
- Processor: Pentium III or comparable
- Graphics: 800x600 pixels with 256 colors (ideal 1024x768 with 16-bit high color)

X-Y Plotter and Accessories

The flexible marking tool of the Allen-Bradley terminal block product line is the X-Y Plotter.



- Plot partial marker cards
- Load up to five cards at a time (mix and match)
- Easy to use AB-Plot software

System Requirements

- Operating system: Microsoft Windows 98, 2000, XP, or Vista
- Hard drive: 50 MB available space
- Processor: 80486
- Parallel or USB communication port

Blank Markers

Photo	For Use With	Markers per Card	Marker Size	Pkg Qty.	Cat. No.
Snap-In Individual Markers 1492-M	1492-L	100	3 x 5 mm	5	**1492-M3X5**
	1492-L	120	3 x 12 mm	5	**1492-M3X12**
	1492-J, L	200	5 x 5 mm	5	**1492-M5X5**
		144	5 x 8 mm	5	**1492-M5X8**
		144	5 x 10 mm	5	**1492-M5X10**
		144	5 x 12 mm	5	**1492-M5X12**
		96	5 x 15 mm	5	**1492-M5X15**
		20	5 x 30 mm	5	‡ **1492-M5X30**
	1492-J, L	200	6 x 5 mm	5	**1492-M6X5**
		120	6 x 10 mm	5	**1492-M6X10**
	1492-J, L, 1738 ArmorPoint™	120	6 x 12 mm	5	**1492-M6X12**
	1492-J, L	108	7 x 12 mm	5	**1492-M7X12**
		160	8 x 5 mm	5	**1492-M8X5**
	NEMA (1492-HM1, -HM2, -HM3) Terminal Blocks, 1492-CB Circuit Breakers	120	6 x 10 mm	5	**1492-MN81**
	NEMA (1492-HM3) Terminal Blocks, 1492-CB Circuit Breakers	40	10 x 10 mm	5	**1492-MN83**
	1492-W,R, 700-HA Relays	56	8 x 9 mm	5	**1492-MS8X9**
		56	8 x 12 mm	5	**1492-MS8X12**
	700-HN204, -HN205, Relay Sockets	40	8 x 17 mm	5	1492-MS8X17
	1667 PanelConnect™	40	9 x 20 mm	5	**1492-MS9X20**
	100-C, -D Contactors, 700-CF Relays, 140 Circuit Breakers, 193-E1, -E3	40	10 x 17 mm	5	**1492-MS10X17**
Snap-In Linked Markers 1492-MR	1492-J, -L	120	5 x 8 mm	5	**1492-MR5X8**
		120	6 x 8 mm	5	**1492-MR6X8**
		120	5 x 12 mm	5	**1492-MR5X12**
		120	6 x 12 mm	5	**1492-MR6X12**
		84	8 x 12 mm	5	**1492-MR8X12**
	1492-WM3, -WMD1	80	5 x 5 mm	5	**1492-MS5X5**
	1492-W, 700-HA, 800F Contact Block	80	5 x 9 mm	5	**1492-MS5X9**
	1492-W, 700-H Relays	80	5 x 12 mm	5	**1492-MS5X12**
	1492-W, -R, 700-H Relays	80	6 x 9 mm	5	**1492-MS6X9**
	1492-W, 700-H Relays	80	6 x 12 mm	5	**1492-MS6X12**
Snap-In Hinged Markers	1492-L	96	5 x 10 mm	5	**1492-MH5X10**
		96	5 x 15 mm	5	**1492-MH5X15**
		80	6 x 12 mm	5	**1492-MH6X12**
Cable Markers 1492-MW	**External Diameter (mm)**	**Markers per Card**	**Marker Size**	**Pkg. Qty.**	**Cat. No.**
	from 0.276 in. (from 7.0 mm)	32	9 x 24 mm★	5	**1492-MW9X24**
	from 0.276 in. (from 7.0 mm)	32	5 x 23 mm★	5	1492-MW10X23
	from 0.276 in. (from 7.0 mm)	32	8 x 23 mm★	5	1492-MW14X23
	from 0.276 in. (from 7.0 mm)	12	11 x 44 mm★	5	**1492-MW11X60**
	0.162…0.193 in. (41…4.9 mm)	32	5 x 21 mm§	5	1492-MW5-21
	0.185…0.229 (0.268) in. (4.7…5.8 [6.8] mm)	32	6 x 21 mm§	5	1492-MW6-21
	0.229…0.276 (0.335) in. (5.8…7.0 [8.5] mm)	32	7 x 21 mm§	5	1492-MW7-21

★ Requires cable ties.
‡ Requires Cat. No. 1492-GMC
§ Requires Cat. No. 1492-PLOTPLTA

Marking Systems

Blank Markers, Continued

Photo	For Use With	Markers per Card	Marker Size	Pkg Qty.	Cat. No.
Self-Adhesive Markers 1492-MAS 	Self-adhesive for any equipment	40	9 x 17 mm	5	**1492-MAS9X17**
	Bul. No. relays, self-adhesive for any equipment	40	6 x 15 mm	5	**1492-MAS6X15**
	1760-PICO GFX-70 Cont., self-adhesive for any equipment	40	9 x 11 mm	5	1492-MAS9X11
Wire Markers 1492-MWC	0.059…0.098 in. (2.0…3.5 mm)/White	40	4.25 x 21 mm	5	1492-MWC1-21
	0.078…0.138 in. (2.0…5.0 mm)/White	40	4.25 x 21 mm	5	1492-MWC3-21
	0.098…0.197 in. (2.0…5.0 mm)/White	24	6 x 21 mm	5	1492-MWC4-21
	0.059…0.098 in. (1.5…2.5 mm)/White	40	4.25 x 12 mm	5	**1492-MWC1-12**
	0.078…0.138 in. (2.0…3.5 mm)/White	40	4.25 x 12 mm	5	**1492-MWC3-12**
	0.098…0.197 in. (2.0…5.0 mm)/White	24	6 x 12 mm	5	**1492-MWC4-12**
Snap-In Individual Markers for Rockwell Automation products and Competitive Terminal BLocks 1492-MC	Wago	100	4 x 9 mm	5	1492-MCW4X9
	Phoenix, Entrlec, Telemacanique, Legrand	120	5 x 8 mm	5	**1492-MC5X8**
	Wieland and Telemecanique	100	5 x 12 mm	5	1492-MC5X12
	Wago	100	5 x 9 mm	5	**1492-MCW5X9F**
	Wago	100	5 x 9 mm	5	1492-MCW5X5
	Wago	100	5 x 5 mm	5	1492-MCW6X9
	Phoenix	100	4 x 5 mm	5	**1492-MC4X5**
	Bul. No. 1492-FB fuse holder and Phoenix	100	5 x 5 mm	5	**1492-MC5X5**
	Bul. No. 1492-FB fuse holder and Phoenix	100	6 x 5 mm	5	**1492-MC6X5**
	Bul. No. 700-HL relays, and Phoenix, Wieland, Entrelec, Telemacanique, Legrand	120	6 x 10 mm	5	**1492-MC6X10**
	Phoenix and Entrelec	100	8 x 10 mm	5	**1492-MC6X10**
	Phoenix	100	7 x 5 mm	5	1492-MC7X5
	Phoenix	100	5 x 4 mm	5	1492-MC5X4
	Siemens	64	7 x 10 mm	5	1492-MCS7X10
	Siemens	64	6 x 10 mm	5	1492-MCS6X10
	Siemens	80	5 x 10 mm	5	**1492-MCS5X10**
	Siemens	64	7 x 7 mm	5	1492-MCS7X7
	Siemens	80	5 x 8 mm	5	1492-MCS5X8
	Siemens	64	6 x 8 mm	5	1492-MCS6X8

1492 Pre-Printed Markers

Pre-printed markers are packaged in quantities of 5 with a minimum order quantity of 5 cards.

Catalog Number Explanation

1492 – M5x10 H 1-100

a *b* *c*

a

Marker Selection		
Code		
M3x5	MS6X9	MCS6X8
M3x12	MS6X12	MC6X10
M5x5	MS8X9	MCW1-12
M5x8	MS8X12	MCW3-12
M5x10	MS9X20	MCW4-12
M5x12	MS8X17	MAS9X17
M5x15	MS10X17	MAS6X15
M5X30	MC5X8	MAS9X11
M6x5	MC5X10	MW9X24
M6x10	MC5X12	MW10X23
M6x12	MCW4X9	MW14X23
M7x12	MCW5X9	MW11X60
M8x5	MCW5X9F	MW5-21
MR5X8	MCW5X5	MW6-21
MR6X8	MCW6X9	MW7-21
MR5X12	MC4X5	MWC1-21
MR6X12	MC5X5	MWC3-21
MR8x12	MC6X5	MWC4-21
MH5X10	MC8X10	MWC1-12B
MH5X15	MC7X5	MWC1-12R
MH6X12	MC5X4	MCW1-12Y
MMN81	MCS7X10	MWC3-12B
MN83	MCS5X10	MWC3-12R
MS5x5	MCS6X10	MWC3-12Y
MS5x9	MCS7X7	MWC4-12B
MS5X12	MCS5X8	MWC4-12R
		MWC4-12Y

b

Text Direction	
Code	Description
H	Horizontal Print
V	Vertical Print
HU	Horizontal Upside-down Print
VU	Vertical Upside-down Print
HR	Horizontal Print, reversed data for each column
VR	Vertical Print, reversed data for each column
HUR	Horizontal Upside-down Print, reversed data for each column
VUR	Vertical Upside-down Print, reversed data for each column
C	Custom

c

Printing Selection	
Straight Fill Printing	
Option 1-End will start at 1 and continue printing sequential numbers until the end of the card is reached.	
1-End	Sequential printing to end of card
L	Continuous printing "L" on card
L1	Continuous printing "L1" on card
L2	Continuous printing "L2" on card
L3	Continuous printing "L3" on card
U	Continuous printing "U" on card
V	Continuous printing "V" on card
W	Continuous printing "W" on card
PE	Continuous printing "PE" on card
GND	Continuous printing "GND" on card
Repeat Sequence Printing	
All Options in this section will print the defined sequence in a repeating fashion until all tags are filled. (Example - Option 1-100 with a marker selection of M5x10 will print 1-100 and 1-44.)	
1-10 -or- 11-20 -or- 21-30 -or- … -or- 491-500	Block of 10 sequential numbering. Blocks of 10 within a range from 1…500.
1-20 -or- 21-40 -or- 41-60 -or- … -or- 481-500	Block of 20 sequential numbering. Blocks of 20 within a range from 1…500.
1-50 -or- 51-100 -or- 101-150 -or- … -or- 451-500	Block of 50 sequential numbering. Blocks of 50 within a range from 1…500.
1-100 -or- 101-200 -or- … -or- 401-500	Block of 100 sequential numbering. Blocks of 100 within a range from 1…500.
Single Sequence Printing	
All options in this section will print the defined sequence 1 time only and will leave the rest of the marker tags blank. (Example - Option 1-100S with a marker selection of M5x10 will print 1-100 and leave 44 blank markers).	
1-10S -or- 11-20S -or- 21-30S -or- … -or- 491-500S	Block of 10 sequential numbering. Blocks of 10 within a range from 1…500.
1-20S -or- 21-40S -or- … -or- 481-500S	Block of 20 sequential numbering. Blocks of 20 within a range from 1…500.
1-50S -or- 51-100S -or- … -or- 451-500S	Block of 50 sequential numbering. Blocks of 50 within a range from 1…500.
1-100S -or- 101-200S -or- … -or- 401-500S	Block of 100 sequential numbering. Blocks of 100 within a range from 1…500.

Custom Printed Marker Cards

1. Download and install Clear Tools software available at http://ab.rockwellautomation.com/Terminal-Blocks/Marker-Printer#/tab4
   http://ab.rockwellautomation.com/Terminal-Blocks/Marker-Printer#/tab4

2. Create your custom marker card using the ClearTools software and save your file.

3. Place the custom order by adding the letter **"C"** to the end of the marker cat. no. (Example: If the custom marker that was created in Step 2 is Cat. No. 1492-M6X12, an order will be placed with the new Cat. No. 1492-M6X12**C**.) Then, document the order number for Step 4.

4. E-mail the custom marker file to **RAMilwCustomMarkers@ra.rockwell.com.** Include the following items:
   - Allen Bradley order number (in the subject of the e-mail)
   - Created file (attached to the e-mail)
   - Quantity (the number of needed copies of the file)
   - Company information (with a contact name and number in the e-mail)

Note: Minimum quantity is 1 card per order.

	Description	Pkg Qty.	Cat. No.
	End anchor top marker carrier	50	**1492-GMC**

Electrical Warning Plate Markers

Photo	For Use With	Color	Pkg Qty.	Cat. No.
  	1492-J	Yellow	25	**1492-EWPJ5**
	1492-J	Yellow	50	**1492-EWPJ8**
	1492-J	Yellow	50	1492-EWPJ12
	1492-J	Yellow	50	1492-EWPJ18
	1492-L	Yellow	20	**1492-EWPL5**
	1492-L	Yellow	20	1492-EWPL6
	1492-L	Yellow	20	1492-EWPL8
	1492-L	Yellow	20	1492-EWPL10
	1492-L	Yellow	20	1492-EWPL12
	1492-L	Yellow	20	1492-EWPL16
	1492-L	Yellow	20	1492-EWPL4
	1492-W	Yellow	10	1492-EWP5
	1492-W	Yellow	10	1492-EWP5-4
	1492-W	Yellow	10	1492-EWP6-4
	1492-W	Yellow	10	1492-EWP7
	1492-W	Yellow	10	1492-EWP7-4
	1492-W	Yellow	10	1492-EWP8
	1492-W	Yellow	10	1492-EWP8-4
	1492-W	Yellow	10	1492-EWP11
	1492-W	Yellow	10	1492-EWP11-4

Tie Point Terminal Blocks — Type JD3C, LD2C, LD3C, and LD4C

The total current flow through these terminal blocks (the sum of all inputs or the sum of all outputs) must not exceed the rated current for the device.

Description		Type	Rating
Maximum total current flow through the terminal block		LD2C	10 A
		JD3C, LD3C	20 A
		LD4C	25 A
Maximum working voltage		LD2C	300V
		JD3C, LD3C, LD4C	600V
Ambient temperature range	Operating	All	-4…+104 °F (-20…+40 °C)
	Storage	All	-40…+167 °F (-40…+75 °C)

Diode Terminal Blocks — Type JD3DR, JD3DF, LD4DF, and LD4DRΔ

Description		Symbol	Type	Rating
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage		V (RRM) V (RWM) V (R)	JD3DF, JD3DR, LD4DF, LD4DR	600V
Non-Repetitive Peak Reverse Voltage (Halfwave, single phase, 60 Hz)		V (RSM)	JD3DF, JD3DR, LD4DF, LD4DR	600V
RMS Reverse Voltage ‡		V (Rrms)	JD3DF, JD3DR, LD4DF, LD4DR	600V
Average Rectified Forward Current Single Phase, Resistive Load, 60 Hz		I (O)	All	1.0 A
Non-Repetitive Peak Surge Current (Surge applied at rated load)		I (FSM)	All	30 A (1 cycle)
Maximum Forward Voltage Drop [I (F) = 1.0 A]		V (F)	All	1.1V
Maximum Reverse Current		I (R)	All	10 µA
Ambient temperature range	Operating	T (A)	All	-4…+104 °F (-20…+40 °C)
	Storage	T (S)	All	-40…+167 °F (-40…+75 °C)

All parameters measured at 77 °F (25 °C).

Δ Performance Data — See this catalog, page Important-3. Performance data given in this catalog is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of accelerated testing at elevated stress levels and the user should correlate it to actual application requirements. Actual performance is subject to Allen-Bradley WARRANTY and LIMIT OF LIABILITY.

‡ The maximum voltage rating of the diode terminal blocks listed in the above table should not be exceeded even though the maximum reverse voltage rating of the diode alone is 1000V.

Surge Suppressor Performance Characteristics and Electrical Component DataΔ

Surge Suppressor Terminal Blocks	
Performance Characteristic	Cat. No. JD3SS, JD3PSS, JD3SSTP, JDG3PSS, JDG3PSSTP, LD4SS
Nominal Working Voltage (Volts AC or DC)	120
Maximum AC Working Voltage RMS Continuous (60 Hz)	140
Maximum DC Working Voltage Continuous	180
Maximum Clamping Voltage at Current I_p (8/20 µs Pulse)	360V I_p = 10 A
Maximum Voltage Rate of Rise Bulletin 100 Contactors Types A38…B180 Bulletin 500 Contactors & Starters, Size 0…5 Bulletin 700 Relays	—
Peak Current (8/20 µs Pulse)	1200 A
Typical Leakage Current at Nominal AC Working Voltage	< 0.1 mA
Metal Oxide Varistor (MOV) Maximum Clamping Voltage at Current Ip (8/20 µs Pulse) Maximum Transient Energy Maximum Power Dissipation	 10 J 0.25 W

Technical Specifications for Fuse Plugs♣

Characteristic	1492-FPK2	1492-FPK224	1492-FPK248	1492-FPK2120	1492-FPK2250
Indicator Type	Non-Indicating	LED	LED	LED	LED
Leakage Current	—	1.6 mA @ 24V	1.6 mA @ 24V	1.6 mA @ 24V	1.6 mA @ 264V
Working Voltage	Per Fuse Rating	10…36V AC/DC	35…70V AC/DC	60…150V AC/DC	140…250V AC
Fuse Size	5 x 20 mm				
Marker	1492-M5X5				

♣ IEC standards for 5 x 20 mm fuses do not include ratings above 6.3 A.

UL/CSA File and Guide Numbers Arranged by Base Cat. Nos.

Base Cat. No.	UL Number§		CSA Number	
	File	Guide	File	Class
1492-H4, -H5, -H6, -H7	E40735	XCFR2	LR67896	622801
1492-R	E40735 E187022	XCFR2 XCIB2 XCFR8	—	—
1492-RG	E160646 E40735 E187022	KDER2 XCFR2 XCIB2	—	—
1492-UF3	E40735	XCFR2	LR67896	622801
1492-W	E40735 E187022	XCFR2 XCIB2	LR67896 LR14074	622801 622801
1492-WG	E40735 E187022	XCFR2 XCIB2	LR67896 LR14074	622801 622801
1492-J	E40735	XCFR2 XCIB2	223923	622801 622801
1492-JG	E40735 E187022	XCFR2 XCIB2	223923	622801 622801
1492-L	E40735 E187022	XCFR2 XCIB2	223923	622801 622801
1492-LG	E40735 E187022	XCFR2 XCIB2	223923	622801 622801

§ These numbers are actually UL file and guide numbers, as these products are UL Recognized Components per Canadian Safety Standards (cUR).

Terminal Block Specifications

Cat. No.	Wire Size [AWG]																		
	#30	#28	#26	#24	#22	#20	#18	#16	#14	#12	#10	#8	#6	#4	#2	#1	1/0	2/0	3/0
	(0.05)	(0.08)	(0.13)	(0.21)	(0.33)	(0.5)	(0.75)	(1.5)	(2.5)	(4)	(6)	(10)	(16)	(25)	(35)	(40)	(50)	(70)	(80)
	Number of the Same Size Wires Per Terminal																		
1492-CA1	—	—	—	—	4	4	4	3	2	2	1	1	—	—	—	—	—	—	—
1492-CAM1	—	—	—	—	4	4	4	3	2	2	1	1	—	—	—	—	—	—	—
1492-H4	1	1	1	1	4	4	3	2	2	1	1	—	—	—	—	—	—	—	—
1492-H5	1	1	1	1	4	4	3	2	2	1	1	—	—	—	—	—	—	—	—
1492-H6	1	1	1	1	4	4	3	2	2	1	1	—	—	—	—	—	—	—	—
1492-H7	1	1	1	1	4	4	3	2	2	1	1	—	—	—	—	—	—	—	—
1492-HM3	—	—	—	—	4	4	4	3	2	2	1	1	—	—	—	—	—	—	—
1492-J10	—	—	—	—	4	4	4	4	3	2	1	1	1	—	—	—	—	—	—
1492-J16	—	—	—	—	—	—	1	4	4	3	2	1	1	1	—	—	—	—	—
1492-J2Q	—	—	4	4	4	3	1	1	1	1	—	—	—	—	—	—	—	—	—
1492-J3	4	4	4	4	4	4	3	3	2	1	—	—	—	—	—	—	—	—	—
1492-J35	—	—	—	—	—	—	—	—	3	3	3	2	2	1	1	1	1	—	—
1492-J3F	4	4	4	4	4	4	3	3	2	1	—	—	—	—	—	—	—	—	—
1492-J3P	4	4	4	4	3	3	3	3	2	1	—	—	—	—	—	—	—	—	—
1492-J3TW (single side)	4	4	4	4	4	4	3	3	2	1	—	—	—	—	—	—	—	—	—
1492-J3TW (twin side)	—	—	4	4	4	3	1	1	1	—	—	—	—	—	—	—	—	—	—
1492-J4	—	—	—	—	4	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-J4CTB	—	—	1	1	4	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-J4Q	1	1	1	1	1	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-J4TW	1	1	1	1	1	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-J50	—	—	—	—	—	—	—	—	—	—	1	2	2	1	1	1	1	—	—
1492-J6	—	—	—	—	4	4	3	3	3	2	1	1	—	—	—	—	—	—	—
1492-J6FB2	—	—	—	—	4	4	3	3	3	2	1	1	—	—	—	—	—	—	—
1492-J6FB224	—	—	—	—	4	4	3	3	3	2	1	1	—	—	—	—	—	—	—
1492-J6FB248	—	—	—	—	4	4	3	3	3	2	1	1	—	—	—	—	—	—	—
1492-J6FB2120	—	—	—	—	4	4	3	3	3	2	1	1	—	—	—	—	—	—	—
1492-J6FB2250	—	—	—	—	4	4	3	3	3	2	1	1	—	—	—	—	—	—	—
1492-J6FB1	—	—	—	—	4	4	3	3	3	2	1	1	—	—	—	—	—	—	—
1492-J6FB124	—	—	—	—	4	4	3	3	3	2	1	1	—	—	—	—	—	—	—
1492-J6FB148	—	—	—	—	4	4	3	3	3	2	1	1	—	—	—	—	—	—	—
1492-J6FB1120	—	—	—	—	4	4	3	3	3	2	1	1	—	—	—	—	—	—	—
1492-J6FB1250	—	—	—	—	4	4	3	3	3	2	1	1	—	—	—	—	—	—	—
1492-J70	—	—	—	—	—	—	—	—	5	5	5	2	2	2	1	1	1	1	1

Maximum number of multiple wire connections for copper conductors of the same cross-section and type for Allen-Bradley IEC Terminal Blocks.
Cat. Nos. 1492-L products are all recommended for one conductor per terminal. Wire range is defined in the cat. page for each of the products.

	Wire Size [AWG]																		
	#30	#28	#26	#24	#22	#20	#18	#16	#14	#12	#10	#8	#6	#4	#2	#1	1/0	2/0	3/0
	(0.05)	(0.08)	(0.13)	(0.21)	(0.33)	(0.5)	(0.75)	(1.5)	(2.5)	(4)	(6)	(10)	(16)	(25)	(35)	(40)	(50)	(70)	(80)
Cat. No.	Number of the Same Size Wires Per Terminal																		
1492-JC3	—	—	4	4	4	3	1	1	1	1	—	—	—	—	—	—	—	—	—
1492-JD3	4	4	4	4	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-JD3C	4	4	4	4	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-JD3DF	4	4	4	4	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-JD3DR	4	4	4	4	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-JD3F	4	4	4	4	4	4	3	1	1	1	—	—	—	—	—	—	—	—	—
1492-JD3FB	4	4	4	4	4	4	3	3	2	1	—	—	—	—	—	—	—	—	—
1492-JD3PSS	—	—	—	—	4	4	3	2	1	1	—	—	—	—	—	—	—	—	—
1492-JD3PSSTP	—	—	—	—	4	4	3	2	1	1	—	—	—	—	—	—	—	—	—
1492-JD3PTP	—	—	—	—	4	4	3	2	1	1	—	—	—	—	—	—	—	—	—
1492-JD3RB***	4	4	4	4	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-JD3RC001	4	4	4	4	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-JD3SS	4	4	4	4	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-JD4	—	—	1	1	1	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-JD4C	—	—	1	1	1	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-JDC3	4	4	4	4	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-JDG3	4	4	4	4	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-JDG3C	4	4	4	4	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-JDG3FB	4	4	4	4	4	4	3	3	2	1	—	—	—	—	—	—	—	—	—
1492-JDG3P	—	—	—	—	4	4	3	2	1	1	—	—	—	—	—	—	—	—	—
1492-JDG3PSS	—	—	—	—	4	4	3	2	1	1	—	—	—	—	—	—	—	—	—
1492-JDG3PSSTP	—	—	—	—	4	4	3	2	1	1	—	—	—	—	—	—	—	—	—
1492-JDG3PTP	—	—	—	—	4	4	3	2	1	1	—	—	—	—	—	—	—	—	—
1492-JDG4	—	—	1	1	4	4	3	3	2	1	1	Multiple wire values valid only for upper connectors of terminal block.							—
1492-JDG4C	—	—	1	1	4	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-JG10	—	—	—	—	4	4	4	4	3	2	1	1	1	—	—	—	—	—	—
1492-JG16	—	—	4	4	4	4	4	4	1	3	2	1	1	1	—	—	—	—	—
1492-JG2Q	—	—	4	4	4	3	1	1	1	—	—	—	—	—	—	—	—	—	—
1492-JG3	4	4	4	4	4	4	3	3	2	1	—	—	—	—	—	—	—	—	—
1492-JG35	—	—	—	—	—	—	—	—	3	3	3	2	2	1	1	1	—	—	—
1492-JG3TW single side)	4	4	4	4	4	4	1	1	1	1	—	—	—	—	—	—	—	—	—
1492-JG3TW twin side)	—	—	4	4	4	3	1	1	1	1	—	—	—	—	—	—	—	—	—

Terminal Block Specifications

Cat. No.	Wire Size [AWG]																		
	#30	#28	#26	#24	#22	#20	#18	#16	#14	#12	#10	#8	#6	#4	#2	#1	1/0	2/0	3/0
	(0.05)	(0.08)	(0.13)	(0.21)	(0.33)	(0.5)	(0.75)	(1.5)	(2.5)	(4)	(6)	(10)	(16)	(25)	(35)	(40)	(50)	(70)	(80)
	Number of the Same Size Wires Per Terminal																		
1492-JG4	—	—	—	—	4	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-JG4Q	1	1	1	1	4	4	3	3	3	2	1	—	—	—	—	—	—	—	—
1492-JG4TW	1	1	1	1	4	4	3	3	3	2	1	—	—	—	—	—	—	—	—
1492-JG50	—	—	—	—	—	—	—	—	—	—	1	2	2	1	1	1	1	—	—
1492-JG6	—	—	—	—	4	4	3	3	3	2	1	1	—	—	—	—	—	—	—
1492-JG70	—	—	—	—	—	—	—	—	5	5	5	2	2	2	1	1	1	1	—
1492-JKD3	4	4	4	4	3	3	3	3	2	1	—	—	—	—	—	—	—	—	—
1492-JKD3TP	4	4	4	4	3	3	3	3	2	1	—	—	—	—	—	—	—	—	—
1492-JKD4	—	—	—	—	4	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-JKD4Q	1	1	1	1	1	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-JKD4QTP	1	1	1	1	1	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-JKD4TP	—	—	—	—	4	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-JKD4TW	1	1	1	1	1	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-JKD4TWTP	1	1	1	1	1	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-JP3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1492-JP3FB	—	—	1	1	1	1	1	1	2	1	—	—	—	—	—	—	—	—	—
1492-JP3FB24	—	—	1	1	1	1	1	1	2	1	—	—	—	—	—	—	—	—	—
1492-JP3FB48	—	—	1	1	1	1	1	1	2	1	—	—	—	—	—	—	—	—	—
1492-JP3FB120	—	—	1	1	1	1	1	1	2	1	—	—	—	—	—	—	—	—	—
1492-JP3FB250	—	—	1	1	1	1	1	1	2	1	—	—	—	—	—	—	—	—	—
1492-JPG3	—	—	1	1	1	1	1	1	2	1	—	—	—	—	—	—	—	—	—
1492-JPG3FB	—	—	1	1	1	1	1	1	2	1	—	—	—	—	—	—	—	—	—
1492-JPG3FB24	—	—	1	1	1	1	1	1	2	1	—	—	—	—	—	—	—	—	—
1492-JPG3FB48	—	—	1	1	1	1	1	1	2	1	—	—	—	—	—	—	—	—	—
1492-JPG3FB120	—	—	1	1	1	1	1	1	2	1	—	—	—	—	—	—	—	—	—
1492-JPG3FB250	—	—	1	1	1	1	1	1	2	1	—	—	—	—	—	—	—	—	—
1492-JPGKD3	—	—	1	1	1	1	1	1	2	1	—	—	—	—	—	—	—	—	—
1492-JPGKD3TP	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
1492-JPKD3	—	—	1	1	1	1	1	1	2	1	—	—	—	—	—	—	—	—	—
1492-JPO	—	—	4	—	1	1	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-JSD4	—	—	1	1	4	4	3	3	2	1	1	—	—	—	—	—	—	—	—
1492-JT3M	4	4	4	4	4	4	3	3	2	1	—	—	—	—	—	—	—	—	—
1492-W10	—	—	—	—	4	4	4	4	3	2	1	1	—	—	—	—	—	—	—
1492-W16S	—	—	—	—	—	—	—	—	4	3	2	2	1	1	—	—	—	—	—
1492-W3	4	—	—	—	4	4	3	2	1	—	—	—	—	—	—	—	—	—	—
1492-W4	—	—	—	—	4	4	3	2	2	1	1	—	—	—	—	—	—	—	—
1492-W6	—	—	—	—	4	4	3	2	2	1	1	—	—	—	—	—	—	—	—
1492-WD4	—	—	—	—	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-WD4C	—	—	—	—	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-WG4	—	—	—	—	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-WG6	—	—	—	—	4	4	4	4	3	2	1	—	—	—	—	—	—	—	—
1492-WM3	4	—	—	—	4	3	2	1	1	—	—	—	—	—	—	—	—	—	—
1492-WM4	—	—	—	—	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-WMD1	—	—	—	—	2	1	1	1	—	—	—	—	—	—	—	—	—	—	—
1492-WMG4	—	—	—	—	4	4	3	2	2	1	—	—	—	—	—	—	—	—	—
1492-WR3	—	—	—	—	4	4	3	2	1	—	—	—	—	—	—	—	—	—	—
1492-WTF3	—	—	4	4	4	4	3	2	1	—	—	—	—	—	—	—	—	—	—
1492-WTF3LN	—	—	4	4	4	4	3	2	1	—	—	—	—	—	—	—	—	—	—
1492-WTF3LP	—	—	4	4	4	4	3	2	1	—	—	—	—	—	—	—	—	—	—
1492-WTS3	—	—	4	4	4	4	3	2	1	—	—	—	—	—	—	—	—	—	—
1492-WTS3LN	—	—	4	4	4	4	3	2	1	—	—	—	—	—	—	—	—	—	—
1492-WTS3LP	—	—	4	4	4	4	3	2	1	—	—	—	—	—	—	—	—	—	—

Δ Performance Data — See this catalog, page Important- 3.
Performance data given in this catalog is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of accelerated testing at elevated stress levels and the user should correlate it to actual application requirements. Actual performance is subject to Allen-Bradley WARRANTY and LIMIT OF LIABILITY.

IEC Terminal Block SpecificationsΔ

Tie Point Terminal Blocks — Type JD3C, LD2C, LD3C, and LD4C

The total current flow through these terminal blocks (the sum of all inputs or the sum of all outputs) must not exceed the rated current for the device.

Description		Type	Rating
Maximum total current flow through the terminal block		LD2C	10 A
		JD3C, LD3C	20 A
		LD4C	25 A
Maximum working voltage		LD2C	300V
		JD3C, LD3C, LD4C	600V
Ambient temperature range	Operating	All	-4…+104 °F (-20…+40 °C)
	Storage	All	-40…+167 °F (-40…+75 °C)

Diode Terminal Blocks — Type JD3DR, JD3DF, LD4DF, and LD4DRΔ

Description		Symbol	Type	Rating
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage		V (RRM) V (RWM) V (R)	JD3DF, JD3DR, LD4DF, LD4DR	600V
Non-Repetitive Peak Reverse Voltage (Halfwave, single phase, 60 Hz)		V (RSM)	JD3DF, JD3DR, LD4DF, LD4DR	600V
RMS Reverse Voltage ‡		V (Rrms)	JD3DF, JD3DR, LD4DF, LD4DR	600V
Average Rectified Forward Current Single Phase, Resistive Load, 60 Hz		I (O)	All	1.0 A
Non-Repetitive Peak Surge Current (Surge applied at rated load)		I (FSM)	All	30 A (1 cycle)
Maximum Forward Voltage Drop [I (F) = 1.0 A]		V (F)	All	1.1V
Maximum Reverse Current		I (R)	All	10 µA
Ambient temperature range	Operating	T (A)	All	-4…+104 °F (-20…+40 °C)
	Storage	T (S)	All	-40…+167 °F (-40…+75 °C)

All parameters measured at 77 °F (25 °C).

Δ Performance Data — See this catalog, page Important-3. Performance data given in this catalog is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of accelerated testing at elevated stress levels and the user should correlate it to actual application requirements. Actual performance is subject to Allen-Bradley WARRANTY and LIMIT OF LIABILITY.

‡ The maximum voltage rating of the diode terminal blocks listed in the above table should not be exceeded even though the maximum reverse voltage rating of the diode alone is 1000V.

Surge Suppressor Performance Characteristics and Electrical Component DataΔ

Surge Suppressor Terminal Blocks	
Performance Characteristic	Cat. No. JD3SS, JD3PSS, JD3SSTP, JDG3PSS, JDG3PSSTP, LD4SS
Nominal Working Voltage (Volts AC or DC)	120
Maximum AC Working Voltage RMS Continuous (60 Hz)	140
Maximum DC Working Voltage Continuous	180
Maximum Clamping Voltage at Current I_p (8/20 µs Pulse)	360V I_p = 10 A
Maximum Voltage Rate of Rise Bulletin 100 Contactors Types A38…B180 Bulletin 500 Contactors & Starters, Size 0…5 Bulletin 700 Relays	—
Peak Current (8/20 µs Pulse)	1200 A
Typical Leakage Current at Nominal AC Working Voltage	< 0.1 mA
Metal Oxide Varistor (MOV) Maximum Clamping Voltage at Current Ip (8/20 µs Pulse) Maximum Transient Energy Maximum Power Dissipation	 10 J 0.25 W

Technical Specifications for Fuse Plugs♣

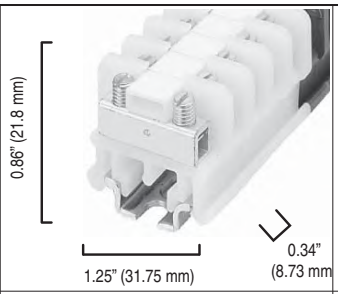
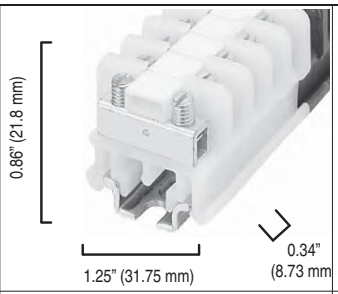
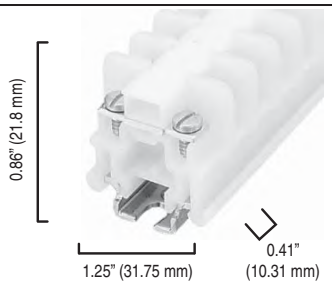
Characteristic	1492-FPK2	1492-FPK224	1492-FPK248	1492-FPK2120	1492-FPK2250
Indicator Type	Non-Indicating	LED	LED	LED	LED
Leakage Current	—	1.6 mA @ 24V	1.6 mA @ 24V	1.6 mA @ 24V	1.6 mA @ 264V
Working Voltage	Per Fuse Rating	10…36V AC/DC	35…70V AC/DC	60…150V AC/DC	140…250V AC
Fuse Size	5 x 20 mm				
Marker	1492-M5X5				

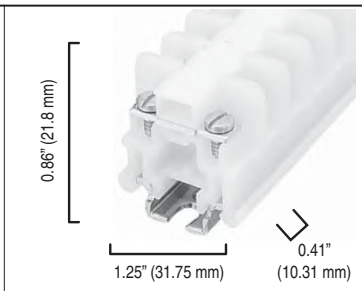
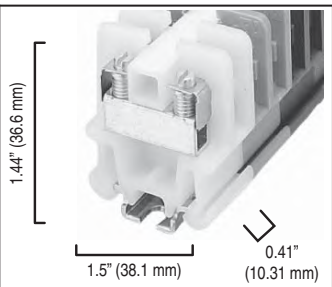
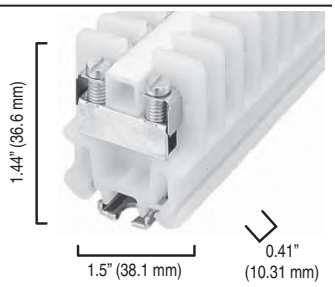
♣ IEC standards for 5 x 20 mm fuses do not include ratings above 6.3 A.

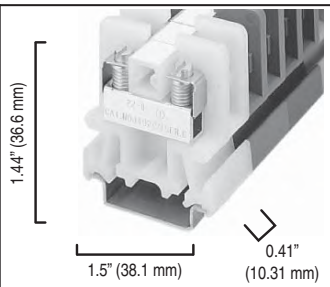
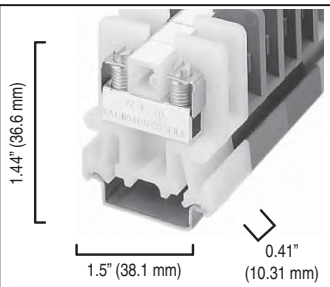
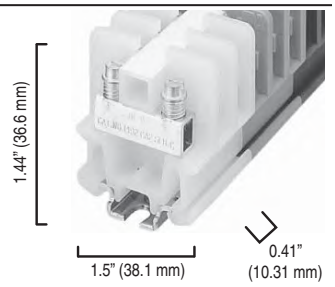
UL/CSA File and Guide Numbers Arranged by Base Cat. Nos.

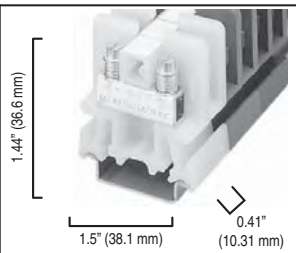
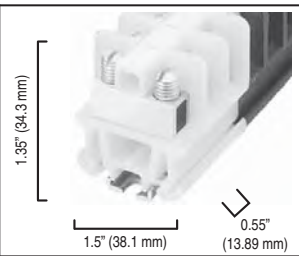
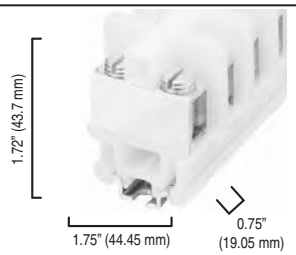
Base Cat. No.	UL Number§		CSA Number	
	File	Guide	File	Class
1492-H4, -H5, -H6, -H7	E40735	XCFR2	LR67896	622801
1492-R	E40735 E187022	XCFR2 XCIB2 XCFR8	—	—
1492-RG	E160646 E40735 E187022	KDER2 XCFR2 XCIB2	—	—
1492-UF3	E40735	XCFR2	LR67896	622801
1492-W	E40735 E187022	XCFR2 XCIB2	LR67896 LR14074	622801 622801
1492-WG	E40735 E187022	XCFR2 XCIB2	LR67896 LR14074	622801 622801
1492-J	E40735	XCFR2 XCIB2	223923	622801 622801
1492-JG	E40735 E187022	XCFR2 XCIB2	223923	622801 622801
1492-L	E40735 E187022	XCFR2 XCIB2	223923	622801 622801
1492-LG	E40735 E187022	XCFR2 XCIB2	223923	622801 622801

§ These numbers are actually UL file and guide numbers, as these products are UL Recognized Components per Canadian Safety Standards (cUR).

	1492-F1	1492-F2	1492-F3
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.			
Specifications	***Terminal block, tubular screw with pressure plate.***	***Terminal block, tubular screw without pressure plate.***	***Terminal block, screw terminal with #6 screw.***
Certifications	/CSA	/CSA	/CSA
Voltage Rating	300V AC/DC	300 V AC/DC	300 V AC/DC
Maximum Current	25 A	25 A	25 A
Wire Range (Rated Cross Section)	#22…#14 AWG (0.5…2.5 mm^2)	#22…#14 AWG (0.5…2.5 mm^2)	#22…#14 AWG (0.5…2.5 mm^2)
Wire Strip Length	0.38 in. (9.7 mm)	0.38 in. (9.7 mm)	Prepared Conductors Only
Recommended Tightening Torque	4…10 lb•in (0.5…1.1 N•m)	6…10 lb•in (0.7…1.1 N•m)	6…10 lb•in (0.7…1.1 N•m)
Density	35 pcs/ft (115 pcs/m)	35 pcs/ft (115 pcs/m)	30 pcs/ft (98 pcs/m)
Insulation Temperature Range	–40…+221 °F (–40…+105 °C)	–40…+221 °F (–40…+105 °C)	–40…+221 °F (–40…+105 °C)

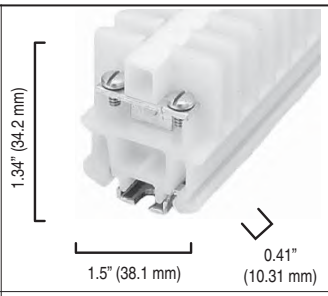
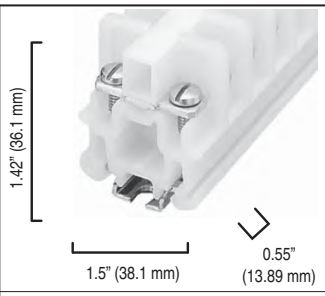
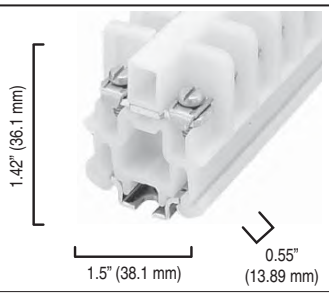
	1492-F8	1492-CA1	1492-CA1L
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.			
Specifications	***Terminal block, screw terminal with wire clamp.***	***Terminal block, tubular screw with pressure plate.***	***Terminal block, screw with large head, pressure plate.***
Certifications	/CSA	/CSA	/CSA
Voltage Rating	300V AC/DC	600V AC/DC	600V AC/DC
Maximum Current	25 A	55 A	55 A
Wire Range (Rated Cross Section)	#22…#14 AWG (0.5…2.5 mm^2)	#22…#8 AWG (0.5…10 mm^2)	#22…#8 AWG (0.5…10 mm^2)
Wire Strip Length	0.25 in. (6.4 mm)	0.38 in. (9.7 mm)	0.38 in. (9.7 mm)
Recommended Tightening Torque	6…14 lb•in (0.7…1.6 N•m)	8…16 lb•in (0.9…1.8 N•m)	8…16 lb•in (0.9…1.8 N•m)
Density	30 pcs/ft (98 pcs/m)	30 pcs/ft (98 pcs/m)	30 pcs/ft (98 pcs/m)
Insulation Temperature Range	–40…+221 °F (–40…+105 °C)	–40…+221 °F (–40…+105 °C)	–40…+221 °F (–40…+105 °C)

	1492-CAM1	1492-CAM1L	1492-CA2
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.			
Specifications	***Terminal block, tubular screw with pressure plate, multi-rail mountable.***	***Terminal block, screw with large head, pressure plate, multi-rail mountable.***	***Terminal block, tubular screw without pressure plate.***
Certifications	cULus/CSA	cULus/CSA	cULus/CSA
Voltage Rating	600V AC/DC	600V AC/DC	600V AC/DC
Maximum Current	55 A	55 A	55 A
Wire Range (Rated Cross Section)	#22…#8 AWG (0.5…10 mm^2)	#22…#8 AWG (0.5…10 mm^2)	#18…#8 AWG (1…10 mm^2)
Wire Strip Length	0.38 in. (9.7 mm)	0.38 in. (9.7 mm)	0.38 in. (9.7 mm)
Recommended Tightening Torque	8…16 lb•in (0.9…1.8 N•m)	8…16 lb•in (0.9…1.8 N•m)	10…16 lb•in (1.1…1.8 N•m)
Density	30 pcs/ft (98 pcs/m)	30 pcs/ft (98 pcs/m)	30 pcs/ft (98 pcs/m)
Insulation Temperature Range	–40…+221 °F (–40…+105 °C)	–40…+221 °F (–40…+105 °C)	–40…+221 °F (–40…+105 °C)

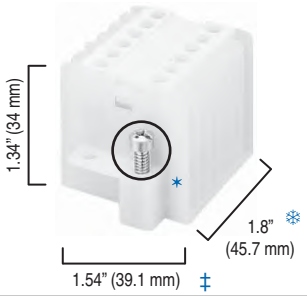
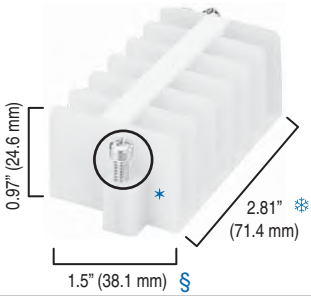
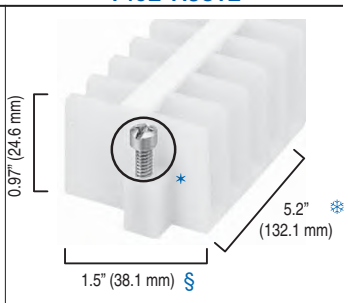
	1492-CAM2	1492-CD2	1492-CE2
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.			
Specifications	***Terminal block, tubular screw without pressure plate, multi-rail mountable.***	***Terminal block, tubular screw without pressure plate.***	***Terminal block, tubular screw without pressure plate.***
Certifications	cULus/CSA	cULus/CSA	cULus/CSA
Voltage Rating	600V AC/DC	600V AC/DC	600V AC/DC
Maximum Current	55 A	100 A	195 A
Wire Range (Rated Cross Section)	#18…#8 AWG (1…10 mm^2)	#14…#4 AWG (2.5…25 mm^2)	#12…#1/0 AWG (4…50 mm^2)
Wire Strip Length	0.38 in. (9.7 mm)	0.44 in. (11.2 mm)	0.69 in. (17.5 mm)
Recommended Tightening Torque	10…16 lb•in (1.1…1.8 N•m)	22…30 lb•in (2.5…3.4 N•m)	50 lb•in (5.6 N•m)
Density	30 pcs/ft (98 pcs/m)	22 pcs/ft (72 pcs/m)	16 pcs/ft (52 pcs/m)
Insulation Temperature Range	–40…+221 °F (–40…+105 °C)	–40…+221 °F (–40…+105 °C)	–40…+221 °F (–40…+105 °C)

Short-Circuit Current Ratings — Fuse Ratings

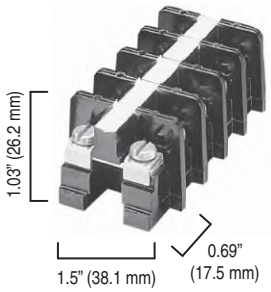
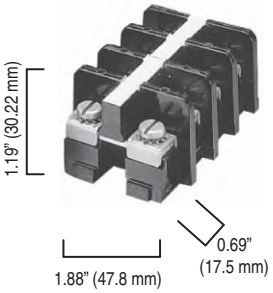
Cat. No.	Wire CU AWG		Overcurrent Protection Fuse Required Class/Max. Amp Rating						Maximum Voltage	SCCR, RMS SYM [A]
	Line	Load	J	T	RK1	RK5	G	CC		
1492-CAM1	14…8	14…8	60	60	30	—	50	30	600	100,000
1492-CD2	14…4	14…4	100	100	60	30	60	30	600	100,000
1492-CE2	12…1/0	12...1/0	100	100	60	30	60	30	600	100,000

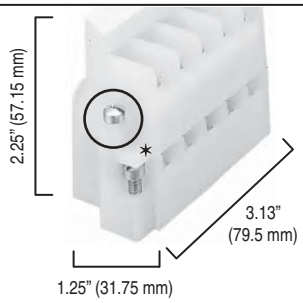
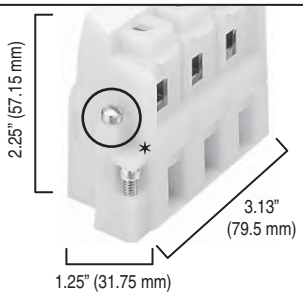
	1492-CA3	1492-CD3	1492-CD8
Dimensions are not intended to be used for manufacturing purposes. **Note:** Height dimension is measured from top of rail to top of terminal block.			
Specifications	***Terminal block, screw terminal with #6 screw.***	***Terminal block, screw terminal with #8 screw.***	***Terminal block, screw terminal with wire clamp.***
Certifications	/CSA	/CSA	/CSA
Voltage Rating	600V AC/DC	600V AC/DC	600V AC/DC
Maximum Current	20 A	35 A	35 A
Wire Range (Rated Cross Section)	#22…14 AWG (0.5…2.5 mm^2)	#22…10 AWG (0.5…6 mm^2)	#22…10 AWG (0.5…6 mm^2)
Wire Strip Length	Prepared Conductors Only★	Prepared Conductors Only★	0.38 in. (9.7 mm)
Recommended Tightening Torque	12 lb•in (1.4 N•m)	10…16 lb•in (1.1…1.8 N•m)	10…16 lb•in (1.1…1.8 N•m)
Density	30 pcs/ft (98 pcs/m)	22 pcs/ft (72 pcs/m)	22 pcs/ft (72 pcs/m)
Insulation Temperature Range	–40…+221 °F (–40…+105 °C)	–40…+221 °F (–40…+105 °C)	–40…+221 °F (–40…+105 °C)

★ Prepared conductors utilize ring, spade, or hook connectors.

	1492-HC6	1492-HJ86	1492-HJ812
Dimensions are not intended to be used for manufacturing purposes.			
Specifications	**High-density 6-pole panel mount terminal block. Can be interconnected to make 12- and 18-pole units.**	**Standard 6-pole panel mount block. Screw terminal with wire clamp.**	**Standard 12-pole panel mount block. Screw terminal with wire clamp.**
Certifications	/CSA	/CSA	/CSA
Voltage Rating	600V AC/DC	600V AC/DC	600V AC/DC
Maximum Current (per pole)	25 A	25 A	25 A
Wire Range (Rated Cross Section)	#30…#12 AWG (0.05…4 mm^2)	#16…#12 AWG (1.5…4 mm^2)	#16…#12 AWG (1.5…4 mm^2)
Wire Strip Length	0.38 in. (9.7 mm)	0.38 in. (9.7 mm)	0.38 in. (9.7 mm)
Recommended Tightening Torque	3…7 lb•in (0.3…0.8 N•m)	8…16 lb•in (0.9…1.8 N•m)	8…16 lb•in (0.9…1.8 N•m)
Insulation Temperature Range	–40…+221 °F (–40…+10 5°C)	–40…+221 °F (–40…+105 °C)	–40…+221 °F (–40…+105 °C)

★ #8-32 screw.
‡ Measurement between mounting screw centers.
§ Mounting screws are offset 0.31 in. (7.9 mm) from centerline.
♣ Mounting screws are offset 0.19 in. (4.76 mm) from centerline.

	1492-15T	1492-25T
Dimensions are not intended to be used for manufacturing purposes.		
Specifications	High temperature 1-pole panel mount block, wire clamp. Gangable for multi-pole installation.	High temperature 1-pole panel mount block, wire clamp. Gangable for multi-pole installation.
Voltage Rating	600V AC/DC	600V AC/DC
Maximum Current (per pole)	35 A	45 A
Wire Range (Rated Cross Section)	#16…12 AWG (1.5…4 mm^2)	#16…10 AWG (1.5…6 mm^2)
Wire Strip Length	0.38 in. (9.7 mm)	0.38 in. (9.7 mm)
Recommended Tightening Torque	10…16 lb•in (1.1…1.8 N•m)	10…16 lb•in (1.1…1.8 N•m)
Insulation Temperature Range	–40…+300 °F (–40…+149 °C)	–40…+300 °F (–40…+149 °C)

	1492-EC85	1492-ED103
Dimensions are not intended to be used for manufacturing purposes.		
Specifications	5-pole terminal block. Pulls apart to disconnect all poles from the circuit.	3-pole terminal block. Pulls apart to disconnect all poles from the circuit.
Certifications (See page 12-3)	/CSA	/CSA
Voltage Rating	600V AC/DC	600V AC/DC
Maximum Current (per pole)	25 A	60 A
Wire Range (Rated Cross Section)‡	#20…12 AWG (0.75…4 mm^2)	#14…4 AWG (2.5…25 mm^2)
Wire Strip Length	0.38 in. (9.7 mm)	0.38 in. (9.7 mm)
Recommended Tightening Torque	6…16 lb•in (0.7…1.8 N•m)	10…30 lb•in (1.1…3.4 N•m)
Insulation Temperature Range	–40…+22 °F (–40…+105 °C)	–40…+221 °F (–40…+105 °C)

★ #8-32 screw.

‡ Both terminal blocks accept 1 wire per terminal.

Mounting Rails

Mounting rails allow many blocks to be fastened in a panel with only a few screws to anchor the rail to the panel. Mounting rails allow easy installation and removal of a block in a row.

End Anchor/End Retainers

End anchors and end retainers mount at both ends of a group of terminal blocks to add rigidity to the terminal assembly and prevent sliding along the rails.

End Barriers

End barriers are required to provide the necessary insulation for the last terminal block in a group.

Side Jumpers

Side jumpers use the terminal block wire openings. Multi-pole jumpers can be cut into a smaller number of poles. 2-pole jumpers are also available for some blocks. All jumpers except the 1492-N21 carry 100% of rated terminal block current. The 1492-N21 carries 100 A. The backs of IEC-style jumpers are insulated with plastic. An adjacent partition plate provides the necessary electrical spacings between adjacent jumpers or between exposed ends of cut jumpers.

Fanning Strips

Fanning strips, used with the Cat. No. 1492-CA1, -CA2, and -CAM2 terminal blocks, keep wires in an orderly row and allow easy disconnect and reconnect of multiple adjacent wires.

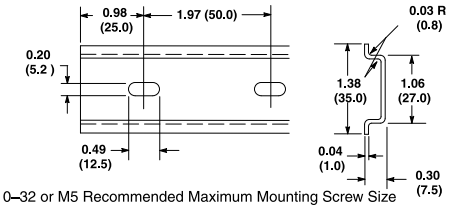
Marking Systems

Various marking systems are available to simplify circuit identification. NEMA blocks come with a painted surface; IEC blocks use snap-in markers. Markers are available in blank form for hand writing, pre-printed in ascending number format, or custom printed for unique requirements. Extended marking strips and adhesive labels are available for long circuit identifications. A group marking carrier for easy group terminal block identification is also available. Marking rods can be used with QuickClamp style terminal blocks to simplify mass solutions. Pre-printed, single-digit, alphanumeric marker tabs are also available.

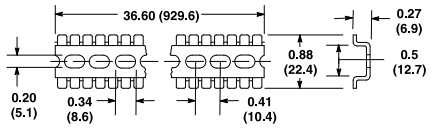
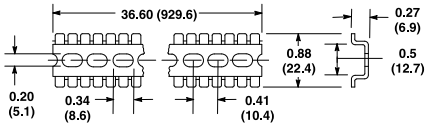
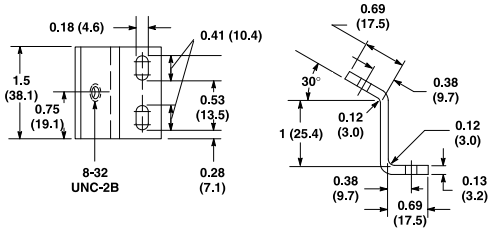
Specifications/Agency Approvals

In general, accessories for terminal blocks are not eligible for recognition by UL, CSA, or other third-party approval agencies. The suitability of the installation must be judged in the end use application due to the wide variety of possible uses. However, accessories are designed to meet, and are tested to, the terminal block assembly requirements such as electrical spacings, etc.

Mounting Rails

Cat. No.	Description	Pkg Qty.	Dimensions*
199-DR1	**DIN (#3) Symmetrical Rail** 35 mm x 7.5 mm x 1 m long Zinc-plated, yellow chromated EN50022 **DIN #3**	10	 #10–32 or M5 Recommended Maximum Mounting Screw Size
199-DR2	Same as 199-DR1, but length = 2 m	20	

* Dimensions shown in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.

Cat. No.	Description	Pkg. Qty.	Dimensions*
1492-N1	Breakaway Mounting Rail — 3 ft (0.91 m) long; scored every 0.203 in. (5.2 mm) so it will break off to the desired length	20	 #8-32 or M4 Recommended Mounting Screw Size
1492-N22	Rigid Mounting Rail — 3 ft (0.91 m) long	20	 #8-32 or M4 Recommended Mounting Screw Size
1492-N25	Mounting Rail Standoff Brackets — Used with Cat. No. 1492-N22 rigid mounting rail	20	

* Dimensions shown in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.

1492-N26		1492-N32		1492-N27		1492-N28		1492-N29	
									
External Mounting Feet		Internal Mounting Feet		Side Plate Extensions		18 in Bridge		12 in Bridge	
Cat. No.	Pkg. Quantity	Cat. No.	Pkg. Quantity	Cat. No.	Pkg. Quantity	Cat. No.	Pkg. Quantity	Cat. No.	Pkg. Quantity
1492-N26	1 Kit	**1492-N32**	1 Kit	**1492-N27**	1 Kit	**1492-N28**	1	1492-N29	1

Description — Stacking bridges are used with Style C, F, and H rail-mounted terminal blocks. They are designed to save panel space and increase terminal accessibility. Stacking bridge kits allow stacking of up to four terminal block strips. A stacking bridge consists of mounting feet, side plate extensions, and 12 in. or 18. in bridges.

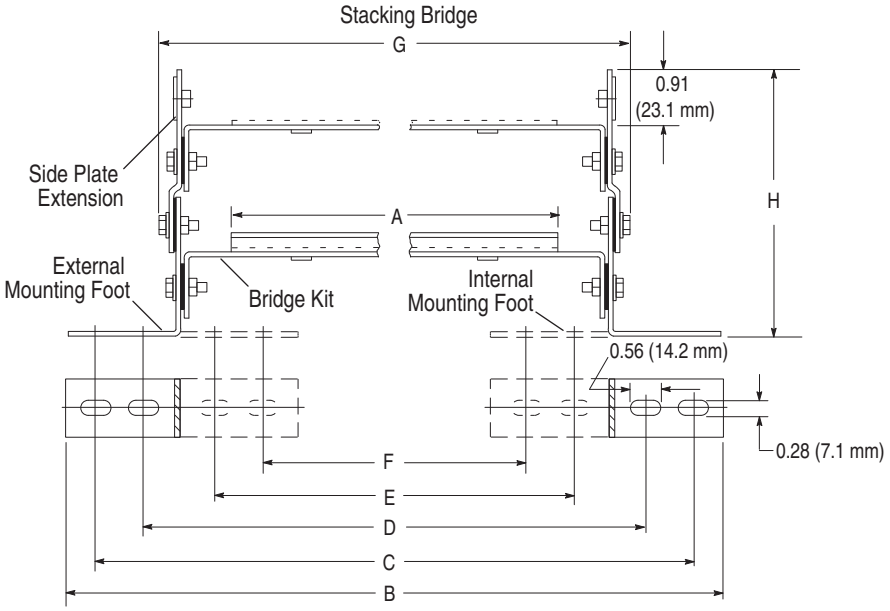
Note: **Rigid mounting rail is attached to the bridge.** Five kits are available to custom build stacking bridges as listed in the above table. **Fuse blocks, disconnect blocks, large Style C terminal blocks (Cat. No. 1492-CE2) and circuit breakers should only be mounted on the upper-most bridge of any assembly.**

Ordering Example — A typical ordering example for a **Two-Level 18 in. Stacking Bridge** is as follows:

- One **Cat. No. 1492-N26** or **1492-N32** mounting foot kit.
- One **Cat. No. 1492-N27** side plate extension kit, and two **Cat. No. 1492-N28** 18 in bridges.

Both 12 in. and 18 in. stacking bridges are built in this manner with up to four levels maximum.

Stacking Bridge



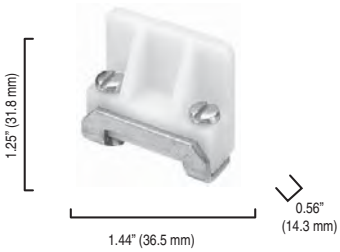
Stacking Bridge Size	A	B	C	D	E	F	G	H No. of Levels 1	2	3	4
12 in.	12.06 (306.3)	18.06 (458.7)	17 (431.8)	15.19 (385.8)	12.69 (322.3)	10.97 (278.6)	14.53 (369.1)	2.34 (59.5)	4.50 (114.3)	6.63 (168.4)	8.78 (223.0)
18 in.	18.63 (473.2)	24.06 (611.1)	23 (584.2)	21.19 (538.2)	18.69 (474.7)	16.97 (431.0)	20.53 (521.5)	2.34 (59.5)	4.50 (114.3)	6.63 (168.4)	8.78 (223.0)

Note: Dimensions in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.

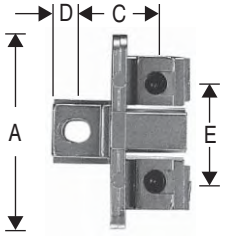
End Anchors

1492-EAHJ35

1492-N23

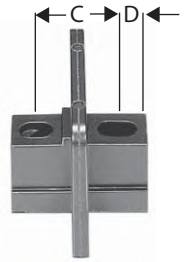


1492-15A, 1492-25A



A = Width
B = Height

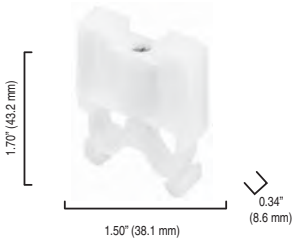
1492-15E, 1492-25E



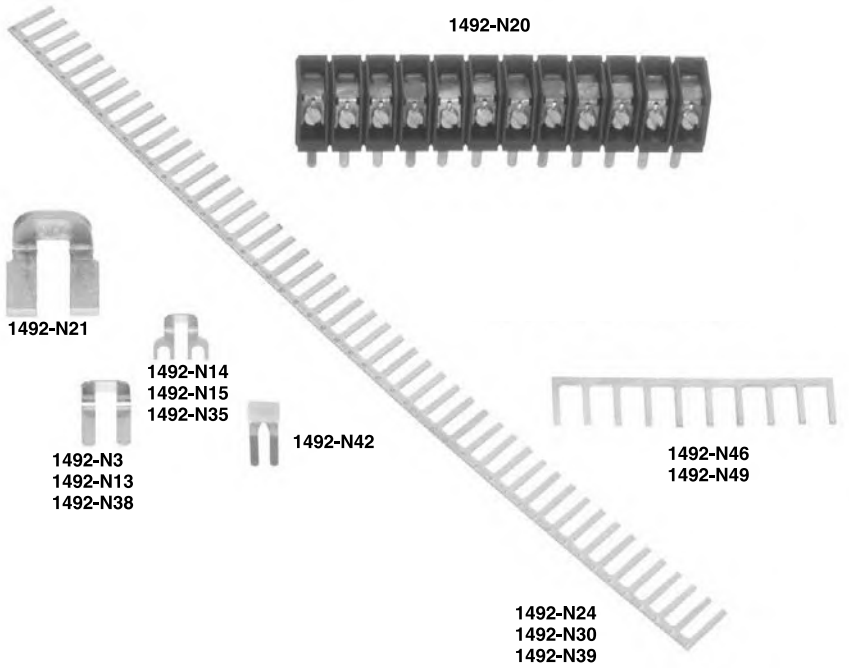
A = Width
B = Height

1492-N2

1492-N47

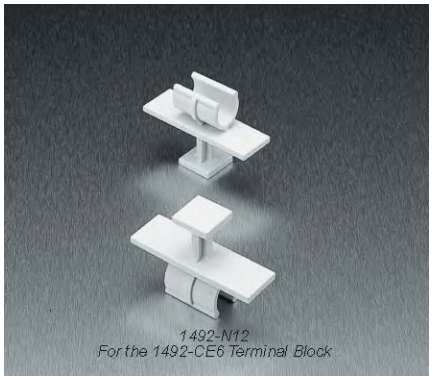


Cat. No.	A	B	C	D	E
1492-15A	1.5 in. (38.1 mm)	1.03 in. (26.2 mm)	0.594 in. (15.1 mm)	0.234 in. (5.9 mm)	0.75 in. (19.1 mm)
1492-15E	1.5 in. (38.1 mm)	1.03 in. (26.2 mm)	0.594 in. (15.1 mm)	0.234 in. (5.9 mm)	—
1492-25A	1.88 in. (47.8 mm)	1.19 in. (30.2 mm)	0.688 in. (17.5 mm)	0.203 in. (5.2 mm)	0.97 in. (24.6 mm)
1492-25E	1.88 in. (47.8 mm)	1.19 in. (30.2 mm)	0.688 in. (17.5 mm)	0.234 in. (5.9 mm)	—



* The 1492-SJS Insulating Sleeve reduces exposure to live parts on the 1492-N39 and 1492-N49. The 1492-SJS used with the 1492-N39 and 1492-H1 or 1492-HM1 provides IEC 947 IP2X finger protection.

Fuse Puller



Screwdriver and Marking Pen

Isolation Switch Plugs
Cat. No. 1492-ISOSW-1

Test Plug/Test Sockets

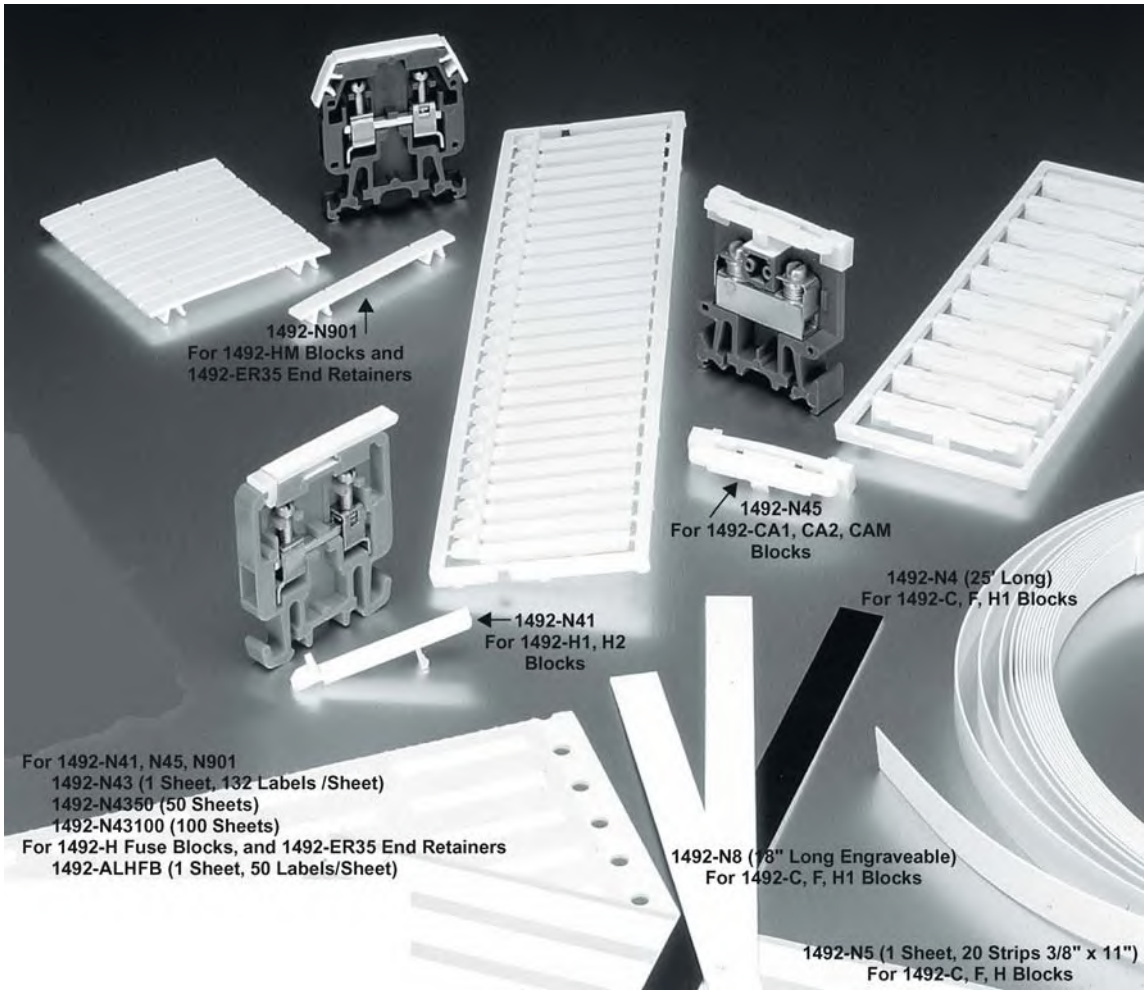
Cat. No. 1492-TP28

Cat. No. 1492-TA285

Cat. Nos. 1492-TA40, 1492-TA40L

Cat. No. 1492-TP15

Cat. No. 1492-TP23



Cat. No. 1492-N901 For 1492-HM Blocks and 1492-ER35 End Retainers

Cat. No. 1492-N45 For 1492-CA1, CA2, CAM Blocks

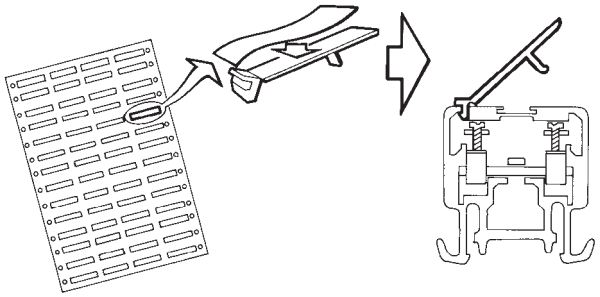
Cat. No. 1492-N41 For 1492-H1, H2 Blocks

Cat. No. 1492-N8 (18 in. Long Engraveable) For 1492-C, F, H1 Blocks

For Cat. Nos. 1492-N41, N45, N901
Cat. No. 1492-N43 (1 Sheet, 132 Labels /Sheet)
Cat. No. 1492-N4350 (50 Sheets)
Cat. No. 1492-N43100 (100 Sheets)
For Cat. Nos. 1492-H Fuse Blocks, and 1492-ER35 End Retainers
Cat. No. 1492-ALHFB (1 Sheet, 50 Labels/Sheet)

Cat. No. 1492-N5 (1 Sheet, 20 Strips 3/8 in x 11 in) For 1492-C, F, H Blocks

Placement of Label on Holder



Marker Cards

Cat. No.	No. of Labels/Card
1492-MS8X12	70
1492-MN81	—
1492-MN83	—

Cat. No.	Pkg Qty.
1492-ALHFB	1
1492-ALWFB	1
1492-N4	1
1492-N5	1
1492-N8	25
1492-N41	50
1492-N43	1
1492-N45	20
1492-N901	50
1492-N4350	1
1492-N43100	1

Multiple Wire Connection Combination for Stranded Copper Conductors of the Same Gross Section for Allen-Bradley Terminal Blocks

Terminal Blocks

Cat. No.	Wire Size AWG (mm²)					
	#22	#20 (0.5)	#18 (0.75)	#16 (1.5)	#14 (2.5)	#12 (4)
	Number of the Same-Size Wires Per Terminal					
1492-H4, -H5, -H6, -H7	4	4	3	2	2	1

Fingersafe Terminal Blocks

Cat. No.	Fingersafe Terminal Blocks							
	#22	#20 (0.5)	#18 (0.75)	#16 (1.5)	#14 (2.5)	#12 (4)	#10 (6)	#8 (10)
	Number of the Same-Size Wires Per Terminal							
∗ **1492-HM1**	4	4	3	2	2	1	—	—
∗ 1492-HM2	4	4	3	2	2	1	—	—
1492-HC6	4	4	3	2	2	1	—	—
∗ **1492-HM3**	4	4	4	3	2	2	1	1

∗ Dimensions for other colors are identical.

NEMA and IEC Terminal Block Component Specifications∗

Tie Point Terminal Blocks — Type HM2C and WD4C

ATTENTION

The total current flow through these terminal blocks (the sum of all inputs or the sum of all outputs) must not exceed the rated current for the device.

Description	Type	Rating
Maximum Total Current Flow Through the Terminal Block	H2C, HM2C	10 A
Maximum Working Voltage	H2C, HM2C	600V
Operating Ambient Temperature Range	All	-4…+104 °F (-20…+40 °C)
Storage Temperature Range	All	-40…+167 °F (-40…+75 °C)

Diode Terminal Blocks — Types H2D, HHM2D, WD2D, WD2DR, RD3DF and RD3DR

Description	Symbol	Type	Rating
Peak Repetitive Reverse Voltage	V (RRM)	H2D, HM2D	600V
Working Peak Reverse Voltage	V (RWM) V (R)	RD3DF, RD3DR WD4DF, WD4DR	300V
Non-Repetitive Peak Reverse Voltage (Halfwave, single-phase, 60 Hz)	V (RSM)	H2D, HM2D	600V
RMS Reverse Voltage❄	V (Rms)	H2D, HM2D	600V
Average Rectified Forward Current Single-Phase, Resistive Load, 60 Hz	I (O)	All	1.0 A
Non-Repetitive Peak Surge Current (Surge applied at rated load)	I (FSM)	All	30 A (1 cycle)
Maximum Forward Voltage Drop [*I* (f) = 1.0 A]	V (F)	All	1.1V
Maximum Reverse Current	I (R)	All	10 µA
Operating Ambient Temperature Range	T (A)	All	–4…+104 °F (–20…+40 °C)
Storage Temperature Range	T (S)	All	–40…+167 °F (–40…+75 °C)

❄ The maximum voltage rating of the diode terminal blocks listed in the above table should not be exceeded even through the maximum reverse voltage rating of the diode alone is 1000V.

All parameters measured at 77 °F (25 °C).

Resistor Terminal Blocks — Types H2RA, H2RB, H2RC, HM2RA, HM2RB, HM3RB∗

Description	Model Code Identifier	Rating
Resistor Type	A	Carbon Fixed Resistor‡
	B	Metal Film Resistor§
	C	Wire Wound Precision Resistor
Standard Resistance Range	A	1.0 (Ω)…100 M (Ω)
	B	1.0 (Ω)…4.75 M (Ω)
	C	249 (Ω)
Resistance Tolerance	A	± 5%
	B	± 1%
	C	± 1%
Power Rating (Resistor) Maximum Continuous Watts at 86 °F (30 °C) Ambient	A	0.5 W
	B	0.25 W
	C	0.5 W
Rated Continuous Working Voltage (Resistor)	A	0.5 x R or 300V Max.
	B	0.25 x R or 250V Max.
	C	0.5 x R or 250V Max.
Operating Ambient Temperature Range	All	–4…+104 °F (–20…+40 °C)
Storage Temperature Range	All	–40…+167 °F (–40…+75 °C)
Dielectric Withstanding Voltage (Resistor)	A	700V
	B & C	500V

∗ Performance Data — See this catalog, Important- 3.

‡ The power rating of the resistor block operating in ambient temperatures of 86…104 °F (30…40 °C) should be derated for maximum resistor life. The derating curve is linear between 86 °F (30 °C) and 104 °F (40 °C) where the power rating is 100% of specified power at 86 °F (30 °C) and 85% at 104 °F (40 °C).

§ For further information on resistor performance, consult your local Rockwell Automation sales office or Allen-Bradley distributor.

Resistor Codes for 1492-RD3RB..., -H2RB... and -HM2RB Terminal Blocks

Ordering Information

In order to complete the cat. no. for **1492-RD3RB..., 1492-H2RB, and 1492-HM2RB**, add the desired resistor code from the table below. Example: Cat. No. **1492-RD3RB101** is a resistor terminal block with a 100 (Ω) — 1/4 W resistor.

Resistor Value Ω	Resistor Code	Resistor Value Ω	Resistor Code	Resistor Value Ω	Resistor Code	Resistor Value Ω	Resistor Code
10	100	267	271	8250	822	0.221M	224
11	110	301	301	9090	912	0.243M	244
12.1	120	332	331	10 000	103	0.267M	274
13	130	357	361	11 000	113	0.301M	304
15	150	392	391	12 100	123	0.332M	334
16	160	432	431	13 000	133	0.357M	364
18.2	180	475	471	15 000	153	0.392M	394
20	200	511	511	16 200	163	0.432M	434
22.1	220	562	561	18 200	183	0.475M	474
24.3	240	619	621	20 000	203	0.511M	514
26.7	270	681	681	22 100	223	0.562M	564
30.1	300	750	751	24 300	243	0.619M	624
33.2	330	825	821	26 700	273	0.681M	684
35.7	360	909	910	30 100	303	0.75M	754
39.2	390	1000	102	33 200	333	0.825M	824
43.2	430	1100	112	35 700	363	0.909M	914
47.5	470	1210	122	39 200	393	1.0M	105
51.1	510	1300	132	43 200	433	1.1M	115
56.2	560	1500	152	47 500	473	1.24M	125
61.9	620	1620	162	51 100	513	1.3M	135
68.1	680	1820	182	56 200	563	1.5M	155
75	750	2000	202	61 900	623	1.62M	165
82.5	820	2210	222	68 100	683	1.82M	185
90.9	910	2430	242	75 000	753	2.0M	205
100	101	2670	272	82 500	823	2.21M	225
110	111	2940	302	90 900	913	2.43M	245
121	121	3320	332	0.10M	104	2.67M	275
130	131	3570	362	0.11M	114	3.01M	305
150	151	3920	392	0.121M	124	3.32M	335
162	161	4750	472	0.13M	134	3.57M	365
182	181	5110	512	0.15M	154	3.92M	395
200	201	5620	562	0.162M	164	4.32M	435
221	221	6810	682	0.182M	184	4.75M	475
243	241	7500	752	0.20M	204	249	001

Resistor Codes for 1492-H2RA… and -HM2RA Terminal Blocks

Ordering Information

In order to complete the cat. no. for **1492-H2RA…** and **1492-HM2RA**, add the desired resistor code from the table below. Example: Cat. No. **1492-H2RA101** is a resistor terminal block with a 100 (Ω) — 1/2 W resistor.

Resistor Value Ω	Resistor Code	Resistor Value Ω	Resistor Code	Resistor Value Ω	Resistor Code	Resistor Value Ω	Resistor Code	Resistor Value Ω	Resistor Code
1.0	10G	43	430	1800	182	75000	753	3.3M	335
1.1	11G	47	470	2000	202	82000	823	3.6M	365
1.2	12G	51	510	2200	222	91000	913	3.9M	395
1.3	13G	56	560	2400	242	0.10M	104	4.3M	435
1.5	15G	62	620	2700	272	0.11M	114	4.7M	475
1.6	16G	68	680	3000	302	0.12M	124	5.1M	515
1.8	18G	75	750	3300	332	0.13M	134	5.6M	565
2.0	20G	82	820	3600	362	0.15M	154	6.2M	625
2.2	22G	91	910	3900	392	0.16M	164	6.8M	685
2.4	24G	100	101	4300	432	0.18M	184	7.5M	755
2.7	27G	110	111	4700	472	0.20M	204	8.2M	825
3.0	30G	120	121	5100	512	0.22M	224	9.1M	915
3.3	33G	130	131	5600	562	0.24M	244	10M	106
3.6	36G	150	151	6200	622	0.27M	274	11M	116
3.9	39G	160	161	6800	682	0.30M	304	12M	126
4.3	43G	180	181	7500	752	0.33M	334	13M	136
4.7	47G	200	201	8200	822	0.36M	364	15M	156
5.1	51G	220	221	9100	912	0.39M	394	16M	166
5.6	56G	240	241	10 000	103	0.43M	434	18M	186
6.2	62G	270	271	11 000	113	0.47M	474	20M	206
6.8	68G	300	301	56 200	123	0.51M	514	22M	226
7.5	75G	330	331	12 000	133	0.56M	564	24M	246
8.2	82G	360	361	13 000	153	0.62M	624	27M	276
9.1	91G	390	391	15 000	163	0.68M	684	30M	306
10	100	430	431	18 000	183	0.75M	754	33M	336
11	110	470	471	20 000	203	0.82M	824	36M	366
12	120	510	511	22 000	223	0.91M	914	39M	396
13	130	560	561	24 000	243	1.0M	105	43M	436
15	150	620	621	27 000	273	1.1M	115	47M	476
16	160	680	681	30 000	303	1.2M	125	51M	516
18	180	750	751	33 000	333	1.3M	135	56M	566
20	200	820	821	36 000	363	1.5M	155	62M	626
22	220	910	911	39 000	393	1.6M	165	68M	686
24	240	1000	102	43 000	433	1.8M	185	75M	756
27	270	1100	112	47 000	473	2.0M	205	82M	826
30	300	1200	122	51 000	513	2.2M	225	91M	916
33	330	1300	132	56 000	563	2.4M	245	100M	107
36	360	1500	152	62 000	623	2.7M	275		
39	390	1600	162	68 000	683		305		

Surge Suppressor Performance Characteristics and Electrical Component Data*

Surge Suppressor Terminal Blocks			
Performance Characteristic	Cat. No. 1492-H2K024 1492-HM2K024	Cat. No. 1492-H2K120 1492-HM2K120	Cat. No. 1492-H2K240 1492-HM2K240
Nominal Working Voltage (Volts AC or DC) [V]	24	120	240
Maximum AC Working Voltage RMS Continuous (60 Hz) [V]	30	140	275
Maximum DC Working Voltage Continuous [V]	38	160	369
Maximum Clamping Voltage at Current Ip (8/20 µs pulse) [V]	92V I_p = 6 A	360V I_p = 14 A	710V I_p = 17 A
Maximum Voltage Rate of Rise Bulletin 100 Contactors Types A38…B180 Bulletin 500 Contactors & Starters, Size 0…5 Bulletin 700 Relays	—	<10 V/µs	<10 V/µs
Peak Current (8/20 µs pulse)	250 A	150 A	150 A
Typical Leakage Current at Nominal AC Working Voltage	1.0 mA	4.5 mA	10.0 mA
Metal Oxide Varistor (MOV) Maximum Clamping Voltage at Current Ip (8/20 µs Pulse) Maximum Transient Energy Maximum Power Dissipation	—	—	—

* Performance Data — See this catalog, Important 3.
Performance data given in this catalog is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of accelerated testing at elevated stress levels and the user should correlate it to actual application requirements. Actual performance is subject to WARRANTY and LIMIT OF LIABILITY.

Component Specifications

Characteristic	Suppressor Cat. No. 1492-H2K024 1492-HM2K024	Suppressor Cat. No. 1492-H2K120 1492-HM2K120	Suppressor Cat. No. 1492-H2K240 1492-HM2K240
Capacitor			
Nominal Value	0.10 µF	0.10 µF	0.10 µF
Tolerance	±20%	±20%	±20%
Maximum DC Working Voltage	500V DC	500V DC	500V DC
Metal Oxide Varistor (MOV)	92V	360V	710V
Maximum Clamping Voltage at Current I_p (8/20 µs Pulse)	I_p = 5 A	I_p = 10 A	I_p = 10 A
Maximum Transient Energy	1.8 J	12 J	23 J
Maximum Power Dissipation	0.25 W	0.25 W	0.25 W
Resistor			
Nominal Value	100 Ω	100 Ω	100 Ω
Tolerance	±20%	±20%	±20%
Power Rating	2 W at 104 °F (40 °C)	2 W at 104 °F (40 °C)	2 W at 104 °F (40 °C)

Technical Specifications for Fuse Plugs❄

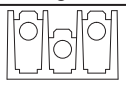
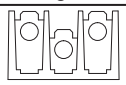
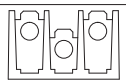
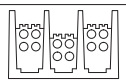
Characteristic	1492-FP4	1492-FP424	1492-FP4250
Indicator Type	Non-Indicating	LED	Neon
Leakage Current	—	2 mA @ 24V	1 mA @ 264V
Working Voltage	Per Fuse Rating	10…57V AC/DC	85…264V AC
Fuse Size (Not Supplied)	5 x 20 mm		

❄ Maximum current rating for the fuse plug is 10 A at 250V. IEC standards for 5 x 20 mm fuses do not include ratings above 6.3 A.

UL/CSA File and Guide Numbers

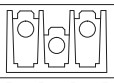
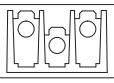
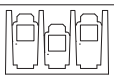
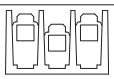
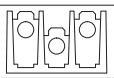
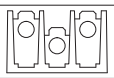
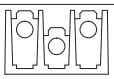
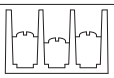
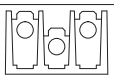
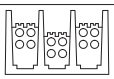
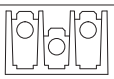
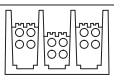
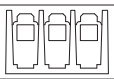
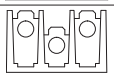
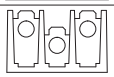
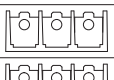
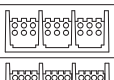
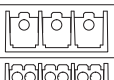
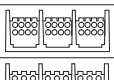
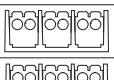
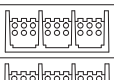
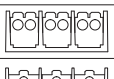
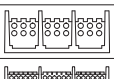
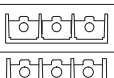
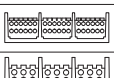
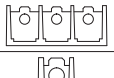
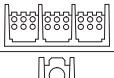
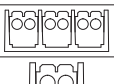
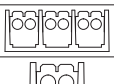
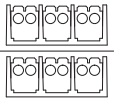
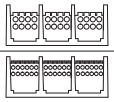
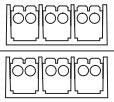
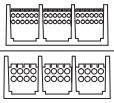
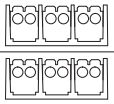
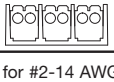
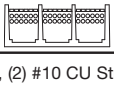
Base Cat. No.	UL Number File	UL Number Guide	CSA Number File	CSA Number Class
1492-CA, -CE, -CD	E40735	XCFR2	LR67896	6228-01
1492-CB	E65138	QVNU2	LR37712	9091-01
1492-CE6	E34648	IZLT2	LR67896	6228-01
1492-F	E40735	XCFR2	LR67896	6228-01
1492-FB	E34646	IZLT	LR70915	6225-01
1492-H1, -H2, -HM1, -HM2, -HM3	E40735	XCFR2	LR67896	6228-01
1492-H4, -H5, -H6, -H7	E40735	XCFR2	LR67896	6228-01
1492-HC6, -HJ	E40735	XCFR2	LR67896	6228-01

Bul. 1492-PD Open-Style Mini Blocks

Amperage	No. of Poles	Line			Load			High Fault SCCR Available	Flexible Copper Wire Connections	Mini Block	Power Block Cover
		Connector Diagram	Wire Range AWG (mm^2)	Wires per Pole	Connector Diagram	Wire Range AWG (mm^2)	Wires per Pole			Cat. No.	Cat. No.
115	3		#2…14 (35…2.5)★	1		#2…14 (35…2.5)★	1	Yes	Yes	**1492-PDM3111**	1492-PBC9
	3		#2…14 (35…2.5)★	1		#10…18 (6…0.75)	4	Yes	Yes	**1492-PDM3141**	1492-PBC9

★ Wire openings rated for #2-14 AWG are multiple wire rated: (2) #8 CU Str, (2) #10 CU Str, (2) #12 CU Str, and (2) #14 CU Str.

Bul. 1492-PD Open-Style

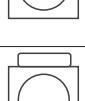
Amperage	No. of Poles	Line			Load			High Fault SCCR Available	Flexible Copper Wire Connectors		Cover
		Connector Diagram	Wire Range AWG (mm^2)	Wires per Pole	Connector Diagram	Wire Range AWG (mm^2)	Wires per Pole			Cat. No.♠	Cat. No.
115	1		#2…14 (35…2.5)★	1		#2…14 (35…2.5)★	1	Yes	Yes	**1492-50Y**	1492-PBC4
	3		#2…14 (35…2.5)★	1		#2…14 (35…2.5)★	1	Yes	Yes	**1492-50X**	1492-PBC1
150	3		1/0...#14 (50…2.5)	1		1/0...#14 (50…2.5)	1	—	Yes	**1492-PD3C111**	1492-PBC1
175	1		2/0…#14 (70…2.5)	1		2/0…#14 (70…2.5)	1	Yes	Yes	**1492-100Y**	1492-PBC4
	1		2/0…#14 (70…2.5)	1		1/4" Tap w/ Binding Screw	1	Yes	Yes	**1492-50YF**	1492-PBC4
	3		2/0…#14 (70…2.5)	1		2/0…#14 (70…2.5)	1	Yes	Yes	**1492-100X**	1492-PBC1
	3		2/0…#14 (70…2.5)	1		1/4' Tap w/ Binding Screw	1	Yes	Yes	**1492-50 XF**	1492-PBC1
	3		2/0…#14 (70…2.5)	1		#4…14 (25…2.5)‡	4	Yes	Yes	**1492-PD3141**	1492-PBC1
	3		2/0…#14 (70…2.5)	1		#4...14 (25…2.5)‡	4	Yes	Yes	**1492-PD3C141**	1492-PBC1
255	1		250 kcmil… #6 AWG (120…16 mm^2)	1		250 kcmil… #6 AWG (120…16 mm^2)	1	Yes	Yes	**1492-BE**	1492-PBC5
	3		250 kcmil…#6 (120…16)	1		250 kcmil…#6 (120…16)	1	Yes	No	**1492-PD3C112**	1492-PBC2
310	3		350 kcmil… #6 (185…16)	1		350 kcmil… #6 (185…16)	1	Yes	Yes	**1492-PD3113**	1492-PBC2
335	3		400 kcmil… #6 (185 …16)	1		#2…14 (35…2.5)★	6	Yes	Yes	**1492-PD3163**	1492-PBC2
	3		400 kcmil… #6 (185…16)	1		#2…14 (35…2.5)★	8	Yes	Yes	**1492-PD3183**	1492-PBC8
350	3		2/0…#14 (70…2.5)	2		#4…14 (25…2.5)‡	6	Yes	Yes	**1492-PD3263**	1492-PBC2
	3		2/0…#14 (70…2.5)	2		#4…14 (25…2.5)‡	6	Yes	Yes	**1492-PD3C263**	1492-PBC2
380	3		500 kcmil… #4 (240…25)	1		#2…14 (35…2.5)★	12	Yes	Yes	**1492-PD31123**	1492-PBC3
	3		500 kcmil…#4 (240…25)	1		#2…14 (35…2.5)★	6	Yes	Yes	**1492-PD3C163**	1492-PBC2
420	1		600 kcmil… #4 AWG (300…25 mm^2)	1		600 kcmil… #4 AWG (300…25 mm^2)	1	Yes	Yes	**1492-BF**	1492-PBC6
620	3		350 kcmil… #6 (185…16)	2		350 kcmil…#6 (185…16)	2	Yes	Yes	**1492-PD3226**	1492-PBC3
760	1		#4 AWG…500 MCM 25…240 mm^2	2		#4 AWG…500 MCM 25…240 mm^2	2	Yes	Yes	**1492-BG**	1492-PBC7
	3		500 kcmil… #6 (240…25)	2		#2/0…14 (70…2.5)	8	Yes	Yes	**1492-PD3287**	1492-PBC3
	3		500 kcmil… #6 (240…16)	2		#4…14 (25…2.5)‡	12	Yes	Yes	**1492-PD32127**	1492-PBC3
	3		500 kcmil…#4 (240…25)	2		2/0…14 (70…2.5)	8	Yes	Yes	**1492-PD3C287**	1492-PBC3
	3		500 kcmil…#4 (240…25)	2		#2…14 (35…2.5)★	12	Yes	Yes	**1492-PD3C2127**	1492-PBC3

★ Wire openings rated for #2-14 AWG are multiple wire rated: (2) #8 CU Str, (2) #10 CU Str, (2) #12 CU Str, and (2) #14 CU Str.

‡ Wire openings rated openings rated for #4-14 AWG are multiple wire rated: (2) #10 CU Str, (2 to 4) #12 CU Str, and (2 to 4) #14 CU Str.

♠ The **C** in the cat. no. designates copper terminals. The cat. nos. without the **C**, have aluminum connectors.

Bul. 1492-PDL Open-Style - Feeder Spacing

Amperage (Cu Wire) 75 ° C	No. of Poles	Line			Load			High Fault SCCR Available	Flexible Copper Wire Conn.	Cat. No.	Replacement Accessories	
		Connector Diagram	Wire Range AWG (mm2)	Openings per Pole	Connector Diagram	Wire Range AWG (mm^2)	Openings per Pole				Covers Cat. No.	Marking Strips Cat. No.
175	3		2/0…#14 (70…2.5)	1		2/0…#14 (70…2.5)	1	Yes	—	**1492-PDL3111**	1492-PDLC1	1492-PDLM1
	3		2/0…#14 (70…2.5)	1		#4…14 (25…2.5)★	4	Yes	—	**1492-PDL3141**		
	3		2/0…#14 (70…2.5)	1		1/4…20 stud	—	Yes	—	1492-PDL31S1		
	3		2/0…#14 (70…2.5)	1		#4…14 (25…2.5)★	6	Yes	—	**1492-PDL3161**		
335	3		400 kcmil…#6 (185…16)	1		#2…14 (35…2.5)	6	Yes	—	**1492-PDL3163**	1492-PDLC2	1492-PDLM2
	3		600 kcmil…#2 (300…35)	1		#2…14 (35…2.5) #2…14 (35…2.5) 1/0…#14 (55…2.5)★	3 3 3	Yes	—	**1492-PDL3194**		
	3		600 kcmil…#2 (300…35)	1		#4…14 (25…2.5)‡	12	Yes	—	**1492-PDL31124**		

★ Wire openings rated for #2-14 AWG are multiple wire rated: (2) #8 CU Str, (2) #10 CU Str, (2) #12 CU Str, and (2) #14 CU Str.
‡ Wire openings rated openings rated for #4-14 AWG are multiple wire rated: (2) #10 CU Str, (2 to 4) #12 CU Str, and (2 to 4) #14 CU Str.

Amperage (Cu Wire) 75 °C	No. of Poles	Line			Load			High Fault SCCR Available	Flexible Copper Wire Connections	Cat. No.♠
		Connector Diagram	Wire Range AWG (mm^2)	Openings per Pole	Connector Diagram	Wire Range AWG (mm^2)	Openings per Pole			
115	1		#2...#14 (35…2.5)	1		#2...#14 (35…2.5)§	1	Yes	Yes	Δ **1492-PDME1111**
	1		#2...#14 (35…2.5)	1		#10...#14 (6…2.5)	4	Yes	Yes	Δ **1492-PDME1141**
200	1		2/0...#14 (70…2.5)	1		2/0...#14 (70…2.5)♣	1	Yes	Yes	Δ **1492-PDE1112** Δ **1492-PDE1C112**
	1		2/0...#14 (70…2.5)	1		#2...#14 (35…2.5)§	4	Yes	Yes	Δ **1492-PDE1142** **1492-PDE1C142**
510	1		250 kcmil...#6 (120…16)	2		250 kcmil...#6 (120…16)	2	Yes	Yes (line side)	**1492-PDE1225** 1492-PDE1C225
335	1		400 kcmil...#6 (185…16) 2/0...#14 (70…2.5)	1		#2...#14 (35…2.5)§	8	Yes	Yes (line side)	**1492-PDE1183** **1492-PDE1C183**

§ Wire openings rated for #2-14 AWG are multiple wire rated: (2) #6 CU Str, (2) #8 CU Str, (2-4) #10 CU Str, (2 to 4) #12 CU Str, and (2 to 4) #14 CU Str.
♣ Wire openings rated for #2/0 -14 AWG are multiple wire rated: (2) #4 CU Str, (2) #6 CU Str, (2) #8 CU Str, (2) #10 CU Str, (2) #12 CU Str
& Flexible copper wire connections approved for flexible wire, stranding Classes G, H, I, K and DLO wire without the need for additional crimp connectors
♠ The **C** in the cat. no. designates copper terminals. The cat. nos. without the **C**, have aluminum connectors
Δ UL 1953 Listed E 313475 Guide QPQS

High Fault Short-Circuit Current Ratings

The following Ratings for “High Short Circuit Current Ratings” are based upon testing of the Power Terminal Block and Overcurrent Protective Device (OPD - either fuse or circuit breaker)wired in series and the combination of devices exposed to fault currents of the levels noted in the tables. For the Power Terminal Block to obtain the noted SCCR rating, the combination, including wiring, must suffer no damage and all wiring remain intact until the Overcurrent Protective Device, clears the fault.

For these ratings only one wire per terminal is used.

In some cases the wire size noted is less than the maximum capability of the Power Distribution Block, The noted wire size is the maximum permissible to obtain the noted SCCR rating with the noted Overcurrent Protective Device.

When a larger overcurrent protective device of the type or wire of different size is used, the Power Distribution Block has a 10,000 A SCCR withstand rating, per Table SB4.1 of UL Standard 508A.

The most up-to-date High SCCR ratings may be found via UL website, http://www.ul.com http://www.ul.com– Online Certifications Directory. For UL1059 certified Power Terminal Blocks, use file number E40735. For UL1953 listed devices the standard requires a 100,000 A minimum SCCR, use file number E313475

Bulletin 1492-PD High Fault SCCR Ratings With Fuses

Cat. No.	High Fault SCCR Ratings Conditions ★								SCCR ‡	
	Suitable Conductors § kcmil/AWG Copper Wire		Overcurrent Protection ♣ Fuse Required Class/Max. Amp Rating						RMS Sym A	Volts Max.
	Line	Load	J	T	RK1	RKS	G	CC		
1492-50X	2-6 Cu	2-6 Cu	300	300	200	100	60	30	100 000	600
	8-10 Cu	8-10 Cu	150	150	100	30	60	30	100 000	600
1492-50XF	2/0-6 Cu	2/0-6 Cu	200	200	200	100	60	30	100 000	600
	8-10 Cu	8-10 Cu	100	100	100	100	60	30	100 000	600
1492-50Y	2-6 Cu	2-6 Cu	300	300	200	100	60	30	100 000	600
	8-10 Cu	8-10 Cu	150	150	100	30	60	30	100 000	600
1492-50YF	2/0-6 Cu	2/0-6 Cu	200	200	200	100	60	30	100 000	600
	8-10 Cu	8-10 Cu	100	100	100	100	60	30	100 000	600
1492-100X	2/0-6 Cu	2/0-6 Cu	300	300	200	100	60	30	65 000	600
1492-100Y	2/0-6 Cu	2/0-6 Cu	300	300	200	100	60	30	65 000	600
1492-BE	250-6 Cu	250-6 Cu	300	300	200	100	60	30	100 000	600
1492-BF	600-2 Cu	600-2 Cu	600	600	—	—	—	—	100 000	600
			400	400	400	200	60	30	100 000	600
1492-BG	2)500-4 Cu	2)500-4 Cu	600	600	400	200	60	30	100 000	600
1492-PD3113	350-1/0 Cu	350-1/0 Cu	400	400	400	100	60	30	100 000	600
	350-6 CU	350-6 Cu	300	300	200	100	60	30	100 000	600
1492-PD3141	2/0-6 Cu	4-14 Cu	200	200	200	100	60	30	100 000	600
1492-PD3163	400-3/0 Cu	2-8 Cu	400	400	400	200	—	30	200 000	600
			600	—	—	—	60	—	100 000	600
	2/0-6 Cu	2-14 Cu	200	200	200	100	—	30	200 000	600
			—	—	—	—	60	—	100 000	600
1492-PD3183	400-3/0 Cu	2-8 Cu	400	400	400	200	60	30	100 000	600
	2/0-6 Cu	2-14 Cu	200	200	200	100	60	30	100 000	600
1492-PD31123	500-3/0 Cu	2-8 Cu	400	400	400	200	60	30	100 000	600
	2/0-4 Cu	2-14 Cu	200	200	200	100	60	30	100 000	600
1492-PD3263	2)2/0-2 Cu	4-8 Cu	400	400	400	100	60	30	100 000	600
	2)4-6 Cu	10-14 Cu	300	300	200	100	60	30	100 000	600
1492-PD3226	2)350-4 Cu	2)350-4 Cu	450	450	400	200	60	30	100 000	600
1492-PD3287	500-250 Cu	2/0-4 Cu	600	600	400	200	60	30	100 000	600
	4/0-4 Cu	2/0-10 Cu	600	600	—	—	—	—	50 000	600
			400	400	400	200	60	30	100 000	600
1492-PD32127	500-250 Cu	4-8 Cu	600	600	600	—	—	—	50 000	600
			400	400	400	200	60	30	100 000	600
	4/0-4 Cu	4-14 Cu	600	600	—	—	—	—	50 000	600
			400	400	400					
1492-PD3C112	250-6 CU	250-6 Cu	300	300	200	100	60	30	100 000	600
1492-PD3C141	2/0-6 Cu	4-14 Cu	200	200	200	100	60	30	100 000	600
1492-PD3C163	500-3/0 Cu	2-8 Cu	400	400	400	200	60	30	100 000	600
	2/0-4 Cu	2-14 Cu	200	200	200	100	60	30	100 000	600
1492-PD3C263	2/0-2 Cu	4-8 Cu	400	400	400	100	60	30	100 000	600
	4-6 Cu	10-14 Cu	200	200	200	100	60	30	100 000	600
1492-PD3C287	500-250 Cu	2/0-4 Cu	600	600	400	200	60	30	100 000	600
	4/0-4 Cu	2/0-6 Cu	600	600	—	—	—	—	50 000	600
			400	400	400	200	60	30	100 000	600
1492-PD3C2127	500-250 Cu	2-8 Cu	600	600	600	—	—	—	50 000	600
			400	400	400	200	60	30	100 000	600
	4/0-4 Cu	2-14 Cu	600	600	—	—	—	—	50 000	600
			400	400	400	200	60	30	100 000	600

With Circuit Breakers

Cat. No.	High Fault SCCR Ratings Conditions ★					
	Suitable Conductors § kcmil/AWG Copper Wire		Overcurrent Protection ♣ Allen-Bradley Circuit Breaker		SCCR, RMS, Sym A	Volts Max, AC
	Line	Load	Type	Map Amp		
1492-PD31123	350 - 4 Cu	2-14 Cu	140U-J3D3	250	35 000	480
	500 - 4 Cu	2-6 Cu	140U-K3D3	400	35 000	480
1492-PD3141	2/0 - 1 Cu	4-10 Cu	140U - J3D3, 140U - J6D3	250	22 000	480
	2-4 Cu	4-12 Cu	140U - J3D3, 140U - J6D3	250	22 000	480
	2-6 Cu	4-14 Cu	140U - H3C3	125	30 000	480
	6 Cu	14 Cu	140U - H3C3	125	50 000	480
1492-PDM3141	2-10 Cu	10-14 Cu	140U - H3C3, 140U - H6C3	125	25 000	480
1492-PD3163	400 - 3/0 Cu	2-8 Cu	140U - K6X3, 140U - K3X3	400	65 000	480
	4/0 - 4 Cu	2-12 Cu	140U - J6X3, 140U - J3X3	250	25 000	480

Bulletin 1492-PDL High Fault SCCR Ratings
With Fuses

Cat. No.	High Fault SCCR Ratings Conditions ★								SCCR ‡	
	Suitable Conductors § kcmil/AWG Copper Wire		Overcurrent Protection ♣ Fuse Required Class/Max. Amp Rating						RMS Sym A	Volts Max.
	Line	Load	J	T	RK1	RKS	G	CC		
1492-PDL3111	2/0-6 Cu	2/0-6 Cu	200	200	200	100	60	30	100 000	600
1492-PDL3141	2/0-6 Cu	4-14 Cu	200	200	200	100	60	30	100 000	600
1492-PDL3161	2/0-6 Cu	4-14 Cu	200	200	200	100	60	30	100 000	600
1492-PDL31S1	2/0-6 Cu	2/0-6 Cu	200	200	200	100	60	30	100 000	600
	8-10 Cu	8-10 Cu	100	100	100	30	60	30	100 000	600
1492-PDL3163	400-3/0 Cu	2-8 Cu	400	400	400	100	60	30	100 000	600
	2/0-6 Cu	2-14 Cu	200	200	200	100	60	30	100 000	600
1492-PDL3194	600-3/0 Cu	1/0-8 Cu	600	600	400	200	60	30	100 000	600
	2/0-2 Cu	2-14 Cu	200	200	200	100	60	30	100 000	600
1492-PDL31124	600-3/0 Cu	4-8 Cu	600	600	400	100	60	30	100 000	600
	2/0-2 Cu	4-12 Cu	200	200	200	100	60	30	100 000	600

With Circuit Breakers

Cat. No.	High Fault SCCR Ratings Conditions ★					
	Suitable Conductors § kcmil/AWG Copper Wire		Overcurrent Protection ♣ Allen-Bradley Circuit Breaker		SCCR, RMS, Sym A	Volts Max, AC
	Line	Load	Type	Map Amp		
1492-PDL3141	2/0-4 Cu	4-8 Cu	140U-J6, 140U-J0	250	50 000	480
	1/0-6 Cu	4-10 Cu	140U-H6, 140U-H0	125	50 000	480
1492-PDL3161	2/0-6 Cu	4-12 Cu	140U-H6, 140U-H0	125	50 000	480
	2/0-4 Cu	4-8 Cu	140U-J6, 140U-J0	250	35 000	480
1492-PDL3163	400-3 Cu	2-3 Cu	140U-K6	400	35 000	480
	350-4 Cu	2-8 Cu	140U-J6, 140U-J0	250	50 000	480
1492-PDL3194	600-2 Cu	4 Cu	140U-K6	400	35 000	480
	350-2 Cu	4-8 Cu	140U-K6, 140U-J0	250	50 000	480
1492-PDL31124	600-2 Cu	2-8 Cu	140U-K6	400	30 000	480
	350-2 Cu	2-8 Cu	140U-K6, 140U-J0	250	50 000	480

Bulletin 1492-PDE High Fault SCCR Ratings With Fuses

Cat. No.	High Fault SCCR Ratings Conditions ★								SCCR ‡	
	Suitable Conductors § kcmil/AWG Copper Wire		Overcurrent Protection ♣ Fuse Required Class/Max. Amp Rating						RMS Sym A	Volts Max.
	Line	Load	J	T	RK1	RKS	G	CC		
1492-PDE1111	2/0-6 Cu	2/0-6 Cu	300	300	200	100	60	30	100 000	600
1492-PDE1112	3/0-8 Cu (B-C)	3/0-8 Cu (B-C)	225	225	200	60	60	30	100,000	600
	2/0-8 Cu (G-I)	2/0-8 Cu (G-I)	300	300	200	100	60	30	100 000	600
1492-PDE1C111	2/0-6 Cu	2/0-6 Cu	300	300	200	100	60	30	100 000	600
1492-PDE1C112	3/0-8 Cu (B-C)	3/0-8 Cu (B-C)	225	225	200	60	60	30	100 000	600
	2/0-8 Cu (G-I)	2/0-8 Cu (G-I)	300	300	200	100	60	30	100 000	600
1492-PDE1141	2/0-6 Cu	2-14 Cu	300	300	200	100	60	30	100 000	600
1492-PDE1142	3/0-8 Cu (B-C)	2-8 Cu (B-C)	225	225	200	60	60	30	100 000	600
		8-14 Cu (B-C)	100	110	100	30	60	30	100 000	600
	2/0-8 Cu (G-I)	2/0-8 Cu (G-I)	225	225	200	60	60	30	100 000	600
		8-12 Cu (G-I)	100	110	100	30	60	30	100 000	600
1492-PDE1C141	2/0-6 Cu	2-14 Cu	300					30	100 000	600
1492-PDE1C142	3/0-8 Cu (B-C)	2-8 Cu (B-C)	225	225	200	60	60	30	100 000	600
		8-14 Cu (B-C)	100	110	100	30	60	30	100 000	600
	2/0-8 Cu (G-I)	2/0-8 Cu (G-I)	225	225	200	60	60	30	100 000	600
		8-12 Cu (G-I)	100	110	100	30	60	30	100 000	600
1492-PDE1183	400-3/0 Cu	2-8 Cu	400	400	400	200	60	30	100 000	600
	2/0-6 Cu	2-14 Cu	200	200	200	100	60	30	100 000	600
1492-PDE1C183	400-3/0 Cu	2-8 Cu	400	400	400	200	60	30	100 000	600
	2/0-6 Cu	2-14 Cu	200	200	200	100	60	30	100 000	600
1492-PDE1225	250-1/0 Cu	250-1/0 Cu	600	600	600	—	—	—	50 000	600
			400	400	400	200	60	30	100 000	600
	2-6 Cu	2-6 Cu	400	400	400	200	60	30	100 000	600
1492-PDE1C225	250-1/0 Cu	250-1/0 Cu	600	600	600	—	—	—	50 000	600
			400	400	400	200	60	30	100 000	600
	2-6 Cu	2-6 Cu	400	400	400	200	60	30	100 000	600
1492-PDM3111	2-6 Cu	2-6 Cu	200	200	200	100	60	30	100 000	600
	8-10 Cu	8-10 Cu	100	100	100	—	60	30	100 000	600
1492-PDME1111	2-14 Cu	2-14 Cu	175	225	100	30	60	30	100 000	600
1492-PDM3141	2-6 Cu	10-14 Cu	200	200	200	100	60	30	200 000	600
	8-10 Cu	14 Cu	100	100	100	30	60	30	100 000	600
1492-PDME1141	2-10 Cu (B-C) 4 - 10 Cu (G-K)	10-14 Cu (B-C) (G-K)	125	200	100	30	60	30	65 000	600

★ **Short-circuit Current Rating (SCCR) Conditions** — Terminal blocks are considered suitable for use on a circuit capable of delivering not more than the stated SCCR at the maximum voltage specified when protected by the maximum ampere and Class of overcurrent protective device noted in the individual Recognitions.

‡ **Short-circuit Current Rating, (SCCR)** when noted additional conditions are provided. When larger overcurrent protection devices of type, or wire of different size is used, the Power Terminal block as a 10,000 amp withstand rating. **Note** the rated wire range of terminals may exceed the restrictive wire range used to provide higher SCCR.

§ **Size Range of Line and Load** conductors suitable to maintain noted SCCR.

♣ **Maximum Size** of Line side overcurrent protection to provide noted SCCR.

Approximate Dimensions

Dimensions are in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.

1492-PD

Figure 1

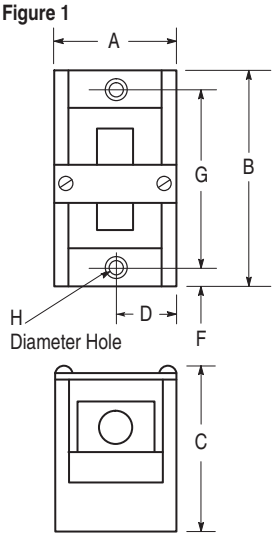


Figure 2

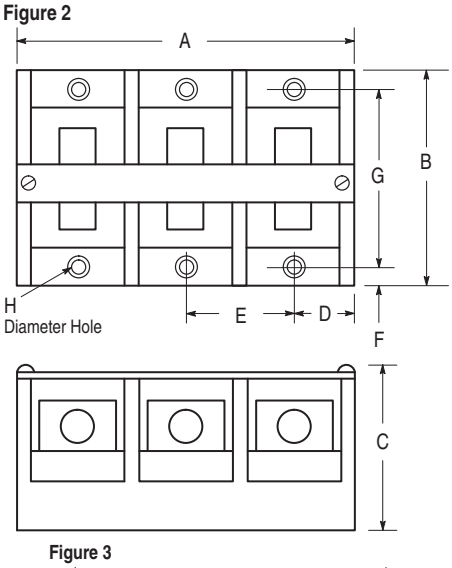
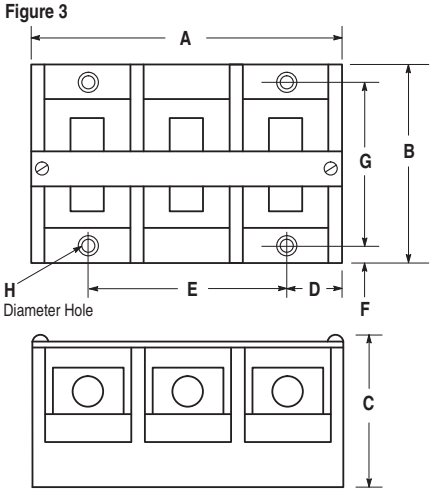


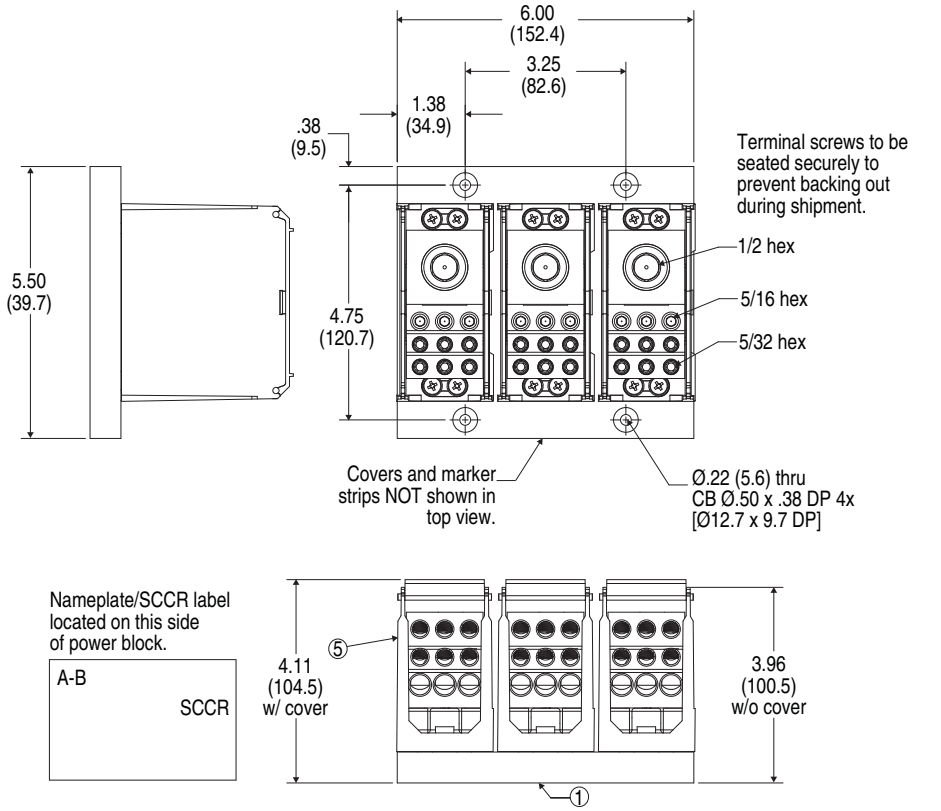
Figure 3



Cat. No.	Figure	A	B	C	D	E	F	G	H
1492-PDM3111	3★	2.03 (51.56)	2.29 (58.17)	1.62 (41.15)	0.38 (9.68)	1.27 (32.26)	0.19 (4.83)	1.93 (49.02)	0.201 (5.11)
1492-PDM3141	3★	2.03 (51.56)	2.29 (58.17)	1.62 (41.15)	0.38 (9.68)	1.27 (32.26)	0.19 (4.83)	1.93 (49.02)	0.201 (5.11)
1492-50Y	1	1.13 (28.7)	2.88 (73.15)	1.88 (47.8)	0.56 (14.22)	—	0.31 (7.87)	2.25 (57.15)	0.205 (5.21)
1492-100Y	1	1.13 (28.7)	2.88 (73.15)	1.88 (47.8)	0.56 (14.22)	—	0.31 (7.87)	2.25 (57.15)	0.205 (5.21)
1492-50X	3	2.75 (69.85)	2.88 (73.15)	1.88 (47.8)	0.56 (14.22)	1.62 (41.2)	0.31 (7.87)	2.25 (57.15)	0.205 (5.21)
1492-100X	3	2.75 (69.85)	2.88 (73.15)	1.88 (47.8)	0.56 (14.22)	1.62 (41.2)	0.31 (7.87)	2.25 (57.15)	0.205 (5.21)
1492-50XF	3	2.75 (69.85)	2.88 (73.15)	1.88 (47.8)	0.56 (14.22)	1.62 (41.2)	0.31 (7.87)	2.25 (57.15)	0.205 (5.21)
1492-50YF	1	1.13 (28.7)	2.88 (73.15)	1.88 (47.8)	0.56 (14.22)	—	0.31 (7.87)	2.25 (57.15)	0.205 (5.21)
1492-PD3C111	3	2.75 (69.85)	2.88 (73.15)	1.88 (47.8)	0.56 (14.22)	1.62 (41.2)	0.31 (7.87)	2.25 (57.15)	0.205 (5.21)
1492-PD3C141	3	2.75 (69.85)	2.88 (73.15)	1.88 (47.8)	0.56 (14.22)	1.62 (41.2)	0.31 (7.87)	2.25 (57.15)	0.205 (5.21)
1492-PD3141	3	2.75 (69.85)	2.88 (73.15)	1.88 (47.8)	0.56 (14.22)	1.62 (41.2)	0.31 (7.87)	2.25 (57.15)	0.205 (5.21)
1492-BE	1	1.94 (49.28)	4 (101.6)	2.72 (69.1)	0.97 (24.64)	—	0.31 (7.87)	3.38 (85.85)	0.203 (5.16)
1492-PD3C112	2	5 (127)	4 (101.6)	2.72 (69.1)	0.97 (24.64)	1.53 (38.86)	0.31 (7.87)	3.38 (85.85)	0.203 (5.16)
1492-PD3113	2	5 (127)	4 (101.6)	2.72 (69.1)	0.97 (24.64)	1.53 (38.86)	0.31 (7.87)	3.38 (85.85)	0.203 (5.16)
1492-PD3263	2	5 (127)	4 (101.6)	2.72 (69.1)	0.97 (24.64)	1.53 (38.86)	0.31 (7.87)	3.38 (85.85)	0.203 (5.16)
1492-PD3163	2	5 (127)	4 (101.6)	2.72 (69.1)	0.97 (24.64)	1.53 (38.86)	0.31 (7.87)	3.38 (85.85)	0.203 (5.16)
1492-PD3C163	2	5 (127)	4 (101.6)	2.72 (69.1)	0.97 (24.64)	1.53 (38.86)	0.31 (7.87)	3.38 (85.85)	0.203 (5.16)
1492-PD3C263	2	5 (127)	4 (101.6)	2.72 (69.1)	0.97 (24.64)	1.53 (38.86)	0.31 (7.87)	3.38 (85.85)	0.203 (5.16)
1492-BF	1	2.28 (57.91)	4.75 (120.65)	2.92 (74.2)	1.12 (28.45)	—	0.31 (7.87)	4.13 (104.9)	0.203 (5.16)
1492-PD3183	2	6.04 (153.42)	4.75 (120.65)	2.92 (74.2)	1.12 (28.45)	1.88 (47.75)	0.31 (7.87)	4.13 (104.9)	0.203 (5.16)
1492-BG	1	3.17 (80.25)	5.50 (139.7)	3.23 (82.0)	1.58 (40.13)	—	0.38 (9.68)	4.75 (120.65)	0.265 (6.73)
1492-PD31123	2	8.54 (216.92)	5.50 (139.7)	3.23 (82.0)	1.58 (40.13)	2.69 (68.58)	0.38 (9.68)	4.75 (120.65)	0.265 (6.73)
1492-PD3287	2	8.54 (216.92)	5.50 (139.7)	3.23 (82.0)	1.58 (40.13)	2.69 (68.58)	0.38 (9.68)	4.75 (120.65)	0.265 (6.73)
1492-PD32127	2	8.54 (216.92)	5.50 (139.7)	3.23 (82.0)	1.58 (40.13)	2.69 (68.58)	0.38 (9.68)	4.75 (120.65)	0.265 (6.73)
1492-PD3226	2	8.54 (216.92)	5.50 (139.7)	3.23 (82.0)	1.58 (40.13)	2.69 (68.58)	0.38 (9.68)	4.75 (120.65)	0.265 (6.73)
1492-PD3C2127	2	8.54 (216.92)	5.50 (139.7)	3.23 (82.0)	1.58 (40.13)	2.69 (68.58)	0.38 (9.68)	4.75 (120.65)	0.265 (6.73)
1492-PD3C287	2	8.54 (216.92)	5.50 (139.7)	3.23 (82.0)	1.58 (40.13)	2.69 (68.58)	0.38 (9.68)	4.75 (120.65)	0.265 (6.73)

★ No marker strip.

1492-PDL



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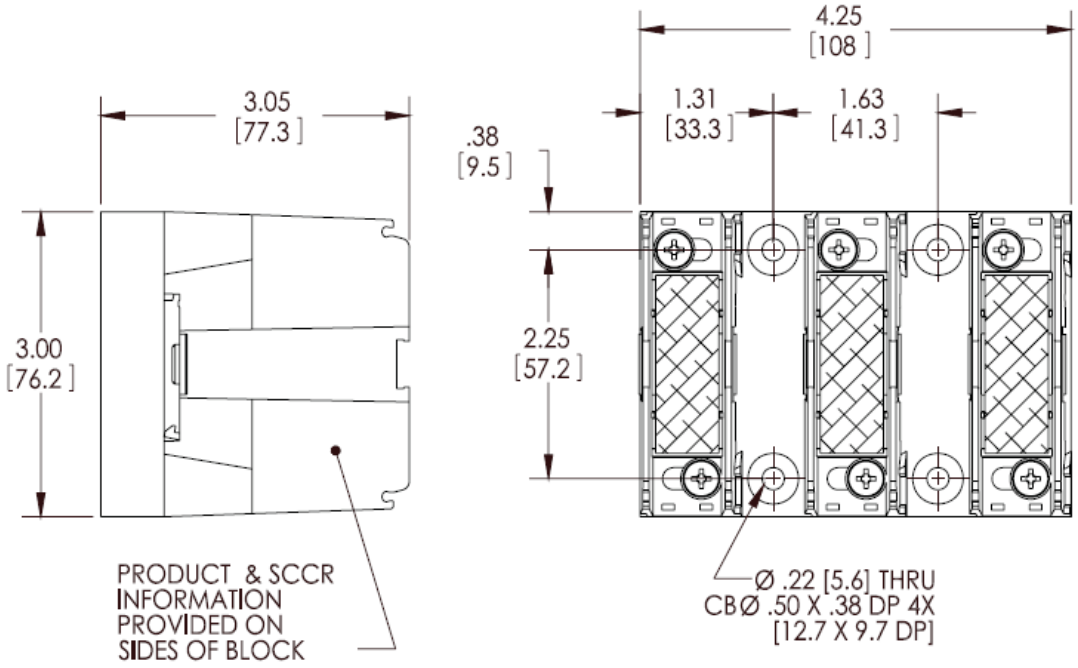

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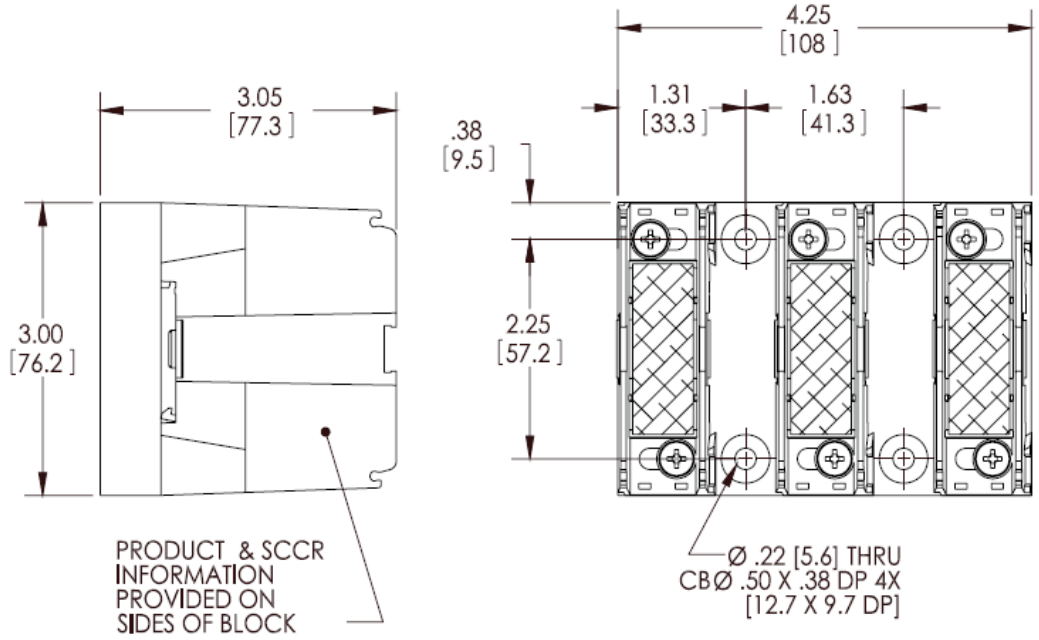

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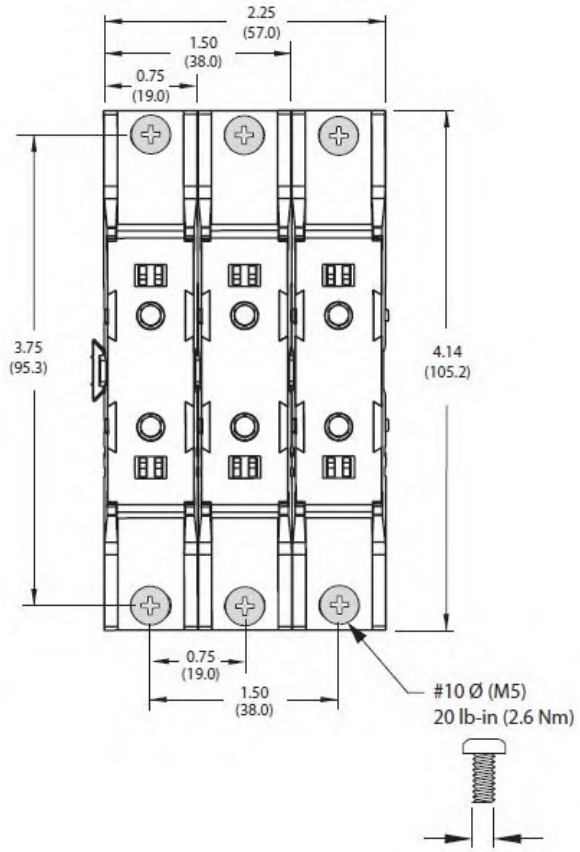
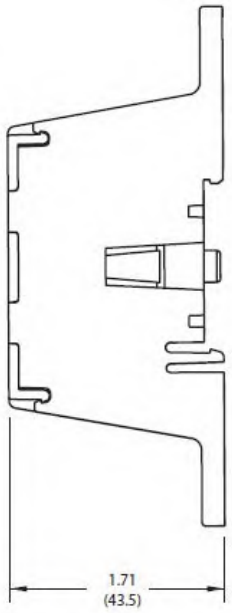
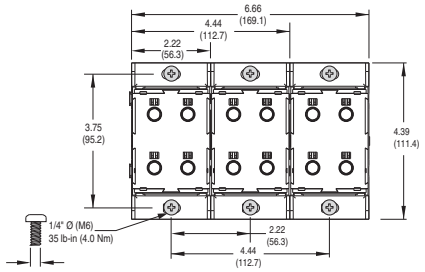
1492-PDE





Cat. Nos. 1492-PDME111 and 1492-PDME1141



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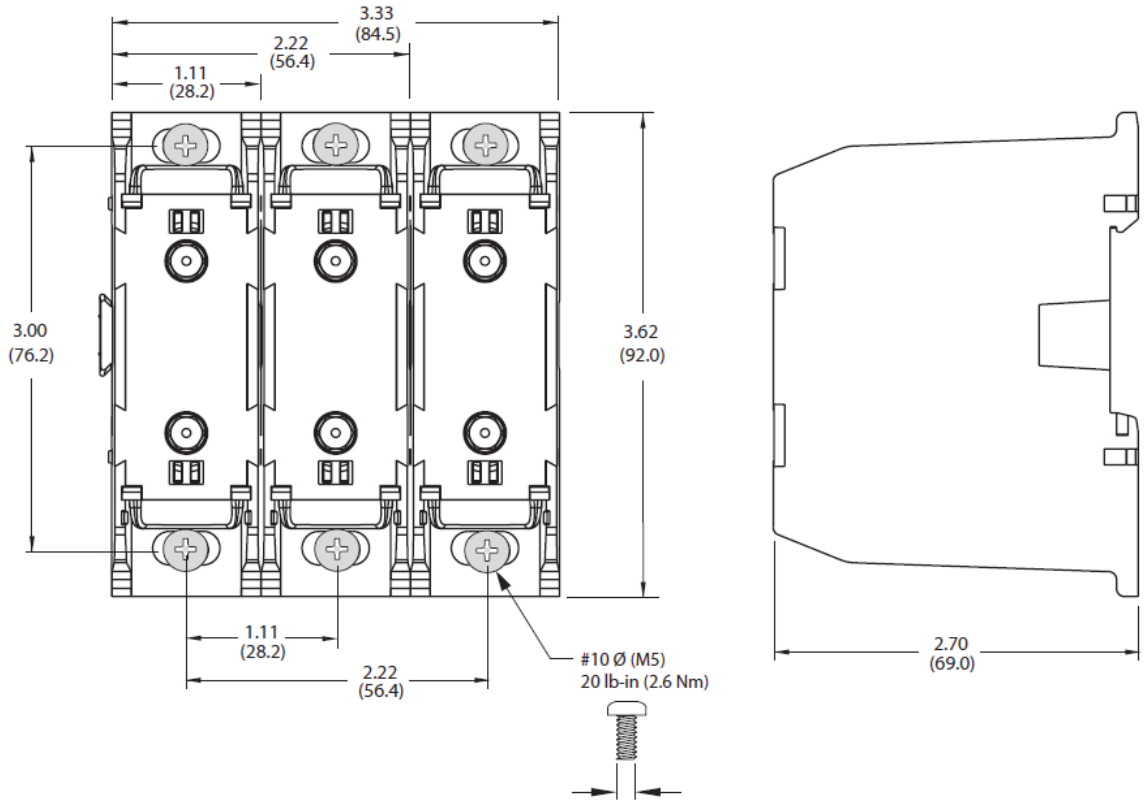

Cat. Nos. 1492-PDE1112, -PDE1C112, 1492-PDE1C12, 1492-PDE1142, 1492-PDE1C142

Important User Information

Read this document and the documents listed in the additional resources section about installation, configuration, and operation of this equipment before you install, configure, operate, or maintain this product. Users are required to familiarize themselves with installation and wiring instructions in addition to requirements of all applicable codes, laws, and standards.

Activities including installation, adjustments, putting into service, use, assembly, disassembly, and maintenance are required to be carried out by suitably trained personnel in accordance with applicable code of practice.

If this equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

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CATALOG CUT SHEETS

SECTION: 112

EnviroCare International

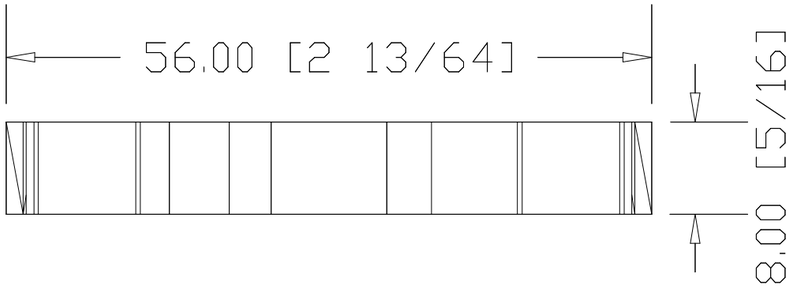
507 Green Island Road
American Canyon, CA 94503, USA
Tel. 707.638.6800
Fax. 707.638.6898

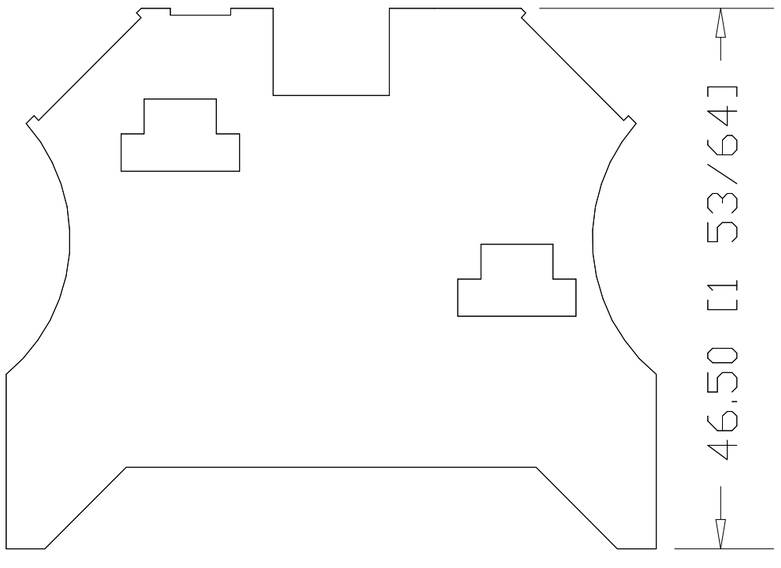
Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

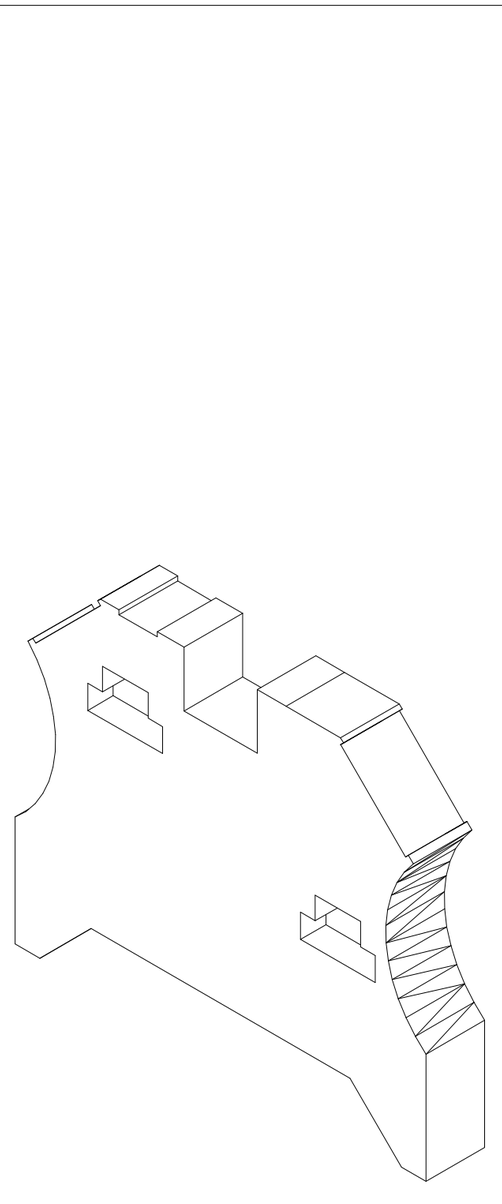
Manufacturer: ALLEN BRADLEY
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
N/A	A-B END ANCHOR	1492-EAJ35

1492-EAJ35
End Anchor







CATALOG CUT SHEETS

SECTION: 113

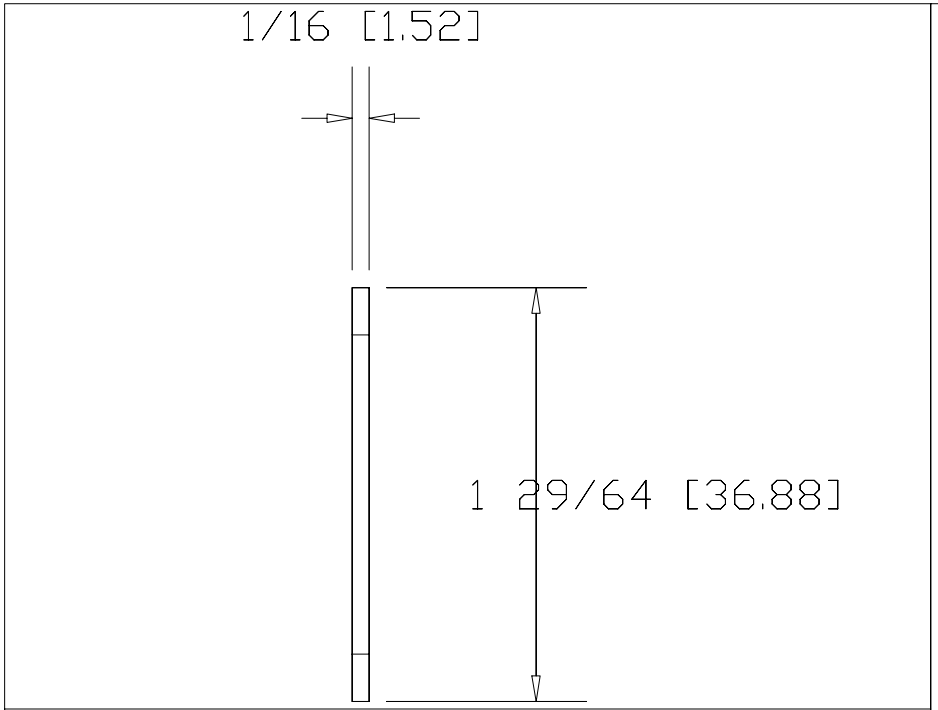
EnviroCare International

507 Green Island Road
American Canyon, CA 94503, USA
Tel. 707.638.6800
Fax. 707.638.6898

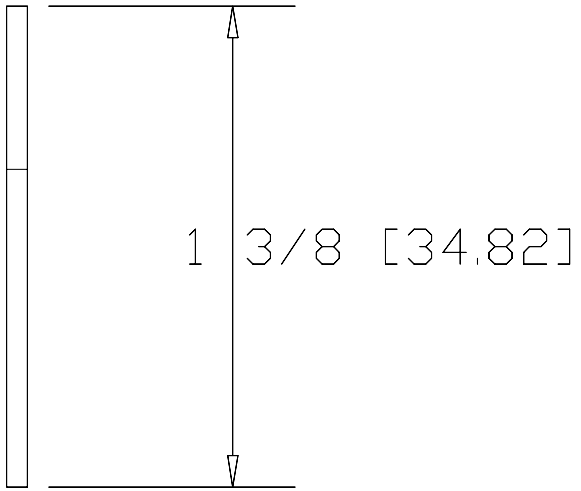
Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

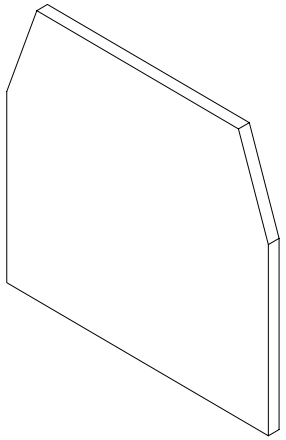
Manufacturer: ALLEN BRADLEY
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
N/A	A-B END BARRIER FOR STANDARD TERMINALS	1492-EB3



1492-EB3
End Barrier





CATALOG CUT SHEETS

SECTION: 114

EnviroCare International

507 Green Island Road
American Canyon, CA 94503, USA
Tel. 707.638.6800
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Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
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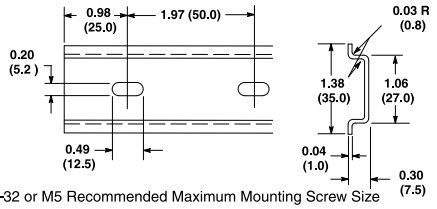
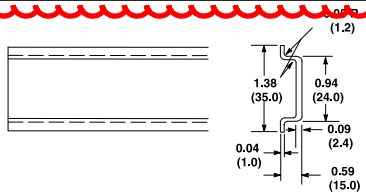
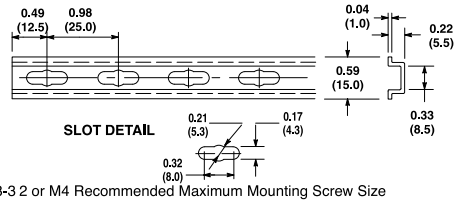
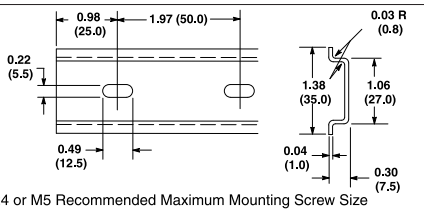
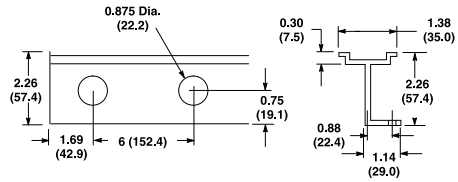
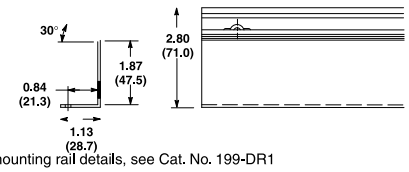
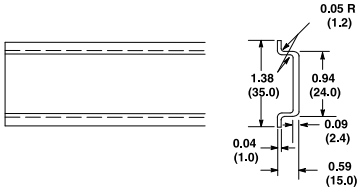
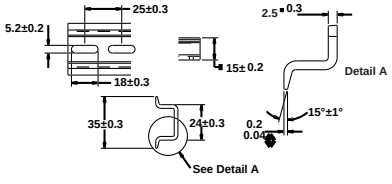
Contract Number PO#: 2021-26

Manufacturer: ALLEN BRADLEY
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
N/A	A-B, 1 METER DIN RAIL	199-DR1

Mounting Rails

Cat. No.	Description	Pkg Qty.	Dimensions★
199-DR1 	Symmetrical Rail 35 mm x 7.5 mm 3.28 ft (1 m) long Zinc-Plated Clear Chromated Steel EN60715 **DIN #3**	10	 #10–32 or M5 Recommended Maximum Mounting Screw Size
199-DR2	Same as Cat. No. 199-DR1, but length = 2 m	20	
199-DR4 	Heavy Duty Symmetrical Rail 35 mm x 15 mm 3.28 ft (1 m) long Zinc-Plated Clear Chromated Steel EN60715 **DIN #3**	5	
1492-DR3 	Mini 15 mm x 5.5 mm Rail 3.28 ft (1 m) long Zinc-Plated Clear Chromated Steel EN60715 **DIN #2**	5	 #8-3 2 or M4 Recommended Maximum Mounting Screw Size
1492-DR5 	Symmetrical Rail 35 mm x 7.5 mm 3.28 ft (1 m) long Copper-Free Aluminum EN60715 For Bul. 1492 Terminal Blocks Only **DIN #3**	10	 #12–24 or M5 Recommended Maximum Mounting Screw Size
‡ **1492-DR6** 	Symmetrical Rail 35 mm x 7.5 mm 2.26 in. (57.4 mm) high 3.28 ft (1 m) long Copper-Free Aluminum For Bul. 1492 Terminal Blocks Only **DIN #3**	2	 Wire insulator plug for wire access through rail — use Heyco UB875
‡ **1492-DR7** 	Symmetrical Rail 35 mm x 7.5 mm 2.80 in. (71.0 mm) high 3.28 ft (1 m) long Angled 30° Zinc-Plated, Chromated Steel **DIN #3**	2	 For mounting rail details, see Cat. No. 199-DR1
1492-DR8 	Symmetrical Rail 35 mm x 15 mm 3.28 ft (1 m) long Copper EN60715 **DIN #3**	5	
§ **1492-DR9** 	Symmetrical Rail 35 mm x 15 mm 3.28 ft (1 m) long Zinc-Plated Clear Chromated Steel EN60715 **DIN #3**	5	

★ Dimensions shown in inches (millimeters). Dimensions are not intended to be used for manufacturing purposes.
‡ 0.218 x 0.50 in. (5.5 x 12.7 mm) slotted mounting holes every 3 in. (76.2 mm) starting 1.69 in. (42.9 mm) from end.
§ Dimensions in millimeters.

CATALOG CUT SHEETS

SECTION: 115

EnviroCare International

507 Green Island Road
American Canyon, CA 94503, USA
Tel. 707.638.6800
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Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

Manufacturer: NOT USED
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
N/A	SECTION NOT USED	

CATALOG CUT SHEETS

SECTION: 116

EnviroCare International

507 Green Island Road
American Canyon, CA 94503, USA
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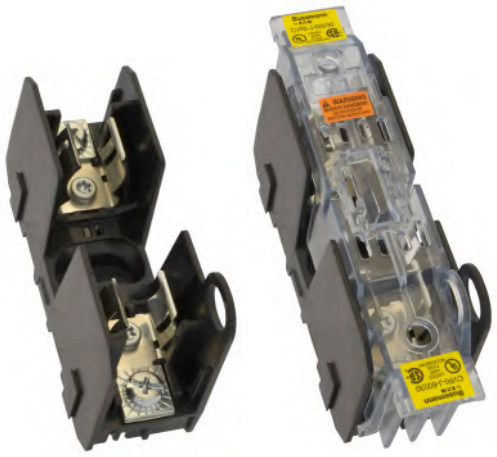
Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

Manufacturer: BUSSMANN
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
LCP-700	BUSSMANN, FUSE BLOCKS	MJ60030-CR
	BUSSMANN, FUSES, 3A	LPJ-3
	BUSSMANN, FUSES, 6A	LPJ-6
	BUSSMANN, FUSES, 10A	LPJ-10
	BUSSMANN, FUSES, 15A	LPJ-15

Class H(K), J and R modular ferrule fuse blocks

RoHS



Product description:

HM Class H(K), JM Class J and RM Class R modular ferrule fuse blocks for fuses up to 60 amps.

The new Bussmann™ series fuse blocks contain multiple features that increase versatility, reduce labor and enhance safety for any panel or electrical system design.

Features and benefits:

- Available in 1-, 2-, and 3-pole configurations to meet stocking requirements.
- To reduce inventory, assembly time and labor, modular single-pole blocks snap-together for tool-less assembly of multiple poles at point of use.
- DIN-Rail and panel mount versatility allows one product to be used for multiple applications with lower inventory cost.
- Save panel space with the smallest width dimension on the market.
- Standard clip reinforcing springs improve temperature rise performance while maintaining reliable surface contact between the fuse ferrule and clip over the block's service life.
- Optional see-through, IP20 finger-safe covers enhance safety with lock-out/tag-out capability.
- Optional open fuse indication on covers speeds troubleshooting.
- Easy circuit identification with available universal marker labels for blocks and covers.

Specifications

Ratings:

- Volts Class H 250V, 600V
  Class J 600V
  Class R 250V, 600V
- Amps up to 60A
- Withstand Class J and R 200kA RMS Sym
  Class H(K) 10kA RMS Sym

Agency information:

Blocks:

- UL® Listed E14853 - IZLT
- CSA® Certified 47235-6225-01
- CE
- RoHS Compliant
- Conflict mineral free
- REACH declaration available upon request

Covers:

- UL Listed E58836 - JDVS
- CSA Certified 47235-6225-01
- RoHS Compliant
- REACH declaration available upon request

Poles:

- 1-, 2-, 3-pole units factory assembled
- Single-pole units snap together to create desired number of poles

Flammability ratings:

- Blocks — UL 94V0, self-extinguishing
- Covers — UL 94HB, self-extinguishing

Operating and storage temperature range:

- Blocks -40°C to +120°C
- Non-Indicating covers -40°C to +120°C
- Indicating covers -20°C to +90°C*

* Indication requires minimum 90Vac/dc and closed circuit to illuminate.

Materials:

- Base — Thermoplastic
- Terminals — Tin-plated copper brass
- Covers — Thermoplastic

Recommended Bussmann series fuses:

Class H(K)

- Basic protection general purpose 250V NON, data sheet No. 1030
- Basic protection general purpose 600V NOS, data sheet No. 1030

Class J

- Ultimate protection Low-Peak™ LPJ time-delay fuses, data sheet No. 1006
- Advanced protection Limitron™ JKS fast-acting fuses, data sheet No. 1026

Class R

- Ultimate protection Low-Peak LPN 250V time-delay, data sheet No. 1003
- Ultimate protection Low-Peak LPS 600V time-delay, data sheet No. 1001
- Advanced protection Limitron KTN-R 250V fast-acting, data sheet No. 1043
- Advanced protection Limitron KTS-R 600V fast-acting, data sheet No. 1044
- Advanced protection energy efficient Fusetron™ FRN 250V time-delay, data sheet No. 1019
- Advanced protection energy efficient Fusetron FRS, 600V time-delay, data sheet No. 1017

Recommended Bussmann series DIN-Rail end stops:

- Part No. BRKT-ND
- Part No. BRKT-NDSCREW2

Marker labels:

- Use Bussmann series part number TM26CB

Table 1. Terminals, conductors and torque values

Terminal type	AWG type/range	Torque	
		AWG	Lb-in (N•m)
Box Lug ("CR" Option)	75°C Cu 2-14, AL 2-8	2-3; 4-6; 8; 10-14;	50 (5.6) 45 (5.1) 40 (4.5) 35 (4.0)
All other terminals*	75/90°C Cu 10-18	10-18;	20 (2.3)

* 3/16" Quick Connect terminal maximum ampacity dependent on female spade connector and wire ratings.

Table 2. Class H fuse block catalog numbers

Terminal type				Volts	Fuse amp range	Poles
Box lug	#10-32 Phil-slot screw	Screw with quick-connect*	Pressure plate			
HM25030-1CR	HM25030-1SR	HM25030-1QR	HM25030-1PR	250	1/2 to 30	1
HM25030-2CR	HM25030-2SR	HM25030-2QR	HM25030-2PR			2
HM25030-3CR	HM25030-3SR	HM25030-3QR	HM25030-3PR			3
HM25060-1CR	—	—	—		31 to 60	1
HM25060-2CR	—	—	—			2
HM25060-3CR	—	—	—			3
HM60030-1CR	HM60030-1SR	—	HM60030-1PR	600	1/2 to 30	1
HM60030-2CR	HM60030-2SR	—	HM60030-2PR			2
HM60030-3CR	HM60030-3SR	—	HM60030-3PR			3
HM60060-1CR	—	—	—		31 to 60	1
HM60060-2CR	—	—	—			2
HM60060-3CR	—	—	—			3

* 3/16" Quick Connect terminal maximum ampacity dependent on female spade connector and wire ratings.

Table 3. Class H block covers

			Catalog numbers	
Fuse block series	Volts	Amp range	Indicating	Non-indicating
HM25030-#XX	250	1/2 to 30	CVRI-RH-25030	CVR-RH-25030
HM25060-#XX		31 to 60	CVRI-RH-25060	CVR-RH-25060
HM60030-#XX	600	1/2 to 30	CVRI-RH-60030	CVR-RH-60030
HM60060-#XX		31 to 60	CVRI-RH-60060	CVR-RH-60060

# = number of poles
XX = terminal type

Table 4. Class R fuse block catalog numbers

Terminal type				Volts	Fuse amp range	Poles
Box lug	#10-32 Phil-slot screw	Screw with quick-connect	Pressure plate			
RM25030-1CR	RM25030-1SR	RM25030-1QR	RM25030-1PR	250	1/2 to 30	1
RM25030-2CR	RM25030-2SR	RM25030-2QR	RM25030-2PR			2
RM25030-3CR	RM25030-3SR	RM25030-3QR	RM25030-3PR			3
RM25060-1CR	—	—	—		31 to 60	1
RM25060-2CR	—	—	—			2
RM25060-3CR	—	—	—			3
RM60030-1CR	RM60030-1SR	—	RM60030-1PR	600	1/2 to 30	1
RM60030-2CR	RM60030-2SR	—	RM60030-2PR			2
RM60030-3CR	RM60030-3SR	—	RM60030-3PR			3
RM60060-1CR	—	—	—		31 to 60	1
RM60060-2CR	—	—	—			2
RM60060-3CR	—	—	—			3

* 3/16" Quick Connect terminal maximum ampacity dependent on female spade connector and wire ratings.

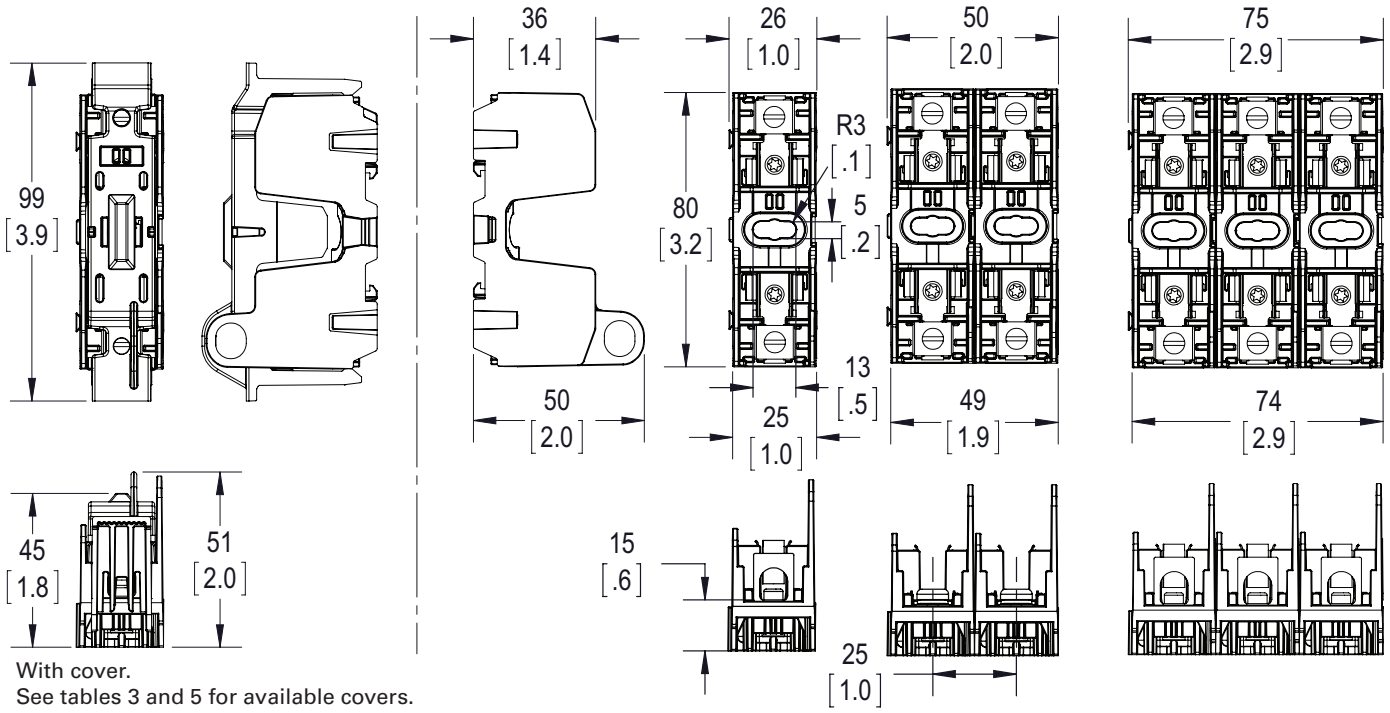
Table 5. Class R block covers

			Catalog numbers	
Fuse block series	Volts	Amp range	Indicating	Non-indicating
RM25030-#XX	250	1/2 to 30	CVRI-RH-25030	CVR-RH-25030
RM25060-#XX		31 to 60	CVRI-RH-25060	CVR-RH-25060
RM60030-#XX	600	1/2 to 30	CVRI-RH-60030	CVR-RH-60030
RM60060-#XX		31 to 60	CVRI-RH-60060	CVR-RH-60060

# = number of poles
XX = terminal type

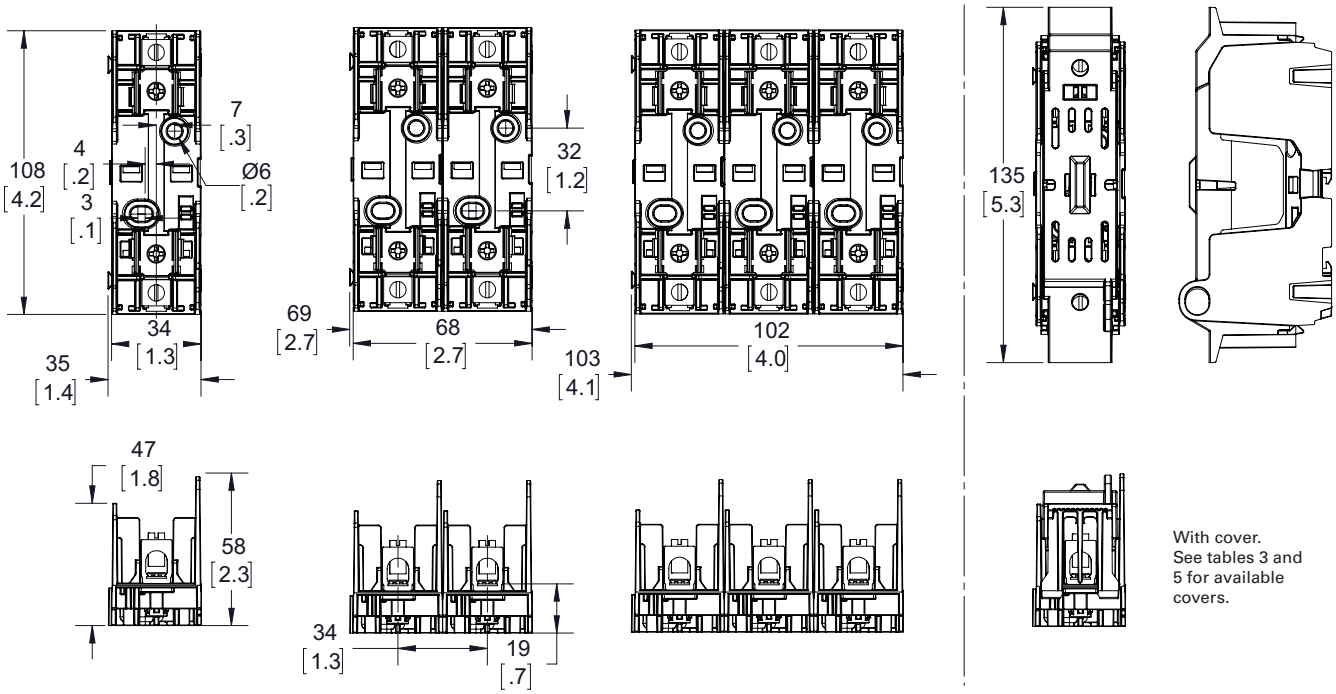
Dimensions - mm (in):

Class H(K) and R 250V - 30A block



With cover.
See tables 3 and 5 for available covers.

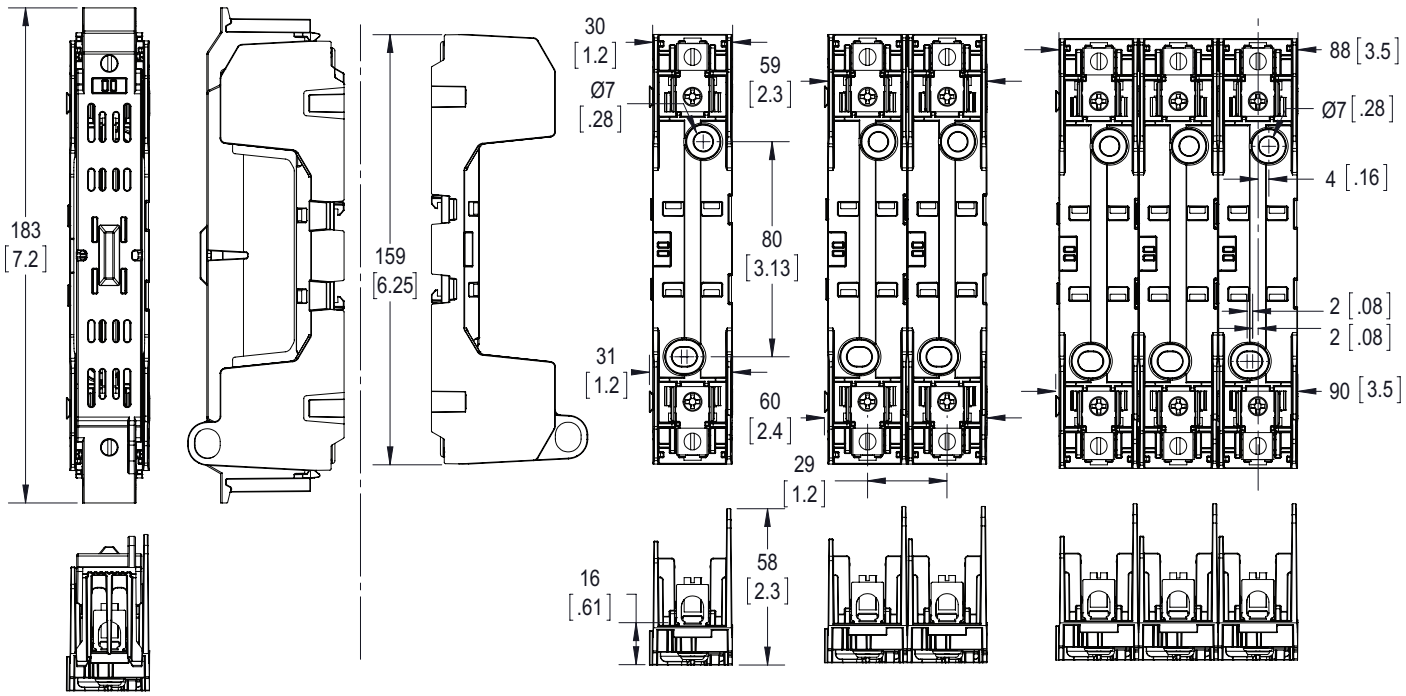
Class H(K) and R 250V - 60A block



With cover.
See tables 3 and 5 for available covers.

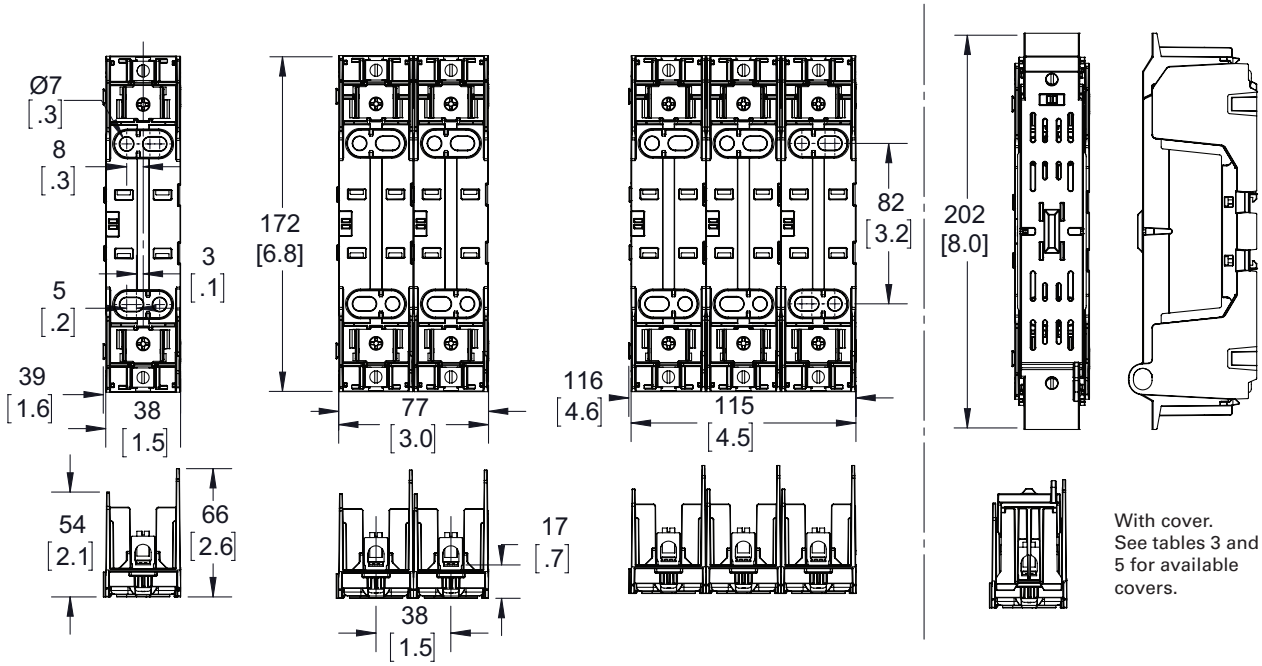
Dimensions - mm (in):

Class H(K) and R 600V - 30A block



With cover.
See tables 3 and 5 for available covers.

Class H(K) and R 600V - 60A block



With cover.
See tables 3 and 5 for available covers.

Table 6. Class J fuse block catalog numbers

Terminal type			Volts	Fuse amp range	Poles
Box lug	#10-32 Phil-slot screw	Pressure plate			
JM60030-1CR	JM60030-1SR	JM60030-1PR	600	1/2 to 30	1
JM60030-2CR	JM60030-2SR	JM60030-2PR			2
JM60030-3CR	JM60030-3SR	JM60030-3PR			3
JM60060-1CR	—	—		31 to 60	1
JM60060-2CR	—	—			2
JM60060-3CR	—	—			3

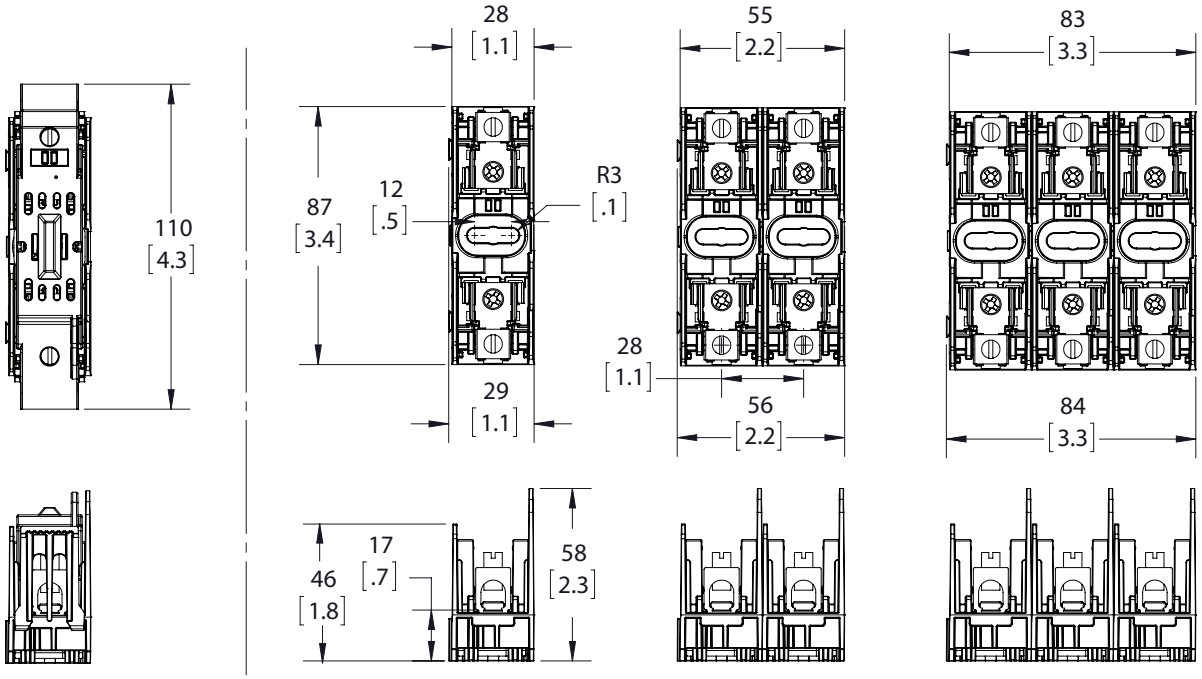
Table 7. Class J block covers

			Catalog numbers	
Fuse block series	Volts	Amp range	Indicating	Non-indicating
JM60030-#XX	600	1/2 to 30	CVRI-J-60030	CVR-J-60030
JM60060-#XX		31 to 60	CVRI-J-60060	CVR-J-60060

# = number of poles
XX = terminal type

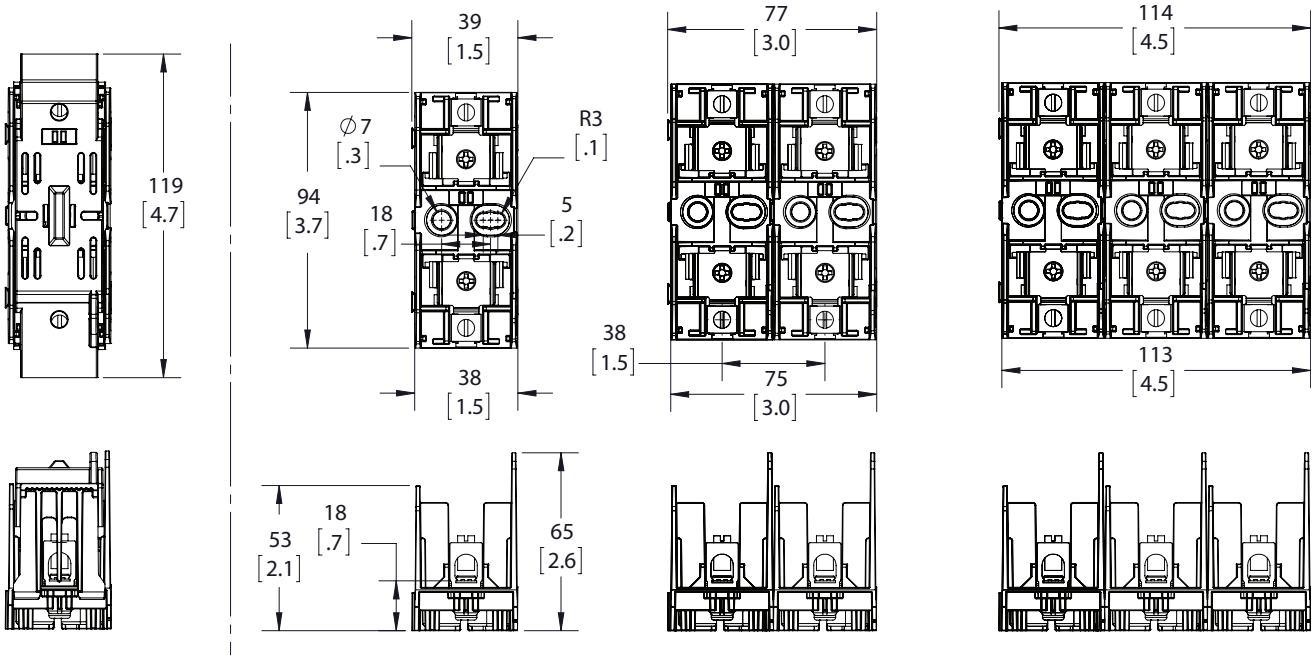
Dimensions - mm (in):

Class J - 30A block



With cover.
See table 7 for available covers.

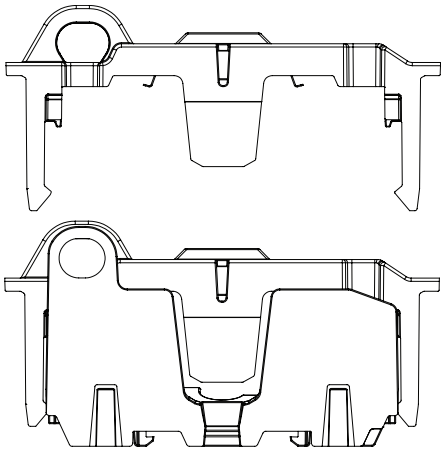
Class J - 60A block



With cover.
See table 7 for available covers.

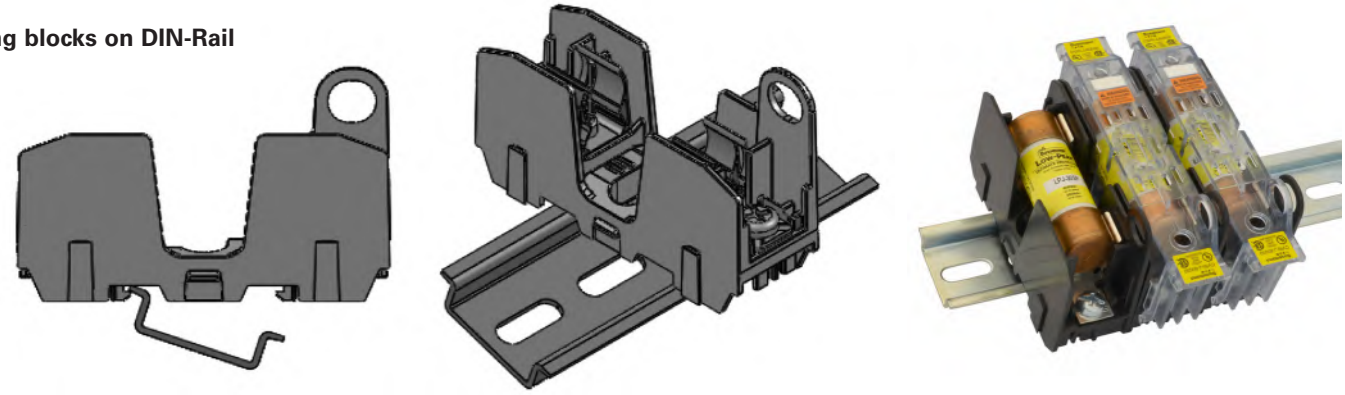
Installing/removing covers

Closing cover: Position cover over block and push straight down until it snaps/clicks into place.



Opening cover: Using both outside handles, pull straight up.

Installing blocks on DIN-Rail



Place one edge of DIN-Rail in fuse block base, then rotate block down until it clicks into place.

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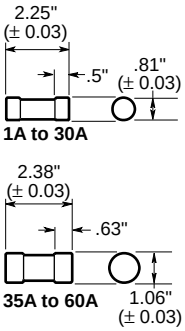
Powering Business Worldwide

LOW-PEAK®
Dual-Element Time-Delay Fuses
Class J – 600 Volt

LPJ
1-60 Amps

Dimensional Data



Catalog Symbol: LPJ-_SP
Dual-Element, Time-Delay – 10 seconds (minimum) at 500% rated current
Current-Limiting
Ampere Rating: 1 to 60A
Voltage Rating: 600Vac (or less)
300Vdc (or less)
Interrupting Rating: 300,000A RMS Sym. (UL)
100,000A dc
Agency Information:
UL Listed — Special Purpose*, Guide JFHR, File E56412
CSA Certified, 200,000 AIR, Class J per CSA 22.2 No. 248.8 Class 1422-02, File 53787

*Meets all performance requirements of UL Standard 248-8 for Class J fuses.

Catalog Symbol and Ampere Ratings

LPJ-1SP	LPJ-3SP	LPJ-7SP	LPJ-25SP
LPJ-1¼SP	LPJ-3-⁹⁄₁₀SP	LPJ-8SP	LPJ-30SP
LPJ-1-⁶⁄₁₀SP	LPJ-3½SP	LPJ-9SP	LPJ-35SP
LPJ-1-⁸⁄₁₀SP	LPJ-4SP	LPJ-10SP	LPJ-40SP
LPJ-2SP	LPJ-4½SP	LPJ-12SP	LPJ-45SP
LPJ-2¼SP	LPJ-5SP	LPJ-15SP	LPJ-50SP
LPJ-2½SP	LPJ-5⅝SP	LPJ-17½SP	LPJ-60SP
LPJ-2⁸⁄₁₀SP	LPJ-6SP	LPJ-20SP	

Carton Quantity and Weight

Ampere Ratings	Carton Qty.	Weight** Lbs.	Weight** Kg.
1–30	10	1.09	0.494
35–60	10	1.78	0.808

**Weight per carton.

CE logo denotes compliance with European Union Low Voltage Directive (50-1000Vac, 75-1500Vdc). Refer to Data Sheet: 8002 or contact Bussmann Application Engineering at 636-527-1270 for more information.

General Information:

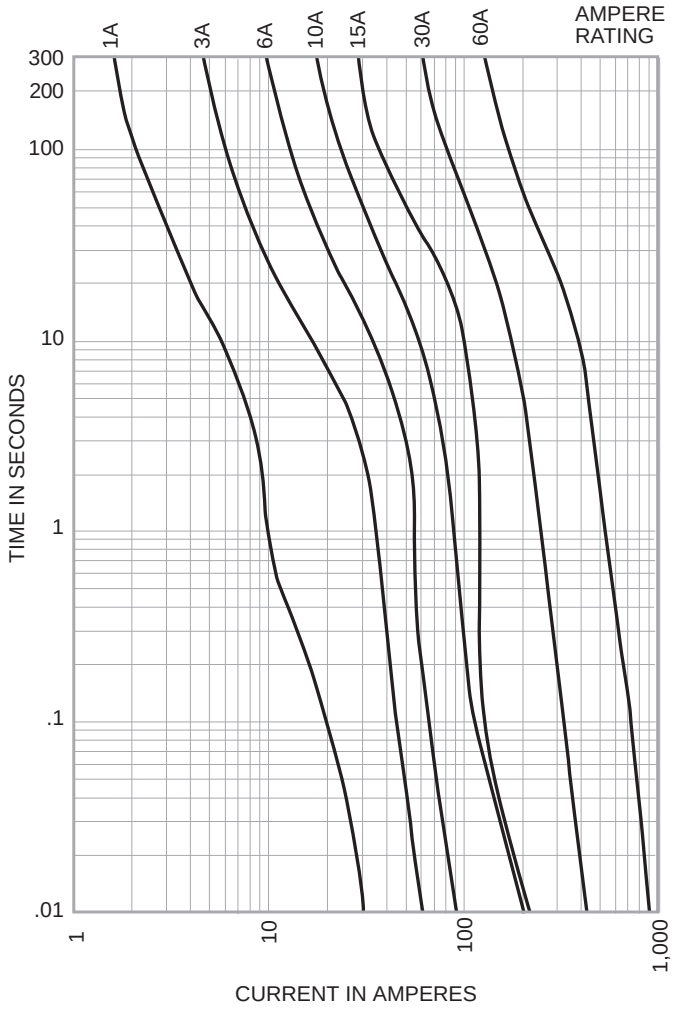
- True dual-element fuses with a minimum 10 second time-delay at 500% overload.
- Long time-delay minimizes needless fuse openings due to temporary overloads and transient surges.
- Can often be sized for back-up protection against motor burnout from overload or single-phasing if other overload protective devices fail.
- High interrupting rating to safely interrupt overcurrents up to 300,000A.
- High degree of current limitation due to the fast speed-of-response to short-circuits.
- Faster response to damaging short-circuit currents than mechanical overcurrent protective devices.
- Reduces let-through thermal and magnetic forces in order to protect low withstand rated components.
- Proper sizing provides “no damage” Type “2” coordinated protection for NEMA and IEC motor control in accordance with IEC Standard 947-4-1.
- Dual-element fuses have lower resistance than ordinary fuses so they run cooler.
- Lower watts loss reduces power consumption.
- Unique dimensions assure that another class of fuse with a lesser voltage rating, interrupting rating or current-limiting ability cannot be substituted.
- Space-saving package for equipment down sizing.

Recommended fuseblocks/fuseholders for Class J 600V fuses
See Data Sheets listed below
- Finger-safe fuseholders - 1152
- Open fuseblocks - 1114
- Open pyramid fuseblocks - 1108

LOW-PEAK®
Dual-Element Time-Delay Fuses
Class J – 600 Volt

LPJ
1-60 Amps

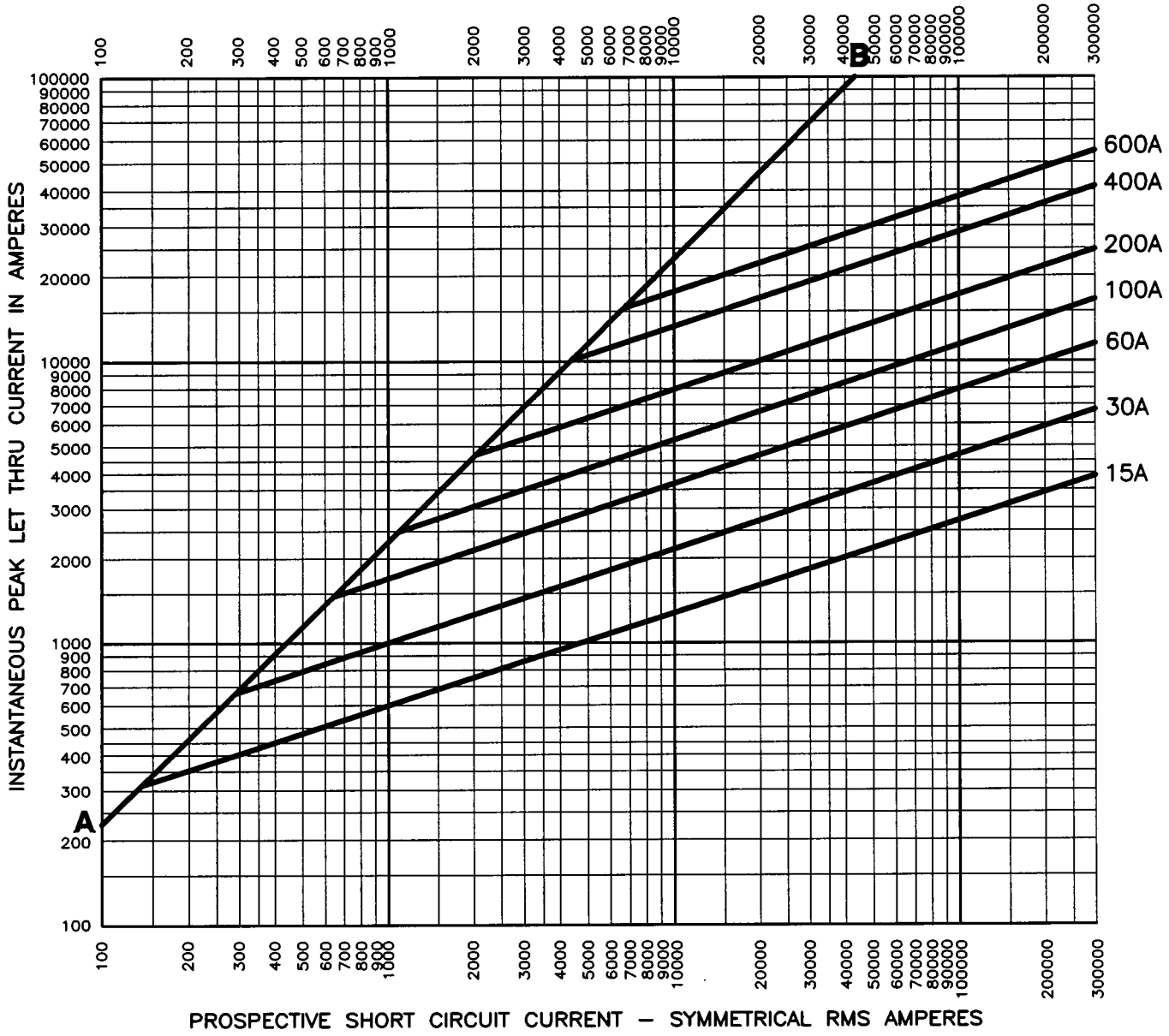
Time-Current Characteristic Curves–Average Melt



LOW-PEAK®
Dual-Element Time-Delay Fuses
Class J – 600 Volt

LPJ
1-60 Amps

Current Limitation Curves



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CATALOG CUT SHEETS

SECTION: 117

EnviroCare International

507 Green Island Road
American Canyon, CA 94503, USA
Tel. 707.638.6800
Fax. 707.638.6898

Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

Manufacturer: EATON
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
N/A	EATON CONTROL TRANSFORMER, 480/120, 500VA, WITH (3) FUSEBLOCKS	C0500E2AFB

Catalog Number Selection

Industrial Control Transformers, CE Marked Control Transformers—Example: CE0250E2FCE ①

CE 0250 E 2F CE

Type

C = Industrial control transformer
CE = CE Marked control transformer

VA Rating

0025 = 25	**0350** = 350	**Type AP Only:**
0050 = 50	**0500** = 500	**0003** = 3000
0075 = 75	**0750** = 750	**0005** = 5000
0100 = 100	**1000** = 1000	**0007** = 7500
0150 = 150	**1500** = 1500	**0010** = 10000
0200 = 200	**2000** = 2000	**0015** = 15000
0250 = 250	**3000** = 3000	
0300 = 300	**5000** = 5000	

Transformer Design

A = MTA
C = MTC
E = MTE
K = MTK
P = AP

Voltage

	Primary	Secondary
AC =	380 x 415	24
AG =	208/240/277/380/480	24
1B =	120 x 240	24
2A =	240 x 480, 230 x 460, 220 x 440	120/115/110
2B =	240 x 480	24
2C =	240 x 480	120 x 240
2F =	230/460	115
2G =	230/460	115/230
2U =	220/380/440/550, 230/400/460/575, 240/416/480/600	23/110, 24/115, 25/120
2V =	208/230/400/460/575	24/115/230
2W =	208/230/400/460/575	115/230
3A =	208/277	120
3B =	115	24
3C =	230/460/575	115/95
3D =	208/380/416	115/95
4B =	208/230/460/575	24
4C =	550/575/600	110/115/120
4D =	380/400/415	110 x 220
4E =	208/230/460/575	115
4H =	380/400/415	22/23/24
4W =	550/575/600	22/23/24
5E =	200/220/440, 208/230/460, 240/480	23/110, 24/115, 25/120
6U =	240/416/480/600, 230/400/460/575, 220/380/440/550, 208/500	99/120/130, 95/115/125, 91/110/120, 85/100/110
7G (Type AP only) =	240 x 480	120/240

Modifications

Type MTE/MTK
CE = CE Marked control transformer
FB = Factory-mounted two-pole primary fuse block for rejection type fuses
FBN = Factory-mounted two-pole primary fuse block for non-rejection–type fuses
Q = Secondary fuse clips for 1/4 x 1-1/4 inch fuses ②
XX = No secondary fuse clips
RT = Ring type terminals for connection to fuse block
ES = Electrostatic shield
FS = Factory-mounted finger-safe terminal shields

Type AP
B = Bottom mounted
S = Side/wall mounted
ES = Electrostatic shield
CU = Copper windings

Type MTA/MTC
FB = Factory-mounted three-pole fuse block (two-pole primary rejection type with single-pole secondary non-rejection type)
ES = Electrostatic shield
L = Lead terminations

Notes

① For Eaton's dry-type transformers catalog number selection, see Volume 2, **CA08100003E**.

② Fuse clip covers not available with this option.

Contact your local Eaton sales office for voltage combinations not shown. Use table for catalog number breakdown only. Do not use to create catalog numbers because all combinations may not be valid.

Type MTE Transformer

Contents

7

Type MTE

Product Description

Note: The following pages provide listings for most standard transformer ratings and styles. For other ratings or styles not shown, or for special enclosure types (including stainless steel), refer to Eaton.

- Epoxy-encapsulated coils

Application Description

Transformers provide stepped-down voltages to machine tool control devices, enabling control circuits to be isolated from all power and lighting circuits. This allows the use of grounded or ungrounded circuits that are independent of the power or lighting grounds; thus, greater safety is afforded the operator. The control transformer line is particularly adaptable on applications where compact construction is demanded.

Note: The MTG "open core-coil design" has been superseded by the epoxy-encapsulated core-coil design MTE with no change to dimensions or functionality.

Features, Benefits and Functions

- Epoxy encapsulated
- Laminations of high-quality silicon steel to minimize core losses and optimize performance
- Copper magnet wire for high-quality, efficient operation
- Secondary fuse clips where applicable
- Optional primary fusing
- Molded in terminals
- 50/60 Hz operation
- 130°C insulation system standard
- Performance meets/exceeds requirements of ANSI/NEMA ST-1
- Regulation exceeds ANSI/NEMA requirements for all ratings
- 25–1500 VA ratings
- Molded-in terminals for maximum durability

Standards and Certifications

- UL listed
- cUL listed
- RoHS compliant

Listed Listed RoHS COMPLIANT

Industry Standards

All Eaton dry-type distribution and control transformers are built and tested in accordance with applicable NEMA, ANSI and IEEE Standards. All 600 volt class transformers are UL listed unless otherwise noted.

Catalog Number Selection

Please refer to **Page V7-T7-3**.

Primary: 200/220/440, 208/230/460, 240/480 Secondary: 23/110, 24/115, 25/120 with Fuse Clips for 13/32 x 1-1/2 Fuses

VA	Wiring Diagram ①	Weight Lbs (kg)	Style Number
50	7	3.4 (1.5)	**C0050E5E** ②
75	7	4.8 (2.2)	**C0075E5E** ②
100	7	5.9 (2.7)	**C0100E5E** ②
150	7	7.9 (3.6)	**C0150E5E**
200	7	10.6 (4.8)	**C0200E5E**
250	7	13.9 (6.3)	**C0250E5E**
300	7	15.5 (7.0)	**C0300E5E**
350	7	16.8 (7.6)	**C0350E5E**
500	7	23.4 (10.6)	**C0500E5E**

Universal Design (MTE Epoxy Encapsulated) Primary: 240/416/480/600, 230/400460/575, 220/380/440/550, 208/500 Secondary: 99/120/130, 95/115/125, 91/110/120, 85/100/110 with Fuse Clips for 13/32 x 1-1/2 Fuses

VA	Wiring Diagram ①	Weight Lbs (kg)	Style Number
50	8	4.0 (1.8)	**C0050E6U** ②③
100	8	6.6 (3.0)	**C0100E6U** ②③
150	8	8.8 (4.0)	**C0150E6U** ②④
250	8	14.7 (6.7)	**C0250E6U** ②④
350	8	18.6 (8.4)	**C0350E6U** ②④
500	8	25.6 (11.6)	**C0500E6U** ②④
750	8	30.5 (13.8)	**C0750E6U** ②④

Transformers with Primary Fuse Blocks

Primary: 240 x 480, 230 x 460, 220 x 440 with Jumpers and Two-Pole Primary Fuse Block for Rejection-Type Fuses Secondary: 120/115/110 with Fuse Clips for 13/32 x 1-1/2 Fuses

VA	Wiring Diagram ①	Weight Lbs (kg)	Style Number
50	1	2.8 (1.3)	**C0050E2AFB** ②
75	1	3.7 (1.7)	**C0075E2AFB** ②
100	1	4.4 (2.0)	**C0100E2AFB** ②
150	1	6.9 (3.1)	**C0150E2AFB**
200	1	8.7 (3.9)	**C0200E2AFB**
250	1	10.2 (4.6)	**C0250E2AFB**
300	1	11.5 (5.2)	**C0300E2AFB**
350	1	13.8 (6.3)	**C0350E2AFB**
500	1	19.4 (8.8)	**C0500E2AFB**
750	1	26.5 (12.0)	**C0750E2AFB**
1000	1	29.7 (13.4)	**C1000E2AFB**
1500	1	40.2 (18.1)	**C1500E2AFB**

Primary: 240 x 480 with Jumpers and Two-Pole Primary Fuse Block for Rejection-Type Fuses Secondary: 24 with Fuse Clips for 13/32 x 1-1/2 Fuses

VA	Wiring Diagram ①	Weight Lbs (kg)	Style Number
50	2	2.8 (1.3)	**C0050E2BFB** ②
75	2	3.8 (1.7)	**C0075E2BFB** ②
100	2	4.4 (2.1)	**C0100E2BFB** ②
150	2	6.9 (3.1)	**C0150E2BFB**
200	2	8.7 (3.9)	**C0200E2BFB**
250	2	10.3 (4.7)	**C0250E2BFB**
300	2	11.6 (5.3)	**C0300E2BFB**
350	2	13.6 (6.2)	**C0350E2BFB**
500	2	17.7 (8.0)	**C0500E2BFB**

Notes

① See **Page V7-T7-11** for wiring diagrams.
② 105°C insulation system.
③ Type MTG open core-coil universal design has been superseded by Type MTE epoxy encapsulated universal design with no changes to form, fit or function.
④ Type MTE epoxy encapsulated universal design.

C0500E2AFB	Eaton type MTE industrial control transformer, pv: 240 x 480v, 230 x 460v, 220 x 440v, sv: 120/115/110v, 55°c, 500 va	
General specifications	Product Name	Eaton Type MTE industrial control transformer
	Catalog Number	C0500E2AFB
	UPC	786680420962
	Product Length/Depth	5.51 in
	Product Height	6.14 in
	Product Width	5.23 in
	Product Weight	19.4 lb
	Warranty	Eaton Selling Policy 25-000, one (1) year from the date of installation of the Product or eighteen (18) months from the date of shipment of the Product, whichever occurs first.
	Compliances	RoHS Compliant
	Certifications	UL Listed CSA Certified cUL Certified
	Catalog Notes	Epoxy encapsulated, Laminations of high quality silicon steel to minimize core losses and optimize performance, 50/60Hz operation, 130°C insulation system standard, Molded-in terminals for maximum durability
Product specifications	Design	MTE
	Secondary voltage	120/115/110 V
	Tap size	None
	Type	Industrial Control Transformer
	Modification 1	Factory-mounted two-pole primary fuse block for non-rejection type fuses
	Primary voltage	230 x 460 V 240 x 480 V 220 x 440 V
	Coil material	Copper windings
	Temperature rating	55°C
	Volt ampere rating	500 VA
Brochures	dry-type distribution transformer-flex center line card	
Catalogs	Industrial control transformers brochure Transformer distribution catalog, volume 2, tab 2	
Drawings	Eatons Volume 7-Logic Control, Operator Interface and Connectivity Solutions MTE Control Transformer 500 VA Series 2 - C0500E2AFB	
Product specification guides	Eaton Specification Sheet - C0500E2AFB	
	Transformer consulting application guide	
Date	Wed Dec 08 2021	

CATALOG CUT SHEETS

SECTION: 118

EnviroCare International

507 Green Island Road
American Canyon, CA 94503, USA
Tel. 707.638.6800
Fax. 707.638.6898

Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

Manufacturer: HOFFMAN
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
N/A	HOFFMAN, NEMA 4X, ENCLOSURE, 60x49x18 IN	A60HX4918SSLPQT
	HOFFMAN, BACKPANEL FOR ABOVE	A60P48
	HOFFMAN, WORK LIGHT, 15 IN, LED, MAGNETIC W. ON OFF SWITCH	LEDA1M35
	HOFFMAN, DOOR SWITCH	ALFSWD

GENERAL PURPOSE STAINLESS STEEL TWO-DOOR FLOOR-MOUNT DISCONNECT, TYPE 4X

APPLICATION

This disconnect enclosure is designed to house electronic controls and components. It provides protection from noncorrosive or mildly corrosive elements in both indoor and outdoor environments. Typical applications are in the food and beverage, packaging, water, petroleum and chemical processing industries. Designed to house the most popular disconnect switches and circuit breakers.

FEATURES

- Seams continuously welded and ground smooth
- Seamless foam-in-place one-piece gasket provides water-, oil- and dust-tight seal against contaminants
- Heavy-duty three-point latching mechanism on each door, operated by Hoffman's black die-cast POWERGLIDE padlocking handle. Black die-cast quarter-turn latches with slotted insert provided on the top and bottom of each door.
- Master door is far right-hand door on all enclosures
- Master door handle provided with integral screwdriver defeater
- Mechanical interlock activated by master door prevents slave door from being opened first. Doors can be closed in any order.
- Concealed hinges provide 180-degree door opening and allow easy door removal and cleaning of hinge area
- Bolt-on 15-in.-high stainless steel floor stands
- Heavy-duty Type 316L stainless steel lifting eyes
- Collar studs on inside of enclosure back for optional mounting panels
- Removable centerpost for easy panel installation
- Bonding provisions on doors and ground studs on body
- No interior stiffeners to obstruct component mounting
- Provisions for mounting optional fluorescent light packages

SPECIFICATIONS

- 14 gauge doors and 12 gauge body from Type 304 stainless steel
- Flange trough collar on all four sides of door openings
- Data pocket is high-impact plastic attached with pressure-sensitive adhesive
- Preferred cutout on right-hand flange provides mounting for most disconnect operators

FINISH

Stainless steel enclosures are unpainted. External surfaces of front, sides, top and bottom have a #4 finish. Interior welds are not finished. Optional panels have white or conductive finish.

ACCESSORIES

See also Accessories.
Electric Heater
Electrical Interlocks
PANELITE Enclosure Lights
Panels for Type 3R, 4, 4X, 12 and 13 Enclosures
Steel and Stainless Steel Window Kits

MODIFICATION AND CUSTOMIZATION

Hoffman excels at modifying and customizing products to your specifications. Contact your local Hoffman sales office or distributor for complete information.

BULLETIN: A4S2

INDUSTRY STANDARDS

UL508A Listed; Type 3R, 4, 4X, 12; File No. E61997
cUL Listed per CSA C22.2 No. 94; Type 3R, 4, 4X, 12; File No. E61997

NEMA/EEMAC: Type 3R, 4, 4X, 12
IEC 60529, IP66
Meets NEMA Type 3RX requirements

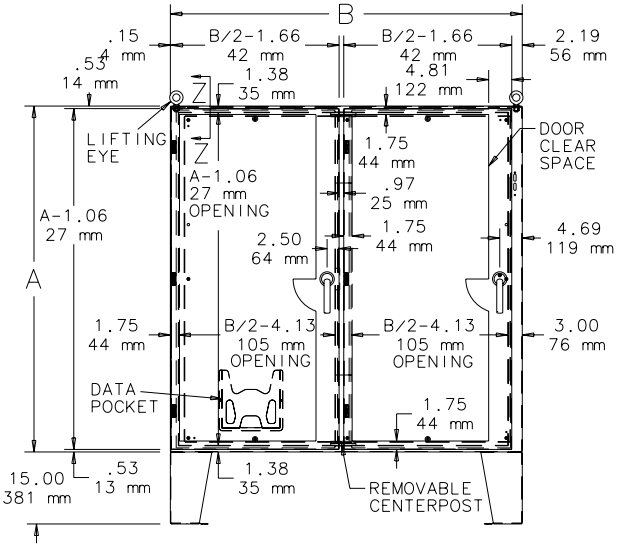
Standard Product

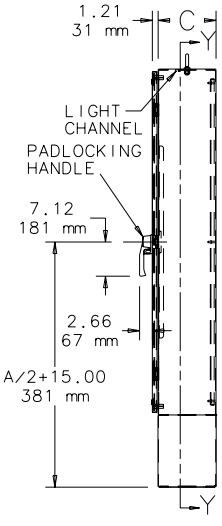
Catalog Number	AxBxC in./mm	Panel	Conductive Panel	Panel Size D x E in./mm	No. of Quarter-turn Latches
A60HX4912SSLPQT	60.06 x 49.31 x 12.06 1526 x 1252 x 306	A60P48	A60P48G	56.00 x 44.00 1422 x 1118	4
A60HX4918SSLPQT	60.06 x 49.31 x 18.06 1526 x 1252 x 459	A60P48	A60P48G	56.00 x 44.00 1422 x 1118	4
A60HX6112SSLPQT	60.06 x 61.31 x 12.06 1526 x 1557 x 306	A60P60	A60P60G	56.00 x 56.00 1422 x 1422	4
A60HX6118SSLPQT	60.06 x 61.31 x 18.06 1526 x 1557 x 459	A60P60	A60P60G	56.00 x 56.00 1422 x 1422	4
A72HX6112SSLPQT	72.06 x 61.31 x 12.06 1830 x 1557 x 306	A72P60	A72P60G	68.00 x 56.00 1727 x 1422	4
A72HX6118SSLPQT	72.06 x 61.31 x 18.06 1830 x 1557 x 459	A72P60	A72P60G	68.00 x 56.00 1727 x 1422	4
A72HX7312SSLPQT	72.06 x 73.31 x 12.06 1830 x 1862 x 306	A72P72	A72P72G	68.00 x 68.00 1727 x 1727	4
A72HX7318SSLPQT	72.06 x 73.31 x 18.06 1830 x 1862 x 459	A72P72	A72P72G	68.00 x 68.00 1727 x 1727	4
A72HX7324SSLPQT	72.06 x 73.31 x 24.06 1830 x 1862 x 611	A72P72	A72P72G	68.00 x 68.00 1727 x 1727	4

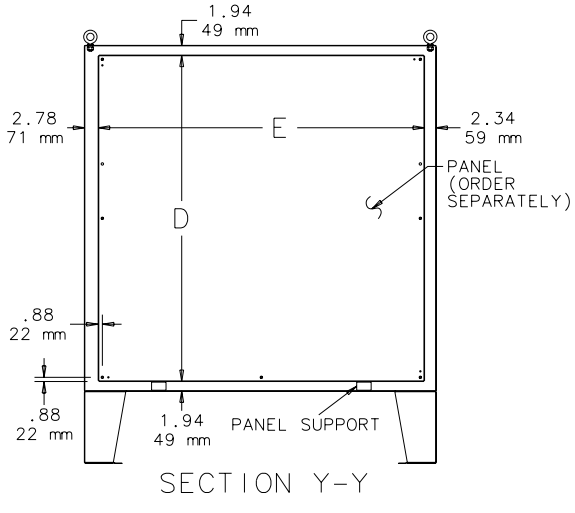
Purchase panels separately

All 24.12-in. (613-mm) and deeper enclosures using short connecting rods in the following models require a Hoffman platform assembly, catalog number ADSCPA, purchased separately. • ABB Controls flange-operated devices • Eaton Cutler-Hammer C361 devices • Eaton Cutler-Hammer C371 mechanisms which use C371E, F, G, K operating mechanism • General Electric Type TDA devices (see next paragraph for option) • Schneider Square D Class 9422 devices (see next paragraph for option)

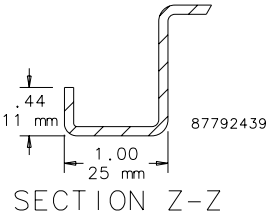
The platform assembly can be omitted if long connecting rods are ordered in place of short connecting rods. • For Eaton Cutler-Hammer operating mechanisms C371E and C371F order catalog number C371CS1 connecting rod. For C371G and C371K order catalog number C371CS2 connecting rod. • For General Electric devices, order catalog number TDSR extended length drive rod • For Schneider Square D devices, order catalog number 9422-R2 extra long operating rod(s). Some devices require two rods. Consult factory for space occupied on panel when platform is used.







SECTION Y-Y



SECTION Z-Z

DISCONNECT MOUNTING SPACE

Disconnects will occupy space on panel shown by dimensions E1, F1, G1 and K. Wiring space W1 is available when disconnect is installed in the enclosure.

See the Technical Information chapter for E1 Spacing by Enclosure Height for various disconnect switch manufacturers.

Refer to *National Electrical Code®*, 2005 article 430-10(b) for wiring space required for line side conductors to be connected to disconnect.

Verify your application to determine if wiring space is adequate.

All 24.12-in. (613-mm) and deeper enclosures using short connecting rods by the following manufacturers require a Hoffman platform assembly, catalog number ADSCPA, purchased separately.

- ABB Controls flange-operated devices
- Eaton Cutler-Hammer C361 devices
- Eaton Cutler-Hammer C371 mechanisms which use C371E, F, G, K operating mechanism (see Disconnect Enclosure Accessories)
- General Electric Type TDA devices (see Disconnect Enclosure Accessories)
- Schneider Square D® Class 9422 devices (see Disconnect Enclosure Accessories)

The platform assembly can be omitted if long connecting rods are ordered in place of short connecting rods.

- For Eaton Cutler-Hammer operating mechanisms C371E and C371F order catalog number C371CS1 connecting rod. For C371G and C371K order catalog number C371CS2 connecting rod.
- For General Electric devices, order catalog number TDSR extended length drive rod
- For Schneider Square D devices, order catalog number 9422-R2 extra long operating rod(s). Some devices require two rods.

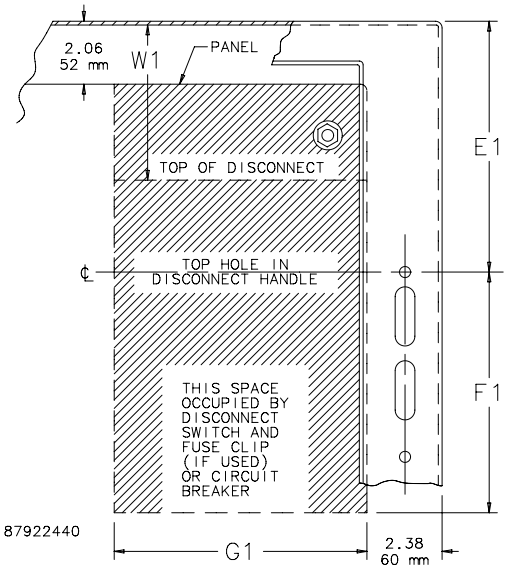
Consult factory for space occupied on panel when platform is used. **Be sure to match the disconnect device you are using with the correct enclosure size.**

A Complete Assembly Consists of:

1. An enclosure
2. A panel
3. A disconnect device

Consult the Technical Information chapter of this catalog for wire bend information and hoffmanonline.com for disconnect manufacturer information.

Disconnect switch (or circuit breakers), operating handle and operating mechanism are not furnished with enclosure.



Consult disconnect manufacturer for F1 and G1 dimensions.

PREFERRED-CUTOUT OVERVIEW

APPLICATION

Enclosures having the preferred cutout are sized for use with up to 200A disconnect switches and up to 400A circuit breakers unless otherwise specified. The preferred cutout accepts the smaller operating handle whose mounting hole centers are 4.688 in. apart. Preferred cutouts are standard in mild steel wall-mount enclosures, modular enclosures and some select large mild steel enclosures. They are also present on all standard stainless steel offerings. 400 A (or greater) disconnect switches and 600 A (or greater) circuit breakers require the "Large" or "High Amp" cutout. This cutout accepts the larger operating handle whose mounting hole centers are 6.500-in. apart. This large cutout is only available on PROLINE-DD Disconnect Packages and Type 1 Free-Stand Enclosures.

Operator adapter for preferred cutouts must be ordered separately to be used with A21S, A28S4, A4S and WS2D enclosures. Preferred cutouts are designed to house the following:

Allen-Bradley

- Bulletin 1494U universal disconnect switches with flange-mount handles for either variable-depth or cable-operated mechanisms
- Bulletin 1494V disconnect switches with flange-mount variable-depth operating mechanisms and Bulletin 1494V flange-mount variable-depth operating mechanisms for circuit breakers
- Bulletin 140U flexible cable operating mechanisms for 140U molded case circuit breakers
- Bulletin 140G flexible cable and variable-depth, flange-mount, molded case circuit breakers
- Bulletin 1494C cable-operated disconnect switches with flange-mount handles
- Bulletin 194RC cable-operated flange-mount handles for use with the NFPA 79 compliant 194R IEC rotary disconnect switches

Allen-Bradley Bulletin 1494V-R1, -R2 and -W2 operating handles and Allen-Bradley Bulletin 1494F disconnect devices or Bulletin 1494D circuit breaker operators will NOT fit these enclosures.

ABB Controls flange-mount variable-depth operating mechanisms for disconnect switches and circuit breakers. Also the cable version for circuit breakers.

Eaton Cutler-Hammer Type C361 flange-mount variable-depth operating mechanisms with disconnect switches and Type C371 flange-mount variable-depth operating mechanisms for circuit breakers.

General Electric Type STDA flange handles and variable-depth operating mechanisms for disconnect switches and circuit breakers. Also SPECTRAFLEX cable operators for circuit breakers.

Siemens ITE MAX FLEX® flange-mount variable-depth operating handles for circuit breakers.

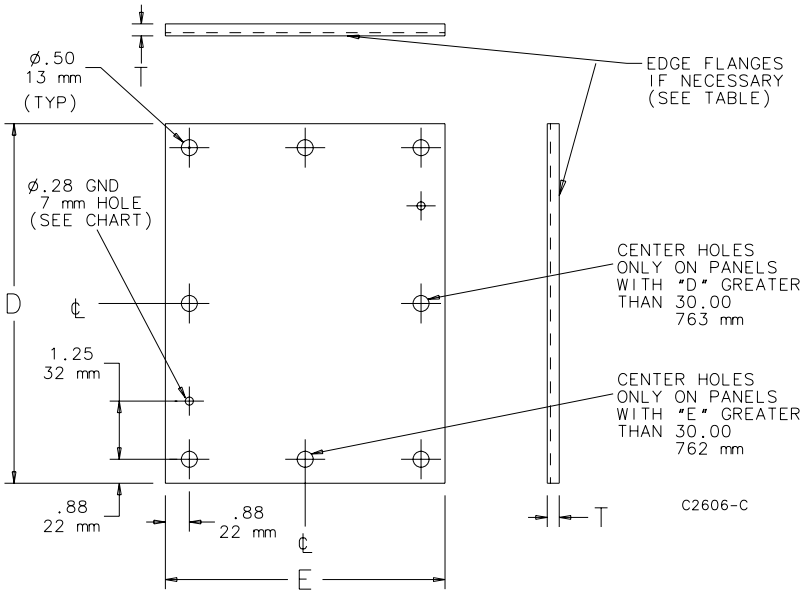
Schneider Square D® Class 9422 disconnect switches with flange-mount variable-depth operating mechanisms or cable mechanisms and Class 9422 flange-mount variable-depth operating mechanisms or cable mechanisms for circuit breakers.
These enclosures will NOT accept Square D Class 9422 bracket-mounted disconnect devices, Class 9422TG1 or TG2 devices.

ORDERING

Order the disconnect switch, operating handle and operating mechanism separately. See Technical Information in the Hoffman Specifier's Guide for wire bend space available when various manufacturers' disconnect switches are installed. Check the enclosure dimension drawings to verify the chosen disconnect switch will fit in the enclosure.

Panels for Enclosures

Catalog Number	Material	Panel Size D x E (in.)	Panel Size D x E (mm)	Panel Gauge or Thickness	Edge Flanges	T (in.)	T (mm)	Number of Holes
A42P42G	Conductive steel	39.00 x 39.00	991 x 991	12 ga.	4	0.75	19	8
A48P24	Painted steel	45.00 x 21.00	1143 x 533	12 ga.	2	0.75	19	6
A48P24G	Conductive steel	45.00 x 21.00	1143 x 533	12 ga.	2	0.75	19	6
A48P30	Painted steel	45.00 x 27.00	1143 x 686	12 ga.	4	0.75	19	6
A48P30G	Conductive steel	45.00 x 27.00	1143 x 686	12 ga.	4	0.75	19	6
A48P36	Painted steel	45.00 x 33.00	1143 x 838	12 ga.	4	0.75	19	8
A48P36G	Conductive steel	45.00 x 33.00	1143 x 838	12 ga.	4	0.75	19	8
A48P36SS6	Stainless Steel	45.00 x 33.00	1143 x 838	12 ga.	4	0.75	19	8
A48P36AL	Aluminum	45.00 x 33.00	1143 x 838	0.10 in./3 mm	4	0.75	19	8
A48P42	Painted steel	45.00 x 39.00	1143 x 991	12 ga.	4	0.75	19	8
A48P42G	Conductive steel	45.00 x 39.00	1143 x 991	12 ga.	4	0.75	19	8
A48P48	Painted steel	44.00 x 44.00	1118 x 1118	10 ga.	4	0.88	22	8
A48P48G	Conductive steel	44.00 x 44.00	1118 x 1118	10 ga.	4	0.88	22	8
A54P42	Painted steel	50.00 x 38.00	1270 x 965	12 ga.	4	0.75	19	8
A54P42G	Conductive steel	50.00 x 38.00	1270 x 965	10 ga.	4	0.75	19	8
A60P24	Painted steel	57.00 x 21.00	1448 x 533	12 ga.	4	0.75	19	6
A60P24G	Conductive steel	57.00 x 21.00	1448 x 533	12 ga.	4	0.75	19	6
A60P30	Painted steel	57.00 x 27.00	1448 x 686	12 ga.	4	0.75	19	6
A60P30G	Conductive steel	57.00 x 27.00	1448 x 686	12 ga.	4	0.75	19	6
A60P36	Painted steel	57.00 x 33.00	1448 x 838	12 ga.	4	0.75	19	8
A60P36G	Conductive steel	57.00 x 33.00	1448 x 838	12 ga.	4	0.75	19	8
A60P36SS6	Stainless Steel	57.00 x 33.00	1448 x 838	12 ga.	4	0.75	19	8
A60P36AL	Aluminum	57.00 x 33.00	1448 x 838	0.10 in./3 mm	4	0.75	19	8
A60BFP42	Painted steel	56.00 x 38.00	1422 x 965	10 ga.	4	0.88	22	10
A60BFP42G	Conductive steel	56.00 x 38.00	1422 x 965	10 ga.	4	0.88	22	10
A60P48	Painted steel	56.00 x 44.00	1422 x 1118	10 ga.	4	0.88	22	12
A60P48G	Conductive steel	56.00 x 44.00	1422 x 1118	10 ga.	4	0.88	22	12
A60P60	Painted steel	56.00 x 56.00	1422 x 1422	10 ga.	4	0.88	22	10
A60P60G	Conductive steel	56.00 x 56.00	1422 x 1422	10 ga.	4	0.88	22	10
A72P36	Painted steel	69.00 x 33.00	1753 x 838	12 ga.	4	0.75	19	8
A72P36G	Conductive steel	69.00 x 33.00	1753 x 838	12 ga.	4	0.75	19	8
A72P60	Painted steel	68.00 x 56.00	1727 x 1422	10 ga.	4	0.88	22	12
A72P60G	Conductive steel	68.00 x 56.00	1727 x 1422	10 ga.	4	0.88	22	12
A72P72	Painted steel	68.00 x 68.00	1727 x 1727	10 ga.	4	0.88	22	10
A72P72G	Conductive steel	68.00 x 68.00	1727 x 1727	10 ga.	4	0.88	22	10



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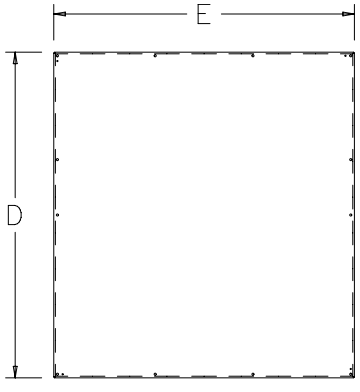
Panels for Enclosures

Panels for Large Bulletin A27, A28, A28S4 and A34 Multi-Door Enclosures

Extra panels for large enclosures (Bulletins A27, A28, A28S4 and A34) can be ordered for panel assembly prior to receiving the enclosures (enclosures include panels). Panels are 12 gauge steel with .88-in. (22-mm) flanges on four sides. Finish is white polyester powder paint or a conductive, corrosion-resistant coating. Two extra holes are provided for lifting and installing panels. Mounting hardware included with enclosure.

Bulletin: PNLFS

Catalog Number	Finish	Panel Size D x E (in.)	Panel Size D x E (mm)	Number of Holes	Fits Enclosure Height
A72PM28	Painted steel	60.00 x 21.75	1524 x 552	8	72 in.
A72PM28G	Conductive	60.00 x 21.75	1524 x 552	8	72 in.
A72PM34	Painted steel	60.00 x 27.75	1524 x 705	8	72 in.
A72PM34G	Conductive	60.00 x 27.75	1524 x 705	8	72 in.
A72PM40	Painted steel	60.00 x 33.75	1524 x 857	8	72 in.
A72PM40G	Conductive	60.00 x 33.75	1829 x 857	8	72 in.
A72PM54	Painted steel	60.00 x 48.00	1524 x 1219	10	72 in.
A72PM54G	Conductive	60.00 x 48.00	1524 x 1219	10	72 in.
A72PM66	Painted steel	60.00 x 60.00	1524 x 1524	10	72 in.
A72PM66G	Conductive	60.00 x 60.00	1524 x 1524	10	72 in.
A72PM78	Painted steel	60.00 x 72.00	1524 x 1829	12	72 in.
A72PM78G	Conductive	60.00 x 72.00	1524 x 1829	12	72 in.
A84PM40	Painted steel	72.00 x 33.75	1829 x 857	8	84 in.
A84PM40G	Conductive	72.00 x 33.75	1829 x 857	8	84 in.
A84PM78	Painted steel	72.00 x 72.00	1829 x 1829	12	84 in.
A84PM78G	Conductive	72.00 x 72.00	1829 x 1829	12	84 in.
A86PM37	Painted steel	78.00 x 34.00	1981 x 864	8	86 in.
A86PM37G	Conductive	78.00 x 34.00	1981 x 864	8	86 in.
A86PM75	Painted steel	78.00 x 70.00	1981 x 1778	12	86 in.
A86PM75G	Conductive	78.00 x 70.00	1981 x 1778	12	86 in.
A90PM40	Painted steel	78.00 x 33.75	1981 x 857	8	90 in.
A90PM40G	Conductive	78.00 x 33.75	1981 x 857	8	90 in.
A90PM78	Painted steel	78.00 x 72.00	1981 x 1829	12	90 in.
A90PM78G	Conductive	78.00 x 72.00	1981 x 1829	12	90 in.



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Panels for Enclosures

Panels for Free-Stand Type 1 Large One-Door Enclosures

Panels for free-stand Type 1 large one-door standard and disconnect enclosures are 12 gauge steel. Panels have either polyester powder paint finish or a conductive, corrosion-resistant coating.

Bulletin: A38P

Catalog Number	Finish	Panel Size D x E (in.)	Panel Size D x E (mm)
A37P21N	Painted steel	37.16 x 21.50	944 x 546
A37P21NG	Conductive	37.16 x 21.50	944 x 546
A49P21N	Painted steel	49.16 x 21.50	1249 x 546
A49P21NG	Conductive	49.16 x 21.50	1249 x 546
A61P21N	Painted steel	61.16 x 21.50	1553 x 546
A73P21N	Painted steel	73.16 x 21.50	1858 x 546
A73P21NG	Conductive	73.16 x 21.50	1858 x 546
A49P32N	Painted steel	49.16 x 32.00	1249 x 813
A49P32NG	Conductive	49.16 x 32.00	1249 x 813
A61P32N	Painted steel	61.16 x 32.00	1553 x 813
A61P32NG	Conductive	61.16 x 32.00	1553 x 813
A73P32N	Painted steel	73.16 x 32.00	1858 x 813
A73P32NG	Conductive	73.16 x 32.00	1858 x 813

Panels for Free-Stand Type 1 Large Two-Door Enclosures

Panels for free-stand Type 1 large two-door standard and disconnect enclosures are 10 gauge steel. Panels have either polyester powder paint finish or a conductive, corrosion-resistant coating.

Bulletin: A38P

Catalog Number	Finish	Panel Size D x E (in.)	Panel Size D x E (mm)
A37P48N	Painted steel	37.16 x 48.00	944 x 1219
A37P48NG	Conductive	37.16 x 48.00	944 x 1219
A49P48N	Painted steel	49.16 x 48.00	1249 x 1219
A49P48NG	Conductive	49.16 x 48.00	1249 x 1219
A49P68N	Painted steel	49.16 x 68.00	1249 x 1727
A49P68NG	Conductive	49.16 x 68.00	1249 x 1727
A61P68N	Painted steel	61.16 x 68.00	1553 x 1727
A61P68NG	Conductive	61.16 x 68.00	1553 x 1727
A73P68N	Painted steel	73.16 x 68.00	1858 x 1727
A73P68NG	Conductive	73.16 x 68.00	1858 x 1727

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Panels for Enclosures

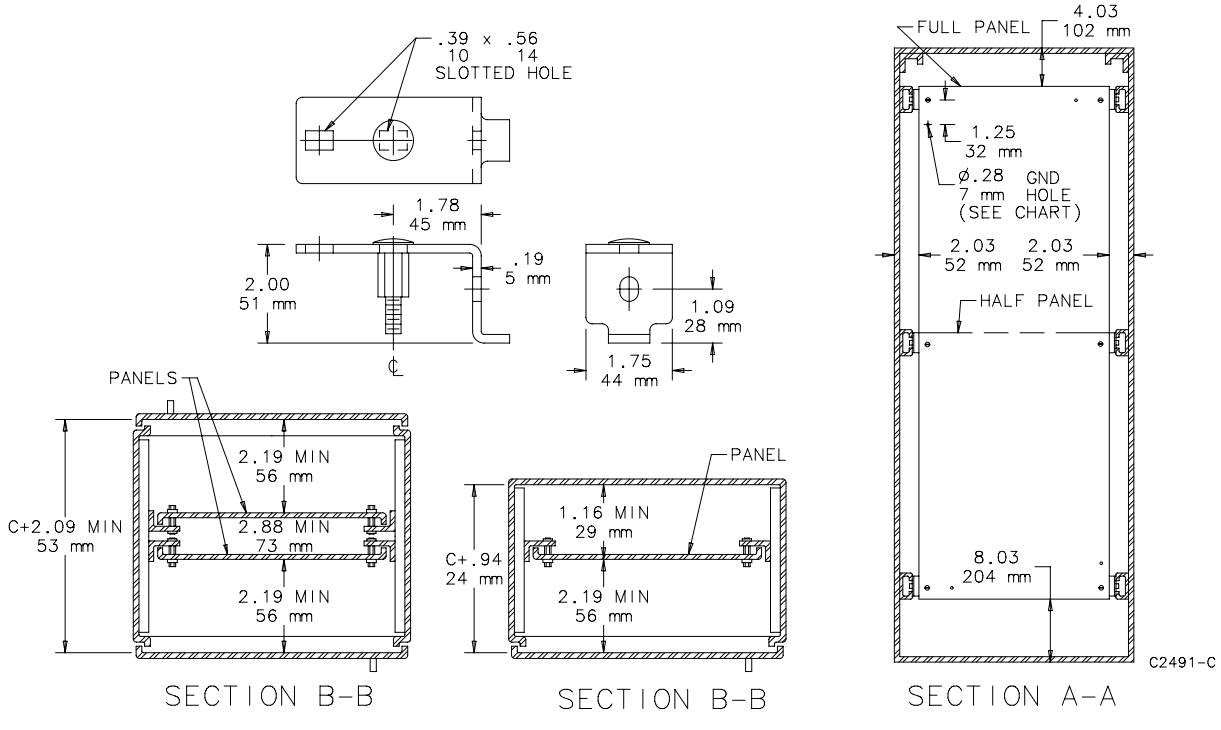
Panels for Free-Stand Type 4, 4X and 12 Single- and Dual-Access One-Door Enclosures with Mounting Channel

Panels for one-door, single-access and one-door, dual-access Free-Stand Type 12 Enclosures, Free-Stand Type 4 Enclosures and One-Door Type 4X Free-Stand Fiberglass Enclosures. Panels are 12 gauge steel and can be positioned anywhere along horizontal mounting channels (see dimension drawing Sections B-B for limitations). Half-length panels can be located in the upper or lower portion of the enclosure. Panels are finished with white polyester powder paint or a conductive, corrosion-resistant coating and furnished with plated mounting hardware.

Bulletin: PNL30

Catalog Number	Description	Finish	Panel Size (in.)	Panel Size (mm)	Fits Enclosure A x B (in.)	Fits Enclosure A x B (mm)
A60P24F1	Full Panel	Painted steel	48.00 x 20.00	1218 x 508	60.00 x 24.00	1524 x 610
A60P24F1G	Full Panel	Conductive	48.00 x 20.00	1218 x 508	60.00 x 24.00	1524 x 610
A60P24F2	Half Panel	Painted steel	24.88 x 20.00	632 x 508	60.00 x 24.00	1524 x 610
A60P24F2G	Half Panel	Conductive	24.88 x 20.00	632 x 508	60.00 x 24.00	1524 x 610
A72P24F1	Full Panel	Painted steel	60.00 x 20.00	1524 x 508	72.00 x 24.00	1829 x 610
A72P24F1G	Full Panel	Conductive	60.00 x 20.00	1524 x 508	72.00 x 24.00	1829 x 610
A72P24F2	Half Panel	Painted steel	30.88 x 20.00	784 x 508	72.00 x 24.00	1829 x 610
A72P24F2G	Half Panel	Conductive	30.88 x 20.00	784 x 508	72.00 x 24.00	1829 x 610
A90P24F1	Full Panel	Painted steel	78.00 x 20.00	1981 x 508	90.00 x 24.00	2286 x 610
A90P24F1G	Full Panel	Conductive	78.00 x 20.00	1981 x 508	90.00 x 24.00	2286 x 610
A90P24F2	Half Panel	Painted steel	39.88 x 20.00	1013 x 508	90.00 x 24.00	2286 x 610
A90P24F2G	Half Panel	Conductive	39.88 x 20.00	1013 x 508	90.00 x 24.00	2286 x 610
A72P30F1	Full Panel	Painted steel	60.00 x 26.00	1524 x 660	72.00 x 30.00	1829 x 762
A72P30F1G	Full Panel	Conductive	60.00 x 26.00	1524 x 660	72.00 x 30.00	1829 x 762
A72P30F2	Half Panel	Painted steel	30.88 x 26.00	784 x 660	72.00 x 30.00	1829 x 762
A72P30F2G	Half Panel	Conductive	30.88 x 26.00	784 x 660	72.00 x 30.00	1829 x 762
A60P36F1	Full Panel	Painted steel	48.00 x 32.00	1219 x 813	60.00 x 36.00	1524 x 914
A60P36F1G	Full Panel	Conductive	48.00 x 32.00	1219 x 813	60.00 x 36.00	1524 x 914
A60P36F2	Half Panel	Painted steel	24.88 x 32.00	632 x 813	60.00 x 36.00	1524 x 914
A60P36F2G	Half Panel	Conductive	24.88 x 32.00	632 x 813	60.00 x 36.00	1524 x 914
A72P36F1	Full Panel	Painted steel	60.00 x 32.00	1524 x 813	72.00 x 36.00	1829 x 914
A72P36F1G	Full Panel	Conductive	60.00 x 32.00	1524 x 813	72.00 x 36.00	1829 x 914
A72P36F2	Half Panel	Painted steel	30.88 x 32.00	784 x 813	72.00 x 36.00	1829 x 914
A72P36F2G	Half Panel	Conductive	30.88 x 32.00	784 x 813	72.00 x 36.00	1829 x 914
A90P36F1	Full Panel	Painted steel	78.00 x 32.00	1981 x 813	90.00 x 36.00	2286 x 914
A90P36F1G	Full Panel	Conductive	78.00 x 32.00	1981 x 813	90.00 x 36.00	2286 x 914
A90P36F2	Half Panel	Painted steel	39.88 x 32.00	1013 x 813	90.00 x 36.00	2286 x 914
A90P36F2G	Half Panel	Conductive	39.88 x 32.00	1013 x 813	90.00 x 36.00	2286 x 914

Use combinations of panels for 3-5 door A 28 enclosures.



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Panels for Enclosures

Panels for Free-Standing Type 4, 4X and 12 Single- and Dual-Access Two-Door Enclosures with Mounting Channel

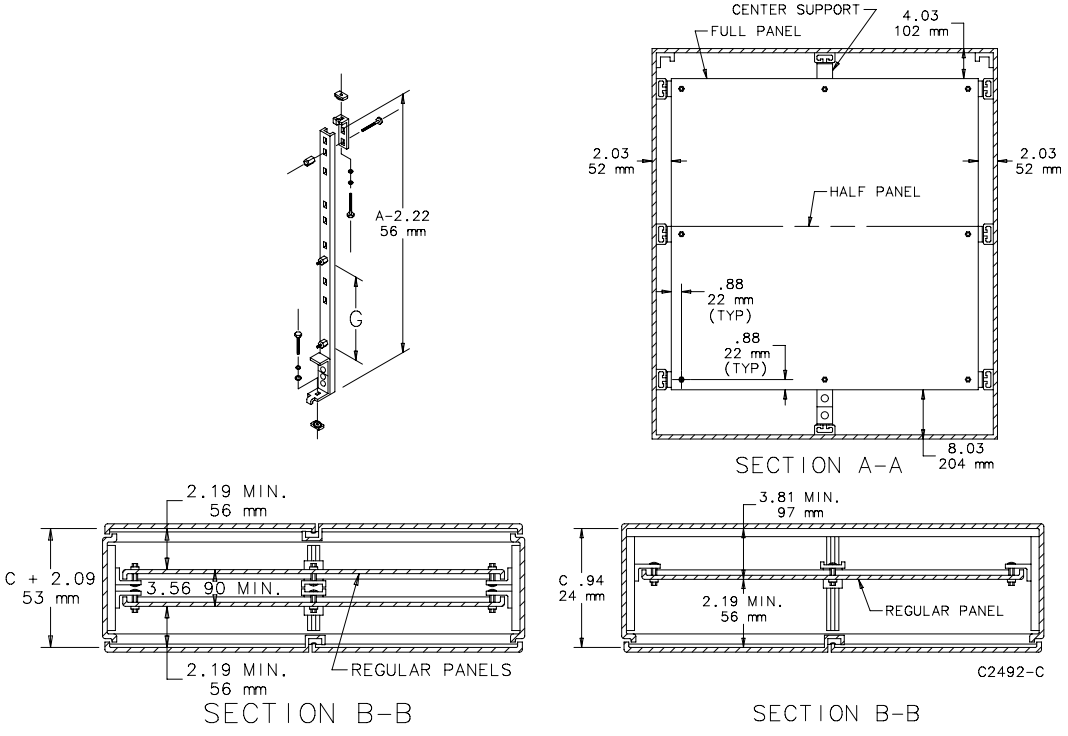
Panels for two-door single access and two-door dual access Free-Stand Type 4, 4X and 12 Enclosures with mounting channel are 10 gauge steel and can be positioned anywhere along horizontal mounting channels (see Sections B-B for limitations). Half-length panels can be located in the upper or lower portion of the enclosure. Some assembly is required.

Panels are finished with white polyester powder paint or a conductive, corrosion-resistant coating and furnished with plated mounting hardware.

Center support is furnished with each full panel or half panel for two-door enclosures. The center support attaches to the top and bottom mounting channels and can be positioned from front to back in the enclosure. The center support can be used with heavy duty panel supports to support panels of various heights.

Bulletin: PNL30

Catalog Number	Description	Fits Enclosure A x B (in.)	Fits Enclosure A x B (mm)	Panel Size (in.)	Panel Size (mm)	G (in.)	G (mm)
A60P48F1	Full Panel	60.00 x 48.00	1524 x 1219	48.00 x 44.00	1219 x 1118	23.12	587
A60P48F1G	Full Panel	60.00 x 48.00	1524 x 1219	48.00 x 44.00	1219 x 1118	23.12	587
A72P48F1	Full Panel	72.00 x 48.00	1829 x 1219	60.00 x 44.00	1524 x 1118	29.12	740
A72P48F1G	Full Panel	72.00 x 48.00	1829 x 1219	60.00 x 44.00	1524 x 1118	29.12	740
A72P48F2	Half Panel	72.00 x 48.00	1829 x 1219	30.88 x 44.00	784 x 1118	29.12	740
A72P48F2G	Half Panel	72.00 x 48.00	1829 x 1219	30.88 x 44.00	784 x 1118	29.12	740
A90P48F1	Full Panel	90.00 x 48.00	2286 x 1219	78.00 x 44.00	1981 x 1118	38.12	968
A90P48F1G	Full Panel	90.00 x 48.00	2286 x 1219	78.00 x 44.00	1981 x 1118	38.12	968
A90P48F2	Half Panel	90.00 x 48.00	2286 x 1219	39.88 x 44.00	1013 x 1118	38.12	968
A90P48F2G	Half Panel	90.00 x 48.00	2286 x 1219	39.88 x 44.00	1013 x 1118	38.12	968
A72P60F1	Full Panel	72.00 x 60.00	1829 x 1524	60.00 x 56.00	1524 x 1422	29.12	740
A72P60F1G	Full Panel	72.00 x 60.00	1829 x 1524	60.00 x 56.00	1524 x 1422	29.12	740
A72P60F2	Half Panel	72.00 x 60.00	1829 x 1524	30.88 x 56.00	784 x 1422	29.12	740
A72P60F2G	Half Panel	72.00 x 60.00	1829 x 1524	30.88 x 56.00	784 x 1422	29.12	740
A72P72F1	Full Panel	72.00 x 72.00	1829 x 1829	60.00 x 68.00	1524 x 1727	29.12	740
A72P72F1G	Full Panel	72.00 x 72.00	1829 x 1829	60.00 x 68.00	1524 x 1727	29.12	740
A72P72F2	Half Panel	72.00 x 72.00	1829 x 1829	30.88 x 68.00	784 x 1727	29.12	740
A72P72F2G	Half Panel	72.00 x 72.00	1829 x 1829	30.88 x 68.00	784 x 1727	29.12	740
A90P72F1	Full Panel	90.00 x 72.00	2286 x 1829	78.00 x 68.00	1981 x 1727	38.12	968
A90P72F1G	Full Panel	90.00 x 72.00	2286 x 1829	78.00 x 68.00	1981 x 1727	38.12	968
A90P72F2	Half Panel	90.00 x 72.00	2286 x 1829	39.88 x 68.00	1013 x 1727	38.12	968
A90P72F2G	Half Panel	90.00 x 72.00	2286 x 1829	39.88 x 68.00	1013 x 1727	38.12	968



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Panels for Enclosures

Side-Mounted Panels

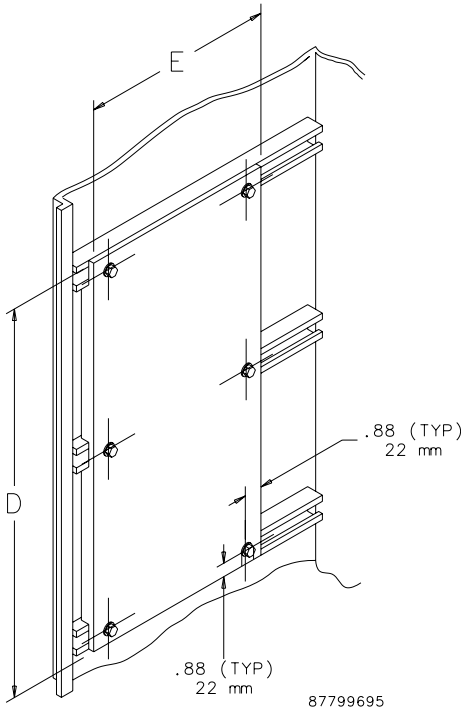
Panels provide extra mounting space on the sides of enclosures. 12 gauge steel side-mounting panels are painted white. Conductive panels are steel with a conductive, corrosion-resistant coating. Panels attach securely to mounting channels. Plated steel mounting hardware is furnished.

Bulletin: PNL30

Catalog Number	Description	Panel Size D x E in./mm	Fits Enclosure A in./mm
A60SMP14	Painted steel	48.00 x 14.00 1219 x 356	60.00 1524
A60SMP14G	Conductive	48.00 x 14.00 1219 x 356	60.00 1524
A72SMP14	Painted steel	60.00 x 14.00 1524 x 356	72.00 1829
A72SMP14G	Conductive	60.00 x 14.00 1524 x 356	72.00 1829
A72SMP20	Painted steel	60.00 x 20.00 1524 x 508	72.00 1829
A72SMP20G	Conductive	60.00 x 20.00 1524 x 508	72.00 1829
A90SMP14	Painted steel	78.00 x 14.00 1981 x 356	90.00 2286
A90SMP14G	Conductive	78.00 x 14.00 1981 x 356	90.00 2286
A90SMP20	Painted steel	78.00 x 20.00 1981 x 508	90.00 2286
A90SMP20G	Conductive	78.00 x 20.00 1981 x 508	90.00 2286

A90SMP14 and A90SMP14G will not fit 18.06-in.deep two-door enclosures (FSD style) if regular panel is also installed.

A90SMP20 and A90SMP20G will not fit 20.12-in. deep enclosures. Will not fit 24.12-in. deep two-door enclosures (FSD style) if regular panel is also installed.

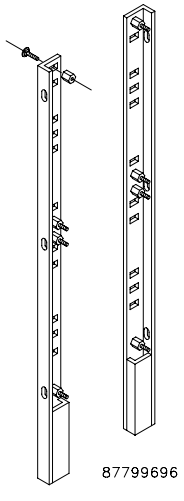


Heavy Duty Panel Supports

Heavy Duty Panel Supports, sold in pairs, are used in place of the panel supports furnished with panels when heavy equipment will be installed on the panels. They extend to the bottom of the enclosure. Adjustable mounting studs allow mounting of different height panels or a combination of panels. Use mounting hardware furnished with panels.

Bulletin: A80

Catalog Number	Fits Enclosure A in./mm	Support Length in./mm
A60FSHDPS	60.00 1524	57.25 1454
A72FSHDPS	72.00 1829	69.25 1759
A90FSHDPS	90.00 2286	87.25 2216



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Panels for Enclosures

Center Panel Supports

Center panel supports are used with Free-Stand Type 12 (Bulletin A30) two-door enclosures. They permit the installation of panels, swing-out panels and rack-mounting angles sized for one-door enclosures. The Center Panel Support can be positioned from front to back of the enclosure.

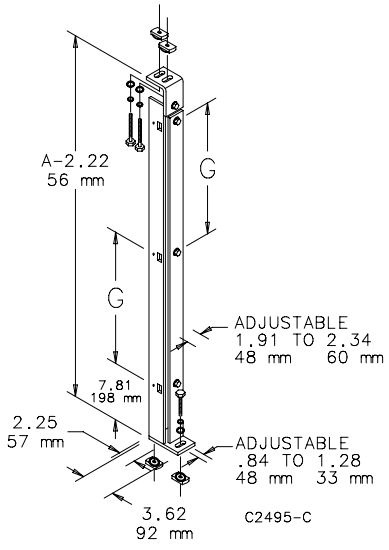
Bulletin: A80

Standard Product **Panel Supports**

Catalog Number	Fits Enclosure A (in.)	Fits Enclosure A (mm)	G (in.)	G (mm)
A60FSCPS	60.00	1524	23.12	587
A72FSCPS	72.00	1829	29.12	740
A90FSCPS	90.00	2286	38.12	968

Accessory Width with Center Panel Supports

Two Door Enclosure Width (in.)	Two Door Enclosure Width (mm)	Accessory Width (in.)	Accessory Width (mm)
48.00	1219	24.00	610
60.00	1524	30.00	762
72.00	1829	36.00	914



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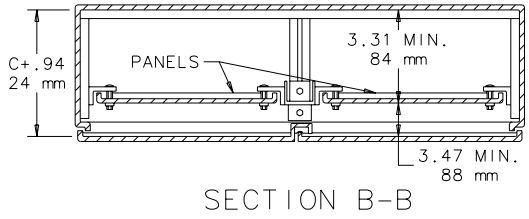
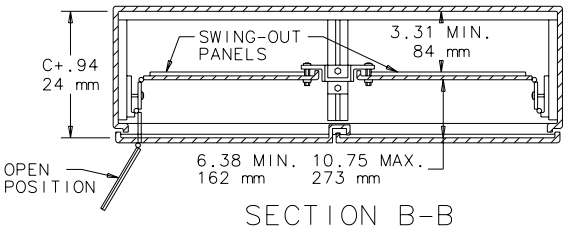
Panels for Enclosures

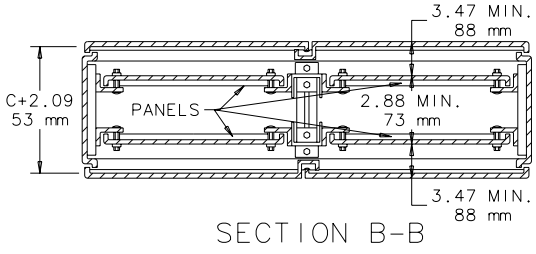
Center Panel Supports Enclosure Section Views



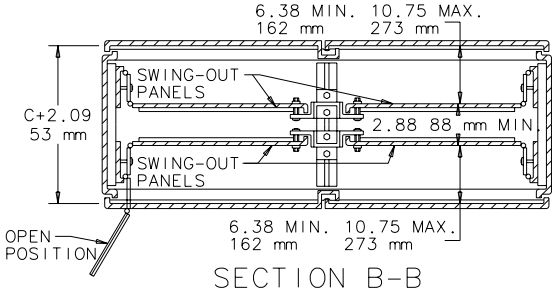
Showing two panels (for one-door enclosures)and center panel support mounted in two-door enclosure.



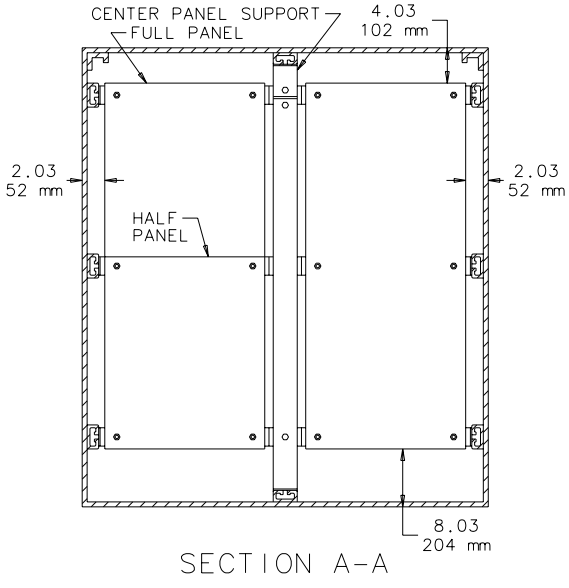
Showing four swing-out panels and center panel support mounted in two-door enclosure.



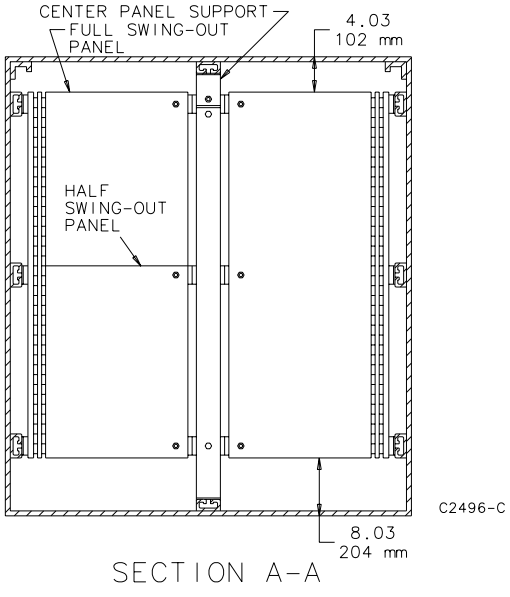
Showing four panels (for one-door enclosures) and two center panel supports mounted in two-door access enclosure.



Showing four swing-out panels and two center panel supports mounted in two-door dual access enclosure.



Panels shown are for one-door free-stand enclosures. Half panel fits in top or bottom half of enclosure.



Showing swing-out panels installed in one-door enclosure.

© 2009 Hoffman Enclosures Inc.

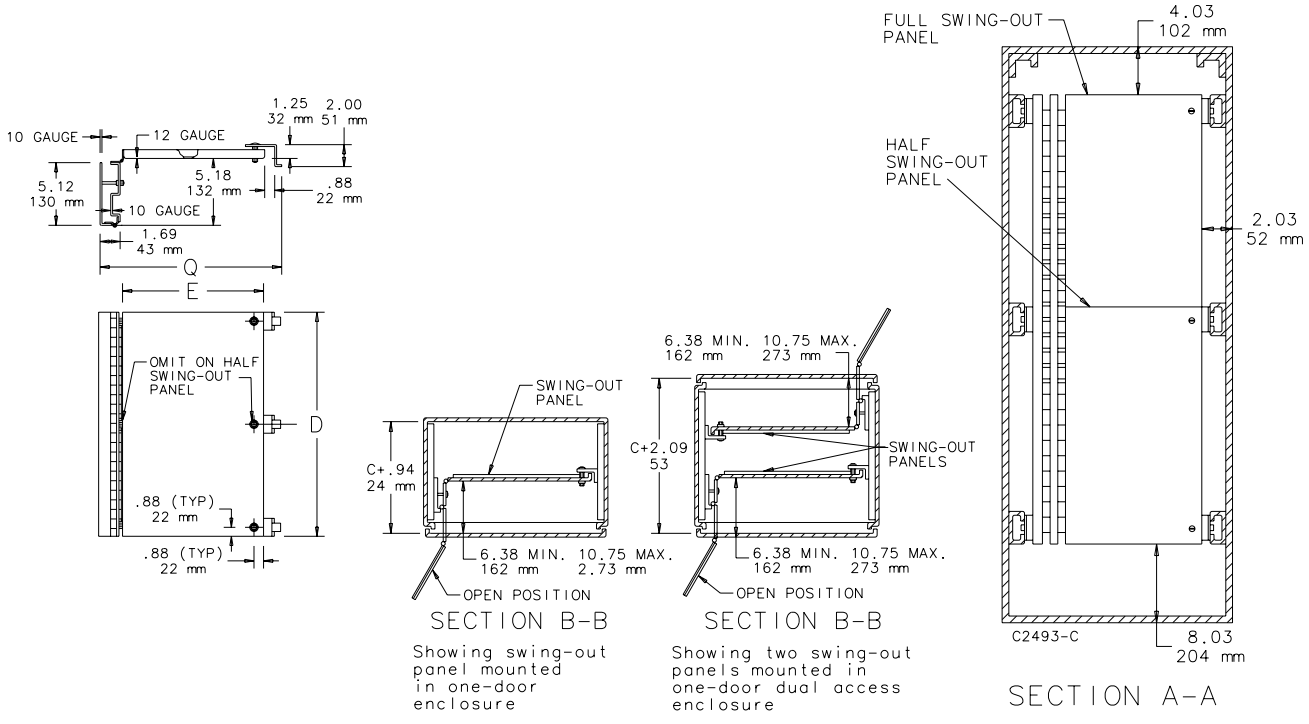
Panels for Enclosures

Swing-Out Panels for Free-Stand Type 4, 4X and 12 Enclosures with Mounting Channel

Panels for Free-Stand Type 12 Enclosures, Free-Stand Type 4 Enclosures and One-Door Type 4X Free-Stand Fiberglass Enclosures. Full-length and half-length swing-out panels are available. Half-length panels can be located in the upper or lower portion of the enclosures. Swing-out panels have a 10 gauge steel support frame and two heavy-gauge continuous hinges which permit the panel to swing completely out of the enclosure if it is located within approximately 10.75 in. (273 mm) of the door. These panels are 12 gauge steel and can be mounted on either side of the enclosure. Panels are finished with white polyester powder paint and furnished with plated mounting hardware.

Bulletin: PNL30

Catalog Number	Description	Panel Size D x E (in.)	Panel Size D x E (mm)	Fits Enclosure A x B (in.)	Fits Enclosure A x B (mm)	Q (in.)	Q (mm)
A72SP24F3	Full Panel	60.00 x 18.81	1524 x 478	72.00 x 24.00	1829 x 610	21.84	555
A72SP24F4	Half Panel	30.88 x 18.81	784 x 478	72.00 x 24.00	1829 x 610	21.84	555
A72SP30F3	Full Panel	60.00 x 24.81	1524 x 630	72.00 x 30.00	1829 x 762	27.84	707
A72SP30F4	Half Panel	30.88 x 24.81	784 x 630	72.00 x 30.00	1829 x 762	27.84	707
A72SP36F3	Full Panel	60.00 x 30.81	1524 x 783	72.00 x 36.00	1829 x 914	33.84	860
A72SP36F4	Half Panel	30.88 x 30.81	784 x 783	72.00 x 36.00	1829 x 914	33.84	860
A90SP36F3	Full Panel	78.00 x 30.81	1981 x 783	90.00 x 36.00	2286 x 914	33.84	860
A90SP36F4	Half Panel	39.88 x 30.81	1013 x 783	90.00 x 36.00	2286 x 914	33.84	860

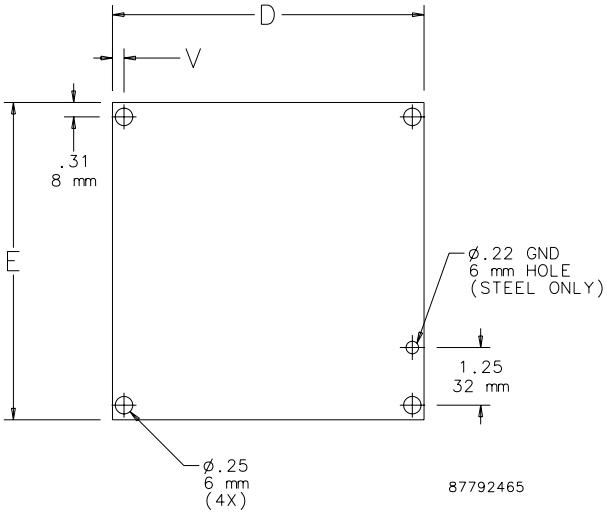


Panels for WiFi Cabinets and Small Wall-Mount Enclosures

Panels are available in both steel and wood. Steel panels are 14 gauge steel with a white polyester powder paint finish. Wood panels are 3/4-in. plywood and are unfinished. Wood panels are supplied with Fiberglass Hinged-Cover and POLYPRO® Type 4X WiFi Cabinets.

Bulletin: DWS12, PNLJ, PNLWM

Catalog Number	Material	Panel Size D x E (in.)	Panel Size D x E (mm)	V (in.)	V (mm)
A6P6	Steel	4.88 x 4.88	124 x 124	0.31	8
A6P6WD	Wood	4.88 x 4.88	124 x 124	0.31	8
A16P14	Steel	14.75 x 12.88	375 x 327	0.25	6
A16P14WD	Wood	14.75 x 12.88	375 x 327	0.25	6
A18P16	Steel	16.75 x 14.88	425 x 378	0.25	6
A18P16WD	Wood	16.75 x 14.88	425 x 378	0.25	6



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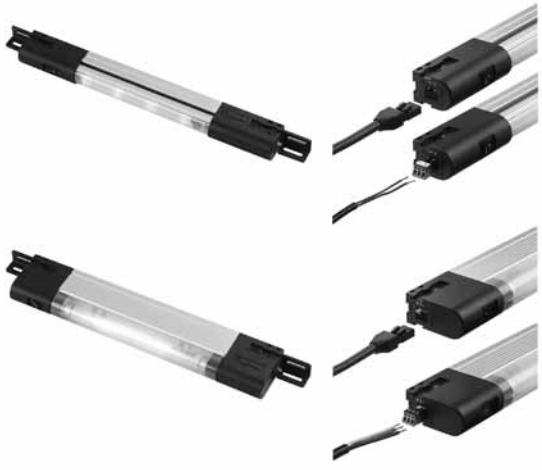
PANELITE™ ENCLOSURE LIGHTS OVERVIEW



INDUSTRY STANDARDS

PANELITE LED and Fluorescent Enclosure Lights

UL 508A Component Recognized; File No. E61997 cUL Component Recognized per CSA C22.2 No 14; File No. E61997

CSA File No. 42186
Maintains UL/CSA Type 4, 4X and 12 enclosure rating when properly installed in a Hoffman enclosure.

230 VAC Fluorescent Enclosure Light

UL 508A Component Recognized; File No. E234324 cUL Component Recognized per CSA C22.2 No 14; File No. E61997

CE

LED Light

UL 508A Component Recognized; File No. E234324 cUL Component Recognized per CSA C22.2 No 14; File No. E234324

CE
Ingress protection : IP 20
Maintains enclosure type rating up to 4X when installed per instructions

APPLICATION

Versatile, slim-profile LED and fluorescent lights provide mounting flexibility and are easy to install in any enclosure. Terminal blocks allow for easy wiring. Accessories include ganging cables, power cords and door switches, all provided with plug-and-play connectors for easy connection to the terminal blocks with an innovative terminal connection system. LED version provides superior lighting performance with minimal power consumption.

FEATURES

- Slim profile allows light to be tucked up out of the way for easy panel installation
- Versatile mounting allows the light to be positioned horizontally or vertically; two-way mounting provides for ideal orientation
- Includes mounting hardware for the following enclosure installations: PROLINE™ Frame, Enclosure Top, Panel Mount and Unistrut
- On/off switch incorporated in light; optional remote door switch accessory available to activate light when enclosure door is opened (230 VAC Fluorescent Enclosure Light has switch or door-activated sensor)

PANELITE Only:

- Mounting tabs provide easy access point for attachment hardware; light does not need to be disassembled for installation
- Up to five lights can be daisy-chained together
- Plug-and-play terminal connection system:
  - Pre-wired connection sockets on both ends of light allow use of Hoffman cable accessories
  - Optional terminal blocks snap into the connection sockets allowing customers to use own wiring methods; two terminal blocks provided with each light kit
  - Power supply can be wired manually with Hoffman PANELITE Power Cable with Leads or with Hoffman optional PANELITE Power Cord
  - Ganging cables are available in 2-, 4- and 6-ft. lengths to easily join up to five lights together using one power supply
  - Remote door switch for easy door activation eliminates need to mount light in the exact location required to activate the light

LED Light Only:

- Mechanical screw- or magnetic mount (non-slip rubberized)
- Protection Class II (double insulated)
- Operating temperature -22 F to 140 F (-30 C to 60 C)
- On / Off or motion-sensor activation
- LED lights with 900 LM illumination; 120° angle of illumination
- Low, 5-watt power requirement
- Light-weight, all-composite construction
- Input and output connectors included with light (16 AWG)

SPECIFICATIONS

PANELITE:

- Extruded aluminum center support
- Black composite end caps
- Black composite mounting tabs
- Each light fixture includes two mounting tabs, two pre-wired connection sockets, two optional terminal blocks that snap into the connection sockets and enclosure attachment hardware (bulb not included with fluorescent light)

230 VAC Fluorescent Enclosure Light:

- Light gray composite construction – UL 94V-0 material
- Hardware kit provides fasteners to mount to PROLINE, NEMA (4, 4X, 12, and 13), CONCEPT™ , FUSION™ and other cabinets
- Easy-access terminal block that accommodates up to 16 AWG wires
- Fluorescent light bulb included (2G7 Base)

LED Light:

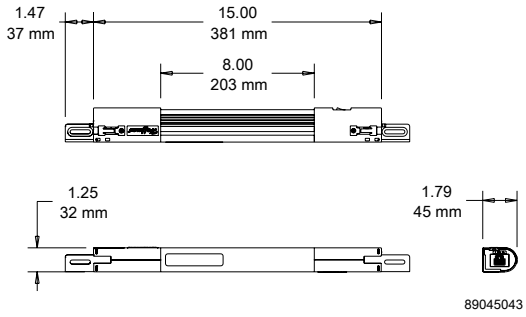
- LED (Light Emitting Diode) low-power light kit
- Screw mounting using included hardware kit (maintains enclosure rating up to UL Type 4X)
- No user-serviceable parts
- Life expectancy of 60,000 hours at 68 F (20 C) under specifications
- Operating temperature: -22 to +140 F (-30 to +60 C) under specifications
- 5-watt power consumption
- Transparent, composite construction

PANELITE™ LED ENCLOSURE LIGHT

- 24 VDC operation for superior lighting performance with minimal power consumption
- 140-degree cone angle casts a broad covering of neutral light
- Center section rotates 120 degrees to re-direct light where needed
- Long life; 70 percent of initial luminance at 50,000 hours (at 25 C)
- High power LED emitters produce 470 Lumens for superior lighting performance; provides up to 50 percent more usable light than comparable length fluorescent lights
- Can be wired using optional PANELITE Cable Accessories or can be hard-wired with terminal blocks included in hardware kit
- Up to five lights can be daisy-chained together using hard-wired connection to power supply or catalog number LPC72 power cable with leads

BULLETIN: A80LT

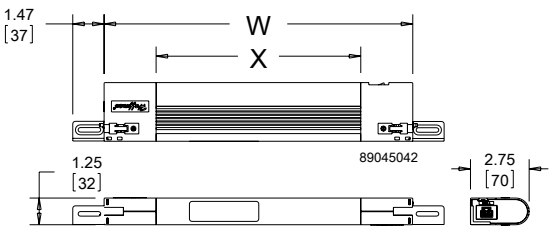
Catalog Number	Description	VDC	Amps	W in./mm	X in./mm
LED24V15	LED Light, 15 in.	24	.5	15.00 381	8.00 203



PANELITE™ FLUORESCENT ENCLOSURE LIGHT

- 120 VAC, 50/60 Hz operation
- Can be wired using optional PANELITE™ Cable Accessories or can be hard-wired with terminal blocks included in hardware kit
- Available in 15-, 18- and 28-in. lengths with ability to daisy chain up to five lights together using one power supply
- Fluorescent bulb not included

BULLETIN: A80LT



Catalog Number	Description	VAC	Hz	Amps	W in./mm	X in./mm	Bulb (purchase separately)	Replacement Lens Cover
LF120V15	Fluorescent Light, 15 in.	120	50/60	.13	14.50 368	9.63 245	F6T5	LFL15
LF120V18	Fluorescent Light, 18 in.	120	50/60	.13	17.50 445	12.63 321	F8T5	LFL18
LF120V28	Fluorescent Light, 28 in.	120	50/60	.26	27.75 705	22.88 581	F14T5	LFL28

PANELITE™ POWER CORDS

- Connects light to standard North American wall socket
- LF120VCORD is for 120 VAC Fluorescent lights (up to five lights can be daisy chained together using one power cord)
- LED24VCORD is for 24 VDC LED lights and includes a transformer to convert 100-240 VAC power supply (capable of powering only one LED light)
- Plugs directly into a connection socket on switch end of the light
- Includes one cable

Power cord not required. Terminal blocks are provided with each light for wired connection to electric supply.

BULLETIN: A80LT

Catalog Number	Description	Length
LF120VCORD	Fluorescent Light Power Cord	72 in.
LED24VCORD	LED Light Power Cord	60 in.

PANELITE™ POWER CABLE WITH LEADS

- 72-in. power cord provides convenient connection to an electrical supply
- Eliminates need to run and tag individual wires into the light
- Compatible with PANELITE™ LED and Fluorescent lights
- Plugs directly into connection socket on switch end of the light
- Includes one 16 AWG cable, black

Power Cable not required. Terminal blocks are provided with each light for wired connection to electric supply.

BULLETIN: A80LT

Catalog Number	Length
LPC72	72 in.

PANELITE™ GANGING CABLES

- Ganging Cables provide convenient method for joining up to five lights together while utilizing one power supply
- Available in 24-, 48- and 72-in. lengths
- Plugs directly into connection socket on either end of the light
- Compatible with PANELITE™ LED and Fluorescent lights
- Includes one 16 AWG cable, black

Ganging Cables not required. Terminal blocks are provided with each light for hard-wired connections.

BULLETIN: A80LT

Catalog Number	Length
LGCABLE24	24 in.
LGCABLE48	48 in.
LGCABLE72	72 in.

PANELITE™ DOOR SWITCH CABLE

- Easily connects PANELITE™ LED or Fluorescent Light to a Remote Door Switch
- T-connector allows the Door Switch Cable to be connected with a ganging cable or power supply to the switch end of the light
- Available in 18- and 72-in. lengths
- Includes one 18 AWG cable, black

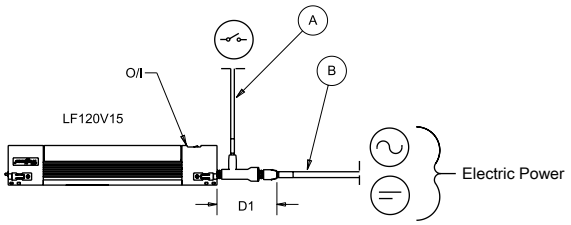
Door Switch Cables not required. Terminal blocks are provided with each light for hard-wired connection to remote door switch.

BULLETIN: A80LT

Catalog Number	Length
LDSWITCH18	18 in.
LDSWITCH72	72 in.

PANELITE™ WIRING OPTIONS

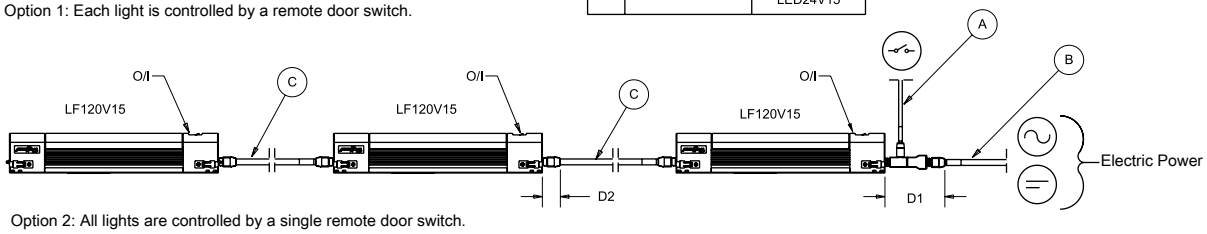
See the table on the drawing for cable clearance dimensions.



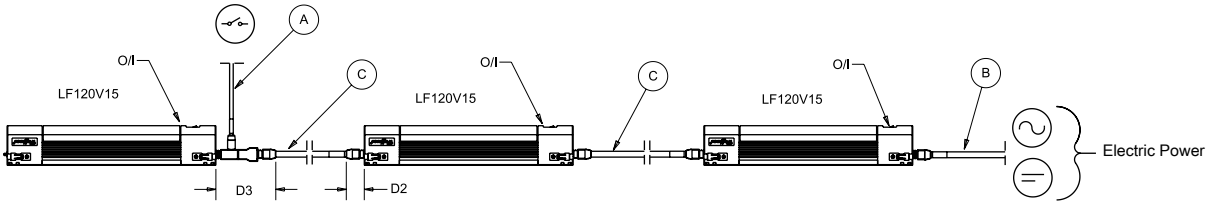
ITEM	CONNECTOR TYPE	LIGHT FIXTURE
A	LDSWITCH18 LDSWITCH72	LF120V15 LF120V18 LF120V28 LED24V15
B	LF120VCORD LPC72	LF120V15 LF120V18 LF120V28
	LED24VCORD	LED24V15
C	LGCABLE24 LGCABLE48 LGCABLE72	LF120V15 LF120V18 LF120V28 LED24V15

PLUG	DIMENSION	'D' MIN
A + B	D1	127 MM 5.00 IN
C	D2	51 MM 2.00 IN
A + C	D3	127 MM 5.00 IN

Option 1: Each light is controlled by a remote door switch.



Option 2: All lights are controlled by a single remote door switch.



Option 3: The last light is controlled by a remote door switch. The first two lights are manually operated.

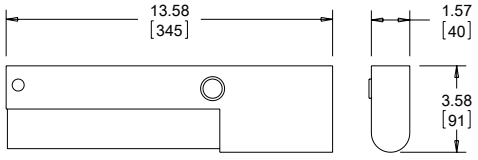
89046495

230 VAC FLUORESCENT ENCLOSURE LIGHT

- 230 VAC, 50/60 Hz operation with electronic ballast
- Compact light-gray plastic housing, UL 94V-0
- Easy access to wiring terminals, integral strain relief, 16 AWG max.
- Versatile mounting to many enclosure types
- Complete assembly, long-life fluorescent bulb included, Luminosity 900 LM
- Switch and Door motion sensor offering

BULLETIN: A80LT

Catalog Number	AxBxC in./mm	Description
LF230VM	1.57 x 13.58 x 3.58 40 x 345 x 91	Light Kit, 230VAC, Manual switch
LF230VD	1.57 x 13.58 x 3.58 40 x 345 x 91	Light Kit, 230VAC, IR Motion Sensor



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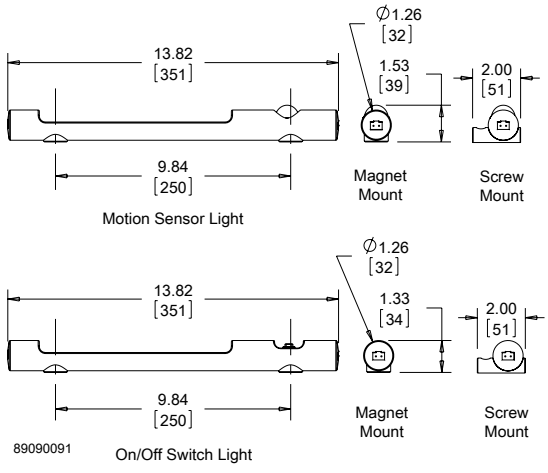
LED LIGHT KIT



LED light kits provide interior enclosure lighting. These light kits are ideal for remote and darkened enclosure applications. The light can be mechanically fastened with included hardware to maintain enclosure UL listing (up to Type 4X), or can be magnetically attached to flat steel surfaces. The lights have auto-sensing circuitry (AC voltage 90 VAC to 260 VAC and DC voltage 20 VDC to 60 VDC). LED lights are light-weight and in a small form factor while providing 900 LM of 6500K light. Power consumption for all models is 5 watts.

BULLETIN: A80LT

Catalog Number	AxBxC in./mm	Weight (oz)	Weight (gm)	Mounting Style	Power Source	Activation	Voltage
LEDA1M35	1.34 x 1.26 x 13.82 34 x 32 x 351	4.8	135	Magnetic	AC	On/off switch	90 VAC-260 VAC
LEDA2M35	1.54 x 1.26 x 13.82 39 x 32 x 351	5.0	140	Magnetic	AC	IR Motion Sensor	90 VAC-260 VAC
LEDA1S35	1.42 x 2.05 x 13.82 36 x 52 x 351	4.8	135	Screw	AC	On/off switch	90 VAC-260 VAC
LEDA2S35	1.63 x 2.05 x 13.82 41 x 52 x 351	5.0	140	Screw	AC	IR Motion Sensor	90 VAC-260 VAC
LEDD1M35	1.34 x 1.26 x 13.82 34 x 32 x 351	4.8	135	Magnetic	DC	On/off switch	20 VDC-60 VDC
LEDD2M35	1.54 x 1.26 x 13.82 39 x 32 x 351	5.0	140	Magnetic	DC	IR Motion Sensor	20 VDC-60 VDC
LEDD1S35	1.42 x 2.05 x 13.82 36 x 52 x 351	4.8	135	Screw	DC	On/off switch	20 VDC-60 VDC
LEDD2S35	1.63 x 2.05 x 13.82 41 x 52 x 351	5.0	140	Screw	DC	IR Motion Sensor	20 VDC-60 VDC

LED LIGHT INPUT CONNECTOR/CABLE ASSEMBLY

The input connector/cable assembly is used to provide supply power to the LED light. Pre-assembled connector/cable assembly with 78.7-in. (2000 mm) long cable whip. Cables are constructed of 16 AWG copper wire.

BULLETIN: A80LT

Catalog Number	A in./mm	Power Source	Use with
LEDA20C	78.74 2000	AC	AC LED Lights
LEDD20C	78.74 2000	DC	DC LED Lights

LED LIGHT EXTENSION CONNECTOR/CABLE ASSEMBLY

The extension connector/cable assembly is used to connect adjacent LED lights (daisy chain). Up to 10 LED lights can be ganged or connected in series. Pre-assembled connector/cable assembly with 39.4-in. (1000 mm) long cable between input and output connectors. Cables are constructed of 16 AWG copper wire.

BULLETIN: A80LT

Catalog Number	A in./mm	Power Source	Use with
LEDA10E	39.37 1000	AC	AC LED Lights
LEDD10E	39.37 1000	DC	DC LED Lights

REMOTE DOOR SWITCHES

- Remote door switch activates the light when the enclosure door is opened
- Mounts on enclosure frame and includes mounting hardware
- Mounting plate is 14 gauge steel with a plated finish
- Can be hard-wired to the PANELITE LED or Fluorescent light or connected via the PANELITE Door Switch Cable

BULLETIN: A80LT, P20

Catalog Number	Description
ALFSWD	Door switch assembly (order connection cable separately)
PLFSWD	Door switch assembly for PROLINE™ (order connection cable separately)

TOUCH-SAFE UL LIGHT SWITCH

APPLICATION

The Touch-Safe light switch is designed to be used with Hoffman™ light kits (AC and DC). It provides a UL listed touch-safe switch that can be used on many enclosure types and includes hardware for most applications. The light switch maintains enclosure overall rating up to UL 508A Type 4X or 12.

FEATURES

- UL listed for a touch-safe wire connection
- Easily mounted to various enclosure types; common bracket and hardware included for many enclosure types (NEMA, CONCEPT™ /FUSION™ G7, PROLINE™ , Freestanding Type 12)
- Cable PG compression hub
- Wide operating temperature range: -49°F to +158°F (-45°C to 70°C)
- Rugged die-cast anodized zinc construction
- Connection 3 cage clamps for solid and stranded wire AWG 20-14 (0.5-2.5mm²)
- Protection class I (grounded)

BULLETIN: A80LT

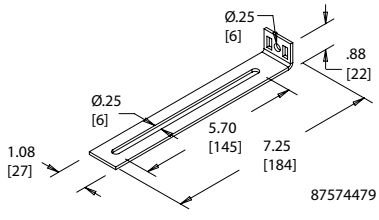
Catalog Number	Max. Cable Dia.	Max. Voltage
LDSWITCH	.375 in.	250 AC / 48 DC

MOUNTING BRACKET KIT FOR LIGHT PACKAGE

Kit simplifies mounting light package in Hoffman PROLINE™ disconnect enclosures. Includes brackets, all mounting hardware and complete instructions.

BULLETIN: A80LT

Catalog Number	Description
PDLFBRKT	Mounting Bracket Kit

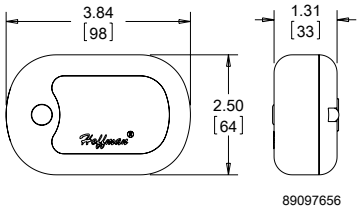


LED PUCK LIGHT

The LED Puck Light is ideal for remote and darkened applications. This versatile light provides mounting flexibility; it can be magnetically attached to flat steel surfaces or can be hung with a swivel hook. This small form factor, light-weight LED light provides superior lighting performance with minimal power consumption. It can be used as a three-LED flashlight or as a 24-LED work light with operating temperature of 40 F to 120 F (4 C to 48 C). An on/off switch is incorporated in the light and three AAA batteries are included.

BULLETIN: A80LT

Catalog Number	AxBxC in./mm	Product Weight
LEDPUCK	2.25 x 3.75 x 1.38 57 x 95 x 35	0.22 lbs.



CATALOG CUT SHEETS

SECTION: 119

EnviroCare International

507 Green Island Road
American Canyon, CA 94503, USA
Tel. 707.638.6800
Fax. 707.638.6898

Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

Manufacturer: LITTELFUSE
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
N/A	LITTELFUSE, 480/120 TRANSFORMER PRIMARY, 1.25A	KLDR-001 1/4
	LITTELFUSE, 480/120 TRANSFORMER SECONDARY, 4A	FLM-4

CLASS CC KLDR SERIES FUSES

600 Vac • 300 Vdc • Time-Delay • 1/10-30 A

Description

KLDR fuses are time-delay fuses designed to protect control transformers, solenoids and similar inductive components with high magnetizing currents during the first half-cycle. They provide excellent protection of motor branch circuits containing IEC or NEMA rated motor controllers or contactors.

Features/Benefits

- Meets UL and CSA standards
- Class CC fuses are the smallest 600 V, 200,000 A.I.R. fuses approved for branch circuit protection
- Rejection feature prevents use of fuses with lower interrupting ratings or voltage ratings when used with corresponding fuse holders
- Extremely current limiting reduces damage caused by heating and magnetic effects of short-circuit currents

Applications

- Transformer Protection

Web Resources

For additional informations, visit:
littelfuse.com/kldr

Recommended Fuse Holders

L60030C Series
LPSC Touch-Safe Series

Specifications

Voltage Rating	AC: 600 V DC: 300 V
Amperage Rating	1/10 – 30 A
Interrupting Rating	AC: 200 kA rms symmetrical DC: 20 kA
Material	Body: Melamine Caps: Nickel-plated Bronze
Fuse Weight	.019 lb (8.62g)
Approvals	AC: Standard 248-4, Class CC UL Listed 1/10-30 A (File: E81895) CSA Certified 1/10-30 A (File: LR29862) DC: Littelfuse self-certified
Environmental	RoHS Compliant
Country of Origin	Mexico

Ordering Information

AMPERAGE RATINGS				
1/10	6/10	1 8/10	4 1/2	10
1/8	3/4	2	5	12
15/100	8/10	2 1/4	5 6/10	15
3/16	1	2 1/2	6	17 1/2
2/10	1 1/8	2 8/10	6 1/4	20
1/4	1 1/4	3	7	25
3/10	1 4/10	3 2/10	7 1/2	30
4/10	1 1/2	3 1/2	8	—
1/2	1 6/10	4	9	—

Part Numbering System

KLDR xxx T XP

Series

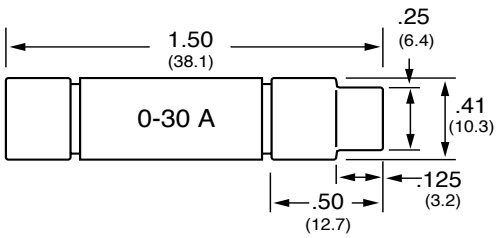
Amp Code
Refer to Amp Code Column in Electrical Specifications Table

Options
XP = RoHS Compliant

Package Quantity
T = 10
H = 100

SERIES	AMPERAGE	PACKAGE QUANTITY	CATALOG NUMBER	ORDERING NUMBER
KLDR	10	10	KLDR 10	KLDR010.TXP

Dimensions Inches (mm)



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CLASS CC KLDR SERIES FUSES

Electrical Specifications

ORDERING NUMBER	AMPERAGE RATING	VOLTAGE RATING		INTERRUPTING RATING		UPC	MELT (PRE-ARC) I^2T (A^2SEC)	TOTAL CLEARING I^2T (A^2 SEC)	AGENCY APPROVALS		
		AC	DC	AC	DC				UL	CSA	RoHS
KLDR.100TXP	1/10	600	300	200 kA	20 kA	079458 96877	0.0004	0.0059	•	•	•
KLDR.125TXP	1/8	600	300	200 kA	20 kA	079458 96878	0.0007	0.0055	•	•	•
KLDR.150TXP	15/100	600	300	200 kA	20 kA	079458 96879	0.0016	0.0059	•	•	•
KLDR.187TXP	3/16	600	300	200 kA	20 kA	079458 96880	0.0040	0.0267	•	•	•
KLDR.200TXP	2/10	600	300	200 kA	20 kA	079458 79239	0.0018	0.0230	•	•	•
KLDR.250TXP	¼	600	300	200 kA	20 kA	079458 79240	0.0138	0.0967	•	•	•
KLDR.300TXP	3/10	600	300	200 kA	20 kA	079458 79241	0.0111	0.1005	•	•	•
KLDR.400TXP	4/10	600	300	200 kA	20 kA	079458 79242	0.0579	0.1420	•	•	•
KLDR.500TXP	½	600	300	200 kA	20 kA	079458 79243	0.0877	0.3121	•	•	•
KLDR.600TXP	6/10	600	300	200 kA	20 kA	079458 79244	0.1404	0.3742	•	•	•
KLDR.750TXP	¾	600	300	200 kA	20 kA	079458 79245	0.2911	1.972	•	•	•
KLDR.800TXP	8/10	600	300	200 kA	20 kA	079458 79246	0.2416	2.064	•	•	•
KLDR001.TXP	1	600	300	200 kA	20 kA	079458 79247	0.4494	5.883	•	•	•
KLDR1.12TXP	1-1/8	600	300	200 kA	20 kA	079458 79248	0.5049	5.149	•	•	•
KLDR1.25TXP	1-¼	600	300	200 kA	20 kA	079458 79249	0.4367	7.354	•	•	•
KLDR01.4TXP	1-4/10	600	300	200 kA	20 kA	079458 79250	0.8135	7.639	•	•	•
KLDR01.5TXP	1-½	600	300	200 kA	20 kA	079458 79251	0.9302	5.885	•	•	•
KLDR01.6TXP	1-6/10	600	300	200 kA	20 kA	079458 79252	0.7495	6.682	•	•	•
KLDR01.8TXP	1-8/10	600	300	200 kA	20 kA	079458 79253	0.9964	6.594	•	•	•
KLDR002.TXP	2	600	300	200 kA	20 kA	079458 79254	0.8615	14.01	•	•	•
KLDR2.25TXP	2-¼	600	300	200 kA	20 kA	079458 79255	1.126	26.41	•	•	•
KLDR02.5TXP	2-½	600	300	200 kA	20 kA	079458 79256	2.087	35.35	•	•	•
KLDR02.8TXP	2-8/10	600	300	200 kA	20 kA	079458 79257	21.28	45.47	•	•	•
KLDR003.TXP	3	600	300	200 kA	20 kA	079458 79258	23.21	55.99	•	•	•
KLDR03.2TXP	3-2/10	600	300	200 kA	20 kA	079458 79259	37.92	57.27	•	•	•
KLDR03.5TXP	3-½	600	300	200 kA	20 kA	079458 79260	21.42	109.4	•	•	•
KLDR004.TXP	4	600	300	200 kA	20 kA	079458 79261	83.81	258.6	•	•	•
KLDR04.5TXP	4-½	600	300	200 kA	20 kA	079458 79262	83.89	110.6	•	•	•
KLDR005.TXP	5	600	300	200 kA	20 kA	079458 79263	63.33	84.04	•	•	•
KLDR05.6TXP	5-6/10	600	300	200 kA	20 kA	079458 79264	87.66	114.0	•	•	•
KLDR006.TXP	6	600	300	200 kA	20 kA	079458 79265	129.5	161.9	•	•	•
KLDR6.25TXP	6-¼	600	300	200 kA	20 kA	079458 79266	147.6	261.7	•	•	•
KLDR007.TXP	7	600	300	200 kA	20 kA	079458 79267	202.4	513.4	•	•	•
KLDR07.5TXP	7-½	600	300	200 kA	20 kA	079458 79268	321.8	813.0	•	•	•
KLDR008.TXP	8	600	300	200 kA	20 kA	079458 79269	111.2	1,145	•	•	•
KLDR009.TXP	9	600	300	200 kA	20 kA	079458 79270	73.40	1,334	•	•	•
KLDR010.TXP	10	600	300	200 kA	20 kA	079458 79271	132.0	934.8	•	•	•
KLDR012.TXP	12	600	300	200 kA	20 kA	079458 79272	154.7	1,723	•	•	•
KLDR015.TXP	15	600	300	200 kA	20 kA	079458 79273	200.5	2,248	•	•	•
KLDR17.5TXP	17-½	600	300	200 kA	20 kA	079458 79274	87.50	722.8	•	•	•
KLDR020.TXP	20	600	300	200 kA	20 kA	079458 79275	123.8	1,363	•	•	•
KLDR025.TXP	25	600	300	200 kA	20 kA	079458 79276	226.0	1,710	•	•	•
KLDR030.TXP	30	600	300	200 kA	20 kA	079458 79277	299.6	1,990	•	•	•

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Electrical Specifications

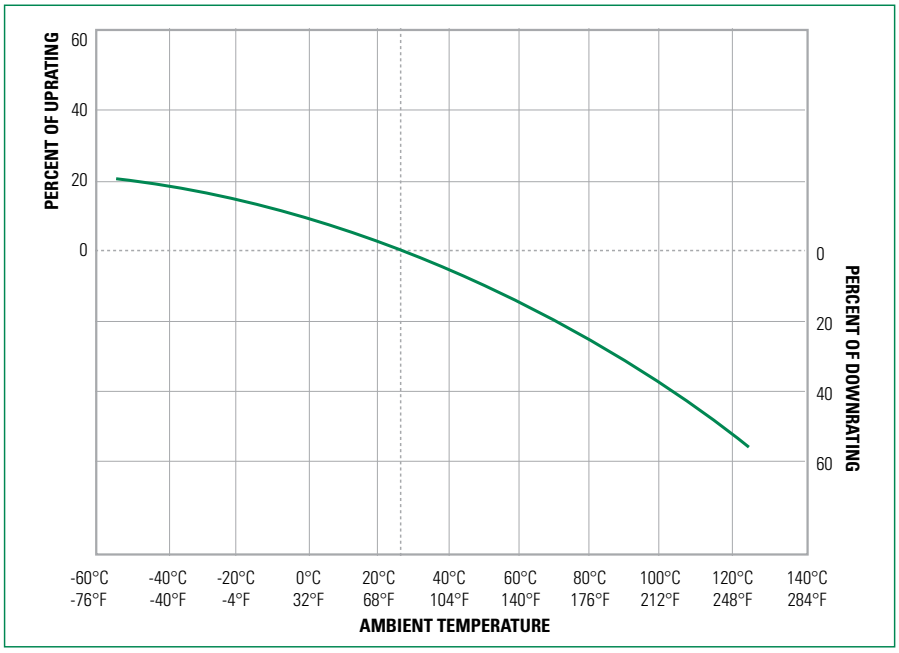
ORDERING NUMBER	AMPERAGE RATING	WATTS LOSS AT 100% RATED CURRENT(W)	WATTS LOSS AT 80% RATED CURRENT(W)
KLDR001.TXP	1	1.67	1.34
KLDR005.TXP	5	1.31	0.75
KLDR010.TXP	10	1.41	.86
KLDR015.TXP	15	1.72	1.03
KLDR020TXP	20	2.3	1.39
KLDR030.TXP	30	2.75	1.62

Current-Limiting Effects

SHORT CIRCUIT CURRENT*	APPARENT RMS SYMMETRICAL CURRENT FOR VARIOUS FUSE RATINGS								
	4 A	6 A	7.5 A	8 A	10 A	12 A	15 A	20 A	30 A
5,000	349	420	521	437	359	369	435	456	621
10,000	440	529	656	551	452	465	548	575	783
15,000	504	605	751	631	517	532	627	658	896
20,000	554	666	827	694	569	585	690	724	986
25,000	597	718	890	748	613	630	743	780	1063
30,000	634	763	946	795	651	670	790	829	1129
35,000	668	803	996	837	686	705	832	872	1189
40,000	698	840	1041	875	717	737	870	912	1243
50,000	752	904	1122	942	772	794	937	983	1339
60,000	799	961	1192	1001	821	844	995	1044	1423
80,000	880	1058	1312	1102	903	929	1096	1149	1566
100,000	948	1139	1413	1187	973	1001	1180	1238	1687
150,000	1085	1304	1618	1359	1114	1146	1351	1417	1931
200,000	1194	1436	1781	1496	1226	1261	1487	1560	2125

*Prospective RMS Symmetrical Amperes Short-Circuit Current
Note: Data Derived from Peak Let-Thru Curves

Temperature Derating Curve (Temperature of Air Immediately Surrounding Fuse)



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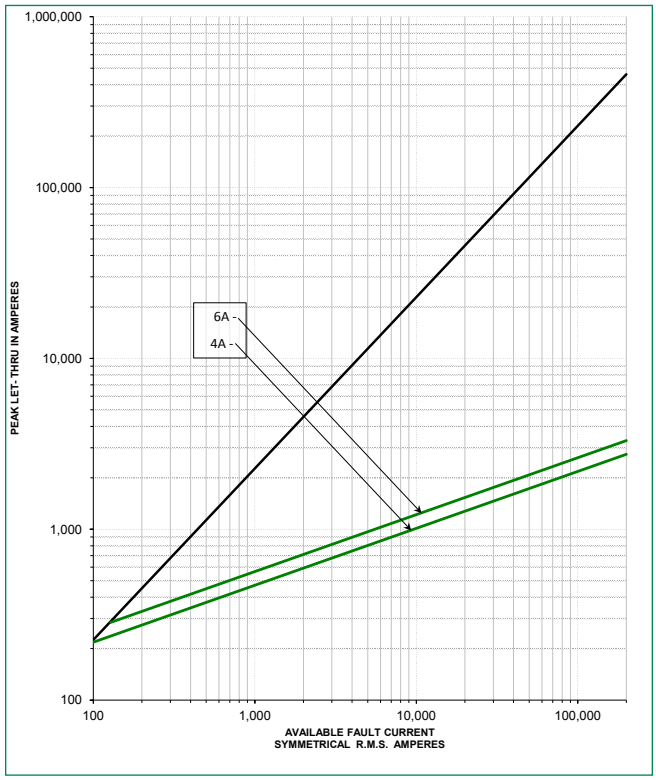
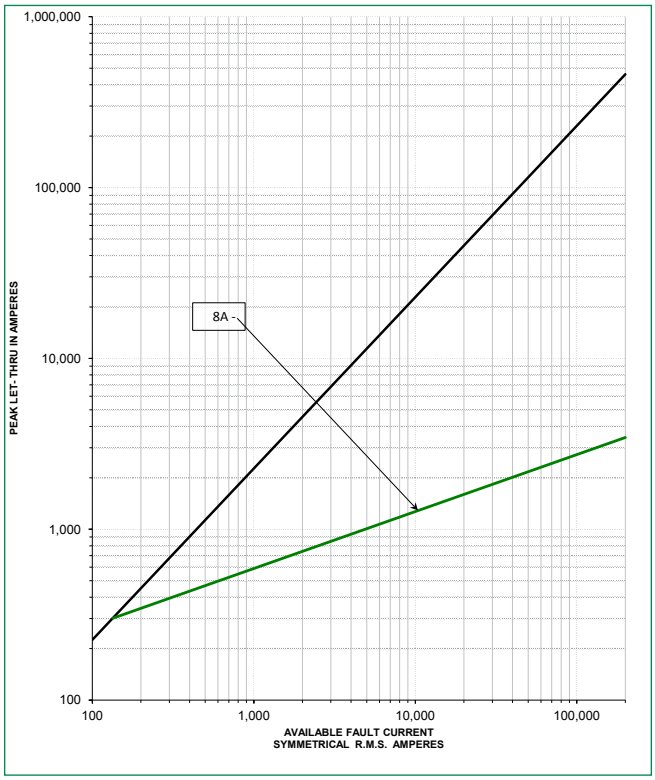
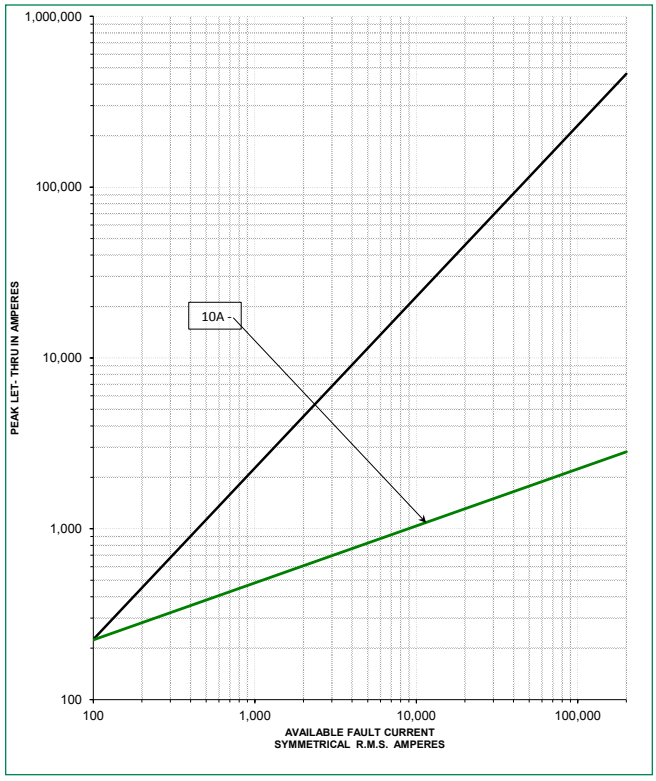
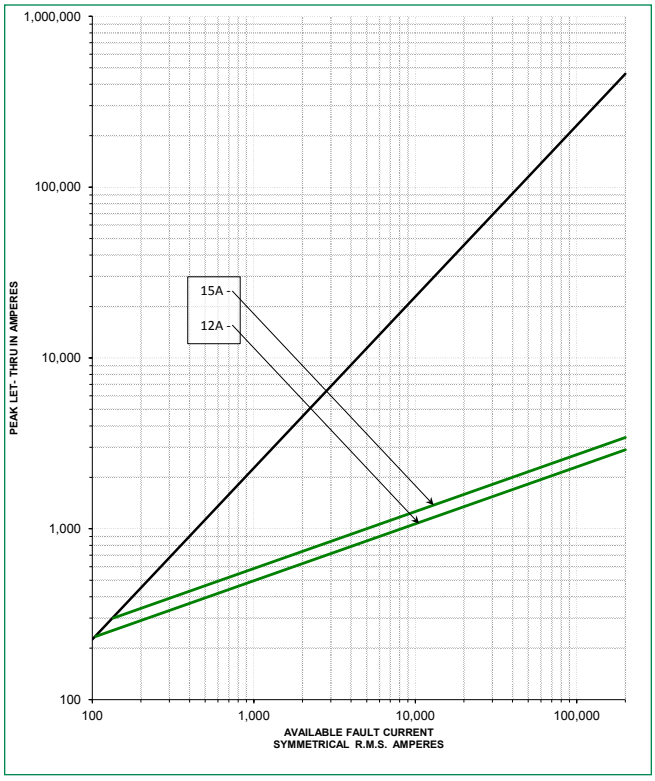
CLASS CC KLDR SERIES FUSES

Peak Let-Thru Curves









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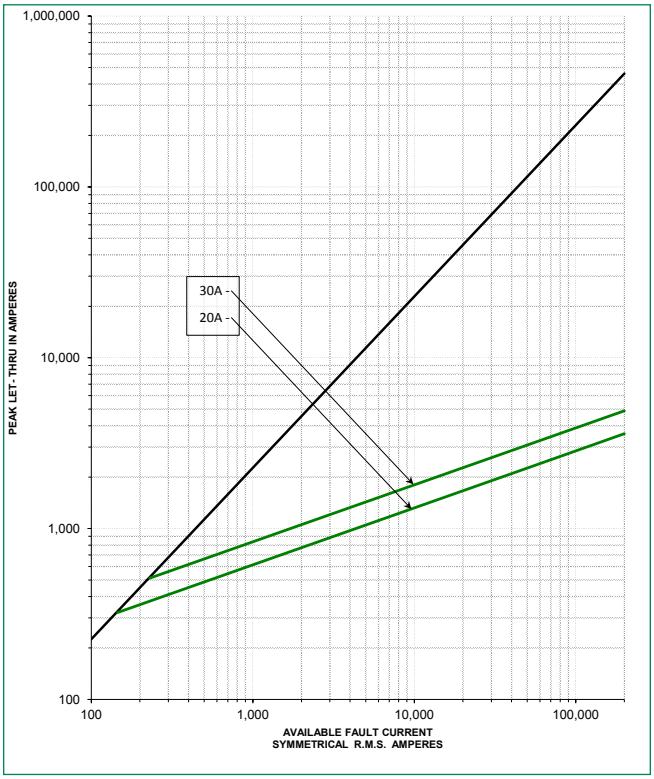
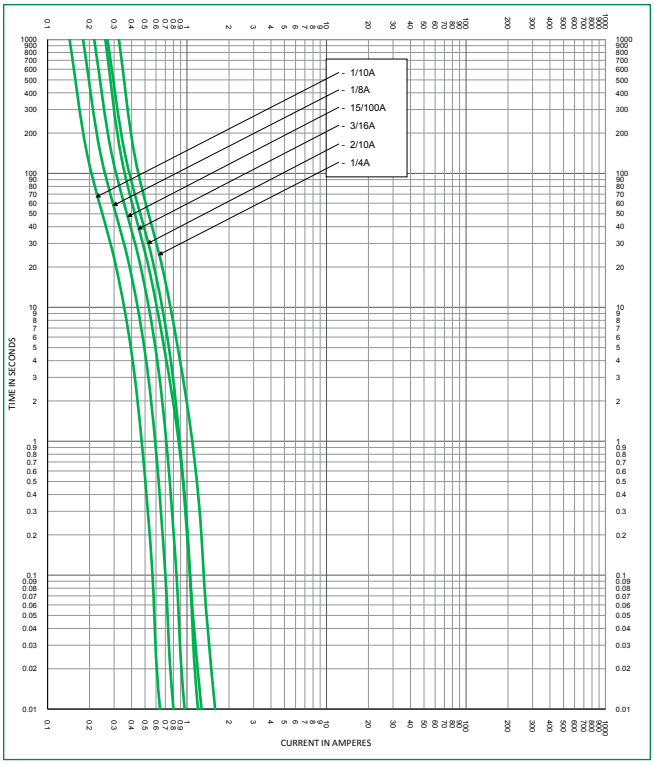
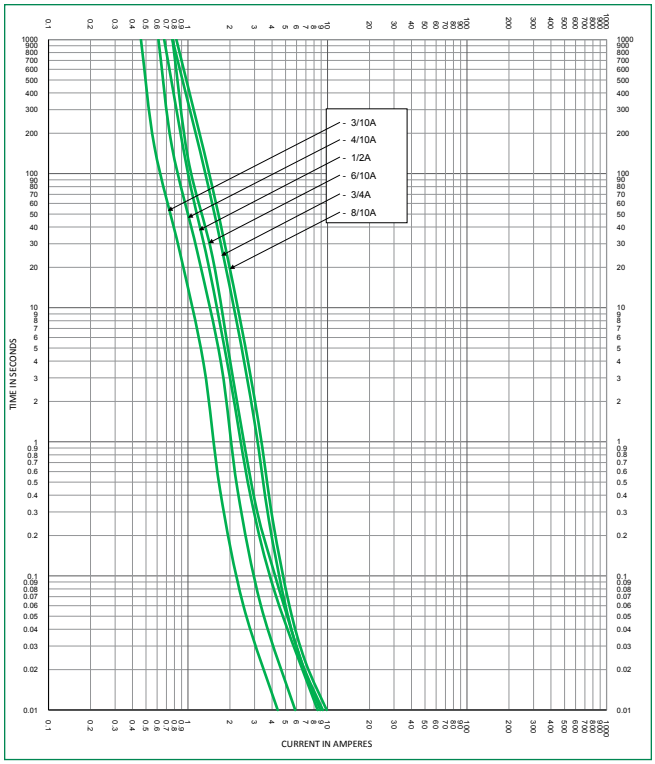
CLASS CC KLDR SERIES FUSES

Peak Let-Thru Curves



Time Current Curves





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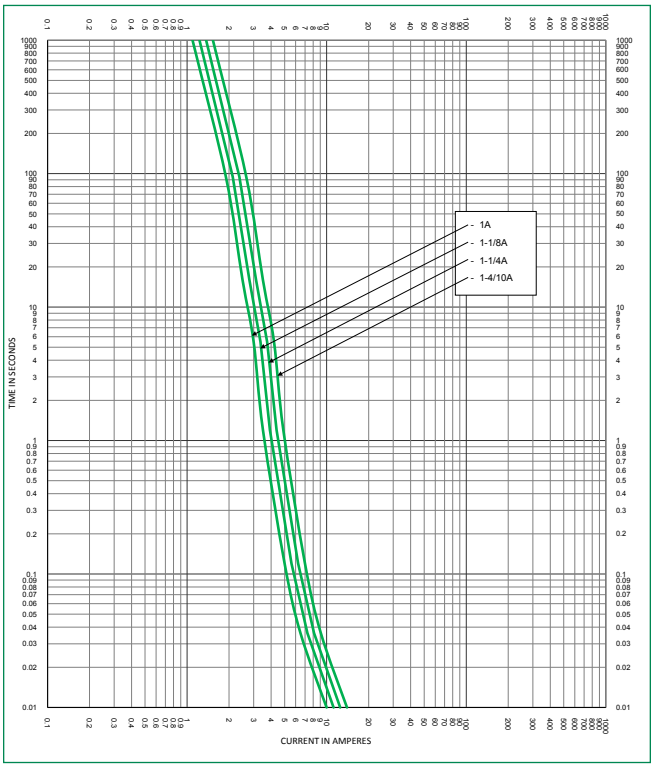
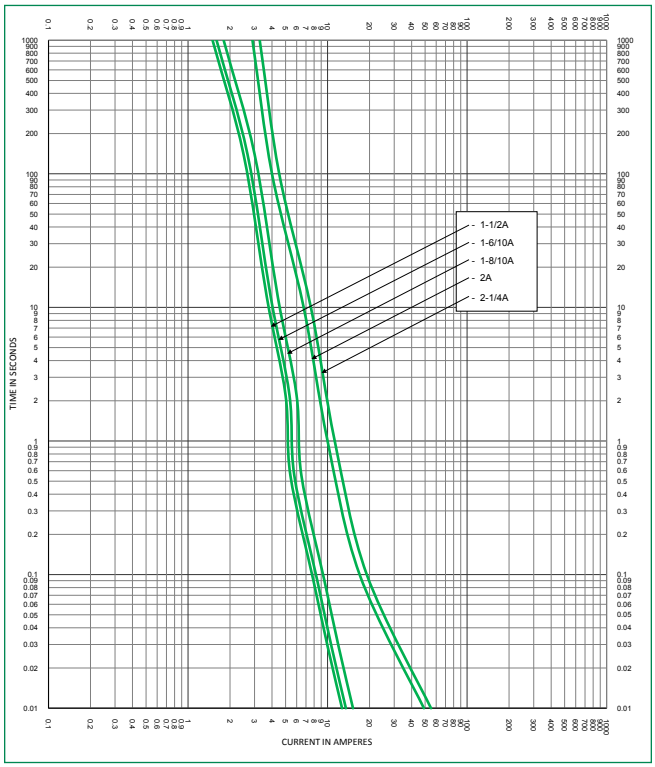
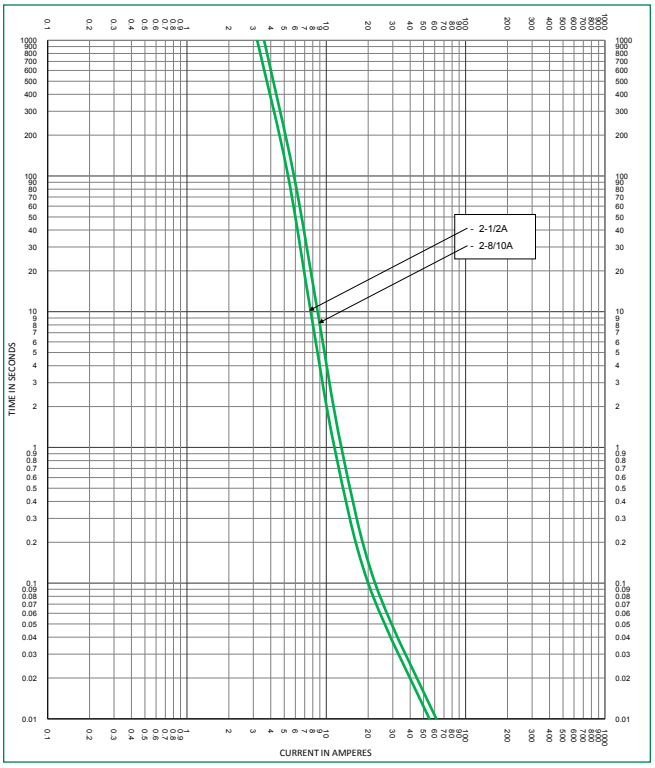
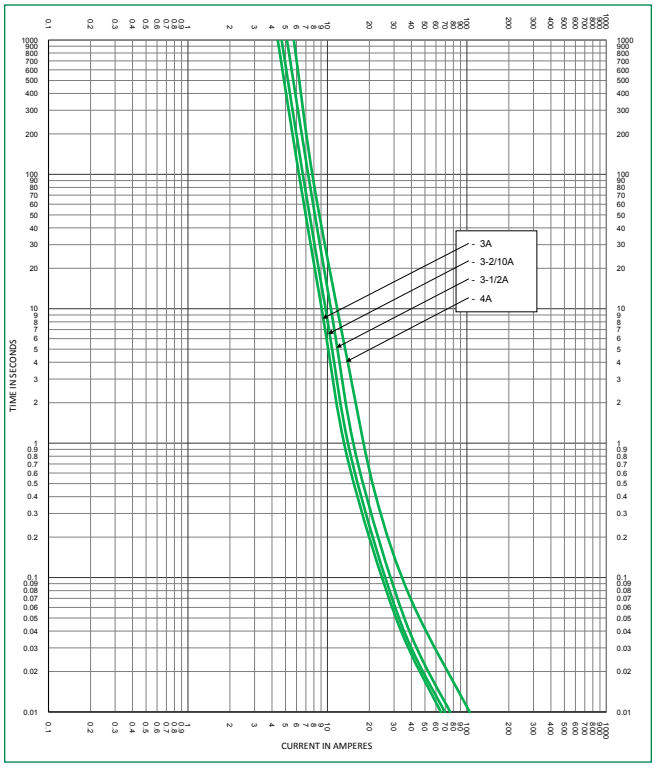
CLASS CC KLDR SERIES FUSES

Time Current Curves









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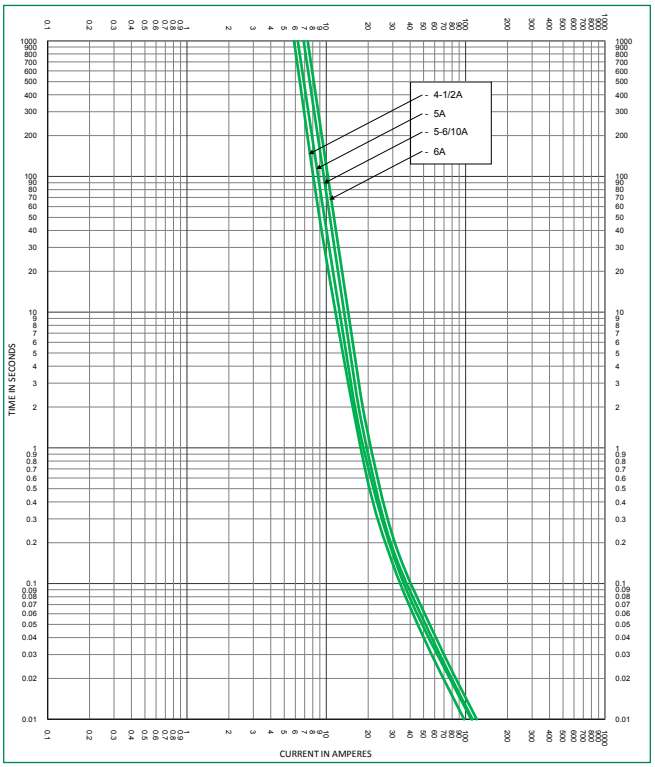
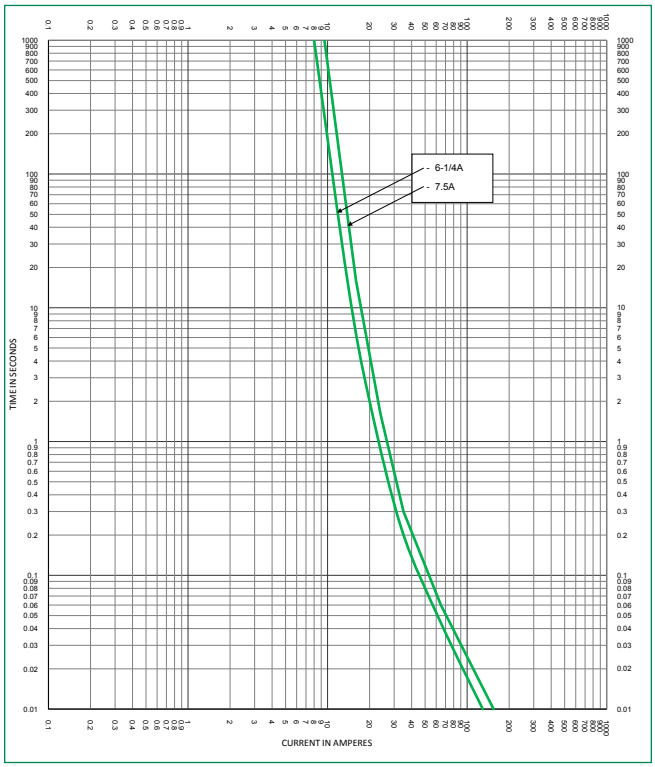
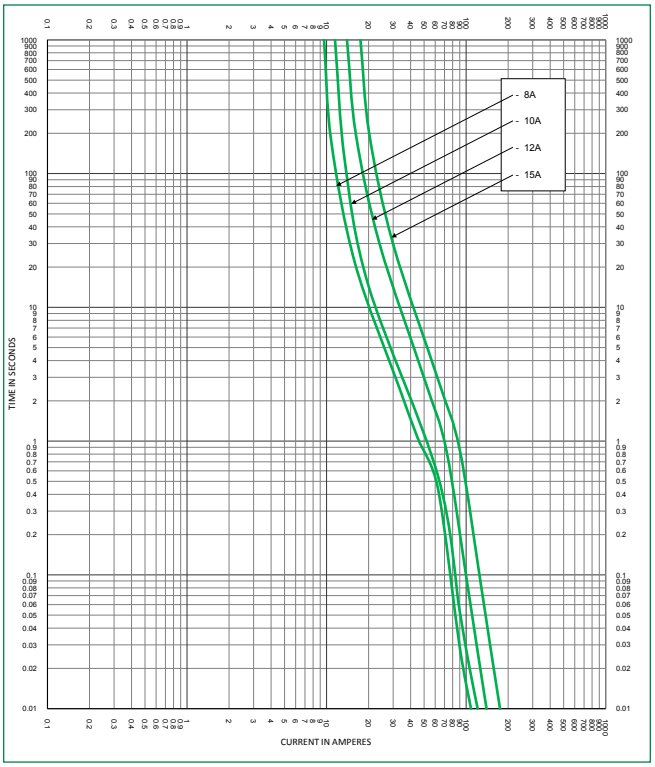
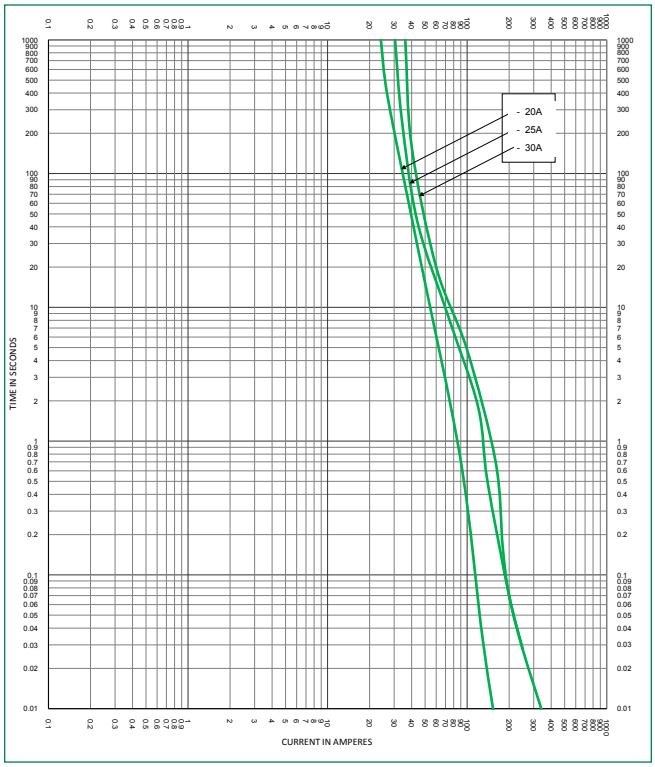
CLASS CC KLDR SERIES FUSES

Time Current Curves









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250 V ac / 125 V dc Time Delay Type Fuse FLM Series

QPL

ELECTRICAL CHARACTERISTICS:

% of Ampere Rating	Ampere Rating	Opening Time
135%	1/10-30	1 hour, **Max**imum
200%	32/10–30	12 seconds, **Min**imum
	0–3	5 seconds, **Min**imum

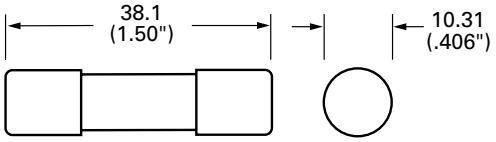
VOLTAGE RATINGS: 250 V ac
125 V dc self-certified @ 10 kA

INTERRUPTING RATING: 10,000 amperes at 250 V ac

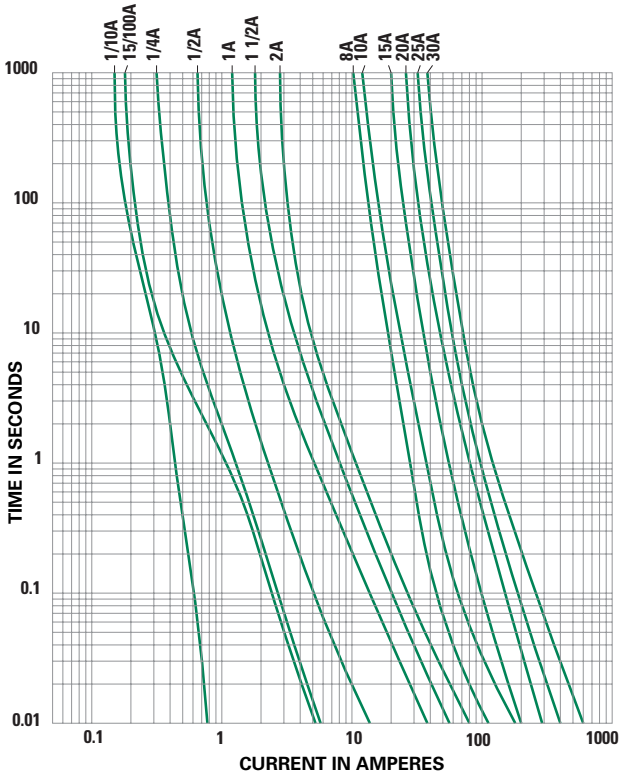
AGENCY APPROVALS: UL Listed (File:E10480)
CSA Certified (029862_0_000)

ORDERING INFORMATION:

Cartridge Catalog Number	Ampere Rating	AC Voltage Rating	Nominal Resistance Cold Ohms
FLM 1/10	.100	250	188.0
FLM 15/100	.150	250	87.0
FLM 2/10	.200	250	35.109
FLM 1/4	.250	250	16.82
FLM 3/10	.300	250	6.739
FLM 4/10	.400	250	5.413
FLM 1/2	.500	250	3.79
FLM 6/10	.600	250	2.05
FLM 8/10	.800	250	1.024
FLM 1	1	250	1.024
FLM 1 1/8	1.125	250	.6231
FLM 1 1/4	1.25	250	.6231
FLM 1 4/10	1.4	250	.395
FLM 1 1/2	1.5	250	.339
FLM 1 6/10	1.6	250	.286
FLM 1 8/10	1.8	250	.253
FLM 2	2	250	.2191
FLM 2 1/4	2.25	250	.184
FLM 2 1/2	2.5	250	.162
FLM 2 8/10	2.8	250	.125
FLM 3	3	250	.102
FLM 3 2/10	3.2	250	.0904
FLM 3 1/2	3.5	250	.0730
FLM 4	4	250	.0400
FLM 4 1/2	4.5	250	.0361
FLM 5	5	250	.0413
FLM 5 6/10	5.6	250	.0326
FLM 6	6	250	.0280
FLM 6 1/4	6.25	250	.0277
FLM 7	7	250	.02133
FLM 8	8	250	.01247
FLM 9	9	250	.01066
FLM 10	10	250	.00903
FLM 12	12	250	.00698
FLM 15	15	250	.00530
FLM 20	20	250	.00385
FLM 25	25	250	.00275
FLM 30	30	250	.00226



Average Time Current Curves



CATALOG CUT SHEETS

SECTION: 120

EnviroCare International

507 Green Island Road
American Canyon, CA 94503, USA
Tel. 707.638.6800
Fax. 707.638.6898

Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

Manufacturer: MARATHON
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
N/A	MARATHON, POWER DISTRIBUTION BLOCK, 1-TO-6	132X580

marathon™ Special Products

Product Data Sheet

132X580

Replace "x" with 1, 2, or 3 for number of poles
132X580 CH for attached hinged cover

Power Terminal Block

175 Amps 600 Volts AC/DC

Wire Range

- Line: (1) 2/0 - #14 AWG
- Load: (6) 4 - #14 AWG

Electrical Ratings

- 175 Amps
- 600V per UL 1059 & CSA 22.2 No.158, class B & C requirements
- Short circuit current ratings (SCCR): See SCCR section below for specifications
- CU7AL - 75°C connector terminal rating with copper or aluminum wire
- Factory & Field Wiring

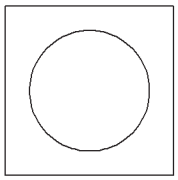
Agency Compliance

- UR - UL Recognized Terminal Block, Evaluated to UL 1059, File No.XCFR2.E62806
- CSA - certifed to C22.2 No. 158, File No. LR19766 (wire classes B & C only)
- CE compliant to IEC 60947-7-1

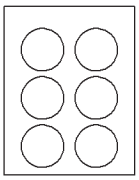
Material Information

- Insulator base:
  - Thermoplastic
  - Flammability rating of insulator base UL94V0
  - Insulator base temperature rating: -40°C to 125°C (UL RTI)
- Connector: aluminum, tin plated
- Line terminal screw: aluminum, tin plated
- Load terminal screws: steel, nickel plated
- Connector mounting screws: steel, zinc plated
- RoHS compliant

Termination Specifications

Line Side	Wire Size (CU Stranded)	Torque	Wires / Terminal	Wire Class (UL) [1]
	2/0 - 1/0	13.6 N·m (120 lbf·in)	1	B, C
	1 - 6	13.6 N·m (120 lbf·in)	1	B, C, G, H, I (DLO)
	8	4.5 N·m (40 lbf·in)	1	B, C, G, H, I (DLO)
	10 - 14	4 N·m (35 lbf·in)	1	B, C, I (DLO)

- Aluminum stranded wire range: 2/0 - #6 AWG
- Solid copper wire range: 10 - 14 AWG
- Wire strip length: 3/4 in. (19mm)
- Terminal screw drive: 5/16 in. hex

Load Side	Wire Size (CU Stranded)	Torque	Wires / Terminal	Wire Class (UL) [1]
	4	4 N·m (35 lbf·in)	1	B, C
	6 - 8	4 N·m (35 lbf·in)	1	B, C, G, H, I (DLO)
	10	4 N·m (35 lbf·in)	1 - 2	B, C, I (DLO)
	12 - 14	4 N·m (35 lbf·in)	1 - 4	B, C
			1 - 2	I (DLO)

- Aluminum stranded wire range: #6 AWG
- Solid copper wire range: 10 - 14 AWG
- Wire strip length: 3/4 in. (19mm)
- Terminal screw drive: 1/8 in. hex

[1] For information on copper stranded wire classes please visit:
http://www.marathonsp.com/flexible-stranded-wire.php

Short Circuit Current Ratings (SCCR)

- The suitable conductor ranges are limited to the table values only for achieving the SCCR in excess of the default rating of 10,000A.
- Other conductor combinations within the "Terminal Specifications" noted are suitable for achieving a SCCR of 10,000A (the default rating of terminal blocks).
- Enclosure size – Investigated with a minimum 16x12x6 enclosure. Use in smaller enclosures is subject to end use evaluation.

SCCR With Fuses

Wire Type	Suitable Conductors		Max Overcurrent Protection **Fuse** Required Amp Rating / Class						SCCR RMS Sym. Amps 600V. Max
	Line	Load	J	T	RK1	RK5	G	CC	
B, C	2/0 - 6	4 - 12	200	200	100	60	60	30	100,000
B, C	2/0 - 10	4 - 14	150	150	100	30	60	30	100,000
G, H, I	1 - 6	6 - 10	150	150	100	30	60	30	100,000
(*)	2/0 - 14	4 - 14	None						10,000

* Any wire class evaluated (see terminal specification section)

SCCR With Circuit Breakers

Suitable Conductors		Overcurrent Protection **Circuit Breaker** Required		Max AMP	Volts Max	SCCR RMS Sym. Amps
Line	Load	MFR	TYPE			
2/0 - 10	4 - 10	Square D	JJL36250	600	480	65,000
			JJL36250	600	600	25,000

Installation & Accessories

- Mounting (Panel or Din):
  - For use with #10 fastener.
  - Torque mounting fastener to 25-30 lbf·in (2.8 - 3.4 N·m).
  - 7.5 X 35 mm din rail mountable
  - When mounting four or five pole products, mounting on opposite corners at ends are recommended

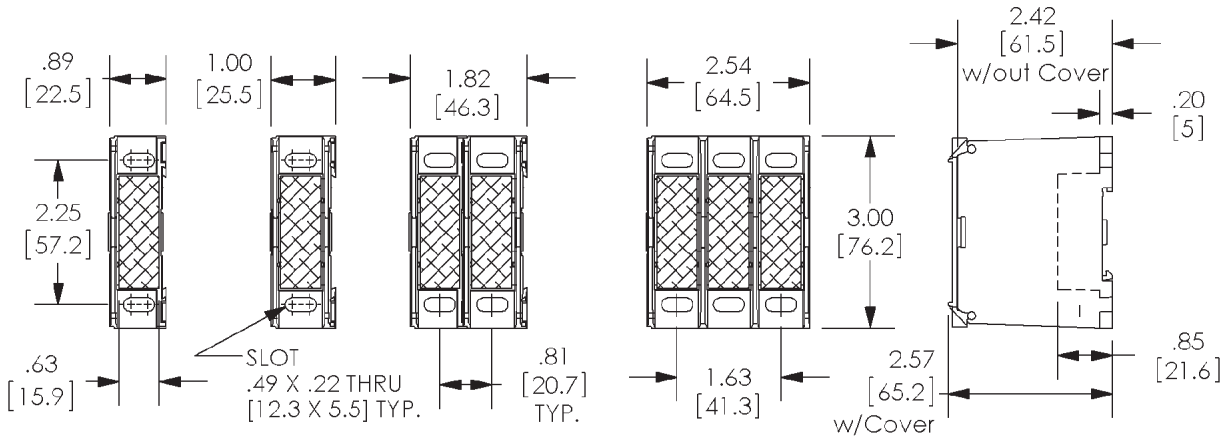
- Covers:
  - Snap on, hinge covers available upon request
  - Catalog Number: CH132x (replace “x” with number of poles)
  - Covers are black thermoplastic
  - Accessory covers are not intended to provide insulation for electrical spacings.

- Insulator base adders and 1 pole product can be snapped together through integral dovetails to create variable pole power blocks

- Marker Strip: white vinyl strip with mounting screws available.

- Printing options available, consult customer service for specifications

Drawing



CATALOG CUT SHEETS

SECTION: 121

EnviroCare International

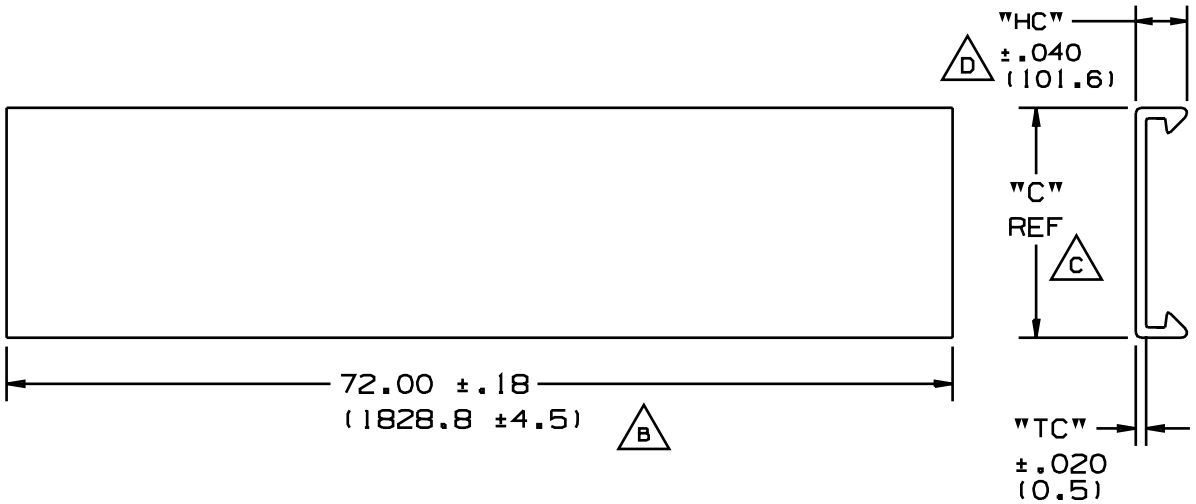
507 Green Island Road
American Canyon, CA 94503, USA
Tel. 707.638.6800
Fax. 707.638.6898

Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

Manufacturer: PANDUIT
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
N/A	PANDUIT 1"W X 3"H WIREWAY,WHITE, G TYPE	G1X3LG6
	PANDUIT 1" COVER, WHITE	C1WH6
	PANDUIT 2"W X 3"H WIREWAY,WHITE, G TYPE	G2X3LG6
	PANDUIT 2" COVER, WHITE	C2WH6
	PANDUIT 3"W X 3"H WIREWAY,WHITE, G TYPE	G3X3LG6
	PANDUIT 3" COVER, WHITE	C3WH6

THIS COPY IS PROVIDED ON A RESTRICTED BASIS AND IS NOT TO BE USED IN ANY WAY DETRIMENTAL TO THE INTERESTS OF PANDUIT CORP.



NOMINAL DUCT SIZE (W)	C in (mm)	TC in (mm)	HC in (mm)
.5	.69 (17.5)	.040 (1.0)	.230 (5.8)
.75	.94 (23.8)	.050 (1.3)	.240 (6.1)
1	1.25 (31.8)	.060 (1.5)	.350 (8.9)
1.5	1.75 (44.5)	"	"
2	2.25 (57.2)	"	"
2.5	2.75 (69.9)	"	"
3	3.25 (82.6)	.065 (1.6)	.370 (9.4)
4	4.25 (108.0)	"	"
6	6.25 (158.8)	.080 (2.0)	"

PART NO. SYSTEM
COVER EXAMPLE
C 1.5 LG 6
TYPE — WIDTH — COLOR — LENGTH (FT)

1. SEE CURRENT CATALOG FOR ADDITIONAL PART NUMBER SUFFIXES TO INDICATE COLOR AND OR PACKAGE QUANTITY.
2. DIMENSIONS IN PARENTHESIS ARE METRIC.

REV	DATE	BY	CHK	DESCRIPTION	ECN	R	CUST	SUP
2	8-24-01	JCST	JKG	D. CHANGED TOLERANCE C. MADE "C" A REFERENCE DIMENSION	34518-17	JKG	JKG	
1	2/11/00	JHNU	HIW	B. .18 WAS .125/ 4.5 WAS 3.2 A. REV'D TITLE; ADDED FS AND G DUCT TYPE	34518-17	HIW	HIW	
R	10-29-93	DW	CEF	RELEASED TO PRODUCTION.	34518-17	CEF		

CAD FILENAME/LAYERS: D34518BA_PVC_COVER_02A

PANDUIT CORP. TINLEY PARK, ILLINOIS

WIRING DUCT COVER FOR
DUCT TYPES "S", "D", "E", "F", "FS", AND "G"
CUSTOMER DRAWING

A

UNLESS OTHERWISE SPECIFIED, DIMENSIONAL TOLERANCES ARE:
(.X) ± (.XXX) ±
(.XX) ± ANGLES ±

UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE GIVEN IN INCHES. THIRD ANGLE PROJECTION.

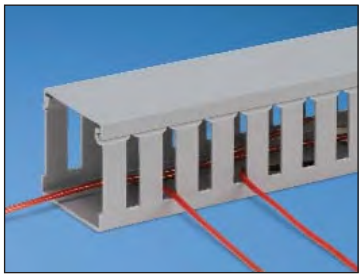
DRAWN BY: DW
DATE: 10-29-93
CHK'D: CEF

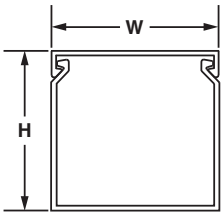
MAT'L: POLYVINYL CHLORIDE

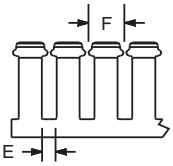
SCALE: NONE
DRAWING NO.: 34518-17
SIZE: A

Panduct® Type G Wide Slot Wiring Duct

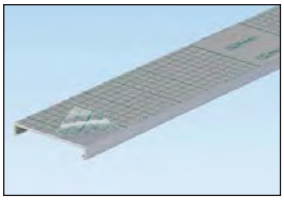
- Wide slot/finger design provides greater sidewall rigidity and can be used with a wide range of wire bundle sizes
- Material: Lead-free PVC
- UL recognized continuous use temperature: 122°F (50°C)
- UL 94 flammability rating of V-0
- Conforms with NFPA 79-2007 section 13.3.1 requirement for flame retardant material
- Provided with mounting holes
- Base and cover length is 6 feet







	E	F
For .5" duct height:	0.37" [9.4]	0.80" [20.3]
0.75" to 2" duct height:	0.31" [7.9]	0.80" [20.3]
3" to 4" duct height:	0.31" [7.9]	1.00" [25.4]
5" duct height:	0.38" [9.4]	1.33" [33.8]



To order cover with protective film add "-F" to part number. 6" cover not available with film.

Base Part Number	Duct Size (W x H)* In.	Duct Size (W x H)* mm	Slot Width In.	Slot Width mm	Cover Part Number	Std. Pkg. Qty.	Base Ctn. Qty.	Cover Ctn. Qty.
G.5X.5LG6	0.69 x 0.60	17.5 x 15.2	0.38	9.7	C.5LG6	6	120	120
G.5X1LG6	0.69 x 1.06	17.5 x 26.9	0.31	7.9	C.5LG6	6	120	120
G.5X2LG6	0.69 x 2.03	17.5 x 51.6	0.31	7.9	C.5LG6	6	120	120
G.75X.75LG6	0.93 x 0.82	23.6 x 20.8	0.31	7.9	C.75LG6	6	120	120
G.75X1LG6	0.93 x 1.06	23.6 x 26.9	0.31	7.9	C.75LG6	6	120	120
G.75X1.5LG6	0.93 x 1.57	23.6 x 39.9	0.31	7.9	C.75LG6	6	120	120
G.75X2LG6	0.93 x 2.03	23.6 x 51.7	0.31	7.9	C.75LG6	6	120	120
G1X1LG6	1.26 x 1.12	32.0 x 28.4	0.31	7.9	C1LG6	6	120	120
G1X1.5LG6	1.26 x 1.62	32.0 x 41.1	0.31	7.9	C1LG6	6	120	120
G1X2LG6	1.26 x 2.12	32.0 x 53.8	0.31	7.9	C1LG6	6	120	120
G1X3LG6	1.26 x 3.12	32.0 x 79.2	0.31	7.9	C1LG6	6	120	120
G1X4LG6	1.26 x 4.10	32.0 x 104.1	0.31	7.9	C1LG6	6	60	120
G1.5X1LG6	1.75 x 1.12	44.5 x 28.4	0.31	7.9	C1.5LG6	6	120	120
G1.5X1.5LG6	1.75 x 1.62	44.5 x 41.1	0.31	7.9	C1.5LG6	6	120	120
G1.5X2LG6	1.75 x 2.12	44.5 x 53.8	0.31	7.9	C1.5LG6	6	120	120
G1.5X3LG6	1.75 x 3.12	44.5 x 79.2	0.31	7.9	C1.5LG6	6	120	120
G1.5X4LG6	1.75 x 4.10	44.5 x 104.1	0.31	7.9	C1.5LG6	6	60	120
G2X1LG6	2.25 x 1.12	57.2 x 28.4	0.31	7.9	C2LG6	6	120	120
G2X1.5LG6	2.25 x 1.62	57.2 x 41.1	0.31	7.9	C2LG6	6	120	120
G2X2LG6	2.25 x 2.12	57.2 x 53.8	0.31	7.9	C2LG6	6	120	120
G2X3LG6	2.25 x 3.12	57.2 x 79.2	0.31	7.9	C2LG6	6	60	120
G2X4LG6	2.25 x 4.10	57.2 x 104.1	0.31	7.9	C2LG6	6	60	120
G2X5LG6	2.25 x 5.10	57.2 x 129.5	0.38	9.7	C2LG6	6	60	120
G2.5X3LG6	2.75 x 3.12	69.9 x 79.2	0.31	7.9	C2.5LG6	6	120	120
G3X1LG6	3.25 x 1.12	82.6 x 28.4	0.31	7.9	C3LG6	6	120	120
G3X2LG6	3.25 x 2.12	82.6 x 53.8	0.31	7.9	C3LG6	6	120	120
G3X3LG6	3.25 x 3.12	82.6 x 79.2	0.31	7.9	C3LG6	6	60	120
G3X4LG6	3.25 x 4.10	82.6 x 104.1	0.31	7.9	C3LG6	6	60	120
G3X5LG6	3.25 x 5.10	82.6 x 129.5	0.38	9.7	C3LG6	6	60	120
G4X1.5LG6	4.25 x 1.62	108.0 x 41.1	0.31	7.9	C4LG6	6	120	120
G4X2LG6	4.25 x 2.12	108.0 x 53.8	0.31	7.9	C4LG6	6	60	120
G4X3LG6	4.25 x 3.12	108.0 x 79.2	0.31	7.9	C4LG6	6	60	120
G4X4LG6	4.25 x 4.10	108.0 x 104.1	0.31	7.9	C4LG6	6	60	120
G4X5LG6	4.25 x 5.10	108.0 x 129.5	0.38	9.7	C4LG6	6	60	120
G6X4LG6	6.25 x 4.15	158.8 x 105.4	0.31	7.9	C6LG6	6	60	120

Part number shown for LG (Light Gray). For other color availability see color selection guide, page C1.48.
Base and cover sold separately.
*"H" dimension includes duct and cover.

CATALOG CUT SHEETS

SECTION: 122

EnviroCare International

507 Green Island Road
American Canyon, CA 94503, USA
Tel. 707.638.6800
Fax. 707.638.6898

Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

Manufacturer: PANDUIT
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
N/A	PANDUIT GROUND BAR, 12 PORT	UGB2/0-414-12
	PANDUIT GROUND BAR, STAND-OFF KIT	UGB-IN-SO

StructuredGround™ Universal Ground Bar System

PANDUIT®

SPECIFICATION SHEET

specifications

Provide a field wiring terminal for the connection of an equipment grounding conductor in each control panel and enclosure. The terminal shall be UL 467 Listed or CSA 22.2 certified. The equipment grounding conductor shall have electrical continuity with the enclosure or sub-panel. The field wiring terminal may also provide multiple locations or ports for terminating equipment ground conductors from devices inside the panel or enclosure, functioning as the ground bar within the panel or enclosure. The ground bar shall provide a means to attach and to identify the main equipment grounding conductor.

PATENTED

technical information

Performance level:	UL 467 Listed and CSA 22.2 Certified for grounding and bonding an equipment grounding conductor up to 2/0 AWG; meets UL 508A requirements
Main:	Provides a location for the main equipment grounding conductor using a compression or mechanical connector
Wire ports:	Accept bare stripped copper wire from #14 to #4 AWG Accept wire ferrules from #14 AWG to #6 AWG Top of ground bar accepts ring terminals, compression connectors or mechanical connectors with a ¼" stud hole size and maximum width of 0.55"
Materials:	Ground bars and bonding stand-offs precision machined from 110 electrolytic copper with a 99.9% copper content and then tin-plated for additional corrosion resistance
Packaging:	Each part is provided with all fasteners required for terminating wires and for each mounting option

key features and benefits

Flexible design	Works with all types of wire termination methods including stripped wire, ferrules, terminals, and compression or mechanical connectors; compatible with over 140 Panduit connectors
Multiple mounting options	In addition to surface mounting, two mounting stand-off options are available, one that bonds to the mounting surface and one that isolates from the mounting surface; both options provide additional finger wiring space in tight places
Unique geometry	The unique shape of the universal ground bar allows more surface contact between the wire connectors and the ground bar

applications

The patented StructuredGround™ Universal Ground Bar System (UGB) offers multiple termination methods and mounting options making it ideal for any control panel or enclosure application. The UGB enables the end user to choose the method in which to terminate conductors with connectors of their choice or simply cut and strip the wires. The UGB system will help reduce the types of ground bars that a panel shop or distributor needs to keep in stock to meet the various applications and customer requirements.

Universal Ground Bar System

6-port ground bar:	UGB2/0-414-6
12-port ground bar:	UGB2/0-414-12
18-port ground bar:	UGB2/0-414-18
Isolation standoffs:	UGB-IN-SO
Bonding standoffs:	UGB-B-SO

Recommended Connectors for Main Equipment Ground Conductor, Maximum 2/0 AWG

Copper Mechanical with Anti-Rotation

#14 – 2/0 AWG:	CLMAR2/0-14-Q

Two-Hole Copper Compression, 1/4" Stud Hole with 5/8" Spacing; #14 to 2/0 AWG

#14 – 10 AWG:	LCA10-14A-L
#8 AWG:	LCD8-14A-L
#6 AWG:	LCD6-14A-L
#4 AWG:	LCD4-14A-L
#2 AWG:	LCD2-14A-Q
#1 AWG:	LCD1-14A-E
1/0 AWG:	LCD1/0-14A-X
2/0 AWG:	LCD2/0-14A-X

One-Hole Copper Compression, 1/4" Stud Hole; #14 to 2/0 AWG

#14 – 10 AWG:	LCA10-14-L
#8 AWG:	LCAS8-14-L
#6 AWG:	LCAS6-14-L
#4 AWG:	LCAS4-14-L
#2 AWG:	LCAS2-14-Q
#1 AWG:	LCAS1-14-E
1/0 AWG:	LCAS1/0-14-X
2/0 AWG:	LCAS2/0-14-X

One and two-hole copper compression connectors available for both code and flex conductors, with narrow tongue and bent tongue configurations.

Recommended Connectors for Port Connections

Ring Terminals, ¼" Stud Hole, Maximum Width of 0.55"; #22 to #4 AWG

Ring terminals available with vinyl, nylon, KYNAR*, high-temp, or heavy duty insulation or non-insulated.

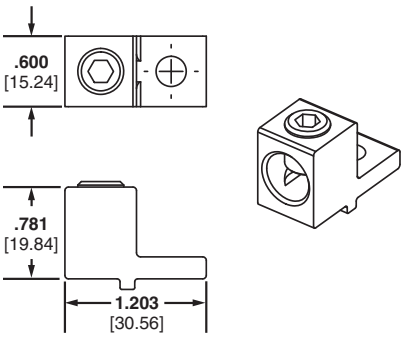
Compression Connectors, Maximum Width of 0.55"; up to #4 AWG Typical

Ferrules, Minimum Pin Depth of 12mm; #14 to #6 AWG

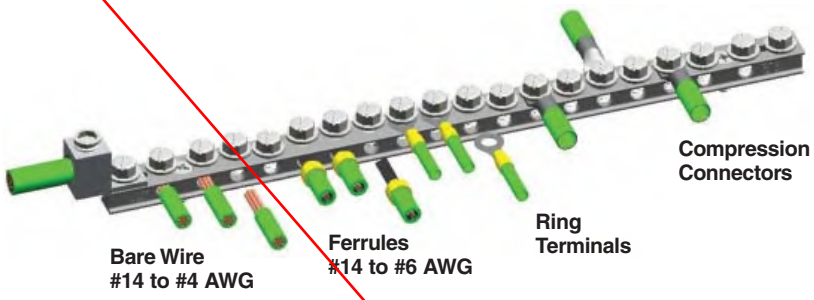
*KYNAR is a registered trademark of Atofina Chemicals, Inc.

StructuredGround™ Universal Ground Bar System

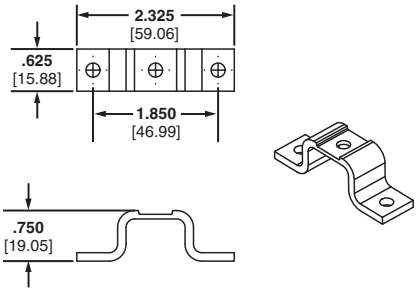
CLMAR2/0-14-Q: Tin-plated copper connector with anti-rotational feature.



UGB2/0-414-18: 18-port UGB mounted directly to surface with the equipment grounding conductor terminated in an anti-rotational, copper mechanical connector.

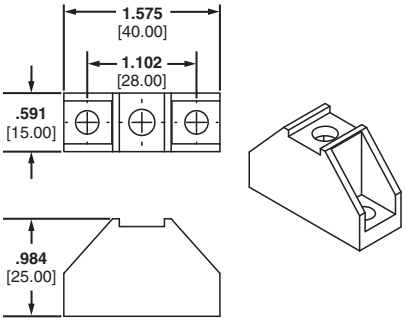


UGB-B-SO: Bonding stand-off.

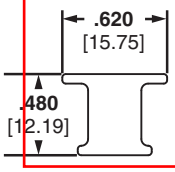


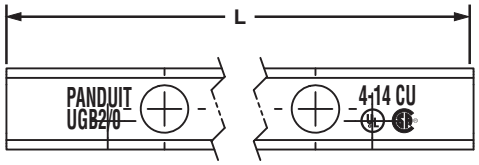
UGB2/0-414-12: 12-port UGB mounted on bonding stand-offs with the equipment grounding conductor terminated in a two-hole compression lug.

UGB-IN-SO: Isolation stand-off.



UGB2/0-414-6: 6-port UGB mounted on isolation stand-offs with the equipment grounding conductor terminated in an anti-rotational, copper mechanical connector.





Part Number	"L" Dim.
~~UGB2/0-414-6~~	~~4.92" (125mm)~~
UGB2/0-414-12	8.28" (210mm)
~~UGB2/0-414-18~~	~~11.64" (295mm)~~

WORLDWIDE SUBSIDIARIES AND SALES OFFICES

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Markham, Ontario
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Phone: 61.3.9794.9020

For a copy of Panduit product warranties, log on to www.panduit.com/warranty

For more information

Visit us at www.panduit.com

Contact Customer Service by email: cs@panduit.com or by phone: 800.777.3300

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GRSP01--SA-ENG
Replaces SA-GRSP08
9/2013

CATALOG CUT SHEETS

SECTION: 123

EnviroCare International

507 Green Island Road
American Canyon, CA 94503, USA
Tel. 707.638.6800
Fax. 707.638.6898

Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

Manufacturer: NOT USED
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
N/A	SECTION NOT USED	

CATALOG CUT SHEETS

SECTION: 124

EnviroCare International

507 Green Island Road
American Canyon, CA 94503, USA
Tel. 707.638.6800
Fax. 707.638.6898

Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

Manufacturer: NOT USED
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
N/A	SECTION NOT USED	

CATALOG CUT SHEETS

SECTION: 125

EnviroCare International

507 Green Island Road
American Canyon, CA 94503, USA
Tel. 707.638.6800
Fax. 707.638.6898

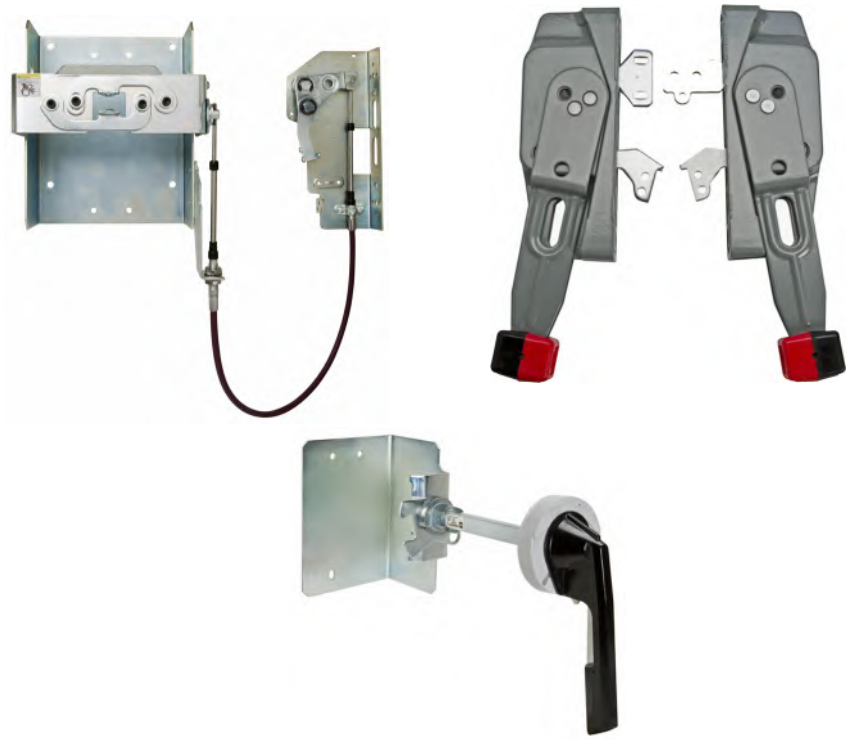
Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

Manufacturer: SQUARED
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
N/A	SQUARED, MAIN DISCONNECT, CABLE MECHANISM	9422CSF30
	SQUARED, MAIN DISCONNECT, CB MECHANISM	9422RQ1
	SQUARED, MAIN DISCONNECT, HANDLE MECHANISM	9422-A2

Operating Mechanisms, Disconnect Switches, and Door-Closing Mechanisms

Catalog
9420CT9701R09/15
2017



CONTENTS

SQUARE D™

by Schneider Electric

Class 9422 Flexible Cable Mechanisms for Use with Square D Circuit Breakers and Class 9422 Handle Operators

Designed for tall, deep enclosures where placement flexibility is required.

Breaker or Interrupter Type	Number of Poles	Frame Size (A)	Cable Mechanism		Cable Mechanisms with A1 Handle For Types 1, 3, 3R, 12
			Total Length (in.)	Catalog No.	Catalog No.
PowerPact™ B	3	125	36 60 84 120	9422CSB30 9422CSB50 9422CSB70 9422CSB10	N/A
PowerPact D	3	600	36 60 120	9422CSJ30 9422CSJ50 9422CSJ10	N/A
	4	600	36 60 120	9422CSJ304 9422CSJ504 9422CSJ104	N/A
PowerPact H	3	150	36 60 84 120	9422CSF30 9422CSF50 9422CSF70 9422CSF10	N/A
PowerPact J	3	250	36 60 84 120	9422CSF30 9422CSF50 9422CSF70 9422CSF10	N/A
PowerPact L	3	600	36 60 120	9422CSJ30 9422CSJ50 9422CSJ10	N/A
PowerPact M	3	800	48 50 120	9422CMP40 9422CMP50 9422CMP10	N/A
PowerPact P	3	1200	48 50 120	9422CMP40 9422CMP50 9422CMP10	N/A
FAL, FCL, FHL	2, 3	100	36 60 120	9422CFA30 9422CFA50 9422CFA10	9422CFA31 9422CFA51 9422CFA11
LAL, LHL	2, 3	400	36 60 120	9422CLA30 9422CLA50 9422CLA10	9422CLA31 9422CLA51 9422CLA11
GJL	3	75, 100	36 48 60 120	9422CGJ30 9422CGJ40 9422CGJ50 9422CGJ10	9422CGJ31 9422CGJ41 9422CGJ51 —

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SQUARE D™
by Schneider Electric

Variable-Depth Mechanisms for Use with Square D Circuit Breakers

Designed for installation in custom built control enclosures where main or branch circuit protective devices are required. All circuit breaker operating mechanisms are suitable for either right- or left-hand flange mounting, convertible on the job.

Use With				Operating Mechanism		
Breaker or Interrupter Type	No. of Poles	Frame Size (A)	Variable Depth Mtg. Range Min.–Max.[1] (Inches)	Operating Mechanism Only — Does Not Include Handle Mechanism	Operating Mechanism and Handle Mechanism	
					Includes Type A1 Handle Mechanism	Includes Type A2 Handle Mechanism
				Catalog No.	Catalog No.	Catalog No.
PowerPact B	2, 3	125	5.88–17.75	9422RB1	N/A	N/A
PowerPact D	3	600	7.25–12.0625	9422RS1	N/A	N/A
PowerPact H	3	150	6.51–17.88	9422RQ1	N/A	N/A
PowerPact J	3	250	6.51–17.88	9422RQ1	N/A	N/A
PowerPact L	3	600	7.44–18.25	9422RS1	N/A	N/A
PowerPact M	3	800	10.50–18.90	9422RM1	N/A	N/A
PowerPact P	3	1200	10.50–18.90	9422RM1	N/A	N/A
FAL, FCL, FHL	2, 3	100	5.38–17.75	9422RN1	9422ARN11	9422ARN21
LAL, LHL	2, 3	400	7.44–18.25	9422RR1	9422ARR11	9422ARR21
GJL	3	75, 100	6.00–17.75	9422RG1	9422ARG11	9422ARG21

[1] Class 9422 Type R2 extends mounting depth by 7 in. with the exception of 9422 RM1.

Electrical Interlocks – Class 9999

External Electrical Interlock Kits Class 9999

File E62922
CCN: DIHS2

File LR44199
Class 3211 07

Description	Class	Type
Single Pole, Double Throw	9999	R26
Double Pole, Double Throw	9999	R27
For use on 9422RM, RN, RQ, RS, and RR.		

Internal Electrical Interlocks

Circuit Breaker Type	Catalog Number	Max. per Circuit Breaker
PowerPact B	S29450	2
PowerPact H	S29450	2
PowerPact J	S29450	2
PowerPact L	S29450	2
PowerPact M	S29450	2
PowerPact P	S29450	2
GJL	AAC	1

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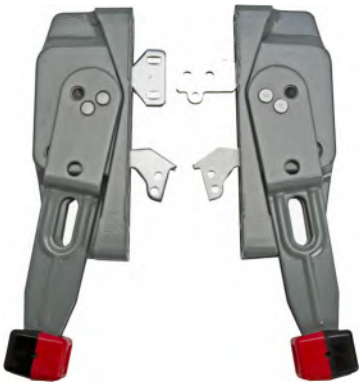

Handle Mechanisms

Handle Mechanisms

These handle mechanism kits are used with the circuit breaker variable depth and cable operating mechanisms. The kits contain all parts necessary for mounting the handle to the flange of the enclosure. Types A1/AP1 to A4 are suitable for right or left-hand flange mounting.

Type of Handle	NEMA Type Enclosure	Type
6 in.	1, 3, 3R, 4 (sheet steel), 12	A1
	4, 4X (stainless)[1]	A2
6 in.[2]	1, 3, 3R, 4 (sheet steel), 12	AP1
	4, 4X (stainless)[1]	AP2
4 in.	1, 3, 3R, 4 (sheet steel), 12	A3
	4, 4X (stainless) [1]	A4

1 All external metal parts are either stainless steel or a chrome-plated non-ferrous die casting.

2 Must be used with 9422RM1, 9422CMP, and 9422CSJD (dual cable mechanism) only.

NOTE: See the *Digest* for dimensions.

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CATALOG CUT SHEETS

SECTION: 126

EnviroCare International

507 Green Island Road
American Canyon, CA 94503, USA
Tel. 707.638.6800
Fax. 707.638.6898

Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

Manufacturer: SQUARED
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
CB1	SQUARED, MAIN CIRCUIT BREAKER 50A	HJ36050

HD and HG 2P
Thermal-Magnetic Trip Unit
(2P HJ, HL in 3P module)

H-Frame
Thermal-Magnetic Trip Unit

New!

Table 7.37: H-Frame 150 A Thermal-Magnetic UL Current-Limiting★ Circuit Breakers(600 Vac, 250 Vdc) With Factory Sealed Trip Unit Suitable for Reverse Connection▲

Current Rating @ 40°C	Fixed AC Magnetic Trip		Cat. No.■♦	Interrupting Rating (2nd Letter of Catalog Number)								Terminal Wire Range
				D		G		J★		L★		
				$ Price								
	Hold	Trip		80% Rated	100% Rated	80% Rated	100% Rated	80% Rated	100% Rated	80% Rated	100% Rated	
H-Frame, 150A 2P, 600 Vac 50/60 Hz, 250 Vdc												
15 A	350 A	750 A	H( )L26015(C)	870.00	1044.00	1269.00	1523.00	1559.00	1871.00	2364.00	2837.00	AL150HD 14–3/0 AWG Al or Cu
20 A	350 A	750 A	H( )L26020(C)	870.00	1044.00	1269.00	1523.00	1559.00	1871.00	2364.00	2837.00	
25 A	350 A	750 A	H( )L26025(C)	870.00	1044.00	1269.00	1523.00	1559.00	1871.00	2364.00	2837.00	
30 A	350 A	750 A	H( )L26030(C)	870.00	1044.00	1269.00	1523.00	1559.00	1871.00	2364.00	2837.00	
35 A	400 A	850 A	H( )L26035(C)	870.00	1044.00	1269.00	1523.00	1559.00	1871.00	2364.00	2837.00	
40 A	400 A	850 A	H( )L26040(C)	870.00	1044.00	1269.00	1523.00	1559.00	1871.00	2364.00	2837.00	
45 A	400 A	850 A	H( )L26045(C)	870.00	1044.00	1269.00	1523.00	1559.00	1871.00	2364.00	2837.00	
50 A	400 A	850 A	H( )L26050(C)	870.00	1044.00	1269.00	1523.00	1559.00	1871.00	2364.00	2837.00	
60 A	800 A	1450 A	H( )L26060(C)	870.00	1044.00	1269.00	1523.00	1559.00	1871.00	2364.00	2837.00	
70 A	800 A	1450 A	H( )L26070(C)	1062.00	1274.00	1497.00	1797.00	1721.00	2066.00	2613.00	3137.00	
80 A	800 A	1450 A	H( )L26080(C)	1062.00	1274.00	1497.00	1797.00	1721.00	2066.00	2613.00	3137.00	
90 A	800 A	1450 A	H( )L26090(C)	1062.00	1274.00	1497.00	1797.00	1721.00	2066.00	2613.00	3137.00	
100 A	800 A	1700 A	H( )L26100(C)	1062.00	1274.00	1497.00	1797.00	1721.00	2066.00	2613.00	3137.00	
110 A	900 A	1700 A	H( )L26110(C)	2072.00	2486.00	3059.00	3671.00	4449.00	5339.00	5534.00	6641.00	
125 A	900 A	1700 A	H( )L26125(C)	2072.00	2486.00	3059.00	3671.00	4449.00	5339.00	5534.00	6641.00	
150 A	900 A	1700 A	H( )L26150(C)	2072.00	2486.00	3059.00	3671.00	4449.00	5339.00	5534.00	6641.00	
H-Frame 150A 3P, 600 Vac 50/60 Hz, 250 Vdc												
15 A	350 A	750 A	H( )L36015(C)	1088.00	1305.00	1493.00	1791.00	1949.00	2339.00	2849.00	3419.00	
20 A	350 A	750 A	H( )L36020(C)	1088.00	1305.00	1493.00	1791.00	1949.00	2339.00	2849.00	3419.00	
25 A	350 A	750 A	H( )L36025(C)	1088.00	1305.00	1493.00	1791.00	1949.00	2339.00	2849.00	3419.00	
30 A	350 A	750 A	H( )L36030(C)	1088.00	1305.00	1493.00	1791.00	1949.00	2339.00	2849.00	3419.00	
35 A	400 A	850 A	H( )L36035(C)	1088.00	1305.00	1493.00	1791.00	1949.00	2339.00	2849.00	3419.00	
40 A	400 A	850 A	H( )L36040(C)	1088.00	1305.00	1493.00	1791.00	1949.00	2339.00	2849.00	3419.00	
45 A	400 A	850 A	H( )L36045(C)	1088.00	1305.00	1493.00	1791.00	1949.00	2339.00	2849.00	3419.00	
50 A	400 A	850 A	H( )L36050(C)	1088.00	1305.00	1493.00	1791.00	1949.00	2339.00	2849.00	3419.00	AL150HD 14–3/0 AWG Al or Cu
60 A	800 A	1450 A	H( )L36060(C)	1088.00	1305.00	1493.00	1791.00	1949.00	2339.00	2849.00	3419.00	
70 A	800 A	1450 A	H( )L36070(C)	1328.00	1592.00	1701.00	2042.00	2099.00	2519.00	3149.00	3779.00	
80 A	800 A	1450 A	H( )L36080(C)	1328.00	1592.00	1701.00	2042.00	2099.00	2519.00	3149.00	3779.00	
90 A	800 A	1450 A	H( )L36090(C)	1328.00	1592.00	1701.00	2042.00	2099.00	2519.00	3149.00	3779.00	
100 A	800 A	1700 A	H( )L36100(C)	1328.00	1592.00	1701.00	2042.00	2099.00	2519.00	3149.00	3779.00	
110 A	900 A	1700 A	H( )L36110(C)	2600.00	3120.00	3599.00	4319.00	5174.00	6209.00	6749.00	8099.00	
125 A	900 A	1700 A	H( )L36125(C)	2600.00	3120.00	3599.00	4319.00	5174.00	6209.00	6749.00	8099.00	
150 A	900 A	1700 A	H( )L36150(C)	2600.00	3120.00	3599.00	4319.00	5174.00	6209.00	6749.00	8099.00	

New!

Table 7.38: J-Frame 250 A Thermal-Magnetic UL Current-Limiting★ Circuit Breakers (600 Vac, 250 Vdc) With Factory Sealed Trip Unit Suitable for Reverse Connection▲

Current Rating @ 40°C	Adjustable AC Magnetic Trip		Cat. No.■♦	Interrupting Rating (2nd Letter of Catalog Number)										Terminal Wire Range
				D		G		J★		L★		R★		
				$ Price										
	Low	High		80% Rated	100% Rated	80% Rated	100% Rated	80% Rated	100% Rated	80% Rated	100% Rated	80% Rated	100% Rated	
J-Frame 250A 2P, 600 Vac 50/60 Hz, 250 Vdc														
150 A	750 A	1500 A	J( )L26150(C)	2175.00	2610.00	3212.00	3854.00	4671.00	5606.00	5811.00	6972.00	—	—	AL175JD 4–4/0 AWG Al or Cu
175 A	875 A	1750 A	J( )L26175(C)	2175.00	2610.00	3212.00	3854.00	4671.00	5606.00	5811.00	6972.00	—	—	
200 A	1000 A	2000 A	J( )L26200(C)	2175.00	2610.00	3212.00	3854.00	4671.00	5606.00	5811.00	6972.00	—	—	AL250JD 3/0 AWG–350 kcmil Al or Cu
225 A	1125 A	2250 A	J( )L26225(C)	2175.00	2610.00	3212.00	3854.00	4671.00	5606.00	5811.00	6972.00	—	—	
250 A	1250 A	2500 A	J( )L26250(C)	2988.00	3585.00	4251.00	5102.00	6225.00	7469.00	7194.00	8633.00	—	—	
J-Frame 250A 3P, 600 Vac 50/60 Hz, 250 Vdc														
150 A	750 A	1500 A	J( )L36150(C)	2730.00	3276.00	3779.00	4535.00	5432.00	6519.00	7086.00	8504.00	9212.00	11055.00	AL175JD 4–4/0 AWG Al or Cu
175 A	875 A	1750 A	J( )L36175(C)	2730.00	3276.00	3779.00	4535.00	5432.00	6519.00	7086.00	8504.00	9212.00	11055.00	
200 A	1000 A	2000 A	J( )L36200(C)	2730.00	3276.00	3779.00	4535.00	5432.00	6519.00	7086.00	8504.00	9212.00	11055.00	AL250JD 3/0 AWG–350 kcmil Al or Cu
225 A	1125 A	2250 A	J( )L36225(C)	2730.00	3276.00	3779.00	4535.00	5432.00	6519.00	7086.00	8504.00	9212.00	11055.00	
250 A	1250 A	2500 A	J( )L36250(C)	3749.00	4499.00	5001.00	6002.00	7238.00	8685.00	8993.00	10791.00	11169.00	13402.00	

▲ See Supplemental Digest pages 3-2 and 3-3 for circuit breakers with field interchangeable trip units.
■ To complete catalog number, replace the blank with the appropriate rating (D, G, J, L).
♦ For 100% rated circuit breakers add a "C" in the 9th character place (for example, HDL26015**C** or JDL26150**C**).
100% rated H- and J-frame circuit breakers have copper lugs and can only be used with copper wire.
★ Circuit breakers with J, L, and R interrupting ratings are UL certified as current limiting..

Table 7.39: H- and J-Frame Termination Options

Termination Letter
A = I-Line (See Section 9)
F = No Lugs (includes terminal nut kit on both ends)
L = Lugs both ends
M = Lugs ON end Terminal Nut Kit OFF end
P = Lugs OFF end Terminal Nut Kit ON end
N = Plug-in ▼
D = Drawout ▼
S = Rear Connected ▼

For factory-installed termination, place termination letter in the third block of the circuit breaker catalog number.

H G L 3 6 1 0 0
└ Termination Letter

Plug-in

Drawout

Rear Connected

▼ For N and D pricing, add termination pricing on page 7-45 to price. For S pricing, add termination pricing on page 7-41 to price.

Table 7.40: H- and J-Frame Interrupting Ratings

Voltage	Interrupting Rating				
	D	G	J	L	R
240 Vac	25 kA	65 kA	100 kA	125 kA	200 kA
480 Vac	18 kA	35 kA	65 kA	100 kA	200 kA
600 Vac	14 kA	18 kA	25 kA	50 kA	100 kA

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CATALOG CUT SHEETS

SECTION: 127

EnviroCare International

507 Green Island Road
American Canyon, CA 94503, USA
Tel. 707.638.6800
Fax. 707.638.6898

Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

Manufacturer: SQUARED
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
M1, M2, M3, H4	SQUARED, MOTOR STARTER, SIZE 00	8536SAO1V02H31S
	SQUARED, MOTOR STARTER, SIZE 0	8536SBO1V02H31S
	SQUARED, MOTOR STARTER, SIZE 2	8536SDO1V02H31S
	SQUARED, OVERLOAD PROTECT & REMOTE RESET	9999RR04

Product data sheet

Specifications

NEMA Motor Starter, Type S, nonreversing, Size 00, 9A, 2 HP at 460 VAC, up to 100 kA SCCR, 3 phase, 3 pole, Motor Logic, 120 VAC coil, open

8536SAO12V02H31S

Product availability : Non-Stock - Not normally stocked in distribution facility

Main

Product Type	Motor starter
Product Range	S
Starter Type	Non reversing

Complementary

NEMA Size	00
Rated Current	9 A
Number of Poles	3P
Maximum Voltage Rating	600 V AC
Phase	3 phase
Type of Overload	Solid state Motor Logic class 10/20
Horsepower Rating	1.5 HP 200 V AC 1.5 HP 230 V AC 2 HP 460 V AC 2 HP 575 V AC
SCCR	Circuit-breaker 70 A maximum: 100 kA at 480 V AC Fuse J 60 A maximum: 100 kA at 600 V AC Fuse T 60 A maximum: 100 kA at 600 V AC Fuse RK1 60 A maximum: 100 kA at 600 V AC Fuse RK5 60 A maximum: 100 kA at 600 V AC
Coil Voltage	110 V AC 50 Hz 120 V AC 60 Hz
Control Circuit Type	Separate control circuit
Control Units	No control units
Pilot Light	Without pilot light
Auxiliary Contacts	Without
Terminal Type	Screw clamp terminals
Height	6.81 in (172.96 mm)
Width	3.50 in (88.90 mm)
Depth	4.22 in (107.19 mm)

Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications

Environment

Enclosure Type	Not rated (open device)
Certifications	UL Listed CSA NEMA

Ordering and shipping details

Category	21191 - 8502,36 SA,SB(NOT S*R,T,W)
Discount Schedule	CP1
GTIN	785901498117
Nbr. of units in pkg.	1
Package weight(Lbs)	5.00 lb(US) (2.268 kg)
Returnability	No
Country of origin	MX

Packing Units

Unit Type of Package 1	PCE
Package 1 Height	6.81 in (17.3 cm)
Package 1 width	3.50 in (8.9 cm)
Package 1 Length	4.21 in (10.7 cm)

Offer Sustainability

California proposition 65	WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov
REACh Regulation	REACh Declaration
EU RoHS Directive	Not compliant
China RoHS Regulation	China RoHS declaration Product out of China RoHS scope. Substance declaration for your information.
PVC free	Yes

Contractual warranty

Warranty	18 months

Product data sheet

Specifications

NEMA Motor Starter, Type S, nonreversing, Size 0, 18A, 5 HP at 460 VAC, up to 100 kA SCCR, 3 phase, 3 pole, Motor Logic, 120 VAC coil, open

8536SBO2V02H31S

Product availability : Non-Stock - Not normally stocked in distribution facility

Price* : 633.50 USD

Main

Product Type	Motor starter
Product Range	S
Starter Type	Non reversing

Complementary

NEMA Size	0
Rated Current	18 A
Number of Poles	3P
Maximum Voltage Rating	600 V AC
Phase	3 phase
Type of Overload	Solid state Motor Logic class 10/20
Horsepower Rating	3 HP 200 V AC 3 HP 230 V AC 5 HP 460 V AC 5 HP 575 V AC
SCCR	Circuit-breaker 70 A maximum: 100 kA at 480 V AC Fuse J 60 A maximum: 100 kA at 600 V AC Fuse T 60 A maximum: 100 kA at 600 V AC Fuse RK1 60 A maximum: 100 kA at 600 V AC Fuse RK5 60 A maximum: 100 kA at 600 V AC
Coil Voltage	110 V AC 50 Hz 120 V AC 60 Hz
Control Circuit Type	Separate control circuit
Control Units	No control units
Pilot Light	Without pilot light
Auxiliary Contacts	Without
Terminal Type	Screw clamp terminals
Height	6.81 in (172.96 mm)
Width	3.50 in (88.90 mm)
Depth	4.22 in (107.19 mm)

* Price is “List Price” and may be subject to a trade discount – check with your local distributor or retailer for actual price.

Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications

Environment

Enclosure Type	Not rated (open device)
Certifications	UL Listed CSA NEMA

Ordering and shipping details

Category	21191 - 8502,36 SA,SB(NOT S*R,T,W)
Discount Schedule	CP1
GTIN	785901521020
Nbr. of units in pkg.	1
Package weight(Lbs)	4.00 lb(US) (1.814 kg)
Returnability	No
Country of origin	MX

Packing Units

Unit Type of Package 1	PCE
Package 1 Height	6.81 in (17.3 cm)
Package 1 width	3.50 in (8.9 cm)
Package 1 Length	4.21 in (10.7 cm)

Offer Sustainability

California proposition 65	WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov
REACh Regulation	REACh Declaration
EU RoHS Directive	Not compliant
China RoHS Regulation	China RoHS declaration Product out of China RoHS scope. Substance declaration for your information.
PVC free	Yes

Contractual warranty

Warranty	18 months

Product data sheet
Characteristics

8536SDO1V02H31S
NEMA Motor Starter, Type S, nonreversing, Size 2, 45A, 25 HP at 460 VAC, up to 100 kA SCCR, 3 phase, 3 pole, Motor Logic, 120 VAC coil, open

Product availability : Non-Stock - Not normally stocked in distribution facility

Price* : 1,173.50 USD

Main

Product Type	Motor starter
Product Range	S
Starter Type	Non reversing

Complementary

NEMA Size	2
Rated Current	45 A
Number of Poles	3P
Maximum Voltage Rating	600 V AC
Phase	3 phase
Type of Overload	Solid state Motor Logic class 10/20
Horsepower Rating	10 HP 200 V AC 15 HP 230 V AC 25 HP 460 V AC 25 HP 575 V AC
SCCR	Circuit-breaker 100 A maximum: 100 kA at 480 V AC Fuse J 100 A maximum: 100 kA at 600 V AC Fuse T 100 A maximum: 100 kA at 600 V AC Fuse RK1 100 A maximum: 100 kA at 600 V AC Fuse RK5 100 A maximum: 100 kA at 600 V AC
Coil Voltage	110 V AC 50 Hz 120 V AC 60 Hz
Control Circuit Type	Separate control circuit
Control Units	No control units
Pilot Light	Without pilot light
Auxiliary Contacts	Without

* Price is “List Price” and may be subject to a trade discount – check with your local distributor or retailer for actual price.

Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications

Terminal Type	Screw clamp terminals
Height	7.81 in (198.37 mm)
Width	4.31 in (109.47 mm)
Depth	4.94 in (125.48 mm)

Environment

Enclosure Type	Not rated (open device)
Certifications	UL Listed CSA NEMA

Ordering and shipping details

Category	21192 - 8502,36 SC,SD(NOT S*R,T,W)
Discount Schedule	CP1
GTIN	00785901667117
Nbr. of units in pkg.	1
Package weight(Lbs)	7.75 lb(US) (3.515 kg)
Returnability	No
Country of origin	MX

Packing Units

Unit Type of Package 1	PCE
Package 1 Height	7.80 in (19.8 cm)
Package 1 width	4.29 in (10.9 cm)
Package 1 Length	4.92 in (12.5 cm)

Offer Sustainability

California proposition 65	WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov
REACh Regulation	REACh Declaration
EU RoHS Directive	Compliant EU RoHS Declaration
Mercury free	Yes
RoHS exemption information	Yes
China RoHS Regulation	China RoHS declaration Product out of China RoHS scope. Substance declaration for your information.
PVC free	Yes

Contractual warranty

Warranty	18 months

SQUARE D
Instruction Bulletin

Bulletin No. 30072-013-40A
April 1995
Raleigh, NC, USA

Remote Reset Module
for MOTOR LOGIC™ Solid-State Overload Relay
Class 9999 Type RR04

INTRODUCTION

This module is for resetting a MOTOR LOGIC™ solid-state overload relay (Class 9065 Type SS, SF, SR and ST) from a remote location. The remote reset module is energized by a 110/120 VAC 50/60 Hz source through a normally-open (N.O.) push button. It allows a tripped, solid-state overload relay to be reset from a distance of up to 150 ft (46 m).

INSTALLATION

⚠ DANGER

HAZARDOUS VOLTAGE.

Disconnect all power before installing or servicing equipment.

Electrical shock will cause severe injury or death.

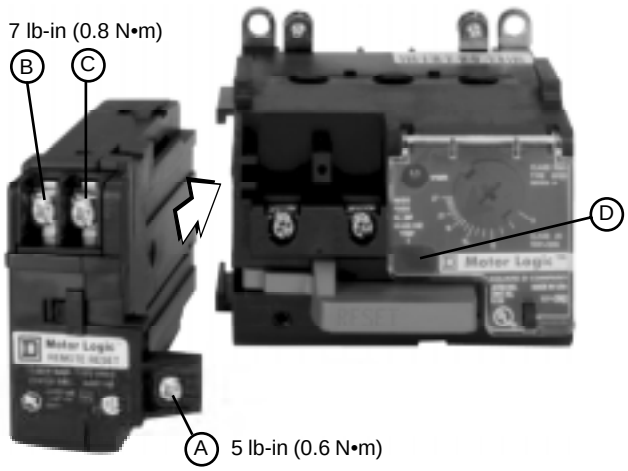

Figure 1 Remote Reset Installation

1. Disconnect all power from the cabinet containing the overload relay.
2. Slide the module onto the overload relay (see Figure 1). The bottom of the module mounting tab must be flush with the housing of the overload relay.
3. Tighten the remote reset mounting screw (A) to 5 lb-in (0.6 N•m). Excessive torque could damage the mounting tab and affect the module's performance.

⚠ CAUTION

INCORRECT MOUNTING HAZARD.

Use the mounting screw provided with the remote reset module.

Incorrect mounting screw can result in equipment damage.

4. Connect a 110/120 VAC separate control source, via a N.O., momentary contact push button, to the remote reset module terminal (B and C). Refer to Typical Control Diagram on page 2.

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Replaces 30072-013-40 dated 3/95

TERMINALS

Only use copper wire on remote reset terminals. Pressure wire control terminals are suitable for wire sizes AWG 16 to 12 (1.5 to 2.5 mm^2), solid or stranded, and accept one or two conductors per terminal. Tightening torque: 7 lb-in (0.8 N • m).

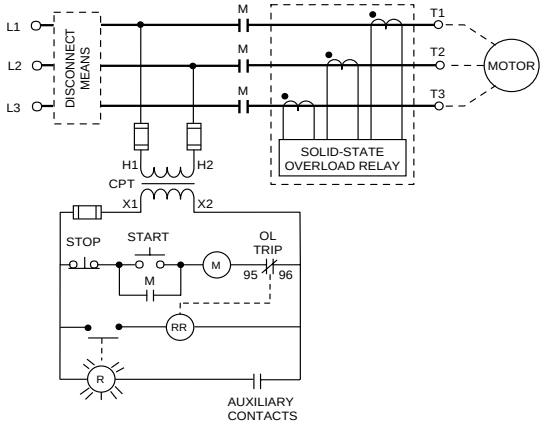

Figure 2 Typical Control Wiring

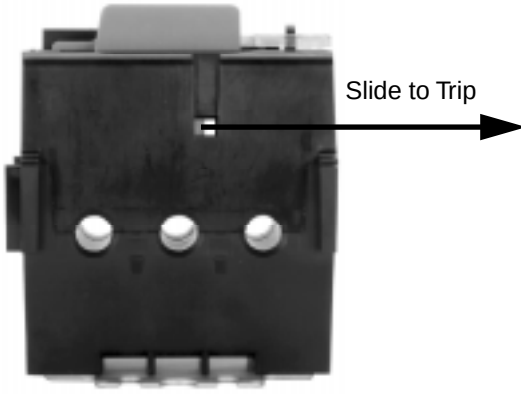

Figure 3 Manually Tripping the Overload Relay

TESTING

1. Verify that all power is disconnected.
2. Manually trip the solid-state overload relay (see Figure 3).
3. Energize control power.
4. Press the remote, momentary-action push button. If the reset module is properly installed, the overload relay will reset when the push button is pressed and the yellow flag in the trip indicator window (Item D in Figure 1) disappears.

OPERATION

The module resets the solid-state relay when the remote push button is actuated for a minimum of 0.25 seconds. The maximum allowable duty cycle for the remote reset module is five repeats of 2 seconds on / 2 seconds off, followed by a fifteen minute off time. Exceeding this duty cycle impairs the proper function of the remote reset module.

Each time the remote reset module is energized, it draws 270 VA (2.2 A @ 120 VAC) for less than 0.5 s from the control power supply.

The maximum recommended wire run length for the module is 150 ft (46 m) for dry environments. A transient suppression module (Class 9999 Type ST1) should be wired across the remote reset device terminals (B and C Figure 1) to achieve this distance for wet wire environments.

Note: This device is not intended for use with solid-state output contacts.

MOTOR LOGIC is a trademark of Square D Company.

Electrical equipment should be serviced only by qualified electrical maintenance personnel, and this document should not be viewed as sufficient instruction for those who are not otherwise qualified to operate, service or maintain the equipment discussed. Although reasonable care has been taken to provide accurate and authoritative information in this document, no responsibility is assumed by Square D for any consequences arising out of the use of this material.

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CATALOG CUT SHEETS

SECTION: 128

EnviroCare International

507 Green Island Road
American Canyon, CA 94503, USA
Tel. 707.638.6800
Fax. 707.638.6898

Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

Manufacturer: SQUARED
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
N/A	SQUARED, POWER BLOCKS FOR MOTOR & MAIN	9080LBA361101

Product data sheet
Characteristics

9080LBA361101

Product availability : Stock - Normally stocked in distribution facility

Main

Range of product	9080LB
Product or component type	Miniature Power Distribution Block
[In] rated current	115 A for copper cable(s) 90 A for aluminium cable(s)
Short-circuit current	65 kA

Complementary

System Voltage	600 V AC/DC
Mounting support	Surface mount
Number of poles	3
Number of terminals	1 line 1 load
Number of cables	1 cable(s) AWG 14...AWG 2 (copper or aluminium) for line 1 cable(s) AWG 14...AWG 2 (copper or aluminium) for load
Electrical connection	Tin plated aluminium lugs
[Ics] rated service breaking capacity	Up to 100 kA per UL 508 A
Ambient air temperature for operation	-40...257 °F
Material	Thermoplastic block
Connections - terminals	Lug 50 lbf.in for AWG 3...AWG 2 (copper or aluminium) line Lug 45 lbf.in for AWG 6...AWG 4 (copper or aluminium) line Lug 40 lbf.in for AWG 8 (copper or aluminium) line Lug 35 lbf.in for AWG 12...AWG 10 (copper or aluminium) line Lug 35 lbf.in for AWG 14 (copper) line Lug 50 lbf.in for AWG 3...AWG 2 (copper or aluminium) load Lug 45 lbf.in for AWG 6...AWG 4 (copper or aluminium) load Lug 40 lbf.in for AWG 8 (copper or aluminium) load Lug 35 lbf.in for AWG 12...AWG 10 (copper or aluminium) load Lug 35 lbf.in for AWG 14 (copper) load
Wire stripping length	0.5 in line connection
Height	2.29 in
Width	2.12 in
Depth	1.62 in

Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications

Product compatibility	9080LB13

Environment

Product certifications	CE CSA file 70361 class 6228 01 UL recognized E60616 CCN XCFR2

Ordering and shipping details

Category	21711 - 9080 LB
Discount Schedule	CP1
GTIN	00785901097426
Nbr. of units in pkg.	1
Package weight(Lbs)	0.22
Returnability	Y
Country of origin	US

Offer Sustainability

RoHS (date code: YYWW)	Compliant - since 0620 - Schneider Electric declaration of conformity Schneider Electric declaration of conformity
REACh	Reference not containing SVHC above the threshold Reference not containing SVHC above the threshold

Contractual warranty

Warranty period	18 months

CATALOG CUT SHEETS

SECTION: 129

EnviroCare International

507 Green Island Road
American Canyon, CA 94503, USA
Tel. 707.638.6800
Fax. 707.638.6898

Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

Manufacturer: WEIDMUELLER
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
N/A	WEIDMUELLER, DIN RAIL MNT OUTLET, 15A, GFCI	6720005422

Datasheet

AC Outlet
DIN-Rail Mountable Receptacles

DIN-rail receptacles, 5A, 15A and 20A power outlets, provide a convenient power source for portable computers or test devices for in-the-panel troubleshooting. They mount on standard 35mm DIN-rail. The terminations accept slotted or Phillips screwdrivers. The mounting foot includes a latching lock - slide it open, mount the module on the DIN-rail and slide the lock closed.

- Easily snaps onto 35mm DIN-rail
- Panel mountable, model dependent
- 5A, 15A or 20A versions
- Easy to wire
- Available with ground fault current interrupt (GFCI) or standard outlets
- Optional power-on indication with GFCI*
- NEMA rated enclosure with UL94 VO flammability rating
- UL508A, cULus, and cURus and CSA* approved
- Latching mounting foot makes installation and removal from DIN-rail easy

*Applies to part number 6720005430

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Markham, Ontario L3R 5H6
Telephone: (800) 268-4080
Facsimile: (877) 300-5635
Email: info1@weidmuller.ca
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Weidmuller, United States
821 Southlake Blvd.
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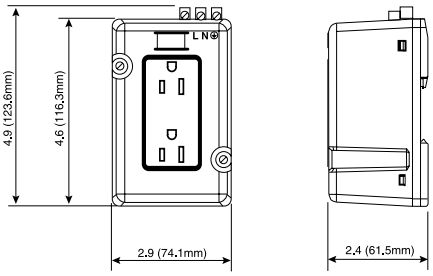
Facsimile: (804) 379-2593
Email: info@weidmuller.com
Website: www.weidmuller.com

Weidmüller

Dimensional Drawing



15 Amp Duplex

15 Amp GFCI

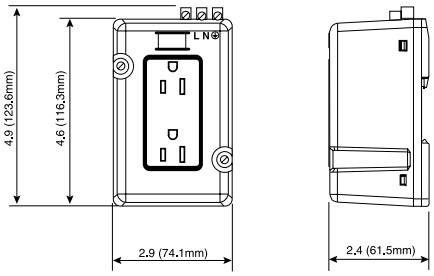
Technical data

Voltage	120 VAC nominal, 125 VAC max.	120 VAC nominal, 125 VAC max.
Current	15A max.	15A max.
Operating Frequency	50 - 60 Hz	50 - 60 Hz
Dielectric Voltage	Withstands 2000V per UL498	Withstands 1500V per UL498
Short-Circuit Current Rating (SCCR)	10 kA	10 kA
Current Interrupting	2 kA	10 kA
Trip Level	N/A	5mA ±1mA
Termination Wire Size	20 - 10 AWG (solid or stranded, copper only)	20 - 10 AWG (solid or stranded, copper only)
Terminal Torque	0.79Nm/7 lb.-in.	0.79Nm/7 lb.-in.
Terminations	Screw terminals, slotted	Screw terminals, slotted
Temperature:		
Operating	-25°C to 60°C	-25°C to 60°C
Storage	-35°C to 80°C	-35°C to 80°C
Material Listing		
Enclosure Cover, Flammibility	PBT/polycarbonate blend, UL94 rating V0 @ .63mm	PBT/polycarbonate blend, UL94 rating V0 @ .63mm
Enclosure Base, Flammibility	Polyamide 6/6 30% GF, UL94 rating V0 @ .63mm	Polyamide 6/6 30% GF, UL94 rating V0 @ .63mm
Spring	Stainless Steel	Stainless Steel
Mounting	TS35 DIN-Rail or direct panel mount	TS35 DIN-Rail or direct panel mount
Width	74.1mm/2.9 in.	74.1mm/2.9 in.
Length	123.6mm/4.9 in.	123.6mm/4.9 in.
Height	61.5mm/2.4 in.	61.5mm/2.4 in.
Approvals/Certifications	**Description**	**Description**
	cULus Listed to UL508A and C22.2 No. 14 File E223801	cULus Listed to UL508A and C22.2 No. 14 File E223801
Enclosure Type	NEMA WD6, 5-15R	NEMA WD6, 5-15R

Ordering data

	Type	Part No.	Type	Part No.
	DRAC DP 15	**6720005421**	DRAC GF 15	**6720005422**

Dimensional Drawing



20 Amp Duplex

20 Amp GFCI

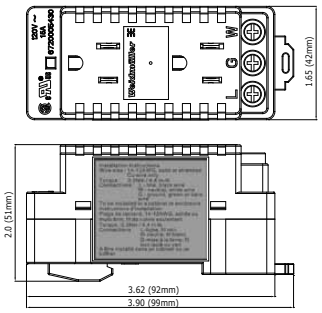
Technical data

Voltage	120 VAC nominal, 125 VAC max.	120 VAC nominal, 125 VAC max.
Current	20A max.	20A max.
Operating Frequency	50 - 60 Hz	50 - 60 Hz
Dielectric Voltage	Withstands 2000V per UL498	Withstands 1500V per UL498
Short-Circuit Current Rating (SCCR)	10 kA	10 kA
Current Interrupting	2 kA	10 kA
Trip Level	N/A	5mA ±1mA
Termination Wire Size	20 - 10 AWG (solid or stranded, copper only)	20 - 10 AWG (solid or stranded, copper only)
Terminal Torque	0.79Nm/7 lb.-in.	0.79Nm/7 lb.-in.
Terminations	Screw terminals, slotted	Screw terminals, slotted
Temperature:		
Operating	-25°C to 60°C	-25°C to 60°C
Storage	-35°C to 80°C	-35°C to 80°C
Material Listing		
Enclosure Cover, Flammibility	PBT/polycarbonate blend, UL94 rating V0 @ .63mm	PBT/polycarbonate blend, UL94 rating V0 @ .63mm
Enclosure Base, Flammibility	Polyamide 6/6 30% GF, UL94 rating V0 @ .63mm	Polyamide 6/6 30% GF, UL94 rating V0 @ .63mm
Spring	Stainless Steel	Stainless Steel
Mounting	TS35 DIN-Rail or direct panel mount	TS35 DIN-Rail or direct panel mount
Width	74.1mm/2.9 in.	74.1mm/2.9 in.
Length	123.6mm/4.9 in.	123.6mm/4.9 in.
Height	61.5mm/2.4 in.	61.5mm/2.4 in.
Approvals/Certifications	**Description**	**Description**
	cULus Listed to UL508A and C22.2 No. 14 File E223801	cULus Listed to UL508A and C22.2 No. 14 File E223801
Enclosure Type	NEMA WD6, 5-20R	NEMA WD6, 5-20R

Ordering data

	Type	**Part No.**	**Type**	**Part No.**
	DRAC DP 20	**6720005420**	DRAC GF 20	**6720005423**

Dimensional Drawing



15 Amp Duplex w/LED

This new DIN-rail mountable duplex receptacle makes adding a 120V maintenance AC outlet to control cabinets quick and easy. It mounts on standard 35mm DIN-rail and requires just 42mm of rail space. An LED indicates that 120V is applied to the module. The terminations accept slotted or Phillips screwdrivers. The mounting foot includes a latching lock – slide it open, mount the module on the DIN-rail and slide the lock closed.

- requires just 42mm of DIN-rail
- includes power status LED
- latching mounting foot makes installation and removal from DIN-rail easy
- CSA certified and cURus recognized

Technical data

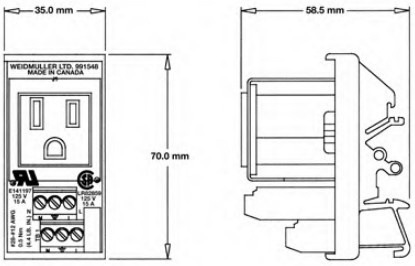
Voltage	120 VAC nominal
Current	15A max.
Wire Size (AWG)	14-12 AWG (Solid or stranded, copper only)
Stripping Length mm/in.	8.8-11 / 0.347-0.433
Terminations	Screw terminals, slotted or Phillips
	“L”:line “W”:neutral “G”:ground
Terminal Torque	0.5Nm/4.4 in-lb
Mounting	TS35 DIN-Rail
Width	42mm/1.65 in.
Length	99mm/3.90 in.
Height	51mm/2.01 in.

Approvals/Certifications	Description
	CSA certified, file 251163, Project 2345434, according to C22.2 No. 42
	cURus recognized, file E340886, according to UL498 and C22.2 No. 182.3

Ordering data

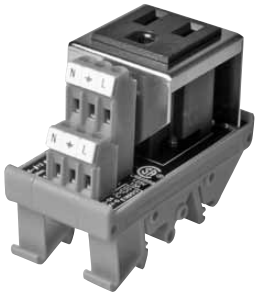
Type	Part No.
DUPLEX 120VAC OUTLET W/LED	**6720005430**

Dimensional Drawing



5 Amp Simplex w/Circuit Breaker

15 Amp Simplex w/o Circuit Breaker

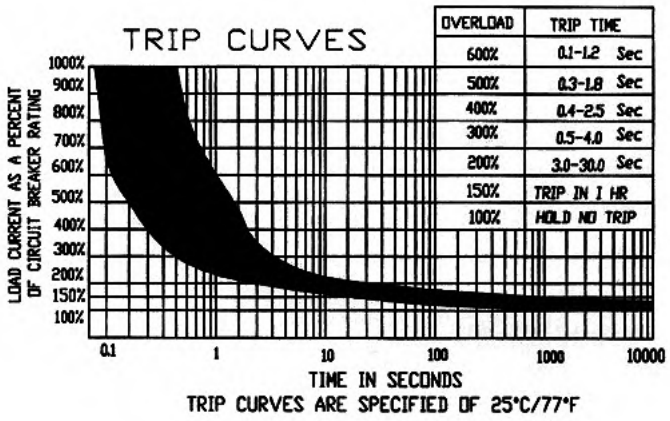


Technical data

Voltage	120 VAC	120 VAC
Current	5A max.	15A max.
Wire Size (AWG)	26 - 12 AWG (0.14 - 4.0mm^2)	26 - 12 AWG (0.14 - 4.0mm^2)
Stripping Length mm/in.	6mm	6mm
Terminal Torque	0.5-0.6 Nm	0.5-0.6 Nm
Mounting	TS32 or TS35 DIN-Rail	TS32 or TS35 DIN-Rail
Width	35mm/1.38 in.	35mm/1.38 in.
Length	70mm/2.76 in.	70mm/2.76 in.
Height	58.5mm/2.30 in.	58.5mm/2.30 in.
Approvals/Certifications	**Description**	**Description**
	LR-229352, E252394	LR-229352, E252394

Ordering data

	Type	**Part No.**	**Type**	**Part No.**
	Single outlet with circuit breaker (supplemental protector with manual reset via push button)	**9915480001**	Single outlet without circuit breaker	**9915480000**



CATALOG CUT SHEETS

SECTION: 130

EnviroCare International

507 Green Island Road
American Canyon, CA 94503, USA
Tel. 707.638.6800
Fax. 707.638.6898

Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

Manufacturer: ZERUST
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
N/A	ZERUST CORROSION INHIBITOR	VC-2-1

ZERUST® EXCOR®

Zerust® Vapor Capsules

Zerust®/Excor® Vapor Capsules are portable capsules that contain patented Zerust VCI technology. Use to protect metals in hard to reach areas of control panels, electrical cabinets and other enclosed spaces, even when they are in operation. Or use as a supplement to other Zerust VCI packaging products for added protection.

Use Vapor Capsules to protect multiple metal types from corrosion in almost any enclosure or sealed packaging. Zerust diffusers emit Vapor Corrosion Inhibitors (VCIs) that prevent oxidation of the metal surface that causes rust. They provide targeted corrosion protection in hard to reach spaces and additional protection to metals in Zerust VCI packaging applications.

Zerust capsules are quick and easy to install. Simply peel back the protective paper from the adhesive tape and install securely in desired location. Tightly seal the enclosure to trap protective vapor inside. Metals will be protected from rust and tarnish for up to one or two years depending on the capsule model and environment.

Benefits

Safe* and effective corrosion protection where traditional anti-corrosion methods can not be used.

Easy to install, economical to use.

Does not affect the circuit boards or sensitive components.

Suitable for new equipment and to protect the reliability of existing equipment.

Application Example

A Vapor Capsule protects an electronics enclosure from corrosion during operation. The capsule has been marked with the installation date so operators know when to replace it with a new capsule.

Application Type

Storage
Shipping
During Operation
May be used with Zerust Packaging

*Safe for people. This product does not pose a health hazard to users due to its classification as an article according to UN GHS, US OSHA HazCom and CA WHMIS regulations. Check REACH SDS for classification in EU.

Zerust®

Specifications

Product Information	Zerust® Capsules are VCI (Vapor Corrosion Inhibitor) diffusers. The capsules are made from recycled PE materials.
Appearance	PE-plastic capsule and foam or protective foam containing active pellets.
Protection Volume	See table below
Protection Duration	See table below
Storage	Store in a cool, dry place and away from sunlight for up to 2 years from the date of shipment.
Protected Metal Types	Multimetal protection for steel, iron, zinc and galvanized steel, copper, brass, bronze, aluminum (and alloys), nickel, tin, solder.

Protection Capabilities*

Model	Protection Volume	Protection Radius	Protection Duration
VC 1-1(s)	4 ft³ (0.12 m³)	1 ft (30 cm)	1 year
VC 1-1	4 ft³ (0.12 m³)	1 ft (30 cm)	1 year
VC 2-1	35 ft³ (1 m³)	2 ft (60 cm)	1 year
VC 2-2	35 ft³ (1 m³)	2 ft (60 cm)	2 years
VC 6-1	900 ft³ (25 m³)	6 ft (200 cm)	1 year
VC 6-2	900 ft³ (25 m³)	6 ft (200 cm)	2 years

* Protection ratings are based on the highest average tested protection properties and are not guaranteed. Results may vary according to usage environment and metal surface properties such as contaminants.

Availability

Zerust Vapor Capsules are in stock for immediate delivery. Sold in cases.

Model	Units/Case
VC 1-1(s)	50
VC 1-1	50
VC 2-1	25
VC 2-2	10
VC 6-1	4
VC 6-2	4

Safety

- Safe for people. This product does not pose a health hazard to users due to its classification as an article according to UN GHS, US OSHA HazCom and CA WHMIS regulations. Check REACH SDS for classification in EU.
- Zerust VCI chemistry is safe for sensitive electronics. No galvanic effects, residues or changes in the properties of metals. The protective molecules dissipate upon opening of package.

Warranty and Disclaimer Information: We guarantee our products conform to documented quality specifications. Product information subject to change without notice. We make no warranty of any kind expressed or implied as to the effects of use (including, but not limited to, damage or injury). For full warranty and disclaimer information visit, www.zerust.com/warranty.

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Rev H5

NTI

CATALOG CUT SHEETS

SECTION: 131

EnviroCare International

507 Green Island Road
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Tel. 707.638.6800
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Project: CITY OF TAUNTON WWTP, MA
SCUM CONCENTRATOR PROJECT
EnviroCare Job Number: 1194
Customer: TOTAL MECHANICAL SERVICE CORPORATION
Contract Number PO#: 2021-26

Manufacturer: POWERS
Specification Section: 11317
Location: SCUM CONCENTRATOR LOCAL CONTROL PANEL, LCP-700

Tag No.:	Part Name/Location:	Model/Part No:
N/A	POWERS, TEMPERATURE ADVANCED PID CONTROLLER	535-1125-0000

NOW A

MOORE INDUSTRIES

The Interface Solution Experts

PRODUCT!

535

1 /4 DIN PROCESS CONTROLLER

- Single Loop
- Profile Controller (optional)
- NEMA 4X Front Panel
- PowerTune®

MOORE INDUSTRIES

The Interface Solution Experts

www.miinet.com

DESCRIPTION

The 535 is a 1/4 DIN single loop process controller (SLC) designed to control any analog process variable (temperature, pressure, flow, level, etc.) in batch and continuous processes. The 535's outstanding feature mix enables it to bring processes under control faster, more accurately and easily than competitive SLC's, PLC, and PC based control systems.

The 535 is widely considered to be a best-in-class instrument due to three fundamental strengths.

Rugged Construction

- NEMA 4x front panel
- Thick damage resistant keys
- EMI/RFI resistance
- Input/output isolation

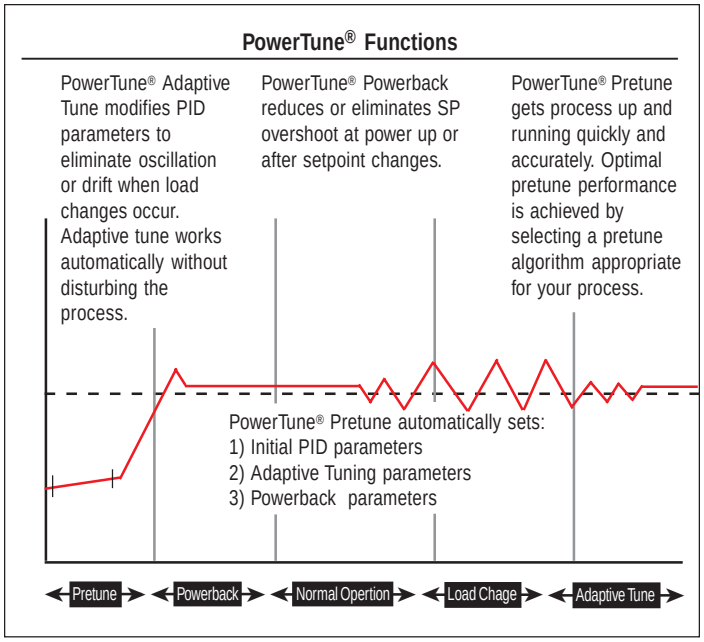
Operator Interface

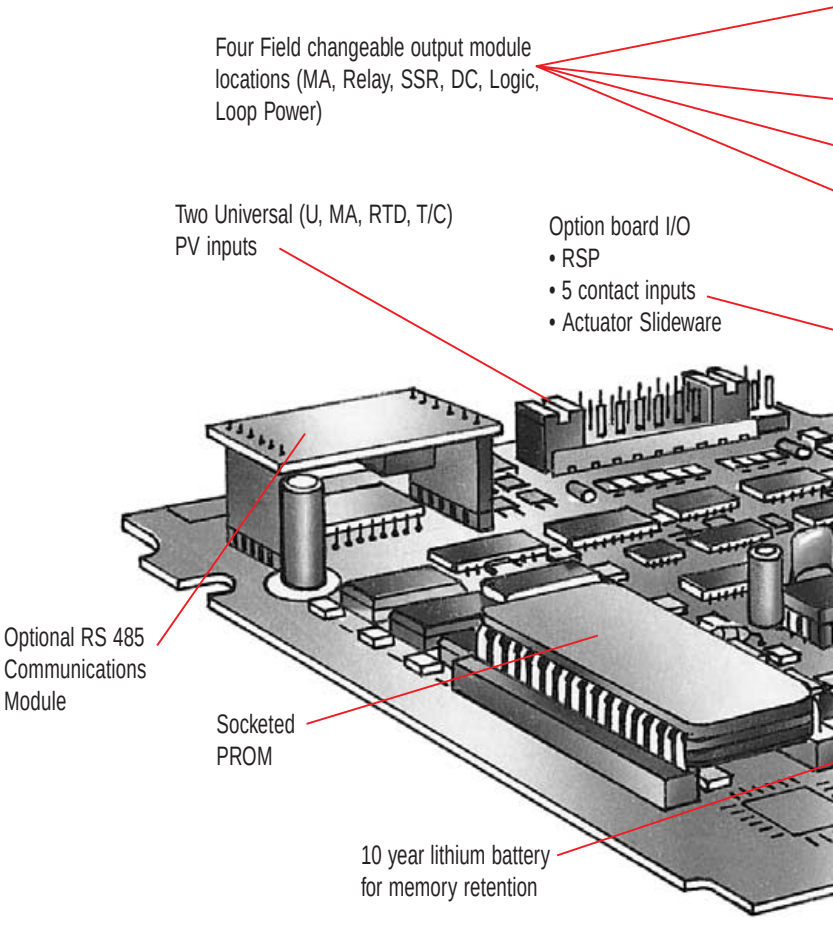
- 3 line vaccum flourescent display
- English prompts/messages
- Key color state indication

Tuning and Control Algorithms

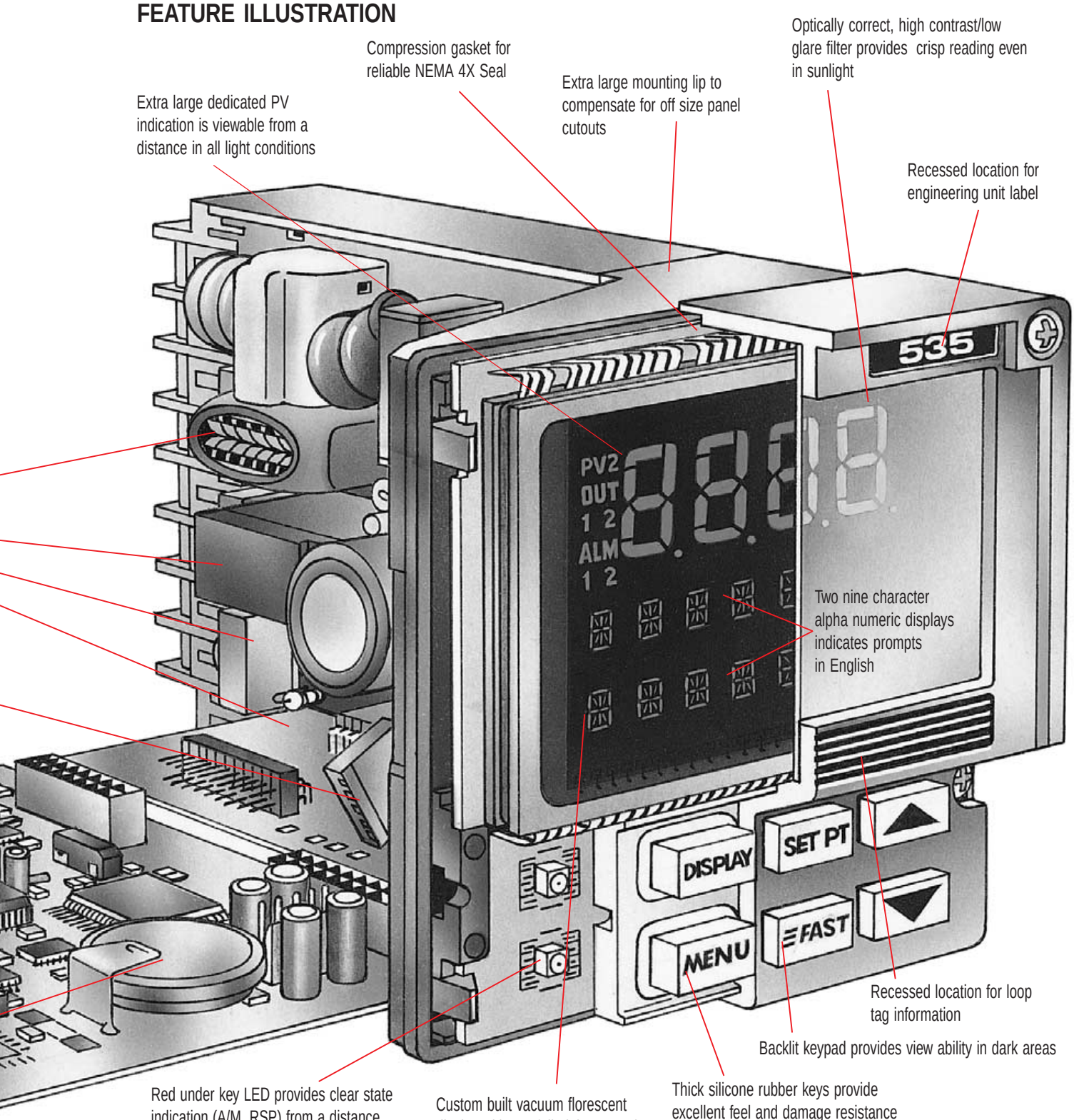
- Powertune - Adaptive tuning
- Powertune - Pretuning
- Powertune - Powerback anti overshoot
- 8 stored PID sets
- Multiple output algorithms

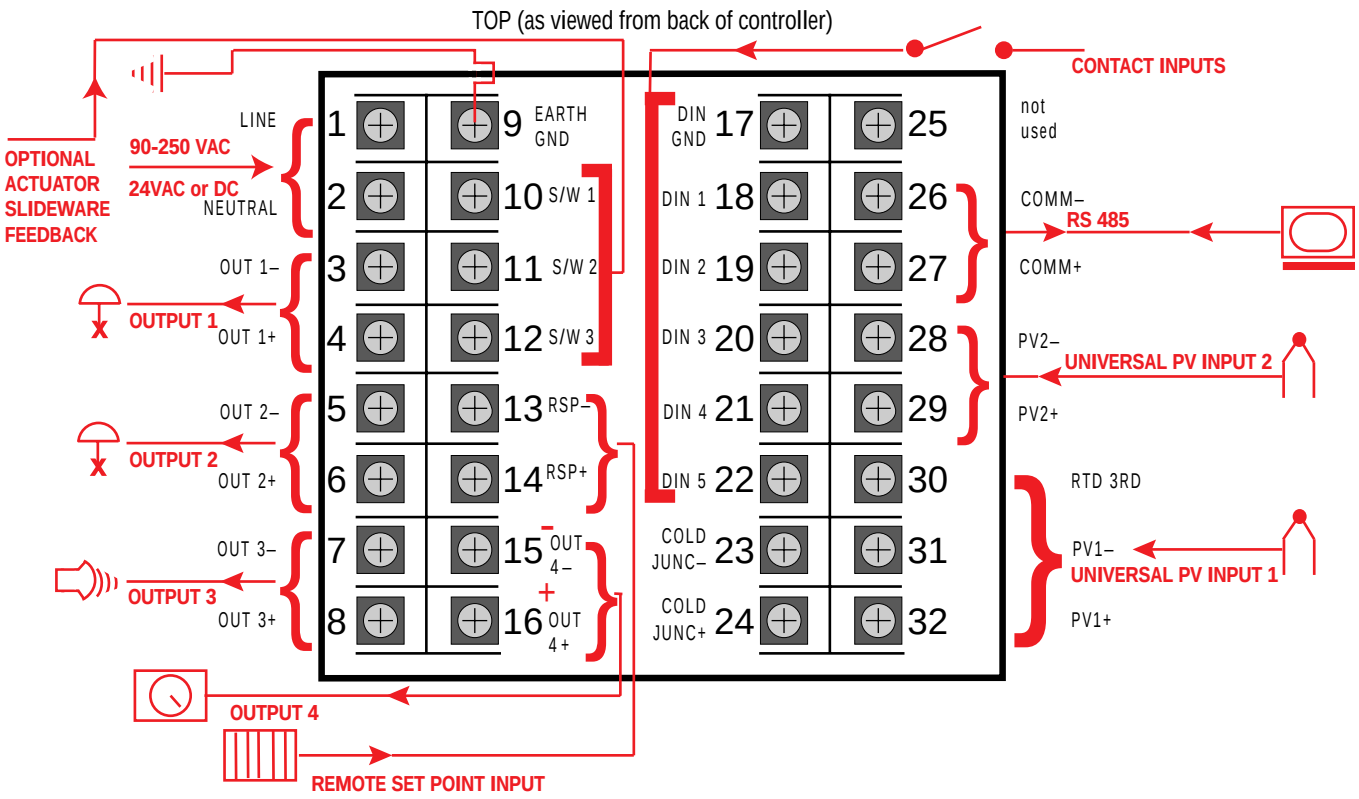
Expanded information about these strengths is detailed throughout this brochure.





FEATURE ILLUSTRATION





Input Functions

PV Input (Universal)	RSP Input (Optional)	Contact Inputs (Optional)
PV1 PV2 Switch on demand	Range	Activate RSP
PV1 PV2 Switch on PV1 failure	Bias	Trip to Manual
PV1 - PV2	Gain	Lock in Manual mode
PV1 + PV2	Local SP Tracking	Select Alternate SP (1-8)
Average of PV1, PV2		Select Alternate PID (1-8)
High Select		Acknowledge Alarm
Low Select		Inhibit Integral Control
		Invert Control Action
		Inhibit Adaptive Tuning
		Emulate Front panel Keys
		Digital Input for Data Acquisition

Output Functions

Outputs are plug-in modules.

Types include: Analog (MA), Mechanical Relay, Solid State Relay, DC Logic, and Loop Power.

Output 1	Output 2	Output 3	Output 4
Control	Second Control	Alarm	Alarm
	Alarm	Retransmission	Retransmission
	Retransmission	RS 485 Driver	RS 485 Driver
	RS 485 Driver	Loop Power	Loop Power

INPUT FUNCTIONS

PROCESS VARIABLE

Two universal inputs are available. Any input type may be field selected via jumper. Dual inputs may be used to:

- Select input on demand
- Switch upon failure
- Derive a PV by subtracting (PV1-PV2)
- Derive a PV by adding (PV1+ PV2)
- Derive a PV by averaging (PV1+ PV2)/2
- Select highest PV
- Select lowest PV

THERMOCOUPLES	RANGE °F	RANGE °C
B	104 to 3301	40 to 1816
E	–454 to 1832	–270 to 1000
J	–346 to 1832	–210 to 1000
K	–418 to 2500	–250 to 1371
N	–328 to 2372	–200 to 1300
R	32 to 3182	0 to 1750
S	32 to 3182	0 to 1750
T	–328 to 752	–200 to 400
W	32 to 4172	0 to 2300
W5	32 to 4172	0 to 2300
Platinel II	–148 to 2550	–100 to 1399

RTDs	RANGE °F	RANGE °C
100 ohm Pt.(DIN)	–328 to 1562	–200 to 850
	–328.0 to 545.0	–200.0 to 285.0
100 ohm Pt.(JIS)	–328 to 1202	–200 to 650
	–328.0 to 545.0	–200.0 to 285.0
100 ohm Pt.(SAMA)	–328 to 1202	–200 to 650
	–328.0 to 545.0	–200.0 to 285.0

Transmitter Signals	Input Range
Milliamps DC	4 to 20
	0 to 20
Voltage DC	1 to 5
	0 to 5
Millivolts DC	0 to 10
	0 to 30
	0 to 60
	0 to 100
	–25 to 25

ACCURACY

		TYPICAL	MAXIMUM
LINEAR	(Voltage)	± 0.025% of full scale	± 0.100% of full scale
	(Current)	± 0.050% of full scale	± 0.150% of full scale
RTD	1°	± 0.050% of span	± 0.150% of span
	0.1°	± 0.095% of span	± 0.225% of span

THERMOCOUPLE

J, K, N, E (> 0°C)	± 0.060% of span	± 0.150% of span
J, K, N, E (< 0°C)	± 0.150% of span	± 0.375% of span
T (> 0°C)	± 0.100% of span	± 0.250% of span
T (< 0°C)	± 0.250% of span	± 0.625% of span
R, S (> 500°C)	± 0.150% of span	± 0.375% of span
R, S (< 500°C)	± 0.375% of span	± 0.925% of span
B (> 500°C)	± 0.150% of span	± 0.375% of span
B (< 500°C)	± 0.500% of span	± 1.000% of span
W, W5 & Platinel II	± 0.125% of span	± 0.325% of span

Display accuracy is ± 1 digit.

These accuracy speciÞcations are at reference conditions (25°C) and only apply for NIST ranges. Detailed accuracy information is available upon request.

LINEARIZATION

Thermocouple and RTD inputs are automatically linearized. Transmitter inputs may be linearized with a square root function or user-defineable 15-point straight line linearization function.

INPUT IMPEDANCE

Current Input: 250 ohms Thermocouples: 10 Mohms
Voltage Input: 1 Mohm RTDs: 10 Mohms

UPDATE RATE

Input is sampled and output updated 10 times per second. Display is updated five times per second.

TRANSMITTER LOOP POWER

Isolated 24 Vdc (nominal) loop power supply is available if a loop power module is installed in an output socket not used for control. Capacity is 25 mA.

INPUT SIGNAL FAILURE PROTECTION

When input is lost, output is commanded to a predetermined output (–5 to 105%). Thermocouple burnout is selectable for upscale or downscale.

INPUT FILTER

Single pole lowpass digital filter with selectable time constant from 0 to 120 seconds.

CALIBRATION

Comes fully calibrated from the factory and continuously calibrates itself for component aging due to temperature and time, except for the reference voltage. Field calibration can be easily performed in the Þeld with a precision multimeter and thermocouple simulator. Process variable offset and gain factors are provided to correct for sensor errors.

SETPOINT SELECTION

A remote setpoint input is available. Signal is 0–20/4–20 mADC or 0–5/1–5 VDC (jumper selectable). Signal may be ratioed and biased. Eight local setpoints may be stored in memory.

Setpoint selection is made via SET PT key or digital contact(s).

DIGITAL INPUTS

A set of five external dry contacts or open collector transistor driven inputs are available. Each can be configured to perform one of the following functions:

- Select remote setpoint
- Select manual control
- Select second local setpoint
- Select a second set of PID values
- Acknowledge alarms
- Simulate and keys
- Simulate DISPLAY, FAST, and MENU keys
- Select either direct or reverse control action
- Disable adaptive tuning
- Addressable through serial communications only
- Inhibit the reset term
- Lock controller in manual mode

In addition, if the set of five digital inputs is installed, four may be designated to select one of eight local setpoints (and associated PID set, if desired)via a binary coded decimal (BCD) input.

OUTPUT FUNCTIONS

OUTPUT MODULES

The controller can have a total of four control outputs, alarm outputs and/or loop power modules installed. There are five types of output modules which can be configured to suit your particular application. The modules may be ordered factory-installed, or they may be installed in the field.

Analog module: Either 0-20 mA or 4-20mA (front panel selectable) into a load up to 1000W. Accuracy ± 5mA @ 25˚C.
Mechanical relay module: SPDT electromechanical relay. Resistive load rated at 5 amps at 120/240VAC. Normally open or normally closed selection is made by jumper. Output 4 is rated at 0.5amps at 24 VAC and is always normally open.
Solid state relay (triac) module: Resistive load rated at 1 amp at 120/240VAC. Output 4 is rated at 0.5 amps at 24 VAC. These outputs are normally open.
DC logic (SSR drive) module: "On: voltage is 17 Vdc (nominal). "OFF" voltage is less than 0.5 Vdc. (Current limited to 40mA.)
Loop power supply module: Current is limited to 25mA @24V.

Control Outputs

Up to two output modules may be designated for control. Any combination of output modules, with the exception of the loop power supply module, may be used.

Duplex control is available if output modules are installed in the first and second output sockets.
Position proportioning control with feedback is available if mechanical or solid state relay modules are installed in the first two output sockets, and the slidewire feedback option is installed. Slidewire feedback range is 0 to 1050 ohms.
"Velocity" position proportioning control is available by installing mechanical or solid state relay modules in the first two output sockets. A special time based algorithm controls an electric actuator without the slideware feedback signal.
Staged (split range) outputs are available if analog modules are installed in the first and second output sockets. This algorithm will allow the output range to be split between the two outputs.

CONTROL ALGORITHM

PID, P with manual reset, PI, PD with manual reset, and On-Off are selectable from the front panel. Duplex outputs each use the same algorithm, except On-Off may be used with PID. The PID algorithm used is non-interacting.

TUNING PARAMETERS

Proportional Band: 0.1 to 999% of input range

Integral: 1 to 9999 seconds/repeat

Derivative: 0 to 600 seconds

Manual Reset/Load Line: 0 to 100% output

Cycle Time: 0.3 to 120 seconds

On-Off Deadband: up to 15% of input range (in eng. units)

Up to eight sets of PID values may be stored in memory and selected automatically, based on setpoint value, process

variable value, or the corresponding local setpoint (SP1–SP8)

Retransmission Output

Based on available outputs (any socket not used for control), up to two different variables can be simultaneously programmed for retransmission. Each precise, 16-bit resolution output may be scaled for any range. Variable selection includes: PV, SP, RAMP, SP, and OUTPUT.

Transmitter Loop Power

Isolated 24Vdc (nominal) loop power supply is available if a loop power module is installed in an output socket not used for control. Capacity is 25mA. Two or four wire transmitters can be powered.

ALARMS

The 535 controller has two software alarms. High and low alarms may be sourced to:

- Process Variable High
- Process Variable Low
- Process Variable High & Low
- Deviation from S.P.
- Band around S.P.
- Rate of Change
- Manual Control Module
- Remote S.P.
- Control Output

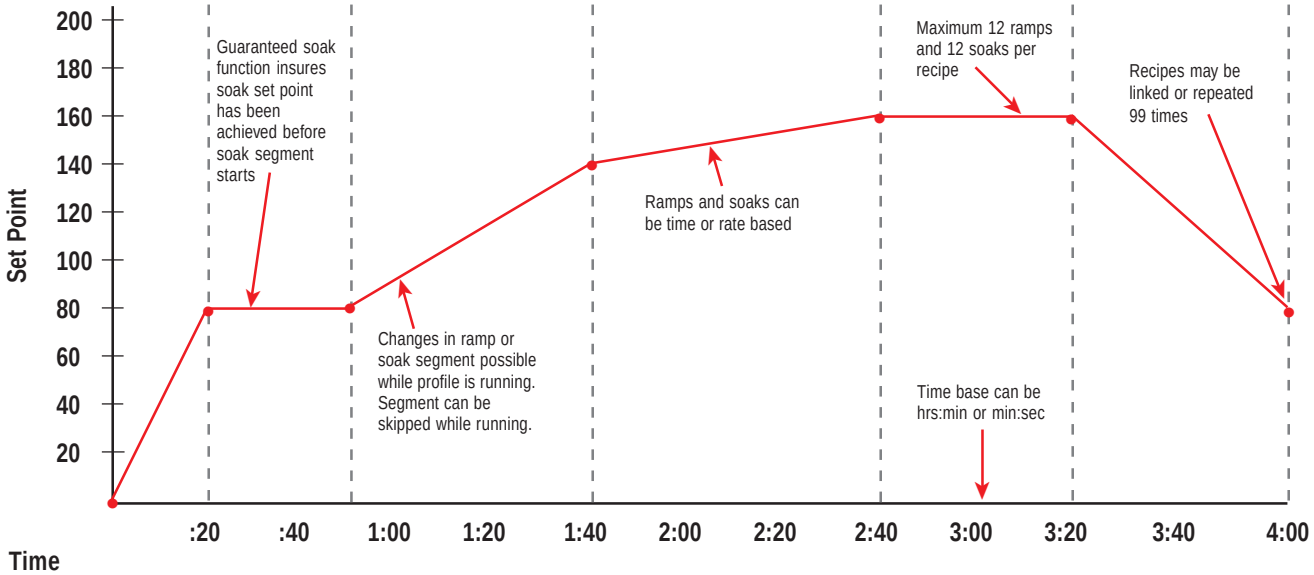
If an alarm is tripped, the alarm message will show, the ACK key will illuminate (if acknowledgeable) and the ALM icon will light. If the alarm is tied to the first available non-control output, the "1" below the ALM icon will light. Similarly, if the alarm is tied to the second non-control output, the "2" below the ALM will light. The availabilty of outputs determines how many alarms can be tied to relays.

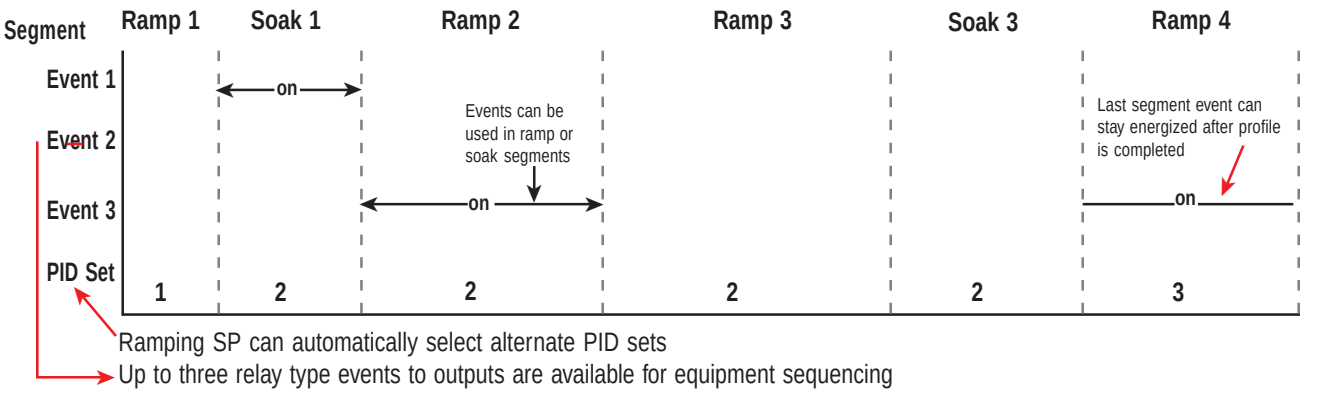
Up to two alarm outputs are available if an associated mechanical, solid state relay or DC logic module is installed in any output socket not used for control.

Global Alarm feature allows one or more of the internal software alarms to be tied to the same single, physical output. The acknowledge key is active for alarms associated with either loop.

PROFILE CONTROL OPTION

The 535 Profile Controller's unique operator interface makes it simple to set up operate while retaining powerful profile functions detailed below. The 535 can store 20 recipes, with a sample shown below. Recipes are selectable via front panel, contact inputs, or serial communications/ Recipes may be linked to create extra-long recipes.

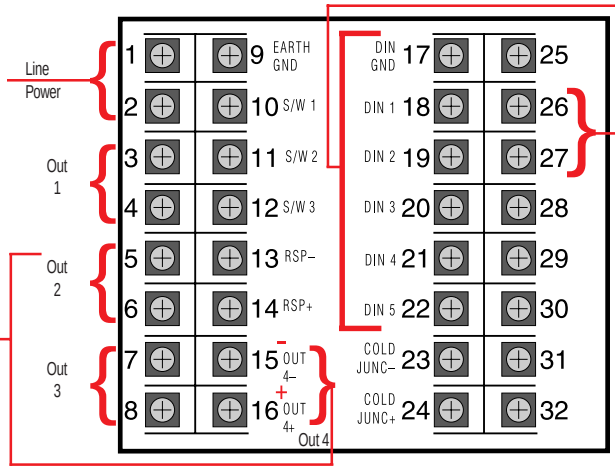




Special Profile I/O

Power Restoration Modes:
1) RESUME recipe where it left off
2) HOLD at last SP prior to power loss
3) ABORT recipe
4) RESTART recipe

Outputs 2-4
- Event outputs
- SP retransmission to slave controller
- Alarm output
- Second Control output



Contact Inputs:
- Start Recipe
- Hold Recipe
- Reset Recipe
- Skip to next segment
- Abort Recipe
- Recipe 1-7 selection

RS 485:
All profile configuration and operation are accessible through serial communication

GENERAL SPECIFICATIONS

CONTROLLER ARCHITECTURE
The 535 Controller hardware can be configured as follows:
Inputs: Two univeral process variable inputs are standard. Available options include: remote setpoint, slidewire feedback and 5 digital inputs.
Outputs: Four outputs are available. See Ordering Information.
RS-485 Communications: Available as option with any configuration.

SERIAL COMMUNICATIONS
Isolated serial communications is available using an RS-485 interface. Baud rates of up to 19,600 are selectable. The protocol supports CRC data checking. If communications are lost, a time-out feature will command the controller to a particular control mode and specific setpoint or output if desired. Outputs 2-4 and digital inputs can act as "host-controlled" I/O independent of the controller's function. The PV may be sourced via this interface. May be installed in the field.

DIGITAL DISPLAYS
Upper display: five-digit, seven-segment. Used exclusively for displaying the process variable value. Height is 15mm (0.6 in.).
2nd display: nine-character, 14-segment alphanumeric. Used for displaying setpoint, deviation, output value, slidewire position (actual valve position) and conÞguration information. Height is 6 mm (0.25 in.).
3rd display: nine-character, 14-segment alphanumeric. Used for indicating which loop is displayed and for displaying alarm messages and configuration information. Height is 6 mm (0.25 in.).
All displays are vacuum fluorescent. Color is blue-green.

STATUS INDICATORS
There are two types of indicators: icons and illuminated keys.
ALM 1 and ALM 2 icons: alarm 1 and alarm 2 status.
OUT 1 and OUT 2 icons: control output 1 and control output 2 status.
MAN key illuminated: controller is in manual control mode.
ACK key illuminated: alarm may be acknowledged.
SET PT key illuminated: setpoint other than primary local setpoint is active.
MENU key illuminated: controller is in configuration mode.

MOUNTING
Panel-mounted.

WIRING CONNECTIONS
29 screw terminals in the rear of the instrument.

POWER CONSUMPTION
15 VA at 120 VAC, 60 Hz (typical).

WEIGHT
Approximately 1 kg (2.2 lbs.).

AMBIENT TEMPERATURE
Operative Limits: 0 to 50°C (32 to 122°F).
Storage Limits: –40 to 70°C (–40 to 158°F).

RELATIVE HUMIDITY
10 to 90%, non-condensing.

VOLTAGE AND FREQUENCY
Universal power supply: 90 to 250 VAC, 48 to 62 Hz. 24V (ADC or DC power optional).

NOISE IMMUNITY
Common mode rejection (process input): >120 dB.
Normal mode rejection (process input): >80 dB.
AC line is double filtered and transient protected. Snubbers are provided for each relay output.

ISOLATION
Inputs and outputs are grouped into the following blocks:

- **Block 1:** process variable
- **Block 2:** outputs 1, 2, and 4
- **Block 3:** communications, set of five digital inputs, output 3 (Earth Ground)
- **Block 4:** remote setpoint

Each block is electrically isolated from the other blocks to withstand a HIPOT potential of 500 Vac for 1 minute or 600 Vac for 1 second, with the exception of blocks 1 and 4, which are isolated to withstand a HIPOT potential of 50 volts peak for 1 minute between each other. Inputs and outputs are not isolated from other inputs and outputs within the same block.

CONSTRUCTION
Case: flame resistant ABS
Chassis assembly: plug-in type.
Keys: silicone rubber with diffusion printed graphics.
NEMA rating: front panel conforms to NEMA 4X when instrument is properly installed.

AGENCY APPROVALS
CSA LR 84063 UL LISTED Process Control Equipment 4N66 CE (Heavy Industrial)
(Available as an option)

MEMORY RETENTION
Lithium battery maintains all programming for approximately ten years.

SECURITY
There are two levels of access: restricted and full. A configurable code is used to enter the full access level. Functions not available in the restricted level are configurable. Six different groups of parameters can be restricted.

PROFILE CONTROLLER OPTION
When a 535 is specified as a profile controller, the SET PT (setpoint key) is replaced at the factory with a RUN key to facilitate operation. Setpoint access is available through use of the DISPLAY key. All functions are described in the manual supplement. The 535 with profile option, provides full ramp and soak capability with the following features:

20 RECIPES/PROGRAMS
Up to 20 recipes/programs may be stored in memory and recalled by number through the front panel keys, digital inputs or RS-485 Communications.

24 SEGMENTS PER RECIPE
12 ramps and 12 dwells may be programmed for each recipe. Programming a dwell time of OFF effectively skips the dwell allowing 2 consecutive ramps of different rates. Recipes may be linked if more than 24 segments are necessary.

GUARANTEED SOAK WITH ADJUSTABLE HYSTERESIS
When activated, dwell time doesn't start until the ramp setpoint has been achieved within the specified hysteresis (a positive or negative deviation from the dwell setpoint).

3 EVENT OUTPUT CAPABILITY
Up to 3 event outputs, programmable per segment, may be selected depending on the availability of controller outputs. The 535 has 4 outputs. if 1 is used for control, 3 are available for events. Likewise, if 1 is for control and 1 for an alarm, 2 are available for events. These outputs are available to turn on fans, start another process and perform other functions.

RAMPS PROGRAM IN TIME OR RATE
A ramp can be programmed to take place over a specific amount of time or be based on the rate of change of the PV per hour. If time based, the time to reach setpoint must be between 0:01 and 99:59 (hours:minutes). If rate based, the setpoint must be reached at a rate between –9999 and 9999 engineering units per hour.

DUAL TIME BASE
Two modes are available, Hours:Minutes or Minutes:Seconds

MULTIPLE CYCLES, 1–99 PER EACH RECIPE
Recipes may be programmed to automatically repeat up to 99 times.

RECIPE LINKING
All 20 recipes may be linked to form a new longer version. For example, select recipe 4 to automatically follow recipe 2.

REMOTE FUNCTIONS VIA DIGITAL INPUT
Using the optional digital inputs, the following functions may be remotely activated: Start, Hold, Reset, Abort and Segment advance.

MODIFY RECIPES WHILE RUNNING
Individual recipes may be modified by the operator while running.

REMOTE RECIPE CHOICE VIA DIGITAL INPUT
Using the optional digital inputs, recipes 1-7 may be selected remotely.

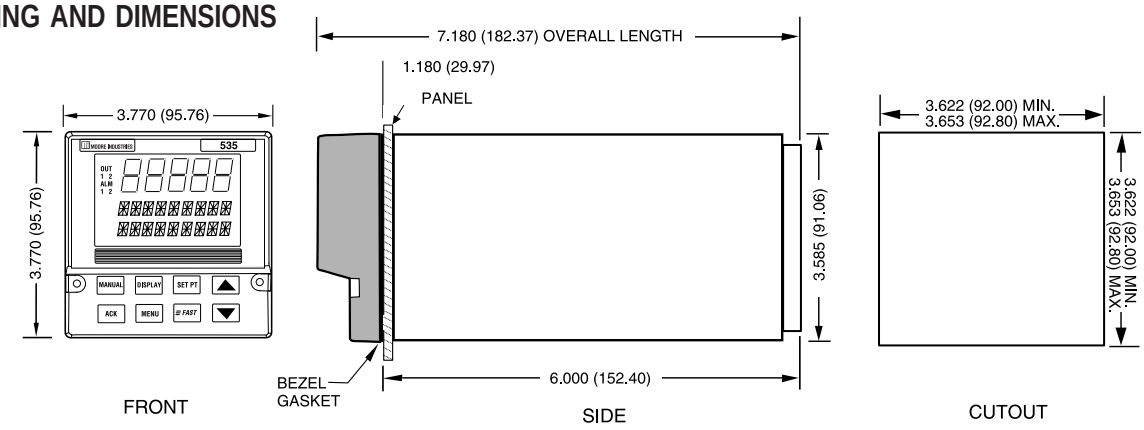
POWER RESTORATION MODES
Four different power restoration modes are available. Upon power failure and subsequent return, the controller can either: 1) Resume a recipe where it left off 2) Return to the last output of the recipe and hold it 3) Abort the recipe 4) Start a new recipe automatically.

TIE PID SETS TO RECIPES OR SEGMENTS
Any one of eight PID sets may be tied to each recipe or segment to optimize control.

MASTER/SLAVE CAPABILITY
The 535 with profile controller option can retransmit the ramping setpoint to up to four 535s with remote setpoint creating a master/slave relationship. With this capability, 5 loops, each running the same recipe, can be controlled.

SEGMENT ADVANCE
The operator may advance through the program segments while a recipe is running.

MOUNTING AND DIMENSIONS



PN#: 535-1125-0000

535 – □ □ □ □ □ □ □ □ 0 0

	Order Code
Output 1: Control	
None	0
Mechanical Relay (5 amp)	1
Analog (milliamp)	2
Solid State Relay (triac) (1 amp)	3
DC Logic (SSR drive)	4
Output 2: Control, Alarm, or Retransmission	
None	0
Mechanical Relay (5 amp)	1
Analog (milliamp)	2
Solid State Relay (triac) (1 amp)	3
DC Logic (SSR drive)	4
Output 3: Control, Alarm, Retransmission, or Loop Power	
None	0
Mechanical Relay (5 amp)	1
Analog (milliamp)	2
Solid State Relay (triac) (1 amp)	3
DC Logic (SSR drive)	4
Loop Power	5
Output 4: Alarm, Retransmission, or Loop Power	
None	0
Mechanical Relay (0.5 amp, 24 V)	1
Analog (milliamp)	2
Solid State Relay (triac) (0.5 amp, 24 V)	3
DC Logic (SSR drive)	4
Loop Power	5
Options	
Enter "0" if not desired	
Slidewire Feedback for Position Proportioning Output	A
24 (AC or DC) Operation	F
Slidewire and 24 (AC or DC))Operation	G
Remote Setpoint	B
Profile Controller Option	C
Remote Setpoint and Profile	E
Set of Five Digital Inputs	D
CE Certification	H
Five Digital Inputs and CE Certification	J
Serial Communications	
Enter "0" if not desired	
RS-485 Serial Communications	S

Note 1: Capability for position proportioning output is specified by ordering 535-11xxAxxx00, 535-33xxAxxx00, or 535-44xxAxxx00. **Note 2:** Capability for velocity proportioning output is specified by ordering 535-11xxxxxx00, 535-33xxxxxx00, or 535-44xxxxxx00. **Note 3:** Up to two outputs may be used for alarms. **Note 4:** All outputs are interchangeable modules. **Note 5:** The mechanical relay a nd solid state relay modules are derated to 0.5 amp at 24 Vac when used as the fourth output.

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