SHOP DRAWING REVIEW FORM AND TRANSMITTAL

DATE: **November 12, 2021**

TO: Carl Hendrickson
Project Manager
Veolia Water
825 West Water Street
Taunton, MA 02780

FROM: Michael Andrus, P.E.
Project Manager
BETA Group, Inc.
701 George Washington Hwy
Lincoln, Rhode Island 02865

RE: City of Taunton, MA
WWTF Phase 1 Improvements
Contract S-2021-1

Shop Drawing No. 15500-05 – Hydronic Heaters

BETA COMMENTS:

Item	Action Code	Description/Comments
1	**1**	**Finned Radiation FTR-A (Sterling)** **1.** Acceptable as submitted.
2	**1**	**Finned Radiation FTR-B (Sterling)** **1.** Acceptable as submitted.
3	**1**	**Hot Water Heaters (Sterling)** **1.** Acceptable as submitted.
4	**2**	**Cabinet Unit Heaters (Sterling)** **1. See attached comments from SAR**
5	**1**	**Convectors (Sterling)** **1.** Acceptable as submitted.
6	**3**	**Component Valves (Flo Pac)** **1. See attached comments from SAR**

Action Codes
1 - No Exception Taken
2 - Make Corrections Noted
3 - Amend and Resubmit
4 - Rejected, See Remarks

a. Installation shall proceed only when Action Code is '1' or '2'.
b. Submittals action coded '3' shall be resubmitted within time limit set in Contract.
c. Review does not relieve Contractor from responsibility of compliance with the Contract Documents.

Hart Engineering Corporation

SUBMITTAL:
15500-05

PROJECT: 9900. - Veolia/Taunton WWTF Phase 1 Improvements **DATE: 11/09/2021**

SUBMITTAL: 15500-05 - Hydronic Heaters
REVISION: 0
STATUS: Eng
SPEC #: 15500

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
Cumberland, RI 02864
rmurphy@hartcompanies.com

Item	Revision	Description	Status	Date Sent	Date Returned
15500-05	0	Hydrondic Heaters	Eng	11/09/2021	
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

SHOP DRAWING REVIEW

☐ 1 – Approved ☐ 2 – Approved as Noted
☑ 3 – Revise and Resubmit ☐ 4 - Rejected
☐ 5 – Record File Only – No Action Taken

(Above Check Designates Action Code – See Review Comments)

IMPORTANT NOTE FOR CONTRACTOR

Review is only for general compliance with the design concept and information provided in Contract Documents. Corrections and comments made on the Shop Drawings during review do not relieve the Contractor from compliance with the requirements of the plans and specifications. Review and/or approval of a specific item shall not include review or approval of an assembly of which the item is a component. No approval or correction of a Shop Drawing shall be construed as an order for extra work. The Contractor is responsible for: all quantities and dimensions to be confirmed and correlated; information that pertains solely to the fabrication processes or to the means, methods, techniques, sequences and procedures of construction; coordination of the Work with that of all trades and subcontractors; and performing all Work in a safe and satisfactory manner.

BETA GROUP, INC. Checked By: RB (SAR)

By: MLA Date: 11/12/21

DATE: 11/09/2021

SAR Engineering, Inc.

TRANSMITTAL

TO: BETA Group

701 George Washington Highway

Lincoln, RI 02865

Attention: Mike Andrus

Sent by: R. Brown

Date: November 11, 2021 SAR Job Number: 18009.00

Reference: Taunton WWTF Upgrades – Phase 1

☐ Enclosed Herewith We are sending you the following item(s):

☐ VIA	☐ Print(s)	☐ Reproducible(s)	☐ Original Drawing(s)
☐ Mail	☐ Diskette(s)	☐ Report(s)	☐ Sketch (es)
☐ Messenger	☒ Shop Drawing(s)	☐ Specification(s)	☐ Sample(s)
☐ Express	☐ Copy of Letter	☐ Change Order	☐ Other _____

☐ Email: Filename:_____ Time Sent _____ AM

Copies	Date	Description
1		15500-05 REV 0 – Hydronic Heaters

These are transmitted as indicated

☐ For approval ☐ For review and comment **X** As requested ☐ For your information

Remarks

Copy to

File(s)

Transmittal Enclosure

☐ ☐

SAR Engineering, Inc.

Review Comments

JOB:	**Taunton WWTF Upgrades – Phase 1**
DATE:	**November 11, 2021**
SUBMITTAL NO.:	**15500-05 REV 0**
SUBJECT:	**Hydronic Heaters**

☐ NO EXCEPTION TAKEN	☐ MAKE CORRECTIONS NOTED
☐ REJECTED	☐ REVISE AND RESUBMIT

Checking is only for general conformance with the design concept of the project and general compliance with the information given in the contract documents. Any action shown is subject to the requirements of the plans and specifications. Contractor is responsible for: Dimensions which shall be confirmed and correlated at the job site fabrications process and techniques of construction; coordination of His work with that all other trades; and the satisfactory performance of his work.

SAR ENGINEERING, INC.

DATE: November 11, 2021 **BY:** R. Brown

R-2/21/2003

SEE INDIVIDUAL ITEMS FOR SUBMITTAL STATUS

Comments:

1. **Finned Radiation FTR-A:** NO EXCEPTION TAKEN.
2. **Finned Radiation FTR-B:** NO EXCEPTION TAKEN.
3. **Hot Water Unit Heaters:**
   a. **2UH-1,9,10; 7UH-9:** NO EXCEPTION TAKEN.
   b. **2UH-2; 7UH-2:** NO EXCEPTION TAKEN.
   c. **2UH-3,4,5,6,7; 7UH-1,14,16:** NO EXCEPTION TAKEN.
   d. **7UH-3,4,8:** NO EXCEPTION TAKEN.

e. **7UH-5,6,7,10,11,12,13:** NO EXCEPTION TAKEN.

f. **7UH-15,17,18:** NO EXCEPTION TAKEN.

4. **Cabinet Unit Heaters:**

   a. **7CUH-1:** APPROVED AS NOTED: Prior to release for manufacture, verify that dimensions of submitted unit fit in the available space.

   b. **9CUH-1,2,3:** APPROVED AS NOTED: Prior to release for manufacture, verify that dimensions of submitted unit fit in the available space.

5. **Convectors:**
   a. **9C-1:** NO EXCEPTION TAKEN

6. **Component Valves:** REVISE AND RESUBMIT: Drawing Number “2SMB” on Coil Hook Up Schedule Sheets 1 and 2 is not included in the submittal package. Clarify which valves are being submitted.

Aero Mechanical, Inc.

10 Leah St.
Johnston, RI 02919

Phone: 401-751-8880
Fax: 401-751-7595

SUBMITTAL

No. 5

TITLE: Hydronic Heat
PROJECT: Hart Taunton WWTF PH 1
Drawing:
STATUS: NEW
BIC:

REQUIRED START: 11/8/2021
REQUIRED FINISH: 11/15/2021
DAYS HELD:
DAYS ELAPSED:
DAYS OVERDUE:

RECEIVED FROM	SENT TO	RETURNED BY	FORWARDED TO
J. Morgan	R. Murphy		

Revision No.	Description / Remarks	Received	Sent	Returned	Forwarded	Status
NEW	Hydronic Heat	11/8/2021	11/8/2021			NEW

Ocean State
HEATING REPRESENTATIVES, INC.

November 8, 2021

Project: Taunton WWTF Ph1
Architect: BETA Inc
Engineer: SAR Engineering
Contractor: Aero Mechanical
PO#: 7248-OSH-11367

Finned Radiation — By Sterling, Westfield, MA

FTR-A
(all) C3/4-435 Bare copper/aluminum element with wall hangers.

FTR-B
(all) JBV-ARS14 Finned radiation, 14" high with 14ga enclosure, partial backplate, expansion type water brackets, brackets, element, and trim. Provided in standard beige.

Unit Heaters — By Sterling, Westfield, MA

2UH-1, 9, 10; 7UH-8
(4) HS-84

2UH-2; 7UH-2
(2) HS-48

2UH-3, 4, 5, 6, 7, 8; 7UH-1,14,16
(9) HS-60

7UH-3, 4, 8
(3) HS-36

7UH-5, 6, 7, 10, 11, 12, 13
(7) HS-108

7UH-15,17,18
(3) HS-24

851 Shermantown Road ~ Saunderstown, RI 02874-2006 ~ (401) 295-2828 ~ (401) 294-3299 Fax

Ocean State
HEATING REPRESENTATIVES, INC.

Cabinet Unit Heaters — By Sterling, Westfield, MA

7CUH-1
(1) RC-1200-03, recessed ceiling, 2-row coil. Provided in ceiling off white.

9CUH-1, 2, 3
(3) F-1020-03 Cabinet Unit Heater, floor mounted, 2-row coil. Provided in standard beige.

Convectors — By Sterling, Westfield, MA

9C-1
(2) SW-A Convector, 40"L x 32"H x 6"D. Provided in standard beige.

All controls and control valves by others for above Finned Radiation, Unit Heaters, Cabinet Unit Heaters, and Convectors.

Component Valves — By FloPac, Jessup, MD

(37) 3/4" 2SMB Component valve package, for 2-way control valves (by others) with manual balance valves.
(7) 1" 2SMB Ditto above. Tag: UH with 1" runouts

See data sheets and schedule for details.

Respectfully submitted,

Thomas J. Murphy

851 Shermantown Road ~ Saunderstown, RI 02874-2006 ~ (401) 295-2828 ~ (401) 294-3299 Fax

STERLING
COMMERCIAL HYDRONIC PRODUCTS

A MESTEK COMPANY

VersaLine

Commerical Finned Tube Radiation For Energy-Efficient Hydronic Heating Systems

MADE IN THE USA

VERSA-LINE

Submittal

Bare Element "B"
Versa-Line
Copper/Aluminum and
Steel Element Ratings

FTR-A

☐ **Bare Element "B"**

Specification

ELEMENT:

TYPE: ■ Cu/AL (Mechanically Expanded)
LENGTHS: 2'0" thru 12'6" in 1" Increments
for 1" & 1-1/4" Cu.
2'0" to 8'0" in 1" Increments
for ¾" Cu.

One End Flared (Std)

See Catalog for Working
Pressures

BRACKETS:

■ Wall Mtd B.B. Hngr

ELEMENT:

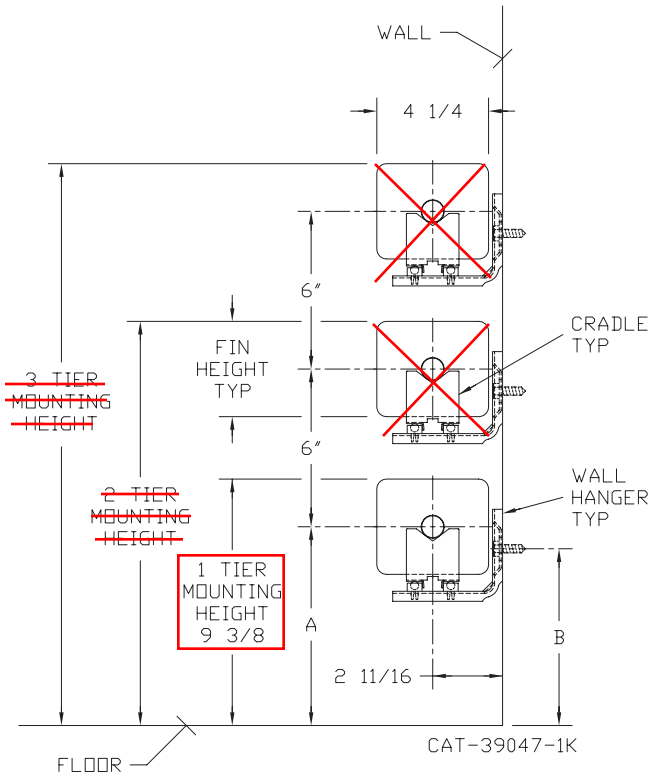
TYPE: ☐ IPS Steel (Mechanically Expanded)
LENGTHS: 2'-0" to 12'-6" in 1" Increments
☐ NPT Thread both Ends (Std)
☐ Beveled Ends for Field Weld (Opt'l)

See Catalog for Working
Pressures

BRACKETS:

☐ Wall Mtd B.B. Hngr

TUBE SIZE	FIN SIZE HEIGHT x WIDTH	CRADLE NUMBER	A	B
3/4 COPPER	3 5/8 x 4 1/4	2	7 9/16	6 3/4
	4 1/4 x 4 1/4	3A	7 1/4	6"
1" COPPER	3 5/8 x 4 1/4	2	7 9/16	6 9/16
	4 1/4 x 4 1/4		7 1/4	6 1/4
1 1/4 COPPER	3 5/8 x 4 1/4	2	7 9/16	6 7/16
	4 1/4 x 4 1/4		7 1/4	6 1/8
1" STEEL	4 1/4 x 4 1/4	2	7 1/4	6 1/8
1 1/4 STEEL	4 1/4 x 4 1/4	2	7 1/4	5 15/16
2" STEEL	4 1/4 x 4 1/4	1	7 1/4	6 3/16



STERLING®
COMMERCIAL HYDRONIC PRODUCTS
260 North Elm St., Westfield, MA 01085
(413) 564-5535 Fax: (413) 562-8437
www.sterlingheat.com

MADE IN THE USA

1/20

PROJECT: Taunton WWTF Ph1 **DATE:** 11-8-21
LOCATION: Taunton, MA
ARCHITECT: BETA, Inc.
ENGINEER: SAR Engineering
CONTRACTOR: Aero Mechanical
PO NUMBER: 7248-OSH-11367

STYLE "B" BARE ELEMENT

FTR-A

40% PG at 160*F AWT
850 BTU/Ft x 0.916 = 778 BTU/Ft

COPPER/ALUMINUM ELEMENTS

ALL RATINGS ARE IN BTU/HR/LINEAR FT AND BASED ON 3 FPS VELOCITY, 65° EAT

TUBE SIZE	CATALOG DESIGNATION	FIN SIZE HEIGHT X WIDTH	FINS PER FT.	FIN THICKNESS IN INCHES	TIERS AND CENTERS IN INCHES	MOUNTING HEIGHT IN INCHES	STEAM 215° FACTOR	HOT WATER (AVG.) 200°	190°	180°	170°	160°	150°	140°	130°	120°
								CORRECTION FACTORS FOR AVERAGE WATER TEMPERATURES								
							1.00	0.86	0.78	0.69	0.61	0.53	0.45	.40	.33	.26
3/4"	C3/4-433	3-5/8" X 4-1/4"	***32***	***.020***	***1***	***9-3/8***	***1210***	1040	940	830	740	640	540	480	400	310
					2-6 CL	15-3/8	2130	1830	1660	1470	1300	1130	960	850	700	550
					3-6 CL	21-3/8	2880	2480	2250	1990	1760	1530	1300	1150	950	750
3/4"	C3/4-434	3-5/8" X 4-1/4"	***40***	***.020***	***1***	***9-3/8***	***1450***	1250	1130	1000	880	770	650	580	480	380
					2-6 CL	15-3/8	2490	2140	1940	1720	1520	1320	1120	1000	820	650
					3-6 CL	21-3/8	3300	2840	2570	2280	2010	1750	1490	1320	1090	860
3/4"	C3/4-435	3-5/8" X 4-1/4"	***50***	***.020***	***1***	***9-3/8***	***1600***	1380	1250	1100	980	850	720	640	530	420
					2-6 CL	15-3/8	2650	2280	2070	1830	1620	1400	1190	1060	870	690
					3-6 CL	21-3/8	3450	2970	2690	2380	2100	1830	1550	1380	1140	900
1"	C433	3-5/8" X 4-1/4"	***32***	***.020***	***1***	***9-3/8***	***1260***	1080	980	870	770	670	570	500	420	330
					2-6 CL	15-3/8	2220	1910	1730	1530	1350	1180	1000	890	730	580
					3-6 CL	21-3/8	3000	2580	2340	2070	1830	1590	1350	1200	990	780
1"	C434	3-5/8" X 4-1/4"	***40***	***.020***	***1***	***9-3/8***	***1410***	1210	1100	970	860	750	630	560	470	370
					2-6 CL	15-3/8	2420	2080	1890	1670	1480	1280	1090	970	800	630
					3-6 CL	21-3/8	3200	2750	2500	2210	1950	1700	1440	1280	1060	830
1"	C435	3-5/8" X 4-1/4"	***50***	***.020***	***1***	***9-3/8***	***1600***	1380	1250	1100	980	850	720	640	530	420
					2-6 CL	15-3/8	2640	2270	2060	1820	1610	1400	1190	1060	870	690
					3-6 CL	21-3/8	3450	2970	2690	2380	2100	1830	1550	1380	1140	900
1-1/4"	C1433	3-5/8" X 4-1/4"	***32***	***.020***	***1***	***9-3/8***	***1310***	1130	1020	900	800	690	590	520	430	340
					2-6 CL	15-3/8	2310	1990	1800	1590	1410	1220	1040	920	760	600
					3-6 CL	21-3/8	3130	2690	2440	2160	1910	1660	1410	1250	1030	810
1-1/4"	C1434	3-5/8" X 4-1/4"	***40***	***.020***	***1***	***9-3/8***	***1440***	1240	1120	990	880	760	650	580	480	370
					2-6 CL	15-3/8	2470	2120	1930	1700	1510	1310	1110	990	820	640
					3-6 CL	21-3/8	3260	2800	2540	2250	1990	1730	1470	1300	1080	850
1-1/4"	C1435	3-5/8" X 4-1/4"	***50***	***.020***	***1***	***9-3/8***	***1600***	1380	1250	1100	980	850	720	640	530	420
					2-6 CL	15-3/8	2650	2280	2070	1830	1620	1400	1190	1060	870	690
					3-6 CL	21-3/8	3460	2980	2700	2390	2110	1830	1560	1380	1140	900
3/4"	C3/4 43	4-1/4" SQ.	32	.020	1	9-3/8	1340	1150	1050	920	820	710	600	540	440	350
					2-6 CL	15-3/8	2340	2010	1830	1610	1430	1240	1050	940	770	610
					3-6 CL	21-3/8	3200	2750	2500	2210	1950	1700	1440	1280	1060	830
3/4"	C3/4 44	4-1/4" SQ.	40	.020	1	9-3/8	1600	1380	1250	1100	980	850	720	640	530	420
					2-6 CL	15-3/8	2540	2180	1980	1750	1550	1350	1140	1020	840	660
					3-6 CL	21-3/8	3330	2860	2600	2300	2030	1760	1500	1330	1100	870
3/4"	C3/4 45	4-1/4" SQ.	50	.020	1	9-3/8	1650	1420	1290	1140	1010	870	740	660	540	430
					2-6 CL	15-3/8	2620	2250	2040	1810	1600	1390	1180	1050	860	680
					3-6 CL	21-3/8	3430	2950	2680	2370	2090	1820	1540	1370	1130	890
1"	C43	4-1/4" SQ.	***32***	***.020***	***1***	***9-3/8***	***1340***	1150	1050	920	820	710	600	540	440	350
					2-6 CL	15-3/8	2370	2040	1850	1640	1450	1260	1070	950	780	620
					3-6 CL	21-3/8	3230	2780	2520	2230	1970	1710	1450	1290	1070	840
1"	C44	4-1/4" SQ.	***40***	***.020***	***1***	***9-3/8***	***1490***	1280	1160	1030	910	790	670	600	490	390
					2-6 CL	15-3/8	2490	2140	1940	1720	1520	1320	1120	1000	820	650
					3-6 CL	21-3/8	3320	2860	2590	2290	2030	1760	1490	1330	1100	860
1"	C45	4-1/4" SQ.	***50***	***.020***	***1***	***9-3/8***	***1680***	1440	1310	1160	1020	890	760	670	550	440
					2-6 CL	15-3/8	2650	2280	2070	1830	1620	1400	1190	1060	870	690
					3-6 CL	21-3/8	3460	2980	2700	2390	2110	1830	1560	1380	1140	900
1-1/4"	C143	4-1/4" SQ.	***32***	***.020***	***1***	***9-3/8***	***1400***	1200	1090	970	850	740	630	560	460	360
					2-6 CL	15-3/8	2470	2120	1930	1700	1510	1310	1110	990	820	640
					3-6 CL	21-3/8	3360	2890	2620	2320	2050	1780	1510	1340	1110	870
1-1/4"	C144	4-1/4" SQ.	***40***	***.020***	***1***	***9-3/8***	***1660***	1430	1290	1150	1010	880	750	660	550	430
					2-6 CL	***15-3/8***	***2680***	2300	2090	1850	1630	1420	1210	1070	880	700
					3-6 CL	***21-3/8***	***3490***	3000	2720	2410	2130	1850	1570	1400	1150	910
1-1/4"	C145	4-1/4" SQ.	***50***	***.020***	***1***	***9-3/8***	***1710***	1470	1330	1180	1040	910	770	680	560	440
					2-6 CL	***15-3/8***	***2460***	2120	1920	1700	1500	1300	1110	980	810	640
					3-6 CL	***21-3/8***	***3200***	2750	2500	2210	1950	1700	1440	1280	1060	830

Note: Copper tube furnished flared one end standard.

Fluid Temperature 140°F

% Solution	Ethylene Glycol	Propylene Glycol
20	.934	.97
30	.898	.946
40	.861	.916
50	.821	.881

▶ **Bold, italicized units are AHRI CERTIFIED rated** ◀

AR-11

STERLING

COMMERCIAL HYDRONIC PRODUCTS

A MESTEK COMPANY

Classic

Architecturally Designed Enclosures

MADE IN THE USA

CLASSIC
Submittal

JVA-ARS11 14 FTR-B
Classic Architectural
Copper/Aluminum ~~and Steel~~ Elements

■ **JVA Slip Jointed Enclosure**

Specification

ENCLOSURE:

STYLE: Classic Slope
OUTLET: Extruded Aluminum
Pencil Proof

LENGTHS: 2'0" thru 8'0" in 6" Increments
MAT'L:
- ☐ 16 Ga. CRS (Std)
- ■ 14 Ga. CRS (Opt'l)
- ☐ 16 Ga. Stainless Steel (Opt'l)
- ☐ 14 Ga. Stainless Steel (Opt'l)
- ☐ 14 Ga. Aluminum (Opt'l)
- ☐ 12 Ga. Aluminum (Opt'l)

HEIGHT:
- ☐ 11"
- ■ 14"

FINISH:
- ■ Baked Powder (Std)
- ☐ Baked Metallic (Opt'l)

ACCESSORIES:

■ **All Accessories are Overlapping Type**
All accessories return to the wall at the bottom and have pre-punched holes for fastening to the wall

ELEMENT:

TYPE: ■ Cu/Al (Mechanically Expanded)
LENGTHS: 2'0" thru 12'6" in 1" Increments for 1" & 1-1/4" Cu.
2'0" thru 8'0" in 1" Increments for 3/4" Cu

One End Flared, (Std)

TYPE: ☐ IPS Steel (Mechanically Expanded)
LENGTHS: 2'0" Thru 12'0" in 1" Increments
- ☐ NPT Thread Both Ends (Std)
- ☐ Beveled Ends for Field Weld

See Catalog for Working Pressures

BACKPLATE:

TYPE: ■ Partial B/P
LENGTHS: 8'0" Only
MAT'L:
- ■ 20 Ga. Prepainted (Std)
- ☐ 18 Ga. Galvannealed (Opt'l)

TYPE: ☐ Full Ht. B/P (Opt'l)
LENGTHS: 2'0" thru 8'0" in 6" Increments
MAT'L:
- ☐ 20 Ga. Galvannealed (Opt'l)
- ☐ 20 Ga. Painted (Opt'l)
- ☐ 18 Ga. Painted (Opt'l)

AIRSEAL:

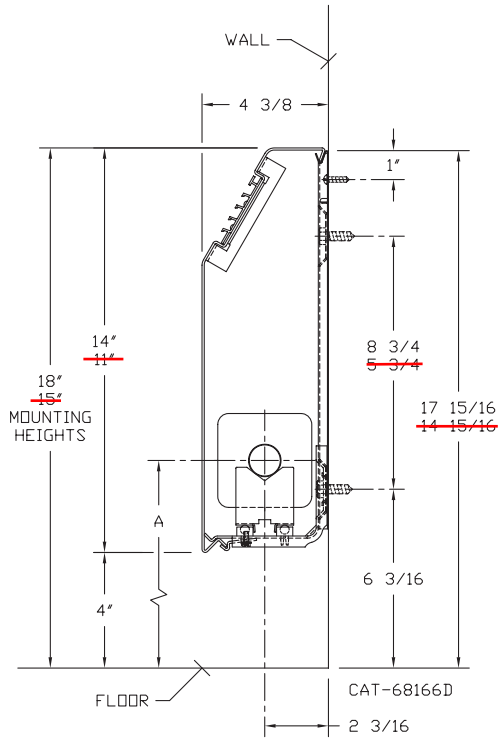
☐ 1/8" x 3/8" Closed Cell (Opt'l)

BRACKETS:

■ Water Brkt w/B.B.
☐ Steam Brkt w/Brkt Mtd B.B. Hgr

DAMPER: Not Available

JVA-ARS11 14



ELEMENT TUBE SIZE	FIN SIZE HEIGHT x WIDTH	CRADLE NUMBER	A
3/4 COPPER	3 1/4 x 3 1/4	2	7"
1" COPPER	3 1/4 x 3 1/4	2	7 3/16
1 1/4 COPPER	3 1/4 x 3 1/4	1	6 5/8
1" STEEL	3 1/4 x 3 1/4	2	7 5/16
1 1/4 STEEL	3 1/4 x 3 1/4	1	6 13/16

STERLING®
COMMERCIAL HYDRONIC PRODUCTS
260 North Elm St., Westfield, MA 01085
(413) 564-5535 Fax: (413) 562-8437
www.sterlingheat.com

MADE IN THE USA

10/20

PROJECT: Taunton WWTF Ph1 **DATE:** 11-8-21
LOCATION: Taunton, MA
ARCHITECT: BETA, Inc.
ENGINEER: SAR Engineering
CONTRACTOR: Aero Mechanical
PO NUMBER: 7248-OSH-11367

STYLE JVA-ARS11 14

FTR-B

COPPER/ALUMINUM ELEMENT RATINGS

ALL RATINGS ARE IN BTU/HR/LIN FT AND BASED ON 3 FPS VELOCITY, 65° EAT

TUBE SIZE	CATALOG DESIGNATION	FIN SIZE HEIGHT X WIDTH	FINS PER FT.	FIN THICKNESS IN INCHES	ENCL HEIGHT IN INCHES	TIERS AND CENTERS IN INCHES	MTG. HEIGHT IN INCHES	STEAM 215° FACTOR	HOT WATER (AVG.) 200°	190°	180°	170°	160°	150°	140°	130°	120°
									CORRECTION FACTORS FOR AVERAGE WATER TEMPERATURES								
								1.00	0.86	0.78	0.69	0.61	0.53	0.45	.40	.33	.26
3/4"	C3/4-33	3-1/4" SQ.	32	.020	11	1	15	1000	860	780	690	610	530	450	400	330	260
					14		18	1080	930	840	750	660	570	490	430	360	280
3/4"	C3/4-34	3-1/4" SQ.	40	.020	11	1	15	1180	1010	920	810	720	630	530	470	390	310
					14		18	1290	1110	1010	890	790	680	580	520	430	340
3/4"	C3/4-35	3-1/4" SQ.	50	.020	11	1	15	1320	1140	1030	910	810	700	590	530	440	340
					14		18	1440	1240	1120	990	880	760	650	580	480	370
1"	C33	3-1/4" SQ.	32	.020	11	1	15	980	840	760	680	600	520	440	390	320	250
					14		18	1060	910	830	730	650	560	480	420	350	280
1"	C34	3-1/4" SQ.	40	.020	11	1	15	1150	990	900	790	700	610	520	460	380	300
					14		18	1250	1080	980	860	760	660	560	500	410	330
1"	C35	3-1/4" SQ.	50	.020	11	1	15	1260	1080	980	870	770	670	570	500	420	330
					14		18	1370	1180	1070	950	840	730	620	550	450	360
1 1/4"	C133	3-1/4" SQ.	32	.020	11	1	15	920	790	720	630	560	490	410	370	300	240
					14		18	1020	880	800	700	620	540	460	410	340	270
1 1/4"	C134	3-1/4" SQ.	40	.020	11	1	15	1080	930	840	750	660	570	490	430	360	280
					14		18	1190	1020	930	820	730	630	540	480	390	310
1 1/4"	C135	3-1/4" SQ.	50	.020	11	1	15	1190	1020	930	820	730	630	540	480	390	310
					14		18	1330	1140	1040	920	810	700	600	530	440	350

See Certification and Specification Report on next page for capacities specific to this application

FTR-B

Certification and Specification Report

Sterling Classic Finned Tube

Date: 10/26/2021

Project: Taunton WWTP Ph1

Location: Taunton, MA

Prepared By: Ocean State Heating Representatives

Prepared For: Aero Mechanical PO# 7248-OSH-11367

General Specifications

Furnish and install where shown on all plans/drawings, Sterling Classic Finned-Tube Assemblies as described in the specifications below or approved equal quality and capacity. Ratings shall be AHRI approved and submitted as so. Material shall be installed in a workman-like manner in accordance with specifications and Sterling's recommendations.

System Design Data

FTR-B

General information for catalog number JVA-ARS14

-System Information-

System Type	% Glycol	Avg. Water Temp.	Flow Rate	Entering Air Temp.	Altitude	Output
Water/Propylene Glycol	40	160 Degrees F	4.00 GPM	65 Degrees F	0 FT	706 BTU/FT

-Element Information-

Element Catalog Num	Material	Tube Size	Fin Size	Fin Thickness	Fins Per Foot
C3/4-35	CU/AL	3/4in.	3-1/4in. SQ.	0.02	50

Enclosure

Enclosure information for catalog number JVA-ARS14

Finned-tube enclosures are to be Classis J style Slope Top Enclosure.

Catalog Number: JVA-ARS14, corresponding to an enclosure with a height of 14 in, a Depth of A: 4-3/8in., and 1 tier(s).

The enclosure shall be mounted at a height of 18.00 in.

Classic slope-top enclosure shall be as scheduled on the plans. Enclosure will be fabricated from ~~16(std.) or~~ 14 gauge cold rolled steel that has been de-greased, phosphatized, sealer coated, and painted with baked polyester powder coating. Air discharge grille slots shall be pencil proof. Welded male and female slip joints are provided to allow for positive engagement and alignment of adjoining enclosures. All bends (lateral) on enclosure are to be formed on bottoming dies to ensure continuity of all adjoining enclosures and accessories.

Accessories

Accessory information for catalog number JVA-ARS14

Accessories shall be die-formed 18 gauge cold rolled steel with the same finish as the enclosure. All vertical edges shall be beaded (180 deg.) edges when overlapping enclosure so that no exposed raw edge will extend outward. Overlapping accessories shall provide for make-up required in runs when and where partitions and/or walls may vary from bay to bay. Accessories shall fit between wall and backplate at top and extend back to wall at bottom for securing with fastener by others.

HYDRONIC HEATING EQUIPMENT

Application Manual

HORIZONTAL AND VERTICAL STEAM/HOT WATER UNIT HEATERS

STERLING®
HVAC PRODUCTS

MADE IN THE USA

Horizontal Unit Heaters – Submittal

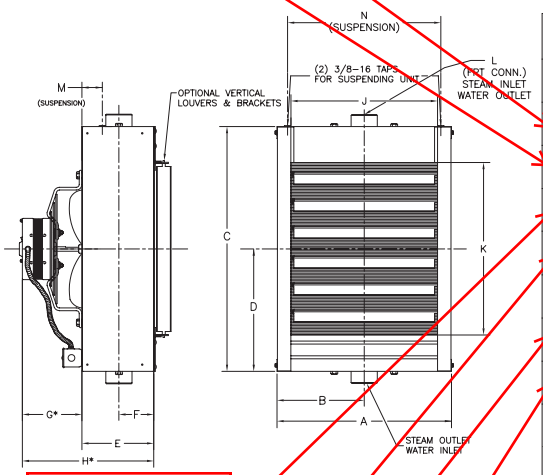
UH-(all)

HSD-16

Dimensional Data

HS-36: 7UH-15,17,18

HS-48: 7UH-3, 4, 8



HS-60: 2UH-2; 7UH-2

HS-72: 2UH-3, 4, 5, 6, 7, 8; 7UH-1,14,16

HS-96: 2UH-1, 9, 10; 7UH-8

HS-1207UH-5, 6, 7, 10, 11, 12, 13

Steam and Hotwater Coil

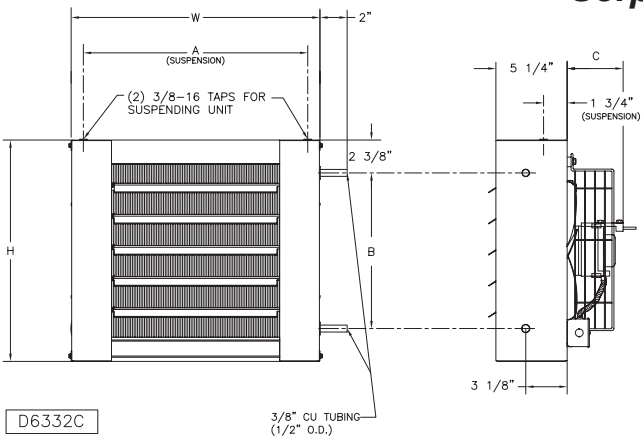
MODELS HS-18 THRU 360 (HEADER TYPE)

Unit Size	A inches (mm)	B inches (mm)	C inches (mm)	D inches (mm)	E inches (mm)	F inches (mm)	G* inch,es (mm)	H* inches (mm)	J inches (mm)	K inches (mm)	L inches (mm)	M inches (mm)	N inches (mm)	Number of Louvers	Nom. Fan Diam. inches (mm)	Approx. Ship Wt. lbs. (kg)
18	14⅝ (371)	7⁹⁄₁₆ (186)	15 (381)	7½ (191)	6⅛ (156)	2¹⁵⁄₁₆ (75)	3¼ (83)	9⅜ (238)	12¼ (311)	9½ (241)	1¼ (32)	2¼ (57)	12⅞ (327)	4	9 (229)	26 (11.8)
~~24~~ 36	14⅝ (371)	7⁹⁄₁₆ (186)	18 (457)	9 (229)	6⅛ (156)	2¹⁵⁄₁₆ (75)	3¼ (83)	9⅜ (238)	12¼ (311)	12½ (318)	1¼ (32)	2¼ (57)	12⅞ (327)	5	10 (254)	30 (13.6)
48	17⅛ (435)	8⁹⁄₁₆ (217)	20½ (521)	10¼ (260)	5⅞ (149)	2¹⁵⁄₁₆ (75)	5¹¹⁄₁₆ (144)	11⁷⁄₁₆ (291)	14¾ (375)	15 (381)	1¼ (32)	1¾ (44)	15⅜ (391)	6	12 (305)	41 (18.6)
60	17⅛ (435)	8⁹⁄₁₆ (217)	20½ (521)	10¼ (260)	5⅞ (149)	2¹⁵⁄₁₆ (75)	5¹⁄₁₆ (129)	10¹⁵⁄₁₆ (278)	14¾ (375)	15 (381)	1¼ (32)	1¾ (44)	15⅜ (391)	6	12 (305)	41 (18.6)
72	18⅜ (467)	9³⁄₁₆ (233)	21¾ (552)	10⅞ (276)	6 (152)	2¹⁵⁄₁₆ (75)	5¹⁄₁₆ (129)	11⁷⁄₁₆ (281)	16 (406)	16¼ (413)	1¼ (32)	1¾ (44)	16⅝ (422)	7	14 (356)	44 (19.9)
84	20⅞ (530)	10⁷⁄₁₆ (265)	24¼ (616)	12⅛ (308)	6⅛ (156)	2¹⁵⁄₁₆ (75)	5¹¹⁄₁₆ (144)	11¹³⁄₁₆ (300)	18½ (470)	18¾ (476)	1¼ (32)	1¾ (44)	19⅛ (486)	8	14 (356)	47 (21.3)
96 ~~108~~	19⅝ (498)	9¹³⁄₁₆ (249)	24 (610)	12 (305)	6⁵⁄₁₆ (160)	3³⁄₁₆ (81)	7½ (191)	13¹³⁄₁₆ (351)	17¼ (438)	17½ (445)	1½ (38)	1¾ (44)	17⅞ (454)	8	16 (406)	49 (22.2)
120	20⅞ (530)	10⁷⁄₁₆ (265)	25¼ (641)	12⅝ (321)	6⁵⁄₁₆ (160)	3³⁄₁₆ (81)	6¹¹⁄₁₆ (170)	13 (330)	18½ (470)	18¾ (476)	1½ (38)	1¾ (44)	19⅛ (486)	8	18 (457)	59 (26.7)
132 144	23⅜ (594)	11¹¹⁄₁₆ (297)	27¾ (705)	13⅞ (352)	6⁵⁄₁₆ (160)	3³⁄₁₆ (81)	7⅝ (194)	14 (356)	21 (533)	21¼ (540)	1½ (38)	1¾ (44)	21⅝ (549)	9	18 (457)	74 (33.5)
156	23⅜ (594)	11¹¹⁄₁₆ (297)	27¾ (705)	13⅞ (352)	6⁵⁄₁₆ (160)	3³⁄₁₆ (81)	7⁷⁄₁₆ (194)	13¾ (349)	21 (533)	21¼ (540)	1½ (38)	1¾ (44)	21⅝ (549)	9	18 (457)	74 (33.5)
180 204	24⅝ (625)	12⁵⁄₁₆ (313)	29 (737)	14½ (368)	6⅜ (162)	3³⁄₁₆ (81)	7⁷⁄₁₆ (194)	13¾ (349)	22¼ (565)	22½ (572)	1½ (38)	1¾ (44)	22⅞ (581)	9	18 (457)	90 (40.8)
240	27⅞ (708)	13¹⁵⁄₁₆ (354)	30¼ (768)	15⅛ (384)	8⅛ (206)	3³⁄₁₆ (81)	5⅞ (149)	14 (356)	25½ (648)	23¾ (603)	2 (51)	1¾ (44)	26⅛ (664)	10	20 (508)	143 (65)
280	27⅞ (708)	13¹⁵⁄₁₆ (354)	30¼ (768)	15⅛ (384)	8⅛ (206)	3³⁄₁₆ (81)	9⅝ (244)	17¾ (451)	25½ (648)	23¾ (603)	2 (51)	1¾ (44)	26⅛ (664)	10	20 (508)	154 (70)
300 360	33⅜ (848)	16¹¹⁄₁₆ (424)	37¾ (959)	18⅞ (479)	9 (229)	3³⁄₁₆ (81)	9⅝ (244)	18⅝ (473)	31 (787)	31¼ (794)	2 (51)	1¾ (44)	31⅝ (803)	13	24 (610)	203 (92)

* APPLIES TO STANDARD MOTOR WITH STANDARD FAN GUARD. WHEN OPTIONAL MOTORS OR OSHA FAN GUARDS ARE REQUESTED, DIMENSIONS WILL CHANGE ACCORDING TO THE SUBSTITUTIONS MADE.

NOTES: 1. OSHA guard standard on models HS-18 thru HS-48 (dimensions shown in table).
2. Standard motor and standard guard shown in both tables.
3. Optional OSHA guards available for all units with standard single phase motors.
4. All three phase and explosion proof motors are shelf mounted.

Serpentine Hotwater Coil



D6332C

MODELS HS-108A THRU 136A

Unit Size	H inches (mm)	W inches (mm)	A inches (mm)	B inches (mm)	C inches (mm)	Number of Louvers	Nominal Fan Diameter inches (mm)	Approx. Ship Wt. lb. (kg)
108A	16 (406)	18 (457)	16⁷⁄₃₂ (412)	11¼ (286)	4¼ (108)	5	9 (229)	22 (10.0)
118A	16 (406)	18 (457)	16⁷⁄₃₂ (412)	11¼ (286)	4¼ (108)	5	10 (254)	24 (10.9)
125A	16 (406)	18 (457)	16⁷⁄₃₂ (412)	11¼ (286)	4¼ (108)	5	10 (254)	25 (11.3)
136A*	18½ (470)	20½ (521)	18²²⁄₃₂ (475)	13¾ (349)	5¹¹⁄₁₆ (144)	6	12 (305)	31 (14.0)

* Dimension "C" is to back of motor, not motor conduit connector as shown.
NOTE: OSHA type fan guard standard on models HS-108A thru HS-136A.

STERLING HVAC PRODUCTS

A MESTEK COMPANY

Sales Office 260 North Elm Street
Westfield, Massachusetts 01085
(413) 564-5535 Fax (413) 562-5311
www.sterlinghvac.com

PROJECT: Taunton WWF
LOCATION: Taunton, MA
ARCHITECT: BETA, Inc.
ENGINEER: SAR Engineering
CONTRACTOR: Aero Mechanical
PO NUMBER:
DATE: November 8, 2021

MADE IN THE USA

UH-(all)

Hot Water Performance Data

Model/ Unit Size	Output BTU Per Hour*	GPM	Final Air Temp	Pressure Drop Ft/H_2O	Motor HP†	Motor RPM	Nominal CFM	Outlet FPM	Nominal Amps At 115VAC**	Sound Rating
HS-108A	8,030	.80	91°F	.80	16 Watt	1550	245	250	.80	II
	6,800		90°F			1350	210	215	.80	I
HS-118A	18,400	1.9	94°F	2.2	16 Watt	1550	500	500	.80	II
	15,650		96°F			1350	420	420	.80	I
HS-125A	24,800	2.5	102°F	2.2	25 Watt	1550	580	590	1.2	II
	21,230		106°F			1350	460	450	1.2	I
HS-136A	35,900	3.6	99°F	3.0	1/20	1000	850	550	1.4	II
	32,300		100°F			900	750	480	1.4	I
HS-018B	13,050	1.3	95°F	.005	16 Watt	1550	395	395	.80	II
	11,725		99°F			1350	350	350	.80	I
HS-024B	17,400	1.8	96°F	.014	16 Watt	1550	450	450	.80	II
	15,600		98°F			1350	380	380	.80	I
HS-036B	26,100	2.7	103°F			1550	550	550	1.2	II
	23,500									I
HS-048B	34,800	3.5								II
	31,300									I
HS-060B	43,600	4.4								II
	39,200									I
HS-072B	52,300	5.3								II
	47,000									I
HS-084B	61,000	6.1								III
	54,900									II
HS-096B	69,700	7.0								III
	62,700									II
HS-108B	78,400	7.9		.36	1/12					III
	70,500		103°F			900	1500	900	2.2	II
HS-120B	87,100	8.8	102°F	.39	1/3	1140	1900	900	4.5	III
	—		—			—	—	—	—	—
HS-132B	95,800	9.6	104°F	.41	1/3	1140	2000	950	4.5	IV
	—		—			—	—	—	—	—
HS-144B	104,000	10.4	104°F	.43	1/3	1140	2200	1000	4.5	IV
	—		—			—	—	—	—	—
HS-156B	113,000	11.3	100°F	.53	1/3	1140	2600	1150	4.5	IV
	—		—			—	—	—	—	—
HS-180B	118,000	11.8	110°F	.60	1/3	1140	2200	800	4.5	III
	—		—			—	—	—	—	—
HS-204B	148,100	14.9	107°F	.79	1/3	1140	2900	1000	4.5	IV
	—		—			—	—	—	—	—
HS-240B	174,000	17.4	106°F	1.06	1/3	1140	3500	900	4.5	IV
	—		—			—	—	—	—	—
HS-280B	209,100	21.0	106°F	1.33	1/2	1100	4200	980	5.4	IV
	—		—			—	—	—	—	—
HS-300B	230,000	23.0	102°F	2.1	1/2	1100	5000	700	5.4	IV
	—		—			—	—	—	—	—
HS-360B	261,300	26.2	103°F	2.1	1/2	1100	5500	1000	5.4	IV
	—		—			—	—	—	—	—

See Attached Sterling Commercial Hydronics Certification Sheets

Performance based on 200° EWT, 60° E.A.T., 20° TD.
*** For the lower output, an optional Speed Controller must be ordered.**
**** Stated AMP is full load (FLA). AMP draw varies by motor manufacturer ± .2 AMPS.**
† Motor HP listed is applicable to standard motor type only. For explosion proof motor HP, see motor data section.

Steam Performance Data

Model/ Unit Size	Output BTU Per Hour*	Condensate Lbs Per Hour	Square Foot EDR	Final Air Temp	Motor HP‡	Motor RPM	Nominal CFM	Outlet FPM	Nominal Amps At 115VAC†	Nominal Fan Diameter
HS-018B	18,000	18.0	75	102°F	16 Watt	1550	395	395	.80	9"
	16,200	16.2	68	105°F		1350	330	330	.80	9"
HS-024B	24,000	24.5	100	109°F	16 Watt	1550	450	450	.80	10"
	21,600	22.0	90	112°F		1350	380	380	.80	10"
HS-036B	36,000	37.0	150	119°F	25 Watt	1550	550	550	1.2	10"
	32,400	33.0	135	120°F		1350	480	480	1.2	10"
HS-048B	48,000	49.0	200	119°F	1/20	1000	750	550	1.4	12"
	43,200	44.0	180	123°F		900	630	460	1.4	12"
HS-060B	60,000	61.0	250	121°F	1/20	1000	900	650	1.4	12"
	54,000	55.0	225	131°F		900	700	510	1.4	12"
HS-072B	72,000	73.0	300	120°F	1/20	1000	1100	800	1.4	14"
	64,800	66.0	270	123°F		900	950	700	1.4	14"
HS-084B	84,000	85.0	350	115°F	1/12	1000	1400	900	2.2	14"
	75,600	76.0	315	123°F		900	1100	750	2.2	14"
HS-096B	96,000	97.0	400	123°F	1/12	1000	1400	930	2.2	16"
	86,400	88.0	360	132°F		900	1100	800	2.2	16"
HS-108B	108,000	110.0	450	115°F	1/12	1000	1800	1000	2.2	16"
	97,200	98.0	405	120°F		900	1500	900	2.2	16"
HS-120B	120,000	122.0	500	118°F	1/3	1140	1900	900	4.5	18"
	—	—	—	—		—	—	—	—	—
HS-132B	132,000	134.0	550	121°F	1/3	1140	2000	950	4.5	18"
	—	—	—	—		—	—	—	—	—
HS-144B	144,000	146.0	600	120°F	1/3	1140	2200	1000	4.5	18"
	—	—	—	—		—	—	—	—	—
HS-156B	156,000	160.0	650	115°F	1/3	1140	2600	1150	4.5	18"
	—	—	—	—		—	—	—	—	—
HS-180B	180,000	190.0	770	135°F	1/3	1140	2200	800	4.5	18"
	—	—	—	—		—	—	—	—	—
HS-204B	204,000	208.0	850	124°F	1/3	1140	2900	1000	4.5	18"
	—	—	—	—		—	—	—	—	—
HS-240B	240,000	244.0	1000	123°F	1/3	1140	3500	900	4.5	20"
	—	—	—	—		—	—	—	—	—
HS-280B	280,000	280.0	1100	121°F	1/2	1100	4200	980	5.4	20"
	—	—	—	—		—	—	—	—	—
HS-300B	300,000	310.0	1250	117°F	1/2	1100	5000	700	5.4	24"
	—	—	—	—		—	—	—	—	—
HS-360B	360,000	366.0	1500	120°F	1/2	1100	5500	1000	5.4	24"
	—	—	—	—		—	—	—	—	—

Performance based on 2# steam pressure at heater with air entering @ 60°F.
Maximum working pressure 150 PSI, 366°F
*** For the lower output, an optional Speed Controller must be ordered.**
† Stated AMP is full load (FLA). AMP draw varies by motor manufacturer ± .2 AMPS.
‡ Motor HP listed is applicable to standard motor type only. For explosion proof motor HP, see motor data section.

UH-(all)

Steam and Hot Water Coil Specifications

GENERAL

Furnish and install where indicated or scheduled on plans horizontal steam/hot water unit heater. Unit shall be equipped as specified herein. All units shall be installed in a neat and workmanlike manner in accordance with this specification and the manufacturer's installation instructions.

CASING

Casings shall be 20-gauge die-formed steel. Paint finish shall be of lead-free, chromate free, polyester melamine resin base. Finish shall be baked at 400°F.

COIL SIZES 18 - 360

Coil elements and headers shall be of heavy wall drawn seamless copper tubing. Element tubes shall be brazed into extruded header junctions. Pipe connection saddles shall be of cast bronze. Aluminum fins shall have drawn collars to assure permanent bond with expanded element tubes and exact spacing. All Element Assemblies are submersion tested at the factory at 200 PSI. Under maximum conditions, coils are rated at 150 PSI at 366°F for steam and 150 PSI at 320°F for hot water. We recommend operating pressure of 75 PSI at 320°F for long life.

MOTORS

Motors shall be totally enclosed fan cooled, resilient mounted with class "B" windings. All motors shall be designed for horizontal mounting. Motors under 1/3 HP are totally enclosed, frame mounted, 115/1/60 with thermal overload protection and permanently lubricated sleeve bearings with optional solid state speed controller available. 1/3 HP (115/1/60) motors are open frame construction, with thermal overload protection and ball bearings. 1/3 HP at (230 Volt) and all 1/2 HP motors are open frame construction, with thermal overload protection and ball bearings. 1/3 and 1/2 HP motors are available in single and three phase in open frame construction or explosion-proof housings, all the above are available as options.

EXPLOSION PROOF MOTORS

An enclosed motor whose enclosure is designed and constructed to withstand an explosion of a specified gas or vapor which may occur within the motor and to prevent the ignition of this gas or vapor surrounding the machine.

Horizontal unit heater motors comply with the National Electrical Code classification as follows:

Class I, Group D; all sizes
Class II, Group F; all sizes
Class II, Group G; all sizes
Division I & II Installations
T-code (T3B)

Explosion proof equipment is not generally available for Class I, Group A and B and it is necessary to isolate motors from the hazardous area. All explosion proof motors are shelf mounted.

FANS

Fans shall be of aluminum blade, hub type designed and balanced to assure maximum air delivery, low motor horsepower requirements and quiet operation. Blades are spark proof.

FAN GUARDS

Fan guards shall be welded steel, zinc plated or painted. Units mounted below 8 feet from floor must be equipped with an OSHA fan guard to meet ETL and OSHA requirements OSHA fan guard standard on sizes 18 thru 48.

AIR DEFLECTION LOUVERS

Units shall be equipped with horizontal, individually adjustable louvers. Vertical louvers for four-way air control shall be available as an optional extra.

Serpentine Coil Specifications

GENERAL

Furnish and install, where indicated or scheduled on plans, Sterling Model HSA horizontal hot water unit heaters. Unit shall be equipped as specified herein. All units shall be installed in a neat and workmanlike manner in accordance with this specification and the manufacturer's installation instructions.

CASING

Casings shall be 20-gauge die-formed steel. Paint finish shall be of lead-free, chromate free, polyester melamine resin base. Finish shall be baked at 400°F.

COIL SIZES 108A - 136A

Coil is a serpentine design with seamless copper tubing. Aluminum fins shall have drawn collars to assure permanent bond with expanded tubes. Tubing connection shall be 3/8 in copper tubing, type "M" (.500 OD). Coils shall be factory tested at 200 PSI. Coils have a max operating entering water temperature of 320°F.

MOTORS

Motors shall be totally enclosed fan cooled, resilient mounted with class "B" windings. All motors shall be designed for horizontal mounting.

FANS

Fans shall be of aluminum blade type, designed and balanced to assure maximum air delivery, low motor horsepower requirements and quiet operation.

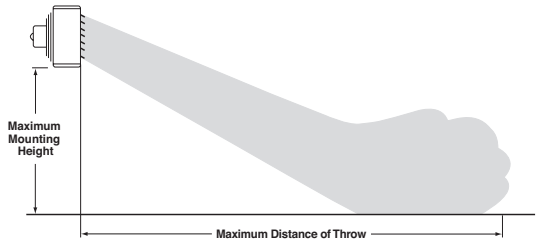
OSHA FAN GUARDS

OSHA fan guards shall be welded steel, zinc plated or painted.
OSHA fan guard standard on sizes 108A thru 136A.

AIR DEFLECTION LOUVERS

Units shall be equipped with horizontal, individually adjustable louvers.

Mounting Heights and Throws



Model/Unit Size	Maximum Mounting Height	Approximate Maximum Throw	Model/Unit Size	Maximum Mounting Height	Approximate Maximum Throw
HS-108A	8'	20'	HS-108	11'	40'
HS-118A	8'	25'	HS-120	12'	40'
HS-125A	9'	29'	HS-132	13'	54'
HS-136A	9'	29'	HS-144	13'	55'
HS-18	8'	20'	HS-156	13'	55'
HS-24	8'	24'	HS-180	13'	53'
HS-36	9'	28'	HS-204	13'	55'
HS-48	9'	30'	HS-240	14'	57'
HS-60	10'	30'	HS-280	14'	57'
HS-72	10'	29'	HS-300	15'	58'
HS-84	10'	30'	HS-360	15'	60'
HS-96	11'	38'			

The following table is based on 60°F entering air and either 2 lbs steam or 200°F TD. The data is based on the higher speed CFM throughout and velocity. Care should be exercised in locating adjacent unit heaters and allowance should be made for obstructions in the air pattern and conflicting air currents from other air moving devices.

Horizontal Unit Heaters
Motor Characteristics

TOTALLY ENCLOSED MOTOR TYPE

Unit Sizes	AMP	MCA	HP	RPM
115/1/60				
18, 24, 108A, 118A	0.8	1	16W*	1550
136A	1.4	1.8	1/20*	1000
36, 125A	1.2	1.5	25W*	1550
48, 60, 72	1.4	1.8	1/20*	1000
84, 96,108	2.2	2.8	1/12*	1000
120, 132,144, 156, 180, 204, 240	4.5	5.6	1/3	1140
280, 300, 360	5.4	6.8	1/2	1100
230/1/60				
18, 24, 108A, 118A	0.4	0.5	16W	1550
136A	1.4	1.8	1/20†	1000
36, 125A	0.6	0.8	25W	1550
48, 60, 72	1.4	1.8	1/20†	1000
84, 96, 108	2.2	2.8	1/12†	1000
120, 132, 144, 156, 180, 204, 240	4.5	5.6	1/3†	1140
280, 300, 360	5.4	6.8	1/2†	1100
208-230/460/3/60				
48, 60, 72, 84, 96, 108, 120, 132, 144, 156, 180, 204, 240, 280, 300, 360	2.6-2.6/1.3	3.3-3.3/1.6	1/2**	1140

*Optional variable speed switch is available.

**These motors are without thermal overload protection.

Motors without thermal overload protection must be installed with optional manual starter or field provided overload protection.

EXPLOSION PROOF WITH THERMAL OVERLOAD MOTOR TYPE

Unit Sizes	AMP	MCA	HP	RPM
115/1/60				
48, 60, 72, 84, 96, 108, 120, 132	3.7	4.6	1/6	1140
144, 156, 180, 204	5.4	6.8	1/4	1140
240	7.8	9.8	1/3***	1140
280, 300, 360	9.6	12.0	1/2***	1140
230/1/60				
48, 60, 72, 84, 96, 108, 120, 132	3.7	4.6	1/6†	1140
144, 156, 180, 204	5.4	6.8	1/4†	1140
240	3.9	4.9	1/3***	1140
280, 300, 360	4.8	6.0	1/2***	1140
230/460/3/60				
144, 156, 180, 204, 240, 280, 300, 360	2.2/1.1	2.8/1.4	1/3	1140

***These motors are 115/230 volts.

†230/1/60 unit has 115/1/60 motor supplied with field installed stepdown transformer.

NOTE 1: All motors are constant speed and operate at top speed as indicated in motor data. Unit sizes 18 through 108, including 108A, 118A, 125A and 136A can be run at reduced speed with addition of optional variable speed switch. This switch is factory-calibrated for low and high speed ratings, with intermediate speeds infinitely controllable. Models 120 through 360 operate at constant speed as indicated in motor data. All 1/4 HP motors are PSC.

NOTE 2: Motors under 1/3 HP are totally enclosed, frame mounted, 115/1/60 with thermal overload protection and permanently lubricated sleeve bearings with optional speed controller available. 1/3 HP (115/1/60) motors are open frame constant speed with thermal over-load protection and ball bearings. 1/3 HP (230 Volt) and 1/2 HP (230 Volt) motors are open frame constant speed with thermal overload protection and ball bearings.

NOTE 3: 1/3 and 1/2 HP motors are available as 230 Volt single and 3 phase in open frame and explosion-proof housings, all available as options. 1/3 and 1/2 HP motors operate at single speed only.

NOTE 4: Stated AMP draw is full load amp (FLA). AMP draw varies by motor manufacturer ± .2 AMPS. Verify FLA per unit motor data plate.

CAUTION: Select appropriate AMP and MCA for the multiple voltage motors. For example, the AMP and MCA for Models 360 with a 460 volt Totally Enclosed motor is 1.3 and 1.6 respectively.

Sterling Commercial Hydronics Certification

Prepared For: Taunton WWTF
Prepared By: Ocean State Heating Representatives

Item #1 of 6 (ID #21417)

Mark / Tag = 2UH-1,9,10; 7UH-9
Approx. Shipping Weight = 47 lbs. each

Performance Selection Parameters	Selected Unit Performance Data
Calculation Type = Water	Nominal OUTPUT BTU/HR = 61,000
Req. BTU Out = 43,700	Adjusted Nominal OUTPUT BTU/HR = 45,786
Entering Water Temperature (°F) = 180	Adjusted GPM = 4.4
Entering Air Temperature (°F) = 60	Adjusted Final Air °F = 90
Water Temperature Drop (°F) = 20	Adjusted Pressure DROP = .125
GPM = 4.4	Unit Rating TYPE = HI
Propylene Glycol (%) = 40	= **********
Altitude = 1,000	Motor Volts = 115
	Motor Phase = 1
	Motor Hertz = 60
	Motor Amps = 2.2
	Motor HP = 1/12
	Motor MCA = 2.8
	Motor MAX Fuse = 15.0
	Maximum Mounting Height = 10 ft.
	Approx. Max. Throw = 30 ft.
	Note = Height & Throw is based on 60°F entering air

Model Number:

HSB08411

HS	Unit Type (UT)	HS - Horizontal Unit Heater
B	Coil Type (CT)	B - Standard (Header Type)
84	Capacity (CA)	084 - 84,000 BTU/HR
1	Supply Voltage (SV)	1 - 115/1/60
1	Motor Type (MT)	1 - Totally Enclosed (STD)

Sterling Commercial Hydronics Certification

Prepared For: Taunton WWTF
Prepared By: Ocean State Heating Representatives

Item #2 of 6 (ID #21418)

Mark / Tag = 2UH-2; 7UH-2
Approx. Shipping Weight = 41 lbs. each

Performance Selection Parameters	Selected Unit Performance Data
Calculation Type = Water	Nominal OUTPUT BTU/HR = 34,800
Req. BTU Out = 23,900	Adjusted Nominal OUTPUT BTU/HR = 25,846
Entering Water Temperature (°F) = 180	Adjusted GPM = 2.4
Entering Air Temperature (°F) = 60	Adjusted Final Air °F = 92
Water Temperature Drop (°F) = 20	Adjusted Pressure DROP = .056
GPM = 2.4	Unit Rating TYPE = HI
Propylene Glycol (%) = 40	= **********
Altitude = 1,000	Motor Volts = 115
	Motor Phase = 1
	Motor Hertz = 60
	Motor Amps = 1.4
	Motor HP = 1/20
	Motor MCA = 1.8
	Motor MAX Fuse = 15.0
	Maximum Mounting Height = 9 ft.
	Approx. Max. Throw = 30 ft.
	Note = Height & Throw is based on 60°F entering air

Model Number:

HSB04811

HS	Unit Type (UT)	HS - Horizontal Unit Heater
B	Coil Type (CT)	B - Standard (Header Type)
48	Capacity (CA)	048 - 48,000 BTU/HR
1	Supply Voltage (SV)	1 - 115/1/60
1	Motor Type (MT)	1 - Totally Enclosed (STD)

Sterling Commercial Hydronics Certification

Prepared For: Taunton WWTF
Prepared By: Ocean State Heating Representatives

Item #3 of 6 (ID #21419)

Mark / Tag = 2UH-3,4,5,6,7,8; 7UH-1,14,16
Approx. Shipping Weight = 41 lbs. each

Performance Selection Parameters	Selected Unit Performance Data
Calculation Type = Water	Nominal OUTPUT BTU/HR = 43,600
Req. BTU Out = 32,800	Adjusted Nominal OUTPUT BTU/HR = 33,001
Entering Water Temperature (°F) = 180	Adjusted GPM = 3.3
Entering Air Temperature (°F) = 60	Adjusted Final Air °F = 94
Water Temperature Drop (°F) = 20	Adjusted Pressure DROP = .096
GPM = 3.3	Unit Rating TYPE = HI
Propylene Glycol (%) = 40	= **********
Altitude = 1,000	Motor Volts = 115
	Motor Phase = 1
	Motor Hertz = 60
	Motor Amps = 1.4
	Motor HP = 1/20
	Motor MCA = 1.8
	Motor MAX Fuse = 15.0
	Maximum Mounting Height = 10 ft.
	Approx. Max. Throw = 30 ft.
	Note = Height & Throw is based on 60°F entering air

Model Number:

HSB06011

HS	Unit Type (UT)	HS - Horizontal Unit Heater
B	Coil Type (CT)	B - Standard (Header Type)
60	Capacity (CA)	060 - 60,000 BTU/HR
1	Supply Voltage (SV)	1 - 115/1/60
1	Motor Type (MT)	1 - Totally Enclosed (STD)

Sterling Commercial Hydronics Certification

Prepared For: Taunton WWTF
Prepared By: Ocean State Heating Representatives

Item #4 of 6 (ID #21420)

Mark / Tag = 7UH-3,4,8
Approx. Shipping Weight = 30 lbs. each

Performance Selection Parameters	Selected Unit Performance Data
Calculation Type = Water	Nominal OUTPUT BTU/HR = 26,100
Req. BTU Out = 17,325	Adjusted Nominal OUTPUT BTU/HR = 19,055
Entering Water Temperature (°F) = 180	Adjusted GPM = 1.7
Entering Air Temperature (°F) = 60	Adjusted Final Air °F = 92
Water Temperature Drop (°F) = 20	Adjusted Pressure DROP = .036
GPM = 1.7	Unit Rating TYPE = HI
Propylene Glycol (%) = 40	= **********
Altitude = 1,000	Motor Volts = 115
	Motor Phase = 1
	Motor Hertz = 60
	Motor Amps = 1.2
	Motor HP = 25W
	Motor MCA = 1.5
	Motor MAX Fuse = 15.0
	Maximum Mounting Height = 9 ft.
	Approx. Max. Throw = 28 ft.
	Note = Height & Throw is based on 60°F entering air

Model Number:

HSB03611

HS	Unit Type (UT)	HS - Horizontal Unit Heater
B	Coil Type (CT)	B - Standard (Header Type)
36	Capacity (CA)	036 - 36,000 BTU/HR
1	Supply Voltage (SV)	1 - 115/1/60
1	Motor Type (MT)	1 - Totally Enclosed (STD)

Sterling Commercial Hydronics Certification

Prepared For: Taunton WWTF
Prepared By: Ocean State Heating Representatives

Item #5 of 6 (ID #21421)

Mark / Tag = 7UH-5,6,7,10,11,12,13
Approx. Shipping Weight = 49 lbs. each

Performance Selection Parameters	Selected Unit Performance Data
Calculation Type = Water	Nominal OUTPUT BTU/HR = 78,400
Req. BTU Out = 57,200	Adjusted Nominal OUTPUT BTU/HR = 58,847
Entering Water Temperature (°F) = 180	Adjusted GPM = 5.7
Entering Air Temperature (°F) = 60	Adjusted Final Air °F = 90
Water Temperature Drop (°F) = 20	Adjusted Pressure DROP = .187
GPM = 5.7	Unit Rating TYPE = HI
Propylene Glycol (%) = 40	= **********
Altitude = 1,000	Motor Volts = 115
	Motor Phase = 1
	Motor Hertz = 60
	Motor Amps = 2.2
	Motor HP = 1/12
	Motor MCA = 2.8
	Motor MAX Fuse = 15.0
	Maximum Mounting Height = 11 ft.
	Approx. Max. Throw = 40 ft.
	Note = Height & Throw is based on 60°F entering air

Model Number:

HSB10811

HS	Unit Type (UT)	HS - Horizontal Unit Heater
B	Coil Type (CT)	B - Standard (Header Type)
108	Capacity (CA)	108 - 108,000 BTU/HR
1	Supply Voltage (SV)	1 - 115/1/60
1	Motor Type (MT)	1 - Totally Enclosed (STD)

Sterling Commercial Hydronics Certification

Prepared For: Taunton WWTF
Prepared By: Ocean State Heating Representatives

Item #6 of 6 (ID #21422)

Mark / Tag = 7UH-15,17,18
Approx. Shipping Weight = 30 lbs. each

Performance Selection Parameters	Selected Unit Performance Data
Calculation Type = Water	Nominal OUTPUT BTU/HR = 17,400
Req. BTU Out = 12,200	Adjusted Nominal OUTPUT BTU/HR = 12,855
Entering Water Temperature (°F) = 180	Adjusted GPM = 1.2
Entering Air Temperature (°F) = 60	Adjusted Final Air °F = 86
Water Temperature Drop (°F) = 20	Adjusted Pressure DROP = .006
GPM = 1.2	Unit Rating TYPE = HI
Propylene Glycol (%) = 40	= **********
Altitude = 1,000	Motor Volts = 115
	Motor Phase = 1
	Motor Hertz = 60
	Motor Amps = 0.8
	Motor HP = 16W
	Motor MCA = 1.0
	Motor MAX Fuse = 15.0
	Maximum Mounting Height = 8 ft.
	Approx. Max. Throw = 24 ft.
	Note = Height & Throw is based on 60°F entering air

Model Number:

HSB02411

HS	Unit Type (UT)	HS - Horizontal Unit Heater
B	Coil Type (CT)	B - Standard (Header Type)
24	Capacity (CA)	024 - 24,000 BTU/HR
1	Supply Voltage (SV)	1 - 115/1/60
1	Motor Type (MT)	1 - Totally Enclosed (STD)

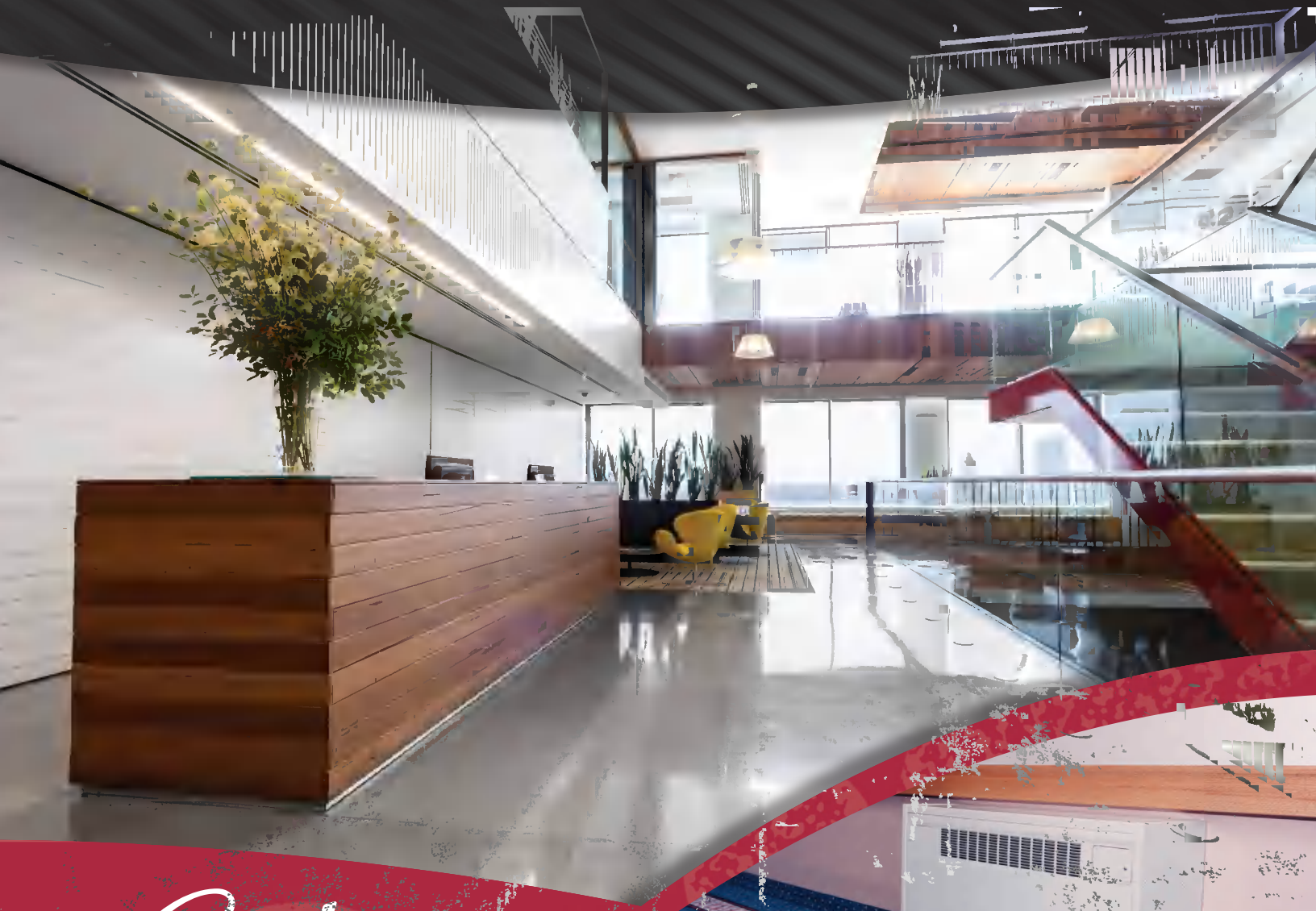
Approved By
Certified By

CUH-13

STERLING®

COMMERCIAL HYDRONIC PRODUCTS

A MESTEK COMPANY



Cabinet Unit Heaters

FOR STEAM AND HOT WATER

MADE IN THE USA

CABINET UNIT HEATER SUBMITTAL DATA

CBS-RC-15

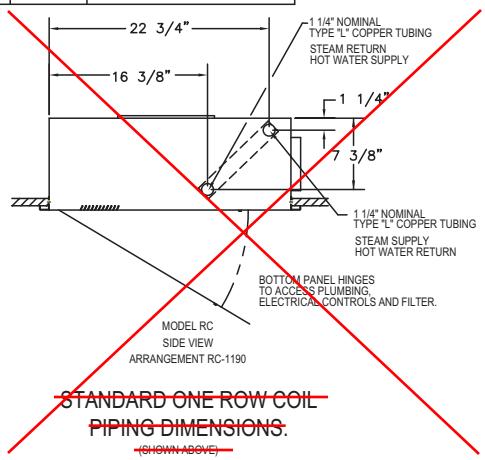
Recessed Ceiling Units - Models RC

PIPING AND MOUNTING CONNECTIONS SHOWN ARE TYPICAL FOR ALL AIR FLOW ARRANGEMENTS SEE OTHER SIDE.

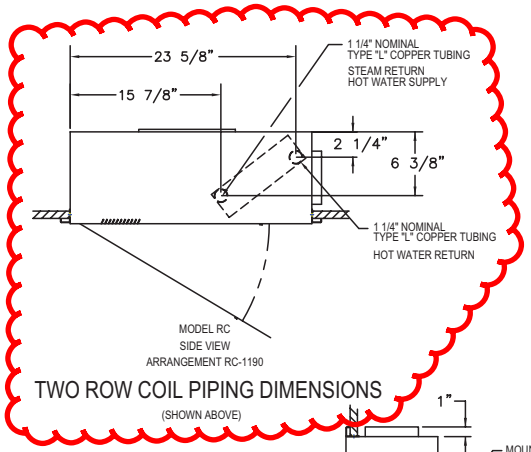
FILTER IDENTIFICATION AND DATA		
SIZE	PART NO.	FILTER SIZE
02	PC1297-2	15/32" x 8 11/16" x 19 3/4"
03	PC1297-3	15/32" x 8 11/16" x 27 3/4"
04	PC1297-4	15/32" x 8 11/16" x 31 3/4"
06	PC1297-6	15/32" x 8 11/16" x 43 3/4"
08	PC1297-8	15/32" x 8 11/16" x 45 3/4"
10	PC1297-10	15/32" x 8 11/16" x 50 3/4"
12	PC1297-12	15/32" x 8 11/16" x 57 3/4"
14	PC1297-14	15/32" x 8 11/16" x 69 3/4"

Recessed Ceiling Mounted Units
Models RC

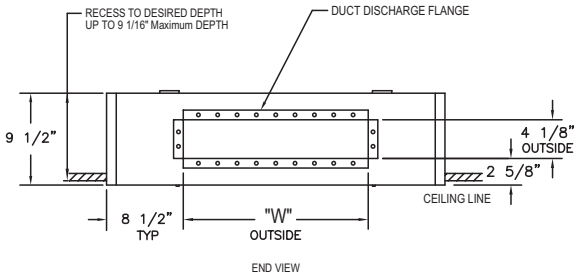
SIZE	DIM "L"	DIM "W"
02	35"	18 1/8"
03	43"	26 1/8"
04	47"	30 1/8"
06	59"	42 1/8"
08	61"	44 1/8"
10	66"	49 1/8"
12	73"	56 1/8"
14	85"	68 1/8"

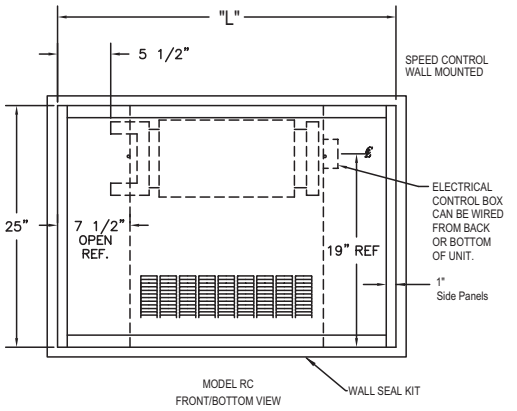


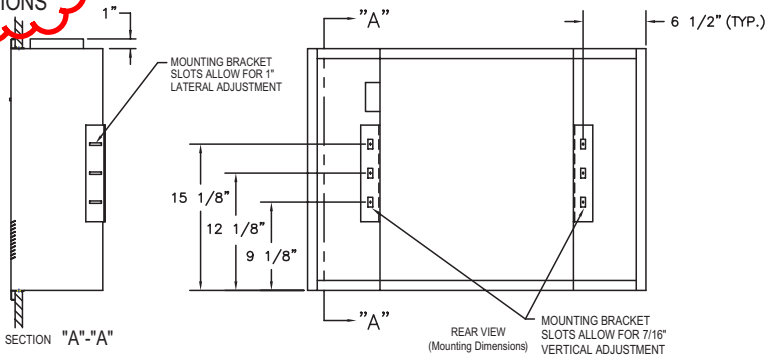
~~STANDARD ONE ROW COIL PIPING DIMENSIONS.~~
~~(SHOWN ABOVE)~~



TWO ROW COIL PIPING DIMENSIONS
(SHOWN ABOVE)







THIS DATA SHEET SHOWS RECESSED CEILING MOUNTED UNITS MODELS "RC".

PIPING AND MOUNTING CONNECTIONS SHOWN ARE TYPICAL FOR ALL AIR FLOW ARRANGEMENTS.
SEE PAGE 6 for other air flow arrangements.

SEE PAGE 20 for Wall Seal Kit.

CAT00204C

PROJECT: Taunton WWTF Ph1
LOCATION: Taunton, MA
ARCHITECT: BETA, Inc.
ENGINEER: SAR Engineering
CONTRACTOR: Aero Mechanical
PO NUMBER: 7248-OSH-11367
DATE: November 8, 2021

MADE IN THE USA

STERLING®
COMMERCIAL HYDRONIC PRODUCTS
260 NORTH ELM STREET / WESTFIELD, MA 01085
TEL: (413) 568-9571 FAX: (413) 562-8437
www.sterlingheat.com
A MESTEK COMPANY

CABINET UNIT HEATERS
RATINGS AND SPECIFICATIONS

TABLE 1

ENTERING WATER - 200°F
ENTERING AIR - 60°F

UNIT SIZE		02	03	04	06	08	10	12	14
Heating Cap. - Hot Water 20 WTD	MBH	16.4	22.8	29.8	48.0	54.5	62.0	75.6	78.5
	GPM	1.64	2.28	2.98	4.80	5.46	6.20	7.56	7.85
High Cap. - Coil 2 Row Heating Cap. Hot Water 20 WTD	MBH	25.8	35.4	46.3	69.8	87.6	101.8	119.8	128.6
	GPM	2.58	3.54	4.63	6.98	8.76	10.18	11.98	12.86
Heating Cap. - Steam 2 PSIG Standard Coil	MBH	22.6	31.4	41.0	66.1	75.1	85.4	104.1	108.2
	EDR	94	131	171	276	313	356	434	451
	Cond. LB/HR	23.4	32.5	42.4	68.4	77.7	88.4	107.7	112
Coil:									
	Number Fins Per Inch	12	12	12	12	12	12	12	12
	Face Area-Ft.²	.97	1.5	1.8	2.6	2.8	3.1	3.6	4.4
	Coil Connections	1-1/4CU	1-1/4CU	1-1/4CU	1-1/4CU	1-1/4CU	1-1/4CU	1-1/4CU	1-1/4CU
Blowers:									
	Number	1	1	2	2	3	3	4	4
	Diameter/Width (In)	5-3/4 x 7	5-3/4 x 7	5-3/4 x 7	5-3/4 x 7	5-3/4 x 7	5-3/4 x 7	5-3/4 x 7	5-3/4 x 7
Standard PSC Motor:	HP	1/15	1/15	1/10	1/10	1 @ 1/10 1 @ 1/15	1 @ 1/10 1 @ 1/15	1/10	1/10
	RPM: High	1050	1050	1050	1050	1050	1050	1050	1050
	Low	875	875	875	875	875	875	875	875
	Number	1	1	1	1	2	2	2	2
	Volts/Phase/Hertz	115/1/60	115/1/60	115/1/60	115/1/60	115/1/60	115/1/60	115/1/60	115/1/60
	Amperes	0.8	0.8	1.4	1.4	2.2	2.2	2.8	2.8
Fan Speed Control	Standard Mtr	VAR.	VAR.	VAR.	VAR.	VAR.	VAR.	VAR.	VAR.
	CFM: High	230	335	430	630	860	1060	1230	1410
	Low	185	270	345	505	685	845	985	1130
Optional ECM Motor:	HP	1/15	1/15	1/15	1/15	1/10	1/10	1/4	1/4
	Number	1	1	1	1	2	2	2	2
	Volts/Phase/Hertz	120/1/60	120/1/60	120/1/60	120/1/60	120/1/60	120/1/60	120/1/60	120/1/60
	Amperes	0.45	0.45	0.65	0.85	1.5	1.95	2.8	2.8
Fan Speed Control	ECM Mtr	3 - SPEED	3 - SPEED	3 - SPEED	3 - SPEED	3 - SPEED	3 - SPEED	3 - SPEED	3 - SPEED
	CFM: High	230	335	430	630	860	1060	1230	1410
	Med	160	240	375	440	590	740	850	980
	Low	120	150	280	320	450	560	640	730
Filter:	No.	1	1	1	1	1	1	1	1
	Type	PERM.	PERM.	PERM.	PERM.	PERM.	PERM.	PERM.	PERM.
	Length (In)	19-3/4	27-3/4	31-3/4	43-3/4	45-3/4	50-3/4	57-3/4	69-3/4
	Width (In)	8-11/16	8-11/16	8-11/16	8-11/16	8-11/16	8-11/16	8-11/16	8-11/16
	Thickness (In)	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
dB. Level 18" From Unit		50	52	53	54	55	55	56	56
	Length (In)	35	43	47	59	61	66	73	85
	Height (In)	25	25	25	25	25	25	25	25
	Depth (In)	9-1/2	9-1/2	9-1/2	9-1/2	9-1/2	9-1/2	9-1/2	9-1/2

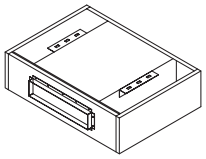
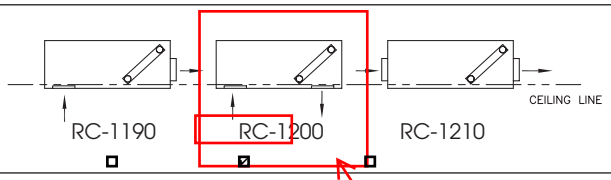
See capacities with temperature and glycol factors per the Sterling Cabinet Unit Heater "Specifier"

FILTER IDENTIFICATION AND DATA		
SIZE	PART NO.	FILTER SIZE
02	PC1297–2	15/32" x 8 11/16" x 19 3/4"
03	PC1297–3	15/32" x 8 11/16" x 27 3/4"
04	PC1297–4	15/32" x 8 11/16" x 31 3/4"
06	PC1297–6	15/32" x 8 11/16" x 43 3/4"
08	PC1297–8	15/32" x 8 11/16" x 45 3/4"
10	PC1297–10	15/32" x 8 11/16" x 50 3/4"
12	PC1297–12	15/32" x 8 11/16" x 57 3/4"
14	PC1297–14	15/32" x 8 11/16" x 69 3/4"

SIZE	DIM "L"	DIM "W"
02	35"	18 1/8"
03	43"	26 1/8"
04	47"	30 1/8"
06	59"	42 1/8"
08	61"	44 1/8"
10	66"	49 1/8"
12	73"	56 1/8"
14	85"	68 1/8"

CABINET UNIT HEATERS
SHIPPING WEIGHT
(LBS)

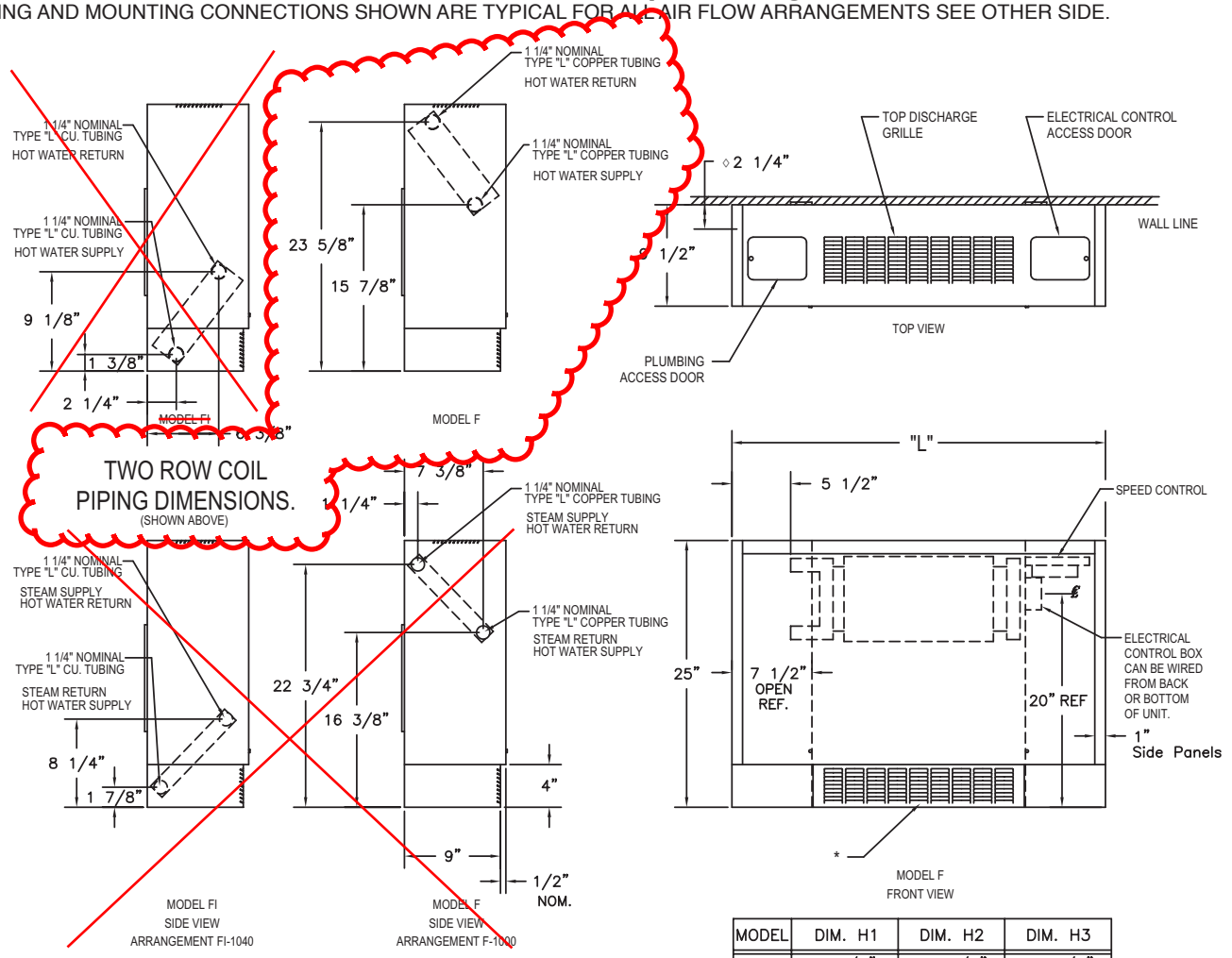
	SIZE							
STYLE	**02**	**03**	**04**	**06**	**08**	**10**	**12**	**14**
RC	102	121	135	164	183	194	215	243

RECESSED CEILING	**RC**		

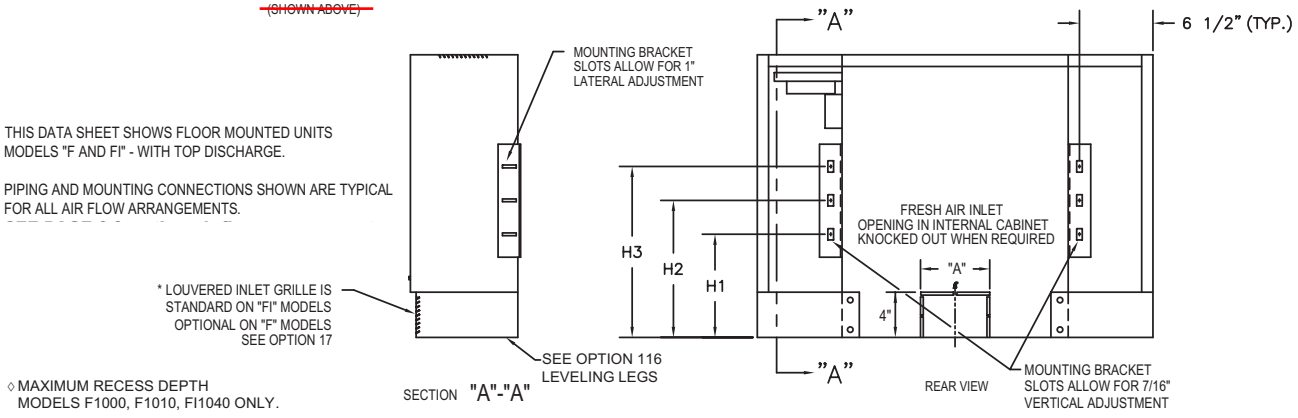
CABINET UNIT HEATER SUBMITTAL DATA

Floor Mounted Units - Models F and FI - With Top Discharge

PIPING AND MOUNTING CONNECTIONS SHOWN ARE TYPICAL FOR ALL AIR FLOW ARRANGEMENTS SEE OTHER SIDE.



MODEL	DIM. H1	DIM. H2	DIM. H3
F	9 1/8"	12 1/8"	15 1/8"
~~FI~~	~~9 1/2"~~	~~12 1/2"~~	~~15 1/2"~~



CAT00200A

PROJECT: Taunton WWTF Ph1
LOCATION: Taunton, MA
ARCHITECT:
ENGINEER: BETA, Inc. / SAR Engineering
CONTRACTOR: Aero Mechanical
PO NUMBER: 7248-OSH-11367
DATE: November 8, 2021

MADE IN THE USA

STERLING® COMMERCIAL HYDRONIC PRODUCTS
260 NORTH ELM STREET / WESTFIELD, MA 01085
TEL: (413) 568-9571 FAX: (413) 562-8437
www.sterlingheat.com
A MESTEK COMPANY

CABINET UNIT HEATERS
RATINGS AND SPECIFICATIONS

TABLE 1

ENTERING WATER - 200°F
ENTERING AIR - 60°F

UNIT SIZE		02	03	04	06	08	10	12	14
Heating Cap. - Hot Water 20 WTD	MBH	16.4	22.8	29.8	48.0	54.5	62.0	75.6	78.5
	GPM	1.64	2.28	2.98	4.80	5.46	6.20	7.56	7.85
High Cap. - Coil 2 Row Heating Cap. Hot Water 20 WTD	MBH	25.8	35.4	46.3	69.8	87.6	101.8	119.8	128.6
	GPM	2.58	3.54	4.63	6.98	8.76	10.18	11.98	12.86
Heating Cap. - Steam 2 PSIG Standard Coil	MBH	22.6	31.4	41.0	66.1	75.1	85.4	104.1	108.2
	EDR	94	131	171	276	313	356	434	451
	Cond. LB/HR	23.4	32.5	42.4	68.4	77.7	88.4	107.7	112
Coil:	Number Fins Per Inch	12	12	12	12	12	12	12	12
	Face Area-Ft.²	.97	1.5	1.8	2.6	2.8	3.1	3.6	4.4
	Coil Connections	1-1/4CU	1-1/4CU	1-1/4CU	1-1/4CU	1-1/4CU	1-1/4CU	1-1/4CU	1-1/4CU
Blowers:	Number	1	1	2	2	3	3	4	4
	Diameter/Width (In)	5-3/4 x 7	5-3/4 x 7	5-3/4 x 7	5-3/4 x 7	5-3/4 x 7	5-3/4 x 7	5-3/4 x 7	5-3/4 x 7
Standard PSC Motor:	HP	1/15	1/15	1/10	1/10	1 @ 1/10 1 @ 1/15	1 @ 1/10 1 @ 1/15	1/10	1/10
	RPM: High	1050	1050	1050	1050	1050	1050	1050	1050
	Low	875	875	875	875	875	875	875	875
	Number	1	1	1	1	2	2	2	2
	Volts/Phase/Hertz	115/1/60	115/1/60	115/1/60	115/1/60	115/1/60	115/1/60	115/1/60	115/1/60
	Amperes	0.8	0.8	1.4	1.4	2.2	2.2	2.8	2.8
Fan Speed Control	Standard Mtr	VAR.	VAR.	VAR.	VAR.	VAR.	VAR.	VAR.	VAR.
	CFM: High	230	335	430	630	860	1060	1230	1410
	Low	185	270	345	505	685	845	985	1130
Optional ECM Motor:	HP	1/15	1/15	1/15	1/15	1/10	1/10	1/4	1/4
	Number	1	1	1	1	2	2	2	2
	Volts/Phase/Hertz	120/1/60	120/1/60	120/1/60	120/1/60	120/1/60	120/1/60	120/1/60	120/1/60
	Amperes	0.45	0.45	0.65	0.85	1.5	1.95	2.8	2.8
Fan Speed Control	ECM Mtr	3 - SPEED	3 - SPEED	3 - SPEED	3 - SPEED	3 - SPEED	3 - SPEED	3 - SPEED	3 - SPEED
	CFM: High	230	335	430	630	860	1060	1230	1410
	Med	160	240	375	440	590	740	850	980
	Low	120	150	280	320	450	560	640	730
Filter:	No.	1	1	1	1	1	1	1	1
	Type	PERM.	PERM.	PERM.	PERM.	PERM.	PERM.	PERM.	PERM.
	Length (In)	19-3/4	27-3/4	31-3/4	43-3/4	45-3/4	50-3/4	57-3/4	69-3/4
	Width (In)	8-11/16	8-11/16	8-11/16	8-11/16	8-11/16	8-11/16	8-11/16	8-11/16
	Thickness (In)	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
dB. Level 18" From Unit		50	52	53	54	55	55	56	56
	Length (In)	35	43	47	59	61	66	73	85
	Height (In)	25	25	25	25	25	25	25	25
	Depth (In)	9-1/2	9-1/2	9-1/2	9-1/2	9-1/2	9-1/2	9-1/2	9-1/2

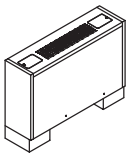
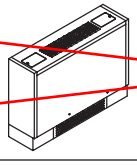
See capacities with temperature and glycol factors per the Sterling Cabinet Unit Heater "Specifier"

FILTER IDENTIFICATION AND DATA		
SIZE	PART NO.	FILTER SIZE
02	PC1297–2	15/32" x 8 11/16" x 19 3/4"
03	PC1297–3	15/32" x 8 11/16" x 27 3/4"
04	PC1297–4	15/32" x 8 11/16" x 31 3/4"
06	PC1297–6	15/32" x 8 11/16" x 43 3/4"
08	PC1297–8	15/32" x 8 11/16" x 45 3/4"
10	PC1297–10	15/32" x 8 11/16" x 50 3/4"
12	PC1297–12	15/32" x 8 11/16" x 57 3/4"
14	PC1297–14	15/32" x 8 11/16" x 69 3/4"

SIZE	DIM "A"	DIM "L"
02	6 1/8"	35"
03	6 1/8"	43"
04	6 1/8"	47"
06	10 5/8"	59"
08	10 5/8"	61"
10	10 5/8"	66"
12	16 5/8"	73"
14	16 5/8"	85"

CABINET UNIT HEATERS
SHIPPING WEIGHT
(LBS)

	SIZE							
STYLE	**02**	**03**	**04**	**06**	**08**	**10**	**12**	**14**
F-FI	92	109	122	148	166	176	196	221

FLOOR	**F**		☐ F-1000 ☐ F-1010 25% F.A. OPTION ☐ 18 ☐ 19 ☑ F-1020 ← See options 18 & 19 → ☐ F-1030 25% F.A. OPTION ☐ 18 ☐ 19
~~FLOOR INVERTED FLOW~~	~~FI~~		☐ FI-1040 ☐ FI-1050

9-CUH-1, 2, 3
7-CUH-1

Capacities with temperature and glycol factors per the Sterling Cabinet Unit Heater "Specifier"

		DESIGN DATA							RESULTS						
TAG	DESIGNATION	EAT °F	EWT °F	WTD °F	ESP In/H2O	Altitude Feet	Fluid Type	% Glycol	Unit Size	GPM	Water P.D/FT	CFM	MBH	FAT °F	Coil
9-CUH-1, 2, 3	F-03	60	130	17	0	0	Propylene	40	**3**	2.03	0.712	330	16.9	107.1	**2 ROW**
7-CUH-1	RC-03	60	130	17	0	0	Propylene	40	**3**	2.03	0.712	330	16.9	107.1	**2 ROW**

CABINET UNIT HEATERS
HEATING CAPACITIES

TABLE III — HIGH CAPACITY – 2 ROW COIL

ENTERING WATER - 200°F
ENTERING AIR - 60°F

UNIT SIZE	GPM	WATER PD/FT	HIGH FAN SPEED				LOW FAN SPEED			
			CFM	MBH	WTD	FAT	CFM	MBH	WTD	FAT
02	1.68	.26	225	23.6	27.9	157	180	21.2	25.3	169
	2.0	.34		24.8	24.8	162		22.5	22.5	175
	2.5	.50		25.7	20.6	165		23.5	18.8	180
	3.0	.73		26.6	18.1	169		23.9	16.0	183
	3.5	.96		27.5	15.9	173		24.8	14.1	187
03	1.68	.27	330	30.3	36.0	149	265	27.3	32.5	155
	2.0	.38		33.1	33.1	152		29.7	29.7	163
	2.5	.56		34.3	27.4	156		30.3	24.2	165
	3.0	.77		34.9	23.3	157		30.8	20.5	167
	3.5	.96		35.3	20.2	159		31.8	18.2	170
04	1.68	.30	420	37.2	43.6	142	335	33.5	39.9	152
	2.0	.44		39.5	39.5	147		35.8	35.8	158
	2.5	.59		42.4	33.9	153		37.8	30.2	164
	4.0	1.41		45.4	22.7	160		39.7	19.9	169
	5.0	2.04		46.8	18.7	163		40.8	16.3	172
☐ 06	2.0	.45	620	57.6	57.6	146	495	52.7	52.7	158
	3.0	.93		63.1	42.1	154		57.0	38.0	166
	4.0	1.60		66.0	33.0	158		59.7	29.9	171
	5.0	2.30		69.1	27.6	163		61.2	24.5	174
	6.0	3.30		69.5	23.2	164		62.0	20.7	175
☐ 08	2.0	.46	845	67.1	67.1	133	675	58.1	58.1	139
	3.0	.95		75.8	50.5	143		68.2	45.5	153
	4.0	1.65		79.3	39.7	146		71.6	35.8	158
	6.0	3.35		82.6	27.5	150		73.4	24.5	160
	8.0	5.60		86.5	21.6	154		75.8	19.0	163
☐ 10	3.0	1.00	1040	84.6	56.4	135	830	75.9	50.6	144
	4.0	1.75		90.6	45.3	140		81.2	40.6	150
	6.0	3.50		94.6	31.5	144		84.0	28.0	153
	8.0	5.90		98.6	24.7	147		86.3	21.6	156
	10.0	8.85		101.6	20.3	150		88.9	17.8	159
☐ 12	4.0	1.85	1210	105.3	52.7	140	970	93.3	46.7	149
	6.0	3.75		111.6	37.2	145		100.4	33.5	155
	8.0	6.30		115.3	28.8	148		102.8	25.7	158
	10.0	9.45		118.1	23.6	150		105.0	21.0	160
	12.0	13.20		119.8	20.0	151		106.7	17.8	161
☐ 14	4.0	2.05	1385	109.8	54.9	133	1110	100.2	50.1	143
	5.0	3.00		114.8	45.9	136		103.5	41.4	146
	6.0	4.15		118.3	39.4	139		106.6	35.5	149
	10.0	10.45		125.8	25.2	144		111.4	22.3	152
	12.0	14.55		127.9	21.3	145		112.2	18.7	153

All CUH's

SPECIFICATIONS & WARRANTY*

*STANDARD CABINET UNIT ONLY

The contractor shall furnish and install Sterling Cabinet Unit Heaters as selected to meet or exceed job requirements. The Cabinet Unit Heaters will conform to the items listed below and be certified under CSA guidelines.

CABINETS

All cabinets will be constructed with 18-gauge cold rolled steel, side panels and top. The front panel shall be furnished in 16-gauge cold rolled steel. It will have 1/2", 1-1/2 pound insulation with one side neoprene coated in front of coil. The internal cabinet shall be furnished in 18-gauge galvanized steel. Adequate work area for installation of control valves or electrical equipment shall be provided on both sides of the internal cabinet.

The cabinet shall be provided with a neutral eggshell baked enamel prime coat as standard. (Available if specified) Powder coated baked enamel, color selected from standard.

All cabinets shall be supplied with adjustable rear mounting brackets which will provide adjustment to correct alignment of the unit at installation to non square or out of true walls, joists, studs or surfaces. Adjustable leveling legs (two each base leg) are available when specified.

RECESSED UNITS

All recessed units shall be supplied with a "Wall Seal" assembly. This assembly shall provide protection to the wall or ceiling construction material. The "Wall Seal" shall be supplied in an eggshell baked enamel prime coat as standard. (When specified) Baked enamel colors may be selected from standard.

CEILING MOUNT OR RECESSED UNITS

All "C" and "RC" units shalll be supplied with a hinged front panel. The multiple hinges shall provide full swing through 90°. A safety chain shall be provided as standard to prevent the face panel from swinging fully open accidentally. This chain must be easily detached to allow full access for servicing. Speed control switch will be shipped with wiring diagram for installation where desired.

FILTERS

All filters supplied as standard shall be reusable aluminum media with a 69% arrestance level. Filters shall be slide in type which are locked into position with a cotter pin.

FANS

Fan wheels shall be centrifugal, forward curved, double width of electro galvanneal steel. Fan housings shall be of formed galvanized sheet metal.

COILS

STANDARD ONE ROW - The durable mechanically bonded copper/aluminum coil presents the best of today's hydronic heating technology. All element assemblies are submersion tested at factory at 250 PSI and are rated at a working pressure of 300 PSI. All units are designed so that field modifications can be made to reverse the coil position if required.

HIGH CAPACITY COIL - This is a hot water coil designed to provide increased capacity when the required load exceeds that of the standard coil for a given size. Its construction is similar to the standard coil however, there are two rows of tubes. Element assemblies are submersion tested at 250 PSI and are rated at a working pressure of 300 PSI.

MOTORS

Standard PSC motors shall have integral thermal protection and start at 78% of rated voltage. Optional PSC High Static motors will be capable of operating in high static conditions up to.4 inches of water column. All motors shall be factory run-tested and assembled in unit prior to shipping. Optional ECM and high static motors will have a solid state control board and a 3 speed switch. All motors shall be factory run-tested and assembled in unit prior to shipping.

ELECTRICAL

All primary internal wiring shall be done at the factory and every unit shall be factory tested for reliability.

FRESH AIR DAMPERS ON DESIGNATED UNITS ONLY

When desired specify either of the following:

1. Where noted 25% Manual Outside Air Dampers shall be provided. A manually operated damper quadrant shall provide from 0% to 25% outside air through the use of a single blade damper.

2. Where noted 25% Motorized Outside Air Dampers shall be provided. A synchronous motor (115/60/1) interlocked with the blower shall automatically open the outside air damper when blower starts. The single blade damper shall be adjustable from 0% to 25% outside air. When the blower stops or there is a loss of power, the damper shall return to the closed position. A damper override switch shall be provided to prevent damper operation when desired.

WARRANTY

The products in this catalog are warranted by Sterling, to be free from defects in material and workmanship for a period of one (1) year from the date of shipment from Sterling's plant. Sterling's liability under this warranty is limited to replacing or repairing at our option, F.O.B. our plant any defective component or assembly returned to our factory prepaid and with proper return authorization document. All repairs or replacements are made subject to factory inspection. In the interest of product improvement, Sterling reserves the right to make changes without notification.

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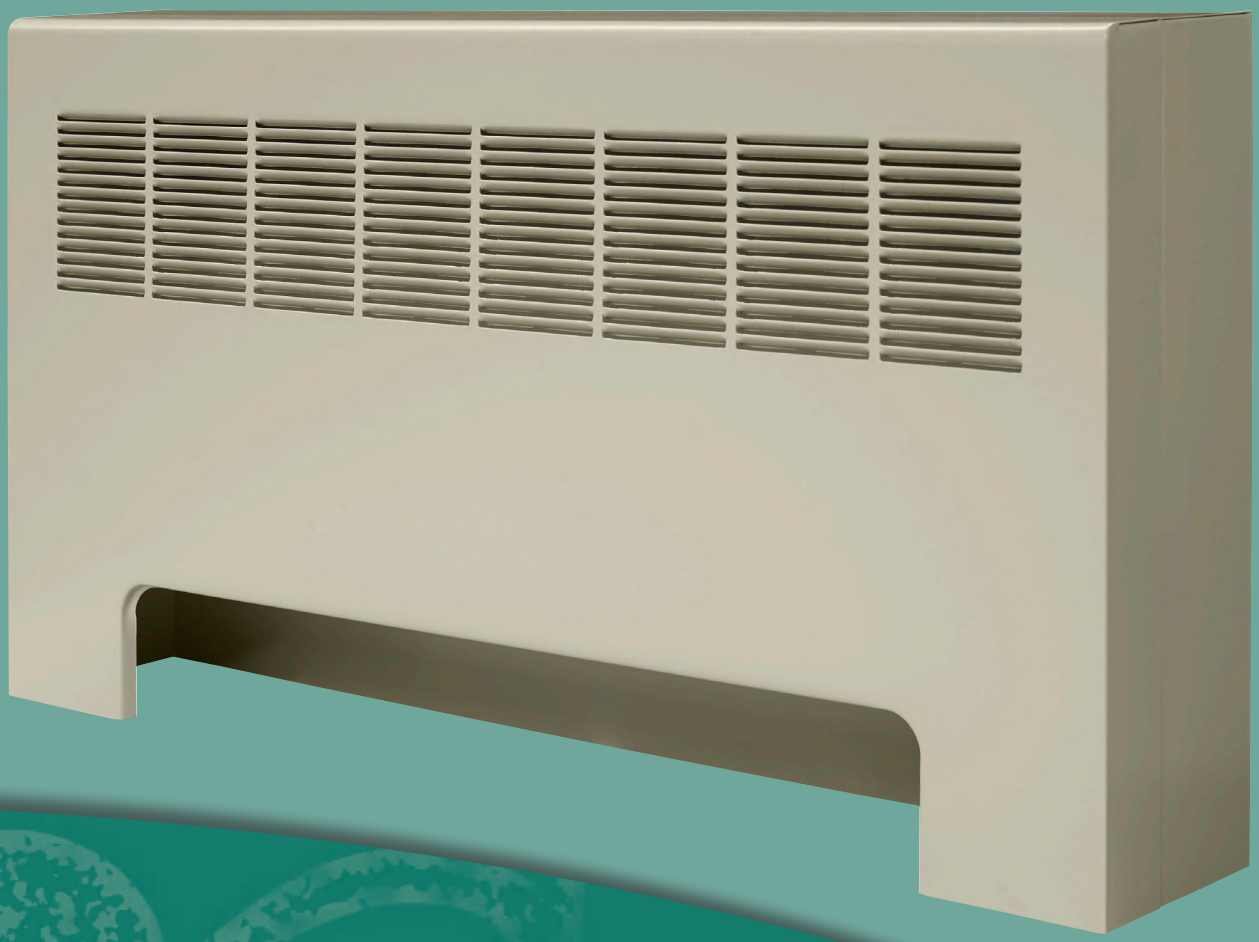


Convectors

STEAM AND HOT WATER RADIATION

MADE IN THE USA

CC-14

CONVECTOR

Submittal

SW-A
Slope Top Cabinet
Wall Mounted

9C-1

☐ **SW-A Bottom Inlet**

Specification

FRONT and LINER:

STYLE: Slope Outlet
OUTLET: Stamped Louvers
Pencil Proof

LENGTHS: 20" thru 64" in 4" Increments
MAT'L: Cabinet Front and Liner
- ■ 18 Ga./20 Ga. CRS (Std)
- ☐ 18 Ga./18 Ga. CRS (Opt'l)
- ☐ 16 Ga./20 Ga. CRS (Opt'l)
- ☐ 16 Ga./18 Ga. CRS (Opt'l)
- ☐ 16 Ga./16 Ga. CRS (Opt'l)
- ☐ 14 Ga./20 Ga. CRS (Opt'l)
- ☐ 14 Ga./18 Ga. CRS (Opt'l)
- ☐ 14 Ga./16 Ga. CRS (Opt'l)
- ☐ 14 Ga./14 Ga. CRS (Opt'l)

FINISH:
- ■ Baked Powder Prime
- ☐ Baked Powder Color (Opt'l)
- ☐ 18 Ga./20 Ga. SS (Opt'l)
- ☐ 18 Ga./18 Ga. SS (Opt'l)
- ☐ 16 Ga./20 Ga. SS (Opt'l)
- ☐ 16 Ga./18 Ga. SS (Opt'l)
- ☐ 16 Ga./16 Ga. SS (Opt'l)

ELEMENT:

COIL: Bronze Header 3/4" NPT w/Copper Tube/Alum Fins (Mechanically Expanded).

HEADER CONNECTIONS:
- ■ Single Header Both Ends (Std)
- ☐ Single Inlet 1 End / Dual Inlet 1 End (Opt'l)
- ☐ Dual Inlet Both Ends (Opt'l)

OPTIONAL ACCESSORIES:

DAMPER: Damper Blades Factory Installed
- ☐ Knob Damper (Opt'l)
- ☐ Tamper Resistant (Opt'l)

ACCESS DOORS:
- ☐ (Opt'l)

INSULATION:
- ☐ Back Only (Opt'l)
- ☐ Back, Sides, Top (Opt'l)

PIPING KNOCKOUT:
- ☐ (Opt'l)

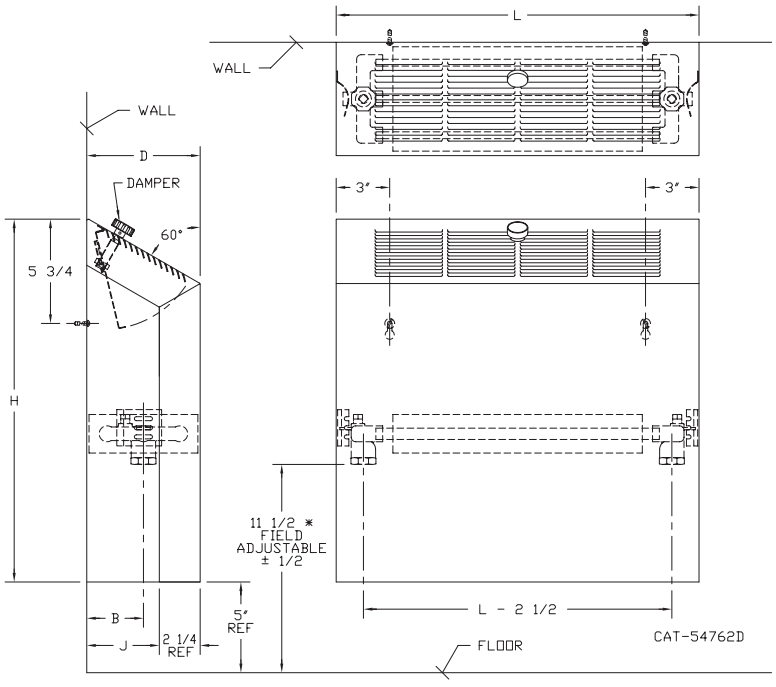
4" END POCKETS:
- ☐ LH (Opt'l)
- ☐ RH (Opt'l)
- ☐ Both Ends (Opt'l)

PERFORATED FRONT: Consult Factory
- ☐ 16 Ga. (Opt'l)
- ☐ 14 Ga. (Opt'l)

☐ SW-A Bottom Inlet

TYPE SW-A

MODEL	D	L	H	B	J
4xx-14 4xx-18 4xx-20 4xx-26 4xx-32	4-1/4	20,24,28, 32,36,40, 44,48,52, 56,60,64,	14 18 20 26 32	2-1/8	2
6xx-14 6xx-18 6xx-20 6xx-26 6xx-32	6-1/4	20,24,28, 32,36,40, 44,48,52, 56,60,64,	14 18 20 26 32	3-1/8	4
8xx-14 8xx-18 8xx-20 8xx-26 8xx-32	8-1/4	20,24,28, 32,36,40, 44,48,52, 56,60,64,	14 18 20 26 32	4-1/8	6



NOTE: When adding end pockets, liner and front length increase.

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260 North Elm St., Westfield, MA 01085
(413) 564-5535 Fax: (413) 562-8437
www.sterlingheat.com

MADE IN THE USA

5/19

PROJECT: 7-12-18 **DATE:** East Greenwich
LOCATION: Taunton, MA
ARCHITECT: Wilkinson Associates
ENGINEER: Lamar & Sons
CONTRACTOR: Aero Mechanical
PO NUMBER: 7248-OSH-11367

STEAM RATINGS IN BTU/H (215°F at 65°F EAT)

DEPTH IN INCHES	LENGTH IN INCHES	SLOPE TOP, WALL MOUNTED, NOMINAL HEIGHT TYPE SW-A				
		14"	18"	20"	26"	32"
4	20	2930	3120	3215	3335	3505
	24	3720	3960	4080	4250	4415
	28	4490	4775	4895	5110	5305
	32	5305	5640	5760	6050	6290
	36	6070	6455	6625	6960	7250
	40	6840	7320	7510	7850	8110
	44	7630	8135	8350	8735	9070
	48	8400	8975	9190	9625	9985
	52	9145	9745	9935	10440	10850
	56	9935	10655	10850	11400	11830
	60	10705	11400	11615	12190	12815
	64	11495	12310	12530	13150	13920
		14"	18"	20"	26"	32"
6	20	4510	4970	5090	5425	5690
	24	5710	6290	6480	6960	7175
	28	6890	7560	7750	8330	8690
	32	8110	8905	9120	9840	10130
	36	9290	10175	10490	11255	11615
	40	10490	11470	11810	12670	13150
	44	11665	12790	13105	14160	14665
	48	12840	14040	14470	15550	16105
	52	14015	15290	15720	16895	17590
	56	15215	16655	17135	18410	19150
	60	16345	17880	18360	19730	20570
	64	17570	19270	19775	21265	22080
		14"	18"	20"	26"	32"
8	20	5760	6120	6310	6770	7030
	24	7345	7825	8040	8665	9000
	28	8880	9410	9650	10415	10825
	32	10440	11135	11400	12310	12790
	36	12050	13250	13105	14135	14690
	40	13560	14425	14830	15985	16585
	44	15120	16030	16510	17760	18430
	48	16680	17710	17905	19610	20375
	52	18190	19250	19750	21335	22225
	56	19750	21000	21550	23255	24215
	60	21290	22510	23110	24960	26040
	64	22895	24265	24935	26880	28010

Per Convector Schedule on drawings:
115*F AWT w/ 90%PG
13,150 BTU/H
x 0.18
2,367 BTU/H

Per water temperature shown on schedules for other terminal units:
160*F AWT w/ 90%PG
13,150 BTU/H
x 0.459
6,0385 BTU/H

Correction factors for BTU performance at different Average Water Temperatures, use correction factors from Table 3 of the Correction Factors page.

For other applicable correction factors see the Correction Factors page.

CONVECTOR BTU CORRECTION FACTORS

Table 3

CONVECTOR CORRECTION FACTORS
Based on Section 35.4 ASHRAE HVAC Systems and Equipment

AVERAGE WATER TEMPERATURE (°F)	ENTERING AIR TEMPERATURE (°F)				
	55°	60°	65° (STD)	70°	75°
100°	0.17	0.14	0.12	0.09	0.07
110°	0.23	0.20	0.17	0.14	0.12
120°	0.29	0.26	0.23	0.20	0.17
130°	0.35	0.32	0.29	0.26	0.23
140°	0.43	0.39	0.35	0.32	0.29
150°	0.50	0.46	0.43	0.39	0.35
160°	0.58	0.54	0.51	0.47	0.43
170°	0.67	0.63	0.58	0.54	0.51
180°	0.76	0.71	0.67	0.63	0.58
190°	0.85	0.81	0.76	0.71	0.67
200°	0.95	0.90	0.85	0.81	0.76
210°	1.05	1.00	0.95	0.90	0.85
215° (STD)	1.10	1.05	1.00	0.95	0.90
220°	1.15	1.10	1.05	1.00	0.95
230°	1.26	1.20	1.15	1.10	1.05
240°	1.37	1.32	1.26	1.21	1.15
250°	1.47	1.43	1.37	1.32	1.27

115*F

Table 4

CORRECTION FACTORS FOR STEAM PRESSURES OTHER THAN 1 PSI GAUGE*

	PRESSURE PSI GAUGE					
	5	10	15	20	25	50
FACTOR	1.12	1.25	1.36	1.46	1.56	1.93
BTU PER SQ. FT.	269	301	327	351	374	463

*Apply factors shown above to the ratings shown on the 215°F ratings page.

Note: Max Recommended operating pressure 150 PSIG, (365.9°F). For conversion from steam to hot water, use correction factors shown in table 3.

130*F AWT with 40% PG
0.20 (interpolated)
x.9 40% PG
0.18 Final adjustment factor

160*F AWTwith 40% PG
0.51
x.9 40% PG
0.459 Final adjustment factor

Table 5

CORRECTION FACTORS FOR ACCESS DOORS

Length	Free Standing, Non-Recessed Non-Standard Access Door Locations					Semi-Recessed or Fully Recessed Non-Standard Access Door Locations			
	3 or 4	3 & 4	5 or 6	5 & 6		3 or 4	3 & 4	5 or 6	5 & 6
20"	0.940	0.880	0.820	0.650		0.975	0.950	0.925	0.850
24"	0.950	0.910	0.860	0.720		0.980	0.960	0.940	0.880
28"	0.960	0.920	0.890	0.770		0.982	0.968	0.948	0.902
32"	0.970	0.940	0.890	0.800		0.985	0.972	0.955	0.918
36"	0.970	0.940	0.920	0.830		0.988	0.975	0.962	0.925
40"	0.970	0.950	0.920	0.850		0.990	0.978	0.970	0.932
44"	0.980	0.950	0.930	0.860		0.990	0.980	0.970	0.940
48"	0.980	0.960	0.940	0.880		0.990	0.982	0.970	0.948
52"	0.980	0.960	0.950	0.890		0.992	0.985	0.978	0.955
56"	0.980	0.960	0.950	0.890		0.992	0.985	0.978	0.955
60"	0.980	0.970	0.950	0.900		0.992	0.985	0.978	0.955
64"	0.980	0.970	0.950	0.910		0.992	0.988	0.978	0.962

Note: Derating factors do not apply to units with end pockets.

Table 6

WATER FLOW IN GPM	PRESSURE LOSS IN FEET OF WATER		
	4 INCH MODELS	6 INCH MODELS	8 INCH MODELS
.25	0.044	—	—
.50	0.160	0.070	0.046
1	0.597	0.270	0.167
2	2.220	1.047	0.616
3	—	2.260	1.367
4	—	3.793	2.380
5	—	—	3.673

Charted figures showing pressure drop through Convectors with forced hot water. Used for determining pressure head requirement. Based on 64" length units, but applicable to shorter units, as most loss is due to headers.

Table 7

CORRECTION FACTORS FOR INLET GRILLES
TYPES: FSG-A, SRG-A, RFG-A, FWG-A, PWG-A, SFG-A

DEPTH	HEIGHT		
	16", 18", 20"	22", 24", 26"	28", 30", 32"
4"	0.97	0.98	0.99
6"	0.94	0.95	0.98
8"	0.91	0.93	0.97

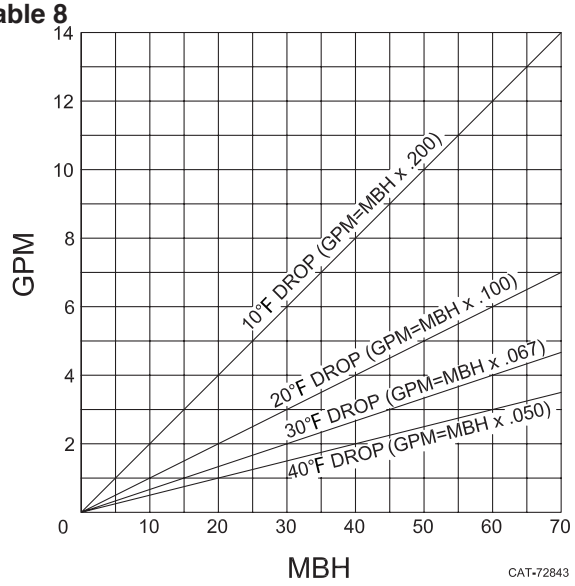
Due to the restriction to air flow, the percentages should be subtracted from the BTU output when inlet grilles are specified.

ADDITIONAL CORRECTION FACTORS ON NEXT PAGE

CONVECTOR BTU CORRECTION FACTORS

GALLONS PER MINUTE OF HOT WATER REQUIRED

Table 8



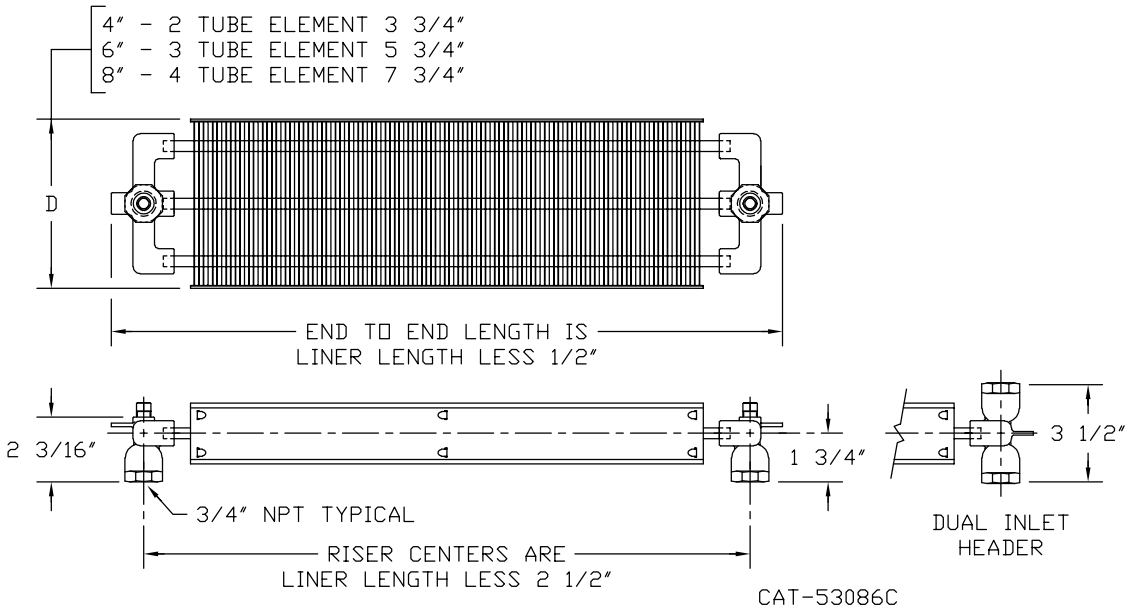
OUTPUT-FLOW RATE CORRECTIONS

Table 9

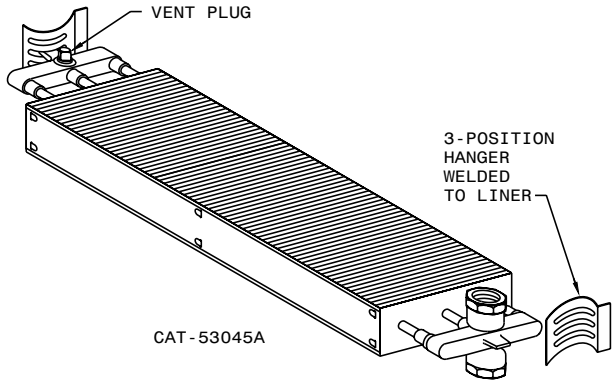
		Min. Flow Rate (0.25 Ft./Sec.)	MBH Based on T.D. & Min. Flow Rate			
Convector Depth	Tubes per Element	GPM	10TD	20TD	30TD	40TD
4"	2	.15	0.750	1,500	2,250	3,000
6"	3	.225	1.125	2,250	3,375	4,500
8"	4	.30	1.500	3,000	4,500	6,000

NOTE: Table 9 shows MBH which result at specific water temperature drops and minimum water flow rates which are required to maintain turbulent flow within element tubes.

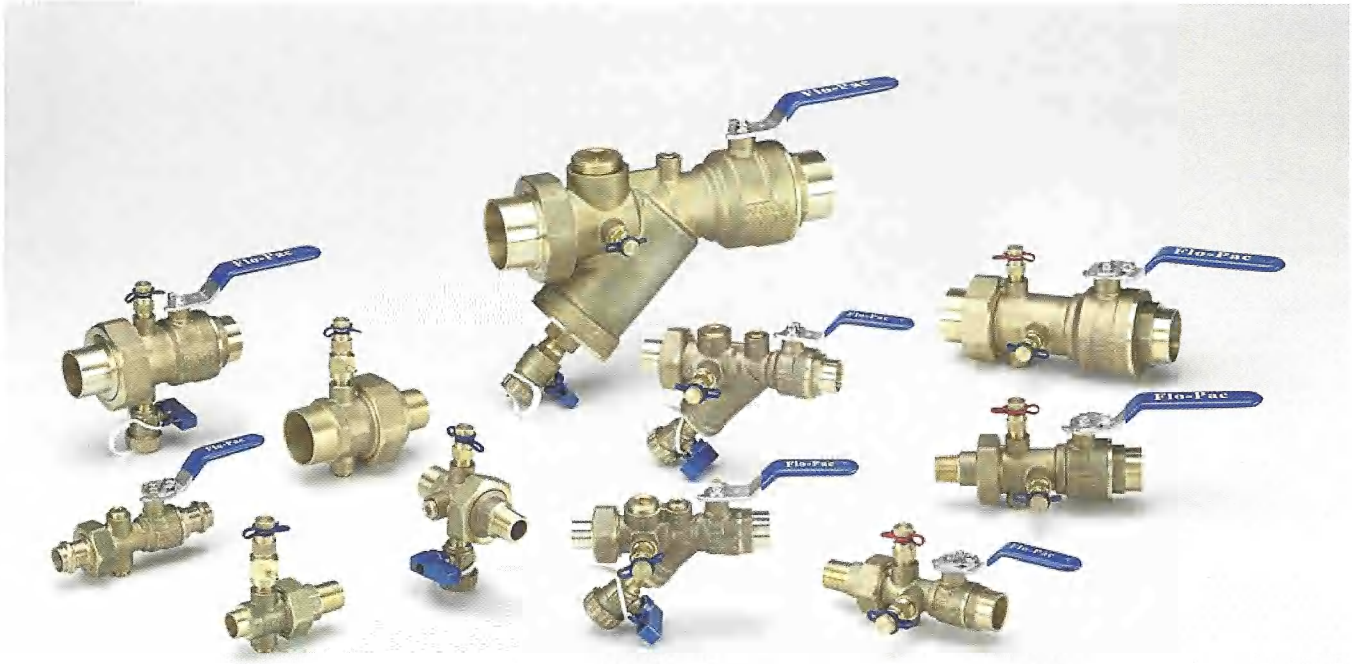
CONVECTOR COIL



NOTE: When ordering convectors with end pockets always refer to the standard unit length. The overall physical length will increase by 4'' for each end pocket. The coil length will remain the standard size. Coil fins are 2-1/2" high by width shown above and are mechanically bonded to copper tube at 6 fins per inch.



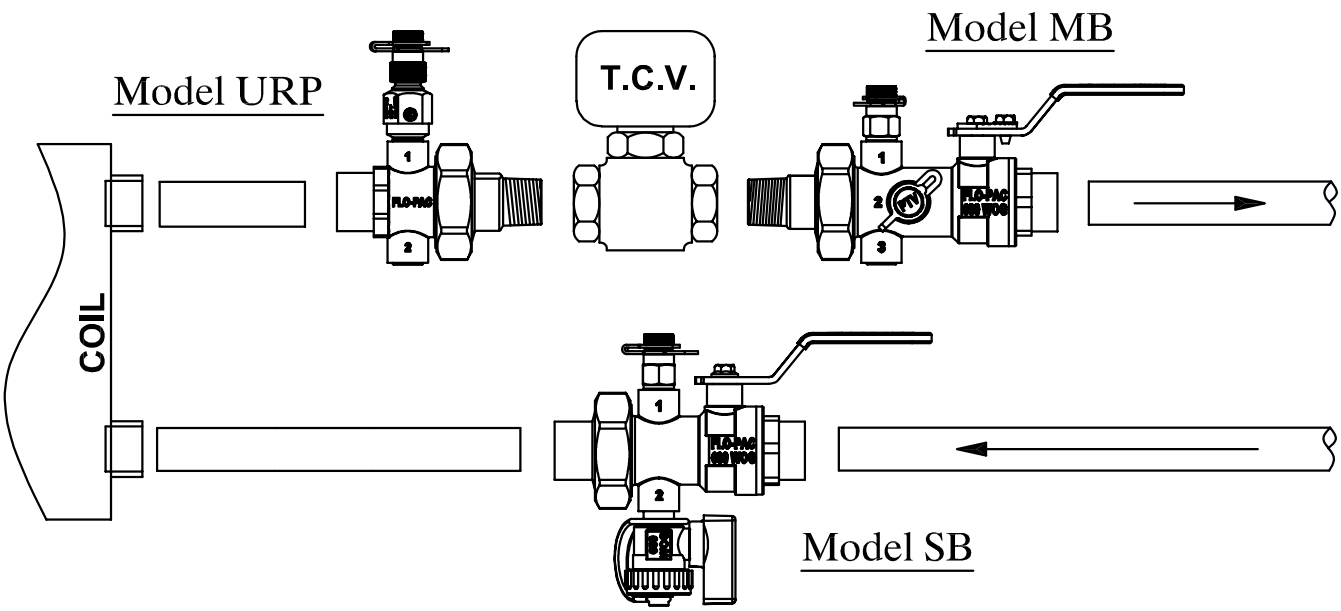
Flo-Pac



Jessup, MD
flo-pacllc.com

Flo Pac

2RMB



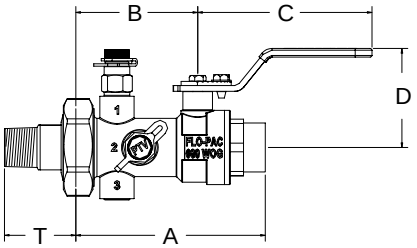
Model MB	Model SB
Venturi style manual balancing valve with 100% positive shut- off full port chrome plated ball, permanently installed venturi section, Teflon seats, double o-ring shaft seals, Pressure/Tempature test ports, adjustable memory stop with position indicator, Union end with o-ring seal.	Full port ball valve with chrome plated ball, 100% positive shut-off, Teflon seats, double o-ring shaft seals, union end with o-ring seal, Pressure/Temperature test port, and hose end drain valve with cap & strap.
Model URP Full port union supplied with a "PTV" combination manual air vent & Pressure/Tempature test port and Union end with o-ring seal.	Project Name: Taunton WWTF Ph1 Contractor: Aero Mechanical Engineer: BETA, Inc. / SAR Engineering Date: 11-8-21

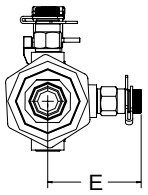
Quantity	Size	GPM	Tag
See attached Coil Hook-Up Schedule for quantities, sizes, GPM, and tagging			

Flo Pac

Model MB
Submittal Data

Model MB is a venturi style manual balancing valve with 100% positive shut-off full port plated ball. Permanently installed venturi section, Teflon seats, double o-ring shaft seals, Pressure/Temperature readout ports, adjustable memory stop with position indicator, and union end with o-ring seal. Available with multiple combinations of end connection types and sizes.





SPECIFICATIONS

Pressure Ratings:	600 PSI (4140 kPa)
Temperature Ratings:	250F (120C)
Flow Element:	Brass Venturi, Permanently mounted
Accuracy:	± 3% of rate
Body Material:	Forged Brass
End Connections:	Brass – Fixed End:SWT, FNPT; Union End: SWT, FNPT,& MNPT
Seals:	EPDM
Ball:	Chrome Plated Brass, full port, 100% positive shut-off
Handle:	Full size Zinc Plated lever with Vinyl Grip
Memory Stop	Zinc Plated Steel
Available Options:	"PTV" combination PT & air vent, hose end drain valve, & extensions

NOMINAL DIMENSIONS & WEIGHTS

Size		Flow Range		A		B	C	D	E	*T	Cv	Wgt	
in	mm	GPM (10"-100")		FNPT	SWT					MPT		lbs	kg
1/2"	15	(L) 0.4 - 1.3	in	3.46	3.55	2.30	3.66	1.99	1.82	1.50	(L) .750	1.45	0.66
		(H) 1.3 - 4.0	mm	87.78	90.25	58.42	93.02	50.50	46.20	38.10	(H) 2.25		
3/4"R	20	(L) 0.4 - 1.3	in	3.60	3.67	2.30	3.66	1.99	1.82	1.50	(L) .750	1.45	0.66
		(H) 1.3 - 4.0	mm	91.47	93.27	58.42	93.02	50.50	46.20	38.10	(H) 2.25		
3/4"	20	(L) 1.6 - 5.0	in	3.86	3.98	2.56	3.66	2.08	2.05	1.56	(L) 2.70	1.94	0.88
		(H) 4.0 - 13.0	mm	98.07	101.12	65.05	93.01	52.83	52.07	39.70	(H) 7.00		
1"	25	3.2 - 10.0	in	4.30	4.43	2.78	5.03	2.22	2.05	1.80	5.20	3.33	1.06
			mm	109.22	112.62	70.56	127.76	56.31	52.07	45.72			
1-1/4"	32	7.25 - 23.0	in	5.39	5.56	3.70	5.03	2.44	2.43	1.80	13.00	4.84	2.20
			mm	136.83	141.25	93.95	127.76	61.90	61.74	45.72			
1-1/2"	40	9.5 - 30.0	in	6.08	6.36	4.14	5.65	2.83	2.43	1.80	16.00	6.29	2.86
			mm	154.40	161.62	105.13	143.59	71.81	61.74	45.72			
2"	50	15.0 - 50	in	7.03	7.71	4.93	5.65	3.09	2.74	1.98	30.00	10.08	4.58
			mm	178.66	195.76	125.12	143.59	78.56	69.67	50.17			

* Please reference the tailpiece data sheet (From # FP-TP) for other sizes and connections.
Dimensions not for construction purposes unless certified by factory.

STANDARD COMPONENTS

Pressure/Temperature test port with brass body, dual durometer EPDM core, brass cap with O-ring seal and neoprene retainer strap. Accepts standard 1/8" (4mm) gauge adapter or thermometer stem. Rated to 500 PSI (3450 kPa) and 275°F (135°C).

Memory stop with position indicator, zinc coated steel.

Please reference Flo-Pac data sheet (Form # FP-ACC) for optional accessories.

ORDER DESIGNATIONS

MB - 075 - L - S - 050 - M - XX

- Model
- Body Size
- Venturi-High / Low
- Conn. Type
- Accessories
- Tailpiece Conn. Type
- Tailpiece Conn. Size

Please reference the Ordering Guide (Form # FP-OG) for a complete list of designations

Flo-Pac, LLC.
10545 Guilford Road, Unit 103
Jessup, Maryland 20794
www.flo-pacllc.com

Flo Pac

Model # MB
Venturi Type Balancing Valve

File # FPFC-1
7/18/05

Differential Pressure: Inches W.C											
	Models								*Models*		
Flow GPM	050L 075RL	050H 075RH	075L	075H	100	125	150	***Flow GPM***	125	150	200
0.10	1							*18.00*	**62**	**36**	**14**
0.20	2							*19.00*	**69**	**41**	**15**
0.30	5							*20.00*	**76**	**45**	**17**
0.42	**10**							*21.00*	**84**	**50**	**19**
0.50	**14**	1	1					*22.00*	**92**	**54**	**21**
0.75	**31**	3	2					*23.00*	**101**	**60**	**23**
1.00	**55**	6	4					*24.00*	110	**65**	**25**
1.25	**86**	9	6					*25.00*	119	**70**	**27**
1.35	**101**	**11**	7					*26.00*	129	**76**	**29**
1.50	124	**13**	**9**	1	2			*27.00*	139	**82**	**31**
2.00	221	**23**	**16**	2	4			*28.00*	149	**88**	**34**
2.25		**29**	**21**	3	5			*29.00*	160	**95**	**36**
2.50		**36**	**25**	4	6			*30.00*	171	**101**	**39**
3.00		**52**	**36**	6	9			*31.00*	183	108	**41**
3.50		**71**	**50**	8	**13**			*32.00*	195	115	**44**
4.00		**92**	**65**	**10**	**16**			*33.00*	207	122	**47**
4.50		117	**82**	**13**	**21**			*34.00*	220	130	**50**
5.00		144	**101**	**15**	**26**			*35.00*		138	**53**
5.50		175	123	**19**	**31**			*36.00*		146	**56**
6.00		208	146	**22**	**37**			*37.00*		154	**59**
6.50			171	**26**	**43**	8		*39.00*		171	**65**
7.25			213	**33**	**54**	**10**		*40.00*		180	**69**
7.50				**35**	**58**	**11**		*41.00*		189	**72**
8.00				**40**	**65**	**12**		*42.00*		198	**76**
8.50				**45**	**74**	**14**		*43.00*		208	**79**
9.00				**50**	**83**	**15**		*44.00*		218	**83**
9.50				**56**	**92**	**17**	**10**	*45.00*			**87**
10.00				**62**	**102**	**19**	**11**	*48.50*			**101**
10.50				**68**	113	**21**	**12**	*55.00*			130
11.00				**75**	124	**23**	**14**	*60.00*			154
11.50				**82**	135	**25**	**15**	*65.00*			181
12.00				**89**	147	**27**	**16**	*70.00*			210
12.50				**97**	160	**30**	**18**				
13.00				105	173	**32**	**19**				
14.00				121	200	**37**	**22**				
15.00				139		**43**	**25**				
16.00				159		**49**	**29**				
17.00				179		**55**	**33**				
SIZE	1/2"L&3/4"RL	1/2"H-3/4"RH	3/4"L	3/4"H	1"	1-1/4"	1-1/2"		1-1/4"	1-1/2"	2"
FF	0.1346	0.4163	0.4967	1.2704	0.9889	2.2921	2.9816		2.2921	2.9816	4.8274
C_V	0.75	2.25	2.70	7.00	5.20	13.00	16.00		13.00	16.00	30.00

Flow Formulas

GPM = FF x ($\sqrt{DP}$)

$DP = (GPM/FF)^2$

$PSID = (GPM/C_V)^2$

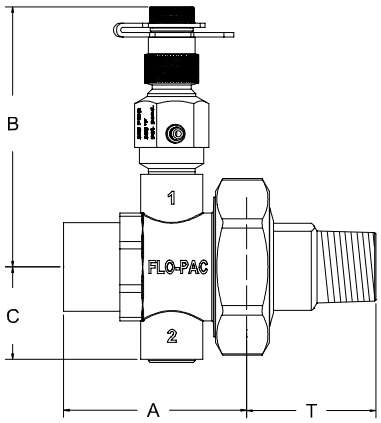
PPL= DP*0.12

Notes

1. Accuracy +/- 3% of actual rate as tested by independent flow laboratory
2. Repeatability +/- 0.25% of rate
3. Values in **BOLD** type represents traditional 10" to 100" sizing range
4. All valves will function above and below ranges shown
5. C_V is for complete valve pressure drop calculations only

Model URP
Submittal Data

Model URP is a full port union supplied with a "PTV" combination manual air vent & Pressure/Temperature test port. Available with multiple combinations of end connection types and sizes.



SPECIFICATIONS

Pressure Ratings:	600 PSI (4140 kPa)
Temperature Ratings:	250F (120C)
Body Material:	Forged Brass
End Connections:	Brass - Fixed End: SWT, FNPT Union End: SWT, FNPT,& MNPT
Seals:	EPDM
Available Options:	Hose end drain valve, port extensions.

NOMINAL DIMENSIONS & WEIGHTS

Size			A			B	C	*T	Wgt	
in	mm		FNPT	MNPT	SWT			MPT	lbs	kg
1/2"	15	in	1.99	2.25	1.88	2.77	0.84	1.50	0.79	0.36
		mm	50.47	57.23	47.68	70.25	21.44	38.10		
3/4"	20	in	2.04	2.19	2.12	3.02	1.08	1.56	1.08	0.49
		mm	51.82	55.65	53.90	76.65	27.31	39.70		
1"	25	in	2.15	2.38	2.28	3.02	1.08	1.80	1.10	0.50
		mm	54.56	60.40	57.85	76.65	27.31	45.72		
1-1/4"	32	in	2.39	2.82	2.56	3.39	1.46	1.80	2.22	1.01
		mm	60.63	71.53	65.05	86.18	36.98	45.72		
1-1/2"	40	in	2.39	2.84	2.69	3.39	1.46	1.80	2.33	1.06
		mm	60.63	72.16	68.35	86.18	36.98	45.72		
2"	50	in	2.49	2.96	3.03	3.70	1.76	1.98	3.21	1.46
		mm	63.30	75.26	76.96	94.08	44.75	50.17		

* Please reference the tailpiece data sheet (Form # FP-TP) for other sizes and connections.
Dimensions not for construction purposes unless certified by factory.

STANDARD COMPONENTS

Combination manual air vent and pressure/temperature test port with brass body, dual d lowout-proof stem, side discharge vent with 1/8" (4mm) hose barb, threaded brass cap with O-ring seal and neoprene retainer strap. Accepts standard 1/8" (4mm) gauge adapter or thermometer stem. Rated to 250 PSI (1725 kPa) a (120°

Please reference Flo-Pac data sheet (Form # FP-ACC) for optional accessories.

ORDER DESIGNATIONS

URP - 075 - S - 050 - M - XX

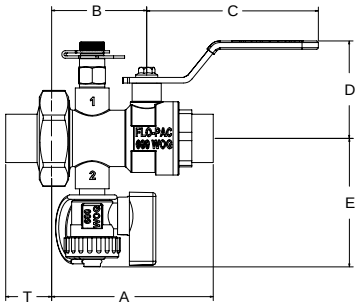
- URP — Model
- 075 — Body Size
- S — Conn. Type
- 050 — Tailpiece Conn. Size
- M — Tailpiece Conn. Type
- XX — Accessories

Please reference the Ordering Guide (Form # FP-OG) for a complete list of designations

Flo-Pac, LLC.
10545 Guilford Road, Unit 103
Jessup, Maryland 20794
www.flo-pacllc.com

Flo Pac

Model SB
Submittal Data



Model SB is a union end ball valve with full port chrome plated ball, Teflon seats, double o-ring shaft seals, and union end with o-ring seal. Standard features include Pressure/Temperature test port and hose end drain valve. Available with multiple combinations of end connection types and sizes.

SPECIFICATIONS

Pressure Ratings:	600 PSI (4140 kPa)
Temperature Ratings:	250F (120C)
Body Material:	Forged Brass
End Connections:	Brass - Fixed End: SWT, FNPT; Union End: SWT, FNPT, & MNPT
Seals:	EPDM
Ball:	Chrome Plated Brass, full port, 100% positive shut-off
Handle:	Full size Zinc Plated lever with Vinyl Grip
Available Options:	"PTV" combination PT & air vent, hose end drain valve, handle & port extensions.

NOMINAL DIMENSIONS & WEIGHTS

Size			A						*T	Wgt	
in	mm		FNPT	SWT	B	C	D	E	SWT	lbs	kg
1/2"	15	in	3.19	3.29	2.03	3.66	1.99	2.51	0.827	1.45	0.66
		mm	81	83.49	51.64	93.01	50.5	63.70	21		
3/4"R	20 R	in	3.34	3.41	2.03	3.66	1.99	2.51	0.985	1.45	0.66
		mm	84.7	86.51	51.64	93.02	50.5	63.70	25.02		
3/4"	20	in	3.33	3.45	2.03	3.66	2.08	2.74	0.98	1.94	0.88
		mm	84.56	87.61	51.64	93.01	52.83	69.50	24.89		
1"	25	in	3.64	3.78	2.12	5.03	2.22	2.74	1	3.33	1.06
		mm	92.51	95.91	53.85	127.76	56.31	69.50	25.4		
1-1/4"	32	in	4.02	4.19	2.33	5.03	2.44	3.12	1.43	4.84	2.2
		mm	102.06	106.48	59.18	127.76	61.9	79.25	36.2		
1-1/2"	40	in	4.44	4.74	2.52	5.65	2.83	3.12	1.17	6.29	2.86
		mm	112.78	120.5	64.01	143.59	71.81	79.25	29.77		
2"	50	in	4.76	5.43	2.65	5.65	3.09	3.43	1.5	10.08	4.58
		mm	120.93	138.02	67.39	143.59	78.56	87.02	38.1		

* Please reference the tailpiece data sheet (Form # FP-TP) for other sizes and connections.
Dimensions not for construction purposes unless certified by factory.

STANDARD COMPONENTS

Pressure/Temperature test port with brass body, dual durometer EPDM core, brass cap with o-ring seal and neoprene retainer strap. Accepts standard 1/8" (4mm) gauge adapter or thermometer stem. Rated to 500 PSI (3450 kPa) and 275°F (135°C).

Drain valve with forged brass body, chrome plated ball, Teflon seats, double EPDM O-ring stem seals, aluminum handle, ¾" hose connection with cap and plastic retainer strap. Rated to 600 PSI (4140 kPa) WOG and 250°F (120°C).

Please reference Flo-Pac data sheet (Form # FP-ACC) for optional accessories.

ORDER DESIGNATIONS

SB - 075 - S - 050 - M

- Model
- Body Size
- Conn. Type
- Tailpiece Conn. Type
- Tailpiece Conn. Size

Please reference the Ordering Guide (Form # FP-OG) for a complete list of designations

Flo-Pac, LLC.
10545 Guilford Road, Unit 103
Jessup, Maryland 20794
www.flo-pacllc.com

Flo Pac

COIL HOOK-UP SCHEDULE

DATE: November 8, 2021
OSHR PO#:

JOB: Taunton WWTF Ph1 LOCATION:
ENGINEER: BETA, Inc. / SAR Engineering LOCATION:
CONTRACTOR: Aero Mechanical (PO#: 7248-OSH-11367) LOCATION:

QTY	TAG UNIT #	HEATING OR COOLING	RUNOUT		CONTROL VALVE			COIL		DRAWING NO.	FLOW	COMMENTS
			SIZE	CONN	SIZE	CONN	2 WAY OR 3 WAY	SIZE	CONN			
1	2UH-1	Heating	3/4"	Sweat			2-Way			2SMB	4.4	
1	2UH-2	Heating	3/4"	Sweat			2-Way			2SMB	2.4	
1	2UH-3	Heating	3/4"	Sweat			2-Way			2SMB	3.3	
1	2UH-4	Heating	3/4"	Sweat			2-Way			2SMB	3.3	
1	2UH-5	Heating	3/4"	Sweat			2-Way			2SMB	3.3	
1	2UH-6	Heating	3/4"	Sweat			2-Way			2SMB	3.3	
1	2UH-7	Heating	3/4"	Sweat			2-Way			2SMB	3.3	
1	2UH-8	Heating	3/4"	Sweat			2-Way			2SMB	3.3	
1	2UH-9	Heating	3/4"	Sweat			2-Way			2SMB	4.4	
1	2UH-10	Heating	3/4"	Sweat			2-Way			2SMB	4.4	
1	7UH-1	Heating	3/4"	Sweat			2-Way			2SMB	3.3	
1	7UH-2	Heating	3/4"	Sweat			2-Way			2SMB	2.4	
1	7UH-3	Heating	3/4"	Sweat			2-Way			2SMB	1.7	
1	7UH-4	Heating	3/4"	Sweat			2-Way			2SMB	1.7	
1	7UH-5	Heating	1"	Sweat			2-Way			2SMB	5.7	
1	7UH-6	Heating	1"	Sweat			2-Way			2SMB	5.7	
1	7UH-7	Heating	1"	Sweat			2-Way			2SMB	5.7	
1	7UH-8	Heating	3/4"	Sweat			2-Way			2SMB	1.7	
1	7UH-9	Heating	3/4"	Sweat			2-Way			2SMB	4.4	
1	7UH-10	Heating	1"	Sweat			2-Way			2SMB	5.7	
1	7UH-11	Heating	1"	Sweat			2-Way			2SMB	5.7	

Flo Pac

COIL HOOK-UP SCHEDULE

DATE: November 8, 2021
OSHR PO#:

JOB: Taunton WWTF Ph1 LOCATION:
ENGINEER: BETA, Inc. / SAR Engineering LOCATION:
CONTRACTOR: Aero Mechanical (PO#: 7248-OSH-11367) LOCATION:

QTY	TAG UNIT #	HEATING OR COOLING	RUNOUT		CONTROL VALVE			COIL		DRAWING NO.	FLOW	COMMENTS
			SIZE	CONN	SIZE	CONN	2 WAY OR 3 WAY	SIZE	CONN			
1	7UH-12	Heating	1"	Sweat			2-Way			2SMB	5.7	
1	7UH-13	Heating	1"	Sweat			2-Way			2SMB	5.7	
1	7UH-14	Heating	3/4"	Sweat			2-Way			2SMB	3.3	
1	7UH-15	Heating	3/4"	Sweat			2-Way			2SMB	1.2	
1	7UH-16	Heating	3/4"	Sweat			2-Way			2SMB	3.3	
1	7UH-17	Heating	3/4"	Sweat			2-Way			2SMB	1.2	
1	7UH-18	Heating	3/4"	Sweat			2-Way			2SMB	1.2	
1	7CUH-1	Heating	3/4"	Sweat			2-Way			2SMB	1.5	
1	9CUH-1	Heating	3/4"	Sweat			2-Way			2SMB	1.5	
1	9CUH-2	Heating	3/4"	Sweat			2-Way			2SMB	1.5	
1	9CUH-3	Heating	3/4"	Sweat			2-Way			2SMB	1.5	
2	9C-1	Heating	3/4"	Sweat			2-Way			2SMB	0.6	
10	FTR-A, B	Heating	3/4"	Sweat			2-Way			2SMB	4.0	