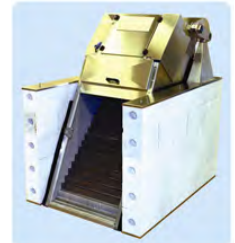


Taunton WWTF, MA
Fine Step Screening System
Scope of Supply

Part A: Scope of Supply

Item 1: Two (2) Claro Step Screens — Model 2400-1000-6mm (or 3mm)

- | | |
|---|-------------------------------|
| • Quantity: | Two (2) |
| • Discharge height: | 94.9" [2410 mm] |
| • Effective width: | 39.4" [1000 mm] |
| • Screen frame width (without channel seals): | 45.7" [1160 mm] |
| • Screen frame width (with channel seals): | 48" [1220 mm] |
| • Channel Dimensions (Width x Depth): | 48" x 66" [1220 mm x 1676 mm] |
| • Aperture between bars: | 0.25" or 0.125" [6 mm or 3mm] |
| • Lamella bar thickness: | 0.125" [3 mm] |
| • Frame components: | 0.20" [5 mm] |
| • Installation angle: | 50 deg |
| • Frame & covers material: | AISI 304L |
| • Bars material: | AISI 304L |
- Drive unit: SEW c/w NEMA flange.
 - Electric motor: Baldor 2 HP, UL 460V, 60Hz, 3 phase; Class 1, Div. 1.; equipped with integral, externally wired electrical brake also Class 1, Div. 1.
 - Drive unit is painted according to SEW std. OS2, in RAL 6005.
 - Incl. home position switch: Turck.
 - Electrical torque guard, Emotron M20 included (installed in control panel).
 - Patented bottom step, no plastic end bar spacers required at the bottom of the screen.
 - All stainless steel discharge without plastic end bar spacers.
 - Easy/quick pivot of out of channel with linkage system.
 - Odor control connection 100mm (4") on screen for direct negative venting of channel & screening equipment as preferred.
 - Screen total weight: 1/4" (6mm): 3140 lbs. (1425 kg); 1/8" (3mm): 3640 lbs. (1650 kg);
 - Capacities & levels summary: 25 MGD (1,096 L/s) municipal influent total - 12.5 MGD per screen;
- Levels:
- 1/4" (6mm): 35.4"/27.55" [900/700 mm] – 35% screen blockage
 - 1/8" (3mm): 41.5" / 27.55" [1054/700 mm] – 35 % screen blockage
- Fine step screen built under ISO 9001 & ISO 14001 certification.
 - Please see PDF drawing & sample project photos included below.



Item 2: Two (2) Inlet Chutes & Covers between Fine Screens Discharges & Transfer Conveyor

- Material AISI 304L; including stainless steel nuts and bolts with a gasket between the inlet chute and conveyor inlet; inlet chute includes cover with handle and view ports designed to protect operators from moving parts hazard.

Item 3: One (1) Claro Shaftless Spiral Screenings Transfer Conveyor — Model U320-6500

- One (1) shaftless screw conveyor, approx. 21.3 ft (6.5 m) long (exact length to be determined once equipment layouts are finalized).
- Capacity: 141.25 ft³/hr (4 m³/h) minimum of screenings; designed with a large, full pitch spiral
- One (1) inlet adapted to connect with wash press inlet box;
- One (1) vertical chute for conveyed screenings discharge into a wash press (Item 4 below);
- 304L stainless steel trough, 3 mm thk., including 2 mm. thk. lids, & 10 mm UHMW polyethylene liners in maximum 4.6 ft (1.4m) long sections for ease of manipulation; liners are retained by trough-length square retaining bars that enable the liners to snap into place without the use of glues, bolts, rivets, or welding for ease of replacement.
- Spiral made from Swedish special micro alloy abrasion-resistant steel proven in extreme-duty applications such as grit removal systems; primer paint coated for transit.
- Drive unit: SEW c/w NEMA flange.
- Hollow shaft helical bevel Baldor drive station including vertically mounted 2 HP motor; 460/3/60; CL.1, Div.1.
- The inlet and outlet interconnecting chutes & supports with anchors are supplied loose for field installation by contractor.
- Cable-actuated emergency rope switch – cable break fail-safe functionality; Class 1, Div. 1. including mounting bracket, stainless steel eye bolts and cable-end hardware for installation onto side of conveyor according to Claro instructions.
- Zero/Underspeed rotation sensor: Siemens Milltronics MFA-4P transmitter in NEMA 4X polycarbonate enclosure for mounting in unclassified control room & XPP-5 rotation probe with 50 ft of factory-sealed cable including bracket for installation onto underside of conveyor trough according to Claro instructions.



Item 4: One (1) Claro Wash Press — Model TP300-800

- Press diameter, Ø11.8" [300 mm].
- Inlet: L x W = 31.5" x 16.7" [800 mm x 425 mm].
- Connection, flange: DN300, PN10.
- Material: AISI 304L, spiral in Swedish Micro Alloy or AISI 304 stainless steel as preferred, last 2 flights reinforced for additional strength; last flight equipped with Hardox plate for additional abrasion resistance & service life; wear bars in Hardox.



- Drive unit, SEW with NEMA flange.
- Electric motor, Baldor 5 HP, UL 460V, 60Hz, 3 phase, Class 1, Div. 1.; helical bevel arrangement for reduced footprint. Premium efficiency.
- Drive unit painted according to SEW std. OS2, in RAL 6005.
- Water connections, 2 x ¾"; including two (2) x Class 1, Div. 1, AISI 304 stainless full port solenoid valves & 2 full port ball valves in 316 stainless steel; one (1) 2.5" [63 mm] stainless steel gauge & ¼" dia. AISI 304 isolating ball valve. ¾" dia. AISI 316 Y-strainer & AISI 316 ball valve provide if service water is not potable.
- Capacity for optimal washing, compaction, & dewatering: input of wet screenings: 88.3 ft³/hr [3 m³/h].
- Reject water outlet, Ø 4" [101.6 mm]; Fernco rubber sleeve c/w 2 stainless steel gear clamps & 4" dia. PVC piping to channel downstream of screen by installing contractor.
- Wash press panel built under ISO 9001 & ISO 14001 certification.

Item 5: One (1) Claro Outloading Discharge Pipe System for Wash Press including Hygienic Bagger — Model 300

- Material AISI 304L.
- Ø 11.8" [300 mm] to 13.8" [350 mm] flared discharge tube for compaction, dewatering, & delivery of screenings into hygienic bagger and to screenings bin adjacent to screen (screenings bin by others); alternate tube configurations available to suit layout/application.
- AISI 304L support for outloading discharge pipe.
- Including automatically unfolding continuous hygienic bagger with one (1) 295 ft. (90m) bag cartridge.
- Note: Discharge tube configuration can be modified in order to suit to the specific application.



Item 6: One (1) Screening Control Panel & Local HOA Stations

- General Overview: Suggested panel provides for the automatic and manual control of the screening system including intuitively designed graphic touch screen interface for ease of system optimization & use. Graphic interface provides a real-time overview of the system's operation: e.g. stage of operational sequence (mode), all set-points, real-time values as the system approaches current timer set points, real-time influent levels & start-level setpoints, real-time motor amperage readings, solenoid on/off status, record of alarm conditions etc. Other PLCs, enclosures, features & component preferences quoted on request. Panel can be designed to precisely suit client preferences.
 - Allen-Bradley Micrologix 1400 PLC; other PLCs available on request.
 - NEMA 4/12 painted steel enclosure for installation outside of explosion-proof requirement area.
 - Intuitively-designed graphic touch screen interface HMI; 7" Color Siemens TP700 Comfort (other HMIs available on request).
 - Includes Endress + Hauser Prosonic S ultrasonic level detection upstream/downstream of each screen; four (4) x level detectors c/w 49 ft. of

- sealed Class 1, Div. 1 cable + two (2) din-rail-mounted transmitters installed inside control panel.
- Ethernet/Scada connectivity, Scada exchange table, & screening system panel programming included. Jpegs/screen shots provided to Scada programmer on request.
- Surge protector for protection of PLC & other 24 VDC components.
- Loss-of-phase detector for further protection of motors.
- Starters for fine screens (2, reversible soft starters), conveyor (1, reversible), wash press (1, reversible).
- Two (2) Emotron M20 torque sensors for motor amperage reading for fine screens.
- Current transformer for amperage monitoring of conveyor and wash press.
- Four (4) combination local Man/Off/Auto + Forward/Reverse + E-Stop switches in Class 1, Div. 1 enclosures (for fine screens, conveyor & wash press).
- Power lock-out switches for operator safety on control panel door.
- Controls equipment fabricated under UL & ISO 9001 certification.

Item 7: Claro Technical Submittal, Installation Instructions, Commissioning Services, and O&M Manuals

- Complete technical submittal including Acad layout drawings.
- Operation & maintenance manuals (print & bookmarked PDF).
- Installation supervision, commissioning, and operator training instructions for fine screening & grit removal system by experienced Claro technician for start-up (total 7 person-days including 2 days on-site for Claro control panel technician; total number of trips: 2; 1 for each technician)

Item 8: Shipping, brokerage & insurance FOB to Taunton, MA included

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Part B: Equipment & Services by Others

Contractor or others to install the above-listed equipment & furnish auxiliary items as follows:

- Modification to the existing civil work, if required.
- Off-loading, storage on site, installation and start-up & testing of above-listed and other associated equipment under Claro supervision.
- Field installation of screens, conveyor including provided supports, wash press & control panel. Site assembly of wash press to piping system and interconnection to conveyor & screens.
- Bolts for bolting mechanical equipment to screening room floor.
- Power supply and control wiring between main control panel; local HOA stations; each screen's motor & home position proximity sensor switch; ultrasonic level detectors; wash press motor; wash press's 2 solenoid valves; conveyor's motor, pull cable switch, rotation sensor; and, plant PLC (if selected).

- Permanent I-beam structure, ceiling-mounted lifting system, or simple davit crane with chain block (or) portable A-frame gantry in order to enable pivoting of each screen out of channel for maintenance inspection & washing grit from channel bottom. Chain block & lifting chains by others. Claro can advise on lifting system options.
- Each screen is equipped with a 4” (100 mm) vent that can be connected to the screening room odor-control vacuum system. This pipe connection will enable the odor-control system to draw odor directly from the channels and through the respective screen, if desired. Flexible odor-control piping by others, if desired/applicable.
- All supply or transfer piping between equipment and other piping accessories including water hammer arrester or other instrumentation, if specified.
- Service water piping to wash press.
- Other civil works as required.



Part C: Budgetary Costs – Taunton, MA WWTF

- Item 1: Two (2) Claro Fine Step Screens — Model 2400-1000-6 mm (or 3mm)
 - Item 2: Two (2) Inlet Chutes & Covers between Fine Screens Discharges & Transfer Conveyor
 - Item 3: One (1) Claro Shaftless Spiral Screenings Transfer Conveyor – Model U320-6500
 - Item 4: One (1) Wash Press – Model TP300-800
 - Item 5: One (1) Claro Outloading Discharge Tube System for Wash Press including Hygienic Bagger — Model 300
 - Item 6: One (1) Screening Control Panel & Local HOA Stations
 - Item 7: Claro Technical Submittal, Installation Instructions & Commissioning Services, and O&M Manuals
 - Item 8: Shipping, brokerage & insurance FOB to Taunton, MA project site included
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- Budgetary Costs for Items 1, 2, 3, 4, 5, 6, 7 & 8..... USD
(Applicable Taxes Extra)

Adders/Deducts:

- 1. Adder Costs for 3mm screen apertures in lieu of 6mm USD
(Applicable Taxes Extra)
- 2. Adder Costs AISI 316L construction in lieu of 304L USD
(Applicable Taxes Extra)
- 3. Deduct for Class 1, Div. 2 system is equal to.....minus USD

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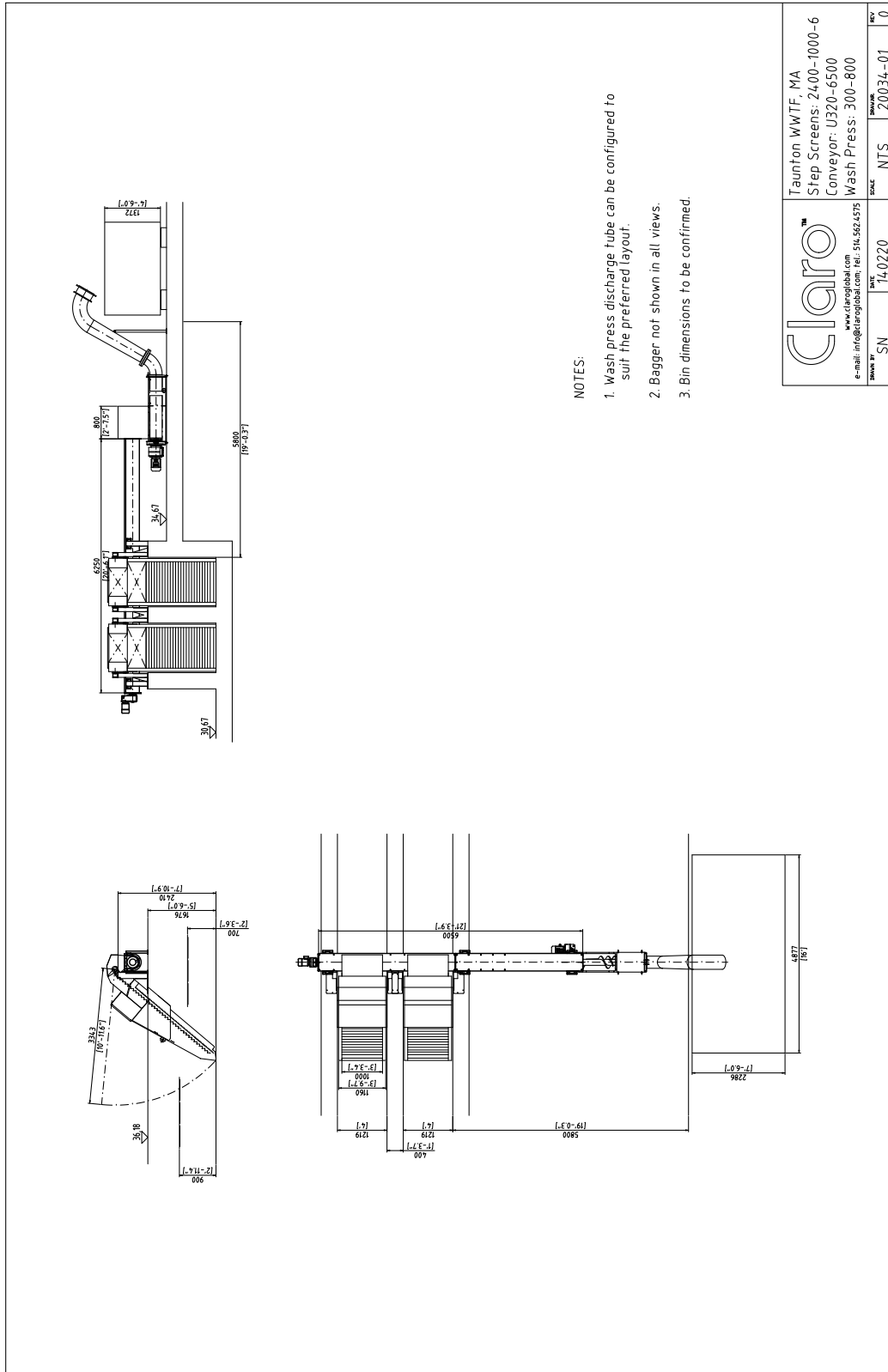
Part D: Terms of Delivery

- **Terms of Delivery:** FOB Taunton, MA; each piece of equipment in a crate (or) on a specially-built wooden pallet and in a marine container delivered on a chassis truck or within a conventional transport truck; contractor responsible for providing appropriate on-site off-loading equipment.
- **Delivery Time:** Submittal within 3-4 weeks or better if required
Delivery on site 12-18 weeks or better if required
- **Warranty:** **5 year** normal running time.
- **Terms of payment:** 90% on delivery
10% on start-up (30 days following successful start-up)
- This proposal is valid 2 months from 19 February 2020. Extensions of validity on request.



Part E: Drawings: i. Fine Step Screening System Equipment Arrangement Drawings

i. 1/4" (6mm) or 1/8" (3mm) Fine Step Screen (Preliminary)

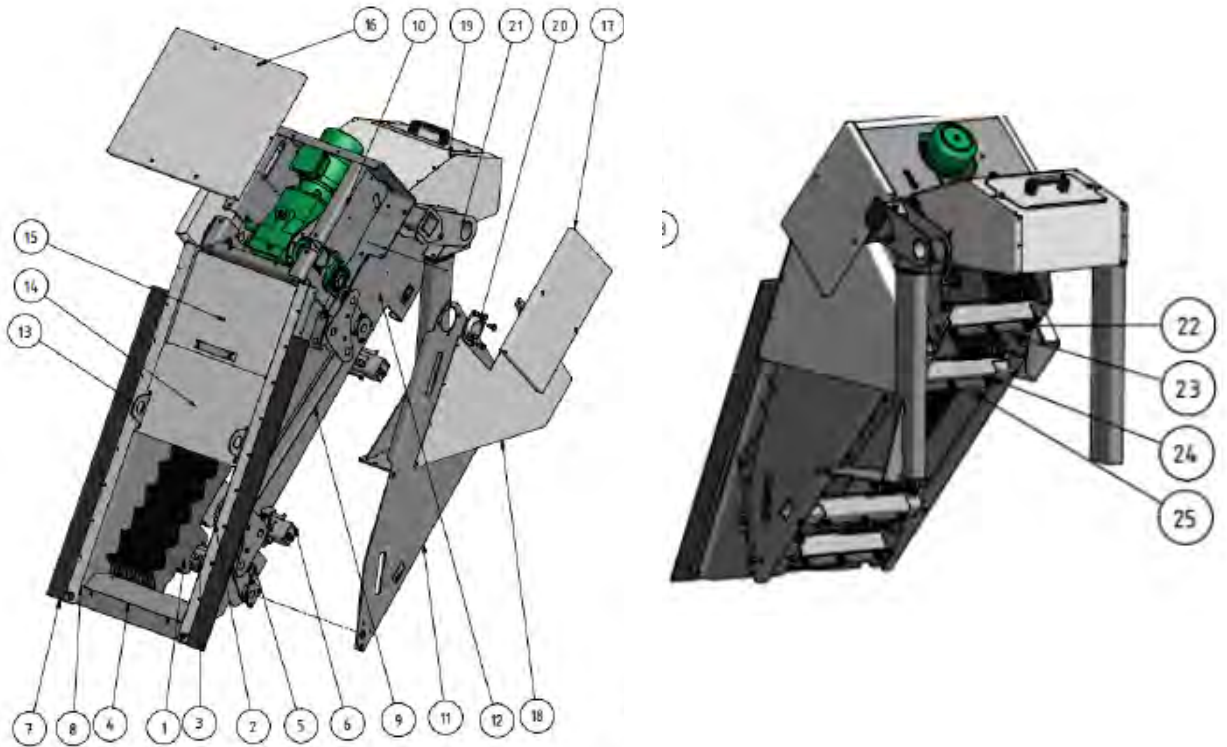


Claro™
 Taunton WWTF, MA
 Step Screens: 2400-1000-6
 Conveyor: U320-6500
 Wash Press: 300-800
 www.claroglobal.com
 e-mail: info@claroglobal.com, tel: 514.582.4575

SCALE	NTS	REV	0
DATE	14.02.20	REV	20034-01
SHOW BY	SN	SHOW BY	SN



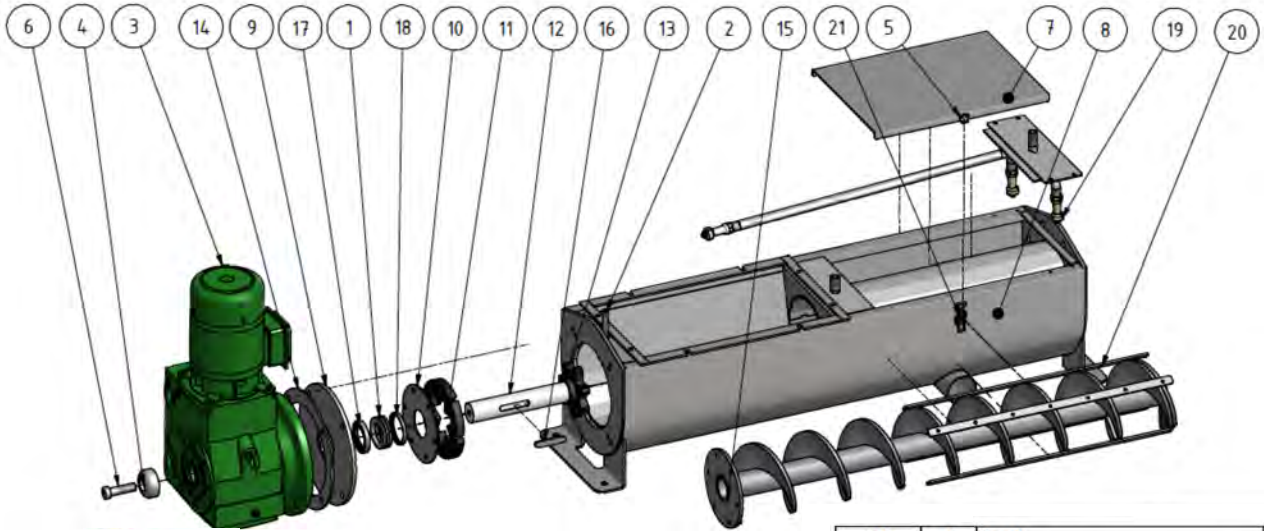
ii. Fine Step Screen - Typical Components Drawing (Exploded 3D View)



Item	Quantity	Name
1	Varies	Fixed bar with discharge detail
2	Varies	Movable bar
3	4	Positioning spacer depending on spacing
4	1	Bottom flap
5	2	Fixed cross member
6	2	Movable crossmember
7	2	Rubber - seal
8	2	Rubber clamp
9	2	Linkage system
10	1	Power train housing
11	2	Connecting plate
12	2	Side plate
13	2	Lifting lugs
14	1	Cover
15	1	Inspection lid
16	1	Gearbox cover
17	2	Gearbox cover
18	2	Cover
19	1	Discharge access cover
20	2	Cover - bearing
21	2	Linkage system for supports
22	2	Inner bar fixing channel - fixed
23	2	Outer bar fixing channel - fixed
24	2	Inner bar fixing channel - movable
25	2	Outer bar fixing channel – movable



iii. Wash Press - Components Drawing (Exploded 3D View)



21	1	Lock
20	1	Wear liner
19	1	Spray nozzle
18	1	Sealing
17	1	Sealing
16	1	Key
15	1	Spiral
14	1	Distance
13	1	Sleeve
12	1	Shaft assembly
11	1	Carrier
10	1	Bracket
9	1	Drive unit flange
8	1	Press house
7	1	Cover
6	1	Screw
5	2	Lockplate
4	1	Sleeve
3	1	Drive unit
2	1	Pipe
1	1	Bearing

• Materials of Construction

Wash Press is constructed of the following materials:

- Inner & Outer Trough 3/16" (5 mm) AISI type 304L stainless steel
- Discharge/Compaction Tube 1/16" (2 mm) AISI type 304L stainless steel; progressively flared

