



Tubular Drag Cable Conveyor Installation Manual

4200, 4300, 6200 & 6300 SERIES CONVEYOR



Original Installation Manual

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Rev. Date - 6/2013
P/N - C00204 Rev. C3

Original Installation Manual

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Technical progress


Cablevey Conveyors reserves the right to make modifications due to technical progress up to the time of delivery.

Table of contents

GENERAL INFORMATION/3

| | | |
|---|--------------------------------------|---|
|  | Scope of manual..... | 3 |
| | Contact..... | 3 |
| | Supporting Documents..... | 3 |
| | Cablevey Modifications | 3 |
| | Personnel qualification | 4 |
| | Warning decals and instructions..... | 4 |
| | Warranty..... | 5 |
| | Identification plate - System..... | 6 |
| | Identification plate - Motor..... | 6 |

TECHNICAL DATA/7

| | | |
|--|--|----|
|  | Ambient conditions..... | 7 |
| | Airborne sound emission..... | 7 |
| | System weights - U.S..... | 8 |
| | System weights - Metric..... | 8 |
| | Discharge valve air adjustment..... | 8 |
| | Air actuator requirements..... | 8 |
| | Capacity data - 4100,4200,4300 Series..... | 9 |
| | Capacity data - 6100,6200,6300 Series..... | 9 |
| | System electrical diagram..... | 10 |
| | System electrical diagram..... | 12 |
| | System pneumatic diagram..... | 14 |
| | Electrical data..... | 15 |

TRANSPORT/16

| | | |
|---|----------------------------------|----|
|  | Check the shipment..... | 16 |
| | Intermediate storage..... | 16 |
| | Loading and Unloading items..... | 16 |
| | Moving of system..... | 16 |

INSTALLATION/17

| | | |
|---|---|----|
|  | Site preparation..... | 17 |
| | Protective gear (PPE)..... | 17 |
| | Pre installation inspection..... | 17 |
| | Sample layout of system..... | 18 |
| | General assembly instruction..... | 19 |
| | Coupling system components..... | 20 |
| | Tubing installation..... | 21 |
| | Tubing installation - suspended mounting..... | 22 |
| | Tubing installation - floor mounting | 24 |
| | Inspection section..... | 25 |
| | Sweeps..... | 26 |
| | Inlet..... | 28 |
| | Brush box..... | 29 |
| | Discharge valve assembly..... | 31 |
| | Drive..... | 32 |
| | Turnaround..... | 34 |
| | Toothpick..... | 35 |

BROKEN CABLE SENSOR/36

| | | |
|---|------------------------------------|----|
|  | Limit switch (Roller)..... | 36 |
| | Limit switch (Proximity)..... | 37 |
| | Motion sensor - sprocket..... | 38 |
| | Motion sensor - disc - option..... | 39 |
| | Motion sensor - disc - option..... | 40 |

CABLE INSTALLATION/41

| | | |
|---|-------------------------------------|----|
|  | Cable installation - 1 pc disc..... | 41 |
| | Cable installation - 2 pc disc..... | 51 |

Table of contents

SYSTEM TENSIONING/63

| | |
|---|----|
|  System tensioning - internal compression springs..... | 63 |
|  System tensioning - external torsion springs..... | 66 |

DIMENSIONS & WEIGHTS/70

| | |
|---|----|
|  4000 Series - component dimensions..... | 70 |
|  4000 Series - sweep dimensions..... | 80 |
|  4000 Series - component weights..... | 81 |
|  6000 Series - component dimensions..... | 82 |
|  6000 Series - sweep dimensions..... | 93 |
|  6000 Series - component weights..... | 94 |

COMMISSIONING/95

| | |
|---|----|
|  Checking the drive element..... | 95 |
|  Checking the commissioning..... | 95 |
|  Before running..... | 95 |
|  Dry run..... | 96 |
|  Sample run..... | 96 |

DECOMMISSIONING/97

| | |
|---|----|
|  Removing..... | 97 |
|  Dispose..... | 97 |

SYSTEM INSPECTION CHECKLIST/98

GENERAL INFORMATION

MODEL - 4100, 4200, 4300, 6100, 6200 & 6300

Scope of manual

The intended use of this manual is for the installation and commissioning of the system.

Contact

- Address questions to the manufacturers representative
- When contacting Cablevey for technical support or parts please have model number, serial number and manufacture date available.

Headquarters

Cablevey Conveyors

P.O. Box 148

2397 HWY 23

Oskaloosa, Iowa 52577-0148

Tel - (641)673-8451

Toll Free - (800)247-3344

Supporting Documents

| <u>Designation</u> | <u>Identification number</u> |
|-------------------------|---|
| Machine Parts Book 4100 | C00142 |
| Machine Parts Book 4200 | C00142 |
| Machine Parts Book 4300 | C04034 |
| Machine Parts Book 6100 | C00283 |
| Machine Parts Book 6200 | C00283 |
| Machine Parts Book 6300 | C00307 |
| Drive/Motor | Refer to the manufacturer's documentation |
| Inclinometer | Refer to the manufacturer's documentation |

Cablevey Modifications

It is the policy of INTRACO, INC. (D.B.A. Cablevey conveyors) to improve its products whenever possible and practical to do so. INTRACO, INC. Reserves the right to make improvements and modifications at any time without incurring obligation to make such changes or improvements on any Cablevey products sold previously.

MODEL - 4100, 4200, 4300, 6100, 6200 & 6300

Personnel qualification

Mechanics

Personnel that work on mechanical devices must be technically trained or have completed training provided by the manufacturer.

Electricians

Personnel that work on electrical devices must be technically trained or have completed training provided by the manufacturer.

Welders

Personnel that carry out welding work on equipment must be technically trained.

Warning decals and instructions

The symbols identified in this section are used to call your attention to the instructions concerning your personal safety. Watch for these symbols as they point out important safety precautions.

If a decal has been damaged or missing please contact Cablevey for a free replacement decal.

Note the use of the signal words DANGER, WARNING AND CAUTION with the safety message. The appropriate signal word for each has been selected using the following guidelines:



DANGER: Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.



WARNING: Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION: Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.



NOTE: Provides informative tips to assist with installation and system setup

Warranty

MODEL - 4100, 4200, 4300, 6100, 6200 & 6300

INTRACO, INC. warrants its CABLEVEY Industrial Conveyor System components, when installed within its recommended limitations, to be free from defects in material and workmanship under normal use and service for which intended for a period of ninety (90) days from the date of purchase with exception of the gear motor which is warranted for one (1) full year under the same conditions as above.

Any parts which are proven defective, and the company's inspection and examination shall disclose to have been thus defective, will be replaced or repaired free of charge, f.o.b. Oskaloosa, Iowa. Any defective part must be returned to INTRACO, INC. prepaid for examination and inspection. INTRACO's responsibility covers cost of replacement parts only and does not include repair or replacement caused by misuse, abuse or normal wear and tear.

No claim of any kind, whether as to goods delivered or for non-delivery of goods, shall be greater in amount than the purchase price of the goods in respect of which such damages are claimed; and failure to give notice of claim within (30) days from date of delivery or the date fixed for delivery, as the case may be, shall constitute a waiver by Buyer of all claims in respect of such goods. The remedy hereby provided shall be the exclusive and sole remedy of the Buyer and any right of the Buyer to consequential and incidental damages is excluded.

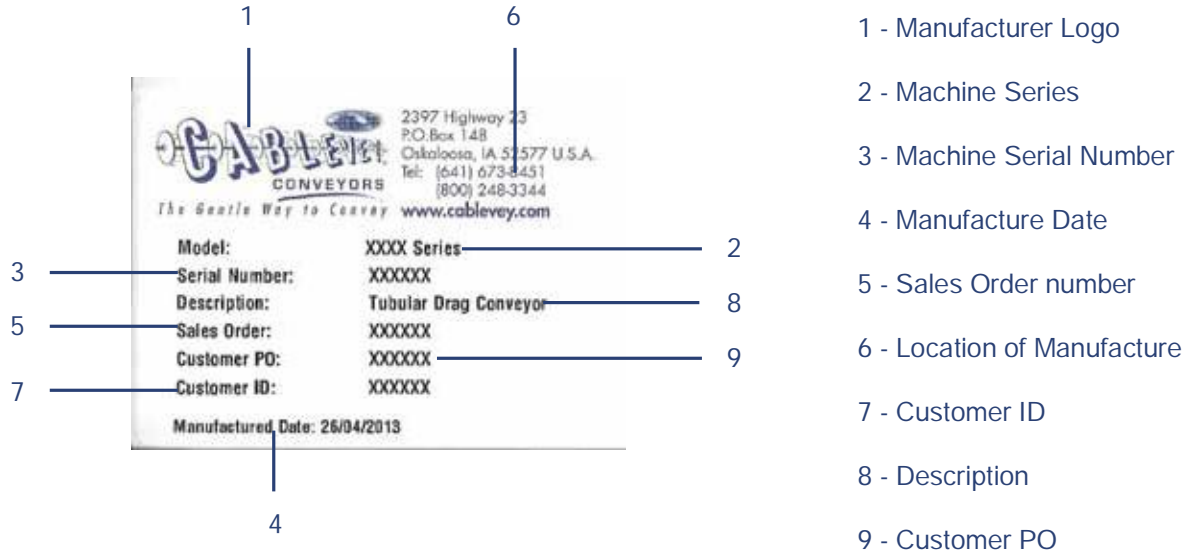
INTRACO, INC. shall not be liable under any circumstances for consequential or incidental damages. INTRACO's liability for breach of warranty hereunder is limited solely to replacement or repair, as the case may be, of defective goods that shall be returned to the INTRACO, INC. plant or to any licensed Dealer or Distributor of INTRACO for such purpose.

INTRACO, INC. will use all responsible means to deliver the property sold hereunder within the terms and the time specified, but will not be liable for any loss, damage, detention or delay caused by accident, strike, walkout, fire, explosion, theft, lightening, windstorm, earthquake, flood, riot, civil commotion, malicious mischief, act of God, act of terrorism, act of war, or any other cause beyond its reasonable control, whether or not the same is herein specified and in any event, INTRACO, INC. SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL OR INDIRECT DAMAGE ARISING FROM DELAY. NO EMPLOYEE OR REPRESENTATIVE IS AUTHORIZED TO CHANGE THIS WARRANTY IN ANY WAY OR GRANT ANY OTHER WARRANTY.

This guarantee is made expressly in place of all other guarantees or warranties, expressed or implied, with respect to quality, merchantability or fitness for a particular purpose.

Identification plate - System

- Located on the Drive Unit on the motor.



Identification plate - Motor

- Located on the Drive Unit motor.



Ambient conditions

| | <u>Low (F)</u> | <u>High (F)</u> | <u>Low (C)</u> | <u>High (C)</u> |
|--------------------------------|----------------|-----------------|----------------|-----------------|
| Temperature when in operation | 35° | 100° | 2° | 38° |
| Temperature when at standstill | 35° | 100° | 2° | 38° |

| | <u>Min</u> | <u>Max</u> |
|----------|------------|------------|
| Humidity | 25% | 50% |

Airborne sound emission

The noise data listed are values measured on Cablevey test system. The noise data may vary depending on ambient conditions and product being conveyed.

Measuring point at a distance of 1 m from the loudest source of noise.

| <u>Designation</u> | <u>Value</u> | <u>Unit</u> |
|---|--------------|-------------|
| Conveyor speed | 60.0 | HZ |
| Equivalent workplace-related emission level | 79 | db (A) |

System weights - U.S.

The weight data listed are based on existing components. The weights may vary depending on manufacturing conditions.

| SYSTEM | TUBE + CABLE WEIGHT | TUBE VOLUME | TUBE + CABLE + MATERIAL WEIGHT |
|--------|---------------------|------------------------------|--------------------------------|
| SERIES | (A) LBS. PER FT | (B) FT ³ PER FOOT | (C) LBS. PER FT |
| 4000 | 6.07 | 0.068 | * 8.79 |
| 6000 | 11.34 | 0.148 | * 17.26 |

*Based on 40lbs/ft³

Weight is calculated using 1 piece cable and 80% fill level

$$C=A+(B*BULK DENSITY)$$

System weights - Metric

| SYSTEM | TUBE + CABLE WEIGHT | TUBE VOLUME | TUBE + CABLE + MATERIAL WEIGHT |
|--------|---------------------|-------------------------------|--------------------------------|
| SERIES | (A)(KGS. PER METER) | (B)(M ³ PER METER) | (C)(KGS. PER METER) |
| 4000 | 9.03 | 0.006 | * 12.87 |
| 6000 | 16.87 | 0.014 | * 25.84 |

*Based on 640.74Kg/m³

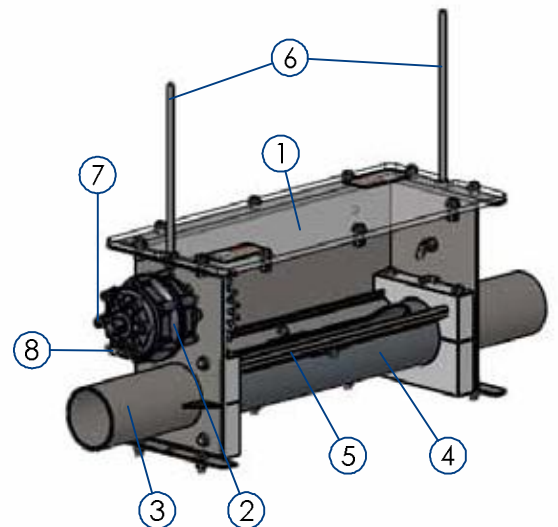
Weight is calculated using 1 piece cable and 80% fill level

$$C=A+(B*BULK DENSITY)$$

Discharge valve air adjustment

Attach facility air supply to inlet port (7) on air actuator on the DVA. The DVA actuation is tested at the factory with 90 psi (.62 MPa). This setting may need to be adjusted once the DVA has been installed depending on the facility air system and system location.

To adjust air flow to actuator (7) use the pneumatic flow control valve(8). While actuating the tube valve assembly(4) increase or decrease the air flow as needed using the pneumatic flow control(8). A smooth, steady action is desired.



Air actuator requirements

| | | |
|---|-----------|-------------|
| Operating Pressure | 150 PSI | (1.03MPa) |
| Max Pressure | 220 PSI | (1.51 MPa) |
| Ambient Temp | 40-140 F | (5-60 C) |
| Consumption* | .0025FT/3 | (.07 LITER) |
| *Required to operate one cycle(Open then Close) @ 87 PSI (.6 MPa) | | |

Capacity data - 4100,4200,4300 Series

The maximum delivery rate is reached only after a break-in period of a few hours of operation. The product must correspond to the specifications, such as bulk density, grain size, moisture, temperature and feed.

CABLE SPEED VS. FLOW RATES - 4000 SERIES

CABLE SPEED - 4000 SERIES

FLOW RATE - 4000 SERIES

| HZ | Ft per Minute | (M per Minute) | Ft ³ / Hour | (M ³ per Hour) | Lbs. per Hour* | (Kg. per Hour) |
|------|---------------|----------------|------------------------|---------------------------|----------------|----------------|
| 10 | 24 | (7.32) | 88 | (2.49) | 3,520 | (1,597) |
| 20 | 47 | (14.33) | 175 | (4.96) | 7,000 | (3,175) |
| 30 | 60 | (18.29) | 263 | (7.45) | 10,520 | (4,772) |
| 40 | 80 | (24.38) | 350 | (9.91) | 14,000 | (6,350) |
| 50 | 100 | (30.48) | 438 | (12.40) | 17,520 | (7,947) |
| **60 | 140 | (42.67) | 525 | (14.87) | 21,000 | (9,525) |

*Based on 40lbs/ft³ (18.14Kg/ft³)(640.74Kg/m³)

**Max speed

Capacity data - 6100,6200,6300 Series

CABLE SPEED VS. FLOW RATES - 6000 SERIES

CABLE SPEED - 6000 SERIES

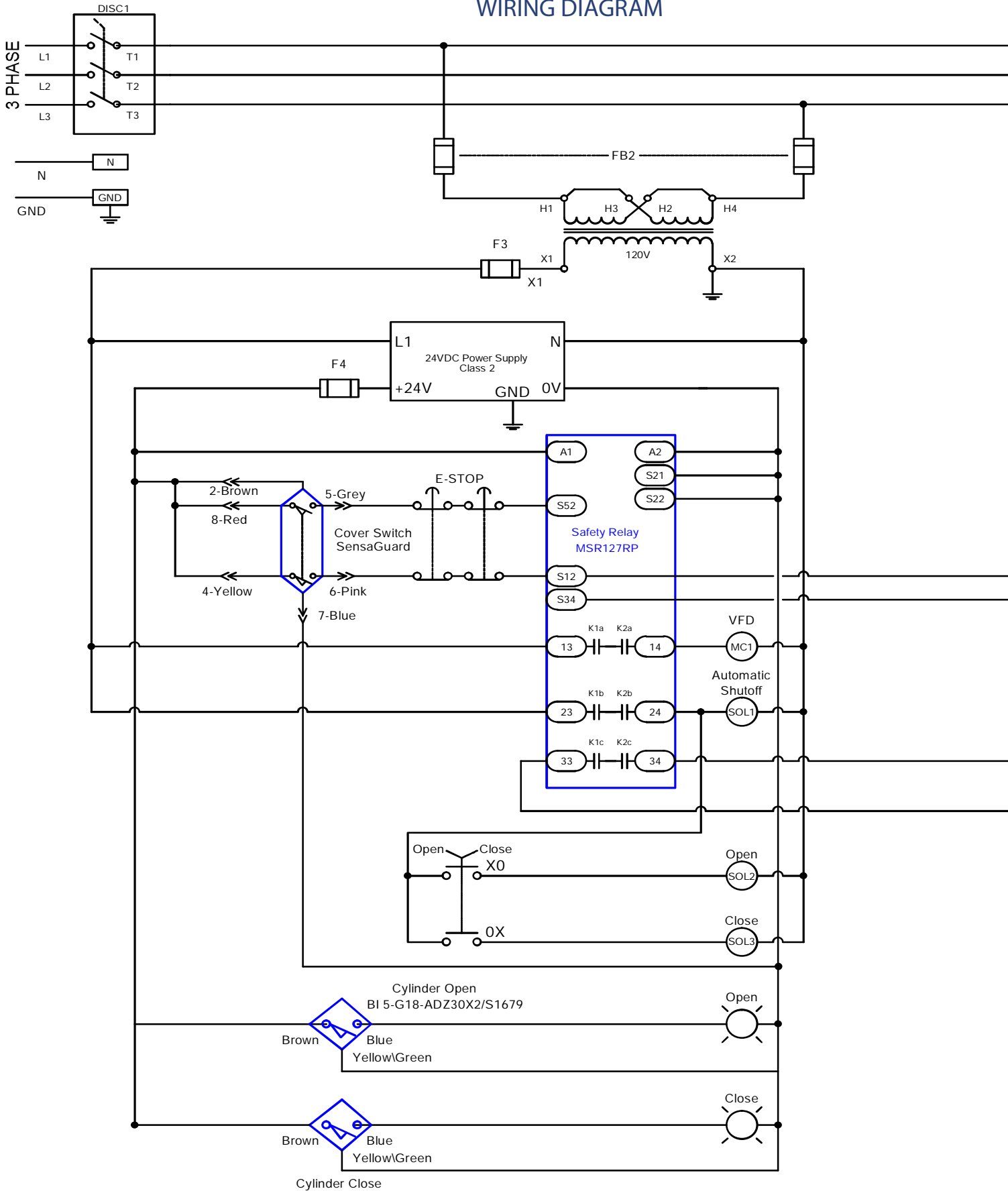
FLOW RATE - 6000 SERIES

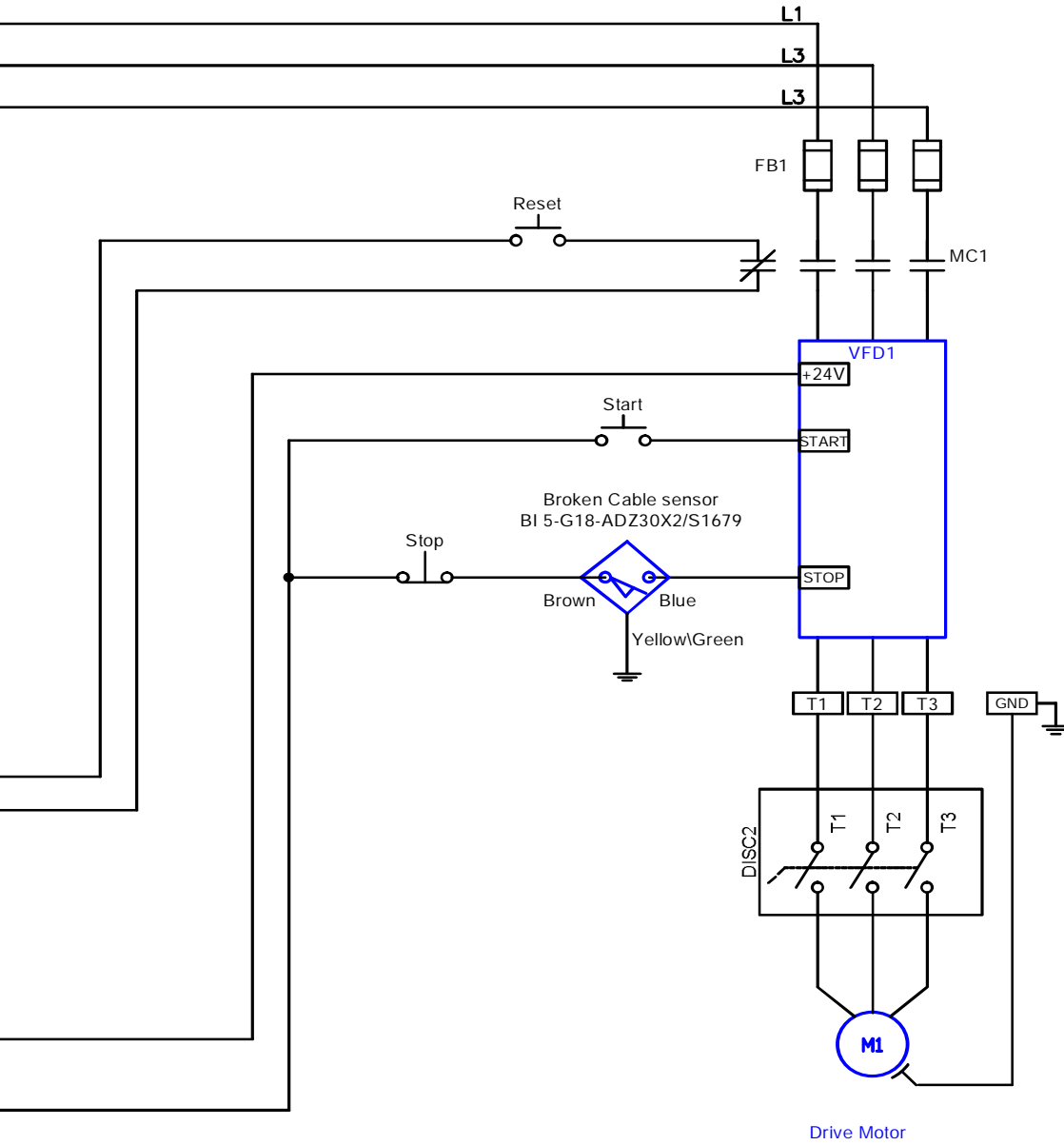
| HZ | Ft / Minute | (M / Minute) | Ft ³ / Hour | (M ³ / Hour) | Lbs. / Hour* | (Kg. / Hour) |
|------|-------------|--------------|------------------------|-------------------------|--------------|--------------|
| 10 | 24 | (7.32) | 207 | (5.85) | 8,267 | (3,750) |
| 20 | 47 | (14.33) | 413 | (11.70) | 16,534 | (7,500) |
| 30 | 60 | (18.29) | 620 | (17.56) | 24,800 | (11,249) |
| 40 | 80 | (24.38) | 827 | (23.41) | 33,067 | (14,999) |
| 50 | 100 | (30.48) | 1033 | (29.26) | 41,334 | (18,749) |
| **60 | 140 | (42.67) | 1240 | (35.11) | 49,600 | (22,498) |

*Based on 40lbs/ft³ (18.14Kg/ft³)(640.74Kg/m³)

**Max speed

WIRING DIAGRAM





NOTE: Contactor must be redundant or "properly sized". Contacts must be mechanically linked.

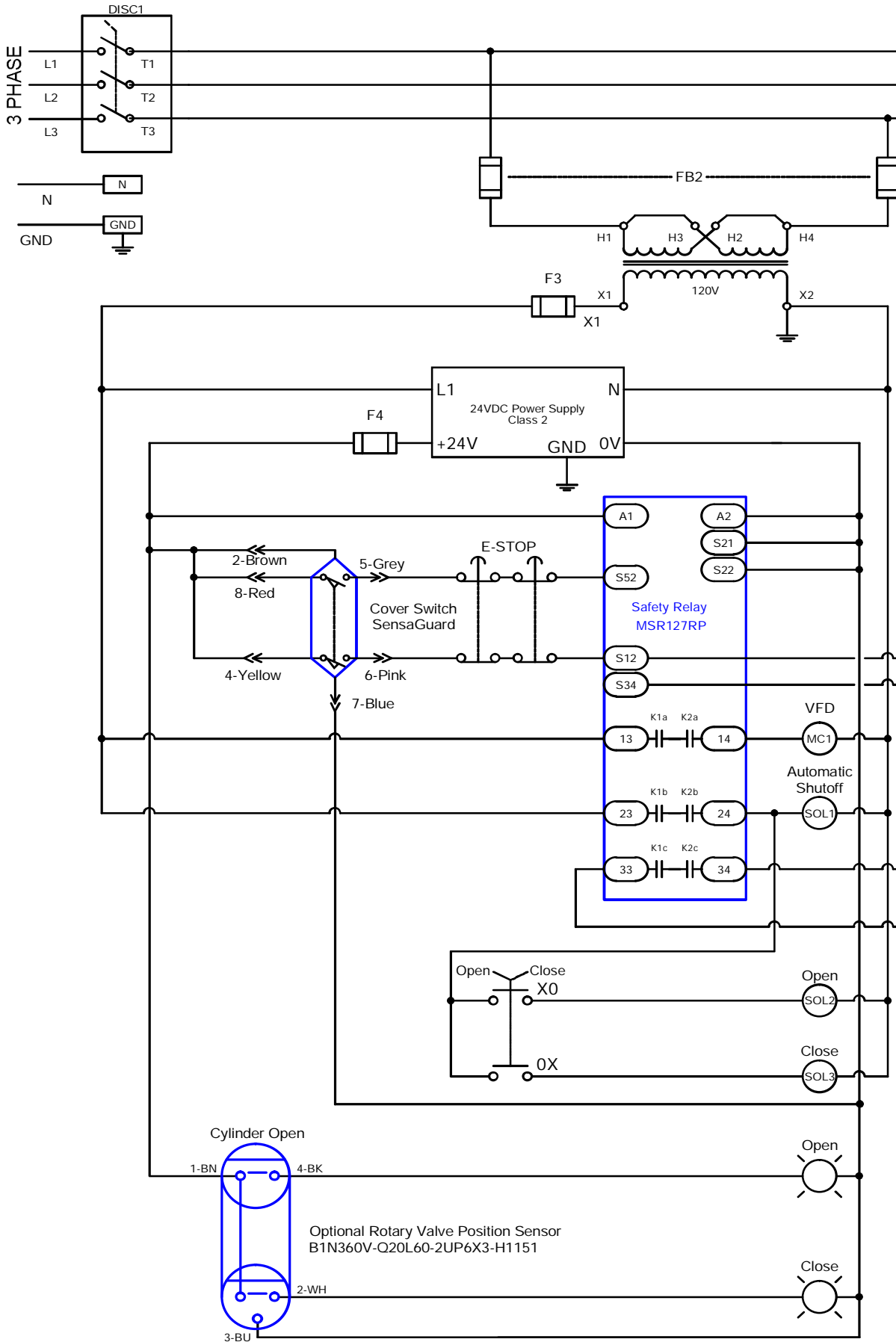
NOTE: Refer to VFD's installation manual for proper supply and motor power cable and fuse sizing.

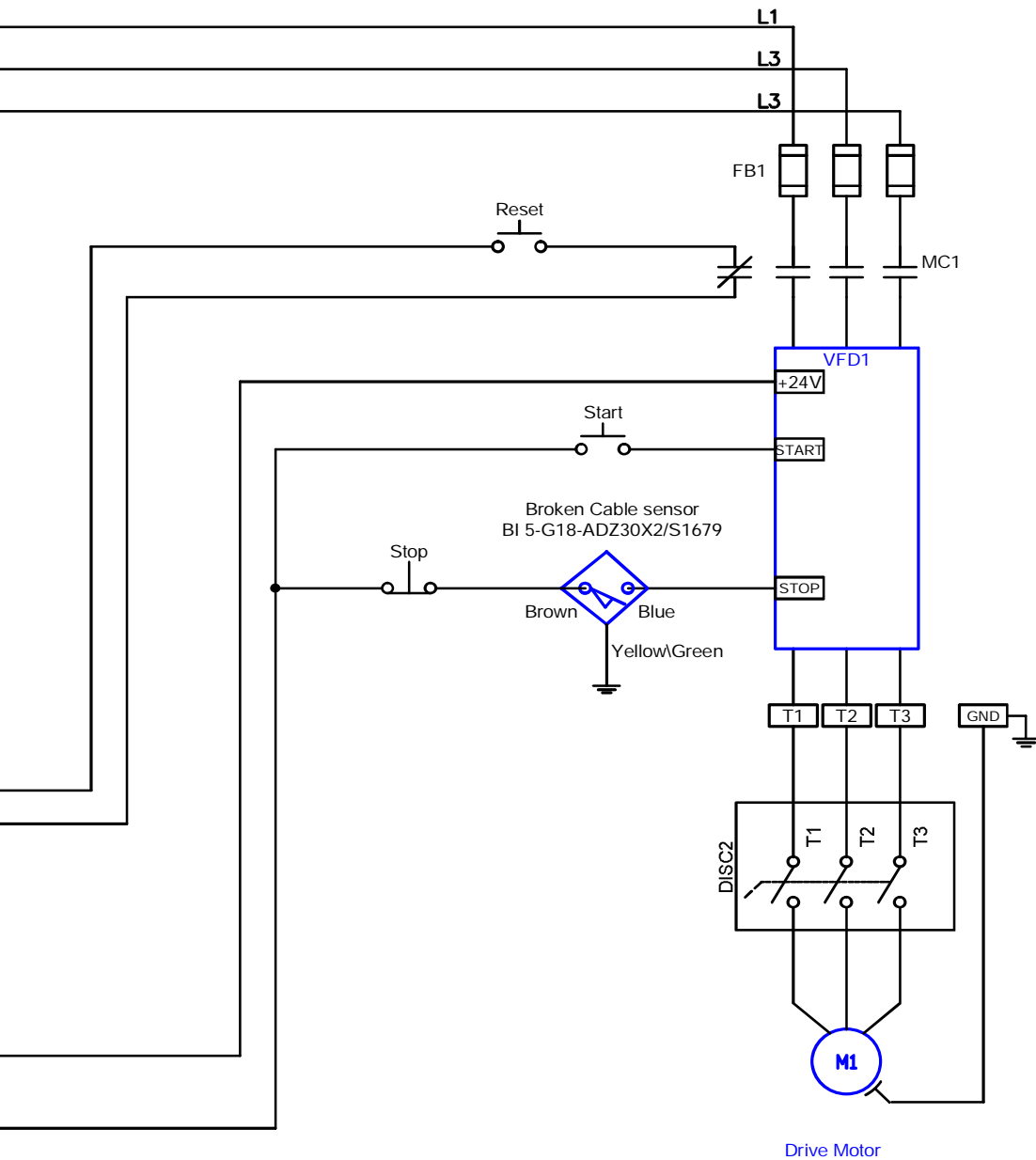
NOTE: Verify that the drive is in STOP mode before disconnecting motor

WIRING DIAGRAM
 Rev. B 2/28/2012
 Print #02273

ELECTRICAL INSTALLATION
 Drawing Number: 02273InstallationVersion

- CUSTOMER PROVIDED
- CABLEVEY PROVIDED





NOTE: Contactor must be redundant or "properly sized". Contacts must be mechanically linked.

NOTE: Refer to VFD's installation manual for proper supply and motor power cable and fuse sizing.

NOTE: Verify that the drive is in STOP mode before disconnecting motor

WIRING DIAGRAM
 Rev. B 2/28/2012
 Print #02273A

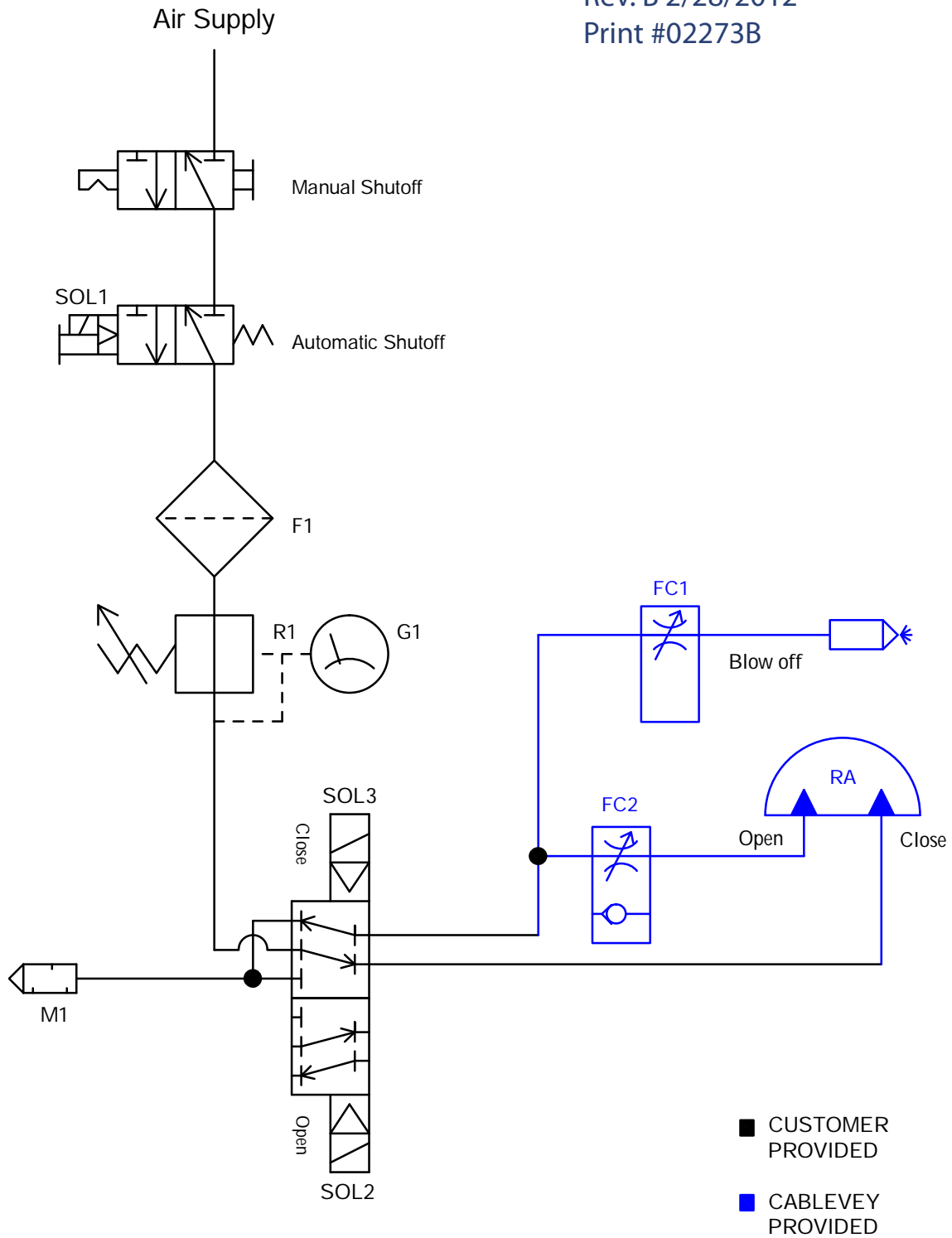
ELECTRICAL INSATLLATION
 Drawing Number: 02273A Installation Version

- CUSTOMER PROVIDED
- CABLEVEY PROVIDED

PNEUMATIC DIAGRAM

Rev. B 2/28/2012

Print #02273B



Pneumatic Diagram

Drawing Number: 02273PneumaticDiagram

Electrical data

1. Electrical connections
 - The connected load is specified according to customer and country of use.
 - Electrical connections are not supplied by Cablevey. It is recommended that the end user contact a qualified electrician to select proper conductors and conductor sizes.
2. Maintenance switch
 - Install a maintenance switch near the drive unit and turnaround unit.
3. Soft start
 - It is recommended to add an electrical soft starter as a start up aid.
4. Emergency stop buttons
 - Add per customer and country of use.
 - If the Emergency stop is triggered, the system stops
 - Trigger an Emergency stop only if there is risk of injury or damage to equipment.
 - DO NOT use for normal shutdown procedure.
5. Altitude guide
 - Due to the low air density at high installation altitudes, heat dissipation on the surface of motors and gear units decreases. Installation altitudes of more than 1000 m asl must be taken into account for project planning of gear units and gearmotors.

Transport

MODEL - 4100, 4200, 4300, 6100, 6200 & 6300

Check the shipment

- Check the delivery to the shipping invoice
- Report missing parts to Cablevey Conveyors
- Report damaged parts to Cablevey Conveyors

Intermediate storage

- Leave components attached to skids(pallets) for ease of transportation
- Leave components in original shipping containers until ready to install
- Store components in a cool, dry place.
- Protect components from the effects of weather.
- Use approved lifting devices to move components over 20 lbs.

Loading and Unloading items

- Components have awkward shapes and can be heavy. Use safe lifting practices to load or unload.
- See section on component weights before loading or unloading.

Moving of system

- Leave components attached to skids(pallets) for ease of transportation
- Leave components in original shipping containers until ready to install
- Use approved lifting devices to move components over 20 lbs.
- Follow all local and federal rules and regulations when using lifting device.

Installation

MODEL - 4100, 4200, 4300, 6100, 6200 & 6300

Site preparation

- Space requirements, floor openings, load bearing surfaces and floor loads are in accordance with separate planning documents.(not supplied by Cablevey) Consult an Engineering firm prior to starting installation.
- Secure the surrounding area, remove any items that could cause a hazard such as a stumble, fall, etc.
- Restrict the assembly area from unauthorized access. Do not allow children, spectators or by bystanders into work area.
- Before starting assembly task, review installation drawing and locate individual components.
- Lay components out in priority of installation.
- Allow ample clearance for performing installation.

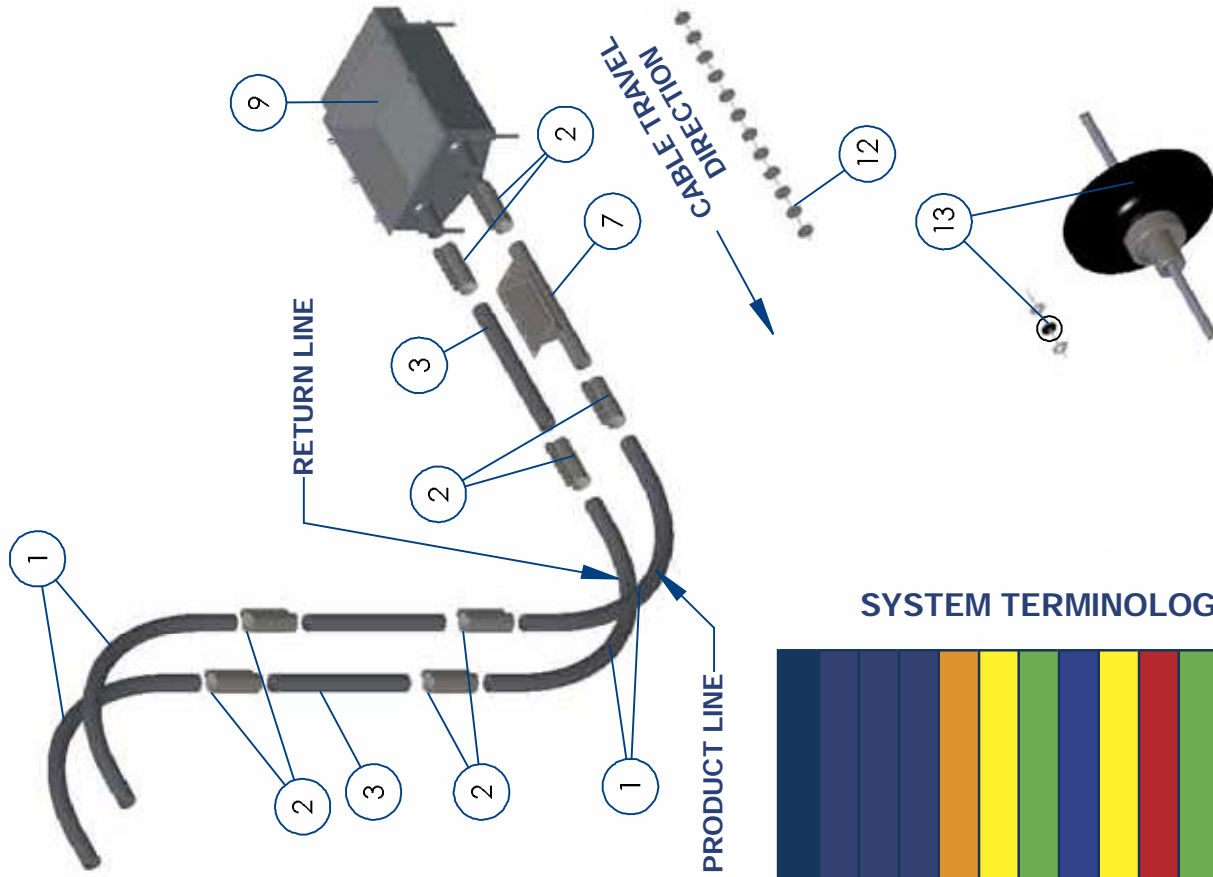
Protective gear (PPE)

Wear appropriate protective gear (PPE). This includes, but not limited to the following:

- Hard Hat
- Gloves
- Protective shoes/boots with slip-resistant soles
- Pants
- Eye protection (safety glasses/goggles)
- Hearing Protection
- Fall protection when required.

Pre installation inspection

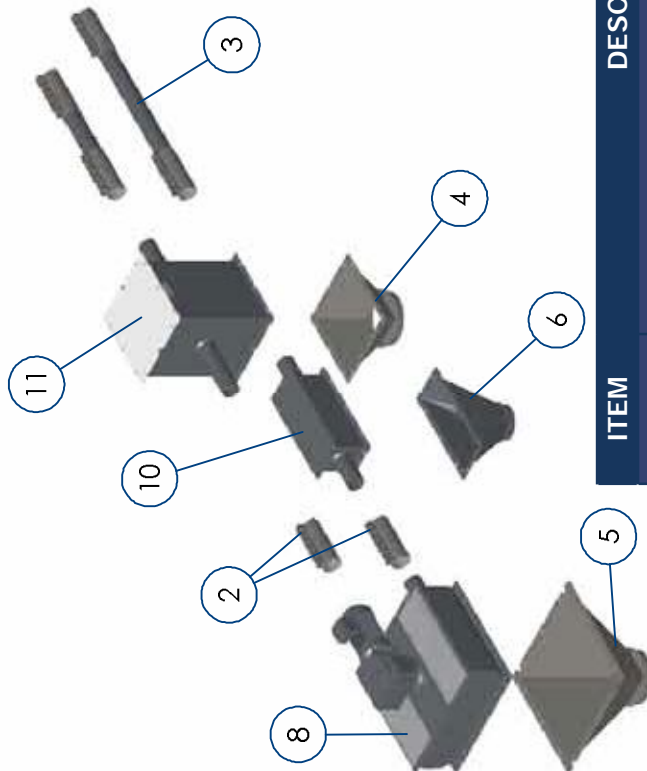
- Check the Drive unit assembly
- Check the Turnaround assembly
- Check the Discharge valve assembly
- Check Tubing for damage
- Check all component ports for damage. Repair if possible



SYSTEM TERMINOLOGY

| ITEM | DESCRIPTION |
|------|---------------------|
| 1 | SWEEP |
| 2 | COMPRESSION COUPLER |
| 3 | TUBE |
| 4 | FUNNEL - BRUSH BOX |
| 5 | FUNNEL - DRIVE UNIT |
| 6 | FUNNEL - DISCHARGE |
| 7 | TRANSITION - INLET |
| 8 | DRIVE UNIT |
| 9 | TURMAROUND UNIT |
| 10 | DISCHARGE |
| 11 | BRUSH BOX |
| 12 | CABLE |
| 13 | CABLE CONNECTOR KIT |

SYSTEM TERMINOLOGY



GENERAL ASSEMBLY

Refer to System Layouts in the following section for the placement of the conveyor components

1. Determine the inlet location(s) and the unit that will introduce the product into the conveyor system. This will be the Gravity fill inlet(7).
2. Determine the outlet location(s) and the unit that will discharge the product from the conveyor system. This will be either the Pneumatic discharge valve (10), Clean out section (10) or the Direct Drive Unit(8).
3. Position the Drive Unit(8), mount or suspend as required.
4. Position the Turnaround(9), mount or suspend as required.
5. Position Brush Box (11), mount or suspend as required.
6. Install Tubing one section at a time.
 - a. The tube end cuts should be cut square
 - b. Remove the sharp edges and burrs on the ends.
 - c. Hold the tube straight and the ends together while installing compression couplers.
 - d. **DO NOT WELD.**
7. Install at least one inspection section in the product tube line after the inlet(s)
8. Use Compression Couplers (2) to attach sweeps to the line tubes. Remove any sharp edges or burrs from the ends of the tubes and hold the ends together while clamping. **DO NOT WELD.**
9. Have a certified electrician wire the motor and switches. Note the direction of cable travel and wire electric drive motor accordingly. **LOCK OUT/TAG OUT** system once wiring is complete.
10. Use a spring steel "Fish Tape" to pull the Cable (12) into the conveyor circuit.
11. Splice the cable ends with Cable Connector kit(13).
12. With all safety components in place(shields, grates, covers and wiring) operate the conveyor empty for a few minutes. Observe the Cable and Cable Connector travel through the Direct Drive and Turnaround sprockets for proper engagement. The cable should move smoothly through the sprockets.
13. Put product into the conveyor slowly and adjust the product level in the tube to about 80%. This is considered full.

COUPLING SYSTEM COMPONENT

FUNCTION - COMPRESSION COUPLERS

The compression coupler joins tubing to tubing, tubing to port or port to port together. The seam comes together in the middle of the gasket lined coupler. This band type of construction holds the two surfaces of the joint in uniform compression.

INSTALLATION - COMPRESSION COUPLERS

1. Be sure outside surface of pipe is dry, and free of dirt, grease or external burrs. (Burr & jagged pipe ends can cut gasket: dirt and grease can cause slippage.)
2. Make sure gasket and/or gasket protector teeth mesh and do not overlap.
3. Grounding strip is required.(6)
4. Loosen all the nuts(4) but do not remove the nuts(4) on coupler. Then slide the coupler over one of the components that are to be joined making sure to leave the joint exposed and the grounding strap(4) remains between gasket and tubing.
5. With the coupler slid back and the joint exposed, align the component joints making sure the seam is flush.
6. Now with a flush joint, slide the coupler over the joint splitting the coupler equally on both sides of the joint. Once in place snug the coupler nuts (4) (starting from the outside and working to the middle) to hold the connection in place.
7. Finish the joint by tightening the nuts (4) to the correct torque specification shown below in chart T-C. Starting with the two outside nuts and alternating between the sides of the joint, working in, torque the nuts(4).


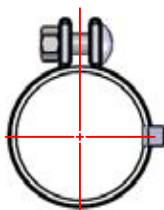
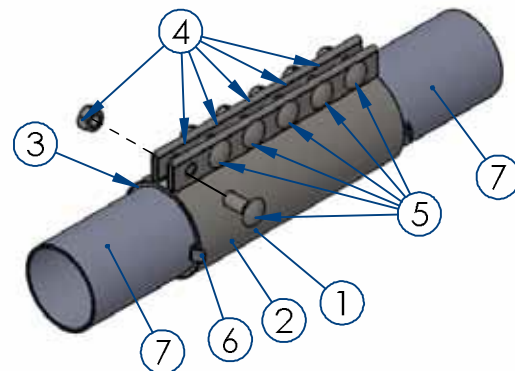
 When installing couplers to other components allow a removal distance of $B=(A/2)+1$.
Where A is equal to the length coupler.
Where B is recommended distance to the next closest components.

Chart T-C

Compression Coupler Torque


| Bolt Size | Ft-lbs | N-M |
|-------------|--------|-----|
| 5/16" (.43) | 12 | 16 |
| 1/2" (.50) | 45 | 61 |
| 5/8" (.63) | 65 | 88 |
| 3/4" (.75) | 95 | 129 |



Coupling Ready to Install



Coupling Fully Tightened

 Do not attempt tightening bolts to flatten flange faces together as this exceeds recommended limits.

| ITEM | DESCRIPTION |
|------|------------------------------|
| 1 | COUPLER (includes 2-6) |
| 2 | COUPLER BODY |
| 3 | COUPLING GASKET(IF EQUIPPED) |
| 4 | COUPLER NUTS |
| 5 | COUPLER BOLTS |
| 6 | GROUNDING STRAP |
| 7 | SYSTEM COMPONENTS |

TUBING INSTALLATION

FUNCTION - TUBING

The tubing provides an enclosure for the cable with discs and conveyed product. The tube connects the drive, turnaround, brush box, discharge valve, sweeps and all other components. By design, the system tubing can be installed on any angle from horizontal to vertical.

INSTALLATION - TUBING

1. Before installing conveyor tubes inspect tubes for dents or other damage that could affect system operation.
2. All tubes must be cut square. (B)
3. De-burring inside and out is required to achieve an acceptable joint. (A)
4. Ports(tubing welded or bolted to other components) are shipped with a factory finished edge and are ready to be assembled.
5. After the tube has been cut and de burred but before positioning the tube. Place one compression (C) coupler on each end. Position the coupler 10" (254 mm) from the end and tighten one nut(3) to required torque.
6. Install tube into final position making sure the seam is flush all around.
7. With tube in position loosen the nuts(3) that were tightened in step 5 on coupler.
8. With a flush joint, slide the coupler over the joint positioning the coupler equally on both sides of the joint. Once in place snug the coupler nuts (1), start with the two outside nuts(1) and work towards the middle. Snugging will hold the connection in place.
9. Finish the joint by tightening the nuts (1,2,3) to the correct torque specification. Start with the two outside nuts and work inwards to the middle.(1,2,3)
For correct torque see chart T-C.

**DE-BURR EDGES
AFTER CUT**

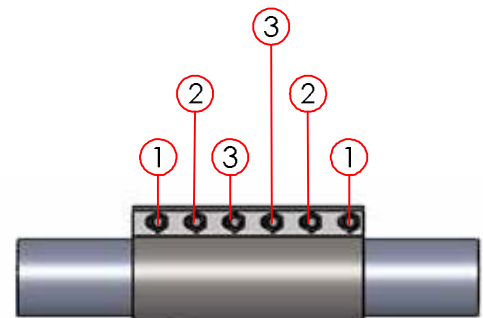
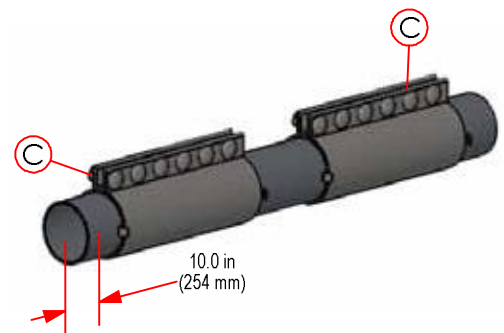
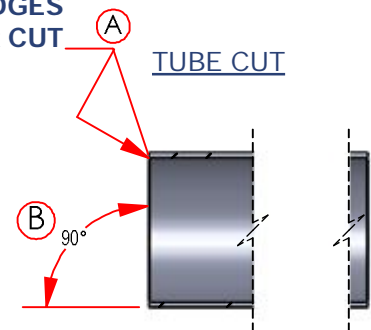


Chart T-C

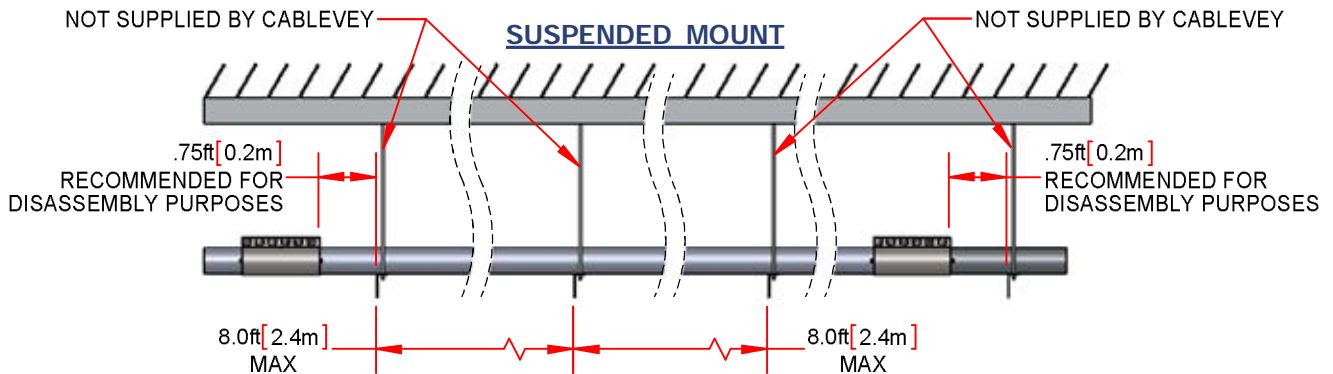
Compression Coupler Torque

| <u>Bolt Size</u> | <u>Ft-lbs</u> | <u>N-M</u> |
|------------------|---------------|------------|
| 5/16" (.43) | 12 | 16 |
| 1/2" (.50) | 45 | 61 |
| 5/8" (.63) | 65 | 88 |
| 3/4" (.75) | 95 | 129 |

TUBING INSTALLATION - SUSPENDED MOUNTING

INSTALLATION - SUSPENDED MOUNTING PARALLEL RUN

1. Tube supports p/n# C00276SS(6"), C00145SS(4") are supplied with the system. Tube supports includes brace and U-bolt.
2. Locate system routing and determine location of supports.
3. Install support brackets, uni-strut, beam clamps, etc that will support system.
4. Securely fasten support brace to support.
5. Install system tubing.
6. Adjust support brace as needed to eliminate any stress to tubing.
7. Install U-bolt around tubing and connect to support brace.
8. Tighten the nuts to the recommended torque in the hanger torque chart below. Overtightening the U-bolt may result in poor system performance.
9. Tube supports are required at every joint (compression coupler). Offset support a minimum of 7 in (177.8 mm) to allow for disassembly. See layout example below.
10. Support system at a maximum of every 8 ft (2.4 M).



U-Bolt Torque

| U-Bolt Torque | In-lbs | N-M |
|---------------|--------|------|
| 4" (101.6) | 40 | 4.51 |
| 6" (152.4) | 60 | 6.77 |

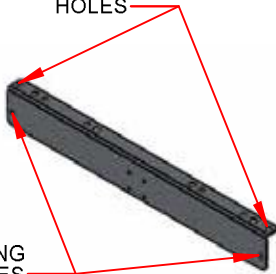
*Installation weights link
See section [Technical Data](#)*

SUSPENDED SUPPORT EXAMPLES

- Tube support (p/n#170026SS) is used to support two tubes running parallel to one another. See assembly steps on how to assembly the different options of vertical and horizontal mounting.
- For a single tube run, use approved tear drop style hangers.
- Use approved supporting products.
- Follow safe installation and engineering practices.
- Make sure not to ob-round or crush tubing.

SYSTEM SUPPORT EXAMPLES

HORIZONTAL MOUNTING HOLES

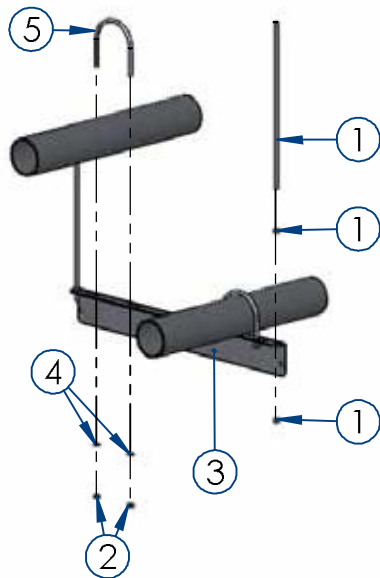


VERTICAL MOUNTING HOLES

Tube support



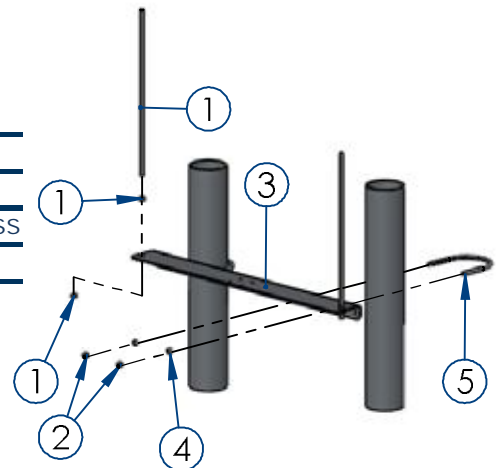
TEAR DROP STYLE HANGER



SUSPENDED MOUNT - HORIZONTAL

TUBE SUPPORT

| # | DESCRIPTION |
|---|---------------------------|
| 1 | SUPPORT |
| 2 | NUT |
| 3 | TUBE SUPPORT-P/N#170026SS |
| 4 | LOCK WASHER |
| 5 | U-BOLT |

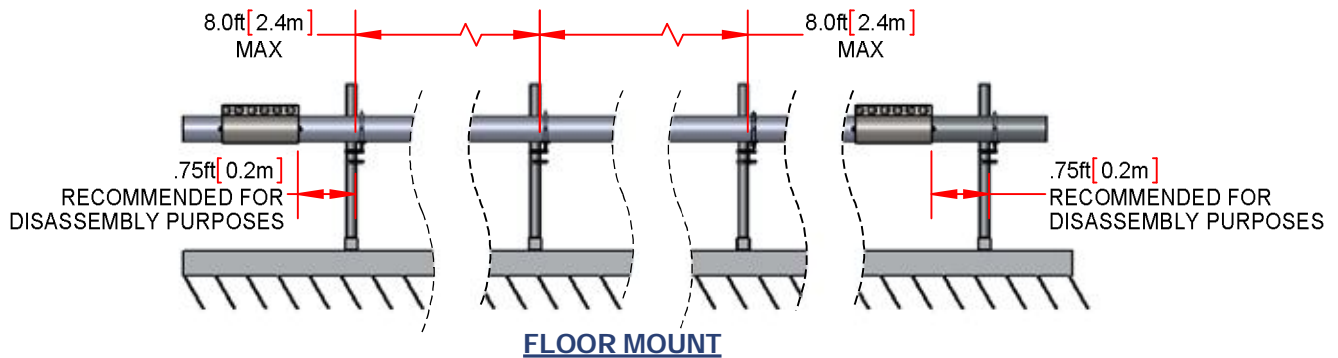


SUSPENDED MOUNT - VERTICAL

TUBING INSTALLATION - FLOOR MOUNTING

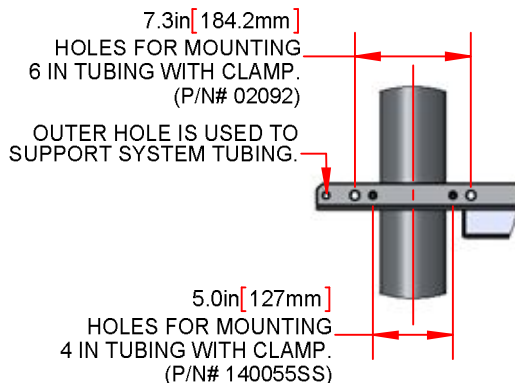
INSTALLATION - FLOOR MOUNTING

1. Once the coupler has been installed now install tube support.
2. Tube supports p/n# C00277SS(6"), C00144SS(4") are supplied with the system.
3. With the tubing at rest and no loading is on the tube, adjust the tube support up or down depending on the location to support the bottom of the tube. With the tube supported, tighten the clamps (1) to hold tube support in place.
4. With the system tubing now supported, install the U-bolt around the tube and secure into place. See layout below for instructions on which set of holes are to be used for each size of U-bolt on the tube support.
5. Tighten the nuts to the recommended torque in the U-bolt chart below. Overtightening the U-bolt may result in poor system performance.
6. Tube supports are required at every joint(compression coupler). Offset support a minimum of 7 in(177.8 mm) to allow for disassembly.
7. Support system at a maximum of 8 ft(2.4 M).

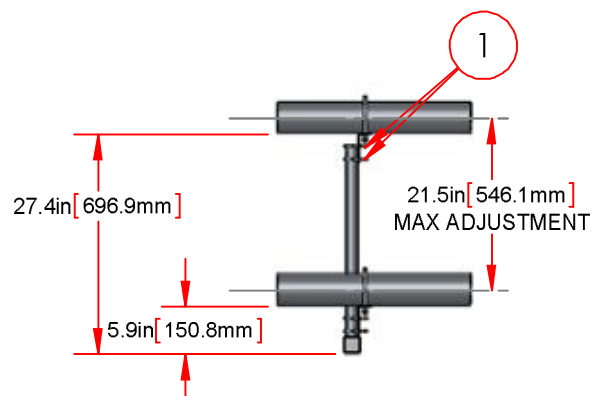


U-Bolt Torque

| U-Bolt Torque | In-lbs | N-M |
|---------------|--------|------|
| 4" (101.6) | 40 | 4.51 |
| 6" (152.4) | 60 | 6.77 |



U-BOLT LAYOUT



FLOOR MOUNT ADJUSTMENT

SWEEPS

FUNCTION - SWEEPS

The sweep is used to alter the direction of the cable and product travel in a conveyor system. While the product is changing direction, little if any damage occurs to the product as the sweep transition is slight and gradual. Sweeps are available in many angles from 0-90 degrees.

INSTALLATION - SWEEP

1. Before installing sweep, inspect the sweep for damage. The sweep should have square cuts and be free of dents.
2. Check the ends for roundness, sharp edges and burrs before attaching the coupler. File the ends to eliminate sharp edges and burrs.
3. The tube attaches to the sweep tangents (straight leg) with compression couplers. Sweep tangents are the straight, round sections, that the compression couplers clamp to.
4. Loosen the coupler bolts, then slide half the compression coupler over the sweep. Next place the tubing in the remaining coupler half.
5. Assure that the tube and sweep ends touch and that they are held squarely while the compression coupler is installed. Gaps between the sweep and other system components need to be eliminated before compression coupler is tightened. Torque compression Bolts to required torque. See chart T-C for torque.
6. For proper installation of coupler see Coupling System Components

Chart T-C

Compression Coupler Torque

| <u>Bolt Size</u> | <u>Ft-lbs</u> | <u>N-M</u> |
|------------------|---------------|------------|
| 5/16" (.43) | 12 | 16 |
| 1/2" (.50) | 45 | 61 |
| 5/8" (.63) | 65 | 88 |
| 3/4" (.75) | 95 | 129 |

 Tip - For sweep weights & dimensions, see section:

4" Sweeps - 4000 series sweep chart

6" Sweeps - 6000 series sweep chart

SAMPLE SUPPORTED SWEEP



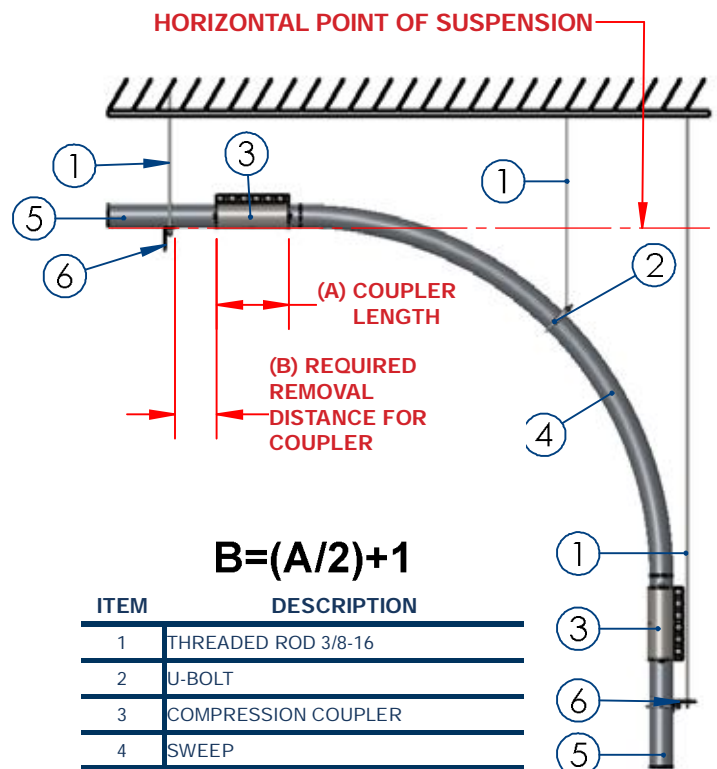
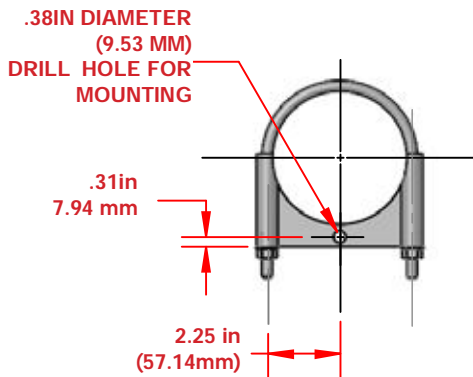
SWEEPS

SWEEP SUPPORT

1. To give the support to the sweep, use the full circle U-bolt(2). To attach the full circle U-bolt(2), either slide it over the end of the sweep before attaching the coupler(3) or remove the bolts.
2. Attach the U-bolt(2) to the sweep below the horizontal point of suspension and replace bolts. Tighten bolts so the full circle U-bolt is snug around the sweep. see example - Sweep Support
3. To support the joint of the coupler, add suspended tube support(6). When installing suspended tube supports use the formula below $B=(A/2)+1$ to find the edge of the support. This will aid in installation and component replacement.

U-Bolt Torque

| U-Bolt Torque | In-lbs | N-M |
|---------------|--------|------|
| 4" (101.6) | 40 | 4.51 |
| 6" (152.4) | 60 | 6.77 |



$$B=(A/2)+1$$

| ITEM | DESCRIPTION |
|------|------------------------|
| 1 | THREADED ROD 3/8-16 |
| 2 | U-BOLT |
| 3 | COMPRESSION COUPLER |
| 4 | SWEEP |
| 5 | TUBE |
| 6 | SUSPENDED TUBE SUPPORT |



Tip - Drill 3/8" hole before installing.

SWEEP SUPPORT

INSPECTION SECTION WITH GROUNDING KIT

FUNCTION - INSPECTION SECTION

The main objective of the inspection section is to view the product as the system is being conveyed. This can inform the operator of quantity of product and quality of product being conveyed.

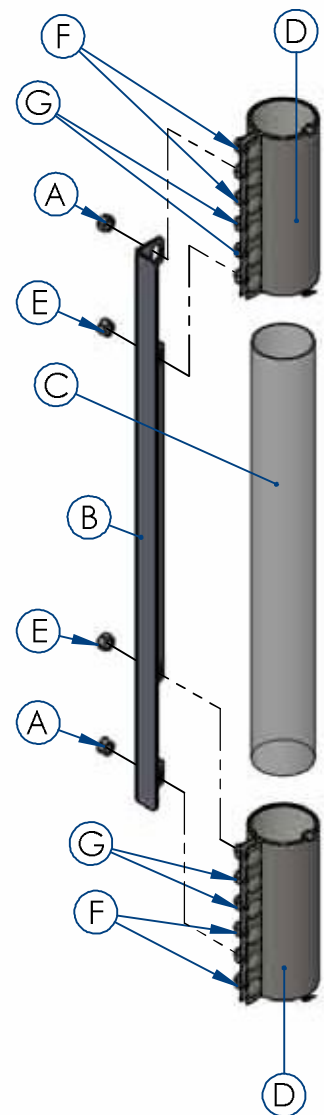
INSTALLATION - INSPECTION SECTION

1. Remove nuts (A) and (E) from couplers.
2. Install part (B) (P/N#170027SS). Re-install nuts that were removed in step 1 and snug nuts (A) and (E) .
3. After snugging the assembly, double check alignment of components.
4. Torque nuts (E) & (G) (inspection section side) to **20 Ft-lbs (27 N-m)**.
5. Torque nuts (A) & (F) to the torque specification from the chart T-C.

Chart T-C

Compression Coupler Torque

| <u>Bolt Size</u> | <u>Ft-lbs</u> | <u>N-M</u> |
|------------------|---------------|------------|
| 5/16" (.43) | 12 | 16 |
| 1/2" (.50) | 45 | 61 |
| 5/8" (.63) | 65 | 88 |
| 3/4" (.75) | 95 | 129 |



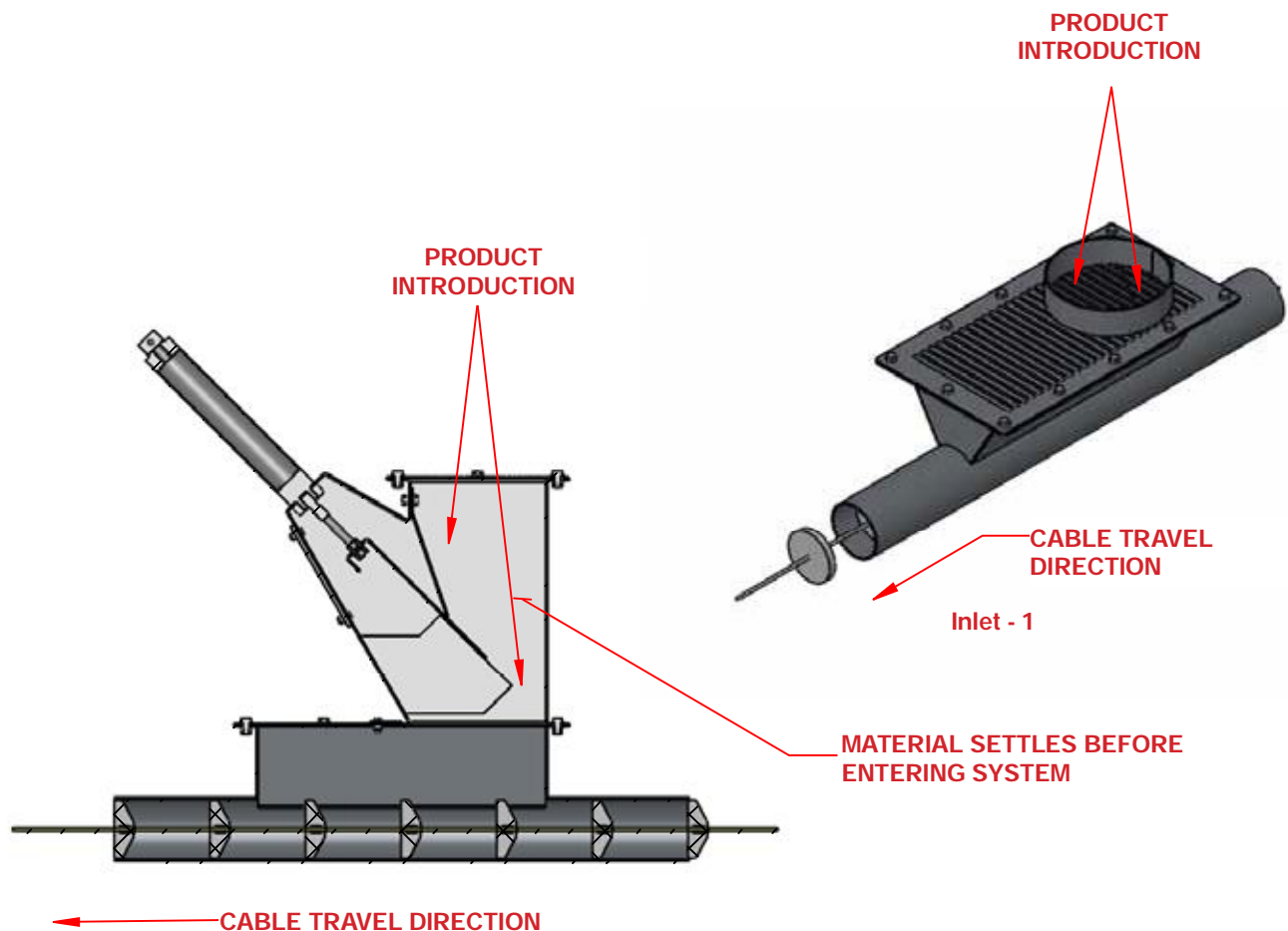
INLET

FUNCTION - INLET

The gravity fill inlet is a transition for product to flow from the source (i.e., silo, mill, bag dump station) into the conveying system. The product must be **metered** into the system to prevent system plugging and overloading. Common metering methods are vibratory conveyors, slide gates and rotary air locks.

INSTALLATION - INLET

1. Placement of the inlet is determined by where the product is to enter the conveyor system.
2. Product should be introduced at the same end the cable enters the inlet. See figure Inlet - 1
3. Compression couplers are used to connect the inlet to other system components, such as tubes, sweeps, drives, turnaround, etc. See coupling tubes for more details on coupling of the components.
4. Inlets are shipped with factory finished edges and do not require any cutting. They are ready to be coupled to the next component.

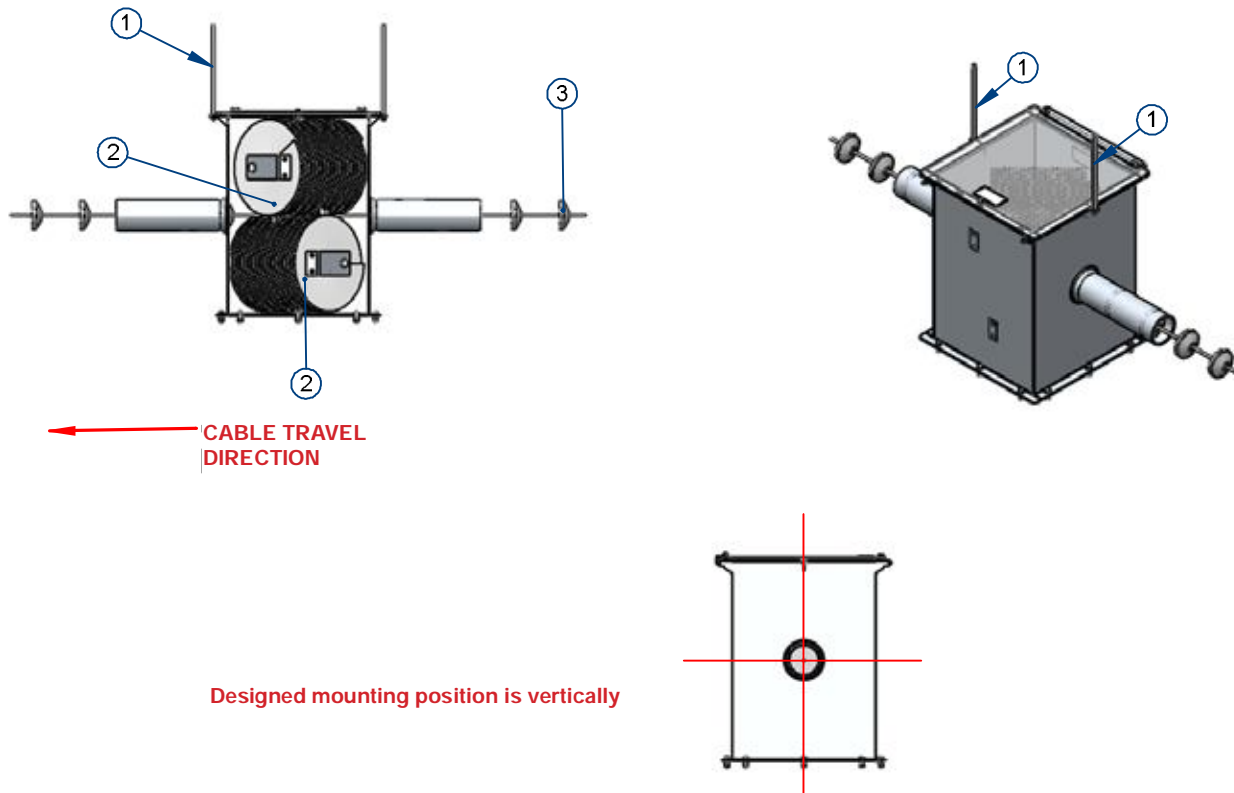


BRUSH BOX**FUNCTION - BRUSH BOX**

A Brush box is used to reduce material buildup on cable and discs. As the cable and discs(3) are being pulled through the brush bristles(2) loosen build up. This material is allowed to exit the system through the bottom of the brush box. In some extreme cases an air knife may be required to assist with removing loosened material from the discs.

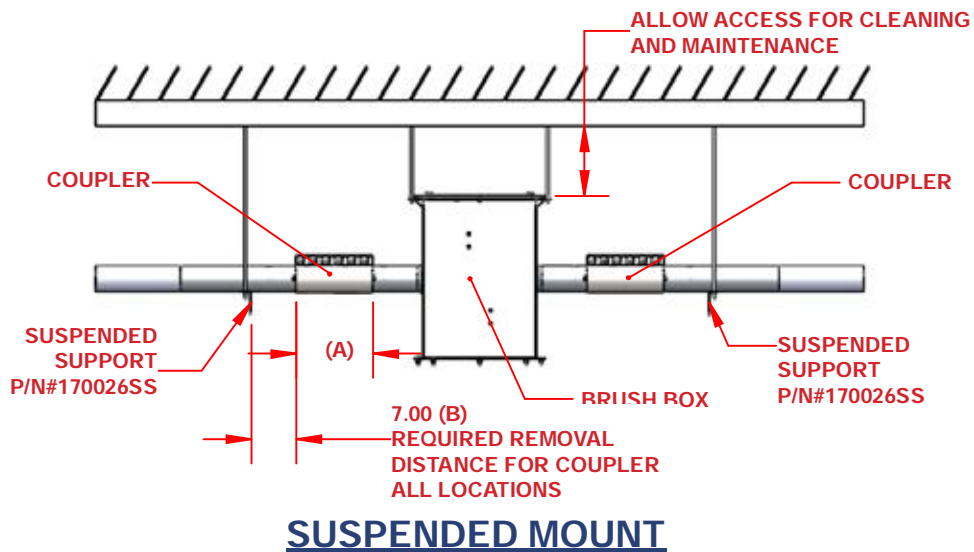
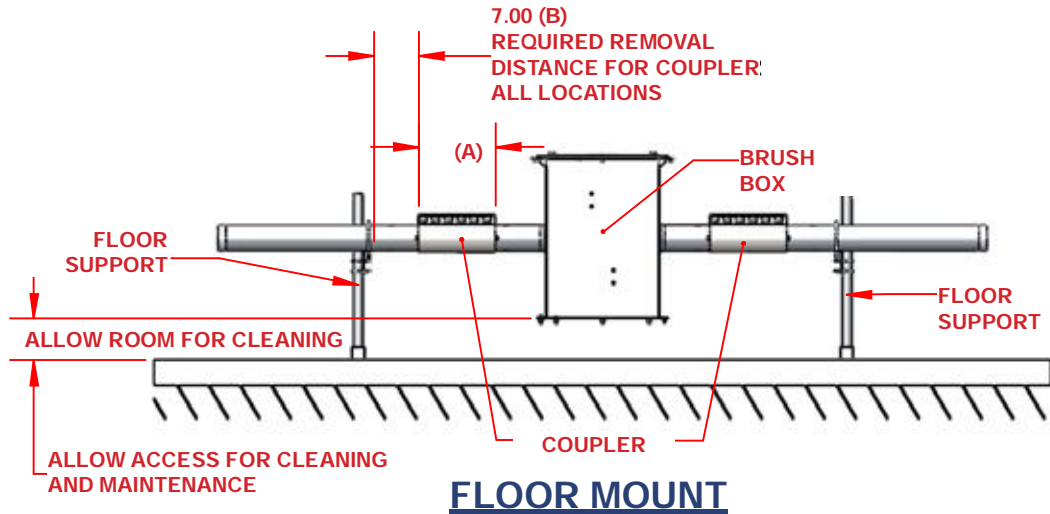
INSTALLATION - BRUSH BOX

1. The most ideal location for the brush box is after the final discharge point and before the drive unit. If the drive unit is being used as a discharge point, then the brush box can be located on the return line.
2. Couplers are used to attach the brush box to other system components.
3. Brush boxes can be suspended or floor mounted depending on system layout.
4. Brush box frames come assembled and are ready to be installed into the system.
5. When installing brush box, support close to the brush box frame and joint to ensure good support.
6. When installing brush box keep in mind access to the bottom for maintenance and cleaning.
7. The brush box is intended to be mounted vertically, however it may be mounted at an angle if needed. Keep in mind the angle of repose of the product being conveyed.



BRUSH BOX

SUPPORT - BRUSH BOX



DISCHARGE VALVE ASSEMBLY

FUNCTION - DISCHARGE VALVE ASSEMBLY(DVA)

The Pneumatic Discharge Valve Assembly is used as the transition from the tube to the desired discharge location. It is equipped with air actuator which positions an inner tube to allow product to be conveyed through the valve or rotates the tube to allow product to be discharged out of the bottom of the valve. Multiple valves may be joined end to end or located throughout the conveyor system

INSTALLATION - DISCHARGE VALVE ASSEMBLY(DVA)

1. Determine where the product is to be delivered and place the DVA in the conveyor line above that location. Often a downspout or funnel will be attached to the discharge flange to funnel the product into a holding bin, mill, bagging station, etc.
2. The DVA is shipped with factory finished edges. Join the tube ends with matching tubes by holding them together in line and clamping them with compression couplers.
3. Attach facility air supply to inlet port (7) on air actuator on the DVA. See system diagram section for plumbing instructions.

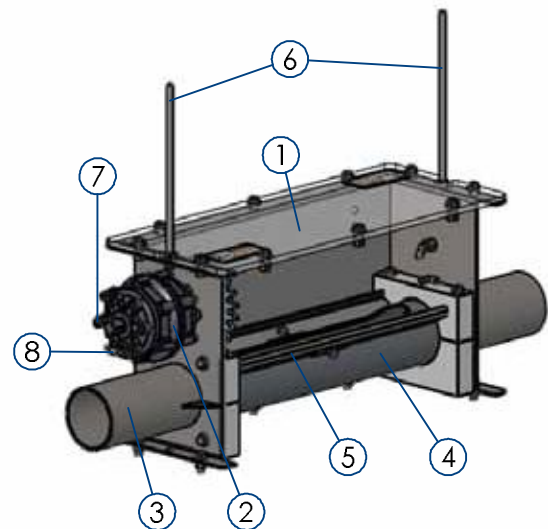
The DVA actuation is tested at the factory with 90 psi(.62 MPa). This setting may need to be adjusted once the DVA has been installed depending on the facility air system and system location.

AIR ACTUATOR REQUIREMENTS

| | | |
|--------------------|-----------|-------------|
| Operating Pressure | 150 PSI | (1.03MPa) |
| Max Pressure | 220 PSI | (1.51 MPa) |
| Ambient Temp | 40-140 F | (5-60 C) |
| Consumption* | .0025FT/3 | (.07 LITER) |

*Required to operate one cycle(Open then Close) @ 87 PSI (.6 MPa)

4. To adjust air flow to actuator (7) use the pneumatic flow control valve(8). While actuating the tube valve assembly(4) increase or decrease the air flow as needed using the pneumatic flow control(8). A smooth, steady action is desired.



Tip - No load to ports is allowed as it will bind the rotary tube (4). Ports need to be parallel to prevent binding of rotary tube(4).

DRIVE UNIT

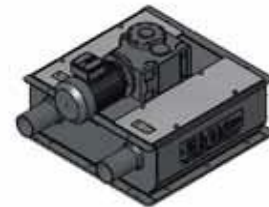
FUNCTION - DRIVE UNIT

The Drive Unit is the mechanism that pulls the cable through the system. The cable is pulled through the drive unit by a sprocket driven by an electric gear motor. The Drive Unit motor is bidirectional and can enter or exit through either port.

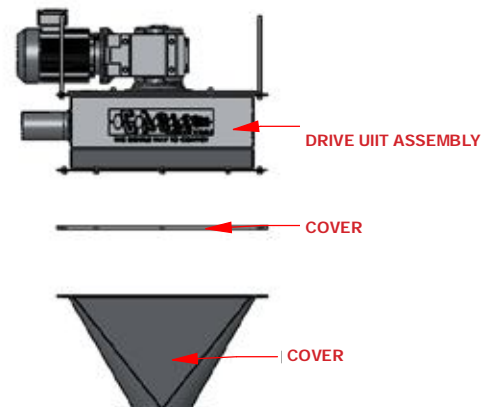
As there is no tensioning device on this unit, it must be used in conjunction with a turnaround unit.

INSTALLATION - DRIVE UNIT

- The Drive Unit is installed at one end of the conveyor.
 - The Drive Unit is one of the first items to be installed.
 - There is only one Drive Unit required per system.
 - The Drive Unit can be used as the final discharge point of any system.
 - Product cannot be conveyed through the drive unit.
 - The Drive Unit can be suspended from the ceiling or base mounted from the floor and mounted horizontally(flat), vertically(on edge) or at any angle. If mounting on an angle, the gearbox fluid level and vent may require adjustment. See SEW owners manual for more details about mounting on angle.
 - When installing Drive Unit it is recommended to allow accessibility for maintenance and for cleaning. See suspended mount diagram.
1. Locate the position of the Drive Unit. When selecting the location, allow accessability for maintenace and cleaning of motor.
 2. Secure Drive Unit into place.
 3. Attach tubing to the Drive Unit. Do not preload joint.
 4. Connect tubing and Drive Unit together by using couplers.
 5. If using Drive Unit as discharge, remove cover from bottom of drive.
 6. Secure funnel into place using the provided hardware.

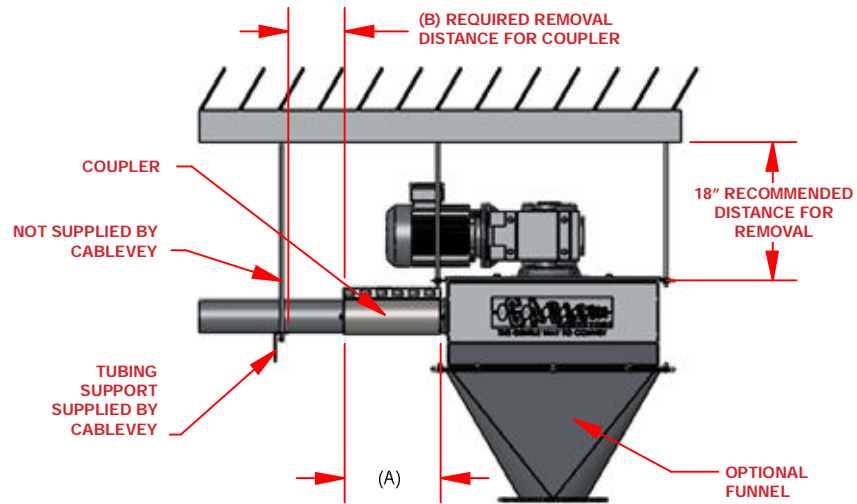


COMPLETE ASSEMBLY

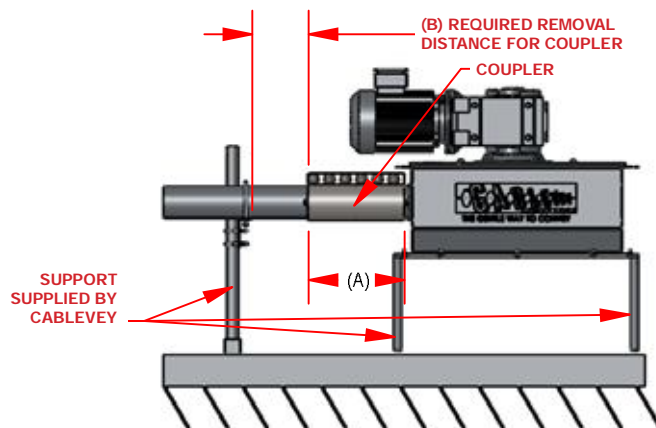


WARNING

DO NOT OPERATE SYSTEM WITHOUT COVER IN PLACE TO RESTRICT REACH IN ACCESSABILITY. ADD GRILLE OR SAFETY COVER TO RESTRICT ACCESS.



SUSPENDED MOUNT



FLOOR MOUNT

TURNAROUND

FUNCTION - TURNAROUND

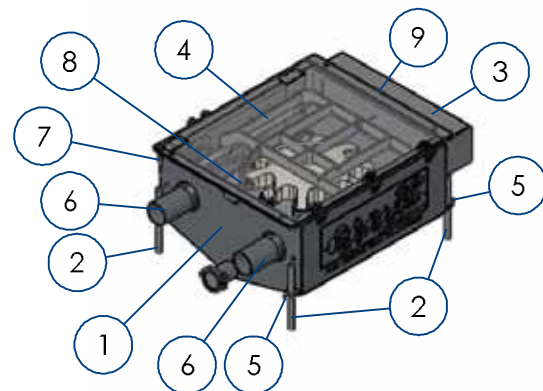
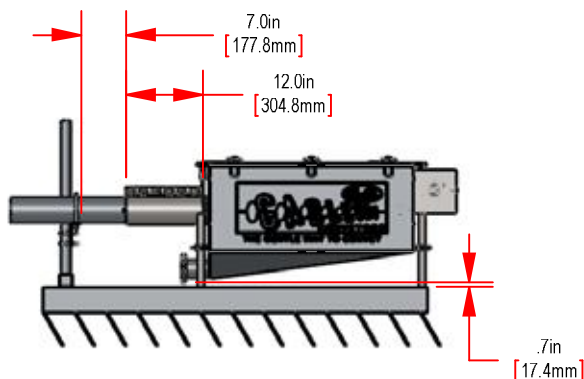
The turnaround is a required component of each system. It serves as an automatic cable tension for the conveyor circuit. It also serves to complete the conveyor circuit by turning the cable 180 degrees in a multi-corner circuit conveyor and parallel tube conveyor. The turnaround is designed to be bidirectional, it cannot be used as a discharge.

INSTALLATION - TURNAROUND

1. Before installing, refer to the dimension section to make sure the required distances are observed for servicing. Pay attention to allow enough room for removal of tension spring cover (3) and the access lid(9).
2. The turnaround unit can be suspended from the ceiling or base mounted from the floor and mounted at any angle.
3. The turnaround is one of the first components to be located. After the Turnaround has been positioned, you can adjust the height of the turnaround with the adjustable legs(2). Once set, then tighten the set bolts(5) to 21ft-lbs (28 N-m).
4. The turnaround ports(6) are shipped with factory finished ports and are ready to be connected to other components.
5. To correctly tension the turnaround system see section on Tensioning Guidelines for specific system style.

See section [System Tensioning \(Internal compression springs, 4100,4200,6100,6200\)](#)

See section [System Tensioning \(External compression springs, 4300,6300\)](#)



TOOTHPICK

FUNCTION - TOOTHPICK

The toothpick is designed to remove product buildup that may occur.

INSTALLATION - DRIVE UNIT TOOTHPICK

1. Adjust toothpick after turnaround has been positioned and after cable has been installed.



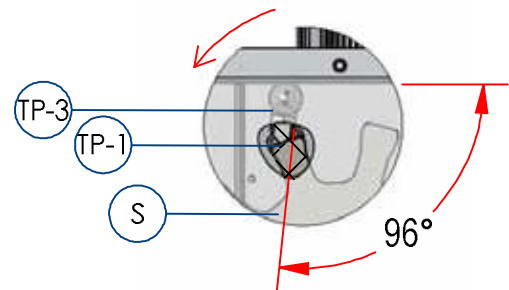
Tip - Check rotation of motor prior to adjusting toothpick.

2. Lock-out /Tag-out system
3. Rotate the toothpick (TP-3) against the rotation of the sprocket (S) until the point (TP-1) of the toothpick lightly touches the cable groove (TP-6) in the sprocket tooth.
4. Tighten nut (TP-2) and jam nut to hold toothpick in place.
5. Remove Lock-out /Tag-out from system.



REFERENCE

SPROCKET ROTATION



INSTALLATION - TURNAROUND TOOTHPICK

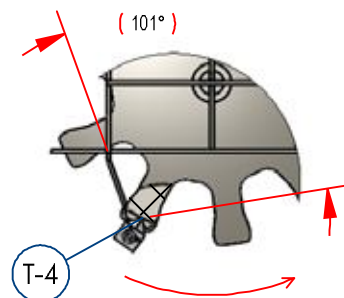
1. Adjust toothpick after turnaround has been positioned and after cable has been installed.



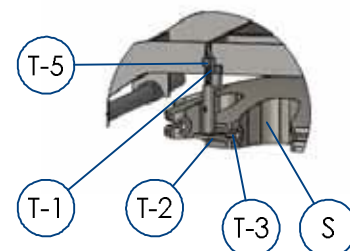
Tip - Check rotation of motor prior to adjusting toothpick.

2. Lock-out /Tag-out system.
3. Open safety cover.
4. Rotate the toothpick (T-2) against the rotation of the sprocket (S) until the point (T-4) of the toothpick lightly touches the cable groove (T-3) in the sprocket tooth.
5. Tighten nut (T-1) and jam (T-5) nut to hold toothpick in place.
6. Close safety Cover.
7. Remove Lock-out /Tag-out from system.

REFERENCE



SPROCKET ROTATION



LIMIT SWITCHES

MODEL - 4100, 4200, 6100 & 6200

FUNCTION - LIMIT SWITCH

The limit switch is designed to SHUT DOWN the system if the Idler Frame is moved outside of a set range of motion. In cases, such as a plugged system due to overloading, or if the cable breaks for any reason. The two types of switches used are (1) a roller switch or (2) a proximity switch.

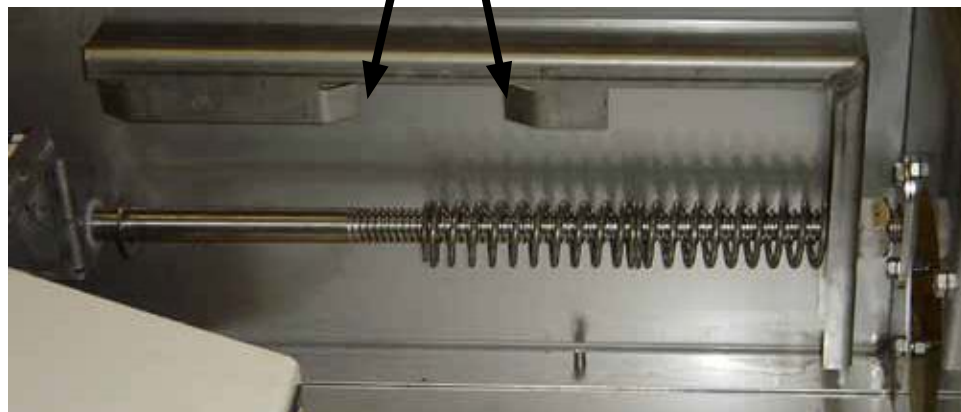
INSTALLATION - LIMIT SWITCH(ROLLER)

1. Before adjusting tension on system, lock out/tag out the system before starting.
2. Remove turnaround access cover.
3. Make sure the cable has been installed and is correctly seated in the teeth of the sprocket on both the drive and turnaround.
4. Using a 9/16in(14mm) socket or wrench, adjust the threaded rod located on the outside of the turnaround frame. Facing the back of the turnaround adjust rods to apply equal pressure on both springs. (Turning clockwise to add tension, counter-clockwise to remove tension) (Do not use impact wrench)
5. To properly tension the cable, the roller switch wheel should be centered between the bent tabs "Operating Zone" shown below.
6. Replace cover and secure into place.
7. Remove lock out/tag out.



ADJUSTMENT ROD

CENTER HERE
BETWEEN TABS



LIMIT SWITCHES**MODEL - 4100, 4200, 6100 & 6200****FUNCTION - LIMIT SWITCH**

The limit switch is designed to SHUT DOWN the system if the Idler Frame is moved outside of an operating zone. In cases, such as a plugged system due to overloading, or if the cable breaks for any reason. The two types of switches used are (1) a roller switch or (2) a proximity switch.

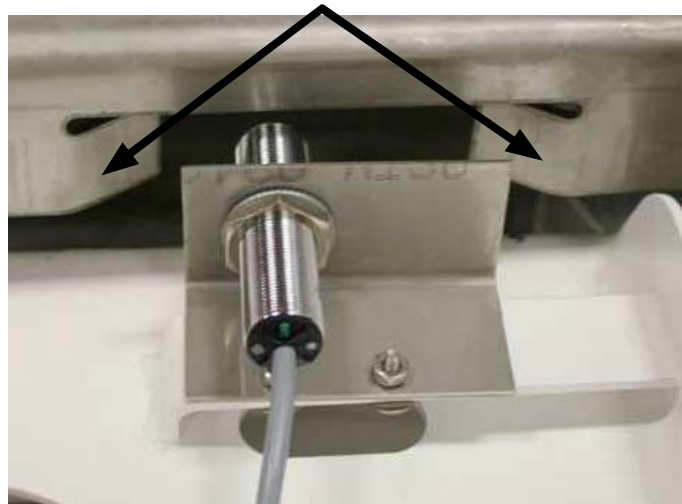
INSTALLATION - LIMIT SWITCH(PROXIMITY)

1. Before adjusting tension on system, lock out/tag out the system before starting.
2. Remove turnaround access cover.
3. The proximity limit switch is mounted to the Idler Frame (see picture below).
4. Loosen jam nuts on barrel of switch. Screw sensor in until it makes contact with the frame face.
5. After making contact back the sensor out 1/4 rotation. This should give approximately 1/16in(1.6mm) gap between the sensor and frame.
6. Secure the sensor in place by tightening the jam nuts with a 15/16“(24mm) wrench or socket.
7. Using a 9/16in(14mm) socket or wrench adjust the threaded rod located on the outside of the turnaround frame. Facing the back of the turnaround adjust rods to apply equal pressure on both springs. (Turning clockwise to add tension, counter-clockwise to remove tension)
8. To properly tension the cable the switch should be centered in the “Operating Zone” as shown below.
9. Replace cover and secure into place.
10. Remove lock out/tag out.

ADJUSTMENT ROD



OPERATING ZONE



MOTION SENSOR

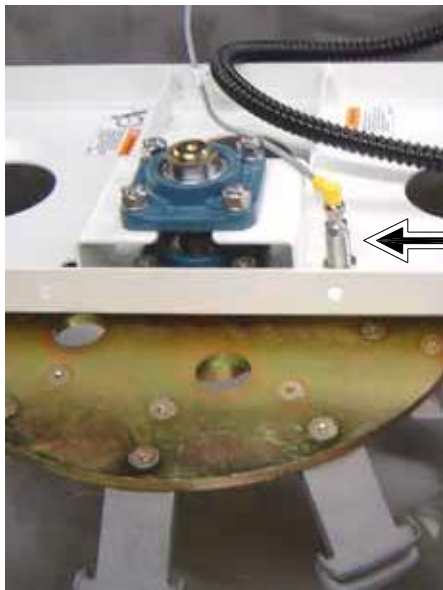
MODEL - 4100, 4200, 6100 & 6200

FUNCTION - MOTION SENSOR METAL SPROCKET

The motion sensor serves as a monitoring device for the system. Sensor can be used to alert the user if the cable has stopped and monitors the system's runtime.

INSTALLATION - MOTION SENSOR

1. Before adjusting motion sensor. Lock out/Tag Out system.
2. Remove access cover on turnaround.
3. With the cover off and the turnaround carriage exposed. With a 15/16 "(24mm) wrench loosen jam nuts.
4. Screw sensor into hole until it makes contact with the idler sprocket face.
5. After making contact back the motion sensor out 1/4 rotation. This should give approximately 1/16in(1.6mm) gap between the sensor and sprocket.
6. Secure the sensor in place by tightening the jam nuts with a 15/16 "(24mm) wrench or socket.
7. Replace cover and secure into place.
8. Remove lock out/tag out.



Motion Sensor

MOTION SENSOR - OPTION

MODEL - 4300,6300

FUNCTION - MOTION SENSOR

The motion sensor (p/n#02296) is designed to sense the movement of the disc within the system. If there is no movement for any reason such as the system being plugged, broken cable, the system can be programmed to shutdown the system based on the customer needs or inputs.

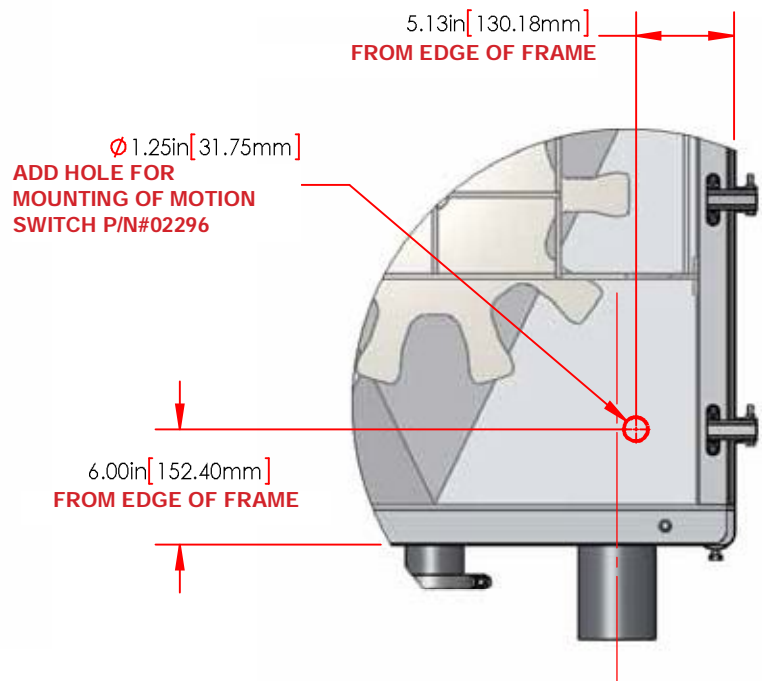
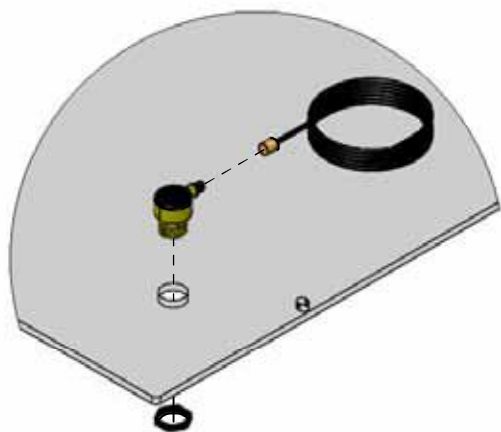
When installing this sensing option the installers must add the mounting hole. These dimension apply for both poly and stainless steel covers and for the 4000 and 6000 series systems. See instructions below.

INSTALLATION - MOTION SENSOR

1. Before adjusting motion sensor. Lock out/Tag Out system.
2. See the dimensions below for location to mount sensor.
3. Remove access cover on turnaround.
4. Drill 1.25 in (31.75 mm) diameter hole into cover.
5. Mount sensor with sensing face facing the inside of the turnaround toward the disc.
6. Wire sensor. (See wiring diagram that was included inside the box.) Attach cord set securely.
7. Replace cover and secure into place.
8. Remove lock out/tag out.



**Part Number
02296**



MOTION SENSOR - OPTION

MODEL - 4100, 4200, 6100 & 6200

FUNCTION - MOTION SENSOR

The motion sensor (p/n#02296) is designed to sense the movement of the disc within the system. If there is no movement for any reason such as the system being plugged, broken cable, the the system can be programmed to shutdown the system based on the customer needs or inputs.

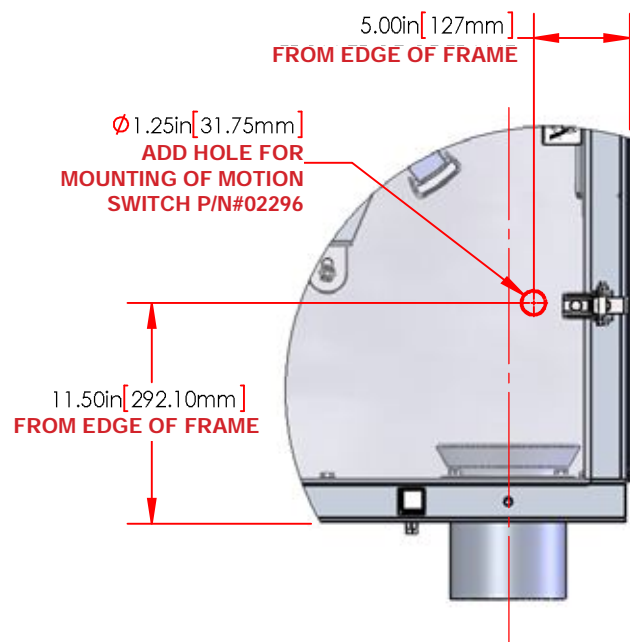
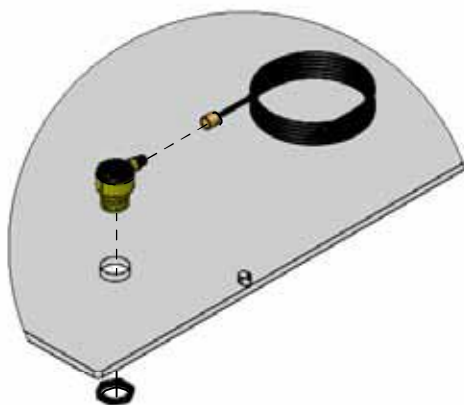
When installing this sensing option the installers must add the mounting hole. These dimension apply for both poly and stainless steel covers and for the 4000 and 6000 series systems. See instructions below.

INSTALLATION - MOTION SENSOR

1. Before adjusting motion sensor. Lock out/Tag Out system.
2. See the dimensions below for location to mount sensor.
3. Remove access cover on turnaround.
4. Drill 1.25 in (31.75 mm) diameter hole into cover.
5. Mount sensor with sensing face facing the inside of the turnaround toward the disc.
6. Wire sensor. (See wiring diagram that was included inside the box.) Attach cord set securely.
7. Replace cover and secure into place.
8. Remove lock out/tag out.



**Part Number
02296**



CABLE INSTALLATION - 1 PIECE DISC**OBJECTIVE**

The **Cable Connector** attaches the two ends of the cable together to complete the loop. To complete this two metal connectors, one male connector and one female connector are attached to the cable ends. The female and male connector is then joined together with an internal snap ring. This snap ring connects both ends of the cable together and allows for any rotational twist in the cable to be self-correcting. Following these instructions to make a correct connection.

TOOLS REQUIRED

CABLE CONNECTOR KIT

CABLE CONNECTION KIT 4" - 1 PC DISC P/N#C04019

CABLE CONNECTION KIT 6" - 1 PC DISC P/N#C00302

TORQUE WRENCH - 1/4" DRIVE - P/N#02248

MARKER(BLACK)

HACK SAW

FLAT SCREW DRIVER

ELECTRICAL TAPE

LONG NOSE VISE GRIP OR PLIERS

PARTS REQUIRED

C00160SS - CABLE CONNECTOR


SAFETY PRECAUTIONS

- FOLLOW ALL LOCAL, STATE & FEDERAL SAFETY REGULATIONS
- FOLLOW THE MOST CURRENT SAFE WORK PRACTICES
- MAKE USE OF ALL REQUIRED PERSONAL PROTECTIVE EQUIPMENT
- ALWAYS ***DISCONNECT POWER*** BEFORE BEGINNING WORK
- LOCK-OUT/TAG-OUT PER COMPANY, STATE AND FEDERAL CODES

CABLE INSTALLATION - 1 PIECE DISC

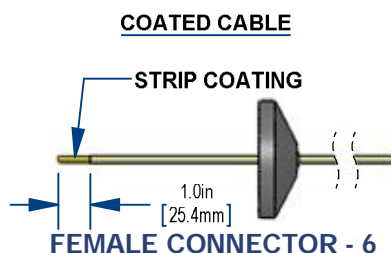
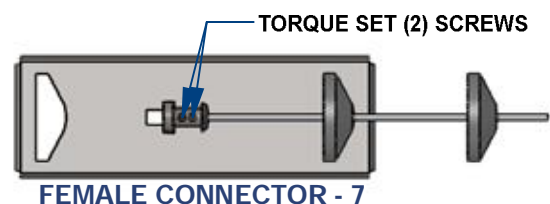
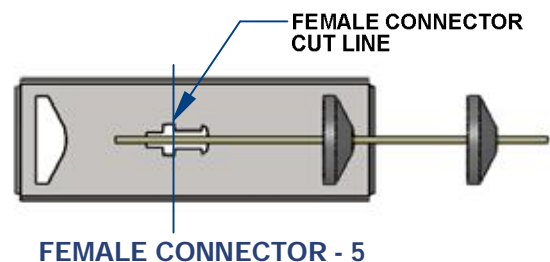
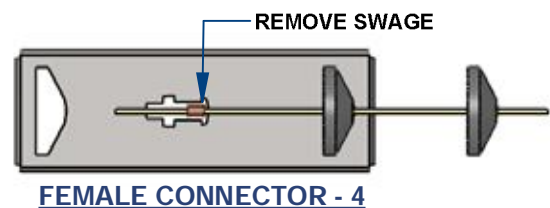
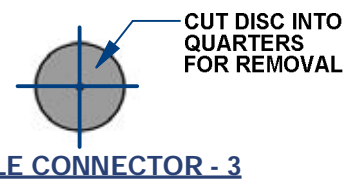
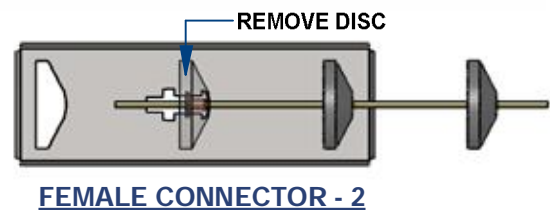
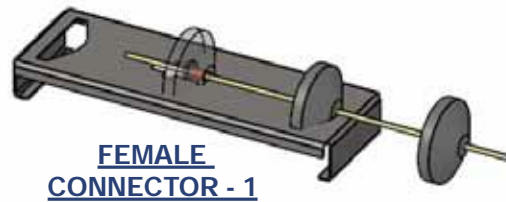
Step 1 - Female connector

1. Lock out/tag out system before starting cable connection.
2. Before installing cable, remove extra disc on female side of connector. Removing this disc will allow the cable to fit into the connector gauge. (Note: If cable is new, cable is shipped with extra length for installation. Save the extra length for cable repair.)
3. Place disc in gauge as shown. Using the connector gauge will help hold the disc in place. Using a hack saw cut disc into 1/4s making sure not to cut the cable strands.
4. Remove 1 piece disc from swage, using caution not to damage cable.
5. Once the disc is removed, the next step is to remove the swage from cable. See next page for swage removal.
6. With the disc and swage removed the extra cable can now be removed and cable cut to length. Place the disc in the connector gauge mark and cut as required. If cable is coated go to step 7. If cable is uncoated proceed to step 8.
7. Strip coating on cable 1.0in(25.4mm). See diagram FEMALE CONNECTOR - 6
8. Remove cable from connector gauge, slide the female connector (p/n-140049S) over cable and place into cable connector gauge to insure connection is cut correctly.

 **Tip-The female connector has reverse internal threads to aid in installation. Twist connector and push with the lay of the cable to install.**

9. Install set screws onto female connector and torque set screws to 140 in-lbs. (12 ft-lb or 16 N-M)
(See FEMALE CONNECTOR - 7)

 **Tip-Make sure allen wrench is fully seated before torquing.**




CABLE INSTALLATION - 1 PIECE DISC**Step 1.1 - Swage removal**

1. With the slug removed the swage now needs to be removed to allow for the cable to be cut at the correct length. With the cable scored from the slug removal, finish cutting the swage in half. Do not damage cable strands or coating.
2. After cuts have been made, use the flat head screwdriver and pliers, or vise grips, to remove the swage from the cable.

**SWAGE REMOVAL - 1****SWAGE REMOVAL - 2****SWAGE REMOVAL - 3****SWAGE REMOVAL - 4**

CABLE INSTALLATION - 1 PIECE DISC**Step 2 - Cable installation****Notes:**

All cable is shipped with extra length. The new cable and disc will need to be cut to length after installed to get the correct length(see instructions below). Save this extra cable section for repairs.(minum of 10 Feet)

1. Install female connector on new cable in accordance with Installation Manual (P/N-C00204)
 2. Locate the mid point of the cable and disc and mark for reference
 3. Lock Out/Tag out power to Drive Motor(Full power Isolation)
 4. Remove Drive funnel/cover if equipped.
 5. Remove tension from Turnaround Unit following instructions in Installation Manual
 6. Open Turnaround cover and slide idler carriage away from ports.
 7. From the turnaround unit end feed the "Fish Tape" through the product side of the system, to the Drive Unit. Connect the "Fish Tape" to the cable.
 8. Feed cable into product side of the system through the Drive unit. With one person feeding the cable and disc into the system, and another person pulling the "Fish Tape" connected to the cable.
-  **Tip - Make sure cable travel is correct. Flat face pushes the product.**
9. When the cable exits the port of the turnaround unit, securely brace adjacent disc on cable against product port
 10. Disconnect the fish tape from the cable.
 11. From the turnaround unit feed the "Fish Tape" through the return side of the system, to the Drive Unit. Connect the "Fish Tape" to the cable.
 12. Continue feeding the cable and disc into the system until all cable is pulled in and cable is routed around the Drive Sprocket. (Securely brace adjacent disc on cable against return port of Drive Unit to prevent gravity from pulling it into the tube.) (Both cable ends should now be located in the Turnaround Unit)

CABLE INSTALLATION - 1 PIECE DISC

Step 3 - Male connector

1. Lock out/tag out system before starting cable connection.
2. Unlike the female connector, the cable must be installed into the system to find the connection point.
3. Position turnaround carriage 4" from back of frame.
4. Route loose ends of cable around turnaround sprocket and mark where discs cross.
5. Using a hack saw cut disc into 1/4s making sure not to cut the cable strands.
6. Remove the disc from swage, using caution not to damage cable.
7. With the disc removed the extra cable can now be removed and cable cut to length. Place the disc in the connector gauge mark and cut as required. If cable is coated go to step 8. If cable is uncoated proceed to step 9.
8. Strip coating on cable .8in(20.3mm)
9. Remove cable from connector gauge, slide the male connector (p/n-1400485) over cable and place into cable connector gauge to insure connection is cut correctly. (See figure 10)
10. Install set screws onto male connector and torque set screws to 140 in-lbs. (12 ft-lb or 16 N-M)(see figure 9 & 11)



Tip-The male connector has internal threads to aid in installation. Twist and push connector with the lay of the cable to install.



Tip-Make sure allen wrench is fully seated before torquing.



FIGURE 9



FIGURE 10

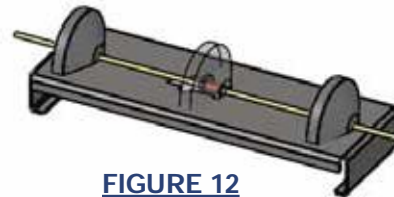


FIGURE 12

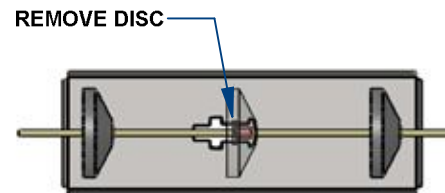


FIGURE 13

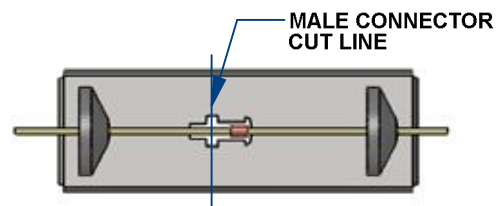
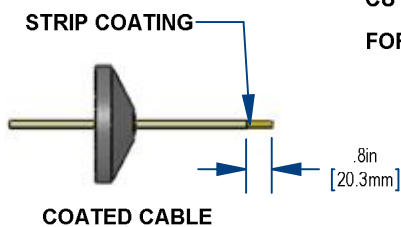


FIGURE 15

FIGURE 17



CUT DISC INTO
QUARTERS
FOR REMOVAL

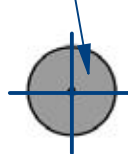


FIGURE 14

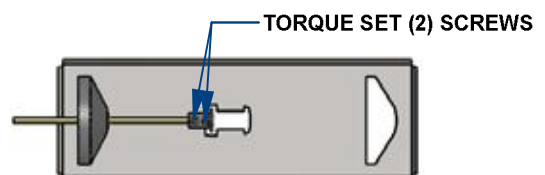


FIGURE 18

CABLE INSTALLATION - 1 PIECE DISC

Step 4 - Cable connection

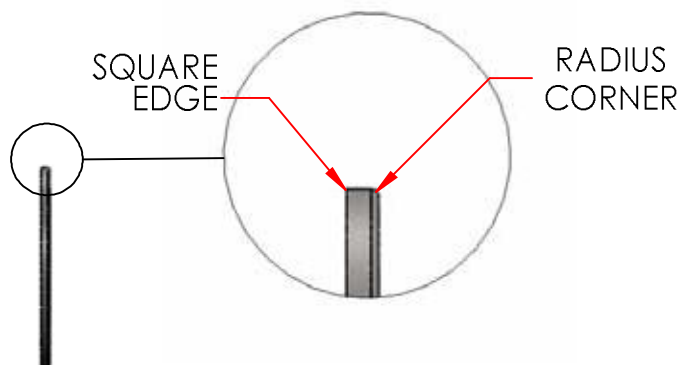
1. Lock out/tag out system before starting cable connection.
2. Slide the Turnaround Idler Frame towards the ports.
3. With the cable installed, route loose ends of cable around turnaround sprocket.
4. Connect both ends of the cable together with snap ring (01915S). When installing the snap ring, make sure to install round edge down (in) making sure the snap ring is completely seated. (See cable connection - 1)
5. Install the connector disc halves over the cable connector. The distance between the discs on the cable is 6 in. (15.24 cm). Therefore, the cable connector disc should measure 6 in. (15.24 cm) from the discs on either side of it. (See cable connection - 2)
6. Seat cable in Turnaround sprocket and time disc with sprocket tooth. (Timed=Back/Cone shaped side is engaged with the sprocket Tooth.) Now slide Turnaround carriage towards the rear, adding tension to the cable.
7. The system is now ready to be tensioned. See section on tensioning Turnaround Unit.



CABLE CONNECTION - 1

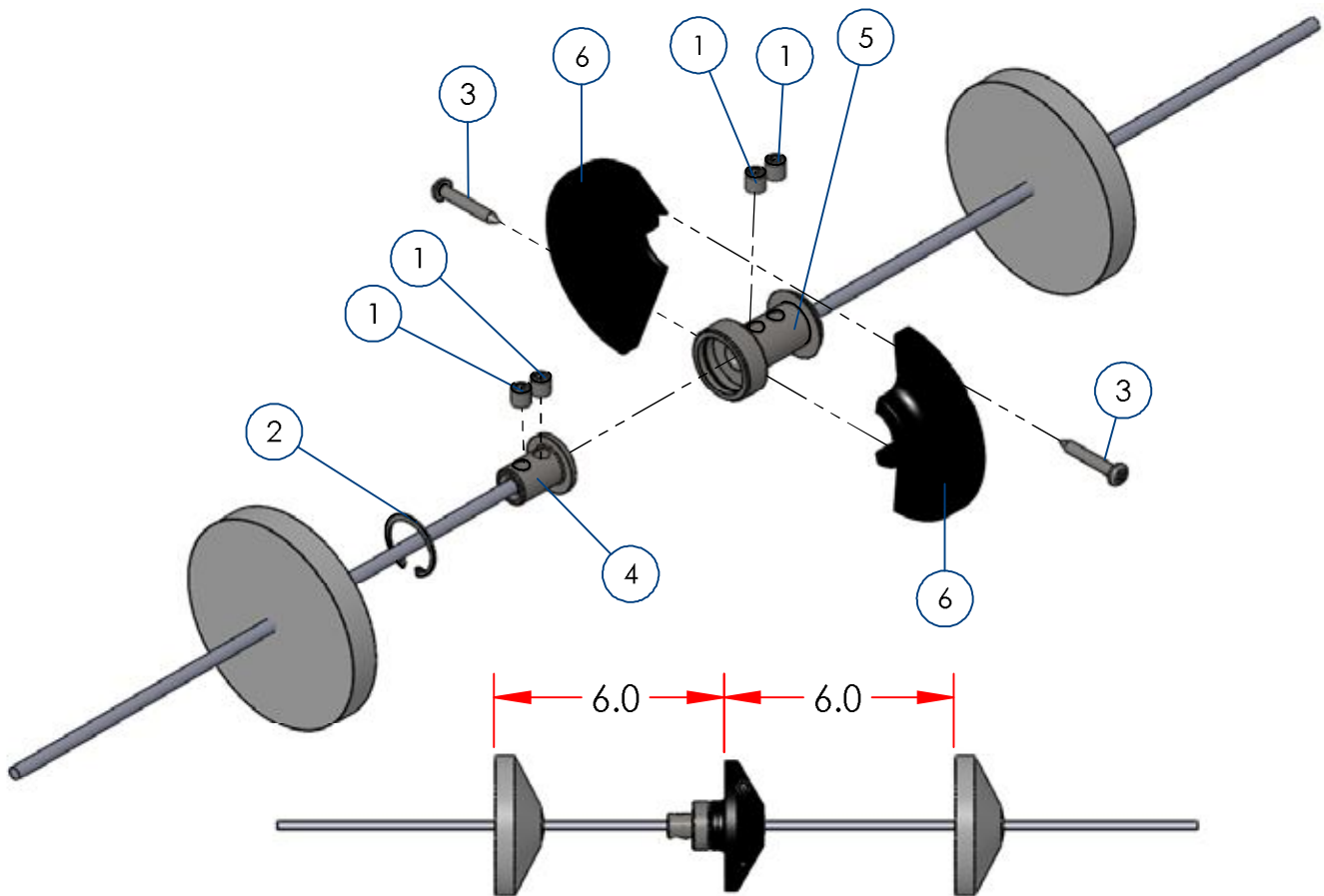


CABLE CONNECTION - 2



CABLE CONNECTION - 4"

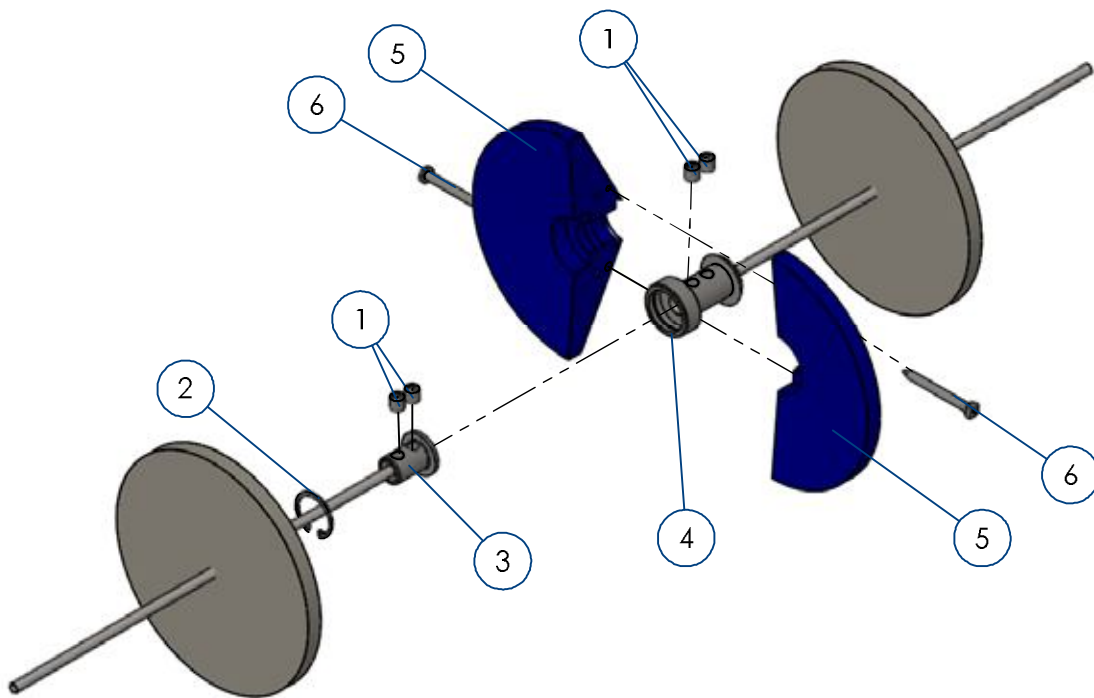
FIGURE 21



| PARTS LIST -C00160SS | | | |
|-----------------------------|--------------------|-------------------------------------|-------------|
| ITEM | PART NUMBER | DESCRIPTION | QTY. |
| 1 | 01914A | SCREW SET 5/16-24 UNF X 3/8 NICKEL | 8 |
| 2 | 01915S | SNAP RING-INT - 1.00X.042-SS | 2 |
| 3 | 01984S | SCREW-PAN HEAD-#10X1.250-ST-SS | 2 |
| 4 | 140048S | CABLE CONN 4"/6" MALE 304SS 2 ST SC | 1 |
| 5 | 140049S | CABLE CONN FEMALE 304SS 2 SET SC | 1 |
| 6 | 140051 UHMW-C | CONNECTOR HALF BLK./CUT 4 IN DISC- | 2 |

CABLE CONNECTION - 6"

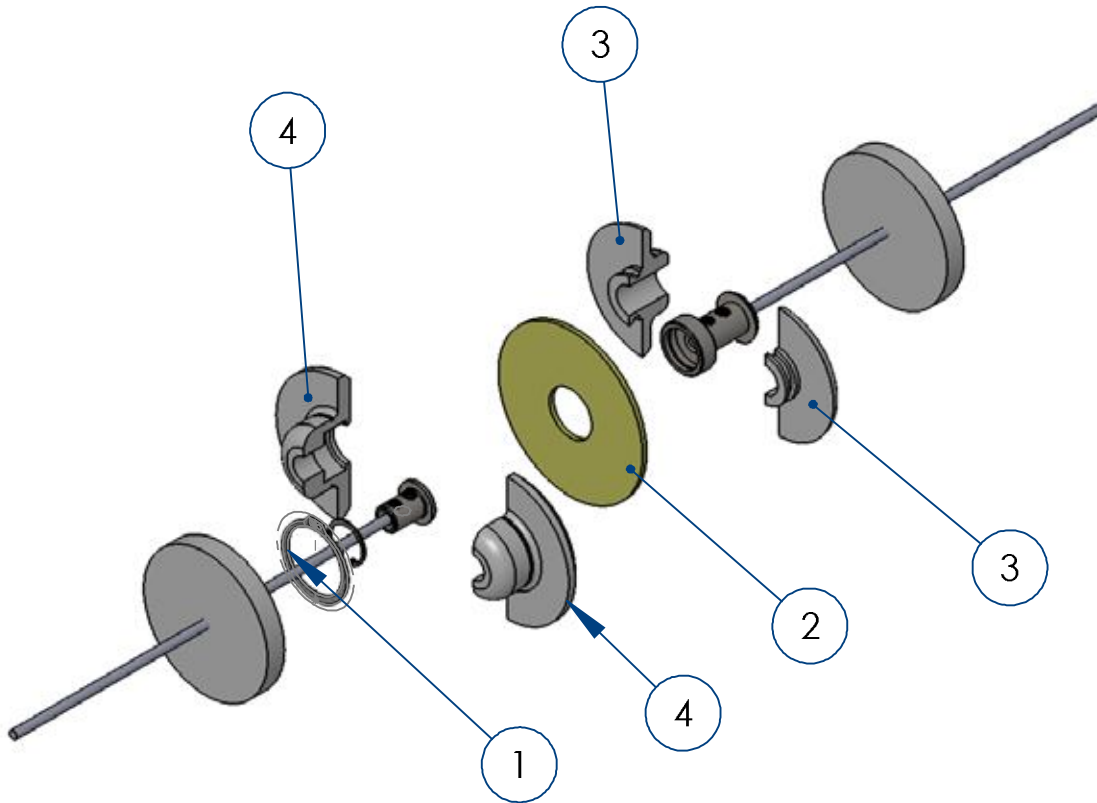
FIGURE 22



| PARTS LIST -C00279SS | | | |
|-----------------------------|--------------------|-------------------------------------|-------------|
| ITEM | PART NUMBER | DESCRIPTION | QTY. |
| 1 | 01914A | SCREW SET 5/16-24 UNF X 3/8 NICKEL | 8 |
| 2 | 01915S | SNAP RING-INT - 1.00X.042-SS | 2 |
| 3 | 140048S | CABLE CONN 4"/6" MALE 304SS 2 ST SC | 1 |
| 4 | 140049S | CABLE CONN FEMALE 304SS 2 SET SC | 1 |
| 5 | 170001UHMWBLC | 6" DISC BLUE 5.625 UHMW (DRILLED) | 2 |
| 6 | 01984SA | SCREW-PAN HEAD - #10X16-ST-SS | 2 |

CABLE CONNECTION - 4" WIPER

FIGURE 23

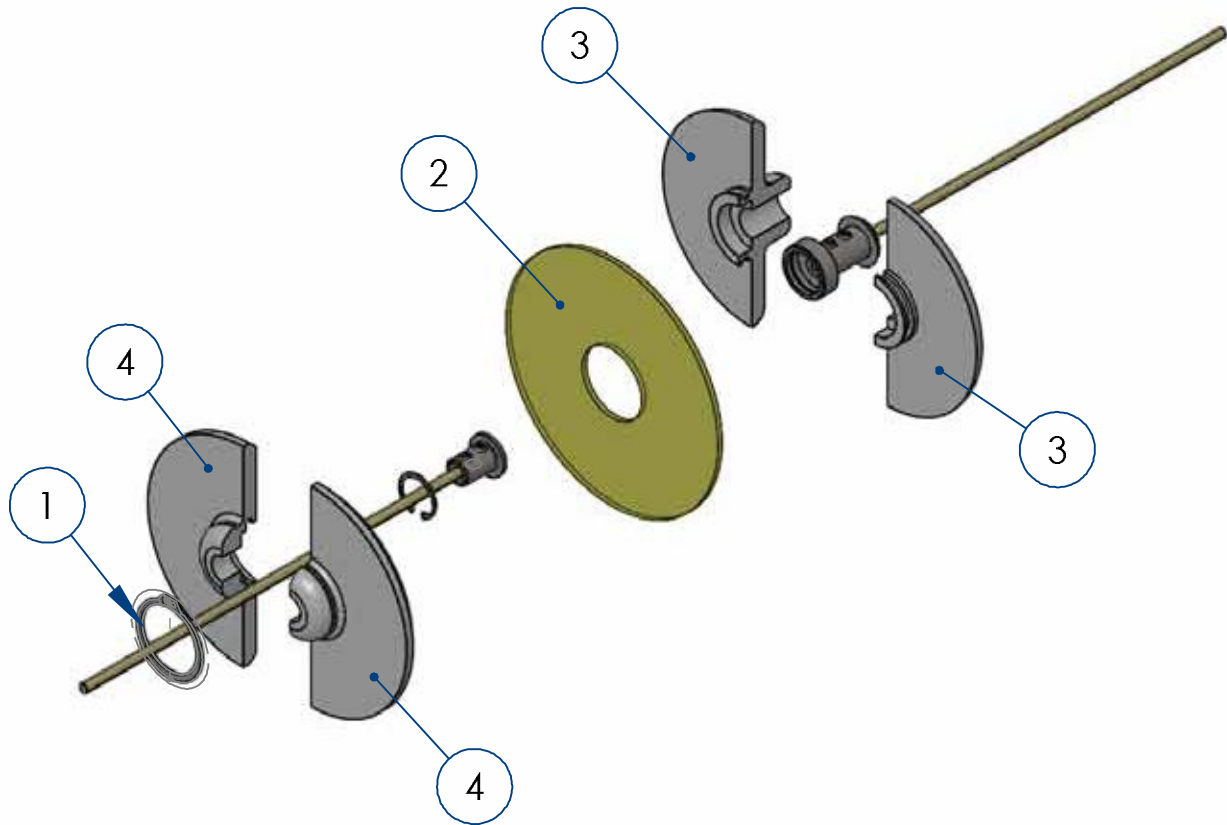


Installation Tip - Before connecting male and female connector, place (1) snap ring and (2) cleanout disc urethane over male side of cable. Then connect cable.

| PARTS LIST - C04044 | | | |
|---------------------|-------------|-------------------------------------|------|
| ITEM | PART NUMBER | DESCRIPTION | QTY. |
| 1 | 02262S | RING SNAP RING 1.75" EXTERNAL SS | 1 |
| 2 | 140553 | CLEANOUT DISC URETHANE 4" C04044 | 1 |
| 3 | 140554 | CLEANOUT 4" TRAILING WIPER DISC | 2 |
| 4 | 140555 | CLEANOUT 4" TRAILING WIPER DISC CUT | 2 |

CABLE CONNECTION - 6" WIPER

FIGURE 24



Installation Tip - Before connecting male and female connector, place (1) snap ring and (2) cleanout disc urethane over male side of cable. Then connect cable.

| PARTS LIST -C00315 | | | |
|---------------------------|--------------------|-------------------------------------|-------------|
| ITEM | PART NUMBER | DESCRIPTION | QTY. |
| 1 | 02262S | RING SNAP RING 1.75" EXTERNAL SS | 1 |
| 2 | 170438 | CLEANOUT DISC URETHANE 6" C00315 | 1 |
| 3 | 170439 | CLEANOUT 6" TRAILING WIPER DISC | 2 |
| 4 | 170440 | CLEANOUT 6" TRAILING WIPER DISC CUT | 2 |

CABLE INSTALLATION - 2 PIECE DISC**OBJECTIVE**

The **Cable Connector** attaches the two ends of the cable together to complete the loop. To complete this two metal connectors, one male metal connector and one female metal connector are attached to the cable ends. The female and male metal connector are then joined together with an internal snap ring. This snap ring connects both ends of the cable together and allows for any rotational twist in the cable to be self-correcting. The following instructions will guide you through the process of making a correct connection.

TOOLS REQUIRED

CABLE CONNECTOR KIT

CABLE CONNECTION KIT 4" - 2 PC DISC P/N#C00159

CABLE CONNECTION KIT 6" - 2 PC DISC P/N#C00159

TORQUE WRENCH - 1/4" DRIVE - P/N#02248

MARKER(BLACK)

HACK SAW

FLAT SCREW DRIVER

ELECTRICAL TAPE

LONG NOSE VISE GRIP OR PLIERS

TORCH

**PARTS REQUIRED**

C00160SS - CABLE CONNECTOR


SAFETY PRECAUTIONS

- FOLLOW ALL LOCAL, STATE & FEDERAL SAFETY REGULATIONS
- FOLLOW THE MOST CURRENT SAFE WORK PRACTICES
- MAKE USE OF ALL REQUIRED PERSONAL PROTECTIVE EQUIPMENT
- ALWAYS **DISCONNECT POWER** BEFORE BEGINNING WORK
- FOLLOW **OSHA STANDARD - 1910.147**

CABLE INSTALLATION - 2 PIECE DISC

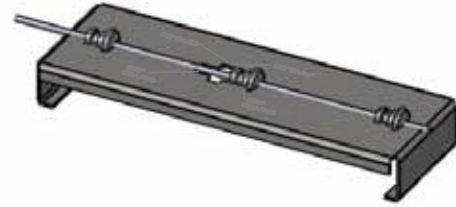
Step 1 - Female connector

1. Lock out/tag out system before starting cable connection.
2. There are two types of slugs, Nylon and Zinc slugs depending on the system requirements. Determine what type of slug and remove as required. (Refer to slug removal instructions on pages 52-53)
3. To make space for the female connector, one slug must be removed from one end of the cable. With the cable travel direction from right to left, place the end of the cable into the connector gauge. Make sure there is enough cable to cut at required length. (See female connector - 2)
4. Now place the cable in the right side of the gauge, mark the cable at the middle notch and cut with the supplied cable cutters. (See female connector - 3) If cable is coated go to step 5. If cable is uncoated proceed to step 6.
5. Strip coating on cable 1.0in(25.4mm) (see female connector - 4)
6. Remove cable from connector gauge, slide the female connector (p/n-140049S) over cable and place into cable connector gauge to insure correct position. (See female connector - 5)

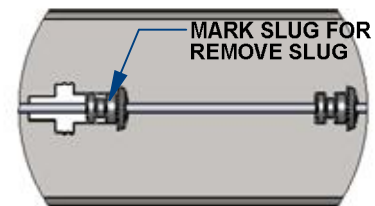
 **Tip-**The female connector has reverse internal threads to aid in installation. Twist connector and push with the lay of the cable to install.

7. Position cable connector in gauge and check that the connector fits snugly.
8. Install set screws onto female connector and torque set screws to 140 in-lbs. (12 ft-lb or 16 N-M) (see female connector - 5)

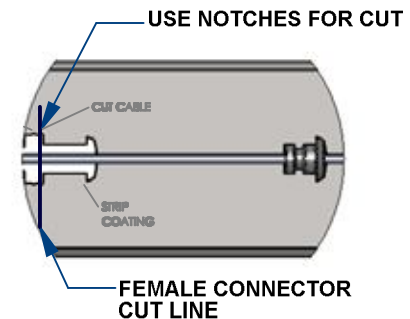
 **Tip-**Make sure allen wrench is fully seated before torquing.



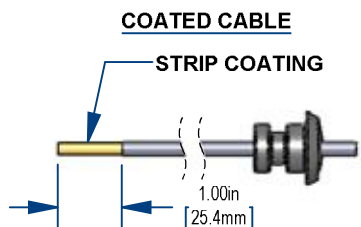
FEMALE CONNECTOR - 1



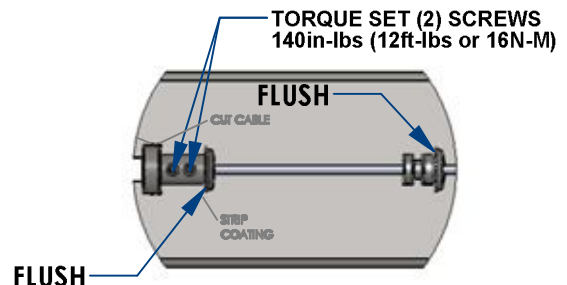
FEMALE CONNECTOR - 2



FEMALE CONNECTOR - 3



FEMALE CONNECTOR - 4



FEMALE CONNECTOR - 5

CABLE INSTALLATION - 2 PIECE DISC

Step 1.1 - Nylon slug removal with jacketed cable

DO NOT CUT CABLE STRANDS OR CABLE COATING

1. If a cable with nylon slug is used, the slug must be removed.
2. For the nylon slug on the jacketed cable, the nylon slug needs only to be cut in half along the seam. When cutting nylon, keep cutting until copper fines can be seen.
3. After cuts have been made, use the cable cutters to split the nylon slug apart.



Tip-While making cuts on the nylon slug, try and score the copper swage. Scoring the swage will help with the cutting of the copper swage.

4. In some rare cases while removing slug, the slug and swage may come apart in one step.



SLUG - 1



SLUG - 2



SLUG - 3

Step 1.2 - Swage removal

1. With the slug removed the swage now needs to be removed to allow for the cable to be cut at the correct length. With the cable scored from the slug removal, finish cutting the swage in half. Do not damage cable strands or coating.
2. After cuts have been made, use the flat head screwdriver and pliers, or vise grips, to remove the swage from the cable.



SWAGE REMOVAL - 1



SWAGE REMOVAL - 2



SWAGE REMOVAL - 3



SWAGE REMOVAL - 4

CABLE INSTALLATION - 2 PIECE DISC**Step 1.3 - Zinc slug removal**

1. Loosely place a pair of long nose vise grips on the cable so they can slide over the cable and scrape the zinc slug off the cable after it is heated.



Tip-Do not overheat cable. Overheating cable may cause premature failure. See Zinc Slug - 3 photo.

2. With the slug marked to be removed, use a torch to evenly heat the slug. Rotating the cable slowly while applying heat just long enough for the zinc to start deforming. The zinc should never drip.



Tip-There will be a slight change in color of the zinc when it is heated to the correct temperature.

3. Now that the slug is heated, holding on to the cable with one hand, use the other to slide the pliers over the cable and smack the slug. This contact will fracture the slug and it will fall off. Make sure to get 100% removal of zinc from the cable.



ZINC SLUG - 3



ZINC SLUG - 1



ZINC SLUG - 2

CABLE INSTALLATION - 2 PIECE DISC**Step 1.4 - Nylon slug removal no jacketing**

DO NOT CUT CABLE STRANDS OR CABLE COATING

1. With the slug marked for removal, the next step is to cut the slug along the parting line in half.
2. After the nylon slug has been cut, use the cable cutters to split the halves of the slug apart. Completely remove the two halves from the cable.
3. Due to the manufacturing process nylon is injected into the cable strands. This material needs to be removed.



Tip-Leave a slug on both sides of slug being removed to prevent fraying when removing material from between cable strands.



SLUG - 4



SLUG - 5



SLUG - 6




SLUG - 7

CABLE INSTALLATION - 2 PIECE DISC**Step 2 - Cable installation****Notes:**

All cable is shipped with extra length. The new cable and disc will need to be cut to length after installed to get the correct length(see instructions below). Save this extra cable section for repairs.(minum of 10 Feet)

PROCEDURES

1. Install female connector on new cable in accordance with Installation Manual (P/N-C00204)
2. Locate the mid point of the cable and disc and mark for reference
3. Lock Out/Tag out power to Drive Motor(Full power Isolation)
4. Remove Drive funnel/cover if equipped.
5. Remove tension from Turnaround Unit following instructions in Installation Manual
6. Open Turnaround cover and slide idler carriage away from ports.
7. From the turnaround unit end feed the "Fish Tape" through the product side of the system, to the Drive Unit. Connect the "Fish Tape" to the cable.
8. Feed cable into product side of the system through the Drive unit. With one person feeding the cable and disc into the system, and another person pulling the "Fish Tape" connected to the cable.
 **Tip - Make sure cable travel is correct. Flat face pushes the product.**
9. When the cable exits the port of the turnaround unit, securely brace adjacent disc on cable against product port
10. Disconnect the fish tape from the cable.
11. From the turnaround unit feed the "Fish Tape" through the return side of the system, to the Drive Unit. Connect the "Fish Tape" to the cable.
12. Continue feeding the cable and disc into the system until all cable is pulled in and cable is routed around the Drive Sprocket. (Securely brace adjacent disc on cable against return port of Drive Unit to prevent gravity from pulling it into the tube.) (Both cable ends should now be located in the Turnaround Unit)

CABLE INSTALLATION - 2 PIECE DISC

Step 3 - Male connector

1. Lock out/tag out system before starting cable connection.
2. With the cable length determined, The slug and extra cable now needs to be removed. With the cable travel direction from left to right, place the male end of the cable into the connector gauge. Place the slug to be removed between the two middle tabs of the gauge.
3. Mark the cable at the left most notch.(Male connector - 2) Remove cable from gauge and cut with the supplied cable cutters. **Tip - Removal of slug is not required if cut correctly.** If cable is coated go to step 4, if cable is uncoated proceed to step 5.
4. Strip coating on cable .90 in(22.9mm)(Male connector - 4)
5. Remove cable from connector gauge, slide the male connector (p/n-140048S) over cable and place into cable connector gauge to insure connection is cut correctly. (Male Connector - 5)
6. Install set screws onto female connector and torque set screws to 140 in-lbs. (12 ft-lb or 16 N-M)(Male Connector - 5)
7. After completion of installing the male connector proceed to CABLE CONNECTION to finish installation of the cable.



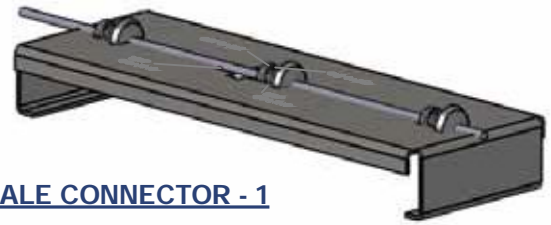
Tip - Removal of slug is not required if cut correctly. If cable is coated go to step 4, if cable is uncoated proceed to step 5.



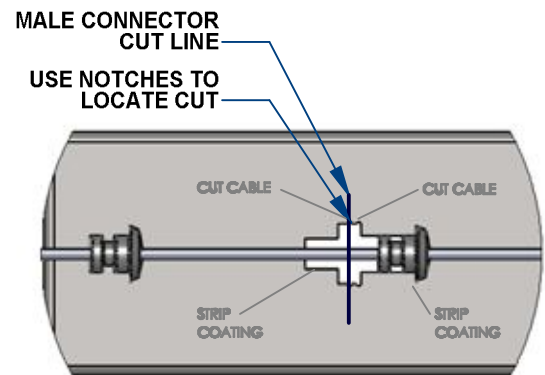
Tip-The male connector has reverse internal threads to aid in installation. Twist and push connector with the lay of the cable to install.



Tip-Make sure Allen wrench is full seated before torquing.



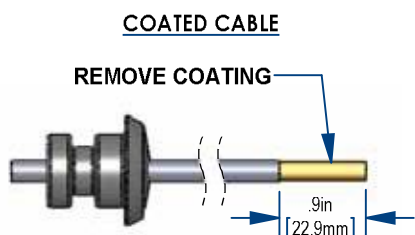
MALE CONNECTOR - 1



MALE CONNECTOR - 2

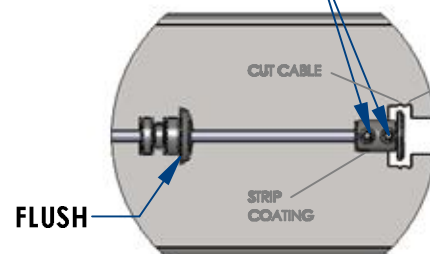


MALE CONNECTOR - 3



MALE CONNECTOR - 4

**TORQUE SET (2) SCREWS
140in-lbs (12ft-lbs or 16N-m)**



MALE CONNECTOR - 5

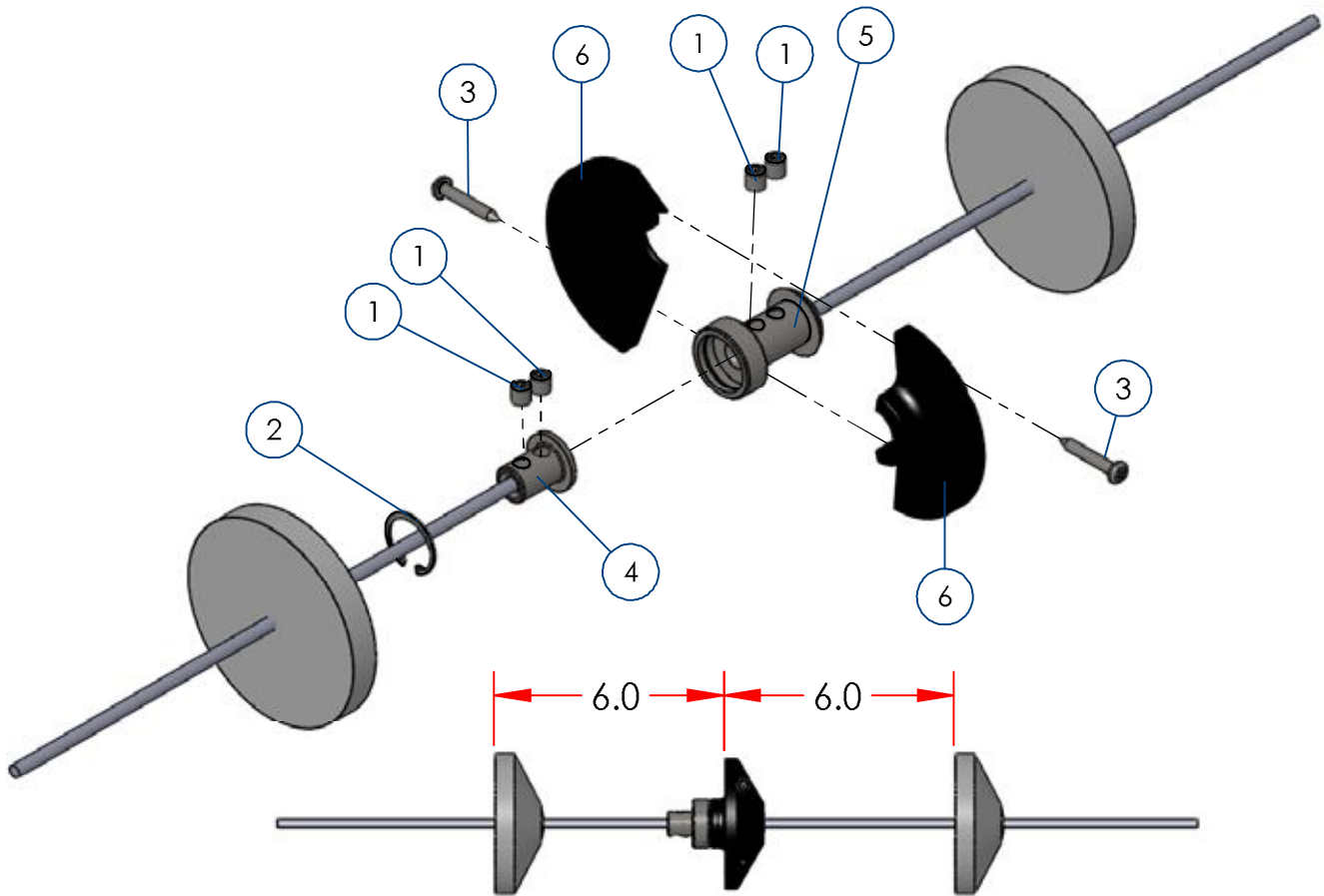
CABLE INSTALLATION - 2 PIECE DISC**Step 4 - Cable connection**

1. Lock out/tag out system before starting cable connection.
2. Slide the Turnaround Idler Frame towards the ports.
3. With the cable installed, route loose ends of cable around turnaround sprocket.
4. Connect both ends of the cable together with snap ring (01915S). When installing the snap ring, make sure to install round edge down (in) making sure the snap ring is completely seated.(See cable connection - 1)
5. Install the connector disc halves over the cable connector. The distance between the discs on the cable is 6 in. (15.24 cm). Therefore, the cable connector disc should measure 6 in. (15.24 cm) from the discs on either side of it. (See cable connection - 2)
6. Seat cable in Turnaround sprocket and time disc with sprocket tooth.(Timed=Back/Cone shaped side is engaged with the sprocket Tooth.) Now slide Turnaround carriage towards the rear, adding tension to the cable.
7. The system is now ready to be tensioned.
See section on tensioning Turnaround Unit.

**CABLE CONNECTION - 1****CABLE CONNECTION - 2**

CABLE CONNECTION - 4"

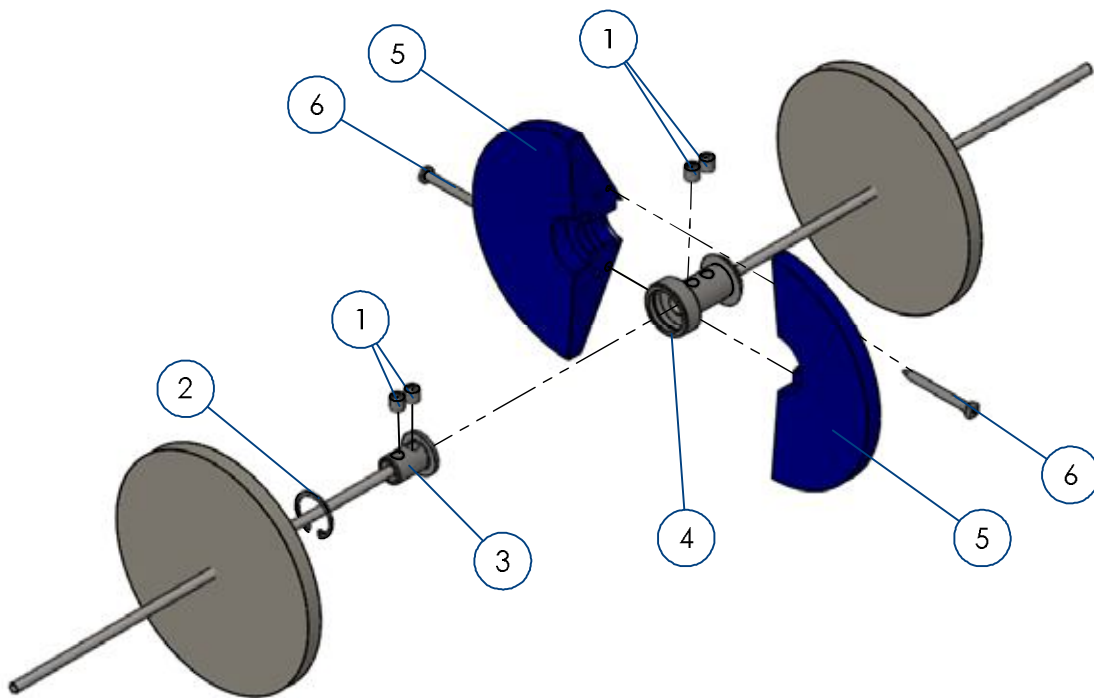
CABLE CONNECTION - 3



| PARTS LIST -C00160SS | | | |
|----------------------|---------------|-------------------------------------|------|
| ITEM | PART NUMBER | DESCRIPTION | QTY. |
| 1 | 01914A | SCREW SET 5/16-24 UNF X 3/8 NICKEL | 8 |
| 2 | 01915S | SNAP RING-INT - 1.00X.042-SS | 2 |
| 3 | 01984S | SCREW-PAN HEAD-#10X1.250-ST-SS | 2 |
| 4 | 140048S | CABLE CONN 4"/6" MALE 304SS 2 ST SC | 1 |
| 5 | 140049S | CABLE CONN FEMALE 304SS 2 SET SC | 1 |
| 6 | 140051 UHMW-C | CONNECTOR HALF BLK./CUT 4 IN DISC | 2 |

CABLE CONNECTION - 6"

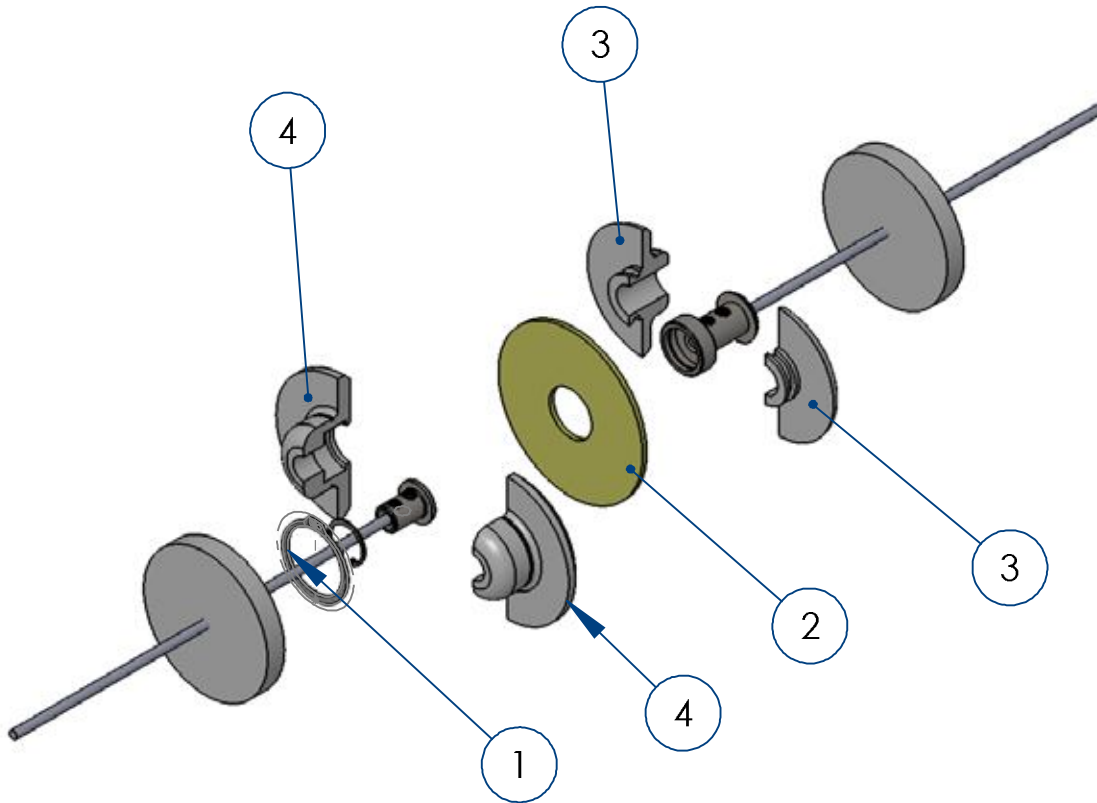
CABLE CONNECTION - 4



| PARTS LIST -C00279SS | | | |
|-----------------------------|--------------------|-------------------------------------|-------------|
| ITEM | PART NUMBER | DESCRIPTION | QTY. |
| 1 | 01914A | SCREW SET 5/16-24 UNF X 3/8 NICKEL | 8 |
| 2 | 01915S | SNAP RING-INT - 1.00X.042-SS | 2 |
| 3 | 140048S | CABLE CONN 4"/6" MALE 304SS 2 ST SC | 1 |
| 4 | 140049S | CABLE CONN FEMALE 304SS 2 SET SC | 1 |
| 5 | 170001UHMWBLC | 6" DISC BLUE 5.625 UHMW (DRILLED) | 2 |
| 6 | 01984SA | SCREW-PAN HEAD - #10X16-ST-SS | 2 |

CABLE CONNECTION - 4" WIPER

CABLE CONNECTION - 5

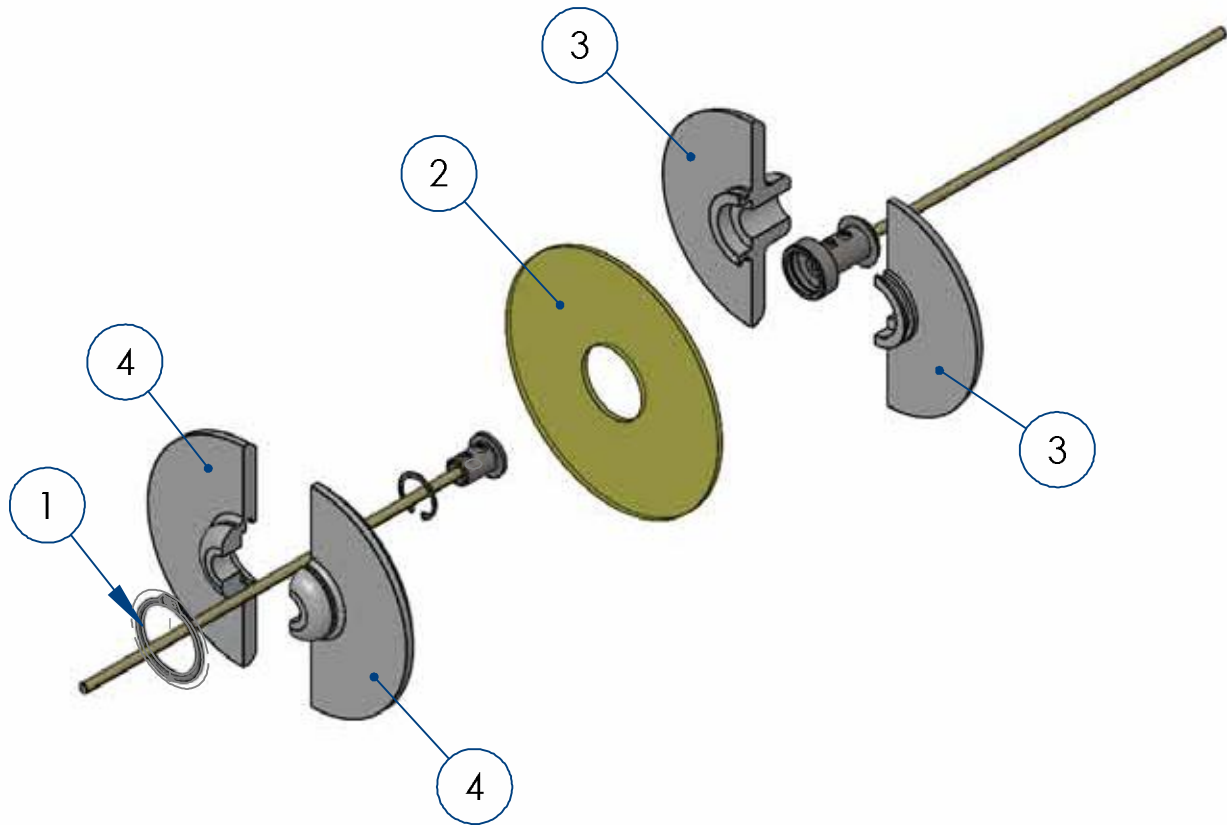


Installation Tip - Before connecting male and female connector, place (1) snap ring over and CLEANOUT disc(2) male side of cable. Then connect cable.

| PARTS LIST - C04044 | | | |
|----------------------------|--------------------|-------------------------------------|-------------|
| ITEM | PART NUMBER | DESCRIPTION | QTY. |
| 1 | 02262S | RING SNAP RING 1.75" EXTERNAL SS | 1 |
| 2 | 140553 | CLEANOUT DISC URETHANE 4" C04044 | 1 |
| 3 | 140554 | CLEANOUT 4" TRAILING WIPER DISC | 2 |
| 4 | 140555 | CLEANOUT 4" TRAILING WIPER DISC CUT | 2 |

CABLE CONNECTION - 6" WIPER

CABLE CONNECTION - 6



Installation Tip - Before connecting male and female connector, place (1) snap ring over and CLEANOUT disc(2) male side of cable. Then connect cable.

PARTS LIST -C00315

| ITEM | PART NUMBER | DESCRIPTION | QTY. |
|------|-------------|-------------------------------------|------|
| 1 | 02262S | RING SNAP RING 1.75" EXTERNAL SS | 1 |
| 2 | 170438 | CLEANOUT DISC URETHANE 6" C00315 | 1 |
| 3 | 170439 | CLEANOUT 6" TRAILING WIPER DISC | 2 |
| 4 | 170440 | CLEANOUT 6" TRAILING WIPER DISC CUT | 2 |

SYSTEM TENSIONING - INTERNAL COMPRESSION SPRINGS

MODEL - 4100, 4200, 6100 & 6200

OBJECTIVE:

To illustrate the steps required to correctly adjust the system tension.

TOOLS REQUIRED

9/16(14MM) WRENCH OR SOCKET
TAPE MEASURE

PARTS REQUIRED

N/A

SAFETY PRECAUTIONS

- FOLLOW ALL LOCAL, STATE & FEDERAL SAFETY REGULATIONS
- FOLLOW THE MOST CURRENT SAFE WORK PRACTICES
- MAKE USE OF ALL REQUIRED PERSONAL PROTECTIVE EQUIPMENT
- ALWAYS **DISCONNECT POWER** BEFORE BEGINNING WORK
- FOLLOW **OSHA STANDARD - 1910.147**

SYSTEM TENSIONING - INTERNAL COMPRESSION SPRINGS

MODEL - 4100, 4200, 6100 & 6200

FUNCTION - SYSTEM TENSIONING STD

To correctly tension the system. The roller switch insures proper tension, or if the system moves out of normal operating range, it will shut down the system to prevent more damage.

INSTALLATION - TURNAROUND CARRIAGE

1. Lock out/tag out the system before starting adjusting process.
2. Remove turnaround access cover. (1) (see figure 1)
3. Bring both ends of the cable to the turnaround (TA) and connect cable.
4. Ensure cable is free of slack and routed around drive and turnaround sprockets. Make sure cable and sprockets are in time.



Tip-Back (cone shaped side) is engaged with the sprocket tooth. See figure 5.

5. With the cable installed, position the idler carriage 6" (152.4mm) from the back face of the turnaround frame. See figure 2.
6. Locate the adjustment rods on the outside of the turnaround frame. Facing the back (opposite of ports) use a 9/16in (14mm) socket or wrench to adjust the left side adjustment rod located on the outside of the turnaround frame. (see figure 4) Adjust the adjustment rod until the proximity sensor or roller switch wheel is centered between the two tabs. See figure 6.



Turning clockwise to add tension, counter-clockwise to remove System tension.

7. To properly tension the cable the roller switch wheel should be centered between the bent tabs shown below.
8. Now measure distance X as shown in figure.
9. Adjust the right side adjustment rod until distance Y matches distance X. This sets the turnaround to the nominal tension on the system.
10. Check cable for sagging between the sprocket and the port. If sagging exists, add more tension.



FIGURE 1

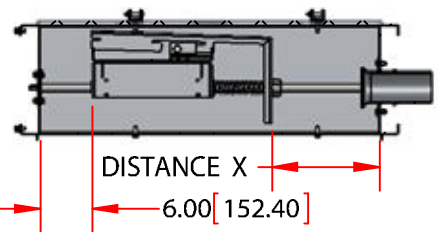


FIGURE 2

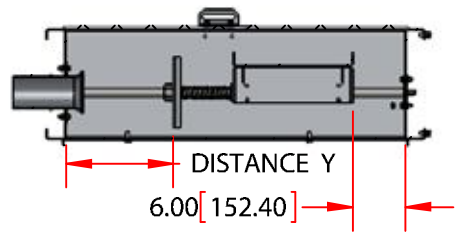


FIGURE 3



ADJUSTMENT ROD

FIGURE 4



FIGURE 5

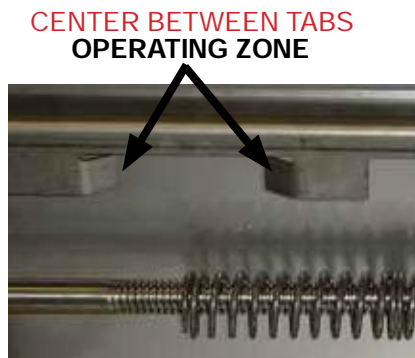


FIGURE 6

SYSTEM TENSIONING - INTERNAL COMPRESSION SPRINGS

MODEL - 4100, 4200, 6100 & 6200

INSTALLATION - TURNAROUND CARRIAGE

11. Replace cover and secure into place.
12. Ensure all safety devices are installed and operational and that all tools and personnel are clear from the system. Then Start the system at 10hz, slowly increasing the speed up to systems operating speed (no more than 60hz) while watching the cable and discs entering return port of the turnaround unit. If slack in cable/discs catching on return port of turnaround frame is present, stop system and lock out. Add 1 turn to each spring and repeat this step until cable enters return port smoothly. If cable enters smoothly during increasing speed at initial spring setting, it is recommended to loosen spring tension by 1 turn to each spring at a time until cable slack is present then return to previous smooth operating tension.
13. For optimal performance it is required to apply the minimum amount of tension needed for smooth operation of the Cablevey at standard operational speed. (see Operation/Service Manual for Operational speeds and capacity. P/N # C04058.)
14. It is required to readjust system tension after product has been introduced, at 10 hours of operation and 100 hours of operation.
15. If cleaning tools are installed on the system each of these scenarios change the friction on the tensioned side of the cable and the tensioning will need to be adjusted up or down accordingly for optimal performance.

If after applying system tension and the spring are fully compressed and slack is still present, call Cablevey at 1-800-247-3344 for Technical Support.

SYSTEM TENSIONING - EXTERNAL TORSION SPRINGS

MODEL - 4300, 6300

OBJECTIVE:

To illustrate the steps required to correctly adjust the system tension.

TOOLS REQUIRED

9/16(14MM) WRENCH OR SOCKET
TAPE MEASURE
TORSION SPRING ADJUSTMENT WRENCH (P/N#140483SS)
BLACK MARKER

PARTS REQUIRED



N/A

SAFETY PRECAUTIONS

- FOLLOW ALL LOCAL, STATE & FEDERAL SAFETY REGULATIONS
- FOLLOW THE MOST CURRENT SAFE WORK PRACTICES
- MAKE USE OF ALL REQUIRED PERSONAL PROTECTIVE EQUIPMENT
- ALWAYS **DISCONNECT POWER** BEFORE BEGINNING WORK
- FOLLOW **OSHA STANDARD - 1910.147**

SYSTEM TENSIONING - EXTERNAL TORSION SPRINGS

MODEL - 4300, 6300

1. Lock out/tag out system before starting work.
 2. Remove tensioning cover to gain access to springs. With a 9/16 in(14mm) wrench or socket remove the 2 - 3/8"(1)(9.5mm) bolts that hold the shield on. With the bolts removed, remove the torsion spring cover(2).
 3. Remove turnaround cover (4).
 4. Bring both ends of the cable to the turnaround (TA) and connect cable.
 5. Ensure cable is free of slack and routed around drive and turnaround sprockets. Making sure cable and sprockets are in time.
-  **TIP-Back(Cone shaped) side is engaged with the sprocket tooth.**
See figure 6
6. With the cable installed, position the idler carriage a minimum of 4"(101.6mm) from back face of turnaround frame.
See figure 4
-  **NOTE: With repair slices this dimension will change.**
See figure 6
7. Remove quick release pins from both tensioning nuts using the supplied TA wrench (P/N#140483SS) to relieve any tension in springs.

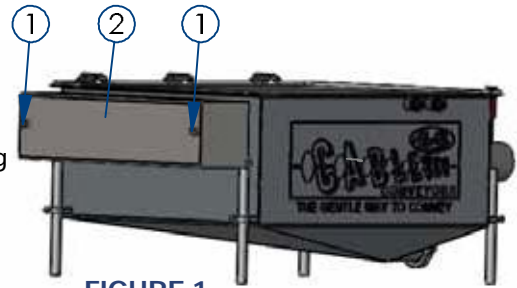


FIGURE 1



FIGURE 2

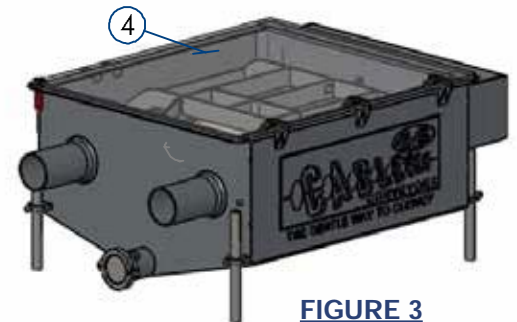


FIGURE 3



FIGURE 4



FIGURE 5

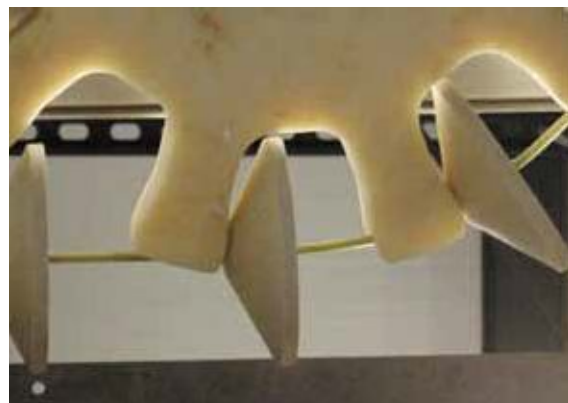


FIGURE 6

SYSTEM TENSIONING - EXTERNAL TORSION SPRINGS

MODEL - 4300, 6300

8. Spool tensioning cable on so that the cable lays neatly from left to right, removing slack from cable.(see figure 7)
9. Mark a straight line on both the right and left springs.
10. Starting on the right side, remove quick insert pin. Next using both supplied wrenches (P/N#140483SS) turn nut downward until completing one full rotation and insert pin into nearest hole.
11. Moving on to the left side, remove quick insert pin. Next using both supplied wrenches (P/N#140483SS) turn nut downward until completing one full rotation and insert pin into nearest hole.

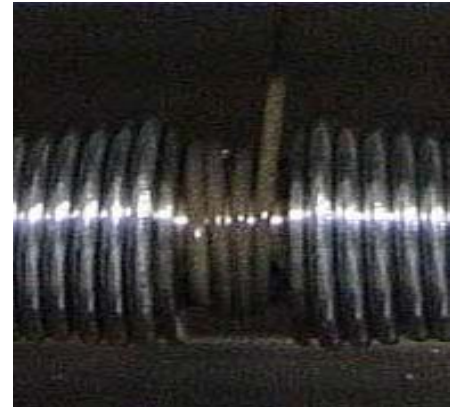


FIGURE 7



TIP- One revolution is just a starting point for tensioning system. Follow all the steps to correctly tension system.



FIGURE 8



FIGURE 9

12. Loosen one (1) 3/8"(9.5mm) bolt this will allow for rotation of the proximity disc(3). Using your hand rotate the proximity disc until the groove is centered on the proximity switch(2). With the proximity disc in position, torque (1) 3/8"(9.5mm) to 15 ft/lbs.

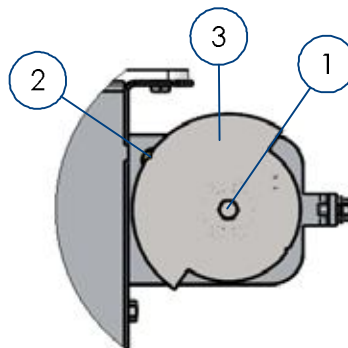


FIGURE 10

SYSTEM TENSIONING - EXTERNAL TORSION SPRINGS**MODEL - 4300, 6300**

13. Replace tensioning spring cover. Make sure to route proximity switch wire through notch on top of the cover. Use the 2 - 3/8"(9.5mm) bolts that were removed in step 3 to attach the torsion spring cover. (see figure 11)
14. Again ensure both drive and turnaround sprockets are in time.



TIP-Back(Cone shaped) side is engaged with the sprocket tooth.

See figure 12



FIGURE 11

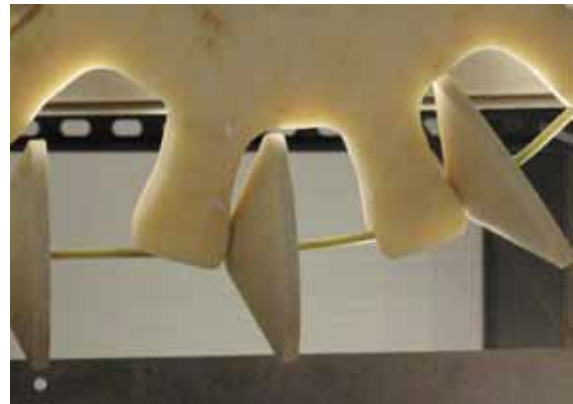


FIGURE 12

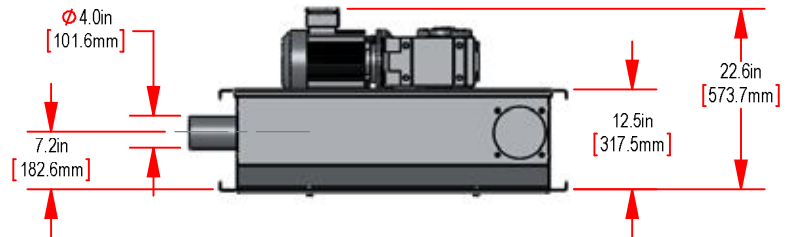
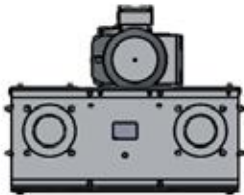
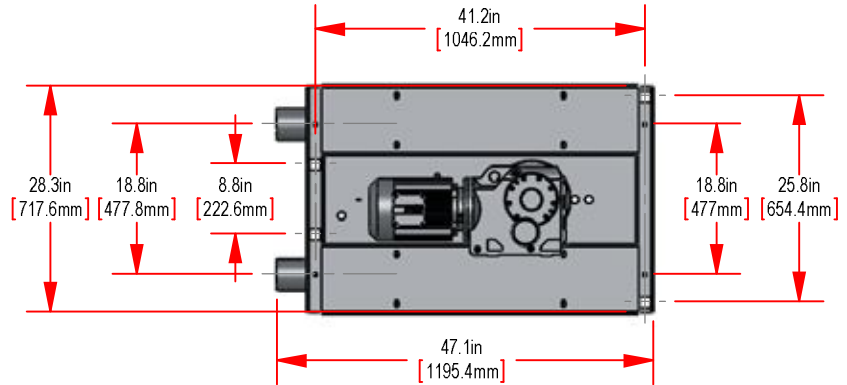
15. Ensure all safety devices are installed and operational and that all tools and personnel are clear from the system.
16. Start the system at 10hz, slowly increasing the speed up to systems operating speed (no more than 60hz) while watching the cable and discs entering return port of the drive unit. If slack in cable/discs catching on return port of drive frame is present, stop system and lock out.
17. Repeat steps 10-16 adding 1/4 turn to each spring and repeat this step until cable enters return port smoothly.
18. If cable enters smoothly during increasing speed at initial spring setting, it is recommended to loosen spring tension by 1/4 turn to each spring at a time until cable slack is present then return to previous smooth operating tension.
19. For optimal performance it is required to apply the minimum amount of tension needed for smooth operation of Cablevey and standard operational speed.
20. It is required to readjust tensioning after product has been introduced, and after 100 hours of operation, and if cleaning tools are installed on the system as each of these scenarios change the friction on the tensioned side of the cable and the tensioning will need to be adjusted up or down accordingly for optimal performance.

DO NOT APPLY MORE THAN 2 FULL ROTATIONS TO SPRINGS. If after 2 full rotations, slack is still present, call Cablevey at 1-800-247-3344 for Technical Support.

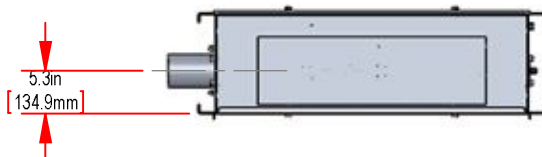
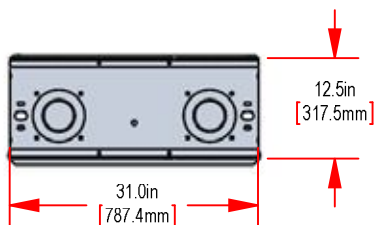
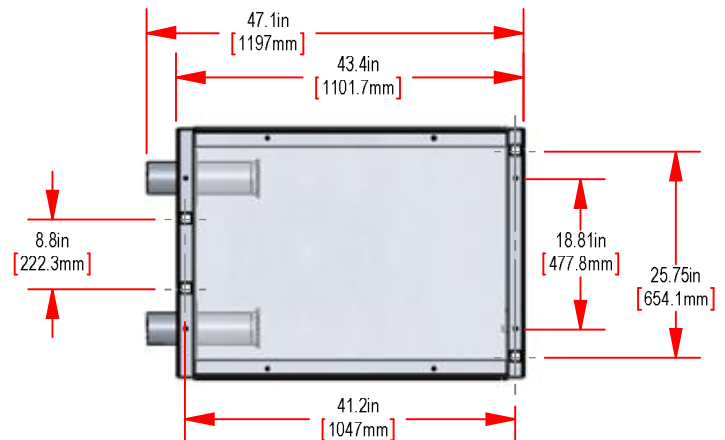
DO NOT APPLY LESS THAN 1/2 ROTATION TO SPRINGS less than 1/2 rotation will prevent tension proximity switch from performing properly.

4000 SERIES COMPONENT DIMENSIONS

P/N# - C00140DD

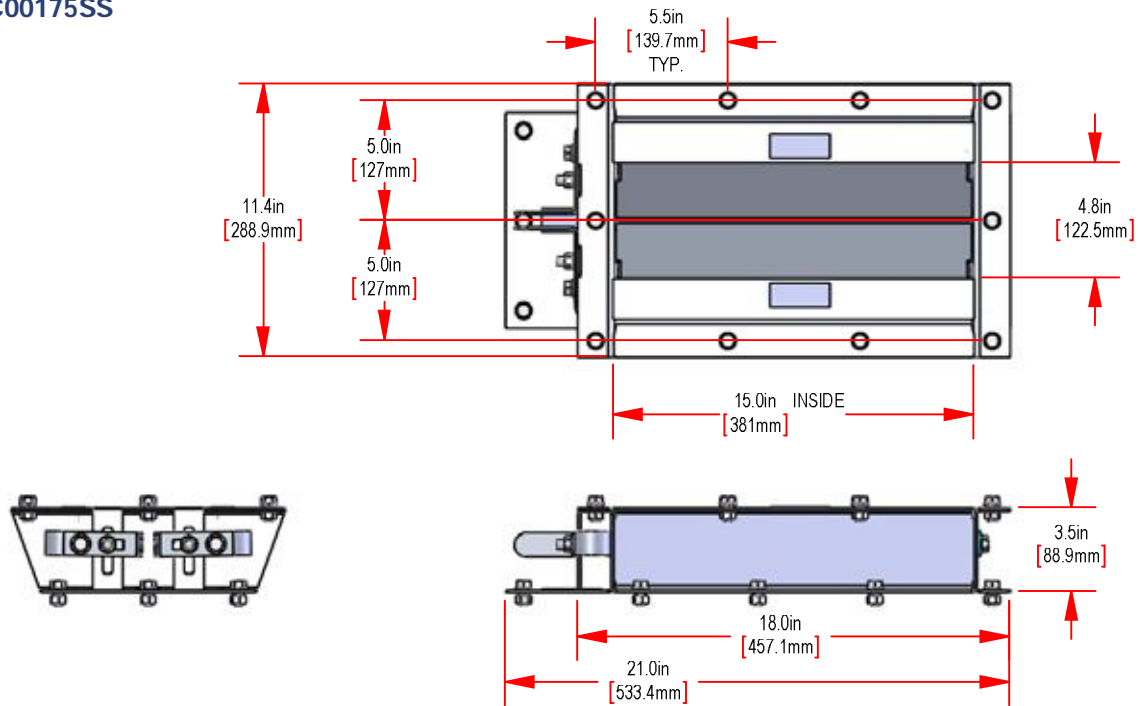


P/N# - C00141SS

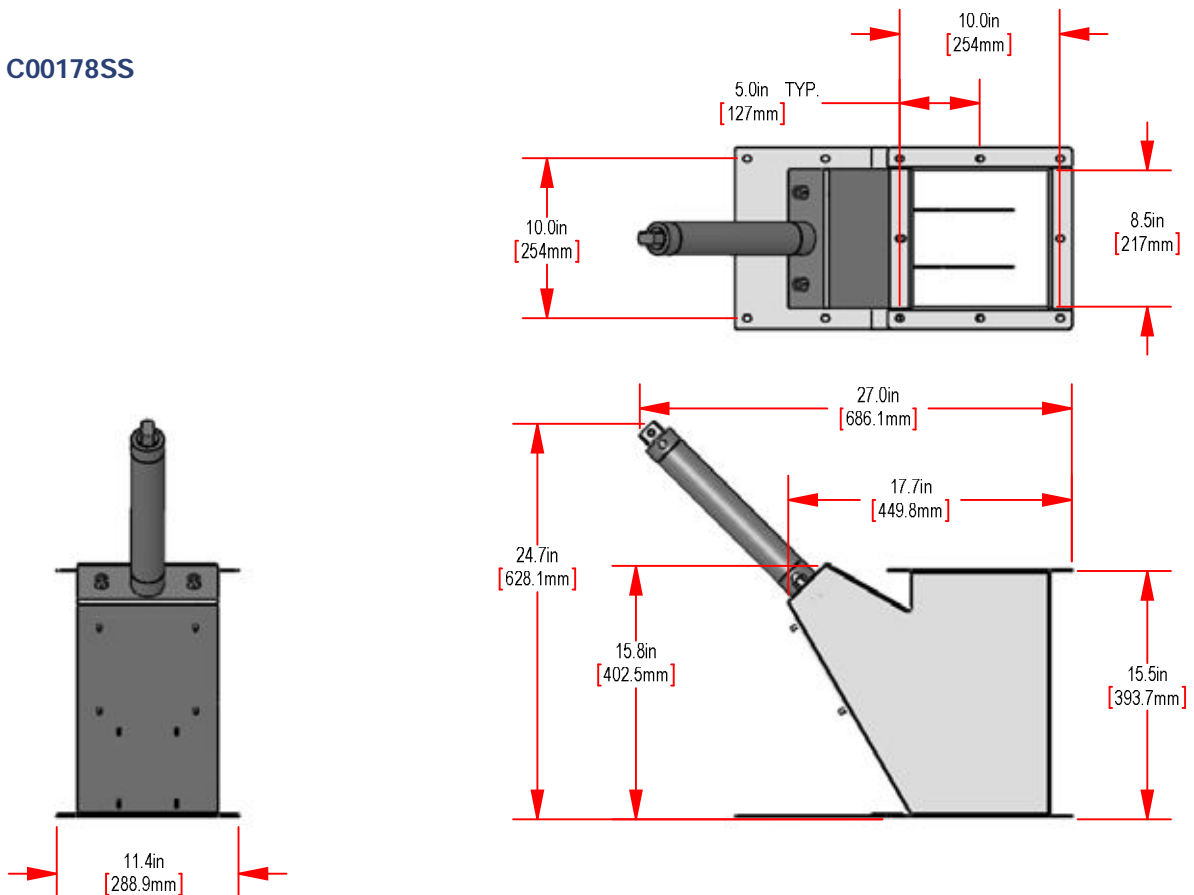


4000 SERIES COMPONENT DIMENSIONS

P/N# - C00175SS



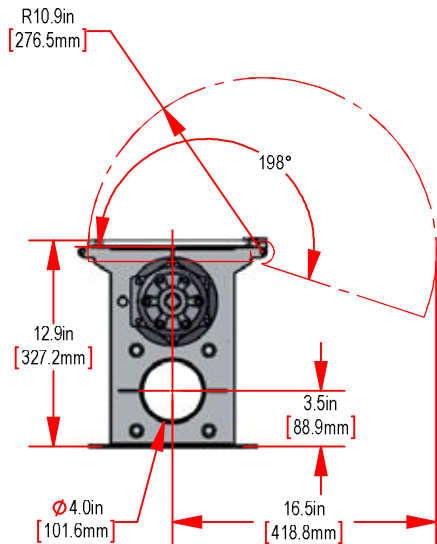
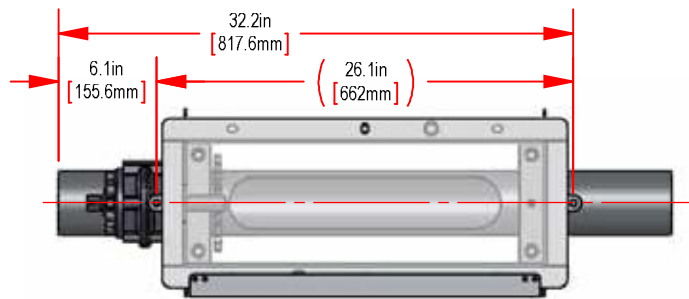
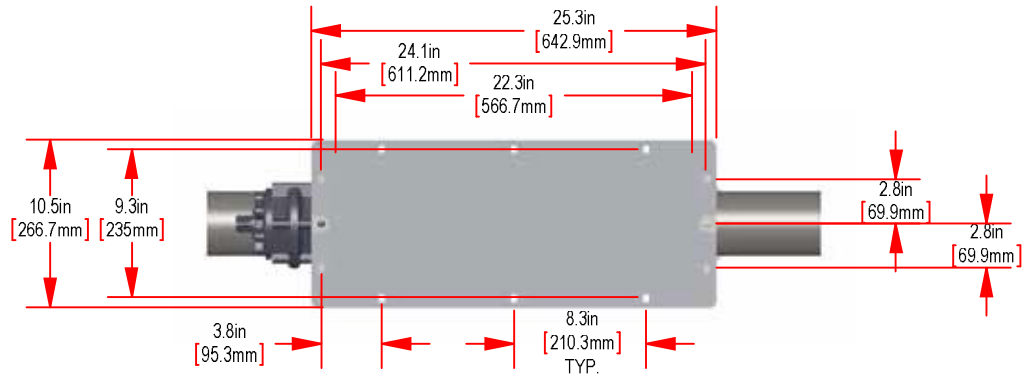
P/N# - C00178SS



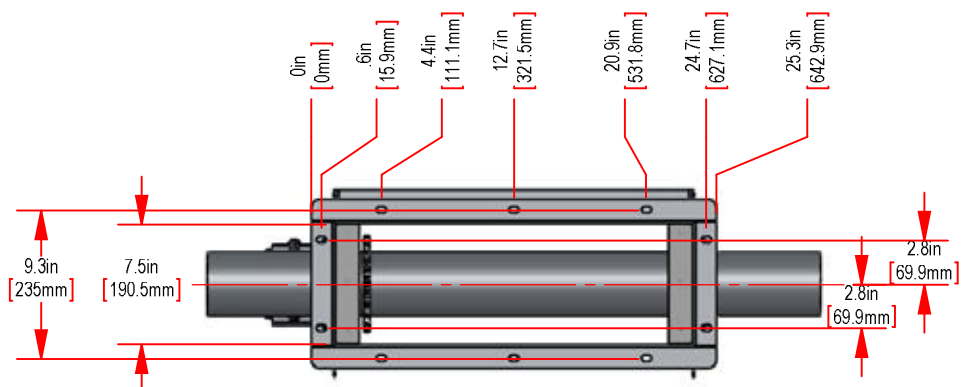
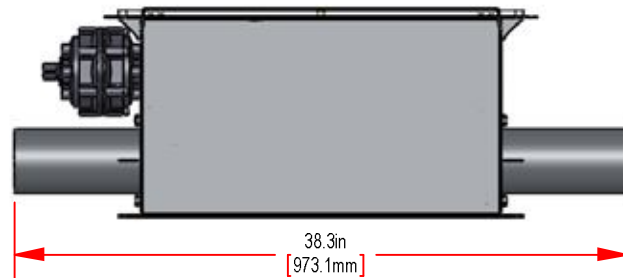
4000 SERIES COMPONENT DIMENSIONS

P/N# - C00166SS

P/N# - C00166SS BOLTED COVER

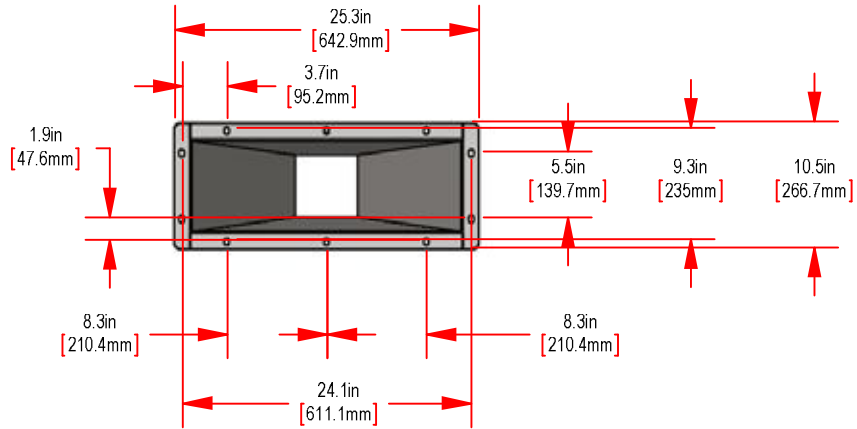


P/N# - C00166SS HINGED COVER

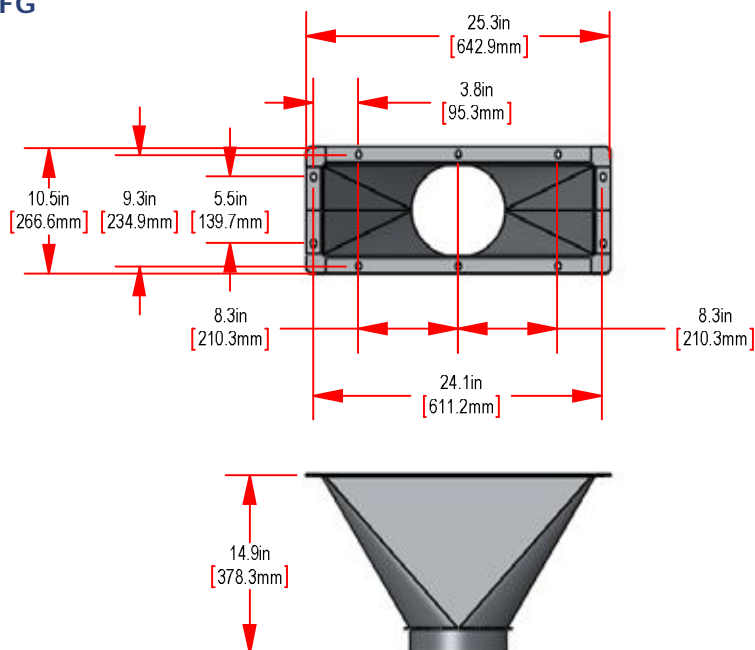


4000 SERIES COMPONENT DIMENSIONS

P/N# - 140457SS

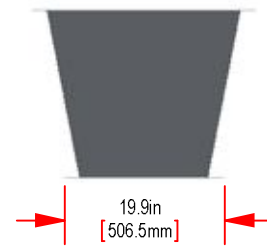
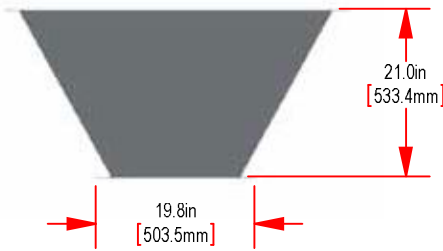
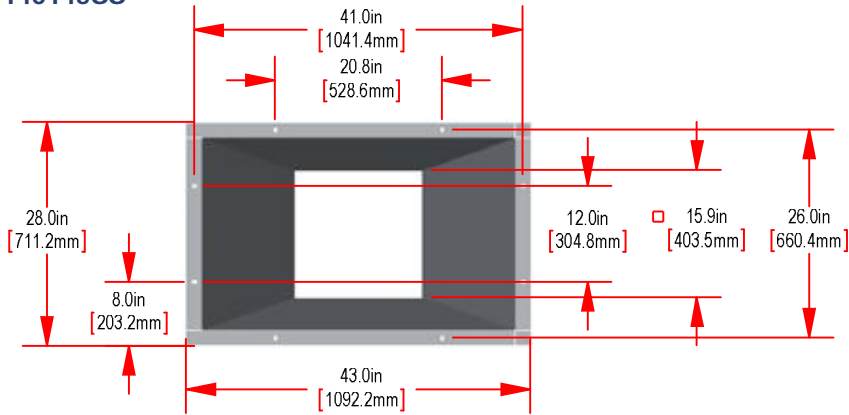


P/N# - 140492SSFG

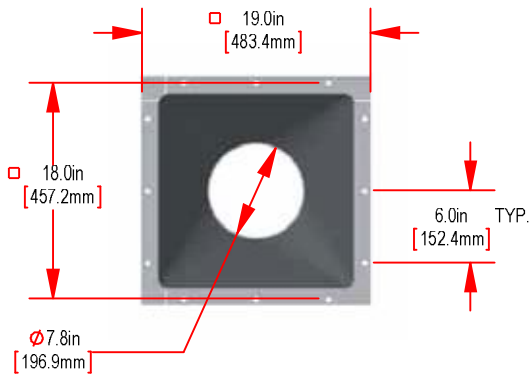


4000 SERIES COMPONENT DIMENSIONS

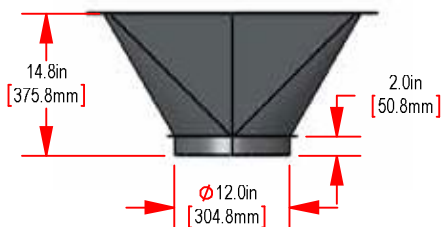
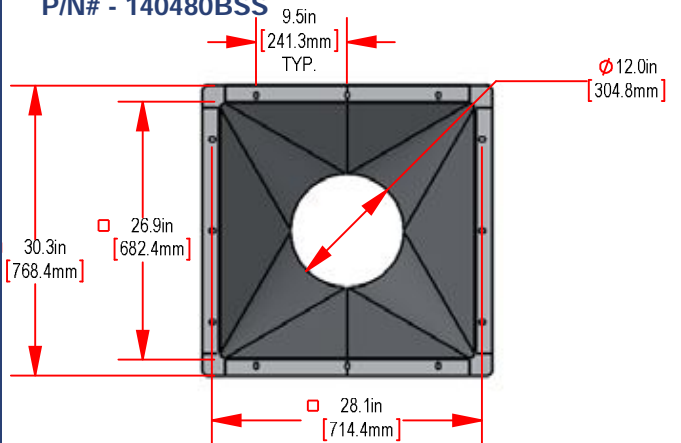
P/N# - 140145SS



P/N# - 140131SS

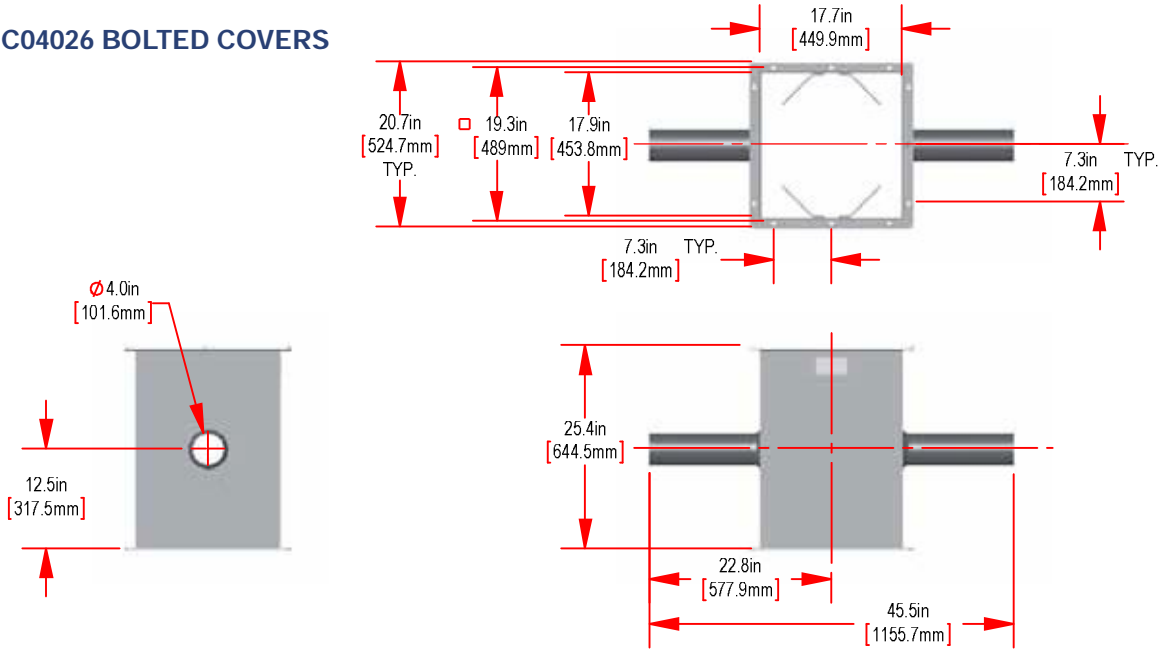


P/N# - 140480BSS

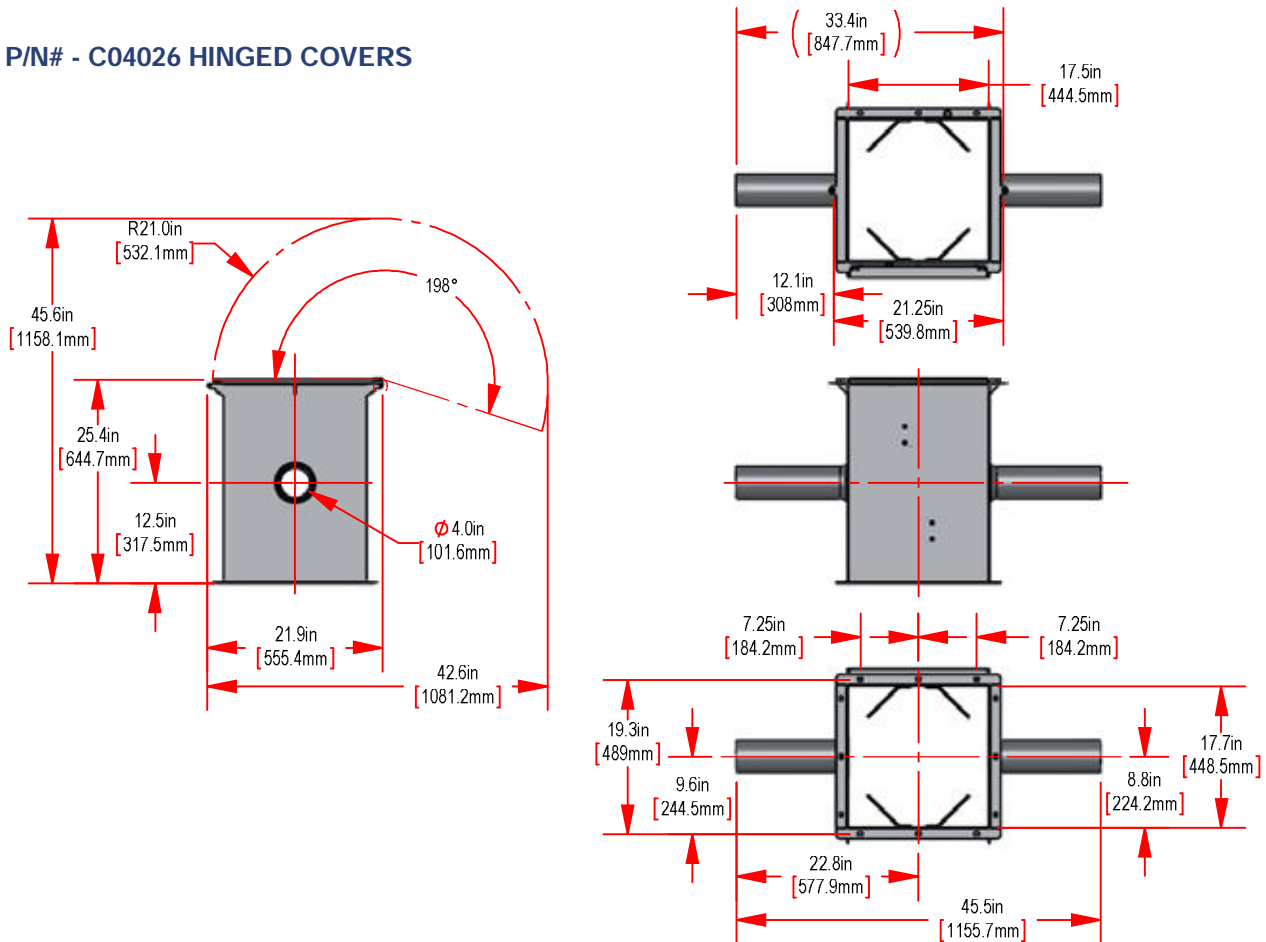


4000 SERIES COMPONENT DIMENSIONS

P/N# - C04026 BOLTED COVERS

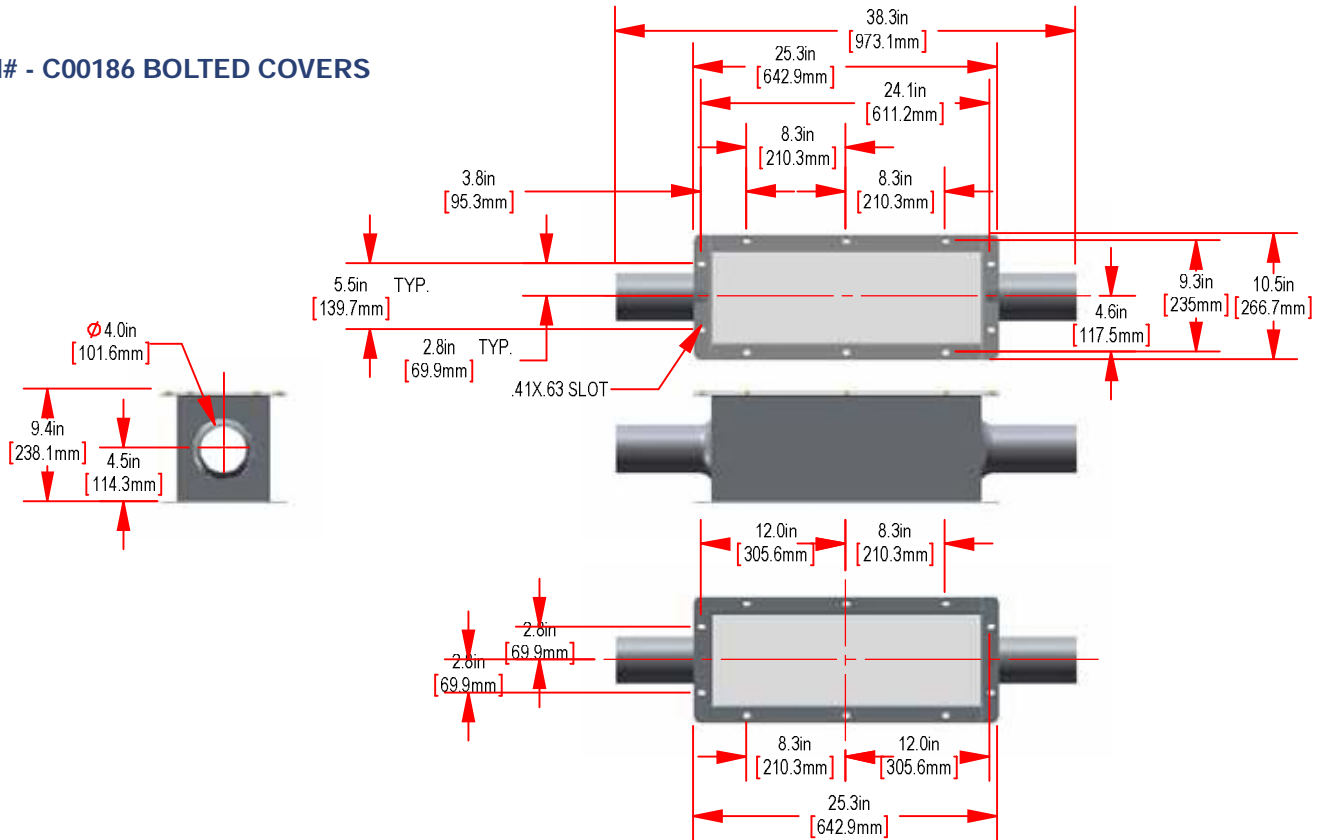


P/N# - C04026 HINGED COVERS

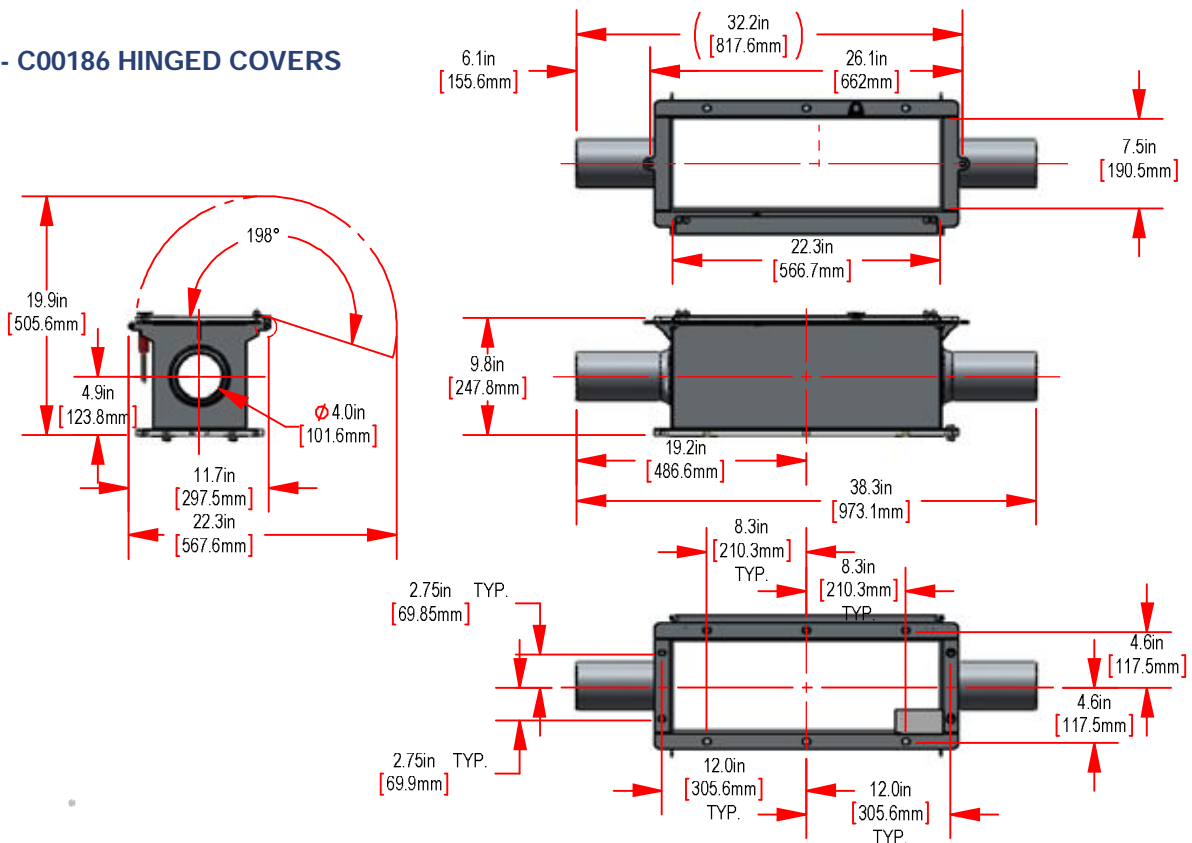


4000 SERIES COMPONENT DIMENSIONS

P/N# - C00186 BOLTED COVERS

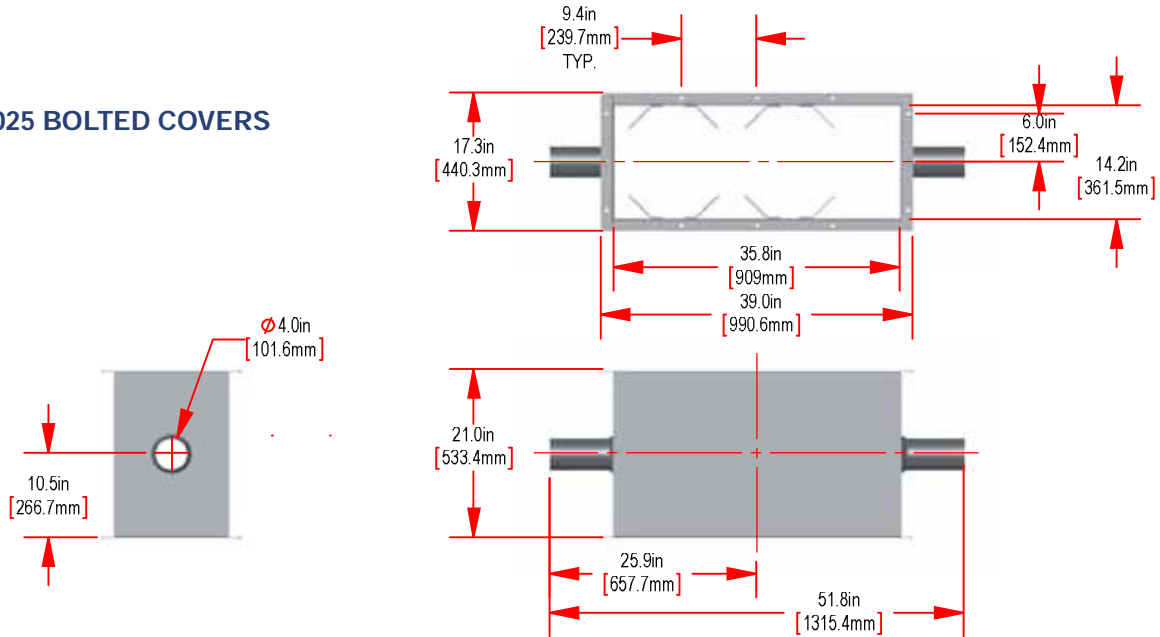


P/N# - C00186 HINGED COVERS

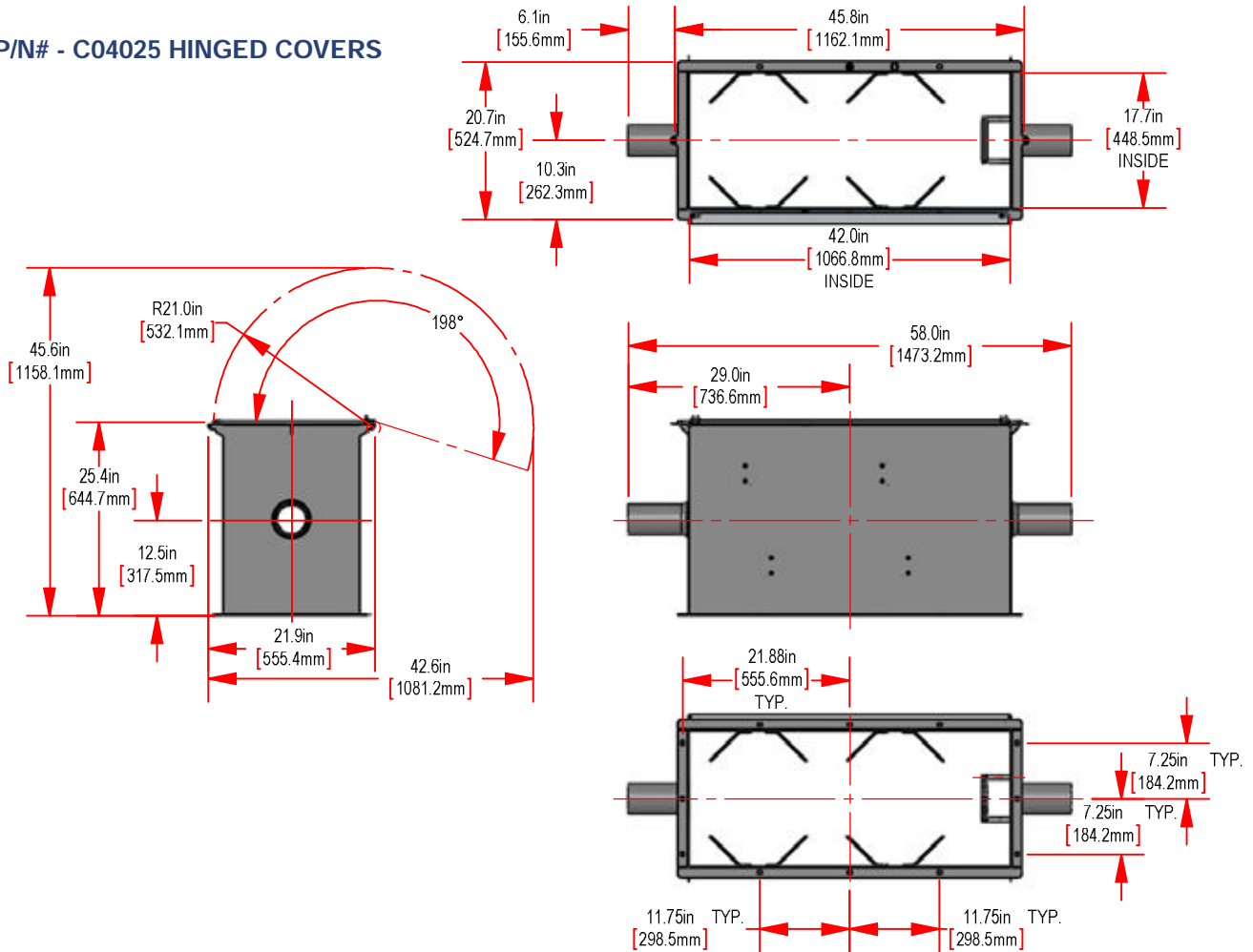


4000 SERIES COMPONENT DIMENSIONS

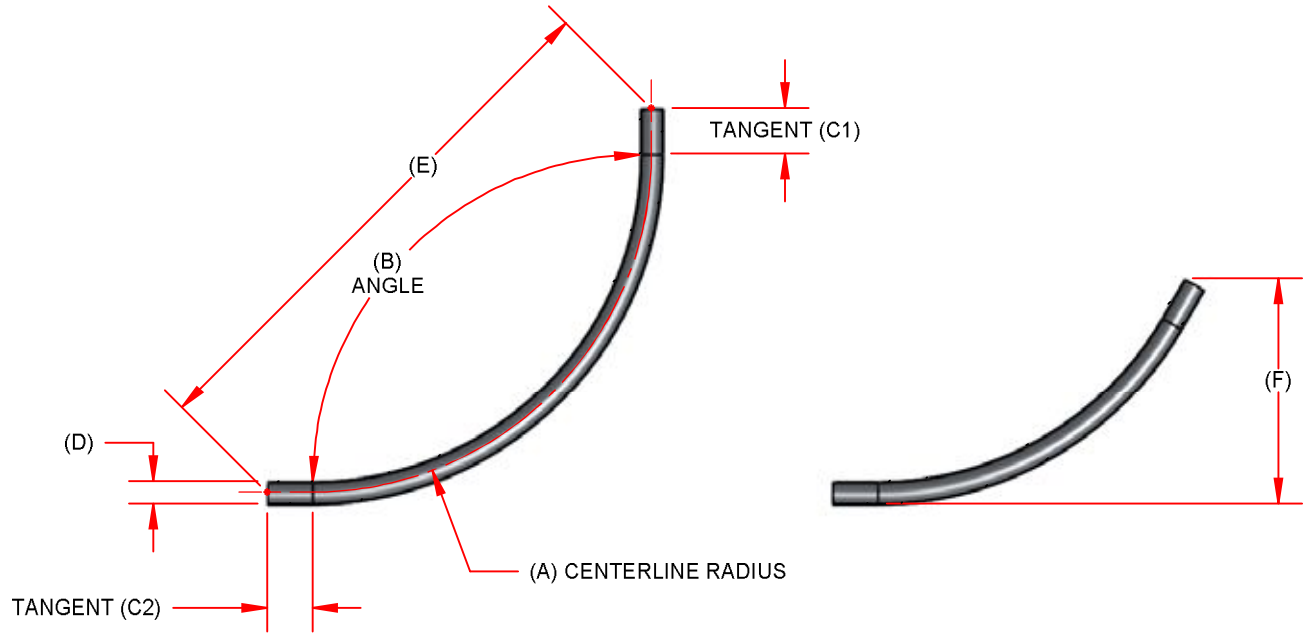
P/N# - C04025 BOLTED COVERS



P/N# - C04025 HINGED COVERS



4000 SERIES COMPONENT DIMENSIONS



| P/N | (A) - CLR | | (B) - ANGLE | (C) - TANGENT | | (D) - DIAMETER | | (E) - DISTANCE | | (F) - DISTANCE | | *WEIGHT | |
|-------------|-----------|--------|-------------|---------------|-------|----------------|-------|----------------|----------|----------------|----------|---------|----|
| | IN | MM | Degree | IN | MM | IN | MM | INCHES | MM | INCHES | MM | LBS | KG |
| 140066SS | 36 | 914.4 | 90 | 8 | 203.2 | 4 | 101.6 | 62.23 | 1580.642 | 46.00 | 1168.4 | 35 | 16 |
| 140114SS | 36 | 914.4 | 60 | 8 | 203.2 | 4 | 101.6 | 49.86 | 1266.444 | 27.87 | 707.898 | 25 | 11 |
| 140083SS | 36 | 914.4 | 45 | 8 | 203.2 | 4 | 101.6 | 42.34 | 1075.436 | 19.62 | 498.348 | 20 | 9 |
| 140368SS | 36 | 914.4 | 30 | 8 | 203.2 | 4 | 101.6 | 34.09 | 865.886 | 12.56 | 319.024 | 15 | 7 |
| 140054SS | 48 | 1219.2 | 90 | 8 | 203.2 | 4 | 101.6 | 79.2 | 2011.68 | 58.00 | 1473.2 | 40 | 18 |
| 140084SS | 48 | 1219.2 | 60 | 8 | 203.2 | 4 | 101.6 | 61.86 | 1571.244 | 33.93 | 861.822 | 30 | 14 |
| 140236SS | 48 | 1219.2 | 55 | 8 | 203.2 | 4 | 101.6 | 58.52 | 1486.408 | 30.17 | 766.318 | 30 | 14 |
| 140067SS | 48 | 1219.2 | 45 | 8 | 203.2 | 4 | 101.6 | 51.52 | 1308.608 | 23.13 | 587.502 | 25 | 11 |
| 140085SS | 48 | 1219.2 | 30 | 8 | 203.2 | 4 | 101.6 | 40.3 | 1023.62 | 14.16 | 359.664 | 20 | 9 |
| 140054SS-15 | 48 | 1219.2 | 15 | 8 | 203.2 | 4 | 101.6 | 28.39 | 721.106 | 8.72 | 221.488 | 15 | 7 |
| 140054SS-18 | 48 | 1219.2 | 18 | 8 | 203.2 | 4 | 101.6 | 30.82 | 782.828 | 7.64 | 194.056 | 15 | 7 |
| 140288SS | 48 | 1219.2 | 10 | 8 | 203.2 | 4 | 101.6 | 24.31 | 617.474 | 6.09 | 154.686 | 12 | 5 |
| 140295SS | 48 | 1219.2 | 5 | 8 | 203.2 | 4 | 101.6 | 20.17 | 512.318 | 4.87 | 123.698 | 10 | 5 |
| 140062SS | 60 | 1524.0 | 90 | 8 | 203.2 | 4 | 101.6 | 89.42 | 2271.268 | 70.00 | 1778 | 50 | 23 |
| 140187SS | 60 | 1524.0 | 60 | 8 | 203.2 | 4 | 101.6 | 73.86 | 1876.044 | 39.93 | 1014.222 | 35 | 16 |
| 140219SS | 60 | 1524.0 | 45 | 8 | 203.2 | 4 | 101.6 | 60.7 | 1541.78 | 26.56 | 674.624 | 30 | 14 |

*WEIGHT IS APPROXIMATE
WEIGHTS MAY CHANGE AT ANY TIME WITHOUT NOTICE.

4000 SERIES COMPONENT WEIGHTS

| DRIVE UNIT | | *WEIGHT | |
|-------------------|--|----------------|------------|
| | | LBS. | KG. |
| C00140DD | DRIVE FRAME W/MOTOR - 4100/4200 SERIES | 400 | 181 |
| C00140DD | DRIVE FRAME W/MOTOR - 4300 SERIES | 334 | 151 |
| 140154SS | FUNNEL - 4100/4200 SERIES DRIVE UNIT | 78 | 35 |
| 140131SS | FUNNEL - 4100/4200 SERIES DRIVE UNIT | 28 | 13 |
| 140480BSS | FUNNEL - 4300 SERIES DRIVE UNIT | 41 | 19 |

TURNAROUND UNIT

| | | | |
|-----------|-------------------------------|-----|-----|
| C00141SS | TURNAROUND - 4100/4200 SERIES | 294 | 133 |
| C00141CIP | TURNAROUND - 4300 SERIES | 257 | 117 |

INLET

| | | | |
|----------|--------------------------|----|----|
| C00146SS | INLET | 0 | 0 |
| C00136SS | INLET | 26 | 12 |
| C00175SS | INLET VALVE BOMBAY DOORS | 0 | 0 |
| C00178SS | INLET - VALVE GATE | 0 | 0 |

DISCHARGE VALVE

| | | | |
|------------|-------------------------------------|----|----|
| C00166SS | DISCHARGE VALVE | 70 | 32 |
| 140457SS | DISCHARGE FUNNEL 8"OUT SS(140456SS) | 18 | 8 |
| 140492SSFG | DISCHARGE FUNNEL | 15 | 7 |

DISCHARGE SECTION

| | | | |
|--------|-------------------|---|---|
| C00186 | DISCHARGE SECTION | 0 | 0 |
|--------|-------------------|---|---|

BRUSH BOX 2 & 4 BRUSH

| | | | |
|--------|---------------------|----|----|
| C04025 | BRUSH BOX - 4 BRUSH | 0 | 0 |
| C04026 | BRUSH BOX - 2 BRUSH | 94 | 43 |

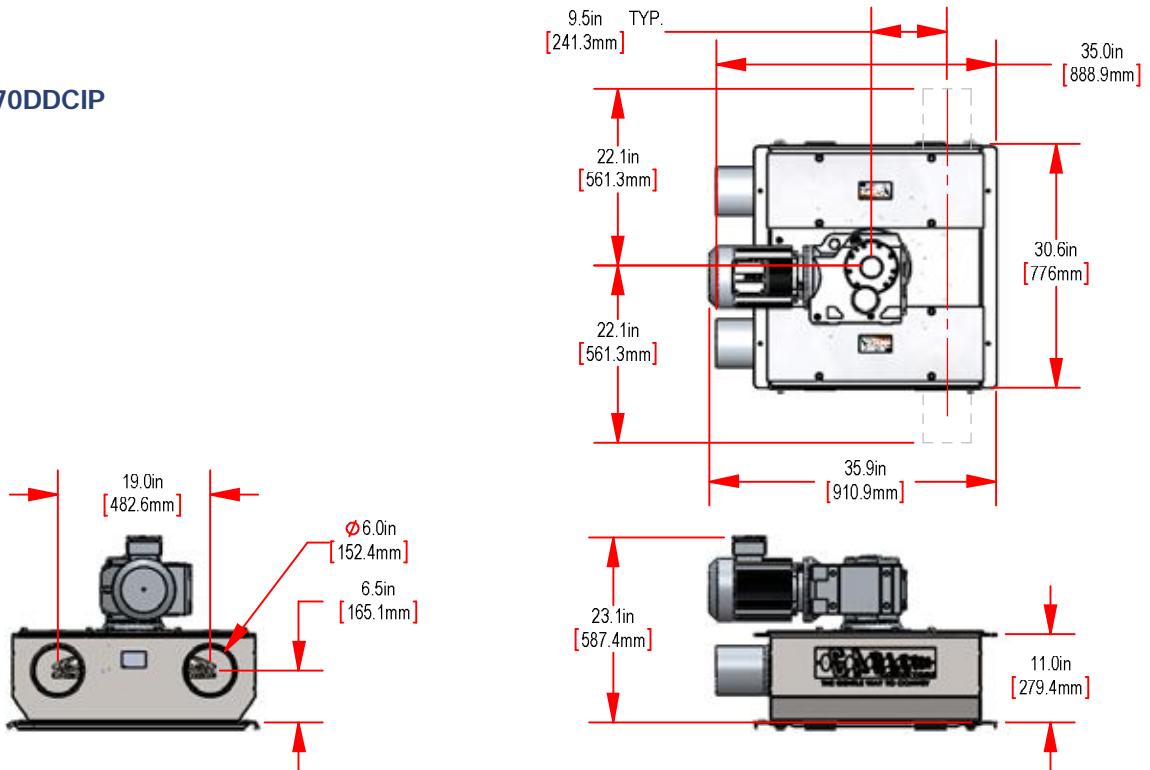
TUBE & COUPLER

| | | | |
|----------|----------------------------|-----|----|
| 140065SS | TUBE 4"OD 11GA 304SS 20'LG | 100 | 45 |
|----------|----------------------------|-----|----|

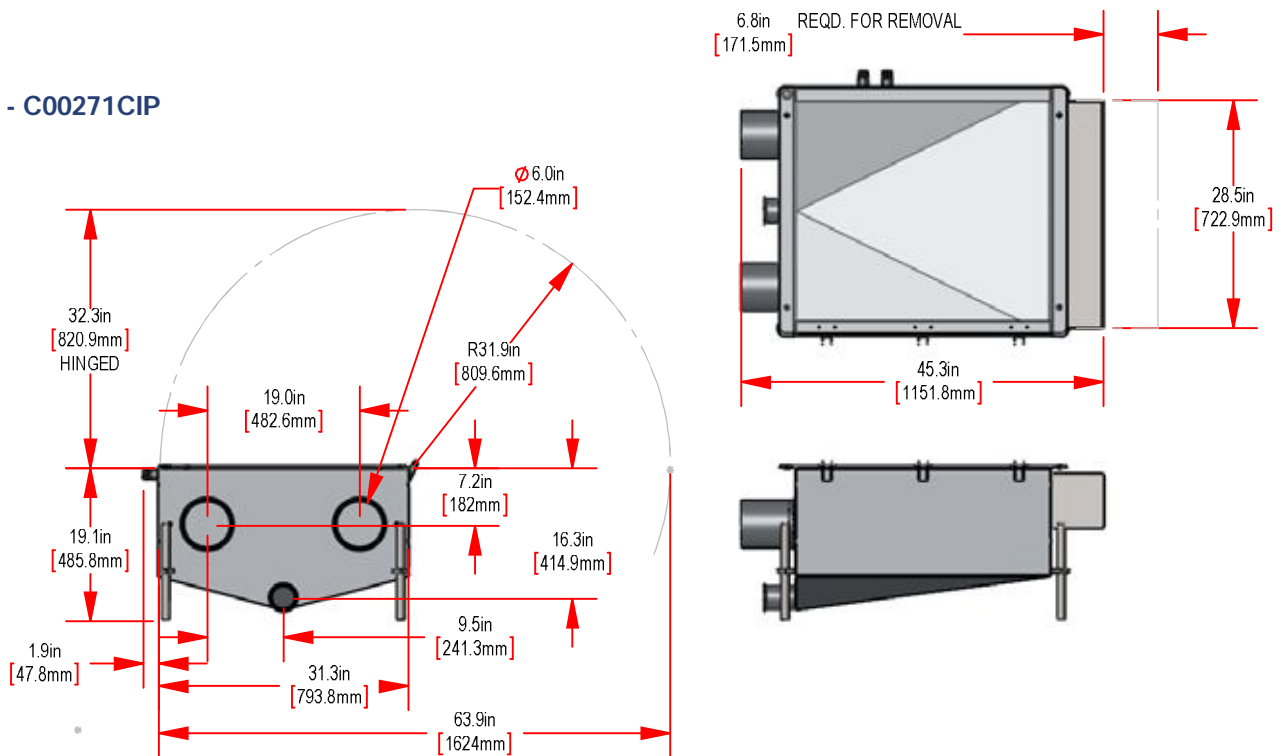
*WEIGHT IS APPROXIMATE
WEIGHTS MAY CHANGE AT ANY TIME WITHOUT NOTICE.

6000 SERIES COMPONENT DIMENSIONS

P/N# - C00270DDCIP

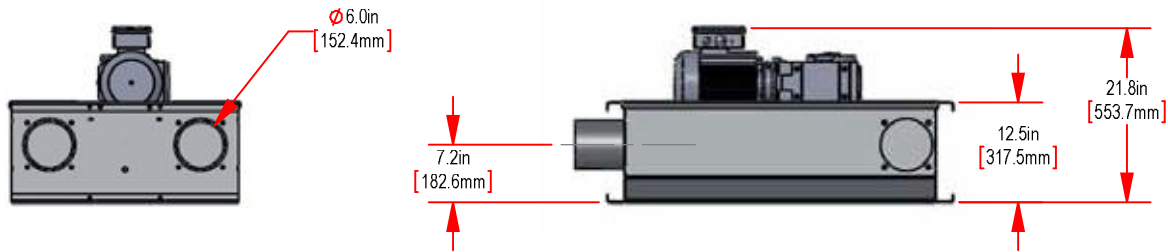
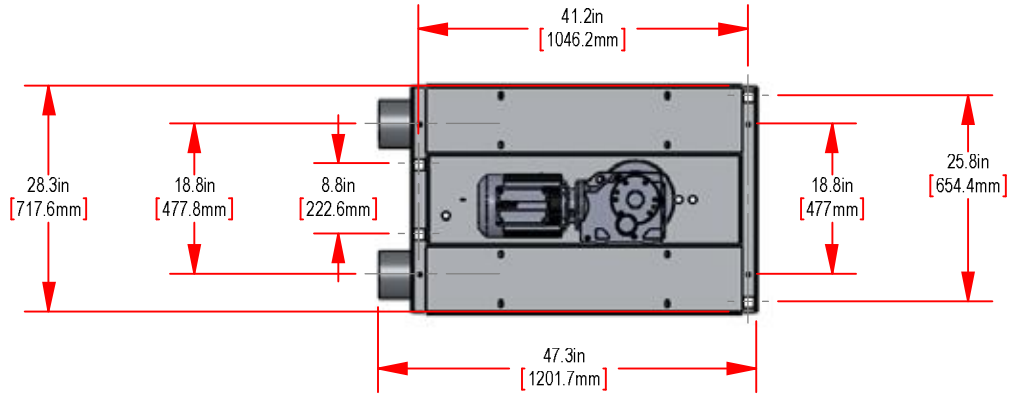


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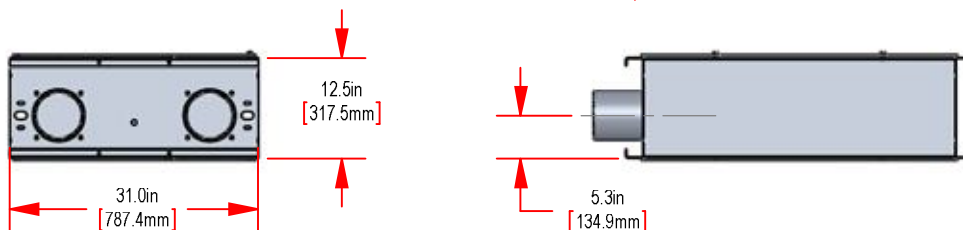
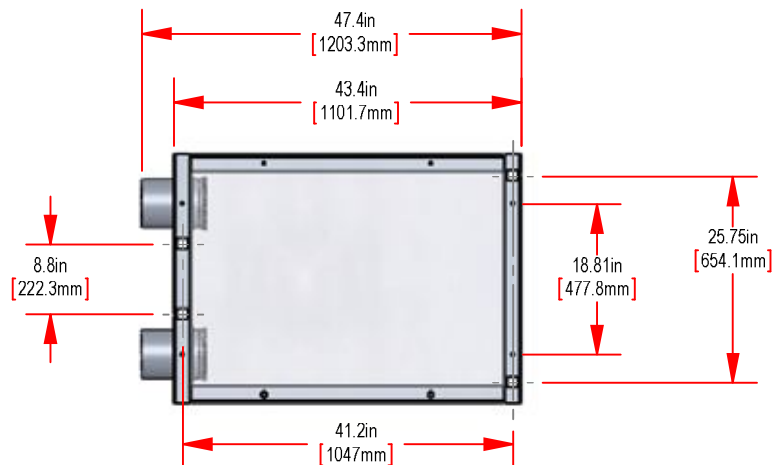


6000 SERIES COMPONENT DIMENSIONS

P/N# - C00270DDFG

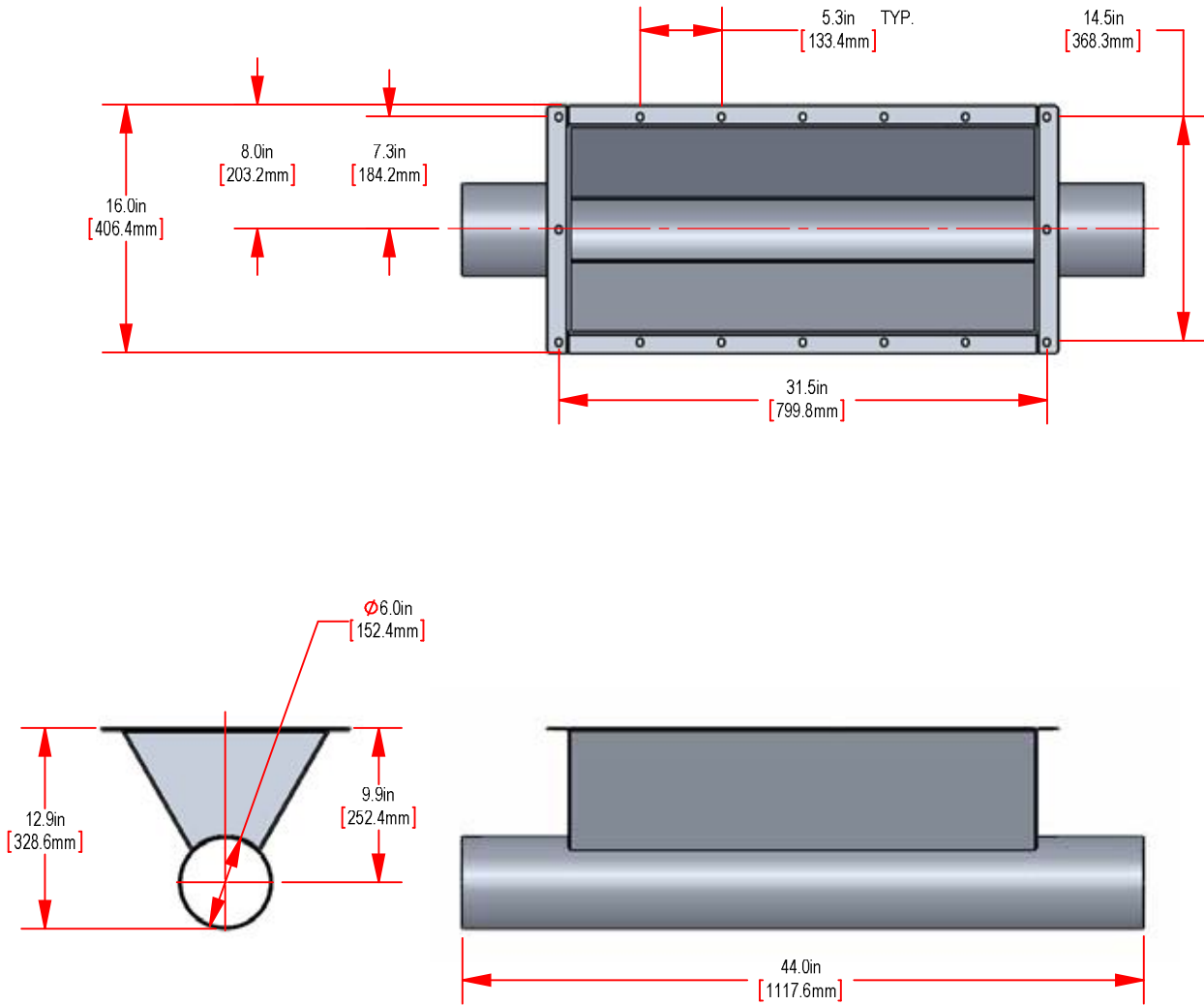


P/N# - C00271SS



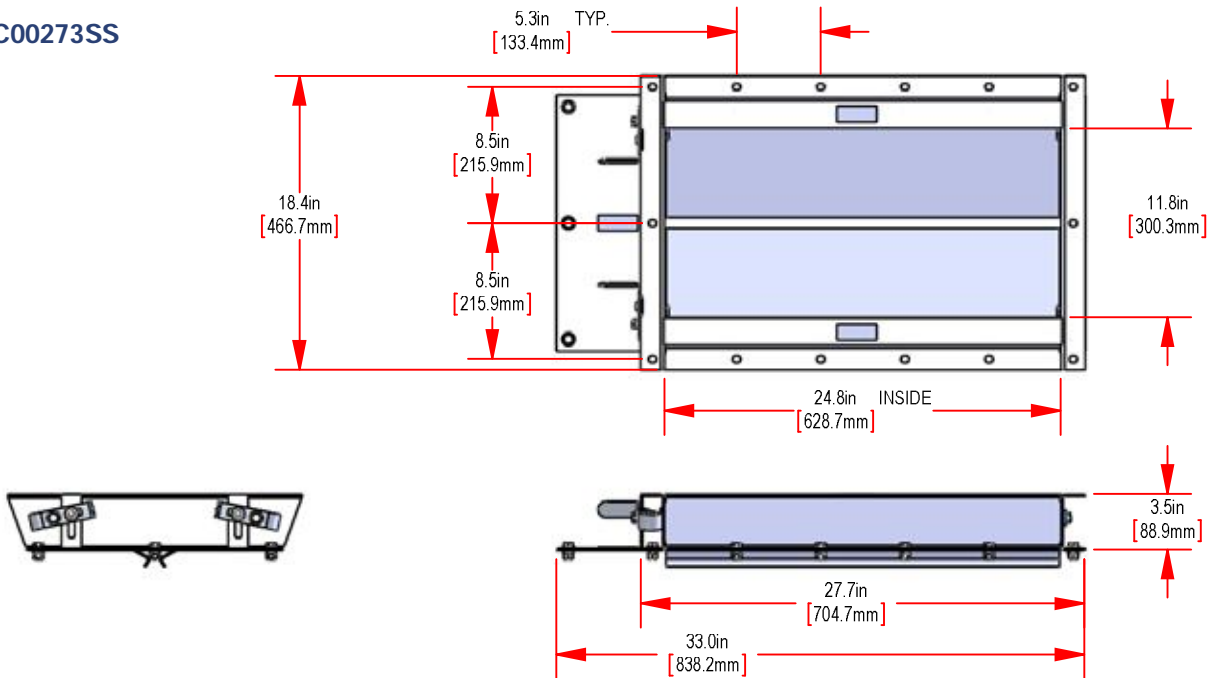
6000 SERIES COMPONENT DIMENSIONS

P/N# - C00272SS

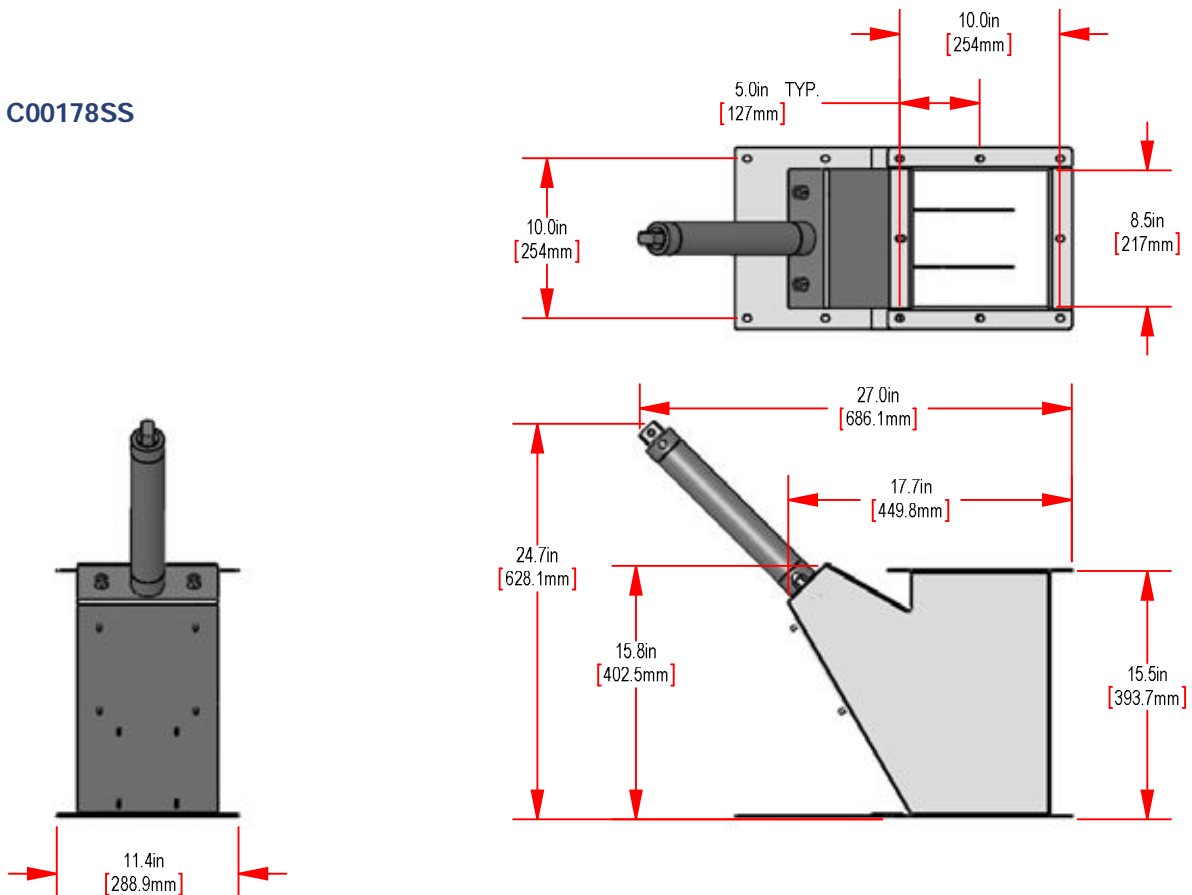


6000 SERIES COMPONENT DIMENSIONS

P/N# - C00273SS

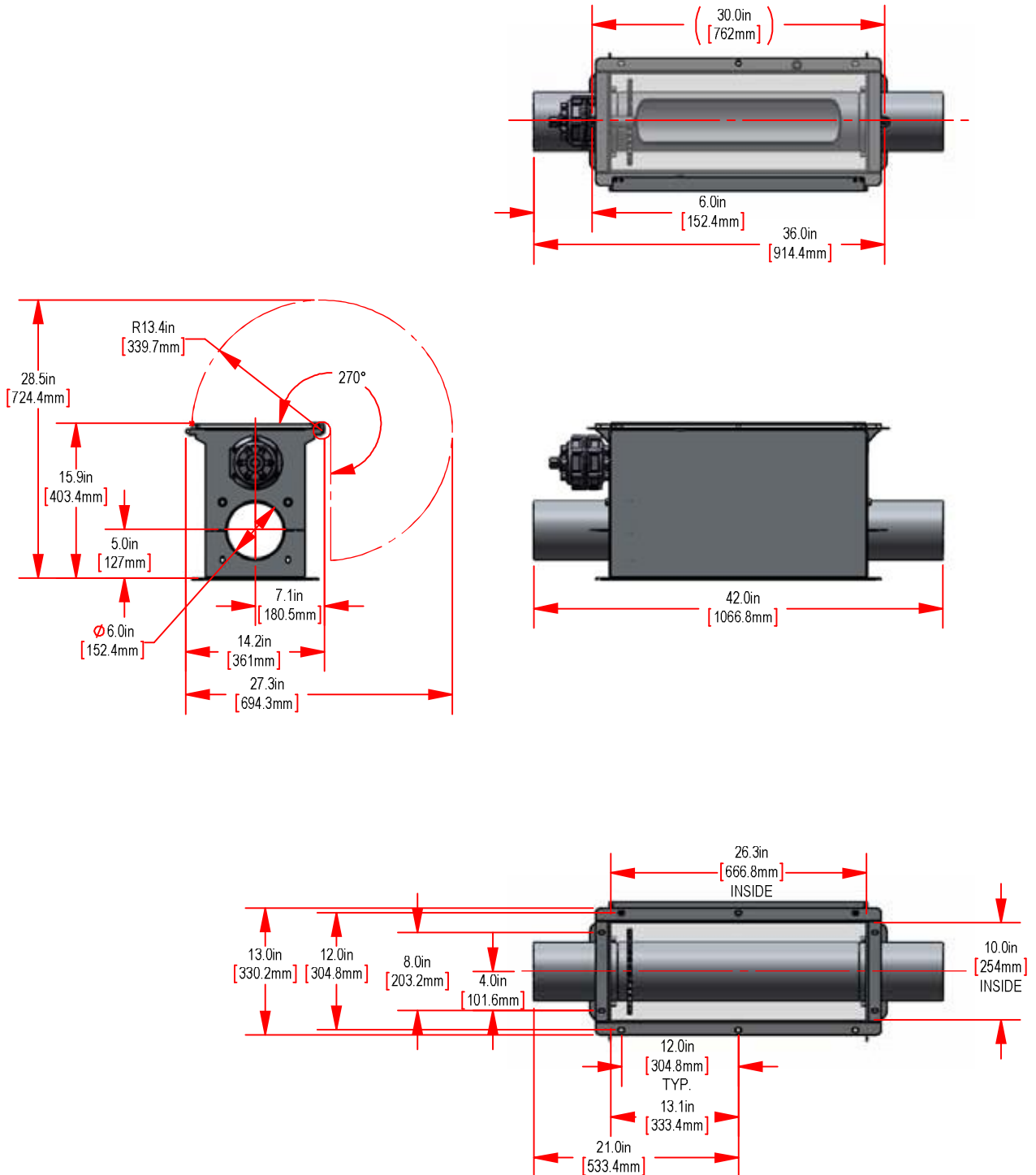


P/N# - C00178SS



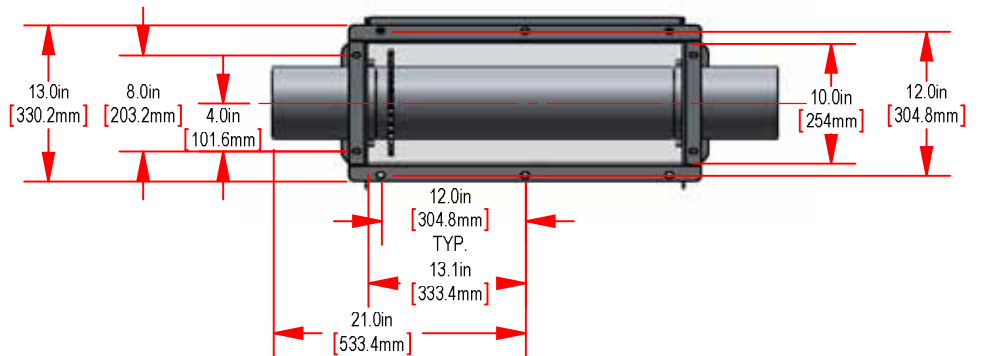
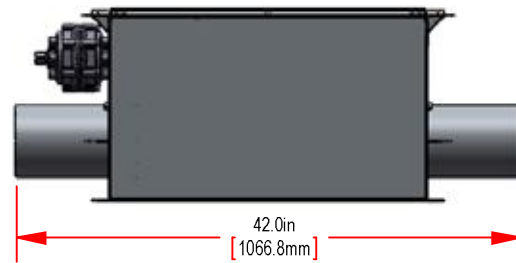
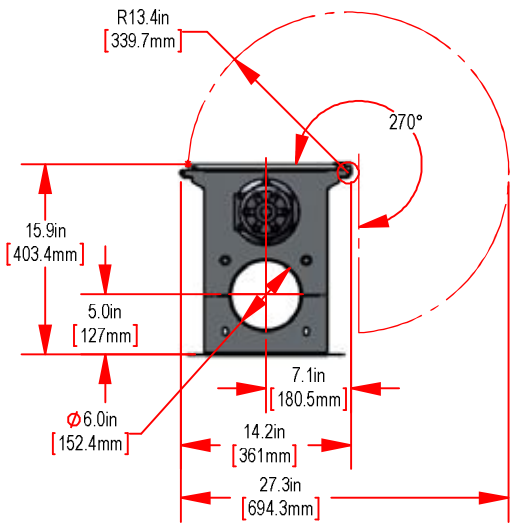
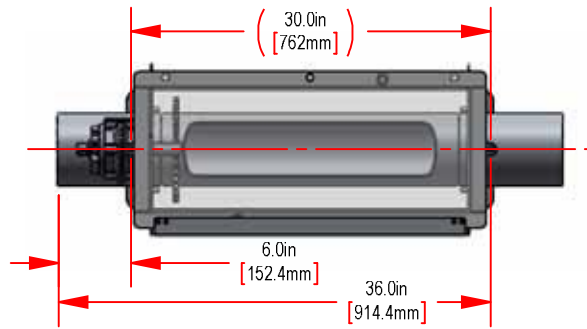
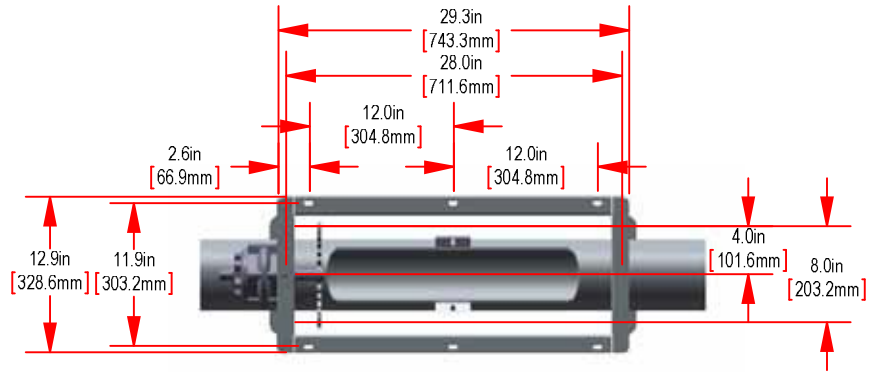
6000 SERIES COMPONENT DIMENSIONS

P/N# - C00274SS BOLTED COVER



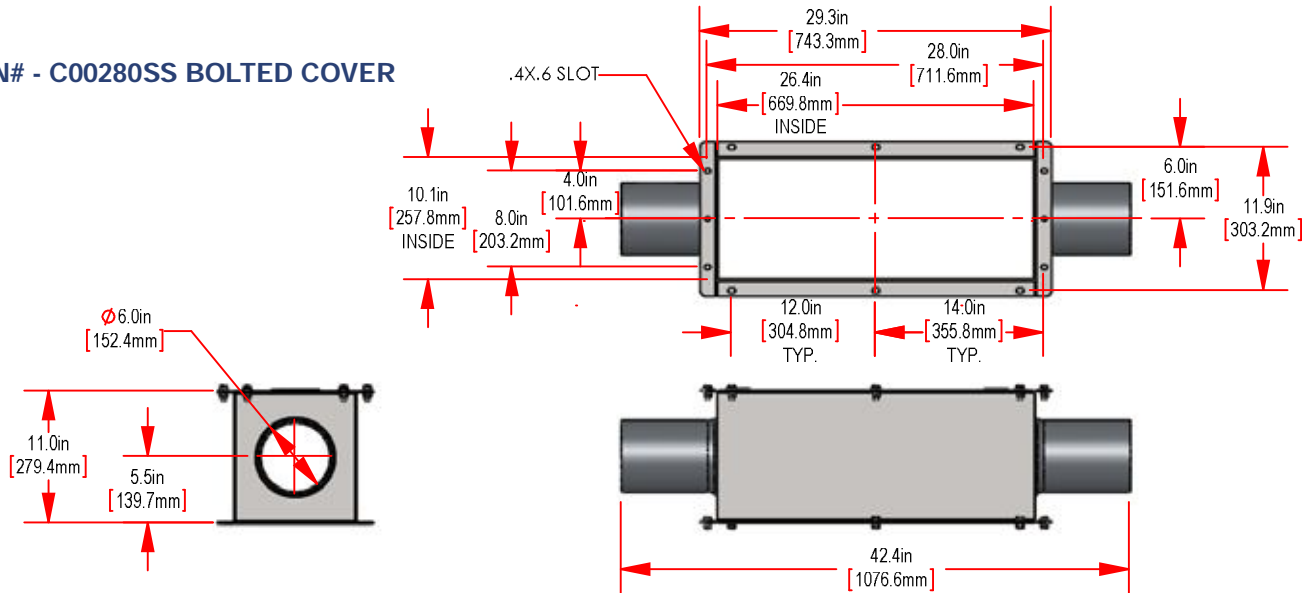
6000 SERIES COMPONENT DIMENSIONS

P/N# - C00274SS HINGED COVER

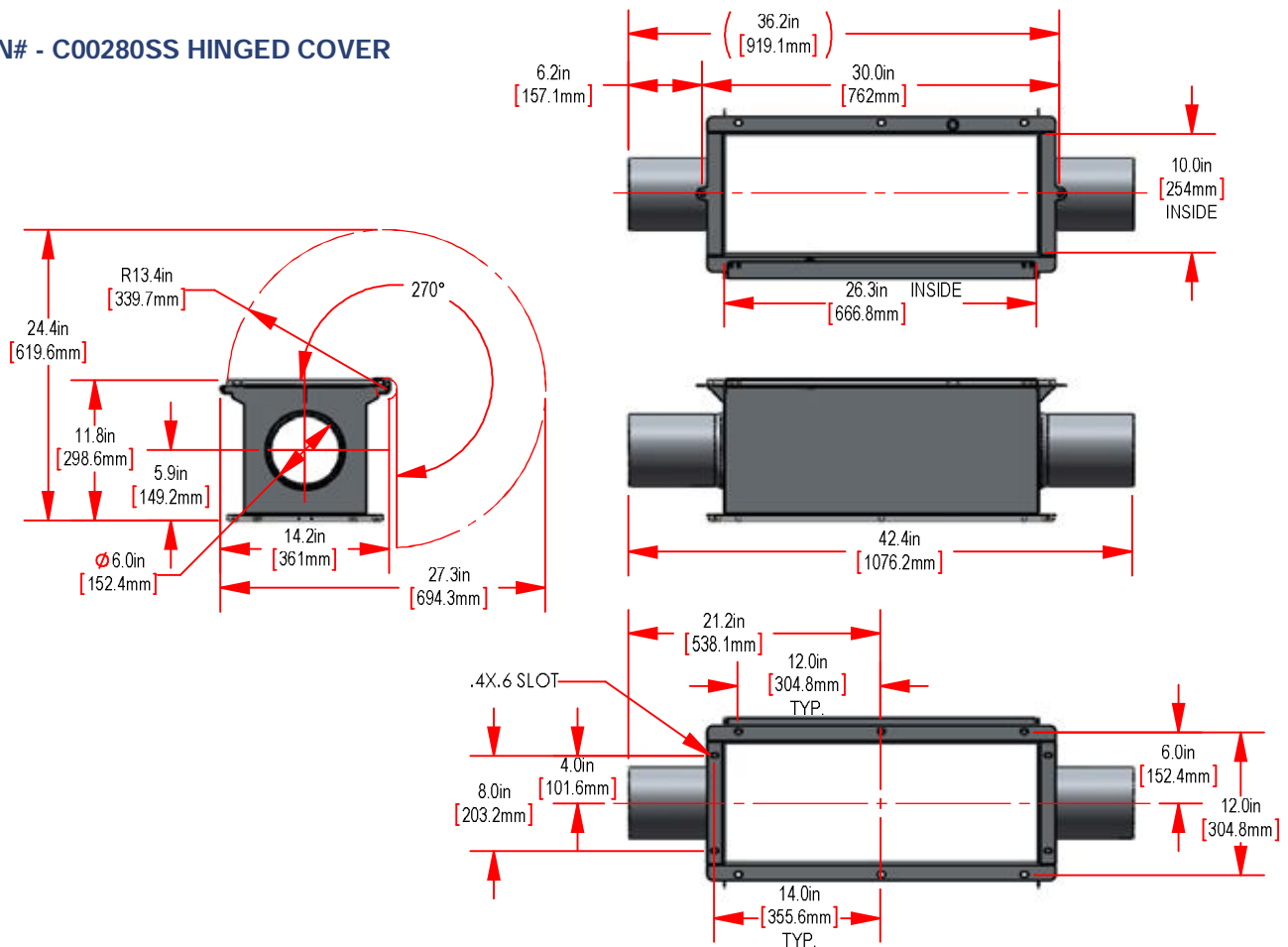


6000 SERIES COMPONENT DIMENSIONS

P/N# - C00280SS BOLTED COVER

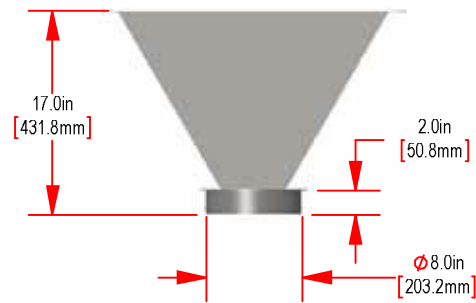
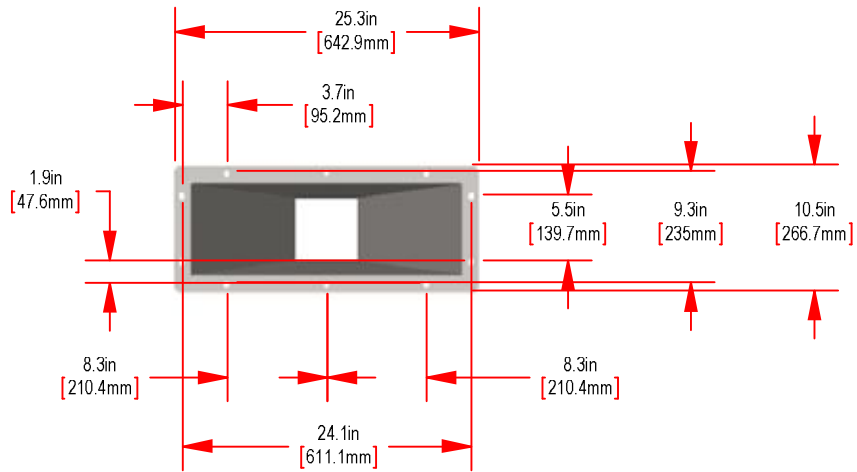


P/N# - C00280SS HINGED COVER

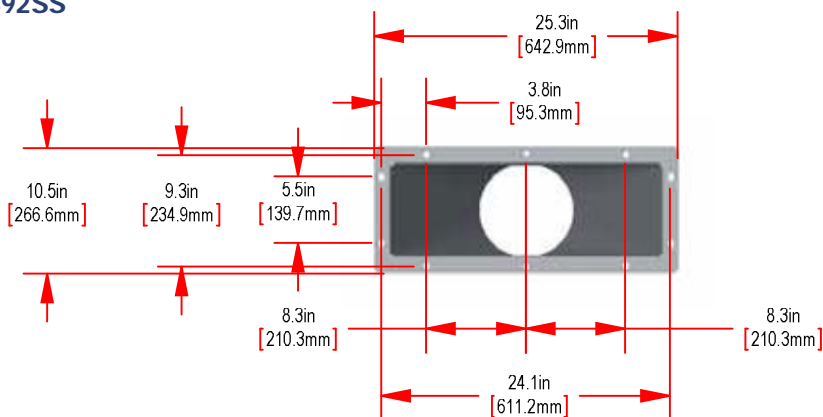


6000 SERIES COMPONENT DIMENSIONS

P/N# - 140457SS

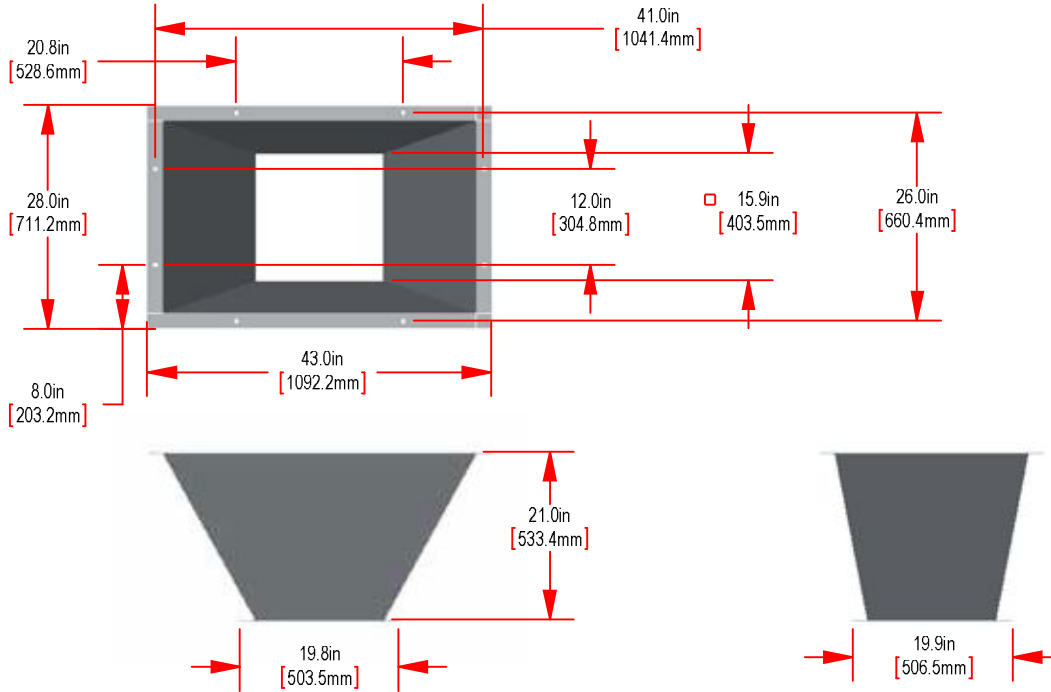


P/N# - 140492SS

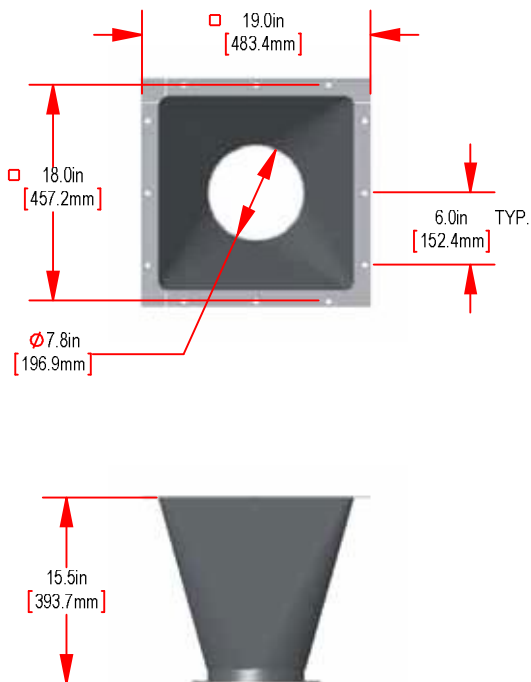


6000 SERIES COMPONENT DIMENSIONS

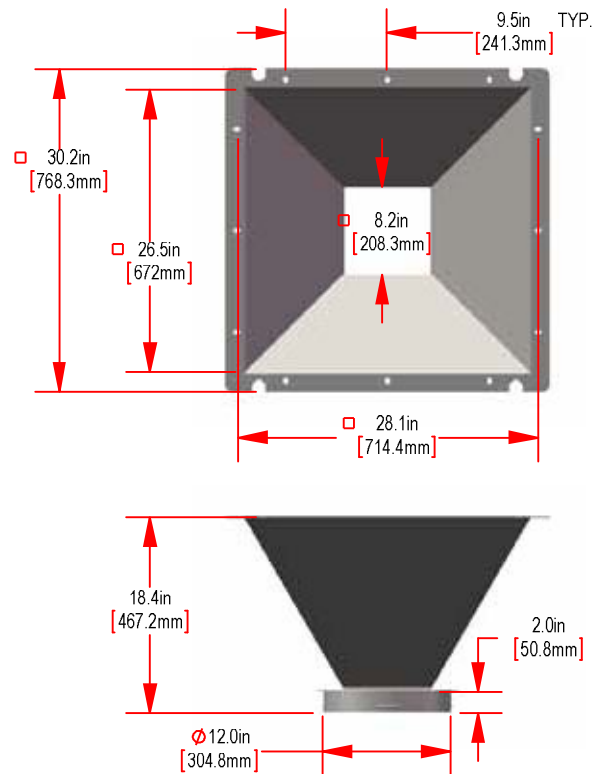
P/N# - 140145SS



P/N# - 140131SS

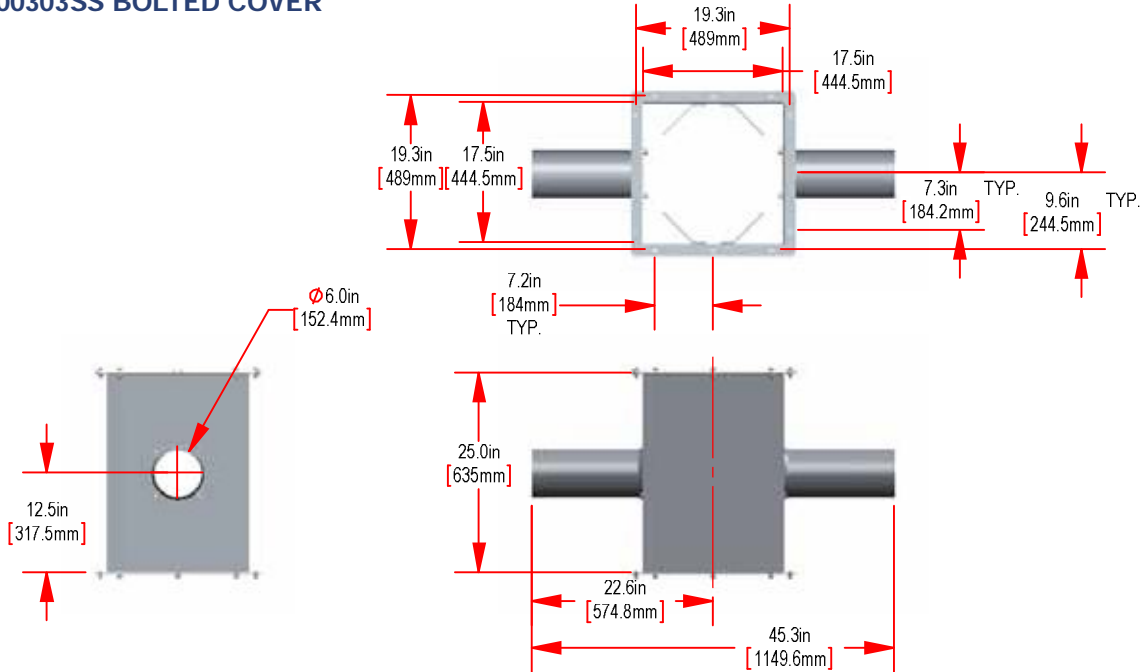


P/N# - 140480SS

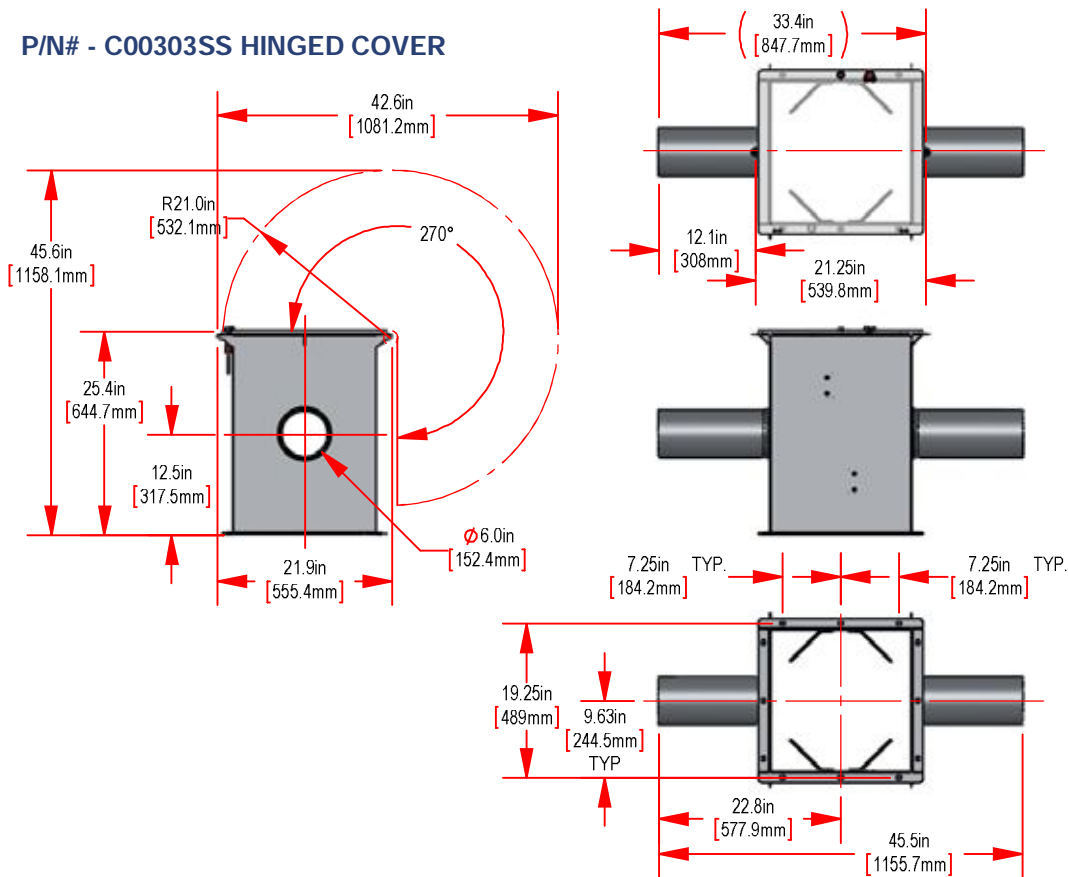


6000 SERIES COMPONENT DIMENSIONS

P/N# - C00303SS BOLTED COVER

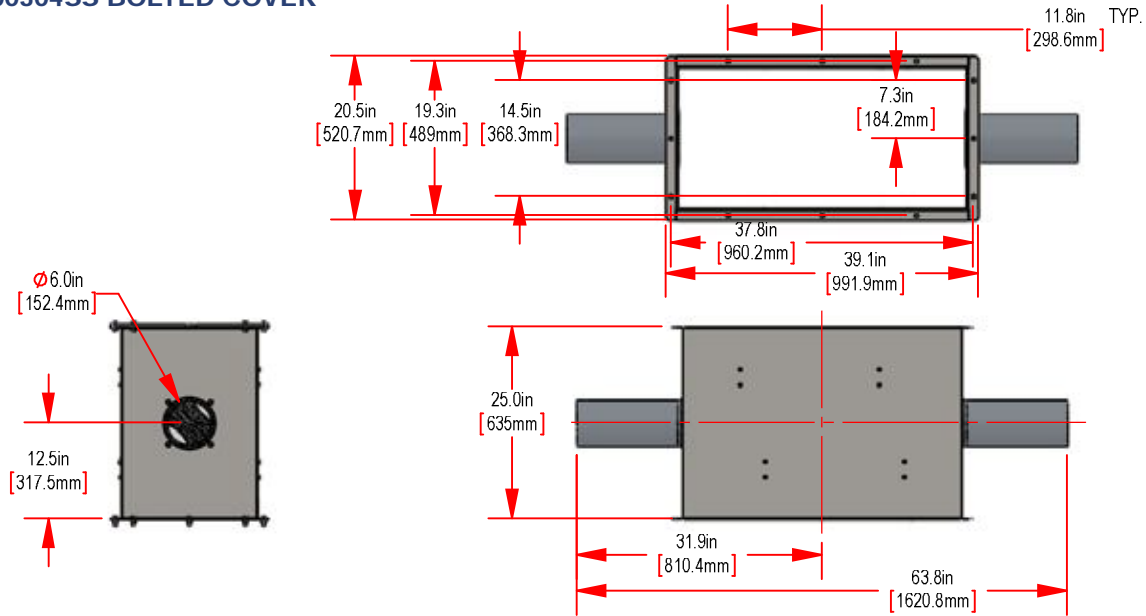


P/N# - C00303SS HINGED COVER

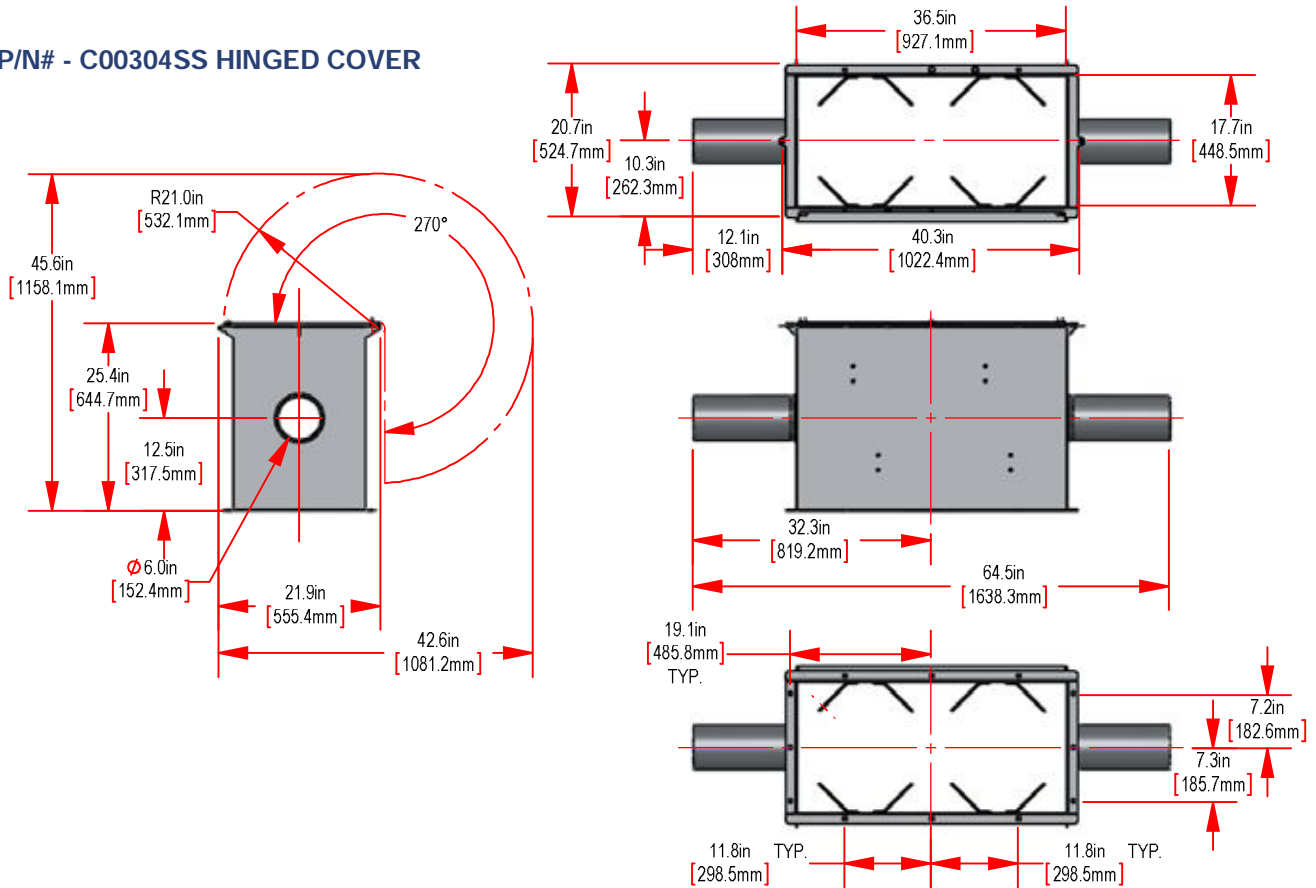


6000 SERIES COMPONENT DIMENSIONS

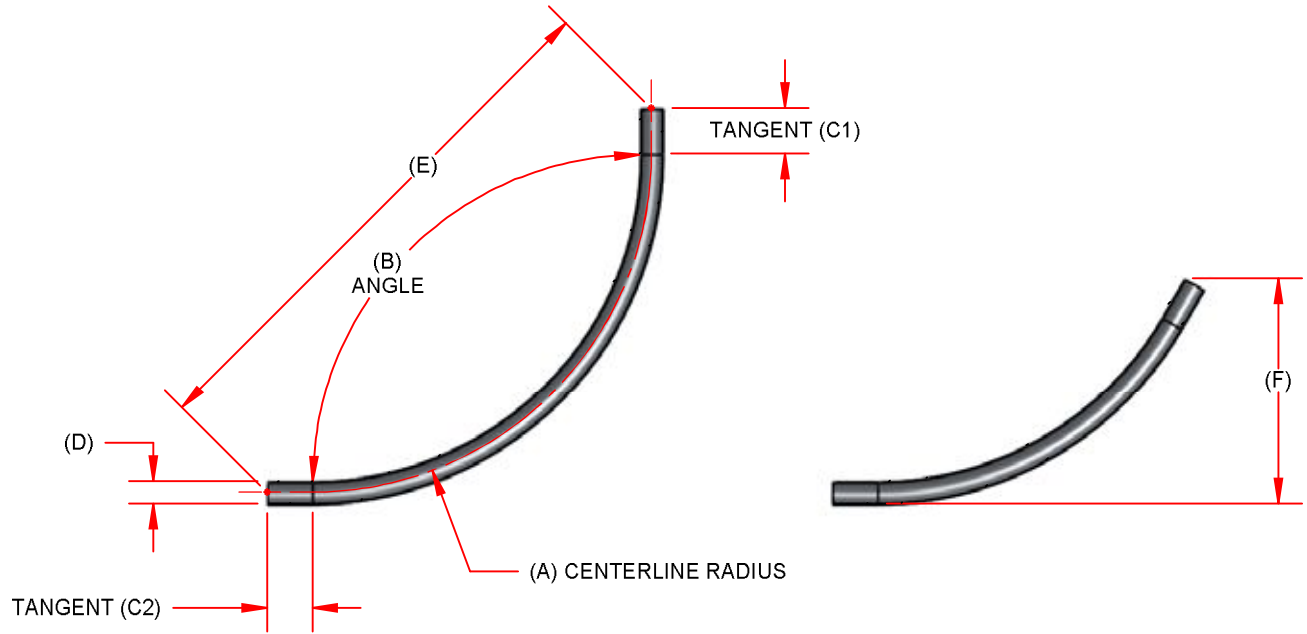
P/N# - C00304SS BOLTED COVER



P/N# - C00304SS HINGED COVER



6000 SERIES COMPONENT DIMENSIONS



| P/N | (A) - CLR | | (B) - ANGLE | (C) - TANGENT | | (D) - DIAMETER | | (E) - DISTANCE | | (F) - DISTANCE | | *WEIGHT | |
|-------------|-----------|--------|-------------|---------------|-------|----------------|-------|----------------|----------|----------------|---------|---------|----|
| | IN | MM | Degree | IN | MM | IN | MM | IN | MM | IN | MM | LBS | KG |
| 170005SS-90 | 48 | 1219.2 | 90 | 12 | 304.8 | 6 | 152.4 | 84.85 | 2155.19 | 63.00 | 1600.2 | 65 | 29 |
| 170005SS-80 | 48 | 1219.2 | 80 | 12 | 304.8 | 6 | 152.4 | 80.09 | 2034.286 | 55.00 | 1397 | 60 | 27 |
| 170005SS-60 | 48 | 1219.2 | 60 | 12 | 304.8 | 6 | 152.4 | 68.78 | 1747.012 | 38.89 | 987.806 | 50 | 23 |
| 170005SS-50 | 48 | 1219.2 | 50 | 12 | 304.8 | 6 | 152.4 | 62.32 | 1582.928 | 31.27 | 794.258 | 45 | 20 |
| 170005SS-45 | 48 | 1219.2 | 45 | 12 | 304.8 | 6 | 152.4 | 59.91 | 1521.714 | 27.67 | 702.818 | 40 | 18 |
| 170005SS-40 | 48 | 1219.2 | 40 | 12 | 304.8 | 6 | 152.4 | 55.27 | 1403.858 | 24.24 | 615.696 | 40 | 18 |
| 170005SS-30 | 48 | 1219.2 | 30 | 12 | 304.8 | 6 | 152.4 | 48.03 | 1219.962 | 18.03 | 457.962 | 35 | 16 |
| 170005SS-15 | 48 | 1219.2 | 15 | 12 | 304.8 | 6 | 152.4 | 36.33 | 922.782 | 10.64 | 270.256 | 25 | 11 |

*WEIGHT IS APPROXIMATE
WEIGHTS MAY CHANGE AT ANY TIME WITHOUT NOTICE.

6000 SERIES COMPONENT WEIGHTS

| <u>DRIVE UNIT</u> | | <u>*WEIGHT</u> | |
|-------------------|--|----------------|------------|
| | | <u>LBS.</u> | <u>KG.</u> |
| C00270DD | DRIVE FRAME W/MOTOR - 4100/4200 SERIES | 400 | 181 |
| C00270DD | DRIVE FRAME W/MOTOR - 4300 SERIES | 329 | 149 |
| 140154SS | FUNNEL - 4100/4200 SERIES DRIVE UNIT | 78 | 35 |
| 140131 | FUNNEL - 4100/4200 SERIES DRIVE UNIT | 28 | 13 |
| 140480BSS | FUNNEL - 4300 SERIES DRIVE UNIT | 41 | 19 |

TURNAROUND UNIT

| | | | |
|-----------|--------------------------|-----|-----|
| C00271SS | TURNAROUND - 4200 SERIES | 294 | 133 |
| C00271CIP | TURNAROUND - 4300 SERIES | 243 | 110 |

INLET

| | | | |
|----------|--------------------------|----|----|
| C00272SS | INLET | 59 | 27 |
| C00273SS | INLET VALVE BOMBAY DOORS | 0 | 0 |
| C00178SS | INLET - VALVE GATE | 0 | 0 |

DISCHARGE VALVE

| | | | |
|----------|-------------------------------------|----|----|
| C00274SS | DISCHARGE VALVE 6" 42"LG SS COVER | 95 | 43 |
| 140457SS | DISCHARGE FUNNEL 8"OUT SS(140456SS) | 18 | 8 |
| 140492SS | DISCHARGE FUNNEL | 15 | 7 |

DISCHARGE SECTION

| | | | |
|----------|-------------------|----|----|
| C00280SS | DISCHARGE SECTION | 50 | 23 |
|----------|-------------------|----|----|

SYSTEM CLEANING

| | | | |
|----------|------------------------------------|-----|----|
| C00304SS | BRUSH BOX - 4 BRUSH | 0 | 0 |
| C00303SS | BRUSH BOX - 2 BRUSH | 118 | 54 |
| C00292SS | CLEANOUT 6" BOX ASSY CIP SS COVERS | 35 | 16 |

TUBE & COUPLER

| | | | |
|----------|---------------------------------|-----|----|
| 170002SS | TUBE 6"OD 11GA 304SS 20'LG | 200 | 91 |
| 170008SS | COMPRESSION COUPLER 6" - 5 BOLT | 11 | 5 |

*WEIGHT IS APPROXIMATE
WEIGHTS MAY CHANGE AT ANY TIME WITHOUT NOTICE.

COMMISSIONING

MODEL - 4100, 4200, 4300, 6100, 6200 & 6300

Checking the drive element

1. Gear motor and torque support are correctly assembled and aligned.
2. Gear motor and bearings have been filled with sufficient lubricant.
3. All bearings are correctly screwed on.
4. Check the direction of rotation of the gear motors.
5. On the gear motor, the screw plug has been replaced with the included bleeding screw or bleeding valve.

Checking the commissioning

1. All transport aids and installation fasteners have been removed. Dispose of electric motors properly
2. Check the electrical connections and connection voltages
3. All electrical terminal boxes and sockets are closed
4. Check the earthing connection of the machine.
5. All operating elements and warning systems are fully functional
6. A lockable safety switch that interrupts the power at all poles is installed and the personnel possess a lock for this switch.
7. All screw unions are tightened.
8. There are no foreign objects in the machine.
9. Check the conveyor chain tension and adjust if necessary. See Chapter 6.5 "Installing the conveyor chain".

Before running

1. Safety switches operating
 - When lids are opened system shuts down immediately
2. Limit switch operating
 - When limit switch is activated system shuts down immediately
3. Cable is installed in the right direction
 - Product carried by flat side of disc from inlet to discharge
4. Motor running right direction
 - Pushing against cone side of disc
5. Tensioning set properly
 - In accordance to installation manual
6. Toothpicks engages properly
 - In accordance to installation manual
7. Discharges operate smoothly
 - Open and closes smoothly without binding
8. Inlets installed correctly
 - Product falls onto incoming cable side of inlet

COMMISSIONING

MODEL - 4100, 4200, 4300, 6100, 6200 & 6300

Dry run

1. Cable move smoothly
 - Cable travels without jerking
2. Turnaround carriage remain still
 - Carriage not pulling forward or jumping back and forth(forward and backwards)
3. Cable entering ports smooth
 - Smooth and gentle entry
4. Amp draw
 - Motor pulling logical amount of amps

Sample run

1. Fill level
 - Continuously feed material until full capacity between 60-80% full, level below shear point of inlet
2. Cable moves smoothly
 - Cable travels without jerking, wedging or shearing
3. Turnaround carriage remain still
 - Carriage not pulling forward or jumping back and forth(forward and backwards)
4. Cable entering ports smooth
 - Smooth and gentle entry
5. Amp draw
 - Did amp draw increase to acceptable level
6. System Overloading
 - If overloading occurs, stop the machine immediately, determine the cause and remedy.

DECOMMISSIONING

MODEL - 4100, 4200, 4300, 6100, 6200 & 6300

Removing

When decommissioning the machine (for overhaul, dismantling or disposal purpose), disassemble it by the following the installation steps in reverse order.

- Before beginning the disassembly work, the person in charge must obtain the instructions for safe disassembly from the manufacturer.
- The machine may be disassembled only in observance of all accident prevention measures and only by trained personnel. These personnel must be familiar with all relevant safety precautions.

Dispose

Dispose of the machine and its components in accordance with your locally applicable codes and regulations.

- Sort and dispose of metals parts by the type of metal
- Dispose of electric motors properly
- Dispose of electronic parts properly
- Dispose of plastic pieces properly

SYSTEM INSPECTION CHECK LIST

MODEL - 4100, 4200, 4300, 6100, 6200 & 6300

1. General inspection of system layout.
2. General inspection of system installation.
3. Cablevey system support correctly.
4. Cable pull in by Cablevey technician?
 - A. Comments on cable drag?
 - B. Comments on cable snagging?
5. Cable connection done by?
 - A. Cable connection demonstrated by?
 - B. Cable connection demonstrated to?
 - C. Cable tensioning demonstrated by?
 - D. Cable tensioning demonstrated to?
6. Electrical :
 - A. Drive unit were to rotate the proper direction
 - B. Drive unit Safety switch wired and functioning
 - C. Turnaround Safety switch wired and functioning?
 - D. Hour meter wired and operational
 - E. Motion sensor wired and operating
 - F. VFD setting
7. Dry run of Cablevey System
 - A. Amp draw rating on motor
 - B. Amp draw load on system running without product(see chart on following page)
 - C. Noise level.(dba)
 - D. System running Smooth
8. Cablevey system being fed by?
9. First run of product.
 - A. VFD setting
 - B. Fill Level
 - C. Noise if noticed
 - D. Amp draw on motor
 - E. Capacity of system
10. Recommendations by Cablevey technician.

| | System | System | System |
|------------|--------|--------|--------|
| Amp | | | |
| HZ | | | |
| Fill Level | | | |
| Product | | | |
| Amp | | | |
| HZ | | | |
| Fill Level | | | |
| Product | | | |
| Amp | | | |
| HZ | | | |
| Fill Level | | | |
| Product | | | |
| Amp | | | |
| HZ | | | |
| Fill Level | | | |
| Product | | | |

| | System | System | System |
|------------|--------|--------|--------|
| Amp | | | |
| HZ | | | |
| Fill Level | | | |
| Product | | | |
| Amp | | | |
| HZ | | | |
| Fill Level | | | |
| Product | | | |
| Amp | | | |
| HZ | | | |
| Fill Level | | | |
| Product | | | |
| Amp | | | |
| HZ | | | |
| Fill Level | | | |
| Product | | | |