

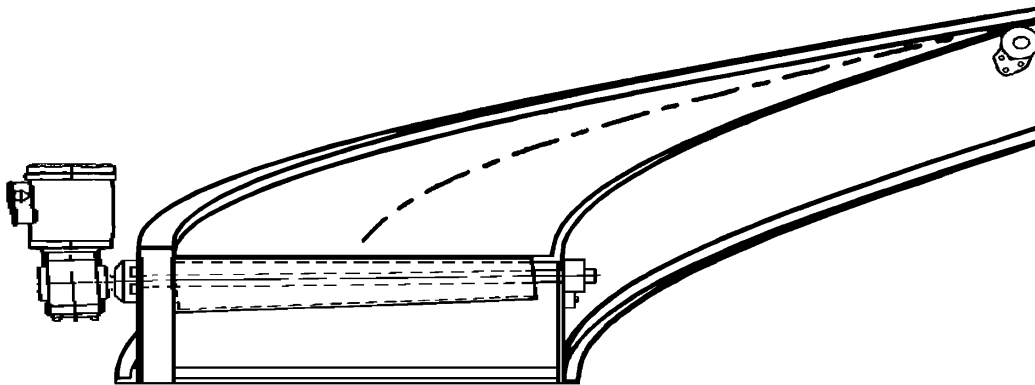


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Spiral Curve®

INSTALLATION MANUAL

(Drive Installation on Separate Sheet)



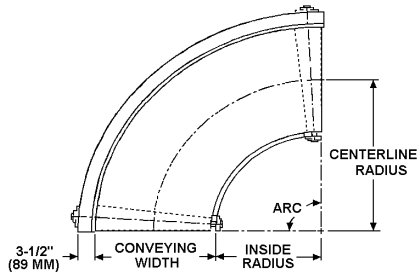
Conveyor Location: _____
Model Number: _____
Serial Number: _____

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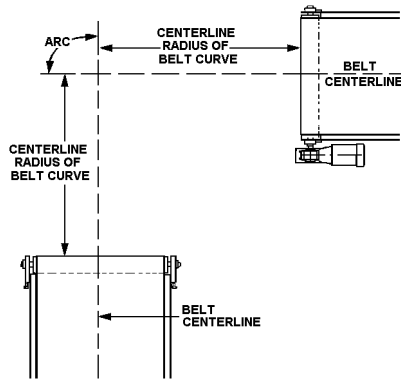
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Section I.

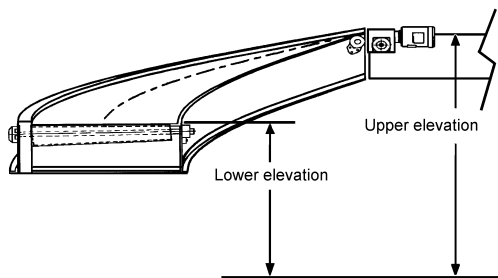
Spiral Curve in a System Layout



A spiral curve is slightly different from a typical straight belt conveyor. The objective is to get the sideguards to match up. The "Conveying Width" on a spiral curve is also the "Between Sideguard Width" on a straight belt conveyor.

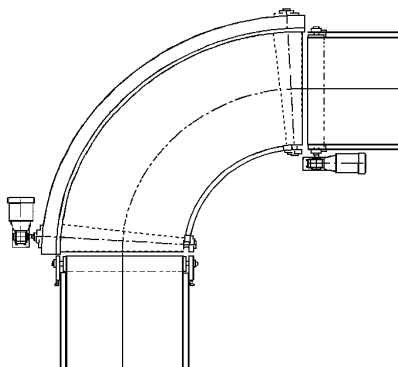


The ends of two straight conveyors should be positioned so they are both the same distance from the centerline intersection point as the "Centerline Radius" of the spiral curve and at the correct elevation. The outside arc of the two belt centerlines should be identical to the arc of the spiral curve.



When the following factors are correct, the spiral curve will fit perfectly:

1. "Conveying Width" of the spiral curve is equal to the "Between Sideguard Width" of the straight conveyors.
2. The arc of the spiral curve is the same as the outside arc of the two straight conveyor centerlines.
3. The two straight conveyors are set back the same distance from the belt centerline intersection as the "Centerline Radius" of the spiral curve.
4. The two straight conveyors are set at the correct elevations.



Section II.
Tool Requirements for Spiral Belt Curve Installation

Tool	Used For
Electricians Nut Driver Set Or Adjustable Wrench	Electrical Motor Connections
13 mm Wrench (1/2" on Imperial units)	Sideguards and Chain Cover
15 & 17 mm Wrenches (9/16" & 3/4" on Imperial units)	H/S Style Floor Supports
15 & 28 mm Wrenches (9/16" & 1-1/8" on Imperial units) 5/16" Allen Wrench	2" Square Tubing Floor Supports

NOTE: Portec recommends that trained personnel perform all required work on the conveyor to prevent any danger to operators or other persons, and to prevent damage to the conveyor.

WARNING: Do not connect power until the conveyor is in place and all accessories are attached. Ensure all guards are in place before startup.

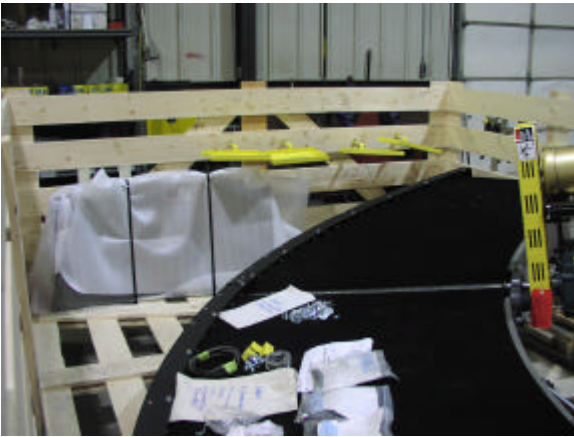
Section III.

Belt Curve Installation Instructions

- Spiral belt curves are normally shipped as a one-piece frame. The larger sized belt curves may ship in multiple sections and will require additional field assembly.

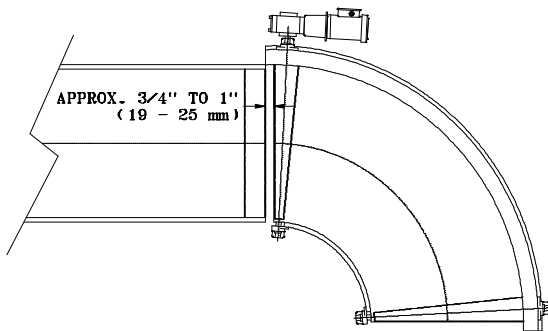
Notes:

- Minor inspection is suggested upon receipt/uncrating of shipment. Contact the shipping carrier immediately if shipping damage is suspected. **Please carefully check the crate/skid to ensure all parts/bags are removed before beginning installation.**
- If floor supports, sideguards, and/or drive unit is provided by Portec Flomaster, they normally are removed from the belt curve for shipping. The brackets and/or holes for mounting to the frame are provided. All hardware and fasteners for mounting are included.



Spiral Belt Curve Installation Instructions

1. Position the spiral belt curve between the adjoining conveyors. Level the curve across and along the belt surface (side to side) to ensure smooth transfer. It is acceptable to have one end slightly higher or lower than the opposite end without causing an operating problem within the curve.



The spiral belt curve end roll assemblies are factory-adjusted to provide an approximately $\frac{3}{4}$ -1" (19-25 mm) gap between the belt on the end roll of the spiral curve and the adjoining conveyor frame. The gap between end rolls can be less than $\frac{3}{4}$ " (19 mm) if the end roll on the adjoining conveyor can extend beyond the conveyor frame.

NOTE: Do not lift a conveyor by the drive shaft extension. This can cause shaft damage (i.e. bent shaft).

Installation should always be done by qualified mechanics and electricians to ensure proper installation and safety.

WARNING: Observe all safety precautions when working under hoisting equipment.



2. Attach floor supports or ceiling hangers under the spiral belt curve. See Section III (Floor Supports) or Section IV (Ceiling Hung Supports) for instructions.
3. Attach sideguards (if required). See Section V for instructions.
4. Install drive unit. See Drive Installation Instruction Sheet.
5. Visually inspect:
 - Motors
 - Sideguard to belt clearance
 - Belt tension
 - Drive mounting and alignment
 - Return roll/wheel assembly
6. Connect power to the drive unit and test run to assure the proper belt movement direction. During the initial 40-hour run-in period, listen for any noises that may indicate that something is out of alignment or loose in the conveyor.

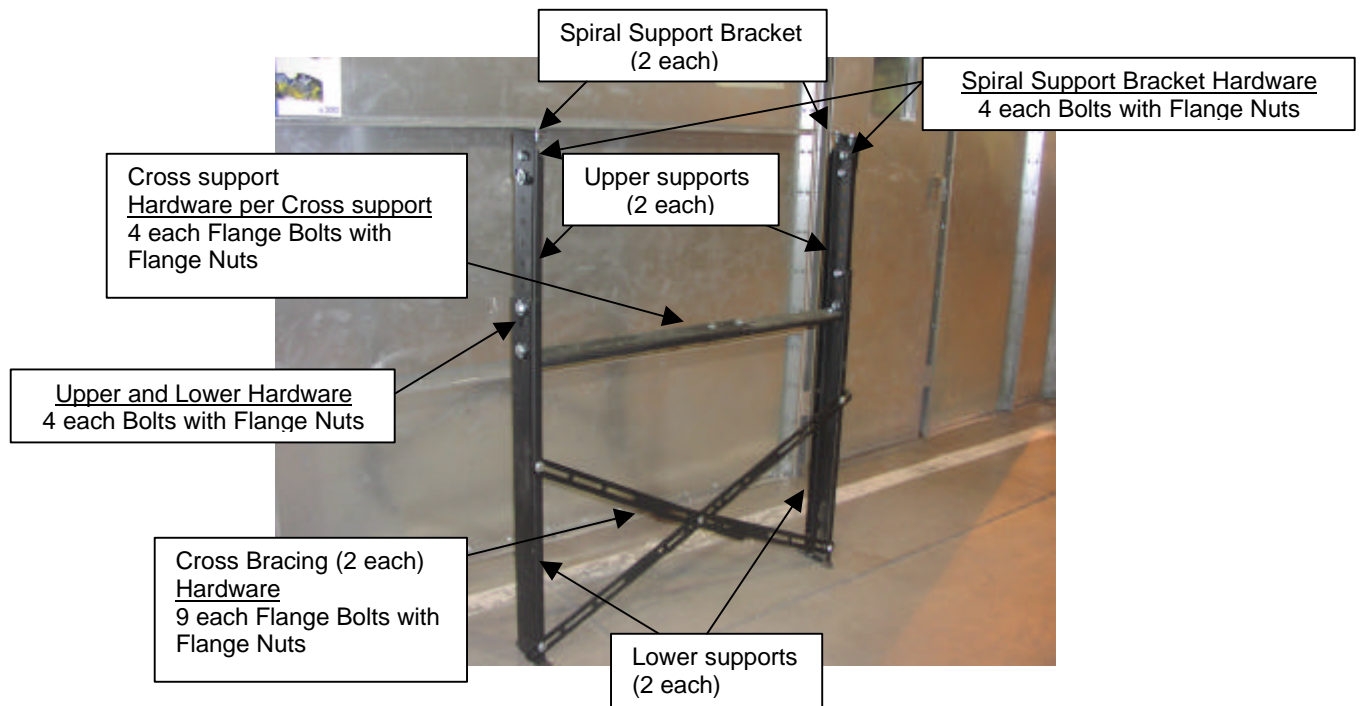
Section IV. Floor Supports – Installation Instructions

- Portec Spiral Curve floor supports are disassembled to minimize shipping crate size. All required mounting holes for attaching the floor supports to the spiral curve are pre-drilled.
- There are three types of floor supports:
 - H/S Style
 - 2" Square Tubing with Articulated Foot
 - Non-adjustable Floor Blocks (no assembly required) (up to 14"/356 mm height)

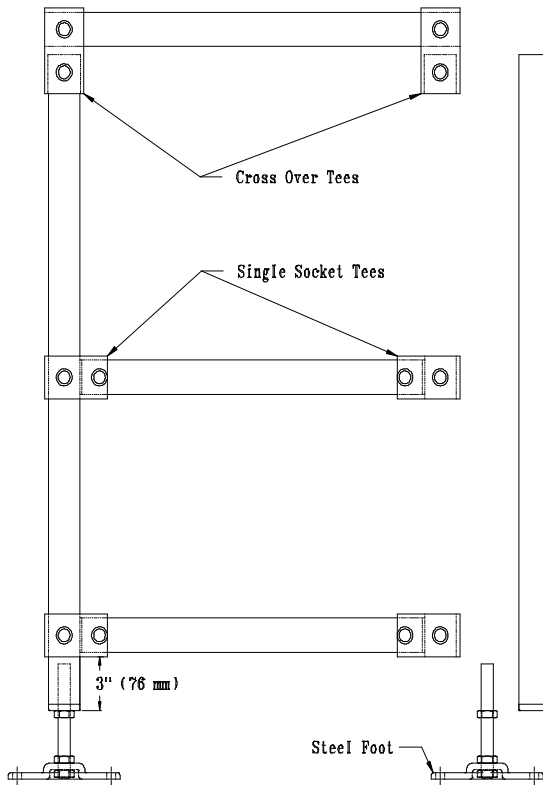
A. Assembly Instructions for H/S Style Supports

The following support assemblies are adjustable with 2" (50.8 mm) slots and holes every 2" (50.8 mm). Four bolts must be used on the support legs or the assembly should be welded to ensure proper support of the unit.

Typical Spiral H/S style support

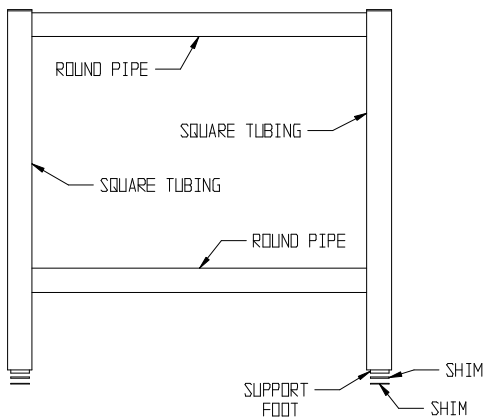


B. Assembly Instructions for 2" Square Tubing Floor Supports



1. Slide the square end of the Single Socket Tees attached on the end of a Crossbar on the bottom of the first 2" Square Tubing Leg. The lowest Crossbar should be positioned about 3" (76 mm) from the bottom of the leg. Any intermediate Crossbars should be evenly spaced between the top and bottom Crossbars. Ensure that the Single Socket Tees are placed on the 2" Square Tubing Legs so the Set Screws are all facing the same direction and the Cross Over Tee is positioned in-line with the Crossbar.
2. Tighten the Set Screws in the Single Socket Tees and the Cross Over Tee to attach them to the Leg.
3. Slide the second 2" Square Tubing Leg through the Single Socket Tees on the opposite end of the Crossbars until the spacing of the Crossbars are identical on both Legs. Ensure that the Cross Over Tee is positioned in-line with the Crossbar.
4. Tighten the Set Screws in the Single Socket Tees and the Cross Over Tee to attach them to the Leg.
5. Screw the Adjustable Steel Foot into the Threaded Tube End on each Leg and lock in place with the Jam Nut.

C. Floor Support Installation Instructions:

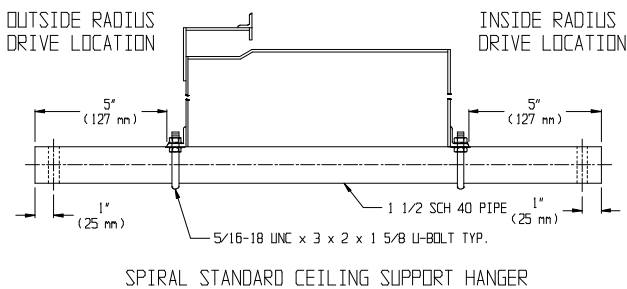
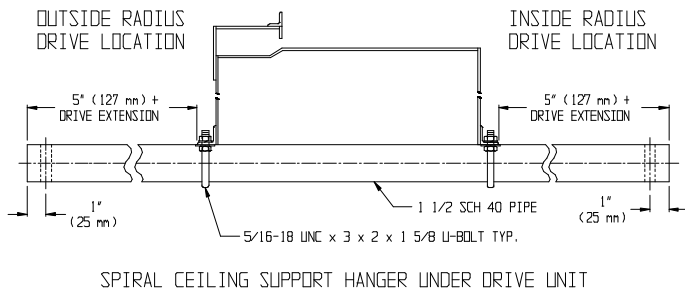


1. Raise spiral curve slightly above its final position using appropriate lifting procedures.
2. Stand the assembled supports under the curve at required locations and attach to the curve bottom footrail. Leave the fasteners finger tight.
3. Lower the spiral curve into position with the support feet on the floor.
4. Check that the spiral curve is level and in the correct position, that the support legs are in a vertical position, and that the top of belt height is at correct height in relation to the adjoining conveyor(s).
5. Adjust the conveyor height as follows:
 - a) Square tubing supports with threaded steel foot: Use a 28 mm (1-1/8") wrench to turn the threaded rod in the bottom of each leg. Tighten the jam nut to secure in position.
 - b) H/S style supports with C-channel legs: Loosen the bolts that hold the upper and lower legs together for slight height adjustments. For larger height adjustments, remove bolts that hold the upper and lower legs together. After sliding the leg pieces until the leg is at the required height, install the bolts in an appropriate hole and tighten.
 - c) Non-adjustable leg: Determine approximate thickness of shim required to attain height or level required. Install shim(s) under the foot.
6. Tighten all fasteners.
7. Secure the curve to the floor using appropriate floor anchors (not provided).

Section V. Ceiling Hung Supports – Installation Instructions

- A Portec spiral curve with ceiling hung supports (angle steel) is shipped with the supports placed in the crate with the curve.

Ceiling Hung Support Installation Instructions:



1. Raise the spiral curve and attach the ceiling supports (angle steel) to the bottom of the footrail.
2. Move the belt curve to the desired location and position.
3. Hang all-thread rods (supplied by others) securely from overhead structures and install one jam nut toward the bottom end of each rod.
4. Insert ends of all-thread through the pre-drilled holes in the ceiling support angles and install a second jam nut on each rod under the support angles.
5. Adjust the nuts until the curve is positioned correctly at the right elevation. Tighten all jam nuts to secure spiral curve in position.

WARNING: Observe all safety precautions when working under hoisting equipment. Always use appropriate lifting slings and rigging. Do not lift a conveyor by the drive shaft extension

Section VI. Sideguard Installation Instructions

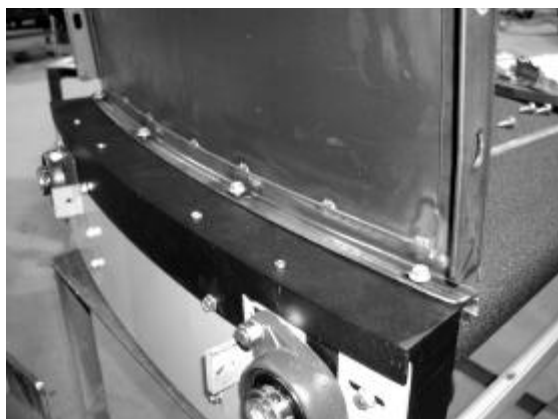
- Portec spiral curve sideguards are pre-assembled at the factory prior to shipment. In some cases, the sideguards are removed and shipped separately from the spiral curve. The sideguards are designed for quick, easy installation with bolts and related hardware included.

Sideguard Installation Instructions:



1. Begin installation of the inside radius sideguard by loosening the (pre-installed) bolts on the inside radius spiral curve frame. Loosen 3 to 5 mm (1/8" – 3/16").
2. Pick up and set the inside radius sideguard against the inside radius spiral curve frame above the loosened bolts. Align the slots in the lower edge of the sideguard with the bolts and slip the sideguard down onto the bolts. Retighten the bolts.

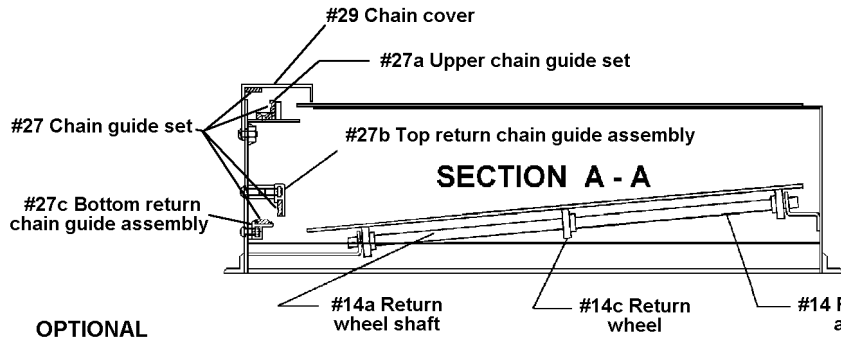
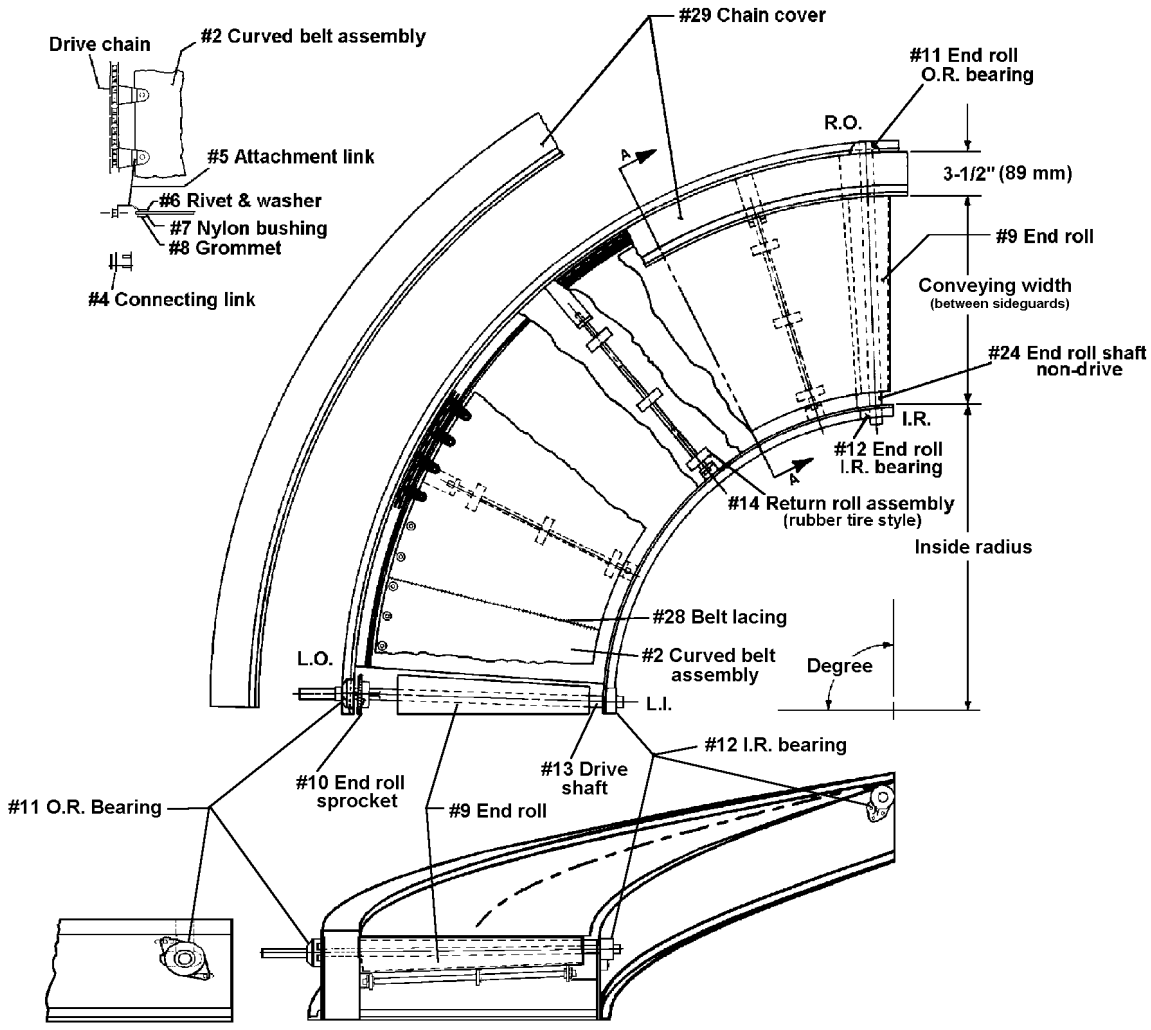
NOTE: Portec uses nut inserts and slots to avoid loss of loose fasteners and to make installation extremely fast and easy.



3. Position the outside radius sideguard on top of the spiral curve chain cover.
4. Attach the sideguard to the chain cover using the bolts provided.
5. Check that the bottom edge of the outside radius sideguard has a clearance of 1/8"-3/16" (3-5 mm) above the belt. **Do not allow sideguard to contact the belt.**
6. If the sideguards are equipped with mating butt flanges, attach the butt flanges of the belt curve to the butt flanges of the adjoining conveyor(s) sideguards.

WARNING: The sideguards are not designed to support any weight from above. If the sideguards are pushed down, they may damage the conveyor belt. **It is extremely dangerous to temporarily support a belt curve by hanging it from its sideguards. The sideguards can be pulled loose causing the spiral curve to drop.**

Section VII. Illustrated Parts Diagram – Spiral Curve



- OPTIONAL**
- #17 Bed idler roller
 - #25 Outside radius sideguard
 - #26 Inside radius sideguard

NOTE: THIS DRAWING IS APPLICABLE TO ALL DEGREES OF ARC FOR SPIRAL CURVES.

Return wheels shown #14b Straight return rolls are available as an option