



PORTEC
IT'S YOUR TURN

Portec Inc

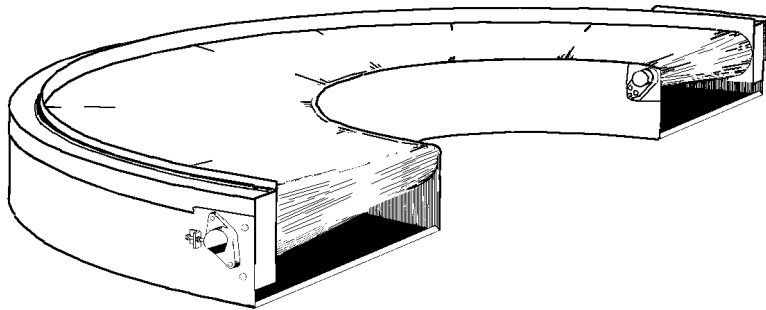
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Sigma®

BELT POWER CURVES

INSTALLATION MANUAL

(Drive Installation on Separate Sheet)



Conveyor Location: _____

Model Number: _____

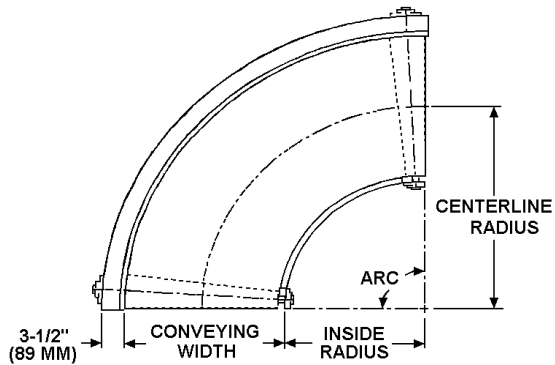
Serial Number: _____

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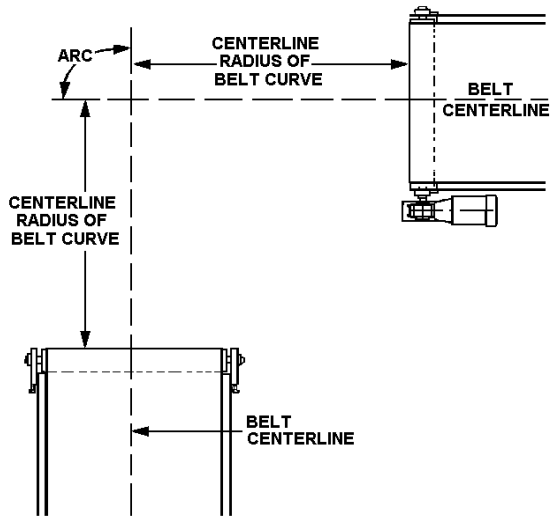
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Section I.

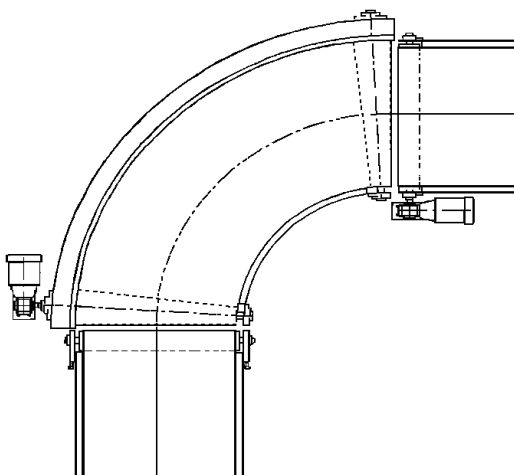
Sigma Belt Curve in a System Layout



A belt 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 belt 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 belt curve. The outside arc of the two belt centerlines should be identical to the arc of the belt curve.



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

1. "Conveying Width" of the belt curve is equal to the "Between Sideguard Width" of the straight conveyors.
2. The arc of the belt 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 belt curve.

Section II.
Tool Requirements for 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.

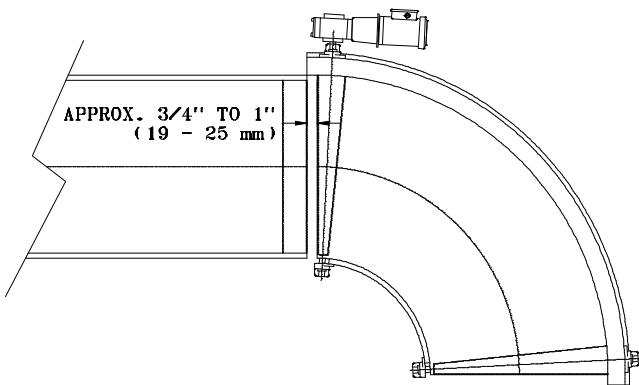
Section III.

Belt Curve Installation Instructions

- 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.



Belt Curve Installation Instructions

1. Position the belt curve between the adjoining conveyors. Level the curve across and along the belt surface (end to end) 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. However, it is required that a twist not be imposed in the frame.

The 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 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 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.

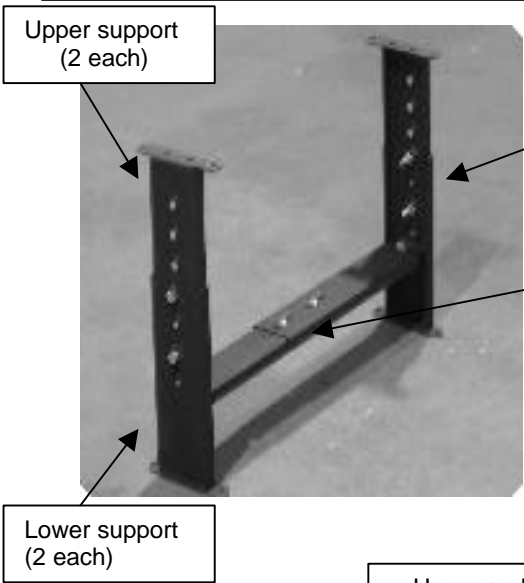
Section IV. Floor Supports – Installation Instructions

- Portec Belt Curve floor supports are disassembled to minimize shipping crate size. All required mounting holes for attaching the floor supports to the 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.

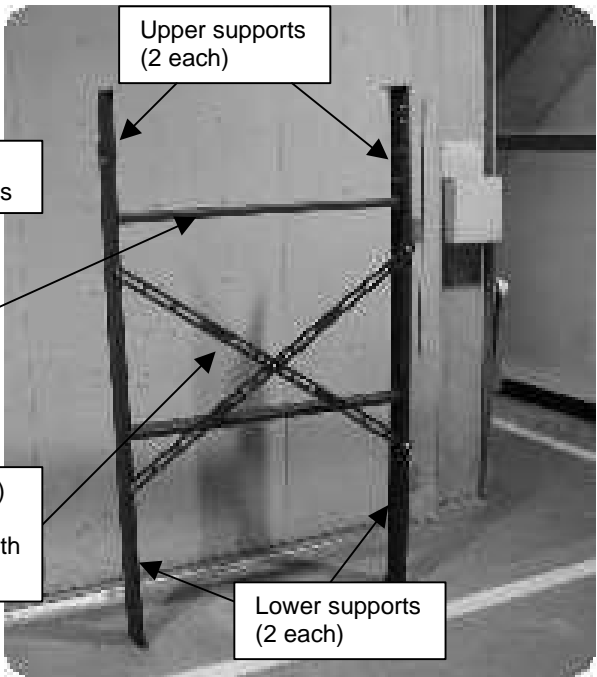
Typical H/S style support less than 39" (991 mm)



Hardware
4 each Flange Bolts with Flange Nuts

Cross Supports (2 each)
Hardware
4 each Flange Bolts with Flange Nuts

Typical H/S style support higher than 39" (991 mm)



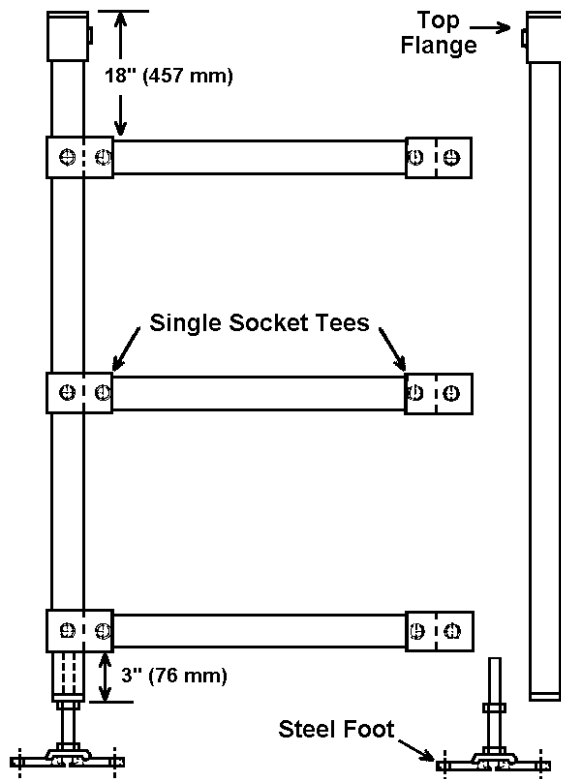
Upper and Lower Hardware
4 each Bolts with Flange Nuts

Cross supports
(2 Each up to 48")
(4 each >48")
Hardware per Cross support
4 each Flange Bolts with Flange Nuts

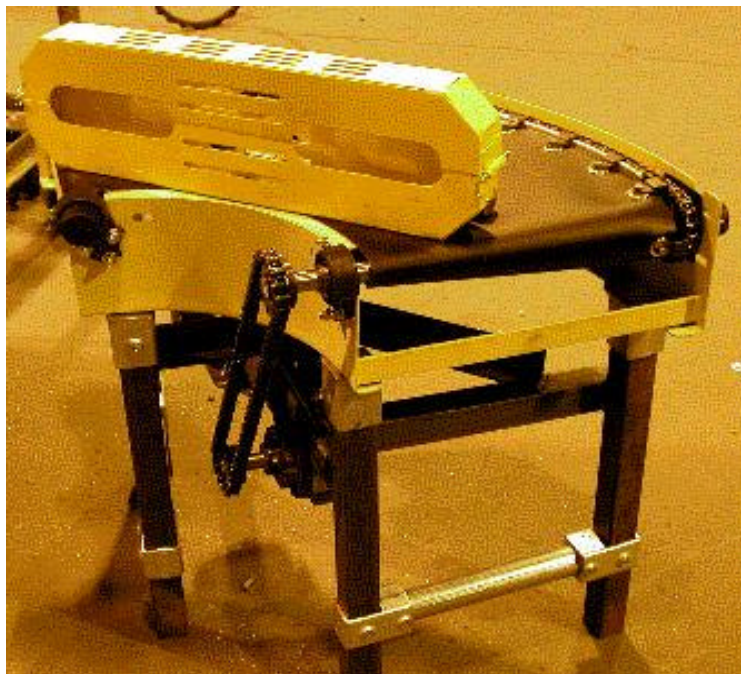
Cross Bracing (2 each)
Hardware
9 each Flange Bolts with Flange Nuts

Lower supports
(2 each)

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. If two or more Crossbars are required, the top Crossbar should be about 18" (457 mm) from the top 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 Top Flange is positioned perpendicular to the Crossbar.
2. Tighten the Set Screws in the Single Socket Tees 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 Top Flange is positioned perpendicular to the Crossbars.
4. Tighten the Set Screws in the Single Socket Tees 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:

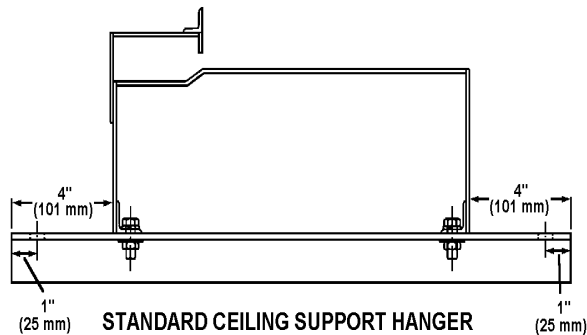
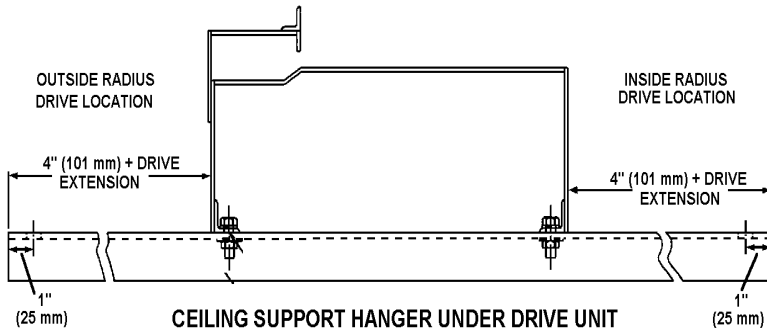


1. Raise belt curve slightly above its final position using appropriate lifting procedures.
2. Stand the assembled supports under the curve at required locations and attach to the curve bottom footrail. Leave the fasteners finger tight.
3. Lower the belt curve into position with the support feet on the floor.
4. Check that the 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 belt 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 belt 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 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 belt curve sideguards are pre-assembled at the factory prior to shipment. In some cases, the sideguards are removed and shipped separately from the curve. The sideguards are designed for quick, easy installation with bolts and related hardware included.

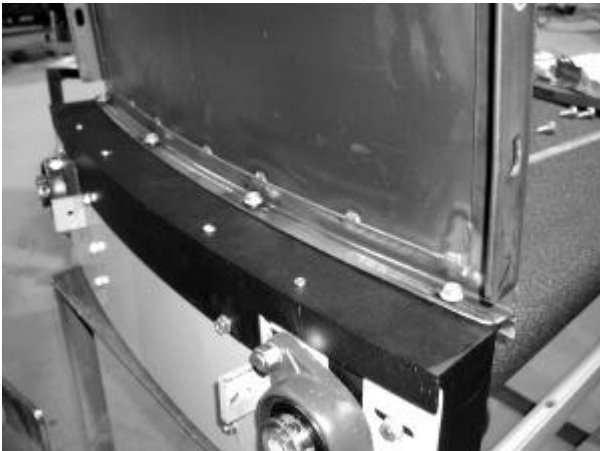
Sideguard Installation Instructions:

1. Begin installation of the inside radius sideguard by loosening the (pre-installed) bolts on the inside radius curve frame. Loosen 3 to 5 mm (1/8" – 3/16").
2. Pick up and set the inside radius sideguard against the inside radius 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.

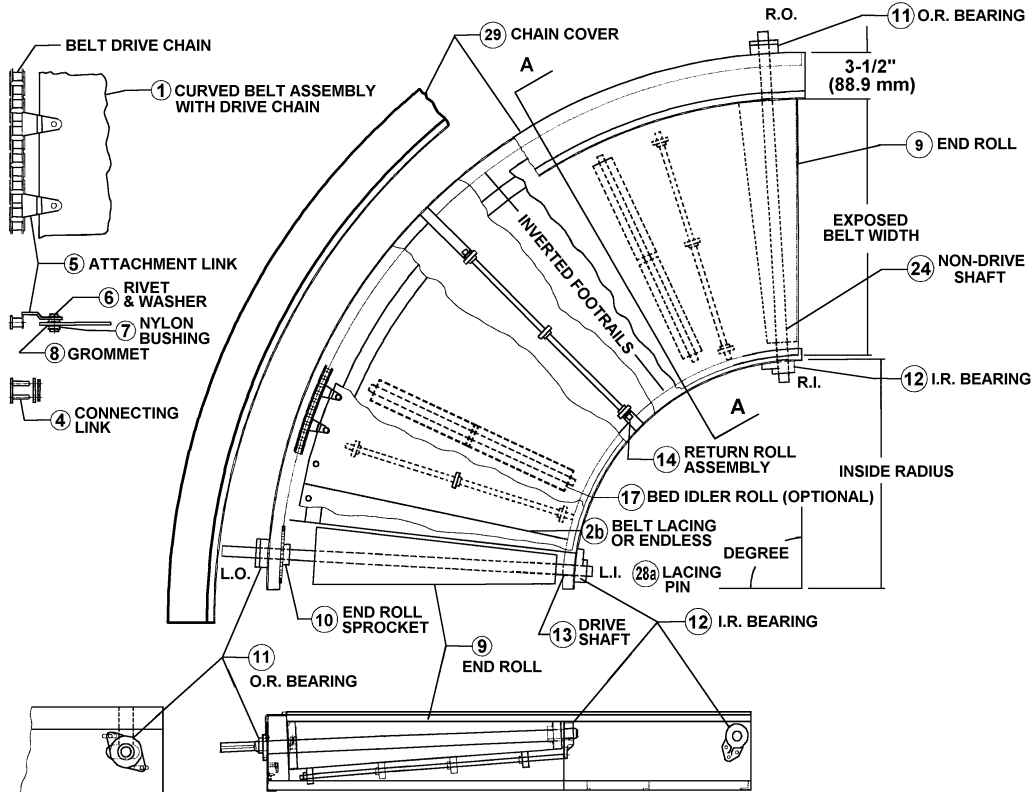
NOTE: Portec uses nut inserts and slots to avoid loss of loose fasteners and to make installation extremely fast and easy.

3. Position the outside radius sideguard on top of the belt 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.

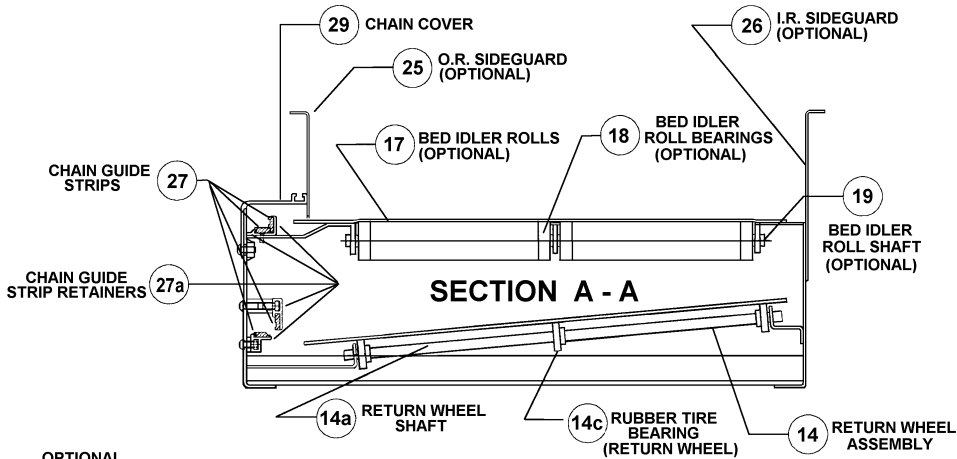
WARNING: The sideguards are not designed to support any weight from above. If the sideguards are pushed down, they may damage the conveyor belt. **It is extremely dangerous to temporarily support a belt curve by hanging it from its sideguards. The sideguards can be pulled loose which will cause the belt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



Section VII. Illustrated Parts Diagram – Sigma Belt Curve



DRIVE LOCATIONS: (LO SHOWN ABOVE)
 LI = LEFT INSIDE I.R. = INSIDE RADIUS
 LO = LEFT OUTSIDE O.R. = OUTSIDE RADIUS
 RI = RIGHT INSIDE
 RO = RIGHT OUTSIDE



- OPTIONAL**
- 17 BED ROLL IDLER
 - 25 OUTSIDE RADIUS SIDEGUARD
 - 26 INSIDE RADIUS SIDEGUARD

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

- RETURN WHEELS**
 STANDARD DESIGN SHOWN.
 14b STRAIGHT RETURN ROLLS ARE AVAILABLE AS AN OPTION.



TERMS AND CONDITIONS

VALIDITY – Quotations shall be considered current if outstanding no more than thirty (30) days from date of quotation, unless otherwise stated on quotation.

FREIGHT POLICY – Shipments of products, unless otherwise stated, is EX WORKS PORTEC'S factory. Written claims for damage in shipment should be made against the carrier. Written claims for shortages should be made against the carrier, specifically if there is evidence of shipping carton/container damage and/or if according to the shipping records there is a discrepancy in numbers of containers shipped versus numbers received.

Only in a situation where the container(s) shipped have been received in good condition, checked for physical content, and signed for verification within three days of delivery, and if such shortage has been found, and if PORTEC is notified in writing within 10 days upon receipt of order, PORTEC will establish that there was or was not a shortage. If a shortage is determined, PORTEC will provide the customer with the product/parts at PORTEC'S expense and shall ship F.O.B. as stated in the freight policy. If no shortage is determined, or if others than PORTEC caused the shortage, the claim shall be deemed invalid and it shall be the responsibility of the customer to arrange payment to PORTEC to fill the requirements of the deficiency.

PRICE ACCEPTANCE – The prices quoted herein are based on the quantities specified. Any change in quantities may affect quoted price. All orders are subject to acceptance at PORTEC'S factory. Any expense incurred by PORTEC as a result of cancellation or the making of any change will be included in PORTEC'S invoice unless prior waiver of such expense is obtained from PORTEC.

SHIPMENTS – Quoted Shipment dates are subject to change, without liability for delays beyond PORTEC'S control.

TERMS OF PAYMENT – Invoices are payable net cash 30 days, unless otherwise noted. There will be an interest charge of 1-1/2% per month for all payments received after 35 days. International (**except Canada**) orders are shipped against confirmed irrevocable letters of credit. All payments shall be in U.S. dollars. If the financial responsibility of a purchaser becomes impaired or is unsatisfactory, or if credit is not established, PORTEC reserves the right to request payment in advance or satisfactory guarantee that invoices will be paid promptly when due.

QUALITY ASSURANCE – All of its manufactured products are subject to PORTEC'S Warranty for material and workmanship.

GENERAL – Terms, conditions, and product specifications are subject to change without further obligation to PORTEC.

LIMITED WARRANTY ON NEW EQUIPMENT – PORTEC provides a Limited Warranty that warrants the material and workmanship of its manufactured products, with exceptions noted, for a period for 60 months beginning one month from the date of shipment from PORTEC'S factory, according to recorded serial numbers.

Within the stated warranty period, any material or workmanship showing defects will be repaired or replaced, provided PORTEC is given written notice within 30 days after failure, and a willingness is expressed to submit the product to PORTEC, and

if PORTEC authorizes the return of the product, and the product is returned. This warranty does not cover against normal wear of parts or materials. Warranty parts are supplied via EX WORKS PORTEC'S factory and unless PORTEC makes express agreement, the purchaser shall bear the expense of installation. PORTEC reserves the right at any time to supervise or install any part of replacement, or supervise adjustment incident to satisfactory operation of equipment. *A possible Warranty PO for parts and/or service may be required prior to shipping parts or exercising warranty labor.*

ITEMS IDENTIFIED AS COMPONENT AND REPLACEMENT PARTS – PORTEC parts will be warranted for a period of one (1) year from the date of shipment from the PORTEC Factory. This warranty on parts will cover only defects in workmanship or material. *The warranty does not cover the costs of the installation of such parts unless authorized by the designated PORTEC representative.*

Unauthorized returns, modifications, additions or variations, from procedures and information contained in PORTEC'S Owner's Manuals, and Product Data bulletins, or any misuse, negligence, accident, product jam, or loading beyond rated capacity invalidates this warranty.

EXCEPTIONS:

1. Because of varying operating conditions, all belting supplied will necessarily be subject to manufacturers', warranty rather than that of PORTEC.

2. Some OEM equipment including motors and gear reducers will be subject to the manufacturer's warranty, not PORTEC'S. PORTEC Customer & Product Support will provide assistance in contacting the proper manufacturer's representative. If a replacement is provided from PORTEC stock, a Possible Warranty PO must be provided. If the warranty is deemed invalid and PORTEC is not reimbursed for the warranty claim, the PO will be exercised.

3. PORTEC further reserves the right to void its warranty where final destination and specific application are withheld; product is improperly installed or maintained by others; product is modified without the consent from the designated PORTEC service representative; product is improperly protected against hazards and adverse environmental conditions during storage prior to or during installation; and/or product is used for applications/conditions other than indicated upon placement of order.

The foregoing warranty is exclusive and in lieu of all other warranties whether written, oral, or implied (including any warranty of merchantability or fitness for any purpose). Under no circumstances shall PORTEC be liable for incidental or consequential damages. The foregoing warranty cannot be changed except by written authorization signed by an authorized PORTEC representative, and no attempt to repair or promise to repair or improve PORTEC products by any other representative of PORTEC shall change or extend said warranty in any manner whatsoever.