ENGINEERING MANUAL

THERMODRIVE TECHNOLOGY

Intralox may make changes without notice to both this document and to products described by this document. Nothing in this document is intended to give rise to any obligation, contractual or otherwise, on the part of Intralox.

The original version of this document is written in English. Any version in a language other than English is a translation of the original document. Do not modify the equipment, components, or equipment assemblies. Do not remove or modify any factory-installed safety features without the written consent of Intralox. Intralox is not responsible for failures due to incorrect usage of the equipment.

Intralox, L.L.C. does not warrant that the design and/or operational function of any machine that incorporates and/or intends to incorporate Intralox, L.L.C. products, conforms to any local, state, or national regulations and standards relating to public safety, worker safety, safety guards, sanitation safety, fire safety, or any other safety regulations. ALL PURCHASERS AND USERS SHOULD CONSULT THEIR APPROPRIATE LOCAL, STATE, AND NATIONAL SAFETY REGULATIONS AND STANDARDS.

Certain Intralox products are made of plastic and can burn. If exposed to an open flame or to temperatures above Intralox specifications, these products may decompose and emit toxic fumes. Do not expose Intralox conveyor belting to extreme temperatures or open flame. Flame retardant belt products are available in some series.

Prior to installing, aligning, cleaning, lubricating, or performing maintenance on any conveyor belt, sprocket or system, consult the federal, state and local regulations in your area regarding the control of hazardous/stored energy (lockout/tagout).

Statement of Use: This document is included under the fair use exemption and is restricted from further use.

TABLE OF CONTENTS

1 USING THIS MANUAL

The ThermoDrive® Technology Engineering Manual contains information about Intralox ThermoDrive technology. For information about Intralox modular plastic products, visit www.intralox.com for the current *Intralox Modular Plastic Conveyor Belts Engineering Manual*.

The recommendations provided in the design guidelines have proven successful for most installations. Failure to follow the guidelines presented in this manual results in poor performance of ThermoDrive belting.

For extreme or unique conveyor designs or detailed assistance when considering ThermoDrive solutions, contact Intralox for assistance. See contact information on the back cover.

ACCESS AND NAVIGATION

Printed manuals are available from Intralox Customer Service.

- When printed manuals are black and white, see color images in the electronic manual.
- Electronic manuals are available for download at www.intralox.com.

UPDATES

- The ThermoDrive Technology Engineering Manual is fully updated each July.
- New products released after the update are not added to the manual until the following July.
- New product information is available from Intralox Customer Service until the manual is updated.

2 INTRODUCTION

ABOUT INTRALOX

With more than 40 years of experience, Intralox continues to lead the way in helping customers achieve their goals by offering comprehensive conveyance solutions that create significant economic value. Intralox delivers innovative, premium technology within a direct business model and a global, industry-specific structure.

Our industry-specific teams have in-depth knowledge of customer applications, provide technical support and consulting, and offer 24/7 customer service. Working with Intralox allows you to experience our uncompromising commitment to providing solutions and solving customer challenges.

As the pioneer of hygienic conveyance, Intralox delivers results that matter to our customers. We provide reliable operational performance, dramatic reductions in cost, a competitive edge in challenging markets, and the highest standard in food safety risk management. We continue to go beyond industry standards with new products, equipment, solutions, and services. Our commitment to innovation has led to over 1400 active patents around the world. When our customers have challenges, we invent smart solutions to meet them.

INTRALOX HYGIENIC SYSTEM

Contact Intralox to find out how our complete hygienic system can meet your toughest hygienic challenges using:

- Hygienic belts and components, like our ThermoDrive products, that optimize belt performance using patented, tensionless technology
- Research and development through ongoing testing by trained industry experts and global collaboration with customers
- Consulting, education, and training to enhance customer sanitation, quality, engineering, and operations leadership in food safety applications
- Customer support from award-winning, technical experts

CUSTOMER RESOURCES

For unique conveyor designs or general assistance when considering ThermoDrive solutions, contact Intralox. See contact information on the back cover.

ENGINEERING ASSISTANCE AND DESIGN REVIEW: Intralox can provide engineering assistance, design reviews, and computer analytics for specific applications. Intralox also provides specific belt and drive calculations as well as component requirements and suggestions.

CAD DRAWING FILES: AutoCAD.DXF files for ThermoDrive sprockets and limiters are available. The files contain product details for use in CAD conveyor designs. Visit www.intralox.com for files.

HYGIENIC CONSULTING AND EDUCATION: Commercial Food Sanitation L.L.C., an Intralox company, integrates strategic consulting, expertise, and training programs to provide durable solutions to food safety and sanitation challenges for food processing plants across the globe. For more information, visit www.commercialfoodsanitation.com.

PRODUCT LITERATURE: For ThermoDrive user manuals and additional product documents, visit www.intralox.com. Navigate to *Resources* > *Brochures and Technical Guides*.

COMPANY, PRODUCT, AND APPLICATION INFORMATION: For information on Intralox, product features, and product applications, visit www.intralox.com.

THERMODRIVE TENSIONLESS BELT SYSTEM

Intralox ThermoDrive technology combines homogeneous thermoplastic material and the positive drive feature of modular plastic belting with a unique, patented drive engagement solution. This combination creates a one-of-a-kind tensionless belt system that provides exceptional customer value.

- Eliminates the cost and complex adjustments associated with managing a tensioned, positive drive or flat belt system.
- Provides reliable, predictable drive performance and reduces costs.
- Extends belt life, minimizes component wear, and improves product yield.

ThermoDrive technology provides new opportunities in hygienic conveyance design.

- The lightweight, loose conveyor fit makes belts easy to lift and clean.
- The open access component and conveyor design possibilities allow for cleaning in place without conveyor adjustment.
- The homogeneous belt makes it easy to wipe down for quick product changes and offers fast drying capabilities.

3 CONVEYOR DESIGN

DESIGN CONSIDERATIONS

The Intralox ThermoDrive tensionless belt system offers various belt styles, materials, and colors. Additional fabrication options like flights, sidewall, grooves, and perforations can also be added to the belt.

To make the appropriate selections when designing for a particular application, consider operating and environmental conditions such as:

- Conveyance requirements (horizontal, elevating, inclining)
- Overall dimensions of the installed belt
- Speed of belt travel
- Conveyed product (weight, shape, size, temperature, moisture content, texture, frictional nature)
- Processes (cooling, washing, rinsing, draining, drying, cleaning)
- Hygienic requirements
- Operating environment (temperature, humidity, chemical nature, abrasive nature)
- Drive type (end, center)
- Facility or space limitations

Information contained in this manual covers the basic conveyor design guidelines for the ThermoDrive tensionless belt system sold by Intralox. These general recommendations work for most applications. Contact Intralox for industry-specific suggestions to ensure success for your application.

THERMODRIVE DESIGN PRINCIPLES

- Never operate ThermoDrive belting with tension. See Returnway Design
  NOTE: ThermoDrive Series 8140 belts can operate under slight pre-tensioning. Contact the Intralox Technical Services Group (TSG) for S8140 design guidelines.
  - Never pre-tension ThermoDrive belt. Contact the Intralox Technical Services Group (TSG) for S8140 exceptions and design guidelines.
  - Ensure the belt has extra length and hangs loosely in the return path. Install position limiters correctly and rigidly to ensure ThermoDrive tensionless operation.

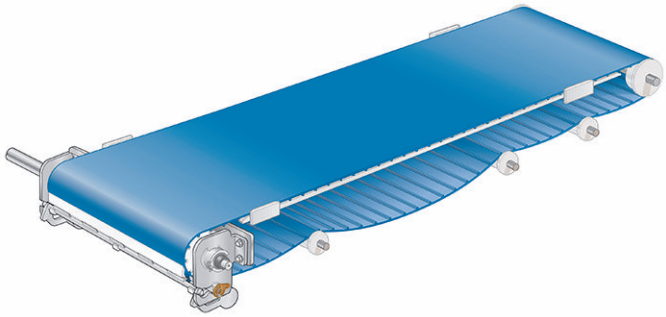


Figure 1: Tensionless belt

- Choose shoe limiters, rollers, or other components to ensure belt engagement at sprockets. Install these belt position limiters on a rigid structure and align them with drive sprockets. See Position Limiters.

- Prevent the belt from bending tighter than the stated minimum belt backbend diameter. Ensure all transitions, rollers, wheels, and sprockets are at or above the minimum bend radius.

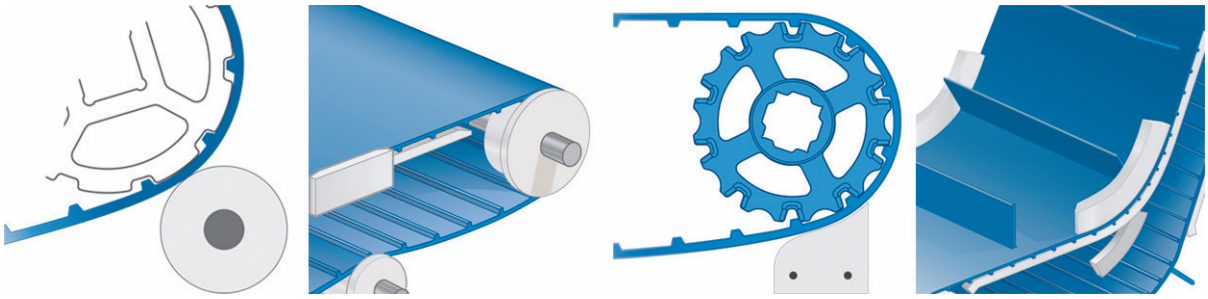


Figure 2: Components at or above the minimum bend radius

- Lock sprockets, rollers, or support wheels in place on shafts at the drive and idle ends.

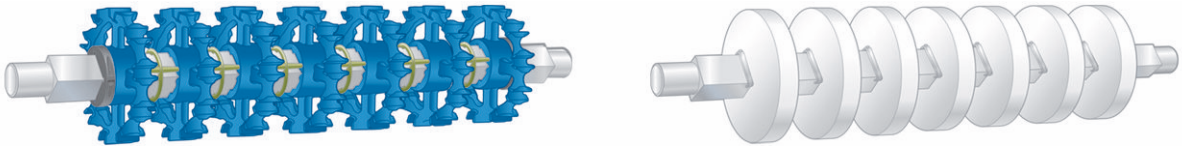


Figure 3: Shafts with locked components

NOTE: Retrofit projects can prohibit using all the ThermoDrive design features required for optimal performance. Contact Intralox Customer Service for application-specific suggestions.

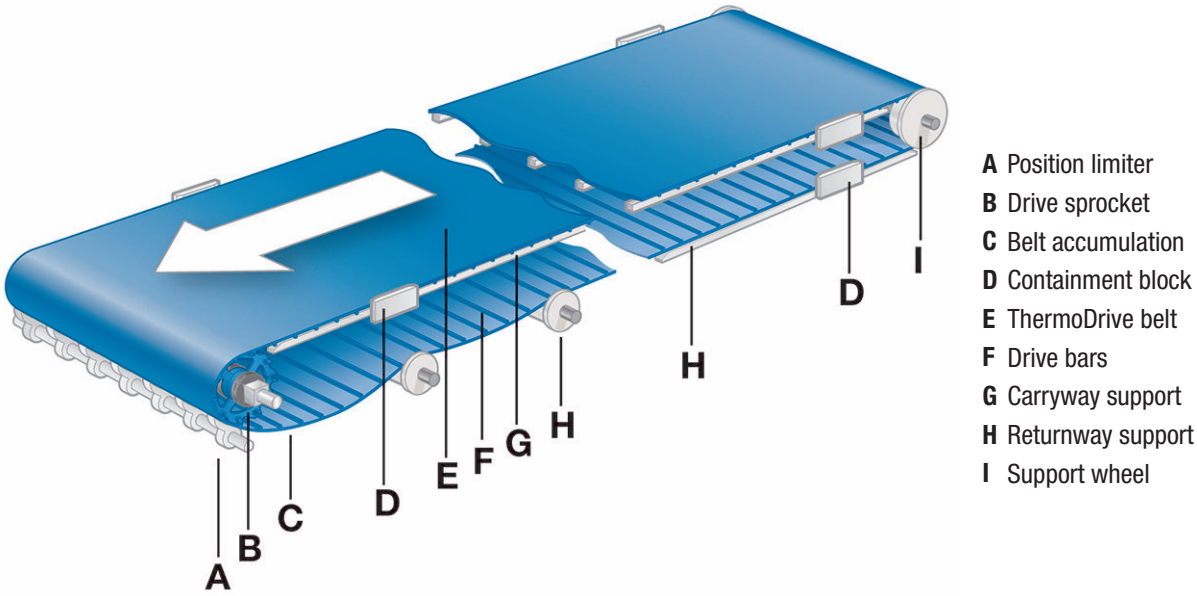


Figure 4: Conveyor belt components

NOTE: The actual number and type of position limiters (A) can vary from the illustration. The desired location of containment block (D) can vary from the illustration.

See www.intralox.com for ThermoDrive Installation and Maintenance manuals.

THERMODRIVE HYGIENIC RECOMMENDATIONS

Implementing ThermoDrive design principles and other design considerations in this document allows optimal ThermoDrive operational performance. Using the hygienic recommendations provided also improves sanitation and minimizes hygienic risks in food conveyance equipment.

HYGIENIC DESIGN PRINCIPLES

Understand and follow reputable hygienic design principles, standards, and guidelines, as well as regulatory requirements, when designing ThermoDrive conveyor systems for food industry applications. Commercial Food Sanitation promotes these design principles, standards, and guidelines during hygienic design classes and through direct support of food industry-based clients:

- Design equipment using compatible and non-toxic materials. Materials must withstand the intended sanitation and production processes, the transported food product, and the processing environment.
- Design equipment for sanitary operational performance.
  - Design and construct equipment to facilitate maintenance and sanitation.
  - Keep structures as simple as possible to provide open access to all areas during sanitation.

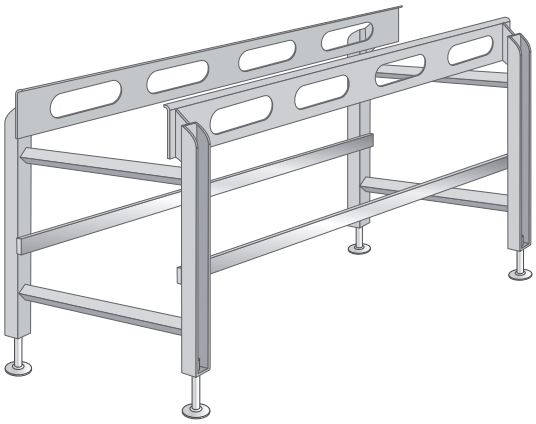


Figure 5: Simple structure to provide open access for sanitation

  - Minimize tools required for inspection, maintenance, and sanitation protocols.
  - Avoid fasteners when possible, or at least in product contact areas and above the exposed product contact surfaces.
  - Prevent cross-contamination during disassembly by designing component storage into the conveyor frame.
  - Ensure related equipment systems are hygienically compatible with conveyors.
  - Ensure adequate conveyor clearance from environmental surfaces and other processing equipment.
  - Avoid plated, painted, and coated surfaces when possible.
  - Consider the hygienic design of all enclosures and utilities.

- Design and construct equipment to prevent the ingress, survival, and multiplication of microorganisms.
  - Prevent liquid collection by designing components to self-drain.

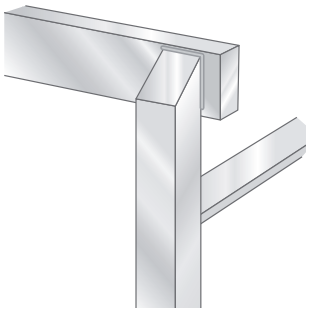


Figure 6: Correct joint assembly

  - Eliminate or minimize non-hermetically sealed, hollow fabrication at or above the exposed product contact areas.
  - Eliminate niches, butt joints, lap joints, and the use of fasteners when possible.
  - Ensure joints and welds are flush, smooth, and free of pits, cracks, and corrosion.
  - Ensure internal corners of less than 135 degrees have a minimum 0.125 in (3 mm) radius.
  - Avoid designs with sleeved assemblies, press fit, or shrink-fit designs when possible.

NOTE: More hygienic recommendations are provided throughout this manual.

GENERAL CLEAN-IN-PLACE RECOMMENDATIONS

General, safe Clean-in-Place (CIP) recommendations:

- Single row of fan nozzles on each manifold
- 50-degree fan nozzle
- 5 in (13 cm) or more from nozzle tip to belt
- Spray pattern at 90-degrees to the belt
- Water pressure between 150 PSI (10 bar) and 250 PSI (17 bar)
- Minimum water volume = Volume per Minute per Nozzle x Number of Nozzles
- Water temperature is between 120°F to 130°F (49°C to 54°C)
- Higher belt speeds are more efficient

NOTE: For CIP specifications outside of these recommendations, please contact TSG.

HYGIENIC STANDARDS RESOURCES

Refer to the most current sanitary standards and information when using ThermoDrive design guidelines to meet strict hygienic standards. Consider information from organizations such as:

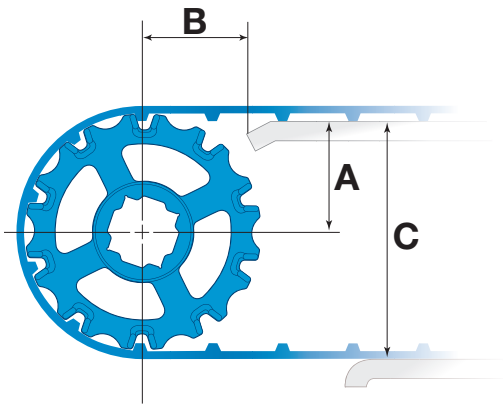
- American Meat Institute (AMI)
- Grocery Manufacturers Association (GMA)
- 3-A Sanitary Standards, Inc.
- European Hygienic Engineering and Design Group (EHEDG)
- NSF International Food Safety and Health Sciences Divisions

NOTE: Consider consulting the following standards: *EN 1672-2 (European Committee for Standardization), NSF 14179, EC 852 (European Council of 29 April 2004),* and *EC 853 (European Council of 29 April 2004)*.

4 CONVEYOR FRAME DESIGN

DIMENSIONS

Certain dimensions are required on all conveyors using ThermoDrive belting. Design the conveyor frame dimensions based on the chosen ThermoDrive belt series and sprocket size.

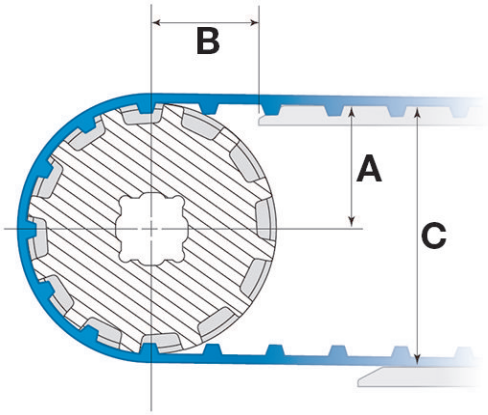


A Distance between the sprocket shaft centerline and the top of the carryway
B Distance between the sprocket shaft centerline and the beginning of the carryway
C Distance between the top of the carryway and the top of the returnway

Figure 7: Series 8026 and 8050 conveyor frame dimensions

S8026 Conveyor Frame Dimension Guidelines										
S8026 Sprocket Description					A		B		C	
Pitch Diameter		Outer Diameter		No. of Teeth						
in	mm	in	mm		in	mm	in	mm	in	mm
2.0	51	1.9	48	6	0.75	19	1.70	43	1.87	48
2.5	64	2.5	64	8	1.06	27	2.01	52	2.50	64
3.2	81	3.2	81	10	1.39	35	2.34	60	3.16	81
3.9	99	3.8	97	12	1.71	43	2.66	68	3.80	97
6.4	163	6.4	162	20	2.99	76	3.40	87	6.36	162

S8050 Conveyor Frame Dimension Guidelines										
S8050 Sprocket Description					A		B		C	
Pitch Diameter		Outer Diameter		No. of Teeth						
in	mm	in	mm		in	mm	in	mm	in	mm
4.0	102	3.7	94	6	1.68	42	2.53	65	3.71	95
5.2	132	5.0	127	8	2.32	58	2.97	76	4.97	127
6.5	165	6.3	160	10	2.95	75	3.35	86	6.24	159
7.7	196	7.6	193	12	3.61	91	3.71	95	7.55	192
10.3	262	10.1	255	16	4.84	123	4.32	110	10.03	255



A Distance between the sprocket shaft centerline and the top of the carryway
B Distance between the sprocket shaft centerline and the beginning of the carryway
C Distance between the top of the carryway and the top of the returnway
Figure 8: S8140 conveyor frame dimensions cross section

S8140
Conveyor Frame Dimension Guidelines

S8140 Sprocket Description					A (±0.125 in [3 mm])		B (maximum)[a]		C (minimum)	
Pitch Diameter		Outer Diameter		No. of Teeth						
in	mm	in	mm		in	mm	in	mm	in	mm
5.1	130	5.0	127	10	2.38	61	4.18	106	5.14	130
6.2	156	6.0	153	12	2.90	74	4.30	109	6.16	156
9.5	235	9.1	232	18	4.43	113	4.61	117	9.24	235

[a] Numbers listed ensure carryway rail ends no more than 3 in away from tooth engagement. Depending on height of the carryway, smaller B dimensions are acceptable provided the carryway rail does not contact the sprocket.

FRAMEWORK

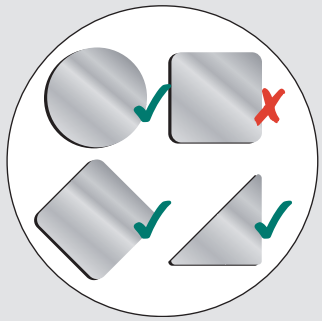
ThermoDrive tensionless belt systems require a conveyor framework appropriate for a loosely fitted belt. The design must include open spaces and minimal joints for appropriate sanitation and maintenance based on the application.

- Ensure the frame design allows for belt lifting and cleaning at the conveyor or endless belt removal for easy conveyor cleaning.
- Ensure the conveyor frame allows for belt installation and future repairs. For example, there must be enough area above the carryway for belt splicing or provide a cantilevered or breakaway support design in the conveyor for endless belt installation.

Framework Component Data		
Components	**Recommended Material**	**Surface Finish**
Conveyor framework in the product contact area	316 or 304 stainless steel	Not to exceed Ra32 micro-inches (Ra0.8 µm)
Conveyor framework structural members and guards outside the product contact area	304 stainless steel	Not to exceed Ra125 micro-inches (Ra3.2 µm)

HYGIENIC RECOMMENDATIONS

Review Hygienic Design Principles before following these recommendations. See Hygienic Design Principles.

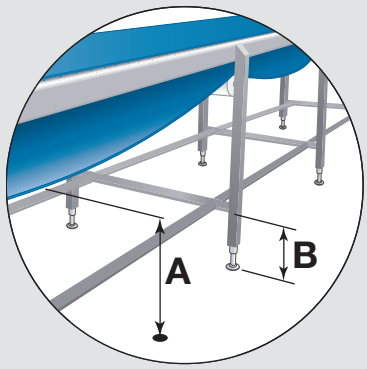


General Framework

- Keep frame construction as simple as possible.
- Use chemically resistant materials.
- Use solid round or angled profiles when possible. Use square profiles only when placed at an angle so water drains fully.
- Eliminate hollow tube and non-hermetically sealed joints when possible—at or above the exposed product contact areas.
  - Fully seal hollow fabrication with continuous purge welds to prevent interior contamination.
  - Avoid tapping or drilling hollow frame components.
  - Use standoffs when hermetically sealed joints are not possible.

- Eliminate exposed threads, niches, butt joints, and lap joints.
- Fully weld connections with a minimum 0.125 in (3 mm) radius.
- Grind flush all product contact surface welds.
- Polish all external surfaces to the needed Ra surface finish using hand polishing techniques, bead blasting, or electro-polishing. Passivate (pickle) the surface when required to meet requirements.

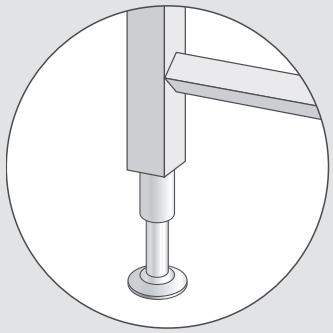
  NOTE: Do not passivate with any ThermoDrive or other Intralox belt present in the room. Nitric acid passivation destroys ThermoDrive and other Intralox polymer belts.



- Install simple belt lifting and idle shaft removal mechanisms. Ensure easy access to all frame components under the belt and inside the frame for cleaning, sanitation, and inspection.
- Periodically inspect the conveyor frame for wear marks, pitting, and cracking.

Frame Supports

- Minimize number of support legs and raise conveyor cross members where possible.
  - Locate cross members under the returnway belt supports so that a loosely fitted belt does not sag into the cross members.
  - Design a minimum 18 in (457 mm) clearance between the floor and a direct product contact surface (A). For example, the product contact side of belt while returning under the conveyor and all guide rollers that contact that side of the belt.
  - Design a minimum 12 in (305 mm) clearance between the floor and the bottom of lower conveyor framework (B).



- Design leg connections without niches, butt joints, or lap joints and use high-quality welds.
- Design portable conveyors with standoffs fully welded between legs just above casters and top plates. Slope the top plate 0.125–0.250 in (3.2–6.4 mm) for drainage.
- Design threaded leg adjustments in one of two ways:
  - Use only internal threaded leg adjustments that can be fully hermetically sealed, but do not penetrate the primary hollow tube support.
  - Use external leg adjustments with full external and cleanable surfaces.

HYGIENIC RECOMMENDATIONS

- Consider the following designs for installing conveyor feet or pads to the floor.
  - Design equipment leg and foot mounts on elevated masonry piers with sealant under feet.
  - If bolting feet directly to the floor, choose flat foot pads without concave voids. Use minimal fasteners, a compatible sealant, and frequent deep cleaning.
  - Design solid stainless steel legs without feet for installation within a solid masonry floor with properly rated masonry grout.

    NOTE: Legs without feet are not appropriate with floor coatings on masonry or in some tile applications.

5 DRIVE END DESIGN

ThermoDrive belting supports several drive designs:

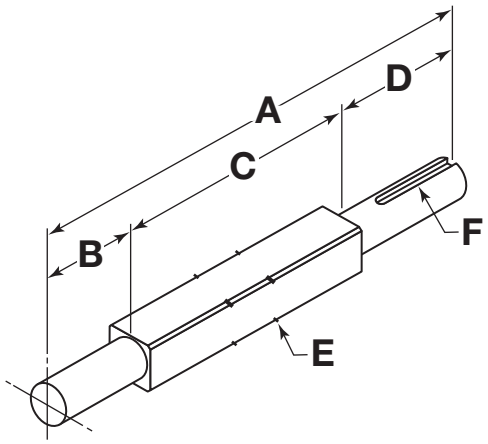
- Shafts, sprockets, and position limiters
- Motorized pulleys with Intralox-approved drive geometry and position limiters
- Intralox Drive Components

Depending on the process and product, certain drive methods provide a more hygienic solution.

DRIVE SHAFT

Square shafts provide maximum belt drive efficiency. Square shafts allow the positive transmission of torque to the sprockets without keys and keyways.

- Choose square shafts made of 303, 304, 316, or 17-4 PH stainless steel.
- Fasten shafts to the conveyor frame level and square with the belt path. Further adjustment is not required.
- Choose the standard 1.5 in, 2.5 in, 40-mm, or 60-mm shaft to ensure enough rigidity to minimize deflection in most applications.
- Lock each drive sprocket in place on the shaft.
- When using stainless steel circular retainer rings, consider sprocket hub width when defining retainer ring groove locations on square shafts.
- Use heavy-duty split retainer rings as needed.
- For retainer rings, sprocket spacers, and customized Intralox square shaft options, see Drive and Idle End Components.



A Shaft
B Bearing journal
C Square section (distance between bearings)
D Drive end journal
E Retainer ring groove
F Keyway for driver hub (not required on idle shaft)

Figure 9: Square drive shaft components

DRIVE SPROCKETS

Choose Intralox ThermoDrive sprockets based on ThermoDrive belt series and hygienic requirements. Design the drive system based on the following installation requirements:

- Install outside sprockets so the sprocket tooth outside edge is 0.5–1.5 in (13–38 mm) from the belt edge. Keep this distance as narrow as possible.
  - For flighted belts, order a flight indent large enough to meet the required clearances and sprocket-to-limiter alignment.
  - For ThermoLace™ belts, the sprocket tooth outside edge must be a minimum of 1 in (25 mm) from the belt edge. This prevents the sprocket from catching the ThermoLace edges.

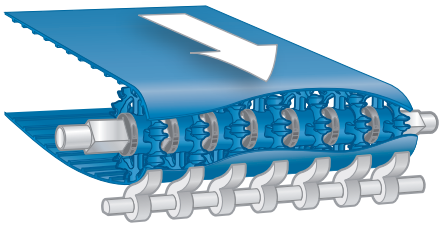
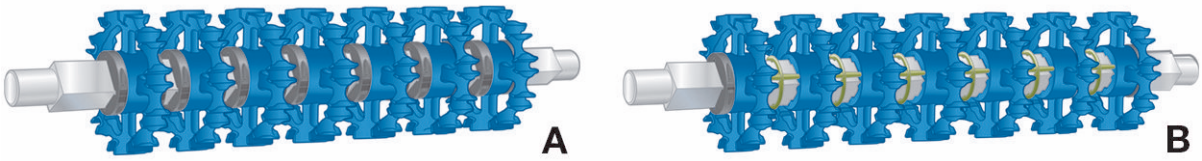


Figure 10: Outside sprockets installation

- Position sprockets as symmetrically as possible with a maximum 3 in (76 mm) centerline spacing.
- Add sprockets to prevent the belt from bowing more than 0.08 in (2 mm) between sprockets during operation.
- Limit sprocket lateral movement to +/-0.125 in (3 mm) using sprocket spacers and/or retainer rings.



A Retainer rings
B Sprocket spacers
Figure 11: Retainer rings and sprocket spacers

- Consider using stacked sprockets in heavily loaded applications or when precise scraping is critical.

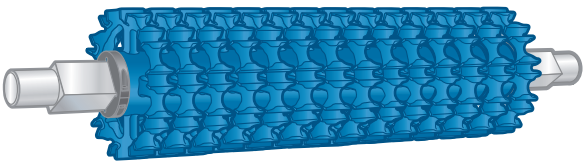


Figure 12: Stacked sprockets

HYGIENIC RECOMMENDATION

- Use ThermoDrive EZ Clean™ sprockets designed for self-draining and spray-through sanitation. This style is well suited for CIP systems.
- Use Intralox sprocket spacers for a more hygienic solution.
- Ensure clean-in-place systems are designed so that spray fully covers the sprockets.

DRIVE PULLEYS

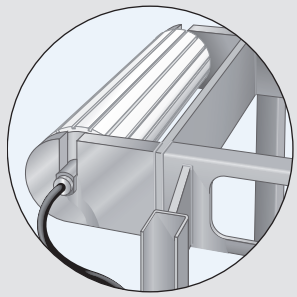
If choosing a motorized pulley, use the following guidelines. Contact Intralox Customer Service for pulley evaluation suggestions.

- Choose a rigid, full-width drive unit with non-pliable teeth that meets ThermoDrive specifications.
- Ensure the pulley surface has acceptable wear resistance characteristics and has a coefficient of friction (COF) of 0.35 or less against ThermoDrive belting.

For example, the pulley surface can be made of acetal, ultra-high molecular weight polyethylene (UHMW-PE) resin, 304 or 316 stainless steel, or covered in a hard polyurethane shell. A polyurethane shell of inadequate hardness wears quickly and shortens the life of the motorized pulley. Options depend on the application.

HYGIENIC RECOMMENDATIONS

- Use full width, continuous drive geometry to minimize joints and crevices.
- Ensure pulley surface materials are approved for product contact by regulatory agencies.
- Ensure the drive assembly has minimal exposed fasteners and uses a food-grade lubricant.
- Set shaft ends in slots for tool-free conveyor disassembly or unit removal when cleaning.



POSITION LIMITERS

Patented ThermoDrive tensionless operation requires the use of position limiters in the form of curved shoes, circular rollers, scrapers, or other innovative designs. Position limiters ensure proper, continuous engagement between ThermoDrive belts and drive sprockets without using tension.

For Intralox shoe-style position limiters and available rollers, see Drive and Idle End Components.

Contact Intralox Customer Service for application-specific suggestions.

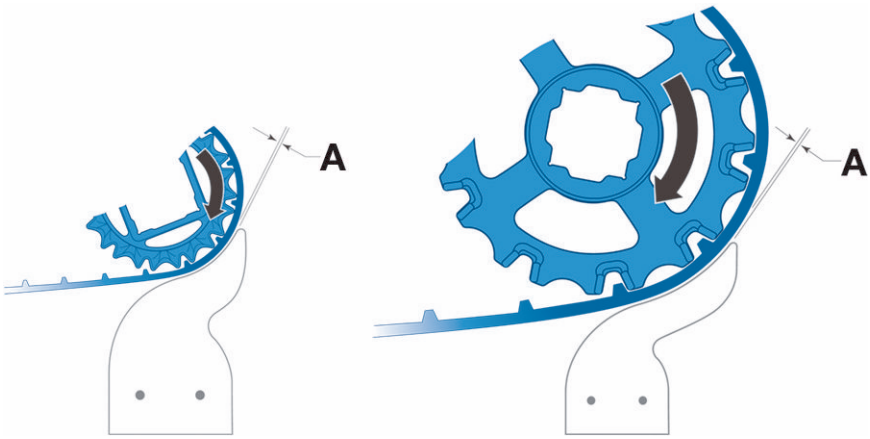
POSITION LIMITER GUIDELINES

- For ideal end drive design, use concave, shoe-style position limiters that span a minimum of three S8026 drive bars, two S8050 drive bars, or three S8140 drive lugs.
- Use rollers or scrapers as limiters in certain applications.
  - Use rollers as limiters for abrasive end drive applications.
  - Mount roller limiters on a shaft supported by ball bearings.
  - Use roller limiters for center drive applications. See Position Limiter Location by Drive Type.
  - Use scrapers as limiters only in lightly loaded applications. See Scraper Acting as a Limiter Considerations.
- Ensure limiter belt contact surface material is UHMW-PE with a molecular weight of 3,500,000 Da (amu) or higher, non-lubricated, natural (uncolored, no additives), and 63 Ra maximum surface roughness. Never use a limiter with an acetal contact surface.

POSITION LIMITER ALIGNMENT AND SPACING

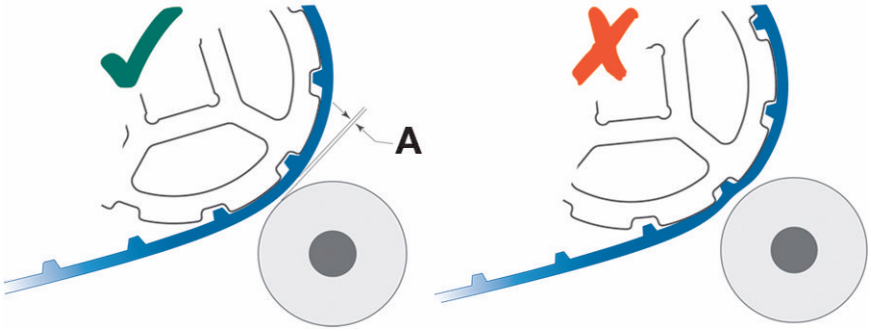
- Ensure limiter mounting structures are rigid enough to handle 40% of the belt load. For example, prevent the mounting beam or crossbar from deflecting more than 0.05 in (1.25 mm) under a uniformly distributed load of 40% of the calculated belt pull.
- Align limiters with drive sprockets so they can support the seated belt.
- Place shoe-style limiters with a 0.005–0.05 in (0.13–1.25 mm) spacing between the seated belt and the limiter. Limiters too far from the belt cause belt engagement issues.

- Ensure limiters do not exert pressure through the belt and onto the sprockets. Limiters pinching the belt against the drive sprocket can cause intermittent drive disruption or noisy drive operation.



A 0.005–0.05 in (0.13–1.25 mm) spacing
Figure 13: Correct limiter placement

- Set roller limiters with a maximum 0.02 in (0.5 mm) spacing between the seated belt and the roller.
- Keep a raised tooth beneath the belt when setting the roller limiter. If a drive pocket between raised teeth is at the roller during installation, the roller can be installed too close to the sprocket. Poor installation can cause belt pinching at startup and belt damage.



A 0.02 in (0.5 mm) spacing
Figure 14: Correct placement of sprocket tooth beneath belt when setting the roller limiter

- Plan to make periodic inspections for limiter wear and secure mounting. Replace position limiters or adjust position limiter locations periodically to maintain proper spacing.

BELTS WITHOUT ACCESSORIES

- Place the limiter support structure laterally across the belt width and parallel to the drive shaft.
- For spaced or stacked sprockets, align limiters with sprockets with a maximum 3 in (76 mm) centerline spacing.

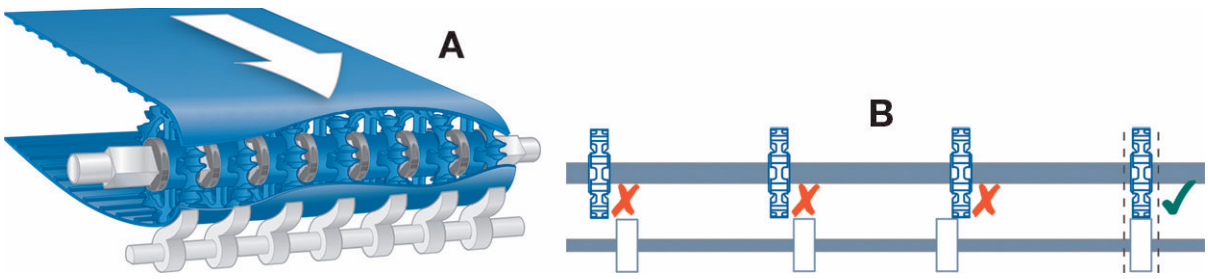
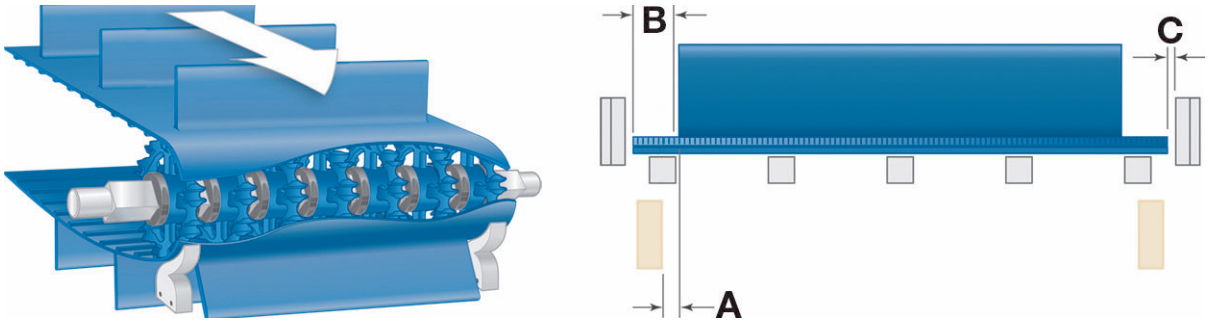


Figure 15: Correct alignment and clearance for belts without accessories

BELTS WITH ACCESSORIES

- Align a limiter with each outermost drive sprocket.
- Ensure a 0.25 in (6 mm) clearance between flight or sidewall edges and position limiter edges (A) at ambient temperature.
- Ensure a 1.25 in (32 mm) minimum flight or sidewall indent (B) to allow for the installation of position limiters.
- Ensure a 0.125 in (3 mm) clearance between the belt edge and containment components (C) at ambient temperature.



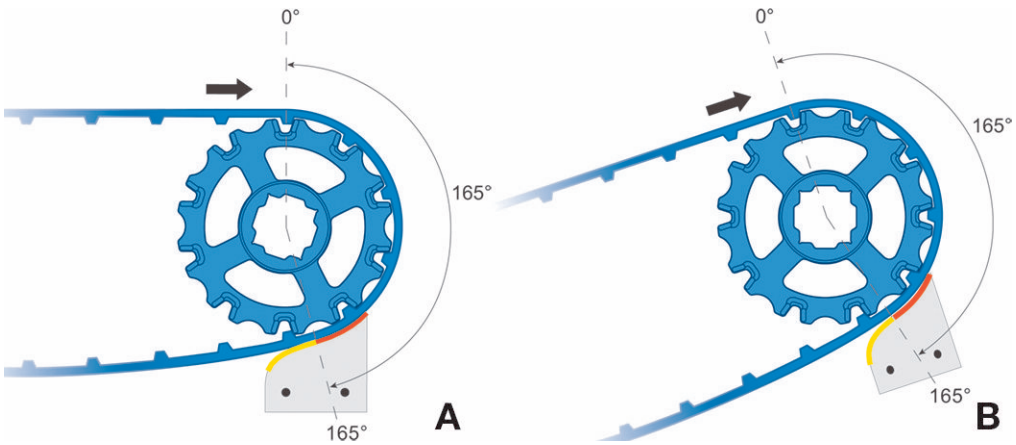
A 0.25 in (6 mm) clearance
B 1.25 in (32 mm) clearance
C 0.125 in (3 mm) clearance

Figure 16: Correct alignment and clearance for belts with accessories

POSITION LIMITER LOCATION BY DRIVE TYPE

END DRIVE

Ideal end drive design allows the belt to pull at the full load rating with a belt wrap of 165-180 degrees.



A 165–180 degrees from the top of the sprocket
B 165–180 degrees from the top of the sprocket on incline

Figure 17: End drive position limiter placement

CENTER DRIVE

For center drive designs, use the following recommendations for sprocket and position limiter types and locations.

- Use a center drive sprocket with a minimum of 10 teeth.
  - For a belt with flights, contact Intralox Customer Service for application-specific suggestions.

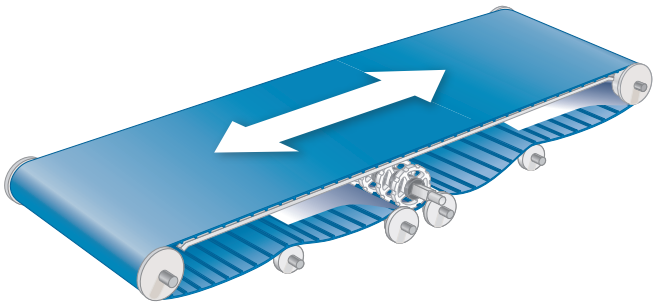
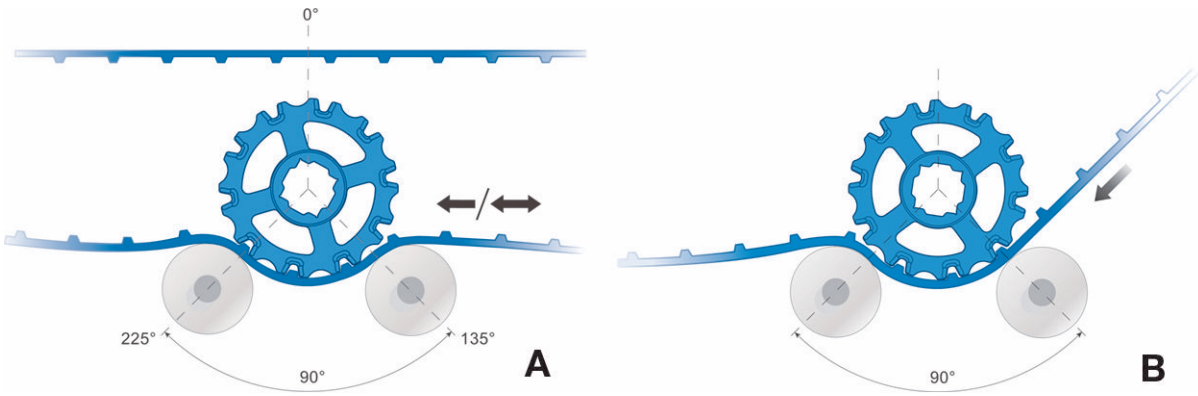


Figure 18: Center drive sprocket and position limiter locations

- Use roller limiters to achieve a 90-degree belt wrap. This also provides a compact drive system.
  - Ensure roller limiter diameters meet or exceed the belt minimum backbend diameter.
  - For a bi-directional drive, place roller limiters at the 135 degree and 225-degree positions from top center.
  - For a uni-directional drive with the drive near the discharge end, place one roller limiter where the belt should first contact the sprockets. Then, place a second roller limiter 90-degree from the first.



A Bi-directional drive roller limiter positions

B Uni-directional drive roller limiter positions

Figure 19: Bi-directional and uni-directional center drive roller limiter positions

HYGIENIC RECOMMENDATIONS

- Design position limiter mounting without niches, butt joints, lap joints, and fasteners when possible.
- Ensure component materials are approved for product contact by regulatory agencies.
- Consider using the ThermoDrive Drive Components for optimal hygienic and operational performance for end drive applications.

BELT SCRAPER

Include a scraper with ThermoDrive belt conveyor applications to remove product residue automatically during operation. Plan to use position limiters with any scraper. See Scraper Acting as a Limiter Considerations.

NOTE: Worn or deflecting scrapers reduce operational performance. This can reduce product yield, limiter effectiveness, and scraping efficiency.

SCRAPER DESIGN CONSIDERATIONS

- To optimize scraper performance, consider temperature variations, product to convey, scraper deflection, scraper wear, and other criteria during design.

- Use solid UHMW-PE scrapers in most applications.
  - Ensure the scraper tip is designed to remain straight and conform to the belt surface.
  - Only use soft, polyurethane-tipped scrapers in consistently wet or greasy applications. Soft-tipped scrapers can wear prematurely in dry applications.
- Consider minimizing sprocket spacing, using stacked sprockets, or using a full-width pulley with a scraper to prevent belt deflection between sprockets. This can improve scraping performance—especially in heavily loaded applications.
- Mount the scraper rigidly to prevent it from deflecting more than 0.01 in (0.3 mm) from the belt center during operation.
- Ensure scraper mounting components cannot contact the belt surface during operation or when the scraper is removed.
- Mount the scraper at an angle for maximum cleaning performance. Do not mount the scraper vertically.

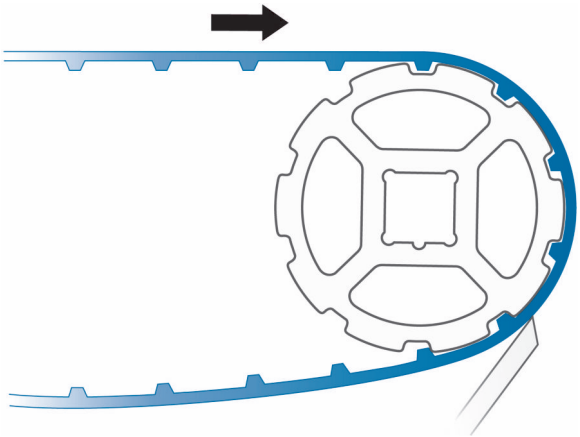


Figure 20: Scraper mounted at an angle

- As with rollers, keep a sprocket tooth beneath the scraper when mounting to prevent belt pinching at startup. Pinching can cause belt damage and increased scraper wear.
- With ThermoLace belting, use a scraper 2 in (51 mm) narrower than the belt width to prevent catching ThermoLace edges.
- Ideal ThermoLace scraper width:
  - Scraper width = Belt width - 2 in (51 mm)

HYGIENIC RECOMMENDATIONS

- Use scraper materials approved for product contact by regulatory agencies.
- Use scraper material compatible with common cleaning chemicals for the application.
- Design self-adjusting scraper systems with minimal fasteners in the food stream and tool-free removal and replacement during sanitation.
- Eliminate any niches or collection points that can harbor bacteria.

SCRAPER ACTING AS A LIMITER CONSIDERATIONS

- Use scrapers as limiters only in lightly loaded applications. Contact Intralox Customer Service for more information.
- Mount the scraper in place with enough support to prevent deflection away from the belt. See Position Limiter Alignment and Spacing.
- Design the scraper tip to contact the belt 165–180 degrees from the top of the sprocket in the direction of travel.
- Plan to make regular adjustments as the scraper wears during use.

NOTE: In heavily loaded applications, a scraper cannot be used as a limiter, and it should be used with shoe or roller limiters.

6 IDLE END DESIGN

ThermoDrive tensionless belt systems can have one or more idle ends depending on the drive location. Adjustable idle shafts are often used in ThermoDrive installations to allow incremental shaft movement for controlling belt accumulation in the returnway. Ensure that idle shaft adjustments do not add belt tension.

When designing an adjustable idle shaft, ensure the following:

- The idle shaft position is adjusted only for minor belt path position adjustments. Most applications require less than 6 in (152 mm) of adjustability.
- Eliminate all belt tension for proper operation and effective cleaning and sanitation.

IDLE SHAFT

Choose between round and square shafts made of 303, 304, or 316 stainless steel for idle ends.

- Use dynamic components when possible to reduce friction in the system.
- Either mount idle components on a rotating, square shaft or mount rotating components on a fixed, round shaft.
- Use a square shaft with ball bearing supports for heavily loaded applications.
- Fasten shafts to the conveyor frame level and square with the belt path. Further adjustment is not required.
- Plan to use retainer rings or sprocket spacers with spaced idle components. See Drive and Idle End Components.

Figure 21: Retainer rings and sprocket spacers

SPROCKETS, WHEELS, AND ROLLERS

Contact Intralox Customer Service for application-specific suggestions.

CONVEYOR INFEED FOR END OR CENTER DRIVES

- Mount rollers or wheels to a square or keyed shaft with ball bearings in heavily loaded applications. Only use compatible components together.
- Mount minimum 1 in (25 mm) wide rollers or wheels with a maximum 6 in (152 mm) centerline spacing.
- Ensure a maximum 1.5 in (38 mm) distance from the belt edge to the component outside edge.
- Ensure the component diameter meets or exceeds the belt minimum sprocket diameter.

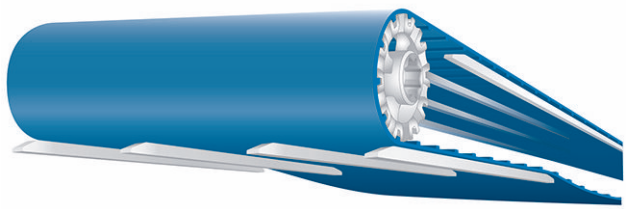


Figure 22: Correct component diameter

- If small transitions are required, consider the following options.
  - Lock sprockets rather than rollers in place on a rotating shaft to minimize vibration.
  - Use thinner belt material.
  - Place support rails or similar at the returnway immediately before the pulley to control belt position.

- Use UHMW-PE materials when possible.

CONVEYOR OUTFEED FOR CENTER DRIVES

- Mount sprockets with a maximum 3 in (76 mm) centerline spacing for lightly loaded applications.
- Install outside sprockets so the sprocket tooth outside edge is 0.5–1.5 in (13–38 mm) from the belt edge.
- For heavily loaded applications, consider stacked sprockets or a full-width idle roller.
- Mount sprockets to a square or keyed shaft with bearing supports that accommodate the expected shaft load. Journal bearing designs are suitable in some applications. Contact Intralox Customer Service for application-specific suggestions.
- Use UHMW-PE materials when possible.

HYGIENIC RECOMMENDATIONS

- Ensure component materials are approved for product contact by regulatory agencies.
- Eliminate ball bearings at the idle section on an end drive or unidirectional center drive conveyor (allowed because of tensionless design).
- Choose one of the following idle end designs:
  - A full-width, UHMW-PE idle roller
  - UHMW-PE wheels rotating on a fixed, round 316 stainless steel shaft
  - UHMW-PE wheels fixed on a rotating, square 316 stainless steel shaft with UHMW-PE bearings
- Use Intralox sprocket spacers for the most hygienic spaced sprocket or wheel solution.
- Design the adjustable idle section to be mounted with minimal fasteners, threaded rods, and tools. For example, include equally spaced slots for idle shaft mounting to ensure easy disassembly or removal during cleaning and sanitation.
- Ensure CIP systems are designed so idle shaft components receive full spray coverage. See General Clean-in-Place Recommendations for more information.

7 CARRYWAY DESIGN

Carryways of various materials and arrangements can support ThermoDrive belts. Design carryways as a continuous running surface with low friction to reduce belt wear and consider the following guidelines.

- Account for thermal expansion and contraction of materials when assessing components, dimensions, and locations. See Dimension Changes.
- Calculate a full range of minimum and maximum belt dimensions. See Dimension Changes.
- Review other belt containment options. See Belt Containment.

SUPPORT RAIL GENERAL GUIDELINES

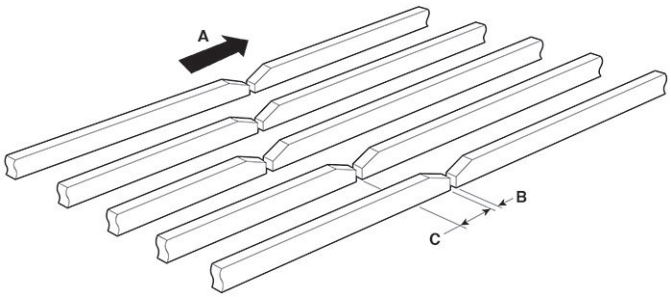
Intralox recommends using UHMW-PE support rails or wearstrips for ThermoDrive belting carryway support. See Carryway and Returnway Components.

- Use rails with a smooth surface finish not exceeding Ra125 micro-inches (Ra3.2 µm).
- Ensure cut ends and edges are smooth before use.
- Avoid fasteners or keep fasteners out of the belt path by countersinking.
- Consider thermal expansion and contraction of material at operating temperatures when assessing the following:
  - Rail lengths and fastener locations; see Dimension Changes
  - Proper gap between wearstrip ends
- Avoid use of UHMW-PE products in facility temperatures above 160°F (71°C).
- Never use acetal or high-density polyethylene (HDPE) support rails.

NOTE: For retrofits, 300 Series flat stainless steel bars can be used for belt support in certain lightly loaded and low-speed applications. Do not use round supports. Contact Intralox Customer Service for application-specific suggestions.

STRAIGHT, PARALLEL ARRANGEMENT

Support rails or wearstrips are most commonly installed in a pattern of straight, parallel lengths for carryway support. Use the following guidelines with the general support rail guidelines to design a straight, parallel carryway support.



A Belt travel
B Gap for thermal expansion
C Joint stagger of the rail

Figure 23: Straight, parallel carryway support

- Use flat rails with a minimum 1 in (25 mm) width.
- Design outermost rails with a maximum 0.5 in (13 mm) from the belt edges.
- Design a maximum 6.0 in (152 mm) centerline distance between rails.

- Chamfer all rail joints, cut edges, and sharp corners to eliminate catchpoints and allow smooth belt transitions.
- Chamfer the infeed and outfeed ends to prevent drive bar catchpoints and component damage.

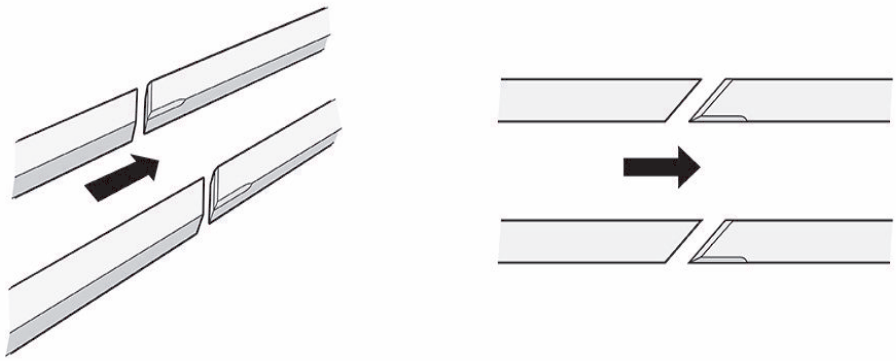


Figure 24: Rails chamfered at a 45-degree angle

Figure 25: Wearstrip end chamfer

- Stagger the rail joints to minimize drive bar catchpoints.
- Consider using a solid UHMW-PE carryway bed at infeed or loading areas to address product impact.
- Consider using an angled (L-shaped) UHMW-PE containment rail at belt edges to assist with containment. Ensure a minimum 0.75 in (19 mm) vertical surface on angled rails.

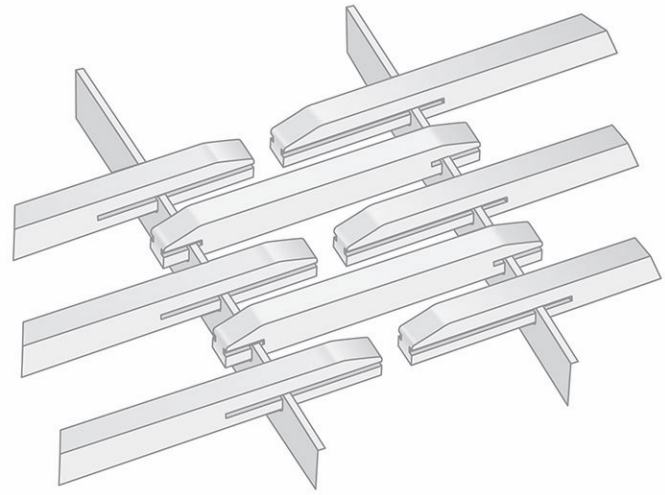
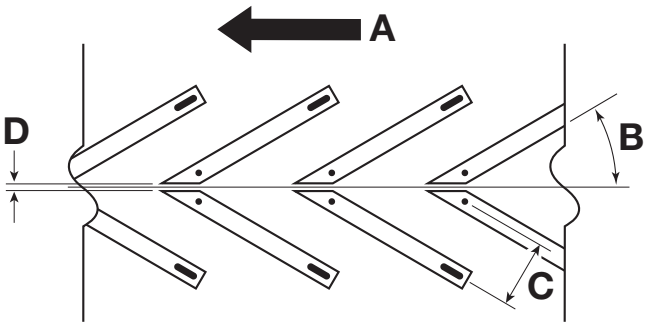


Figure 26: Alternate bridge design

Contact Intralox Customer Service for heavily loaded application-specific suggestions.

ANGLED CHEVRON ARRANGEMENT

Support rails and wearstrips can be installed in a chevron pattern for certain applications and retrofit projects. Placing rails in this overlapping V pattern fully supports the width of the belt as it moves along the carryway. The angled surfaces can also help remove gritty or abrasive material from the belt bottom. Use the following guidelines with the general support rail guidelines to design a chevron carryway.



A Belt travel
B Rail angle from centerline: 10–30 degrees
C Rail centerline spacing: maximum 5.2 in (132 mm)
D Spacing between rails: minimum 0.4 in (10 mm)

Figure 27: Support rails or wearstrips in chevron pattern

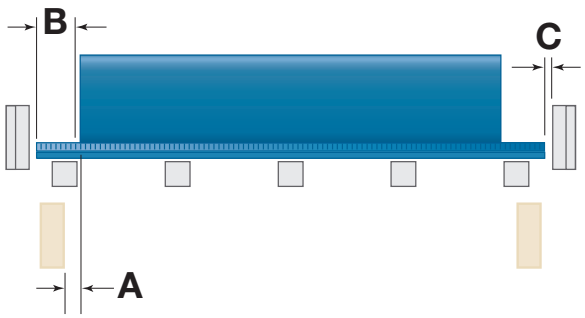
- Use flat rails with a minimum 1.25 in (32 mm) width and install the modified flat rails in a chevron pattern.
- Design a maximum 5.2 in (132 mm) centerline spacing between rails.
- Maintain a minimum 0.4 in (10 mm) spacing between rails at the chevron center to reduce debris buildup.
- Chamfer all rail joints, cut edges, and sharp corners to eliminate catch points and allow smooth belt transitions.
- Chamfer the infeed and outfeed rail ends to prevent drive bar catch points, vibration, and component damage.

Contact Intralox Customer Service for heavily loaded application-specific suggestions.

CARRYWAY WITH FLIGHTS, SIDEWALL, OR FLIGHT NOTCHES

For flighted or sidewall belts, consider the following additional carryway design guidelines.

- Order belts with a minimum 1.25 in (32 mm) flight or sidewall indent.
- Contact Intralox Customer Service for center notch recommendations based on design and application when belts or flights are wider than 24 in (610 mm).
- Plan to use position limiters at flight notches on the drive end. Align the sprocket and limiter with the notch.
- Do not use hold down shoes or similar components for belt containment purposes.
- Ensure a minimum 0.25 in (6 mm) clearance between limiter edges and flight or sidewall outside edges at ambient temperature.
- Ensure a minimum 0.125 in (3 mm) clearance between belt and containment components at ambient temperature.



A Minimum 0.25 in (6 mm)
B Minimum 1.25 in (32 mm)
C Minimum 0.125 in (3 mm)

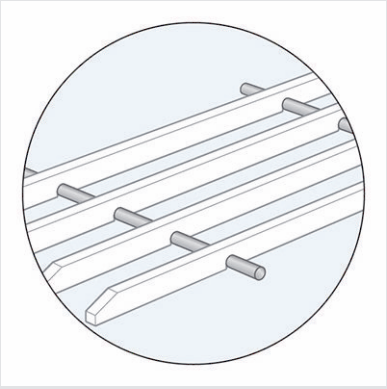
Figure 28: Flight and sidewall clearances

- Use belt support such as UHMW-PE hold down components at all transitions.

For flighted or sidewall belts in a Z-Conveyor (such as an incline-to-packaging application), contact Intralox Customer Service.

HYGIENIC RECOMMENDATIONS

- Use only solid profile support rails.
- Eliminate niches, butt joints, lap joints, and the use of fasteners when possible.
- Ensure component materials are approved for product contact by regulatory agencies.
- Design carryways for easy, tool-free disassembly and reassembly during sanitation. Consider a symmetrical design to prevent errors during reassembly. For example, consider creating grooves in wearstrips for installation on round supports. Plan for component thermal expansion and contraction when designing grooves.



8 RETURNWAY DESIGN

The returnway of a tensionless conveyor with patented ThermoDrive technology is critical to the overall design. The belt is designed to be installed and naturally operate with loose belt in the returnway. A properly designed returnway with proper belt installation allows tensionless operation. It enables belt lifting and access for sanitation. It also controls storage of belt length that accumulates from load and temperature variations. Design the returnway using the following information.

BELT DIMENSIONS

Consider thermal expansion and contraction of material when assessing rail lengths and fasteners. See Dimension Changes for more information.

- Calculate a full range of minimum and maximum belt lengths and widths before designing belt carryway support, returnway support, and containment components.

CATENARY SAG

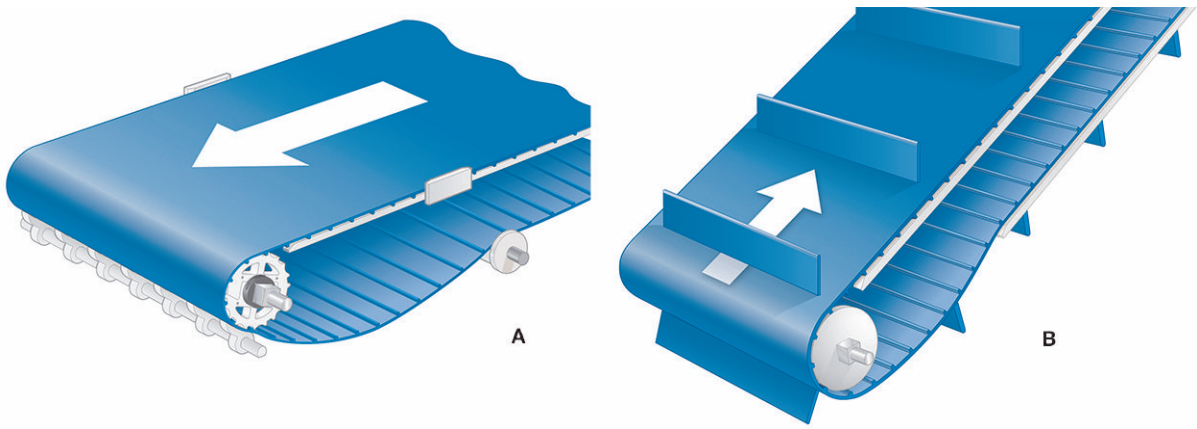
Belt accumulated in the returnway hangs loosely and assumes the shape of a curve called catenary. The curve dimensions are based on the distance between supports, the length of hanging belt, stiffness of the belt, and the belt weight.

- Choose a belt length that prevents belt contact with obstacles such as drip pans, frame supports, fasteners, wiring, and other equipment.
- Use returnway support components to control the locations, lengths, and depths of sags.

MANAGING BELT ACCUMULATION

The loose belt on a conveyor naturally accumulates in the returnway. The amount of loose belt varies based on expansion and contraction from load and temperature changes.

Generally, the most belt accumulates in the open area immediately following the drive sprockets. For inclined conveyors, the most belt usually accumulates in the lowest open area near the infeed returnway. These open areas often have the deepest belt sags.



A Flat conveyor belt accumulation
B Incline conveyor belt accumulation
Figure 29: Belt accumulation

- Calculate the correct amount of belt needed for the conveyor length. See Total Belt Dimension Calculation. Contact Intralox Customer Service for calculation help.
- Choose the optimal location for the deepest belt sag. Consider the location of obstacles such as drip pans, frame supports, and wiring.

- Design the longest distance between returnway supports at the optimal location for deep belt sag.
  - Consider the distance required between components to accommodate loose belt.
  - Include at least one distance between 30 in (762 mm) and 72 in (1829 mm) in most applications.
  - Determine the approximate vertical clearance needed for the belt sag at each open area. See Catenary Sag Clearance Reference.
  - Ensure the design prevents belt contact with obstacles.

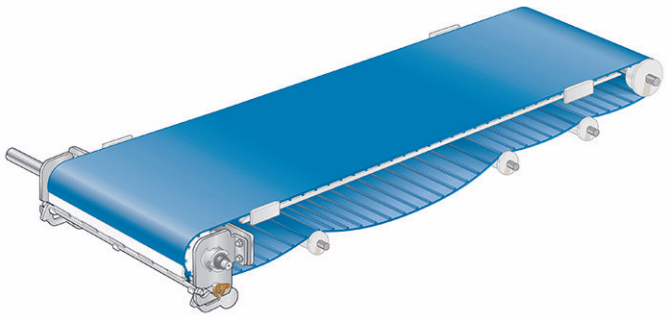


Figure 30: Catenary sag between components

Catenary Sag Clearance Reference[a]			
Length of Open Area in the Returnway		Typical Maximum Clearance Needed[b, c]	
ft	m	in	mm
Up to 2 ft	0.61	4.0	102
3 ft	0.91	6.0	152
4 ft	1.22	9.0	229
5 ft	1.52	12.0	305
6 ft	1.83	15.0	381

[a] If the returnway is not horizontal, contact Intralox Customer Service for clearance information.
[b] For belts with flights or sidewalls, add the height of the tallest accessory to the typical maximum clearance needed dimension.
[c] The typical maximum clearance needed allows for a range of possible belt sags when the belt is the correct length for optimal operation. The actual clearance needed can be less, based on the application.

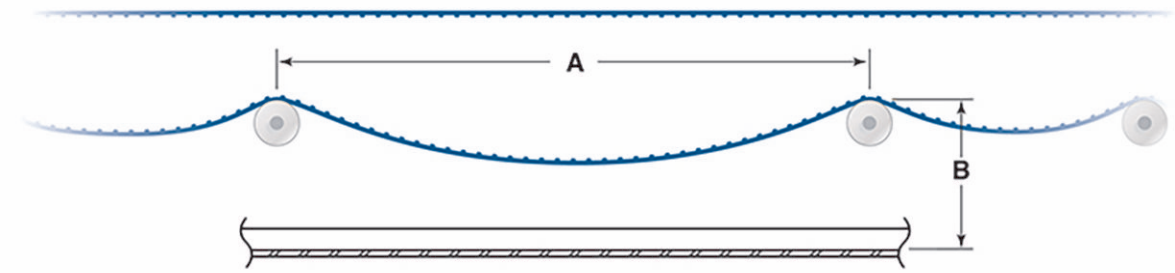


Figure 31: Catenary sag

A: Length of open area between components

B: Typical maximum clearance needed

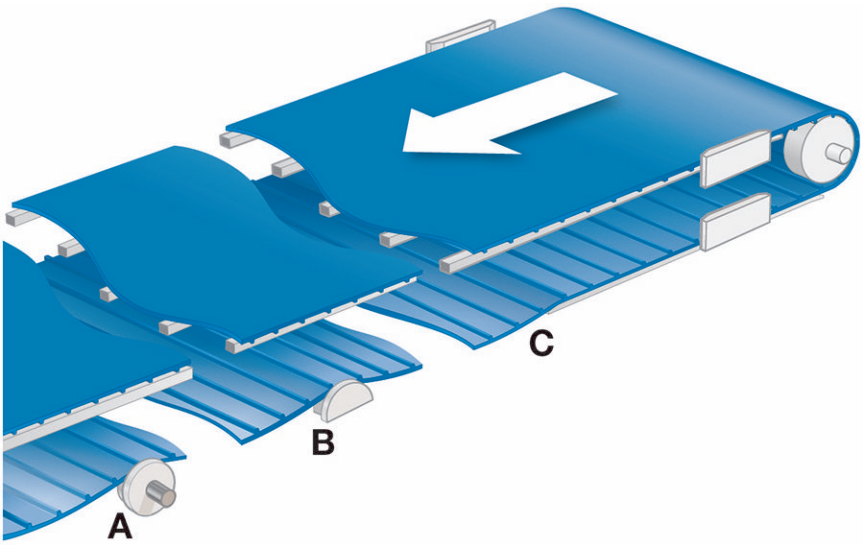
- Expect the sag depths to vary during conveyor operation based on belt speed, temperature changes, and product load changes.

NOTE: To verify tensionless belt operation, stop the conveyor and shift the belt sideways at the infeed idle end. The belt should move with minimal effort.

RETURNWAY SUPPORT GUIDELINES

A conveyor returnway can include various framework styles with components such as rollers, intermittent wear shoes, and continuous rails. ThermoDrive tensionless belt systems can use a combination of continuous and intermittent support. Depending on the conveyor, multiple lengths of open space can be required to store the belt properly. Sag does not always distribute evenly across unsupported areas. See Catenary Sag.

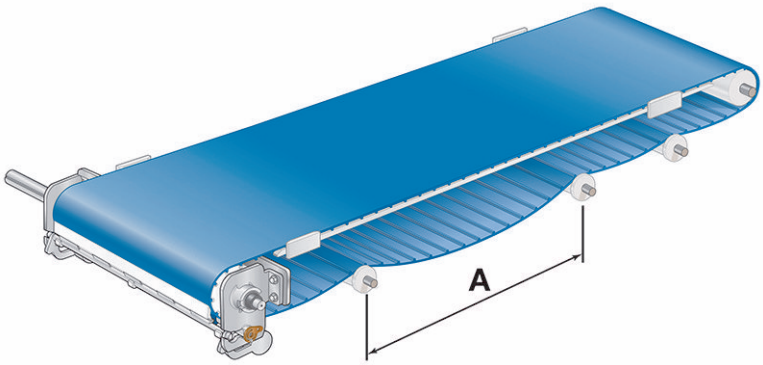
Depending on the application, returnway support components can be dynamic, such as rollers, or static, such as shoes or rails.



A Roller
B Wear shoe
C Continuous rail
Figure 32: Returnway support components

INTERMITTENT SUPPORT (WEAR SHOES AND ROLLERS)

- Mount belt support components that span the full belt width when possible.
- Design components with a maximum 12 in (305 mm) lateral centerline spacing.
- Design supports with a maximum 72 in (1829 mm) distance along the conveyor length for most applications. For example, design a support every 36 in (914 mm) along the returnway with one 48–72 in (1219–1829 mm) unsupported area for belt accumulation.



A Maximum 72 in (1829 mm)
Figure 33: Correct support spacing

- Ensure all belt bends are equal to or larger than the minimum belt backbend diameter. See Belts.

- Use flanged rollers or shoes to provide support and laterally contain the belt. See Belt Containment.

CONTINUOUS RAILS

- Design support rails with a maximum 12 in (305 mm) lateral centerline distance between rails.
- Design outermost rails 2–3 in (51–76 mm) inside the belt edge for most belts. See Returnway with Flights or Sidewalls.
- Include a minimum of one (1) 30 in (762 mm) area between continuous rail ends to accommodate belt accumulation. See Managing Belt Accumulation.
- Consider using rollers or shoes with rails.

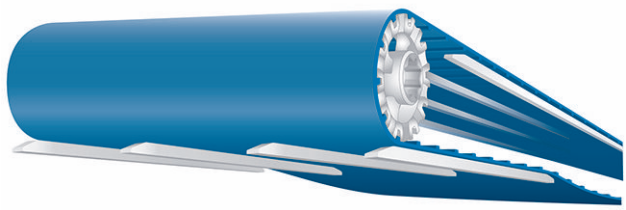


Figure 34: Correct lateral centerline distance between support rails

HYGIENIC RECOMMENDATIONS

- Use UHMW-PE returnway components approved for product contact by regulatory agencies.

  Use solid UHMW-PE rollers without ball bearings for returnway support. These minimize belt and component contact and the number of components.
- Use UHMW-PE support wheels for wide belt applications that are unsuitable for full-width idle rollers.
- Eliminate niches, butt joints, lap joints, and the use of fasteners when possible.
- Strive for designs that allow easy, tool-free disassembly and reassembly during sanitation.

RETURNWAY WITH FLIGHTS OR SIDEWALLS

Consider these additional returnway design guidelines for belts with flights, sidewalls, or flight notches.

NOTE: Contact Intralox Customer Service for center notch recommendations based on design and application when belts or flights are wider than 24 in (610 mm).

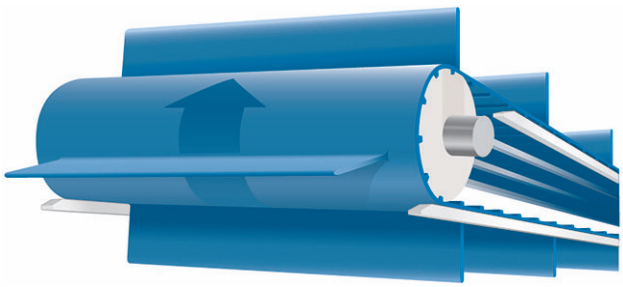
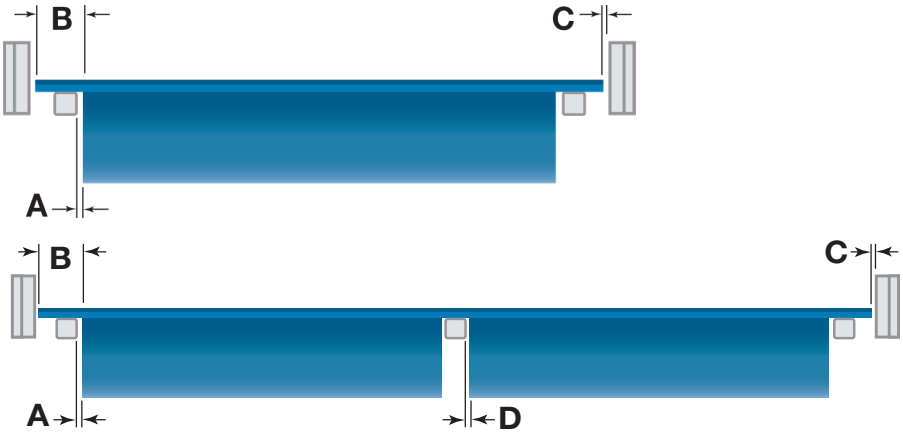


Figure 35: Returnway with flights

- Order belts with a minimum 1.25 in (32 mm) flight or sidewall indent.

- Consider using continuous support rails at belt edges for returnway support.
  - Chamfer the support rail infeed and outfeed ends to eliminate catchpoints.
  - Design support rails and other components with adequate clearance from flight and sidewall edges.



A Minimum 0.25 in (6 mm)
B Minimum 1.25 in (32 mm)
C Minimum 0.125 in (3 mm)
D Minimum 0.25 in (6 mm)

Figure 36: Minimum clearances for support rails and other components

- Design containment components with a minimum 0.125 in (3 mm) clearance from the belt edge. See Belt Containment.
- Do not allow flights or sidewalls to contact returnway rails or components.
- For wider belts, use belt support such as UHMW-PE hold down components at all transitions.

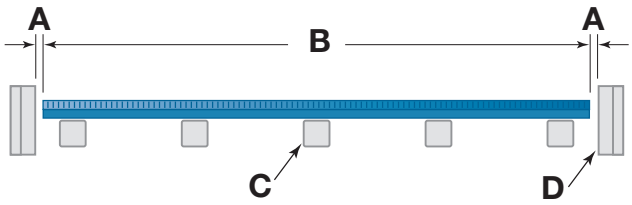
NOTE: For flighted or sidewall belts used in a Z-Conveyor (such as an incline-to-packaging application), contact Intralox Customer Service.

9 BELT CONTAINMENT

ThermoDrive belts are guided along the carryway and returnway to control lateral movement. Full-width belt drive bars on the belt bottom surface provide lateral rigidity. Therefore, conveyor components such as containment rails, blocks, or flanged rollers are only needed along the belt edges.

NOTE: In some retrofit applications, conveyor frames can be used to contain the belt. Consider adding UHMW-PE components to framework to minimize belt wear. Contact Intralox Customer Service for application-specific suggestions.

- Consider thermal expansion and contraction of material when assessing component dimensions and locations. See Belt Dimension Change Considerations.
- Calculate a full range of minimum and maximum belt dimensions based on facility and operating temperatures and belt load.
- Use the largest belt dimensions to design a minimum 0.125 in (3 mm) clearance between containment components and the belt edge on each side of the belt.

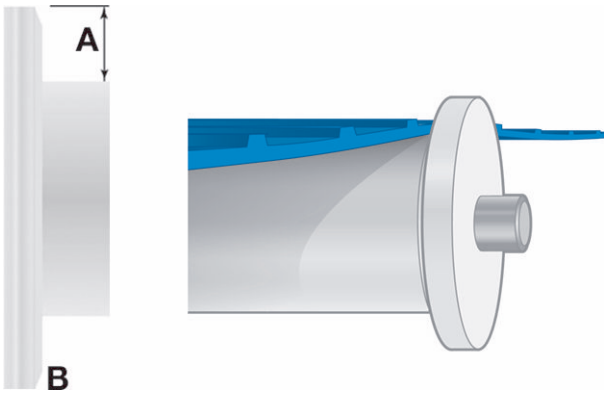


A Minimum 0.125 in (3 mm) clearance
B Belt width
C Carryway support rails
D Containment components

Figure 37: Correct clearance between containment components and belt edges

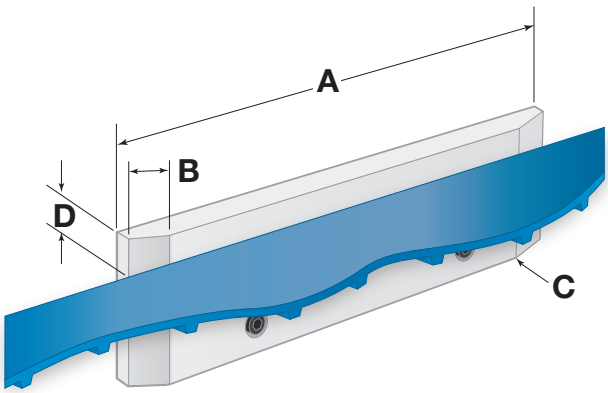
- Use components made of UHMW-PE with a smooth surface finish not exceeding Ra125 micro-inches (Ra3.2 microns) to minimize belt friction.
- Never use components made of acetal or HDPE.
- At the carryway, mount belt containment blocks near the idle shaft.
  - Add more containment components along the conveyor length a maximum 6 ft (1.8 m) distance apart.

- At the returnway, mount belt containment blocks or flanged rollers near the idle shaft.
  - Add more containment components along the conveyor length a maximum 6 ft (1.8 m) distance apart.
  - When using flanged rollers, ensure a minimum 0.75 in (19 mm) flange height at belt edges. This provides a minimum 0.5 in (13 mm) vertical height above the belt surface.
  - See Carryway and Returnway Components.
  - Ensure inside flange edges are chamfered to minimize belt wear.



A Minimum 0.75 (19 mm) clearance
B Required chamfer
Figure 38: Minimum clearance and required chamfer

- Use full-length or angled (L-shaped) containment rails or long containment blocks for applications with side loading or product diverting.
- Design containment blocks and rails with the following minimum specifications to reduce belt wear and friction:
  - 6 in (150 mm) length and 0.25 in (6.4 mm) chamfer on infeed and outfeed ends
  - 0.031 in (0.8 mm) corner radius to avoid belt edge damage
  - 0.5 in (13 mm) vertical height above the belt edge



A Minimum 6 in (150 mm)
B Minimum 0.25 in (6.4 mm)
C Minimum 0.031 in (0.8 mm)
D Minimum 0.5 in (13 mm)
Figure 39: Minimum specifications for containment blocks and rails

- Countersink all fasteners below containment component surfaces to prevent belt contact with fasteners.
- Design vertical containment surfaces parallel to the carryway and perpendicular to the belt edge.

HYGIENIC RECOMMENDATIONS

- Eliminate niches, butt joints, lap joints, and the use of fasteners when possible.
- Mount components for easy, tool-free disassembly and reassembly during sanitation. For example, integrate containment into carryway guide rails, mount components on frame slots, or design them to fit on round bars in the frame.
- Design all concave cuts with a minimum 0.125 in (3 mm) internal radius.
- Ensure component materials are approved for product contact by regulatory agencies.

10 TROUGHED CONVEYORS

ThermoDrive belts can be troughed easily for product control while maintaining the benefits of the patented tensionless, sprocket-driven operation. There are several possible configurations. Contact Intralox Customer Service for application-specific suggestions.

Design troughed conveyors using the design guidelines provided in this manual. Also incorporate the following trough-specific guidelines.

For information on the ThermoDrive Trough Converter, see Trough Converter.

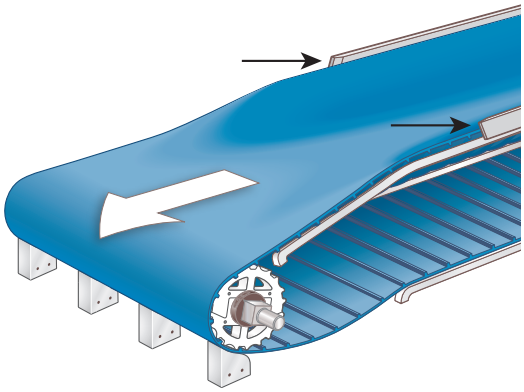


Figure 40: UHME-PE containment rails

Use UHMW-PE containment rails or blocks for lateral belt containment. See Belt Containment.

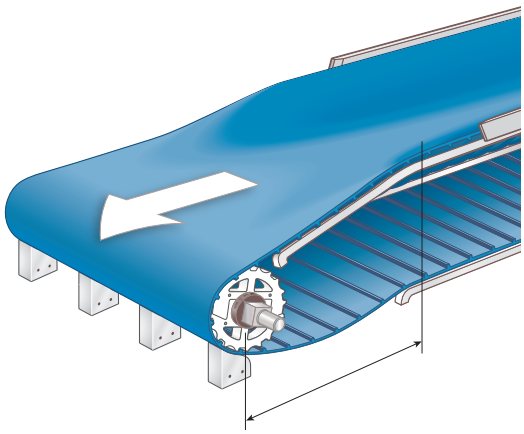


Figure 41: Correct transition distance

Ensure the transition distance (distance from end of troughed conveyor to drive or idle shaft center) is adequate. The transition distance must be a minimum of 1.5 times the belt width. Proper transition distance minimizes strain on belt edges and reduces belt friction.

CONTINUOUS CARRYWAY FOR BELTS WITH NO TROUGH GROOVE

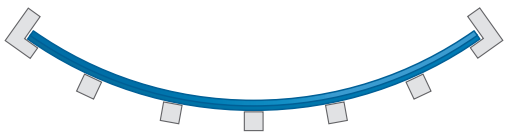


Figure 42: Belt with no trough groove

- Minimum belt width and trough radius: numbers are interdependent; contact Intralox Customer Service.
- Wearstrips: 3–6 in (76–152 mm) centerline spacing
- Maximum containment block spacing: 6–8 ft (1.8–2.4 m)
- Minimum transition length: 1.5 x belt width

V-SHAPED CARRYWAY FOR BELTS WITH ONE TROUGH GROOVE

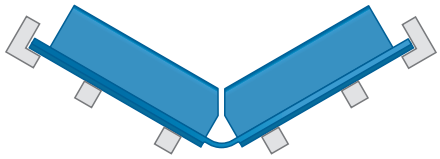


Figure 43: V-shaped carryway

- Minimum belt width: 10 in (254 mm)
- Standard groove width: 2.0 in (51 mm)
- Base belt thickness at groove: 2 mm
- Maximum angle from horizontal: 30 degrees
- Maximum containment block spacing: 6–8 ft (1.8–2.4 m)
- Minimum transition length: 1.5 x belt width
- Available with notched flights

For information on S8126 troughed conveyor belt, see S8126 Flat Top (6.0 mm). Contact Intralox Customer Service for S8126 conveyor design and installation specifics.

U-SHAPED CARRYWAY FOR BELTS WITH TWO TROUGH GROOVES

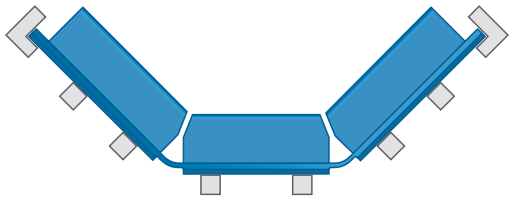


Figure 44: U-shaped carryway

- Standard groove width: 2.0 in (51 mm)
- Base belt thickness at groove: 2 mm
- Minimum groove center distance: 10 in (254 mm)
- Minimum section length: 4 in (102 mm)
- Maximum angle from horizontal: 60 degrees
- Maximum containment block spacing: 6–8 ft (1.8–2.4 m)
- Minimum transition length: 1.5 x belt width
- Available with notched flights

For trough groove and drive bar removal specifics, see Belt Features.

11 DIMENSION CHANGES

OVERVIEW

Changes in load and temperature expand and contract belts and components during operation.

- Ensure the correct initial belt and component dimensions when ordering.
- Consider the belt and component dimension changes (length and width) when designing the belt path. Cold temperatures can cause over-tensioning and excessive shaft load. Hot temperatures can cause belt storage or contact issues.

BELT DIMENSION CHANGE CONSIDERATIONS

- Design containment components with adequate clearance from the belt.
- Provide adequate returnway supports to accommodate the weight, depth, and location of belt accumulation during expansion.
- Calculate the belt weight based on dimensions using belt data. See Belts.
- Ensure returnway obstacles such as drip pans, frame supports, fasteners, and wiring do not contact the belt at maximum and minimum sizes.
- Ensure belt accumulation or obstacles do not apply tension to the belt.

COMPONENT DIMENSION CHANGE CONSIDERATIONS

- Ensure holes are slotted to allow for component movement in relation to fasteners.
- Leave adequate clearance between components.
- Consider that belts and components change simultaneously.

TOTAL BELT DIMENSION CALCULATION

Use the steps here to determine the total belt length for your horizontal conveyor. Contact Intralox Customer Service for calculation help.

1. Calculate the belt needed between each unsupported area in the returnway.
   Unsupported additional returnway belt length formula: $(2.66 \times S^2) / D = X$

   Where:

   X = Additional belt length at chosen sag, in (mm)

   S = desired sag depth, in (mm)

   D = Distance between chosen supports, in (mm)
2. Add all **Unsupported additional returnway belt lengths (X)** in the returnway to calculate the **Additional returnway belt needed (X_2)**.
3. Use the **Additional returnway belt needed (X_2)** to calculate the **Total belt length** recommended for installation.
   Total belt length formula: $2CL + (2AC) + X_2 = TBL$

   Where:

   TBL = Total belt length, in (mm)

   CL = Conveyor length from sprocket center to sprocket center, in (mm)

   AC = Belt wrap at end drive sprocket or rollers, in (mm)

   X_2 = Additional returnway belt needed, in (mm)

4. Consider all temperature changes during the full operating cycle (downtime, production, sanitation) to calculate minimum and maximum belt dimensions. See Thermal Expansion and Contraction Calculations.
5. Contact Intralox Customer Service for suggested extra belt length for splicing and repair.

THERMAL EXPANSION AND CONTRACTION CALCULATIONS

Always consider thermal expansion and contraction when choosing conveyor component materials, purchasing belt, and making design choices. Dimension changes depend on product material, temperature changes during operation, and overall dimensions.

Use the following information to calculate minimum and maximum belt or component dimension changes during the full operating cycle (downtime, production, sanitation).

CALCULATE FACILITY TEMPERATURE CHANGE

Use the following formula to calculate overall facility temperature change.

Facility temperature change formula: $T_2 - T_1 = T_3$

Where:

T_3 = temperature change, °F (°C)

T_2 = application belt temperature, °F (°C)

T_1 = 72 (22), Intralox belt production temperature °F (°C)

CALCULATE MATERIAL DIMENSION CHANGES

Use the following formula to calculate the dimension change of belts, support rails, wearstrip, or other plastic containment components.

Dimension change formula: $D \times T_3 \times CLTE = \Delta$

Where:

Δ = dimension change, imperial (metric)

D = initial dimension (length or width) when leaving Intralox, imperial (metric)

T_3 = temperature change, °F (°C)

CLTE = Coefficient of Thermal Expansion

Coefficients of Linear Thermal Expansion (CLTE)		
Material	**Imperial (µin/in-°F)**	**Metric (µm/m-°C)**
Cold Use	94	170
Dura	167	300
HTL	83	150
Polyurethane	83	150
PUR A23	50	90
UHMW-PE	110	198

For example, calculate the change in length of a 100 ft (30 m) long ThermoDrive S8050 polyurethane belt operating with an average belt temperature of 45°F (7°C).

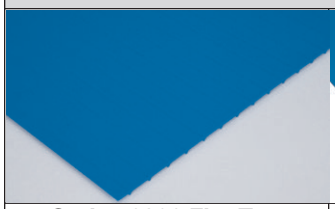
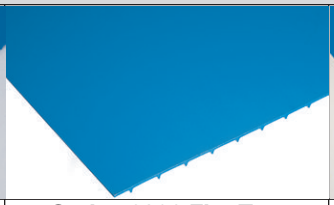
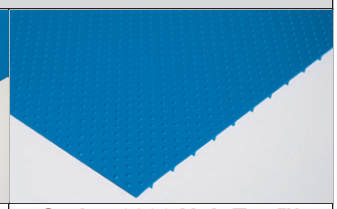
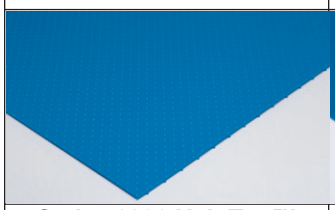
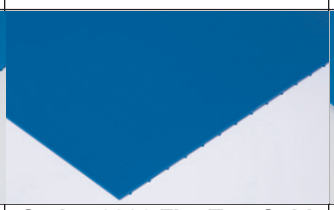
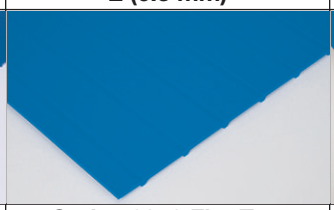
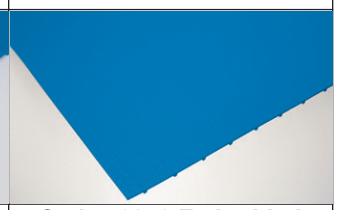
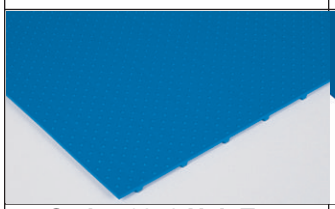
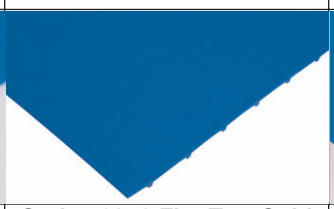
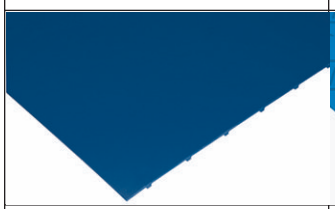
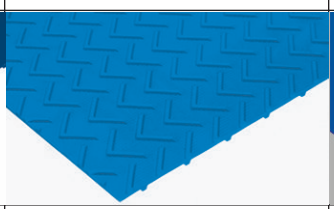
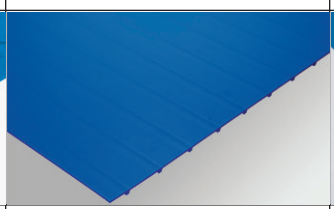
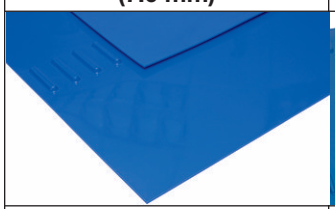
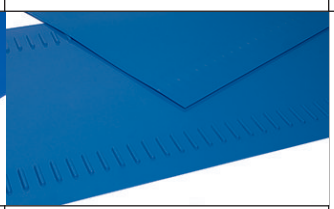
Calculations	Imperial and Metric
Temperature change ($T_3 = T_2 - T_1$)	45°F - 72°F = -27°F (7°C-22°C = -15°C)
Initial belt length (D)	100 ft = 1200 in (30 m)
Length change ($\Delta = D \times T_3 \times CTE$)	1200 in x -27°F x 83 (µin/in-°F) = -2689200 µin = -2.6892 in [30 m x -15°C x 150 (µm/m-°C) = -67500 µm = -67.5 mm]

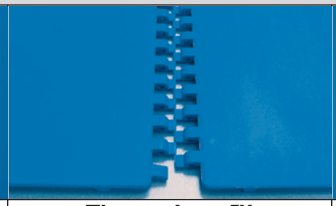
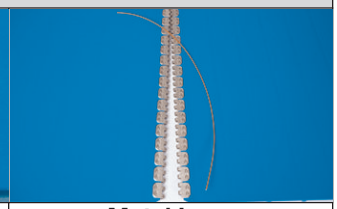
BELT ELONGATION UNDER LOAD

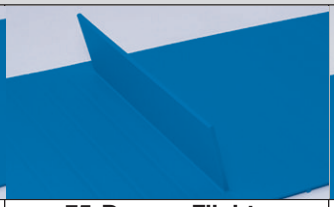
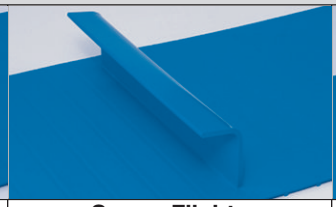
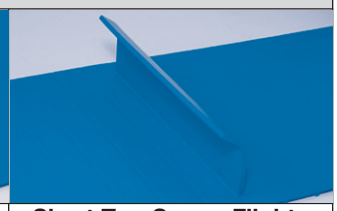
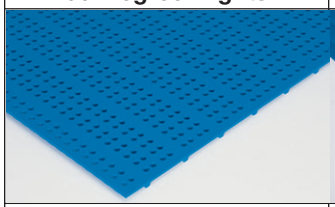
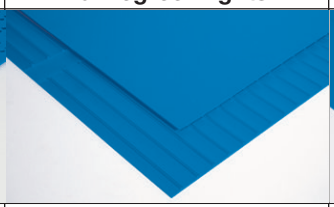
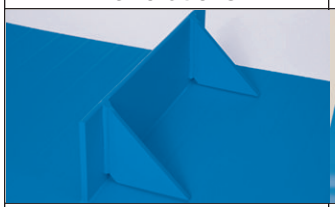
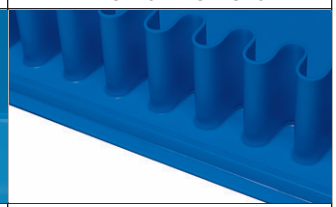
All belts temporarily strain or stretch with load applied. The extent of change depends on belt material, load, and overall belt length.

12 BELT SELECTION

VISUAL OVERVIEW

Belts			
			
Series 8026 Flat Top Polyurethane E (5.3 mm)	Series 8026 Flat Top Polyurethane E V2 (6.0 mm)	Series 8026 Embedded Diamond Top Polyurethane E (6.3 mm)	Series 8026 Nub Top™ Polyurethane (6.3 mm)
			
Series 8026 Nub Top™ Polyurethane E (7.4 mm)	Series 8026 Flat Top Cold Use E (6.0 mm)	Series 8050 Flat Top Polyurethane E (7.0 mm)	Series 8050 Embedded Diamond Top Polyurethane E (7.5 mm)
			
Series 8050 Nub Top Polyurethane E (8.0 mm)	Series 8050 Flat Top Cold Use E (7.0 mm)	Series 8050 Flat Top Dura E (7.0 mm)	Series 8050 Flat Top High Temperature Heavy Load (HTL) E (7.0 mm)
			
Series 8050 Flat Top Extreme Temperature (XT) (7.0 mm)	Series 8050 Ribbed V-Top™ Polyurethane E (9.5 mm)	Series 8050 Flat Top Polyurethane A23 E (7.0 mm)	Series 8126 Flat Top Polyurethane (6.0 mm)
			
Series 8140 Flat Top Polyurethane A23 E (10.5 mm)	Series 8140 Dual-Lug Flat Top Polyurethane A23 E (10.5 mm)		

Belt Joining Options			
			
Prepared ends	Endless	ThermoLace™	Metal Lace

Belt Fabrications			
			
90-Degree Flights	75-Degree Flights	Scoop Flights	Short Top Scoop Flights
			
Perforations	Trough Grooves	Drive Bar Removal	
			
Flight Gussets	Sidewalls	V-guide	

BELT SELECTION CONSIDERATIONS

To select the correct ThermoDrive belt, consider all options.

1. Choose a basic belt. Each belt description indicates several characteristics.
   For example, **S8050 Flat Top (7.0 mm) Polyurethane** indicates the following belt characteristics.
   - The belt material is **polyurethane**.
   - The belt style (surface texture) is **Flat Top**.
   - The belt series is **8050,** which has 50-mm drive pitch (distance between each drive bar).
   - The belt thickness is **7.0 mm**. The drive bar, material, and surface texture determines thickness.
2. Based on the belt description, choose other specifics. Not all belts have the same options.
   - Belt joining options
   - Belt features such as trough grooves, drive bar removal, or perforations
   - Belt accessories such as flights, sidewalls, V-guide, and gussets

3. Review the following belt selection considerations and specific belt product information to choose the best options for your application. Contact Intralox Customer Service for application-specific suggestions.

CHOOSE MATERIAL

ThermoDrive belts and accessories are available in standard polyurethane and special application materials.

Polyurethane—designed for abrasion and wear resistance in environments not prone to hydrolysis; available in blue or white

- Used in continuous temperature ranges from 20°F (-7°C) to 140°F (60°C); contact Intralox Customer Service for final material selection based on temperatures
- Depending on belt series, style, and thickness, offers belt strengths from 175 lb/ft (260 kg/m) to 420 lb/ft (625 kg/m)

Cold Use (CU)—designed for ambient to very cold temperatures; provides peak performance in colder environments

- Used in applications with temperature ranges from -30°F (-34°C) to 75°F (24°C); contact Intralox Customer Service for final material selection based on temperatures
- Depending on belt series and thickness, offers a belt strength of 150 lb/ft (223 kg/m) to 225 lb/ft (335 kg/m)

Dura—designed for heavy loading in high and low temperatures

- Used with temperature ranges from 20°F (-7°C) to 140°F (60°C); contact Intralox for use in temperatures below or above these
- Offers belt strengths up to 950 lb/ft (1414 kg/m)

High Temperature Heavy Load (HTL)—employed for high temperatures and heavy loads

- Used in applications with temperature ranges from 60°F (15°C) to 210°F (99°C)
- Offers belt strengths up to 1056 lb/ft (1572 kg/m)

XT—designed for extreme temperatures (high or low)

- Used in applications with temperature ranges from -4°F (-20°C) to 170°F (77°C)
- Offers belt strengths up to 800 lb/ft (1190 kg/m)

Polyurethane A23 —designed to perform well in hydrolysis prone applications

- Used in applications with temperature ranges from 40°F (5°C) to 212°F (100°C)
- Offers belt strengths up to 540 lb/ft (803 kg/m)

CHOOSE BELT STYLE (SURFACE TEXTURE)

ThermoDrive belts and accessories are available in standard Flat Top surfaces and special application surfaces.

Flat Top (FT)—an engineered matte surface finish optimized for efficient product release and cleanability

Embedded Diamond Top (EDT)—a cleanable, embedded diamond surface texture with superior product release characteristics

Nub Top™ (NT)—a raised top profile that provides grip characteristics with some products and release characteristics with other products

Ribbed V-Top™ (RVT)—a top profile with an overlapping pattern of raised Vs and ribs that improve product release and removal at discharge; enhances incline conveyance capabilities for bulk product up to 30° without need for flights

CHOOSE BELT SERIES

ThermoDrive belts are available with 26-mm, 40-mm, or 50-mm nominal drive pitch (rounded values). A shorter pitch reduces sprocket diameter and the space required for product transfers. A longer pitch correlates with larger transfers and sprocket diameters, thicker belts, and increased belt pull.

Series 8026 and 8126 belts—26-mm drive pitch; often used for lightly loaded applications and products requiring short transfer distances

Series 8050 belts—50-mm drive pitch; often used for moderate to heavily loaded applications where bigger transfer distances are acceptable

Series 8140 belts—40-mm drive pitch; used in light to moderately loaded applications where bigger transfer distances are acceptable

CHOOSE BELT JOINING OPTIONS

ThermoDrive belt ends have various joining options: splicing, ThermoLace, or metal lacing. The strength of the joining option chosen effects overall belt strength. See Belt Joining Options.

CHOOSE BELT FEATURES AND ACCESSORIES

Special belt features are available for unique applications.

Perforations—belt hole pattern most often used for hygienic dewatering applications

Trough grooves—drive bar removal along the belt length that completely removes drive bar and 0.039 in (1 mm) of the belt cover; designed to enable a deep trough for severe trough applications; not required for all troughed conveyors

Drive bar removal—drive bar removal along the belt length that leaves about 0.005 in (0.13 mm) of drive bar and full cover thickness

Various accessories are available on certain belts.

Flights—vertical accessory hygienically joined across the belt width available in various types, heights, thicknesses, and styles; contributes to reliable conveyance on incline or elevator applications

Flight gussets—angled flight support joined to the flight to increase flight rigidity; often used in heavily loaded applications

Synchronized sidewall—vertical accessory hygienically joined along belt length available in various heights, thicknesses, and styles; designed for effective product containment

V-Guide—vertical accessory hygienically joined along belt length; useful as a hold down for z-conveyor transitions and returnway containment

For details, see Belt Features and Belt Accessories.

Belts, Features, and Accessories Availability Reference											
Material	**Polyurethane**					**Cold Use**	**Dura**	**HTL**	**XT**	**PUR A23**	**PUR A23**
Color	**Blue**				**White**	**Blue**	**Blue**	**Natural**	**Blue**	**Blue**	**White**
Style	**FT**	**EDT**	**NT**	**RVT**	**FT**	**FT**	**FT**	**FT**	**FT**	**FT**	**FT**
Series 8026											
5.3 mm	BTF				BTF						
6.0 mm	BTF				BTF	BTF					
6.3 mm		BTF	BF								
7.4 mm			BTF								
Series 8050											
7.0 mm	BPTFS				BPTFS	BTFS	BTF	BT	BT	BTFS	
7.5 mm		BTFS									
8.0 mm			BTF								
9.5 mm				B							
Series 8126											
6.0 mm	B										
Series 8140											
10.5 mm										BFSV	BFS

FT—Flat Top; EDT—Embedded Diamond Top; NT—Nub Top; RVT—Ribbed V-Top

B—Belt available in designated series, thickness, material, color, and style

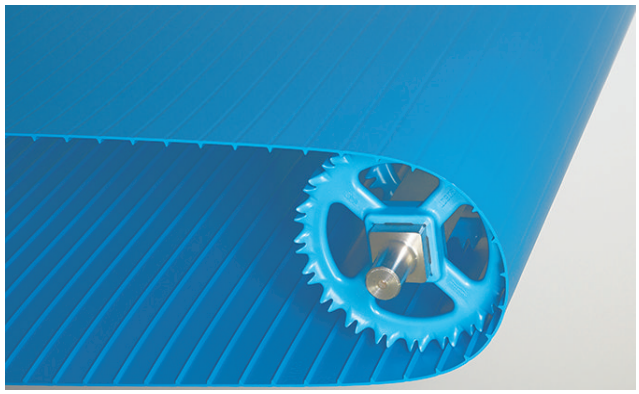
P—Perforations available; T—Trough grooves available; F—Flights available; S—Sidewall available; V-guide available

See Belt Features and Belt Accessories. Contact Intralox Customer Service for more detailed options.

13 BELTS

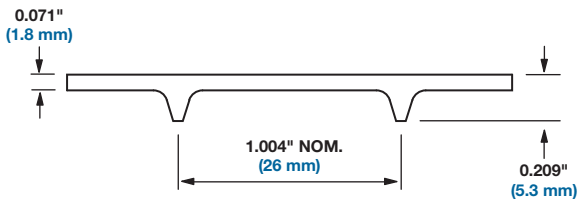
S8026 Flat Top E (5.3 mm)

	in	mm
Pitch	1.004	26
Overall Thickness	0.209	5.3
Minimum Width	1	25
Maximum Width	72	1829
Minimum Backbend Diameter	2.50	64
Minimum Sprocket Diameter (6T)	2.0	51
Open Area (seamless surface)	0%	
Available Joining Options	prepared ends, endless, metal lace	
Available Colors	blue, white	



Product Notes

- **Contact Intralox for precise belt measurements and stock status before designing equipment or ordering a belt.**
- Engineered matte surface is optimized for efficient product release and cleanability.
- Available with flights.
- If considering the 6T sprocket, contact TSG for additional information.
- See Material Compliance for compliance details.



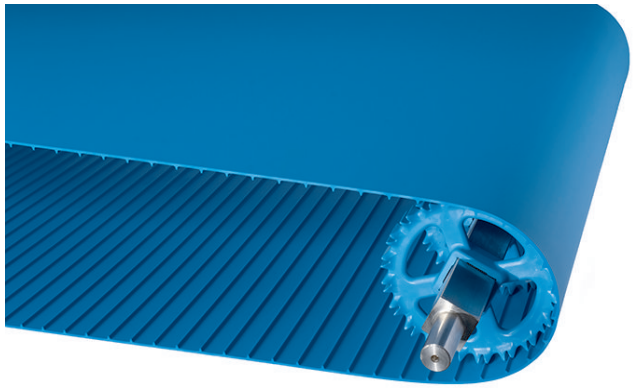
Belt Data

Belt Material	Belt Strength[a]		Temperature Range (continuous)		Belt Weight	
	lb/ft	kg/m	°F	°C	lb/ft^2	kg/m^2
Polyurethane	175	260	20–140	-7–60	0.57	2.78

[a] With sprockets spaced on 3 in (76 mm) centers; Consider using stacked sprockets for optimal operational performance in heavily loaded applications; For continuous use over 100°F (38°C), contact Intralox Customer Service for actual belt strength.

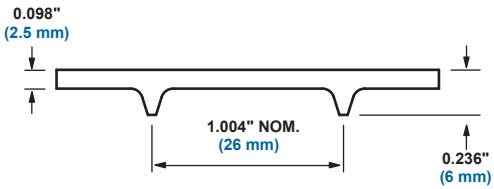
S8026 Flat Top E (6.0 mm)

	in	mm
Pitch	1.004	26
Overall Thickness	0.236	6.0
Minimum Width	1	25
Maximum Width	72	1829
Minimum Backbend Diameter	3.25	82
Minimum Sprocket Diameter (10T)	3.2	81
Open Area (seamless surface)	0%	
Available Joining Options	prepared ends, endless, ThermoLace, metal lace	
Available Colors	blue, white	



Product Notes

- **Contact Intralox for precise belt measurements and stock status before designing equipment or ordering a belt.**
- Engineered matte surface is optimized for efficient product release and cleanability.
- Available with flights.
- See Material Compliance for compliance details.



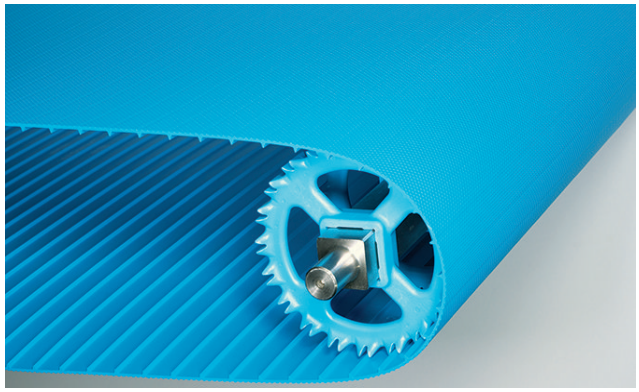
Belt Data

Belt Material	Belt Strength[a]		Temperature Range (continuous)		Belt Weight	
	lb/ft	kg/m	°F	°C	lb/ft^2	kg/m^2
Polyurethane	300	446	20–140	-7–60	0.69	3.35

[a] With sprockets spaced on 3 in (76 mm) centers; Consider using stacked sprockets for optimal operational performance in heavily loaded applications; For continuous use over 100°F (38°C), contact Intralox Customer Service for actual belt strength.

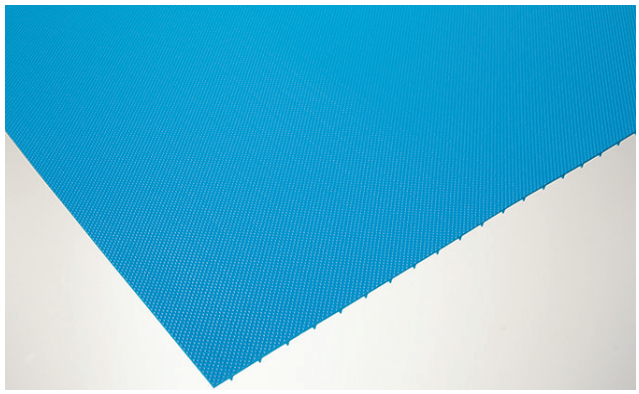
S8026 Embedded Diamond Top E (6.3 mm)

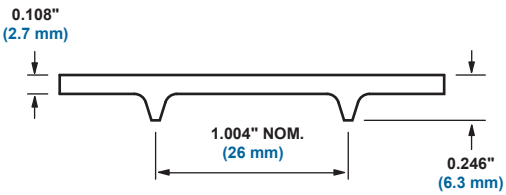
	in	mm
Pitch	1.004	26
Overall Thickness	0.248	6.3
Minimum Width	1	25
Maximum Width	72	1829
Minimum Backbend Diameter	3.25	82
Minimum Sprocket Diameter (10T)	3.2	81
Open Area (seamless surface)	0%	
Available Joining Options	prepared ends, endless, ThermoLace, metal lace	
Available Colors	blue	



Product Notes

- **Contact Intralox for precise belt measurements and stock status before designing equipment or ordering a belt.**
- Includes a proven Embedded Diamond Top profile to provide superior release characteristics in applications where product release requirements exceed Flat Top characteristics
- Available with flights.
- ThermoLace is Flat Top on each side of hinge rod.
- If ThermoLace is the selected joining method, the belt thickness is 6.3 mm. The S8026 ThermoLace thickness is 6.0 mm. This creates a step due to thickness difference.
- See Material Compliance for compliance details.





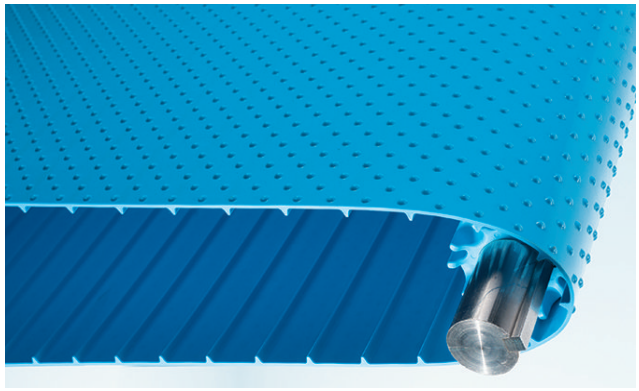
Belt Data

Belt Material	Belt Strength[a]		Temperature Range (continuous)		Belt Weight	
	lb/ft	kg/m	°F	°C	lb/ft^2	kg/m^2
Polyurethane	300	446	20–140	-7–60	0.69	3.37

[a] With sprockets spaced on 3 in (76 mm) centers; Consider using stacked sprockets for optimal operational performance in heavily loaded applications; For continuous use over 100°F (38°C), contact Intralox Customer Service for actual belt strength.

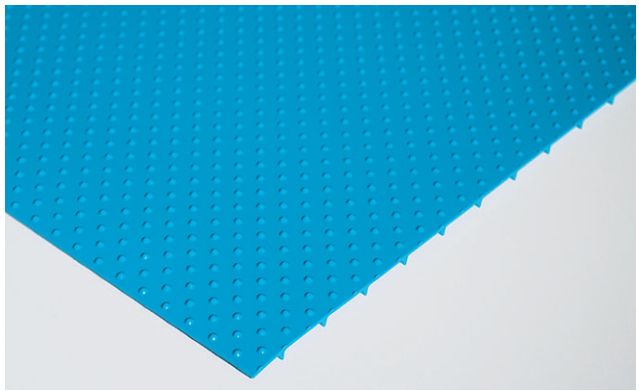
S8026 Nub Top™ (6.3 mm)

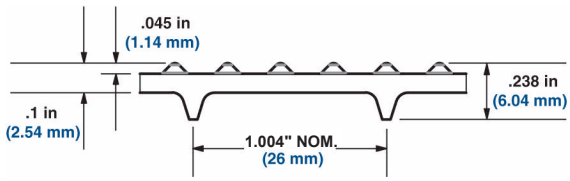
	in	mm
Pitch	1.004	26
Overall Thickness	0.238	6.04
Minimum Width	1	25
Maximum Width	24	610
Minimum Backbend Diameter	2.5	64
Minimum Sprocket Diameter (6T)	2.0	51
Open Area (seamless surface)	0%	
Available Joining Options	prepared ends, endless	
Available Colors	blue	



Product Notes

- **Contact Intralox for precise belt measurements and stock status before designing equipment or ordering a belt.**
- Provides excellent product grip for moderate incline conveyance; offers superior release of certain products.
- Available with 4-mm flights.
- If considering the 6T sprocket, contact TSG for additional information.
- See Material Compliance for compliance details.





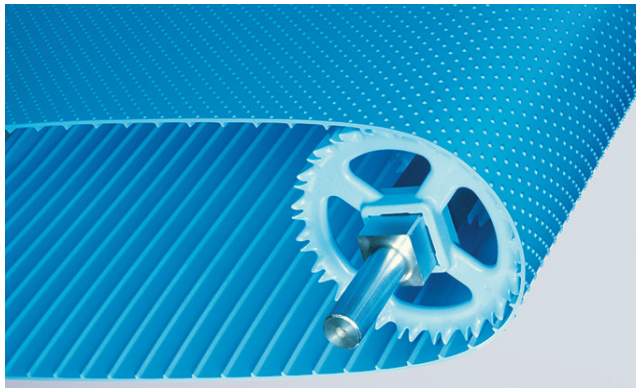
Belt Data

Belt Material	Belt Pull[a]		Temperature Range (continuous)		Belt Weight	
	lb/ft	kg/m	°F	°C	lb/ft^2	kg/m^2
Polyurethane	96	142.85	20–140	-7–60	0.533	2.6

[a] With sprockets spaced on 3 in (76 mm) centers; Consider using stacked sprockets for optimal operational performance in heavily loaded applications; For continuous use over 100°F (38°C), contact Intralox Customer Service for actual belt strength.

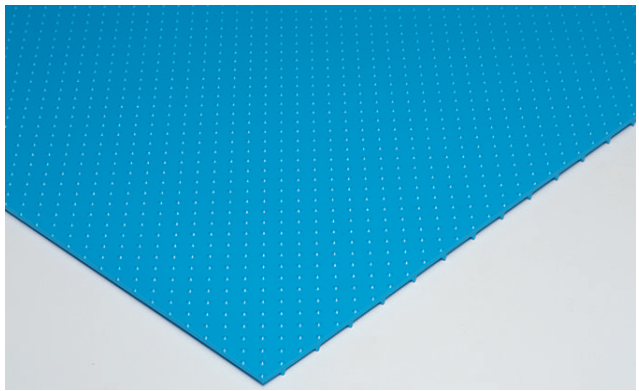
S8026 Nub Top™ E (7.4 mm)

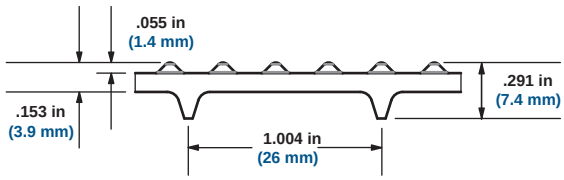
	in	mm
Pitch	1.004	26
Overall Thickness	0.291	7.4
Minimum Width	1	25
Maximum Width	72	1829
Minimum Backbend Diameter	3.25	83
Minimum Sprocket Diameter (10T)	3.2	81
Open Area (seamless surface)	0%	
Available Joining Options	prepared ends, endless, ThermoLace, metal lace	
Available Colors	blue	



Product Notes

- **Contact Intralox for precise belt measurements and stock status before designing equipment or ordering a belt.**
- Provides excellent product grip for moderate incline conveyance; offers superior release of certain products.
- Available with flights.
- ThermoLace is Flat Top on each side of hinge rod.
- If ThermoLace is the selected joining method, the belt thickness is 7.4 mm. The S8026 ThermoLace thickness is 6.0 mm. This creates a step due to thickness difference.
- See Material Compliance for compliance details.





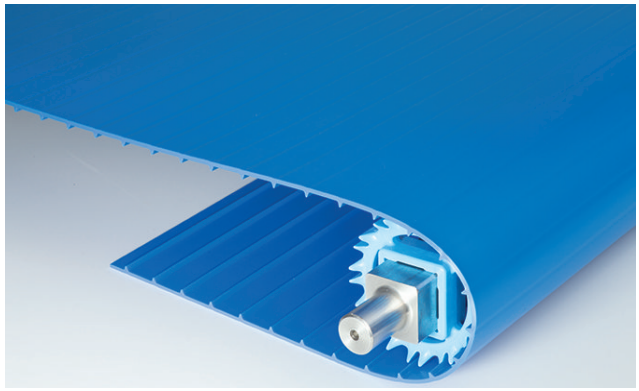
Belt Data

Belt Material	Belt Pull[a]		Temperature Range (continuous)		Belt Weight	
	lb/ft	kg/m	°F	°C	lb/ft^2	kg/m^2
Polyurethane	300	446	20–140	-7–60	0.754	3.68

[a] With sprockets spaced on 3 in (76 mm) centers; Consider using stacked sprockets for optimal operational performance in heavily loaded applications; For continuous use over 100°F (38°C), contact Intralox Customer Service for actual belt strength.

S8026 Flat Top Cold Use E (6.0 mm)

	in	mm
Pitch	1.004	26
Overall Thickness	0.236	6.0
Minimum Width	1	25
Maximum Width	72	1829
Minimum Backbend Diameter	See Product Notes	
Minimum Sprocket Diameter	See Product Notes	
Open Area (seamless surface)	0%	
Available Joining Options	prepared ends, endless, metal lace	
Available Colors	blue	

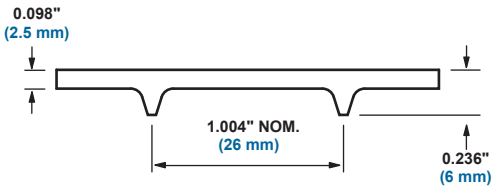


Product Notes

- **Contact Intralox for precise belt measurements and stock status before designing equipment or ordering a belt.**
- Engineered matte surface is optimized for efficient product release and cleanability.
- For use in ambient to very cold conditions; designed for peak performance in colder environments.
- Available with flights.
- Minimum backbend and sprocket diameter varies with temperature:
  3 in (76 mm) diameter at 20°F to 75°F (-6.7°C to 24°C)

  4 in (102 mm) diameter at 0°F to 20°F (-17.8°C to -6.7°C)

  5 in (127 mm) diameter at -30°F to 0°F (-34.4°C to -17.8°C)
- See Material Compliance for compliance details.



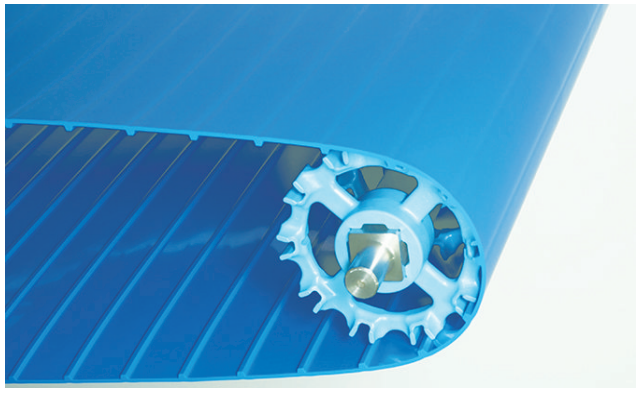
Belt Data

Belt Material	Belt Strength[a]		Temperature Range (continuous)		Belt Weight	
	lb/ft	kg/m	°F	°C	lb/ft^2	kg/m^2
Cold Use	150	223	-30–75	-34–24	0.69	3.37

[a] With sprockets spaced on 3 in (76 mm) centers; Consider using stacked sprockets for optimal operational performance in heavily loaded applications; For continuous use under 30°F (-1°C), contact Intralox Customer Service for actual belt strength.

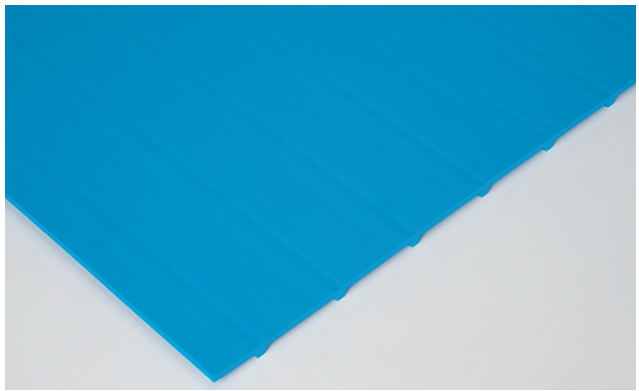
S8050 Flat Top E (7.0 mm)

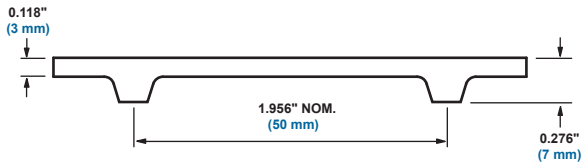
	in	mm
Pitch	1.956	50
Overall Thickness	0.276	7.0
Minimum Width	1	25
Maximum Width	72	1829
Minimum Backbend Diameter	4.0	102
Minimum Sprocket Diameter (6T)	4.0	102
Open Area (seamless surface)	0%	
Available Joining Options	prepared ends, endless, ThermoLace, metal lace	
Available Colors	blue, white	



Product Notes

- **Contact Intralox for precise belt measurements and stock status before designing equipment or ordering a belt.**
- Engineered matte surface is optimized for efficient product release and cleanability.
- Available with flights and Synchronized Sidewalls.
- If considering the 6T sprocket, contact TSG for additional information.
- See Material Compliance for compliance details.





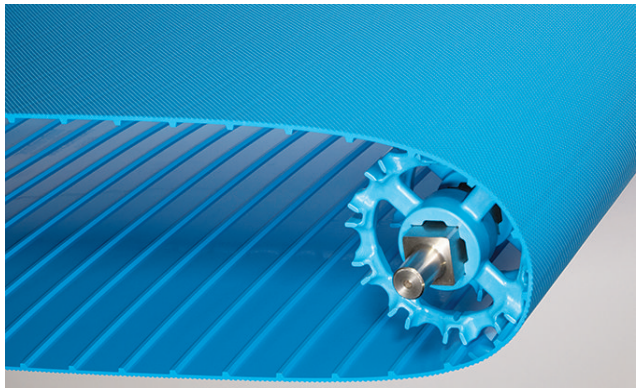
Belt Data

Belt Material	Belt Pull[a]		Temperature Range (continuous)		Belt Weight	
	lb/ft	kg/m	°F	°C	lb/ft^2	kg/m^2
Polyurethane	420	625	20–140	-7–60	0.89	4.35

[a] With sprockets spaced on 3 in (76 mm) centers; Consider using stacked sprockets for optimal operational performance in heavily loaded applications; For continuous use over 100°F (38°C), contact Intralox Customer Service for actual belt strength.

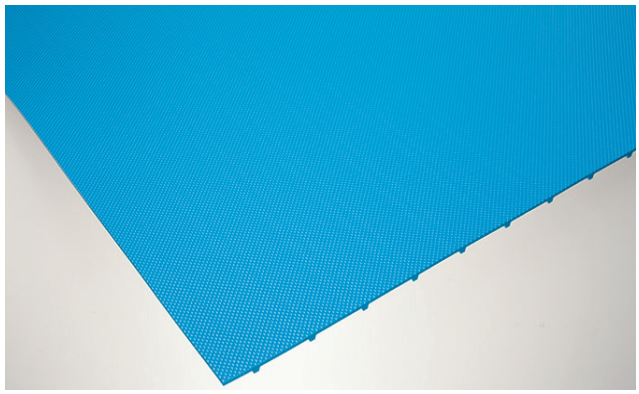
S8050 Embedded Diamond Top E (7.5 mm)

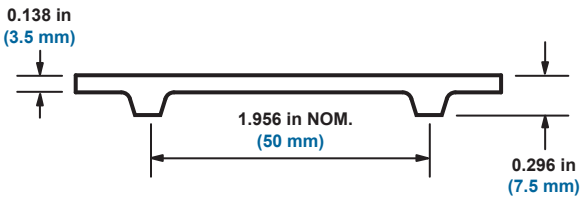
	in	mm
Pitch	1.956	50
Overall Thickness	0.296	7.5
Minimum Width	1	25
Maximum Width	72	1829
Minimum Backbend Diameter	5.2	132
Minimum Sprocket Diameter (10T)	6.5	165
Open Area (seamless surface)	0%	
Available Joining Options	prepared ends, endless, ThermoLace, metal lace	
Available Colors	blue	



Product Notes

- **Contact Intralox for precise belt measurements and stock status before designing equipment or ordering a belt.**
- Includes a proven Embedded Diamond Top profile to provide superior release characteristics in applications where product release requirements exceed Flat Top characteristics.
- Available with flights and Synchronized Sidewalls.
- ThermoLace is Flat Top on each side of hinge rod.
- If ThermoLace is the selected joining method, the belt thickness is 7.5 mm. The S8050 ThermoLace thickness is 7.0 mm. This creates a step due to thickness difference.
- See Material Compliance for compliance details.





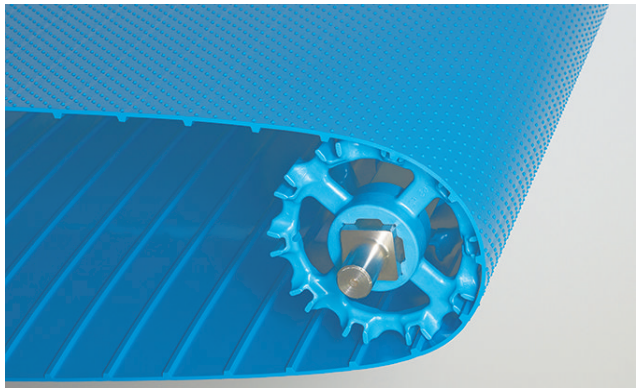
Belt Data

Belt Material	Belt Pull[a]		Temperature Range (continuous)		Belt Weight	
	lb/ft	kg/m	°F	°C	lb/ft^2	kg/m^2
Polyurethane	420	625	20–140	-7–60	0.89	4.34

[a] With sprockets spaced on 3 in (76 mm) centers; Consider using stacked sprockets for optimal operational performance in heavily loaded applications; For continuous use over 100°F (38°C), contact Intralox Customer Service for actual belt strength.

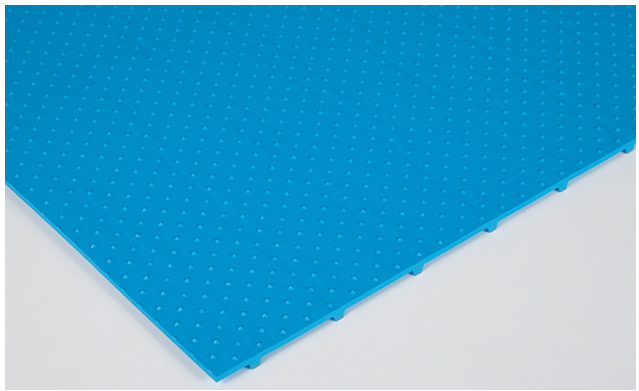
S8050 Nub Top E (8.0 mm)

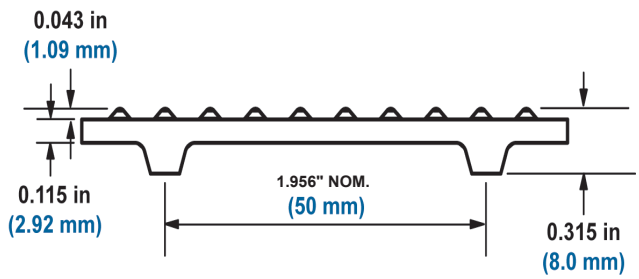
	in	mm
Pitch	1.956	50
Overall Thickness	0.315	8.0
Minimum Width	1	25
Maximum Width	42	1067
Minimum Backbend Diameter	4.0	102
Minimum Sprocket Diameter (6T)	4.0	102
Open Area (seamless surface)	0%	
Available Joining Options	prepared ends, endless, ThermoLace, metal lace	
Available Colors	blue	



Product Notes

- **Contact Intralox for precise belt measurements and stock status before designing equipment or ordering a belt.**
- Provides excellent product grip for moderate incline conveyance; offers superior release of certain products.
- Available with flights.
- ThermoLace is Flat Top on each side of hinge rod.
- If ThermoLace is the selected joining method, the belt thickness is 8.0 mm. The S8050 ThermoLace thickness is 7.0 mm. This creates a step due to thickness difference.
- If considering the 6T sprocket, contact TSG for additional information.
- See Material Compliance for compliance details.





Belt Data

Belt Material	Belt Pull[a]		Temperature Range (continuous)		Belt Weight	
	lb/ft	kg/m	°F	°C	lb/ft^2	kg/m^2
Polyurethane	420	625	20–140	-7–60	0.86	4.20

[a] With sprockets spaced on 3 in (76 mm) centers; Consider using stacked sprockets for optimal operational performance in heavily loaded applications; For continuous use over 100°F (38°C), contact Intralox Customer Service for actual belt strength.

S8050 Flat Top Cold Use E (7.0 mm)

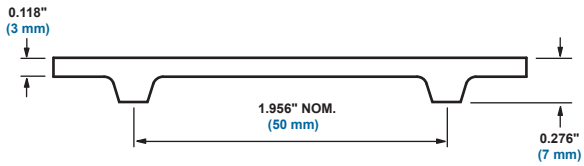
	in	mm
Pitch	1.956	50
Overall Thickness	0.276	7.0
Minimum Width	1	25
Maximum Width	72	1829
Minimum Backbend Diameter	See Product Notes	
Minimum Sprocket Diameter	See Product Notes	
Open Area (seamless surface)	0%	
Available Joining Options	prepared ends, endless, metal lace	
Available Colors	blue	

Product Notes

- **Contact Intralox for precise belt measurements and stock status before designing equipment or ordering a belt.**
- Engineered matte surface is optimized for efficient product release and cleanability.
- For use in ambient to very cold conditions; designed for peak performance in colder environments.
- Available with flights and Synchronized Sidewalls.
- Minimum backbend and sprocket diameter varies with temperature:
  4 in (102 mm) diameter at 20°F to 75°F (-6.7°C to 24°C)

  5 in (127 mm) diameter at 0°F to 20°F (-17.8°C to -6.7°C)

  6 in (152 mm) diameter at -30°F to 0°F (-34.4°C to -17.8°C)
- See Material Compliance for compliance details.



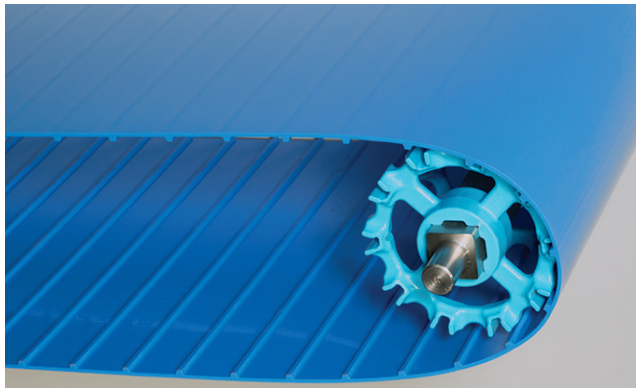
Belt Data

Belt Material	Belt Pull[a]		Temperature Range (continuous)		Belt Weight	
	lb/ft	kg/m	°F	°C	lb/ft^2	kg/m^2
Cold Use	225	335	-30–75	-34–24	0.82	4.00

[a] With sprockets spaced on 3 in (76 mm) centers; Consider using stacked sprockets for optimal operational performance in heavily loaded applications; For continuous use under 30°F (-1°C), contact Intralox Customer Service for actual belt strength.

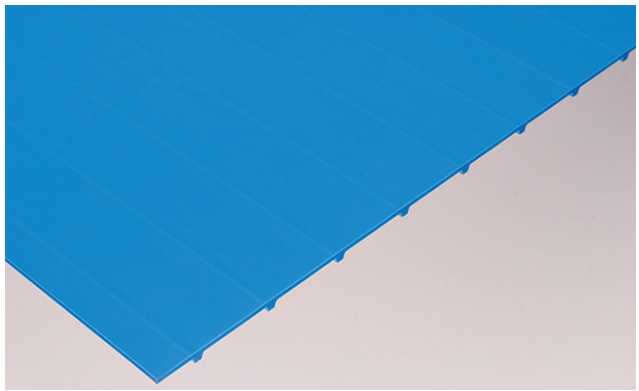
S8050 Flat Top Dura E (7.0 mm)

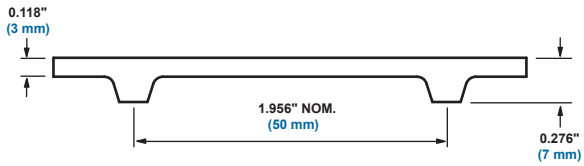
	in	mm
Pitch	1.956	50
Overall Thickness	0.276	7.0
Minimum Width	1	25
Maximum Width	72	1829
Minimum Backbend Diameter	6.0	152
Minimum Sprocket Diameter (10T)	6.5	165
Open Area (seamless surface)	0%	
Available Joining Options	prepared ends, endless, metal lace	
Available Colors	blue	



Product Notes

- **Contact Intralox for precise belt measurements and stock status before designing equipment or ordering a belt.**
- Designed for heavy loading in high and low temperatures.
- Available with flights.
- Provides notable impact resistance.
- For continuous use **from 0° F (-18° C) to 210° F (99° C)** with these exceptions:
  - For **temperatures over 140° F (60° C)**, contact Customer Service with application information.
  - For **continuous use below 20° F (-7° C)**, contact Intralox Customer Service for minimum sprocket diameter.
- See Material Compliance for compliance details.





Belt Data

Belt Material	Belt Pull[a]		Temperature Range (continuous)		Belt Weight	
	lb/ft	kg/m	°F	°C	lb/ft^2	kg/m^2
Dura	950	1414	See Product Notes	See Product Notes	0.73	3.56

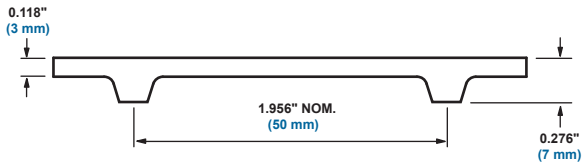
[a] With sprockets spaced on 3 in (76 mm) centers; Use stacked sprockets for applications with loads greater than 50% of belt strength; For continuous use over 170° F (77° C), contact Intralox Customer Service for actual belt strength.

S8050 Flat Top High Temperature Heavy Load (HTL) E (7.0 mm)

	in	mm
Pitch	1.956	50
Overall Thickness	0.276	7.0
Minimum Width	1	25
Maximum Width	72	1829
Minimum Backbend Diameter	6.0	152
Minimum Sprocket Diameter (10T)	6.5	165
Open Area (seamless surface)	0%	
Available Joining Options	prepared ends, endless, metal lace	
Available Colors	natural	

Product Notes

- **Contact Intralox for precise belt measurements and stock status before designing equipment or ordering a belt.**
- Designed specifically for high temperatures and/or heavy loads.
- For continuous use below 60°F (15°C) contact Intralox Customer Service for required minimum sprocket diameter.
- See Material Compliance for compliance details.



Belt Data

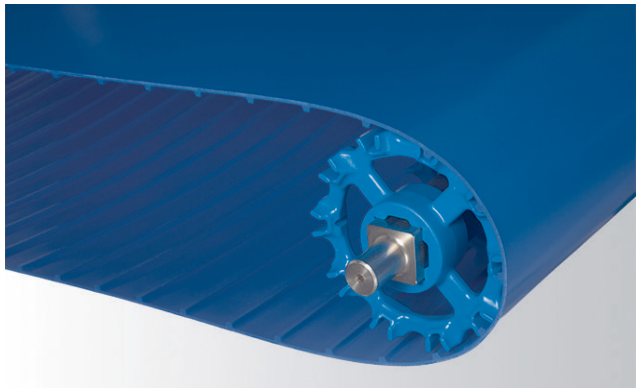
Belt Material	Belt Pull[a]		Temperature Range (continuous)[b]		Belt Weight	
	lb/ft	kg/m	°F	°C	lb/ft^2	kg/m^2
HTL	1056	1572	60–210	15–99	0.88	4.31

[a] With sprockets spaced on 3 in (76 mm) centers; Use stacked sprockets for applications with loads greater than 50% of belt strength. For continuous use over 170°F (77°C), contact Intralox Customer Service for actual belt strength.

[b] In some applications, continuous use temperatures can exceed 210°F (100°C).

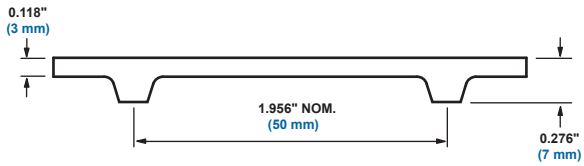
S8050 Flat Top XT (7.0 mm)

	in	mm
Pitch	1.956	50
Overall Thickness	0.276	7.0
Minimum Width	1	25
Maximum Width	42	1067
Minimum Backbend Diameter	6.0	152
Minimum Sprocket Diameter (10T)	6.5	165
Open Area (seamless surface)	0%	
Available Joining Options	prepared ends, endless, metal lace	
Available Colors	blue	



Product Notes

- **Contact Intralox for precise belt measurements and stock status before designing equipment or ordering a belt.**
- Designed specifically for extreme temperatures—high or low
- See Material Compliance for compliance details.



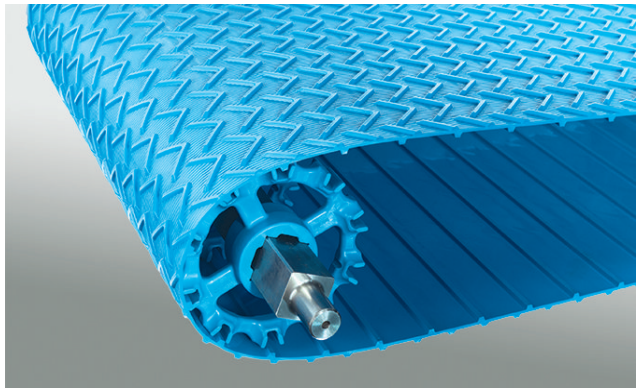
Belt Data

Belt Material	Belt Pull[a]		Temperature Range (continuous)		Belt Weight	
	lb/ft	kg/m	°F	°C	lb/ft^2	kg/m^2
XT	800	1190	-4 to 170	-20 to 77	0.88	4.31

[a] With sprockets spaced on 3 in (76 mm) centers; Use stacked sprockets for applications with loads greater than 60% of belt strength. For continuous use over 100°F (38°C), contact Intralox Customer Service for actual belt strength.

S8050 Ribbed V-Top™ E (9.5 mm)

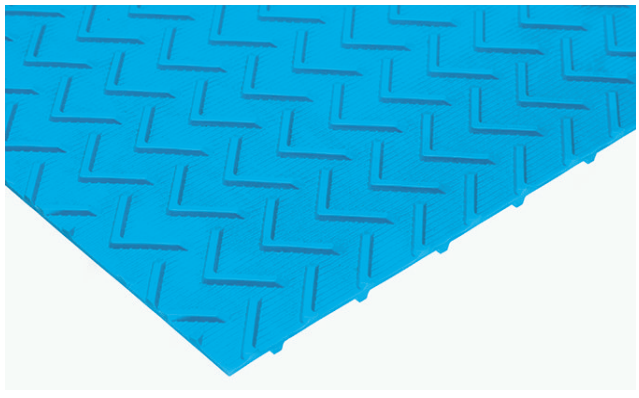
	in	mm
Pitch	1.956	50
Overall Thickness	0.374	9.5
Minimum Width	2	51
Maximum Width	42	1067
Minimum Backbend Diameter	4.0	102
Minimum Sprocket Diameter (10T)	6.5	165
Open Area (seamless surface)	0%	
Available Joining Options	prepared ends, endless, ThermoLace	
Available Colors	blue	

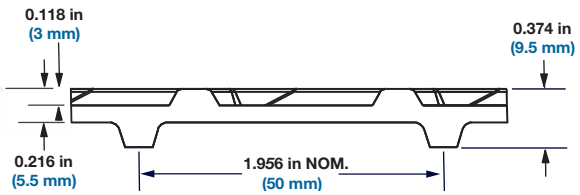


Product Notes

- **Contact Intralox for precise belt measurements and stock status before designing equipment or ordering a belt.**
- Enables bulk product conveyance on inclines up to 30 degrees without using flights.
- Allows improved product release and removal at discharge.
- ThermoLace joint is Flat Top for up to 12 in (305 mm) across hinge rod.
- Spliced joint is Flat Top for less than 1 in (25 mm) across splice.
- Splicing requires ThermoDrive Belt End Router and square spacers available from Intralox.

See Material Compliance for compliance details.





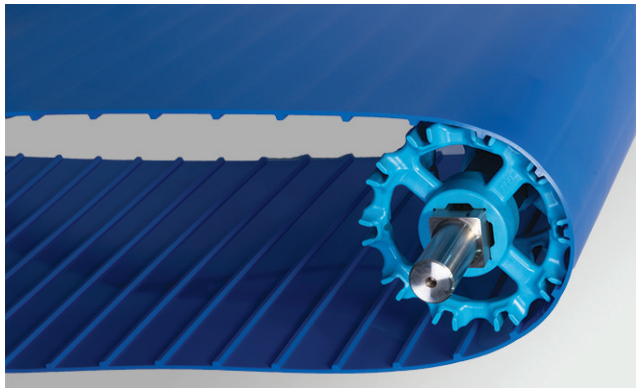
Belt Data

Belt Material	Belt Pull[a]		Temperature Range (continuous)		Belt Weight	
	lb/ft	kg/m	°F	°C	lb/ft^2	kg/m^2
Polyurethane	180	268	40–140	4–60	0.987	4.82

[a] With sprockets spaced on 3 in (76 mm) centers; Consider using stacked sprockets for optimal operational performance in heavily loaded applications; For continuous use over 100°F (38°C), contact Intralox Customer Service for actual belt strength.

S8050 Flat Top Polyurethane A23 E (7.0 mm)

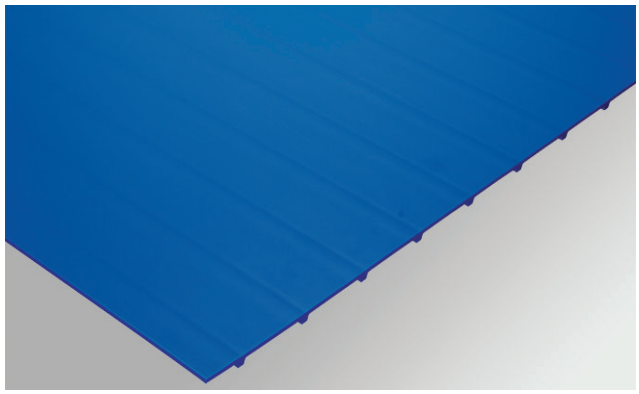
	in	mm
Pitch	1.956	50
Overall Thickness	0.276	7.0
Minimum Width	1	25
Maximum Width	72	1829
Minimum Backbend Diameter	5.2	132
Minimum Sprocket Diameter (8T)	5.2	132
Open Area (seamless surface)	0%	
Available Joining Options	prepared ends, endless, metal lace	
Available Colors	blue	

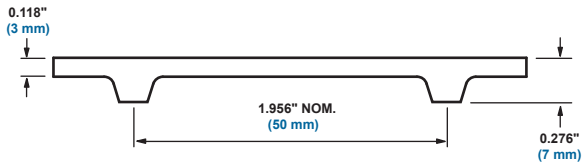


Product Notes

- **Contact Intralox for precise belt measurements and stock status before designing equipment or ordering a belt.**
- Designed to perform well in hydrolysis prone applications.
- Available with flights and sidewall.
- For continuous use **from 40°F (5°C) to 212°F (100°C)** with these exceptions:
  - For **temperatures over 140°F (60°C)**, contact Intralox Customer Service with application information.
  - For **continuous use below 40°F (5°C)**, contact Intralox Customer Service for minimum sprocket diameter.

See Material Compliance for compliance details.





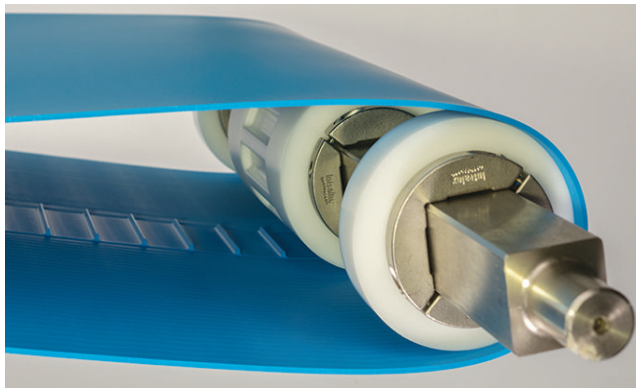
Belt Data

Belt Material	Belt Pull[a]		Temperature Range (continuous)		Belt Weight	
	lb/ft	kg/m	°F	°C	lb/ft^2	kg/m^2
PUR A23	540	803	See Product Notes.		0.804	3.93

[a] With sprockets spaced on 3 in (76 mm) centers; Consider using stacked sprockets for optimal operational performance in heavily loaded applications; For continuous use over 100°F (38°C), contact Intralox Customer Service for actual belt strength.

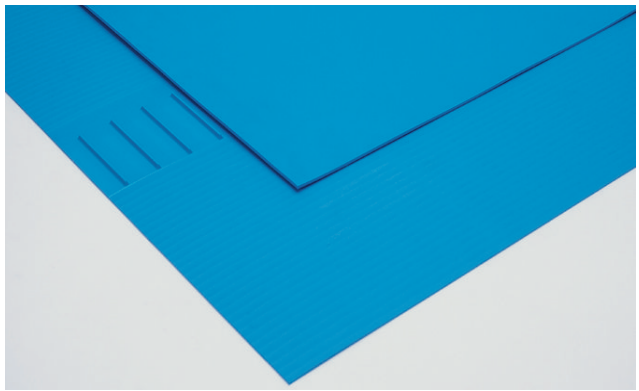
S8126 Flat Top (6.0 mm)

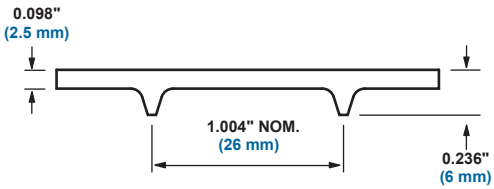
	in	mm
Pitch	1.004	26
Overall Thickness	0.236	6.0
Minimum Width	10	254
Maximum Width	24	610
Minimum Backbend Diameter	4.0	102
Minimum Sprocket Diameter (12T)	4.0	102
Open Area (seamless surface)	0%	
Available Joining Options	prepared ends, endless	
Available Colors	blue	



Product Notes

- **Contact Intralox for precise belt measurements and stock status before designing equipment or ordering a belt.**
- Engineered matte surface is optimized for efficient product release and cleanability.
- Designed for retrofitting certain high tension troughed conveyor applications to tensionless ThermoDrive solutions; contact Intralox Customer Service for details.
- For use with S8126-specific drive and idle components.
- Drive bar width is 2.4 in (62 mm).
- See Material Compliance for compliance details.





Belt Data

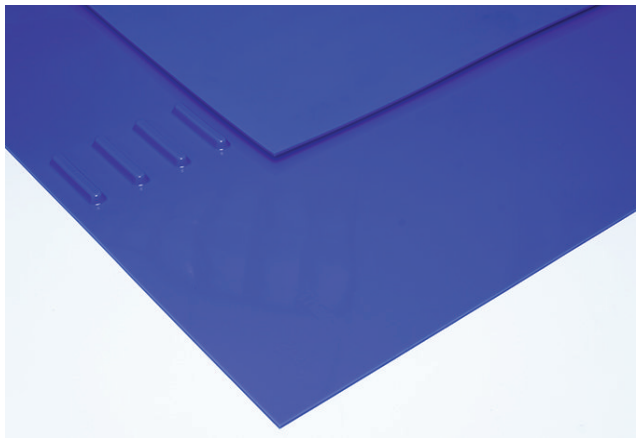
Belt Material	Belt Pull		Temperature Range (continuous)		Belt Weight	
	lb	kg	°F	°C	lb/ft^2	kg/m^2
Polyurethane	120	55	20–140	-7–60	0.62	3.04

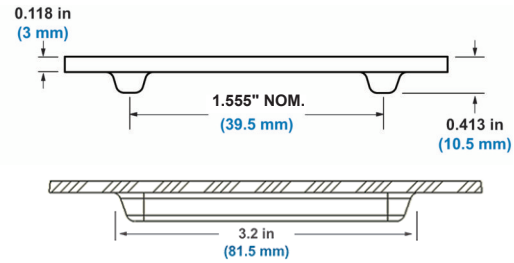
S8140 Flat Top Polyurethane A23 E (10.5 mm)

	in	mm
Pitch	1.555	39.5
Overall Thickness	0.413	10.5
Minimum Width	5	127
Maximum Width	36	914
Minimum Backbend Diameter	4	102
Minimum Sprocket Diameter (8T)	4	102
Open Area (seamless surface)	0%	
Available Joining Options	prepared ends, endless	
Available Colors	blue, white	

Product Notes

- **Contact Intralox for precise belt measurements and stock status before designing equipment or ordering a belt.**
- Engineered, matte surface is optimized for efficient product release and cleanability.
- Designed to perform well in hydrolysis prone applications.
- For use with S8140-specific drive and idle end components.
- Drive lug width is 3.2 in (82 mm).
- Modulus 95.06 MPa
- Available with flights, sidewall, and V-guide.
- For continuous use **from 40°F (5°C) to 212°F (100°C)** with these exceptions:
  - For **temperatures over 212°F (100°C)**, contact Intralox Customer Service with application information.
  - For **continuous use below 40°F (5°C)**, contact Intralox Customer Service for minimum sprocket diameter.
- See Material Compliance for compliance details.





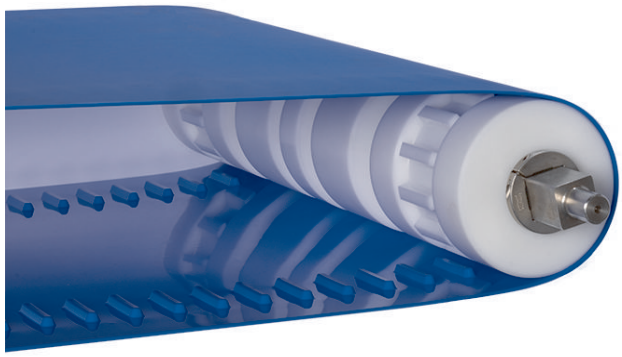
Belt Data

Belt Material	Belt Pull[ab]				Temperature Range (continuous)		Belt Weight	
	lbf/ft (up to 18 in)	N/mm (up to 18 in)	lbf (18 to 36 in)	N (18 in to 36 in)	°F	°C	Imperial	Metric
PUR A23	480	7.00	720	3200	See Product Notes.		0.730 lbs/ft² + 0.120 lbs/ft	3.56 kg/m² + 0.179 kg/m

[a] For continuous use over 100°F (38°C), contact Intralox Customer Service for actual belt pull.
[b] Based on proper limiter position.

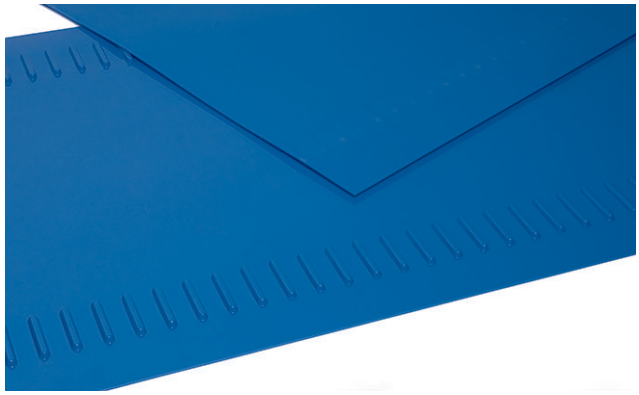
S8140 Dual-Lug Flat Top Polyurethane A23 E (10.5 mm)

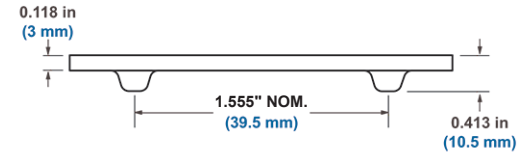
	in	mm
Pitch	1.555	39.5
Overall Thickness	0.413	10.5
Minimum Width	30	762
Maximum Width	60	1524
Minimum Backbend Diameter	4	102
Minimum Sprocket Diameter (8T)	4	102
Open Area (seamless surface)	0%	
Available Joining Options	prepared ends, endless, ThermoLace	
Available Colors	blue, white	

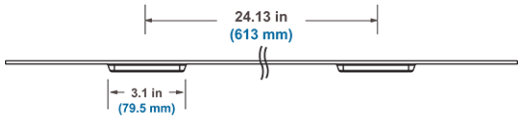


Product Notes

- **Contact Intralox for precise belt measurements and stock status before designing equipment or ordering a belt.**
- Engineered, matte surface is optimized for efficient product release and cleanability.
- Designed to perform well in hydrolysis prone applications.
- For use with S8140-specific drive and idle end components.
- Drive lug width is 3.1 in (78.8 mm).
- Modulus 95.06 MPa
- Available with flights and V-guide.
- For continuous use **from 40°F (5°C) to 212°F (100°C)** with these exceptions:
  - For **temperatures over 212°F (100°C)**, contact Intralox Customer Service with application information.
  - For **continuous use below 40°F (5°C)**, contact Intralox Customer Service for minimum sprocket diameter.
- See Material Compliance for compliance details.







BELT DATA

Belt Data						
Belt Material	Belt Pull[ab]		Temperature Range (continuous)		Belt Weight	
	lbf/ft (up to 18 in)	N/mm (up to 18 in)	°F	°C	Imperial	Metric
PUR A23	480	7.00	See Product Notes.		0.730 lbs/ft² + 0.120 lbs/ft	3.56 kg/m² + 0.179 kg/m

[a] For continuous use over 100°F (38°C), contact Intralox Customer Service for actual belt pull.
[b] Based on proper limiter position.

14 BELT FABRICATION

BELT JOINING OPTIONS

Belt ends are fabricated with the chosen belt joining option.

Endless belts: Order endless belts for installations without field splicing.

Prepared ends: Order prepared ends for length adjustments and field splicing at installation.

ThermoLace ends: Order ThermoLace ends for easy belt disassembly during cleaning; the Synchronized Sidewall mechanical fastener kit is included with all ThermoLace sidewall belting.

Metal lace ends: Order metal lace ends for easy belt disassembly during cleaning; the Synchronized Sidewall mechanical fastener kit is included with all metal lace sidewall belting.

BELT JOINING CONSIDERATIONS

Consider the following when choosing a belt joining option.

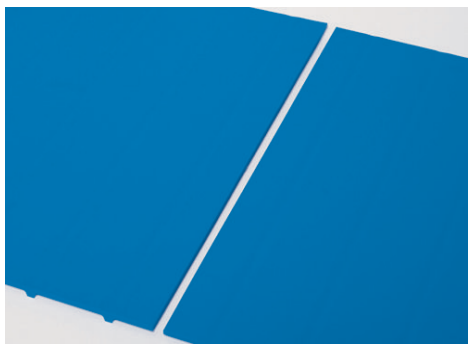
- Spliced belt joints offer the most hygienic solutions.
- Intralox technicians can perform belt splicing in the field if needed.
- ThermoDrive splicers can be purchased and used by customers with minimal training.
- Synchronized Sidewall mechanical fastener kits are designed for use on belts with metal lacing or ThermoLace joining.

Endless Belt Joining	
Strength Rating	Same as belt material
Minimum Belt Width	1 in (25 mm)
Maximum Belt Width	72 in (1829 mm)
Width Increments	1/32 in (0.79 mm)
Flush Edge Design	Spliced
Compatible Belts	All

- Repairs require belt splicing; see Splicing Equipment.
- All prepared end and endless belts include at least one 6 in (152 mm) space between flights for splicing.
- Belt width tolerance is +/- 0.0625 inches (1.5875 mm).

Belt Prepared Ends for Splicing	
Strength Rating	Same as belt material
Minimum Belt Width	1 in (25 mm)
Maximum Belt Width	72 in (1829 mm)
Width Increments	1/32 in (0.79 mm)
Flush Edge Design	Spliced
Compatible Belts	All

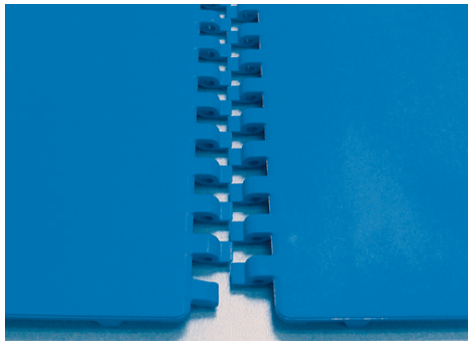
- Repairs require belt splicing; see Splicing Equipment.
- All prepared end and endless belts include at least one 6 in (152 mm) space between flights for splicing.
- Belt width tolerance is +/- 0.0625 inches (1.5875 mm).



S8026 ThermoLace Joining	
Strength Rating	200 lb/ft (298 kg/m)
Minimum Belt Width	4 in (102 mm)
Maximum Belt Width	72 in (1829 mm)
Width Increments	0.5 in (13 mm)
Rod Diameter	0.100 in (2.5 mm)
Rod Material	Blue acetal
Flush Edge Design	Included rod retention
Compatible Belts	S8026 polyurethane

- Belt on either side of a ThermoLace joint is Flat Top for 3 in (75 mm) when joined to other belt styles or perforated belts.
- Not recommended for 5.3-mm belts
- ThermoLace joints wider than 24 in (610 mm) are bricklayed.
- S8026 ThermoLace is a patented joining option.
- Rows of flights are not welded on bricklayed ThermoLace. If flights are needed, the first flight must be welded off the ThermoLace (row four or after), and the last flight cannot fall on the last three rows of the belt.

S8050 ThermoLace Joining	
Strength Rating	275 lb/ft (409 kg/m)
Minimum Belt Width	4 in (102 mm)
Maximum Belt Width	72 in (1829 mm)
Width Increments	0.5 in (13 mm)
Rod Diameter	0.140 in (3.6 mm)
Rod Material	Blue acetal
Flush Edge Design	Solid link rod retention
Compatible Belts	S8050 polyurethane



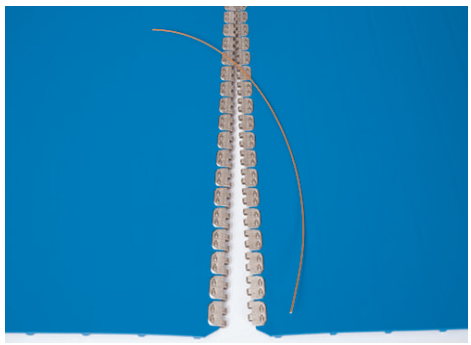
- Belt on either side of a ThermoLace joint is Flat Top for 6 in (150 mm) when joined to other belt styles or perforated belts.
- ThermoLace joints wider than 42 in (1067 mm) are bricklayed.
- S8050 ThermoLace is a patented joining option.
- Rows of flights are not welded on bricklayed ThermoLace. If flights are needed, the first flight must be welded off the ThermoLace (row four or after), and the last flight cannot fall on the last three rows of the belt.

S8050 ThermoLace Joining	
Strength Rating	S8050: 350 lbf/ft S8140: 480 lbf/ft
Minimum Belt Width	4 in (102 mm)
Maximum Belt Width	72 in (1829 mm)
Width Increments	0.5 in (13 mm)
Rod Diameter	0.140 in (3.6 mm)
Rod Material	Blue acetal
Flush Edge Design	Included rod retention
Compatible Belts	S8050, S8140

- Polyurethane A23 ThermoLace is a patented joining option.
- Belt on either side of a ThermoLace joint is flat top for 0.5 in (13 mm) when joined to other belt styles (surface textures) or perforated belts.
- ThermoLace joints wider than 42 in (1067 mm) contain two ThermoLaace parts spliced together to form a one piece connection to the belt.

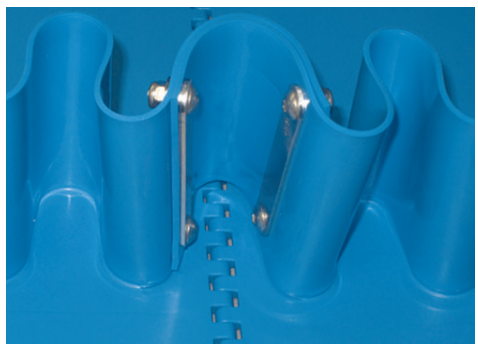
Metal Lace Joining	
Strength Rating	300 lb/ft
Minimum Belt Width	6 in (152 mm)
Maximum Belt Width	72 in (1829 mm)
Width Increments	1.0 in (25 mm)
Rod Diameter	0.08 in (2 mm)
Rod Material	Brown nylon-coated stainless steel unheaded hinge rod
Edge Design	Retaining washer
Compatible Belts	All except S8140

- Clips are Flexco Ready Set Staple #62 Stainless products.
- Contact Intralox Customer Service for spare washers, rods, or metal lace clips.



Synchronized Sidewall Mechanical Fastener Kit			
Available for sidewall sizes			Kit contents
Sidewall Pitch	in	mm	
25 mm	1.0	25	Kit includes components for two sidewall splices, one 0.25 Brad Point drill bit, 10 metal plates, 10 screws, 10 locknuts
	2.0	51	
50 mm	2.3	58	
	3.0	75	
	4.0	100	
	6.0	152	

One kit is needed for each lace section.



BELT FEATURES

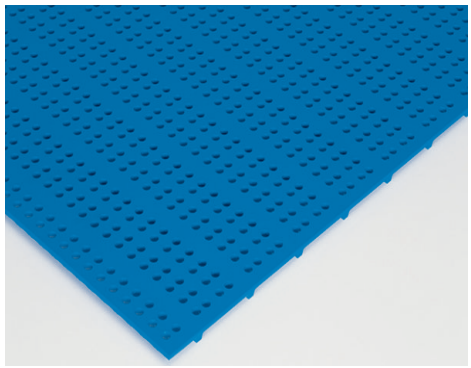
Special belt features are available for unique applications.

- Belt perforations are designed for hygienic dewatering applications.
- Belt trough grooves are designed for some troughed conveyor applications.

- Drive bar removal is designed for various applications. Contact Intralox Customer Service for application-specific suggestions.

Belt Perforations	
Minimum Belt Width	4 in (101.6 mm)
Maximum Belt Width	72 in (1828.8 mm)
Perforation Sizes	0.25 in (6 mm) holes, 20% open space
Compatible Material	Polyurethane

- Contact Intralox Customer Service for available non-uniform coverage options (for example, rows of perforations).
- Only available for extruded belts
- Not available with metal lacing
- Not available within 6 in (152 mm) of S8050 ThermoLace joints



Trough Groove	
Minimum Belt Width	10 in (254 mm)
Maximum Belt Width	72 in (1829 mm)
Machined Groove Width	2 in (50.8 mm)
Compatible Material	Polyurethane, Cold Use, Dura, HTL, XT, PUR A23

- Contact Intralox Customer Service for application-specific suggestions.
- Completely removes drive bars plus 0.039 in (1 mm) of the belt cover
- Not available with metal lacing
- Not available within 3 in (76 mm) of S8026 ThermoLace joints or 6 in (152 mm) of S8050 ThermoLace joints
- Do not mount drive sprockets at trough grooves.

Drive Bar Removal	
Minimum Belt Width	10 in (254 mm)
Maximum Belt Width	72 in (1829 mm)
Machined Groove Width	Varies
Compatible Material	Polyurethane, Cold Use, Dura, HTL, XT, PUR A23

- Contact Intralox Customer Service for application-specific suggestions.
- Leaves about 0.005 in (0.127 mm) of drive bar and full cover thickness
- Not available within 3 in (76 mm) of S8026 ThermoLace joints or 6 in (152 mm) of S8050 ThermoLace joints
- Do not mount drive sprockets where drive bars are removed.
- Customized by application

BELT ACCESSORIES

Available Flight and Sidewall Materials and Styles (Surface Textures)[a]									
Accessory thickness	Polyurethane			Cold Use	Dura	HTL	XT	PUR A23	PUR A23
	Blue		White	Blue	Blue	Natural	Blue	Blue	White
	Smooth	ED	Smooth	Smooth	Smooth	Smooth	Smooth	Smooth	Smooth
90-Degree Flight									
3 mm	X								
4 mm	X	X	X	X	X			X	X

Available Flight and Sidewall Materials and Styles (Surface Textures)[a]									
Accessory thickness	Polyurethane			Cold Use	Dura	HTL	XT	PUR A23	PUR A23
	Blue		White	Blue	Blue	Natural	Blue	Blue	White
	Smooth	ED	Smooth	Smooth	Smooth	Smooth	Smooth	Smooth	Smooth
7 mm	X	X	X	X	X			X	X
75-Degree Flight									
3 mm									
4 mm	X	X	X	X	X			X	X
7 mm	X	X	X	X	X			X	X
Scoop Flight									
3 mm									
4 mm	X	X	X	X	X			X	X
7 mm	X	X	X	X	X			X	X
Short-Top Scoop Flight									
3 mm									
4 mm	X	X	X	X	X			X	X
7 mm	X	X	X	X	X			X	X
Sidewall									
1.5 mm	X		X						
2.0 mm	X	X	X	X				X	X
V-guide									
K13								X	

[a] Smooth—Smooth style; ED—Embedded Diamond style

NOTE: Belt accessories are not available in Nub Top or Ribbed V-Top styles.

FLIGHT SELECTION CONSIDERATIONS

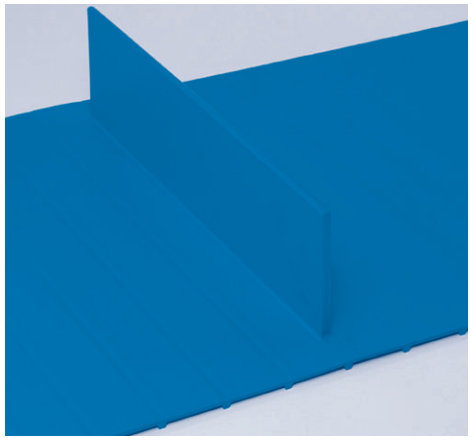
Consider the following when selecting flights for belts.

- Flight and belt material must match. Flight and belt styles can differ.
- Maximum flight length is 36 in (914 mm) for most flights.
  - Maximum flight length is 32 in (812 mm) for short-top scoops.
  - Maximum flight length is 32 in (812 mm) for Cold Use, Dura, polyurethane Embedded Diamond scoops.
- Flight notches are available; standard notches are 2 in (51 mm).
- When belts or flights are wider than 24 in (610 mm), contact Intralox Customer Service for center notch recommendations based on design and application.
- Minimum recommended flight indent from the belt edge is 1.25 in (32 mm).
- Contact Intralox Customer Service for flight gusset information.
- All prepared end and endless belts include at least one 6 in (152 mm) space between flights for belt splicing. Prepared end belts with sidewall require a 10 in (254 mm) space between flights for belt splicing at field splice locations.

90-Degree Flight Data

Available Flight Heights		Available Thicknesses	Available Materials
in	mm		
1.0	25	0.12 in (3 mm) 0.16 in (4 mm) 0.28 in (7 mm)	Polyurethane, Cold Use, Dura, PUR A23
2.0	50		
3.0	75		
4.0	100		
5.0	125		
6.0	150		

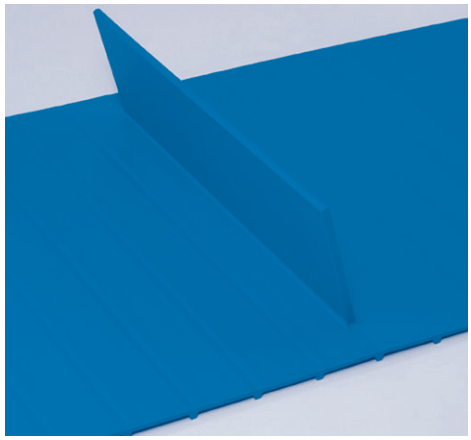
- Flights can be cut down to any height required for a particular application (minimum of 0.25 in [7 mm]).
- Smooth blue polyurethane flights available in all heights and thicknesses
- Smooth white polyurethane flights available only in 0.16 in (4 mm) and 0.28 in (7 mm) thick material
- Dual-sided Embedded Diamond polyurethane flights available only in 0.16 in (4 mm) and 0.28 in (7 mm) thick, blue material
- Cold Use and Dura flights available only in 0.16 in (4 mm) and 0.28 in (7 mm) thick, smooth, blue material
- Smooth surface polyurethane A23 flights available only in 0.16 in (4 mm) and 0.28 in (7 mm) thick material
- Smooth surface polyurethane A23 flights available in blue only for S8050 and in blue and white for S8140
- Minimum flight spacing on S8026 belt is 2.0 in (51 mm).
- Minimum flight spacing on S8050 belt is 1.9 in (49 mm).
- Minimum flight spacing on S8140 belt is 3 in (76 mm) or 2 rows.



75-Degree Flight Data

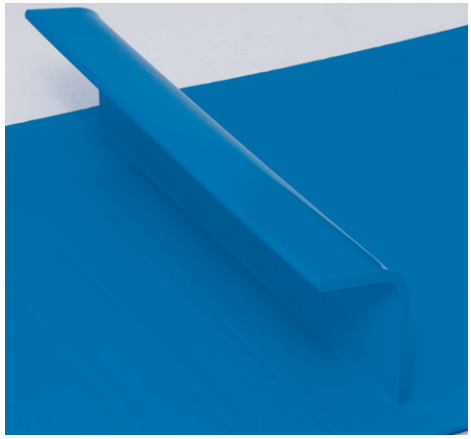
Available Flight Heights		Available Thicknesses	Available Materials
in	mm		
3.0	75	0.16 in (4 mm) 0.28 in (7 mm)	Polyurethane, Cold Use, Dura, PUR A23
4.0	100		
5.0	125		
6.0	150		

- Smooth polyurethane flights available in blue and white
- Smooth surface Cold Use flights, Dura flights, and dual-sided Embedded Diamond polyurethane flights available only in blue
- Smooth surface polyurethane A23 flights available in blue only for S8050 and in blue and white for S8140
- Minimum flight spacing on S8026 belt is 3.0 in (76 mm).
- Minimum flight spacing on S8050 belt is 3.9 in (99 mm).
- Minimum flight spacing on S8140 belt is 3 in (76 mm) or (2 rows).



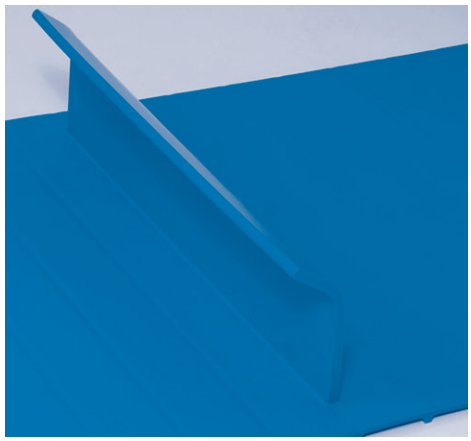
Scoop Flight Data			
Available Flight Heights		**Available Thicknesses**	**Available Materials**
in	**mm**		
3.0	75	0.16 in (4 mm), 0.28 in (7 mm)	Polyurethane, Cold Use, Dura, PUR A23
4.0	100		
5.0	125		
6.0	150		

- Smooth surface polyurethane flights available in blue and white
- Smooth surface Cold Use flights, Dura flights, and dual-sided Embedded Diamond polyurethane flights available only in blue
- Smooth surface polyurethane A23 flights available in blue only for S8050 and in blue and white for S8140
- Scoop angle is 95–105 degrees.
- Minimum flight spacing on S8026 belt is 3.0 in (76 mm).
- Minimum flight spacing on S8050 belt is 3.9 in (99 mm).
- Minimum flight spacing on S8140 belt is 3 in (76 mm) or (2 rows).



Short-Top Scoop Flight Data			
Available Flight Heights		**Available Thicknesses**	**Available Materials**
in	**mm**		
3.0	75	0.16 in (4 mm), 0.28 in (7 mm)	Polyurethane, Cold Use, Dura, PUR A23
4.0	100		
5.0	125		
6.0	150		

- Smooth surface polyurethane flights available in blue and white
- Smooth surface Cold Use flights, Dura flights, and dual-sided Embedded Diamond polyurethane flights available only in blue
- Smooth surface polyurethane A23 flights available in blue only for S8050 and in blue and white for S8140
- Short top scoop angle is 115–125 degrees.
- Minimum flight spacing on S8026 belt is 3.0 in (76 mm).
- Minimum flight spacing on S8050 belt is 3.9 in (99 mm).
- Minimum flight spacing on S8140 belt is 3 in (76 mm) or (2 rows).



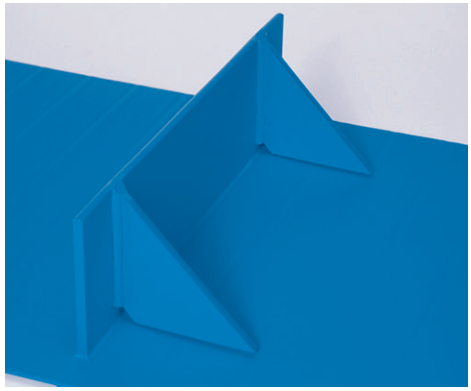
FLIGHT GUSSETS CONSIDERATIONS

Consider the following when selecting flight gussets.

- Flight gussets increase flight rigidity and are used in heavily loaded applications.
- Contact Intralox Customer Service for application-specific information.

Flight Gusset Data		
Available Gusset Height/ Width	**Available Thicknesses**	**Available Materials**
Height and width based on flight height	0.28 in (7 mm)	Polyurethane, Dura

- Available only on S8050 belts
- Available only for flights 7.0 in (178 mm) or wider
- Flight gusset quantity and spacing are based on flight width



SIDEWALL SELECTION CONSIDERATIONS

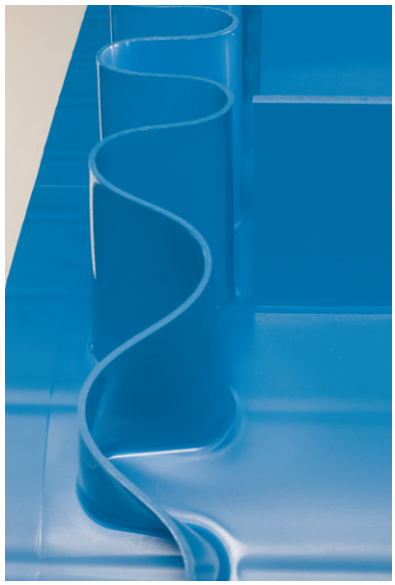
Consider the following when selecting sidewalls.

- Sidewall material must match belt and flight material. Sidewall and belt styles can differ.
- Sidewall is available smooth on both sides in all pitches, heights, and materials.
- Sidewall is available with Embedded Diamond texture on one side only in 50-mm pitch, blue polyurethane.
- Minimum recommended sidewall indent is 1.25 in (32 mm).
- Maximum belt width is 42 in (1067 mm) with a 1.25 in (32 mm) indent.
- 25-mm sidewall pitch is made with 1.5-mm thick material and creates a 0.953 in (24.21 mm) wide footprint.
- 40-mm sidewall pitch is made with 2-mm thick material and creates a 1.495 in (37.97 mm) wide footprint
- 50-mm sidewall pitch is made with 2-mm thick material and creates a 1.752 in (44.49 mm) wide footprint.
- Minimum gap to flight is 0.2 in (5 mm + 2 mm).
- Sidewall belts with flights require a 10 in (254 mm) space between flights for field splicing.

S8050 Synchronized Sidewall Data

Sidewall Pitch	Available Sidewall Heights		Min. Recommended Sprocket PD		Style	Available Materials
	in	mm	in	mm		
25 mm	1.0	25	4.0	102	Smooth	Polyurethane
	2.0	50	4.0	102		
50 mm	2.0	50	5.2	132	Smooth	Cold Use, PUR A23
					ED	Polyurethane
	2.3	60	5.2	132	Smooth	Polyurethane, Cold Use, PUR A23
					ED	Polyurethane
	3.0	75	6.5	165	Smooth	Polyurethane, Cold Use, PUR A23
					ED	Polyurethane
	4.0	100	7.7	196	Smooth	Polyurethane, Cold Use, PUR A23
					ED	Polyurethane
	6.0	150	10.3	262	Smooth	Polyurethane, Cold Use, PUR A23
					ED	Polyurethane

- Polyurethane sidewall available in blue and white
- Single-sided Embedded Diamond sidewall available only in 50 mm pitch blue polyurethane; Embedded Diamond surface faces product
- Cold Use and PUR A23 sidewall available only in blue



S8140 Synchronized Sidewall Data						
Sidewall Pitch	Available Sidewall Heights		Min. Recommended Sprocket PD		Style	Available Materials
	in	mm	in	Teeth		
40 mm	2	50	4.0	8	Smooth	PUR A23
	2.3	60	4.0	8		
	3	75	5.0	10		
	4	100	6.0	12		
	6	150	9.0	18		

PUR A23 sidewall available in blue and white

V-GUIDE SELECTION CONSIDERATIONS

Consider the following when selecting V-guide.

- V-guide is only available with S8140 belting.
- V-guide is available with both prepared end and endless belts.
- V-guide weight is 0.064 lb (0.029 kg) per linear foot per row.
- There is no minimum V-guide indent from the edge of the belt and can be installed directly on the side edges.
- The minimum gap between the V-guide and any other belt feature (sidewall, flights, or other V-guide) is 0.512 in (13 mm).
- All indents are measured from the outer edge of the V-guide.
- Maximum belt width is 36 in (914.4 mm).
- Minimum sidewall indent with two lanes of V-guide on one side of the belt is 2.125 in (54 mm) from the edge of the belt.
- Minimum belt length for S8140 endless belts with V-guide, sidewall, or flights is 80 drive lugs or 10.37 ft (3.16 m).
- Belts can be purchased with:
  - One lane of V-guide on both sides with a 5 in (127 mm) minimum belt width
  - One lane of V-guide on one side with a 5 in (127 mm) minimum belt width
  - Two lanes of V-guide on both sides with a 7 in (178 mm) minimum belt width

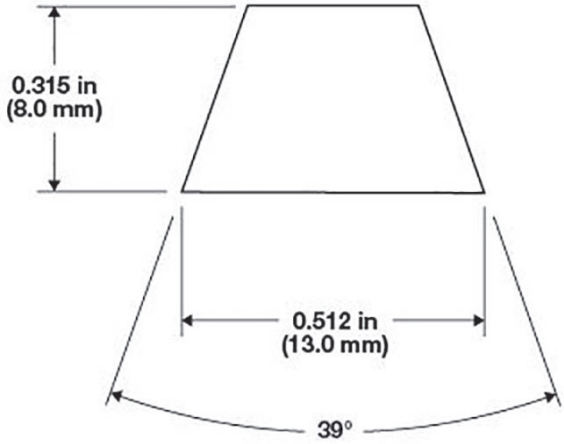


Figure 45: V-guide nominal geometry

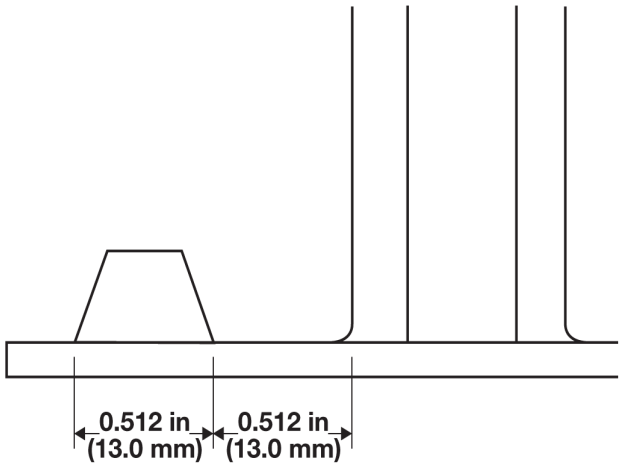


Figure 46: Indents for one lane of V-guide

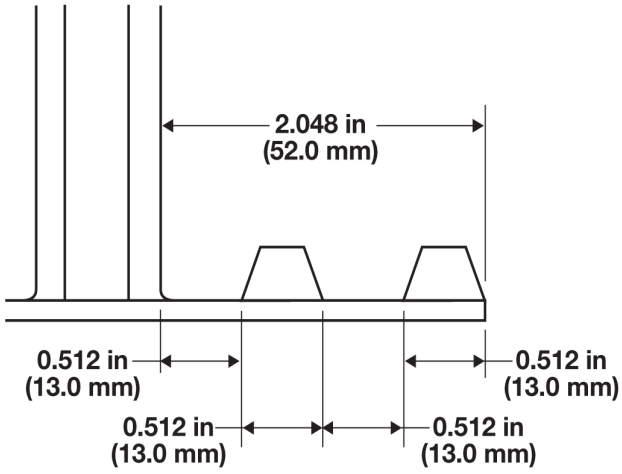


Figure 47: Indents for two lanes of V-guide

Polyurethane A23 K13 V-Guide Data								
V-guide Size	Dimensions		Min. Recommended Sprocket		Style	Available Materials	Available Belt Series	
	in (BxHxT)	mm (BxHxT)	in	mm				
K13	0.512 x 0.315 x 0.276	13 x 8 x 7	4.0	102	Solid	PUR A23	8140	
PUR A23 V-guide available in blue								

15 DRIVE AND IDLE END COMPONENTS

DRIVE END SELECTION CONSIDERATIONS

- Choose between using a pre-engineered drive solution like the ThermoDrive Drive Components or design a drive end solution from individual drive end components.
- Use belt pitch and other conveyor design dimensions to make drive end component decisions. See Dimensions.

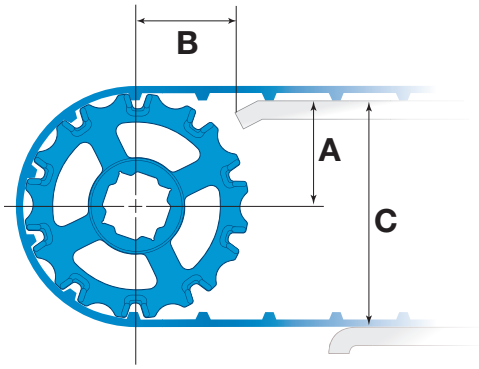


Figure 48: Drive end dimensions

THERMODRIVE DRIVE COMPONENTS

ThermoDrive Drive Components are pre-engineered, configurable belt engagement assemblies designed to work with Intralox ThermoDrive conveyor belt systems. TD Drive Components ensure accurate and repeatable placement of limiters and scrapers to provide optimal operational performance. The breakthrough drive mount design eliminates the worry of how to locate and maintain the position of these systems while allowing the flexibility to create customized conveyor designs.

Contact Intralox Customer Service for an audit form with details about available options.

A full system (end or center drive) consists of the following:

- Left and right-hand drive mounts
- Left and right-hand limiter mounts
- Specified limiter components (including scraper when specified)
- Mounting hardware for the limiter mounts

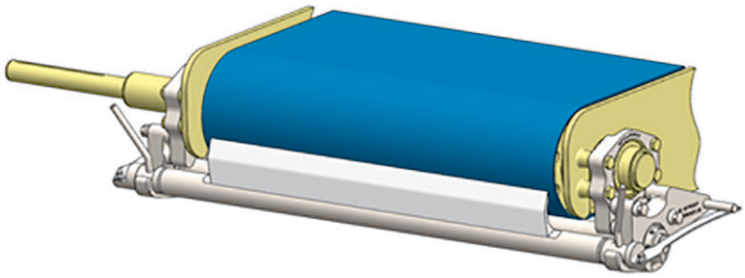


Figure 49: TD Drive Components (end drive)

END DRIVE SPECIFICATIONS

Drive Mount	Sizes: 206, 208, and 210 spherical bore (standard numbers used by bearing manufacturers) Styles: - Nongreasable (no grease zerk) for sealed and solid lube bearing inserts - Greasable (has grease zerk) for regreasable bearing inserts **NOTE:** Drive mounts come as a set (1 left, 1 right). They do not include the bearing insert or hardware to attach to the conveyor frame.
Limiter Options	• Full-width roller limiters with scraper assembly (belts without flights only) • Full-width roller limiter only (no scraper assembly) • Edge-only shoe limiters (flighted belts with no notches) • Flighted roller limiters (flighted belts with 1 or 2 notches)
Drive Shaft and Sprockets	• Intralox® Full Width Sprocket S8050 10T 6.5 in (165 mm) with regular or buildup-resistant profile • Stacked S8050 10T 6.5 in (165 mm) EZ Clean™ Max Pull sprockets • Spaced S8050 10T 6.5 in (165 mm) EZ Clean™ Max Pull sprockets • Customer-supplied sprockets must match actual outer diameter of sprockets listed above to ensure proper operation
Scraper System	Replaceable scraper tip

CENTER DRIVE SPECIFICATIONS

Drive Mount	• Sizes: 206, 208, and 210 spherical bore (standard numbers used by bearing manufacturers) • Styles: - Nongreasable (no grease zerk) for sealed and solid lube bearing inserts - Greasable (has grease zerk) for regreasable bearing inserts **NOTE:** Drive mounts come as a set (2 universal drive mounts). They do not include the bearing insert or hardware to attach to the conveyor frame.
Limiter Options	Full-width roller limiter only (no scraper assembly)

Drive Shaft and Sprockets	• Intralox® Full Width Sprocket S8050 10T 6.5 in (165 mm) with regular or buildup-resistant profile • Stacked S8050 10T 6.5 in (165 mm) EZ Clean™ Max Pull sprockets • Spaced S8050 10T 6.5 in (165 mm) EZ Clean™ Max Pull sprockets (sprocket spacers (40 mm) available for 1.5 in square shaft only) • Customer-supplied sprockets must match actual outer diameter of sprockets listed above to ensure proper operation

TECHNICAL RESTRICTIONS

End and Center Drives:

- Only for use with ThermoDrive S8050 Flat Top belts
  - Available standard belt widths:
    * Inches: 12, 18, 24, 30, 36, 42, 48
    * Metric: 300, 400, 450, 500, 550, 600, 700, 1000, 1200
- Only for use with the following ThermoDrive sprockets:
  - Intralox Full Width Sprocket S8050 10T 6.5 in (165 mm) with regular or buildup-resistant profile
  - Spaced S8050 10T 6.5 in (165 mm) EZ Clean Max Pull sprockets
- Only for use with non-tensioned belts
- Only for use as end drive/outfeed/head drive/"pull" conveyor
- No ThermoLace or metal lacing

End Drive Only:

- Any material, flight type, or sidewall
- Sidewall height up to 4 in (100 mm) with 6.5 in PD sprockets
- Flights require minimum 2.5 in (63.5 mm) indents and notches
- Supports up to two (2) evenly spaced notches
- Flighted roller limiter belt pull capacity limited to 35 lbf/in (420 lb/ft) MAX

SHAFTS

Select round or square shafts as needed for drive, idle, and returnway component installation. Intralox offers customized square shafts. Round shafts are not available from Intralox.

SQUARE SHAFT CONSIDERATIONS

- Use only stainless steel shafts for ThermoDrive belt systems.
- ThermoDrive sprockets are only available with 1.5 in, 40 mm, 2.0 in, and 2.5 in bore diameters.
- Retainer ring grooves are not required with sprocket spacers, heavy-duty split retainer rings, or self-set retainer rings.

Contact Intralox Customer Service for a Shaft Specification Form or help with ordering.

CUSTOM SHAFT MACHINING

Once ordered to customer specifications, the shaft stock is cut to length and the raw shaft is precision straightened. The bearing journals are turned, and any needed retainer ring grooves, keyways, and chamfers are cut. A thorough quality inspection is performed before shipping.

Notify Intralox Customer Service when ordering if the gearbox is hollow.

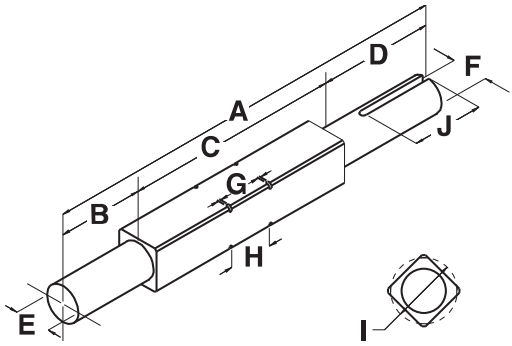


Figure 50: Shaft components

A Overall length
B Bearing-end journal
C Square section length
D Drive-end journal and keyway length
E Bearing journal diameter
F Drive-end journal diameter
G Retainer ring groove width
H Sprocket hub width
I Ring groove diameter
J Keyway length

Shafts Available from Intralox U.S. Tolerances[a]		
Square Size	**Stainless Steel (303/304)**	**Stainless Steel (316)**
1.5 in	+0.000/-0.006	+0.000/-0.006
2.5 in	+0.000/-0.008	+0.000/-0.008
[a] Contact Intralox Customer Service for larger diameters or shafts longer than 12 ft (3.6 m).		

Shafts Available from Intralox Europe Tolerances[a]		
Square Size	**Stainless Steel (303/304)**	**Stainless Steel (316)**
40 mm	+0.000/-0.160	N/A
[a] Contact Intralox Customer Service for larger diameters or shafts longer than 3 m (9.8 ft).		

Tolerances[a]		
Overall Length	**Journal Diameter**	**Keyway Widths**
< 48 ± 0.061 in (< 1200 ± 0.8 mm)	- 0.0005–0.003 in. (-0.0127–0.0762 mm)	+ 0.003 in./- 0.000 in. (+ 0.08 mm/- 0.00 mm)
> 48 ± 0.0125 in. (< 1200 ± 1.2 mm)	(øh7 vlgs. NEN-ISO 286-2)	
[a] U.S. keyways are for parallel square keys (ANSI B17.1 - 1967, R1973). Metric keyways are for flat, inlaid keys with round ends (DIN 6885-A).		

Surface Finishes	
Journal	**Other Machined Surfaces**
63 microinches (1.6 micrometers)	125 microinches (3.25 micrometers)

Shaft Retainer Ring Groove and Chamfer Dimensions			
Shaft Size	**Groove Diameter**	**Width**	**Chamfer**
1.5 in	1.913 ± 0.005 in	0.086 + 0.004/- 0.000 in	2.022 ± 0.010 in
2.5 in	3.287 ± 0.005 in	0.120 + 0.004/- 0.000 in	3.436 ± 0.010 in
40 mm	51 ± 0.1 mm	2.5 + 0.15/- 0.00 mm	54 ± 0.25 mm

RETAINING COMPONENTS

SELECTION CONSIDERATIONS

Retaining components are available for various shaft sizes, belt loads, and hygienic needs.

- In heavily loaded applications, consider ThermoDrive Drive Components with a full-width sprocket or stacked sprockets.
- For stacked sprockets, lock the outermost sprockets in place with heavy-duty retainer rings.

- For spaced sprockets, consider the following options:
  - Sprocket spacers for hygiene-sensitive applications
  - Stainless steel round retainer rings for lighter loads; choose shaft groove location based on sprocket hub width and spacing
  - Stainless steel self-set retainer rings for lighter loads
  - Heavy-duty split retainer rings for heavier loads

Contact Intralox Customer Service for retainer recommendations.

SPROCKET SPACERS

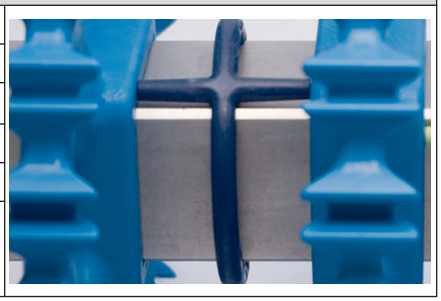
Sprocket spacers are compatible with the most common spaced sprocket and support wheel applications. They are not for use with S8126 belts or component centerline spacing over 3 in (76 mm).

Contact Intralox Customer Service with the following information to calculate the quantity of spacers and heavy-duty split retainer rings for your application. Installation instructions are provided with purchase.

- Belt series and width
- Flights/sidewall needed
- Belt joining method
- Sprocket/wheel choice
- Shaft diameter
- Scraper needed

Detectable Acetal Sprocket Spacer Data

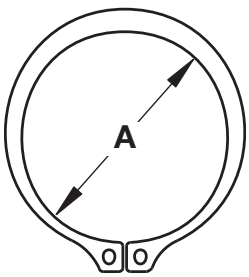
Nom. Sprocket Spacer Width in	Nom. Sprocket Spacer Width mm	Available Bore Sizes			
		U.S. Sizes		Metric Sizes	
		Round in	Square in	Round mm	Square mm
1.0	25		1.5		40
1.5	38		1.5		40
2.0	51		1.5		40



STAINLESS STEEL RETAINER RINGS

Stainless steel retainer rings are available from Intralox to fit Intralox square shafts.

- The ring is ANSI Type 3AMI ring, conforming to MIL SPEC R-2124B.
- The ring requires shaft grooves and chamfers.
- Fasteners are included to join ring ends.
- See the related shaft groove and chamfer information in Drive Shaft.

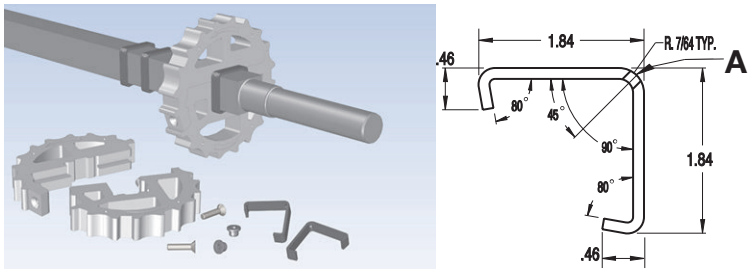


A Ring groove diameter

Figure 51: Retainer ring groove diameter

STAINLESS STEEL SELF-SET RETAINER RING

- Self-set retainer rings are available to fit 1.5 in, 2.5 in, 40 mm, and other square shafts. Shafts must have chamfered edges. Machined grooves are not needed.
- These retainer rings are made from non-corrosive 316 stainless steel. They are USDA accepted and patented.
- The retainer rings snap into place on the square shaft even with the shaft installed. Retainer rings are fixed in position with a unique setscrew that does not fall out during operation.
- These retainer rings are not recommended in applications where high lateral forces are expected.



A Custom setscrew fully inserted head first

Figure 52: Self-set retainer ring

STAINLESS STEEL HEAVY-DUTY SPLIT RETAINER RING

- Heavy-duty split retainer rings are available to fit 1.5 in, 2.5 in, and 40-mm square shafts.
- The retainer rings are made from 304 stainless steel.
- These retainer rings do not require the shaft to be chamfered, and can be installed with the shaft in place.
- These retainer rings can be used in applications with high lateral loads on the sprockets.
- These retainter rings are not comptaible with S8026 EZ Clean Molded Acetal Sprocket 3.2 in (81 mm) PD with 1.5 in (40 mm) square bore.

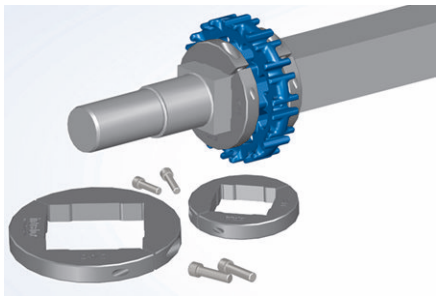


Figure 53: Heavy-duty split retainer ring

SPROCKETS

S8026 AND S8050 SPROCKETS

SPROCKET SELECTION CONSIDERATIONS

- All sprockets shown are available from Intralox.
- Select a sprocket series compatible with the belt series.
- Select a sprocket size compatible with the belt minimum sprocket diameter. For belts with Synchronized Sidewall, choose sprocket size based on sidewall pitch and height. See S8050 Synchronized Sidewall Data.
- Design the drive end with a maximum 3 in (75 mm) centerline space between sprockets.
- Contact Intralox Customer Service for lead times before ordering.
- Choose an EZ Clean style for hygienic applications.

S8026 & S8050 Sprocket Quantity Reference					
S8026			S8050		
Minimum Belt Width[a]		Minimum Number of Sprockets Per Shaft[b]	Minimum Belt Width[c]		Minimum Number of Sprockets Per Shaft[d]
in	mm		in	mm	
1	25	1	1	25	1
2.9[e]	74	2	3.7[f]	94	2
6.9	175	3	7.2	183	3
9.9	251	4	10.2	259	4
12.9	328	5	13.2	335	5
15.9	404	6	16.2	411	6
18.9	480	7	19.2	488	7
21.9	556	8	22.2	564	8
24.9	632	9	25.2	640	9
27.9	709	10	28.2	716	10
30.9	785	11	31.2	792	11
33.9	861	12	34.2	869	12
36.9	937	13	37.2	945	13
39.9	1013	14	40.2	1021	14
42.9	1090	15	43.2	1097	15
45.9	1166	16	46.2	1173	16
48.9	1242	17	49.2	1250	17
51.9	1318	18	52.2	1326	18
54.9	1394	19	55.2	1402	19
57.9	1471	20	58.2	1478	20
60.9	1547	21	61.2	1554	21
63.9	1623	22	64.2	1631	22
66.9	1699	23	67.2	1707	23
69.9	1775	24	70.2	1783	24

[a] Use the Minimum Belt Width smaller than your belt width to determine the minimum number of sprockets needed. Belts are available in 0.03125 in (0.79 mm) increments.

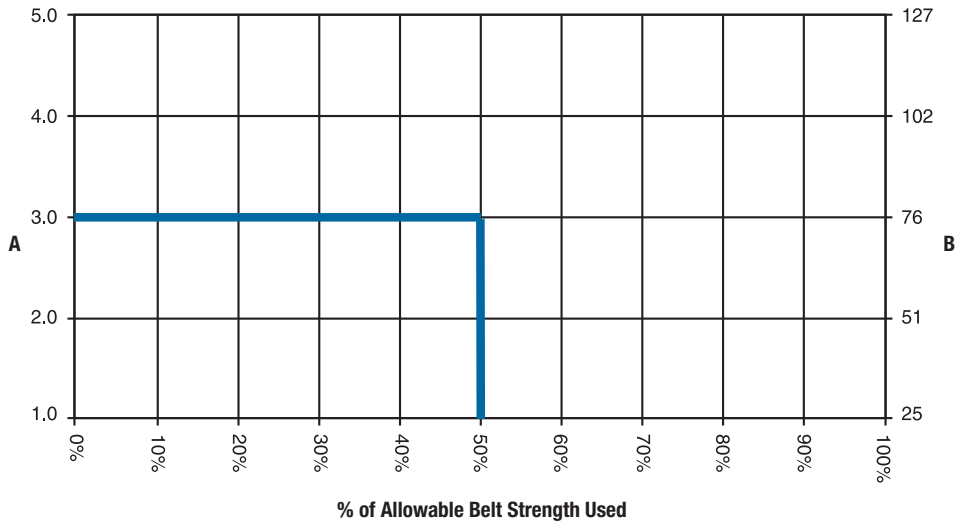
[b] More sprockets are required for heavily loaded applications. All sprockets must be locked in place. Allow a maximum +/- 0.125 in (3.0 mm) of lateral movement.

[c] Use the Minimum Belt Width smaller than your belt width to determine the minimum number of sprockets needed. Belts are available in 0.03125 in (0.79 mm) increments.

[d] More sprockets are required for heavily loaded applications. All sprockets must be locked in place. Allow a maximum +/- 0.125 in (3.0 mm) of lateral movement.

S8026 & S8050 Sprocket Quantity Reference					
S8026			S8050		
Minimum Belt Width[a]		Minimum Number of Sprockets Per Shaft[b]	Minimum Belt Width[c]		Minimum Number of Sprockets Per Shaft[d]
in	mm		in	mm	
[e] For S8026 belt widths 2.875–4.375 in (73–111 mm), stack sprockets between heavy-duty split retainer rings.					
[f] For S8050 belt widths 3.6875–4.6875 (94–119 mm), stack sprockets between heavy-duty split retainer rings.					

Sprocket Spacing as a Function of Belt Strength Used



A: Maximum sprocket spacing, in

B: Maximum sprocket spacing, mm

- Based on maximum centerline sprocket spacing of 3 in (76 mm)
- Applies to all ThermoDrive series and styles
- For applications that exceed the rated belt pull by over 50%, contact Intralox Customer Service.

S8026 EZ Clean Molded Acetal Sprocket Data

No. of Teeth	Nom. Pitch Dia. in	Nom. Pitch Dia. mm	Nom. Outer Dia. in	Nom. Outer Dia. mm	Nom. Hub Width in	Nom. Hub Width mm	Available Bore Sizes			
							U.S. Sizes		Metric Sizes	
							Round in	Square in	Round mm	Square mm
6[a, b]	2.0	51	1.9	48	1.0[c]	25[d]	1		25	
10[e]	3.2	81	3.2	81	1.0	25	1		25	
								1.5		40
12	3.9	99	3.8	97	1.0	25		1.5		40
20	6.4	163	6.4	162	1.0	25		1.5		40

[a] Not compatible with ThermoLace

[b] Nominal tooth width is 1 in (24.4 mm); nominal hub width is 0.7 in (17.8 mm). ThermoDrive sprocket drawings can be found on the Intralox website for further reference.

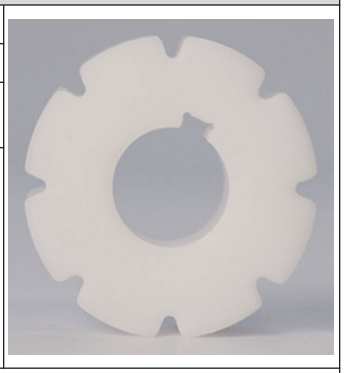
[c] Nominal tooth width is 1 in (24.4 mm); nominal hub width is 0.7 in (17.8 mm). ThermoDrive sprocket drawings can be found on the Intralox website for further reference.

[d] Nominal tooth width is 1 in (24.4 mm); nominal hub width is 0.7 in (17.8 mm). ThermoDrive sprocket drawings can be found on the Intralox website for further reference.

[e] Not compatible with Stainless Steel Heavy-Duty Split Retainer Rings with 1.5 in square bore.

S8026 EZ Clean Machined Acetal Sprocket Data

No. of Teeth	Nom. Pitch Dia. in	Nom. Pitch Dia. mm	Nom. Outer Dia. in	Nom. Outer Dia. mm	Nom. Hub Width in	Nom. Hub Width mm	Available Bore Sizes			
							U.S. Sizes		Metric Sizes	
							Round in	Square in	Round mm	Square mm
8[a]	2.5	64	2.5	64	1.0	25	1		25	



[a] Not compatible with ThermoLace

S8026 EZ Clean No-Lace Machined Acetal Sprocket Data

No. of Teeth	Nom. Pitch Dia. in	Nom. Pitch Dia. mm	Nom. Outer Dia. in	Nom. Outer Dia. mm	Nom. Hub Width in	Nom. Hub Width mm	Available Bore Sizes			
							U.S. Sizes		Metric Sizes	
							Round in	Square in	Round mm	Square mm
20	6.4	163	6.4	162	1	25		1.5		40

S8050 EZ Clean Molded Acetal Sprocket Data

No. of Teeth	Nom. Pitch Dia. in	Nom. Pitch Dia. mm	Nom. Outer Dia. in	Nom. Outer Dia. mm	Nom. Hub Width in	Nom. Hub Width mm	Available Bore Sizes			
							U.S. Sizes		Metric Sizes	
							Round in	Square in	Round mm	Square mm
6	4.0	102	3.7	94	1.5	38		1.5		40
8	5.2	132	5.0	127	1.5	38		1.5		40
10	6.5	165	6.3	160	1.5	38		1.5		40
12	7.7	196	7.6	193	1.5	38		1.5		40

S8050 EZ Clean Machined Acetal Sprocket Data

No. of Teeth	Nom. Pitch Dia. in	Nom. Pitch Dia. mm	Nom. Outer Dia. in	Nom. Outer Dia. mm	Nom. Hub Width in	Nom. Hub Width mm	Available Bore Sizes			
							U.S. Sizes		Metric Sizes	
							Round in	Square in	Round mm	Square mm
10	6.5	165	6.3	160	1.0	25		2.0		
								2.5		
12	7.7	196	7.6	193	1.0	25		2.0		
								2.5		
16	10.3	262	10.1	255	1.0	25		1.5		40
								2.5		

S8050 EZ Clean Machined Nylon Sprocket Data

No. of Teeth	Nom. Pitch Dia. in	Nom. Pitch Dia. mm	Nom. Outer Dia. in	Nom. Outer Dia. mm	Nom. Hub Width in	Nom. Hub Width mm	Available Bore Sizes			
							U.S. Sizes		Metric Sizes	
							Round in	Square in	Round mm	Square mm
10	6.5	165	6.3	160	1	25		1.5		40

S8050 EZ Clean No-Lace Machined Acetal Sprocket Data

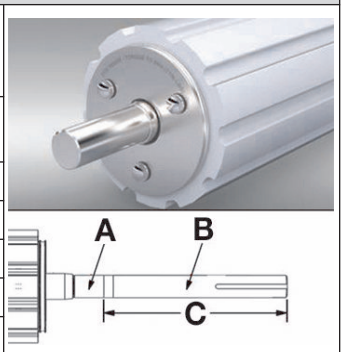
No. of Teeth	Nom. Pitch Dia. in	Nom. Pitch Dia. mm	Nom. Outer Dia. in	Nom. Outer Dia. mm	Nom. Hub Width in	Nom. Hub Width mm	Available Bore Sizes			
							U.S. Sizes		Metric Sizes	
							Round in	Square in	Round mm	Square mm
10	6.5	165	6.3	160	1	25		1.5		40
12	7.7	196	7.6	193	1	25		2.5		60

S8050 Split Sprocket Data[a, b]

No. of teeth	Nom. Pitch Dia. in	Nom. Pitch Dia. mm	Nom. Outer Dia. in	Nom. Outer Dia. mm	Nom. Hub Width in	Nom. Hub Width mm	Available bore Sizes			
							U.S. Sizes		Metric Sizes	
							Round in	Square in	Round mm	Square mm
8	5.2	132	5.0	127	1.0	25		1.5		40
10	6.5	165	6.3	160	1.0	25		1.5		40

[a] Available in machined natural acetal or abrasion resistant natural nylon
[b] Sprockets have a preferred driving direction; check body side arrows.

Full Width Sprocket[a]							
Standard Widths	No. of Teeth	Nom. Pitch Dia.	Nom. Outer Dia.	Dye Options	Bearing Journal Dia.	Gearbox Journal Dia.	Gearbox Journal Length
10 in (254 mm)	10	6.5 in (165 mm)	6.3 in (160 mm)	Dye or No Dye	Up to 2 in (50 mm)	Up to 2 in (50 mm)	Up to 15 in (381 mm)
12 in (305 mm)							
16 in (406 mm)							
18 in (457 mm)							
20 in (508 mm)							
24 in (610 mm)							
30 in (762 mm)							
36 in (914 mm)							



A: Bearing Journal

B: Gearbox Journal

C: Gearbox Journal Length

[a] Contact Intralox Customer Service for details on widths.

S8126 SPROCKETS AND DRIVE END

S8126 Drive End Component Quantity Reference Data												
Belt Width (in)		2.5 in (65 mm) Wide Flanged Support Roller	2.5 in (65 mm) Wide Support Roller	1 in (25 mm) Wide Support Roller	6 in (152 mm) Wide Tail Roller	SS Heavy-duty Split Retainer Ring	Component Spacing Edge to Edge		Minimum Total Belt Edge Clearance		Minimum Length of Square Portion of Shaft	
in	mm	Quantity	Quantity	Quantity	Quantity	Quantity	in	mm	in	mm	in	mm
10	254	0	2	0	1	2	0	0	0.25	7	12.25	311
11	279	0	2	0	1	6	1	25	0.25	7	14.25	362
12	305	0	2	0	1	6	1	25	0.25	7	14.25	362
13	330	0	2	0	1	6	1	25	0.25	7	14.25	362
14	356	0	2	0	1	6	1.5	38	0.25	7	15.25	387
15	381	0	2	0	1	6	2	51	0.25	7	16.25	413
16	406	0	2	2	1	6	0.75	19	0.25	7	17.25	438
17	432	0	2	2	1	6	1	25	0.25	7	18.25	464
18	457	0	2	2	1	10	1.25	32	0.25	7	19.25	489
19	483	0	2	2	1	10	1.5	38	0.25	7	20.25	514
20	508	0	2	2	1	10	1.75	44	0.25	7	21.25	540
21	533	0	2	2	1	10	2	51	0.25	7	22.25	565
22	559	0	2	2	1	10	2.25	57	0.25	7	23.25	591
23	584	0	4	0	1	10	1.75	44	0.25	7	24.25	616
24	610	0	4	0	1	10	2	51	0.25	7	25.25	641

S8126 Machined Acetal Sprocket Data[a]											
No. of Teeth	Nom. Pitch Dia. in	Nom. Pitch Dia. mm	Nom. Outer Dia. in	Nom. Outer Dia. mm	Nom. Hub Width in	Nom. Hub Width mm	Available Bore Sizes				
							U.S. Sizes		Metric Sizes		
							Round in	Square in	Round mm	Square mm	
12[b]	3.9	99	3.9	99	6.0	152		1.5		40	

[a] Contact Intralox Customer Service for lead times.
[b] Not compatible with ThermoLace

S8140 SPROCKETS

S8140 Machined Acetal Sprocket Data[a]											
No. of Teeth	Nom. Pitch Dia. in	Nom. Pitch Dia. mm	Nom. Outer Dia. in	Nom. Outer Dia. mm	Nom. Hub Width in	Nom. Hub Width mm	Available Bore Sizes				
							U.S. Sizes		Metric Sizes		
							Round in	Square in	Round mm	Square mm	
10	5.2	133	5.0	127	6.0	153		1.5		40	
12	6.2	159	6.0	153	6.0	153		1.5		40	
18	9.3	237	9.1	231	6.0	153		1.5		40	
18	9.3	237	9.1	231	6.0	153		2.5			

[a] Not compatible with ThermoLace

POSITION LIMITERS

Intralox provides various wear shoe-style position limiters for installation at the conveyor drive end. All styles shown are available from Intralox.

- EZ Clean Universal position limiters are most often used on flat and flighted belts.
- EZ Clean D-shaft position limiters are only for flat belts with light loads.
- Available only in UHMW-PE

EZ Clean Position Limiter (Universal Mount) Data				
Nom. Pitch Dia. in	Nom. Pitch Dia. mm	Dimensions (HxWxD)		
		in	mm	
2.0	51	3.27 x 2.31 x 0.75	83 x 59 x19	
2.5	64			
3.2	81			
3.9	99	3.54 x 2.82 x 0.75	90 x 72 x 19	
4.0	102			
5.2	132	3.56 x 3.04 x 0.75	90 x 77 x 19	
6.4	163	3.68 x 3.29 x 0.75	93 x 84 x 19	
6.5	165			
7.7	196	3.90 x 3.21 x 0.75	99 x 82 x 19	

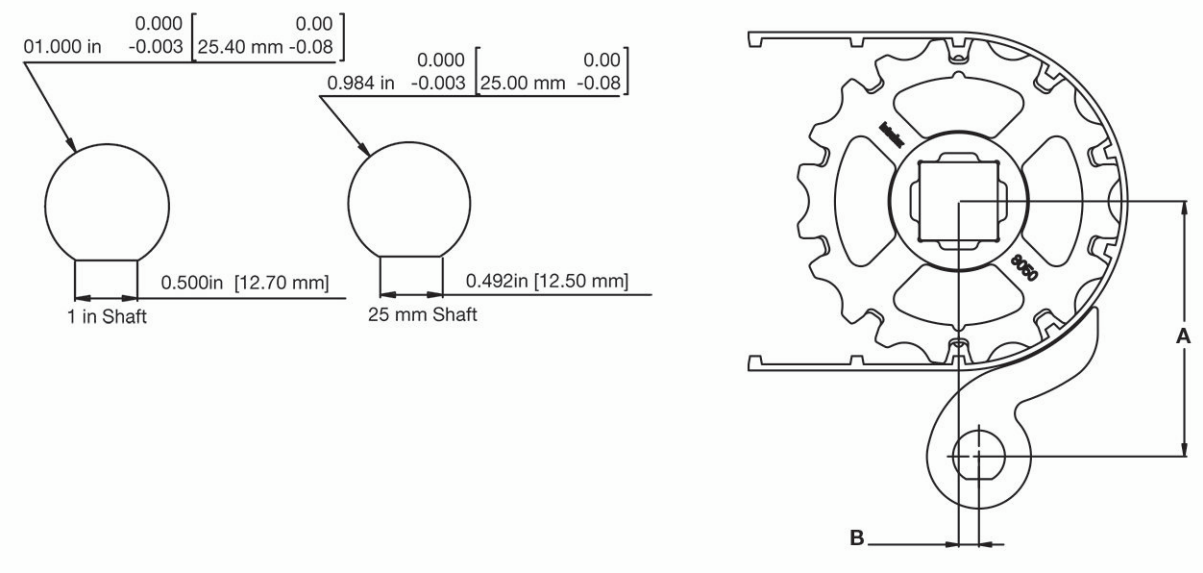
EZ Clean Position Limiter (D-Shaft Mount) Data[a]				
Nom. Pitch Dia. in	Nom. Pitch Dia. mm	Dimensions (HxWxD)		
		in	mm	
2.0	51	3.46 x 2.31 x 0.75	88 x 59 x 19	
2.5	64			
3.2	81			
3.9	99	3.71 x 2.82 x 0.75	94 x 72 x 19	
4.0	102			
5.2	132	3.75 x 3.04 x 0.75	95 x 77 x 19	
6.4	163	3.87 x 3.29 x 0.75	98 x 84 x 19	
6.5	165			
7.7	196	3.71 x 3.15 x 0.75	94 x 80 x 19	

[a] For lightly loaded applications only. Please consult TSG before using this position limiter.

S8026 Position Limiter (D-Shaft Mount) Installation Dimensions								
Sprocket PD	5.3 mm Flat Top		6 mm Flat Top		6.3 mm EDT		7.4 mm Nub Top	
	A	B	A	B	A	B	A	B
3.2 in (81 mm)	3.350 in (85.1 mm)	0.252 in (6.4 mm)	3.378 in (85.8 mm)	0.260 in (6.6 mm)	3.394 in (86.2 mm)	0.260 in (6.6 mm)	3.437 in (87.3 mm)	0.276 in (7 mm)
3.9 in (99 mm)	3.659 in (92.8 mm)	0.059 in (1.5 mm)	3.681 in (93.5 mm)	0.067 in (1.7 mm)	3.691 in (93.8 mm)	0.071 in (1.8 mm)	3.740 in (95 mm)	0.083 in (2.1 mm)
6.4 in (163 mm)	4.898 in (124.8 mm)	0.394 in (10 mm)	4.922 in (125.5 mm)	0.404 in (10.2 mm)	4.953 in (125.8 mm)	0.406 in (10.3 mm)	4.996 in (126.9 mm)	0.417 in (10.6 mm)

S8050 Position Limiter (D-Shaft Mount) Installation Dimensions						
Sprocket PD	7 mm Flat Top		7.5 mm EDT		8.0 mm Nub Top	
	A	B	A	B	A	B
4.0 in (102 mm)	3.642 in (92.5 mm)	0.055 in (1.4 mm)	3.661 in (93 mm)	0.063 in (1.6 mm)	3.681 in (93.5 mm)	0.067 in (1.7 mm)
5.2 in (132 mm)	4.270 in (108.5 mm)	0.224 in (5.7 mm)	4.291 in (109 mm)	0.228 in (5.8 mm)	4.311 in (109.5 mm)	0.236 in (6 mm)
6.5 in (165 mm)	4.902 in (124.5 mm)	0.394 in (10 mm)	4.921 in (125 mm)	0.398 in (10.1 mm)	4.902 in (124.5 mm)	0.402 in (10.2 mm)
7.7 in (196 mm)	5.287 in (134.3 mm)	0.906 in (23 mm)	5.307 in (134.8 mm)	0.917 in (23.3 mm)	5.323 in (135.2 mm)	0.929 in (23.6 mm)

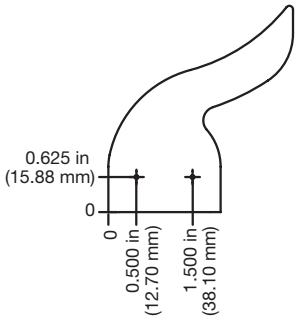
NOTE: Dimensions given are for a wrap angle of 165 degrees. Ensure that the gap between belt and limiter is within the acceptable range of 0.005-0.05 in (0.13-1.25 mm).

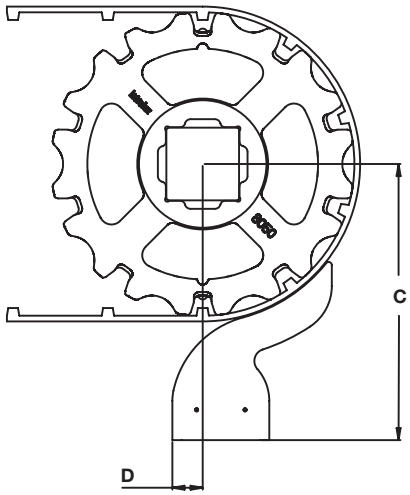


S8026 Position Limiter (Universal Mount) Installation Dimensions								
Sprocket PD	5.3 mm Flat Top		6 mm Flat Top		6.3 mm EDT		7.4 mm Nub Top	
	C	D	C	D	C	D	C	D
3.2 in (81 mm)	4.161 in (105.7 mm)	0.768 in (19.5 mm)	4.188 in (106.4 mm)	0.760 in (19.3 mm)	4.199 in (106.7 mm)	0.756 in (19.2 mm)	4.248 in (107.9 mm)	0.744 in (18.9 mm)
3.9 in (99 mm)	4.476 in (113.7 mm)	0.945 in (24 mm)	4.504 in (114.4 mm)	0.937 in (23.8 mm)	4.520 in (114.8 mm)	0.933 in (23.7 mm)	4.563 in (115.9 mm)	0.921 in (23.4 mm)
6.4 in (163 mm)	5.724 in (145.4 mm)	0.606 in (15.4 mm)	5.752 in (146.1 mm)	0.598 in (15.2 mm)	5.764 in (146.4 mm)	0.594 in (15.1 mm)	5.807 in (147.5 mm)	0.583 in (14.8 mm)

S8050 Position Limiter (Universal Mount) Installation Dimensions						
Sprocket PD	7.0 mm Flat Top		7.5 mm EDT		8.0 mm NT	
	C	D	C	D	C	D
4.0 in (102 mm)	4.465 in (113.4 mm)	0.949 in (24.1 mm)	4.484 in (113.9 mm)	0.941 in (23.9 mm)	4.504 in (114.4 mm)	0.937 in (23.8 mm)
5.2 in (132 mm)	5.083 in (129.1 mm)	0.776 in (19.7 mm)	5.083 in (129.1 mm)	0.776 in (19.7 mm)	5.123 in (130.1 mm)	0.768 in (19.5 mm)
6.5 in (165 mm)	5.713 in (145.1 mm)	0.610 in (15.5 mm)	5.732 in (145.6 mm)	0.603 in (15.3 mm)	5.752 in (146.1 mm)	0.598 in (15.2 mm)
7.7 in (196 mm)	6.496 in (165 mm)	0.161 in (4.1 mm)	6.516 in (165.5 mm)	0.157 in (4 mm)	6.535 in (166 mm)	0.150 in (3.8 mm)

NOTE: Dimensions given are for a wrap angle of 165 degrees. Ensure that the gap between belt and limiter is within the acceptable range of 0.005-0.05 in (0.13-1.25 mm).

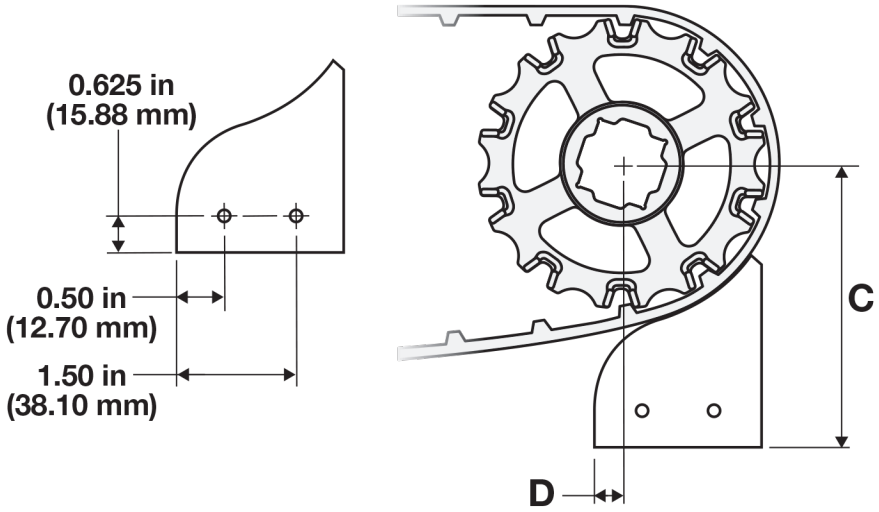


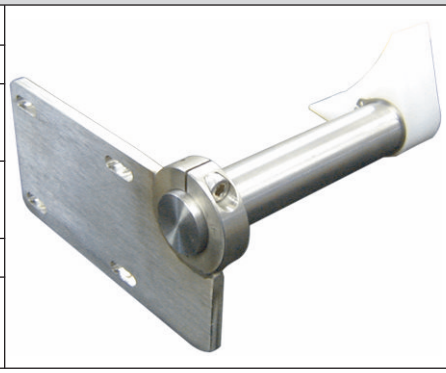


Position Limiter Block Data				
Nom. Pitch Dia. in	Nom. Pitch Dia. mm	Dimensions (HxWxD)		
		in	mm	
2.0	51	3.25 x 2.5 x 1	83 x 64 x 25	
2.5	64			
3.2	81			
3.9	99	3.75 x 3 x 1	95 x 76 x 25	
4.0	102			
5.2	132	4 x 3.25 x 1	102 x 83 x 25	
6.4	163	4 x 3.5 x 1	102 x 89 x 25	
6.5	165			
10.3	262	4.5 x 4.2 x 1	114 x 107 x 25	

S8026 Position Limiter Block Installation Dimensions								
Sprocket PD	5.3 mm Flat Top		6 mm Flat Top		6.3 mm EDT		7.4 mm Nub Top	
	C	D	C	D	C	D	C	D
3.2 in (81 mm)	3.960 in (100.6 mm)	0.768 in (19.5 mm)	3.988 in (101.3 mm)	0.760 in (19.3 mm)	4 in (101.6 mm)	0.756 in (19.2 mm)	4.047 in (102.8 mm)	0.744 in (18.9 mm)
3.9 in (99 mm)	4.587 in (116.5 mm)	0.965 in (24.5 mm)	4.614 in (117.2 mm)	0.957 in (24.3 mm)	4.626 in (117.5 mm)	0.953 in (24.2 mm)	4.673 in (118.7 mm)	0.941 in (23.9 mm)
6.4 in (163 mm)	5.917 in (150.3 mm)	0.626 in (15.9 mm)	5.949 in (151.1 mm)	0.618 in (15.7 mm)	5.961 in (151.4 mm)	0.618 in (15.7 mm)	6.004 in (152.5 mm)	0.606 in (15.4 mm)

S8050 Position Limiter Block Installation Dimensions						
Sprocket PD	7 mm Flat Top		7.5 mm EDT		8 mm Nub Top	
	C	D	C	D	C	D
4.0 in (102 mm)	4.571 in (116.1 mm)	0.969 in (24.6 mm)	4.594 in (116.7 mm)	0.961 in (24.4 mm)	4.614 in (117.2 mm)	0.957 in (24.3 mm)
5.2 in (132 mm)	5.370 in (136.4 mm)	0.799 in (20.3 mm)	5.390 in (136.9 mm)	0.795 in (20.2 mm)	5.409 in (137.4 mm)	0.787 in (20 mm)
6.5 in (165 mm)	5.906 in (150 mm)	0.630 in (16 mm)	5.925 in (150.5 mm)	0.626 in (15.9 mm)	5.945 in (151 mm)	0.618 in (15.7 mm)
7.7 in (196 mm)	6.480 in (164.6 mm)	0.142 in (3.6 mm)	6.5 in (165.1 mm)	0.130 in (3.3 mm)	6.516 in (165.5 mm)	0.118 in (3 mm)
10.3 (262 mm)	7.984 in (202.8 mm)	0.146 in (3.7 mm)	8.004 in (203.3 mm)	0.142 in (3.6 mm)	8.024 in (203.8 mm)	1.378 in (3.5 mm)



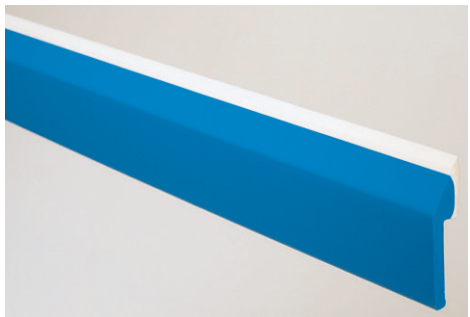
Flighted Belt Position Limiter Kit Data				
Nom. Pitch Dia. in	Nom. Pitch Dia. mm	Dimensions (HxWxD)[a]		
		in	mm	
2.5	64	1.5 x 3 x 1	38 x 76 x 25	
3.2	81			
3.9	99	2 x 2 x 1	51 x 51 x 25	
4.0	102			
5.2	132	2.5 x 2 x 1	64 x 51 x 25	
6.4	163	3 x 2 x 1	76 x 51 x 25	
6.5	165			

[a] Dimensions do not include mounting plate.

SCRAPERS

SCRAPER SELECTION CONSIDERATIONS

- Plan to use position limiters with any scraper.
- Only the EZ Mount Flex Tip Scraper is available from Intralox. Source alternate scrapers from other vendors based on design guideline criteria. See Belt Scraper.
- Only use the EZ Mount Flex Tip Scraper in wet or greasy applications where the flexible tip material remains moist.

EZ Mount Flex Tip Scraper Data					
Available Height		Available Length		Material	
in	mm	in	mm		
2.75	70	72	1830	rigid PVC base with flexible polyurethane tip	
• Available only in one size • Can be cut to length upon receipt • Designed for wet or greasy product applications • Not for use with dry products or applications • FDA Compliant; does not meet EU regulations for food safety					

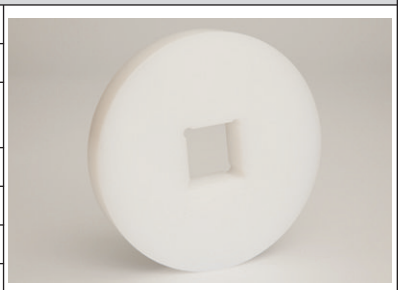
SUPPORT WHEELS AND ROLLERS

S8026 AND S8050 IDLE END

- Support wheels and rollers are compatible with S8026 and S8050 belts unless otherwise indicated.
- Support wheels are designed for use on square shafts. When using round shafts, use return rollers.
- Support wheel and roller diameters must meet the minimum sprocket diameter required for the belt.
- Choose flanged rollers only for shaft outside ends when belt containment is required.
- Contact Intralox Customer Service for lead times.

ThermoDrive Support Wheel Data[a]

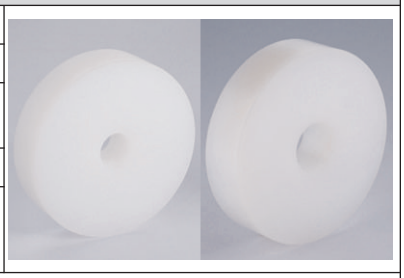
Nom. Wheel Dia. in	Nom. Wheel Dia. mm	Nom. Hub Width in	Nom. Hub Width mm	Available Bore Sizes			
				U.S. Sizes		Metric Sizes	
				Round in	Square in	Round mm	Square mm
3.9	99	1.0	25		1.5		40
5.2	132	1.0	25		1.5		40
6.5	165	1.0	25		1.5		40
7.7	196	1.0	25		1.5		
					2.5		
10.3	262	1.0	25		1.5		
					2.5		



[a] Designed to work with corresponding diameter sprockets; material is UHMW-PE.

ThermoDrive Return Roller Data[a]

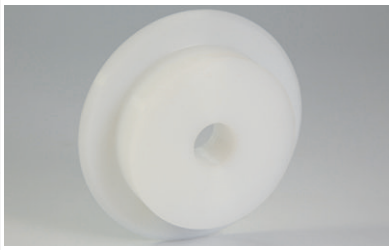
Nom. Roller Dia. in	Nom. Roller Dia. mm	Nom. Hub Width in	Nom. Hub Width mm	Available Bore Sizes			
				U.S. Sizes		Metric Sizes	
				Round in	Square in	Round mm	Square mm
4.0	102	1.0	25	0.75			
4.0	102	1.0	25	1.0			



[a] Material is UHMW-PE.

ThermoDrive Flanged Roller Data[a]

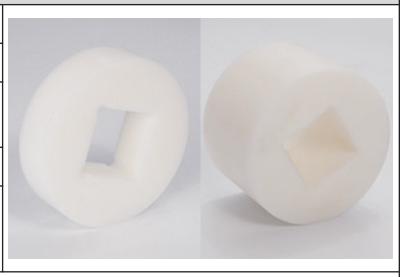
Nom. Roller Dia. in[b]	Nom. Roller Dia. mm[c]	Nom. Hub Width in[d]	Nom. Hub Width mm[e]	Available Bore Sizes			
				U.S. Sizes		Metric Sizes	
				Round in	Square in	Round mm	Square mm
4.0	102	1.0	25	0.75			
4.0	102	1.0	25	1.0			



[a] Material is UHMW-PE.
[b] Flange of 0.75 in (19 mm) is not included in nominal roller diameter; actual roller diameter is 5.5 in (140 mm).
[c] Flange of 0.75 in (19 mm) is not included in nominal roller diameter; actual roller diameter is 5.5 in (140 mm).
[d] Flange is not included in nominal hub width; actual hub width is 1.23 in (31 mm).
[e] Flange is not included in nominal hub width; actual hub width is 1.23 in (31 mm).

S8126 IDLE END

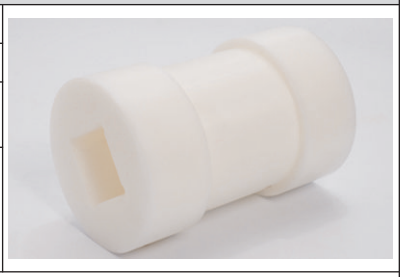
S8126 Idle End Component Quantity Reference Data												
Belt Width		2.5 in (65 mm) Wide Flanged Support Roller	2.5 in (65 mm) Wide Support Roller	1 in (25 mm) Wide Support Roller	6 in (152 mm) Wide Tail Roller	SS Heavy-duty Split Retainer Ring	Component Spacing Edge to Edge		Minimum Total Belt Edge Clearance		Minimum Length of Square Portion of Shaft	
in	mm	Quantity	Quantity	Quantity	Quantity	Quantity	in	mm	in	mm	in	mm
10	254	2	0	0	1	2	0	0	0.25	7	11.25	286
11	279	2	0	0	1	6	1	25	0.25	7	13.25	337
12	305	2	0	0	1	6	1	25	0.25	7	13.25	377
13	330	2	0	0	1	6	1.5	38	0.25	7	14.25	362
14	356	2	0	0	1	6	2	51	0.25	7	15.25	387
15	381	2	0	0	1	6	2.5	64	0.25	7	16.25	413
16	406	2	0	2	1	6	1	25	0.25	7	17.25	438
17	432	2	0	2	1	10	1.25	32	0.25	7	18.25	718
18	457	2	0	2	1	10	1.5	38	0.25	7	19.25	489
19	483	2	0	2	1	10	1.75	44	0.25	7	20.25	514
20	508	2	0	2	1	10	2	51	0.25	7	21.25	540
21	533	2	0	2	1	10	2.25	57	0.25	7	22.25	565
22	559	2	0	2	1	10	2.5	64	0.25	7	23.25	591
23	584	2	2	0	1	10	2	51	0.25	7	24.25	616
24	610	2	2	0	1	10	2.25	57	0.25	7	25.25	641

S8126 Acetal Support Wheel Data[a]								
Nom. Roller Dia. in	Nom. Roller Dia. mm	Nom. Hub Width in	Nom. Hub Width mm	Available Bore Sizes				
				U.S. Sizes		Metric Sizes		
				Round in	Square in	Round mm	Square mm	
4.0	102	1.0	25		1.5		40	
4.0	102	2.5	64		1.5		40	

[a] Contact Intralox Customer Service for lead times.

S8126 Acetal Flanged Roller Data[a]								
Nom. Roller Dia. in	Nom. Roller Dia. mm	Nom. Hub Width in	Nom. Hub Width mm	Available Bore Sizes				
				U.S. Sizes		Metric Sizes		
				Round in	Square in	Round mm	Square mm	
4.0	102	2.5	64		1.5		40	

[a] Contact Intralox Customer Service for lead times.

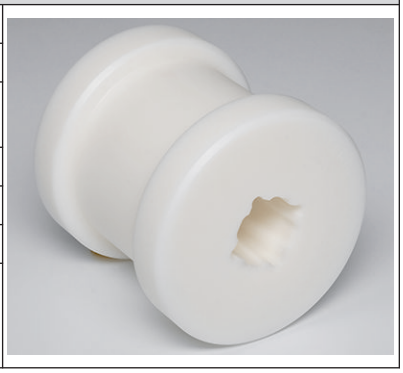
S8126 Acetal Tail Roller Data[a]								
Nom. Roller Dia. in	Nom. Roller Dia. mm	Nom. Hub Width in	Nom. Hub Width mm	Available Bore Sizes				
				U.S. Sizes		Metric Sizes		
				Round in	Square in	Round mm	Square mm	
4.0	102	6.0	152		1.5		40	

[a] Contact Intralox Customer Service for lead times.

S8140 IDLE END

- Support wheels and rollers are compatible with S8140 belts only.
- Support wheels are designed for use on square shafts. When using round shafts, use return rollers.
- Support wheel and roller diameters must meet the minimum sprocket diameter required for the belt.
- Choose flanged rollers only for shaft outside ends when belt containment is required.
- Contact Intralox Customer Service for lead times.

S8140 Acetal Support Wheel Data								
Nom. Roller Dia. in	Nom. Roller Dia. mm	Nom. Hub Width in	Nom. Hub Width mm	Available Bore Sizes				
				U.S. Sizes		Metric Sizes		
				Round in	Square in	Round mm	Square mm	
5.0	127	2.0	51		1.5		40	
5.0	127	4.0	102		1.5		40	
6.0	153	2.0	51		1.5		40	
6.0	153	4.0	102		1.5		40	
9.1	231	2.0	51		1.5		40	
9.1	231	4.0	102		1.5		40	
9.1	231	2.0	51		2.5			
9.1	231	4.0	102		2.5			

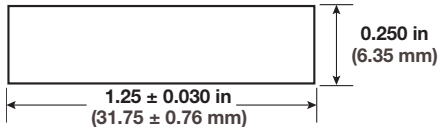
S8140 Acetal Tail Roller Data								
Nom. Roller Dia. in	Nom. Roller Dia. mm	Nom. Hub Width in	Nom. Hub Width mm	Available Bore Sizes				
				U.S. Sizes		Metric Sizes		
				Round in	Square in	Round mm	Square mm	
5.0	127	6.0	153		1.5		40	
6.0	153	6.0	153		1.5		40	
9.1	231	6.0	153		1.5		40	
9.1	231	6.0	153		2.5			

16 CARRYWAY AND RETURNWAY COMPONENTS

SUPPORT RAILS/WEARSTRIPS

STANDARD FLAT WEARSTRIPS

- Standard flat wearstrips are available in UHMW-PE measuring 0.25 in (6 mm) thick x 1.25 in (32 mm) wide x 120 in (3 m).
- UHMW-PE wearstrips are FDA and USDA compliant for direct food contact.



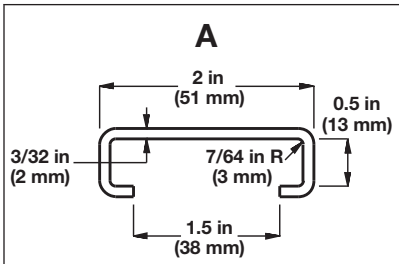
0.25 in X 1.25 in X 120 in Long Flat UHMW Wearstrip (B6XX31IXXWMV)

NOTE: Only recommended for installation with S8126 belting.

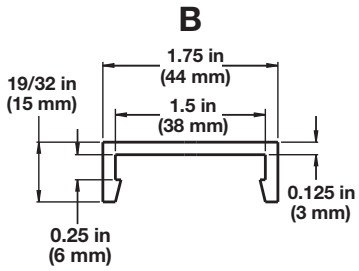
SPECIALTY WEARSTRIPS

Intralox offers various clip-on wearstrips including the following:

- For new applications, use flat wearstrips with wide surface area for carryways and returnways.
- Use clip-on wearstrips only for lightly loaded retrofit applications or to prove concepts. They are not recommended for normal production operation.
- Contact Intralox Customer Service for application-specific information.



120 in (3.0 m) guide rail Snap-On UHMW wearstrips (B6XX27IXXWMV)

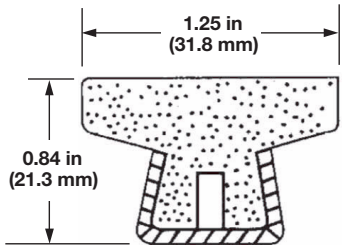


120 in (3.0 m) Barbed Clip-On UHMW wearstrips (B6XX23IXXWMV)

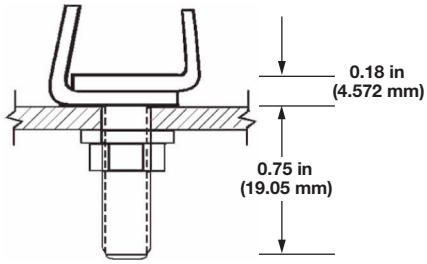
STAINLESS STEEL-BACKED UHMW-PE WEARSTRIP COMPONENTS

- For new applications, use flat wearstrips with a wide surface area for carryways and returnways.
- Only use stainless steel-backed UHMW-PE wearstrips for lightly loaded retrofit applications or to prove concepts.
- Stainless steel-backed UHMW-PE wearstrips can create a rigid belt carryway surface on any frame with cross members.
- Stainless steel-backed UHMW-PE wearstrips should be mounted to cross members with a self-tightening stainless steel clamp with nut (sold separately).
- Wearstrips can be installed in parallel, chevron, or other configurations.
- Ensure installation design allows for thermal expansion and contraction.
- Chamfer or bend down the leading edges of any wearstrip.
- Recommended for temperatures up to 160°F (71°C)

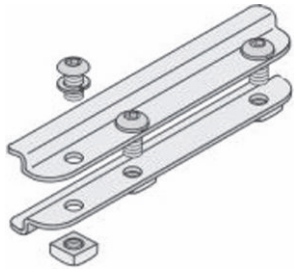
NOTE: Recommended for Trough Retrofit Set installations.



"T" 120 in (3.05 m) Stainless Steel Back UHMW Wearstrip (B6XX42IXXWMV)



Self-tightening Stainless Steel Wearstrip clamp with nut 5/16-18 UNC (C9AX1XXXXXXX)



6 in (152 mm) Stainless Steel Connector for Stainless Steel Back Wearstrip (C4BXXXXXXXMT)

SHAFTS

Select round or square shafts as needed for carryway and returnway component installation.

- Intralox offers customized square shafts. See Square Shaft Considerations.
- Round shafts are not available from Intralox.

RETURN ROLLERS

See Support Wheels and Rollers.

TROUGH CONVERTER

The ThermoDrive Trough Converter is designed to provide components to quickly and simply upgrade an existing tensioned, flat belt, troughed conveyor for use with tensionless ThermoDrive technology. The trough converter is also used for new conveyor installation.

- The frame has a center-mounted carryway support that is round or square (at a 45-degree angle).
- The application is compatible with a curved trough shape.
- Belts can be any style of S8026 or S8050 (compatible with full-length drive bars, trough grooves, or drive bar removal); with a minimum width of 10 in (254 mm) and a maximum of 42 in (1067 mm); belts can be spliced.
- The trough converter is not compatible with ThermoLace or metal lace belts.

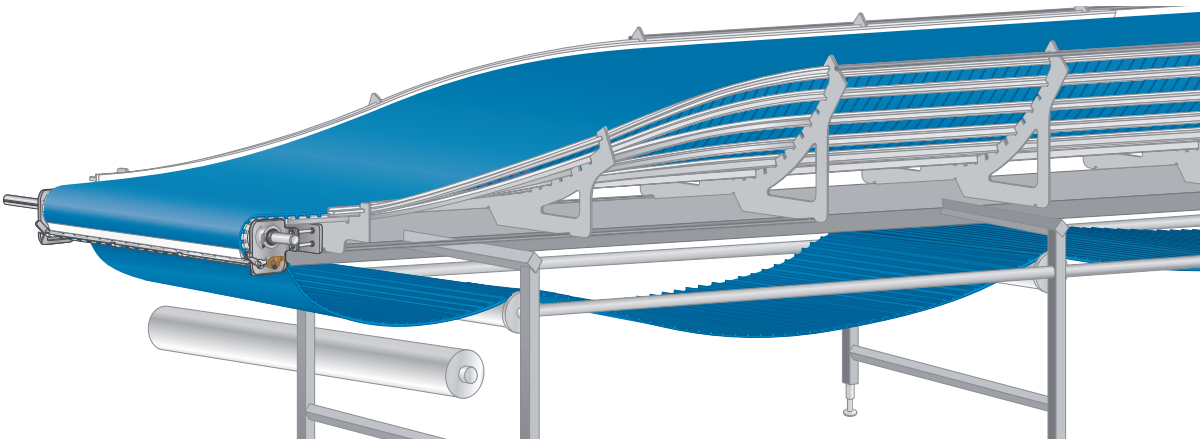


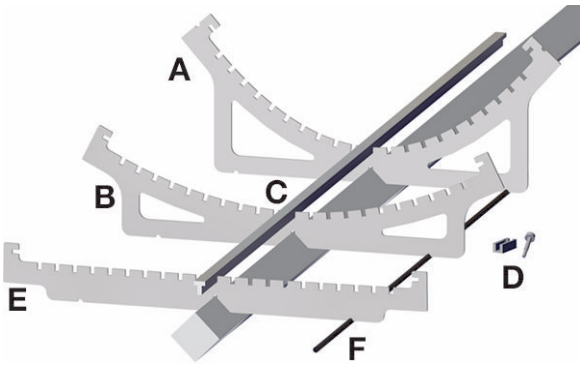
Figure 54: Trough converter

Components:

- Bracket set includes stainless steel flat, transition, and trough brackets
- 120 in (3048 mm) 304/304L stainless steel rod with 0.625 in (16 mm) diameter to reinforce bracket rigidity

- 120 in (3048 mm) UHMW-PE T-shape wearstrips with 1.54 in (39 mm) height and 1.3 in (33 mm) contact surface width
- Wearstrip notching kit

Troughed conveyors must meet specifications in the *ThermoDrive Trough Converter Audit Form.* Installation Instructions can be found at www.intralox.com.



A Trough bracket
B Transition bracket
C Wearstrip
D Wearstrip notching kit
E Flat bracket
F Steel rod

Figure 55: Trough converter components

17 SPLICING EQUIPMENT

THERMODRIVE SPLICING SYSTEM V2

NOTE: The ThermoDrive Splicing System V2 is no longer available for sale. Intralox continues to stock replacement parts and repair these units. Contact Intralox Customer Service for details.

This patented belt splicing solution provides tools to prepare belt ends and efficiently splice them in the field. The splicer is compatible with Intralox ThermoDrive conveyor belt series and styles up to 42 in (1067 mm) wide.

Compatible with S8026, S8050, and S8126 belts up to 42 in (1067 mm) wide.

Not compatible with S8140 belts.

ThermoDrive Splicing System V2 includes the following components:

- Clamping fixture with crank handle
- Top clamps/cut guides
- Heat wand and stand
- Control box and cord
- User manual
- Small Tool Accessory pack with trim tools, belt tabs, and sample material
- Storage case

The splicer is an all-metal fixture that safely controls the position of the belt ends as the heat wand is used to melt and join belt ends for splicing. The splicer includes top clamps/cut guides, grooved decks for belt end alignment, and a crank handle. The sturdy storage case houses all components and includes casters and a handle to transport the unit for belt installation and repair.

Compliance: CE, PSE-circle, CB Scheme Certification DE3-14014

Warranty: One year

Figure 56: ThermoDrive Splicing System V2 and components

Splicing System V2										
Max. Belt Width		Min./Max. Temp. Range		Electric Power Supply	Complete Set Weight		Splicer			
							Dimensions (LxWxH)		Weight	
in	mm	°F	°C	V	lb	kg	in	mm	lb	kg
24	610	425–500	218–260	100–127 / 220–240	140	63	33.75 x 11.5 x 4.5	857 x 292 x 114	45	20
42	1067			100–127 / 220–240	165	75	51.75 x 13.125 x 4.75	1314 x 333 x 121	70	32

THERMODRIVE STREAMLINE SPLICING SET

This patented belt splicing solution provides tools to prepare belt ends and efficiently splice them in the field. The splicer is compatible with all Intralox ThermoDrive conveyor belt series and styles up to 72 in (1829 mm) wide.

The ThermoDrive Streamline Splicing Set includes the following components.

- Streamline splicer
- Control box and cord
- Hand-held belt preparation tool
- User manual
- Small tool accessory pack with trim tools and sample material
- Storage case

The Streamline Splicing Set is compatible with S8140 belting when paired with the corresponding S8140 deck inserts and S8140 splicer accessory pack.

The streamline splicer is a metal fixture that safely and precisely controls the position of the belt and the movement of the heating element during splicing. This simplifies the process and ensures an accurate result. The splicer includes top clamps, S8026/S8050 deck inserts, a crank handle, and a self-contained heating element.

The rugged storage case neatly houses all components and includes large casters and handles to transport the unit for belt installation and repair.

Compliance: CE, PSE-circle, CB Scheme, cETLus Intertek 5013615

Warranty: one year

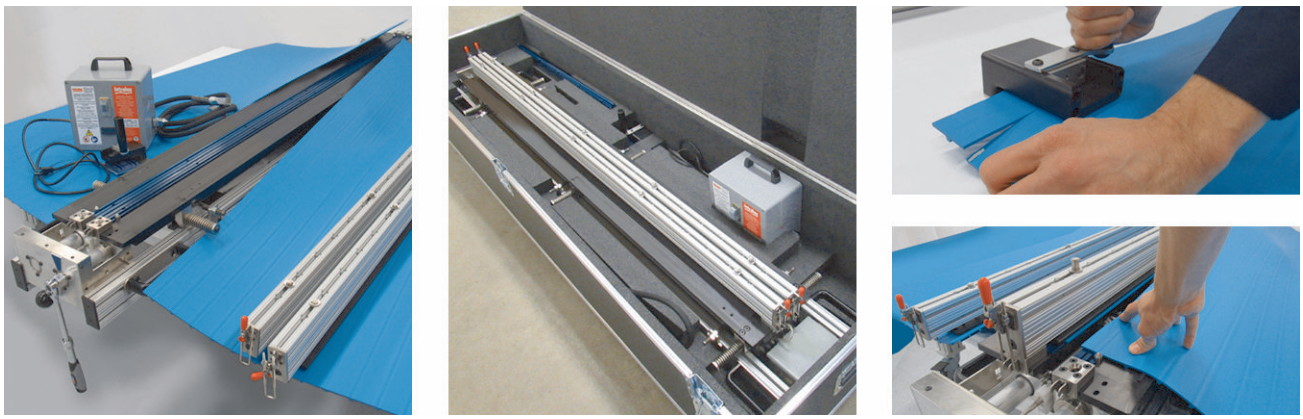


Figure 57: ThermoDrive Streamline Splicing Set and components

Streamline Splicing Set								
Max. Belt Width		Electric Power Supply	Complete Set Weight		Splicer			
					Dimensions (LxWxH)		Weight	
in	mm	V	lb	kg	in	mm	lb	kg
24	610	100–127 / 220–240	198	90	38.5 x 16.5 x 11.4	2388 x 419 x 292	78	35
42	1067	100–127 / 220–240	280	127	56 x 16.5 x 11.4	1422 L x 419 W x 292 H	110	50
56	1422	100–127 / 220–240	338	153	75.5 x 16.5 x 11.4	1918 x 419 x 292	146	66
72	1829	100–127 / 220–240	372	169	91 x 16.5 x 11.4	2311 x 419 x 290	220	100

Splicing Temperatures and Times						
Belt Material	Belt Series		Setpoint (°F)	Setpoint (°C)	Melt Time (seconds)[a]	Cool Time (minutes)
Polyurethane	8026	test	450	232	45[b]	2
	8050		450	232	45	2
	8126		450	232	45	2
Cold Use	8026		450	232	30	2
	8050		450	232	30	2
Dura	8050		430	221	40	2
HTL	8050		500	260	75	2
XT	8050		475	246	60	2
PUR A23	8050		450	232	45	2
	8140		450	232	45	2

[a] Extreme ambient conditions can require an increase or decrease in melting time.
[b] The recommended melt time for polyurethane Nub Top 6.3 mm is 30 seconds.

STREAMLINE SPLICER DECK INSERTS

Deck inserts are compatible only with the ThermoDrive Streamline Splicing Set. Deck inserts provide the option to remove the S8026/S8050 decks that come with the integrated wand splicer to allow for splicing other belt styles. S8140 deck inserts are required to splice S8140 belting.

S8140 Streamline Splicer Deck Insert Data	
Standard Deck Insert Sizes	
U.S. Sizes	Metric Sizes
in	mm
24	610
42	1067
56	1422
72	1829

- Interchangeable deck insert for the ThermoDrive Streamline Splicing Set
- Inserts sold individually; quantity of two (2) needed per splicer
- Choose insert size based off the corresponding size of the splicer
- Required to splice S8140 belting
- Made of anodized aluminum

SPLICING EQUIPMENT SPARE COMPONENTS

Contact Intralox Customer Service to purchase replacement components for any ThermoDrive splicing equipment.

Available components include, but are not limited to, the following:

- Temperature control boxes
- Deck inserts
- Wand cords
- Carrying handles
- Crank handles
- Heat wands
- Silicone spacer kits
- Teflon tape
- Pitch gauge
- Plug adapter
- Top clamps
- Skiving tool
- Belt preparation tool handle
- Belt preparation tool grooved guide
- Belt preparation tool hook blade
- Storage case
- Accessory packs

S8140 STREAMLINE SPLICING SET ACCESSORY PACK

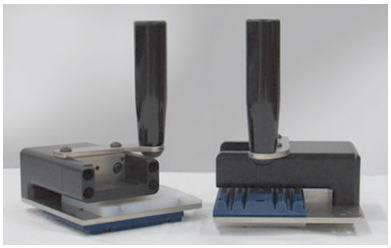
S8140 Streamline Splicing Set Accessory Pack	
• S8140 accessory pack for the ThermoDrive Streamline Splicing Set • Available sizes: 24 in, 42 in, and 60 in • Pack Includes: - TD S8140 Prepared End Cut Guide[a] - TD S8140 Pitch Gauge - TD S8140 Splicing Instructions - Double-sided polyethylene plastic mounting tape - UHMW-PE sheet	
[a] Cut guides are also sold separately.	

THERMODRIVE STREAMLINE HAND-HELD BELT PREPARATION TOOL

This patented, manual cutting device uses a concealed cutting blade and grooved guide plates to quickly and accurately prepare belt ends for splicing. The cutting blade is replaceable and guide plates are interchangeable to accommodate different belt series.

- Provided with every streamline splicing set

- Available as a separate purchase for use with Splicing System V2 or similar
- Not compatible with S8126 belt, S8140 belt, or drive bar removal over 3 in (72 mm) wide



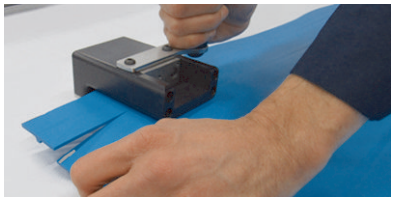


Figure 58: Hand-held belt preparation tool

Hand-Held Belt Preparation Tool			
Dimensions (LxWxH)		Weight	
in	mm	lb	kg
5 x 5 x 7	127 x 127 x 178	3.6	1.6

THERMODRIVE BELT END ROUTER SET

The ThermoDrive Belt End Router Set is designed to remove ThermoDrive S8050 Ribbed V-Top belt profiles from prepared belt ends before splicing. Once the belt is cut to length (i.e., "prepared"), the router removes about 0.125 in (3.2 mm) of total belt thickness from the belt's prepared end. The resulting smooth surface allows for splice bead removal without leaving bacteria harborage points.

The set is available as a separate purchase for use with all ThermoDrive splicing systems.

The ThermoDrive Belt End Router Set includes the following components:

- Belt end router
- Grooved guide
- Depth adjustment plate
- Square silicone spacers
- Vacuum hose adapter
- Router bit
- User manual
- Storage case

Figure 59: Belt end router set

Belt End Router				
Dimensions (LxWxH)		Weight		Electric Power Supply
in	mm	lb	kg	V
7 x 7 x 10	178 x 178 x 254	12	5.4	110 / 220

18 BELT MATERIAL PROPERTIES

MATERIAL COMPLIANCE

FDA Compliant: The material meets the FDA requirements described in the applicable Code of Federal Regulations, chapter 21, part 177 as noted. The material is chemically acceptable to the USDA for repeat use applications in slaughtering, processing, transporting, and storage areas in direct contact with meat or poultry products.

EU Compliant: The material complies with the framework regulation 1935/2004/EC. The monomers and additives used to make the plastic are listed in the Union List. When tested to the criteria described in EU Regulation 10/2011, the finished article did not exceed the overall migration limit (OML) and any applicable specific migration limits (SML).

3A Dairy Tested: This test is based on materials, not product design. In accelerated-use testing, the materials maintain essential functional properties and surface finish when cleaned and sanitized.

Belt Material Compliance[a]				
Material Name	**FDA Compliant**	**EU Compliant**	**3A Dairy Tested**	**3A Certified[b]**
Cold Use (CU)	21 CFR 177.2600	1935/2004 EC, Regulation 10/2011	18-03	1421
Dura	21 CFR 177.2600	1935/2004 EC, Regulation 10/2011	18-03	1421
High Temp Heavy Load (HTL)	21 CFR 177.2600	1935/2004 EC, Regulation 10/2011	18-03	1421
Polyurethane blue	21 CFR 177.2600	1935/2004 EC, Regulation 10/2011	18-03	1421
Polyurethane white	21 CFR 177.2600	1935/2004 EC, Regulation 10/2011	18-03	1421
Extreme Temperature (XT)	21 CFR 177.2600	21 CFR 177.2600	18-03	1421
Polyurethane A23	21 CFR 177.2600	21 CFR 177.2600	18-03	1421

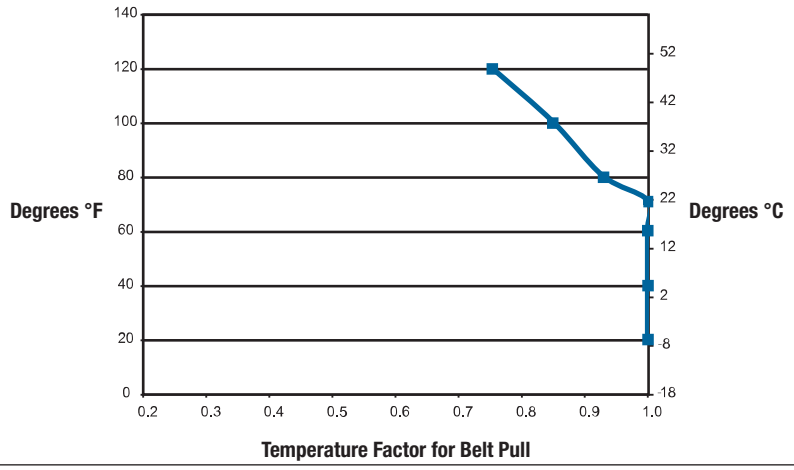
[a] Contact Intralox Customer Service to verify compliance for specific material color combinations for specific applications.
[b] Belting meets 3A Sanitary Standards for design and fabrication.

TEMPERATURE FACTORS

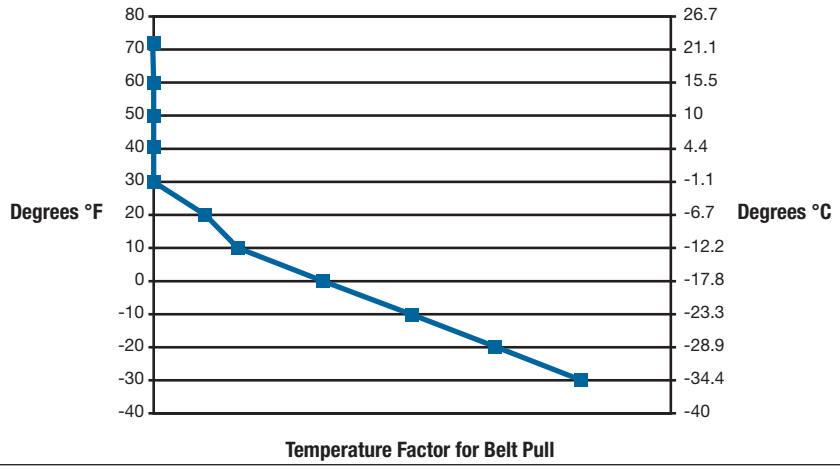
Temperature affects the physical properties of thermoplastic materials. Generally, as the facility or operating temperature increases, belts weaken in strength and become tougher and more impact resistant. Conversely, as the facility or operating temperature decreases, belts can become stiff or brittle.

This is why Intralox offers several belt materials in the ThermoDrive product line. The Temperature Factor graphs show the effect of temperature on belt strength. Use this information to calculate belt analysis or contact Intralox Customer Service for a computer analysis of your design that automatically incorporates temperature factors for your application.

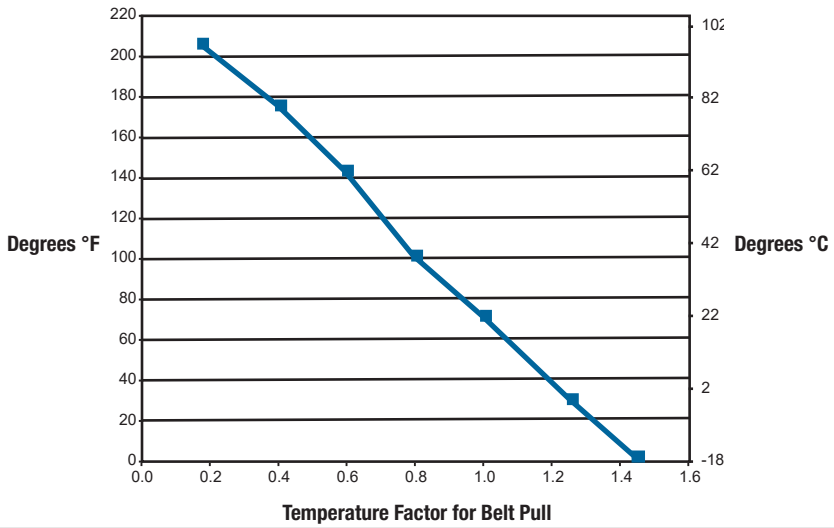
Temperature Factor for Polyurethane Material



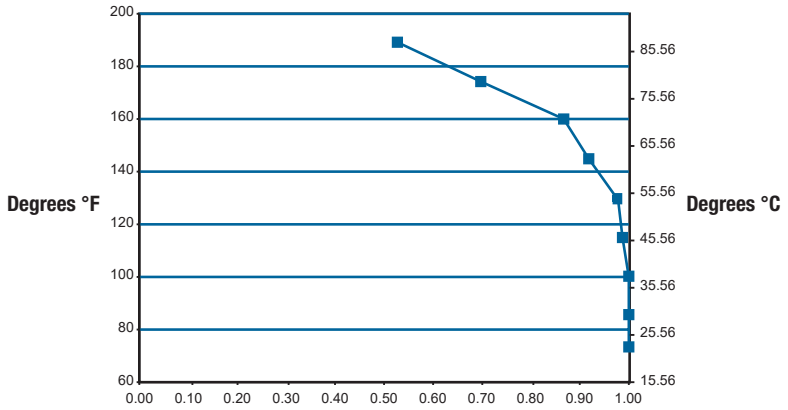
Temperature Factor for Cold Use Material



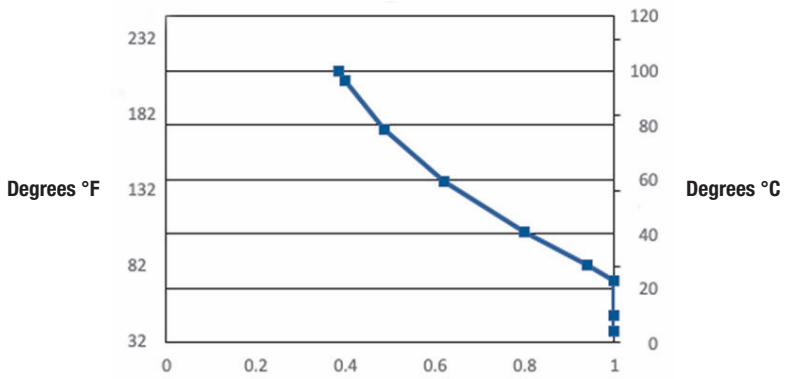
Temperature Factor for Dura Material



Temperature Factor for HTL Material



Temperature Factor for PUR A23 Material



BELT CHEMICAL RESISTANCE GUIDE

The chemical resistance chart is provided for general reference. Many conditions in an application can change the belt chemical resistance. No guarantee of chemical resistance is given or implied.

Belt resistance to chemicals referenced can be enhanced by reducing product temperature, chemical concentration, or exposure time.

Belt Chemical Resistance Table[a]					
Chemical/Substance	**Polyurethane**	**Cold Use**	**Dura**	**PUR A23**	**HTL**
Continuous Use Hot Water (80°C-100°C)					
Intermittent Sanitization Use Hot Water (up to 100°C)					
Sodium Hypochlorite					
Quaternary Ammonium					
Ethanol					
Hydrogen Peroxide					
Peracetic Acid					
Acetic Acid			*		
Nitric Acid			*		
Phosphoric Acid					
Citric Acid					*
Lactic Acid					*
Sulfuric Acid		*			
Sodium Hydroxide		*			
Potassium Hydroxide					
Peanut Oil		*			*
Mint Oil		*			*
Corn Oil		*			*
Garlic Oil			*	*	
Palm Oil		*			*
Sunflower Oil		*			*
Canola Oil					

* Limited information. Contact TSG to see if further information exists.

[a] For questions that are not covered by this chart, contact TSG.

Legend:		
Good		Generally acceptable at all relevant concentrations
Partially Resistant		Depends on the concentration; contact TSG
Bad		Generally unacceptable at all relevant concentrations

CONTACT

Intralox, L.L.C. USA, New Orleans, LA • +1-800-535-8848 • +1-504-733-0463
Intralox, L.L.C. Europe, Amsterdam, The Netherlands • +800-4687-2569 • +31-20-540-36-00
Intralox Shanghai LTD., Shanghai, China • 4008-423-469 • +86-21-5111-8400

For country- and industry-specific contact information, see www.intralox.com.