

The logo for intralox, featuring the word "intralox" in white lowercase letters on a red rectangular background. Below the text is a stylized white graphic of a chain or molecular structure.

2018

ENGINEERING MANUAL

THERMODRIVE® TECHNOLOGY

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 Conveyor Belting Engineering Manual*.

The recommendations provided in the Design Guidelines have proven successful for most installations. Failure to follow the guidelines presented in this manual can result in improper 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.

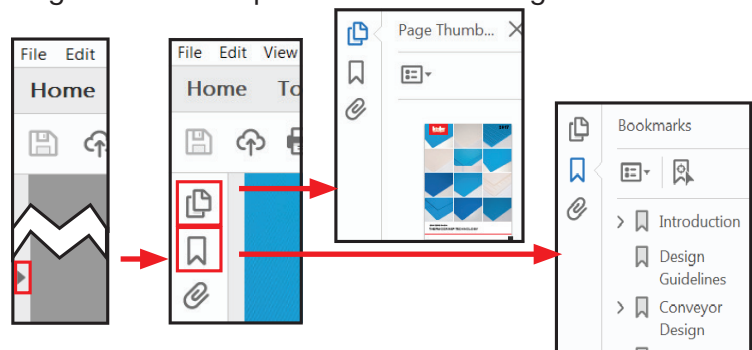
ACCESS AND NAVIGATION

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.
- Electronic manuals include the following features to improve document navigation.*

- ◇ PDF bookmarks
- ◇ PDF page thumbnails
- ◇ Embedded links at each Table of Contents entry, cross-reference, and hyperlink

*These features were tested with Adobe Acrobat Reader DC (<https://get.adobe.com/reader/>). Other PDF readers may not support these features.



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 next July.
- New product information is available from Intralox Customer Service until the manual is updated.

CONTENT

DESIGN GUIDELINES

- Content is organized by conveyor feature: frame, drive end, idle end, carryway, returnway, and containment.
- Some products referenced in the Design Guidelines are not available from Intralox.
- Hygienic recommendations are provided for applications requiring increased sanitation.

PRODUCT LINE

- Content is organized by component type: belting, drive and idle end, and carryway/returnway.
- Content includes only Intralox components that are compatible with ThermoDrive belts.

WARRANTY INFORMATION

Intralox warrants that: (A) for 1 (one) year from date of shipment, it will repair or replace, at its sole option, and excepting normal wear and tear or abuse, any goods found to be defective in materials and workmanship; (B) services performed shall be of good and workmanlike quality and sufficient for Purchaser to reach operational status. During the first 90 (ninety) days after completion of the services, Intralox shall make any necessary repairs or adjustments to the services. Purchaser shall notify Intralox of any alleged breach of warranty within 30 days of the date that the alleged breach was or should have been discovered, or be barred from any remedy. In no case shall Purchaser return any goods under this limited warranty without Intralox's prior written approval. Except in the case of injury to the person, this limited warranty extends only to the original Purchaser.

For product warranty details, refer to the Terms and Conditions statement on your sales confirmation order.

WARNING

Intralox is specifically not responsible for property damage and/or personal injury, direct, or indirect, or for damages and/or failures caused by improper machine design, application, installation, operation, abuse and/or misuse of its products.

Intralox does not warrant that the design and/or operational function of any machine that incorporates and/or intends to incorporate Intralox products, conforms to any local, state and/or federal regulations and standards relating to public safety, worker safety, safety guards, sanitation safety, fire safety, or any other safety regulations. All customers and users should consult their appropriate local, state, and federal safety regulations and standards.

Flammable: Intralox products are made of plastic and are flammable. If exposed to open flame or to temperatures above Intralox specifications, these products can burn and may emit dangerous and toxic fumes. Do not expose Intralox conveyor belting to extreme temperatures or open flame.

Before 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 energy (lockout/tagout).

PATENTS

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

Intralox, L.L.C. manufactures ThermoDrive products under the following patents: 7850562; 8464862; 8596622; 8695790; 9097332; 9151357; 9242801; 9296565; 9359141; 9527672; 9555971; 9751695; 9796135; 9914591; Other U.S. and foreign patents pending.

For a current list of patents, visit www.intralox.com/pat/.

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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 an 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, predictable 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 patents currently in force 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.

- Hygienic belts and components, like our ThermoDrive products, that optimize belt performance using patented, tensionless technology
- Research and development through on-going 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, technically trained experts



CUSTOMER RESOURCES

For unique or extreme conveyor designs or general assistance when considering ThermoDrive solutions, contact Intralox for assistance. 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. Specific belt and drive calculations, as well as component requirements and suggestions, can be provided.

CAD DRAWING FILES: [AutoCAD.DXF](#) files for ThermoDrive sprockets and limiters are available. The files contain product details that can be used in CAD conveyor designs. Visit www.intralox.com for files.

HYGIENIC CONSULTING AND EDUCATION:

Commercial Food Sanitation, 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.commercialfoodsantiation.com.

PRODUCT LITERATURE: Intralox offers additional technical and instruction documents for some products listed in this manual. Visit www.intralox.com or contact Intralox for downloads. For ThermoDrive user manuals, see <http://www.intralox.com/print-and-multimedia.aspx>.

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



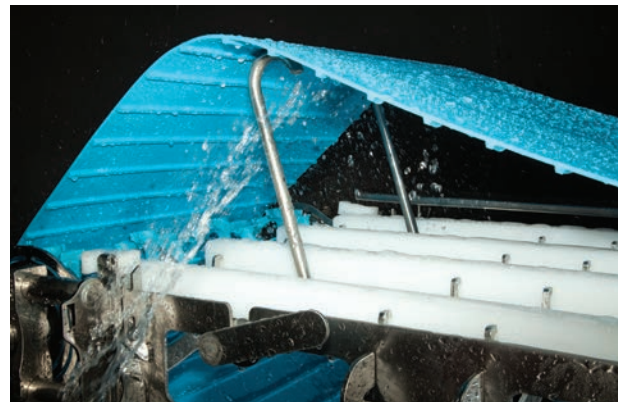
THERMODRIVE TENSIONLESS BELT SYSTEM

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.

- It eliminates the costs and complex adjustments associated with managing a tensioned positive drive or flat belt system.
- It provides reliable, predictable drive performance and reduces costs with extended belt life, minimal component wear, and improved yield.

ThermoDrive technology provides new opportunities in hygienic conveyance design.

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



Design Guidelines

CONVEYOR DESIGN

DESIGN CONSIDERATIONS

The Intralox ThermoDrive tensionless belt system offers various belt styles, materials, and colors. Once a belt is selected, many fabrication choices—such as perforations, grooves, flights, and sidewall—are available.

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

- Conveyance requirements: horizontal, elevating, inclining
- Overall dimensions of the installed belt
- Speed of belt travel
- Product being conveyed: weight, shape, size, temperature, moisture content, texture, stickiness
- Processes: heating, cooling, washing, rinsing, draining, drying, cleaning
- Hygienic and cleaning requirements
- Operating environment: temperature, humidity, chemical nature, abrasive nature
- Drive system type
- 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” on page 39.
 - ◇ Never pre-tension ThermoDrive belts.
 - ◇ Ensure the belt has extra length and hangs loosely in the return path. Install position limiters correctly and rigidly to ensure ThermoDrive tensionless operation.

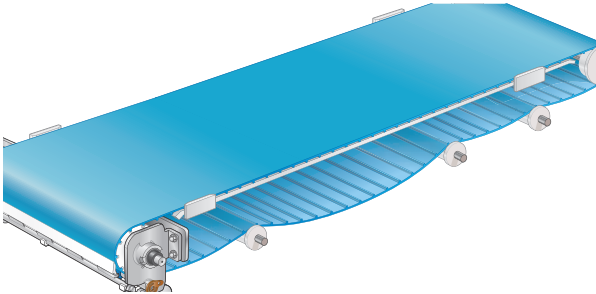


Figure 1

- 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” on page 91.
- 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. See *Product Line, “Belts”* on page 61.

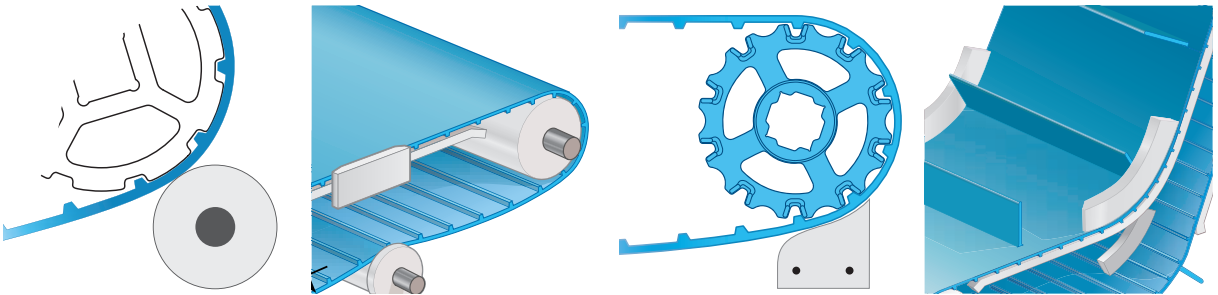


Figure 2

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

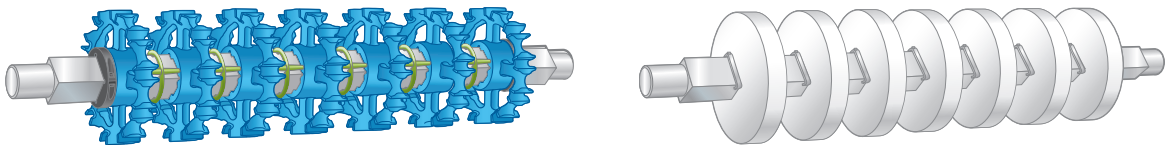
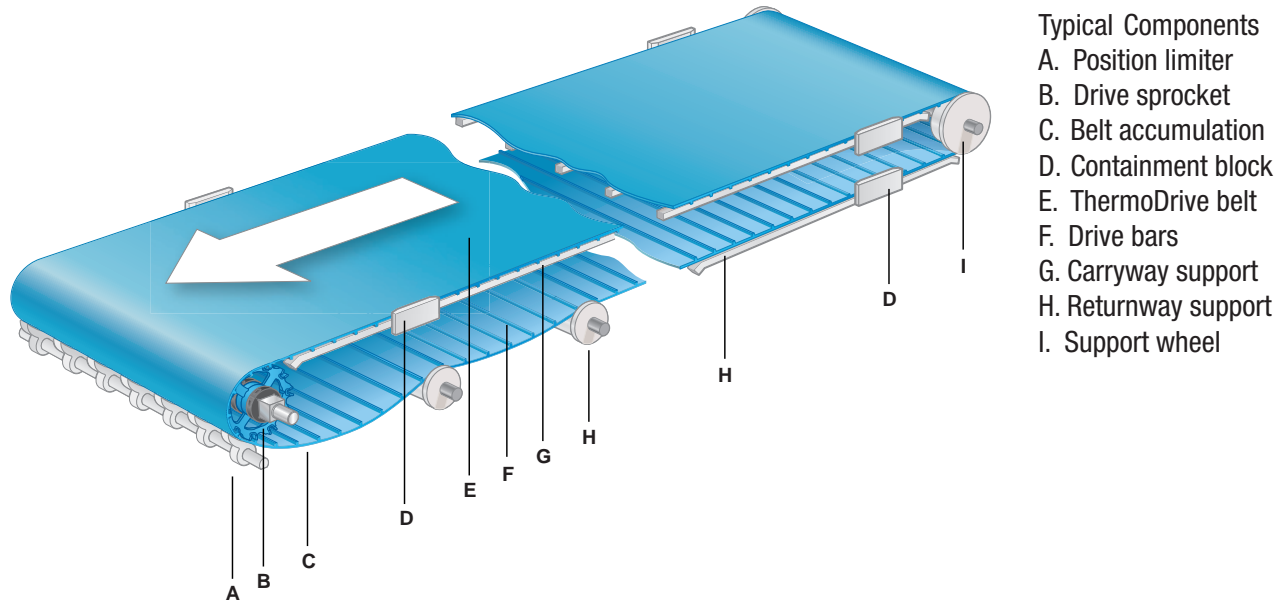


Figure 3

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



- Typical Components
- A. Position limiter
 - B. Drive sprocket
 - C. Belt accumulation
 - D. Containment block
 - E. ThermoDrive belt
 - F. Drive bars
 - G. Carryway support
 - H. Returnway support
 - I. Support wheel

Figure 4

NOTE: Actual number and type of position limiters (A) can vary from illustration. Desired location of containment block (D) may vary from illustration.

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

THERMODRIVE HYGIENIC RECOMMENDATIONS

Implementing the 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 L.L.C., an Intralox company, promotes these design principles, standards, and guidelines during hygienic design classes and 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 food product produced, 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.

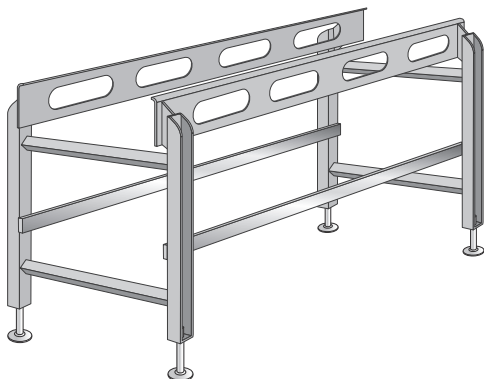


Figure 5

- ◇ Minimize tools required for inspection, maintenance, and sanitation protocols.
- ◇ Avoid fasteners when possible, or at least in product contact areas or 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.

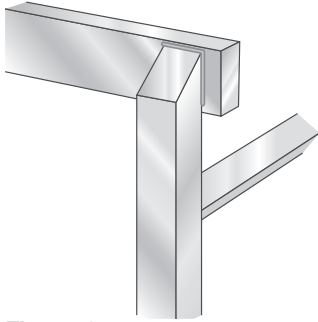


Figure 6

- ◇ Eliminate non-hermetically sealed, hollow fabrication at or above the exposed product contact areas at minimum.
- ◇ 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 challenges.
- ◇ Ensure internal corners of less than 135° have a minimum 0.125 in (3 mm) radius.
- ◇ Avoid designs with sleeved assemblies or press-fit or shrink-fit designs when possible.

NOTE: More hygienic recommendations are provided throughout the Design Guidelines.

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 the following.

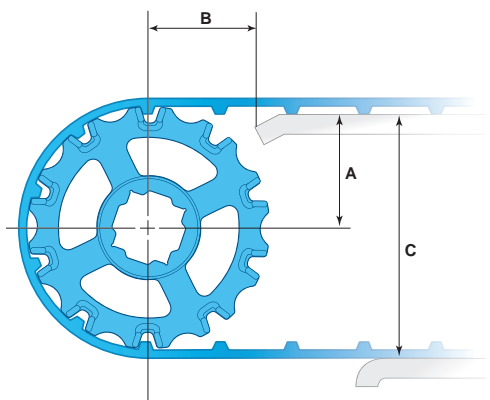
- American Meat Institute (AMI)
- Grocery Manufacturers Association (GMA)
- 3-A Sanitary Standards, Inc.
- European Hygienic Engineering and Design Group (EHEDG)
- NSF International Food Safety and Health Sciences Divisions

NOTE: Consider consulting the following standards: *EN 1672-2*, *NSF 14179*, *EC 852/2004*, and *EC 853/2004*.

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. See “Conveyor Frame Dimension Guidelines” on page 19 to determine the required dimensions.



- 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

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	44	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	

FRAMEWORK

ThermoDrive tensionless belt systems require a conveyor framework appropriate for a loosely fitted belt. The design should 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, ensure there is enough area above the carryway for belt splicing. Or provide a cantilevered or break-away support design in the conveyor for endless belt installation.

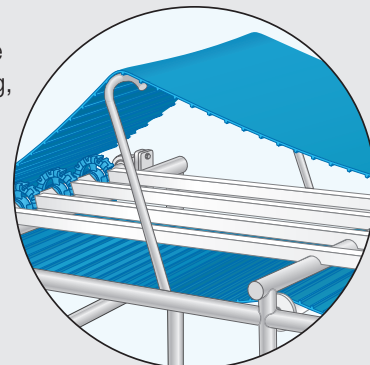
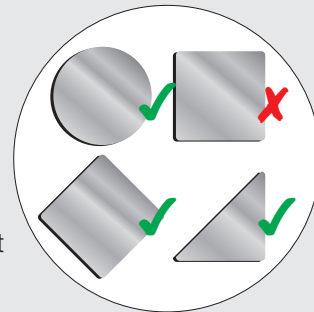
Framework Component Data		
Components	Recommended Material	Surface Finish
Conveyor framework in the product contact area	316 or 304 stainless steel	Not to exceed Ra32 micro-inches (Ra0.8 mm)
Conveyor framework structural members and guards outside the product contact area	304 stainless steel	Not to exceed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

HYGIENIC RECOMMENDATIONS

Review Hygienic Design Principles before following these recommendations. See *“Hygienic Design Principles”* on page 16.

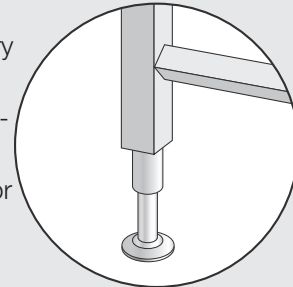
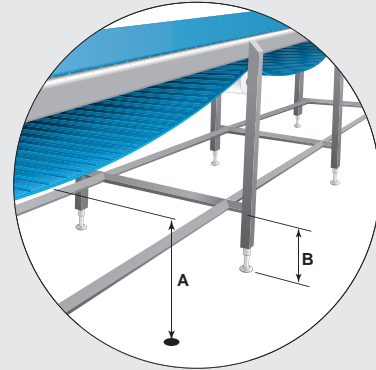
General Framework

- 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 least 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.
- 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 support leg quantity and raise conveyor cross members where possible.
 - ◇ 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.
- 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 to be installed within a solid masonry floor with properly rated masonry grout (not appropriate with floor coatings on masonry or in some tile applications).



DRIVE END DESIGN

ThermoDrive belting can be driven several ways.

- By shafts, sprockets, and position limiters
- By motorized pulleys with Intralox-approved drive geometry and position limiters
- By the patented Intralox Drive Unit

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

DRIVE SHAFT

Square shafts provide maximum efficiency in driving the belt. Square shafts allow the positive transmission of torque to the sprockets without keys and keyways. For customized Intralox square shaft options, see *Product Line, “Drive and Idle End Components” on page 83*.

- 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 (40 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 and sprocket spacers, see *Product Line, “Drive and Idle End Components” on page 83*.

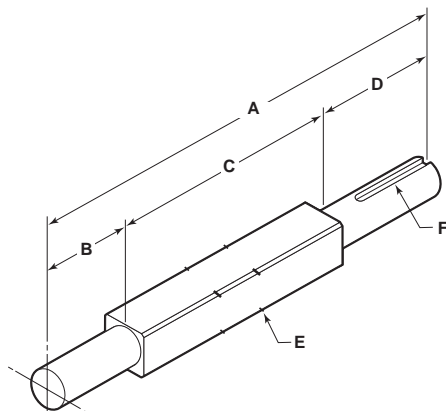


Figure 8

- 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)

DRIVE SPROCKETS

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

- 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, the sprocket tooth outside edge is often 0.5 in (13 mm) from the belt edge. Order a large flight indent 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.

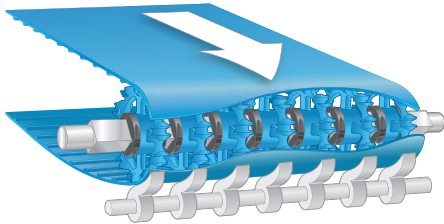


Figure 9

- 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 retainer rings or sprocket spacers (Figure 10).

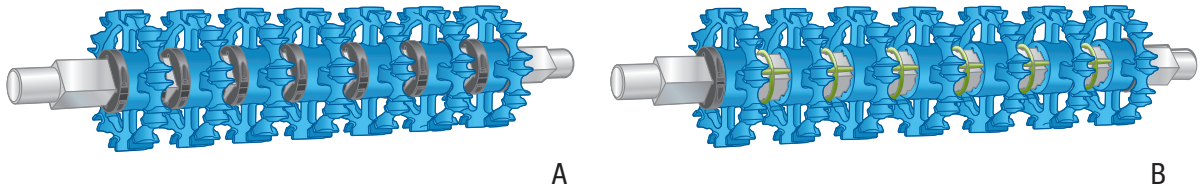


Figure 10

- Consider using stacked sprockets in heavily-loaded applications or when precise scraping is critical (Figure 11).

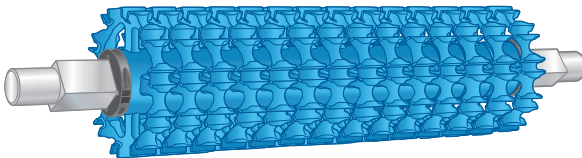


Figure 11

HYGIENIC RECOMMENDATION

- Use ThermoDrive EZ Clean™ sprockets designed for self-draining and spray-through sanitation. This style is especially well-suited for clean in place systems.
- Use Intralox sprocket spacers for a more hygienic spaced sprocket solution (Figure 10, B).
- Ensure clean in place systems are designed so spray fully covers the sprockets.

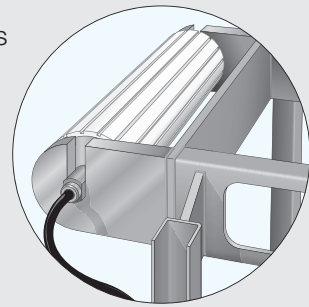
DRIVE PULLEYS

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 good wear resistance characteristics and exhibits a coefficient of friction (COF) of 0.35 or less against belting. For example, the structure can be made of acetal, ultra high molecular weight polyethylene resin (UHMW-PE), 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 *Product Line, “Drive and Idle End Components”* on page 83.

Contact Intralox Customer Service for application-specific suggestions.

POSITION LIMITER CHOICES

- For ideal end drive design, use concave, shoe-style position limiters that span a minimum of three S8026 drive bars or two S8050 drive bars (Figure 12).
- Only use rollers or scrapers as limiters in certain applications.
 - ◇ Use rollers as limiters only for abrasive or lightly-loaded 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” on page 28.
 - ◇ Use scrapers as limiters only in very lightly-loaded applications. See “Scraper Acting as a Limiter Considerations” on page 31.
- Ensure limiter belt contact surface material is UHMW-PE; never use a limiter with an acetal contact surface.

POSITION LIMITER ALIGNMENT AND SPACING

- Ensure limiter mounting structures are rigid enough to handle about 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 (Figure 14, B).
- Place shoe-style limiters with a 0.005-0.05 in (0.13-1.25 mm) spacing between the seated belt and the limiter (Figure 12, A). 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.

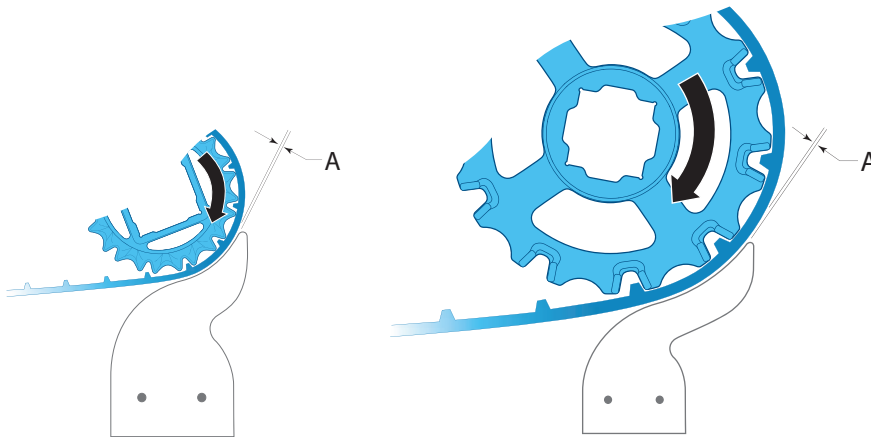


Figure 12

- Set roller limiters with a maximum 0.02 in (0.5 mm) spacing between the seated belt and the roller (Figure 13, A).
- Keep a sprocket tooth beneath the belt when setting the roller limiter (Figure 13). If the gap between sprocket teeth is under 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.

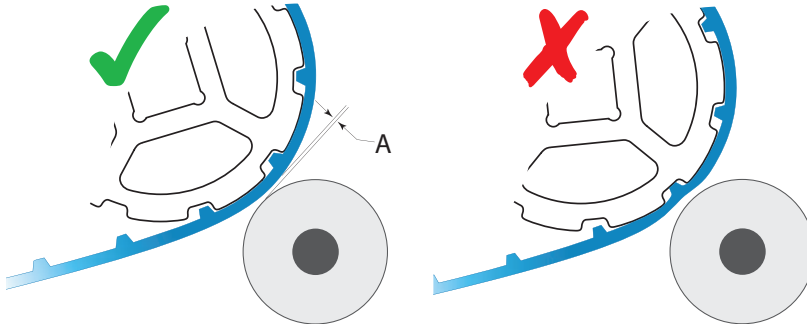


Figure 13

- Plan to make periodic inspections for limiter wear and secure mounting. 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 (Figure 14, A).
- For spaced or stacked sprockets, align limiters with sprockets (Figure 14, B) with a maximum 3 in (76 mm) centerline spacing (Figure 14, A).

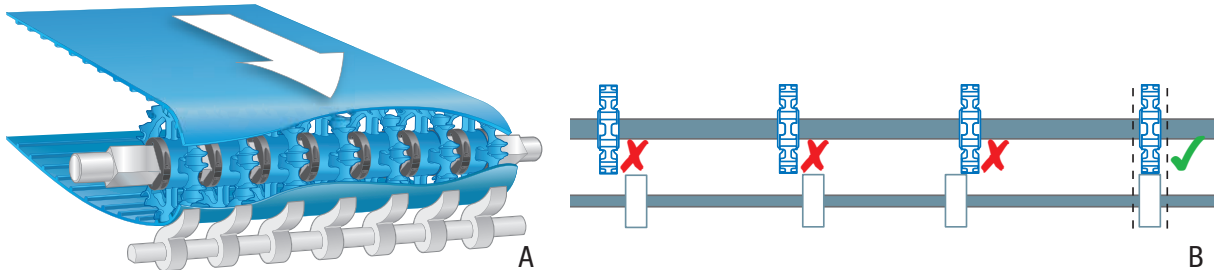


Figure 14

BELTS WITH ACCESSORIES

- Align a limiter with each outermost drive sprocket (Figure 15).
- Ensure a 0.125 in (3 mm) clearance between the belt edge and containment components (Figure 15, C).
- Ensure a 0.25 in (6 mm) clearance between flight or sidewall edges and limiter edges (Figure 15, A).

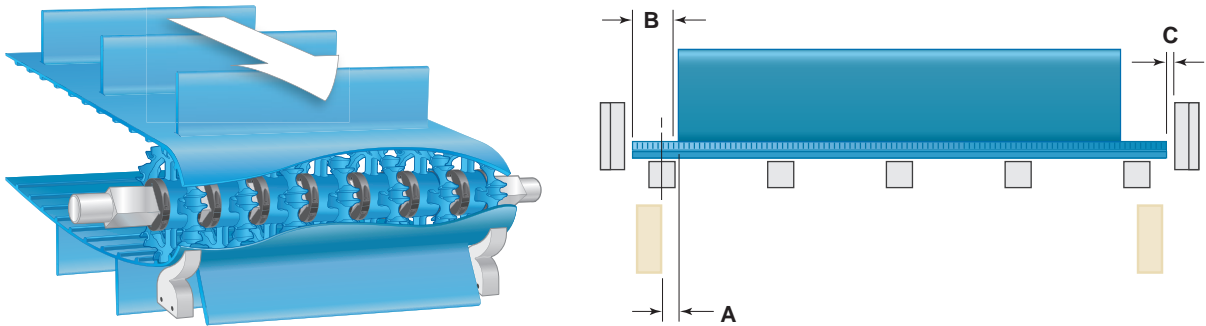


Figure 15

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°. Use the following recommendations for position limiter types and locations in end drive designs.

- Use shoe or roller limiters in lightly-loaded applications.
- Use shoe limiters in heavily-loaded applications.
- Place limiters 165-180° from the top of the sprocket (Figure 16, 0°) in the direction of travel to ensure ideal belt wrap for uni-directional applications.
- Ensure the belt wrap does not exceed 180°.

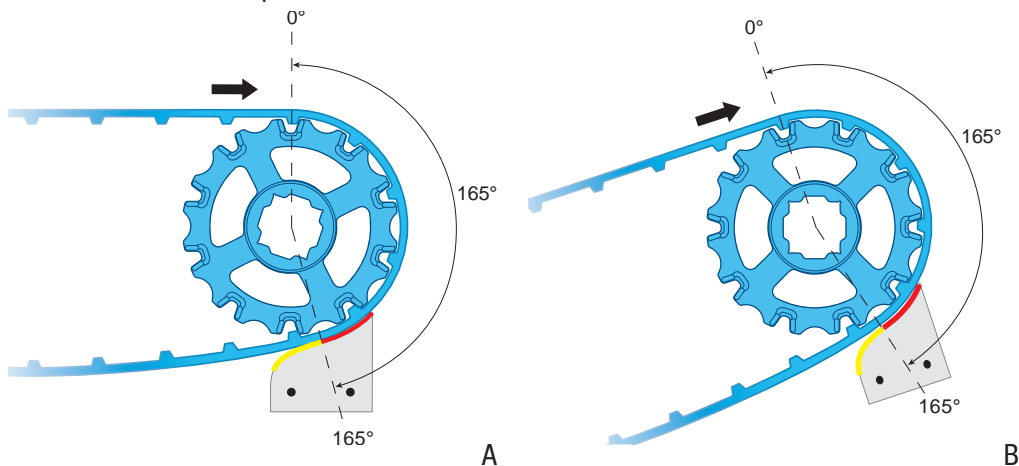


Figure 16

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 (Figure 17).
- Use roller limiters for center drive applications (Figure 17).
 - ◇ Use full-width roller limiters for most belts.
 - ◇ For flighted or sidewall belts, align roller limiters with the outermost sprockets. Align a sprocket and limiter at the flight notch, if any. Ensure a clearance of 0.25 in (6 mm) between roller limiters and flight or sidewall edges (Figure 15, A).

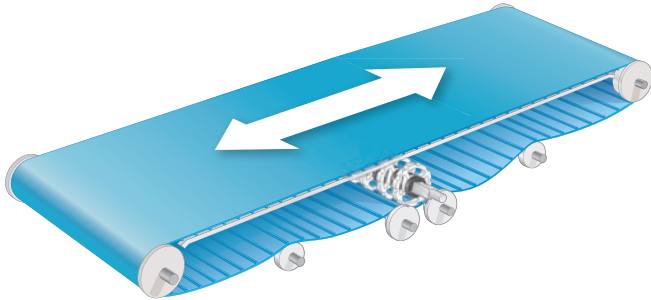


Figure 17

- Use roller limiters to achieve a 90° 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° and 225° positions from top center (Figure 18, A).
 - ◇ 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° from the first (Figure 18, B).

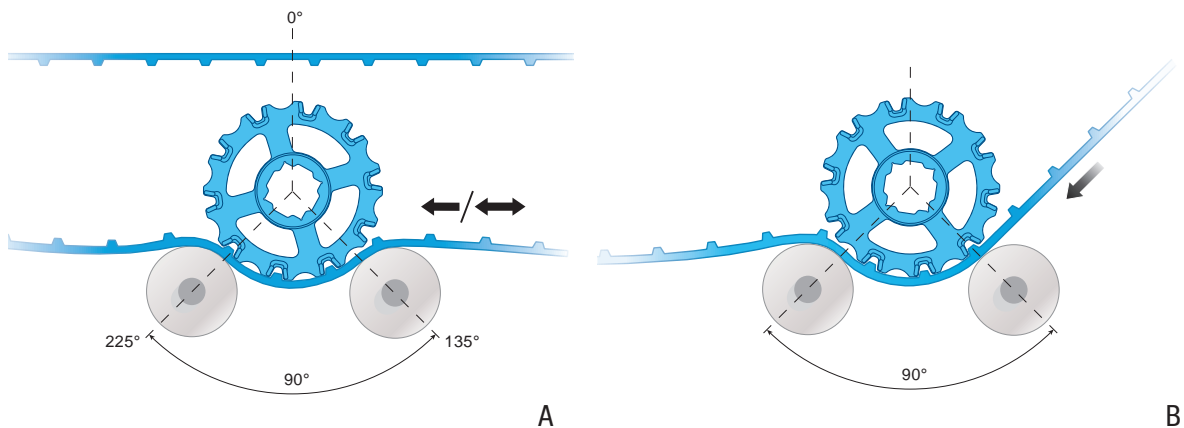


Figure 18

For a belt with flights, contact Intralox Customer Service for application-specific suggestions.

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 Intralox Drive Unit 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” on page 31.

For effective cleaning operation, use the following guidelines.

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.
- Design the scraper to be mounted at an angle for maximum cleaning performance (Figure 19). Do not mount the scraper vertically.

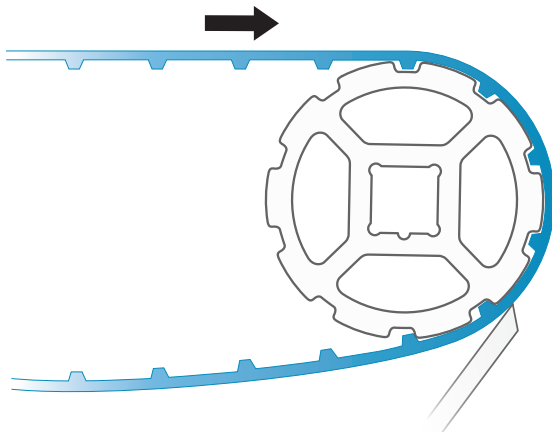


Figure 19

- Keep a sprocket tooth beneath the scraper when mounting, as with rollers (Figure 13), 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) shorter than the belt width to prevent catching ThermoLace edges.

Ideal ThermoLace scraper width: $\text{Scraper width} = \text{Belt width} - 2 \text{ in (51 mm)}$

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 very lightly-loaded applications. Contact Intralox Customer Service for more information.
- If the scraper is designed to act as a limiter, mount the scraper in place with enough support to prevent deflection away from the belt. See “*Position Limiter Alignment and Spacing*” on page 26.
- Design the scraper tip to contact the belt 165-180° from the top of the sprocket (Figure 16, 0°) in the direction of travel.
- Plan to make regular adjustments as the scraper wears during use.

INTRALOX DRIVE UNIT

Consider including the Intralox Drive Unit in conveyor designs. This patented, pre-assembled drive engagement solution precisely places position limiters to guarantee optimal ThermoDrive belt performance in new and retrofit designs. The optional scraper assembly is ideally designed for effective scraping in a compact design. Optional tool-free assembly and disassembly of components provides increased cleaning efficiency and sanitation.

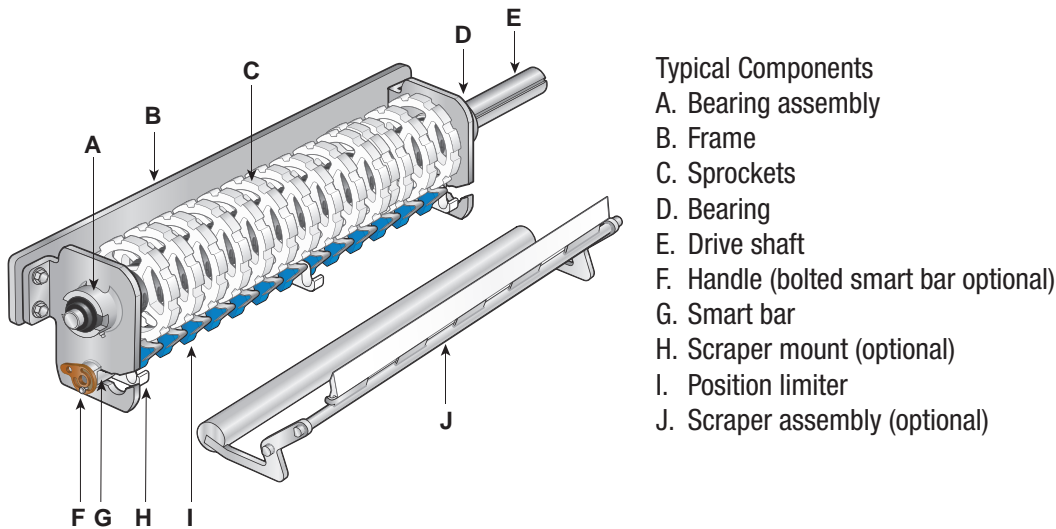


Figure 20

- Choose a full-width sprocket or stacked sprockets (Figure 21) for heavily-loaded applications.

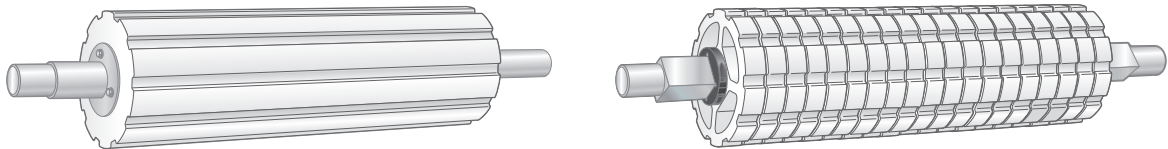


Figure 21

- Choose spaced sprockets (Figure 22) for lightly-loaded applications.

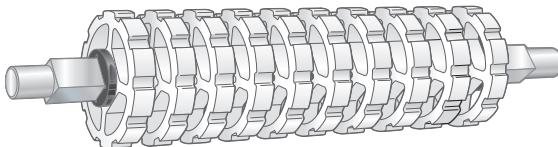


Figure 22

- Choose the self-adjusting scraper assembly only for belts without flights.

For more choices, see *Product Line, "Drive and Idle End Components"* on page 83.

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 idle shaft adjustments do not add belt tension.

When designing an adjustable idle shaft, ensure the following.

- Plan to adjust the idle shaft position 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 *Product Line, “Drive and Idle End Components”* on page 83.

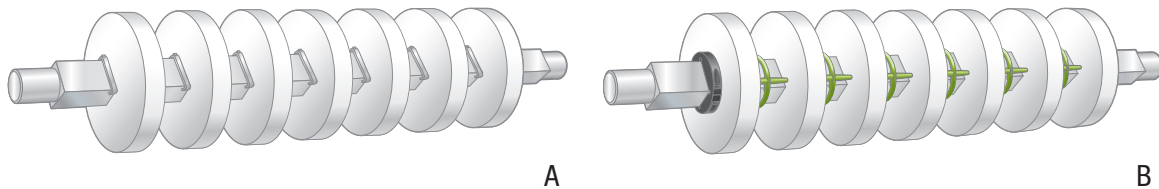


Figure 23

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.

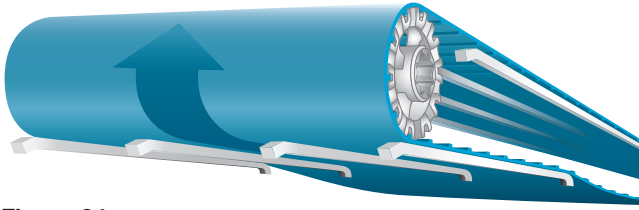


Figure 24

- 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 (Figure 24) 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 can be 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 clean in place systems are designed so idle shaft components receive full spray coverage.

CARRYWAY DESIGN

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

- Consider thermal expansion and contraction of materials when assessing components, dimensions, and locations. See “*Dimension Changes*” on page 49.
- Calculate a full range of minimum and maximum belt dimensions. See “*Dimension Changes*” on page 49.
- Consider belt containment options. See “*Belt Containment*” on page 45.

SUPPORT RAIL GENERAL GUIDELINES

Intralox recommends using UHMW-PE support rails or wearstrips for ThermoDrive belting carryway support. See *Product Line, “Carryway and Returnway Components”* on page 99.

- Use rails with a smooth surface finish not exceeding Ra125 micro-inches (Ra3.2 microns).
- 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*” on page 49
 - ◊ 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 (Figure 25). Use the following guidelines with the general support rail guidelines to design a straight, parallel carryway support.

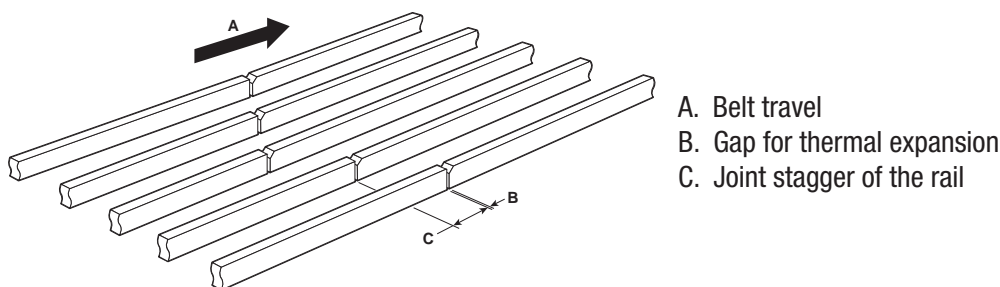


Figure 25

CARRYWAY DESIGN

- 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 catch points and allow smooth belt transitions.
- Chamfer the infeed and outfeed ends to prevent drive bar catch points and component damage.
- Stagger the rail joints to minimize drive bar catch points.
- 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.

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 (Figure 26). 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.

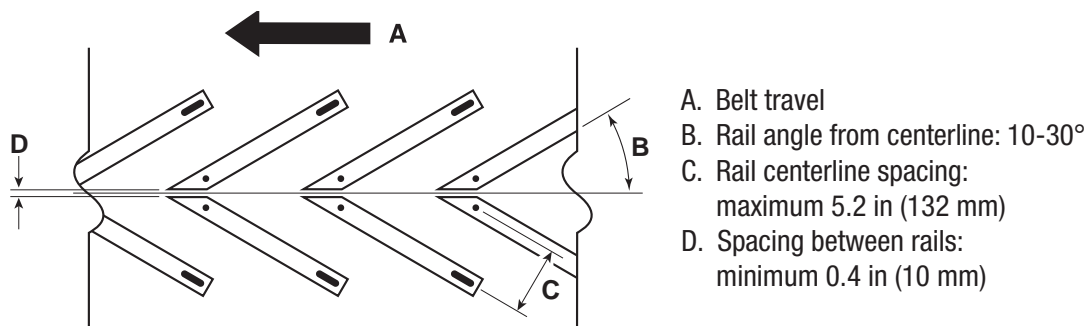


Figure 26

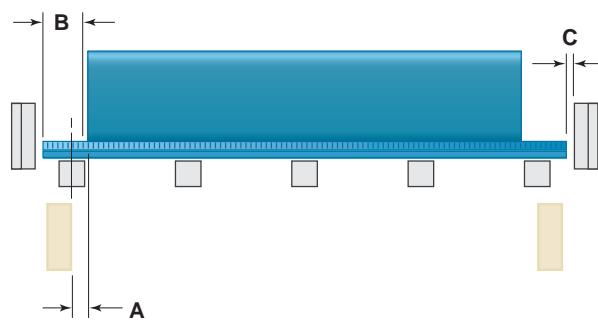
- Use flat rails with a minimum 1.25 in (32 mm) width and install the modified flat rails in a chevron pattern.
- Design a maximum 5.2 in (132 mm) centerline spacing between rails (Figure 26, C).
- Maintain a minimum 0.4 in (10 mm) spacing between rails at the chevron center to reduce debris buildup (Figure 26, D).
- 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, SIDEWALLS, OR FLIGHT NOTCHES

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

- Order belts with a minimum 1.25 in (33 mm) flight or sidewall indent (Figure 27, B).
- 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 for belt containment purposes.
- Ensure a minimum 0.25 in (6 mm) clearance between components and flight or sidewall outside edges (Figure 27, A).
- Ensure a minimum 0.125 in (3 mm) clearance between belt and containment components (Figure 27, C).



- A. Minimum 0.25 in (6 mm)
- B. Minimum 1.25 in (33 mm)
- C. Minimum 0.125 in (3 mm)

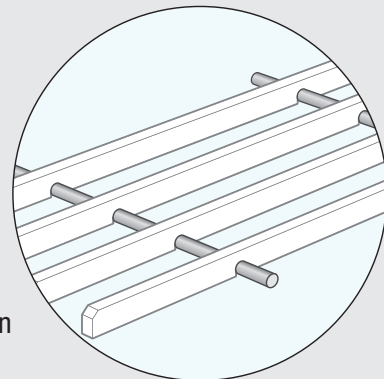
Figure 27

- 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.



Conceptual illustration

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.

- Calculate a full range of minimum and maximum belt lengths and widths before designing belt carryway support, returnway support, and containment components.
- See “*Dimension Changes*” on page 49.

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, 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 (Figure 28, A). For inclined conveyors, the most belt usually accumulates in the lowest open area near the infeed returnway (Figure 28, B). These open areas often have the deepest belt sags.

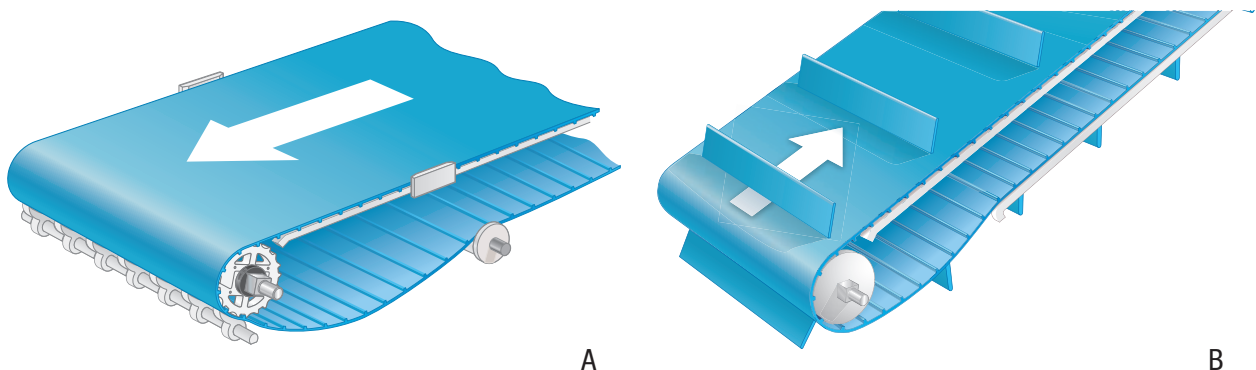
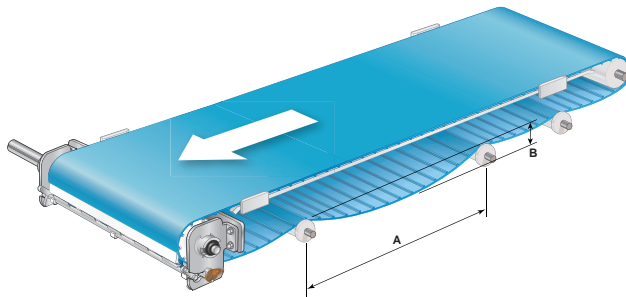


Figure 28

- Calculate the correct amount of belt needed for the conveyor length. See “*Total Belt Dimension Calculation*” on page 49.
- Choose the optimal location for the deepest belt sag. Consider the location of obstacles such as drip pans, frame supports, and wiring.

RETURNWAY DESIGN

- 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 (Figure 29, A).
 - ◇ Determine the approximate vertical clearance needed for the belt sag at each open area. See “*Catenary Sag Clearance Reference*” on page 40.
 - ◇ Ensure the design prevents belt contact with obstacles.

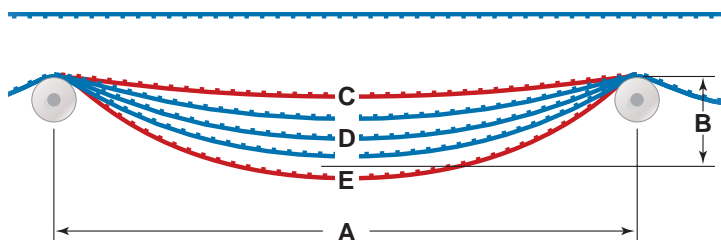


A. Length of open area between components
B. Typical maximum clearance needed

Figure 29

Catenary Sag Clearance Reference ^a			
Length of Open Area in the Returnway (Figure 30, A)		Typical Maximum Clearance Needed ^{b, c} (Figure 30, B)	
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

- If the returnway is not horizontal, contact Intralox Customer Service for clearance information.
- For belts with flights or sidewalls, add the height of the tallest accessory to the maximum clearance needed dimension.
- 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.



A. Length of open area between components
B. Typical maximum clearance needed
C. Too shallow (tensioned)
D. Acceptable sag depth
E. Too much belt

Figure 30

- Expect the sag depths to vary during conveyor operation based on belt speed, temperature changes, and 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 without effort.

Contact Intralox Customer Service for application-specific suggestions.

RETURNWAY SUPPORT GUIDELINES

A conveyor returnway can include various framework styles with components such as rollers, intermittent wear shoes, and continuous rails (Figure 31). ThermoDrive tensionless belt systems can use a combination of continuous and intermittent support. Depending on the conveyor, multiple lengths of open space may be required to store the belt properly. Sag does not always distribute evenly in all unsupported areas. See “*Catenary Sag*” on page 39.

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

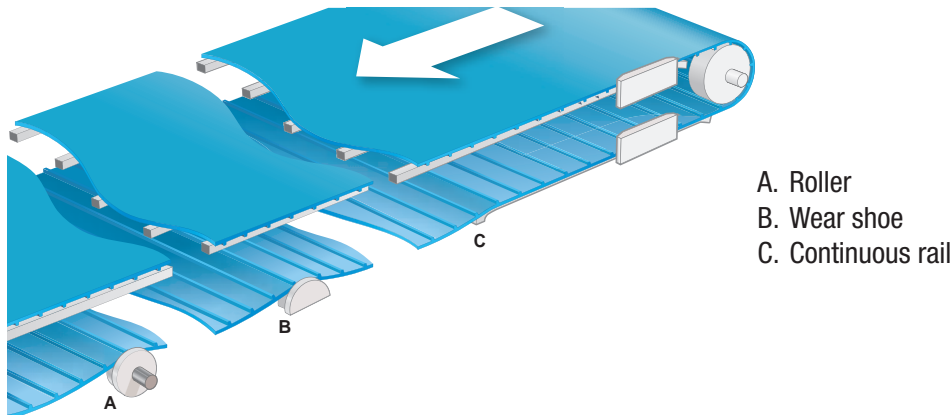


Figure 31

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 (Figure 32, A).

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.

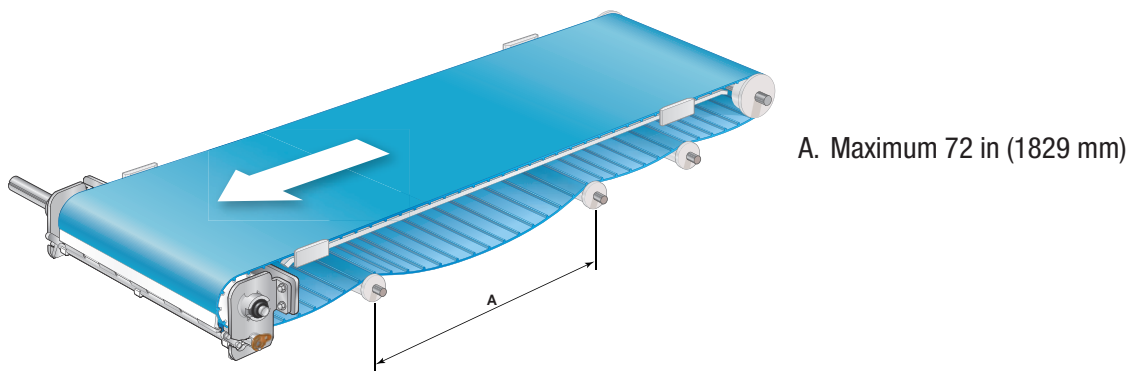


Figure 32

- Ensure all belt bends are equal to or larger than the minimum belt backbend diameter. See *Product Line, “Belts”* on page 61.
- Use flanged rollers or shoes to provide support and laterally contain the belt. See “*Belt Containment*” on page 45.

CONTINUOUS RAILS

- Design support rails with a maximum 12 in (305 mm) lateral centerline distance between rails (Figure 33).
- Design outermost rails 2-3 in (51-76 mm) inside the belt edge for most belts. See “Returnway with Flights or Sidewalls” on page 43.
- Include a minimum of one 30 in (762 mm) area between continuous rail ends to accommodate belt accumulation. See “Managing Belt Accumulation” on page 39.
- Consider using rollers or shoes with rails.

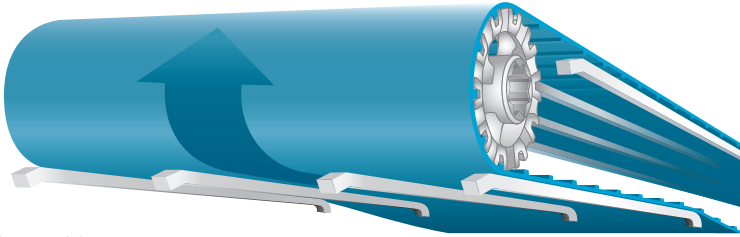


Figure 33

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).

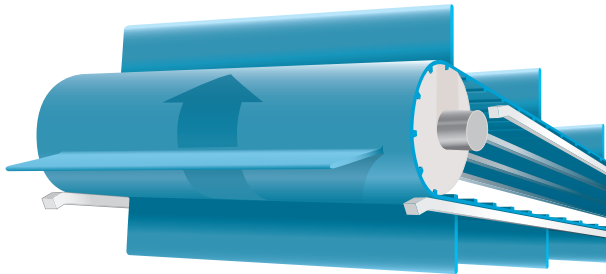


Figure 34

- Order belts with a minimum 1.25 in (33 mm) flight or sidewall indent (Figure 35, B).
- Consider using continuous support rails at belt edges for returnway support (Figure 34).
 - ◊ Chamfer the support rail infeed and outfeed ends to eliminate catch points (Figure 34).
 - ◊ Design support rails and other components with adequate clearance from flight and sidewall edges (Figure 35).

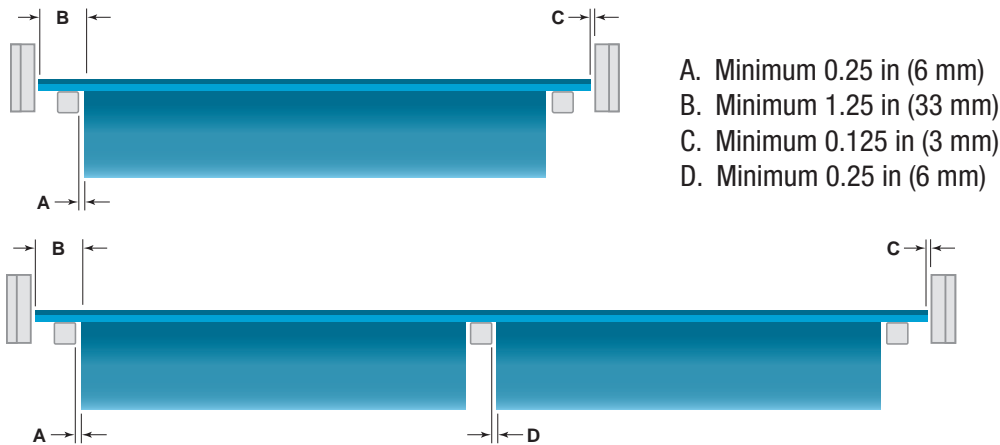


Figure 35

- Design containment components with a minimum 0.125 in (3 mm) clearance from the belt edge (Figure 35, C). See “Belt Containment” on page 45.
- 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.

BELT CONTAINMENT

ThermoDrive belts should be guided along the carryway and returnway to control lateral movement. Full-width belt drive bars on the belt bottom surface provide lateral rigidity. Consequently, 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*” on page 49.
- 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 (Figure 36, A).

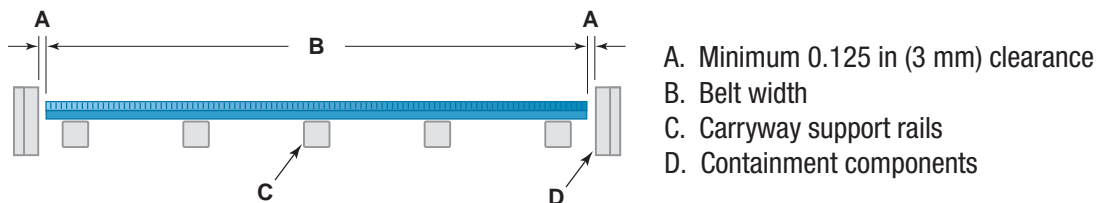


Figure 36

- 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 (Figure 38).
 - ◇ Then add more containment components along the conveyor length a maximum 8 ft (2.4 m) distance apart.
 - ◇ See *Product Line, “Carryway and Returnway Components”* on page 99.
- At the returnway, mount belt containment blocks or flanged rollers near the idle shaft (Figure 32).
 - ◇ Then add more containment components along the conveyor length a maximum 8 ft (2.4 m) distance apart.
 - ◇ See *Product Line, “Carryway and Returnway Components”* on page 99.

BELT CONTAINMENT

- ◇ When using flanged rollers, ensure a minimum 0.75 in (19 mm) flange height at belt edges (Figure 37, A). This provides a minimum 0.5 in (13 mm) vertical height above the belt surface.
- ◇ Ensure inside flange edges are chamfered (Figure 37, B) to minimize belt wear.

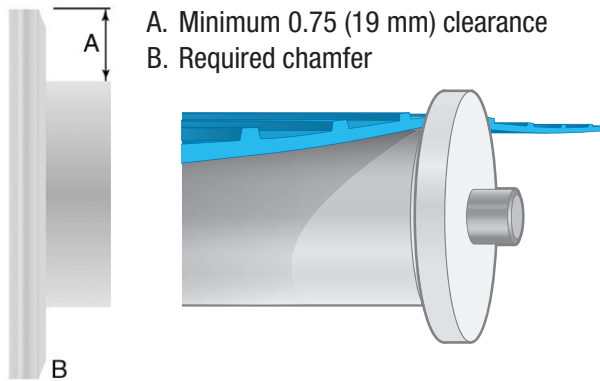


Figure 37

- 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 minimize belt wear and friction: 6 in (150 mm) length, 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, and 0.5 in (13 mm) vertical height above the belt edge.

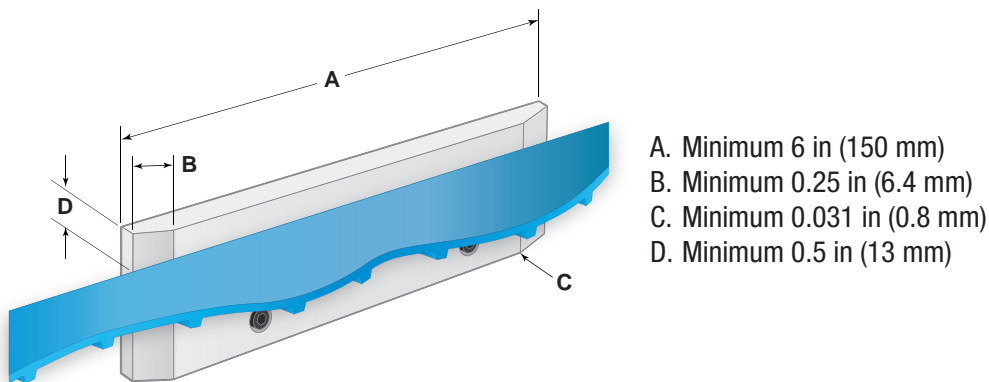


Figure 38

- Countersink all fasteners below containment component surfaces to prevent belt contact with fasteners (Figure 38).
- Design vertical containment surfaces to be parallel to the carryway and perpendicular to the belt edge (Figure 38).

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.

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 design guidelines provided in this manual. Also incorporate the following trough-specific guidelines.

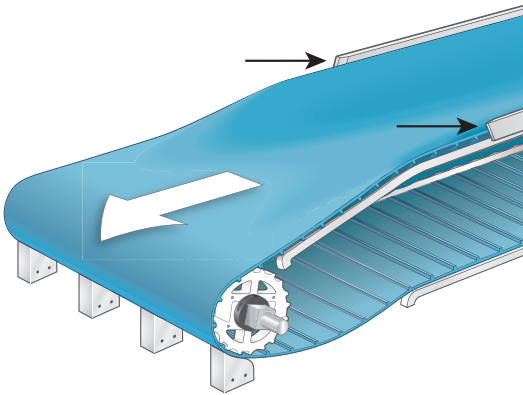


Figure 39

- Use UHMW-PE containment rails or blocks for lateral belt containment (Figure 39). See “*Belt Containment*” on page 45.

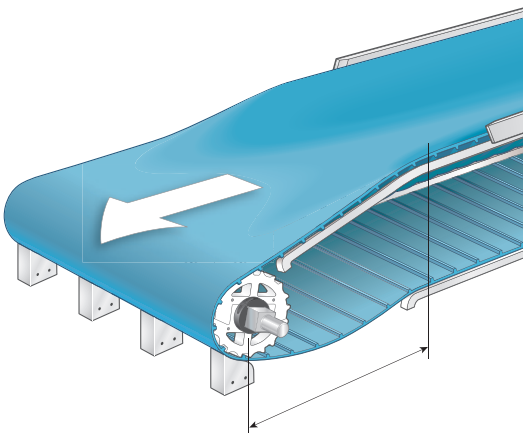


Figure 40

- Ensure the transition distance (distance from end of troughed conveyor to drive or idle shaft center) is adequate. The transition distance should be 1.5 times the belt width. Proper transition distance (Figure 40) minimizes strain on belt edges and reduces belt friction.

TROUGHED CONVEYORS

CONTINUOUS CARRYWAY FOR BELTS WITH NO TROUGH GROOVE

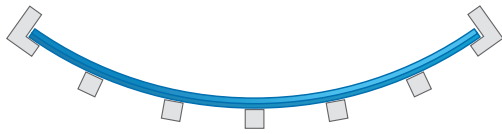


Figure 41

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

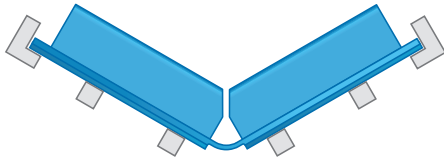


Figure 42

Minimum belt width: 10 in (254 mm)

Standard groove width: 1.75 in (44.5 mm)

Base belt thickness at groove: 2 mm

Maximum angle from horizontal: 30°

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 *Product Line*, “S8026 Flat Top E (6.0 mm)” on page 62. Contact Intralox Customer Service for S8126 conveyor design and installation specifics.

For information on the ThermoDrive Trough Retrofit Set, see *Product Line*, “Trough Retrofit Set” on page 101.

U-SHAPED CARRYWAY FOR BELTS WITH TWO TROUGH GROOVES

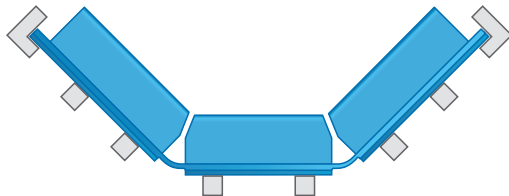


Figure 43

Standard groove width: 1.75 in (44.5 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°

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 *Product Line*, “Belt Features” on page 77.

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 *Product Line, "Belts" on page 61*.
- 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 (X₂)**.
3. Use the **Additional returnway belt needed (X₂)** 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)

X₂ = Additional returnway belt needed, in (mm)

DIMENSION CHANGES

4. Contact Intralox Customer Service for suggested extra belt length for splicing and repair.
5. 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*” on page 50.

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: $D \times T_3 \times \text{CTE} = \Delta$

Where:

Δ = dimension change, imperial (metric)

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

T_3 = temperature change, °F (°C)

CTE = Coefficient of Thermal Expansion

Coefficients of Linear Thermal Expansion (CTE)		
Material	Imperial Dimension ($\mu\text{in/in-}^\circ\text{F}$)	Metric Dimension ($\mu\text{m/m-}^\circ\text{C}$)
Polyurethane	83	150
HTL	83	150
Cold Use	94	170
UHMW-PE	110	198
Dura	167	300

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	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 ($\Delta = D \times T_3 \times \text{CTE}$)	1200 in x -27°F x 83 ($\mu\text{in/in-}^\circ\text{F}$) = -2689200 μin = -2.6892 in	30 m x -15°C x 150 ($\mu\text{m/m-}^\circ\text{C}$) = -67500 μm = -67.5 mm

BELT ELONGATION UNDER LOAD

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

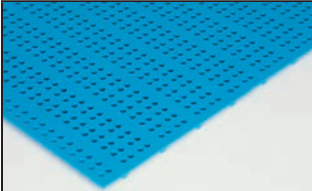





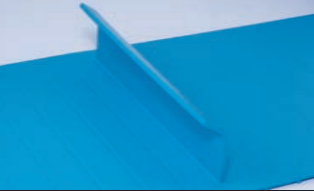


Product Line

BELT SELECTION

VISUAL OVERVIEW

Belts			
Series 8026 Flat Top Polyurethane (5.3 mm)	Series 8026 Flat Top Polyurethane (6.0 mm)	Series 8026 Embedded Diamond Top Polyurethane (6.3 mm)	Series 8026 Nub Top Polyurethane (7.4 mm)
Series 8026 Flat Top Cold Use (6.0 mm)	Series 8050 Flat Top Polyurethane (7.0 mm)	Series 8050 Embedded Diamond Top Polyurethane (7.5 mm)	Series 8050 Nub Top Polyurethane (8.0 mm)
Series 8050 Flat Top Cold Use (7.0 mm)	Series 8050 Flat Top Dura (7.0 mm)	Series 8050 Flat Top High Temperature Heavy Load (HTL) (7.0 mm)	Series 8050 Flat Top Extreme Temperature (XT) (7.0 mm)
Series 8126 Flat Top Polyurethane (6.0 mm)			
Belt Joining Options			
Prepared ends	Endless	ThermoLace™	Metal Lace

BELT SELECTION

Belt Fabrications			
			
Perforations	Trough Grooves	Drive Bar Removal	
			
90 degree flights	75 degree flights	Scoop flights	Short top scoop flights
			
Flight Gussets	Sidewalls		

BELT SELECTION CONSIDERATIONS

To select the right ThermoDrive belt, consider all of the options.

1. Choose a basic belt. Each belt description indicates several characteristics.

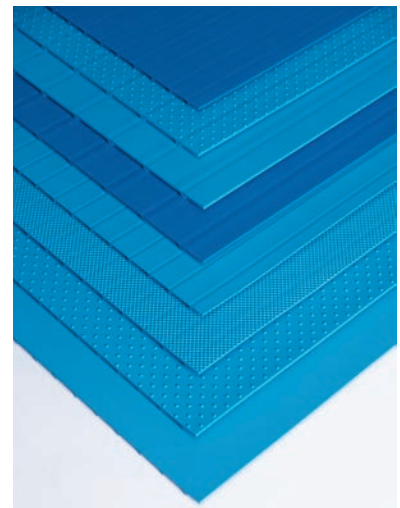
For example, **S8050 Flat Top (7.0 mm) Polyurethane** indicates the following belt characteristics.

- 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**. Thickness is determined by the drive pitch, material, and surface texture.

2. Based on the belt description, choose other specifics. Not all belts have the same options.

- Available belt joining options
- Available belt features such as trough grooves, drive bar removal, or perforations
- Available accessories such as flights, sidewalls, and gussets

3. Review the following belt selection considerations, then specific belt product information to choose wisely 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—most commonly used material; available in blue or white

- Can be used in continuous temperature ranges from 20°F (-7°C) to 140°F (60°C)
- 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)—employed for ambient to very cold temperatures; provides peak performance in colder environments

- Can be used in applications with temperature ranges from -30°F (-34°C) to 75°F (24°C)
- 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

- Can be 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/or heavy loads

- Can be 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—employed for extreme temperatures—high or low

- Can be 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)



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; contact Intralox Customer Service for application-specific information

CHOOSE BELT SERIES

ThermoDrive belts are available with 26 mm or 50 mm nominal drive pitch. 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

CHOOSE BELT JOINING OPTIONS

ThermoDrive belt ends can be joined by various options: splicing, ThermoLace, or metal lacing. Overall belt strength is affected by the strength of joining option chosen. See *“Belt Joining Options”* on page 75.

CHOOSE BELT FEATURES AND ACCESSORIES FOR FABRICATION

Special belt features are available for unique applications.

Perforations—belt hole pattern employed most often 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; employed 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 (surface textures); 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 Sidewalls—vertical accessory hygienically joined along belt length available in various heights, thicknesses, and styles (surface textures); employed for effective product containment

Belts, Features, and Accessories Availability Reference								
Material	Polyurethane				Cold Use	Dura	HTL	XT
Color	Blue			White	Blue	Blue	Natural	Blue
Style	FT	EDT	NT	FT	FT	FT	FT	FT
Series 8026								
5.3 mm	BTF			BTF				
6.0 mm	BTF			BTF	BTF			
6.3 mm		BTF						
7.4 mm			BTF					
Series 8050								
7.0 mm	BPTFS			BPTFS	BTFS	BTF	BT	BT
7.5 mm		BTFS						
8.0 mm			BTF					
Series 8126								
6.0 mm	B							

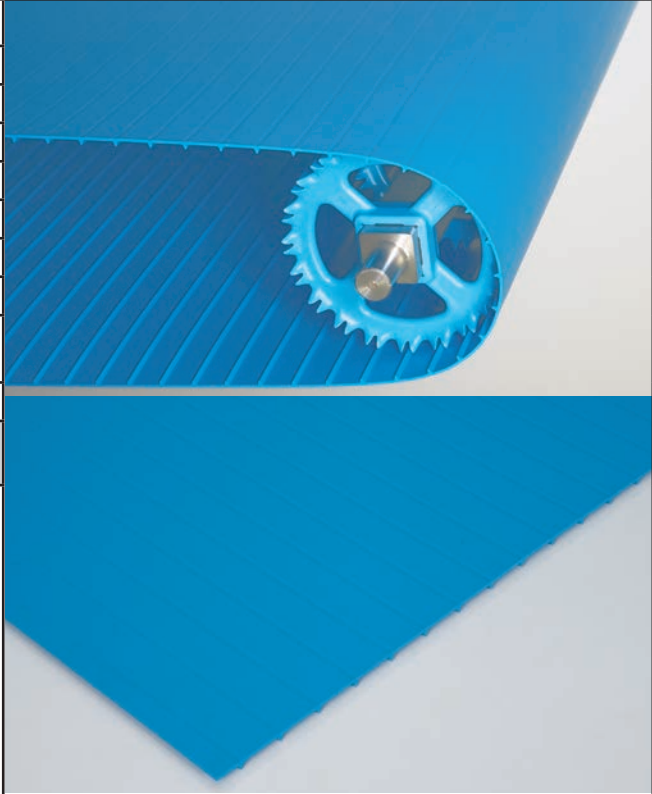
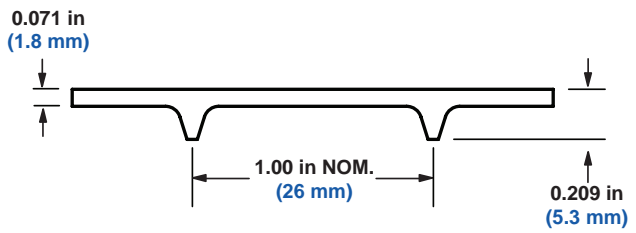
FT—Flat Top; EDT—Embedded Diamond Top; NT—Nub Top

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

P—Perforations available; T—Trough grooves available; F—Flights available; S—Sidewalls available

For details, see “Belt Features” on page 77. See “Belt Accessories” on page 78.

BELTS

S8026 Flat Top E (5.3 mm)			
	in	mm	
Pitch	1.00	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			
<ul style="list-style-type: none"> 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. <p>See <i>“Belt Selection Considerations”</i> on page 56 for help selecting a belt.</p> <p>See <i>“Material Compliance”</i> on page 107 for compliance details.</p>			
			

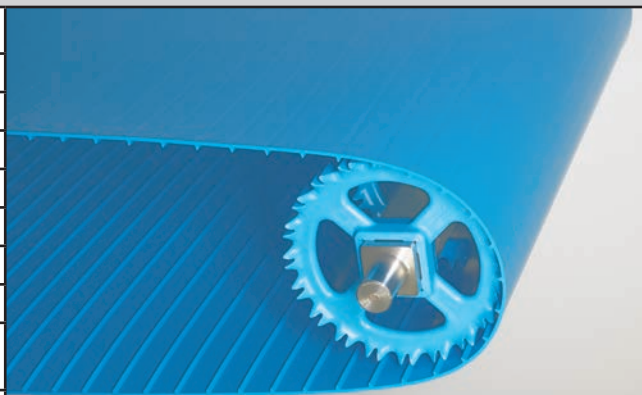
Belt Data						
Belt Material	BS Belt Strength ^a		Temperature Range (continuous)		W Belt Weight	
	lb/ft	kg/m	°F	°C	lb/ft ²	kg/m ²
Polyurethane	175	260	20 to 140	-7 to 60	0.57	2.78

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.

For sprocket information, see *“Sprockets”* on page 87.

S8026 Flat Top E (6.0 mm)

	in	mm
Pitch	1.00	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	

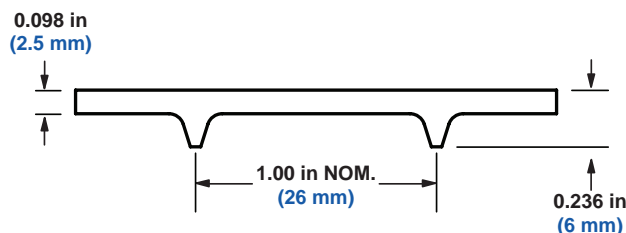


Product Notes

- **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 “*Belt Selection Considerations*” on page 56 for help selecting a belt.

See “*Material Compliance*” on page 107 for compliance details.



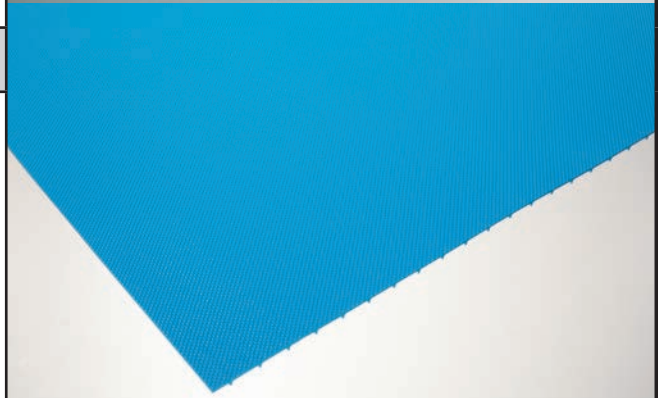
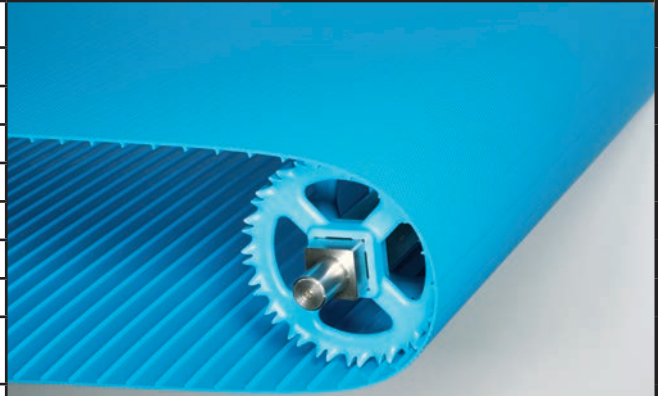
Belt Data						
Belt Material	BS Belt Strength ^a		Temperature Range (continuous)		W Belt Weight	
	lb/ft	kg/m	°F	°C	lb/ft ²	kg/m ²
Polyurethane	300	446	20 to 140	-7 to 60	0.69	3.35

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.

For sprocket information, see “*Sprockets*” on page 87.

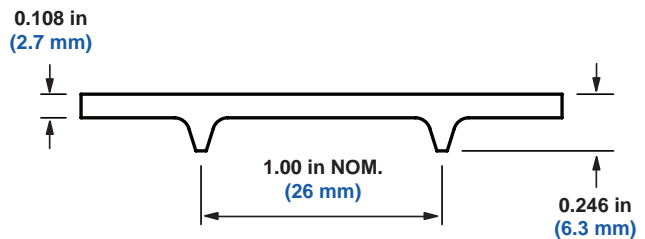
S8026 Embedded Diamond Top E (6.3 mm)

	in	mm
Pitch	1.00	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, white	



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.
- See *“Belt Selection Considerations”* on page 56 for help selecting a belt.
- See *“Material Compliance”* on page 107 for compliance details.



Belt Data

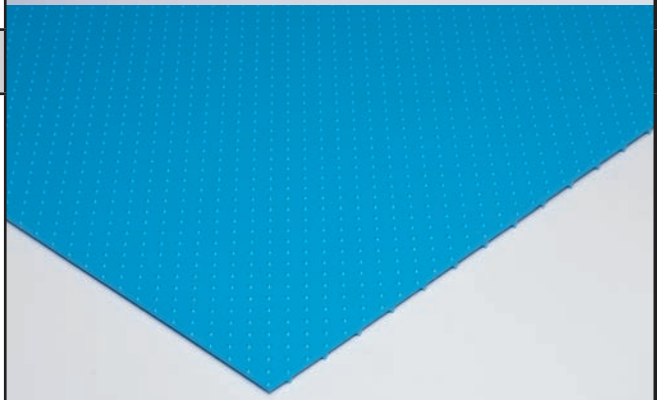
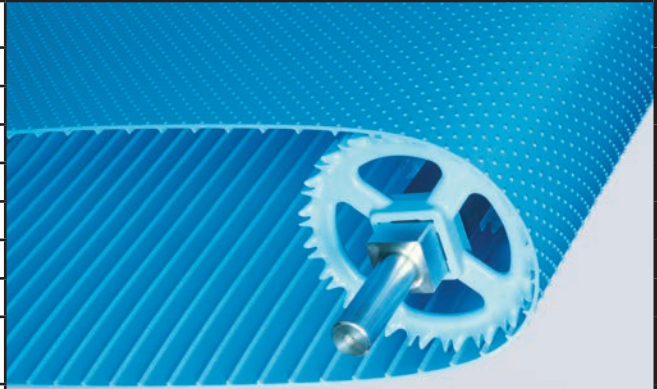
Belt Material	BS Belt Strength ^a		Temperature Range (continuous)		W Belt Weight	
	lb/ft	kg/m	°F	°C	lb/ft ²	kg/m ²
Polyurethane	300	446	20 to 140	-7 to 60	0.69	3.37

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.

For sprocket information, see *“Sprockets”* on page 87.

S8026 Nub Top™ E (7.4 mm)

	in	mm
Pitch	1.00	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	

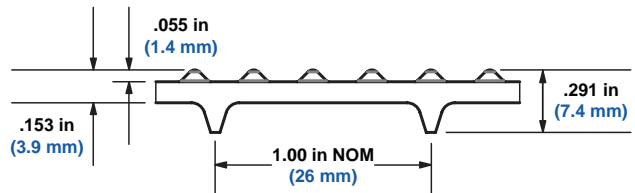


Product Notes

- **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.

See “*Belt Selection Considerations*” on page 56 for help selecting a belt.

See “*Material Compliance*” on page 107 for compliance details.



Belt Data

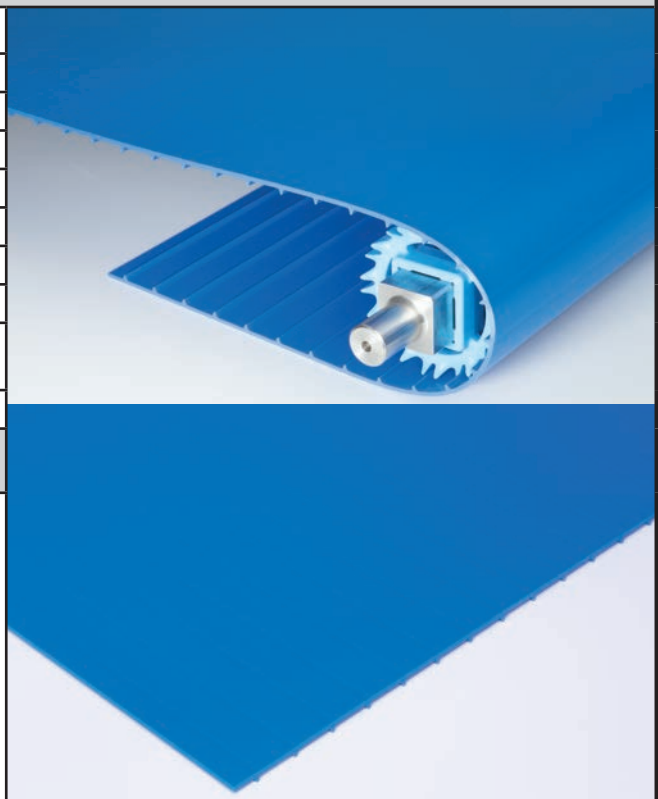
Belt Material	BS Belt Strength ^a		Temperature Range (continuous)		W Belt Weight	
	lb/ft	kg/m	°F	°C	lb/ft ²	kg/m ²
Polyurethane	300	446	20 to 140	-7 to 60	0.754	3.68

- 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.

For sprocket information, see “*Sprockets*” on page 87.

S8026 Flat Top Cold Use E (6.0 mm)

	in	mm
Pitch	1.00	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	

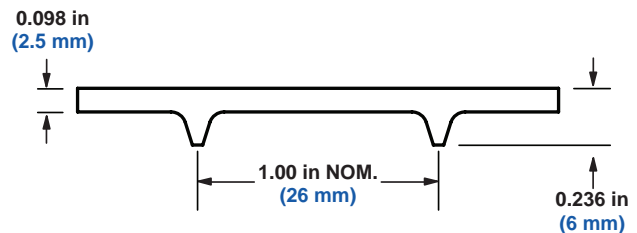


Product Notes

- **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 to 75°F (-6.7 to 24°C)
 4 in (102 mm) diameter at 0 to 20°F (-17.8 to -6.7°C)
 5 in (127 mm) diameter at -30 to 0°F (34.4 to -17.8°C)

See “*Belt Selection Considerations*” on page 56 for help selecting a belt.

See “*Material Compliance*” on page 107 for compliance details.



Belt Data

Belt Material	BS Belt Strength ^a		Temperature Range (continuous)		W Belt Weight	
	lb/ft	kg/m	°F	°C	lb/ft ²	kg/m ²
Cold Use	150	223	-30 to 75	-34 to 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.

For sprocket information, see “*Sprockets*” on page 87.

S8050 Flat Top E (7.0 mm)

	in	mm
Pitch	1.96	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	

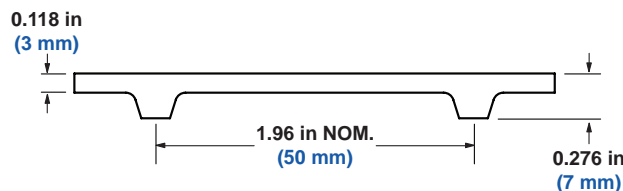


Product Notes

- **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.

See “*Belt Selection Considerations*” on page 56 for help selecting a belt.

See “*Material Compliance*” on page 107 for compliance details.



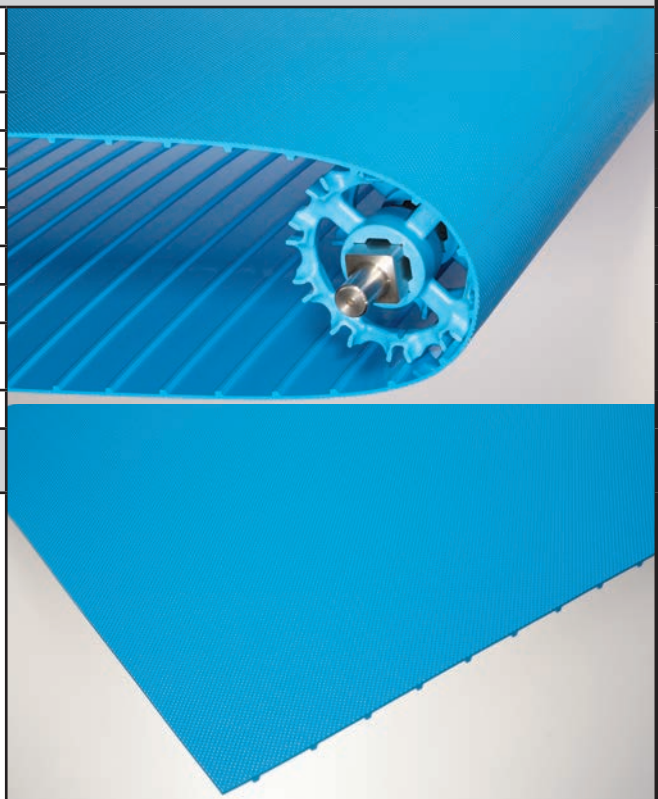
Belt Data						
Belt Material	BS Belt Strength ^a		Temperature Range (continuous)		W Belt Weight	
	lb/ft	kg/m	°F	°C	lb/ft ²	kg/m ²
Polyurethane	420	625	20 to 140	-7 to 60	0.89	4.35

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.

For sprocket information, see “*Sprockets*” on page 87.

S8050 Embedded Diamond Top E (7.5 mm)

	in	mm
Pitch	1.96	50
Overall Thickness	0.296	7.5
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	

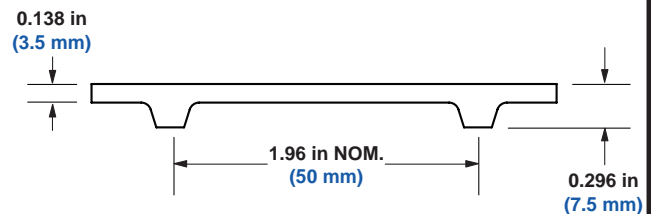


Product Notes

- **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.

See “*Belt Selection Considerations*” on page 56 for help selecting a belt.

See “*Material Compliance*” on page 107 for compliance details.



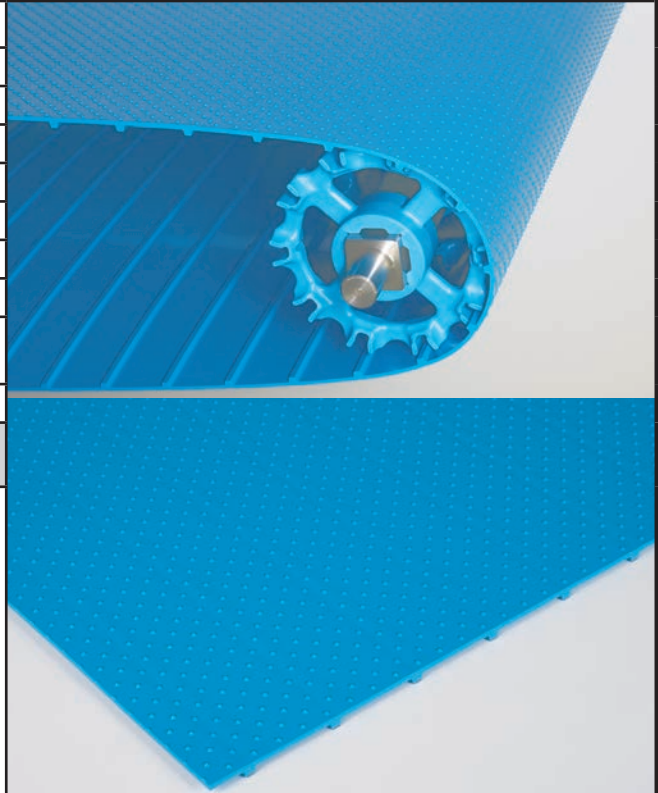
Belt Data						
Belt Material	BS Belt Strength ^a		Temperature Range (continuous)		W Belt Weight	
	lb/ft	kg/m	°F	°C	lb/ft ²	kg/m ²
Polyurethane	420	625	20 to 140	-7 to 60	0.89	4.34

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.

For sprocket information, see “*Sprockets*” on page 87.

S8050 Nub Top E (8.0 mm)

	in	mm
Pitch	1.96	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	

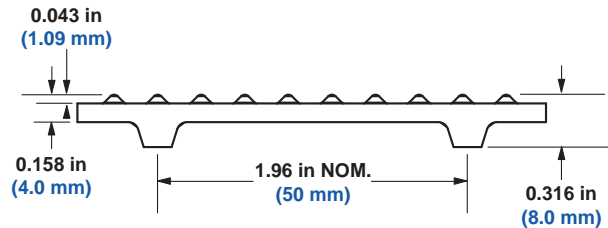


Product Notes

- **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.

See “*Belt Selection Considerations*” on page 56 for help selecting a belt.

See “*Material Compliance*” on page 107 for compliance details.



Belt Data

Belt Material	BS Belt Strength ^a		Temperature Range (continuous)		W Belt Weight	
	lb/ft	kg/m	°F	°C	lb/ft ²	kg/m ²
Polyurethane	420	625	20 to 140	-7 to 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.

For sprocket information, see “*Sprockets*” on page 87.

S8050 Flat Top Cold Use E (7.0 mm)

	in	mm
Pitch	1.96	50
Overall Thickness	0.276	7.0
Minimum Width	1	25
Maximum Width	72	1829
Minimum Backbend Diameter	See Product Notes	
Minimum Sprocket Diameter (6T)	See Product Notes	
Open Area (seamless surface)	0%	
Available Joining Options	prepared ends, endless, metal lace	
Available Colors	blue	

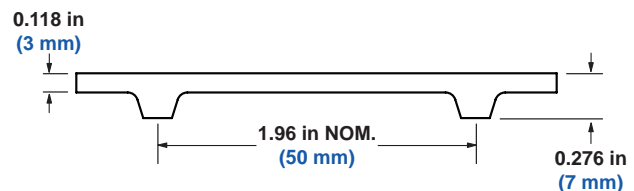


Product Notes

- **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 to 75°F (-6.7 to 24°C)
 5 in (127 mm) diameter at 0 to 20°F (-17.8 to -6.7°C)
 6 in (152 mm) diameter at -30 to 0°F (34.4 to -17.8°C)

See “*Belt Selection Considerations*” on page 56 for help selecting a belt.

See “*Material Compliance*” on page 107 for compliance details.



Belt Data

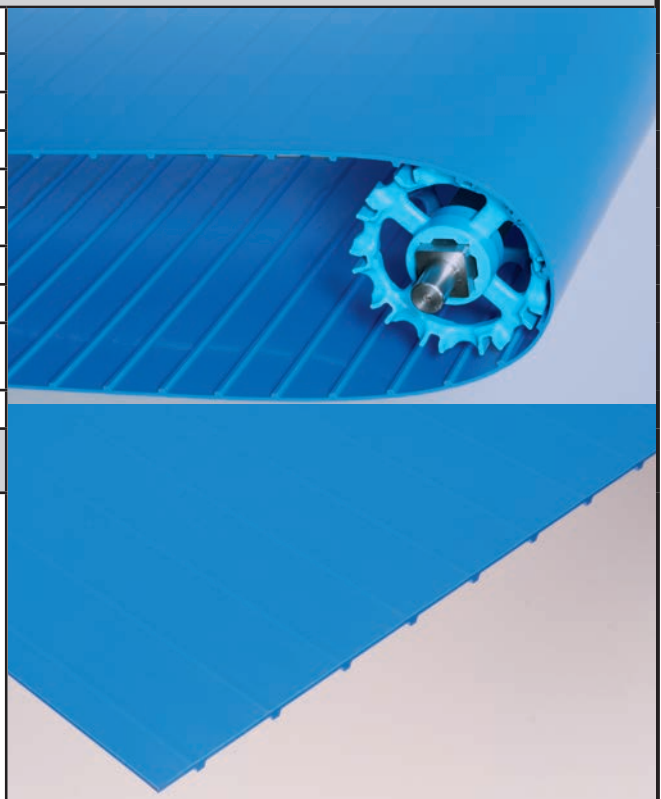
Belt Material	BS Belt Strength ^a		Temperature Range (continuous)		W Belt Weight	
	lb/ft	kg/m	°F	°C	lb/ft ²	kg/m ²
Cold Use	225	335	-30 to 75	-34 to 24	0.82	4.00

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.

For sprocket information, see “*Sprockets*” on page 87.

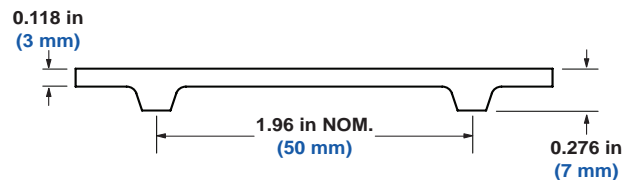
S8050 Flat Top Dura E (7.0 mm)

	in	mm
Pitch	1.96	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 “Belt Selection Considerations” on page 56 for help selecting a belt.
- See “Material Compliance” on page 107 for compliance details.



Belt Data						
Belt Material	BS Belt Strength ^a		Temperature Range (continuous)		W 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.

For sprocket information, see “Sprockets” on page 87.

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

	in	mm
Pitch	1.96	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	

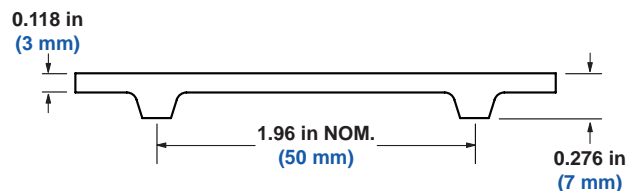


Product Notes

- **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 “*Belt Selection Considerations*” on page 56 for help selecting a belt.

See “*Material Compliance*” on page 107 for compliance details.



Belt Data

Belt Material	BS Belt Strength ^a		Temperature Range (continuous) ^b		W Belt Weight	
	lb/ft	kg/m	°F	°C	lb/ft ²	kg/m ²
HTL	1056	1572	60 to 210	15 to 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).

For sprocket information, see “*Sprockets*” on page 87.

S8050 Flat Top XT (7.0 mm)

	in	mm
Pitch	1.96	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	

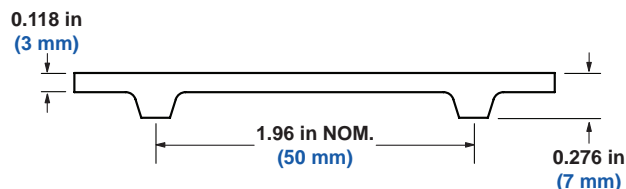


Product Notes

- **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 “*Belt Selection Considerations*” on page 56 for help selecting a belt.

See “*Material Compliance*” on page 107 for compliance details.



Belt Data

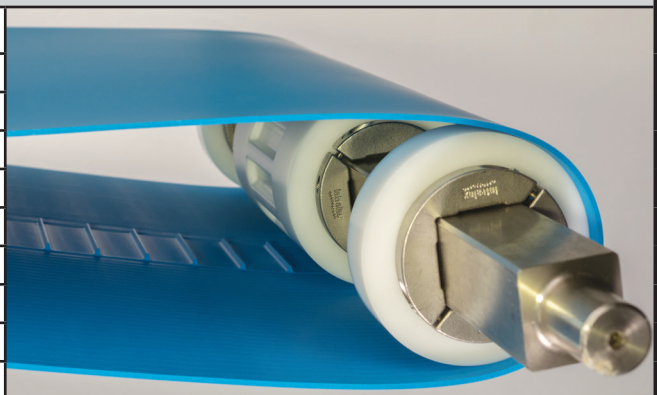
Belt Material	BS Belt Strength ^a		Temperature Range (continuous)		W Belt Weight	
	lb/ft	kg/m	°F	°C	lb/ft ²	kg/m ²
XT	800	1190	-4 to 170	-20 to 77	0.88	4.31

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.

For sprocket information, see “*Sprockets*” on page 87.

S8126 Flat Top E (6.0 mm)

	in	mm
Pitch	1.00	26
Overall Thickness	0.236	6.0
Minimum Width	10	254
Maximum Width	24	610
Minimum Backbend Diameter	4.0	102
Minimum Sprocket Diameter (10T)	4.0	102
Open Area (seamless surface)	0%	
Available Joining Options	prepared ends, endless	
Available Colors	blue	

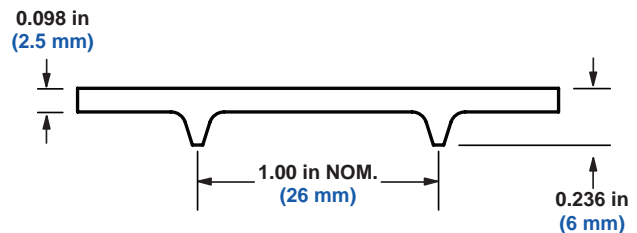
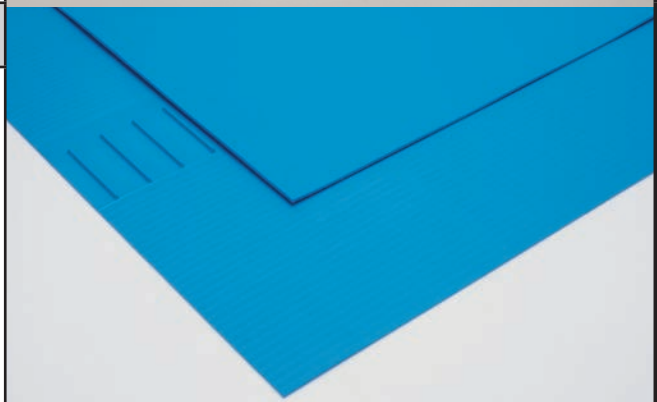


Product Notes

- **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 trough conveyors 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 “*Belt Selection Considerations*” on page 56 for help selecting a belt.

See “*Material Compliance*” on page 107 for compliance details.



Belt Data

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

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.

For sprocket information, see “*Sprockets*” on page 87.

BELT FABRICATION

BELT JOINING OPTIONS

Belt ends are fabricated with the chosen belt joining option.

Endless belts: Order endless belts to be installed 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; often used with the Synchronized Sidewall mechanical fastener kit.

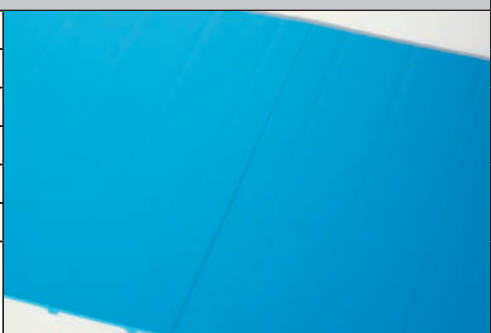
Metal lace ends: Order metal lace ends for easy belt disassembly during cleaning; often used with the Synchronized Sidewall mechanical fastener kit.

BELT JOINING CONSIDERATIONS

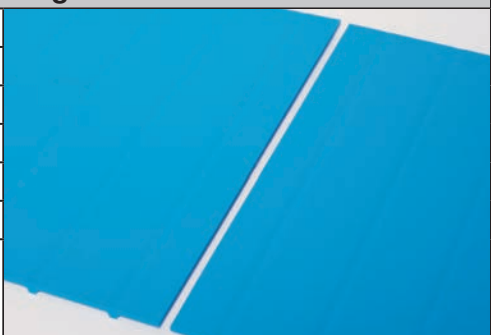
Consider the following when choosing a belt joining option.

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

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
<ul style="list-style-type: none"> • Repairs require belt splicing; see “<i>Splicing Equipment</i>” on page 103. • All prepared end and endless belts include at least one 6 in (152 mm) space between flights for splicing. 	



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
<ul style="list-style-type: none"> • Repairs require belt splicing; see “<i>Splicing Equipment</i>” on page 103. • All prepared end and endless belts include at least one 6 in (152 mm) space between flights for splicing. 	

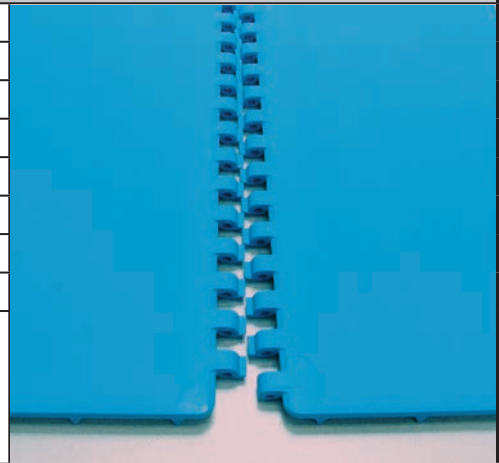


BELT FABRICATION

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 (surface textures) or perforated belts.
- Not recommended for 5.3 mm belts
- ThermoLace joints wider than 24 in (610 mm) are bricklaid.
- S8026 ThermoLace is a patented joining option.



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

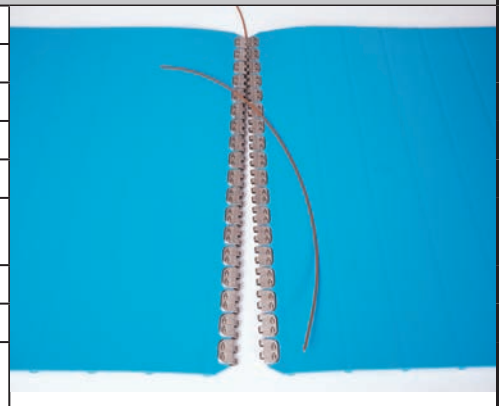
- Belt on either side of a ThermoLace joint is Flat Top for 6 in (150 mm) when joined to other belt styles (surface textures) or perforated belts.
- ThermoLace joints wider than 42 in (1067 mm) are bricklaid.
- S8050 ThermoLace is a patented joining option.



Metal Lace Joining

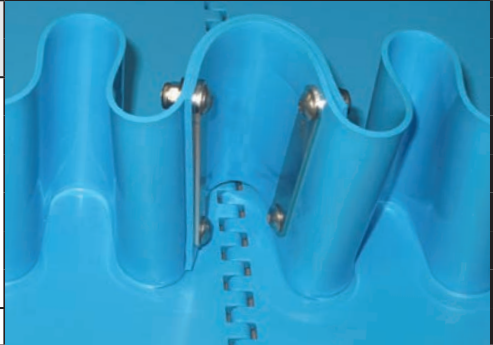
Strength Rating	300 lb/ft
Minimum Belt Width	6 in (152 mm)
Maximum Belt Width	72 in (1829 mm)
Width Increments	1.0 in (25 mm)
Rod Diameter	0.08 in (2 mm)
Rod Material	Brown nylon-coated stainless steel unheaded hinge rod
Edge Design	Retaining washer
Compatible Belts	All

- 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
in	mm	
1.0	25	Kit includes components for two sidewall splices one 0.25 Brad Point drill bit 10 metal plates 10 screws 10 lock nuts
2.0	51	
2.3	58	
3.0	75	
4.0	100	
6.0	152	

• One kit is needed for each belt splice.



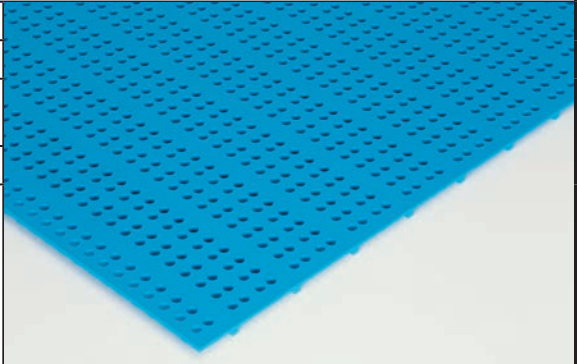
BELT FEATURES

Special belt features are available for unique applications.

- Belt perforations are employed for hygienic dewatering applications with 8050 belts.
- Belt trough grooves are employed for some troughed conveyor applications.
- Drive bar removal is employed for various applications. Contact Intralox Customer Service for application-specific suggestions.

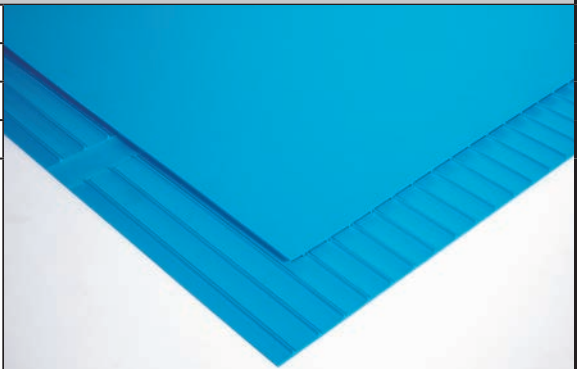
Belt Perforations	
Minimum Belt Width	2 in (51 mm)
Maximum Belt Width	66 in (1676 mm)
Perforation Sizes	0.25 in (6 mm) holes 20% open space
Compatible Material	Polyurethane

- Contact Intralox Customer Service for available non-uniform coverage options (for example, rows of perforations).
- Available with all joining options
- 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	1.75in (44.5 mm)
Compatible Material	Polyurethane, Cold Use, Dura, HTL, XT

- 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 lace joining
- 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.



BELT FABRICATION

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	
<ul style="list-style-type: none"> • 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

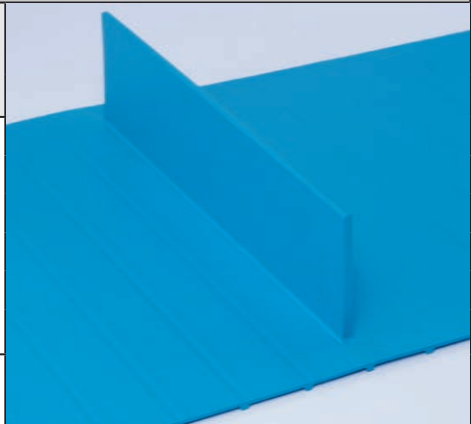
Available Flight and Sidewall Materials and Styles (Surface Textures)							
Accessory thickness	Polyurethane			Cold Use	Dura	HTL	XT
	Blue		White	Blue	Blue	Natural	Blue
	Smooth	ED	Smooth	Smooth	Smooth	Smooth	Smooth
90 degree flight							
3 mm	✓						
4 mm	✓	✓	✓	✓	✓		
7 mm	✓	✓	✓	✓	✓		
75 degree flight							
3 mm							
4 mm	✓	✓	✓	✓	✓		
7 mm	✓	✓	✓	✓	✓		
Scoop flight							
3 mm							
4 mm	✓	✓	✓	✓	✓		
7 mm	✓	✓	✓	✓	✓		
Short top scoop flight							
3 mm							
4 mm	✓	✓	✓	✓	✓		
7 mm	✓	✓	✓	✓	✓		
Sidewall							
1.5 mm	✓		✓				
2.0 mm	✓	✓	✓	✓			

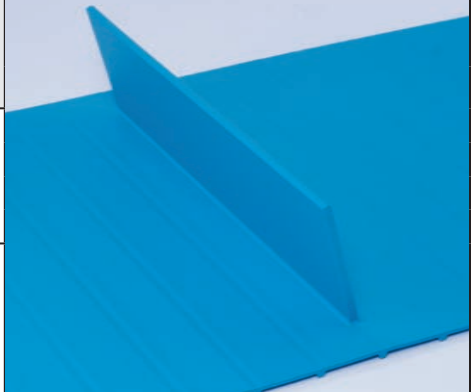
Smooth—Smooth style (surface texture); ED—Embedded Diamond style (surface texture)

FLIGHT SELECTION CONSIDERATIONS

Consider the following when selecting flights for belts.


- Flight and belt material must match. Flight and belt styles (surface textures) 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).
- Contact Intralox Customer Service for center notch recommendations based on design and application when belts or flights are wider than 24 in (610 mm).
- Minimum recommended flight indent from 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.

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	
2.0	50			
3.0	75			
4.0	100			
5.0	125			
6.0	150			
<ul style="list-style-type: none"> • 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 • Minimum flight spacing on S8026 belt is 2.0 in (51 mm). • Minimum flight spacing on S8050 belt is 1.9 in (49 mm). 				

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	
4.0	100			
5.0	125			
6.0	150			
<ul style="list-style-type: none"> • 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 • Minimum flight spacing on S8026 belt is 3.0 in (76 mm). • Minimum flight spacing on S8050 belt is 3.9 in (99 mm). 				

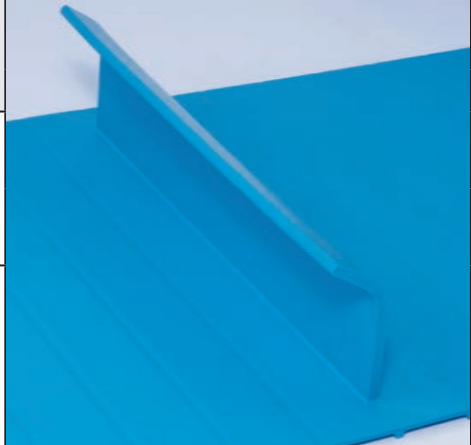
BELT FABRICATION

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
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
- Scoop angle is 95-105°.
- Minimum flight spacing on S8026 belt is 3.0 in (76 mm).
- Minimum flight spacing on S8050 belt is 3.9 in (99 mm).

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
4.0	100		
5.0	125		
6.0	150		



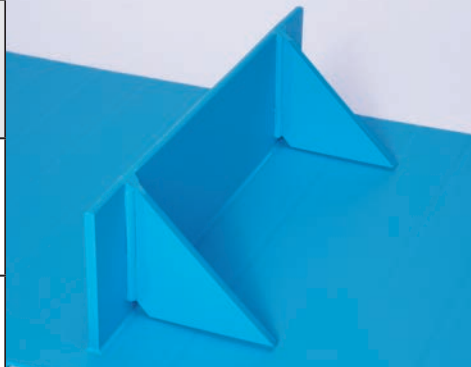
- Smooth surface polyurethane flights available in blue and white
- Smooth surface Cold Use flights, Dura flights, and dual-sided embedded diamond polyurethane flights available only in blue
- Short top scoop angle is 115-125°.
- Minimum flight spacing on S8026 belt is 3.0 in (76 mm).
- Minimum flight spacing on S8050 belt is 3.9 in (99 mm).

FLIGHT GUSSETS CONSIDERATIONS

Consider the following when selecting flight gussets.

- Flight gussets are used to increase flight rigidity and are employed 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 (surface textures) 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 created with 1.5 mm thick material and creates a 0.968 in (24.59 mm) wide footprint.
- 50 mm sidewall pitch is created with 2 mm thick material and creates a 1.750 in (44.45 mm) wide footprint.
- Minimum gap to flight is 0.2 in (5 mm + 2 mm).

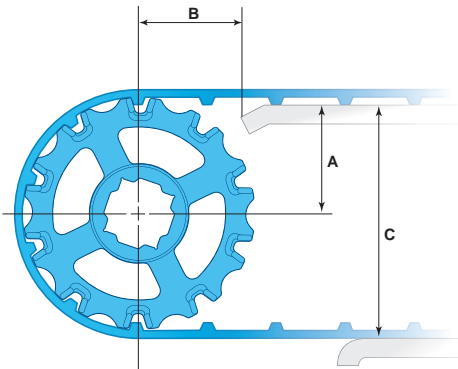
S8050 Synchronized Sidewalls Data						
Sidewall Pitch	Available Sidewall Heights		Min. Recommended Sprocket PD		Style	Available Materials
	in	mm	in	mm		
25 mm	1.0	25	4.0	102	Smooth	Polyurethane
	2.0	50	4.0	102		
50 mm	2.0	50	4.0	102	Smooth	Cold Use Polyurethane
					ED	Polyurethane
	2.3	60	5.2	132	Smooth	Polyurethane Cold Use
					ED	Polyurethane
	3.0	75	6.5	165	Smooth	Polyurethane Cold Use
					ED	Polyurethane
	4.0	100	7.7	196	Smooth	Polyurethane Cold Use
					ED	Polyurethane
	6.0	150	10.3	262	Smooth	Polyurethane Cold Use
					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 sidewall available only in blue

DRIVE AND IDLE END COMPONENTS

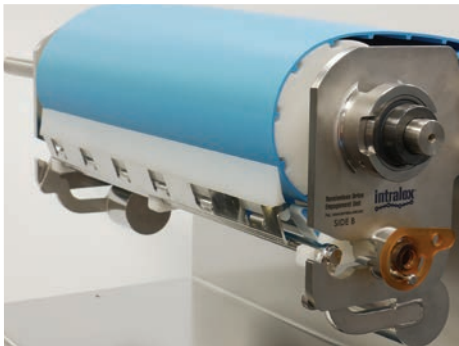
DRIVE END SELECTION CONSIDERATIONS



- Choose between using a pre-engineered drive solution like the patented Intralox Drive Unit or designing a drive end solution from individual drive end components.
- Use belt pitch and other conveyor design dimensions to make drive end component decisions. See *Design Guidelines, Conveyor Frame Design, “Dimensions”* on page 19.

Contact Intralox Customer Service for more information.

INTRALOX DRIVE UNIT FOR S8050



The Intralox Drive Unit is a patented, pre-engineered belt drive subassembly that optimizes ThermoDrive operational performance. The unit is adaptable to any end drive conveyor design. It bolts directly to the conveyor frame with a standard or custom bolt pattern.

- Available for new or existing conveyors
- Minimizes harborage
- Simplifies the sanitation process
- Delivers precise and consistent scraping performance

Contact Intralox Customer Service for an Audit Form with details about all available drive unit options.

Frame: Three-sided, 316 stainless steel construction with smart bar bushings and drive shaft bearings

Drive Component Choices:

- Full-width sprocket with stainless steel round shaft
- Stacked 6.5 in (165 mm) 10T EZ Clean MAX acetal sprockets on stainless steel square shaft
- Spaced 6.5 in (165 mm) 10T EZ Clean MAX acetal sprockets on stainless steel square shaft

Smart bar assembly: Stainless steel smart bar with patented tool-free position limiters with UHMW-PE belt-contact surfaces; choice of bolts or handles for retention

Self-adjusting scraper: Optional, 316 stainless steel assembly with removable UHMW-PE scraper and acetal mounts that attach to the smart bar

Belt compatibility:

- S8050 Flat Top Polyurethane, Cold Use, High Temperature Heavy Load, Dura, or XT belt
- Endless or prepared end belts 5.00-39.25 in (127-1000 mm) wide with or without flights
- Not compatible with sidewalls

Spares: Replacement sprockets, position limiters, scrapers, and handles are available for individual purchase. See the *Intralox Drive Unit User Manual* at www.intralox.com for a detailed list.

DRIVE AND IDLE END COMPONENTS

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, 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.

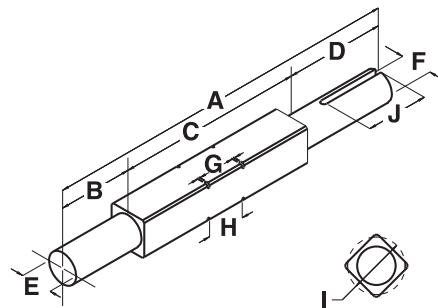
Contact Intralox Customer Service for a Shaft Specification Form or help with ordering.

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 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.

Shafts Available from Intralox USA Tolerances		
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
Contact Intralox Customer Service for larger diameters or shafts longer than 12 ft (3.6 m).		



DIMENSIONS REQUIRED:

- A - LENGTH, overall
- B - LENGTH, bearing-end journal
- C - LENGTH, square section
- D - LENGTH, drive-end journal and keyway dimensions
- E - DIAMETER, bearing journal
- F - DIAMETER, drive-end journal
- G - WIDTH, retainer ring groove
- H - WIDTH, sprocket hub
- I - DIAMETER, ring groove
- J - LENGTH of keyway

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

TOLERANCES (Unless otherwise specified)

- OVERALL LENGTH $48 \pm 0.061 \text{ in.}$ (<math>< 1200 \pm 0.8 \text{ mm}</math>)
- > $48 \pm 0.125 \text{ in.}$ (<math>< 1200 \pm 1.2 \text{ mm}</math>)
- JOURNAL DIAM. $- 0.0005 - 0.003 \text{ in.}$ ($- 0.0127 - 0.0762 \text{ mm}$)
- ($\varnothing h7$ vlg. NEN-ISO 286-2)
- KEYWAY WIDTHS $+ 0.003 \text{ in./- } 0.000 \text{ in.}$ ($+ 0.05/- 0.00 \text{ mm}$)

SURFACE FINISHES

- JOURNAL..... 63 microinches (1.6 micrometers)
- OTHER MACHINED SURFACES.... 125 microinches (3.25 micrometers)

Unless otherwise specified USA keyways are for parallel square keys (ANSI B17.1 - 1967, R1973). Metric keyways are for flat, inlaid keys with round ends (DIN 6885-A)

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 an Intralox Drive Unit 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

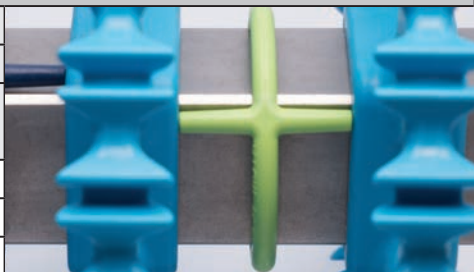
Sprocket spacers are compatible with the most common spaced sprocket and support wheel applications. They are not for use with drive units, S8126 belts, or component centerline spacing over 3 in (76 mm).

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


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

Installation instructions are provided with purchase.

X-Ray Detectable 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



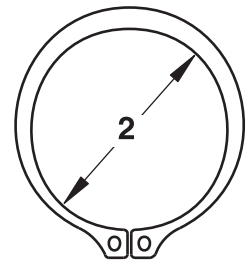
Detectable Sprocket Spacer Data					
Nom. Sprocket Spacer Width in	Nom. Sprocket Spacer Width mm	Available Bore Sizes			
		U.S. Sizes		Metric Sizes	
		Round in	Square in	Round mm	Square mm
1.0	25		1.5		40
1.5	38		1.5		40
2.0	51		1.5		40



STAINLESS STEEL RETAINER RINGS

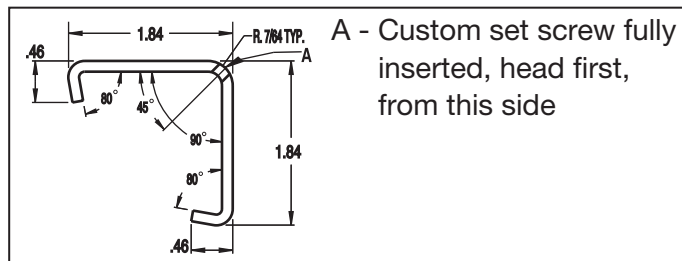
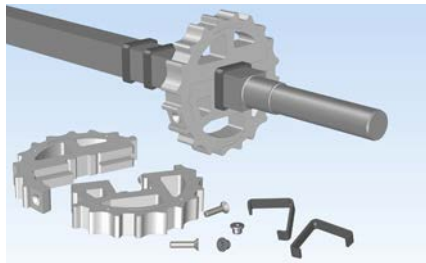
Stainless steel retainer rings are available from Intralox to fit Intralox square shafts.

- 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” on page 23.*



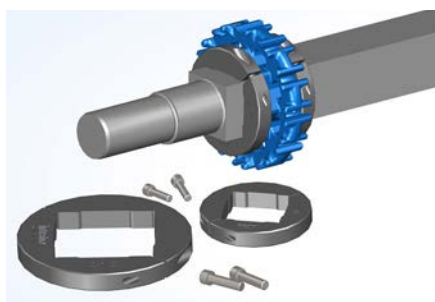
2. Ring groove diameter

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 shaft installed. They are fixed in position with a unique set screw that does not fall out during operation.
- These retainer rings are not recommended in applications where high lateral forces are expected.

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.

SPROCKETS

S8026 AND S8050 SPROCKETS

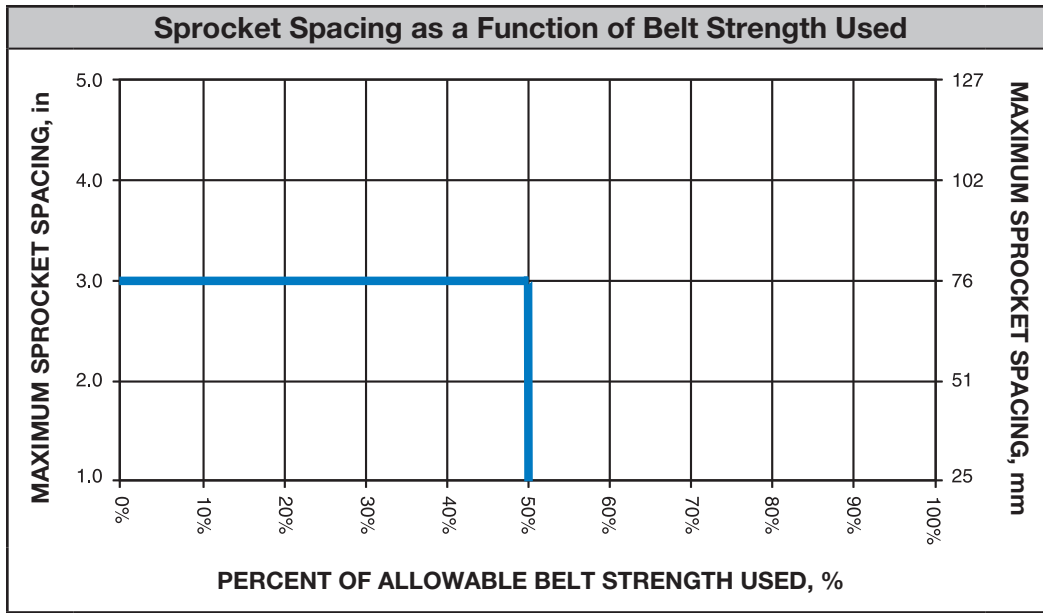
SPROCKET SELECTION CONSIDERATIONS

- All sprockets in the *Product Line* 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 see “S8050 Synchronized Sidewalls Data” on page 81.
- 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 ^a		Minimum Number of Sprockets Per Shaft ^b
in	mm		in	mm	
1	25	1	1	25	1
2.9 ^c	74	2	3.7 ^d	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. For S8026 belt widths 2.875-4.375 in (73-111 mm), stack sprockets between heavy-duty split retainer rings.
- d. For S8050 belt widths 3.6875-4.6875 (94-119 mm), stack sprockets between heavy-duty split retainer rings.


DRIVE AND IDLE END COMPONENTS



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

S8026 EZ Clean Molded 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
6 ^b	2.0	51	1.9	48	1.0	25	1		25	
10	3.2	81	3.2	81	1.0	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. Contact Intralox Customer Service for lead times before ordering.
 b. Not compatible with ThermoLace

S8026 EZ Clean 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
8 ^b	2.5	64	2.5	64	1.0	25	1		25	




a. Contact Intralox Customer Service for lead times before ordering.
 b. Not compatible with ThermoLace

DRIVE AND IDLE END COMPONENTS

S8050 EZ Clean Molded 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
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



a. Contact Intralox Customer Service for lead times before ordering.

S8050 EZ Clean 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	6.5	165	6.3	160	1.0	25		2.0		
								2.5		
12	7.7	196	7.6	193	1.0	25		1.5		40
								2.0		
								2.5		
16 ^b	10.3	262	10.1	255	1.0	25		1.5		40
								2.5		




a. Contact Intralox Customer Service for lead times before ordering.

b. Not compatible with ThermoLace

S8050 Split Sprocket Data^{abc}

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. Contact Intralox Customer Service for lead times before ordering.

b. Available in machined natural acetal or abrasion resistant natural nylon


c. Sprockets have a preferred driving direction; check body side arrows.

DRIVE AND IDLE END COMPONENTS

S8126 SPROCKETS AND DRIVE END

S8126 Drive End Component Quantity Reference Data												
Belt Width (in)		2.5 in (65 mm) Wide Flanged Support Roller (Quantity)	2.5 in (65 mm) Wide Support Roller (Quantity)	1 in (25 mm) Wide Support Roller (Quantity)	6 in (152 mm) Wide Tail Roller (Quantity)	SS Heavy-duty Split Retainer Ring (Quantity)	Component Spacing Edge to Edge		Minimum Total Belt Edge Clearance		Minimum Length of Square Portion of Shaft	
							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 before ordering.
- b. Not compatible with ThermoLace

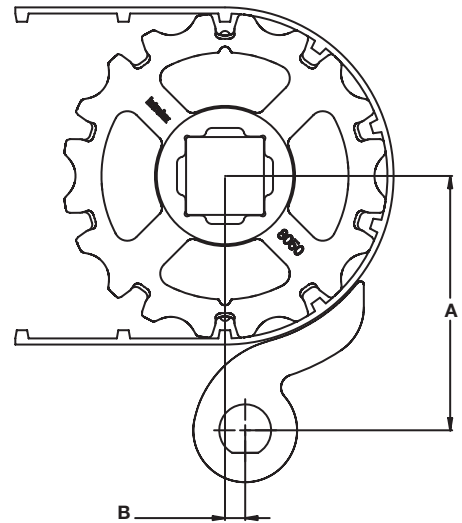
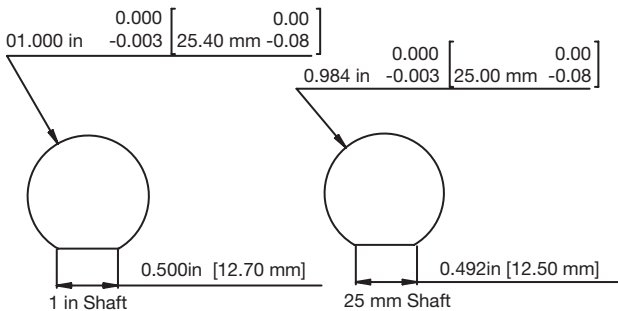
For other drive end components referenced, see “S8126 Idle End” on page 96.

POSITION LIMITERS

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

- EZ Clean Universal position limiters are employed most often 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 (D-shaft mount) Data			
Nom. Pitch Dia. in	Nom. Pitch Dia. mm	Dimensions (H x W x D)	
		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



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 NT	
	A	B	A	B	A	B	A	B
3.2 in (81 mm)	3.356 in (85.2 mm)	0.200 in (5.1 mm)	3.378 in (85.8 mm)	0.215 in (5.5 mm)	3.388 in (86.1 mm)	0.223 in (5.7 mm)	3.425 in (87.0 mm)	0.248 in (6.3 mm)
3.9 in (99 mm)	3.659 in (92.9 mm)	0.005 in (0.1 mm)	3.681 in (93.5 mm)	0.010 in (0.3 mm)	3.691 in (93.8 mm)	0.015 in (0.4 mm)	3.728 in (94.7 mm)	0.028 in (0.7 mm)
6.4 in (163 mm)	4.898 in (124.4 mm)	0.389 in (9.9 mm)	4.921 in (125.0 mm)	0.404 in (10.3 mm)	4.931 in (125.2 mm)	0.412 in (10.5 mm)	4.969 in (126.2 mm)	0.437 in (11.1 mm)

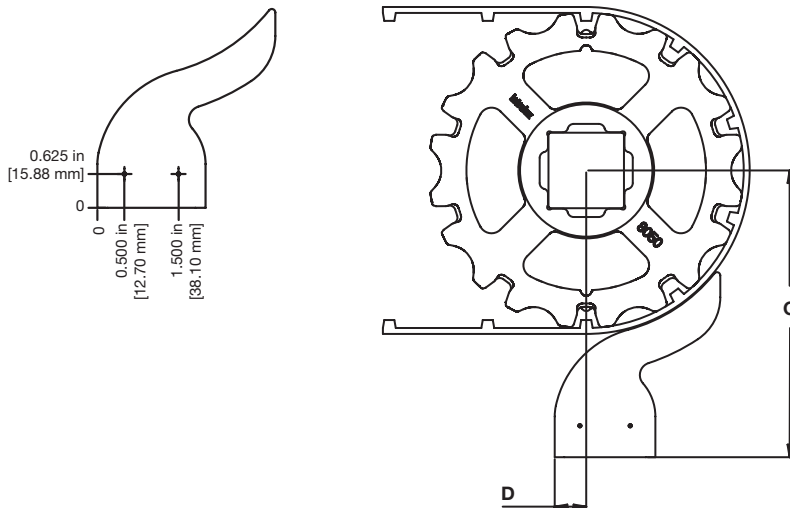
DRIVE AND IDLE END COMPONENTS

S8050 Position Limiter (D-shaft Mount) Installation Dimensions

Sprocket PD	7 mm Flat Top		7.5 mm EDT		8.0 mm NT	
	A	B	A	B	A	B
4.0 in (102 mm)	3.662 in (93.0 mm)	0.001 in (0.0 mm)	3.684 in (93.6 mm)	0.015 in (0.4 mm)	3.706 in (94.1 mm)	0.030 in (0.8 mm)
5.2 in (132 mm)	4.270 in (108.5 mm)	0.215 in (5.5 mm)	4.294 in (109.1 mm)	0.219 in (5.6 mm)	4.316 in (109.6 mm)	0.221 in (5.6 mm)
6.5 in (165 mm)	4.882 in (124.0 mm)	0.392 in (10.0 mm)	4.899 in (124.4 mm)	0.404 in (10.3 mm)	4.916 in (124.9 mm)	0.413 in (10.5 mm)

EZ Clean Position Limiter (Universal Mount) Data

Nom. Pitch Dia. in	Nom. Pitch Dia. mm	Dimensions (H x W x D)	
		in	mm
2.0	51	3.27 x 2.31 x 0.75	83 x 59 x 19
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



S8026 Position Limiter (Universal Mount) Installation Dimensions


Sprocket PD	5.3 mm Flat Top		6.0 mm Flat Top		6.3 mm EDT		7.4 mm NT	
	C	D	C	D	C	D	C	D
3.2 in (81 mm)	4.166 in (105.8 mm)	0.819 in (20.8 mm)	4.188 in (106.4 mm)	0.804 in (20.4 mm)	4.199 in (106.7 mm)	0.796 in (20.2 mm)	4.236 in (107.6 mm)	0.772 in (19.6 mm)
3.9 in (99 mm)	4.469 in (113.5 mm)	0.995 in (25.3 mm)	4.491 in (114.1 mm)	0.990 in (25.1 mm)	4.502 in (114.4 mm)	0.985 in (25.0 mm)	4.539 in (115.3 mm)	0.972 in (24.7 mm)
6.4 in (163 mm)	5.708 in (145.0 mm)	0.611 in (15.5 mm)	5.731 in (145.6 mm)	0.596 in (15.1 mm)	5.742 in (145.8 mm)	0.588 in (14.9 mm)	5.780 in (146.8 mm)	0.563 in (14.3 mm)

DRIVE AND IDLE END COMPONENTS


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)	4.472 in (113.6 mm)	0.999 in (25.4 mm)	4.481 in (113.8 mm)	0.995 in (25.3 mm)	4.517 in (114.7 mm)	0.970 in (24.7 mm)
5.2 in (132 mm)	5.080 in (129.0 mm)	0.785 in (19.9 mm)	5.087 in (129.2 mm)	0.783 in (19.9 mm)	5.123 in (130.1 mm)	0.779 in (19.8 mm)
6.5 in (165 mm)	5.692 in (144.6 mm)	0.608 in (15.4 mm)	5.699 in (144.8 mm)	0.603 in (15.3 mm)	5.727 in (145.5 mm)	0.587 in (14.9 mm)

Position Limiter Block Data

Nom. Pitch Dia. in	Nom. Pitch Dia. mm	Dimensions (H x W x D)		
		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	

Flighted Belt Position Limiter Kit Data

Nom. Pitch Dia. in	Nom. Pitch Dia. mm	Dimensions (H x W x D) ^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			

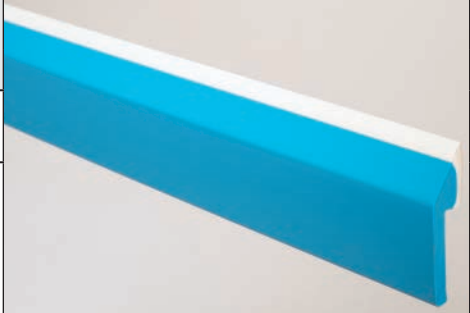
a. Dimensions do not include mounting plate.

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” on page 30.
- 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
<ul style="list-style-type: none"> • 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

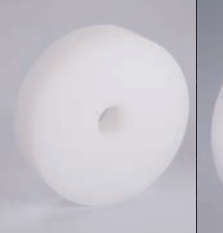
- Support wheels and rollers are compatible with S8026 and S8050 belts unless otherwise indicated.
- Support wheels are designed for use on square shafts. When using round shafts, use return rollers.
- Support wheel and roller diameters must meet the minimum sprocket diameter required for the belt.
-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

ThermoDrive Support Wheel Data ^{ab}							
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. Contact Intralox Customer Service for lead times before ordering.
 b. Designed to work with corresponding diameter sprockets; material is UHMW-PE.

ThermoDrive Return Roller Data ^{ab}							
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. Contact Intralox Customer Service for lead times before ordering.
 b. Material is UHMW-PE.

ThermoDrive Flanged Roller Data ^{ab}							
Nom. Roller Dia. in ^c	Nom. Roller Dia. mm ^c	Nom. Hub Width in ^d	Nom. Hub Width mm ^d	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. Contact Intralox Customer Service for lead times before ordering.
 b. Material is UHMW-PE.
 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).

DRIVE AND IDLE END COMPONENTS


S8126 IDLE END

S8126 Idle End Component Quantity Reference Data												
Belt Width		2.5 in (65 mm) Wide Flanged Support Roller (Quantity)	2.5 in (65 mm) Wide Support Roller (Quantity)	1 in (25 mm) Wide Support Roller (Quantity)	6 in (152 mm) Wide Tail Roller (Quantity)	SS Heavy-duty Split Retainer Ring (Quantity)	Component Spacing Edge to Edge		Minimum Total Belt Edge Clearance		Minimum Length of Square Portion of Shaft	
							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.

DRIVE AND IDLE END COMPONENTS

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	

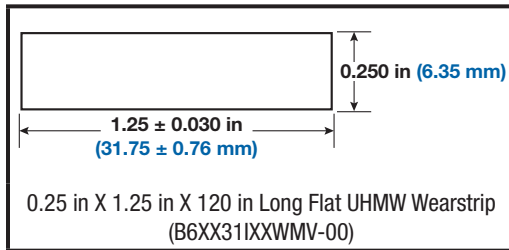
a. Contact Intralox Customer Service for lead times.

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.

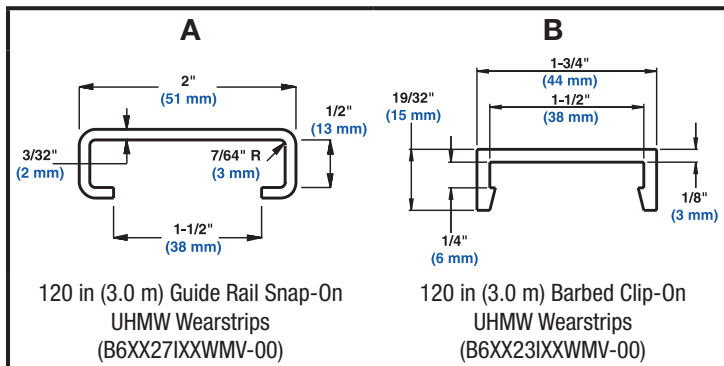


NOTE: Recommended for installation with S8126 belting.

SPECIALTY WEARSTRIPS

Intralox offers various clip-on wearstrips including the following.

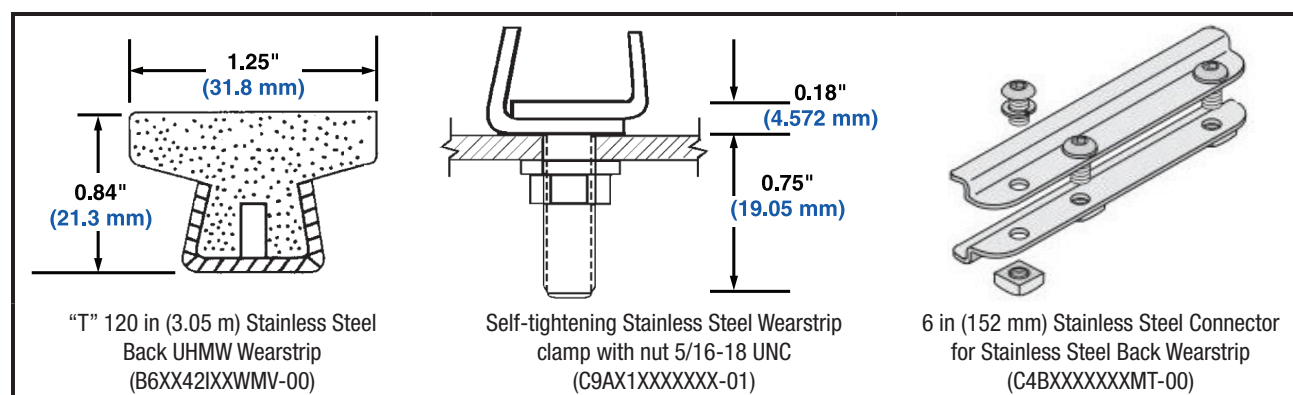
- For new applications, use flat wearstrips with wide surface area for carryways and returnways.
- Use clip-on wearstrips only for lightly-loaded retrofit applications or to prove concepts. They are not recommended for normal production operation.
- Contact Intralox Customer Service for application-specific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



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 light load, 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.



SHAFTS

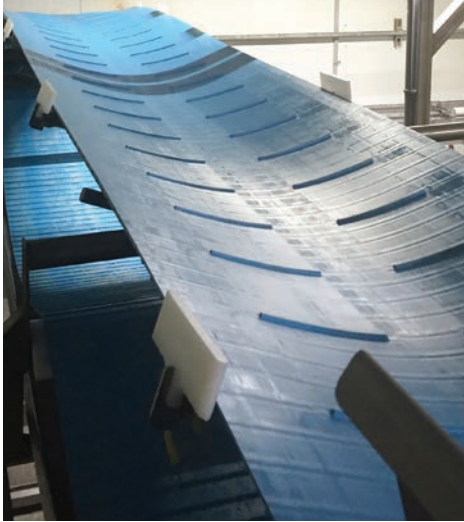
Select round or square shafts as needed for carryway and returnway component installation.

- Intralox offers customized square shafts. See *"Square Shaft Considerations"* on page 84.
- Round shafts are not available from Intralox.

RETURN ROLLERS

See *"Support Wheels and Rollers"* on page 95.

TROUGH RETROFIT SET



The new troughed conveyor retrofit set lets customers upgrade flat belt legacy equipment to high-performance ThermoDrive components.

- Designed for transverse angle style conveyors
- Custom brackets fit most angled support rods
- Customers can use existing frame and possibly idle and returnway components
- Most commonly employed for dough conveying

Component Specifications

Trough retrofit brackets: Customized stainless steel, laser-cut brackets fit support rods.

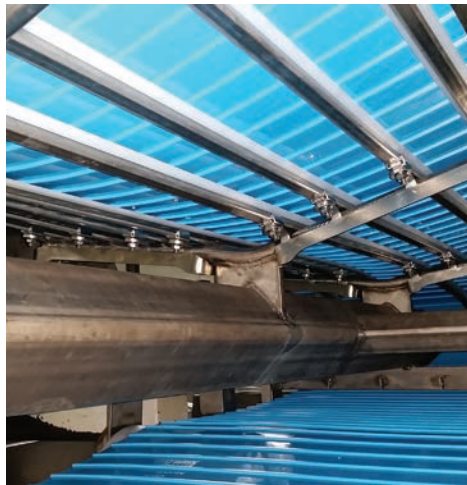
- 6.0 in (152 mm) to 21.5 in (546 mm) long
- 0.5 in (12.7 mm) to 1.75 in (44.4 mm) in diameter

Retrofit bracket containment blocks: White UHMW-PE containment blocks

- Press-fit onto the bracket
- Provide 6 in (152 mm) of contact with symmetrical chamfers

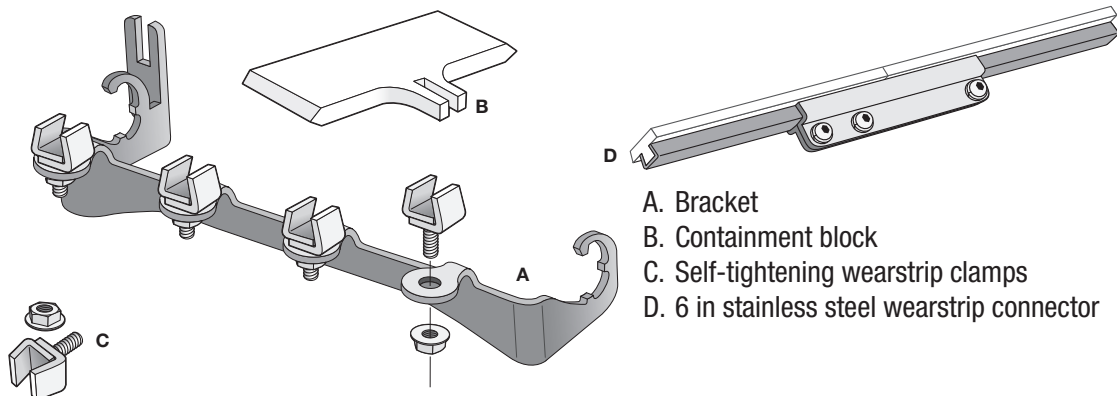
Recommended for use with the following wearstrips, clamps, and connectors

- T-shaped stainless backed virgin UHMW (PE1000) 120 in (31.75 cm) x 1.25 in (304.80 cm)
- Self-tightening wearstrip clamps with upgraded fasteners
- 6 in (152 mm) stainless steel wearstrip connectors to add rigidity and eliminate catch points



Troughed conveyors must meet specifications in the *ThermoDrive Trough Retrofit Set Audit*. Installation Instructions at www.intralox.com. Contact Intralox Customer Service for application-specific information.

Patent pending bracket design



- A. Bracket
- B. Containment block
- C. Self-tightening wearstrip clamps
- D. 6 in stainless steel wearstrip connector

SPLICING EQUIPMENT

THERMODRIVE SPLICING SYSTEM V. 2

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

Splicing System v. 2												
Max. belt width		Min./Max. Temp Range		Electric Power Supply	Complete Set Weight		Splicer					
							Dimensions		Weight			
in	mm	°F	°C	V	lb	kg	in	mm	lb	kg		
24	610	425-500	218-260	100-127 v/ 200-240 v	140	63	33.75 L x 11.5 W x 4.5 H		857 L x 292 W x 114 H		45	20
42	1067			100-127v/ 220-240 v	165	75	51.75 L x 13.125 W x 4.75 H		1314 L x 333 W x 121 H		70	32

Compatible with S8026, S8050, and S8126 belts up to 42 in (1220 mm) wide

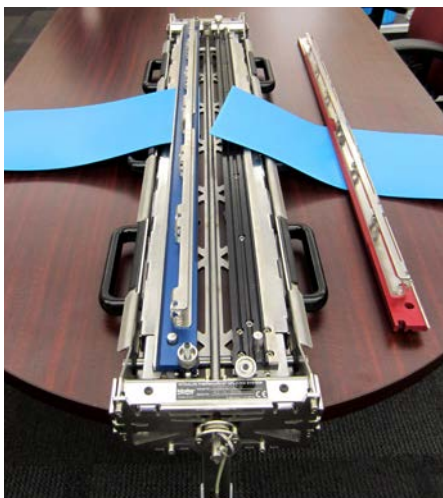
ThermoDrive Splicing System v. 2 includes the following components.

- 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 neatly 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



THERMODRIVE STREAMLINE SPLICING SET

This patented belt splicing solution provides tools to prepare belt ends, then quickly and reliably 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.

Streamline Splicing Set										
Max. belt width		Min./Max. Temp Range		Electric Power Supply	Complete Set Weight		Splicer			
							Dimensions		Weight	
in	mm	°F	°C	V	lb	kg	in	mm	lb	kg
72	1829	425-500	218-260	100–127 v/ 200–240 v	372	169	94 L x 18.5 W x 11.5 H (extended)	2388 L x 470 W x 292 H	220	100

The ThermoDrive streamline splicing set includes the following components.

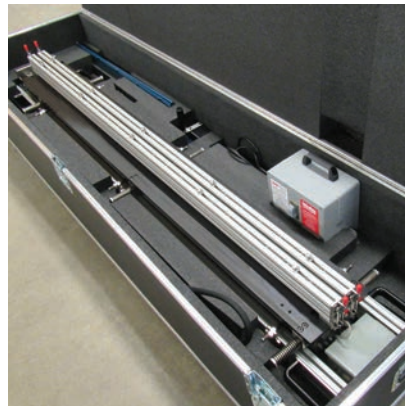
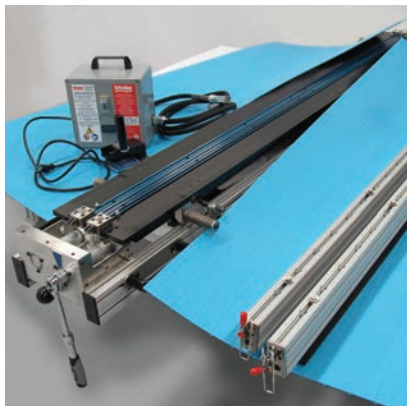
- Integrated wand splicer
- Control box and cord
- Hand-held belt preparation tool
- User manual
- Small tool accessory pack with trim tools; sample material
- Storage case

The integrated wand splicer is an all-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

Warranty: one year



THERMODRIVE STREAMLINE HAND-HELD BELT PREPARATION TOOL

This patent-pending, stand-alone, 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.

Hand-held Belt Preparation Tool			
Dimensions		Weight	
in	mm	lb	kg
5 L x 5 W x 7 H	127 L x 127 L x 178 H	3.6	1.6



- Provided with every streamline splicing set
- Available as a separate purchase for use with splicing system v.2 or similar
- Not compatible with S8126 belt or drive bar removal over 3 in (72 mm) wide



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
- Wand cords
- Carrying handles
- Crank handles
- Heat wands
- Silicone spacer kits
- Teflon tape
- Pitch gauge
- Plug adaptor
- Top clamps
- Skiving tool
- Belt preparation tool handle
- Belt preparation tool grooved guide
- Belt preparation tool hook blade


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 show that when they are cleaned and sanitized, they maintain essential functional properties and surface finish.

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	
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	1935/2004 EC, Regulation 10/2011	18-03	1421

a. Contact Intralox Customer Service to verify compliance for specific material color combinations for specific applications.

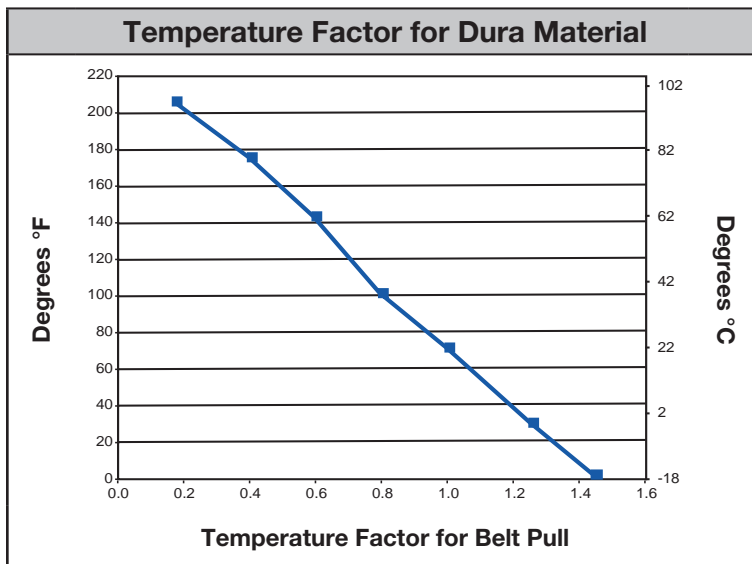
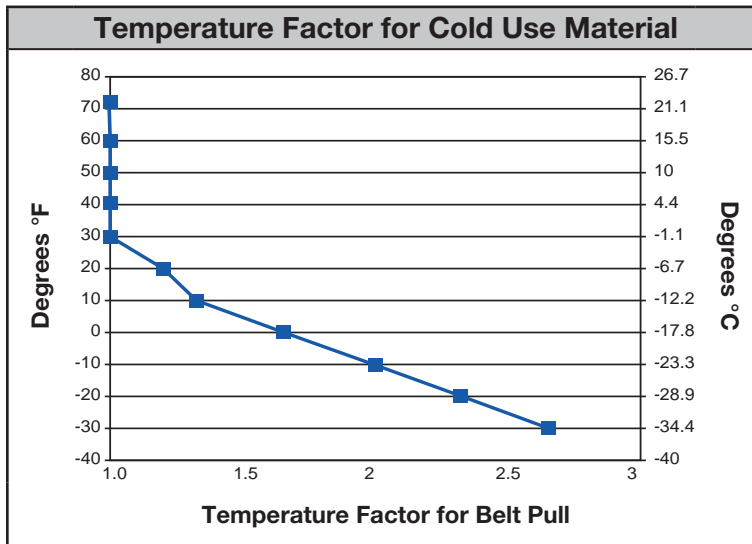
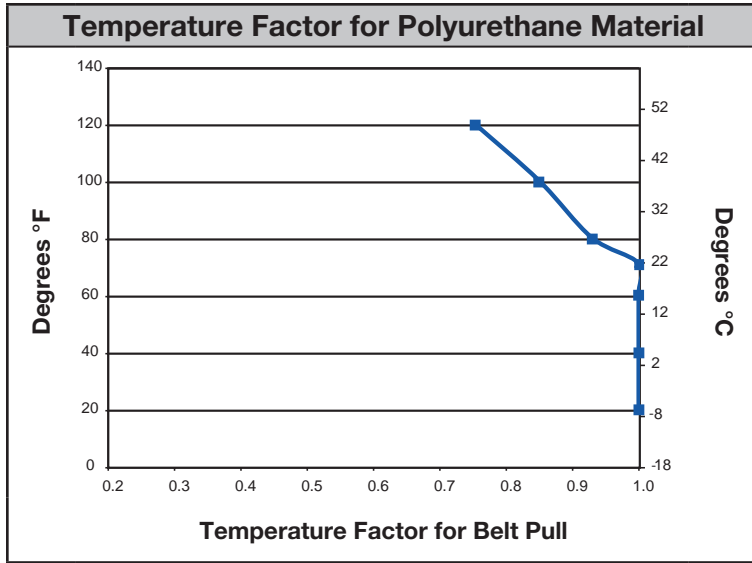
b. Belting meets 3-A Sanitary Standards for design and fabrication.

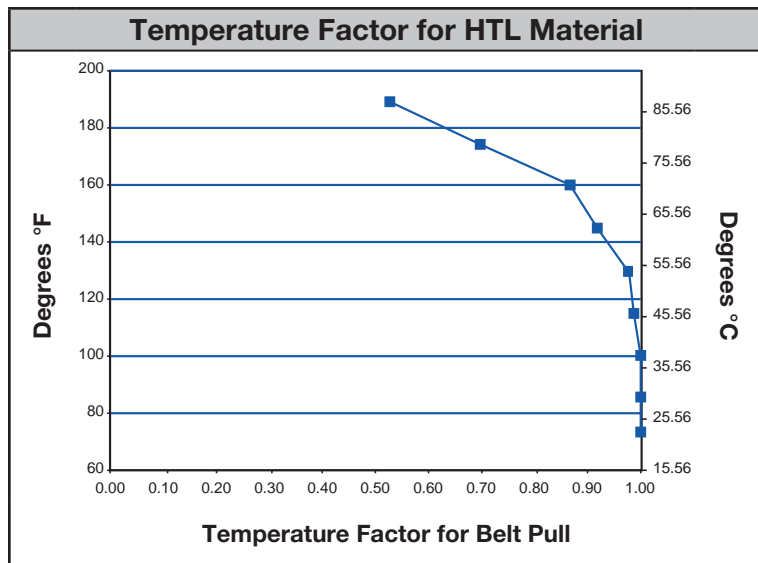
TEMPERATURE FACTORS

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, belt 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.

BELT MATERIAL PROPERTIES





BELT CHEMICAL RESISTANCE GUIDE

The chemical resistance chart is provided for general reference. Many conditions in an application may 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.

CHEMICAL	C - Strong Solvent (Only for Superficial Cleaning)		D - Not Recommended * - No Data
	Polyurethane	Cold Use	HTL/XT
Acetic Acid, Glacial	D	D	A
Acetic Acid, Glacial (100°F–38°C)	D	D	B
Acetic Acid (20%)	D	D	A
Acetic Acid (3%)	D	D	A
Acetic Anhydride	D	D	D
Acetone	D	D	C
Acetylene	A	A	A
Acrylic Acid	*	*	*
Aluminum Chloride	A	A	B
Aluminum Sulphate	A	A	A
Ammonium Carbonate	A	A	A
Ammonium Chloride	B	B	D
Ammonium Hydroxide	B	B	B
Ammonium Nitrate	A	A	A
Ammonium Nitrite	A	A	A
Ammonium Persulfate	*	*	*
Ammonium Phosphate	A	A	A
Ammonium Sulphate	A	A	B
Ammonium Sulfide	A	A	A
Amyl Acetate	D	D	B
Amyl Alcohol	A	A	A

BELT MATERIAL PROPERTIES

CHEMICAL	C - Strong Solvent (Only for Superficial Cleaning)		D - Not Recommended * - No Data
	Polyurethane	Cold Use	HTL/XT
Aniline	D	D	D
Animal Oils & Fats	A	A	A
Anti-Freeze	B	B	B
Asphalt	B	B	B
ASTM Oil #1 (300°F–149°C)	A	A	A
ASTM Oil #3 (300°F–149°C)	A	A	A
ASTM Reference Fuel A (158°F–70°C)	A	A	A
ASTM Reference Fuel B (148°F–70°C)	B	B	A
ASTM Reference Fuel C	B	B	A
ASTM Reference Fuel C (158°F–70°C)	B	B	B
Barium Chloride	A	A	B
Barium Hydroxide	A	A	A
Barium Sulfide	A	A	A
Beer	A	A	A
Beet Sugar Liquors	A	A	A
Benzene	C	C	A
Borax	A	A	A
Boric Acid	B	B	A
Brake Fluid	D	D	B
Bromine, Anhydrous Liquid	D	D	D
Butane	A	A	A
Butter	A	A	A
Butyl Acetate	D	D	B
Butyric Acid	*	*	*
Calcium Bisulfite	D	D	D
Calcium Chloride	B	B	A
Calcium Hydroxide	A	A	A
Calcium Hypochlorite (5%)	A	A	A
Calcium Nitrate	A	A	A
Calcium Sulfide	A	A	A
Caliche (Sodium Nitrate)	D	D	B
Cane Sugar	A	A	A
Carbon Bisulfide	B	B	A
Carbon Dioxide	A	A	A
Carbon Monoxide	A	A	A
Carbon Tetrachloride	B	B	D
Castor Oil	B	B	A
Cheese	A	A	A
Chinawood Oil	B	B	A
Chlorine Gas, Dry	D	D	D
Chlorine Gas, Wet	D	D	D
Chloroacetic Acid	D	D	D
Chlorobenzene	D	D	D

BELT MATERIAL PROPERTIES

A - Excellent B - Good	C - Strong Solvent (Only for Superficial Cleaning)	D - Not Recommended * - No Data	
CHEMICAL	Polyurethane	Cold Use	HTL/XT
Chloroform	D	D	B
Chlorosulphonic Acid	D	D	D
Chromic Acid	D	D	D
Citric Acid	A	A	A
Coconut Oil	A	A	A
Copper Chloride	A	A	B
Copper Sulphate	A	A	A
Corn Oil	A	A	A
Cottonseed Oil	A	A	A
Cresol	D	D	D
Creosote	B	B	A
Cyclohexane	B	B	A
Cyclohexanone	D	D	D
Denatured Alcohol	C	C	C
Diesel Oil	B	B	A
Dibutyl Phthalate	A	A	A
Diethyl Sebacate	A	A	A
Diethyl Ether	B	B	B
Dimethyl Acetamide	D	D	D
Dimethyl Formamide	D	D	B
Dimethyl Sulphoxide	D	D	D
Diocetyl Phthalate (DOP)	A	A	A
DUAL, Trademark of Ciba Geigy Corp	A	A	A
Epichlorohydrin	D	D	D
Ethanol	C	C	A
Ethyl Acetate	D	D	B
Ethyl Cellulose	D	D	D
Ethylene Chloride	D	D	D
Ethylene Dichloride	D	D	D
Ethylene Glycol	A	A	A
Ethylene Oxide	A	A	A
Ferric Chloride	B	B	B
Ferric Sulphate	B	B	B
Fertilizer	B	B	B
Fish Oil	A	A	A
Flour	A	A	A
Fluosilicic Acid	B	B	D
Formaldehyde (40%)	B	B	B
Formic Acid	D	D	B
Freon, DuPont (11, 12, 113, 114)	A	A	A
Fruit Acids	A	A	A
Fuel Oil	B	B	A
Furfural	C	C	C

BELT MATERIAL PROPERTIES

CHEMICAL	C - Strong Solvent (Only for Superficial Cleaning)		D - Not Recommended * - No Data
	Polyurethane	Cold Use	HTL/XT
Gasoline	B	B	A
Glucose	A	A	A
Glue	A	A	A
Glycerin	A	A	A
Hexane	A	A	A
Hexanol	A	A	A
Hydraulic Oils	B	B	B
Hydrazine	D	D	D
Hydrochloric Acid (37%)	D	D	D
Hydrochloric Acid (20%)	D	D	B
Hydrochloric Acid (3%)	D	D	B
Hydrocyanic Acid	D	D	D
Hydrofluoric Acid (75%)	D	D	D
Hydrofluoric Acid (48%)	D	D	D
Hydrofluoric Acid, Anhydrous	D	D	D
Hydrogen	A	A	A
Hydrogen Peroxide	C	C	C
Hydrogen Sulphide	B	B	A
Iodine	D	D	D
Isooctane	A	A	A
Isopropyl Alcohol	C	C	A
Javelle Water (0.5%)	D	D	D
JP-4 Jet Fuel	B	B	B
Kerosene	B	B	A
Lacquer Solvents	D	D	D
Lactic Acid	B	B	A
Lard	A	A	A
Lineolic Acid	D	D	B
Linseed Oil	B	B	A
Lubricating Oils	B	B	B
Magnesium Chloride	A	A	A
Magnesium Hydroxide	B	B	B
Magnesium Sulfate	A	A	A
Meat & Bone Meal	A	A	A
Mercuric Chloride	D	D	D
Mercury	D	D	D
Methyl Alcohol (Methanol)	C	C	A
Methyl Isobutyl Ketone (MIBK)	C	C	C
Methyl Ethyl Ketone (MEK)	C	C	C
Methylene Chloride	D	D	D
Milk	A	A	A
Mineral Oils	A	A	A
Mineral Spirits	C	C	A

BELT MATERIAL PROPERTIES

CHEMICAL	C - Strong Solvent (Only for Superficial Cleaning)		D - Not Recommended * - No Data
	Polyurethane	Cold Use	HTL/XT
Molasses	A	A	A
Mustard	A	A	A
Naphthalene	C	C	C
Nickel Chloride	B	B	A
Nickel Sulphate	B	B	A
Nitric Acid (20%)	D	D	D
Nitric Acid (3%)	D	D	B
Nitric Acid, Red Fuming	D	D	D
Nitrobenzene	D	D	D
Nut Oil	A	A	A
Oils & Fats	A	A	A
Oleic Acid	B	B	A
Oleum	D	D	D
Olive Oil	A	A	A
Oxalic Acid	B	B	B
Ozone	D	D	D
Palm Kernel Oil	A	A	A
Palmitic Acid	B	B	B
Peanut Oil	A	A	A
Pentane	A	A	A
Paraffin	A	A	A
Perchloroethylene	D	D	D
Petroleum	B	B	B
Phenol	D	D	D
Phosphoric Acid, Diluted	B	B	B
Pickling Solution (20% Nitric Acid, 4% HF)	D	D	D
Pickling Solution (1% Nitric Acid, 4% HF)	B	B	B
Pine Resin	A	A	A
Potassium Chloride	A	A	A
Potassium Dichromate	A	A	A
Potassium Hydroxide	B	B	B
Potassium Nitrate	A	A	A
Potassium Sulphate	A	A	A
Pydraul 312, Trademark of Monsanto Inc.	A	A	A
Pyridine	D	D	D
Rosemary Oil	A	A	A
SAE 10 Oil	A	A	A
Salt Water	A	A	A
Shellac	B	B	A
Silicone	A	A	A
Skydrol 500B, Trademark of Monsanto, Inc.	A	A	A
Soap Solutions	A	A	A
Soda Ash	B	B	B
Sodium Bisulfate	B	B	A
Sodium Chloride (25%)	B	B	A

BELT MATERIAL PROPERTIES

A - Excellent B - Good	C - Strong Solvent (Only for Superficial Cleaning)	D - Not Recommended * - No Data	
CHEMICAL	Polyurethane	Cold Use	HTL/XT
Sodium Citrate	D	D	B
Sodium Dichromate (20%)	D	D	B
Sodium Hydroxide (46%)	D	D	D
Sodium Hydroxide (3%) (Lye)	B	B	B
Sodium Hypochlorite (3%) (Bleach)	B	B	B
Sodium Nitrate (25%)	B	B	B
Sodium Nitrate (3%)	A	A	A
Sodium Propionate	D	D	B
Sodium Sulfite (3%)	B	B	B
Soy Bean Oil	A	A	A
Stannous Chloride (15%)	B	B	B
Steam (212°F–100°C)	C	C	A
Steam (230°F–110°C)	C	C	A
Stearic Acid	B	B	B
Styrene	D	D	B
Sulphur, Molten	D	D	D
Sulphur Dioxide, Liquid	D	D	B
Sulphur Dioxide, Gas	D	D	D
Sulphuric Acid (20%)	D	D	D
Sulphuric Acid (10%)	*	*	*
Sulphuric Acid (3%)	B	B	B
Sulphurous Acid	B	B	B
Sugar	A	A	A
Tannic Acid (10%)	A	A	A
Tar	B	B	B
Tartaric Acid	B	B	B
Tetrahydrofuran	D	D	D
Tobacco	A	A	A
Toluene	C	C	B
Tomato Juice	A	A	A
Tomatoes, Ketchup	A	A	A
Treflan, Trademark of Elanco, Inc.	B	B	B
Tetrachloroethylene	D	D	D
Trichloroethylene	C	C	B
Triethanolamine (3%)	D	D	D
Tricresyl Phosphate	B	B	B
Trisodium Phosphate	A	A	A
Tung Oil	A	A	A
Turpentine	C	C	B
Urea (3%)	B	B	A
Urine	B	B	B
Vegetable Oils & Fats	A	A	A
Vinegar	A	A	A
Water (72°F–22°C)	A	A	A
Water (158°F–70°C)	A	A	A

BELT MATERIAL PROPERTIES

A - Excellent B - Good	C - Strong Solvent (Only for Superficial Cleaning)		D - Not Recommended * - No Data
CHEMICAL	Polyurethane	Cold Use	HTL/XT
Water (212°F–100°C)	C	C	A
Whiskey & Wine	A	A	A
Xylene	B	B	B
Zinc Chloride	B	B	B
Zinc Sulphate	B	B	B

GLOSSARY

3A Dairy: 3-A Sanitary Standards, Inc. is a non-profit association representing equipment manufacturers, processors, regulatory sanitarians, and other public health professionals

75 degree flight: A hygienic, 75°, vertical surface across the belt width, often employed to elevate products on incline conveyors, elevator conveyors, etc.

90 degree flight: A hygienic, 90°, vertical surface across the belt width, often employed to elevate products on incline conveyors, elevator conveyors, etc.

A

Acetal: A thermoplastic that is strong, has a good balance of mechanical and chemical properties, and has fatigue endurance and resilience; low coefficient of friction; temperature range from -50°F (-45°C) to 200°F (93°C). Its specific gravity is approximately 1.40; also known as POM

Adjusted belt pull: The tensile load on a belt after the product loading, belt weight, total friction factor, and elevation change is applied, and after it is adjusted for temperature and strength factors

B

Belt accumulation: The gathering of loose belt stored in the conveyor returnway; takes the shape of catenary sags between returnway supports

Belt cover: Thermoplastic belt material excluding the drive bars

Belt elongation: See “*Elongation*” on page 118

Belt pitch: Distance between the centers of two adjacent drive bars; also drive pitch

Belt pull: Application-specific tensile load on a belt after the product loading, belt weight, total friction factor, and elevation change is applied; an application-specific calculation; measured in pound force (lbf) or kilogram force (kgf)

Belt scraper: See “*Scraper*” on page 121

Belt series: Belt description indicating belt pitch, e.g., Series 8026=26 mm pitch, Series 8050=50 mm pitch

Belt strength: The maximum belt pull capability delivered by the belt material; posted in *Product Line*

Belt style: See “*Style*” on page 122

Belt thickness: Distance between drive bar tip and the topmost surface of the belt cover

Belt wrap: Amount of wrap around a pulley, sprocket, etc. indicted in degrees

Bi-directional conveyor: Conveyor with a reversible driving device that can convey products in either direction

C

Carryway: Conveyor frame running surface for load-bearing belt travel; designed for low friction

Catenary sag: The curve shape called “catenary” formed by a belt hanging under the influence of gravity between two supports; loose belt accumulation in the returnway

Centerline spacing: Distance between the center of one component and the center of the next parallel component; for example, the distance between the centerlines of two parallel wearstrips

Chevron carryway: Carryway design of support rails placed in an overlapping “V” pattern; supports the full conveyor belt width while evenly distributing wear; an effective pattern for moderate abrasion and self-cleaning

Clean in place system: Stationary spray system designed to clean a belt at the conveyor as part of a full sanitation process

Coefficient of friction (COF): A ratio of frictional force to contact force used to calculate various design aspects of the conveyor

Coefficient of thermal expansion: A proportional change of the physical dimensions of an object based on temperature change

Cold Use: Thermoplastic belt material designed for ambient to very cold temperatures that provides peak performance in colder environments

Containment components: Thermoplastic components mounted on conveyor framework or shafts to restrict belt movement; examples include flanged rollers, blocks, and rails made of UHMW-PE

D

Deflection: Displacement or deformation of component due to loading

Drive pitch: See “*Belt pitch*” on page 117

E

Elevating conveyor: Conveyor type with various styles employed to elevate products; belts often require flights and sidewalls which present special design considerations

Elongation: Change in belt length caused by belt pull

Embedded Diamond style: Belt accessory surface style with an etched rhombus pattern

Embedded Diamond Top style: Belt top surface style with an etched rhombus pattern

EU: European Union; member states primarily in Europe who have developed a standardized system of laws, including trade policies and regulations

F

Facility temperature: Ambient temperature in facility

FDA: Food and Drug Administration; U.S. federal agency that regulates materials that can come in contact with food products

Flat Top style: Belt top surface style with a smooth, closed surface

Flight: Vertical wall of material across the belt width aligned with drive bars; part of the Intralox ThermoDrive belt, often employed to elevate products on incline conveyors, elevator conveyors, etc.

Flight indent: See “*Indent*” on page 119

Flighted belt: Belt fabricated with flights, often employed to elevate products on incline conveyors, elevator conveyors, etc. (usually greater than 10°)

Flighted belt position limiters: Set of two metal assemblies with universal position limiters for installation on conveyors with flighted belts

Flight gusset: Material fused to the back of a flight for reinforcement in heavily-loaded applications

Food stream: Area in the product contact area with consistent product contact

Frame supports: Structural members used to maintain elevation or alignment of a conveyor

Framework: Various structural members to support conveyor machinery components and conveying components

Friction: The resistance between two bodies at their surface of contact; important characteristic to consider in conveyor design; see *“Coefficient of friction (COF)” on page 118*

G

Gap: See *“Sidewall gap” on page 121*

Guard: Conveyor safety feature to minimize employee contact with moving conveyor components

Gusset: See *“Flight gusset” on page 119*

H

HDPE: High-density polyethylene; a polyethylene thermoplastic made from petroleum; not suitable for use as wearstrips, support rails, etc.

High Temperature Heavy Load (HTL): Thermoplastic belt material designed for use in high temperature and/or heavily-loaded applications

Hinge rod: Extruded plastic or plastic-coated rod that is used in ThermoLace and metal lace joining methods

Hold down component: Shoe, roller, wearstrip, or rail designed for installation at belt transitions to keep the belt on the conveyor frame

HTL: See *“High Temperature Heavy Load (HTL)” on page 119*

I

Idle end: Non-driving end of a conveyor over which a belt passes to change direction of travel; can contain shafts with a pulley, sprockets, rollers, or support wheels

Idle shaft: Fixed, round shaft or rotating, square shaft at the conveyor idle end

Idle roller: Cylindrical, full-width, rotating component used at the conveyor idle end that is sturdy and stiff

Indent: Distance between the belt edge and accessory outermost edge; for example, sidewall indent, flight indent

Intralox Drive Unit: Pre-engineered belt drive subassembly intended to be installed on the drive end of the conveyor; embodies an accurate, structural limiter and scraper solution that optimizes the operational performance of ThermoDrive belting

L

Lap joint: Joint composed of two overlapped components without a hermetic seal

M

Metal Lace: Belt joining method in which stainless steel fastener plates are aligned and stapled to belt ends; fastener plates are interlaced and joined with a nylon-coated, stainless steel hinge rod

N

Niche: Location of possible microbacterial harboring such as pits, cracks, corrosion, recesses, open seams, gaps, inside threads, bolt rivets, etc.

NOM: Nominal; description in name only; approximate; not technically correct

Notch: Open space between two flights across the belt width

Nub Top style: Belt top surface style with a pattern of raised bumps

O

Outside diameter: Distance between the two outermost points of a circular component, measured through the center point

P

Parallel carryway: Carryway design of metal or plastic support rails placed parallel to the belt travel to support full belt width; an effective pattern for reducing friction

Perforated belt fabrication: Belt fabrication with a pattern of spaced holes

Pitch diameter: Outer diameter of the sprocket plus the effective belt cover thickness; not an exact dimension

Prepared end: Belt end prepared for splicing with no more measuring or cutting required

Polyurethane: An elastomeric material with varying properties based on the ratio, structure, or molecular weight of the reaction compounds; characterized by exceptional elasticity and a smooth, seamless surface; flexible in low temperatures with good hydrolysis and microbial resistance, and good mechanical properties when polyether-based; exhibits exceptional chemical and abrasion resistance, adhesion strength, and injectability when polyester-based

Porosity: Presence of small holes or voids in the material of a belt or fabricated attachment

Positive drive: A class of conveyor belt drive systems; conveyor drive system in which the drive device imparts power to a tensioned belt through the mechanical engagement of the belt and drive meshing features instead of relying on friction

Position limiter: A component used in the patented ThermoDrive tensionless belting system to ensure continuous engagement of the belt and drive meshing features; controls belt position during engagement without increasing belt wrap or introducing belt tension; can take the form of shoes, rollers, scrapers, or other innovative designs

Pre-tension: Tension imposed on a conveyor belt during installation to create a tight belt wrap that ensures belt and drive component engagement; NOT for use with ThermoDrive belting

Pulley: A cylindrical, belt-width drive device or idle end component to engage the belt

R

Rail: See *“Support rail” on page 122*

Retainer ring: A shaft accessory that restricts the lateral movement of sprockets, wheels, etc. along the shaft

Returnway: The belt path beneath the carryway after the product is discharged; supports belt accumulation required in ThermoDrive tensionless belting system

Returnway supports: Various components used to support a belt and accumulation beneath the carryway

Rod: See *“Hinge rod” on page 119*

Rollers: Cylindrical components of various widths installed on shafts to support the belt at the idle end or in the returnway; can be used to change belt direction and support weight; can contain the belt within the path when flanged

Row: Belt measurement from the center of one drive bar to the center of an adjacent drive bar; used to describe belt length and flight spacing on sales orders

S

Sag: See *“Catenary sag” on page 117*

Scoop flight: A hygienic, vertical scooped surface across the belt width, often employed to elevate products on incline conveyors, elevator conveyors, etc.

Scraper: A blade designed and installed to bear against a moving flat belt to remove residual product

Seamless surface: A belt surface that does not have seams, holes, etc.

Shoe limiter: Concave, curved, plastic component for purposes of limiting belt position at the drive end; available from Intralox in various styles

Short top scoop flight: A hygienic, vertical, scooped surface across the belt width with a shorter horizontal surface than the scoop flight; often employed to elevate products on incline conveyors, elevator conveyors, etc.

Sidewall: See *“Synchronized Sidewall” on page 122*

Sidewall belt: Belt fabricated with one sidewall or more; often includes flights

Sidewall indent: See *“Indent” on page 119*

Sidewall gap: Distance between sidewall and flight edges

Smart bar: Specially designed round bar that supports position limiters and scraper mounts on Intralox Drive Units

Splicer: A mechanical clamping fixture and heating element used together to splice ThermoDrive prepared belt ends; sold packaged with required accessories

Sprocket: Toothed wheel designed to engage belt drive bars at drive or idle conveyor ends

Sprocket Spacer: Shaft accessory that restricts lateral movement of sprockets, wheels, etc. along the shaft; installed without tools and provides open space for sanitation

Star bore: A sprocket bore size designed to accommodate either a 1.5 in square shaft or 40 mm square shaft.

Style: Description of top surface texture on belts, flights, and sidewall; for example, Flat Top, Nub Top, Embedded Diamond Top

Support rail: Longitudinal conveyor framework member used in multiples to support the belt along the belt path; often in the form of wearstrips; also known as continuous rail

Support wheel: A narrow roller or disc used on the conveyor idle end to support the belt in place of sprockets; similar to rollers

Synchronized Sidewall: A vertical, molded, corrugated wall of material along the length of the belt; an integral part of the ThermoDrive belt, often employed where product containment is required

T

Take-up unit: System or feature designed to adjust belt pre-tension by changing the conveyor length, usually at the idle end; not needed in ThermoDrive applications

Thermal expansion/contraction: Change in the dimensions of a substance based on temperature changes; important characteristic to consider in conveyor design

ThermoLace joining method: A plastic hinge lace joining option using a plastic rod instead of a traditional ThermoDrive splice

Transition: Location of conveyor belt direction change; frequently between horizontal and angled or vertical

Transition distance: Distance from the center of the pulley, sprockets, or support wheels where the full belt width is flat to the first point where the belt is fully troughed

Trough groove: Channel machined along the bottom of the belt length to facilitate installation of a troughed conveyor

Troughed conveyor: Conveyor with belt edges elevated on the carrying run to form a trough by conforming to the shape of the troughed carryway

U

UHMW-PE: Ultra High Molecular Weight polyethylene resin; material with good wear characteristics and impact resistance; excellent combination of physical and mechanical properties; used in the manufacture of wearstrip and other conveyor framework accessories; in ThermoDrive applications, material must meet ASTM-D4020 or the equivalent ISO standards

Uni-directional conveyor: A conveyor with a single direction driving device that can convey products

USDA: United States Department of Agriculture; a federal agency which regulates equipment that can be employed in meat, dairy, and poultry facilities

W

Wearstrip: Low-friction, long, replaceable material installed on conveyor framework to minimize framework and belt wear; similar in purpose and material to wear bar, wear block, wear shoe

Wear shoe: Low-friction, replaceable material with broken corners installed on conveyor framework to minimize framework and belt wear; designed with curves; similar in purpose and material to wear bar, wear block, wearstrip

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