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Conveyor Belting Engineering Manual

WARRANTY

Intralox, LLC warrants products of its own manufacture for a period of one year from date of shipment to the extent that Intralox, LLC will repair or replace any products of faulty material or defective workmanship proven under normal use or service. No other warranty is expressed or implied unless otherwise set forth in writing and approved by a representative duly authorized to extend such approval by Intralox, LLC.

CAUTION

Intralox, LLC does not warrant that the design and/or operational function of any machine that incorporates and/or intends to incorporate Intralox, LLC products, conform 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 PURCHASERS AND USERS SHOULD CONSULT THEIR APPROPRIATE LOCAL, STATE AND FEDERAL SAFETY REGULATIONS AND STANDARDS.

NOTICE

The information contained in this manual is provided only as an aid and service to our customers. Intralox, LLC does not warrant the accuracy or applicability of such information and, Intralox, LLC is specifically not responsible for property damage and/or personal injury, direct or indirect for damages and/or failures caused by improper machine design, application, installation, operation, abuse and/or misuse of its products whether or not based on information contained herein.

WARNING

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

MAINTENANCE

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

Intralox, LLC warrants products of its own manufacture for a period of one year from date of shipment to the extent that Intralox, LLC will repair or replace any products of faulty material or defective workmanship proven under normal use or service. No other warranty is expressed or implied unless otherwise set forth in writing and approved by a representative duly authorized to extend such approval by Intralox, LLC.

Intralox, LLC. manufactures products under one or more of the following U.S. Patents: 4,556,142 - Des. 291,777 - 4,729,469 - 4,821,872 - 4,832,187 - 4,886,158 - 4,925,016 - 4,934,517 - 4,934,518 - 4,949,838 - 4,974,724 - 5,058,732 - 5,072,640 - 5,074,406 - 5,083,660 - 5,101,966 - 5,156,262 - 5,156,264 - 5,303,817 - 5,316,522 - Re. 34,688 - 5,361,893 - 5,372,248 - 5,377,819 - 5,507,383 - 5,518,109 - 5,544,740 - 5,597,063 - 5,598,916. Other U.S. and foreign patents pending.

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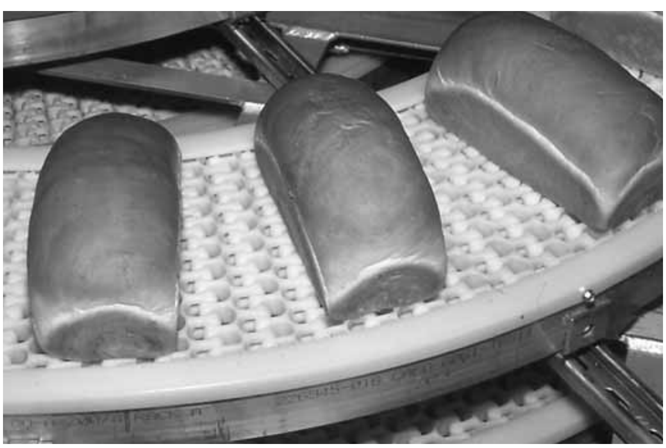
SECTION ONE: INTRALOX SYSTEM

In the early 1970's, Intralox belts revolutionized the conveyance of industrial and food products with a brand new style of belt: modular plastic conveyor belts.

Constructed of plastic modules and hinge rods, and driven and tracked by plastic sprockets, Intralox belts have the inherent qualities plant operators and designers look for: corrosion resistance, positive drives, high strength, lower friction characteristics and abrasion resistance.

In addition to these characteristics, Intralox belt designs help keep the plant cleaner, reduce downtime for maintenance and make belt repairs a quicker, easier process.



Intralox, LLC has over 150 different combinations of belt styles, materials and colors to choose from. We've been helping processors convey with better efficiency for more than 25 years.

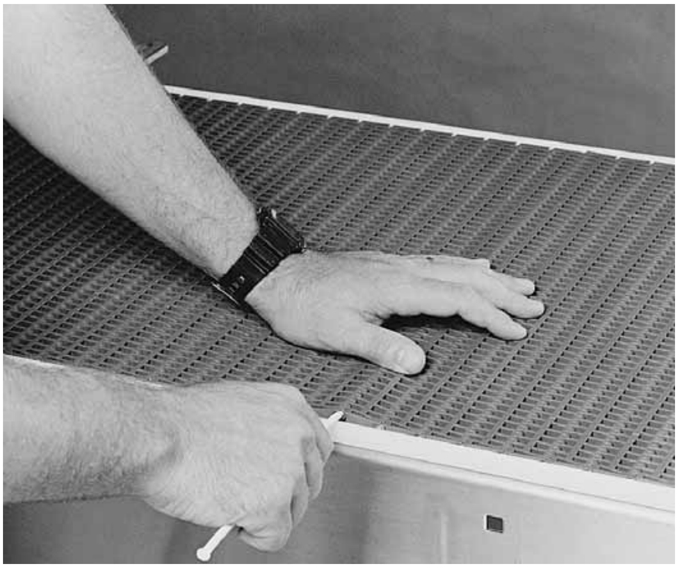
This manual will give you technical information about our products and their uses. But, high quality belts and accessories are only *part* of the total package Intralox offers to customers.

When you buy an Intralox belt, you get all of the support and service that has made Intralox the leading modular plastic conveyor belt supplier in the world:

- Local District Managers - belt recommendations are backed with a money back guarantee.
- 24 hour Customer Service, 365 days a year. More than 50 Customer Service Representatives - 11 languages represented.
- Technical Support to assist you in any emergency.
- A 99+% on time ship rate.

Intralox will help you find the right belt for your application. Call us today at the toll free numbers listed on the back cover.

BELT CONSTRUCTION



All Intralox belts are constructed with injection-molded plastic modules. These are assembled into interlocked units and joined by plastic hinge rods. Except for narrow belts (one complete module or less in width), all are built with the joints between modules staggered with those of adjacent rows in a “bricklayed” fashion. This structure interlocks the modules, giving the belt inherent lateral strength. The hinge rods do not hold the belt together from side to side, but act only as pivot members in shear. The belt that results from this construction process is intrinsically strong, both laterally due to the bricklaying, and longitudinally due to the rods being placed in multiple shear.

Because of modular construction, Intralox belts can be made in almost any width from three links wide.

Each belt style incorporates several distinguishing features. Hinge and edge features are described below. Surface, pitch and drive features are described in detail in *“Belt selection process”* (page 5).

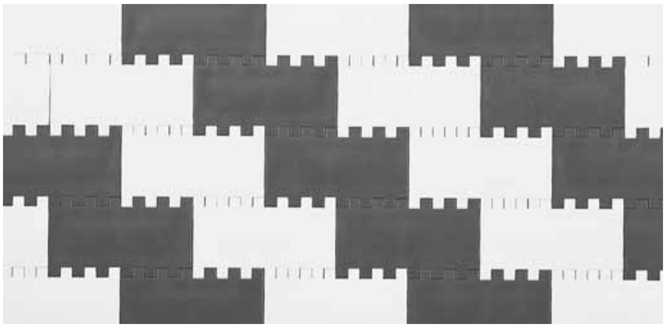


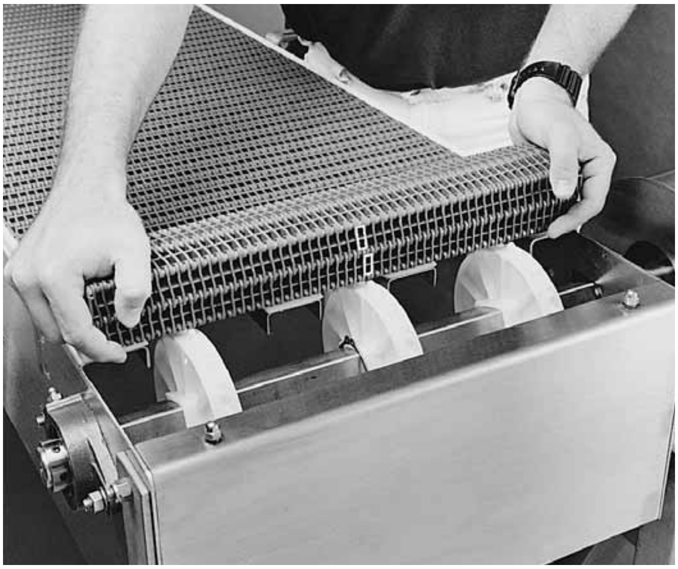
Fig. 1–1 Bricklayed modules

OPEN HINGES — The hinge rods are visible from either the top or bottom surface (or both) of the belt to aid in belt inspection.

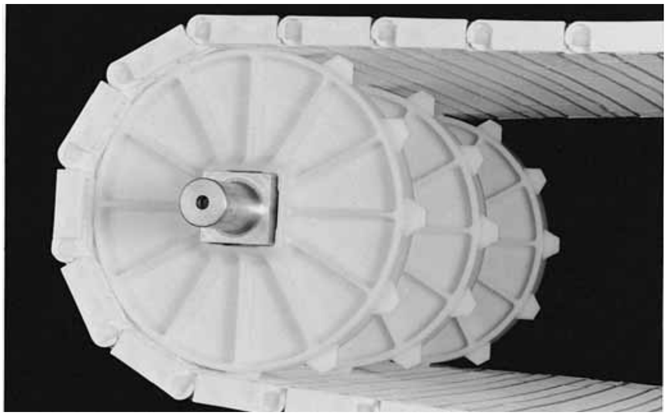
CLOSED HINGES — The hinge rods are completely enclosed to protect them from abrasives or contaminants.

FLUSH EDGES — Flush edges ride snugly beside the conveyor frame rails without gaps or exposed rod heads. They reduce the possibility of product, or belt, snagging on the frame.

DRIVE METHOD



Intralox belts are *positively driven* by plastic or metal sprockets, not friction rollers. The sprockets, another part of the Intralox System, have *square bores* and are driven by matching *square shafts*. (Note: Some sprockets are available with round bores for special applications.) Not only do square shafts transmit torque (rotational force) without the need for troublesome keys and keyways, they accommodate the lateral expansion differences of the plastic belt material and the metal shafts. Only one sprocket per shaft is retained. The others are allowed to “float”, moving along the shaft as the belt expands or contracts. Thus, the sprockets are always transmitting torque. Of all belt drive systems tested, the square shaft with square bore sprockets has proven to be the most effective, economical, reliable, trouble free and simple.



DESIGN REQUIREMENTS

Intralox conveyor belts are available in a variety of styles, materials and colors, with many accessory options. In order to make the appropriate selections when designing for a particular application, reliable information about operating and environmental conditions is critical.

Factors to evaluate include:

- The *type of belt system*: straight running or sideflexing
- The overall *dimensions* of the installed belt: length between driving and idling shafts, width, elevation changes
- The *speed* of belt travel
- The *characteristics of the product* to be conveyed:
  1. density
  2. unit size and shape
  3. hardness, toughness, brittleness, rigidity
  4. texture (smooth, rough, granular, lumpy, spongy. . .)
  5. corrosiveness
  6. moisture content
  7. temperature
  8. frictional nature
- Any *process change in the product* during conveyance:
  1. heating
  2. cooling
  3. washing, rinsing, draining
  4. drying
- The *sanitary and cleanliness requirements and conditions*:
  1. USDA-FSIS approval
  2. harsh temperatures or chemicals
  3. continuous on-line cleaning
- The *planned methods of product loading and removal* — smooth or impact transfers
- The *characteristics of the operating environment*:
  1. temperature
  2. moisture, humidity
  3. chemical nature (acid, base, etc.)
  4. abrasive materials (sand, grit, etc.)
  5. hazardous materials (dusts, vapors, etc.)
- The *type of drive system*:
  1. motors
  2. chains.

For more detailed information, see *"Section three: Design guidelines"* (page 291).

BELT SELECTION PROCESS

STEP ONE: Choose the right type of **BELT SYSTEM** — straight running or sideflexing.

All Intralox belts can be used as straight running belts. Five belts/chains, **Intraflex™ 2000 Raised Rib**, **Series 2200 Flush Grid, Series 2400 Radius (or TTR), Series 3000 Turning Knuckle Chain** and **Series 4000 Flat Top** are designed for sideflexing applications.

STEP TWO: Choose the right **MATERIAL** for your application.

Intralox belts and accessories are available in standard materials, including **Polypropylene**, **Polyethylene**, **Acetal** and **Electrically Conductive (EC) Acetal**, as well as special application materials, including **Heat Resistant (HR) Nylons, Nylon** and **Flame Retardant Thermoplastic Polyester (FR-TPES)**.

These materials are described briefly below. For complete descriptions of the standard and special application belt materials, *"Standard belt materials"* (page 18) and *"Special application belt materials"* (page 18).

Polypropylene, a standard material for general application, has good chemical resistance to many acids, bases, salts and alcohols. A relatively strong material in normal use, Polypropylene exhibits a somewhat brittle quality at low temperatures.

Polyethylene has superior fatigue resistance, high-impact strength and flexibility. It is also chemically resistant to many acids, bases and hydrocarbons.

Acetal thermoplastics, considerably stronger than Polypropylene and Polyethylene, have a good balance of mechanical, thermal and chemical properties. They also have a low coefficient of friction.

Electrically Conductive (EC) Acetal contains additives which significantly reduce its electrical resistance, thus helping to dissipate static.

Heat Resistant (HR) Nylons offer the ability to operate at elevated temperatures where standard materials are not recommended. These materials will absorb water and expand in wet environments. They are available in both FDA and non FDA grades.

Nylon can be used in place of standard acetal for those impact intensive applications. This material does absorb water and is more susceptible to cuts and gouges than acetal.

Flame Retardant Thermoplastic Polyester (FR-TPES) is formulated so it will not sustain a flame.

Contact the Intralox Sales Engineering Department or Customer Service for more information concerning our materials. Current telephone numbers are listed on the back cover.

For specific recommendations on chemical properties, see *"Chemical Resistance Guide"* (page 329).

STEP THREE: Select the best belt surface, pitch and drive method.

Next in the process of choosing the belt for your application is to determine the **BELT SURFACE** or **STYLE** best suited for the product or material being conveyed.

The **PITCH** of the belt is the next differentiating feature. Intralox belts are available in 0.50 in. (12.7 mm), 0.60 in. (15.2 mm), 1.00 in. (25.4 mm), 1.07 in. (27.2 mm), 1.25 in. (31.8 mm), 1.44 in. (36.6 mm), 1.50 in. (38.1 mm), 2.00 in.

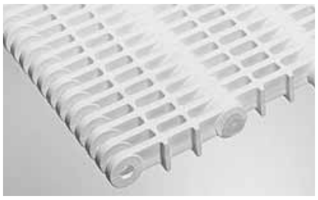
(50.8 mm), 2.07 in. (52.6 mm) and 2.50 in. (63.5 mm) pitches. Smaller pitch reduces chordal action (over similar size sprockets) and the space required for product transfer.

DRIVE METHOD should also be considered. There are two drive methods used by Intralox: hinge-driven and center-driven. Where back tension is an important consideration, drive method plays a significant role.

Note: Unless otherwise noted, the belts have fully flush edges.

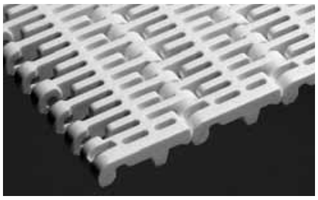
FLUSH GRID SURFACE

SERIES 100 • Center-driven • Open hinge • 1.00 in. (25.4 mm) pitch



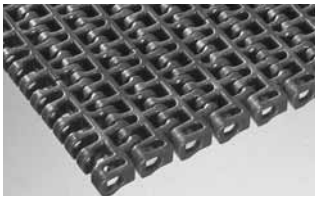
SERIES 200 • Hinge-driven • Closed hinge • 2.00 in. (50.8 mm) pitch • Non flush edge

SERIES 400 • Center-driven • Closed hinge • 2.00 in. (50.8 mm) pitch

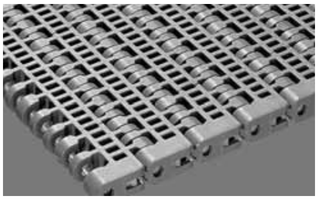


SERIES 800 • Center-driven • Open hinge • 2.00 in. (50.8 mm) pitch

SERIES 900 • Center-driven • Open hinge • 1.07 in. (27.2 mm) pitch

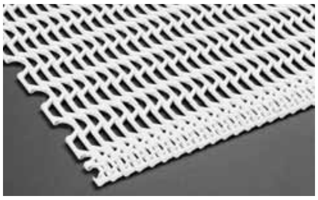


SERIES 1100 • Hinge-driven • Open hinge • 0.60 in. (15.2 mm) pitch



SERIES 1200 • Center-driven • Closed hinge • 1.44 in. (36.6 mm) pitch

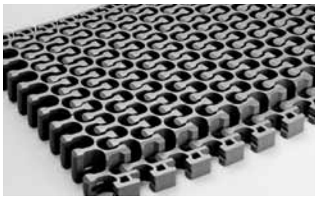
SERIES 1400 • Center/Hinge-driven • Closed hinge • 1.00 in. (25.4 mm) pitch



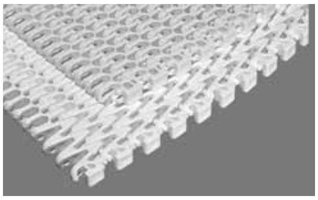
SERIES 1500 • Hinge-driven • Open hinge • 0.50 in. (12.7 mm) pitch

SERIES 1700 • Center/Hinge-driven • Closed hinge • 1.50 in. (38.1 mm) pitch

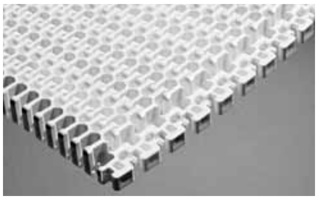
SERIES 2200 • Hinge-driven • Open hinge • Sideflexing • 1.50 in. (38.1 mm) pitch



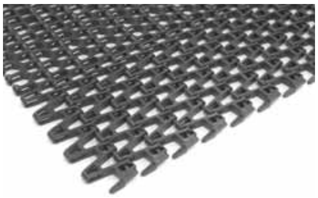
SERIES 2200 HIGH DECK • Hinge-driven • Open hinge • Sideflexing • 1.50 in. (38.1 mm) pitch



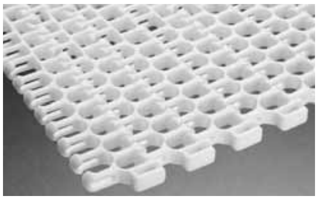
SERIES 2400 (1.7 & 2.2) • Hinge-driven • Open hinge • Sideflexing • 1.00 in. (25.4 mm) pitch



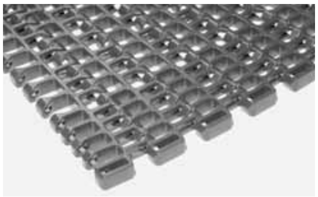
SERIES 2400 HIGH DECK • Hinge-driven • Open hinge • Sideflexing • 1.00 in. (25.4 mm) pitch



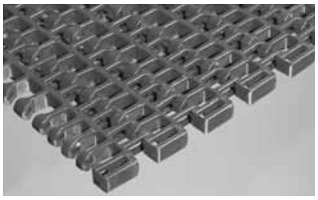
SERIES 2600 (1.1) • Hinge-driven • Open hinge • Sideflexing • 2.00 in. (50.8 mm) pitch



SERIES 2600 (1.6) • Hinge-driven • Open hinge • Sideflexing • 2.00 in. (50.8 mm) pitch

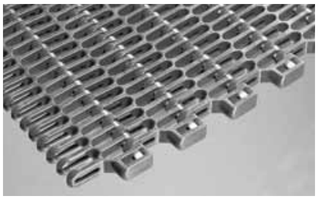


SERIES 2600 (2.2) • Hinge-driven • Open hinge • Sideflexing • 2.00 in. (50.8 mm) pitch



SERIES 2600 (2.5) • Hinge-driven • Open hinge • Sideflexing • 2.00 in. (50.8 mm) pitch

SERIES 2600 (3.2) • Hinge-driven • Open hinge • Sideflexing • 2.00 in. (50.8 mm) pitch



SERIES 2700 (1.6) • Hinge-driven • Open hinge • Sideflexing • 2.00 in. (50.8 mm) pitch

FLAT TOP SURFACE


SERIES 200 • Hinge-driven • Closed hinge • 2.00 in. (50.8 mm) pitch

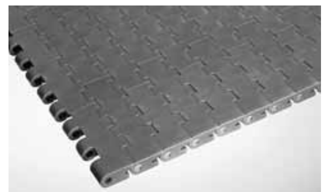

SERIES 400 • Center-driven • Closed hinge • 2.00 in. (50.8 mm) pitch

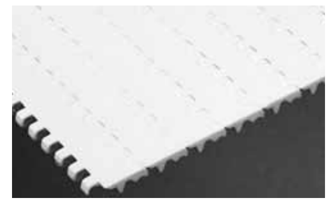

SERIES 800 • Center-driven • Open hinge • 2.00 in. (50.8 mm) pitch

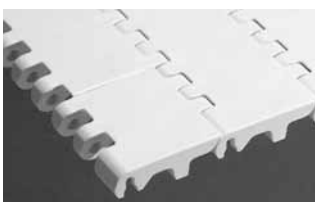

SERIES 900 • Center-driven • Closed hinge • 1.07 in. (27.2 mm) pitch


SERIES 1100 • Hinge-driven • Open hinge • 0.60 in. (15.2 mm) pitch


SERIES 1200 • Center-driven • Closed hinge • 1.44 in. (36.6 mm) pitch


SERIES 1400 • Center/hinge-driven • Closed hinge • 1.00 in. (25.4 mm) pitch

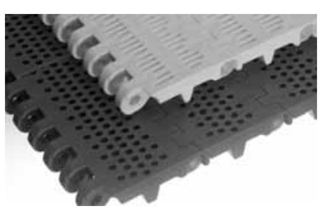

SERIES 1600 • Center-driven • Open hinge • 1.00 in. (25.4 mm) pitch

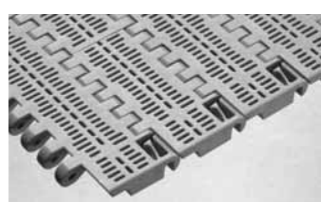

SERIES 1800 • Center-driven • Open hinge • 2.50 in. (63.5 mm) pitch

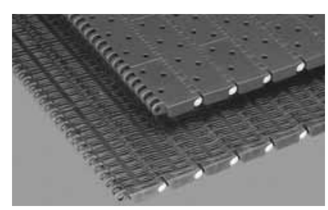

SERIES 2400 • Hinge-driven • Open hinge • Sideflexing • 1.00 in. (25.4 mm) pitch

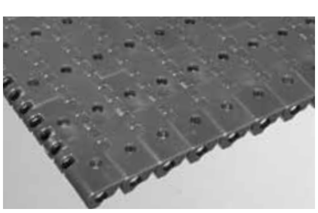
PERFORATED FLAT TOP SURFACE

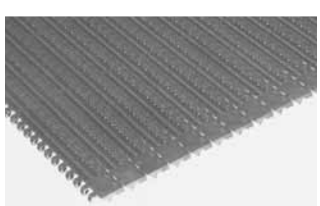

SERIES 200 • Hinge-driven • Closed hinge • 2.00 in. (50.8 mm) pitch

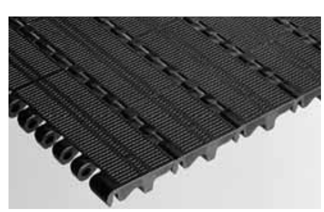

SERIES 800 • Center-driven • Open hinge • 2.00 in. (50.8 mm) pitch


SERIES 800 29S • Center-driven • Open hinge • 2.00 in. (50.8 mm) pitch

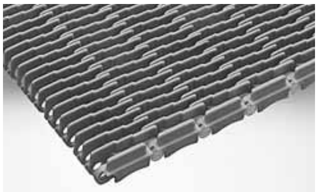

SERIES 900 • Center-driven • Closed hinge • 1.07 in. (27.2 mm) pitch


SERIES 1100 • Hinge-driven • Open hinge • 0.60 in. (15.2 mm) pitch

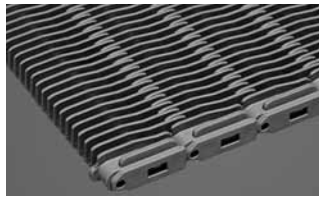

SERIES 1600 • Center-driven • Open hinge • 1.00 in. (25.4 mm) pitch


SERIES 1800 • Center-driven • Open hinge • 2.50 in. (63.5 mm) pitch

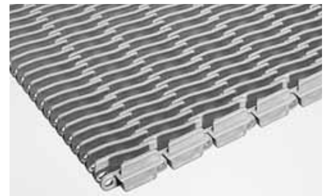
RAISED RIB SURFACE



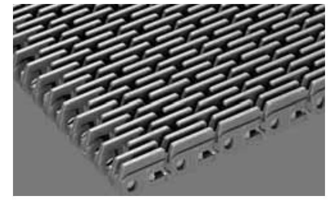
SERIES 100 • Center-driven • Open hinge • 1.00 in. (25.4 mm) pitch



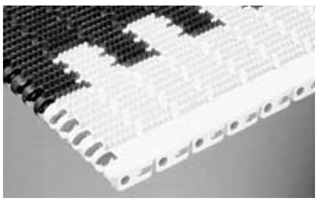
SERIES 400 • Center-driven • Closed hinge • 2.00 in. (50.8 mm) pitch



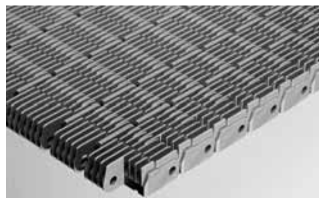
SERIES 900 • Center-driven • Open hinge • 1.07 in. (27.2 mm) pitch



SERIES 1200 • Center-driven • Closed hinge • 1.44 in. (36.6 mm) pitch

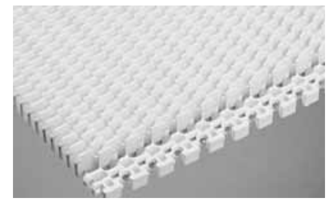


SERIES 1200 NON SKID • Center-driven • Closed hinge • 1.44 in. (36.6 mm) pitch



SERIES 1900 • Center/Hinge-driven • Closed hinge • 2.07 in. (52.6 mm) pitch

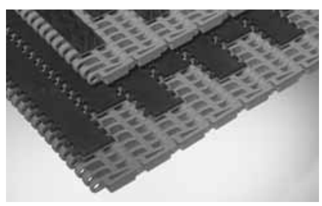
SERIES 2000 • Center-driven • Open hinge • Sideflexing • 1.25 in. (31.8 mm) pitch



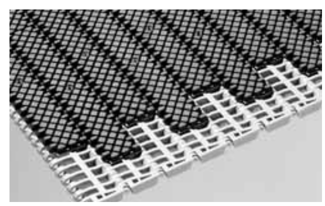
SERIES 2400 • Hinge-driven • Open hinge • Sideflexing • 1.00 in. (25.4 mm) pitch

FRICTION SURFACE

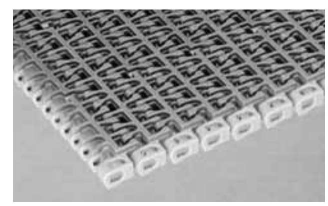
SERIES 800 ROUNDED FT • Center-driven • Open hinge • 2.00 in. (50.8 mm) pitch



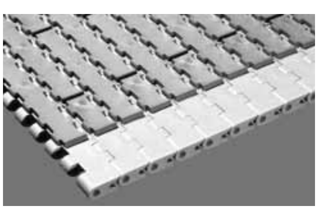
SERIES 900 DFT and FFT • Center-driven • Open hinge • 1.07 in. (27.2 mm) pitch



SERIES 900 SFT • Center-driven • Open hinge • 1.07 in. (27.2 mm) pitch

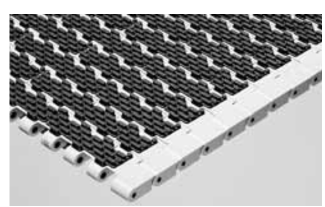


SERIES 1100 • Hinge-driven • Open hinge • 0.60 in. (15.2 mm) pitch

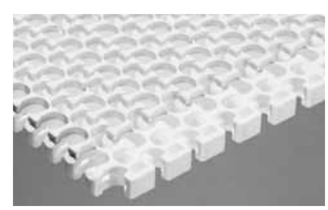


SERIES 1400 FFT • Center/Hinge-driven • Closed hinge • 1.00 in. (25.4 mm) pitch

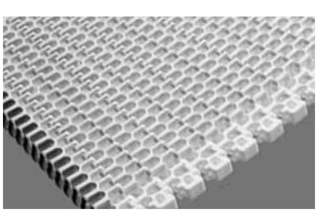
SERIES 1400 SFT • Center/Hinge-driven • Closed hinge • 1.00 in. (25.4 mm) pitch



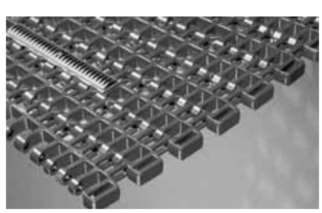
SERIES 1400 OFT • Center/Hinge-driven • Closed hinge • 1.00 in. (25.4 mm) pitch



SERIES 2200 • Hinge-driven • Open hinge • Sideflexing • 1.50 in. (38.1 mm) pitch

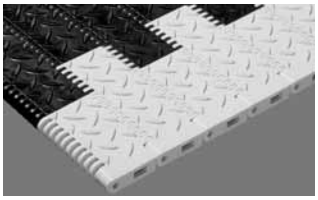


SERIES 2400 • Hinge-driven • Open hinge • Sideflexing • 1.00 in. (25.4 mm) pitch



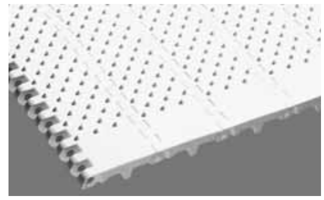
SERIES 2600 RFT • Hinge-driven • Open hinge • Sideflexing • 2.00 in. (50.8 mm) pitch

TEXTURED FLAT TOP

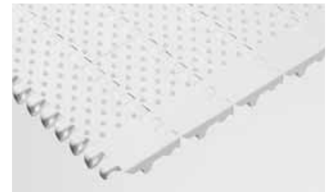


SERIES 400 NON SKID • Center-driven • Closed hinge • 2.00 in. (50.8 mm) pitch

SERIES 800 NUB TOP • Center-driven • Open hinge • 2.00 in. (50.8 mm) pitch

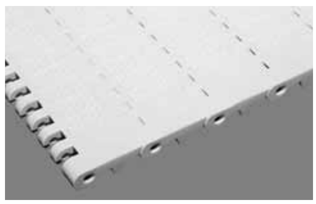


SERIES 800 CONE TOP • Center-driven • Open hinge • 2.00 in. (50.8 mm) pitch



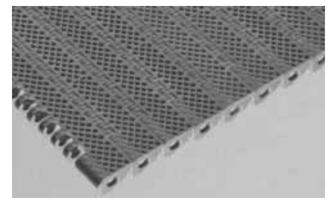
SERIES 800 OPEN HINGE CONE TOP • Center-driven • Open hinge • 2.00 in. (50.8 mm) pitch

SERIES 800 MINI RIB • Center-driven • Open hinge • 2.00 in. (50.8 mm) pitch

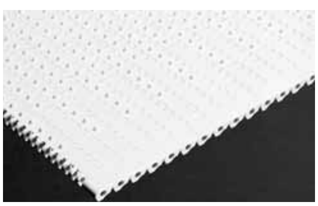


SERIES 800 EMBEDDED NUB TOP • Center-driven • Open hinge • 2.00 in. (50.8 mm) pitch

SERIES 900 NUB TOP • Center-driven • Open hinge • 1.07 in. (27.2 mm) pitch



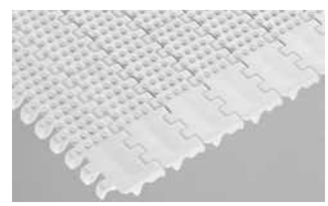
SERIES 1100 EMBEDDED DIAMOND TOP • Hinge-driven • Open hinge • 0.60 in. (15.2 mm) pitch



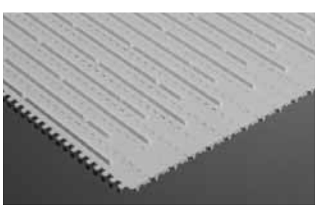
SERIES 1100 CONE TOP • Hinge-driven • Open hinge • 0.60 in. (15.2 mm) pitch

SERIES 1200 NON SKID • Center-driven • Closed hinge • 1.44 in. (36.6 mm) pitch

SERIES 1400 NON SKID • Center/Hinge-driven • Closed hinge • 1.00 in. (25.4 mm) pitch

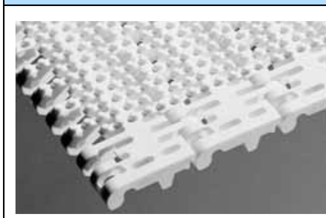


SERIES 1600 NUB TOP • Center-driven • Open hinge • 1.00 in. (25.4 mm) pitch

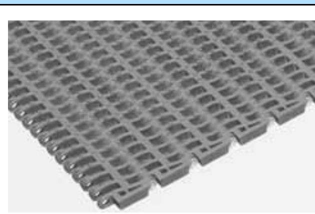


SERIES 1600 MINI RIB • Center-driven • Open hinge • 1.00 in. (25.4 mm) pitch

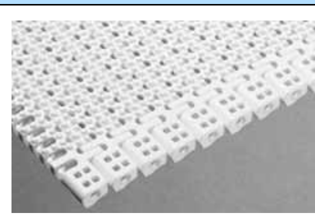
TEXTURED FLUSH GRID



SERIES 800 NUB TOP • Center-driven • Open hinge • 2.00 in. (50.8 mm) pitch



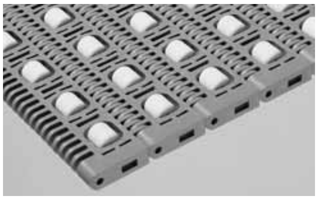
SERIES 900 NUB TOP • Center-driven • Open hinge • 1.07 in. (27.2 mm) pitch



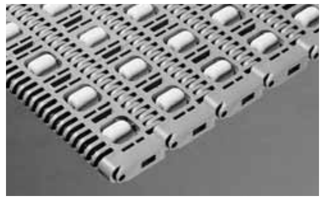
SERIES 1100 NUB TOP • Hinge-driven • Open hinge • 0.60 in. (15.2 mm) pitch

SERIES 1700 NUB TOP • Center/Hinge-driven • Closed hinge • 1.50 in. (38.1 mm) pitch

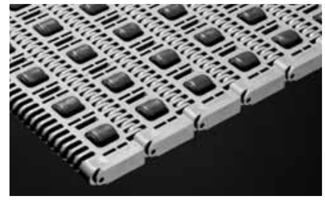
ROLLER



SERIES 400 ROLLER TOP • Center-driven • Closed hinge • 2.00 in. (50.8 mm) pitch

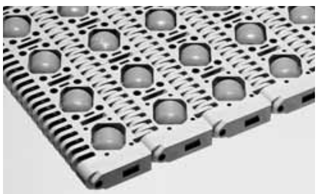


SERIES 400 TRANSVERSE ROLLER TOP • Center-driven • Closed hinge • 2.00 in. (50.8 mm) pitch



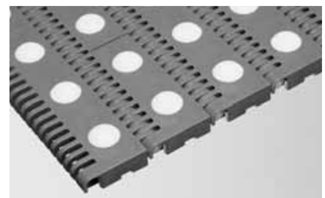
SERIES 400 0.85" TRANSVERSE ROLLER TOP • Center-driven • Closed hinge • 2.00 in. (50.8 mm) pitch

SERIES 400 0° ANGLED ROLLER • Center-driven • Closed hinge • 2.00 in. (50.8 mm) pitch



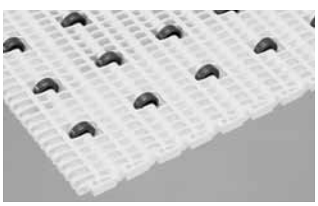
SERIES 400 30° ANGLED ROLLER • Center-driven • Closed hinge • 2.00 in. (50.8 mm) pitch

SERIES 400 45°/60° ANGLED ROLLER • Center-driven • Closed hinge • 2.00 in. (50.8 mm) pitch



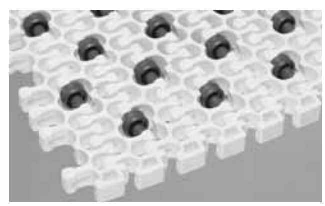
SERIES 400 BALL • Center-driven • Closed hinge • 2.00 in. (50.8 mm) pitch

SERIES 800 ROLLER TOP • Center-driven • Open hinge • 2.00 in. (50.8 mm) pitch

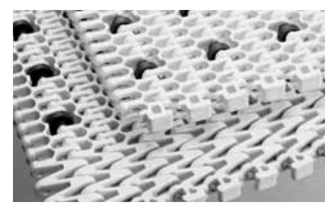


SERIES 900 INSERT ROLLERS • Center-driven • Open hinge • 1.07 in. (27.2 mm) pitch

SERIES 1400 ROLLER TOP • Center/Hinge-driven • Closed hinge • 1.00 in. (25.4 mm) pitch

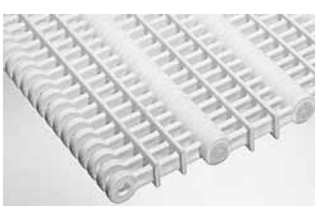


SERIES 2200 INSERT ROLLERS • Hinge-driven • Open hinge • Sideflexing • 1.50 in. (38.1 mm) pitch

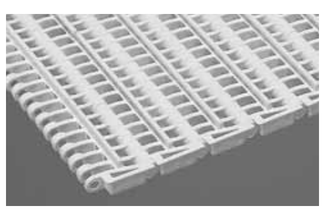


SERIES 2400 INSERT ROLLERS • Hinge-driven • Open hinge • Sideflexing • 1.00 in. (25.4 mm) pitch

OPEN GRID SURFACE

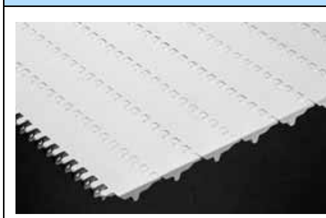


SERIES 200 • Hinge-driven • Closed hinge • 2.00 in. (50.8 mm) pitch • Non flush edge

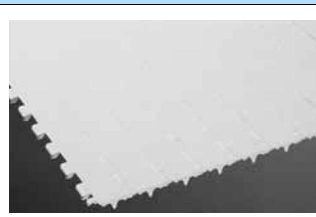


SERIES 900 • Center-driven • Open hinge • 1.07 in. (27.2 mm) pitch

SEAMFREE™

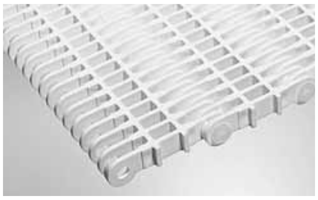


SERIES 800 • Center-driven • Open hinge • 2.00 in. (50.8 mm) pitch • Flush edge



SERIES 850 • Center-driven • Open hinge • 2.00 in. (50.8 mm) pitch • Flush edge

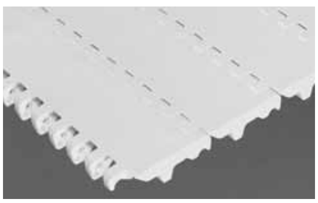
OPEN HINGE FLUSH GRID SURFACE



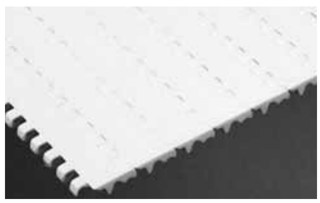
SERIES 200 • Hinge-driven • Open hinge • 2.00 in. (50.8 mm) pitch • Non flush edge

SERIES 400 • Center-driven • Open hinge • 2.00 in. (50.8 mm) pitch • Non flush edge

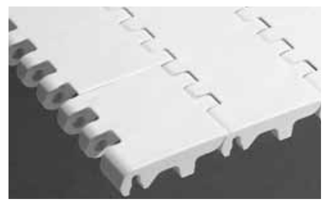
OPEN HINGE FLAT TOP SURFACE



SERIES 800 • Center-driven • Open hinge • 2.00 in. (50.8 mm) pitch • Flush edge

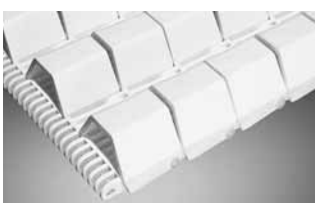


SERIES 1600 • Center-driven • Open hinge • 1.00 in. (25.4 mm) pitch • Flush edge



SERIES 1800 • Center-driven • Open hinge • 2.50 in. (63.5 mm) pitch • Flush edge

MUTLI-LANE

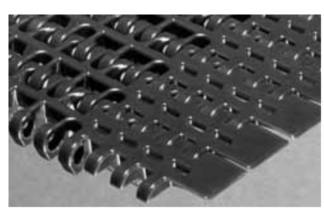


SERIES 600 • Center-driven • Closed hinge • 2.00 in. (50.8 mm) pitch • Non flush edge

ONEPIECE™ LIVE TRANSFER[a]

SERIES 900 Flush Grid • Center- driven • Open hinge • 1.07 in. (27.2 mm) pitch • Available widths: 4.7 in. (119 mm) and 6.0 in. (152 mm)

SERIES 900 Flat Top • Center-driven • Closed hinge • 1.07 in. (27.2 mm) pitch • Available widths: 4.7 in. (119 mm) and 6.0 in. (152 mm)



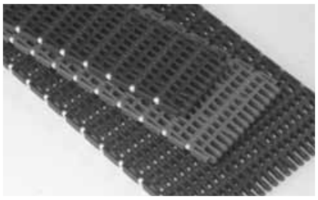
SERIES 1100 Flush Grid • Hinge driven • Open hinge • 0.60 in. (15.2 mm) pitch • Available width: 4 in. (76 mm) and up in 1.00 in. (25.4 mm) increments and 6.0 in. (152 mm) MTW

SERIES 1400 Flat Top • Center/hinge driven • Closed hinge • 1.00 in. (25.4 mm) pitch • Available widths: 6.0 in. (152 mm) and 9.3 in. (236 mm)

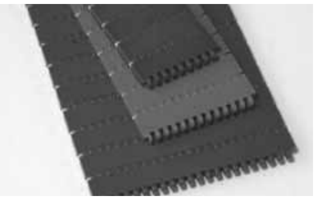
Note:Series 900 Live Transfer edges are also available with bricklayed belts. For more information, see the data pages in Section 2 or contact Intralox Customer Service.

a. Intralox offers belt styles in dedicated widths. These products come in industry standard widths, and are available in 10 foot (3.1 m) increments.

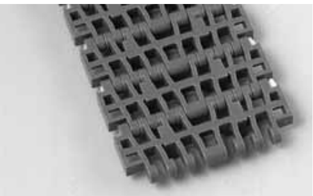
MOLD TO WIDTH[a]



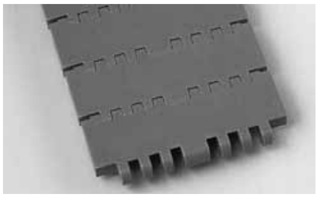
SERIES 900 Flush Grid • Center- driven • Open hinge • 1.07 in. (27.2 mm) pitch • Available widths: 3.25 in. (83 mm), 4.5 in. (114 mm) and 7.5 in. (191 mm)



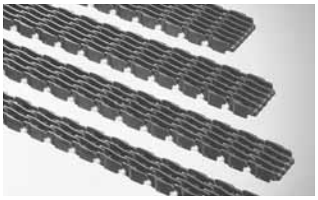
SERIES 900 Flat Top • Center-driven • Closed hinge • 1.07 in. (27.2 mm) pitch • Available widths: 3.25 in. (83 mm), 4.5 in. (114 mm) and 7.5 in. (191 mm)



SERIES 900 Flush Grid (85 mm) • Center-driven • Open hinge • 1.07 in. (27.2 mm) pitch • Available width: 85 mm

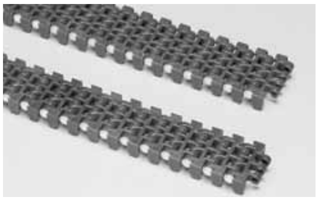


SERIES 900 Flat Top (85 mm) Center-driven • Closed hinge • 1.07 in. (27.2 mm) pitch • Available width: 85 mm

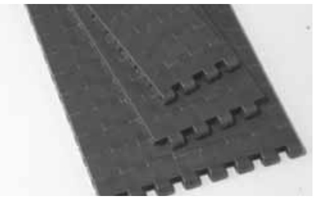


SERIES 900 Raised Rib • Center driven • Closed hinge • 1.07 in. (27.2 mm) pitch • Available widths: 1.1 in. (29 mm) , 1.5 in. (37 mm), 1.8 in. (46 mm) and 2.2 in. (55 mm)

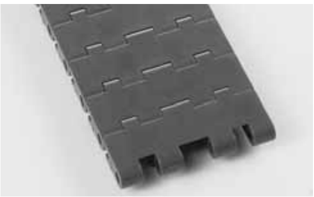
SERIES 900 Square Friction Top • Center driven • Closed hinge • 1.07 in. (27.2 mm) pitch • Available width: 1.1 in. (29 mm)



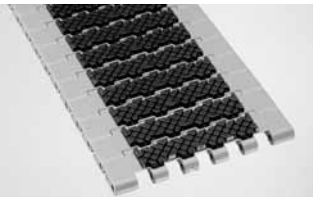
SERIES 1100 Flush Grid • Hinge driven • Open hinge • 0.60 in. (15.2 mm) pitch • Available width: 1.5 in. (38 mm) and 1.8 in. (46 mm)



SERIES 1400 Flat Top • Center/hinge driven • Closed hinge • 1.00 in. (25.4 mm) pitch • Available widths: 3.25 in. (83 mm), 4.5 in. (114 mm), 6.0 in. (152 mm) and 7.5 in. (191 mm)



SERIES 1400 Flat Top (85 mm) • Center/hinge driven • Closed hinge • 1.00 in. (25.4 mm) pitch • Available width: 85 mm

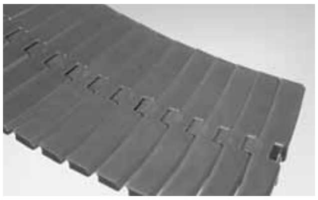


SERIES 1400 Square Friction Top • Center/hinge driven • Closed hinge • 1.00 in. (25.4 mm) pitch • Available width: 6.0 in. (152 mm)

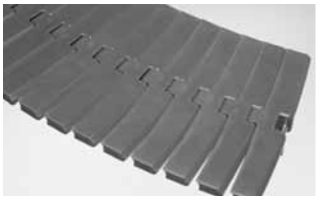
SERIES 4009 Flush Grid • Hinge driven • Closed hinge • Sideflexing • 1.00 in. (25.4 mm) pitch • Available width: 83.8 mm (for parallel running at 85 mm)

SERIES 4009 Flat Top • Hinge driven • Closed hinge • Sideflexing • 1.00 in. (25.4 mm) pitch • Available width: 83.8 mm (for parallel running at 85 mm)

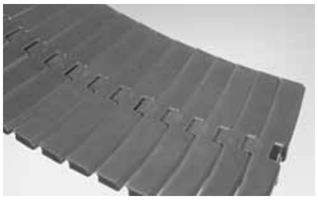
SERIES 4014 Flat Top • Hinge driven • Closed hinge • Sideflexing • 1.00 in. (25.4 mm) pitch • Available width: 83.8 mm (for parallel running at 85 mm)



SERIES 4090 Sideflexing Flat Top • Hinge driven • Closed hinge • 1.00 in. (25.4 mm) pitch • Available widths: 4.5 in. (114 mm), 7.5 in. (191 mm)



SERIES 4091 Sideflexing Flat Top • Hinge driven • Closed hinge • 1.00 in. (25.4 mm) pitch • Available widths: 4.5 in. (114 mm), 7.5 in. (191 mm)



SERIES 4092 Sideflexing Flat Top • Hinge driven • Closed hinge • 1.00 in. (25.4 mm) pitch • Available widths: 4.5 in. (114 mm), 7.5 in. (191 mm)

a. Intralox offers belt styles in dedicated widths. These products come in industry standard widths, and are available in 10 foot (3.1 m) increments.

KNUCKLE CHAIN

SERIES 3000 • Center-driven • Closed hinge • 2.00 in. (50.8 mm) pitch • Turning and straight running. Available width: 57 mm (excluding tabs)

STEP FOUR: Select a belt of sufficient **STRENGTH** for your application.

After choosing the material and surface style to meet your needs, next determine if the belt selected is strong enough to meet your application requirements.

Analysis for straight running belts:

After making a tentative selection from the Series and Styles listed above, turn to the *"Belt Selection Instructions"* (page 35), **Product Line**, for instructions to determine the **Belt Pull** and **Adjusted Belt Pull** for comparison with the **Allowable Strength** for that belt. In order to make the necessary calculations for **Belt Pull**, gather this information:

1. the product weight applied to the belt, in pounds per square foot (or kilograms per square meter),
2. the length of the proposed conveyor, in feet (or meters),
3. any elevation changes in the conveyor, in feet (or meters),
4. the desired operating speed, in feet per minute (or meters per minute),
5. the percent of belt area "backed-up" with stationary product,
6. the *maximum* operating temperature to be experienced by the belt, in degrees Fahrenheit (or degrees Celsius),
7. the type of material upon which the belt will run in the conveyor frame, e.g., Stainless or Carbon Steel, Ultra High Molecular Weight Polyethylene (UHMW), High Density Polyethylene (HDPE), nylon, etc., and
8. the **Service Duty**, i.e., frequent start-ups under heavy load, an elevating or "pushing conveyor", etc.

Analysis for sideflexing belts:

These belts require a more complex analysis. The following additional information is required:

9. the length of each straight run,
10. the turning angle and direction of each turn, and
11. the inside turning radius, measured from the inside edge of the belt.

STEP FIVE: Other important considerations.

The following factors should be considered before proceeding any further with belt selection.

BELT SPEED

The belt speed affects the wear and life expectancy in these ways:

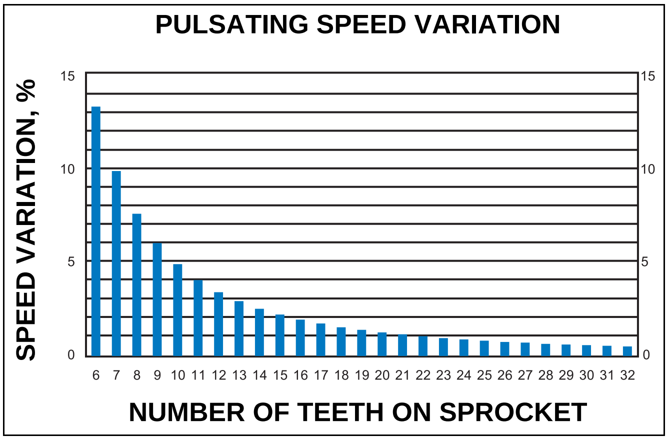
1. **Hinge and sprocket wear:** The frequency of module rotation about the hinge rods (as the belt engages and disengages the sprockets) is directly proportional to speed. The rotary motion can cause wear to both rods and modules. This wear rate, however, is inversely proportional to the belt's length, i.e., a shorter conveyor should wear faster than a longer one if both are running at the same speed. It follows that sprocket/tooth wear is directly proportional to speed. Sprockets with more teeth cause less module/hinge rotation, consequently less wear than sprockets with fewer teeth.
2. **Belt surface wear:** As belts slide over carryways, returnways, shoes and other fixed members, some wear is to be expected. The most destructive conditions are high speed, heavy loads, abrasive materials, and dry or non lubricated operation.
3. **Dynamic effects of high speed operation:** Two effects of high speed conditions are belt "whipping" or oscillating in unsupported sections and "load surges" as heavy, stationary products are suddenly accelerated to belt speed. Where possible, both conditions should be avoided.

ABRASIVE CONDITIONS AND FRICTION EFFECTS

Abrasives in a conveying application must be identified, the best combination of materials chosen and protective features included in order to extend belt life. Abrasives will wear away any material, but the correct material choice can significantly increase belt life. In highly abrasive applications, the hinge rods and sprockets are usually the first elements to be affected. Hinge rod wear typically results in excessive belt-pitch elongation. This may prevent proper tooth engagement, increasing the wear on sprocket teeth. Intralox offers Stainless Steel split sprockets and Abrasion Resistant rods that work to increase belt life.

CHORDAL ACTION AND SPROCKET SELECTION

As the modules of belts engage their driving sprockets, a pulsation in the belt's *linear* velocity occurs. This is due to chordal action, which is the rise and fall of a module as it rotates around a shaft's center line. It is characteristic of all sprocket-driven belts and chains. The variation in speed is inversely proportional to the number of teeth on the sprocket. For example, a belt driven by a six tooth sprocket has a pulsating speed variation of 13.4%, while a belt driven by a 19 tooth sprocket has a variation of only 1.36%. In those applications, where product tipping is a concern, or where smooth, even speed is *critical*, it is recommended that sprockets with the maximum number of teeth available be selected.

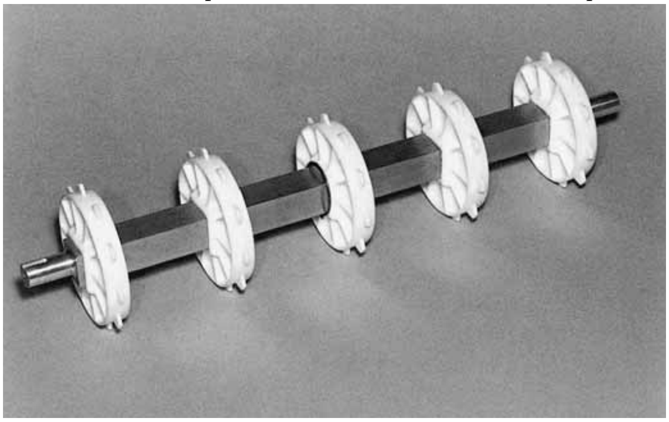


SHAFTS

Intralox, LLC USA can supply square shafts, machined to your specification, in standard sizes of 5/8 in., 1 in., 1.5 in., 2.5 in., 3.5 in., 40 mm and 60 mm. Available materials are Carbon Steel (C-1018) (not available in 40mm and 60mm), Stainless Steel (303, 304 and 316) and Aluminium (6061-T6). Call Customer Service for availability and lead-times.

Intralox, LLC Europe offers square shafts in standard sizes of 25 mm, 40 mm, 60 mm, 65 mm and 90 mm. Available materials are Carbon Steel (KG-37) and Stainless Steel (304).

Square shafts need turning of bearing journals only. No keyways for sprockets are required. *Only one sprocket per shaft must be retained to prevent lateral belt movement and to provide*



positive tracking. This is usually done by placing retainer rings on opposite sides of the center sprocket. Standard rings rest in grooves cut into the four corners of the shaft. Self-set retainer rings and small bore round retainer rings are available which do not require grooves.

SHAFT STRENGTH

The two primary concerns regarding the strength of the conveyor drive shafts are 1) the ability to pull the belt without excessive shaft deflection, and 2) the strength to transmit the torque for driving the belt. In the first case, the shaft acts as a beam, supported by bearings and stressed by the belt's tension through the sprockets. In the second case, the shaft is being rotated by the drive motor. Resistance from the belt's tension introduces torsional (twisting) stresses. These two types of stresses, **maximum deflection** and **maximum allowable torque**, are analyzed separately. Simple formulas are provided for selecting appropriate shafts.

Maximum deflection is governed by adequate belt and sprocket tooth engagement. If the shaft deflects more than 0.10 in. (2.5 mm) the sprockets may not engage properly, resulting in "jumping". On bi-directional conveyors with center-drive, the limit is increased to 0.22 in. (5.6 mm) because the return side tension is greater and the tooth loading is more uniformly distributed.

WEARSTRIPS

Wearstrips are added to a conveyor frame to increase the useful life of the conveyor frame and belt, and to reduce the sliding friction forces. Proper choice of wearstrip design and material, yielding the best coefficient of friction, reduces belt and frame wear, and power requirements.

Any clean liquid, such as oil or water, will act as a coolant and as a separation film between the belt and the carryway, usually reducing the coefficient of friction. Abrasives such as salt, broken glass, soil and vegetable fibers will embed in softer materials and wear on harder materials. In such applications harder wearstrips will prolong belt life.

STATIC ELECTRICITY

Plastic belting may produce a static discharge or spark when used in a dry environment. If static electricity is a potential problem in your application, electrical grounding is recommended. Lubricating or adding moisture to the conveyor running surfaces is also recommended. Electrically Conductive Acetal is available in some belt styles. Contact the Intralox Sales Engineering Department for additional recommendations.

INTRALOX SERVICES

ENGINEERING ASSISTANCE AND DESIGN REVIEW • To obtain engineering assistance, or to request a design review, call the Intralox Sales Engineering Department[a].

ENGINEERING ANALYSIS COMPUTER PROGRAMS • Intralox offers a PC based Engineering Program for all belts used in straight running applications that will calculate belt pull, sprocket requirements, motor and drive information, etc. Call Customer Service[a] to request these programs.

CAD DRAWING FILES • Auto CAD.DXF templates for all Series are also available. The templates have belt and molded sprocket details which can be used in CAD conveyor designs. Call Customer Service[a] for more information.

PRODUCT LITERATURE • Intralox offers additional technical and application specific literature on most of the products listed in this manual. Call Customer Service[a] for more information.

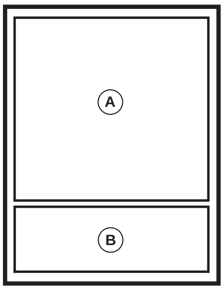
WORLD WIDE WEB • For information on Intralox products, our company or to download the Intralox® Engineering Program, or to download the Engineering Manual on line, visit the Intralox web site at *http://www.intralox.com*.

a. See back cover for international listings.

SECTION TWO: PRODUCT LINE

HOW TO USE THIS SECTION

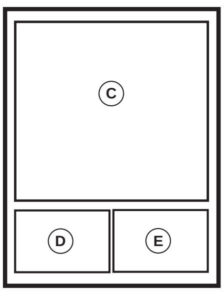
This section of the manual contains descriptive information and data for all belt styles, sprockets and other accessories in the Intralox Product Line.



BELT DATA

A Belt Description — principal characteristics, dimensions and photographs.

B Data — strengths, weights, temperature ranges of belts in the materials in which they are manufactured.



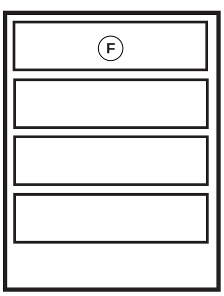
SPROCKET DATA

These pages follow the belt data pages in each series.

C Sprocket and Support Table — for determining the *minimum* number of sprockets and wearstrips required.

D Strength Factor — operating strength of sprockets.

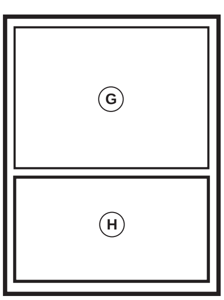
E Sprocket Spacing — for determining maximum spacing of sprockets on drive shaft.



SPROCKETS AND ACCESSORIES

These pages follow the sprocket data pages and are found at the end of most sections.

F Sprockets, Flights, Sideguards, Finger Transfer Plates, etc.— description, availability for each series.



CONVEYOR DATA

G Conveyor Frame Dimensions — basic dimensional requirements.

H Dead Plate Gap Data — gap between surfaces allowing for chordal action of the belt.

IMPORTANT BELT WIDTH MEASUREMENT NOTE:
Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.

SECTION 2

STANDARD BELT MATERIALS

POLYPROPYLENE is a standard material for use in general applications and where chemical resistance may be required.
- Good balance between moderate strength and lightweight.
- Buoyant in water, with a specific gravity of 0.90.
- Temperature range is 34 °F (1 °C) to 220 °F (104 °C).
- A relatively strong material in normal use, polypropylene exhibits a somewhat brittle quality at low temperatures. It is not recommended in high impact conditions below 45 °F (7 °C).
- Good chemical resistance to many acids, bases, salts and alcohols.
- This material complies with FDA regulations for use in food processing and packaging applications, and is USDA-FSIS accepted (meat and poultry).
- USDA Dairy accepted, white polypropylene is available in some belt styles.
- This material complies with the requirements of EC Directive 2002/72/EC and all amendments to date for food contact.
- Black polypropylene is recommended for applications exposed to direct sunlight, and a specially formulated UV resistant black polypropylene is also available for applications that require even more UV protection. The UV resistant black PP is not FDA approved, and is currently available in **Series 1800 Mesh Top, Series 1100 Flush Grid, Series 900 Flush Grid and Series 900 Perforated Flat Top.**

POLYETHYLENE, another lightweight thermoplastic, is characterized by superior flexibility and high impact strength.
- Buoyant in water, with a specific gravity of 0.95.
- Excellent product release characteristics.
- Exhibits excellent performance at much lower temperatures.
- Temperature range is -100 °F (-73 °C) to 150 °F (66 °C). (Check belt specifications for exact figures).
- Resistant to many acids, bases and hydrocarbons.
- Black polyethylene is recommended for low temperature applications exposed to direct sunlight.
- This material complies with FDA regulations for use in food processing and packaging applications, and is USDA-FSIS accepted (meat and poultry).
- USDA Dairy accepted, natural polyethylene is available in some belt styles.
- This material complies with the requirements of EC Directive 2002/72/EC and all amendments to date for food contact.

ACETAL thermoplastics are considerably stronger than polypropylene and polyethylene, and have a good balance of mechanical, thermal and chemical properties.
- Good fatigue endurance and resilience.
- Low coefficient of friction, making it a good choice for container handling and transport.
- Temperature range is -50 °F (-46 °C) to 200 °F (93 °C).
- Specific gravity is 1.40 and relatively impact resistant.
- Acetal belts are fairly hard, so they are relatively cut and scratch resistant.
- This material complies with FDA regulations for use in food processing and packaging applications, and is USDA-FSIS accepted (meat and poultry).
- USDA Dairy accepted, white acetal is available in some belt styles.
- A specially formulated UV resistant black acetal is available for applications that require UV protection. The UV resistant black acetal is not FDA approved, and is currently available in **S1800 Mesh Top**.
- Anti Static Acetal (AS Acetal) is available for applications where a slow static buildup has to be dissipated. With AS acetal, this dissipation is slow and improves in a humid environment. Anti Static Acetal is currently available in **Series 400 Non Skid**.
- This material complies with the requirements of EC Directive 2002/72/EC and all amendments to date for food contact.

SPECIAL APPLICATION BELT MATERIALS

EC (Electrically Conductive) ACETAL can be used to help dissipate static charges that might build up, especially when moving cans or other conductive objects. A metal railing or carryway can be used to ground the belt, dissipating any charge built up in the product. EC Acetal is usually spliced into “normal” belt sections (three rows of EC Acetal for every 2 ft. (0.61 m) of belt for **Series 100** and **Series 900**, five rows for every 2 ft. (0.61 m) of belt for **Series 1100**), though entire belts can be made from EC Acetal.
- The chemical resistance and friction factors match those of regular acetal.
- EC Acetal has a resistance of 60,000 Ohms per square, compared to a resistance of several million Ohms per square in regular plastics.
- Its specific gravity is 1.40.
- This material is not FDA compliant or USDA-FSIS accepted.
- EC Acetal is only available in **Series 100 Flush Grid, Series 400 Flush Grid** and **Flat Top, Series 900 Flush Grid, Flat Top** and **Raised Rib**, and **Series 1100 Flush Grid** belt styles.

HIGH STRENGTH EC ACETAL (HSEC), is available for applications that require static dissipation. HSEC material is stronger and less brittle than EC Acetal. HSEC dissipates charges more slowly than EC Acetal, which minimizes the chance of damagings ensitive electronic components.
- The chemical resistance and friction factors match those of regular Acetal.
- HSEC Acetal has a resistance of 10^5 to 10^9 Ohms per square.
- The specific gravity of HSEC is 1.40.
- This material is not FDA compliant or USDA-FSIS accepted.
- This material is less brittle than EC Acetal.

- This material is only available in Series 400 Flat Top, Series 400 Non Skid and Series 1100 Flat Top.

POLYPROPYLENE COMPOSITE, is a standard material for use in applications where both high strength and chemical resistance may be required.

- Excellent strength and stiffness.
- Specific gravity of 1.12.
- Good chemical resistance to acids, bases, salts and alcohol.
- Temperature range is -20 °F (-29 °C) to 220 °F (104 °C).
- An EC (Electrically Conductive) PP Composite can be used to help dissipate static charges that might build up. The EC PP Composite is currently available in **S1200 Non Skid**.
- The thermal expansion coefficient is 0.0004 in/ft/ °F (0.06 mm/m/ °C).

FLAME RETARDANT THERMOPLASTIC POLYESTER (FR-TPES) material is V-0 rated (UL94 @ 1/32"), and will not sustain a flame. Though the material will not actively burn, it will blacken and melt in the presence of flame. FR-TPES is stronger than polypropylene, but not as strong as acetal.

- V-0 rated (UL94 @ 1/32").
- FR-TPES' temperature range is 40 °F (4 °C) to 180 °F (82 °C).
- FR-TPES has a specific gravity of 1.45.
- This material is not FDA compliant or USDA-FSIS accepted.
- FR-TPES is available in **Series 1100 Flush Grid, Series 900 Flush Grid, Series 900 Flush Grid** ONEPIECE™ **Live Transfer and Series 900 Perforated Flat Top**.

NYLON is available for applications requiring good dry abrasion and chemical resistance. The two limitations to Nylon are that it absorbs water and is more susceptible to cuts and gouges than acetal. Because of material expansion caused by water absorption, Nylon is not recommended for very wet applications. For example, at 100% relative humidity, the expansion will be close to 3% (at equilibrium), making a 24 in. (610 mm) wide belt expand to 24.75 in. (629 mm).

- Abrasion resistant in dry applications.
- Good chemical resistance and low temperature performance.
- Stronger than polypropylene.
- Temperature range is -50 °F (-46 °C) to 180 °F (82 °C).
- Good fatigue resistance.
- Specific gravity of 1.13.
- This material complies with FDA regulations for use in food processing and packaging applications, and is USDA-FSIS accepted (meat and poultry).
- This material complies with the requirements of EC Directive 2002/72/EC and all amendments to date for food contact.

HEAT RESISTANT NYLON (HR), is available in two grades: FDA compliant, and non FDA compliant. The FDA HR Nylon complies with FDA regulations for use in food processing and packaging applications.

- UL94 flammability rating of V-2.
- FDA HR Nylon has an upper, continuous temperature limit of 240 °F (116 °C). For intermittent exposure, FDA HR Nylon has a rating limit of 270 °F (132 °C).
- Non FDA HR Nylon has an upper, continuous temperature limit of 310 °F (154 °C). For intermittent exposure, non FDA HR Nylon is rated at 360 °F (182 °C).
- The specific gravity of both grades is 1.13.
- These materials will absorb water in wet environments, causing the belt to expand. The belt will also expand due to the temperature change. The thermal expansion coefficient is 0.00054 in/ft/°F (0.081 mm/m/°C).
- Both FDA HR Nylon and non FDA HR Nylon are available in **Series 900 Flush Grid**, **Raised Rib**, **Flat Top and Perforated Flat Top** styles for dry, elevated temperature applications. **Series 1100 Flush Grid** is available with non FDA HR nylon.

ABRASION RESISTANT NYLON (AR), is available only for Series 1700.

- For abrasive (wet and dry), heavy-duty applications.
- Only available in black which is FDA approved.
- Temperature range is -50 °F to 240 °F (-46 °C to 116 °C).
- 0.5% expansion in belt width at 100% relative humidity.
- Specific gravity of 1.06
- Heat stabilized for superior outdoor wear.
- Uses the same temperature factor table as regular Nylon.

DETECTABLE POLYPROPYLENE is available in the **Series 800 Flat Top** and **Series 1500 Flush Grid**. This material was developed for applications in the food processing industry where product contamination is a concern. It is designed to be detectable by metal detectors or x-ray machines and used upline from metal or x-ray detectors. It is specially formulated to enhance impact resistance.

- Temperature range is 0 °F (-18 °C) to 150 °F (66 °C)
- Metal filled material will not rust or expose hazardous sharp fibers.
- Buoyant in water, with a specific gravity of 0.96
- Material has good impact resistance for temperatures above 34 °F (1 °C)
- Testing the material on a metal detector in a production environment is the best method for determining detection sensitivity.
- The thermal expansion coefficient is 0.0011 in/ft/ °F (0.17 mm/m/ °C)
- This material complies with the FDA regulations for use in food processing and packaging applications, and is USDA-FSIS (meat and poultry).
- The detectable material has Surface Resistivity per ASTM D257 of 545 Ohms per square.
- Material is NOT for use in metal detectors.
- This material complies with the requirements of EC Directive 2002/72/EC and all amendments to date for food contact.

HIGH SPEED INTRALON™ is available for **Series 2400** radius belts. This material was developed for radius applications where the belt speed is over 150 feet per minute. The material has a high PV value that minimizes wear on the inside edge of radius belts.

- High Speed Intralon™ Material is FDA compliant in Bone White
- High Speed Intralon™ Material is not recommended to be used on the outside edge of turns for radius belts.

- Maximum Belt Speed for radius conveyor: 600 fpm (straight running direction)
- This material will absorb water in wet environments, causing the belt to expand.
- Thermal Expansion: 0.00054 in/ft/F°
- Specific Gravity: 1.13
- Temperature information: -50°F to 180°F (-46 °C to 82 °C)

ENDURALOX™ POLYPROPYLENE is a specially formulated material designed to maximize the life of Intralox belting in a pasteurizer environment by protecting the molecular structure of the polypropylene from environmental factors such as temperature cycling, bromine, and chlorine.

- Same physical properties as standard polypropylene.
- This material complies with FDA regulations for use in food processing and packaging applications.

BELT MATERIAL PROPERTIES

SPECIFIC GRAVITY is the ratio of the materials' density to the density of water at normal pressures and temperatures. A specific gravity greater than 1.0 indicates that the material is heavier than water, and a specific gravity less than 1.0 indicates the material will be buoyant in water.

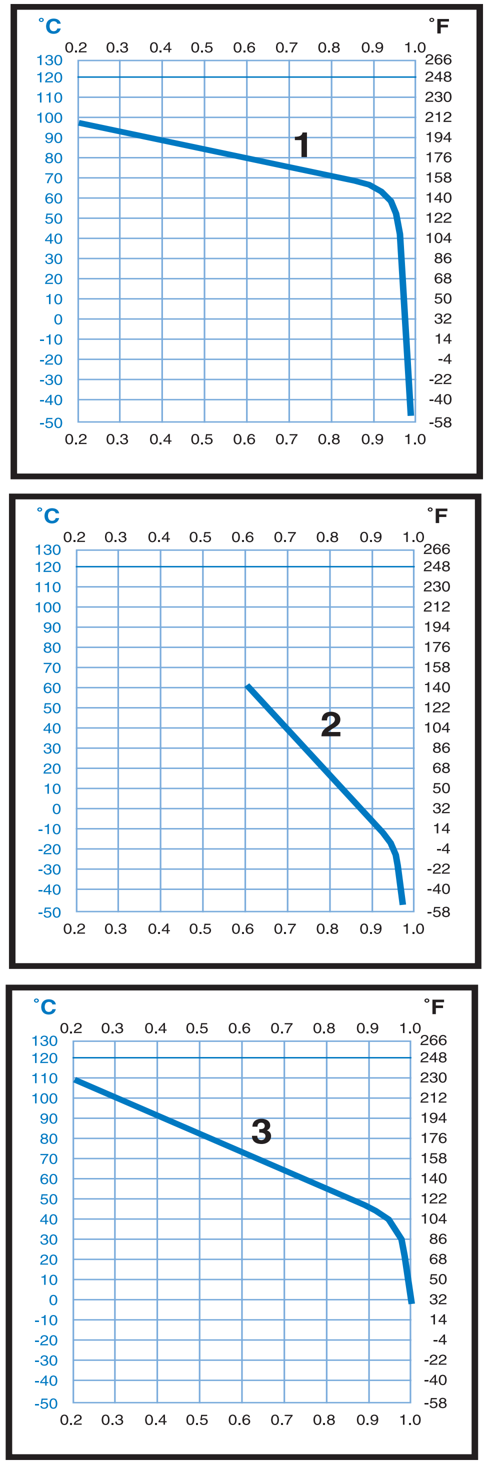
MATERIAL	SPECIFIC GRAVITY
Polypropylene	0.90
Polypropylene Composite	1.12
Polyethylene	0.95
Acetal	1.40
EC Acetal	1.40
FR-TPES	1.45
Nylon	1.13
HR Nylon (both grades)	1.13

FRICTION FACTORS determine the amount of drag induced from the belt sliding on the conveyor frame or sliding under the conveyed product. Lower friction factors lead to lower line pressures, less product marring, and lower belt pull and power requirements. Sometimes higher friction is required for gradual inclines/declines or for higher line pressures for feeding other equipment. The friction factors generally refer to "clean" systems, with little wear or abrasive material present. When running a conveyor belt strength analysis (either by using the Intralox Engineering Program or by using the hand calculations outlined in *"Belt Selection Instructions"* (page 35)), normal practice would dictate using a higher friction factor than normal if any abrasive medium is present, such as flour, sand, cardboard dust, glass, etc. Under very dirty conditions, friction factors may be two to three times higher than under clean conditions.

TEMPERATURE has an affect on the physical properties of thermoplastic materials. Generally, as the operating temperature increases, the belt will weaken in strength, but become tougher and more impact resistant. Conversely, in colder applications, belts can become stiffer and in some cases brittle. The temperature factor curve shows the effect of temperature on belt strength, and this graph can be used in calculating the conveyor belt analysis by hand. The Intralox Engineering Program calculates the temperature factor automatically, based on the operating temperature of the application. For a complete listing of temperature factors (T), please refer to *"Table 7 (T) TEMPERATURE FACTOR"* (page 324).

T

TEMPERATURE FACTOR TABLES STANDARD MATERIALS



1 -Acetal and EC Acetal

2 -Polyethylene

3 -Polypropylene

SECTION 2

BELT STYLE AND MATERIAL AVAILABILITY

The chart below lists the available materials for each belt style. It should be noted that not all combinations of styles and materials are inventory items. Not all styles and material combinations are USDA-FSIS accepted (Meat and Poultry, or Dairy). For USDA-FSIS acceptance, both the belt style and the material must be approved. As an example, **Series 900 Flush Grid** in polypropylene is USDA-FSIS accepted for direct food contact, but **Series 900 Flush Grid** in EC Acetal (not a FDA or UDSA-FSIS accepted material) is not USDA-FSIS accepted.

Belt Style	% Open Area	Accessories: F = Flights, S = Sideguards FTP = Finger Transfer Plates	Belt Material	Rod Material	Belt Strength		Temperature Range (continuous)		Belt Weight		Agency Acceptability 1=White, 2=Blue, 3= Natural, 4=Grey								
					lb/ft	kg/m	°F	°C	lb/ sq ft	kg/ sq m	FDA (USA)	USDA-FSIS Meat & Poultry[a]	USDA Dairy[b]	Canada Food Inspection Agency (CFA)	Australian Quarantine Inspection Service (A)	New Zealand Ministry of Agriculture and Forestry (Z)	M-MAF New Zealand Dairy (M)	European Migration Certificate according to EC Directive 2002/72/EC and its amendments to date (EU MC)	Japan Ministry of Health, Labour, and Welfare (J)
SERIES 100 - Nominal Pitch 1.00 in. (25.4 mm)																			
FLUSH GRID	31	F,S	Polypropylene	Polypropylene	300	450	34 to 220	1 to 104	0.54	2.64	•	•		•				•	3
			Polyethylene	Polyethylene	200	300	-50 to 150	-46 to 66	0.58	2.83	•	•		•				•	3
			Acetal	Polypropylene	600	890	34 to 200	1 to 93	0.78	3.81	•	•		•				•	3
			EC Acetal	Polypropylene	400	595	34 to 200	1 to 93	0.78	3.81									
			Acetal	Polyethylene	550	820	-50 to 70	-46 to 41	0.78	3.81	•	•		•				•	3
RAISED RIB	31	FTP	Polypropylene	Polypropylene	300	450	34 to 220	1 to 104	0.82	4.00	•	•		•				•	3
			Polyethylene	Polyethylene	200	300	-50 to 150	-46 to 66	0.88	4.29	•	•		•				•	3
			Acetal	Polypropylene	600	890	34 to 200	1 to 93	1.20	5.86	•	•		•				•	3
			Acetal	Polyethylene	550	820	-50 to 70	-46 to 41	1.20	5.86	•	•		•				•	3
SERIES 200 - Nominal Pitch 2.00 in. (50.8 mm)																			
OPEN GRID	33	F,S	Polypropylene	Polypropylene	1400	2080	34 to 220	1 to 104	1.24	6.05	•							•	3
			Polyethylene	Polyethylene	900	1340	-100 to 150	-73 to 66	1.26	6.15	•							•	3
FLUSH GRID	33	F,S	Polypropylene	Polypropylene	1800	2680	34 to 220	1 to 104	1.40	6.83	•							•	3
			Polyethylene	Polyethylene	1200	1790	-100 to 150	-73 to 66	1.44	7.03	•							•	3
OPEN HINGE	45	F,S	Polypropylene	Polypropylene	300	450	34 to 220	1 to 104	1.04	5.08	•	•	1	•				•	3
			Polyethylene	Polyethylene	200	300	-50 to 150	-46 to 66	1.12	5.47	•	•	3	•				•	3
FLAT TOP	0	F,S	Polypropylene	Polypropylene	1400	2080	34 to 220	1 to 104	1.18	5.76	•							•	3
			Polyethylene	Polyethylene	900	1340	-100 to 150	-73 to 66	1.20	5.86	•							•	3
PERFORATED FLAT TOP	12	F,S	Polypropylene	Polypropylene	1400	2080	34 to 220	1 to 104	1.12	5.47	•							•	3
			Polyethylene	Polyethylene	900	1340	-100 to 150	-73 to 66	1.18	5.76	•							•	3
SERIES 400 - Nominal Pitch 2.00 in. (50.8 mm)																			
FLUSH GRID	17	F,S	Polypropylene	Polypropylene	2400	3570	34 to 220	1 to 104	1.82	8.89	•							•	3
			Polyethylene	Polyethylene	1800	2680	-100 to 150	-73 to 66	1.90	9.28	•							•	3
			Acetal	Polypropylene	3200	4760	34 to 200	1 to 93	2.77	13.51	•							•	3
			EC Acetal	Polypropylene	2400	3570	34 to 200	1 to 93	2.77	13.51									
			Acetal	Polyethylene	3000	4460	-50 to 70	-46 to 41	2.77	13.51	•							•	3
RAISED RIB	26	FTP	Polypropylene	Polypropylene	2400	3570	34 to 220	1 to 104	1.95	9.52	•							•	3
			Polyethylene	Polyethylene	1800	2680	-100 to 150	-73 to 66	1.98	9.67	•							•	3
OPEN HINGE	30	F,S	Polypropylene	Polypropylene	1550	2300	34 to 220	1 to 104	1.16	5.66	•	•		•				•	3
			Polyethylene	Polyethylene	950	1400	-50 to 150	-46 to 66	1.24	6.06	•	•		•				•	3
FLAT TOP	0	F,S	Polypropylene	Polypropylene	2400	3570	34 to 220	1 to 104	1.81	8.82	•							•	3
			Polyethylene	Polyethylene	1800	2680	-100 to 150	-73 to 66	1.90	9.28	•							•	3
			Acetal	Polypropylene	3200	4760	34 to 200	1 to 93	2.74	13.38	•							•	3
			Acetal	Polyethylene	3000	4460	-50 to 70	-46 to 41	2.74	13.38	•							•	3
NON SKID	0	F	HS EC Acetal	Nylon	2720	4040	-50 to 200	-46 to 93	2.88	14.09									
ROLLER TOP	18	-	Polypropylene	Nylon	2200	3270	34 to 200	1 to 93	2.44	11.94	•							•	3
TRANSVERSE ROLLER TOP	18	-	Polypropylene	Nylon	2200	3270	34 to 200	1 to 93	2.44	11.94	•							•	3
0.85" TRANSVERSE ROLLER TOP	18	-	Polypropylene	Nylon	2200	3270	34 to 200	1 to 93	2.81	13.71	•							•	3
30° ANGLED ROLLER	17	-	Polypropylene	Nylon	1600	2381	34 to 120	1 to 49	2.64	12.89	•							•	3
ANGLED POLY-URETHANE ROLLER	11	-	Polypropylene	Nylon	1600	2381	34 to 120	1 to 49	2.73	13.33	•							•	3
ANGLED RUBBER ROLLER	11	-	Polypropylene	Nylon	1600	2381	34 to 200	1 to 93	2.65	12.94									
BALL BELT	0	-	Acetal	Polypropylene	2400	3571	34 to 200	1 to 93	3.71	18.11	•							•	3

Belt Style	% Open Area	Accessories: F = Flights, S = Sideguards FTP = Finger Transfer Plates	Belt Material	Rod Material	Belt Strength		Temperature Range (continuous)		Belt Weight		Agency Acceptability 1=White, 2=Blue, 3= Natural, 4=Grey								
					lb/ft	kg/m	°F	°C	lb/ sq ft	kg/ sq m	FDA (USA)	USDA-FSIS Meat & Poultry[a]	USDA Dairy[b]	Canada Food Inspection Agency (CFA)	Australian Quarantine Inspection Service (A)	New Zealand Ministry of Agriculture and Forestry (Z)	M-MAF New Zealand Dairy (M)	European Migration Certificate according to EC Directive 2002/72/EC and its amendments to date (EU MC)	Japan Ministry of Health, Labour, and Welfare (J)
SERIES 600 - Nominal Pitch 2.00 in. (50.8 mm)																			
MULTI-LANE	45	-	Polypropylene	Polypropylene	1400	2080	34 to 220	1 to 104	2.22	10.83	•							•	3
			Polyethylene	Polyethylene	900	1340	-100 to 150	-73 to 66	2.24	10.93	•							•	3
SERIES 800 - Nominal Pitch 2.00 in. (50.8 mm)																			
FLAT TOP	0	F,S	Polypropylene	Polypropylene	1000	1490	34 to 220	1 to 104	1.77	8.66	•	•	1	•	•	•	•	•	3
			Polyethylene	Polyethylene	500	750	-50 to 150	-46 to 66	1.87	9.13	•	•	3	•	•	•	•	•	3
			Acetal	Polyethylene	900	1340	-50 to 150	-46 to 66	2.75	13.43	•	•	1	•	•	•		•	3
			Nylon	Polyethylene	1200	1780	-50 to 150	-46 to 66	2.32	11.33	•	•		•	•	•		•	3
			Detectable Polypropylene	Blue Polyethylene	650	970	0 to 150	-18 to 66	1.83	8.93	•	•						•	4
OPEN HINGE FLAT TOP	0	F,S	Polypropylene	Polypropylene	900	1340	34 t0 220	1 to 104	1.63	7.96	•		1					•	3
			Polyethylene	Polyethylene	500	750	-50 to 150	-46 to 66	1.70	8.30	•		3					•	3
			Acetal	Polyethylene	900	1340	-50 to 150	-46 to 66	2.52	12.30	•		1					•	3
SEAMFREE™ OPEN HINGE FLAT TOP	0	F,S	Polypropylene	Polypropylene	900	1340	34 t0 220	1 to 104	1.63	7.96	•		1					•	3
			Polyethylene	Polyethylene	500	750	-50 to 150	-46 to 66	1.70	8.30	•		3					•	3
			Acetal	Polyethylene	900	1340	-50 to 150	-46 to 66	2.52	12.30	•		1					•	3
PERFORATED FLAT TOP	18	F,S	Polypropylene	Polypropylene	1000	1490	34 to 220	1 to 104	1.54	7.52	•	•	1				•	•	3
			Polyethylene	Polyethylene	500	750	-50 to 150	-46 to 66	1.59	7.76	•	•	3				•	•	3
			Acetal	Polyethylene	900	1340	-50 to 150	-46 to 66	2.28	11.15	•	•	1				1	•	3
PERFORATED FLAT TOP ROUND HOLES	14 - 20	F,S	Polypropylene	Polypropylene	1000	1490	34 to 220	1 to 104	1.54	7.52	•	•	1				•	•	3
			Polyethylene	Polyethylene	500	750	-50 to 150	-46 to 66	1.59	7.76	•	•	3				•	•	3
			Acetal	Polyethylene	900	1340	-50 to 150	-46 to 66	2.28	11.15	•	•	1					•	3
PERFORATED FLAT TOP 29S	29	F,S	Polypropylene Composite	303/304 Stainless Steel	2000	2975	-20 to 220	-29 to 104	2.47	12.06	•								
FLUSH GRID	27	F	Polypropylene	Polypropylene	800	1190	34 to 220	1 to 104	1.45	7.08	•		1					•	3
			Polyethylene	Polyethylene	500	750	-50 to 150	-46 to 66	1.63	7.96	•		3					•	3
			Acetal	Polyethylene	1000	1490	-50 to 150	-46 to 66	2.25	10.99	•		1					•	3
			Acetal	Polypropylene	1000	1490	34 to 200	1 to 93	2.25	10.99	•		1					•	3
MESH TOP	9	F	Polypropylene	Polypropylene	1000	1490	34 to 220	1 to 104	1.60	7.86	•		1					•	3
MINI RIB	0	-	Polypropylene	Polypropylene	1000	1490	34 to 220	1 to 104	1.77	8.66	•	•	1	•	•	•	•	•	3
			Polyethylene	Polyethylene	500	750	-50 to 150	-46 to 66	1.87	9.13	•	•	3	•	•	•	•	•	3
			Acetal	Polyethylene	900	1340	-50 to 150	-46 to 66	2.92	14.26	•	•	1	•	•	•		•	3
NUB TOP	0	F,S	Polypropylene	Polypropylene	1000	1490	34 to 220	1 to 104	1.90	9.26	•	•	1	•	•	•		•	3
			Polyethylene	Polyethylene	500	750	-50 to 150	-46 to 66	2.01	9.80	•	•	3	•	•	•		•	3
			Acetal	Polyethylene	900	1340	-50 to 150	-46 to 66	2.95	14.40	•	•	1	•	•	•		•	3
EMBEDDED NUB TOP	0	F,S	UV Resistant Acetal	Polyethylene	1000	1490	-50 to 150	-46 to 66	2.78	13.59									
			UV Resistant Acetal	Acetal	2500	3713	-50 to 200	-46 to 93	2.78	13.59									
FLUSH GRID NUB TOP	27	F,S	Polypropylene	Polypropylene	800	1190	34 to 220	1 to 104	1.56	7.62	•		1					•	3
			Polyethylene	Polyethylene	500	750	-50 to 150	-46 to 66	1.85	9.03	•		3					•	3
			Acetal	Polyethylene	1000	1490	-50 to 150	-46 to 66	2.36	11.52	•		1					•	3
			Acetal	Polypropylene	1000	1490	34 to 200	1 to 93	2.36	11.52	•		1					•	3
CONE TOP	0	F,S	Polypropylene	Polypropylene	1000	1490	34 to 220	1 to 104	1.84	8.97	•	•	1	•	•	•		•	3
			Polyethylene	Polyethylene	500	750	-50 to 150	-46 to 66	1.93	9.44	•	•	3	•	•	•		•	3
			Acetal	Polyethylene	900	1340	-50 to 150	-46 to 66	2.84	13.89	•	•	1	•	•	•		•	3
OPEN HINGE CONE TOP	0	F,S	Polypropylene	Polypropylene	900	1340	34 to 220	1 to 104	1.63	7.96	•							•	3
			Polyethylene	Polyethylene	500	740	-50 to 150	-46 to 66	1.70	8.30	•							•	3
			Acetal	Polyethylene	900	1340	-50 to 150	-46 to 66	2.52	12.3	•							•	3
ROLLER TOP	3	-	Polypropylene	Polypropylene	1000	1490	34 to 200	1 to 93	2.93	14.34	•							•	3
			Polyethylene	Polyethylene	500	750	-50 to 150	-46 to 66	2.99	14.62	•							•	3
			Acetal	Polyethylene	900	1340	-50 to 150	-46 to 66	4.11	20.10	•							•	3
ROUNDED FRICTION TOP	0	-	UV Resistant Acetal	Acetal	2500	3713	-50 to 150	-46 to 66	2.78	13.59									
SERIES 850 - Nominal Pitch 2.00 in. (50.8 mm)																			
SEAMFREE™ MINIMUM HINGE FLAT TOP	0		Acetal	Acetal	450	670	-50 to 200	-46 to 93	2.19	10.68	•							•	3
			Acetal	Polypropylene	400	600	34 to 200	1 to 93	2.13	10.41	•							•	3
			Acetal	Polyethylene	300	450	-50 to 150	-46 to 66	2.13	10.40	•							•	3
			Polyethylene	Acetal	300	450	-50 to 150	-46 to 66	1.50	7.32	•							•	3
			Polyethylene	Polyethylene	200	300	-50 to 150	-46 to 66	1.44	7.05	•							•	3
			Polypropylene	Polypropylene	300	450	34 to 220	1 to 104	1.40	6.83	•							•	3

Belt Style	% Open Area	Accessories: F = Flights, S = Sideguards FTP = Finger Transfer Plates	Belt Material	Rod Material	Belt Strength lb/ft	Belt Strength kg/m	Temperature Range (continuous) °F	Temperature Range (continuous) °C	Belt Weight lb/ sq ft	Belt Weight kg/ sq m	FDA (USA)	USDA-FSIS Meat & Poultry[a]	USDA Dairy[b]	Canada Food Inspection Agency (CFA)	Australian Quarantine Inspection Service (A)	New Zealand Ministry of Agriculture and Forestry (Z)	M-MAF New Zealand Dairy (M)	European Migration Certificate according to EC Directive 2002/72/EC and its amendments to date (EU MC)	Japan Ministry of Health, Labour, and Welfare (J)
SERIES 900 - Nominal Pitch 1.07 in. (27.2 mm)																			
OPEN GRID	38	-	Polypropylene	Polypropylene	700	1040	34 to 220	1 to 104	0.81	3.95	•	•		•				•	3
			Polyethylene	Polyethylene	350	520	-50 to 150	-46 to 66	0.84	4.09	•	•		•				•	3
			Acetal	Polypropylene	1480	2200	34 to 200	1 to 93	1.26	6.14	•	•		•				•	3
			Acetal	Polyethylene	1000	1490	-50 to 70	-46 to 41	1.26	6.14	•	•		•				•	3
FLUSH GRID	38	F,S	Polypropylene	Polypropylene	700	1040	34 to 220	1 to 104	0.76	3.70	•	•		•			•	•	3
			Polyethylene	Polyethylene	350	520	-50 to 150	-46 to 66	0.81	3.96	•	•		•			•	•	3
			Acetal	Polypropylene	1480	2200	34 to 200	1 to 93	1.15	5.62	•	•		•				•	3
			EC Acetal	Polypropylene	800	1190	34 to 200	1 to 93	1.15	5.62									
			FR-TPES	Polypropylene	750	1120	40 to 180	7 to 82	1.19	5.81									
			FDA HR Nylon	FDA Nylon	1200	1790	-50 to 240	-46 to 116	1.10	5.40	•	•							
			Non FDA HR Nylon	Non FDA Nylon	1200	1790	-50 to 310	-46 to 154	1.10	5.40									
			Acetal	Polyethylene	1000	1490	-50 to 70	-46 to 41	1.15	5.62	•	•		•				•	3
MOLD TO WIDTH FLUSH GRID - 3.25 in. (83 mm) WIDE	38	-	Polypropylene	Nylon	130 (lb)	59 (kg)	34 to 220	1 to 104	0.31 (lb/ft)	0.46 (kg/m)	•							•	3
			Acetal	Nylon	250 (lb)	113 (kg)	-50 to 200	-46 to 93	0.42 (lb/ft)	0.62 (kg/m)	•							•	3
MOLD TO WIDTH FLUSH GRID - 4.5 in. (114 mm) WIDE	38	-	Polypropylene	Nylon	263 (lb)	120 (kg)	34 to 220	1 to 104	0.39 (lb/ft)	0.58 (kg/m)	•							•	3
			Acetal	Nylon	555 (lb)	252 (kg)	-50 to 200	-46 to 93	0.54 (lb/ft)	0.80 (kg/m)	•							•	3
MOLD TO WIDTH FLUSH GRID - 7.5 in. (191 mm) WIDE	38	-	Polypropylene	Nylon	438 (lb)	199 (kg)	34 to 220	1 to 104	0.59 (lb/ft)	0.88 (kg/m)	•							•	3
			Acetal	Nylon	800 (lb)	363 (kg)	-50 to 200	-46 to 93	0.85 (lb/ft)	1.26 (kg/m)	•							•	3
MOLD TO WIDTH FLUSH GRID - 85 mm WIDE	38	-	Acetal	Nylon	275 (lb)	125 (kg)	-50 to 200	-46 to 93	0.38 (lb/ft)	0.57 (kg/m)	•							•	3
ONEPIECE™ LIVE TRANSFER FLUSH GRID	38	-	Polypropylene	Nylon	700	1040	34 to 220	1 to 104	0.93	4.54	•							•	3
			Acetal	Nylon	1480	2200	-50 to 200	-46 to 93	1.15	5.62	•							•	3
			FR-TPES	Nylon	1000	1490	40 to 180	7 to 82	1.63	7.95	•								
RAISED RIB	38	FTP	Polypropylene	Polypropylene	700	1040	34 to 220	1 to 104	1.07	5.21	•	•		•				•	3
			Polyethylene	Polyethylene	350	520	-50 to 150	-46 to 66	1.14	5.57	•	•		•				•	3
			Acetal	Polypropylene	1480	2200	34 to 200	1 to 93	1.68	8.19	•	•		•				•	3
			EC Acetal	Polypropylene	800	1190	34 to 200	1 to 93	1.68	8.19									
			FDA HR Nylon	Nylon	1200	1790	-50 to 240	-46 to 116	1.60	7.80	•								
			Non FDA HR Nylon	Nylon	1200	1790	-50 to 310	-46 to 154	1.60	7.80									
			Acetal	Polyethylene	1000	1490	-50 to 70	-46 to 41	1.68	8.19	•	•		•				•	3
MOLD TO WIDTH RAISED RIB - 1.1 in. (29 mm) WIDE	38	FTP	Acetal	Nylon	140 (lb)	64 (kg)	-50 to 200	-46 to 93	0.19 (lb/ft)	0.29 (kg/m)	•							•	3
MOLD TO WIDTH RAISED RIB - 1.5 in. (37 mm) WIDE	39	FTP	Acetal	Nylon	200 (lb)	91 (kg)	-50 to 200	-46 to 93	0.23 (lb/ft)	0.35 (kg/m)	•							•	3
MOLD TO WIDTH RAISED RIB - 1.8 in. (46 mm) WIDE	40	FTP	Acetal	Nylon	230 (lb)	104 (kg)	-50 to 200	-46 to 93	0.29 (lb/ft)	0.43 (kg/m)	•							•	3
			Polypropylene	Nylon	90 (lb)	41 (kg)	34 to 220	1 to 104	0.19 (lb/ft)	0.28 (kg/m)	•							•	3
MOLD TO WIDTH RAISED RIB - 2.2 in. (55 mm) WIDE	40	FTP	Acetal	Nylon	200 (lb)	91 (kg)	-50 to 200	-46 to 93	0.34 (lb/ft)	0.50 (lg/m)	•							•	3
FLAT TOP	0	F,S	Polypropylene	Polypropylene	700	1040	34 to 220	1 to 104	0.96	4.69	•						•	•	3
			Polyethylene	Polyethylene	350	520	-50 to 150	-46 to 66	1.01	4.95	•						•	•	3
			Acetal	Polypropylene	1480	2200	34 to 200	1 to 93	1.50	7.30	•							•	3
			EC Acetal	Polypropylene	800	1190	34 to 200	1 to 93	1.50	7.30									
			FDA HR Nylon	Nylon	1200	1790	-50 to 240	-46 to 116	1.40	6.80	•								
			Non FDA HR Nylon	Nylon	1200	1790	-50 to 310	-46 to 154	1.40	6.80									
			Acetal	Polyethylene	1000	1490	-50 to 70	-46 to 41	1.50	7.30	•							•	3

Agency Acceptability: 1=White, 2=Blue, 3= Natural, 4=Grey

Belt Style	% Open Area	Accessories: F = Flights, S = Sideguards FTP = Finger Transfer Plates	Belt Material	Rod Material	Belt Strength lb/ft	Belt Strength kg/m	Temperature Range (continuous) °F	Temperature Range (continuous) °C	Belt Weight lb/ sq ft	Belt Weight kg/ sq m	FDA (USA)	USDA-FSIS Meat & Poultry[a]	USDA Dairy[b]	Canada Food Inspection Agency (CFA)	Australian Quarantine Inspection Service (A)	New Zealand Ministry of Agriculture and Forestry (Z)	M-MAF New Zealand Dairy (M)	European Migration Certificate according to EC Directive 2002/72/EC and its amendments to date (EU MC)	Japan Ministry of Health, Labour, and Welfare (J)
MOLD TO WIDTH FLAT TOP - 3.25 in. (83 mm) WIDE	0	-	Polypropylene	Nylon	130 (lb)	59 (kg)	34 to 220	1 to 104	0.37 (lb/ft)	0.55 (kg/m)	•							•	3
			Acetal	Nylon	250 (lb)	113 (kg)	-50 to 200	-46 to 93	0.52 (lb/ft)	0.77 (kg/m)	•							•	3
MOLD TO WIDTH FLAT TOP - 4.5 in. (114 mm) WIDE	0	-	Polypropylene	Nylon	263 (lb)	120 (kg)	34 to 220	1 to 104	0.52 (lb/ft)	0.77 (kg/m)	•							•	3
			Acetal	Nylon	555 (lb)	252 (kg)	-50 to 200	-46 to 93	0.74 (lb/ft)	1.10 (kg/m)	•							•	3
MOLD TO WIDTH FLAT TOP - 7.5 in. (191 mm) WIDE	0	-	Polypropylene	Nylon	438 (lb)	199 (kg)	34 to 220	1 to 104	0.83 (lb/ft)	1.24 (kg/m)	•							•	3
			Acetal	Nylon	800 (lb)	363 (kg)	-50 to 200	-46 to 93	1.18 (lb/ft)	1.76 (kg/m)	•							•	3
MOLD TO WIDTH FLAT TOP - 85 mm WIDE	0	-	Acetal	Nylon	500 (lb)	227 (kg)	-50 to 200	-46 to 93	0.50 (lb/ft)	0.74 (kg/m)	•							•	3
ONEPIECE™ LIVE TRANSFER FLAT TOP	0	-	Polypropylene	Nylon	700	1040	34 to 220	1 to 104	0.93	4.54	•							•	3
			Acetal	Nylon	1480	2200	-50 to 200	-46 to 93	1.50	7.30	•							•	3
PERFORATED FLAT TOP Ø 1/8 in.	5	F,S	Acetal	Polypropylene	1480	2200	34 to 200	1 to 93	1.48	7.23	•							•	3
			Acetal	Polyethylene	1000	1490	-50 to 70	-46 to 41	1.48	7.23	•							•	3
PERFORATED FLAT TOP Ø 5/32 in.	6	F,S	Polypropylene	Polypropylene	700	1040	34 to 220	1 to 104	0.93	4.54	•							•	3
			Polyethylene	Polyethylene	350	520	-100 to 150	-73 to 66	0.98	4.79	•							•	3
			Acetal	Polypropylene	1480	2200	34 to 200	1 to 93	1.46	7.11	•							•	3
			EC Acetal	Polypropylene	800	1190	34 to 200	1 to 93	1.46	7.11									
			FR-TPES	Polypropylene	1000	1490	40 to 180	7 to 82	1.59	7.76									
			FDA HR Nylon	Nylon	1200	1790	-50 to 240	-46 to 116	1.40	6.80	•								
			Non FDA HR Nylon	Nylon	1200	1790	-50 to 310	-46 to 154	1.40	6.80									
			Acetal	Polyethylene	1000	1490	-50 to 70	-46 to 41	1.46	7.11	•							•	3
PERFORATED FLAT TOP Ø 3/16 in.	8	F,S	Acetal	Polypropylene	1480	2200	34 to 200	1 to 93	1.43	6.98	•							•	3
			Acetal	Polyethylene	1000	1490	-50 to 70	-46 to 41	1.43	6.98	•							•	3
MESH TOP	24	‘	Polypropylene	Polypropylene	700	1040	34 to 220	1 to 104	0.93	4.55	•							•	3
			Polyethylene	Polyethylene	350	520	-100 to 150	-73 to 66	0.99	4.84	•							•	3
DIAMOND FRICTION TOP	0	-	Polypropylene (DFT)	Polypropylene	1000	1490	34 to 150	1 to 66	1.10	5.40	1								
			Polypropylene (DFT Ultra)	Polypropylene	1000	1490	34 to 150	1 to 66	1.40	6.80	1								
			Polyethylene (DFT)	Polyethylene	350	520	-50 to 120	-46 to 49	1.20	5.90	1								
			Polyethylene (DFT Ultra)	Polyethylene	350	520	-50 to 120	-46 to 49	1.50	7.30	1								
SQUARE FRICTION TOP	0	-	Polypropylene (SFT)	Polypropylene	1000	1490	34 to 150	1 to 66	1.20	5.86									
			Polypropylene (SFT Ultra)	Polypropylene	1000	1490	34 to 150	1 to 66	1.50	7.32									
MOLD TO WIDTH SQUARE FRICTION TOP 29 mm WIDE	0		Polypropylene (SFT Ultra)	Nylon	65	29	34 to 150	1 to 66	0.17	0.25									
FLAT FRICTION TOP	0	-	Polypropylene (FFT)	Polypropylene	1000	1490	34 to 150	1 to 66	1.10	5.40	1								
			Polypropylene (FFT Ultra)	Polypropylene	1000	1490	34 to 150	1 to 66	1.40	6.80	1								
FLUSH GRID WITH INSERT ROLLERS	38	-	Polypropylene	Polypropylene	490	730	34 to 220	1 to 104	0.76	3.71	•							•	3
			Acetal	Polypropylene	1030	1530	34 to 200	1 to 93	0.81	3.95	•							•	3
NUB TOP	0	Polypropylene	Polypropylene	700	1040	34 to 220	1 to 104	0.98	4.78	•								•	3
FLUSH GRID NUB TOP	38	-	Polypropylene	Polypropylene	700	1040	34 to 220	1 to 104	0.80	3.91	•							•	3

Belt Style	% Open Area	Accessories: F = Flights, S = Sideguards FTP = Finger Transfer Plates	Belt Material	Rod Material	Belt Strength		Temperature Range (continuous)		Belt Weight		Agency Acceptability 1=White, 2=Blue, 3= Natural, 4=Grey								
					lb/ft	kg/m	°F	°C	lb/ sq ft	kg/ sq m	FDA (USA)	USDA-FSIS Meat & Poultry[a]	USDA Dairy[b]	Canada Food Inspection Agency (CFA)	Australian Quarantine Inspection Service (A)	New Zealand Ministry of Agriculture and Forestry (Z)	M-MAF New Zealand Dairy (M)	European Migration Certificate according to EC Directive 2002/ 72/EC and its amendments to date (EU MC)	Japan Ministry of Health, Labour, and Welfare (J)
SERIES 1100 - Nominal Pitch 0.60 in. (15.2 mm)																			
FLUSH GRID	28	F,S	Polypropylene	Polypropylene	700	1040	34 to 220	1 to 104	0.81	3.95	•	•	1	•	•		•	•	3
			Polyethylene	Polyethylene	450	670	-50 to 150	-46 to 66	0.87	4.25	•	•	3	•			•	•	3
			Acetal	Polypropylene	1300	1940	34 to 200	1 to 93	1.19	5.80	•	•	1	•				•	3
			EC Acetal	Polypropylene	800	1190	34 to 200	1 to 93	1.19	5.80									
			FR-TPES	Polypropylene	750	1120	40 to 180	7 to 82	1.30	6.34									
			Non FDA HR Nylon	Non FDA Nylon	1100	1640	-50 to 310	-46 to 154	1.20	5.80									
			UV Resistant Polypropylene	UV Resistant Polypropylene	700	1040	34 to 220	1 to 104	0.81	3.98									
			Acetal	Polyethylene	1200	1790	-50 to 70	-46 to 41	1.19	5.80	•	•	1	•				•	3
FLAT TOP	0	F,S	Polypropylene	Polypropylene	500	750	34 to 220	1 to 104	0.90	4.40	•	•	1	•	•		•	•	3
			Polyethylene	Polyethylene	300	450	-50 to 150	-46 to 66	0.96	4.69	•	•	3	•	•		•	•	3
			Acetal	Polypropylene	1000	1490	34 to 200	1 to 93	1.30	6.35	•	•	1	•				•	3
			Acetal	Polyethylene	900	1340	-50 to 70	-46 to 41	1.30	6.35	•	•	1	•				•	3
PERFORATED FLAT TOP	3	-	Acetal	Polypropylene	1000	1490	34 to 200	1 to 93	1.30	6.35	•	•						•	3
			Acetal	Polyethylene	900	1340	-50 to 70	-46 to 41	1.30	6.35	•	•						•	3
FLUSH GRID FRICTION TOP	28	-	Polypropylene	Polypropylene	700	1040	34 to 150	1 to 66	0.81	3.98	1								
EMBEDDED DIAMOND TOP	0	-	Polyethylene	Polyethylene	300	450	-50 to 150	-46 to 66	0.96	4.69	•	•	3	•	•		•	•	3
FLUSH GRID MTW 38 AND 46 MM WIDE	26	-	Acetal (38mm)	Nylon	130	59	-50 to 200	-46 to 93	0.185	0.084	•							•	3
			Acetal (46mm)	Nylon	150	68	-50 to 200	-46 to 93	0.216	0.098	•							•	3
ONEPIECE™ LIVE TRANSFER FLUSH GRID	28	-	Acetal	Nylon	1300	1940	34 to 200	1 to 93	1.19	5.80	•							•	3
			FR-TPES	Nylon	750	1120	40 to 180	7 to 82	1.30	6.34									
			Non FDA HR Nylon	Non FDA HR Nylon	1100	1640	-50 to 310	-46 to 154	1.20	5.80									
FLUSH GRID NUB TOP	15	F,S	Polypropylene	Polypropylene	700	1040	34 to 220	1 to 104	0.93	4.55	•							•	3
			Acetal	Polypropylene	1300	1940	34 to 200	1 to 93	1.36	6.65	•							•	3
			Polyethylene	Polyethylene	450	670	-50 to 150	-46 to 66	1.00	4.90	•							•	3
			Acetal	Polyethylene	1200	1790	-50 to 70	-46 to 41	1.36	6.65	•							•	3
CONE TOP	0	-	Acetal	Polypropylene	1000	1490	34 to 200	1 to 93	1.31	6.40	•	•	1	•				•	3
SERIES 1200 - Nominal Pitch 1.44 in. (36.6 mm)																			
FLUSH GRID	24	-	Polypropylene Composite	Polypropylene	3300	4910	34 to 220	1 to 104	2.87	14.01	•								
FLAT TOP	0	-	Polypropylene Composite	Polypropylene Composite	4000	5950	-20 to 220	-29 to 104	3.17	15.45	•								
RAISED RIB	24	FTP	Polypropylene Composite	Polypropylene	3300	4910	34 to 220	1 to 104	3.30	16.11	•								
NON SKID	0	-	Polypropylene Composite	Polypropylene Composite	4000	5950	-20 to 220	-29 to 104	3.21	15.65	•								
NON SKID RAISED RIB	0	FTP	Polypropylene Composite	Polypropylene Composite	4000	5950	-20 to 220	-29 to 104	3.58	17.48	•								
SERIES 1400 - Nominal Pitch 1.00 in. (25.4 mm)																			
FLAT TOP	0	-	Acetal	Nylon	2500	3720	-50 to 200	-46 to 93	2.75	13.43	•							•	3
			Polypropylene	Nylon	1800	2678	34 to 220	1 to 104	1.85	9.03	•							•	3
			FR-TPES	Polypropylene	1200	1786	40 to 180	7 to 82	2.76	13.47	•								
MOLD TO WIDTH FLAT TOP - 3.25 in. (83 mm) WIDE	0	-	Acetal	Nylon	700 (lb)	318 (kg)	-50 to 200	-46 to 93	0.80 (lb/ft)	1.19 (kg/m)	•							•	3
MOLD TO WIDTH FLAT TOP - (85 mm) WIDE	0	-	Acetal	Nylon	700 (lb)	318 (kg)	-50 to 200	-46 to 93	0.80 (lb/ft)	1.19 (kg/m)	•							•	3
MOLD TO WIDTH FLAT TOP - 4.5 in. (114 mm) WIDE	0	-	Acetal	Nylon	850 (lb)	386 (kg)	-50 to 200	-46 to 93	1.13 (lb/ft)	1.68 (kg/m)	•							•	3
MOLD TO WIDTH FLAT TOP - 6.0 in. (152 mm) WIDE	0	-	Acetal	Nylon	1200 (lb)	544 (kg)	-50 to 200	-46 to 93	1.40 (lb/ft)	2.08 (kg/m)	•							•	3
			Polypropylene	Nylon	850 (lb)	386 (kg)	34 to 220	1 to 104	0.95 (lb/ft)	1.14 (kg/m)	•							•	3
MOLD TO WIDTH FLAT TOP - 7.5 in. (191 mm) WIDE	0	-	Acetal	Nylon	1550 (lb)	703 (kg)	-50 to 200	-46 to 93	1.75 (lb/ft)	2.60 (kg/m)	•							•	3

Belt Style	% Open Area	Accessories: F = Flights, S = Sideguards FTP = Finger Transfer Plates	Belt Material	Rod Material	Belt Strength lb/ft	Belt Strength kg/m	Temperature Range (continuous) °F	Temperature Range (continuous) °C	Belt Weight lb/ sq ft	Belt Weight kg/ sq m	FDA (USA)	USDA-FSIS Meat & Poultry[a]	USDA Dairy[b]	Canada Food Inspection Agency (CFA)	Australian Quarantine Inspection Service (A)	New Zealand Ministry of Agriculture and Forestry (Z)	M-MAF New Zealand Dairy (M)	European Migration Certificate according to EC Directive 2002/72/EC and its amendments to date (EU MC)	Japan Ministry of Health, Labour, and Welfare (J)
											Agency Acceptability 1=White, 2=Blue, 3= Natural, 4=Grey								
ONEPIECE™ LIVE TRANSFER FLAT TOP	0	-	Acetal	Nylon	850 (lb)	386 (kg)	-50 to 200	-46 to 93	1.25 (lb/ft)	1.86 (kg/m)	•							•	3
ONEPIECE™ 9.3 in. (236 mm) LIVE TRANSFER FLAT TOP	0	-	Acetal	Nylon	1550 (lb)	703 (kg)	-50 to 200	-46 to 93	1.86 (lb/ft)	2.77 (kg/m)	•							•	3
FLUSH GRID	21	-	Polypropylene	Polypropylene	1800	2679	34 to 220	1 to 104	1.61	7.86	•							•	3
			Polypropylene	Nylon	1800	2679	34 to 220	1 to 104	1.66	8.10	•							•	3
			Acetal	Nylon	2500	3720	-50 to 200	-46 to 93	2.52	12.30	•							•	3
FLAT FRICTION TOP	0	-	Polypropylene (FFT)	Nylon	1800	2678	34 to 150	1 to 66	2.18	10.64	1								
			Polypropylene (FFT Ultra)	Nylon	1800	2678	34 to 150	1 to 66	2.50	12.16	1								
			Polyethylene (FFT)	Nylon	1000	1488	-50 to 120	-46 to 49	2.28	11.13									
			Polyethylene (FFT Ultra)	Nylon	1000	1488	-50 to 120	1 to 66	2.29	11.18									
OVAL FRICTION TOP	0		Polypropylene	Nylon	1800	2678	34 to 150	1 to 66	2.29	11.18									
ROLLER TOP	0	-	Acetal	Nylon	2500	3720	-50 to 200	-46 to 93	5.83	28.47	•							•	3
NON SKID	0	-	HS EC Acetal	Nylon	1875	2790	-50 to 200	-46 to 93	2.78	13.57									
SQUARE FRICTION TOP	0	-	Polypropylene (SFT)	Nylon	1800	2678	34 to 150	1 to 66	2.23	10.89									
			Polypropylene (SFT Ultra)	Nylon	1800	2678	34 to 150	1 to 66	2.56	12.50									
MOLD TO WIDTH SQUARE FRICTION TOP	0	-	Polypropylene (SFT Ultra)	Nylon	800	386	34 to 150	1 to 66	1.15	1.71									
SERIES 1500 - Nominal Pitch 0.50 in. (12.7 mm)																			
FLUSH GRID	48	-	Polypropylene	Polypropylene	125	186	34 to 220	1 to 104	0.44	2.12	•							•	3
			Polypropylene	Acetal	150	223	34 to 200	1 to 93	0.51	2.40	•							•	3
			FDA HR Nylon	Nylon	175	260	-50 to 240	-46 to 116	0.58	2.83	•								
			Acetal	Acetal	240	357	-50 to 200	-46 to 93	0.73	3.56	•							•	3
			Detectable Polypropylene	Acetal	80	119	0 to 150	-18 to 66	0.56	2.73	•							•	4
SERIES 1600 - Nominal Pitch 1.00 in. (25.4 mm)																			
OPEN HINGE FLAT TOP	0	F	Polypropylene	Polypropylene	700	1040	34 to 220	1 to 104	1.05	5.13	•		1					•	3
			Polyethylene	Polyethylene	350	520	-50 to 150	-46 to 66	1.10	5.37	•		3					•	3
			Acetal	Polypropylene	1400	2100	34 to 200	1 to 93	1.58	7.71	•		1					•	3
			Acetal	Polyethylene	1000	1490	-50 to 150	-46 to 66	1.58	7.71	•		1					•	3
NUB TOP	0	-	Polypropylene	Polypropylene	700	1040	34 to 220	1 to 104	1.13	5.52	•							•	3
			Polyethylene	Polyethylene	350	520	-50 to 150	-46 to 66	1.18	5.76	•							•	3
			Acetal	Polypropylene	1400	2100	34 to 200	1 to 93	1.74	8.49	•							•	3
			Acetal	Polyethylene	1000	1490	-50 to 150	-46 to 66	1.74	8.49	•							•	3
MINI RIB	0	-	Polypropylene	Polypropylene	700	1040	34 to 220	1 to 104	1.05	5.13	•		1					•	3
			Acetal	Polypropylene	1400	2100	34 to 200	1 to 93	1.58	7.71	•		1					•	3
MESH TOP	16		Acetal	Polypropylene	1200	1780	34 to 200	1 to 93	1.40	6.84	•							•	3
			Polypropylene	Polypropylene	700	1040	34 to 220	1 to 104	0.94	4.59	•							•	3
SERIES 1700 - Nominal Pitch 1.50 in. (38.1 mm)																			
FLUSH GRID	37	-	AR Nylon	Nylon	1800	2678	-50 to 180	-46 to 82	2.21	10.78									
FLUSH GRID NUB TOP	37	-	AR Nylon	Nylon	1800	2678	-50 to 240	-46 to 116	2.21	10.78	•								
SERIES 1800 - Nominal Pitch 2.50 in. (63.5 mm)																			
FLAT TOP	0	F	Polypropylene	Polypropylene	1200	1786	34 to 220	1 to 104	2.06	10.06	•		1					•	3
			Polyethylene	Polyethylene	700	1042	-50 to 150	-46 to 66	2.23	10.90	•		3					•	3
			Acetal	Polyethylene	1200	1786	-50 to 150	-46 to 66	3.36	16.40	•		1					•	3
			Acetal	Polypropylene	1500	2232	34 to 200	1 to 93	3.36	16.40	•		1					•	3

Belt Style	% Open Area	Accessories: F = Flights, S = Sideguards FTP = Finger Transfer Plates	Belt Material	Rod Material	Belt Strength lb/ft	Belt Strength kg/m	Temperature Range (continuous) °F	Temperature Range (continuous) °C	Belt Weight lb/ sq ft	Belt Weight kg/ sq m	FDA (USA)	USDA-FSIS Meat & Poultry[a]	USDA Dairy[b]	Canada Food Inspection Agency (CFA)	Australian Quarantine Inspection Service (A)	New Zealand Ministry of Agriculture and Forestry (Z)	M-MAF New Zealand Dairy (M)	European Migration Certificate according to EC Directive 2002/72/EC and its amendments to date (EU MC)	Japan Ministry of Health, Labour, and Welfare (J)
											Agency Acceptability 1=White, 2=Blue, 3= Natural, 4=Grey								
MESH TOP	32	-	Polypropylene	Polypropylene	800	1190	34 to 220	1 to 104	1.44	7.03	•							•	3
			UV Resistant Polypropylene	Acetal	1100	1640	34 to 200	1 to 93	1.55	7.56									
			UV Resistant Acetal	Acetal	1500	2230	-50 to 200	-46 to 93	2.27	11.08									
			Polyethylene	Polyethylene	400	595	-50 to 150	-46 to 66	1.50	7.32	•							•	3
SERIES 1900 - Nominal Pitch 2.07 in. (52.6 mm)																			
RAISED RIB	27	FTP	Enduralox™ Polypropylene	Polypropylene	4000	5952	34 to 220	1 to 104	3.90	19.04	•							•	
SERIES 2000 - Nominal Pitch 1.25 in. (31.8 mm)																			
RAISED RIB	18	FTP	Polypropylene	Polypropylene	500	750	34 to 220	1 to 104	1.75	8.53	•	•		•				•	3
			Polyethylene	Polyethylene	400	605	-50 to 150	-46 to 66	1.83	8.92	•	•		•				•	3
			Acetal	Polypropylene	1130	1680	34 to 200	1 to 93	2.68	13.08	•	•		•				•	3
SERIES 2200 - Nominal Pitch 1.50 in. (38.1 mm)																			
FLUSH GRID	50	F	Polypropylene	Acetal	1600	2380	34 to 200	1 to 93	1.86	9.10	•	•	1	•	•		•	•	3
			Polyethylene	Acetal	1000	1490	-50 to 150	-46 to 66	1.96	9.56	•	•	3	•	•		•	•	3
			Acetal	Nylon	2500	3720	-50 to 200	-46 to 93	2.82	13.80	•	•	3	•	•			•	3
			Polypropylene	Polypropylene	1400	2100	34 to 220	1 to 104	1.78	8.69	•	•	1	•	•			•	3
RADIUS FRICTION TOP	50	F	Polypropylene	Acetal	1600	2380	34 to 150	1 to 66	2.20	10.74	1								
			Polyethylene	Acetal	1000	1490	34 to 150	1 to 66	2.30	11.23	•								
			Polypropylene	Polypropylene	1400	2100	34 to 150	1 to 66	2.12	10.35	1								
2.6 RADIUS FLUSH GRID WITH INSERT ROLLERS	50	F	Polypropylene	Acetal	400	600	34 to 200	1 to 93	1.86	9.08	•							•	3
			Acetal	Nylon	630	940	-50 to 200	-46 to 93	2.82	13.80	•							•	3
			Polypropylene	Polypropylene	350	520	34 to 220	1 to 104	1.78	8.69	•							•	3
FLUSH GRID HIGH DECK	50	F	Acetal	Nylon	2500	3720	-50 to 200	-46 to 93	3.66	17.87								•	3
SERIES 2400 - Nominal Pitch 1.00 in. (25.4 mm)																			
1.7 RADIUS FLUSH GRID	42	F,S	Polypropylene	Acetal	600	892	34 to 200	1 to 93	1.20	5.86	•		•		•			•	3
			Acetal	Nylon	600	892	-50 to 200	-46 to 93	1.73	8.44	•		•		•			•	3
			Polypropylene	Polypropylene	600	892	34 to 220	1 to 104	1.12	5.47	•		•		•			•	3
2.2 RADIUS FLUSH GRID	42	F,S	Polypropylene	Acetal	1200	1785	34 to 200	1 to 93	1.10	5.40	•		•		•			•	3
			Acetal	Nylon	1700	2528	-50 to 200	-46 to 93	1.61	7.86	•		•		•			•	3
			Polypropylene	Polypropylene	1000	1487	34 to 220	1 to 104	1.04	5.11	•		•		•			•	3
RADIUS FRICTION TOP	42	-	Polypropylene	Acetal	1200	1785	34 to 150	1 to 66	1.31	6.43	1								
			Polypropylene	Polypropylene	1000	1487	34 to 150	1 to 66	1.25	6.14	1								
2.4 RADIUS WITH INSERT ROLLERS	42	S	Polypropylene	Acetal	500	744	34 to 200	1 to 93	1.20	5.86	•							•	3
			Acetal	Nylon	500	744	-50 to 200	-46 to 93	1.73	8.44	•							•	3
			Polypropylene	Polypropylene	500	744	34 to 220	1 to 104	1.12	5.47	•							•	3
2.8 RADIUS WITH INSERT ROLLERS	42	S	Polypropylene	Acetal	700	1040	34 to 200	1 to 93	1.21	5.92	•							•	3
			Acetal	Nylon	1000	1490	-50 to 200	-46 to 93	1.61	7.86	•							•	3
			Polypropylene	Polypropylene	600	890	34 to 220	1 to 104	1.04	5.11	•							•	3
RAISED RIB	42	-	Polypropylene	Acetal	1200	1785	34 to 200	1 to 93	1.79	8.74	•							•	3
			Acetal	Nylon	1700	2528	-50 to 200	-46 to 93	2.79	13.62	•							•	3
			Polypropylene	Polypropylene	1000	1487	34 to 220	1 to 104	1.76	8.59	•							•	3
RADIUS FLAT TOP	0	-	Acetal	Nylon	1700	2528	-50 to 200	-46 to 93	2.24	11.00	•							•	3
FLUSH GRID HIGH DECK	42	-	Polypropylene	Acetal	1200	1785	34 to 200	-1 to 93	1.90	9.28	•		•		•			•	3
			Acetal	Acetal	1700	2530	-50 to 200	-46 to 93	2.83	13.82	•		•		•			•	3
SERIES 2600 - Nominal Pitch 2.00 in. (50.8 mm)																			
1.1 RADIUS SPIRALOX™	57	-	Acetal	Acetal	1700	2530	-50 to 200	-46 to 93	1.54	7.52	•							•	3
			Polypropylene	Acetal	1500	2232	34 to 200	1 to 93	1.04	5.08	•							•	3
1.6 RADIUS SPIRALOX™	57	-	Acetal	Acetal	1700	2530	-50 to 200	-46 to 93	1.44	7.03	•							•	3
			Polypropylene	Acetal	1500	2232	34 to 200	1 to 93	1.01	4.93	•							•	3
2.2 RADIUS SPIRALOX™	57	-	Acetal	Acetal	1700	2530	-50 to 200	-46 to 93	1.54	7.52	•							•	3
			Polypropylene	Acetal	1500	2232	34 to 200	1 to 93	1.04	5.08	•							•	3
2.5 RADIUS SPIRALOX™	57	-	Acetal	Acetal	1700	2530	-50 to 200	-46 to 93	1.54	7.52	•							•	3
			Polypropylene	Acetal	1500	2232	34 to 200	1 to 93	1.04	5.08	•							•	3
3.2 RADIUS SPIRALOX™	57	-	Acetal	Acetal	1700	2530	-50 to 200	-46 to 93	1.54	7.52	•							•	3
			Polypropylene	Acetal	1500	2232	34 to 200	1 to 93	1.04	5.08	•							•	3

Belt Style	% Open Area	Accessories: F = Flights, S = Sideguards FTP = Finger Transfer Plates	Belt Material	Rod Material	Belt Strength		Temperature Range (continuous)		Belt Weight		Agency Acceptability 1=White, 2=Blue, 3= Natural, 4=Grey								
					lb/ft	kg/m	°F	°C	lb/ sq ft	kg/ sq m	FDA (USA)	USDA-FSIS Meat & Poultry[a]	USDA Dairy[b]	Canada Food Inspection Agency (CFA)	Australian Quarantine Inspection Service (A)	New Zealand Ministry of Agriculture and Forestry (Z)	M-MAF New Zealand Dairy (M)	European Migration Certificate according to EC Directive 2002/72/EC and its amendments to date (EU MC)	Japan Ministry of Health, Labour, and Welfare (J)
ROUNDED FRICTION TOP SPIRALOX™ (1.6 TR)	57	-	Acetal	Acetal	1700	2530	34 to 150	1 to 166	1.44	7.03	1								
			Polypropylene	Acetal	1500	2232	34 to 150	1 to 166	1.01	4.93	1								
ROUNDED FRICTION TOP SPIRALOX™ (2.2, 2.5, 3.2 TR)	57	-	Acetal	Acetal	1700	2530	34 to 150	1 to 166	1.54	7.52	1								
			Polypropylene	Acetal	1500	2232	34 to 150	1 to 166	1.04	5.08	1								
SERIES 2700 - Nominal Pitch 2.00 in. (50.8 mm)																			
1.6 RADIUS SPIRALOX™	51	-	Acetal	Acetal	2000	2974	-50 to 200	-46 to 93	1.88	9.21	•							•	3
SERIES 3000 - Nominal Pitch 2.00 in. (50.8 mm)																			
KNUCKLE CHAIN (STRAIGHT)	-	-	Acetal	303 Stainless Steel	700 (lb)	317 (kg)	-50 to 200	-46 to 93	0.88 (lb/ft)	1.21 (kg/m)	•	•						•	3
KNUCKLE CHAIN (TURNING)	-	-	Acetal	303 Stainless Steel	560 (lb)	254 (kg)	-50 to 200	-46 to 93	0.90 (lb/ft)	1.25 (kg/m)	•	•						•	3
SERIES 4000 - Nominal Pitch 1.00 in. (25.4 mm)																			
4009 FLUSH GRID	13	-	Acetal	303 Stainless Steel	500 (lb)	227 (kg)	-50 to 200	-46 to 93	0.97 (lb/ft)	1.44 (kg/m)	•							•	3
4009 FLAT TOP	0	-	Acetal	303 Stainless Steel	500 (lb)	227 (kg)	-50 to 200	-46 to 93	1.11 (lb/ft)	1.65 (kg/m)	•							•	3
4014 FLAT TOP	0	-	Acetal	303 Stainless Steel	500 (lb)	227 (kg)	-50 to 200	-46 to 93	1.29 (lb/ft)	1.92 (kg/m)	•							•	3
4090 (4.5) SIDEFLEXING FLAT TOP	13	-	Acetal	303 Stainless Steel	500 (lb)	227 (kg)	-50 to 200	-46 to 93	1.40 (lb/ft)	6.84 (kg/m)	•							•	3
4091 (4.5) SIDEFLEXING FLAT TOP	0	-	Acetal	303 Stainless Steel	500 (lb)	227 (kg)	-50 to 200	-46 to 93	1.40 (lb/ft)	6.84 (kg/m)	•							•	3
4092 (4.5) SIDEFLEXING FLAT TOP	0	-	Acetal	303 Stainless Steel	500 (lb)	227 (kg)	-50 to 200	-46 to 93	1.61 (lb/ft)	7.86 (kg/m)	•							•	3
4090 (7.5) SIDEFLEXING FLAT TOP	0	-	Acetal	303 Stainless Steel	500 (lb)	227 (kg)	-50 to 200	-46 to 93	1.86 (lb/ft)	2.76 (kg/m)	•							•	3
4091 (7.5) SIDEFLEXING FLAT TOP	0	-	Acetal	303 Stainless Steel	500 (lb)	227 (kg)	-50 to 200	-46 to 93	1.84 (lb/ft)	2.73 (kg/m)	•							•	3
4092 (7.5) SIDEFLEXING FLAT TOP	0	-	Acetal	303 Stainless Steel	500 (lb)	227 (kg)	-50 to 200	-46 to 93	2.05 (lb/ft)	3.05 (kg/m)	•							•	3

a. Prior to Intralox's development of Series 800 Flush Grid, Open Hinge, Perforated Flat Top, Flush Grid Nub Top, Mesh Top, Embedded Nub Top, Open Hinge Cone Top, Roller Top, and Rounded Friction Top, Series 1500, Series 1600, Series 1700, Series 1800, Series 1900, Series 2400, Series 2600 and Series 2700, USDA-FSIS discontinued publishing a list of acceptable new products designed for food contact.As of this literature, third party approvals are being investigated, but are not yet sanctioned by the USDA-FSIS.

b. USDA Dairy accepted designs require the use of a clean-in-place system.

SECTION 2

FRICTION FACTORS

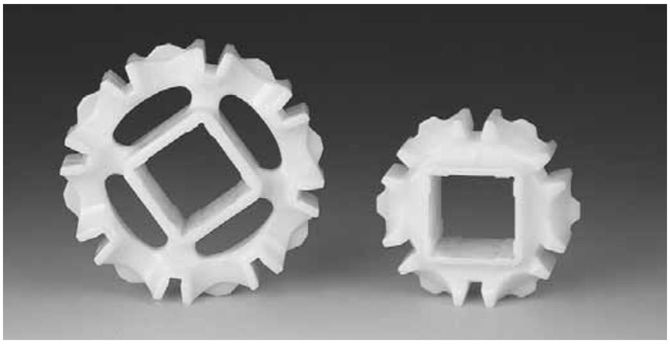
Friction Factors[a]		F_w Friction between wearstrip and belt Wearstrip material				F_p Friction between product and belt Product material (used in backup conditions)[b]				
Belt Material		UHMW WET (DRY)	HDPE WET (DRY)	NYLATRON WET (DRY)	STEEL (CS & SS) WET (DRY)	GLASS WET (DRY)	STEEL WET (DRY)	PLASTIC WET (DRY)	CARDBOARD WET (DRY)	ALUMINUM WET (DRY)
Polypropylene (S)		0.11 (0.13)	0.09 (0.11)	0.24 (0.25)	0.26 (0.26)	0.18 (0.19)	0.26 (0.32)	0.11 (0.17)	— (0.21)	0.40 (0.40)
Polypropylene (A)		NR	NR	0.29 (0.30)	0.31 (0.31)	0.18 (0.19)	0.26 (0.32)	0.11 (0.17)	— (0.21)	0.40 (0.40)
PP Composite (S)		0.11 (0.16)	—	—	0.31 (0.37)	0.24 (0.23)	0.36 (0.32)	0.17 (0.21)	—	0.55 (0.45)
Polyethylene[c] (S)		0.24 (0.32)	NR	0.14 (0.13)	0.14 (0.15)	0.08 (0.09)	0.10 (0.13)	0.08 (0.08)	— (0.15)	0.20 (0.24)
Detectable PP		0.24 (0.27)	NR	0.28 (0.29)	0.26 (0.30)	0.18 (0.20)	0.26 (0.30)	0.26 (0.29)	— (0.37)	0.40 (0.40)
Acetal (S)		0.10 (0.10)	0.09 (0.08)	0.13 (0.15)	0.18 (0.19)	0.13 (0.14)	0.13 (0.13)	0.13 (0.16)	— (0.18)	0.33 (0.27)
EC Acetal (S)		0.10 (0.10)	0.09 (0.08)	0.13 (0.15)	0.18 (0.19)	0.13 (0.14)	0.19 (0.20)	0.13 (0.16)	— (0.18)	0.33 (0.27)
FR-TPES (S)		— (0.13)	—	—	—	—	— (0.18)	—	—	— (0.30)
HR Nylon 72 °F (22 °C)	(S)	— (0.18)	— (0.13)	— (0.17)	— (0.27)	— (0.16)	— (0.27)	— (0.16)	— (0.19)	— (0.28)
	(A)	— (0.30)	— (0.25)	— (0.26)	— (0.26)	— (0.16)	— (0.27)	— (0.16)	— (0.19)	— (0.28)
HR Nylon Max. Temp.	(S)	NR	NR	— (0.18)	— (0.27)	— (0.19)	— (0.27)	— (0.47)	— (0.23)	— (0.25)
	(A)	NR	NR	— (0.32)	— (0.39)	— (0.19)	— (0.27)	— (0.47)	— (0.23)	— (0.25)
AR Nylon Max. Temp	(S)	— (0.19)	— (0.11)	— (0.24)	— (0.31)	—	—	—	— (0.22)	— (0.31)
	(A)	— (0.32)	— (0.22)	— (0.36)	— (0.30)	—	—	—	— (0.22)	— (0.31)
UV Resistant PP		0.11 (0.13)	0.09 (0.11)	0.24 (0.25)	0.26 (0.26)	0.18 (0.19)	0.26 (0.32)	0.11 (0.17)	— (0.21)	0.40 (0.40)
(S) = smooth, clean conditions. (A) = abrasive, dirty conditions. NR = not recommended.										

a. Friction factor values are highly dependent on environmental conditions. The low value of the friction factor range is an experimentally derived friction factor for new belting on new wearstrip. This value should only be used in the cleanest environments or where water or other lubricating agents are present. Most applications should be adjusted based on the environmental conditions surrounding the conveyor.
b. Friction Factors for friction between product and belt only apply for Flat Top, Perforated Flat Top, Mesh Top, Flush Grid and Raised Rib belts.
c. Polyethylene is not recommended for container handling.

GENERAL APPLICATION SPROCKET MATERIAL

ACETAL sprockets are used for most general purpose applications. This material is considerably stronger than polypropylene and polyurethane, and has a good balance of mechanical, thermal and chemical properties.

- Acetal has good fatigue endurance and resilience.
- Acetal has good non abrasive wear characteristics.
- Acetal's temperature range is -50 °F (-46 °C) to 200 °F (93 °C).
- This material is FDA compliant for use in food processing and packaging applications.



SPECIAL APPLICATION SPROCKET MATERIAL

POLYPROPYLENE sprockets are used for applications where chemical resistance may be required.

- Polypropylene has good chemical resistance to many acids, bases, salts and alcohols.
- Polypropylene's temperature range is 34 °F (1 °C) to 220 °F (104 °C).
- A relatively strong material in normal use, polypropylene exhibits a somewhat brittle quality at low temperatures. It is not recommended in high impact conditions below 45 °F (7 °C).
- This material is FDA compliant for use in food processing and packaging applications.
- Contact Intralox Customer Service for polypropylene sprocket availability.

POLYPROPYLENE COMPOSITE, is a standard material for use in applications where both high strength and chemical resistance may be required.

- Excellent strength and stiffness.
- Specific gravity of 1.12.
- Good chemical resistance to acids, bases, salts and alcohol.
- Temperature range is -20 °F (-29 °C) to220 °F (104 °C).
- The thermal expansion coefficient is 0.0004 in/ft/ °F (0.06 mm/m/ °C).

POLYURETHANE sprockets are used for applications where abrasive wear is common.

- Polyurethane's temperature range is 0 °F (-18 °C) to 120 °F (49 °C). Polyurethane becomes soft and flexible at high temperatures and has good chemical resistance.
- **Series 800, 1600, 2200,** and **2400** have a lower rating when using polyurethane sprockets. Refer to the individual belt data pages for these ratings.
- Polyurethane sprockets are only available in **Series 100, 200, 400** and **800**. Contact Intralox Customer Service for availability.

POLYURETHANE COMPOSITE sprockets are standard in **Series 1200** and one size in **Series 1400** (31 Tooth). This material is extremely rigid and can handle a large range of chemicals and temperatures. The temperature range for Polyurethane Composite is -50 °F (-46 °C) to 240 °F (116 °C).

ULTRA ABRASION RESISTANT POLYURETHANE sprockets are available for **Series 400** and **Series 1700**.

- For abrasive, heavy-duty applications.
- For non-FDA applications.
- Temperature range -40 °F to 160 °F (-40 °C to 70 °C).
- Series 400 has a lower rating when using ultra abrasion resistant polyurethane sprockets.

STAINLESS STEEL split sprockets are used for applications with abrasive wear or when shaft removal is not practical. There are two types of stainless steel sprockets. The all-metal Abrasion Resistant sprockets are available in a number of Series and Pitch Diameters. The Stainless Steel Split consists of 1 to 3 stainless steel tooth plates assembled between polypropylene joining plates that form the hub of the sprocket.

- The sprocket is split into two pieces for easy assembly onto and off of a shaft.
- Stainless steel split sprockets have good chemical resistance.
- Polypropylene's temperature range is 34 °F (1 °C) to 220 °F (104 °C).
- A relatively strong material in normal use, polypropylene exhibits a somewhat brittle quality at low temperatures. It is not recommended in high impact conditions below 45 °F (7 °C).
- These materials are FDA compliant for use in food processing and packaging applications.
- These sprockets are built standard with 304 stainless steel plates and can be specially ordered with 316 stainless steel plates.
- Contact Intralox Customer Service for availability.

GLASS FILLED NYLON sprockets are available for **Series 1100, Series 1400/4000, Series 2400 and Series 900**. This material is more abrasion resistant than Acetal but not as abrasion resistant as Stainless Steel. Temperature range of Glass Filled Nylon is -51 °F (-46 °C) to 151 °F (66 °C); Not chemical resistant.

POLYETHYLENE sprockets are only available for the **Series 3000** sprockets.

Note: Not all sprocket pitch diameters, bore sizes and material combinations are available in all series. Those that are available can either be stocked or made to order. Contact Intralox Customer Service for availability and lead-times (some available combinations may be long lead-time items).

SPROCKET MATERIAL AVAILABILITY

The chart below lists the materials available for each Intralox sprocket by Series and Pitch Diameter. It should be noted that not all sprockets of each pitch diameter are available in all listed materials. A material which is available for certain bore types and/or bore sizes may not be available for other bore types and/or bore sizes of the same Series and Pitch Diameter sprocket. Sprockets can be either stocked or made to order, and may have long lead-times. Lead-times vary by sprocket. Some make to order sprockets may also have set up charges. Contact Intralox Customer Service for specific lead-times and availability.

All Intralox sprockets can be classified either as stock items or as make to order items. Some make to order items may incur special set-up charges. Call Customer Service for pricing, lead-times and availability.		**GENERAL PURPOSE MATERIALS**	**SPECIAL APPLICATIONS MATERIALS**								
		Acetal	**Polypropylene**	**Split Metal**	**Abrasion Resistant Metal**	**Polyurethane**	**Glass Filled Nylon**	**Polyethylene**	**Polyurethane Composite**	**Ultra Abrasion Resistant Polyurethane**	**Polypropylene Composite**
PITCH DIAMETER in (mm)	**NO. TEETH**										
SERIES 100											
2.0 (51)	6	•	•								
3.5 (89)	11	•	•	•		•					
6.1 (155)	19	•	•	•		•					
SERIES 200											
4.0 (102)	6	•	•			•					
6.4 (163)	10	•	•		•	•					
10.1 (257)	16	•	•		•						
SERIES 400											
4.0 (102)	6	•	•	•		•					
5.2 (132)	8	•	•	•							
5.8 (147)	9			•[a]							
6.4 (163)	10	•	•	•	•				•	•	
7.8 (198)	12	•	•	•	•				•	•	
8.4 (213)	13			•[a]							
10.1 (257)	16	•	•	•	•				•	•	
SERIES 600											
7.7 (196)	12	•									
SERIES 800											
4.0 (102)	6	•	•			•					
5.2 (132)	8	•	•	•[b]		•					
6.5 (165)	10	•	•	•[b]		•					
7.7 (196)	12	•	•	•[b]		•					
10.3 (262)	16	•	•	•[b]							
SERIES 850											
4.0 (102)	6	•	•			•					
5.2 (132)	8	•	•	•[b]		•					
6.5 (165)	10	•	•	•[b]		•					
7.7 (196)	12	•	•	•[b]		•					
10.3 (262)	16	•	•	•[b]							
SERIES 900											
2.1 (53)	6	•	•								
3.1 (79)	9	•	•								
3.5 (89)	10	•	•	•							
4.1 (104)	12	•	•	•	•	•					
5.1 (130)	15			•			•				
5.8 (147)	17	•	•	•	•		•				
6.1 (155)	18	•	•	•	•	•	•				

SECTION 2

All Intralox sprockets can be classified either as stock items or as make to order items. Some make to order items may incur special set-up charges. Call Customer Service for pricing, lead-times and availability.

		GENERAL PURPOSE MATERIALS	SPECIAL APPLICATIONS MATERIALS								
PITCH DIAMETER in (mm)	**NO. TEETH**	**Acetal**	**Polypropylene**	**Split Metal**	**Abrasion Resistant Metal**	**Polyurethane**	**Glass Filled Nylon**	**Polyethylene**	**Polyurethane Composite**	**Ultra Abrasion Resistant Polyurethane**	**Polypropylene Composite**
6.8 (173)	20	•	•	•	•	•	•				
9.6 (244)	28			•							
SERIES 1100					•						
1.6 (41)	8				•						
2.3 (58)	12	•			•						
3.1 (79)	16	•	•								
3.5 (89)	18	•	•	•							
3.8 (97)	20	•	•								
4.6 (117)	24	•	•	•			•				
5.1 (130)	26	•	•	•							
6.1 (155)	32	•	•	•			•				
SERIES 1200											
5.6 (142)	12			•							
6.5(165)	14			•					•		
7.4 (188)	16								•		
7.9 (201)	17								•		
10.2 (258)	22			•					•		
SERIES 1400											
3.9 (99)	12	•									
5.1 (130)	16						•				
5.7 (145)	18	•					•				•
6.7 (170)	21						•				•
9.9 (251)	31								•		
SERIES 1500											
1.9 (48)	12	•									
2.3 (58)	14	•									
2.7 (69)	17	•									
3.8 (97)	24	•									
5.7 (145)	36	•									
SERIES 1600											
2.0 (51)	6	•									
3.2 (81)	10	•				•					
3.9 (99)	12	•				•					
6.4 (163)	20	•									
SERIES 1700											
5.8 (147)	12									•	
6.7 (170)	14									•	
7.7 (196)	16									•	
10.5 (267)	22									•	
SERIES 1800											
5.0 (127)	6	•									
6.5 (165)	8	•									
8.1 (206)	10	•									
10.5 (267)	13	•									
SERIES 1900											
6.7 (170)	10			•							
10.6 (269)	16			•							
SERIES 2000											
6.5 (165) (bottom)	16	•	•								
6.5 (165) (top)	16	•	•								
8.1 (206) (bottom)	20	•	•								
SERIES 2200											
3.9 (99)	8	•	•								
5.3 (135)	11	•	•			•					

All Intralox sprockets can be classified either as stock items or as make to order items. Some make to order items may incur special set-up charges. Call Customer Service for pricing, lead-times and availability.		GENERAL PURPOSE MATERIALS	SPECIAL APPLICATIONS MATERIALS								
		Acetal	Polypropylene	Split Metal	Abrasion Resistant Metal	Polyurethane	Glass Filled Nylon	Polyethylene	Polyurethane Composite	Ultra Abrasion Resistant Polyurethane	Polypropylene Composite
PITCH DIAMETER in (mm)	**NO. TEETH**										
6.3 (160)	13	•	•								
7.7 (196)	16	•	•								
SERIES 2400											
2.0 (51)	6	•									
2.9 (74)	9	•									
3.9 (99)	12	•	•			•	•				
5.1 (130)	16	•	•			•	•				
6.4 (163)	20	•	•				•				
SERIES 2600											
5.2 (132)	8	•						•			
6.5 (165)	10	•						•			
SERIES 2700											
5.2 (132)	8	•									
6.5 (165)	10	•									
SERIES 3000											
5.2 (132)	8							•			
6.5 (165)	10							•			
7.7 (196)	12							•			
SERIES 4000											
3.9 (99)	12	•									
5.1 (130)	16						•				
5.7 (145)	18	•					•				
6.7 (170)	21						•				
9.9 (251)	31								•		

a. For use with Series 400 Flush Grid Acetal and EC Acetal only.
b. Available in three plate, Abrasion Resistant split design.

BELT SELECTION INSTRUCTIONS

To determine if this belt is suitable for your application, its OPERATING LOAD versus OPERATING STRENGTH must be known. The following steps will assist you in making the necessary calculations for this comparison:

STEP 1: CALCULATE THE BELT'S TENSION LOAD OR BELT PULL, BP, lb/ft (kg/m)

$$BP = [(M + 2W) \times Fw + M_p] \times L + (M \times H)$$

where:

- **M** = Product Loading, lb/ft^2 (kg/m^2)
- **W** = Belt Weight, lb/ft^2 (kg/m^2) (found on BELT DATA page)
- **L** = Length of Conveyor, ft. (m), ℄ to ℄
- **H** = Elevation Change of Conveyor, ft. (m)
- **F_w** = Wearstrip to Belt Friction Coefficient
- **M_p** = M × (F_p × % Belt Backed-Up), loading due to backed up product

Obtain F_w and F_p from BELT DATA page of the belt style you are considering. If products are not backed up on belt, ignore M_p.

STEP 2: ADJUST THE CALCULATED BP FOR SPECIFIC SERVICE CONDITIONS

Since the belt may experience a variety of conditions, the **BP** should be adjusted by applying an appropriate **SERVICE FACTOR**, **SF**.

Determine **SF**:

SERVICE FACTOR (SF)		
Starts under no load, with load applied gradually		1.0
Frequent starts under load (more than once per hour)	ADD 0.2	
At speeds greater than 100 FPM (Feet Per Minute) (30 meters/min)	ADD 0.2	
Elevating Conveyors	ADD 0.4	
Pusher Conveyors	ADD 0.2	
	TOTAL	

Note: At speeds greater than 50 FPM (15 meters/min) on conveyors that are started with backed-up lines, soft start motors should be considered.

The **ADJUSTED BELT PULL, ABP**, is determined by:

$$ABP = BP \times SF$$

For Bi-Directional and Pusher Conveyors:

$$ABP = BP \times SF \times 2.2$$

where:

ABP = **ADJUSTED BELT PULL**, lb/ft (kg/m) of belt width

STEP 3: CALCULATE ALLOWABLE BELT STRENGTH, ABS lb/ft (kg/m) of belt width

The **ALLOWABLE BELT STRENGTH** may, because of specific operating conditions, be less than the **RATED BELT STRENGTH** shown on the **BELT DATA** page. Therefore, the **ABS** should be calculated from:

$$ABS = BS \times T \times S$$

where:

- **BS** = **BELT STRENGTH** from BELT DATA page.
- **T** = **TEMPERATURE FACTOR** from page 21.
- **S** = **STRENGTH FACTOR** from BELT DATA page. The **STRENGTH FACTOR** is found at the intersection of the **SPEED/LENGTH RATIO** and the appropriate sprocket line. To get the **SPEED/LENGTH RATIO**, divide the belt speed (ft/min) by the shaft ℄ distance (ft). The **STRENGTH FACTOR** adjusts the belt rating to account for wear caused by the combination of high speed, short conveyor lengths and small sprocket sizes.

STEP 4: COMPARE ABP WITH ABS

If the **ABS** exceeds **ABP**, this belt is strong enough for your application. You should proceed to the next steps to determine DRIVE SHAFT SPROCKET SPACING, SHAFT STRENGTH and HORSEPOWER REQUIRED.

If the **ABS** is less than **ABP** *and* you are able to change some parameters of your application (i.e., product load distribution or belt speed), the recalculated **ABP** may become acceptable.

STEP 5: DETERMINE MAXIMUM SPACING OF DRIVE SHAFT SPROCKETS

The percentage of **ALLOWABLE BELT STRENGTH UTILIZED, ABSU**, is determined by:

$$ABSU = (ABP \div ABS) \times 100\%$$

Using the ABSU, find the maximum sprocket spacing from the graph on the SPROCKET DATA page of the Series you are considering. The spacing of sprockets on idler shafts may, under some circumstances, be greater than drive spacing, but should never exceed 6.0 in. (152 mm) for all Series (except **Series 200** where maximum spacing should never exceed 7.5 in. [191 mm]).

If the calculated ABSU is above 75%, please contact Intralox Customer Service Sales Engineering to run the Intralox Engineering Program and verify your results.

STEP 6: CONFIRM DRIVE SHAFT STRENGTH

Drive shafts must be stiff enough to resist excessive bending or deflecting under the belt's pull and strong enough to transmit the required torque from the driver. Therefore, both the **DRIVE SHAFT DEFLECTION** and **TORQUE** must be determined to insure an adequate shaft selection.

Select a shaft size which fits your sprocket of choice from the **SPROCKET DATA** page.

Note: Most sprockets have more than one available bore size.

The shaft deflects under the combined loads of the **ADJUSTED BELT PULL** and its own **WEIGHT**. The **TOTAL SHAFT LOAD**, **w**, is found from:

$$w = (ABP + Q) \times B$$

where:

Q = SHAFT WEIGHT, lb/ft (kg/m), from SHAFT DATA table

B = BELT WIDTH, ft. (m)

For shafts supported by two bearings, the **DEFLECTION**, **D**, is calculated from:

$$D = \frac{5}{384} \times \frac{w \times L_S^3}{E \times I}$$

where:

Ls = LENGTH OF SHAFT between bearings, in. (mm)

E = MODULUS OF ELASTICITY from *"Table 8 SHAFT DATA"* (page 325).

I = MOMENT OF INERTIA from *"Table 8 SHAFT DATA"* (page 325).

Note: For shafts supported by three bearings, see *"DEFLECTIONS WITH INTERMEDIATE BEARINGS"* (page 316).

If the calculated deflection is less than the recommended maximum of 0.10 in. (2.5 mm) for standard conveyors or 0.22 in. (5.6 mm) for bi-directional units, calculate the required **TORQUE**. If not, use a larger size shaft, a stronger material or a shorter span between bearings, and recalculate the deflection.

The **TORQUE**, T_o, to be transmitted is determined from:

$$T_o = ABP \times B \times \frac{PD}{2}$$

where:

PD = PITCH DIAMETER OF SPROCKET from the SPROCKET DATA PAGE

Now compare T_o with the *"Table 9 MAXIMUM RECOMMENDED TORQUE ON DRIVE SHAFT"* (page 325), for shaft journal sizes shown. Using a journal diameter which can be machined on the shaft selected, determine its maximum recommended torque. This value should exceed T_o. If not, try a stronger material or larger shaft.

STEP 7: DETERMINE THE POWER NEEDED TO DRIVE THE BELT

DRIVE HORSEPOWER, **HP**, is found from:

$$HP = \frac{ABP \times B \times V}{33000}$$

where:

ABP = ADJUSTED BELT PULL, lb/ft of belt width

B = BELT WIDTH, ft.

V = BELT SPEED, ft/min

POWER in **WATTS** is found from:

$$WATTS = \frac{ABP \times B \times V}{6.12}$$

1 HP = 745.7 WATTS

where:

ABP = ADJUSTED BELT PULL, lb/ft of belt width

B = BELT WIDTH, ft.

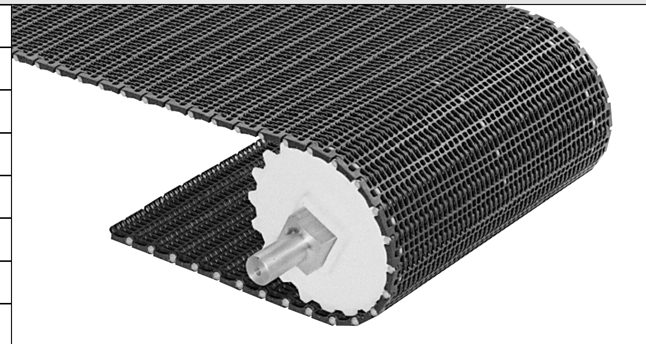
V = BELT SPEED, ft/min

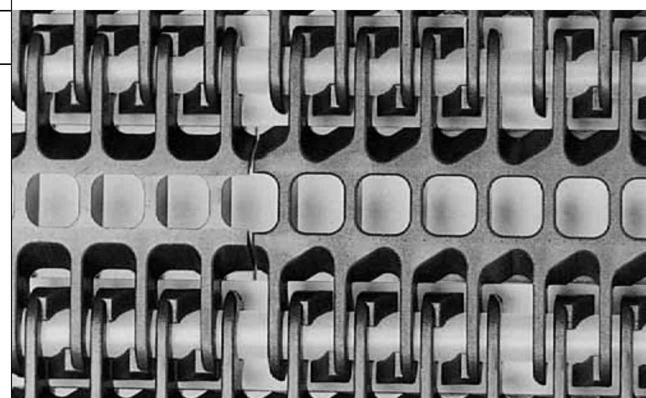
To obtain the required **motor** power you should add expected power losses in the drive train between drive shaft and motor to the calculated **POWER**. See *"Section three: Design guidelines"* (page 291), for recommendations.

Having determined the suitability of this belt, the sprocket spacing, the drive shaft size and the power requirements, you are now ready to select **ACCESSORIES** and to design the conveyor assembly.

Flush Grid

	in.	mm
Pitch	1.00	25.4
Minimum Width	1.5	38
Width Increments	0.25	6.4
Opening Size (approximate)	0.2 × 0.2	5 × 5
Open Area	31%	
Hinge Style	Open	
Drive Method	Center-driven	



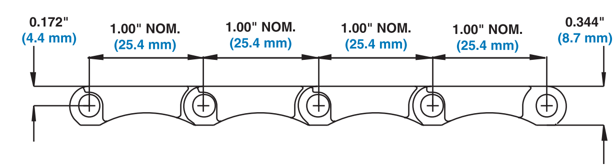


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Lightweight, relatively strong belt with smooth upper surface.
- Smaller pitch reduces chordal action and transfer dead plate gap.
- For more material selections and stronger belt performance, see Series 900 and Series 1100 Flush Grid styles.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



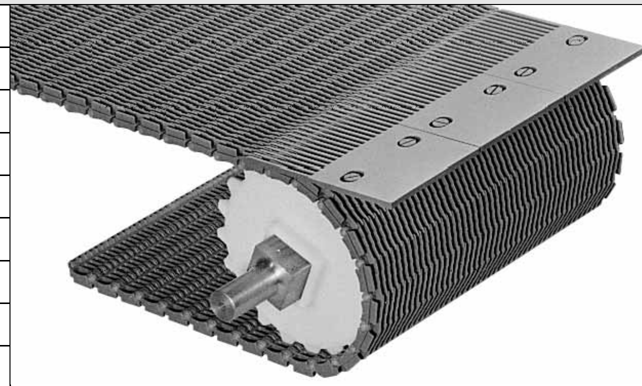
Belt Data

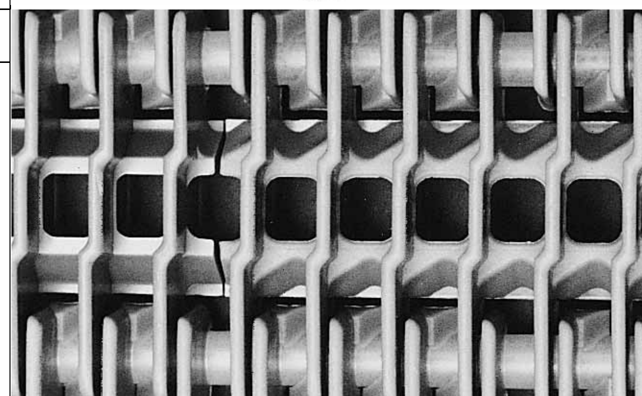
Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA-FSIS - Meat & Poultry	USDA Dairy[a]	CFA[b]	A[c]	J[d]	EU MC[e]
Polypropylene	Polypropylene	300	450	34 to 220	1 to 104	0.54	2.64	•	•		•		3	•
Polyethylene	Polyethylene	200	300	-50 to 150	-46 to 66	0.58	2.83	•	•		•		3	•
Acetal	Polypropylene	600	890	34 to 200	1 to 93	0.78	3.81	•	•		•		3	•
EC Acetal	Polypropylene	400	595	34 to 200	1 to 93	0.78	3.81							
Acetal[f]	Polyethylene	550	820	-50 to 70	-46 to 41	0.78	3.81	•	•		•		3	•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.
f. Polyethylene rods can be used in cold applications when impacts or sudden starts/stops occur. Please note lower rating.

Raised Rib

	in.	mm
Pitch	1.00	25.4
Minimum Width	1.5	38
Width Increments	0.25	6.4
Opening Size (approximate)	0.2 × 0.2	5 × 5
Open Area	31%	
Product Contact Area	28%	
Hinge Style	Open	
Drive Method	Center-driven	



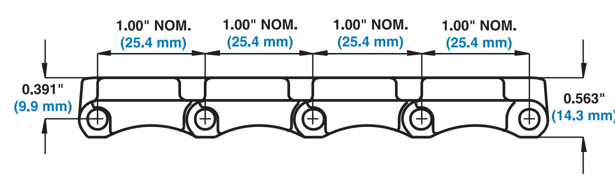


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Smooth upper surface with closely spaced ribs can be used with Finger Transfer Plates, eliminating product tippage and hang-ups.
- For more material selections and stronger belt performance, see Series 900 Raised Rib.

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



Belt Data

Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA-FSIS - Meat & Poultry	USDA Dairy[a]	CFA[b]	A[c]	J[d]	EU MC[e]
Polypropylene	Polypropylene	300	450	34 to 220	1 to 104	0.82	4.00	•	•		•		3	•
Polyethylene	Polyethylene	200	300	-50 to 150	-46 to 66	0.88	4.29	•	•		•		3	•
Acetal	Polypropylene	600	890	34 to 200	1 to 93	1.20	5.86	•	•		•		3	•
Acetal[f]	Polyethylene	550	820	-50 to 70	-46 to 41	1.20	5.86	•	•		•		3	•

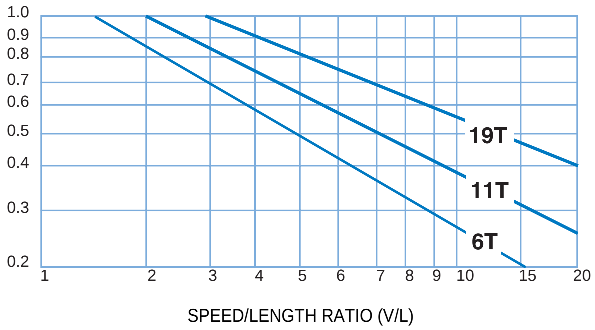
a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.
f. Polyethylene rods can be used in cold applications when impacts or sudden starts/stops occur. Please note lower rating.

Sprocket and Support Quantity Reference

Belt Width Range[a] in.	Belt Width Range[a] mm	**Minimum** Number of Sprockets Per Shaft[b]	Wearstrips Carryway	Wearstrips Returnway
2	51	1	2	2
4	102	1	2	2
6	152	2	2	2
7	178	2	3	2
8	203	2	3	2
10	254	2	3	2
12	305	3	3	2
14	356	3	4	3
15	381	3	4	3
16	406	3	4	3
18	457	3	4	3
20	508	5	5	3
24	610	5	5	3
30	762	5	6	4
32	813	7	7	4
36	914	7	7	4
42	1067	7	8	5
48	1219	9	9	5
54	1372	9	10	6
60	1524	11	11	6
72	1829	13	13	7
84	2134	15	15	8
96	2438	17	17	9
120	3048	21	21	11
144	3658	25	25	13
For Other Widths, Use Odd Number of Sprockets[c] at Maximum 6 in. (152 mm) ℄ Spacing			Maximum 6 in. (152 mm) ℄ Spacing	Maximum 12 in. (305 mm) ℄ Spacing

a. If your belt width exceeds a number listed in the table, please refer to the sprocket and support material minimums for the next larger width range listed. Belts are available in 0.25 in. (6.4 mm) increments beginning with minimum width of 1.5 in. (38 mm). If the actual width is critical, consult Customer Service.
b. These are the minimum number of sprockets. Additional sprockets may be required for heavily loaded applications.
c. The center sprocket should be locked down. With only two sprockets, fix the sprocket on the drive journal side only.

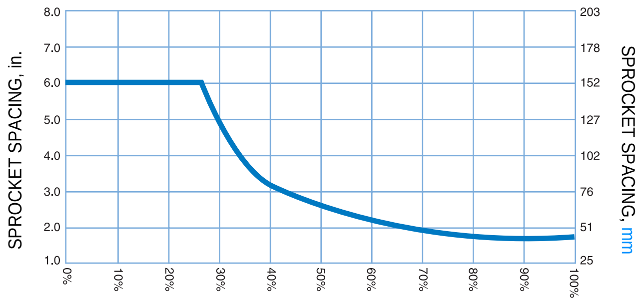
S Strength Factor



V = ft/min (m/min)
T = number of teeth
L = ft (m)

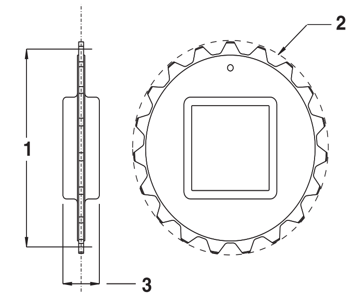
Divide belt speed "V" by the shaft ℄ distance "L". Strength Factor is found at intersection of speed/length ratio and appropriate sprocket line. See page 35 for more information.

Sprocket Spacing as a Function of Belt Strength Utilized



Sprocket Data

No. of Teeth (Chordal Action)	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 Round in.	Available Bore Sizes: U.S. Sizes Square in.	Available Bore Sizes: Metric Sizes Round mm	Available Bore Sizes: Metric Sizes Square mm
6 (13.40%)	2.0	51	2.1	53	0.75	19		1.0		
11 (4.05%)	3.5	89	3.7	94	0.75	19		1.0		40
								1.5		
19 (1.36%)	6.1	155	6.3	160	1.25	32		1.5		40
								2.5[a]		60



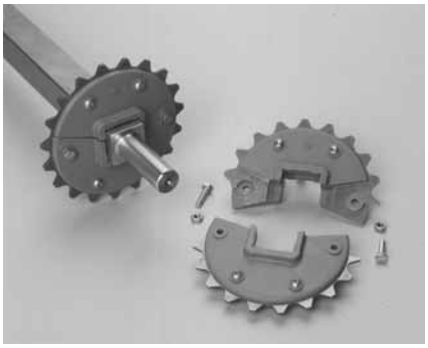
1 - Pitch diameter

2 - Outer diameter

3 - Hub width

Split Sprockets

No. of Teeth (Chordal Action)	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 Round in.	Available Bore Sizes: U.S. Sizes Square in.	Available Bore Sizes: Metric Sizes Round mm	Available Bore Sizes: Metric Sizes Square mm
11 (4.05%)	3.5	89	3.7	94	1.5	38		1.5		40
19 (1.36%)	6.1	155	6.3	160	1.5	38		1.5		40
								2.5[a]		60

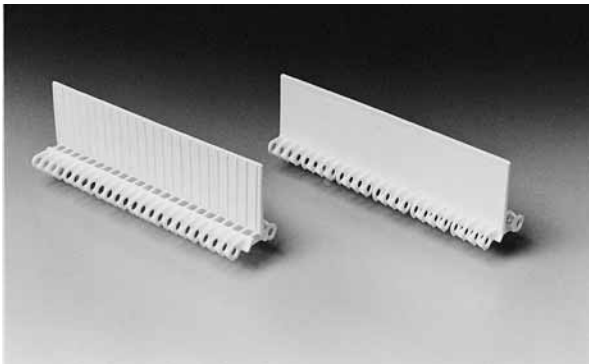


a. Intralox has metric sprocket bore for 65 mm shafts. Specify metric bore when ordering.

Streamline/No-Cling Flights

Available Flight Height in.	Available Flight Height mm	Available Materials
1.5	38	Polypropylene, Polyethylene, Acetal

Note: Flights can be cut down to any height required for a particular application.
Note: No fasteners are required.
Note: One side of the flight is smooth (Streamline) while the other is ribbed vertically (No-Cling).
Note: Flights can be provided in linear increments of 1 in. (25 mm).
Note: The minimum indent (without sideguards) is 0.5 in. (13 mm).



Sideguards

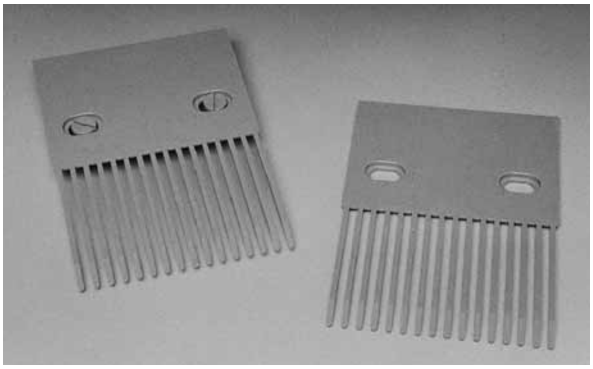
Available Sizes in.	Available Sizes mm	Available Materials
2	51	Polypropylene, Polyethylene, Acetal

Note: Sideguards are used with Flush Grid belts to assure product containment, they are of the standard overlapping design, and are an integral part of the belt, fastened by the hinge rods.
Note: The minimum indent is 0.75 in. (19 mm).
Note: The standard gap between the sideguards and the edge of a flight is 0.06 in. (2 mm).
Note: When going around the 6 and 11 tooth sprockets, the sideguards will fan out, opening a gap at the top of the sideguard which might allow small products to fall out. The sideguards stay completely closed when wrapping around the 19 tooth sprocket.

Finger Transfer Plates

Available Widths		Number of Fingers	Available Materials
in.	mm		
4	102	16	Acetal

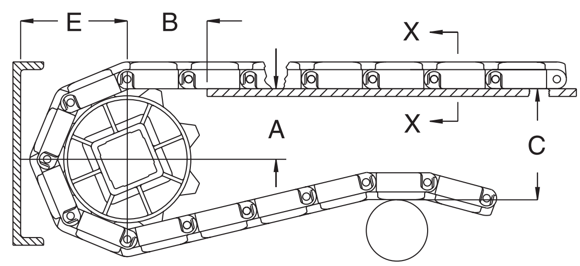
Note: Designed to be used with Series 100 Raised Rib belts to eliminate product transfer and tipping problems.
Note: The fingers extend between the belt's ribs allowing a smooth continuation of the product flow as the belt engages its sprockets.
Note: Finger Transfer Plates are installed easily on the conveyor frame with conventional fasteners.



Conveyor Frame Dimensions

Regardless of type or configuration, all conveyors using Intralox belts have some basic dimensional requirements. Specifically, dimensions “A”, “B”, “C” and “E” listed below should be implemented in any design.

For general applications and applications where end transfer of tip-sensitive product is not critical, use the “A” dimension at the bottom of the range.



A - ±0.031” (1 mm)
B - ±0.125” (3 mm)
C - ± (Max)
E - ± (Min)

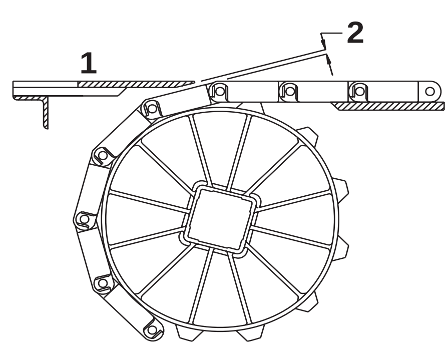
Complete descriptions of the dimensions are listed on page 291.

Sprocket Description			A		B		C		E	
Pitch Diameter		No. Teeth	Range (Bottom to Top)		in.	mm	in.	mm	in.	mm
in.	mm		in.	mm						
SERIES 100 FLUSH GRID										
2.0	51	6	0.69-0.83	18-21	1.30	33	2.10	53	1.24	31
3.5	89	11	1.53-1.60	39-41	1.70	43	3.60	91	2.01	51
6.1	155	19	2.82-2.87	72-73	2.20	56	6.20	157	3.30	84
SERIES 100 RAISED RIB										
2.0	51	6	0.69-0.83	18-21	1.30	33	2.10	53	1.45	37
3.5	89	11	1.53-1.60	39-41	1.70	43	3.60	91	2.23	57
6.1	155	19	2.82-2.87	72-73	2.20	56	6.20	157	3.52	89

Dead Plate Gap

Where there is a transfer point from a belt without finger transfer plates to a dead plate, there should be a gap between the surfaces to allow for the chordal action of the belt. As the belt engages its sprockets, chordal action causes the modules to move past a *fixed* point (the tip of the dead plate) with *varying* clearances. The table below shows the minimum amount of gap which occurs at the “low point” of the modules if the tip of the dead plate just comes in contact with the “high point” as the modules pass.

In some installations it may be desirable to keep the tip of the dead plate in contact with the belt, rather than allow a gap to occur. This can be done by hinging the mounting bracket for the dead plate. This allows the dead plate to move as the modules pass, but results in a small oscillating motion which may present tippage problems for sensitive containers or products.



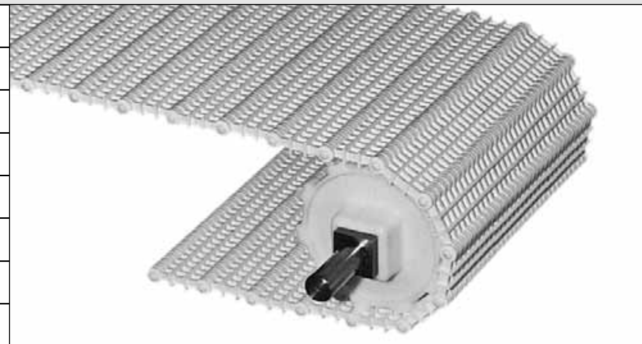
1 - Top surface of dead plate
2 - Dead plate gap

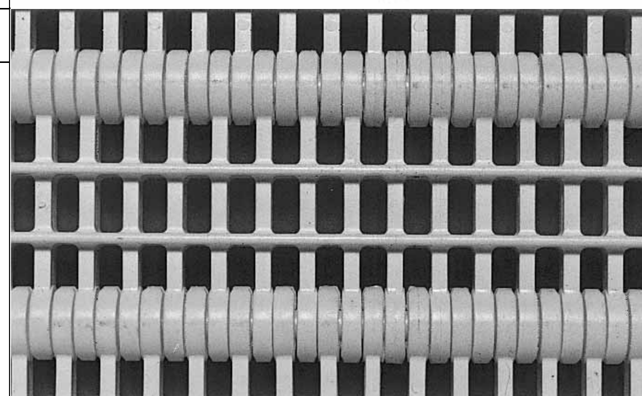
Note: The top surface of the dead plate is typically 0.031 in. (0.8 mm) above the belt surface for product transfer onto the belt, and 0.031 in. (0.8 mm) below the belt surface for product transfer off the belt.

Sprocket Description			Gap	
Pitch Diameter		No. Teeth	in.	mm
in.	mm			
2.0	51	6	0.134	3.4
3.5	89	11	0.073	1.9
6.1	155	19	0.041	1.0

Open Grid

	in.	mm
Pitch	2.00	50.8
Minimum Width	2	51
Width Increments	0.36	9.1
Opening Size (approximate)	0.23 × 0.48	5.8 × 12.3
Open Area	33%	
Hinge Style	Closed	
Drive Method	Hinge-driven	



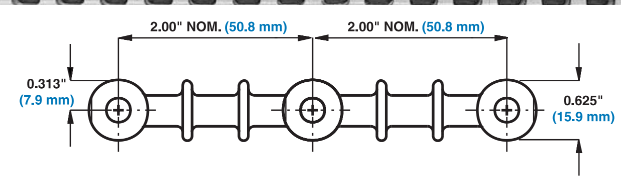


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Low profile transverse ridges assist in moving products up or down inclines.
- Flights and sideguards are available.
- Large, open area allows excellent drainage.
- Series 200 Open Grid has double-headed hinge rods so the belt edge is not fully flush.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



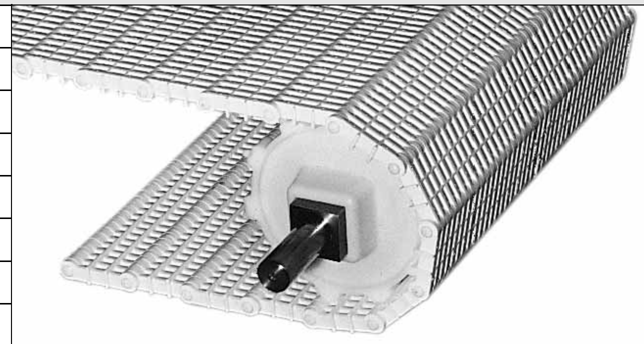
Belt Data

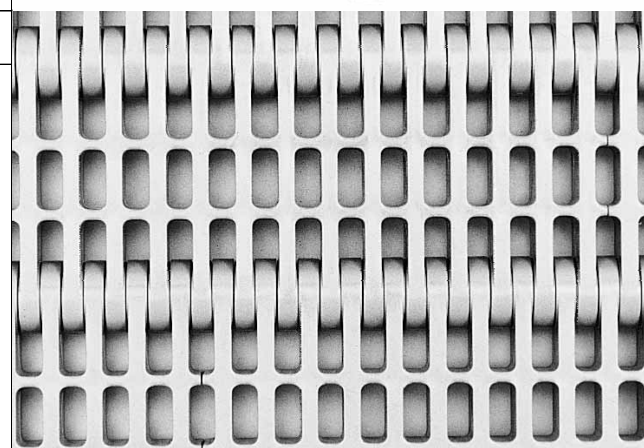
Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[a]	CFA[b]	A[c]	Z[d]	J[e]	EU MC[f]
Polypropylene	Polypropylene	1400	2080	34 to 220	1 to 104	1.24	6.05	•					3	•
Polyethylene	Polyethylene	900	1340	-100 to 150	-73 to 66	1.26	6.15	•					3	•

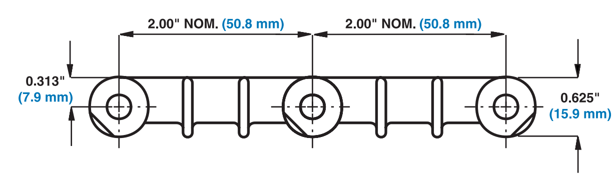
a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. New Zealand Ministry of Agriculture and Forestry
e. Japan Ministry of Health, Labour, and Welfare
f. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Flush Grid

	in.	mm
Pitch	2.00	50.8
Minimum Width	2	51
Width Increments	0.36	9.1
Opening Size (approximate)	0.22 × 0.49	5.5 × 12.5
Open Area	33%	
Hinge Style	Closed	
Drive Method	Hinge-driven	







Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Flush grid pattern with smooth upper surface.
- Offers excellent lateral movement of containers.
- One of the strongest belt styles in Series 200.
- Flights and sideguards are available.
- For an alternative to Series 200 Flush Grid with more material selections, see Series 400, Series 900, Series 1100 and Series 2200 belt styles.
- Series 200 Flush Gird has double-headed hinge rods so the belt edge is not fully flush.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)

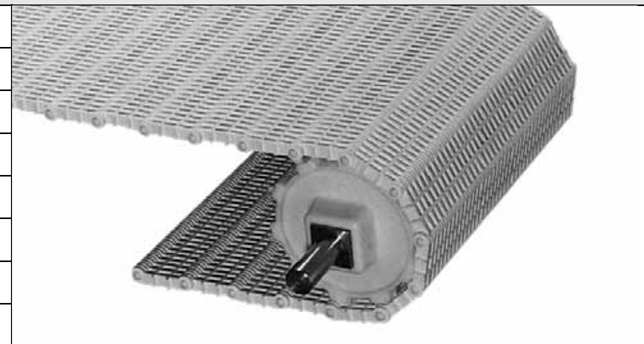
Belt Data

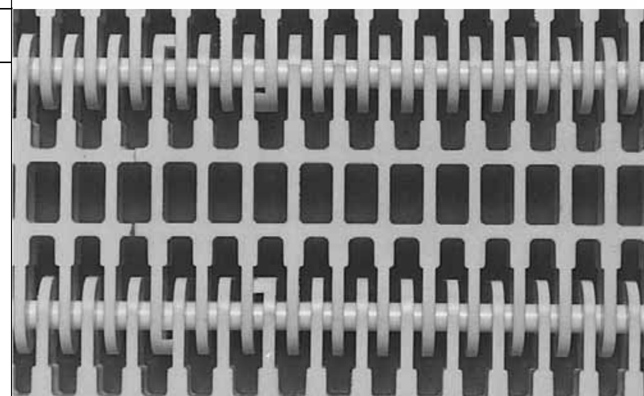
Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[a]	CFA[b]	A[c]	J[d]	Z[e]	EU MC[f]
Polypropylene	Polypropylene	1800	2680	34 to 220	1 to 104	1.40	6.83	•				3		•
Polyethylene	Polyethylene	1200	1790	-100 to 150	-73 to 66	1.44	7.03	•				3		•

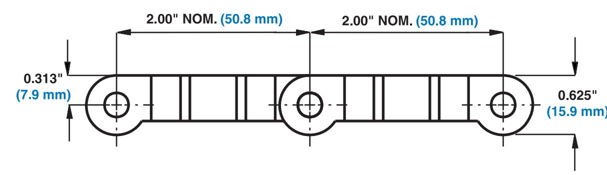
a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. New Zealand Ministry of Agriculture and Forestry
f. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Open Hinge

	in.	mm
Pitch	2.00	50.8
Minimum Width	2	51
Width Increments	0.36	9.1
Opening Size (approximate)	0.26 × 0.48	6.7 × 12.3
Open Area	45%	
Hinge Style	Open	
Drive Method	Hinge-driven	







Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Smooth surface and generous open area for food handling.
- Ideal where air cooling, washing or drying is required.
- Flights and sideguards are available.
- For stronger belt performance, see Series 400 Open Hinge.
- Series 200 Open Hinge has double-headed hinge rods so the belt edge is not fully flush.

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)

Belt Data

Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA-FSIS - Meat & Poultry	USDA Dairy[a]	CFA[b]	A[c]	J[d]	EU MC[e]
Polypropylene	Polypropylene	300	450	34 to 220	1 to 104	1.04	5.08	•	•	1	•		3	•
Polyethylene	Polyethylene	200	300	-50 to 150	-46 to 66	1.12	5.47	•	•	3	•		3	•

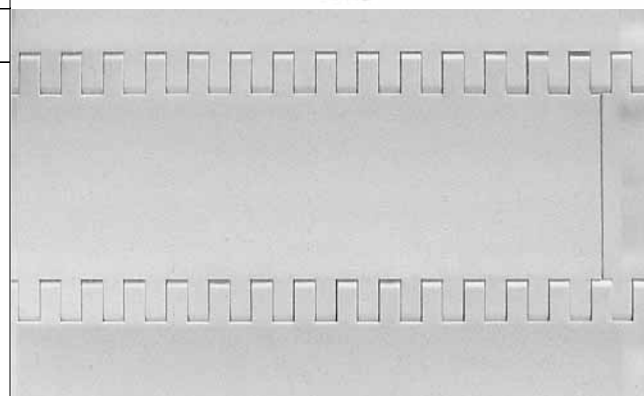
a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

SECTION 2

200

Flat Top

	in.	mm
Pitch	2.00	50.8
Minimum Width	2	51
Width Increments	0.36	9.1
Opening Size (approximate)	-	-
Open Area	0%	
Hinge Style	Closed	
Drive Method	Hinge-driven	

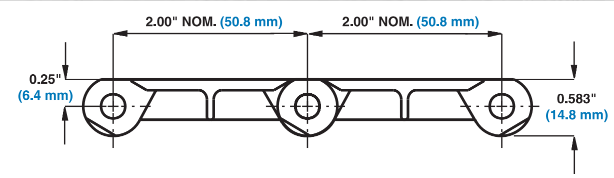


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Smooth, closed surface.
- Flush belt edges allow easy side product transfer.
- Flights and sideguards are available.
- For alternatives to Series 200 Flat Top with more material selections, see Series 400 Flat Top, Series 800 Flat Top, Series 900 Flat Top and Series 1400 Flat Top belt styles.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



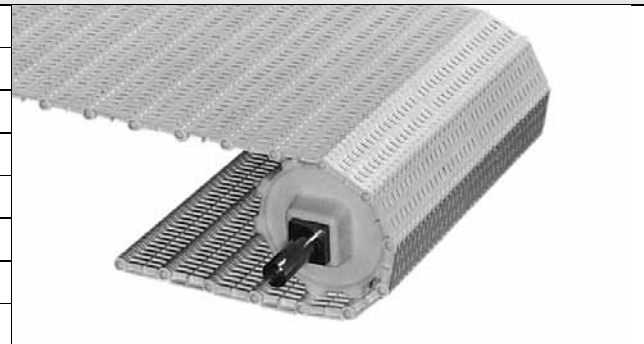
Belt Data

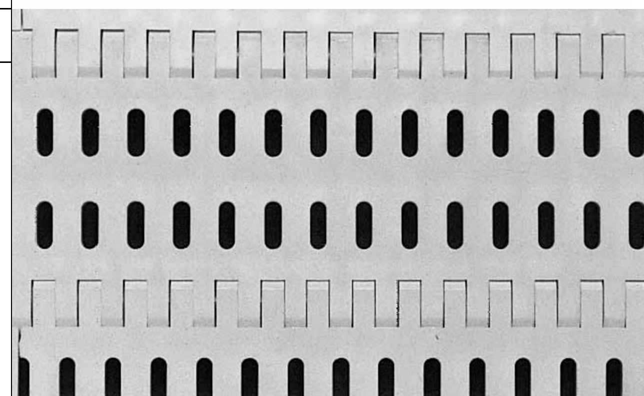
Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[a]	CFA[b]	A[c]	Z[d]	J[e]	EU MC[f]
Polypropylene	Polypropylene	1400	2080	34 to 220	1 to 104	1.18	5.76	•					3	•
Polyethylene	Polyethylene	900	1340	-100 to 150	-73 to 66	1.20	5.86	•					3	•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. New Zealand Ministry of Agriculture and Forestry
e. Japan Ministry of Health, Labour, and Welfare
f. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Perforated Flat Top

	in.	mm
Pitch	2.00	50.8
Minimum Width	2	51
Width Increments	0.36	9.1
Opening Size (approximate)	0.12 × 0.37	3.1 × 9.4
Open Area	12%	
Hinge Style	Closed	
Drive Method	Hinge-driven	



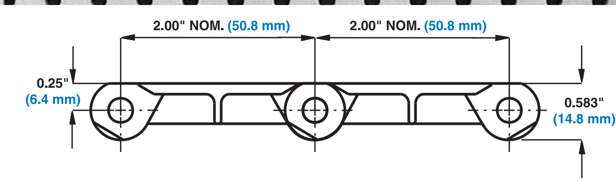


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Smooth, flat surface with nominal open area for product drainage.
- Flush edges ideal for side product transfer.
- For alternatives to Series 200 Perforated Flat Top with more material selections, see Series 800 Perforated Flat Top and Series 900 Perforated Flat Top belt styles.

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



Belt Data

Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[a]	CFA[b]	A[c]	J[d]	Z[e]	EU MC[f]
Polypropylene	Polypropylene	1400	2080	34 to 220	1 to 104	1.12	5.47	•				3		•
Polyethylene	Polyethylene	900	1340	-100 to 150	-73 to 66	1.18	5.76	•				3		•

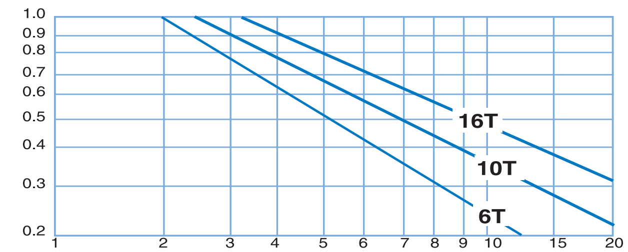
a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. New Zealand Ministry of Agriculture and Forestry
f. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Sprocket and Support Quantity Reference

Belt Width Range[a] in.	Belt Width Range[a] mm	**Minimum** Number of Sprockets Per Shaft[b]	Wearstrips Carryway	Wearstrips Returnway
2	51	1	2	2
4	102	1	2	2
6	152	2	2	2
7	178	2	2	2
8	203	2	2	2
10	254	2	3	2
12	305	3	3	2
14	356	3	3	3
15	381	3	3	3
16	406	3	3	3
18	457	3	3	3
20	508	3	4	3
24	610	5	4	3
30	762	5	5	4
32	813	5	5	4
36	914	5	5	4
42	1067	7	6	5
48	1219	7	7	5
54	1372	9	7	6
60	1524	9	8	6
72	1829	11	9	7
84	2134	13	11	8
96	2438	13	12	9
120	3048	17	15	11
144	3658	21	17	13
For Other Widths, Use Odd Number of Sprockets[c] at Maximum 7.5 in. (191 mm) ℄ Spacing			Maximum 9 in. (229 mm) ℄ Spacing	Maximum 12 in. (305 mm) ℄ Spacing

a. If your belt width exceeds a number listed in the table, please refer to the sprocket and support material minimums for the next larger width range listed. Belts are available in 0.36 in. (9.1 mm) increments beginning with minimum width of 2 in. (51 mm). If the actual width is critical, consult Customer Service.
b. These are the minimum number of sprockets. Additional sprockets may be required for heavily loaded applications.
c. The center sprocket should be locked down. With only two sprockets, fix the sprocket on the drive journal side only.

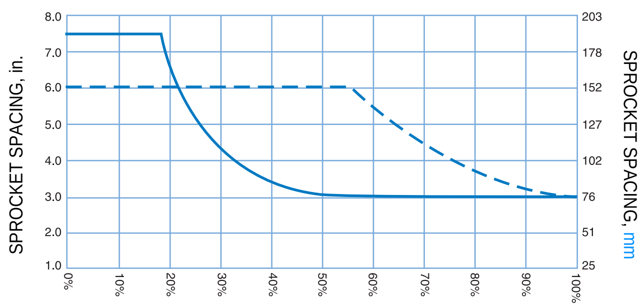
S Strength Factor



V = ft/min (m/min)
L = ft (m)
T = number of teeth

Divide belt speed "V" by the shaft ℄ distance "L". Strength Factor is found at intersection of speed/length ratio and appropriate sprocket line. See page 35 for more information.

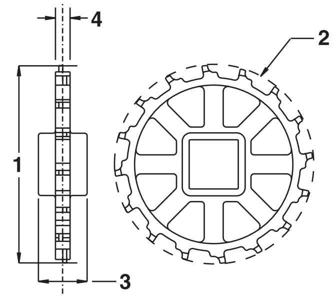
Sprocket Spacing as a Function of Belt Strength Utilized



Dashed line: double wide sprocket

Sprocket Data

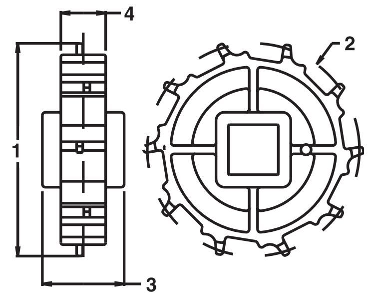
No. of Teeth (Chordal Action)	Nom. Pitch Dia. in.	Nom. Pitch Dia. mm	Nom. Outer Dia. in.	Nom. Outer Dia. mm	Nom. Hub Width in.	Nom. Hub Width mm	Available Bore Sizes – U.S. Sizes – Round in.	Available Bore Sizes – U.S. Sizes – Square in.	Available Bore Sizes – Metric Sizes – Round mm	Available Bore Sizes – Metric Sizes – Square mm
6 (13.40%)	4.0	102	3.9	99	1.5	38		1.5		40
10 (4.89%)	6.4	163	6.4	163	2.5	64		1.5		40
								2.5		60
16 (1.92%)	10.1	257	10.3	262	2.5	64		1.5		40
								2.5		



1 - Pitch diameter
2 - Outer diameter
3 - Hub width
4 - Rim thickness. Standard: 0,75” (19 mm)

Double Wide Rim Sprockets

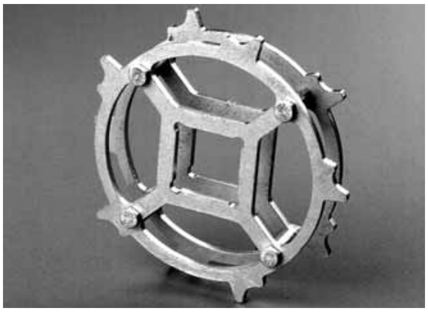
No. of Teeth (Chordal Action)	Nom. Pitch Dia. in.	Nom. Pitch Dia. mm	Nom. Outer Dia. in.	Nom. Outer Dia. mm	Nom. Hub Width in.	Nom. Hub Width mm	Available Bore Sizes – U.S. Sizes – Round in.	Available Bore Sizes – U.S. Sizes – Square in.	Available Bore Sizes – Metric Sizes – Round mm	Available Bore Sizes – Metric Sizes – Square mm
10 (4.89%)	6.4	163	6.4	163	2.5	64		1.5		40



1 - Pitch diameter
2 - Outer diameter
3 - Hub width
4 - Rim thickness. Double wide: 1.5” (38 mm)

Abrasion Resistant Sprockets

No. of Teeth (Chordal Action)	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 – Round in.	Available Bore Sizes – U.S. Sizes – Square in.	Available Bore Sizes – Metric Sizes – Round mm	Available Bore Sizes – Metric Sizes – Square mm
10 (4.89%)	6.4	163	6.4	163	1.1	28		1.5		40
								2.5		60
16 (1.92%)	10.1	257	10.3	262	1.1	28		1.5		40
								2.5		60[a]

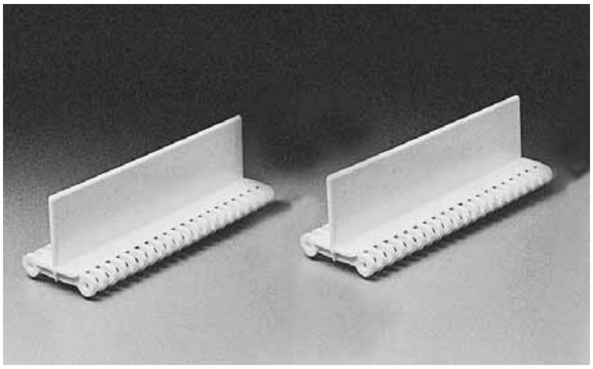


a. Intralox has metric sprocket bore for 65 mm shafts. Specify metric bore when ordering.

Streamline Flights

Available Flight Height		Available Materials
in.	mm	
1	25	Polypropylene, Polyethylene
2	51	
3	76	

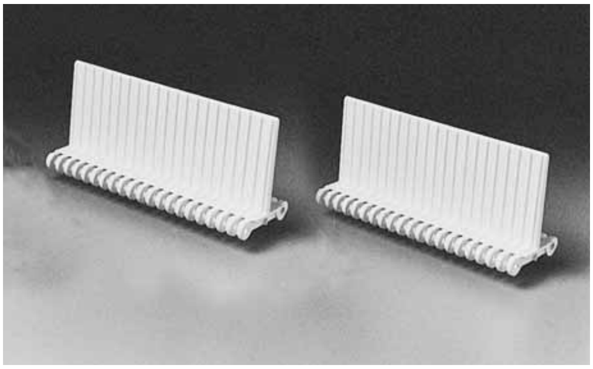
Note: Each flight rises out of the center of its supporting Flat Top module, molded as an integral part. No fasteners are required.
Note: Can be enlarged to 6 in. (152 mm) high with a welded extension.
Note: An extension can be welded at a 45° angle to create a bent flight. Contact Customer Service for availability.
Note: The minimum indent (without sideguards) is 0.7 in. (18 mm).
Note: Flights can be cut down to any height required for a particular application.



Double No-Cling Flights

Available Flight Height		Available Materials
in.	mm	
3	76	Polypropylene, Polyethylene

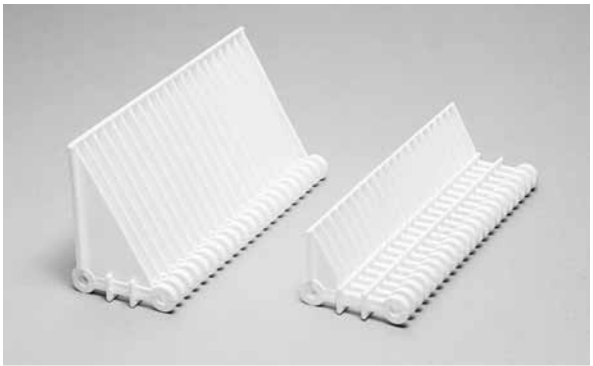
Note: Each flight rises out of the center of its supporting Flat Top module, molded as an integral part. No fasteners are required.
Note: Vertically ribbed for product release.
Note: Can be enlarged to 6 in. (152 mm) high with a welded extension.
Note: An extension can be welded at a 45° angle to create a bent flight. Contact Customer Service for availability.
Note: The minimum indent (without sideguards) is 0.7 in. (18 mm).
Note: Flights can be cut down to any height required for a particular application.



Ribbed Flights

Available Flight Height		Available Materials
in.	mm	
1.25	32	Polypropylene, Polyethylene
3	76	

Note: Each flight rises out of Open Grid modules and have triangular shaped buttresses on the back side. No fasteners are required.
Note: Can be enlarged to 6 in. (152 mm) high with a welded extension.
Note: The minimum indent (without sideguards) is 0.7 in. (18 mm).
Note: Flights can be cut down to any height required for a particular application.



Sideguards

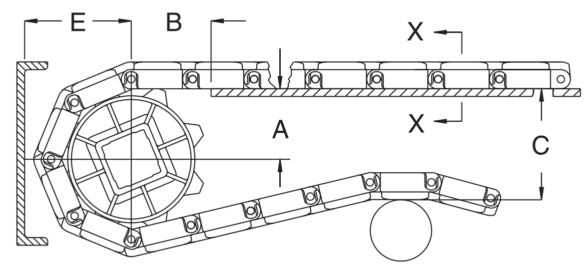
Available Sizes		Available Materials
in.	mm	
2	51	Polypropylene, Polyethylene
3	76	
4	102	

Note: The minimum indent is 0.7 in. (18 mm).
Note: The normal gap between the sideguards and the edge of a flight is 0.3 in. (8 mm).

Conveyor Frame Dimensions

Regardless of type or configuration, all conveyors using Intralox belts have some basic dimensional requirements. Specifically, dimensions “A”, “B”, “C” and “E” listed below should be implemented in any design.

For general applications and applications where end transfer of tip-sensitive product is not critical, use the “A” dimension at the bottom of the range.



A - ±0.031” (1 mm) **C -** ± (Max)

B - ±0.125” (3 mm) **E -** ± (Min)

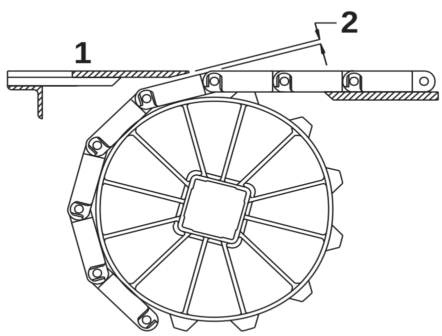
Complete descriptions of the dimensions are listed on page 291.

Sprocket Description			A		B		C		E	
Pitch Diameter		No. Teeth	Range (Bottom to Top)		in.	mm	in.	mm	in.	mm
in.	mm		in.	mm						
SERIES 200 FLUSH GRID, OPEN GRID, OPEN HINGE, FLAT TOP, PERFORATED FLAT TOP										
4.0	102	6	1.42-1.69	36-43	2.20	56	4.10	104	2.38	60
6.4	163	10	2.77-2.92	70-74	3.00	76	6.50	165	3.61	92
10.1	257	16	4.72-4.81	120-122	3.20	81	10.20	259	5.50	140

Dead Plate Gap

Where there is a transfer point from a belt without finger transfer plates to a dead plate, there should be a gap between the surfaces to allow for the chordal action of the belt. As the belt engages its sprockets, chordal action causes the modules to move past a *fixed* point (the tip of the dead plate) with *varying* clearances. The table below shows the minimum amount of gap which occurs at the “low point” of the modules if the tip of the dead plate just comes in contact with the “high point” as the modules pass.

In some installations it may be desirable to keep the tip of the dead plate in contact with the belt, rather than allow a gap to occur. This can be done by hinging the mounting bracket for the dead plate. This allows the dead plate to move as the modules pass, but results in a small oscillating motion which may present tippage problems for sensitive containers or products.



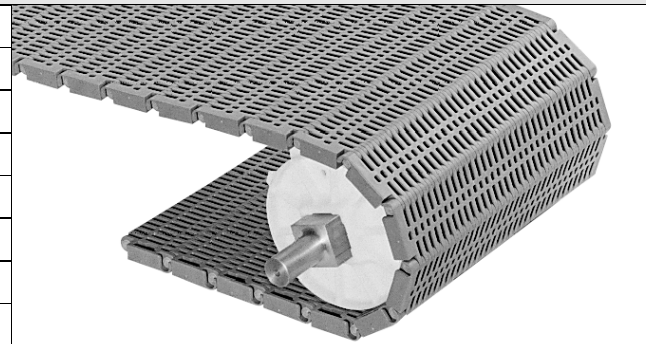
1 - Top surface of dead plate **2 -** Dead plate gap

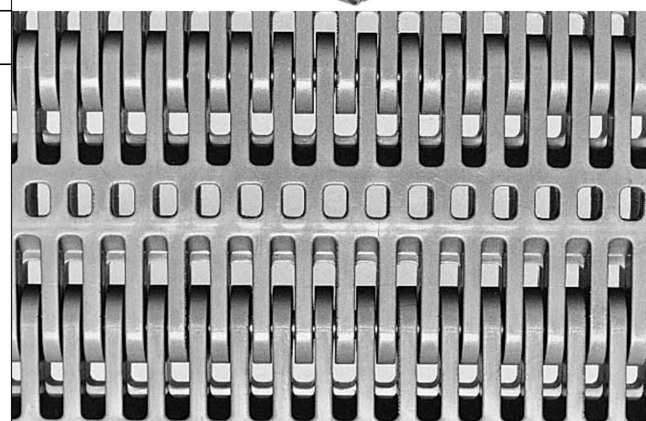
Note: The top surface of the dead plate is typically 0.031 in. (0.8 mm) above the belt surface for product transfer onto the belt, and 0.031 in. (0.8 mm) below the belt surface for product transfer off the belt.

Sprocket Description			Gap	
Pitch Diameter		No. Teeth	in.	mm
in.	mm			
4.0	102	6	0.268	6.8
6.4	163	10	0.160	4.1
10.1	257	16	0.100	2.5

Flush Grid

	in.	mm
Pitch	2.00	50.8
Minimum Width	2	51
Width Increments	0.33	8.4
Opening Size (approximate)	0.25 × 0.18	6.4 × 4.6
Open Area	17%	
Hinge Style	Closed	
Drive Method	Center-driven	



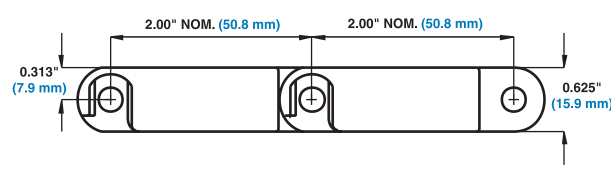


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Smooth upper surface and straightforward design provides free product movement.
- Flights and Sideguards are available.
- Series 400 Flush Grid is available with SLIDELOX™ rod retention for belts 6.0 ft. (1829 mm) wide and wider. All Series 400 Flush Grid with Abrasion Resistant rods are available with SLIDELOX™ rod retention. All other Series 400 Flush Grid belts use the standard headed rods.
- Series 400 Flush Grid in Acetal and EC Acetal must be used with metal split sprockets only.

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



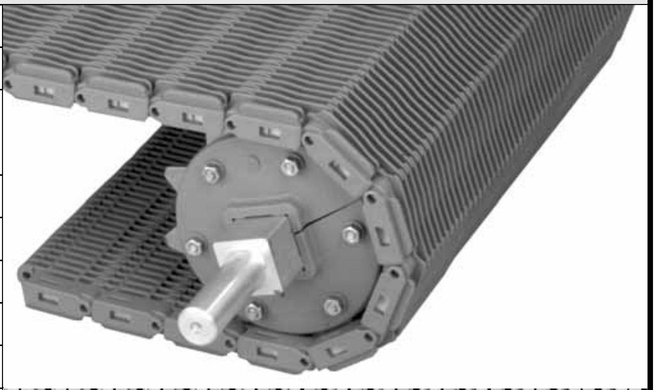
Belt Data

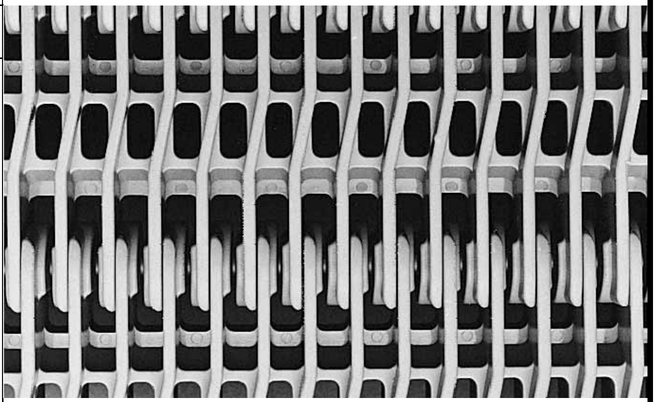
Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[a]	CFA[b]	J[c]	A[d]	Z[e]	EU MC[f]
Polypropylene	Polypropylene	2400	3570	34 to 220	1 to 104	1.82	8.89	•			3			•
Polyethylene	Polyethylene	1800	2680	-100 to 150	-73 to 66	1.90	9.28	•			3			•
Acetal	Polypropylene	3200	4760	34 to 200	1 to 93	2.77	13.51	•			3			•
EC Acetal	Polypropylene	2400	3570	34 to 200	1 to 93	2.77	13.51							
Acetal[g]	Polyethylene	3000	4460	-50 to 70	-46 to 41	2.77	13.51	•			3			•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Japan Ministry of Health, Labour, and Welfare
d. Australian Quarantine Inspection Service
e. New Zealand Ministry of Agriculture and Forestry
f. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.
g. Polyethylene rods can be used in cold applications when impacts or sudden starts/stops occur. Please note lower rating.

Raised Rib

	in.	mm
Pitch	2.00	50.8
Minimum Width	See below.	
Width Increments		
Opening Size (approximate)	0.25 × 0.24	6.4 × 6.1
Open Area	26%	
Product Contact Area	36%	
Hinge Style	Closed	
Drive Method	Center-driven	



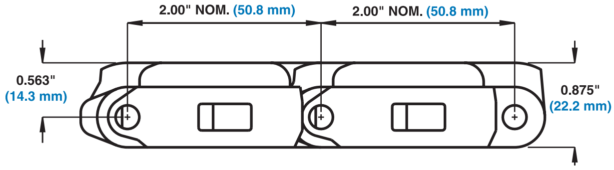


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Raised Ribs extend 0.25 in. (6.4 mm) above basic module.
- Use with Finger Transfer Plates to virtually eliminate tippage at in-feed and discharge.
- Custom-built in widths from 2 in. (51 mm) and up for polyethylene and 3 in. (76 mm) and up for polypropylene, in 0.33 in. (8.4 mm) increments.
- All Series 400 Raised Rib polypropylene belts use the SLIDELOX™ rod retention system. Series 400 Raised Rib polyethylene belts use the standard headed rods.
- SLIDELOX is glass reinforced polypropylene.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



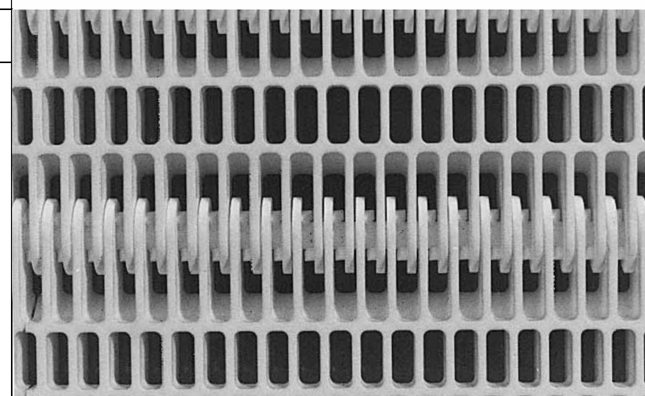
Belt Data

Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[a]	CFA[b]	A[c]	J[d]	Z[e]	EU MC[f]
Polypropylene	Polypropylene	2400	3570	34 to 220	1 to 104	1.95	9.52	•				3		•
Polyethylene	Polyethylene	1800	2680	-100 to 150	-73 to 66	1.98	9.67	•				3		•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. New Zealand Ministry of Agriculture and Forestry
f. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Open Hinge

	in.	mm
Pitch	2.00	50.8
Minimum Width	2	51
Width Increments	0.25	6.4
Opening Size (approximate)	0.47 × 0.18	11.9 × 4.6
Open Area	30%	
Product Contact Area	40%	
Hinge Style	Open	
Drive Method	Center-driven	

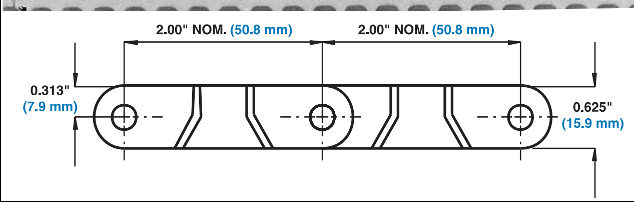


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Shares heavy-duty rating with other belts in this series.
- Large, open area improves air flow, drainage and cleanability.
- Flights and Sideguards are available.
- Series 400 Open Hinge has double-headed hinge rods so the belt edge is not fully flush.

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



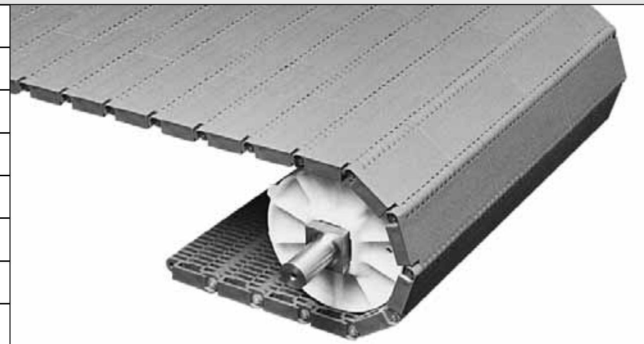
Belt Data

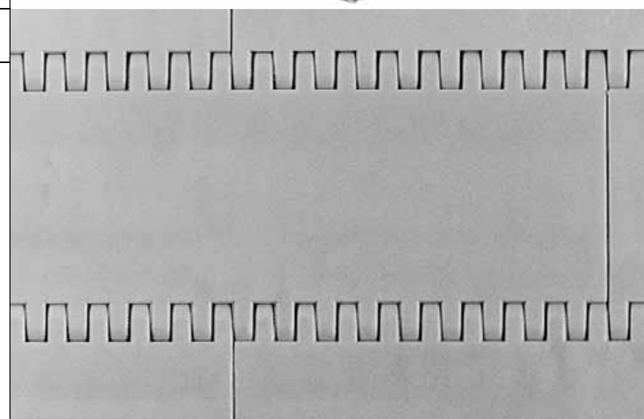
Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA-FSIS - Meat & Poultry	USDA Dairy[a]	CFA[b]	A[c]	J[d]	EU MC[e]
Polypropylene	Polypropylene	1550	2300	34 to 220	1 to 104	1.16	5.66	•	•		•		3	•
Polyethylene	Polyethylene	950	1400	-50 to 150	-46 to 66	1.24	6.06	•	•		•		3	•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Flat Top

	in.	mm
Pitch	2.00	50.8
Minimum Width	2	51
Width Increments	0.33	8.4
Opening Size (approximate)	-	-
Open Area	0%	
Hinge Style	Closed	
Drive Method	Center-driven	



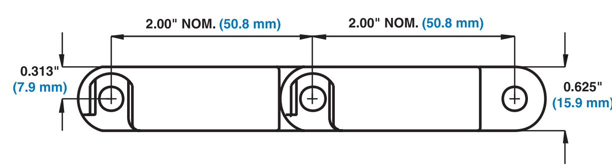


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Smooth upper surface and straightforward design provides free product movement.
- Flights and Sideguards are available.
- It is recommended that Abrasion Resistant Split Sprockets be used with Series 400 Flat Top in Acetal.
- Series 400 Flat Top is available with SLIDELOX™ rod retention for belts 6.0 ft. (1829 mm) wide and wider. All Series 400 Flat Top with Abrasion Resistant Rods are available with SLIDELOX™ Rod Retention. All other Series 400 Flat Top belts use the standard headed rods.

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



Belt Data

Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[a]	CFA[b]	A[c]	J[d]	Z[e]	EU MC[f]
Polypropylene	Polypropylene	2400	3570	34 to 220	1 to 104	1.81	8.82	•				3		•
Polyethylene	Polyethylene	1800	2680	-100 to 150	-73 to 66	1.90	9.28	•				3		•
Acetal	Polypropylene	3200	4760	34 to 200	1 to 93	2.74	13.38	•				3		•
Acetal[g]	Polyethylene	3000	4460	-50 to 70	-46 to 41	2.74	13.38	•				3		•

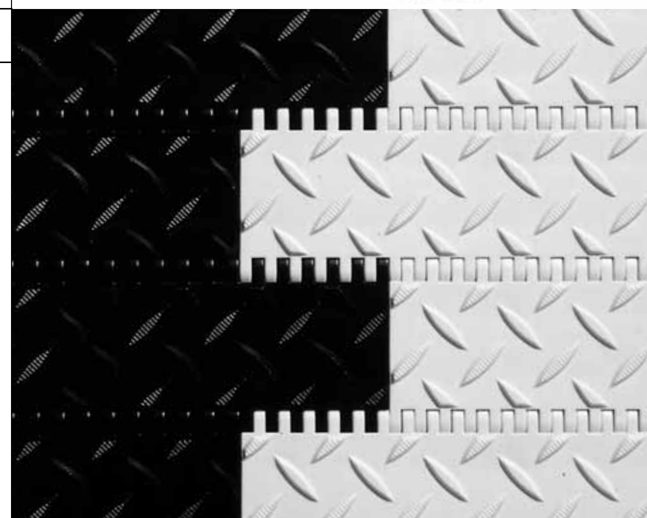
a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. New Zealand Ministry of Agriculture and Forestry
f. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.
g. Polyethylene rods can be used in cold applications when impacts or sudden starts/stops occur. Please note lower rating.

Non Skid

	in.	mm
Pitch	2.00	50.8
Minimum Width	2	51
Width Increments	0.33	8.4
Opening Size (approximate)	-	-
Open Area	0%	
Hinge Style	Closed	
Drive Method	Center-driven	

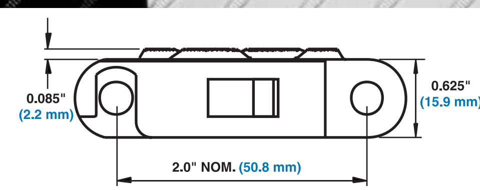
Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Among highest strength rating of all Intralox belts.
- Contact Customer Service regarding flight availability.
- All Series 400 Non Skid belts use the Slidelox™ rod retention system.
- SLIDELOX is glass reinforced polypropylene.



Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



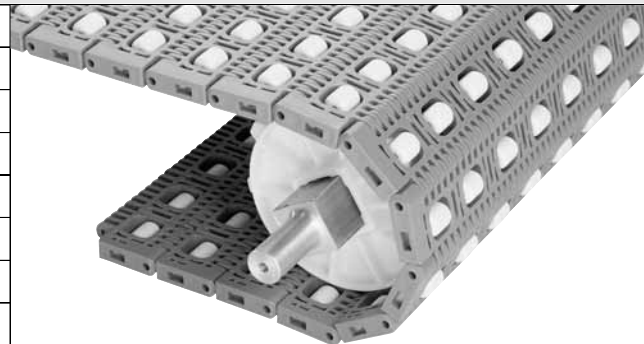
Belt Data

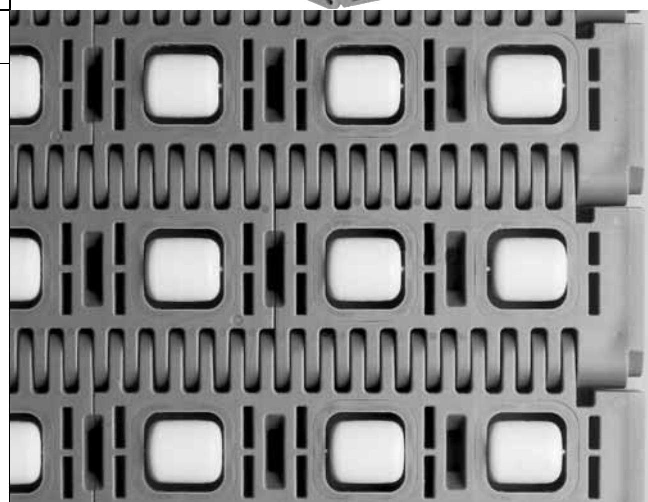
Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey					
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[a]	CFA[b]	A[c]	Z[d]	M[e]
HS EC Acetal	Nylon	2720	4040	-50 to 200	-46 to 93	2.88	14.09						

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. New Zealand Ministry of Agriculture and Forestry
e. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.

Roller Top

	in.	mm
Pitch	2.00	50.8
Minimum Width	6	152
Width Increments	2.00	50.8
Opening Size (approximate)	-	-
Open Area	18%	
Hinge Style	Closed	
Drive Method	Center-driven	



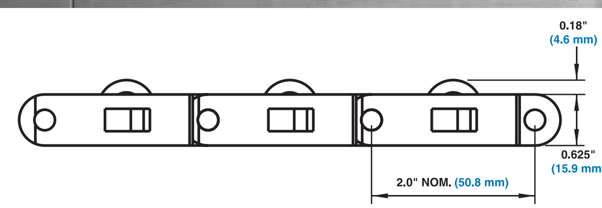


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- SLIDELOX™ flush edges.
- Acetal rollers, stainless steel axles.
- Allows for low back pressure accumulation.
- Roller diameter - 0.70 in. (17.8 mm). Roller length - 0.825 in. (20.9 mm).
- Standard roller indent is 0.90 in. (23 mm)
- Distance to centerline of first roller is 1.3 in. (33 mm), spacing between first and second roller is 1.8 in. (46 mm). Spacing between all other rollers is 2 in. (50.8 mm).
- SLIDELOX is glass reinforced polypropylene.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



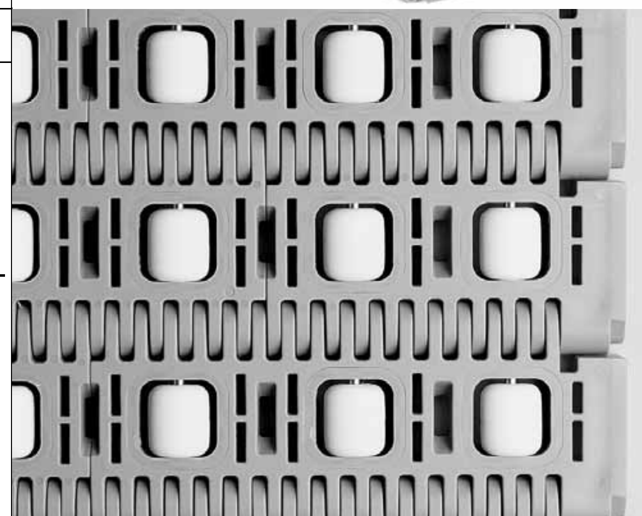
Belt Data

Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength lb/ft	BS Belt Strength kg/m	Temperature Range (continuous) °F	Temperature Range (continuous) °C	W Belt Weight lb/ft²	W Belt Weight kg/m²	Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey — FDA (USA)	USDA Dairy[a]	CFA[b]	J[c]	A[d]	Z[e]	EU MC[f]
Polypropylene	Nylon	2200	3270	34 to 200	1 to 93	2.44	11.94	•			3			•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Japan Ministry of Health, Labour, and Welfare
d. Australian Quarantine Inspection Service
e. New Zealand Ministry of Agriculture and Forestry
f. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Transverse Roller Top

	in.	mm
Pitch	2.00	50.8
Minimum Width	6	152
Width Increments	2.00	50.8
Opening Size (approximate)	-	-
Open Area	18%	
Hinge Style	Closed	
Drive Method	Center-driven	

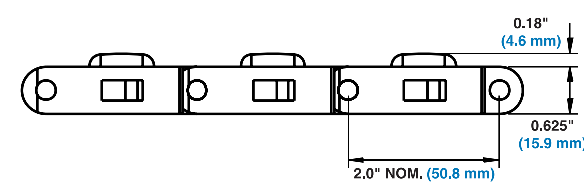


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- SLIDELOX™ flush edges.
- Acetal rollers, stainless steel axles.
- Designed for 90° transfers.
- Roller axle pins are stainless steel for durability and long-lasting performance.
- Roller diameter - 0.70 in. (17.8 mm). Roller length - 0.825 in. (20.9 mm).
- Standard roller indent is 1.00 in. (25.4 mm)
- 2 in. (50.8 mm) roller spacing.
- SLIDELOX is glass reinforced polypropylene.

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



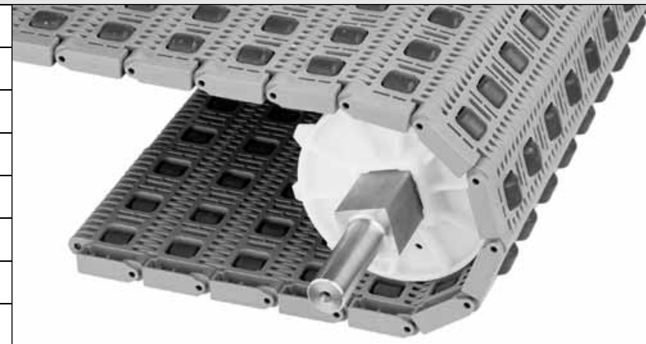
Belt Data

Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[a]	CFA[b]	J[c]	A[d]	Z[e]	EU MC[f]
Polypropylene	Nylon	2200	3270	34 to 200	1 to 93	2.44	11.94	•			3			•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Japan Ministry of Health, Labour, and Welfare
d. Australian Quarantine Inspection Service
e. New Zealand Ministry of Agriculture and Forestry
f. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

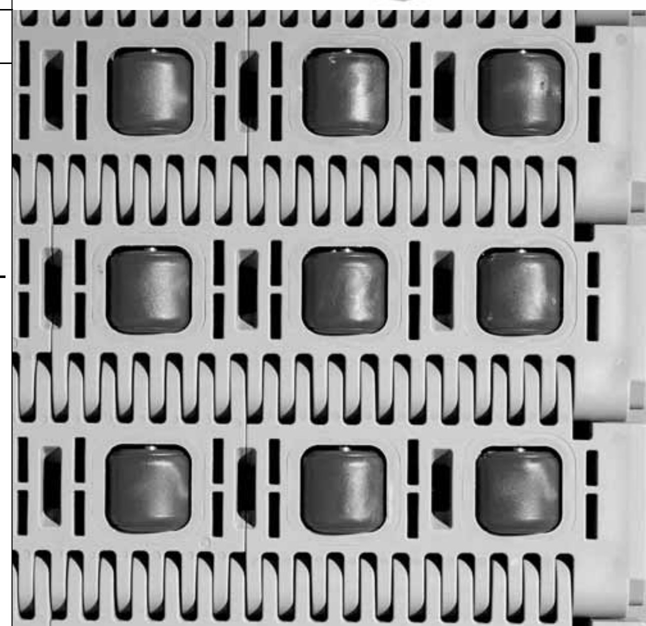
0.85 in. Diameter Transverse Roller Top

	in.	mm
Pitch	2.00	50.8
Minimum Width	6	152
Width Increments	2.00	50.8
Opening Size (approximate)	-	-
Open Area	18%	
Hinge Style	Closed	
Drive Method	Center-driven	



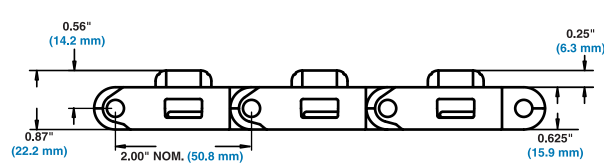
Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- SLIDELOX™ flush edges.
- Acetal rollers, stainless steel axles.
- Designed for 90° transfers.
- Roller axle pins are stainless steel for durability and long-lasting performance.
- Roller diameter - 0.85 in. (21.6 mm). Roller length - 0.825 in. (20.9 mm).
- Standard roller indent is 1.00 in. (25.4 mm)
- Distance to centerline of first roller is 1.3 in. (33 mm), spacing between first and second roller is 1.8 in. (46 mm). Spacing between all other rollers is 2 in. (50.8 mm).
- SLIDELOX is glass reinforced polypropylene.



Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



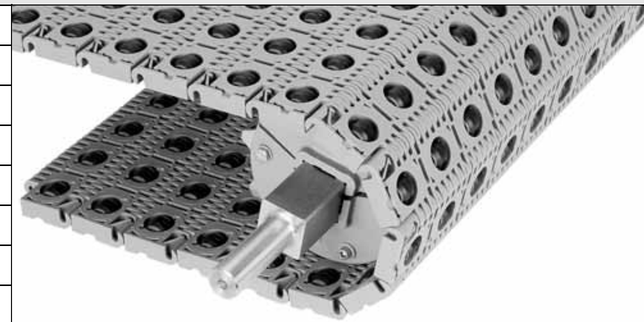
Belt Data

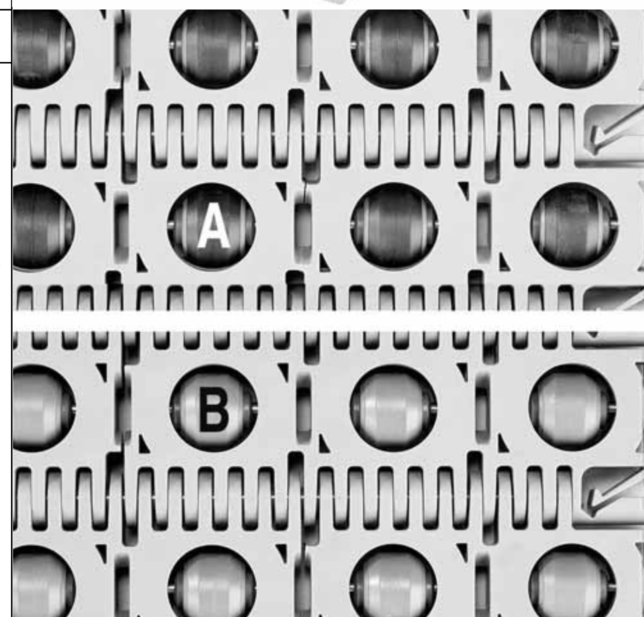
Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey							
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[a]	CFA[b]	A[c]	J[d]	Z[e]	M[f]	EU MC[g]
Polypropylene	Nylon	2200	3270	34 to 200	1 to 93	2.81	13.71	•				3			•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. New Zealand Ministry of Agriculture and Forestry
f. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
g. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

0° Angled Roller

	in.	mm
Pitch	2.00	50.8
Minimum Width	6	152
Width Increments	2.00	50.8
Opening Size (approximate)	-	-
Open Area	11%	
Hinge Style	Closed	
Drive Method	Center-driven	



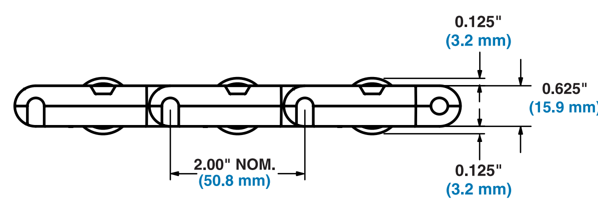


A - Rubber rollers

B - Polyurethane rollers

Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Black rubber rollers or grey polyurethane rollers are available. All rollers have an acetal core. Axles are stainless steel.
- Rollers are in-line with the direction of belt travel.
- In-line rollers can run on a standard flat continuous carryway. A chevron carryway is not recommended.
- Rubber rollers are not recommended for back up conditions.
- 2.0 in. (50.8 mm) roller spacing.
- When belt rollers are in motion, product will move faster than the speed of the belt. When belt rollers do not rotate, product will travel at belt speed.
- Product behavior varies depending on shape and weight of product, conveyor design, and belt speed.
- Intralox can help you reach a more accurate estimate of product behavior based on product and conveyor characterisitics. Contact Customer Service for details.
- Custom belts consisting of any combination of 0°, 45°, or 60° rubber rollers are available. Custom belts can also include rollers oriented in different directions. Contact Intralox Customer Service for additional information.
- Angled Roller Belt will not work with the 4.0 in. (102 mm) pitch diameter Split Sprocket and all 5.2 in. (132 mm) pitch diameter sprockets with 2.5 in. and 60 mm square bores.



Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)

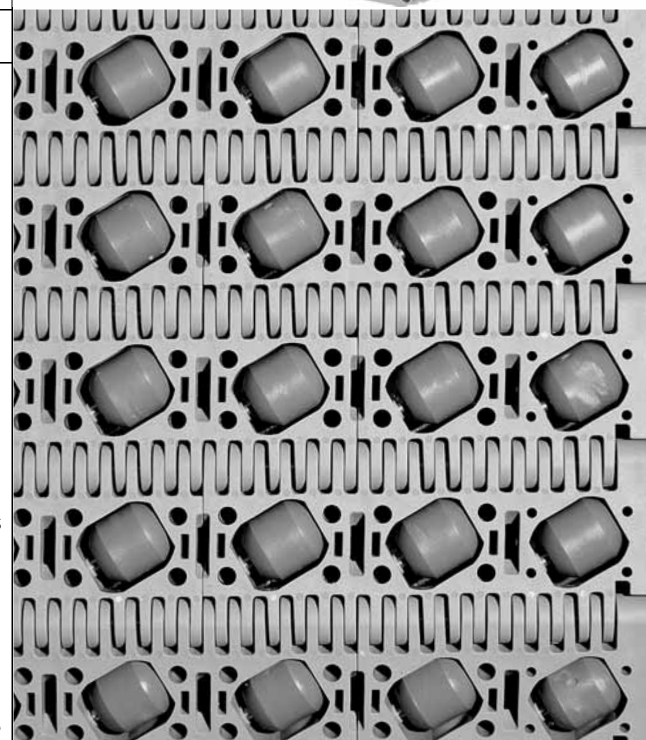
Belt Data

Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[a]	CFA[b]	A[c]	J[d]	Z[e]	EU MC[f]
Polypropylene/ Rubber	Nylon	1600	2381	34 to 200	1 to 93	2.65	12.94							
Polypropylene/ Polyurethane	Nylon	1600	2381	34 to 120	1 to 49	2.73	13.33	•						

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. New Zealand Ministry of Agriculture and Forestry
f. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

30° Angled Roller

	in.	mm
Pitch	2.00	50.8
Minimum Width	6	152
Width Increments	2.00	50.8
Opening Size (approximate)	-	-
Open Area	18%	
Hinge Style	Closed	
Drive Method	Center-driven	

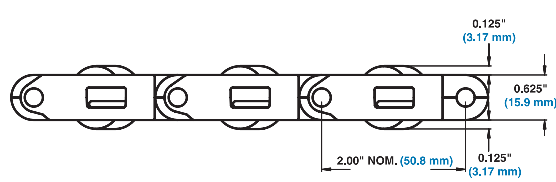


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- SLIDELOX™ rod retention system.
- Polyurethane rollers, stainless steel axles.
- Designed for alignment and centering at 12° from direction of belt travel.
- Rollers are skewed 30° from the direction of belt travel.
- Rollers protrude beyond both the top and bottom of the belt. Module does not contact carry way
- Standard roller indent is 0.80 in. (20.3 mm)
- 2 in. (50.8 mm) roller spacing.
- Product on top of the rollers will move faster than belt speed. Product speed will vary depending on shape and weight of product.
- Centering configuration requires two alignment belts with rollers oriented towards the center of the conveyor.
- Alignment belts require a side wear strip and should be installed to run flush along the wear strip.
- A flat continuous carry way is required.
- Self-set retaining rings for locking sprockets are not recommended.
- Minimum conveyor length to side travel distance ratio should be at least 4.7.
- Angled Roller Belt will not work with the 4.0 in. (102 mm) pitch diameter Split Sprocket and all 5.2 in. (132 mm) pitch diameter sprockets with 2.5 in. and 60 mm square bores.
- SLIDELOX is glass reinforced polypropylene.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



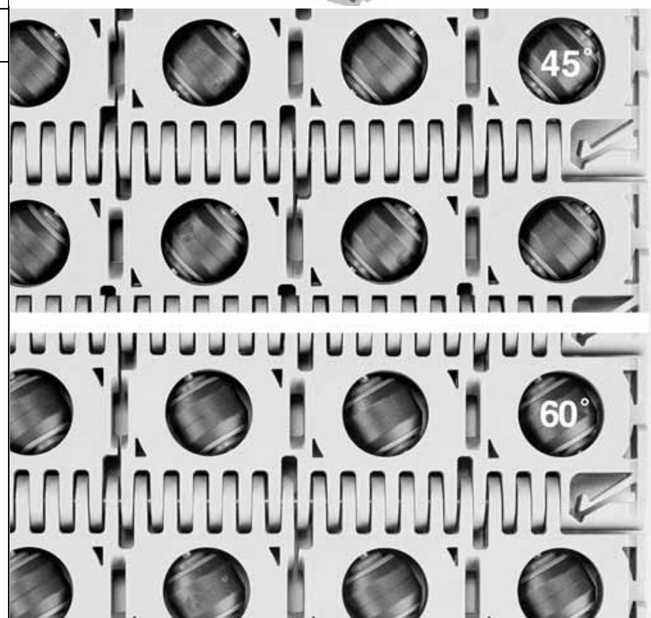
Belt Data

Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[a]	CFA[b]	A[c]	J[d]	Z[e]	EU MC[f]
Polypropylene	Nylon	1600	2381	34 to 120	1 to 49	2.64	12.89	•				3		•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. New Zealand Ministry of Agriculture and Forestry
f. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

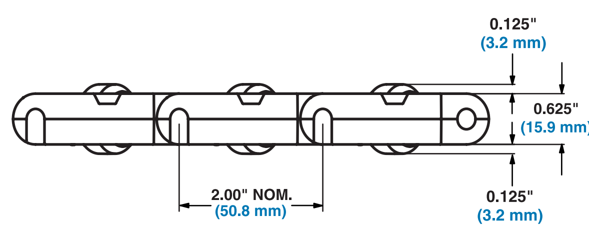
45° and 60° Angled Roller

	in.	mm
Pitch	2.00	50.8
Minimum Width	6	152
Width Increments	2.00	50.8
Opening Size (approximate)	-	-
Open Area	11%	
Hinge Style	Closed	
Drive Method	Center-driven	



Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Black rubber rollers with an acetal core are available. Axles are stainless steel.
- Rollers are skewed either 45° or 60° degrees from direction of belt travel.
- Skewed rubber rollers are designed for use with a patented carryway system for optimal product movement. Rubber rollers should not be allowed to contact a flat continuous or chevron carryway. Belt can be supported using parallel wearstrips placed in between belt rollers. Contact Customer Service for details.
- Rubber rollers are not recommended for back up conditions.
- 2.0 in. (50.8 mm) roller spacing.
- When belt rollers are in motion, product will move faster than the speed of the belt. When belt rollers do not rotate, product will travel at belt speed.
- Product behavior will vary depending on shape and weight of product, conveyor design, and belt speed. Intralox can help you reach a more accurate estimate of product behavior based on product and conveyor characterisitics. Contact Customer Service for details.
- Custom belts consisting of any combination of 0°, 45°, or 60° rubber rollers are available. Custom belts can also include rollers oriented in different directions. Contact Intralox Customer Service for additional information.
- Angled Roller Belt will not work with the 4.0 in. (102 mm) pitch diameter Split Sprocket and all 5.2 in. (132 mm) pitch diameter sprockets with 2.5 in. and 60 mm square bores.



Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)

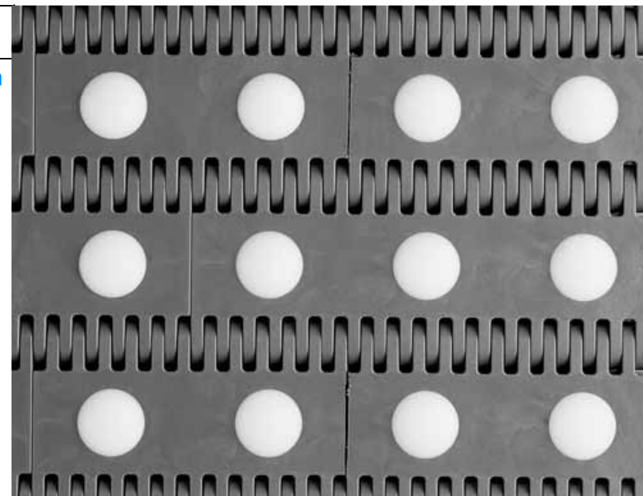
Belt Data

Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey			
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	CFA[a]	J[b]	EU MC[c]
Polypropylene/Rubber	Nylon	1600	2381	34 to 200	1 to 93	2.65	12.94				

a. Canada Food Inspection Agency
b. Japan Ministry of Health, Labour, and Welfare
c. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Ball Belt

	in.	mm
Pitch	2.00	50.8
Minimum Width	6	152
Width Increments	2.00	50.8
Opening Size (approximate)	-	-
Open Area	0%	
Hinge Style	Closed	
Drive Method	Center-driven	

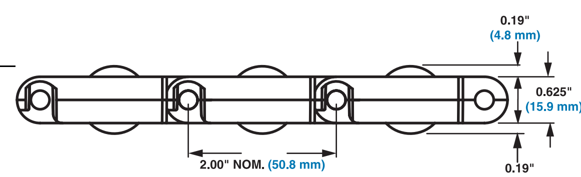


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Fully flush edges with standard headed rods.
- Acetal balls.
- Designed for applications requiring product redirection, alignment, transfer, diverting, palletizing, orientation, accumulation or justification. Product movement is controlled by driving balls with a perpendicular secondary conveyor underneath main belt.
- Balls protrude beyond top and bottom of belt. Module does not contact carryway.
- Product on top of the balls will move faster than belt speed. Product speed will vary depending on shape and weight of product.
- Ball diameter is 1.0 in. (25.4 mm)
- 2 in. (50.8 mm) space between balls.
- Standard ball indent is 1.1 in (27.9 mm).
- Rod centerline to top or bottom of module is 0.313 in (7.9 mm).
- Rod centerline to top or bottom of ball is 0.50 in (12.7 mm).
- Alignment configurations should be installed to run flush along the side wearstrip.
- A flat continuous carry way is required.
- Self-set retaining rings for locking sprockets are not recommended.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



Belt Data

Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength[a]		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey							
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[b]	CFA[c]	A[d]	J[e]	Z[f]	M[g]	EU MC[h]
Acetal	Polypropylene	2400	3571	34 to 200	1 to 93	3.71	18.11	•				3			•

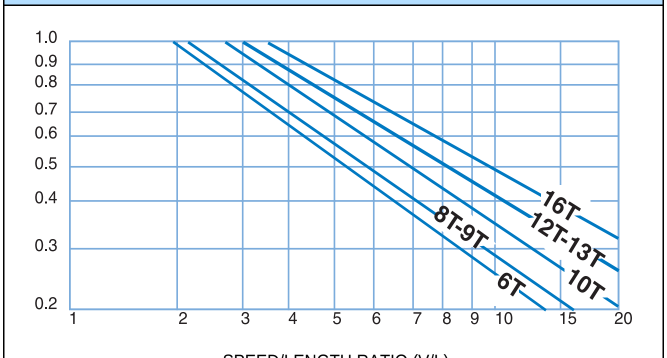
a. When using steel sprockets, the belt strength for polyethylene is 240 lb/ft (360 kg/m).
b. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
c. Canada Food Inspection Agency
d. Australian Quarantine Inspection Service
e. Japan Ministry of Health, Labour, and Welfare
f. New Zealand Ministry of Agriculture and Forestry
g. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
h. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Sprocket and Support Quantity Reference

Belt Width Range[a]		Minimum Number of Sprockets Per Shaft[b]	Wearstrips	
in.	mm		Carryway	Returnway
2	51	1	2	2
4	102	1	2	2
6	152	2	2	2
7	178	2	2	2
8	203	2	2	2
10	254	2	3	2
12	305	3	3	2
14	356	3	3	3
15	381	3	3	3
16	406	3	3	3
18	457	3	3	3
20	508	5	4	3
24	610	5	4	3
30	762	5	5	4
32	813	7	5	4
36	914	7	5	4
42	1067	7	6	5
48	1219	9	7	5
54	1372	9	7	6
60	1524	11	8	6
72	1829	13	9	7
84	2134	15	11	8
96	2438	17	12	9
120	3048	21	15	11
144	3658	25	17	13
For Other Widths, Use Odd Number of Sprockets[c] at Maximum 6 in. (152 mm) ℄ Spacing			Maximum 9 in. (229 mm) ℄ Spacing[d]	Maximum 12 in. (305 mm) ℄ Spacing

a. If your belt width exceeds a number listed in the table, please refer to the sprocket and support material minimums for the next larger width range listed. Flat Top, Flush Grid, and Raised Rib belts are available in 0.33 in. (8.4 mm) increments beginning with a minimum width of 2 in. (51 mm). The increment for Open Hinge belts is 0.25 in. (6 mm). **If the actual width is critical, consult Customer Service.**
b. These are the minimum number of sprockets. Additional sprockets may be required for heavily loaded applications.
c. The center sprocket should be locked down. With only two sprockets, fix the sprocket on the drive journal side only.
d. Angled Roller Belt and Ball Belt require a flat continuous carryway.

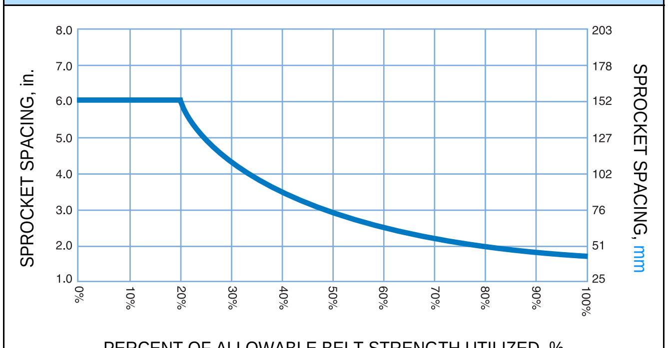
S Strength Factor



V = ft/min (m/min)
L = ft (m)
T = number of teeth

Divide belt speed "V" by the shaft ℄ distance "L". Strength Factor is found at intersection of speed/length ratio and appropriate sprocket line. See page 35 for more information.

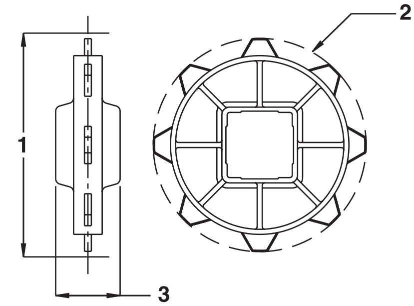
Sprocket Spacing as a Function of Belt Strength Utilized



Sprocket Data[a]

For all belts except Flush Grid Acetal

No. of Teeth (Chordal Action)	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: Round in.[b]	U.S. Sizes: Square in.	Metric Sizes: Round mm[b]	Metric Sizes: Square mm
6 (13.40%)	4.0	102	3.6	91	1.5	38		1.5		40
8 (7.61%)	5.2	132	5.0	127	1.5	38		1.5		40
								2.5		60
10 (4.89%)	6.4	163	6.3	160	1.5	38	2.0	1.5		40
								2.5		60
										70
12 (3.41%)	7.8	198	7.7	196	1.5	38		1.5		40
								2.5		60
16 (1.92%)	10.1	257	10.2	259	1.5	38		1.5		40
								2.5		60
								3.5		90



1 - Pitch diameter
2 - Outer diameter
3 - Hub width

a. Contact Customer Service for lead times.
b. Round bore molded and split sprockets are frequently furnished with two keyways. Use of two keys is NOT REQUIRED nor recommended. Round bore sprockets do not have set screws for locking the sprockets in place. As with square bore sprockets, only the center-most sprocket needs to be locked down. Imperial key sizes on round bore sprockets conform to ANSI standard B17.1-1967(R1989) and metric key sizes conform to DIN standard 6885.

Low Back Tension Ultra Abrasion Resistant Polyurethane Split Sprocket[a]

For all belts except Open Hinge and Roller Belts

No. of Teeth (Chordal Action)	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: Round in.	U.S. Sizes: Square in.	Metric Sizes: Round mm	Metric Sizes: Square mm
10 (4.89%)	6.4	163	6.3	160	1.5	38		1.5		40
								2.5		
12 (3.41%)	7.8	198	7.7	196	1.5	38		2.5		
16 (1.92%)	10.1	257	10.2	259	1.5	38		2.5		

a. **Contact Customer Service for lead times.** When using Low Back Tension Ultra Abrasion Resistant Polyurethane Split Sprockets, the maximum Belt Strength for all styles and materials is 1000 lb/ft (1490 kg/m), and the temperature range for the sprocket is -40 °F (-40 °C) to 160 °F (71 °C).

Low Back Tension High Strength Polyurethane Composite Split Sprocket[a]

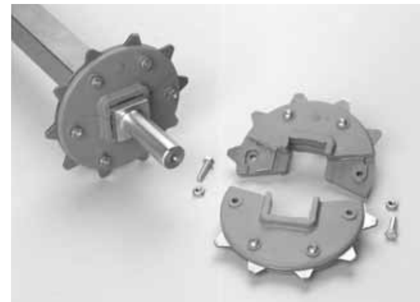
For all belts except Flush Grid Acetal, Open Hinge and Roller Belts

No. of Teeth (Chordal Action)	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: Round in.	U.S. Sizes: Square in.	Metric Sizes: Round mm	Metric Sizes: Square mm
10 (4.89%)	6.4	163	6.3	160	1.75	44		1.5		40
								2.5		60
12 (3.41%)	7.8	198	7.7	196	1.4	36		1.5		40
								2.5		60
16 (1.92%)	10.1	257	10.2	259	1.5	38	3.5	1.5		
								2.5		
								3.5		90

a. **Contact Customer Service for lead times.** Recommended for Drive Shaft only. There is very little belt tension when a belt engages the idle sprockets. In some applications, the belt may not have enough tension to engage the added Low Back Tension teeth, causing the belt to disengage on the idle sprockets.

Split Sprocket Data[a]

No. of Teeth (Chordal Action)	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.[b]	Square in.	Round mm[b]	Square mm
6 (13.40%)	4.0	102	3.6	91	1.4	36		1.5		
					1.5	38				40
8 (7.61%)	5.2	132	5.0	127	1.4	36	1, 1-3/16, 1-1/4, 1-7/16	1.5	20, 30, 40	40, 60
					1.5	38		2.5		
9 (6.03%)	5.8	147	5.9	150	1.4	36		1.5		40, 60
					1.5	38		2.5		
10 (4.89%)	6.4	163	6.3	160	1.4	36	1, 1-3/16, 1-1/4, 1-3/8, 1-7/16, 1-1/2	1.5	20	40
								2.5		60
12 (3.41%)	7.8	198	7.7	196	1.4	36		1.5		40
								2.5		60
13 (2.91%)	8.4	213	8.5	216	1.5	38		1.5		40
								2.5		60
16 (1.92%)	10.1	257	10.2	259	1.5	38	3.5	1.5		40
								2.5		60
								3.5		90

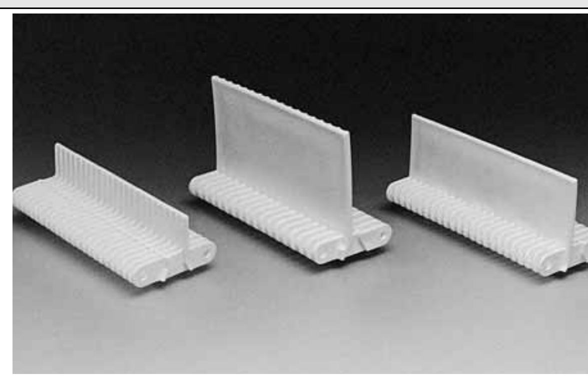


a. **Contact Customer Service for lead times.**
b. Round bore molded and split sprockets are frequently furnished with two keyways. Use of two keys is NOT REQUIRED nor recommended. Round bore sprockets do not have set screws for locking the sprockets in place. As with square bore sprockets, only the center-most sprocket needs to be locked down. Imperial key sizes on round bore sprockets conform to ANSI standard B17.1-1967(R1989) and metric key sizes conform to DIN standard 6885.

Flush Grid Base Flights (Streamline/No-Cling)

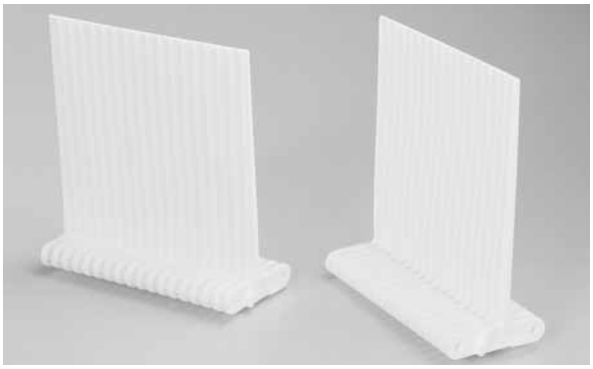
Available Flight Height		Available Materials
in.	mm	
1	25	Polypropylene, Polyethylene
2	51	
3	76	

Note: Flights can be cut down to any height required for a particular application.
Note: Each flight rises out of the center of its supporting module, molded as an integral part. No fasteners are required.
Note: One side of the Flush Grid flight is smooth (Streamline) while the other is ribbed vertically (No-Cling).
Note: The minimum indent (without sideguards) is 0.8 in. (20 mm) and the minimum indent for a SLIDELOX™ edge (without sideguards) is 1.4 in. (36 mm).
Note: An extension can be welded at a 45° angle for a bent flight.



Flush Grid Base Flights (Double No-Cling)

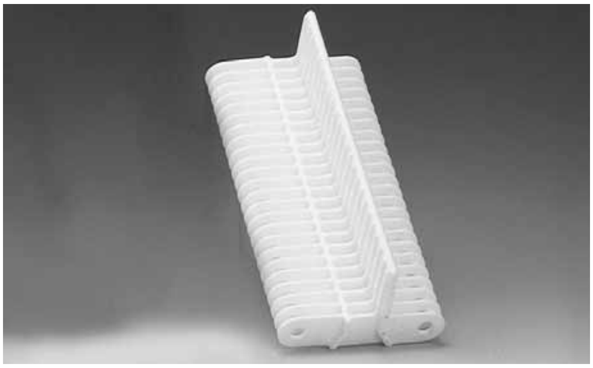
Available Flight Height		Available Materials
in.	mm	
6	152	Polypropylene, Polyethylene



Note: Flights can be cut down to any height required for a particular application.
Note: Each flight rises out of the center of its supporting module, molded as an integral part. No fasteners are required.
Note: The minimum indent (without sideguards) is 0.8 in. (20 mm) and the minimum indent for a SLIDELOX™ edge (without sideguards) is 1.4 in. (36 mm)
Note: 45 degree bent flights are available in polypropylene with a 3 in (76 mm) tall base and with a 1 in. (25 mm) or 2 in. (51 mm) extension.

Open Hinge Base Flights (Streamline/No-Cling)

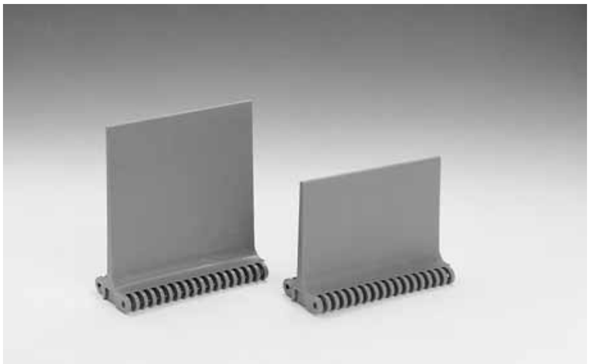
Available Flight Height		Available Materials
in.	mm	
1	25	Polypropylene, Polyethylene
2	51	
3	76	



Note: Flights can be cut down to any height required for a particular application.
Note: Each flight rises out of the center of its supporting module, molded as an integral part. No fasteners are required.
Note: One side of the Open Hinge flight is smooth (Streamline) while the other is ribbed vertically (No-Cling).
Note: The minimum indent (without sideguards) is 0.6 in. (15 mm).
Note: Series 400 Open Hinge flights can be extended to 6 in. (152 mm) high (welded extension). The extension can also be welded at a 45° angle for a bent flight.

Flat Top Base Flights (Streamline)

Available Flight Height		Available Materials
in.	mm	
4	102	Polypropylene, Polyethylene, Acetal
6	152	



Note: Flights can be cut down to any height required for a particular application.
Note: Flat Top flight is smooth (Streamline) on both sides.
Note: Each flight rises out of the center of its supporting module, molded as an integral part. No fasteners are required.
Note: The minimum indent (without sideguards) is 0.8 in. (20 mm) and the minimum indent for a SLIDELOX™ edge (without sideguards) is 1.4 in. (36 mm).
Note: Flat Top-based flights cannot be used with Flush Grid belts.

Sideguards

Available Sizes		Available Materials
in.	mm	
2	51	Polypropylene, Polyethylene
3	76	
4	102	

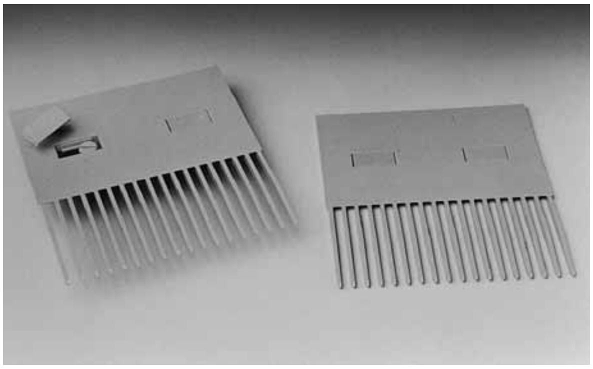
Note: Sideguards have a standard overlapping design and are an integral part of the belt, with no fasteners required.
Note: The minimum indent is 0.8 in. (20 mm).
Note: The normal gap between the sideguards and the edge of a flight is 0.4 in. (10 mm).
Note: When going around the 6 and 8 tooth sprockets, the sideguards will fan out, opening a gap at the top of the sideguard which might allow small products to fall out. The sideguards stay completely closed when going around the 10, 12 and 16 tooth sprockets.

Hold Down Guides

Note: The strength rating for each Hold Down Tab is 100 lbs (45.4 kg) of force perpendicular to the hold-down surface.
Note: Tabs can be spaced along the length of the belt at either4 inches (101.6 mm) or 6 inches (152.4 mm). Tab spacings greater than6 inches (152.4 mm) should be avoided due to the potential of mistracking.
Note: Carryway wearstrip or rollers that engage the tabs are only required at the transition between the horizontal sections and angled sections. This reduces initial system cost, as well as ongoing maintenance cost and effort.
Note: Care should be taken to ensure that adequate lead-in radii and/or angles are used to prevent the possibility of snagging the tab on the frame.
Note: A carryway radius should be designed at the transition between horizontal sections and angled sections. This radius must be at least 48 inches (1.22 m) for belts that will be loaded near the belt's strength rating. This radius is one of the most important factors to take into consideration when designing highly loaded conveyors that utilize Hold Down Tabs.
Note: Available on Non Skid and Flat Top belts

Finger Transfer Plates

Available Widths		Number of Fingers	Available Materials
in.	mm		
6	152	18	Polypropylene



Note: Eliminates product transfer and tipping problems. The 18 fingers extend between the belt's ribs allowing a smooth continuation of the product flow as the belt engages its sprockets.
Note: Easily installed on the conveyor frame with the shoulder bolts supplied. Caps snap easily into place over the bolts, keeping foreign materials out of the slots.
Note: The Finger Transfer Plates for Series 400 are the same for Series 1200.

Insert Nuts

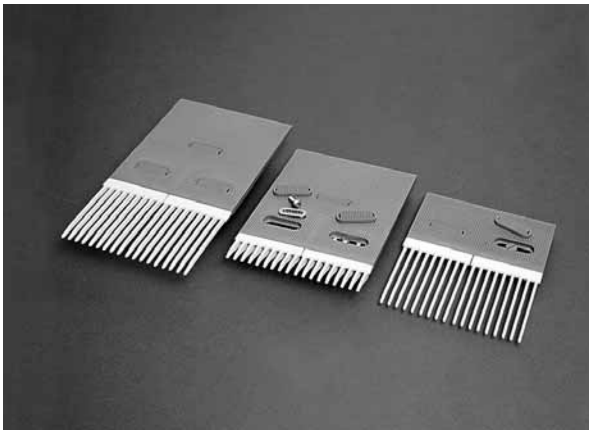
Available Base Belt Style - Material			Available Insert Nut Sizes	
Series 400 Flat Top - Acetal, Polypropylene			5/16" - 18 (8 mm - 1.25 mm)	
Belt Material	Maximum Fixture Weight		Fastener Torque Specification	
	lbs/nut[a]	kg/nut[a]	in.-lbs	N-m
Acetal	200	91	120	13.5
Polypropylene	175	79	65	7.3

Note: Insert Nuts easily allow the attachment of fixtures to the belt.
Note: Nut placement constraints are as follows; 2" (50 mm) minimal indent from the edge of the belt, 1-1/3" (34 mm) minimal distance between nuts across the width of the belt and spacing along the length of the belt is in2" (50 mm) increments.
Note: All nut placement dimensions are referenced from the edge of the belt when placing an order. Contact Intralox Customer Service for nut location options available for your individual belt specifications.
Note: Attachments that are connected to more than one row must not prohibit the rotation of the belt around the sprockets.
Note: Sprockets cannot be located in-line with the locations of the insert nuts in the belt.
Note: For attachment bases that extend across multiple rows, considerations should be made to accommodate for reduced backbend.

a. This is fixture weight only. Product weight need not be included.

Two-Material Finger Transfer Plates

Available Widths		Number of Fingers	Available Materials
in.	mm		
6	152	18	Glass-Filled Thermoplastic Fingers, Acetal Backplate



Note: Plates provide high strength fingers combined with a low friction back plate.
Note: Low-friction back plate is permanently attached to the two high-strength finger inserts.
Note: Eliminates product transfer and tipping problems. The 18 fingers extend between the belt's ribs allowing a smooth continuation of the product flow as the belt engages its sprockets.
Note: Easily installed on the conveyor frame with the shoulder bolts supplied. Caps snap easily into place over the bolts, keeping foreign materials out of the slots.
Note: The Finger Transfer Plates for Series 400 are the same for Series 1200.

Note: Available in three different configurations:
Standard - long fingers with a short back plate.
Standard Extended Back - long fingers with an extended back plate
Glass Handling -
- Short fingers with extended back plate
- Short fingers/short back (Contact Customer Service for lead times.)
- Mid-Length Fingers/short back
- Mid-Length Fingers/extended back

The long fingers provide good support for unstable products like PET containers and cans. The short fingers are sturdy enough for even the harshest broken glass applications. These fingers are designed to resist breaking, but if confronted with deeply embedded glass, the individual fingers will yield and break off, preventing costly belt or frame damage. The short back plate has two attachment slots and the extended back plate has three attachment slots. Mounting hardware for the two standard two-material FTP's includes plastic shoulder bolts and bolt covers. Mounting hardware for the Glass Handling two-material FTP's includes stainless steel oval washers and bolts which gives more secure fastening for the tough glass applications (Glass Handling hardware is sold separately). Plastic bolt covers are also included. The 10.1 in. (257 mm) PD, 16 tooth sprockets are recommended to be used with the Glass Handling finger transfer plates for best product transfer.

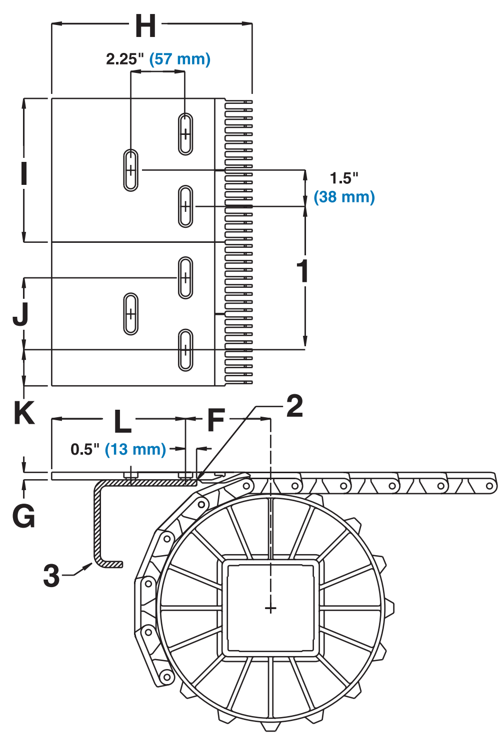
Note: Intralox also offers a single-material polypropylene standard finger transfer plate for better chemical resistance. Mounting hardware for this FTP includes plastic shoulder bolts and snap-cap bolt covers.

Dimensional Requirements for Series 400 Finger Transfer Plate Installation

	Two-Material							
	Standard Long Fingers - Short Back		Standard Long Fingers - Extended Back		Glass Handling Short Fingers - Extended Back		Glass Handling Mid-Length Fingers - Extended Back	
	in.	mm	in.	mm	in.	mm	in.	mm
F	3.50	89	3.50	89	3.50	89	3.50	89
G	0.31	8	0.31	8	0.31	8	0.31	8
H	7.25	184	10.75	273	8.26	210	9.04	230
I	5.91	150	5.91	150	5.91	150	5.91	150
J	3.00	76	3.00	76	3.00	76	3.00	76
K	1.45	37	1.45	37	1.45	37	1.45	37
L	2.00	51	5.50	140	5.50	140	5.50	140

Spacing at ambient temperature

PP	5.952 in.	151.2 mm	
PE	5.933 in.	150.7 mm	



TWO-MATERIAL FINGER TRANSFER PLATES

Two-material glass handling finger transfer plate shown

1 - Spacing

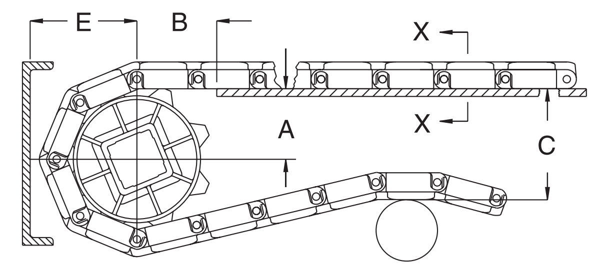
2 - 0.5” (13 mm) Radius (leading edge of frame member)

3 - Frame member

Conveyor Frame Dimensions

Regardless of type or configuration, all conveyors using Intralox belts have some basic dimensional requirements. Specifically, dimensions “A”, “B”, “C” and “E” listed below should be implemented in any design.

For general applications and applications where end transfer of tip-sensitive product is not critical, use the “A” dimension at the bottom of the range.



A - ±0.031” (1 mm)

B - ±0.125” (3 mm)

C - ± (Max)

E - ± (Min)

Complete descriptions of the dimensions are listed on page 291.

Sprocket Description			A		B		C		E	
Pitch Diameter		No. Teeth	Range (Bottom to Top)		in.	mm	in.	mm	in.	mm
in.	mm		in.	mm						
SERIES 400 FLUSH GRID, FLAT TOP, OPEN HINGE										
4.0	102	6	1.42-1.69	36-43	2.20	56	4.10	104	2.38	60
5.2	132	8	2.10-2.30	53-58	2.60	66	5.30	135	2.99	76
5.8	147	9[a]	2.44-2.61	62-66	2.70	69	5.95	151	3.49	89
6.4	163	10	2.77-2.92	70-74	2.77	70	6.50	165	3.61	92
7.8	198	12	3.42-3.55	87-90	3.00	76	7.90	201	4.24	108
8.4	213	13[b]	3.75-3.87	95-98	3.22	82	8.46	215	4.74	120
10.1	257	16	4.72-4.81	120-122	3.20	81	10.20	259	5.50	140
SERIES 400 RAISED RIB										
4.0	102	6	1.42-1.69	36-43	2.20	56	4.10	104	2.75	70
5.2	132	8	2.10-2.30	53-58	2.60	66	5.30	135	3.24	82
6.4	163	10	2.77-2.92	70-74	2.77	70	6.50	165	3.99	101
7.8	198	12	3.42-3.55	87-90	3.00	76	7.90	201	4.49	114
10.1	257	16	4.72-4.81	120-122	3.20	81	10.20	259	5.88	149
SERIES 400 NON-SKID										
4.0	102	6	1.42-1.69	36-43	1.60	41	4.09	104	2.46	62
5.2	132	8	2.10-2.30	53-58	1.98	50	5.31	135	3.07	78
5.8	147	9	2.43-2.61	62-66	2.31	59	5.93	151	3.38	86
6.4	163	10	2.77-2.92	70-74	2.26	57	6.56	167	3.70	94
7.8	198	12	3.42-3.55	87-90	2.60	66	7.81	198	4.32	110
8.4	213	13	3.74-3.87	95-98	2.84	72	8.44	214	4.64	118
10.1	257	16	4.71-4.81	120-122	2.97	75	10.34	263	5.59	142
SERIES 400 ROLLER TOP, TRANSVERSE ROLLER TOP										
4.0	102	6	1.42-1.69	36-43	2.20	56	4.10	104	2.56	65
5.2	132	8	2.10-2.30	53-58	2.60	66	5.30	135	3.17	81
6.4	163	10	2.77-2.92	70-74	2.77	70	6.50	165	3.79	96
7.8	198	12	3.42-3.55	87-90	3.00	76	7.90	201	4.42	112
10.1	257	16	4.72-4.81	120-122	3.20	81	10.20	259	5.68	144
SERIES 400 0.85 IN. DIAMETER TRANSVERSE ROLLER TOP										
4.0	102	6	1.27-1.54	32-39	1.72	44	3.96	101	2.48	63
5.2	132	8	1.95-2.15	50-55	2.13	54	5.18	132	3.09	78

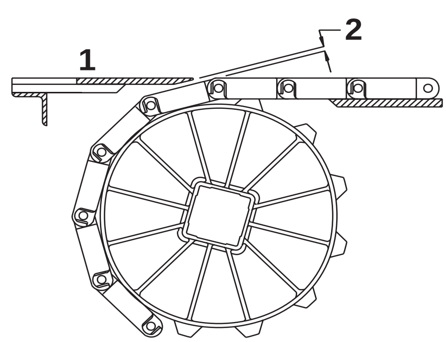
Sprocket Description			A		B		C		E	
Pitch Diameter		No. Teeth	Range (Bottom to Top)		in.	mm	in.	mm	in.	mm
in.	mm		in.	mm						
6.4	163	10	2.62-2.77	67-70	2.43	62	6.42	163	3.71	94
7.8	198	12	3.27-3.40	83-86	2.78	71	7.68	195	4.34	110
10.1	257	16	4.56-4.66	116-118	3.20	81	10.20	259	5.60	142
SERIES 400 ANGLED ROLLER (0°, 30°, 45° AND 60°)										
4.0[b]	102	6	1.29-1.56	33-40	1.70	43	4.00	102	2.50	64
5.2	132	8	1.98-2.18	50-55	2.11	53	5.23	133	3.11	79
6.4	163	10	2.64-2.80	67-71	2.40	61	6.47	164	3.74	95
7.8	198	12	3.29-3.43	84-87	2.75	70	7.73	196	4.36	111
10.1	257	16	4.59-4.69	117-119	3.16	80	10.25	260	5.63	143
SERIES 400 BALL										
4.0	102	6	1.23-1.50	31-38	1.75	44	4.00	102	2.56	65
5.2	132	8	1.91-2.11	49-54	2.16	55	5.23	133	3.18	81
6.4	163	10	2.58-2.74	65-69	2.47	63	6.47	164	3.80	96
7.8	198	12	3.23-3.36	82-85	2.82	72	7.73	196	4.43	112
10.1	257	16	4.53-4.63	115-117	3.25	82	10.25	260	5.69	144

a. Flush Grid Acetal only.
b. Will not work with 4.0 in. (102 mm) or 5.2 in. (132 mm) pitch diameter split sprockets.

Dead Plate Gap

Where there is a transfer point from a belt without finger transfer plates to a dead plate, there should be a gap between the surfaces to allow for the chordal action of the belt. As the belt engages its sprockets, chordal action causes the modules to move past a *fixed* point (the tip of the dead plate) with *varying* clearances. The table below shows the minimum amount of gap which occurs at the "low point" of the modules if the tip of the dead plate just comes in contact with the "high point" as the modules pass.

In some installations it may be desirable to keep the tip of the dead plate in contact with the belt, rather than allow a gap to occur. This can be done by hinging the mounting bracket for the dead plate. This allows the dead plate to move as the modules pass, but results in a small oscillating motion which may present tippage problems for sensitive containers or products.



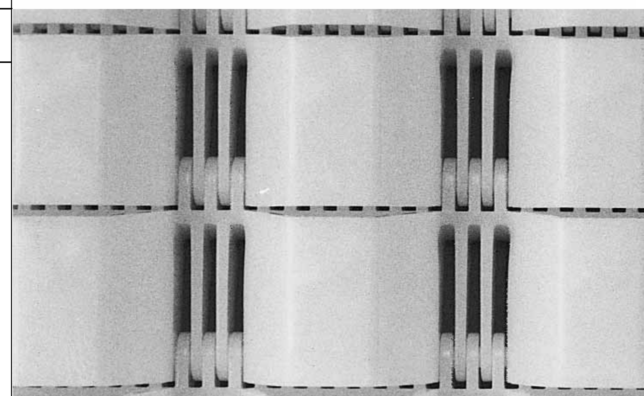
1 - Top surface of dead plate **2 -** Dead plate gap

Note: The top surface of the dead plate is typically 0.031 in. (0.8 mm) above the belt surface for product transfer onto the belt, and 0.031 in. (0.8 mm) below the belt surface for product transfer off the belt.

Sprocket Description			Gap	
Pitch Diameter		No. Teeth	in.	mm
in.	mm			
4.0	102	6	0.268	6.8
5.2	132	8	0.200	5.1
5.8	147	9 (Flush Grid Acetal)	0.178	4.5
6.4	163	10	0.160	4.1
7.8	198	12	0.130	3.3
8.4	213	13 (Flush Grid Acetal)	0.121	3.1
10.1	257	16	0.100	2.5

Multi-Lane

	in.	mm
Pitch	2.00	50.8
Minimum Width	5	127
Width Increments	3.00	76.2
Opening Size (approximate)	0.2 x 1.0	4 x 25
Open Area	45%	
Hinge Style	Closed	
Drive Method	Center-driven	

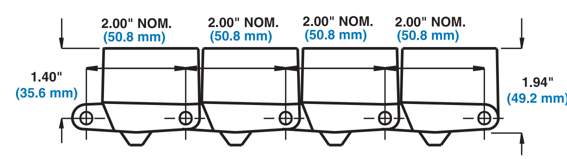


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Longitudinal troughs organize and convey items requiring constant, parallel alignment.
- Troughs can be spaced in 3 in. (76 mm) increments.
- Generous flow area for cooling, drying and washing.
- Series 600 has double-headed hinge rods so the belt edge is not fully flush.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



Belt Data

Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA-FSIS - Meat & Poultry	USDA Dairy[a]	CFA[b]	A[c]	J[d]	EU MC[e]
Polypropylene	Polypropylene	1400	2080	34 to 220	1 to 104	2.22	10.83	•	•		•		3	•
Polyethylene	Polyethylene	900	1340	-50 to 150	-46 to 66	2.24	10.93	•	•		•		3	•

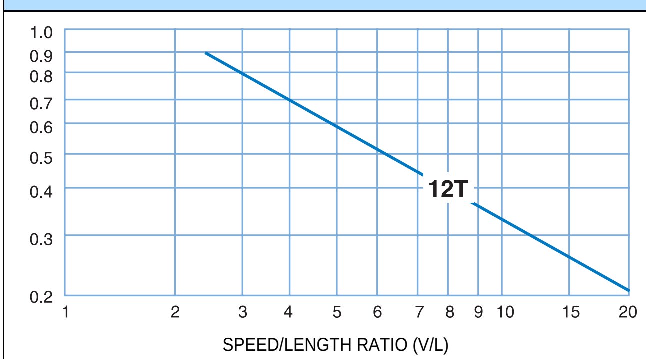
a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Sprocket and Support Quantity Reference

Belt Width Range[a] in.	Belt Width Range[a] mm	**Minimum** Number of Sprockets Per Shaft[b]	Wearstrips Carryway	Wearstrips Returnway
5	127	2	**Note: Series 600 Carryway and Returnway conditions are explained on page 306.**	
8	203	2		
11	279	3		
14	356	3		
17	432	3		
20	508	5		
23	584	5		
26	660	5		
29	737	5		
32	813	7		
35	889	7		
38	965	7		
41	1041	7		
44	1118	7		
47	1194	9		
50	1270	9		
For Other Widths, Use Odd Number of Sprockets[c] at Maximum 6 in. (152 mm) ℄ Spacing				

a. If your belt width exceeds a number listed in the table, please refer to the sprocket and support material minimums for the next larger width range listed. Belts are available in 3.00 in. (76.2 mm) increments beginning with minimum width of 1 in. (25 mm). If the actual width is critical, consult Customer Service.
b. These are the minimum number of sprockets. Additional sprockets may be required for heavily loaded applications.
c. The center sprocket should be locked down. With only two sprockets, fix the sprocket on the drive journal side only.

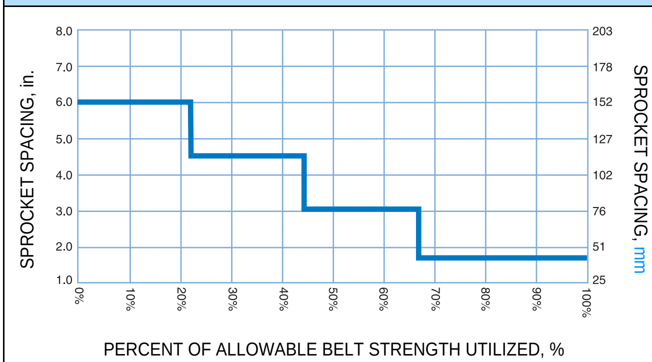
S Strength Factor



V = ft/min (m/min)
T = number of teeth
L = ft (m)

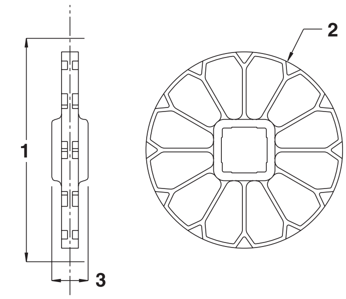
Divide belt speed "V" by the shaft ℄ distance "L". Strength Factor is found at intersection of speed/length ratio and appropriate sprocket line. See page 35 for more information.

Sprocket Spacing as a Function of Belt Strength Utilized



Sprocket Data

No. of Teeth (Chordal Action)	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, Round in.	U.S. Sizes, Square in.	Metric Sizes, Round mm	Metric Sizes, Square mm
12 (3.41%)	7.7	196	6.9	175	1.25	32		1.5		40

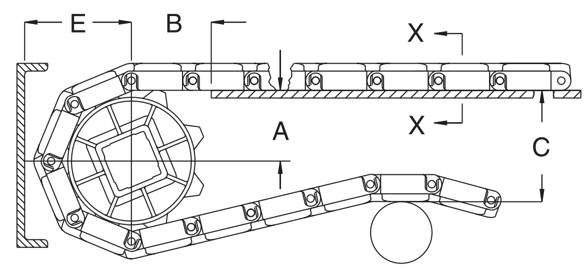


1 - Pitch diameter
2 - Outer diameter
3 - Hub width

Conveyor Frame Dimensions

Regardless of type or configuration, all conveyors using Intralox belts have some basic dimensional requirements. Specifically, dimensions “A”, “B”, “C” and “E” listed below should be implemented in any design.

For general applications and applications where end transfer of tip-sensitive product is not critical, use the “A” dimension at the bottom of the range.



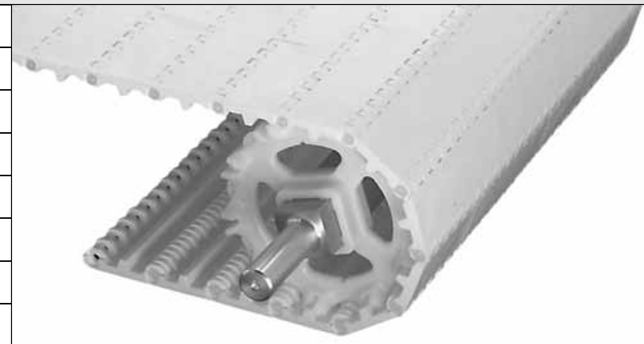
A - ±0.031” (1 mm)
B - ±0.125” (3 mm)
C - ± (Max)
E - ± (Min)

Complete descriptions of the dimensions are listed on page 291.

Sprocket Description: Pitch Diameter in.	Pitch Diameter mm	No. Teeth	A: Range (Bottom to Top) in.	A: Range (Bottom to Top) mm	B in.	B mm	C in.	C mm	E in.	E mm
SERIES 600 MULTI-LANE										
7.7	196	12	3.19-3.32	81-84	3.13	80	6.88	175	5.33	135

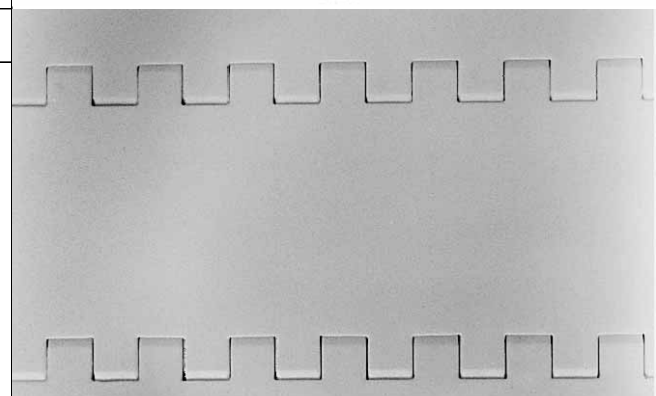
Flat Top

	in.	mm
Pitch	2.00	50.8
Minimum Width	2	51
Width Increments	0.66	16.8
Opening Size (approximate)	-	-
Open Area	0%	
Hinge Style	Open	
Drive Method	Center-driven	



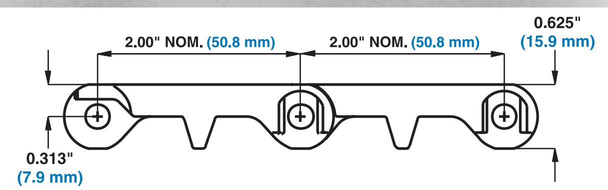
Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Smooth, closed upper surface with fully flush edges and recessed rods.
- Impact resistant belt designed for tough Meat Industry applications.
- Flights and sideguards are available.



Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



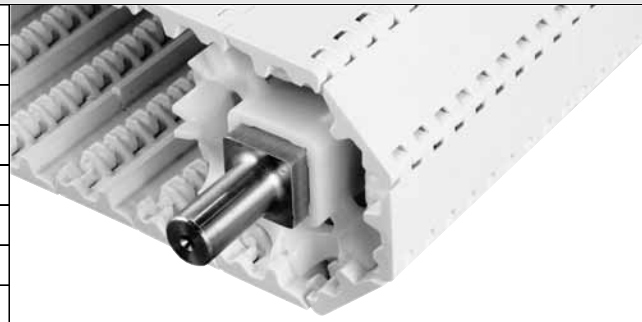
Belt Data

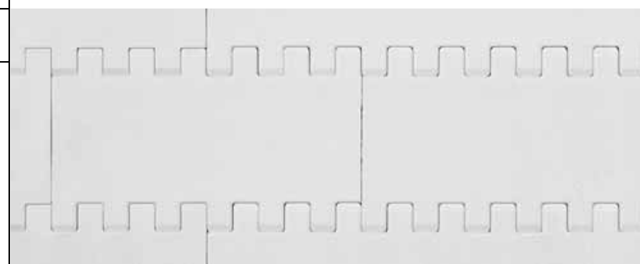
Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey								
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA-FSIS - Meat & Poultry	USDA Dairy[a]	CFA[b]	A[c]	Z[d]	M[e]	J[f]	EU MC[g]
Polypropylene	Polypropylene	1000	1490	34 to 220	1 to 104	1.77	8.66	•	•	1	•	•	•	•	3	•
Polyethylene	Polyethylene	500	750	-50 to 150	-46 to 66	1.87	9.13	•	•	3	•	•	•	•	3	•
Acetal	Polyethylene	900	1340	-50 to 150	-46 to 66	2.75	13.43	•	•	1	•	•	•		3	•
Nylon	Polyethylene	1200	1780	-50 to 150	-46 to 66	2.32	11.33				•	•	•			•
Detectable Polypropylene[h]	Blue Polyethylene	650	970	0 to 150	-18 to 66	1.83	8.93	•	•						4	•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. New Zealand Ministry of Agriculture and Forestry
e. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
f. Japan Ministry of Health, Labour, and Welfare
g. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.
h. Detectable Polypropylene can be sensed with metal detection equipment. Testing the material on a metal detector in a production environment is the best method for determining detection sensitivity.

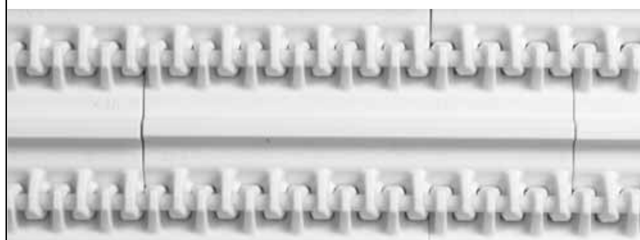
Open Hinge Flat Top

	in.	mm
Pitch	2.00	50.8
Minimum Width	6	152
Width Increments	0.66	16.8
Opening Size (approximate)	-	-
Open Area	0%	
Hinge Style	Open	
Drive Method	Center-driven	





Top Side



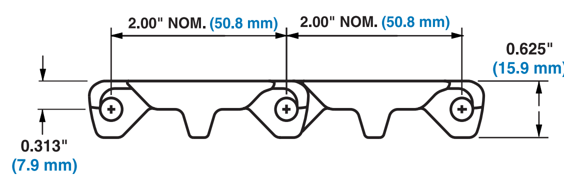
Under Side

Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Smooth, closed upper surface with fully flush edges and recessed rods.
- Cam-link designed hinges - expose more hinge and rod area as the belt goes around the sprocket. This exclusive Intralox feature allows unsurpassed cleaning access to this area.
- Fully sculpted and radiused corners - no pockets or sharp corners to catch and hold debris.
- Drive Bar - like Series 1600 and Series 1800, the drive bar on the underside of Series 800 Open Hinge Flat Top channels water and debris to the outside of the belt for easier, faster clean up. The drive bar's effectiveness has been proven both in-house and in field tests.
- Fully compatible with industry-proven Series 800 Flat Top – can be spliced directly into Series 800 Flat Top, using the same sprockets and accessories.
- Streamlined flights are available. Standard height is 6 in. (152.4 mm) or they can be cut down to custom heights.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



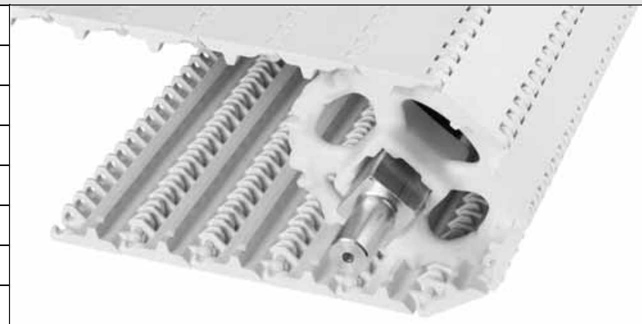
Belt Data

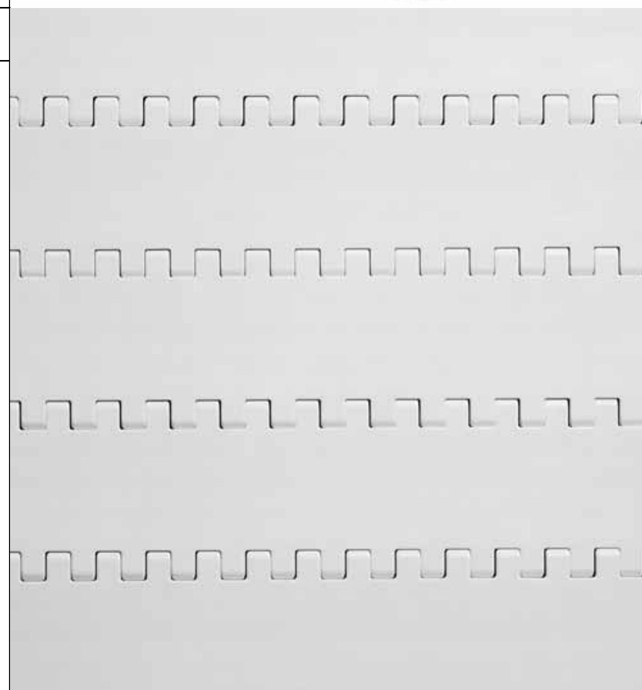
Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey					
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[a]	CFA[b]	A[c]	J[d]	EU MC[e]
Polypropylene	Polypropylene	900	1340	34 to 220	1 to 104	1.63	7.96	•	1			3	•
Polyethylene	Polyethylene	500	750	-50 to 150	-46 to 66	1.70	8.30	•	3			3	•
Acetal	Polyethylene	900	1340	-50 to 150	-46 to 66	2.52	12.3	•	1			3	•
Detectable Polypropylene[f]	Blue Polyethylene	500	750	0 to 150	-18 to 66	1.83	8.93	•				4	•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.
f. Detectable Polypropylene can be sensed with metal detection equipment. Testing the material on a metal detector in a production environment is the best method for determining detection sensitivity.

SeamFree™ Open Hinge Flat Top

	in.	mm
Pitch	2.00	50.8
Minimum Width	6	152
Width Increments	0.66	16.8
Opening Size (approximate)	-	-
Open Area	0%	
Hinge Style	Open	
Drive Method	Center-driven	



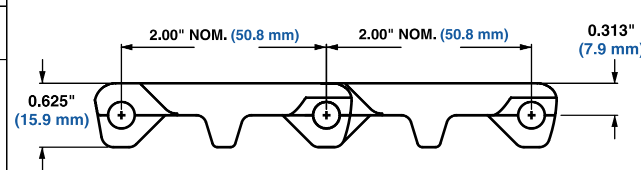


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Smooth, closed upper surface with fully flush edges and recessed rods.
- Cam-link designed hinges - expose more hinge and rod area as the belt goes around the sprocket. This exclusive Intralox feature allows unsurpassed cleaning access to this area.
- Fully sculpted and radiused corners - no pockets or sharp corners to catch and hold debris.
- Drive Bar - like Series 1600 and Series 1800, the drive bar on the underside of Series 800 Open Hinge Flat Top channels water and debris to the outside of the belt for easier, faster clean up. The drive bar's effectiveness has been proven both in-house and in field tests.
- Fully compatible with industry-proven Series 800 Flat Top – can be spliced directly into Series 800 Flat Top, using the same sprockets and accessories.
- Streamlined flights are available. Standard height is 6 in. (152.4 mm) or they can be cut down to custom heights.
- Belts over 36" (914 mm) will be built with multiple modules per row, but seams will be minimized.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



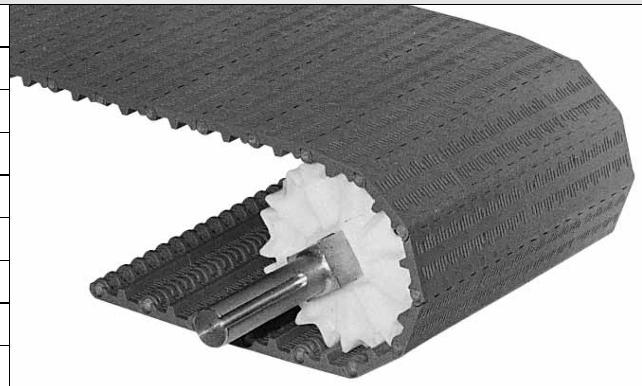
Belt Data

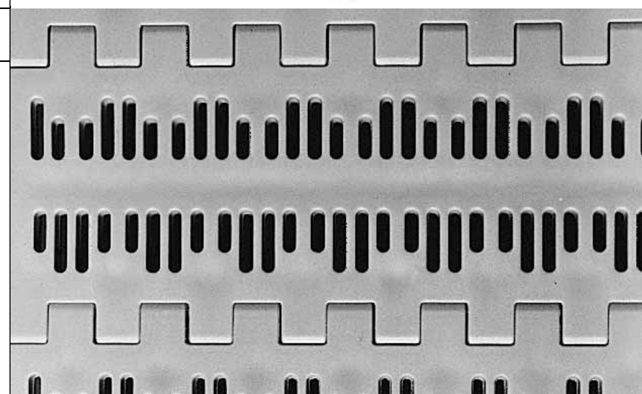
Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability[a] 1=White, 2=Blue, 3=Natural, 4=Grey							
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[b]	CFA[c]	A[d]	J[e]	Z[f]	M[g]	EU MC[h]
Polypropylene	Polypropylene	900	1340	34 to 220	1 to 104	1.63	7.96	•	1			3			•
Polyethylene	Polyethylene	500	750	-50 to 150	-46 to 66	1.70	8.30	•	3			3			•
Acetal	Polyethylene	900	1340	-50 to 150	-46 to 66	2.52	12.3	•	1			3			•

a. Prior to Intralox's development of the Series 800 SeamFree™ Open Hinge Flat Top, USDA-FSIS Meat and Poultry discontinued publishing a list of acceptable new products designed for food contact. As of the printing of this literature, third party approvals are being investigated, but are not yet sanctioned by the USDA-FSIS.
b. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
c. Canada Food Inspection Agency
d. Australian Quarantine Inspection Service
e. Japan Ministry of Health, Labour, and Welfare
f. New Zealand Ministry of Agriculture and Forestry
g. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
h. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Perforated Flat Top

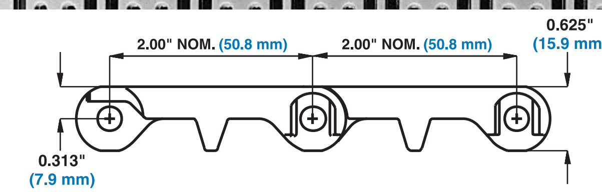
	in.	mm
Pitch	2.00	50.8
Minimum Width	2	51
Width Increments	0.66	16.8
Min. Opening Size (approx.)	0.29 × 0.08	7.4 × 1.9
Max Opening Size (approx.)	0.44 × 0.08	11.1 × 1.9
Open Area	18%	
Hinge Style	Open	
Drive Method	Center-driven	





Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Perforated version of Series 800 Flat Top.
- Smooth upper surface with fully flush edges and recessed rods.
- Flights and sideguards are available.



Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)

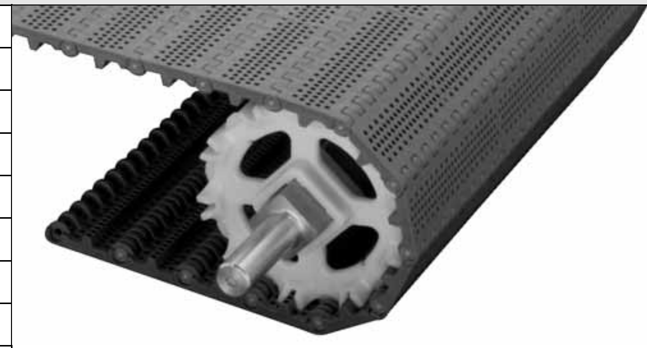
Belt Data

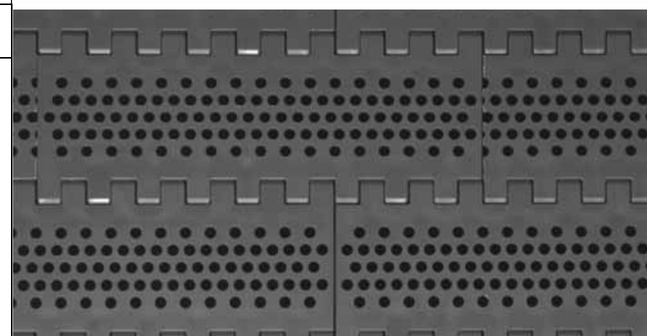
Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey							
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA-FSIS - Meat & Poultry	USDA Dairy[a]	CFA[b]	A[c]	J[d]	M[e]	EU MC[f]
Polypropylene	Polypropylene	1000	1490	34 to 220	1 to 104	1.54	7.25	•	•	1			3	•	•
Polyethylene	Polyethylene	500	750	-50 to 150	-46 to 66	1.59	7.76	•	•	3			3	•	•
Acetal	Polyethylene	900	1340	-50 to 150	-46 to 66	2.28	11.15	•	•	1			3	1	•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
f. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

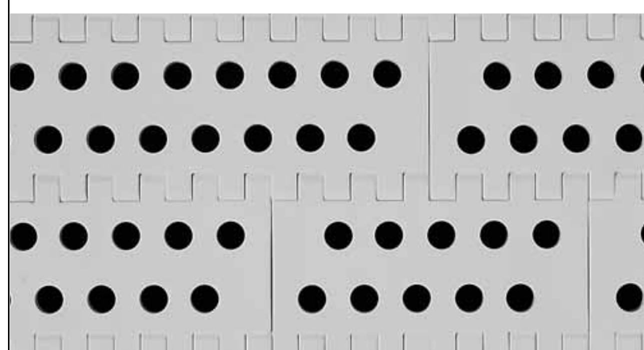
Perforated Flat Top Round Holes

	in.	mm
Pitch	2.00	50.8
Minimum Width	2	51
Width Increments	0.66	16.8
Opening Size (approximate)	see photos on right	
Open Area	see photos on right	
Hinge Style	Open	
Drive Method	Center-driven	

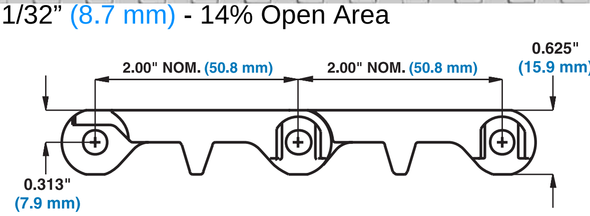




5/32" (4 mm) - 20% Open Area



11/32" (8.7 mm) - 14% Open Area



Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Round hole versions of Series 800 Perforated Flat Top.
- Smooth upper surface with fully flush edges and recessed rods.
- If using this belting in abrasive applications, Intralox recommends Series 800 polyurethane sprockets. Stainless steel split sprockets are not recommended for use with this belt.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)

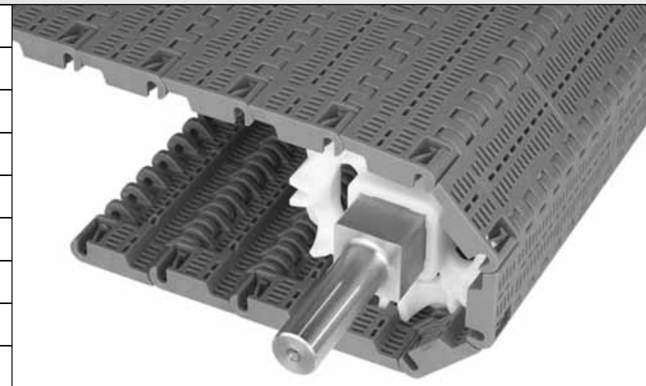
Belt Data

Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey					
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA-FSIS - Meat & Poultry	USDA Dairy[a]	J[b]	M[c]	EU MC[d]
Polypropylene	Polypropylene	1000	1490	34 to 220	1 to 104	1.54	7.52	•	•	1	3	•	•
Polyethylene	Polyethylene	500	750	-50 to 150	-46 to 66	1.59	7.76	•	•	3	3	•	•
Acetal	Polyethylene	900	1340	-50 to 150	-46 to 66	2.28	11.15	•	•	1	3		•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Japan Ministry of Health, Labour, and Welfare
c. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
d. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

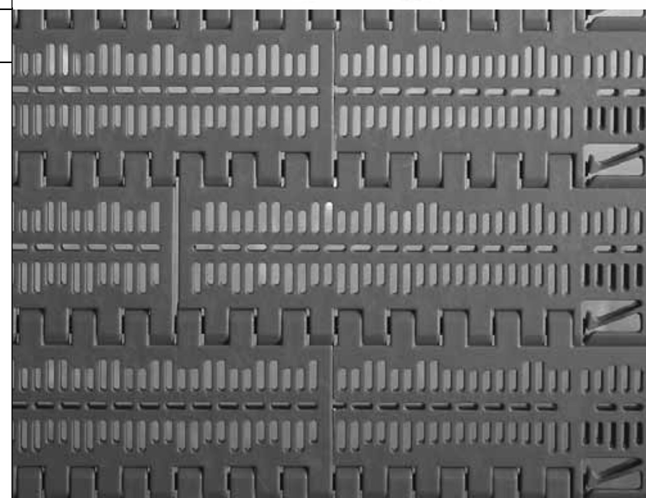
Perforated Flat Top 29S

	in.	mm
Pitch	2.00	50.8
Minimum Width	6	152
Width Increments	0.66	16.8
Min. Opening Size (approx.)	0.16 × 0.09	4.1 × 2.3
Max Opening Size (approx.)	0.40 × 0.08	10.2 × 2.0
Open Area	29%	
Hinge Style	Open	
Drive Method	Center-driven	



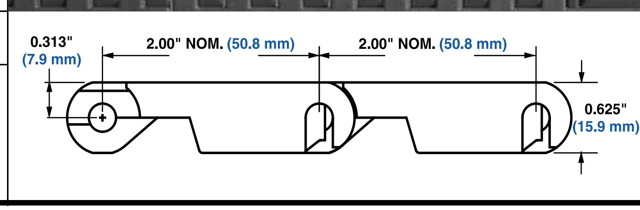
Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Belt withstands temperatures from 220 °F (104 °C) to -20 °F (-29 °C).
- Extra perforations are positioned along each drive bar to increase open area and drainage.
- Compatible with a variety of Series 800 sprockets that can be positioned anywhere across the belt width.
- Standard side guard indent is 2” (50.8 mm).



Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



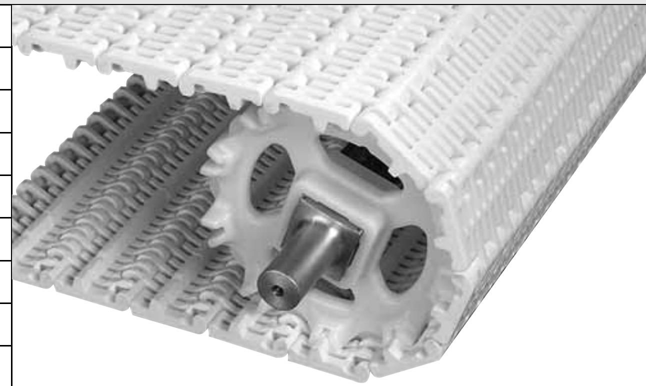
Belt Data

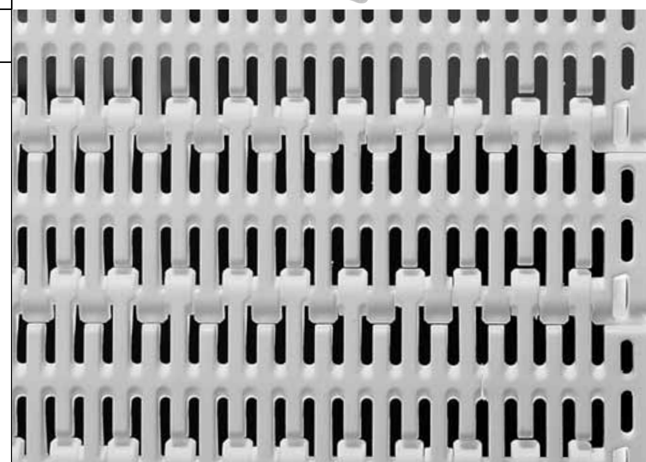
Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[a]	CFA[b]	A[c]	Z[d]	M[e]	EU MC[f]
Polypropylene Composite	303/304 Stainless Steel	2000	2975	-20 to 220	-29 to 104	2.47	12.06	•						

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. New Zealand Ministry of Agriculture and Forestry
e. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
f. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Flush Grid

	in.	mm
Pitch	2.00	50.8
Minimum Width	4	102
Width Increments	0.66	16.8
Opening Size (approximate)	0.15 × 0.90	3.8 × 22.9
Open Area	27%	
Product Contact Area	73%	
Hinge Style	Open	
Drive Method	Center-driven	



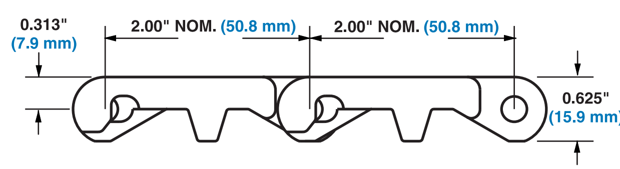


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Smooth upper surface with fully flush edges.
- Open slots improve drainage and cleanability.
- Uses a headless rod retention system.
- Flights and sideguards available.
- Complete range of accessories available, including round-top flights and flights with drainage bases.
- Provides excellent drainage during production and clean up. Hole design eliminates water collecting on belt surface and being carried throughout processing line.
- Bi-directional belt design allows sprockets to drive or idle belt in both directions. Reduces chances of installation error.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



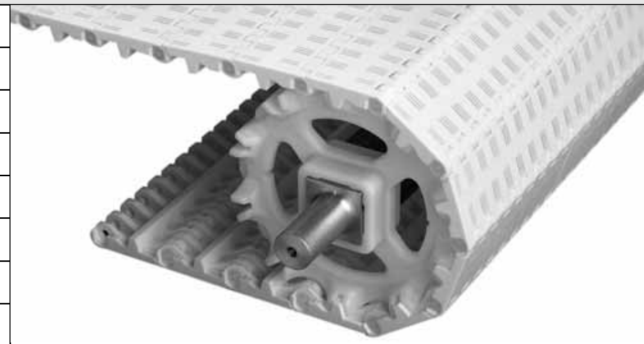
Belt Data

Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[a]	CFA[b]	A[c]	Z[d]	J[e]	EU MC[f]
Polypropylene	Polypropylene	800	1190	34 to 220	1 to 104	1.45	7.08	•	1				3	•
Polyethylene	Polyethylene	500	750	-50 to 150	-46 to 66	1.63	7.96	•	3				3	•
Acetal	Polyethylene	1000	1490	-50 to 150	-46 to 66	2.25	10.99	•	1				3	•
Acetal	Polypropylene	1000	1490	34 to 200	1 to 93	2.25	10.99	•	1				3	•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. New Zealand Ministry of Agriculture and Forestry
e. Japan Ministry of Health, Labour, and Welfare
f. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

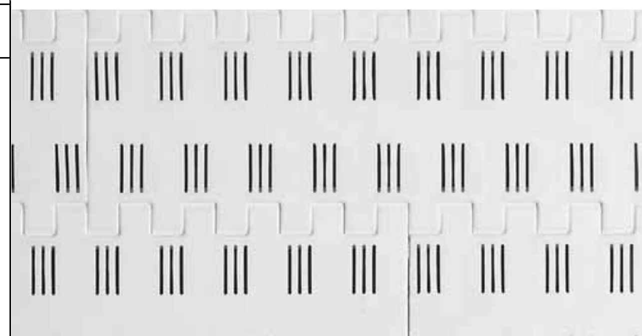
Mesh Top

	in.	mm
Pitch	2.00	50.8
Minimum Width	2	51
Width Increments	0.66	16.8
Opening Size (approximate)	0.50 × 0.04	12.7 × 1.0
Open Area	9%	
Hinge Style	Open	
Drive Method	Center-driven	

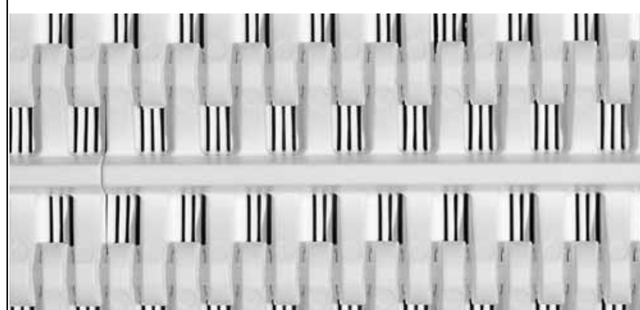


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Smooth, closed upper surface with fully flush edges and recessed rods.
- Impact resistant belt designed for tough applications.
- Flights are available.



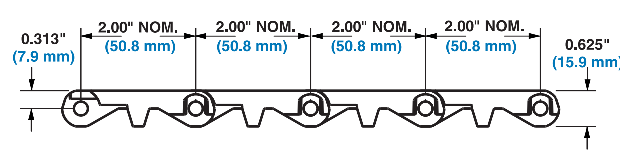
Top Surface



Underside Surface

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



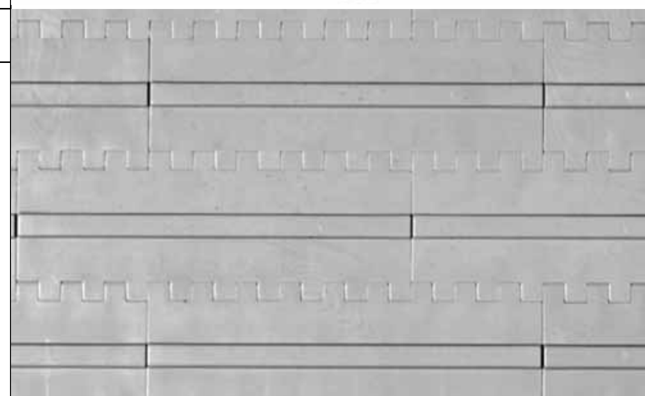
Belt Data

Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[a]	CFA[b]	A[c]	J[d]	Z[e]	EU MC[f]
Polypropylene	Polypropylene	1000	1490	34 to 220	1 to 104	1.60	7.86	•	1			3		•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. New Zealand Ministry of Agriculture and Forestry
f. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Mini Rib

	in.	mm
Pitch	2.00	50.8
Minimum Width	2	51
Width Increments	0.66	16.8
Opening Size (approximate)	-	-
Open Area	0%	
Hinge Style	Open	
Drive Method	Center-driven	

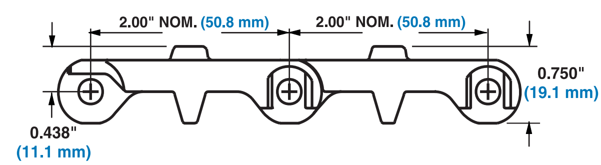


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Closed surface with fully flush edges and recessed rods.
- Impact resistant belt designed for tough Meat Industry applications.
- 1/8 in. (3 mm) Mini Rib on surface accommodates gradual inclines and declines.
- Not recommended for back-up conditions. If values are required, contact Intralox Sales Engineering.

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



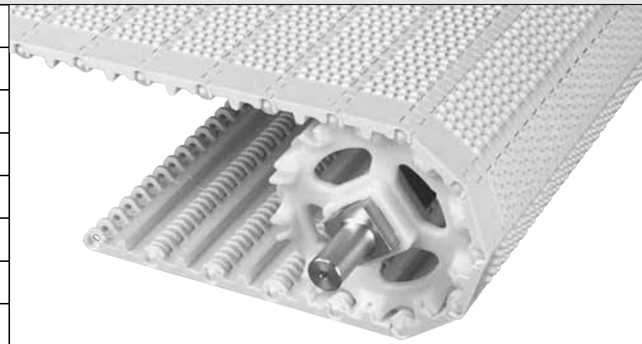
Belt Data

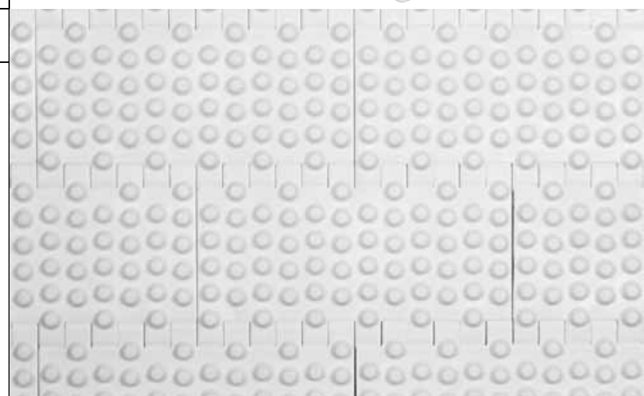
Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey								
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA-FSIS - Meat & Poultry	USDA Dairy[a]	CFA[b]	A[c]	J[d]	Z[e]	M[f]	EU MC[g]
Polypropylene	Polypropylene	1000	1490	34 to 220	1 to 104	1.77	8.66	•	•	1	•	•	3	•	•	•
Polyethylene	Polyethylene	500	750	-50 to 150	-46 to 66	1.87	9.13	•	•	3	•	•	3	•	•	•
Acetal	Polyethylene	900	1340	-50 to 150	-46 to 66	2.92	14.26	•	•	1	•	•	3	•		•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. New Zealand Ministry of Agriculture and Forestry
f. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
g. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Nub Top

	in.	mm
Pitch	2.00	50.8
Minimum Width	4	102
Width Increments	0.66	16.8
Open Area	0%	
Product Contact Area	15%	
Hinge Style	Open	
Drive Method	Center-driven	



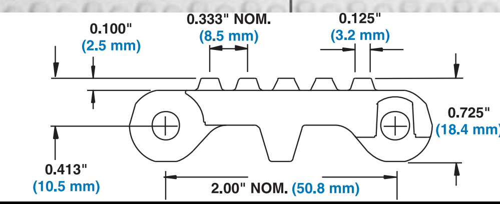


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Closed upper surface with fully flush edges and recessed rods.
- Standard Flights and Sideguards (without nubs) are available.
- Nub standard indent is 1.3 in. (33 mm).
- Not recommended for back-up conditions. If values are required, contact Intralox Sales Engineering.

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



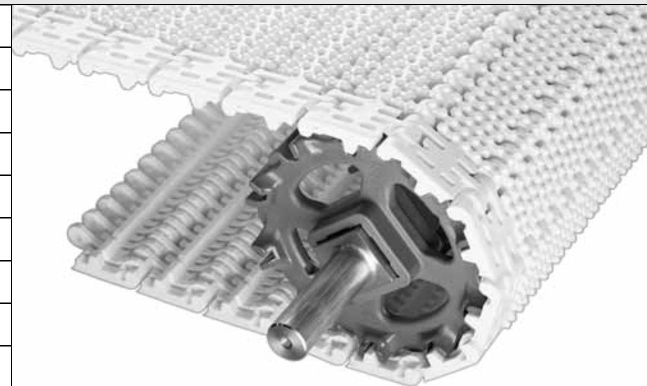
Belt Data

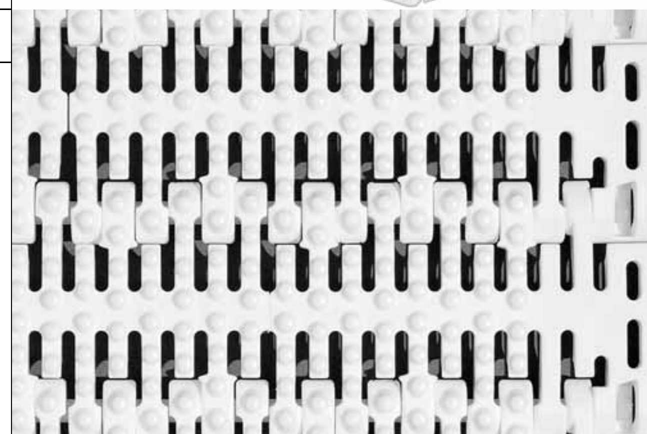
Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey							
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA-FSIS - Meat & Poultry	USDA Dairy[a]	CFA[b]	A[c]	J[d]	Z[e]	EU MC[f]
Polypropylene	Polypropylene	1000	1490	34 to 220	1 to 104	1.90	9.26	•	•	1	•	•	3	•	•
Polyethylene	Polyethylene	500	750	-50 to 150	-46 to 66	2.01	9.80	•	•	3	•	•	3	•	•
Acetal	Polyethylene	900	1340	-50 to 150	-46 to 66	2.95	14.40	•	•	1	•	•	3	•	•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. New Zealand Ministry of Agriculture and Forestry
f. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Flush Grid Nub Top

	in.	mm
Pitch	2.00	50.8
Minimum Width	4	102
Width Increments	0.66	16.8
Opening Size (approximate)	0.15 × 0.90	3.8 × 22.9
Open Area	27%	
Product Contact Area	15%	
Hinge Style	Open	
Drive Method	Center-driven	



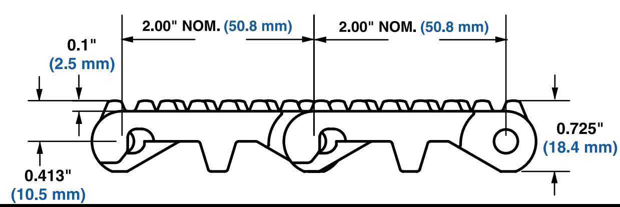


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Standard Nub indent is 1.3 inches (33 mm).
- Headless rod retention system allows re-use of rods.
- Nub pattern reduces contact between belt surface and product.
- Can be fitted with Series 800 Flush Grid flights only.
- Manufactured in Acetal and Polypropylene.
- Recommended for products large enough to span the distance between the nubs.
- Nub pattern is continuous over the surface of the belt, even over the hinges.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



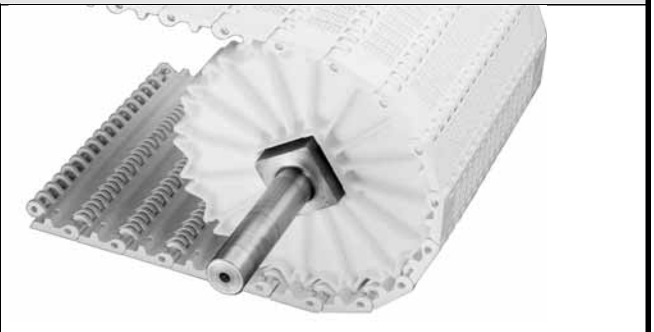
Belt Data

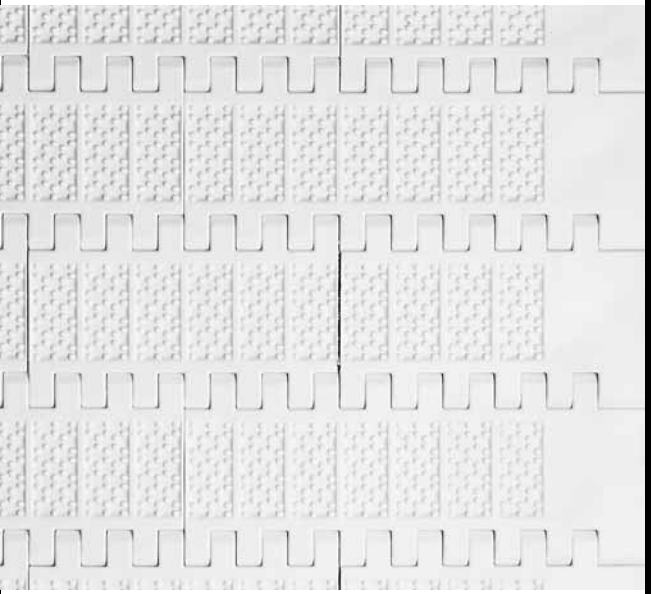
Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength lb/ft	BS Belt Strength kg/m	Temperature Range (continuous) °F	Temperature Range (continuous) °C	W Belt Weight lb/ft²	W Belt Weight kg/m²	Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey FDA (USA)	USDA Dairy[a]	CFA[b]	A[c]	J[d]	Z[e]	M[f]	EU MC[g]
Polypropylene	Polypropylene	800	1190	34 to 220	1 to 104	1.56	7.62	•	1			3			•
Acetal	Polyethylene	1000	1490	-50 to 150	-46 to 66	2.36	11.52	•	1			3			•
Acetal	Polypropylene	1000	1490	34 to 200	1 to 93	2.36	11.52	•	1			3			•
Polyethylene	Polypropylene	500	750	-50 to 150	-46 to 66	1.85	9.03	•	3			3			•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. New Zealand Ministry of Agriculture and Forestry
f. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
g. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Embedded Nub Top

	in.	mm
Pitch	2.00	50.8
Minimum Width	6	152
Width Increments	0.66	16.8
Opening Size (approximate)	-	-
Open Area	0%	
Hinge Style	Open	
Drive Method	Center-driven	



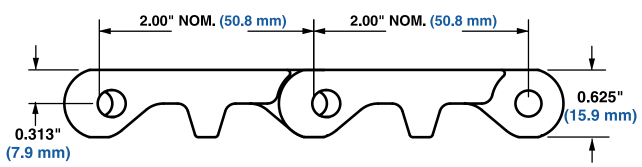


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- No mistracking or "stick-slip" effect, even on long runs: The Intralox belt is positively tracked by Intralox's sprocket drive system instead of unreliable friction rollers.
- No ice clogging: ice simply pops out of the Intralox belt hinges as the belt travels around the drive sprockets.
- Easy to maintain and repair: Intralox's re-usable headless belt rods are quickly removed and installed with only minimal tools, so one can replace individual modules in minutes.
- No tensioning required, which eliminates expensive tensioning systems.
- Lower conveyor construction cost: Intralox's sprocket drive requires far less space than a friction roller system, allowing shallow, less expensive trench construction.
- Lower wearstrip replacement cost: Flat Top edge modules prevent premature wearstrip erosion-the smooth surface spans 1.5” (38.1 mm) from the outer edge.

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



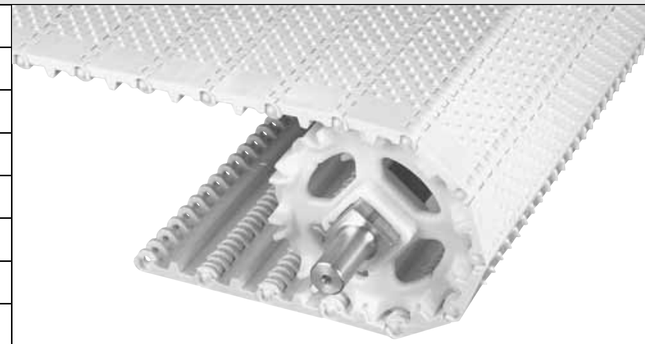
Belt Data

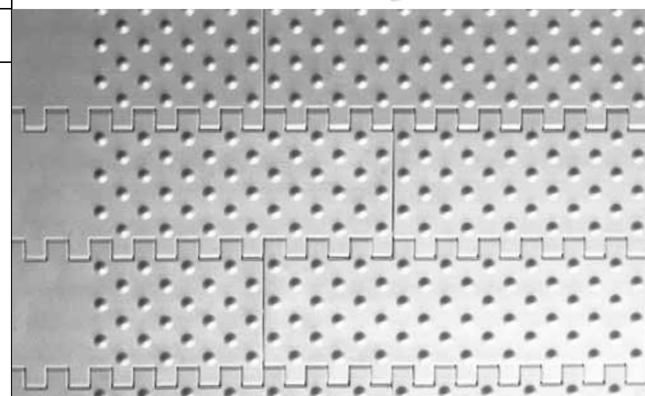
Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength lb/ft	BS Belt Strength kg/m	Temperature Range (continuous) °F	Temperature Range (continuous) °C	W Belt Weight lb/ft²	W Belt Weight kg/m²	Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey FDA (USA)	USDA Dairy[a]	CFA[b]	A[c]	Z[d]	M[e]	EU MC[f]
UV Resistant Acetal	Polyethylene	1000	1490	-50 to 150	-46 to 66	2.78	13.59							
UV Resistant Acetal	Acetal	2500	3713	-50 to 200	-46 to 93	2.78	13.59							

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. New Zealand Ministry of Agriculture and Forestry
e. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
f. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Cone Top™

	in.	mm
Pitch	2.00	50.8
Minimum Width	4	102
Width Increments	0.66	16.8
Opening Size (approximate)	-	-
Open Area	0%	
Hinge Style	Open	
Drive Method	Center-driven	



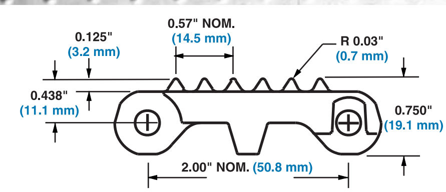


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Closed upper surface with fully flush edges and recessed rods.
- Standard Flights and Sideguards (without cones) are available.
- Cone standard indent is 1.3 in. (33 mm).
- Not recommended for back-up conditions. If values are required, contact Intralox Sales Engineering.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



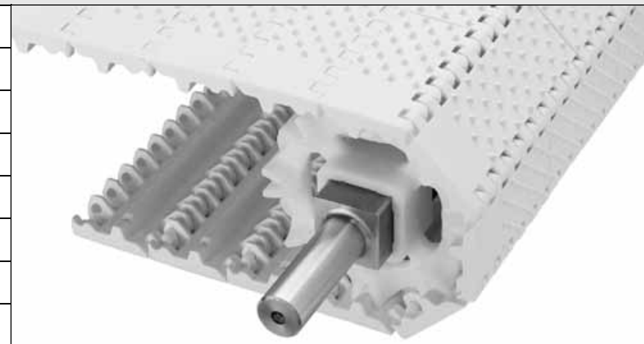
Belt Data

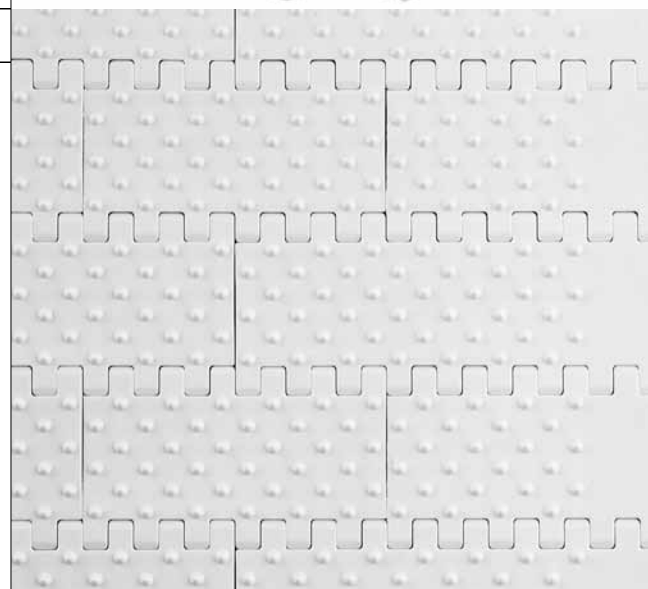
Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey							
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA-FSIS - Meat & Poultry	USDA Dairy[a]	CFA[b]	A[c]	Z[d]	J[e]	EU MC[f]
Polypropylene	Polypropylene	1000	1490	34 to 220	1 to 104	1.84	8.97	•	•	1	•	•	•	3	•
Polyethylene	Polyethylene	500	750	-50 to 150	-46 to 66	1.93	9.44	•	•	3	•	•	•	3	•
Acetal	Polyethylene	900	1340	-50 to 150	-46 to 66	2.84	13.89	•	•	1	•	•	•	3	•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. New Zealand Ministry of Agriculture and Forestry
e. Japan Ministry of Health, Labour, and Welfare
f. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Open Hinge Cone Top™

	in.	mm
Pitch	2.00	50.8
Minimum Width	6	152
Width Increments	0.66	16.8
Opening Size (approximate)	-	-
Open Area	0%	
Hinge Style	Open	
Drive Method	Center-driven	



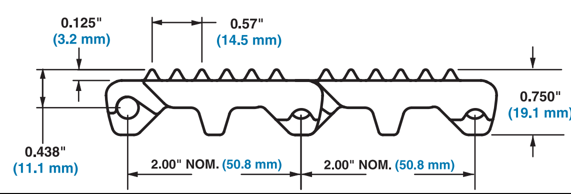


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Cone standard indent is 1.3” (33 mm).
- Closed upper surface with fully flush edges and recessed rods.
- Cam-link designed hinges - expose more hinge and rod area as the belt goes around the sprocket. This exclusive Intralox feature allows unsurpassed cleaning access to this area.
- Fully sculpted and radiused corners - no pockets or sharp corners to catch and hold debris.
- Drive Bar - like Series 800 and Series 1800, the drive bar on the underside of Series 800 Open Hinge Cone Top channels water and debris to the outside of the belt for easier, faster clean up. The drive bar’s effectiveness has been proven both in-house and in field tests.
- Standard flights and sideguards (without cones) are available.
- Not recommended for back-up conditions. If values are required, contact Intralox Sales Engineering.

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



Belt Data

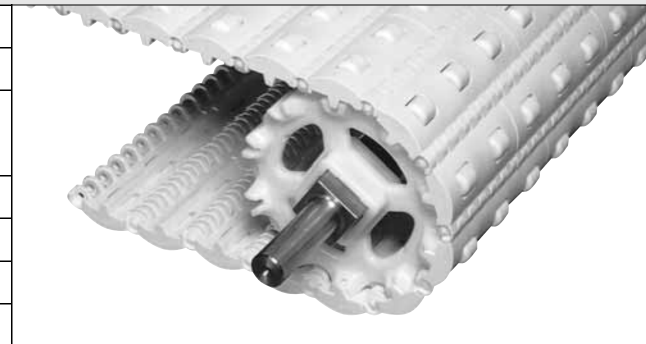
Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength lb/ft	BS Belt Strength kg/m	Temperature Range (continuous) °F	Temperature Range (continuous) °C	W Belt Weight lb/ft²	W Belt Weight kg/m²	FDA (USA)	USDA Dairy[a]	CFA[b]	A[c]	J[d]	Z[e]	M[f]	EU MC[g]
Polypropylene	Polypropylene	900	1340	34 to 220	1 to 104	1.63	7.96	•				3			•
Polyethylene	Polyethylene	500	740	-50 to 150	-46 to 66	1.70	8.30	•				3			•
Acetal	Polyethylene	900	1340	-50 to 150	-46 to 66	2.52	12.3	•				3			•

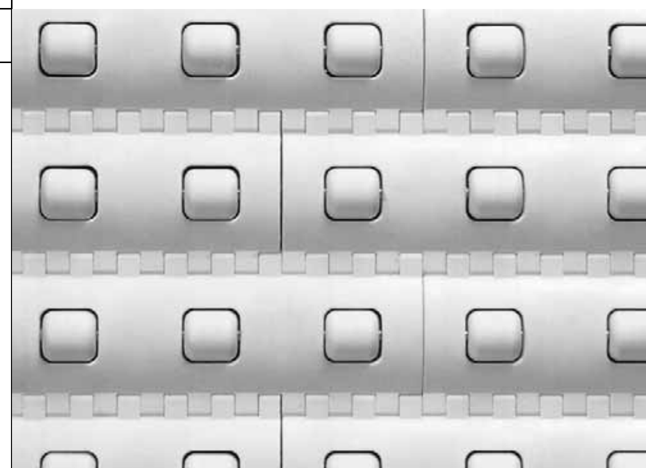
Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. New Zealand Ministry of Agriculture and Forestry
f. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
g. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Roller Top

	in.	mm
Pitch	2.00	50.8
Minimum Width	See Product Notes	
Width Increments		
Opening Size (approximate)	-	-
Open Area	3%	
Hinge Style	Open	
Drive Method	Center-driven	



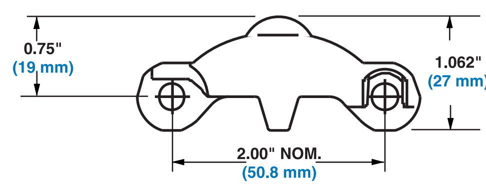


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Fully flush edges and recessed rods.
- Impact resistant belt designed for tough box and package, low back pressure applications.
- Back-up load is 5-10% of product weight.
- Roller diameter - 0.70 in. (17.8 mm). Roller length - 0.825 in. (20.9 mm).
- Roller spacing - 2.0 in. (50.8 mm).
- Standard roller indent is 0.60 in. (15 mm)
- Custom-built in widths of 4 in. (102 mm) and 6 in. (152 mm) and from 10 in. (254 mm) and up in 2.00 in. (50.8 mm) increments.

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



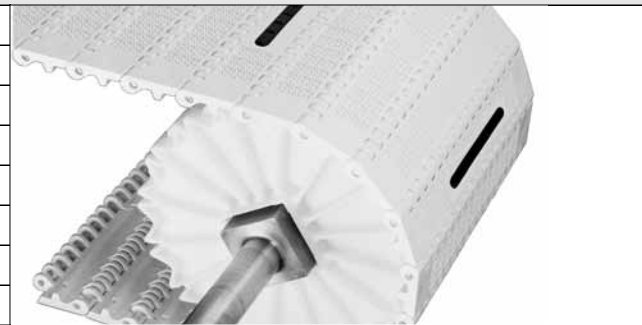
Belt Data

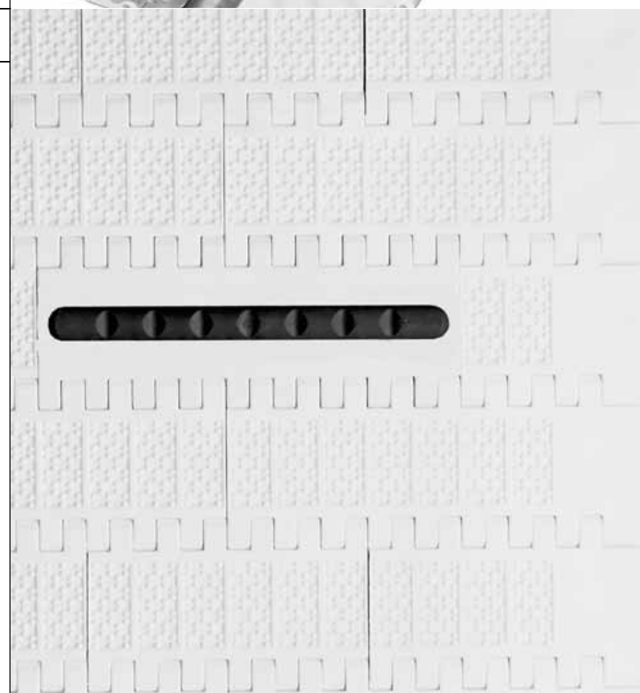
Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey							
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[a]	CFA[b]	A[c]	J[d]	Z[e]	M[f]	EU MC[g]
Polypropylene	Polypropylene	1000	1490	34 to 220	1 to 93	2.93	14.34	•				3			•
Polyethylene	Polyethylene	500	750	-50 to 150	-46 to 66	2.99	14.62	•				3			•
Acetal	Polyethylene	900	1340	-50 to 150	-46 to 66	4.11	20.10	•				3			•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. New Zealand Ministry of Agriculture and Forestry
f. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
g. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Rounded Friction Top

	in.	mm
Pitch	2.00	50.8
Minimum Width	8	203
Width Increments	0.66	16.8
Opening Size (approximate)	-	-
Open Area	0%	
Hinge Style	Open	
Drive Method	Center-driven	



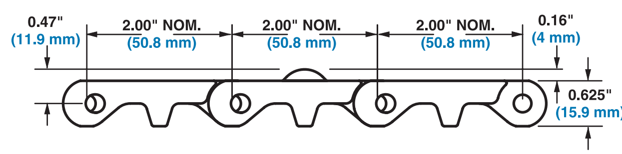


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- No mistracking or "stick-slip" effect, even on long runs: The Intralox belt is positively tracked by Intralox's sprocket drive system instead of unreliable friction rollers.
- Thermally bonded rubber won't peel off: Only Intralox's Friction Top surface is co-molded (thermally bonded) with the plastic base instead of glued on or mechanically fastened.
- No ice clogging: ice simply pops out of the Intralox belt hinges as the belt travels around the drive sprockets.
- Easy to maintain and repair: Intralox's re-usable headless belt rods are quickly removed and installed with only minimal tools, so one can replace individual modules in minutes.
- No tensioning required, which eliminates expensive tensioning systems.
- Lower construction cost: Intralox's sprocket drive requires far less space than a friction roller system, allowing shallow, less expensive trench construction.
- Lower wearstrip replacement cost: Flat Top edge modules prevent premature wearstrip erosion-the smooth surface spans 38.1 mm (1.5") from the outer edge.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



Belt Data

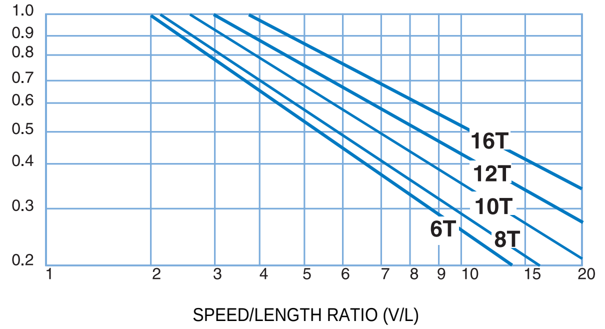
Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey							
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[a]	CFA[b]	A[c]	J[d]	Z[e]	M[f]	EU MC[g]
UV Resistant Acetal	Acetal	2500	3713	-50 to 150	-46 to 66	2.78	13.59								

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. New Zealand Ministry of Agriculture and Forestry
f. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
g. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Sprocket and Support Quantity Reference				
Belt Width Range[a]		**Minimum** Number of Sprockets Per Shaft[b]	Wearstrips	
in.	mm		Carryway	Returnway
2	51	1	2	2
4	102	1	2	2
6	152	2	2	2
8	203	2	2	2
10	254	2	3	2
12	305	3	3	2
14	356	3	3	3
16	406	3	3	3
18	457	3	3	3
20	508	5	4	3
24	610	5	4	3
30	762	5	5	4
32	813	7	5	4
36	914	7	5	4
42	1067	7	6	5
48	1219	9	7	5
54	1372	9	7	6
60	1524	11	8	6
72	1829	13	9	7
84	2134	15	11	8
96	2438	17	12	9
120	3048	21	15	11
144	3658	25	17	13
For Other Widths, Use Odd Number of Sprockets[c] at Maximum 6 in. (152 mm) ℄ Spacing			Maximum 9 in. (229 mm) ℄ Spacing	Maximum 12 in. (305 mm) ℄ Spacing

a. If your belt width exceeds a number listed in the table, please refer to the sprocket and support material minimums for the next larger width range listed. Belts are available in 0.66 in. (16.8 mm) increments beginning with minimum width of 2 in. (51 mm). **If the actual width is critical, consult Customer Service.**
b. These are the minimum number of sprockets. Additional sprockets may be required for heavily loaded applications. Polyurethane sprockets require a maximum 4 in. (102 mm) centerline spacing.
c. The center sprocket should be locked down. With only two sprockets, fix the sprocket on the drive journal side only.

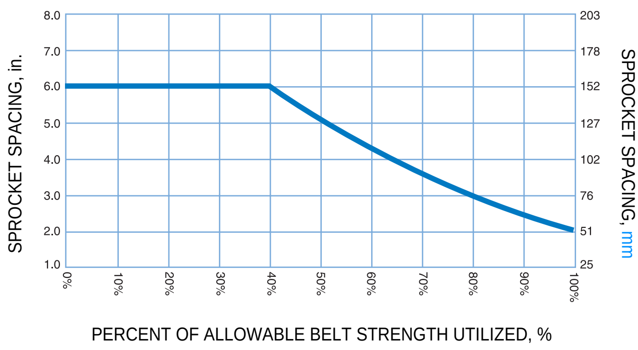
S Strength Factor



V = ft/min (m/min)
T = number of teeth
L = ft (m)

Divide belt speed "V" by the shaft ℄ distance "L". Strength Factor is found at intersection of speed/length ratio and appropriate sprocket line. See page 35 for more information.

Sprocket Spacing as a Function of Belt Strength Utilized



SECTION 2 800

EZ Clean Molded Sprocket Data[a]

No. of Teeth (Chordal Action)	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 Round in.[b]	U.S. Sizes Square in.	Metric Sizes Round mm[b]	Metric Sizes Square mm
6 (13.40%)	4.0	102	3.8	97	1.5	38	1.0	1.5	30	40
8 (7.61%)	5.2	132	5.0	127	1.5	38	1.0	1.5	30	40
10 (4.89%)	6.5	165	6.2	157	1.5	38		1.5		40
12 (3.41%)	7.7	196	7.5	191	1.5	38		1.5		40
16 (1.92%)	10.3	262	10.1	257	1.5	38		1.5		40

a. Contact Customer Service for lead times. When using Polyurethane sprockets, the Belt Strength for belts rated over 750 lb/ft (1120 kg/m) will be de-rated to 750 lb/ft (1120 kg/m) and all other belts will maintain their published rating. The temperature range for Polyurethane sprockets is 0° F (-18 °C) to 120 °F (49 °C). Contact Customer Service for availability of Polyurethane sprockets.
b. Imperial key sizes on round bore sprockets conform to ANSI standard B17.1-1967 (R1989) and metric key sizes conform to DIN standard 6885

Molded Sprocket Data[a]

No. of Teeth (Chordal Action)	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 Round in.	U.S. Sizes Square in.	Metric Sizes Round mm	Metric Sizes Square mm
8 (7.61%)	5.2	132	5.0	127	1.5	38		1.5		40
10 (4.89%)	6.5	165	6.2	157	1.5	38		1.5		40
								2.0		
								2.5		60
12 (3.41%)	7.7	196	7.5	191	1.5	38		1.5		40
								2.5		60
16 (1.92%)	10.3	262	10.1	257	1.5	38		1.5		40
								2.5		60

a. Contact Customer Service for lead times. When using Polyurethane sprockets, the Belt Strength for belts rated over 750 lb/ft (1120 kg/m) will be de-rated to 750 lb/ft (1120 kg/m) and all other belts will maintain their published rating. The temperature range for Polyurethane sprockets is 0° F (-18 °C) to 120 °F (49 °C). Contact Customer Service for availability of Polyurethane sprockets.

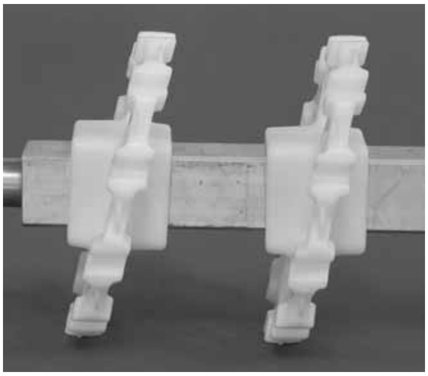
Abrasion Resistant Split Sprocket Data[a]

No. of Teeth (Chordal Action)	Nom. Pitch Dia. in.	Nom. Pitch Dia. mm	Nom. Outer Dia. in.	Nom. Outer Dia. mm	Nom. Hub Width in.[b]	Nom. Hub Width mm[b]	Available Bore Sizes: U.S. Sizes Round in.	U.S. Sizes Square in.	Metric Sizes Round mm	Metric Sizes Square mm
8 (7.61%)	5.2	132	5.0	127	1.7	43		1.5		40
								2.5		60
10 (4.89%)	6.5	165	6.2	157	1.7	43		1.5		40
								2.5		60
12 (3.41%)	7.7	196	7.5	191	1.7	43		1.5		40
								2.5		60
16 (1.92%)	10.3	262	10.1	257	1.7	43		1.5		40
								2.5		60

a. Contact Customer Service for lead times.
b. Single Plate split sprockets are available with a 1.5in. (38m) hub width. These sprockets are NOT recommended in abrasive applications

Angled EZ Clean Sprocket Data[a]

No. of Teeth (Chordal Action)	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, Round in.	Available Bore Sizes: U.S. Sizes, Square in.	Available Bore Sizes: Metric Sizes, Round mm	Available Bore Sizes: Metric Sizes, Square mm
8 (7.61%)	5.2	132	5.0	127	2.0	50.8		1.5		40
10 (4.89%)	6.5	165	6.2	157	2.0	50.8		1.5		40
12 (3.41%)	7.7	196	7.5	191	2.0	50.8		1.5		40

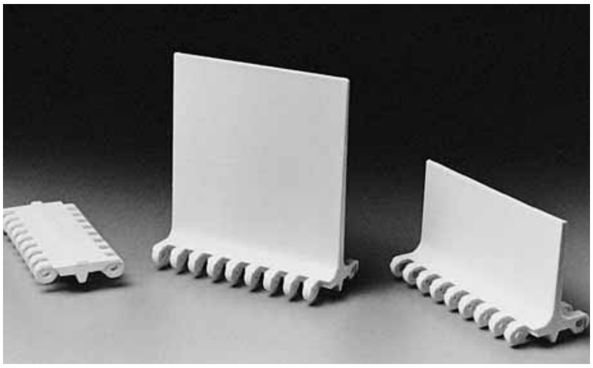


a. Contact Customer Service for lead times. Angled EZ Clean Sprockets can not be used with Series 800 Mesh Top

Streamline Flights[a]

Available Flight Height in.	Available Flight Height mm	Available Materials
1	25	Polypropylene, Polyethylene, Acetal, Nylon, Detectable Polypropylene[b]
2	51	
3	76	
4	102	
6	152	

Note: Flights can be cut down to any height required for a particular application.
Note: Each flight rises out of the center of its supporting module, molded as an integral part. No fasteners are required.
Note: Flat Top flight is smooth (Streamline) on both sides.
Note: The minimum indent (without sideguards) is 1.3in. (33mm).
Note: An extension can be welded at a 45° angle to create a bent flight.



a. Contact Customer Service for availability.
b. Detectable Polypropylene can be sensed with metal detection equipment. Testing the material on a metal detector in a production environment is the best method for determining detection sensitivity.

Flat Top Base Flight (No-Cling)

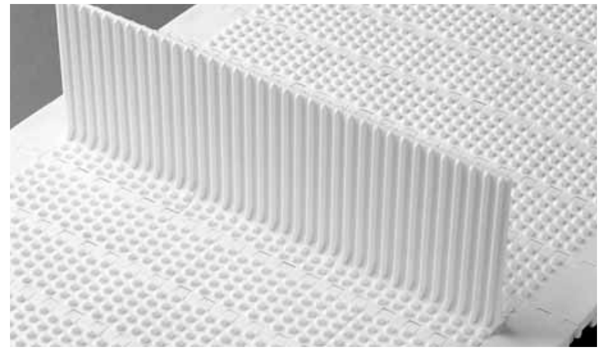
Available Flight Height in.	Available Flight Height mm	Available Materials
4	102	Polypropylene, Polyethylene, Acetal

Note: Flights can be cut down to any height required for a particular application.
Note: Each flight rises out of the center of its supporting module, molded as an integral part. No fasteners are required.
Note: The minimum indent (without sideguards) is 1.3in. (33mm).

Nub Top Base Flight (No-Cling)

Available Flight Height		Available Materials
in.	mm	
4	102	Polypropylene, Polyethylene, Acetal

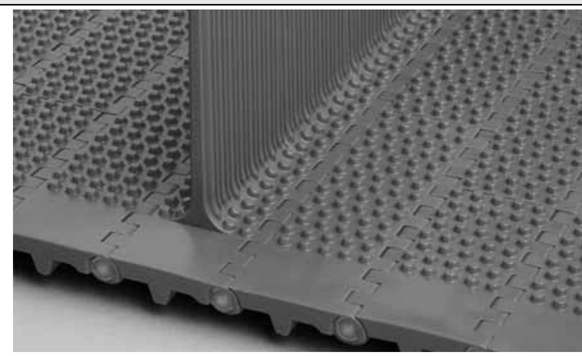
Note: Flights can be cut down to any height required for a particular application.
Note: Each flight rises out of the center of its supporting module, molded as an integral part. No fasteners are required.
Note: The minimum indent (without sideguards) is 1.3in. (33mm).



Nub Top Base Flight (Double No-Cling)

Available Flight Height		Available Materials
in.	mm	
4	102	Polypropylene, Polyethylene, Acetal

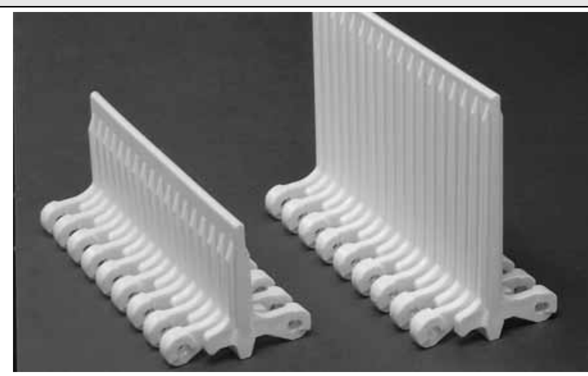
Note: Flights can be cut down to any height required for a particular application.
Note: Each flight rises out of the center of its supporting module, molded as an integral part. No fasteners are required.
Note: No-Cling vertical ribs are on both sides of the flight.
Note: The minimum indent (without sideguards) is 1.3in. (33mm).



Flush Grid Base Flight (No-Cling)

Available Flight Height		Available Materials
in.	mm	
2	51	Polypropylene, Polyethylene, Acetal
4	102	

Note: Flights can be cut down to any height required for a particular application.
Note: The No-Cling vertical ribs are on both sides of the flight.
Note: Each flight rises out of the center of its supporting module, molded as an integral part. No fasteners are required.
Note: The minimum indent (without sideguards) is 1.3in. (33mm).
Note: These flights cannot be used with the S800 Perforated Flat Top (Slotted version with 18% open area).



Scoop Flights[a]

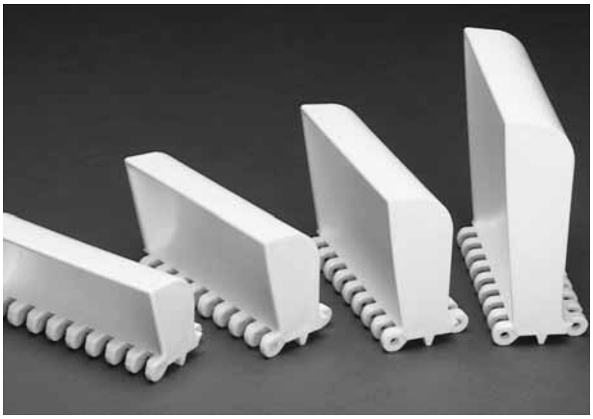
Available Flight Height		Available Materials
in.	mm	
3	76	Polypropylene, Polyethylene, Acetal, Nylon, Detectable Polypropylene[b]
4	102	
6	152	

Note: Each flight rises out of its supporting module, molded as an integral part. No fasteners are required.
Note: The minimum indent (without sideguards) is 1.3in. (33mm).
Note: Bucket flights and Scoop flights can be cut and combined for custom built belts. Contact Customer Service for details.

a. Contact Customer Service for availability.
b. Detectable Polypropylene can be sensed with metal detection equipment. Testing the material on a metal detector in a production environment is the best method for determining detection sensitivity.

Bucket Flights[a]

Available Flight Height		Available Materials
in.	mm	
2.25[b]	57[b]	Polypropylene, Polyethylene, Acetal, Detectable Polypropylene[c]
3	76	
4	102	
6	152	

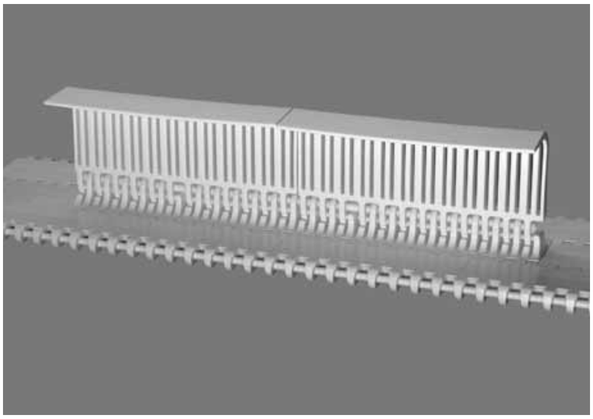


Note: Each flight rises out of its supporting module, molded as an integral part. No fasteners are required.
Note: The minimum indent (without sideguards) is 1.3in. (33mm).
Note: Bucket flights and Scoop flights can be cut and combined for custom built belts. Contact Customer Service for details.

a. Contact Customer Service for availability.
b. 2.25in. (57m) Bucket Flight only available in Polypropylene.
c. Detectable Polypropylene can be sensed with metal detection equipment. Testing the material on a metal detector in a production environment is the best method for determining detection sensitivity.

3-Piece Perforated Bucket and Scoop Flights

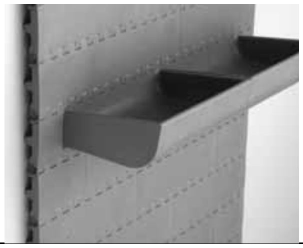
Available Flight Height		Available Materials
in.	mm	
4	102	Polypropylene, Polyethylene[a], Acetal[a]



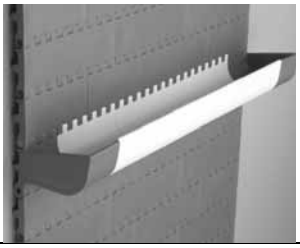
Note: Flights consist of 3 pieces: the base module, the attachment, and the rod.
Note: Flight surface has 30% open area. Opening size (approximate) is 0.130 in. (3.3 mm) × 2.40 in. (70.0 mm).
Note: Belt surface has 0% open area. Base Module is S800 Flat Top Open Hinge design.
Note: Open slots improve drainage for inclines.
Note: The minimum indent (without Sideguards) is 2.00 in. (50.8 mm).
Note: Flights can be cut and combined for custom built belts. Contact Customer Service for details.
Note: Not for use with S800 Perforated Flat Top (slotted version with 18% open area) and S800 Flush Grid Nub Top.
Note: Bucket profile has a 0.27" (6.9 mm) gap between belt's top surface and bottom surface of bucket side panel.

a. Contact Customer Service for availability.

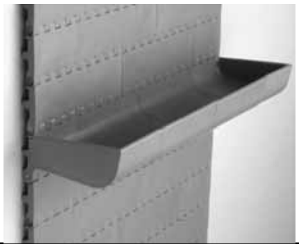
Combining Bucket Flights and Scoop Flights



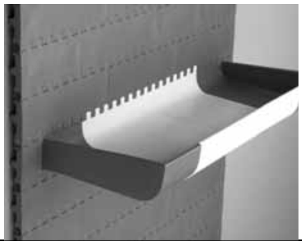
6 in. (152) bucket flights with indent



3 in. (76) bucket flight and scoop flights, no indent



4 in. (102) bucket flight and scoop flights, no indent



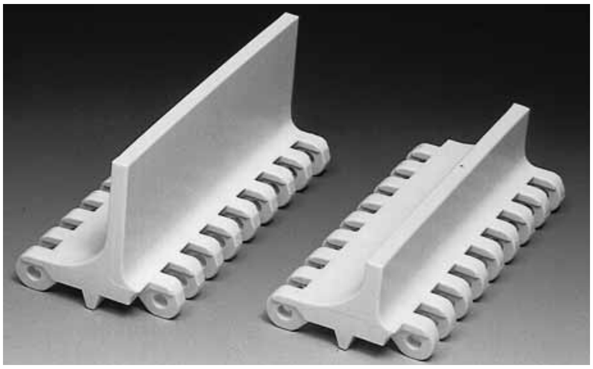
6 in. (152) bucket flight and scoop flights with indent

Note: Bucket flights and Scoop flights can be cut and combined for custom built belts. Contact Customer Service for details.

Impact Resistant Flights

Available Flight Height		Available Materials
in.	mm	
1	25	Acetal
2	51	
3	76	
4	102	

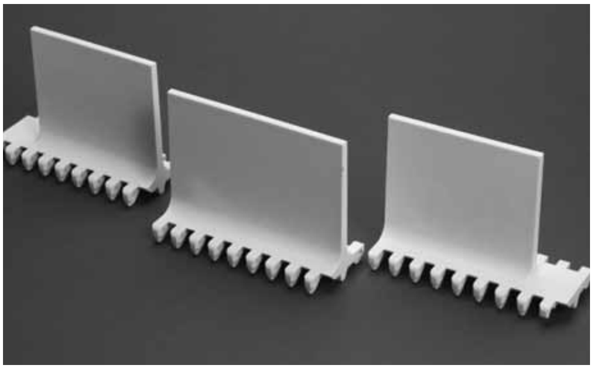
Note: Flights can be cut down to any height required for a particular application.
Note: Each flight rises out of its supporting module, molded as an integral part. No fasteners are required.
Note: The minimum indent (without sideguards) is 1.3in. (33mm).



Open Hinge Impact Resistant Flights

Available Flight Height		Available Materials
in.	mm	
4	102	Polypropylene, Polyethylene, Acetal

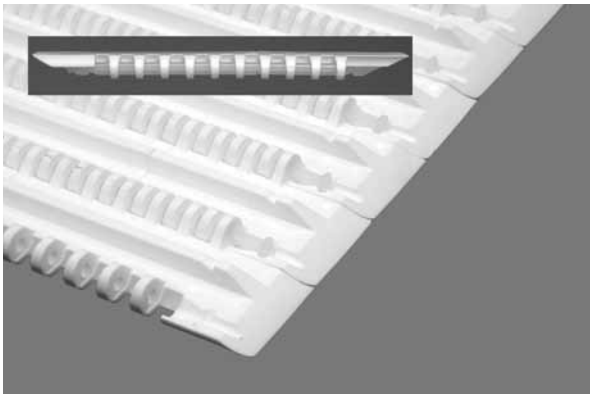
Note: Each flight rises out of the center of its supporting module. No fasteners are required.
Note: The minimum indent (without sideguards) is 1.3" (33 mm)
Note: Standard 4" (102 mm) height can be cut to suit application.



Tapered Edge

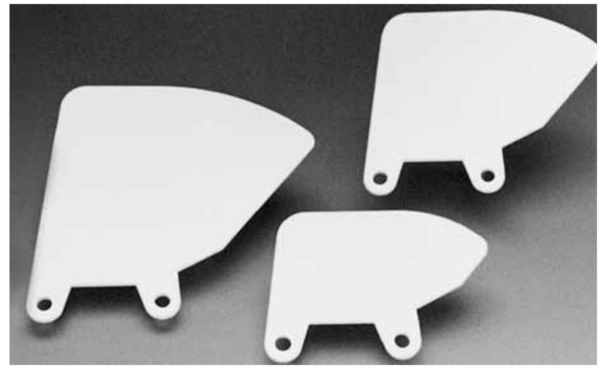
Available Materials
Polypropylene

Note: Compatible with Series 800 Flat Top and Series 800 Mesh Top
Note: Designed to accept headed plastic rods
Note: Steel rods will be retained with plastic rodlets



Sideguards

Available Sizes		Available Materials
in.	mm	
2	51	Polypropylene, Polyethylene, Acetal, Detectable Polypropylene[a]
3	76	
4	102	

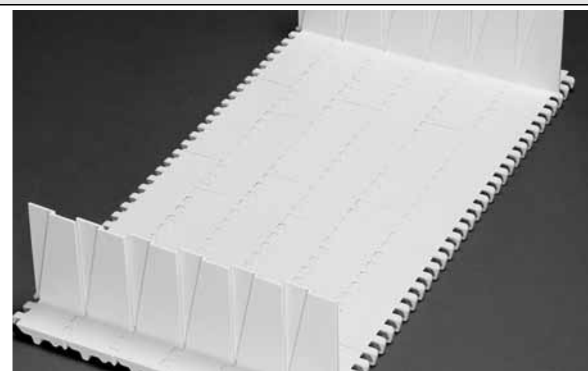


Note: Standard overlapping design and are an integral part of the belt, with no fasteners required.
Note: Fastened by the hinge rods.
Note: The normal gap between the sideguards and the edge of a flight is 0.3 in. (8 mm).
Note: When going around the 6 and 8 tooth sprocket, the sideguards will fan out, opening a gap at the top of the sideguard which may allow small products to fall out. The sideguards stay completely closed when going around the 10, 12 and 16 tooth sprockets.
Note: The minimum indent is 0.7 in. (18 mm) except for Flush Grid which is 1.3 in. (33 mm).

a. Detectable Polypropylene can be sensed with metal detection equipment. Testing the material on a metal detector in a production environment is the best method for determining detection sensitivity.

Molded-in Sideguards

Available Sizes		Available Materials
in.	mm	
4	102	Polypropylene, Polyethylene, Acetal, Detectable Polypropylene[a]



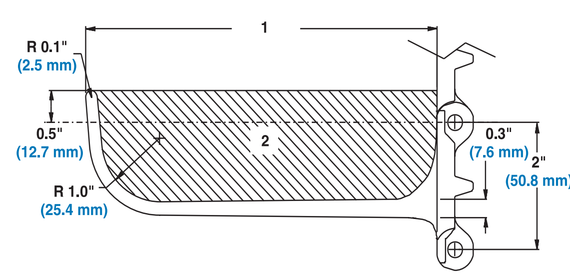
Note: Molded as an integral part of the belt, with no fasteners required.
Note: Part of Intralox's EZ Clean product line.
Note: Standard 4" (102 mm) height can be cut to suit application.
Note: Overlapping sideguards open fully when wrapping around sprocket, allowing greater access during cleaning. Sideguards will open partially on forward bends of elevating conveyors.
Note: The indent is 1.3 in (33 mm).
Note: The minimum backbend radius is 12 in. (305 mm).

a. Detectable Polypropylene can be sensed with metal detection equipment. Testing the material on a metal detector in a production environment is the best method for determining detection sensitivity.

Scoop/Bucket Flight Cross Sectional Area for Vertical Incline

in.	mm	sq. in.	sq. mm
Scoop Height		**Area**	
3	76	4.3	2774
4	102	6.0	3871
6	152	9.5	6129
Bucket Height		**Area**	
2.25	57	2.3	1484
3.00	76	3.31	2135
4.00	102	4.68	3019
6.00	152	7.45	4806

Note: Minimum row spacing is 6 in. (152 mm) for 6 in. (152 mm) Scoop/Buckets and 4 in. (102 mm) for all other sizes.

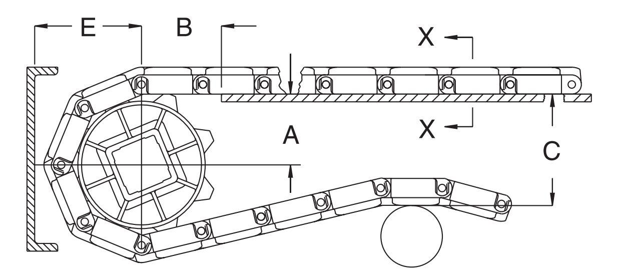


1 - Height **2 -** Area

Conveyor Frame Dimensions

Regardless of type or configuration, all conveyors using Intralox belts have some basic dimensional requirements. Specifically, dimensions “A”, “B”, “C” and “E” listed below should be implemented in any design.

For general applications and applications where end transfer of tip-sensitive product is not critical, use the “A” dimension at the bottom of the range.



A - ±0.031” (1 mm) **C -** ± (Max)

B - ±0.125” (3 mm) **E -** ± (Min)

Complete descriptions of the dimensions are listed on page 291.

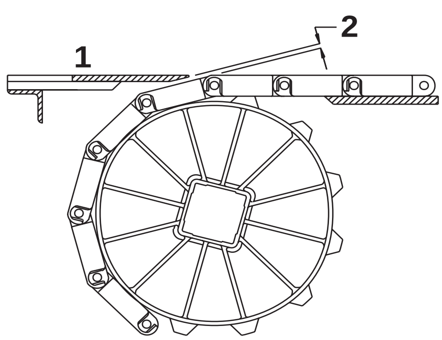
Sprocket Description			A		B		C		E	
Pitch Diameter		No. Teeth	Range (Bottom to Top)		in.	mm	in.	mm	in.	mm
in.	mm		in.	mm						
SERIES 800 FLAT TOP, OPEN HINGE FLAT TOP, SEAMFREE™ OPEN HINGE FLAT TOP, PERFORATED FLAT TOP, PERFORATED FLAT TOP 29S, FLUSH GRID, MESH TOP, MINI RIB, EMBEDDED NUB TOP										
4.0	102	6	1.42-1.69	36-43	2.20	56	4.10	104	2.38	60
5.2	132	8	2.10-2.30	53-58	2.60	66	5.30	135	2.99	76
6.5	165	10	2.77-2.92	70-74	3.00	76	6.50	165	3.61	92
7.7	196	12	3.42-3.55	87-90	3.00	76	7.90	201	4.24	108
10.3	262	16	4.72-4.81	120-122	3.20	81	10.20	259	5.50	140
SERIES 800 NUB TOP, FLUSH GRID NUB TOP										
4.0	102	6	1.42-1.69	36-43	1.73	44	4.10	104	2.48	63
5.2	132	8	2.10-2.30	53-58	1.98	50	5.33	135	3.09	78
6.5	165	10	2.77-2.92	70-74	2.18	55	6.57	167	3.71	94
7.7	196	12	3.42-3.55	87-90	2.43	62	7.83	199	4.34	110
10.3	262	16	4.72-4.81	120-122	2.88	73	10.35	263	5.60	142
SERIES 800 CONE TOP										
4.0	102	6	1.42-1.69	36-43	1.73	44	4.13	105	2.50	64
5.2	132	8	2.10-2.30	53-58	1.98	50	5.35	136	3.11	79
6.5	165	10	2.77-2.92	70-74	2.18	55	6.60	168	3.74	95
7.7	196	12	3.42-3.55	87-90	2.43	62	7.85	199	4.36	111
10.3	262	16	4.72-4.81	120-122	2.88	73	10.38	264	5.63	143
SERIES 800 ROLLER TOP										
4.0	102	6	1.42-1.69	36-43	1.73	44	4.44	113	2.81	71
5.2	132	8	2.10-2.30	53-58	1.98	50	5.66	144	3.43	87
6.5	165	10	2.77-2.92	70-74	2.18	55	6.91	176	4.05	103
7.7	196	12	3.42-3.55	87-90	2.43	62	8.17	207	4.68	119
10.3	262	16	4.72-4.81	120-122	2.88	73	10.69	272	5.94	151

Sprocket Description			A		B		C		E	
Pitch Diameter		No. Teeth	Range (Bottom to Top)		in.	mm	in.	mm	in.	mm
in.	mm		in.	mm						
SERIES 800 OPEN HINGE CONE TOP										
4.0	102	6	1.42-1.69	36-43	1.73	44	4.13	105	2.50	64
5.2	132	8	2.10-2.30	53-58	1.98	50	5.35	136	3.11	79
6.5	165	10	2.77-2.92	70-74	2.19	56	6.59	167	3.74	95
7.7	196	12	3.42-3.55	87-90	2.43	62	7.85	199	4.36	111
10.3	262	16	4.72-4.81	120-122	2.88	73	10.37	263	5.63	143
SERIES 800 ROUND FRICTION TOP										
6.5	165	10	2.77-2.92	70-74	2.18	55	6.63	168	3.77	96
7.7	196	12	3.42-3.55	87-90	2.43	62	7.89	200	4.40	112
10.3	262	16	4.71-4.81	120-122	2.88	73	10.41	264	5.66	144

Dead Plate Gap

Where there is a transfer point from a belt without finger transfer plates to a dead plate, there should be a gap between the surfaces to allow for the chordal action of the belt. As the belt engages its sprockets, chordal action causes the modules to move past a *fixed* point (the tip of the dead plate) with *varying* clearances. The table below shows the minimum amount of gap which occurs at the "low point" of the modules if the tip of the dead plate just comes in contact with the "high point" as the modules pass.

In some installations it may be desirable to keep the tip of the dead plate in contact with the belt, rather than allow a gap to occur. This can be done by hinging the mounting bracket for the dead plate. This allows the dead plate to move as the modules pass, but results in a small oscillating motion which may present tippage problems for sensitive containers or products.



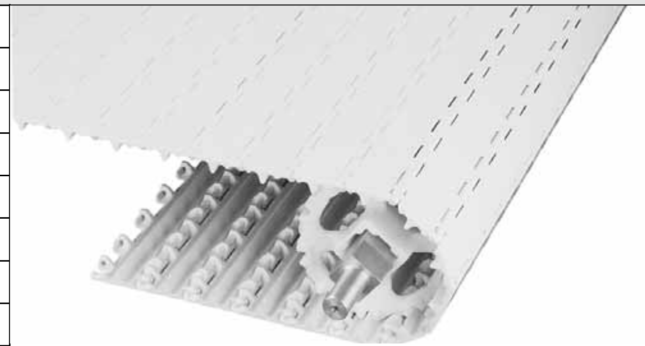
1 - Top surface of dead plate **2 -** Dead plate gap

Note: The top surface of the dead plate is typically 0.031 in. (0.8 mm) above the belt surface for product transfer onto the belt, and 0.031 in. (0.8 mm) below the belt surface for product transfer off the belt.

Sprocket Description			Gap	
Pitch Diameter		No. Teeth	in.	mm
in.	mm			
4.0	102	6	0.268	6.8
5.2	132	8	0.200	5.1
6.5	165	10	0.158	4.0
7.7	196	12	0.132	3.4
10.3	262	16	0.098	2.5

Flat Top

	in.	mm
Pitch	2.00	50.8
Minimum Width	6	152
Width Increments	1.00	25.4
Opening Size (approximate)	-	-
Open Area	0%	
Hinge Style	Open	
Drive Method	Center-driven	

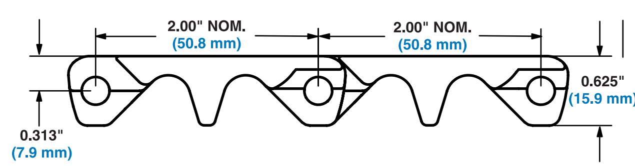


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Smooth, closed upper surface with fully flush edges and recessed rods.
- Cam-link designed hinges - expose more hinge and rod area as the belt goes around the sprocket. This exclusive Intralox feature allows unsurpassed cleaning access to this area.
- Fully sculpted and radiused corners - no pockets or sharp corners to catch and hold debris.
- Drive Bar - like Series 1600 and Series 1800, the drive bar on the underside of Series 850 SeamFree™ Minimum Hinge Flat Top channels water and debris to the outside of the belt for easier, faster clean up. The drive bar's effectiveness has been proven both in-house and in field tests.
- Designed for use with Series 800 Angled EZ Clean Sprockets, but fully compatible with standard Series 800 EZ Clean Sprockets.
- Belts over 36" (914 mm) will be built with multiple modules per row, but seams will be minimized.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



Belt Data

Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey		
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	J[a]	EU MC[b]
Acetal	Acetal	450	670	-50 to 200	-46 to 93	2.19	10.68	•	3	•
Acetal	Polypropylene	400	600	34 to 200	1 to 93	2.13	10.41	•	3	•
Acetal	Polyethylene	300	450	-50 to 150	-46 to 66	2.13	10.40	•	3	•
Polyethylene	Acetal	300	450	-50 to 150	-46 to 66	1.50	7.32	•	3	•
Polyethylene	Polyethylene	200	300	-50 to 150	-46 to 66	1.44	7.05	•	3	•
Polypropylene	Polypropylene	250	370	34 to 220	1 to 104	1.40	6.83	•	3	•

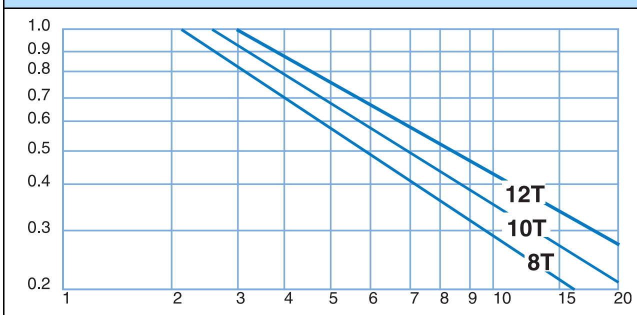
a. Japan Ministry of Health, Labour, and Welfare
b. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Sprocket and Support Quantity Reference

Belt Width Range[a] in.	Belt Width Range[a] mm	**Minimum** Number of Sprockets Per Shaft[b]	Wearstrips Carryway	Wearstrips Returnway
2	51	1	2	2
4	102	1	2	2
6	152	2	2	2
8	203	2	2	2
10	254	2	3	2
12	305	3	3	2
14	356	3	3	3
16	406	3	3	3
18	457	3	3	3
20	508	5	4	3
24	610	5	4	3
30	762	5	5	4
32	813	7	5	4
36	914	7	5	4
42	1067	7	6	5
48	1219	9	7	5
54	1372	9	7	6
60	1524	11	8	6
72	1829	13	9	7
84	2134	15	11	8
96	2438	17	12	9
120	3048	21	15	11
144	3658	25	17	13
For Other Widths, Use Odd Number of Sprockets[c] at Maximum 6 in. (152 mm) ℄ Spacing			Maximum 9 in. (229 mm) ℄ Spacing	Maximum 12 in. (305 mm) ℄ Spacing

a. If your belt width exceeds a number listed in the table, please refer to the sprocket and support material minimums for the next larger width range listed. Belts are available in 0.66 in. (16.8 mm) increments beginning with minimum width of 2 in. (51 mm). **If the actual width is critical, consult Customer Service.**
b. These are the minimum number of sprockets. Additional sprockets may be required for heavily loaded applications.Polyurethane sprockets require a maximum 4 in. (102 mm) centerline spacing.
c. The center sprocket should be locked down. With only two sprockets, fix the sprocket on the drive journal side only.

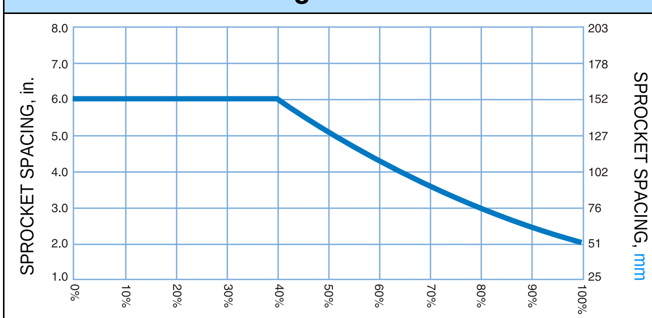
S Strength Factor



V = ft/min (m/min)
T = number of teeth
L = ft (m)

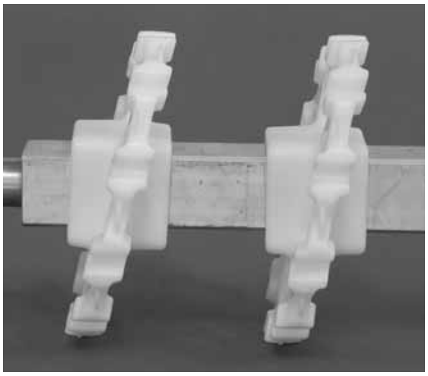
Divide belt speed "V" by the shaft ℄ distance "L". Strength Factor is found at intersection of speed/length ratio and appropriate sprocket line. See page 35 for more information.

Sprocket Spacing as a Function of Belt Strength Utilized



Angled EZ Clean Sprocket Data[a]

No. of Teeth (Chordal Action)	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 Round in.	U.S. Sizes Square in.	Metric Sizes Round mm	Metric Sizes Square mm
8 (7.61%)	5.2	132	5.0	127	2.0	50.8		1.5		40
10 (4.89%)	6.5	165	6.2	157	2.0	50.8		1.5		40
12 (3.41%)	7.7	196	7.5	191	2.0	50.8		1.5		40

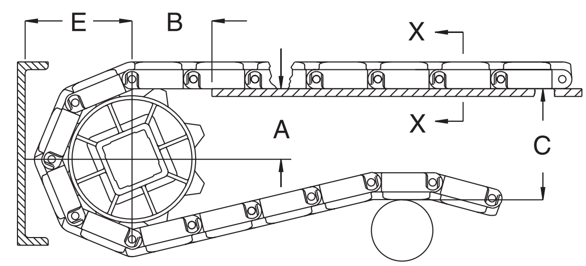


a. Contact Customer Service for lead times. Angled EZ Clean Sprockets can not be used with Series 800 Mesh Top

Conveyor Frame Dimensions

Regardless of type or configuration, all conveyors using Intralox belts have some basic dimensional requirements. Specifically, dimensions “A”, “B”, “C” and “E” listed below should be implemented in any design.

For general applications and applications where end transfer of tip-sensitive product is not critical, use the “A” dimension at the bottom of the range.



A - ±0.031” (1 mm) **C -** ± (Max)

B - ±0.125” (3 mm) **E -** ± (Min)

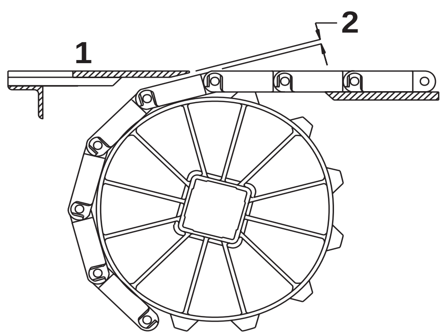
Complete descriptions of the dimensions are listed on page 291.

Sprocket Description			A		B		C		E	
Pitch Diameter		No. Teeth	Range (Bottom to Top)		in.	mm	in.	mm	in.	mm
in.	mm		in.	mm						
SERIES 850 SEAMFREE™ MINIMUM HINGE FLAT TOP										
5.2	132	8	2.10-2.30	53-58	2.60	66	5.30	135	2.99	76
6.5	165	10	2.77-2.92	70-74	3.00	76	6.50	165	3.61	92
7.7	196	12	3.42-3.55	87-90	3.00	76	7.90	201	4.24	108

Dead Plate Gap

Where there is a transfer point from a belt without finger transfer plates to a dead plate, there should be a gap between the surfaces to allow for the chordal action of the belt. As the belt engages its sprockets, chordal action causes the modules to move past a *fixed* point (the tip of the dead plate) with *varying* clearances. The table below shows the minimum amount of gap which occurs at the “low point” of the modules if the tip of the dead plate just comes in contact with the “high point” as the modules pass.

In some installations it may be desirable to keep the tip of the dead plate in contact with the belt, rather than allow a gap to occur. This can be done by hinging the mounting bracket for the dead plate. This allows the dead plate to move as the modules pass, but results in a small oscillating motion which may present tippage problems for sensitive containers or products.



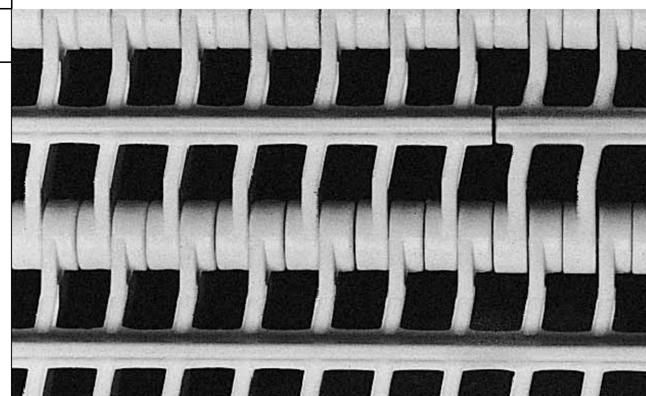
1 - Top surface of dead plate **2 -** Dead plate gap

Note: The top surface of the dead plate is typically 0.031 in. (0.8 mm) above the belt surface for product transfer onto the belt, and 0.031 in. (0.8 mm) below the belt surface for product transfer off the belt.

Sprocket Description			Gap	
Pitch Diameter		No. Teeth	in.	mm
in.	mm			
5.2	132	8	0.200	5.1
6.5	165	10	0.158	4.0
7.7	196	12	0.132	3.4

Open Grid

	in.	mm
Pitch	1.07	27.2
Minimum Width	2	51
Width Increments	0.33	8.4
Opening Size (approximate)	0.24 × 0.28	6.1 × 7.1
Open Area	38%	
Hinge Style	Open	
Drive Method	Center-driven	

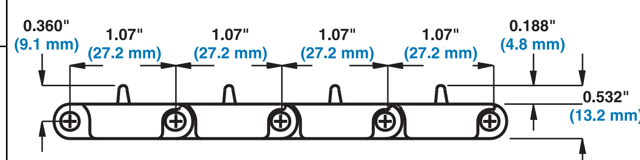


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Low-profile transverse ridges 0.188 in. (4.8 mm) high assist in moving product up inclines and down declines.
- Large, open area allows for excellent drainage.
- Normal indent of the ridge is 0.25 in. (6.4 mm).
- Not recommended for back-up conditions. If friction values between product and belt are required, contact Intralox Sales Engineering.

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



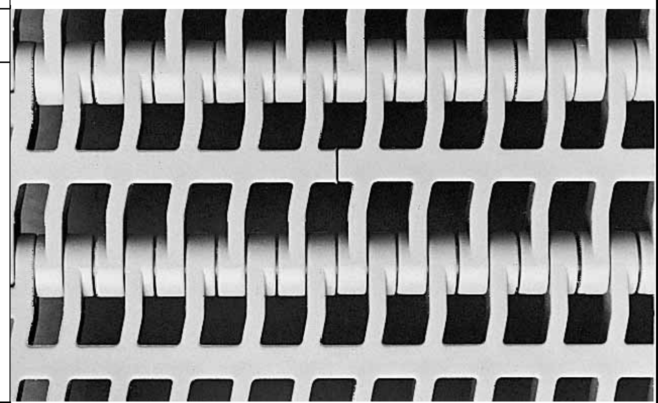
Belt Data

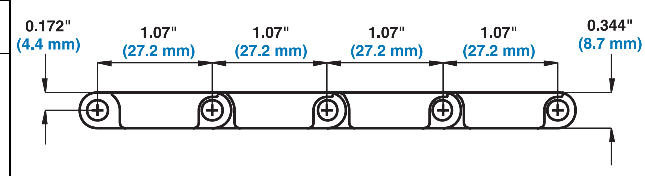
Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength lb/ft	BS Belt Strength kg/m	Temperature Range (continuous) °F	Temperature Range (continuous) °C	W Belt Weight lb/ft²	W Belt Weight kg/m²	FDA (USA)	USDA-FSIS - Meat & Poultry	USDA Dairy[a]	CFA[b]	A[c]	J[d]	EU MC[e]
								Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
Polypropylene	Polypropylene	700	1040	34 to 220	1 to 104	0.81	3.95	•	•		•		3	•
Polyethylene	Polyethylene	350	520	-50 to 150	-46 to 66	0.84	4.09	•	•		•		3	•
Acetal	Polypropylene	1480	2200	34 to 200	1 to 93	1.26	6.14	•	•		•		3	•
Acetal[f]	Polyethylene	1000	1490	-50 to 70	-46 to 21	1.26	6.14	•	•		•		3	•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.
f. Polyethylene rods can be used in cold applications when impacts or sudden starts/stops occur. Please note lower rating.

Flush Grid

	in.	mm
Pitch	1.07	27.2
Minimum Width	2	51
Width Increments	0.33	8.4
Opening Size (approximate)	0.24 × 0.28	6.1 × 7.1
Open Area	38%	
Hinge Style	Open	
Drive Method	Center-driven	





Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Open pattern with smooth upper surface, fully flush edges.
- Offers excellent lateral movement of containers.
- Flights and sideguards are available.
- HR Nylon belts use short rodlets to hold the main hinge rod in place. The rodlets are made from the same material as the main rod.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)

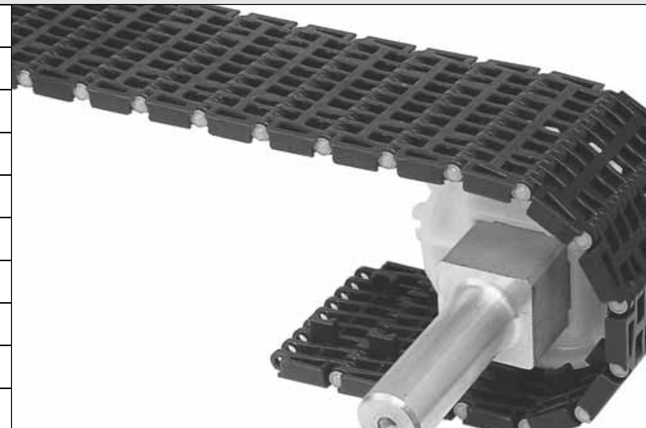
Belt Data

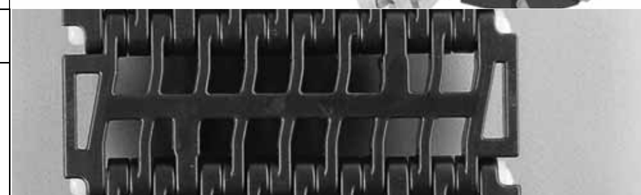
Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA-FSIS - Meat & Poultry	USDA Dairy[a]	CFA[b]	J[c]	M[d]	EU MC[e]
Polypropylene	Polypropylene	700	1040	34 to 220	1 to 104	0.76	3.70	•	•		•	3	•	•
Polyethylene	Polyethylene	350	520	-50 to 150	-46 to 66	0.81	3.96	•	•		•	3	•	•
Acetal	Polypropylene	1480	2200	34 to 200	1 to 93	1.15	5.62	•	•		•	3		•
EC Acetal	Polypropylene	800	1190	34 to 200	1 to 93	1.15	5.62							
FR-TPES	Polypropylene	750	1120	40 to 180	7 to 82	1.19	5.81							
FDA HR Nylon	FDA Nylon	1200	1790	-50 to 240	-46 to 116	1.10	5.40	•						
Non FDA HR Nylon	Non FDA Nylon	1200	1790	-50 to 310	-46 to 154	1.10	5.40							
Acetal[f]	Polyethylene	1000	1490	-50 to 70	-46 to 21	1.15	5.62	•	•		•	3		•

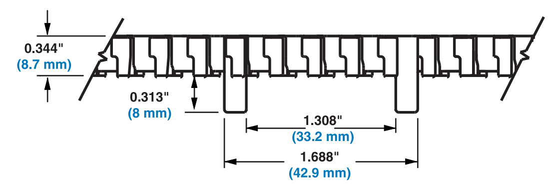
a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Japan Ministry of Health, Labour, and Welfare
d. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
e. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.
f. Polyethylene rods can be used in cold applications when impacts or sudden starts/stops occur. Please note lower rating.

Mold to Width Flush Grid

	in.	mm
Pitch	1.07	27.2
Molded Widths	3.25	83
	4.5	114
	7.5	191
	-	85
Opening Size (approximate)	0.24 × 0.28	6.1 × 7.1
Open Area	38%	
Hinge Style	Open	
Drive Method	Center-driven	

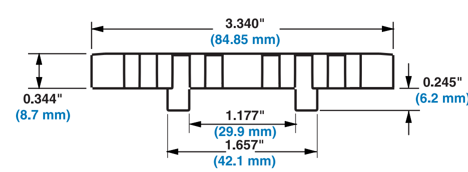






Series 900 Flush Grid Mold to Width

Arrow indicates preferred running direction



Series 900 Flush Grid 85 mm Mold to Width

Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Tracking tabs provide lateral tracking.
- **Series 900 Mold To Width** belts are boxed in 10 ft. (3.1 m) increments.
- Width tolerances for the **Series 900 Mold To Width** belts are +0.000/-0.020 in. (+0.000/-0.500 mm).
- One sprocket can be placed on the 3.25 in. (83 mm) and 85 mm mold to width belt. Up to three sprockets can be placed on the 4.5 in. (114 mm) mold to width belt. Up to five sprockets can be placed on the 7.5 in. (191 mm) mold to width belt.
- The **Series 900 Mold To Width** belt should not be used with sprockets smaller than a 3.5 in. (89 mm) pitch diameter (10 tooth) sprocket. If a 3.5 in (89 mm) pitch diameter is required, the split sprocket should not be used.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)

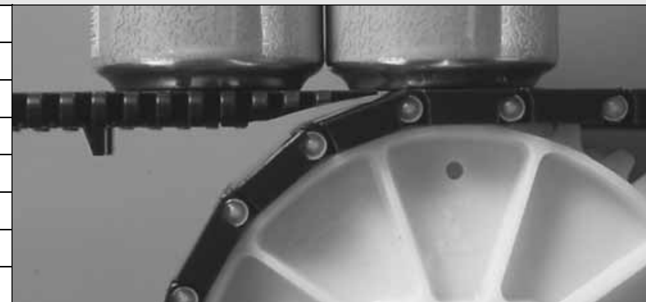
Belt Data

Belt Width		Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey		
inch	(mm)			lb	kg	°F	°C	lb/ft²	kg/m²	FDA (USA)	J[a]	EU MC[b]
3.25	83	Polypropylene	Nylon	130	59	34 to 220	1 to 104	0.31	0.46	•	3	•
3.25	83	Acetal	Nylon	250	113	-50 to 200	-46 to 93	0.42	0.62	•	3	•
4.5	114	Polypropylene	Nylon	263	120	34 to 220	1 to 104	0.39	0.58	•	3	•
4.5	114	Acetal	Nylon	555	252	-50 to 200	-46 to 93	0.54	0.80	•	3	•
7.5	191	Polypropylene	Nylon	438	199	34 to 220	1 to 104	0.59	0.88	•	3	•
7.5	191	Acetal	Nylon	800	363	-50 to 200	-46 to 93	0.85	1.26	•	3	•
	85	Acetal	Nylon	275	125	-50 to 200	-46 to 93	0.38	0.57	•	3	•

a. Japan Ministry of Health, Labour, and Welfare
b. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

ONEPIECE™ Live Transfer Flush Grid

	in.	mm
Pitch	1.07	27.2
Minimum Width	4.7	119
Width Increments	0.33	8.4
Opening Size (approximate)	0.24 × 0.28	6.1 × 7.1
Open Area	38%	
Hinge Style	Open	
Drive Method	Center-driven	

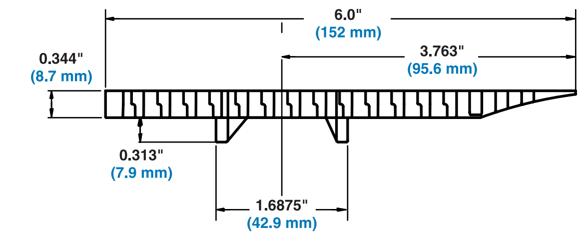


Product Notes

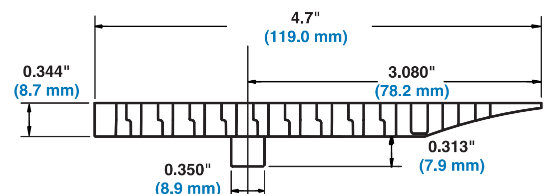
- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Transfer edge is an integral part of this belt.
- For custom belt widths please contact Customer Service.
- Molded tracking tabs fit into standard 1-3/4 in. (44.5 mm) wearstrip tracks insuring proper belt alignment.
- Built with nylon rods for superior wear resistance.
- Also available in a 4.7 in. (119 mm) wide single tracking tab belt and 6 in. (152 mm) wide double tracking tab belt.
- For belt strength calculations, subtract 1.5 in. (38 mm) from actual belt width.
- When product is moving from the transfer belt to a takeaway belt, the top of the transfer belt should be 0.06 in. (1.5 mm) above the top of the takeaway belt. When product is moving from the infeed belt onto the transfer edge, the top of the belts should be level.
- You may need to include a fixed frame support member beneath the ONEPIECE™ **Live Transfer** belt prior to the actual transfer. This will insure that the ONEPIECE™ **Live Transfer** belt does not snag when it intersects with the takeaway belt. See See *"Fig. 3–32 PARABOLIC GUIDE RAIL CONTOURS WITH 6.0 in. (152 mm) ONEPIECE™ LIVE TRANSFER BELT"* (page 310).
- The **Series 900** ONEPIECE™ **Live Transfer** belt should not be used with sprockets smaller than a 3.5 in. (89 mm) pitch diameter (10 tooth) sprocket. If a 3.5 in. (89 mm) pitch diameter is required, the split sprocket should not be used.

Additional Information

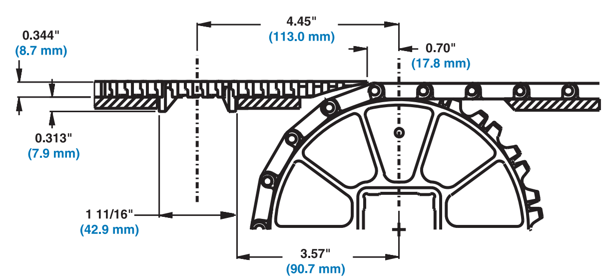
- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



6.0 in. (152 mm) Double Tracking Tab belt



4.7 in. (119 mm) Single Tracking Tab belt



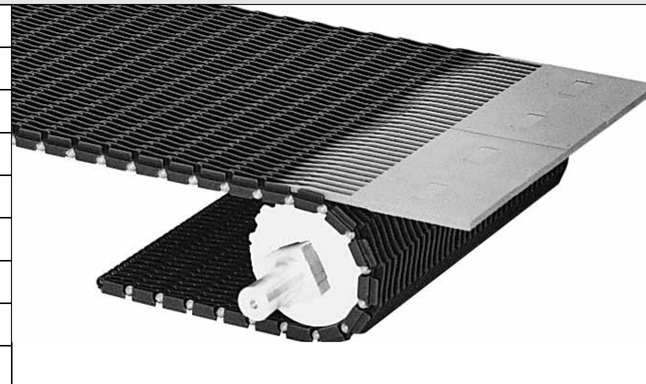
Belt Data

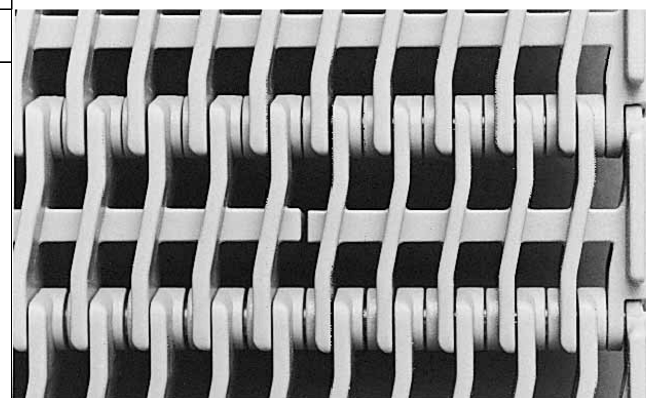
Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey		
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	J[a]	EU MC[b]
Polypropylene	Nylon	700	1040	34 to 220	1 to 104	0.93	4.54	•	3	•
Acetal	Nylon	1480	2200	-50 to 200	-46 to 93	1.15	5.62	•	3	•
FR-TPES	Nylon	1000	1490	40 to 180	7 to 82	1.63	7.95			

a. Japan Ministry of Health, Labour, and Welfare
b. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Raised Rib

	in.	mm
Pitch	1.07	27.2
Minimum Width	2	51
Width Increments	0.33	8.4
Opening Size (approximate)	0.24 × 0.28	6.1 × 7.1
Open Area	38%	
Product Contact Area	35%	
Hinge Style	Open	
Drive Method	Center-driven	



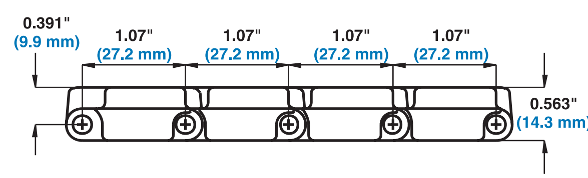


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Raised Ribs extend 3/16 in. (4.7 mm) above basic module, with fully flush edges.
- Can be used with Finger Transfer Plates eliminating product tippage and hang-ups.
- HR Nylon is used in dry, elevated temperature applications.
- HR Nylon belts use short rodlets to hold the main hinge rod in place. The rodlets are made from the same material as the main rod.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



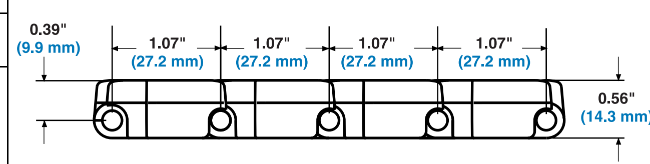
Belt Data

Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength lb/ft	BS Belt Strength kg/m	Temperature Range (continuous) °F	Temperature Range (continuous) °C	W Belt Weight lb/ft²	W Belt Weight kg/m²	Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey — FDA (USA)	USDA-FSIS - Meat & Poultry	USDA Dairy[a]	CFA[b]	A[c]	J[d]	EU MC[e]
Polypropylene	Polypropylene	700	1040	34 to 220	1 to 104	1.07	5.21	•	•		•		3	•
Polyethylene	Polyethylene	350	520	-50 to 150	-46 to 66	1.14	5.57	•	•		•		3	•
Acetal	Polypropylene	1480	2200	34 to 200	1 to 93	1.68	8.19	•	•		•		3	•
EC Acetal	Polypropylene	800	1190	34 to 200	1 to 93	1.68	8.19							
FDA HR Nylon	Nylon	1200	1790	-50 to 240	-46 to 116	1.60	7.80	•						
Non FDA HR Nylon	Nylon	1200	1790	-50 to 310	-46 to 154	1.60	7.80							
Acetal[f]	Polyethylene	1000	1490	-50 to 70	-46 to 21	1.68	8.19	•	•		•		3	•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.
f. Polyethylene rods can be used in cold applications when impacts or sudden starts/stops occur. Please note lower rating.

Mold to Width Raised Rib

	in.	mm
Pitch	1.07	27.2
Molded Widths (Blue Acetal)	1.1	29
	1.5	37
	1.8	46
	2.2	56
Opening Size (approximate)	0.24 × 0.28	6.1 × 7.1
Open Area	38% - 40%	
Hinge Style	Closed	
Drive Method	Center-driven	



Product Notes

- Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.
- **Series 900 Mold To Width** belts are boxed in 10 ft. (3.1 m) increments.
- Container stability is increased since the raised ribs span the entire belt width.
- These belts support both small and larger products, allowing easy change of product type.
- The 1.8 in. (46 mm) belt is also molded in grey polypropylene for applications where higher friction is needed.
- All belts come with nylon rodlets standard, providing longer service life.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)

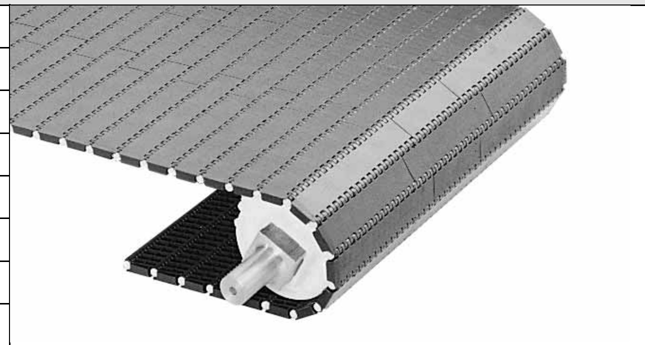
Belt Data

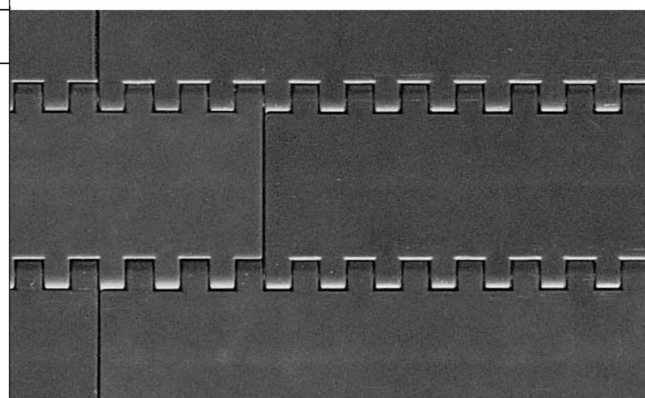
Belt Width		Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey		
inch	(mm)			lb	kg	°F	°C	lb/ft²	kg/m²	FDA (USA)	J[a]	EU MC[b]
1.1	29	Acetal	Nylon	140	64	-50 to 200	-46 to 93	0.19	0.29	•	3	•
1.5	37	Acetal	Nylon	200	91	-50 to 200	-46 to 93	0.23	0.35	•	3	•
1.8	46	Acetal	Nylon	230	104	-50 to 200	-46 to 93	0.29	0.43	•	3	•
1.8	46	Polypropylene	Nylon	90	41	34 to 220	1 to 104	0.19	0.28	•	3	•
2.2	56	Acetal	Nylon	200[c]	91[c]	-50 to 200	-46 to 93	0.34	0.50	•	3	•

a. Japan Ministry of Health, Labour, and Welfare
b. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.
c. 270 lb (122 kg) for 2.2 in. (55 mm) with two (2) sprockets.

Flat Top

	in.	mm
Pitch	1.07	27.2
Minimum Width	2	51
Width Increments	0.33	8.4
Opening Size (approximate)	-	-
Open Area	0%	
Hinge Style	Closed	
Drive Method	Center-driven	



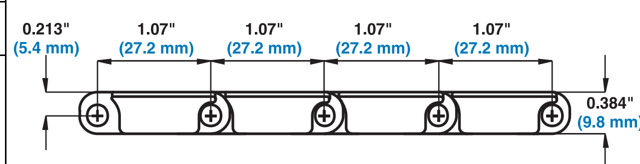


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Smooth, closed surface with fully flush edges and recessed rods.
- Ideal for container handling, especially glass.
- HR Nylon is used in dry, elevated temperature applications.
- HR Nylon belts use short rodlets to hold the main hinge rod in place. The rodlets are made from the same material as the main rod.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



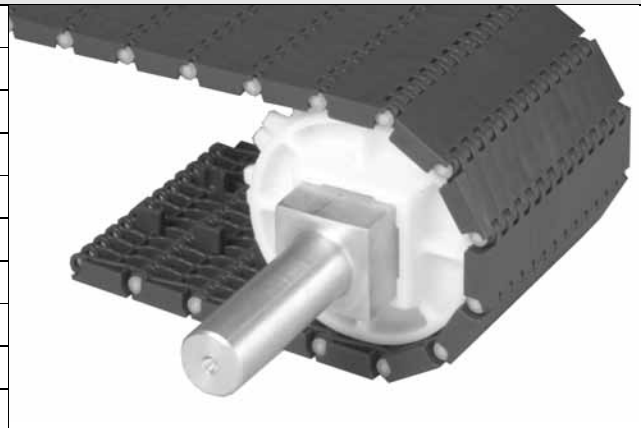
Belt Data

Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey							
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[a]	CFA[b]	A[c]	J[d]	Z[e]	M[f]	EU MC[g]
Polypropylene	Polypropylene	700	1040	34 to 220	1 to 104	0.96	4.69	•				3		•	•
Polyethylene	Polyethylene	350	520	-50 to 150	-46 to 66	1.01	4.95	•				3		•	•
Acetal	Polypropylene	1480	2200	34 to 200	1 to 93	1.50	7.30	•				3			•
EC Acetal	Polypropylene	800	1190	34 to 200	1 to 93	1.50	7.30								
FDA HR Nylon	Nylon	1200	1790	-50 to 240	-46 to 116	1.40	6.80	•							
Non FDA HR Nylon	Nylon	1200	1790	-50 to 310	-46 to 154	1.40	6.80								
Acetal[h]	Polyethylene	1000	1490	-50 to 70	-46 to 21	1.50	7.30	•							•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. New Zealand Ministry of Agriculture and Forestry
f. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
g. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.
h. Polyethylene rods can be used in cold applications when impacts or sudden starts/stops occur. Please note lower rating.

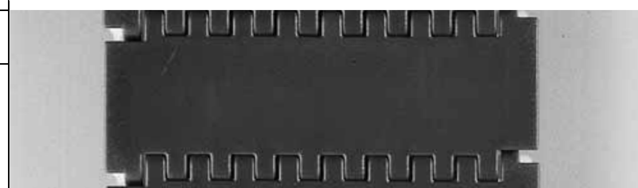
Mold to Width Flat Top

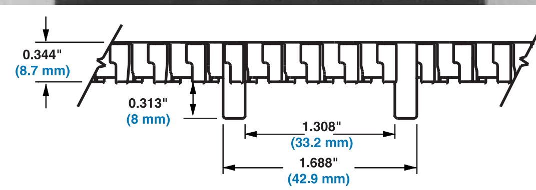
	in.	mm
Pitch	1.07	27.2
Molded Widths	3.25	83
	4.5	114
	7.5	191
	-	85
Opening Size (approximate)	-	-
Open Area	0%	
Hinge Style	Open	
Drive Method	Center-driven	



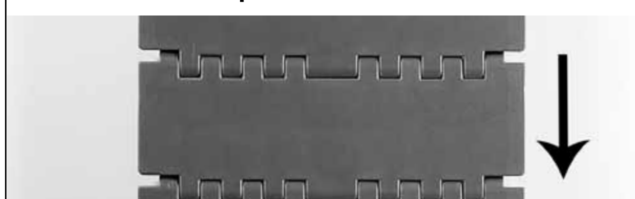
Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Fully flush edges
- Tracking tabs provide lateral tracking.
- **Series 900 Mold To Width** belts are boxed in 10 ft. (3.1 m) increments.
- One sprocket can be placed on the 3.25 in. (83 mm) and 85 mm mold to width belt. Up to three sprockets can be placed on the 4.5 in. (114 mm) mold to width belt. Up to five sprockets can be placed on the 7.5 in. (191 mm) mold to width belt.
- The **Series 900 Mold To Width** belt should not be used with sprockets smaller than a 3.5 in. (89 mm) pitch diameter (10 tooth) sprocket. If a 3.5 in. (89 mm) pitch diameter is required, the split sprocket should not be used.

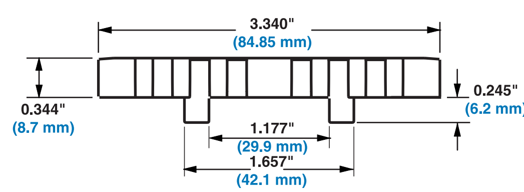




Series 900 Flat Top Mold to Width



Arrow indicates preferred running direction



Series 900 Flat Top 85 mm Mold to Width

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)

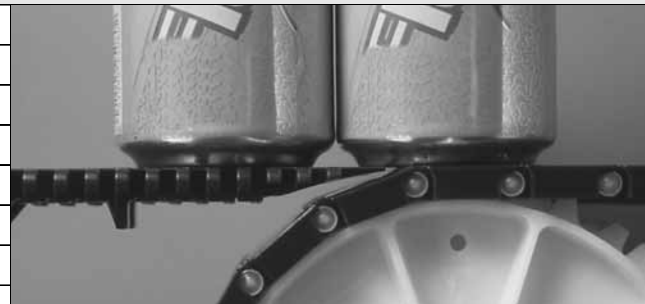
Belt Data

Belt Width		Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey		
inch	(mm)			lb	kg	°F	°C	lb/ft²	kg/m²	FDA (USA)	J[a]	EU MC[b]
3.25	83	Polypropylene	Nylon	130	59	34 to 220	1 to 104	0.37	0.55	•	3	•
3.25	83	Acetal	Nylon	250	113	-50 to 200	-46 to 93	0.52	0.77	•	3	•
4.5	114	Polypropylene	Nylon	263	120	34 to 220	1 to 104	0.52	0.77	•	3	•
4.5	114	Acetal	Nylon	555	252	-50 to 200	-46 to 93	0.74	1.10	•	3	•
7.5	191	Polypropylene	Nylon	438	199	34 to 220	1 to 104	0.83	1.24	•	3	•
7.5	191	Acetal	Nylon	800	363	-50 to 200	-46 to 93	1.18	1.76	•	3	•
	85	Acetal	Nylon	500	227	-50 to 200	-46 to 93	0.50	0.74	•	3	•

a. Japan Ministry of Health, Labour, and Welfare
b. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

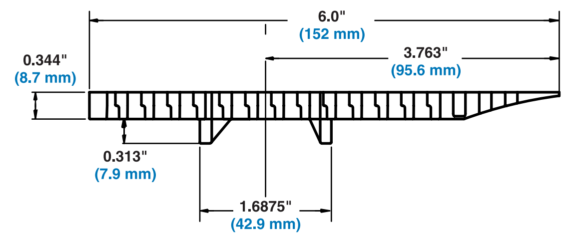
ONEPIECE™ Live Transfer Flat Top

	in.	mm
Pitch	1.07	27.2
Minimum Width	4.7	119
Width Increments	0.33	8.4
Opening Size (approximate)	-	-
Open Area	0%	
Hinge Style	Closed	
Drive Method	Center-driven	

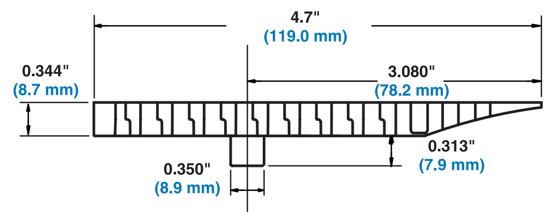


Product Notes

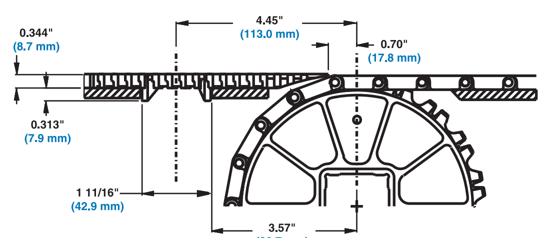
- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Transfer edge is an integral part of this belt.
- For custom belt widths please contact Customer Service.
- Molded tracking tabs fit into standard 1-3/4 in. (44.5 mm) wearstrip tracks insuring proper belt alignment.
- Built with nylon rods for superior wear resistance.
- Also available in a 4.7 in. (119 mm) wide single tracking tab belt and 6 in. (152 mm) wide double tracking tab belt.
- When product is moving from the transfer belt to a takeaway belt, the top of the transfer belt should be 0.06 in. (1.5 mm) above the top of the takeaway belt. When product is moving from the infeed belt onto the transfer edge, the top of the belts should be level.
- You may need to include a fixed frame support member beneath the ONEPIECE™ **Live Transfer** belt prior to the actual transfer. This will insure that the ONEPIECE™ **Live Transfer** belt does not snag when it intersects with the takeaway belt. See *"Fig. 3–32 PARABOLIC GUIDE RAIL CONTOURS WITH 6.0 in. (152 mm) ONEPIECE™ LIVE TRANSFER BELT"* (page 310)
- The Series 900 ONEPIECE™ **Live Transfer** belt should not be used with sprockets smaller than a 3.5 in. (89 mm) pitch diameter (10 tooth) sprocket. If a 3.5 in. (89 mm) pitch diameter is required, the split sprocket should not be used.



6.0 in. (152 mm) Double Tracking Tab belt



4.7 in. (119 mm) Single Tracking Tab belt



Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)

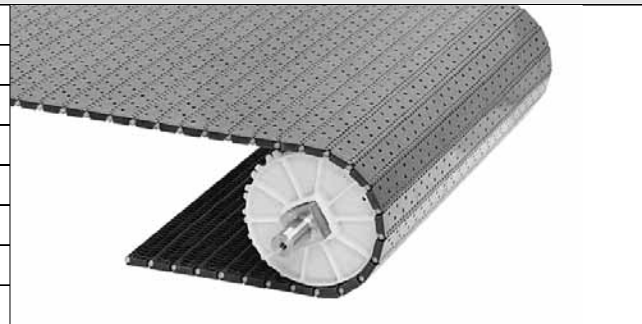
Belt Data

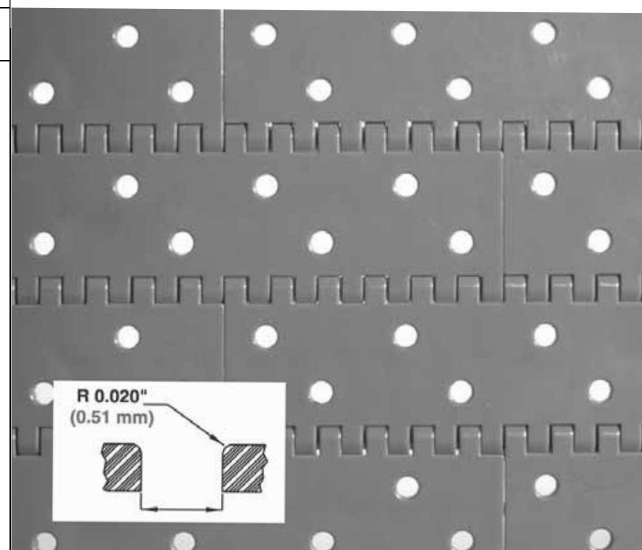
Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey					
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[a]	CFA[b]	A[c]	J[d]	EU MC[e]
Polypropylene	Nylon	700	1040	34 to 220	1 to 104	0.93	4.54	•				3	•
Acetal	Nylon	1480	2200	-50 to 200	-46 to 93	1.50	7.30	•				3	•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

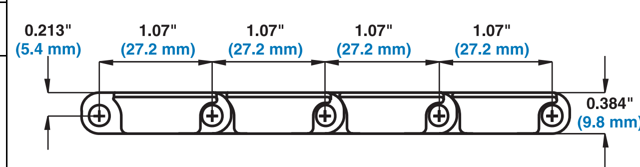
Perforated Flat Top

	in.	mm
Pitch	1.07	27.2
Minimum Width	2	51
Width Increments	0.33	8.4
Opening Size (approximate)	See Product Notes	
Open Area	See Product Notes	
Hinge Style	Closed	
Drive Method	Center-driven	





INSET: MOLDED HOLE DETAIL



Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Available hole sizes:
  Ø 1/8 in. (3.2 mm) - 5% Open Area
  Ø 5/32 in. (4.0 mm) - 6% Open Area
  Ø 3/16 in. (4.8 mm) - 8% Open Area
- All hole sizes include 3% open area at the hinge.
- Designed for vacuum transfer applications, with a scalloped underside to reduce carryway blockage.
- All holes have a radiused top edge allowing quiet operation and good vacuum performance.
- Other hole dimensions and patterns can be created by drilling **Series 900 Flat Top**.
- For elevated temperatures use stainless steel split sprockets.
- HR Nylon belts use short rodlets to hold the main hinge rod in place and are made from the same material as the main rod.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)

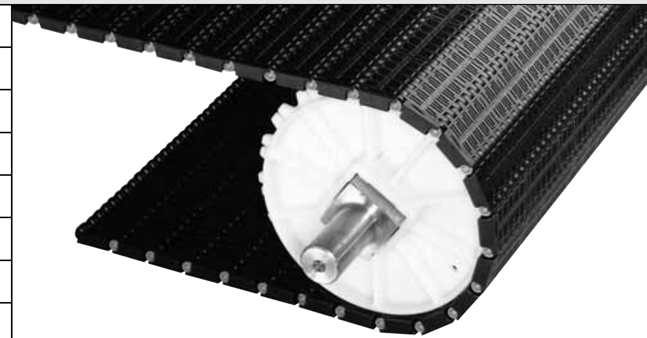
Belt Data

Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight 1/8 in		W Belt Weight 5/32 in		W Belt Weight 3/16 in		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey		
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	lb/ft²	kg/m²	lb/ft²	kg/m²	FDA (USA)	EU MC[a]	J[b]
Polypropylene	Polypropylene	700	1040	34 to 220	1 to 104	–	–	0.93	4.54	–	–	•	•	3
Polyethylene	Polyethylene	350	520	-100 to 150	-73 to 66	–	–	0.98	4.79	–	–	•	•	3
Acetal	Polypropylene	1480	2200	34 to 200	1 to 93	1.48	7.23	1.46	7.11	1.43	6.98	•	•	3
EC Acetal	Polypropylene	800	1190	34 to 200	1 to 93	–	–	1.46	7.11	–	–			
FR-TPES	Polypropylene	750	1120	40 to 180	7 to 82	–	–	1.59	7.76	–	–			
FDA HR Nylon	Nylon	1200	1790	-50 to 240	-46 to 116	–	–	1.40	6.80	–	–	•		
Non FDA HR Nylon	Nylon	1200	1790	-50 to 310	-46 to 154	–	–	1.40	6.80	–	–			
Acetal[c]	Polyethylene	1000	1490	-50 to 70	-46 to 21	1.48	7.23	1.46	7.11	1.43	6.98	•	•	3

a. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.
b. Japan Ministry of Health, Labour, and Welfare
c. Polyethylene rods can be used in cold applications when impacts or sudden starts/stops occur. Please note lower rating. 1/8 in. (3.2 mm) and 3/16 in. (4.8 mm) hole sizes are available in Acetal only.

Mesh Top

	in.	mm
Pitch	1.07	27.2
Minimum Width	2	51
Width Increments	0.33	8.4
Opening Size (approximate)	0.05 × 0.31	1.3 × 7.9
Open Area	24%	
Hinge Style	Open	
Drive Method	Center-driven	



Product Notes

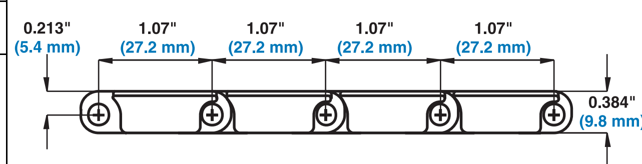
- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Fully flush edges and recessed rods.
- Ideal for fruit and vegetable processing, especially for stemmed products and dewatering applications.

Top surface

Underside surface

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



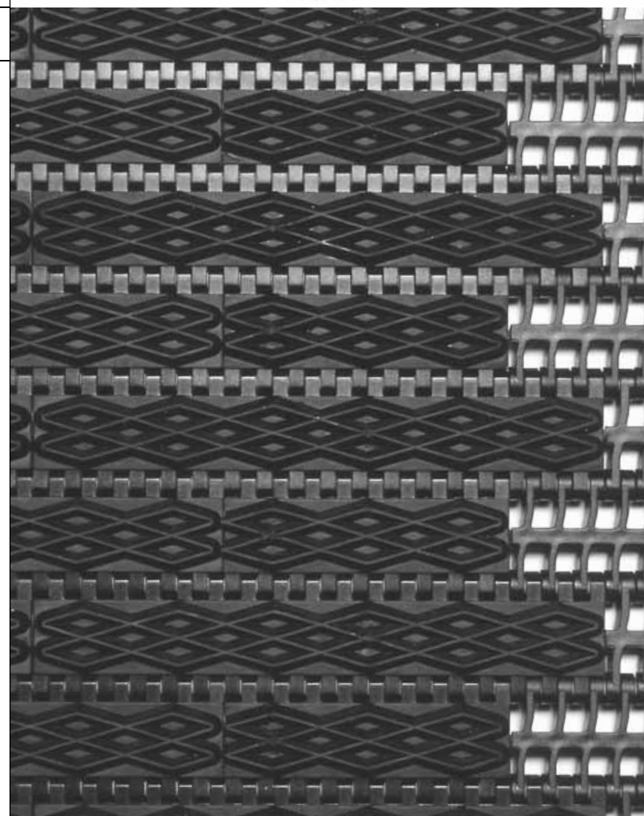
Belt Data

Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[a]	CFA[b]	A[c]	Z[d]	J[e]	EU MC[f]
Polypropylene	Polypropylene	700	1040	34 to 220	1 to 104	0.93	4.55	•					3	•
Polyethylene	Polyethylene	350	520	-100 to 150	-73 to 66	0.99	4.84	•					3	•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. New Zealand Ministry of Agriculture and Forestry
e. Japan Ministry of Health, Labour, and Welfare
f. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Intralox® Diamond Friction Top

	in.	mm
Pitch	1.07	27.2
Minimum Width (DFT)	2.3	58
Minimum Width (DFT Ultra)	3.0	76
Width Increments	0.33	8.4
Hinge Style	Open	
Drive Method	Center-driven	

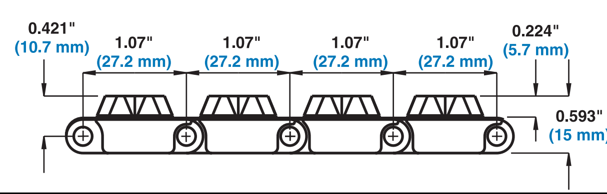


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Available in **Diamond Friction Top (DFT)** and **Diamond Friction Top Ultra (DFT Ultra)** (higher rubber concentration).
- White Friction Top materials comply with FDA regulations for use in food processing and packaging applications.
- Two material rubber modules provide a high friction surface without interfering with carryways and sprockets.
- Available in black rubber on grey polypropylene, white rubber on white polypropylene and white rubber on natural polyethylene.
- Not recommended for back-up conditions. If friction values between product and belt are required, contact Intralox Sales Engineering.
- **Intralox Diamond Friction Top** has approximately 17% to 45% rubber, depending upon width. **Intralox Diamond Friction Top Ultra** has 52% to 100% rubber.
- Black rubber top modules have a hardness of 45 Shore A. White rubber top modules have a hardness of 56 Shore A.
- If a center-drive setup is used, it may be necessary to place collars to laterally retain the belt at the backbend roller before the drive. Abrasion Resistant rods are required.
- Temperature, environmental conditions and product characteristics affect the effective maximum degree of incline. Take these items into consideration when designing conveyor systems utilizing these belts.
- Minimum indent is 1 in. (25 mm)

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



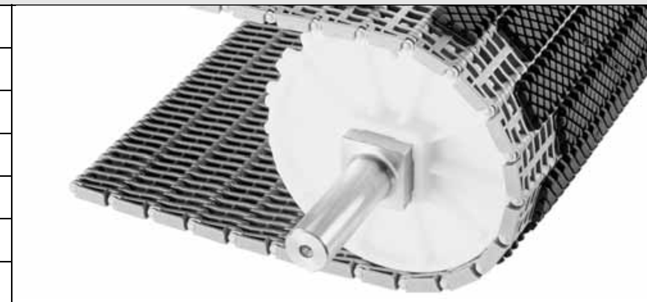
Belt Data

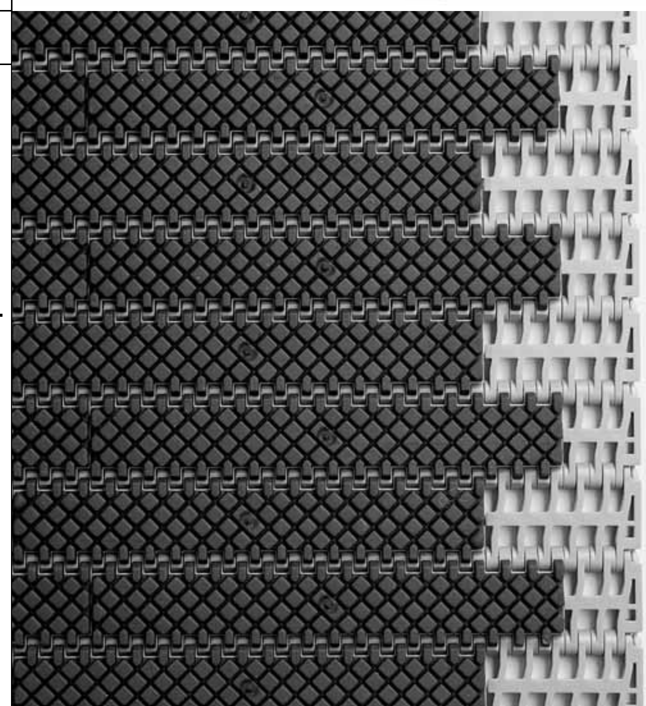
Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey		
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	J[a]	EU MC[b]
Polypropylene (DFT)	Polypropylene	1000	1490	34 to 150	1 to 66	1.10	5.40	1		
Polypropylene (DFT Ultra)	Polypropylene	1000	1490	34 to 150	1 to 66	1.40	6.80	1		
Polyethylene (DFT)	Polyethylene	350	520	-50 to 120	-46 to 49	1.20	5.90	1		
Polyethylene (DFT Ultra)	Polyethylene	350	520	-50 to 120	-46 to 49	1.50	7.30	1		

a. Japan Ministry of Health, Labour, and Welfare
b. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Square Friction Top

	in.	mm
Pitch	1.07	27.2
Minimum Width (SFT)	2.3	58
Minimum Width (SFT Ultra)	3.0	76.2
Width Increments	0.33	8.4
Hinge Style	Open	
Drive Method	Center-driven	



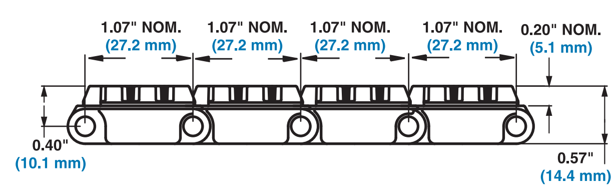


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Available in **Square Friction Top (SFT)** and **Square Friction Top Ultra (SFT Ultra)** (higher rubber concentration).
- Two material rubber modules provide a high friction surface without interfering with carryways and sprockets.
- Available in black rubber on grey polypropylene and white rubber on white polypropylene. Contact Customer Service for lead time for white rubber.
- Not recommended for back-up conditions. If friction values between product and belt are required, contact Intralox Sales Engineering.
- Black rubber top modules have a hardness of 45 Shore A. White rubber top modules have a hardness of 56 Shore A.
- If a center-drive set up is used, it may be necessary to place collars to laterally retain the belt at the backbend roller before the drive. Abrasion Resistant rods are required.
- Temperature, environmental conditions and product characteristics affect the effective maximum degree of incline. Take these items into consideration when designing conveyor systems utilizing these belts.
- Minimum indent is 1 in. (25 mm)).

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



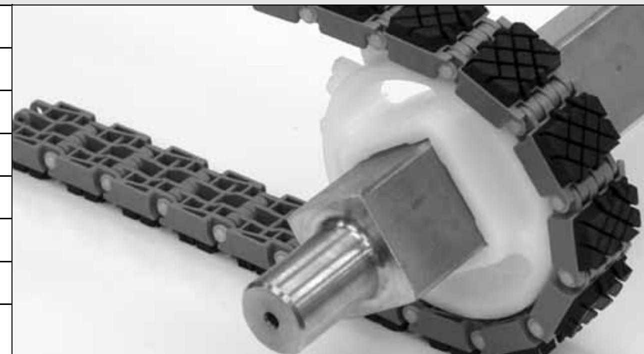
Belt Data

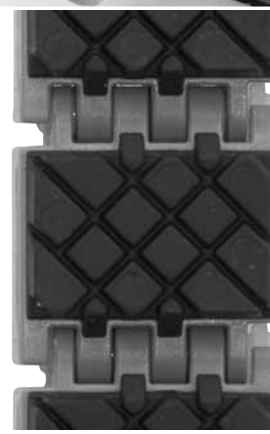
Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey		
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	J[a]	EU MC[b]
Polypropylene (SFT)	Polypropylene	1000	1490	34 to 150	1 to 66	1.20	5.86	1		
Polypropylene (SFT Ultra)	Polypropylene	1000	1490	34 to 150	1 to 66	1.50	7.32	1		

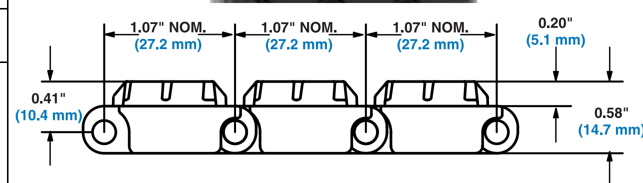
a. Japan Ministry of Health, Labour, and Welfare
b. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Mold to Width 29 mm Square Friction Top

	in.	mm
Pitch	1.07	27.2
Molded Width	1.1	29
Hinge Style	Closed	
Drive Method	Center-driven	







Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Available only in **Square Friction Top Ultra (SFT Ultra)** (higher rubber concentration).
- Two material rubber modules provide a high friction surface without interfering with carryways and sprockets.
- Available in black rubber on grey polypropylene.
- Not recommended for back-up conditions. If friction values between product and belt are required, contact Intralox Sales Engineering.
- Black rubber top modules have a hardness of 45 Shore A.

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)

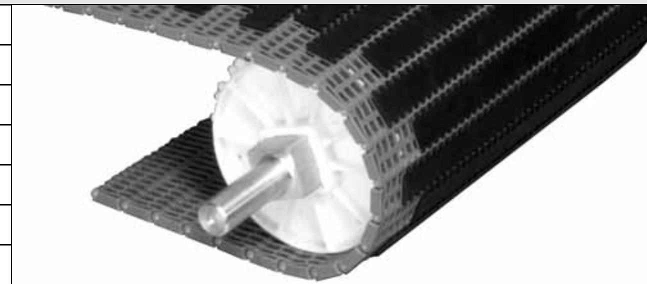
Belt Data

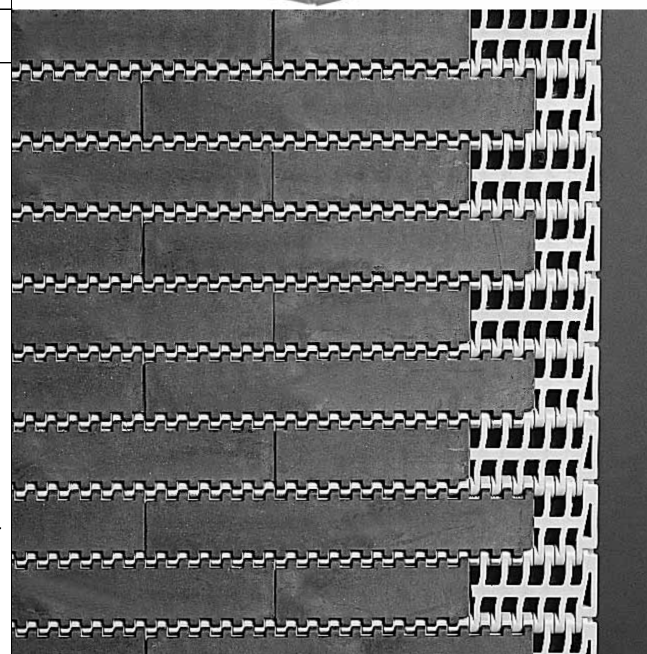
Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey	
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	J[a]
Polypropylene (SFT Ultra)	Nylon	65	29	34 to 150	1 to 66	0.17	0.25		

a. Japan Ministry of Health, Labour, and Welfare

Intralox® Flat Friction Top

	in.	mm
Pitch	1.07	27.2
Minimum Width (FFT)	2.3	58
Minimum Width (FFT Ultra)	3.0	76
Width Increments	0.33	8.4
Hinge Style	Open	
Drive Method	Center-driven	



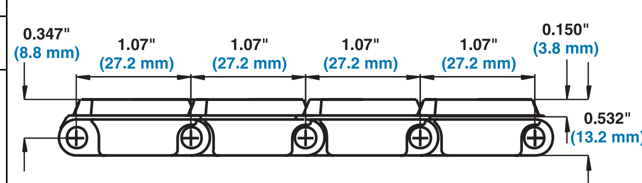


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Available in **Flat Friction Top (FFT)** and **Flat Friction Top Ultra (FFT Ultra)** (higher rubber concentration).
- White Friction Top materials comply with FDA regulations for use in food processing and packaging applications.
- Two material rubber modules provide a high friction surface without interfering with carryways and sprockets.
- Available in black rubber on grey polypropylene, white rubber on white polypropylene.
- Not recommended for back-up conditions. If friction values between product and belt are required, contact Intralox Sales Engineering.
- **Intralox Flat Friction Top** has approximately 17% to 45% rubber, depending upon width. **Intralox Flat Friction Top Ultra** has 52% to 100% rubber.
- Black rubber top modules have a hardness of 45 Shore A. White rubber top modules have a hardness of 56 Shore A.
- If a center-drive set up is used, it may be necessary to place collars to laterally retain the belt at the backbend roller before the drive. Abrasion Resistant rods are required.
- Temperature, environmental conditions and product characteristics affect the effective maximum degree of incline. Take these items into consideration when designing conveyor systems utilizing these belts.
- Minimum indent is 1 in. (25.4 mm)
- Temperature, environmental conditions and product characteristics affect the effective maximum degree of incline. Take these items into consideration when designing conveyor systems utilizing these belts.

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



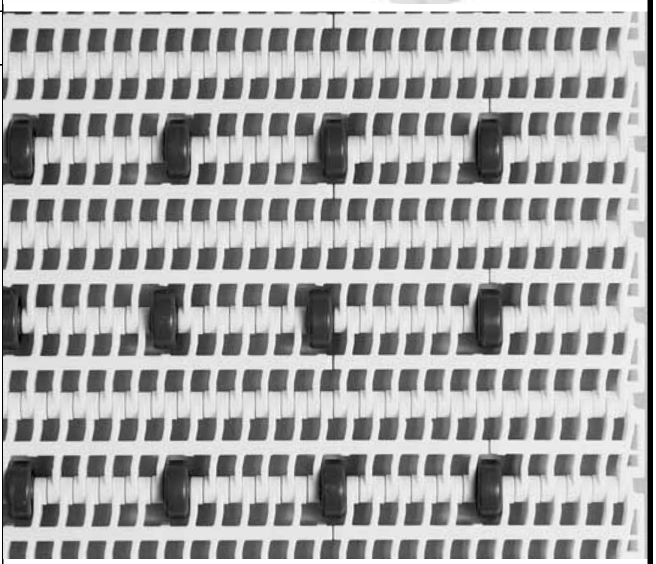
Belt Data

Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey		
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	J[a]	EU MC[b]
Polypropylene (FFT)	Polypropylene	1000	1490	34 to 150	1 to 66	1.10	5.40	1		
Polypropylene (FFT Ultra)	Polypropylene	1000	1490	34 to 150	1 to 66	1.40	6.80	1		

a. Japan Ministry of Health, Labour, and Welfare
b. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Flush Grid with Insert Rollers

	in.	mm
Pitch	1.07	27.2
Minimum Width	6	152
Width Increments	1.00	25.4
Opening Size (approx.)	0.24 × 0.28	6.1 × 7.1
Width Increments	38%	
Hinge Style	Open	
Drive Method	Center-driven	

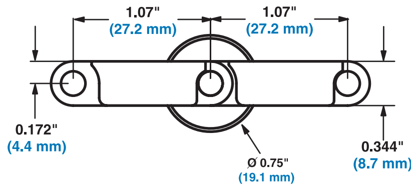


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- For applications where low back pressure accumulation is required.
- Standard roller spacings across belt width: 2 in. (51 mm), 3 in. (76 mm), or 4 in. (102 mm) inline or staggered.
- Standard roller spacings along belt length: 1.07 in. (27.2 mm), 2.14 in. (54.4 mm).
- Minimum 1 in. (25.4 mm) roller indent.
- Contact Customer Service for non-standard roller placement options.
- Sprockets must NOT be placed inline with rollers.
- For low back pressure applications, place wearstrip between rollers. For driven applications, place wearstrip directly under rollers.
- Back-up load is 5% to 10% of product weight.

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



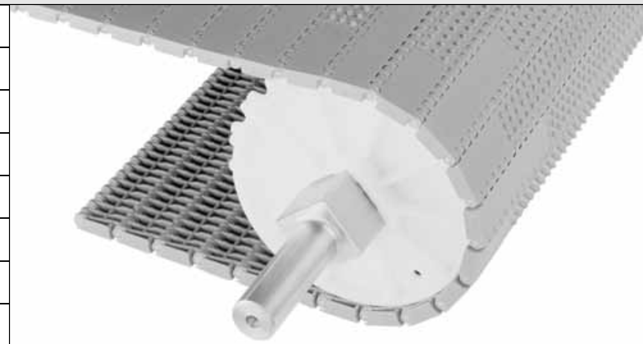
Belt Data

Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength — Roller Width Spacing 2 in. lb/ft	51 mm kg/m	3 in. lb/ft	76 mm kg/m	4 in. lb/ft	102 mm kg/m	Temperature Range (continuous) °F	°C	W Belt Weight lb/ft²	kg/m²	Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey FDA (USA)	J[a]	EU MC[b]
Polypropylene	Polypropylene	490	730	550	820	590	880	34 to 220	1 to 104	0.76	3.71	•	3	•
Acetal	Polypropylene	1030	1530	1170	1740	1240	1850	34 to 200	1 to 93	1.15	5.61	•	3	•

a. Japan Ministry of Health, Labour, and Welfare
b. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

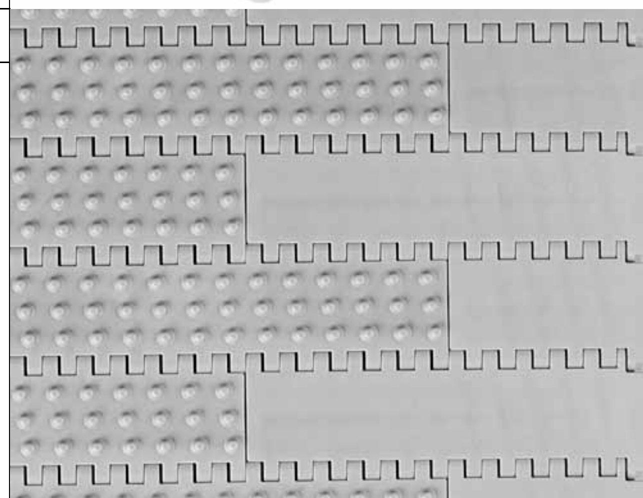
Nub Top™

	in.	mm
Pitch	1.07	27.2
Minimum Width	10	254
Width Increments	0.33	8.4
Open Area	0%	
Product Contact Area	7%	
Hinge Style	Closed	
Drive Method	Center-driven	



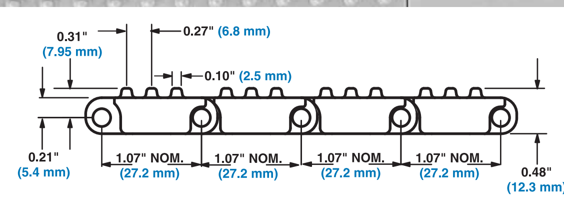
Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Fully flush edges and recessed rods.
- Improves productivity by reducing unscheduled downtime.
- Ideal for batch-off applications.
- Alternating 2 in. (50.8 mm) & 4 in. (101.6 mm) Nub Top indents from edge of Flat Top belt are standard.



Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



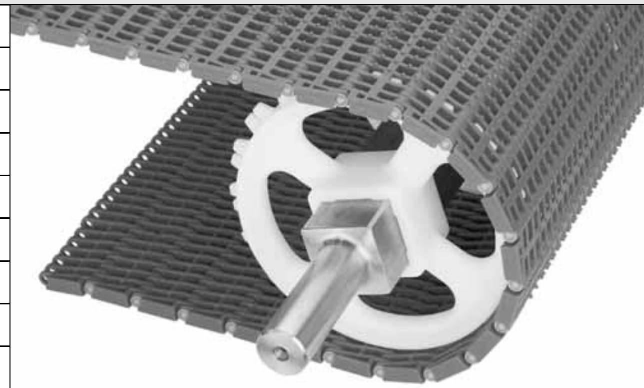
Belt Data

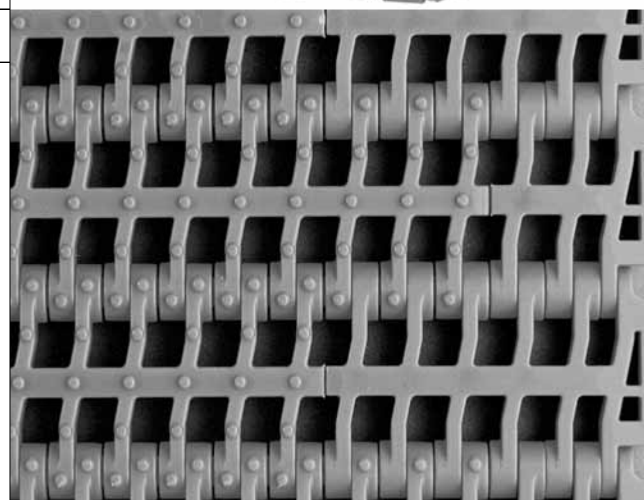
Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength[a]		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[b]	CFA[c]	A[d]	J[e]	M[f]	EU MC[g]
Polypropylene	Polypropylene	700	1040	34 to 220	1 to 104	0.98	4.78	•				3		•

a. When using steel sprockets, the belt strength for polyethylene is 240 lb/ft (360 kg/m). Contact Customer Service for availability of Polyurethane sprockets.
b. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
c. Canada Food Inspection Agency
d. Australian Quarantine Inspection Service
e. Japan Ministry of Health, Labour, and Welfare
f. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
g. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Flush Grid Nub Top™

	in.	mm
Pitch	1.07	27.2
Minimum Width	6	152
Width Increments	0.33	8.4
Opening Size (approximate)	0.24 × 0.28	6.1 × 7.1
Open Area	38%	
Product Contact Area	3%	
Hinge Style	Open	
Drive Method	Center-driven	



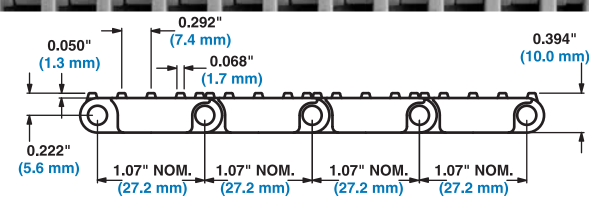


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Can only be used with Series 900 Flush Grid base flights.
- Fully flush edges and recessed rods.
- Belts are built with Flush Grid edge modules. Minimum Flush Grid indent is an alternating 1 in. (25.4 mm) and 2 in. (50.8 mm) pattern.
- Not recommended for back-up conditions. If friction values between product and belt are required, contact Intralox Sales Engineering.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



Belt Data

Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength[a]		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[b]	CFA[c]	A[d]	J[e]	M[f]	EU MC[g]
Polypropylene	Polypropylene	700	1040	34 to 220	1 to 104	0.80	3.91	•				3		•

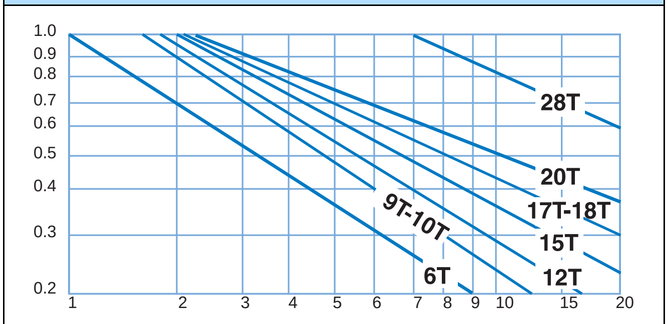
a. When using steel sprockets, the belt strength for polyethylene is 240 lb/ft (360 kg/m).
b. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
c. Canada Food Inspection Agency
d. Australian Quarantine Inspection Service
e. Japan Ministry of Health, Labour, and Welfare
f. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
g. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Sprocket and Support Quantity Reference

Belt Width Range[a] in.	Belt Width Range[a] mm	**Minimum** Number of Sprockets Per Shaft[b]	Wearstrips: Carryway	Wearstrips: Returnway
2	51	1	2	2
4	102	1	2	2
6	152	2	2	2
7	178	2	3	2
8	203	2	3	2
10	254	3	3	2
12	305	3	3	2
14	356	5	4	3
15	381	5	4	3
16	406	5	4	3
18	457	5	4	3
20	508	5	5	3
24	610	7	5	3
30	762	9	6	4
32	813	9	7	4
36	914	9	7	4
42	1067	11	8	5
48	1219	13	9	5
54	1372	15	10	6
60	1524	15	11	6
72	1829	19	13	7
84	2134	21	15	8
96	2438	25	17	9
120	3048	31	21	11
144	3658	37	25	13
For Other Widths, Use Odd Number of Sprockets[c] at Maximum 4 in. (102 mm) ℄ Spacing			Maximum 6 in. (152 mm) ℄ Spacing	Maximum 12 in. (305 mm) ℄ Spacing

a. If your belt width exceeds a number listed in the table, please refer to the sprocket and support material minimums for the next larger width range listed. Belts are available in 0.33 in. (8.4 mm) increments beginning with minimum width of 2 in. (51 mm). **If the actual width is critical, consult Customer Service.**
b. These are the minimum number of sprockets. Additional sprockets may be required for heavily loaded applications.
c. The center sprocket should be locked down. With only two sprockets, fix the sprocket on the drive journal side only.

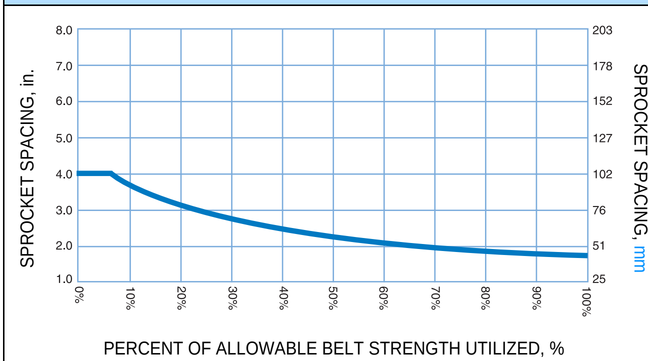
S Strength Factor



V = ft/min (m/min)
T = number of teeth
L = ft (m)

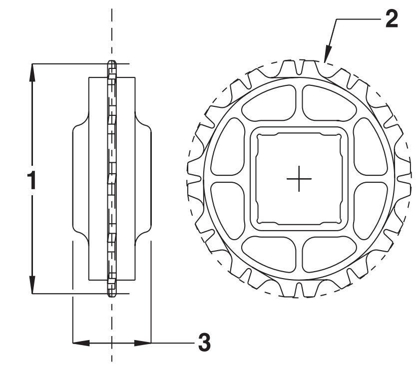
Divide belt speed "V" by the shaft ℄ distance "L". Strength Factor is found at intersection of speed/length ratio and appropriate sprocket line. See page 35 for more information.

Sprocket Spacing as a Function of Belt Strength Utilized



Sprocket Data[a]

No. of Teeth (Chordal Action)	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.[b]	Square in.	Round mm[b]	Square mm
6 (13.40%)	2.1[c]	53[c]	2.2	56	0.75	19		1.0		25
9 (6.03%)	3.1	79	3.2	81	1.0	25	1	1.0	25	25
								1.5		40
10 (4.89%)	3.5	89	3.6	91	0.75	19		1.0		40
								1.5		
12 (3.41%)	4.1	104	4.3	109	1.5	38	1 to 1-1/2	1.5	25 to 40	40
							1-15/16 to 2-3/16		50 to 55	
17 (1.70%)	5.8	147	5.9	150	1.5	38	1-3/16 to 1-1/2		30 to 40	
18 (1.52%)	6.1	155	6.3	160	1.5	38	1 to 1-1/2	1.5	25 to 40	40
							1-15/16 to 2-3/16	2.5	50 to 55	60
										65
20 (1.23%)	6.8	173	7.0	178	1.5	38	1 to 1-1/2	1.5	25 to 40	40
							1-15/16 to 2-3/16	2.5	50 to 55	60
										65



1 - Pitch diameter
2 - Outer diameter
3 - Hub width

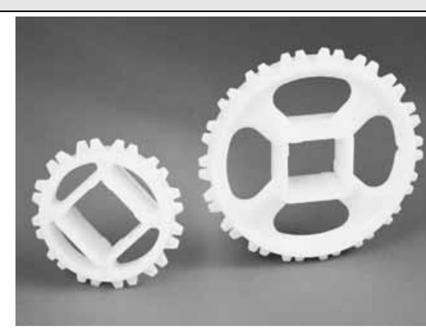
a. Contact Customer Service for lead times. When using Polyurethane sprockets, the Belt Strength for belts rated over 650 lb/ft (967 kg/m) will be de-rated to 650 lb/ft (967 kg/m) when using 1.5" (40 mm) bore sprockets and belt rated over 1,100 lb/ft (1,637 kg/m) will be de-rated to 1,100 lb/ft (1,637 kg/m) when using 2.5" (60 mm) bore sprockets. All other belts will maintain their published rating. The temperature range for Polyurethane sprockets is 0° F (-18 °C) to 120 °F (49 °C). Contact Customer Service for availability of Polyurethane sprockets.

b. Round bore molded and split sprockets are frequently furnished with two keyways. Use of two keys is NOT REQUIRED nor recommended. Round bore sprockets do not have set screws for locking the sprockets in place. As with square bore sprockets, only the center-most sprocket needs to be locked down. Imperial key sizes on round bore sprockets conform to ANSI standard B17.1-1967 (R1989) and metric key sizes conform to DIN standard 6885.

c. See the Retaining Rings section for more information on retaining the 2.1 in. (53 mm) pitch diameter sprocket.

EZ Clean Sprocket Data[a]

No. of Teeth (Chordal Action)	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.[b]	Square in.	Round mm[b]	Square mm
12 (3.41%)	4.1	104	4.3	109	1.5	38		1.5		40
18 (1.52%)	6.1	155	6.3	160	1.5	38		1.5		40

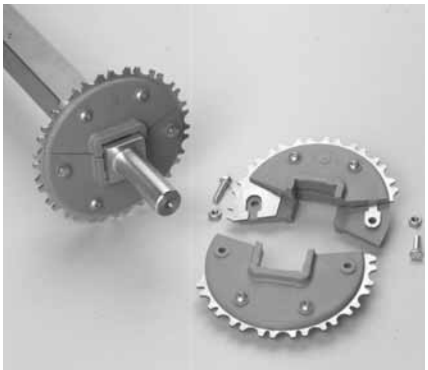


a. Contact Customer Service for lead times. When using Polyurethane sprockets, the Belt Strength for belts rated over 650 lb/ft (967 kg/m) will be de-rated to 650 lb/ft (967 kg/m) when using 1.5" (40 mm) bore sprockets and belt rated over 1,100 lb/ft (1,637 kg/m) will be de-rated to 1,100 lb/ft (1,637 kg/m) when using 2.5" (60 mm) bore sprockets. All other belts will maintain their published rating. The temperature range for Polyurethane sprockets is 0° F (-18 °C) to 120 °F (49 °C). Contact Customer Service for availability of Polyurethane sprockets.

b. Round bore molded and split sprockets are frequently furnished with two keyways. Use of two keys is NOT REQUIRED nor recommended. Round bore sprockets do not have set screws for locking the sprockets in place. As with square bore sprockets, only the center-most sprocket needs to be locked down. Imperial key sizes on round bore sprockets conform to ANSI standard B17.1-1967 (R1989) and metric key sizes conform to DIN standard 6885.

Split Sprocket Data[a]

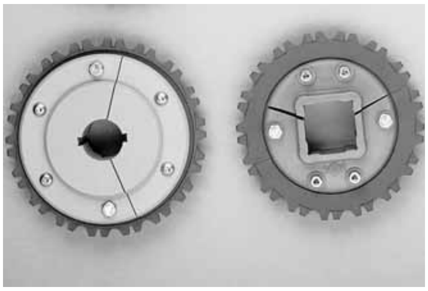
No. of Teeth (Chordal Action)	Nom. Pitch Dia. in.	Nom. Pitch Dia. mm	Nom. Outer Dia. in.	Nom. Outer Dia. mm	Nom. Hub Width in.	Nom. Hub Width mm	Available Bore Sizes: U.S. Sizes Round in.[b]	U.S. Sizes Square in.	Metric Sizes Round mm[b]	Metric Sizes Square mm
10 (4.89%)	3.5	89	3.6	91	1.5	38		1.5		40
12 (3.41%)	4.1	104	4.3	109	1.5	38		1.5		40
15 (2.19%)	5.1	130	5.3	135	1.5	38	1-3/16	1.5		
							1-1/4			
17 (1.70%)	5.8	147	6.1	155	1.5	38			40	40
18 (1.52%)	6.1	155	6.3	160	1.5	38	1-1/4	1.5		40
							1-1/2	2.5		60
20 (1.23%)	6.8	173	7.0	178	1.5	38	1-1/4	1.5		40
								2.5		60
28[c] (0.63%)	9.6	244	9.8	249	1.5	38		1.5		40
								2.5		60



a. **Contact Customer Service for lead times.**
b. Round bore molded and split sprockets are frequently furnished with two keyways. Use of two keys is NOT REQUIRED nor recommended. Round bore sprockets do not have set screws for locking the sprockets in place. As with square bore sprockets, only the center-most sprocket needs to be locked down. Imperial key sizes on round bore sprockets conform to ANSI standard B17.1-1967 (R1989) and metric key sizes conform to DIN standard 6885.
c. The 9.6 in. (244 mm) Pitch Diameter 28 tooth Split Sprocket should not be used with any Series 900 style Acetal belt. A special 9.7 in. (246 mm) Pitch Diameter Split Sprocket must be used instead. Contact Customer Service for lead times.

Molded Glass Filled Nylon Toothplate Split Sprocket Data[a]

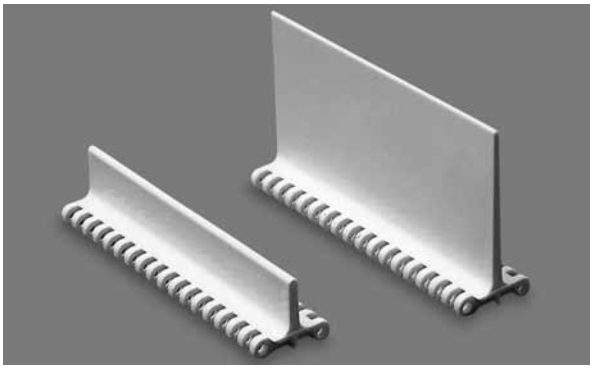
No. of Teeth (Chordal Action)	Nom. Pitch Dia. in.	Nom. Pitch Dia. mm	Nom. Outer Dia. in.	Nom. Outer Dia. mm	Nom. Hub Width in.	Nom. Hub Width mm	Available Bore Sizes: U.S. Sizes Round in.[b]	U.S. Sizes Square in.	Metric Sizes Round mm[b]	Metric Sizes Square mm
15 (2.19%)	5.1	130	5.3	135	1.5	38	1	1.5	30	40
							1-3/16		40	
17 (1.70%)	5.8	147	6.1	155	1.5	38			30	40
									40	
18 (1.52%)	6.1	155	6.3	160	1.5	38	1-1/4	1.5		40
							1-1/2	2.5		60
20 (1.23%)	6.8	173	7.0	178	1.5	38	1-1/4	1.5		40
								2.5		60



a. **Contact Customer Service for lead times.**
b. Round bore molded and split sprockets are frequently furnished with two keyways. Use of two keys is NOT REQUIRED nor recommended. Round bore sprockets do not have set screws for locking the sprockets in place. As with square bore sprockets, only the center-most sprocket needs to be locked down. Imperial key sizes on round bore sprockets conform to ANSI standard B17.1-1967 (R1989) and metric key sizes conform to DIN standard 6885.

Flat Top Base Flights (Streamline)

Available Flight Height in.	Available Flight Height mm	Available Materials
1	25	Polypropylene, Polyethylene, Acetal
2	51	
3	76	



Note: Flights can be cut down to any height required for a particular application.
Note: Each flight rises out of the center of its supporting module, molded as an integral part. No fasteners are required.
Note: Flat Top flight is smooth (Streamline) on both sides.
Note: The minimum indent (without sideguards) is 0.7 in. (17.8 mm).

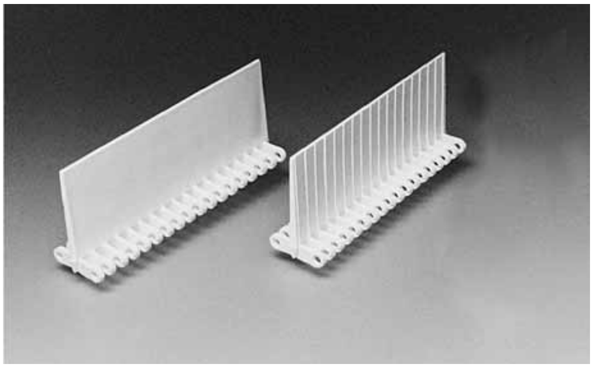
Flush Grid Nub Top Base Flight (Double No-Cling)

Available Flight Height		Available Materials
in.	mm	
4	102	Polypropylene, Acetal

Note: Flights can be cut down to any height required for a particular application.
Note: Each flight rises out of the center of its supporting module, molded as an integral part. No fasteners are required.
Note: No-Cling vertical ribs are on both sides of the flight.
Note: The minimum indent (without sideguards) is 0.7 in. (17.8 mm).

Flush Grid Base Flights (Streamline/No-Cling)

Available Flight Height		Available Materials
in.	mm	
1	25	Polypropylene, Polyethylene, Acetal, HR Nylon (FDA), HR Nylon (Non FDA), Detectable Polypropylene[a]
2	51	



Note: Flights can be cut down to any height required for a particular application.
Note: Each flight rises out of the center of its supporting module, molded as an integral part. No fasteners are required.
Note: One side of the Flush Grid flight is smooth (Streamline) while the other is ribbed vertically (No-Cling).
Note: The minimum indent (without sideguards) is 0.7 in. (17.8 mm).

a. Detectable Polypropylene can be sensed with metal detection equipment. Testing the material on a metal detector in a production environment is the best method for determining detection sensitivity.

Flat Top Base Flights (Streamline Rubber)

Available Flight Height		Available Materials
in.	mm	
1	25	Polypropylene
2	51	
3	76	

Note: Each flight rises out of the center of its supporting module. No fasteners are required.
Note: 3 in. (76 mm) flights are available in Gray rubber only.
Note: Black or Grey rubber on top of Grey Polypropylene modules and White rubber on top of White Polypropylene modules (both FDA approved).
Note: Minimum indent (without sideguards) is 0.7 in (17.8 mm).
Note: Black rubber flights have a hardness of 45 Shore A and White rubber flights have a hardness of 56 Shore A and Gray rubber flights have a hardness of 85 Shore A.
Note: Flights can be cut down to any height required for a particular application with a minimum flight height of 0.25 inch (13 mm).

Sideguards

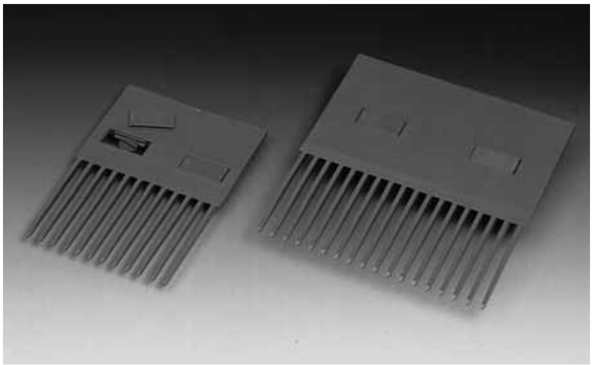
Available Sizes		Available Materials
in.	mm	
2	51	Polypropylene, Polyethylene, Acetal, HR Nylon (FDA), HR Nylon (Non FDA)

Note: Sideguards have a standard overlapping design and are an integral part of the belt, with no fasteners required.
Note: The minimum indent is 1 in. (25.4 mm). The standard gap between the sideguards and the edge of a flight is 0.2 in. (5 mm).
Note: When going around the 6, 9, and 10 tooth sprockets, the sideguards will fan out, opening a gap at the top of the sideguard which might allow small products to fall out. The sideguards stay completely closed when wrapping around the 12 tooth and larger sprockets.

Finger Transfer Plates

Available Widths		Number of Fingers	Available Materials
in.	mm		
6	152	18	Acetal
4	102	12	

Note: Eliminates product transfer and tipping problems. The 18 fingers extend between the belt's ribs allowing a smooth continuation of the product flow as the belt engages its sprockets.
Note: Finger Transfer Plates are installed easily on the conveyor frame with the shoulder bolts supplied. Caps snap easily into place over the bolts, keeping foreign materials out of the slots.
Note: 4 in. (102 mm) (12 finger) are for use only when retrofitting from Series 100 Raised Rib to Series 900 Raised Rib. The 4 in. (102 mm) wide cannot be mixed with the 6 in. (152 mm) wide finger plates.



Hold Down Guides

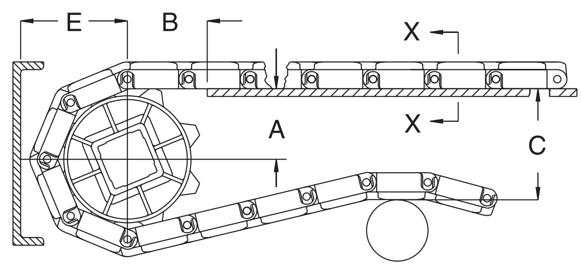
Available Clearance		Available Materials
in.	mm	
0.16	4.1	Acetal
0.35	8.9	

Note: The 0.16 in. (4.1 mm) guide is available in both Flat Top and Flush Grid styles. The 0.35 in (8.9 mm) guide is available with a Flat Top style. The top of this tab sits 0.04 in. below the top of Flat Top belts and is level with the top of Flush Grid belts.
Note: Tabs are 1.4 in (36 mm) wide.
Note: Tabs are placed on every other row.
Note: Minimum indent is 0.7 in. (17.8 mm).
Note: A minimum of 2.7" (69 mm) is required between tabs to accommodate 1 sprocket.
Note: Carryway wearstrip or rollers that engage the tabs are only required at the transition between horizontal sections and angled sections. A carryway radius should be designed at this transition.
Note: Care should be taken to ensure that adequate lead-in radii and/or angles are used to prevent the possibility of snagging the tab on the frame.

Conveyor Frame Dimensions

Regardless of type or configuration, all conveyors using Intralox belts have some basic dimensional requirements. Specifically, dimensions “A”, “B”, “C” and “E” listed below should be implemented in any design.

For general applications and applications where end transfer of tip-sensitive product is not critical, use the “A” dimension at the bottom of the range.



A - ±0.031” (1 mm) **C -** ± (Max)

B - ±0.125” (3 mm) **E -** ± (Min)

Complete descriptions of the dimensions are listed on page 291.

Sprocket Description			A		B		C		E	
Pitch Diameter		No. Teeth	Range (Bottom to Top)		in.	mm	in.	mm	in.	mm
in.	mm		in.	mm						
SERIES 900 FLUSH GRID, FLAT TOP, PERFORATED FLAT TOP, MESH TOP, NUB TOP[a]										
2.1	53	6	0.75-0.90	19-23	1.25	32	2.28	58	1.51	38
3.1	79	9	1.30-1.39	33-35	1.51	38	3.20	81	1.75	44
3.5	89	10	1.47-1.56	37-40	1.70	43	3.60	91	2.01	51
4.1	104	12	1.82-1.90	46-48	1.74	44	4.25	108	2.51	64
5.1	130	15	2.34-2.40	60-61	2.00	51	5.20	132	2.77	70
5.8	147	17	2.69-2.74	68-70	2.13	54	5.80	147	3.15	80
6.1	155	18	2.86-2.91	73-74	2.20	56	6.20	155	3.30	84
6.8	173	20	3.21-3.25	81-82	2.32	59	6.75	171	3.86	98
9.6	244	28	4.58	116	2.96	75	9.70	246	5.02	128
SERIES 900 FLUSH GRID NUB TOP[a]										
2.1	53	6	0.75-0.90	19-23	1.22	31	2.19	56	1.35	34
3.1	79	9	1.30-1.39	33-35	1.52	39	3.17	81	1.85	47
3.5	89	10	1.47-1.56	37-40	1.64	42	3.51	89	2.02	51
4.1	104	12	1.82-1.90	46-48	1.75	44	4.19	106	2.35	60
5.1	130	15	2.34-2.40	59-61	1.95	50	5.19	132	2.86	73
5.8	147	17	2.69-2.74	68-70	2.09	53	5.87	149	3.20	81
6.1	155	18	2.86-2.91	73-74	2.12	54	6.21	158	3.37	86
6.8	173	20	3.21-3.25	82-83	2.25	57	6.89	175	3.70	94
9.6	244	28	4.58	116	2.92	74	9.61	244	5.06	129
SERIES 900 RAISED RIB, FLUSH GRID WITH INSERT ROLLERS, OPEN GRID[a]										
2.1	53	6	0.75-0.90	19-23	1.25	32	2.28	58	1.73	44
3.1	79	9	1.30-1.39	33-35	1.51	38	3.20	81	1.97	50
3.5	89	10	1.47-1.56	37-40	1.70	43	3.60	91	2.23	57
4.1	104	12	1.82-1.90	46-48	1.74	44	4.25	108	2.73	69
5.1	130	15	2.34-2.40	60-61	2.00	51	5.20	132	2.99	76
5.8	147	17	2.69-2.74	68-70	2.13	54	6.00	152	3.40	86
6.1	155	18	2.86-2.91	73-74	2.20	56	6.20	157	3.52	89

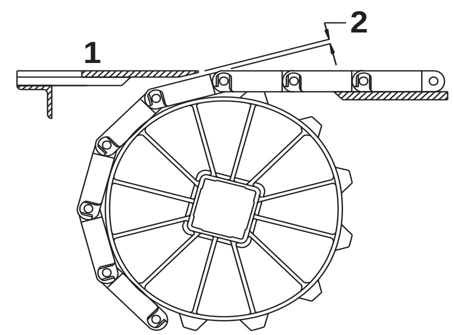
Sprocket Description			A		B		C		E	
Pitch Diameter		No. Teeth	Range (Bottom to Top)		in.	mm	in.	mm	in.	mm
in.	mm		in.	mm						
6.8	173	20	3.21-3.25	81-82	2.32	59	6.75	171	4.08	104
9.6	244	28	4.58	116	2.96	75	9.70	246	5.24	133
SERIES 900 DIAMOND FRICTION TOP, FLAT FRICTION TOP, SQUARE FRICTION TOP[a]										
2.1	53	6	0.75-0.90	19-23	1.25	32	2.28	58	1.76	45
3.1	79	9	1.30-1.39	33-35	1.51	38	3.20	81	1.96	50
3.5	89	10	1.47-1.56	37-40	1.70	43	3.60	91	2.22	56
4.1	104	12	1.82-1.90	46-48	1.74	44	4.25	108	2.72	69
5.1	130	15	2.34-2.40	60-61	2.00	51	5.20	132	2.98	76
5.8	147	17	2.69-2.74	68-70	2.13	54	6.00	152	3.40	86
6.1	155	18	2.86-2.91	73-74	2.20	56	6.20	157	3.51	89
6.8	173	20	3.21-3.25	81-82	2.32	59	6.75	171	4.08	104
9.6	244	28	4.58	116	2.96	75	9.70	246	5.23	133
SERIES 900 MOLD TO WIDTH 29 MM SQUARE FRICTION TOP[a]										
2.1	53	6	0.75-0.90	19-23	1.27	32	2.38	60	1.54	39
3.1	79	9	1.30-1.39	33-35	1.58	40	3.36	85	2.04	52
3.5	89	10	1.47-1.56	37-40	1.70	43	3.70	94	2.21	56
4.1	104	12	1.82-1.90	46-48	1.88	48	4.38	111	2.54	65
5.1	130	15	2.34-2.40	59-61	2.10	53	5.38	137	3.05	77
5.8	147	17	2.69-2.74	68-70	2.32	59	6.06	154	3.39	86
6.1	155	18	2.83-2.88	72-73	2.31	59	6.34	161	3.52	89
6.8	173	20	3.21-3.25	82-83	2.42	61	7.08	180	3.89	99
9.6	244	28	4.58-4.61	116-117	2.92	74	9.80	249	5.25	133

a. Refer to *"Anti-sag carryway wearstrip configuration"* (page 296), for alternative layouts for the "B" dimension.

Dead Plate Gap

Where there is a transfer point from a belt without finger transfer plates to a dead plate, there should be a gap between the surfaces to allow for the chordal action of the belt. As the belt engages its sprockets, chordal action causes the modules to move past a *fixed* point (the tip of the dead plate) with *varying* clearances. The table below shows the minimum amount of gap which occurs at the "low point" of the modules if the tip of the dead plate just comes in contact with the "high point" as the modules pass.

In some installations it may be desirable to keep the tip of the dead plate in contact with the belt, rather than allow a gap to occur. This can be done by hinging the mounting bracket for the dead plate. This allows the dead plate to move as the modules pass, but results in a small oscillating motion which may present tippage problems for sensitive containers or products.



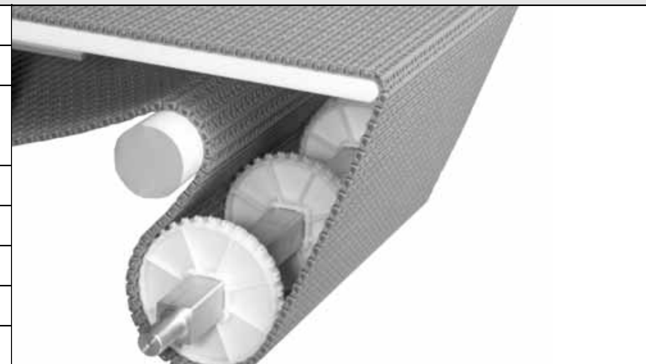
1 - Top surface of dead plate **2 -** Dead plate gap

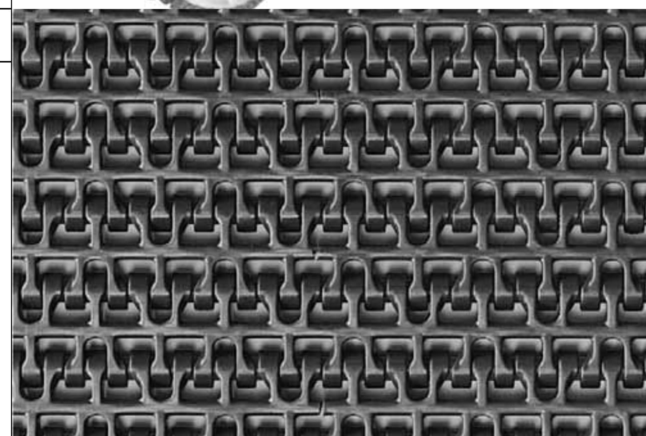
Note: The top surface of the dead plate is typically 0.031 in. (0.8 mm) above the belt surface for product transfer onto the belt, and 0.031 in. (0.8 mm) below the belt surface for product transfer off the belt.

Sprocket Description			Gap	
Pitch Diameter		No. Teeth	in.	mm
in.	mm			
2.1	53	6	0.147	3.7
3.1	79	9	0.095	2.4
3.5	89	10	0.084	2.1
4.1	104	12	0.071	1.8
5.1	130	15	0.057	1.4
5.8	147	17	0.050	1.3
6.1	155	18	0.047	1.2
6.8	173	20	0.042	1.1
9.6	244	28	0.029	0.7

Flush Grid

	in.	mm
Pitch	0.60	15.2
Minimum Width	See Product Notes	
Width Increments		
Min. Opening Size (approx.)	0.17 × 0.10	4.3 × 2.5
Max. Opening Size (approx.)	0.31 × 0.10	7.9 × 2.5
Open Area	28%	
Hinge Style	Open	
Drive Method	Hinge-driven	



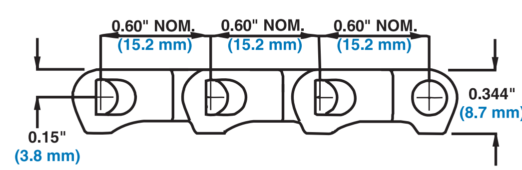


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Lightweight with smooth surface grid.
- Mini-pitch reduces chordal action and transfer dead plate gap.
- Custom-built in widths from 3 in. (76 mm) and up, in 1.00 in. (25.4 mm) increments. FR-TPES and EC Acetal are built in widths from 5 in. (127 mm) and up, in 1.00 in. (25.4 mm) increments.
- Can be used over 0.875 in. (22.2 mm) diameter nosebar for tight transfers.
- For information regarding sprocket placement, refer to the Center Sprocket Offset chart on page 264.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



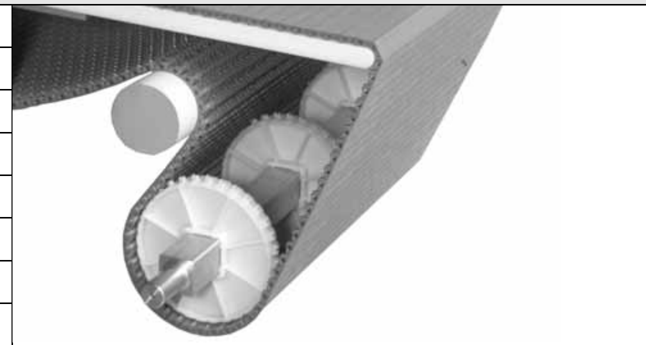
Belt Data

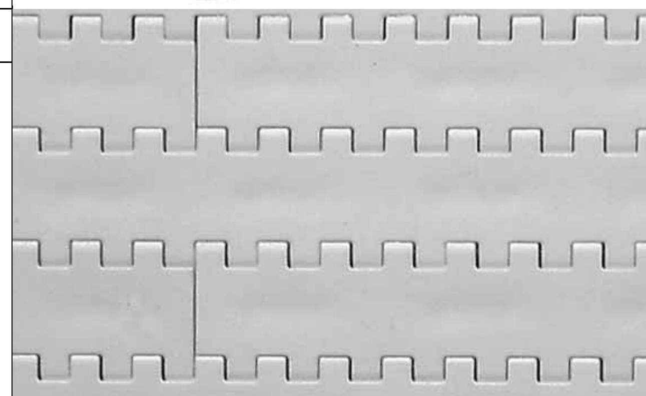
Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey							
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA-FSIS - Meat & Poultry	USDA Dairy[a]	CFA[b]	A[c]	M[d]	J[e]	EU MC[f]
Polypropylene	Polypropylene	700	1040	34 to 220	1 to 104	0.81	3,95	•	•	1	•	•	•	3	•
Polyethylene	Polyethylene	450	670	-50 to 150	-46 to 66	0.87	4.25	•	•	3	•		•	3	•
Acetal	Polypropylene	1300	1940	34 to 200	1 to 93	1.19	5.80	•	•	1	•			3	•
EC Acetal	Polypropylene	800	1190	34 to 200	1 to 93	1.19	5.80								
FR-TPES	Polypropylene	750	1120	40 to 180	7 to 82	1.30	6.34								
Non FDA HR Nylon	Non FDA HR Nylon	1100	1640	-50 to 310	-46 to 154	1.20	5.80								
UV Resistant Polypropylene	UV Resistant Polyethylene	700	1040	34 to 220	1 to 104	0.81	3.98								
Acetal[g]	Polyethylene	1200	1790	-50 to 70	-46 to 41	1.19	5.80	•	•	1	•			3	•

a. USDA Dairy acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
e. Japan Ministry of Health, Labour, and Welfare
f. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.
g. Polyethylene rods can be used in cold applications when impacts or sudden starts/stops occur. Please note lower rating.

Flat Top

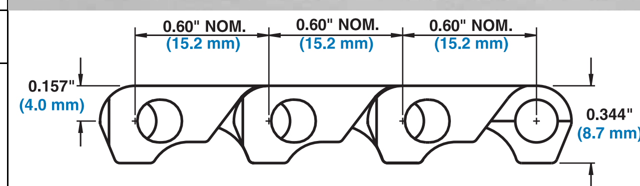
	in.	mm
Pitch	0.60	15.2
Minimum Width	3	76
Width Increments	1.00	25.4
Opening Size (approximate)	-	-
Open Area	0%	
Hinge Style	Open	
Drive Method	Hinge-driven	





Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Lightweight with smooth, closed surface grid.
- Mini-pitch reduces chordal action and transfer dead plate gap.
- Can be used over 0.875 in. (22.2 mm) diameter nosebar for tight transfers.
- For information regarding sprocket placement, refer to the Center Sprocket Offset chart on page 278.



Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)

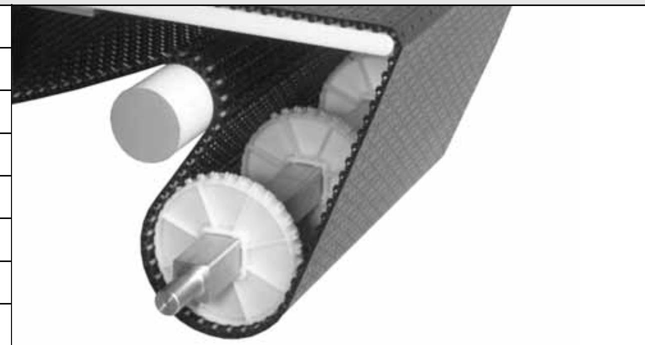
Belt Data

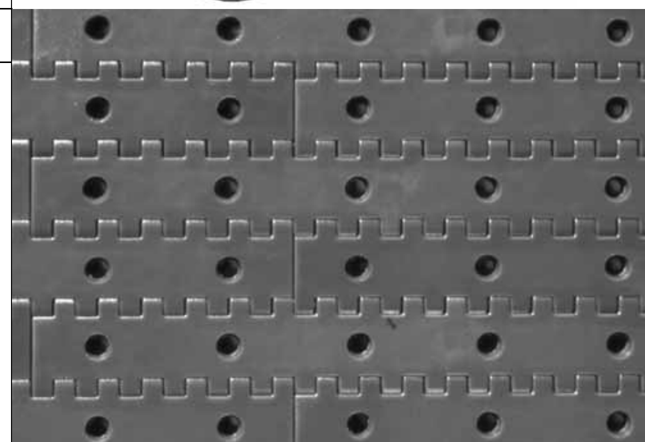
Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey								
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA-FSIS - Meat & Poultry	USDA Dairy[a]	CFA[b]	A[c]	Z[d]	M[e]	J[f]	EU MC[g]
Polypropylene	Polypropylene	500[h]	1490[h]	34 to 220	1 to 104	0.90	4.40	•	•	1	•	•	•	•	3	•
Polyethylene	Polyethylene	300[h]	450[h]	-50 to 150	-46 to 66	0.96	4.69	•	•	3	•	•		•	3	•
Acetal	Polypropylene	1000	1490	34 to 200	1 to 93	1.30	6.35	•	•	1	•				3	•
Acetal[i]	Polyethylene	900	1340	-50 to 70	-46 to 41	1.30	6.35	•	•	1	•				3	•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. New Zealand Ministry of Agriculture and Forestry
e. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
f. Japan Ministry of Health, Labour, and Welfare
g. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.
h. When using steel split sprockets, the belt strength for polypropylene is 400 lb/ft (595 kg/m): polyethylene is 240 lb/ft (360 kg/m)
i. Polyethylene rods can be used in cold applications when impacts or sudden starts/stops occur. Please note lower rating.

Perforated Flat Top

	in.	mm
Pitch	0.60	15.2
Minimum Width	3	76
Width Increments	1.00	25.4
Opening Size (approximate)	-	-
Open Area	3%	
Hinge Style	Open	
Drive Method	Hinge-driven	



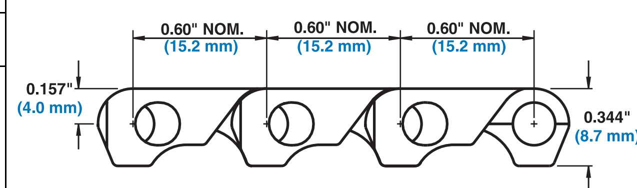


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Available with 5/32 in. (4 mm) round perforations on a nominal 1 in. (25.4 mm) × 0.6 in. (15.2 mm) perforation pattern.
- For use on vacuum applications requiring tight, end-to-end transfers.
- Underside design and small pitch allows the belt to run smoothly around nosebars.
- Can be used over 0.875 in. (22.2 mm) diameter nosebar for tight transfers.
- For information regarding sprocket placement, refer to the Center Sprocket Offset chart on page 278.

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



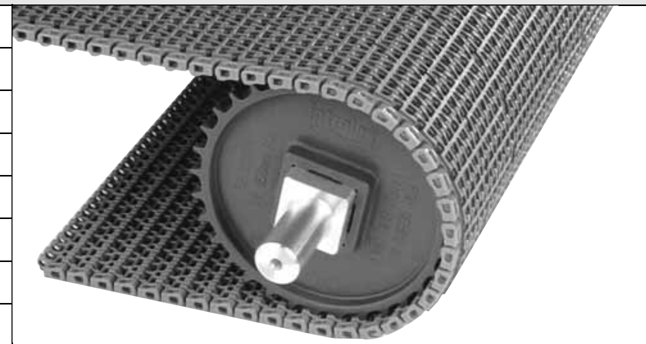
Belt Data

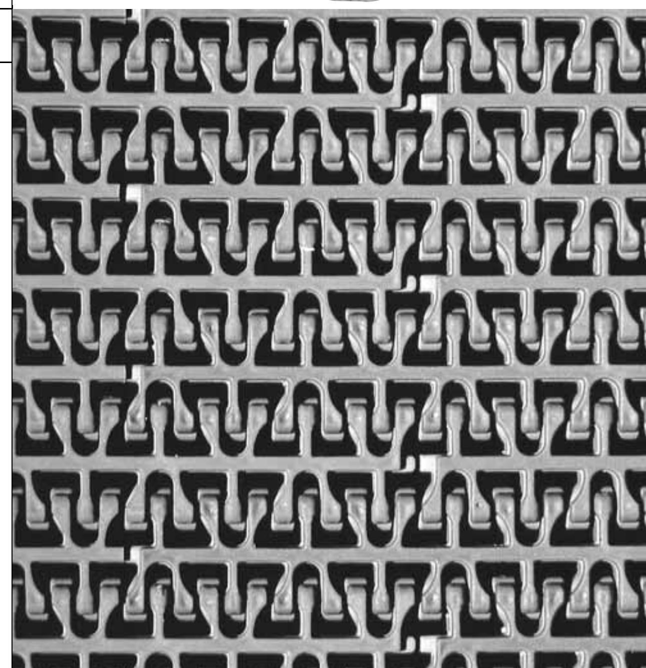
Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA-FSIS - Meat & Poultry	USDA Dairy[a]	CFA[b]	A[c]	J[d]	EU MC[e]
Acetal	Polypropylene	1000	1490	34 to 200	1 to 93	1.30	6.35	•	•				3	•
Acetal[f]	Polyethylene	900	1340	-50 to 70	-46 to 41	1.30	6.35	•	•				3	•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.
f. Polyethylene rods can be used in cold applications when impacts or sudden starts/stops occur. Please note lower rating.

Flush Grid Friction Top

	in.	mm
Pitch	0.60	15.2
Minimum Width	3	76
Width Increments	1.00	25.4
Opening Size (approximate)	0.17 × 0.10	4.3 × 2.5
Open Area	28%	
Hinge Style	Open	
Drive Method	Hinge-driven	



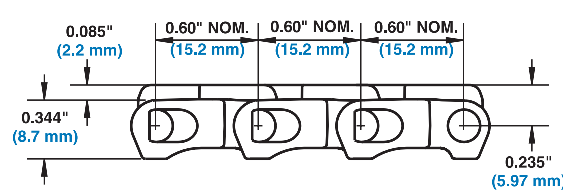


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Available with grey rubber on a grey polypropylene belt and white rubber on a white polypropylene belt.
- White Friction Top materials comply with FDA regulations for use in food processing and packaging applications.
- Can be used over 0.875 in. (22.2 mm) diameter nosebar for tight transfers.
- For information regarding sprocket placement, refer to the Center Sprocket Offset chart on page 278.
- Belts have a 0.34 in. (8.6 mm) molded indent.
- Grey rubber has a hardness of 64 Shore A. White rubber has a hardness of 55 Shore A.
- If a center-drive set up is used, it may be necessary to place collars to laterally retain the belt at the backbend roller before the drive. Abrasion Resistant rods are required.
- Temperature, environmental conditions and product characteristics affect the effective maximum degree of incline. Take these items into consideration when designing conveyor systems utilizing these belts.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



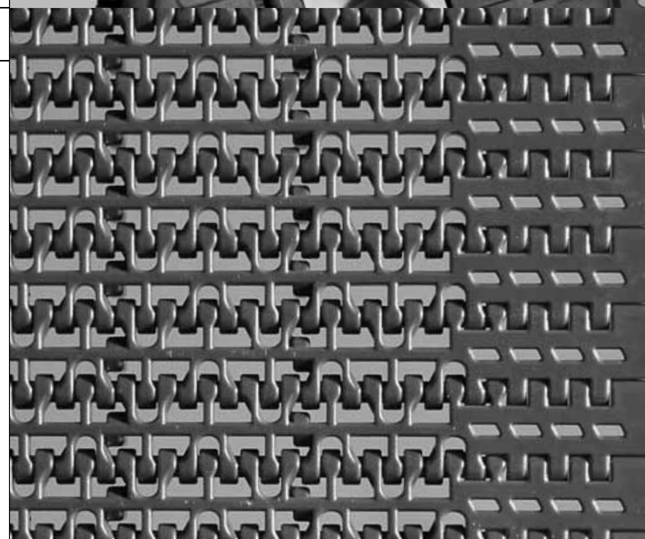
Belt Data

Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength lb/ft	BS Belt Strength kg/m	Temperature Range (continuous) °F	Temperature Range (continuous) °C	W Belt Weight lb/ft²	W Belt Weight kg/m²	Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey FDA (USA)	USDA Dairy[a]	CFA[b]	A[c]	J[d]	M[e]	EU MC[f]
Polypropylene	Polypropylene	700	1040	34 to 150	1 to 66	0.81	3.98	1						

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
f. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

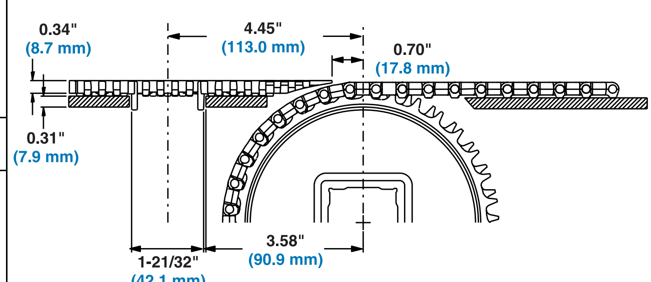
ONEPIECE™ Live Transfer Flush Grid

	in.	mm
Pitch	0.60	15.2
Minimum Width	6	152
Width Increments	1.00	25.4
Min. Opening Size (approx.)	0.17 × 0.10	4.3 × 2.5
Max. Opening Size (approx.)	0.31 × 0.10	7.9 × 2.5
Open Area	28%	
Hinge Style	Open	
Drive Method	Hinge-driven	



Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Lightweight with smooth surface grid.
- Mini-pitch reduces chordal action, resulting in a smoother product transfer.
- Transfer edge is an integral part of this belt.
- Designed for smooth, self-clearing, right angle transfers onto takeaway belts.
- Molded tracking tabs fit into standard 1-3/4 in. (44.5 mm) wearstrip tracks insuring proper belt alignment.
- Built with nylon rods for superior wear resistance.
- Recommended for use with EZ Tracking sprockets.
- You may need to include a fixed frame support member beneath the ONEPIECE™ **Live Transfer** belt prior to the actual transfer. This will insure that the ONEPIECE™ **Live Transfer** belt does not snag when it intersects with the takeaway belt. See *"Fig. 3–32 PARABOLIC GUIDE RAIL CONTOURS WITH 6.0 in. (152 mm) ONEPIECE™ LIVE TRANSFER BELT"* (page 310).
- Also available in 6 in. (152 mm) Mold to Width.
- Use sprockets with a Pitch Diameter of 3.5 in. (89 mm) or larger.
- For custom belt widths please contact Customer Service.



Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)

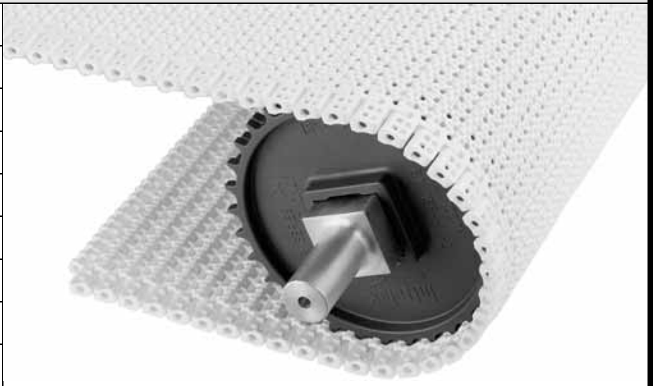
Belt Data

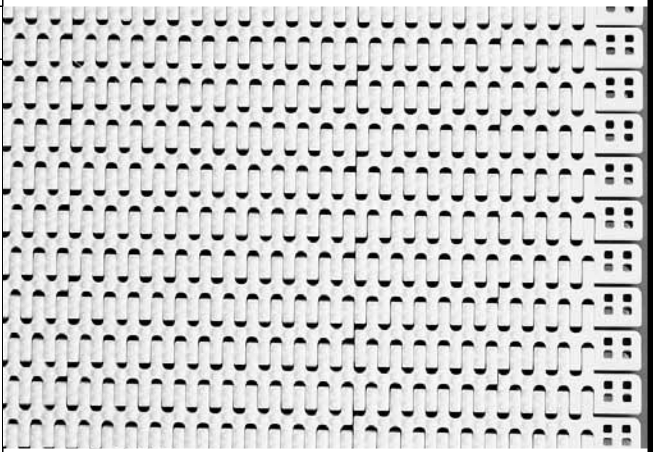
Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey			
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[a]	J[b]	EU MC[c]
Acetal	Nylon	1300	1940	34 to 200	1 to 93	1.19	5.80	•		3	•
FR-TPES	Nylon	750	1120	40 to 180	7 to 82	1.30	6.34				
Non FDA HR Nylon	Non FDA HR Nylon	1100	1640	-50 to 310	-46 to 154	1.20	5.80				

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Japan Ministry of Health, Labour, and Welfare
c. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Flush Grid Nub Top

	in.	mm
Pitch	0.60	15.2
Minimum Width	3	76
Width Increments	1.00	25.4
Opening Size (approx.)	0.18 × 0.09	4.4 × 2.3
Open Area	15%	
Product Contact Area	26%	
Hinge Style	Open	
Drive Method	Hinge-driven	



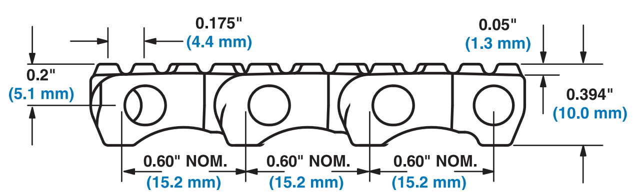


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Standard Nub indent is 1 inch (25.4 mm).
- Headless rod retention system allows re-use of rods.
- Nub pattern reduces contact between belt surface and product.
- Manufactured in Acetal, Polypropylene and Polyethylene (for frozen products).
- Recommended for products large enough to span the distance between the nubs.
- Can be fitted with a 2.0 inch (50.8 mm) Flush Grid Nub Top flight.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



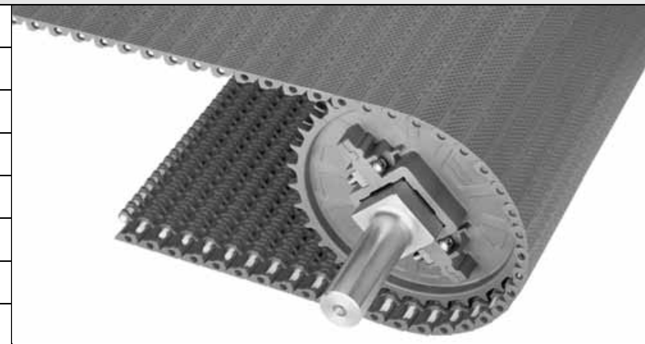
Belt Data

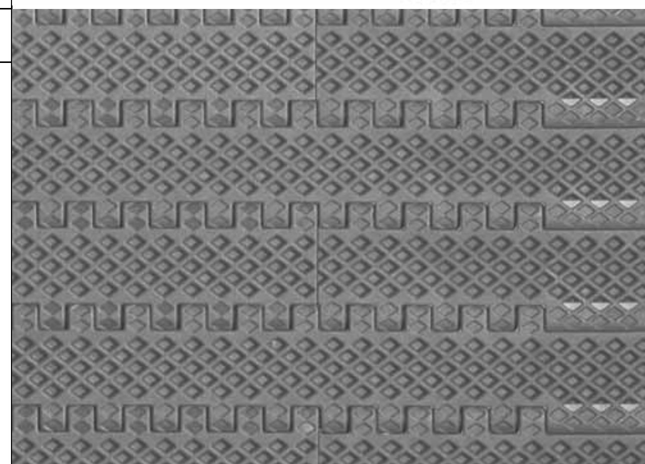
Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength[a]		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[b]	CFA[c]	A[d]	J[e]	M[f]	EU MC[g]
Polypropylene	Polypropylene	700	1040	34 to 220	1 to 104	0.93	4.55	•				3		•
Acetal	Polypropylene	1300	1940	34 to 220	7 to 93	1.36	6.65	•				3		•
Polyethylene	Polyethylene	450	670	-50 to 150	-46 to 66	1.00	4.90	•				3		•
Acetal	Polyethylene	1200	1790	-50 to 70	-46 to 41	1.36	6.65	•				3		•

a. When using Polyurethane sprockets, the Belt Strength for Polypropylene, Acetal and Nylon is750 lbs/ft (1120 kg/m), and the temperature range for the sprocket is 0 °F (-18 °C) to 120 °F (49 °C). Contact Customer Service for availability of Polyurethane sprockets.
b. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
c. Canada Food Inspection Agency
d. Australian Quarantine Inspection Service
e. Japan Ministry of Health, Labour, and Welfare
f. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
g. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Embedded Diamond Top

	in.	mm
Pitch	0.60	15.2
Minimum Width	3	76
Width Increments	1.00	25.4
Opening Size (approx.)	-	-
Open Area	0%	
Hinge Style	Open	
Drive Method	Hinge-driven	



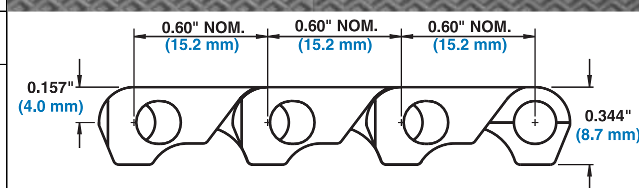


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Lightweight with smooth, closed surface grid.
- Mini-pitch reduces chordal action and transfer dead plate gap.
- Can be used over 0.875 in. (22.2 mm) diameter nosebar for tight transfers.
- For information regarding sprocket placement, refer to the Center Sprocket Offset chart on page 278.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



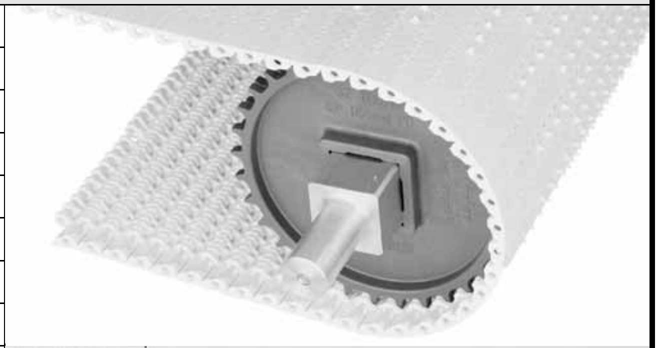
Belt Data

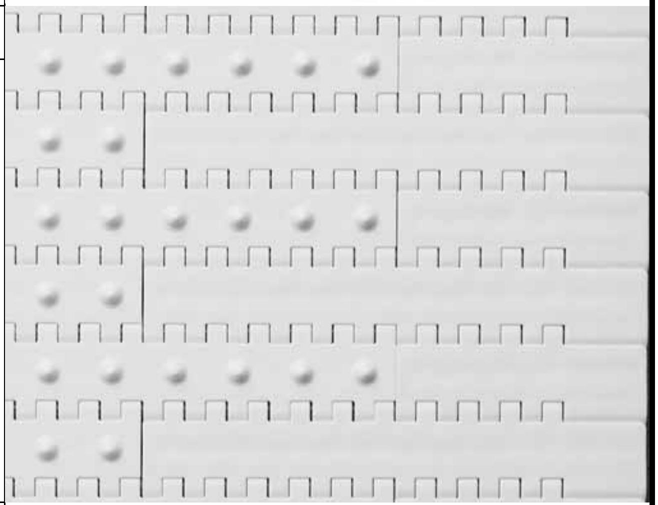
Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength[a]		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey							
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA-FSIS - Meat & Poultry	USDA Dairy[b]	CFA[c]	A[d]	J[e]	M[f]	EU MC[g]
Polyethylene	Polyethylene	300	450	-50 to 150	-46 to 66	0.96	4.69	•	•	3			3		•

a. When using steel sprockets, the belt strength for polyethylene is 240 lb/ft (360 kg/m).
b. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
c. Canada Food Inspection Agency
d. Australian Quarantine Inspection Service
e. Japan Ministry of Health, Labour, and Welfare
f. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
g. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Cone Top™

	in.	mm
Pitch	0.60	15.2
Minimum Width	9	229
Width Increments	1.00	25.4
Opening Size (approx.)	-	-
Open Area	0%	
Hinge Style	Open	
Drive Method	Hinge-driven	



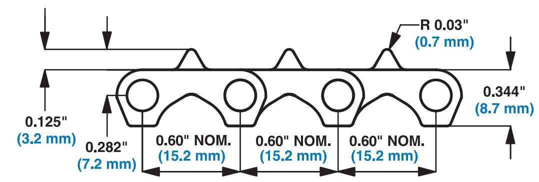


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Mini-pitch reduces chordal action and transfer dead plate gap.
- Can be used over 0.875 in. (22.2 mm) diameter nosebar for tight transfers.
- For information regarding sprocket placement, refer to the Center Sprocket Offset chart on page 278.
- Minimum indent is 2 in. (50.8 mm).

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



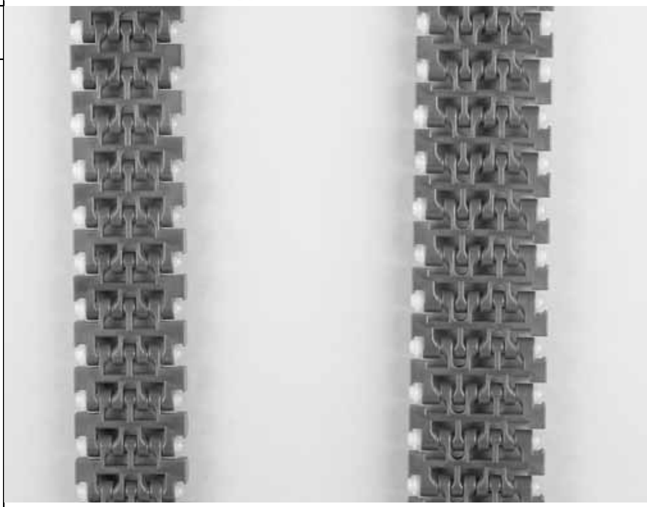
Belt Data

Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength lb/ft	BS Belt Strength kg/m	Temperature Range (continuous) °F	Temperature Range (continuous) °C	W Belt Weight lb/ft²	W Belt Weight kg/m²	Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey FDA (USA)	USDA-FSIS - Meat & Poultry	USDA Dairy[a]	CFA[b]	A[c]	J[d]	M[e]	EU MC[f]
Acetal	Polypropylene	1000	1490	34 to 200	1 to 93	1.31	6.40	•	•	1			3		•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
f. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Flush Grid MTW, 38 and 46 mm Wide

	in.	mm
Pitch	0.60	15.2
Molded Widths	1.5 & 1.8	38 & 46
Min. Opening Size (approx.)	0.17 × 0.10	4.3 × 2.5
Max. Opening Size (approx.)	0.31 × 0.10	7.9 × 2.5
Open Area	26%	
Hinge Style	Open	
Drive Method	Hinge-driven	

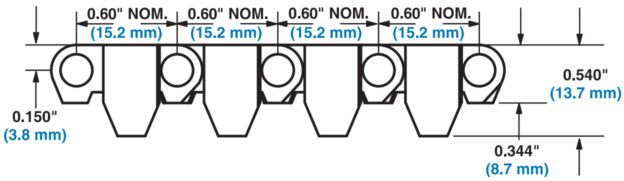


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Boxed in 10 ft. (3.1 m) increments.
- Flush edges with snap-in rod retention.
- Tracking tabs provide lateral tracking.
- All chains come with nylon rodlets standard, providing longer service life.
- Lightweight with smooth surface grid.
- Can be used over 0.875 in. (22.2 mm) diameter nosebar for tight transfers.
- One (1) sprocket maximum per shaft for both widths.
- EZ Track sprockets only.
- The 38 mm belt has a 1.23 in. (31.2 mm) spacing between tabs. The 46 mm belt has a 1.54 in (39.1 mm) spacing.

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



Belt Data

Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength[a]		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb	kg	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[b]	CFA[c]	A[d]	J[e]	M[f]	EU MC[g]
Acetal (38 mm)	Nylon	130	59	-50 to 200	-46 to 93	0.185	0.275	•				3		•
Acetal (46 mm)	Nylon	150	68	-50 to 200	-46 to 93	0.216	0.321	•				3		•

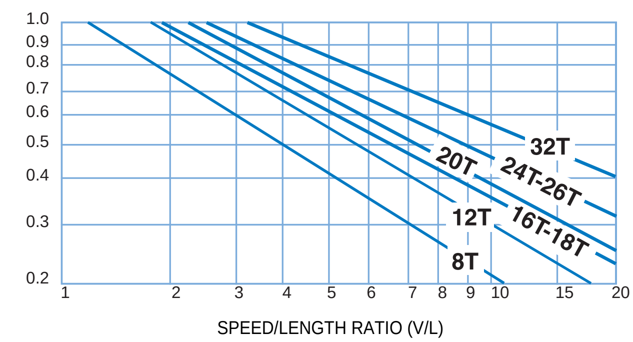
a. When using steel sprockets, the belt strength for polyethylene is 240 lb/ft (360 kg/m).
b. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
c. Canada Food Inspection Agency
d. Australian Quarantine Inspection Service
e. Japan Ministry of Health, Labour, and Welfare
f. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
g. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Sprocket and Support Quantity Reference[a]

Belt Width Range[b] in.	Belt Width Range[b] mm	Minimum Number of Sprockets Per Shaft[c]	Wearstrips Carryway	Wearstrips Returnway
3	76	1	2	2
4	102	1	2	2
6	152	2	2	2
7	178	2	3	2
8	203	2	3	2
10	254	3	3	2
12	305	3	3	2
14	356	5	4	3
15	381	5	4	3
16	406	5	4	3
18	457	5	4	3
20	508	5	5	3
24	610	7	5	3
30	762	9	6	4
32	813	9	7	4
36	914	9	7	4
42	1067	11	8	5
48	1219	13	9	5
54	1372	15	10	6
60	1524	15	11	6
72	1829	19	13	7
84	2134	21	15	8
96	2438	25	17	9
120	3048	31	21	11
144	3658	37	25	13
For Other Widths, Use Odd Number of Sprockets[d] at Maximum 4 in. (102 mm) ℄ Spacing			Maximum 6 in. (152 mm) ℄ Spacing	Maximum 12 in. (305 mm) ℄ Spacing

a. Because of the single plate steel design, Intralox recommends using twice as many 8 and 12 tooth sprockets as indicated.
b. If your belt width exceeds a number listed in the table, please refer to the sprocket and support material minimums for the next larger width range listed. Belts are available in 1.00 in. (25.4 mm) increments beginning with minimum width of 3 in. (76 mm). **If the actual width is critical, consult Customer Service.**
c. These are the minimum number of sprockets. Additional sprockets may be required for heavily loaded applications.
d. The center sprocket should be locked down. With only two sprockets, fix the sprocket on the drive journal side only.

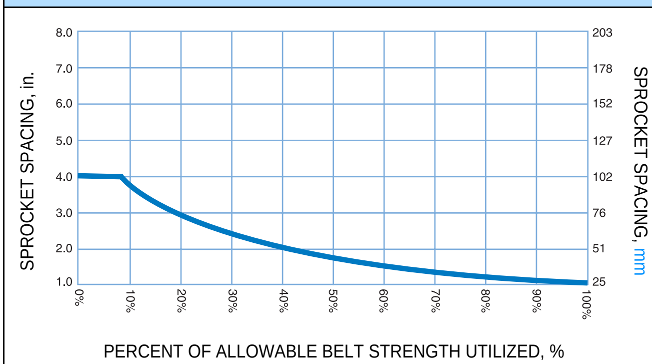
S Strength Factor



V = ft/min (m/min)
T = number of teeth
L = ft (m)

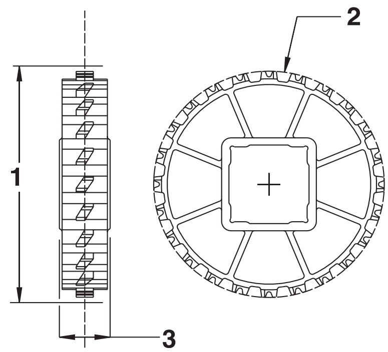
Divide belt speed "V" by the shaft ℄ distance "L". Strength Factor is found at intersection of speed/length ratio and appropriate sprocket line. See page 35 for more information.

Sprocket Spacing as a Function of Belt Strength Utilized



Molded Sprocket Data[a]

No. of Teeth (Chordal Action)	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 Round in.[b]	Available Bore Sizes: U.S. Sizes Square in.	Available Bore Sizes: Metric Sizes Round mm[b]	Available Bore Sizes: Metric Sizes Square mm
12 (3.41%)	2.3	58	2.3	58	0.75	19	1.0	1.0	25	25
16 (1.92%)	3.1	79	3.1	79	1.0	25	1 to 1-1/4	1.5	25 to 30	40
18 (1.52%)	3.5	89	3.5	89	0.75	19		1.0		25
								1.5		40
20 (1.23%)	3.8	97	3.8	97	1.0	25		1.5		40
24 (0.86%)	4.6	117	4.7	119	1.0	25	1 to 1-1/4	1.5	25 to 30	40
								2.5		60
26 (0.73%)	5.1	130	5.1	130	1.0	25	1 to 1-1/4	1.5	25 to 30	40
32 (0.48%)	6.1	155	6.2	157	1.0	25	1 to 1-1/4	1.5	25 to 30	40
								2.5		60

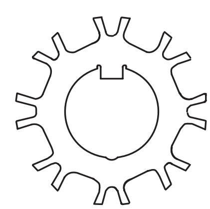


1 - Pitch diameter
2 - Outer diameter
3 - Hub width

a. **Contact Customer Service for lead times.**
b. Round bore molded and split sprockets are frequently furnished with two keyways. Use of two keys is NOT REQUIRED nor recommended. Round bore sprockets do not have set screws for locking the sprockets in place. As with square bore sprockets, only the center-most sprocket needs to be locked down. Imperial key sizes on round bore sprockets conform to ANSI standard B17.1-1967 (R1989) and metric key sizes conform to DIN standard 6885.

Stainless Steel Sprocket Data[a]

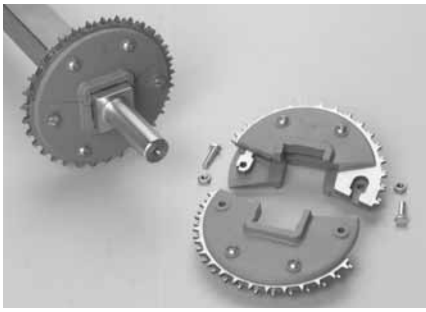
No. of Teeth (Chordal Action)	Nom. Pitch Dia. in.	Nom. Pitch Dia. mm	Nom. Outer Dia. in.	Nom. Outer Dia. mm	Nom. Hub Width in.	Nom. Hub Width mm	Available Bore Sizes: U.S. Sizes Round in.[b]	Available Bore Sizes: U.S. Sizes Square in.	Available Bore Sizes: Metric Sizes Round mm[b]	Available Bore Sizes: Metric Sizes Square mm
8 (7.61%)	1.6	41	1.6	41	0.164	4.2	3/4	5/8	20	
12 (3.41%)	2.3	58	2.3	58	0.164	4.2	1.0	1.0	25	25



a. **Contact Customer Service for lead times.**
b. The stainless steel sprockets have a male key in the round bore sizes. Since the key is part of the sprocket, only the center sprockets should be locked down to track the belt. The male key requires that the shaft keyway run the entire length of the shaft. Imperial key sizes on round bore sprockets conform to ANSI standard B17.1-1967 (R1989) and metric key sizes conform to DIN standard 6885

Split Sprocket Data[a]

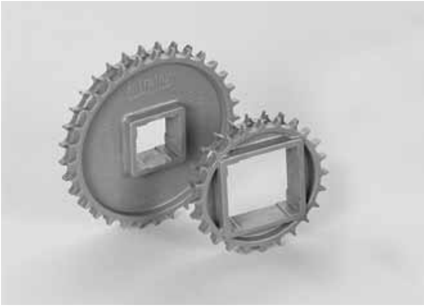
No. of Teeth (Chordal Action)	Nom. Pitch Dia. in.	Nom. Pitch Dia. mm	Nom. Outer Dia. in.	Nom. Outer Dia. mm	Nom. Hub Width in.	Nom. Hub Width mm	Available Bore Sizes: U.S. Sizes Round in.[b]	U.S. Sizes Square in.	Metric Sizes Round mm[b]	Metric Sizes Square mm
18 (1.54%)	3.5	89	3.5	89	1.7	43		1.5		40
24 (0.86%)	4.6	117	4.7	119	1.7	43	1 1-3/16 1-1/4	1.5	30	40
26 (0.73%)	5.1	130	5.1	130	1.7	43	1 1-3/16 1-1/4	1.5 2.5		40 60
32 (0.48%)	6.1	155	6.2	157	1.7	43	1 1-3/16 1-1/4 1-1/2	1.5 2.5		40 60



a. **Contact Customer Service for lead times.**
b. Imperial key sizes on round bore sprockets conform to ANSI standard B17.1-1967 (R1989) and metric key sizes conform to DIN standard 6885

EZ Track™ Molded Sprocket Data[a]

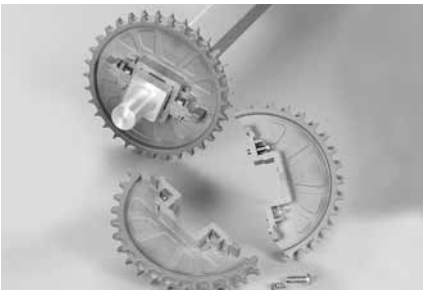
No. of Teeth (Chordal Action)	Nom. Pitch Dia. in.	Nom. Pitch Dia. mm	Nom. Outer Dia. in.	Nom. Outer Dia. mm	Nom. Hub Width in.	Nom. Hub Width mm	Available Bore Sizes: U.S. Sizes Round in.	U.S. Sizes Square in.	Metric Sizes Round mm	Metric Sizes Square mm
16 (1.92%)	3.1	79	3.1	79	1.0	25		1.5		40
18 (1.52%)	3.5	89	3.5	89	1.0	25		1.5		40
24 (0.86%)	4.6	117	4.7	119	1.0	25		1.5 2.5		40 60
32 (0.48%)	6.1	155	6.2	157	1.0	25		1.5 2.5		40 60



a. **Contact Customer Service for lead times.**

EZ Track™ Molded Glass Filled Nylon Split Sprocket Data[a]

No. of Teeth (Chordal Action)	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 Round in.	U.S. Sizes Square in.	Metric Sizes Round mm	Metric Sizes Square mm
24 (0.86%)	4.6	117	4.7	119	1.5	38		1.5		40
32 (0.48%)	6.1	155	6.2	157	1.5	38		1.5 2.5		40 60



a. **Contact Customer Service for lead times.**

EZ Track™/EZ Clean™ Molded Sprocket Data[a]

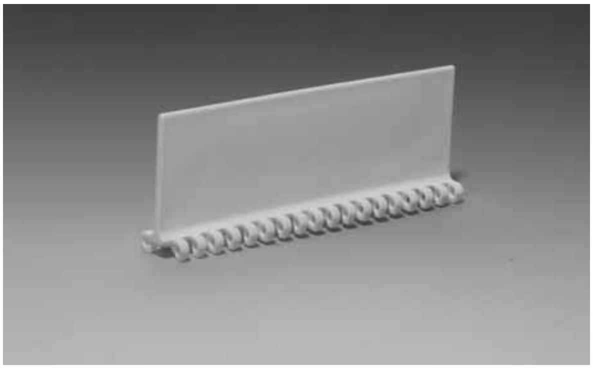
No. of Teeth (Chordal Action)	Nom. Pitch Dia. in.	Nom. Pitch Dia. mm	Nom. Outer Dia. in.	Nom. Outer Dia. mm	Nom. Hub Width in.	Nom. Hub Width mm	Available Bore Sizes: U.S. Sizes: Round in.	U.S. Sizes: Square in.	Metric Sizes: Round mm	Metric Sizes: Square mm
12 (3.41%)	2.3	58	2.3	58	1.0	25	1.0	1.0	25	25
16 (1.92%)	3.1	79	3.1	79	1.0	25	1.0		25	
							1-1/16, 1-1/8, 1-1/4		30	
18 (1.52%)	3.5	89	3.5	89	1.0	25		1.0		25
20 (1.23%)	3.8	97	3.8	97	1.0	25		1.5		40
24 (0.86%)	4.6	117	4.7	119	1.0	25	1.0		25	
							1-1/16, 1-1/8, 1-3/16, 1-1/4		30	
26 (0.73%)	5.1	130	5.1	130	1.0	25	1.0	1.5	25	40
							1-1/16, 1-1/8, 1-1/4		30	
32 (0.48%)	6.1	155	6.2	157	1.0	25	1.0		25	
							1-1/16, 1-1/8, 1-3/16, 1-1/4		30	

a. **Contact Customer Service for lead times.**

Flat Top Base Flights (Streamline)

Available Flight Height in.	Available Flight Height mm	Available Materials
2	51	Polypropylene, Polyethylene, Acetal

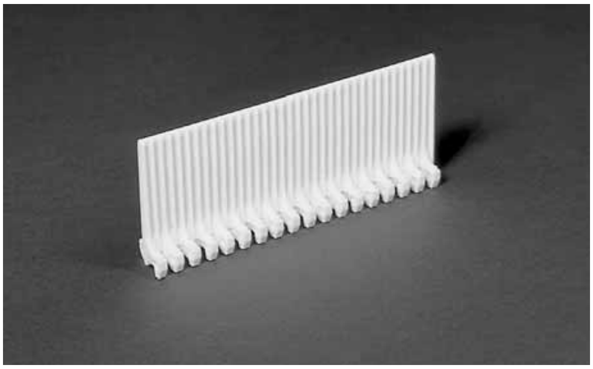
Note: Flights can be cut down to any height required for a particular application.
Note: No fasteners required.
Note: Flat Top flight is smooth (Streamline) on both sides.
Note: The Flat Top base streamline flights are used in both Flat Top and Flush Grid belts.
Note: The minimum recommended indent is 2 in. (51 mm).



Flush Grid Nub Top Base Flights (No-Cling)

Available Flight Height in.	Available Flight Height mm	Available Materials
2	51	Polypropylene, Polyethylene, Acetal
3	76	Polypropylene, Acetal

Note: Flights can be cut down to any height required for a particular application.
Note: Each flight rises out of the center of the module, molded as an integral part. No fasteners required.
Note: The No-Cling vertical ribs are on both sides of the flight.
Note: The minimum recommended indent is 2 in. (51 mm).



Sideguards

Available Sizes		Available Materials
in.	mm	
2	51	Polypropylene, Polyethylene, Acetal

Note: No fasteners required.

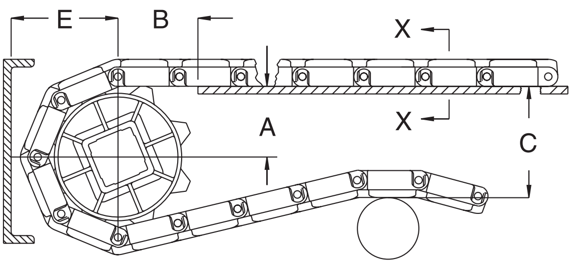
Note: The minimum indent is 1.3 in. (33 mm). The standard gap between the sideguards and the edge of a flight is 0.2 in. (5 mm).

Note: When going around the 8, 12, 16 and 18 tooth sprockets, the sideguards will fan out, opening a gap at the top of the sideguard which might allow small products to fall out. The sideguards stay completely closed when wrapping around the 24 tooth and larger sprockets.

Conveyor Frame Dimensions

Regardless of type or configuration, all conveyors using Intralox belts have some basic dimensional requirements. Specifically, dimensions "A", "B", "C" and "E" listed below should be implemented in any design.

For general applications and applications where end transfer of tip-sensitive product is not critical, use the "A" dimension at the bottom of the range.



A - ±0.031" (1 mm) **C -** ± (Max)

B - ±0.125" (3 mm) **E -** ± (Min)

Complete descriptions of the dimensions are listed on page 291.

Sprocket Description			A		B		C		E	
Pitch Diameter		No. Teeth	Range (Bottom to Top)		in.	mm	in.	mm	in.	mm
in.	mm		in.	mm						
SERIES 1100 FLUSH GRID, FLAT TOP, PERFORATED FLAT TOP[a], EMBEDDED DIAMOND TOP										
1.6	41	8	0.53-0.59	13-15	1.02	26	1.70	43	1.00	25
2.3	58	12	0.93-0.97	24-25	1.31	33	2.40	61	1.37	35
3.1	79	16	1.31	33	1.51	38	3.20	81	1.75	44
3.5	89	18	1.51	38	1.66	42	3.60	91	1.94	49
3.8	97	20	1.70	43	1.77	45	3.79	96	2.13	54
4.6	117	24	2.08	53	1.92	49	4.75	121	2.60	66
5.1	130	26	2.28	58	1.96	50	5.14	131	2.73	69
6.1	155	32	2.85	72	2.20	56	6.20	155	3.30	84
SERIES 1100 FLUSH GRID FRICTION TOP[a]										
1.6	41	8	0.53-0.59	13-15	1.04	27	1.61	41	1.08	27
2.3	58	12	0.93-0.97	24-25	1.30	33	2.36	60	1.46	37
3.1	79	16	1.31	33	1.55	39	3.12	79	1.84	47
3.5	89	18	1.51	38	1.66	42	3.50	89	2.03	51
3.8	97	20	1.70	43	1.77	45	3.88	98	2.22	56
4.6	117	24	2.08	53	1.97	50	4.64	118	2.60	66
5.1	130	26	2.28	58	2.06	52	5.02	127	2.79	71
6.1	155	32	2.85	72	2.25	57	6.16	157	3.36	85

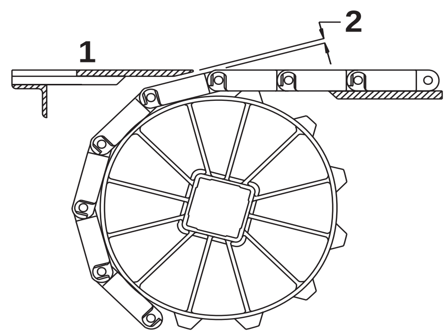
Sprocket Description			A		B		C		E	
Pitch Diameter		No. Teeth	Range (Bottom to Top)		in.	mm	in.	mm	in.	mm
in.	mm		in.	mm						
SERIES 1100 FLUSH GRID NUB TOP[a]										
1.6	41	8	0.53-0.59	13-15	1.04	27	1.57	40	1.05	27
2.3	58	12	0.93-0.97	24-25	1.30	33	2.32	59	1.42	36
3.1	79	16	1.31	33	1.55	39	3.08	78	1.80	46
3.5	89	18	1.51	38	1.66	42	3.46	88	1.99	51
3.8	97	20	1.70	43	1.70	43	3.84	98	2.18	55
4.6	117	24	2.08	53	1.97	50	4.60	117	2.56	65
5.1	130	26	2.28	58	2.06	52	4.98	127	2.75	70
6.1	155	32	2.85	72	2.25	57	6.13	156	3.32	84
SERIES 1100 CONE TOP[a]										
1.6	41	8	0.54-0.60	14-15	1.04	26	1.66	42	1.13	29
2.3	58	12	0.93-0.97	24-25	1.30	33	2.41	61	1.50	38
3.1	79	16	1.32	34	1.55	39	3.17	81	1.88	48
3.5	89	18	1.51	38	1.66	42	3.55	90	2.07	53
3.8	97	20	1.71	43	1.70	43	3.93	100	2.26	57
4.6	117	24	2.09	53	1.96	50	4.69	119	2.64	67
5.1	127	26	2.28	58	2.05	52	5.07	129	2.83	72
6.1	155	32	2.86	73	2.24	57	6.22	158	3.41	87

a. Refer to *"Anti-sag carryway wearstrip configuration"* (page 296) for alternative layouts for the "B" dimension.

Dead Plate Gap

Where there is a transfer point from a belt without finger transfer plates to a dead plate, there should be a gap between the surfaces to allow for the chordal action of the belt. As the belt engages its sprockets, chordal action causes the modules to move past a *fixed* point (the tip of the dead plate) with *varying* clearances. The table below shows the minimum amount of gap which occurs at the "low point" of the modules if the tip of the dead plate just comes in contact with the "high point" as the modules pass.

In some installations it may be desirable to keep the tip of the dead plate in contact with the belt, rather than allow a gap to occur. This can be done by hinging the mounting bracket for the dead plate. This allows the dead plate to move as the modules pass, but results in a small oscillating motion which may present tippage problems for sensitive containers or products.



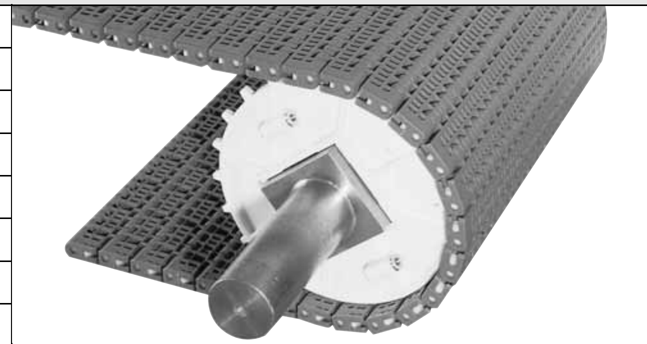
1 - Top surface of dead plate **2 -** Dead plate gap

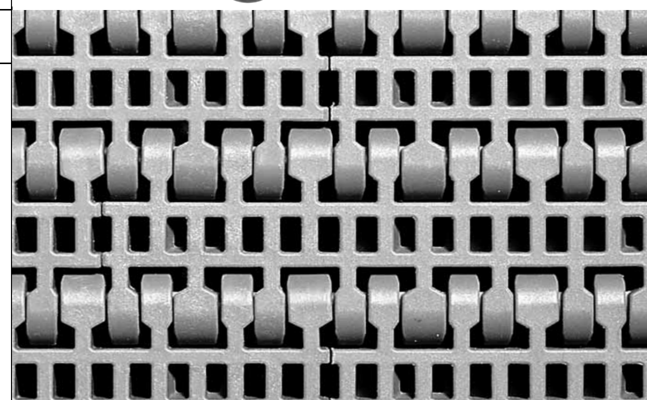
Note: The top surface of the dead plate is typically 0.031 in. (0.8 mm) above the belt surface for product transfer onto the belt, and 0.031 in. (0.8 mm) below the belt surface for product transfer off the belt.

Sprocket Description			Gap	
Pitch Diameter		No. Teeth	in.	mm
in.	mm			
1.6	41	8	0.058	1.5
2.3	58	12	0.040	1.0
3.1	79	16	0.029	0.7
3.5	89	18	0.026	0.7
3.8	97	20	0.024	0.6
4.6	117	24	0.020	0.5
5.1	130	26	0.018	0.4
6.1	155	32	0.015	0.4

Flush Grid

	in.	mm
Pitch	1.44	36.6
Minimum Width	6	152
Width Increments	1.00	25.4
Opening Size (approximate)	-	-
Open Area	24%	
Hinge Style	Closed	
Drive Method	Center-driven	



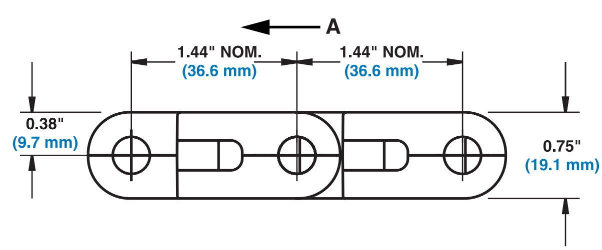


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Easy retrofit from Series 400 without extensive conveyor frame changes for most pasteurize/warmer/cooler applications.
- Module thickness is 0.75 in. (19.1 mm) which provides superior belt strength and stiffness. In the preferred running direction, the Series 1200 belts are rated at 4000 lb/ft (5950 kg/m).
- Improved SLIDELOX™ Rod Retention System.
- Molded split plastic sprockets available for easy installation.
- Made of engineered resin for increased stiffness and minimal belt elongation through thermal expansion.
- SLIDELOX™ is glass reinforced polypropylene.

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



A -Preferred run direction

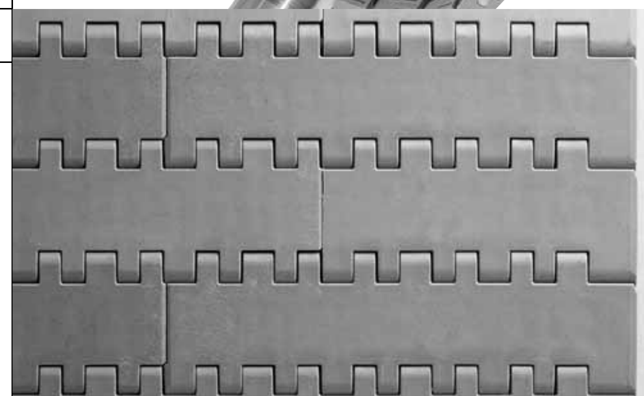
Belt Data

Belt Material	Standard Rod Material Ø 0.31 in. (7.9 mm)	BS Belt Strength[a]		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[b]	CFA[c]	A[d]	J[e]	Z[f]	M[g]
Polypropylene Composite	Polypropylene	4000	5950	34 to 220	1 to 104	2.87	14.01	•						

a. Belt strength rating is dependent on belt's preferred running direction. If run in the opposite direction, the belt rating is 2000 lb/ft (3000 kg/m).
b. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
c. Canada Food Inspection Agency
d. Australian Quarantine Inspection Service
e. Japan Ministry of Health, Labour, and Welfare
f. New Zealand Ministry of Agriculture and Forestry
g. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.

Flat Top

	in.	mm
Pitch	1.44	36.6
Minimum Width	6	152
Width Increments	1.00	25.4
Opening Size (approximate)	-	-
Open Area	0%	
Hinge Style	Closed	
Drive Method	Center-driven	

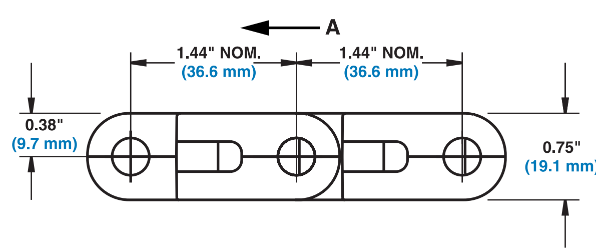


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Module thickness is 0.75 in. (19.1 mm) provides superior belt strength and stiffness. In the preferred running direction, the Series 1200 belts are rated at 4000 lb/ft (5950 kg/m).
- Improved SLIDELOX^{TM} Rod Retention System.
- Molded split plastic sprockets available for easy installation.
- Made of engineered resin for increased stiffness and minimal belt elongation through thermal expansion.
- Belt strength rating is dependent on belt's preferred running direction. If run in the opposite direction, the belt rating is 2000 lb/ft (3000 kg/m). The belt strength for narrow belts is reduced to 3750 lb/ft (5580 kg/m) for belt widths under 60 in. (1524 mm), 3250 lb/ft (762 kg/m) for belt widths under 30 in. (762 mm), and 2750 lb/ft (4090 kg/m) for belt widths under 12 in. (305 mm). Contact Customer Service if a more precise belt strength is required for belt widths under 60 in. (1524 mm).
- SLIDELOX^{TM} is glass reinforced polypropylene.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



A -Preferred run direction

Belt Data

Belt Material	Standard Rod Material Ø 0.31 in. (7.9 mm)	BS Belt Strength[a]		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey		
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[b]	CFA[c]
Polypropylene Composite	Polypropylene Composite	4000	5950	-20 to 220	-29 to 104	3.17	15.45	•		

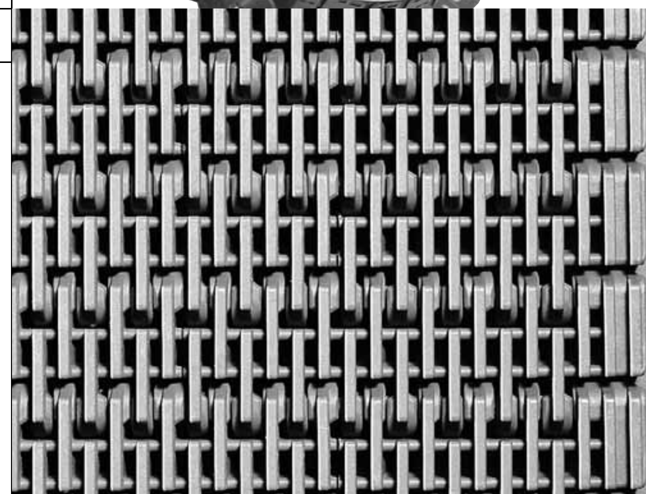
a. Belt strength rating is dependent on belt's preferred running direction. If run in the opposite direction, the belt rating is 2000 lb/ft (3000 kg/m). The belt strength for narrow belts is reduced to 3750 lb/ft (5580 kg/m) for belt widths under 60 in (1524 mm), 3250 lb/ft (762 kg/m) for belt widths under 30 in. (762 mm), and 2750 lb/ft (4090 kg/m) for belt widths under 12 in. (305 mm). Contact Customer Service if a more precise belt strength is required for belt widths under 60 in. (1524 mm).

b. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.

c. Canada Food Inspection Agency

Raised Rib

	in.	mm
Pitch	1.44	36.6
Minimum Width	6	152
Width Increments	1.00	25.4
Open Area	24%	
Product Contact Area	24%	
Hinge Style	Closed	
Drive Method	Center-driven	

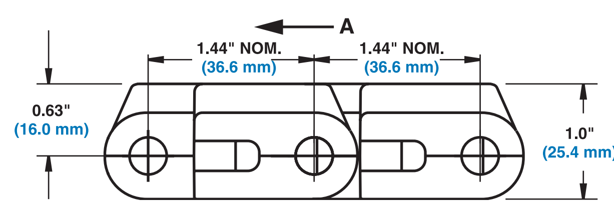


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Easy retrofit from Series 400 without extensive conveyor frame changes for most pasteurize/warmer/cooler applications.
- Module thickness is 1.0 in. (25.4 mm) provides superior belt strength and stiffness. In the preferred running direction, the Series 1200 belts are rated at 4000 lb/ft (5950 kg/m).
- Improved SLIDELOX™ Rod Retention System.
- Molded split plastic sprockets available for easy installation.
- Made of engineered resin for increased stiffness and minimal belt elongation through thermal expansion.
- SLIDELOX™ is glass reinforced polypropylene.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



A -Preferred run direction

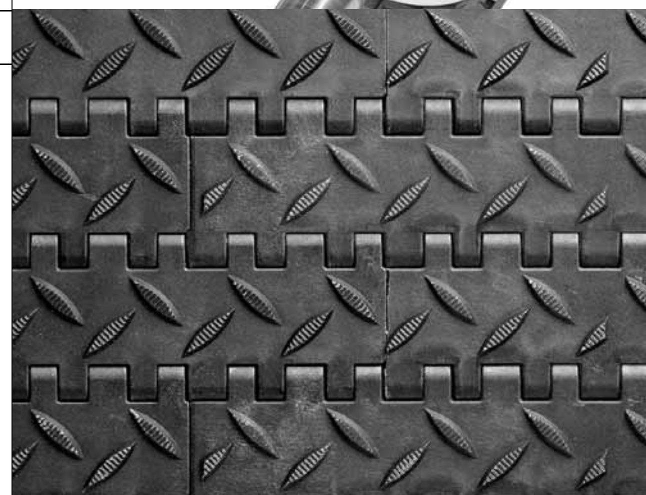
Belt Data

Belt Material	Standard Rod Material Ø 0.31 in. (7.9 mm)	BS Belt Strength[a]		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey					
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[b]	CFA[c]	A[d]	Z[e]	M[f]
Polypropylene Composite	Polypropylene	4000	5950	34 to 220	1 to 104	3.3	16.11	•					

a. Belt strength rating is dependent on belt's preferred running direction. If run in the opposite direction, the belt rating is 2000 lb/ft (3000 kg/m).
b. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
c. Canada Food Inspection Agency
d. Australian Quarantine Inspection Service
e. New Zealand Ministry of Agriculture and Forestry
f. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.

Non Skid

	in.	mm
Pitch	1.44	36.6
Minimum Width	6	152
Width Increments	1.00	25.4
Opening Size (approximate)	-	-
Open Area	0%	
Hinge Style	Closed	
Drive Method	Center-driven	

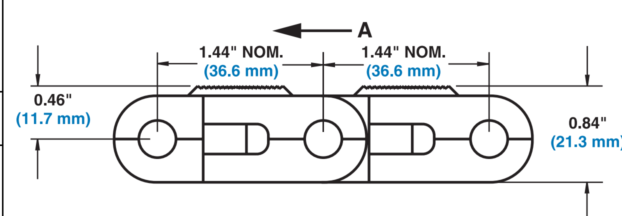


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Module thickness is 0.75 in. (19.1 mm) provides superior belt strength and stiffness. In the preferred running direction, the Series 1200 belts are rated at 4000 lb/ft (5950 kg/m).
- Improved SLIDELOX[TM] Rod Retention System.
- Molded split plastic sprockets available for easy installation.
- Made of engineered resin for increased stiffness and minimal belt elongation through thermal expansion; this static dissipative material does not rely on moisture to dissipate a charge, so it is effective in all environments.
- 1.44 in. (36.6 mm) pitch allows use of smaller drive sprockets than traditional “moving platform” belts, thus providing tighter transfers and requiring shallower floor trenches for installation.
- Non-Skid indent is 1 in. (25.4 mm).
- SLIDELOX[TM] is glass reinforced polypropylene.

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



A -Preferred run direction

Belt Data

Belt Material	Standard Rod Material Ø 0.31 in. (7.9 mm)	BS Belt Strength[a]		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey					
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[b]	CFA[c]	A[d]	Z[e]	M[f]
Polypropylene Composite	Polypropylene Composite	4000	5950	-20 to 220	-29 to 104	3.21	15.65	•					

a. Belt strength rating is dependent on belt’s preferred running direction. If run in the opposite direction, the belt rating is 2000 lb/ft (3000 kg/m). The belt strength for narrow belts is reduced to 3750 lb/ft (5580 kg/m) for belt widths under 60 in (1524 mm), 3250 lb/ft (762 kg/m) for belt widths under 30 in. (762 mm), and 2750 lb/ft (4090 kg/m) for belt widths under 12 in. (305 mm). Contact Customer Service if a more precise belt strength is required for belt widths under 60 in. (1524 mm).

b. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.

c. Canada Food Inspection Agency

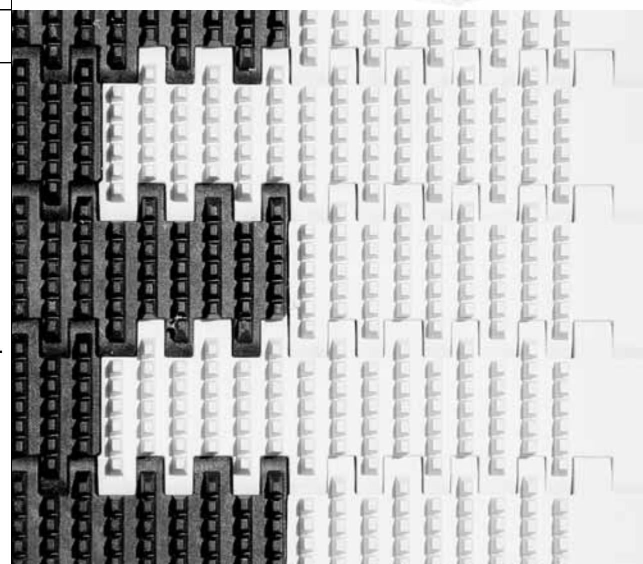
d. Australian Quarantine Inspection Service

e. New Zealand Ministry of Agriculture and Forestry

f. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.

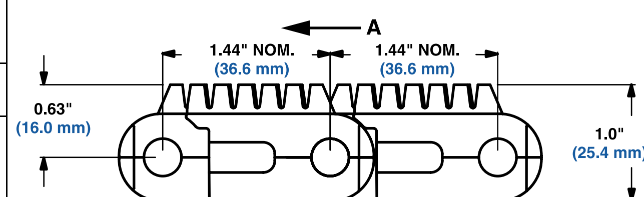
Non Skid Raised Rib

	in.	mm
Pitch	1.44	36.6
Minimum Width	6	152
Width Increments	1.00	25.4
Opening Size (approximate)	-	-
Open Area	0%	
Product Contact Area	10%	
Hinge Style	Closed	
Drive Method	Center-driven	



Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Made of engineered resin for increased stiffness and minimal belt elongation through thermal expansion; this static dissipative material does not rely on moisture to dissipate a charge, so it is effective in all environments.
- 1.44 in. (36.6 mm) pitch allows use of smaller drive sprockets than traditional "moving platform" belts, thus providing tighter transfers and requiring shallower floor trenches for installation.
- Uses Slidelox™ rod retention system.
- Tread pattern provides a non-skid walking surface to increase safety.
- Staggered yellow edges make it easy to distinguish the moving belt from the stationary floor.
- Not recommended for back-up conditions. If friction values between product and belt are required, contact Intralox Sales Engineering.
- Rib indent is 1 in. (25 mm).
- SLIDELOX™ is glass reinforced polypropylene.



A -Preferred run direction

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)

Belt Data

Belt Material	Standard Rod Material Ø 0.31 in. (7.9 mm)	BS Belt Strength[a]		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[b]	CFA[c]	A[d]	Z[e]	M[f]	EU MC[g]
Polypropylene Composite	Polypropylene Composite	4000	5950	-20 to 220	-29 to 104	3.58	17.48	•						

a. Belt strength rating is dependent on belt's preferred running direction. If run in the opposite direction, the belt rating is 2000 lb/ft (3000 kg/m). The belt strength for narrow belts is reduced to 3750 lb/ft (5580 kg/m) for belt widths under 60 in (1524 mm), 3250 lb/ft (762 kg/m) for belt widths under 30 in. (762 mm), and 2750 lb/ft (4090 kg/m) for belt widths under 12 in. (305 mm). Contact Customer Service if a more precise belt strength is required for belt widths under 60 in. (1524 mm).
b. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
c. Canada Food Inspection Agency
d. Australian Quarantine Inspection Service
e. New Zealand Ministry of Agriculture and Forestry
f. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
g. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Sprocket and Support Quantity Reference

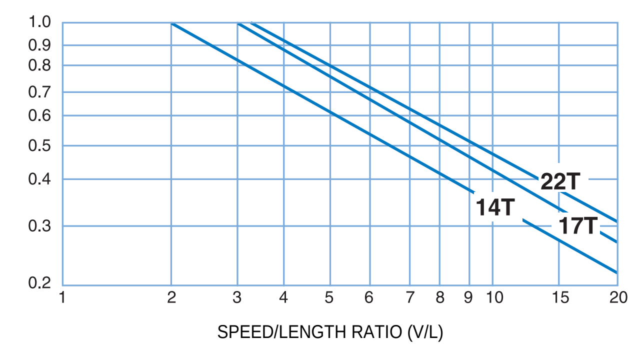
Belt Width Range[a]		Minimum Number of Sprockets Per Shaft[b]	Wearstrips	
in.	mm		Carryway	Returnway
6	152	2	2	2
7	178	2	2	2
8	203	2	2	2
9	229	2	2	2
10	254	2	3	2
12	305	3	3	2
14	356	3	3	3
15	381	3	3	3
16	406	3	3	3
18	457	3	3	3
20	508	3	4	3
24	610	5	4	3
30	762	5	5	4
32	813	5	5	4
36	914	7	5	4
42	1067	7	6	5
48	1219	9	7	5
54	1372	9	7	6
60	1524	11	8	6
72	1829	13	9	7
84	2134	15	11	8
96	2438	17	12	9
120	3048	21	15	11
144	3658	25	17	13
145	3683	25	18	14
146	3708	25	18	14
147	3734	25	18	14
148	3759	25	18	14
149	3785	25	18	14
150	3810	25	18	14
151	3835	25	18	14
152	3861	25	18	14
153	3886	25	18	14
154	3912	25	19	14
155	3937	25	19	14
156	3962	27	19	14
157	3988	27	19	15
158	4013	27	19	15
159	4039	27	19	15
160	4064	27	19	15
161	4089	27	19	15
162	4115	27	19	15
163	4140	27	20	15
164	4166	27	20	15
165	4191	27	20	15
For Other Widths, Use Odd Number of Sprockets[c] at Maximum 4 in. (102 mm) ℄ Spacing			Maximum 6 in. (152 mm) ℄ Spacing	Maximum 12 in. (305 mm) ℄ Spacing

Sprocket and Support Quantity Reference

Belt Width Range[a]		Minimum Number of Sprockets Per Shaft[b]	Wearstrips	
in.	mm		Carryway	Returnway
166	4216	27	20	15
167	4242	27	20	15
168	4267	29	20	15
169	4293	29	20	16
170	4318	29	20	16
171	4343	29	20	16
172	4369	29	21	16
173	4394	29	21	16
174	4420	29	21	16
175	4445	29	21	16
176	4470	29	21	16
177	4496	29	21	16
178	4521	29	21	16
179	4547	29	21	16
180	4572	31	21	16
181	4597	31	22	17
182	4623	31	22	17
183	4648	31	22	17
184	4674	31	22	17
185	4699	31	22	17
For Other Widths, Use Odd Number of Sprockets[c] at Maximum 4 in. (102 mm) ℄ Spacing			Maximum 6 in. (152 mm) ℄ Spacing	Maximum 12 in. (305 mm) ℄ Spacing

a. If your belt width exceeds a number listed in the table, please refer to the sprocket and support material minimums for the next larger width range listed. Belts are available in 1.00 in. (25.4 mm) increments beginning with minimum width of 6 in. (152 mm). If the actual width is critical, consult Customer Service.
b. These are the minimum number of sprockets. Additional sprockets may be required for heavily loaded applications.
c. The center sprocket should be locked down. With only two sprockets, fix the sprocket on the drive journal side only.

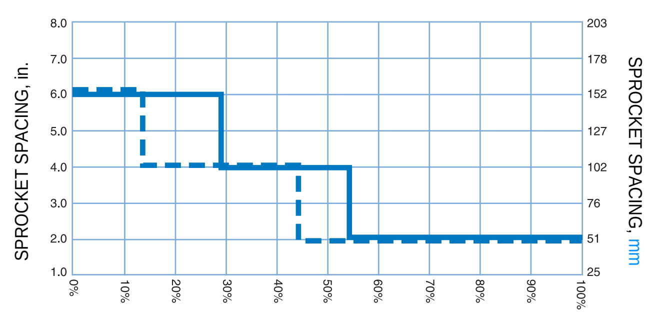
S Strength Factor



V = ft/min (m/min)
T = number of teeth
L = ft (m)

Divide belt speed "V" by the shaft ℄ distance "L". Strength Factor is found at intersection of speed/length ratio and appropriate sprocket line. See page 35 for more information.

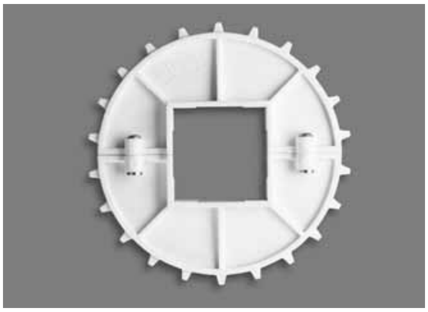
Sprocket Spacing as a Function of Belt Strength Utilized



Solid line: Polypropylene Composite Rods
Dashed line: Polypropylene Rods

Plastic Split Sprocket Data[a]

No. of Teeth (Chordal Action)	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 – Round in.[b]	Available Bore Sizes – U.S. Sizes – Square in.[c]	Available Bore Sizes – Metric Sizes – Round mm[b]	Available Bore Sizes – Metric Sizes – Square mm
14 (2.51%)	6.5	165	6.3	161	1.5	38		1.5		
								2.5		
17 (1.70%)	7.9	201	7.7	196	1.5	38		2.5		
22 (1.02%)	10.2	259	10.1	255	1.67	44	3.5	2.5		90
					1.5	38		3.5		



a. **Contact Customer Service for lead times.**
b. Imperial key sizes on round bore sprockets conform to ANSI standard B17.1-1967 (R1989) and metric key sizes conform to DIN standard 6885.
c. The 2.5" square bore is created by using a bore adapter in the 3.5" square bore sprocket.

Metal Split Sprocket Data[a]

No. of Teeth (Chordal Action)	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 – Round in.	Available Bore Sizes – U.S. Sizes – Square in.	Available Bore Sizes – Metric Sizes – Round mm	Available Bore Sizes – Metric Sizes – Square mm
12 (3.41%)	5.6	142	5.4	137	1.7	43		2.5		
14 (2.51%)	6.5	165	6.3	161	1.7	43		2.5		
22 (1.70%)	10.2	201	10.1	255	1.7	43		2.5		90
								3.5		

a. **Contact Customer Service for lead times.**

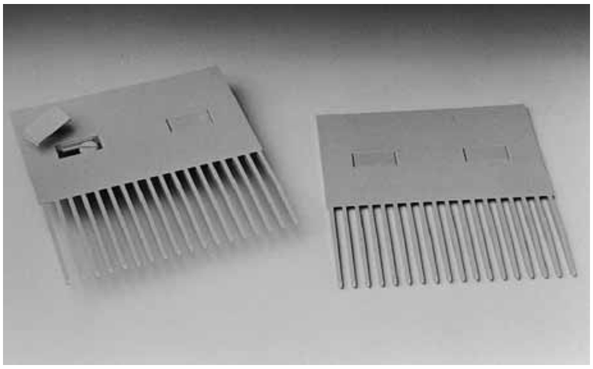
Finger Transfer Plates

Available Widths in.	Available Widths mm	Number of Fingers	Available Materials
6	152	18	Polypropylene

Note: Eliminates product transfer and tipping problems. The 18 fingers extend between the belt's ribs allowing a smooth continuation of the product flow as the belt engages its sprockets.

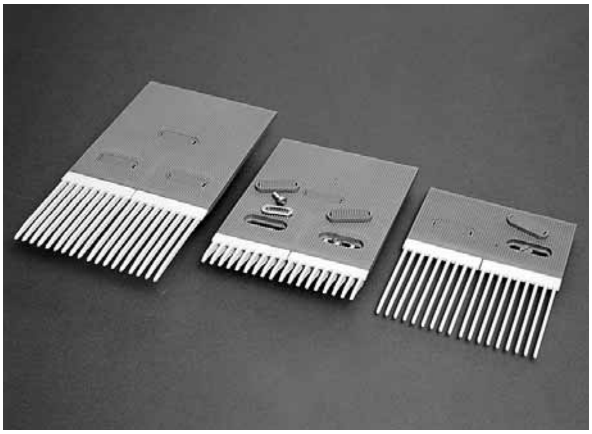
Note: Easily installed on the conveyor frame with the shoulder bolts supplied. Caps snap easily into place over the bolts, keeping foreign materials out of the slots.

Note: The Finger Transfer Plates for Series 400 are the same for Series 1200.



Two-Material Finger Transfer Plates

Available Widths		Number of Fingers	Available Materials
in.	mm		
6	152	18	Glass-Filled Thermoplastic Fingers, Acetal Backplate



Note: Plates provide high strength fingers combined with a low friction back plate.
Note: Low-friction back plate is permanently attached to the two high-strength finger inserts.
Note: Eliminates product transfer and tipping problems. The 18 fingers extend between the belt's ribs allowing a smooth continuation of the product flow as the belt engages its sprockets.
Note: Easily installed on the conveyor frame with the shoulder bolts supplied. Caps snap easily into place over the bolts, keeping foreign materials out of the slots.
Note: The Finger Transfer Plates for Series 400 are the same for Series 1200.
Note: Available in three different configurations:
Standard - long fingers with a short back plate.
Standard Extended Back - long fingers with an extended back plate
Glass Handling -
- Short fingers with extended back plate
- Short fingers/short back (Contact Customer Service for lead times.)
- Mid-Length fingers/short back
- Mid-Length fingers/extended back

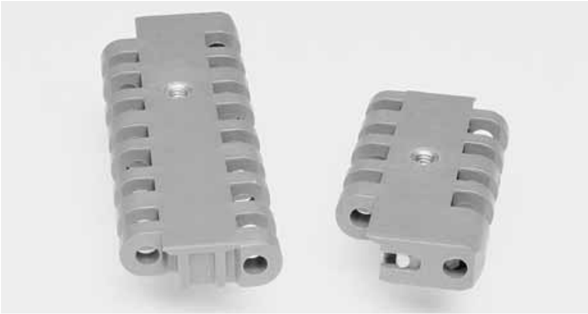
The long fingers provide good support for unstable products like PET containers and cans. The short fingers are sturdy enough for even the harshest broken glass applications. These fingers are designed to resist breaking, but if confronted with deeply embedded glass, the individual fingers will yield and break off, preventing costly belt or frame damage. The short back plate has two attachment slots and the extended back plate has three attachment slots. Mounting hardware for the two standard two-material FTP's includes plastic shoulder bolts and bolt covers. Mounting hardware for the Glass Handling two-material FTP's includes stainless steel oval washers and bolts which gives more secure fastening for the tough glass applications (Glass Handling hardware is sold separately). Plastic bolt covers are also included. The 10.2 in. (259 mm) PD, 22 tooth sprockets are recommended to be used with the Glass Handling finger transfer plates for best product transfer.
Note: Intralox also offers a single-material polypropylene standard finger transfer plate for better chemical resistance. Mounting hardware for this FTP includes plastic shoulder bolts and snap-cap bolt covers.

Hold Down Guides

Note: The strength rating for each Hold Down Tab is 100 lbs (45.4 kg) of force perpendicular to the hold down surface.
Note: Tabs should be spaced every other row (2.9 inches [73.2 mm]) along the length of the belt. Tabs can be spaced every fourth row (5.8 inches [146.3 mm]) for lightly loaded applications.
Note: Each line of tabs along the length of the belt reduces the available number of sprockets by 2. Belt rating is reduced by 1,300 lbs (590 kg) for each line of tabs.
Note: Carryway wearstrip or rollers that engage the tabs are only required at the transition between the horizontal sections and angled sections. This reduces initial system cost, as well as ongoing maintenance cost and effort.
Note: Care should be taken to ensure that adequate lead-in radii and/or angles are used to prevent the possibility of snagging the tab on the frame.
Note: A carryway radius should be designed at the transition between horizontal sections and angled sections. This radius must be at least 48 inches (1.22 m) for belts that will be loaded near the belt's strength rating. This radius is one of the most important factors to take into consideration when designing highly loaded conveyors that utilize Hold Down Tabs.
Note: Available on Non Skid and Flat Top belts.

Insert Nuts

Available Base Belt Style - Material			Available Insert Nut Sizes	
Series 1200 Flat Top - Polypropylene Composite			5/16" - 18 (8 mm - 1.25 mm)	
Belt Material	**Maximum Fixture Weight**		**Fastener Torque Specification**	
	lbs/nut[a]	kg/nut[a]	in.-lbs	N-m
Polypropylene Composite	355	155	100	11.3



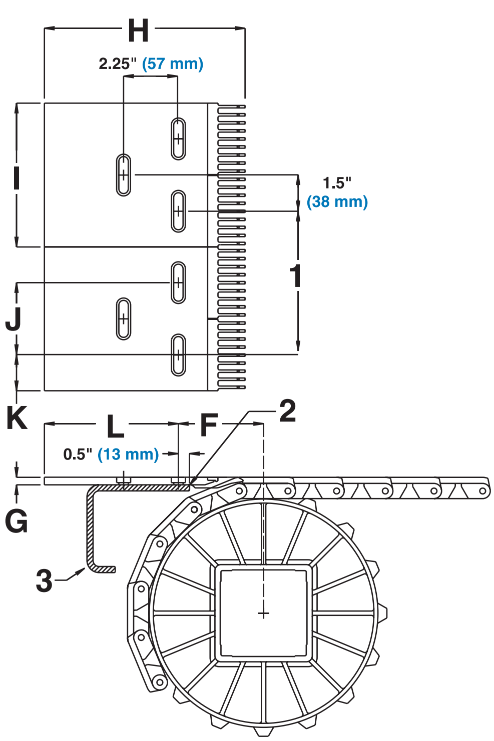
Note: Insert Nuts easily allow the attachment of fixtures to the belt.
Note: Nut placement constraints are as follows; 5/6" (21 mm) minimal indent from the edge of the belt for odd width belts and 1-5/6" (47 mm) minimal indent for even width belts, 1-1/3" (34 mm) minimal distance between nuts across the width of the belt and spacing along the length of the belt is in 1.44" (36.6 mm) increments.
Note: All nut placement dimensions are referenced from the edge of the belt when placing an order. Contact Intralox Customer Service for nut location options available for your individual belt specifications.
Note: Attachments that are connected to more than one row must not prohibit the rotation of the belt around the sprockets.
Note: Sprockets cannot be located in-line with the locations of the insert nuts in the belt.
Note: For attachment bases that extend across multiple rows, considerations should be made to accommodate for reduced backbend.

a. This is fixture weight only. Product weight need not be included.

Dimensional Requirements for Series 1200 Finger Transfer Plate Installation

	Two-Material							
	Standard Long Fingers - Short Back		Standard Long Fingers - Extended Back		Glass Handling Short Fingers - Extended Back		Glass Handling Mid-Length Fingers - Extended Back	
	in.	mm	in.	mm	in.	mm	in.	mm
F	3.50	89	3.50	89	3.50	89	3.50	89
G	0.31	8	0.31	8	0.31	8	0.31	8
H	7.25	184	10.75	273	8.26	210	9.04	230
I	5.91	150	5.91	150	5.91	150	5.91	150
J	3.00	76	3.00	76	3.00	76	3.00	76
K	1.45	37	1.45	37	1.45	37	1.45	37
L	2.00	51	5.50	140	5.50	140	5.50	140
Spacing at ambient temperature	**Polypropylene Composite**							
	6.0	152.4	6.0	152.4	6.0	152.4	6.0	152.4

Two-material glass handling finger transfer plate shown

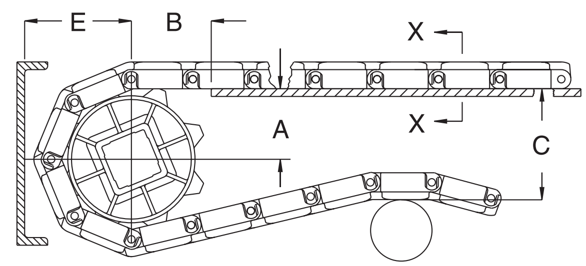


1 - SPACING
2 - 0.5" (13 mm) RADIUS (LEADING EDGE OF FRAME MEMBER)
3 - FRAME MEMBER

Conveyor Frame Dimensions

Regardless of type or configuration, all conveyors using Intralox belts have some basic dimensional requirements. Specifically, dimensions "A", "B", "C" and "E" listed below should be implemented in any design.

For general applications and applications where end transfer of tip-sensitive product is not critical, use the "A" dimension at the bottom of the range.



A - ±0.031" (1 mm)   **C -** ± (Max)

B - ±0.125" (3 mm)   **E -** ± (Min)

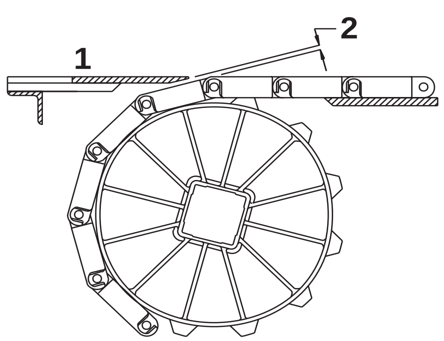
Complete descriptions of the dimensions are listed on page 291.

Sprocket Description			A		B		C		E	
Pitch Diameter		No. Teeth	Range (Bottom to Top)		in.	mm	in.	mm	in.	mm
in.	mm		in.	mm						
SERIES 1200 FLUSH GRID, FLAT TOP										
5.6	142	12	2.31-2.41	59-61	2.15	55	5.56	141	3.22	82
6.5	165	14	2.78-2.87	71-73	2.35	60	6.48	165	3.87	98
7.9	201	17	3.48-3.55	88-90	2.62	67	7.85	199	4.55	116
10.2	259	22	4.64-4.69	118-119	3.02	77	10.13	257	5.69	145
SERIES 1200 RAISED RIB, NON-SKID RAISED RIB										
5.6	142	12	2.31-2.41	59-61	2.15	55	5.81	148	3.47	88
6.5	165	14	2.78-2.87	71-73	2.35	60	6.73	171	4.12	105
7.9	201	17	3.48-3.55	88-90	2.62	67	8.10	206	4.80	122
10.2	259	22	4.64-4.69	118-119	3.02	77	10.38	264	5.94	151
SERIES 1200 NON SKID										
5.6	142	12	2.31-2.41	59-61	2.15	55	5.65	144	3.30	84
6.5	165	14	2.78-2.86	71-73	2.34	59	6.56	167	3.76	96
7.9	201	17	3.51-3.58	89-91	2.57	65	7.99	203	4.47	114
10.2	259	22	4.67-4.73	119-120	3.02	77	10.29	261	5.62	143

Dead Plate Gap

Where there is a transfer point from a belt without finger transfer plates to a dead plate, there should be a gap between the surfaces to allow for the chordal action of the belt. As the belt engages its sprockets, chordal action causes the modules to move past a *fixed* point (the tip of the dead plate) with *varying* clearances. The table below shows the minimum amount of gap which occurs at the "low point" of the modules if the tip of the dead plate just comes in contact with the "high point" as the modules pass.

In some installations it may be desirable to keep the tip of the dead plate in contact with the belt, rather than allow a gap to occur. This can be done by hinging the mounting bracket for the dead plate. This allows the dead plate to move as the modules pass, but results in a small oscillating motion which may present tippage problems for sensitive containers or products.



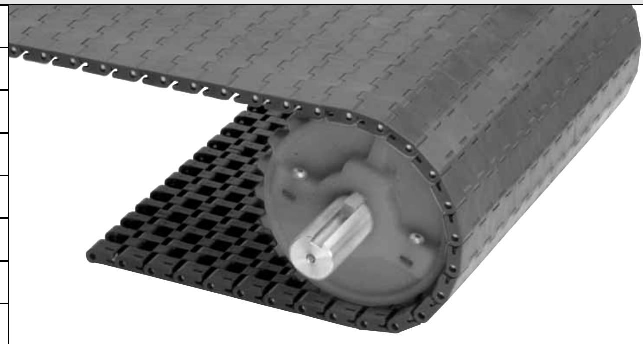
1 - Top surface of dead plate   **2 -** Dead plate gap

Note: The top surface of the dead plate is typically 0.031 in. (0.8 mm) above the belt surface for product transfer onto the belt, and 0.031 in. (0.8 mm) below the belt surface for product transfer off the belt.

Sprocket Description			Gap	
Pitch Diameter		No. Teeth	in.	mm
in.	mm			
5.6	142	12	.095	2.4
6.5	165	14	.081	2.1
7.9	201	17	.067	1.7
10.2	259	22	.052	1.3

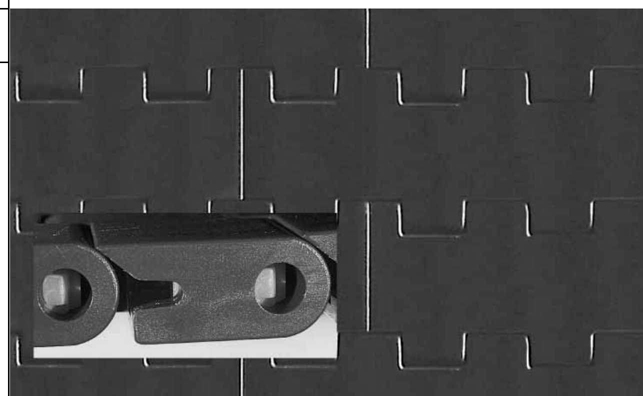
Flat Top

	in.	mm
Pitch	1.00	25.4
Minimum Width	5	127
Width Increments	1.00	25.4
Opening Size (approximate)	-	-
Open Area	0%	
Hinge Style	Closed	
Drive Method	Center/hinge-driven	



Product Notes

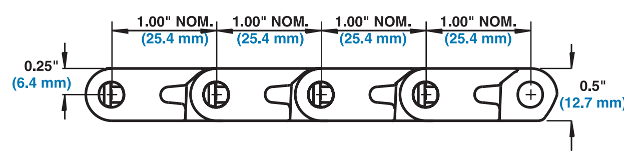
- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Smooth, closed surface with fully flush edges.
- Robust design offers excellent belt and sprocket durability, especially in tough glass applications.
- Smooth, flat top provides excellent lateral movement of containers. Ideal for container handling.
- Most Series 1400 sprockets use the split design so shafts do not have to be removed for retrofits and change overs. The Series 1400 sprockets are all plastic.
- The Series 1400 split sprockets are designed with thick, “lug” style teeth for excellent durability and wear life.
- Utilizes SLIDELOX™ rod retention system. SLIDELOX™ is available in polypropylene or acetal.



Inset: SLIDELOX™ Edge

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



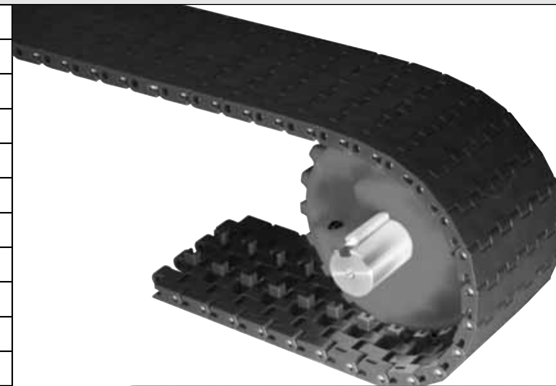
Belt Data

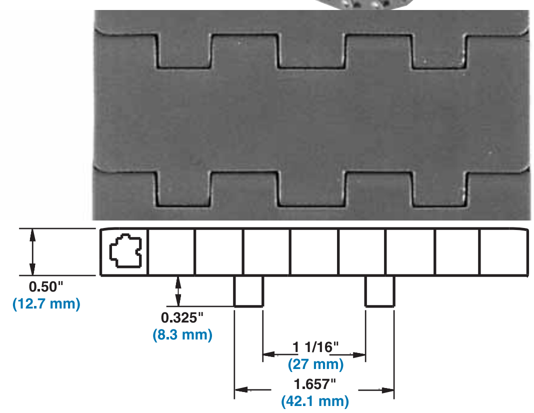
Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength lb/ft	BS Belt Strength kg/m	Temperature Range (continuous) °F	Temperature Range (continuous) °C	W Belt Weight lb/ft²	W Belt Weight kg/m²	Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey FDA (USA)	USDA Dairy[a]	CFA[b]	A[c]	J[d]	EU MC[e]
Acetal	Nylon	2500	3720	-50 to 200	-46 to 93	2.75	13.43	•				3	•
Polypropylene	Nylon	1800	2678	34 to 220	1 to 104	1.85	9.03	•				3	•
Non FDA HR Nylon	Nylon	2000	2976	-50 to 310	-46 to 154	2.23	10.89						
EC Acetal	Nylon	1600	2380	-50 to 200	-46 to 93	2.69	13.13						

a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

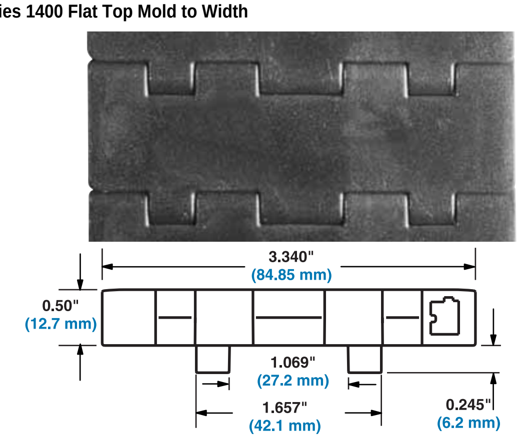
Mold to Width Flat Top

	in.	mm
Pitch	1.00	25.4
Molded Widths	3.25	83
	4.5	114
	6.0	152
	7.5	191
	-	85.0
Opening Size (approximate)	-	-
Open Area	0%	
Hinge Style	Closed	
Drive Method	Center/hinge-driven	





Series 1400 Flat Top Mold to Width



Series 1400 Flat Top 85 mm Mold to Width

Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Tracking tabs provide lateral tracking.
- Smooth, closed surface with fully flush edges.
- Robust design offers excellent belt and sprocket durability, especially in tough, glass applications.
- Smooth, flat top provides excellent lateral movement of containers. Ideal for container handling.
- Optional tracking tabs fit into single barreled belt wearstrip with 1.75 in. (44.5 mm) spacing.
- One sprocket can be placed on the 3.25 in. (83 mm) mold to width belt and the 4.5 in. (114 mm) tabbed mold to width belt. One or two sprockets can be placed on the 4.5 in. (114 mm) no tab mold to width belt. Up to three sprockets can be placed on the 6.0 in. (152 mm) and the 7.5 in. (191 mm) mold to width belt.
- Most Series 1400 sprockets use the split design so shafts do not have to be removed for retrofits and change overs. The Series 1400 sprockets are all plastic.
- The Series 1400 split sprockets are designed with thick, “lug” style teeth for excellent durability and wear life.
- Width tolerances for the Series 1400 Mold To Width belts are +0.000/-0.020 in. (+0.000/-0.500 mm).
- Series 1400 Mold To Width belts are boxed in 10 ft. (3.1 m) increments.
- Utilizes SLIDELOX™ rod retention system. SLIDELOX™ is available in polypropylene or acetal.

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)

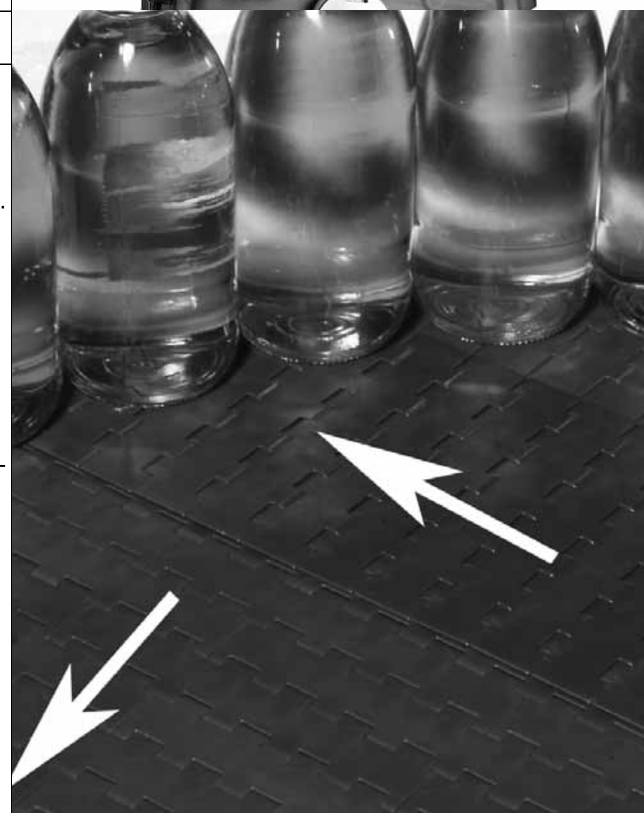
Belt Data

Belt Width		Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength[a]		Temperature Range (continuous)		W Belt Weight				Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey		
								Tab		No Tab				
inch	mm			lb	kg	°F	°C	lb/ft	kg/m	lb/ft	kg/m	FDA (USA)	J[b]	EU MC[c]
3.25	83	Acetal	Nylon	700	318	-50 to 200	-46 to 93	0.80	1.19	0.75	1.12	•	3	•
4.5	114	Acetal	Nylon	850	386	-50 to 200	-46 to 93	1.13	1.68	1.07	1.59	•	3	•
6.0	152	Acetal	Nylon	1200	544	-50 to 200	-46 to 93	1.40	2.08	1.35	2.01	•	3	•
6.0	152	Polypropylene	Nylon	850	386	34 to 220	1 to 104	0.95	1.14	0.90	1.34	•	3	•
7.5	191	Acetal	Nylon	1550	703	-50 to 200	-46 to 93	1.75	2.60	1.71	2.54	•	3	•
	85	Acetal	Nylon	700	318	-50 to 200	-46 to 93	0.80	1.19	-	-	•	3	•

a. Rating are based on non-tabbed belts using the maximum number of sprockets.
b. Japan Ministry of Health, Labour, and Welfare
c. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

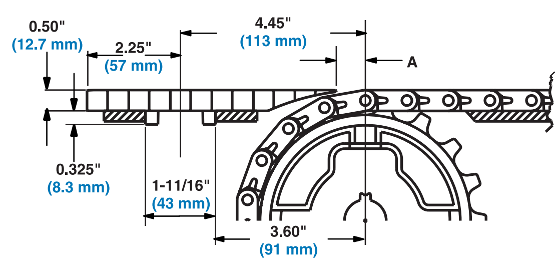
ONEPIECE™ Live Transfer Flat Top

	in.	mm
Pitch	1.00	25.4
Molded Width	6	152
Width Increments	-	-
Open Area	0%	
Hinge Style	Closed	
Drive Method	Center/hinge-driven	



Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Transfer edge is an integral part of this belt, designed for smooth, self-clearing, right angle transfers onto takeaway belts.
- Smooth, flat top surface with fully flush edges provides excellent lateral movement of containers, especially PET and glass.
- Built with nylon rods for superior wear resistance. Utilizes SLIDELOX™ rod retention system. SLIDELOX™ is available in polypropylene or acetal.
- Robust design offers excellent belt and sprocket durability, especially in tough, glass applications.
- Molded with robust tracking tabs to support belt in heavy, side-loading applications.
- When product is moving from the transfer belt to a takeaway belt, the top of the transfer belt should be no more than 0.06 in. (1.5 mm) above the top of the takeaway belt. When product is moving from the infeed belt onto the transfer belt, the top of the belts should be level.
- You may need to include a fixed frame support member beneath the ONEPIECE™ **Live Transfer** belt prior to the actual transfer. This will insure that the belt does not snag when it intersects with the takeaway belt. See *"Fig. 3–32 PARABOLIC GUIDE RAIL CONTOURS WITH 6.0 in. (152 mm) ONEPIECE™ LIVE TRANSFER BELT"* (page 310)
- Most Series 1400 sprockets use the split design so shafts do not have to be removed for retrofits and change overs. The Series 1400 sprockets are all plastic.
- The Series 1400 split sprockets are designed with thick, "lug" style teeth for excellent durability and wear life.
- Series 1400 Live Transfer belts are boxed in 10 ft. (3.1 m) increments.



Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)
- See *"90° CONTAINER TRANSFERS"* (page 309)

Belt Data

Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey		
		lb	kg	°F	°C	lb/ft	kg/m	FDA (USA)	J[a]	EU MC[b]
Acetal	Nylon	850	386	-50 to 200	-46 to 93	1.25	1.86	•	3	•

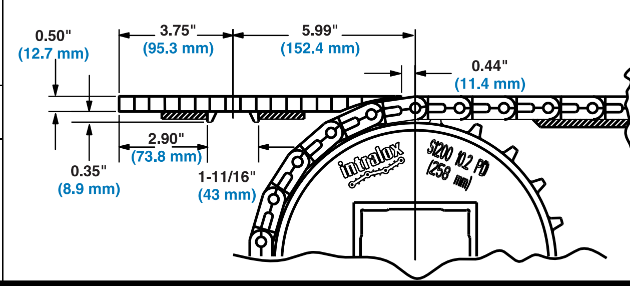
a. Japan Ministry of Health, Labour, and Welfare
b. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

ONEPIECE™ 9.3 in. (236 mm) Live Transfer Flat Top

	in.	mm
Pitch	1.00	25.4
Molded Width	9.3	236
Width Increments	-	-
Open Area	0%	
Hinge Style	Closed	
Drive Method	Center/Hinge-driven	

Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Transfer edge is an integral part of this belt, designed for smooth, self-clearing, right angle transfers onto takeaway belts.
- Smooth, flat top surface with fully flush edges provides excellent lateral movement of containers, especially PET and glass.
- Built with nylon rods for superior wear resistance. Utilizes SLIDELOX™ rod retention system. SLIDELOX™ is available in polypropylene or acetal.
- Robust design offers excellent belt and sprocket durability, especially in tough, glass applications.
- Molded with robust tracking tabs to support belt in heavy, side-loading applications. Tab height is 0.35 in. (8.9 mm). Tab spacing is 1 11/16 in. (43 mm).
- When product is moving from the transfer belt to a takeaway belt, the top of the transfer belt should be no more than 0.06 in. (1.5 mm) above the top of the takeaway belt. When product is moving from the infeed belt onto the transfer belt, the top of the belts should be level.
- You may need to include a fixed frame support member beneath the ONEPIECE™ **Live Transfer** belt prior to the actual transfer. This will insure that the belt does not snag when it intersects with the takeaway belt. See *"Fig. 3–32 PARABOLIC GUIDE RAIL CONTOURS WITH 6.0 in. (152 mm) ONEPIECE™ LIVE TRANSFER BELT"* (page 310).
- Most Series 1400 sprockets use the split design so shafts do not have to be removed for retrofits and change overs. The Series 1400 sprockets are all plastic.
- The Series 1400 split sprockets are designed with thick, "lug" style teeth for excellent durability and wear life.
- Series 1400 Live Transfer belts are boxed in 10 ft. (3.1 m) increments.



Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)
- See *"90° CONTAINER TRANSFERS"* (page 309)

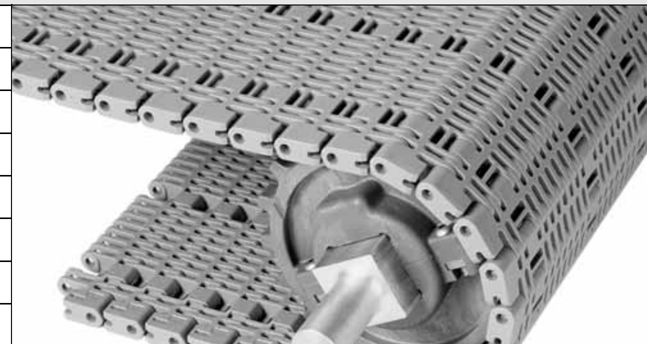
Belt Data

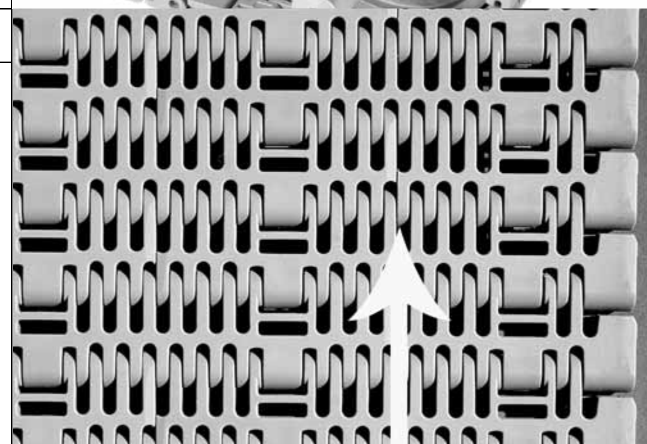
Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey		
		lb	kg	°F	°C	lb/ft	kg/m	FDA (USA)	J[a]	EU MC[b]
Acetal	Nylon	1550	703	-50 to 200	-46 to 93	1.86	2.77	•	3	•

a. Japan Ministry of Health, Labour, and Welfare
b. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Flush Grid

	in.	mm
Pitch	1.0	25.4
Minimum Width	9	229
Width Increments	1.0	25.4
Opening Size (approx.)	0.17 × 0.30	4.2 × 7.6
Open Area	21%	
Hinge Style	Closed	
Drive Method	Center/Hinge-driven	





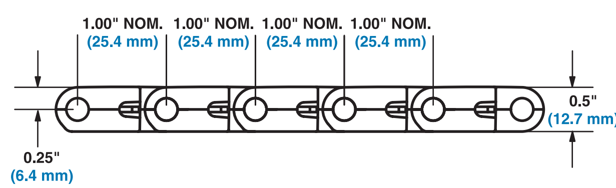
Arrow indicates run direction

Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Headless rod retention system allows re-use of rods.
- Utilizes SLIDELOX™ rod retention system. SLIDELOX™ is available in polypropylene or acetal.
- Polypropylene belts are grey with blue PP Slidelox™. Acetal belts are grey with yellow AC Slidelox™.
- Installation is the same as current Series 1400 belts with the addition of a locked sprocket location chart and preferred run direction.
- Minimum sprocket spacing is 3 inches (76.2 mm) and is recommended for an adjusted belt pull greater than 900 lb/ft (1339 kg/m). Maximum recommended sprocket spacing is 6 inches (152.4 mm).
- Fully flush edges with Slidelox™ closures.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



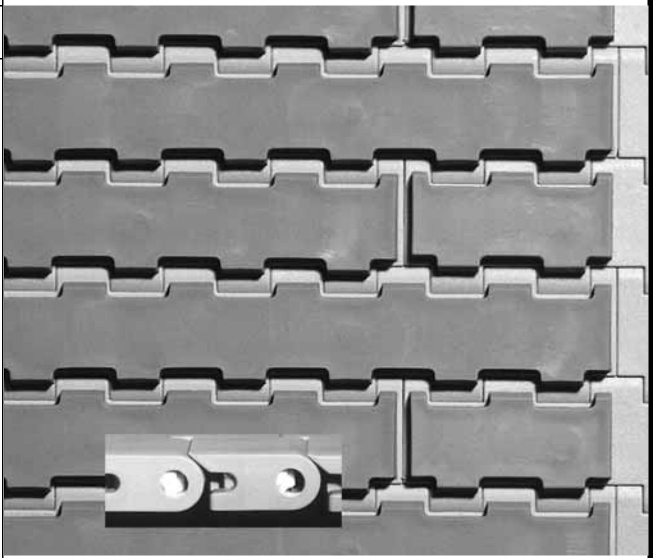
Belt Data

Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength[a]		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[b]	CFA[c]	A[d]	J[e]	M[f]	EU MC[g]
Polypropylene	Polypropylene	1800	2679	34 to 220	1 to 104	1.61	7.86	•				3		•
Polypropylene	Nylon	1800	2679	34 to 220	1 to 104	1.66	8.10	•				3		•
Acetal	Nylon	2500	3720	-50 to 200	-46 to 93	2.52	12.30	•				3		•

a. Belt strength is divided by 2 when using 6 inch sprocket spacing; full strength when using 3 inch sprocket spacing.
b. USDA Dairy and MAF acceptance require the use of a clean-in-place system.
c. Canada Food Inspection Agency
d. Australian Quarantine Inspection Service
e. Japan Ministry of Health, Labour, and Welfare
f. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
g. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Intralox® Flat Friction Top

	in.	mm
Pitch	1.00	25.4
Minimum Width (FFT)	6	152
Minimum Width (FFT Ultra)	6	152
Width Increments	1.00	25.4
Hinge Style	Closed	
Drive Method	Center/Hinge-driven	



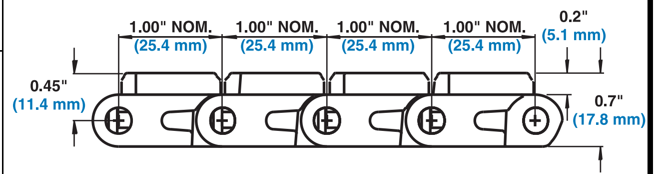
Inset: SLIDELOX™ Rod Retention Feature

Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Fully flush edges with SLIDELOX™ rod retention feature. SLIDELOX™ is available in polypropylene or acetal.
- Robust design offers excellent belt and sprocket durability, especially in tough, material handling applications.
- Standard indents for friction top surface are 2 in. (51 mm) and 0.22 in. (6 mm).
- Most Series 1400 sprockets use the split design so shafts do not have to be removed for retrofits and change overs.
- Dark grey and black rubber have a hardness of 64 Shore A. White rubber has a hardness of 55 Shore A.
- If a center-drive set up is used, it may be necessary to place collars to laterally retain the belt at the backbend roller before the drive.
- Temperature, environmental conditions and product characteristics affect the effective maximum degree of incline. Take these items into consideration when designing conveyor systems utilizing these belts.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



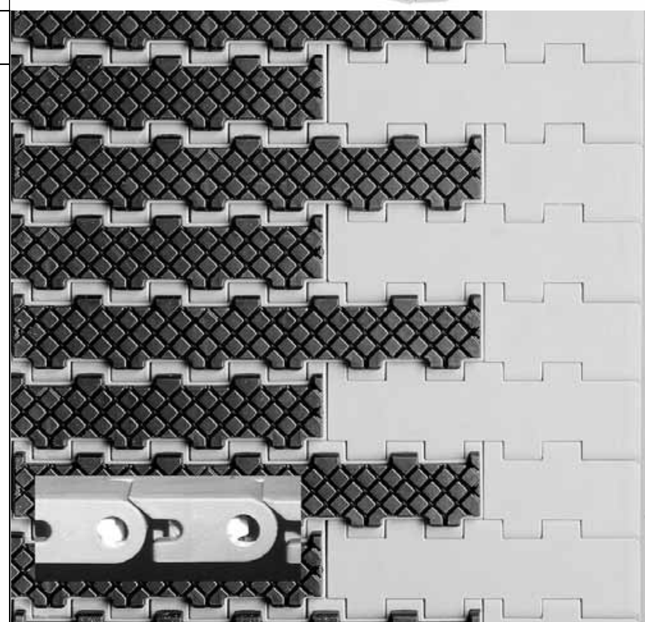
Belt Data

Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey		
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	J[a]	EU MC[b]
Polypropylene (FFT)	Nylon	1800	2678	34 to 150	1 to 66	2.24	10.94	1		
Polypropylene (FFT Ultra)	Nylon	1800	2678	34 to 150	1 to 66	2.62	12.79	1		
Polyethylene (FFT)	Nylon	1000	1488	-50 to 120	-46 to 49	2.33	11.38			
Polyethylene (FFT Ultra)	Nylon	1000	1488	-50 to 120	-46 to 49	2.70	13.18			

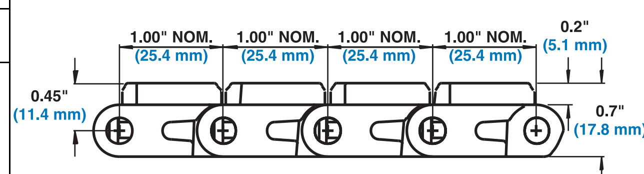
a. Japan Ministry of Health, Labour, and Welfare
b. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Square Friction Top

	in.	mm
Pitch	1.00	25.4
Minimum Width (SFT)	6	152
Minimum Width (SFT Ultra)	6	152
Width Increments	1.00	25.4
Hinge Style	Closed	
Drive Method	Center/hinge-driven	



Inset: SLIDELOX™ Rod Retention Feature



Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Fully flush edges with SLIDELOX™ rod retention feature. SLIDELOX™ is available in polypropylene or acetal.
- Robust design offers excellent belt and sprocket durability, especially in tough, material handling applications.
- Most Series 1400 sprockets use the split design so shafts do not have to be removed for retrofits and change overs. The Series 1400 sprockets are all plastic.
- Available with black rubber on grey polypropylene or black polyethylene.
- Black rubber has a hardness of 45 shore A.
- Minimum indent is 2 in. (50.8 mm).
- If a center-drive set up is used, it may be necessary to place collars to laterally retain the belt at the backbend roller before the drive.
- Temperature, environmental conditions and product characteristics affect the effective maximum degree of incline. Take these items into consideration when designing conveyor systems utilizing these belts.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)

Belt Data

Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey		
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	J[a]	EU MC[b]
Polypropylene (SFT)	Nylon	1800	2678	-34 to 150	-1 to 66	2.21	13.43			
Polypropylene (SFT Ultra)	Nylon	1800	2678	34 to 150	1 to 66	2.60	12.69			
Polyethylene (SFT)	Nylon	1000	1488	-50 to 120	-46 to 49	2.32	11.31			
Polyethylene (SFT Ultra)	Nylon	1000	1488	-50 to 120	-46 to 49	2.68	13.08			

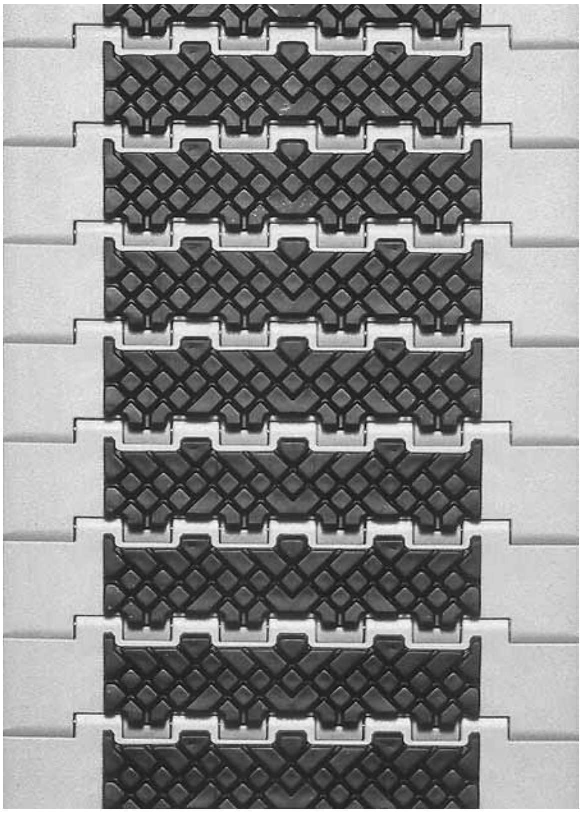
a. Japan Ministry of Health, Labour, and Welfare
b. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

SECTION 2

1400

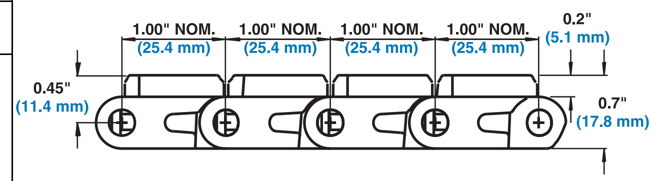
Mold to Width Square Friction Top

	in.	mm
Pitch	1.00	25.4
Molded Width (SFT Ultra)	6	152
Open Area	0%	
Hinge Style	Closed	
Drive Method	Center/hinge-driven	



Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Fully flush edges with SLIDELOX™ rod retention feature. SLIDELOX™ is available in polypropylene or acetal.
- Robust design offers excellent belt and sprocket durability, especially in tough, material handling applications.
- Most Series 1400 sprockets use the split design so shafts do not have to be removed for retrofits and change overs. The Series 1400 sprockets are all plastic.
- Available with black or grey rubber on grey polypropylene.
- Black rubber has a hardness of 45 shore A. Grey rubber has a hardness of 64 shore A.
- Rubber indent is 1 in. (25.4 mm).
- If a center-drive set up is used, it may be necessary to place collars to laterally retain the belt at the backbend roller before the drive.
- Temperature, environmental conditions and product characteristics affect the effective maximum degree of incline. Take these items into consideration when designing conveyor systems utilizing these belts.
- Up to three sprockets can be placed on the 6.0 in. (152 mm) mold to width belt.
- Width tolerances for the Series 1400 Mold To Width belts are +0.000/-0.020 in. (+0.000/-0.500 mm).
- Series 1400 Mold To Width belts are boxed in 10 ft. (3.1 m) increments.



Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)

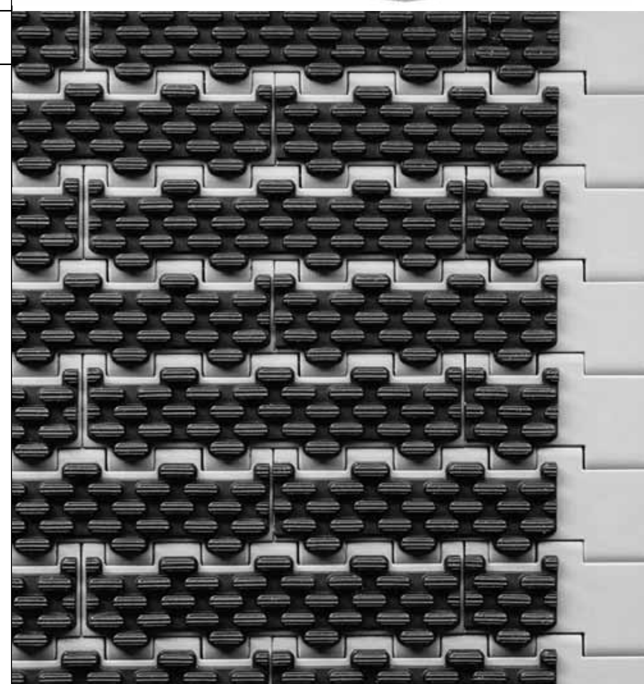
Belt Data

Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey		
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	J[a]	EU MC[b]
Polypropylene (SFT Ultra)	Nylon	800	386	34 to 150	1 to 66	1.15	1.71			

a. Japan Ministry of Health, Labour, and Welfare
b. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Oval Friction Top

	in.	mm
Pitch	1.00	25.4
Minimum Width	6	152
Width Increments	1.00	25.4
Open Area	0%	
Hinge Style	Closed	
Drive Method	Center/hinge-driven	

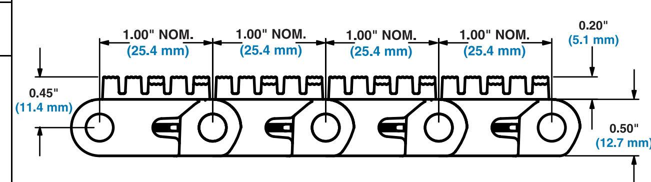


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Fully flush edges with SLIDELOX™ rod retention feature. SLIDELOX™ is available in polypropylene or acetal.
- Robust design offers excellent belt and sprocket durability, especially in tough, material handling applications.
- Most Series 1400 sprockets use the split design so shafts do not have to be removed for retrofits and change overs. The Series 1400 sprockets are all plastic.
- Available with black rubber on grey polypropylene.
- Black rubber has a hardness of 55 shore A.
- Rubber indent is 1 in. (25.4 mm).
- If a center-drive set up is used, it may be necessary to place collars to laterally retain the belt at the backbend roller before the drive.
- Temperature, environmental conditions and product characteristics affect the effective maximum degree of incline. Take these items into consideration when designing conveyor systems utilizing these belts.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



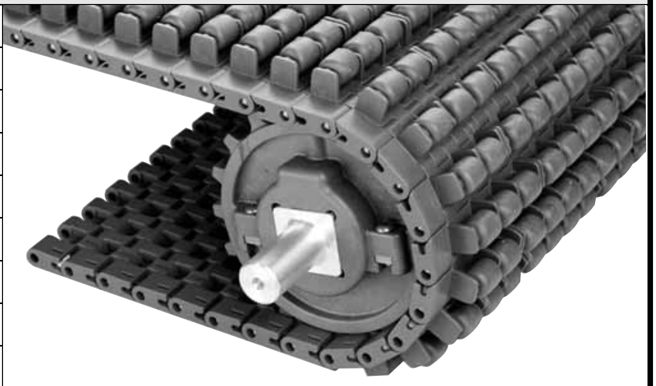
Belt Data

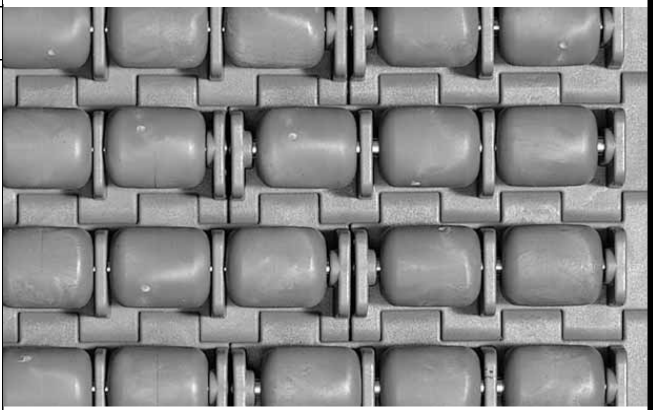
Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey		
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	J[a]	EU MC[b]
Polypropylene	Nylon	1800	2678	34 to 150	1 to 66	2.29	11.18			

a. Japan Ministry of Health, Labour, and Welfare
b. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Roller Top

	in.	mm
Pitch	1.00	25.4
Minimum Width	5	127
Width Increments	1.00	25.4
Roller Diameter	0.70	17.8
Roller Length	0.83	21.0
Open Area	0%	
Hinge Style	Closed	
Drive Method	Center/hinge-driven	



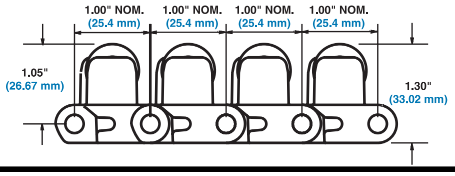


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Allows low back pressure accumulation for gentle product handling.
- 144 rollers per square foot of belt provide greater product-to-roller contact.
- Standard roller indent is 0.75 in. (19 mm)
- 1 in. (25.4 mm) roller spacing.
- Available in white and grey acetal.
- Stainless steel roller axle pins for durability.
- Robust design offers excellent belt and sprocket durability.
- SLIDELOX™ flush edges. SLIDELOX™ is available in polypropylene or acetal.
- Back-up load is 5-10% of product weight.

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



Belt Data

Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey		
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	J[a]	EU MC[b]
Acetal	Nylon	2500	3720	-50 to 200	-46 to 93	5.83	28.47	•	3	•

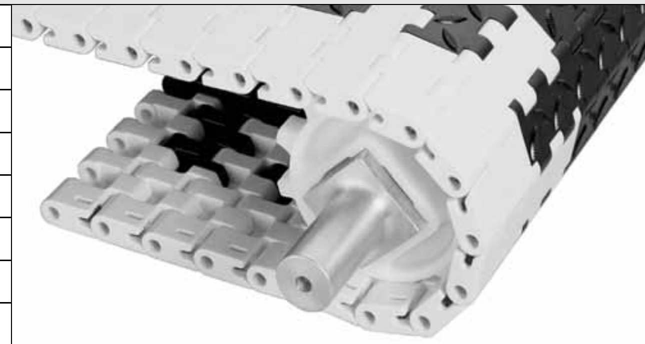
a. Japan Ministry of Health, Labour, and Welfare
b. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

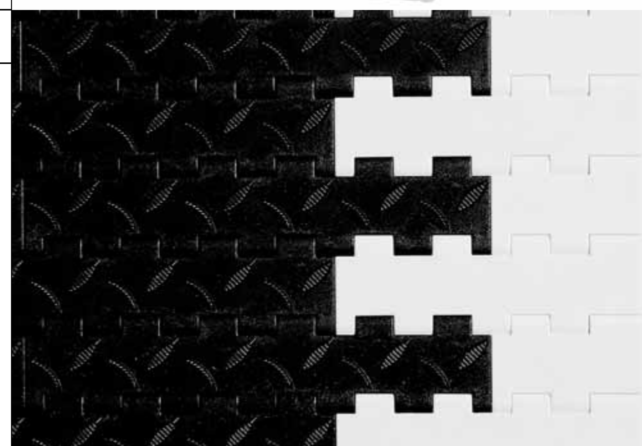
SECTION 2

1400

Non Skid

	in.	mm
Pitch	1.00	25.4
Minimum Width	9	229
Width Increments	1.00	25.4
Opening Size (approx.)	-	-
Open Area	0%	
Hinge Style	Closed	
Drive Method	Center/hinge-driven	



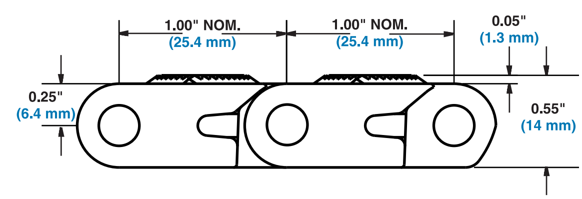


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Robust design offers excellent belt and sprocket durability.
- Slidelox[TM] rod retention system. SLIDELOX™ is available in polypropylene or acetal.
- 1.00 (25.4 mm) pitch accommodates small drive sprockets for low-profile people carriers.
- Diamond tread pattern provides a non-skid walking surface to increase safety.
- Staggered yellow edges make it easy to distinguish the moving belt from the stationary floor.
- Edges have Flat Top surface (no treads).

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



Belt Data

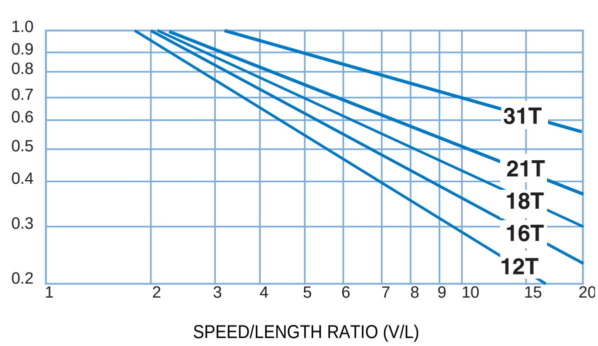
Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey							
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[a]	CFA[b]	A[c]	J[d]	Z[e]	M[f]	EU MC[g]
Acetal	Nylon	1875	2790	-50 to 200	-46 to 93	2.78	13.57					3			•

a. USDA Dairy and MAF acceptance require the use of a clean-in-place system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. New Zealand Ministry of Agriculture and Forestry
f. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
g. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Sprocket and Support Quantity Reference				
Belt Width Range[a]		Minimum Number of Sprockets Per Shaft[b]	Wearstrips	
in.	mm		Carryway	Returnway
5	127	2	2	2
6	152	2	2	2
7	178	2	3	2
8	203	2	3	2
10	254	2	3	2
12	305	3	3	2
14	356	3	4	3
16	406	3	4	3
18	457	3	4	3
20	508	5	5	3
24	610	5	5	3
30	762	5	6	4
32	813	7	7	4
36	914	7	7	4
42	1067	7	8	5
48	1219	9	9	5
54	1372	9	10	6
60	1524	11	11	6
72	1829	12	13	7
84	2134	15	15	8
96	2438	17	17	9
For Other Widths, Use Odd Number of Sprockets[c] at Maximum 6 in. (152 mm) ℄ Spacing			Maximum 6 in. (152 mm) ℄ Spacing	Maximum 12 in. (305 mm) ℄ Spacing

a. If your belt width exceeds a number listed in the table, please refer to the sprocket and support material minimums for the next larger width range listed. Belts are available in 1.00 in. (25.4 mm) increments beginning with minimum width of 5 in. (127 mm). **If the actual width is critical, consult Customer Service.**
b. These are the minimum number of sprockets. Additional sprockets may be required for heavily loaded applications.
c. The center sprocket should be locked down. With only two sprockets, fix the sprocket on the drive journal side only.

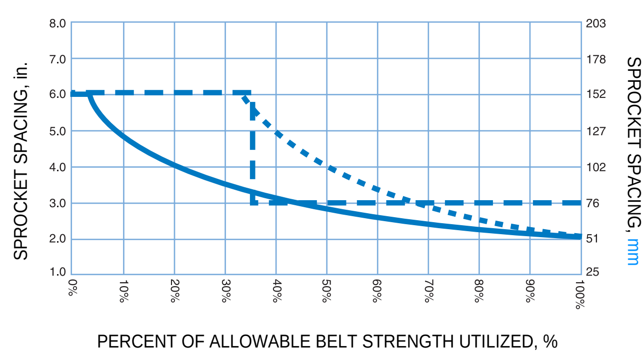
S Strength Factor



V = ft/min (m/min)
T = number of teeth
L = ft (m)

Divide belt speed "V" by the shaft ℄ distance "L". Strength Factor is found at intersection of speed/length ratio and appropriate sprocket line. See page 35 for more information.

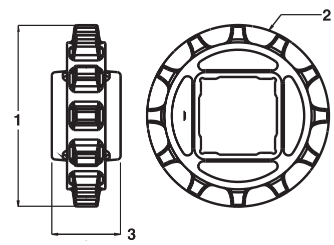
Sprocket Spacing as a Function of Belt Strength Utilized



Solid line: All other styles
Long dash line: Flush grid
Short dash line: Round bores

Plastic Sprocket Data[a]

No. of Teeth (Chordal Action)	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 (3.41%)	3.9	99	3.9	99	1.5	38	-	1.5	-	40
18 (1.52%)	5.7	145	5.8	148	1.5	38	2	2.5	50	60

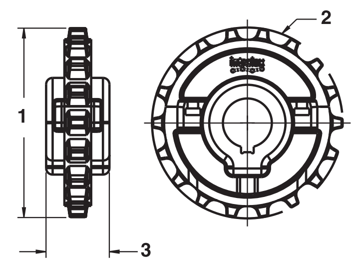


1 - Pitch diameter
2 - Outer diameter
3 - Hub width

a. **Contact Customer Service for lead times.**

Plastic Split Sprocket Data[a]

No. of Teeth (Chordal Action)	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.[b]	Square in.	Round mm[b]	Square mm
16 (1.92%)	5.1	130	5.2	132	1.5	38	1 to 2 in 1/16 increments	1.5	25 to 50 in 5 increments	40



1 - Pitch diameter
2 - Outer diameter
3 - Hub width

a. **Contact Customer Service for lead times.**
b. Imperial key sizes on round bore sprockets conform to ANSI standard B17.1-1967 (R1989) and metric key sizes conform to DIN standard 6885.

Maximum Belt Rating for Glass Filled Nylon Round Bore Split Sprockets Based on Round Bore Size Range[a]

No. of Teeth	Nom. Pitch Diameter		1 in. - 1-3/16 in.		1-1/4 in. - 1-3/8 in.		1-7/16 in. - 1-3/4 in.		1-13/16 in. - 2 in.		25 mm - 35 mm		40 mm - 50 mm	
	in.	mm	lb/ft	kg/m	lb/ft	kg/m	lb/ft	kg/m	lb/ft	kg/m	lb/ft	kg/m	lb/ft	kg/m
18	5.7	145	1800	2679	2040	3036	2400	3572	3240	4822	1440	2143	2460	3661
21	6.7	170	1350	2009	1650	2455	2100	3125	3000	4464	1050	1563	2400	3572

a. The belt rating based on round bore sprocket size is used to determine sprocket spacing as a function of belt strength utilized. It may also be used for all other calcuations. However, if the rating for the belt material and belt style is lower then the belt rating based on the round bore sprocket size, then the lower rating should be used for all calculations other than sprocket spacing.

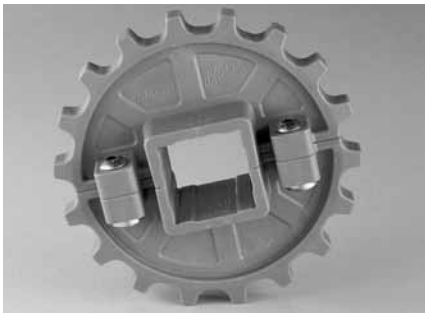
Glass Filled Nylon Square and Round Bore Split Sprocket Data[a]

No. of Teeth (Chordal Action)	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.[b]	Square in.	Round mm[b]	Square mm
18 (1.52%)	5.7	145	5.8	148	2.0	51	1 to 2 in 1/16 increments	1.5	25 to 50 in 5 increments	40
								2.5		60
21 (1.12%)	6.7	170	6.8	172	2.0	51	1 to 2 in 1/16 increments[c]	1.5	25 to 50 in 5 increments	40
								2.5		60

a. **Contact Customer Service for lead times.**
b. Imperial key sizes on round bore sprockets conform to ANSI standard B17.1-1967 (R1989) and metric key sizes conform to DIN standard 6885.
c. Tight fit round bores are available in 1-1/4, 1-3/16, 1-1/2, and 1-7/16 in.

Polypropylene Composite Split Sprocket Data[a]

No. of Teeth (Chordal Action)	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.[b]	Square in.	Round mm[b]	Square mm
18 (1.52%)	5.7	145	5.8	148	2.0	51		1.5		40
								2.5		60
21 (1.12%)	6.7	170	6.8	172	2.0	51		1.5		40
								2.5		60



a. **Contact Customer Service for lead times.**
b. Imperial key sizes on round bore sprockets conform to ANSI standard B17.1-1967 (R1989) and metric key sizes conform to DIN standard 6885.

Polyurethane Composite Split Sprocket Data[a]

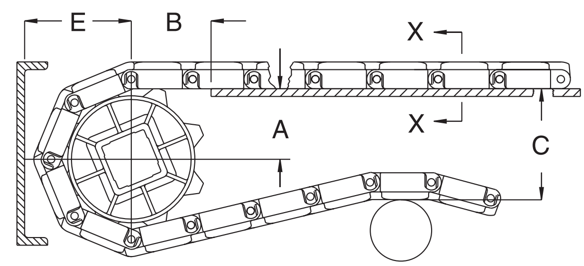
No. of Teeth (Chordal Action)	Nom. Pitch Dia. in.	Nom. Pitch Dia. mm	Nom. Outer Dia. in.	Nom. Outer Dia. mm	Nom. Hub Width in.	Nom. Hub Width mm	Available Bore Sizes			
							U.S. Sizes		Metric Sizes	
							Round in.	Square in.	Round mm	Square mm
31 (0.51%)	9.9	251	10.1	257	1.50	38		3.5		
					1.67	44		2.5[b]		

a. **Contact Customer Service for lead times.**
b. The 2.5" square bore is created by using a bore adapter in the 3.5" square bore sprocket.

Conveyor Frame Dimensions

Regardless of type or configuration, all conveyors using Intralox belts have some basic dimensional requirements. Specifically, dimensions “A”, “B”, “C” and “E” listed below should be implemented in any design.

For general applications and applications where end transfer of tip-sensitive product is not critical, use the “A” dimension at the bottom of the range.



A - ±0.031” (1 mm) **C -** ± (Max)

B - ±0.125” (3 mm) **E -** ± (Min)

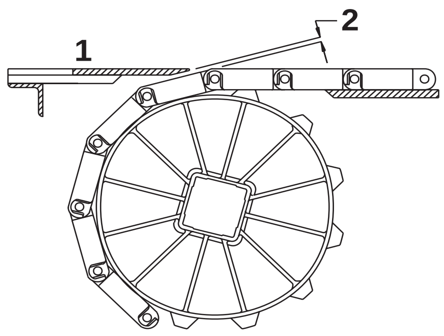
Complete descriptions of the dimensions are listed on page 291.

Sprocket Description			A		B		C		E	
Pitch Diameter		No. Teeth	Range (Bottom to Top)		in.	mm	in.	mm	in.	mm
in.	mm		in.	mm						
SERIES 1400 FLAT TOP, FLUSH GRID										
3.9	99	12	1.62-1.68	41-43	1.80	46	3.86	98	2.24	57
5.1	130	16	2.26-2.32	57-59	2.11	54	5.13	130	2.88	73
5.7	145	18	2.59-2.63	66-67	2.22	56	5.76	146	3.19	81
6.7	170	21	3.07-3.10	78-79	2.44	62	6.71	170	3.75	95
9.9	251	31	4.67	119	3.07	78	9.88	251	5.25	133
SERIES 1400 FLAT FRICTION TOP, SQUARE FRICTION TOP										
3.9	99	12	1.62-1.68	41-43	1.80	46	4.06	103	2.44	62
5.1	130	16	2.27-2.32	58-59	2.11	54	5.33	135	3.08	78
5.7	145	18	2.59-2.63	66-67	2.22	56	5.96	151	3.39	86
6.7	170	21	3.07-3.10	78-79	2.44	62	6.91	176	3.87	98
9.9	251	31	4.67	119	3.07	78	10.08	256	5.45	138
SERIES 1400 OVAL FRICTION TOP										
3.9	99	12	1.62-1.68	41-43	1.80	46	4.06	103	2.44	62
5.1	130	16	2.26-2.31	57-59	2.11	54	5.33	135	3.08	78
5.7	145	18	2.56-2.60	65-66	2.25	57	5.90	150	3.36	85
6.7	170	21	3.07-3.10	78-79	2.44	62	6.91	176	3.87	98
9.9	251	31	4.67	119	3.07	78	10.08	256	5.45	138
SERIES 1400 ROLLER TOP										
3.9	99	12	1.62-1.68	41-43	1.80	46	4.66	118	3.04	77
5.1	130	16	2.26-2.31	57-59	2.11	54	5.93	151	3.68	93
5.7	145	18	2.59-2.63	66-67	2.22	56	6.56	167	3.99	101
6.7	170	21	3.07-3.10	78-79	2.44	62	7.51	191	4.47	113
9.9	251	31	4.67	119	3.07	78	10.68	271	6.05	154
SERIES 1400 NON SKID										
3.9	99	12	1.62-1.68	41-43	1.80	46	3.91	99	2.29	58
5.1	130	16	2.26-2.31	57-59	2.11	54	5.18	132	2.93	74
5.7	145	18	2.59-2.63	66-67	2.22	56	5.81	148	3.24	82
6.7	170	21	3.07-3.10	78-79	2.44	62	6.76	172	3.72	94

Dead Plate Gap

Where there is a transfer point from a belt without finger transfer plates to a dead plate, there should be a gap between the surfaces to allow for the chordal action of the belt. As the belt engages its sprockets, chordal action causes the modules to move past a *fixed* point (the tip of the dead plate) with *varying* clearances. The table below shows the minimum amount of gap which occurs at the "low point" of the modules if the tip of the dead plate just comes in contact with the "high point" as the modules pass.

In some installations it may be desirable to keep the tip of the dead plate in contact with the belt, rather than allow a gap to occur. This can be done by hinging the mounting bracket for the dead plate. This allows the dead plate to move as the modules pass, but results in a small oscillating motion which may present tippage problems for sensitive containers or products.



1 - Top surface of dead plate **2 -** Dead plate gap

Note: The top surface of the dead plate is typically 0.031 in. (0.8 mm) above the belt surface for product transfer onto the belt, and 0.031 in. (0.8 mm) below the belt surface for product transfer off the belt.

Sprocket Description			Gap	
Pitch Diameter		No. Teeth	in.	mm
in.	mm			
3.9	99	12	0.066	1.7
5.1	130	16	0.050	1.3
5.7	145	18	0.044	1.1
6.7	170	21	0.038	1.0
9.9	251	31	0.025	0.6

Flush Grid

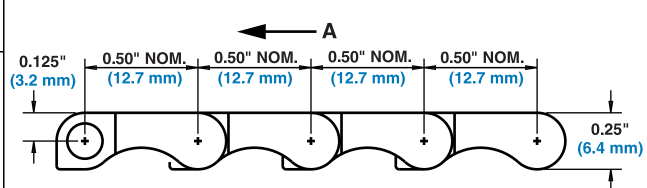
	in.	mm
Pitch	0.50	12.7
Minimum Width	8	203
Width Increments	0.50	12.7
Opening Sizes (approximate)	0.87 × 0.30	22.1 × 7.6
	0.66 × 0.30	16.8 × 7.6
Open Area	48%	
Hinge Style	Open	
Drive Method	Hinge-driven	

Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Designed for a 0.5 in. (12.7 mm) nosebar.
- Smooth upper surface with fully flush edges.
- 0.140 in. (3.6 mm) diameter rods.
- The detectable material has Surface Resistivity per ASTM_D257 of 545 Ohms per square.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



A -Preferred run direction

Belt Data

Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability[a] 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[b]	CFA[c]	A[d]	Z[e]	EU MC[f]	J[g]
Polypropylene	Polypropylene	125	186	34 to 220	1 to 104	0.44	2.12	•					•	3
Polypropylene	Acetal	150	223	34 to 200	1 to 93	0.51	2.40	•					•	3
FDA HR Nylon	Nylon	175	260	-50 to 240	-46 to 116	0.58	2.83	•						
Acetal	Nylon	240	357	-50 to 200	-46 to 93	0.73	3.56	•					•	3
Detectable Polypropylene[h]	Nylon	80	119	0 to 150	-18 to 66	0.56	2.73	•					•	4

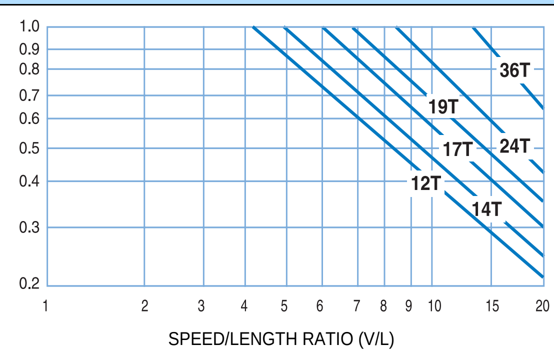
a. Prior to Intralox's development of the Series 1500, USDA-FSIS Meat and Poultry discontinued publishing a list of acceptable new products designed for food contact. As of the printing of this literature, third party approvals are being investigated, but are not yet sanctioned by the USDA-FSIS.
b. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
c. Canada Food Inspection Agency
d. Australian Quarantine Inspection Service
e. New Zealand Ministry of Agriculture and Forestry
f. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.
g. Japan Ministry of Health, Labour, and Welfare
h. Detectable Polypropylene can be sensed with metal detection equipment. Testing the material on a metal detector in a production environment is the best method for determining detection sensitivity.

Sprocket and Support Quantity Reference

Belt Width Range[a]		Minimum Number of Sprockets Per Shaft[b]	Wearstrips	
in.	mm		Carryway	Returnway
8	203	3	3	2
10	254	3	3	2
12	305	3	3	2
14	356	3	4	3
16	406	5	4	3
18	457	5	4	3
20	508	5	5	3
22	559	5	5	3
24	610	7	5	3
26	660	7	6	4
28	711	7	6	4
30	762	7	6	4
32	813	9	7	4
34	864	9	7	4
36	914	9	7	4
38	965	9	8	5
40	1016	11	8	5
42	1067	11	8	5
44	1118	11	9	5
46	1168	11	9	5
48	1219	13	9	5
50	1270	13	10	6
52	1321	13	10	6
54	1372	13	10	6
56	1422	15	11	6
58	1473	15	11	6
60	1524	15	11	6
62	1575	15	12	7
64	1626	17	12	7
For Other Widths, Use Odd Number of Sprockets[c] at Maximum 6 in. (152 mm) ℄ Spacing			Maximum 6 in. (152 mm) ℄ Spacing	Maximum 12 in. (305 mm) ℄ Spacing

a. Belts are available in 0.50 in. (12.7 mm) increments beginning with 8 in. (203 mm). **If the actual width is critical, consult Customer Service.**
b. These are the minimum number of sprockets. Additional sprockets may be required for heavily loaded applications.
c. The center sprocket should be locked down. With only two sprockets, fix the sprocket on the drive journal side only.

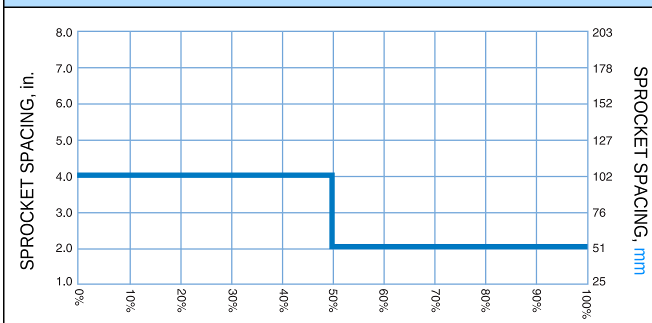
S Strength Factor



V = ft/min (m/min)
T = number of teeth
L = ft (m)

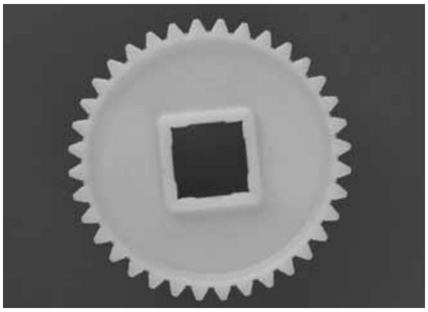
Divide belt speed “V” by the shaft ℄ distance “L”. Strength Factor is found at intersection of speed/length ratio and appropriate sprocket line. See page 35 for more information.

Sprocket Spacing as a Function of Belt Strength Utilized



Sprocket Data[a]

No. of Teeth (Chordal Action)	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.[b]	Square in.	Round mm[b]	Square mm
12 (3.41%)	1.9	48	2.1	53	0.67	17	1	1.0	25	
14 (2.51%)	2.3	58	2.4	61	0.75	19	3/4, 1, 1-3/16, 1-1/4	1.0	25	
17 (1.70%)	2.7	69	2.9	73	0.75	19	3/4, 1, 1-3/16, 1-1/4, 1-3/8		25	
19 (1.36%)	3.1	79	3.2	82	0.75	19	1, 1-3/8			
24 (0.86%)	3.8	97	4.0	101	0.75	19	1	1.5	25	40
36 (0.38%)	5.7	145	5.9	150	0.75	19	1	1.5		40



a. **Contact Customer Service for lead times.**
b. Imperial key sizes on round bore sprockets conform to ANSI standard B17.1-1967 (R1989) and metric key sizes conform to DIN standard 6885.

Flush Grid Base Flights (Streamline)

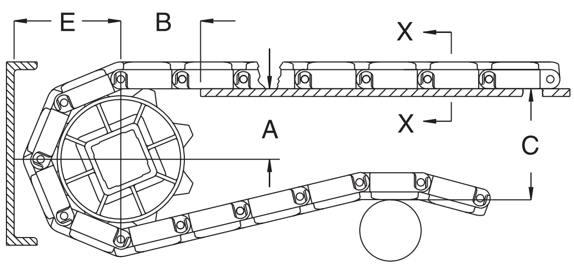
Available Flight Height		Available Materials
in.	mm	
1	25	Acetal, FDA Nylon

Note: Flights can be cut down to any height required for a particular application.
Note: Each flight rises out of the center of its supporting module, molded as an integral part. No fasteners are required.
Note: Flush Grid flight is smooth (Streamline) on both sides.
Note: The minimum indent is a function of belt width and ranges from 3 in. (76 mm) to 3.75 in. (95 mm).

Conveyor Frame Dimensions

Regardless of type or configuration, all conveyors using Intralox belts have some basic dimensional requirements. Specifically, dimensions “A”, “B”, “C” and “E” listed below should be implemented in any design.

For general applications and applications where end transfer of tip-sensitive product is not critical, use the “A” dimension at the bottom of the range.



A - ±0.031” (1 mm) **C -** ± (Max)

B - ±0.125” (3 mm) **E -** ± (Min)

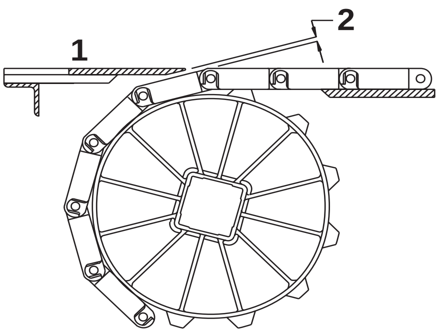
Complete descriptions of the dimensions are listed on page 291.

Sprocket Description			A		B		C		E	
Pitch Diameter		No. Teeth	Range (Bottom to Top)		in.	mm	in.	mm	in.	mm
in.	mm		in.	mm						
SERIES 1500 FLUSH GRID										
1.9	48	12	0.81-0.84	21	1.24	31	1.93	49	1.15	29
2.3	58	14	0.97-1.00	25	1.34	34	2.25	57	1.31	33
2.7	69	17	1.21-1.24	31	1.49	38	2.72	69	1.55	39
3.1	79	19	1.37-1.39	35	1.59	40	3.04	77	1.71	43
3.8	97	24	1.77-1.79	45	1.76	45	3.83	97	2.10	53
5.7	145	36	2.73-2.74	69-70	2.71	55	5.74	146	3.06	78

Dead Plate Gap

Where there is a transfer point from a belt without finger transfer plates to a dead plate, there should be a gap between the surfaces to allow for the chordal action of the belt. As the belt engages its sprockets, chordal action causes the modules to move past a *fixed* point (the tip of the dead plate) with *varying* clearances. The table below shows the minimum amount of gap which occurs at the “low point” of the modules if the tip of the dead plate just comes in contact with the “high point” as the modules pass.

In some installations it may be desirable to keep the tip of the dead plate in contact with the belt, rather than allow a gap to occur. This can be done by hinging the mounting bracket for the dead plate. This allows the dead plate to move as the modules pass, but results in a small oscillating motion which may present tippage problems for sensitive containers or products.

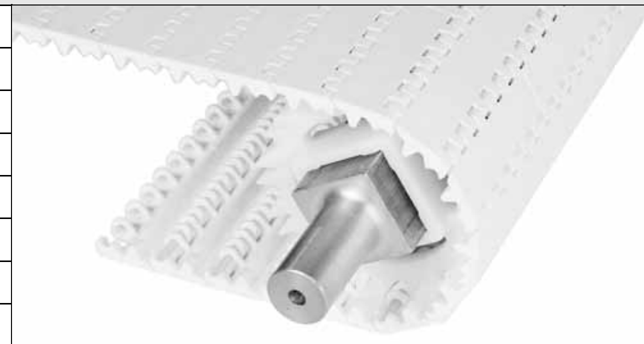


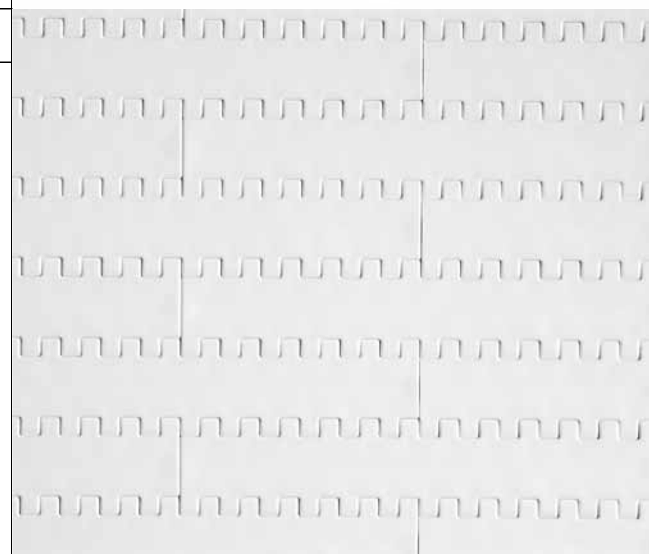
1 - Top surface of dead plate **2 -** Dead plate gap

Note: The top surface of the dead plate is typically 0.031 in. (0.8 mm) above the belt surface for product transfer onto the belt, and 0.031 in. (0.8 mm) below the belt surface for product transfer off the belt.

Sprocket Description			Gap	
Pitch Diameter		No. Teeth	in.	mm
in.	mm			
1.9	48	12	0.033	0.8
2.3	58	14	0.028	0.7
2.7	69	17	0.023	0.6
3.1	79	19	0.021	0.5
3.8	97	24	0.017	0.4
5.7	145	36	0.011	0.3

Open Hinge Flat Top		
	in.	mm
Pitch (nominal)	1.00	25.4
Minimum Width	5	127
Width Increments	0.50	12.7
Opening Size (approx.)	—	—
Open Area	0%	
Hinge Style	Open	
Drive Method	Center-driven	



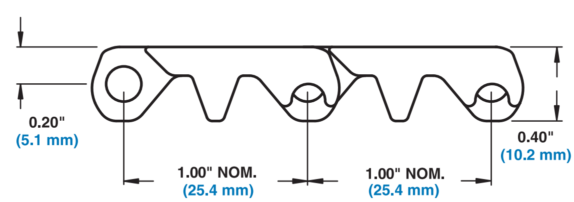


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Smooth, closed upper surface with fully flush edges and recessed rods.
- Cam-link designed hinges - expose more hinge and rod area as belt goes around the sprocket. This exclusive Intralox feature allows unsurpassed cleaning access to this area.
- Fully sculpted and radius corners - no pockets or sharp corners to catch and hold debris.
- Drive Bar - like Series 800 and Series 1800, the drive bar on the underside of Series 1600 Open Hinge Flat Top channels water and debris to the outside of the belt for easier, faster clean up. The drive bar's effectiveness has been proven both in-house and in field tests.
- No-Cling flights are available. Standard height is 4" (102 mm) or they can be cut down to custom heights.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



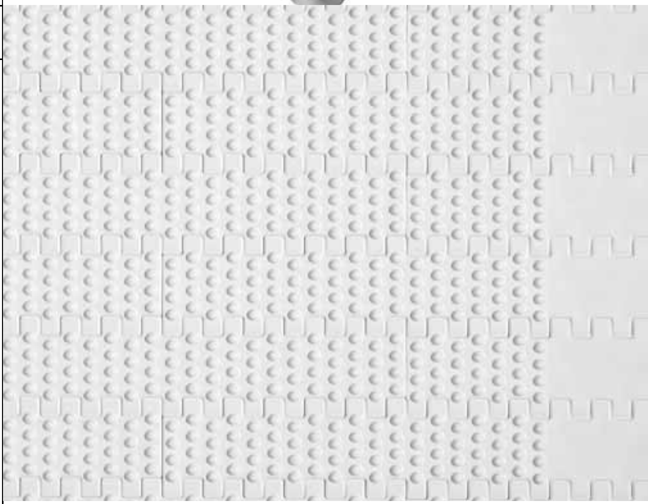
Belt Data

Belt Material	Standard Rod Material Ø 0.18 in. (6.1 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability[a] 1=White, 2=Blue, 3=Natural, 4=Grey							
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[b]	CFA[c]	A[d]	J[e]	Z[f]	M[g]	EU MC[h]
Polypropylene	Polypropylene	700	1040	34 to 220	1 to 104	1.05	5.13	•	1			3			•
Polyethylene	Polyethylene	350	520	-50 to 150	-46 to 66	1.10	5.37	•	3			3			•
Acetal	Polyethylene	1400	2100	34 to 200	1 to 93	1.58	7.71	•	1			3			•
Acetal	Polyethylene[i]	1000	1490	-50 to 150	-46 to 66	1.58	7.71	•	1			3			•

a. Prior to Intralox's development of the Series 1600, USDA-FSIS Meat and Poultry discontinued publishing a list of acceptable new products designed for food contact. As of the printing of this literature, third party approvals are being investigated, but are not yet sanctioned by the USDA-FSIS.
b. USDA Dairy and MAF acceptance require the use of a clean-in-place system.
c. Canada Food Inspection Agency
d. Australian Quarantine Inspection Service
e. Japan Ministry of Health, Labour, and Welfare
f. New Zealand Ministry of Agriculture and Forestry
g. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
h. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.
i. Polyethylene rods can be used in cold applications when impacts or sudden starts/stops occur. Please note lower rating.

Nub Top

	in.	mm
Pitch	1.00	25.4
Minimum Width	5	127
Width Increments	0.50	12.7
Open Area	0%	
Product Contact Area	10%	
Hinge Style	Open	
Drive Method	Center-Driven	

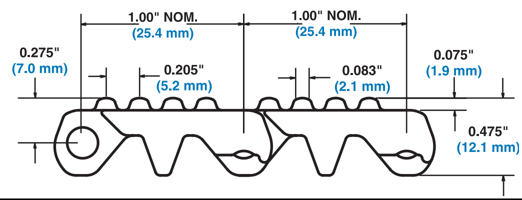


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- No-Cling flights are 4" (102 mm) high and can be cut to any size. Molded as an integral part of the belt, the flights are available in polypropylene, polyethylene, and acetal.
- Belt has closed upper surface with fully flush edges and recessed rods.
- Recommended for products large enough to span the distance between the nubs [0.250" (6.35 mm)].
- Standard flights available.
- Not recommended for back-up conditions. If values are required, contact Intralox Sales Engineering.
- Standard nub indent is 1.3" (33 mm).

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



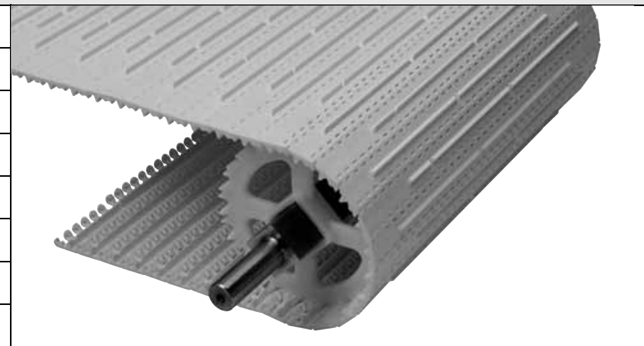
Belt Data

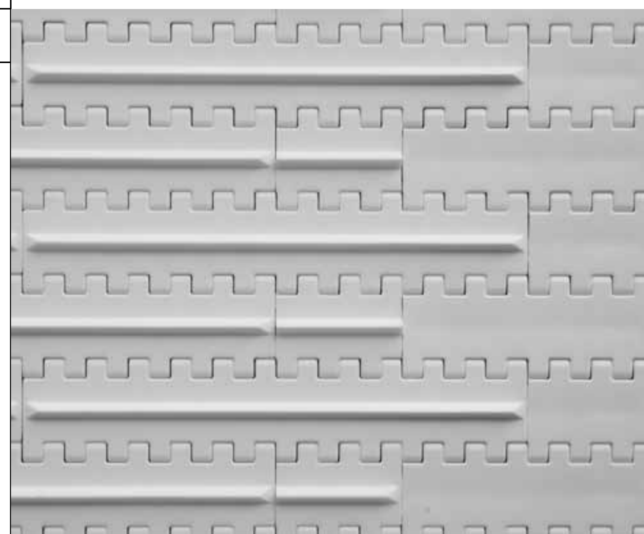
Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength lb/ft	BS Belt Strength kg/m	Temperature Range (continuous) °F	Temperature Range (continuous) °C	W Belt Weight lb/ft²	W Belt Weight kg/m²	Agency Acceptability[a] 1=White, 2=Blue, 3=Natural, 4=Grey: FDA (USA)	USDA Dairy[b]	CFA[c]	A[d]	J[e]	Z[f]	M[g]	EU MC[h]
Polypropylene	Polypropylene	700	1040	34 to 220	1 to 104	1.13	5.52	•				3			•
Polyethylene	Polyethylene	350	520	-50 to 150	-46 to 66	1.18	5.76	•				3			•
Acetal	Polyethylene	1400	2100	34 to 200	1 to 93	1.74	8.49	•				3			•
Acetal	Polyethylene[i]	1000	1490	-50 to 150	-46 to 66	1.74	8.49	•				3			•

a. Prior to Intralox's development of the Series 1600, USDA-FSIS Meat and Poultry discontinued publishing a list of acceptable new products designed for food contact. As of the printing of this literature, third party approvals are being investigated, but are not yet sanctioned by the USDA-FSIS.
b. USDA Dairy and MAF acceptance require the use of a clean-in-place system.
c. Canada Food Inspection Agency
d. Australian Quarantine Inspection Service
e. Japan Ministry of Health, Labour, and Welfare
f. New Zealand Ministry of Agriculture and Forestry
g. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
h. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.
i. Polyethylene rods can be used in cold applications when impacts or sudden starts/stops occur. Please note lower rating.

Mini Rib

	in.	mm
Pitch (nominal)	1.00	25.4
Minimum Width	5	127
Width Increments	0.50	12.7
Opening Size (approx.)	—	—
Open Area	0%	
Hinge Style	Open	
Drive Method	Center-driven	



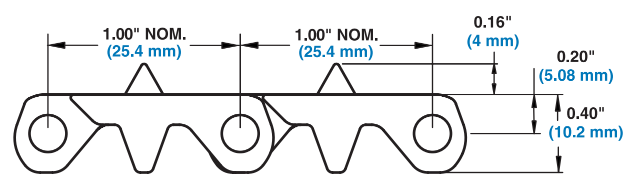


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Closed upper surface with fully flush edges and recessed rods.
- Cam-link designed hinges - expose more hinge and rod area as belt goes around the sprocket. This exclusive Intralox feature allows unsurpassed cleaning access to this area.
- Fully sculpted and radius corners - no pockets or sharp corners to catch and hold debris.
- Drive Bar - like Series 800 and Series 1800, the drive bar on the underside of Series 1600 Open Hinge Mini Rib channels water and debris to the outside of the belt for easier, faster clean up. The drive bar's effectiveness has been proven both in-house and in field tests.
- No-Cling flights are available. Standard height is 4 in. (102 mm) or they can be cut down to custom heights.
- 0.16 in. (4 mm) Mini Rib on surface accommodates gradual inclines and declines. Not recommended for back-up conditions.
- Minimum rib indent is 1.5 in. (38 mm).

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



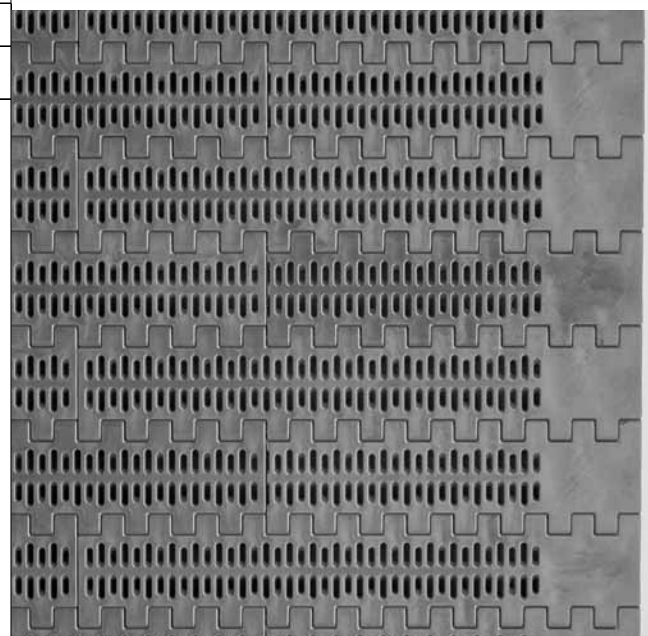
Belt Data

Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability[a] 1=White, 2=Blue, 3=Natural, 4=Grey				
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[b]	CFA[c]	J[d]	EU MC[e]
Polypropylene	Polypropylene	700	1040	34 to 220	1 to 104	1.05	5.13	•	1		3	•
Acetal	Polypropylene	1400	2100	34 to 220	1 to 93	1.58	7.71	•	1		3	•

a. Prior to Intralox's development of the Series 1600, USDA-FSIS Meat and Poultry discontinued publishing a list of acceptable new products designed for food contact. As of the printing of this literature, third party approvals are being investigated, but are not yet sanctioned by the USDA-FSIS.
b. USDA Dairy and MAF acceptance require the use of a clean-in-place system.
c. Canada Food Inspection Agency
d. Japan Ministry of Health, Labour, and Welfare
e. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Mesh Top

	in.	mm
Pitch	1.00	25.4
Minimum Width	5	127
Width Increments	0.50	12.7
Min. Opening Size (approx.)	0.60 x 0.12	1.5 x 3.0
Max. Opening Size (approx.)	0.60 x 0.20	1.5 x 5.1
Open Area (fully extended)	16%	
Hinge Style	Open	
Drive Method	Center-driven	

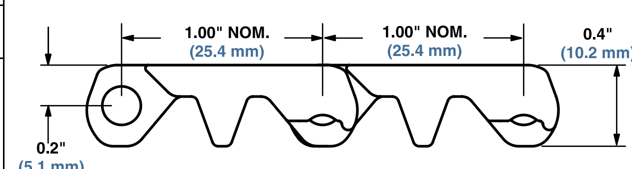


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Cam-link designed hinges - expose more hinge and rod area as belt goes around the sprocket. This exclusive Intralox feature allows unsurpassed cleaning access to this area.
- Fully sculpted and radius corners - no pockets or sharp corners to catch and hold debris.
- Drive Bar - like Series 800 and Series 1800, the drive bar on the underside of Series 1600 Mesh Top channels water and debris to the outside of the belt for easier, faster clean up. The drive bar's effectiveness has been proven both in-house and in field tests.
- No-Cling flights are available. Standard height is 4 in. (102 mm) or they can be cut down to custom heights.
- Standard Mesh Top indent is 1 in. (25 mm).

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



Belt Data

Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability[a] 1=White, 2=Blue, 3=Natural, 4=Grey							
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[b]	CFA[c]	A[d]	J[e]	Z[f]	M[g]	EU MC[h]
Acetal	Polypropylene	1200	1780	34 to 200	1 to 93	1.40	6.84	•				3			•
Polypropylene	Polypropylene	700	1040	34 to 220	1 to 104	0.94	4.59	•				3			•

a. Prior to Intralox's development of the Series 1600, USDA-FSIS Meat and Poultry discontinued publishing a list of acceptable new products designed for food contact. As of the printing of this literature, third party approvals are being investigated, but are not yet sanctioned by the USDA-FSIS.
b. USDA Dairy and MAF acceptance require the use of a clean-in-place system.
c. Canada Food Inspection Agency
d. Australian Quarantine Inspection Service
e. Japan Ministry of Health, Labour, and Welfare
f. New Zealand Ministry of Agriculture and Forestry
g. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
h. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

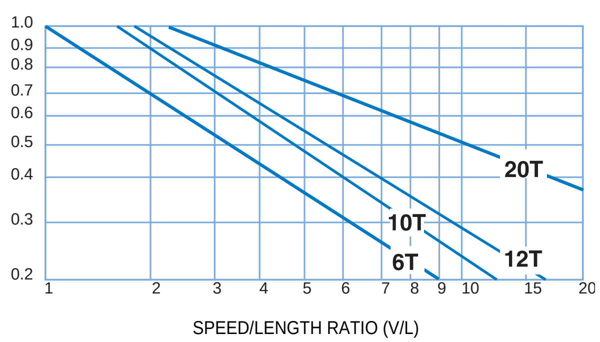
Sprocket and Support Quantity Reference

Belt Width Range[a]		Minimum Number of Sprockets Per Shaft[b]	Wearstrips	
in.	mm		Carryway	Returnway
5	127	2	2	2
6	152	2	2	2
7	178	2	3	2
8	203	3	3	2
9	229	3	3	2
10	254	3	3	2
12	305	3	3	2
14	356	5	4	3
15	381	5	4	3
16	406	5	4	3
18	457	5	4	3
20	508	5	5	3
24	610	7	5	3
30	762	9	6	4
32	813	9	7	4
36	914	9	7	4
42	1067	11	8	5
48	1219	13	9	5
54	1372	15	10	6
60	1524	15	11	6
72	1829	19	13	7
84	2134	21	15	8
96	2438	25	17	9
120	3048	31	21	11
144	3658	37	25	13
For Other Widths, Use Odd Number of Sprockets[c] at Maximum 4 in. (102 mm) ℄ Spacing			Maximum 6 in. (152 mm) ℄ Spacing	Maximum 12 in. (305 mm) ℄ Spacing

a. Belts are available in 0.50 in. (12.7 mm) increments beginning with 5 in. (127 mm). **If the actual width is critical, consult Customer Service.**
b. These are the minimum number of sprockets. Additional sprockets may be required for heavily loaded applications.
c. The center sprocket should be locked down. With only two sprockets, fix the sprocket on the drive journal side only.

S

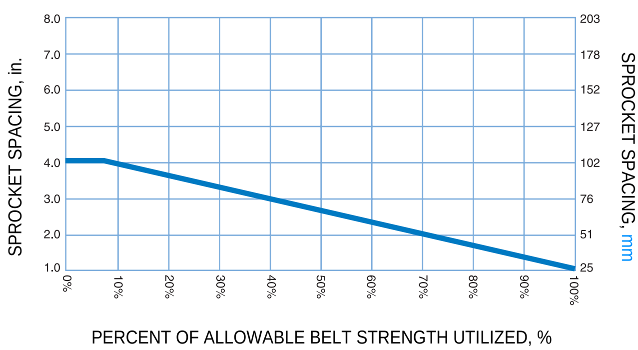
Strength Factor



V = ft/min (m/min)
T = number of teeth
L = ft (m)

Divide belt speed "V" by the shaft ℄ distance "L". Strength Factor is found at intersection of speed/length ratio and appropriate sprocket line. See page 35 for more information.

Sprocket Spacing as a Function of Belt Strength Utilized



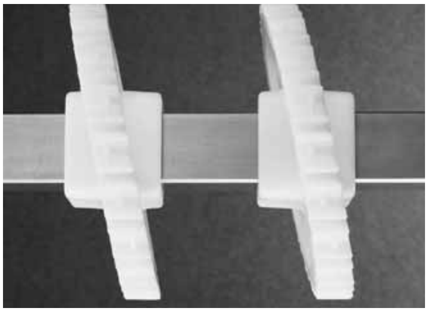
EZ Clean Sprocket Data[a]

No. of Teeth (Chordal Action)	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.[b]	Square in.	Round mm[b]	Square mm
6 (13.40%)	2.0	51	1.8	46	1.0	25	1.0		25	
10 (4.89%)	3.2	81	3.2	81	1.0	25	1.0	1.5	25	40
12 (3.41%)	3.9	99	3.8	97	1.0	25		1.5		40
20 (1.23%)	6.4	163	6.4	163	1.0	25		1.5		40

a. Contact customer Service for lead times. When using Polyurethane sprockets, the Belt Strength for belts rated over 500 lb/ft (744 kg/m) will be de-rated to 500 lb/ft (744 kg/m) and all other belts will maintain their published rating. The temperature range for Polyurethane sprockets is 0° F (-18 °C) to 120 °F (49 °C). Contact Customer Service for availability of Polyurethane sprockets.
b. Imperial key sizes on round bore sprockets conform to ANSI standard B17.1-1967 (R1989) and metric key sizes conform to DIN standard 6885.

Angled EZ Clean Sprocket Data[a]

No. of Teeth (Chordal Action)	Nom. Pitch Dia. in.	Nom. Pitch Dia. mm	Nom. Outer Dia. in.	Nom. Outer Dia. mm	Nom. Hub Width in.	Nom. Hub Width mm	Available Bore Sizes			
							U.S. Sizes		Metric Sizes	
							Round in.	Square in.	Round mm	Square mm
20 (1.23%)	6.4	163	6.4	163	2.0	50.8		1.5		40



a. Contact customer Service for lead times.

Open Hinge Flat Top Base Flight (No-Cling)

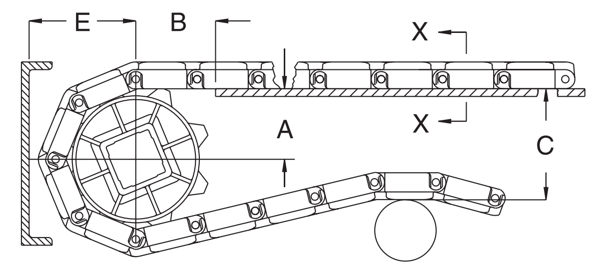
Available Flight Height		Available Materials
in.	mm	
4.0	102	Polypropylene, Polyethylene, Acetal

Note: Minimum indent is 1.0 in (25.4 mm)
Note: Flights can be cut down to any height required for a particular application.
Note: Each flight rises out of the center of its supporting module, molded as an integral part. No fasteners are required.
Note: The no-cling vertical ribs are on both sides of the flight.

Conveyor Frame Dimensions

Regardless of type or configuration, all conveyors using Intralox belts have some basic dimensional requirements. Specifically, dimensions “A”, “B”, “C” and “E” listed below should be implemented in any design.

For general applications and applications where end transfer of tip-sensitive product is not critical, use the “A” dimension at the bottom of the range.



A - ±0.031” (1 mm) **C -** ± (Max)

B - ±0.125” (3 mm) **E -** ± (Min)

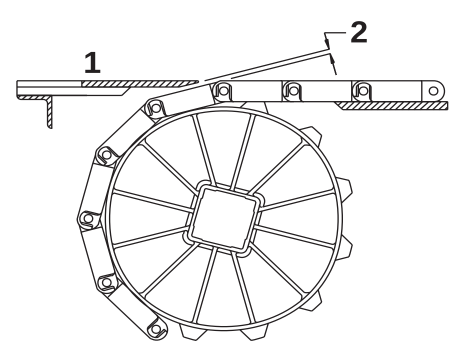
Complete descriptions of the dimensions are listed on page 291.

Sprocket Description			A		B		C		E	
Pitch Diameter		No. Teeth	Range (Bottom to Top)		in.	mm	in.	mm	in.	mm
in.	mm		in.	mm						
SERIES 1600 OPEN HINGE FLAT TOP, MESH TOP										
2.0	51	6	0.67-0.80	17-20	1.10	28	2.00	51	1.26	32
3.2	81	10	1.34-1.42	34-36	1.56	40	3.24	82	1.88	48
3.9	99	12	1.67-1.73	42-44	1.70	43	3.86	98	2.19	56
6.4	163	20	2.96-3.00	75-76	2.25	57	6.39	162	3.46	88
SERIES 1600 NUB TOP										
2.0	51	6	0.67-0.80	17-20	1.10	28	2.08	53	1.34	34
3.2	81	10	1.34-1.42	34-36	1.56	40	3.31	84	1.96	50
3.9	99	12	1.67-1.73	42-44	1.70	43	3.94	100	2.27	58
6.4	163	20	2.96-3.00	75-76	2.25	57	6.47	164	3.53	90
SERIES 1600 MINI RIB										
2.0	51	6	0.67-0.80	17-20	1.10	28	2.16	55	1.42	36
3.2	81	10	1.34-1.42	34-36	1.56	40	3.40	86	2.04	52
3.9	99	12	1.67-1.73	42-44	1.70	43	4.02	102	2.35	60
6.4	163	20	2.96-3.00	75-76	2.25	57	6.55	166	3.62	92

Dead Plate Gap

Where there is a transfer point from a belt without finger transfer plates to a dead plate, there should be a gap between the surfaces to allow for the chordal action of the belt. As the belt engages its sprockets, chordal action causes the modules to move past a *fixed* point (the tip of the dead plate) with *varying* clearances. The table below shows the minimum amount of gap which occurs at the “low point” of the modules if the tip of the dead plate just comes in contact with the “high point” as the modules pass.

In some installations it may be desirable to keep the tip of the dead plate in contact with the belt, rather than allow a gap to occur. This can be done by hinging the mounting bracket for the dead plate. This allows the dead plate to move as the modules pass, but results in a small oscillating motion which may present tippage problems for sensitive containers or products.



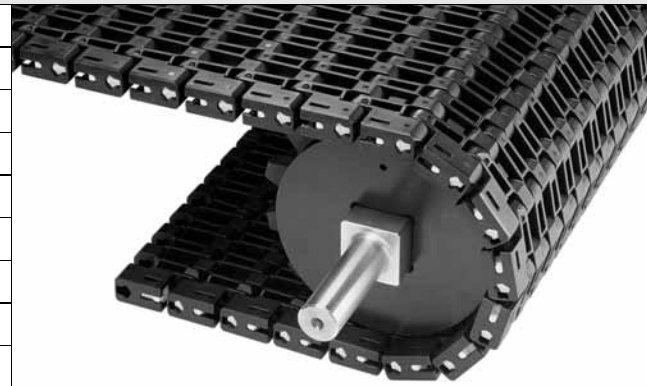
1 - Top surface of dead plate **2 -** Dead plate gap

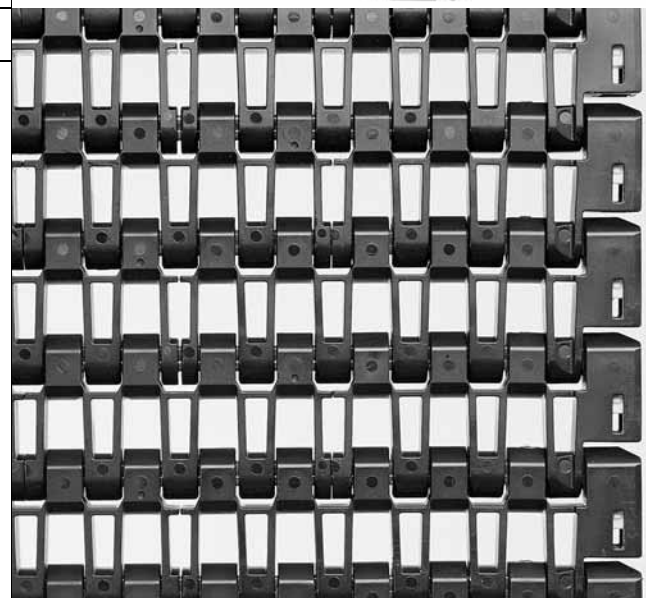
Note: The top surface of the dead plate is typically 0.031 in. (0.8 mm) above the belt surface for product transfer onto the belt, and 0.031 in. (0.8 mm) below the belt surface for product transfer off the belt.

Sprocket Description			Gap	
Pitch Diameter		No. Teeth	in.	mm
in.	mm			
2.0	51	6	0.134	3.4
3.2	81	10	0.079	2.0
3.9	99	12	0.066	1.7
6.4	163	20	0.039	1.0

Flush Grid

	in.	mm
Pitch	1.50	38.1
Minimum Width	5	127
Width Increments	1.00	25.4
Opening Sizes (approx.)	0.62 × 0.50	15.7 × 12.7
	0.70 × 0.26	17.8 × 6.6
Open Area	37%	
Hinge Style	Closed	
Drive Method	Center/Hinge-Driven	



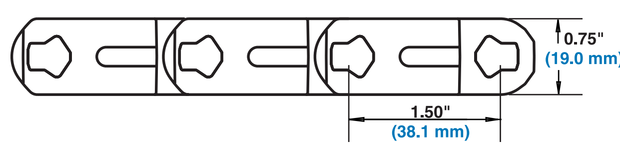


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Fully flush edges with highly visible, yellow acetal SLIDELOX™ rod retention feature.
- Robust design offers excellent belt and sprocket durability, especially in tough material handling applications.
- Abrasion resistant system lasts 5 to 10 times longer than conventional modular plastic belts.
- Sprockets have large lug teeth.
- Multi-rod hinge design significantly reduces cam shafting. Every row contains two rectangular rods.
- Abrasion resistant nylon used in modules and rods.
- Ultra abrasion resistant polyurethane sprockets.
- Steel is preferred carryway material.
- Chevron pattern or flat continuous carryway recommended. Straight, parallel wearstrips should not be used.
- Do not use on pusher conveyors.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



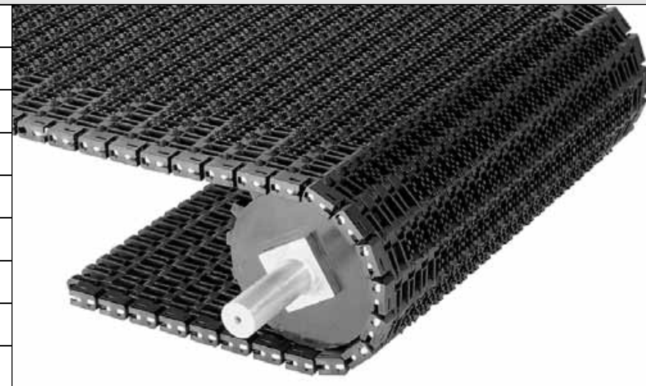
Belt Data

Belt Material	Standard Rod Material 0.25 × 0.17 in. (6.4 × 4.3 mm)	BS Belt Strength		Temperature Range (continuous)[a]		W Belt Weight		Agency Acceptability[b] 1=White, 2=Blue, 3=Natural, 4=Grey							
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[c]	CFA[d]	A[e]	J[f]	Z[g]	M[h]	EU MC[i]
AR Nylon	Nylon	1800	2678	-50 to 240	-46 to 116	2.21	10.78	•							

a. Sprocket temperatures should be limited to -40 to 160 °F (-40 to 70 °C).
b. Prior to Intralox's development of the Series 1700, USDA-FSIS Meat and Poultry discontinued publishing a list of acceptable new products designed for food contact. As of the printing of this literature, third party approvals are being investigated, but are not yet sanctioned by the USDA-FSIS.
c. USDA Dairy and MAF acceptance require the use of a clean-in-place system.
d. Canada Food Inspection Agency
e. Australian Quarantine Inspection Service
f. Japan Ministry of Health, Labour, and Welfare
g. New Zealand Ministry of Agriculture and Forestry
h. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
i. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Flush Grid Nub Top™

	in.	mm
Pitch	1.50	38.1
Minimum Width	5	127
Width Increments	1.00	25.4
Opening Sizes (approx.)	0.70 × 0.26	18 × 7
Open Area	37%	
Product Contact Area	8%	
Hinge Style	Closed	
Drive Method	Center/Hinge-Driven	

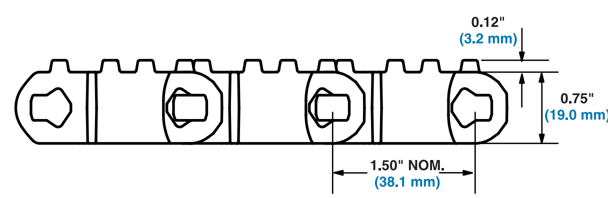


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Fully flush edges with highly visible, yellow acetal SLIDELOX™ rod retention feature.
- Robust design offers excellent belt and sprocket durability, especially in tough material handling applications.
- Abrasion resistant system lasts 2.5 to 3 times longer than conventional modular plastic belts.
- Sprockets have large lug teeth.
- Multi-rod hinge design significantly reduces cam shafting. Every row contains two rectangular rods.
- Abrasion resistant nylon used in modules and rods.
- Ultra abrasion resistant polyurethane split sprockets.
- Steel is preferred carryway material.
- Chevron pattern or flat continuous carryway recommended. Straight, parallel wearstrips should not be used.
- Do not use on pusher conveyors.
- Minimum 2 inch (51 mm) indent from flush edge.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



Belt Data

Belt Material	Standard Rod Material 0.25 × 0.17 in. (6.4 × 4.3 mm)	BS Belt Strength		Temperature Range (continuous)[a]		W Belt Weight		Agency Acceptability[b] 1=White, 2=Blue, 3=Natural, 4=Grey						
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	CFA[c]	A[d]	J[e]	Z[f]	M[g]	EU MC[h]
AR Nylon	Nylon	1800	2678	-50 to 240	-46 to 116	2.21	10.78	•						

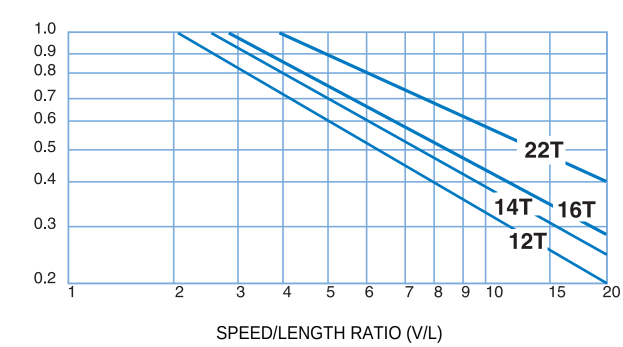
a. Sprocket temperatures should be limited to -40 to 160 °F (-40 to 70 °C).
b. Prior to Intralox's development of the Series 1700, USDA-FSIS Meat and Poultry discontinued publishing a list of acceptable new products designed for food contact. As of the printing of this literature, third party approvals are being investigated, but are not yet sanctioned by the USDA-FSIS.
c. Canada Food Inspection Agency
d. Australian Quarantine Inspection Service
e. Japan Ministry of Health, Labour, and Welfare
f. New Zealand Ministry of Agriculture and Forestry
g. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
h. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Sprocket and Support Quantity Reference

Belt Width Range[a] in.	Belt Width Range[a] mm	Minimum Number of Sprockets Per Shaft[b]	Wearstrips Carryway	Wearstrips Returnway
5	127	2	Straight, parallel wearstrips should not be used. Use chevron pattern or flat continuous carryway instead.	Straight, parallel wearstrips should not be used. Use chevron pattern or flat continuous carryway instead.
6	152	2		
7	178	3		
8	203	3		
9	229	3		
10	254	3		
12	305	3		
14	356	3		
15	381	3		
16	406	5		
18	457	5		
20	508	5		
24	610	5		
30	762	7		
32	813	7		
36	914	9		
42	1067	9		
48	1219	11		
54	1372	11		
60	1524	13		
72	1829	15		
84	2134	17		
96	2438	21		
120	3048	25		
144	3658	29		
For Other Widths, Use Odd Number of Sprockets[c] at Maximum 4 in. (102 mm) ℄ Spacing			Maximum 6 in. (152 mm) ℄ Spacing	Maximum 12 in. (305 mm) ℄ Spacing

a. Belts are available in 1.00 in. (25.4 mm) increments beginning with 5 in. (127 mm). **If the actual width is critical, consult Customer Service.**
b. These are the minimum number of sprockets. Additional sprockets may be required for heavily loaded applications.
c. The center sprocket should be locked down. With only two sprockets, fix the sprocket on the drive journal side only.

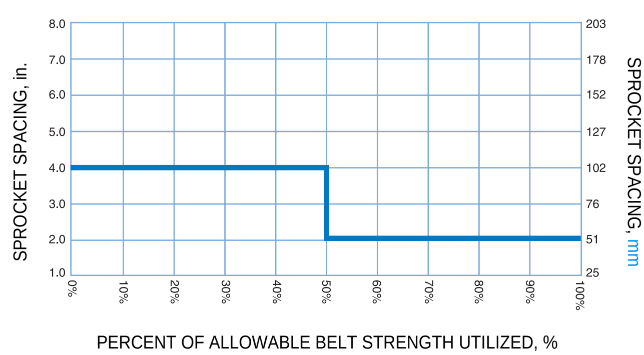
S Strength Factor



V = ft/min (m/min)
T = number of teeth
L = ft (m)

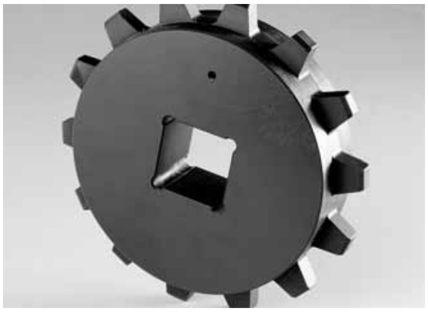
Divide belt speed "V" by the shaft ℄ distance "L". Strength Factor is found at intersection of speed/length ratio and appropriate sprocket line. See page 35 for more information.

Sprocket Spacing as a Function of Belt Strength Utilized



Ultra Abrasion Resistant Sprockets[a]

No. of Teeth (Chordal Action)	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 Round in.	U.S. Sizes Square in.	Metric Sizes Round mm	Metric Sizes Square mm
12 (3.41%)	5.8	147	5.85	149	1.5	38		1.5		40
14 (2.51%)	6.7	170	6.80	173	1.5	38		1.5		40
16 (1.92%)	7.7	196	7.74	197	1.5	38		1.5		40
								2.5		60



a. **Contact customer Service for lead times.**

Ultra Abrasion Resistant Split Sprockets

No. of Teeth (Chordal Action)	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 Round in.	U.S. Sizes Square in.	Metric Sizes Round mm	Metric Sizes Square mm
14 (2.51%)	6.7	170	6.80	173	1.5	38		2.5		60
22 (1.02%)	10.5	267	10.1	257	1.5	38		2.5		60

Streamline Flights

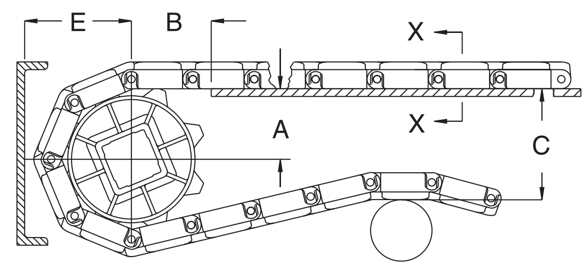
Available Flight Height in.	Available Flight Height mm	Available Materials
4.0	102	Nylon (AR)

Note: Minimum indent is 2.0 in (51 mm)
Note: Flights can be cut down to any height required for a particular application.
Note: Flight is smooth (streamline) on both sides.
Note: Each flight rises out of the center of its supporting module, molded as an integral part. No fasteners are required.

Conveyor Frame Dimensions

Regardless of type or configuration, all conveyors using Intralox belts have some basic dimensional requirements. Specifically, dimensions “A”, “B”, “C” and “E” listed below should be implemented in any design.

For general applications and applications where end transfer of tip-sensitive product is not critical, use the “A” dimension at the bottom of the range.



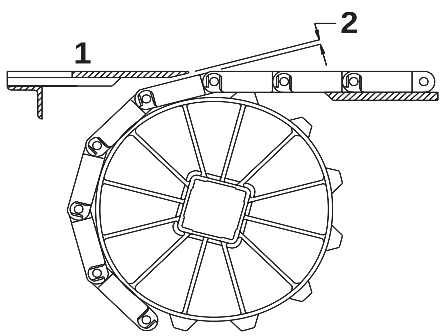
A - ±0.031” (1 mm) **C -** ± (Max)
B - ±0.125” (3 mm) **E -** ± (Min)
Complete descriptions of the dimensions are listed on page 291.

Sprocket Description			A		B		C		E	
Pitch Diameter		No. Teeth	Range (Bottom to Top)		in.	mm	in.	mm	in.	mm
in.	mm		in.	mm						
SERIES 1700 FLUSH GRID, FLUSH GRID NUB TOP										
5.8	147	12	2.36-2.46	60-62	2.42	62	5.67	144	3.27	83
6.7	170	14	2.85-2.93	72-74	2.63	67	6.61	168	3.74	95
7.7	196	16	3.33-3.40	85-86	2.81	71	7.56	192	4.22	107
10.5	267	22	4.78-4.83	121-123	2.85	72	10.41	264	5.64	143

Dead Plate Gap

Where there is a transfer point from a belt without finger transfer plates to a dead plate, there should be a gap between the surfaces to allow for the chordal action of the belt. As the belt engages its sprockets, chordal action causes the modules to move past a *fixed* point (the tip of the dead plate) with *varying* clearances. The table below shows the minimum amount of gap which occurs at the “low point” of the modules if the tip of the dead plate just comes in contact with the “high point” as the modules pass.

In some installations it may be desirable to keep the tip of the dead plate in contact with the belt, rather than allow a gap to occur. This can be done by hinging the mounting bracket for the dead plate. This allows the dead plate to move as the modules pass, but results in a small oscillating motion which may present tippage problems for sensitive containers or products.



1 - Top surface of dead plate **2 -** Dead plate gap

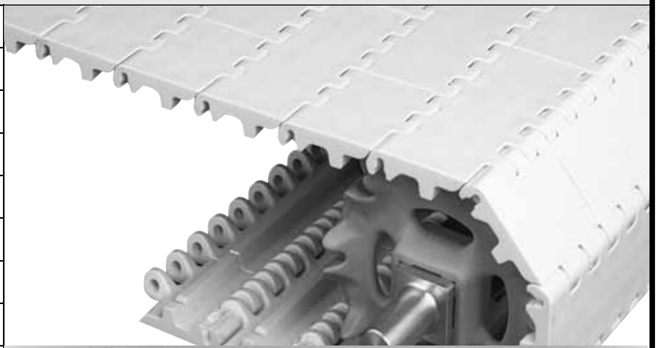
Note: The top surface of the dead plate is typically 0.031 in. (0.8 mm) above the belt surface for product transfer onto the belt, and 0.031 in. (0.8 mm) below the belt surface for product transfer off the belt.

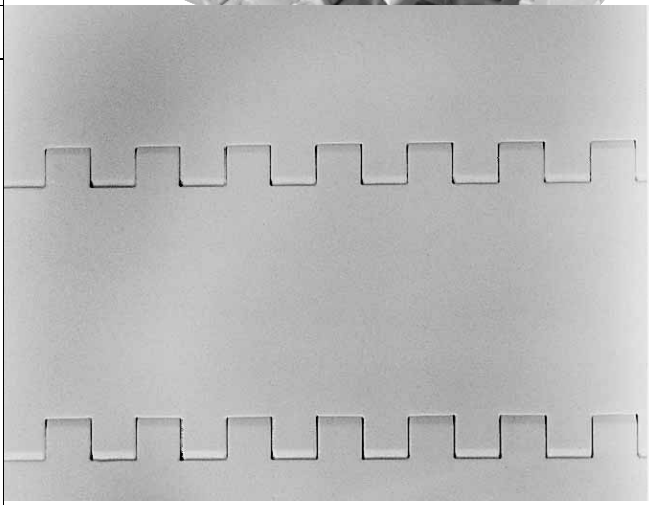
Sprocket Description			Gap	
Pitch Diameter		No. Teeth	in.	mm
in.	mm			
5.8	147	12	0.224	5.7
6.7	170	14	0.210	5.3
7.7	196	16	0.199	5.0
10.5	267	22	0.054	1.4

SECTION 2
1700

Flat Top

	in.	mm
Pitch	2.50	63.5
Minimum Width	5	127
Width Increments	1.00	25.4
Opening Size (approximate)	-	-
Open Area	0%	
Hinge Style	Open	
Drive Method	Center-driven	



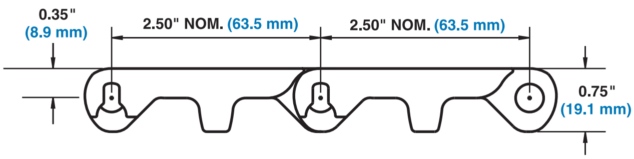


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Smooth, closed upper surface with fully flush edges and recessed rods.
- Impact resistant belt designed for abusive applications.
- Easy retrofit from Series 800 without extensive conveyor frame changes for most meat industry applications since the A,B,C,E dimensions are within 1/4 in. (6 mm) of Series 800.
- Cam-link designed hinges - expose more hinge and rod area as belt goes around the sprocket. This exclusive Intralox feature allows unsurpassed cleaning access to this area.
- Drive Bar - like Series 800 and Series 1600, the drive bar on the underside of Series 1800 Flat Top channels water and debris to the outside of the belt for easier, faster clean up. The drive bar's effectiveness has been proven both in-house and in field tests.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



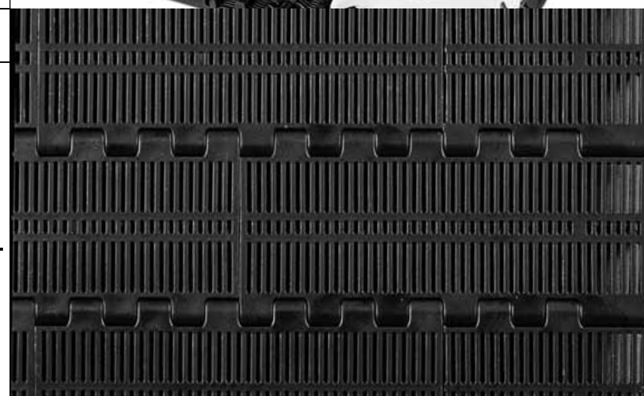
Belt Data

Belt Material	Standard Rod Material Ø 0.312 in. (7.9 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability[a] 1=White, 2=Blue, 3=Natural, 4=Grey							
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[b]	CFA[c]	A[d]	J[e]	Z[f]	M[g]	EU MC[h]
Polypropylene	Polypropylene	1200	1786	34 to 220	1 to 104	2.06	10.06	•	1			3			•
Polyethylene	Polyethylene	700	1042	-50 to 150	-46 to 66	2.23	10.90	•	3			3			•
Acetal	Polyethylene	1200	1786	-50 to 150	-46 to 66	3.36	16.40	•	1			3			•
Acetal	Polypropylene	1500	2232	34 to 200	1 to 93	3.36	16.40	•	1			3			•

a. Prior to Intralox's development of the Series 1800, USDA-FSIS Meat and Poultry discontinued publishing a list of acceptable new products designed for food contact. As of the printing of this literature, third party approvals are being investigated, but are not yet sanctioned by the USDA-FSIS.
b. USDA Dairy and MAF acceptance require the use of a clean-in-place system.
c. Canada Food Inspection Agency
d. Australian Quarantine Inspection Service
e. Japan Ministry of Health, Labour, and Welfare
f. New Zealand Ministry of Agriculture and Forestry
g. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
h. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Mesh Top

	in.	mm
Pitch	2.50	63.5
Minimum Width	5	127
Width Increments	1.00	25.4
Opening Size (approximate)	0.07 × 0.75	1.7 × 19.1
Open Area	32%	
Hinge Style	Open	
Drive Method	Center-driven	

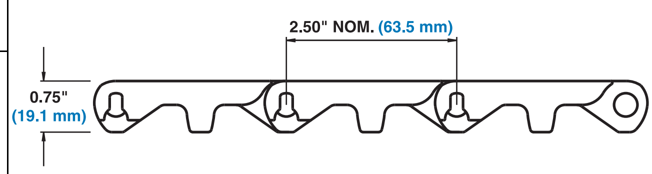


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Fully flush edges with recessed rods prevent edge damage and rod migration.
- Available with Flights and other Series 1800 accessories.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



Belt Data

Belt Material	Standard Rod Material Ø 0.312 in. (7.9 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability[a] 1=White, 2=Blue, 3=Natural, 4=Grey							
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[b]	CFA[c]	A[d]	J[e]	Z[f]	M[g]	EU MC[h]
Polypropylene	Polypropylene	800	1190	34 to 220	1 to 104	1.44	7.03	•				3			•
UV Resistant PP	Acetal	1100	1640	34 to 200	1 to 93	1.55	7.56								
UV Resistant Acetal	Acetal	1500	2230	-50 to 200	-46 to 93	2.27	11.08								
Polyethylene	Polyethylene	400	595	-50 to 150	-46 to 66	1.50	7.32	•				3			•

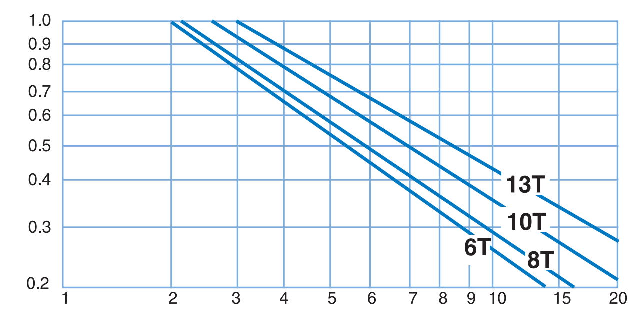
a. Prior to Intralox's development of the Series 1800, USDA-FSIS Meat and Poultry discontinued publishing a list of acceptable new products designed for food contact. As of the printing of this literature, third party approvals are being investigated, but are not yet sanctioned by the USDA-FSIS.
b. USDA Dairy and MAF acceptance require the use of a clean-in-place system.
c. Canada Food Inspection Agency
d. Australian Quarantine Inspection Service
e. Japan Ministry of Health, Labour, and Welfare
f. New Zealand Ministry of Agriculture and Forestry
g. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
h. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Sprocket and Support Quantity Reference

Belt Width Range[a]		Minimum Number of Sprockets Per Shaft[b]	Wearstrips	
in.	mm		Carryway	Returnway
5	127	1	2	2
6	152	2	2	2
7	178	2	2	2
8	203	2	2	2
9	229	2	2	2
10	254	2	3	2
12	305	3	3	2
14	356	3	3	3
15	381	3	3	3
16	406	3	3	3
18	457	3	3	3
20	508	3	4	3
24	610	5	4	3
30	762	5	5	4
32	813	5	5	4
36	914	7	5	4
42	1067	7	6	5
48	1219	9	7	5
54	1372	9	7	6
60	1524	11	8	6
72	1829	13	9	7
84	2134	15	11	8
96	2438	17	12	9
For Other Widths, Use Odd Number of Sprockets[c] at Maximum 6 in. (152 mm) ℄ Spacing			Maximum 9 in. (229 mm) ℄ Spacing	Maximum 12 in. (305 mm) ℄ Spacing

a. If your belt width exceeds a number listed in the table, please refer to the sprocket and support material minimums for the next larger width range listed. Belts are available in 1.00 in. (25.4 mm) increments beginning with 5.0 in. (127 mm). **If the actual width is critical, consult Customer Service.**
b. These are the minimum number of sprockets. Additional sprockets may be required for heavily loaded applications.
c. The center sprocket should be locked down. With only two sprockets, fix the sprocket on the drive journal side only.

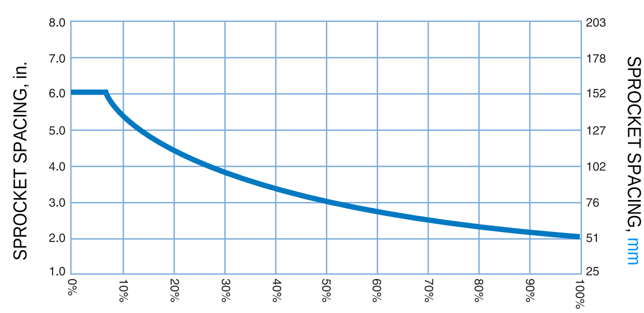
S Strength Factor



V = ft/min (m/min)
T = number of teeth
L = ft (m)

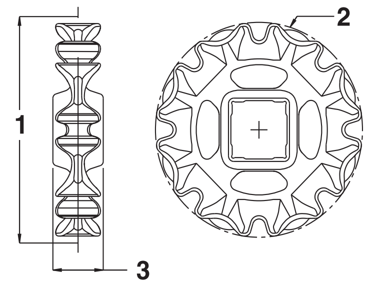
Divide belt speed "V" by the shaft ℄ distance "L". Strength Factor is found at intersection of speed/length ratio and appropriate sprocket line. See page 35 for more information.

Sprocket Spacing as a Function of Belt Strength Utilized



EZ Clean Sprocket Data[a]

No. of Teeth (Chordal Action)	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 Round in.	U.S. Sizes Square in.	Metric Sizes Round mm	Metric Sizes Square mm
6 (13.40%)	5.0	127	4.6	117	1.5	38		1.5		40
8 (7.61%)	6.5	165	6.2	157	1.5	38		1.5		40
10 (4.89%)	8.1	206	7.8	198	1.5	38		1.5		40
13 (2.91%)	10.5	267	10.3	262	1.5	38		1.5		40
								2.5		60

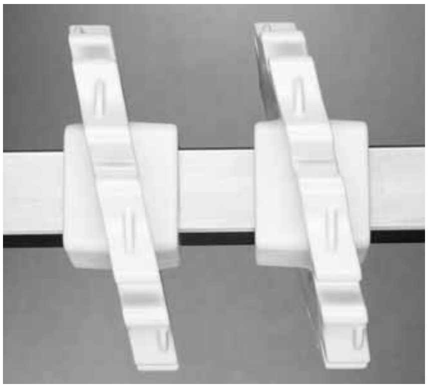


1 - Pitch diameter
2 - Outer diameter
3 - Hub width

a. **Contact Customer Service for lead times.**

Angled EZ Clean Sprocket Data[a]

No. of Teeth (Chordal Action)	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 Round in.	U.S. Sizes Square in.	Metric Sizes Round mm	Metric Sizes Square mm
8 (7.61%)	6.5	165	6.2	157	2.0	50.8		1.5		40



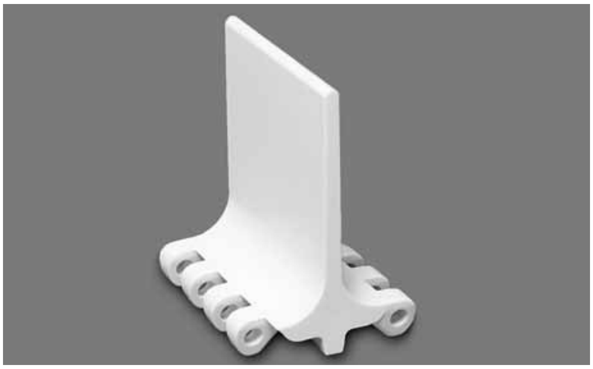
a. **Contact Customer Service for lead times.**

Impact Resistant Flights

Available Flight Height in.	Available Flight Height mm	Available Materials
4.0	102	Polypropylene, Polyethylene, Acetal

Note: Flights can be cut down to any height required for a particular application.

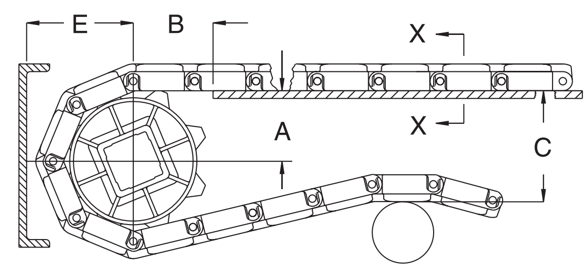
Note: Each flight rises out of the center of its supporting module, molded as an integral part. No fasteners are required.



Conveyor Frame Dimensions

Regardless of type or configuration, all conveyors using Intralox belts have some basic dimensional requirements. Specifically, dimensions "A", "B", "C" and "E" listed below should be implemented in any design.

For general applications and applications where end transfer of tip-sensitive product is not critical, use the "A" dimension at the bottom of the range.



A - ±0.031" (1 mm) **C -** ± (Max)

B - ±0.125" (3 mm) **E -** ± (Min)

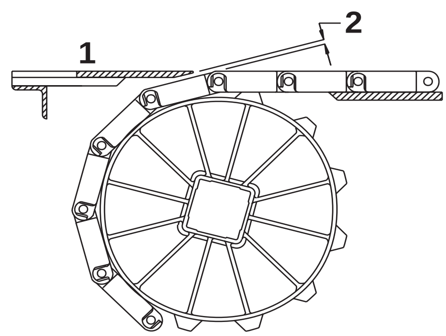
Complete descriptions of the dimensions are listed on page 291.

Sprocket Description			A		B		C		E	
Pitch Diameter		No. Teeth	Range (Bottom to Top)		in.	mm	in.	mm	in.	mm
in.	mm		in.	mm						
SERIES 1800 FLAT TOP, MESH TOP										
5.0	127	6	1.77-2.10	45-53	1.87	47	4.95	126	2.91	74
6.5	165	8	2.62-2.87	66-73	2.23	57	6.48	165	3.68	93
8.1	206	10	3.45-3.65	88-93	2.59	66	8.04	204	4.46	113
10.5	267	13	4.67-4.82	119-123	3.02	77	10.40	264	5.64	143

Dead Plate Gap

Where there is a transfer point from a belt without finger transfer plates to a dead plate, there should be a gap between the surfaces to allow for the chordal action of the belt. As the belt engages its sprockets, chordal action causes the modules to move past a *fixed* point (the tip of the dead plate) with *varying* clearances. The table below shows the minimum amount of gap which occurs at the "low point" of the modules if the tip of the dead plate just comes in contact with the "high point" as the modules pass.

In some installations it may be desirable to keep the tip of the dead plate in contact with the belt, rather than allow a gap to occur. This can be done by hinging the mounting bracket for the dead plate. This allows the dead plate to move as the modules pass, but results in a small oscillating motion which may present tippage problems for sensitive containers or products.



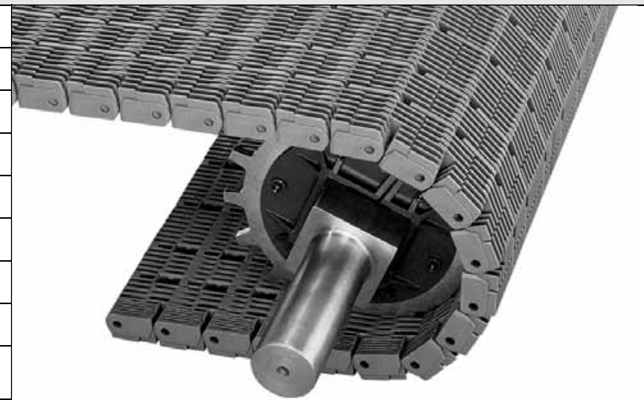
1 - Top surface of dead plate **2 -** Dead plate gap

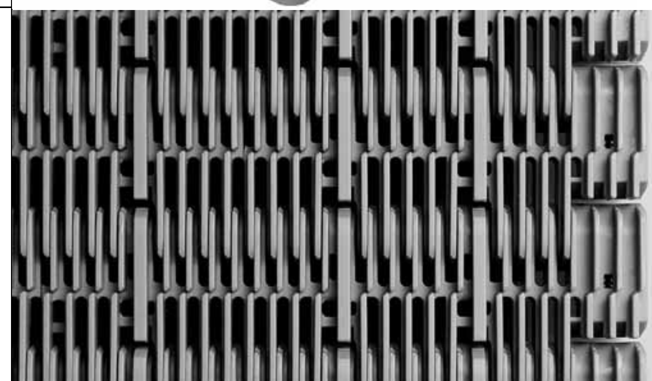
Note: The top surface of the dead plate is typically 0.031 in. (0.8 mm) above the belt surface for product transfer onto the belt, and 0.031 in. (0.8 mm) below the belt surface for product transfer off the belt.

Sprocket Description			Gap	
Pitch Diameter		No. Teeth	in.	mm
in.	mm			
5.0	127	6	0.150	3.8
6.5	165	8	0.108	2.8
8.1	206	10	0.091	2.3
10.5	267	13	0.074	1.9

Raised Rib

	in.	mm
Pitch	20.7	52.6
Minimum Width	15	381
Width Increments	3.00	76.2
Opening Sizes (approx.)	-	-
Open Area	27%	
Hinge Style	Closed	
Drive Method	Center/Hinge-Driven	



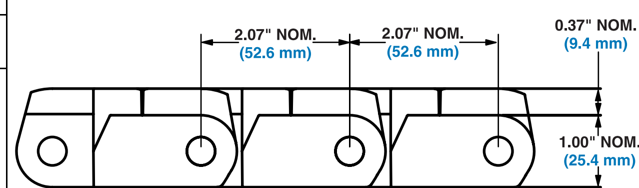


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Increased module thickness and rod diameter provides superior belt strength and increases belt life.
- Shuttleplug™ self-closing rod retention system.
- Split sprockets available for easy installation.
- Made of engineered resin for increased resistance to chemicals and temperature cycling.
- Minimal back tension required.
- More robust transfers utilize taller belt ribs and stronger fingers.

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



Belt Data

Belt Material	Standard Rod Material 0.38 × 9.7 in. (6.4 × 4.3 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability[a] 1=White, 2=Blue, 3=Natural, 4=Grey							
		lb/ft	kg/m	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[b]	CFA[c]	A[d]	J[e]	Z[f]	M[g]	EU MC[h]
Enduralox™ Polypropylene	Polypropylene	4000	5952	-34 to 220	1 to 104	3.90	19.04	•							•

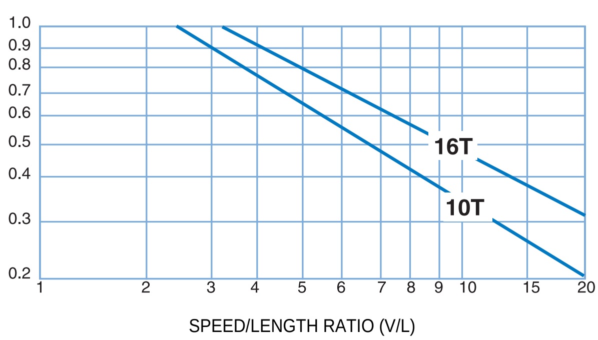
a. Prior to Intralox’s development of the Series 1900, USDA-FSIS Meat and Poultry discontinued publishing a list of acceptable new products designed for food contact. As of the printing of this literature, third party approvals are being investigated, but are not yet sanctioned by the USDA-FSIS.
b. USDA Dairy and MAF acceptance require the use of a clean-in-place system.
c. Canada Food Inspection Agency
d. Australian Quarantine Inspection Service
e. Japan Ministry of Health, Labour, and Welfare
f. New Zealand Ministry of Agriculture and Forestry
g. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
h. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Sprocket and Support Quantity Reference

Belt Width Range[a] in.	Belt Width Range[a] mm	**Minimum** Number of Sprockets Per Shaft[b]	Wearstrips Carryway	Wearstrips Returnway
15	381	3	3	3
18	457	3	3	3
24	610	5	4	3
30	762	5	5	4
36	914	7	5	4
42	1067	7	6	5
48	1219	9	7	5
54	1372	9	7	6
60	1524	11	8	6
72	1829	13	9	7
84	2134	15	11	8
96	2438	17	12	9
120	3048	21	15	11
144	3658	25	17	13
For Other Widths, Use Odd Number of Sprockets[c] at Maximum 6 in. (152 mm) ℄ Spacing			Maximum 9 in. (229 mm) ℄ Spacing	Maximum 12 in. (305 mm) ℄ Spacing

a. If your belt width exceeds a number listed in the table, please refer to the sprocket and support material minimums for the next larger width range listed. **If the actual width is critical, consult Customer Service.**
b. These are the minimum number of sprockets. Additional sprockets may be required for heavily loaded applications.
c. The center sprocket should be locked down.

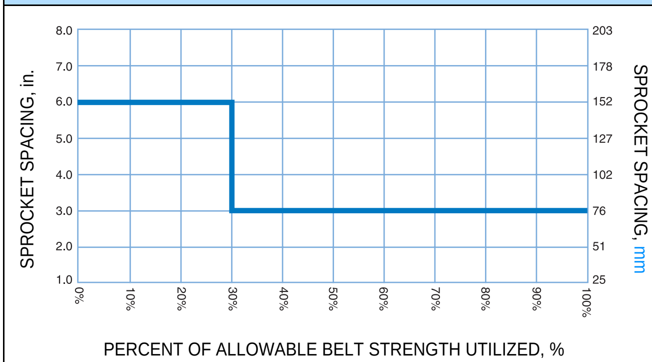
S Strength Factor



V = ft/min (m/min)
T = number of teeth
L = ft (m)

Divide belt speed "V" by the shaft ℄ distance "L". Strength Factor is found at intersection of speed/length ratio and appropriate sprocket line. See page 35 for more information.

Sprocket Spacing as a Function of Belt Strength Utilized

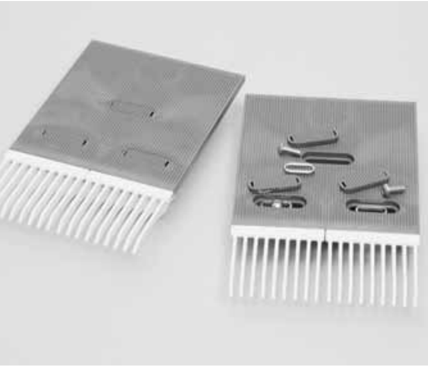


Metal Split Sprocket Data

No. of Teeth (Chordal Action)	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, Round in.	Available Bore Sizes, U.S. Sizes, Square in.	Available Bore Sizes, Metric Sizes, Round mm	Available Bore Sizes, Metric Sizes, Square mm
10 (4.89%)	6.7	170	7.0	177	1.7	43		2.5		
16 (1.92%)	10.6	269	11.0	279	1.7	43		3.5		

Two-Material Finger Transfer Plates

Available Widths		Number of Fingers	Available Materials
in.	mm		
6.0	152	18	Glass-Filled Thermoplastic Fingers, Acetal Backplate



Note: Plates provide high strength fingers combined with a low-friction back plate.

Note: Low-friction back plate is permanently attached to the two high-strength finger inserts.

Note: Eliminates product transfer and tipping problems. The 18 fingers extend between the belt's ribs allowing a smooth continuation of the product flow as the belt engages its sprockets.

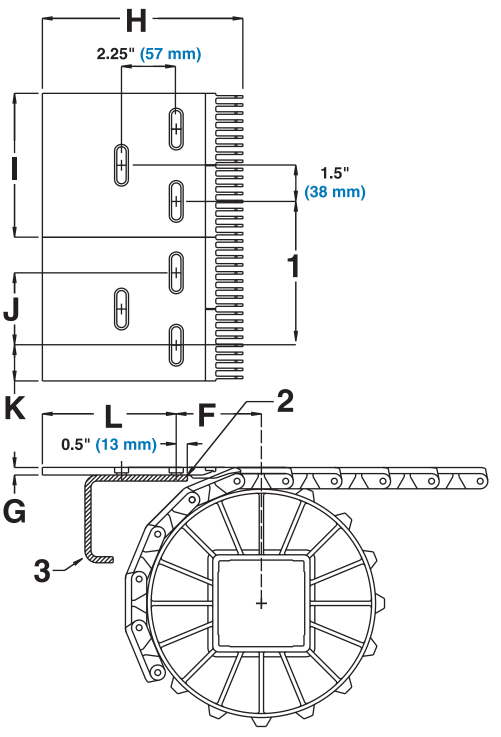
Note: Easily installed on the conveyor frame with the shoulder bolts supplied. Caps snap easily into place over the bolts, keeping foreign materials out of the slots.

Note: The extended back plate has three attachment slots. Mounting hardware includes stainless steel oval washers and bolts. Plastic bolt covers are also included.

Dimensional Requirements for Series 1900 Finger Transfer Plate Installation

	Two-Material	
	in.	mm
F	3.50	89
G	0.31	8
H	6.11	155
I	5.91	150
J	3.00	76
K	1.45	37
L	5.50	140
Spacing at ambient temperature	**Enduralox™ PP**	
	6.0	152.4

Two-material glass handling finger transfer plate shown



1 - SPACING

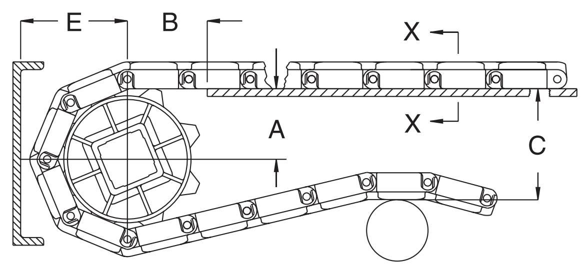
2 - 0.5" (13 mm) RADIUS (LEADING EDGE OF FRAME MEMBER)

3 - FRAME MEMBER

Conveyor Frame Dimensions

Regardless of type or configuration, all conveyors using Intralox belts have some basic dimensional requirements. Specifically, dimensions “A”, “B”, “C” and “E” listed below should be implemented in any design.

For general applications and applications where end transfer of tip-sensitive product is not critical, use the “A” dimension at the bottom of the range.



A - ±0.031” (1 mm) **C -** ± (Max)

B - ±0.125” (3 mm) **E -** ± (Min)

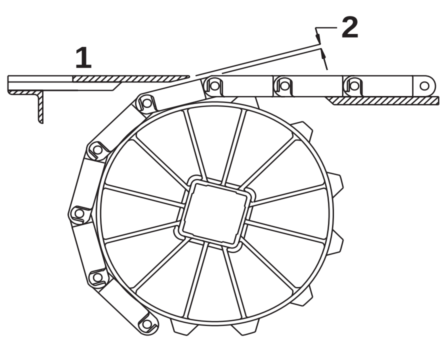
Complete descriptions of the dimensions are listed on page 291.

Sprocket Description			A		B		C		E	
Pitch Diameter		No. Teeth	Range (Bottom to Top)		in.	mm	in.	mm	in.	mm
in.	mm		in.	mm						
SERIES 1900										
6.7	170	10	2.69-2.85	68-72	2.82	72	7.08	180	4.29	109
10.6	269	16	4.71-4.81	120-122	3.65	93	11	279	6.25	159

Dead Plate Gap

Where there is a transfer point from a belt without finger transfer plates to a dead plate, there should be a gap between the surfaces to allow for the chordal action of the belt. As the belt engages its sprockets, chordal action causes the modules to move past a *fixed* point (the tip of the dead plate) with *varying* clearances. The table below shows the minimum amount of gap which occurs at the “low point” of the modules if the tip of the dead plate just comes in contact with the “high point” as the modules pass.

In some installations it may be desirable to keep the tip of the dead plate in contact with the belt, rather than allow a gap to occur. This can be done by hinging the mounting bracket for the dead plate. This allows the dead plate to move as the modules pass, but results in a small oscillating motion which may present tippage problems for sensitive containers or products.



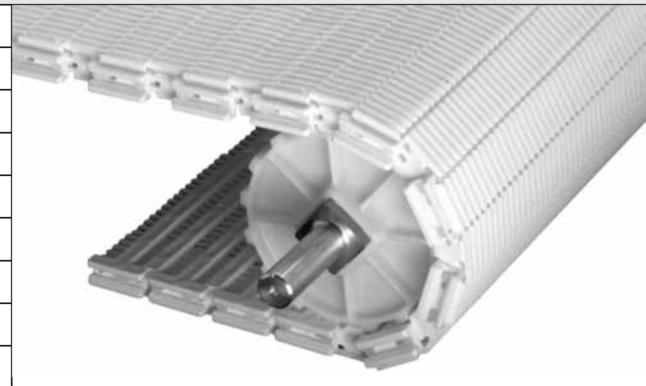
1 - Top surface of dead plate **2 -** Dead plate gap

Note: The top surface of the dead plate is typically 0.031 in. (0.8 mm) above the belt surface for product transfer onto the belt, and 0.031 in. (0.8 mm) below the belt surface for product transfer off the belt.

Sprocket Description			Gap	
Pitch Diameter		No. Teeth	in.	mm
in.	mm			
6.7	170	10	0.164	4.2
10.6	269	16	0.102	2.6

Raised Rib

	in.	mm
Pitch	1.25	31.8
Minimum Width	3.6	91
Width Increments	0.33	8.4
Opening Size (approximate)	0.25 × 0.25	6.4 × 6.4
Open Area	18%	
Product Contact Area	29%	
Hinge Style	Open	
Drive Method	Center-driven	

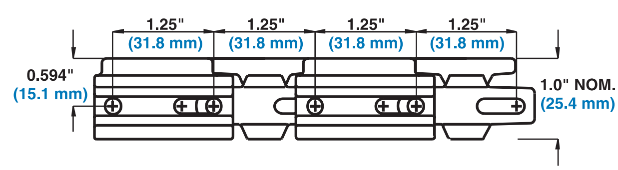


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Available for radius or low-tension spiral applications.
- Sideflexing belt with flush edges and recessed rods.
- Designed for applications with a minimum turning radius of 2.2 times belt width (measured from inside edge, with a minimum radius of 18 in.).
- Finger Transfer Plates are available.
- The Intralox Engineering Program will help predict the strength requirements of most radius applications, insuring that the belt is strong enough for the application.
- Raised Rib surface provides support for delicate products and allows air to reach as much as 70% of the product's bottom surface.
- Top and bottom drive sprockets are available, allowing the belt to be run “upside down”, using the center beam as a small rib.
- Polyethylene is not recommended for low-tension capstan drive spiral applications

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



Belt Data

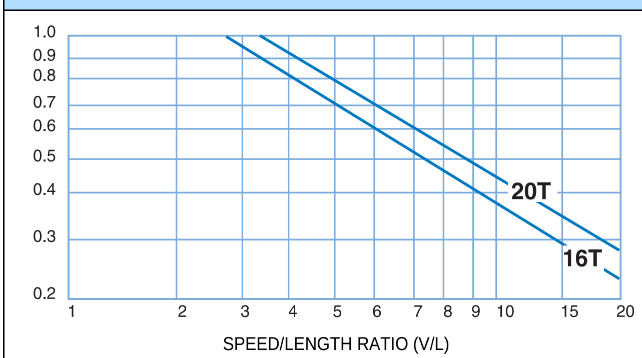
Belt Material	Standard Rod Material Ø 0.18 in. (4.6 mm)	BS Straight Belt Strength		Curved Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey				
		lb/ft	kg/m	lb	kg	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA-FSIS - Meat & Poultry	CFA[a]	J[b]	EU MC[c]
Polypropylene	Polypropylene	500	750	65	29	34 to 220[d]	1 to 104[d]	1.75	8.53	•	•	•	3	•
Polyethylene[e]	Polyethylene	400	605	40	18	-50 to 150	-46 to 66	1.83	8.92	•	•	•	3	•
Acetal	Polypropylene	1130	1680	100	45	34 to 200[d]	1 to 93[d]	2.68	13.08	•	•	•	3	•

a. Canada Food Inspection Agency
b. Japan Ministry of Health, Labour, and Welfare
c. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.
d. Sideflexing applications should not exceed 180 °F (82 °C)
e. Polyethylene cannot exceed 150 °F (66 °C)

Sprocket and Support Quantity Reference[a]				
Belt Width Range[b]		Minimum Number of Sprockets Per Shaft[c]	Wearstrips	
in.	mm		Carryway	Returnway
4	102	1	2	2
6	152	2	2	2
7	178	2	2	2
8	203	2	2	2
10	254	2	3	2
12	305	3	3	2
14	356	3	3	3
15	381	3	3	3
16	406	3	3	3
18	457	3	3	3
20	508	5	4	3
24	610	5	4	3
30	762	5	5	3
32	813	7	5	4
36	914	7	5	4
For Other Widths, Use Odd Number of Sprockets[d] at Maximum 6 in. (152 mm) ℄ Spacing			Maximum 9 in. (229 mm) ℄ Spacing	Maximum 12 in. (305 mm) ℄ Spacing

a. For low-tension capstan drive spirals contact Sales Engineering Customer Service for suggested carryway support recommendations
b. If your belt width exceeds a number listed in the table, please refer to the sprocket and support material minimums for the next larger width range listed. Belts are available in 0.33 in. (8.4 mm) increments beginning with minimum width of 3.6 in. (91 mm). If the actual width is critical, consult Customer Service. Intralox does not recommend turning belts wider than 36 in. (914 mm). For turning applications that require wider belts, contact Intralox Sales Engineering.
c. These are the minimum number of sprockets. Additional sprockets may be required for heavily loaded applications.
d. All bottom drive sprockets should be locked down.

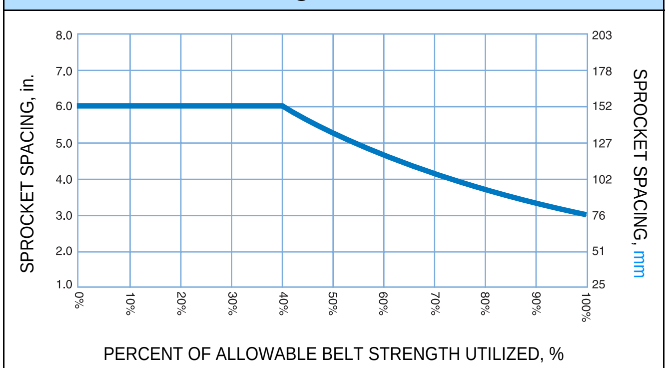
S Strength Factor



V = ft/min (m/min)
T = number of teeth
L = ft (m)

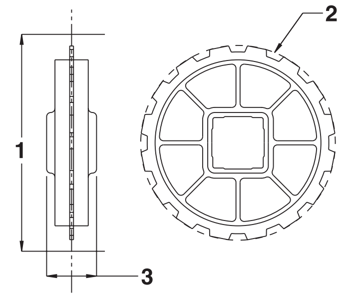
Divide belt speed "V" by the shaft ℄ distance "L". Strength Factor is found at intersection of speed/length ratio and appropriate sprocket line. See page 35 for more information.

Sprocket Spacing as a Function of Belt Strength Utilized

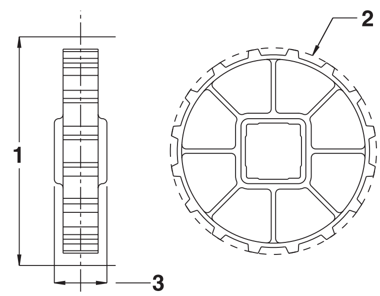


Sprocket Data[a]

No. of Teeth (Chordal Action)	Nom. Pitch Diameter		Nom. Outer Diameter		Nom. Hub Width		Available Bore Sizes		Belt Surface
							U.S.	Metric	
	in.	mm	in.	mm	in.	mm	Square in.	Square mm	
16 (1.92%)	6.5	165	5.9	150	1.5	38	1.5	40	Top or Bottom (specify)
20 (1.23%)	8.1	206	7.5	191	1.5	38	1.5	40	Bottom



16 Tooth Top Drive Sprocket



16 Tooth Bottom Drive Sprocket

1 - Pitch diameter

2 - Outer diameter

1 - Hub width

a. Contact Customer Service for lead times.

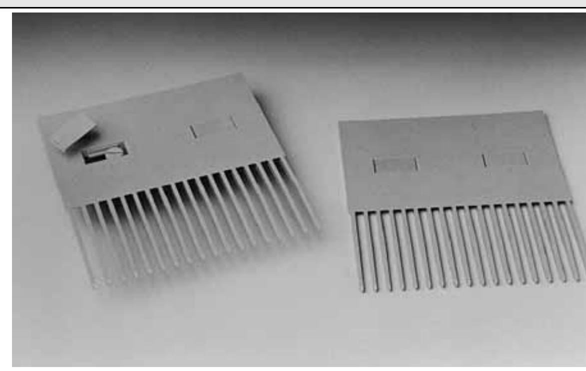
Finger Transfer Plates

Available Widths		Number of Fingers	Available Materials
in.	mm		
6	152	18	Acetal

Note: Designed to be used with Intraflex 2000 Raised Rib belts to eliminate product transfer and tipping problems.

Note: The 18 fingers extend between the belt's ribs allowing a smooth continuation of the product flow as the belt engages its sprockets.

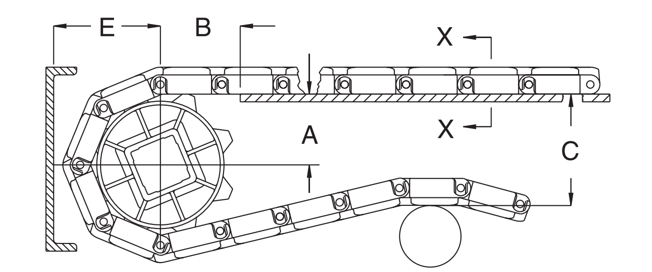
Note: Finger Transfer Plates are installed easily on the conveyor frame with the shoulder bolts supplied. Caps snap easily into place over the bolts, keeping foreign material out of the slots.



Conveyor Frame Dimensions

Regardless of type or configuration, all conveyors using Intralox belts have some basic dimensional requirements. Specifically, dimensions “A”, “B”, “C” and “E” listed below should be implemented in any design.

For general applications and applications where end transfer of tip-sensitive product is not critical, use the “A” dimension at the bottom of the range.



A - ±0.031” (1 mm) **C -** ± (Max)

B - ±0.125” (3 mm) **E -** ± (Min)

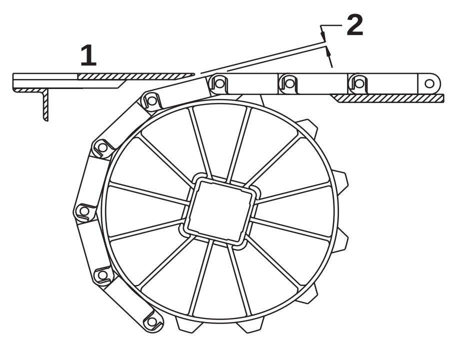
Complete descriptions of the dimensions are listed on page 291.

Sprocket Description			A		B		C		E	
Pitch Diameter		No. Teeth	Range (Bottom to Top)							
in.	mm		in.	mm	in.	mm	in.	mm	in.	mm
SERIES 2000 INTRAFLEX, RAISED RIB										
6.5 BOTTOM	165	16	2.55-2.61	65-66	2.27	58	6.50	165	3.90	99
6.5 TOP	165	16	2.74-2.80	69-71	2.00	51	6.50	165	4.10	104
8.1	206	20	3.54-3.59	90-91	2.27	58	8.00	203	4.90	124

Dead Plate Gap

Where there is a transfer point from a belt without finger transfer plates to a dead plate, there should be a gap between the surfaces to allow for the chordal action of the belt. As the belt engages its sprockets, chordal action causes the modules to move past a *fixed* point (the tip of the dead plate) with *varying* clearances. The table below shows the minimum amount of gap which occurs at the “low point” of the modules if the tip of the dead plate just comes in contact with the “high point” as the modules pass.

In some installations it may be desirable to keep the tip of the dead plate in contact with the belt, rather than allow a gap to occur. This can be done by hinging the mounting bracket for the dead plate. This allows the dead plate to move as the modules pass, but results in a small oscillating motion which may present tippage problems for sensitive containers or products.



1 - Top surface of dead plate **2 -** Dead plate gap

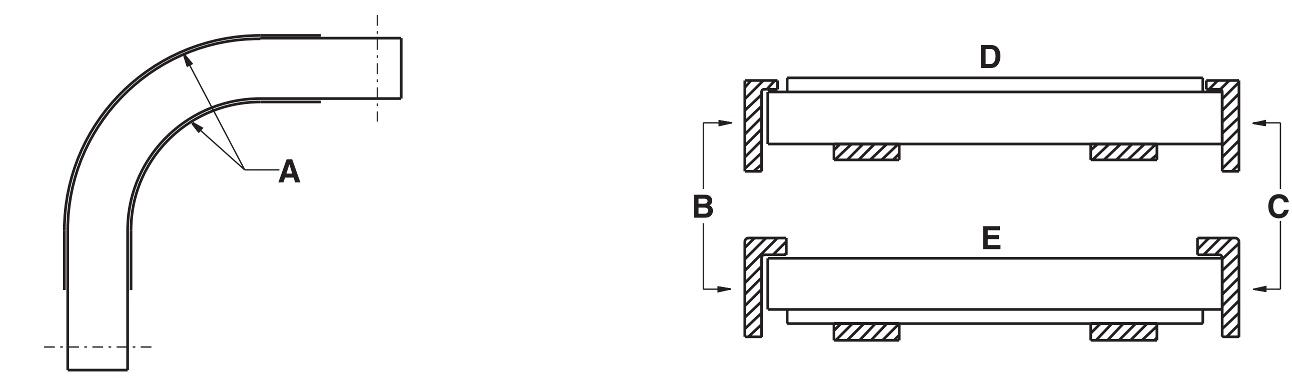
Note: The top surface of the dead plate is typically 0.031 in. (0.8 mm) above the belt surface for product transfer onto the belt, and 0.031 in. (0.8 mm) below the belt surface for product transfer off the belt.

Sprocket Description			Gap	
Pitch Diameter		No. Teeth	in.	mm
in.	mm			
6.5	165	16	0.061	1.5
8.1	206	20	0.049	1.2

HOLD DOWN RAILS AND WEARSTRIPS

Intralox recommends using continuous hold down rails through an entire turn, starting at a distance of 1X the belt width before the turn and ending 1X the belt width after the turn. This applies to both carryway and returnway. The use of hold down rails along both side of the belt over the full carryway is recommended but not mandatory.

Intralox offers two wearstrip styles that are commonly used with **Intraflex 2000** as hold down rails. See *"Custom wearstrips"* (page 283).



A - HOLD DOWN RAIL PLACEMENT
B - OUTSIDE HOLD DOWN RAIL
C - INSIDE HOLD DOWN RAIL
D - CARRYWAY
E - RETURNWAY

Fig. 2–1 HOLD DOWN RAILS AND WEARSTRIPS FOR INTRAFLEX 2000 FLAT-TURNS

BELT SELECTION INSTRUCTIONS

ENGINEERING PROGRAM ANALYSIS FOR SERIES 2000

Intralox Customer Service Technical Support Group can calculate the estimated belt pull for radius applications using **Series Intraflex™ 2000**. The following information is required (refer to *"Radius belt data sheet"* (page 335)):

- Any environmental conditions which may affect the friction coefficient (for dirty or abrasive conditions, use higher friction coefficients than normal)
- Belt width
- Length of each straight run
- Turning angle of each turn
- Turn direction of each turn
- Inside turning radius of each turn
- Carryway/hold down rail material
- Product loading lb/ft² (kg/m²)
- Product back-up conditions
- Belt speed
- Elevation changes on each section
- Operating temperatures.

For assistance with radius belt and low-tension capstan drive spiral selections, contact Intralox Customer Service Technical Support Group. The Engineering Program should be run to insure that the belt is strong enough for the radius application in question.

INTRAFLEX 2000 DESIGN GUIDE SUMMARY

For more information, see the ***Installation, Maintenance and Toubleshooting*** manual available from Intralox.

A - The minimum and recommended turning radius for **Series 2000** is 2.2 times the belt width, measured from the inside edge with a minimum radius of no less than 18 in. (457 mm).

B - The minimum straight run required between turns of opposing direction is 2.0 times the belt width. Shorter straight sections will lead to high wear on the edge guide rail and high pull stresses in the belt.

C - There is no minimum straight run required between turns that are in the same direction.

D - The minimum length for the final straight run (leading into the drive shaft) is 1.5 times the belt width. Shorter lengths may lead to sprocket wear or tracking problems. For narrow belts, a weighted take-up may be required since proper catenary cannot be achieved therefore, a 5 ft. (1.50 m) minimum final straight run is recommended. See *"Special Take-Up Arrangements"* (page 298).

E - The minimum length of the first straight run (immediately after the idle shaft) is 1.5 times the belt width. When shorter lengths are required (down to 1.0 times the width), an idle roller may be used in place of sprockets.

F - IDLE SHAFT

G - 1ST TURN

H - BELT WIDTH

I - BELT TRAVEL

J - 2ND TURN

K - DRIVE MOTOR

L - DRIVE SHAFT

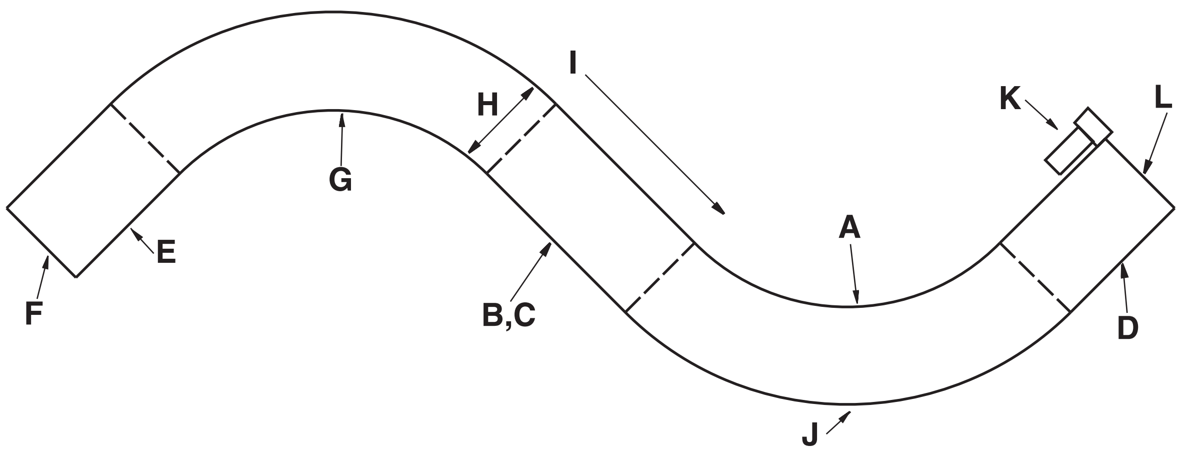
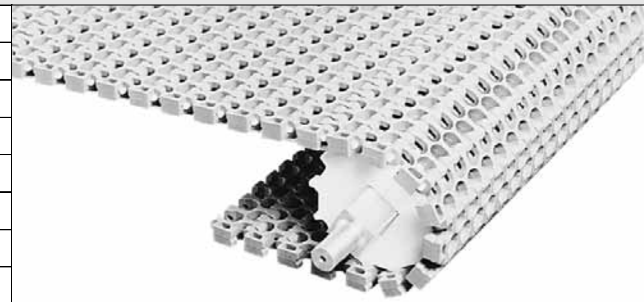
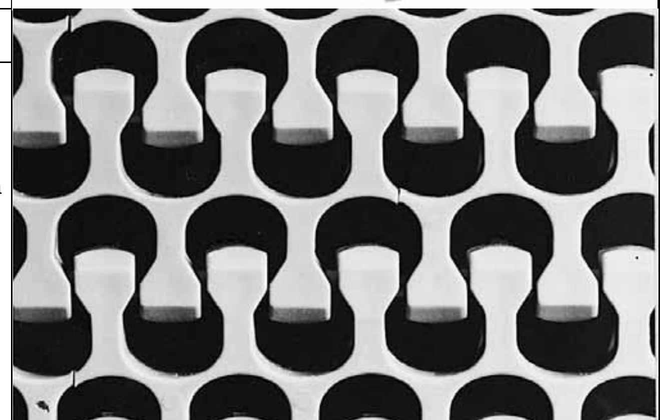


Fig. 2–2 TYPICAL 2-TURN RADIUS LAYOUT

Flush Grid

	in.	mm
Pitch	1.50	38.1
Minimum Width	5	127
Width Increments	1.00	25.4
Opening Size (approximate)	0.50 × 0.75	12.7 × 19.7
Open Area	50%	
Hinge Style	Open	
Drive Method	Hinge-driven	

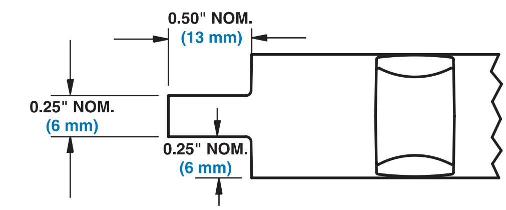




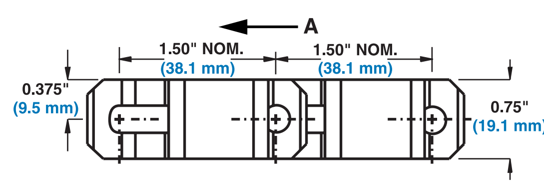
Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Flush edge or tab edge available.
- Designed for radius and low-tension capstan drive spiral applications with a minimum turning radius of 2.2 times belt width (measured from inside edge).
- Lightweight, relatively strong belt with smooth surface grid.
- The Intralox Engineering Program will help predict the strength requirements of most radius and low-tension capstan drive spiral applications, insuring that the belt is strong enough for the application.
- Belt openings pass straight through belt, making it easy to clean.
- Non sliding drive system for reduced belt and sprocket wear, and for low back-side tension.
- Tab edge belt width is measured exclusive of tabs. (Tabs extend approx. 0.5 in. (13 mm) × 0.25 in. (6 mm) thick on each side of belt, inside wearstrip.)
- Polyethylene and/or Tab edge belts are not recommended for low-tension capstan drive spiral applications.
- Maximum belt width in turns is 36 in. (914 mm)

WARNING: Personnel must not place their fingers in or on this belt. Fingers can get trapped in the openings of this belt, resulting in personal injury. This belt also has pinch points which result from the spreading and collapsing of the belt as it flexes to follow the conveyor path. These pinch points can trap fingers, hair or clothing, and can cause personal injury. Personnel should also be instructed not to wear loose fitting clothing, loose fitting gloves or hand/finger jewelry when working near this belt. Call Customer Service for tags, flyers and stickers containing this warning.



Series 2200 Tab Edge Dimensions



A - Preferred direction for flat turning applications

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)

Belt Data

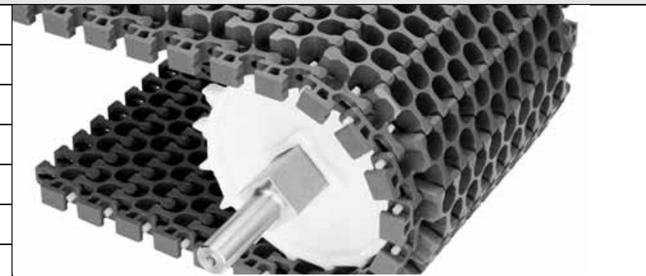
Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Straight Belt Strength		Curved Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey							
		lb/ft	kg/m	lb	kg	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA-FSIS - Meat & Poultry	USDA Dairy[a]	CFA[b]	A[c]	J[d]	M[e]	EU MC[f]
Polypropylene	Acetal	1600	2380	350	159	34 to 200	1 to 93	1.86	9.10	•	•	1	•	•	3	•	•
Polyethylene[g]	Acetal	1000	1490	200	91	-50 to 150	-46 to 66	1.96	9.56	•	•	3	•	•	3	•	•
Acetal	Nylon	2500	3720	350	159	-50 to 200	-46 to 93	2.82	13.80	•	•	3	•	•	3		•
Polypropylene	Polypropylene[h]	1400	2100	200	91	34 to 220	1 to 104	1.78	8.69	•	•	1	•	•	3		•

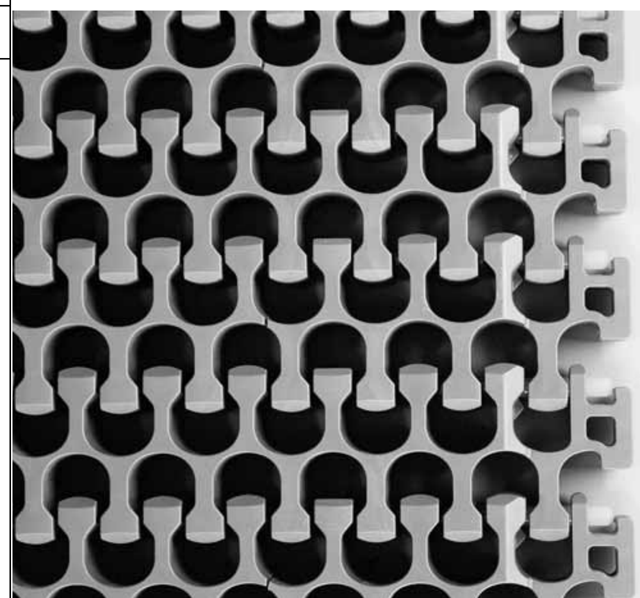
a. USDA Dairy and MAF acceptance require the use of a clean-in-place-system.
b. Canada Food Inspection Agency
c. Australian Quarantine Inspection Service
d. Japan Ministry of Health, Labour, and Welfare
e. M-MAF-New Zealand Dairy. MAF acceptance requires the use of a clean-in-place system.
f. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.
g. Polyethylene cannot exceed 150 °F (66 °C)
h. Polypropylene rods can be installed in polypropylene belts when extra chemical resistance is required. Please note lower belt strength.

SECTION 2
2200

Flush Grid High Deck

	in.	mm
Pitch	1.50	38.1
Minimum Width	6	152
Width Increments	1.00	25.4
Opening Size (approximate)	0.50 × 0.75	12.7 × 19.7
Open Area	50%	
Hinge Style	Open	
Drive Method	Hinge-driven	





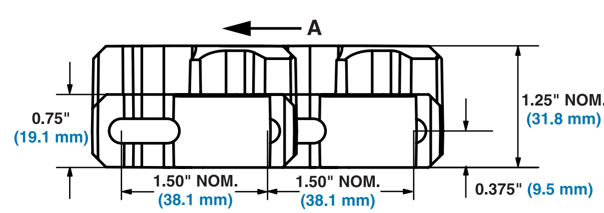
Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Flush Grid High Deck is 0.5 in. (12.7 mm) higher than the standard Series 2200 belt.
- Makes turns with an inside radius of 2.2 times the belt width.
- Flush Grid High Deck has more beam strength than the standard Series 2200 belt, which can reduce retrofit costs in spirals.
- Works with standard Series 2200 wearstrips.
- Standard indent for Flush Grid High Deck is 1.25 in. (31.8 mm)

WARNING: Personnel must not place their fingers in or on this belt. Fingers can get trapped in the openings of this belt, resulting in personal injury. This belt also has pinch points which result from the spreading and collapsing of the belt as it flexes to follow the conveyor path. These pinch points can trap fingers, hair or clothing, and can cause personal injury. Personnel should also be instructed not to wear loose fitting clothing, loose fitting gloves or hand/finger jewelry when working near this belt. Call Customer Service for tags, flyers and stickers containing this warning.

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



A -Preferred direction for flat turning applications

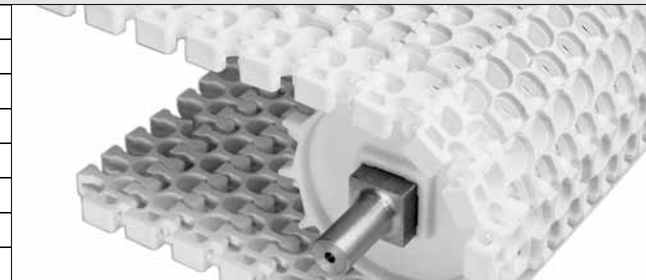
Belt Data

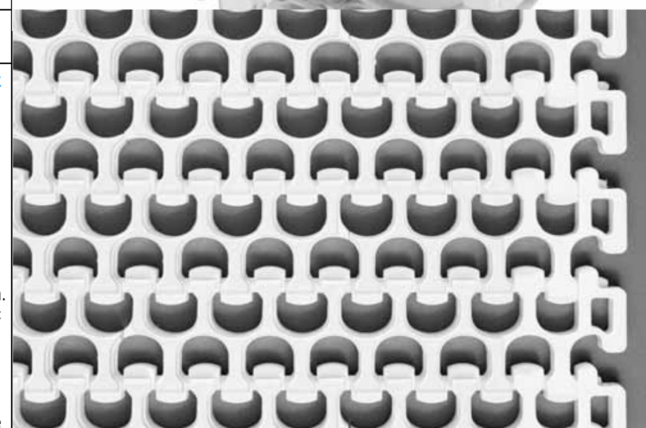
Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Straight Belt Strength[a]		Curved Belt Strength[b]		Temperature Range (continuous)[c]		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey		
		lb/ft	kg/m	lb	kg	°F	°C	lb/ft²	kg/m²	FDA (USA)	J[d]	EU MC[e]
Acetal	Nylon	2500	3720	350	159	-50 to 200	-46 to 93	3.66	17.87	•	3	•

a. When using Polyurethane sprockets, the Belt Strength for belts rated over 750 lb/ft (1120 kg/m) will be de-rated to 750 lb/ft (1120 kg/m) and all other belts will maintain their published rating. The temperature range for Polyurethane sprockets is 0 °F (-18 °C) to 120 °F (49 °C). Contact Customer Service for availability of Polyurethane sprockets.
b. Published curved belt strengths and their method of calculation vary among spiral belt manufacturers. Please consult an Intralox Spiral Engineer for accurate comparison of curve belt strengths.
c. Sideflexing applications should not exceed 180 °F (82 °C).
d. Japan Ministry of Health, Labour, and Welfare
e. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Radius Friction Top

	in.	mm
Pitch	1.50	38.1
Minimum Width	5	127
Width Increments	1.00	25.4
Opening Size (approximate)	0.50 × 0.75	12.7 × 19.7
Open Area	50%	
Hinge Style	Open	
Drive Method	Hinge-driven	

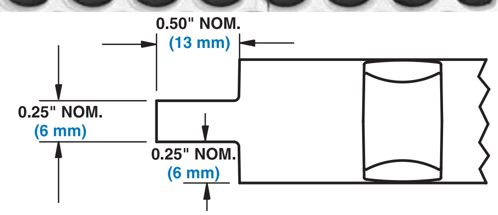




Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Flush edge or tab edge available.
- Designed for radius and low-tension capstan drive spiral applications with a minimum turning radius of 2.2 times belt width (measured from inside edge).
- Indent is molded at 1.75 in. (44 mm)
- The Intralox Engineering Program will help predict the strength requirements of most radius and low-tension capstan drive spiral applications, insuring that the belt is strong enough for the application.
- Belt openings pass straight through belt, making it easy to clean.
- Non sliding drive system for reduced belt and sprocket wear, and for low back-side tension.
- Tab edge belt width is measured exclusive of tabs. (Tabs extend approx. 0.5 in. (13 mm) × 0.25 in. (6 mm) thick on each side of belt, inside wearstrip.)
- Polyethylene and/or Tab edge belts are not recommended for low-tension capstan drive spiral applications.
- Maximum belt width in turns is 36 in. (914 mm)
- Dark grey rubber has a hardness of 64 Shore A. White rubber has a hardness of 55 Shore A.
- Temperature, environmental conditions and product characteristics affect the effective maximum degree of incline. Take these items into consideration when designing conveyor systems utilizing these belts.
- Temperature, environmental conditions and product characteristics affect the effective maximum degree of incline. Take these items into consideration when designing conveyor systems utilizing these belts.

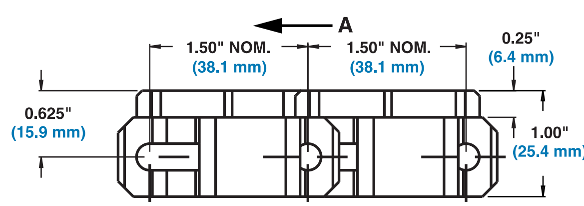
WARNING: Personnel must not place their fingers in or on this belt. Fingers can get trapped in the openings of this belt, resulting in personal injury. This belt also has pinch points which result from the spreading and collapsing of the belt as it flexes to follow the conveyor path. These pinch points can trap fingers, hair or clothing, and can cause personal injury. Personnel should also be instructed not to wear loose fitting clothing, loose fitting gloves or hand/finger jewelry when working near this belt. Call Customer Service for tags, flyers and stickers containing this warning.



Series 2200 Tab Edge Dimensions

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



A - Preferred direction for flat turning applications

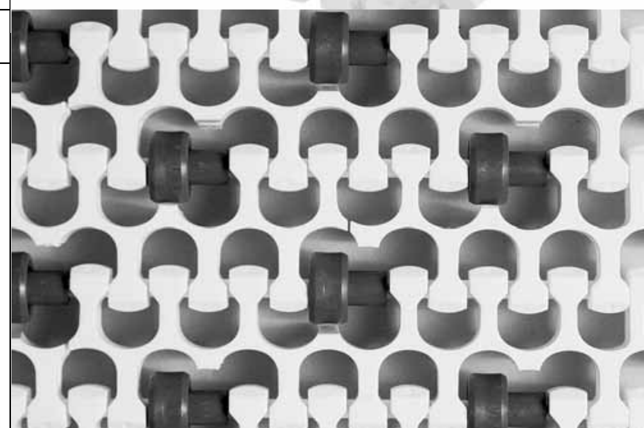
Belt Data

Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Straight Belt Strength lb/ft	kg/m	Curved Belt Strength lb	kg	Temperature Range (continuous)[a] °F	°C	W Belt Weight lb/ft²	kg/m²	Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey FDA (USA)	J[b]	EU MC[c]
Polypropylene	Acetal	1600	2380	350	159	34 to 150	1 to 66	2.20	10.74	1		
Polyethylene[d]	Acetal	1000	1490	200	91	-50 to 120	-46 to 49	2.30	11.23	•		
Polypropylene	Polypropylene[e]	1400	2100	200	91	34 to 150	1 to 66	2.12	10.35	1		

a. Sideflexing applications should not exceed 180 °F (82 °C)
b. Japan Ministry of Health, Labour, and Welfare
c. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.
d. Polyethylene cannot exceed 150 °F (66 °C)
e. Polypropylene rods can be installed in polypropylene belts when extra chemical resistance is required. Please note lower belt strength.

Radius Flush Grid (2.6) with Insert Rollers

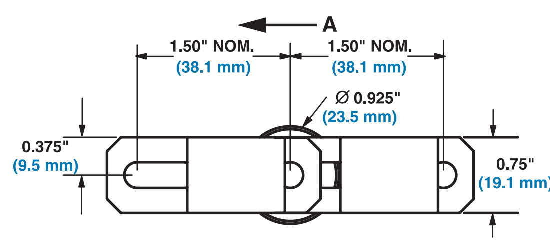
	in.	mm
Pitch	1.50	38.1
Minimum Width	7	178
Width Increments	1.00	25.4
Opening Size (approximate)	0.50 × 0.75	12.7 × 19.7
Open Area	50%	
Hinge Style	Open	
Drive Method	Hinge-driven	



Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- For applications where low back pressure accumulation is required.
- Flush edge or tabbed edge available.
- Standard roller spacings across belt width: staggered - 4 in. (102 mm) or inline - 2 in. (51 mm), 3 in. (76 mm), or 4 in. (102 mm).
- Standard roller spacings along belt length: staggered - 1.5 in. (38.1 mm) or inline - 3 in. (76.2 mm).
- Minimum 2.5 in. (63.5 mm) roller indent.
- Contact Customer Service for non-standard roller placement options.
- Sprockets must NOT be placed inline with rollers.
- For low back pressure applications, place wearstrip between rollers. For driven applications, place wearstrip directly under rollers.
- Back-up load is 5% to 10% of product weight.
- Tab edge belt width is measured exclusive of tabs. (Tabs extend approx. 0.5 in. (13 mm) × 0.25 in. (6 mm) thick on each side of belt, inside wearstrip.)
- Due to roller placement, the turning radius increases to 2.6. Belts 16 in. (406 mm) wide and less have a turn ratio of 2.2.
- Contact Sales Engineering before using a belt width greater than 24 in. (610 mm).

WARNING: Personnel must not place their fingers in or on this belt. Fingers can get trapped in the openings of this belt, resulting in personal injury. This belt also has pinch points which result from the spreading and collapsing of the belt as it flexes to follow the conveyor path. These pinch points can trap fingers, hair or clothing, and can cause personal injury. Personnel should also be instructed not to wear loose fitting clothing, loose fitting gloves or hand/finger jewelry when working near this belt. Call Customer Service for tags, flyers and stickers containing this warning.



A - Preferred direction for flat turning applications

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)

Belt Data

Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Straight Belt Strength — Roller Width Spacing: 2 in.	51 mm	3 in.	7.6 mm	4 in.	102 mm	Roller Indents		Curved Belt Strength		Temperature Range[a] (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey		
		lb/ft	kg/m	lb/ft	kg/m	lb/ft	kg/m	in.	mm	lb	kg	°F	°C	lb/ft²	kg/m²	FDA (USA)	J[b]	EU MC[c]
Polypropylene	Acetal	400	600	710	1060	900	1340	2.5	64	260	120	34 to 200	1 to 93	1.86	9.08	•	3	•
								3.5 to 4.5	89 to 114	350	160							
Acetal	Nylon	630	940	1110	1650	1410	2100	2.5	64	260	120	-50 to 200	-46 to 93	2.82	13.8	•	3	•
								3.5 to 4.5	89 to 114	350	160							
Polypropylene	Polypropylene[d]	350	520	620	920	790	1180	2.5	64	150	70	34 to 220	1 to 104	1.78	8.69	•	3	•
								3.5 to 4.5	89 to 114	200	90							

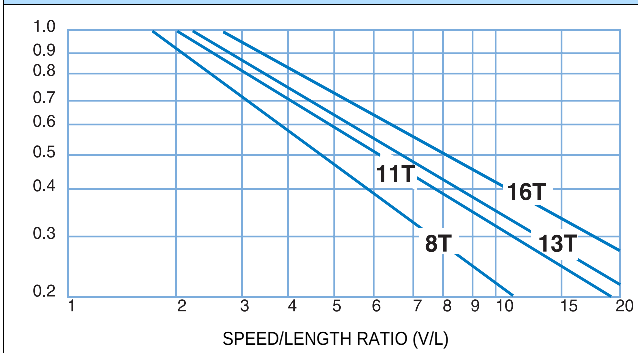
a. Sideflexing applications should not exceed 180 °F (82 °C).
b. Japan Ministry of Health, Labour, and Welfare
c. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.
d. Polypropylene rods can be installed in polypropylene belts when extra chemical resistance is required. Please note lower belt strength.

Sprocket and Support Quantity Reference[a]

Belt Width Range[b]		Minimum Number of Sprockets Per Shaft[c]	Wearstrips[d]	
in.	mm		Carryway	Returnway
5	127	2	2	2
6	152	2	2	2
7	178	2	2	2
8	203	2	2	2
10	254	3	3	2
12	305	3	3	2
14	356	5	3	3
15	381	5	3	3
16	406	5	3	3
18	457	5	3	3
20	508	5	4	3
24	610	7	4	3
30	762	9	5	4
32	813	9	5	4
36	914	9	5	4
42	1067	11	6	5
48	1219	13	7	5
54	1372	15	7	6
60	1524	15	*8*	6
72	1829	19	9	7
84	2134	21	11	8
96	2438	25	12	9
120	3048	31	15	11
144	3658	37	17	13
For Other Widths, Use Odd Number of Sprockets at Maximum 4 in. (102 mm) ℄ Spacing			Maximum 9 in. (229 mm) ℄ Spacing	Maximum 12 in. (305 mm) ℄ Spacing

a. For low-tension capstan drive spirals contact Sales Engineering Customer Service for suggested carryway support recommendations.
b. If your belt width exceeds a number listed in the table, please refer to the sprocket and support material minimums for the next larger width range listed. Belts are available in 1.00 in. (25.4 mm) increments beginning with minimum width of 5 in. (127 mm). If the actual width is critical, consult Customer Service. Intralox does not recommend turning belts wider than 36 in. (914 mm). For turning applications that require wider belts, contact Intralox Sales Engineering.
c. These are the minimum number of sprockets. Additional sprockets may be required for heavily loaded applications.
d. The number of wearstrips given does not include the hold down wearstrip.

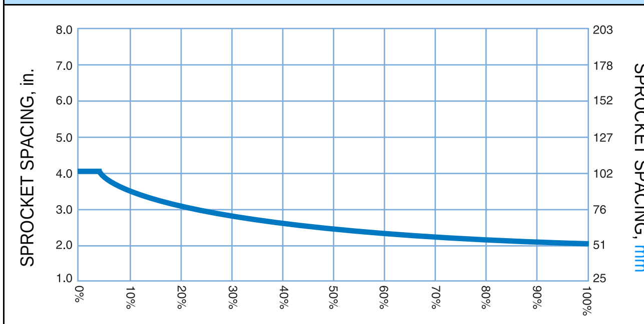
S Strength Factor



V = ft/min (m/min)
T = number of teeth
L = ft (m)

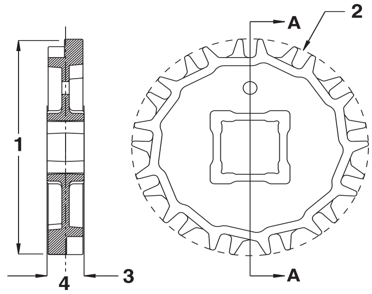
Divide belt speed "V" by the shaft ℄ distance "L". Strength Factor is found at intersection of speed/length ratio and appropriate sprocket line. See page 35 for more information.

Sprocket Spacing as a Function of Belt Strength Utilized



Sprocket Data[a]

No. of Teeth (Chordal Action)	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 Round in.	U.S. Sizes Square in.	Metric Sizes Round mm	Metric Sizes Square mm
8 (7.61%)	3.9	99	4.0	102	1.0	25		1.5		40
16 (1.92%)	7.7	196	7.8	198	1.0	25		1.5		40
								2.5		60



1 - Pitch diameter
2 - Outer diameter
3 - Hub width
4 - Section **A**-**A**

a. Contact Customer Service for lead times.

EZ Clean Sprocket Data[a]

No. of Teeth (Chordal Action)	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 Round in.	U.S. Sizes Square in.	Metric Sizes Round mm	Metric Sizes Square mm
11 (4.05%)	5.3	135	5.4	137	1.0	25		1.5		40
13 (2.91%)	6.3	160	6.4	163	1.0	25		1.5		40

a. Contact Customer Service for lead times. When using Polyurethane sprockets, the Belt Strength for belts rated over 750 lb/ft (1120 kg/m) will be de-rated to 750 lb/ft (1120 kg/m) and all other belts will maintain their published rating. The temperature range for Polyurethane sprockets is 0° F (-18 °C) to 120°F (49 °C). Contact Customer Service for availability of Polyurethane sprockets.

Split Sprocket Data[a]

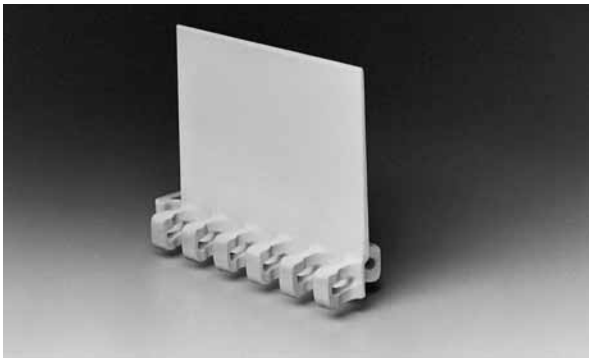
No. of Teeth (Chordal Action)	Nom. Pitch Dia. in.	Nom. Pitch Dia. mm	Nom. Outer Dia. in.	Nom. Outer Dia. mm	Nom. Hub Width in.	Nom. Hub Width mm	Available Bore Sizes: U.S. Sizes Round in.	U.S. Sizes Square in.	Metric Sizes Round mm	Metric Sizes Square mm
13 (2.91%)	6.3	160	6.4	163	1.5	38	1-7/16[b]			

a. Contact Customer Service for lead times.
b. Tight fit round bore.

Streamline Flights

Available Flight Height		Available Materials
in.	mm	
4	102	Polypropylene, Polyethylene

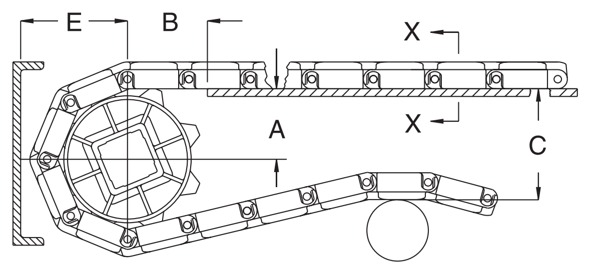
Note: Flights can be cut down to any height required for a particular application.
Note: Each flight rises out of the center of its supporting module, molded as an integral part. No fasteners are required.
Note: Flights can be provided in linear increments of 1.5 in. (38 mm).
Note: The standard indent is 5/8 in. (15.9 mm).



Conveyor Frame Dimensions

Regardless of type or configuration, all conveyors using Intralox belts have some basic dimensional requirements. Specifically, dimensions “A”, “B”, “C” and “E” listed below should be implemented in any design.

For general applications and applications where end transfer of tip-sensitive product is not critical, use the “A” dimension at the bottom of the range.



A - ±0.031” (1 mm) **C -** ± (Max)

B - ±0.125” (3 mm) **E -** ± (Min)

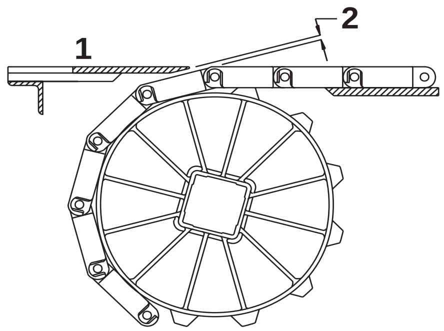
Complete descriptions of the dimensions are listed on page 291.

Sprocket Description			A		B		C		E	
Pitch Diameter		No. Teeth	Range (Bottom to Top)		in.	mm	in.	mm	in.	mm
in.	mm		in.	mm						
SERIES 2200 FLUSH GRID										
3.9	99	8	1.44	37	1.93	49	3.92	100	2.40	61
5.3	135	11	2.18	55	2.27	58	5.32	135	3.10	79
6.3	160	13	2.67	68	2.52	64	6.27	159	3.57	91
7.7	196	16	3.40	86	2.78	71	7.69	195	4.28	109
SERIES 2200 FRICTION TOP										
3.9	99	8	1.44-1.58	36-40	1.93	49	4.17	106	2.65	67
5.3	135	11	2.18-2.29	55-58	2.27	58	5.57	142	3.35	85
6.3	160	13	2.67-2.76	68-70	2.52	64	6.52	166	3.82	97
7.7	196	16	3.40-3.47	86-88	2.78	71	7.94	202	4.53	115
SERIES 2200 FLUSH GRID WITH INSERT ROLLERS										
3.9	99	8	1.44-1.58	36-40	1.93	49	4.00	102	2.48	63
5.3	135	11	2.18-2.29	55-58	2.27	58	5.42	138	3.19	81
6.3	160	13	2.67-2.76	68-70	2.52	64	6.36	162	3.66	93
7.7	196	16	3.40-3.47	86-88	2.78	71	7.78	198	4.37	111
SERIES 2200 FLUSH GRID HIGH DECK										
3.9	99	8	1.44-1.58	36-40	1.93	49	4.42	112	2.90	74
5.3	135	11	2.18-2.29	55-58	2.27	58	5.82	148	3.60	91
6.3	160	13	2.67-2.76	68-70	2.52	64	6.77	172	4.07	103
7.7	196	16	3.40-3.47	86-88	2.78	71	8.19	208	4.78	121

Dead Plate Gap

Where there is a transfer point from a belt without finger transfer plates to a dead plate, there should be a gap between the surfaces to allow for the chordal action of the belt. As the belt engages its sprockets, chordal action causes the modules to move past a *fixed* point (the tip of the dead plate) with *varying* clearances. The table below shows the minimum amount of gap which occurs at the “low point” of the modules if the tip of the dead plate just comes in contact with the “high point” as the modules pass.

In some installations it may be desirable to keep the tip of the dead plate in contact with the belt, rather than allow a gap to occur. This can be done by hinging the mounting bracket for the dead plate. This allows the dead plate to move as the modules pass, but results in a small oscillating motion which may present tippage problems for sensitive containers or products.



1 - Top surface of dead plate **2 -** Dead plate gap

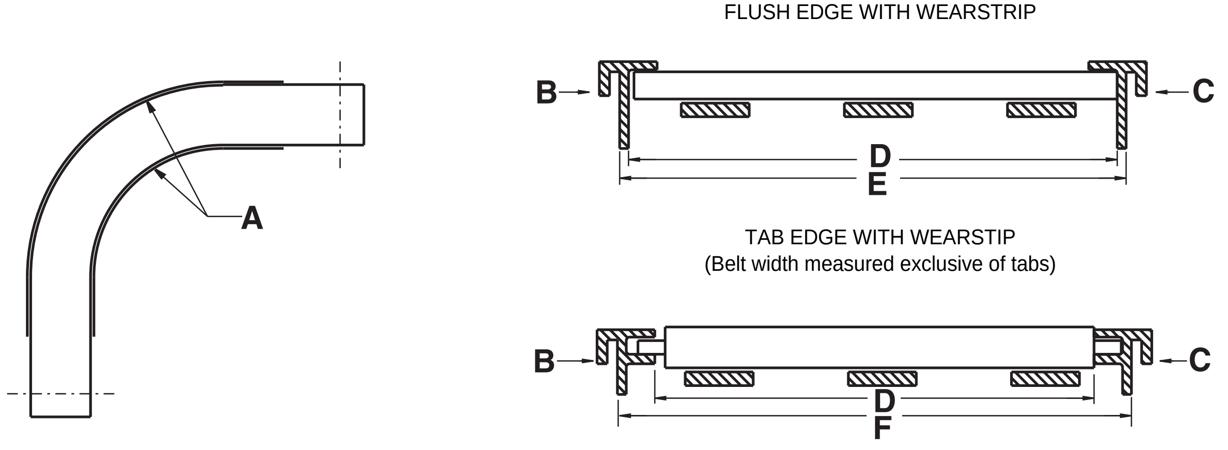
Note: The top surface of the dead plate is typically 0.031 in. (0.8 mm) above the belt surface for product transfer onto the belt, and 0.031 in. (0.8 mm) below the belt surface for product transfer off the belt.

Sprocket Description			Gap	
Pitch Diameter		No. Teeth	in.	mm
in.	mm			
3.9	99	8	0.150	3.8
5.3	135	11	0.108	2.8
6.3	160	13	0.091	2.3
7.7	196	16	0.074	1.9

HOLD DOWN RAILS AND WEARSTRIPS

Intralox recommends using continuous hold down rails through an entire turn, starting at a distance of 1X the belt width before the turn and ending 1X the belt width after the turn. This applies to both carryway and returnway. The use of hold down rails along both side of the belt over the full carryway is recommended but not mandatory.

Series 2200 is available with and without an edge tab. A wearstrip style is available for each edge style. The tab edge design allows the belt to be held down without the wearstrip interfering with the carryway surface. See *"Custom wearstrips"* (page 283).



A - HOLD DOWN RAIL PLACEMENT

B - OUTSIDE HOLD DOWN RAIL

C - INSIDE HOLD DOWN RAIL

D - belt width + 0.19" (5 mm)

E - belt width + 0.52" (13 mm)

F - belt width + 1.57" (37 mm)

Fig. 2–3 HOLD DOWN RAILS AND WEARSTRIPS FOR SERIES 2200 FLAT-TURNS

BELT SELECTION INSTRUCTIONS

ENGINEERING PROGRAM ANALYSIS FOR SERIES 2200

Intralox Customer Service Technical Support Group can calculate the estimated belt pull for radius applications using **Series 2200**. The following information is required (refer to *"Radius belt data sheet"* (page 335)):

- Any environmental conditions which may affect the friction coefficient (for dirty or abrasive conditions, use higher friction coefficients than normal)
- Belt width
- Length of each straight run
- Turning angle of each turn
- Turn direction of each turn
- Inside turning radius of each turn
- Carryway/hold down rail material
- Product loading lb/ft^2 (kg/m^2)
- Product back-up conditions
- Belt speed
- Elevation changes on each section
- Operating temperatures.

For assistance with radius belt and low-tension capstan drive spiral selections, contact Intralox Customer Service Technical Support Group. The Engineering Program should be run to insure that the belt is strong enough for the radius application in question.

SERIES 2200 DESIGN GUIDE SUMMARY

For more information, see the ***Installation, Maintenance and Toubleshooting manual*** available from Intralox.

A - The minimum and recommended turning radius for **Series 2200** is 2.2 times the belt width, measured from the inside edge.

B - The minimum straight run required between turns of opposing direction is 2.0 times the belt width. Shorter straight sections will lead to high wear on the edge guide rail and high pull stresses in the belt.

C - There is no minimum straight run required between turns that are in the same direction.

D - The minimum length for the final straight run (leading into the drive shaft) is 1.5 times the belt width. Shorter lengths may lead to sprocket wear or tracking problems. For narrow belts, a weighted take-up may be required since proper catenary cannot be achieved therefore, a 5 ft. (1.50 m) minimum final straight run is recommended. See *"Special Take-Up Arrangements"* (page 298).

E - The minimum length of the first straight run (immediately after the idle shaft) is 1.5 times the belt width. When shorter lengths are required (down to 1.0 times the width), an idle roller may be used in place of sprockets.

F - IDLE SHAFT

G - 1ST TURN

H - BELT WIDTH

I - BELT TRAVEL

J - 2ND TURN

K - DRIVE MOTOR

L - DRIVE SHAFT

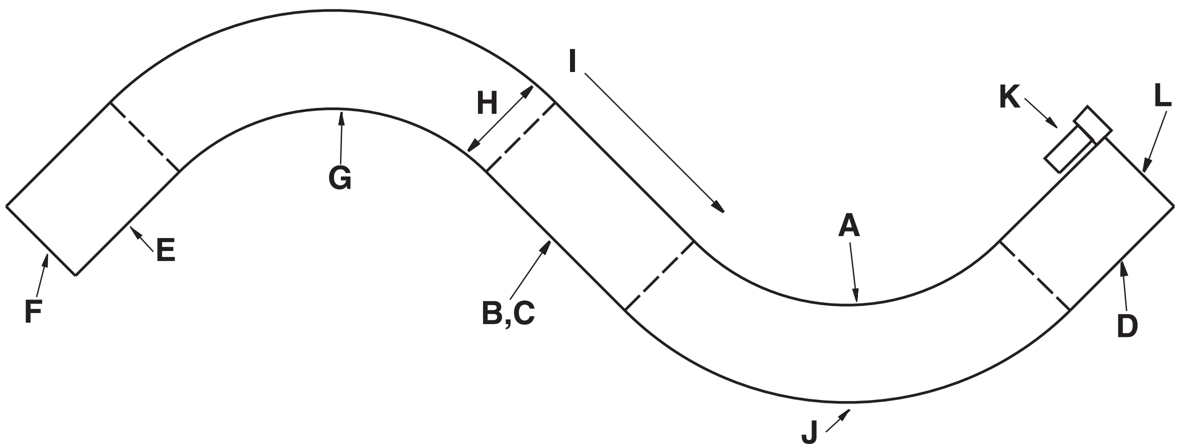
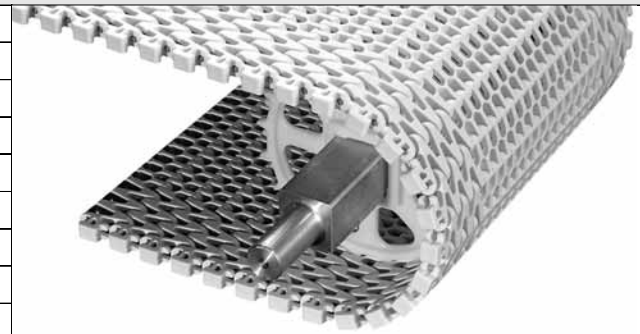
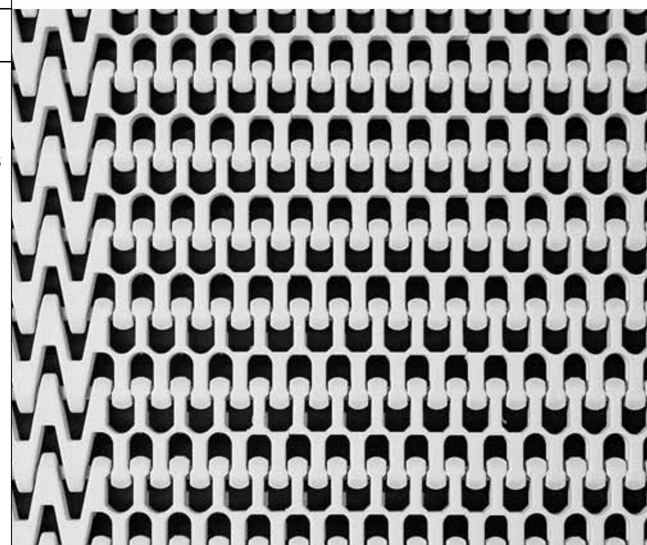


Fig. 2–4 TYPICAL 2-TURN RADIUS LAYOUT

Tight Turning Radius Flush Grid (1.7)

	in.	mm
Pitch	1.00	25.4
Minimum Width	7	178
Width Increments	0.50	12.7
Opening Size (approximate)	0.35 × 0.30	8.9 × 7.6
Open Area	42%	
Product Contact Area	23%	
Hinge Style	Open	
Drive Method	Hinge-driven	



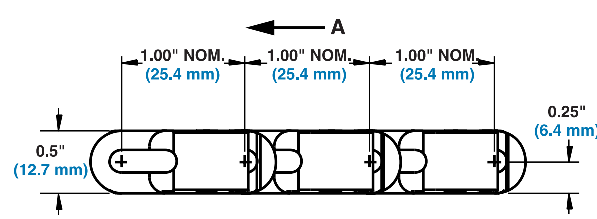


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Designed for radius applications with a minimum turning radius of 1.7 times the belt width (measured from inside edge). Maximizes plant floor space.
- Polyethylene material and tab edge belt are not recommended for low-tension capstan drive spiral applications.
- The Intralox Engineering Program will help predict the strength requirements of most radius applications, insuring that the belt is strong enough for the application.
- Belt openings pass straight through belt, making it easy to clean.
- Sprocket drive system is designed to minimize wear and requires very low return side tension.
- Available with tight turning modules built into one side or both sides of the belt. Radius belt wearstrips are available.
- Looking in the direction of flat turning travel, the minimum sprocket indent from the right side belt edge with tight turning modules is 2.625 in. (66.7 mm). Minimum sprocket indent from the left side belt edge with tight turning modules is 2.875 in. (73 mm).
- Belts can be ordered with 1.7 modules on the inside and 2.2 modules on the outside for improved strength.
- Contact sales engineering before using a belt width greater than 18 in. (457 mm) in a spiral application and greater than 24 in. (610 mm) in a flat turning application.
- Belts over 24 in. (610 mm) will have a turn radius of 2.2 times the belt width (measured from inside edge).

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Friction factors"* (page 30)



A - Preferred direction for flat turning applications

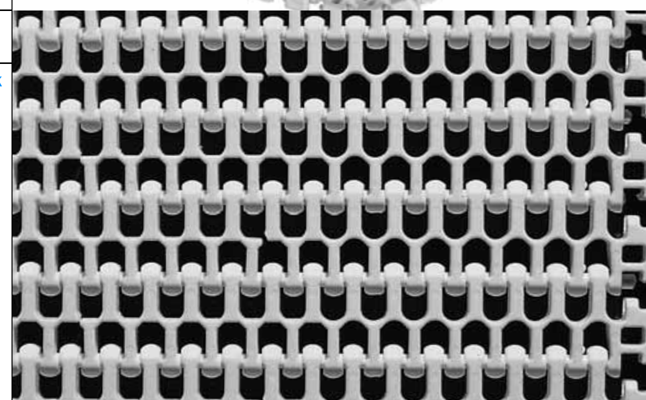
Belt Data

Belt Material	Standard Rod Material Ø 0.18 in. (4.57 mm)	BS Straight Belt Strength		Curved Belt Strength[a] lb (kg) Belt Widths 12 in.	305 mm	18 in.	457 mm	24 in.	610 mm	Temperature Range (continuous)[b]		W Belt Weight		Agency Acceptability[c] 1=White, 2=Blue, 3=Natural, 4=Grey		
		lb/ft	kg/m	lb	kg	lb	kg	lb	kg	°F	°C	lb/ft²	kg/m²	FDA (USA)	J[d]	EU MC[e]
Polypropylene	Acetal	600	892.8	122	55	140	64	157	71	34 to 200	1 to 93	1.20	5.86	•	3	•
Acetal	Nylon	600	892.8	162	73	179	81	195	88	-50 to 200	-46 to 93	1.73	8.44	•	3	•
Polypropylene	Polypropylene[f]	600	892.8	80	36	91	41	102	46	34 to 220	1 to 104	1.12	5.47	•	3	•

a. The Curved Belt Strength is different for each belt width. Contact Intralox Sales Engineering for assistance with analysis.
b. Sideflexing applications should not exceed 180 °F (82 °C).
c. Prior to Intralox's development of Series 2400, USDA-FSIS Meat and Poultry discontinued publishing a list of acceptable new products designed for food contact. As of the printing of the manual, third party approvals are being investigated, but are not yet sanctioned by the USDA-FSIS.
d. Japan Ministry of Health, Labour, and Welfare
e. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.
f. Polypropylene rods can be installed in polypropylene belts when extra chemical resistance is required. Please note lower belt strength.

Turning Radius Flush Grid (2.2)

	in.	mm
Pitch	1.00	25.4
Minimum Width	4	102
Width Increments	0.50	12.7
Opening Size (approximate)	0.35 × 0.30	8.9 × 7.6
Open Area	42%	
Product Contact Area	23%	
Hinge Style	Open	
Drive Method	Hinge-driven	

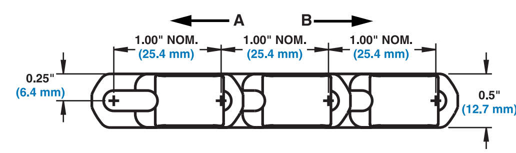


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Designed for radius and low-tension capstan drive spiral applications with a minimum turning radius of 2.2 times the belt width (measured from inside edge).
- Available with hold down guide, see page 239 for details.
- The minimum nosebar diameter is 1.5 in. (38.1 mm) with hold down guides and 1.375 in. (34.9 mm) without hold down guides.
- The Intralox Engineering Program will help predict the strength requirements of most radius and low-tension capstan drive spiral applications, insuring that the belt is strong enough for the application.
- Belt openings pass straight through belt, making it easy to clean.
- Sprocket drive system is designed to minimize wear and requires very low return side tension.
- Radius belt wearstrips are available.
- Contact Sales Engineering before using a belt width greater than 36 in. (914 mm) in a flat turning or spiral applications.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



A - Preferred direction for flat turning applications

B - Preferred direction for high speed applications

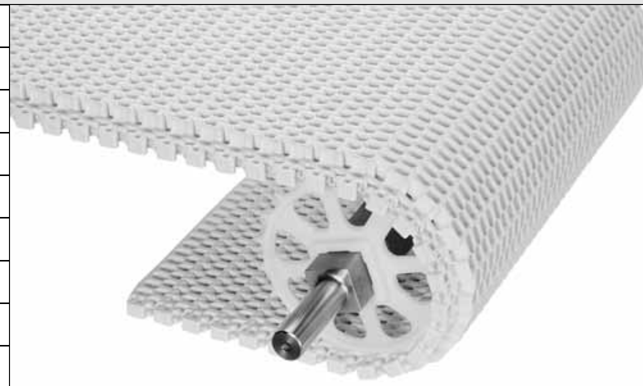
Belt Data

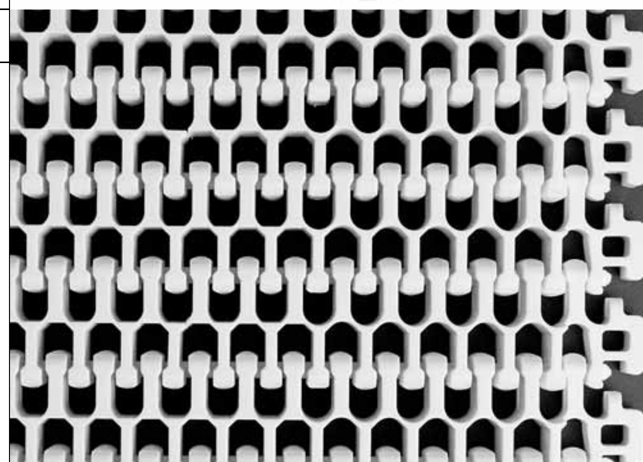
Belt Material	Standard Rod Material Ø 0.18 in. (4.57 mm)	BS Straight Belt Strength		Curved Belt Strength[a] lb (kg) Belt Widths						Temperature Range (continuous)[b]		W Belt Weight		Agency Acceptability[c] 1=White, 2=Blue, 3=Natural, 4=Grey				
				12 in.	305 mm	18 in.	457 mm	24 in.	610 mm									
		lb/ft	kg/m	lb	kg	lb	kg	lb	kg	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[d]	A[e]	J[f]	EU MC[g]
Polypropylene	Acetal	1200	1785	175	80	200	91	225	102	34 to 200	1 to 93	1.10	5.40	•	•	•	3	•
Acetal	Nylon	1700	2528	250	114	280	127	300	136	-50 to 200	-46 to 93	1.63	7.86	•	•	•	3	•
Polypropylene	Polypropylene[h]	1000	1487	114	52	130	59	146	67	34 to 220	1 to 104	1.04	5.11	•	•	•	3	•

a. The Curved Belt Strength is different for each belt width. Contact Intralox Sales Engineering for assistance with analysis.
b. Sideflexing applications should not exceed 180 °F (82 °C).
c. Prior to Intralox's development of Series 2400, USDA-FSIS Meat and Poultry discontinued publishing a list of acceptable new products designed for food contact. As of the printing of the manual, third party approvals are being investigated, but are not yet sanctioned by the USDA-FSIS.
d. USDA Dairy and MAF acceptance require the use of a clean-in-place system.
e. Australian Quarantine Inspection Service
f. Japan Ministry of Health, Labour, and Welfare
g. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.
h. Polypropylene rods can be installed in polypropylene belts when extra chemical resistance is required. Please note lower belt strength.

Flush Grid High Deck

	in.	mm
Pitch	1.00	25.4
Minimum Width	4	102
Width Increments	0.50	12.7
Opening Size (approximate)	0.35 × 0.30	8.9 × 7.6
Open Area	42%	
Product Contact Area	23%	
Hinge Style	Open	
Drive Method	Hinge-driven	



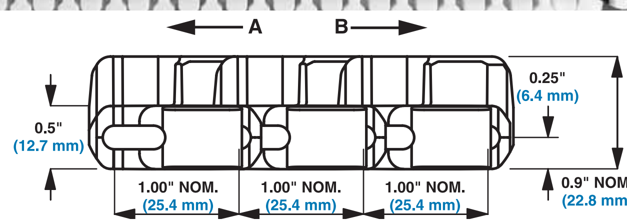


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Flush Grid High Deck is 0.4 in. (10 mm) higher than the standard Series 2400 belt.
- Makes turns with an inside radius of 2.2 times the belt width.
- Flush Grid High Deck has more beam strength than the standard Series 2400 belt, which can reduce retrofit costs in spirals.
- Works with standard Series 2400 wearstrips.
- Standard indent for Flush Grid High Deck is 0.875 in. (22 mm).

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



A -Preferred direction for flat turning applications

B -Preferred direction for high speed applications

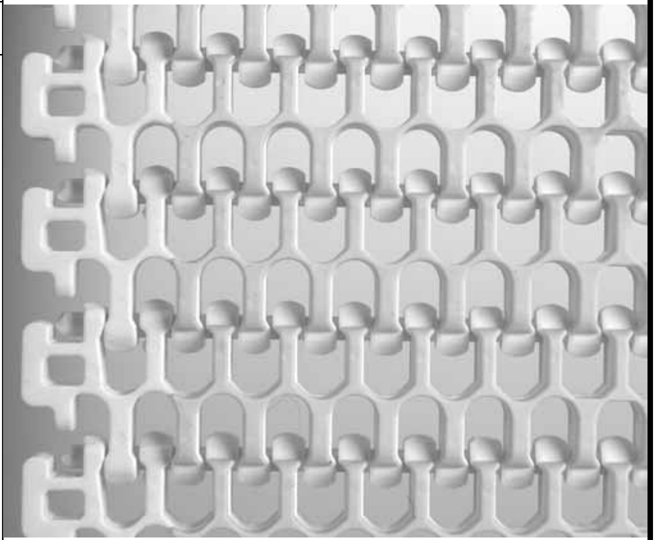
Belt Data

Belt Material	Standard Rod Material Ø 0.18 in. (4.57 mm)	BS Straight Belt Strength		Curved Belt Strength[a] lb (kg) — Belt Widths						Temperature Range (continuous)[b]		W Belt Weight		Agency Acceptability[c] 1=White, 2=Blue, 3=Natural, 4=Grey				
				12 in.	305 mm	18 in.	457 mm	24 in.	610 mm									
		lb/ft	kg/m	lb	kg	lb	kg	lb	kg	°F	°C	lb/ft²	kg/m²	FDA (USA)	USDA Dairy[d]	A[e]	J[f]	EU MC[g]
Polypropylene	Acetal	1200	1786	175	80	200	91	225	102	34 to 200	1 to 93	1.90	9.28	•	•	•	3	•
Acetal	Acetal	1700	2530	250	114	280	127	300	136	-50 to 200	-46 to 93	3.04	14.84	•	•	•	3	•

a. The Curved Belt Strength is different for each belt width. Contact Intralox Sales Engineering for assistance with analysis.
b. Sideflexing applications should not exceed 180 °F (82 °C).
c. Prior to Intralox's development of Series 2400, USDA-FSIS Meat and Poultry discontinued publishing a list of acceptable new products designed for food contact. As of the printing of the manual, third party approvals are being investigated, but are not yet sanctioned by the USDA-FSIS.
d. USDA Dairy and MAF acceptance require the use of a clean-in-place system.
e. Australian Quarantine Inspection Service
f. Japan Ministry of Health, Labour, and Welfare
g. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

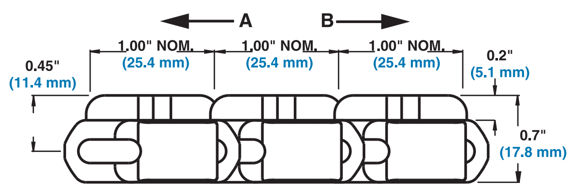
Turning Radius Friction Top (2.2)

	in.	mm
Pitch	1.00	25.4
Minimum Width	4	102
Width Increments	0.50	12.7
Opening Size (approximate)	0.35 × 0.30	8.9 × 7.6
Open Area	42%	
Product Contact Area	23%	
Hinge Style	Open	
Drive Method	Hinge-driven	



Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Available with hold down guide, see page 239 for details.
- The minimum nosebar diameter is 1.5 in. (38.1 mm) with hold down guides and 1.375 in. (34.9 mm) without hold down guides.
- Radius belt wearstrips are available.
- Grey rubber has a hardness of 64 Shore A.
- White rubber has a hardness of 55 Shore A.
- Contact Sales Engineering before using a belt width greater than 36 in. (914 mm) in a flat turning or spiral applications.
- Indent for friction surface is molded at 1.125" (28.6mm).
- Temperature, environmental conditions and product characteristics affect the effective maximum degree of incline. Take these items into consideration when designing conveyor systems utilizing these belts.



A -Preferred direction for flat turning applications

B -Preferred direction for high speed applications

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)

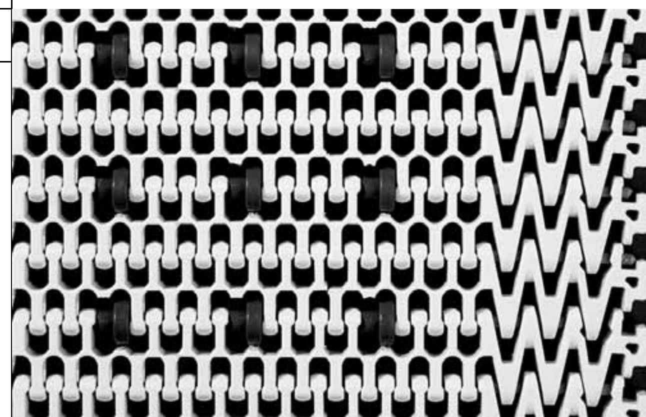
Belt Data

Belt Material	Standard Rod Material Ø 0.18 in. (4.57 mm)	BS Straight Belt Strength		Curved Belt Strength[a] lb (kg) Belt Widths						Temperature Range (continuous)		W Belt Weight		Agency Acceptability[b] 1=White, 2=Blue, 3=Natural, 4=Grey		
				12 in.	305 mm	18 in.	457 mm	24 in.	610 mm							
		lb/ft	kg/m	lb	kg	lb	kg	lb	kg	°F	°C	lb/ft²	kg/m²	FDA (USA)	J[c]	EU MC[d]
Polypropylene	Acetal	1200	1785	175	80	200	91	225	102	34 to 150	1 to 66	1.35	6.59	1		
Polypropylene	Polypropylene[e]	1000	1487	114	52	130	59	146	67	34 to 150	1 to 66	1.29	6.30	1		

a. The Curved Belt Strength is different for each belt width. Contact Intralox Sales Engineering for assistance with analysis.
b. Prior to Intralox's development of Series 2400, USDA-FSIS Meat and Poultry discontinued publishing a list of acceptable new products designed for food contact. As of the printing of the manual, third party approvals are being investigated, but are not yet sanctioned by the USDA-FSIS.
c. Japan Ministry of Health, Labour, and Welfare
d. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.
e. Polypropylene rods can be installed in polypropylene belts when extra chemical resistance is required. Please note lower belt strength.

Tight Turning Radius Flush Grid (2.4) with Insert Rollers

	in.	mm
Pitch	1.00	25.4
Minimum Width	9	229
Width Increments	1.00	25.4
Opening Size (approximate)	0.35 × 0.30	8.9 × 7.6
Open Area	42%	
Product Contact Area	23%	
Hinge Style	Open	
Drive Method	Hinge-driven	

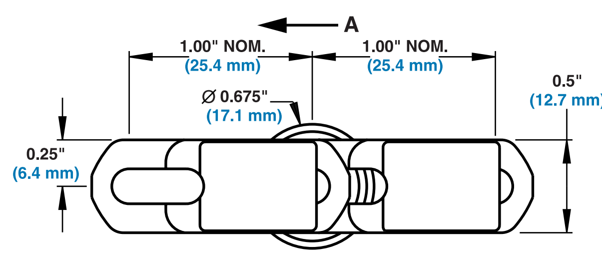


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- For radius applications requiring low back pressure accumulation with minimum radius of 2.4 times belt width (measured from inside edge).
- Standard Roller Width Spacings: 2 in. (51 mm), 3 in. (76 mm) or 4 in. (102 mm).
- Standard Roller Row Spacings: 2 in. (51 mm) or 4 in. (102 mm).
- Roller Indents: 3.5 in. (89 mm) or 4 in. (102 mm) based on roller width spacing selected.
- Sprockets must NOT be placed in line with rollers.
- For low back pressure applications, place wearstrip between rollers. For driven applications, place wearstrip directly under rollers.
- Contact Sales Engineering before using a belt width greater than 24 in. (610 mm) in a flat turning or spiral applications.
- Belts 12 in. (305 mm) wide and less have a turn ratio of 1.7.

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



A -Preferred direction for flat turning applications

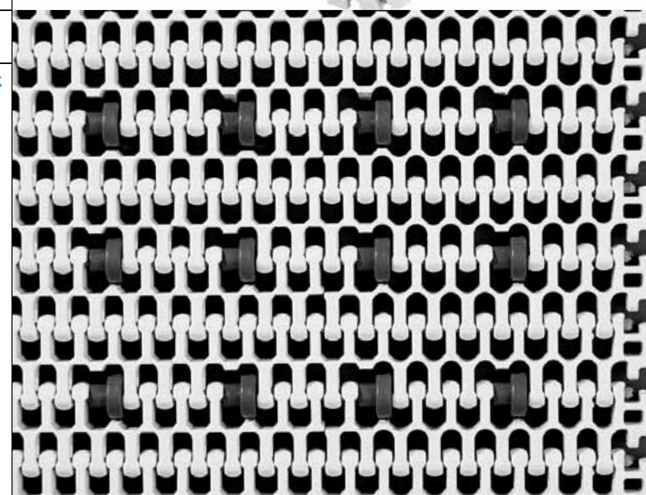
Belt Data

Belt Material	Standard Rod Material Ø 0.18 in. (4.57 mm)	BS Straight Belt Strength		Curved Belt Strength[a] lb (kg)								Temperature Range (continuous)[b]		W Belt Weight		Agency Acceptability[c] 1=White, 2=Blue, 3=Natural, 4=Grey		
				Roller Indents		Belt Widths												
						12 in.	305 mm	18 in.	457 mm	24 in.	610 mm							
		lb/ft	kg/m	in.	mm	lb	kg	lb	kg	lb	kg	°F	°C	lb/ft²	kg/m²	FDA (USA)	J[d]	EU MC[e]
Polypropylene	Acetal	500	744	3.5 or 4.0	89 or 102	122	55	140	64	157	71	34 to 200	1 to 93	1.20	5.86	•	3	•
Acetal	Nylon	500	744	3.5 or 4.0	89 or 102	162	73	179	81	195	88	-50 to 200	-46 to 93	1.73	8.44	•	3	•
Polypropylene	Polypropylene	500	744	3.5 or 4.0	89 or 102	80	36	91	41	102	46	34 to 220	1 to 104	1.12	5.47	•	3	•

a. The Curved Belt Strength is different for each belt width. Contact Intralox Sales Engineering for assistance with analysis.
b. Sideflexing applications should not exceed 180 °F (82 °C).
c. Prior to Intralox’s development of Series 2400, USDA-FSIS Meat and Poultry discontinued publishing a list of acceptable new products designed for food contact. As of the printing of the manual, third party approvals are being investigated, but are not yet sanctioned by the USDA-FSIS.
d. Japan Ministry of Health, Labour, and Welfare
e. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Turning Radius Flush Grid (2.8) with Insert Rollers

	in.	mm
Pitch	1.00	25.4
Minimum Width	6	152
Width Increments	1.00	25.4
Opening Size (approximate)	0.35 × 0.30	8.9 × 7.6
Open Area	42%	
Product Contact Area	23%	
Hinge Style	Open	
Drive Method	Hinge-driven	

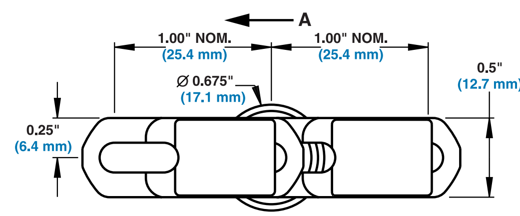


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- This belt uses the Series 2400 2.2 Turning Radius Flush Grid as its base.
- Due to roller placement, the turning radius increases to 2.8.
- For radius applications requiring low back pressure accumulation with minimum radius of 2.8 times belt width (measured from inside edge).
- Standard Roller Width Spacings: 2 in. (51 mm), 3 in. (76 mm) or 4 in. (102 mm).
- Standard Roller Row Spacings: 2 in. (51 mm) or 4 in. (102 mm).
- Roller Indents: 2 in. (51 mm), 2.5 in. (63 mm), 3 in. (76 mm) or 3.5 in. (89 mm) based on roller width spacing selected.
- Minimum width with Hold Down Guides is 8 in. (203 mm).
- Minimum roller indent with Hold Down Guides is 3 in. (76 mm).
- Sprockets must NOT be placed in line with rollers.
- For low back pressure applications, place wearstrip between rollers. For driven applications, place wearstrip directly under rollers.
- Contact Sales Engineering before using a belt width greater than 24 in. (610 mm) in a flat turning or spiral applications.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



A - Preferred direction for flat turning applications

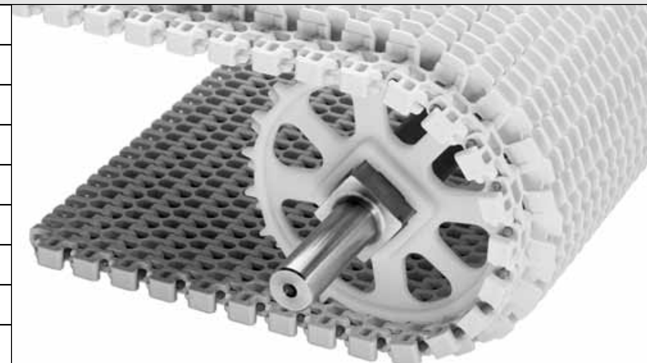
Belt Data

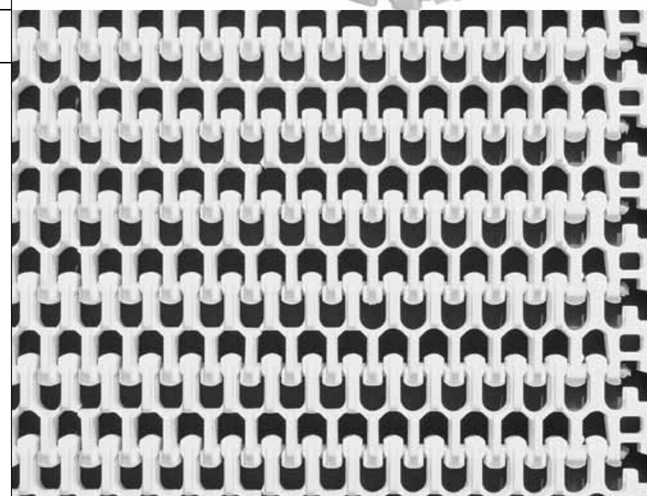
Belt Material	Standard Rod Material Ø 0.18 in. (4.57 mm)	BS Straight Belt Strength, Roller Width Spacing						Roller Indents		Curved Belt Strength[a] lb (kg), Belt Widths						Temperature Range (continuous)[b]		W Belt Weight		Agency Acceptability[c] 1=White, 2=Blue, 3=Natural, 4=Grey		
		2 in.	51 mm	3 in.	76 mm	4 in.	102 mm			12 in.	305 mm	18 in.	457 mm	24 in.	610 mm							
		lb/ft	kg/m	lb/ft	kg/m	lb/ft	kg/m	in.	mm	lb	kg	lb	kg	lb	kg	°F	°C	lb/ft²	kg/m²	FDA (USA)	J[d]	EU MC[e]
Polypropylene	Acetal	700	1040	800	1190	900	1340	2	51	130	60	150	65	165	75	34 to 200	1 to 93	1.21	1.21	•	3	•
								2.5 to 3.5	64 to 89	175	80	200	91	225	102							
Acetal	Nylon	1000	1490	1200	1780	1300	1940	2	51	185	85	210	95	225	100	-50 to 200	-46 to 93	1.61	7.68	•	3	•
								2.5 to 3.5	64 to 89	250	114	280	127	300	136							
Polypropylene	Polypropylene	600	890	700	1040	800	1190	2	51	85	35	95	40	105	50	34 to 220	1 to 104	1.04	5.11	•	3	•
								2.5 to 3.5	64 to 89	114	52	130	59	146	67							

a. The Curved Belt Strength is different for each belt width. Contact Intralox Sales Engineering for assistance with analysis.
b. Sideflexing applications should not exceed 180 °F (82 °C).
c. Prior to Intralox's development of Series 2400, USDA-FSIS Meat and Poultry discontinued publishing a list of acceptable new products designed for food contact. As of the printing of the manual, third party approvals are being investigated, but are not yet sanctioned by the USDA-FSIS.
d. Japan Ministry of Health, Labour, and Welfare
e. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Raised Rib

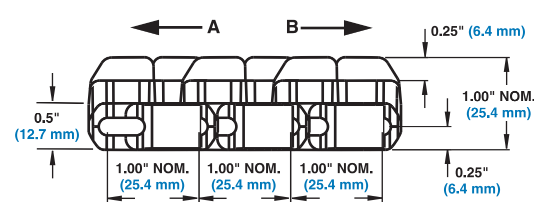
	in.	mm
Pitch	1.00	25.4
Minimum Width	4	102
Width Increments	0.50	12.7
Opening Size (approximate)	0.35 × 0.30	8.9 × 7.6
Open Area	42%	
Product Contact Area	18%	
Hinge Style	Open	
Drive Method	Hinge-driven	





Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Raised Rib belt deck is 0.5 inch (12.7 mm) higher than the standard Series 2400 belt.
- Makes turns with an inside turning radius of 2.2 times the belt width.
- Facilitates smooth transfers of small packages with the addition of transfer plates.
- Raised Rib style permits ample airflow through the belt for cooling in food processing applications.
- Raised Rib deck has more beam strength than the standard Series 2400 belt, which can reduce retrofit costs in spirals.
- Works with standard Series 2400 wearstrips.
- Standard indent for Raised Rib belt deck is 1.12 inches (28.6 mm).



A -Preferred direction for flat turning applications

B -Preferred direction for high speed applications

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)

Belt Data

Belt Material	Standard Rod Material Ø 0.18 in. (4.57 mm)	BS Straight Belt Strength		Curved Belt Strength[a] lb (kg) Belt Widths 12 in.	305 mm	18 in.	457 mm	24 in.	610 mm	Temperature Range (continuous)[b]		W Belt Weight		Agency Acceptability[c] 1=White, 2=Blue, 3=Natural, 4=Grey		
		lb/ft	kg/m	lb	kg	lb	kg	lb	kg	°F	°C	lb/ft²	kg/m²	FDA (USA)	J[d]	EU MC[e]
Polypropylene	Acetal	1200	1785	175	80	200	91	225	102	34 to 200	1 to 93	1.98	9.68	•	3	•
Acetal	Nylon	1700	2528	250	114	280	127	300	136	-50 to 200	-46 to 93	3.00	14.67	•	3	•
Polypropylene	Polypropylene[f]	1000	1487	114	52	130	59	146	67	34 to 220	1 to 104	1.92	9.39	•	3	•

a. The Curved Belt Strength is different for each belt width. Contact Intralox Sales Engineering for assistance with analysis.
b. Sideflexing applications should not exceed 180 °F (82 °C).
c. Prior to Intralox's development of Series 2400, USDA-FSIS Meat and Poultry discontinued publishing a list of acceptable new products designed for food contact. As of the printing of the manual, third party approvals are being investigated, but are not yet sanctioned by the USDA-FSIS.
d. Japan Ministry of Health, Labour, and Welfare
e. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.
f. Polypropylene rods can be installed in polypropylene belts when extra chemical resistance is required. Please note lower belt strength.

Radius Flat Top

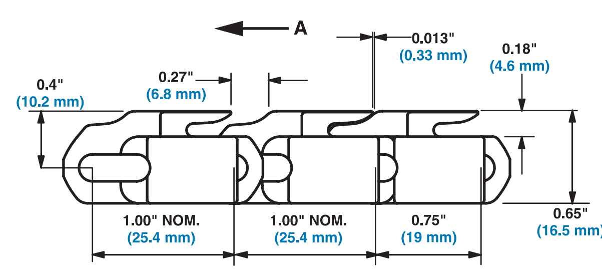
	in.	mm
Pitch	1.00	25.4
Minimum Width	6	152
Width Increments	0.50	12.7
Open Area	0%	
Product Contact Area	66%	
Hinge Style	Open	
Drive Method	Hinge-driven	

Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Minimum nosebar diameter is 1.375 in. (34.9 mm).
- The Intralox Engineering Program will help predict strength requirements of most radius applications, ensuring the belt is strong enough for the application.
- Sprocket drive system is designed to minimize wear and requires very low returnside tension.
- Radius belt wearstrips are available.
- Contact Sales Engineering before using a belt width greater than 36 in. (914 mm).
- Patented belt design provides more support for sensitive products in a flat turning application.
- Flat, closed surface successfully conveys small products that would fall through belts with open area.
- Makes turns with an inside turning radius of 2.2 times the belt width.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



A -Preferred direction for flat turning applications

Belt Data

Belt Material	Standard Rod Material Ø 0.18 in. (4.57 mm)	BS Straight Belt Strength lb/ft	BS Straight Belt Strength kg/m	Curved Belt Strength[a] lb (kg), Belt Widths: 12 in. lb	305 mm kg	18 in. lb	457 mm kg	24 in. lb	610 mm kg	Temperature Range (continuous)[b] °F	°C	W Belt Weight lb/ft²	kg/m²	Agency Acceptability[c] 1=White, 2=Blue, 3=Natural, 4=Grey: FDA (USA)	J[d]	EU MC[e]
Acetal	Nylon	1700	2528	250	114	280	127	300	136	-50 to 200	-46 to 93	2.24	11.00	•	3	•

a. The Curved Belt Strength is different for each belt width. Contact Intralox Sales Engineering for assistance with analysis.
b. Sideflexing applications should not exceed 180 °F (82 °C).
c. Prior to Intralox's development of Series 2400, USDA-FSIS Meat and Poultry discontinued publishing a list of acceptable new products designed for food contact. As of the printing of the manual, third party approvals are being investigated, but are not yet sanctioned by the USDA-FSIS.
d. Japan Ministry of Health, Labour, and Welfare
e. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

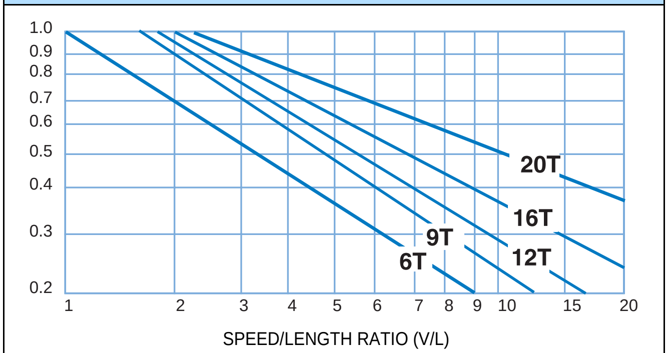
Sprocket and Support Quantity Reference[a]

Belt Width Range[b]		Minimum Number of Sprockets Per Shaft[c]	Wearstrips[d]	
in.	mm		Carryway	Returnway
4	102	2	2	2
5	127	2	2	2
6	152	2	2	2
7	178	2	2	2
8	203	2	2	2
10	254	2	3	2
12	305	3	3	2
14	356	3	3	3
15	381	5	3	3
16	406	5	3	3
18	457	5	3	3
20	508	5	4	3
24	610	5	4	3
30	762	7	5	4
32	813	7	5	4
36	914	7	5	4
42	1067	9	6	5
48	1219	11	7	5
For Other Widths, Use Odd Number of Sprockets at Maximum 6 in. (152 mm) ℄ Spacing			Maximum 9 in. (229 mm) ℄ Spacing	Maximum 12 in. (305 mm) ℄ Spacing

a. For low-tension capstan drive spirals contact Sales Engineering Customer Service for suggested carryway support recommendations.
b. If your belt width exceeds a number listed in the table, please refer to the sprocket and support material minimums for the next larger width range listed. Belts are available in 0.50 in. (12.7 mm) increments beginning with minimum width of 4 in. (102 mm). **If the actual width is critical, consult Customer Service.**
c. These are the minimum number of sprockets. Additional sprockets may be required for heavily loaded applications.
d. The number of wearstrips given does not include the hold down wearstrip.

S

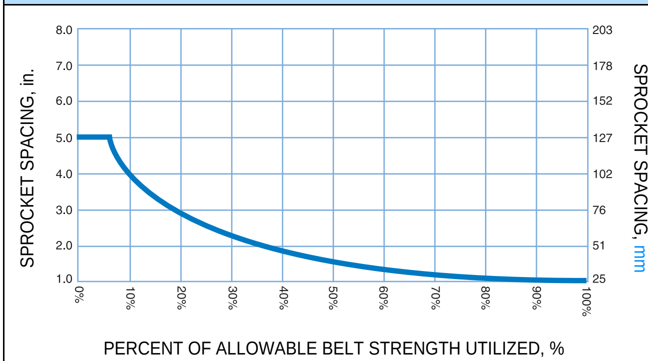
Strength Factor



V = ft/min (m/min)
T = number of teeth
L = ft (m)

Divide belt speed "V" by the shaft ℄ distance "L". Strength Factor is found at intersection of speed/length ratio and appropriate sprocket line. See page 35 for more information.

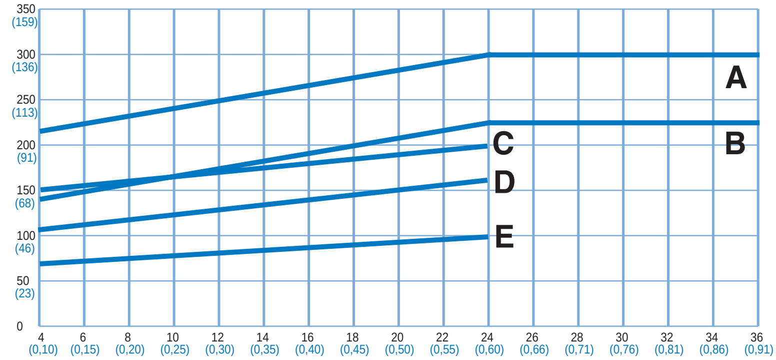
Sprocket Spacing as a Function of Belt Strength Utilized



Curved Belt Strength

Horizontal Scale = Belt Width, in. (mm)
Vertical Scale = Curved Belt Strength, lb (kg)

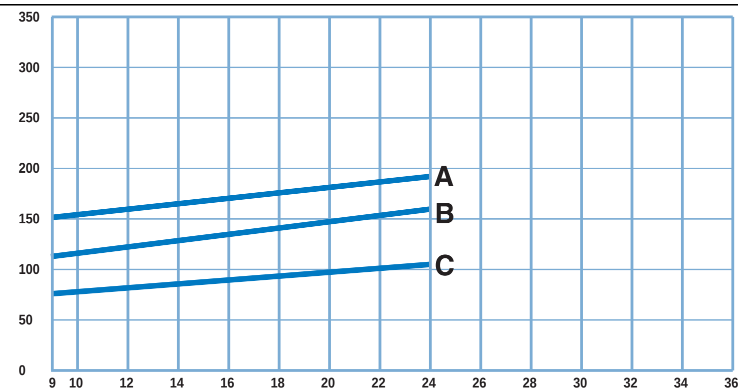
A - 2.2 AC BELT MATERIAL WITH STANDARD RODS
B - 2.2 PP BELT MATERIAL WITH STANDARD RODS
C - 1.7 AC BELT MATERIAL WITH NYLON RODS
D - 1.7 PP BELT MATERIAL WITH ACETAL RODS
E - 1.7 PP BELT MATERIAL WITH PP RODS



2.4 TIGHT TURNING RADIUS WITH INSERT ROLLERS

Horizontal Scale = Belt Width, in.
Vertical Scale = Curved Belt Strength, lb

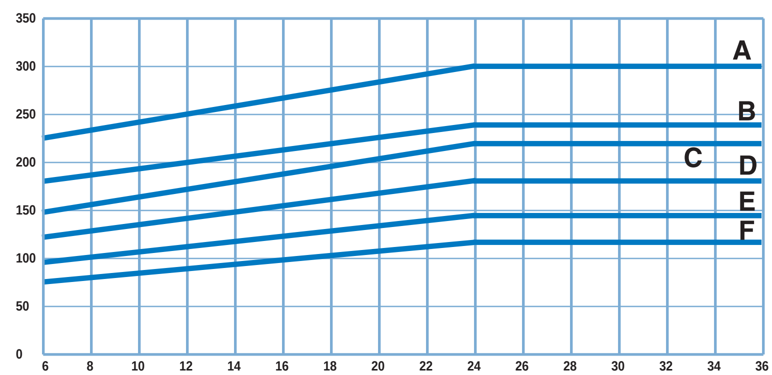
A - AC BELT MATERIAL WITH NYLON RODS
B - PP BELT MATERIAL WITH ACETAL RODS
C - PP BELT MATERIAL WITH PP RODS



2.8 TURNING RADIUS WITH INSERT ROLLERS

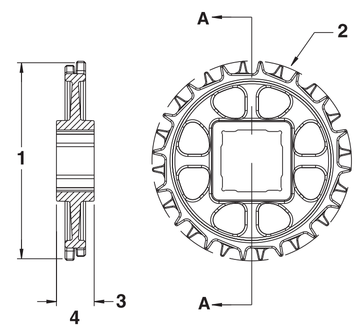
Horizontal Scale = Belt Width, in.
Vertical Scale = Curved Belt Strength, lb

A - AC BELT / NYLON ROD - 2.5" TO 3.5" INDENT
B - AC BELT / NYLON ROD - 2.0" INDENT
C - PP BELT / ACETALROD - 2.5" TO 3.5" INDENT
D - PP BELT / ACETALROD - 2.0" INDENT
E - PP BELT / PP ROD - 2.5" TO 3.5" INDENT
F - PP BELT / PP ROD - 2.0" INDENT



Sprocket Data[a]

No. of Teeth (Chordal Action)	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.[b]	Square in.	Round mm[b]	Square mm
6[c] (13.40%)	2.0	51	2.0	51	.54	14	3/4		20	
9[c] (6.03%)	2.9	74	2.9	74	1.0	25	1	1	25	25
12 (3.41%)	3.9	99	4.0	102	1.0	25	1 to 1-1/2	1.5	25 to 40	40
16 (1.92%)	5.1	130	5.2	132	1.0	25	1 to 1-1/2	1.5	25 to 40	40
20 (1.23%)	6.4	163	6.4	163	1.0	25	1 to 1-1/2	1.5	25 to 40	40



1 - Pitch diameter
2 - Outer diameter
3 - Hub width
4 - Section **A** - **A**

a. Contact Customer Service for lead times. When using Polyurethane sprockets, the Belt Strength for belts rated over 750 lb/ft (1120 kg/m) will be de-rated to 750 lb/ft (1120 kg/m) and all other belts will maintain their published rating. The temperature range for Polyurethane sprockets is 0 °F (-18 °C) to 120 °F (49 °C). Contact Customer Service for availability of Polyurethane sprockets.
b. Imperial key sizes on round bore sprockets conform to ANSI standard B17.1-1967 (R1989) and metric key sizes conform to DIN standard 6885.
c. The 2.0 in. (51 mm) Pitch Diameter 6 tooth sprocket and the 2.9 in. (74 mm) Pitch Diameter 9 tooth sprocket have a recommended belt pull of 60 lb/sprocket (27 kg/sprocket). Do not use this sprocket with Hold Down Guides.

Ultra Abrasion Resistant Polyurethane Split Sprockets[a]

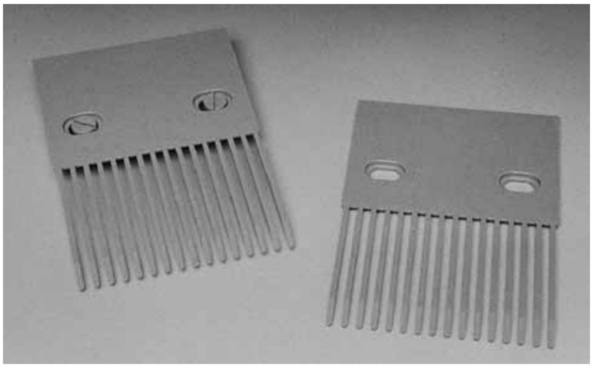
No. of Teeth (Chordal Action)	Nom. Pitch Dia. in.	Nom. Pitch Dia. mm	Nom. Outer Dia. in.	Nom. Outer Dia. mm	Nom. Hub Width in.	Nom. Hub Width mm	Available Bore Sizes			
							U.S. Sizes		Metric Sizes	
							Round in.	Square in.	Round mm	Square mm
16 (1.92%)	5.1	130	5.2	132	1.0	25		1.5[b]	25 to 40	40[b]
20 (1.23%)	6.4	163	6.4	163	1.0	25		1.5	25 to 40	40

a. Contact Customer Service for lead times. When using Polyurethane sprockets, the Belt Strength for belts rated over 750 lb/ft (1120 kg/m) will be de-rated to 750 lb/ft (1120 kg/m) and all other belts will maintain their published rating. The temperature range for Polyurethane sprockets is 0 °F (-18 °C) to 120 °F (49 °C). Contact Customer Service for availability of Polyurethane sprockets.
b. FDA approved sprockets are available.

Finger Transfer Plates

Available Widths		Number of Fingers	Available Materials
in.	mm		
4	102	16	Acetal

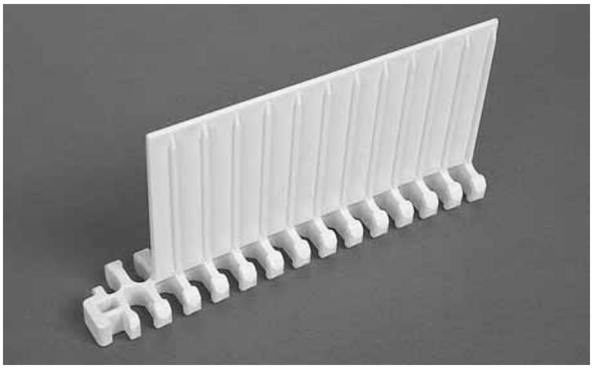
Note: Designed to be used with Series 2400 Raised Rib belts to eliminate product transfer and tipping problems.
Note: The fingers extend between the belt's ribs allowing a smooth continuation of the product flow as the belt engages its sprockets.
Note: Finger Transfer Plates are installed easily on the conveyor frame with conventional fasteners.



No-Cling Flights

Available Flight Height		Available Materials
in.	mm	
3.0	76	Polypropylene, Polyethylene, Acetal

Note: Minimum indent is 1.125 in. (29 mm).
Note: Series 2400 flights do not have bottom hold down guides, but can be used with the bottom hold down belt style, with a minimum flight spacing of 4 in. (102 mm).



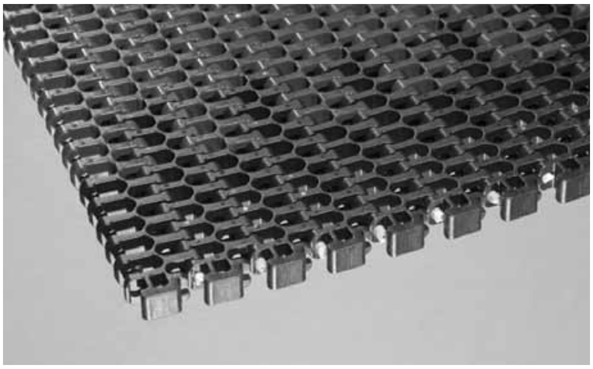
Universal Sideguards

Available Sideguard Height		Available Materials
in.	mm	
1.0	25	Polypropylene, Acetal
3.0	76	

Note: Similar in design and function to other standard, overlapping Intralox sideguards. It is an integral part of the belt, fastened by hinge rods. It adds versatility to the Series 2400 belt when used in multiple rows for separating product.
Note: It is easily cleanable and is suitable for food applications (FDA accepted).
Note: A minimum 1.5 inch (38 mm) indent is required for the 2.2 turn ratio and a 3.0 inch (76 mm) indent for the 1.7 turn ratio with this style sideguard.

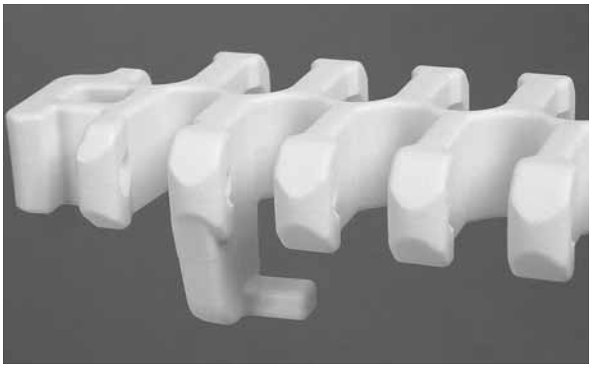
High Speed Intralon™ Radius Edge

- High speed edge is composed of a nylon-based blend of materials. Edges are available in black or FDA approved bone white.
- Optimal for applications with high speed curves of 300 feet per minute (90 meters per minute) or faster. Contact Customer Service Sales Engineering for application review.
- High speed edge is located on the inside edge of one-directional turning applications only.
- Edges require a stainless steel wear strip to withstand high temperatures. Intralox recommends implementing heat shields where temperatures exceed 120° F (49° C).
- Edges can be used in acetal or polypropylene belts.
- Edges are available with Flush Grid, Flush Grid High Deck, Raised Rib, and Friction Top belts styles. Refer to belt data pages for information on preferred run direction. Contact Customer Service for indent of friction surface.
- Nylon rods are recommended for high speed applications.
- Edges are not compatible with Clip-On Sideguards

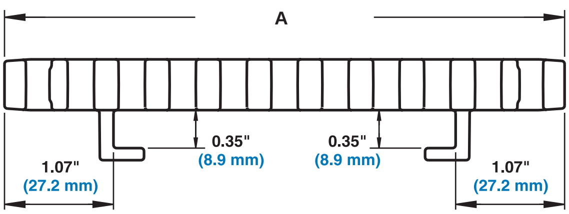


Hold Down Guides (2.2 Only)

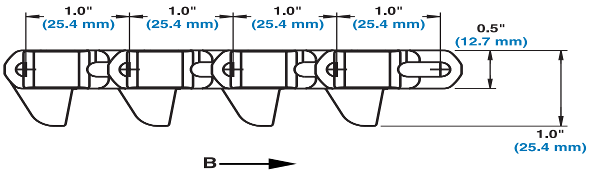
- Hold down guides are on the bottom of the belt for use when the belt edges need to be clear. Also available on friction top modules.
- Hold down guides provide the ability to run two belts next to each other without a large gap in between.
- The belt edge is smooth for reduced friction, and is relatively thick to provide wear resistance and protection for the rod retention.
- The minimum nose bar diameter is 1.5 in.
- 2 in. and 2.9 in. PD Sprocket can not be used with Hold Down Guides (the smallest sprocket that can be used with S2400 FG belt with Hold Down Guides is 3.9 in. PD with a maximum bore of 40 mm).
- Other sprocket PDs with large bores may not produce enough clearance between the hold down guide and shaft. Subtracting bore size from the PD easily identifies these sprockets. If the number is less than 2.0 in. (51 mm), this sprocket can not be used with hold down guides.



Front view



Side view



A - Belt width

B - Preferred direction for flat turning applications

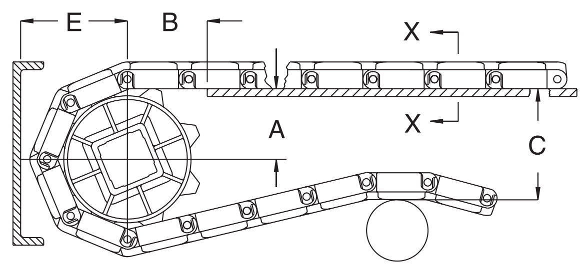
Note: Hold down guides are not recommended for low-tension capstan drive spiral applications.

Fig. 2–5 SERIES 2400 HOLD DOWN GUIDES FOR FLAT TURNS

Conveyor Frame Dimensions

Regardless of type or configuration, all conveyors using Intralox belts have some basic dimensional requirements. Specifically, dimensions “A”, “B”, “C” and “E” listed below should be implemented in any design.

For general applications and applications where end transfer of tip-sensitive product is not critical, use the “A” dimension at the bottom of the range.



A - ±0.031” (1 mm) **C -** ± (Max)

B - ±0.125” (3 mm) **E -** ± (Min)

Complete descriptions of the dimensions are listed on page 291.

Sprocket Description			A		B		C		E	
Pitch Diameter		No. Teeth	Range (Bottom to Top)		in.	mm	in.	mm	in.	mm
in.	mm		in.	mm						
SERIES 2400 FLUSH GRID - STRAIGHT EDGE, HOLD DOWN GUIDES & TIGHT TURNING										
2.0[a]	51[a]	6	0.62-0.75	16-19	1.22	31	2.00	51	1.31	33
2.9[a]	74[a]	9	1.12-1.21	28-31	1.51	38	2.92	74	1.77	45
3.9	99	12	1.62-1.68	41-43	1.86	47	3.86	98	2.24	57
5.1	130	16	2.26-2.31	57-59	2.11	54	5.13	130	2.88	73
6.4	163	20	2.91-2.95	74-75	2.31	59	6.39	162	3.51	89
SERIES 2400 FLUSH GRID HIGH DECK										
2.0[a]	51[a]	6	0.62-0.75	16-19	1.22	31	2.40	61	1.71	43
2.9[a]	74[a]	9	1.12-1.21	28-31	1.51	38	3.32	84	2.17	55
3.9	99	12	1.62-1.68	41-43	1.86	47	4.26	108	2.64	67
5.1	130	16	2.26-2.31	57-59	2.11	54	5.53	140	3.28	83
6.4	163	20	2.91-2.95	74-75	2.31	59	6.79	172	3.91	99
SERIES 2400 FRICTION TOP - WITH OR WITHOUT HOLD DOWN GUIDES										
2.0[a]	51[a]	6	0.62-0.75	16-19	1.22	31	2.20	56	1.51	38
2.9[a]	74[a]	9	1.12-1.21	28-31	1.51	38	3.12	79	1.97	50
3.9	99	12	1.62-1.68	41-43	1.86	47	4.06	103	2.44	62
5.1	130	16	2.26-2.31	57-59	2.11	54	5.33	135	3.08	78
6.4	163	20	2.91-2.95	74-75	2.31	59	6.59	167	3.71	94
SERIES 2400 RADIUS WITH INSERT ROLLERS (ALL STYLES) - FREE FLOATING ROLLERS										
2.0[a]	51[a]	6	0.62-0.75	16-19	1.22	31	2.09	53	1.40	36
2.9[a]	74[a]	9	1.12-1.21	28-31	1.53	39	3.01	76	1.86	47
3.9	99	12	1.62-1.68	41-43	1.78	45	3.95	100	2.33	59
5.1	130	16	2.26-2.31	57-59	2.06	52	5.21	132	2.96	75
6.4	163	20	2.91-2.95	74-75	2.31	59	6.48	165	3.60	91
SERIES 2400 RADIUS WITH INSERT ROLLERS (ALL STYLES) - DRIVEN ROLLERS										
2.0[a]	51[a]	6	0.53-0.66	13-17	1.24	31	2.09	53	1.40	36
2.9[a]	74[a]	9	1.04-1.12	26-31	1.57	40	3.01	76	1.86	47

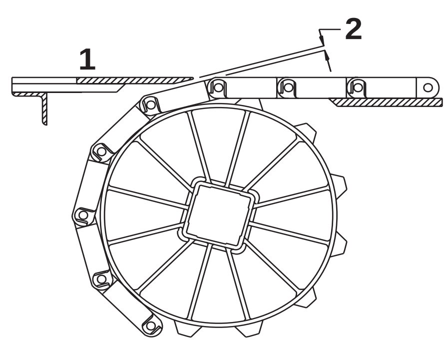
Sprocket Description			A		B		C		E	
Pitch Diameter		No. Teeth	Range (Bottom to Top)		in.	mm	in.	mm	in.	mm
in.	mm		in.	mm						
3.9	99	12	1.53-1.59	39-40	1.92	49	3.95	100	2.33	59
5.1	130	16	2.18-2.23	55-57	2.19	56	5.21	132	2.96	75
6.4	163	20	2.82-2.86	72-73	2.41	61	6.48	165	3.60	91
SERIES 2400 RAISED RIB										
2.0	51	6	0.62-0.75	16-19	1.22	31	2.50	64	1.81	46
2.9	74	9	1.12-1.21	28-31	1.51	38	3.42	87	2.27	58
3.9	99	12	1.62-1.68	41-43	1.86	47	4.36	111	2.74	70
5.1	130	16	2.26-2.31	57-59	2.11	54	5.63	143	3.38	86
6.4	163	20	2.91-2.95	74-75	2.31	59	6.89	175	4.01	102
SERIES 2400 RADIUS FLAT TOP										
2.0	51	6	0.62-0.75	16-19	1.22	31	2.15	55	1.46	37
2.9	74	9	1.12-1.21	28-31	1.51	38	3.07	78	1.92	49
3.9	99	12	1.62-1.68	41-43	1.86	47	4.01	102	2.39	61
5.1	130	16	2.26-2.31	57-59	2.11	54	5.28	134	3.03	77
6.4	163	20	2.91-2.95	74-75	2.31	59	6.54	166	3.66	93

a. Can not be used with Hold Down Guides.

Dead Plate Gap

Where there is a transfer point from a belt without finger transfer plates to a dead plate, there should be a gap between the surfaces to allow for the chordal action of the belt. As the belt engages its sprockets, chordal action causes the modules to move past a *fixed* point (the tip of the dead plate) with *varying* clearances. The table below shows the minimum amount of gap which occurs at the "low point" of the modules if the tip of the dead plate just comes in contact with the "high point" as the modules pass.

In some installations it may be desirable to keep the tip of the dead plate in contact with the belt, rather than allow a gap to occur. This can be done by hinging the mounting bracket for the dead plate. This allows the dead plate to move as the modules pass, but results in a small oscillating motion which may present tippage problems for sensitive containers or products.



1 - Top surface of dead plate **2 -** Dead plate gap

Note: The top surface of the dead plate is typically 0.031 in. (0.8 mm) above the belt surface for product transfer onto the belt, and 0.031 in. (0.8 mm) below the belt surface for product transfer off the belt.

Sprocket Description			Gap	
Pitch Diameter		No. Teeth	in.	mm
in.	mm			
2.0	51	6	0.134	3.4
2.9	74	9	0.088	2.2
3.9	99	12	0.065	1.7
5.1	130	16	0.050	1.3
6.4	163	20	0.039	1.0

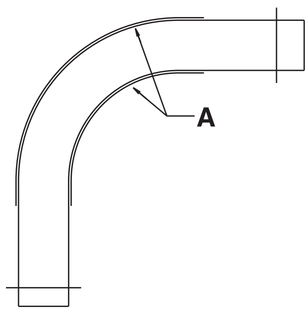
HOLD DOWN RAILS AND WEARSTRIPS

Intralox recommends using continuous hold down rails through an entire turn, starting at a distance of 1X the belt width before the turn and ending 1X the belt width after the turn. This applies to both carryway and returnway. The use of hold down rails along both side of the belt over the full carryway is recommended but not mandatory.

The hold down guide design allows the belt to be held down without the wearstrip interfering with the carryway surface (for design guidelines regarding Series 2400 with hold down guides, contact Technical Support Group). See *"Custom wearstrips"* (page 283).

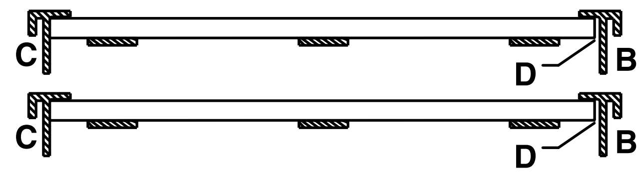
STANDARD BELTS

FLUSH EDGE WITH WEARSTRIP



CROSS SECTION VIEW THROUGH CURVE

CARRYWAY DESIGN



RETURNWAY DESIGN

A - HOLD DOWN RAIL PLACEMENT

B - OUTSIDE HOLD DOWN RAIL

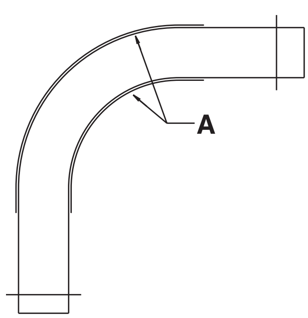
C - INSIDE HOLD DOWN RAIL

D - CLEARANCE

Fig. 2–6 HOLD DOWN RAILS AND WEARSTRIPS FOR SERIES 2400 FLAT-TURNS - STANDARD BELTS

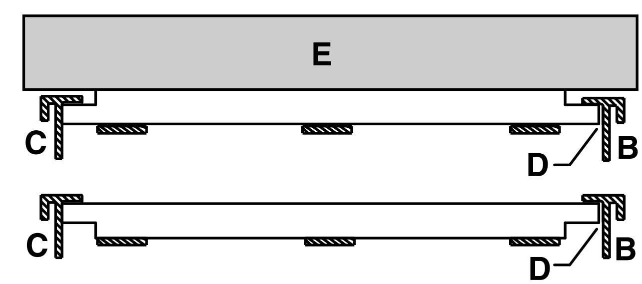
HIGH DECK AND RAISED RIB BELTS

FLUSH EDGE WITH WEARSTRIP



CROSS SECTION VIEW THROUGH CURVE

CARRYWAY DESIGN



RETURNWAY DESIGN

A - HOLD DOWN RAIL PLACEMENT

B - OUTSIDE HOLD DOWN RAIL

C - INSIDE HOLD DOWN RAIL

D - CLEARANCE

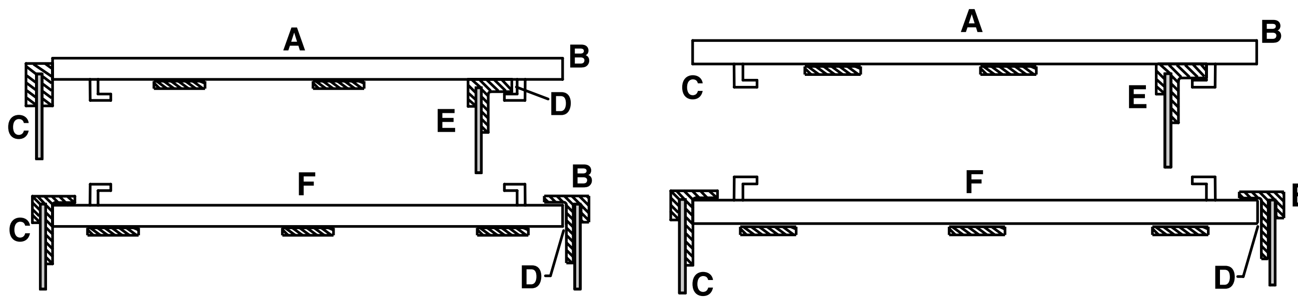
E - PRODUCT

Fig. 2–7 HOLD DOWN RAILS AND WEARSTRIPS FOR SERIES 2400 FLAT-TURNS - HIGH DECK AND RAISED RIB BELTS

BELTS WITH HOLD DOWN GUIDES

Special wearstrip guidelines for lightly loaded belts with Hold Down Guides.
Requirements: Maximum belt pull <20% allowable; belt speed <50 FPM

CROSS SECTION VIEW THROUGH CURVE - WITH INNER BUMP RAIL **CROSS SECTION VIEW THROUGH CURVE** - NO BUMP RAIL



A - CARRYWAY DESIGN
B - OUTSIDE EDGE
C - INSIDE EDGE
D - CLEARANCE
E - HOLD DOWN GUIDE WEARSTRIP
F - RETURNWAY DESIGN

WARNING -IHold down Guides should never be used to guide the belt through the turn in heavily loaded or high speed applications. Rapid wear to the Hold Down Guides and/or wearstrip will occur in applications with high loads or speeds. Contact Technical Support Group for a belt pull analysis.

Fig. 2–8 HOLD DOWN RAILS AND WEARSTRIPS FOR SERIES 2400 FLAT-TURNS - BELTS WITH HOLD DOWN GUIDES

BELT SELECTION INSTRUCTIONS

ENGINEERING PROGRAM ANALYSIS FOR SERIES 2400

Intralox Customer Service Technical Support Group can calculate the estimated belt pull for radius applications using **Series 2400**. The following information is required (refer to *"Radius belt data sheet"* (page 335)):

- Any environmental conditions which may affect the friction coefficient (for dirty or abrasive conditions, use higher friction coefficients than normal)
- Belt width
- Length of each straight run
- Turning angle of each turn
- Turn direction of each turn
- Inside turning radius of each turn
- Carryway/hold down rail material
- Product loading lb/ft² (kg/m²)
- Product back-up conditions
- Belt speed
- Elevation changes on each section
- Operating temperatures.

For assistance with radius belt and low-tension capstan drive spiral selections, contact Intralox Customer Service Technical Support Group. The Engineering Program should be run to insure that the belt is strong enough for the radius application in question.

SERIES 2400 DESIGN GUIDE SUMMARY
For more information, see the ***Installation, Maintenance and Toubleshooting manual*** available from Intralox.

A - The minimum turning radius for **Series 2400** is 2.2 times the belt width, measured from the inside edge for the standard edge or 1.7 times the belt width for the tight turning style.

B - The minimum straight run required between turns of opposing direction is 2.0 times the belt width. Shorter straight sections will lead to high wear on the edge guide rail and high pull stresses in the belt.

C - There is no minimum straight run required between turns that are in the same direction.

D - The minimum length for the final straight run (leading into the drive shaft) is 1.5 times the belt width. Shorter lengths may lead to sprocket wear or tracking problems. For narrow belts, a weighted take-up may be required since proper catenary cannot be achieved therefore, a 5 ft. (1.50 m) minimum final straight run is recommended. See *"Special Take-Up Arrangements"* (page 298).

E - The minimum length of the first straight run (immediately after the idle shaft) is 1.5 times the belt width. When shorter lengths are required (down to 1.0 times the width), an idle roller may be used in place of sprockets.

F - IDLE SHAFT

G - 1ST TURN

H - BELT WIDTH

I - BELT TRAVEL

J - 2ND TURN

K - DRIVE MOTOR

L - DRIVE SHAFT

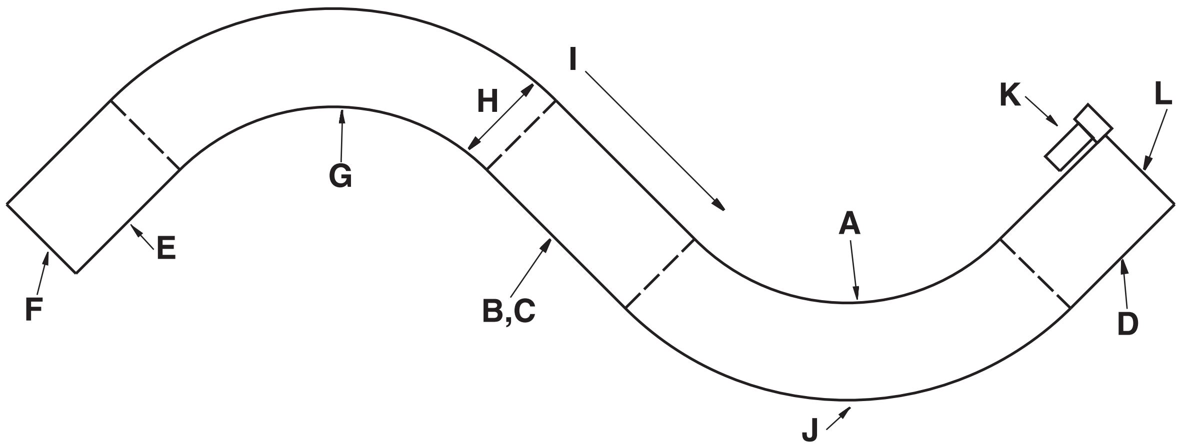
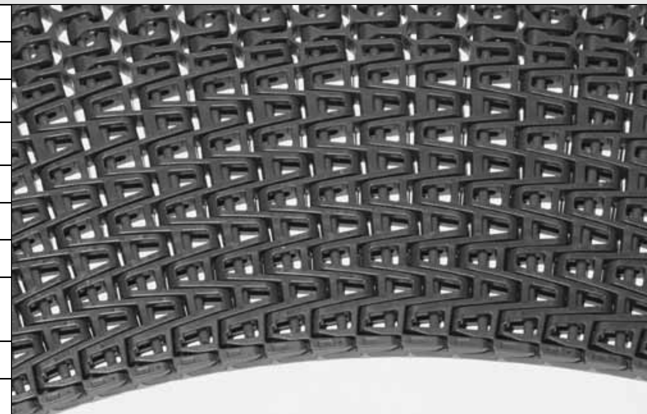
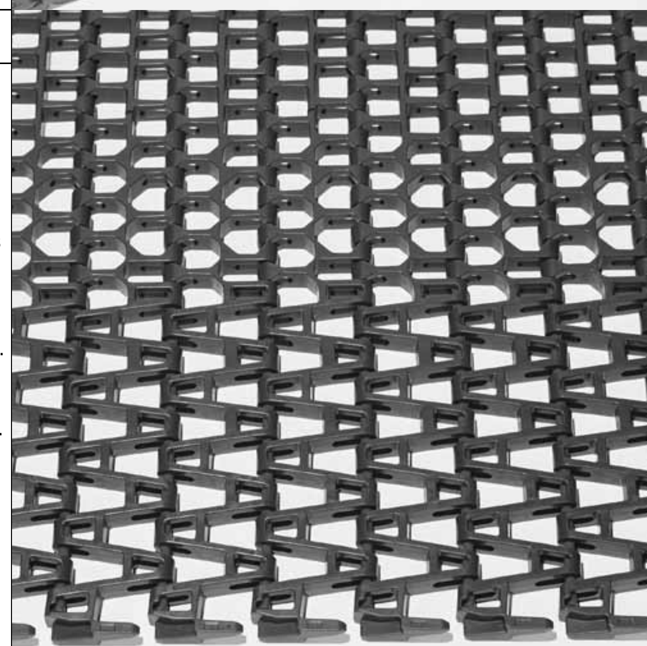


Fig. 2–9 TYPICAL 2-TURN RADIUS LAYOUT

SPIRALOX™ 1.1 Radius

	in.	mm
Pitch	2.00	50.8
Minimum Width[a]	26	660
Maximum Width[a]	44	1118
Width Increments	1.00	25.4
Opening Size (approximate)	0.85 × 0.88	21.6 × 22.5
% Open Area (fully extended)	56%	
% Minimum Open Area (1.1 Turn Ratio)	22%	
Hinge Style	Open	
Drive Method	Hinge-driven	





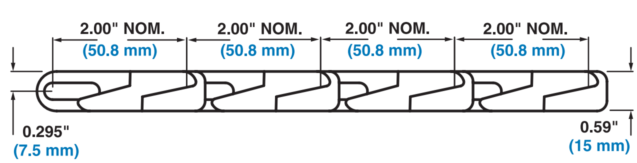
Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt**.
- Designed for low-tension, capstan drive spiral applications with a minimum turning radius of 1.1 times the belt width (measured from inside edge).
- The Intralox Spiral Program will help predict the strength requirements of most low-tension, capstan drive spiral applications, insuring that the belt is strong enough for the application. Contact Intralox Sales Engineering Customer Service for more information.
- Lightweight, relatively strong belt with smooth surface grid.
- Belt openings pass straight through the belt, making the belt easy to clean.
- Minimum sprocket indent from the inside (collapsed) edge of the spiral is 9.0 inches (228.6 mm).
- Contact Customer service for preferred run direction on spiral applications.

WARNING: Personnel must not place their fingers in or on this belt. Fingers can get trapped in the openings of this belt, resulting in personal injury. This belt also has pinch points which result from the spreading and collapsing of the belt as it flexes to follow the conveyor path. These pinch points can trap fingers, hair or clothing, and can cause personal injury. Personnel should also be instructed not to wear loose fitting clothing, loose fitting gloves or hand/finger jewelry when working near this belt. Call Customer Service for tags, flyers and stickers containing this warning.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



a. Contact Intralox Customer Service for more information regarding belt widths under 26" (660mm) and over 44" (1118mm).

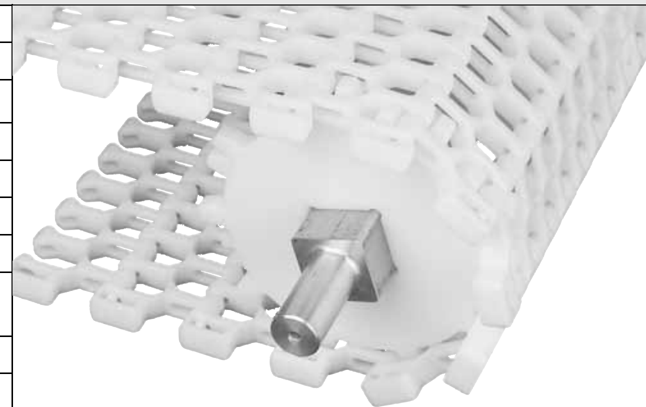
Belt Data

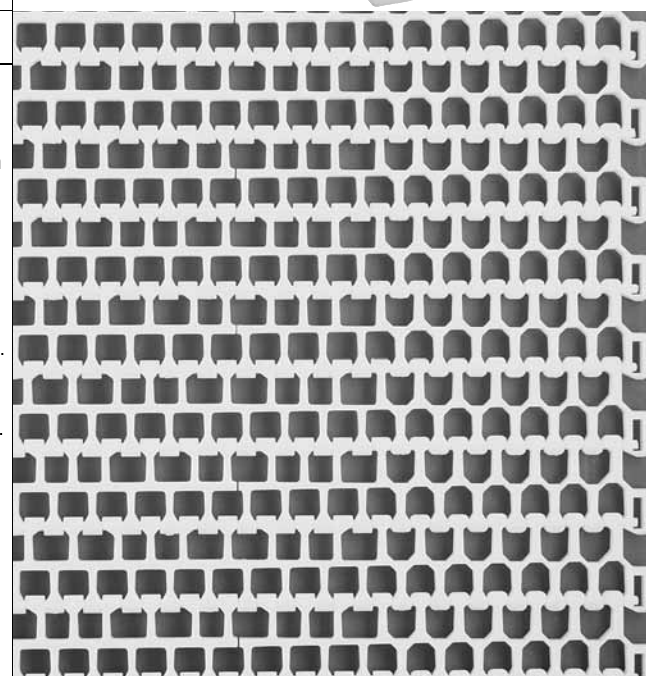
Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Straight Belt Strength		Curved Belt Strength[a]		Temperature Range (continuous)[b]		W Belt Weight		Agency Acceptability[c] 1=White, 2=Blue, 3=Natural, 4=Grey		
		lb/ft	kg/m	lbs	kg	°F	°C	lb/ft²	kg/m²	FDA (USA)	J[d]	EU MC[e]
Acetal	Acetal	1300	1935	300	136	-50 to 200	-46 to 93	1.44	7.03	•	3	•

a. Published curved belt strengths and their method of calculation vary among spiral belt manufacturers. Please consult an Intralox Spiral Engineer for accurate comparison of curve belt strengths.
b. Sideflexing applications should not exceed 180 °F (82 °C).
c. Prior to Intralox's development of Series 2600, USDA-FSIS Meat and Poultry discontinued publishing a list of acceptable new products designed for food contact. As of the printing of the manual, third party approvals are being investigated, but are not yet sanctioned by the USDA-FSIS.
d. Japan Ministry of Health, Labour, and Welfare
e. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

SPIRALOX™ 1.6 Radius

	in.	mm
Pitch	2.00	50.8
Minimum Width[a]	24	610
Maximum Width	60	1524
Width Increments	1.00	25.4
Opening Size (approximate)	0.94 × 0.88	23.8 × 16.5
% Open Area (fully extended)	57%	
% Minimum Open Area (1.6 Turn Ratio)	31%	
Hinge Style	Open	
Drive Method	Hinge-driven	





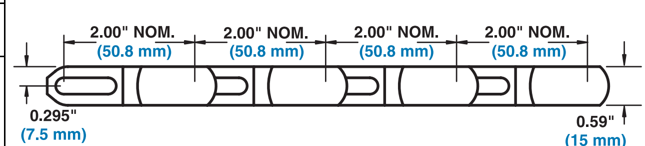
Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Designed for low-tension, capstan drive spiral applications with a minimum turning radius of 1.6 times the belt width (measured from inside edge).
- The Intralox Spiral Program will help predict the strength requirements of most low-tension, capstan drive spiral applications, insuring that the belt is strong enough for the application. Contact Intralox Sales Engineering Customer Service for more information.
- Lightweight, relatively strong belt with smooth surface grid.
- Belt openings pass straight through the belt, making the belt easy to clean.
- Minimum sprocket indent from the inside (collapsed) edge of the spiral is 9.0 inches (228.6 mm).
- Contact Customer service for preferred run direction on spiral applications.

WARNING: Personnel must not place their fingers in or on this belt. Fingers can get trapped in the openings of this belt, resulting in personal injury. This belt also has pinch points which result from the spreading and collapsing of the belt as it flexes to follow the conveyor path. These pinch points can trap fingers, hair or clothing, and can cause personal injury. Personnel should also be instructed not to wear loose fitting clothing, loose fitting gloves or hand/finger jewelry when working near this belt. Call Customer Service for tags, flyers and stickers containing this warning.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



a. Contact Intralox Customer Service for more information regarding belt widths under 24" (610mm).

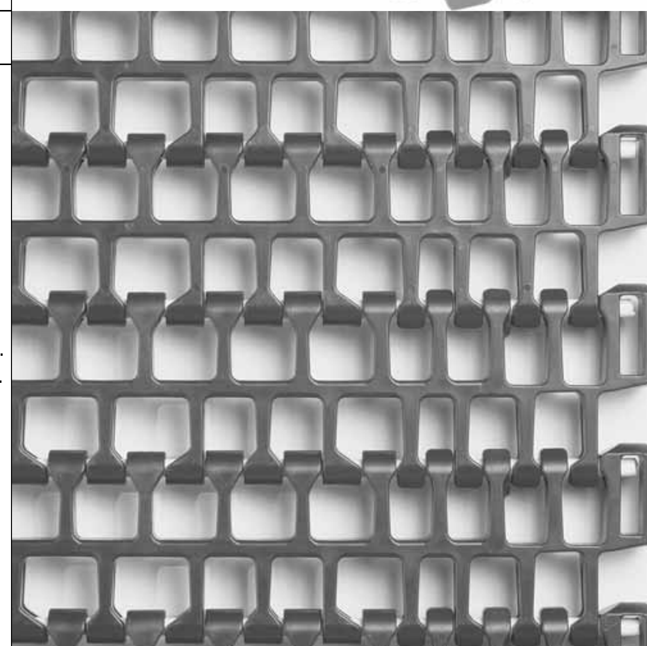
Belt Data

Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Straight Belt Strength		Curved Belt Strength[a]		Temperature Range (continuous)[b]		W Belt Weight		Agency Acceptability[c] 1=White, 2=Blue, 3=Natural, 4=Grey		
		lb/ft	kg/m	lbs	kg	°F	°C	lb/ft²	kg/m²	FDA (USA)	J[d]	EU MC[e]
Acetal	Acetal	1700	2530	375	170	-50 to 200	-46 to 93	1.41	6.88	•	3	•
Poylpropylene	Acetal	1500	2232	375	136	34 to 200	1 to 93	1.01	4.93	•	3	•

a. Published curved belt strengths and their method of calculation vary among spiral belt manufacturers. Please consult an Intralox Spiral Engineer for accurate comparison of curve belt strengths.
b. Sideflexing applications should not exceed 180 °F (82 °C).
c. Prior to Intralox's development of Series 2600, USDA-FSIS Meat and Poultry discontinued publishing a list of acceptable new products designed for food contact. As of the printing of the manual, third party approvals are being investigated, but are not yet sanctioned by the USDA-FSIS.
d. Japan Ministry of Health, Labour, and Welfare
e. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

SPIRALOX™ 2.2, 2.5, and 3.2 Radius

	in.	mm
Pitch	2.00	50.8
Minimum Width[a]	24	610
Maximum Width	60	1524
Width Increments	1.00	25.4
Opening Size (approximate)	0.94 × 0.65	23.8 × 16.5
% Open Area (fully extended)	57%	
% Minimum Open Area (2.2 Turn Ratio)	32%	
Hinge Style	Open	
Drive Method	Hinge-driven	



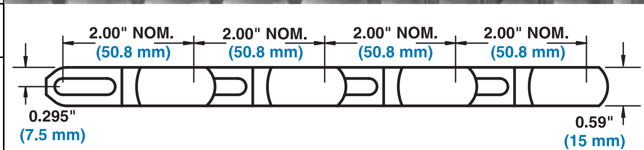
Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Designed for low-tension, capstan drive spiral applications with a minimum turning radius of 2.2 times the belt width (measured from inside edge).
- The Intralox Spiral Program will help predict the strength requirements of most low-tension, capstan drive spiral applications, insuring that the belt is strong enough for the application. Contact Intralox Sales Engineering Customer Service for more information.
- Lightweight, relatively strong belt with smooth surface grid.
- Belt openings pass straight through the belt, making the belt easy to clean.
- Contact Customer service for preferred run direction on spiral applications.

WARNING: Personnel must not place their fingers in or on this belt. Fingers can get trapped in the openings of this belt, resulting in personal injury. This belt also has pinch points which result from the spreading and collapsing of the belt as it flexes to follow the conveyor path. These pinch points can trap fingers, hair or clothing, and can cause personal injury. Personnel should also be instructed not to wear loose fitting clothing, loose fitting gloves or hand/finger jewelry when working near this belt. Call Customer Service for tags, flyers and stickers containing this warning.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



a. Contact Intralox Customer Service for more information regarding belt widths under 24" (610mm).

Belt Data

Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Straight Belt Strength		Curved Belt Strength[a]		Temperature Range (continuous)[b]		W Belt Weight		Agency Acceptability[c] 1=White, 2=Blue, 3=Natural, 4=Grey		
		lb/ft	kg/m	lbs	kg	°F	°C	lb/ft²	kg/m²	FDA (USA)	J[d]	EU MC[e]
Acetal	Acetal	1700	2530	475	215	-50 to 200	-46 to 93	1.54	7.52	•	3	•
Poylpropylene	Acetal	1500	2232	400	181	34 to 200	1 to 93	1.04	5.08	•	3	•

a. Published curved belt strengths and their method of calculation vary among spiral belt manufacturers. Please consult an Intralox Spiral Engineer for accurate comparison of curve belt strengths.
b. Sideflexing applications should not exceed 180 °F (82 °C).
c. Prior to Intralox's development of Series 2600, USDA-FSIS Meat and Poultry discontinued publishing a list of acceptable new products designed for food contact. As of the printing of the manual, third party approvals are being investigated, but are not yet sanctioned by the USDA-FSIS.
d. Japan Ministry of Health, Labour, and Welfare
e. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

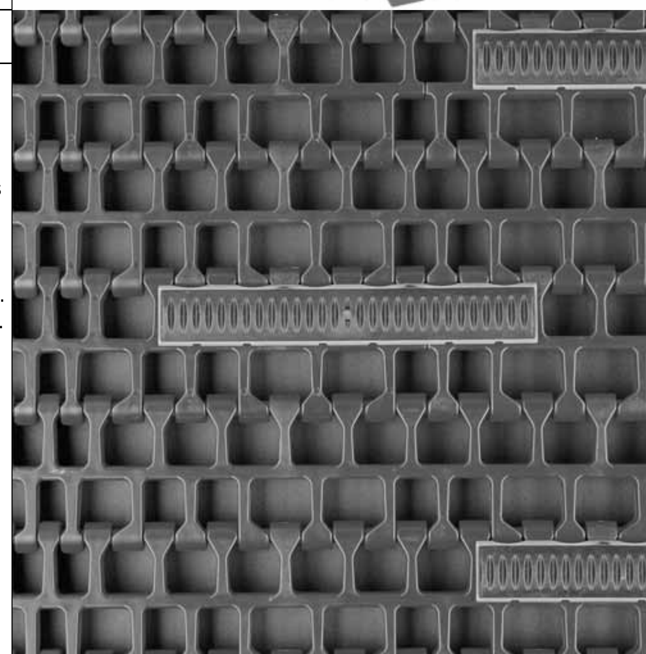
SPIRALOX™ Rounded Friction Top

	in.	mm
Pitch	2.00	50.8
Minimum Width[a]	24	610
Maximum Width	60	1524
Width Increments	1.00	25.4
Opening Size (approximate)	0.94 × 0.65	23.8 × 16.5
Hinge Style	Open	
Drive Method	Hinge-driven	

Product Notes

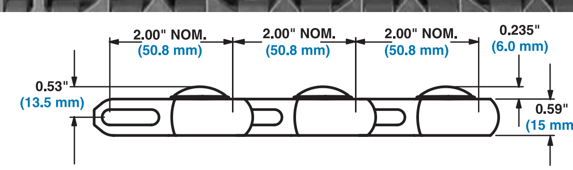
- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- The Intralox Spiral Program will help predict the strength requirements of most low-tension, capstan drive spiral applications, insuring that the belt is strong enough for the application. Contact Intralox Sales Engineering Customer Service for more information.
- Lightweight, relatively strong belt with smooth surface grid.
- Belt openings pass straight through the belt, making the belt easy to clean.
- Contact Customer service for preferred run direction on spiral applications.

WARNING: Personnel must not place their fingers in or on this belt. Fingers can get trapped in the openings of this belt, resulting in personal injury. This belt also has pinch points which result from the spreading and collapsing of the belt as it flexes to follow the conveyor path. These pinch points can trap fingers, hair or clothing, and can cause personal injury. Personnel should also be instructed not to wear loose fitting clothing, loose fitting gloves or hand/finger jewelry when working near this belt. Call Customer Service for tags, flyers and stickers containing this warning.



Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



a. Contact Intralox Customer Service for more information regarding belt widths under 24" (610mm).

Belt Data

Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Straight Belt Strength		Curved Belt Strength[a] 1.6 TR (2.2, 2.5, 3.2 TR)		Temperature Range (continuous)		W Belt Weight 1.6 TR (2.2, 2.5, 3.2 TR)		Agency Acceptability[b] 1=White, 2=Blue, 3=Natural, 4=Grey		
		lb/ft	kg/m	lbs	kg	°F	°C	lb/ft^2	kg/m^2	FDA (USA)	J[c]	EU MC[d]
Acetal	Acetal	1700	2530	375 (475)	170 (215)	34 to 150	1 to 66	1.44 (1.54)	7.03 (7.52)	•		
Poylpropylene	Acetal	1500	2232	300 (400)	136 (181)	34 to 150	1 to 66	1.01 (1.04)	4.93 (5.08)	•		

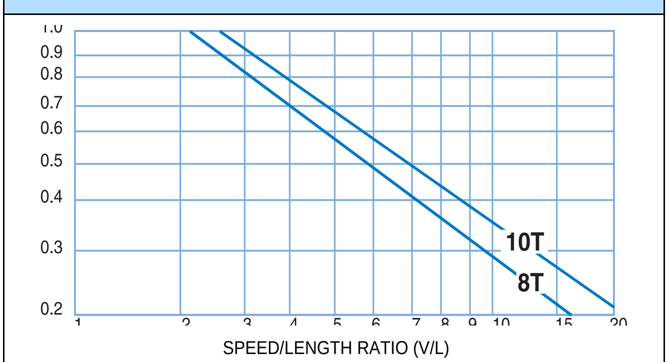
a. Published curved belt strengths and their method of calculation vary among spiral belt manufacturers. Please consult an Intralox Spiral Engineer for accurate comparison of curve belt strengths.
b. Prior to Intralox's development of Series 2600, USDA-FSIS Meat and Poultry discontinued publishing a list of acceptable new products designed for food contact. As of the printing of the manual, third party approvals are being investigated, but are not yet sanctioned by the USDA-FSIS.
c. Japan Ministry of Health, Labour, and Welfare
d. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Sprocket and Support Quantity Reference[a]

Belt Width Range[b] in.	Belt Width Range[b] mm	Minimum Number of Sprockets Per Shaft[c]	Wearstrips Carryway	Wearstrips Returnway
24	610	3	2	2
26	660	3	2	2
28	711	5	2	2
30	762	5	3	2
32	813	5	3	2
34	864	5	3	2
36	914	5	3	2
38	965	5	3	2
40	1016	5	3	2
42	1067	5	3	2
44	1118	7	3	2
46	1168	7	3	2
48	1219	7	3	2
50	1270	7	3	2
52	1321	7	3	2
54	1372	7	3	2
56	1422	7	4	3
58	1473	7	4	3
60	1524	9	4	3
For Other Widths, Use Odd Number of Sprockets at Maximum 6 in. (152 mm) ℄ Spacing			Contact Sales Engineering Customer Service	Maximum 12 in. (305 mm) ℄ Spacing

a. For low-tension capstan drive spirals contact Sales Engineering Customer Service for suggested carryway support recommendations.
b. If your belt width exceeds a number listed in the table, please refer to the sprocket and support material minimums for the next larger width range listed. Belts are available in 1.00 in. (25.4 mm) increments beginning with minimum width of 24 in. (610 mm). **If the actual width is critical, consult Customer Service.**
c. These are the minimum number of sprockets. Additional sprockets may be required for heavily loaded applications.

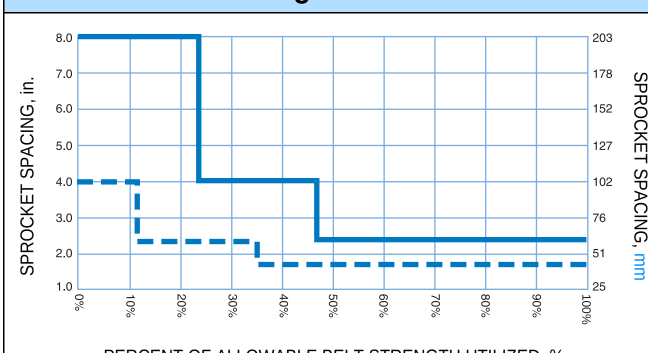
S Strength Factor



V = ft/min (m/min)
T = number of teeth
L = ft (m)

Divide belt speed "V" by the shaft ℄ distance "L". Strength Factor is found at intersection of speed/length ratio and appropriate sprocket line. See page 35 for more information.

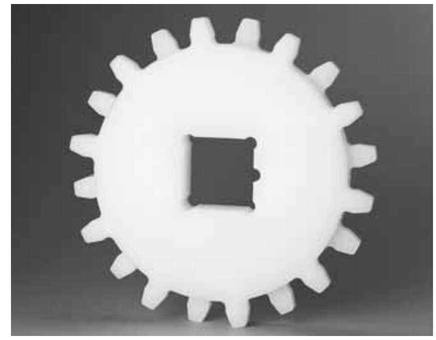
Sprocket Spacing as a Function of Belt Strength Utilized



Solid line: Square Bore Sprockets
Dashed line: Round Bore Sprockets

Sprocket Data[a]

No. of Teeth (Chordal Action)	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 Round in.	U.S. Sizes Square in.	Metric Sizes Round mm	Metric Sizes Square mm
8 (7.61%)	5.2	132	5.4	136	0.8	20.32	1-1/4 1-7/16 1-1/2 2	1-1/2 2-1/2		40 60
10 (4.89%)	6.5	165	6.7	170	0.8	20.32	1-1/4 1-7/16 1-1/2 2	1-1/2 2-1/2		40 60



a. **Contact Customer Service for lead times.**

Universal Edge Sideguards

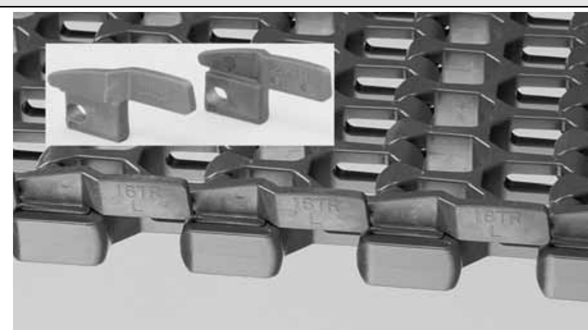
Available Height in.	Available Height mm	Available Materials
0.50	12.7	Acetal

Note: Maximizes product carrying capacity: they fit into the very edge of the belt, with no indent.
Note: Assembly does not require “finger cuts” on the modules, so the belt’s beam strength is uncompromised.
Note: Turn ratios that Edge Sideguards can be used in are 1.6, 2.2, 2.5, and 3.2.

Left/Right Edge Sideguards

Available Height in.	Available Height mm	Available Materials
0.50	12.7	Acetal

Note: Maximizes product carrying capacity: they fit into the very edge of the belt, with no indent.
Note: Assembly does not require “finger cuts” on the modules, so the belt’s beam strength is uncompromised.
Note: Turn ratios that Edge Sideguards can be used in are 1.6, 2.2, 2.5, and 3.2.
Note: Makes the belt’s outer edge more snag-resistant.
Note: Keeps small products from falling through belt gaps.



Lane Dividers

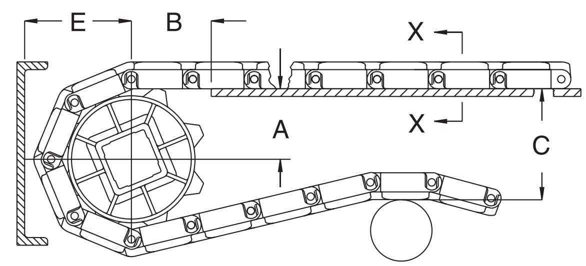
Available Height in.	Available Height mm	Available Materials
0.75	19.0	Acetal

Note: Assembly does not require “finger cuts” on the modules, so the belt’s beam strength is uncompromised.
Note: For 1.6 Turning Radius modules the Lane Dividers can be placed on indents of 1.5" (38.1 mm), 2.5" (63.5 mm), 3.5" (88.9 mm), 4.5" (114 mm), 11.5" (292 mm), and up in 1.00" (25.4 mm) increments .
Note: For 2.2 Turning Radius modules the Lane Dividers can be placed on indents of 4.5" (114 mm) and up in 1.00" (25.4 mm) increments .

Conveyor Frame Dimensions

Regardless of type or configuration, all conveyors using Intralox belts have some basic dimensional requirements. Specifically, dimensions “A”, “B”, “C” and “E” listed below should be implemented in any design.

For general applications and applications where end transfer of tip-sensitive product is not critical, use the “A” dimension at the bottom of the range.



A - ±0.031” (1 mm) **C -** ± (Max)

B - ±0.125” (3 mm) **E -** ± (Min)

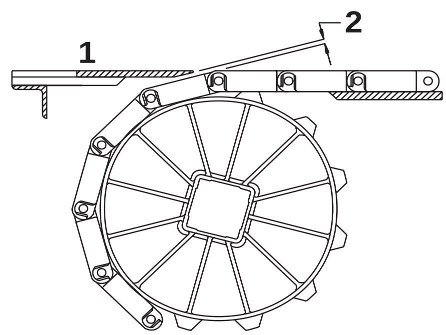
Complete descriptions of the dimensions are listed on page 291.

Sprocket Description					A		B		C		E	
Pitch Diameter		Nominal OD		No. Teeth	Range (Bottom to Top)							
in.	mm	in.	mm		in.	mm	in.	mm	in.	mm	in.	mm
SERIES 2600 1.1 RADIUS, 1.6 RADIUS, 2.2 RADIUS, 2.5 RADIUS, 3.2 RADIUS												
5.2	132	5.4	137	8	2.12-2.32	54-59	2.25	57	5.23	133	2.97	75
6.5	165	6.7	170	10	2.78-2.94	71-75	2.54	65	6.47	164	3.59	91
SERIES 2600 ROUNDED FRICTION TOP												
5.2	132	5.4	137	8	2.12-2.32	54-59	2.25	57	5.46	139	3.21	82
6.5	165	6.7	170	10	2.78-2.94	71-75	2.54	65	6.71	170	3.83	97

Dead Plate Gap

Where there is a transfer point from a belt without finger transfer plates to a dead plate, there should be a gap between the surfaces to allow for the chordal action of the belt. As the belt engages its sprockets, chordal action causes the modules to move past a *fixed* point (the tip of the dead plate) with *varying* clearances. The table below shows the minimum amount of gap which occurs at the “low point” of the modules if the tip of the dead plate just comes in contact with the “high point” as the modules pass.

In some installations it may be desirable to keep the tip of the dead plate in contact with the belt, rather than allow a gap to occur. This can be done by hinging the mounting bracket for the dead plate. This allows the dead plate to move as the modules pass, but results in a small oscillating motion which may present tippage problems for sensitive containers or products.



1 - Top surface of dead plate **2 -** Dead plate gap

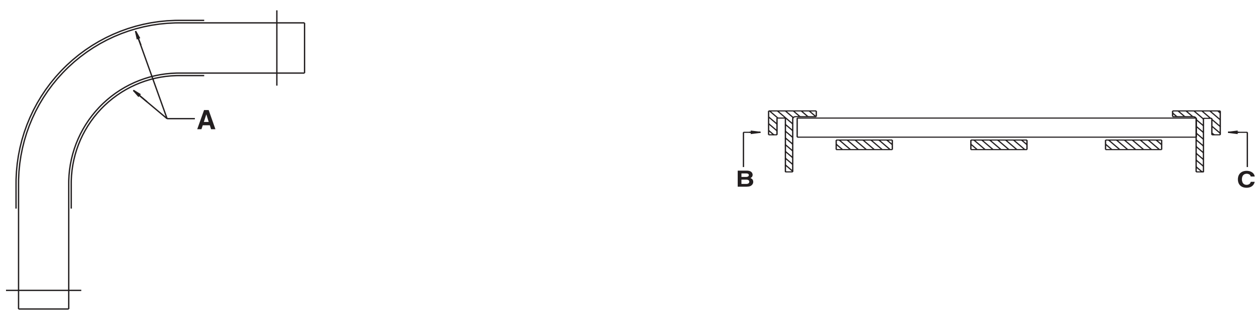
Note: The top surface of the dead plate is typically 0.031 in. (0.8 mm) above the belt surface for product transfer onto the belt, and 0.031 in. (0.8 mm) below the belt surface for product transfer off the belt.

Sprocket Description			Gap	
Pitch Diameter		No. Teeth	in.	mm
in.	mm			
5.2	132	8	0.200	5.1
6.5	165	10	0.158	4.0

HOLD DOWN RAILS AND WEARSTRIPS

Intralox recommends using continuous hold down rails through an entire turn, starting at a distance of 1X the belt width before the turn and ending 1X the belt width after the turn. This applies to both carryway and returnway. The use of hold down rails along both side of the belt over the full carryway is recommended but not mandatory. See *"Custom wearstrips"* (page 283).

FLUSH EDGE WITH WEARSTRIP



A - HOLD DOWN RAIL PLACEMENT

B - OUTSIDE HOLD DOWN RAIL

C - INSIDE HOLD DOWN RAIL

Fig. 2–10 HOLD DOWN RAILS AND WEARSTRIPS FOR SERIES 2600 FLAT-TURNS

BELT SELECTION INSTRUCTIONS

ENGINEERING PROGRAM ANALYSIS FOR SERIES 2600

Intralox Customer Service Technical Support Group can calculate the estimated belt pull for radius applications using **Series 2600**. The following information is required (refer to *"Radius belt data sheet"* (page 335)):

- Any environmental conditions which may affect the friction coefficient (for dirty or abrasive conditions, use higher friction coefficients than normal)
- Belt width
- Length of each straight run
- Turning angle of each turn
- Turn direction of each turn
- Inside turning radius of each turn
- Carryway/hold down rail material
- Product loading lb/ft² (kg/m²)
- Product back-up conditions
- Belt speed
- Elevation changes on each section
- Operating temperatures.

For assistance with radius belt and low-tension capstan drive spiral selections, contact Intralox Customer Service Technical Support Group. The Engineering Program should be run to insure that the belt is strong enough for the radius application in question.

SERIES 2600 DESIGN GUIDE SUMMARY

For more information, see the ***Installation, Maintenance and Toubleshooting manual*** available from Intralox.

A - The minimum turning radius for **Series 2600** is 2.2 times the belt width, measured from the inside edge for the standard edge or 1.7 times the belt width for the tight turning style.

B - The minimum straight run required between turns of opposing direction is 2.0 times the belt width. Shorter straight sections will lead to high wear on the edge guide rail and high pull stresses in the belt.

C - There is no minimum straight run required between turns that are in the same direction.

D - The minimum length for the final straight run (leading into the drive shaft) is 1.5 times the belt width. Shorter lengths may lead to sprocket wear or tracking problems. For narrow belts, a weighted take-up may be required since proper catenary cannot be achieved therefore, a 5 ft. (1.50 m) minimum final straight run is recommended. See *"Special Take-Up Arrangements"* (page 298).

E - The minimum length of the first straight run (immediately after the idle shaft) is 1.5 times the belt width. When shorter lengths are required (down to 1.0 times the width), an idle roller may be used in place of sprockets.

F - IDLE SHAFT

G - 1ST TURN

H - BELT WIDTH

I - BELT TRAVEL

J - 2ND TURN

K - DRIVE MOTOR

L - DRIVE SHAFT

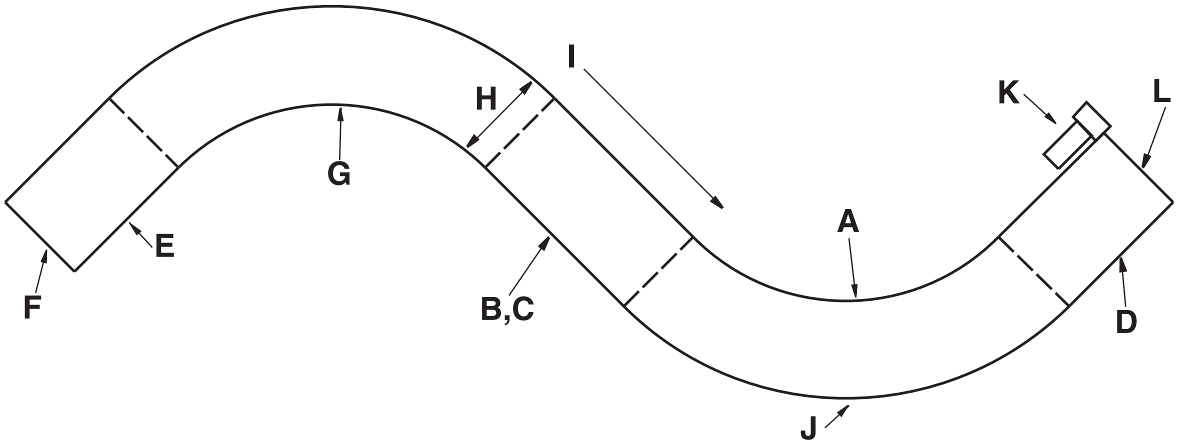
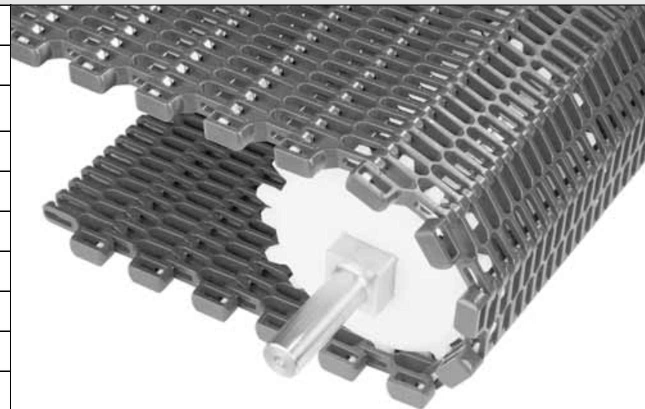
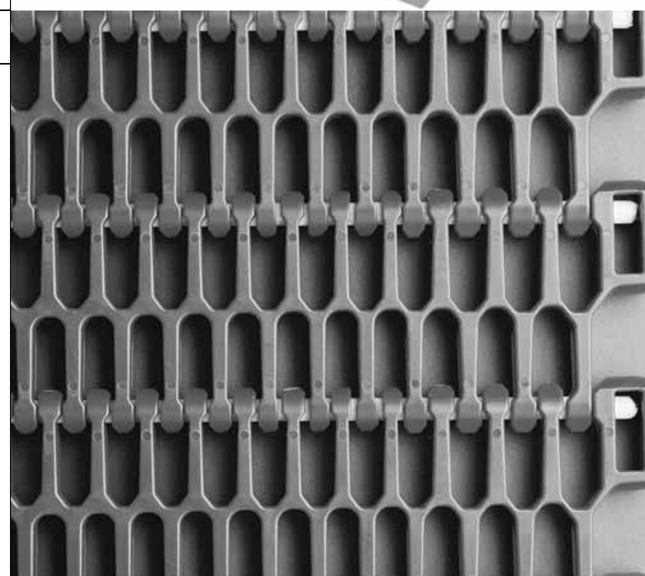


Fig. 2–11 TYPICAL 2-TURN RADIUS LAYOUT

Spiralox™ 1.6 Radius

	in.	mm
Pitch	2.00	50.8
Minimum Width[a]	24	610
Maximum Width	60	1524
Width Increments	0.50	12.7
Opening Size (approximate)	0.38 × 0.64	9.52 × 16.5
Open Area (fully extended)	51%	
Min. Open Area (1.6 TR)	23%	
Hinge Style	Open	
Drive Method	Hinge-driven	





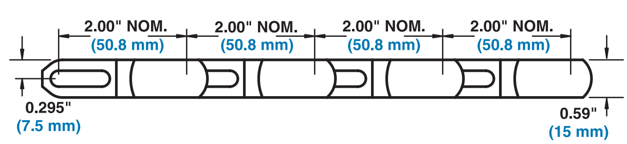
Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Designed for low-tension, capstan drive spiral applications with a minimum turning radius of 1.6 times the belt width (measured from inside edge).
- The Intralox Spiral Program will help predict the strength requirements of most low-tension, capstan drive spiral applications, insuring that the belt is strong enough for the application. Contact Intralox Sales Engineering Customer Service for more information.
- Lightweight, relatively strong belt with smooth surface grid.
- Belt openings pass straight through the belt, making the belt easy to clean.

WARNING: Personnel must not place their fingers in or on this belt. Fingers can get trapped in the openings of this belt, resulting in personal injury. This belt also has pinch points which result from the spreading and collapsing of the belt as it flexes to follow the conveyor path. These pinch points can trap fingers, hair or clothing, and can cause personal injury. Personnel should also be instructed not to wear loose fitting clothing, loose fitting gloves or hand/finger jewelry when working near this belt. Call Customer Service for tags, flyers and stickers containing this warning.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



a. Contact Intralox Customer Service for more information regarding belt widths under 24 in. (610 mm).

Belt Data

Belt Material	Standard Rod Material Ø 0.24 in. (6.1 mm)	BS Straight Belt Strength		Curved Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability[a] 1=White, 2=Blue, 3=Natural, 4=Grey		
		lb/ft	kg/m	lb	kg	°F	°C	lb/ft²	kg/m²	FDA (USA)	J[b]	EU MC[c]
Acetal	Acetal	2000	2974	375	170	-50 to 200	-46 to 93	1.88	9.21	•	3	•

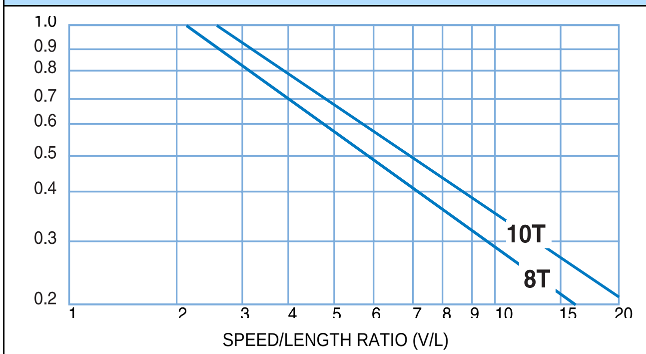
a. Prior to Intralox's development of Series 2700, USDA-FSIS Meat and Poultry discontinued publishing a list of acceptable new products designed for food contact. As of the printing of the manual, third party approvals are being investigated, but are not yet sanctioned by the USDA-FSIS.
b. Japan Ministry of Health, Labour, and Welfare
c. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

Sprocket and Support Quantity Reference[a]

Belt Width Range[b]		Minimum Number of Sprockets Per Shaft[c]	Wearstrips[d]	
in.	mm		Carryway	Returnway
24	610	5	2	2
26	660	5	2	2
28	711	5	2	2
30	762	5	3	2
32	813	5	3	2
34	864	7	3	2
36	914	7	3	2
38	965	7	3	2
40	1016	7	3	2
42	1067	7	3	2
44	1118	7	3	2
46	1168	9	3	2
48	1219	9	3	2
50	1270	9	3	2
52	1321	9	3	2
54	1372	9	3	2
56	1422	9	4	3
58	1473	11	4	3
60	1524	11	4	3
For Other Widths, Use Odd Number of Sprockets at Maximum 8 in. (203 mm) ℄ Spacing			Maximum 25 in. (635 mm) ℄ Spacing	Maximum 30 in. (762 mm) ℄ Spacing

a. For low-tension capstan drive spirals contact Sales Engineering Customer Service for suggested carryway support recommendations.
b. If your belt width exceeds a number listed in the table, please refer to the sprocket and support material minimums for the next larger width range listed. Belts are available in 0.50 in. (12.7 mm) increments beginning with minimum width of 24 in. (610 mm). **If the actual width is critical, consult Customer Service.**
c. These are the minimum number of sprockets. Additional sprockets may be required for heavily loaded applications.
d. Carryway Spacing dependant on a distributed 2 lb/ft² at 65 °F for Acetal belt with Acetal Rod with a 2" and 4" overhang.

S Strength Factor



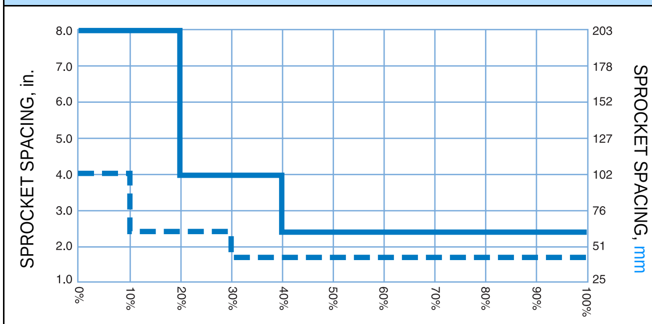
V = ft/min (m/min)

T = number of teeth

L = ft (m)

Divide belt speed "V" by the shaft ℄ distance "L". Strength Factor is found at intersection of speed/length ratio and appropriate sprocket line. See page 35 for more information.

Sprocket Spacing as a Function of Belt Strength Utilized

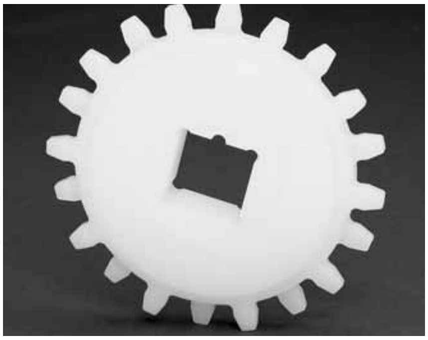


Solid line: Square Bore Sprockets

Dashed line: Round Bore Sprockets

Sprocket Data[a]

No. of Teeth (Chordal Action)	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 (7.61%)	5.2	132	5.4	136	0.8	20.32	1-1/4 1-7/16 2	1-1/2 2-1/2		60
10 (4.85%)	6.5	165	6.7	170	0.8	20.32	1-1/4 1-7/16 2	1-1/2 2-1/2		40 60



a. **Contact Customer Service for lead times.**

Edge Sideguards

Available Height		Available Materials
in.	mm	
0.50	12.7	Acetal

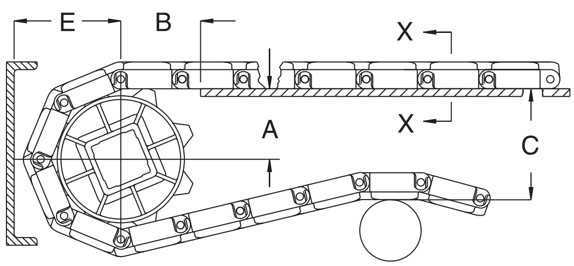
Note: Edge Sideguards maximize product carrying capacity: they fit into the very edge of the belt, with no indent.

Note: Edge Sideguard assembly does not require “finger cuts” on the modules, so the belt’s beam strength is uncompromised.

Conveyor Frame Dimensions

Regardless of type or configuration, all conveyors using Intralox belts have some basic dimensional requirements. Specifically, dimensions “A”, “B”, “C” and “E” listed below should be implemented in any design.

For general applications and applications where end transfer of tip-sensitive product is not critical, use the “A” dimension at the bottom of the range.



A - ±0.031” (1 mm) **C -** ± (Max)

B - ±0.125” (3 mm) **E -** ± (Min)

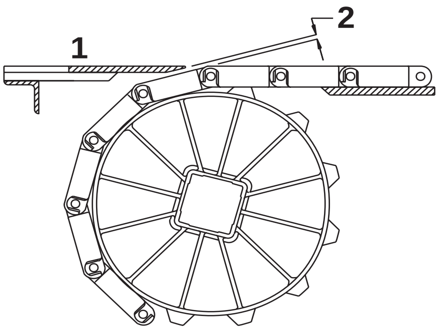
Complete descriptions of the dimensions are listed on page 291.

Sprocket Description					A		B		C		E	
Pitch Diameter		Nominal OD		No. Teeth	Range (Bottom to Top)		in.	mm	in.	mm	in.	mm
in.	mm	in.	mm		in.	mm						
SERIES 2700 1.6 RADIUS												
5.2	132	5.4	137	8	2.12-2.32	54-59	2.25	57	5.23	133	2.97	75
6.5	165	6.7	170	10	2.78-2.94	71-75	2.54	65	6.47	164	3.59	91

Dead Plate Gap

Where there is a transfer point from a belt without finger transfer plates to a dead plate, there should be a gap between the surfaces to allow for the chordal action of the belt. As the belt engages its sprockets, chordal action causes the modules to move past a *fixed* point (the tip of the dead plate) with *varying* clearances. The table below shows the minimum amount of gap which occurs at the “low point” of the modules if the tip of the dead plate just comes in contact with the “high point” as the modules pass.

In some installations it may be desirable to keep the tip of the dead plate in contact with the belt, rather than allow a gap to occur. This can be done by hinging the mounting bracket for the dead plate. This allows the dead plate to move as the modules pass, but results in a small oscillating motion which may present tippage problems for sensitive containers or products.



1 - Top surface of dead plate **2 -** Dead plate gap

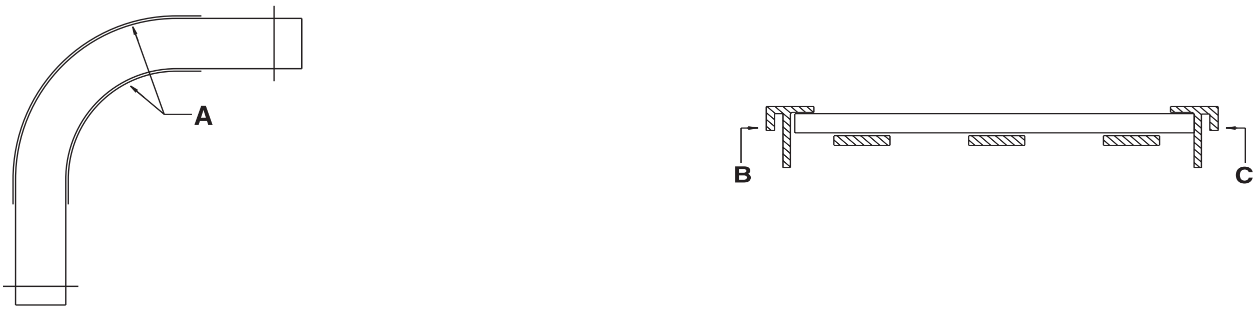
Note: The top surface of the dead plate is typically 0.031 in. (0.8 mm) above the belt surface for product transfer onto the belt, and 0.031 in. (0.8 mm) below the belt surface for product transfer off the belt.

Sprocket Description			Gap	
Pitch Diameter		No. Teeth	in.	mm
in.	mm			
5.2	132	8	0.200	5.1
6.5	165	10	0.158	4.0

HOLD DOWN RAILS AND WEARSTRIPS

Intralox recommends using continuous hold down rails through an entire turn, starting at a distance of 1X the belt width before the turn and ending 1X the belt width after the turn. This applies to both carryway and returnway. The use of hold down rails along both side of the belt over the full carryway is recommended but not mandatory. See *“Custom wearstrips”* (page 283).

FLUSH EDGE WITH WEARSTRIP



A - HOLD DOWN RAIL PLACEMENT

B - OUTSIDE HOLD DOWN RAIL

C - INSIDE HOLD DOWN RAIL

Fig. 2–12 HOLD DOWN RAILS AND WEARSTRIPS FOR SERIES 2700 FLAT-TURNS

BELT SELECTION INSTRUCTIONS

ENGINEERING PROGRAM ANALYSIS FOR SERIES 2700

Intralox Customer Service Technical Support Group can calculate the estimated belt pull for radius applications using **Series 2700**. The following information is required (refer to *“Radius belt data sheet”* (page 335)):

- Any environmental conditions which may affect the friction coefficient (for dirty or abrasive conditions, use higher friction coefficients than normal)
- Belt width
- Length of each straight run
- Turning angle of each turn
- Turn direction of each turn
- Inside turning radius of each turn
- Carryway/hold down rail material
- Product loading lb/ft² (kg/m²)
- Product back-up conditions
- Belt speed
- Elevation changes on each section
- Operating temperatures.

For assistance with radius belt and low-tension capstan drive spiral selections, contact Intralox Customer Service Technical Support Group. The Engineering Program should be run to insure that the belt is strong enough for the radius application in question.

SERIES 2700 DESIGN GUIDE SUMMARY

For more information, see the ***Installation, Maintenance and Toubleshooting manual*** available from Intralox.

A - The minimum turning radius for **Series 2700** is 2.2 times the belt width, measured from the inside edge for the standard edge or 1.7 times the belt width for the tight turning style.

B - The minimum straight run required between turns of opposing direction is 2.0 times the belt width. Shorter straight sections will lead to high wear on the edge guide rail and high pull stresses in the belt.

C - There is no minimum straight run required between turns that are in the same direction.

D - The minimum length for the final straight run (leading into the drive shaft) is 1.5 times the belt width. Shorter lengths may lead to sprocket wear or tracking problems. For narrow belts, a weighted take-up may be required since proper catenary cannot be achieved therefore, a 5 ft. (1.50 m) minimum final straight run is recommended. See *"Special Take-Up Arrangements"* (page 298).

E - The minimum length of the first straight run (immediately after the idle shaft) is 1.5 times the belt width. When shorter lengths are required (down to 1.0 times the width), an idle roller may be used in place of sprockets.

F - IDLE SHAFT

G - 1ST TURN

H - BELT WIDTH

I - BELT TRAVEL

J - 2ND TURN

K - DRIVE MOTOR

L - DRIVE SHAFT

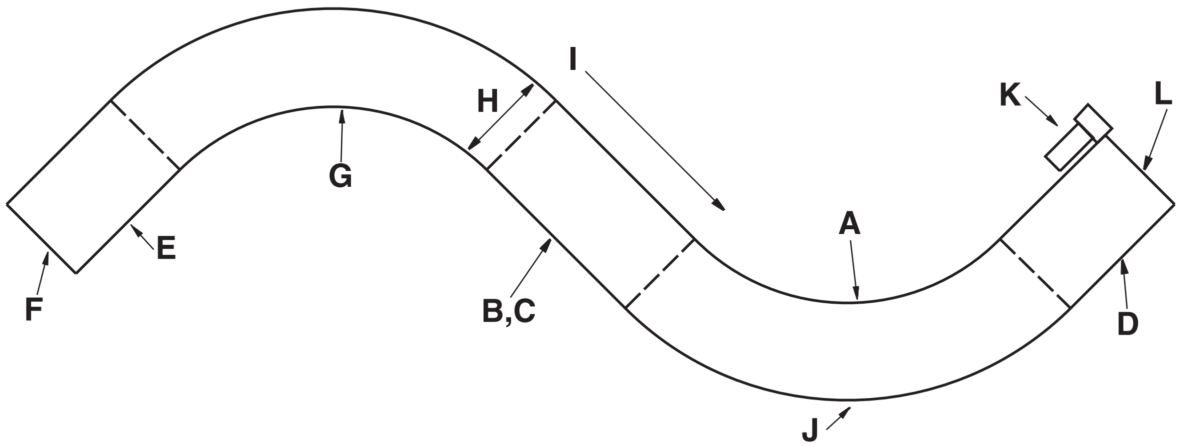


Fig. 2–13 TYPICAL 2-TURN RADIUS LAYOUT

Knuckle Chain

	in.	mm
Pitch	2.00	50.8
Molded Width	2.25	57
Open Area	-	
Hinge Style	Closed	
Drive Method	Center-driven	

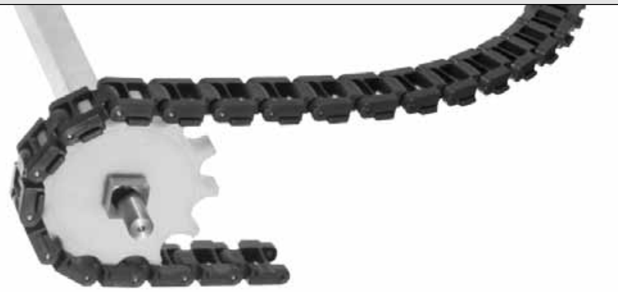
Product Notes

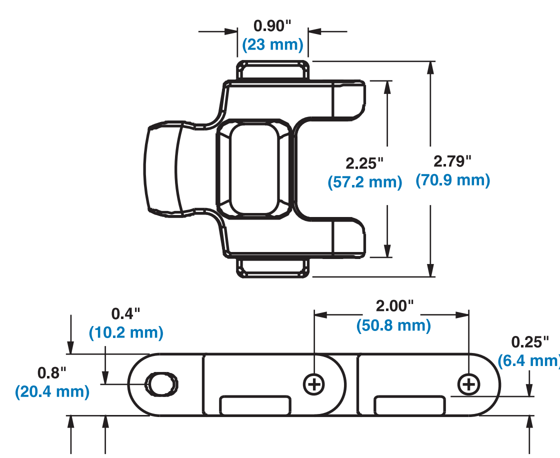
- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Thick, durable plastic surface around stainless steel pins for long life and less breakage.
- Available in both straight and turning versions.
- Turning version designed for applications with a minimum centerline turning radius of 16 in. (406 mm).
- Both versions are available with extended pins.
- Available in 10 ft. (3.1 m) boxed lengths.
- Capable of running on the same tracks as other common chains.

WARNING: Only the Series 3000T (turning version) Knuckle Chain can be used for turning applications. The Series 3000S (straight version) Knuckle Chain cannot be used for turning applications. Hold down edge guides are mandatory on the inside and outside edges of all turns, on both the carrying and return sides of the belt. Unless they interfere with the operation of the carrying equipment, the hold down edge guides should be used throughout the conveyor to protect both the belt and personnel adjacent to the conveyor.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)





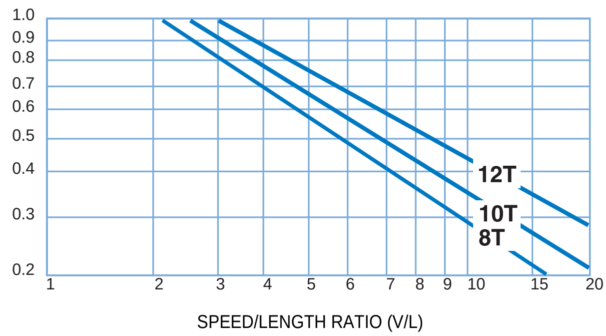
Series 3000T shown

Belt Data

Chain Material	Standard Rod Material Ø 0.25 in. (6.4 mm)	BS Chain Strength		Temperature Range (continuous)		W Chain Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey			
		lb/ft	kg/m	°F	°C	lb/ft	kg/m	FDA (USA)	USDA-FSIS - Meat & Poultry	J[a]	EU MC[b]
Acetal (Straight)	303 SS	700	317	-50 to 200	-46 to 93	0.88	1.21	•	•	3	•
Acetal (Turning)	303 SS	560	254	-50 to 200	-46 to 93	0.90	1.25	•	•	3	•

a. Japan Ministry of Health, Labour, and Welfare
b. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

S Strength Factor



V = ft/min (m/min)

T = number of teeth

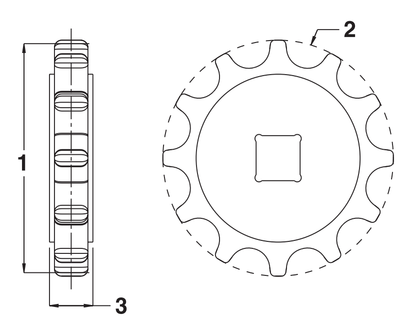
L = ft (m)

Divide belt speed "V" by the shaft ℄ distance "L". Strength Factor is found at intersection of speed/length ratio and appropriate sprocket line. See page 35 for more information.

Chain Pull Limit with UHMW Polyethylene Sprockets, Based on Bore Size - lb (kg)												
No. of Teeth	Nom. Pitch Diameter		**1.5 in. square**		**40 mm square**		1 in. round		**1.25 in. round**		1.5 in. round	
	in.	mm	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
8	5.2	132	640	290	640	290	74	34	90	41	162	74
10	6.5	165	520	236	520	236	78	35	95	43	172	78
12	7.7	196	432	196	432	196	65	29	79	36	143	65
Bold entries indicate standard sizes												

Machined Sprocket Data[a]

No. of Teeth (Chordal Action)	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 Round in.[b]	U.S. Sizes Square in.	Metric Sizes Round mm[b]	Metric Sizes Square mm
8 (7.61%) *Square Bore*	5.2	132	5.3	135	1.5	38	1-1/4	1.5		40
8 (7.61%) *Round Bore*	5.2	132	5.3	135	1.2	30	1-1/4	1.5		40
10 (4.89%)	6.5	165	6.7	170	1.5	38	1-1/4	1.5		40
12 (3.41%)	7.7	196	8.0	203	1.5	38	1-1/4	1.5		40



1 - Pith diameter

2 - Outer diameter

3 - Hub width

a. **Contact Customer Service for lead times.**

b. Imperial key sizes on round bore sprockets conform to ANSI standard B17.1-1967 (R1989) and metric key sizes conform to DIN standard 6885.

Extended Pins and Tabs

EXTENDED PINS — Modules with 303 stainless steel extended pins can be spliced into both the basic turning and straight running chains. These pins are commonly used in side by side chain strands where rollers are used for low back pressure applications. The minimum extended pin spacing is 2.0 in. (50.8 mm). The extended pin modules can be spliced into the standard chain every 2.0 in. (50.8 mm).

EXTENDED TABS — Modules with extended tabs can be spliced into both the basic turning and straight running chains. These extended tabs can be used to attach flights, cleats, etc. The extended tab modules are based on the turning chain design, so the rating for the turning chain should be used even if the extended tab modules are spliced into straight running chain. The minimum tab spacing is 2.0 in. (50.8 mm). The tabs can be spliced into the standard chain every 2.0 in. (50.8 mm).

Intralox offers only extended tabs and extended pins. Attachments for either of these accessories are not available through Intralox. Contact Customer Service for lead-times.

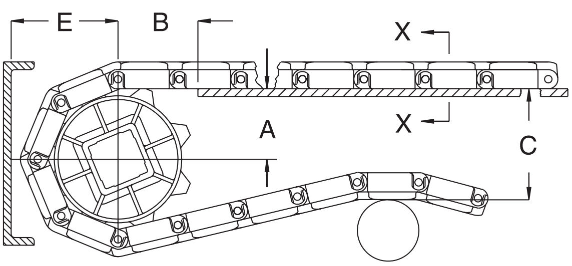
Extended pins for straight or turning versions

Extended tabs for straight or turning versions

Conveyor Frame Dimensions

Regardless of type or configuration, all conveyors using Intralox belts have some basic dimensional requirements. Specifically, dimensions “A”, “B”, “C” and “E” listed below should be implemented in any design.

For general applications and applications where end transfer of tip-sensitive product is not critical, use the “A” dimension at the bottom of the range.



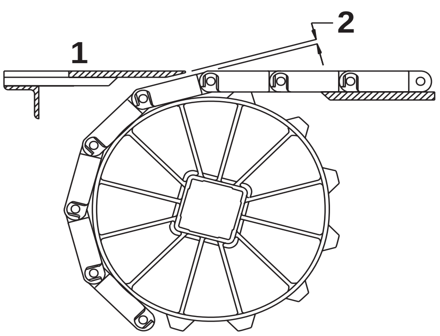
A - ±0.031” (1 mm) **C -** ± (Max)
B - ±0.125” (3 mm) **E -** ± (Min)
Complete descriptions of the dimensions are listed on page 291.

Sprocket Description			A		B		C		E	
Pitch Diameter		No. Teeth	Range (Bottom to Top)		in.	mm	in.	mm	in.	mm
in.	mm		in.	mm						
SERIES 3000 KNUCKLE CHAIN										
5.2	132	8	2.01-2.21	51-56	2.29	58	5.23	1.33	3.14	80
6.5	165	10	2.68-2.84	68-72	2.63	67	6.47	164	3.76	96
7.7	196	12	3.33-3.46	85-88	2.94	75	7.73	196	4.39	112

Dead Plate Gap

Where there is a transfer point from a belt without finger transfer plates to a dead plate, there should be a gap between the surfaces to allow for the chordal action of the belt. As the belt engages its sprockets, chordal action causes the modules to move past a *fixed* point (the tip of the dead plate) with *varying* clearances. The table below shows the minimum amount of gap which occurs at the “low point” of the modules if the tip of the dead plate just comes in contact with the “high point” as the modules pass.

In some installations it may be desirable to keep the tip of the dead plate in contact with the belt, rather than allow a gap to occur. This can be done by hinging the mounting bracket for the dead plate. This allows the dead plate to move as the modules pass, but results in a small oscillating motion which may present tippage problems for sensitive containers or products.



1 - Top surface of dead plate **2 -** Dead plate gap

Note: The top surface of the dead plate is typically 0.031 in. (0.8 mm) above the belt surface for product transfer onto the belt, and 0.031 in. (0.8 mm) below the belt surface for product transfer off the belt.

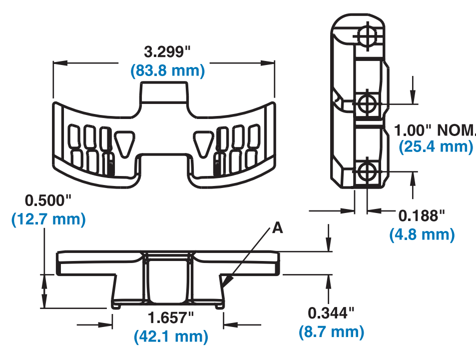
Sprocket Description			Gap	
Pitch Diameter		No. Teeth	in.	mm
in.	mm			
5.2	132	8	0.200	5.1
6.5	165	10	0.158	4.0
7.7	196	12	0.132	3.4

S4009 Flush Grid

	in.	mm
Pitch	1.00	25.4
Molded Width	3.3	84
Open Area	13%	
Hinge Style	Closed	
Drive Method	Hinge-driven	

Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Designed for applications with a minimum centerline turning radius of 18 in. (457 mm).
- Same deck thickness as the straight running belt counterpart Series 900 FG [0.344 in. (8.7 mm)].
- Series 4000 Sideflexing belts use S1400 sprockets.
- All Series 1400/4000 sprockets use the split design so shafts do not have to be removed for retrofits and changeovers.
- Available in 10 ft. (3.1 m) boxed lengths.
- Corner Tracks, with bevel design, are mandatory on the inside edges of all turns.
- Intralox's Engineering Program for S4000 Sideflexing belts can calculate the estimated belt pull for your system. Contact Intralox Sales Engineering for assistance.



Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)

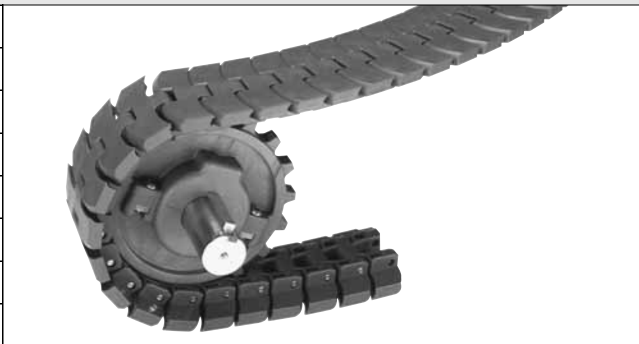
Belt Data

Belt Material	Belt Width		Standard Rod Material Ø 0.25 in. (6.4 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey		
	in.	mm		lb/ft	kg/m	°F	°C	lb/ft	kg/m	FDA (USA)	J[a]	EU MC[b]
Acetal	3.3	84	303 SS	500	227	-50 to 200	-46 to 93	0.97	1.44	•	3	•

a. Japan Ministry of Health, Labour, and Welfare
b. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

S4009 Flat Top

	in.	mm
Pitch	1.00	25.4
Molded Width	3.3	84
Open Area	0%	
Hinge Style	Closed	
Drive Method	Hinge-driven	

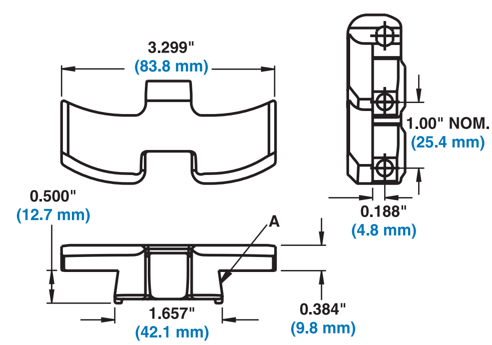


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Designed for applications with a minimum centerline turning radius of 18 in. (457 mm).
- Same deck thickness as the straight running belt counterpart Series 900 FT [0.384 in. (9.8 mm)].
- Series 4000 Sideflexing belts use S1400 sprockets.
- All Series 1400/4000 sprockets use the split design so shafts do not have to be removed for retrofits and changeovers.
- Available in 10 ft. (3.1 m) boxed lengths.
- Corner Tracks, with bevel design, are mandatory on the inside edges of all turns.
- Intralox's Engineering Program for S4000 Sideflexing belts can calculate the estimated belt pull for your system. Contact Intralox Sales Engineering for assistance.
- Refer to Belt Data table below for minimum centerline turning radius.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



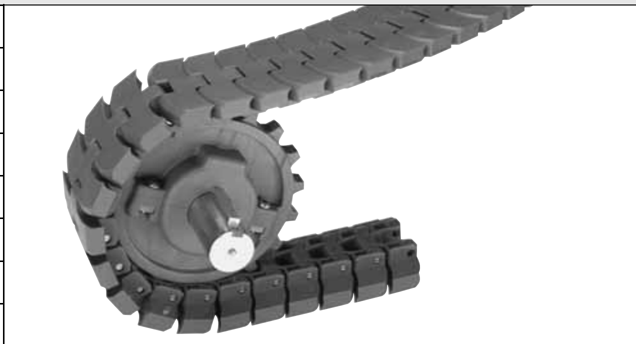
Belt Data

Belt Material	Belt Width		Standard Rod Material Ø 0.25 in. (6.4 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey		
	in.	mm		lb/ft	kg/m	°F	°C	lb/ft	kg/m	FDA (USA)	J[a]	EU MC[b]
Acetal	3.3	84	303 SS	500	227	-50 to 200	-46 to 93	1.11	1.65	•	3	•

a. Japan Ministry of Health, Labour, and Welfare
b. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

S4014 Flat Top

	in.	mm
Pitch	1.00	25.4
Molded Width	3.3	84
Open Area	0%	
Hinge Style	Closed	
Drive Method	Hinge-driven	

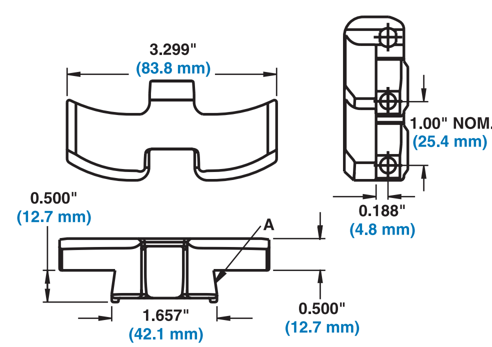


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Designed for applications with a minimum centerline turning radius of 18 in. (457 mm).
- Same deck thickness as the straight running belt counterpart Series 1400 FT [0.5 in. (12.7 mm)].
- Series 4000 Sideflexing belts use S1400 sprockets.
- All Series 1400/4000 sprockets use the split design so shafts do not have to be removed for retrofits and changeovers.
- Available in 10 ft. (3.1 m) boxed lengths.
- Corner Tracks, with bevel design, are mandatory on the inside edges of all turns.
- Intralox's Engineering Program for S4000 Sideflexing belts can calculate the estimated belt pull for your system. Contact Intralox Sales Engineering for assistance.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



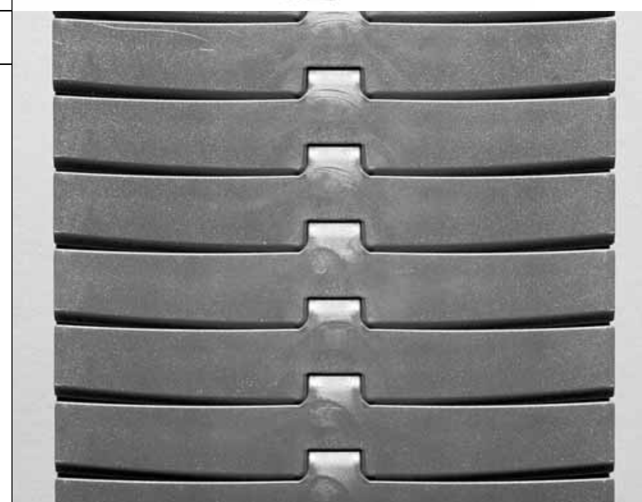
Belt Data

Belt Material	Belt Width		Standard Rod Material Ø 0.25 in. (6.4 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey		
	in.	mm		lb/ft	kg/m	°F	°C	lb/ft	kg/m	FDA (USA)	J[a]	EU MC[b]
Acetal	3.3	84	303 SS	500	227	-50 to 200	-46 to 93	1.29	1.92	•	3	•

a. Japan Ministry of Health, Labour, and Welfare
b. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

S4090 Sideflexing Flat Top

	in.	mm
Pitch	1.00	25.4
Molded Width	4.5	114
	7.5	191
Open Area	0%	
Hinge Style	Closed	
Drive Method	Hinge-driven	

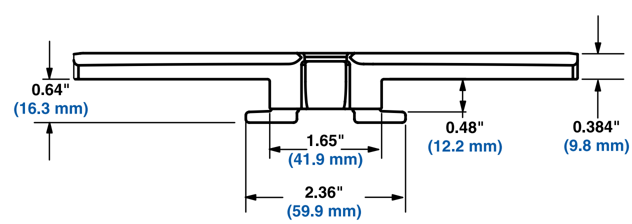


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Same deck thickness as the straight running belt counterpart Series 900 Flat Top [0.384 in. (9.8 mm)].
- Series 4000 Sideflexing belts use S1400 sprockets.
- All Series 1400/4000 sprockets use the split design so shafts do not have to be removed for retrofits and changeovers.
- Available in 10 ft. (3.1 m) boxed lengths.
- Intralox’s Engineering Program for S4000 Sideflexing belts can calculate the estimated belt pull for your system. Contact Intralox Sales Engineering for assistance.
- Refer to Belt Data table below for minimum centerline turning radius.

Additional Information

- See *“Belt selection process”* (page 5)
- See *“Standard belt materials”* (page 18)
- See *“Special application belt materials”* (page 18)
- See *“Friction factors”* (page 30)



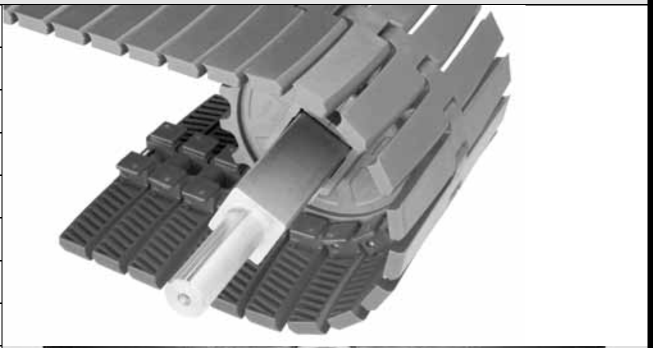
Belt Data

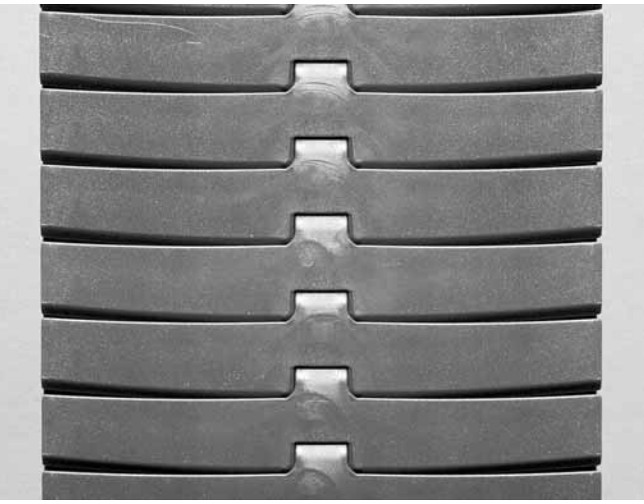
Belt Material	Belt Width		Standard Pin Material Ø 0.25 in. (6.4 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Minimum Centerline Turning Radius		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey		
	in.	mm		lb/ft	kg/m	°F	°C	lb/ft	kg/m	in.	mm	FDA (USA)	J[a]	EU MC[b]
Acetal	4.5	114	303 SS	500	227	-50 to 200	-46 to 93	1.40	2.08	18	457	•	3	•
Acetal	7.5	191	303 SS	500	227	-50 to 200	-46 to 93	1.86	2.77	24	610	•	3	•
FDA HR Nylon	7.5	191	303 SS	500	227	-50 to 240	-46 to 116	1.54	2.29	24	610	•		

a. Japan Ministry of Health, Labour, and Welfare
b. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

S4091 Sideflexing Flat Top

	in.	mm
Pitch	1.00	25.4
Molded Width	4.5	114
	7.5	191
Open Area	0%	
Hinge Style	Closed	
Drive Method	Hinge-driven	



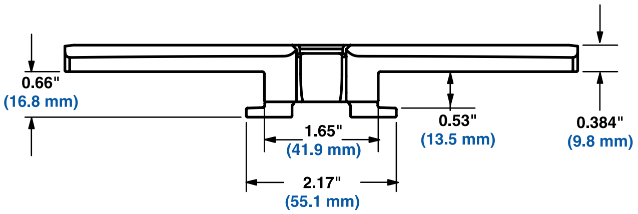


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Same deck thickness as the straight running belt counterpart Series 900 Flat Top [0.384 in. (9.8 mm)].
- Series 4000 Sideflexing belts use S1400 sprockets.
- All Series 1400/4000 sprockets use the split design so shafts do not have to be removed for retrofits and changeovers.
- Available in 10 ft. (3.1 m) boxed lengths.
- Intralox's Engineering Program for S4000 Sideflexing belts can calculate the estimated belt pull for your system. Contact Intralox Sales Engineering for assistance.
- Refer to Belt Data table below for minimum centerline turning radius.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)



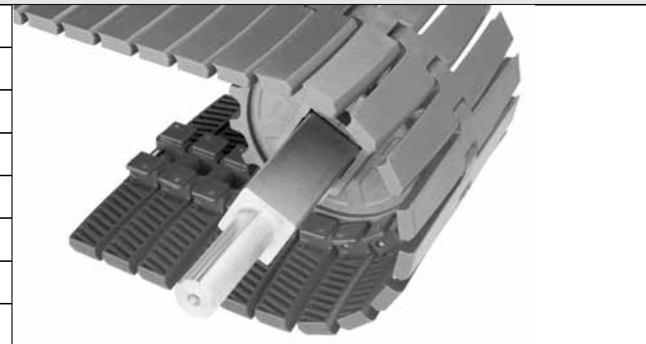
Belt Data

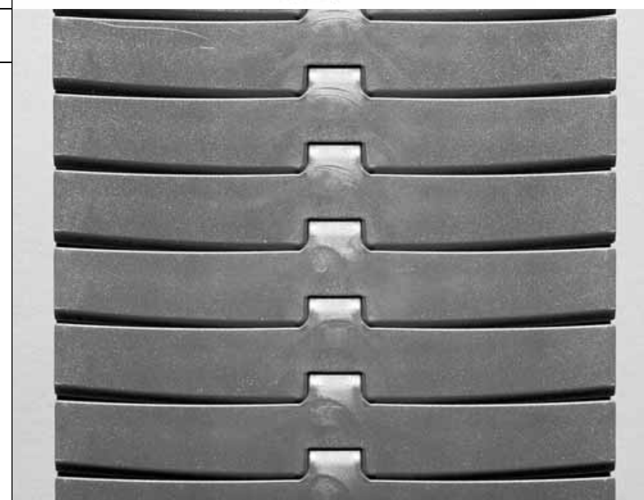
Belt Material	Belt Width		Standard Pin Material Ø 0.25 in. (6.4 mm)	BS Belt Strength		Temperature Range (continuous)		W Belt Weight		Minimum Centerline Turning Radius		Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey		
	in.	mm		lb/ft	kg/m	°F	°C	lb/ft	kg/m	in.	mm	FDA (USA)	J[a]	EU MC[b]
Acetal	4.5	114	303 SS	500	227	-50 to 200	-46 to 93	1.40	2.08	18	457	•	3	•
Acetal	7.5	191	303 SS	500	227	-50 to 200	-46 to 93	1.84	2.74	24	610	•	3	•
FDA HR Nylon	7.5	191	303 SS	500	227	-50 to 240	-46 to 116	1.54	2.29	24	610	•		

a. Japan Ministry of Health, Labour, and Welfare
b. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

S4092 Sideflexing Flat Top

	in.	mm
Pitch	1.00	25.4
Molded Width	4.5	114
	7.5	191
Open Area	0%	
Hinge Style	Closed	
Drive Method	Hinge-driven	



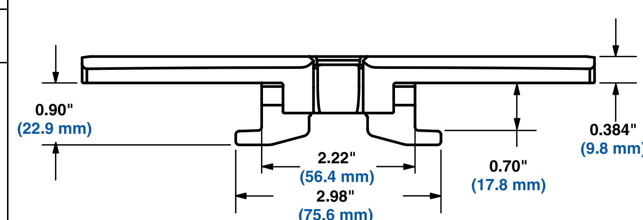


Product Notes

- **Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.**
- Same deck thickness as the straight running belt counterpart Series 900 Flat Top [0.384 in. (9.8 mm)].
- Series 4000 Sideflexing belts use S1400/4000 sprockets.
- All Series 1400/4000 sprockets use the split design so shafts do not have to be removed for retrofits and changeovers.
- Available in 10 ft. (3.1 m) boxed lengths.
- Intralox's Engineering Program for S4000 Sideflexing belts can calculate the estimated belt pull for your system. Contact Intralox Sales Engineering for assistance.
- Refer to Belt Data table below for minimum centerline turning radius.

Additional Information

- See *"Belt selection process"* (page 5)
- See *"Standard belt materials"* (page 18)
- See *"Special application belt materials"* (page 18)
- See *"Friction factors"* (page 30)

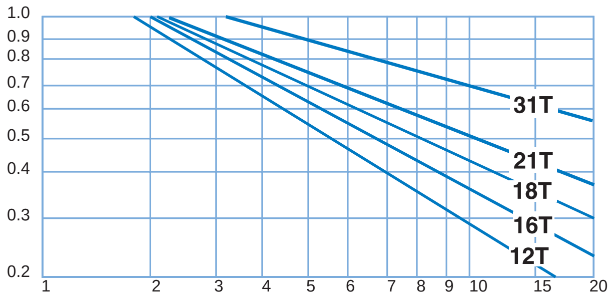


Belt Data

Belt Material	Belt Width in.	Belt Width mm	Standard Pin Material Ø 0.25 in. (6.4 mm)	BS Belt Strength lb/ft	BS Belt Strength kg/m	Temperature Range (continuous) °F	Temperature Range (continuous) °C	W Belt Weight lb/ft	W Belt Weight kg/m	Minimum Centerline Turning Radius in.	Minimum Centerline Turning Radius mm	Agency Acceptability: 1=White, 2=Blue, 3=Natural, 4=Grey FDA (USA)	J[a]	EU MC[b]
Acetal	4.5	114	303 SS	500	227	-50 to 200	-46 to 93	1.61	2.40	18	457	•	3	•
Acetal	7.5	191	303 SS	500	227	-50 to 200	-46 to 93	2.05	3.05	24	610	•	3	•
FDA HR Nylon	7.5	191	303 SS	500	227	-50 to 240	-46 to 116	1.71	2.55	24	610	•		

a. Japan Ministry of Health, Labour, and Welfare
b. European Migration Certificate providing approval for food contact according to EC Directive 2002/72/EC and all its amendments to date.

S Strength Factor

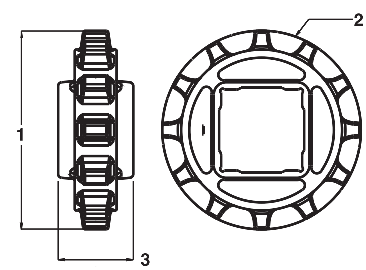


V = ft/min (m/min)
T = number of teeth
L = ft (m)

Divide belt speed “V” by the shaft ℄ distance “L”. Strength Factor is found at intersection of speed/length ratio and appropriate sprocket line. See page 35 for more information.

Plastic Sprocket Data[a]

No. of Teeth (Chordal Action)	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 (3.41%)	3.9	99	3.9	99	1.5	38	-	1.5	-	40

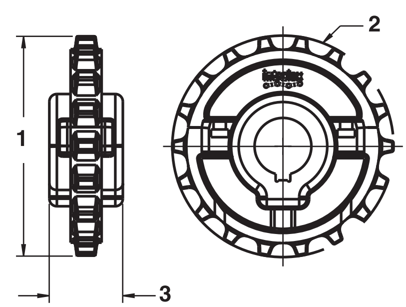


1 - Pith diameter
2 - Outer diameter
3 - Hub width

a. **Contact Customer Service for lead times.**

Plastic Split Sprocket Data[a]

No. of Teeth (Chordal Action)	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.[b]	Square in.	Round mm[b]	Square mm
16 (1.92%)	5.1	130	5.2	132	1.5	38	1 to 2 in 1-16 increments	1.5	25 to 50 in 5 increments	40



1 - Pith diameter
2 - Outer diameter
3 - Hub width

a. **Contact Customer Service for lead times.**
b. Imperial key sizes on round bore sprockets conform to ANSI standard B17.1-1967 (R1989) and metric key sizes conform to DIN standard 6885.

Maximum Load per Glass Filled Nylon Split Sprocket Based on Round Bore Size Range - lb (kg)

No. of Teeth	Nom. Pitch Diameter		1 in. - 1-3/16 in.		1-1/4 in. - 1-3/8 in.		1-7/16 in. - 1-3/4 in.		1-13/16 in. - 2 in.		25 mm - 35 mm		40 mm - 50 mm	
	in.	mm	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
18	5.7	145	300	135	340	155	400	180	540	245	240	110	410	185
21	6.7	170	225	102	275	124	350	158	500	226	175	79	400	181

Glass Filled Nylon Square and Round Bore Split Sprocket Data[a]

No. of Teeth (Chordal Action)	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 Round in.[b]	U.S. Sizes Square in.	Metric Sizes Round mm[b]	Metric Sizes Square mm
18 (1.52%)	5.7	145	5.8	148	2.0	51	1 to 2 in 1/16 increments	1.5	25 to 50 in 5 increments	40
								2.5		60
21 (1.12%)	6.7	170	6.8	172	2.0	51	1 to 2 in 1/16 increments[c]	1.5	25 to 50 in 5 increments	40
								2.5		60

a. **Contact Customer Service for lead times.**
b. Imperial key sizes on round bore sprockets conform to ANSI standard B17.1-1967 (R1989) and metric key sizes conform to DIN standard 6885.
c. Tight fit round bores are available in 1-1/4, 1-3/16, 1-1/2, and 1-7/16 in.

Polypropylene Composite Split Sprocket Data[a]

No. of Teeth (Chordal Action)	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 Round in.[b]	U.S. Sizes Square in.	Metric Sizes Round mm[b]	Metric Sizes Square mm
18 (1.52%)	5.7	145	5.8	148	2.0	51		1.5		40
								2.5		60
21 (1.12%)	6.7	170	6.8	172	2.0	51		1.5		40
								2.5		60

a. **Contact Customer Service for lead times.**
b. Imperial key sizes on round bore sprockets conform to ANSI standard B17.1-1967 (R1989) and metric key sizes conform to DIN standard 6885.

Polyurethane Composite Split Sprocket Data[a]

No. of Teeth (Chordal Action)	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 Round in.	U.S. Sizes Square in.	Metric Sizes Round mm	Metric Sizes Square mm
31 (0.51%)	9.9	251	10.1	257	1.50	38		3.5		
					1.67	44		2.5[b]		

a. **Contact Customer Service for lead times.**
b. The 2.5" square bore is created by using a bore adapter in the 3.5" square bore sprocket.

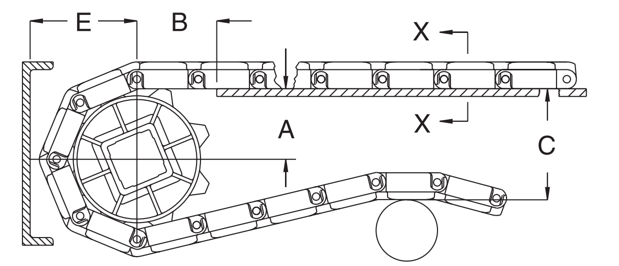
Corner Tracks

CORNER TRACKS — Intralox recommends using continuous corner tracks through an entire turn. This applies to both carryway and returnway. The use of extensions are recommended but not mandatory. Corner tracks are available through Intralox for 4009 and 4014 belts only. Dimensional drawings are also available if local fabrication is preferred. Intralox recommends UHMW Corner Tracks, which are suitable for most applications. For extremely abrasive conditions or high belt speeds without lubrication, please consult Intralox Sales Engineering for appropriate Corner Track material. Series 4009 and 4014 belts can run on commonly available, 8° beveled Corner Tracks (excluding S4090, S4091, S4092).

Conveyor Frame Dimensions

Regardless of type or configuration, all conveyors using Intralox belts have some basic dimensional requirements. Specifically, dimensions “A”, “B”, “C” and “E” listed below should be implemented in any design.

For general applications and applications where end transfer of tip-sensitive product is not critical, use the “A” dimension at the bottom of the range.



A - ±0.031” (1 mm) **C -** ± (Max)

B - ±0.125” (3 mm) **E -** ± (Min)

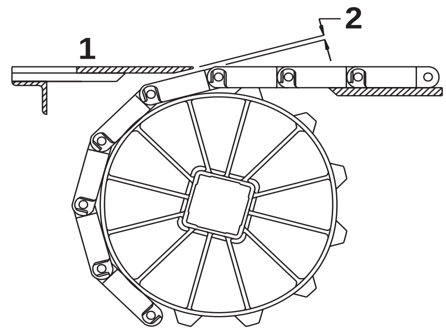
Complete descriptions of the dimensions are listed on page 291.

Sprocket Description			A		B		C		E	
Pitch Diameter		No. Teeth	Range (Bottom to Top)		in.	mm	in.	mm	in.	mm
in.	mm		in.	mm						
SERIES 4009 FLUSH GRID										
3.9	99	12	2.07-2.14	53-54	2.31	59	4.62	117	2.73	69
5.1	130	16	2.73-2.78	69-71	2.51	64	5.90	150	3.37	86
5.7	145	18	3.05-3.10	77-79	2.54	65	6.54	166	3.69	94
6.7	170	21	3.54-3.58	90-91	2.70	69	7.50	191	4.17	106
9.9	251	31	5.15-5.18	131-132	3.15	80	10.70	272	5.77	147
SERIES 4009 FLAT TOP										
3.9	99	12	2.07-2.14	53-54	2.31	59	4.66	118	2.77	70
5.1	130	16	2.73-2.78	69-71	2.51	64	5.94	151	3.41	87
5.7	145	18	3.05-3.10	77-79	2.54	65	6.58	167	3.73	95
6.7	170	21	3.54-3.58	90-91	2.70	69	7.54	192	4.21	107
9.9	251	31	5.15-5.18	131-132	3.15	80	10.74	273	5.81	148
SERIES 4014 FLAT TOP										
3.9	99	12	2.07-2.14	53-54	2.31	59	4.24	108	2.68	68
5.1	130	16	2.73-2.78	69-71	2.51	64	5.49	139	3.64	92
5.7	145	18	3.05-3.10	77-79	2.54	65	6.09	155	3.95	100
6.7	170	21	3.54-3.58	90-91	2.70	69	7.09	180	4.43	113
9.9	251	31	5.15-5.18	131-132	3.15	80	10.86	276	5.93	151
SERIES 4090, 4091, 4092 SIDEFLEXING FLAT TOP										
3.9	99	12	2.07-2.14	53-54	2.31	59	4.62	117	2.73	69
5.1	130	16	2.73-2.78	69-71	2.51	64	5.90	150	3.37	86
5.7	145	18	3.05-3.10	77-79	2.54	65	6.54	166	3.69	94
6.7	170	21	3.54-3.58	90-91	2.70	69	7.50	191	4.17	106
9.9	251	31	5.15-5.18	131-132	3.15	80	10.70	272	5.77	147

Dead Plate Gap

Where there is a transfer point from a belt without finger transfer plates to a dead plate, there should be a gap between the surfaces to allow for the chordal action of the belt. As the belt engages its sprockets, chordal action causes the modules to move past a *fixed* point (the tip of the dead plate) with *varying* clearances. The table below shows the minimum amount of gap which occurs at the “low point” of the modules if the tip of the dead plate just comes in contact with the "high point" as the modules pass.

In some installations it may be desirable to keep the tip of the dead plate in contact with the belt, rather than allow a gap to occur. This can be done by hinging the mounting bracket for the dead plate. This allows the dead plate to move as the modules pass, but results in a small oscillating motion which may present tippage problems for sensitive containers or products.



1 - Top surface of dead plate **2 -** Dead plate gap

Note: The top surface of the dead plate is typically 0.031 in. (0.8 mm) above the belt surface for product transfer onto the belt, and 0.031 in. (0.8 mm) below the belt surface for product transfer off the belt.

Sprocket Description			Gap	
Pitch Diameter		No. Teeth	in.	mm
in.	mm			
3.9	99	12	0.066	1.7
5.1	130	16	0.050	1.3
5.7	145	18	0.044	1.1
6.7	170	21	0.038	1.0
9.9	251	31	0.025	0.6

SQUARE SHAFTS

MACHINED TO CUSTOMER SPECIFICATIONS

After the stock is cut to length, the raw shaft is precision straightened. The bearing journals are turned, followed by the cutting of retainer ring grooves, keyways and chamfers. The final step is a thorough, quality control inspection before shipping. **Contact Customer service for a form to fill in specifying shaft dimensions.**

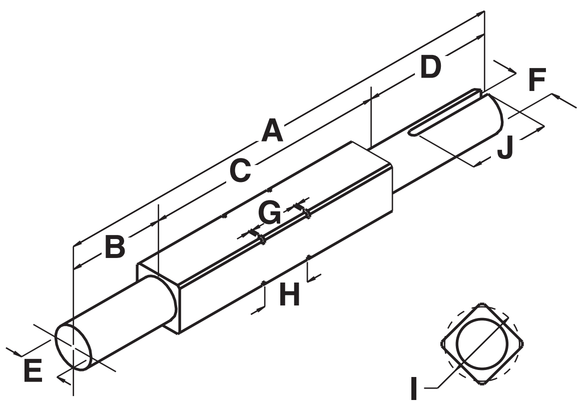


Fig. 2–14 Shaft dimensions

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 USA[a]
SHAFT TOLERANCES IN INCHES

Square Size	Aluminum (6061-T6)	Carbon Steel (C-1018)	Stainless Steel (303)	Stainless Steel (316)
5/8 in.	N/A	+0.000 -0.003	+0.000 -0.004	+0.000 -0.004
1 in.	+0.003 -0.003	+0.000 -0.003	+0.000 -0.004	N/A
1.5 in.	+0.003 -0.003	+0.000 -0.003	+0.000 -0.006	+0.000 -0.006
2.5 in.	N/A	+0.000 -0.004	+0.000 -0.008	+0.000 -0.008
3.5 in.[b]	N/A	+0.000 -0.005	+0.010 -0.020 (304 HR)	N/A

a. Consult Intralox for shafts longer than 12 ft.
b. 3.5 in.carbon steel shafts can be nickel plated for corrosion resistance.

SHAFTS AVAILABLE FROM INTRALOX EUROPE[a]
SHAFT TOLERANCES IN MM

Square Size	Carbon Steel (KG-37)	Stainless Steel (304)
25 mm	+0.000 -0.130	+0.000 -0.130
40 mm	+0.000 -0.160	+0.000 -0.160
60 mm	+0.000 -0.180	+0.000 -0.180
65 mm	+0.000 -0.180	+0.000 -0.180
90 mm	+0.000 -0.220	+0.000 -0.220

a. Consult Intralox for shafts longer than 3 m.

SHAFT DIMENSIONS AND TOLERANCES

Shaft Size	Retainer Ring Groove and Chamfer Dimensions		
	Groove Diam.	Width	Chamfer[a]
5/8 in.	0.762 ± 0.003 in.	0.046 + 0.003/- 0.000 in.	0.822 ± 0.010 in.
1 in.	1.219 ± 0.005 in.	0.056 + 0.004/- 0.000 in.	1.314 ± 0.010 in.
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.
3.5 in.	4.702 ± 0.005 in.	0.120 + 0.004/- 0.000 in.	4.850 ± 0.010 in.
25.4 mm	30 ± 0.1 mm	2.0 + 0.15/- 0.00 mm	33 ± 0.25.4 mm
40 mm	51 ± 0.1 mm	2.5 + 0.15/- 0.00 mm	54 ± 0.25.4 mm
60 mm	77.5 ± 0.1 mm	3.5 + 0.15/- 0.00 mm	82 ± 0.25.4 mm
65 mm	85 ± 0.1 mm	3.5 + 0.15/- 0.00 mm	89 ± 0.25.4 mm
90 mm	120 ± 0.1 mm	4.5 + 0.15/- 0.00 mm	124 ± 0.25.4 mm

Note: some instances, the retainer ring grooves will be offset from the shaft center. See *"Retaining sprockets"* (page 293)

a. Shaft must be chamfered for Series 200, 400 and 800 molded sprockets to fit.

TOLERANCES (Unless otherwise specified)

OVERALL LENGTH	≤ 48 in. ± 0.061 in. (≤ 1200 ± 0.8 mm) > 48 in. ± 0.125 in. (> 1200 ± 1.2 mm)
JOURNAL DIAM.	- 0.0005 in./- 0.003 in. (Øh7 vlgs. NEN-ISO 286-2)
KEYWAY WIDTHS	+ 0.003 in./- 0.000 in. (+ 0.05/- 0.00 mm)

SURFACE FINISHES

JOURNAL	63 microinches (0.063 micrometers)
OTHER MACHINED SURFACES	125 microinches (0.125 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).

RETAINER RINGS

STANDARD RETAINER RINGS

- **STANDARD RETAINER RINGS** are available in sizes to fit 1.5 in. and 2.5 in. square shafts.
- Standard Retainer Rings are made from Polysulfone.
- The temperature range of Polysulfone is -125 °F to 300 °F (-98 °C to 149 °C).
- Standard Retainer Rings require grooves identical to those used for Stainless Steel Retainer Rings on 1.5 in. and 2.5 in. shafts (see groove chart in Stainless Steel Retainer Ring section for information).
- Standard Retainer Rings have the following restrictions:

Standard Retainer Ring Restrictions					
Retainer Ring Size	Standard Retainer Rings will NOT work with the following sprockets				
	Series	Pitch Diameter		Bore Size	
		in.	mm	in.	mm
1.5 in.	400	4.0	102	1.5	40
	1600	3.2	81	1.5	40
2.5 in.	400	5.2	132	2.5	40
	1100	3.1	79	2.5	40

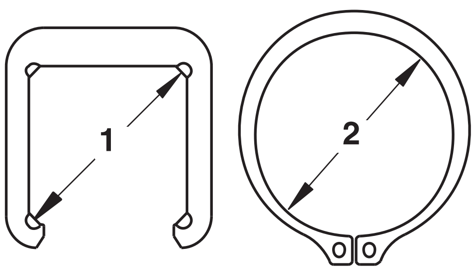


Fig. 2–15 Retainer rings

1. Ring Groove Diameter for Polysufone Retainer Rings
2. Ring Groove Diameter for Steel Retainer Rings

- **STAINLESS STEEL RETAINER RINGS** are available to fit 5/8 in., 1.0 in., 1.5 in., 2.5 in., 3.5 in., 25.4 mm, 40 mm, 60 mm, 65 mm, and 90 mm square shafts.
- The following ANSI Type 3AMI rings, conforming to MIL SPEC R-2124B are available

Shaft Sizes	Groove Width	Groove Diameter
INTRALOX USA		
5/8 in.	0.046 in.	0.822 in.
1 in.	0.056 in.	1.219 in.
1.5 in.	0.086 in.	1.913 in.
2.5 in.	0.120 in.	3.287 in.
3.5 in.	0.120 in.	4.702 in.
INTRALOX EUROPE		
(25.4 mm)	(2.0 mm)	(30 mm)
(40 mm)	(2.5 mm)	(52 mm)
(60 mm)	(3.5 mm)	(80 mm)
(65 mm)	(3.5 mm)	(85 mm)
(90 mm)[a]	(4.5 mm)	(120 mm)

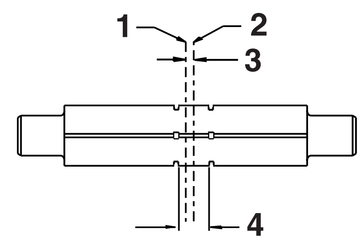
a. 90 mm retainer rings are galvanized steel only.

- Standard Retainer Rings have the following restrictions:

Stainless Steel Retainer Ring Restrictions			
Retainer Ring Size	Stainless Steel Retainer Rings will NOT work with the following sprockets		
	Series	Pitch Diameter[a]	
		in.	mm
1.219 in.	900	2.1	53
	1100	2.3	58

a. To lock down the **Series 900** 2.1 in. (53 mm) and (58 mm) pitch diameter sprockets, a set screw, placed on each side of the sprocket, is required. Contact Intralox Sales Engineering for more information.

Locked Sprocket position on the shaft



1 -Centerline of shaft
2 -Centerline of sprocket
3 -Offset
4 -Sprocket width

Center Sprocket Offset					
Series	**Number of Links**	**Offset**		**Max. Sprocket Spacing**	
		in.	mm	**in.**	mm
100	even	0	0	6	152
	odd	0.12	3	6	152
200	even/odd	0	0	7.5	191
200RR	even/odd	0.09	2.3	7.5	191
400	even	0	0	6	152
	odd	0.16	4	6	152
600	even/odd	0	0	6	152
800	even/odd	0	0	6	152
850	even/odd	0	0	6	152
900	even	0	0	4	102
	odd	0.16	4	4	102
1100[a]	even	0	0	4	102
	odd	0.5	12.7	4	102
1100 EZ Tracking Sprockets	even	0.19	4.8	4	102
	odd	0.31	7.9	4	102
1200	See Series 1200 section in the Installation Instructions or call Customer Service.			6	152
1400	even	0	0	6	152
	odd	0.5	12.7	6	152
1400 FG	See Series 1400 section in the Installation Instructions or call Customer Service.			6	152
1500	See Series 1500 section in the Installation Instructions or call Customer Service.			6	152
				6	152
1600	even/odd	0	0	4	102
1700	even	0.5	12.7	5	127
	odd	0	0		
1800	even/odd	0	0	6	152
1900	See Series 1900 section in the Installation Instructions or call Customer Service.			3	76
2000	All sprockets must be fixed.			6	152
2200[cb]	even	0.25 to the left	6.4 to the left	4	102
	odd	0.25 to the right	6.4 to the right	4	102
2400[cb]	even	0.125 to the left	3.2 to the left	6	152
	odd	0.125 to the right	3.2 to the right	6	152

Center Sprocket Offset					
Series	Number of Links	Offset		Max. Sprocket Spacing	
		in.	mm	in.	mm
2600	even/odd	0	0	8	203
2700	even/odd	0	0	8	203
	Number of Rollers per row				
400 RT	even	0	0	6	152
	odd	1	25.4	6	152

a. The 8 and 12 tooth steel sprockets can be placed on belt centerline.
b. When determining number of links, drop the 0.5 link
c. Assuming belt is running in preferred direction

SELF-SET RETAINER RINGS

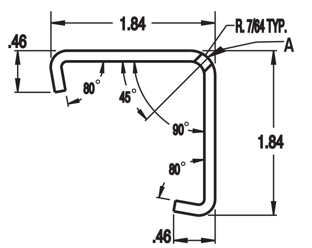
•**SELF-SET RETAINER RINGS** are available to fit 1.0 in., 1.5 in., 2.5 in., 3.5 in., 40 mm, 60 mm, and 65 mm shafts.

•Retainer Rings are made from non corrosive 316 stainless steel.

•There is no need for machined grooves on the shaft and the shaft does not need to be removed to install these retainer rings.

- Self-Set Retainer Rings are USDA-FSIS accepted.
- Self-Set Retainer Rings snap into place on the square shaft and are fixed in position with a unique set screw that cannot fall out of the retainer ring during operation.
- The shaft must have chamfered edges for the retainer ring to work properly.
- Self-Set Retainer Rings are not recommended in applications where high lateral forces are to be expected.
- Self-Set Retainer Rings have the following restrictions:

Self-Set Retainer Ring Restrictions			
Retainer Ring Size	Self-Set Retainer Rings will NOT work with the following sprockets		
	Series	Pitch Diameter	
		in.	mm
1.0 in.	100	2.0	51
	900	2.1	53
	1100	2.3	58
40 mm	900	3.1	79
	1100	3.1	79
	1600	3.2	81
65 mm	400	5.2	132



A -Custom set screw, fully inserted, head first, from this side

ROUND SHAFT RETAINER RINGS

- **HEAVY DUTY RETAINER RINGS** are available to fit 0.75 in., 1.0 in., 20 mm, and 25.4 mm round shafts.
- Heavy Duty Retainer Rings are made of stainless steel.
- Heavy Duty Retainer Rings are for use with the Series 1100 1.6 in. (41 mm) and 2.3 in. (58 mm) pitch diameter sprockets.

•These retainer rings do not require a groove for placement, they stay in place using friction (It is very important that grooves are not used on round shafting, as this will cause fatigue and shaft failure).

SPLIT HEAVY-DUTY RETAINER RINGS

- **SPLIT COLLAR RETAINER RINGS** are available to fit 1.5 in., 2.5 in., 40 mm and 60 mm square shafts.

• The retainer rings are made from Stainless Steel.

•For use in applications with high lateral loads on the sprockets.

•These retainer rings do not require the shaft to be chamfered and the shaft does not have to be removed, providing ease of installation.

- Torque specifications for the retainer rings are as follows:
  1.5 in. and 40 mm: 90 in-lbs (10.2 N-m)
  2.5 in. and 60 mm: 190 in-lbs (21.5 N-m)
- Split Collar Retainer Rings have the following restrictions:

Split Collar Retainer Ring Restrictions			
Retainer Ring Size	Split Collar Retainer Rings will NOT work with the following sprockets		
	Series	Pitch Diameter	
		in.	mm
1.5 in. and 40 mm	400	4.0	102
	900	3.1	79
	900	3.5	89
	1100	3.1	79
	1100	3.5	89
	1600	3.2	81
2.5 in. and 60 mm	400	5.2	132
	1100	4.6	117
	2600	5.2	132
	2700	5.2	132

ROUND BORE ADAPTERS

Sprocket inserts are available to adapt 1.5 in. square bore sprockets to use 1 in. diameter shafts. They are only recommended for lightly loaded belts or for narrow belt widths, up to 18 in. (460 mm).

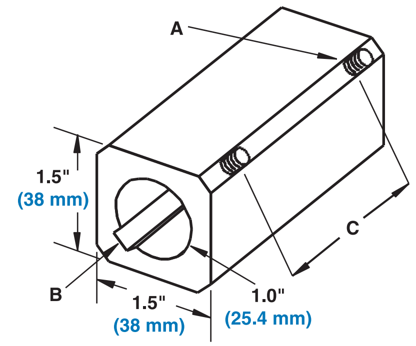
Adapters are made in glass-filled polypropylene for strength and chemical resistance. However, these adapters are not to be used with split or abrasion resistant sprockets.

Two adapter sizes are available - 2.5 in. (64 mm) and3.5 in. (89 mm) long. Set screws are provided to retain the sprockets on the adapters and to lock the center sprocket to the shaft. The 3.5 in. (89 mm) adapter has a third tapped hole to accommodate a range of hub widths. Refer to the table at right to determine which adapter to use with a given sprocket hub width.

For certain sprocket hub width/adapter size combinations, more than one sprocket can be placed on each adaptor. See the Round Bore Adapter Selection Table under the sprocket/ adapter column for more information.

The 2.5 in. (64 mm) adapter has a torque limit of 875 in-lb (10,000 mm-kg). The 3.5 in. (89 mm) adapter is limited to 1200 in-lb (13,800 mm-kg). The operating temperature limits are between 45 °F (7 °C) and120 °F (50 °C).

Round Bore Adapters are not for use with Split Sprockets or Abrasion Resistant Sprockets.



A - 1/4” - 20 × 5/8” Set Screws (UNC Threads)

B - Keyway - 0.25” × 0.125” (6mm × 3mm)

C - Gap between set screws:

2.5”	(64 mm)	Adaptor
1.5”	(38 mm)	Gap
3.5”	(89 mm)	Adaptor
2.5”	(64 mm)	Gap

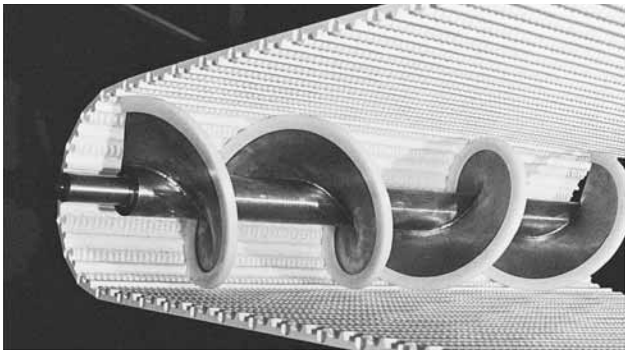
Fig. 2–16 Round bore adapter

Round Bore Adapter Selection Table[a]

Sprocket Hub Widths		Center Locked Sprocket			Floating Sprockets		
		Adapter Size		Sprockets/ Adapter	Adapter Sizes		Sprockets/ Adapter
in.	mm	in.	mm		in.	mm	
0.75	19	2.5	64	2	2.5	64	1
1.00	25	2.5	64	1	3.5	89	1
1.25	32	3.5	89	2	3.5	89	1
1.50	38	2.5	64	1	3.5	89	1
2.50	64	3.5	89	1	3.5	89	1

a. Spacers may be needed to lock down center sprockets on adapters.

SCROLL IDLERS



Scrolls from Intralox may be used in applications where the drive end shaft and sprockets must be kept clean. The curved, flighted surfaces of the scroll direct debris away from the belt center, toward the edges, where it can fall harmlessly to the floor or receptacle.

Intralox offers scrolls in two nominal diameters: 6 in. (152 mm) and 9 in. (229 mm). Flight pitch, the axial distance for the flight to sweep through a full circle, is also 6 in. (152 mm) and 9 in. (229 mm), respectively. Since the scroll is also supporting the idle end of the belt, each nominal diameter has an associated minimum scroll length to insure proper belt support. For very narrow belts, or for extra support, a double-flighted scroll is available. All scrolls are mounted on a 2.5 in. (63.5 mm) diameter round shaft. Maximum journal diameter is 2.5 in. (63.5 mm) and minimum journal length is 2 in. (50.8 mm).

SCROLL DIMENSIONS, in. (mm)

Nominal Diameter	Actual Diameter	Min. Single-Flighted Scroll Length[a]	Min. Double-Flighted Scroll Length[a]
6 (152)	6.7 (170)	12.5 (318)	6.5 (165)
9 (229)	9.7 (246)	18.5 (470)	9.5 (241)

a. Exclusive of Journals.

Intralox scrolls are offered in carbon and stainless steel materials. Carbon steel scrolls are treated and painted for protection. All scrolls have a thick section of UHMW wearstrip attached to the flight edges. Stainless steel scrolls with a polished weld bead are available for USDA-FSIS applications.

Scrolls from Intralox may be used in applications where excessive amounts of debris may hamper the performance of sprockets or possibly damage the belt.

Position the scroll idler assembly in the conveyor frame so the "V" at the center of the scroll (where the left and right flights meet) points in the direction of belt travel. Adjust the shaft take-ups, if there is one, to have even tension on both sides.

SCROLL FEATURES	Flight Material		
	Carbon Steel	Stainless Steel	Stainless Steel USDA-FSIS
6 in. (152 mm) Scroll Size	•	•	•
9 in. (229 mm) Scroll Size	•	•	•
Intermittent Welds	•	•	
Continuous, Polished Welds			•
UHMW Flight Edging	•	•	•
Primer Gray Paint	•		

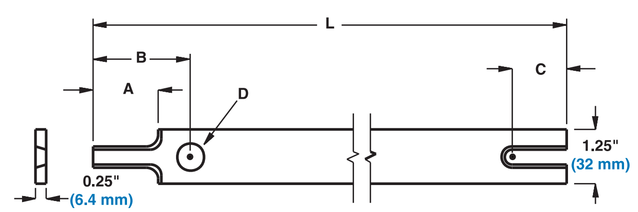
Intralox scrolls have no built-in tracking ability. It may be necessary to use side mounted wearstrips on the idle end.

WEARSTRIPS

FLAT WEARSTRIPS

STANDARD FLAT WEARSTRIPS are available in UHMW (Ultra High Molecular Weight), HDPE (High Density Polyethylene) and Nylatron (a Molybdenum-filled nylon). UHMW and HDPE wearstrips measure 0.25 in. (6 mm) thick × 1.25 in. (32 mm) wide × 120 in. (3 m). Nylatron wearstrips measure 0.125 in. (3 mm) thick × 1.25 in. (32 mm) wide × 48 in. (1.2 m). UHMW and HDPE wearstrips are FDA and USDA-FSIS compliant for direct food contact. Nylatron wearstrip is not FDA or USDA-FSIS accepted for food applications.

FLAT FINGER-JOINT WEARSTRIPS have a notched end design which provides overlapping section for continuous support. UHMW wearstrips are available in 24 in. (0.61 m) and 60 in. (1.5 m) lengths. HDPE wearstrip is available in 24 in. (0.61 m) lengths. Fasteners are supplied.



L	A	B	C
24" (0.61 m)	1.125" (28.6 mm)	1.75" (44.5 mm)	0.75" (19.1 mm)
60" (1.52 m)	1.875" (47.6 mm)	2.25" (57.2 mm)	1.50" (38.1 mm)

Fig. 2–17 Flat finger-joint wearstrips

ANGLE AND CLIP-ON WEARSTRIPS

Intralox also offers a variety of angle and clip-on wearstrips. All of the clip-on wearstrips styles come in 120 in. (3 m) lengths. These wearstrips are designed to attach directly to the conveyor frame without fasteners.

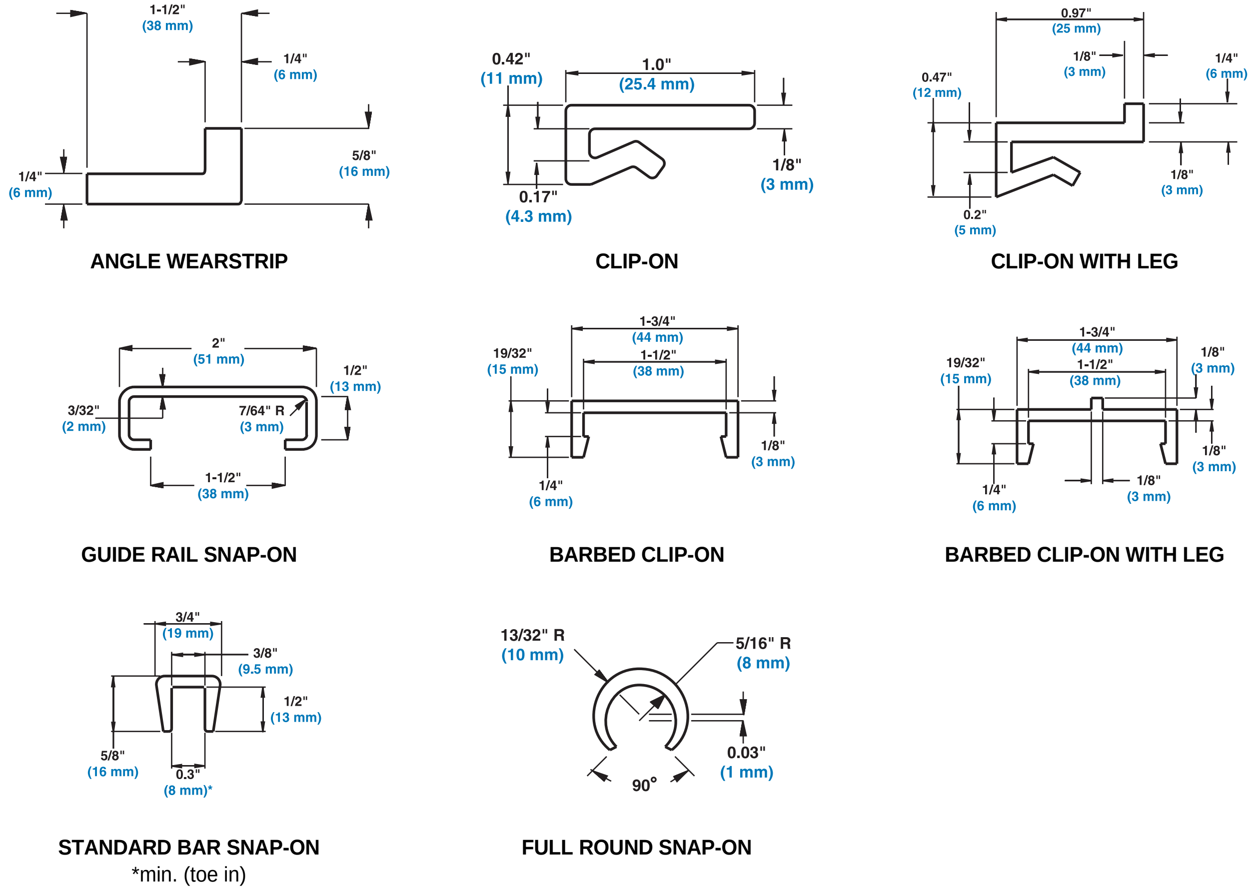
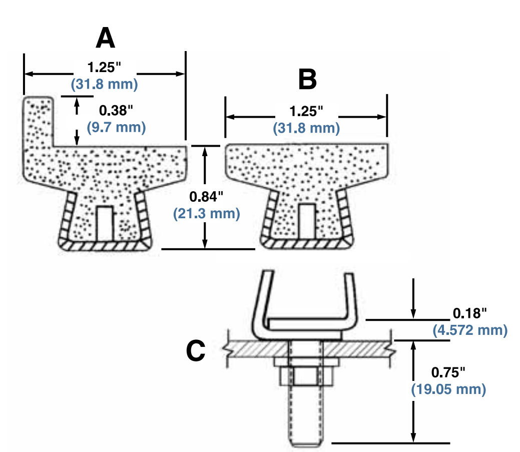


Fig. 2–18 UHMW Specialty wearstrips

STAINLESS STEEL BACKED UHMW WEARSTRIP



A - "L" 120" STAINLESS STEEL BACK UHMW WEARSTRIP

B - "T" 120" STAINLESS STEEL BACK UHMW WEARSTRIP

C - SELF TIGHTENING STAINLESS STEEL WEARSTRIP CLAMP WITH NUT -5/16-18 UNC

Fig. 2–19 Stainless steel backed UHMW wearstrips

- Stainless steel backed UHMW wearstrip can be used to create a rigid belt carryway surface on any frame with cross members.
- Stainless steel backed UHMW wearstrip is mounted to cross members with a self tightening stainless steel clamp with nut (self tightening stainless steel clamp with nut sold separately).
- Can be installed in parallel, chevron or other configurations.
- Recommended for temperatures up to 160°F (71°C).
- Available in two profiles: Flat Wearstrip ("T") and "L" Wearstrip
- Available in 120 in. (3048 mm) lengths.
- Installation of wearstrips should allow for thermal expansion and contraction.
- Always chamfer or bend down the leading edges of any wearstrip.

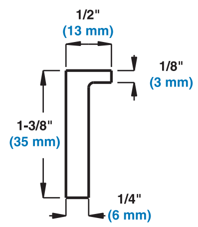
UHMW PRESSURE SENSITIVE TAPE

Intralox offers UHMW self-adhering wearstrip tape in rolls of 50 ft. (15.2 m). This tape can be used for quick and easy conversion of steel wearstrips to a lower friction UHMW wearstrip. The 1 in. (25.4 mm) wide and 2 in. (50.8 mm) wide tape is available0.010 in. (0.25 mm) and 0.030 in. (0.76 mm) thick.

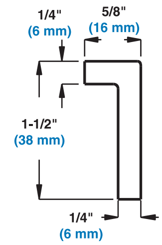
CUSTOM WEARSTRIPS

SERIES 2000 WEARSTRIPS

The modified wearstrip (below, left) is used on Intraflex 2000 carryways. The raised ribs extend above the edge of the wearstrip. The standard wearstrip (below, right) is well suited for the returnway side of the conveyor. Both wearstrips are available in UHMW (Ultra High Molecular Weight) polyethylene.



MODIFIED ANGLE WEARSTRIP

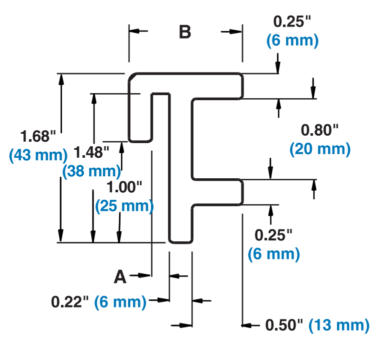


STANDARD ANGLE WEARSTRIP

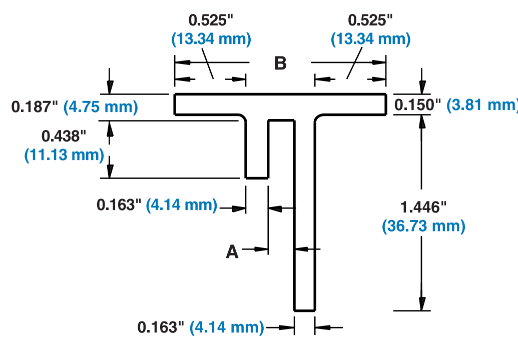
Fig. 2–20 120" UHWM Series 2000 custom wearstrips

RADIUS BELT WEARSTRIPS

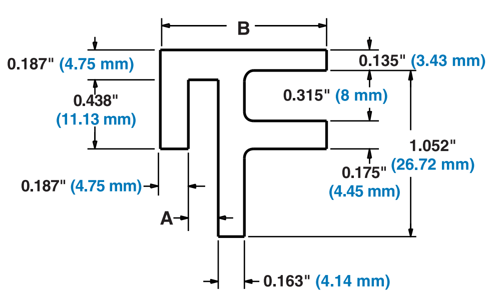
All of the **Radius Belt** wearstrips are available in natural UHMW and self-lubricating, grey TIVAR, oil-filled UHMW. The Angle and Center Rail wearstrips utilize the EZ Clean design. All wearstrips are available in either 1/8 in. (3.2 mm) or 3/16 in. (4.7 mm) sizes. S2400 available in UHMW only



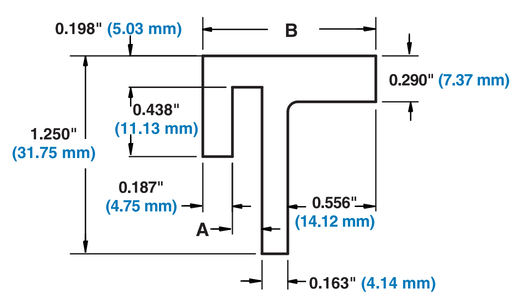
STANDARD EDGE, HOLD DOWN WEARSTRIP



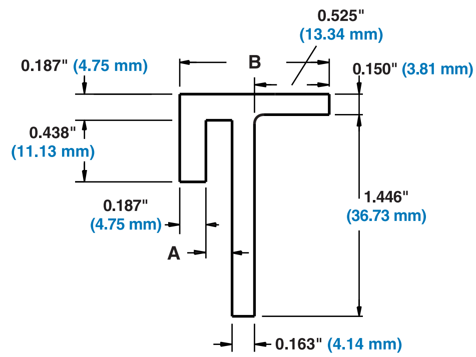
RADIUS BELT WEARSTRIP, CENTER RAIL HOLD DOWN WEARSTRIP



TABBED EDGE, HOLD DOWN WEARSTRIP



RADIUS BELT WEARSTRIP, SERIES 2400, HOLD DOWN GUIDE WEARSTRIP



Wearstrip Dimensions			
		A (Nominal)	
		1/8" (3.2 mm)	3/16" (4.7 mm)
B	Standard Edge	1.00" (25.4 mm)	1.13" (29 mm)
	Tabbed Edge	1.00" (25.4 mm)	1.06" (27 mm)
	Angle	1.00" (25.4 mm)	1.06" (27 mm)
	Center Rail	1.56" (40 mm)	1.56" (40 mm)
	S2400 Hold Down Guide	1.03" (26 mm)	1.09" (28 mm)

RADIUS BELT WEARSTRIP, ANGLE HOLD DOWN WEARSTRIP

Fig. 2–21 120" UHMW RADIUS BELT CUSTOM WEARSTRIPS

PUSHER BARS

Accumulation tables are most often used in the beverage industry, allowing upstream production machinery to operate continuously and economically in the event that some downstream machinery stops the flow of the product. These tables act as a buffer to absorb the product overflow until the downstream problem is rectified. The principal function of a pusher bar is to move the last few rows of product off the accumulation table, past the dead plate area and onto the primary conveyor lines. Pusher bars rest on the accumulation table, which must use a Raised Rib style belt (**Series 100**, **400** and **900**).

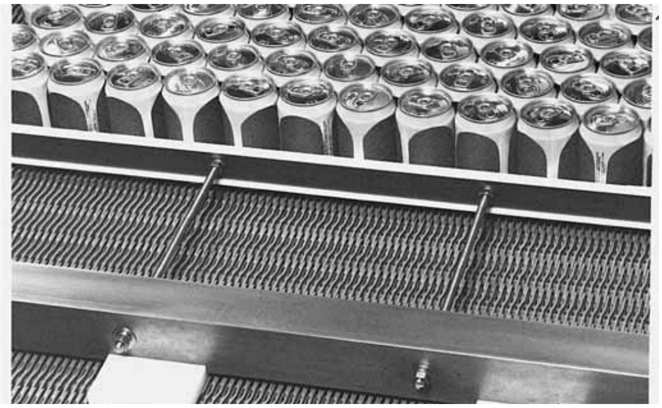
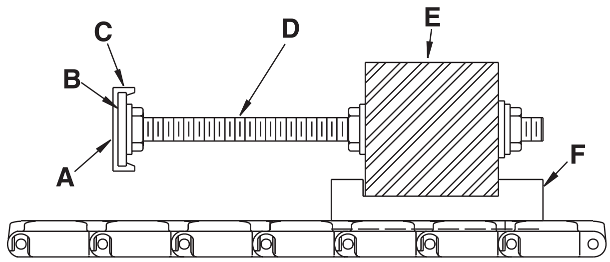


Fig. 2–22 Pusher bar side view

The bar is a 2.5 in. (63.5 mm) square stainless or carbon steel shaft which rides in a number of slotted UHMW guide shoes. The shoes are slotted on the bottom to mesh with the ribs of the belt and keep the bar aligned, perpendicular to the direction of belt travel. The shoes bear the entire weight of the pusher bar, so it is recommended that wearstrips be placed to support the belt directly under the shoes.

The blade of the pusher bar actually does the pushing. It can be specified in 24 in. (610 mm) to 120 in. (3.05 m) lengths and consists of a rigid steel bar capped with UHMW wearstrip, so as not to mar or damage the product. The blade is set off from the weighted shaft by threaded steel rods, making the amount of offset adjustable to individual needs.

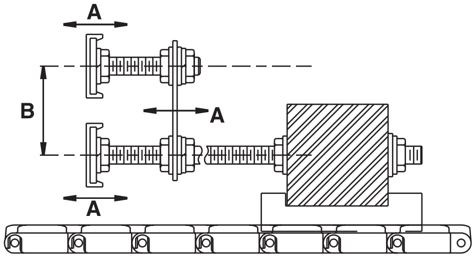


A - BLADE
B - BARSTOCK
C - CLIP-ON WEARSTRIP
D - THREADED ROD
E - WEIGHT
F - GUIDE SHOE (Slotted bottom surface)

Fig. 2–23 Pusher bar assembly

A dual blade pusher bar is also available for tall or contoured products. The upper blade of this configuration is adjustable up and down and can be extended past or retracted further back from the lower blade.

Adjustment of the pusher bar is dependent upon: 1) placement of the device which limits the pusher bar's forward travel, and 2) dimensions of the product being conveyed. Standard offset is approximately equal to the length of the finger plate to be used: 5.75 in. (146 mm) for **Series 100**, 7.5 in. (191 mm) for **Series 400** and 6.5 in. (165 mm) for **Series 900**.

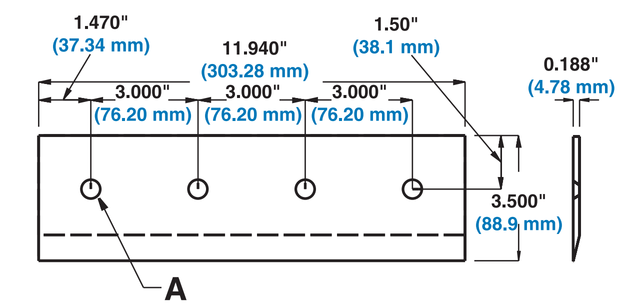


A - ADJUSTABLE
B - ADJUSTABLE FROM 2" - 4"

Fig. 2–24 Dual blade pusher bar assembly

DEAD PLATES

Intralox offers UHMW dead plates with operating temperature limits of -100 °F (-73 °C) to 180 °F (82 °C).



A - Holes for 1/4" (6 mm) bolts

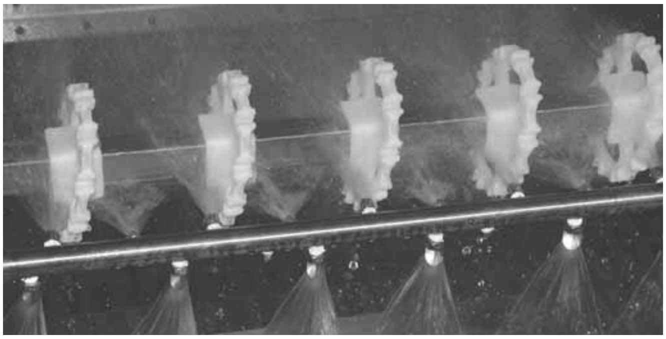
Fig. 2–25 Dead plates

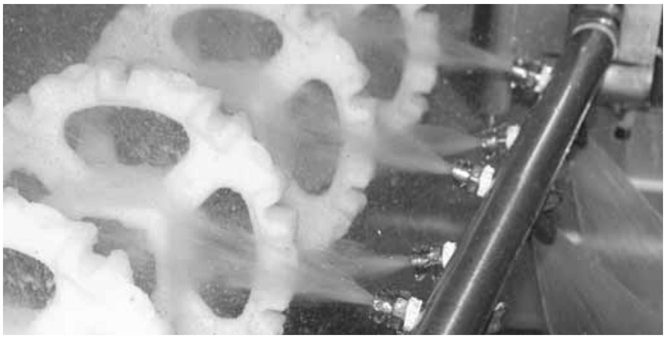
EZ CLEAN IN PLACE SYSTEM (CIP)

Compatible with most conveyors, Intralox's new EZ Clean In Place (CIP) System cleans belts quickly, effectively, and consistently while minimizing water usage.

Intralox's new EZ Clean In Place System features a spray bar optimally located to increase and expedite debris removal, plus a custom-engineered spray pattern designed to thoroughly clean the belt underside, sprockets, and shaft. The system mounts within the conveyor frame behind the conveyor shaft and sprays the belt at 3 separate locations. Fan nozzles spray through the open belt hinges below and above the shaft as the belt travels around the sprockets. High impact nozzles spray the belt underside along the belt drive bars to maximize the debris channeling effect built into Intralox's EZ Clean belts. Cleaning is further opimized when used in conjunction with Angled EZ Clean sprockets.

The CIP can be installed on drive or idle end (drive preferred). It is made of 303/304 stainless steel, with highly polished surfaces. The minimum water pressure recommended is 150 PSI.





HOLD DOWN ROLLERS

Hold down roller assemblies can be used in place of hold down shoes or rails on wide elevating conveyors. On typical elevating conveyors, the flights have a notch in the center of the belt so that a hold down rail or shoe can be used to keep the belt on the conveyor frame. Product loss or damage from these shoes is an inevitable side effect.

Standard roller assemblies have a bracket made of acetal, with polypropylene rollers and rods, and are available for the following belt styles:

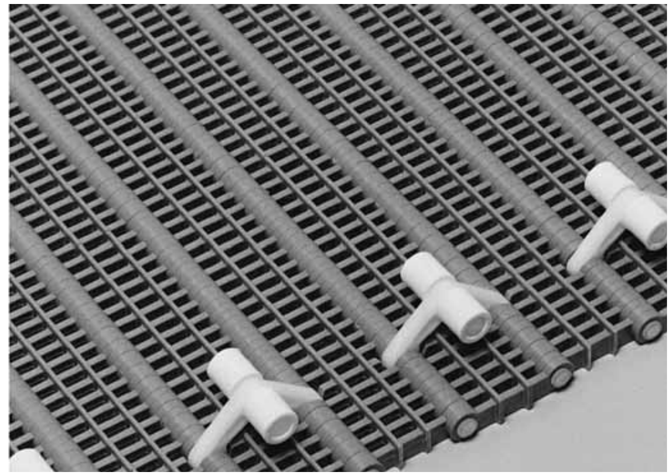
Series 200 — Flush Grid, Open Grid, Open Hinge, Flat Top and Perforated Flat Top

Series 400 — Flush Grid, Open Hinge and Flat Top

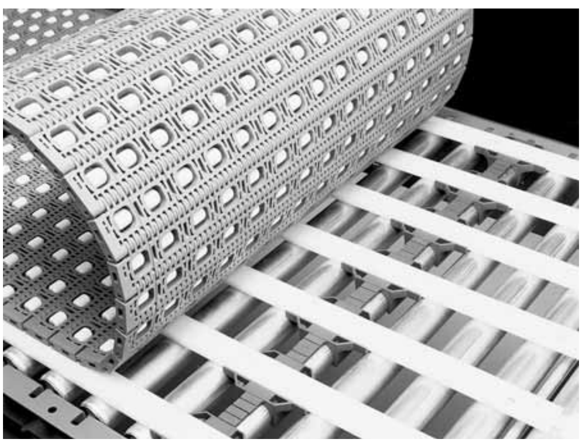
Series 800 — Flat Top and Perforated Top.

Hold down roller assemblies are built securely into the underside of the belt, held in place by the belt's hinge rods. The rollers ride in tracks that anchor the belt in position as it enters the incline of the conveyor. These assemblies can also be used in place of traditional hold down rails or shoes on the side of the conveyor.

Hold down rollers can be placed as frequently as every other belt row, a minimum of 4 in. (102 mm) apart to a recommended maximum of 24 in. (610 mm) apart. Normally, 8 in. (203 mm) spacing, every fourth row is sufficient. Sprocket size is limited by the rollers protruding from the bottom surface of the belt. In order to keep the rollers from coming into contact with the shaft, when using a 1.5 in. (or 40 mm) square shaft, the minimum allowable sprocket pitch diameter is 6.4 in. (163 mm). When using a 2.5 in. (or 60 mm) shaft, the minimum sprocket pitch diameter allowable is 7.7 in. (196 mm). Refer to *“Section three: Design guidelines”* (page 291), for more detailed information.



EZ ROLLER RETROFIT™ PRODUCTS



FOR STRAIGHT CONVEYOR CARRYWAYS (INCLUDING INCLINES & DECLINES):

Snap-on version - The Intralox EZ Roller Retrofit Snap-On Component includes a section of 1.5 in. (38.1 mm) W × 60 in. (1524.0 mm) L × 0.375 in. (9.5 mm) thick, UHMW wearstrip pre-attached to a composite polypropylene patented clamp. It quickly and easily snaps onto existing 1.9 in. (48 mm), 50 mm, and 2.5 in. diameter rollers without the need for tools or any modification to the rollers or conveyor, forming a secure carryway for a new Intralox belt. The wearstrips are installed side by side across the full width of the conveyor, and end to end, down the length of the conveyor. The tongue and grooved ends allow for thermal expansion and contraction. The side by side placement limits the units’ lateral movement and helps provide a full bed of support for the conveyor belts. The adjustable spacing tabs of the components makes them easily adaptable to most conveyor widths. Consult Intralox to determine how many rows of wearstrip are recommended for your application.

Bolt-on version - When roller removal is desired, the EZ Roller Retrofit Bolt-On Component is recommended. Sturdy 5 foot sections are pre-assembled to save labor, and bolt into existing roller 7/16 in. (11 mm) hex holes (only eight bolts per section required). A chevron wearstrip pattern increases belt life.

Drop-in pan - For Series 400 Angled Roller Belt application, the ARB Carryway Drop-In Pan is available. It consists of drop-in carryway sections that assemble together to form a flat and rigid surface for mounting wearstrip used to drive Series 400 Angled Roller Belt rollers. These components are designed to the customer's conveyor specifications and come complete with side and bottom wearstrips and all necessary monting hardware.

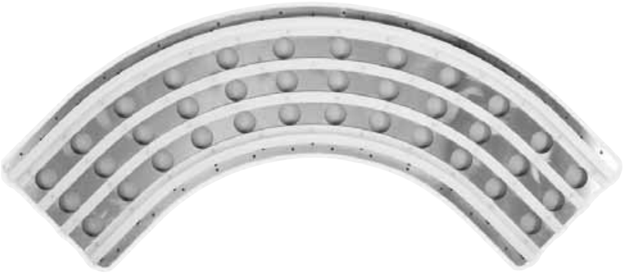
Skate Wheel - Part of the Intralox EZ Roller Retrofit™ family, the Skate Wheel Retrofit Component includes a section of UHMW wearstrip 1.5 in. (38.1 mm) x 60 in. (1524.0 mm) long x 0.375 in. (9.5 mm) thick. It is quickly and easily assembled around 1-15/16 in. (49.2 mm) diameter, 5/8 in. (15.9 mm) wide skate wheels to form a secure carryway for a new Intralox belt. The adjustable spacing of the components makes them easily adaptable to most conveyor widths. Consult an Intralox representative to determine how many rows of wearstrip are recommended for your application.

FOR STRAIGHT CONVEYOR RETURNWAYS:

Intralox EZ Roller Retrofit Hanger Brackets create a returnway by providing a means to mount 1.9 in. (48 mm) and 2.5 in. rollers (salvaged during the retrofit) to the underside of the existing conveyor frame. Rubber Returnway Rings, held to the rollers by friction, help provide quiet operation and increase the outside diameter to the optimum size for use as a return roller.

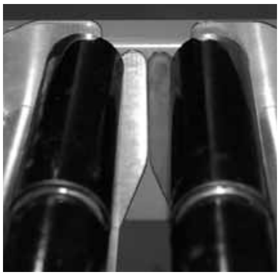
FOR CURVED CONVEYOR CARRYWAYS & RETURNWAYS:

The EZ Roller Retrofit Curved Component set consists of a pair of stainless steel bases with pre-attached wearstrips. They bolt to the top and bottom of the existing frame to create a carryway and returnway for the new Intralox belt. Each set is custom manufactured to match your turn angle, inside frame width, inside frame radius, belt series, and belt width. It connects to the EZ Retrofit straight sections on each side of the turn. It works with Series 2200 and Series 2400 radius belts to provide a complete "one belt" conveyor system. Call Customer Service for more information.



FOR CREATING NEW DRIVE AND IDLE ENDS:

Powered roller conveyor retrofits may require relocation of the drive unit. Intralox simplifies this work with the **EZ Roller Retrofit Drop-In Drive and Idler Components**. These pre-assembled units are custom-made for your conveyors. Each includes a shaft, bearings, sprockets, and snub roller in a stainless steel frame which simply drops in and bolts down. Each drive/idle pair can save up to 10 hours of retrofit labor, enabling you to retrofit more conveyor in a given down time window



Nose-Roller Drop-In Drive and Idler Components are similar to the standard drop in components except that they are equipped with a 2 in. (51 mm) diameter nose roller to allow for tighter transfers between belt sections.

ABRASION RESISTANCE SYSTEM

Excessive rod and sprocket wear in abrasive applications can cause a number of undesirable conditions. Aside from the obvious effect of reduced belt life, there can be added difficulties in making repairs. A badly worn rod cannot be removed easily. Often, belt modules are damaged in the process. Worn rods also cause belt pitch to increase, which decreases sprocket engagement and, in turn, increases the wear rate on sprocket teeth. The belt may not run as smoothly as it should under these circumstances.

Intralox has developed stainless steel split sprockets and Abrasion Resistant (AR) hinge rods which enhance the performance of Intralox belts in abrasive or gritty environments. Rigorous testing shows that these AR components significantly outlast standard components *and* increase belt module life. Abrasive particles are less likely to become imbedded in the harder AR material. Thus, the components themselves do not become abrasive surfaces wearing on the belt.

SPLIT SPROCKETS

Intralox Split Sprockets are an alternative to molded plastic sprockets for all **Series 100**, **400**, **800**, **900**, **1100**, and **1200** belts. Split Sprockets are constructed from FDA compliant materials, but are not USDA-FSIS accepted. Refer to the individual Shaft and Sprocket Data pages for detailed information.

The old style, all Stainless Steel Abrasion Resistant Sprockets, are still available as special order items. Contact Customer Service for lead-times.

Fig. 2–26 Split sprockets

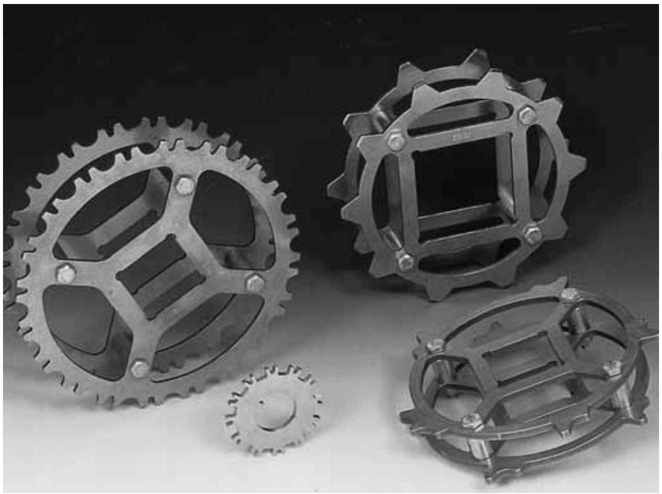


Fig. 2–27 Abrasion resistant (all steel) sprockets

ABRASION RESISTANCE HINGE RODS

The AR rods are stiffer than standard rods, so belt pull capabilities are not sacrificed. They are lighter, less expensive and are more flexible than steel rods. They also provide good chemical resistance, low friction, a wide operating temperature range and are FDA compliant for direct food contact.

In all belt styles which employ Intralox's snap-lock rod retention system, the AR rods are held in place with "rodlets" installed on both edges of the belt. Rodlets are short, headed rods (see *"Fig. 2–28 Abrasion resistant rods and rodlets"*) which are also made of Abrasion Resistant material. (**Intraflex 2000** uses polypropylene rodlets).

Belts that utilize a headless rod retention system, thermally deformed rod holes or belts with SLIDELOX™ do not require a head of any type (see *"Fig. 2–29 Series 1100 side view"*, *"Fig. 2–30 Thermally deformed belt edge"* and *"Fig. 2–31 Series 1400 with Slidelox™"*).

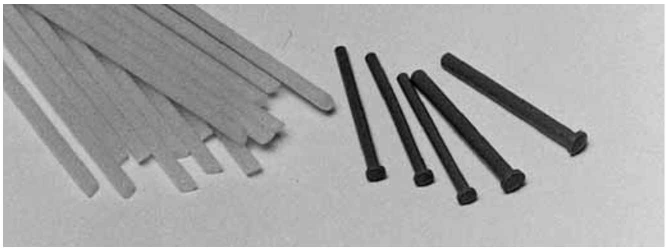


Fig. 2–28 Abrasion resistant rods and rodlets

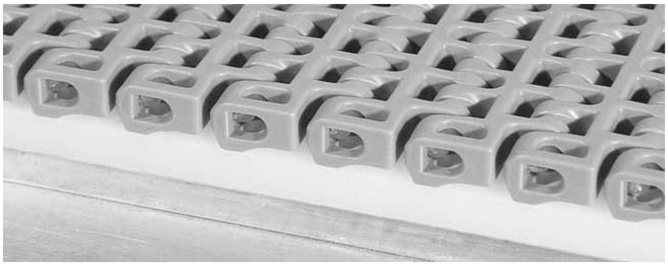


Fig. 2–29 Series 1100 side view

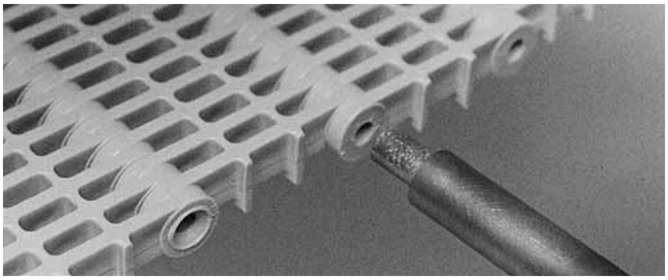


Fig. 2–30 Thermally deformed belt edge

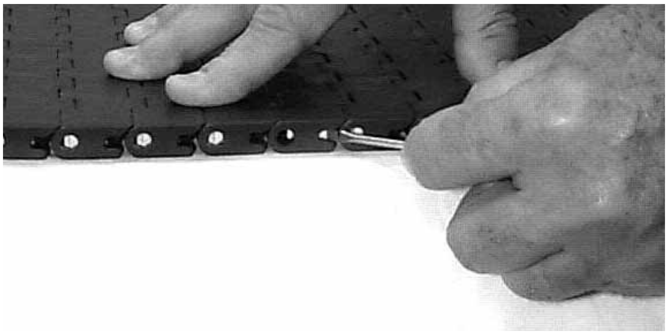


Fig. 2–31 Series 1400 with Slidelox™

SERIES	STYLE	ROD RETENTION SYSTEM
100	All Styles	Snap-Lock Rodlets
200	All Styles except Open Hinge	Thermally Deformed Rod Hole
400	All Styles except Open Hinge	SLIDELOX™ - FG & RR Snap-Lock Rodlets - Flat Top
600	Multi-Lane	Thermally Deformed Rod Hole
800	All Styles	Snap-Lock Rodlets
850	All Styles	Snap-Lock Rodlets
900	All Styles	Snap-Lock Rodlets
1100	Flush Grid	Series 1100 Headless
1200	All Styles	SLIDELOX™
1400	Flat Top	SLIDELOX™
1500	All Styles	Series 1500 Headless
1600	All Styles	Series 1600 Headless
1700	All Styles	SLIDELOX™
1800	Flat Top	Series 1800 Headless
1900	All Styles	Shuttleplug™
2000	Intraflex[a]	Snap-Lock Rodlets
2200	Flush Grid	Series 2200 Headless
2400	Flush Grid	Series 2400 Headless
2600	All Styles	Series 2600 Headless
2700	All Styles	Series 2700 Headless

a. AR rods are not available for Intraflex 2000 in belts 7 in. (178 mm) wide or less.

The SLIDELOX™ rod retention system is a headless rod retention method. This system uses a shuttle plug to retain the rods during operation. The SLIDELOX™ plug can be easily moved to the side when work on the belt is required.

For other belt styles which use neither the snap-lock nor the headless rod retention systems, the AR rod is retained by thermally deforming the edge of the belt. This partially closes the rod hole with module material, thus retaining the rod (see *"Fig. 2–30 Thermally deformed belt edge"*).

To remove a rod after a belt has been in service for some time, apply a soapy solution or other lubricant to the belt hinge. This will help loosen any grit that has become trapped between the rod and the module.

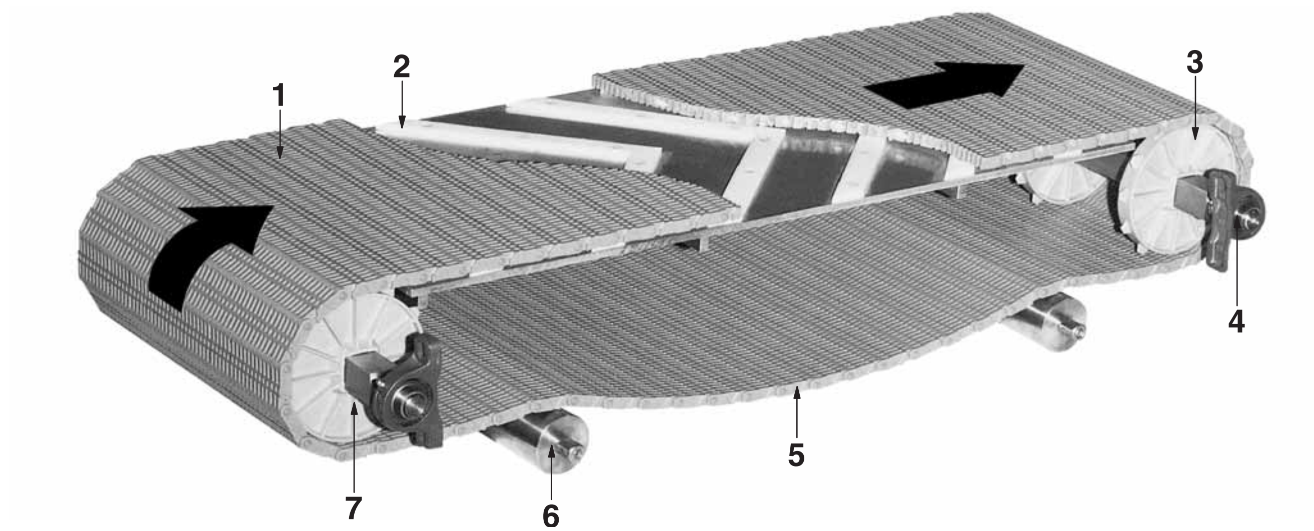
If Abrasion Resistant rods are used in continuously wet, elevated temperature environments, they have a tendency to absorb water and expand in length and diameter. If an application requires an Abrasion Resistant rod in these conditions, contact Sales Engineering to determine the approximate expansion due to water absorption.

SECTION THREE: DESIGN GUIDELINES

After selecting a belt (series, style and material) and its accessories, the conveyor frame must be designed. Intralox provides the following dimensional data and guidelines, based upon good design principles and practice, for use in designing new conveyor frames or adapting and retrofitting existing ones.

The illustration below identifies most of the components in a conventional, horizontal conveyor. The items shown are only representative of those in common use. There are many variations of components and design details. The designer must become familiar with those available in order to produce the most appropriate and economical conveyor.

Contact Customer Service to request the ***Belting Installation, Maintenance & Trouble Shooting Guidelines*** or to request any additional guidelines.

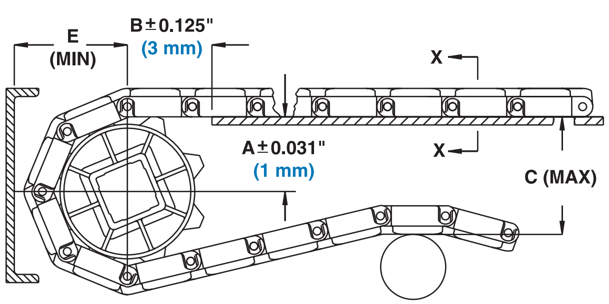


1 -Intralox belt
2 -Carryway (chevron wearstrips)
3 -Drive shaft & sprocket
4 -Shaft bearings
5 -Catenary sag
6 -Returnway rollers
7 -Idle shaft & sprockets

Fig. 3–1 Conventional conveyor components

BASIC CONVEYOR FRAME REQUIREMENTS

Regardless of type or configuration, all conveyors using Intralox belts have some basic dimensional requirements. Specifically, dimensions "A", "B", "C", "D" and "E" in the illustrations and tables below should be implemented in any design. Also, the conveyor should allow access to the side of the belt at some point for rod clearance during the installation, tensioning, or removal of the belt.



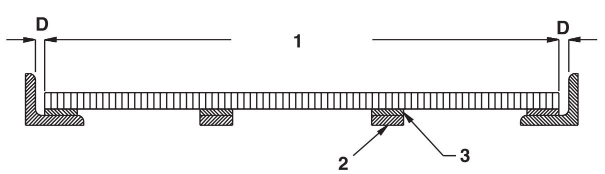


Fig. 3–2 Basic dimensional requirements (roller returnway)

DIMENSION DEFINITIONS

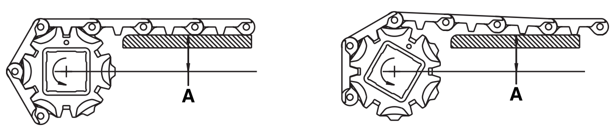
A — The vertical distance between the centerline of the shaft and the top of the carryway.

The belt-to-sprocket engagement and end-off/end-on product transfers are affected by the "A" dimension and the amount of chordal action between the belt and sprockets. Chordal action occurs as each row of modules in a belt rises and falls as it engages the drive sprockets or disengages the idle sprockets. This effect is most pronounced in the large pitch belt/small pitch diameter sprocket combination, such as **Series 800** with 4.0 in. (102 mm) pitch diameter sprockets.

For small pitch diameter sprockets, the "A" dimension is given as a range to indicate when the belt will be horizontal at both the high and low points of the chordal action.

For large pitch diameter sprockets/small pitch belt combinations, the effects of chordal action are small and fall within the allowable tolerance. For these sprockets, a range for the "A" dimension is not necessary.

The bottom of the range is determined when the center of the module is at the top of the sprocket. At this point, this leading, engaged module is horizontal (*"Fig. 3–3 Chordal effects - bottom of range"*). As this row of modules rotates around the sprocket, the next row starts engaging the sprockets and is lifted above horizontal. It returns to horizontal as this row fully engages the sprockets.

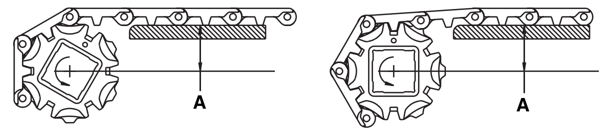


The row of engaging modules is raised above horizontal when the center of the hinge is at the top of the sprocket, but returns to horizontal as the center of the module passes the center of the sprocket.

Fig. 3–3 Chordal effects - bottom of range

For general applications and applications where end transfer of tip-sensitive product is not critical, use the "A" dimension at the bottom of the range.

The top of the range is determined when the center of the hinge, between two rows of modules, is at the top of the sprocket. At this point, the leading module is horizontal (*"Fig. 3–4 Chordal effects - top of range"*). As this row of modules engages the sprockets, the row drops below horizontal. It returns to horizontal as the leading edge of the next row starts to engage the sprockets. This arrangement should not be used with the **Series 800** belts since the underside geometry of the modules may cause chatter on the ends of the wearstrip or wear plate.



The row of engaging modules is horizontal when the center of the hinge is at the top of the sprocket, but goes below horizontal as the center of the module passes the center of the sprocket.

Fig. 3–4 Chordal effects - top of range

The "A" dimension can be set at any point inside the given range. If an "A" dimension is selected, which is between the top and bottom of the range, the belt will both rise above horizontal and drop below horizontal as each row engages the sprockets.

B — The horizontal distance between the centerline of the shaft and the beginning of the carryway. This dimension assumes that a 0.5 in. (12.7 mm) thick carryway is used, allowing for a typical 0.25 in. (6.4 mm) support and 0.25 in. (6.4 mm) wearstrip. The carryway can be extended to within 0.5 in. (12.7 mm) of the centerline of the shaft if the supports extend between the sprockets *"Fig. 3–10 Anti-sag configuration"* (page 296).

C — The vertical distance between the top of the carryway and the top of the returnway rails or rollers. This should provide between 180° (min.) and 210° belt wrap around the drive sprockets. The listed dimensions will provide the minimum 180° wrap required for proper engagement.

D — The clearance between the edges of the belt and the side frame member, 0.25 in. (6.4 mm) min. **It should be noted that the minimum edge clearance between side frames and the belt must be determined at the *operating temperature* of the belt. Always check with Customer Service for precise belt width measurement and stock status before designing a conveyor or ordering a belt.** See "*THERMAL EXPANSION AND CONTRACTION*" (page 310) and "*EXPANSION DUE TO WATER ABSORPTION*" (page 311) sections to calculate the *operating* width of your belt at temperatures above ambient.

E — The minimum horizontal distance between the centerline of the shaft and any framework.

DRIVE GUIDELINES

Intralox square shafts provide maximum efficiency in driving the belt. The two primary advantages are: 1) the positive transmission of torque to the sprockets without keys and keyways, and 2) allowing lateral movement of sprockets to accommodate the inherent differences in thermal expansion or contraction between plastics and metals.

SHAFT SIZES AND MATERIALS

Intralox, LLC USA stocks square shaft materials in Aluminum (6061-T6), Carbon Steel (C-1018) and Stainless Steel (303 and 316) in the following sizes:

Aluminum:	1 in. and 1.5 in.
Carbon Steel:	5/8 in., 1 in., 1.5 in., 2.5 in., 3.5 in.

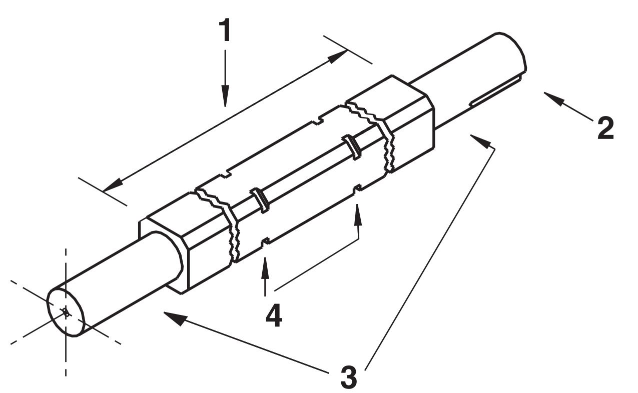
303 Stainless Steel:	5/8 in., 1 in., 1.5 in., 2.5 in., 40 mm and 60 mm
304 HR Stainless Steel:	3.5 in.
316 Stainless Steel:	1.5 in. and 2.5 in.

Intralox, LLC Europe offers square shaft materials in Carbon Steel (KG-37) and Stainless Steel (304) in the following sizes:

Carbon Steel: 25 mm, 65 mm and 90 mm.

Stainless Steel: 25 mm, 40 mm, 60 mm, 65 mm and 90 mm.

The correct shaft size for your application can be determined by calculations found in the *"Belt Selection Instructions"* (page 35), or from the formulas beginning on page 314. Typical shaft sizes and material properties are listed in *"Table 8 SHAFT DATA"* (page 325).



1 - Square section length [Distance between bearings, less 1/4 in. (6 mm)]

2 - Keyway for driver hub (not required on idle shaft)

3 - Bearing journals

4 - Retainer ring grooves

Fig. 3–5 Typical shaft features

DRIVE SHAFT TORQUE LOADING

An important consideration in the selection of shaft sizes is the torque loading that the drive shaft must absorb. The belt's pull, acting through the sprockets, introduces the torsional or twisting load on the drive shaft. Under any given set of conditions, i.e., product loading and frictional resistance, the belt pull will remain constant, but torque on the drive shaft will vary with the size of sprockets chosen. *As the sprocket pitch diameter is increased, the torque on the shaft is also increased.* Therefore, if a particular shaft size is desired, but the torque to be absorbed exceeds that recommended by *"Table 9 MAXIMUM RECOMMENDED TORQUE ON DRIVE SHAFT"* (page 325), recalculate the torque with the smaller sprocket *if there is a smaller diameter sprocket available in your belt's series*. To achieve the same belt speed, the rotational speed (RPM) must be proportionally greater with the smaller sprocket.

POWER REQUIREMENTS

The power needed to drive the belt can be calculated in the *"Belt Selection Instructions"* (page 35), or from the formulas beginning on page 314. It should be noted, this calculated power does not include the power needed to overcome mechanical or other inefficiencies in the system. Since conveyor arrangements and power trains may consist of many possible choices, the following table may assist you in determining the amount of added power needed for your design.

MACHINERY ELEMENTS	AVERAGE MECHANICAL EFFICIENCY LOSSES
Ordinary Sleeve Bearings	2% to 5%
Ball Bearings	1%
Gear Reducers:	
Spur or Helical Gears	
Single Reduction	2%
Double Reduction	4%
Triple Reduction	5%
Worm Gears	
Single Reduction	5%
Double Reduction	10% to 20%
Roller Chains	3% to 5%
V Belts	2% to 4%
Hydraulic Power Systems	(consult manufacturer)

Determine the total efficiency losses in the components to be used and use the calculated power to determine the required **Motor Power** as follows:

$$\textbf{Motor Horsepower} = \frac{\text{Belt drive power}}{100\% - \text{Total \% Losses}} \times 100$$

For example, if you determine the total efficiency losses in your system amount to 15% and your belt drive power was calculated to be 2.5 horsepower, the required motor horsepower can be found from:

$$\textbf{Motor Horsepower} = \frac{2.5}{100 - 15} \times 100 = 2.94$$

Therefore, in this case, the appropriate motor power to drive this system would be 3 horsepower.

RETAINING SPROCKETS

It is usually necessary to *laterally retain only one sprocket* on each of the drive and idler shafts. This sprocket will provide the positive tracking necessary to keep the belt running properly between side frames of the conveyor. By allowing the other sprockets to move laterally, thermal expansion differences between the belt and frame are easily accommodated. By convention, Intralox recommends the sprocket adjacent to or on the belt's centerline be retained using retainer rings on both sides of the sprocket. When only two sprockets are used, retain the sprockets on the drive journal side of the conveyor.

In some cases, the "center" sprocket will be slightly offset from the centerline of the belt. In **Series 1100**, the center sprocket will be 0.5 in. (13 mm) off center when the belt width is an odd number of inches wide, e.g., 7 in. or 9 in. (or an odd multiple of 25.4 mm). **Series 2200** sprockets will always be 0.25 in. (6.4 mm) off center. If a Radius Belt Standard Edge or Tabbed Edge wearstrip is used to contain the **Series 2200** belt up to the sprockets, it is not recommended that any sprockets be retained on the shaft. In this case, the wearstrip is used to maintain the belt's lateral position.

USE OF ROUND SHAFT

Intralox recommends the use of square shafting. However, on lightly loaded belts narrower that 18 in. (460 mm), **Round Bore Adapters** will permit 1.5 in. (38.1 mm) square bore sprockets to be used with 1 in. (25.4 mm) diameter round shafts. Adaptors of 2.5 in. (64 mm) lengths have a torque limit of 875 in-lb (10,000 mm-kg). The 3.5 in. (89 mm) length is limited to 1200 in.-lb. (13,800 mm-kg) per adapter. Operating temperature limits are between 45 °F (7 °C) and 120 °F (50 °C) for both sizes. In addition, for **Series 400** belts, the 6.4 in. (162 mm) pitch diameter sprocket is available with 2 in. (50.8 mm) round bore and *two* keyways [0.5 in. (13 mm) × 0.25 in. (6.5 mm)] 180° apart. **Series 900, Series 1100** and **Series 1400** sprockets are available in round bore sizes. (See the appropriate **SPROCKET DATA** tables for detailed information.)

Note: Round bore molded and split sprockets are frequently furnished with two keyways. Use of two keys is NOT REQUIRED, nor recommended.

INTERMEDIATE BEARINGS

On wide belt systems or those under heavy tension loads, an additional bearing (or bearings) may be needed to support the center of the drive and idler shafts to reduce deflection to acceptable levels. Excessive drive shaft deflection will cause improper belt-to-tooth engagement, a condition which should be avoided.

When intermediate bearings are considered, the shaft deflection formulas are different from the one which applies to shafts supported by only two bearings. With a third bearing, *located in the center of the shaft*, the deflection formula (see page 316) is straightforward and easy to apply.

$$D_3 = \frac{1}{185} \times \frac{\frac{w}{2} \times L_S^3}{E \times I}$$

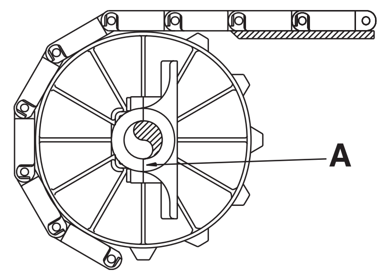
$$= \frac{w \times L_S^3}{370 \times E \times I}$$

where:

	D	=	Deflection, in. (mm)
	w	=	Total shaft load, lb (kg)
	$\mathbf{L_S}$	=	Shaft length *between bearings*, in. (mm)
	E	=	Modulus of Elasticity, lb/in^2 (kg/mm^2)
	I	=	Moment of Inertia, in.^{4} (mm^4)

However, *when the third bearing is placed off center, or when more than three bearings are used*, the analysis is so complicated that convenient general formulas for deflection cannot be given. A simpler approach is to allow the designer to determine a *safe maximum span length*, using the charts in Section 4. After calculating the **TOTAL SHAFT LOAD, w,** the maximum span for available shaft sizes and materials is easily determined. **Tables 11A** and **11B** (page 327) are for Conventional Conveyors using two bearings and three or more bearings. **Tables 11C** and **11D** (page 327) are the corresponding curves for Bi-directional and Pusher Conveyors.

Intermediate bearings usually are Split Journal Bearings. They should be mounted on the conveyor frame with the split of the bearing housing perpendicular to the direction of the belt travel. (Note: if the split is parallel with the belt travel, its load capacity is reduced significantly.) In cases requiring intermediate bearings, it is prudent to utilize sprockets with the largest practical diameter because of the rather large housing dimensions. Otherwise, a bearing modification may be needed to allow it to fit the limited space available.



A -Split in bearing housing should be perpendicular to the direction of belt pull.

Fig. 3–6 Intermediate bearings recommended mounting arrangement

ROLLERS AS IDLE SHAFTS AND SPROCKET REPLACEMENTS

In many applications, idle shafts and their sprockets may be replaced by rollers made of steel pipe, supported by stub shafts. These pipe rollers can be considerably stiffer than a comparable length of solid, square shafting. For example, a 4 in. (102 mm) — Schedule 40 pipe and a 6 in. (152 mm) — Schedule 40 pipe have more than twice the stiffness of 2.5 in. (63.5 mm) and 3.5 in. (88.9 mm) square steel shafts, respectively. Therefore, in cases where loads are high and the belt is wide, the use of rollers such as these may eliminate the need for intermediate bearings to reduce shaft deflection to acceptable levels. Flanging or spooling of the ends of the rollers to retain the belt laterally is necessary in some cases.

Scroll idlers can also be used in place of idle sprockets. See *"Scroll idlers"* (page 281). Scroll idlers are used to help keep the returnway clean and free of debris.

SOFT STARTING MOTORS AND FLUID COUPLINGS

Rapid starting of high speed or loaded conveyors is detrimental to good belt and sprocket life. This will also cause adverse effects on the entire drive train. When the motor power exceeds 1/4 horsepower per foot of belt width (612 watts per meter), Intralox strongly recommends the use of soft starting electric motors or one of the several fluid couplings (wet or dry) presently available. These devices allow the driven conveyor to accelerate gradually to operating speeds, which is beneficial for all components.

BELT CARRYWAYS

Intralox belting can be supported in the load-bearing part of its travel by carryways of various arrangements. Since their primary purposes are to provide a lower friction running surface and to reduce wear on both the belt and the frame, it is wise to give careful consideration to this part of the design.

The carryway belt contact surfaces may be of metal, usually cold-rolled finished Carbon or Stainless Steel, or one of the commonly used plastics available from Intralox. Please refer to the belt data pages in *"Section two: Product line"* (page 17), or **Tables 2A** (page 322) and **2B** (page 322) for frictional characteristics of each. Also refer to the wearstrip data (beginning on page 313) for a description of the plastic strips available from Intralox.

SOLID PLATE CARRYWAYS

These are continuous sheets of metal, UHMW or HDPE over which the belt slides. They extend the full width of the belt and almost the entire length between idler and drive sprockets. The plates may be perforated with slots or holes to allow for drainage and the passage of foreign material. In heavily loaded applications, this type of carryway surface is considered a good choice because of the continuous support it provides to the belt.

WEARSTRIP CARRYWAYS

All wearstrips are available in Ultra High Molecular Weight (UHMW) Polyethylene. Certain styles are also available in High Density Polyethylene (HDPE) and Molybdenum-filled nylon (Nylatron).

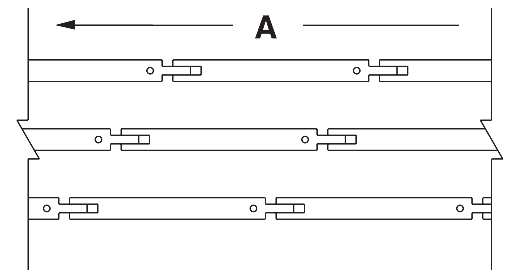
Wearstrip types and sizes

Intralox can provide wearstrips of three different types:

- **Standard flat wearstrips** are relatively thick, narrow, flat bars of UHMW, HDPE or Nylatron. UHMW and HDPE flat wearstrips are available in 0.25 in. (6.4 mm) thick × 1.25 in. (31.8 mm) wide × 10 ft. (3 m) lengths. Molybdenum-filled nylon (Nylatron) flat wearstrips are available in 0.125 in. (3.2 mm) thick × 1.25 in. (31.8 mm) wide × 8.5 ft. (2.6 m) lengths. The strips are applied directly to the frame and attached with plastic bolts and nuts in slotted holes. This allows the strips to expand and contract freely with temperature changes.
- **Flat finger-joint wearstrips** have a notched-end design (*"Fig. 3–7 Straight, parallel wearstrip arrangement"*) which provides an overlapping section for continuous belt support without sharp edges. These 0.25 in. (6.4 mm) thick wearstrips are fastened in short lengths at the leading end only, with a 0.375 in. (9.5 mm) gap, to provide freedom for elongation caused by temperature changes. They are available in UHMW and HDPE.
- **Angle and clip-on wearstrips** normally are used in applications where belt edge protection is needed or lateral transfer is required. They are available in lengths of 10 ft. (3 m) in UHMW. In addition to the standard angle wearstrip, several specially **clip-on** or **snap-on** strips are available. These strips attach to the frame without the need of fasteners. Refer to page 281 for more information on available wearstrips.

Wearstrip arrangements

- **Straight, parallel runners** These supports consist of strips, either metal or plastic, placed on the frame parallel with the belt's travel. While relatively inexpensive to install, their disadvantage is that belt wear is confined to the narrow areas in contact with the strips. This arrangement is recommended, therefore, in low-load applications only.

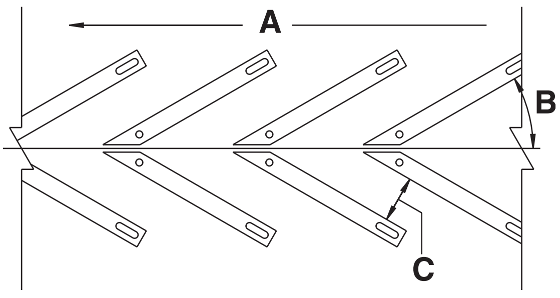


A -Belt travel

Fig. 3–7 Straight, parallel wearstrip arrangement

- **Chevron array** By placing the strips in an overlapping "V" or Chevron array, the underside of the belt is supported across its full width as it moves along the carryway. Thus the wear is distributed evenly. The angled surfaces can be effective in removing gritty or abrasive material from the underside of the belt. A minimum 0.4 in. (10.2 mm) gap is recommended between the points of the wearstrip to reduce debris build up. This arrangement is also good for heavily loaded applications. By reducing the spacing between adjacent chevrons, the bearing load on the strips and the belt's unsupported span is decreased.

Standard flat wearstrips can be modified to form the Chevron array.



A -Belt travel

B -10° to 30° allowable

C -Conventional - 2 in. (51 mm), maximum - 5 in. (127 mm)

Fig. 3–8 Chevron wearstrip arrangement

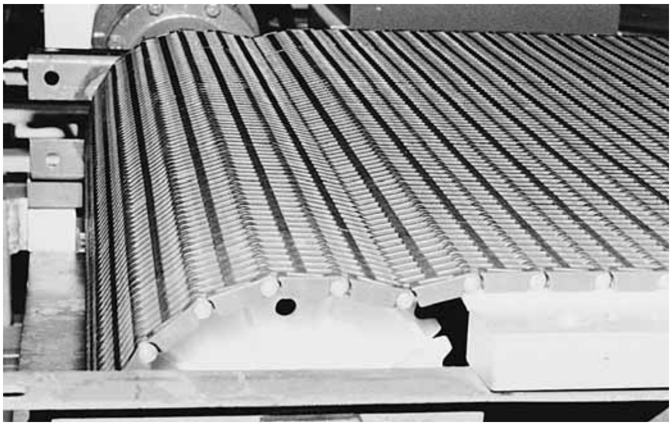


Fig. 3–9 Buckling belt rows

ANTI-SAG CARRYWAY WEARSTRIP CONFIGURATION

Under certain conditions, belts will require more carryway support near the sprockets. This is due to the belt tension not being great enough to support product between the end of the wearstrip support and the beginning of the sprocket support. Without adequate support, the belt may buckle (*"Fig. 3–9 Buckling belt rows"*). This buckling can be eliminated by extending the wearstrip supports, between the sprockets, to within 0.5 in. (12.7 mm) of the shaft centerline (*"Fig. 3–10 Anti-sag configuration"*).

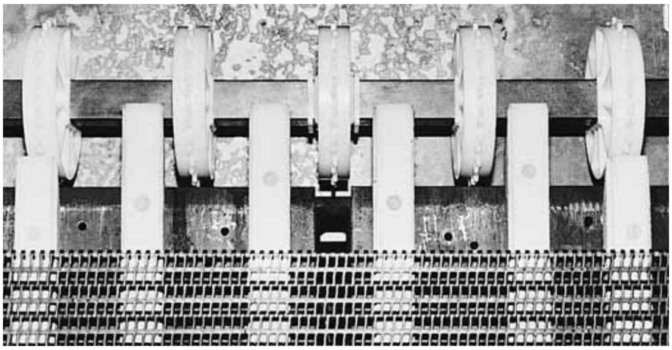


Fig. 3–10 Anti-sag configuration

Series 900 and **Series 1100** belts may need more support than normally required under heavy product loads. To prevent the belt from sagging or bowing under the weight, the wearstrips should be placed so that the unsupported spans between the strips, in parallel or chevron array, do not exceed 2 in. (50.8 mm). The unsupported span of 2 in. (50.8 mm) is measured perpendicular to the support structure (*"Fig. 3–10 Anti-sag configuration"*), regardless of the angle of the support to the direction of belt travel.

WEARSTRIP DESIGN CONSIDERATIONS

Temperature limits

UHMW flat and angle wearstrips are recommended to 160 °F (71 °C). HDPE is recommended to 140 °F (60 °C); Molybdenum-filled nylon (Nylatron) up to 250 °F (121 °C).

Thermal expansion and contraction

Installation of Intralox flat and angle wearstrips should allow for thermal expansion and contraction. See *"THERMAL EXPANSION AND CONTRACTION"* (page 310), for Coefficients of Expansion. At operating temperatures of 100 °F (38 °C) or less, it is sufficient to bevel-cut the opposing ends of strips at an angle of 30° from the horizontal and provide a clearance gap of 0.30 in. (7.6 mm). At temperatures exceeding 100 °F (38 °C), the angle of the cut should be 60°. The clearance should be determined from thermal expansion calculations. It is recommended that wearstrip joining locations be staggered for smooth belt operation.

Chemical resistance

Please refer to the Polyethylene columns of the *"Chemical Resistance Guide"* (page 329), for information on UHMW and HDPE wearstrips.

ROLLERS AS CARRYWAYS

Rollers are not usually used on new applications because they do not provide a continuous supporting surface. The chordal action, as the modules pass over the rollers, will often create problems if product tippage is critical. However, on converted units, rollers are sometimes employed, especially where bulk products are to be conveyed.

RETURNWAYS AND TAKE-UPS

The return side of conventional conveyors using Intralox belts are generally exposed to relatively low tension loads, but nonetheless, are very important in the overall design.

Note: On bi-directional and push-pull conveyors where return side tensions are high, special attention must be paid to this part of the design, see page 299.

CONTROL OF BELT LENGTH

One of the principal functions of the returnway is to *properly* accommodate the increase (or decrease) in the length of the belt while operating. Control of belt length is vital in maintaining sufficient tension of the belt after it disengages from the drive shaft sprockets. A belt which increases in length can disengage from its drive sprockets if proper design criteria are not followed. A belt which contracts due to cold temperatures may cause over-tensioning and excessive shaft loads if some surplus belt is not provided. Belts will either elongate or contract in operation because of these factors:

- **Temperature variations**

  Assuming belts are installed at average ambient conditions, normally about 70 °F (21 °C), any significant temperature change in operation will result in contraction or elongation of the belt. The magnitude of the thermal contraction or expansion is dependent upon the *belt's material*, the *difference in temperatures* and the *overall length of the belt*. Please refer to the section on *"THERMAL EXPANSION AND*

CONTRACTION" (page 310), to determine the temperature effects in your application.

- **Elongation (strain) under load**
  All belts will elongate if tension is applied. The amount of increase in length will depend upon the belt *Series and Style*, the *belt's material*, the *amount of tension* or "belt pull" applied, and the *operating temperature*. Generally speaking, on conventional conveyors where the **ADJUSTED BELT PULL (ABP)** is about 30% of **ALLOWABLE BELT STRENGTH (ABS)**, this load-induced elongation is approximately 1% of the *conveyor's length*. If **ABP** reaches the **ABS**, this strain should not exceed 2.5% of the conveyor's length.
- **Elongation due to break-in and wear**
  New belts will usually experience elongation in the first days of operation as the hinge rods and modules "seat" themselves. In some severe services where heavy loads exist or abrasives are present, older belts will experience elongation due to wear of the hinge rods and enlargement of the modules' hinge rod holes.

Catenary sag

As a belt expands or contracts, it is necessary to accommodate the change in belt length. One of the most common methods for controlling belt length is to provide one or more unsupported sections on the return side in which the belt may sag. This method of controlling belt length is referred to as the **Catenary Sag Method**. Since these unsupported sections of belt hang under their own weight, they approximate the shape of "catenary curves". These curves are able to store the excess belt by increasing in depth between the top and bottom of the curve. If more than one unsupported returnway section exists, the excess belt length is distributed among all the unsupported sections. Thus, the more of the returnway that is equipped with these catenary sections, the less vertical space is needed to store the excess belt length. For applications that will experience a large amount of expansion in length, other take-up arrangements may be required. See page 298 for an explanation of these alternate arrangements.

BACK TENSION

An adequate amount of returnway tension is needed directly after the drive sprocket for proper belt-to-sprocket engagement. This tension is commonly referred to as **back tension**. The span length and depth of the first catenary sag section directly after the drive sprockets provide this back tension. Back tension is increased as the span is **increased** or as the depth is **decreased**. The depth of this catenary section should not be allowed to exceed the recommendations in the following illustrations for this reason. Care should also be taken to avoid allowing the sagged belt to "bottom-out" on the conveyor frame. This will greatly reduce the back tension and may cause sprocket disengagement.

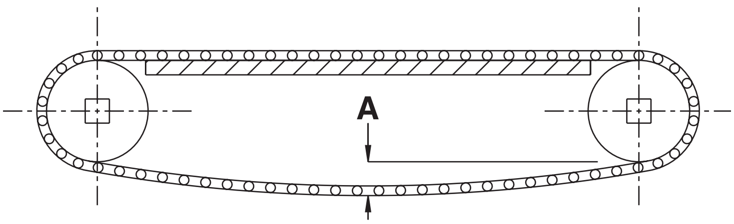
The roller directly after the drive sprocket, commonly referred to as a "snub" roller, should be placed so that the belt is wrapped between 180° and 210° around the drive sprockets (see the "C" dimension of "*Dimension definitions"* (page 292)).

In the design of conventional conveyors, it is seldom necessary to know precisely the amount of sag and tension required for good belt-to-sprocket engagement. In cases when catenary sag is used to accommodate belt length changes, it may be necessary to know the length of the additional or excess belt which is hanging between two adjacent supports and the tension created by that hanging section. These can be determined from formulas beginning on page 314. These simplified formulas give close approximations for predicting the results of catenary sag conditions. The actual formulas for catenary curves are more complex. However, in practice, where the span-to-sag ratio is large, these simpler formulas are sufficiently accurate for most applications. For example, with a span-to-sag ratio of 10 to 1, the error in the tension formulas is approximately 2%.

STANDARD RETURNWAYS

The following illustrations provide recommended returnway arrangements which have proven successful in many applications.

On very short conveyors, less than 6 ft. (2 m) long, a returnway support usually is unnecessary. The catenary sag between drive and idler sprockets alone is sufficient for good operation if the sag is limited to a maximum of 4 in. (102 mm).



A - The amount of catenary sag between each set of return rollers on longer conveyors or between the drive and idle sprockets on short conveyors should be between 1 in. (25.4 mm) and 4 in. (102 mm).

B - The snub roller should be placed 9 in. (0.23 m) to 18 in. (0.46 m) from the drive and idle shaft. The snub roller should be placed so that the belt has between 180° and 210° of wrap around the sprocket.

C - The returnway rollers should be spaced 36 in. (0.9 m) to 48 in. (1.22 m) apart for all series belts except **Series 100**, **400** and **2000**, which should have a 48 in. (1.22 m) to 60 in. (1.52 m) spacing. This, in combination with A and B, should provide the proper amount of return side tension for good sprocket engagement.

D - The minimum roller diameter is 2 in. (51 mm) for belts up to 1.07 in. (27 mm) pitch and 4 in. (102 mm) for larger pitch belts.

Fig. 3–11 Short conveyors (less than 6' [1.8 m])

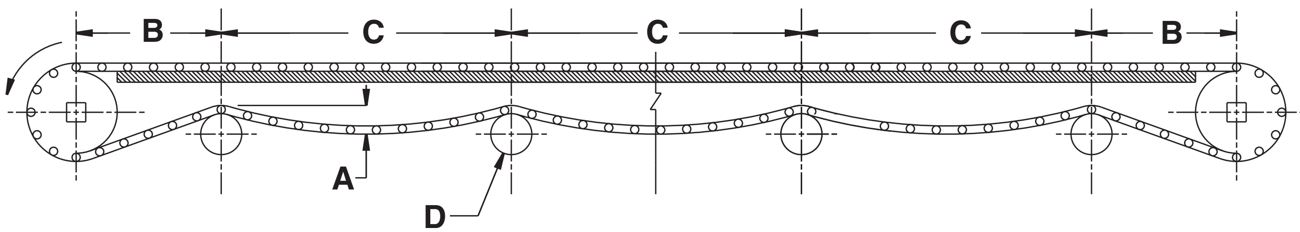
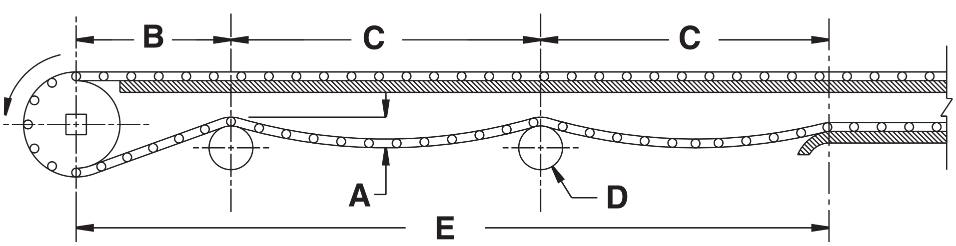


Fig. 3–12 Medium to long conveyors (6' [1.8 m] and longer)



E - Slide beds should begin at least 24 in. (0.6 m) from the drive sprockets on conveyors less than 12 ft. (3.6 m) long and 36 in. (0.9 m) to 48 in. (1.22 m) from the drive sprocket on longer belts. A combination of return rollers and a slide bed can also be used.

Fig. 3–13 Conveyors with slide beds

Roller returnways

As the length of the conveyor increases, it is necessary to provide intermediate support rollers in the returnway, but it is most important the belt be unsupported for a significant part of the total length, as shown in the following figures.

Sliderbed returnways

If a slide bed is used as part of the returnway, it should begin at least 24 in. (0.6 m) from the drive sprockets on short belts, less than 12 ft. (3.6 m) long, or 36 in. to 48 in. (1 m to 1.2 m) from the drive sprockets on longer belts. A combination of return rollers and a slide bed can also be used. See *"Fig. 3–13 Conveyors with slide beds"* for more details.

SPECIAL TAKE-UP ARRANGEMENTS

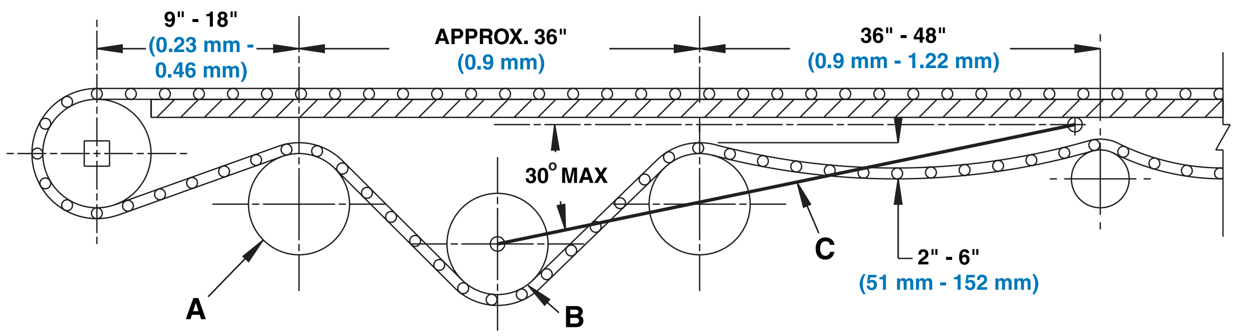
Catenary sag may be described as a dynamic take-up. In many applications it does not provide adequate tension to prevent sprockets from slipping. In these cases, other types of take-ups are required.

• Gravity style take-ups

Gravity style take-ups usually consist of a roller resting on the belt in the returnway. Its weight provides the tension needed to maintain proper sprocket engagement. The weight is most effective when placed near the drive shaft end of the returnway. These take-ups are recommended for *conventional* conveyors which are:

1. over 75 ft. (23 m) long, or
2. over 50 ft. (15 m) long with belt speeds over 150 ft/min (30 m/min), or
3. exposed to large temperature variations, or
4. operated at speeds over 50 ft/min (15 m/min), *and* with frequent starts under loads of over 25 lb/ft² (120 kg/m²).

For 1.00 in. (25.4 mm) pitch belts, a 4 in. (102 mm) diameter roller with a weight of 10 lb/ft (15 kg/m) of belt width is recommended. For 2.00 in. (50.8 mm) pitch belts, the recommended specifications are 6 in. (152 mm) diameter and 20 lb/ft (30 kg/m) of belt width.



A -Load-bearing shafts (typical) **B** -Gravity take-up roller **C** -Swing arm

Fig. 3–14 Gravity style take-up

• Screw style take-ups

Screw style take-ups shift the position of one of the shafts, usually the idler, through the use of adjustable machine screws. The shaft bearings are placed in horizontal slots in the conveyor frame. The screw style take-ups are used to move the shaft longitudinally, thus changing the length of the conveyor.

Screw take-ups should be used *only* to make minor adjustments to return the catenary sag to its best position. They *should not be used as primary length control devices*.

The *disadvantages* of screw take-ups are that *shafts can be misaligned* easily, and the *belt can be over tightened*, reducing belt and sprocket life as well as *increasing shaft deflection*.

SPECIAL CONVEYORS

BI-DIRECTIONAL CONVEYORS

Bi-directional conveyors are usually designed in two basic drive configurations: the **Pull-pull** type and the **Push-pull** type. There are some features common to both, but each has certain advantages and disadvantages. The illustrations and comments below describe the differences between the two types.

Pull-pull designs

There are three common variations of the Pull-pull type, notably the center-drive method, the two-motor drive method, and the single-motor and slave-drive method.

• Center-drive design

The center-drive is shown in *"Fig. 3–15 Center-driven bi-directional conveyor"*. The *reversible* drive shaft is placed in the returnway near the center of the conveyor. This drive shaft should be placed to allow adequate belt tension to develop on both sides of the returnway with catenary sag sections. Notice that the rollers designated as "**A**" in the illustration are load-bearing. The shafts and bearings which support them should be so designed.

Center-drive bi-directional conveyors, when designed correctly, afford excellent operating characteristics because sprocket engagement occurs over 180° of rotation. In addition, only one reversing motor is required.

Note: Because belt tension is applied to both the carryway side and returnway side of the idler shafts at opposite ends of the conveyor, these shafts must be designed for twice the belt tension determined by calculations of the **ADJUSTED BELT PULL, (ABP)**. *Therefore, the shaft deflection calculations and sprocket spacing determination should be based upon two times the Adjusted Belt Pull.* Because of these larger shaft loads, it is sometimes necessary to use very large shafts, or to use rollers in lieu of idle sprockets and shafts on these designs.

• Two-motor drive design

The two-motor drive design has the advantage of relatively low returnway belt tension, but requires additional hardware (an additional motor and slip clutches) and electrical control components. Despite the additional equipment needed, on extremely large units with heavy loads, this is often the most practical drive system.

• Single-motor and slave-drive method

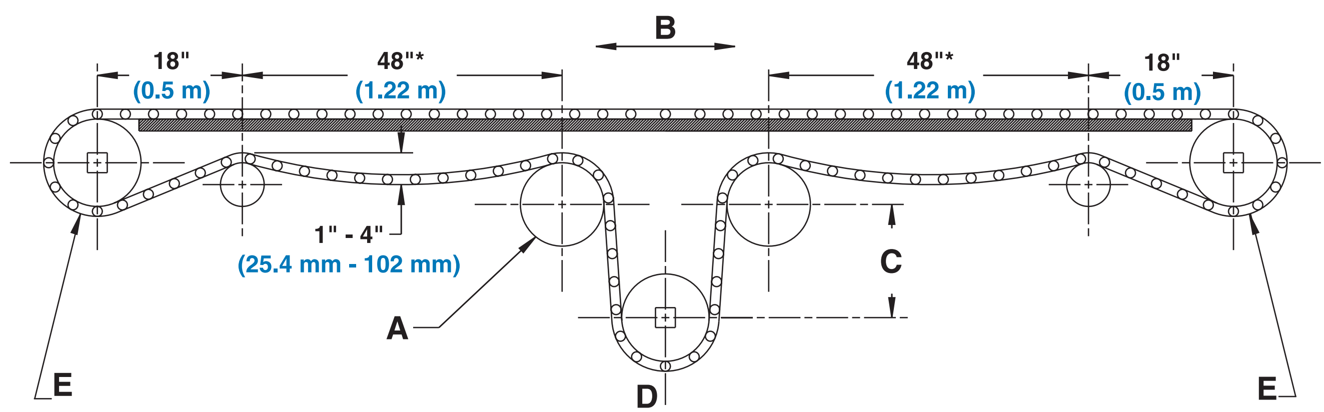
The single-motor (reversible) employing a roller chain, alternately driving either of two chain sprockets on the conveyor shafts, is another low-tension option. It is also expensive because of the additional hardware required. This drive system is usually limited to short conveyors because of the length of roller chain involved.

Push-pull designs

Push-pull bi-directional conveyors (*“Fig. 3–17 Push-pull bi-directional conveyor”*) require special attention to returnway tension, shaft deflection and sprocket spacing. When the driving shaft is *pulling* the load towards itself, the conveyor acts like other conventional units. *When the direction of belt travel is reversed*, the drive shaft is *pushing* the loaded belt. In this situation, *if the return side tension is not greater than the carryway tension, sprocket slipping or jumping will occur*. Excess belt may buckle upwards in the carryway interfering with product handling.

It is vital to design a Push-pull bi-directional conveyor with the required return side belt tension. Experience has shown this needs to be about 120 percent of the *carryway side* **ADJUSTED BELT PULL (ABP)**. See the *“Belt Selection Instructions”* (page 35), or the *“Formulas”* (page 314). Having determined the carryway side ABP, the returnway tension is:

Required Returnway Tension = 1.2 × ABP



A -Load-bearing rollers (typical):

- For 0.50 in. (12.7 mm) pitch, 2 in. (50 mm) dia.
- For 0.60 in. (15.2 mm) to 1.00 in. (25.4 mm) pitch, 4 in. (100 mm) dia.
- For 2.00 in. (51 mm) pitch, 6 in. (150 mm) dia.

B -Belt travel

C -this distance must be no less than 3 times the belt pitch

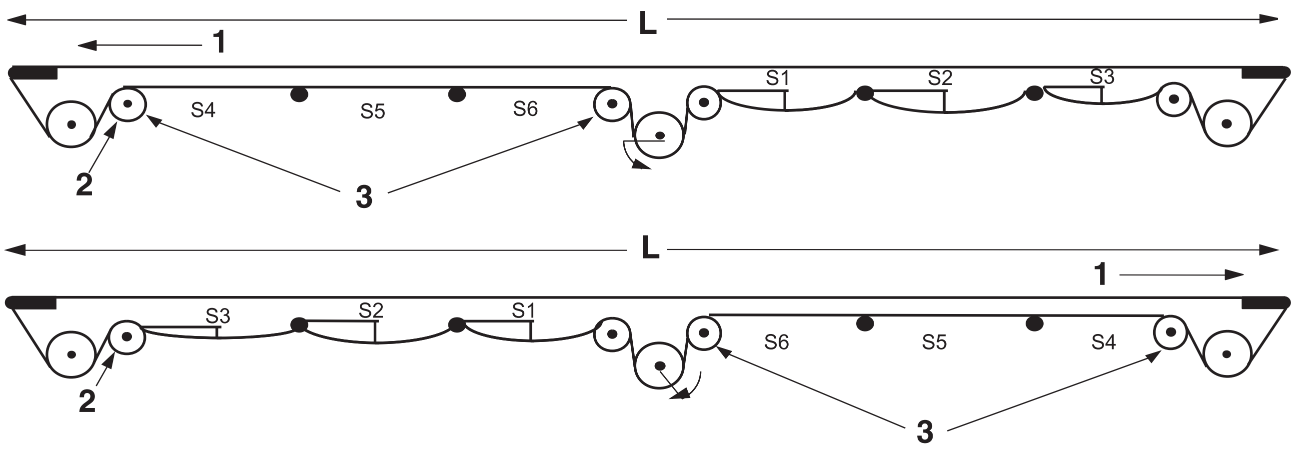
D -Drive sprockets

E -Rollers may be substituted for sprockets to avoid using intermediate bearings. On conveyors having a length of no greater than twice the width, unspooled rollers may be used. On longer conveyors, the rollers should be spooled allowing 3/16 in. (5 mm) to 3/8 in. (10 mm) clearance between the inside of the flange and the belt edges.

Note: For belts operating at temperatures above ambient, this clearance should exist at operating temperature.

* Typical

Fig. 3–15 Center-driven bi-directional conveyor



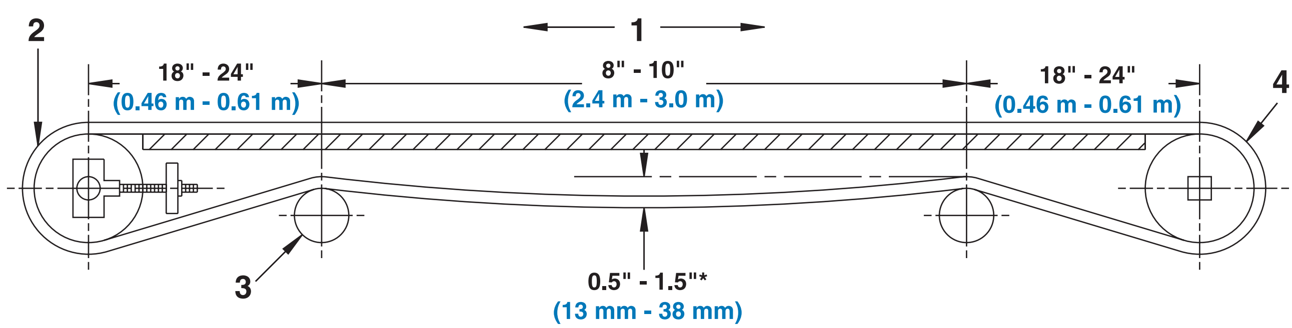
1 -Belt travel

2 -Snub rollers

3 -Reaction force

L -Length of conveyor, ft. (m), ℄ to ℄

Fig. 3–16 Center drive with nose bars



1 -Belt travel

2 -Screw take-up end

3 -Roller or shoe

4 -Drive sprocket

* Sag

Fig. 3–17 Push-pull bi-directional conveyor

• Effect on shaft deflection and sprocket spacing

Since both drive and idler shafts will experience a tension load as the belt approaches and leaves the sprockets, the total shaft loading is more than twice that of a conventional uni-directional conveyor. Therefore, when calculating the shaft deflection, it is most important to increase the Total Running Shaft Load for the added belt tension. The corrected Adjusted Belt Pull can be found from:

Corrected ABP = 2.2 × ABP

Use this value in calculating the Total Shaft Load and Shaft Deflection. Formulas for these may be found in the *"Belt Selection Instructions"* (page 35), or the *"Formulas"* (page 314). Because the belt is tensioned on both sides of the sprockets, a greater shaft deflection of about 0.22 in. (5.6 mm) is tolerable for these conveyors.

The **Corrected ABP** should also be used in determining the proper spacing of shaft sprockets. See the **Drive Shaft Sprocket Spacing** chart in *"Section two: Product line"* for the belt being considered. Remember that **both shafts** should be considered as drive shafts for deflection and sprocket spacing calculations.

The power and torque needed to drive the Push-pull unit is not affected by the returnway tension, however, the greater shaft loading does affect the loads on bearings. The designer is therefore cautioned to allow for this additional load in the selection of the shaft bearings.

ELEVATING CONVEYORS

Elevating conveyors are similar to horizontal units with several design differences required for good operation. First, *the upper shaft is strongly recommended as the drive shaft*. The extreme difficulty of "pushing" product up an incline precludes this as a viable alternative. Second, as the angle of incline increases, the effectiveness of catenary sag as a method of length control decreases. *It is always recommended that some mechanical form (screw or spring) of take-up be employed on the lower or idler shaft.*

Elevators almost always involve the use of flights and sideguards which present special requirements in the design.

SECTION 3

For example, shoes or slide beds on the return side must be designed so these flights or sideguards will not interfere with the smooth operation of the conveyor. The illustrations and comments in *"Fig. 3–18 Incline conveyor"* through *"Fig. 3–22 Elevating conveyor with shoe return"* show five different variations of elevating conveyors.

GENERAL NOTES ON ELEVATING CONVEYORS: THESE NOTES APPLY TO *"Fig. 3–18 Incline conveyor"* TO *"Fig. 3–22 Elevating conveyor with shoe return"*.

A - If sprockets are used at intermediate points, the center sprockets are NOT retained. If rollers or shoes are used, a 3 in. (76 mm) minimum radius is required for 1.00 in. (25.4 mm) pitch belts; a 5 in. (127 mm) minimum radius for 2.00 in. (50.8 mm) pitch belts.

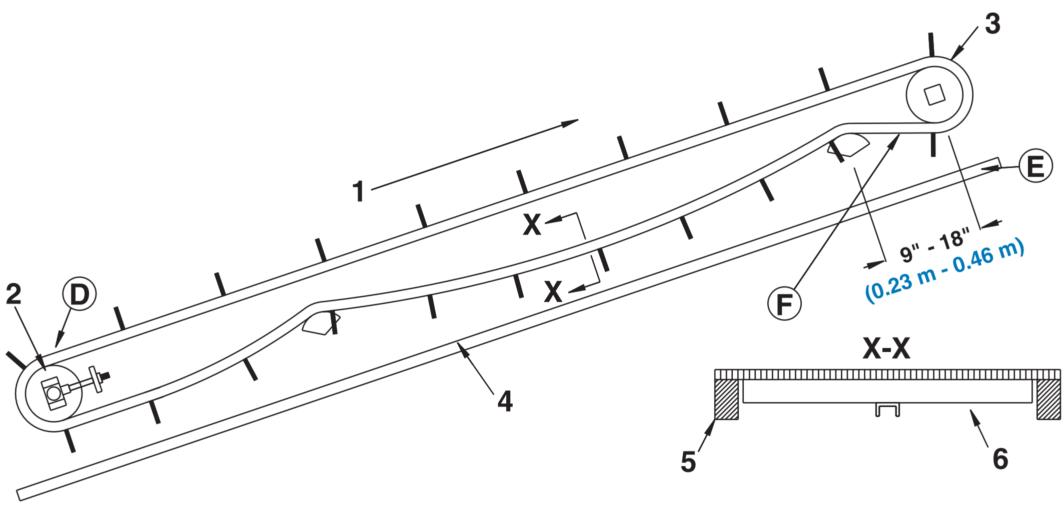
B - To minimize wear, the hold down shoe radius should be as large as the application will allow. The minimum radius should be 6 in. (152 mm).

C - Internal roller or shoe should have a minimum diameter of 3 in. (76 mm).

D - Consider a drum or scroll on the idle end if product or foreign materials are expected to fall between the belt and the sprockets.

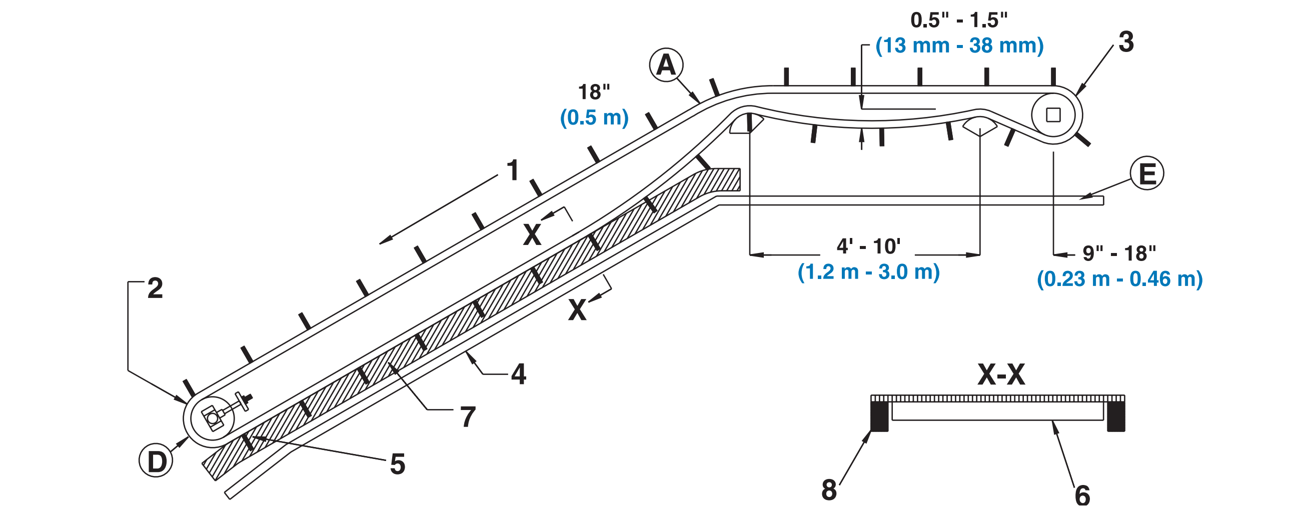
E - Keep drip pans clear of flights and sideguards between drive sprockets and the first shoe or roller.

F - For proper sprocket engagement, do not allow belt sag to develop between the drive sprocket and the first roller or shoe.



1 - Belt travel
2 - Idle sprocket
3 - Drive sprocket
4 - Guard or drip pan as required
5 - Shoe or rollers
6 - Flights

Fig. 3–18 Incline conveyor



1 -Belt travel

2 -Idle sprocket

3 -Drive sprocket

4 -Guard or drip pan as required

5 -Active take-up should be used on idle end to maintain adequate return side tension

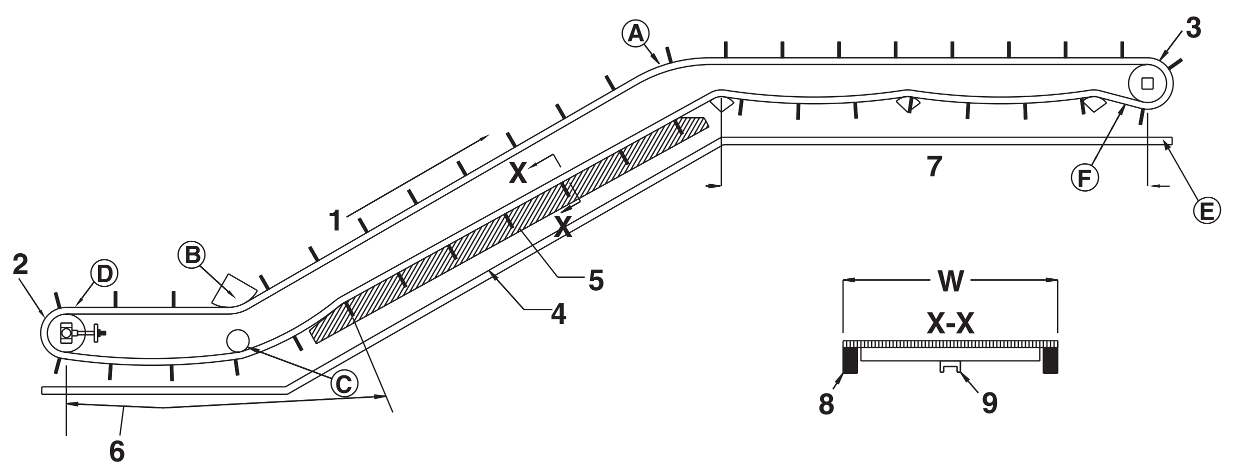
6 -Flights

7 -Slider supports

8 -Slider supports on belt edges

Note: Catenary length of 4' (1.2 m) to 5' (1.5 m) for loads under 10 lb/ft² (50 kg/m²).
Note: Catenary length of 8' (2.5 m) to 10' (3 m) for loads over 10 lb/ft² (50 kg/m²).

Fig. 3–19 Decline conveyor



1 -Belt travel

2 -Idle sprocket

3 -Drive sprocket

4 -Guard or drip pan as required

5 -Slider supports

6 -Provide adequate unsupported length for sag to absorb expected belt elongation, or provide active idle end take-up — gravity, spring-loaded or pneumatic type

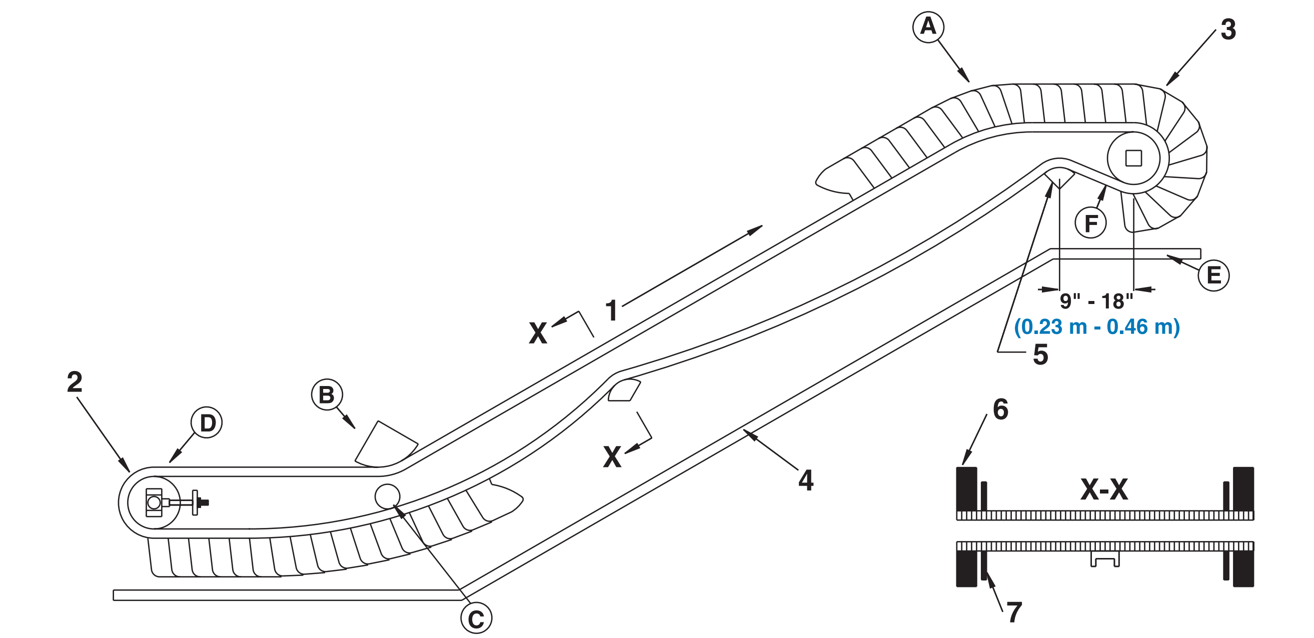
7 -Use returnway design dimensions on page 297

8 -Slider supports on belt edges

9 -Support flights if "W" exceeds 24" (0.6 m). For belts with a 1.07" (27 mm) or smaller pitch, more supports maybe necessary.

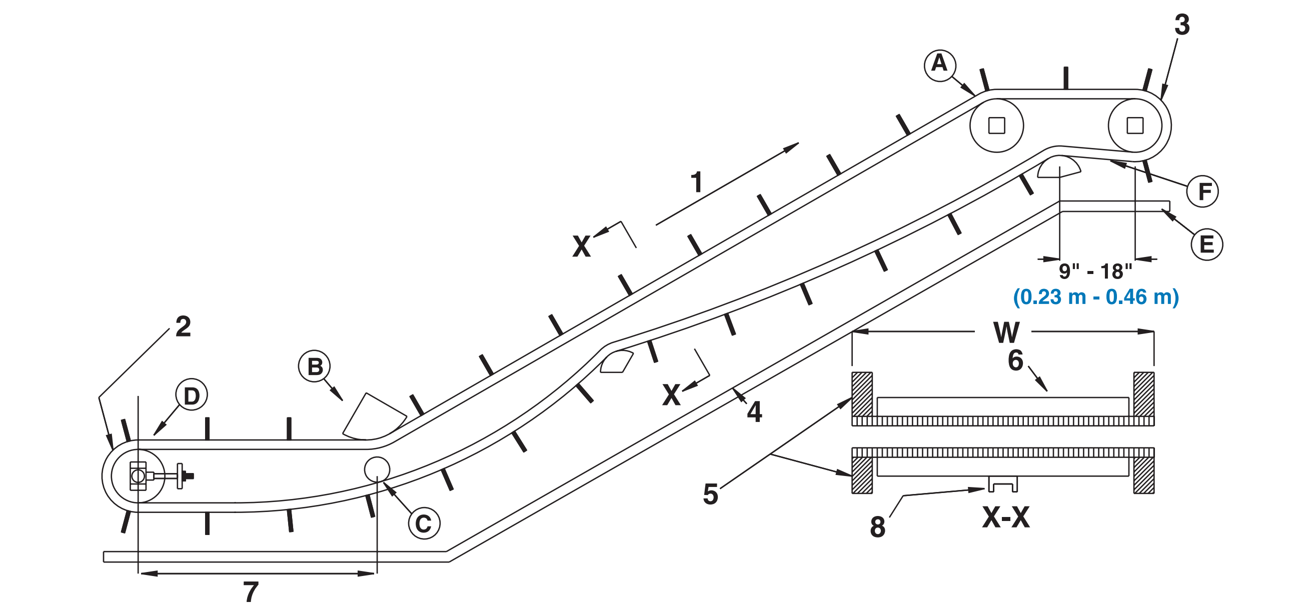
W -Belt weight, lb/ft² (kg/m²)

Fig. 3–20 Elevating conveyor with belt edge slider return



1 -Belt travel
2 -Idle sprocket
3 -Drive sprocket
4 -Guard or drip pan as required
5 -Minimum backbend radius 4.5” (115 mm)
6 -Shoes or rollers
7 -Sideguards

Fig. 3–21 Elevating conveyor with wide sideguards and shoe return

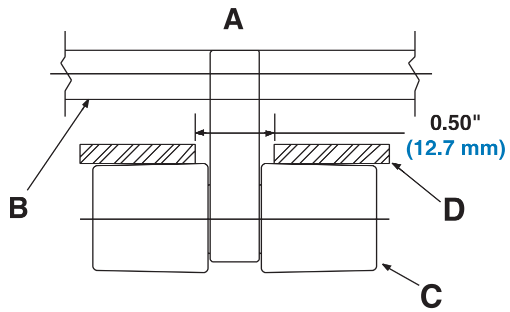


1 -Belt travel
2 -Idle sprocket
3 -Drive sprocket
4 -Guard or drip pan as required
5 -Shoes or rollers
6 -Flights
7 -If longer than 4’ (1.2 m) use returnway slider bed in this section.
8 -Support flights if “W” exceeds 24” (0.6 m). For belts with a 1.07” (27 mm) or smaller pitch, more supports maybe necessary

Fig. 3–22 Elevating conveyor with shoe return

Hold down rollers

Some elevating conveyors can employ Hold Down Roller assemblies in place of hold down shoes or rollers. These roller assemblies ride in steel rails on the carryway and returnway side of the conveyor. To minimize wear, the rail bend radius should be as large as the application allows. The minimum bend radius should be 12 in. (305 mm). The minimum rail thickness should be 0.125 in. (3.2 mm), and should be at least 0.75 in. (19 mm) wide. The minimum bend radius is proportional to the thickness of the carryway rail. A thicker rail will require a larger bend radius. Normally, the roller assemblies are spaced every fourth row along the length of the belt. The tightest spacing possible is every second row. Assembly spacing has no effect on bend radius.



A -Top belt surface

B -Bottom belt surface

C -Roller assembly

D -Steel rail 0.125 in. (3.2 mm) × 0.175" (19 mm)

Fig. 3–23 Hold down roller

When large temperature variations are to be encountered, care must be taken in the placement of the rails to accommodate the thermal expansion of the belt. The transverse movement of the roller assemblies can be calculated by using the **Coefficients of Thermal Expansion** (page 310). The distance of the hold down roller assembly to the belt centerline is used to calculate the movement.

For example:

A 24 in. (610 mm) **Series 400 Flush Grid** polypropylene belt, with hold down rollers indented 4 in. (102 mm) from each side, will operate at 100 °F (38 °C). The distance at ambient temperature, 70 °F (21 °C), from a hold down roller assembly to the belt centerline is 8 in. (203 mm).

$$\Delta = L_1 \times (T2 - T1) \times e$$

$$\Delta = 8 \text{ in.} \times (100\ °F - 70\ °F) \times 0.0008 \text{ in/ft/°F} \times \frac{1 \text{ ft.}}{12 \text{ in.}}$$

$$\Delta = 0.016 \text{ in. } (0.41 \text{ mm})$$

where

L_1 = distance from hold down roller to belt centerline

T_1 = ambient temperature

T_2 = operating temperature

e = thermal expansion coefficient (0.0008 in/ft/°F for polypropylene)

Each hold down roller assembly will move 0.016 in. (0.41 mm) when the belt is raised to operating temperature.

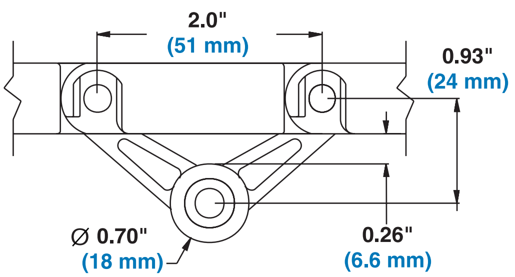
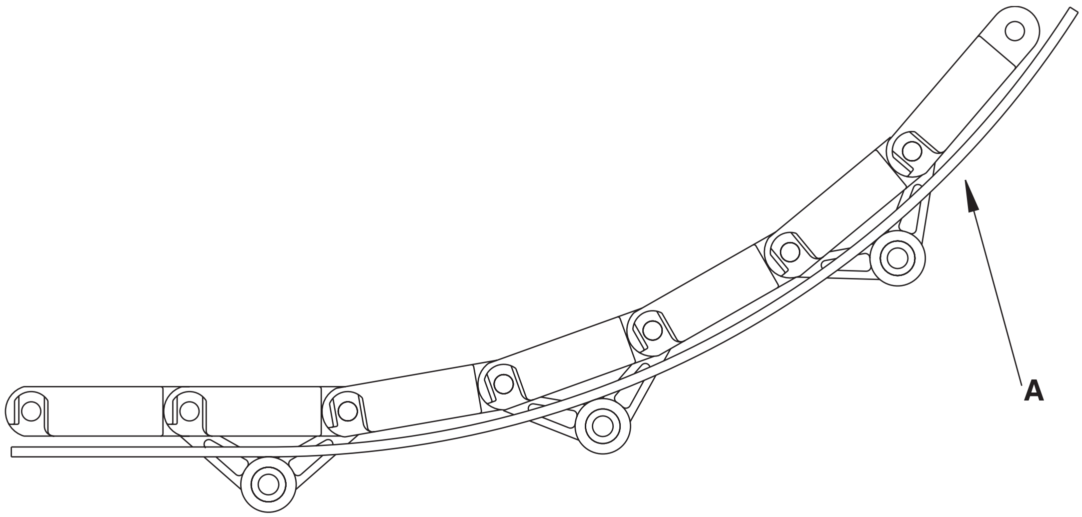


Fig. 3–24 Hold down roller, side view



A -Bend radius 12 in. (305 mm) with 0.125 in. (3.2 mm) thick rail

Hold down rollers installed in **Series 400 Flush Grid** every 4 in. (102 mm)

Fig. 3–25 Hold down roller, side view

Buckets for Series 200 belts

Buckets are available for use with **Series 200 Open Grid, Flush Grid, Flat Top** and **Perforated Flat Top** belts. The same guidelines that apply to flighted belts generally apply to belts with buckets. The minimum backbend radius of a belt with buckets is 3.5 in. (88.9 mm). Rollers and shoes must be sized accordingly.

Sprockets cannot be located behind the bucket gussets. Gussets will interfere with the normal action of the sprockets.

Friction modules

Several Intralox belt styles incorporate a high friction material to move products (cartons, trays, bags, etc.) on inclines.

• Integral friction surface modules

The high friction rubber of Friction Top modules is molded to a polypropylene or polyethylene base. Normal wearstrip, carryway and sprocket recommendations apply.

Conveyor design issues for friction modules

The following guidelines apply:

- The returnway must be designed to eliminate rubbing contact with friction modules. When using return rollers, the minimum roller diameter should be 3 in. (76 mm). Refer to *"Elevating conveyors"* (page 301) for detailed returnway information.
- The friction between the product and the belt is deliberately very high. Flow pressures and belt pulls will be high in applications where the product is allowed to back up. These situations are not recommended for any friction top belt.
- End-to-end transfers at both the in-feed and discharge ends are recommended. Sliding side transfers are ineffective due to the high friction quality of the friction modules.
- Thermal expansion is controlled by the base material.
- Operating temperature limits are controlled by the limits of both the friction top material and the base material.

SIDEFLEXING CONVEYORS

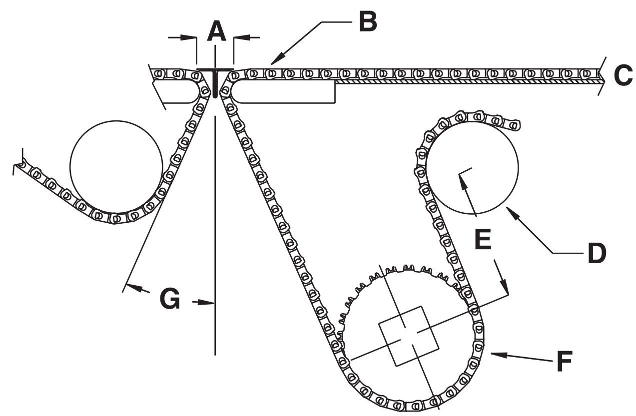
Series 2000, Series 2200 and **Series 2400** are designed for sideflexing applications that have a turning radius of 2.2, measured from the inside edge of the belt (1.7 for Tight Turning Series 2400). Sideflexing systems have many more design considerations than straight running systems. Some of these are discussed in *"Section two: Product line"*. The data pages for **Series 2000, Series 2200** and **Series 2400** list requirements for both calculating the belt loads on a sideflexing system and basic design requirements for each belt. Contact Customer Service for more detailed information.

TIGHT TRANSFER METHODS FOR SERIES 1100

Series 1100 has two small steel sprockets for very tight end-to-end transfers. The 1.6 in. (40 mm) and 2.3 in. (59 mm) pitch diameter sprockets both offer positive drive and tracking of the belt, and allow use of very small transfer plates. When even tighter transfers are desired, nosebars or rollers may be used. The smallest nosebar diameter recommended for **Series 1100** is 0.875 in. (22.2 mm). Dead plates can be as small as 1 in. (25.4 mm) wide.

Arrangements which allow the nosebars to rotate freely are preferred. Belt tension increases dramatically as it slides around stationary nosebars. The increased belt pull is a function of the friction between the sliding belt and the stationary nosebar, and the angle of wrap between the belt and the nosebar.

The nosebar material should be selected to result in the lowest possible sliding friction between the belt and nosebar. Lower friction will reduce belt tension. The amount of belt wrap around the nosebar also affects belt tension. There should be as little wrap as possible. A common nosebar configuration is shown in *"Fig. 3–26 Series 1100 nosebar configuration — End drive"*.



A - 1 in. (25.4 mm) Dead plate

B - 0.875 in. (22.2 mm) Minimum diameter nosebar or roller

C - Use side wearstrip for tracking

D - 3 in. (76 mm) Minimum diameter suggested

E - 4 in. (102 mm) Minimum

F - Drive sprocket

G - 20° To 25° typical — This angle is used to reduce wear on the rods and rod holes. Increasing this angle could increase wear on the rods and rod holes

Fig. 3–26 Series 1100 nosebar configuration — End drive

SERIES 600 MULTI-LANE CONVEYORS

Because of the unique module design, conveyors for **SERIES 600** belts require special features. First, the belt has very limited ability to flex or bend backwards. This requires that ***reverse bends*** in the returnway have ***minimum radii*** of 38 in. (1m). Refer to *"Fig. 3–27 Series 600 conveyor requirements"*.

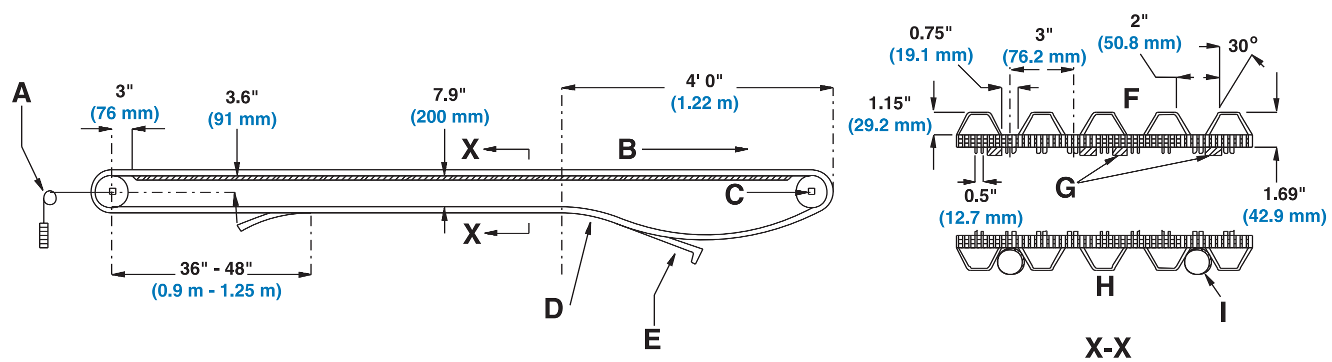
The deep troughs, used to separate the product into discrete lanes on the carryway, impose additional requirements in the returnway. It is best to support this belt with longitudinal tubes, allowing a nominal clearance between adjacent trough walls. The outer diameter of these tubes should be between 0.875 in (22 mm) and 1.125 in. (29 mm).

The placement and type of carryway wearstrips is also important because the driving teeth extend below the module's bottom running surface. Parallel flat wearstrips are recommended. Their maximum width should be 0.875 in. (22 mm). Their running surface should be a minimum of 0.375 in. (10 mm) above the carryway frame. The lateral spacing of wearstrips depends on the load being conveyed, but in no case should it exceed 6 in. (152 mm).

Another feature which may be needed is a gravity take-up to exert a constant longitudinal force on the idle shaft. Because of the backbend limitation it is often not possible to use a series of returnway catenary sag sections to absorb belt length changes. With the belt supported over much of the length of

SECTION 3

the returnway, any significant elongation will result in slipping of the drive sprockets, unless the growth is absorbed by moving the idle shaft with take-up bearings and slide frames. The ***approximate*** weight to be ***evenly*** applied to the idle shaft is recommended to be 2.0 pounds per foot of width per foot of conveyor length (10.0 kilograms/meter of width per meter of length). The weight may need to be changed depending upon specific service conditions, i.e., frictional characteristics, belt speed, product loading and operating temperature.



A -Gravity take-up recommended

B -Belt travel

C -Drive shaft

D -38 in. (1.0 m) Minimum backbend radius

E -Returnway tubes

F -Carryway

G -Wearstrips

H -Returnway

I - Tube O.D. 0.875 in. (22 mm) min., 1.125 in. (29 mm) max.

Fig. 3–27 Series 600 conveyor requirements

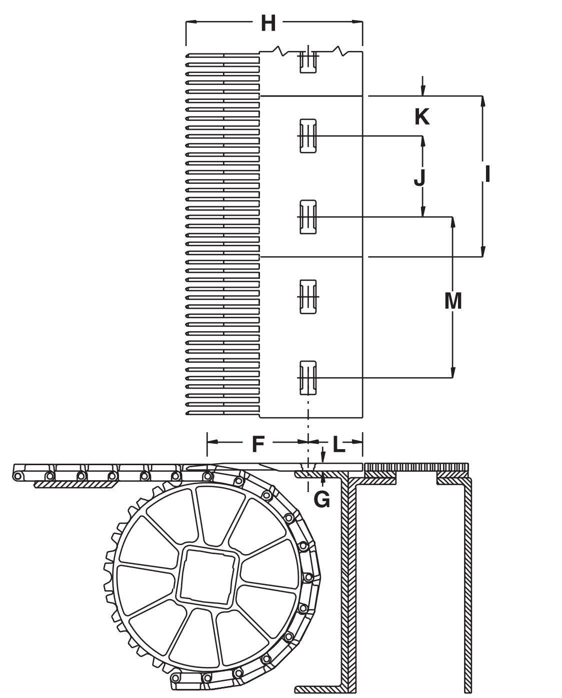
TRANSFER DESIGN GUIDELINES

END-OFF/END-ON TRANSFERS

Finger transfer plates

Intralox Raised Rib belts and matching finger transfer plates are a highly efficient, low maintenance transfer system currently used in many container handling applications.

Correct installation of finger transfer plates is essential for trouble free service and long belt life. Proper installation is particularly important in areas where belting is subjected to high temperature variations and significant thermal expansion.



For an even number of finger transfer plates, locate from the centerline of the belt. Straddle the centerline for an odd number of plates

The finger transfer plate is to be level with the belt +0.03 in. (0.8 mm), -0.00 with hinge rod at top dead center.

Fig. 3–28 Finger transfer plates dimensional requirements

<table>
<tr><th colspan="12">DIMENSIONAL REQUIREMENTS FOR FINGER TRANSFER PLATE INSTALLATION in. (mm)</th></tr>
<tr><th rowspan="2"></th><th colspan="2" rowspan="2">SERIES 100, 2400</th><th colspan="2" rowspan="2">SERIES 400[a]</th><th rowspan="2">SERIES 1200[b]</th><th colspan="3">SERIES 900</th><th rowspan="2">SERIES 1900</th><th colspan="2" rowspan="2">SERIES 2000</th></tr>
<tr><th colspan="2">6 in. (152 mm)</th><th>4 in. (102 mm) retrofit</th></tr>
<tr><td>F</td><td colspan="2">2.38 (61)</td><td colspan="2">3.50 (89)</td><td>3.50 (89)</td><td colspan="2">3.50 (89)</td><td>2.38 (61)</td><td>3.50 (89)</td><td colspan="2">3.50 (89)</td></tr>
<tr><td>G</td><td colspan="2">0.19 (5)</td><td colspan="2">0.31 (8)</td><td>0.31 (8)</td><td colspan="2">0.25 (6)</td><td>0.19 (5)</td><td>0.31 (8)</td><td colspan="2">0.25 (6)</td></tr>
<tr><td>H</td><td colspan="2">5.83 (148)</td><td colspan="2">7.25 (184)</td><td>7.25 (184)</td><td colspan="2">6.50 (165)</td><td>5.83 (148)</td><td>6.11 (155)</td><td colspan="2">6.50 (165)</td></tr>
<tr><td>I</td><td colspan="2">3.96 (101)</td><td colspan="2">5.91 (150)</td><td>5.91 (150)</td><td colspan="2">5.92 (150)</td><td>3.94 (100)</td><td>5.91 (150)</td><td colspan="2">5.91 (150)</td></tr>
<tr><td>J</td><td colspan="2">2.50 (64)</td><td colspan="2">3.00 (76)</td><td>3.00 (76)</td><td colspan="2">3.00 (76)</td><td>2.18 (55)</td><td>3.00 (76)</td><td colspan="2">3.00 (76)</td></tr>
<tr><td>K</td><td colspan="2">0.74 (19)</td><td colspan="2">1.45 (37)</td><td>1.45 (37)</td><td colspan="2">1.45 (37)</td><td>0.90 (23)</td><td>1.45 (37)</td><td colspan="2">1.45 (37)</td></tr>
<tr><td>L</td><td colspan="2">2.00 (51)</td><td colspan="2">2.00 (51)</td><td>2.00 (51)</td><td colspan="2">2.00 (51)</td><td>2.00 (51)</td><td>5.50 (140)</td><td colspan="2">2.00 (51)</td></tr>
<tr><td>M</td><td colspan="11">Spacing</td></tr>
<tr><td rowspan="2">Spacing at Ambient Temp.</td><td>Polypropylene</td><td>Acetal</td><td>Polypropylene</td><td>Polyethylene</td><td>Polypropylene Composite</td><td>Polypropylene</td><td>Acetal</td><td>Acetal</td><td>Enduralox™ Polypropylene</td><td>Polypropylene</td><td>Acetal</td></tr>
<tr><td>3.979 (101.1)</td><td>3.976 (101.0)</td><td>5.952 (151.2)</td><td>5.933 (150.7)</td><td>6.000 (152.4)</td><td>5.981 (151.9)</td><td>5.975 (151.8)</td><td>3.976 (101.0)</td><td>6.000 (152.4)</td><td>5.990 (152.1)</td><td>5.975 (151.8)</td></tr>
</table>

a. Dimensions are for two-material, **Series 400** Standard Finger Transfer Plates only. See page 69 **Series 400** Finger Transfer Plate dimensions for more information.
b. Dimensions are for two-material, **Series 1200** Standard Finger Transfer Plates only. See page 158 **Series 1200** Finger Transfer Plate dimensions for more information.

The metal plate support angle used to secure the finger transfer plates to the conveyor frame should be drilled and tapped for 1/4 – 20 screws (metric size M6). *Accurate drilling and tapping are important!* Finger transfer plates are molded with slots for Intralox shoulder bolts. These bolts prevent the plate from being clamped too tightly to the support angle. The loose fit allows the plates to move laterally and remain properly engaged with the belt's ribs during expansion or contraction caused by changes in temperature. The length of the slots in the finger transfer plates limits the amount of expansion and contraction that can be accommodated. It is possible that very wide belts undergoing large temperature variations will exceed the expansion or contraction limits. Contact Intralox Sales Engineering if the values shown in the accompanying table are not large enough for your application.

MAXIMUM BELT WIDTH × TEMPERATURE inches × °F (mm × °C)				
BELT MATERIAL	**SERIES 100**	**SERIES 400**	**SERIES 900**	**SERIES 2000**
Polypropylene	3750 (52,900)	15,000 (211,700)	7500 (105,800)	7500 (105,800)
Polyethylene	2000 (28,200)	8000 (112,900)	4000 (56,400)	4000 (56,400)
Acetal	5000 (70,600)	—	10,000 (141,000)	10,000 (141,000)

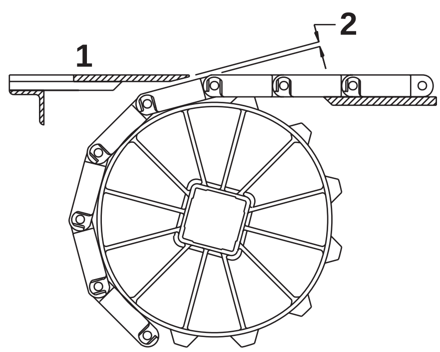
TEMPERATURE EFFECTS:
As temperature varies, the width of the belt changes in proportion to the magnitude of the temperature change. To insure proper finger transfer plate operation, perform the following check:

1. Determine the maximum expected change in temperature from ambient, in °F (°C).
2. Multiply the maximum temperature change by the belt width, in inches (millimeters).
3. If the calculated value is greater than the value obtained from the chart, contact Intralox Sales Engineering before proceeding.

DEAD PLATES

Where there is a transfer point from a belt without finger transfer plates to a dead plate, there should be a gap between the surfaces to allow for the chordal action of the belt. As the belt engages its sprockets, chordal action causes the modules to move past a *fixed* point (the tip of the dead plate) with *varying* clearances. The Dead Plate Gap tables at the end of each Series in *"Section two: Product line"* show the minimum amount of gap which occurs at the "low point" of the modules if the tip of the dead plate just comes in contact with the "high point" as the modules pass.

In some installations it may be desirable to keep the tip of the dead plate in contact with the belt, rather than allow a gap to occur. This can be done by hinging the mounting bracket for the dead plate. This allows the dead plate to move as the modules pass, but results in a small oscillating motion which may present tippage problems for sensitive containers or products.



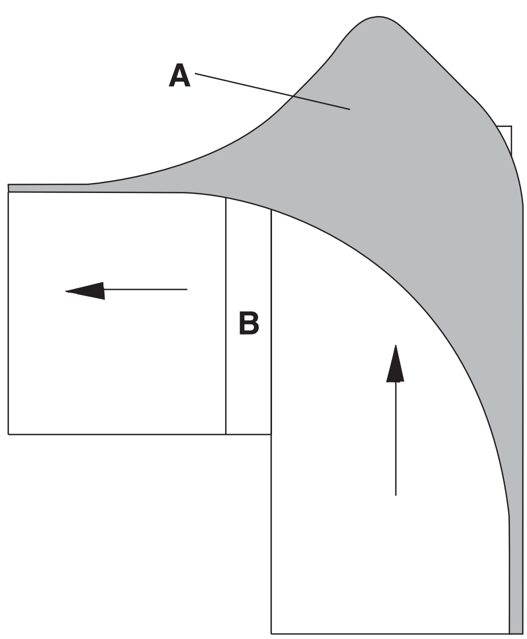
1 - TOP SURFACE OF DEAD PLATE - typically 0.031 in. (0.8 mm) above the belt surface for product transfer onto the belt, and 0.031 in. (0.8 mm) below the belt surface for product transfer off the belt.

2 - DEAD PLATE GAP

Fig. 3–29 Dead plate gap

90° CONTAINER TRANSFERS

When transferring containers on beverage lines from one conveyor to another at a 90° angle, it is common practice to use full radius guide rails with dead plates which span the space between the delivery and the takeaway conveyors. Containers moving along the full radius guide rail exert high pressure on the rail (*"Fig. 3–30 Conventional full radius guide rail contours"*), and on each other, often resulting in container damage. Pressure forces peak to the end of the outer curve as the containers move onto the dead plate.



A - High pressure forces on guide rail from moving containers

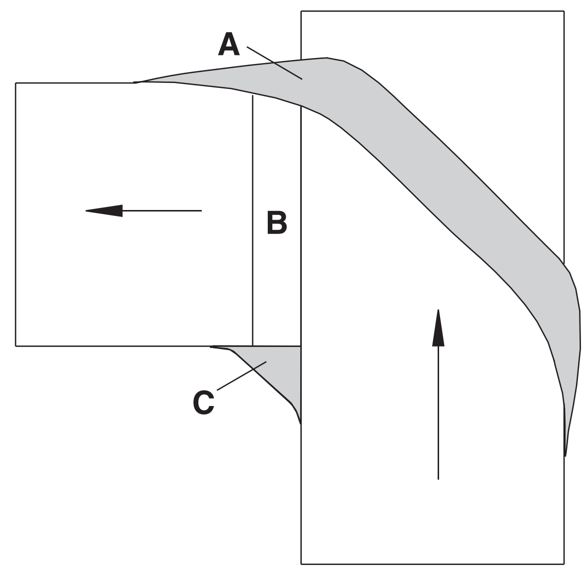
B - Dead plate

Fig. 3–30 Conventional full radius guide rail contours

(Showing excessive container pressure force build up)

Parabolic guide rails

The **parabolic guide rail** was designed by a beverage industry engineer for better distribution of the container pressure forces along the outer guide rail. In *"Fig. 3–31 Parabolic guide rail contours"* is shown that the forces are more evenly distributed. This results in significantly less potential for container damage along the outer rail. However, an excessively large dead area, which strands containers, arises along the *inner* parabolic guide rail contour.



A - More evenly distributed pressure forces from moving containers

B - Dead plate

C - Dead area

Fig. 3–31 Parabolic guide rail contours

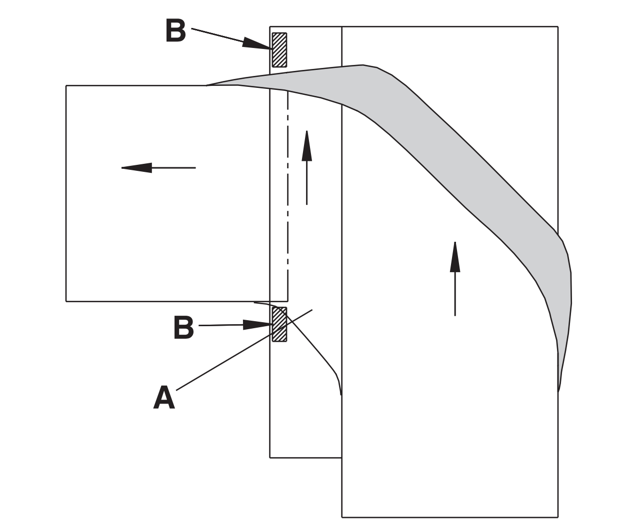
(Showing reduced pressure force build up and dead area)

Series 900, Series 1100 and Series 1400 ONEPIECE™ Live Transfer belt

A solution to the dead area problem incorporates a **Series 900, Series 1100** or **Series 1400 ONEPIECE™ Live Transfer Belt**, either slaved to the delivery conveyor or independently driven. In *"Fig. 3–32 PARABOLIC GUIDE RAIL CONTOURS WITH 6.0 in. (152 mm) ONEPIECE™ LIVE TRANSFER BELT"* a 6.0 in. (152 mm) transfer belt is shown running parallel to, and in the same direction as, the delivery conveyor. This eliminates the dead area along the inner parabolic guide rail, as well as the dead plate itself, enabling continuous container movement and eliminating stranded containers through the turn.

See *"Section two: Product line"* for more information on the **Series 900, Series 1100** and **Series 1400 ONEPIECE™ Live Transfer Belts.**

Contact Customer Service Sales Engineering for maximum number of sprockets allowed on Live Transfer Belts.



A - 6.0 in. (152 mm) ONEPIECE™ live transfer belt

B - Support

Fig. 3–32 PARABOLIC GUIDE RAIL CONTOURS WITH 6.0 in. (152 mm) ONEPIECE™ LIVE TRANSFER BELT

VACUUM TRANSFER APPLICATIONS

Series 900 and **Series 1100 Perforated Flat Top** belts are often used to invert empty containers which are held against the belt by a vacuum created on the opposite side of the conveyor. As the containers are carried around large diameter drums to the returnway side of the conveyor, they are inverted, then discharged from the belt.

The differential pressure acting to hold the containers to the belt, also acts to hold the belt to the carryway. Thus, an *additional belt pull* is introduced. On small belts with low differential pressures, this added pull may be low and insignificant. On large belts with high differential pressures, the additional pull may be quite high. Under average conditions, the **SPECIFIC ADDED BELT PULL** should not exceed 1.25 lb/ft² (0.24 kg/m²) per inch (mm) water column, vacuum.

The designer also may be interested in the amount of air flow through the belt at various differential pressures. Air flow depends on the amount of open area, the differential pressure, the container spacing on the belt, and the air leakage around the perimeter of the belt. For air flow information on different belt series and styles, refer to "*Table 10 AIR FLOW RATE THROUGH BELT, PER SQUARE FOOT OF BELT AREA*" (page 326) .

SPECIAL DESIGN GUIDELINES

THERMAL EXPANSION AND CONTRACTION

With few exceptions, the dimensions of all substances increase as their temperature is increased and contract as their temperature is decreased. Since plastics expand and contract rather significantly, this must be considered in the conveyor design whenever operating temperatures differ from ambient temperature.

The designer must allow for changes in both belt length and width to accommodate expansion or contraction. An adequate unsupported span in the returnway must be provided to absorb the increase in belt length. There must be sufficient side clearance, particularly on wide belts, to prevent interference with the side structure. In low temperature applications, the frame must support the belt fully in its cold condition, yet not interfere at ambient temperatures.

Changes in the dimensions of a belt are determined in this manner:

$$\Delta = L1 \times (T2 - T1) \times e$$

where:
- Δ = change in dimension, in. (mm)
- **L, W** = total belt length/width at initial temperature, ft. (m)
- **T2** = operating temperature, °F (°C)
- **T1** = initial temperature, °F (°C)
- **e** = Coefficient of Thermal Expansion, in/ft/°F (mm/m/°C)

Example:

The ambient temperature is 70 °F (21 °C). The operating temperature is 180 °F (82 °C). What is the greatest increase in belt length and width of a 60 ft. (18.3 m) long by 10 ft. (3 m) wide polypropylene belt while in operation?

$$\mathbf{L}\ \Delta = 60 \times (180 - 70) \times 0.0008$$
$$= 5.28 \text{ in. } (134 \text{ mm})$$

This belt will increase in length by 5.28 in. (134 mm), *not an insignificant amount*. Its width will expand by:

$$\mathbf{W}\ \Delta = 10 \times (180 - 70) \times 0.0008$$
$$= 0.88 \text{ in. } (22 \text{ mm})$$

Therefore, this belt would need a method by which approximately 5.5 in. (140 mm) of increased belt length could be absorbed on the return side of the conveyor. The width of the conveyor frame would need to be approximately 1 in. (25 mm) wider than its corresponding design under ambient conditions.

COEFFICIENTS OF THERMAL EXPANSION		
MATERIALS	**in/ft/°F**	(mm/m °C)
BELTS		
ACETAL, EC ACETAL	0.0006	(0.09)
POLYETHYLENE		
Series 100 Belts	0.0015	(0.23)
Series 400 Raised Rib Belts	0.0015	(0.23)
All Other Belts	0.0011	(0.17)
POLYPROPYLENE		
(less than 100 °F [38 °C])	0.0008	(0.12)
POLYPROPYLENE		
(greater than 100 °F [38 °C])	0.0010	(0.15)
COMPOSITE POLYPROPYLENE	0.0004	(0.06)
NYLON (HR, AR)	0.0005	(0.07)
FLAME RETARDANT	0.0008	(0.12)
WEARSTRIPS		
HDPE and UHMW PE		
-100 °F to 86 °F (-73 °C to 30 °C)	0.0009	(0.14)
86 °F to 210 °F (30 °C to 99 °C)	0.0012	(0.18)
NYLATRON	0.0004	(0.06)
TEFLON	0.0008	(0.12)
METALS		
ALUMINUM	0.00014	(0.02)
STEEL (Carbon and Stainless)	0.00007	(0.01)

EXPANSION DUE TO WATER ABSORPTION

If nylon belts are used in continuously wet, elevated temperature environments, they have a tendency to absorb water and expand both in length and width. If an application requires a nylon belt in these conditions, contact Intralox Sales Engineering to determine the approximate expansion due to water absorption of the belt.

"SLIP-STICK" EFFECT

Surging on long conveyors can be caused by a condition known as "slip-stick". In this situation, the belt acts like a large spring or rubber band. The belt will make relatively short, pulsed movements throughout the length of the conveyor. The idle end of the belt may not move until there is enough belt tension to overcome the friction forces between the belt and the carryway. Instead of accelerating smoothly, the belt surges ahead. This in turn causes a brief drop in belt tension, allowing the belt to be slowed by friction. In some instances, the belt will even stop for a moment until the tension develops again. Then the process repeats itself. The idle end of the conveyor surges despite the constant speed of rotation of the sprockets at the drive end.

Carryway friction, belt stiffness, belt weight and length play a large role in determining the severity of surging in a conveyor. Stiffness is a reflection of how far a belt will stretch under a given tension. A stiffer belt will develop belt tension with less elongation. A lighter weight belt will not have as much friction force to overcome.

Other factors that can effect surging are chordal action, belt speed, drive system pulsation, return roller diameter and return roller spacing. Chordal action and drive system pulsation can initiate surging. However, return roller diameter and spacing are more critical. Return rollers influence the way in which the belt in the returnway oscillates. Oscillation in the returnway can be transmitted to the carryway side of the belt, causing surging. For more information on roller spacing and diameter, see *"Returnways and take-ups"* (page 296). Chordal action information is presented on page 14.

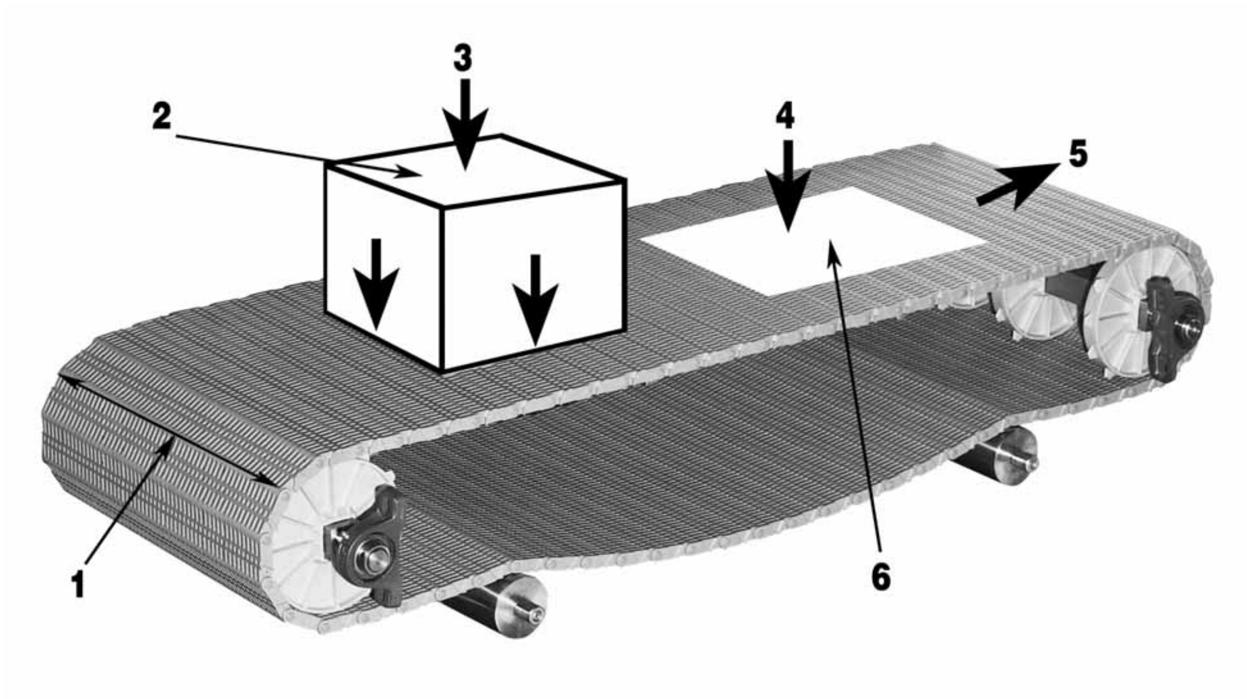
SECTION FOUR: FORMULAS AND TABLES

Section Four provides the appropriate formulas and tables needed to calculate the values for selecting the proper belt for any application. This section also provides measurement conversion factors for all the units used in the formulas and tables. A *"Chemical Resistance Guide"* (page 329) is provided to determine if the desired belt material will be chemically compatible for the application.

SYMBOLS USED

		UNITS OF MEASURE	
		ENGLISH (USA)	METRIC (SI)
BS	Belt Strength Rated [70 °F (21 °C)]	lb/ft of width	kg/m of width
ABS	Allowable Belt Strength at Operating Conditions	lb/ft of width	kg/m of width
ABSU	Allowable Belt Strength Utilized	%	%
BP	Belt Pull at Drive Sprocket	lb/ft of width	kg/m of width
ABP	Adjusted Belt Pull	lb/ft of width	kg/m of width
M	Product Loading on Belt	lb/ft²	kg/m²
M_p	Backed-up Product Load	lb/ft²	kg/m²
W	Weight of Belt	lb/ft²	kg/m²
℄	Centerline	—	—
L	Length of Conveyor, Shaft ℄ to Shaft ℄	ft.	m
H	Elevation Change of Conveyor	ft.	m
F	Total Friction Factor	—	—
F_w	Friction Coefficient, Wearstrip to Belt	—	—
F_p	Friction Coefficient, Product to Belt	—	—
SF	Service Factor	—	—
B	Width of Belt	ft.	m
Q	Weight of Shaft	lb/ft	kg/m
w	Total Load on Shaft	lb	kg
L_s	Length of Shaft, between Bearings	in.	mm
T_o	Torque on Drive Shaft	in-lb	kg-mm
PD	Pitch Diameter of Sprockets	in.	mm
V	Speed of Belt Travel	ft/min	m/min
°F	Degrees, Fahrenheit	°F	—
°C	Degrees, Celsius	—	°C
T	Temperature Factor	—	—
S	Strength Factor	—	—
HP	Horsepower	hp	—
P_w	Power, Watts	—	Watts
E	Modulus of Elasticity (Young's Modulus)	lb/in²	kg/mm²
I	Moment of Inertia	$in.^4$	mm^4
D	Deflection of Shaft	in.	mm
n	Shaft Speed of Rotation	rpm	rpm
Ø	Diameter	in.	mm

FORMULAS



1 -B, beltwidth

2 -Unit area, 1 ft² (1 m²)

3 -M, product loading

4 -W, belt weight

5 -BP, belt pull per 1 ft (1 m) of width

6 -Unit area, 1 ft² (1 m²)

Fig. 4–1 Primary loads — conventional conveyor

CALCULATING BELT PULL OR TENSION LOAD

The tensile strength on an operating conveyor belt is produced by the combination of loads imposed by frictional resistance and by moving the product to a different elevation, should that be involved.

Frictional forces are developed in two ways. First, the weights of the belt *and* the product being conveyed bearing on the carryway create a resistance as the belt is driven. Second, if the product is held stationary while the belt continues to move under it, there is an added resistance between the belt and the product.

Each of these frictional forces is proportional to a **COEFFICIENT OF FRICTION**, which is dependent upon the materials in question, their surface qualities, the presence (or absence) of a lubricant, the cleanliness of the surfaces and other factors. Typical values of Coefficients of Friction for common conveying applications using Intralox belts are shown in **Tables 2-A** and **2-B** (page 322). The Coefficient of Friction between the belt and the carryway wearstrips is designated as F_w. The coefficient between the product being moved and the belt is represented as F_p.

The first step in calculating **BELT PULL, BP,** is calculation of the **BACKED-UP PRODUCT LOAD, M_p**:

FORMULA 1	**(BACKED-UP PRODUCT LOAD)**
$$M_P = M_p \times F_p \times \left(\frac{\text{Percentage of Belt Area Backed-Up}}{100} \right)$$	
Note: If there is no slippage of product on the belt, nor "backed-up" product, ignore M_p, since it does not apply.	

Notice that in **Table 2-A** there are dual listings of F_w for belts made of polypropylene, one for clean, smooth running applications and another for "abrasive" applications.

In this case, "abrasives" are defined as small amounts or low levels of fine grit, dirt, fiber or glass particles present on the carryway. The designer should be aware that many factors affect friction. Slight variations in conditions can produce wide deviations. Accordingly, when using friction coefficients in design calculations, allow for these variations.

After calculating M_p and finding the friction factor F_w, calculate the **BELT PULL, BP**, using this formula:

FORMULA 2	**(BELT PULL)**
$$BP = [(M + 2W) \times F_w + M_p] \times L + (M \times H)$$	

This equation for Belt Pull reflects its two components: $[(M + 2W) \times F_w + M_p] \times L$ for the friction load and $(M \times H)$ for the change in elevation, if one exists.

ADJUSTING THE CALCULATED BELT PULL FOR ACTUAL SERVICE CONDITIONS

Service conditions may vary greatly. The **Belt Pull**, **BP**, calculated from **Formula 2** should be adjusted to allow for those factors. The **ADJUSTED BELT PULL**, **ABP**, is determined by applying an appropriate **Service Factor**, **SF**.

On *bi-directional or "pusher" type conveyors*, where the return side belt tension is high, *both* terminal shafts must be considered as Drive Shafts when determining **ADJUSTED BELT PULL**

FORMULA 3	(ADJUSTED BELT PULL)
ABP = BP × SF	
For Pusher Conveyors: **ABP** = BP × SF × 2.2	
For Center-Drive Conveyors: **ABP** = BP × SF × 2.0	

Service Factors can be determined using *"Table 6 (SF) SERVICE FACTOR"* (page 323).

CALCULATE ALLOWABLE BELT STRENGTH, ABS

Intralox belts have strength ratings, determined at ambient temperature and low speed. Because the strength of plastics generally decreases as their temperature increases, and because the wear rate is directly proportional to speed but inversely proportional to conveyor length, the **RATED BELT STRENGTH**, **BS**, should be adjusted according to this formula:

FORMULA 4	(ALLOWABLE BELT STRENGTH)
ABS = BS × T × S	

The *rated* **BELT STRENGTH**, **BS**, and **STRENGTH FACTOR**, **S**, may be found on the various **Product Line** pages. If a belt rating is specified for the sprocket material beling used and the rating is lower that the belt rating, use the lower rating. The **TEMPERATURE FACTOR**, **T**, can be found in *"Table 7 (T) TEMPERATURE FACTOR"*. If a **CENTER DRIVE** is used, determine **S** by using the following equation:

for S greater than 0.6 **S'** = 1-2 (1-**S**)

for S less than 0.6 **S'** = 0.2

then, **ABS** = BS × T × S'

DETERMINE THE MAXIMUM SPACING OF DRIVE SHAFT SPROCKETS AND RECOMMENDED MINIMUM NUMBER OF SHAFT SPROCKETS

To determine the number of sprockets needed, you must first determine the belt pull in relation to the available strength of the belt. Using the **ADJUSTED BELT PULL** and **ALLOWABLE BELT STRENGTH** calculate the **ALLOWABLE BELT STRENGTH UTILIZED** using this formula.

FORMULA 5	(ALLOWABLE BELT STRENGTH UTILIZED)
ABSU = (ABP ÷ ABS) × 100%	

Refer to the graph for the appropriate belt in Section 2 labeled "Sprocket Quantity as a Function of Belt Strength Utilized." Use the **ALLOWABLE BELT STRENGTH UTILIZED**, **ABSU**, to find the minimum sprocket spacing in inches (or meters). The number of drive sprockets required for a conveyor is determined by dividing the belt width in inches (or meters) by the sprocket spacing and round up to the next whole number.

Idle Shaft sprockets *on conventional conveyors* normally are exposed to less tension than drive sprockets and, therefore, may operate with wider spacing. However, this spacing should never exceed 6.0 in (152 mm) for all Series except Series 200 where the maximum spacing should never exceed 7.5 in. (190 mm). Specific recommendations for the *minimum* number of Idle Shaft sprockets can be found in the appropriate sprocket sections of the *"Section two: Product line"* pages.

If the calculated **ABSU** is above 75%, please contact Intralox Customer Service Sales Engineering to run the Intralox Engineering Program and verify your results.

CONFIRMATION OF SHAFT STRENGTH

Two important functions of the drive shaft, which must be analysed before its ability to operate properly can be determined, are: (1) its ability to absorb the *bending force* of belt pull with an acceptable shaft deflection, and (2) its ability to transmit the necessary *torque* from the driver without failure.

The initial step here is to make a *preliminary* selection of a shaft size which fits your sprocket of choice. The shaft will bend or deflect under the combined loads of the **ADJUSTED BELT PULL**, **ABP**, and its own **WEIGHT**. It is assumed these forces are co-planar and can be combined into a **TOTAL SHAFT LOAD**, **w**, determined by:

FORMULA 6	(TOTAL SHAFT LOAD)
w = (ABP + Q) × B	

The **SHAFT WEIGHT**, **Q**, can be found from *"Table 8 SHAFT DATA"* (page 325). **B** represents the width of your belt.

SHAFT DEFLECTION

For shafts supported by *two bearings*, the **DEFLECTION**, **D**, can be found from:

FORMULA 7	(SHAFT DEFLECTION — 2 BEARINGS)
$\mathbf{D} = \frac{5}{384} \times \frac{w \times L_S^3}{E \times I}$	

MODULUS OF ELASTICITY (E) and **MOMENT OF INERTIA (I)** values can be found in *"Table 8 SHAFT DATA"* (page 325) $\mathbf{L_S}$ is the *unsupported span* of the shaft between bearings.

MAXIMUM SHAFT DEFLECTION RECOMMENDATIONS

As the drive shaft bends or deflects under heavy loads, the *longitudinal distance* between the drive shaft and the idler shaft *is less at the centerline of the belt than at its edges*. This causes an uneven distribution of tension in the belt, the greatest being absorbed at the edges. Since the tension distribution is uneven, the load absorbed by the sprocket teeth is not equal. Intralox has determined that satisfactory performance can be obtained if shaft deflections do not exceed certain limits. These limits are:

CONVENTIONAL, UNI-DIRECTIONAL CONVEYORS

Maximum Shaft Deflection = 0.10 in. (2.5 mm)

BI-DIRECTIONAL OR "PUSHER" CONVEYORS

Maximum Shaft Deflection = 0.22 in. (5.6 mm)

If the *preliminary* shaft selection results in excessive deflection it will be necessary to pick a larger shaft size, a stronger material or use intermediate bearings to reduce shaft span.

DEFLECTIONS WITH INTERMEDIATE BEARINGS

With a *third bearing*, located *in the center of the shaft*, the deflection formula to be used is:

FORMULA 8 (SHAFT DEFLECTION — 3 BEARINGS)

$$D_3 = \frac{1}{185} \times \frac{\frac{w}{2} \times L_S^3}{E \times I}$$

$$D_3 = \frac{w \times L_S^3}{370 \times E \times I}$$

In this case, L_S is the span between the center bearing and an outer bearing.

In cases involving very wide belts under heavy loads, it may be necessary to use *more than one* intermediate bearing to reduce deflections to an acceptable level. Since the formulas for deflections in these cases become complex and unwieldy, the designer can determine a *safe, maximum span length* for the **TOTAL SHAFT LOAD**, **w**, from **Tables 10-A**, **10-B**, **10-C**, and **10-D** (page 327).

In using these charts the designer is reminded to first calculate the **TOTAL SHAFT LOAD**, **w**, **(Formula 6)**. In the case of Bi-directionals and Pusher Conveyors, the **ADJUSTED BELT PULL**, **ABP**, must also be corrected for the increased tension required. See **Formula 5** for the corrected **ABP**.

DRIVE SHAFT TORQUE

The drive shaft must also be strong enough to transmit the twisting or rotating forces imposed by the drive motor to overcome the resistance of moving the belt and the product. The torsional action introduces shearing stresses on the shaft, usually most critical in the bearing journals adjacent to the driver.

Rather than require the designer to calculate the shearing stresses, *"Table 9 MAXIMUM RECOMMENDED TORQUE ON DRIVE SHAFT"* (page 325) has been developed to quickly determine the **MAXIMUM RECOMMENDED DRIVE SHAFT TORQUE** for a given shaft journal diameter and shaft material. For example, assume your preliminary shaft selection is 2.5 in. (63.5 mm) and made of Carbon Steel. Since the *maximum* journal diameter is 2.5 in. (63.5 mm), the maximum recommended torque for *this* size is 22,500 in-lb (259,000 kg-mm).

The actual **TORQUE**, T_o, to be transmitted can be calculated from:

FORMULA 9 (TORQUE, DRIVE SHAFT)

$$T_o = ABP \times B \times \frac{P.D.}{2}$$

where P.D. represents your sprocket's Pitch Diameter, in. (mm).

Compare the *actual* torque with the *maximum recommended* torque to determine if this journal size is adequate. If not, try the next larger shaft size or a stronger material. If these are not possible, try a smaller sprocket size.

In many cases, the actual torque will be considerably lower than the maximum recommended. If so, reducing the journal diameter to an acceptable smaller size will reduce the cost of bearings required.

DETERMINING THE POWER NEEDED TO DRIVE THE BELT

The *POWER* needed to overcome the resistance of moving the belt and product can be calculated from these formulas:

FORMULA 10 (HORSEPOWER — ENGLISH [USA] UNITS)

$$\text{HORSEPOWER, } \mathbf{HP} = \frac{ABP \times B \times V}{33{,}000}$$

where:
- **ABP** = Adjusted Belt Pull, lb/ft of belt width
- **B** = Belt Width, ft.
- **V** = Belt Speed, ft/min

Another version using different factors is:

FORMULA 11 (HORSEPOWER — ENGLISH [USA] UNITS)

$$\text{HORSEPOWER, } \mathbf{HP} = \frac{T_o \times V}{16{,}500 \times P.D.}$$

where:
- T_o = Torque, in-lb
- **P.D.** = Pitch Diameter, in.
- **V** = Belt Speed, ft/min

FORMULA 12 (POWER — METRIC UNITS)

$$\text{POWER, } \mathbf{WATTS} = \frac{ABP \times B \times V}{6.12}$$

where:
- **ABP** = Adjusted Belt Pull, kg/m of belt width
- **B** = Belt Width, m.
- **V** = Belt Speed, m/min

and another version is:

FORMULA 13 (POWER — METRIC UNITS)

$$\text{POWER, } \mathbf{WATTS} = \frac{T_o \times V}{3.06 \times P.D.}$$

where:
- T_o = Torque, kg-mm
- **P.D.** = Pitch Diameter, mm
- **V** = Belt Speed, m/min

If Torque is known in *Newton*-millimeters the equation for Power is:

FORMULA 14 **(POWER — SI UNITS)**

$$\text{POWER, } \mathbf{WATTS} = \frac{T_o \times V}{30 \times \text{P.D.}}$$

where: $\mathbf{T_o}$ = Torque, N-mm

DETERMINING DRIVE MOTOR POWER REQUIREMENTS

The power calculated to drive the belt does not include the power to overcome the friction in gears, bearings, chains and other mechanical parts of the system. Refer to *"Section three: Design guidelines"* (page 291), for a listing of efficiency losses in components in common use and increase the belt drive power accordingly.

THERMAL EXPANSION (CONTRACTION) OF MATERIALS

As materials experience increases or decreases in temperature, their dimensions increase or decrease likewise. Conveyor belts which are installed at one temperature and operate at another, or which pass through different temperatures in their operating circuit, will expand or contract accordingly. Since plastics have relatively high rates of expansion (contraction), this characteristic must be considered in the application of these belts if significant temperature changes are expected.

The *change* in the length, width or thickness of a material can be determined from:

FORMULA 15 **(THERMAL EXPANSION OR CONTRACTION)**

$$\Delta = L_1 \times (T_2 - T_1) \times e$$

where:
- Δ = change in dimension, in. (mm)
- $\mathbf{L_1}$ = dimension at initial temperature, ft. (m)
- $\mathbf{T_2}$ = operating temperature, °F (°C)
- $\mathbf{T_1}$ = initial temperature, °F (°C)
- **e** = coefficient of thermal expansion, in/ft/°F (mm/m/°C)

Coefficients of Thermal Expansion of various materials may be found on page 310.

CATENARY SAG (see discussion in Section 3)

A belt hanging under the influence of gravity between two supports will assume the shape of a curve called a "catenary". The specific dimensions of this curve will depend upon the distance between supports, the length of hanging belt and the belt's weight.

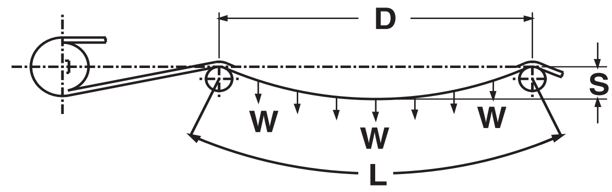


Fig. 4–2 Catenary sag

In most cases, the actual shape of this curve is not important, but the conveyor designer is interested in two things: the *excess belt* required *and* the *tension* created by the sagging belt.

The excess belt, **X**, or the difference between **L** and **D** in the above illustration is found from:

FORMULA 16 **(EXCESS BELT —CATENARY SAG)**

$$\mathbf{X} = \frac{2.66 \times S^2}{D}$$

where:
- **X** = excess belt, ft. (m)
- **S** = sag, ft. (m)
- **D** = distance between supports, ft. (m)

The tension, **T**, created by a catenary section of belt, is found from:

FORMULA 17 **(TENSION —CATENARY SAG)**

English System

$$\mathbf{T} = \frac{d^2 \times W}{96 \times s}$$

where:
- **T** = tension, lb/ft. of belt width
- **s** = sag, in.
- d = distance between supports, in.
- **W** = belt weight, lb/ft².

Metric System

$$\mathbf{T} = \frac{d^2 \times W}{8000 \times s}$$

where:
- **T** = tension, kg/m of belt width
- **s** = sag, mm
- **d** = distance between supports, mm
- **W** = belt weight, kg/m²

Note:SIDEFLEXING BELTS

Formulas for sideflexing belts are provided on a PC based Flat-Turn Program for radius applications. Call Customer Service to request a diskette.

SAMPLE PROBLEMS

STEEL CAN HANDLING EXAMPLE

CONDITIONS (IN METRIC UNITS):

A beverage handler proposes to use **Series 400 Raised Rib** Polypropylene belting to carry steel cans, weighing 122 kg per square meter, on a conveyor which is 18.3 m long and

1.2 m wide. The belt will run wet on UHMW wearstrips at a speed of 6 m per minute, frequent starts under load are expected and the steel cans will "back-up" a total of 15.2 m. The operating temperature is to be 82 °C. A 12 tooth, 198 mm pitch diameter is preferred, and Carbon Steel shafts are acceptable.

STEP 1: Determine the BACKED-UP PRODUCT LOAD, $\mathbf{M_p}$ (Formula 1)

$$\mathbf{M_p} = M \times F_p \times \left(\frac{\text{Percentage of Belt Area Backed-Up}}{100}\right)$$

The **COEFFICIENT OF FRICTION**, $\mathbf{F_w}$, between the belt and the UHMW wearstrips, is determined from *"Table 2 (Fw) COEFFICIENT OF START-UP FRICTION BETWEEN WEARSTRIP & BELT"* (page 322) to be 0.11. The **COEFFICIENT OF FRICTION**, $\mathbf{F_p}$, between the steel cans and the belt, is found from *"Table 3 (Fp) COEFFICIENT OF RUNNING FRICTION BETWEEN CONTAINER & BELT"* (page 322) to be 0.26.

Since the steel cans will be backed-up 15.2 m, the *percentage* of **BELT AREA BACKED-UP** is

$$\frac{15.2}{18.3} \text{ or } 83.1\%$$

Then the **BACKED-UP PRODUCT LOAD**, $\mathbf{M_p}$, is:

$$\mathbf{M_p} = 122 \times 0.26 \times \left(\frac{83.1}{100}\right)$$
$$\mathbf{M_p} = 26.4 \text{ kg/m}^2$$

STEP 2: Calculate BELT PULL, **BP**, (Formula 2)

$$\mathbf{BP} = [(M + 2W) \times F_w + M_p] \times L + (M \times H)$$

- **M** = Product Loading (122 kg/m²)
- **W** = Belt Weight (9.52 kg/m²)
- **L** = Conveyor Length (18.3 m)
- $\mathbf{M_p}$ = Backed-Up Product Load (26.4 kg/m²)
- **H** = Elevation Change (zero)

Note: Since there is no elevation change, disregard the factor M x H in the formula.

Therefore:

$$\mathbf{BP} = [(122 + (2 \times 9.52)) \times 0.11 + 26.4] \times 18.3$$
$$\mathbf{BP} = 767 \text{ kg/m of belt width}$$

STEP 3: ADJUSTED BELT PULL, **ABP** (Formula 3)

$$\mathbf{ABP} = BP \times SF$$

The **Service Factor**, **SF**, is determined from *"Table 6 (SF) SERVICE FACTOR"* (page 323) to be 1.2.

Then:

$$\mathbf{ABP} = 767 \times 1.2$$
$$\mathbf{ABP} = 920 \text{ kg/m of belt width}$$

STEP 4: CALCULATE THE ALLOWABLE BELT STRENGTH, **ABS** (Formula 4)

$$\mathbf{ABS} = BS \times T \times S$$

The *rated* **BELT STRENGTH**, **BS**, can be found from *"Table 4 BELT STRENGTHS IN lb/ft (kg/m)."* (page 322) to be 3,570 kg/m of width.

With the operating temperature of 82 °C, the **TEMPERATURE FACTOR**, **T**, found from *"Table 7 (T) TEMPERATURE FACTOR"* (page 324) is 0.48.

To determine the **STRENGTH FACTOR**, **S**, first calculate the **SPEED/LENGTH** ratio of 6.0/18.3 or 0.33. From page 64, **S** is 1.0.

Then:

$$\mathbf{ABS} = 3{,}570 \times 0.48 \times 1.0$$
$$\mathbf{ABS} = 1{,}714 \text{ kg/m of belt width}$$

Since the ABS exceeds ABP, this belt is strong enough for this application.

STEP 5: MAXIMUM SPACING OF DRIVE SHAFT SPROCKETS

$$\mathbf{ABSU} = (ABP \div ABS) \times 100\%$$
$$\mathbf{ABSU} = (920 \div 1{,}714) \times 100\%$$
$$\mathbf{ABSU} = 54\%$$

From page 64, the **MAXIMUM SPROCKET SPACING** should be about 70 mm.

STEP 6: DETERMINE DRIVE SHAFT DEFLECTION

Since this is a fairly wide belt, first try a 60 mm square shaft. The **TOTAL SHAFT LOAD**, **w**, is calculated by:

$$\mathbf{w} = (ABP + Q) \times B \qquad \text{(Formula 6)}$$

From *"Table 8 SHAFT DATA"* (page 325), find **Q**, the **SHAFT WEIGHT**, to be 29.11 kg/m of length. Then:

$$\mathbf{w} = (920 + 29.11) \times 1.2$$
$$\mathbf{w} = 1{,}139 \text{ kg}$$

For **SHAFT DEFLECTION**, assume first the shaft is to be supported by two bearings. Therefore, the **DEFLECTION**, **D**, is found from:

$$\mathbf{D} = \frac{5}{384} \times \frac{w \times L_S^3}{E \times I} \qquad \text{(Formula 7)}$$

Since the belt is to be 1.2 m or 1200 mm wide, assume the **unsupported LENGTH OF SHAFT**, $\mathbf{L_S}$ is 1320 mm, *and* from *"Table 8 SHAFT DATA"* (page 325), the **MODULUS OF ELASTICITY**, **E**, and the **MOMENT OF INERTIA**, **I**, are found to be 21,100 kg/mm² and 1,080,000 mm^4, respectively.

Then:

$$\mathbf{D} = \frac{5}{384} \times \frac{1139 \times 1320^3}{21{,}000 \times 1{,}080{,}000}$$
$$\mathbf{D} = 1.50 \text{ mm}$$

Since this deflection is less than the recommended limit of 2.5 mm, supporting it with two bearings is acceptable.

STEP 7: DRIVE SHAFT TORQUE, T_o (Formula 9)

$$T_o = ABP \times B \times \frac{P.D.}{2}$$
$$T_o = 920 \times 1.2 \times \frac{198}{2}$$
$$= \underline{109{,}296} \text{ kg-mm}$$

From the **MAXIMUM RECOMMENDED TORQUE** curve, *"Table 9 MAXIMUM RECOMMENDED TORQUE ON DRIVE SHAFT"* (page 325), we see the maximum torque for a journal diameter of 60 mm is 180,000 kg-mm. Therefore, the *minimum* journal diameter in this case should be about 55 mm.

STEP 8: BELT DRIVE POWER (Formula 10)

$$\textbf{BELT POWER} = \frac{ABP \times B \times V}{6.12}$$
$$\textbf{BELT POWER} = \frac{920 \times 1.2 \times 6.0}{6.12}$$
$$\textbf{BELT POWER} = \underline{1082} \text{ Watts}$$

STEP 9: DETERMINE DRIVE MOTOR POWER

Assume this conveyor will be driven by an electric motor, through a triple reduction, spur gear reducer, chain and sprockets. The shafts are supported by ball bearings. From the table on page 293, the *total* of the efficiency losses in the machinery components are estimated to be 11%.

The **MOTOR POWER** is found from:

$$\textbf{MOTOR POWER} = \frac{1082}{100 - 11} \times 100$$
$$= \underline{1216} \text{ Watts}$$

Therefore a 2 kW motor will be a good choice.

FOOD HANDLING EXAMPLE

CONDITIONS (IN U.S. UNITS):

120,000 lb/hr of raw, washed vegetables (product loading of 10 lb/sq ft) are to be lifted a vertical distance of 15 ft. on an *elevating* conveyor 25 ft. long and 2 ft. wide. The environment is wet, the temperature is ambient and belt speed is to be 75 ft/min. Wearstrip material is UHMW and the pre-selected belt is a **Series 800 Perforated Flat Top** Polypropylene with flights and sideguards. The flight spacing is 8 in. The belt will be started unloaded and run continuously. The preferred sprockets are 10 tooth, 6.5 in. pitch diameter. Stainless Steel (303) shafts are required.

STEP 1: DETERMINE THE BACKED-UP PRODUCT LOAD, M_p (Formula 1)

$$M_p = M \times F_p \times \left(\frac{\text{Percentage of Belt Area Backed-Up}}{100}\right)$$

Since there is no product backed-up, disregard $\mathbf{M_p}$. From *"Table 2 (Fw) COEFFICIENT OF START-UP FRICTION BETWEEN WEARSTRIP & BELT"* (page 322), F_w = **0.11**.

STEP 2: BELT PULL, BP (Formula 2)

$$\mathbf{BP} = (M + 2W) \times F_w \times L + (M \times H)$$
$$\mathbf{BP} = [10 + 2(1.54)] \times 0.11 \times 25 + (10 \times 15)$$
$$\mathbf{BP} = 186 \text{ lb/ft of belt width}$$

STEP 3: ADJUSTED BELT PULL, ABP (Formula 3)

$$\mathbf{ABP} = BP \times SF$$

Service Factor is 1.4 (See *"Table 6 (SF) SERVICE FACTOR"* (page 323)), Elevating Conveyor).

Then:

$$\mathbf{ABP} = 186 \times 1.4$$
$$\mathbf{ABP} = \underline{260} \text{ lb/ft of belt width}$$

STEP 4: ALLOWABLE BELT STRENGTH, ABS (Formula 4)

$$\mathbf{ABS} = \mathbf{BS} \times \mathbf{T} \times \mathbf{S}$$

The **RATED BELT STRENGTH, BS**, is 1,000 lb/ft from *"Table 4 BELT STRENGTHS IN lb/ft (kg/m)."* (page 322). **TEMPERATURE FACTOR, T**, is 0.98 and **STRENGTH FACTOR, S**, is 0.92. (See *"Table 7 (T) TEMPERATURE FACTOR"* (page 324))

$$\mathbf{ABS} = 1{,}000 \times 0.98 \times 0.92$$
$$\mathbf{ABS} = \underline{902} \text{ lb/ft of belt width}$$

Since **ABS** exceeds **ABP, Series 800 Perforated Flat Top** Polypropylene belting is adequate for this application.

STEP 5: MAXIMUM SPACING OF DRIVE SHAFT SPROCKETS

$$\mathbf{ABSU} = (ABP \div ABS) \times 100\%$$
$$\mathbf{ABSU} = (620 \div 902) \times 100\%$$
$$\mathbf{ABSU} = 29\%$$

From page 94, is 4.0 in.

STEP 6: DETERMINE DRIVE SHAFT DEFLECTION

Total Shaft Load, w, is:

$$\mathbf{w} = (ABP + Q) \times B \qquad \text{(Formula 6)}$$

Pre-select a 1.5 in. square Stainless Steel shaft.
Therefore:

$$\mathbf{w} = (260 + 7.65) \times 2$$
$$\mathbf{w} = \underline{535}\ \text{lb}$$

and **SHAFT DEFLECTION**, **D**, is:

$$\mathbf{D} = \frac{5}{384} \times \frac{w \times L_S^3}{E \times I} \qquad \text{(Formula 7)}$$

Assume $\mathbf{L_S}$ is 28 in. From *"Table 8 SHAFT DATA"* (page 325), **E** is 28,000,000 lb/in² and **I** is 0.42 in.^{4}.
Therefore:

$$\mathbf{D} = \frac{5}{384} \times \frac{535 \times 28^3}{28{,}000{,}000 \times 0.42}$$
$$\mathbf{D} = \underline{0.013}\ \text{in.}$$

which is less than the recommended limit of 0.10 in.

STEP 7: DRIVE SHAFT TORQUE, T_o (Formula 9)

$$T_o = ABP \times B \times \frac{P.D.}{2}$$
$$T_o = 260 \times 2 \times \frac{6.5}{2}$$
$$T_o = \underline{1690}\ \text{in-lb}$$

From *"Table 9 MAXIMUM RECOMMENDED TORQUE ON DRIVE SHAFT"* (page 325), a torque of 1,690 in/lb requires a *minimum* journal diameter of about 0.85 in. with 303 Stainless Steel, therefore, a journal diameter of <u>1.0</u> in. is recommended.

STEP 8: BELT DRIVE POWER (Formula 10)

$$\text{BELT HORSEPOWER} = \frac{ABP \times B \times V}{33{,}000}$$
$$\text{BELT HORSEPOWER} = \frac{260 \times 2 \times 75}{33{,}000}$$
$$\text{BELT HORSEPOWER} = \underline{1.18}\ \text{HP}$$

STEP 9: DETERMINE DRIVE MOTOR POWER

Assume it is determined from page 293, that the total efficiency losses are expected to be 20%. The **MOTOR HORSEPOWER**, then, is found from:

$$\text{MOTOR HORSEPOWER} = \frac{1{,}18}{100 - 20} \times 100$$
$$= \underline{1{,}48}\ \text{HP}$$

In this case, a <u>1.5</u> HP motor will be a suitable choice.

BI-DIRECTIONAL CONVEYOR EXAMPLE

CONDITIONS (IN METRIC UNITS):

A canning plant accumulator table, measuring 6 m in length and 2.4 m wide, is to handle cans weighing 50 kg/m². Belt speed will be 3.0 m/min. Frequent loaded starts are expected. The belt will operate at 21 °C. The wearstrips are to be Stainless Steel. The belt will run dry. **Series 900 Raised Rib** in Acetal is the preferred belt, using 18 tooth, 156 mm pitch diameter sprockets on 60 mm square shafts of 304 Stainless Steel.

STEP 1: DETERMINE THE BACKED-UP PRODUCT LOAD, M_p (Formula 1)

$$M_p = M \times F_p \times \left(\frac{\text{Percentage of Belt Area Backed-Up}}{100}\right)$$

Since there is no product backed-up, ignore $\mathbf{M_p}$.
$F_w = \underline{0.19}$

STEP 2: CALCULATE BELT PULL, BP (Formula 2)

$$BP = (M + 2W) \times F_w \times L + (M \times H)$$
$$M = 50\ \text{kg/m}^2$$
$$W = 8.19\ \text{kg/m}^2$$
$$L = 6\ \text{m}$$
$$F_w = 0.19$$
$$H = \text{zero}$$

$$BP = [50 + 2(8.19)] \times 0.19 \times 6$$
$$BP = 76\ \text{kg/m of width}$$

STEP 3: CALCULATE ADJUSTED BELT PULL, ABP (Formula 3)

$$ABP = BP \times SF \times 2.2$$
$$ABP = 76 \times 1.2 \times 2.2$$
$$ABP = \underline{201}\ \text{kg/m of width}$$

STEP 4: CALCULATE ALLOWABLE BELT STRENGTH, ABS (Formula 4)

$$ABS = BS \times T \times S$$

BS = RATED BELT STRENGTH (*"Table 4 BELT STRENGTHS IN lb/ft (kg/m)."*)
T = 0.98 (see *"Table 7 (T) TEMPERATURE FACTOR"*)
S = 1.0

$$ABS = 2200 \times 0.98 \times 1.0$$
$$ABS = \underline{2156}\ \text{kg/m of width}$$

Therefore, since **ABS** exceeds **ABP, Series 900 Raised Rib** in Acetal is a suitable choice.

STEP 5: DETERMINE MAXIMUM SPACING OF DRIVE SHAFT SPROCKETS

Since both the carryway and return way sides will be under tension, the idle shafts are to be treated as drive shafts for sprocket spacing and deflection calculations.

$$ABSU = (ABP \div ABS) \times 100\%$$
$$ABSU = (201 \div 2{,}156) \times 100\%$$
$$ABSU = 9\%$$

From the chart on page 126, the **MAXIMUM SPROCKET SPACING** is 95 mm.

STEP 6: CONFIRM DRIVE SHAFT STRENGTH

Total Shaft Load, **w**, is:

$$\mathbf{w} = (\text{Corrected ABP} + Q) \times B \qquad \text{(Formula 6)}$$
$$\mathbf{w} = (182 + 29.11) \times 2.4$$
$$\mathbf{w} = 507 \text{ kg}$$

A check of the **Maximum Drive and Idler Shaft Span Length, Table 11-C** (page 327), reveals that the shaft load of 507 kg applied to a 60 mm square Stainless Steel shaft. This allows a maximum span of about 2600 mm. Since this conveyor is 2.4 m or 2400 mm wide, intermediate bearings should not be required.

CALCULATE DRIVE SHAFT TORQUE, T_o (Formula 9):

$$T_o = \text{ABP} \times B \times \frac{\text{P.D.}}{2}$$
$$\text{ABP} = 201 \text{ kg/m of width}$$
$$B = 2.4 \text{ m of width}$$
$$\text{P.D.} = 156 \text{ mm}$$
$$T_o = 201 \times 2.4 \times \frac{156}{2}$$
$$T_o = 37{,}627 \text{ kg-mm}$$

From the chart of **MAXIMUM RECOMMENDED TORQUE**, the *minimum* journal diameter for a torque of 37,627 kg-mm would be about 27 mm. Since a 60 mm shaft is needed, due to deflection, the journal diameter may be as large as 55 mm, for example.

STEP 7: CALCULATE THE POWER TO DRIVE THE BELT (Formula 10)

$$\text{BELT POWER} = \frac{\text{ABP} \times B \times V}{6.12}$$
$$\text{ABP} = 201 \text{ kg/m of width (above)}$$
$$B = 2.4 \text{ kg/m width (above)}$$
$$V = 3.0 \text{ m/min (above)}$$
$$\text{BELT POWER} = \frac{201 \times 2.4 \times 3.0}{6.12}$$
$$\text{BELT POWER} = 236 \text{ Watts}$$

STEP 8: CALCULATE DRIVE MOTOR POWER

Refer to page 293, for efficiency losses in mechanical components. Assume the total of the efficiency losses for this conveyor are determined to be about 25%. Therefore, **MOTOR POWER** is:

$$\text{MOTOR POWER} = \frac{236}{100 - 25} \times 100$$
$$= 315 \text{ Watts}$$

Therefore a 1/3 kW motor would be a good selection.

SECTION 4

TABLES

Table 1 (W) BELT WEIGHT IN lb/ft² (kg/m²).					
SERIES	STYLE	STANDARD MATERIALS			SPECIAL APPLICATIONS MATERIALS[a]
		POLYPROPYLENE	POLYETHYLENE	ACETAL & EC ACETAL	
This information was incorporated into the chart on page page 22.					

Table 2 (F_w) COEFFICIENT OF START-UP FRICTION BETWEEN WEARSTRIP & BELT										
WEARSTRIP MATERIAL	STANDARD MATERIALS[a]									
	POLYPROPYLENE				POLYETHYLENE		ACETAL		EC ACETAL	
	SMOOTH SURFACE		ABRASIVE[b] SURFACE		SMOOTH SURFACE		SMOOTH SURFACE		SMOOTH SURFACE	
	WET	DRY	WET	DRY	WET	DRY	WET	DRY	WET	DRY
U.H.M.W.	0.11	0.13	NR	NR	0.24	0.32[c]	0.10	0.10	0.10	0.10
H.D.P.E.	0.09	0.11	NR	NR	NR	NR	0.09	0.08	0.09	0.08
Molybdenum- or Silicon-filled Nylon	0.24	0.25	0.29	0.30	0.14	0.13	0.13	0.15	0.13	0.15
Cold-Rolled Finish Stainless or Carbon Steel	0.26	0.26*	0.31	0.31*	0.14	0.15*	0.18	0.19*	0.18	0.19*

a. For Special Applications Materials see appropriate data pages.
b. Based on Intralox tests.
c. Increased wear may be experienced at belt speeds above 50 feet per minute (15 meter/min).

Table 3 (F_p) COEFFICIENT OF RUNNING FRICTION BETWEEN CONTAINER & BELT[a]								
CONTAINER MATERIAL	STANDARD MATERIALS[b]							
	POLYPROPYLENE		POLYETHYLENE[c]		ACETAL		EC ACETAL	
	WET	DRY	WET	DRY	WET	DRY	WET	DRY
Glass	0.18	0.19	0.08	0.09	0.13	0.14	0.13	0.14
Steel	0.26	0.32	0.10	0.13	0.13	0.13	0.19	0.20
Plastic	0.11	0.17	0.08	0.08	0.13	0.16	0.13	0.16
Cardboard	—	0.21	—	0.15	—	0.18	—	0.18
Aluminum	0.40	0.40	0.20	0.24	0.33	0.27	0.33	0.27
Note: Belts operating dry on a backed-up conveyor may, depending on speed and weight, wear a rough surface on the belting, which may substantially increase the Coefficient of Friction.								

a. Friction factor values are highly dependent on environmental conditions. The low value of the friction factor range is an experimentally derived friction factor for new belting on new wearstrip. This value should only be used in the cleanest environments or where water or other lubricating agents are present. Most applications should be adjusted based on the environmental conditions surrounding the conveyor.
b. For Special Applications Materials see appropriate data pages.
c. Polyethylene generally not recommended for container handling.

Table 4 BELT STRENGTHS IN lb/ft (kg/m).					
SERIES	STYLE	STANDARD MATERIALS			SPECIAL APPLICATIONS MATERIALS
		POLYPROPYLENE	POLYETHYLENE	ACETAL & EC ACETAL	
This information was incorporated into the chart on page page 22.					

Table 5 SPROCKET AND SUPPORT QUANTITY REFERENCE

Nominal Width[a]		Minimum Number of Sprockets Per Shaft[b]				Minimum Number of Supports			
						SERIES 100, 900, 1100, 1400, 1500, 1600		SERIES 200, 400, 800, 850, 1200, 1800, 1900, 2000, 2200, 2400	
in.	(mm)	SERIES 200	SERIES 1700	SERIES 100, 400, 800, 850, 1200, 1400, 1800, 1900, 2000	SERIES 900, 1100, 1500, 1600, 2200	Carryway	Returnway	Carryway	Returnway
2	(51)	1	N/A	1	1	2	2	2	2
4	(102)	1	N/A	1	1	2	2	2	2
6	(152)	2	2	2	2	2	2	2	2
7	(178)	2	2	2	2	3	2	2	2
8	(203)	2	2	2	2	3	2	2	2
10	(254)	2	3	2	3	3	2	3	2
12	(305)	3	3	3	3	3	2	3	2
14	(356)	3	3	3	5	4	3	3	3
15	(381)	3	3	3	5	4	3	3	3
16	(406)	3	4	3	5	4	3	3	3
18	(457)	3	4	3	5	4	3	3	3
20	(508)	3	4	5	5	5	3	4	3
24	(610)	5	5	5	7	5	3	4	3
30	(762)	5	6	5	9	6	4	5	4
32	(813)	5	7	7	9	7	4	5	4
36	(914)	5	8	7	9	7	4	5	4
42	(1067)	7	9	7	11	8	5	6	5
48	(1219)	7	10	9	13	9	5	7	5
54	(1372)	9	11	9	15	10	6	7	6
60	(1524)	9	12	11	15	11	6	8	6
72	(1829)	11	15	13	19	13	7	9	7
84	(2134)	13	17	15	21	15	8	11	8
96	(2438)	13	20	17	25	17	9	12	9
120	(3048)	17	24	21	31	21	11	15	11
144	(3658)	21	29	25	37	25	13	17	13
For Other Widths		**Use Odd Number of Sprockets at a Maximum 7.5 in. (191 mm) Spacing**	**Use Odd Number of Sprockets at a Maximum 5 in. (127 mm) Spacing**	**Use Odd Number of Sprockets at a Maximum 6 in. (152 mm) Spacing**	**Use Odd Number of Sprockets at a Maximum 4 in. (102 mm) Spacing**	**Maximum 6 in. (152 mm) Spacing**	**Maximum 12 in. (305 mm) Spacing**	**Maximum 9 in. (229mm) Spacing**	**Maximum 12 in. (305mm) Spacing**

Note:
- If carryways extend into sprocket area, care should be taken to insure sprockets do not interfere with carryways.
- **Series 600** carryway and returnway conditions explained on page 291.
- **These are the minimum number of sprockets. Additional sprockets may be required, see Data Pages for specific applications.**
- Additional quantities can be found in the Sprocket and Support Quantity Reference Table for **Series 600** on page 75, **Series 1200** on page 155, **Series 1500** on page 179, **Series 1700** on page 194, **Series 2400** on page 234, and **Series 2600** on page 248.

a. Actual belt widths will vary from nominal. If actual width is critical, contact Customer Service.
b. Fix center sprocket only. (With two sprockets on shaft, fix right hand sprocket only.)

Table 6 (SF) SERVICE FACTOR

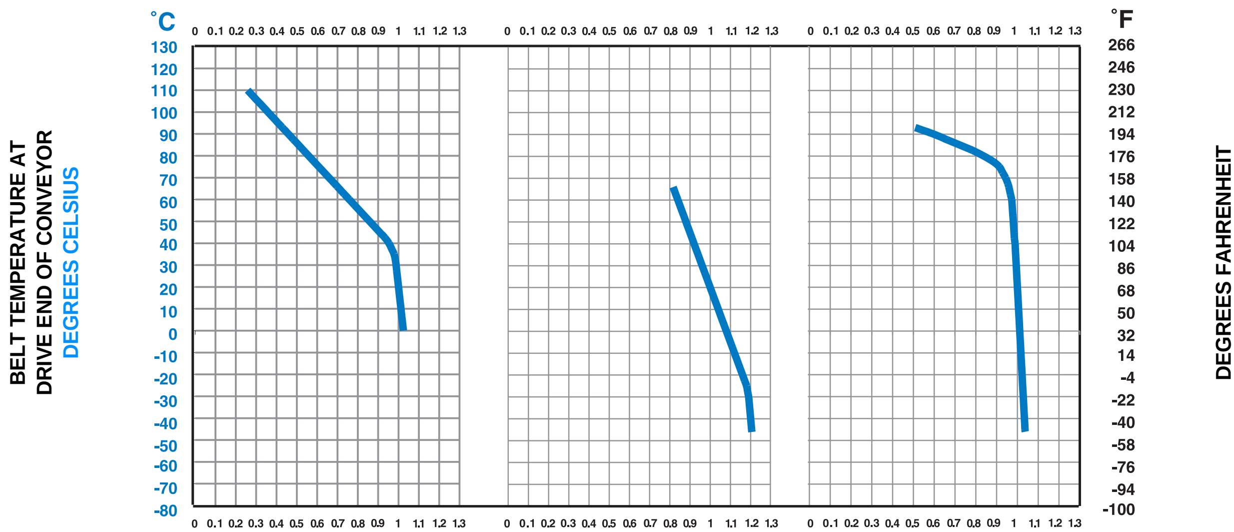
Starts under no load, with load applied gradually		1.0
Frequent starts under load (more than once per hour)	ADD 0.2	
At speeds greater than 100 FPM (Feet Per Minute) (30 meters/min)	ADD 0.2	
Elevating Conveyors	ADD 0.4	
Pusher Conveyors	ADD 0.2	
		TOTAL

Note: At speeds greater than 50 FPM (15 meters/min) on conveyors that are started with backed-up lines, soft start motors should be considered.

Table 7 (T) TEMPERATURE FACTOR

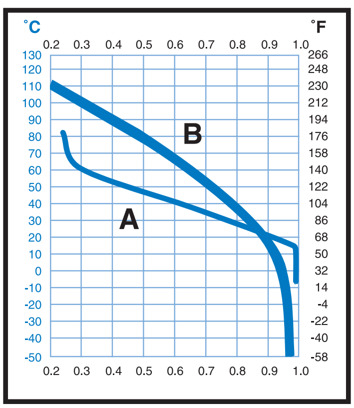
STANDARD MATERIALS

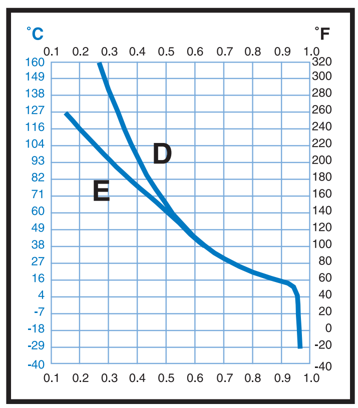
POLYPROPYLENE	POLYETHYLENE	ACETAL and EC ACETAL

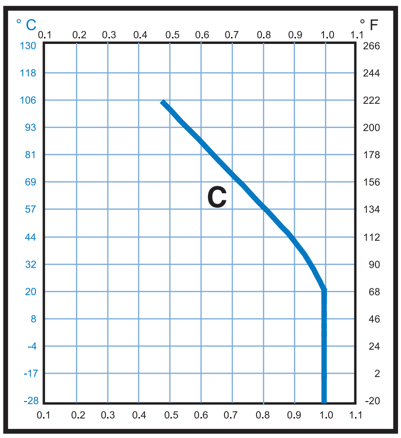


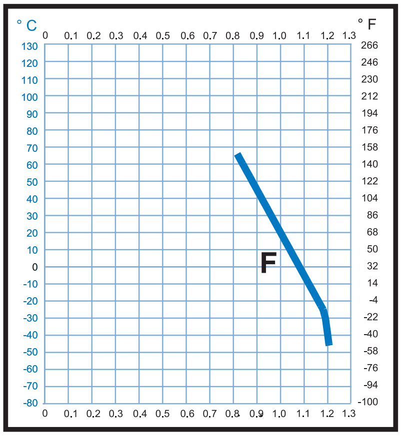
POLYPROPYLENE	POLYETHYLENE	ACETAL and EC ACETAL
Intermittent exposure above 220 °F (104 °C) Avoid high impact below 45 °F (7 °C)		Intermittent exposure above 200 °F (93 °C)
(T) FACTOR	(T) FACTOR	(T) FACTOR

SPECIAL APPLICATION MATERIALS









A - Flame retardant

B - Nylon

C - Polypropylene composite

D - Non FDA nylon

E - FDA nylon

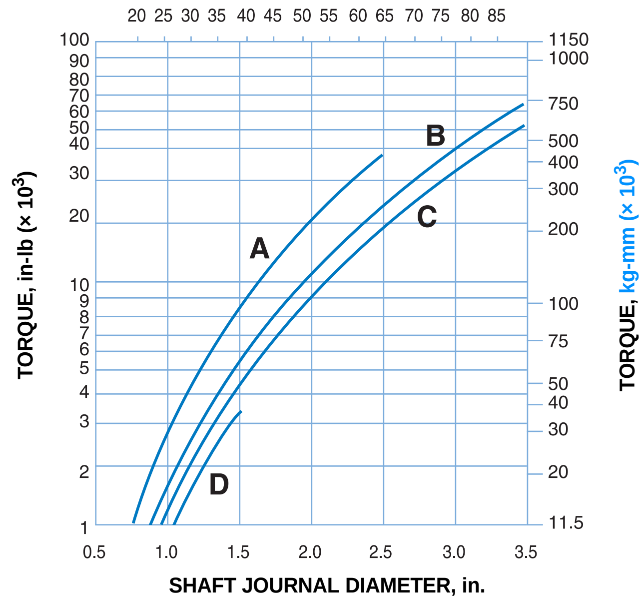
F - Detectable polypropylene

Intermittent exposure above220 °F (104 °C). Avoid high impact below 45 °F (7 °C)

Table 8 SHAFT DATA				
B-SHAFT DATA	(Q) SHAFT WEIGHT, lb/ft (kg/m)			I MOMENT OF INERTIA in.^{4} (mm^4)
SIZE	ALUMINUM	CARBON STEEL	STAINLESS STEEL	
5/8" SQUARE	0.46	1.33[a]	1.33[a]	0.013
1" SQUARE	1.17[a]	3.40[a]	3.40[a]	0.083
1.5" SQUARE	2.64[a]	7.65[a]	7.65[a]	0.42
2.5" SQUARE	7.34	21.25[a]	21.25[a]	3.25
3.5" SQUARE	14.39	41.60[a]	41.60	12.50
25 mm SQUARE	(1.699)	(4.920)[b]	(4.920)[b]	(32.550)
40 mm SQUARE	(4.335)	(12.55)[b]	(12.55)[b]	(213,300)
60 mm SQUARE	(10.05)	(29.11)[b]	(29.11)[b]	(1,080,000)
65 mm SQUARE	(11.79)	(34.16)[b]	(34.16)[b]	(1,487,600)
E MODULUS OF ELASTICITY lb/In² (kg/mm²)	10,000,000 (7000)	30,000,000 (21,100)	28,000,000 (19,700)	

a. Intralox USA can supply square shafting machined to specifications in these sizes in Carbon Steel (C-1018), Stainless Steel (303 and 316), and Aluminum (6061-T6).
b. Intralox Europe offers square shafting in these sizes in Carbon Steel (KG-37) and Stainless Steel (304).

Table 9 MAXIMUM RECOMMENDED TORQUE ON DRIVE SHAFT



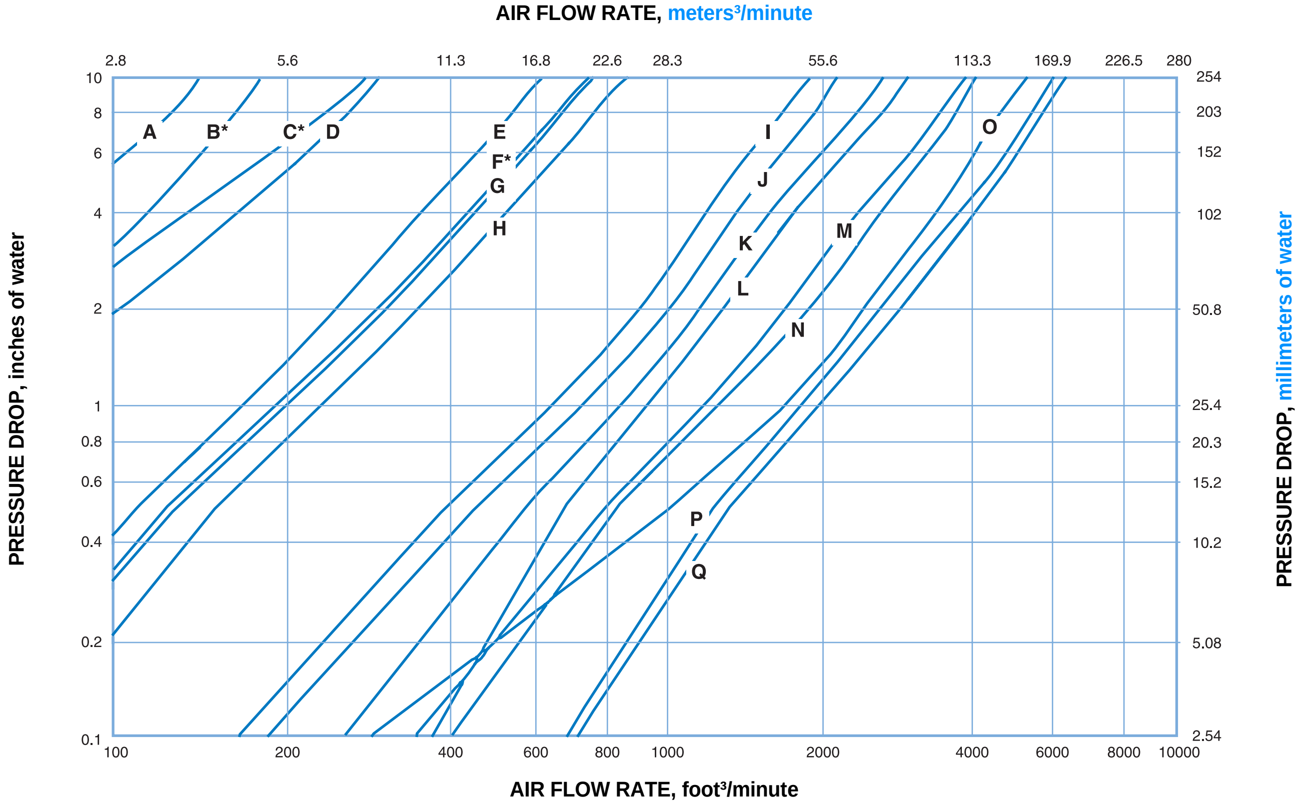
A - STAINLESS STEEL 303 & 304 (Cold-Rolled)

B - C-1018 & KG-37 CARBON STEEL (Cold-Rolled)

C - 316 STAINLESS STEEL (Annealed) & 304 STAINLESS STEEL (Hot-Rolled)

D - 6061-T6 ALUMINUM

Table 10 AIR FLOW RATE THROUGH BELT, PER SQUARE FOOT OF BELT AREA



A - S400 Flat Top
B - S1100 Edge Loss
C - S1100 Flat Top
D - S900 Flat Top
E - S900 Perforated Flat Top Ø 1/8”
F - S1100 Perforated Flat Top Ø 5/32”
G - S900 Perforated Flat Top Ø 5/32”
H - S900 Perforated Flat Top Ø 3/16”
I - S400 Flush Grid
J - S800 PFT, S800 PFT Ø 5/32”, S2000
K - S100 Flush Grid
L - S100 and S400 Raised Rib
M - S200 Flush Grid, S200 Open Hinge
N - S1100 Flush Grid
O - S900 Flush Grid and Raised Rib
P - S200 Open Hinge
Q - S2200

***SERIES 1100 FLAT TOP/PERFORATED FLAT TOP EDGE LOSS**:

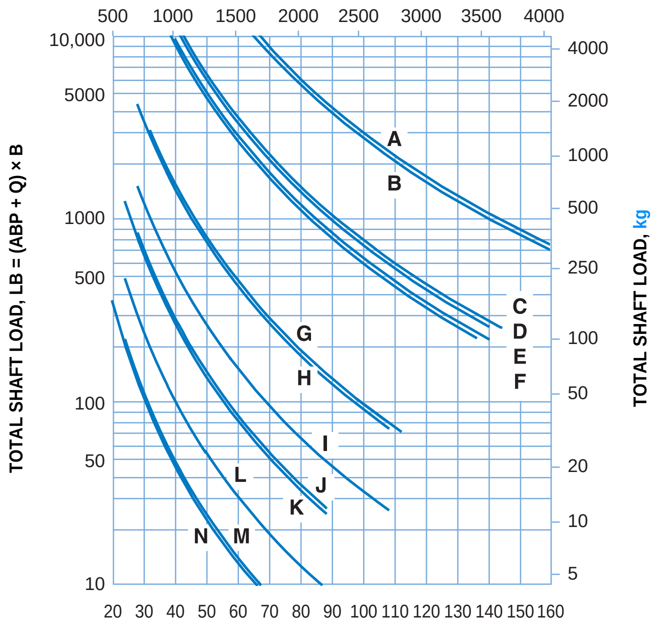
In order to go around a 0.875 inch nosebar and achieve self-clearing dead plates, the **Series 1100 Flat Top/Perforated Flat Top** belt does not have a sealed edge. To accurately size the fan, both airflow through the belt and edge loss of airflow must be considered. This example describes how to size the fan flow required for the **Series 1100 Perforated Flat Top** belt.

For a 30 inch wide belt that is 10 feet long, under a vacuum of 4 inches of water, the area under vacuum is 25 square feet. The length under vacuum is 10 feet. As per the Airflow Table, at a vacuum of 4 inches of water, airflow is 450 SCFM per square foot through the belt and 110 SCFM per linear foot for the edge. SCFM = (square feet belt under vacuum × airflow through the belt) + (linear feet belt × edge loss). Therefore, total flow is (25 × 450) + (10 × 110) = 12,350 SCFM.

Table 11 MAXIMUM DRIVE SHAFT SPAN LENGTH (CONVENTIONAL CONVEYORS)

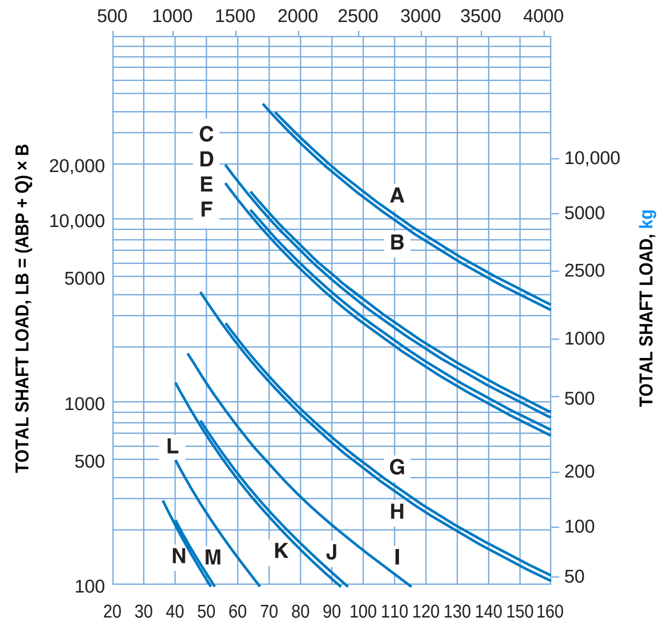
11A — **WITH ONLY 2 BEARINGS**
Maximum Allowed Deflection = 0.10 in. (2.5 mm)

MAXIMUM SHAFT SPAN LENGTH, mm



11B — **WITH 3 OR MORE BEARINGS, EQUALLY SPACED**
Maximum Allowed Deflection = 0.10 in. (2.5 mm)

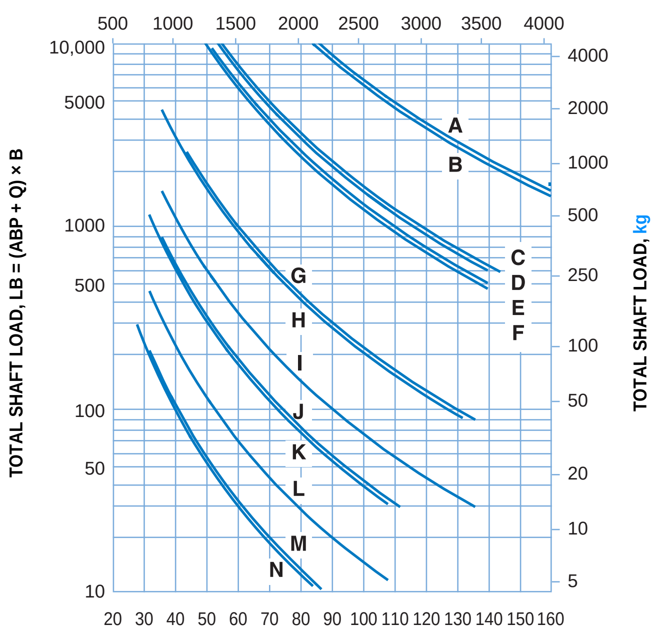
MAXIMUM SHAFT SPAN LENGTH, mm



MAXIMUM DRIVE & IDLER SHAFT SPAN LENGTH (BI-DIRECTIONAL & PUSHER CONVEYORS)

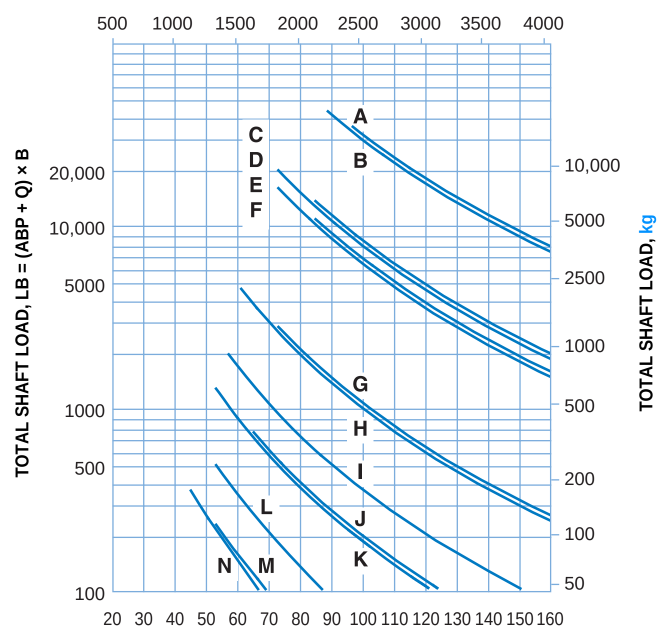
11C — **WITH ONLY 2 BEARINGS**
Maximum Allowed Deflection = 0.22 in. (5.6 mm)

MAXIMUM SHAFT SPAN LENGTH, mm



11D — **WITH 3 OR MORE BEARINGS, EQUALLY SPACED**
Maximum Allowed Deflection = 0.22 in. (5.6 mm)

MAXIMUM SHAFT SPAN LENGTH, mm



- **A -** 3.5" and 90 mm Square Carbon Steel
- **B -** 3.5" and 90 mm Square Stainless Steel
- **C -** 2.5" and 65 mm Square Carbon Steel
- **D -** 2.5" and 65 mm Square Stainless Steel
- **E -** 60 mm Square Carbon Steel
- **F -** 60 mm Square Stainless Steel
- **G -** 1.5" and 40 mm Square Carbon Steel
- **H -** 1.5" and 40 mm Square Stainless Steel
- **I -** 1.5" Square Aluminum
- **J -** 1.0" and 25.4 mm Square Carbon Steel
- **K -** 1.0" and 25.4 mm Square Stainless Steel
- **L -** 1.0" Square Aluminum
- **M -** 5/8" Square Carbon Steel
- **N -** 5/8" Square Stainless Steel

MEASUREMENT CONVERSION FACTORS

ENGLISH (USA) UNIT	MULTIPLY BY →	METRIC (SI) UNIT	MULTIPLY BY →	ENGLISH (USA) UNIT
		LENGTH		
inch (in.)	25.40	millimeter (mm)	0.03937	inch (in.)
inch (in.)	0.0254	meter (m)	39.37	inch (in.)
foot (ft.)	304.8	millimeter (mm)	0.0033	foot (ft.)
foot (ft.)	0.3048	meter (m)	3.281	foot (ft.)
		AREA		
inch² (in.²)	645.2	millimeter² (mm²)	0.00155	inch² (in.²)
inch² (in.²)	0.000645	meter² (m²)	1550.0	inch² (in.²)
foot² (ft.²)	92,903	millimeter² (mm²)	0.00001	foot² (ft.²)
foot² (ft.²)	0.0929	meter² (m²)	10.764	foot² (ft.²)
		VOLUME		
foot³ (ft.³)	0.0283	meter³ (m³)	35.31	foot³ (ft.³)
foot³ (ft.³)	28.32	liter (l)	0.0353	foot³ (ft.³)
		VELOCITY and SPEED		
foot/second (ft/s)	18.29	meter/min (m/min)	0.0547	foot/second (ft/s)
foot/minute (ft/min)	0.3048	meter/min (m/min)	3.281	foot/minute (ft/min)
		MASS and DENSITY		
pound-avdp. (lb)	0.4536	kilogram (kg)	2.205	pound-avdp. (lb)
pound/foot³ (lb/ft³)	16.02	kilogram/meter3 (kg/m3)	0.0624	pound/foot³ (lb/ft³)
		FORCE and FORCE/LENGTH		
pound-force (lb)	0.4536	kilogram-force (kg)	2.205	pound-force (lb)
pound-force (lb)	4.448	Newton (N)	0.225	pound-force (lb)
kilogram-force (kg)	9.807	Newton (N)	0.102	kilogram-force (kg)
pound/foot (lb/ft)	1.488	kilogram/meter (kg/m)	0.672	pound/foot (lb/ft)
pound/foot (lb/ft)	14.59	Newton/meter (N/m)	0.0685	pound/foot (lb/ft)
kilogram/meter (kg/m)	9.807	Newton/meter (N/m)	0.102	kilogram/meter (kg/m)
		TORQUE		
inch-pound (in-lb)	11.52	kilogram-millimeter (kg-mm)	0.0868	inch-pound (in-lb)
inch-pound (in-lb)	0.113	Newton-meter (N-m)	8.85	inch-pound (in-lb)
kilogram-millimeter (kg-mm)	9.81	Newton/millimeter (N-mm)	0.102	kilogram-millimeter (kg-mm)
		MOMENT of INERTIA		
inch^4 (in.^{4})	416,231	millimeter^4 (mm^4)	0.0000024	inch^4 (in.^{4})
inch^4 (in.^{4})	41.62	centimeter^4 (cm^4)	0.024	inch^4 (in.^{4})
		PRESSURE and STRESS		
pound/inch² (lb/in²)	0.0007	kilogram/millimeter² (kg/mm²)	1422	pound/inch² (lb/in²)
pound/inch² (lb/in²)	0.0703	kilogram/centimeter² (kg/cm²)	14.22	pound/inch² (lb/in²)
pound/inch² (lb/in²)	0.00689	Newton/millimeter² (N/mm²)	145.0	pound/inch² (lb/in²)
pound/inch² (lb/in²)	0.689	Newton/centimeter² (N/cm²)	1.450	pound/inch² (lb/in²)
pound/foot² (lb/ft²)	4.882	kilogram/meter² (kg/m²)	0.205	pound/foot² (lb/ft²)
pound/foot² (lb/ft²)	47.88	Newton/meter² (N/m²)	0.0209	pound/foot² (lb/ft²)
		POWER		
Horsepower (hp)	745.7	Watt	0.00134	Horsepower (hp)
foot-pound/minute (ft-lb/min)	0.0226	Watt	44.25	foot-pound/minute (ft-lb/min)

TEMPERATURE

To Convert From	To	Use Formula
Temperature Fahrenheit, °F	Temperature Celsius, °C	°C = (°F - 32) ÷ 1.8
Temperature Celsius, °C	Temperature Fahrenheit, °F	°F = (1.8 x °C) + 32

CHEMICAL RESISTANCE GUIDE

The chemical resistance data presented in this table is based on information from polymer manufacturers and previous Intralox field experience. The data is indicative only for the conditions under which it was collected and should be considered as a recommendation only, not as a guarantee. This data pertains to chemical resistance only, and the temperatures listed are generally the chemical temperatures. Other design and personal safety concerns were not considered in making recommendations. Prudent application engineering dictates that materials and products should be tested under exact intended service conditions to determine their suitability for a particular purpose.

Chemicals listed without a concentration are for the undiluted chemical. Chemicals listed with a concentration are in solution with water. Descriptions in parenthesis are the active ingredient. In general, as the temperature of an application rises, the chemical resistance of a material decreases. Additional information about chemicals and materials of construction not listed may be obtained by contacting Intralox.

MATERIAL SUITABILITY CODE

R = Recommended

NR = Not Recommended

Q = Questionable

— = No Available Information

	STANDARD MATERIALS								SPECIAL APPLICATIONS MATERIALS					
CHEMICAL NAME	Polypropylene		Polyethylene		Acetal		EC Acetal		Heat Resistant Nylon		Nylon		Flame Retardant Material	
	70 °F (21 °C)	140 °F (60 °C)	70 °F (21 °C)	140 °F (60 °C)	70 °F (21 °C)	140 °F (60 °C)	70 °F (21 °C)	140 °F (60 °C)	70 °F (21 °C)	140 °F (60 °C)	70 °F (21 °C)	140 °F (60 °C)	70 °F (21 °C)	140 °F (60 °C)
Acetic Acid	R	R	R	Q	—	—	—	—	NR	NR	NR	NR	R	R
Acetic Acid - 5%	R	R	R	R	R	—	R	—	R	NR	Q	NR	R	R
Acetone	R	R	R	R	Q	Q	Q	Q	R	R	R	R	R	R
Alcohol - All Types	R	R	R	R	—	—	—	—	R	R	R	R	R	R
Alum - All Types	R	R	R	R	—	—	—	—	Q	—	—	—	—	—
Aluminum Compounds	R	R	R	R	—	—	—	—	Q	R	R	R	R	R
Ammonia	R	R	R	R	—	—	—	—	R	R	R	R	—	—
Ammonium Compounds	R	R	R	R	—	—	R	—	Q	R	R	R	R	R
Amyl Acetate	Q	NR	Q	NR	—	—	—	—	R	N	R	N	—	—
Amyl Chloride	NR	NR	Q	NR	—	—	—	—	—	—	—	—	—	—
Aniline	R	R	R	NR	—	Q	—	Q	Q	—	—	—	NR	NR
Aqua Regia	NR	NR	Q	NR	—	—	—	—	—	NR	NR	NR	NR	NR
Arsenic Acid	R	R	R	R	—	—	—	—	—	—	—	—	—	—
Barium Compounds	R	R	R	R	—	—	—	—	R	R	R	R	R	R
Barium Soap Grease	R	Q	—	—	—	—	—	—	—	—	—	—	—	—
Beer	R	R	R	R	—	—	—	—	R	—	—	—	R	R
Benzene	Q	NR	Q	NR	R	Q	R	Q	R	R	R	R	R	R
Benzenesulfonic Acid - 10%	R	R	R	R	—	—	—	—	R	—	—	—	—	—
Benzoic Acid	R	R	R	R	—	—	—	—	R	Q	Q	Q	—	—
Borax	R	R	R	R	—	—	—	—	—	—	—	—	—	—
Boric Acid	R	R	R	R	—	—	—	—	Q	R	R	R	—	—
Brake Fluid	R	R	—	—	R	R	R	R	R	R	R	R	R	R
Brine - 10%	R	R	R	R	R	R	R	R	—	—	—	—	—	—
Bromic Acid	NR	NR	NR	NR	—	—	—	—	—	NR	NR	NR	—	—
Bromine - Liquid or Fumes	NR	NR	NR	NR	—	—	—	—	NR	NR	NR	NR	NR	NR
Bromine Water	NR	NR	—	—	—	—	—	—	NR	NR	NR	NR	—	—
Butyl Acetate	NR	NR	Q	NR	—	—	—	—	R	R	R	R	R	R
Butyl Acrylate	NR	NR	R	Q	—	—	—	—	—	—	—	—	—	—
Butyric Acid	R	—	R	Q	—	—	—	—	Q	R	R	R	—	—
Calcium Compounds	R	R	R	R	—	—	—	—	Q	—	—	—	R	R
Calcium Soap Grease	R	Q	—	—	—	—	—	—	—	—	—	—	—	—
Calgonite - 0.3%	R	R	—	—	R	R	R	R	—	—	—	—	—	—
Carbon Dioxide	R	R	R	R	—	—	—	—	R	R	R	R	R	R
Carbon Disulfide	Q	NR	Q	NR	—	—	—	—	R	R	R	R	—	—
Carbon Tetrachloride	NR	NR	NR	NR	R	Q	R	Q	R	R	R	R	R	R
Cellosolve - TM	R	R	—	—	—	—	—	—	—	—	—	—	—	—
Chloracetic Acid	R	R	—	—	—	—	—	—	—	NR	NR	NR	—	—
Chlorine - Gas	NR	NR	Q	NR	NR	NR	NR	NR	—	NR	NR	NR	NR	NR
Chlorine - Liquid	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Chlorine Water (0.4% Cl)	R	Q	R	Q	NR	NR	NR	NR	—	NR	NR	NR	—	—

MATERIAL SUITABILITY CODE

R = Recommended

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CHEMICAL NAME	STANDARD MATERIALS								SPECIAL APPLICATIONS MATERIALS					
	Polypropylene		Polyethylene		Acetal		EC Acetal		Heat Resistant Nylon		Nylon		Flame Retardant Material	
	70 °F (21 °C)	140 °F (60 °C)	70 °F (21 °C)	140 °F (60 °C)	70 °F (21 °C)	140 °F (60 °C)	70 °F (21 °C)	140 °F (60 °C)	70 °F (21 °C)	140 °F (60 °C)	70 °F (21 °C)	140 °F (60 °C)	70 °F (21 °C)	140 °F (60 °C)
Chlorobenzene	NR	NR	Q	NR	—	—	—	—	R	R	R	R	NR	NR
Chloroform	NR	NR	NR	NR	—	—	—	—	Q	—	Q	—	R	R
Chlorosulfonic Acid	NR	NR	NR	NR	—	—	—	—	NR	NR	NR	NR	NR	NR
Chromic Acid - 50%	R	R	R	Q	—	—	—	—	NR	—	Q	—	—	—
Citric Acid	R	R	R	R	—	—	—	—	—	R	R	R	R	R
Citric Acid - 10%	R	R	R	R	R	—	R	—	R	R	R	R	R	R
Citrus Juices	R	R	R	R	—	—	—	—	R	R	R	R	R	R
Clorox - TM	R	Q	—	—	NR	NR	NR	NR	—	NR	NR	NR	—	—
Coconut Oil	R	R	R	R	—	—	—	—	—	—	—	—	—	—
Copper Compounds	R	R	R	R	—	—	—	—	Q	—	Q	—	R	R
Corn Oil	R	R	R	R	—	—	—	—	—	—	—	—	—	—
Cottonseed Oil	R	R	R	R	—	—	—	—	—	—	—	—	—	—
Cresol	R	R	R	Q	—	—	—	—	NR	NR	NR	NR	—	—
Cyclohexane	R	Q	NR	NR	—	—	—	—	—	—	R	—	R	R
Cyclohexanol	R	Q	Q	NR	—	—	—	—	R	—	R	—	—	—
Cyclohexanone	R	Q	NR	NR	—	—	—	—	R	—	R	—	—	—
Detergents	R	R	R	R	R	R	R	R	R	—	—	—	—	—
Dextrin	R	R	R	R	—	—	—	—	—	—	—	—	—	—
Dibutyl Phthalate	R	Q	—	—	—	—	—	—	R	R	R	R	R	R
Diethyl Ether	NR	NR	NR	NR	Q	Q	Q	Q	R	R	R	R	—	—
Diethylamine	R	R	—	NR	—	—	—	—	R	—	—	—	—	—
Diglycolic Acid - 30%	R	R	R	R	—	—	—	—	—	—	—	—	—	—
Diisooctyl Phthalate	R	R	—	—	—	—	—	—	—	—	—	—	—	—
Dimethyl Phthalate	R	R	—	—	—	—	—	—	—	—	—	—	—	—
Dimethylamine	R	—	—	—	—	—	—	—	R	R	R	R	—	—
Dioctyl Phthalate	R	Q	—	—	—	—	—	—	R	R	R	R	R	R
Ethyl Acetate	R	R	Q	Q	Q	NR	Q	NR	R	R	R	R	R	R
Ethyl Ether	Q	Q	—	—	—	—	—	—	—	—	—	—	R	R
Ethylamine	R	R	—	—	—	—	—	—	—	—	—	—	—	—
Ethylene Chloride	NR	NR	—	—	—	—	—	—	—	—	—	—	Q	Q
Ethylene Glycol - 50%	R	R	R	R	R	Q	R	Q	R	Q	R	Q	R	R
Ferric / Ferrous Compounds	R	R	R	R	—	—	—	—	Q	—	—	—	—	—
Formaldehyde - 37%	R	R	R	Q	—	—	—	—	—	—	—	—	R	R
Formic Acid - 85%	R	Q	R	R	—	—	—	—	NR	NR	Q	NR	Q	Q
Freon	—	—	R	R	Q	Q	Q	Q	—	—	—	—	R	R
Fuel Oil #2	R	Q	R	NR	Q	Q	Q	Q	R	R	R	R	—	—
Furfural	NR	NR	Q	NR	—	—	—	—	R	—	R	—	—	—
Gasoline	Q	NR	R	NR	R	R	R	R	R	R	R	R	R	R
Glucose	R	R	R	R	—	—	—	—	—	—	—	—	—	—
Glycerol	R	R	—	—	—	—	—	—	R	R	R	R	—	—
Heptane	NR	NR	Q	NR	R	R	R	R	R	R	R	R	R	R
Hexane	R	Q	NR	NR	—	—	—	—	R	R	R	R	R	R
Hydrobromic Acid - 50%	R	R	R	R	—	—	—	—	NR	NR	NR	NR	—	—
Hydrochloric Acid	R	R	R	R	NR	NR	NR	NR	NR	NR	NR	NR	Q	Q
Hydrochloric Acid - 10%	R	R	R	R	NR	NR	NR	NR	NR	NR	NR	NR	Q	Q
Hydrofluoric Acid - 35%	R	R	R	R	NR	NR	NR	NR	NR	NR	NR	NR	—	—
Hydrogen Peroxide - 3%	R	R	R	R	R	R	R	R	Q	Q	Q	Q	R	R
Hydrogen Peroxide - 90%	Q	Q	R	Q	—	—	—	—	NR	NR	NR	NR	R	R
Hydrogen Sulfide	R	R	R	R	—	—	—	—	R	R	R	R	—	—
Hydroiodic Acid	NR	NR	—	—	—	—	—	—	—	—	—	—	—	—
Igepal - 50%	R	R	—	—	R	Q	R	Q	—	—	—	—	—	—
Iodine - Crystals	R	R	Q	Q	—	—	—	—	—	NR	NR	NR	—	—
Isooctane	NR	NR	R	—	—	—	—	—	R	R	R	R	—	—
Jet Fuel	Q	NR	Q	Q	R	R	R	R	R	R	R	R	R	R
Kerosene	Q	NR	Q	Q	R	R	R	R	R	—	—	—	R	R
Lactic Acid	R	R	R	R	—	—	—	—	NR	NR	Q	NR	—	—
Lanolin	R	Q	R	R	—	—	—	—	—	—	—	—	—	—
Lard	—	—	R	R	—	—	—	—	—	R	R	R	—	—
Lauric Acid	R	R	R	R	—	—	—	—	—	—	—	—	—	—
Lead Acetate	R	R	R	R	—	—	—	—	R	R	R	R	—	—

MATERIAL SUITABILITY CODE

R = Recommended
NR = Not Recommended
Q = Questionable
— = No Available Information

CHEMICAL NAME	STANDARD MATERIALS								SPECIAL APPLICATIONS MATERIALS					
	Polypropylene		Polyethylene		Acetal		EC Acetal		Heat Resistant Nylon		Nylon		Flame Retardant Material	
	70 °F (21 °C)	140 °F (60 °C)	70 °F (21 °C)	140 °F (60 °C)	70 °F (21 °C)	140 °F (60 °C)	70 °F (21 °C)	140 °F (60 °C)	70 °F (21 °C)	140 °F (60 °C)	70 °F (21 °C)	140 °F (60 °C)	70 °F (21 °C)	140 °F (60 °C)
Lemon Oil	Q	NR	Q	NR	—	—	—	—	—	—	—	—	—	—
Ligroin	Q	NR	—	—	—	—	—	—	—	—	—	—	—	—
Lime Sulfur	R	—	—	—	—	—	—	—	—	—	—	—	—	—
Linseed Oil	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Lubricating Oil	R	Q	—	—	R	R	R	R	R	Q	R	Q	R	R
Magnesium Compounds	R	R	R	R	—	—	—	—	Q	—	R	—	—	—
Malic Acid - 50%	R	R	R	R	—	—	—	—	R	R	R	R	—	—
Manganese Sulfate	R	—	R	R	—	—	—	—	Q	Q	Q	Q	—	—
Margarine	R	R	R	R	—	—	—	—	—	—	—	—	—	—
Mercuric Compounds	R	R	R	R	—	—	—	—	—	—	—	—	—	—
Mercury	R	R	R	R	—	—	—	—	R	—	R	—	—	—
Methyl Cellosolve	R	—	—	—	—	—	—	—	—	—	—	—	—	—
Methyl Chloride	NR	NR	—	—	—	—	—	—	—	R	R	R	—	—
Methyl Ethyl Ketone	R	Q	NR	NR	—	—	—	—	R	—	R	—	R	R
Methyl Isobutyl Ketone	R	Q	—	—	—	—	—	—	—	—	—	—	—	—
Methylene Chloride	Q	NR	NR	NR	—	—	—	—	Q	Q	Q	Q	NR	NR
Methylsulfuric Acid	R	R	R	R	—	—	—	—	—	—	—	—	—	—
Mineral Oil	Q	NR	R	NR	R	R	R	R	—	—	—	—	R	R
Mineral Spirits	Q	NR	—	—	—	—	—	—	R	—	—	—	—	—
Molasses	R	R	R	R	—	—	—	—	R	R	R	R	—	—
Motor Oil	R	Q	—	—	R	R	R	R	R	R	R	R	R	R
Naphtha	R	Q	Q	NR	—	—	—	—	R	R	R	R	R	R
Nickel Compounds	R	R	R	R	—	—	—	—	Q	—	Q	—	—	—
Nitric Acid - 30%	R	Q	R	R	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Nitric Acid - 50%	Q	NR	R	Q	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Nitric Acid - Fuming	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Nitrobenzene	R	Q	NR	NR	—	—	—	—	Q	—	Q	—	NR	NR
Nitrous Acid	Q	NR	—	—	—	—	—	—	—	—	—	—	—	—
Nitrous Oxide	R	—	—	—	—	—	—	—	—	—	—	—	—	—
Oleic Acid	R	NR	—	—	R	R	R	R	R	R	R	R	R	R
Olive Oil	R	R	R	R	—	—	—	—	—	—	—	—	—	—
Oxalic Acid	R	R	R	R	—	—	—	—	Q	—	—	—	—	—
Oxygen	NR	NR	—	—	—	—	—	—	R	R	R	R	—	—
Ozone	NR	NR	Q	NR	—	—	—	—	Q	Q	Q	Q	—	—
Palmitic Acid - 70%	R	R	R	R	—	—	—	—	R	—	R	—	R	R
Peanut Oil	R	R	—	—	—	—	—	—	—	—	R	—	—	—
Perchloric Acid - 20%	R	R	R	R	—	—	—	—	—	—	—	—	—	—
Perchlorothylene	NR	NR	NR	NR	—	—	—	—	Q	NR	Q	NR	—	—
Phathalic Acid - 50%	R	R	R	R	—	—	—	—	—	—	—	—	—	—
Phenol	R	R	R	R	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Phenol - 5%	R	R	R	R	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
Phosphoric Acid - 30%	R	R	R	R	—	—	—	—	NR	NR	NR	NR	Q	Q
Phosphoric Acid - 85%	R	R	R	R	—	—	—	—	NR	NR	NR	NR	Q	Q
Photographic Solutions	R	R	R	R	—	—	—	—	R	—	R	—	—	—
Plating Solutions	R	R	R	R	—	—	—	—	—	—	—	—	—	—
Potassium Compounds	R	R	R	R	—	—	—	—	R	—	—	—	R	R
Potassium Hydroxide	R	R	R	R	—	—	—	—	R	—	Q	—	R	R
Potassium Iodide (3% Iodine)	R	R	R	R	—	—	—	—	—	—	—	—	—	—
Potassium Permanganate	R	Q	R	R	—	—	—	—	NR	NR	NR	NR	—	—
Silver Cyanide	R	R	—	—	—	—	—	—	—	—	—	—	—	—
Silver Nitrate	R	R	R	R	—	—	—	—	—	—	—	—	—	—
Sodium Compounds	R	R	R	R	—	—	R	R	Q	—	—	—	R	R
Sodium Chlorite	R	Q	R	R	—	—	R	R	Q	NR	NR	NR	R	R
Sodium Hydroxide	R	R	R	R	—	—	R	R	R	NR	NR	NR	Q	Q
Sodium Hydroxide - 60%	R	R	R	R	R	R	R	R	R	NR	NR	NR	Q	Q
Sodium Hypochlorite - (5% Cl)	R	Q	—	—	NR	NR	NR	NR	NR	—	Q	—	R	R
Stannic Chloride	R	R	R	R	—	—	—	—	—	—	—	—	—	—
Stannous Chloride	R	R	R	R	—	—	—	—	—	—	—	—	—	—
Stearic Acid	R	Q	R	R	—	—	—	—	R	R	R	R	—	—
Succinic Acid	R	R	R	R	—	—	—	—	—	—	—	—	—	—

MATERIAL SUITABILITY CODE

R = Recommended
NR = Not Recommended
Q = Questionable
— = No Available Information

CHEMICAL NAME	STANDARD MATERIALS								SPECIAL APPLICATIONS MATERIALS					
	Polypropylene		Polyethylene		Acetal		EC Acetal		Heat Resistant Nylon		Nylon		Flame Retardant Material	
	70 °F (21 °C)	140 °F (60 °C)	70 °F (21 °C)	140 °F (60 °C)	70 °F (21 °C)	140 °F (60 °C)	70 °F (21 °C)	140 °F (60 °C)	70 °F (21 °C)	140 °F (60 °C)	70 °F (21 °C)	140 °F (60 °C)	70 °F (21 °C)	140 °F (60 °C)
Sugar	R	R	R	R	—	—	—	—	—	—	—	—	—	—
Sulfamic Acid - 20%	R	R	—	—	NR	NR	NR	NR	—	—	—	—	—	—
Sulfate Liquors	R	R	—	—	—	—	—	—	—	—	—	—	—	—
Sulfur	R	R	R	R	—	—	—	—	R	R	R	R	—	—
Sulfur Chloride	R	—	—	—	—	—	—	—	—	—	—	—	—	—
Sulfur Dioxide	R	R	R	R	—	—	—	—	R	Q	Q	Q	R	R
Sulfuric Acid - 3%	R	R	R	R	R	R	R	R	NR	NR	NR	NR	Q	Q
Sulfuric Acid - 50%	R	R	R	R	NR	NR	NR	NR	NR	NR	NR	NR	Q	Q
Sulfuric Acid - 70%	R	Q	R	Q	NR	NR	NR	NR	NR	NR	NR	NR	Q	Q
Sulfuric Acid - Fuming	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	Q	Q
Sulfurous Acid	R	—	R	R	—	—	—	—	Q	Q	Q	Q	—	—
Tallow	R	R	R	Q	—	—	—	—	R	R	R	R	—	—
Tannic Acid - 10%	R	R	R	R	—	—	—	—	—	—	—	—	R	R
Tartaric Acid	R	R	R	R	—	—	—	—	Q	Q	R	Q	—	—
Tetrahydrofuran	Q	NR	—	—	—	—	—	—	R	—	R	—	R	R
Toluene	NR	NR	NR	NR	Q	NR	Q	NR	R	R	R	R	R	R
Tomato Juice	R	R	R	R	—	—	—	—	—	—	—	—	—	—
Transformer Oil	R	Q	R	Q	—	—	—	—	R	R	R	R	—	—
Tributyl Phosphate	R	Q	—	—	—	—	—	—	—	—	—	—	—	—
Trichloroacetic Acid	R	R	—	—	—	—	—	—	R	NR	NR	NR	—	—
Trichloroethylene	NR	NR	NR	NR	—	—	—	—	R	NR	Q	NR	—	—
Tricresyl Phosphate	R	Q	—	—	—	—	—	—	—	—	—	—	—	—
Trisodium Phosphate	R	R	R	R	—	—	—	—	—	—	—	—	—	—
Turpentine	Q	NR	Q	NR	—	—	—	—	R	R	R	R	—	—
Urea	R	R	R	R	—	—	—	—	R	R	R	R	—	—
Vinegar	R	R	R	R	—	—	—	—	—	—	—	—	—	—
Wine	R	R	R	R	—	—	—	—	R	R	R	R	—	—
Xylene	NR	NR	NR	NR	—	—	—	—	R	R	R	R	R	R
Zinc Compounds	R	R	R	R	—	—	—	—	Q	—	Q	—	R	R

MATERIAL SUITABILITY CODE
R = Recommended
NR = Not Recommended
Q = Questionable
— = No Available Information

STRAIGHT RUNNING BELT DATA SHEET

Company Name: ______________________ Phone: __________
Mailing Address: ______________________ Fax: __________
Shipping Address: ______________________ Dist. Mgr: __________
City & State: ______________ Zip: ________ New Installation: __________
Contact: ______________ Title: ________ Retrofit Existing: __________

I. PRODUCT CHARACTERISTICS: Product Being Conveyed

❑ Plastic	❑ Cooked	❑ Frozen	❑ Cardboard	❑ Seasoning	❑ Marinade
❑ Wet	❑ Aluminum	❑ Steel	❑ Sticky	❑ Raw	❑ Sauce
❑ Dry	❑ Slippery	❑ Glass	❑ USDA-FSIS Req'd	❑ Crumbly	
❑ Fresh	❑ Abrasive	❑ Sharp	❑ FDA Req'd	❑ Other: ________	

❑ Corrosive: Compound ________ Concentration ________ Temperature ________

II. SANITATION:

Method of Cleaning: ______________________ Frequency: __________
Cleaning Chemicals: ______________________ Concentration (%): __________
Temperature of Cleaning Media: ______________________ Time Belt Exposed: __________
Belt Scrapers: ________ Finger Transfer Plates: ________ Brushes: __________

III. APPLICATION DATA:

Width (in. or mm) ________ Length ℄ -℄ (ft. or m) ________
Product Load (lb/ft² or kg/m²) ________ Belt Speed (ft. or m/min.) ________
Sprocket PD (in. or mm) ________ Bore Size (in. or mm) ________
Temp @ Drive (°F or °C) ________ Shaft Material ________
Drive Journal Diameter (in. or mm) ________
Carryway Conditions: ❑ Wet ❑ Dry ❑ Abrasive
Nosebar? Static or Dynamic

Carryway Material:
❑ UHMW ❑ HDPE ❑ Nylon
❑ Steel ❑ Other
% of belt backed-up with product ________
Push Conveyor? ________
Center Drive? ________
Frequent Starts? ________
Elevation Change (ft. or m) ________

IV. BELT STYLE: SERIES (Check One)

	100	200	400	600	800	850	900	1100	1200	1400	1500	1600	1700	1800	1900	2000	2200	2400	2600	2700	3000	4000
Flush Grid	❑	❑	❑		❑		❑	❑	❑	❑	❑		❑				❑	❑				❑
Open Grid		❑					❑															
Raised Rib	❑		❑				❑		❑						❑	❑						
Open Hinge		❑	❑		❑																	
Flat Top		❑	❑		❑		❑	❑	❑	❑				❑				❑				❑
Perforated Flat Top		❑			❑		❑	❑														
Multi-Lane				❑																		
Diamond/Square Friction Top							❑															
Flat Friction Top							❑			❑							❑					
Round Friction Top					❑														❑			
Oval Friction Top										❑												
Open Hinge Flat Top					❑							❑										
Flush Grid Friction Top								❑										❑				
Mini-Rib					❑							❑										
Non-Skid			❑						❑													
Non-Skid Raised Rib									❑													
Nub Top					❑		❑					❑										
Flush Grid Nub Top					❑		❑	❑					❑									
Cone Top					❑			❑														
Open Hinge Cone Top					❑																	
Roller Top			❑		❑					❑								❑				
ONEPIECE™ Live Transfer							❑			❑												
Mold-To-Width							❑	❑		❑												
Mesh Top					❑		❑					❑		❑								
Knuckle Chain																					❑	
SPIRALOX™																			❑	❑		
Flush Grid with Insert Rollers							❑										❑					
Embedded Diamond Top								❑														
Ball Belt			❑																			
Embedded Nub Top					❑																	
Flush Grid High Deck																	❑	❑				
SeamFree™ Flat Top					❑																	
SeamFree™ Minimum Hinge Flat Top						❑																

V. BELT MATERIAL

Polypropylene	❑
Polyethylene	❑
Polyacetal	❑
Electrically Conductive	❑
FDA Nylon	❑
Non-FDA Nylon	❑
Flame Retardant	❑
Polypropylene Composite	❑
Detectable Polypropylene	❑

chart continued on next page

VI. ADDITIONAL INFORMATION:

Flights (Y/N) ____________ Height (in. or mm) ____________ Spacing (in. or mm) ____________

If bulk conveyance, product size: Max ____________ Min ____________ Average ____________

Method of loading: Mechanical ____________ Chute ____________ Hand ____________ Other ____________

Other Belt Service Factors (please elaborate) Belt Impact ____________ Cutting on Belt ____________ Abrasive Environment ____________

Product Output Required: Unit ____________ /Time ____________ /Density ____________ lb/ft³ or kg/m³ ____________ /Max. Height (in. or mm) ____________

Specification of Current Belt: ____________

Other Comments: ____________

Fax this page to Intralox Customer Service for a free analysis of your design. Use the bottom of this page to include a sketch or additional notes.

RADIUS BELT DATA SHEET

Company Name: ______________________ Phone: ____________

Mailing Address: ______________________ Fax: ____________

Shipping Address: ______________________ Dist. Mgr: ____________

City & State: ____________ Zip: ________ New Installation: ____________

Contact: ____________ Title: ________ Retrofit Existing: ____________

I. APPLICATION DATA: Product Being Conveyed:

Number of Turns? (4 max) ____________

Length of Straight Run #1 (ft. or m) ____________

Inside Radius of Turn #1 (in. or mm) ____________

What is the Turn Angle in Degrees of Turn #1 ____________

Turn Direction of Turn #1 (right or left) ____________

Length of Straight Run #2 (ft. or m) ____________

Inside Radius of Turn #2 (in. or mm) ____________

What is the Turn Angle in Degrees of Turn #2 ____________

Turn Direction of Turn #2 (right or left) ____________

Length of Straight Run #3 (ft. or m) ____________

Inside Radius of Turn #3 (in. or mm) ____________

What is the Turn Angle in Degrees of Turn #3 ____________

Turn Direction of Turn #3 (right or left) ____________

Length of Straight Run #3 (ft. or m) ____________

Inside Radius of Turn #3 (in. or mm) ____________

What is the Turn Angle in Degrees of Turn #4 ____________

Turn Direction of Turn #4 (right or left) ____________

Length of Final Straight Run (ft. or m) ____________

Belt Width (in. or mm) ________ Belt Material: ____________

Carryway Material (UHMW or Steel) ____________

Turn Rail Material (UHMW, steel or roller) ____________

Does Product Back Up On Belt? ________ % of Belt Backed Up ________

Belt Speed (ft. or m/min) Belt Loading (lb/ft^2 or kg/m^2) on Conveyor ________

Elevation Change (ft. or m) ________ Incline ________ Decline ________

Where: ____________

Operating Temp ________ Product Temp (at infeed) ________

Product Size ________ Product Wt/Piece ________

Pcs/ft^2 or Pcs/m^2 ________

Sketch/Notes

(Indicate Drive Location)

PRODUCT CHARACTERISTICS

❏ Plastic	❏ Cardboard	❏ Wet
❏ Aluminum	❏ Glass	❏ Fresh
❏ Steel	❏ Sauce	❏ Slippery
	❏ Frozen	❏ Abrasive
	❏ Marinade	❏ Seasoning
	❏ Cooked	❏ Raw
	❏ Dry	❏ Crumbly
	❏ Corrosive	❏ Sticky
	❏ USDA-FSIS Req'd	❏ Sharp

II. SANITATION:

Method of Cleaning: ______________________ Frequency: ____________

Cleaning Chemicals: ______________________ Concentration (%): ____________

Temperature of Cleaning Media: ______________________ Time Belt Exposed: ____________

Belt Scrapers: ____________ Finger Transfer Plates: ____________ Brushes: ____________

Fax this page to Intralox Customer Service for a free analysis of your design using
Series 2200 Radius Belt, Series 2400, Series 2600, Series 3000 Turning, Series 4009 or Series 4014 belts.

SPIRAL BELT DATA SHEET

Company Name:		Phone:	
Mailing Address:		Fax:	
Shipping Address:		Dist. Mgr:	
City & State:	Zip:	New Installation:	
Contact:	Title:	Retrofit Existing:	

I. APPLICATION DATA: Product Being Conveyed:

Purpose of Spiral:

Product:

Spiral Temperature:

Belt Width (in. or mm):

Actual Cage Radius (in. or mm) from Spiral to Inside of Belt Edge:

Tier Spacing (in. or mm):

Number of Tiers:

Additional Belt Length (including all belt not driven by spiral cage, i.e., infeed length, discharge length, and length through the overdrive and take-up systems) (ft. or m):

Belt Speed (ft/min or m/min):

Product Weight (lb/ft² or kg/m² on belt):

PRODUCT CHARACTERISTICS	
❏Dry	❏Wet
❏Frozen	❏Fresh
❏Sauce	❏Slippery
❏Breaded	❏Abrasive
❏Battered	
❏Marinade	❏Seasoning
❏Cooked	❏Raw
	❏Crumbly
❏Corrosive	❏Sticky
❏USDA-FSIS Req'd	❏Sharp

II. SPIRAL DATA:

Spiral System Manufacturer:

Is Spiral Up or Down: Current Belt Employed:

Wearstrip Material: Method of Loading Belt:

Spacing of Carryway Wearstrips:

Number of Wearstrips:

Cage Bar Surface Material (UHMW, Steel, etc.): Cage Bar Width: Spacing:

Clearance Between Wearstrip Surface and the Bottom of the Next Tier Wearstrip Support:

Does Belt Turn Right or Left onto Spiral Cage:

Gravity Take-up Weight: Gravity Take-up Movement/Stroke:

Overdrive Speed Control Type (Mechanical, Electrical):

Overdrive Shaft Size: Journal Diameter:

Idler Roller Diameters: Size:

Overdrive Type (Drives on Top or Bottom of Belt):

Type of Return Rail for Spiral Radius Belt Return (bull wheel, UHMW guide, rollers, etc.):

II. SANITATION:

Method of Cleaning: Frequency:

Cleaning Chemicals: Concentration (%):

Temperature of Cleaning Media: Time Belt Exposed (Temp):

Belt Scrapers: Finger Transfer Plates: Brushes:

Fax this page to Intralox Customer Service for a free analysis of your design.

SECTION 4

A

ACCUMULATION TABLES: Conveyors that absorb temporary product overflows due to fluctuations in downstream operations. They may be uni-directional or bi-directional.

ACETAL: A thermoplastic that is strong, has a good balance of mechanical and chemical properties, and has good fatigue endurance and resilience. It has a low coefficient of friction. Temperature range is from-50 °F (-45 °C) to +200 °F (93 °C). Its specific gravity is approximately 1.40.

ADJUSTED BELT PULL: The belt pull adjusted for Service Factors.

ALLOWABLE BELT STRENGTH: The rated belt strength adjusted for Temperature and Strength Factors.

B

BELT PITCH: center distance between hinge rods in an assembled belt.

BELT PULL: The tensile load on a belt after the product loading, belt weight, conveyor length, total friction factor and elevation change is applied.

BRICKLAYED: Belt construction where plastic modules are staggered with those in adjacent rows.

C

CATENARY SAG: A belt or chain hanging under the influence of gravity between two (2) supports will assume the shape of a curve called a “catenary”.

CENTER-DRIVEN BELTS: Belts driven by the sprocket at a point midway between the hinge rods.

CHEVRON CARRYWAYS: Support rails which are placed in an overlapping “V” pattern. This array supports the conveyor belt across the full width while distributing the wear more evenly. This pattern is very effective when moderate abrasion is present, providing a self cleaning method.

CHORDAL ACTION: The pivoting action of the belt’s modules about their hinge rods as the modules engage and disengage the sprocket. This results in a pulsation in the belt’s speed, and a rise and fall in the belt’s surface.

COEFFICIENTS OF FRICTION: A ratio of frictional force to contact force, which is determined experimentally. Coefficients of friction are usually stated for both dry and lubricated surfaces, and for start-up and running conditions.

D

DEAD PLATE GAP: Gap or clearance between the surface of a conveyor belt and any other surface onto which products or containers being conveyed are to be transferred.

DEFLECTION: Displacement or deformation due to loading.

E

ELEVATING CONVEYORS: These conveyors have several types of variations and are employed when product elevation is necessary. Elevators almost always employ flights and sideguards, which present special consideration in the design.

EXTRA-WIDE SPROCKETS: Available only in a **Series 200**, hinge-driven, diameter sprocket. Provides an extra-wide (double) driving area.

F

F.D.A.: Food and Drug Administration. Federal agency which regulates materials that may come in contact with food products.

FINGER TRANSFER PLATES: Comb-like plates that are employed with Intralox Raised Rib belts to minimize problems with product transfer and tipping.

FLAT PLATE CARRYWAYS: These are continuous sheets, usually of metal, over which the belt slides.

FLAT TOP STYLE: Modular plastic belt with a smooth, closed surface.

FLIGHTS: A vertical surface across the width of the belt. An integral part of the Intralox belt, employed where elevation of product is required (*e.g., Incline Conveyors, Elevator Conveyors*).

FLUID COUPLINGS: A device which allows the driven conveyor to accelerate gradually to operating speeds. Fluid couplings are recommended when frequent starts and stops of high speed or heavily loaded conveyors occur, and they also serve as an overload safety.

FLUSH GRID STYLE: Modular plastic belt with a smooth, open grid.

FRICTION: The force which acts between two bodies at their surface of contact, so as to resist their sliding on each other (*see Coefficients of Friction*).

G

GRAVITY TAKE-UP: Usually consists of a roller resting on the belt in the returnway, its weight providing the tension needed to maintain proper sprocket engagement. It is most effective when placed near the drive shaft end of the returnway.

H

H.D.P.E.: High Density Polyethylene resin used in the manufacture of wearstrip. Employed, where abrasion is not a problem, to reduce friction between belt and the carryway surface.

HINGE-DRIVEN BELTS: Belts driven at the hinges by the sprocket.

HINGE RODS: Plastic rods that are used in the assembly of modular plastic belts. They also serve as the hinges around which the belt modules rotate.

HORSEPOWER:

English (USA) Units — The power delivered by a machine while doing work at the rate of 550 foot pounds per second (ft-lb/sec), or 33,000 foot pounds per minute (ft-lb/min). The watt and kilowatt are power units used in rating electrical equipment. One kilowatt is equal to 1,000 watts. One horsepower equals 746 watts or 0.746 kilowatts. One kilowatt (kW) is equal to 1.341 horsepower.

Metric Units — The power delivered by a machine while doing work at the rate of 75 kilogram-meters per second (kg-m/sec), or 4500 kilogram-meters per minute (kg-m/min). One kilowatt (kW) is equal to 1.359 metric horsepower. One metric horsepower equals 736 watts or 0.736 kilowatts and closely approximates one English (USA) Horsepower, 746 watts.

Where calculations in this manual are done in metric units, power calculations are computed in Watts. Wherever Horsepower (HP) is used, it refers to the English (USA) value.

I

IDLER ROLLERS: Steel or plastic pipes that are supported by stub shafts used in place of idle shafts and sprockets. These pipe rollers may be considerably stiffer than a length of solid square shaft of comparable weight.

INERTIA: The tendency of a body to remain at rest or to stay in motion, unless acted upon by an outside force.

INTERMEDIATE BEARINGS: An additional bearing (or bearings) located near the center of a shaft to reduce shaft deflection to an acceptable level.

K

KNUCKLE CHAIN: : Narrow chain with relatively high strength that is commonly used in multiple strand applications. Knuckle Chain typically handles boxes, totes, pans or other large products.

L

LOAD-BEARING ROLLERS: Steel or plastic pipes supported by stub shafts which provide stiffness. Employed on center-drive Accumulation Conveyors on either side of the drive shaft.

M

MODULAR CONSTRUCTION: Injection-molded plastic modules assembled into an interlocked unit and joined together by hinge rods.

MODULE PITCH: The distance between the rod hole centerlines on a module.

MODULES: Injection-molded plastic parts used in the assembly of an Intralox belt.

MOLYBDENUM-FILLED NYLON (NYLATRON): A type of wearstrip plastic.

MOMENT OF INERTIA: A characteristic of the shape of an object which describes its resistance to bending or twisting.

N

NYLATRON: *(see Molybdenum-filled Nylon)*.

O

ONEPIECE™ LIVE TRANSFER BELT: Modular plastic belt with an integral transfer edge for smooth, self-clearing, right angle transfers onto takeaway belts.

OPEN AREA: The percentage of area in the plane of the plastic belt that is unobstructed by plastic.

OPEN GRID STYLE: Modular plastic belt with low profile, transverse ribs.

OPEN HINGE STYLE: Modular plastic belt with exposed hinge rods and a flush surface.

OUTSIDE DIAMETER: The distance from the top of a sprocket tooth to the top of the opposite tooth, measured through the centerline of the sprocket.

P

PARALLEL CARRYWAYS: Belt support rails that may be either metal or plastic, placed on the conveyor frame parallel to the belt's travel.

PERFORATED FLAT TOP STYLE: Modular plastic belt with a smooth, perforated top.

PITCH: *(see Belt Pitch or Module Pitch)*.

PITCH DIAMETER: Diameter of a circle, which passes through the centerlines of hinge rods, when the belt is wrapped around a sprocket.

POLYACETAL: *(see Acetal)*.

POLYETHYLENE: A lightweight thermoplastic, buoyant in water, with a specific gravity of 0.95. It is characterized by superior fatigue resistance, flexibility and high-impact strength. Exhibits excellent performance at low temperatures, -100 °F (-73 °C). Upper continuous temperature limit is +150 °F (+66 °C).

POLYPROPYLENE: A thermoplastic material that provides good chemical resistance characteristics. Polypropylene is buoyant in water, with a specific gravity of approximately 0.90. It is suitable for continuous service in temperatures from +34 °F (+1 °C) to +220 °F (+104 °C).

PULL-PULL BI-DIRECTIONAL CONVEYORS: There are three common variations of the Pull-pull type of reversing (bi-directional) conveyors: the center-Drive method, the Two-Motor drive method, and the Single-Motor/Slave-Drive method.

PUSH-PULL BI-DIRECTIONAL CONVEYORS: A conveyor employing one motor that will be reversing (bi-directional). In one direction the belt is being pulled and in the reversing direction the belt is being pushed.

PUSHER BAR: A device used on bi-directional accumulation tables *(i.e., in the bottling and canning industries)* which allows the table to be filled to its capacity and assists in an orderly and complete discharge from the table back onto the conveying line.

R

RAISED RIB STYLE: Modular plastic belt with a high profile, longitudinally ribbed surface.

RETAINER RINGS: A shaft and sprocket accessory which restricts the lateral movement of the sprocket with respect to the shaft.

RETURNWAYS: The path the belt follows toward the idler shaft and sprockets.

RODS: *(see Hinge Rods)*.

ROLLER CARRYWAYS: Carryway surface that does not provide a continuous running surface. The chordal action, as the modules pass over the rollers, may cause problems if product tippage is critical.

S

SCREW TAKE-UP: These types of take-ups shift the position of one of the shafts, usually the idler, through the use of adjustable machine screws.

SCROLL: Device used in place of the idle shaft and sprockets to prevent debris from accumulating on the inside of the conveyor belt. Scrolls are fabricated by welding steel left hand pitch and right hand pitch helical ribs to a common round shaft.

SERVICE FACTORS: Driven machines and power sources may be classified by severity factors, which reflect the type of service placed upon the power transmission components. High service factors are assigned to more severe applications, thereby providing sufficient component strength to render an acceptable life expectancy for that component. Additional service factors may be required for continuous service applications requiring braking *(e.g., starts/stops)* or reversing action *(e.g., bidirectional accumulation tables)*. Service factors help to insure optimal service life of the components.

SIDEGUARDS: Intralox belt accessory which forms a vertical wall near the belt edge and is an integral part of the belt.

SINGLE-MOTOR/SLAVE-DRIVE: Employing one motor (reversible) using a roller chain, alternately driving either of two chain sprockets on the conveyor shaft. This drive system is usually limited to short conveyors because of the length of roller chain involved.

SOFT START MOTORS: When rapid starts and stops of high speed and loaded conveyors occur, these devices are recommended. They allow the driven conveyor to accelerate gradually to operating speeds, which is beneficial for all conveyor components.

SPECIFIC GRAVITY: A dimensionless ratio of the density of a substance to the density of water.

STATIC ELECTRICITY: An electrical charge build-up on a surface as a result of rolling or sliding contact with another surface.

T

TAKE-UP UNITS: *(see Gravity or Screw Take-Up)*.

THERMAL EXPANSION/CONTRACTION: With few exceptions, the dimensions of all substances increase as their temperature is increased and contract as their temperature is decreased. Plastics expand and contract rather significantly.

TORQUE: The capability or tendency of a force for producing torsion or rotation about an axis. For example, the twisting action on a turning shaft.

TWO-MOTOR DRIVE DESIGN: In this design, the belt is alternately pulled in either direction *(e.g., bi-directional accumulation tables)*. Returnway belt tension is relatively low, requires rather expensive additional hardware *(e.g., an additional motor)*, slip clutches and electrical control components.

U

U.H.M.W.: Ultra High Molecular Weight, polyethylene resin used in the manufacture of wear-strip. It has very good wear characteristics, impact resistance and has an excellent combination of physical and mechanical.

U.S.D.A.-F.S.I.S.: United States Department of Agriculture. Federal agency which regulates equipment that may be employed in Meat, Dairy and Poultry facilities.

W

WEARSTRIP: Plastic strips that are added to a conveyor frame to increase the useful life of the frame and the conveyor belting. Also helpful in reducing sliding friction forces.

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