# ASHWORTH ENGINEERING

*Committed to on-time delivery of defect-free products and services, fit for use, exactly as promised, every time.*

# PRODUCT TECHNICAL BULLETIN

# PRESTOFLEX®



Prestoflex plastic belting has a connectorless construction, made up of plastic modules, which snap or unsnap together for quick and uncomplicated repairs. It can be used on process conveyors presently using metal or rubber belting. Prestoflex offers two different surfaces - Close Oval Grid and Open Grid. Both have been included in the USDA Accepted Meat and Poultry Equipment listing of acceptable equipment.

## *DEFINING CHARACTERISTICS*

- **Longitudinal Pitch:** 2 inch [50.8 mm]
- **Conveying Surface** = belt width
- **Width Limits:** 6 inches [152.4 mm] through 96 inches [2438.4 mm] in 2 inch increments *(Consult Ashworth's Product Engineering Department for belts wider than 96 inches)*
- **Maximum Allowable Tension:** Dependent on the operating temperature and belt speed
- **Method of Drive:** Positively driven with matching sprockets (machined Ultra High Molecular Weight Polyethylene and molded HDPE also available)
- Straight run only

## *BELT SPECIFICATIONS*

For applications between 32° F (0° C) and 212° F (100° C) Grey Polypropylene material is used.
For applications between –40° F (-40° C) and 32° F (0° C) a White Polyethylene material is used.
**NOTE:** Other plastic materials may be available for special requirements.

## *BELT WEIGHT*

**TABLE 1**

| GRID TYPE | Lbs/ft$^2$ | Kg/m$^2$ | % Open Area |
|---|---|---|---|
| Open Grid | .67 | 3.27 | 55 |
| Close Oval Grid | .83 | 4.06 | 35 |

## ***BELT OPTIONS***

**Open Grid**
topside →

←bottom side

**Close Oval Grid**
←topside

bottom side →

Hanger brackets available in UHMWPE.

## ***SPROCKETS***

**SUPPORT**

- If belt tension does not exceed 120lbs/ft [1750 N/m] of width, use 4 inch [101.6mm] maximum sprocket spacing.
- For heavier load applications, additional sprockets and/or idlers may be required.
- From 120 to 240 lbs/ft [1750 to 3500 N/m] of belt width, use a maximum sprocket spacing of 2 inches [50.4mm].
- Supports are recommended on a maximum of 6 inches apart on load side and 12 inches maximum on return side. Rollers may also be used.

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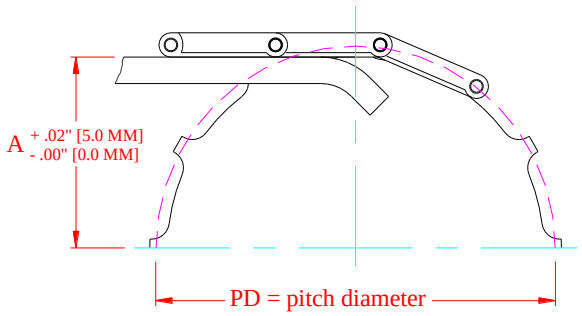
| No. of Teeth | Round Bore Minimum | | Round Bore Maximum* | | Overall Diameter | | Pitch Diameter | | Hub/Flange Diameter | | Hub Width | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm |
| 6 | 0.75 | 19.05 | 1.50 | 38.1 | 4.00 | 101.6 | 3.813 | 98.43 | 2.88 | 73.0 | 2.00 | 50.8 |
| 10 | 1.00 | 25.4 | 3.50 | 88.9 | 6.48 | 164.5 | 6.472 | 165.40 | 5.53 | 140.5 | 2.00 | 50.8 |
| 10** | **Nominal:** 1.00 [25.4] | | | | 6.60 | 167.6 | 6.472 | 165.40 | 5.66 | 143.8 | 2.00 | 50.8 |
| 10** | **Nominal:** 1.438 [36.53] | | | | 6.60 | 167.6 | 6.472 | 165.40 | 5.66 | 143.8 | 2.00 | 50.8 |
| 10** | **Nominal:** 1.938 [49.23] | | | | 6.60 | 167.6 | 6.472 | 165.40 | 5.66 | 143.8 | 2.00 | 50.8 |
| 13 | 1.00 | 25.4 | 5.125 | 130.18 | 8.44 | 214.4 | 8.357 | 212.30 | 7.50 | 190.5 | 2.00 | 50.8 |
| 20 | 1.00 | 25.4 | 8.938 | 227.01 | 12.95 | 328.9 | 12.784 | 324.71 | 12.02 | 305.3 | 2.00 | 50.8 |

***Maximum bores provide adequate material thickness for standard Keyway. Specify special sizes to be used when necessary*

***Molded 10 tooth sprockets do not have a min and max bore.*

Temperature Range for UHMWPE: 150° F [66° C] maximum

## ***WEARSTRIP PLACEMENT***




**A = ½ X PD – 0.625 inch [15.9 mm]**

- This is only a guideline; it does not take into account the influence of speed.
- At speeds above 75 ft/min [23 m/min] Ashworth recommends increasing the distance A and shortening the wear strips as much as one belt pitch in length. (Nominal Belt Pitch = 2.0 inches [50.8 mm])

**TABLE 2**

| COEFFICIENT OF FRICTION | TYPE OF SUPPORT STRUCTURE |
|---|---|
| .05 | Ball bearing support rolls |
| .10 | Sleeve bearing support rolls |
| .10 | Plastic covered support rails (lubricated) |
| .20 | Plastic covered support rails (unlubricated) |
| .25 | Steel support rails (lubricated) |
| .30 | Steel support rails (unlubricated) |

## ***ENGINEERING CALCULATIONS***

Definition of terms:

w = weight of belt in pounds per linear foot or kg/linear m (see table 1)
W = weight of belt plus payload in pounds per linear foot or kg/linear m
L = length of conveyor. Center to center of pulleys in feet or meters.
F = friction factor between belt and belt supports (see table 2)
H = vertical rise of incline conveyor in feet or meters (+ if incline, - if decline)
T = belt tension (see chart on page 3)
C = force conversion factor
Imperial: 1.0
Metric: 9.8

***Sample Problem:***

A horizontal conveyor running at 50 fpm (15.3 m/min) at 72° F (22° C), with 25 feet (7.6 m) center to center distance of terminals, and using 24 inch (609 mm) wide close oval grid loaded at 10 lbs/ft² (48.9 kg/m2), supported on unlubricated plastic support rails.

T =( wLF + WLF + WH) x C
w = 2 x .83 (see table 1) = 1.66 lbs/ft of length
= .609 x 4.06 (see table 1) = 2.47 kg/m of length
F = .20 (see table 2)

W = 1.66 + (2 x 10) = 21.66 lbs/ft of length
= 2.47 + (.609 x 48.9) = 32.25 kg/m of length
L = 25 ft
= 7.6 m

English Units:

T = [(1.66) (25) (.2) + (21.66) (25) (.2) + (21.66) (0)] x 1.0
T = 8.3 + 108.3
T = 116.6 pounds

A look at the chart shows the allowable for a belt operating at 72° is 220 pounds per foot of width or 440 pounds for the 24-inch wide belt. This tension is well within the limits of the belt.

Metric Units:

T = [(2.47) (7.6) (.2) + (32.25) (7.6) (.2) + (32.25) (0)] x 9.8
T = 3.75 + 49.02
T = 52.77 kgf = 517.46 N

A look at the chart shows the allowable for a belt operating at 72° is 3210 Newtons/meter of width or 1956.8 Newtons for the 609.6-mm wide belt. This tension is well within the limits of the belt.

## ***SYSTEM REQUIREMENTS***

**CHART 1a: allowable pull/temperature relationship (English units)**

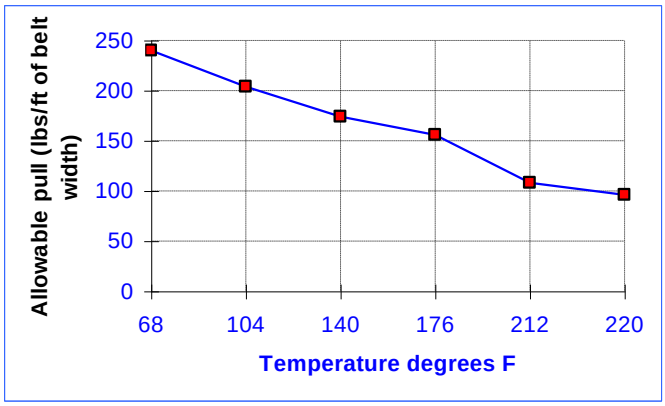
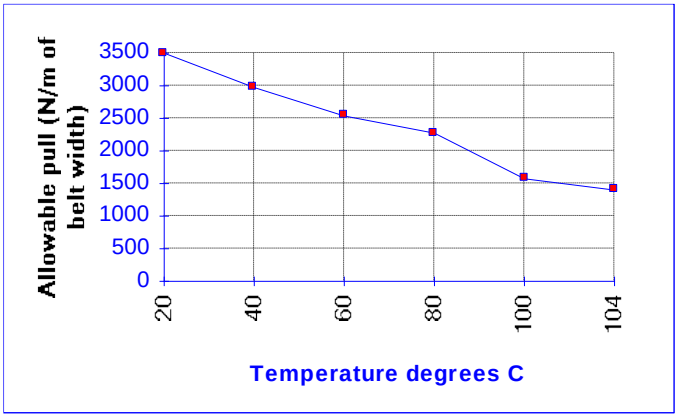



**CHART 1b: allowable pull/temperature relationship (Metric units)**




**LUBRICATION**

If the conditions allow for it, the belt should be lubricated to obtain the least possible tension and wear on the belt. If continuous lubrication is not possible the belt should be stopped and lubricated at regular intervals. The following lubricants are suitable:

**Oil** vegetable and mineral oil are very good lubricants, which at the same time give added corrosion protection.

**Soapy water** is a good lubricant, which at the same time helps to keep the belt clean.

**Water** a constant water film should be maintained between contact surfaces. Water is a less effective lubricant than oil or soapy water.

## CLEANING

It is important that the belt be kept clean from dirt, broken glass, sand, etc., as these will reduce the life of both the belt and wear strips. We recommend that the belt be cleaned with water or soap at regular intervals. Stronger detergents are often used in the food industry. Wash the belts down thoroughly immediately after cleaning with these detergents to avoid corrosion of the belt and wear strips.
Cleaning with foam might cause a creaking noise when starting the conveyor. Lubricating the belt prior to the restart of the conveyor eliminate this noise.

## FIRE WARNING *Safety Precautions for Plastic Belting*

Most plastic belting, including some Ashworth belts, contains thermoplastic components that can burn. If exposed to an open flame or to temperatures above stated specifications, belts may decompose and emit toxic fumes. Do not expose plastic belts to extreme temperatures or to an open flame. Additionally, these belts should not be used following any process, such as an oven, where products could be ignited before being placed on the belt. Refer to the appropriate MSDS (Material Safety Data Sheet) for other precautions and emergency response information.

***Reference:*** *Product Technical Bulletin "Conveyor Design Guidelines".*



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