

PYRATHANE® BELTS

Pyramid will help you

engineer and will

manufacture our

Pyrathane® belts for

your application.



PYRAMID
INCORPORATED



The Industry Leader

Pyrathane® belts from Pyramid Inc. are manufactured of the finest polyurethanes and are used successfully and cost efficiently in a wide variety of low and fractional horsepower drive applications, as well as for transport devices for film, currency, small parts and many other items that need to be moved. Pyramid is the leader in this business. We have built our reputation on providing customers with stretch belts that accomplish one or all of the following:

- Reduce Cost
- Improve Performance
- Increase life

The use of belts manufactured of polyurethane elastomer is an innovative concept that Pyramid pioneered more than 30 years ago. Elastic belts used in low and fractional horsepower applications eliminate the need for tensioning devices as the belt is typically stretched on the application, creating its own tension. The problem with non-elastic belts is that they will usually relax some after installation and require re-tensioning via a tensioning device or take up. A key benefit of Pyrathane® belts is that, while they too will relax, they are installed with enough stretch so that even after relaxation enough tension remains to provide proper driving force. This type of belt also provides a much softer start-up for the driven components by absorbing the starting shock loads.

Distinct Advantages

Pyrathane® belts are manufactured to our customers' specifications, are of the highest quality and are competitively priced. Advantages include:

- Pyrathane® belts, even in small production quantities, can usually be manufactured to your specifications at a lower cost than molded belts or O-rings, especially in larger sizes.
- There are never any mold or tool costs associated with Pyrathane® belts.

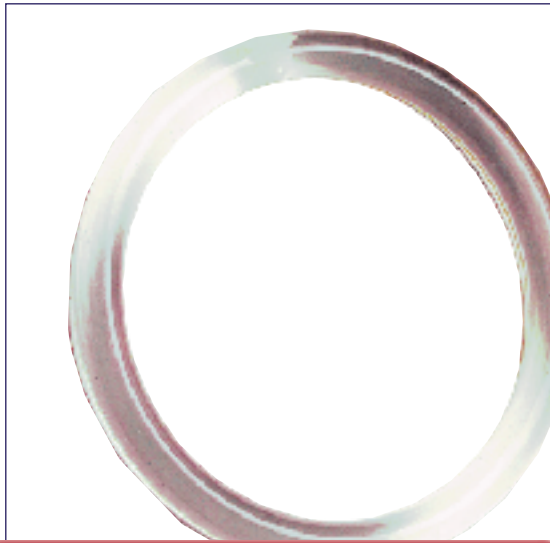
- Our belts offer many times the durability and toughness of rubber, while still exhibiting a desired flexibility.
- Their elasticity eliminates the need for tensioning devices allowing for simpler designs and significant cost reductions.
- Pyrathane® belts have a much greater tensile strength than the finest rubber and are resistant to oils, greases and fuels as well as ozone resistant.
- Pyrathane® belts provide excellent vibration dampening qualities.
- Exceptional abrasion resistance makes the Pyrathane® belt very durable, and the choice when cleanliness and low particulate generation are especially desirable.
- Our belts will usually far outlive rubber O-rings which have been pressed into service as a drive belt. Most O-rings are not designed to be used as drive belts.

Pyramid's more than 30 years of experience has resulted in the manufacture of a superior belt, exhibiting excellent tensile strength, flex and wear characteristics. Exceptional service and solid technical support are also appreciated by our large customer base. Pyramid continues to manufacture belts for our very first customer.

The Manufacturing Process

Pyramid Inc. utilizes only the finest polyurethane elastomers selected specifically for drive belt applications. We produce all of the extrusions that go into the making of Pyrathane® belts which is where the process begins. Polyurethane is extruded in the desired round or flat cross sectional shape using material which provides the desired physical properties. This extruded material is then cut to a specified length and the ends are thermally welded together. Our welding process molecularly bonds the cut material into an endless belt, producing welds that achieve tensile strengths that nearly match that of the base material. The last step in our process is the removal of a small bead of material which is formed around the belt's cross section during the welding process. This bead is ground away creating a small scuffed area which usually is only visibly detectable and does not effect the performance of the finished belt.

Pyrathane® is Pyramid Inc.'s registered trade name for its polyurethane elastomer endless stretch belts and cord.



Round Belts

Round Pythagone[®] belts can be manufactured in any size from .062" through .562" in cross section. We manufacture belts in fractional, decimal and millimeter equivalents as well as O-ring size cross sections. The Pythagone[®] belt size is designated by length rather than inside diameter. Our minimum length is 3-3/4" in small cross sections. Larger cross section belts will have somewhat longer minimum lengths. There is no maximum length limitation on the Pythagone[®] round belt.

Round cross section Pythagone[®] belts will run satisfactorily in either vee or round bottom pulleys. Vee bottom pulleys will, however, provide a much more positive drive than will round bottom pulleys because of the wedging action of the round polyurethane in the vee pulley. Vee bottom pulleys should be designed with approximately a 36 degree inclusive angle and should be deep enough so that the belt will not run on the bottom. Figure 1.

Round bottom pulleys may allow slippage in higher load situations which may or may not be desirable. Round bottom pulleys should be designed with a radius that matches the cross section of the belt being used. Figure 2.

We generally recommend the Pythagone[®] belt be run under tension (see the following stretch recommendations); however, some

applications may run satisfactorily when just the slack is taken up (under very little tension). An example would be when running in a vee groove where the wedging effect provides the driving grip.



Flat Belts

Flat belts can be manufactured in any thickness from .030" through .187" and almost any width through 1.500". Lengths beginning at 3-3/4" are possible in many sizes. Longer minimum lengths are sometimes necessary with thicker cross sections. There are generally no maximum length limitations on the Pythagone[®] flat belt.

To achieve good tracking characteristics with flat belts, we recommend that they be run on a crowned drive pulley. The driven pulley can be crowned if crowning the driver is not possible. Generally, flanged pulleys are only suitable with thicker material. Several methods of achieving a crown can be employed successfully. Figure 3.

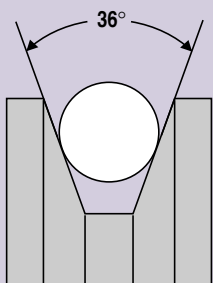


Figure 1

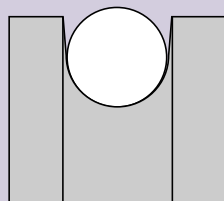


Figure 2

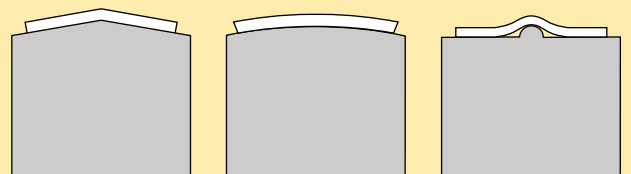


Figure 3

Stretch Recommendations

Pyramid generally recommends that belts manufactured of Pyrrathane[®] 83A durometer be engineered with 10% initial stretch.

When the Pyrrathane[®] 83A durometer belt is installed with 10% stretch, it will exert approximately 200 lbs. of tension per square inch of cross section of the belt.

However, within the first 24 to 48 hours of static or running application, the tension will drop to approximately half the initial tension (approximately 100 lbs. per square inch of cross section) and remain substantially constant thereafter.

We find that in most applications the 83A Pyrrathane[®] is most suitable because of its higher co-efficient of friction and its excellent flex life. However, in applications where a greater torque carrying capacity is required, the 92A Pyrrathane[®] may be more suitable.

Pyramid generally recommends that belts manufactured of Pyrrathane[®] 92A durometer be engineered with 7-1/2% initial stretch.

When the Pyrrathane[®] 92A durometer belt is installed with 7-1/2% stretch, it will exert approximately 300 lbs. of tension per square inch of cross section of the belt.

Within 24 to 48 hours of static or running application, the tension will drop to approximately half the initial tension (approximately 150 lbs. per square inch of cross section) and remain substantially constant thereafter.

The tension decay that is experienced with the Pyrrathane[®] belt is present in all polyurethane to some extent and is predictable. The tension after the belt has taken its set is what is termed the resultant tension. This resultant tension is what we rely on to actually drive the application and it is important that it be adequate to transmit the torque desired while maintaining positive tension on the slack side of the drive belt. Therefore the belts are typically loaded with more initial tension than is required or desirable, but this tension decays by approximately 50% rather rapidly and normally causes no ill effects.

Ambient Operating Temperature Limits Are -10° to +150° F

Pyrrathane[®] materials will operate in temperatures below -10° F.; however, if allowed to rest, they take a set which is difficult to overcome and may indeed fracture upon start-up.

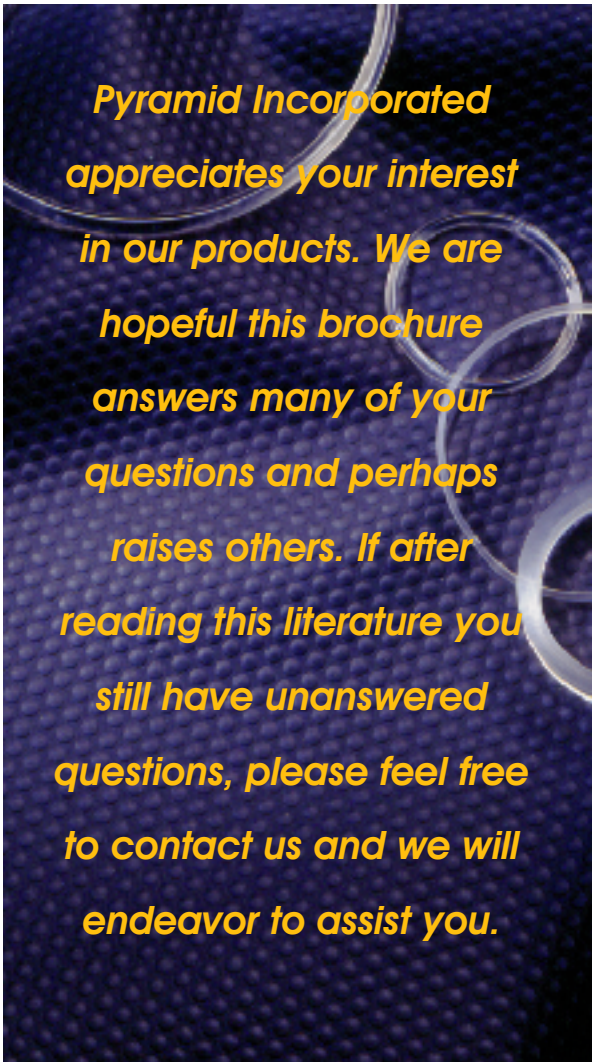
For applications with an ambient temperature outside of the above range, Pyramid Inc. has other Pyrrathane[®] compounds which may be more suitable than those listed here.

We also have available materials that are specifically designed for outdoor use or for environments with ultraviolet light exposure or for applications where static dissipation is desirable.

Flex Life Of Pyrrathane[®] Belts

The flex life of both Pyrrathane[®] belts and cord is directly related to the combination of many aspects of each application over which Pyramid Inc. has no control, such as pulley diameters and center distances, rpm's, cross sectional dimensions, belt configurations, ambient temperature, exposure to environmental contaminants, ultraviolet light, humidity and many others. Because of this, the flex life of a Pyrrathane[®] belt is impossible to predict.

We recommend that users test a number of prototype belts under the same conditions in which the belt will be expected to operate to determine its suitability for the proposed application. Pyramid Inc. assumes no responsibility for any application.



*Pyramid Incorporated
appreciates your interest
in our products. We are
hopeful this brochure
answers many of your
questions and perhaps
raises others. If after
reading this literature you
still have unanswered
questions, please feel free
to contact us and we will
endeavor to assist you.*



	83A	92A
Shore Hardness		
"A" Scale.....	85±3	93±4
"D" Scale.....	47±4	
ASTM D 2240		
Ultimate Tensile Strength		
PSI.....	6,000	5,900
ASTM D 412		
Ultimate Elongation		
%.....	500	500
ASTM D 412		
Tensile Modulus		
PSI		
100% Elongation.....	750	1,550
300% Elongation.....	1,700	3,600
ASTM D 412		
Tear Strength		
PLI DIE "C".....	500	550
ASTM D 624		
Compression Set		
% 22 HRS @ 25 C.....	12	30
% 22 HRS @ 70 C.....	35	40
ASTM D 395		

(Approximate Values)
 Pyrathane®, Reg. U.S. Pat. Off.

This data is provided for general information and material comparison. The potential user should perform any pertinent tests to determine the product's performance and suitability in the intended application. Final determination of fitness of the product for any particular use is the responsibility of the buyer.

Pyrathane®

The following is a partial list of applications upon which the Pyrathane® belt has been used successfully.

• Live roller conveyors	• Currency handling devices
• Mail handling equipment	• Postage metering devices
• Coin handling devices	• Copier paper transports
• Collator paper transports	• Silicon wafer transports
• Can conveying lines	• Key cutters
• Hobby lathes	• Small part conveyors
• Carpet conveyors	• Microwave oven deflectors
• Humidifiers	• Vacuum cleaners
• Tachometers	• Laundry appliances
• Bowling equipment	• Computer printers
• Fish locators	• Microfiche readers
• Textile milling equipment	• Golf ball winding
• Dental drills	• Paper folding machines
• Meat cutting saws	• Meat slicers
• Floor care equipment	• Personal whirlpools
• Seals and gaskets	• Phonograph turntables

We will endeavor to advise you in arriving at a satisfactory Pyrathane® belt for your application if you wish to supply us with information such as pulley diameters, center distances between pulleys, rpm of the drive and driven pulleys, horsepower, watts or torque being transmitted, ambient operating temperature and other environmental conditions, and any other pertinent information.

*Unquestionable
 High Quality
 Products With
 Exceptional Service*



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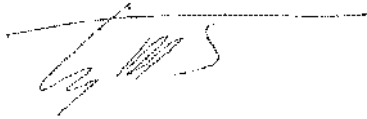
TO: Pyramid Customers



At Pyramid, we believe our continued success is directly linked to our company's stated goal of "Unquestionable High Quality Products made with Efficiency by a Team of Satisfied Employees." What this means to you, our valued customers, is that QUALITY has been and always will be our highest priority.

We pledge to produce the highest quality polyurethane belts and cord to your specifications, efficiently and at competitive prices. We will respond to your needs with outstanding service, including a turnaround time that is exceptional.

If you are currently a Pyramid customer, thank you for your business. If you're looking for a quality supplier, give us a try. We're ready to demonstrate that we deserve your business.



Thomas M. Tripp, President

Contact us...we're ready to go to work for you!

Pyramid appreciates your interest. If you have any questions related to our products and services, please contact us. We're happy to provide prices immediately by telephone, fax or e-mail, or to provide a formal price quotation if so desired.



PYRAMID
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For more information, visit our web site: www.pyramidbelts.com

SPECIAL NOTE: Because of the nearly infinite variety of sizes that Pyramid manufactures and that are possible, a catalog listing these possibilities and associated prices is not available. **Our belts are custom-made to your specifications.** There is a modest minimum order (\$25). Prototype samples are available for evaluation at a very low cost or are offered on a no-charge basis.