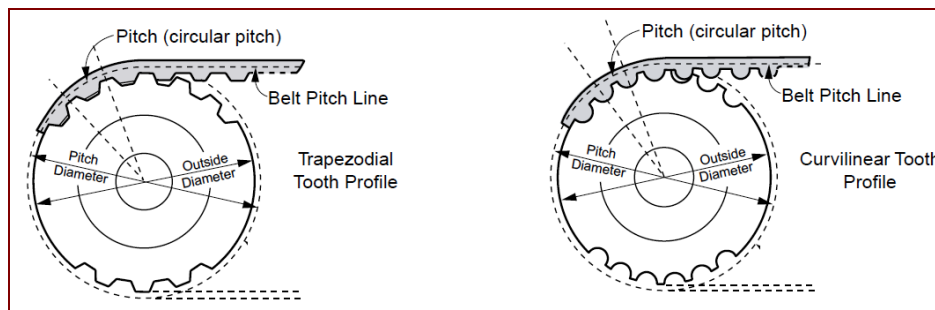


## Drive your System with Timing Belts

Timing belts are one of the most commonly used motion transmitting elements in design applications. There are many different types of timing belt available, with several options for tooth profile, material, color and reinforced cord. Timing belts are used in various robotic, aerospace, medical, military, and commercial design applications. Gates Corporation is the largest global diversified manufacturer that provides advance power transmission products and services. Stock Drive Products (SDP), as a Gates supplier, has the largest sleeving account. We stock various belt pitches and materials to select from. We also have the largest standard sleeves inventory ready to ship next day, or we can give quotes on special widths cut to size. This RFQ can be found at [sdp-si.com](http://sdp-si.com).

The two main types of tooth profile for synchronous belts are trapezoidal and curvilinear. Trapezoidal timing belts are the industry standard and should be used if mating with a trapezoidal pulley profile, but curvilinear belts have some distinct advantages that make them generally more desirable.



Advantages of the curvilinear profile are as follows:

- Proportionally deeper tooth helps prevent tooth jumping.
- Lighter construction, with correspondingly smaller centrifugal loss.
- Smaller unit pressure on the tooth since area of contact is larger.
- Greater shear strength due to larger tooth cross section.
- Cheaper, since a narrower belt will handle the same load.
- More energy efficient, particularly if replacing a "V" belt drive, which incurs energy losses due to slippage.
- Small installation tension means light bearing loads.

There is a definite stress concentration near the root of the trapezoidal belt tooth, with very low strains elsewhere. For the curvilinear tooth, there is a uniform, nearly constant strain distribution across the belt. The load is largest in the direction of the tension member to which it is transferred. Because of their superior load carrying capabilities, Gates' curvilinear belts are marketed under the name HTD®, which stands for High Torque Drives. As a result of continuous research, Gates has developed a new version of the HTD curvilinear profile, known as GT®2.

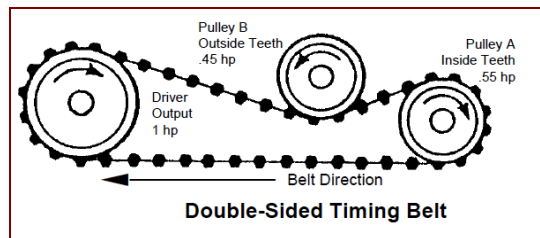
Timing Belt Profiles									
	Trapezoidal			Curvilinear					
Profile	MXL	XL	L	GT2			HTD		
Pitch	0.080"	0.200"	0.375"	2mm	3mm	5mm	3mm	5mm	8mm

PowerGrip® GT®2 belt drives are a design improvement over the standard HTD system. The modified tooth profile provides timing and indexing accuracy superior to that of HTD belts. Plus, GT2 belts have a higher load capacity and longer belt life.

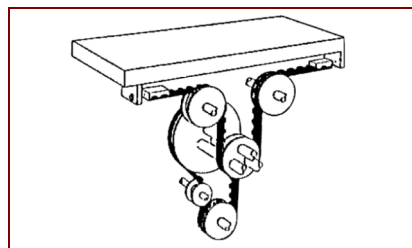
PowerGrip GT2 belts are currently available in 2 mm, 3 mm, 5 mm, 8 mm and 14 mm pitches. To summarize, advantages of the PowerGrip GT2 system are as follows:



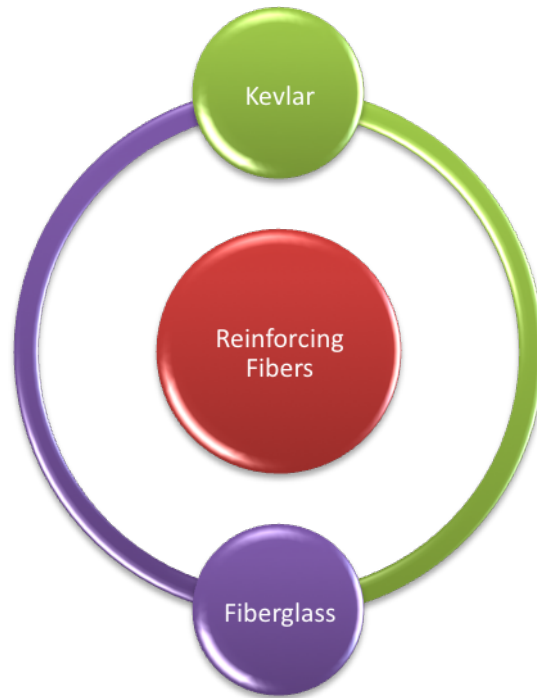
Timing belts are also available in double-sided designs, which offer a number of new design possibilities for computer equipment, business machines, office equipment, textile machines and similar light-duty applications. Belts with driving teeth on both sides make it possible to change the direction of rotation of one or more synchronized pulleys with only one belt. The inside and outside teeth are identical as to size and pitch and operate on standard pitch diameter pulleys.



Long length timing belts are an excellent solution for drives that require belt lengths longer than those produced in conventional endless form. Long length belts have the same basic construction as conventional timing belts. They are usually produced by spiral cutting large diameter endless belts. These belts are used in reciprocating carriage drives, rack and pinion drives, and large plotters. A complete timing belt and a timing belt segment reduce vibration and chatter in this oscillating drive for a surface grinder.



The load-carrying elements of any timing belt are the built-in tension members. These tension members are thin cords consisting of any of the materials seen below, embedded in the rubber of the belt.



Each cord material has certain advantages, depending on the application. The belts themselves are typically made of neoprene. For neoprene, the teeth are protected by a nylon fabric facing, which makes them wear resistant.

Selecting the most appropriate tooth profile and material for your timing belt is the key to designing an efficient drive system. General guidelines for timing belt selection can found at [sdp-si.com](http://sdp-si.com) in the technical section of catalog D810. In addition to these guidelines, specific operating characteristics of the drive must be taken into account. These may include the following:

