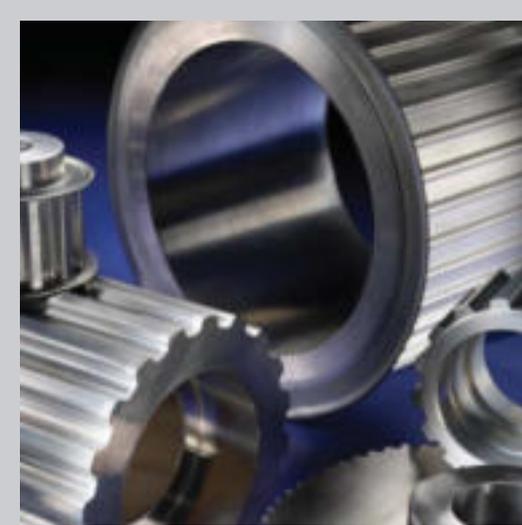


# Urethane Timing Belts and Pulleys



**Gates**® **MECTROL**®  
A Tomkins Company



# Gates Mectrol

## Passion for Products

### **OUR EXPERTISE**

Gates Mectrol is a leading manufacturer of synchronous timing belts, timing pulleys and other polymer based automation components.

These components are typically used in conveying, linear positioning, rotary positioning and power transmission applications.

Equipment designers and system integrators have come to rely on Gates Mectrol's application expertise and ability to solve the most challenging design issues. Our highly skilled applications engineers and online suite of design tools can help solve your most demanding development concerns.

Get the Gates Mectrol engineering team working for you.

### **OUR ACCESSIBILITY**

With manufacturing facilities and partner distributors located throughout the world, Gates Mectrol is available globally to serve your specific design challenges. Our associates know and understand our business — and yours.

### **OUR GOAL**

Gates Mectrol's goal is to become your primary supplier of polymer based automation components. We will earn this position by offering quality products in a timely manner and by continuously developing new products and services.

**IMAGINATION, DESIGN, EXECUTION**

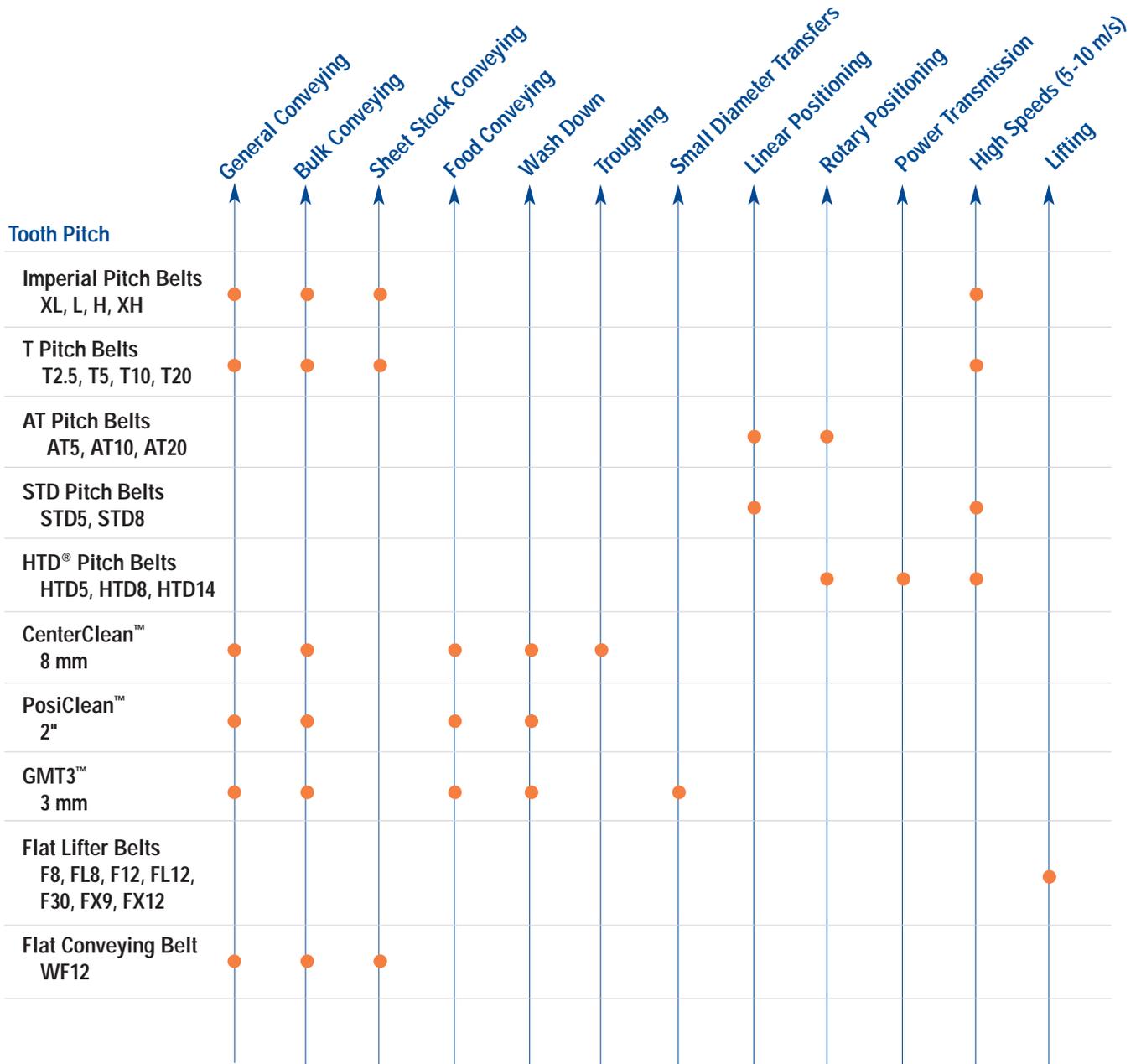
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## Broadest Range Available

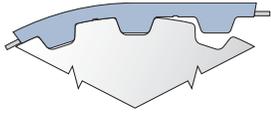


# Belt Selection Guide



# Tooth Pitch Comparison

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## Imperial Pitch Belts - XL, L, H, XH

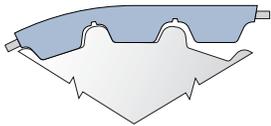
This classic trapezoidal pitch is the original timing belt tooth design. This tooth pitch is commonly used for **conveying applications**. The tooth profile is fairly low and has a large surface area at the tip of the tooth providing good support on sliding conveyor surfaces.



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## T Pitch Belts - T2.5, T5, T10, T20

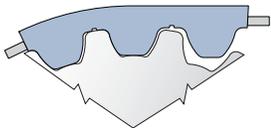
These metric trapezoidal pitches are similar to imperial pitches, also commonly used for **conveying applications**, yet have a slightly deeper tooth engagement than imperial profiles. The tooth meshing is more reliable. However, backlash can be slightly greater.



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## AT Pitch Belts - AT5, AT10, AT20

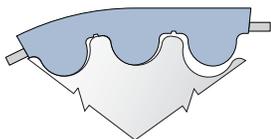
This pitch was developed to enable higher load carrying capacity combined with low backlash. The stronger and stiffer tooth makes these belts ideal for **linear positioning and motion control**, but may require larger pulley diameters.



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## STD Pitch Belts - STD5, STD8

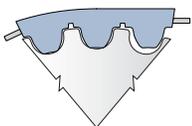
This tooth pitch provides superior load distribution, low backlash, and **reduced wear and noise** characteristics. It is an excellent profile for **linear positioning and power transmission** applications.



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## HTD Pitch Belts - HTD5, HTD8, HTD14

This rounded tooth pitch is similar to STD, and is also an excellent profile for **linear and rotary positioning and power transmission** applications, yet has deeper tooth engagement. Note that the HTD pitch may exhibit slight increases in noise and wear.



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## GMT Pitch Belts - GMT3

This 3 mm tooth geometry is designed to run on a variety of pulley profiles. It is ideal for **conveying applications** involving small diameter pulleys. The deep tooth engagement provides good torque transfer from pulley to belt. The flat top provides a good running surface for slider beds.

# Linear Belt Overview

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Linear timing belts provide the greatest degree of flexibility for synchronous conveying and linear positioning applications.

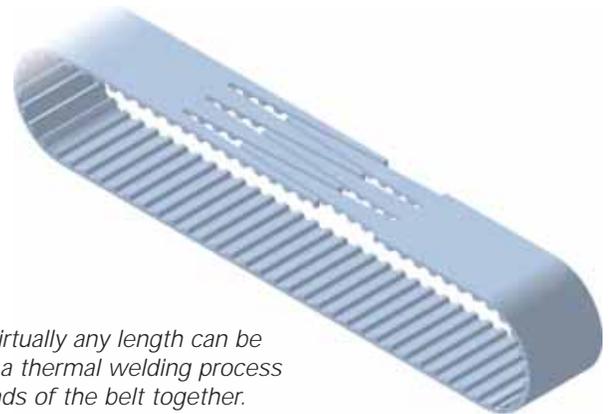
Gates Mectrol manufactures linear timing belts in a variety of tooth pitch, length, and material combinations. This offering provides a wide range of possible configurations for your application.

Linear belt lengths are available in two styles — welded endless and open ended. Welded endless belts are ideal for low torque conveying applications. Open ended belts are typically used for motion control applications.

## Features

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- Very high tensile strength and stiffness
- Parallel cord construction
  - No cords exposed at belt edges
  - Better tracking
  - Uniform tensioning
- Tough polyurethane construction
  - Durable and cut resistant
  - Oil, chemical and water resistant
  - Non-marking
- Steel or Kevlar® tension members
- Choice of polymers including FDA grades
- Nylon back and nylon tooth surface options available for quieter operation and reduced friction
- Various molded profiles and backing materials available
- Wide range of tooth pitches to meet your application requirements



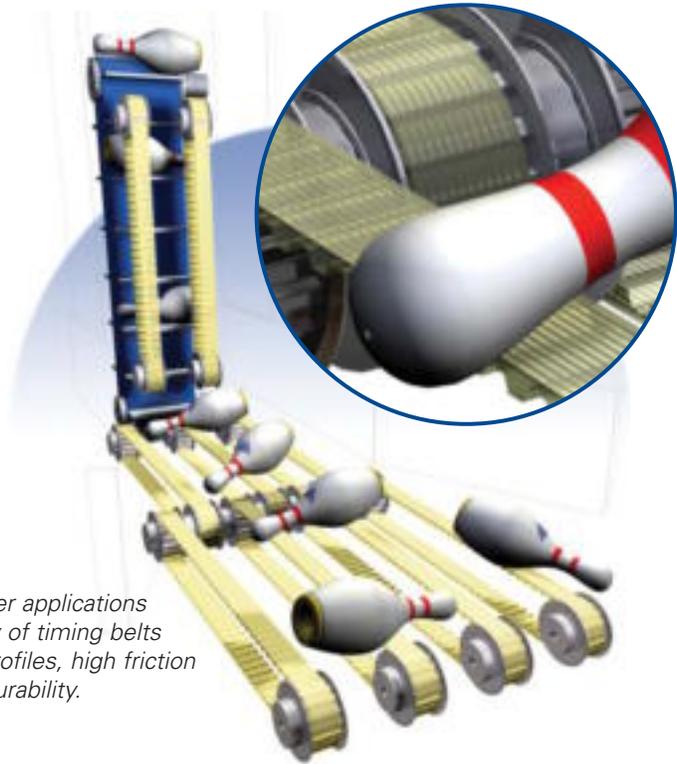
*Endless belts of virtually any length can be produced utilizing a thermal welding process which joins the ends of the belt together.*



# Linear Belt Applications

## Application Characteristics

- High precision positioning or indexing
- Synchronous conveying
- High acceleration, deceleration or continuous high running speeds
- Multiple belt, common shaft conveying
- Customized belts to meet any application need



*Bowling pinsetter applications require a variety of timing belts with different profiles, high friction backings, and durability.*



*Urethane timing belts are ideal for use in vertical and horizontal door applications. Durable and clean running, these belts provide quiet and positive motion for industrial, train, elevator, and automatic slide door applications.*



*Rough Top backing on urethane timing belts allows synchronous conveying of sheet glass without interference from glass shards.*

>> Our Applications Engineering staff is available to you at [apps@gatesmectrol.com](mailto:apps@gatesmectrol.com) or **1-800-394-4844**

# Linear Belt Specifications

			XL	L	H	H-HF	XH	T5	AT5	ATL5	
<b>Pitch (Imperial and metric)</b>			<b>.200"</b>	<b>.375"</b>	<b>.500"</b>	<b>.500"</b>	<b>.875"</b>	<b>5 mm</b>	<b>5 mm</b>	<b>5 mm</b>	
Ultimate Tensile Strength per Inch or 25 mm Belt Width	Steel	lbf/in N/25 mm	730 3250	1330 5920	1570 6980	2380 10590	3160 14060	730 3250	1440 6410	2380 10590	
	Kevlar	lbf/in N/25 mm	1360 6050	1710 7610	1820 8100	N/A N/A	3450 15350	1360 6050	1710 7610	N/A N/A	
Max. Allowable Belt Tension per Inch or 25 mm Belt Width	Steel and Kevlar	Open Ended	lbf/in N/25 mm	180 800	330 1470	390 1730	590 2620	790 3510	180 800	360 1600	590 2620
		Welded	lbf/in N/25 mm	140 620	190 850	240 1070	240 1070	380 1690	140 620	210 930	220 980
Allowable Effective Tension for the Belt Teeth (15 and More Teeth in Mesh)	Open Ended		lbf/in N/25 mm	180 800	360 1600	440 1960	440 1960	880 3910	200 890	290 1290	290 1290
	Welded		lbf/in N/25 mm	130 580	270 1200	330 1470	330 1470	660 2940	150 670	210 930	210 930
Specific Belt Weight	Steel	lbf/ft/in kgf/m/cm	0.036 0.021	0.059 0.035	0.066 0.039	0.072 0.042	0.180 0.105	0.037 0.022	0.055 0.032	0.062 0.036	
	Kevlar	lbf/ft/in kgf/m/cm	0.033 0.019	0.052 0.030	0.055 0.032	N/A N/A	0.155 0.091	0.033 0.020	0.046 0.027	N/A N/A	
Specific Belt Stiffness (Open Ended)	Steel	lbf/in N/mm	47950 8400	92800 16255	109000 19085	133600 23400	213600 37410	47950 8400	100500 17605	133600 23400	
	Kevlar	lbf/in N/mm	52250 9155	69100 12100	60700 10635	N/A N/A	100000 17500	52250 9155	69100 12100	N/A N/A	
Min. No. of Pulley Teeth			10	10	14	12	18	10	15	15	
Min. Pitch Diameter (Inch or mm)			.64"	1.19"	2.23"	1.91"	5.01"	16 mm	24 mm	24 mm	
Min. Diameter of Tensioning Idler Running on Back of Belt		inch mm	1.125 30	2.375 60	3.125 80	2.375 60	5.875 150	1.125 30	2.375 60	2.375 60	
Available in FDA Compliant Construction (85 Shore A Urethane)			Yes	Yes	Yes			Yes			
Standard Colors (N=Natural, W=White)			N	N	N	N	N	N, W	W	W	

Service Temperature Range	-5°C to +70°C (23°F to 158°F)	
Hardness	92 Shore A - Standard PU, 85 Shore A - FDA Compliant PU	
Coefficient of Friction	Urethane vs. Steel (dry)	0.5 to 0.7
	Urethane vs. Aluminum (dry)	0.5 to 0.6
	Urethane vs. UHMWPE (dry)	0.2 to 0.4
	Nylon vs. Steel (dry)	0.2 to 0.4
	Nylon vs. UHMWPE (dry)	0.1 to 0.3

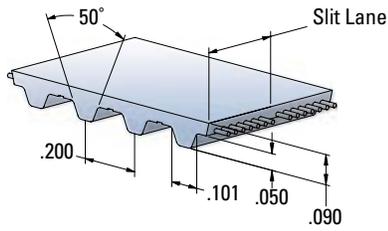
T10	T10-HF	AT10	ATL10	ATL10-HF	T20	AT20	ATL20	HTD5	HTD8	HTD14	HTDL14	STD5	STD8
10 mm	20 mm	20 mm	20 mm	5 mm	8 mm	14 mm	14 mm	5 mm	8 mm				
1570 6980	2380 10590	3160 14060	5030 22380	5750 25580	3160 14060	5030 22380	7310 32520	2380 10590	3160 14060	4670 20770	7310 32520	2380 10590	3160 14060
1820 8100	N/A N/A	3450 15350	N/A N/A	N/A N/A	3450 15350	4410 19620	N/A N/A	2050 9120	3450 15350	4090 18190	N/A N/A	2050 9120	3450 15350
390 1730	590 2620	790 3510	1250 5560	1430 6360	790 3510	1100 4890	1820 8100	510 2270	790 3510	1020 4540	1820 8100	510 2270	790 3510
240 1070	240 1070	380 1690	380 1690	380 1690	380 1690	450 2000	N/A N/A	240 1070	380 1690	450 2000	N/A N/A	240 1070	380 1690
380 1690	380 1690	580 2580	580 2580	580 2580	710 3160	1220 5430	1220 5430	230 1020	420 1870	770 3430	770 3430	220 980	410 1820
280 1250	280 1250	430 1910	430 1910	430 1910	530 2360	910 4050	N/A N/A	160 710	270 1200	440 1960	N/A N/A	150 670	260 1160
0.074 0.043	0.079 0.046	0.096 0.056	0.114 0.067	0.118 0.069	0.125 0.073	0.169 0.099	0.185 0.108	0.070 0.041	0.101 0.059	0.182 0.107	0.210 0.123	0.067 0.039	0.087 0.051
0.062 0.036	N/A N/A	0.071 0.042	N/A N/A	N/A N/A	0.101 0.059	0.124 0.073	N/A N/A	0.050 0.029	0.080 0.047	0.143 0.084	N/A N/A	0.050 0.029	0.074 0.043
109000 19085	133600 23400	213600 37410	334600 58600	290000 50790	213600 37410	334600 58600	440000 77050	133600 23400	213600 37410	294400 51560	440000 77050	133600 23400	213600 37410
60700 10635	N/A N/A	100000 17500	N/A N/A	N/A N/A	100000 17500	100000 17500	N/A N/A	60700 10635	100000 17500	86500 15150	N/A N/A	60700 10635	100000 17500
14	12	15	25	20	15	18	30	14	20	28	43	14	20
45 mm	38 mm	48 mm	80 mm	64 mm	96 mm	115 mm	191 mm	22 mm	51 mm	125 mm	191 mm	22 mm	51 mm
3.125 80	2.375 60	4.750 120	5.875 150	5.125 130	4.750 120	7.125 180	9.875 250	2.375 60	4.750 120	7.875 200	9.875 250	2.375 60	4.750 120
Yes													
N, W	N	W	W	W	N, W	W	W	W	W	W	W	W	W

The specifications listed are based on Gates Mectrol's experience. However, our specifications and data do NOT cover all possible belt drive conditions. It is the responsibility of the belt drive system designer to ensure Gates Mectrol's belts are appropriate for a given system and application. The provided data is representative of our in-house experience and does not necessarily match product performance in industrial use. Gates Mectrol cannot assume any liability concerning the suitability and process ability of our products. We also cannot assume liability for process results, damages or consequential damages associated with the use of our products.

- HF designates high flex cords.
- Most belts are available with Nylon Fabric on either or both sides.  
 For Nylon on the tooth side, specify "NT"  
 For Nylon on the back side, specify "NB"  
 For Nylon on both sides, specify "NTB"  
 Note: Nylon on tooth side is NOT available on HTD5 Steel or Kevlar in widths greater than 50 mm.
- Belting produced to specific length tolerance is available upon request.
- Many linear positioning applications require belts of a specific length tolerance, or a "minus pitch tolerance." Gates Mectrol can produce belts to specific minus tolerances. Consult a Gates Mectrol Applications Engineer to determine the proper length tolerance calculation.

# Imperial Pitch Belts

## XL .200" Pitch

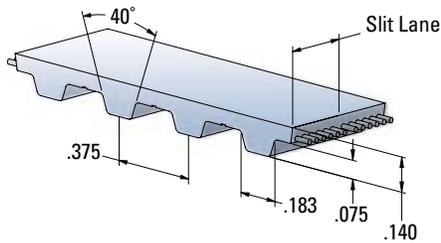


		XL	L	H*, H-HF*	XH
Min. Welded Belt Length	inch	17	17	17 (4" wide) 33.5 (6" wide)	40.25
Standard Roll Lengths	feet	200	200	200	100
	meters	61	61	61	30
Standard Slitting Lanes	inch	1/4	1/2	1.0	1.0
Available Slitting Lanes	inch	N/A	N/A	3/4	N/A

All roll lengths are ±1%.

\*Heavy Back (HB) option available.

## L .375" Pitch



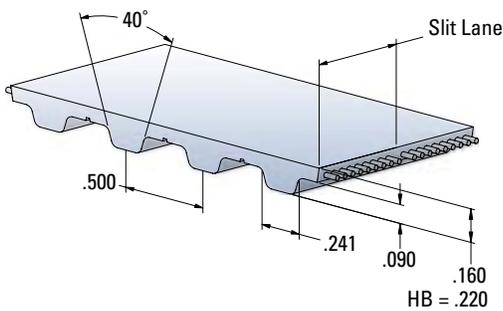
### Available Widths

Code	inch	mm	XL	L	H, H-HF	XH
025	1/4	6.35	X			
031	5/16	7.94	X			
037	3/8	9.53	X	X	X	
050	1/2	12.7	X	X	X	X
075	3/4	19.05	X	X	X	X
100	1	25.4	X	X	X	X
150	1 1/2	38.1	X	X	X	X
200	2	50.8	X	X	X	X
300	3	76.2		X	X	X
400	4	101.6		X	X	X
600	6	152.4			X	X

All belts are available in any width between the minimum and maximum listed width.

## H, H-HF .500" Pitch

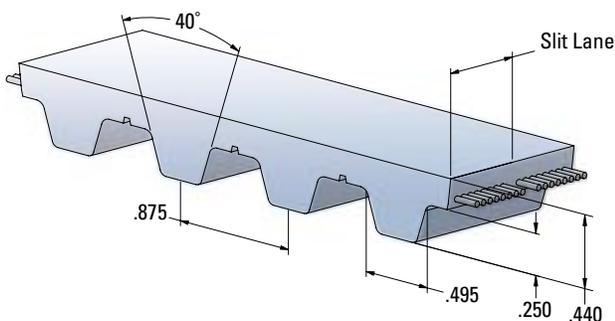
### WH .500" Pitch—From 6" to 18" wide



### Width Tolerances

Width	XL	L	H, H-HF	XH
Up to 2"	± .020"	± .020"	± .020"	± .040"
> 2" - 4"	N/A	± .030"	± .030"	± .040"
> 4" - 6"	N/A	N/A	± .030"	± .040"

## XH .875" Pitch



### To Order Imperial Pitch Belts

600 H 200 ( ) ( )

Insert "NT" for Nylon Teeth, "NB" for Nylon Back, "NTB" for Nylon on Both Sides, "HB" for Heavy Backing, "FDA" for FDA

Insert "K" if specifying Kevlar

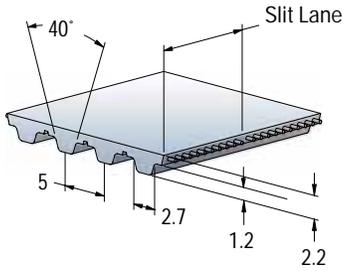
Width: 2.0" x 100 = 200

Pitch: H (1/2")

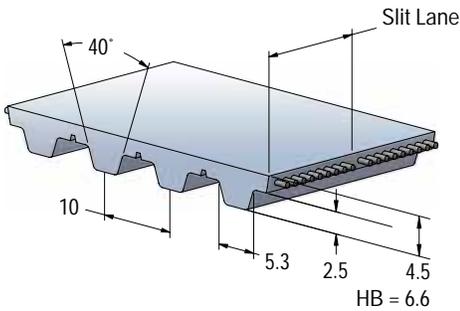
Length: 60.0" x 10 = 600

# T Pitch Belts

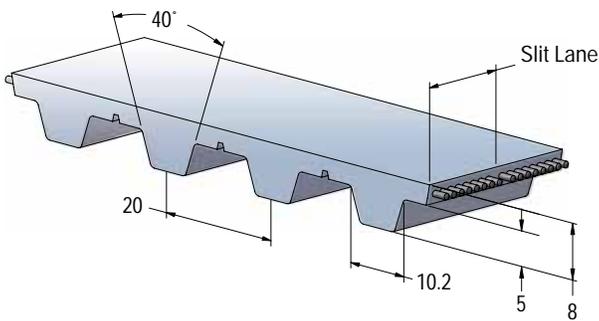
## T5 5 mm Pitch



## T10, T10-HF 10 mm Pitch WT10 10 mm Pitch from 150 to 450 mm wide



## T20 20 mm Pitch



		T5	T10*, T10-HF*	T20
Min. Welded Belt Length	mm	440 (50 mm wide) 450 (100 mm wide)	450 (100 mm wide) 850 (150 mm wide)	1000
Standard Roll Lengths	meters	100	100	50
Standard Slitting Lanes	mm	25	25	25
Available Slitting Lanes	mm	10, 16	16, 32	N/A

All roll lengths are  $\pm 1\%$ .

\*Heavy Back (HB) option available.

### Available Widths

mm	T5	T10, T10-HF	T20
6	X		
10	X	X	
12	X	X	
16	X	X	
20	X	X	
25	X	X	X
32	X	X	X
50	X	X	X
75	X	X	X
100	X	X	X
150		X	X

All belts are available in any width between the minimum and maximum listed width.

### Width Tolerances

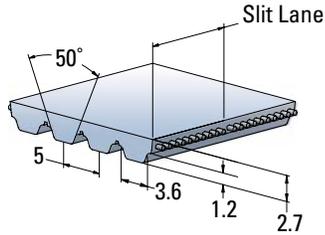
Width	T5	T10, T10-HF	T20
Up to 50 mm	$\pm 0.5$ mm	$\pm 0.5$ mm	$\pm 1.0$ mm
> 50-100 mm	$\pm 0.75$ mm	$\pm 0.75$ mm	$\pm 1.0$ mm
> 100-150 mm	N/A	$\pm 0.75$ mm	$\pm 1.0$ mm

### To Order T Pitch Belts

50	T10	1080	( )	( )	Insert "NT" for Nylon Teeth, "NB" for Nylon Back, "NTB" for Nylon on Both Sides, "HB" for Heavy Backing, "FDA" for FDA
					Insert "K" if specifying Kevlar
					Length: 1080 (108 Teeth x 10 mm)
					Pitch: T10 (10 mm)
					Width: 50 mm

# AT Pitch Belts

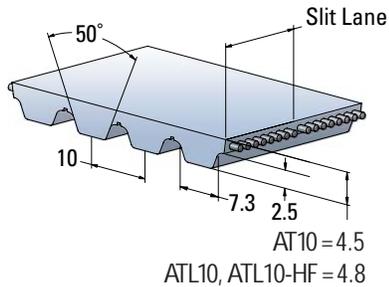
## AT5 and ATL5 5 mm Pitch



		AT5	ATL5	AT10	ATL10, ATL10-HF	AT20, ATL20
Min. Welded Belt Length	mm	440	450	460 (100 mm wide) 860 (150 mm wide)	900	1000
Standard Roll Lengths	meters	100	100	100	100	50
Standard Slitting Lanes	mm	25	25	25	25	N/A
Available Slitting Lanes	mm	10, 16	16	N/A	N/A	N/A

All roll lengths are  $\pm 1\%$ .

## AT10, ATL10, and ATL10-HF 10 mm Pitch

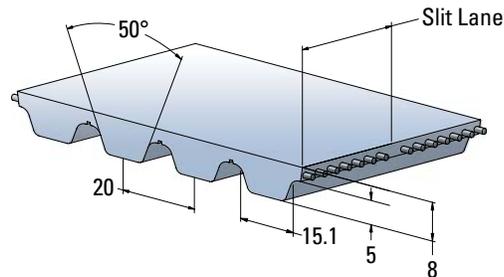


### Available Widths

mm	AT5	ATL5	AT10, ATL10, ATL10-HF	AT20, ATL20
6	X			
10	X	X		
12	X	X		
16	X	X	X	
20	X	X	X	
25	X	X	X	X
32	X	X	X	X
50	X	X	X	X
75	X	X	X	X
100	X	X	X	X
150		X	X	X

All belts are available in any width between the minimum and maximum listed width.

## AT20 and ATL20 20 mm Pitch



### Width Tolerances

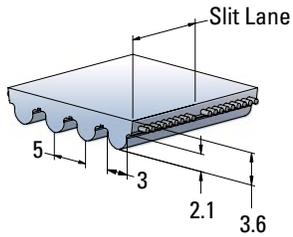
Width	AT5	ATL5	AT10	ATL10, ATL10-HF	AT20	ATL20
Up to 50 mm	$\pm 0.5$ mm	$\pm 0.5$ mm	$\pm 0.75$ mm	$\pm 1.0$ mm	$\pm 1.0$ mm	$\pm 2.0$ mm
> 50-100 mm	$\pm 0.75$ mm	$\pm 0.75$ mm	$\pm 1.0$ mm	$\pm 1.5$ mm	$\pm 1.5$ mm	$\pm 2.0$ mm
> 100-150 mm	N/A	$\pm 0.75$ mm	$\pm 1.0$ mm	$\pm 1.5$ mm	$\pm 1.5$ mm	$\pm 2.0$ mm

### To Order AT Pitch Belts

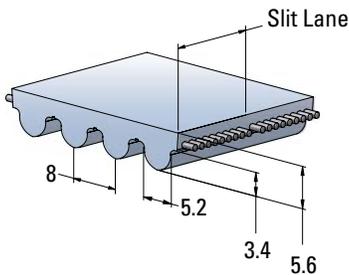


# HTD<sup>®</sup> and STD Pitch Belts

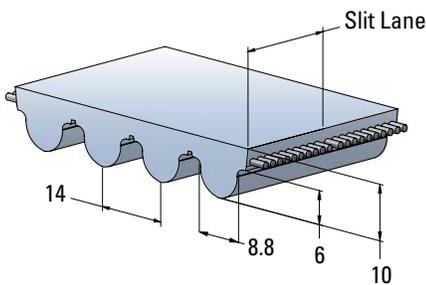
## HTD5 5 mm Pitch



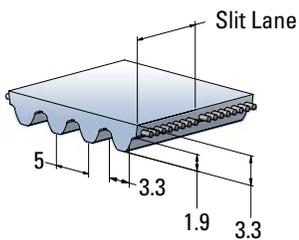
## HTD8 8 mm Pitch



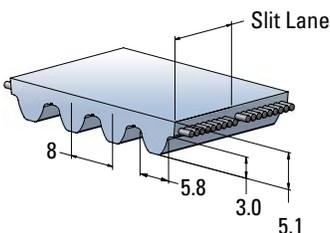
## HTD14, HTDL14 14 mm Pitch



## STD5 5 mm Pitch



## STD8 8 mm Pitch



		HTD5	HTD8	HTD14, HTDL14	STD5	STD8
Min. Welded Belt Length	mm	450	456	1000	450	456
Standard Roll Lengths	meters	100	100	50	100	100
Standard Slitting Lanes	mm	25	20, 30	55	25	20, 30
Available Slitting Lanes	mm	N/A	25	85	10	25

All roll lengths are  $\pm 1\%$ .

### Available Widths

mm	HTD5	HTD8	HTD14, HTDL14	STD5	STD8
5	X			X	
10	X	X		X	X
15	X	X		X	X
20		X			X
25	X	X	X	X	X
30		X			X
40			X		
50	X	X		X	X
55			X		
85	X*	X	X		X
100	X*	X	X		X
115			X		
150	X*	X**			
170			X		

All belts are available in any width between the minimum and maximum listed width.

\* These widths are only available in HTD5 Steel or HTD5 Steel with NB.

\*\* This width is not available in HTD8 Kevlar.

### Width Tolerances

Width	HTD5	HTD8	HTD14, HTDL14	STD5	STD8
Up to 50 mm	$\pm 0.5$ mm	$\pm 0.75$ mm	$\pm 1.0$ mm	$\pm 0.5$ mm	$\pm 0.75$ mm
> 50-100 mm	$\pm 0.75$ mm	$\pm 1.0$ mm	$\pm 1.5$ mm	N/A	$\pm 1.0$ mm
> 100-150 mm	$\pm 0.75$ mm	$\pm 1.0$ mm	$\pm 2.0$ mm	N/A	N/A
> 150-170 mm	N/A	N/A	$\pm 2.0$ mm	N/A	N/A

### To Order HTD and STD Pitch Belts

25 HTD5M 1000 ( ) ( )

- Insert "NT" for Nylon Teeth, "NB" for Nylon Back, "NTB" for Nylon on Both Sides
- Insert "K" if specifying Kevlar
- Length: 1000 mm
- Pitch: HTD5 (5 mm)
- Width: 25 mm

# Self Tracking Belts

## Notched V-Guide – Allows Maximum Flexibility

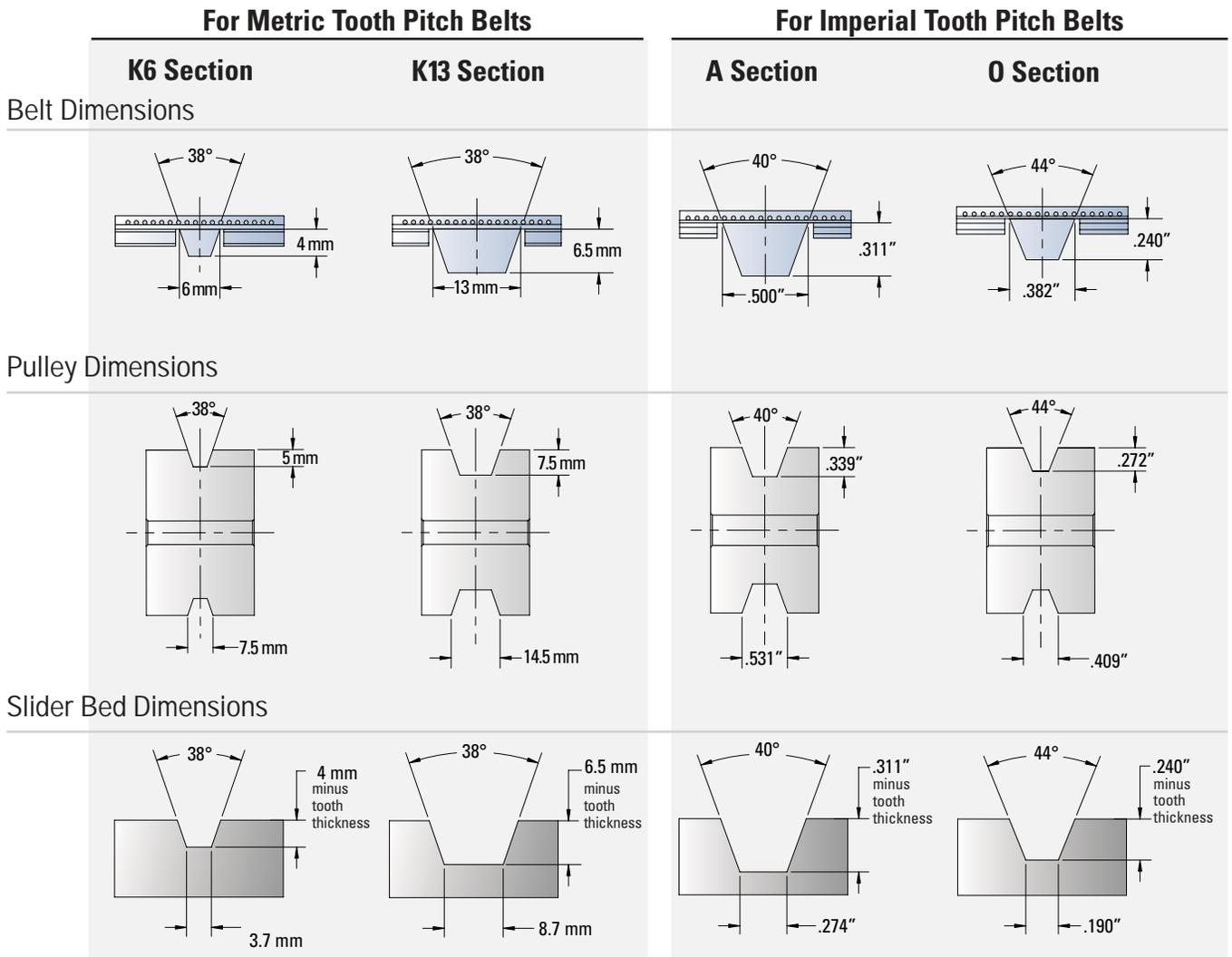
Gates Mectrol self tracking timing belts have all the capabilities of standard urethane timing belts but utilize guides to eliminate any lateral movement. Our range of specially designed urethane V-guides are notched along the belt length to provide optimum flexibility around pulleys.

Gates Mectrol manufactures V-guided belts in two constructions — **fabricated**, any of four V-guides can be added to any pitch belt in any width, length combination, or — **integral**, the V-guide is integrally molded to specific belt pitches for greater strength and consistency.

### Features

- V-guides can be added to virtually any of our belts, eliminating the need for flanged pulleys
- Notched construction for extra flexibility around tight belt paths
- Produced with the same durable urethane as the base belt
- Different sizes available to serve any application requirement
- Integrally produced with the belt for durability or fabricated to fit onto our existing belts

### Fabricated V-Guides



## Application Characteristics

- Long length conveying or linear positioning where tracking is an issue
- Conveying applications where design considerations prevent the use of pulley flanges
- Reduce or eliminate any belt "wander" by providing continuous guiding along conveyor length

## Integral V-Guides

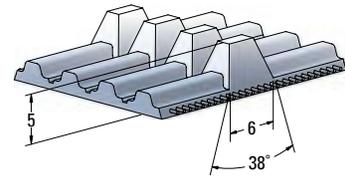
		T5V	T10VS	T10V	AT5V	ATL5V	AT10V	HV
Min. Welded Belt Length	inch							36
	mm	920	900	900	900	N/A	950	
Standard Roll Length	feet							200
	meters	100	100	100	100	100	100	
Standard Slitting Lanes	inch							1
	mm	25	25	25	25	25	25	

All roll lengths are  $\pm 1\%$ .

### Width Tolerances

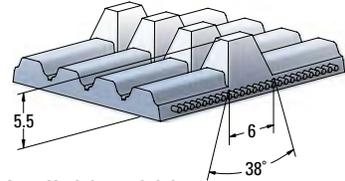
Width	T5V	T10VS	T10V	AT5V	ATL5V	AT10V	HV
Up to 50 mm Up to 2"	$\pm 0.5$ mm	$\pm 0.5$ mm	$\pm 0.5$ mm	$\pm 0.5$ mm	$\pm 0.5$ mm	$\pm 0.75$ mm	$\pm 0.020$ in
>50 - 100 mm >2" - 4"	$\pm 0.75$ mm	N/A	$\pm 0.75$ mm	N/A	N/A	$\pm 1.0$ mm	$\pm 0.030$ in
>100 mm to 150 mm >4" - 6"	N/A	N/A	$\pm 0.75$ mm	N/A	N/A	$\pm 1.0$ mm	$\pm 0.030$ in

T5V (K6 Section)



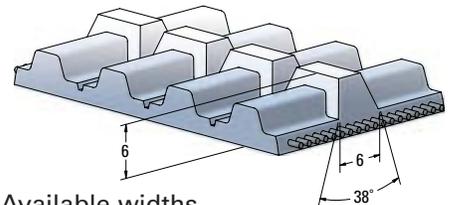
Available widths  
– 16, 25, 32, 50, 75, 100 mm

AT5V, ATL5V (K6 Section)



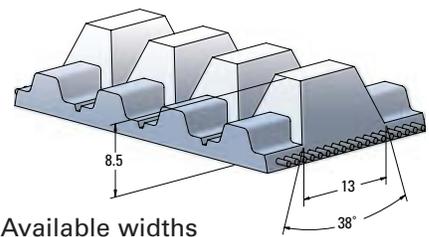
Available widths  
– 16, 25, 32, 50 mm

T10VS (K6 Section)



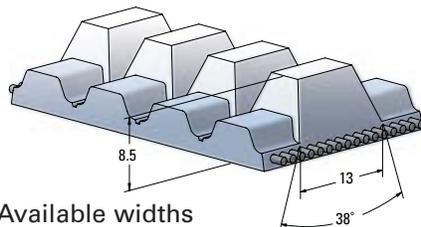
Available widths  
– 16, 25, 32, 50 mm

T10V (K13 Section)



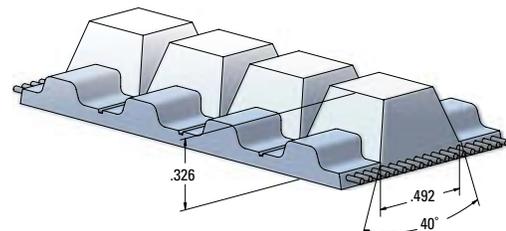
Available widths  
– 32, 50, 75, 100, 150 mm

AT10V (K13 Section)



Available widths  
– 25, 32, 50, 75 mm

HV (A Section)



Available widths  
– 1.5, 2, 3, 4, 6 inch

# Wide Belt Overview

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Gates Mectrol can produce urethane timing belts in widths up to 450 mm. These belts are specifically designed for synchronous conveying applications.

Wide belts are primarily used as process conveyor belts. Process (or conversion steps) normally occur on the belt, therefore the conveyed product requires additional width.

## Features

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- High strength Kevlar cord construction
- Parallel cord construction
  - No cords exposed at edges of belt
  - Better tracking
  - Uniform tensioning
- Tough polyurethane construction
  - Durable and cut resistant
  - Oil, chemical and water resistant
  - Non-marking
- Choice of polymers including FDA grades
- Nylon back and nylon tooth surface options available for quieter operation and reduced friction
- Various molded profiles and backing materials available
- No lubrication required



*A GMT3 belt can move heavier loads, with greater precision and smaller diameter pulleys than a comparable flat belt.*

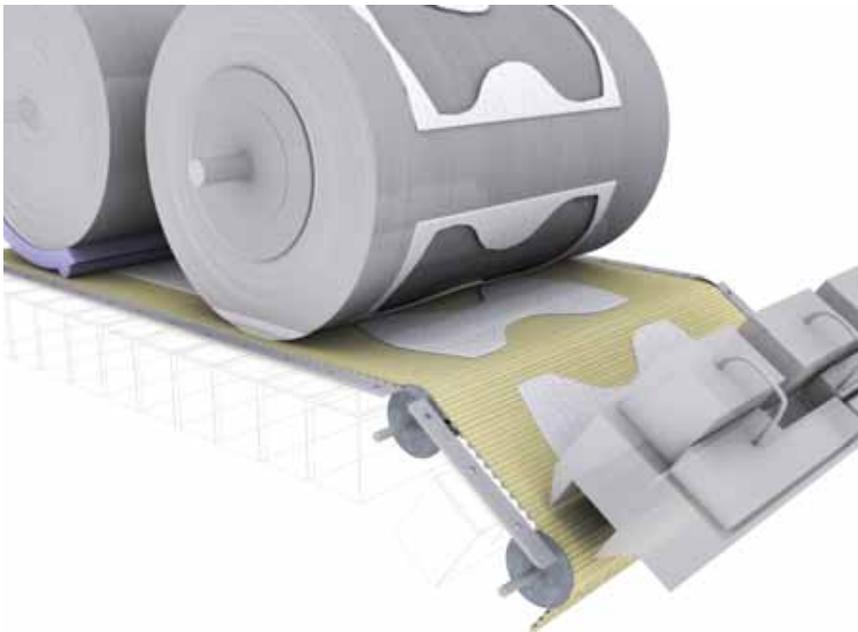
# Wide Belt Applications

## Application Characteristics

- Replaces flat conveyor belt
  - No retensioning required
  - Lower shaft forces
  - Positive indexing
  - Higher acceleration without slippage
- Alternative to modular plastic conveyor
  - Quieter operation
  - Easier cleaning
  - No hinges or pins to break and contaminate products
- High speed conveying
- Rapid indexing
- Automated process conveyor belts
- Bulk product conveying
- Food and confectionery conveying
- Clean room or wash down environments
  - Consult Applications Engineering staff for restrictions



Four 450 mm wide, timing belts accelerate skiers for faster loading of detachable chair lifts. Timing belts ensure uniform speed of each skier.



Precision high speed indexing with Gates Mectrol extra wide timing belts dramatically increases throughput and yields on diaper production lines.

>> Our Applications Engineering staff is available to you at [apps@gatesmectrol.com](mailto:apps@gatesmectrol.com) or 1-800-394-4844

# Wide Belt Specifications

			WH	WT10	GMT3
<b>Pitch (Imperial and metric)</b>			<b>.500"</b>	<b>10 mm</b>	<b>3 mm</b>
Ultimate Tensile Strength per Inch or 25 mm Belt Width	Kevlar	lbf/in N/25 mm	760 3380	760 3380	420 1870
Max. Allowable Belt Tension per Inch or 25 mm Belt Width	Welded	lbf/in N/25 mm	100 440	100 440	50 220
Allowable Effective Tension for the Belt Teeth (15 and More Teeth in Mesh)	Welded	lbf/in N/25 mm	330 1470	280 1250	100 440
Specific Belt Weight	Kevlar	lbf/ft/in kgf/m/cm	0.056 0.033	0.066 0.039	0.033 0.020
Specific Belt Stiffness (Open Ended)	Kevlar	lbf/in N/mm	30350 5300	30350 5300	14750 2580
Min. No. of Pulley Teeth			14	16	19
Min. Pitch Diameter (Inch or mm)			2.23"	51 mm	19 mm
Min. Diameter of Tensioning Idler Running on Back of Belt		inch mm	3.12 80	3.12 80	1.125 30
Available in FDA Compliant Construction (85 Shore A Urethane)			Yes	Yes	Yes
Standard Colors (N=Natural, W=White)			N	N	W
Min. Welded Belt Length			33"	850 mm	850 mm
Standard Roll Length			200 ft	60 m	60 m
Standard Slitting Lanes			N/A	N/A	25 mm
Min. Width Available			6"	150 mm	100 mm
Max. Width Available			18"	450 mm	450 mm*
Width Tolerance			± .060"	± 1.0 mm	± 1.0 mm

\* Up to 200 mm available now. Up to 450 mm available after May 2007.

Service Temperature Range	-5°C to +70°C (23°F to 158°F)	
Hardness	92 Shore A - Standard PU, 85 Shore A - FDA Compliant PU	
Coefficient of Friction	Urethane vs. Steel (dry)	0.5 to 0.7
	Urethane vs. Aluminum (dry)	0.5 to 0.6
	Urethane vs. UHMWPE (dry)	0.2 to 0.4
	Nylon vs. Steel (dry)	0.2 to 0.4
	Nylon vs. UHMWPE (dry)	0.1 to 0.3

The specifications listed are based on Gates Mectrol's experience. However, our specifications and data do NOT cover all possible belt drive conditions. It is the responsibility of the belt drive system designer to ensure Gates Mectrol's belts are appropriate for a given system and application. The provided data is representative of our in-house experience and does not necessarily match product performance in industrial use. Gates Mectrol cannot assume any liability concerning the suitability and process ability of our products. We also cannot assume liability for process results, damages or consequential damages associated with the use of our products.



# Food Grade Belting – CenterClean™ patent pending

CenterClean is designed for food processing applications requiring synchronous motion. This self tracking belt is ideal for 2" (51 mm) or larger pulley diameters. The HTD8 tooth profile helps to maintain pulley grooves free of debris and easily handles high acceleration and deceleration rates.

## Application Characteristics

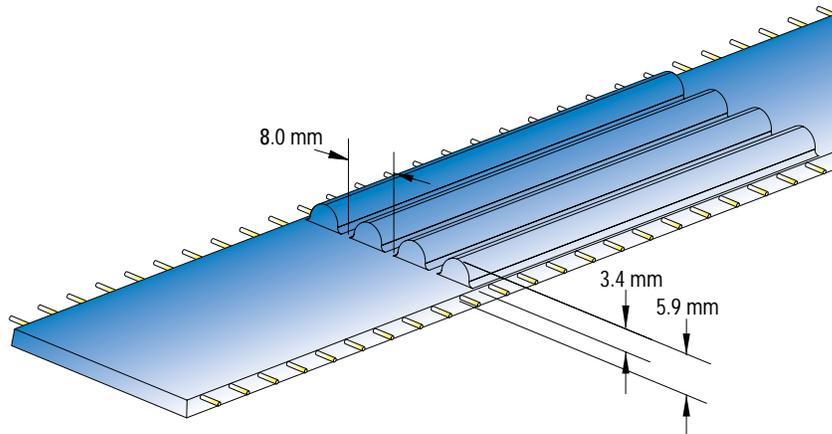
- Synchronous motion
- Food and confectionery conveying
- Formulated for wash down environments
- High speed conveying
- Minimum pulley diameter 2" (51 mm)
- Troughing conveyor

## Features

- Smooth surface allows cleaning to microbiological level and clean-in-place process
- Sealed edges and tension members prevent ingress of microbes
- Kevlar tension members provide high strength, low stretch
- No retensioning required
- Tough polyurethane construction
  - Water and chemical resistant
  - Meets FDA material requirements for wet food contact
- Self tracking



CenterClean belts are constructed with flexible urethane and sealed Kevlar tension members. This construction allows CenterClean belts to be troughed or run on small diameter pulleys with minimal belt stretch.



## CenterClean Specifications\*

Pitch	mm	8
Max. Allowable Belt Tension per Inch or 25 mm Belt Width	lbf/in N/25 mm	60 270
Min. No. of Pulley Teeth		20
Min. Pitch Diameter	inch mm	2.01 51
Min. Diameter of Tensioning Idler Running on Back of Belt	inch mm	4.75 120
Hardness, Shore A		95
Service Temperature Range		-5° C to +70° C (23°F to 158°F)
Urethane Grade		FDA Compliant
Standard Color		Blue
Min. Welded Belt Length	mm	1000
Standard Roll Lengths	meters	60
Standard Slitting Lanes	inch	1
Min. Width Available	inch	8
Max. Width Available	inch	18

\* Available Summer 2007

# Food Grade Belting – PosiClean™ patent pending

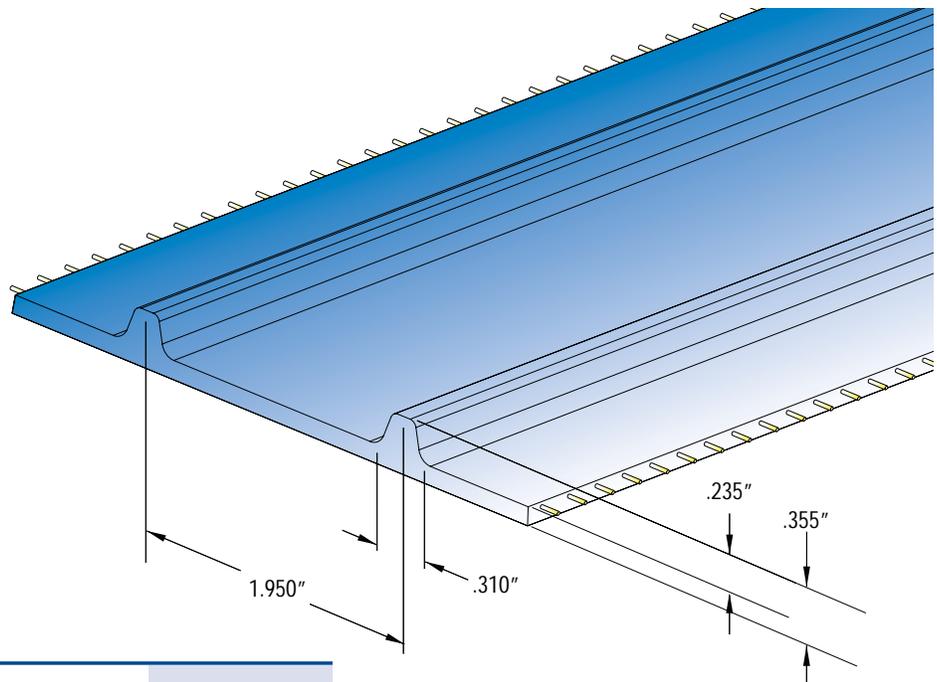
**PosiClean** is designed to be an easy to clean, positive drive, replacement of plastic modular belt for the food processing industry. PosiClean has sealed Kevlar tension members to limit belt stretch.

## Features

- Direct replacement of most 2" plastic modular belt
- Smooth surface allows cleaning to microbiological level and clean-in-place process
- Sealed edges and tension members prevent ingress of microbes
- Kevlar tension members provide high strength, low stretch
- Tough polyurethane construction
  - Water and chemical resistant
  - Meets FDA material requirements for wet food contact
- Welded endless or spliced with stainless steel lacing
- 3A Dairy approval pending

## Application Characteristics

- Replacement for plastic modular belt
  - Quieter operation
  - Easier cleaning
  - No hinges or pins to break and possibly contaminate product
- Food and confectionery conveying
- Formulated for wash down environments
- Less labor and cleaning water than plastic modular belt



## PosiClean Specifications

Pitch	inch	1.95
Max. Allowable Belt Tension per Inch or 25 mm Belt Width	lbf/in N/25 mm	60 270
Min. No. of Pulley Teeth		6
Min. Pitch Diameter	inch mm	3.72 94
Min. Diameter of Tensioning Idler Running on Back of Belt	inch mm	6.00 150
Hardness, Shore A		95
Service Temperature Range		-5° C to +70° C (23°F to 158°F)
Urethane Grade		FDA Compliant
Standard Color		Blue
Min. Welded Belt Length	inch	42
Standard Roll Lengths	feet	200
Standard Slitting Lanes	inch	2
Min. Width Available	inch	8
Max. Width Available	inch	18

*PosiClean Sprockets and Field Welder are available from Gates Mectrol.*

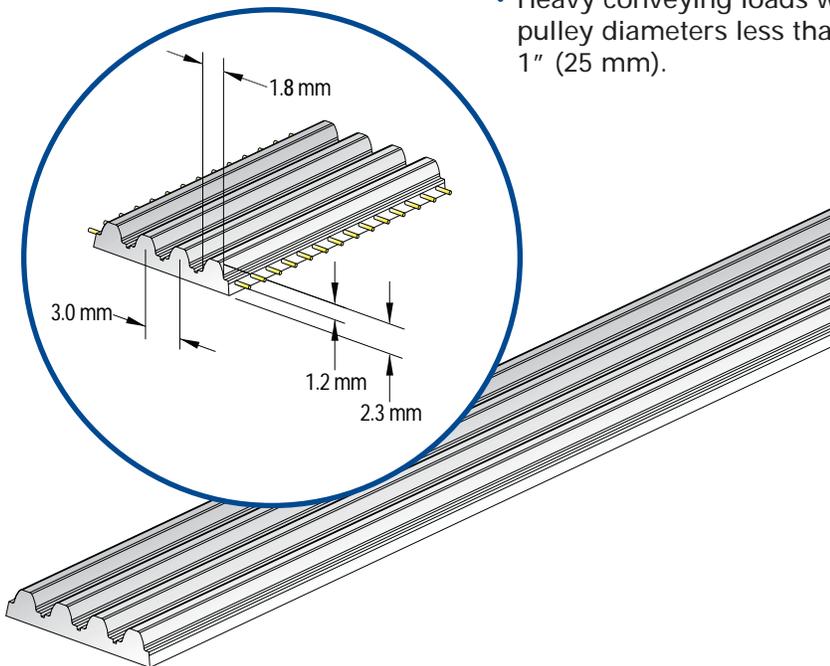


# Food Grade Belting – GMT3™

GMT3 timing belt is designed to be an alternative to light weight flat belt. It is ideal for conveying applications involving small pulley diameters or where belt slippage is a concern.

## Application Characteristics

- Replaces flat belt
  - No retensioning required
  - Lower shaft forces
  - Higher acceleration without slippage
  - Positive indexing
- Heavy conveying loads with pulley diameters less than 1" (25 mm).
- High conveyor acceleration rates with pulley diameters less than 1" (25 mm)
- Conveying involving small diameter transfers



## Features

- 3 mm pitch allows for pulley diameters as small as 0.75" (19 mm)
- Custom tooth profile
  - Designed to minimize noise and run on slider beds
  - Compatible with 3MR GT, 3M HTD and 3M RPP pulleys
- Polyurethane construction meets FDA material requirements for wet food contact
- Kevlar tension members for minimal stretch
- Tension members are not sealed

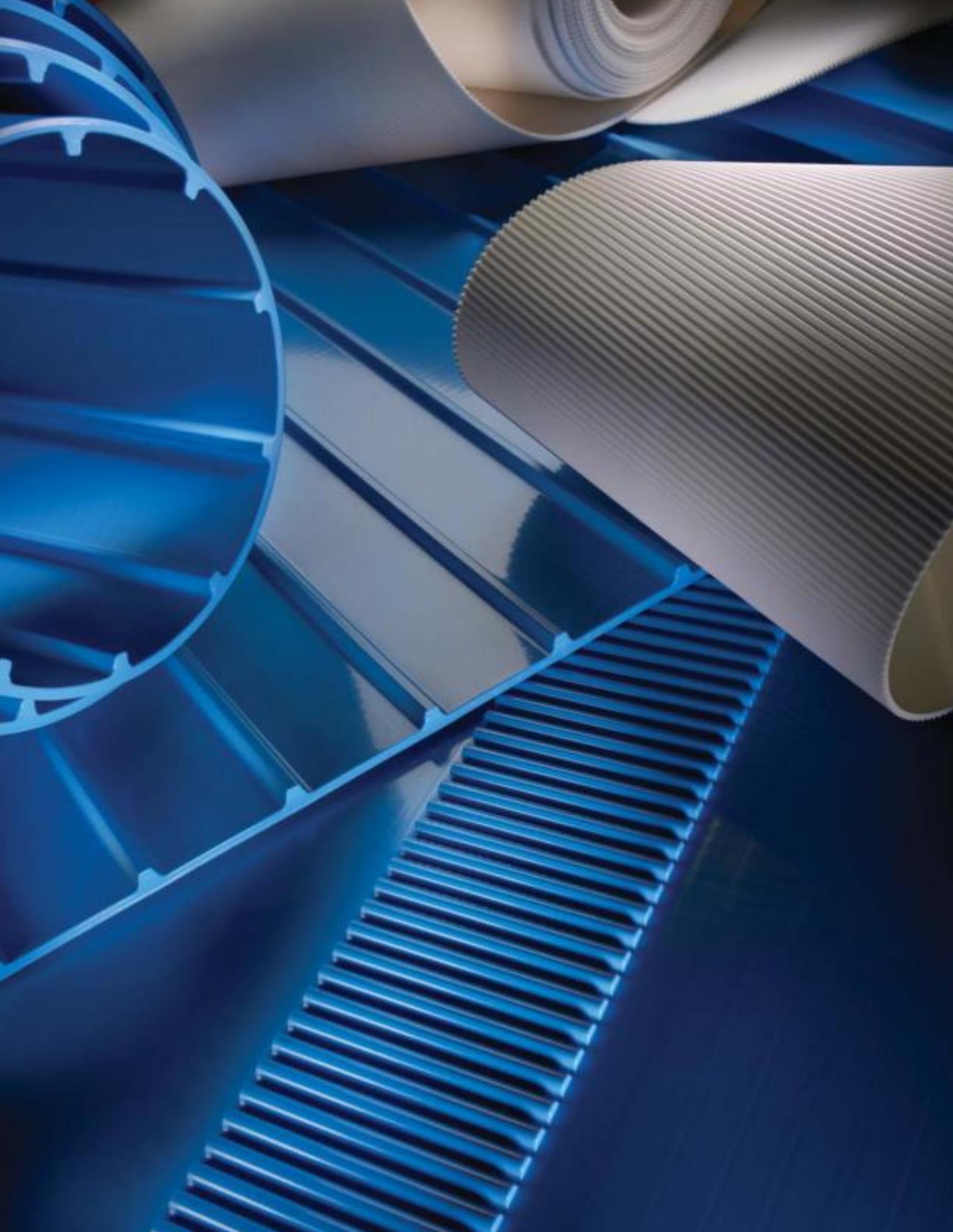
## GMT3 Specifications

Pitch	mm	3
Ultimate Tensile Strength per Inch or 25 mm Belt Width	lbf/in N/25 mm	420 1870
Max. Allowable Belt Tension per Inch or 25 mm Belt Width	lbf/in N/25 mm	50 220
Min. No. of Pulley Teeth		20
Min. Pitch Diameter	inch mm	0.75 19
Min. Diameter of Tensioning Idler Running on Back of Belt	inch mm	1.125 30
Hardness, Shore A		85
Service Temperature Range		-10° C to +60° C (14° F to 140° F)
Urethane Grade		FDA Compliant
Standard Color		White
Min. Welded Belt Length	mm	850
Standard Roll Lengths	meters	60
Standard Slitting Lanes	mm	25
Min. Width Available	mm	100
Max. Width Available	mm	450*

\* Up to 200 mm available now. Up to 450 mm available after May 2007.



GMT3 belt is ideal for synchronous conveying applications involving small diameter transfers such as those found in check weighing.



# Flat Belt Overview

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Gates Mectrol offers a full line of high strength, low stretch flat belts for lifting and positioning applications. These flat belts are typically sold in open ended lengths and are clamped at each end.

## Application Characteristics

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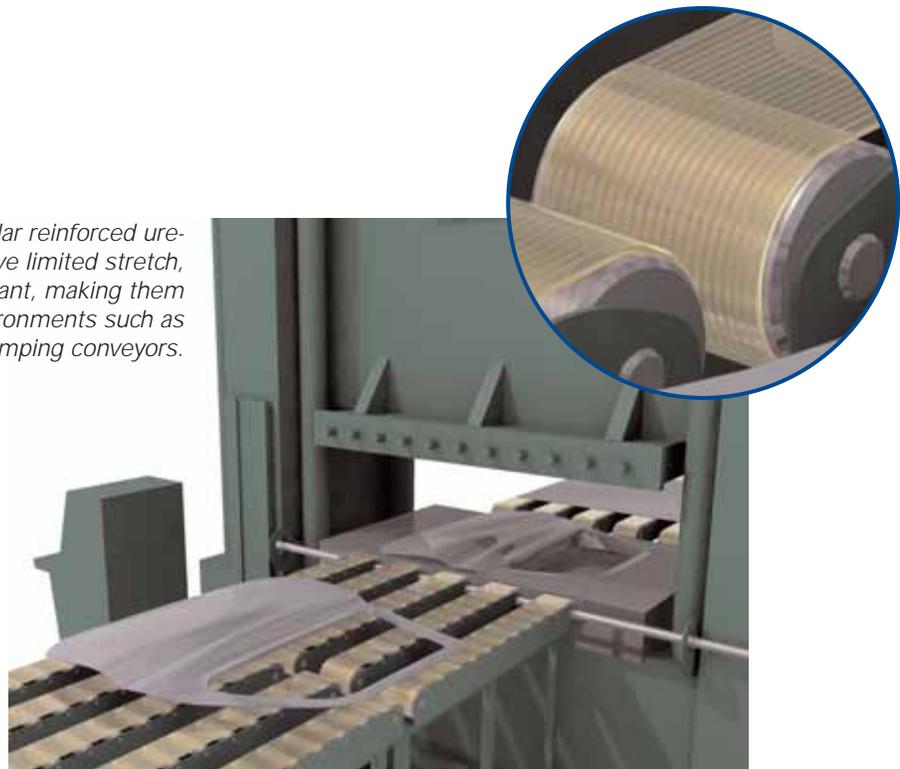
- Heavy load lifting or lowering
- Allows for "slip" requirement
- Smooth uniform motion
- Small bending radius for small design envelope
- Very low stretch characteristics

## Features

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- Smooth, vibration free operation
- Use with small pulley diameters
- High strength, low stretch for long life
- Sealed edges, no cord fraying
- Easily guided with flanged pulleys
- Kevlar or steel cord construction
- No lubrication needed
- No retensioning required

*Gates Mectrol's Kevlar reinforced urethane flat belts have limited stretch, are oil and cut resistant, making them ideal for harsh environments such as metal stamping conveyors.*



>> Our Applications Engineering staff is available to you at [apps@gatesmectrol.com](mailto:apps@gatesmectrol.com) or 1-800-394-4844

# Flat Belts

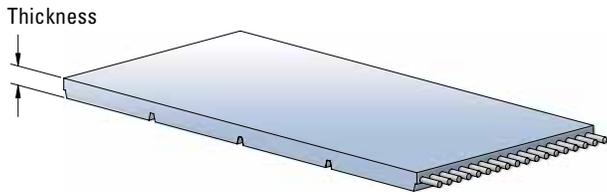
		F8, F8U	FL8	WF12	F12, F12U	FL12	F30*	FX9, FX12
Min. Welded Belt Length	inch	19	21	21	20	24	N/A	N/A
	mm	483	533	533	508	610	N/A	N/A
Standard Roll Lengths	feet	200	200	200	200	200	200	200
	meters	61	61	61	61	61	61	61
Standard Slitting Lanes	inch	1	1	1	1	1	1	1
	mm	25	25	25	25	25	25	25

All roll lengths are  $\pm 1\%$ .

## Available Widths

Code	Inch	mm	F8, FL8, F12, FL12, F8U, F12U	WF12	F30*	FX9, FX12
025	1/4	6.35				
050	1/2	12.7	X			
075	3/4	19.05	X			X
100	1	25.4	X		X	X
150	1 1/2	38.1	X			X
200	2	50.8	X	X	X	X
300	3	76.2	X	X	X	X
400	4	101.6	X	X	X	X
500	5	127.0		X		
600	6	152.4		X		
700	7	177.8		X		
800	8	203.2		X		

All belts are available in any width between the minimum and maximum listed width.



	Nominal Thickness
F8	0.080"
FL8	0.080"
WF12	0.120"
F12	0.125"
FL12	0.125"
F30	3 mm
FX9	0.090"
FX12	0.120"

## Width Tolerances

Width	F8, FL8, F12, FL12, F8U, F12U	WF12	F30*	FX9, FX12
Up to 2"	$\pm .020"$	$\pm .020"$	$\pm .030"$	$\pm .030"$
> 2" - 4"	$\pm .030"$	$\pm .030"$	$\pm .030"$	$\pm .030"$
> 4" - 6"	N/A	$\pm .030"$	N/A	N/A
> 6"	N/A	$\pm .060"$	N/A	N/A

\* Available after May 2007.

# Flat Belt Specifications

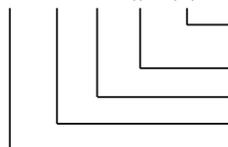
			F8	FL8	WF12	F12	FL12	F30*	FX9	FX12	
<b>Nominal Thickness</b>	<b>inch mm</b>		<b>.080 2.0</b>	<b>.080 2.0</b>	<b>0.120 3.0</b>	<b>.125 3.0</b>	<b>.125 3.0</b>	<b>.120 3.0</b>	<b>.090 2.3</b>	<b>.120 3.0</b>	
Ultimate Tensile Strength per Inch or 25 mm Belt Width	Steel	lbf/in N/25 mm	1570 6980	3160 14060	N/A N/A	1570 6980	5030 22380	7020 31230	N/A N/A	N/A N/A	
	Kevlar	lbf/in N/25 mm	1820 8100	N/A N/A	1360 6050	2050 9120	N/A N/A	N/A N/A	4090 18190	4680 20820	
Max. Allowable Belt Tension per Inch or 25 mm Belt Width	Steel and Kevlar	Open Ended	lbf/in N/25 mm	390 1730	790 3510	340 1510	390 1730	1250 5560	1750 7780	1020 4540	1170 5200
		Welded	lbf/in N/25 mm	240 1070	240 1070	180 800	240 1070	N/A N/A	N/A N/A	N/A N/A	N/A N/A
Specific Belt Weight	Steel	lbf/ft/in kgf/m/cm	.057 .033	.073 .043	N/A N/A	.078 .046	.113 .066	.255 .149	N/A N/A	N/A N/A	
	Kevlar	lbf/ft/in kgf/m/cm	.045 .026	N/A N/A	0.045 0.026	.066 .039	N/A N/A	N/A N/A	.043 .025	.060 .035	
Specific Belt Stiffness (Open Ended)	Steel	lbf/in N/mm	109000 19085	213600 37410	N/A N/A	109000 19085	334600 58600	440000 77050	N/A N/A	N/A N/A	
	Kevlar	lbf/in N/mm	60700 10635	N/A N/A	54300 9500	60700 10635	N/A N/A	N/A N/A	90000 15760	130000 22760	
Min. Pulley Diameter	in mm		2.0 50	2.375 60	2.0 50	2.0 50	3.0 75	5.0 125	3.0 75	4.0 100	
Min. Diameter of Tensioning Idler Running on Back of Belt	in mm		3.0 80	4.75 120	3.0 80	3.0 80	4.75 120	8.0 200	4.5 115	6.0 150	
Standard Material			PU	PU	PU	PU	PU	PU	PU or TPR	PU or TPR	
Standard Colors (N=Natural, BK=Black)			N	BK	N	N	BK	BK	BK	BK	

Do not use Gates Mectrol belts, pulleys or sprockets in applications that depend solely upon the belt to raise/lower, support or sustain a mass without an independent safety backup system. The specifications listed are based on Gates Mectrol's experience. However, our specifications and data do NOT cover all possible belt drive conditions. It is the responsibility of the belt drive system designer to ensure Gates Mectrol's belts are appropriate for a given system and application. The provided data is representative of our in-house experience and does not necessarily match product performance in industrial use. Gates Mectrol cannot assume any liability concerning the suitability and process ability of our products. We also cannot assume liability for process results, damages or consequential damages associated with the use of our products.

\* Available after May 2007.

## To Order Flat Belts

600 F12 200 ( ) ( )



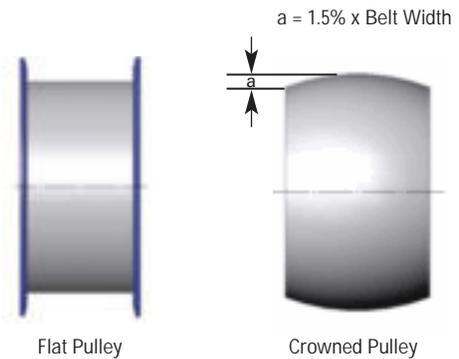
Insert "NB" for Nylon Back,  
 "NT" for Nylon Tooth (flight side), "NTB" for Nylon on Both Sides.  
 "FDA" for FDA  
 Insert "K" if specifying Kevlar  
 Width: 2.0" x 100 = 200  
 Belt Type: F12  
 Length: 60.0" x 10 = 600

# Flat Belt – Design Recommendations

- In contrast to typical flat belts, Gates Mectrol flat belts have very high strength and extremely low stretch. They are designed to be run on flat faced pulleys with flanges. Crowned pulleys should not be used.

If crowned pulleys are used, the maximum allowable crown is 1.5% of belt width.

- Gates Mectrol flat belts are not recommended for applications which involve belt twisting. Should an application require that a belt be twisted 90°, the length over which the twist occurs should be a minimum of 15 inches for a one inch wide belt.
- Gates Mectrol flat belts are not to be used in lat pull down machines or other machines in which belt twist is unrestricted.



Materials		92A PU	85A PU	TPR
Service Temperature Range		-5°C to 70°C	-10°C to 60°C	-10°C to 70°C
Hardness, Shore A		92	85	90
Coefficient of Friction	Belt Material vs. Steel (dry)	0.5	0.7	0.5
	Urethane vs. Aluminum (dry)	0.5	0.6	0.5
	Belt Material vs. UHMWPE (dry)	0.2	0.4	0.2
	Nylon vs. Steel (dry)	0.2 to 0.4	0.2 to 0.4	0.2 to 0.4
	Nylon vs. UHMWPE (dry)	0.1 to 0.3	0.1 to 0.3	0.1 to 0.3



*Precision high strength, low stretch flat belts utilize tough urethane construction with specialty high carbon steel cord to lift heavy loads such as elevators.*

# Profiled Belts Overview

Gates Mectrol timing belts can be customized with welded-on profiles to meet your application's specific holding, pushing, lifting, or actuating requirements. These profiles can be molded into almost any shape making profiled belts ideal for your assembly, packaging, inserting and other automation equipment requirements.

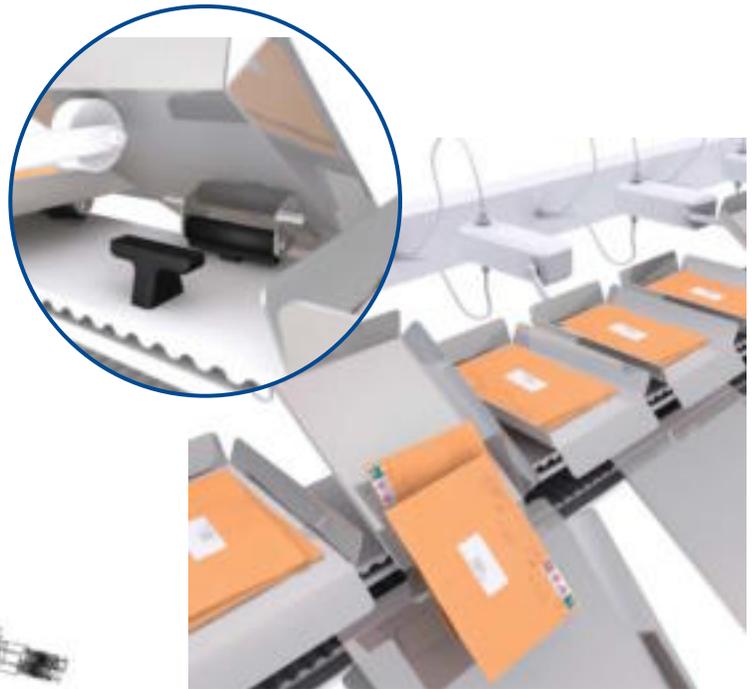
Our molded profiles are produced in the same tough urethane as our belting and become an integral part of the belt through thermal bonding.

## Features

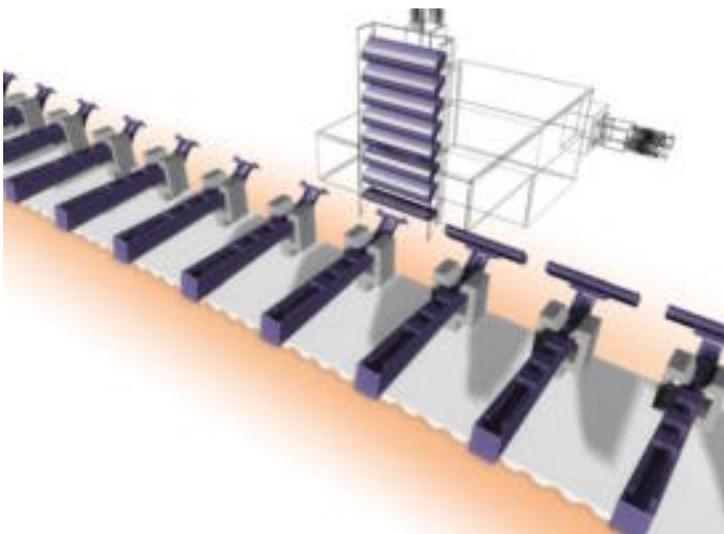
- Non-marking, durable urethane construction
- Molded and located on the belt to exacting tolerances
- Can be molded to virtually any custom configuration
- Available in 85 and 92 Shore A hardness
- Available in FDA compliant polyurethane
- Thermally fused to base belt material
- Available with metal inserts, including threaded inserts

## Application Characteristics

- Pushing, carrying or actuating in packaging applications
- Product location in process applications
- Holders for mounting devices
- Interchangeable spacing for alternate product conveying



*Custom profiles are used for pins and rests on a tilt-tray mail sorting machine.*



*Exact placement of the profile allows for precision assembly of parts. In this application, razor heads are mounted accurately as a result of the Gates Mectrol profiled timing belt.*

# Profiled Belts – Design Recommendations

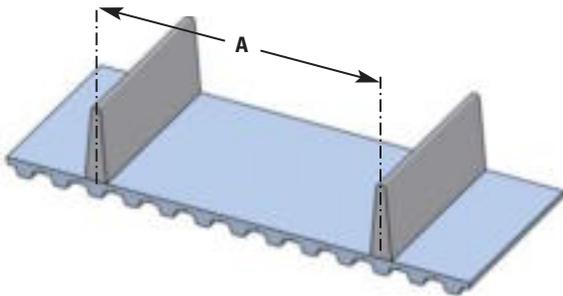
Over one thousand profile designs are available from Gates Mectrol's extensive mold inventory. Visit the Gates Mectrol Profile Selector Guide at [www.gatesmectrol.com](http://www.gatesmectrol.com) to search our profile library. Our applications engineers can work with you to design any profile to meet your specific requirements. Tooling charges are minimal for most customized designs.

Although it is possible to have nearly any design utilizing welded profiles, ultimate performance for your application can be achieved by following the design guidelines outlined below:

## 1. Profile Spacing

It is recommended that the profile spacing, A, correspond with the pitch of the belt teeth. This allows for the best spacing tolerances, and minimizes the effects of the belt's overall length tolerance on the profile spacing.

Profiles can be spaced on non-pitch increments. However, if non-pitch spacing is used, the cumulative tolerance of the belt length must be considered.



**Profile Spacing Tolerance**

Profile Spacing	Over Tooth Non-cumulative	Not Over Tooth
0.2" ≤ A < 1.0" 5 mm ≤ A < 25.4 mm	±0.015" ±0.38 mm	±0.020" ±0.5 mm
1.0" ≤ A < 9.0" 25.4 mm ≤ A < 228.6 mm	±0.020" ±0.5 mm	±0.025" ±0.6 mm
9.0" ≤ A < 18.0" 228.6 mm ≤ A < 457.2 mm	±0.025" ±0.6 mm	±0.030" ±0.8 mm
18.0" ≤ A < 27.0" 457.2 mm ≤ A < 685.8 mm	±0.030" ±0.8 mm	±0.035" ±0.9 mm
27.0" ≤ A < 36.0" 685.8 mm ≤ A < 914.4 mm	±0.035" ±0.9 mm	±0.040" ±1.0 mm

For spacing greater than 36.0", add 0.006" per ft.

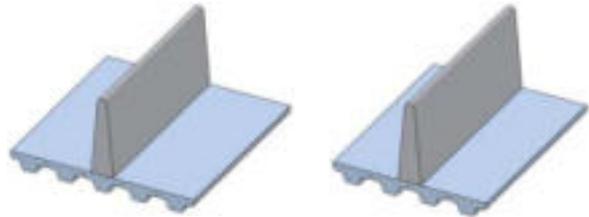
For spacing greater than 914.4 mm, add 0.15 mm per 305 mm.

Tighter tolerances on profile spacing are available. Contact a Gates Mectrol Applications Engineer for more information.

## 2. Profile Dimensions

The most important considerations while dimensioning a profile are the size of the base of the profile ("foot" of the profile) and the position of the profile on the belt.

The profile thickness can affect the flexibility of the belt, and can determine the minimum allowable pulley diameter. The flexibility of the belt can be maximized, however, by positioning the profile directly over the tooth of the belt.



**Over Tooth**

**Not Over Tooth**

As the thickness of the foot of the profile increases, the minimum pulley diameter in the system must be increased according to the table on the next page.

The molded tolerances of the profile itself i.e. thickness, height, length, etc. are controlled within ±.010". The installed height tolerance of a profile is typically +.010", -.020".

*Gates Mectrol Applications Engineers will assist in all regards where tolerances are an issue. Please contact: [apps@gatesmectrol.com](mailto:apps@gatesmectrol.com).*

*To access all of our standard profiles visit the Profile Selector Guide at [www.gatesmectrol.com](http://www.gatesmectrol.com).*



# Profiled Belts – Design Recommendations

Minimum Number of Pulley Teeth For Profiles Over a Tooth\*

Profile "Foot" Thickness	Inch mm	1/16 1.60	1/8 3.00	3/16 5.00	1/4 6.00	5/16 8.00	3/8 10.00	7/16 11.00	1/2 13.00	5/8 16.00	3/4 19.00
XL		10	10	18	25	40	50	60	100	N/R	N/R
L		12	12	12	18	30	40	50	60	100	N/R
H, H-HF		14	14	14	14	18	25	35	45	80	100
XH		18	18	18	18	18	18	18	20	35	50
T5		12	12	18	25	40	50	60	100	N/R	N/R
AT5, ATL5		15	15	18	25	40	50	60	100	N/R	N/R
T10, T10-HF		16	16	16	16	18	25	35	45	80	100
AT10		18	18	18	18	22	25	35	45	80	100
ATL10, ATL10-HF		25	25	25	25	25	25	35	45	80	100
T20, AT20		18	18	18	18	18	18	18	20	35	50
ATL20		30	30	30	30	30	30	30	30	35	50
HTD5, STD5		14	14	16	25	40	50	60	100	N/R	N/R
HTD8, STD8		20	20	20	24	30	40	50	60	100	N/R
HTD14		28	28	28	28	28	28	30	30	50	72
HTDL14		43	43	43	43	43	43	43	43	50	72

Minimum Number of Pulley Teeth For Profiles Not Over a Tooth\*

Profile "Foot" Thickness	Inch mm	1/16 1.60	1/8 3.00	3/16 5.00	1/4 6.00	5/16 8.00	3/8 10.00	7/16 11.00	1/2 13.00	5/8 16.00	3/4 19.00
XL		12	30	45	50	60	100	N/R	N/R	N/R	N/R
L		12	20	40	45	55	60	70	80	100	N/R
H, H-HF		14	14	25	30	45	50	55	65	80	100
XH		18	18	20	30	40	45	50	54	58	60
T5		12	30	45	50	60	100	N/R	N/R	N/R	N/R
AT5, ATL5		15	30	45	50	60	100	N/R	N/R	N/R	N/R
T10, T10-HF, AT10		18	20	30	40	45	50	55	65	80	100
ATL10, ATL10-HF		25	25	30	40	45	50	55	65	80	100
T20, AT20		18	18	20	30	40	45	50	54	58	60
ATL20		30	30	30	30	40	45	50	54	58	60
HTD5, STD5		18	30	45	50	60	100	N/R	N/R	N/R	N/R
HTD8, STD8		20	20	40	45	55	60	70	80	100	N/R
HTD14		28	28	30	42	58	64	72	78	82	86
HTDL14		43	43	43	43	58	64	72	78	82	86

\*Minimum number of pulley teeth must be equal to or greater than minimum shown in the appropriate Belt Specifications Table.

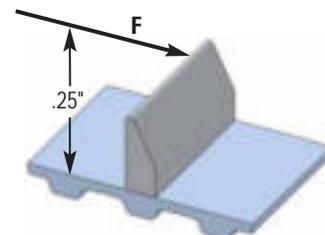
N/R = not recommended

### 3. Profile Strength

The strength, and therefore capacity of the profile, depends primarily on the size of the welded profile foot.

The strength of the profile is affected by the type and direction of the force applied to it. Under high loads, the failure mode will normally be either bending and distortion of the profile and belt, or in some cases, the polyurethane may actually tear.

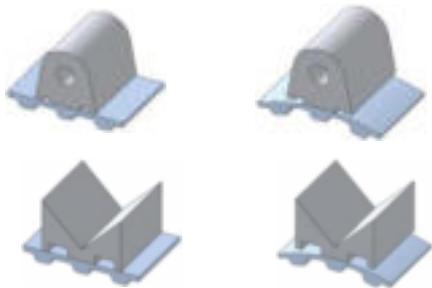
With a load introduced against the profile at a point 1/4" above the belt surface, the strength of the profile is 2,500 lbs. per square inch of welded foot area, or 1724 N/cm<sup>2</sup>.



# Profiled Belts – Design Recommendations

## 4. Wide Base Profiles, and Profiles With Relief

For profiles requiring a wide base, such as pushers, one foot should be left unwelded. This allows for flexing around the pulley yet it remains rigid when loaded.



## 5. Segmented Profiles

When large profiles are required as carriers, they must be either segmented or slotted. This is necessary to allow flexing around the pulley. On the flat conveyor surface, the profiles remain intact.

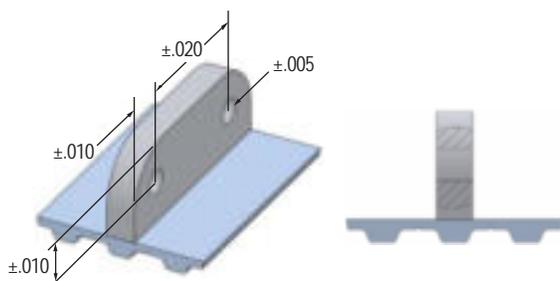


## 6. Profiles With Holes

Profiles with holes for securing paddles or other attachments can be produced. Holes are either drilled before bonding, or are molded into the profile depending upon the volume and requirements of the application.

Tolerances of the hole placement depends upon whether the holes are drilled or molded. The tolerance of the hole from the belt surface is subject to the bonding process of the profile foot and the belt surface.

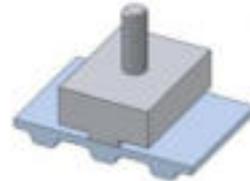
Generally, tolerances are as shown below. However, tighter tolerances are possible. Please consult our Applications Engineering Department.



## 7. Profiles With Inserts

Profiles can be molded with metallic inserts. These are particularly useful in some applications to replace attachment chain.

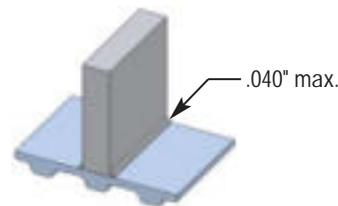
The actual inserts can either be manufactured by Gates Mectrol or provided by the customer.



## 8. Flash Bead

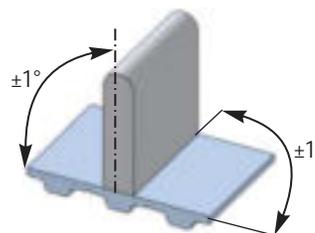
During the welding process, a bead of urethane develops at the meeting point of the profile and belt.

The welding bead is removed, “de-flashed”, as necessary.



## 9. Perpendicularity

All profiles are perpendicular to 1°.



## 10. Ordering

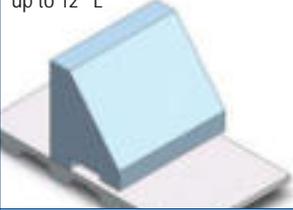
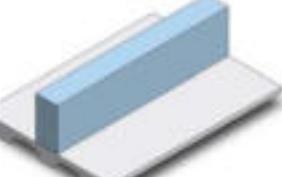
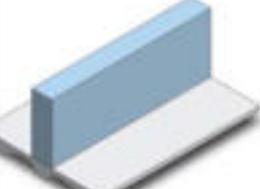
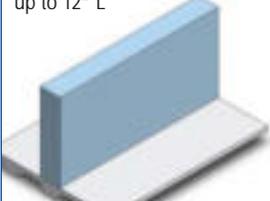
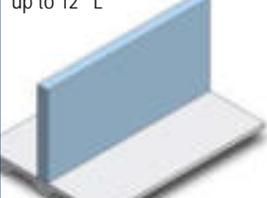
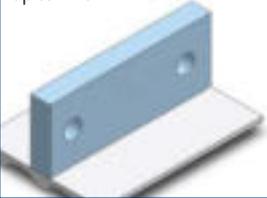
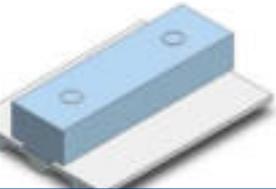
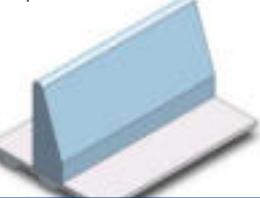
When ordering a profiled belt, it is advisable to submit a drawing of the profiled belt. For your convenience, standard drawing forms are available from our Applications Engineering Department.

Once a design is finalized, Gates Mectrol will submit a drawing to the customer for approval. This custom belt drawing number should then be used for future ordering.



# Profiled Belts – QuickShip Program

Gates Mectrol offers a QuickShip Program based on its 20 most popular profiles. Under this program, orders of ten belts or less will ship in seven working days!

<p><b>AN 1008</b> .850[21.6] H x .690[17.5] W up to 12" L</p> 	<p><b>AN 1012</b> .625[15.9] H x .250[6.4] W up to 12" L</p> 	<p><b>AN 1014</b> .157[4.0] H x .208[5.3] W up to 12" L</p> 	<p><b>AN 1018</b> .375[9.5] H x .130[3.3] W up to 12" L</p> 
<p><b>AN 1027</b> .290[7.4] H x .240[6.1] W up to 13" L</p> 	<p><b>AN 1034</b> .281[7.1] H x .591[15.0] W up to 12" L</p> 	<p><b>RC 1001</b> .500[12.7] H x .250[6.4] W up to 12" L</p> 	<p><b>RC 1004</b> .750[19.1] H x .250[6.4] W up to 12" L</p> 
<p><b>RC 1007</b> .250[6.4] H x .250[6.4] W up to 12" L</p> 	<p><b>RC 1009</b> 1.000[25.4] H x .250[6.4] W up to 12" L</p> 	<p><b>RC 1042</b> .125[3.2] H x .250[6.4] W up to 12" L</p> 	<p><b>RC 1043</b> .188[4.8] H x .125[3.2] W up to 12" L</p> 
<p><b>RC 1112</b> 1.000[25.4] H x .125[3.2] W up to 12" L</p> 	<p><b>SP 1011</b> .353[9.0] H x .314[8.0] W up to 12" L</p> 	<p><b>SP 1013</b> .728[18.5] H x .788[20.0] W up to 2.5" L</p> 	<p><b>SP 1016</b> .492[12.50] H x .472[12.0] W up to 6.5" L</p> 
<p><b>SP 1051</b> .787[20] H x .236[6] W up to 1.969" L</p> 	<p><b>SP 1056</b> .563[14.3] H x .626[15.90] W up to 1" L</p> 	<p><b>SP 1089</b> .394[10.0] H x .591[15.01] W up to 1.969" L</p> 	<p><b>AN 1004</b> 1.000[25.4] H x .375[9.5] W up to 12" L</p> 

>> For more information about the QuickShip Program visit [www.gatesmectrol.com](http://www.gatesmectrol.com) or call **1-800-394-4844**

# Backings

Most belt types can be modified by adding a backing to achieve a desired coefficient of friction, abrasion resistance or cushion. A backing can also be added and then milled to create pockets for product transfer. Gates Mectrol offers over 20 backings to meet your needs.

## Application Characteristics

- High friction for feeding or separating applications
- Low friction for light feed or accumulation requirements
- Ability to conform to unusual product shapes
- Combine friction with vacuum for ultimate grab

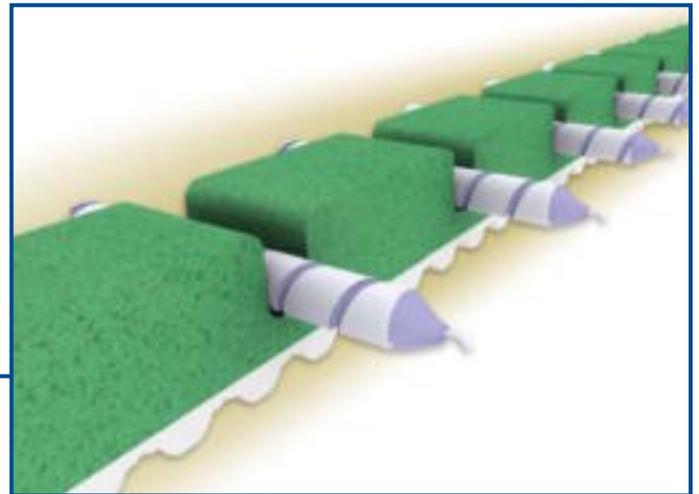
## Features

A customized backing can provide:

- A dramatic increase or decrease in the coefficient of friction
- Varying levels of cushioning and durability through material thickness and hardness selection
- Static conductivity
- Various levels of chemical resistance
- An ability to alter wear characteristics



*Its combined characteristics of high friction and abrasion resistance make the seamless Thermoplastic Rubber backing ideal for box folding applications.*



*A unique foam backing is used to carefully grasp and transport candles for cooling.*



# Backings

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## Perform a wide variety of functions

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Many applications require belts with specific surface characteristics. A wide variety of co-extruded as well as post-laminated backings are available to solve your toughest application requirements. Specifications follow.

- Special nylon fabric can be added to the belt back or tooth side during the manufacturing process. This reduces the coefficient of friction for sliding surfaces or product accumulation
- High friction surfaces
- A variety of materials can be added for vibration dampening
- An antistatic surface is available with a resistivity of less than  $10^6$  Ohms/Square

## Polyurethane

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Gates Mectrol urethane backings are available in several different varieties. Available in different durometers, with different coefficients of friction, urethane backings are the toughest and most durable backing material.



Clear Urethane



Glass Backing



Ridge Top



White Urethane

## Rubber

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Feeding applications generally require extremely high friction. Rubber can provide this high friction, even while wet. Some rubber backings also offer antistatic properties, higher temperature ratings, and good chemical and abrasion resistance.



Linatex®



Linaplus FG™



Tan Natural Rubber



Nitrile Rubber



Thermoplastic Rubber

# Backings

## Foam

Many applications require a combination of friction and the ability to conform to unusual product shapes. Gates Mectrol foam backings are available in different densities for various compliance, cushioning and friction surfaces. Belts can be constructed with a foam layer for cushioning and a tougher high friction outer layer.



**HD Yellow**



**HD Gray**



**Yellow**



**Blue**



**Green**



**Brown**



**Red**



**Neoprene**



**Natural**

## PVC

Available with unusual surface patterns and characteristics, PVC backings offer a well bonded, economical solution with very good wear properties.



**Rough Top**



**Small Pebble**



**Large Pebble**



**Herringbone**



**Blue PVC**



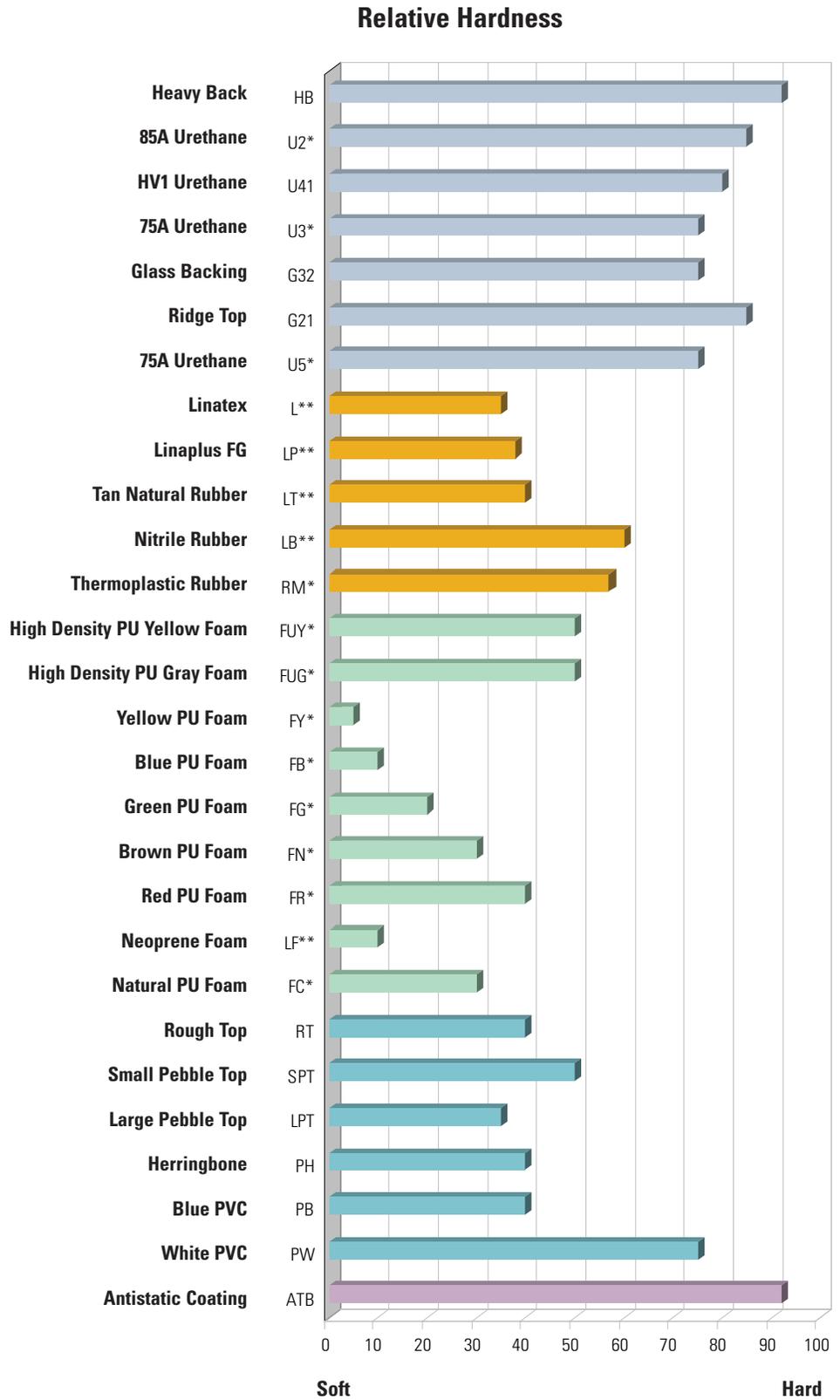
**White PVC**

## Specialty Backings



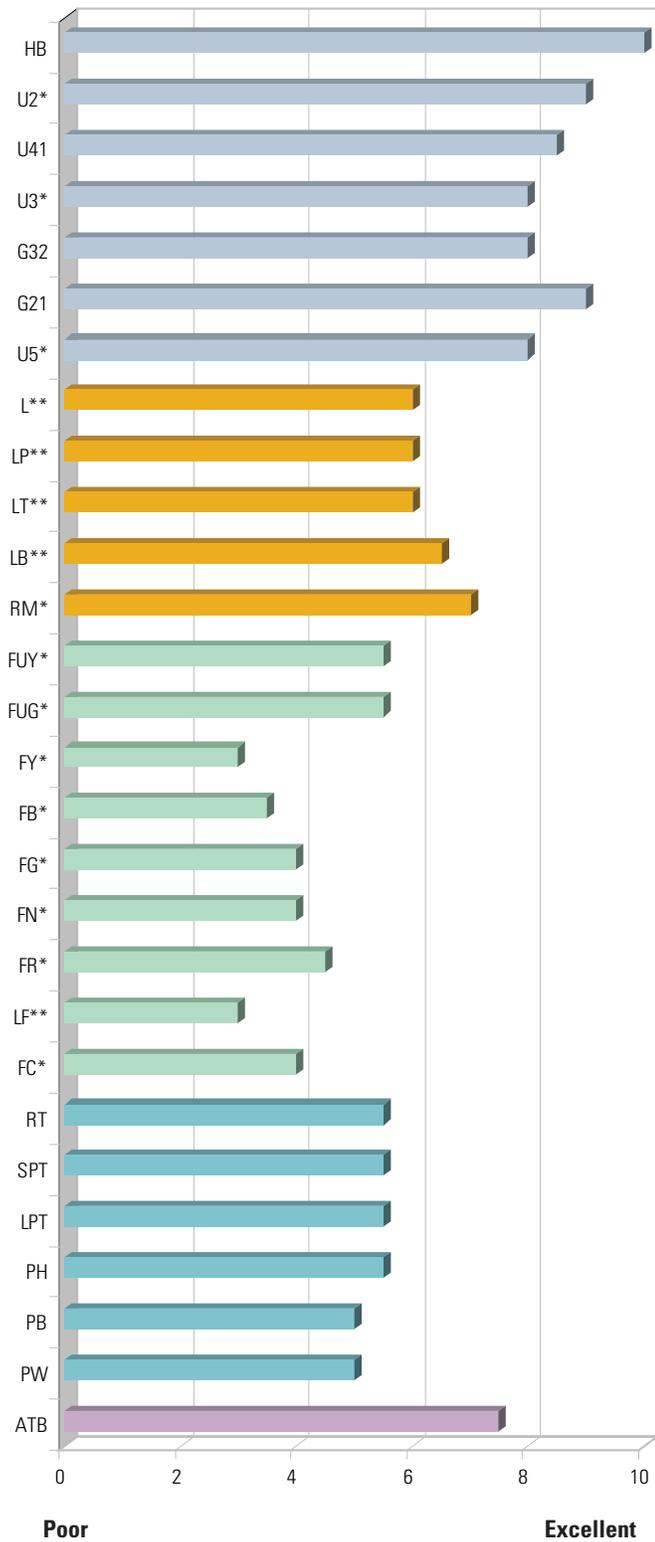
**Antistatic Coating**

# Backings – Specifications

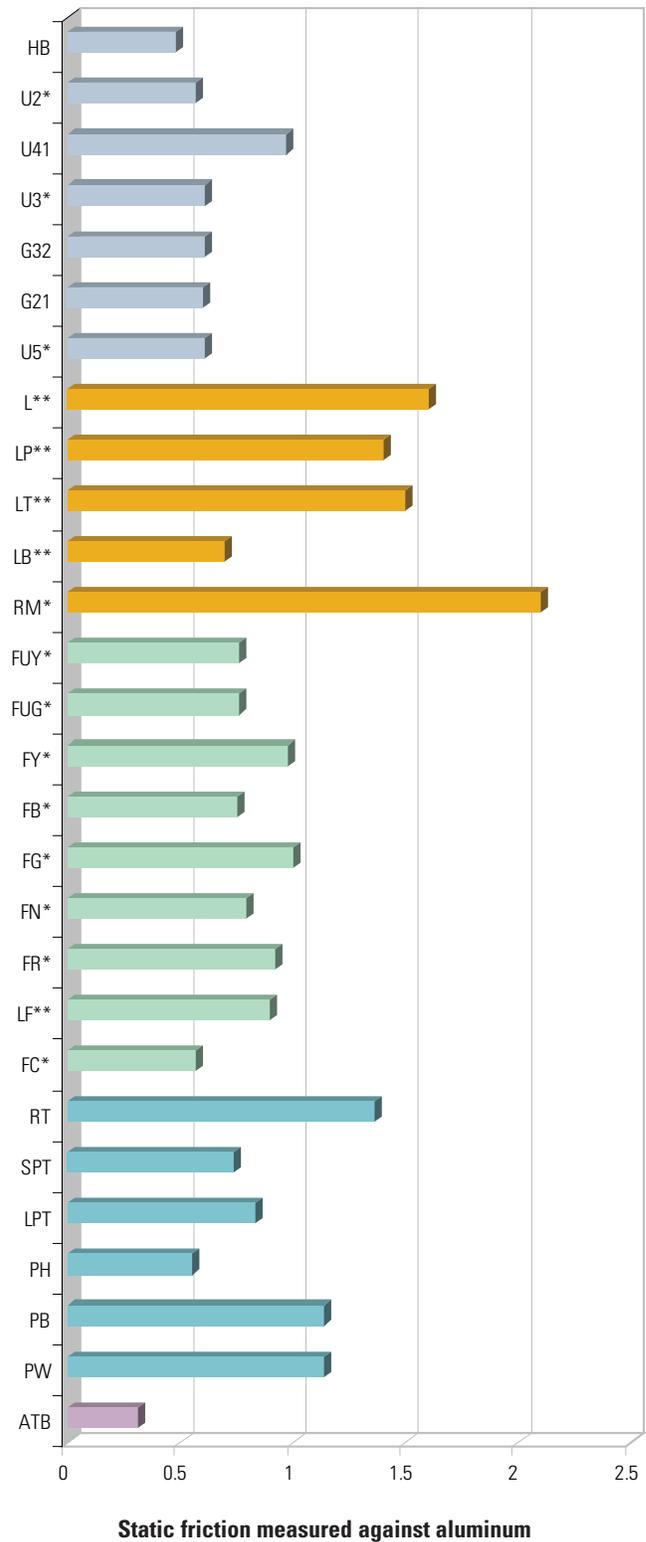


# Backings – Specifications

### Relative Abrasion Resistance



### Static Coefficient of Friction



# Backings – Specifications

## Polyurethane

Heavy Back	<b>HB</b>	Same as standard 92 A hardness base material. Very tough and durable.
85A Urethane	<b>U2*</b>	Softer PU than base material. Higher friction, more flexibility, similar durability.
HV1 Urethane	<b>U41</b>	Specifically compounded for very high coefficient of friction.
75A Urethane	<b>U3*</b>	Softer version of standard urethane. Better friction, more compression, greater flexibility, very tough.
Glass Backing	<b>G32</b>	Longitudinal groove pattern for glass conveying. Good friction and gaps for holding back abrasives and dirt.
Ridge Top	<b>G21</b>	Durable backing with longitudinal ridges. Ideal for conveying oily steel.
75A Urethane	<b>U5*</b>	Softer, high friction with very good abrasion resistance.

## Rubber

Linatex	<b>L**</b>	High friction, pure gum rubber. Good abrasion resistance, excellent for pulling and feeding applications.
Linaplus FG	<b>LP**</b>	FDA approved, high friction pure gum rubber.
Tan Natural Rubber	<b>LT**</b>	Natural pure gum rubber, high friction.
Nitrile Rubber	<b>LB**</b>	Oil and fuel resistant synthetic rubber
Thermoplastic Rubber	<b>RM*</b>	High friction, ideal for conveying applications. Good oil, ozone and abrasion resistance.

## Foam

High Density PU Yellow Foam	<b>FUY*</b>	High friction. Very good abrasion resistance, excellent for paper feed applications.
High Density PU Gray Foam	<b>FUG*</b>	High friction. Very good abrasion resistance, excellent for paper feed applications.
Yellow PU Foam	<b>FY*</b>	Lower density. Excellent cushioning and conforming to products while providing good friction.
Blue PU Foam	<b>FB*</b>	Low density. Excellent cushioning and conforming to products while providing good friction.
Green PU Foam	<b>FG*</b>	Mid range density, firmer holding and cushioning, excellent friction.
Brown PU Foam	<b>FN*</b>	Mid range density, firmer holding and cushioning, excellent friction.
Red PU Foam	<b>FR*</b>	Upper range density, firm holding and cushioning, good friction and abrasion resistance.
Neoprene Foam	<b>LF**</b>	Black neoprene good abrasion resistance and compliance.
Natural PU Foam	<b>FC*</b>	Mid range density. Less demanding applications.

## PVC

Rough Top	<b>RT</b>	Intricate surface modeling, excellent friction surfaces. Great for glass and incline conveyors.
Small Pebble Top	<b>SPT</b>	Textured surface with small nubs for non-slip surface.
Large Pebble Top	<b>LPT</b>	Textured surface with larger nubs for non-slip surface.
Herringbone	<b>PH</b>	Raised herringbone pattern for non-slip and dispersing surface.
Blue PVC	<b>PB</b>	Smooth high sheen, high friction surface.
White PVC	<b>PW</b>	Smooth white, FDA high friction surface for non-abrasive applications.

## Special

Antistatic Coating	<b>ATB</b>	Extremely good conductivity characteristics for electronic conveying applications.
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# Backings – Specifications

	Hardness Shore A / Density Kg/m <sup>3</sup>	Material Thickness mm	Abrasion Resistance Rating †	Static Coefficient of Friction †	Kinetic Coefficient of Friction †	Max. Temp. Degrees C	Pulley Diameter Factor	Oil Resistance	Color
<b>Polyurethane</b>									
HB	92	2	10	0.5	0.5	80	30	E	Clear
U2*	85	2 or 3	9	0.6	0.5	80	30	E	Clear
U41	80	1	8.5	1.0	0.8	80	30	E	Clear
U3*	75	2 or 3	8	0.6	0.6	70	30	E	Clear
G32	75	5	8	0.6	0.6	70	Ø100mm	E	Clear
G21	85	3	9	0.6	0.5	80	Ø100mm	E	Clear
U5*	75	2 or 3	8	0.6	0.6	70	25	E	White

## Rubber

L**	35	1/16" to 1/2"	6	1.6	1.6	60	20	P	Red
LP**	38	1/16" to 3/16"	6	1.4	1.4	60	20	P	White
LT**	40	1/16" to 1/4"	6	1.5	1.5	60	20	P	Tan
LB**	60	1/16" to 1/4"	6.5	0.7	0.5	110	25	E	Black
RM*	57	2, 3, 6	7	2.1	1.4	105	25	G	Red

## Foam

FUY*	50	2 to 5	5.5	0.8	0.8	60	30	E	Yellow
FUG*	50	2 to 5	5.5	0.8	0.8	60	30	E	Gray
FY*	- / 160	6 to 12	3	1.0	1.0	60	15	E	Yellow
FB*	- / 220	6 to 12	3.5	0.8	0.8	60	15	E	Blue
FG*	20 / 300	6 to 12	4	1.0	1.0	60	15	E	Green
FN*	30 / 400	6 to 12	4	0.8	0.8	60	15	E	Brown
FR*	40 / 500	6 to 12	4.5	0.9	0.9	60	20	E	Red
LF**	- / 250	1/8" to 1/2"	3	0.9	0.9	60	15	P	Black
FC*	30 / 400	2 to 5	4	0.6	0.5	60	15	E	Natural

## PVC

RT	40	4.5	5.5	1.4	1.3	60	Ø 90mm	P	Blue-green
SPT	50	1.5	5.5	0.7	0.6	60	Ø 25mm	P	White
LPT	35	6	5.5	0.8	0.7	60	Ø 40mm	P	White
PH	40	4.5	5.5	0.6	0.3	60	Ø 90mm	P	White
PB	40	1 or 2	5	1.1	1.1	60	Ø 40mm	P	Blue-green
PW	75	2	5	1.1	1.1	60	Ø 40mm	P	White

## Special

ATB	92	N/A	7.5	0.3	0.3	80	N/A	E	Black
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\* Add thickness in mm to designator

\*\* Add thickness in 1/16" to designator

‡ 10 = very high resistance

† Friction measured against aluminum

Oil resistance: E = Excellent G = Good P = Poor

Minimum Pulley Diameter = (Pulley Diameter Factor) x (Material Thickness)  
or above listed diameter

Note: Pulley diameter must be greater than or equal to the minimum pulley  
required for a given belt type. See belt specifications.

# Fabrication Capabilities

Gates Mectrol offers a wide range of belt modifications and a full range of secondary fabrication possibilities.

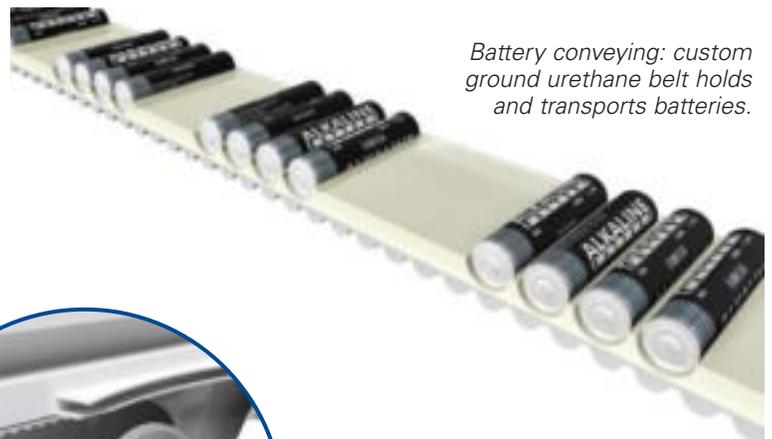
Whether grinding edges and surfaces to tight tolerances, punching and machining holes and slots, or CNC machining of three dimensional contours, Gates Mectrol can provide a complete solution.

## Features

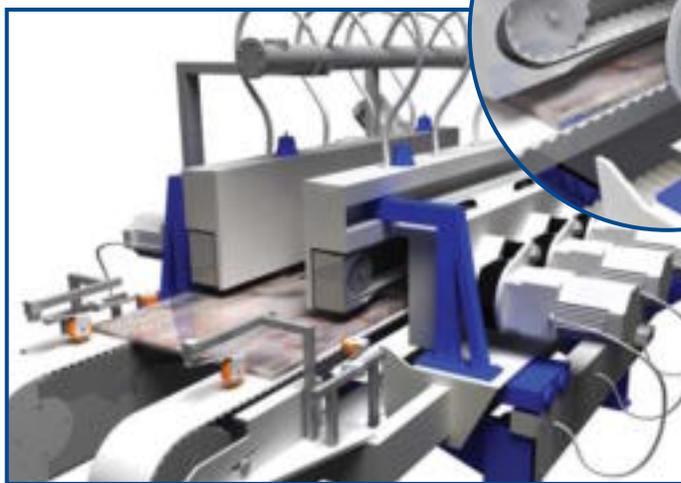
- Nearly unlimited customizing options
- Ground tolerances on nearly any dimension for extra precision
- Unusual shapes, contours and configurations
- Holes, slots, and any CNC machined shape in the belt surface
- Combination of primary tooling and secondary machining to achieve any design potential

## Application Characteristics

- Vacuum conveying belts  
- Machined tooth side and perforations
- Precision machined belts for precise movement of product
- Distinct product orientation and location for automated process steps



*Battery conveying: custom ground urethane belt holds and transports batteries.*



*Tile squaring machine utilizes custom belts with precision ground thickness and width.*

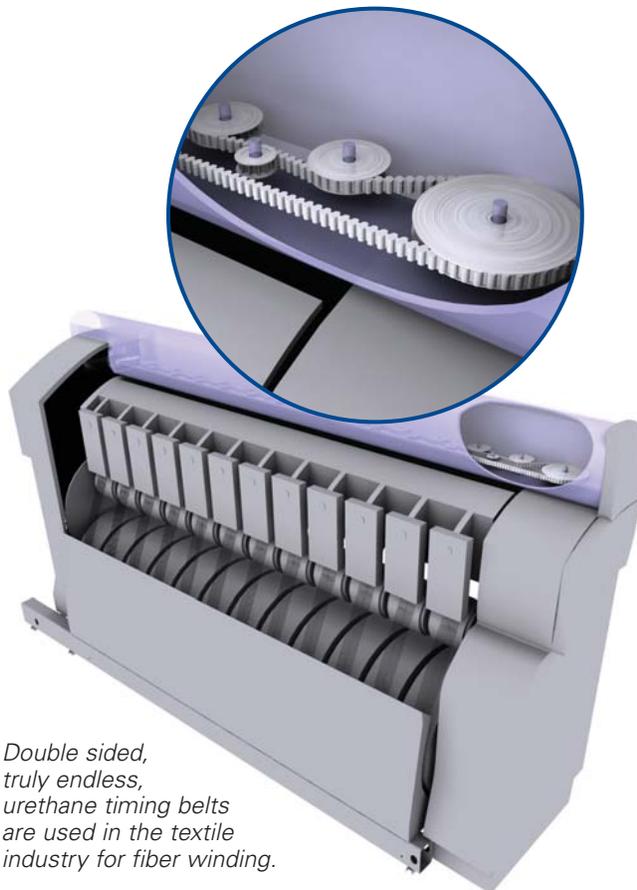
>> Our Applications Engineering staff is available to you at [apps@gatesmectrol.com](mailto:apps@gatesmectrol.com) or **1-800-394-4844**



# Truly Endless Belt Overview

Certain power transmission and high performance positioning applications require more strength and stiffness than a welded belt can provide. Gates Mectrol offers two types of truly endless belts to meet these needs.

- **Flex** belts are extruded to custom lengths ranging from 2.5 to 12.5 meters. A unique process provides the flexibility to have custom sized belts without expensive tooling.
- **Synchro-Power®** belts are cast on fixed molds and have a continuously wound steel or Kevlar cord. They are available in stock sizes.



*Double sided, truly endless, urethane timing belts are used in the textile industry for fiber winding.*

## Application Characteristics

- Power transmission
- High power, high performance conveying
- Harsh environments
  - Abrasion and chemical resistance
- Applications where cleanliness is critical

## Features

- Helically wound cords for high strength, truly endless power transmission capabilities
- High quality, thermo-set polyurethane designed specifically for timing belt applications (Synchro-Power) or thermoplastic urethane for longer length belts (Flex)
- Available with either steel or Kevlar reinforcement
- Standard molded sleeves (Synchro-Power) or custom length belts available - up to 12.5 meters (Flex)
- Nylon tooth surface option available on Flex belts for quieter operation

**Gates Mectrol recently introduced the next generation of urethane sleeve timing belts.**

Advantages of the new sleeve include:

- *Industry leading 400mm width*
- *Higher abrasion resistance*
- *UV stabilizer additive*
- *Flexibility in both color and hardness*

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# Synchro-Power (Cast) Belts

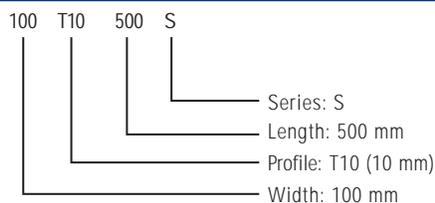
Synchro-Power belts, cast belts, are produced on dedicated tooling and are available from stock in the sizes listed. For belt lengths not listed, please consult a Gates Mectrol applications engineer.

No. of Teeth	Belt Length (mm)		
	T2.5	T5	T5 DL
30		150*	
33		165*	
36		180*	
37		185*	
40		200*	
43		215*	
44		220*	
45		225*	
48	120		
49		245*	
50		250*	
51		255*	
52		260*	260*
54		270*	
55		275*	
56		280*	
59	145	295*	
61		305*	
63		315*	
64	160		
66		330*	
68		340*	
70		350*	
71	177.5	355*	
72	180		
73	182.5	365*	
74	185		
78		390*	
80	200	400*	

No. of Teeth	Belt Length (mm)		
	T2.5	T5	T5 DL
82		410	410
84		420	
89		445	
90		450	
91		455	
92	230		
95		475	
96		480	480
98	245		
100		500	
102		510	
103			515
105		525	
106	265		
109		545	
110		550	
112		560	
114	285		
115		575	
116	290		
118			590
122	305	610	
124		620	620
126		630	
127	317.5		
128		640	
130		650	
132	330	660	
135		675	

No. of Teeth	Belt Length (mm)		
	T2.5	T5	T5 DL
138		690	
140		700	
144		720	
145		725	
150		750	750
152	380		
155		775	
156		780	
158	395		
160		800	
163		815	815
168	420	840	
170		850	
172			860
180		900	
188		940	940
192	480		
198		990	
200	500		
215		1075	
216	540		
220		1100	
240	600		
243		1215	
248	620		
260	650		
263		1315	
276		1380	
280	700	2090	
312	780		
366	915		
380	950		

## To Order S-Series Belts



# Synchro-Power (Cast) Belts

No. of Teeth	Belt Length (mm)	
	T10	T10 DL
26	260*	
37	370*	
40	400*	
41	410	
44	440	
45	450	
50	500	
52	520	520
53	530	
56	560	
60	600	600
61	610	
63	630	630
66	660	
69	690	
70	700	
72	720	720
73	730	
75	750	
78	780	
80	800	
81	810	
84	840	840
85	850	
88	880	
89	890	
90	900	
91	910	
92	920	920
95	950	

No. of Teeth	Belt Length (mm)	
	T10	T10 DL
96	960	
97	970	
98	980	980
100	1000	
101	1010	
108	1080	
110	1100	
111	1110	
114	1140	
115	1150	
121	1210	1210
124	1240	
125	1250	
130	1300	
132	1320	
135	1350	
139	1390	
140	1400	
142	1420	
145	1450	
146	1460	
150	1500	
156	1560	
160	1600	
161	1610	
175	1750	
178	1780	
188	1880	
196	1960	
225	2250	

No. of Teeth	Belt Length (mm)	
	AT5	AT10
45	225*	
50		500
51	255*	
55	275*	
56	280*	560
60	300*	
61		610
66		660
68	340*	
70		700
73		730
75	375*	
78	390*	780
80		800
81		810
84	420	840
89		890
91	455	
92		920
96		960
98		980
100	500	
101		1010
105		1050
108		1080
109	545	
115		1150
120	600	1200
121		1210
122	610	
124	620	
125		1250
126	630	
132	660	1320
140		1400
144	720	
150	750	1500
156	780	
160		1600
165	825	
170		1700
180		1800
195	975	
210	1050	
225	1125	
300	1500	

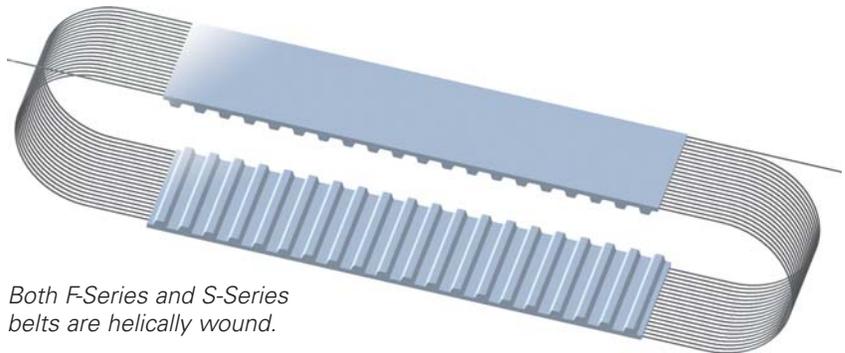
## Available Widths

	Min.	Max.
<b>T2.5</b>	4 mm	200 mm
<b>T5</b>	6 mm	400 mm
<b>T10</b>	10 mm	400 mm
<b>AT5</b>	6 mm	400 mm
<b>AT10</b>	16 mm	400 mm

\* Selected belts are available up to 200 mm width

# Synchro-Power (Cast) Belts

Most Synchro-Power belts are available with Kevlar as well as steel reinforcing cords.



Both F-Series and S-Series belts are helically wound.

## Synchro-Power Specifications

			T2.5	T5	T5 DL	AT5	T10	T10 DL	AT10
<b>Pitch</b>			<b>2.5 mm</b>	<b>5 mm</b>	<b>5 mm</b>	<b>5 mm</b>	<b>10 mm</b>	<b>10 mm</b>	<b>10 mm</b>
Ultimate Tensile Strength per Inch or 25 mm Belt Width	Steel	lbf/in N/25 mm	260 1160	740 3290	740 3290	1360 6050	1650 7340	1650 7340	2250 10010
	Kevlar	lbf/in N/25 mm	N/A N/A	1210 5380	1210 5380	N/A N/A	1490 6630	1490 6630	N/A N/A
Max Allowable Tension per Inch or 25 mm Belt Width	Steel or Kevlar	lbf/in N/25 mm	60 270	180 800	180 800	340 1510	410 1820	410 1820	560 2490
Allowable Effective Tension for Belt Teeth (15 and More Teeth in Mesh)		lbf/in N/25 mm	60 270	200 890	200 890	290 1290	380 1690	380 1690	580 2580
Specific Belt Weight	Steel	lbf/ft/in kgf/m/cm	0.024 0.014	0.035 0.021	0.044 0.026	0.058 0.034	0.075 0.044	0.101 0.059	0.111 0.065
	Kevlar	lbf/ft/in kgf/m/cm	N/A N/A	0.033 0.020	0.037 0.023	N/A N/A	0.062 0.036	0.082 0.048	N/A N/A
Minimum Number of Pulley Teeth			12	10	12	15	14	18	15
Min. Pitch Diameter			10 mm	16 mm	20 mm	24 mm	45 mm	57 mm	48 mm
Minimum Diameter of Tension Idler Running on Back of Belt		in mm	0.787 20	1.125 30	0.787 20	2.375 60	3.125 80	2.250 57	4.750 120
Service Temperature Range	-5°C to +70°C (23°F to 158°F)								
Hardness	90 Shore A								
Standard Color	Blue								

The specifications listed are based on Gates Mectrol's experience. However, our specifications and data do NOT cover all possible belt drive conditions. It is the responsibility of the belt drive system designer to ensure Gates Mectrol's belts are appropriate for a given system and application. The provided data is representative of our in-house experience and does not necessarily match product performance in industrial use. Gates Mectrol cannot assume any liability concerning the suitability and process ability of our products. We also cannot assume liability for process results, damages or consequential damages associated with the use of our products.

# Flex Belts

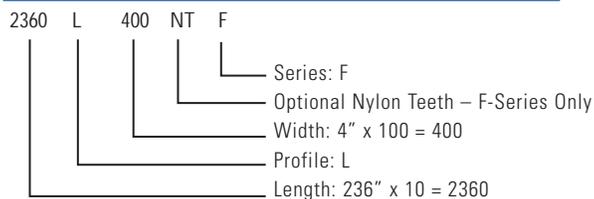
Flex are produced with steel reinforcing cords and the same tough urethane as Gates Mectrol's standard linear belts.

	L	H	XH	T5	AT5	T10	T10-HF	AT10	T20	AT20	HTD5	HTD8
Minimum Length	99.0"	99.0"	99.0"	2.5 m								
Maximum Length	492"	492"	492"	10.0 m	10.0 m	12.5 m	10.0 m	12.5 m				
Minimum Width	.25"	.50"	1.0"	10 mm	10 mm	10 mm	10 mm	16 mm	16 mm	25 mm	10 mm	16 mm
Maximum Width	6.0"	4.0"	4.0"	100 mm	150 mm	150 mm	150 mm	150 mm				

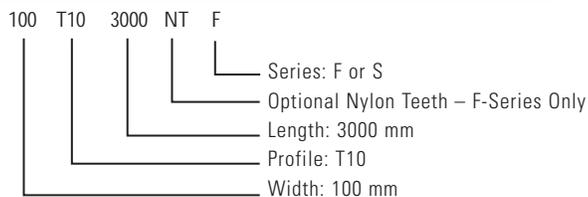
## Flex Specifications

	L	H	XH	T5	AT5	T10	T10-HF	AT10	T20	AT20	HTD5	HTD8	
<b>Pitch (Imperial and metric)</b>	<b>.375"</b>	<b>.500"</b>	<b>.875"</b>	<b>5 mm</b>	<b>5 mm</b>	<b>10 mm</b>	<b>10 mm</b>	<b>10 mm</b>	<b>20 mm</b>	<b>20 mm</b>	<b>5 mm</b>	<b>8 mm</b>	
Ultimate Tensile Strength per Inch or 25 mm Belt Width	lbf/in N/25 mm	1220 5430	1570 6980	2760 12280	800 3560	1220 5430	1570 6980	2380 10590	2760 12280	2760 12280	4310 19170	2380 10590	2570 11430
Max Allowable Tension per Inch or 25 mm Belt Width	lbf/in N/25 mm	300 1330	390 1730	690 3070	200 890	300 1330	390 1730	590 2620	690 3070	690 3070	1070 4760	590 2620	640 2850
Allowable Effective Tension for the Belt Teeth (15 and More Teeth in Mesh)	lbf/in N/25 mm	360 1600	440 1960	880 3910	200 890	290 1290	380 1690	380 1690	580 2580	710 3160	1220 5430	230 1020	420 1870
Specific Belt Weight	lbf/ft/in kgf/m/cm	0.059 0.035	0.066 0.039	0.180 0.105	0.037 0.022	0.055 0.032	0.074 0.043	0.079 0.046	0.096 0.056	0.125 0.073	0.169 0.099	0.070 0.041	0.101 0.059
Min. Number of Pulley Teeth		10	14	18	10	15	14	12	15	15	18	14	20
Min. Pitch Diameter		1.19"	2.23"	5.01"	16 mm	24 mm	45 mm	38 mm	48 mm	96 mm	115 mm	22 mm	51 mm
Minimum Diameter of Tension Idler Running on Back of Belt	in mm	2.375 60	3.125 80	5.875 150	1.125 30	2.375 60	3.125 80	2.375 60	4.750 120	4.750 120	7.125 180	2.375 60	4.750 120
Service Temperature Range	-5°C to +70°C (23°F to 158°F)												
Standard Color	White												

### To Order Flex Belts (Imperial Pitch)



### To Order Flex Belts (Metric Pitch)



# Chemical Resistance Table

Chemical Name	Polyurethane	Butyl Rubber	Cloroprene (Neoprene)	Chloro-sulfonated Polyethylene (Hypalon)	Fluorocarbon A (Viton)	Natural Rubber	Nitrile (Buna N)	Silicone
Acetic Acid, 30%	4	2	1	1	3	2	2	1
Acetone	4	1	4	2	4	3	4	3
Acetyl Chloride	4	4	4	4	1	4	4	3
Alkyl Benzene	4	5	4	5	2	5	4	4
Alkyl Chloride	3	4	4	5	2	4	2	5
Aluminum Acetate	4	2	2	1	4	1	4	4
Aluminum Chloride	2	1	2	1	1	1	1	2
Aluminum Nitrate	3	1	2	1	1	1	1	2
Ammonia, Anhydrous	4	1	1	2	4	4	2	2
Ammonia Gas, Cold	2	1	1	1	4	1	1	1
Ammonium Chloride	2	1	2	1	1	1	2	3
Ammonium Hydroxide	4	1	3	1	3	3	4	1
Amyl Acetate	4	2	4	4	4	5	4	4
Animal Fats (Lards)	3	3	3	3	1	5	1	2
Antifreeze Solutions	4	3	3	2	2	1	1	3
Antimony Pentachloride	4	4	4	4	1	4	2	4
Aromatic Fuels	4	4	4	4	1	4	2	4
Aromatic Vinegar	2	1	2	5	1	1	3	1
Automotive Brake Fluid	4	2	2	2	4	2	3	3
Baking Soda	1	1	1	5	1	1	1	1
Barium Fluoride	1	3	2	3	3	4	1	4
Barium Nitrate	2	2	1	2	1	4	1	2
Benzene	4	4	4	4	2	4	4	4
Benzol	4	4	4	4	2	4	4	4
Bleach Solutions	4	2	4	1	5	4	4	2
Blood	2	5	1	5	2	5	3	2
Borax	1	1	5	1	1	5	2	2
Boric Acid	1	1	2	1	1	1	1	1
Butter Animal Fat	3	3	3	2	5	4	1	2
Butyric Acid	4	2	4	3	3	4	4	4
Calcium Carbonate	4	1	1	1	1	1	1	4
Calcium Nitrate	1	1	1	1	1	1	1	2
Calcium Phosphate	1	1	2	1	1	1	1	1
Calcium Sulfate	2	1	4	1	2	3	1	5
Carbonated Beverages	2	5	1	5	1	5	1	3
Carbonic Acid	1	1	4	1	1	1	2	1
Chlorine Water	4	4	4	5	1	4	3	4
Chloroethane	3	5	4	5	1	5	1	5
Chromic Acid	4	3	4	5	1	4	4	3
Citric Acid	1	1	1	1	1	1	1	1
Coconut Oil	3	2	4	3	1	4	1	1
Copper Sulfate	4	1	2	1	1	2	1	1
Cottonseed Oil	1	3	3	2	1	4	1	1
Creosote (Coal Tar)	3	4	2	4	1	4	1	4
Degreasing Fluid	1	3	5	4	5	4	4	5
Dichloroethane	3	4	4	5	1	4	2	5

1 = Excellent    2 = Good    3 = Poor    4 = Not Recommended    5 = No Data Available

# Chemical Resistance Table

Chemical Name	Polyurethane	Butyl Rubber	Chloroprene (Neoprene)	Chloro-sulfonated Polyethylene (Hypalon)	Fluorocarbon A (Viton)	Natural Rubber	Nitrile (Buna N)	Silicone
Dichloroethylene	3	3	4	4	1	4	4	5
Diesel Oil	3	4	4	3	1	4	1	4
Dimethyl Formamide (DMF)	4	2	4	4	4	4	3	3
Dry Cleaning Fluids	4	4	4	4	1	4	3	4
Ethyl Hexyl Alcohol	4	1	1	1	1	1	1	2
Ethylene Alcohol	2	1	1	1	1	1	1	1
Ethylene Chloride	4	4	4	4	2	4	4	4
Ferric Sulfate	2	1	2	1	1	1	1	3
Fish Oil	2	4	2	5	1	4	1	1
Fluorine	4	4	4	5	2	4	4	4
Gallic Acid	4	2	2	2	1	1	2	5
Gasoline Premium Unleaded	2	4	3	3	1	4	2	4
Gelatin	4	1	2	1	1	1	1	1
Glycerol (Glycerin)	4	1	1	1	1	1	1	1
Grain Alcohol	4	1	1	1	2	1	1	1
Iodine	4	2	4	2	1	4	2	3
Isobutyl Alcohol	4	1	1	1	1	1	2	1
Isopropanol	4	1	3	1	5	1	1	1
Lactic Acid, Cold	4	1	1	1	1	1	1	1
Lubricating Oils, Petroleum	2	4	2	2	1	4	1	4
Magnesium Salts	1	1	1	1	1	1	1	1
Methanol (Methyl Alcohol)	4	1	4	1	4	1	1	1
Methyl Chloride	4	4	4	4	2	4	4	4
Methyl Ethyl Ketone (MEK)	4	1	4	4	4	4	4	4
Oleic Acid	2	4	4	2	2	4	1	4
Ozone	1	2	4	1	1	4	4	1
Peanut Oil	2	3	4	2	1	4	1	1
Pectin (Liquor)	1	5	3	5	5	5	1	1
Radiation	3	4	3	3	3	3	3	2
Salt Water	4	1	2	1	1	1	1	1
Silicone Greases	1	1	1	1	1	1	1	3
Soap Solutions	3	2	2	1	1	2	1	1
Steam <300 F	4	2	3	4	2	5	4	3
Table Salt	1	1	1	1	1	1	1	3
Tannic Acid	1	1	2	1	1	1	1	2
Tetrahydrofuran (THF)	3	2	4	4	4	4	4	4
Toluene	4	4	4	4	2	4	4	4
Toloul	4	4	4	4	5	4	4	4
Turpentine	4	4	4	4	2	4	1	4
Vegetable Oils	1	3	1	2	1	4	1	1
Vinegar	4	1	2	1	1	2	2	3
Vinyl Acetate	4	1	4	3	4	4	4	4
Water	1	1	2	1	1	1	1	2
Wax	1	4	1	1	1	4	1	1
Xylene	4	4	4	4	2	4	4	4
Zinc Acetate	4	1	2	1	4	1	2	4

>> For a complete listing visit [www.gatesmectrol.com](http://www.gatesmectrol.com) or call 1-800-394-4844



# Pulley Overview

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Gates Mectrol manufactures a complementary line of timing pulleys. While industry standards do exist for most pulley groove geometries, each manufacturer has its own interpretation of those standards. For the longest belt life and quietest operation, it is recommended that the timing belts and pulleys be single-sourced so that the components are matched. Recognizing that any project may have different pulley style requirements, Gates Mectrol offers three pulley options:

- Standard design pulley program, (two flanges, hub and pilot bore) many sizes in stock
- Modified pulley program, where a standard in stock pulley can be modified for basic additional features
- Custom pulley program, where additional features can be added

In addition to these pulley alternatives, Gates Mectrol offers both pulley bar stock and clamp plate programs, with many items in stock.

## Standard Pulley Design Program

This program addresses your basic pulley requirements:

One pulley design

- Aluminum pulley
- Two zinc coated steel flanges
- Hub
- Pilot bore

Many tooth counts are in stock for next day shipment

## Modified Pulley Program

The in stock pulleys from the Standard Pulley Design program can be modified to meet your specific requirements.

Modifications include:

- Finished bore
- Keyways
- Set screw holes
- Hub removal

## Custom Pulley Program

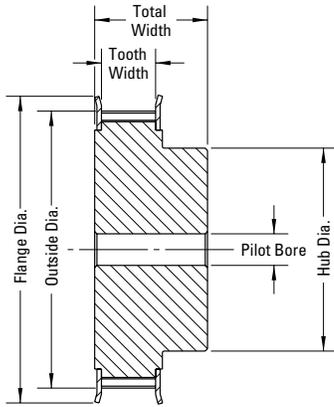
This program is designed to meet your made-to-print custom pulley requirements.

- Unlimited design freedom
- Three raw material choices: aluminum, steel or stainless steel

## Pulley Bar Stock and Clamp Plates

Gates Mectrol offers an in stock program for both aluminum bar stock and clamp plates.

# Standard Pulley Program – XL Pitch .200"

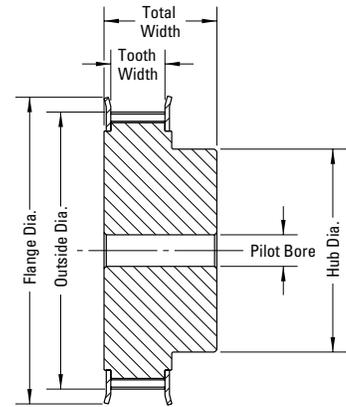


Pulley with Pilot Bore and Flanges

Belt Width	# of Teeth	Diameters					Widths		Part Number
		Outside inch	Pitch inch	Flange inch	Hub inch	Pilot Bore inch	Total inch	Tooth inch	
0.5"	10	0.617	0.637	0.906	0.315	0.157	1.042	0.530	P050XL102FA
	11	0.680	0.700	0.906	0.354	0.157	1.042	0.530	P050XL112FA
	12	0.744	0.764	0.984	0.433	0.157	1.042	0.530	P050XL122FA
	14	0.871	0.891	1.102	0.512	0.236	1.042	0.530	P050XL142FA
	15	0.935	0.955	1.102	0.630	0.236	1.042	0.530	P050XL152FA
	16	0.999	1.019	1.260	0.630	0.236	1.042	0.530	P050XL162FA
	18	1.126	1.146	1.378	0.787	0.236	1.042	0.530	P050XL182FA
	20	1.253	1.273	1.496	0.984	0.236	1.042	0.530	P050XL202FA
	21	1.317	1.337	1.496	0.984	0.236	1.042	0.530	P050XL212FA
	22	1.381	1.401	1.614	0.984	0.236	1.042	0.530	P050XL222FA
	24	1.508	1.528	1.732	1.102	0.236	1.042	0.530	P050XL242FA
	28	1.763	1.783	2.008	1.260	0.236	1.042	0.530	P050XL282FA
	30	1.890	1.910	2.126	1.378	0.236	1.042	0.530	P050XL302FA
	32	2.017	2.037	2.362	1.378	0.236	1.042	0.530	P050XL322FA
	36	2.272	2.292	2.598	1.890	0.236	1.042	0.530	P050XL362FA
	40	2.526	2.546	2.795	1.969	0.315	1.042	0.530	P050XL402FA
0.75"	10	0.617	0.637	0.906	0.315	0.157	1.292	0.780	P075XL102FA
	11	0.680	0.700	0.906	0.354	0.157	1.292	0.780	P075XL112FA
	12	0.744	0.764	0.984	0.433	0.157	1.292	0.780	P075XL122FA
	14	0.871	0.891	1.102	0.512	0.236	1.292	0.780	P075XL142FA
	15	0.935	0.955	1.102	0.630	0.236	1.292	0.780	P075XL152FA
	16	0.999	1.019	1.260	0.630	0.236	1.292	0.780	P075XL162FA
	18	1.126	1.146	1.378	0.787	0.236	1.292	0.780	P075XL182FA
	20	1.253	1.273	1.496	0.984	0.236	1.292	0.780	P075XL202FA
	24	1.508	1.528	1.732	1.102	0.236	1.292	0.780	P075XL242FA
	28	1.763	1.783	2.008	1.260	0.236	1.292	0.780	P075XL282FA
	30	1.890	1.910	2.126	1.378	0.236	1.292	0.780	P075XL302FA
	32	2.017	2.037	2.362	1.378	0.236	1.292	0.780	P075XL322FA
36	2.272	2.292	2.598	1.890	0.236	1.292	0.780	P075XL362FA	
40	2.526	2.546	2.795	1.969	0.315	1.292	0.780	P075XL402FA	
1.0"	10	0.617	0.637	0.906	0.315	0.157	1.542	1.030	P100XL102FA
	11	0.680	0.700	0.906	0.354	0.157	1.542	1.030	P100XL112FA
	12	0.744	0.764	0.984	0.433	0.157	1.542	1.030	P100XL122FA
	14	0.871	0.891	1.102	0.512	0.236	1.542	1.030	P100XL142FA
	15	0.935	0.955	1.102	0.630	0.236	1.542	1.030	P100XL152FA
	16	0.999	1.019	1.260	0.630	0.236	1.542	1.030	P100XL162FA
	18	1.126	1.146	1.378	0.787	0.236	1.542	1.030	P100XL182FA
	20	1.253	1.273	1.496	0.984	0.236	1.542	1.030	P100XL202FA
	24	1.508	1.528	1.732	1.102	0.236	1.542	1.030	P100XL242FA
	28	1.763	1.783	2.008	1.260	0.236	1.542	1.030	P100XL282FA
	30	1.890	1.910	2.126	1.378	0.236	1.542	1.030	P100XL302FA
	32	2.017	2.037	2.362	1.378	0.236	1.542	1.030	P100XL322FA
36	2.272	2.292	2.598	1.890	0.236	1.542	1.030	P100XL362FA	
40	2.526	2.546	2.795	1.969	0.315	1.542	1.030	P100XL402FA	

# Standard Pulley Program – L Pitch .375"

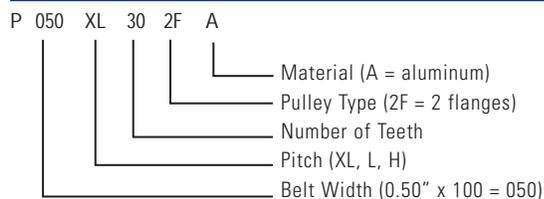
Belt Width	# of Teeth	Diameters					Widths		Part Number
		Outside inch	Pitch inch	Flange inch	Hub inch	Pilot Bore inch	Total inch	Tooth inch	
0.5"	10	1.164	1.194	1.417	0.787	0.315	1.062	0.550	P050L102FA
	11	1.283	1.313	1.555	0.866	0.315	1.062	0.550	P050L112FA
	12	1.402	1.432	1.614	0.984	0.315	1.062	0.550	P050L122FA
	14	1.641	1.671	1.811	1.102	0.315	1.062	0.550	P050L142FA
	15	1.760	1.790	2.067	1.259	0.315	1.062	0.550	P050L152FA
	16	1.880	1.910	2.126	1.378	0.315	1.062	0.550	P050L162FA
	18	2.119	2.149	2.362	1.574	0.394	1.062	0.550	P050L182FA
	19	2.238	2.268	2.520	1.574	0.394	1.062	0.550	P050L192FA
	20	2.357	2.387	2.677	1.772	0.394	1.062	0.550	P050L202FA
	21	2.476	2.506	2.795	1.968	0.394	1.102	0.550	P050L212FA
	22	2.596	2.626	2.953	2.165	0.394	1.102	0.550	P050L222FA
	24	2.835	2.865	3.188	2.362	0.394	1.102	0.550	P050L242FA



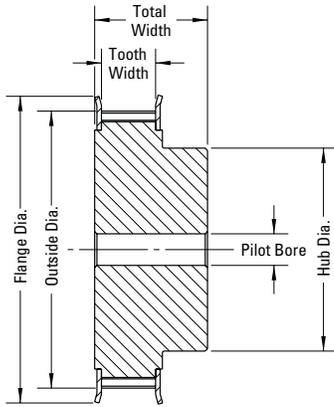
Pulley with Pilot Bore and Flanges

1.0"	10	1.164	1.194	1.417	0.787	0.315	1.562	1.050	P100L102FA
	11	1.283	1.313	1.555	0.866	0.315	1.562	1.050	P100L112FA
	12	1.402	1.432	1.614	0.984	0.315	1.562	1.050	P100L122FA
	14	1.641	1.671	1.811	1.102	0.315	1.562	1.050	P100L142FA
	15	1.760	1.790	2.067	1.259	0.315	1.562	1.050	P100L152FA
	16	1.880	1.910	2.126	1.378	0.315	1.562	1.050	P100L162FA
	18	2.119	2.149	2.362	1.574	0.394	1.562	1.050	P100L182FA
	19	2.238	2.268	2.520	1.574	0.394	1.562	1.050	P100L192FA
	20	2.357	2.387	2.677	1.772	0.394	1.562	1.050	P100L202FA
	21	2.476	2.506	2.795	1.968	0.394	1.601	1.050	P100L212FA
	22	2.596	2.626	2.953	2.165	0.394	1.601	1.050	P100L222FA
	24	2.835	2.865	3.188	2.362	0.394	1.601	1.050	P100L242FA

## To Order Imperial Pitch Pulleys



# Standard Pulley Program – H Pitch .500"

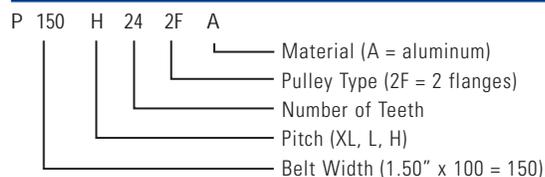


Pulley with Pilot Bore and Flanges

Belt Width	# of Teeth	In Stock	Diameters				Widths		Part Number	
			Outside inch	Pitch inch	Flange inch	Hub inch	Pilot Bore inch	Total inch		Tooth inch
1.0"	14	•	2.174	2.228	2.520	1.653	0.551	1.601	1.050	P100H142FA
	16		2.492	2.546	2.913	1.968	0.551	1.562	1.050	P100H162FA
	18	•	2.811	2.865	3.110	2.165	0.551	1.601	1.050	P100H182FA
	20		3.129	3.183	3.425	2.559	0.551	1.601	1.050	P100H202FA
	24	•	3.766	3.820	4.055	3.150	0.551	1.601	1.050	P100H242FA
	26		4.084	4.138	4.331	3.150	0.787	1.601	1.050	P100H262FA
	30	•	4.721	4.775	5.118	3.543	0.787	1.601	1.050	P100H302FA
	32	•	5.039	5.093	5.315	4.331	0.787	1.601	1.050	P100H322FA
	36		5.676	5.730	5.984	4.331	0.787	1.601	1.050	P100H362FA
	40		6.312	6.366	6.614	4.331	0.787	1.601	1.050	P100H402FA
48		7.585	7.639	8.346	4.331	0.787	1.680	1.050	P100H482FA	
1.5"	14	•	2.174	2.228	2.520	1.653	0.551	2.101	1.550	P150H142FA
	16		2.492	2.546	2.913	1.968	0.551	2.061	1.550	P150H162FA
	18	•	2.811	2.865	3.110	2.165	0.551	2.101	1.550	P150H182FA
	20		3.129	3.183	3.425	2.559	0.551	2.101	1.550	P150H202FA
	24	•	3.766	3.820	4.055	3.150	0.551	2.101	1.550	P150H242FA
	26		4.084	4.138	4.331	3.150	0.787	2.101	1.550	P150H262FA
	30	•	4.721	4.775	5.118	3.543	0.787	2.101	1.550	P150H302FA
	32	•	5.039	5.093	5.315	4.331	0.787	2.101	1.550	P150H322FA
	36		5.676	5.730	5.984	4.331	0.787	2.101	1.550	P150H362FA
	40		6.312	6.366	6.614	4.331	0.787	2.101	1.550	P150H402FA
48		7.585	7.639	8.346	4.331	0.787	2.180	1.550	P150H482FA	
2.0"	14	•	2.174	2.228	2.520	1.653	0.551	2.632	2.080	P200H142FA
	16		2.492	2.546	2.913	1.968	0.551	2.592	2.080	P200H162FA
	18	•	2.811	2.865	3.110	2.165	0.551	2.632	2.080	P200H182FA
	20		3.129	3.183	3.425	2.559	0.551	2.632	2.080	P200H202FA
	24	•	3.766	3.820	4.055	3.150	0.551	2.632	2.080	P200H242FA
	26		4.084	4.138	4.331	3.150	0.787	2.632	2.080	P200H262FA
	30	•	4.721	4.775	5.118	3.543	0.787	2.632	2.080	P200H302FA
	32	•	5.039	5.093	5.315	4.331	0.787	2.632	2.080	P200H322FA
	36		5.676	5.730	5.984	4.331	0.787	2.632	2.080	P200H362FA
	40		6.312	6.366	6.614	4.331	0.787	2.632	2.080	P200H402FA
48		7.585	7.639	8.346	4.331	0.787	2.710	2.080	P200H482FA	
3.0"	14		2.174	2.228	2.520	1.653	0.551	3.662	3.110	P300H142FA
	16		2.492	2.546	2.913	1.968	0.551	3.622	3.110	P300H162FA
	18		2.811	2.865	3.110	2.165	0.551	3.662	3.110	P300H182FA
	20		3.129	3.183	3.425	2.559	0.551	3.662	3.110	P300H202FA
	24		3.766	3.820	4.055	3.150	0.551	3.662	3.110	P300H242FA
	26		4.084	4.138	4.331	3.150	0.787	3.662	3.110	P300H262FA
	30		4.721	4.775	5.118	3.543	0.787	3.662	3.110	P300H302FA
	32		5.039	5.093	5.315	4.331	0.787	3.662	3.110	P300H322FA
	36		5.676	5.730	5.984	4.331	0.787	3.662	3.110	P300H362FA
	40		6.312	6.366	6.614	4.331	0.787	3.662	3.110	P300H402FA
48		7.585	7.639	8.346	4.331	0.787	3.740	3.110	P300H482FA	

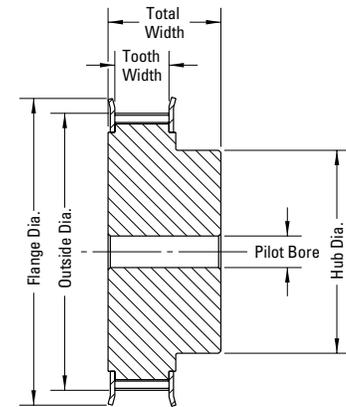
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## To Order Imperial Pitch Pulleys



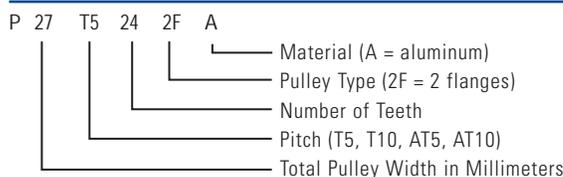
# Standard Pulley Program – T5 Pitch 5 mm

Belt Width	# of Teeth	Diameters					Widths		Part Number
		Outside mm	Pitch mm	Flange mm	Hub mm	Pilot Bore mm	Total mm	Tooth mm	
10 mm	10	15.05	15.9	23.0	8	4	21	11.5	P21T5102FA
	12	18.25	19.1	23.0	11	4	21	11.5	P21T5122FA
	14	21.45	22.3	26.0	15	6	21	11.5	P21T5142FA
	15	23.05	23.9	28.0	15	6	21	11.5	P21T5152FA
	16	24.60	25.5	30.0	15	6	21	11.5	P21T5162FA
	18	27.80	28.6	36.0	20	6	21	11.5	P21T5182FA
	19	29.40	30.2	36.0	22	6	21	11.5	P21T5192FA
	20	31.00	31.8	38.0	22	6	21	11.5	P21T5202FA
	24	37.40	38.2	44.0	28	6	21	11.5	P21T5242FA
	25	39.00	39.8	44.0	28	6	21	11.5	P21T5252FA
	27	42.20	43.0	48.0	32	8	21	11.5	P21T5272FA
	30	46.95	47.7	52.5	32	8	21	11.5	P21T5302FA
	32	50.10	50.9	57.0	35	8	21	11.5	P21T5322FA
	36	56.40	57.3	64.0	40	8	21	11.5	P21T5362FA
	40	62.85	63.7	71.0	50	8	21	11.5	P21T5402FA
	48	75.55	76.4	83.0	60	8	21	11.5	P21T5482FA
16 mm	10	15.05	15.9	23.0	8	4	27	17.5	P27T5102FA
	12	18.25	19.1	23.0	11	4	27	17.5	P27T5122FA
	14	21.45	22.3	26.0	15	6	27	17.5	P27T5142FA
	15	23.05	23.9	28.0	15	6	27	17.5	P27T5152FA
	16	24.60	25.5	30.0	15	6	27	17.5	P27T5162FA
	18	27.80	28.6	36.0	20	6	27	17.5	P27T5182FA
	19	29.40	30.2	36.0	22	6	27	17.5	P27T5192FA
	20	31.00	31.8	38.0	22	6	27	17.5	P27T5202FA
	24	37.40	38.2	44.0	28	6	27	17.5	P27T5242FA
	25	39.00	39.8	44.0	28	6	27	17.5	P27T5252FA
	27	42.20	43.0	48.0	32	8	27	17.5	P27T5272FA
	30	46.95	47.7	52.5	32	8	27	17.5	P27T5302FA
32	50.10	50.9	57.0	35	8	27	17.5	P27T5322FA	
36	56.40	57.3	64.0	40	8	27	17.5	P27T5362FA	
40	62.85	63.7	71.0	50	8	27	17.5	P27T5402FA	
48	75.55	76.4	83.0	60	8	27	17.5	P27T5482FA	
25 mm	10	15.05	15.9	23.0	8	4	36	26.5	P36T5102FA
	12	18.25	19.1	23.0	11	4	36	26.5	P36T5122FA
	14	21.45	22.3	26.0	15	6	36	26.5	P36T5142FA
	15	23.05	23.9	28.0	15	6	36	26.5	P36T5152FA
	16	24.60	25.5	30.0	15	6	36	26.5	P36T5162FA
	18	27.80	28.6	36.0	20	6	36	26.5	P36T5182FA
	19	29.40	30.2	36.0	22	6	36	26.5	P36T5192FA
	20	31.00	31.8	38.0	22	6	36	26.5	P36T5202FA
	24	37.40	38.2	44.0	28	6	36	26.5	P36T5242FA
	25	39.00	39.8	44.0	28	6	36	26.5	P36T5252FA
	27	42.20	43.0	48.0	32	8	36	26.5	P36T5272FA
	30	46.95	47.7	52.5	32	8	36	26.5	P36T5302FA
32	50.10	50.9	57.0	35	8	36	26.5	P36T5322FA	
36	56.40	57.3	64.0	40	8	36	26.5	P36T5362FA	
40	62.85	63.7	71.0	50	8	36	26.5	P36T5402FA	
48	75.55	76.4	83.0	60	8	36	26.5	P36T5482FA	

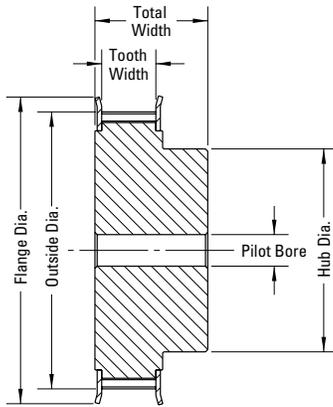


Pulley with Pilot Bore and Flanges

## To Order Metric Pitch Pulleys



# Standard Pulley Program – T10 Pitch 10 mm

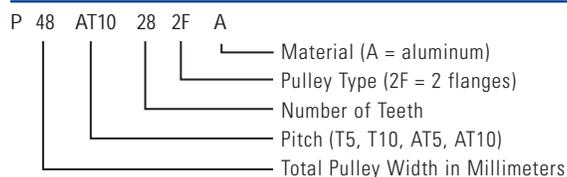


Pulley with Pilot Bore and Flanges

Belt Width	# of Teeth	In Stock	Diameters			Widths			Total mm	Tooth mm	Part Number
			Outside mm	Pitch mm	Flange mm	Hub mm	Pilot Bore mm				
16 mm	16		49.05	50.9	60.0	35	7	31	18	P31T10162FA	
	18		55.45	57.3	62.0	40	7	31	18	P31T10182FA	
	20		61.80	63.7	68.0	45	7	31	18	P31T10202FA	
	22	•	68.15	70.0	79.0	55	7	32	18	P32T10222FA	
	24	•	74.55	76.4	81.0	55	7	32	18	P32T10242FA	
	25	•	77.70	79.6	86.0	55	7	32	18	P32T10252FA	
	28	•	87.25	89.1	97.0	70	7	32	18	P32T10282FA	
	30	•	93.65	95.5	100.0	80	7	32	18	P32T10302FA	
	32	•	100.00	101.9	110.0	85	9	32	18	P32T10322FA	
	36	•	112.75	114.6	120.0	90	9	32	18	P32T10362FA	
	40	•	125.45	127.3	135.0	95	9	32	18	P32T10402FA	
48		150.90	152.8	163.0	95	15	32	18	P32T10482FA		
25 mm	16	•	49.05	50.9	60.0	35	7	40	27	P40T10162FA	
	18	•	55.45	57.3	62.0	40	7	40	27	P40T10182FA	
	20	•	61.80	63.7	68.0	45	7	40	27	P40T10202FA	
	22	•	68.15	70.0	79.0	55	7	41	27	P41T10222FA	
	24	•	74.55	76.4	81.0	55	7	41	27	P41T10242FA	
	25		77.70	79.6	86.0	55	7	41	27	P41T10252FA	
	28	•	87.25	89.1	97.0	70	7	41	27	P41T10282FA	
	30	•	93.65	95.5	100.0	80	7	41	27	P41T10302FA	
	32	•	100.00	101.9	110.0	85	9	41	27	P41T10322FA	
	36	•	112.75	114.6	120.0	90	9	41	27	P41T10362FA	
	40	•	125.45	127.3	135.0	95	9	41	27	P41T10402FA	
48		150.90	152.8	163.0	95	15	41	27	P41T10482FA		
32 mm	16	•	49.05	50.9	60.0	35	7	47	34	P47T10162FA	
	18	•	55.45	57.3	62.0	40	7	47	34	P47T10182FA	
	20	•	61.80	63.7	68.0	45	7	47	34	P47T10202FA	
	22	•	68.15	70.0	79.0	55	7	48	34	P48T10222FA	
	24	•	74.55	76.4	81.0	55	7	48	34	P48T10242FA	
	25		77.70	79.6	86.0	55	7	48	34	P48T10252FA	
	28	•	87.25	89.1	97.0	70	7	48	34	P48T10282FA	
	30	•	93.65	95.5	100.0	80	7	48	34	P48T10302FA	
	32	•	100.00	101.9	110.0	85	9	48	34	P48T10322FA	
	36	•	112.75	114.6	120.0	90	9	48	34	P48T10362FA	
	40	•	125.45	127.3	135.0	95	9	48	34	P48T10402FA	
48		150.90	152.8	163.0	95	15	48	34	P48T10482FA		
50 mm	16	•	49.05	50.9	60.0	35	7	65	52	P65T10162FA	
	18	•	55.45	57.3	62.0	40	7	65	52	P65T10182FA	
	20	•	61.80	63.7	68.0	45	7	65	52	P65T10202FA	
	22	•	68.15	70.0	79.0	55	7	66	52	P66T10222FA	
	24	•	74.55	76.4	81.0	55	7	66	52	P66T10242FA	
	25		77.70	79.6	86.0	55	7	66	52	P66T10252FA	
	28	•	87.25	89.1	97.0	70	7	66	52	P66T10282FA	
	30	•	93.65	95.5	100.0	80	7	66	52	P66T10302FA	
	32	•	100.00	101.9	110.0	85	9	66	52	P66T10322FA	
	36	•	112.75	114.6	120.0	90	9	66	52	P66T10362FA	
	40	•	125.45	127.3	135.0	95	9	66	52	P66T10402FA	
48	•	150.90	152.8	163.0	95	15	66	52	P66T10482FA		

• = in stock

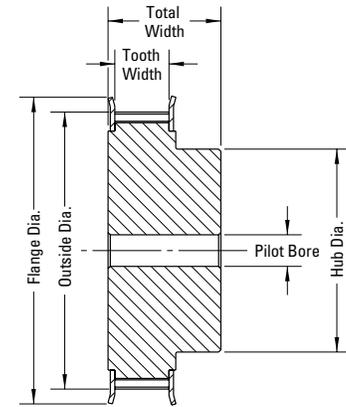
### To Order Metric Pitch Pulleys



# Standard Pulley Program – AT5 Pitch and AT10 Pitch

## AT5 Pitch 5 mm

Belt Width	# of Teeth	In Stock	Diameters					Widths		Part Number
			Outside mm	Pitch mm	Flange mm	Hub mm	Pilot Bore mm	Total mm	Tooth mm	
25 mm	15	•	22.65	23.9	28.0	15	5	36	26.5	P36AT5152FA
	20	•	30.60	31.8	38.0	23	6	36	26.5	P36AT5202FA
	22	•	33.85	35.0	41.0	25	6	36	26.5	P36AT5222FA
	24	•	37.00	38.2	44.0	28	8	36	26.5	P36AT5242FA
	25	•	38.60	39.8	46.0	28	8	36	26.5	P36AT5252FA
	28	•	43.35	44.6	48.0	32	8	36	26.5	P36AT5282FA
	30	•	46.55	47.8	52.5	32	8	36	26.5	P36AT5302FA
	32	•	49.70	50.9	57.0	40	8	36	26.5	P36AT5322FA
	36	•	56.05	57.3	62.0	40	8	36	26.5	P36AT5362FA
	40	•	62.45	63.7	71.0	50	8	36	26.5	P36AT5402FA
	44		68.80	70.0	79.0	55	8	36	26.5	P36AT5442FA
	48		75.15	76.4	83.0	60	8	36	26.5	P36AT5482FA
	60		94.25	95.5	103.0	80	8	36	26.5	P36AT5602FA



Pulley with Pilot Bore and Flanges

## AT10 Pitch 10 mm

25 mm	18	•	55.45	57.3	62.0	40	8	41	27	P41AT10182FA
	20	•	61.80	63.7	71.0	50	12	41	27	P41AT10202FA
	24	•	74.55	76.4	81.0	55	12	41	27	P41AT10242FA
	25	•	77.70	79.6	86.0	55	12	41	27	P41AT10252FA
	28	•	87.25	89.1	97.0	65	12	41	27	P41AT10282FA
	30	•	93.65	95.5	103.0	65	12	41	27	P41AT10302FA
	32	•	100.00	101.9	106.0	65	12	41	27	P41AT10322FA
	36	•	112.75	114.6	120.0	75	16	41	27	P41AT10362FA
	40	•	125.45	127.3	135.0	80	16	41	27	P41AT10402FA
48		150.95	152.8	160.0	95	16	41	27	P41AT10482FA	

32 mm	18	•	55.45	57.3	62.0	40	8	48	34	P48AT10182FA
	20	•	61.80	63.7	71.0	50	12	48	34	P48AT10202FA
	24	•	74.55	76.4	81.0	55	12	48	34	P48AT10242FA
	25	•	77.70	79.6	86.0	55	12	48	34	P48AT10252FA
	28	•	87.25	89.1	97.0	65	12	48	34	P48AT10282FA
	30	•	93.65	95.5	103.0	65	12	48	34	P48AT10302FA
	32	•	100.00	101.9	106.0	65	12	48	34	P48AT10322FA
	36	•	112.75	114.6	120.0	75	16	48	34	P48AT10362FA
	40	•	125.45	127.3	135.0	80	16	48	34	P48AT10402FA
48		150.95	152.8	160.0	95	16	48	34	P48AT10482FA	

50 mm	18	•	55.45	57.3	62.0	40	8	66	52	P66AT10182FA
	20	•	61.80	63.7	71.0	50	12	66	52	P66AT10202FA
	24	•	74.55	76.4	81.0	55	12	66	52	P66AT10242FA
	25	•	77.70	79.6	86.0	55	12	66	52	P66AT10252FA
	28	•	87.25	89.1	97.0	65	12	66	52	P66AT10282FA
	30	•	93.65	95.5	103.0	65	12	66	52	P66AT10302FA
	32	•	100.00	101.9	106.0	65	12	66	52	P66AT10322FA
	36	•	112.75	114.6	120.0	75	16	66	52	P66AT10362FA
	40	•	125.45	127.3	135.0	80	16	66	52	P66AT10402FA
48		150.95	152.8	160.0	95	16	66	52	P66AT10482FA	

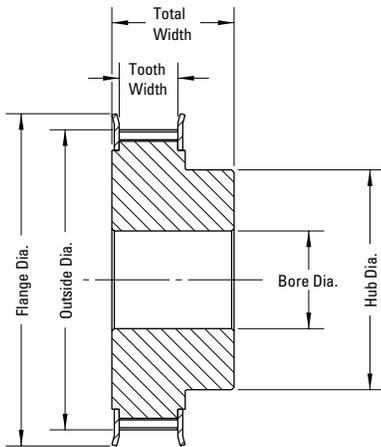
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# Modified Pulley Program

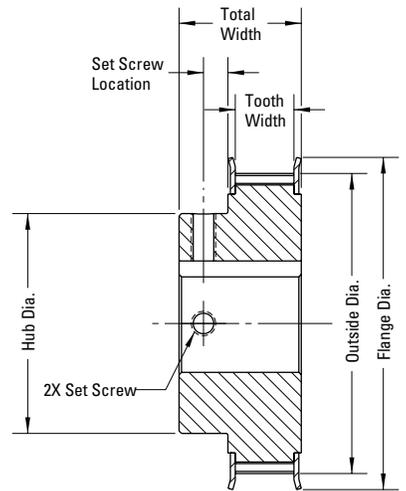
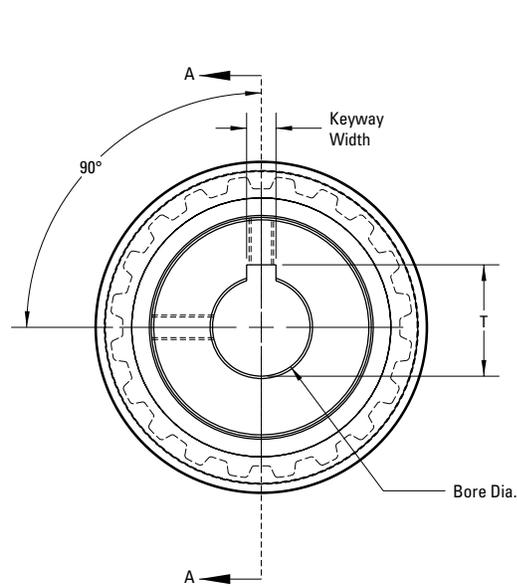
The Modified Pulley program draws from the in stock pulleys found in the Standard Pulley program and allows for basic modifications to create a "semi-custom" pulley.

Modifications include:

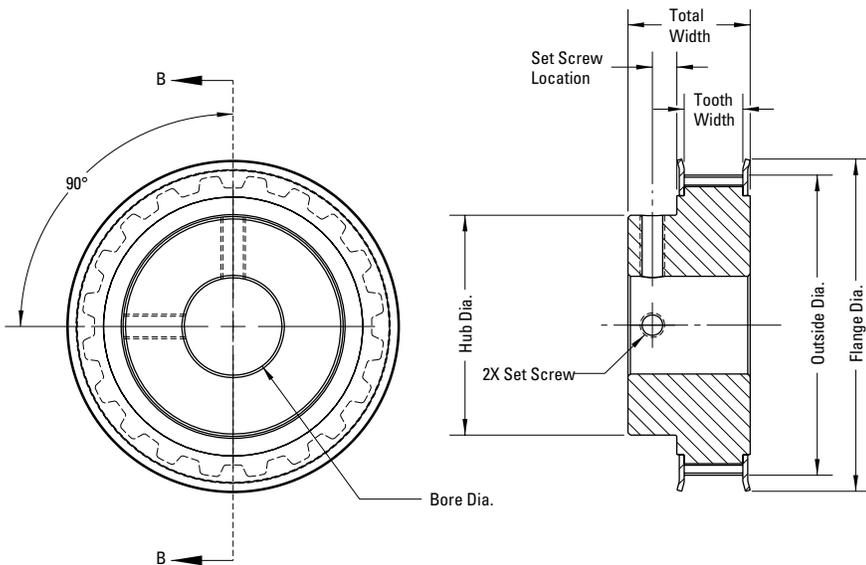
## Finished Bore



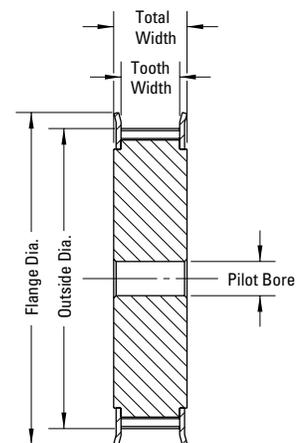
## Keyway



## Set Screw Holes



## Hub Removed



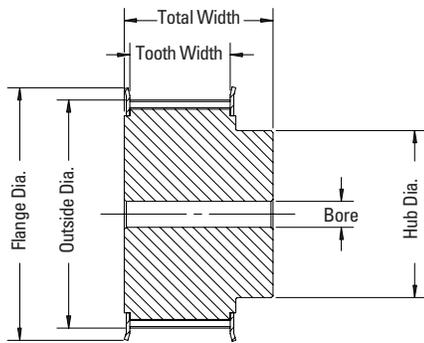
# Custom Pulley Program

Pulleys can be customized to fit specific applications. Below are the options available:

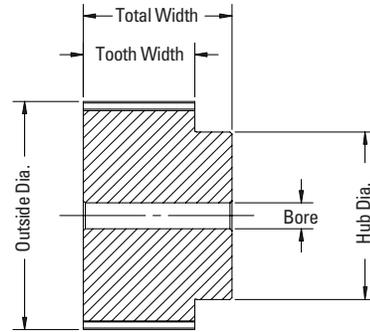
Material	Flanges	Coatings	Optional Pitches
<ul style="list-style-type: none"> <li>Aluminum</li> <li>Steel</li> <li>Stainless steel</li> </ul>	<ul style="list-style-type: none"> <li>Zinc plated steel</li> <li>Stainless steel (for stainless steel pulleys)</li> </ul>	<ul style="list-style-type: none"> <li>Clear anodize</li> <li>Black anodize</li> <li>Clear hardcoat</li> <li>Black oxide</li> <li>Electroless nickel</li> </ul>	<p>Most pitches can be supplied as zero backlash</p> <ul style="list-style-type: none"> <li>Typically used for precise positioning applications only</li> </ul>

## Pulley Types

**2F – Two Flanges**



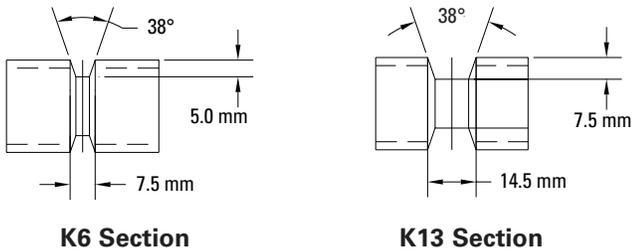
**0F – No Flanges**



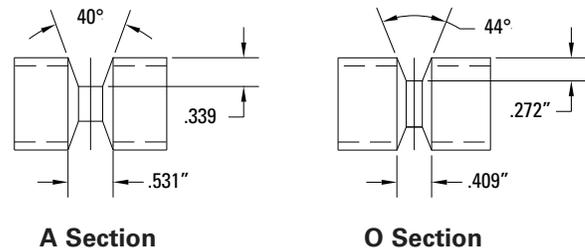
## V-Guides

For wider belts, and larger pulleys without flanges, one of the following V-guides is recommended for improved tracking:

**For Metric Pitch Belts**

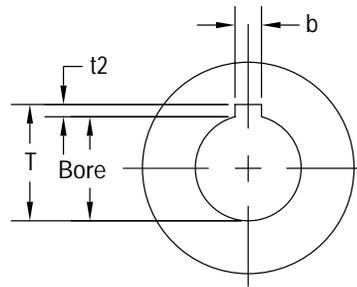
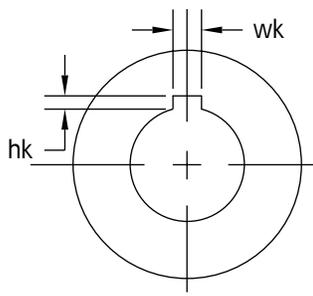


**For Imperial Pitch Belts**



# Custom Pulley Program

## Standard Keyway Dimensions and Tolerances



### Imperial Shaft Diameter

Over	Up to and Including	Width wk	Tolerance wk	Depth hk	Tolerance hk
	0.438	0.094		0.047	
0.438	0.563	0.125	+0.0030	0.063	
0.563	0.875	0.188	-0.0000	0.094	
0.875	1.250	0.250		0.125	
1.250	1.375	0.313	+0.0035	0.156	+0.015 -0.000
1.375	1.750	0.375	-0.0000	0.188	
1.750	2.250	0.500		0.250	
2.250	2.750	0.625		0.313	
2.750	3.250	0.750	+0.0040	0.375	
3.250	3.750	0.875	-0.0000	0.438	
3.750	4.500	1.000		0.500	
4.500	5.500	1.125	+0.0050	0.625	
5.500	6.500	1.500	-0.0000	0.750	

### Metric Shaft Diameter

Over	Up to and Including	Width b	Tolerance on b	*Depth t2	Tolerance t2
6	8	2	+0.060	1.0	
8	10	3	+0.020	1.4	
10	12	4	+0.078	1.8	+0.1
12	17	5	+0.030	2.3	-0
17	22	6		2.8	
22	30	8	+0.098	3.3	
30	38	10	+0.040	3.3	
38	44	12		3.3	
44	50	14	+0.120	3.8	
50	58	16	+0.050	4.3	
58	65	18		4.4	+0.2
65	75	20		4.9	-0
75	85	22	+0.149	5.4	
85	95	25	+0.065	5.4	
95	110	28		6.4	
110	130	32		7.4	
130	150	36	+0.180	8.4	+0.3
150	170	40	+0.080	9.4	-0

\* Metric keyway depths are specified from the bottom of the keyway to a line tangent to the bore at the keyway centerline.  
 $T = \text{Bore Diameter} + t_2$

# Pulley Bar Stock

## T5

# of Teeth	In Stock	Useable Width mm
20	•	160
24	•	160
28	•	160
32	•	160
36	•	160

## T10

# of Teeth	In Stock	Useable Width mm
20	•	160
24	•	160
28	•	160
36	•	160

## AT5

# of Teeth	In Stock	Useable Width mm
20	•	160
24	•	160
25	•	160
28	•	160
30	•	160
36	•	160
48	•	160
72	•	160

## AT10

# of Teeth	In Stock	Useable Width mm
18	•	160
20	•	160
24	•	160
28	•	160
32	•	160
36	•	160

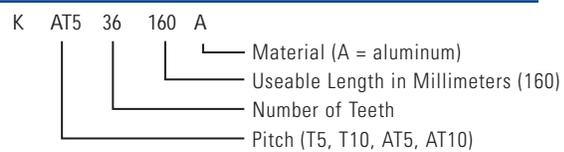
## H

# of Teeth	In Stock	Useable Width inch
20	•	7.85
24	•	7.85
28	•	7.85
36	•	7.85

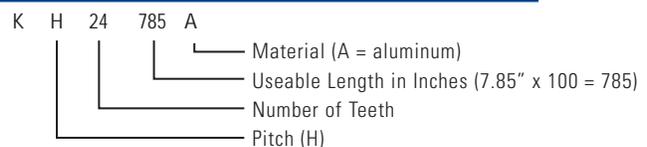
• = in stock



### To Order Metric Pitch Bar Stock



### To Order Imperial Pitch Bar Stock



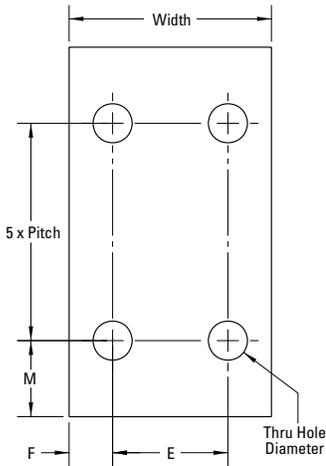
Material: Aluminum

Contact Gates Mectrol Applications Engineering for other pitches and tooth counts.

# Clamp Plates

Clamp plates are often used in motion control applications where one belt end is anchored by means of a clamp plate. The Gates Mectrol clamp plate engages eight teeth and has an end cutoff designed to prevent cord fatigue.

## AT5

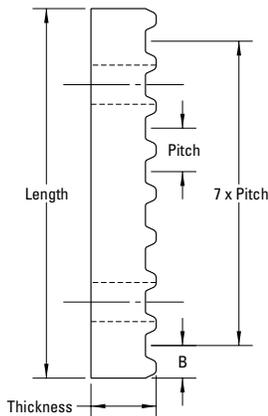


Belt Width mm	In Stock	Length mm	B mm	Width mm	Hole Dia. mm	E mm	F mm	M mm	Thickness mm	Part Number
6		43	4	27.5	5.5	12.5	7.5	9	8	CGPAT56
10		43	4	31.5	5.5	16.5	7.5	9	8	CGPAT510
12		43	4	33.5	5.5	18.5	7.5	9	8	CGPAT512
16		43	4	37.5	5.5	22.5	7.5	9	8	CGPAT516
20		43	4	41.5	5.5	26.5	7.5	9	8	CGPAT520
25	•	43	4	46.5	5.5	31.5	7.5	9	8	CGPAT525
32	•	43	4	53.5	5.5	38.5	7.5	9	8	CGPAT532
50	•	43	4	71.5	5.5	56.5	7.5	9	8	CGPAT550
75		43	4	97.0	5.5	82.0	7.5	9	8	CGPAT575
100		43	4	122.0	5.5	107.0	7.5	9	8	CGPAT5100

## AT10

Belt Width mm	In Stock	Length mm	B mm	Width mm	Hole Dia. mm	E mm	F mm	M mm	Thickness mm	Part Number
16		85	7.5	46.5	9	26.5	10	17.5	15	CGPAT1016
20		85	7.5	50.5	9	30.5	10	17.5	15	CGPAT1020
25	•	85	7.5	55.5	9	35.5	10	17.5	15	CGPAT1025
32	•	85	7.5	62.5	9	42.5	10	17.5	15	CGPAT1032
50	•	85	7.5	80.5	9	60.5	10	17.5	15	CGPAT1050
75		85	7.5	106.0	9	86.0	10	17.5	15	CGPAT1075
100		85	7.5	131.0	9	111.0	10	17.5	15	CGPAT10100
150		85	7.5	181.0	9	161.0	10	17.5	15	CGPAT10150

## AT20



Belt Width mm	Length mm	B mm	Width mm	Hole Dia. mm	E mm	F mm	M mm	Thickness mm	Part Number
25	170	15	61.5	11	38.5	11.5	35	20	CGPAT2025
32	170	15	68.5	11	45.5	11.5	35	20	CGPAT2032
50	170	15	86.5	11	63.5	11.5	35	20	CGPAT2050
75	170	15	111.5	11	88.5	11.5	35	20	CGPAT2075
100	170	15	136.5	11	113.5	11.5	35	20	CGPAT20100
150	170	15	186.5	11	163.5	11.5	35	20	CGPAT20150

## H

Belt Width inch	In Stock	Length inch	B inch	Width inch	Hole Dia. inch	E inch	F inch	M inch	Thickness inch	Part Number
1.000	•	4.32	0.41	2.29	0.406	1.45	0.42	0.91	0.87	CGPH100
2.000		4.32	0.41	3.29	0.406	2.45	0.42	0.91	0.87	CGPH200

## HTD8

Belt Width mm	Length mm	B mm	Width mm	Hole Dia. mm	E mm	F mm	M mm	Thickness mm	Part Number
25	72	8	55.5	9	35.5	10	16	15	CGP8HTD25

## HTD14

Belt Width mm	Length mm	B mm	Width mm	Hole Dia. mm	E mm	F mm	M mm	Thickness mm	Part Number
25	126	14	60.5	11	37.5	11.5	28	22	CGP14HTD25
40	126	14	75.5	11	52.5	11.5	28	22	CGP14HTD40
55	126	14	91.0	11	68.0	11.5	28	22	CGP14HTD55
85	126	14	121.0	11	98.0	11.5	28	22	CGP14HTD85
100	126	14	136.0	11	113.0	11.5	28	22	CGP14HTD100
115	126	14	151.0	11	128.0	11.5	28	22	CGP14HTD115
170	126	14	206.0	11	183.0	11.5	28	22	CGP14HTD170

• = in stock  
Material: Aluminum

# Tension Meter

---

The Gates Mectrol Tension Meter determines correct belt tension – critical for belt peak performance.

**Tension the belt too low:**

- Belt may ratchet (skip teeth on pulley)
- Belt life may be decreased due to increased flex fatigue

**Tension the belt too high:**

- System bearing life may be decreased due to excessive bearing loads
- Belt life may be decreased due to excessive belt tensile loads

The natural frequency of a belt span is a function of the static tension, span length and span mass. The Gates Mectrol Tension Meter displays this frequency or the resulting force which tensions the belt.



# Technical Design Tools Online

---

Gates Mectrol's belt design tools make selecting the right belt for your application easy anytime: <http://apps.gatesmectrol.com/>

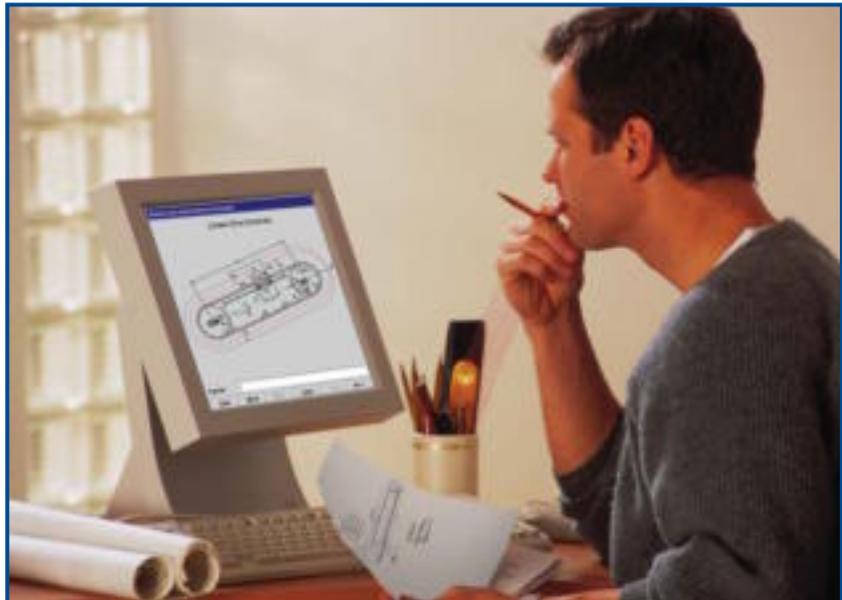
Gates Mectrol offers online design tools for calculating all types of urethane timing belt applications.

These design tools are, by far, industry state-of-the-art, offering the most comprehensive, easy to use and accurate calculations available.

For linear and rotary positioning applications, synchronous conveying or power transmission, simply enter all of your known parameters, and these programs will guide you through step-by-step calculations, resulting in the selection of the most appropriate belt for your application.

Included with your output will be information which is "total system" inclusive, providing necessary data for selecting all related drive components, as well as for programming electronic controls.

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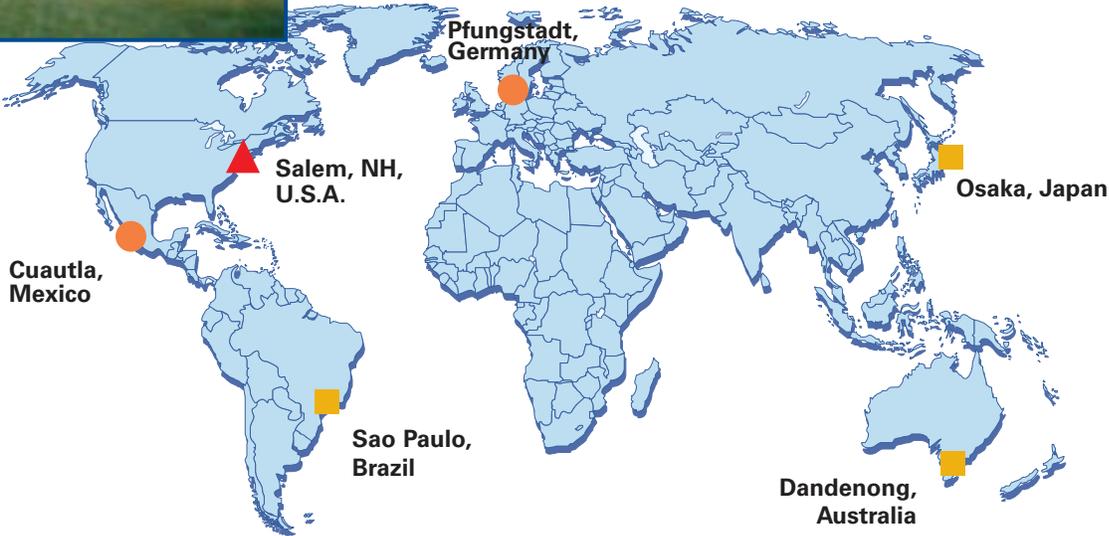


>> To access our design tools online visit <http://apps.gatesmectrol.com/> or call **1-800-394-4844**

# Facilities



Headquarters



In November 2004, two leading belt manufacturers joined forces when Mectrol's urethane belt business was acquired by the Gates Corporation. The newly formed company, Gates Mectrol, has three manufacturing locations, all of which have achieved ISO 9001:2000 certification. Gates Mectrol has sales and applications engineering support in every major market through its own sales organization, its Gates Unitta joint venture and its partner fabricators.

Gates Mectrol is eager to serve you.

- ▲ Headquarters, Sales & Manufacturing
- Sales & Manufacturing
- Sales

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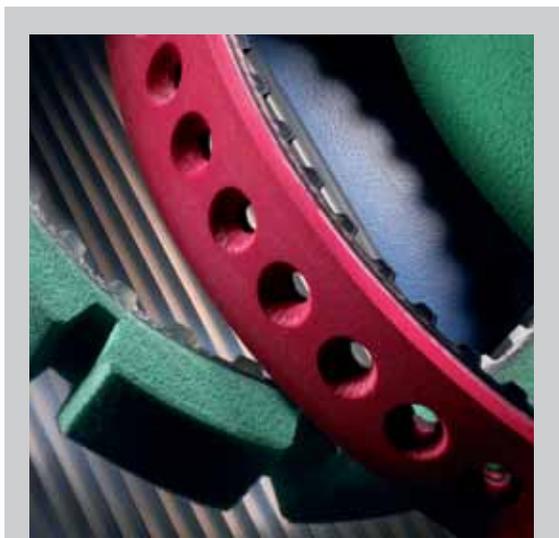
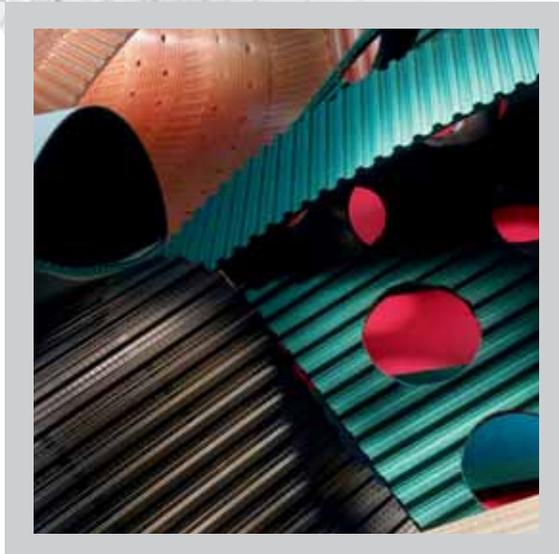
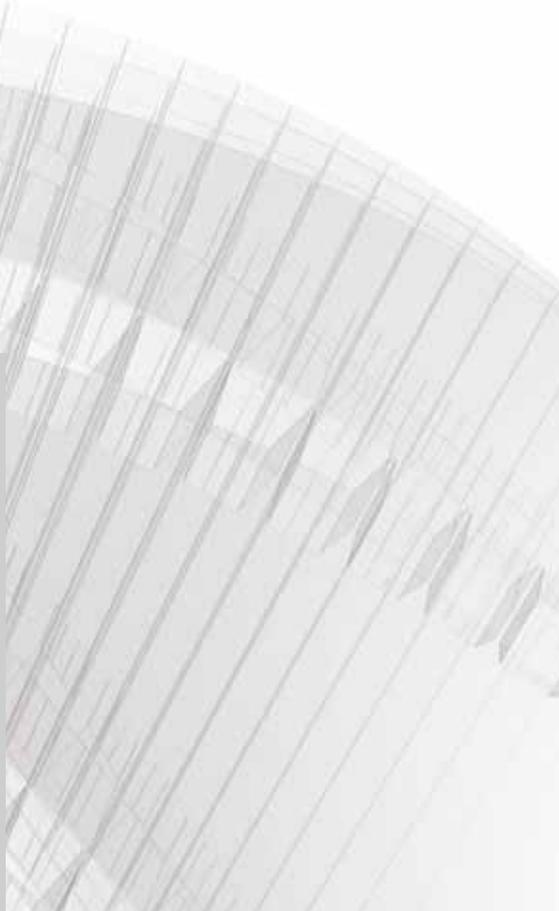
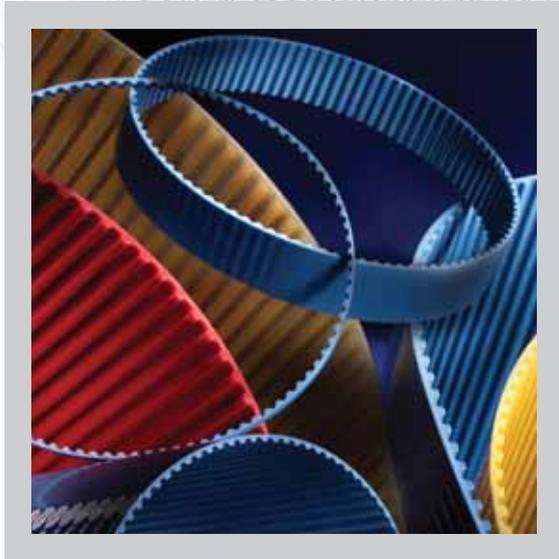
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