

## Polyurethane Timing Belts, Timing Pulleys & Accessories

**CONTITECH**<sup>®</sup>  
SYNCHROFLEX<sup>®</sup>

**BREC**<sup>®</sup>  
TIMING BELTS

**BREC**<sup>®</sup> *flex*<sup>®</sup>  
TIMING BELTS

**LINEAR & ROTARY MOTION CONTROL**

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# Table of Contents

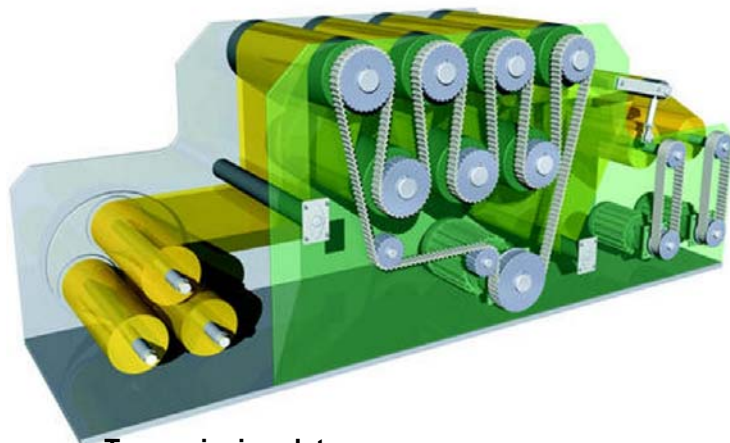


## Contents

<b>Introduction</b>	Application Examples	3	
	Polyurethane Timing Belts	3	
	Synchroflex Timing Belts	5	
	Brecoflex Timing Belts	6	
<b>Synchroflex Timing Belts &amp; Pulleys</b>	T Type Standard Pitch	T2	7
		M (MXL)	8
		T2.5	9
		T5	11
		T10	13
		T20	15
	AT High Performance Pitch	AT3	17
		AT5	19
		AT10	21
		AT20	23
	Synchroflex Generation III Timing Belts	25	
	Anti-Static, 'E' Tension Member, Kevlar Cord	26	
<b>Breco Open Length &amp; Joined Timing Belts</b>	Introduction to Linear Drives	27 - 29	
		T2.5	30
		T5	30
		T10	31
		T20	32
		AT3	33
		AT5	33
		AT10	34
		AT20	34
		ATL High Performance Linear Belts	35
	Timing Belts Tolerances	36	
	Angular Drives	37	
	Special Profiles	38	
	Self Tracking Belts	39 - 40	
<b>Transport Technology</b>	Timing Belts with Profiles / Flights	41 - 45	
	Timing Belts with Integrated Flights	46 - 48	
	Timing Belts with Backings	49 - 53	
	Mechanical Re-worked Belts	54	
	Formulae	55	
<b>Accessories</b>	Slider / Guide Beds	56	
	Idler / Tension Pulleys	57 - 59	
	Shaft Locking Devices	60 - 61	
	Pre-Tension / SM5 Digital Belt Tension Meter	62 - 63	
	Contact Details	Back Page	

## Film stretching unit

In a film stretching unit the films and belts are subject to targeted changes to their characteristic features. Due to the stretching process the molecular chains are aligning in pulling direction and the tensile strength is increased. The stretching process is carried out using heated rollers. The change in speed of each follow-up roller should be 3 to 3.5 %.



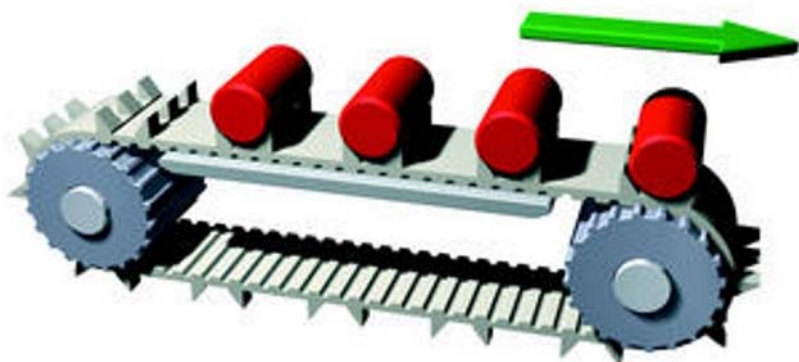
### Design characteristics:

The rollers on the drive side are equipped with over mounted pulleys. The number of teeth of the pulleys arranged one after the other is reduced by 1:  $z = 33/32/21$  etc. The belt arrangement of the double sided endless belt is similar to the film routing.

### Transmission data:

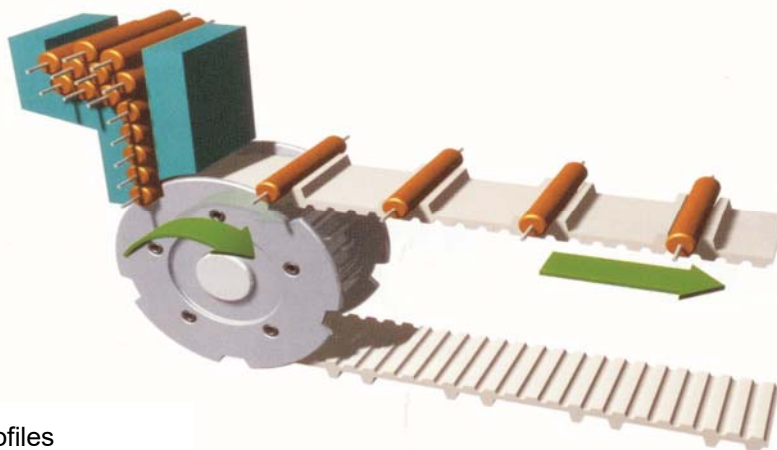
BRECOFLEX TIMING BELT 50T20/7500-DL  
Rotational speed = 400 rpm  
Transmission power = 12 kW  
Drive pulley assembly = 36 teeth

## Assembly belt:



SYNCHROFLEX TIMING BELTS with casted flights/profiles, post manufacture reworked.

## Product separation:



BRECO TIMING BELTS with welded flights/profiles



# Polyurethane Timing Belts



## Construction:

BRECO®, BRECOFLEX® AND SYNCHROFLEX® TIMING BELTS are manufactured of wear resistant polyurethane and high tensile steel cord tension members. Both high quality materials combined form the basis for dimensionally stable and high resistance polyurethane timing belts. Polyurethane timing belts have a very high span rigidity. No post-elongation of the tension members is to be expected in continuous operation. Only under extreme load and after a short run-in time, the pre-tension of the belts might slightly reduce by the tension members settling, making a once-only re-tensioning of the timing belt unavoidable. The timing belts are temperature resistant with ambient temperatures from -30°C to +80°C.

**Applications close to the limit temperatures (<-10°C and >50°C), however, might require adapted dimensioning. For specific temperature ranges various belt materials are available, e.g. the SYNCHROFLEX® TIMING BELT GEN III is temperature resistant up to 100°C. Please contact your PIES for this type of application.**

The production methods according to which BRECO®, BRECOFLEX® and SYNCHROFLEX® TIMING BELTS are produced, allow keeping within tight tolerances which guarantee a uniform load distribution during power transmission. These polyurethane timing belts are suitable for the transmission of high torques as well as the precise positioning and transport of various goods.

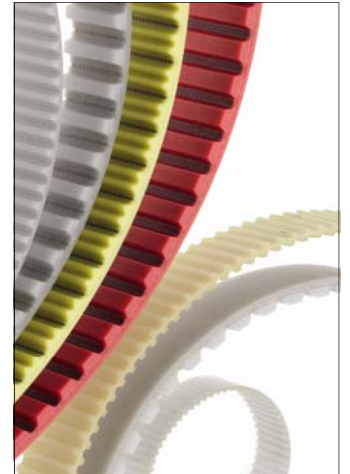
## Properties:

### Mechanical

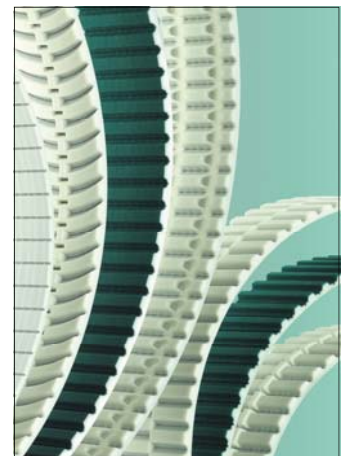
- positive fit, synchronous run
- constant length, no post-elongation
- low noise
- wear resistant
- low-maintenance
- highly flexible
- positional and angular accuracy
- can be crossed (see page )
- fatigue resistant, low extension steel cord tension members
- Belt speed up to 80 ms<sup>-1</sup>
- small build sizes
- favorable power-to-weight ratio
- low pre-tension
- low bearing load
- permits large centre distances
- permits large transmission ratios
- high degree of efficiency, max. 98 %

### Chemical:

- hydrolysis resistant
- resistant to aging
- temperature resistant from -30° to +80°C, design SYNCHROFLEX® TIMING BELT GEN III up to 100°C
- tropical climate resistant
- resistant against simple oils, fats and petrol
- resistant to some acids and lyes



SYNCHROFLEX Timing Belts



BRECO Timing Belts



BRECOFLEX Timing Belts



Timing Belts & Pulleys

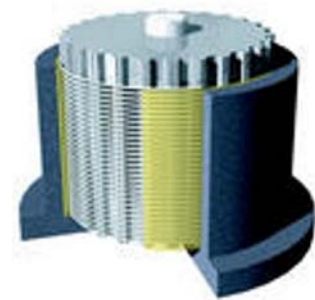
# SYNCHROFLEX® Timing Belts



SYNCHROFLEX® TIMING BELTS consist of 2 components, the wear resistant polyurethane, and a high grade steel cord tension member. The excellent bond between the two materials results in high power transmission capacity.

The manufacturing process in moulds - the displacement injection moulding - combines the following advantages:

- The cast polyurethane timing belt is a precise image of its shape. A high pitch accuracy is reached for the whole belt. For this reason, it is particularly suitable for angular accuracy, smooth running and high rotational speeds.
- Low length tolerance. The tolerance situation can be influenced by changing the coiling tension.
- Due to the casting method and because of the capillary effect, good bonding with the steel cord tension members.
- High image quality of the cast polyurethane. Fine contours can be moulded exactly. Especially suitable for small pitches. DL meshing and profile flights on the back of the belt can be moulded at the same time.
- The de-moulded timing belt coil has a mould-related overall useful width of up to 300mm.
- Belt lengths from 55 to 6000 mm endless length



Casting mould, illustrated with a spirally coiled tension member on the mould core



Synchroflex belts are stocked in sleeve form and cut to required widths.

SYNCHROFLEX® POLYURETHANE TIMING BELTS are used in all technical fields where synchronous transmission of a rotary movement is required. Independent, whether power transmission, servo control functions or switching and conveying tasks are required. They operate in a rotational speed range of up to 20000 rpm.

Preferred application fields:

- Office machinery
- EDP equipment
- Textile machinery
- Wood processing machinery
- Machine tools
- Printing machinery
- Pumps
- Compressors
- Building machinery

**SYNCHROFLEX® TIMING BELT Drives Table**

Pitch / Profile	Power Rating	R.P.M	Peripheral Speed
M (MXL) / T2 / T2.5	≤ 0.5 kW	≤ 40,000 rpm	80 m/sec
T5	≤ 5 kW	≤ 40,000 rpm	80 m/sec
T10	≤ 30 kW	≤ 15,000 rpm	60 m/sec
T20	≤ 100 kW	≤ 6,000 rpm	40 m/sec
AT3	≤ 5 kW	≤ 40,000 rpm	80 m/sec
AT5	≤ 15 kW	≤ 40,000 rpm	80 m/sec
AT10	≤ 70 kW	≤ 15,000 rpm	60 m/sec
AT20	≤ 250 kW	≤ 6,000 rpm	40 m/sec



# BRECOFLEX® Timing Belts



**BRECOFLEX:** The BRECOFLEX® TIMING BELT is manufactured in endless lengths without Tension member interruption. The tension member is spirally coiled. BRECOFLEX® TIMING BELTS are universal applicable for all tasks in the drive technology up to 10000 rpm.

## Application areas

### Endless timing belts for power transmission:

All drives designed for a high performance should preferably be produced as BRECOFLEX® TIMING BELTS (if belt is not available as Synchroflex standard) with a full length steel cord tension member. They can be subjected to both permanent operation or for a start-brake characteristic. They operate in a rotational speed range of up to 10000 rpm. Endless timing belts are available in preferred catalogue lengths (please contact our sales department for lengths). The production range also permits the supply of lengths of any tooth increment up to a maximum endless length of 20000 mm.

## Materials

BRECO®- and BRECOFLEX®-TIMING BELTS are manufactured according to standard in the material with the designation TPU-ST1 and steel cord tension members. Other materials e.g. for low or high temperature or for contact with food are possible. Likewise high flexible tension members (E) and tension members in stainless-steel are available. Please contact our sales department regarding our possibilities.



Endless timing belts with a full length tension member

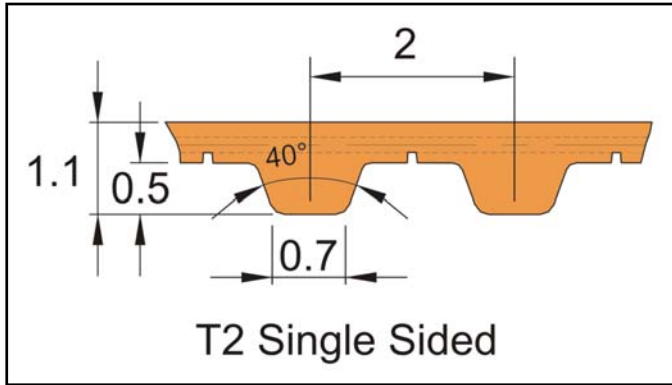


# SYNCHROFLEX® Belts T2



## T2 (2mm pitch)

Standard Belt widths (mm)	4	6	10
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Belt No.	Length mm	No. of Teeth
T2 / 90	90	45
T2 / 108	108	54
T2 / 118	118	59
T2 / 120	120	60
T2 / 138	138	69
T2 / 140	140	70
T2 / 144	144	72
T2 / 150	150	75
T2 / 160	160	80
T2 / 180	180	90
T2 / 200	200	100
T2 / 220	220	110
T2 / 240	240	120
T2 / 256	256	128
T2 / 262	262	131
T2 / 280	280	140
T2 / 292	292	146
T2 / 320	320	160
T2 / 360	360	180
T2 / 600	600	300
T2 / 710	710	355

### Tension Cord Strength & Belt Weight :

Belt Width (mm)	4	6	10	16	25	32
Max. Tensile Load (N)	39	65	117	195	312	403
Belt weight (kg/m)	0.004	0.007	0.011	0.018	0.028	0.035

### Options and features available :

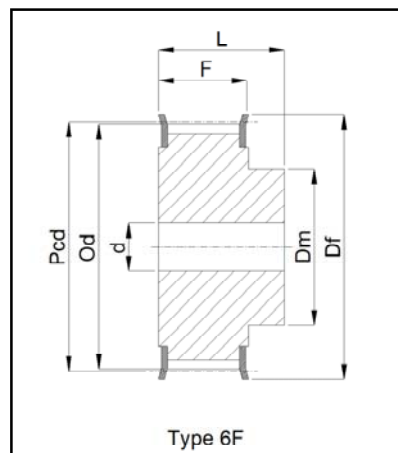
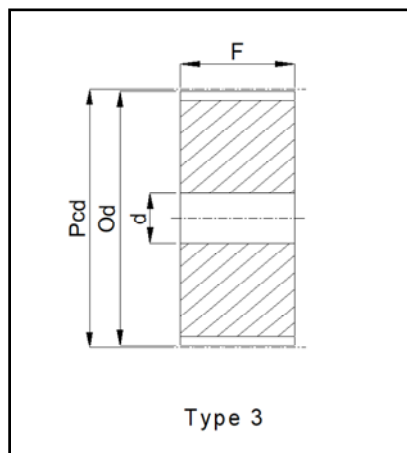
- Coloured or special polyurethane materials
- With Kevlar tension members
- Anti-static
- With profiles welded
- Mechanical re-worked
- In-between widths and larger widths available

Ordering Example: 6 T2 / 240 Synchroflex Belt  
 Belt width in mm \_\_\_\_\_  
 Type / Pitch \_\_\_\_\_  
 Belt length in mm \_\_\_\_\_

### T2 Pulleys to suit 6mm wide Belt

Pulley No.	Type	Teeth	Pcd	Od	Dm	Df	F	L	d
AL16T2/15-0	Aluminium	3	9.55	9.00	-	-	16	-	3
AL16T2/16-0		3	10.19	9.64	-	-	16	-	3
AL16T2/20-0		3	12.73	12.18	-	-	16	-	3
AL16T2/24-2	6F	24	15.28	14.73	10	18	10	16	3
AL16T2/32-2		32	20.37	19.82	14	24	10	16	3
AL16T2/48-2		48	30.56	30.01	20	35	10	16	4

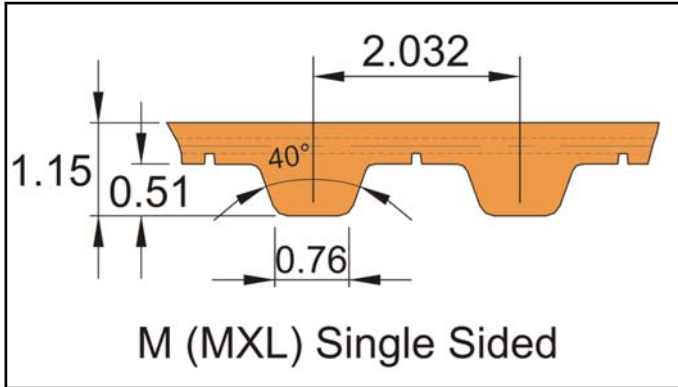
T2 pulleys are non stocked and are made to order.



# SYNCHROFLEX® Belts M (MXL)



## M (MXL) (2.032mm pitch)



### Tension Cord Strength & Belt Weight :

Belt Width (mm)	4	6	10	16	25	32
Max. Tensile Load (N)	39	65	117	195	312	403
Belt weight (kg/m)	0.005	0.007	0.012	0.019	0.030	0.038

### Options and features available :

- Coloured or special polyurethane materials
- With Kevlar tension members
- Anti-static
- With profiles welded
- Mechanical re-worked
- In-between widths and larger widths available

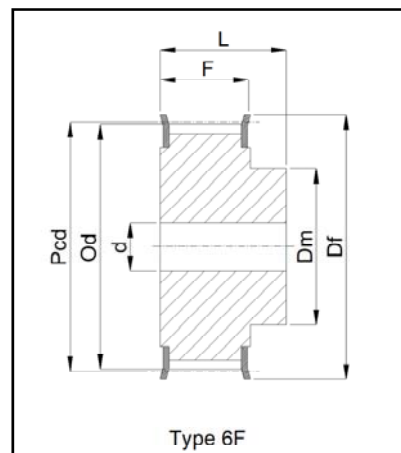
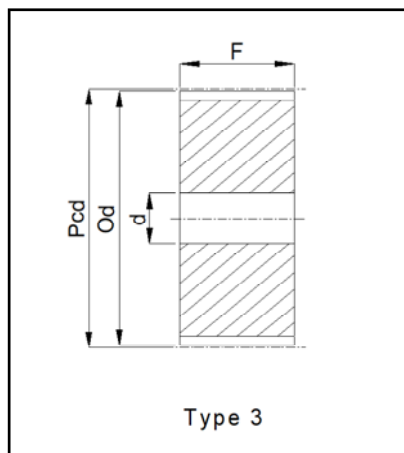
Standard Belt widths (mm)		4	6	10
Belt No.	Length mm	Length Inches	No. of Teeth	
Metric No. (Imperial No.)				
M 111 (440MXL)	111.76	4.40	55	
M 113 (448MXL)	113.79	4.48	56	
M 121 (480MXL)	121.92	4.80	60	
M 132 (520MXL)	132.08	5.20	65	
M 142 (560MXL)	142.24	5.60	70	
M 144 (568MXL)	144.27	5.68	71	
M 162 (640MXL)	162.56	6.40	80	
M 182 (720MXL)	182.88	7.20	90	
M 197 (776MXL)	197.10	7.76	97	
M 203 (800MXL)	203.20	8.00	100	
M 209 (824MXL)	209.30	8.24	103	
M 213 (840MXL)	213.36	8.40	105	
M 243 (960MXL)	243.86	9.60	120	
M 256 (1008MXL)	256.03	10.08	126	
M 264 (1040MXL)	264.16	10.40	130	
M 284 (1120MXL)	284.48	11.20	140	
M 304 (1200MXL)	304.80	12.00	150	
M 355 (1400MXL)	355.60	14.00	175	
M 373 (1472MXL)	373.89	14.72	184	
M 449 (1768MXL)	449.07	17.68	221	
M 503 (1984MXL)	503.94	19.84	248	
M 520 (2048MXL)	520.19	20.48	256	
M 599 (2360MXL)	599.44	23.60	295	
M 731 (2880MXL)	731.52	28.80	360	
M 1178 (4640MXL)	1178.56	46.40	580	

Ordering Example: 6 M / 182 Synchroflex Belt  
 Belt width in mm \_\_\_\_\_  
 Type / Pitch \_\_\_\_\_  
 Belt length in mm \_\_\_\_\_

### M (MXL) Pulleys to suit 0.25" 6mm wide Belt

Pulley No.	Type	Teeth	Pcd	Od	Dm	Df	F	L	d
AL16M/15-0	Aluminium	3	9.70	9.19	-	-	16	-	3
AL16M/16-0		3	10.35	9.84	-	-	16	-	3
AL16M/20-0		3	12.94	12.43	-	-	16	-	3
AL16M/24-2	Aluminium	6F	15.52	15.01	10	18	10	16	3
AL16M/32-2		6F	20.70	20.19	14	24	10	16	3
AL16M/48-2		6F	31.05	30.54	20	35	10	16	4

M(MXL) pulleys are non stocked and are made to order.



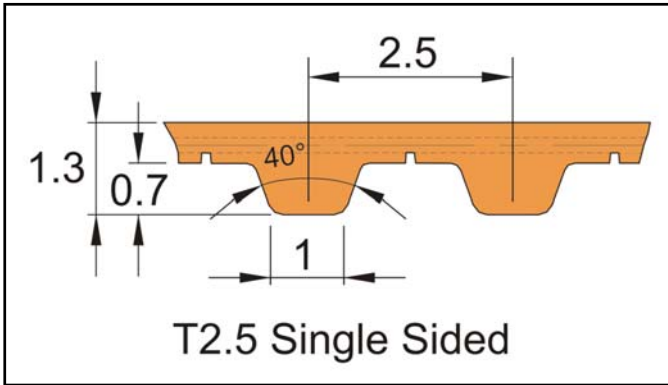


# SYNCHROFLEX® Belts T2.5

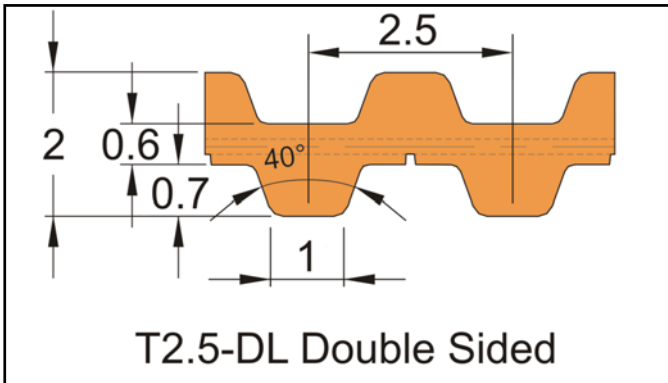


## T2.5 (2.5mm pitch)

Standard Belt widths (mm)	4	6	10
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## T2.5-DL (2.5mm pitch)



Belt No.	Length mm	No. of Teeth	Belt No.	Length mm	No. of Teeth
<b>Single Sided</b>			<b>Double Sided</b>		
T2.5 / 55	55	22	T2.5 / 317.5 - DL	317.5	127
T2.5 / 120	120	48	T2.5 / 415 - DL	415	166
T2.5 / 145	145	58	T2.5 / 457.5 - DL	457.5	183
T2.5 / 160	160	64			
T2.5 / 177.5	177.5	71			
T2.5 / 180	180	72			
T2.5 / 182.5	182.5	73			
T2.5 / 200	200	80			
T2.5 / 210	210	84			
T2.5 / 225	225	90			
T2.5 / 230	230	92			
T2.5 / 245	245	98			
T2.5 / 265	265	106			
T2.5 / 285	285	114			
T2.5 / 290	290	116			
T2.5 / 305	305	122			
T2.5 / 317.5	317.5	127			
T2.5 / 330	330	132			
T2.5 / 380	380	152			
T2.5 / 395	395	158			
T2.5 / 420	420	168			
T2.5 / 480	480	192			
T2.5 / 500	500	200			
T2.5 / 540	540	216			
T2.5 / 600	600	240			
T2.5 / 620	620	248			
T2.5 / 650	650	260			
T2.5 / 780	780	312			
T2.5 / 950	950	380			
T2.5 / 1300	1300	520			
T2.5 / 1475	1475	590			

### Tension Cord Strength & Belt Weight :

Belt Width (mm)	4	6	10	16	25	32
Max. Tensile Load (N)	39	65	117	195	312	403
Belt weight (kg/m) Single	0.006	0.009	0.015	0.024	0.038	0.048
Belt weight (kg/m) Double	0.006	0.009	0.016	0.025	0.040	0.051

### Flexibility:

	<b>Toothed Pulley (Z=No. teeth)</b>	<b>Zmin</b>	<b>10</b>
	<b>Tension roller (smooth) running on teeth of belt</b>	<b>Dmin</b>	<b>15mm</b>
	<b>Toothed Pulley (Z=No. teeth)</b>	<b>Zmin</b>	<b>18</b>
	<b>Tension roller (smooth) running on back of belt</b>	<b>Dmin</b>	<b>15mm</b>

### Options and features available :

- Coloured or special polyurethane materials
- With Kevlar tension members (See page 26)
- Anti-static (See page 26)
- With profiles welded (See page 41)
- Mechanical re-worked (See page 54)
- In-between widths and larger widths available

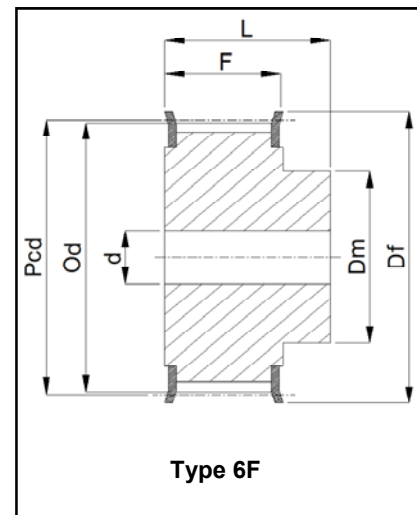
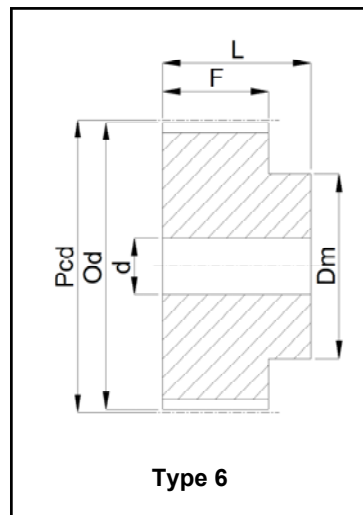
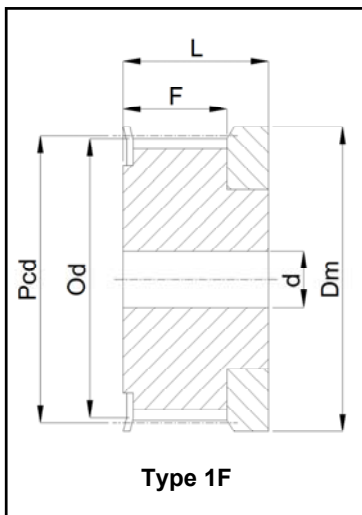
Ordering Example: 10 T2.5 / 380 Synchroflex Belt  
 Belt width in mm \_\_\_\_\_  
 Type / Pitch \_\_\_\_\_  
 Belt length in mm \_\_\_\_\_

### Available versions

<b>SYNCHROFLEX® Truly Endless Stock Range</b>	
<b>BRECO®-M Open Length Belt</b> See Pages 27, 30	
<b>BRECO®-V Joined Belt</b> See Pages 27, 30	
<b>BRECOFLEX® Truly Endless Belt</b> Any length made to order. <small>(Please contact our sales department for more information)</small>	

## T2.5 Pulleys to suit 6mm wide Belt

Pulley No.	Type	Teeth	Pcd	Od	Dm	Df	F	L	d	Weight
AL16T2.5/10-2	1F	10	7.96	7.45	10	10	10	16	-	0.002
AL16T2.5/12-2	1F	12	9.55	9.00	12	12	10	16	-	0.003
AL16T2.5/14-2	1F	14	11.14	10.60	14	14	10	16	-	0.004
AL16T2.5/15-2	1F	15	11.94	11.40	15	15	10	16	-	0.005
AL16T2.5/16-2	1F	16	12.73	12.20	16	16	10	16	-	0.005
AL16T2.5/18-2	6F	18	14.32	13.80	10	17.5	10	16	4	0.006
AL16T2.5/19-2	6F	19	15.12	14.60	10	18	10	16	4	0.007
AL16T2.5/20-2	6F	20	15.92	15.40	12	19.5	10	16	4	0.008
AL16T2.5/22-2	6F	22	17.51	17.00	12	23	10	16	4	0.009
AL16T2.5/24-2	6F	24	19.10	18.55	14	23	10	16	4	0.012
AL16T2.5/25-2	6F	25	19.89	19.35	14	23	10	16	4	0.013
AL16T2.5/26-2	6F	26	20.69	20.15	14	25	10	16	4	0.014
AL16T2.5/28-2	6F	28	22.28	21.75	14	25	10	16	4	0.016
AL16T2.5/30-2	6F	30	23.87	23.35	16	28	10	16	6	0.018
AL16T2.5/32-2	6F	32	25.46	24.95	16	32	10	16	6	0.020
AL16T2.5/36-2	6F	36	28.65	28.15	20	36	10	16	6	0.026
AL16T2.5/40-2	6F	40	31.83	31.30	22	38	10	16	6	0.032
AL16T2.5/44-0	6	44	35.01	34.51	24	-	10	16	6	0.040
AL16T2.5/48-0	6	48	38.20	37.70	26	-	10	16	6	0.048
AL16T2.5/60-0	6	60	47.75	47.25	34	-	10	16	8	0.073
AL16T2.5/72-0	6	72	57.30	56.80	40	-	10	16	8	0.087
AL16T2.5/90-0	6	90	71.62	71.10	50	-	10	16	8	0.137



### Stock pulley materials:

<b>Pulley:</b>	Aluminium
<b>Flange:</b>	Steel, zinc plated

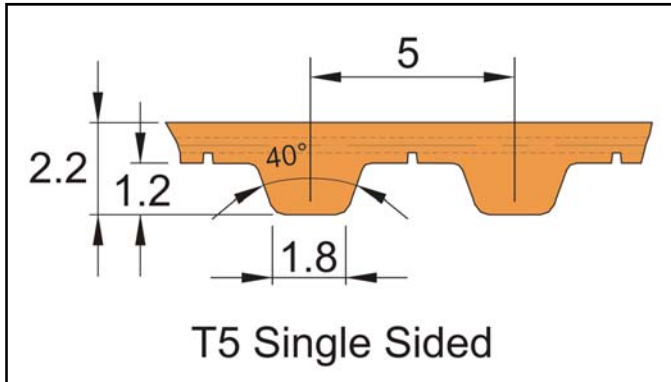
### Options and features available upon request :

- Steel, Stainless Steel, Plastic.
- In-between number of teeth.
- Manufactured or Modified to Drawings.
- Anodized or coated for strength.
- Toothed Bars.

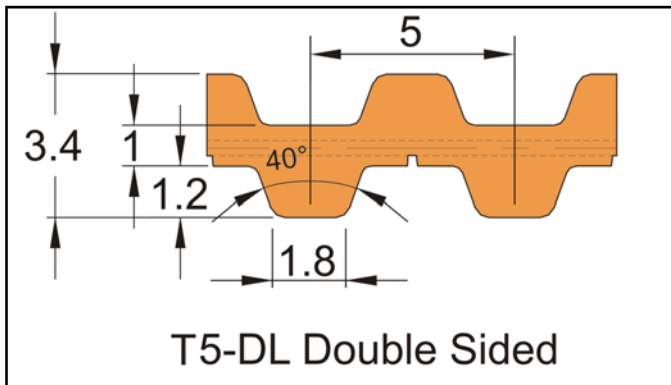
# SYNCHROFLEX® Belts T5



## T5 (5mm pitch)



## T5-DL (5mm pitch)



Standard Belt widths (mm)			10	16	25
Belt No.	Length mm	No. of Teeth	Belt No.	Length mm	No. of Teeth
T5 / 100	100	20	T5 / 630	630	126
T5 / 150	150	30	T5 / 650	650	130
T5 / 165	165	33	T5 / 690	690	138
T5 / 180	180	36	T5 / 700	700	140
T5 / 185	185	37	T5 / 720	720	144
T5 / 200	200	40	T5 / 725	725	145
T5 / 210	210	42	T5 / 750	750	150
T5 / 215	215	43	T5 / 765	765	153
T5 / 220	220	44	T5 / 780	780	156
T5 / 225	225	45	T5 / 800	800	160
T5 / 245	245	49	T5 / 815	815	163
T5 / 250	250	50	T5 / 840	840	168
T5 / 255	255	51	T5 / 900	900	180
T5 / 260	260	52	T5 / 920	920	184
T5 / 270	270	54	T5 / 925	925	185
T5 / 280	280	56	T5 / 940	940	188
T5 / 295	295	59	T5 / 990	990	198
T5 / 305	305	61	T5 / 1075	1075	215
T5 / 330	330	66	T5 / 1100	1100	220
T5 / 340	340	68	T5 / 1160	1160	232
T5 / 355	355	71	T5 / 1215	1215	243
T5 / 365	365	73	T5 / 1315	1315	263
T5 / 390	390	78	T5 / 1380	1380	276
T5 / 400	400	80	T5 / 1500	1500	300
T5 / 410	410	82			
T5 / 420	420	84	<b>Double Sided</b>		
T5 / 455	455	91	T5 / 260 - DL	260	52
T5 / 460	460	92	T5 / 300 - DL	300	60
T5 / 480	480	96	T5 / 410 - DL	410	82
T5 / 500	500	100	T5 / 460 - DL	460	92
T5 / 505	505	101	T5 / 515 - DL	515	103
T5 / 510	510	102	T5 / 525 - DL	525	105
T5 / 525	525	105	T5 / 590 - DL	590	118
T5 / 545	545	109	T5 / 620 - DL	620	124
T5 / 550	550	110	T5 / 625 - DL	625	125
T5 / 560	560	112	T5 / 750 - DL	750	150
T5 / 575	575	115	T5 / 815 - DL	815	163
T5 / 590	590	118	T5 / 860 - DL	860	172
T5 / 610	610	122	T5 / 940 - DL	940	188
T5 / 620	620	124	T5 / 1100 - DL	1100	220
			T5 / 1325 - DL	1325	265

### Tension Cord Strength & Belt Weight :

Belt Width (mm)	6	10	16	25	32	50
Max. Tensile Load (N)	180	330	570	930	1200	1920
Belt weight (kg/m) Single	0.014	0.024	0.038	0.060	0.077	0.120
Belt weight (kg/m) Double	0.016	0.027	0.043	0.067	0.086	0.135

### Flexibility:

Without Contraflexure	Toothed Pulley (Z=No. teeth)	Zmin	10
	Tension roller (smooth) running on teeth of belt	Dmin	30mm
With Contraflexure	Toothed Pulley (Z=No. teeth)	Zmin	15
	Tension roller (smooth) running on back of belt	Dmin	30mm

### Options and features available :

- Coloured or special polyurethane materials
- With Kevlar tension members (See page 26)
- Anti-static (See page 26)
- With profiles welded (See page 41)
- Mechanical re-worked (See page 54)
- With 'E' Tension Member for better flexibility (see page 26)
- In-between widths and larger widths available

Ordering Example: 10 T5 / 455 Synchroflex Belt  
 Belt width in mm \_\_\_\_\_  
 Type / Pitch \_\_\_\_\_  
 Belt length in mm \_\_\_\_\_

### Available versions

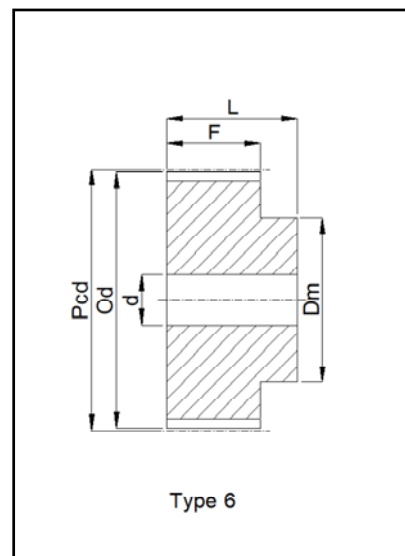
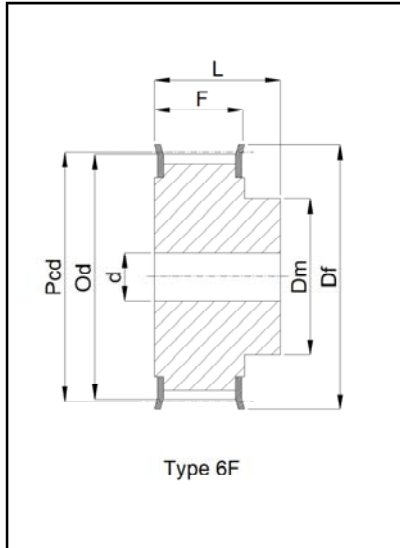
SYNCHROFLEX® Truly Endless Stock Range	
BRECO®-M Open Length Belt See Pages 27, 30	
BRECO®-V Joined Belt See Pages 27, 30	
BRECOFLEX® Truly Endless Belt Any length made to order. (Please contact our sales department for more information)	



# PIES T5 Timing Pulleys



## T5 (5mm pitch)



### T5 Pulleys to suit 10mm wide Belt

Pulley No.	Type	Teeth	Pcd	Od	Dm	Df	F	L	d	Weight
AL 21T5/10-2	6F	10	15.92	15.05	8	19.5	15	21	-	0.012
AL 21T5/12-2	6F	12	19.10	18.25	11	23.0	15	21	-	0.016
AL 21T5/14-2	6F	14	22.29	21.45	14	25.0	15	21	-	0.016
AL 21T5/15-2	6F	15	23.88	23.05	16	28.0	15	21	6	0.021
AL 21T5/16-2	6F	16	25.47	24.60	18	32.0	15	21	6	0.025
AL 21T5/18-2	6F	18	28.65	27.80	20	32.0	15	21	6	0.031
AL 21T5/19-2	6F	19	30.25	29.40	22	36.0	15	21	6	0.036
AL 21T5/20-2	6F	20	31.83	31.00	23	36.0	15	21	6	0.038
AL 21T5/22-2	6F	22	35.02	34.25	24	38.0	15	21	6	0.046
AL 21T5/24-2	6F	24	38.21	37.40	26	42.0	15	21	6	0.054
AL 21T5/25-2	6F	25	39.80	39.00	26	44.0	15	21	6	0.058
AL 21T5/26-2	6F	26	41.39	40.60	26	44.0	15	21	6	0.062
AL 21T5/27-2	6F	27	42.98	42.20	30	48.0	15	21	8	0.064
AL 21T5/28-2	6F	28	44.58	43.75	32	48.0	15	21	8	0.071
AL 21T5/30-2	6F	30	47.76	46.95	34	51.0	15	21	8	0.075
AL 21T5/32-2	6F	32	50.94	50.10	38	54.0	15	21	8	0.088
AL 21T5/36-2	6F	36	57.31	56.45	38	63.0	15	21	8	0.114
AL 21T5/40-2	6F	40	63.66	62.85	40	66.0	15	21	8	0.138
AL 21T5/44-0	6	44	70.03	69.20	40	-	15	21	8	0.178
AL 21T5/48-0	6	48	76.42	75.55	50	-	15	21	8	0.200
AL 21T5/60-0	6	60	95.52	94.65	65	-	15	21	8	0.307
AL 21T5/72-0	6	72	114.59	113.75	80	-	15	21	8	0.492

### T5 Pulleys to suit 16mm wide Belt

Pulley No.	Type	Teeth	Pcd	Od	Dm	Df	F	L	d	Weight
AL 27T5/10-2	6F	10	15.92	15.05	8	19.5	21	27	-	0.016
AL 27T5/12-2	6F	12	19.10	18.25	11	23.0	21	27	-	0.022
AL 27T5/14-2	6F	14	22.29	21.45	14	25.0	21	27	-	0.026
AL 27T5/15-2	6F	15	23.88	23.05	16	28.0	21	27	6	0.029
AL 27T5/16-2	6F	16	25.47	24.60	18	32.0	21	27	6	0.035
AL 27T5/18-2	6F	18	28.65	27.80	20	32.0	21	27	6	0.043
AL 27T5/19-2	6F	19	30.25	29.40	22	36.0	21	27	6	0.049
AL 27T5/20-2	6F	20	31.83	31.00	23	36.0	21	27	6	0.053
AL 27T5/22-2	6F	22	35.02	34.25	24	38.0	21	27	6	0.054
AL 27T5/24-2	6F	24	38.21	37.40	26	42.0	21	27	6	0.076
AL 27T5/25-2	6F	25	39.80	39.00	26	44.0	21	27	6	0.081
AL 27T5/26-2	6F	26	41.39	40.60	26	44.0	21	27	6	0.085
AL 27T5/27-2	6F	27	42.98	42.20	30	48.0	21	27	8	0.090
AL 27T5/28-2	6F	28	44.58	43.75	32	48.0	21	27	8	0.092
AL 27T5/30-2	6F	30	47.76	46.95	34	51.0	21	27	8	0.105
AL 27T5/32-2	6F	32	50.94	50.10	38	54.0	21	27	8	0.123
AL 27T5/36-2	6F	36	57.31	56.45	38	63.0	21	27	8	0.160
AL 27T5/40-2	6F	40	63.66	62.85	40	66.0	21	27	8	0.193
AL 27T5/44-0	6	44	70.03	69.20	40	-	21	27	8	0.232
AL 27T5/48-0	6	48	76.42	75.55	50	-	21	27	8	0.280
AL 27T5/60-0	6	60	95.52	94.65	65	-	21	27	8	0.430
AL 27T5/72-0	6	72	114.59	113.75	80	-	21	27	8	0.625

### T5 Pulley to suit 25mm wide Belt

Pulley No.	Type	Teeth	Pcd	Od	Dm	Df	F	L	d	Weight
AL 36T5/10-2	6F	10	15.92	15.05	8	19.5	30	36	-	0.023
AL 36T5/12-2	6F	12	19.10	18.25	11	23.0	30	36	-	0.031
AL 36T5/14-2	6F	14	22.29	21.45	14	25.0	30	36	-	0.037
AL 36T5/15-2	6F	15	23.88	23.05	16	28.0	30	36	6	0.041
AL 36T5/16-2	6F	16	25.47	24.60	18	32.0	30	36	6	0.050
AL 36T5/18-2	6F	18	28.65	27.80	20	32.0	30	36	6	0.061
AL 36T5/19-2	6F	19	30.25	29.40	22	36.0	30	36	6	0.070
AL 36T5/20-2	6F	20	31.83	31.00	23	36.0	30	36	6	0.076
AL 36T5/22-2	6F	22	35.02	34.25	24	38.0	30	36	6	0.080
AL 36T5/24-2	6F	24	38.21	37.40	26	42.0	30	36	6	0.109
AL 36T5/25-2	6F	25	39.80	39.00	26	44.0	30	36	6	0.116
AL 36T5/26-2	6F	26	41.39	40.60	26	44.0	30	36	6	0.120
AL 36T5/27-2	6F	27	42.98	42.20	30	48.0	30	36	8	0.128
AL 36T5/28-2	6F	28	44.58	43.75	32	48.0	30	36	8	0.126
AL 36T5/30-2	6F	30	47.76	46.95	34	51.0	30	36	8	0.150
AL 36T5/32-2	6F	32	50.94	50.10	38	54.0	30	36	8	0.176
AL 36T5/36-2	6F	36	57.31	56.45	38	63.0	30	36	8	0.230
AL 36T5/40-2	6F	40	63.66	62.85	40	66.0	30	36	8	0.276
AL 36T5/44-0	6	44	70.03	69.20	40	-	30	36	8	0.331
AL 36T5/48-0	6	48	76.42	75.55	50	-	30	36	8	0.400
AL 36T5/60-0	6	60	95.52	94.65	65	-	30	36	8	0.614
AL 36T5/72-0	6	72	114.59	113.75	80	-	30	36	8	0.895

#### Stock pulley materials:

Pulley:	Aluminium
Flange:	Steel, zinc plated

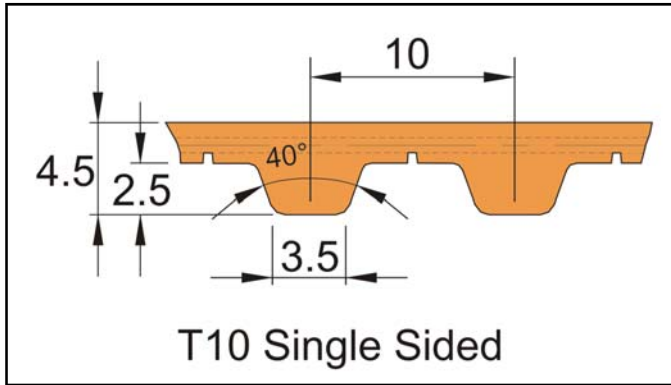
#### Options and features available upon request :

- Steel, Stainless Steel, Plastic.
- In-between number of teeth.
- Manufactured or Modified to Drawings.
- Anodized or coated for strength.
- Toothed Bars.

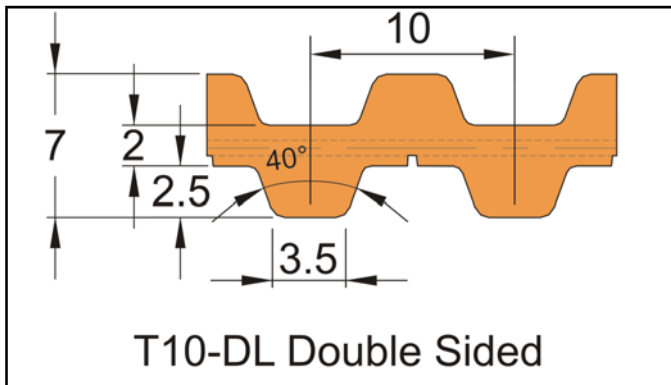
# SYNCHROFLEX® Belts T10



## T10 (10mm pitch)



## T10-DL (10mm pitch)



Standard Belt widths (mm)		16	25	32	50
Belt No.	Length mm	No. of Teeth	Belt No.	Length mm	No. of Teeth
T10 / 260	260	26	T10 / 1350	1350	135
T10 / 350	350	35	T10 / 1390	1390	139
T10 / 370	370	37	T10 / 1400	1400	140
T10 / 410	410	41	T10 / 1420	1420	142
T10 / 440	440	44	T10 / 1450	1450	145
T10 / 450	450	45	T10 / 1460	1460	146
T10 / 500	500	50	T10 / 1500	1500	150
T10 / 530	530	53	T10 / 1560	1560	156
T10 / 560	560	56	T10 / 1610	1610	161
T10 / 600	600	60	T10 / 1750	1750	175
T10 / 610	610	61	T10 / 1780	1780	178
T10 / 630	630	63	T10 / 1880	1880	188
T10 / 660	660	66	T10 / 1960	1960	196
T10 / 680	680	68	T10 / 2250	2250	225
T10 / 690	690	69	T10 / 3100	3100	310
T10 / 700	700	70	T10 / 4780	4780	478
T10 / 720	720	72			
T10 / 730	730	73			
T10 / 750	750	75			
T10 / 760	760	76			
T10 / 780	780	78			
T10 / 810	810	81			
T10 / 840	840	84			
T10 / 850	850	85			
T10 / 880	880	88			
T10 / 890	890	89			
T10 / 920	920	92			
T10 / 960	960	96			
T10 / 970	970	97			
T10 / 980	980	98			
T10 / 1010	1010	101			
T10 / 1080	1080	108			
T10 / 1110	1110	111			
T10 / 1140	1140	114			
T10 / 1150	1150	115			
T10 / 1210	1210	121			
T10 / 1240	1240	124			
T10 / 1250	1250	125			
T10 / 1300	1300	130			
T10 / 1320	1320	132			
T10 / 1320 - DL	1320	132			
T10 / 1350 - DL	1350	135			
T10 / 1420 - DL	1420	142			
T10 / 1610 - DL	1610	161			
T10 / 1880 - DL	1880	188			
T10 / 1250 - DL	1250	125			
T10 / 4780 - DL	4780	478			

### Tension Cord Strength & Belt Weight :

Belt Width (mm)	16	25	32	50	75	100
Max. Tensile Load (N)	1200	2000	2700	4300	6600	8800
Belt weight (kg/m) Single	0.077	0.120	0.154	0.240	0.360	0.480
Belt weight (kg/m) Double	0.091	0.143	0.182	0.285	0.428	0.570

### Flexibility:

Without Contraflexure	Toothed Pulley (Z-No. teeth)	Zmin	12
	Tension roller (smooth) running on teeth of belt	Dmin	60mm
With Contraflexure	Toothed Pulley (Z-No. teeth)	Zmin	20
	Tension roller (smooth) running on back of belt	Dmin	60mm

### Options and features available :

- Coloured or special polyurethane materials
- With Kevlar tension members (See page 26)
- Anti-static (See page 26)
- With profiles welded (See page 41)
- Mechanical re-worked (See page 54)
- With 'E' Tension Member for better flexibility (see page 26)
- In-between widths and larger widths available

Ordering Example: 16 T10 / 1500 Synchronflex Belt  
 Belt width in mm \_\_\_\_\_  
 Type / Pitch \_\_\_\_\_  
 Belt length in mm \_\_\_\_\_

### Available versions

SYNCHROFLEX® Truly Endless Stock Range	
BRECO®-M Open Length Belt See Pages 27, 31	
BRECO®-V Joined Belt See Pages 27, 31	
BRECOFLEX® Truly Endless Belt Any length made to order. <small>(Please contact our sales department for more information)</small>	

# PIES T10 Timing Pulleys



## T10 (10mm pitch)

### T10 Pulleys to suit 16mm wide Belt

Pulley No.	Type	Teeth	Pcd	Od	Dm	Df	F	L	d	Weight
AL 31T10/10-2	6F	10	31.83	29.98	20	36	21	31	6	0.060
AL 31T10/12-2	6F	12	38.20	36.35	28	42	21	31	8	0.076
AL 31T10/14-2	6F	14	44.56	42.70	32	48	21	31	8	0.104
AL 31T10/15-2	6F	15	47.75	45.90	32	51	21	31	8	0.116
AL 31T10/16-2	6F	16	50.93	49.05	35	54	21	31	8	0.134
AL 31T10/18-2	6F	18	57.29	55.45	40	60	21	31	8	0.167
AL 31T10/19-2	6F	19	60.48	58.60	44	66	21	31	8	0.184
AL 31T10/20-2	6F	20	63.66	61.80	46	66	21	31	8	0.208
AL 31T10/22-2	6F	22	66.84	68.15	52	75	21	31	8	0.253
AL 31T10/24-2	6F	24	76.39	74.55	58	83	21	31	8	0.288
AL 31T10/25-2	6F	25	79.58	77.70	60	83	21	31	8	0.310
AL 31T10/26-2	6F	26	82.76	80.90	60	87	21	31	8	0.357
AL 31T10/27-2	6F	27	85.95	84.10	60	91	21	31	8	0.364
AL 31T10/28-2	6F	28	89.12	87.25	60	93	21	31	8	0.401
AL 31T10/30-2	6F	30	95.49	93.65	60	97	21	31	8	0.441
AL 31T10/32-2	6F	32	101.86	100.00	65	106	21	31	10	0.493
AL 31T10/36-2	6F	36	114.59	112.75	70	119	21	31	10	0.623
AL 31T10/40-2	6F	40	127.32	125.45	80	131	21	31	10	0.767
AL 31T10/44-0	6	44	140.06	138.20	90	—	21	31	16	0.991
AL 31T10/48-0	6	48	152.78	150.95	95	—	21	31	16	1.090
AL 31T10/60-0	6	60	190.98	189.10	100	—	21	31	16	1.701

### T10 Pulleys to suit 25mm wide Belt

Pulley No.	Type	Teeth	Pcd	Od	Dm	Df	F	L	d	Weight
AL 40T10/10-2	6F	10	31.83	29.98	20	36	30	40	6	0.080
AL 40T10/12-2	6F	12	38.20	36.35	28	42	30	40	8	0.099
AL 40T10/14-2	6F	14	44.56	42.70	32	48	30	40	8	0.134
AL 40T10/15-2	6F	15	47.75	45.90	32	51	30	40	8	0.152
AL 40T10/16-2	6F	16	50.93	49.05	35	54	30	40	8	0.176
AL 40T10/18-2	6F	18	57.29	55.45	40	60	30	40	8	0.224
AL 40T10/19-2	6F	19	60.48	58.60	44	66	30	40	8	0.247
AL 40T10/20-2	6F	20	63.66	61.80	46	66	30	40	8	0.276
AL 40T10/22-2	6F	22	66.84	68.15	52	75	30	40	8	0.337
AL 40T10/24-2	6F	24	76.39	74.55	58	83	30	40	8	0.392
AL 40T10/25-2	6F	25	79.58	77.70	60	83	30	40	8	0.422
AL 40T10/26-2	6F	26	82.76	80.90	60	87	30	40	8	0.477
AL 40T10/27-2	6F	27	85.95	84.10	60	91	30	40	8	0.536
AL 40T10/28-2	6F	28	89.12	87.25	60	93	30	40	8	0.540
AL 40T10/30-2	6F	30	95.49	93.65	60	97	30	40	8	0.640
AL 40T10/32-2	6F	32	101.86	100.00	65	106	30	40	10	0.693
AL 40T10/36-2	6F	36	114.59	112.75	70	119	30	40	10	0.873
AL 40T10/40-2	6F	40	127.32	125.45	80	131	30	40	10	1.067
AL 40T10/44-0	6	44	140.06	138.20	90	—	30	40	16	1.348
AL 40T10/48-0	6	48	152.78	150.95	95	—	30	40	16	1.516
AL 40T10/60-0	6	60	190.98	189.10	100	—	30	40	16	2.339

### T10 Pulleys to suit 32mm wide Belt

Pulley No.	Type	Teeth	Pcd	Od	Dm	Df	F	L	d	Weight
AL47T10/14-2	6F	14	44.56	42.70	32	48	37	47	12	0.155
AL47T10/15-2	6F	15	47.75	45.90	32	51	37	47	12	0.180
AL47T10/16-2	6F	16	50.93	49.05	35	54	37	47	12	0.203
AL47T10/18-2	6F	18	57.29	55.45	40	60	37	47	12	0.253
AL47T10/19-2	6F	19	60.48	58.60	44	66	37	47	12	0.286
AL47T10/20-2	6F	20	63.66	61.80	46	66	37	47	12	0.322
AL47T10/22-2	6F	22	66.84	68.15	52	75	37	47	12	0.393
AL47T10/24-2	6F	24	76.39	74.55	58	83	37	47	12	0.475
AL47T10/25-2	6F	25	79.58	77.70	60	83	37	47	12	0.527
AL47T10/26-2	6F	26	82.76	80.90	60	87	37	47	12	0.564
AL47T10/27-2	6F	27	85.95	84.10	60	91	37	47	12	0.602
AL47T10/28-2	6F	28	89.12	87.25	60	93	37	47	12	0.642
AL47T10/30-2	6F	30	95.49	93.65	60	97	37	47	12	0.740
AL47T10/32-2	6F	32	101.86	100.00	65	106	37	47	12	0.844
AL47T10/36-2	6F	36	114.59	112.75	70	119	37	47	16	1.063
AL47T10/40-2	6F	40	127.32	125.45	80	131	37	47	16	1.317
AL47T10/44-0	6	44	140.06	138.20	90	—	37	47	16	1.715
AL47T10/48-0	6	48	152.78	150.95	95	—	37	47	16	1.931
AL47T10/60-0	6	60	190.98	189.10	100	—	37	47	16	3.004

### T10 Pulleys to suit 50mm wide Belt

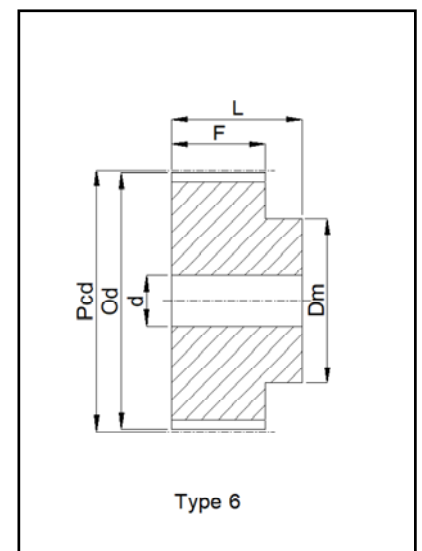
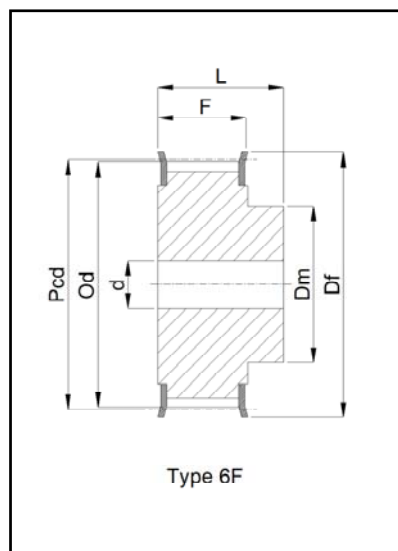
Pulley No.	Type	Teeth	Pcd	Od	Dm	Df	F	L	d	Weight
AL66T10/14-2	6F	14	44.56	42.70	32	48	56	66	8	0.250
AL66T10/15-2	6F	15	47.75	45.90	32	51	56	66	8	0.270
AL66T10/16-2	6F	16	50.93	49.05	35	54	56	66	8	0.350
AL66T10/18-2	6F	18	57.29	55.45	40	60	56	66	8	0.422
AL66T10/19-2	6F	19	60.48	58.60	44	66	56	66	8	0.466
AL66T10/20-2	6F	20	63.66	61.80	46	66	56	66	8	0.520
AL66T10/22-2	6F	22	66.84	68.15	52	75	56	66	8	0.570
AL66T10/24-2	6F	24	76.39	74.55	58	83	56	66	8	0.736
AL66T10/25-2	6F	25	79.58	77.70	60	83	56	66	8	0.766
AL66T10/26-2	6F	26	82.76	80.90	60	87	56	66	8	0.816
AL66T10/27-2	6F	27	85.95	84.10	60	91	56	66	8	0.946
AL66T10/28-2	6F	28	89.12	87.25	60	93	56	66	8	0.960
AL66T10/30-2	6F	30	95.49	93.65	60	97	56	66	8	1.169
AL66T10/32-2	6F	32	101.86	100.00	65	106	56	66	10	1.300
AL66T10/36-2	6F	36	114.59	112.75	70	119	56	66	10	1.637
AL66T10/40-2	6F	40	127.32	125.45	80	131	56	66	10	1.999
AL66T10/44-0	6	44	140.06	138.20	90	—	56	66	16	2.353
AL66T10/48-0	6	48	152.78	150.95	95	—	56	66	16	2.830
AL66T10/60-0	6	60	190.98	189.10	100	—	56	66	16	4.366

#### Stock pulley materials:

Pulley:	Aluminium
Flange:	Steel, zinc plated

#### Options and features available upon request :

- Steel, Stainless Steel, Plastic.
- In-between number of teeth.
- Manufactured or Modified to Drawings.
- Anodized or coated for strength.
- Toothed Bars.



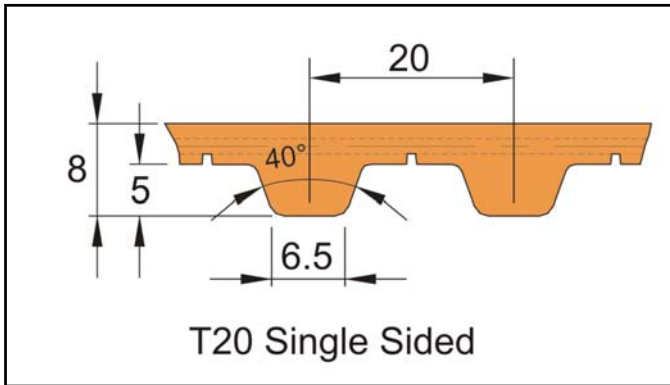


# SYNCHROFLEX® Belts T20



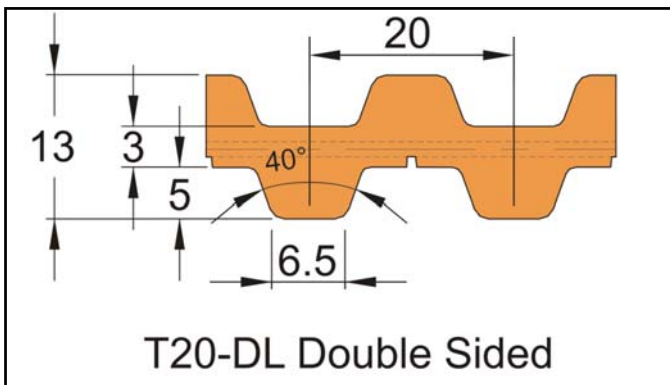
## T20 (20mm pitch)

Standard Belt widths (mm)	32	50	75	100
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Belt No.	Length mm	No. of Teeth
T20 / 1260	1260	63
T20 / 1460	1460	73
T20 / 1780	1780	89
T20 / 1880	1880	94
T20 / 2360	2360	118
T20 / 2600	2600	130
T20 / 3100	3100	155
T20 / 3620	3620	181
Double sided T20-DL		
T20 / 2600 - DL	2600	130

## T20-DL (20mm pitch)



### Available versions

SYNCHROFLEX® Truly Endless Stock Range	
BRECO®-M Open Length Belt See Pages 27, 32	
BRECO®-V Joined Belt See Pages 27, 32	
BRECOFLEX® Truly Endless Belt Any length made to order. (Please contact our sales department for more information)	

### Tension Cord Strength & Belt Weight :

Belt Width (mm)	32	50	75	100	150
Max. Tensile Load (N)	4750	7750	12000	16000	24500
Belt weight (kg/m) Single	0.269	0.420	0.630	0.840	1.260
Belt weight (kg/m) Double	0.355	0.555	0.833	1.110	1.665

### Flexibility:

<p>Without Contraflexure</p>	Toothed Pulley (z=No. teeth)	Zmin	15
	Tension roller (smooth) running on teeth of belt	Dmin	120mm
<p>With Contraflexure</p>	Toothed Pulley (z=No. teeth)	Zmin	25
	Tension roller (smooth) running on back of belt	Dmin	120mm

### Options and features available :

- Coloured or special polyurethane materials
- With Kevlar tension members (See page 26)
- Anti-static (See page 26)
- With profiles welded (See page 41)
- Mechanical re-worked (See page 54)
- With 'E' Tension Member for better flexibility (see page 26)
- In-between widths and larger widths available

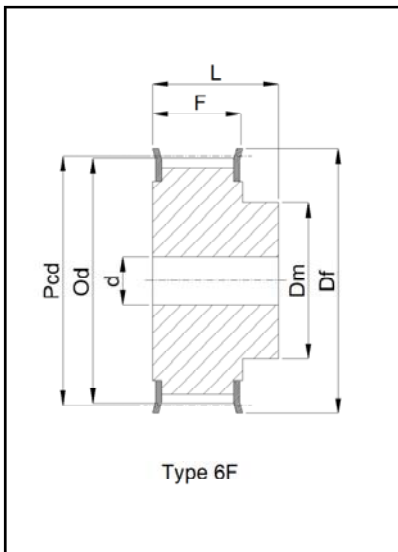
Ordering Example: 50 T20 / 2600 Synchroflex Belt  
 Belt width in mm \_\_\_\_\_  
 Type / Pitch \_\_\_\_\_  
 Belt length in mm \_\_\_\_\_

# PIES T20 Timing Pulleys



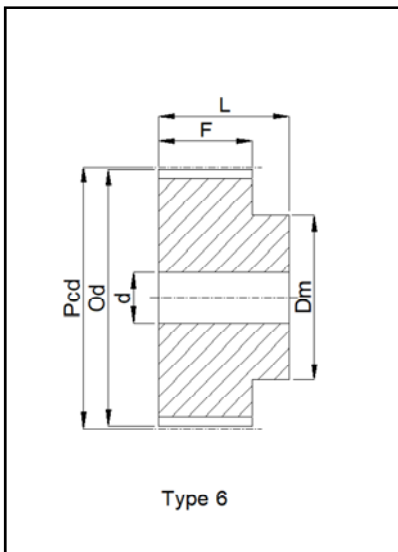
## T20 (20mm pitch)

### T20 Pulleys to suit 32mm wide Belt



Pulley No.	Type	Teeth	Pcd	Od	Dm	Df	F	L	d
AL50T20/18-2	6F	18	114.59	111.75	80	119	40	50	12
AL50T20/20-2	6F	20	127.32	124.45	90	138	40	50	16
AL50T20/22-2	6F	22	140.05	137.20	90	146	40	50	16
AL50T20/24-2	6F	24	152.78	149.95	95	160	40	50	16
AL50T20/25-2	6F	25	159.15	156.30	95	168	40	50	16
AL50T20/30-2	6F	30	190.98	188.15	110	198	40	50	16
AL50T20/32-2	6F	32	203.71	200.85	110	216	40	50	16
AL50T20/36-0	6	36	229.18	226.35	110	-	40	50	18
AL50T20/40-0	6	40	254.64	251.80	110	-	40	50	18
AL50T20/48-0	6	48	305.57	302.70	130	-	40	50	18
AL50T20/60-0	6	60	381.96	379.10	130	-	40	50	20
AL50T20/72-0	6	72	451.99	455.50	140	-	40	50	20

### T20 Pulleys to suit 50mm wide Belt



Pulley No.	Type	Teeth	Pcd	Od	Dm	Df	F	L	d
AL70T20/18-2	6F	18	114.59	111.75	80	119	60	70	12
AL70T20/20-2	6F	20	127.32	124.45	90	138	60	70	16
AL70T20/22-2	6F	22	140.05	137.20	90	146	60	70	16
AL70T20/24-2	6F	24	152.78	149.95	95	160	60	70	16
AL70T20/25-2	6F	25	159.15	156.30	95	168	60	70	16
AL70T20/30-2	6F	30	190.98	188.15	110	198	60	70	16
AL70T20/32-2	6F	32	203.71	200.85	110	216	60	70	16
AL70T20/36-0	6	36	229.18	226.35	110	-	60	70	18
AL70T20/40-0	6	40	254.64	251.80	110	-	60	70	18
AL70T20/48-0	6	48	305.57	302.70	130	-	60	70	18
AL70T20/60-0	6	60	381.96	379.10	130	-	60	70	20
AL70T20/72-0	6	72	451.99	455.50	140	-	60	70	20

### T20 Pulleys to suit 75mm wide Belt

Pulley No.	Type	Teeth	Pcd	Od	Dm	Df	F	L	d
AL95T20/18-2	6F	18	114.59	111.75	80	119	85	95	12
AL95T20/20-2	6F	20	127.32	124.45	90	138	85	95	16
AL95T20/22-2	6F	22	140.05	137.20	90	146	85	95	16
AL95T20/24-2	6F	24	152.78	149.95	95	160	85	95	16
AL95T20/25-2	6F	25	159.15	156.30	95	168	85	95	16
AL95T20/30-2	6F	30	190.98	188.15	110	198	85	95	16
AL95T20/32-0	6	32	203.71	200.85	110	216	85	95	16
AL95T20/36-0	6	36	229.18	226.35	110	-	85	95	18
AL95T20/40-0	6	40	254.64	251.80	110	-	85	95	18
AL95T20/48-0	6	48	305.57	302.70	130	-	85	95	18
AL95T20/60-0	6	60	381.96	379.10	130	-	85	95	20
AL95T20/72-0	6	72	451.99	455.50	140	-	85	95	20

### Standard pulley materials:

<b>Pulley:</b>	Aluminium
<b>Flange:</b>	Steel, zinc plated

### Options and features available upon request :

- Steel, Stainless Steel, Plastic.
- In-between number of teeth.
- Manufactured or Modified to Drawings.
- Anodized or coated for strength.
- Toothed Bars.

### T20 Pulleys to suit 100mm wide Belt

Pulley No.	Type	teeth	Pcd	Od	Dm	Df	F	L	d
AL120T20/18-2	6F	18	114.59	111.75	80	119	110	120	12
AL120T20/20-2	6F	20	127.32	124.45	90	138	110	120	16
AL120T20/22-2	6F	22	140.05	137.20	90	146	110	120	16
AL120T20/24-2	6F	24	152.78	149.95	95	160	110	120	16
AL120T20/25-2	6F	25	159.15	156.30	95	168	110	120	16
AL120T20/30-2	6F	30	190.98	188.15	110	198	110	120	16
AL120T20/32-2	6F	32	203.71	200.85	110	216	110	120	16
AL120T20/36-0	6	36	229.18	226.35	110	-	110	120	18
AL120T20/40-0	6	40	254.64	251.80	110	-	110	120	18
AL120T20/48-0	6	48	305.57	302.70	130	-	110	120	18
AL120T20/60-0	6	60	381.96	379.10	130	-	110	120	20
AL120T20/72-0	6	72	451.99	455.50	140	-	110	120	20

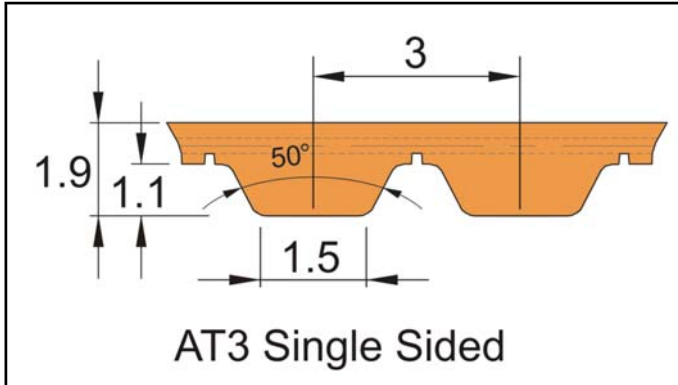
T20 pulleys are non stocked and are made to order.

# SYNCHROFLEX® Belts AT3



## AT3 (3mm pitch)

Standard Belt widths (mm)	6	10	16
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Belt No.	Length mm	No. of Teeth
AT3 / 150	150	50
AT3 / 201	201	67
AT3 / 252	252	84
AT3 / 267	267	89
AT3 / 270	270	90
AT3 / 300	300	100
AT3 / 351	351	117
AT3 / 399	399	133
AT3 / 417	417	139
AT3 / 450	450	150
AT3 / 501	501	167
AT5 / 549	549	183
AT3 / 600	600	200
AT3 / 639	639	213
AT3 / 648	648	216
AT3 / 714	714	238
AT3 / 816	816	272
AT3 / 900	900	300
AT3 / 1011	1011	337

### Tension Cord Strength & Belt Weight :

Belt Width (mm)	6	10	16	25	32
<b>SYNCHROFLEX® STANDARD</b>					
Max. Tensile Load (N)	190	380	646	1102	1406
Belt weight (kg/m)	0.014	0.023	0.037	0.058	0.074
<b>SYNCHROFLEX® GEN III</b>					
Max. Tensile Load (N)	330	599	1002	1608	2079
Belt weight (kg/m)	0.016	0.026	0.042	0.065	0.083

### Available versions

<b>SYNCHROFLEX® Truly Endless Stock Range</b>	
<b>SYNCHROFLEX® GEN III</b> a higher power transmission of up to 25% compared to the standard Synchroflex Belt (See Page 25 for more details)	
<b>BRECO®-M Open Length Belt</b> See Pages 27, 33	
<b>BRECO®-V Joined Belt</b> See Pages 27, 33	
<b>BRECOFLEX® Truly Endless Belt</b> Any length made to order. <small>(Please contact our sales department for more information)</small>	

### Flexibility:

<p><b>Without Contraflexure</b></p>	Toothed Pulley (Z=No. teeth)	Zmin	15
	Tension roller (smooth) running on teeth of belt	Dmin	20mm
<p><b>With Contraflexure</b></p>	Toothed Pulley (Z=No. teeth)	Zmin	20
	Tension roller (smooth) running on back of belt	Dmin	20mm

### Options and features available :

- Coloured or special polyurethane materials
- With Kevlar tension members (See page 26)
- Anti-static (See page 26)
- With profiles welded (See page 41)
- Mechanical re-worked (See page 54)
- In-between widths and larger widths available

Ordering Example: 10 AT3 / 450 Synchroflex Belt  
 Belt width in mm \_\_\_\_\_  
 Type / Pitch \_\_\_\_\_  
 Belt length in mm \_\_\_\_\_

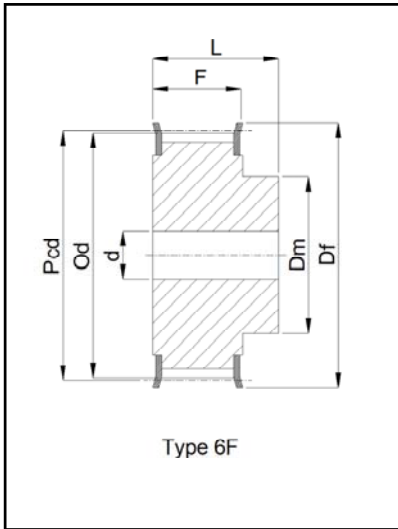


# PIES AT3 Timing Pulleys



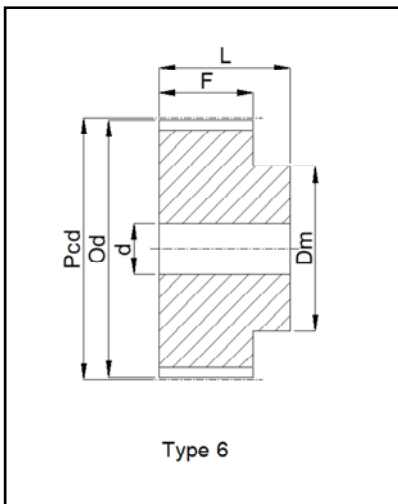
## AT3 (3mm pitch)

### AT3 Pulleys to suit 6mm wide Belt



Pulley No.	Type	Teeth	Pcd	Od	Dm	Df	F	L	d
AL16AT3/15-2	6F	15	14.32	14.02	10	19	10	16	4
AL16AT3/16-2	6F	16	15.28	14.98	10	20	10	16	4
AL16AT3/18-2	6F	18	17.19	16.89	12	23	10	16	4
AL16AT3/20-2	6F	20	19.10	18.80	14	24	10	16	4
AL16AT3/24-2	6F	24	22.92	22.62	14	28	10	16	6
AL16AT3/25-2	6F	25	23.87	23.57	16	30	10	16	6
AL16AT3/30-2	6F	30	28.65	28.35	20	33	10	16	6
AL16AT3/32-2	6F	32	30.56	30.26	20	36	10	16	6
AL16AT3/36-2	6F	36	34.38	34.08	22	39	10	16	6
AL16AT3/40-2	6F	40	38.20	37.90	26	43	10	16	6
AL16AT3/48-0	6	48	45.84	54.54	34	-	10	16	6
AL16AT3/60-0	6	60	57.30	57.00	38	-	10	16	6
AL16AT3/72-0	6	72	68.75	68.45	50	-	10	16	6

### AT3 Pulleys to suit 10mm wide Belt



Pulley No.	Type	Teeth	Pcd	Od	Dm	Df	F	L	d
AL21AT3/15-2	6F	15	14.32	14.02	10	19	15	21	4
AL21AT3/16-2	6F	16	15.28	14.98	10	20	15	21	4
AL21AT3/18-2	6F	18	17.19	16.89	12	23	15	21	4
AL21AT3/20-2	6F	20	19.10	18.80	14	24	15	21	4
AL21AT3/24-2	6F	24	22.92	22.62	14	28	15	21	6
AL21AT3/25-2	6F	25	23.87	23.57	16	30	15	21	6
AL21AT3/30-2	6F	30	28.65	28.35	20	33	15	21	6
AL21AT3/32-2	6F	32	30.56	30.26	20	36	15	21	6
AL21AT3/36-2	6F	36	34.38	34.08	22	39	15	21	6
AL21AT3/40-2	6F	40	38.20	37.90	26	43	15	21	6
AL21AT3/48-0	6	48	45.84	54.54	34	-	15	21	6
AL21AT3/60-0	6	60	57.30	57.00	38	-	15	21	6
AL21AT3/72-0	6	72	68.75	68.45	50	-	15	21	6

### AT3 Pulleys to suit 16mm wide Belt

Pulley No.	Type	Teeth	Pcd	Od	Dm	Df	F	L	d
AL28AT3/15-2	6F	15	14.32	14.02	10	19	22	28	4
AL28AT3/16-2	6F	16	15.28	14.98	10	20	22	28	4
AL28AT3/18-2	6F	18	17.19	16.89	12	23	22	28	4
AL28AT3/20-2	6F	20	19.10	18.80	14	24	22	28	4
AL28AT3/24-2	6F	24	22.92	22.62	14	28	22	28	6
AL28AT3/25-2	6F	25	23.87	23.57	16	30	22	28	6
AL28AT3/30-2	6F	30	28.65	28.35	20	33	22	28	6
AL28AT3/32-2	6F	32	30.56	30.26	20	36	22	28	6
AL28AT3/36-2	6F	36	34.38	34.08	22	39	22	28	6
AL28AT3/40-2	6F	40	38.20	37.90	26	43	22	28	6
AL28AT3/48-0	6	48	45.84	54.54	34	-	22	28	6
AL28AT3/60-0	6	60	57.30	57.00	38	-	22	28	6
AL28AT3/72-0	6	72	68.75	68.45	50	-	22	28	6

AT3 pulleys are non stocked and are made to order.

#### Stock pulley materials:

Pulley:	Aluminium
Flange:	Steel, zinc plated

#### Options and features available upon request :

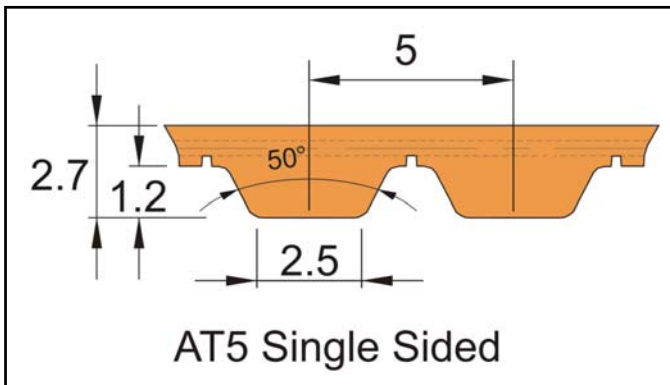
- Steel, Stainless Steel, Plastic.
- In-between number of teeth.
- Manufactured or Modified to Drawings.
- Anodized or coated for strength.
- Toothed Bars.

# SYNCHROFLEX® Belts AT5



## AT5 (5mm pitch)

Standard Belt widths (mm)	10	16	25	32
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### Tension Cord Strength & Belt Weight :

Belt Width (mm)	6	10	16	25	32	50
<b>SYNCHROFLEX® STANDARD</b>						
Max. Tensile Load (N)	350	700	1260	2030	2660	4200
Belt weight (kg/m)	0.020	0.034	0.054	0.085	0.109	0.170
<b>SYNCHROFLEX® GEN III</b>						
Max. Tensile Load (N)	417	787	1342	2175	2823	4489
Belt weight (kg/m)	0.022	0.036	0.058	0.090	0.115	0.180

### Flexibility:

<p>Without Contraflexure</p>	Toothed Pulley (Z=No. teeth)	Zmin	15
	Tension roller (smooth) running on teeth of belt	Dmin	25mm
<p>With Contraflexure</p>	Toothed Pulley (Z=No. teeth)	Zmin	20
	Tension roller (smooth) running on back of belt	Dmin	60mm

### Options and features available :

- Coloured or special polyurethane materials
- With Kevlar tension members (See page 26)
- Anti-static (See page 26)
- With profiles welded (See page 41)
- Mechanical re-worked (See page 54)
- With 'E' Tension Member for better flexibility (see page 26)
- In-between widths and larger widths available

Belt No.	Length mm	No. of Teeth	Belt No.	Length mm	No. of Teeth
AT5 / 225	225	45	AT5 / 660	660	132
AT5 / 255	255	51	AT5 / 710	710	142
AT5 / 260	260	52	AT5 / 720	720	144
AT5 / 280	280	56	AT5 / 750	750	150
AT5 / 300	300	60	AT5 / 780	780	156
AT5 / 330	330	66	AT5 / 825	825	165
AT5 / 340	340	68	AT5 / 860	860	172
AT5 / 375	375	75	AT5 / 900	900	180
AT5 / 390	390	78	AT5 / 920	920	184
AT5 / 420	420	84	AT5 / 975	975	195
AT5 / 450	450	90	AT5 / 1050	1050	210
AT5 / 455	455	91	AT5 / 1125	1125	225
AT5 / 480	480	96	AT5 / 1230	1230	246
AT5 / 500	500	100	AT5 / 1500	1500	300
AT5 / 525	525	105	AT5 / 1750	1750	350
AT5 / 545	545	109	AT5 / 2000	2000	400
AT5 / 600	600	120	AT5 / 3350*	3350	670
AT5 / 610	610	122	AT5 / 3800*	3800	760
AT5 / 620	620	124			
AT5 / 630	630	126			

### Available versions

SYNCHROFLEX® Truly Endless Stock Range	
<b>SYNCHROFLEX® GEN III</b> a higher power transmission of up to 25% compared to the standard Synchroflex Belt. (See Page 25 for more details)	
BRECO®-M Open Length Belt See Pages 27, 33	
BRECO®-V Joined Belt See Pages 27, 33	
<b>BRECOFLEX® Truly Endless Belt</b> Any length made to order. (Please contact our sales department for more information)	

Ordering Example: 16 AT5 / 1050 Synchroflex Belt  
 Belt width in mm \_\_\_\_\_  
 Type / Pitch \_\_\_\_\_  
 Belt length in mm \_\_\_\_\_

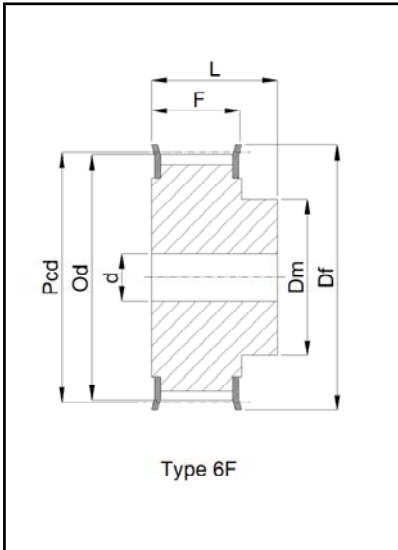
# PIES AT5 Timing Pulleys



## AT5 (5mm pitch)

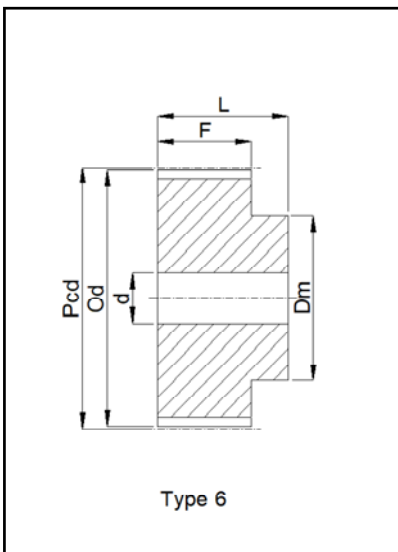
### AT5 Pulleys to suit 16mm wide Belt

Pulley No.	Type	Teeth	Pcd	Od	Dm	Df	F	L	d	Weight
AL27AT5/12-2	6F	12	19.10	17.85	11	23.0	21	27	-	0.022
AL27AT5/14-2	6F	14	22.29	21.05	14	25.0	21	27	-	0.026
AL27AT5/15-2	6F	15	23.88	22.65	16	28.0	21	27	-	0.029
AL27AT5/16-2	6F	16	25.47	24.20	18	32.0	21	27	6	0.035
AL27AT5/18-2	6F	18	28.65	27.40	20	32.0	21	27	6	0.043
AL27AT5/19-2	6F	19	30.25	29.00	22	36.0	21	27	6	0.049
AL27AT5/20-2	6F	20	31.83	30.60	23	36.0	21	27	6	0.053
AL27AT5/22-2	6F	22	35.02	33.75	24	38.0	21	27	6	0.054
AL27AT5/24-2	6F	24	38.21	36.95	26	42.0	21	27	6	0.076
AL27AT5/25-2	6F	25	39.80	38.55	26	44.0	21	27	6	0.081
AL27AT5/26-2	6F	26	41.39	40.15	26	44.0	21	27	6	0.085
AL27AT5/27-2	6F	27	42.98	41.75	30	48.0	21	27	6	0.090
AL27AT5/28-2	6F	28	44.58	43.35	32	48.0	21	27	8	0.092
AL27AT5/30-2	6F	30	47.76	46.50	34	51.0	21	27	8	0.105
AL27AT5/32-2	6F	32	50.94	49.70	38	54.0	21	27	8	0.123
AL27AT5/36-2	6F	36	57.31	56.05	38	63.0	21	27	8	0.160
AL27AT5/40-2	6F	40	63.66	62.45	40	66.0	21	27	8	0.193
AL27AT5/44-0	6	44	70.05	68.80	45	-	21	27	8	0.280
AL27AT5/48-0	6	48	76.42	75.15	50	-	21	27	8	0.280
AL27AT5/60-0	6	60	95.52	94.25	65	-	21	27	8	0.430
AL27AT5/72-0	6	72	114.59	113.37	80	-	21	27	8	0.632



### AT5 Pulleys to suit 25mm wide Belt

Pulley No.	Type	Teeth	Pcd	Od	Dm	Df	F	L	d	Weight
AL36AT5/12-2	6F	12	19.10	17.85	11	23.0	30	36	-	0.031
AL36AT5/14-2	6F	14	22.29	21.05	14	25.0	30	36	-	0.037
AL36AT5/15-2	6F	15	23.88	22.65	16	28.0	30	36	-	0.041
AL36AT5/16-2	6F	16	25.47	24.20	18	32.0	30	36	6	0.041
AL36AT5/18-2	6F	18	28.65	27.40	20	32.0	30	36	6	0.050
AL36AT5/19-2	6F	19	30.25	29.00	22	36.0	30	36	6	0.070
AL36AT5/20-2	6F	20	31.83	30.60	23	36.0	30	36	6	0.076
AL36AT5/22-2	6F	22	35.02	33.75	24	38.0	30	36	6	0.078
AL36AT5/24-2	6F	24	38.21	36.95	26	42.0	30	36	6	0.109
AL36AT5/25-2	6F	25	39.80	38.55	26	44.0	30	36	6	0.116
AL36AT5/26-2	6F	26	41.39	40.15	26	44.0	30	36	6	0.120
AL36AT5/27-2	6F	27	42.98	41.75	30	48.0	30	36	6	0.128
AL36AT5/28-2	6F	28	44.58	43.35	32	48.0	30	36	8	0.136
AL36AT5/30-2	6F	30	47.76	46.50	34	51.0	30	36	8	0.160
AL36AT5/32-2	6F	32	50.94	49.70	38	54.0	30	36	8	0.176
AL36AT5/36-2	6F	36	57.31	56.05	38	63.0	30	36	8	0.230
AL36AT5/40-2	6F	40	63.66	62.45	40	66.0	30	36	8	0.276
AL36AT5/44-0	6	44	70.05	68.80	45	-	30	36	8	0.349
AL36AT5/48-0	6	48	76.42	75.15	50	-	30	36	8	0.400
AL36AT5/60-0	6	60	95.52	94.25	65	-	30	36	8	0.624
AL36AT5/72-0	6	72	114.59	113.37	80	-	30	36 6	8	0.927



### AT5 Pulleys to suit 32mm wide Belt

Pulley No.	Type	Teeth	Pcd	Od	Dm	Df	F	L	d	Weight
AL46AT5/12-2	6F	12	19.10	17.85	11	23.0	40	46	-	0.038
AL46AT5/14-2	6F	14	22.29	21.05	14	25.0	40	46	-	0.045
AL46AT5/15-2	6F	15	23.88	22.65	16	28.0	40	46	-	0.050
AL46AT5/16-2	6F	16	25.47	24.20	18	32.0	40	46	6	0.060
AL46AT5/18-2	6F	18	28.65	27.40	20	32.0	40	46	6	0.074
AL46AT5/19-2	6F	19	30.25	29.00	22	36.0	40	46	6	0.084
AL46AT5/20-2	6F	20	31.83	30.60	23	36.0	40	46	6	0.083
AL46AT5/22-2	6F	22	35.02	33.75	24	38.0	40	46	6	0.096
AL46AT5/24-2	6F	24	38.21	36.95	26	42.0	40	46	6	0.117
AL46AT5/25-2	6F	25	39.80	38.55	26	44.0	40	46	6	0.127
AL46AT5/26-2	6F	26	41.39	40.15	26	44.0	40	46	6	0.145
AL46AT5/27-2	6F	27	42.98	41.75	30	48.0	40	46	6	0.154
AL46AT5/28-2	6F	28	44.58	43.35	32	48.0	40	46	8	0.157
AL46AT5/30-2	6F	30	47.76	46.50	34	51.0	40	46	8	0.193
AL46AT5/32-2	6F	32	50.94	49.70	38	54.0	40	46	8	0.217
AL46AT5/36-2	6F	36	57.31	56.05	38	63.0	40	46	8	0.280
AL46AT5/40-2	6F	40	63.66	62.45	40	66.0	40	46	8	0.329
AL46AT5/44-0	6	44	70.05	68.80	45	-	40	46	8	0.478
AL46AT5/48-0	6	48	76.42	75.15	50	-	40	46	8	0.510
AL46AT5/60-0	6	60	95.52	94.25	65	-	40	46	8	0.774
AL46AT5/72-0	6	72	114.59	113.37	80	-	40	46	8	1.138

#### Stock pulley materials:

Pulley:	Aluminium
Flange:	Steel, zinc plated

#### Options and features available upon request :

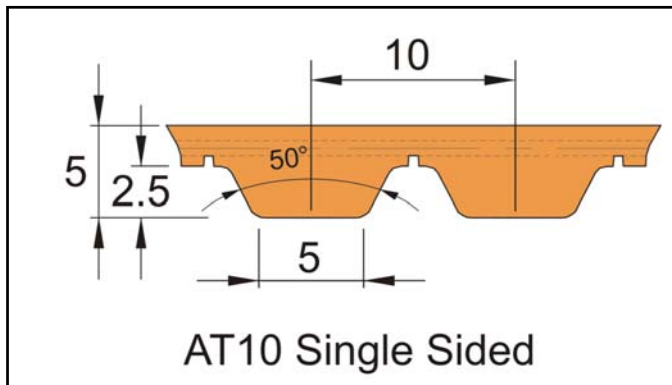
- Steel, Stainless Steel, Plastic.
- In-between number of teeth.
- Manufactured or Modified to Drawings.
- Anodized or coated for strength.
- Toothed Bars.

# SYNCHROFLEX® Belts AT10



## AT10 (10mm pitch)

Standard Belt widths (mm)	25	32	50	75	100
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### Tension Cord Strength & Belt Weight :

Belt Width (mm)	16	25	32	50	75	100
<b>SYNCHROFLEX® STANDARD</b>						
Max. Tensile Load (N)	2000	3500	4750	7750	12000	16000
Belt weight (kg/m)	0.101	0.158	0.202	0.315	0.473	0.630
<b>SYNCHROFLEX® GEN III</b>						
Max. Tensile Load (N)	3000	5000	6750	10750	16500	22000
Belt weight (kg/m)	0.117	0.183	0.234	0.365	0.548	0.730

### Flexibility:

<p>Without Contraflexure</p>	Toothed Pulley (Z=No. teeth)	Zmin	15
	Tension roller (smooth) running on teeth of belt	Dmin	50mm
<p>With Contraflexure</p>	Toothed Pulley (Z=No. teeth)	Zmin	25
	Tension roller (smooth) running on back of belt	Dmin	120mm

### Options and features available :

- Coloured or special polyurethane materials
- With Kevlar tension members (See page 26)
- Anti-static (See page 26)
- With profiles welded (See page 41)
- Mechanical re-worked (See page 54)
- With 'E' Tension Member for better flexibility (see page 26)
- In-between widths and larger widths available

Belt No.	Length mm	No. of Teeth	Belt No.	Length mm	No. of Teeth
AT10 / 440	440	44	AT10 / 1080	1080	108
AT10 / 500	500	50	AT10 / 1100	1100	110
AT10 / 560	560	56	AT10 / 1150	1150	115
AT10 / 580	580	58	AT10 / 1200	1200	120
AT10 / 600	600	60	AT10 / 1210	1210	121
AT10 / 610	610	61	AT10 / 1250	1250	125
AT10 / 660	660	66	AT10 / 1280	1280	128
AT10 / 700	700	70	AT10 / 1300	1300	130
AT10 / 730	730	73	AT10 / 1320	1320	132
AT10 / 780	780	78	AT10 / 1350	1350	135
AT10 / 800	800	80	AT10 / 1360	1360	136
AT10 / 840	840	84	AT10 / 1400	1400	140
AT10 / 880	880	88	AT10 / 1480	1480	148
AT10 / 890	890	89	AT10 / 1500	1500	150
AT10 / 920	920	92	AT10 / 1600	1600	160
AT10 / 960	960	96	AT10 / 1700	1700	170
AT10 / 980	980	98	AT10 / 1720	1720	172
AT10 / 1000	1000	100	AT10 / 1800	1800	180
AT10 / 1010	1010	101	AT10 / 1860	1860	186
AT10 / 1050	1050	105	AT10 / 1940	1940	194

### Available versions

SYNCHROFLEX® Truly Endless Stock Range	
<b>SYNCHROFLEX® GEN III</b> a higher power transmission of up to 25% compared to the standard Synchroflex Belt (See Page 25 for more details)	
<b>BRECO®-M Open Length Belt</b> See Pages 27, 34	
<b>BRECO®-V Joined Belt</b> See Pages 27, 34	
<b>BRECOFLEX® Truly Endless Belt</b> Any length made to order. <small>(Please contact our sales department for more information)</small>	

Ordering Example: 32 AT10 / 1210 Synchroflex Belt  
 Belt width in mm \_\_\_\_\_  
 Type / Pitch \_\_\_\_\_  
 Belt length in mm \_\_\_\_\_

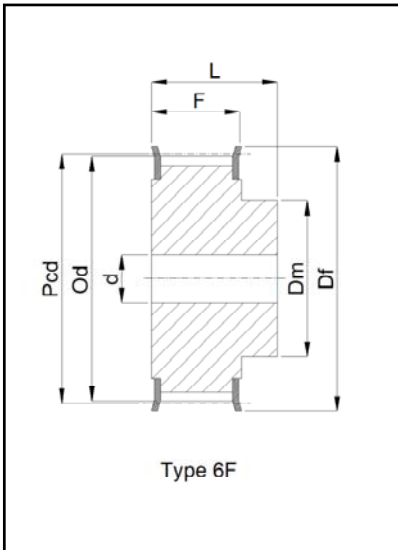


# PIES AT10 Timing Pulleys



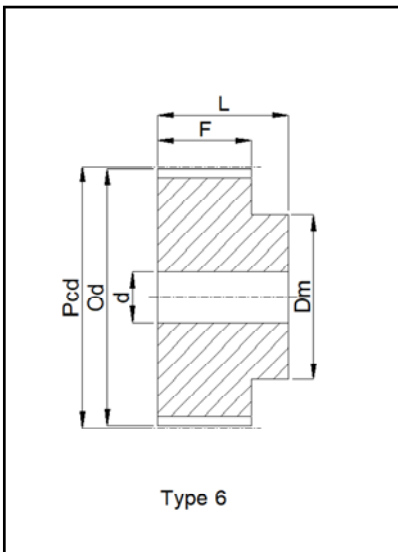
## AT10 (10mm pitch)

### AT10 Pulleys to suit 25mm wide Belt



Pulley No.	Type	Teeth	Pcd	Od	Dm	Df	F	L	d	Weight
AL40AT10/15-2	6F	15	47.75	45.90	32	51	30	40	8	0.152
AL40AT10/16-2	6F	16	50.93	49.10	35	54	30	40	8	0.176
AL40AT10/18-2	6F	18	57.29	55.45	40	60	30	40	8	0.224
AL40AT10/19-2	6F	19	60.48	58.65	44	66	30	40	8	0.247
AL40AT10/20-2	6F	20	63.66	61.80	46	66	30	40	8	0.276
AL40AT10/22-2	6F	22	70.03	68.20	52	75	30	40	8	0.337
AL40AT10/24-2	6F	24	76.39	74.55	58	83	30	40	8	0.392
AL40AT10/25-2	6F	25	79.58	77.75	60	83	30	40	8	0.422
AL40AT10/26-2	6F	26	82.76	80.90	60	87	30	40	8	0.477
AL40AT10/27-2	6F	27	85.95	84.10	60	91	30	40	8	0.536
AL40AT10/28-2	6F	28	89.12	87.25	60	93	30	40	8	0.540
AL40AT10/30-2	6F	30	95.49	93.65	60	97	30	40	8	0.640
AL40AT10/32-2	6F	32	101.86	100.00	65	106	30	40	10	0.693
AL40AT10/36-2	6F	36	114.59	112.75	70	119	30	40	10	0.873
AL40AT10/40-2	6F	40	127.32	125.45	80	131	30	40	10	1.067
AL40AT10/44-0	6	44	140.05	138.20	88	-	30	40	10	1.350
AL40AT10/48-0	6	48	152.78	150.95	95	-	30	40	16	1.516
AL40AT10/60-0	6	60	190.98	189.15	110	-	30	40	16	2.339

### AT10 Pulleys to suit 32mm wide Belt



Pulley No.	Type	Teeth	Pcd	Od	Dm	Df	F	L	d	Weight
AL47AT10/15-2	6F	15	47.75	45.90	32	51	37	47	6	0.183
AL47AT10/16-2	6F	16	50.93	49.10	35	54	37	47	8	0.209
AL47AT10/18-2	6F	18	57.29	55.45	40	60	37	47	8	0.253
AL47AT10/19-2	6F	19	60.48	58.65	44	66	37	47	8	0.286
AL47AT10/20-2	6F	20	63.66	61.80	46	66	37	47	8	0.322
AL47AT10/22-2	6F	22	70.03	68.20	52	75	37	47	8	0.393
AL47AT10/24-2	6F	24	76.39	74.55	58	83	37	47	8	0.475
AL47AT10/25-2	6F	25	79.58	77.75	60	83	37	47	8	0.527
AL47AT10/26-2	6F	26	82.76	80.90	60	87	37	47	8	0.564
AL47AT10/27-2	6F	27	85.95	84.10	60	91	37	47	8	0.602
AL47AT10/28-2	6F	28	89.12	87.25	60	93	37	47	8	0.642
AL47AT10/30-2	6F	30	95.49	93.65	60	97	37	47	8	0.740
AL47AT10/32-2	6F	32	101.86	100.00	65	106	37	47	10	0.844
AL47AT10/36-2	6F	36	114.59	112.75	70	119	37	47	10	1.063
AL47AT10/40-2	6F	40	127.32	125.45	80	131	37	47	10	1.317
AL47AT10/44-0	6	44	140.05	138.20	88	-	37	47	10	1.611
AL47AT10/48-0	6	48	152.78	150.95	95	-	37	47	16	1.931
AL47AT10/60-0	6	60	190.98	189.15	110	-	37	47	16	3.004

### AT10 Pulleys to suit 50mm wide Belt

Pulley No.	Type	Teeth	Pcd	Od	Dm	Df	F	L	d	Weight
AL66AT10/15-2	6F	15	47.75	45.90	32	51	56	66	12	0.303
AL66AT10/16-2	6F	16	50.93	49.10	35	54	56	66	12	0.347
AL66AT10/18-2	6F	18	57.29	55.45	40	60	56	66	12	0.422
AL66AT10/19-2	6F	19	60.48	58.65	44	66	56	66	12	0.466
AL66AT10/20-2	6F	20	63.66	61.80	46	66	56	66	12	0.520
AL66AT10/22-2	6F	22	70.03	68.20	52	75	56	66	12	0.570
AL66AT10/24-2	6F	24	76.39	74.55	58	83	56	66	12	0.736
AL66AT10/25-2	6F	25	79.58	77.75	60	83	56	66	12	0.766
AL66AT10/26-2	6F	26	82.76	80.90	60	87	56	66	12	0.816
AL66AT10/27-2	6F	27	85.95	84.10	60	91	56	66	12	0.946
AL66AT10/28-2	6F	28	89.12	87.25	60	93	56	66	12	0.960
AL66AT10/30-2	6F	30	95.49	93.65	60	97	56	66	12	1.169
AL66AT10/32-2	6F	32	101.86	100.00	65	106	56	66	12	1.300
AL66AT10/36-2	6F	36	114.59	112.75	70	119	56	66	12	1.637
AL66AT10/40-2	6F	40	127.32	125.45	80	131	56	66	12	1.999
AL66AT10/44-0	6	44	140.05	138.20	88	-	56	66	12	2.357
AL66AT10/48-0	6	48	152.78	150.95	95	-	56	66	16	2.830
AL66AT10/60-0	6	60	190.98	189.15	110	-	56	66	16	4.366

#### Stock pulley materials:

Pulley:	Aluminium
Flange:	Steel, zinc plated

#### Options and features available upon request :

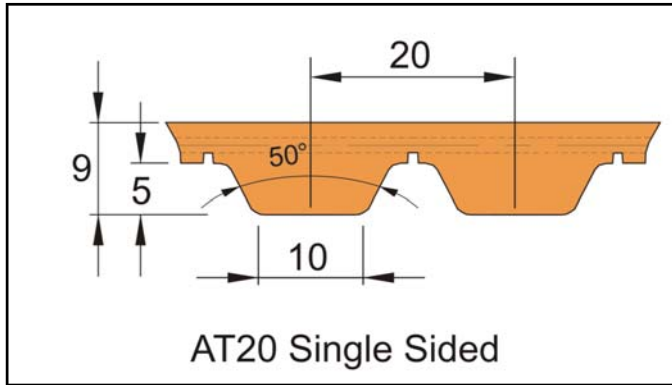
- Steel, Stainless Steel, Plastic.
- In-between number of teeth.
- Manufactured or Modified to Drawings.
- Anodized or coated for strength.
- Toothed Bars.

# SYNCHROFLEX® Belts AT20



## AT20 (20mm pitch)

Standard Belt widths (mm)	32	50	75	100
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Belt No.	Length mm	No. of Teeth
AT20 / 1000	1000	50
AT20 / 1100	1100	55
AT20 / 1200	1200	60
AT20 / 1260	1260	63
AT20 / 1500	1500	75
AT20 / 1600	1600	80
AT20 / 1700	1700	85
AT20 / 1760	1760	88
AT20 / 1800	1800	90
AT20 / 1900	1900	95
AT20 / 1960	1960	98

### Tension Cord Strength & Belt Weight :

Belt Width (mm)	32	50	75	100	150
<b>SYNCHROFLEX® STANDARD</b>					
Max. Tensile Load (N)	6750	11250	17550	23850	36450
Belt weight (kg/m)	0.339	0.530	0.795	1.060	1.590
<b>SYNCHROFLEX® GEN III</b>					
Max. Tensile Load (N)	8100	13500	21060	28620	43740
Belt weight (kg/m)	0.397	0.620	0.930	1.240	1.860

### Available versions

<b>SYNCHROFLEX® Truly Endless Stock Range</b>	
<b>SYNCHROFLEX® GEN III</b> a higher power transmission of up to 25% compared to the standard Synchroflex Belt See Page 25 for more details	
<b>BRECO®-M Open Length Belt</b> See Pages 27, 34	
<b>BRECO®-V Joined Belt</b> See Pages 27, 34	
<b>BRECOFLEX® Truly Endless Belt</b> Any length made to order. <small>(Please contact our sales department)</small>	

### Flexibility:

	<b>Toothed Pulley (Z=No. teeth)</b>	<b>Zmin</b>	<b>18</b>
	<b>Tension roller (smooth) running on teeth of belt</b>	<b>Dmin</b>	<b>120mm</b>
	<b>Toothed Pulley (Z=No. teeth)</b>	<b>Zmin</b>	<b>25</b>
	<b>Tension roller (smooth) running on back of belt</b>	<b>Dmin</b>	<b>180mm</b>

### Options and features available :

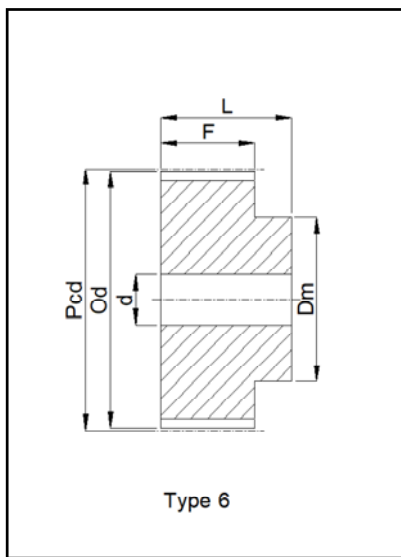
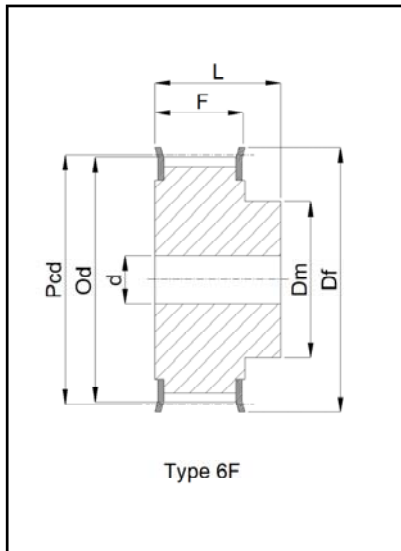
- Coloured or special polyurethane materials
- With Kevlar tension members (See page 26)
- Anti-static (See page 26)
- With profiles welded (See page 41)
- Mechanical re-worked (See page 54)
- With 'E' Tension Member for better flexibility (see page 26)
- In-between widths and larger widths available

Ordering Example: 50 AT20 / 1500 Synchroflex Belt  
 Belt width in mm \_\_\_\_\_  
 Type / Pitch \_\_\_\_\_  
 Belt length in mm \_\_\_\_\_

# PIES AT20 Timing Pulleys



## AT20 (20mm pitch)



### AT20 Pulleys to suit 32mm wide Belt

Pulley No.	Type	Teeth	Pcd	Od	Dm	Df	F	L	d
AL50AT20/18-2	6F	18	114.59	111.75	80	119	40	50	12
AL50AT20/20-2	6F	20	127.32	124.45	90	138	40	50	16
AL50AT20/22-2	6F	22	140.05	137.20	90	146	40	50	16
AL50AT20/24-2	6F	24	152.78	149.95	95	160	40	50	16
AL50AT20/25-2	6F	25	159.15	156.30	95	168	40	50	16
AL50AT20/30-2	6F	30	190.98	188.15	110	198	40	50	16
AL50AT20/32-2	6F	32	203.71	200.85	110	216	40	50	16
AL50AT20/36-0	6	36	229.18	226.35	110	-	40	50	18
AL50AT20/40-0	6	40	254.64	251.80	110	-	40	50	18
AL50AT20/48-0	6	48	305.57	302.70	130	-	40	50	18
AL50AT20/60-0	6	60	381.96	379.10	130	-	40	50	20
AL50AT20/72-0	6	72	451.99	455.50	140	-	40	50	20

### AT20 Pulleys to suit 50mm wide Belt

Pulley No.	Type	Teeth	Pcd	Od	Dm	Df	F	L	d
AL70AT20/18-2	6F	18	114.59	111.75	80	119	60	70	12
AL70AT20/20-2	6F	20	127.32	124.45	90	138	60	70	16
AL70AT20/22-2	6F	22	140.05	137.20	90	146	60	70	16
AL70AT20/24-2	6F	24	152.78	149.95	95	160	60	70	16
AL70AT20/25-2	6F	25	159.15	156.30	95	168	60	70	16
AL70AT20/30-2	6F	30	190.98	188.15	110	198	60	70	16
AL70AT20/32-2	6F	32	203.71	200.85	110	216	60	70	16
AL70AT20/36-0	6	36	229.18	226.35	110	-	60	70	18
AL70AT20/40-0	6	40	254.64	251.80	110	-	60	70	18
AL70AT20/48-0	6	48	305.57	302.70	130	-	60	70	18
AL70AT20/60-0	6	60	381.96	379.10	130	-	60	70	20
AL70AT20/72-0	6	72	451.99	455.50	140	-	60	70	20

### AT20 Pulleys to suit 75mm wide Belt

Pulley No.	Type	Teeth	Pcd	Od	Dm	Df	F	L	d
AL95AT20/18-2	6F	18	114.59	111.75	80	119	85	95	12
AL95AT20/20-2	6F	20	127.32	124.45	90	138	85	95	16
AL95AT20/22-2	6F	22	140.05	137.20	90	146	85	95	16
AL95AT20/24-2	6F	24	152.78	149.95	95	160	85	95	16
AL95AT20/25-2	6F	25	159.15	156.30	95	168	85	95	16
AL95AT20/30-2	6F	30	190.98	188.15	110	198	85	95	16
AL95AT20/32-2	6F	32	203.71	200.85	110	216	85	95	16
AL95AT20/36-0	6	36	229.18	226.35	110	-	85	95	18
AL95AT20/40-0	6	40	254.64	251.80	110	-	85	95	18
AL95AT20/48-0	6	48	305.57	302.70	130	-	85	95	18
AL95AT20/60-0	6	60	381.96	379.10	130	-	85	95	20
AL95AT20/72-0	6	72	451.99	455.50	140	-	85	95	20

### AT20 Pulleys to suit 100mm wide Belt

Pulley No.	Type	teeth	Pcd	Od	Dm	Df	F	L	d
AL120AT20/18-2	6F	18	114.59	111.75	80	119	110	120	12
AL120AT20/20-2	6F	20	127.32	124.45	90	138	110	120	16
AL120AT20/22-2	6F	22	140.05	137.20	90	146	110	120	16
AL120AT20/24-2	6F	24	152.78	149.95	95	160	110	120	16
AL120AT20/25-2	6F	25	159.15	156.30	95	168	110	120	16
AL120AT20/30-2	6F	30	190.98	188.15	110	198	110	120	16
AL120AT20/32-2	6F	32	203.71	200.85	110	216	110	120	16
AL120AT20/36-0	6	36	229.18	226.35	110	-	110	120	18
AL120AT20/40-0	6	40	254.64	251.80	110	-	110	120	18
AL120AT20/48-0	6	48	305.57	302.70	130	-	110	120	18
AL120AT20/60-0	6	60	381.96	379.10	130	-	110	120	20
AL120AT20/72-0	6	72	451.99	455.50	140	-	110	120	20

#### Standard pulley materials:

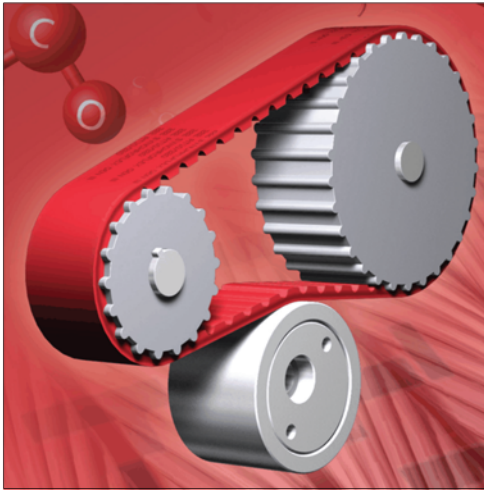
Pulley:	Aluminium
Flange:	Steel, zinc plated

#### Options and features available upon request :

- Steel, Stainless Steel, Plastic.
- In-between number of teeth.
- Manufactured or Modified to Drawings.
- Anodized or coated for strength.
- Toothed Bars.

AT20 pulleys are non stocked and are made to order.

## SYNCHROFLEX® GEN III TIMING BELTS



The intensive development work on the SYNCHROFLEX® TIMING BELTS of the AT series emphasizing on the power drives has proven successful, because an increase in power transmission of up to 25% of the new generation compared to the AT standard could be achieved. A further economical plus: All SYNCHROFLEX® TIMING BELTS GEN III are suitable for application with standard AT pulleys.

For the Mulco Europe Group progress means to provide the best possible solution for each product down to the smallest technical detail. This is achieved for the new SYNCHROFLEX® GEN III of the AT series by the use of a two-filament tension member arrangement and with a higher density.

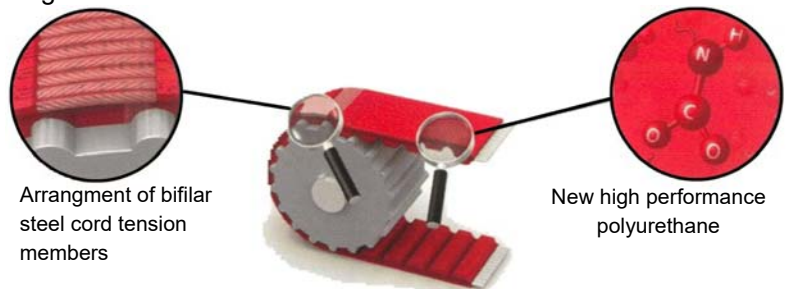
The new high performance polyurethane is distinguished by numerous performance improvements. Thus, amongst others, it is possible to consider a higher number of load bearing teeth in the calculation by an increased hardness.

### A powerful basis

The combination of high tensile steel cord tension members and wear resistant polyurethane forms the basis for dimensionally stable and high resistant polyurethane timing belts. A technology convincing with excellent product properties.

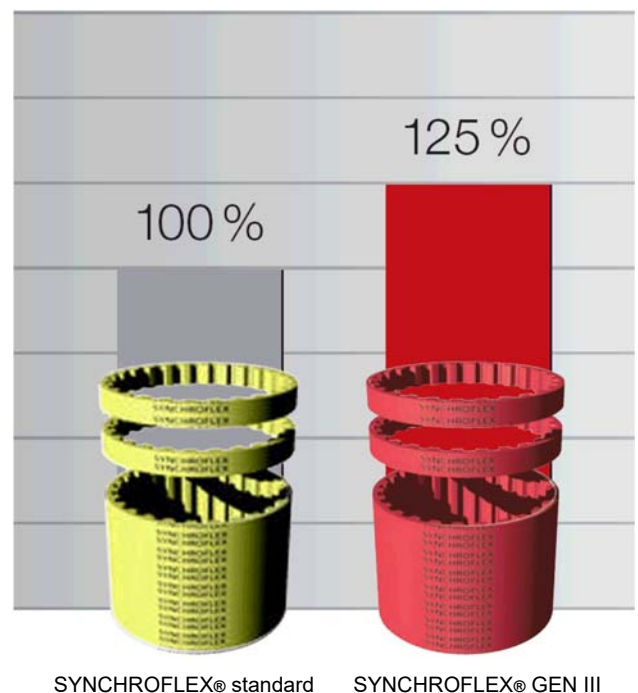
- constant length, no post-elongation
- high dimensional stability
- Transmission of high torques
- quiet run
- maintenance-free
- no timing belt lubrication
- high resistance against mechanical and chemical influences

Figure 1



### SYNCHROFLEX®-GEN III - a higher power transmission of up to 25% compared to the AT / ATP standard:

- Admissible tensile load max. +45%, due to closer wound cords
- Strongly reduced wandering-off tendency / optimised straight run due to two-filament tension members and balanced twist direction in S and Z design (Figure A)
- reduced friction at the flange
- minimised running noise with reduced belt width and equal performance
- Specific tooth force +25%
- Longer longevity
- Circumferential force distribution to a number of load bearing teeth increased by up to 30%
- Application up to 100°C





## Anti-static Timing Belts:

Electric charges due to the continual separation of two contact surfaces can be expected where timing belts are involved, e.g. pulley and timing belt. This electric charge can be considerable and as high as implying the danger of ignition at the moment of its discharge. The value of the electric charge depends on the materials out of which timing belt, synchronous pulley, tension roller and/or support roller are manufactured. It rises as the belt speed, belt pretension and the contact surface width increase.

The antistatic properties of SYNCHROFLEX®, BRECO® & BRECOFLEX® TIMING BELTS are achieved by:

1. Post-process application of an electrically conductive coat on all sides of the belts with and without textile facing
2. A special conductive polyurethane mix (max. belt length 700 mm)

Colour of antistatic timing belts: Black.

Surface resistance  $R \leq 10_6 \Omega$

Antistatic timing belts reliably avoid the formation of electric charges. According to DIN 22104 "Antistatic conveyor belts", the surface resistance must be below  $3 \cdot 10_6 \Omega$ .

**ORDERING EXAMPLE:** 25 T5 / 630 Anti-static

## Highly flexible - The 'E' steel cord tension member:

The thinner the single wire, the more flexible the overall tension member! This interrelation led to the development of BRECO®, BRECOFLEX® and SYNCHROFLEX® TIMING BELTS with 'E' tension members. In the 'E' tension member the tension member cross section is distributed to a lot more thin individual wires and, therefore, the bending fatigues are markedly lower in the individual wires. The advantage of the 'E' tension members is a higher flexibility. This is especially important, when smaller mounting dimensions for pulleys and tension rollers are required. The minimum number of teeth and/or minimum diameter of the pulleys can be fallen below up to 30% compared with standard tension members. Timing belts with 'E' tension members are recommended for multi-shaft drive with frequent bends.

### Summary:

- Thinner individual wires in the steel cord
- Higher dynamic capabilities
- Extremely high bonding and bending fatigue strength
- Smaller pulley and tension roller diameter
- No correction of the synchronising pulleys are necessary

### Available Versions:

- For AT 3 (standard), AT 5, AT 10, T 5, T 10, T 20
- Belt lengths respectively to the delivery range
- Synchronising pulleys respectively to the delivery range
- Calculation analogue to the standard tension member

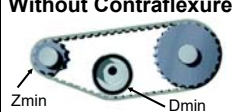
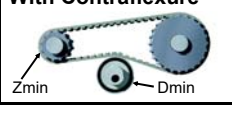


Standard



'E' type

### Timing belts with 'E' tension members, minimum number of teeth:

			AT3 (Standard)	AT5	AT10	T5	T10	T20
<b>Without Contraflexure</b> 	<b>Toothed Pulley (Z=No. teeth)</b>	Zmin	15	12	12	10	10	12
	Tension roller (smooth) running on teeth of belt	Dmin	20	18	50	18	50	80
<b>With Contraflexure</b> 	<b>Toothed Pulley (Z=No. teeth)</b>	Zmin	20	20	20	12	15	20
	Tension roller (smooth) running on back of belt	Dmin	20	50	80	18	50	120

**ORDERING EXAMPLE:** 25 T5 / 630 'E' Tension Cord

## Kevlar cord tension member:

BRECO®, BRECOFLEX® and SYNCHROFLEX® TIMING BELTS are also available with Kevlar tension members

- Non-magnetic, for use in drives with metal detectors
- Widely used in the food industry
- Used in wet areas
- Pulley and idler diameters as per standard steel tension members

## BRECO® TIMING BELTS

**BRECO-M: Open length**



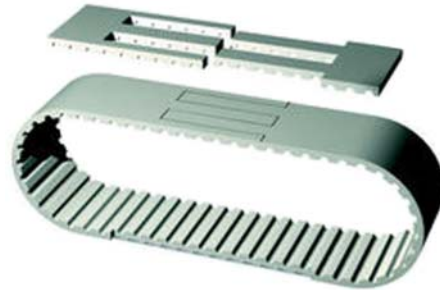
**BRECO-M:** The BRECO® TIMING BELT is manufactured in open length. The tension members are always arranged with parallel edges. Open length is required e.g. in linear transmissions. All tension members assume part of the load.

### Application Areas:

#### Open length for linear transmissions

Rotary movements are converted into linear movements by linear transmissions. The BRECO® TIMING BELT in its open length delivery form is preferably fitted to the machine part to be moved.

**BRECO-V: Joined belts**



**BRECO-V:** BRECO® TIMING BELTS are manufactured from open length material welded to endless belts in our Melbourne factory. In the join area the half number of tension members assume part of the load. The use of endless joined BRECO® TIMING BELTS is preferred in the conveying technology to handle any centre distance.

### Application Areas:

#### Joined belts for conveying drives

Endless joined timing belts without length limitation are available. The minimum length for various belt profiles, however, is to be taken into consideration. For special requirements in transportation timing belts are coated or manufactured with flights/profiles.

### Construction:

BRECO TIMING BELTS are constructed of wear resistant polyurethane and high tensile steel cord tension members. Both materials combined form the basis for dimensionally stable and reliable BRECO® TIMING BELTS. An optional nylon tooth facing results in a low-friction timing belt with high performance. The BRECO® TIMING BELT is manufactured without length limitation. The steel cord tension members are arranged with parallel edges.

### Properties

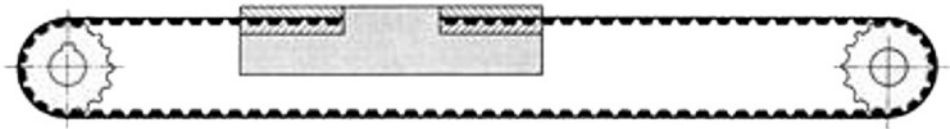
- Positive fit, synchronous run
- High loadability, length stable
- High degree of efficiency, max. 98 %
- Wear resistant in continuous operation
- Precision of repeatability of positioning in the linear system
- Pitch accuracy in the rotational to linear translation of movement
- Low mass, suitable for stepper drives
- Hydrolysis resistant, resistant against ozone and sun light
- Temperature resistant from -30° to + 80°C, temporarily higher
- Resistant to petrol, simple fats and oils

## Construction features

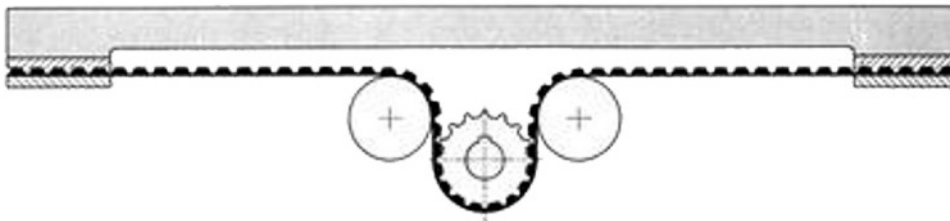
### Surrounding structure:

Low friction and low dead weight is to be aspired for all assembly modules assuming part of the movement. The surrounding structure is to design dimensionally stable. Generally, BRECO®-AT and ATL TIMING BELTS as open length are to be clamped on the moving linear technology using clamp plates (see clamp plates). BRECO®-AT and ATL TIMING BELTS permit a rotational to linear translation of movement with continuous accuracy. Due to the high pitch accuracy between belt and pulley meshing the load distribution is distributed equally to the tooth faces in mesh on the drive assembly pulley and that produces a high performance and accuracy. The choice of materials for the belt and pulley is especially suitable for bi-directional drives. The distance of travel per pulley evolution is defined with the selection of the pitch and the number of teeth of the drive assembly pulley. For the linear drives are three design versions available.

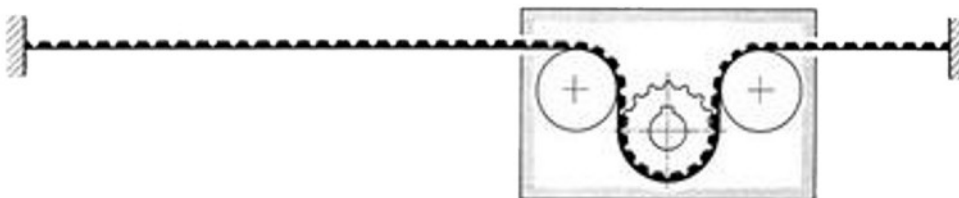
### Linear Slide



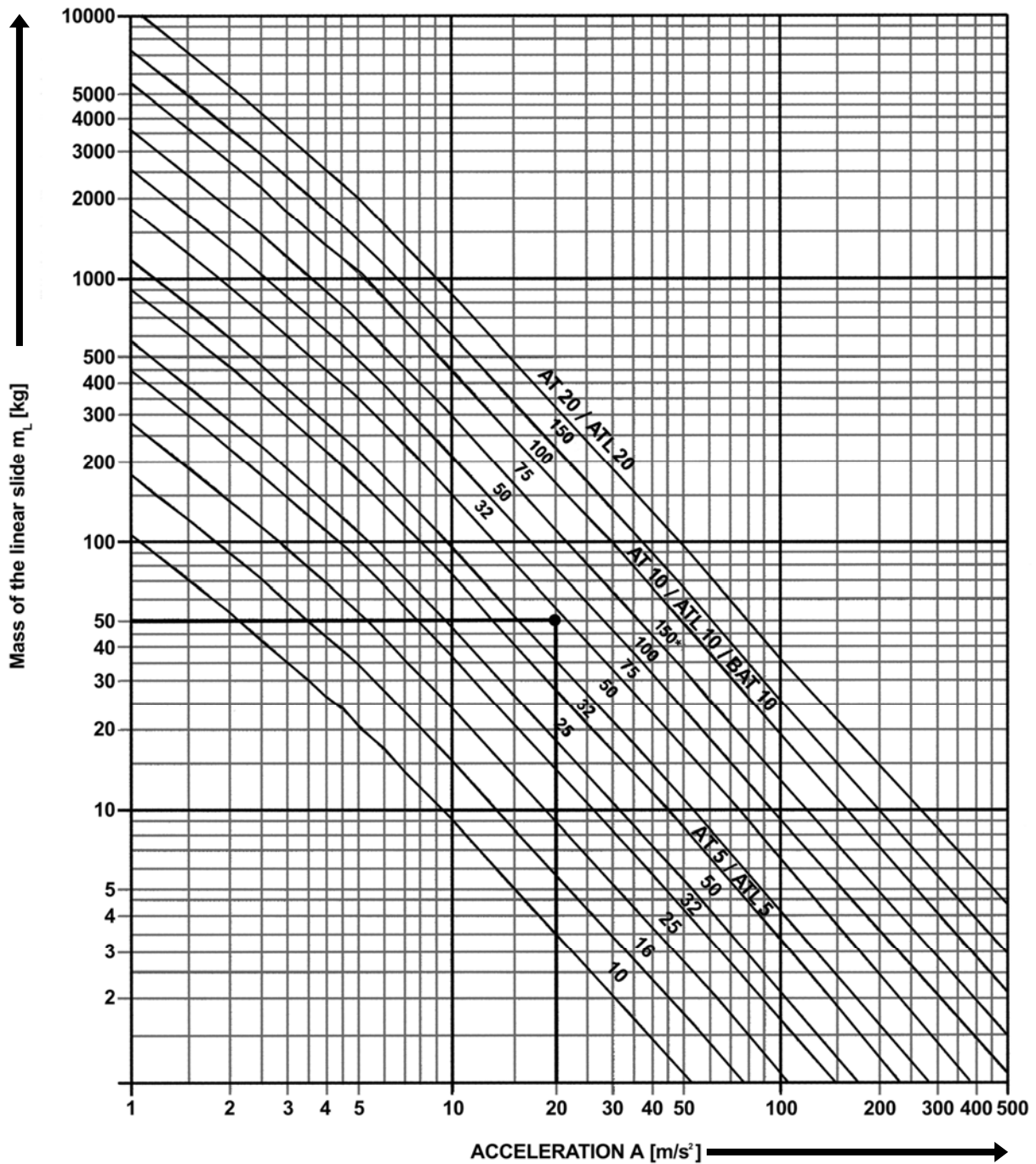
### Linear Table



### Linear Trolley



## Determination of belt type and belt width:



### Example for the coarse design:

Mass of linear slide  $m_L = 50$  kg  
 max. acceleration (w/o delay)  $a = 20$  m/s<sup>2</sup>

In the graph intersection point can be read:

BRECO® TIMING BELTS: AT10 or ATL10, 50 mm wide  
 alternatively: AT20 or ATL20, 32 mm wide

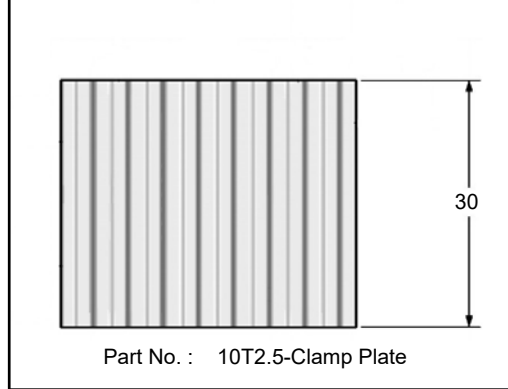
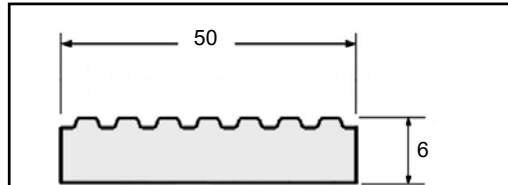
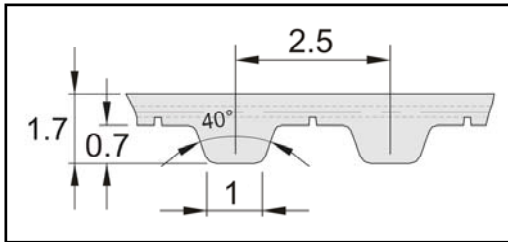
### Recommendation:

The corresponding pulley of the drive pulley assembly should have 20 teeth (ATL =25) or more. With a pulley with less than 20 teeth (AT), select the next larger belt width.

\* For full design details please contact our sales department.



## T2.5 (2.5mm pitch)



For list of standard pulleys please see page 11.

### BRECO-M Open Length:

Standard Belt widths (mm)	6	8*	10*	20*
Max. Tensile Load (N)	55	77	98	196
Specific elasticity (N)	$1.47 \cdot 10^4$	$1.93 \cdot 10^4$	$2.45 \cdot 10^4$	$4.9 \cdot 10^4$
Belt weight (kg/m)	0.009	0.010	0.015	0.030

\* Non-stocked width. MOQ may apply.

### BRECO-V Joined Endless

Minimum joined length = 350mm

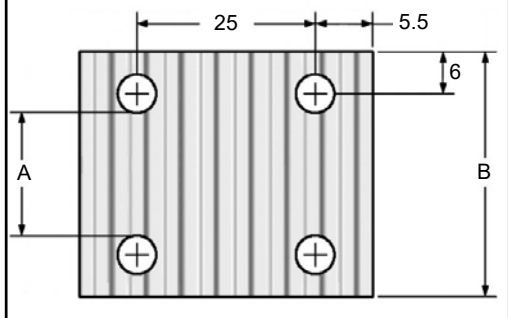
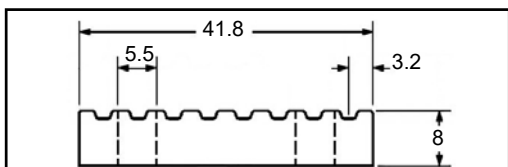
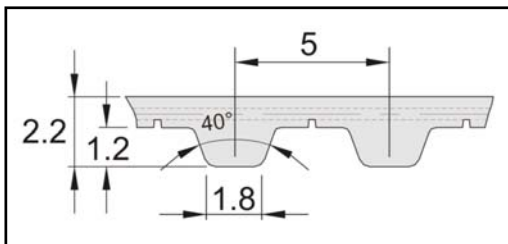
Preferred Belt widths (mm)	8	10	20
Max. Tensile Load (N)	38	49	98
Belt weight (kg/m)	0.010	0.015	0.030

### Flexibility:

	Toothed Pulley (Z=No. Teeth)	Zmin	15
	Tension roller (smooth) running on teeth of belt	Dmin	15mm
	Toothed Pulley (Z=No. Teeth)	Zmin	18
	Tension roller (smooth) running on back of belt	Dmin	18mm

Ordering Example: 10 T2.5 / 1250 - M Breco Timing Belt  
 Belt width in mm \_\_\_\_\_  
 Type / Pitch \_\_\_\_\_  
 Belt length in mm \_\_\_\_\_  
 Open Length = M or Joined = V \_\_\_\_\_

## T5 (5mm pitch)



CODE No.	PART No.	Belt Width "A"	Clamp Width
270310	10T5-Clamp	10mm	29mm
270316	16T5-Clamp	16mm	35mm
270325	25T5-Clamp	25mm	44mm

### BRECO-M Open Length:

Standard Belt widths (mm)	6	10	16	25	32	50
Max. Tensile Load (N)	180	300	540	840	1080	1680
Specific elasticity (N)	$4.5 \cdot 10^4$	$7.5 \cdot 10^4$	$13.5 \cdot 10^4$	$21.0 \cdot 10^4$	$27.0 \cdot 10^4$	$42.0 \cdot 10^4$
Belt weight (kg/m)	0.013	0.021	0.034	0.053	0.068	0.106

### BRECO-V Joined Endless

Minimum joined length = 880mm

Preferred Belt widths	10	16	25	32	50	75
Max. Tensile Load (N)	150	270	420	540	840	1260
Belt weight (kg/m)	0.021	0.034	0.053	0.068	0.106	0.147

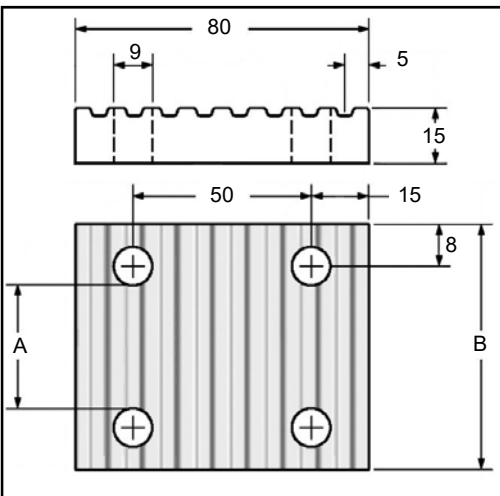
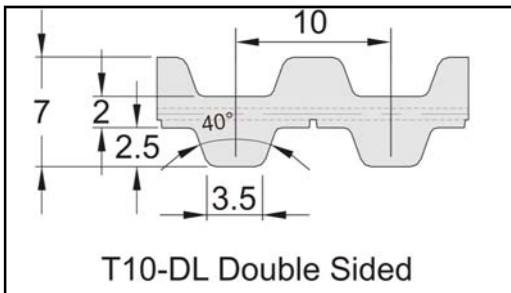
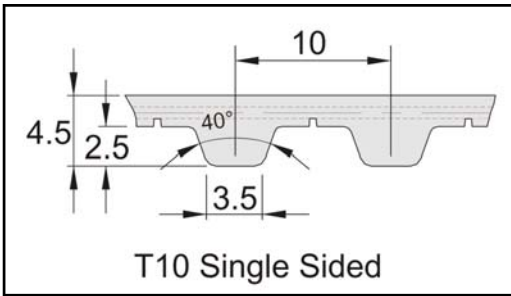
### Flexibility:

	Toothed Pulley (Z=No. Teeth)	Zmin	10
	Tension roller (smooth) running on teeth of belt	Dmin	30mm
	Toothed Pulley (Z=No. Teeth)	Zmin	15
	Tension roller (smooth) running on back of belt	Dmin	30mm

For list of standard pulleys please see page 13.

Ordering Example: 25 T5 / 16000 - M Breco Timing Belt  
 Belt width in mm \_\_\_\_\_  
 Type / Pitch \_\_\_\_\_  
 Belt length in mm \_\_\_\_\_  
 Open Length = M or Joined = V \_\_\_\_\_

## T10 (10mm pitch)



CODE No.	PART No.	Belt Width "A"	Clamp Width "B"
270416	16T10-Clamp	16mm	41mm
270425	25T10-Clamp	25mm	50mm
270432	32T10-Clamp	32mm	57mm
270450	50T10-Clamp	50mm	75mm

### BRECO-M Open Length:

Standard Belt widths (mm)	16	25	32	50	75	100
Max. Tensile Load (N)	1400	2200	2800	4400	6600	8800
Specific elasticity (N)	$3.5 \cdot 10^5$	$5.5 \cdot 10^5$	$7.0 \cdot 10^5$	$11.0 \cdot 10^5$	$16.5 \cdot 10^5$	$22.0 \cdot 10^5$
Belt weight (kg/m) Single Sided	0.073	0.114	0.145	0.227	0.341	0.454
Belt weight (kg/m) Double Sided	0.094	0.147	0.188	0.293	0.440	0.586

### BRECO-V Joined Endless

Minimum joined length = 880mm

Preferred Belt widths (mm)	16	25	32	50	75	100
Max. Tensile Load (N)	700	1100	1400	2200	3300	4400
Belt weight (kg/m) Single Sided	0.073	0.114	0.145	0.227	0.341	0.454
Belt weight (kg/m) Double Sided	0.094	0.147	0.188	0.293	0.440	0.586

### Flexibility:

T10 T10-DL

	Toothed Pulley (Z=No. Teeth)	Zmin	T10	T10-DL
<b>Without Contraflexure</b>			12	20
Tension roller (smooth) running on teeth of belt		Dmin	60mm	60mm
<b>With Contraflexure</b>			20	20
Tension roller (smooth) running on back of belt		Dmin	60mm	60mm

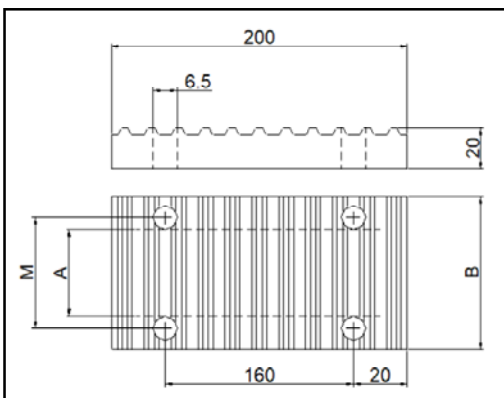
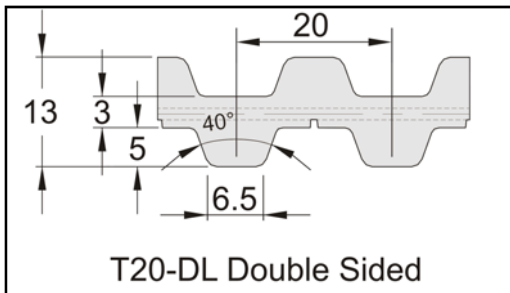
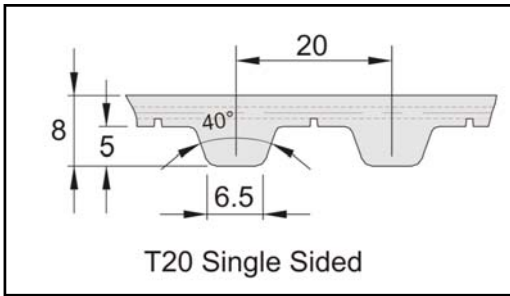
Ordering Example: 32 T10 / 50000 - V - DL Breco Timing Belt  
 Belt width in mm \_\_\_\_\_  
 Type / Pitch \_\_\_\_\_  
 Belt length in mm \_\_\_\_\_  
 Open Length = M or Joined = V \_\_\_\_\_  
 Double Sided Option \_\_\_\_\_

For list of standard pulleys please see page 15

### Options and features available :

- Coloured or special polyurethane materials
- With Kevlar tension members (See page 27)
- PAZ - with nylon tooth facing (See page 50)
- PAR - with nylon backing (See page 50)
- With profiles welded (See page 42)
- Mechanical re-worked (See page 55)
- With 'E' Tension Member for better flexibility (See page 27)
- In-between widths and larger widths available
-

## T20 (20mm pitch)



### BRECO-M Open Length:

Standard Belt widths (mm)	25	32	50	75	100	150
Max. Tensile Load (N)	3500	4500	7000	10500	14000	20000
Specific elasticity (N)	$0.87 \cdot 10^6$	$1.13 \cdot 10^6$	$1.75 \cdot 10^6$	$2.63 \cdot 10^6$	$3.5 \cdot 10^6$	$5.0 \cdot 10^6$
Belt weight (kg/m) Single Sided	0.184	0.236	0.368	0.552	0.736	1.095
Belt weight (kg/m) Double Sided	0.247	0.316	0.493	0.739	0.986	—



### BRECO-V Joined Endless

Minimum joined length = 880mm

Preferred Belt widths (mm)	25	32	50	75	100	150
Max. Tensile Load (N)	1750	2250	3500	5250	7000	10000
Belt weight (kg/m) Single Sided	0.184	0.236	0.368	0.552	0.736	1.095
Belt weight (kg/m) Double Sided	0.247	0.316	0.493	0.739	0.986	—

### Flexibility:

T20 T20-DL

	Toothed Pulley (Z=No. Teeth)	Zmin	15	25
<b>Without Contraflexure</b>				
	Tension roller (smooth) running on teeth of belt	Dmin	120mm	150mm
<b>With Contraflexure</b>				
	Tension roller (smooth) running on back of belt	Dmin	120mm	180mm

Ordering Example: 50 T20 / 7800 - V - DL Breco Timing Belt  
 Belt width in mm \_\_\_\_\_  
 Type / Pitch \_\_\_\_\_  
 Belt length in mm \_\_\_\_\_  
 Open Length = M or Joined = V \_\_\_\_\_  
 Double Sided Option \_\_\_\_\_

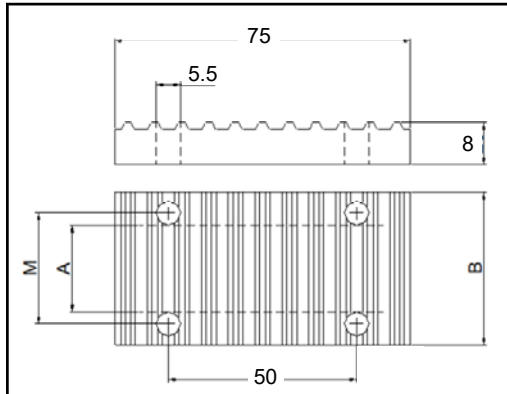
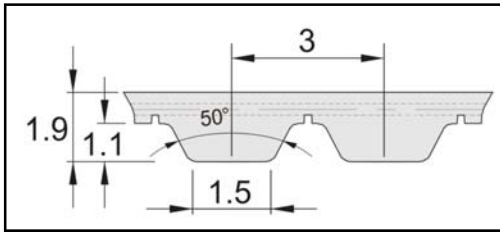
For list of standard pulleys please see page 17

PART No.	Belt Width "A"	Clamp Width "B"	Holes "M"
25T20-Clamp	25mm	50mm	38mm
32T20-Clamp	32mm	60mm	46mm
50T20-Clamp	50mm	75mm	62mm
75T20-Clamp	75mm	110mm	94mm
100T20-Clamp	100mm	140mm	124mm
150T20-Clamp	150mm	190mm	174mm

### Options and features available :

- Coloured or special polyurethane materials
- PAZ - with nylon tooth facing (See page 50)
- PAR - with nylon backing (See page 50)
- With profiles welded (See page 42)
- Mechanical re-worked (See page 55)
- In-between widths and larger widths available

## AT3 (3mm pitch)



PART No.	Belt Width "A"	Clamp Width "B"	Dimension "M"
10AT3-Clamp	10mm	30mm	20mm
20AT3-Clamp	20mm	50mm	30mm
25AT3-Clamp	25mm	60mm	38mm

For list of standard pulleys please see page 19

### BRECO-M Open Length:

Standard Belt widths (mm)	8*	10	20	25*
Max. Tensile Load (N)	320	400	800	1000
Specific elasticity (N)	8.0 · 10 <sup>4</sup>	10.0 · 10 <sup>4</sup>	20.0 · 10 <sup>4</sup>	25.0 · 10 <sup>4</sup>
Belt weight (kg/m)	0.018	0.022	0.044	0.054

\* Non-stocked width. MOQ may apply.

### BRECO-V Joined Endless

Minimum joined length = 880mm

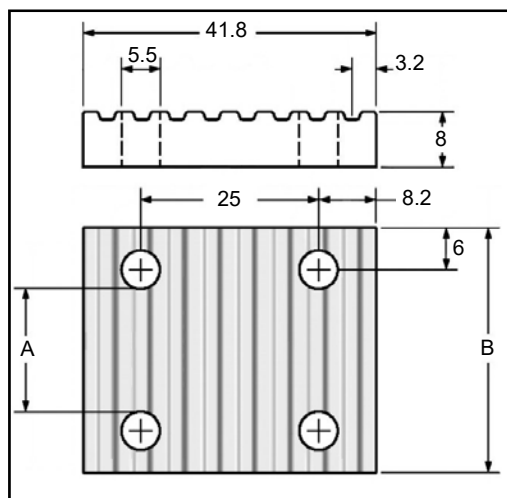
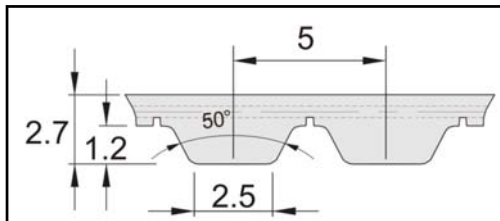
Standard Belt widths (mm)	8	10	20	25
Max. Tensile Load (N)	160	200	400	500
Belt weight (kg/m)	0.018	0.022	0.044	0.054

### Flexibility:

<b>Without Contraflexure</b> 	<b>Toothed Pulley (Z=No. Teeth)</b>	Zmin	15
	Tension roller (smooth) running on teeth of belt	Dmin	20mm
<b>With Contraflexure</b> 	<b>Toothed Pulley (Z=No. Teeth)</b>	Zmin	20
	Tension roller (smooth) running on back of belt	Dmin	20mm

Ordering Example: 10 AT3 / 9000 - M Breco Timing Belt  
 Belt width in mm \_\_\_\_\_  
 Type / Pitch \_\_\_\_\_  
 Belt length in mm \_\_\_\_\_  
 Open Length = M or Joined = V \_\_\_\_\_

## AT5 (5mm pitch)



CODE No.	PART No.	Belt Width "A"	Clamp Width "B"
270716	16AT5-Clamp	16mm	35mm
270725	25AT5-Clamp	25mm	44mm
270732	32AT5-Clamp	32mm	51mm

For list of standard pulleys please see page 21

### BRECO-M Open Length:

Standard Belt widths (mm)	10	16	25	32	50	75*
Max. Tensile Load (N)	700	1120	1750	2240	3500	5250
Specific elasticity (N)	0.175 · 10 <sup>6</sup>	0.280 · 10 <sup>6</sup>	0.440 · 10 <sup>6</sup>	0.560 · 10 <sup>6</sup>	0.875 · 10 <sup>6</sup>	1.310 · 10 <sup>6</sup>
Belt weight (kg/m)	0.033	0.052	0.082	0.105	0.164	0.245

\* Non-stocked width. MOQ may apply.

### BRECO-V Joined Endless

Minimum joined length = 880mm

Preferred Belt widths (mm)	10	16	25	32	50	75
Max. Tensile Load (N)	350	560	910	1120	1750	2380
Belt weight (kg/m)	0.033	0.052	0.082	0.105	0.164	0.245

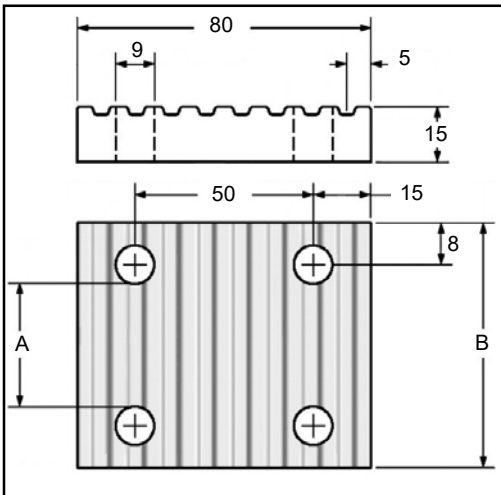
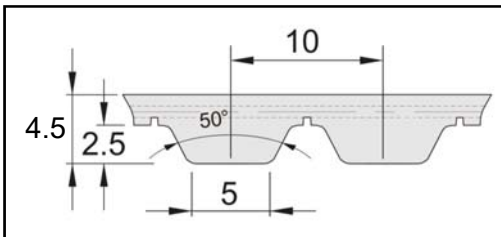
### Flexibility:

<b>Without Contraflexure</b> 	<b>Toothed Pulley (Z=No. Teeth)</b>	Zmin	12
	Tension roller (smooth) running on teeth of belt	Dmin	18mm
<b>With Contraflexure</b> 	<b>Toothed Pulley (Z=No. Teeth)</b>	Zmin	20
	Tension roller (smooth) running on back of belt	Dmin	50mm

Ordering Example: 25 AT5 / 5000 - M Breco Timing Belt  
 Belt width in mm \_\_\_\_\_  
 Type / Pitch \_\_\_\_\_  
 Belt length in mm \_\_\_\_\_  
 Open Length = M or Joined = V \_\_\_\_\_



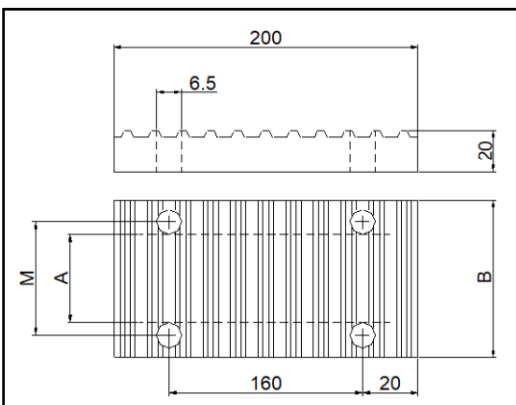
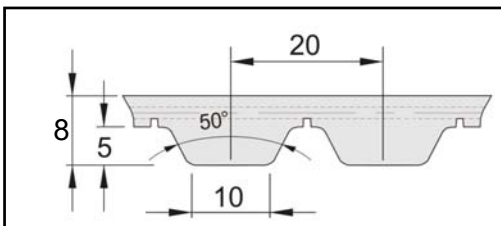
## AT10 (10mm pitch)



CODE No.	PART No.	Belt Width "A"	Clamp Width "B"
270816	16AT10-Clamp	16mm	41mm
270825	25AT10-Clamp	25mm	50mm
270832	32AT10-Clamp	32mm	57mm
270850	50AT10-Clamp	50mm	75mm

For list of standard pulleys please see page 23

## AT20 (10mm pitch)



PART No.	Belt Width "A"	Clamp Width "B"	Dimension "M"
32AT20-Clamp	32mm	60mm	46mm
50AT20-Clamp	50mm	75mm	62mm
75AT20-Clamp	75mm	110mm	94mm
100AT20-Clamp	100mm	140mm	124mm

For list of pulleys please see page 25

### BRECO-M Open Length:

Standard Belt widths (mm)	25	32	50	75	100	150*
Max. Tensile Load (N)	4250	5500	8500	12750	17000	22000
Specific elasticity (N)	$1.06 \cdot 10^6$	$1.37 \cdot 10^6$	$2.12 \cdot 10^6$	$3.18 \cdot 10^6$	$4.25 \cdot 10^6$	$5.5 \cdot 10^6$
Belt weight (kg/m)	0.158	0.186	0.290	0.436	0.581	0.839

\* Non-stocked width. MOQ may apply.

### BRECO-V Joined Endless

Minimum joined length = 880mm

Standard Belt widths (mm)	25	32	50	75	100	150**
Max. Tensile Load (N)	2125	2750	4250	6375	8500	11000
Belt weight (kg/m)	0.158	0.186	0.290	0.436	0.581	0.839

\*\* Minimum joined length for 150mm wide = 1000mm

### Flexibility:

<p>Without Contraflexure</p>	Toothed Pulley (Z=No. Teeth)	Zmin	15
	Tension roller (smooth) running on teeth of belt	Dmin	50mm
<p>With Contraflexure</p>	Toothed Pulley (Z=No. Teeth)	Zmin	25
	Tension roller (smooth) running on back of belt	Dmin	120mm

Ordering Example: 50 AT10 / 25000 - M Breco Timing Belt  
 Belt width in mm \_\_\_\_\_  
 Type / Pitch \_\_\_\_\_  
 Belt length in mm \_\_\_\_\_  
 Open Length = M or Joined = V \_\_\_\_\_

### BRECO-M Open Length:

Standard Belt widths (mm)	32	50	75	100	150*
Max. Tensile Load (N)	7200	11200	16800	22400	32000
Specific elasticity (N)	$1.80 \cdot 10^6$	$2.80 \cdot 10^6$	$4.20 \cdot 10^6$	$5.60 \cdot 10^6$	$8.00 \cdot 10^6$
Belt weight (kg/m)	0.307	0.480	0.720	0.960	1.423

\* Non-stocked width. MOQ may apply.

### BRECO-V Joined Endless Belt:

Minimum joined length = 1000mm

Standard Belt widths (mm)	32	50	75	100	150
Max. Tensile Load (N)	3600	5600	8400	11200	16000
Belt weight (kg/m)	0.307	0.480	0.720	0.960	1.423

### Flexibility:

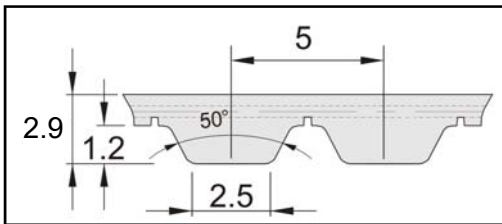
<p>Without Contraflexure</p>	Toothed Pulley (Z=No. Teeth)	Zmin	18
	Tension roller (smooth) running on teeth of belt	Dmin	120mm
<p>With Contraflexure</p>	Toothed Pulley (Z=No. Teeth)	Zmin	25
	Tension roller (smooth) running on back of belt	Dmin	180mm

Ordering Example: 75 AT20 / 50000 - M Breco Timing Belt  
 Belt width in mm \_\_\_\_\_  
 Type / Pitch \_\_\_\_\_  
 Belt length in mm \_\_\_\_\_  
 Open Length = M or Joined = V \_\_\_\_\_

## ATL high performance timing belts - Open Length

Linear drives often require extremely high positioning repeatability and accuracy. Breco ATL belts are optimised for linear drives. ATL belts are available in open reels and cannot be joined. They are connected using clamp plates and/or tension plates. These belts use extra strength high flexibility tension cords, designed for increased pre-tension, yet are suitable to run in standard AT pulleys. They are manufactured to a negative length tolerance, so that the belt and pulley mesh correctly when the belt is under pre-tension and working load.

### ATL5 (5mm pitch)



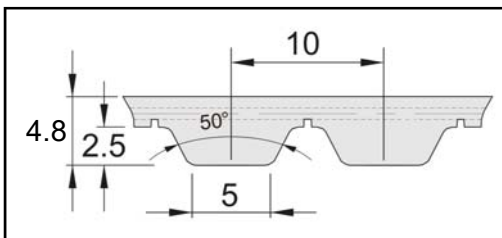
#### BRECO-M Open Length:

Standard Belt widths (mm)	16	25	32	50
Max. Tensile Load (N)	1300	2000	2800	4200
Specific elasticity (N)	$0.33 \cdot 10^6$	$0.50 \cdot 10^6$	$0.65 \cdot 10^6$	$1.05 \cdot 10^6$
Belt weight (kg/m)	0.059	0.090	0.119	0.187

For a list of pulleys to suit ATL5 belts, see page 21

For clamp plates to suit ATL5 belts, see page 34

### ATL10 (10mm pitch)



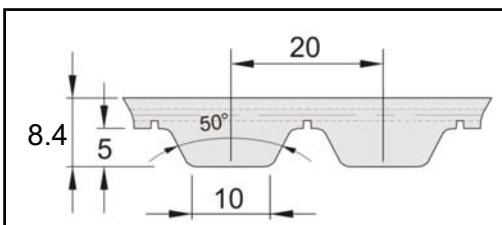
#### BRECO-M Open Length:

Standard Belt widths (mm)	32	50	75	100
Max. Tensile Load (N)	7200	11200	16800	22400
Specific elasticity (N)	$1.8 \cdot 10^6$	$2.8 \cdot 10^6$	$4.2 \cdot 10^6$	$5.6 \cdot 10^6$
Belt weight (kg/m)	0.22	0.34	0.51	0.68

For a list of pulleys to suit ATL10 belts, see page 23

For clamp plates to suit ATL10 belts, see page 35

### ATL20 (20mm pitch)



#### BRECO-M Open Length:


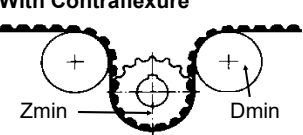
Standard Belt widths (mm)	32	50	75	100
Max. Tensile Load (N)	9800	15400	23800	31500
Specific elasticity (N)	$2.45 \cdot 10^6$	$3.85 \cdot 10^6$	$5.95 \cdot 10^6$	$7.88 \cdot 10^6$
Belt weight (kg/m)	0.35	0.55	0.84	1.11

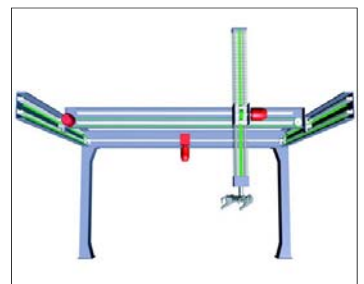
For a list of pulleys to suit ATL20 belts, see page 25

For clamp plates to suit ATL20 belts, see page 35

#### Flexibility:

ATL5 ATL10 ATL20

	Toothed Pulley (Z=No. Teeth)	Zmin	25	25	25
<b>Without Contraflexure</b>					
	Tension roller (smooth) running on teeth of belt	Dmin	40mm	80mm	160mm
<b>With Contraflexure</b>					
	Tension roller (smooth) running on back of belt	Dmin	60mm	150mm	250mm



#### Options available :

- PAZ - with nylon tooth facing (See page 50)
- PAR - with nylon backing (See page 50)
- PAZ/PAR - with nylon tooth & backing (See page 50)

# Timing Belt Tolerances



## Length tolerances for standard SYNCHROFLEX® TIMING BELTS

The belt measuring is performed according to DIN 7721, referred to the **centre distance**.

Belt Length (mm)		Length tolerance in relation to centre distance	Permitted length tolerance* (mm)
Over	To		
	320	± 0.15	0.10
320	630	± 0.18	0.12
630	1000	± 0.25	0.15
1000	1960	± 0.40	0.20
1960	3500	± 0.50	0.25
3500	4500	± 0.80	0.30
4500	6000	± 1.20	0.50

\* does not apply for double sided belts

## Width tolerances for standard SYNCHROFLEX® TIMING BELTS

Profile Type	Width tolerance for belt width in relation to standard coiling		
	Up to 50 mm (mm)	50-100 mm (mm)	Over 100 mm (in % of the belt width)
T 2	± 0.3	± 0.5	± 0.5
M (MXL)	± 0.3	± 0.5	± 0.5
T 2.5	± 0.3	± 0.5	± 0.5
T 5 / T 5-DL	± 0.3	± 0.5	± 0.5
T 10 / T 10-DL	± 0.5	± 0.5	± 0.5
T 20 / T 20-DL	± 0.5	± 1.0	± 1.0
AT 3	± 0.3	± 0.5	± 0.5
AT 5	± 0.5	± 0.5	± 0.5
AT 10	± 1.0	± 1.0	± 1.0
AT 20	± 1.0	± 1.0	± 1.0

**Length tolerance for standard BRECO® TIMING BELTS ± 0.8 mm/m**

## Width tolerances for Open Length and Joined BRECO® TIMING BELTS

Profile Type	Tolerance (mm)
T 2.5	± 0.5
T 5	± 0.5
T 10	± 0.5
T 20	± 1.0
AT 3	± 0.5
AT 5	± 0.5
AT 10	± 0.5
AT 20	± 1.0

Smaller tolerances may be available upon request. Please contact our sales department.

# Angular Drives / Flanges



Synchroflex®, Breco®, & Brecoflex® belts can be applied as angular drives. Take into consideration that the timing belt can only be used as a crossed (twisted) drive but not as a radially displaced drive.

$I_T / b \geq 20$   
**b = Belt Width**  
 **$I_T$  = Span Length**

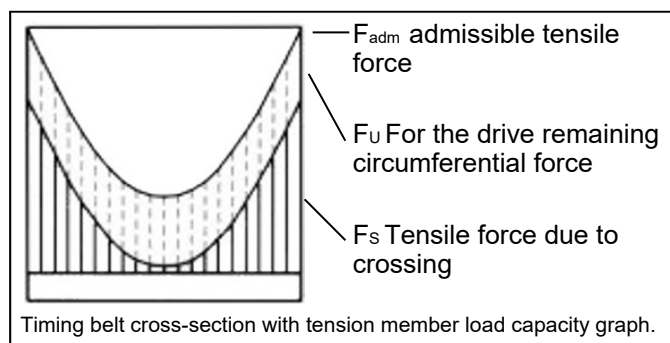


**Angular drive with 2 axis**



**Angular drive with 3 axis**

With crossed timing belt applications the outer tension members suffer a higher elongation than the inner ones. Due to the larger elongation in the edge zone the permitted proportional circumferential force for the belt in the tension members is reduced. No power reductions or constructive special means are necessary at a ratio of  $I_T / b \geq 20$ . At a required ratio of  $I_T / b < 20$  please contact our technical department for advice.



## Timing belt guidance by flanges

Timing belts must be guided to eliminate the lateral wandering-off effect. This is normally done by flanges.

Minimum lateral forces and low frictional losses can be resulted by the optimum arrangement of the belt guidance.

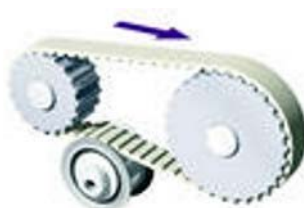
For this purpose, the following possibilities are available:

- Timing belt guidance downstream of a large free span length (infeed length (a) should not remain under 5 times belt width)
- Guidance at the drive pulley (preferred for two shaft drives with short axis distance)

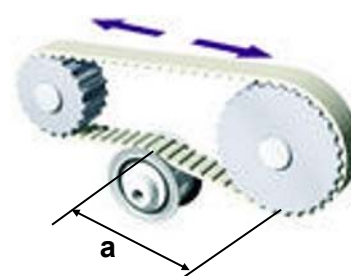
- Guidance on the tension rollers
  - Tension rollers installed on the slack span side
  - With arrangement on the belt back: consider minimum diameter with Contraflexure
  - With arrangement on the toothed belt side: Length of angle of wrap, min. 3 teeth
  - With bi-directional drives tension roller is preferred to be positioned in the center of the span length
  - Condition: Minimum span length (a) between tension roller and pulley should not remain under 5 times belt width
- Ensure high axis parallelity and flush alignment of all pulleys to achieve optimum guiding features.
- For cost reasons flanges are generally fitted to the smaller pulley.



It is more cost effective to have flanges on the small pulley rather than the large one.



Tension roller with flanges on the slack span of the belt.



With bi-directional drives, the tension roller should be positioned in the center of the span length.



# Other Timing Belt Types



Listed below are some of the Special timing belt profiles available from PIES Australia, for more information no these please contact our sales department:

Preferred running direction



## BAT - Curved teeth

As a logical consequence in reducing running noise, a profile was developed which does without the conventional polygon effect. In addition to smooth running, the profile has, in comparison to the AT, a larger tooth face and is self-guiding in the preferred running direction.

Preferred use:

- special demands regarding smooth running properties and transmission precision
- tight assembly dimensions
- transport and transmission tasks

Available pitches: BAT10, BATK10



## ATP - High capacity profile

Further increased performance, noise reduction and extension of the belts useful life led to the development of the ATP timing belt in 1993. At the time, the main interest was focused on the optimum tooth form. The basic concept of the ATP profile provides the division of the trapezoidal tooth into two individual and load bearing teeth. Performance increase up to 60 %, running noise reduced by up to 10 db(A) and an increased longevity by:

- tooth surface area increased by 70 %
  - uniform load/tension distribution
  - improved power dispersion
  - reduced polygon effect
  - small construction width
  - optimised tooth mesh
- (also available in the GEN III version)

Available pitches: ATP10, ATP10 GENIII, ATP15



## SFAT - Offset teeth

AT performance profile with two toothed tracks with a belt designed as SFAT. These toothed tracks are offset by half a tooth pitch in relation to each other. In combination with the accompanying synchronous pulleys, the SFAT is self-guiding. No flanges are required.

Preferred use:

- running on synchronous pulleys without flanges
  - where low noise is of the essence
- (reduced polygon effect)

Available pitches: SFAT10, SFAT15, SFAT20



## F - Flat belts

Preferred use:

- Tension belts (open length and endless)
- high-speed drives (SYNCHROFLEX BELT)
- drives without synchronous transmission of movement

Available pitches: F, AF, BF, CF, DF

## BRECO® self-tracking belt

BRECO® self-tracking belts are manufactured in open length (M). They can be joined to self tracking belts in any length (V). In the join area the half number of tension members assume part of the load. Endless joined BRECO® self-tracking belts are generally suitable for all normal tasks (load) in the transport area.

## V-guide on the tooth profile

- straight and synchronous run
- reliable belt guide unaffected by lateral forces
- can be joined for any transport distances
- can be used for a straight running material flow for indexing, separating and positioning

## Construction and properties

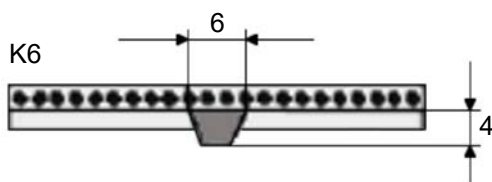
The combination of timing belts, V-belts and steel cord tension members in one belt construction results in straight running synchronous belts. Their preferred fields of application include the transport and handling technology. The V-guide assures a straight belt run throughout the entire span length. Self-tracking belts are not affected by lateral forces.

## Standard version

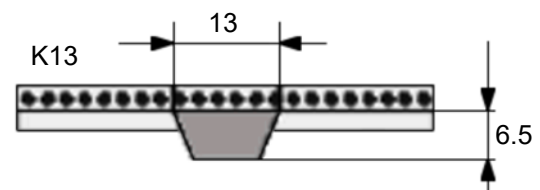
The standard version of the self-tracking timing belt is a combined construction of the two materials: wear resistant polyurethane of 92 Shore A and high tensile steel cord tension members. The delivery program is different in the versions with V-groove and with solid V-groove for pre-assembled belts. Timing belts with solid V-groove have a lower elasticity. To this effect, the minimum diameter of the pulley and the minimum number of teeth must be increased compared to the V-groove. In the standard program for transport technology are exclusively shown versions with V-groove.



## Available profile pitches & V-groove dimensions

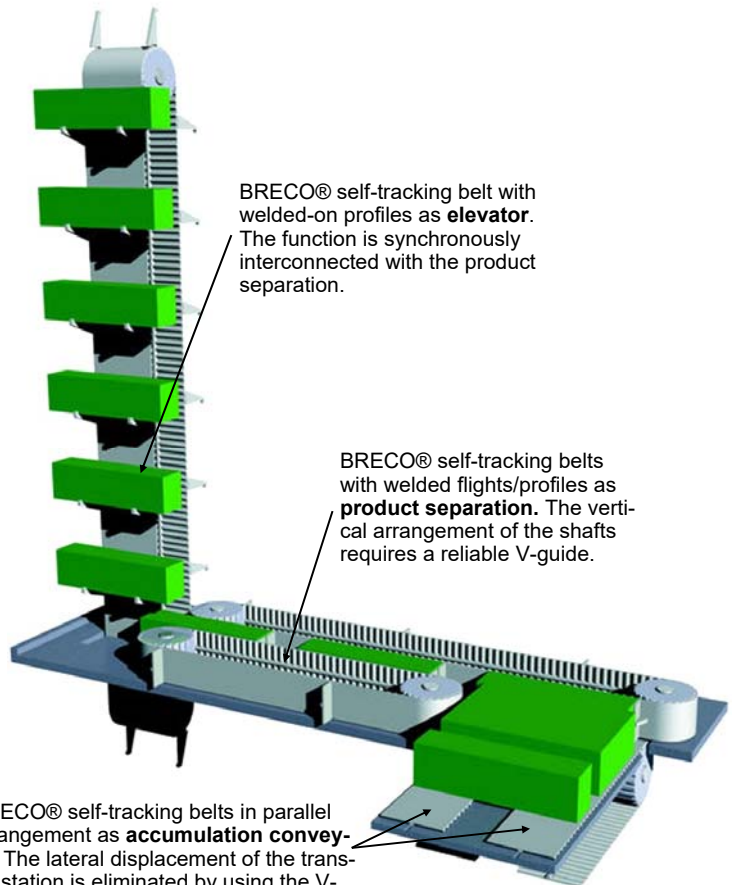


ATK5 K6, ATK10 K6, TK5 K6, TK10 K6



ATK10 K13, ATK20 K13, TK10 K13, TK20 K13

## Application example with BRECO® self-tracking belt



BRECO® self-tracking belt with welded-on profiles as **elevator**. The function is synchronously interconnected with the product separation.

BRECO® self-tracking belts with welded flights/profiles as **product separation**. The vertical arrangement of the shafts requires a reliable V-guide.

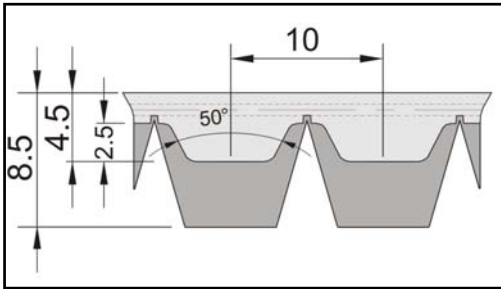
BRECO® self-tracking belts in parallel arrangement as **accumulation conveyor**. The lateral displacement of the transfer station is eliminated by using the V-guide. Individual tensioning of the belts is necessary.



# BRECO® Self Tracking Belts



## ATK10 K13 (10mm pitch)



### BRECO-V Joined Endless

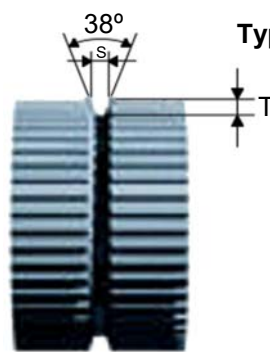
Minimum joined length = 1000mm

Standard Belt widths (mm)	32	50	75	100	150
Max. Tensile Load (N)	2500	3750	5250	8000	11000
Belt weight (kg/m)	0.227	0.331	0.465	0.621	0.889

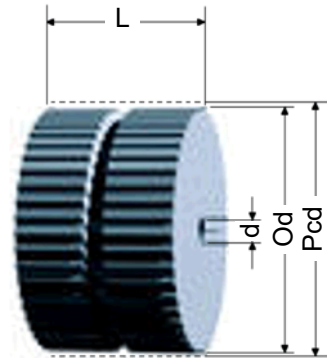
### Flexibility:

Without Contraflexure	Toothed Pulley (Z=No. Teeth)	Zmin	20
	Tension roller (smooth) running on teeth of belt	Dmin	60
	With Contraflexure	Toothed Pulley (Z=No. Teeth)	Zmin
	Tension roller (smooth) running on back of belt	Dmin	120

Ordering Example: 50 ATK10 K13 / 3000 - V Breco Timing Belt  
 Belt width in mm \_\_\_\_\_  
 Type / Pitch \_\_\_\_\_  
 Belt length in mm \_\_\_\_\_  
 Joined Belt \_\_\_\_\_



Type TK



### ATK10 K13 Pulleys to suit 32mm wide Belt

Pulley No.	Type	Teeth	Pcd	Od	L	S	T	d
AL 40 ATK10 K13 / 20	TK	20	63.66	61.80	40	13.5	7.5	12
AL 40 ATK10 K13 / 22	TK	22	70.03	68.20	40	13.5	7.5	12
AL 40 ATK10 K13 / 24	TK	24	76.39	74.55	40	13.5	7.5	12
AL 40 ATK10 K13 / 25	TK	25	79.58	77.75	40	13.5	7.5	12
AL 40 ATK10 K13 / 26	TK	26	82.76	80.90	40	13.5	7.5	12
AL 40 ATK10 K13 / 27	TK	27	85.95	84.10	40	13.5	7.5	12
AL 40 ATK10 K13 / 28	TK	28	89.12	87.25	40	13.5	7.5	12
AL 40 ATK10 K13 / 30	TK	30	95.49	93.65	40	13.5	7.5	12
AL 40 ATK10 K13 / 32	TK	32	101.86	100.00	40	13.5	7.5	12
AL 40 ATK10 K13 / 36	TK	36	114.59	112.75	40	13.5	7.5	12
AL 40 ATK10 K13 / 40	TK	40	127.32	125.45	40	13.5	7.5	12
AL 40 ATK10 K13 / 44	TK	44	140.05	138.20	40	13.5	7.5	12
AL 40 ATK10 K13 / 48	TK	48	152.78	150.95	40	13.5	7.5	16
AL 40 ATK10 K13 / 60	TK	60	190.98	189.15	40	13.5	7.5	16

### ATK10 K13 Pulleys to suit 50mm wide Belt

Pulley No.	Type	Teeth	Pcd	Od	L	S	T	d
AL 60 ATK10 K13 / 20	TK	20	63.66	61.80	60	13.5	7.5	12
AL 60 ATK10 K13 / 22	TK	22	70.03	68.20	60	13.5	7.5	12
AL 60 ATK10 K13 / 24	TK	24	76.39	74.55	60	13.5	7.5	12
AL 60 ATK10 K13 / 25	TK	25	79.58	77.75	60	13.5	7.5	12
AL 60 ATK10 K13 / 26	TK	26	82.76	80.90	60	13.5	7.5	12
AL 60 ATK10 K13 / 27	TK	27	85.95	84.10	60	13.5	7.5	12
AL 60 ATK10 K13 / 28	TK	28	89.12	87.25	60	13.5	7.5	12
AL 60 ATK10 K13 / 30	TK	30	95.49	93.65	60	13.5	7.5	12
AL 60 ATK10 K13 / 32	TK	32	101.86	100.00	60	13.5	7.5	12
AL 60 ATK10 K13 / 36	TK	36	114.59	112.75	60	13.5	7.5	12
AL 60 ATK10 K13 / 40	TK	40	127.32	125.45	60	13.5	7.5	12
AL 60 ATK10 K13 / 44	TK	44	140.05	138.20	60	13.5	7.5	12
AL 60 ATK10 K13 / 48	TK	48	152.78	150.95	60	13.5	7.5	16
AL 60 ATK10 K13 / 60	TK	60	190.98	189.15	60	13.5	7.5	16

### ATK10 K13 Pulleys to suit 75mm wide Belt

Pulley No.	Type	Teeth	Pcd	Od	L	S	T	d
AL 85 ATK10 K13 / 20	TK	20	63.66	61.80	85	13.5	7.5	12
AL 85 ATK10 K13 / 22	TK	22	70.03	68.20	85	13.5	7.5	12
AL 85 ATK10 K13 / 24	TK	24	76.39	74.55	85	13.5	7.5	12
AL 85 ATK10 K13 / 25	TK	25	79.58	77.75	85	13.5	7.5	12
AL 85 ATK10 K13 / 26	TK	26	82.76	80.90	85	13.5	7.5	12
AL 85 ATK10 K13 / 27	TK	27	85.95	84.10	85	13.5	7.5	12
AL 85 ATK10 K13 / 28	TK	28	89.12	87.25	85	13.5	7.5	12
AL 85 ATK10 K13 / 30	TK	30	95.49	93.65	85	13.5	7.5	12
AL 85 ATK10 K13 / 32	TK	32	101.86	100.00	85	13.5	7.5	12
AL 85 ATK10 K13 / 36	TK	36	114.59	112.75	85	13.5	7.5	12
AL 85 ATK10 K13 / 40	TK	40	127.32	125.45	85	13.5	7.5	12
AL 85 ATK10 K13 / 44	TK	44	140.05	138.20	85	13.5	7.5	12
AL 85 ATK10 K13 / 48	TK	48	152.78	150.95	85	13.5	7.5	16
AL 85 ATK10 K13 / 60	TK	60	190.98	189.15	85	13.5	7.5	16

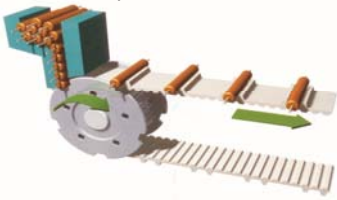
### ATK10 K13 Pulleys to suit 100mm wide Belt

Pulley No.	Type	Teeth	Pcd	Od	L	S	T	d
AL 110 ATK10 K13 / 20	TK	20	63.66	61.80	110	13.5	7.5	12
AL 110 ATK10 K13 / 22	TK	22	70.03	68.20	110	13.5	7.5	12
AL 110 ATK10 K13 / 24	TK	24	76.39	74.55	110	13.5	7.5	12
AL 110 ATK10 K13 / 25	TK	25	79.58	77.75	110	13.5	7.5	12
AL 110 ATK10 K13 / 26	TK	26	82.76	80.90	110	13.5	7.5	12
AL 110 ATK10 K13 / 27	TK	27	85.95	84.10	110	13.5	7.5	12
AL 110 ATK10 K13 / 28	TK	28	89.12	87.25	110	13.5	7.5	12
AL 110 ATK10 K13 / 30	TK	30	95.49	93.65	110	13.5	7.5	12
AL 110 ATK10 K13 / 32	TK	32	101.86	100.00	110	13.5	7.5	12
AL 110 ATK10 K13 / 36	TK	36	114.59	112.75	110	13.5	7.5	12
AL 110 ATK10 K13 / 40	TK	40	127.32	125.45	110	13.5	7.5	12
AL 110 ATK10 K13 / 44	TK	44	140.05	138.20	110	13.5	7.5	12
AL 110 ATK10 K13 / 48	TK	48	152.78	150.95	110	13.5	7.5	16
AL 110 ATK10 K13 / 60	TK	60	190.98	189.15	110	13.5	7.5	16

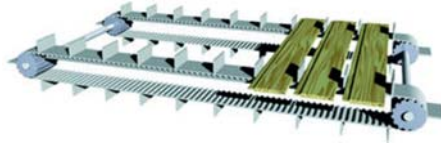
# Belts With Profiles/Flights



Product separation



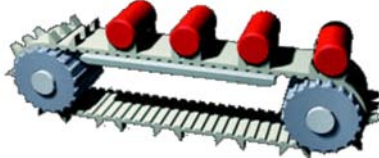
Synchronous conveyors



Supply belts for cosmetics



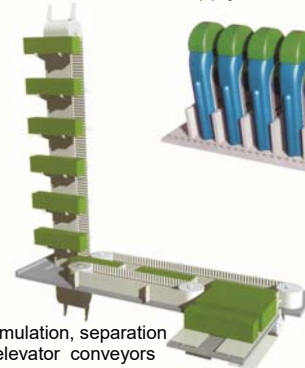
Assembly Belt



Rotary indexing magazine for test tubes



Accumulation, separation and elevator conveyors



## The flighted timing belt

For whatever transport purpose the flighted timing belt is to be used - the back of the belt can be equipped with any number and order of welded-on flights. Adherent to the design regulations. The joining of timing belts, the shaping of flights and their welding on the flighted belt are performed in our Melbourne factory.

## The profile

The flights are made of polyurethane, the same high quality materials used for the timing belt itself. A selection of standard profiles are listed in the current catalogue. Further special profiles are available. Depending on the customer's requirements and within the framework of production means, the flight shape can be freely

## How to proceed:

At first, the selection of belt type, belt length and the pulleys is to be determined. All SYNCHROFLEX®, BRECO® and BRECOFLEX® TIMING BELT types can be equipped with flights/profiles. Timing belts together with bed plates enable a reduced friction transportation. BRECO®, BRECOFLEX® TIMING BELTS in the version PAZ are alternatively available.

## Profile selection:

The material to be transported and the transport purpose influence the selection of the flight. Following possibilities of flight versions are available:

More than 2000 existing flight shapes available

Flights are manufactured as polyurethane moulded part. Depending on their dimensions, standard flights can be reworked by mechanical processes (drilling, milling). If necessary, explain design requirements by means of a

Profiles/Flights of sheet material

Depending on the quantity, flights will possibly be cut from pre-fabricated PUR sheets. The following board thicknesses are available: 1.5, 2, 3, 4, 5, 6, 7, 8, 10, 11, 15 & 20 mm

Profiles/Flights from new tooling

Within the framework of production possibilities, there are practically no limitations for new design requirements as far as the shape of injection moulded flights are concerned. Costs for tools and moulds might apply.

**Profile/Flight material:** PUR approx. 92 Shore, same material as BRECO® and BRECOFLEX® TIMING BELTS

## Profile position opposite tooth:



The flexibility of timing belts is located mainly in the tooth gap area. To retain the timing belt flexibility around the pulley, the preferred profile position is "opposite the tooth".

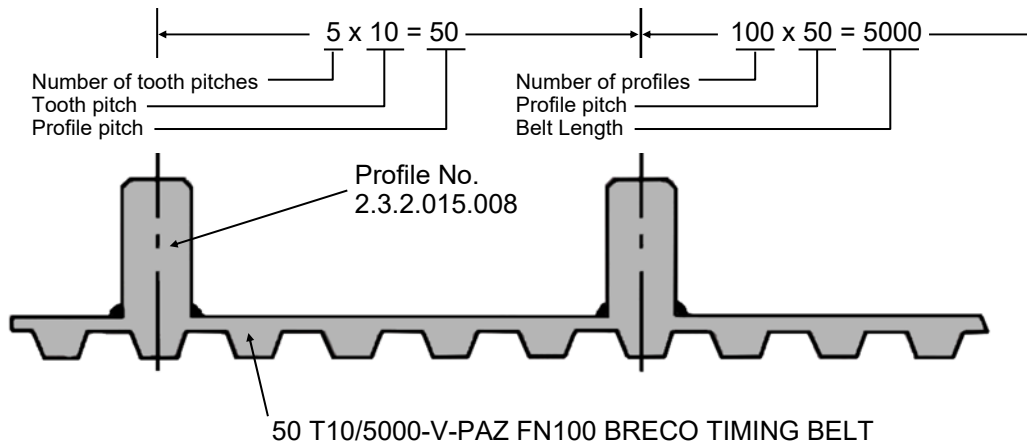


## Profile pitch, Tooth pitch:

We recommend to select a flight pitch which is an integral multiple of that of the tooth. Flight pitches other than the integral multiple of the tooth pitch can be supplied, it has, however, to be noted, that a uniform offset of the flight position in relation to the tooth position will accumulate.

## Ordering Example:

A drawing of the profiled belt is preferred when ordering. However a profiled belt can be ordered by description. e.g. Breco belt 50T10/5000-V-PAZ-FN100 profile type 2.3.3.015.008 profile pitch 50mm over tooth form.



The equipping of the timing belt with profiles is always made as a multiple of the tooth pitch, i.e. the welded on flight position follows exactly the belt tooth pitch. For this reason, a cumulative error from profile pitch to tooth pitch will not occur.

## Tolerances:

The reached profile position of each individual profile is  $\pm 0.5$  mm of the intended set point position. A tolerance of  $-0.5$  mm is to be taken into account for the profile height.

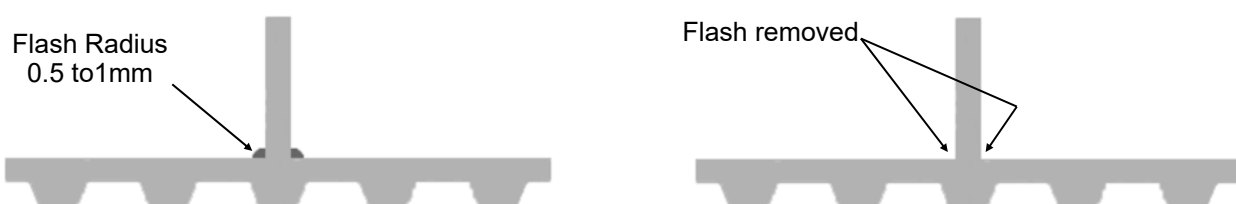
## Ordering code:

For the required flighted timing belt the order should preferably be accompanied by a dimensional drawing. The flighted timing belt can also be defined and transmitted by the order text.

Example: BRECO® TIMING BELT 50 T10 / 5000-V-PAZ-FN100 2.3.2.015.008, flight pitch 50, flight position opposite the tooth.

## Flash:

A flash builds up between flight and back of the belt. A polyurethane overhang with a 0.5 to 1 mm radius could form. Should the flash impair the intended function, ask for "with flash removed" in your order information.

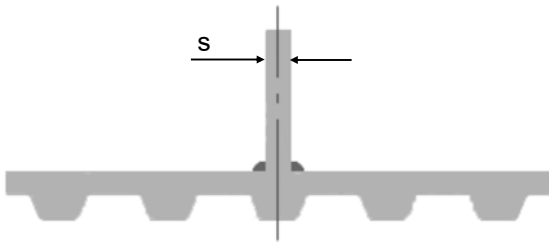


# Belts With Profiles/Flights

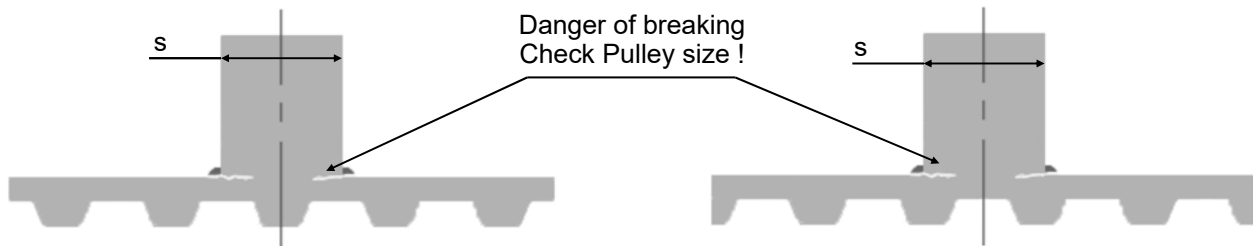
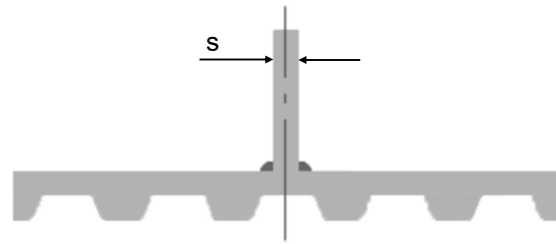


## Profile Thickness:

Profile opposite tooth



Profile opposite tooth gap



The timing belt flexibility can be influenced by the welded-on profile/flight. Note as a rule that the flight thickness 's' is to be selected as thin as possible. The table below shows the individually recommended maximum profile thickness s in mm in relation to the selected number of pulley teeth.

### Maximum profile thickness 's' in mm :

Pitch	Number of teeth in pulley						
	20	25	30	40	50	60	100
<b>T5</b>	5 (2)	6 (2)	6 (3)	8 (4)	9 (6)	10 (8)	12 (10)
<b>T10</b>	8 (3)	9 (4)	10 (4)	12 (6)	14 (9)	15 (12)	20 (20)
<b>T20</b>	12 (5)	13 (5)	15 (6)	18 (8)	20 (12)	23 (20)	30 (30)
<b>AT5</b>	5 (2)	6 (2)	6 (3)	8 (4)	9 (6)	10 (8)	12 (10)
<b>AT10</b>	8 (3)	9 (4)	10 (4)	12 (6)	14 (9)	15 (12)	20 (20)
<b>AT20</b>	12 (5)	13 (5)	15 (6)	18 (8)	20 (12)	23 (20)	30 (30)
<b>XL</b>	5 (2)	6 (2)	6 (3)	8 (4)	9 (6)	10 (8)	12 (10)
<b>L</b>	6 (3)	7 (3)	8 (4)	10 (5)	12 (7)	13 (10)	16 (16)
<b>H</b>	8 (4)	9 (5)	10 (6)	12 (7)	14 (10)	15 (12)	20 (20)
<b>XH</b>	13 (5)	14 (5)	15 (6)	18 (8)	20 (12)	23 (20)	30 (30)

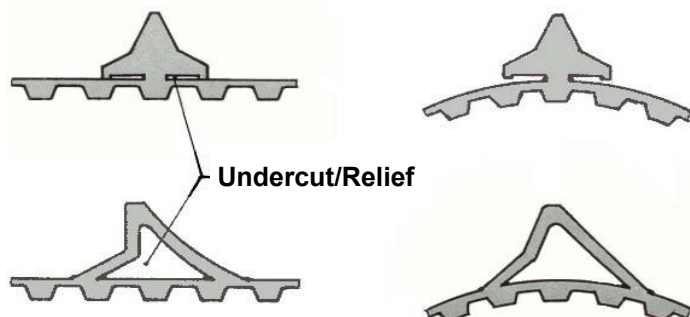
Example for the calculation of the profile thickness s for a BRECO® TIMING BELT with pitch T10, which is running around a pulley with 20 teeth:

- When the profile position is "opposite the tooth", profile thickness 's' ≤ 8 mm,
- When the profile position is "opposite the tooth gap", profile thickness 's' ≤ 3 mm.

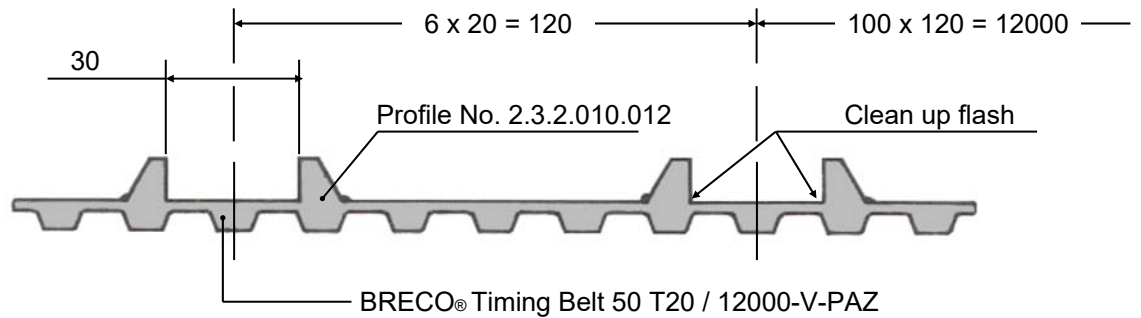
Remark: We recommend to select the next smaller size as profile thickness when there are intermediate sizes (e.g. 22 teeth).

### Profiles with undercut/reliefs:

The timing belts flexibility is not compromised when there are planned corresponding undercuts/reliefs.

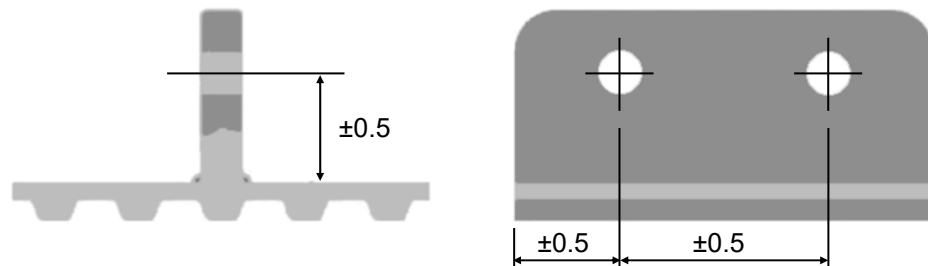


## Profile pair:



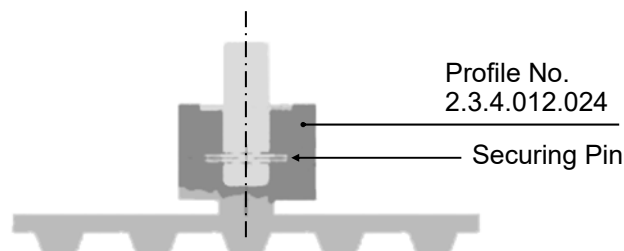
Profiles in pairs are preferred for transporting when positioning or depositing is required. Standard tolerance between profile pairs  $\pm 0.5\text{mm}$ . A tolerance of  $\pm 0.2\text{mm}$  is attainable using special tooling. There is a tooling charge for this service.

## Profile with drilled holes:



Holes can be drilled into profiles to suit special applications. Standard tolerances as above. NB. The profiles are drilled before they are welded to the belt.

## Profile with moulded inserts:

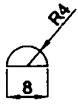


Profiles with moulded inserts can be manufactured for special functional characteristics. To shape moulded inserts (steel, aluminium or similar) please ensure the existence of appropriate undercuts. Inserts can be drilled, tapped, and threaded in a wide variety of sizes.

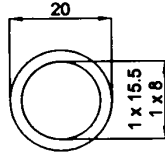
# Belts With Profiles/Flights



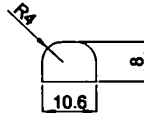
This is a small selection of available standard profiles:



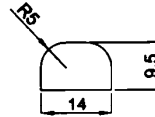
100 lg  
2.3.1.008.004



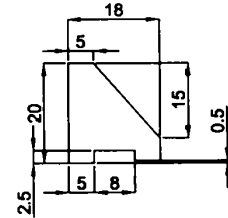
50 lg  
2.3.1.015.020



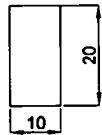
100 lg  
2.3.2.008.010



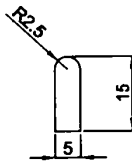
64 and 100 lg  
2.3.2.009.014



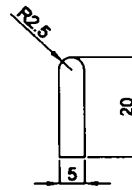
100 lg  
2.3.5.043



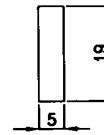
100 lg  
2.3.010.020



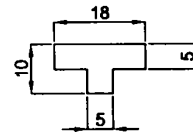
195 lg  
2.3.2.015.005



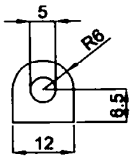
100 lg  
2.3.2.020.005



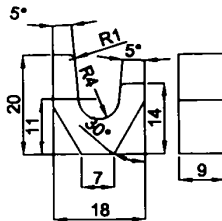
64 lg  
2.3.2.019.005



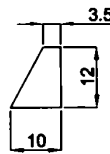
100 lg  
2.3.3.010.018



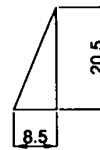
50 lg  
2.3.2.012.012



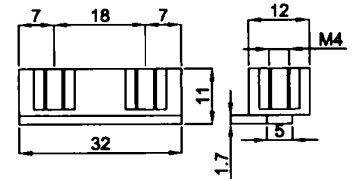
2.3.2.018.020



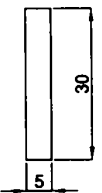
130 lg  
2.3.2.010.012



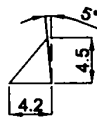
100 lg  
2.3.2.008.020



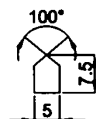
2.3.4.012.010  
with inserts



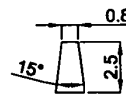
100 lg  
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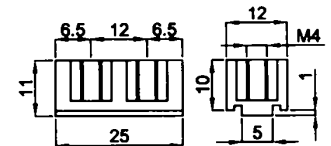
101.6 lg  
2.3.2.004.004



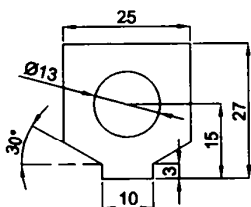
100 lg  
2.3.2.005.007



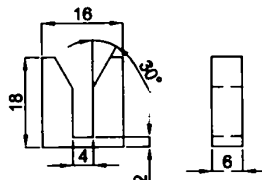
64 lg  
2.3.2.001.002



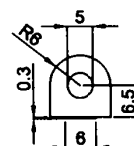
2.3.5.425.000  
with inserts



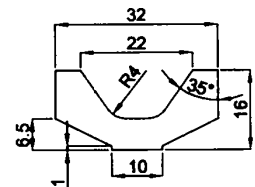
50 lg  
2.3.2.025.027



2.3.2.016.018



50 lg  
2.3.2.012.012b



15 lg  
2.3.3.016.032



## The ATN timing belt:

The ATN timing belt is especially designed for the application in the transport technology. The flight fastening system in the belt tooth permits fast fitting and replacement of the flights individually manufactured for the conveying application concerned. This flexibility provides a great variety of application possibilities, not to be realised up to now, compared to other flight fastening systems, as e.g. welding. If required, it is possible to convey different items in one transport system using the same timing belt, but equipped with different flights.



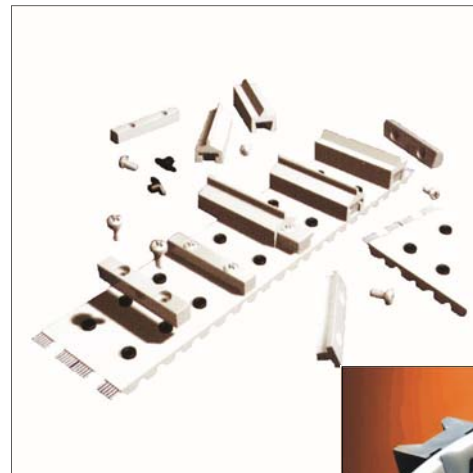
ATN



ATN with V-groove

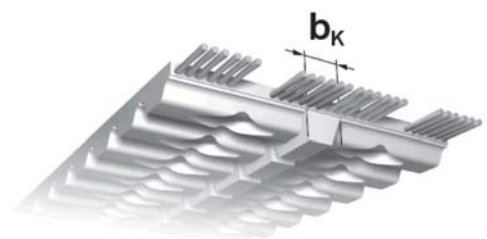
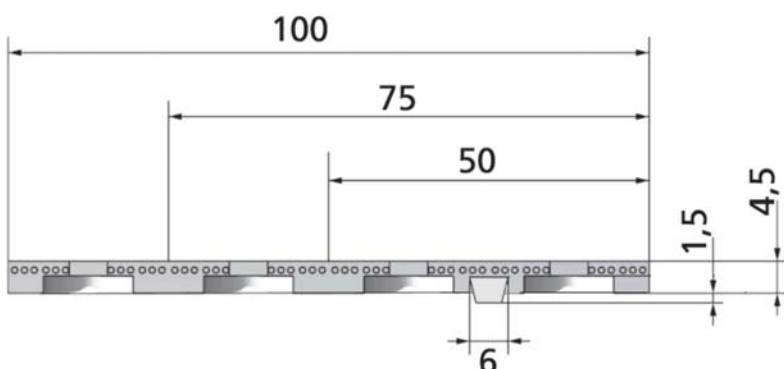
## Convincing advantages:

- Modular system
- Mechanical joint available
- Variable flight spacing
- Different flight materials can be used
- High flight spacing precision
- High shear resistance
- Faster flight change in use
- No need to remove belt when changing flights
- Flights can be adjusted on installation
- Standard pulleys used
- Infinite attachment possibilities
- Flights accept customers attachments
- Standard inserts
- Cost advantages for the user:
  - Standard belts
  - Short downtimes during flight change
  - Low test costs due to the interchangeability of flights
  - Low spare parts and installation costs

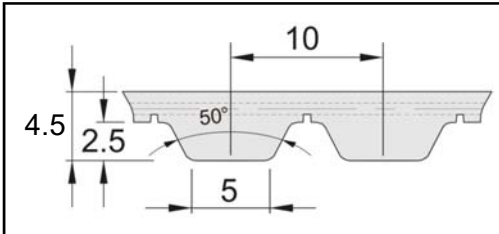


## Self-guiding: ATN timing belt with V-groove:

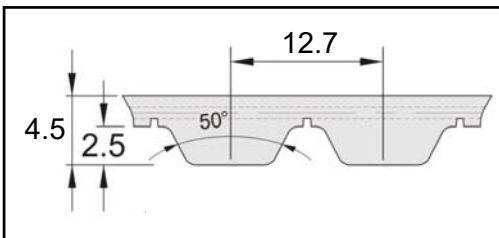
In the ATN10K6 and ATN12.7K6 the location of the V-groove is only symmetrical in the 50 mm wide belt from the technical feasibility point of view. In the 75 and 100 mm wide belts it is located between the 1<sup>st</sup> and 2<sup>nd</sup> forming for the inset parts (figure below). Therefore, the location of the V-groove is to be considered when mounting the pulley and the flights.



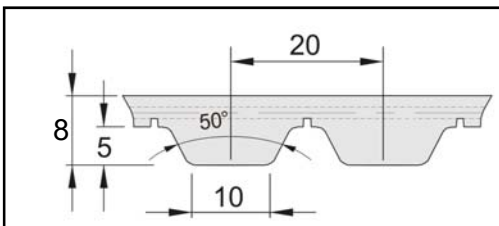
## ATN10 (10mm pitch)



## ATN12.7 (12.7mm pitch)



## ATN20 (20mm pitch)



### BRECO-V Joined Endless

Minimum joined length = 880mm

Standard Belt widths (mm)	25	50	75	100
Number of shapes per tooth	1	2	3	4
Max. Tensile Load (N)	1000	2000	3000	4000
Belt weight (kg/m)	0.12	0.24	0.36	0.48
Space B:	25mm			

For a list of pulleys to suit ATN10 belts, see page 23

### BRECO-V Joined Endless

Minimum joined length = 880mm

Standard Belt widths (mm)	25	50	75	100
Number of shapes per tooth	1	2	3	4
Max. Tensile Load (N)	1000	2000	3000	4000
Belt weight (kg/m)	0.12	0.24	0.36	0.48
Space B:	25mm			

Pulleys on request

### BRECO-V Joined Endless

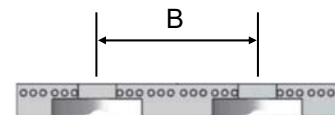
Minimum joined length = 880mm

Standard Belt widths (mm)	50	75	100
Number of shapes per tooth	2	3	4
Max. Tensile Load (N)	2700	4000	5400
Belt weight (kg/m)	0.403	0.604	0.806
Space B:	25mm		

For a list of pulleys to suit ATN20 belts, see page 25

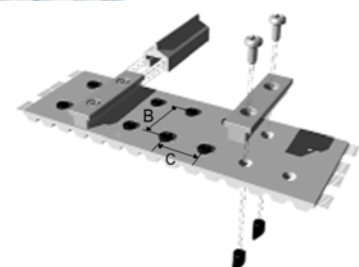
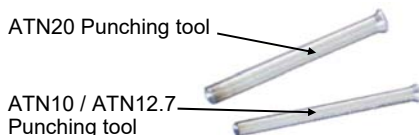
### Available versions :

- PAZ: Nylon tooth facing (white)
- PAR: Nylon facing on the back of the belt (green)
- PAZ-PAR: Nylon facing on both sides (white-green)
- TPU-FDA: Special material for contact with foodstuff
- Self-guiding with V-groove K6 (not available for ATN20)
- Open length



### Hand piercing tools:

The base timing belt is extruded with a 0.2mm thick polyurethane skin across the cavities. This skin must be pierced through to allow for profile attachment. ATN timing belts can be ordered with pierced holes (hole pattern must be specified - see ordering example below). In order to pierce holes at the customer site, the following piercing tools are available.



Ordering Example: 50 ATN10 / 2640 - V 2 - 25 - 10 Breco Timing Belt

Belt width in mm \_\_\_\_\_

Type / Pitch \_\_\_\_\_

Belt length in mm \_\_\_\_\_

Joined \_\_\_\_\_

Number of indentations/tooth \_\_\_\_\_

Spacing B \_\_\_\_\_

Spacing C \_\_\_\_\_

## Profile fastening:

Three different standard materials are available for the inserts and the respective screw types to fasten the profiles on the timing belt.

## Brass profile fastening:

<b>Material:</b>	Brass (MS 58 F 36)
<b>Application areas:</b>	Extremely low temperature
<b>Screw type:</b>	Cylinder Allen screw with pressed head according to DIN 7984 and V2A screw, round head according to DIN 7500 shape C
<b>ATN10, ATN12.7:</b>	M4x8 M4x12 M4x16
<b>ATN20:</b>	M5x12 M5x16 M5x20



## Stainless steel profile fastening:

<b>Material:</b>	Stainless steel (V2A)
<b>Application areas:</b>	Foodstuff
<b>Screw type:</b>	V2A screw according to DIN 7500 shape C C = tallow-drop according to DIN 7985
<b>ATN10, ATN12.7:</b>	M4x12
<b>ATN20:</b>	M5x16



## Plastic profile fastening:

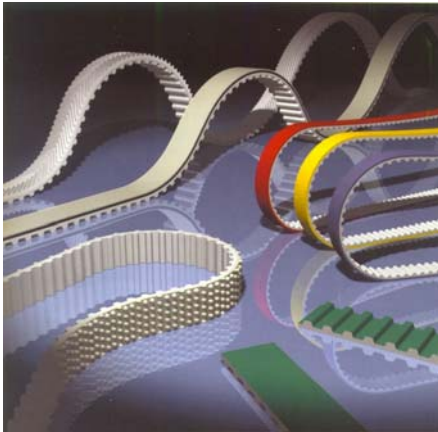
<b>Material:</b>	Plastic (Polyamide)
<b>Application areas:</b>	Normal temperature
<b>Screw type:</b>	EJOT Delta PT® screw made of tempering steel according to EJOT® WN 5461 part 2, with tallow-drop and cross ressession Z according to EJOT® WN 5411
<b>ATN10, ATN12.7:</b>	Z40x8 Z40x12 Z40x16
<b>ATN20:</b>	Z50x12 Z50x16 Z50x20



**Note:** For a high reliability of the screwed connection, we recommend the exclusive application of original EJOT Delta PT® screws according to the above mentioned specification. This screw types were especially designed for thermoplastic components and provide the required safety and reliability during mounting and use both under static and dynamic load. All screws have a head with Z cross ressession in size 2. These screws are available from your PIES Australia.

**Attention:** The Delta PT® is not equipped with a metrical ISO coarse-pitch thread according to DIN 13, thus, they are only suitable for plastic inset parts.

# Belts With Backings



## Coated timing belts:

BRECO®, BRECOFLEX® and SYNCHROFLEX® TIMING BELTS consist of wear resistant polyurethane (PUR) and high tensile steel cord tension members. The coating of the timing belts with various materials provides a variety of application possibilities in the transport technology.

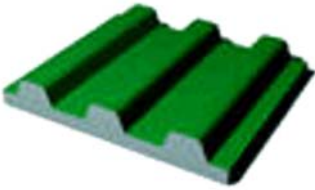
The selection of the correct coating depends on the transport item properties and the required grip. High friction for a good carrying effect, low friction to reduce the power transmission performance, soft for sensitive items or hard for sharp-edged items are the determining factors.

Every material involved assumes its task according to its specific property.

To meet specific transport applications, the tooth side and/or the transport side can be mechanically reworked. In this manner, the flexibility of the entire belt can be restored by making incisions in thick coatings.

## Nylon coating for reduced friction:

### PAZ:



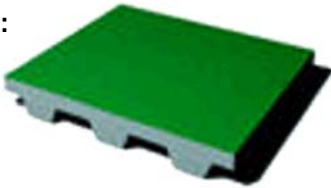
### Nylon tooth facing: PAZ

The belt base as per standard version. An additional nylon tooth facing causes a lower friction coefficient, lightens the tooth mesh in the pulley and reduces noise. Helps transport belts on bed plates run easier and are wear resistant.

### Available:

Available for all pitches except T2.5

### PAR:



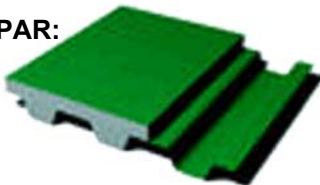
### Nylon facing on the back of the belt: PAR

The belt base as per standard version. An additional nylon facing on the back of the belt causes a lower friction coefficient. Application area in the conveying technology: e.g. for accumulation conveyor (back of the belt runs easier and is wear resistant)

### Available:

Available for all pitches, only BRECO M & V, except AT3 and T2.5

### PAZ-PAR:



### Nylon facing on both the teeth and the back of the belt: PAZ-PAR

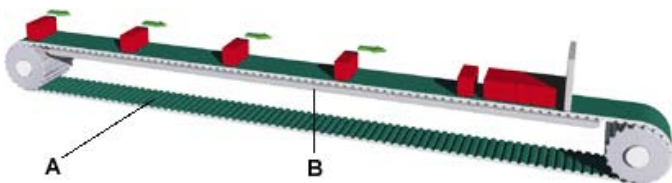
The belt base as per standard version. An additional nylon facing on both the teeth and the back of the belt causes a lower friction coefficient.

### Available:

Available for all pitches, only BRECO M & V, except AT3 and T2.5

### Properties for PAZ and PAR:

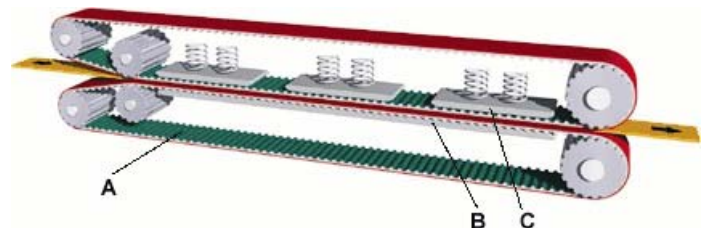
Material:	Nylon
Colour:	Green
Temperature resistance:	-20°C to +50°C
Resistances:	resistant against simple oils and fats
Properties:	Low coefficient of friction



### Accumulation Conveyor

Any length up to 50M possible.

- A: Nylon facing on belt back and teeth. PAZ-PAR
- B: Support plate.



### Haul-Off Belt

- A: Nylon facing on tooth side; PAZ = Low friction
- B: Back of belt with transport backing. = High friction
- C: Pressure plates



# Belts With Backings



## Version T (extruded)



**Material :** Polyurethane  
**Colour :** Transparent  
**Hardness :** 85 Shore A  
**Available thickness :** 1.5mm (T5), 2mm (T10, T20, AT10, AT20, imperial profiles)  
**Minimum diameter :** 80mm  
**Temperature range :** -20°C to +50°C  
**Resistances :** Resistant against simple oils and fats  
**Characteristics :** High wear resistance  
**Application fields :** Transport of mechanically aggressive parts, glass industry, woodworking and sheet fabricating industry, general transport tasks

## NP 385



**Material :** Polyurethane  
**Colour :** Transparent  
**Hardness :** 85 Shore A  
**Available thickness :** 4mm  
**Minimum diameter :** 120mm  
**Temperature range :** -20°C to +50°C  
**Resistances :** Resistant against simple oils and fats  
**Characteristics :** Tip contact with the product to be transported  
**Application fields :** Transport with oil contact

## FG 385



**Material :** Polyurethane  
**Colour :** Transparent  
**Hardness :** 85 Shore A  
**Available thickness :** 4mm  
**Minimum diameter :** 120mm  
**Temperature range :** -20°C to +50°C  
**Resistances :** Resistant against simple oils and fats  
**Characteristics :** Linear contact with the product to be transported  
**Application fields :** Transport with oil influence, sheet transport, elevator, brick making, glass industry

## PUR 385



**Material :** Polyurethane  
**Colour :** Transparent  
**Hardness :** 85 Shore A  
**Available thickness :** 3mm 4mm 5mm 6mm  
**Minimum diameter :** 80mm 120mm 150mm 180mm  
**Temperature range :** -20°C to +50°C  
**Resistances :** Resistant to petrol, ozone, simple oils and fats  
**Characteristics :** High resistance to wear, high coefficient of friction  
**Application fields :** Transport of parts showing a coarse surface or burrs, woodworking and sheet fabricating industry, glass industry, cardboard transport

## HV1 film



**Material :** Polyurethane  
**Colour :** Transparent, shining  
**Hardness :** 88 Shore A  
**Available thickness :** 1mm  
**Minimum diameter :** 60mm  
**Melting range :** Approx. 166°C  
**Resistances :** Resistant to some cleaning agents  
**Characteristics :** Good wear resistance, adhesive  
**Application fields :** Foodstuff industry, glass and woodworking industry, sheet fabricating, cardboard transport

## Polythane D15



**Material :** Polyurethane  
**Colour :** Transparent/yellowish  
**Hardness :** 70 Shore A  
**Available thickness :** 2mm 3-6mm  
**Minimum diameter :** 60mm 80mm  
**Temperature range :** 80°C  
**Resistances :** Resistant against simple oils and fats  
**Characteristics :** Wear resistant  
**Application fields :** General transport tasks, woodworking and glass industry, sheet fabricating industry

# Belts With Backings



## Compound Coating



**Material :** e.g. PUR/silicone  
**Colour :** White  
**Hardness :** 60 / 50 Shore A  
**Available thickness :** 2.4mm  
**Minimum diameter :** 60mm  
**Temperature range :** In accordance with the materials used, Silicone: short term 180°C  
**Resistances :** In accordance with the materials used  
**Characteristics :** Non-stick  
**Application fields :** Light weight transport tasks, air filter transport, textile and wood industry

## PVC White



**Material :** PVC  
**Colour :** White  
**Hardness :** Approx. 40 Shore A  
**Available thickness :** 2mm (more thicknesses on request)  
**Minimum diameter :** 60mm  
**Temperature range :** -15°C to +90°C  
**Resistances :** Top covering layer is resistant against acid, salts and bases  
**Characteristics :** FDA approval for contact with foodstuff  
**Application fields :** Foodstuff industry, film processing, pharmaceutical and packaging industry

## PU Yellow



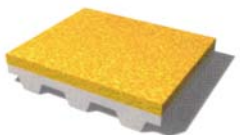
**Material :** Polyurethane  
**Colour :** Yellow  
**Hardness :** Approx. 55 ±7 Shore A  
**Available thickness :** 2mm    3mm    4mm    5mm    6mm    8mm    10mm  
**Minimum diameter :** 60mm    60mm    80mm    100mm    100mm    100mm    120mm  
**Temperature range :** -10°C to +60°C  
**Resistances :** Resistant against simple oils and fats  
**Characteristics :** Good wear resistance, very good to machine or re-work  
**Application fields :** Vacuum transport belts subject to high loads, paper, textile, glass and wood industries.

## Porol



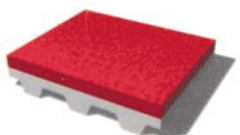
**Material :** Cellular rubber  
**Colour :** Black  
**Density, hardness :** 190 g/dm<sup>3</sup>, approx. 15 shore A  
**Available thickness :** 3mm    5mm    10mm  
**Minimum diameter :** 40mm    60mm    80mm  
**Temperature range :** -40°C to +70°C  
**Resistances :** Resistant to some simple fats and oils  
**Characteristics :** Smooth foam quality, high coefficient of friction  
**Application fields :** Transport of sensitive parts, paper industry, textile industry, cardboard transport

## Celloflex



**Material :** Microcellular elastomeric polyurethane  
**Colour :** Yellow-brown  
**Density :** 350 g/dm<sup>3</sup>  
**Available thickness :** 1mm    2mm    3mm    4mm    5mm  
**Minimum diameter :** 40mm    40mm    60mm    60mm    80mm  
**Temperature range :** -30°C to +80°C  
**Resistances :** Resistant to some simple fats and oils  
**Characteristics :** Highly flexible, high damping ratio  
**Application fields :** Transport of sensitive items, film and packaging industry, textile transport

## Linatex

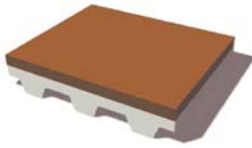


**Material :** Natural rubber  
**Colour :** Red  
**Hardness :** Approx. 40 Shore A  
**Available thickness :** 1.5mm    3mm    5mm    6mm    8mm    10mm    12mm    20mm  
**Minimum diameter :** 25mm    40mm    40mm    40mm    40mm    60mm    80mm    80mm  
**Temperature range :** -40°C to +70°C  
**Resistances :** Resistant to some oils and abrasion when wet  
**Characteristics :** Wear resistant to a limited extent, high coefficient of friction, high resistance to rupture, is still flexible with low temperatures  
**Application fields :** Transport or haul-off belts subject to high friction, wood, paper, textile industry, transport with high acceleration

# Belts With Backings

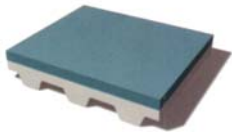


## Sylomer



**Material :** Elastomeric PUR  
**Colour :** Blue (R)    Green (L)    Brown (M)  
**Density :** 220 g/dm    300 g/dm    400 g/dm  
**Available thickness :** 3-25mm    3-25mm    3-25mm  
**Minimum diameter :** 80-120mm    80-120mm    80-120mm  
**Temperature range :** -30°C to +70°C  
**Resistances :** Resistant to some oils and fats  
**Characteristics :** Good wear resistance, not suitable for sharp edged items  
**Application fields :** Transport of light weight parts, paper and textile industry, haul-off belts, pressure belts

## PVC Blue



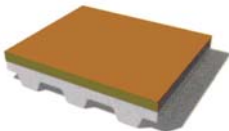
**Material :** PVC  
**Colour :** Blue  
**Hardness :** Approx. 40 Shore A  
**Available thickness :** 1mm  
**Minimum diameter :** 30mm  
**Temperature range :** -15°C to +90°C  
**Resistances :** Top covering layer is resistant against acid, salts and bases  
**Characteristics :** High coefficient of friction  
**Application fields :** Paper, film, wood and sheet transport, pharmaceutical and packaging industry, application in card reading units

## Chrome-leather



**Material :** Leather  
**Colour :** Grey-blue  
**Hardness :** -  
**Available thickness :** 2mm    3mm  
**Minimum diameter :** 80mm    100mm  
**Temperature range :** 60°C  
**Resistances :** Resistant against simple oils and fats  
**Characteristics :** Good friction even with oiled surfaces of items to be transported, good wear resistance  
**Application fields :** Transport of fatty or oily parts, sheet and tube industry, transport of sensitive parts, caterpillar pull-offs in the cable industry, transport of lacquered parts

## Correx



**Material :** Para rubber  
**Colour :** Brown  
**Hardness :** Approx. 35 to 40 Shore A  
**Available thickness :** 6mm    10mm  
**Minimum diameter :** 80mm    120mm  
**Temperature range :** Up to approx. 70°C  
**Resistances :** Resistant to some oils and fats  
**Characteristics :** Wear resistant quality, good carrying behavior  
**Application fields :** General transport tasks, sheet and tube transport, cardboard transport

## PVC Herringbone



**Material :** PVC  
**Colour :** White  
**Hardness :** Approx. 40 Shore A  
**Available thickness :** 3mm  
**Minimum diameter :** 60mm  
**Temperature range :** -10°C to +110°C  
**Resistances :** Resistant to some oils and fats  
**Characteristics :** FDA approval for contact with foodstuff  
**Application fields :** Foodstuff industry, elevators, transport of glass in wet areas

## Viton



**Material :** FKM mix  
**Colour :** Black  
**Hardness :** 75 ± 5 Shore A  
**Available thickness :** 2mm    4mm  
**Minimum diameter :** 80mm    100mm  
**Temperature range :** -10°C to +275°C  
**Resistances :** High heat resistance, resistant against, simple oils, fats, petrol, acids, lyes & ozone  
**Application fields :** Short term transport of parts with high residual heat, belts with glue and adhesive contact, metal parts and glass transport





BRECO®, BRECOFLEX® and SYNCHROFLEX® TIMING BELTS can be mechanically reworked to meet special functional features. Timing belts with a thick backing are especially suited for mechanical rework. They offer further reaching design possibilities for the designer.

Available types:

- BRECO®, BRECOFLEX®: Version T, type series DR and coatings/coverings
- SYNCHROFLEX®: Version FA and coatings/coverings

Please note that the flexibility of timing belts with a thicker back is reduced and therefore, requiring larger pulley diameters. Belt flexibility can be improved by cross grooving or incisions.

## Back cross milling:

Cross grooves on the belt back enhance the flexibility of the belt. Milled grooves are used to improve safe loading and secure positioning of the products on the belts.



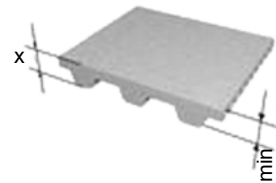
## Back longitudinal milling:

Independent on the belt pitch, the belt back shaping offers a wide range of design variants for customised solutions. In this manner, belt guiding can be achieved by a trapezoidal back profile, or a round section supported and moved by means of a prism shaped cross section. Dimensions are to be indicated as depth measure 'x' in relation to the belt back.



## Back grinding:

For reasons of precision or in order to obtain a roughened surface, all timing belts can be ground. Here the overall thickness 'x' must not fall below a minimum thickness, otherwise the tension members could be damaged.



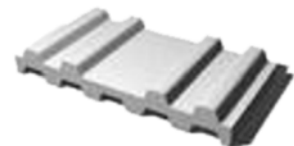
## Edge grinding:

Particularly accurate belt width tolerances can be achieved by grinding the belt edges. Edge grinding might become necessary, especially with BRECO® TIMING BELTS running on bed plates.



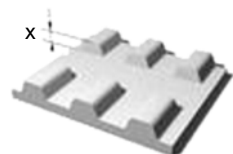
## Removing individual teeth:

The removal of individual teeth or groups of teeth is possible and practical due to the high dimensional precision meshing, when the remaining teeth are to serve as precise position load areas.



## Longitudinal milling of teeth:

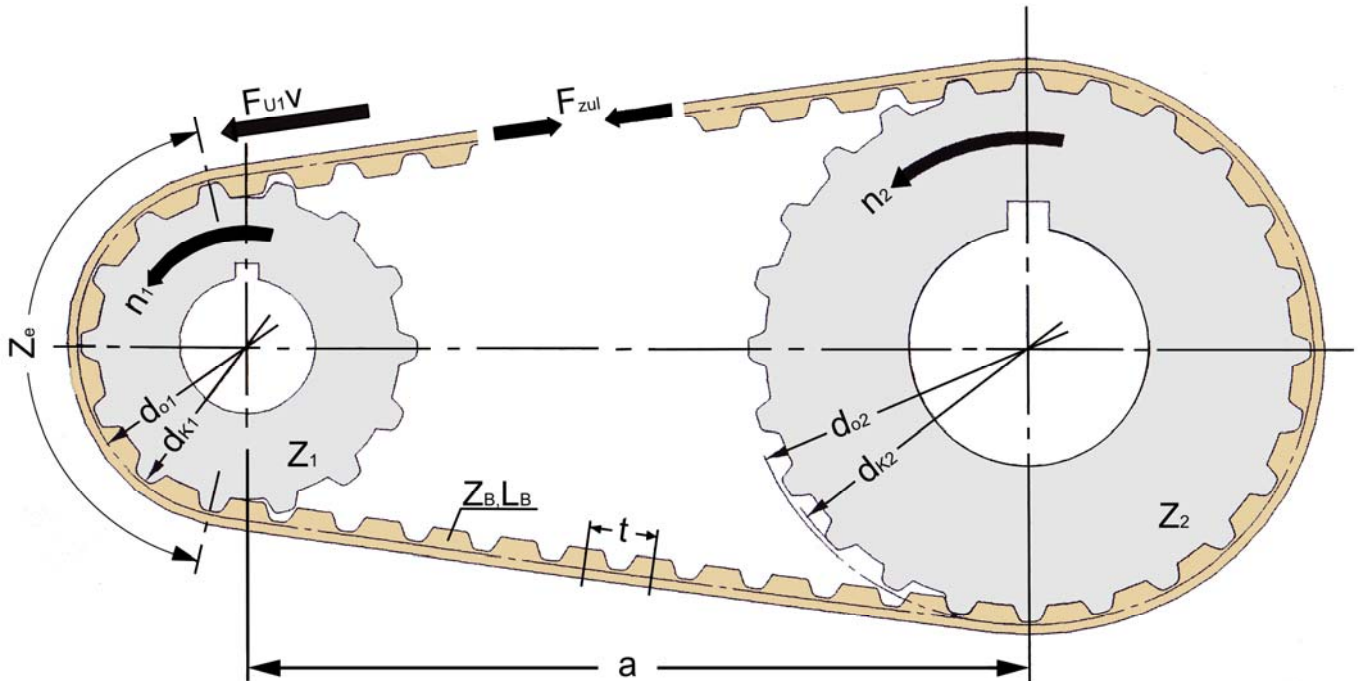
BRECO® TIMING BELTS with a longitudinally milled tooth profile are frequently used in combination with sections not being equipped with tension members for applications in the vacuum transport technology. Especially for applications in this field, BRECO® TIMING BELTS offer a wide range of products. Laying out the tooth profile is significant for SYNCHROFLEX® TIMING BELTS, which are protected from running off laterally for instance by bed plates. The processing depth 'x' is indicated as measured from the tooth head.



## Perforated timing belts:

The use of perforated BRECO® and BRECOFLEX® TIMING BELTS is preferred for areas without tension members (to a limited degree also available as BRECOFLEX® TIMING BELTS) and areas with teeth removed in the longitudinal direction, if they are to be employed as suction belts in the vacuum transport technology. The multitude of design possibilities of BRECO® TIMING BELTS as vacuum timing belts as well as our extensive experience especially in this field includes the transport of delicate films up to sheet bars of several square meters in size. Kevlar tension members are to be used preferable with SYNCHROFLEX® TIMING BELTS.





Center Distance	a	(mm)	Allowable Tensile Load	$F_{zul}$	(N)
Acceleration Torque	$M_B$	(Nm)	Pulley Width	B	(mm)
Acceleration Time	$t_B$	(s)	Pitch	t	(mm)
Bore	d	(mm)	Velocity	v	(m/s)
Density	$\rho$	(kg/dm <sup>3</sup> )	Peripheral Force	$F_u$	(N)
Torque	$M_B$	(Nm)	Angular Velocity	$\omega$	(s <sup>-1</sup> )
Rpm	n	(min <sup>-1</sup> )	Pitch Circle Diameter	$d_o$	(mm)
Outside Diameter	$d_k$	(mm)	No. of Teeth when i=1	$Z_1$	
Power	P	(kW)	No. of Teeth of Small Pulley	$Z_1$	
Moment of Inertia	J	(kgm <sup>2</sup> )	No. of Teeth of Large Pulley	$Z_B$	
Belt Length	$L_B$	(mm)	No. of Teeth in Mesh	$Z_e$	
Ratio	i				

Peripheral force:

$$F_u = \frac{2 \cdot 10^3 \cdot M}{d_o}$$

$$= \frac{19.1 \cdot 10^6 \cdot P}{n \cdot d_o}$$

$$= \frac{10^3 \cdot P}{v}$$

Torque:

$$M = \frac{d_o \cdot F_u}{2 \cdot 10^3}$$

$$= \frac{9.55 \cdot 10^3 \cdot P}{n}$$

$$= \frac{d_o \cdot P}{2 \cdot v}$$

Power:

$$P = \frac{M \cdot n}{9.55 \cdot 10^3}$$

$$= \frac{F_u \cdot d_o \cdot n}{19.1 \cdot 10^6}$$

$$= \frac{F_u \cdot v}{10^3}$$

Angular velocity:

$$\omega = \frac{\pi \cdot n}{30}$$

Velocity:

$$v = \frac{d_o \cdot n}{19.1 \cdot 10^3}$$

Belt length when  $i \neq 1$ :

$$L_B \approx \frac{t}{2} (Z_2 + Z_1) + 2a + \frac{1}{4a} \left[ \frac{(Z_2 - Z_1)t}{\pi} \right]^2$$

Pitch circle diameter:

$$d_o = \frac{Z \cdot t}{\pi}$$

Rpm:

$$n = \frac{19.1 \cdot 10^3 \cdot v}{d_o}$$

Belt length when  $i = 1$ :

$$L_B = 2a + \pi \cdot d_o$$

$$L_B = 2a + z \cdot t$$

Mass moment of inertia:

$$J = 98.2 \cdot 10^{-15} \cdot B \cdot \rho \cdot (d_k^4 - d^4)$$

Acceleration torque:

$$M_B = \frac{J \cdot \Delta n}{9.55 \cdot t_B}$$

# Slider Beds / Guide Rails



## The guide rails:

The belt span is deflected first by the load of the transported products. Guide rails are to be used as constructive mean. We offer guide rails with or without guide channels depending on the requested function. The timing belt friction coefficients are low. The guide rails are available as a standard range selection, matched to the timing belt width. The preferred delivery length is 2000 mm. Cuts to length shorter than 2000 mm are available. Larger lengths upon request.

## Material:

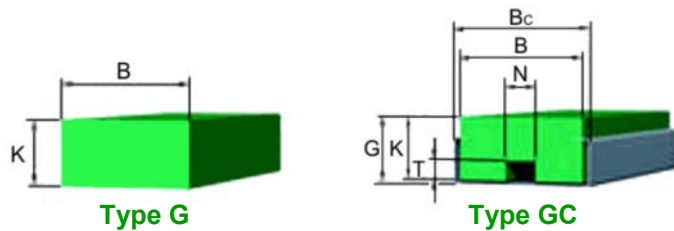
The material is a low-pressure UHMW polyethylene. This material has a low friction coefficient and is also wear resistant. The sliding friction value between standard polyurethane and low-pressure polyethylene is  $\mu \approx 0.3$ . The C profile is made of zinc plated sheet steel. The cut-out is intended for fastening screws. The C profile has no bore holes.

## Installation information:

Due to the relatively large expansion of the sliding material under temperature, provide expansion gaps in the rail structure. Approximative formula for the linear expansion of low-pressure polyethylene: 2mm/10°C temperature difference over 1000 mm of length.

### Slider Beds Without Edge Guide:

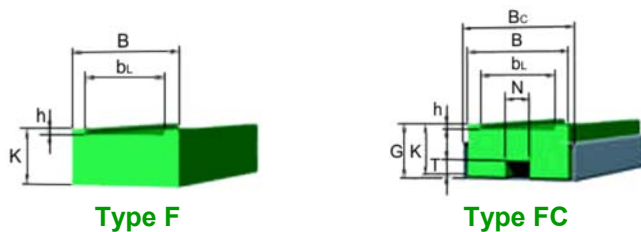
Slider beds without edge guiding can be used with all our polyurethane timing belts. They are recommended for all conveying applications with minimal side loads.



Part Numbers		B	B <sub>c</sub>	K	G	N	T	Recommended For Belt Width
Type G	Type GC	mm	mm	mm	mm	mm	mm	
G 32	GC 32	45	50	22	23.5	11	7	32mm
G 50	GC 50	68	75	32	34.5	14	9	50mm / 2"
G 75	GC 75	93	100	32	34.5	14	9	75mm / 3"
G 100	GC 100	118	125	32	34.5	14	9	100mm / 4"

### Slider Beds With Edge Guide:

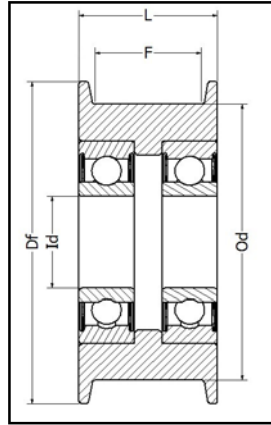
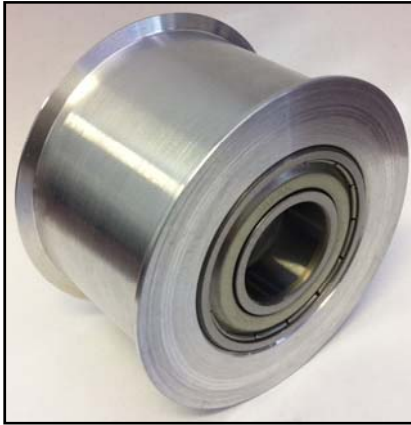
Slider beds with edge guiding are recommended for applications where the timing belt must be guided due to side loads.



Part Numbers		B	B <sub>c</sub>	b <sub>L</sub>	K	h	G	N	T	Recommended For Belt Width	
Type F	Type FC	mm	mm	mm	mm	mm	mm	mm	mm		
F 32 x 2	FC 32 x 2	45	50	33	22	2	23.5	11	7	32AT5	32T5
F 50 x 2	FC 50 x 2	68	75	51	32	2	34.5	14	9	50AT5	50T5
F 75 x 2	FC 75 x 2	93	100	76	32	2	34.5	14	9	75AT5	75T5
F 100 x 2	FC 100 x 2	118	125	101	32	2	34.5	14	9	100AT5	100T5
F 32 x 4	FC 32 x 4	45	50	33	22	4	23.5	11	7	32AT10	32T10
F 50 x 4	FC 50 x 4	68	75	51	32	4	34.5	14	9	50AT10	50T10
F 75 x 4	FC 75 x 4	93	100	76	32	4	34.5	14	9	75AT10	75T10
F 100 x 4	FC 100 x 4	118	125	101	32	4	34.5	14	9	100AT10	100T10
F 50 x 7	FC 50 x 7	68	75	51	32	7	34.5	14	9	50AT20	50T20
F 75 x 7	FC 75 x 7	93	100	76	32	7	34.5	14	9	75AT20	75T20
F 100 x 7	FC 100 x 7	118	125	101	32	7	34.5	14	9	100AT20	100T20

Slider beds are also available with V- groove for use in conjunction with self tracking belts. Please contact our sales department for details.

# Timing Belt Idler Pulleys



PIES Idler Pulleys Type P are designed specifically for timing belts. The Type P Idlers pulleys come in 11 standard sizes to suit almost any timing belt. The Type P Idler pulleys are made from aluminium and fitted with 2 high quality deep groove ball bearings. The Type P Idler pulleys come complete with guide flanges and bearings ready for immediate use. Simply check the table below for the recommended application for the timing belt and drive setup you require.

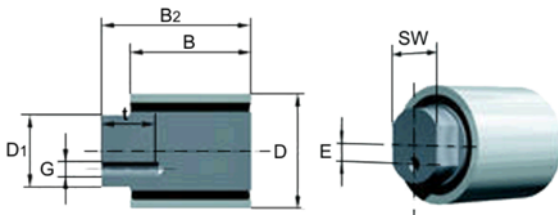
Part No.	Dimensions (mm)					Weight Kg	Max. Belt Width	Recommended Applications	
	Od	Id	L	F	Df			Running on Belt Teeth	Running on Back of Belt
<b>P 10/20-2</b>	20	4	10	7	25	0.013	6	T2 / M / T2.5 / AT3	T2 / M / T2.5 / AT3
<b>P 15/30-2</b>	30	10	15	13	35	0.036	10	T2 / M / T2.5 / T5 / AT3 / AT5	T2 / M / T2.5 / T5
<b>P 21/30-2</b>	30	10	21	18	35	0.041	16	T5 / AT3 / AT5	T5 / AT3
<b>P 21/60-2</b>	60	15	21	18	65	0.190	16	T10 / AT10	AT5
<b>P 30/30-2</b>	30	10	30	27	35	0.054	25	T5 / AT5	T5
<b>P 30/60-2</b>	60	15	30	26	66	0.242	25	T10 / AT10	AT5 / T10
<b>P 30/120-2</b>	120	20	30	26	126	1.050	25	T20 / AT20	AT10 / T20
<b>P 40/60-2</b>	60	20	40	36	66	0.315	32	T10 / AT10	AT5 / T10
<b>P 40/120-2</b>	120	20	40	36	126	1.280	32	T20 / AT20	AT10 / T20
<b>P 60/60-2</b>	60	20	60	56	66	0.410	50	T10 / AT10	T10
<b>P 60/120-2</b>	120	20	60	56	126	1.860	50	T20 / AT20	AT10 / T20



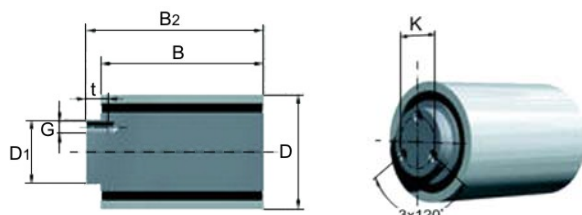
# Idler / Tension Pulleys (Type B)



The Idler/tension rollers Type B run on two deep groove roller bearings. The bearings are lubricated and sealed for life. Normal operating temperatures up to 70°C without reduction in life and temporary peak temperatures up to 120°C are allowable. The shafts are made from steel and the rollers and flanges are aluminium.

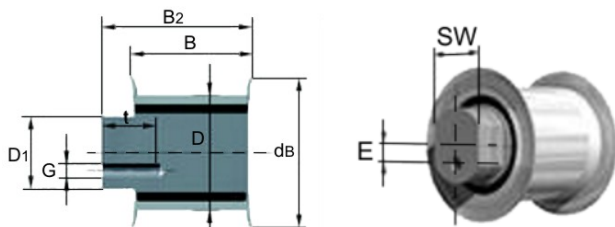


Type B/E0 with eccentric adjustment

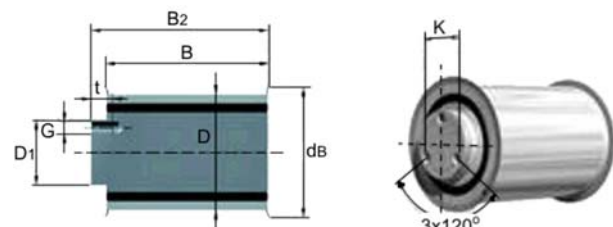


Type B/F0 fixed centre

Part No.	Type	Max. belt Width (mm)	B (mm)	D (mm)	B <sub>2</sub> (mm)	E (mm)	K (mm)	G	t (mm)	SW (mm)	D <sub>1</sub> (mm)	Load Ratings		Max. RPM
												C <sub>dyn.</sub>	C <sub>stat.</sub>	
B 34/32-0	B/E0	25	34	32	42	5	-	M6	10	17	20	7950	3920	30000
B 40/60-0	B/E0	32	40	60	50	5	-	M12	20	27	30	19300	13100	15000
B 64/60-0	B/E0	50	64	60	74	5	-	M12	20	27	30	19300	13100	15000
B 40/80-0	B/E0	32	40	80	50	5	-	M12	20	27	30	19300	13100	15000
B 64/80-0	B/E0	50	64	80	74	5	-	M12	20	27	30	19300	13100	15000
B 90/80-0	B/E0	75	90	80	110	5	-	M20	32	36	45	48000	38000	5000
B 40/120-0	B/E0	32	40	120	50	5	-	M12	20	27	30	19300	13100	5000
B 64/120-0	B/E0	50	64	120	74	5	-	M12	20	27	30	19300	13100	5000
B 70/120-0	B/E0	50	70	120	85	5	-	M20	30	36	45	70500	48000	7500
B 90/120-0	B/E0	75	90	120	110	5	-	M20	32	36	45	48000	38000	5000
B 40/150-0	B/E0	32	40	150	50	5	-	M12	20	27	30	19300	13100	5000
B 64/150-0	B/E0	50	64	150	74	5	-	M12	20	27	30	19300	13100	5000
B 90/150-0	B/E0	75	90	150	110	5	-	M20	32	36	45	48000	38000	5000
B 114/60-0	B/F0	100	114	60	124	-	34	M8 (3x)	15	-	45	19300	13100	5000
B 114/80-0	B/F0	100	114	80	124	-	34	M8 (3x)	15	-	45	19300	13100	5000
B 117/120-0	B/F0	100	117	120	131	-	65	M12 (3x)	24	-	85	70500	48000	5000
B 117/180-0	B/F0	100	117	180	131	-	80	M16 (3x)	25	-	106	106000	76000	5000



Type B/E2 with eccentric adjustment



Type B/F2 fixed centre

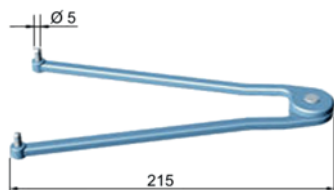
Part No.	Type	Max. belt Width (mm)	B (mm)	D (mm)	d <sub>B</sub> (mm)	B <sub>2</sub> (mm)	E (mm)	K (mm)	G	t (mm)	SW (mm)	D <sub>1</sub> (mm)	Load Ratings		Max. RPM
													C <sub>dyn.</sub>	C <sub>stat.</sub>	
B 34/32-2	B/E2	25	34	32	41.5	42	5	-	M6	10	17	20	7950	3920	30000
B 40/60-2	B/E2	32	40	60	71	50	5	-	M12	20	27	30	19300	13100	15000
B 64/60-2	B/E2	50	64	60	71	74	5	-	M12	20	27	30	19300	13100	15000
B 40/80-2	B/E2	32	40	80	91	50	5	-	M12	20	27	30	19300	13100	15000
B 64/80-2	B/E2	50	64	80	91	74	5	-	M12	20	27	30	19300	13100	15000
B 90/80-2	B/E2	75	90	80	91	110	5	-	M20	32	36	45	48000	38000	5000
B 40/120-2	B/E2	32	40	120	132	50	5	-	M12	20	27	30	19300	13100	5000
B 64/120-2	B/E2	50	64	120	132	74	5	-	M12	20	27	30	19300	13100	5000
B 70/120-2	B/E2	50	70	120	137	85	5	-	M20	30	36	45	70500	48000	7500
B 90/120-2	B/E2	75	90	120	132	110	5	-	M20	32	36	45	48000	38000	5000
B 40/150-2	B/E2	32	40	150	162	50	5	-	M12	20	27	30	19300	13100	5000
B 64/150-2	B/E2	50	64	150	162	74	5	-	M12	20	27	30	19300	13100	5000
B 90/150-2	B/E2	75	90	150	162	110	5	-	M20	32	36	45	48000	38000	5000
B 114/60-2	B/F2	100	114	60	71	124	-	34	M8 (3x)	15	-	45	19300	13100	5000
B 114/80-2	B/F2	100	114	80	91	124	-	34	M8 (3x)	15	-	45	19300	13100	5000
B 117/120-2	B/F2	100	117	120	137	131	-	65	M12 (3x)	24	-	85	70500	48000	5000
B 117/180-2	B/F2	100	117	180	204	131	-	80	M16 (3x)	25	-	106	106000	76000	5000

The Type B Idler/tension rollers are also available with teeth on the running surface, please contact our sales department for further details.

# Idler / Tension Pulleys (Type M)



The MULCO tension roller Type M is an innovative development. It is available in 7 standard sizes. The tension rollers are distinguished by a rigid, vibration-resistant load bearing design. The forces acting by the belt pull are reliably absorbed by the generously dimensioned  $D_1$  base diameter. The ball race and the load bearing structure are made of AlCuMgPb (F38). The tension rollers are over-mounted on the machine wall. The eccentric fitting results in an easy adjustment of the belt pre-tension force. To ensure the swivel motion around the mounting axle, the face spanner (pictured below) can be used.

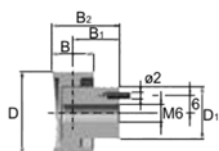


Face Spanner

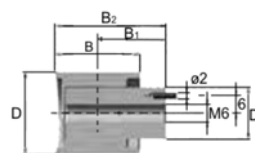


Mounting instruction: counter-clockwise tensioning!

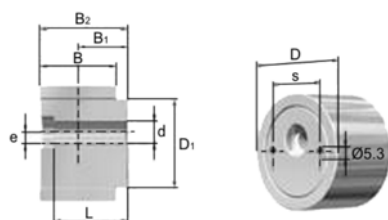
The Type M tension rollers are fitted with high quality grooved ball bearings. The first filling of the bearings consists of a high-performance lithium saponified grease to ensure life time service. The greases are short-time temperature resistant up to 120°C. Permanent temperatures of 70°C and above will lead to a reduced useful life of the grease. The stated load bearing parameters refer to the entire tension roller on the basis of a centred belt load.



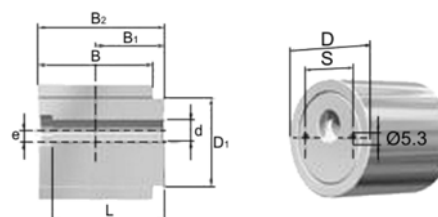
BSR 71-100



BSR 73-100



Type 1



Type 2

Part No.	Weight Kg	Dimensions (mm)									Type	Load Ratings		Max. RPM	Recommended Applications		
		B	B <sub>1</sub>	B <sub>2</sub>	D	D <sub>1</sub>	L	e	s	d		C <sub>dyn</sub> (N)	C <sub>stat</sub> (N)		Max. Belt Width	On Belt Back	On Teeth
BSR 71-100	0.06	14	16	23	28	18	-	-	-	-	1	4050	1710	8000	10	T2.5/T5	T2.5/T5/AT5
BSR 73-100	0.10	27	26	40	28	18	-	-	-	-	2	6200	3450	15000	25	T2.5/T5	T2.5/T5/AT5
M 40/60-0	0.40	40	26	46	60	46	37.5	6	35	11	1	11200	5600	15000	32	AT5/T10	AT10/T10
M 60/60-0	0.50	60	36	66	60	46	57.5	6	35	11	2	19300	11200	15000	50	AT5/T10	AT10/T10
M 110/60-0	0.80	110	61	116	60	46	107	5	35	13	2	19300	11200	15000	100	AT5/T10	AT10/T10
M 60/120-0	2.40	60	35	70	120	94	57.5	17	70	17	2	51000	36600	6700	50	AT10/T20	AT20
M 110/120-0	3.90	110	60	120	120	94	108	17	70	17	2	51000	36600	6700	100	AT10/T20	AT20
M 85/180-0	7.00	85	45	95	180	137	78.5	30	70	26	2	100000	78000	4800	75	AT20	T20
M 160/180-0	10.80	160	83	170	180	137	154	30	70	26	2	100000	78000	4800	150	AT20	T20

Cheese-head screws according to DIN 6912 can be used for machine wall mounting. The appropriate screw length depends on the fitting situation and the surrounding structure. The table shows thread sizes and the recommended strength of the cheese-head screws.

Part No.	Cheese Head Screw		
	Size	Strength	Torque
BSR 71100	M6	8.8	10
BSR 73100	M6	8.8	10
M 40/ 60-0	M10	8.8	49
M 60/ 60-0	M10	10.9	69
M 110/ 60-0	M12	12.9	145
M 60/ 120-0	M16	8.8	210
M 110/ 120-0	M16	12.9	355
M 85/ 180-0	M24	8.8	710
M 160/ 180-0	M24	12.9	1200

Minimum Idler Ømm	On Teeth	On Belt Back
T2	18	15
M	18	15
T2.5	18	15
T5	30	30
T10	60	60
T20	120	120
AT3	20	20
AT5	25	60
AT10	50	120
AT20	120	180

# Shaft Locking Devices



## Shaft locking devices:

Shaft locking devices are used to connect components onto a shaft, giving them the capability to transmit torque and support axial thrust. The devices clamp the components securely to the shaft with no backlash, and without the need for high tolerance bores. They can be used for such items as pulleys, gears, sprockets, and flywheels etc. Simple assembly and disassembly is a major feature of the devices, thus enabling overall cost reductions. They are used to replace conventional fastening methods such as weldings, splines, keyways and taper bushes.

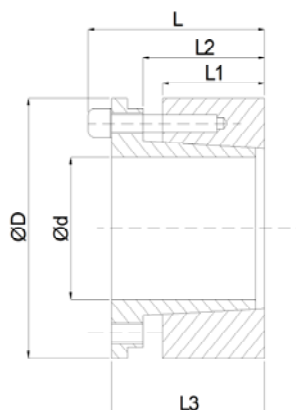
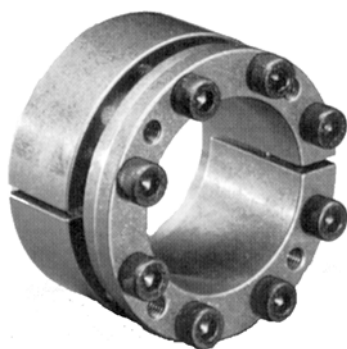
The recommended machining tolerances for surfaces are:

Shaft diameter h8

Hub bore H8

## RCK 70:

Self-centering. Designed for high torque ratings



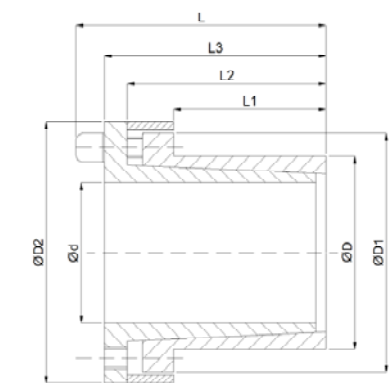
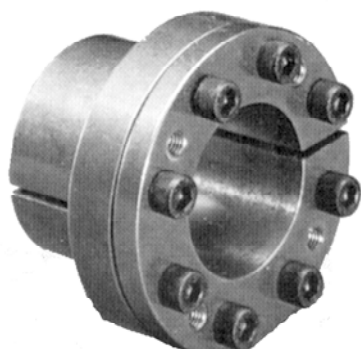
Type	Dimensions (mm)						Torque Nm	Clamping Screws			Pressures	
	d	D	L1	L2	L3	L		No.	Type	Torque Nm	Shaft N/mm <sup>2</sup>	Hub N/mm <sup>2</sup>
RCK70 19/47	19	47	26	31	39	45	350	4	M6x25	17	228	98
RCK70 20/47	20	47	26	31	39	45	390	4	M6x25	17	231	100
RCK70 22/47	22	47	26	31	39	45	440	4	M6x25	17	220	95
RCK70 24/50	24	50	26	31	39	45	519	6	M6x25	17	215	102
RCK70 25/50	25	50	26	31	39	45	590	6	M6x25	17	230	105
RCK70 28/55	28	55	26	31	39	45	700	6	M6x25	17	220	110
RCK70 30/55	30	55	26	31	39	45	760	6	M6x25	17	200	120
RCK70 32/60	32	60	26	31	39	45	930	8	M6x25	17	230	114
RCK70 35/60	35	60	26	31	39	45	1030	8	M6x25	17	200	119
RCK70 38/65	38	65	26	31	39	45	1240	8	M6x25	17	210	124
RCK70 40/65	40	65	26	31	39	45	1350	8	M6x25	17	200	125
RCK70 42/75	42	75	30	36	47	55	2170	6	M8x30	41	236	140
RCK70 45/75	45	75	30	36	47	55	2350	6	M8x30	41	236	140
RCK70 48/80	48	80	30	36	47	55	2510	6	M8x30	41	218	135
RCK70 50/80	50	80	30	36	47	55	2580	6	M8x30	41	218	135
RCK70 55/85	55	85	30	36	47	55	3200	8	M8x30	41	223	145
RCK70 60/90	60	90	30	36	47	55	3380	8	M8x30	41	198	157
RCK70 65/95	65	95	30	36	47	55	4160	8	M8x30	41	213	140
RCK70 70/110	70	110	40	46	57	67	6840	8	M10x35	83	225	143
RCK70 75/115	75	115	40	46	62	72	7500	8	M10x35	83	210	138
RCK70 80/120	80	120	40	46	62	72	8100	8	M10x35	83	200	130
RCK70 85/125	85	125	40	46	62	72	9700	10	M10x35	83	210	145
RCK70 90/130	90	130	40	46	62	72	10300	10	M10x35	83	200	138
RCK70 95/135	95	135	40	46	62	72	12100	10	M10x35	83	210	148
RCK70 100/145	100	145	46	52	77	89	15700	8	M12x45	145	216	148

# Shaft Locking Devices



## RCK 80:

Self-centering. Designed to accommodate axial displacements



Type	Dimensions (mm)								Torque Nm	Clamping Screws		Pressures		
	d	D	D1	D2	L1	L2	L3	L		No.	Type	Torque Nm	Shaft N/mm <sup>2</sup>	Hub N/mm <sup>2</sup>
RCK80 10/16	10	16	25	28	14	23.5	27.5	31.5	35	3	M4x12	5	140	85
RCK80 12/18	12	18	28	32	14	23.5	27.5	31.5	58	4	M4x12	5	150	100
RCK80 14/23	14	23	35	39	14	23.5	27.5	31.5	69	4	M4x12	5	140	80
RCK80 15/24	15	24	40	45	16	29.5	36.5	42.5	170	4	M6x18	17	158	98
RCK80 16/24	16	24	40	45	16	29.5	36.5	42.5	180	4	M6x18	17	148	98
RCK80 18/26	18	26	42	47	19	32.5	39.5	45.5	200	4	M6x18	17	180	125
RCK80 19/27	19	27	43	49	19	32.5	39.5	45.5	210	4	M6x18	17	170	120
RCK80 20/28	20	28	44	50	19	32.5	39.5	45.5	220	4	M6x18	17	160	115
RCK80 22/32	22	32	48	54	26	39.5	46.5	52.5	250	4	M6x18	17	115	80
RCK80 24/34	24	34	50	56	26	39.5	46.5	52.5	395	6	M6x18	17	146	102
RCK80 25/34	25	34	50	56	26	39.5	46.5	52.5	410	6	M6x18	17	140	102
RCK80 28/39	28	39	55	61	25.5	39.5	46.5	52.5	465	6	M6x18	17	135	98
RCK80 30/41	30	41	57	62	25.5	39.5	46.5	52.5	510	6	M6x18	17	127	90
RCK80 32/43	32	43	59	65	25.5	39.5	46.5	52.5	705	8	M6x18	17	146	108
RCK80 35/47	35	47	62	69	31.5	45.5	52.5	58.5	790	8	M6x18	17	105	80
RCK80 38/50	38	50	66	72	31.5	45.5	52.5	58.5	860	8	M6x18	17	100	76
RCK80 40/53	40	53	69	75	31.5	45.5	52.5	58.5	900	8	M6x18	17	96	72
RCK80 42/55	42	55	71	78	31.5	45.5	52.5	58.5	940	8	M6x18	17	90	70
RCK80 45/59	45	59	80	86	45	62.5	71	79	1840	8	M8x22	41	110	85
RCK80 48/62	48	62	81	87	45	62.5	71	79	2000	8	M8x22	41	105	80
RCK80 50/65	50	65	86	92	45	62.5	71	79	2100	8	M8x22	41	100	75
RCK80 55/71	55	71	92	98	55	72.5	81	89	2580	9	M8x22	41	85	65
RCK80 60/77	60	77	98	104	55	72.5	81	89	2800	9	M8x22	41	75	60
RCK80 65/84	65	84	105	111	55	72.5	81	89	3050	9	M8x22	41	70	55
RCK80 70/90	70	90	113	119	65	86.5	96.5	107	5250	9	M10x25	83	90	70
RCK80 75/95	75	95	119	126	65	86.5	96.5	107	5600	9	M10x25	83	80	65
RCK80 80/100	80	100	125	131	65	86.5	96.5	107	8000	12	M10x25	83	100	80
RCK80 85/106	85	106	131	137	65	86.5	96.5	107	8500	12	M10x25	83	95	75
RCK80 90/112	90	112	137	144	65	86.5	96.5	107	9000	12	M10x25	83	90	75
RCK80 95/120	95	120	142	149	65	86.5	96.5	107	11000	12	M10x25	83	100	80

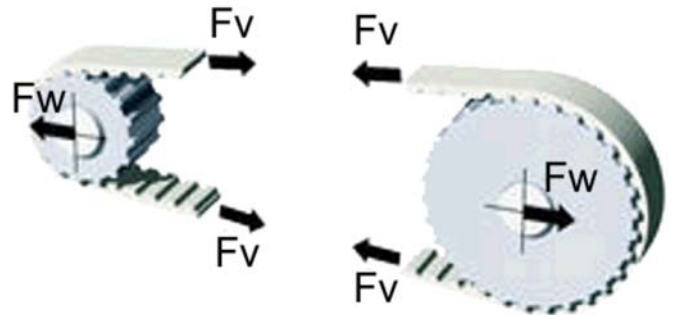


## Pre-tension force:

Pre-tension is intended to guarantee a minimum tensioning force at the slack span side to ensure smooth tooth meshing into the driven pulley.

Generally, the pre-tension should only be set as high as necessary. The necessary pretension force of the spans  $F_V$  depends on the max. circumferential force  $F_U$ , the belt length  $L_B$  (number of teeth  $Z_B$ ) and the drive configuration.

Drive Type	No. of Teeth in Belt $Z_B$	Pre-Tension per Span
Two Pulley Drive	$Z_B < 60$	$F_V = 1/3 F_U$
	$60 \leq Z_B < 150$	$F_V = 1/2 F_U$
	$Z_B > 150$	$F_V = 2/3 F_U$
Multiple Pulley Drive	Loaded Span $\leq$ Unloaded Span	$F_V = F_U$
	Loaded Span $>$ Unloaded Span	$F_V > F_U$
Linear Drives	All Belts	$F_V \geq F_U$



The recommendations shown in the table refer to the pre-tension force setting per span.

In every case, the tension cord strength is the top limit of the span load. Take into consideration that especially with multiple-shaft and linear drives, an addition of the pre-tension force and the circumferential force in relation to the load span force is to be expected.

## Influence variables:

### Stiffness of the belt

Friction forces created by the interaction of the tooth mesh (especially at the slack span) intensify the span forces, which in turn increase the degree of elongation. This influence may lead to the slack span tooth mesh butting against the driven pulley, thereby causing the belt to jump. Elongation being directly depending on the belt stiffness, the high stiffness of the steel cord tension members permits a comparably low pre-tension.

### Circumferential force

The circumferential force acts in proportion to the elongation of the load span, i.e. excessive slackening of the slack span can be counter-acted by a pre-tension matched to the circumferential force.

### Belt length

Belt elongation resulting from the effect of the circumferential force and the friction forces is also approximately in proportion to the belt length. Therefore, the tendency of running up or jumping is considerably influenced by the belt length. Even under high circumferential forces with the resulting friction forces, a very short timing belt will elongate to only a small degree, so that even when subject to low pre-tension forces there will be no danger of running up or jumping of teeth. On the contrary, with short timing belts circumferential deviations of the pulleys could cause heavy pre-tension fluctuations and, as a result, extreme peak values.

### Proportion of the span lengths

Especially with multiple-shaft drives the load span is often markedly longer than the slack span side. For this reason, a slight elongation of the load span results in a very unfavorable slack on the span side. Therefore, the pre-tension force of spans of such gearings should be higher than the circumferential force.

### Precise transmission of movement

There is a high transmission accuracy possible in the reverse operation with BRECO®, BRECOFLEX® and SYNCHROFLEX® TIMING BELTS, when the span pre-tension forces are selected in the same size of the circumferential force.

## Consequences of faulty pre-tension setting:

### Too low pre-tension

- The teeth of the slack span side run up on or override the teeth of the driven pulley
- Wear on the faces caused by the friction force during meshing
- Forced breakage by excessive elongation due to full overriding

### Excessive pre-tension

- High bearing load of the shafts
- Reduction of the transmissible power
- Wear and tear of the belt tooth

## Digital Belt Tension Meter SM5 and SM5F

PIES Australia is proud to introduce the new generation Digital Belt Tension Meter SM5. The new SM5 will replace our SM4 model which has since been discontinued.

With the new SM5 and SM5F you will experience a better and easier use in comparison to the SM4 model:

- LCD display with backlight
- Indicator which indicates the lifetime of the battery
- Beam of light indicating the direction of the positioning of the measurement
- Optimized measurement distance (from 2-5 cm between the sensor and belt)
- The SM5 and SM5F model are highly ergonomic

Our new SM5 and SM5F takes advantage of the new generation of electrical components which allows an allotted measurement range of 7 to 450 HZ.

The recent environmental norms concerning recycling have been taken into consideration and the new packaging of the SM5 and SM5F are more environmentally friendly.

The new SM5 Digital Belt Tension Meter will be available in two different versions:

- SM5 With integrated sensor
- SM5F With flexible external sensor

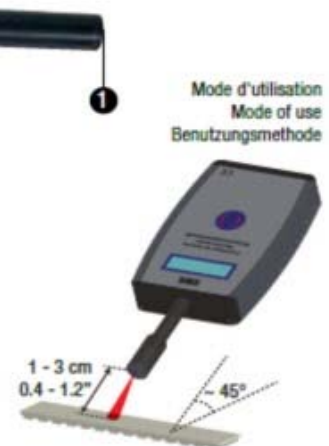
The SM5 and SM5F Digital Belt Tension Meters are generally stock items and are available from PIES Australia for immediate delivery.

### SM5 standard

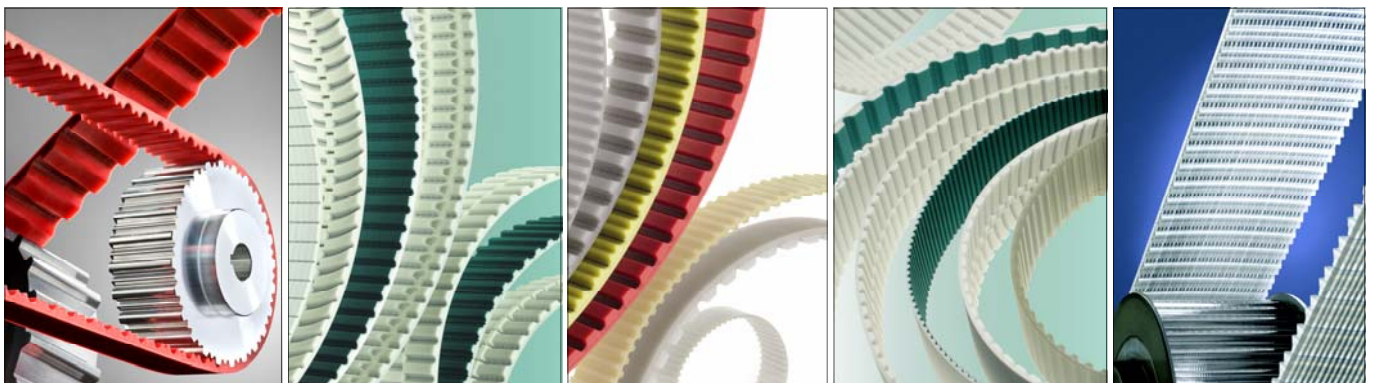


### SM5-F

avec flexible  
avec flexible  
avec flexible



**PIES Australia are also suppliers of:**  
**Rubber Imperial Timing Belts & Pulleys**  
**HTD Rubber Timing Belts & Pulleys**  
**Goodyear Industrial Air Springs**  
**Goodyear Automotive Air Springs**  
**Right Angle Gearboxes**  
**AeroGo Aerocastors**  
**Locking Devices**  
**24 Hour Breakdown Service**



***P.I.E.S.*** AUSTRALIA PTY LTD

49 Freight Drive, Somerton, Victoria 3062

**Tel: 03 9303 2000**

**[www.piesau.com.au](http://www.piesau.com.au)**

**[sales@piesau.com.au](mailto:sales@piesau.com.au)**