

# BRECO® Components for Polyurethane Timing Belts



updated version



## Keeping things moving!

BRECO has been a market leader in terms of innovation and quality in the field of polyurethane timing belt technology for over 40 years. Our 250 employees produce timing belts and toothed pulleys at our main plant in Porta Westfalica.

Our longstanding experience combined with the consistent use of only high-quality materials has established the reputation of BRECO products throughout the world. Not only the quality but also the service via select sales partners and the joint development of our individual solutions are an important reason for many users to opt for the brand BRECO. Synchronising pulleys, synchronising shafts, tension rollers, clamping elements and tensioners, optimised to BRECO®- and BRECOFLEX® polyurethane timing belts offer customers the functional reliability they wish for their application. A wide range of standard products for simple and complex applications and the range of individually adapted synchronising pulleys for special requirements with regard to function and quality provide the right solution for almost all drive tasks. Special surface coatings, for example hard coating, anodising, galvanising or browning, ensure better corrosion and wear performance.

BRECO GmbH & Co. Zahnscheiben KG sets great store by innovative creativity, not only in the area of manufacturing high-quality products but also when it comes to using materials with ecology in mind.

After the Waste Electrical and Electronic Equipment Directive 2002/95/EC came into effect in Germany, BRECO converted its entire material programme to materials compliant with this directive. In particular, we - in contrast to most other timing belt manufacturers - no longer use the previous standard material AlCuMgPb (DIN 1725) because this contains the elements lead (Pb), cadmium (Cd), mercury (Hg) and hexavalent chromium (Cr (VI)). This material has been replaced by lead-free AlCu4MgSi (EN AW-2017A), whose strength even surpasses that of the material used previously.

### Quality and service life - your price benefit

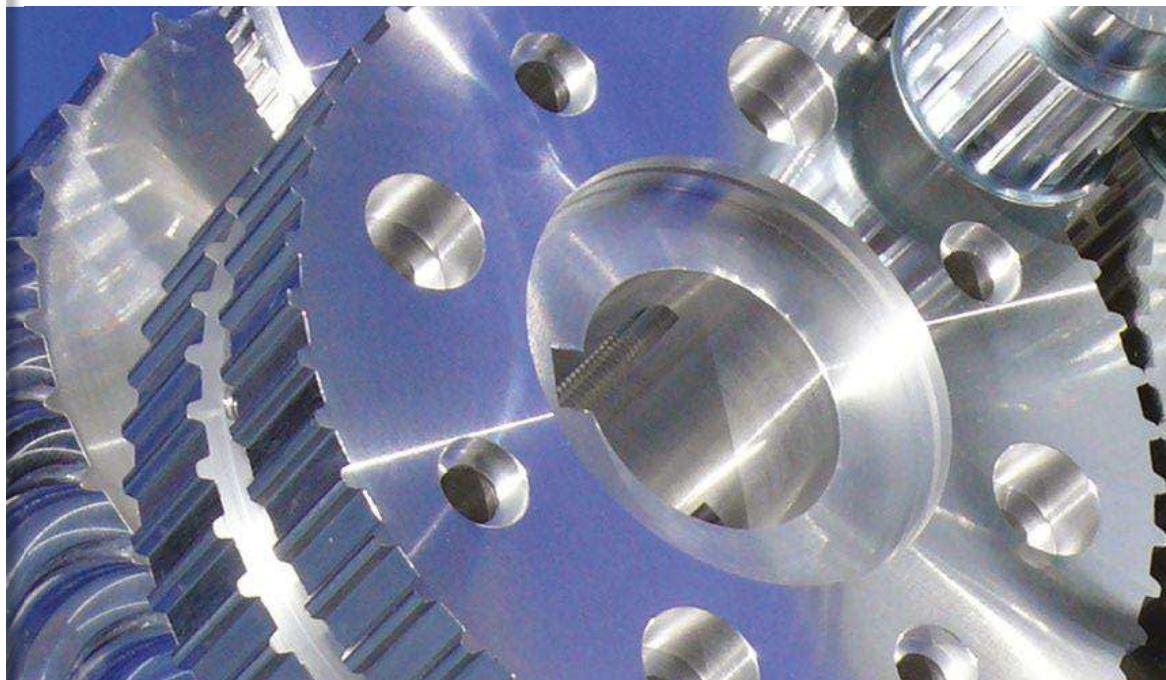
The quality of a timing belt pulley is crucial for the functioning, fault-free running and service life of the timing belt drive.

Timing belt drives have become increasingly important in almost all areas of mechanical engineering, plant and vehicle construction in the past few decades. The following advantages over chain drives and positive-fit belt drives (flat and V-belt) are the reason for this:

- Greater positioning and transmission accuracy
- Low-friction operation
- less moving mass (lower moments of inertia, better dynamics)
- No need for maintenance

The significance of timing belt drives will continue to grow due to the rising demands for environmental compatibility and precision.

It is the aim of every design engineer to design power transmission belts so that the tribological loss parameters of friction and wear remain as low as possible. In the case of timing belts drives, this calls for an optimum interplay of belt and pulley (precisely coordinated transmission performance in terms of kinematics) and a high degree of precision in the manufacturing process with respect to dimensional accuracy, concentric running, balance and surface quality. We therefore recommend combining BRECO® timing belts with BRECO® toothed pulleys – as this will ensure the best possible transmission performance.



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BRECO® TSM alpha 1

## Synchronising pulleys

## Surface treatment

### Materials for synchronising pulleys

BRECO provides various materials for diverse areas of application for synchronising pulleys. We only use pressed and drawn semi-finished products so that the technical properties of our products are retained over the entire area of application, thus ensuring functional reliability.

Standard materials					
Material	Material no. Abbreviation as per DIN EN	Tensile strength [N/mm <sup>2</sup> ]	Yield strength Rp0,2 [N/mm <sup>2</sup> ]	Dimensions and use	Coatings, Special features
AlCuMg1 AlCuMgSi(A)	3.1325 EN AW-2017A	360-400	220-250	Up to Ø 250 mm components subject to high and vibration stress, compliant with the Waste Electrical and Electronic Equipment Directive	Good anodising capacity
AlMgSi1 (F30) AlSiMgMn	3.2315.72 EN AW-6082	310-350	240-320	Up to Ø 400 mm good welding capacity, very good corrosion resis- tance, compliant with the Waste Electrical and Electronic Equipment Directive	Colourless anodising, hard anodising
AlZnMgCu 0,5 (F45) AlZnMg3Cu	3.4345.71 EN AW-7022	410-450	330-370	High-strength aluminium alloy for components subject to high stress, capable of being welded and eroded, compliant with the Waste Electrical and Electronic Equipment Directive	Natural and coloured anodising, hard coating
AlMg3 (F19) AlMg3	3.3535.07 EN AW-5754	190-240	90-120	Up to Ø 250 mm and flat material seawater resistant, compliant with the Waste Electrical and Electronic Equipment Directive	Natural and coloured anodising, hard coating
AlMg4,5Mn (F27) AlMg4,5Mn0,7	3.3547.10 EN AW-5083	275	110-125	Flat material for clamp connectors, good welding capacity, suitable for low temperature ranges, seawater resistant, compliant with the Waste Electrical and Electronic Equipment Directive	Natural and coloured anodising, hard coating

### Material recommendation for synchronising pulleys made from steel

Material / Material no.	Use	Tensile strength [N/mm <sup>2</sup> ]	Strain limit / Yield strength [N/mm <sup>2</sup> ]	Hardenability
11SMn30/1.0715	Standard material up to Ø 160 mm, parts for low to medium stress	380 - 570	min. 245	.....
16MnCr5+FP / 1.7131	Application steel – available up to Ø 380 mm, parts for low to medium stress	780 - 1080	440	41-49 HRC
C45 / 1.0503	Quenched and tempered steel, parts for low to medium stress	580	305 - 370	55-62 HRC
42CrMo4 / 1.7225	Components with high stresses	100 - 1200	650-900	53-62 HRC

### Material recommendation for synchronising pulleys made from stainless steel

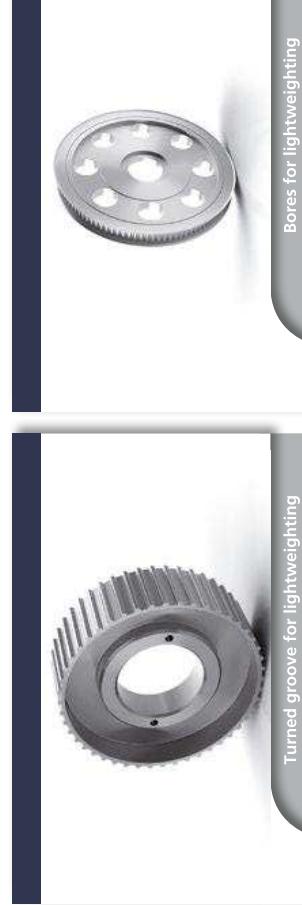
Material / Material no.	Use	Tensile strength Rp0,2 [N/mm <sup>2</sup> ]	Yield strength [N/mm <sup>2</sup> ]
X5CrNi 1810 / VA 1.4301	Good corrosion resistance, welding capacity, suitable for food	550 - 750	235
X6CrNiMoTi 17-12-2 / VA 1.4571	Corrosion resistant (also in welded state), Chemical industry	540 - 690	240

### Surface refinement for synchronising pulleys made from aluminium

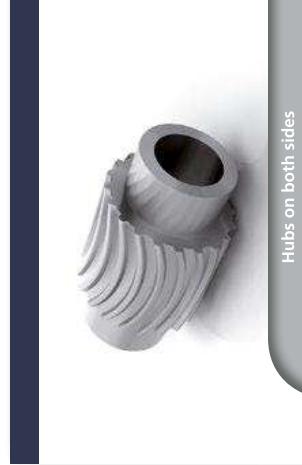
Surface treatment	Use	Brief description
Anodising	Decorative corrosion protection for the surface	The layer hardness is in the range 250-350 HV, the oxide layer resulting from anodising ensures very good resistance to wear and prevents corrosion symptoms.
		Anodised components exhibit tremendous abrasion strength and can be provided with special glide properties for particular applications so that the adhesive abrasion is virtually zero. The aluminium oxide layers are very temperature resistant and can be heated to 2,000°C.
Hard anodising	Wear protection Optional: Hard anodising or hard coating	Layer thickness 30-80µm Teflon coating for improved glide properties
Easy Glide	Wear protection Optional: Hard anodising or hard coating	The layer hardness is in the range up to 550 HV. The hard anodising (hard coatings) means significantly harder (up to 550 Vickers), denser and also thicker oxide layers than with normal anodising.
		A Teflon-based low-friction paint coating for noise reduction and optimisation of the glide properties in the run-in area. Suitable for all aluminium and steel toothed pulleys in the application range from -40°C to +180°C.
Surface treatment	Use	Brief description
Galvanize	Corrosion protection for all steel alloys	Layer thickness 10-30µm Toothed pulleys washers are coated including fits.
Browning	Corrosion protection for all steel alloys	Decorative: Colour black Corrosion protection for dry internal areas
Chemical Nickel plating	Corrosion protection	All steel and aluminium alloys
Plasma nitriding	Wear protection	Contour-true layer structure, hence also suitable for threads and complex geometries
Easy Glide	A Teflon-based low-friction paint coating for noise reduction and optimisation of the glide properties in the run-in area. Suitable for all aluminium and steel toothed pulleys in the application range from -40°C to +180°C.	All steels containing carbon Low-distortion surface hardness method All steels containing carbon Improved glide properties Layer thickness 30µm
Surface refinement for synchronising pulleys made from steel	Use	Brief description
		Smoothing the surface roughness makes cleaning easier and helps prevent gems.

**Machining/Special geometries according to customer requirements**

The ever-increasing requirements for low-friction, low-noise and precise drive elements continually present us with new challenges. Thanks to modern production technology, BRECO can offer its customers extensive machining options as well as special geometries for individual adaptation of the synchronising pulleys to the relevant application. The combination with the optimised BRECO® or BRECOFLEX® timing belts results in drive elements that ensure a very high degree of functional reliability.



Bores for lightweighting



Hubs on both sides



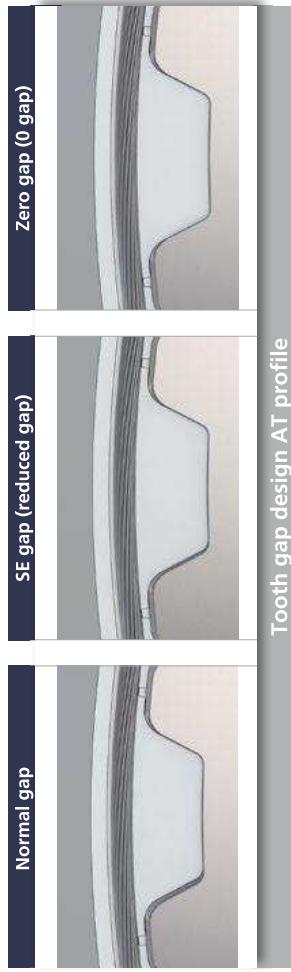
Slotted hub for fastening



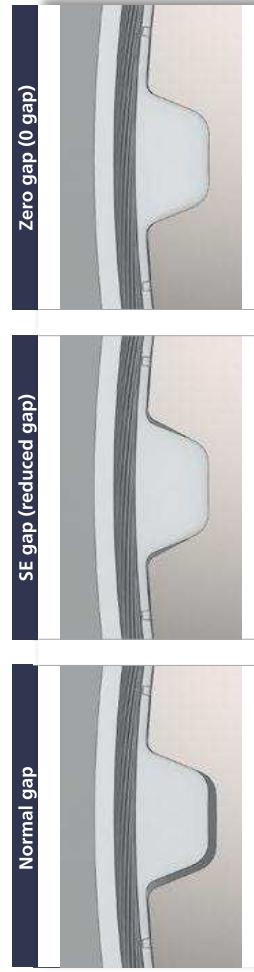
Turned groove and long holes for lightweighting and positioning

### Tooth gap forms

Timing belts are positive fitting drive elements. They work slip-free with the associated synchronising pulleys. BRECO- and BRECOFLEX-timing belt drives can also be optimised to motion transmission that is low in flank play. For especially high requirements with respect to the accuracy of the motion transmission, the SE or zero gap can be used for some profiles and divisions in compliance with certain prerequisites. Our sales partners will be pleased to help with the technical design of your drive.



Tooth gap design AT profile



Tooth gap design T profile

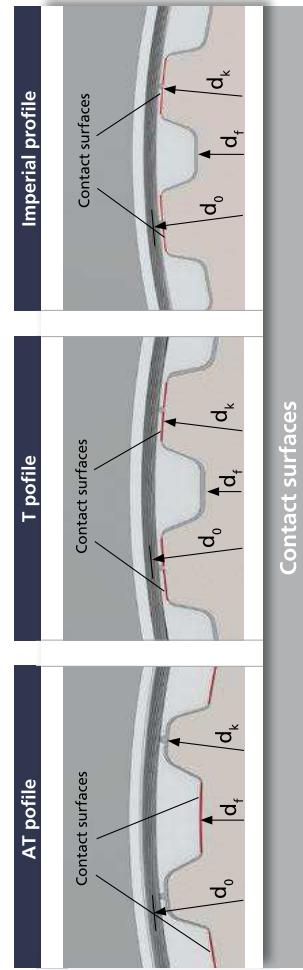
Overview of the available tooth gaps			
Tooth gap design	Synchronising pulley T profile and AT20	Synchronising pulley AT profile (without AT20)	Imperial profile
Number of teeth $\leq 20$	all teeth	all teeth	all teeth
Standard	Standard	Standard	Standard
Optional	Optional	Optional	-
Optional	Optional	Optional	-

### Ordering information:

The standard gap form for the relevant profiles does not have to be listed separately when ordering. Only the optional gap form has to be indicated when ordering, as shown in the order example.

<b>Synchronising pulley Al 70 AT10 -SE / 25 - 2 hub 65x6 d=30 H7 with groove</b>	
Material	
Total width $B_n$	
Type, pitch	
Tooth gap design	SE
Number of teeth	25
Number of flanges	2
Hub dimension $d_o \times h_n$	65x6
Bore	
Groove according to DIN 6885	

### Contact surfaces between timing belt and synchronising pulley



Contact surfaces

$d_o$ : Pitch circle diameter  
 $d_o'$ : Root diameter  
 $d_k$ : Pulley outside diameter

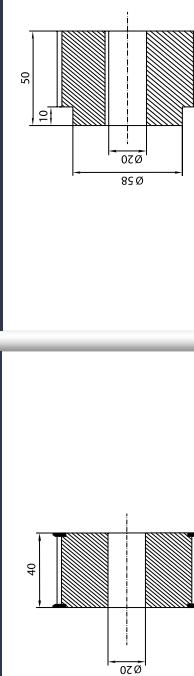
## Versions and ordering information

## Versions and ordering information

When using the standard order text, you will receive a product without a drawing, which matches the timing belt program with respect to function and quality.

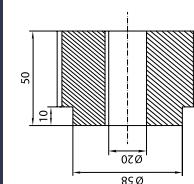
The order texts for various designs are listed in the following representations.

### Synchronising pulley without hub



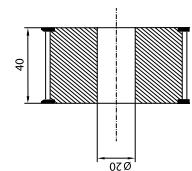
Synchronising pulley Al 40 AT10/24-2 d=20 H7

### Synchronising pulley with hub



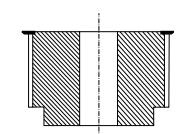
Synchronising pulley Al 50 AT10/24-0 hub  
Ø 58x10 d=20 H7 with groove

### Synchronising pulley with 2 flanges



Synchronising pulley Al 40 AT10/24-2 d=20 H7

### Synchronising pulley with 1 flange opposite the hub side

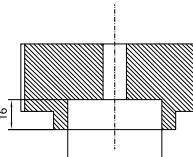


1 flange opposite the hub side: -1g

### Synchronising pulley with fastening bore

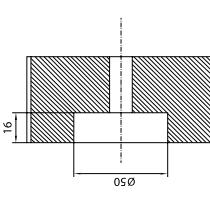


### Synchronising pulley with turned groove



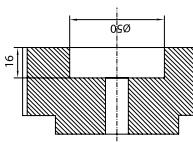
Turned groove Ø 50x16 deep hub side

### Synchronising pulley with fastening bore



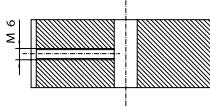
Threaded bore M6, centre tooth

### Synchronising pulley with turned groove



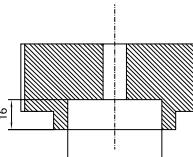
Turned groove Ø 50x16 deep

### Synchronising pulley with fastening bore



Threaded bore M6, centre tooth

### Synchronising pulley with turned groove

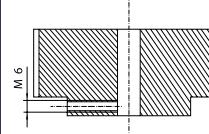


Turned groove Ø 50x16 deep opposite hub

### Further ordering codes:

- Thread M4 centre of meshing on groove (opposite groove)
- Thread M4 centre of meshing in tooth gap (on tooth)
- Thread M4 centre of hub, 90° offset to groove
- 2 threads M4 centre of hub, 90° and 180° offset to groove

### Synchronising pulley with fastening bore



Threaded bore M6, centre, hub

### Synchronising pulley with turned groove

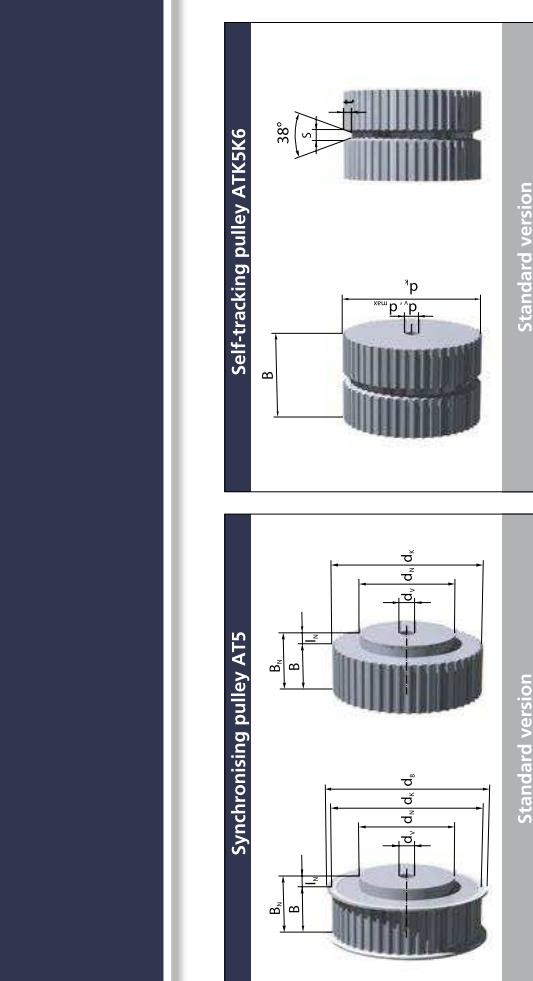
Material	
Total width B <sub>n</sub>	
Type / pitch	
Number of teeth	
Number of flanges	
Hub dimension d <sub>4</sub> xL <sub>N</sub>	
Bore	
Groove according to DIN 6885	

### Synchronising pulley Al 70 AT10 / 25 - 2 Hub 65x6 d=30 H7 with groove



1 flange on the hub side: -1a





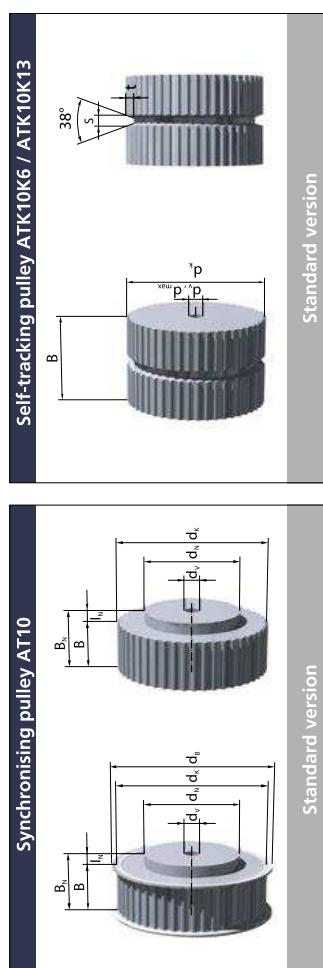
Standard version

Standard version



Synchronising pulleys AT profile / AT10 / ATK10K6 / ATK10K13  
Self-tracking pulleys

AT10 / ATK10K6 / ATK10K13 Synchronising pulleys AT profile / Self-tracking pulleys



Standard version

Standard version

	K6	K13
s	5	13.5
t	5	7.5

The AT10 stock pulleys are marked in grey. Stock pulleys up to z=44 are supplied with flanges as standard, from z=48 without flanges. Self-tracking pulleys are production goods and only available from z=20.

Please contact our sales partner if you require intermediate widths, larger widths or other hub dimensions.

Type	Belt width b [mm]	Synchronising pulley width B [mm]	Total width B <sub>n</sub> [mm]
AT10	25	32	42
AT10	32	40	50
AT10	50	60	70
AT10	75	85	95
AT10	100	110	120
AT10	150	160	170
ATK10K6	50	55	-
ATK10K13	100	105	-
ATK10K13	132	40	-
ATK10K13	50	55	-
ATK10K13	75	80	-
ATK10K13	100	105	-
ATK10K13	150	155	-

z	d <sub>x</sub> [mm]	d <sub>o</sub> [mm]	d <sub>b</sub> [mm]	Hub d <sub>v</sub> x <sub>1v</sub> [mm]	Pre-bore d <sub>v</sub>	Bore (max.) d <sub>max</sub> [mm]			Hub d <sub>v</sub> x <sub>1v</sub> [mm]	Pre-bore d <sub>v</sub>	Bore (max.) d <sub>max</sub> [mm]		
						AT10	ATK10	K13			AT10	ATK10	K13
15	45.93	47.75	52	32x10	8H7	34	-	-	44	138.24	140.06	144	90x10
16	49.11	50.93	55	35x10	8H7	36	-	-	45	141.42	143.24	147	90x10
17	52.29	54.11	58	40x10	8H7	40	-	-	46	144.60	146.42	150	90x10
18	55.48	57.30	61	40x10	8H7	44	-	-	47	147.79	149.61	153	90x10
19	58.66	60.48	64	44x10	8H7	46	-	-	48	150.97	152.79	156	95x10
20	61.84	63.66	68	46x10	12H7	50	42	37	49	154.15	155.97	160	95x10
21	65.03	66.85	72	46x10	12H7	52	45	40	50	157.33	159.15	163	95x10
22	68.21	70.03	74	50x10	12H7	56	48	43	51	160.52	162.34	166	95x10
23	71.39	73.21	76	50x10	12H7	60	51	46	52	163.70	165.52	169	110x10
24	74.57	76.39	80	58x10	12H7	62	55	50	53	166.88	168.70	172	110x10
25	77.76	79.58	84	60x10	12H7	66	58	53	54	170.07	171.89	176	110x10
26	80.94	82.76	86	60x10	12H7	68	61	56	55	173.25	175.07	179	110x10
27	84.12	85.94	90	60x10	12H7	72	64	59	56	176.43	178.25	182	110x10
28	87.31	89.13	93	60x10	12H7	76	67	62	57	179.62	181.44	185	110x10
29	90.49	92.31	96	60x10	12H7	78	70	65	58	182.80	184.62	188	110x10
30	93.67	95.49	99	60x10	12H7	82	74	69	59	185.98	187.80	191	110x10
31	96.86	98.68	102	60x10	12H7	84	77	72	60	189.17	190.99	195	110x10
32	100.04	101.86	106	65x10	12H7	88	80	75	61	192.35	194.17	198	110x10
33	103.22	105.04	109	65x10	12H7	88	83	78	62	195.53	197.35	201	110x10
34	106.41	108.23	112	65x10	12H7	92	86	81	63	198.72	200.54	204	140x10
35	109.59	111.41	115	65x10	12H7	96	90	85	64	201.90	203.72	207	140x10
36	112.77	114.59	118	70x10	16H7	98	93	88	65	205.08	206.90	210	140x10
37	115.95	117.77	121	70x10	16H7	101	96	91	66	208.26	210.98	214	140x10
38	119.14	120.96	125	70x10	16H7	104	99	94	67	211.45	213.27	217	140x10
39	122.32	124.14	128	70x10	16H7	106	102	97	68	214.63	216.45	220	140x10
40	125.50	127.32	131	80x10	16H7	110	106	101	69	217.81	219.63	223	140x10
41	128.69	130.51	134	80x10	16H7	110	109	104	70	221.00	222.82	226	140x10
42	131.87	133.69	137	80x10	16H7	112	112	107	71	224.18	226.00	230	140x10
43	135.05	136.87	140	80x10	16H7	114	115	110	72	227.36	229.18	233	140x10
									72	227.36	229.18	233	140x10
									72	227.36	229.18	233	140x10
									72	227.36	229.18	233	140x10

Self-tracking pulley ATK10K6 / 20 - d=15H7		
Material	Width B	
Type / Pitch	Number of teeth	
Hub dimension d <sub>v</sub> x <sub>1v</sub>	Number of flanges	
	Hub	

BRECO order example		
Synchronising pulley Al 50 AT10 / 20 - 2 Hub 46x10		
Material	Total width B <sub>v</sub>	
Type / Pitch	Number of teeth	
Hub dimension d <sub>v</sub> x <sub>1v</sub>	Number of flanges	

Self-tracking pulley ATN10K6					
Type	Belt width b [mm]	Pulley width B [mm]	Total width B <sub>n</sub> [mm]	Tooth width a [mm]	
ATN10K6	50	55	65	27,5	
	75	80	90	52,5	
	100	105	115	77,5	

**K6** Do you need other hub dimensions?  
If so, feel free to contact our sales partner.

s	t
6,5	5

Standard version

Self-tracking pulley ATN12,7K6					
Type	Belt width b [mm]	Pulley width B [mm]	Total width B <sub>n</sub> [mm]	Tooth width a [mm]	
ATN12,7K6		50	55	27,5	
		75	75	52,5	
		100	105	77,5	

**K6** Do you need other hub dimensions?  
If so, feel free to contact our sales partner.

s	t
6,5	5

Standard version

Self-tracking pulley ATN12,7K6					
Type	Belt width b [mm]	Pulley width B [mm]	Total width B <sub>n</sub> [mm]	Tooth width a [mm]	
ATN12,7K6		50	55	27,5	
		75	75	52,5	
		100	105	77,5	

**K6** Do you need other hub dimensions?  
If so, feel free to contact our sales partner.

s	t
6,5	5

Standard version

Self-tracking pulley ATN12,7K6					
Type	Belt width b [mm]	Pulley width B [mm]	Total width B <sub>n</sub> [mm]	Tooth width a [mm]	
ATN12,7K6		50	55	27,5	
		75	80	50	
		100	105	105	
		105	115	115	
		207,5	217,5	209	

**K6** Do you need other hub dimensions?  
If so, feel free to contact our sales partner.

s	t
6,5	5

Standard version

Self-tracking pulley ATN12,7K6					
Type	Belt width b [mm]	Pulley width B [mm]	Total width B <sub>n</sub> [mm]	Tooth width a [mm]	
ATN12,7K6		50	55	27,5	
		75	80	50	
		100	105	105	
		105	115	115	
		207,5	217,5	209	

**K6** Do you need other hub dimensions?  
If so, feel free to contact our sales partner.

s	t
6,5	5

Standard version

BRECO order example					
Self-tracking pulley Al 65 ATN12,7K6 / 32 - d=12H7		Material			
Total width B <sub>n</sub>		Total width B <sub>n</sub>		Total width B <sub>n</sub>	
Type / Pitch		Type / Pitch		Type / Pitch	
Number of teeth		Number of teeth		Number of teeth	
Bore		Bore		Bore	

BRECO order example					
Self-tracking pulley Al 65 ATN10K6 / 32 - d=12H7		Material			
Total width B <sub>n</sub>		Total width B <sub>n</sub>		Total width B <sub>n</sub>	
Type / Pitch		Type / Pitch		Type / Pitch	
Number of teeth		Number of teeth		Number of teeth	
Bore		Bore		Bore	

Synchronising pulley ATN12,7					
Type	Belt width b [mm]	Pulley width B [mm]	Total width B <sub>n</sub> [mm]		
ATN12,7	25	32	42		
	50	60	70		
	75	85	95		
	100	110	120		

Only for ATN timing belts with pitch 12,7

Please contact us if you need other hub dimensions.

Synchronising pulley AT15					
Type	Belt width b [mm]	Pulley width B [mm]	Total width B <sub>n</sub> [mm]		
AT15	25	32	42		
	50	60	50		
	75	85	95		
	100	110	120		
	150	160	170		

Do you need other hub dimensions?  
If so, feel free to contact our sales partner.

Synchronising pulley AT15					
Type	Belt width b [mm]	Pulley width B [mm]	Total width B <sub>n</sub> [mm]		
AT15	25	32	42		
	50	60	50		
	75	85	95		
	100	110	120		
	150	160	170		

Synchronising pulley AT15					
Type	Belt width b [mm]	Pulley width B [mm]	Total width B <sub>n</sub> [mm]		
AT15	25	32	42		
	50	60	50		
	75	85	95		
	100	110	120		
	150	160	170		

Synchronising pulley AT15					
Type	Belt width b [mm]	Pulley width B [mm]	Total width B <sub>n</sub> [mm]		
AT15	25	32	42		
	50	60	50		
	75	85	95		
	100	110	120		
	150	160	170		

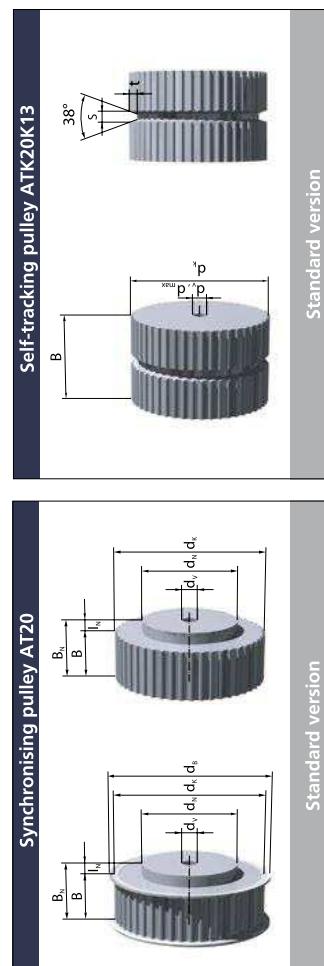
BRECO order example					
Synchronising pulley Al 70 AT15 / 40 - 2 Hub 80x10			Material		
Total width B <sub>n</sub>			Total width B <sub>n</sub>		
Type / Pitch			Type / Pitch		
Number of teeth			Number of teeth		
Number of flanges			Number of flanges		
Hub dimension d <sub>xl</sub>			Hub dimension d <sub>xl</sub>		

Synchronising pulley ATN12,7					
Type	Belt width b [mm]	Pulley width B [mm]	Total width B <sub>n</sub> [mm]		
ATN12,7	25	32	42		
	50	60	70		
	75	85	95		
	100	110	120		

Synchronising pulley ATN12,7					
Type	Belt width b [mm]	Pulley width B [mm]	Total width B <sub>n</sub> [mm]		
ATN12,7	25	32	42		
	50	60	70		
	75	85	95		
	100	110	120		
	150	160	170		

Synchronising pulley ATN12,7					
Type	Belt width b [mm]	Pulley width B [mm]	Total width B <sub>n</sub> [mm]		
ATN12,7	25	32	42		
	50	60	70		
	75	85	95		
	100	110	120		
	150	160	170		

BRECO order example					
Synchronising pulley Al 95 AT12,7 / 30 - 2 Hub 60x10			Material		
Total width B <sub>n</sub>			Total width B <sub>n</sub>		
Type / Pitch			Type / Pitch		
Number of teeth			Number of teeth		
Number of flanges			Number of flanges		
Hub dimension d <sub>xl</sub>			Hub dimension d <sub>xl</sub>		



**Standard version**

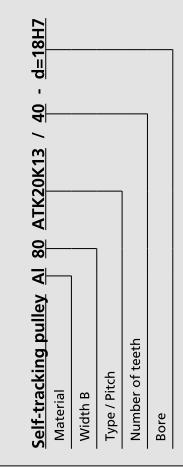
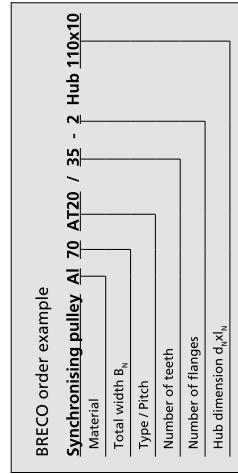
**Standard version**

**Standard version**

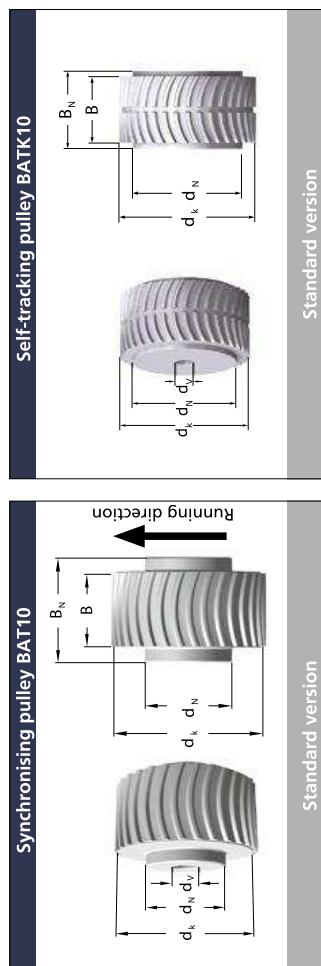
**Standard version**

Type	Belt width $b$ [mm]	Pulley width $B$ [mm]	Total width $B_h$ [mm]
AT20	32	40	50
AT20	50	60	70
AT20	75	85	95
AT20	100	110	120
ATK20K13	75	80	-
ATK20K13	100	105	-

Do you need other hub dimensions?  
If so, feel free to contact our sales partner.

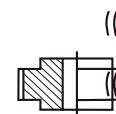


z	$d_k$ [mm]	$d_o$ [mm]	$d_s$	Hub $d_h \times x_h$ [mm]	Pre-bore $d_v$	Bore (max.) $d_{max}$ [mm]	ATK20		AT20 K13
							$d_o$ [mm]	$d_k$ [mm]	
18	111,77	114,59	121	70x10	12H7	86	-	46	290,03
19	118,14	120,96	128	80x10	12H7	93	-	47	296,39
20	124,50	127,32	134	90x10	16H7	100	94	48	302,76
21	130,87	133,69	140	90x10	16H7	105	100	49	309,12
22	137,24	140,06	147	90x10	16H7	112	107	50	315,49
23	143,60	146,42	153	90x10	16H7	118	113	51	322,86
24	149,97	152,79	160	95x10	16H7	125	119	52	328,22
25	156,33	159,15	166	95x10	16H7	131	126	53	334,59
26	162,70	165,52	172	95x10	16H7	137	132	54	340,95
27	168,07	171,89	179	110x10	16H7	144	139	55	347,32
28	175,43	178,25	185	110x10	16H7	150	145	56	353,69
29	181,80	184,62	192	110x10	16H7	156	151	57	360,05
30	188,17	190,99	198	110x10	16H7	163	158	58	366,42
31	194,53	197,35	204	110x10	16H7	169	164	59	372,79
32	200,90	203,72	210	110x10	16H7	175	170	60	379,15
33	207,26	210,08	217	110x10	16H7	182	177	61	385,52
34	213,63	216,45	223	110x10	16H7	188	183	62	391,88
35	220,00	222,82	229	110x10	16H7	195	190	63	398,25
36	226,36	229,18	236	110x10	18H7	201	196	64	404,62
37	232,73	235,55	242	110x10	18H7	207	202	65	410,98
38	239,10	241,92	249	110x10	18H7	214	209	66	417,35
39	245,46	248,28	255	110x10	18H7	220	215	67	423,72
40	251,83	254,65	261	110x10	18H7	226	221	68	430,08
41	258,19	261,01	268	130x10	18H7	233	228	69	436,45
42	264,56	267,38	274	130x10	18H7	239	234	70	442,81
43	270,93	273,75	280	130x10	18H7	245	240	71	449,18
44	277,29	280,11	287	130x10	18H7	252	247	72	455,55
45	283,66	286,48	293	130x10	18H7	258	253	-	-



Type	Belt width b [mm]	Pulley width B [mm]	Total width B <sub>n</sub> [mm]
BAT10	25	30	40
BAT10	32	35	47
BAT10	50	55	65
BAT10	75	80	90
BATK10	100	105	115
BATK10	32	35	47
BATK10	50	55	65
BATK10	75	80	90
BATK10	100	105	115

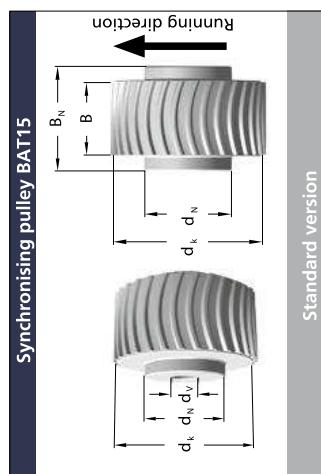
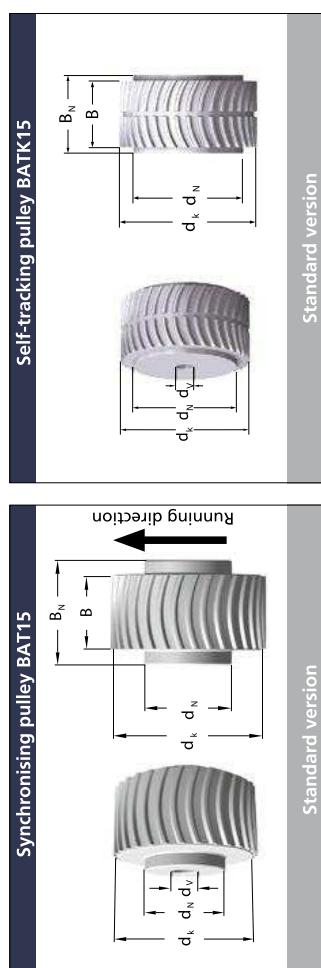
Please state curve direction according to sketch in drawings!  
Do you need other hub dimensions?  
If so, feel free to contact our sales partner.



Self-tracking pulley Al 90 BATK10 / 34 Hub 86x5 d=30H7 with groove						
Material						
Total width B <sub>n</sub>						
Type / Pitch						
Number of teeth						
Hub dimension d <sub>k</sub> x <sub>n</sub>						
Bore						
Groove according to DIN 6885						

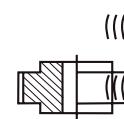
Synchronising pulleys AT profile / Self-tracking pulleys						
z	d <sub>k</sub> [mm]	d <sub>o</sub> [mm]	Hub d <sub>k</sub> x <sub>n</sub> [mm]	Pre-bore d <sub>v</sub>	Bore (max.) d <sub>n</sub> [mm]	Pre-bore d <sub>v</sub>
20	61,84	63,66	46x5	12H7	50	134x5
21	65,03	66,85	50x5	12H7	52	137x5
22	68,21	70,03	53x5	12H7	56	160,52
23	71,39	73,21	56x5	12H7	60	163,70
24	74,57	76,39	57x5	12H7	62	165,52
25	77,76	79,58	59x5	12H7	66	168,70
26	80,94	82,76	62x5	12H7	68	171,89
27	84,12	85,94	64x5	12H7	72	175,07
28	87,31	89,13	67x5	12H7	76	178,25
29	90,49	92,31	70x5	12H7	78	181,44
30	93,67	95,49	73x5	12H7	82	185,98
31	96,86	98,68	77x5	12H7	84	190,99
32	100,04	101,86	80x5	12H7	88	192,35
33	103,22	105,04	83x5	12H7	88	195,53
34	106,41	108,23	86x5	12H7	92	198,72
35	109,59	111,41	90x5	16H7	96	201,90
36	112,77	114,59	92x5	16H7	98	205,08
37	115,95	117,77	95x5	16H7	101	208,26
38	119,14	120,96	99x5	16H7	104	211,45
39	122,32	124,14	102x5	16H7	106	214,63
40	125,50	127,32	105x5	16H7	110	217,81
41	128,69	130,51	108x5	16H7	110	221,00
42	131,87	133,69	111x5	16H7	112	224,18
43	135,05	136,87	115x5	16H7	114	227,36
44	138,24	140,06	118x5	16H7	118	
45	141,42	143,24	121x5	16H7	120	
46	144,60	146,42	124x5	16H7	122	
47	147,79	149,61	127x5	16H7	122	
48	150,97	152,79	130x5	16H7	124	

Synchronising pulleys AT profile / Self-tracking pulleys						
z	d <sub>k</sub> [mm]	d <sub>o</sub> [mm]	Hub d <sub>k</sub> x <sub>n</sub> [mm]	Pre-bore d <sub>v</sub>	Bore (max.) d <sub>n</sub> [mm]	Pre-bore d <sub>v</sub>
49	154,15	155,97	134x5	20H7	126	
50	157,33	159,15	137x5	20H7	130	
51	160,52	162,34	140x5	20H7	134	
52	163,70	165,52	143x5	20H7	136	
53	166,88	168,70	146x5	20H7	140	
54	170,07	171,89	150x5	20H7	144	
55	173,25	175,07	153x5	20H7	146	
56	176,43	178,25	156x5	20H7	150	
57	179,62	181,44	159x5	20H7	152	
58	182,80	184,62	162x5	20H7	156	
59	185,98	187,80	163x5	20H7	160	
60	189,17	190,99	169x5	20H7	162	
61	192,35	194,17	172x5	20H7	164	
62	195,53	197,35	175x5	20H7	166	
63	198,72	200,54	178x5	20H7	170	
64	201,90	203,72	181x5	20H7	171	
65	205,08	206,90	183x5	20H7	174	
66	208,26	210,08	188x5	20H7	175	
67	211,45	213,27	191x5	20H7	177	
68	214,63	216,45	190x5	20H7	181	
69	217,81	219,63	197x5	20H7	185	
70	221,00	222,82	201x5	20H7	187	
71	224,18	226,00	204x5	20H7	191	
72	227,36	229,18	207x5	20H7	193	



Type	Belt width b [mm]	Pulley width B [mm]	Total width B_n [mm]
BAT15	50	55	65
BAT15	75	80	90
BAT15	100	105	115
BATK15	50	55	65
BATK15	75	80	90
BATK15	100	105	115

Please state curve direction according to sketch in drawings!  
If so, feel free to contact our sales partner.

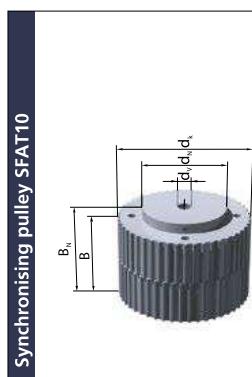


Do you need other hub dimensions?  
If so, feel free to contact our sales partner.

z	d_k [mm]	d_o [mm]	Hub d_n x l_n [mm]	Pre-bore d_v	Bore (max.) d_max. [mm]	z	d_k [mm]	d_o [mm]	Hub d_n x l_n [mm]	Pre-bore d_v	Bore (max.) d_max. [mm]
						49	231.48	233.96	140x5	16H7	196
20	93.01	95.49	60x5	12H7	58	50	236.25	238.73	140x5	16H7	201
21	97.79	100.27	60x5	12H7	63	51	241.03	243.51	140x5	16H7	206
22	102.56	105.04	65x5	12H7	68	52	245.80	248.28	140x5	16H7	211
23	107.34	109.82	65x5	12H7	72	53	250.58	253.06	160x5	16H7	216
24	112.11	114.59	70x5	16H7	77	54	255.35	257.83	160x5	16H7	220
25	116.89	119.37	80x5	16H7	82	55	260.13	262.61	160x5	16H7	225
26	121.66	124.14	80x5	16H7	87	56	264.90	267.36	160x5	16H7	230
27	126.44	128.92	80x5	16H7	91	57	269.67	272.15	160x5	16H7	235
28	131.21	133.69	80x5	16H7	96	58	274.45	276.93	160x5	16H7	239
29	135.98	138.46	80x5	16H7	101	59	279.22	281.70	160x5	16H7	244
30	140.76	143.24	90x5	16H7	106	60	284.00	286.48	160x5	16H7	249
31	154.53	148.01	90x5	16H7	111	61	288.77	291.25	160x5	16H7	254
32	150.31	152.79	95x5	16H7	115	62	293.55	296.03	160x5	16H7	259
33	155.08	157.56	95x5	16H7	120	63	298.32	300.80	160x5	16H7	263
34	159.86	162.34	95x5	16H7	125	64	303.10	305.58	160x5	16H7	268
35	164.63	167.11	95x5	16H7	130	65	307.87	310.35	160x5	16H7	273
36	169.41	171.89	100x5	16H7	134	66	312.65	315.13	160x5	16H7	278
37	174.18	176.66	100x5	16H7	139	67	317.42	319.90	160x5	16H7	282
38	178.96	181.44	100x5	16H7	144	68	322.20	324.68	160x5	16H7	287
39	183.73	186.21	100x5	16H7	149	69	326.97	329.45	160x5	16H7	292
40	188.51	190.99	110x5	16H7	154	70	331.75	334.22	160x5	16H7	297
41	193.28	195.76	110x5	16H7	158	71	336.52	339.00	160x5	16H7	302
42	198.06	200.53	110x5	16H7	163	72	341.29	343.77	160x5	16H7	306
43	202.83	205.31	110x5	16H7	168						
44	207.60	210.08	110x5	16H7	173						
45	212.38	214.86	110x5	16H7	177						
46	217.15	219.63	140x5	16H7	182						
47	221.93	224.41	140x5	16H7	187						
48	226.70	229.18	140x5	16H7	192						

Self-tracking pulley		Al 75 BATK15 / 40 Hub 110x5 d=30H7 with groove	
Material		Material	
Total width B_n		Type / Pitch	
Number of teeth		Hub dimension d_n x l_n	
Bore		Groove according to DIN 6885	

Synchronising pulley		Al 75 BAT15 / 32 Hub 95x5 d=30H7 with groove	
Material		Material	
Total width B_n		Type / Pitch	
Number of teeth		Hub dimension d_n x l_n	
Bore		Groove according to DIN 6885	



Synchronising pulley SFAT10

Type	Belt width b [mm]	Pulley width B [mm]	Total width $B_n$ [mm]
SFAT10	50	55	65
	75	80	90
	100	105	115

Please contact us if you need intermediate or larger widths or other hub dimensions.

Standard version

z	$d_k$ [mm]	$d_o$ [mm]	$d_{k_x}$ [mm]	Hub $d_h \times l_h$ [mm]	Pre-bore $d_v$	Bore (max.) $d_{max}$ [mm]
15	45,93	47,75	32x10	8H7	17	48
16	49,11	50,93	35x10	8H7	20	49
17	52,29	54,11	40x10	8H7	24	50
18	55,48	57,30	40x10	10H7	27	51
19	58,66	60,48	44x10	10H7	30	52
20	61,84	63,66	46x10	12H7	33	53
21	65,03	66,85	46x10	12H7	36	54
22	68,21	70,03	50x10	12H7	40	55
23	71,39	73,21	50x10	12H7	43	56
24	74,57	76,39	58x10	12H7	46	57
25	77,76	79,58	60x10	12H7	49	58
26	80,94	82,76	60x10	12H7	52	59
27	84,12	85,94	60x10	12H7	55	60
28	87,31	89,13	60x10	12H7	59	61
29	90,49	92,31	60x10	12H7	62	62
30	93,67	95,49	60x10	12H7	65	63
31	96,86	98,68	60x10	12H7	68	64
32	100,04	101,86	65x10	12H7	71	65
33	103,22	105,04	65x10	12H7	75	66
34	106,41	108,23	65x10	12H7	78	68
35	109,59	111,41	65x10	12H7	81	69
36	112,77	114,59	70x10	16H7	84	70
37	115,95	117,77	70x10	16H7	87	71
38	119,14	120,96	70x10	16H7	90	72
39	122,32	124,14	70x10	16H7	94	72,36
40	125,50	127,32	80x10	16H7	97	229,18
41	128,69	130,51	80x10	16H7	100	229,18
42	131,87	133,69	80x10	16H7	103	229,18
43	135,05	136,87	80x10	16H7	106	229,18
44	138,24	140,06	90x10	16H7	110	233,96
45	141,42	143,24	90x10	16H7	113	236,25
46	144,60	146,42	90x10	16H7	116	243,51
47	147,79	149,61	90x10	16H7	119	248,28

BRECO order example	
<b>Synchronising pulley Al 90 SFAT10 / 55 - Hub 110x10</b>	
Material	
Total width $B_n$	
Type / Pitch	
Number of teeth	
Hub dimension $d_h \times l_h$	



Synchronising pulley SFAT15

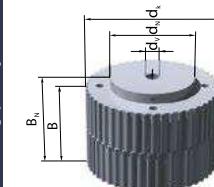
Type	Belt width b [mm]	Pulley width B [mm]	Total width $B_n$ [mm]
SFAT15	50	55	65
	75	80	90
	100	105	115

Please contact us if you need intermediate or larger widths or other hub dimensions.

Standard version

Type	Belt width b [mm]	Pulley width B [mm]	Total width $B_n$ [mm]
SFAT15	50	55	65
	75	80	90
	100	105	115

BRECO order example	
<b>Synchronising pulley Al 70 SFAT15 / 40 - Hub 110x10</b>	
Material	
Total width $B_n$	
Type / Pitch	
Number of teeth	
Hub dimension $d_h \times l_h$	

**Synchronising pulley SFAT20****Standard version**

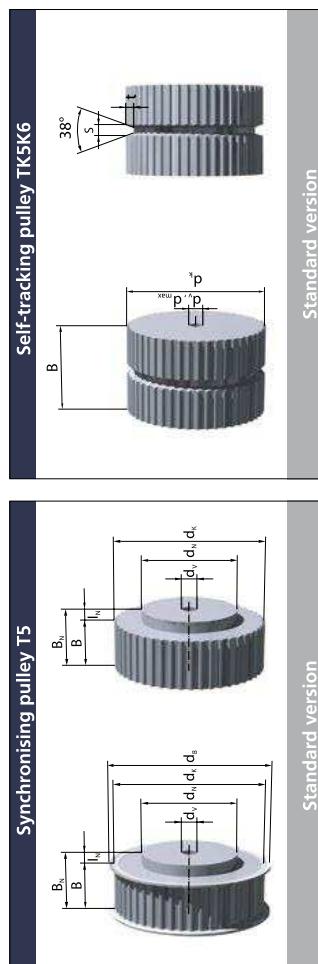
Type	Belt width b [mm]	Pulley width B [mm]	Total width B <sub>n</sub> [mm]
SFAT20	50	55	65
	75	80	90
	100	105	115

Please contact us if you need intermediate or larger widths or other hub dimensions.

z	d <sub>k</sub> [mm]	d <sub>o</sub> [mm]	Hub d <sub>n</sub> x <sub>1</sub> <sub>n</sub> [mm]	Bore (max.) d <sub>max</sub> [mm]	Pre-bore d <sub>v</sub>	Hub d <sub>n</sub> x <sub>1</sub> <sub>n</sub> [mm]	Pre-bore d <sub>v</sub>	Bore (max.) d <sub>max</sub> [mm]			
18	111,77	114,59	70x10	12H7	70	51	321,86	324,68	140x10	20H7	280
19	118,14	120,96	80x10	12H7	76	52	328,22	331,04	140x10	20H7	286
20	124,50	127,32	90x10	16H7	83	53	334,59	337,41	140x10	20H7	293
21	130,87	133,69	90x10	16H7	89	54	340,95	343,77	140x10	20H7	299
22	137,24	140,06	90x10	16H7	95	55	347,32	350,14	140x10	20H7	305
23	143,60	146,42	90x10	16H7	102	56	353,69	356,51	140x10	20H7	312
24	149,97	152,79	95x10	16H7	108	57	360,05	362,87	140x10	20H7	318
25	156,33	159,15	95x10	16H7	114	58	366,42	369,24	140x10	20H7	324
26	162,70	165,52	95x10	16H7	121	59	372,79	375,61	140x10	20H7	331
27	169,07	171,89	110x10	16H7	127	60	379,15	381,97	140x10	20H7	337
28	175,43	178,25	110x10	16H7	133	61	385,52	388,34	140x10	20H7	344
29	181,80	184,62	110x10	16H7	140	62	391,88	394,70	140x10	20H7	350
30	188,17	190,99	110x10	16H7	146	63	398,25	401,07	140x10	20H7	356
31	194,53	197,35	110x10	16H7	153	64	404,62	407,44	140x10	20H7	363
32	200,90	203,72	110x10	16H7	159	65	410,98	413,80	140x10	20H7	369
33	207,26	210,08	110x10	16H7	165	66	417,35	420,17	140x10	20H7	375
34	213,63	216,45	110x10	16H7	172	67	423,72	426,54	140x10	20H7	382
35	220,00	222,82	110x10	16H7	178	68	430,08	432,90	140x10	20H7	388
36	226,36	229,18	110x10	18H7	184	69	436,45	439,27	140x10	20H7	394
37	232,73	235,55	110x10	18H7	191	70	442,81	445,63	140x10	20H7	401
38	239,10	241,92	110x10	18H7	197	71	449,18	452,00	140x10	20H7	407
39	245,46	248,28	110x10	18H7	203	72	455,55	458,37	140x10	20H7	414
40	251,83	254,65	110x10	18H7	210						
41	258,19	261,01	130x10	18H7	216						
42	264,56	267,38	130x10	18H7	223						
43	270,93	273,75	130x10	18H7	229						
44	277,29	280,11	130x10	18H7	235						
45	283,66	286,48	130x10	18H7	242						
46	290,03	292,85	130x10	18H7	248						
47	296,39	299,21	130x10	18H7	254						
48	302,76	305,58	130x10	18H7	261						
49	309,12	311,94	130x10	20H7	267						
50	315,49	318,31	140x10	20H7	273						

BRECO order example	
<b>Synchronising pulley Al 90 SFAT20 / 45 - Hub 130x10</b>	
Material	
Total width B <sub>n</sub>	
Type / Pitch	
Number of teeth	
Hub dimension d <sub>n</sub> x <sub>1</sub> <sub>n</sub>	





Type	Belt width <b>b [mm]</b>	Pulley width <b>B [mm]</b>	Total width <b>Bn [mm]</b>
T5	6	12	18
T5	10	15	21
T5	16	21	27
TK5K6	25	27	36
TK5K6	32	37	-
TK5K6	50	55	-

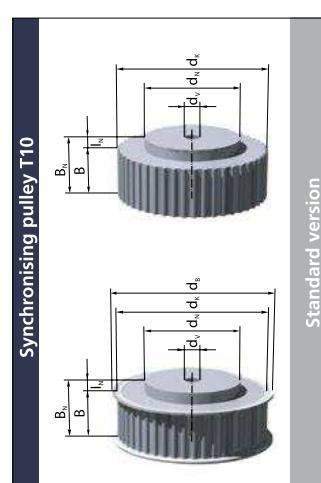
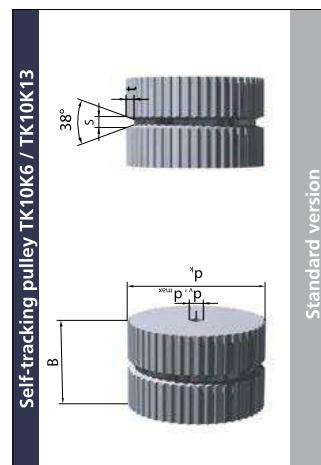
The T5 stock pulleys are marked in grey. Stock pulleys up to z=40 are supplied with flanges as standard, from z=48 without flanges. Self-tracking pulleys are production goods and only available from z=20.

Please contact our sales partner if you require intermediate widths, larger widths or other hub dimensions.

z	$d_K$ [mm]	$d_0$ [mm]	$d_8$	Hub $d_K \times d_L$ [mm]	Pre-bore $d_V$	Bore (max.) $d_{max}$ [mm]	Hub $d_K \times d_L$ [mm]		Pre-bore $d_V$	Bore (max.) $d_{max}$ [mm]	T5	TK5K6
							z	$d_K$ [mm]	$d_0$ [mm]	$d_8$	T5	TK5K6
10	15,05	15,92	20	8x6	4H7	6	-	41	64,40	65,25	70	40x6
11	16,65	17,50	22	10x6	4H7	6	-	42	66,00	65,35	72	40x6
12	18,25	19,10	23	12x6	4H7	6	-	43	67,60	68,44	72	40x6
13	19,85	20,69	25	12x6	6H7	8	-	44	69,20	70,03	74	40x6
14	21,45	22,28	26	14x6	6H7	8	-	45	70,80	71,62	75	40x6
15	23,05	23,87	28	16x6	6H7	10	-	46	72,40	73,21	76	40x6
16	24,60	25,46	30	18x6	6H7	12	-	47	73,95	47,80	78	40x6
17	26,20	27,06	32	18x6	6H7	14	-	48	75,55	76,39	80	50x6
18	27,80	28,65	34	20x6	6H7	16	-	49	77,15	77,99	82	50x6
19	29,40	30,24	35	22x6	6H7	16	-	50	78,75	79,58	84	50x6
20	31,00	31,83	36	24x6	6H7	18	11	51	80,35	81,17	86	50x6
21	32,60	33,42	37	24x6	6H7	20	13	52	81,95	82,76	86	50x6
22	34,15	35,01	39	24x6	6H7	22	14	53	83,55	84,35	88	50x6
23	35,75	36,61	40	24x6	6H7	24	16	54	85,10	85,94	90	50x6
24	37,35	38,20	42	26x6	6H7	24	17	55	86,70	87,54	91	50x6
25	38,95	39,79	43	26x6	6H7	25	19	56	88,30	89,13	93	50x6
26	40,55	41,38	45	26x6	8H7	25	21	57	89,90	90,72	94	50x6
27	42,15	42,97	47	30x6	8H7	27	22	58	91,50	92,31	96	50x6
28	43,75	44,56	48	30x6	8H7	29	24	59	93,10	93,90	99	50x6
29	45,30	46,15	50	30x6	8H7	31	25	60	94,65	95,49	99	65x6
30	46,90	47,75	52	34x6	8H7	33	27	61	96,25	97,08	100	65x6
31	48,50	49,34	53	34x6	8H7	35	28	62	97,85	98,68	102	65x6
32	50,10	50,93	55	38x6	8H7	37	30	63	99,45	100,27	104	65x6
33	51,70	52,52	56	38x6	8H7	39	32	64	101,05	101,86	105	65x6
34	53,30	54,11	58	38x6	8H7	39	33	65	102,65	103,45	107	65x6
35	54,85	55,70	60	38x6	8H7	40	35	66	104,20	105,04	109	65x6
36	56,45	57,30	61	38x6	8H7	42	36	67	105,80	106,63	112	65x6
37	58,05	58,89	62	38x6	8H7	43	38	68	107,40	108,23	112	65x6
38	59,65	60,48	64	38x6	8H7	45	40	69	109,00	109,82	115	65x6
39	61,25	62,07	66	38x6	8H7	45	41	70	110,60	111,41	115	65x6
40	62,85	63,66	68	40x6	8H7	47	43	71	112,20	113,00	117	65x6
								72	113,75	114,59	118	80x6
												10H7
												94
												94

Self-tracking pulley Al 55 TK5K6 / 32 - d=15H7	
Material	
Total width B <sub>n</sub>	
Type / Pitch	
Number of teeth	
Hub dimension d <sub>K</sub> xL <sub>n</sub>	

BRECO order example	
Synchronising pulley Al 36 T5 / 30 - 0 Hub 34x6	
Material	
Total width B <sub>n</sub>	
Type / Pitch	
Number of teeth	
Hub dimension d <sub>K</sub> xL <sub>n</sub>	



	K6	K13
s	t	s
6,5	5	13,5
7,5		

Type	Belt width b [mm]	Pulley width B [mm]	Total width B <sub>n</sub> [mm]
T10	10	16	26
T10	16	21	31
T10	25	30	40
T10	32*	40	50
T10	50*	56	66
TK10K13	32	37	-
TK10K13	50	55	-
TK10K13	75	80	-
TK10K13	100	105	-
TK10K13	150	155	-
TK10K6	25	30	-
TK10K6	50	55	-

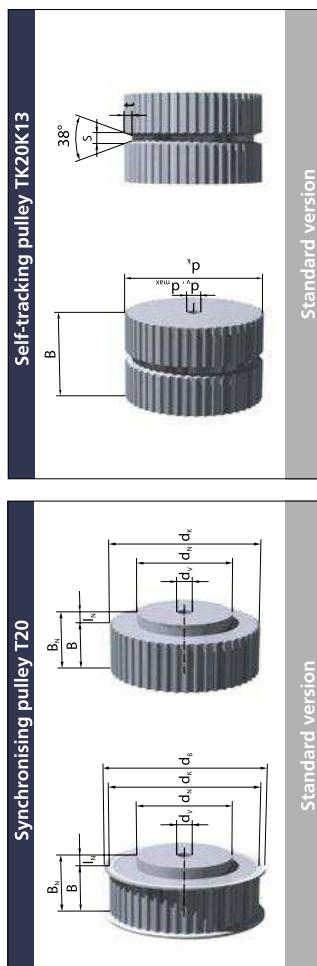
The T10 stock pulleys are marked in grey. Stock pulleys up to z=40 are supplied with flanges as standard, from z=48 without flanges. Self-tracking pulleys are production goods and only available from z=20.

Please contact our sales partner if you require intermediate widths, larger widths or other hub dimensions.

\* from z=18 available

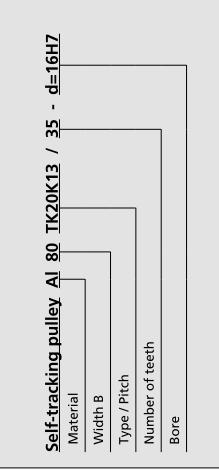
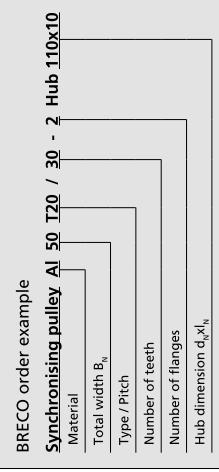
Self-tracking pulley Al 80 TK10K13 / 35 - d=15H7
Material
Width B
Type / Pitch
Number of teeth
Hub dimension d <sub>n</sub> x <sub>1</sub>

BRECO order example
Synchronising pulley Al 40 T10 / 30 - 0 Hub 60x10
Material
Total width B <sub>n</sub>
Type / Pitch
Number of flanges
Hub dimension d <sub>n</sub> x <sub>1</sub>



Type	Belt width <b>b [mm]</b>	Pulley width <b>B [mm]</b>	Total width <b>B<sub>n</sub> [mm]</b>
T20	16	23	33
T20	25	32	42
T20	32	40	50
T20	50	60	70
TK20K13	50	55	-
TK20K13	75	85	95
TK20K13	100	110	120
TK20K13	150	155	-

Please contact us if you need intermediate or larger widths  
or other hub dimensions.



z	$d_k$ [mm]	$d_o$ [mm]	$d_s$	Hub $d_k \times l_n$ [mm]	Pre- bore $d_v$	(max.) $d_{max}$ [mm]	Bore (max.) $d_{max}$ [mm]		Hub $d_k \times l_n$ [mm]	Pre- bore $d_v$	(max.) $d_{max}$ [mm]	T20	TK20 K13	
							z	$d_k$ [mm]	$d_o$ [mm]	$d_s$	T20	TK20 K13		
15	92,65	95,49	102	60x10	12H7	67	45	283,60	286,48	293	130x10	18H7	258	253
16	99,00	101,86	109	70x10	12H7	74	46	290,00	292,85	300	130x10	18H7	265	260
17	105,35	108,23	115	70x10	12H7	80	47	296,35	299,21	306	130x10	18H7	271	266
18	111,75	114,59	121	70x10	12H7	86	91	302,70	305,58	312	130x10	18H7	278	272
19	118,10	120,96	128	80x10	12H7	93	98	309,10	311,94	319	130x10	20H7	284	279
20	124,45	127,32	134	90x10	16H7	100	94	315,45	318,31	325	140x10	20H7	290	285
21	130,85	133,69	140	90x10	16H7	105	100	321,80	324,68	331	140x10	20H7	296	292
22	137,20	140,06	147	90x10	16H7	112	107	328,20	331,04	338	140x10	20H7	303	298
23	143,55	146,42	153	90x10	16H7	118	113	334,55	337,41	344	140x10	20H7	310	304
24	149,95	152,79	160	95x10	16H7	125	119	340,90	343,77	350	140x10	20H7	315	310
25	156,30	159,15	166	95x10	16H7	131	126	347,30	350,14	357	140x10	20H7	322	317
26	162,65	165,52	172	95x10	16H7	137	132	353,65	356,51	363	140x10	20H7	328	323
27	169,05	171,89	179	110x10	16H7	144	139	360,00	362,87	370	140x10	20H7	335	330
28	175,40	178,25	185	110x10	16H7	150	145	366,40	369,24	376	140x10	20H7	341	336
29	181,75	184,62	192	110x10	16H7	156	151	372,75	375,61	382	140x10	20H7	347	342
30	188,15	190,99	198	110x10	16H7	163	158	379,10	381,97	389	140x10	20H7	354	349
31	194,50	197,35	204	110x10	16H7	169	164	385,50	388,34	395	140x10	20H7	360	355
32	200,85	203,72	210	110x10	16H7	175	170	391,85	394,70	401	140x10	20H7	366	362
33	207,25	210,08	217	110x10	16H7	182	177	398,20	401,07	408	140x10	20H7	373	368
34	213,60	216,45	223	110x10	16H7	188	183	404,55	407,44	414	140x10	20H7	379	374
35	219,95	222,82	229	110x10	16H7	195	190	410,95	413,80	420	140x10	20H7	385	380
36	226,35	229,18	236	110x10	18H7	201	196	417,30	420,17	427	140x10	20H7	392	387
37	232,70	235,55	242	110x10	18H7	207	202	423,65	426,54	433	140x10	20H7	398	393
38	239,05	241,92	249	110x10	18H7	214	209	430,05	432,90	440	140x10	20H7	405	400
39	245,40	248,28	255	110x10	18H7	220	215	436,40	439,27	446	140x10	20H7	406	401
40	251,80	254,65	261	110x10	18H7	226	221	442,75	445,63	452	140x10	20H7	412	412
41	258,15	261,01	268	130x10	18H7	233	228	449,15	452,00	459	140x10	20H7	419	419
42	264,50	267,38	274	130x10	18H7	239	234	455,50	458,37	465	140x10	20H7	425	425
43	270,90	273,75	280	130x10	18H7	240	-	-	-	-	-	-	-	-
44	277,25	280,11	287	130x10	18H7	252	247	-	-	-	-	-	-	-

Synchronising pulley 5M						
	$z$	$d_k$ [mm]	$d_o$ [mm]	$d_e$ [mm]	Hub $d_n x l_n$ [mm]	Total width $B_n (F)$ [mm]
	32	49,79	50,93	55	38x7,5	28
	36	56,16	57,30	61	38x7,5	28
	40	62,52	63,66	68	38x7,5	28
	44	68,89	70,03	74	38x9,5	30
	48	75,25	76,39	80	45x9,5	30
	60	94,35	95,49	99	60x9,5	30
	72	113,45	114,59	118	80x9,5	30

Belt width b=9 mm						
	$z$	$d_k$ [mm]	$d_o$ [mm]	$d_e$ [mm]	Hub $d_n x l_n$ [mm]	Total width $B_n (F)$ [mm]
	12	17,96	19,10	23	13x5,5	36
	14	21,14	22,28	26	13x5,5	36
	15	22,73	23,87	28	16x5,5	36
	16	24,32	25,46	30	16x5,5	36
	18	27,51	28,65	34	19x5,5	36
	20	30,69	31,83	36	23x5,5	36
	22	33,87	35,01	39	25x7,5	38
	24	37,06	38,20	42	27x7,5	38
	26	40,24	41,38	45	30x7,5	38
	28	43,42	44,56	48	30x7,5	38
	30	46,60	47,75	52	35x7,5	38
	32	49,79	50,93	55	38x7,5	38
	36	56,16	57,30	61	38x7,5	38
	40	62,52	63,66	68	38x7,5	38
	44	68,89	70,03	74	38x9,5	40
	48	75,25	76,39	80	45x9,5	40
	60	94,35	95,49	99	60x9,5	40
	72	113,45	114,59	118	80x9,5	40

Material: Steel (C45)						
Product name	28 - 5M - 09	Number of teeth	Pitch	Belt width		

BRECO order example						
Synchronising pulley St 22,5 - 5M / 28 - 2 Hub 30x8 d=6	Material	Total width $B_n$	Type / Pitch	Number of teeth	Number of flanges	Hub dimension $d_n x l_n$

Synchronising pulley 8M						
	$z$	$d_k$ [mm]	$d_o$ [mm]	$d_e$ [mm]	Hub $d_n x l_n$ [mm]	Total width $B_n (F)$ [mm]
	32	49,79	50,93	55	38x7,5	28
	36	56,16	57,30	61	38x7,5	28
	40	62,52	63,66	68	38x7,5	28
	44	68,89	70,03	74	38x9,5	30
	48	75,25	76,39	80	45x9,5	30
	60	94,35	95,49	99	60x9,5	30
	72	113,45	114,59	118	80x9,5	30

Belt width b=20 mm						
	$z$	$d_k$ [mm]	$d_o$ [mm]	$d_e$ [mm]	Hub $d_n x l_n$ [mm]	Total width $B_n (F)$ [mm]
	22	54,65	56,02	60	43x10	38
	24	59,75	61,12	66	45x10	40
	26	64,84	66,21	71	50x10	45
	28	70,08	71,30	75	50x10	50
	30	75,13	76,39	83	55x10	55
	32	80,16	81,49	87	60x10	60
	34	85,22	86,58	91	70x10	65
	36	90,30	91,67	98	70x10	70
	38	95,39	96,77	103	75x10	75
	40	100,49	101,86	106	75x10	75
	42	105,67	112,05	119	75x10	75
	44	110,87	112,23	127	80x10	80
	46	120,86	122,23	148	90x10	90
	48	141,23	142,60	168	90x10	90
	50	141,23	142,60	168	100x10	100
	52	141,23	142,60	168	100x10	100
	54	141,23	142,60	168	100x10	100
	56	141,23	142,60	168	100x10	100
	58	141,23	142,60	168	100x10	100
	60	141,23	142,60	168	100x10	100
	62	141,23	142,60	168	100x10	100
	64	141,23	142,60	168	100x10	100
	66	141,23	142,60	168	100x10	100
	68	141,23	142,60	168	100x10	100
	70	141,23	142,60	168	100x10	100
	72	141,23	142,60	168	100x10	100
	74	141,23	142,60	168	100x10	100
	76	141,23	142,60	168	100x10	100
	78	141,23	142,60	168	100x10	100
	80	141,23	142,60	168	100x10	100

BRECO order example

Material

St 48 - 8M / 38 - 2 Hub 75x10 d=15

Product name

38 - 8M - 20

Number of teeth

Pitch

Belt width

Bore

Hub dimension  $d_n x l_n$ Total width  $B_n$ 

Type / Pitch

Number of flanges

Material

Number of teeth

Pitch

Bore

Hub dimension  $d_n x l_n$ Total width  $B_n$ 

Type / Pitch

Number of flanges

Material

Number of teeth

Pitch

Bore

Hub dimension  $d_n x l_n$ Total width  $B_n$ 

Type / Pitch

Number of flanges

Material

Number of teeth

Pitch

Bore

Hub dimension  $d_n x l_n$ Total width  $B_n$ 

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Hub dimension  $d_n x l_n$ Total width  $B_n$ 

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Number of teeth

Pitch

Bore

Hub dimension  $d_n x l_n$ Total width  $B_n$ 

Type / Pitch

Number of flanges

Material

Number of teeth

Pitch

Bore

Hub dimension  $d_n x l_n$ Total width  $B_n$ 

Type / Pitch

Number of flanges

Material

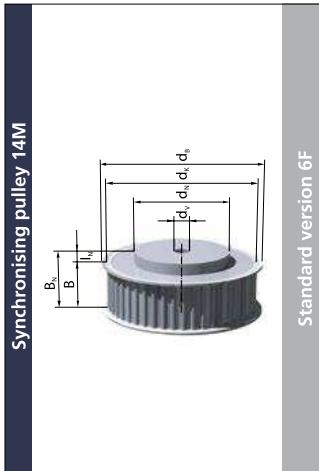
Number of teeth

Pitch

Bore

Hub dimension  $d_n x l_n$ Total width  $B_n$ 

Type / Pitch



Synchronising pulley HTD profile

Belt width b=40 mm						
	$d_k$ [mm]	$d_o$ [mm]	$d_e$ [mm]	Hub $d_h \times l_h$ [mm]	Total width $B_o$ (F) [mm]	Too- thed width $B_n$ (L) [mm]
28	122,12	124,78	127	100x15	117	102
29	126,57	129,23	138	100x15	117	102
30	130,99	133,69	138	100x15	117	102
32	139,88	142,60	154	100x15	117	102
34	148,79	151,52	160	100x15	117	102
36	157,98	160,43	168	100x15	117	102
38	166,60	169,34	183	120x15	117	102
40	175,49	178,25	188	120x15	117	102
44	193,28	196,08	211	120x15	117	102
48	211,11	213,90	226	135x15	117	102
56	246,76	249,55	256	135x15	117	102
64	282,41	285,20	296	135x15	117	102
72	318,06	320,86	332	135x15	117	102
80	353,71	356,51	368	135x15	117	102

Standard version 6F

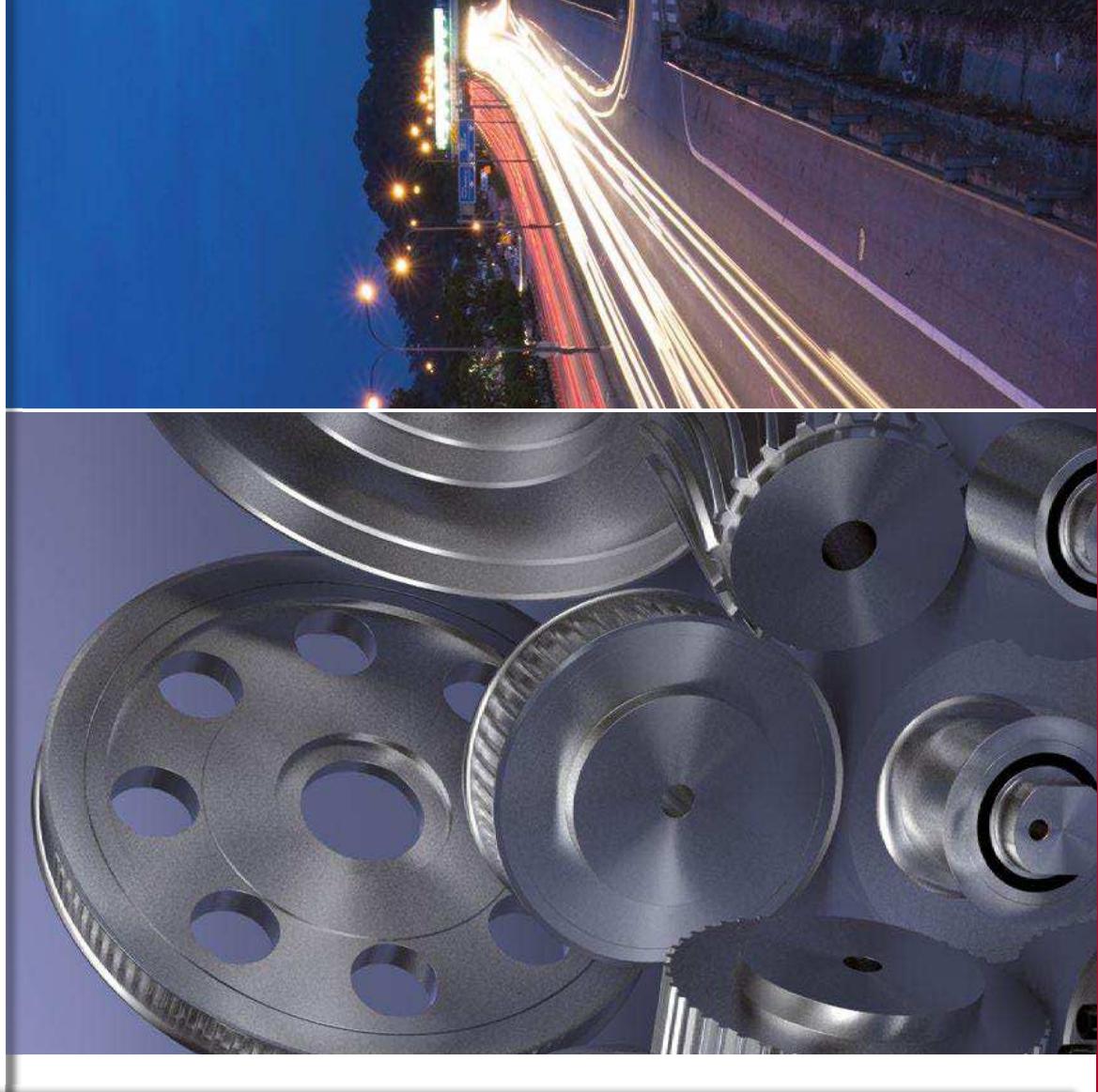
Belt width b=55 mm						
	$d_k$ [mm]	$d_o$ [mm]	$d_e$ [mm]	Hub $d_h \times l_h$ [mm]	Total width $B_o$ (F) [mm]	Too- thed width $B_n$ (L) [mm]
28	122,12	124,78	127	100x15	69	54
29	126,57	129,23	138	100x15	69	54
30	130,99	133,69	138	100x15	69	54
32	139,88	142,60	154	100x15	69	54
34	148,79	151,52	160	100x15	69	54
36	157,68	160,43	168	100x15	69	54
38	166,6	169,34	183	120x15	69	54
40	175,49	178,25	188	120x15	69	54
44	193,28	196,08	211	120x15	69	54
48	211,11	213,90	226	135x15	69	54
56	246,76	249,55	256	135x15	69	54
64	282,41	285,20	296	135x15	69	54
72	318,06	320,86	332	135x15	69	54
80	353,71	356,51	368	135x15	69	54

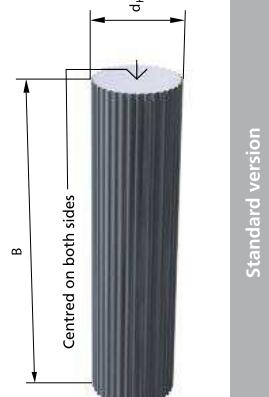
Belt width b=85 mm

Material: Steel (C45)						
Product name	30 - 14M - 85	Number of teeth		Pitch		Belt width

BRECO order example						
Synchronising pulley	St 117 - 14M / 30 - 2 Hub 100x15 c=24	Material		Total width $B_u$	Type / Pitch	Number of teeth

	$d_k$ [mm]	$d_o$ [mm]	$d_e$ [mm]	Hub $d_h \times l_h$ [mm]	Total width $B_o$ (F) [mm]	Too- thed width $B_n$ (L) [mm]	Bore
56	246,76	249,55	256	135x15	85	70	28
64	282,41	285,20	296	135x15	85	70	28
72	318,06	320,86	332	135x15	85	70	28
80	353,71	356,51	368	135x15	85	70	28



**Synchronising shafts AT3 / AT5 / AT10**

**Tooth gaps:**

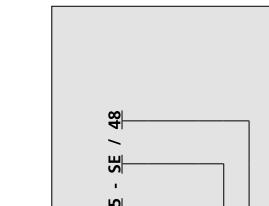
- Normal gap (Standard, without ordering addition)
- SE gap (ordering addition: -SE)
- Zero gap (ordering addition: -0)

Material: AlCuMg1

The stock program is marked in grey. Further materials and numbers of teeth are available.

**AT3**

<b>z</b>	<b>AT3</b>	<b>AT5</b>	<b>AT10</b>										
	<b>B</b>	<b>d<sub>k</sub></b> [mm]	<b>d<sub>o</sub></b> [mm]	<b>B</b>	<b>d<sub>k</sub></b> [mm]	<b>d<sub>o</sub></b> [mm]	<b>B</b>	<b>d<sub>k</sub></b> [mm]	<b>d<sub>o</sub></b> [mm]	<b>B</b>	<b>d<sub>k</sub></b> [mm]	<b>d<sub>o</sub></b> [mm]	
15	100	13,91	14,32	150	22,65	23,87	180	45,93	47,75	12	150	18,25	19,10
16	100	14,87	15,28	150	24,24	25,46	180	49,11	50,93	14	150	21,45	22,28
18	100	16,78	17,19	150	27,43	28,65	180	55,48	57,30	15	150	23,05	23,87
19	100	17,73	18,14	150	29,02	30,24	180	58,66	60,48	16	150	24,60	25,46
20	150	18,69	19,10	180	30,61	31,83	180	61,84	63,66	18	180	27,80	28,65
22	150	20,60	21,01	180	33,79	35,01	180	68,21	70,03	19	180	29,40	30,24
24	150	22,51	22,92	180	36,98	38,20	180	74,57	76,39	20	180	31,00	31,83
25	150	23,46	23,87	180	38,57	39,79	180	77,76	79,58	22	180	34,15	35,01
27	180	25,37	25,78	180	41,75	42,97	180	84,12	85,94	24	180	37,35	38,20
28	180	26,33	26,74	180	43,34	44,56	180	87,31	89,13	25	180	38,95	39,79
30	180	28,24	28,65	180	46,53	47,75	180	93,67	95,49	27	180	42,15	42,97
32	180	30,15	30,56	180	49,71	50,93	180	100,04	101,86	30	180	46,90	47,75
36	180	33,97	34,38	180	56,08	57,30	180	112,77	114,59	32	180	50,10	50,93
40	180	37,79	38,20	180	62,44	63,66	180	125,50	127,32	36	180	56,45	57,30
44	180	41,61	42,02	180	68,81	70,03	180	138,24	140,06	40	180	62,85	63,66
48	180	45,43	45,84	180	75,17	76,39	180	150,97	152,79	48	180	75,55	76,39
60	180	56,89	57,30	180	94,27	95,49	180	189,17	190,99	60	180	94,65	95,49
72	180	68,34	68,75	180	113,37	114,59	180	227,36	229,18	72	180	113,25	114,59
100	180	95,08	95,49	180	157,93	159,15	180	316,49	318,31				

**Synchronising shafts T5 / T10**

**Tooth gaps:**

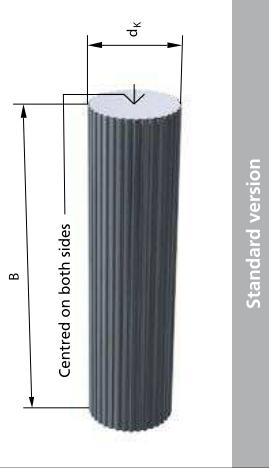
- Normal gap (Standard, without ordering addition)
- SE gap (ordering addition: -SE)
- Zero gap (ordering addition: -0)

Material: AlCuMg1

The stock program is marked in grey. Further materials and numbers of teeth are available.

**T5**

<b>z</b>	<b>T5</b>			<b>T10</b>		
	<b>B</b>	<b>d<sub>k</sub></b> [mm]	<b>d<sub>o</sub></b> [mm]	<b>B</b>	<b>d<sub>k</sub></b> [mm]	<b>d<sub>o</sub></b> [mm]
12	150	18,25	19,10	180	36,35	38,20
14	150	21,45	22,28	180	42,70	44,56
15	150	23,05	23,87	180	45,90	47,75
16	150	24,60	25,46	180	49,10	50,93
18	180	27,80	28,65	180	55,45	57,30
19	180	29,40	30,24	180	58,65	60,48
20	180	31,00	31,83	180	61,80	63,66
22	180	34,15	35,01	180	68,20	70,03
24	180	37,35	38,20	180	74,55	76,39
25	180	39,79	39,79	180	77,75	79,58
27	180	42,97	42,97	180	84,10	85,94
30	180	46,90	47,75	180	93,65	95,49
32	180	50,10	50,93	180	100,00	101,86
36	180	56,45	57,30	180	112,75	114,59
40	180	62,85	63,66	180	125,45	127,32
48	180	75,55	76,39	180	150,95	152,79
60	180	94,65	95,49	180	189,15	190,99
72	180	114,59	113,25	180	227,35	229,18

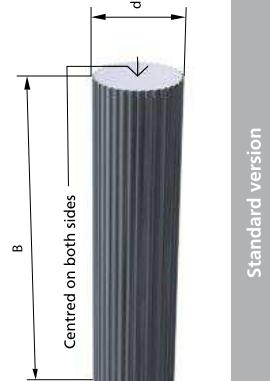
**Synchronising shafts T5 / T10**

**Tooth gaps:**

- Normal gap (Standard, without ordering addition)
- SE gap (ordering addition: -SE)
- Zero gap (ordering addition: -0)

Material: AlCuMg1

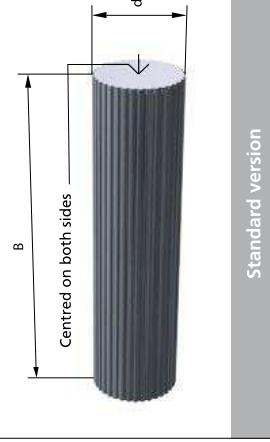
The stock program is marked in grey. Further materials and numbers of teeth are available.

**Synchronising shafts 5M / 8M**

BRECO order example				
Synchronising shaft Al 180 5M / 32				
Material	Al	Breadth B	180	ATN12.7 - SE / 48
		Type & Pitch		
		Tooth gap		
		Number of teeth		

**Material: AlCuMg1**

The stock program is marked in grey. Further materials and numbers of teeth are available.

**Synchronising shafts ATN12,7**

BRECO order example				
Synchronising shaft Al 180 ATN12.7 - SE / 48				
Material	Al	Breadth B	180	ATN12.7 - SE / 48
		Type & Pitch		
		Tooth gap		
		Number of teeth		

**Tooth gaps:**

- Normal gap (Standard, without ordering addition)
- SE gap (ordering addition: -SE)
- Zero gap (ordering addition: 0)

**Material: AlCuMg1**

The stock program is marked in grey. Further materials and numbers of teeth are available.

z	ATN12,7			
	B	d <sub>k</sub> [mm]	d <sub>o</sub> [mm]	d <sub>k</sub> [mm]
20	180	30,69	31,83	-
24	180	37,06	38,20	-
25	180	38,65	39,79	59,75
27	180	41,83	42,97	62,29
30	180	46,60	47,75	67,38
32	180	49,79	50,93	75,13
36	180	56,16	57,30	80,16
40	180	62,52	63,66	90,30
48	180	75,25	76,39	100,49
60	180	94,35	95,49	120,86
72	180	113,45	114,59	151,42

z	ATN12,7			
	B	d <sub>k</sub> [mm]	d <sub>o</sub> [mm]	d <sub>k</sub> [mm]
20	180	79,03	79,03	80,85
24	180	95,20	95,20	97,02
25	180	99,24	99,24	101,06
27	180	107,33	107,33	109,15
30	180	119,46	119,46	121,28
32	180	127,54	127,54	129,36
36	180	143,71	143,71	145,53
40	180	159,88	159,88	161,70
48	180	192,22	192,22	194,04
60	180	240,73	240,73	242,55
72	180	289,24	289,24	291,06

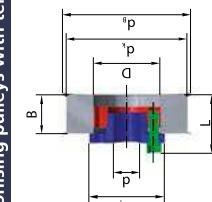
## Synchronising pulleys with tensioners

Belt width b: 25 mm  
Synchronising pulley width B: 32 mm

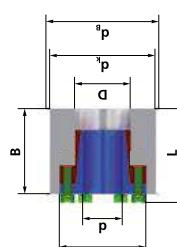
## Synchronising pulleys with tensioners



DATA / T10



## Mounting arrangement 1



Mounting arrangement 2

## Materials:

Number of flanges (optional): 0 / 1 / 2

Tooth gaps:

- Normal gap (Standard, without ordering addition)
- SE gap (ordering addition: -SE)
- Zero gap (ordering addition: -0)

Belt width b = 25 mm, synchronising pulley width B = 32 mm						
					dxD [mm]	Mounting arrangement
z	A1T0 d <sub>e</sub> [mm]	T10 d <sub>e</sub> [mm]	d <sub>s</sub> [mm]	L <sub>max</sub> [mm]	D <sub>i</sub> [mm]	
18	55,48	55,45	61	58	45	15 x 24
19	58,66	58,65	64	58	45	16 x 24
20	61,84	61,80	68	53	47	18 x 26
22	68,21	68,20	74	53	49	19 x 27
24	74,57	74,55	80	53	47	18 x 26
25	77,76	77,75	84	53	49	19 x 27
27	84,12	84,10	90	53	45	16 x 24

Belt width b = 25 mm, synchronising pulley width B = 32 mm										
Belt width b = 25 mm, synchronising pulley width B = 32 mm					Mounting arrangement					
	A110 d <sub>k</sub> [mm]	T10 d <sub>k</sub> [mm]	d <sub>b</sub> [mm]	L <sub>max</sub> [mm]	D <sub>t</sub> [mm]	d <sub>x</sub> [mm]	d <sub>s</sub> [mm]	L <sub>max</sub> [mm]	D <sub>t</sub> [mm]	
30	93,67	93,65	99	53	45	15 x 24	45	16 x 24	62	18 x 55
					47	18 x 26	47	20 x 55	62	22 x 55
					49	19 x 27	2		62	24 x 55
					50	20 x 28			62	25 x 55
					54	22 x 32			62	28 x 55
					56	24 x 34			62	30 x 55
					62	16 x 55			72	32 x 65
					62	18 x 55			72	35 x 65
					62	19 x 55			72	38 x 65
					62	20 x 55			72	40 x 65
32	100,04	100,00	106	40	62	22 x 55			62	18 x 55
					62	24 x 55			62	19 x 55
					62	25 x 55	2		62	20 x 55
					62	28 x 55			62	22 x 55
					62	30 x 55			62	24 x 55
					72	32 x 65			62	25 x 55
					72	35 x 65			62	28 x 55
					72	38 x 65			62	30 x 55
					72	40 x 65			72	32 x 65
					62	16 x 55			72	35 x 65
36	112,77	112,75	118	40	62	18 x 55			62	38 x 65
					62	19 x 55			72	40 x 65
					62	20 x 55			72	42 x 65
					62	22 x 55			72	44 x 65
					62	24 x 55			72	46 x 65
					62	25 x 55	2		72	48 x 65
					62	30 x 55			72	50 x 65
					72	32 x 65			72	52 x 65
					72	35 x 65			72	54 x 65
					72	38 x 65			72	56 x 65

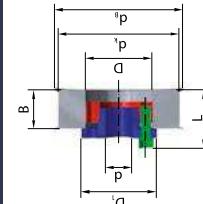
BRECO order example	
<b>Tensioner</b>	<u>32</u>
Synchronising pulley width B	<u>A10</u> - <u>SE</u> / <u>27</u> - <u>2</u> × <u>15</u>
Type / Pitch	
Tooth gap	
Number of teeth	
Number of flanges	
Shaft diameter d	

#### Synchronising pulleys with tensioners

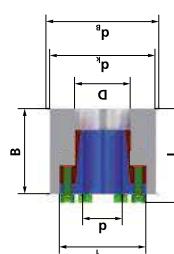


**AT10 / T10**

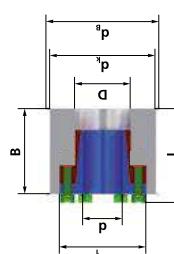
#### Synchronising pulleys with tensioners



#### Mounting arrangement 1



#### Synchronising pulleys with tensioners



#### Mounting arrangement 2

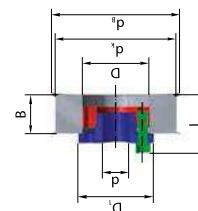
**Materials:**  
Synchronising pulley: aluminium (conformal with RoHS regulations)  
Tensioner: steel  
Number of flanges (optional): 0 / 1 / 2

<b>AT10 - SE / 27 - 2 x 18</b>	
Tensioner	40
Synchronising pulley width B	
Type / Pitch	125,5
Tooth gap	125,45
Number of teeth	48
Number of flanges	60
Shaft diameter d	189,15
	195
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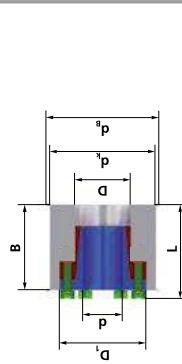
Synchronising pulleys with tensioners						
Belt width b = 50 mm, synchronising pulley width B = 56mm Mounting arrangement						
z	AT10 d <sub>b</sub> [mm]	T10 d <sub>b</sub> [mm]	L <sub>max</sub> [mm]	D <sub>t</sub> [mm]	dxD [mm]	
20	61,84	61,80	68	72	62 16 x 55	1
				62 18 x 55	62 19 x 55	
				62 20 x 55	62 20 x 55	
				62 20 x 55	62 22 x 55	
				62 16 x 55	62 24 x 55	
				62 18 x 55	62 24 x 55	
				62 19 x 55	62 25 x 55	
				62 20 x 55	62 28 x 55	
22	68,21	68,20	74	72	62 20 x 55	1
				62 22 x 55	62 30 x 55	
				62 22 x 55	62 32 x 55	
				62 24 x 55	62 35 x 55	
				62 24 x 55	62 38 x 55	
				62 24 x 55	72 40 x 65	
				62 16 x 55	72 35 x 65	
				62 18 x 55	72 38 x 65	
24	74,57	74,55	80	72	62 20 x 55	1
				62 22 x 55	62 19 x 55	
				62 24 x 55	62 22 x 55	
				62 16 x 55	62 24 x 55	
				62 18 x 55	62 25 x 55	
				62 19 x 55	62 28 x 55	
25	77,76	77,75	84	64	62 20 x 55	2
				62 22 x 55	62 30 x 55	
				62 24 x 55	62 32 x 65	
				62 16 x 55	72 35 x 65	
				62 18 x 55	72 38 x 65	
27	84,12	84,10	90	64	48 19 x 55	2
				48 20 x 55	62 18 x 55	
				54 22 x 55	62 19 x 55	
				56 24 x 55	62 20 x 55	
				44 16 x 55	62 22 x 55	
				47 18 x 55	62 24 x 55	
				48 19 x 55	62 25 x 55	
				49 20 x 55	62 28 x 55	
30	93,67	93,65	99	64	44 14 x 55	2
				44 16 x 55	44 18 x 55	
				47 18 x 55	44 20 x 55	
				48 19 x 55	49 22 x 55	
				48 24 x 55	54 24 x 55	
				62 18 x 55	56 24 x 55	
				62 19 x 55	62 19 x 55	
				62 20 x 55	62 22 x 55	
				62 22 x 55	62 24 x 55	
				62 24 x 55	62 25 x 55	
				62 25 x 55	62 30 x 55	
				62 28 x 55	72 32 x 65	
				62 30 x 55	72 35 x 65	
				62 38 x 65	72 38 x 65	
				72 40 x 65	72 40 x 65	



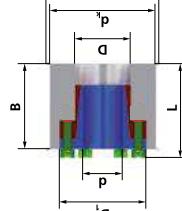
Synchronising pulleys with tensioners



Mounting arrangement 1



Synchronising pulleys with tensioners



Mounting arrangement 2

**Materials:**  
Synchronising pulley: aluminium (conformal with RoHS regulations)  
Tensioner: steel

**Number of flanges (optional): 0 / 1 / 2**

Tooth gaps:

- Normal gap (Standard, without ordering addition)
- SE gap (ordering addition: -SE)
  - Zero gap (ordering addition: -0)
  -

Belt width b = 50 mm, synchronising pulley width B = 56mm Mounting arrangement						
Belt width b = 50 mm, synchronising pulley width B = 56mm Mounting arrangement						
z	AT10 d <sub>b</sub> [mm]	T10 d <sub>b</sub> [mm]	L <sub>max</sub> [mm]	D <sub>t</sub> [mm]	d <sub>b</sub> [mm]	
20	61,84	61,80	68	72	62 16 x 55	1
				62 18 x 55	62 19 x 55	
				62 20 x 55	62 20 x 55	
				62 20 x 55	62 22 x 55	
				62 16 x 55	62 24 x 55	
				62 18 x 55	62 24 x 55	
				62 19 x 55	62 25 x 55	
				62 20 x 55	62 28 x 55	
22	68,21	68,20	74	72	62 20 x 55	1
				62 22 x 55	62 30 x 55	
				62 24 x 55	62 32 x 65	
				62 18 x 55	72 35 x 65	
				62 18 x 55	72 38 x 65	
24	74,57	74,55	80	72	62 20 x 55	1
				62 22 x 55	62 19 x 55	
				62 24 x 55	62 22 x 55	
				62 16 x 55	62 24 x 55	
				62 18 x 55	62 25 x 55	
				62 19 x 55	62 28 x 55	
25	77,76	77,75	84	64	40 125,50	2
				40 125,45	131 64	
				40 125,45	62 28 x 55	
				40 125,45	62 30 x 55	
				40 125,45	72 32 x 65	
				40 125,45	72 35 x 65	
27	84,12	84,10	90	64	48 19 x 55	2
				48 20 x 55	62 18 x 55	
				54 22 x 55	62 19 x 55	
				56 24 x 55	62 20 x 55	
				44 16 x 55	62 22 x 55	
				47 18 x 55	62 24 x 55	
				48 19 x 55	62 25 x 55	
				49 20 x 55	62 28 x 55	
30	93,67	93,65	99	64	44 14 x 55	2
				44 16 x 55	47 18 x 55	
				48 19 x 55	49 20 x 55	
				48 24 x 55	54 22 x 55	
				62 18 x 55	56 24 x 55	
				62 19 x 55	62 19 x 55	
				62 20 x 55	62 22 x 55	
				62 22 x 55	62 24 x 55	
				62 24 x 55	62 25 x 55	
				62 25 x 55	62 30 x 55	
				62 28 x 55	72 32 x 65	
				62 30 x 55	72 35 x 65	
				62 38 x 65	72 38 x 65	
				72 40 x 65	72 40 x 65	

BRECO order example						
Tensioner	56 AT10 - SE / 32 - 2 x 25					
Synchronising pulley width B						
Type / Pitch						
Number of teeth						
Number of flanges						
Shaft diameter d						

## Technical data: tensioners

### Synchronising pulleys with tensioners

Keeping things moving!

#### Synchronising pulley with tensioners



AT10 / T10

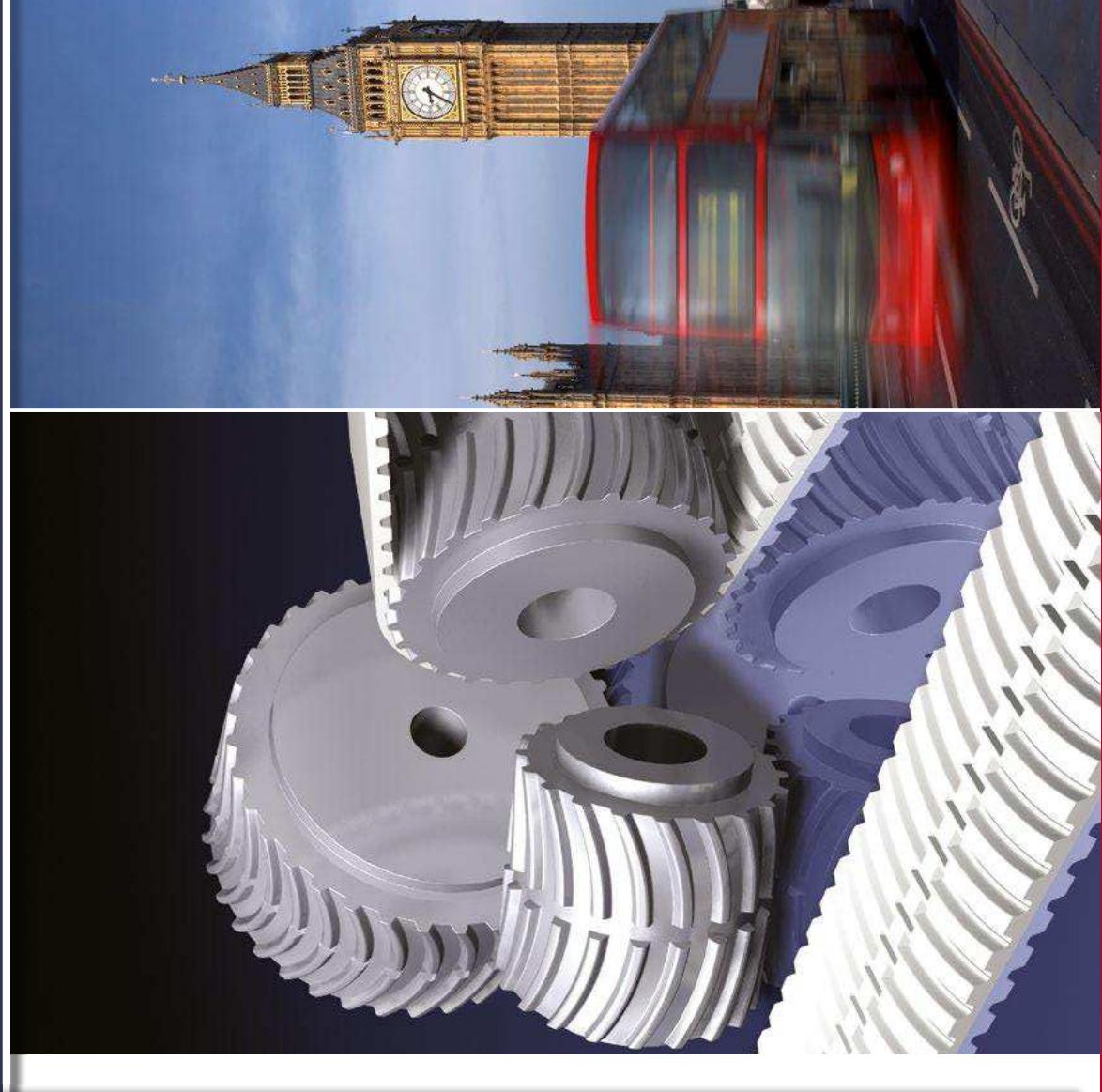
Application	$D_t$ [mm]	$d \times D$ [mm]	$M_t$ [Nm]	$F_A$ [kN]	$P_{wA}$ [N/mm <sup>2</sup> ] [N/mm <sup>2</sup> ]	$P_n$ [N/mm <sup>2</sup> ]	Surface pressure		Clamping screws
							Shaft	Hub	
<b>Medium to high torques</b>									
49	45	15 x 24	127	17	185	115	3 x M6	17	
	45	16 x 24	136	17	175	115	3 x M6	17	
	47	18 x 26	200	22	180	125	4 x M6	17	
	49	19 x 27	210	22	170	120	4 x M6	17	
	50	20 x 28	220	22	160	115	4 x M6	17	
	54	22 x 32	250	22	115	80	4 x M6	17	
	56	24 x 34	270	22	105	75	4 x M6	17	
	62	14 x 55	120	18	205	55	3 x M8	25	
	62	16 x 55	140	18	180	55	3 x M8	25	
	62	18 x 55	150	18	160	55	3 x M8	25	
Low to medium torques	62	19 x 55	160	18	150	55	3 x M8	25	
	62	20 x 55	170	18	145	55	3 x M8	25	
	62	22 x 55	280	25	185	75	3 x M8	35	
	62	24 x 55	300	25	170	75	3 x M8	35	
	62	25 x 55	310	25	165	75	3 x M8	35	
	62	28 x 55	430	31	175	90	3 x M8	41	
	62	30 x 55	470	31	165	90	3 x M8	41	
	72	32 x 65	690	44	213	105	5 x M8	35	
	72	35 x 65	910	52	234	126	5 x M8	41	
	72	38 x 65	990	52	216	126	5 x M8	41	
	72	40 x 65	1050	52	205	126	5 x M8	41	

#### Assembly instructions

Please clean and lightly oil the contact surfaces of the shaft and hub. Then insert the tensioners into the hub rest and push onto the shaft. Tighten the clamping screws clockwise to the tightening torque  $M_5$  indicated in the table in several stages using a torque wrench.

Please check the tightening torque of all tightening screws in the order they are arranged. The table values of  $M_T$  and  $F_A$  have been calculated for an assembly with oil.

**Important:** Please do not use oil with molybdenum disulphide or high-pressure additives and grease. The coefficient of friction is significantly reduced by this.



## Tension rollers Type B with excenter, teeth on the running surface

## Tension rollers Type B with excenter, teeth on the running surface

## Stock program

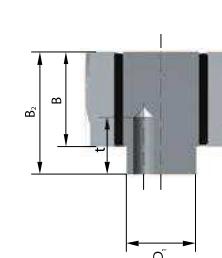
## Stock program



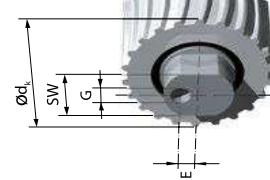
Type B/E0 (toothed)

Tension rollers B are seated twice on grooved roller bearings. The bearings are greased for life. Permanent temperatures up to 70°C and under will not lead to a reduced useful life of the grease. Short-term temperatures up to 120°C are permitted.

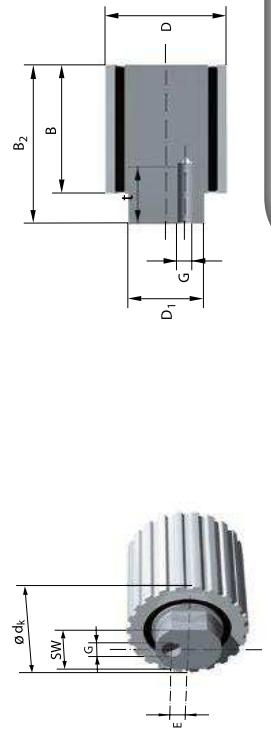
**Materials:**  
Axis:  
Running roller:  
steel  
aluminium



Tension roller (BAT profile)



Type B/E0 right



Tension roller (T, AT profile)

Tension roller (BAT profile)

Tension roller (T profile)

Tension rollers B are seated twice on grooved roller bearings. The bearings are greased for life. Permanent temperatures up to 70°C and under will not lead to a reduced useful life of the grease. Short-term temperatures up to 120°C are permitted.

BRECO order example  
**Tension roller B/E0 Al 34 TS / 22 - 0**

Tension roller Type B/E0 (stock program)							Loadbearing parameters							
B [mm]	Type / Pitch	Number of teeth	Number of flanges	max. Belt width [mm]	$d_{\text{b}}^{\text{min}}$ [mm]	E [mm]	$t$ [mm]	$D_1$ [mm]	$SW$ [mm]	$C_{\text{dyn}}$ [N]	$C_{\text{sat.}}$ [N]	max. Rotational speeds [min $^{-1}$ ]		
34	T5	22	0	25	34,15	42	5	M6	10	20	17	7950	3920	30000
40	T10	20	0	32	61,80	50	5	M12	20	30	27	19300	13100	30000
64	T10	20	0	50	61,80	74	5	M12	20	30	27	19300	13100	15000
34	AT5	22	0	25	33,79	42	5	M6	10	20	17	7950	3920	15000
40	AT10	20	0	32	61,84	50	5	M12	20	30	27	19300	13100	15000
64	AT10	20	0	50	61,84	74	5	M12	20	30	27	19300	13100	15000
40	BAT10	20*	0	32	61,84	50	5	M12	20	30	27	19300	13100	15000
64	BAT10	20*	0	50	61,84	74	5	M12	20	30	27	19300	13100	15000
40	BATK10	24	0	32	74,57	50	5	M12	20	30	27	19300	13100	15000
64	BATK10	24	0	50	74,57	74	5	M12	20	30	27	19300	13100	15000

\* Note  $z_{\text{min}}$ !

Type B/E0 right



## Stock program

### Tension rollers Type B with excenter, smooth running surface

## Stock program

### Tension rollers Type B with excenter, smooth running surface

Stock program

## Tension rollers Type B with excenter, smooth running surface

Tension rollers B are seated twice on grooved roller bearings. The bearings are greased for life. Permanent temperatures up to 70°C and under will not lead to a reduced useful life of the grease. Short-term temperatures up to 120°C are permitted.

### Materials:

Axis:  
Running roller:  
Flanges:

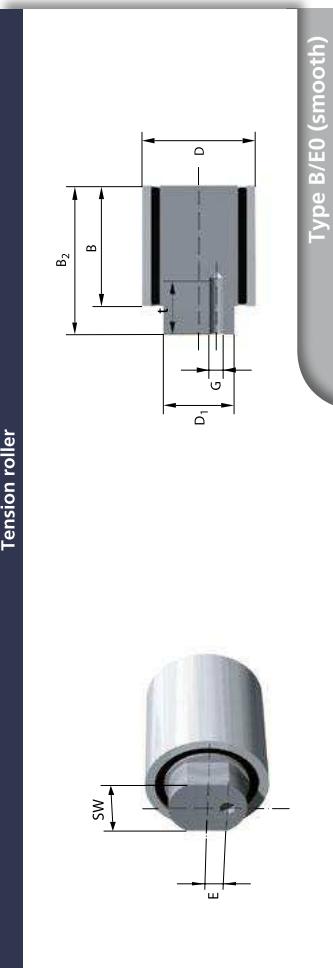
steel

aluminium

aluminium

BRECO order example						
Tension roller B/E2 70 /120 -2						
Width B		Diameter D	<th>Number of flanges</th> <td></td> <th></th>	Number of flanges		

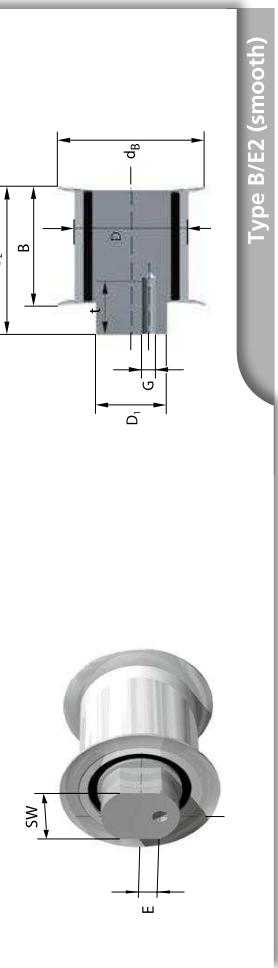
Tension roller



Type B/E0 (smooth)

Tension roller Typ B/E0 (stock program)

B [mm]	D [mm]	Number of flanges	max. Belt width [mm]	d <sub>g</sub> [mm]	B <sub>2</sub> [mm]	E [mm]	G [mm]	t [mm]	D <sub>1</sub> [mm]	SW [mm]	Loadbearing parameters		max. Rotational speeds n [min <sup>-1</sup> ]
											C <sub>dyn.</sub> [N]	C <sub>stat.</sub> [N]	
34	32	0	25	-	42	5	M6	10	20	17	7950	3920	1000
40	60	0	32	-	50	5	M12	20	30	27	19300	13100	5000
64	60	0	50	-	74	5	M12	20	30	27	19300	13100	5000
40	80	0	32	-	50	5	M12	20	30	27	19300	13100	5000
64	80	0	50	-	74	5	M12	20	30	27	19300	13100	5000
90	80	0	75	-	110	5	M20	32	45	36	48000	38000	5000
40	120	0	32	-	50	5	M12	20	30	27	19300	13100	5000
64	120	0	50	-	74	5	M12	20	30	27	19300	13100	5000
70	120	0	50	-	85	5	M20	30	45	36	70500	48000	5000
90	120	0	75	-	110	5	M20	32	45	36	48000	38000	5000
40	150	0	32	-	50	5	M12	20	30	27	19300	13100	5000
64	150	0	50	-	74	5	M12	20	30	27	19300	13100	5000
90	150	0	75	-	110	5	M20	32	45	36	48000	38000	5000



Type B/E2 (smooth)

Tension roller Typ B/E2 (stock program)

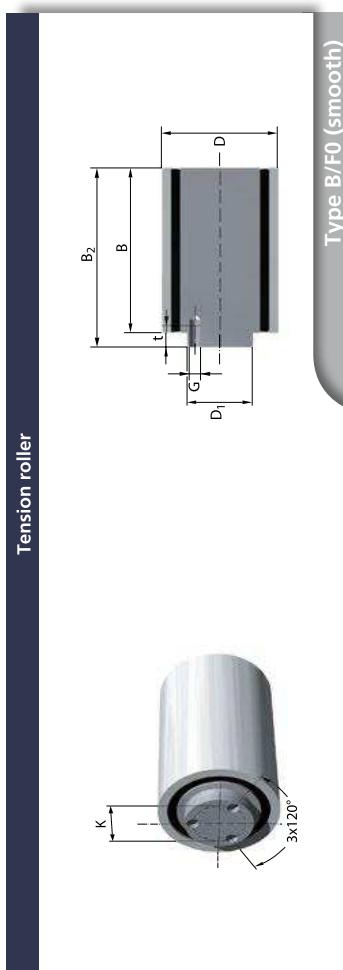
B [mm]	D [mm]	Number of flanges	max. Belt width [mm]	d <sub>g</sub> [mm]	B <sub>2</sub> [mm]	E [mm]	G [mm]	t [mm]	D <sub>1</sub> [mm]	SW [mm]	Loadbearing parameters		max. Rotational speeds n [min <sup>-1</sup> ]
											C <sub>dyn.</sub> [N]	C <sub>stat.</sub> [N]	
34	32	2	25	41,5	42	5	M6	10	20	17	7950	3920	1000
40	60	2	32	71	50	5	M12	20	30	27	19300	13100	5000
64	60	2	50	71	74	5	M12	20	30	27	19300	13100	5000
40	80	2	32	91	50	5	M12	20	30	27	19300	13100	5000
64	80	2	50	91	74	5	M12	20	30	27	19300	13100	5000
90	80	2	75	91	110	5	M20	32	45	36	48000	38000	5000
40	120	2	32	132	50	5	M12	20	30	27	19300	13100	5000
64	120	2	50	132	74	5	M12	20	30	27	19300	13100	5000
70	120	2	50	137	85	5	M20	30	45	36	70500	48000	5000
90	120	2	75	137	110	5	M20	32	45	36	48000	38000	5000
40	150	2	32	162	50	5	M12	20	30	27	19300	13100	5000
64	150	2	50	162	74	5	M12	20	30	27	19300	13100	5000
90	150	2	75	162	110	5	M20	32	45	36	48000	38000	5000

## Tension rollers Type B with flange, smooth running surface

## Tension rollers Type B with flange, smooth running surface

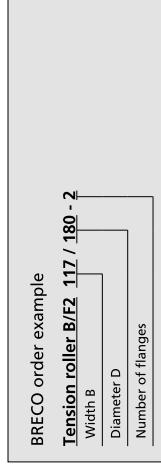
Stock program

Stock program



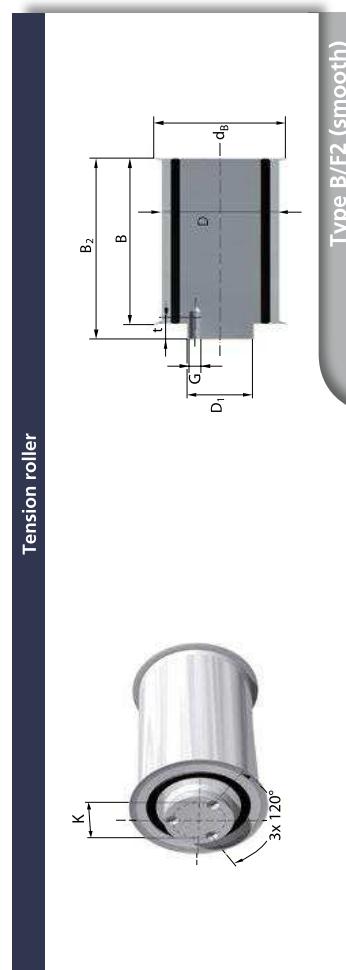
Materials:  
Axis:  
Running roller:  
Flanges:

steel  
aluminium  
aluminium



Tension roller Type B/F0 (stock program)								Loadbearing parameters			max. Rotational speeds n [min <sup>-1</sup> ]	
B [mm]	D [mm]	Number of flanges	max. Belt width [mm]	d <sub>b</sub> [mm]	K [mm]	G	t [mm]	D <sub>1</sub> [mm]	C <sub>dyn.</sub> [N]	C <sub>stat.</sub> [N]		
114	60	0	100	-	124	34	M8 (3x)	15	45	19300	13100	5000
114	80	0	100	-	124	34	M8 (3x)	15	45	19300	13100	5000
70	120	0	50	-	85	65	M12 (3x)	24	85	70500	48000	5000
90	120	0	75	-	110	65	M12 (3x)	24	85	70500	48000	5000
117	120	0	100	-	131	65	M12 (3x)	24	85	70500	48000	5000
70	180	0	50	-	85	65	M12 (3x)	25	106	70500	48000	5000
90	180	0	75	-	110	80	M16 (3x)	25	106	106000	76000	5000
117	180	0	100	-	131	80	M16 (3x)	25	106	106000	76000	5000

Tension roller Type B/F2 (stock program)								Loadbearing parameters			max. Rotational speeds n [min <sup>-1</sup> ]	
B [mm]	D [mm]	Number of flanges	max. Belt width [mm]	d <sub>b</sub> [mm]	K [mm]	G	t [mm]	D <sub>1</sub> [mm]	C <sub>dyn.</sub> [N]	C <sub>stat.</sub> [N]		
114	60	2	100	71	124	34	M8 (3x)	15	45	19300	13100	5000
114	80	2	100	91	124	34	M8 (3x)	15	45	19300	13100	5000
70	120	2	50	137	85	65	M12 (3x)	24	85	70500	48000	5000
90	120	2	75	137	110	65	M12 (3x)	24	85	70500	48000	5000
117	120	2	100	137	131	65	M12 (3x)	24	85	70500	48000	5000
70	180	2	50	204	85	65	M12 (3x)	25	106	70500	48000	5000
90	180	2	75	204	110	80	M16 (3x)	25	106	106000	76000	5000
117	180	2	100	204	131	80	M16 (3x)	25	106	106000	76000	5000



The BRECO® fix clamping elements are used in linear systems. Clamp connectors and clamp plates optimally adapted to our timing belts are available for diverse areas of application. Both elements are used to fasten the belt ends on the machine frame or on the moving unit.

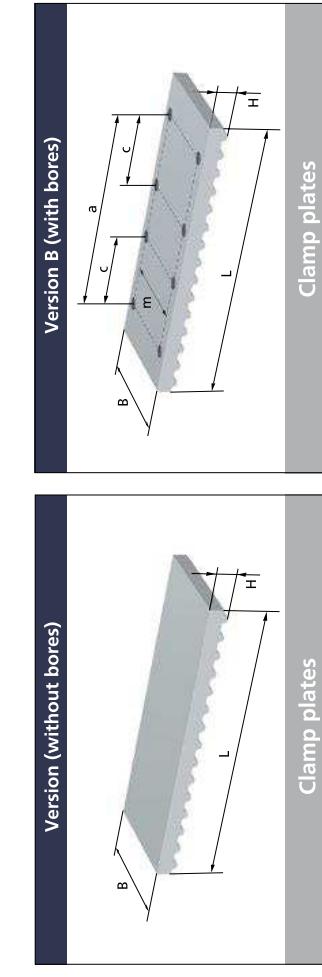
While the clamp connectors only enable simple fastening of the belt ends, the clamp plate can also be used for setting the pretensioning force via a clamping unit. The different variants A, B and C specially optimised to the load are available to the user within a complete clamp plate system for the individual belt types and belt widths. The corresponding assignment is shown in table in the clamp plates section.

The different variants and subcategories ensure absolute clamping reliability together with optimum handling and assembly thanks to their design. Providing a complete system comprising base plate, if necessary toothed insert, upper plate, clamping unit and standard part accessories spares the user awkward assembly and coordination of the individual parts. In addition, using the toothed inserts made from high-strength polyamide in the clamp plates of variant B allows production costs to be optimised. This results in a system with a very good price-performance ratio overall.

Variants A is divided into types 1,2 and 3. Type 1 is supplied without bores and clamping unit, which means it provides freedom of constructional design, while allowing the belt and to be fastened without additional movements of the „fixed“ clamping unit. Type 2, on the other hand, offers the clamping unit and long holes for clamping the timing belt drive. It is then necessary to fasten the clamp plate of type 2 on the machine frame. Type 3 is typically provided for „free suspension“ of the belt tensioning on the clamping unit. A protection that might be necessary against turning and movement must be provided either by fixing the clamping unit itself or corresponding limiting or guide elements in the clamp plate environment.

Variants B and C are generally suitable for both connections to the machine frame, „fixed“ and „freely suspended“, and are available in the version „without clamping unit“.

## Notes on clamp connectors / clamp plate system

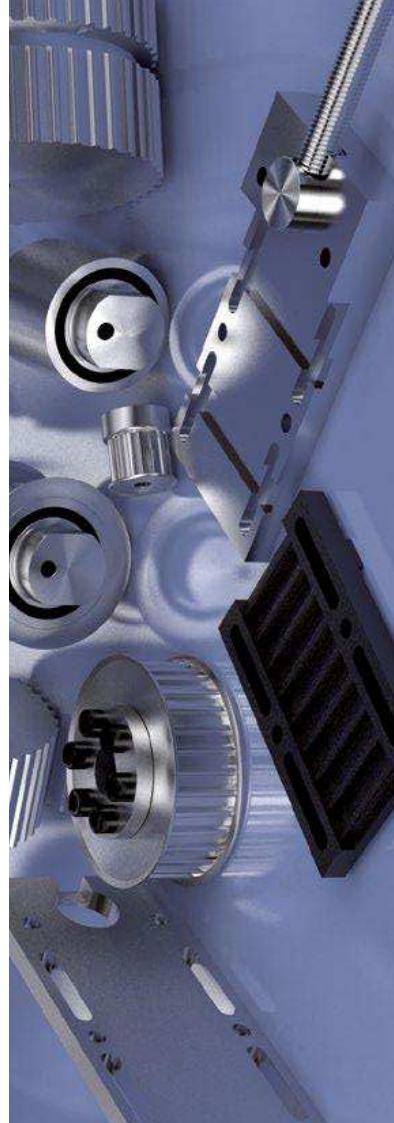


Clamp plates are often used in linear technology, when one or both belt ends need to be affixed to the housing. An adjustment of the pretension is not possible with clamp plates.

AT profile							T profile								
Belt width [mm]	BxL [mm]	Type / Pitch	Bore diameter [mm]	m [mm]	a [mm]	c [mm]	H [mm]	Belt width [mm]	BxL [mm]	Type / Pitch	Bore diameter [mm]	m [mm]	a [mm]	c [mm]	H [mm]
10	30x75	AT3	5,5	20	50	12,5	8	10	30x50	T2,5*	5,5	20	30	15	6
20	50x75	AT3	5,5	30	50	12,5	8	20	40x60	T2,5*	5,5	30	30	15	6
25	60x75	AT3	5,5	38	50	12,5	8	25	50x120	T5	5,5	38	80	20	10
25	50x120	AT5	5,5	38	80	20	10	32	60x120	T5	5,5	46	80	20	10
32	60x120	AT5	5,5	46	80	20	10	50	75x20	T5	5,5	62	80	20	10
50	75x120	AT5	5,5	62	80	20	10	75	110x120	T5	5,5	94	80	20	10
75	110x120	AT5	5,5	94	80	20	10	25	50x160	T10	6,5	38	110	30	10
25	50x160	BAT10	6,5	38	110	30	10	32	60x160	T10	6,5	110	30	10	10
32	60x160	BAT10	6,5	46	110	30	10	75	110x160	T10	6,5	94	110	30	10
50	75x160	BAT10	6,5	62	110	30	10	25	50x200	T20	6,5	38	160	60	20
75	110x160	BAT10	6,5	94	110	30	10	32	60x200	T20	6,5	46	160	60	20
25	50x180	AT15protect ATS15	9	38	140	50	20	32	60x180	AT15protect ATS15	9	46	140	50	20
50	75x180	AT15protect ATS15 BATK15	9	62	140	50	20	75	110x180	AT15protect ATS15 BATK15	9	94	140	50	20
25	50x200	AT20	9	38	160	60	20	32	60x200	AT20	9	46	160	60	20
50	75x200	AT20	9	62	160	60	20	75	110x200	AT20	9	94	160	60	20

\* In the clamp plates of the type T25 there are only 6 instead of 8 bores.

BRECO order example			
Clamp plate	Width B	Length L	Type / Pitch
75 x 180 ATS15	B		

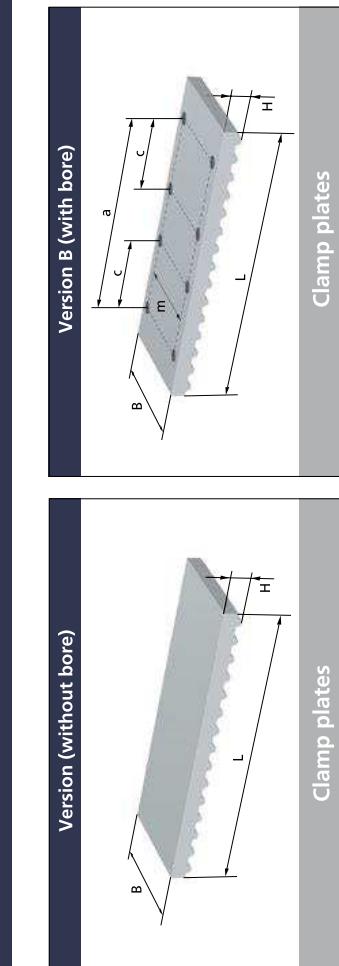


## Clamp plates Imperial profile Imperial pitch

## BRECO®-fix Clamping elements

## BRECO®-fix Clamping elements

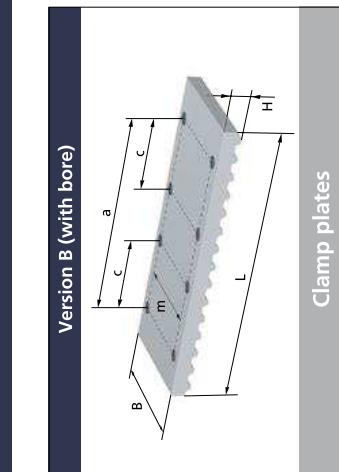
Clamp plates AT-, T-, HTD profile  
for belt clamping on one side



### Imperial pitch

Belt width [mm]	BxL	Type / Pitch	Bore diameter [mm]	m [mm]	a [mm]	c [mm]	H [mm]
25,4	50x120	T1/5"	5,5	38	80	20	10
38,1	60x120	T1/5"	5,5	46	80	20	10
50,8	75x120	T1/5"	5,5	62	80	20	10
76,2	110x120	T1/5"	5,5	94	80	20	10
25,4	50x160	T3/8"	6,5	38	110	30	10
38,1	60x160	T3/8"	6,5	46	110	30	10
50,8	75x160	T3/8"	6,5	62	110	30	10
76,2	110x160	T3/8"	6,5	94	110	30	10
25,4	50x160	T1/2"	6,5	38	110	30	10
38,1	60x160	T1/2"	6,5	46	110	30	10
50,8	75x160	T1/2"	6,5	62	110	30	10
76,2	110x160	T1/2"	6,5	94	110	30	10
101,6	140x160	T1/2"	6,5	124	110	30	10
25,4	50x200	T7/8"	6,5	38	160	60	20
38,1	60x200	T7/8"	6,5	46	160	60	20
50,8	75x200	T7/8"	6,5	62	160	60	20
76,2	110x200	T7/8"	6,5	94	160	60	20

BRECO order example	
Clamp plate	60 x 160
Width B	13 1/8" B
Length L	
Type / Pitch	
Version	



### AT profile

Belt width [mm]	BxL	Type / Pitch	Bore diameter [mm]	m [mm]	a [mm]	c [mm]	H [mm]
25	50x58	AT5	5,5	35	30	15	10
32	60x58	AT5	5,5	42	30	15	10
50	75x58	AT5	5,5	60	30	15	10
75	110x58	AT5	5,5	90	30	15	10
25	50x78	AT10	6,5	35	40	20	10
32	60x78	AT10	6,5	42	40	20	10
50	75x78	AT10	6,5	60	40	20	10
75	110x78	AT10	6,5	90	40	20	10
25	50x88	AT15protect	9	35	50	20	20
32	60x88	AT15protect	9	42	50	20	20
50	75x88	AT15protect	9	60	50	20	20
75	110x88	AT15protect	9	90	50	20	20
25	50x98	AT20	9	35	60	20	20
32	60x98	AT20	9	42	60	20	20
50	75x98	AT20	9	60	60	20	20
75	110x98	AT20	9	90	60	20	20

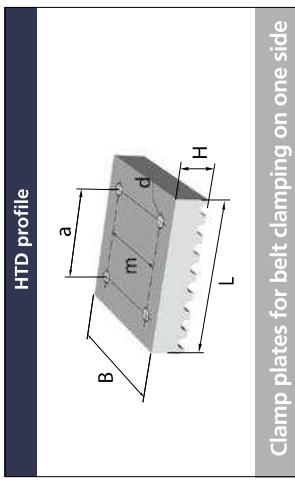
### HTD profile

Belt width [mm]	BxL	Type / Pitch	Bore diameter [mm]	m [mm]	a [mm]	c [mm]	H [mm]
10	28x41,8	5M	5,5	28	30	15	8
15	34x41,8	5M	5,5	34	30	15	8
25	44x41,8	5M	5,5	44	30	15	8
30	45x66	8M	9	30	30	15	15
30	55x66	8M	9	30	30	15	15
50	75x66	8M	9	50	30	15	15
85	110x66	8M	9	85	30	15	15
40	71x116	14M	11	40	30	15	22
55	86x116	14M	11	55	30	15	22
85	116x116	14M	11	85	30	15	22

### T profile

Belt width [mm]	BxL	Type / Pitch	Bore diameter [mm]	m [mm]	a [mm]	c [mm]	H [mm]
25	50x58	T5	5,5	25	30	15	10
25	50x78	T10	6,5	35	40	20	10
32	60x78	T10	6,5	42	40	20	10
50	75x58	T5	5,5	50	30	15	10
50	75x78	T10	6,5	60	30	15	10
75	110x58	T5	5,5	75	30	15	10
25	50x98	T10	6,5	35	40	20	10
32	60x98	T10	6,5	42	40	20	10
50	75x98	T20	9	50	30	15	10
75	110x98	T20	9	75	30	15	10

Clamp plates are also available without bores.  
Belt width B  
Length L  
Type / Pitch  
Version



Belt width [mm]	BxL	Type / Pitch	Bore diameter [mm]	m [mm]	a [mm]	c [mm]	H [mm]
10	28x41,8	5M	5,5	28	30	15	8
15	34x41,8	5M	5,5	34	30	15	8
25	44x41,8	5M	5,5	44	30	15	8
30	45x66	8M	9	30	30	15	15
30	55x66	8M	9	30	30	15	15
50	75x66	8M	9	50	30	15	15
85	110x66	8M	9	85	30	15	15
40	71x116	14M	11	40	30	15	22
55	86x116	14M	11	55	30	15	22
85	116x116	14M	11	85	30	15	22

Belt width B	Length L	Type / Pitch	Version
75	110x98	T20	9

## BRECO®-fix Clamping elements

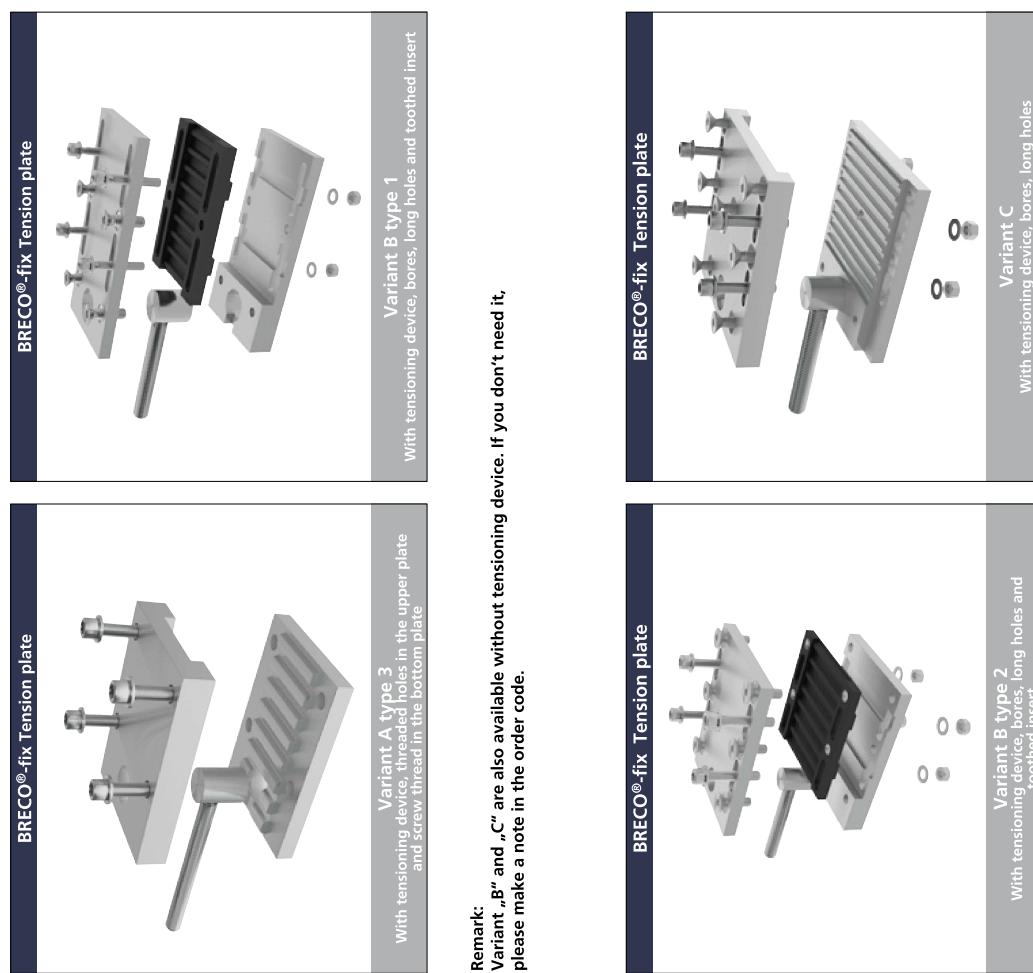
## Tension plates

## Tension plates

The table below is an overview about our available tension plate variants according to the different belt types.

BRECO®-fix Tension plates						
Pitch	Belt type	25	32	50	75	100
5 mm	TS	Variant A Type 1 / 2 / 3	Variant A Type 1 / 2 / 3	-	-	-
	AT5 / ATL5	Variant A Type 1 / 2 / 3	Variant A Type 1 / 2 / 3	Variant A Type 1 / 2 / 3	-	-
10 mm	TR10	Variant A Type 1 / 2 / 3	Variant A Type 1 / 2 / 3	Variant A Type 1 / 2 / 3	Variant A Type 2	Variant B Type 2
	AT10	Variant A Type 1 / 2 / 3	Variant A Type 1 / 2 / 3	Variant A Type 1 / 2 / 3	Variant B Type 2	Variant C
15 mm	BATK10	-	Variant A Type 1 / 2 / 3	Variant A Type 1 / 2 / 3	Variant B Type 2	-
	ATL10	Variant A Type 1 / 2 / 3	Variant A Type 1 / 2 / 3	Variant B Type 1	Variant B Type 2	Variant B Type 2
20 mm	AT15	-	-	Variant B Type 1	Variant B Type 2	Variant C
	BATK15	-	-	Variant B Type 1	Variant B Type 2	-
	120	-	-	Variant B Type 1	Variant B Type 2	Variant C
	AT20	-	-	Variant B Type 1	Variant B Type 2	Variant C
	ATL20	-	-	Variant B Type 1	Variant B Type 2	-

Remark:  
Variant „B“ and „C“ are also available without tensioning device. If you don't need it,  
please make a note in the order code.



## Notes on the assembly of BRECO® timing belts in the BRECO® fix clamp plates

The BRECO® fix clamp plates are designed so that clamping reliability and optimum assembly of the timing belt in the clamp plate are ensured. We therefore recommend reading and complying with the assembly notes for the relevant types as well as the following assembly workflow.

Please proceed in the following steps when assembling timing belts and clamp plates:

**Step 1: Preparation for assembly**

Cut the timing belt in a gap between two belt teeth to the required length and place it in the toothed section of the open clamp plate.

**Step 2: Preassembly of the clamp plate**

Place the upper and lower plate as well as the toothed insert, if necessary, and connect everything with the preassembly screws (countersunk head screws). Use a suitable torque wrench for this. Please note the tightening torques indicated for the relevant types. The preassembly screws keep the clamp plates securely closed during the subsequent steps.

**Step 3: Tensioning of the belt /fastening on the machine frame**

Move the clamp plate(s) into their required assembly position in the machine. The clamp plates are usually fastened directly on the machine frame. This fastening is done with fastening screws (cylinder head screws) via the long holes of the clamp plates. We recommend leaving the fastening screws loose until the clamp plate is moved into position by the clamping unit, meaning the necessary pretensioning force is applied to the timing belt. After the pretensioning force has been set in the timing belt, the fastening screw can be tightened according to the specifications.

**Special feature of freely suspended assembly:**  
Freely suspended assembly on the clamping unit is possible, but not strictly recommended. Step 2 of these instructions is logically followed by step 4 and then tensioning of the belt (step 3). The fastening screws must also be installed and tightened according to the specifications for freely suspended assembly. To apply the tensioning force during freely suspended assembly, we recommend fixing the clamp plate in a vice or similar. The fixing should be carried out in the front area (near to clamping unit).

**Step 4: Applying the clamping force in the clamp plate**

To ensure the required clamping reliability, the belt fastening in the clamp plates must be clamped again in addition to the preassembly and fastening procedure.

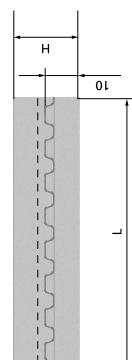
This clamping is carried out for belt widths > 50 mm (clamp plate variant B type 2 and variant C) using the countersunk screws and tightening these to the specified tightening torque for the clamping force. The fastening screws must also be tightened to the corresponding torque.  
This step does not apply for the clamp plates variant A and variant B type 1, as this tensioning force was already applied here by tightening the fastening screws in the long holes.

**Step 5: Retightening of the belt at a later date**

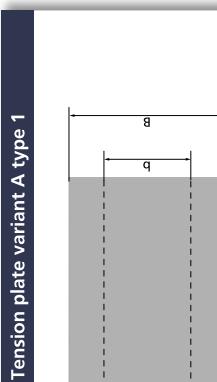
If it is necessary to readjust the pretensioning force in the timing belt at a later date, only the fastening screws have to be loosened and „retightened“ via the clamping unit. The pretensioning of the belt tensioning in the clamp plate itself can be retained for this procedure.  
In the case of assembly freely suspended on the threaded rod, there is no need to loosen the fastening screws, as retightening can be done directly.



Tension plate variant A type 1			
Belt width b/ belt type	B [mm]	L [mm]	H [mm]
25 AT5	50	80	18,5
32 AT5	60	80	18,5
50 AT5	75	80	18,5
25 ATL10	50	80	19,5
32 ATL10	60	80	19,5
50 ATL10	75	80	19,5
25 AT5	50	80	19,0
32 AT5	60	80	19,0
50 AT5	75	80	19,0
25 ATL10	50	80	19,0
32 ATL10	60	80	19,0
50 ATL10	75	80	19,0
25 ATL10	50	80	19,5
32 ATL10	60	80	19,5
32 BATK10	60	80	19,5
50 BATK10	75	80	19,5

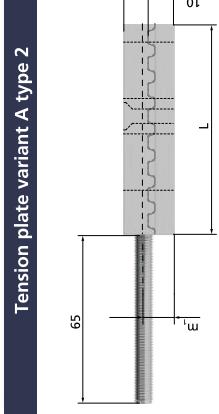


Without bores and tensioning device

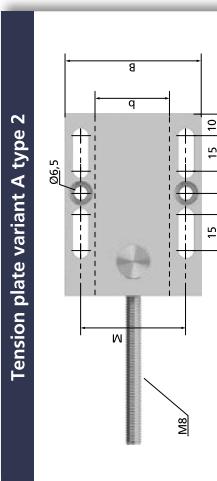


With bores, long holes and tensioning device

Tension plate variant A type 2			
Belt width b/ belt type	B [mm]	L [mm]	H [mm]
25 AT5	50	80	38
32 AT5	60	80	46
50 AT5	75	80	62
25 ATL10	50	80	38
32 ATL10	60	80	46
50 ATL10	75	80	62
25 AT5	50	80	38
32 AT5	60	80	46
50 AT5	75	80	62
25 ATL10	50	80	38
32 ATL10	60	80	46
32 BATK10	60	80	46
50 BATK10	75	80	62



Without bores and tensioning device



With bores, long holes and tensioning device

#### Mounting instructions

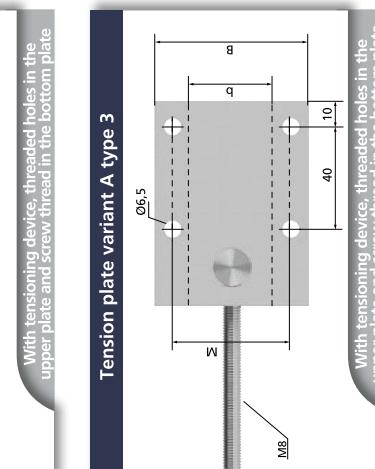
Tension plate	Variant A type 2		
Belt width	25	32	50
Pre-assembly screws (SW=wrench size across flats)	Countersunk head screws ISO 10642, 2xM5 - 8,8 zinced (SW3)	Countersunk head screws ISO 10642, 2xM5 - 8,8 zinced (SW3)	Countersunk head screws ISO 10642, 2xM5 - 8,8 zinced (SW3)
Recommended tightening moment of the pre-assembly screws M <sub>A</sub>	6 Nm	6 Nm	6 Nm
Fastening screws	Cheese head screws ISO 4762 4xM6 - 8,8 zinced (SW5)	Cheese head screws ISO 4762 4xM6 - 8,8 zinced (SW5)	Cheese head screws ISO 4762 4xM6 - 8,8 zinced (SW5)
Recommended tightening moment of the fastening screws M <sub>A</sub>	10 Nm	10 Nm	10 Nm
Tightening moment for gen- eration of tension force M <sub>A</sub>	10 Nm	10 Nm	10 Nm
Admissible force of the tension plates F <sub>width</sub>	22400 N	28800 N	34000 N

BRECO order example	
Tension plate	60 x 80 AT5 Var A Type 1
Width B	
Length L	
Belt type / Pitch	
Variant	
Type	

BRECO order example  
Tension plate 60 x 80 AT5 Var A Type 2

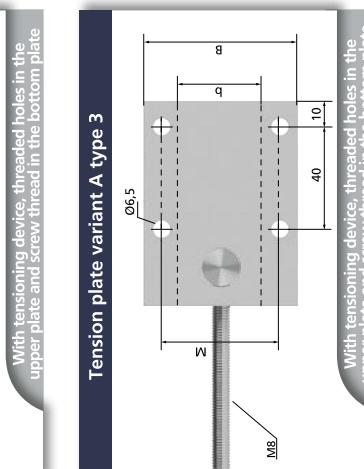
Width B  
Length L  
Belt type / pitch  
Variant  
Type

Tension plate variant A type 3					
Belt width b/ belt type	B [mm]	L [mm]	M [mm]	m <sub>1</sub> [mm]	H [mm]
25 AT5	50	80	38	10,25	18,5
32 AT5	60	80	46	10,25	18,5
50 AT5	75	80	62	10,25	18,5
25 ATL10	50	80	38	11,25	19,5
32 ATL10	60	80	46	11,25	19,5
50 ATL10	75	80	62	11,25	19,5
25 AT15	50	80	38	10,75	19,0
32 AT15	60	80	46	10,75	19,0
50 AT15	75	80	62	10,75	19,0
25 ATL15	60	80	46	10,75	19,0
50 ATL15	75	80	62	10,75	19,0
25 AT10	50	80	38	11,25	19,5
32 AT10	60	80	46	11,25	19,5
50 AT10	75	80	62	11,25	19,5
25 ATL10	50	80	38	11,00	19,5
32 ATL10	60	80	46	11,00	19,5
32 BATK10	60	80	46	11,25	19,5
50 BATK10	75	80	62	11,25	19,5



Tension plate variant A type 3

Tension plate variant A type 3					
Belt width b/ belt type	B [mm]	L [mm]	M [mm]	m <sub>1</sub> [mm]	H [mm]
25 AT5	50	80	38	10,25	18,5
32 AT5	60	80	46	10,25	18,5
50 AT5	75	80	62	10,25	18,5
25 ATL10	50	80	38	11,25	19,5
32 ATL10	60	80	46	11,25	19,5
50 ATL10	75	80	62	11,25	19,5
25 AT15	50	80	38	10,75	19,0
32 AT15	60	80	46	10,75	19,0
50 AT15	75	80	62	10,75	19,0
25 ATL15	60	80	46	10,75	19,0
50 ATL15	75	80	62	10,75	19,0
25 AT10	50	80	38	11,25	19,5
32 AT10	60	80	46	11,25	19,5
50 AT10	75	80	62	11,25	19,5
25 ATL10	50	80	38	11,00	19,5
32 ATL10	60	80	46	11,00	19,5
32 BATK10	60	80	46	11,25	19,5
50 BATK10	75	80	62	11,25	19,5



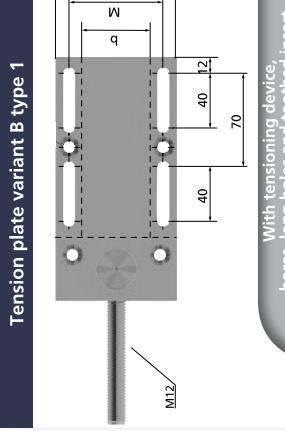
Tension plate variant A type 3

Tension plate variant B type 1					
Belt width b/ belt type	B [mm]	L [mm]	M [mm]	m <sub>1</sub> [mm]	H [mm]
50 ATL10	90	180	70	20,5	19,8
50 ATS15	90	180	70	20,5	19,38
50 BATK15	90	180	70	20,5	19,58
50 ATL20	90	180	70	20,5	19,08
50 ATL20	90	180	70	20,5	18,68

Remark:  
The toothed insert for 50 BATK15 is the same for curve „left“ and „right“



Tension plate variant B type 1					
Belt width b/ belt type	B [mm]	L [mm]	M [mm]	m <sub>1</sub> [mm]	H [mm]
50 ATL10	90	180	70	20,5	19,8
50 ATS15	90	180	70	20,5	19,38
50 BATK15	90	180	70	20,5	19,58
50 ATL20	90	180	70	20,5	19,08
50 ATL20	90	180	70	20,5	18,68



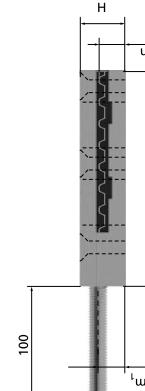
Tension plate variant B type 1

Mounting instructions					
Tension plate	Variant B type 1	Variant B type 1			
Belt width	50 mm	50 mm			
(SW=wrench size across flats)	Pre-assembly screws ISO 10642, 2xM8 - 8,8 (SW5) and 2xM10 - 8,8 (SW6)	Countersunk head screws ISO 10642, 2xM8 - 8,8 (SW5) and 2xM10 - 8,8 (SW6)			
Recommended tightening moment of the pre-assembly screws M <sub>A</sub>	8 Nm for M8 17 Nm for M10	Recommended tightening moment of the fastening screws M <sub>A</sub>			
Fastening screws Cheese head screws ISO 4762 4xM6 - 8,8 zinned (SW5)	Cheese head screws ISO 4762 4xM8 - 8,8 (SW6)	Fastening screws Cheese head screws ISO 4762 4xM8 - 8,8 (SW6)			
Recommended tightening moment of the fastening screws M <sub>A</sub>	10 Nm	Recommended tightening moment of the fastening screws M <sub>A</sub>			
Tightening moment for generation of tension force M <sub>A</sub>	10 Nm	Tightening moment for generation of tension force M <sub>A</sub>			
Admissible force of the tension plates F <sub>admiss</sub>	28800 N	Admissible force of the tension plates F <sub>admiss</sub>			
	34000 N	Admissible force of the tension plates F <sub>admiss</sub>			
	61600 N	Admissible force of the tension plates F <sub>admiss</sub>			

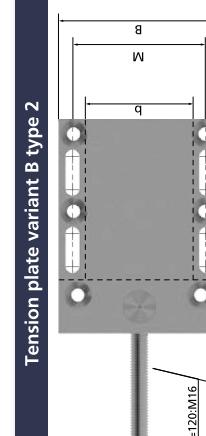
BRECO order example					
Tension plate	50 x 180 ATL10 Var B Type 1 without tensioning device				
Width B					
Length L					
Belt type / pitch					
Variant					
Type					
Version					

BRECO order example					
Tension plate	90 x 180 ATL10 Var B Type 1 without tensioning device				
Width B					
Length L					
Belt type / pitch					
Variant					
Type					
Version					

Tension plate variant B type 2							
	Tension plate variant B type 2						
	Belt width b/ belt type	B [mm]	L [mm]	M [mm]	m <sub>1</sub> [mm]	a [mm]	c [mm]
75 AT10	120	180	97	19.5	65	29.5	19.09
100 AT10	150	200	124	25.5	72	35	25.09
75 BATK10	120	180	97	19.5	65	29.5	19.09
100 BATK10	150	200	124	25.5	72	35	25.09
75 AT10	120	180	97	19.5	65	29.5	18.8
100 AT10	150	200	124	25.5	72	35	24.8
75 ATS15	120	180	97	19.5	65	29.5	18.38
100 ATS15	150	200	124	25.5	72	35	24.38
75 BATK15	120	180	97	19.5	65	29.5	18.58
100 BATK15	150	200	124	25.5	72	35	24.58
75 T20	120	180	97	19.5	65	29.5	18.08
100 T20	150	200	124	25.5	72	35	24.08
75 AT20	120	180	97	19.5	65	29.5	18.08
100 AT20	150	200	124	25.5	72	35	24.08
75 ATL20	120	180	97	19.5	65	29.5	17.68
100 ATL20	150	200	124	25.5	72	35	23.68



With tensioning device, bores,  
long holes and toothed insert



With tensioning device, bores,  
long holes and toothed insert

**Note:**  
For the timing belt types 75 BATK10/BATK15 and  
100 BATK10/BATK15 it is necessary to indicate the curve  
direction!

#### Mounting instructions

Tension plate		Variant B type 2		100 mm	
Belt width	Pre-assembly screws (SW=wrench size across flats)	Countersunk head screws ISO 10642, 6xM10 - 8.8 (SW8)	Countersunk head screws ISO 10642, 6xM12 - 8.8 (SW8)	Recommended tightening moment of the pre-assembly screws M <sub>A</sub>	Tightening moment for genera- tion of the tension force M <sub>A</sub>
		18 Nm	28 Nm	105 Nm	122 Nm on Countersunk head screws
		Cheese head screws ISO 4762 4xM10 - 8.8 (SW8)	Cheese head screws ISO 4762 4xM12 - 8.8 (SW10)		Admissible force of the tension plates F <sub>adm</sub>
		45 Nm	70 Nm		190400 N

Note:

The gear inserts for BATK10 and BATK15 depend on the  
curve direction „left“ or „right“.



Tension plate variant C							
	Tension plate variant C						
	Belt width b/ belt type	B [mm]	L [mm]	M [mm]	m <sub>1</sub> [mm]	a	c
150 AT10	200	210	174	25.5	25.05	42	
150 ATS15	200	210	174	25.5	24.25	42	
150 T20	200	210	174	25.5	24.20	42	
150 AT20	200	210	174	25.5	23.85	42	

Mounting instructions			
Tension plate		Variant C	
Belt width		150 mm	
Pre-assembly screws (SW=wrench size across flats)		ISO 10642, 7xM12 - 8.8 (SW8), additional screw M12 in the middle of the belt	

Mounting instructions			
Tension plate		Variant C	
Belt width		150 mm	
Pre-assembly screws (SW=wrench size across flats)		ISO 10642, 7xM12 - 8.8 (SW8), additional screw M12 in the middle of the belt	
Recommended tightening moment of the pre-assembly screws M <sub>A</sub>		42 Nm	
Fastening screws		Cheese head screws ISO 4762 4xM12 - 8.8 (SW10)	
Recommended tightening moment of the fastening screws M <sub>A</sub>		105 Nm	
Tightening moment for genera- tion of the tension force M <sub>A</sub>		122 Nm on Countersunk head screws	
Admissible force of the tension plates F <sub>adm</sub>		190400 N	

BRECO order example			
Tension plate		200 x 210 AT10 Var C without tensioning device	
Width B		Length L	
Belt type / pitch		Variant	
Variant		Version	

BRECO order example			
Tension plate		120 x 180 BATK15 Var B Type 2 left	
Width B		Length L	
Belt type / pitch		Variant	
Variant		Type	
Type		Curve direction (only BATK10, BATK15)	

## Available worldwide around the clock.

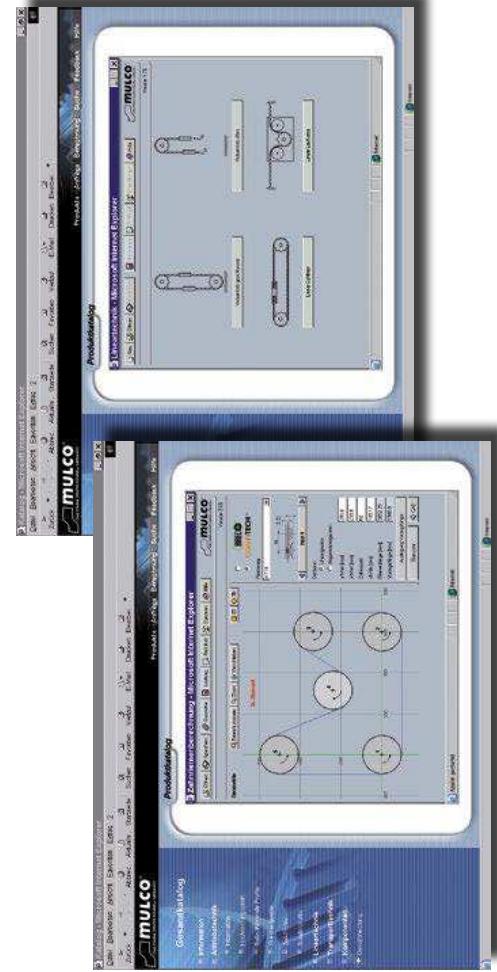
Quality products, first-class advice and individual service are part of the standard package for all members of Mulco Europe EWIV. This standard is constantly being upgraded and adapted to the needs of the customers.

The „belt pilot“ is an online tool which allows design engineers all over the world to work round the clock on design solutions for timing belt drives. They can carry out geometric calculations to configure the belt drive, decide on the number of teeth, plan the belt width or calculate the pulley diameter, save the configured drive or open calculations already saved, or use the performance calculation to check the possibility of using the selected timing belt with the load data - the „belt pilot“ has the versatility and wide range of calculation options to help them find the right solution quickly.

The CAD download facility enables users to transfer timing belts and components to their own CAD system as CAD drawings, 2D or 3D CAD drawings in a wide and diverse range of file formats are user-definable and can be copied directly into CAD programs.

To find the „belt pilot“ visit [www.mulco.de](http://www.mulco.de).

## Online.



**Pre-tension**

Pre-tension highly influences the operating conduction and life of the whole gearing. It is therefore one of the few figures which the user of tooth-belt drives has to set for himself.

Pre-tension depends on the geometry and the stress of the tooth-belt drive so that the high values of the positioning and repetition precision are attainable, and through that the desirable transmitting behaviour can only be realised under the condition of a certain pre-tension.



BRECO® Trumspannungs-Messgerät TSM alpha 1

BRECO® Measuring Device TSM alpha 1

**Info brochure**  
BRECO Measuring Device TSM alpha 1  
Download at [www.breco.de](http://www.breco.de)

**BRECO® Measuring Device TSM alpha 1**

The fully electronic measuring instrument enables the controlling of the setup pre-tension in tooth-belt drives in a very easy and secure way. Special sensors register the vibration of a tooth-belt that has been stimulated in advance. The instrument registers the belt's self-frequency. The light insensitive sensors allow for a relatively high measuring distance between the sensor and the belt. For this reason the instrument is very well adjusted to production and installation/assembly conditions.

Using the basic physical principle of a string vibration, the pre-tension and self-frequency of the belt are connected with each other. It is therefore an easy and fast task to calculate the belt's pre-tension according to the measured frequency.

**The advantages**

- easy-handling
- contactless measurement with one-sided belt touch
- measuring on all belt types including all different types of tension members, e.g. steel, Kevlar, glassfiber
- reliable measuring results that are highly reproducible
- connection for external sensor for measuring hard-accessible parts
- an LCD indicating how full the battery is
- optical and acoustical indication of necessity of battery change
- measuring range: 5 to 500 Hz
- maximum measurement tolerance:  $\pm 1$  Hz (more than 100 Hz  $\pm 2$  Hz)
- dimension: 120 mm x 65 mm x 30 mm
- weight: 160 g
- battery-powered
- 3-digit LCD-display
- transport suitcase



BRECO®  
BRECO flex

muco  
BRECO ist Mitglied der Muco-Europe EWV

Distribution partner



## Available product catalogues - for every application the right product

### BRECO® and BRECOFLEX® timing belts

- General information (application and calculation notes)
- Endless timing belts (BRECOFLEX®)
- Open length timing belts (BRECO® M)
- Endless joined timing belts (BRECO® V)
- Timing belt lock for AT10, T10

### Components

- General information
- Timing pulleys
- Synchronising shafts
- Synchronising pulleys with tensioners
- Tension rollers
- BRECO® fix-clamping elements

### ATN-System - BRECO® timing belts for transport technology

- General information about the ATN system (application information and notes on calculations)
- ATN timing belts
- ATN timing belt lock
- ATN standard profile connection
- ATN profiles
- ATN components

### BRECObasic®-timing belts

- Product range
- Coatings for BRECObasic® timing belts

### BRECOprotect®-timing belts

- Product range

### Further information about:

- Sales partners
- New products and developments
- Available catalogues can be found at [www.breco.de](http://www.breco.de)

### Warranty

All information has been compiled with the utmost care and attention and reflects the current state of knowledge. However, we would like to particularly draw your attention to the fact that all technical data is quoted subject to tolerances and must not be interpreted as a guaranteed delivery specification. We reserve the right to make technical changes as part of our continuous product development process.

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### BRECO® and BRECOFLEX® flat belts

- General information
- Endless flat belts (BRECOFLEX®)
- Open length timing belts (BRECO® M)
- Open length flat belts (BRECO® M)
- Endless joined flat belts (BRECO® V)
- Fastening elements

### Finishing of timing belts

- Coatings for polyurethane timing belts
- Mechanical rework of coatings
- Mechanical rework of timing belts
- High strength profile connection
- Welded-on profiles

# Keeping things moving!



This company positioning confronts  
BRECO GmbH & Co. Zahnscheiben KG as manufacturer  
of BRECO® Components with new great challenges,  
which are accepted with pleasure.

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