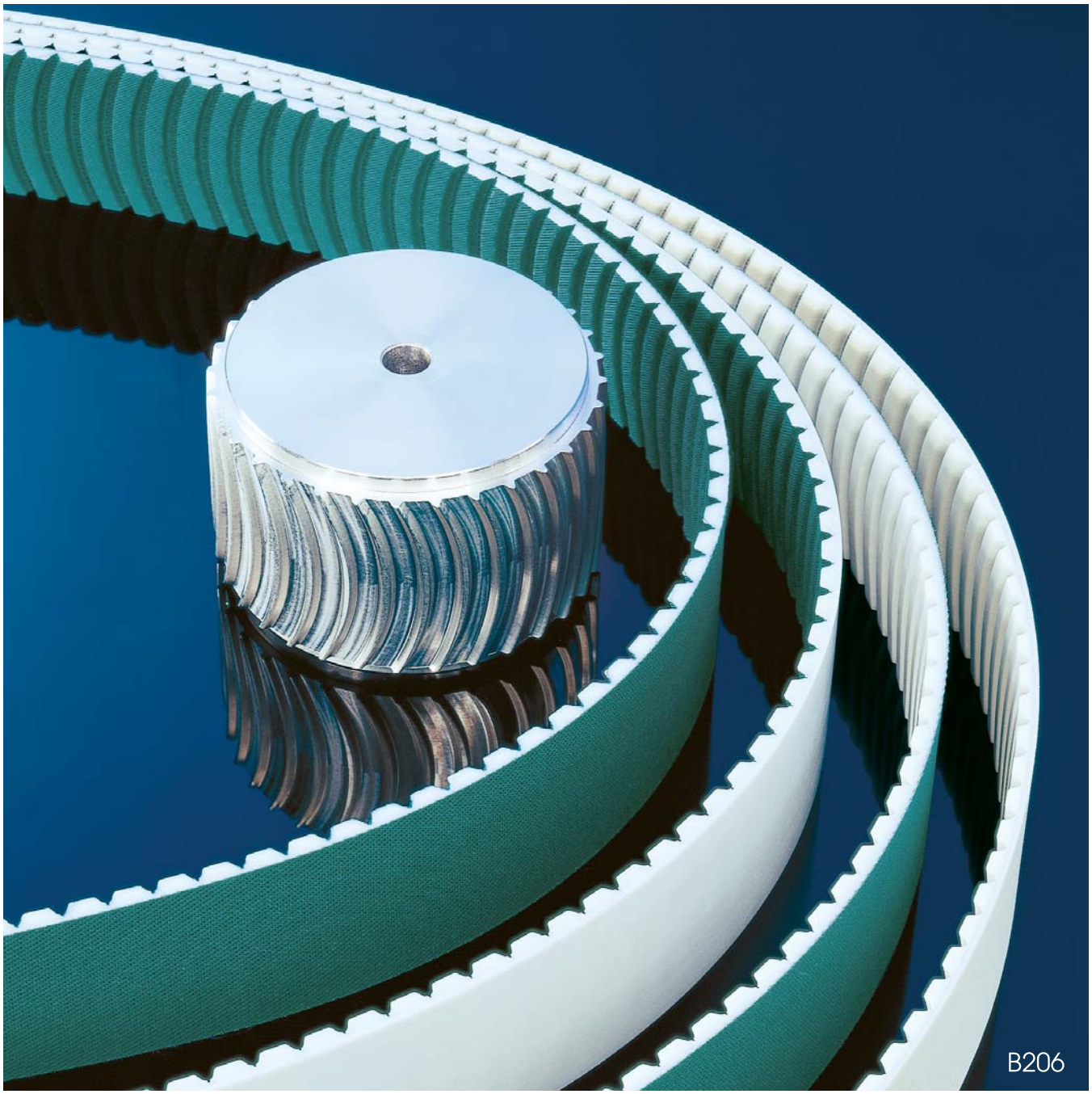
BRECOflex CO., L.L.C.

High Precision Drive Components



ARC-POWER®

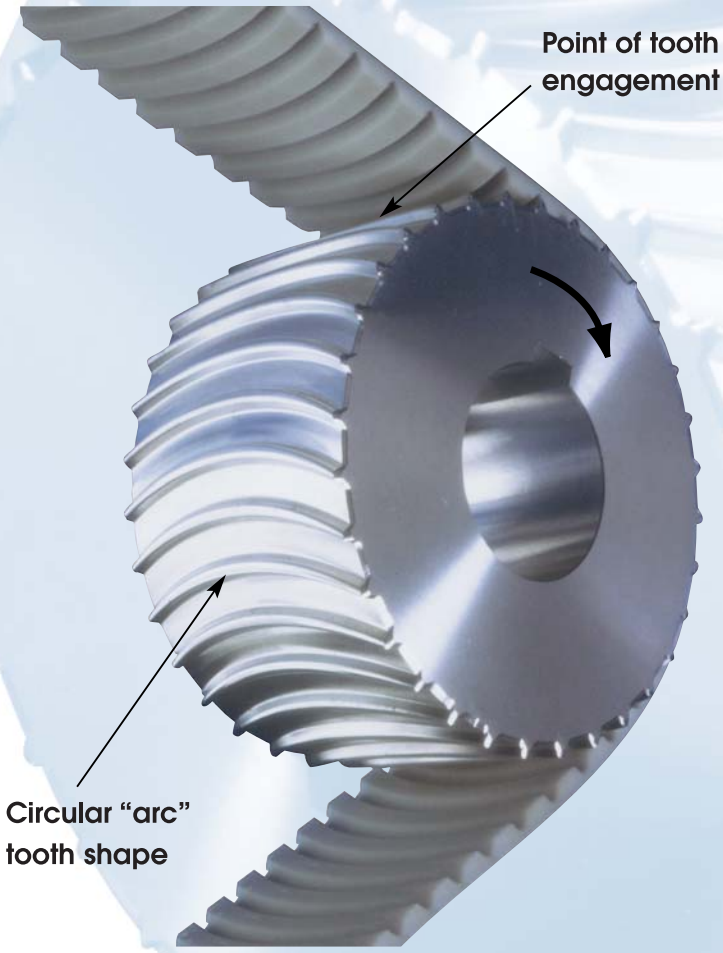
REINFORCED POLYURETHANE TIMING BELT

The revolutionary "arc" shaped state-of-the-art timing belt design represents the most unique and efficient timing belt available. This world-wide patented timing belt technology incorporates numerous performance advantages for conventional and custom applications. It is available in Open Ended, Welded and Truly Endless (homogeneous-no splice) with steel cord or Kevlar® tension members.

CHARACTERISTICS

SMOOTH TOOTH ENGAGEMENT

- This unique circular "arc" tooth meshing enables the transmission of force dynamically during the point of engagement of belt and pulley. While the radial point of tooth engagement is constantly shifting and the "arc" shaped timing belt tooth passes the pulley centerline, the succeeding tooth is already engaged and avoids tooth snapping into the pulley tooth gap. This results in smooth self-tracking intermeshing and leads to optimal drive characteristics by reducing the polygonal surface of belt and pulley. This also leads to reduced vibration and less noise which is of high importance in today's high demanding design criteria.



TOOTH PROFILE

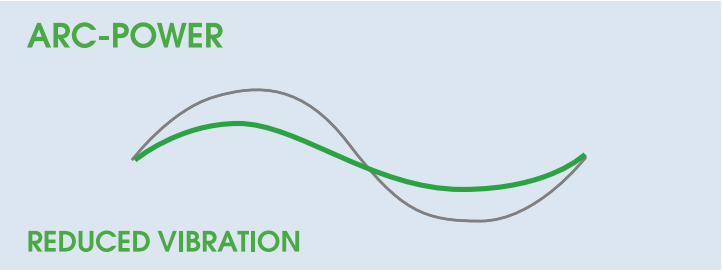
- The high torque BAT10 tooth pitch meets the wide range of today's demanding high-tech applications and timing belt designs.

TOOTH SHAPE

- The circular "arc" tooth shape has been scientifically developed to optimize belt and pulley meshing, therefore improving the dynamics and drive performance.

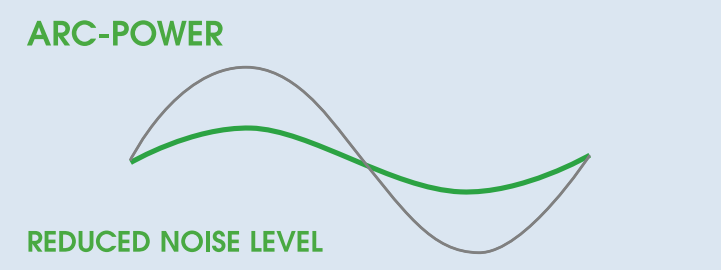
REDUCED POLYGON EFFECT

- The polygonal effect in a timing belt drive induces belt oscillation. ARC-POWER substantially reduces vibration due to the unique meshing of timing belt and pulleys at the point of engagement.



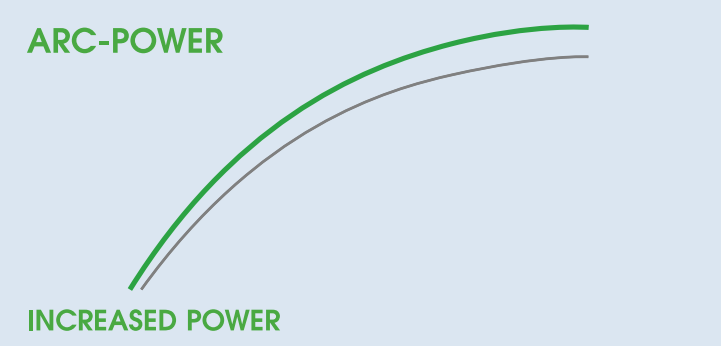
REDUCED NOISE LEVEL

- The "arc" tooth design prevents "noise" created by compressed air. The self-tracking feature of ARC-POWER further eliminates noise due to the absence of pulley flange friction.



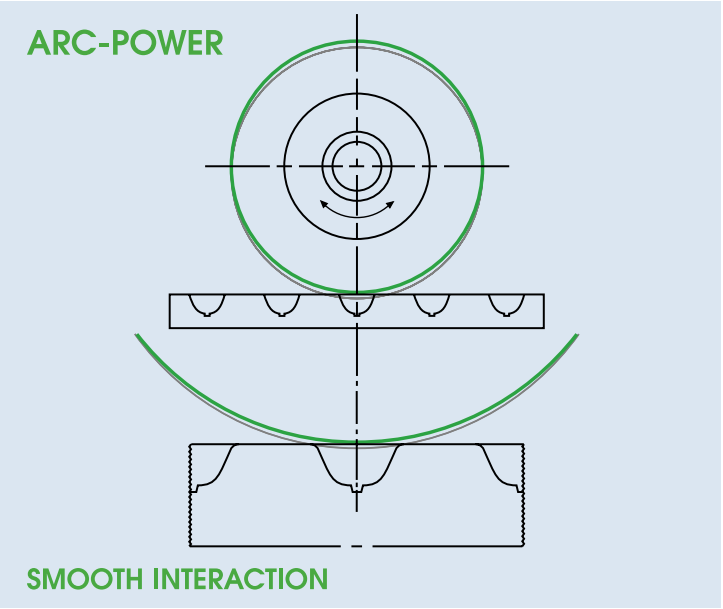
IMPROVED STRENGTH AND POWER

- ARC-POWER offers increased tooth shear strength of up to 10% (depending on belt width). Sources of friction are minimized by the reduced polygonal effect, decreased tooth friction and the elimination of pulley flange interference.



SMOOTHER IDLER/TENSIONER INTERACTION

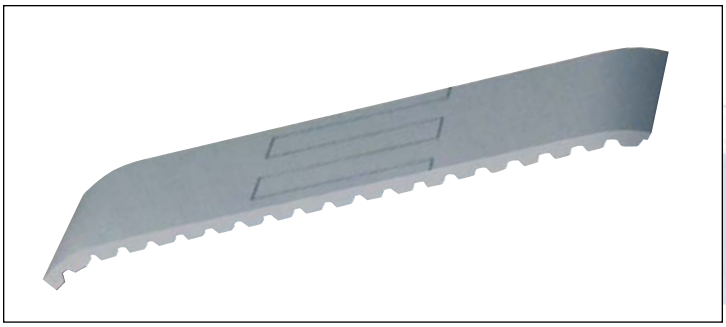
- The circular ARC-POWER tooth shape permits quiet and vibration-free operation with flat idlers and tensioners running on the toothed side of the timing belt. This is due to the unique overlapping tooth arrangement, which provides for a smooth running surface (tooth gaps do not impede operation).



PRODUCT RANGE

ARC-POWER timing belts are available as open ended and endless belts. Endless belts are available in wel
Shore A) and high strength steel cord or Kevlar® tension members. They are universally suitable for all appli

OPEN ENDED & WELDED - BRECO

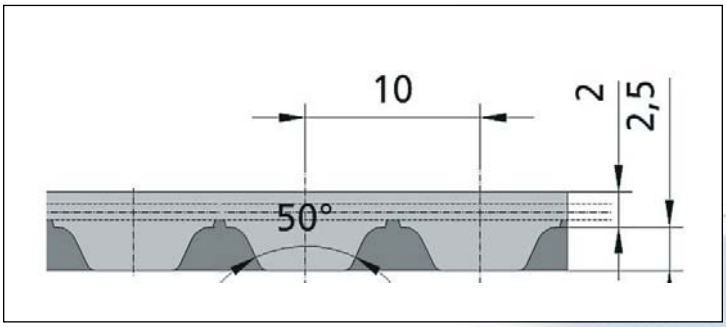


BELT WIDTHS in millimeters						
OPEN ENDED	M:	25	32	50	75	100
WELDED	V:	25	32	50	75	100

M – Rolls of 50 and 100 meters standard
Cut lengths available
V – Length to be specified
Minimum Belt Length: 880 mm

STANDARD

92 Shore A
Without Facings



AVAILABLE NYLON FACINGS

Nylon Fabric – Tooth Side = PAZ
Nylon Fabric – Belt Back = PAR
Nylon Fabric – Both Sides = PAZ – PAR

ORDERING EXAMPLE – BRECO TIMING BELTS

50 BAT10 / 8000 V PAZ

Belt Width
Type/Pitch
Length
Joined Length – V ; Open Ended – M
Nylon Facing – (Optional)

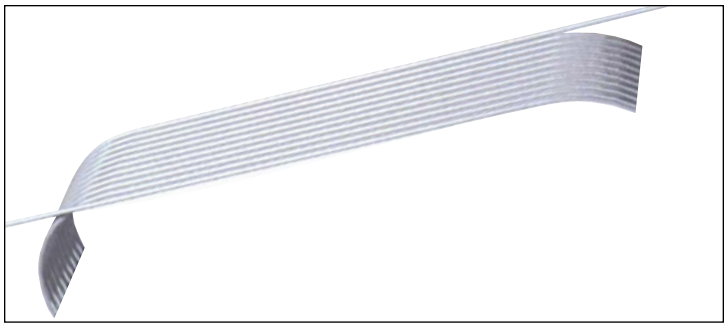
ded and truly endless. ARC-POWER belts are constructed of abrasion resistant polyurethane (Standard: 92
cations in power transmission conveying and linear drives.

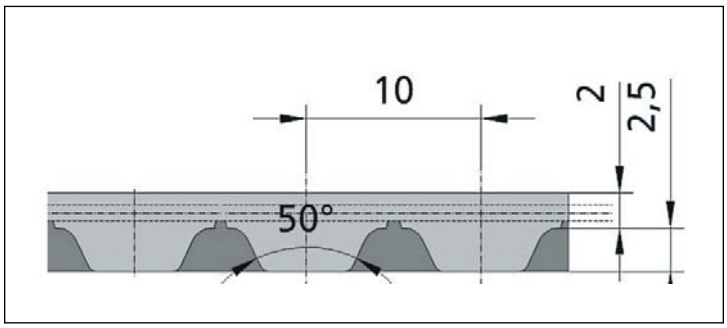
TRULY ENDLESS – BRECOFLEX (HOMOGENEOUS – NO SPLICE)

BELT WIDTHS in millimeters						
BRECOFLEX	BFX:	25	32	50	75	100

STANDARD BELT LENGTHS*					
Type/ Pitch	Length in mm	No. of Teeth	Type/ Pitch	Length in mm	No. of Teeth
BAT 10	1100	110	BAT 10	2240	224
BAT 10	1150	115	BAT 10	2500	250
BAT 10	1210	121	BAT 10	2800	280
BAT 10	1240	124	BAT 10	3000	300
BAT 10	1250	125	BAT 10	3550	355
BAT 10	1320	132	BAT 10	4000	400
BAT 10	1400	140	BAT 10	4500	450
BAT 10	1500	150	BAT 10	5000	500
BAT 10	1600	160	BAT 10	5600	560
BAT 10	1700	170	BAT 10	6000	600
BAT 10	1800	180	BAT 10	6700	670
BAT 10	1900	190	BAT 10	7100	710
BAT 10	2000	200	BAT 10	7500	750

Min. Length: 1100 mm - (50mm width: 720mm)
Max. Length: 20000 mm
* In-between lengths available
in increments of 10 mm





AVAILABLE NYLON FACING

Nylon Facing – Tooth Side Only = PAZ

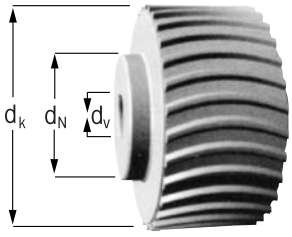
ORDERING EXAMPLE – BRECOFLEX TIMING BELTS

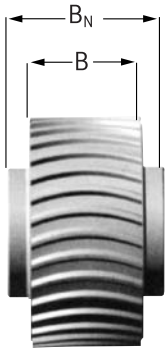
50 BAT10 / 2000 BFX PAZ

- Belt Width
- Type/Pitch
- Length
- Truly Endless
- Nylon Facing – (Optional)

ALUMINUM PULLEYS

Pulleys are always supplied with hubs on both sides





1 For customized non-symmetric pulleys, i.e., with hubs, counterbores, bushings, etc., consider the running directions.

2 The arc direction must be the same for all pulleys in the system.

3 For one-directional drives, it is recommended that the belt running direction points towards the convex arc shape. See illustration on page 2.

TOOTH TYPE	NUMBER OF TEETH	OUTSIDE DIAMETER	FACE WIDTH	WIDTH W/2 HUBS	PILOT BORE	HUB SIZE	PART NUMBERS
BAT 10	Z	d_K	B	B_N	d_V	d_N	
BELT WIDTH= 25 mm	20	61.84	30	40	12	46X5	LS 40 BAT10 / 20 hubs 46X5
	22	68.21	30	40	12	53X5	LS 40 BAT10 / 22 hubs 53X5
	24	74.57	30	40	12	58X5	LS 40 BAT10 / 24 hubs 58X5
	25	77.76	30	40	12	59X5	LS 40 BAT10 / 25 hubs 59X5
	27	84.12	30	40	12	64X5	LS 40 BAT10 / 27 hubs 64X5
	30	93.67	30	40	12	73X5	LS 40 BAT10 / 30 hubs 73X5
	32	100.04	30	40	12	80X5	LS 40 BAT10 / 32 hubs 80X5
	36	112.77	30	40	16	92X5	LS 40 BAT10 / 36 hubs 92X5
	40	125.50	30	40	16	105X5	LS 40 BAT10 / 40 hubs 105X5
	48	150.97	30	40	20	130X5	LS 40 BAT10 / 48 hubs 130X5
	60	189.17	30	40	20	169X5	LS 40 BAT10 / 60 hubs 169X5
BAT 10							
BELT WIDTH= 32 mm	20	61.84	37	47	12	46X5	LS 47 BAT10 / 20 hubs 46X5
	22	68.21	37	47	12	53X5	LS 47 BAT10 / 22 hubs 53X5
	24	74.57	37	47	12	58X5	LS 47 BAT10 / 24 hubs 58X5
	25	77.76	37	47	12	59X5	LS 47 BAT10 / 25 hubs 59X5
	27	84.12	37	47	12	64X5	LS 47 BAT10 / 27 hubs 64X5
	30	93.67	37	47	12	73X5	LS 47 BAT10 / 30 hubs 73X5
	32	100.04	37	47	12	80X5	LS 47 BAT10 / 32 hubs 80X5
	36	112.77	37	47	16	92X5	LS 47 BAT10 / 36 hubs 92X5
	40	125.50	37	47	16	105X5	LS 47 BAT10 / 40 hubs 105X5
	48	150.97	37	47	20	130X5	LS 47 BAT10 / 48 hubs 130X5
	60	189.17	37	47	20	169X5	LS 47 BAT10 / 60 hubs 169X5
BAT 10							
BELT WIDTH = 50 mm	20	61.84	55	65	12	46X5	LS 65 BAT10 / 20 hubs 46X5
	22	68.21	55	65	12	53X5	LS 65 BAT10 / 22 hubs 53X5
	24	74.57	55	65	12	58X5	LS 65 BAT10 / 24 hubs 58X5
	25	77.76	55	65	12	59X5	LS 65 BAT10 / 25 hubs 59X5
	27	84.12	55	65	12	64X5	LS 65 BAT10 / 27 hubs 64X5
	30	93.67	55	65	12	73X5	LS 65 BAT10 / 30 hubs 73X5
	32	100.04	55	65	12	80X5	LS 65 BAT10 / 32 hubs 80X5
	36	112.77	55	65	16	92X5	LS 65 BAT10 / 36 hubs 92X5
	40	125.50	55	65	16	105X5	LS 65 BAT10 / 40 hubs 105X5
	48	150.97	55	65	20	130X5	LS 65 BAT10 / 48 hubs 130X5
	60	189.17	55	65	20	169X5	LS 65 BAT10 / 60 hubs 169X5

TOOTH TYPE	NUMBER OF TEETH	OUTSIDE DIAMETER	FACE WIDTH	WIDTH W/2 HUBS	PILOT BORE	HUB SIZE	PART NUMBERS
BAT 10	Z	d_K	B	B_N	d_V	d_N	
BELT WIDTH = 75 mm	20	61.84	80	90	12	46X5	LS 90 BAT10 / 20 hubs 46X5
	22	68.21	80	90	12	53X5	LS 90 BAT10 / 22 hubs 53X5
	24	74.57	80	90	12	58X5	LS 90 BAT10 / 24 hubs 58X5
	25	77.76	80	90	12	59X5	LS 90 BAT10 / 25 hubs 59X5
	27	84.12	80	90	12	64X5	LS 90 BAT10 / 27 hubs 64X5
	30	93.67	80	90	12	73X5	LS 90 BAT10 / 30 hubs 73X5
	32	100.04	80	90	12	80X5	LS 90 BAT10 / 32 hubs 80X5
	36	112.77	80	90	16	92X5	LS 90 BAT10 / 36 hubs 92X5
	40	125.50	80	90	16	105X5	LS 90 BAT10 / 40 hubs 105X5
	48	150.97	80	90	20	130X5	LS 90 BAT10 / 48 hubs 130X5
	60	189.17	80	90	20	169X5	LS 90 BAT10 / 60 hubs 169X5
BAT 10							
BELT WIDTH = 100 mm	20	61.84	105	115	12	46X5	LS 115 BAT10 / 20 hubs 46X5
	22	68.21	105	115	12	53X5	LS 115 BAT10 / 22 hubs 53X5
	24	74.57	105	115	12	58X5	LS 115 BAT10 / 24 hubs 58X5
	25	77.76	105	115	12	59X5	LS 115 BAT10 / 25 hubs 59X5
	27	84.12	105	115	12	64X5	LS 115 BAT10 / 27 hubs 64X5
	30	93.67	105	115	12	73X5	LS 115 BAT10 / 30 hubs 73X5
	32	100.04	105	115	12	80X5	LS 115 BAT10 / 32 hubs 80X5
	36	112.77	105	115	16	92X5	LS 115 BAT10 / 36 hubs 92X5
	40	125.50	105	115	16	105X5	LS 115 BAT10 / 40 hubs 105X5
	48	150.97	105	115	20	130X5	LS 115 BAT10 / 48 hubs 130X5
	60	189.17	105	115	20	169X5	LS 115 BAT10 / 60 hubs 169X5

All dimensions in millimeters

MINIMUM PULLEY SIZES

- Standard Belt Drive . . . . . Z_{min} = 20
- Belt Drive with Idler running on tooth side
  Toothed Pulley . . . . . Z_{min} = 20
  Flat Idler . . . . . dia. min. = 80 mm
- Belt Drive with Idler running on belt back
  Toothed Pulley . . . . . Z_{min} = 25
  Flat Idler . . . . . dia. min. = 120 mm

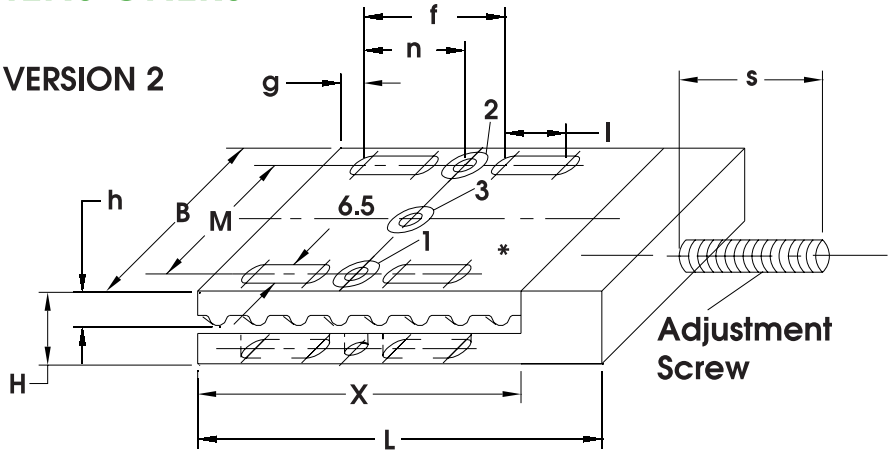
ORDERING EXAMPLE – ALUMINUM PULLEYS

LS 115 BAT10 / 25 hub 59x5 d_V=12

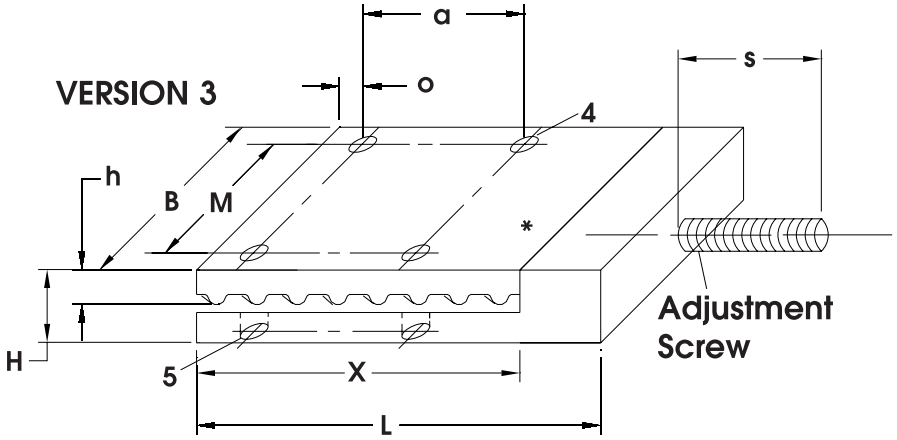
- Part Number
- Width with Hub B_N
- Type/Pitch
- Number of Teeth
- Hub Size
- Pilot Bore

TENSIONERS

VERSION 2



VERSION 3



*TOOTHED COVER PLATES
reversible for opposite direction

PART NUMBERS	BELT WIDTHS	B	M	L	X	a	H	h	l	f	n	o	g	s	1	2	3	4	5	ADJ. SCREW
BT50 x 90 BAT 10	25	50	37	90	70	40	22	10	15	35	25	15	10	65	M5	M5	–	6.5	M6	M8
BT60 x 90 BAT 10	32	60	44												M5	M5	–			
BT75 x 90 BAT 10	50	75	62												M5	M5	–			
BT110 x 90 BAT 10	75	110	94												M6	M6	–			
BT130 x 90 BAT 10	100	130	114	90	70	40	22	10	15	35	25	15	10	65	M6	M6	M8	6.5	M6	M10

ALL DIMENSIONS IN MILLIMETERS

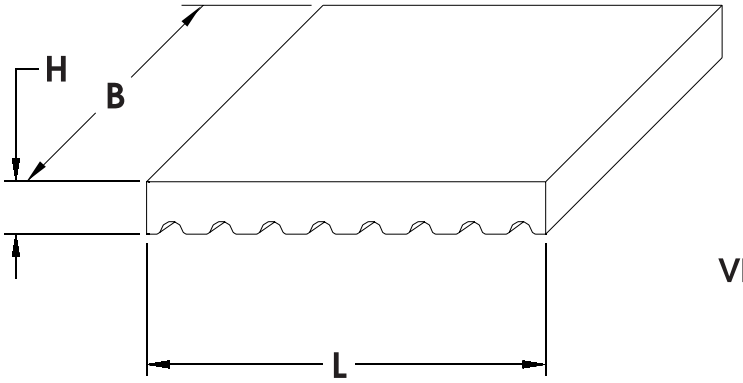
ORDERING EXAMPLE – TENSIONERS

BT 75x90 BAT10 3

- Part Number
- Width
- Length
- Type/Pitch
- Version 2 or 3

CLAMPS

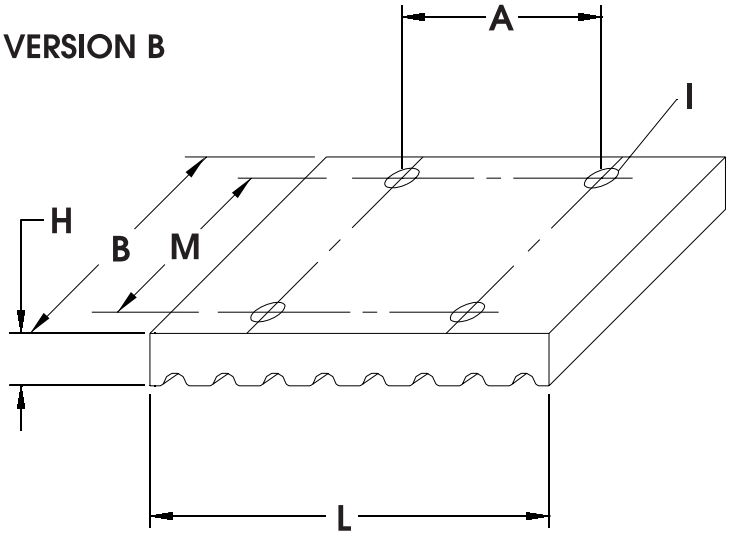
VERSION O



Clamp without holes

SINGLE SIDED CLAMPS
also available

VERSION B



Clamp with mounting holes

PART NUMBERS	BELT WIDTHS	B	M	L	A	H	I
BC50 x 160 BAT 10	25	50	38				
BC60 x 160 BAT 10	32	60	46				
BC75 x 160 BAT 10	50	75	62	160	110	10	6.5
BC110 x 160 BAT 10	75	110	94				
BC140 x 160 BAT 10	100	140	124				

ALL DIMENSIONS IN MILLIMETERS

ORDERING EXAMPLE – CLAMPS

BC 75x160 BAT10 B

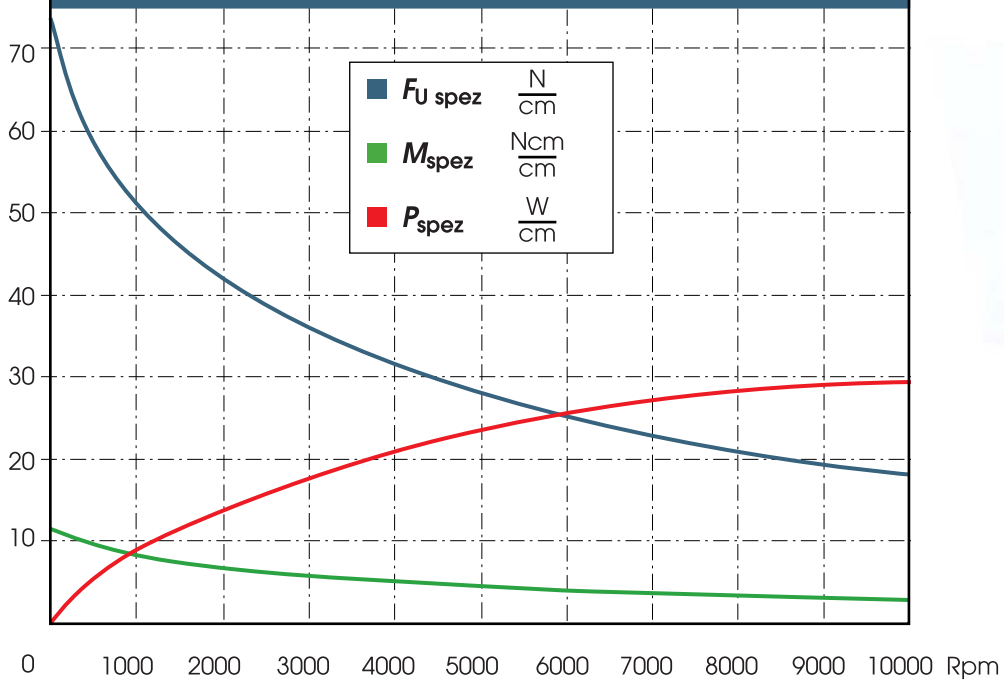
- Part Number
- Width
- Length
- Type/Pitch
- Version O or B

TOOTH SHEAR STRENGTH

SPECIFIC TOOTH SHEAR STRENGTH TABLES

Rpm. n (min^{-1})	BAT10 $F_{u\,spez}$ ($\frac{N}{cm}$)	BAT10 M_{spez} ($\frac{Ncm}{cm}$)	BAT10 P_{spez} ($\frac{W}{cm}$)	Rpm. n (min^{-1})	BAT10 $F_{u\,spez}$ ($\frac{N}{cm}$)	BAT10 M_{spez} ($\frac{Ncm}{cm}$)	BAT10 P_{spez} ($\frac{W}{cm}$)
0	77.91	12.40	0.00	2000	42.72	6.81	14.25
20	76.74	12.22	0.26	2200	41.34	6.57	15.16
40	75.68	12.05	0.50	2400	40.07	6.37	16.01
60	74.73	11.88	0.75	2600	38.80	6.18	16.81
80	73.78	11.73	0.98	2800	37.63	6.00	17.57
100	72.82	11.60	1.21	3000	36.57	5.83	18.31
200	68.90	10.97	2.30	3200	35.62	5.67	19.00
300	65.83	10.47	3.29	3400	34.66	5.51	19.64
400	63.07	10.05	4.21	3600	33.81	5.37	20.26
500	60.84	9.68	5.07	3800	32.97	5.24	20.85
600	58.83	9.36	5.88	4000	32.12	5.11	21.41
700	56.92	9.06	6.65	4500	30.53	4.81	22.68
800	55.33	8.81	7.38	5000	28.51	4.55	23.85
900	53.85	8.56	8.08	5500	27.03	4.30	24.80
1000	52.47	8.35	8.75	6000	25.65	4.08	25.65
1100	51.20	8.15	9.39	6500	24.38	3.87	26.39
1200	50.03	7.96	10.01	7000	23.11	3.68	27.03
1300	48.97	7.79	10.60	7500	22.05	3.50	27.56
1400	47.91	7.62	11.17	8000	20.96	3.34	27.98
1500	46.96	7.46	11.73	8500	19.97	3.18	28.30
1600	46.00	7.32	12.26	9000	19.03	3.03	28.51
1700	45.16	7.19	12.78	9500	18.15	2.88	28.73
1800	44.31	7.05	13.29	10000	17.30	2.76	28.83
1900	43.46	6.92	13.78				

SPECIFIC TOOTH SHEAR STRENGTH GRAPH



CALCULATION

To calculate belt load ratings, enter the values from the table into the equations.

Peripheral Force

$$F_U = F_{U\,spez} \cdot z_e \cdot b \quad \text{in N}$$

Torque

$$M = \frac{M_{spez} \cdot z_1 \cdot z_e \cdot b}{100} \quad \text{in Nm}$$

Power

$$P = \frac{P_{spez} \cdot z_1 \cdot z_e \cdot b}{1000} \quad \text{in kW}$$

$F_{U\,spez}$ Specific peripheral force in $\frac{N}{cm}$

M_{spez} Specific torque in $\frac{Ncm}{cm}$

P_{spez} Specific power in $\frac{W}{cm}$

z_1 No. of teeth on the small pulley

z_e No. of teeth in mesh

$z_{e\,max}$ = 6 for BRECO Welded belts

$z_{e\,max}$ = 12 for BRECOFLEX and BRECO Open Ended belts

b Belt width in cm

TENSILE STRENGTH OF TENSION MEMBER

Allowable tensile load on belt cross section, $F_{zul.}$ in N

BELT WIDTH in mm		25	32	50	75	100
Open Ended BRECO	M	3750	5000	7500	12000	16000
Welded BRECO	V	1875	2500	3750	6000	8500
Truly Endless BRECOFLEX	BFX	3500	4750	7750	12000	16000

ADVANTAGES

- Smooth Meshing of Belt and Pulleys
- Less Vibration
- Reduced Noise Level
- Self-Tracking, No Flanges
- Decreased Polygonal Effect
- No Lateral Movement
- Increased Power Range
- Improved Repeatability
- Friction Reduced Tracking
- Smooth Idler Interaction
- More Compact Design
- All Toothed Pulleys Track Belt
- Tangential Belt Drive Possible
- Ideal for Multiple Shaft/Roller Drives

APPLICATIONS

ARC-POWER timing belts are the preferred choice for

- Linear Drive Technology
- Power Transmission Applications
- Conveying
- Indexing
- Positioning and Driving Applications

BRECOflex CO., L.L.C.

High Precision Drive Components

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