

AT10, ATK10, BAT10, SFAT10 TECHNICAL DATA

Tooth shear strength, tension member tensile strength and flexibility determine belt dimensions. See p.102.

1) Tooth Shear Strength

The belt width (in cm) required to transmit known peripheral force F_U , torque M or power P without exceeding the maximum allowable tooth shear strength is calculated using any of the following formulae and the values from the table:

$$b = \frac{F_U}{z_e \cdot F_{U\text{spez}}}$$

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

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

b = belt width (in cm)

$F_{U\text{spez}}$ = specific peripheral force(N/cm)

M_{spez} = specific torque (Ncm/cm)

P_{spez} = specific power (W/cm)

z_1 = No. of teeth on the small pulley

z_2 = No. of teeth in the large pulley

t = pitch in mm

a = centre distance in mm

z_e = No. of teeth in mesh (see below)

$z_{e\text{max}} = 12$ for Brecoflex®,Synchroflex®
or Breco® M

$z_{e\text{max}} = 6$ for Breco® V timing belts

To calculate the number of teeth in mesh, z_e :

$$z_e = \frac{z_1}{180} \cdot \text{arc cos} \frac{(z_2 - z_1) \cdot t}{2\pi a}$$

Specific Tooth Shear Strength Tables

Rpm, n (min ⁻¹)	$F_{U\text{spez}}$ (N/cm)	M_{spez} (Ncm/cm)	P_{spez} (W/cm)	Rpm, n (min ⁻¹)	$F_{U\text{spez}}$ (N/cm)	M_{spez} (Ncm/cm)	P_{spez} (W/cm)	Rpm, n (min ⁻¹)	$F_{U\text{spez}}$ (N/cm)	M_{spez} (Ncm/cm)	P_{spez} (W/cm)
0	73.50	11.700	0.000	1100	48.30	7.690	8.860	3200	33.60	5.350	17.920
20	72.40	11.530	0.241	1200	47.20	7.510	9.440	3400	32.70	5.200	18.530
40	71.40	11.370	0.476	1300	46.20	7.350	10.000	3600	31.90	5.070	19.110
60	70.50	11.210	0.705	1400	45.20	7.190	10.540	3800	31.10	4.940	19.670
80	69.60	11.070	0.928	1500	44.30	7.040	11.070	4000	30.30	4.820	20.200
100	68.70	10.940	1.145	1600	43.40	6.910	11.570	4500	28.50	4.540	21.400
200	65.00	10.350	2.170	1700	42.60	6.780	12.070	5000	26.90	4.290	22.500
300	62.10	9.880	3.100	1800	41.80	6.650	12.540	5500	25.50	4.060	23.400
400	59.50	9.480	3.970	1900	41.00	6.530	13.000	6000	24.20	3.850	24.200
500	57.40	9.130	4.780	2000	40.30	6.420	13.440	6500	23.00	3.650	24.900
600	55.50	8.830	5.550	2200	39.00	6.200	14.300	7000	21.80	3.470	25.500
700	53.70	8.550	6.270	2400	37.80	6.010	15.100	7500	20.80	3.300	26.000
800	52.20	8.310	6.960	2600	36.60	5.830	15.860	8000	19.80	3.150	26.400
900	50.80	8.080	7.620	2800	35.50	5.660	16.580	9000	17.90	2.860	26.900
1000	49.50	7.880	8.250	3000	34.50	5.500	17.270	10000	16.30	2.600	27.200

For designs over the quoted speed, please contact our Technical Department

2) Tensile Strength of Tension Member

Allowable tensile load F_{zul} on belt cross section in Newtons

BELT WIDTH (in mm)	10	16	25	32	50	75	100	150
Synchroflex	1480	2000	3500	4750	7750	12000	16000	24500
Breco M	–	–	4250	5500	8500	12750	17000	22000
Breco V	–	–	2125	2750	4250	6375	8500	11000
Brecoflex	–	–	3500	4750	7750	12000	16000	24500