

L 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	37.40	5.670	0.000	1100	22.20	3.370	3.880	3200	16.02	2.430	8.140
20	36.30	5.500	0.115	1200	21.70	3.290	4.140	3400	15.66	2.370	8.450
40	35.30	5.350	0.224	1300	21.30	3.220	4.390	3600	15.32	2.320	8.760
60	34.50	5.230	0.329	1400	20.80	3.160	4.630	3800	15.00	2.270	9.050
80	33.80	5.120	0.429	1500	20.40	3.100	4.870	4000	14.69	2.230	9.330
100	33.10	5.020	0.526	1600	20.10	3.040	5.100	4500	13.99	2.120	9.990
200	30.70	4.650	0.974	1700	19.72	2.990	5.320	5000	13.36	2.030	10.610
300	28.90	4.380	1.377	1800	19.39	2.940	5.540	5500	12.79	1.939	11.170
400	27.50	4.180	1.749	1900	19.08	2.890	5.750	6000	12.27	1.860	11.690
500	26.40	4.010	2.100	2000	18.78	2.850	5.960	6500	11.79	1.787	12.160
600	25.50	3.860	2.430	2200	18.22	2.760	6.370	7000	11.34	1.719	12.600
700	24.70	3.740	2.740	2400	17.71	2.690	6.750	7500	10.39	1.656	13.010
800	24.00	3.630	3.040	2600	17.25	2.610	7.120	8000	10.54	1.597	13.380
900	23.30	3.530	3.330	2800	16.81	2.550	7.470	9000	9.83	1.490	14.040
1000	22.70	3.450	3.610	3000	16.40	2.490	7.810	10000	9.19	1.393	14.590

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 hundredths of an inch)	037	050	075	100	150	200	300	400
Synchroflex	-	-	-	-	-	-	-	-
Breco M	630	840	1260	1680	2520	3150	-	-
Breco V	315	420	630	840	1260	1570	-	-
Brecoflex	420	630	1050	1470	2240	3080	4690	6300