

K1.5 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	6.45	0.154	0.000	1100	4.00	0.095	0.110	3200	3.11	0.074	0.249
20	6.23	0.149	0.003	1200	3.93	0.094	0.118	3400	3.06	0.073	0.260
40	6.06	0.145	0.006	1300	3.87	0.092	0.126	3600	3.01	0.072	0.271
60	5.91	0.141	0.009	1400	3.81	0.091	0.133	3800	2.96	0.071	0.281
80	5.79	0.139	0.012	1500	3.75	0.090	0.141	4000	2.92	0.070	0.292
100	5.68	0.136	0.014	1600	3.69	0.088	0.148	5000	2.73	0.065	0.341
200	5.28	0.126	0.026	1700	3.64	0.087	0.155	6000	2.57	0.061	0.385
300	5.00	0.119	0.037	1800	3.60	0.086	0.162	7000	2.44	0.058	0.427
400	4.80	0.115	0.048	1900	3.55	0.085	0.169	8000	2.33	0.056	0.466
500	4.63	0.111	0.058	2000	3.51	0.084	0.175	9000	2.22	0.053	0.499
600	4.49	0.107	0.067	2200	3.43	0.082	0.189	10000	2.13	0.051	0.532
700	4.37	0.104	0.076	2400	3.35	0.080	0.201	12000	1.98	0.047	0.594
800	4.26	0.102	0.085	2600	3.29	0.079	0.214	15000	1.78	0.042	0.667
900	4.17	0.100	0.094	2800	3.22	0.077	0.225	18000	1.63	0.039	0.733
1000	4.08	0.097	0.102	3000	3.17	0.076	0.238	20000	1.54	0.037	0.770

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)	4	6	10	16	25	32
Synchroflex	39	65	117	195	312	403
Breco M	-	-	-	-	-	-
Breco V	-	-	-	-	-	-
Brecoflex	-	-	-	-	-	-