

**T10, TK10 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)

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

$P_{\text{spez}}$  = 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 <sup>-1</sup> )	$F_{U\text{spez}}$ (N/cm)	$M_{\text{spez}}$ (Ncm/cm)	$P_{\text{spez}}$ (W/cm)	Rpm, n (min <sup>-1</sup> )	$F_{U\text{spez}}$ (N/cm)	$M_{\text{spez}}$ (Ncm/cm)	$P_{\text{spez}}$ (W/cm)	Rpm, n (min <sup>-1</sup> )	$F_{U\text{spez}}$ (N/cm)	$M_{\text{spez}}$ (Ncm/cm)	$P_{\text{spez}}$ (W/cm)
0	50.50	8.040	0.000	1100	30.00	4.770	5.500	3200	21.70	3.450	11.550
20	49.00	7.800	0.163	1200	29.30	4.670	5.870	3400	21.20	3.360	11.990
40	47.70	7.600	0.318	1300	28.70	4.570	6.220	3600	20.70	3.300	12.420
60	46.60	7.420	0.466	1400	28.20	4.480	6.570	3800	20.30	3.230	12.840
80	45.70	7.270	0.609	1500	27.60	4.400	6.910	4000	19.86	3.160	13.240
100	44.80	7.130	0.746	1600	27.10	4.320	7.230	4500	18.91	3.010	14.180
200	41.40	6.600	1.381	1700	26.70	4.240	7.550	5000	18.06	2.870	15.050
300	39.10	6.220	1.953	1800	26.20	4.170	7.860	5500	17.28	2.750	15.840
400	37.20	5.920	2.480	1900	25.80	4.100	8.160	6000	16.58	2.640	16.580
500	35.70	5.680	2.980	2000	25.40	4.040	8.460	6500	15.93	2.540	17.260
600	34.40	5.480	3.440	2200	24.60	3.920	9.030	7000	15.33	2.440	17.880
700	33.30	5.310	3.890	2400	23.90	3.810	9.580	7500	14.76	2.350	18.460
800	32.40	5.020	4.320	2600	23.30	3.710	10.100	8000	14.24	2.270	18.990
900	31.50	5.010	4.730	2800	22.70	3.620	10.600	9000	13.28	2.110	19.920
1000	30.70	4.890	5.120	3000	22.20	3.530	11.080	10000	12.42	1.980	20.700

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	-	1200	2000	2700	4300	6600	8800	13400
Breco M	-	1300	2400	2600	4200	4900	6800	-
Breco V	-	650	1200	1300	2100	2450	3400	-
Brecoflex	-	1000	1800	2300	3800	5800	7800	-