

Technical Data Sheet

optibelt ALPHA POWER T10 - ST

PU Timing Belt, Cast Polyurethane, Endless

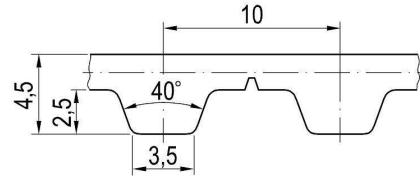


Dimensions, Tolerances

Profile:	T10
Tooth pitch t:	10 mm
Total thickness:	4.5 mm
Tooth height:	2.5 mm
Tooth tip width:	3.5 mm
Tooth flank angle:	40°
Length tolerance:	See table
Width tolerance, b ≤ 50 mm:	±0.5 mm
Thickness tolerance:	±0.3 mm

Construction

Polyurethane: Thermoset, 86 +/-4 Shore A, grey
Tension cord: Steel, Ø 0.6 mm



Specific nominal power transmittable per tooth

Speed, small pulley n _k [1/min]	Specific nom. power P _{N spez} [W/mm]	Speed, small pulley n _k [1/min]	Specific nom. power P _{N spez} [W/mm]	Speed, small pulley n _k [1/min]	Specific nom. power P _{N spez} [W/mm]
0 ¹	0.000	1200	0.760	3600	1.589
20	0.022	1300	0.806	3800	1.641
40 ²	0.042	1400	0.850	4000	1.690
60	0.062	1500	0.893	4500	1.807
80 ³	0.081	1600 ⁷	0.934	5000	1.913
100	0.099	1700	0.975	5500	2.010
200 ⁴	0.182	1800	1.014	6000	2.099
300	0.256	1900	1.053	6500	2.181
400 ⁵	0.324	2000	1.090	7000	2.255
500	0.388	2200	1.163	7500	2.324
600	0.449	2400	1.232	8000	2.385
700	0.506	2600	1.297	8500	2.440
800 ⁶	0.561	2800	1.361	9000	2.492
900	0.614	3000	1.421	9500	2.538
1000	0.664	3200 ⁸	1.479	10000	2.578
1100	0.713	3400	1.535	v _{max} = 60 m/s	

¹F_{N spez} [N/mm] 6.760 ²6.343 ³6.040 ⁴5.446 ⁵4.865 ⁶4.208 ⁷3.504 ⁸2.774

Nominal power P_N

$$P_N = P_{N\ spez} \cdot z_k \cdot z_{eB} \cdot b / 10^3 \quad [\text{kW}]$$

P_{N spez} Specific nominal power transmittable per tooth [W/mm]
z_k Number of teeth, small pulley
z_{eB} Number of teeth in mesh, small pulley, limited to z_{eB max}
z_{eB max} 12, maximum allowable no. of teeth
b Belt width [mm]

Nominal torque M_N

$$M_N = P_N \cdot 9.55 \cdot 10^3 / n_k \quad [\text{Nm}]$$

n_k Speed, small pulley [1/min]

Nominal tensile force F_N

$$F_N = F_{N\ spez} \cdot z_{eB} \cdot b \quad [\text{N}]$$

$$F_{N\ spez} = P_{N\ spez} \cdot 6 \cdot 10^4 / (n_k \cdot t) \quad [\text{N/mm}]$$

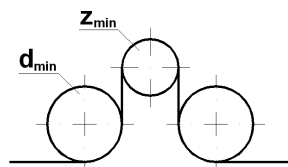
F_{N spez} Specific nominal tensile force transmittable per tooth [N/mm]
t Tooth pitch [mm]

Cord tensile forces, belt weight

Belt width ¹ b [mm]	10	12	16	20	25	32	50	75	100
Breaking strength F _{Br} [N]	3360	4200	5900	7600	9700	12600	20200	30700	41200
Allowable tensile force ² F _{zul} [N]	840	1050	1475	1900	2425	3150	5050	7675	10300
Weight per metre [kg/m]	0.046	0.055	0.074	0.092	0.115	0.147	0.230	0.345	0.460

¹ Other and intermediate widths possible ² Allowable tensile force F_{zul} equivalent to 25% breaking strength F_{Br} of the cords

Timing belt pulleys, inside and outside idlers



No. of teeth: z_{min} = 12
Pitch-Ø: d_{w min} = 38.20 mm
Plane, cylindrical idlers, Ø
Inside idler: d_{min} = 50 mm
Outside idler: d_{min} = 55 mm

Length tolerances, shown as centre distance tolerances

Length L _w [mm]	Tolerance a _{LTol} [mm]	Length L _w [mm]	Tolerance a _{LTol} [mm]
≤ 305	± 0.14	> 780 ≤ 990	± 0.28
> 305 ≤ 390	± 0.16	> 990 ≤ 1250	± 0.32
> 390 ≤ 525	± 0.18	> 1250 ≤ 1560	± 0.38
> 525 ≤ 630	± 0.21	> 1560 ≤ 1960	± 0.44
> 630 ≤ 780	± 0.24	> 1960 ≤ 2350	± 0.52