

Technical Data Sheet

optibelt ALPHA TORQUE T10 - RF

PU Timing Belt, Cast Polyurethane, Endless

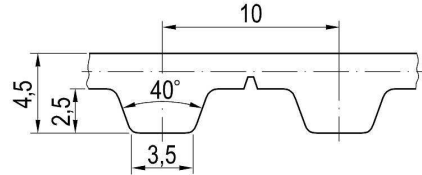


Dimensions, Tolerances

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, 84 +/- 4 Shore A, transparent
 Tension cord: Stainless 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	0.000	1200	0.585	3600	1.222
20	0.017	1300	0.620	3800	1.262
40	0.033	1400	0.654	4000	1.300
60	0.048	1500	0.687	4500	1.390
80	0.062	1600	0.719	5000	1.472
100	0.076	1700	0.750	5500	1.546
200	0.140	1800	0.780	6000	1.615
300	0.197	1900	0.810	6500	1.678
400	0.249	2000	0.839	7000	1.735
500	0.299	2200	0.894	7500	1.787
600	0.345	2400	0.948	8000	1.835
700	0.389	2600	0.998	8500	1.877
800	0.432	2800	1.047	9000	1.917
900	0.472	3000	1.093	9500	1.952
1000	0.511	3200	1.138	10000	1.983
1100	0.548	3400	1.181	v _{max} = 60 m/s	

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]

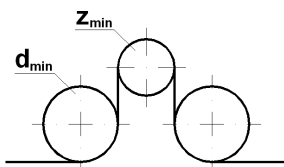
¹F_{N spez} [N/mm] 5.200 ²4.879 ³4.646 ⁴4.189 ⁵3.742 ⁶3.237 ⁷2.695 ⁸2.134

Cord tensile forces, belt weight

Belt width ¹ b [mm]	10	12	16	20	25	32	50	75	100
Breaking strength F _{Br} [N]	2700	3400	4800	6100	7800	10200	16400	24800	33400
Allowable tensile force ² F _{zul} [N]	675	850	1200	1525	1950	2550	4100	6200	8350
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} = 15
 Pitch-Ø: d_{w min} = 47.75 mm
 Plane, cylindrical idlers, Ø
 Inside idler: d_{min} = 60 mm
 Outside idler: d_{min} = 65 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

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