

Technical Data Sheet

optibelt ALPHA TORQUE T5 - ST

PU Timing Belt, Cast Polyurethane, Endless

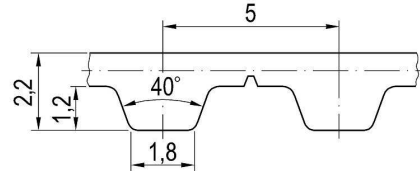


Dimensions, Tolerances

Profile:	T5
Tooth pitch t:	5 mm
Total thickness:	2.2 mm
Tooth height:	1.2 mm
Tooth tip width:	1.8 mm
Tooth flank angle:	40°
Length tolerance:	See table
Width tolerance, b ≤ 25 mm:	±0.5 mm
Thickness tolerance:	±0.15 mm

Construction

Polyurethane: Thermoset, 84 +/-4 Shore A, transparent
Tension cord: Steel, Ø 0.3 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	0.152	3600	0.347
20	0.004	1300	0.162	3800	0.361
40 ²	0.008	1400	0.171	4000	0.374
60	0.011	1500	0.181	4500	0.406
80 ³	0.015	1600 ⁷	0.190	5000	0.436
100	0.018	1700	0.199	5500	0.465
200 ⁴	0.034	1800	0.208	6000	0.492
300	0.048	1900	0.217	6500	0.519
400 ⁵	0.062	2000	0.225	7000	0.544
500	0.074	2200	0.242	7500	0.568
600	0.087	2400	0.258	8000	0.591
700	0.098	2600	0.274	8500	0.614
800 ⁶	0.110	2800	0.290	9000	0.636
900	0.121	3000	0.304	9500	0.656
1000	0.131	3200 ⁸	0.319	10000	0.677
1100	0.142	3400	0.333	v _{max} = 80 m/s	

¹F_{N spez} [N/mm] 2.450 ²2.317 ³2.222 ⁴2.035 ⁵1.852 ⁶1.646 ⁷1.425 ⁸1.196

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

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

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

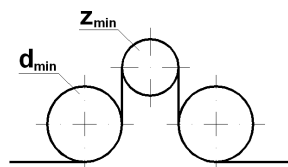
F_{N spez} Specific nominal tensile force transmittable per tooth [N/mm]
t Tooth pitch [mm]

Cord tensile forces, belt weight

Belt width ¹ b [mm]	6	10	12	16	20	25	32	50	75	100
Breaking strength F _{Br} [N]	880	1500	1880	2640	3360	4240	5500	8600	13200	17600
Allowable tensile force ² F _{zul} [N]	220	375	470	660	840	1060	1375	2150	3300	4400
Weight per metre [kg/m]	0.013	0.022	0.026	0.035	0.044	0.055	0.070	0.110	0.165	0.220

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} = 10
Pitch-Ø: d_{w min} = 15.92 mm
Plane, cylindrical idlers, Ø
Inside idler: d_{min} = 25 mm
Outside idler: d_{min} = 30 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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