

Technical Data Sheet

optibelt ALPHA POWER T5 - ST

PU Timing Belt, Cast Polyurethane, Endless

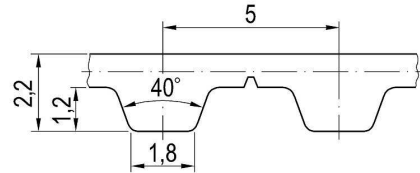


Dimensions, Tolerances

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, 86 +/-4 Shore A, grey
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	0.197	3600	0.451
20	0.005	1300	0.210	3800	0.469
40 ²	0.010	1400	0.223	4000	0.486
60	0.015	1500	0.235	4500	0.527
80 ³	0.019	1600 ⁷	0.247	5000	0.567
100	0.024	1700	0.259	5500	0.604
200 ⁴	0.044	1800	0.270	6000	0.640
300	0.063	1900	0.282	6500	0.675
400 ⁵	0.080	2000	0.293	7000	0.707
500	0.097	2200	0.315	7500	0.739
600	0.113	2400	0.336	8000	0.769
700	0.128	2600	0.357	8500	0.798
800 ⁶	0.143	2800	0.376	9000	0.827
900	0.157	3000	0.396	9500	0.853
1000	0.171	3200 ⁸	0.415	10000	0.880
1100	0.184	3400	0.433	v _{max} = 80 m/s	

¹F_{N spez} [N/mm] 3,185 ²3,012 ³2,889 ⁴2,646 ⁵2,408 ⁶2,140 ⁷1,853 ⁸1,555

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

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

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

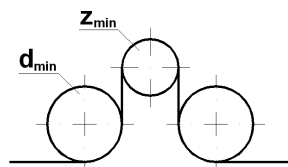
F _{N spez}	Specific nominal tensile force transmittable per tooth [N/mm]
t	Tooth pitch [mm]

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 _{L Tol} [mm]	Length L _w [mm]	Tolerance a _{L Tol} [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