

Technical Data Sheet

optibelt ALPHA TORQUE T10 - AV

PU Timing Belt, Cast Polyurethane, Endless

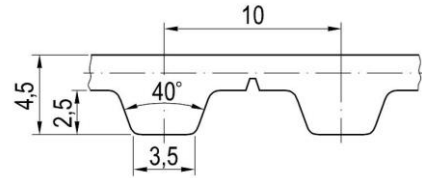


Dimensions, Tolerances

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 +/-2 Shore A, transparent
Tension cord: Vectran, Ø 0.7 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	0.585	3600	1.222
20	0.017	1300	0.620	3800	1.262
40 ²	0.033	1400	0.654	4000	1.300
60	0.048	1500	0.687	4500	1.390
80 ³	0.062	1600 ⁷	0.719	5000	1.472
100	0.076	1700	0.750	5500	1.546
200 ⁴	0.140	1800	0.780	6000	1.615
300	0.197	1900	0.810	6500	1.678
400 ⁵	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 ⁶	0.432	2800	1.047	9000	1.917
900	0.472	3000	1.093	9500	1.952
1000	0.511	3200 ⁸	1.138	10000	1.983
1100	0.548	3400	1.181	$v_{max} = 60\text{ m/s}$	

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]

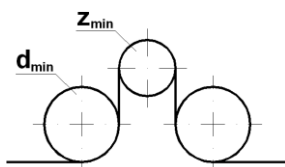
¹ $F_{N\ spez}$ [N/mm] 5.200 ²4.879 ³4.646 ⁴4.189 ⁵3.742 ⁶3.237 ⁷2.695 ⁸2.134

Cord tensile forces, belt weight

Belt width ¹ b [mm]	10	12	16	20	25	32	50	75	100
Breaking strength F_{Br} [N]	4950	6200	8650	11150	14250	18600	29750	45250	60750
Allowable tensile force ² F_{zul} [N]	990	1240	1730	2230	2850	3720	5950	9050	12150
Weight per metre [kg/m]	0,035	0,042	0,055	0,069	0,087	0,111	0,173	0,26	0,347

¹ Other and intermediate widths possible ² Allowable tensile force F_{zul} equivalent to 20% breaking strength F_{Br} of the cords

Timing belt pulleys, inside and outside idlers



No. of teeth: $z_{min} = 12$
Pitch-Ø: $d_{w\ min} = 38.20\text{ mm}$
Plane, cylindrical idlers, Ø
Inside idler: $d_{min} = 55\text{ mm}$
Outside idler: $d_{min} = 65\text{ mm}$

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 ≤ 2250	± 0.52