

# Technical Data Sheet

## optibelt ALPHA TORQUE T10 - ST

### PU Timing Belt, Cast Polyurethane, Endless

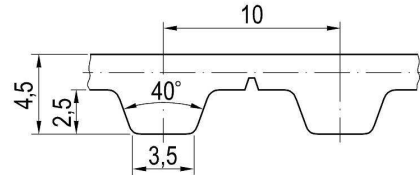


#### Dimensions, Tolerances

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, 84 +/-4 Shore A, transparent  
Tension cord: Steel, Ø 0.6 mm



#### Specific nominal power transmittable per tooth

Speed, small pulley n <sub>k</sub> [1/min]	Specific nom. power P <sub>N spez</sub> [W/mm]	Speed, small pulley n <sub>k</sub> [1/min]	Specific nom. power P <sub>N spez</sub> [W/mm]	Speed, small pulley n <sub>k</sub> [1/min]	Specific nom. power P <sub>N spez</sub> [W/mm]
0 <sup>1</sup>	0.000	1200	0.585	3600	1.222
20	0.017	1300	0.620	3800	1.262
40 <sup>2</sup>	0.033	1400	0.654	4000	1.300
60	0.048	1500	0.687	4500	1.390
80 <sup>3</sup>	0.062	1600 <sup>7</sup>	0.719	5000	1.472
100	0.076	1700	0.750	5500	1.546
200 <sup>4</sup>	0.140	1800	0.780	6000	1.615
300	0.197	1900	0.810	6500	1.678
400 <sup>5</sup>	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 <sup>6</sup>	0.432	2800	1.047	9000	1.917
900	0.472	3000	1.093	9500	1.952
1000	0.511	3200 <sup>8</sup>	1.138	10000	1.983
1100	0.548	3400	1.181	v <sub>max</sub> = 60 m/s	

<sup>1</sup>F<sub>N spez</sub> [N/mm] 5.200 <sup>2</sup>4.879 <sup>3</sup>4.646 <sup>4</sup>4.189 <sup>5</sup>3.742 <sup>6</sup>3.237 <sup>7</sup>2.695 <sup>8</sup>2.134

#### Nominal power P<sub>N</sub>

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

P <sub>N spez</sub>	Specific nominal power transmittable per tooth [W/mm]
z <sub>k</sub>	Number of teeth, small pulley
z <sub>eB</sub>	Number of teeth in mesh, small pulley, limited to z <sub>eB max</sub>
z <sub>eB max</sub>	12, maximum allowable no. of teeth
b	Belt width [mm]

#### Nominal torque M<sub>N</sub>

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

n<sub>k</sub> Speed, small pulley [1/min]

#### Nominal tensile force F<sub>N</sub>

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

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

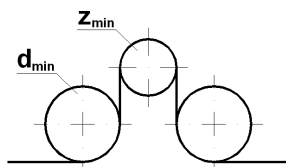
F <sub>N spez</sub>	Specific nominal tensile force transmittable per tooth [N/mm]
t	Tooth pitch [mm]

#### Cord tensile forces, belt weight

Belt width <sup>1</sup> b [mm]	10	12	16	20	25	32	50	75	100
Breaking strength F <sub>Br</sub> [N]	3360	4200	5900	7600	9700	12600	20200	30700	41200
Allowable tensile force <sup>2</sup> F <sub>zul</sub> [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

<sup>1</sup> Other and intermediate widths possible <sup>2</sup> Allowable tensile force F<sub>zul</sub> equivalent to 25% breaking strength F<sub>Br</sub> of the cords

#### Timing belt pulleys, inside and outside idlers



No. of teeth: z<sub>min</sub> = 12  
Pitch-Ø: d<sub>w min</sub> = 38.20 mm  
Plane, cylindrical idlers, Ø  
Inside idler: d<sub>min</sub> = 50 mm  
Outside idler: d<sub>min</sub> = 55 mm

#### Length tolerances, shown as centre distance tolerances

Length L <sub>w</sub> [mm]	Tolerance a <sub>LTol</sub> [mm]	Length L <sub>w</sub> [mm]	Tolerance a <sub>LTol</sub> [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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