

# Technical Data Sheet

## optibelt ALPHA TORQUE T5 - ST

### PU Timing Belt, Cast Polyurethane, Endless

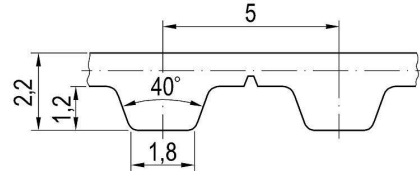


#### Dimensions, Tolerances

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 <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	0.152	3600	0.347
20	0.004	1300	0.162	3800	0.361
40 <sup>2</sup>	0.008	1400	0.171	4000	0.374
60	0.011	1500	0.181	4500	0.406
80 <sup>3</sup>	0.015	1600 <sup>7</sup>	0.190	5000	0.436
100	0.018	1700	0.199	5500	0.465
200 <sup>4</sup>	0.034	1800	0.208	6000	0.492
300	0.048	1900	0.217	6500	0.519
400 <sup>5</sup>	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 <sup>6</sup>	0.110	2800	0.290	9000	0.636
900	0.121	3000	0.304	9500	0.656
1000	0.131	3200 <sup>8</sup>	0.319	10000	0.677
1100	0.142	3400	0.333	v <sub>max</sub> = 80 m/s	

<sup>1</sup>F<sub>N spez</sub> [N/mm] 2.450 <sup>2</sup>2.317 <sup>3</sup>2.222 <sup>4</sup>2.035 <sup>5</sup>1.852 <sup>6</sup>1.646 <sup>7</sup>1.425 <sup>8</sup>1.196

#### 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>

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

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

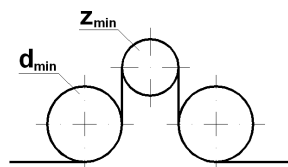
F<sub>N spez</sub> Specific nominal tensile force transmittable per tooth [N/mm]  
t Tooth pitch [mm]

#### Cord tensile forces, belt weight

Belt width <sup>1</sup> b [mm]	6	10	12	16	20	25	32	50	75	100
Breaking strength F <sub>Br</sub> [N]	880	1500	1880	2640	3360	4240	5500	8600	13200	17600
Allowable tensile force <sup>2</sup> F <sub>zul</sub> [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

<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> = 10  
Pitch-Ø: d<sub>w min</sub> = 15.92 mm  
Plane, cylindrical idlers, Ø  
Inside idler: d<sub>min</sub> = 25 mm  
Outside idler: d<sub>min</sub> = 30 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