

# Technical Data Sheet

## optibelt ALPHA TORQUE AT10 - ST

### PU Timing Belt, Cast Polyurethane, Endless

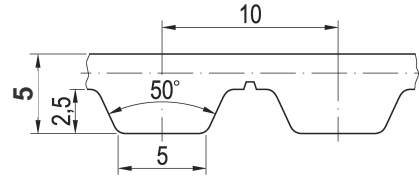


#### Dimensions, Tolerances

Profile:	AT10
Tooth pitch t:	10 mm
Total thickness:	5 mm
Tooth height:	2.5 mm
Tooth tip width:	5 mm
Tooth flank angle:	50°
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 0.9 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	0.947	3600	1.898
20	0.025	1300	1.002	3800	1.952
40 <sup>2</sup>	0.048	1400	1.056	4000	2.003
60	0.072	1500	1.108	4500	2.119
80 <sup>3</sup>	0.094	1600 <sup>7</sup>	1.158	5000	2.220
100	0.116	1700	1.207	5500	2.308
200 <sup>4</sup>	0.220	1800	1.253	6000	2.383
300	0.314	1900	1.299	6500	2.447
400 <sup>5</sup>	0.401	2000	1.343	7000	2.500
500	0.482	2200	1.427	7500	2.545
600	0.559	2400	1.506	8000	2.580
700	0.631	2600	1.581	8500	2.606
800 <sup>6</sup>	0.700	2800	1.652	9000	2.625
900	0.766	3000	1.718	9500	2.636
1000	0.828	3200 <sup>8</sup>	1.782	10000	2.640
1100	0.889	3400	1.842	v <sub>max</sub> = 60 m/s	

<sup>1</sup>F<sub>N spez</sub> [N/mm] 7.500 <sup>2</sup>7.273 <sup>3</sup>7.073 <sup>4</sup>6.590 <sup>5</sup>6.012 <sup>6</sup>5.250 <sup>7</sup>4.343 <sup>8</sup>3.341

#### 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>

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

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

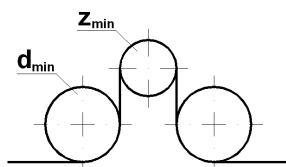
F<sub>N spez</sub> Specific nominal tensile force transmittable per tooth [N/mm]  
t Tooth pitch [mm]

#### 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]	4760	5700	8560	10500	14300	18100	29500	45600	62000
Allowable tensile force <sup>2</sup> F <sub>zul</sub> [N]	1190	1425	2140	2625	3575	4525	7375	11400	15500
Weight per metre [kg/m]	0.065	0.078	0.104	0.130	0.163	0.208	0.325	0.488	0.650

<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> = 15  
Pitch-Ø: d<sub>w min</sub> = 47.75 mm  
Plane, cylindrical idlers, Ø  
Inside idler: d<sub>min</sub> = 42 mm  
Outside idler: d<sub>min</sub> = 100 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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