

Technical Data Sheet

optibelt ALPHA TORQUE AT10 - ST

PU Timing Belt, Cast Polyurethane, Endless

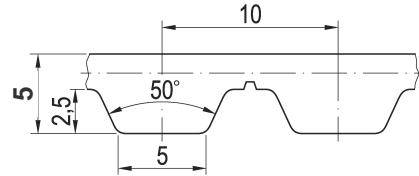


Dimensions, Tolerances

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_k [1/min]	Specific nom. power $P_{N\text{ spez}}$ [W/mm]	Speed, small pulley n_k [1/min]	Specific nom. power $P_{N\text{ spez}}$ [W/mm]	Speed, small pulley n_k [1/min]	Specific nom. power $P_{N\text{ spez}}$ [W/mm]
0 ¹	0.000	1200	0.947	3600	1.898
20	0.025	1300	1.002	3800	1.952
40 ²	0.048	1400	1.056	4000	2.003
60	0.072	1500	1.108	4500	2.119
80 ³	0.094	1600 ⁷	1.158	5000	2.220
100	0.116	1700	1.207	5500	2.308
200 ⁴	0.220	1800	1.253	6000	2.383
300	0.314	1900	1.299	6500	2.447
400 ⁵	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 ⁶	0.700	2800	1.652	9000	2.625
900	0.766	3000	1.718	9500	2.636
1000	0.828	3200 ⁸	1.782	10000	2.640
1100	0.889	3400	1.842		$v_{\text{max}} = 60 \text{ m/s}$

¹ $F_{N\text{ spez}}$ [N/mm] 7.500 ² 7.273 ³ 7.073 ⁴ 6.590 ⁵ 6.012 ⁶ 5.250 ⁷ 4.343 ⁸ 3.341

Nominal power P_N

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

$P_{N\text{ spez}}$	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 $z_{eB\text{ max}}$
$z_{eB\text{ max}}$	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

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

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

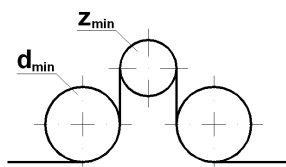
$F_{N\text{ spez}}$	Specific nominal tensile force transmittable per tooth [N/mm]
t	Tooth pitch [mm]

Cord tensile forces, belt weight

Belt width ¹ b [mm]	10	12	16	20	25	32	50	75	100
Breaking strength F_{Br} [N]	4760	5700	8560	10500	14300	18100	29500	45600	62000
Allowable tensile force ² F_{zul} [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

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: $z_{\text{min}} = 15$
Pitch-Ø: $d_{w\text{ min}} = 47.75 \text{ mm}$
Plane, cylindrical idlers, Ø
Inside idler: $d_{\text{min}} = 42 \text{ mm}$
Outside idler: $d_{\text{min}} = 100 \text{ mm}$

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 ≤ 2350	± 0.52