

Technical Data Sheet

optibelt ALPHA TORQUE AT10 - AR

PU Timing Belt, Cast Polyurethane, Endless

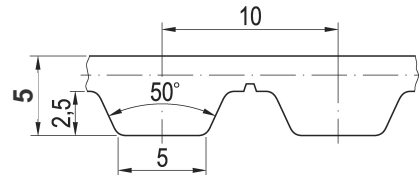


Dimensions, Tolerances

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: Aramid, Ø 1.0 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	0.947	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 _{max} = 60 m/s	

¹F_{N spez} [N/mm] 7.500 ²7.273 ³7.073 ⁴6.590 ⁵6.012 ⁶5.250 ⁷4.343 ⁸3.341

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

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

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

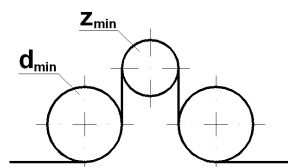
F _{N spez}	Specific nominal tensile force transmittable per tooth [N/mm]
t	Tooth pitch [mm]

Cord tensile forces, belt weight

Belt width ¹ b [mm]	10	12	16	20	25	32	50	75	100
Breaking strength F _{Br} [N]	2750	3300	4950	6050	8250	10450	17050	26400	35750
Allowable tensile force ² F _{zul} [N]	550	660	990	1210	1650	2090	3410	5280	7150
Weight per metre [kg/m]	0.044	0.053	0.070	0.088	0.110	0.140	0.220	0.330	0.440

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