

Technical Data Sheet

optibelt ALPHA TORQUE AT3 - AR

PU Timing Belt, Cast Polyurethane, Endless

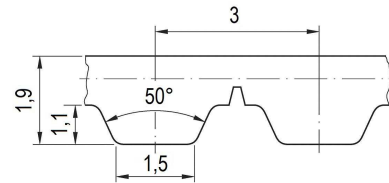


Dimensions, Tolerances

Profile:	AT3
Tooth pitch t:	3 mm
Total thickness:	1.9 mm
Tooth height:	1.1 mm
Tooth tip width:	1.5 mm
Tooth flank angle:	50°
Length tolerance:	See table
Width tolerance, b ≤ 20 mm:	± 0.5 mm
Thickness tolerance:	± 0.30 mm

Construction

Polyurethane: Thermoset, 84 +/-4 Shore A, transparent
Tension cord: Aramid, Ø 0.3 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	0.152	3600	0.345
20	0.003	1300	0.162	3800	0.359
40 ²	0.007	1400	0.171	4000	0.371
60	0.010	1500	0.181	4500	0.402
80 ³	0.013	1600 ⁷	0.190	5000	0.430
100	0.017	1700	0.199	5500	0.457
200 ⁴	0.032	1800	0.208	6000	0.483
300	0.046	1900	0.217	6500	0.507
400 ⁵	0.060	2000	0.226	7000	0.530
500	0.073	2200	0.243	7500	0.552
600	0.085	2400	0.259	8000	0.572
700	0.097	2600	0.274	8500	0.592
800 ⁶	0.109	2800	0.289	9000	0.611
900	0.120	3000	0.304	9500	0.628
1000	0.131	3200 ⁸	0.318	10000	0.645
1100	0.142	3400	0.332	v _{max} = 80 m/s	

¹F_{N spez} [N/mm] 3.500 ²3.429 ³3.365 ⁴3.205 ⁵3.003 ⁶2.724 ⁷2.380 ⁸1.989

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

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

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

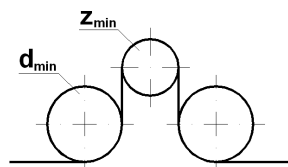
F _{N spez}	Specific nominal tensile force transmittable per tooth [N/mm]
t	Tooth pitch [mm]

Cord tensile forces, belt weight

Belt width ¹ b [mm]	6	10	12	16	20	25	32	50	75	100
Breaking strength F _{Br} [N]	860	1580	1880	2600	3320	4180	5480	8780	13240	17720
Allowable tensile force ² F _{zul} [N]	215	395	470	650	830	1045	1370	2195	3310	4430
Weight per metre [kg/m]	0.011	0.018	0.022	0.029	0.036	0.045	0.058	0.090	0.135	0.180

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} = 18
Pitch-Ø: d_{w min} = 17.19 mm
Plane, cylindrical idlers, Ø
Inside idler: d_{min} = 25 mm
Outside idler: d_{min} = 25 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