

Technical Data Sheet

optibelt ALPHA POWER AT5 - ST

PU Timing Belt, Cast Polyurethane, Endless

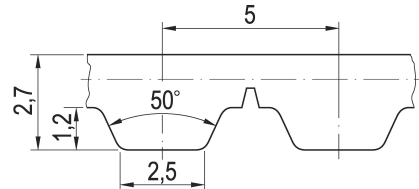


Dimensions, Tolerances

Profile:	AT5
Tooth pitch t:	5 mm
Total thickness:	2.7 mm
Tooth height:	1.2 mm
Tooth tip width:	2.5 mm
Tooth flank angle:	50°
Length tolerance:	See table
Width tolerance, b ≤ 25 mm:	±0.5 mm
Thickness tolerance:	±0.15 mm

Construction

Polyurethane:	Thermoset, 86 +/-4 Shore A, grey
Tension cord:	Steel, Ø 0.5 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	0.322	3600	0.707
20	0.008	1300	0.343	3800	0.732
40 ²	0.015	1400	0.363	4000	0.757
60	0.023	1500	0.382	4500	0.814
80 ³	0.030	1600 ⁷	0.401	5000	0.867
100	0.037	1700	0.420	5500	0.916
200 ⁴	0.070	1800	0.438	6000	0.963
300	0.101	1900	0.455	6500	1.005
400 ⁵	0.130	2000	0.473	7000	1.045
500	0.158	2200	0.506	7500	1.082
600	0.184	2400	0.538	8000	1.117
700	0.209	2600	0.569	8500	1.149
800 ⁶	0.233	2800	0.598	9000	1.180
900	0.257	3000	0.627	9500	1.207
1000	0.279	3200 ⁸	0.655	10000	1.234
1100	0.301	3400	0.681	v _{max} = 80 m/s	

¹F_{N spez} [N/mm] 4.680 ²4.567 ³4.466 ⁴4.217 ⁵3.912 ⁶3.502 ⁷3.008 ⁸2.456

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

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

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

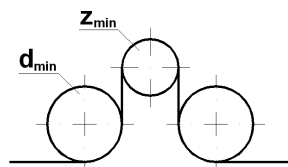
F _{N spez}	Specific nominal tensile force transmittable per tooth [N/mm]
t	Tooth pitch [mm]

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]	1420	2860	3700	5100	6560	8300	10800	17200	26400	35200
Allowable tensile force ² F _{zul} [N]	355	715	925	1275	1640	2075	2700	4300	6600	8800
Weight per metre [kg/m]	0.020	0.034	0.041	0.054	0.068	0.085	0.109	0.170	0.255	0.340

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 _{min}	= 15
Pitch-Ø: d _{w min}	= 23.87 mm
Plane, cylindrical idlers, Ø	
Inside idler: d _{min}	= 21 mm
Outside idler: d _{min}	= 50 mm

Length tolerances, shown as centre distance tolerances

Length L _w [mm]	Tolerance a _{L Tol} [mm]	Length L _w [mm]	Tolerance a _{L Tol} [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