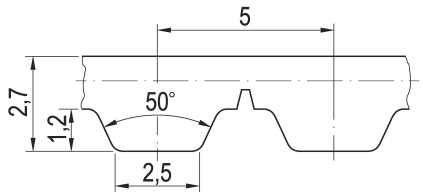
Technical Data Sheet
optibelt ALPHA TORQUE AT5 - AR
PU Timing Belt, Cast Polyurethane, Endless

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, 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	0.248	3600	0.544
20	0.006	1300	0.264	3800	0.563
40 [2]	0.012	1400	0.279	4000	0.582
60	0.017	1500	0.294	4500	0.626
80 [3]	0.023	1600 [7]	0.309	5000	0.667
100	0.028	1700	0.323	5500	0.705
200 [4]	0.054	1800	0.337	6000	0.740
300	0.078	1900	0.350	6500	0.773
400 [5]	0.100	2000	0.363	7000	0.804
500	0.121	2200	0.389	7500	0.832
600	0.142	2400	0.414	8000	0.859
700	0.161	2600	0.438	8500	0.884
800 [6]	0.180	2800	0.460	9000	0.907
900	0.198	3000	0.482	9500	0.929
1000	0.215	3200 [8]	0.504	10000	0.949
1100	0.232	3400	0.524	v_{max} = 80 m/s	

[1] $F_{N\,spez}$ [N/mm] 3.600 [2] 3.513 [3] 3.435 [4] 3.243 [5] 3.009 [6] 2.694 [7] 2.314 [8] 1.889

Nominal power P_N

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

$P_{N\,spez}$ 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

$$M_N = P_N \cdot 9.55 \cdot 10^3 / n_k \quad [Nm]$$

n_k Speed, small pulley [1/min]

Nominal tensile force F_N

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

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

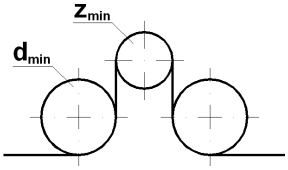
$F_{N\,spez}$ Specific nominal tensile force transmittable per tooth [N/mm]
t Tooth pitch [mm]

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]	1250	2150	2700	3775	4850	6100	7900	12400	18900	25375
Allowable tensile force [2] F_{zul} [N]	250	430	540	755	970	1220	1580	2480	3780	5075
Weight per metre [kg/m]	0.014	0.024	0.029	0.038	0.048	0.060	0.077	0.120	0.180	0.240

[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: $d_{w\,min}$ = 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_{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

We would be pleased to offer advice about technical characteristics and drive design as well as special requirements. Further information can be found in OPTIBELT documentation.