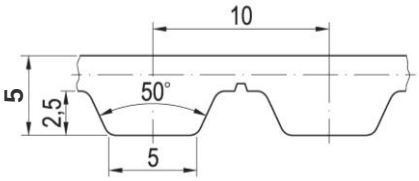
Technical Data Sheet
optibelt ALPHA TORQUE AT10 - AR
PU Timing Belt, Cast Polyurethane, Endless

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	

[1] $F_{N\ spez}$ [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

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

$P_{N\ spez}$ 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

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

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

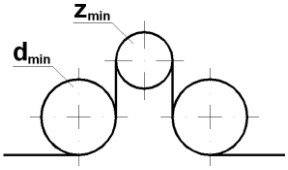
$F_{N\ spez}$ Specific nominal tensile force transmittable per tooth [N/mm]
t Tooth pitch [mm]

Cord tensile forces, belt weight

Belt width [1] b [mm]	10	12	16	20	25	32	50	75	100
Breaking strength F_{Br} [N]	5500	6600	9900	12100	1650	20900	34100	52800	71500
Allowable tensile force [2] F_{zul} [N]	1100	1320	1980	2420	3300	4180	6820	10560	14300
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

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.