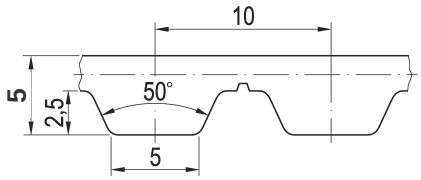
Technical Data Sheet
optibelt ALPHA POWER AT10 - ST
PU Timing Belt, Cast Polyurethane, Endless

Dimensions, Tolerances

Profile:	AT10
Tooth pitch t:	10 mm
Total thickness:	5.0 mm
Tooth height:	2.5 mm
Tooth tip width:	5.0 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, 86 +/-4 Shore A, grey
Tension cord: Steel, Ø 0.9 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	1.231	3600	2.468
20	0.032	1300	1,303	3800	2.538
40 [2]	0.063	1400	1.373	4000	2.604
60	0.093	1500	1.440	4500	2.755
80 [3]	0.123	1600 [7]	1.505	5000	2.886
100	0.151	1700	1.569	5500	3.000
200 [4]	0.286	1800	1.629	6000	3.098
300	0.408	1900	1.689	6500	3.181
400 [5]	0.521	2000	1.746	7000	3.250
500	0.627	2200	1.855	7500	3.308
600	0.726	2400	1.958	8000	3.354
700	0.820	2600	2.055	8500	3.388
800 [6]	0.910	2800	2.147	9000	3.412
900	0.995	3000	2.234	9500	3.427
1000	1.077	3200 [8]	2.316	10000	3.432
1100	1.155	3400	2.394	v_{max} = 80 m/s	

[1] $F_{N\,spez}$ [N/mm] 9.750 [2] 9.455 [3] 9.195 [4] 8.567 [5] 7.816 [6] 6.825 [7] 5.646 [8] 4.343

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

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

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

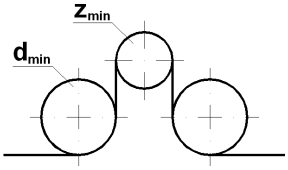
$F_{N\,spez}$ Specific nominal tensile force transmittable per tooth [N/mm]
t Tooth pitch [mm]

Cord tensile forces, belt weight

Belt width [1] b [mm]	10	12	16	20	25	32	50	75	100
Breaking strength F_{Br} [N]	4760	5700	8560	10500	14300	18100	29500	45600	62000
Allowable tensile force [2] F_{zul} [N]	1190	1425	2140	2625	3575	4525	7375	11400	15500
Weight per metre [kg/m]	0.065	0.078	0.104	0.130	0.163	0.208	0.325	0.488	0.650

[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: $d_{w\,min}$ = 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	≤ 2350	± 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.