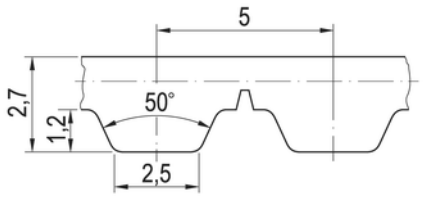
Technical Data Sheet
optibelt ALPHA POWER AT5 - ST
PU Timing Belt, Cast Polyurethane, Endless

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	

[1] $F_{N\,spez}$ [N/mm] 4.680 [2] 4.567 [3] 4.466 [4] 4.217 [5] 3.912 [6] 3.502 [7] 3.008 [8] 2.456

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

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

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

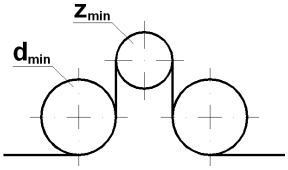
$F_{N\,spez}$	Specific nominal tensile force transmittable per tooth [N/mm]
t	Tooth pitch [mm]

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]	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_{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. © OPTIBELT GmbH 09/2015. Subject to technical modification and change, errors and omissions excepted.