

Technical Data Sheet

optibelt ALPHA LINEAR ATL5 - ST

Polyurethane Timing Belt, Optionally With Fabric PAZ/PAR,
Thermoplastic PU, Open-Ended

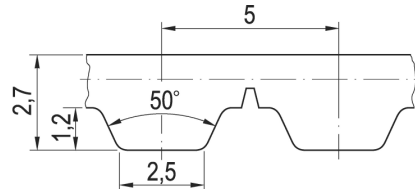


Dimensions, Tolerances

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:	-0.3/-1.1 mm/m
Width tolerance:	±0.5 mm
Thickness tolerance:	±0.3 mm

Construction

Polyurethane:	Thermoplastic, 92 Shore A, white
Tension cord:	Steel, Ø 0.6 mm
Fabric, optional:	Polyamide, tooth and back (PAZ/PAR), green



Specific nominal tensile force transmittable per tooth

Input speed n_1 [1/min]	Spec. nom. tensile force $F_{N\ spez}$ [N/mm]	Input speed n_1 [1/min]	Spec. nom. tensile force $F_{N\ spez}$ [N/mm]	Input speed n_1 [1/min]	Spec. nom. tensile force $F_{N\ spez}$ [N/mm]
0	3.600	1200	2.478	3600	1.814
20	3.555	1300	2.433	3800	1.779
40	3.513	1400	2.391	4000	1.746
60	3.473	1500	2.351	4500	1.670
80	3.435	1600	2.314	5000	1.601
100	3.399	1700	2.278	5500	1.538
200	3.243	1800	2.244	6000	1.481
300	3.116	1900	2.212	6500	1.427
400	3.009	2000	2.181	7000	1.378
500	2.916	2200	2.123	7500	1.332
600	2.834	2400	2.070	8000	1.289
700	2.761	2600	2.020	8500	1.248
800	2.694	2800	1.973	9000	1.210
900	2.634	3000	1.930	9500	1.173
1000	2.578	3200	1.889	10000	1.139
1100	2.526	3400	1.850	$v_{max} = 80$ m/s	

Nominal tensile force F_N

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

$F_{N\ spez}$	Specific nominal tensile force transmittable per tooth [N/mm]
z_{eB}	Number of teeth in mesh, small pulley, limited to $z_{eB\ max}$
$z_{eB\ max}$	ALPHA LINEAR: 12
b	Belt width [mm]

Nominal torque M_N

$$M_N = F_N \cdot d_{w1} / (2 \cdot 10^3) \quad [Nm]$$

$$d_{w1} = z_1 \cdot t / \pi \quad [mm]$$

d_{w1}	Pitch diameter, driver pulley [mm]
z_1	Number of teeth, driver pulley
t	Tooth pitch [mm]

Nominal power P_N

$$P_N = F_N \cdot z_1 \cdot t \cdot n_1 / (6 \cdot 10^7) \quad [kW]$$

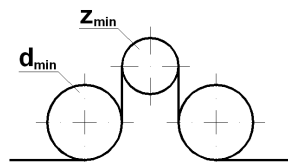
n_1	Speed, driver pulley [1/min]
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Cord tensile forces, belt weight

Belt width ¹ b [mm]	16	20	25	32	50	75	100
F_{Br} [N], ALPHA LINEAR	5040	6720	8820	11760	19320	29820	40320
F_{zul} [N] ² , ALPHA LINEAR, $\epsilon_{zul}=0,45\%$	1260	1680	2205	2940	4830	7455	10080
Weight per metre [kg/m]	0.059	0.074	0.093	0.118	0.185	0.278	0.370

¹ Smaller and intermediate widths possible ² Allowable tensile force $F_{zul} = 25\%$ of cord breaking strength F_{Br} $c_{spez} = F_{zul} / \epsilon_{zul}$ [N]

Timing belt pulleys, inside and outside idlers, clamping plates



Minimum number of teeth of the pulley:	$z_{min} = 25$
Minimum pitch diameter of the pulley:	$d_{w\ min} = 39.79$ mm
Minimum no. of teeth in mesh, clamping plate:	$z_{CP\ min} = 8$
Minimum diameter of a plane inside idler:	$d_{min} = 40$ mm
Minimum diameter of a plane outside idler:	$d_{min} = 60$ mm