

Technical Data Sheet

optibelt ALPHA LINEAR / V AT10 - ST Polyurethane Timing Belt, Optionally With Fabric PAZ/PAR, Thermoplastic PU, Open-Ended / Endless Joined

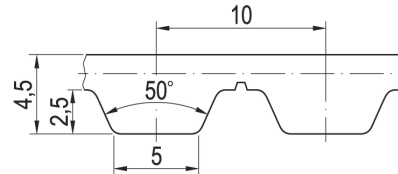


Dimensions, Tolerances

Profile:	AT10
Tooth pitch t:	10 mm
Total thickness:	4.5 mm
Tooth height:	2.5 mm
Tooth tip width:	5.0 mm
Tooth flank angle:	50°
Length tolerance:	±0.5 mm/m
Width tolerance:	±0.5 mm
Thickness tolerance:	±0.3 mm

Construction

Polyurethane:	Thermoplastic, 92 Shore A, white
Tension cord:	Steel, Ø 0.9 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	7.500	1200	4.734	3600	3.164
20	7.382	1300	4.627	3800	3.083
40	7.273	1400	4.527	4000	3.005
60	7.170	1500	4.432	4500	2.826
80	7.073	1600	4.343	5000	2.664
100	6.982	1700	4.259	5500	2.518
200	6.590	1800	4.178	6000	2.383
300	6.275	1900	4.102	6500	2.259
400	6.012	2000	4.029	7000	2.143
500	5.785	2200	3.892	7500	2.036
600	5.586	2400	3.766	8000	1.935
700	5.409	2600	3.649	8500	1.840
800	5.250	2800	3.540	9000	1.750
900	5.104	3000	3.437	9500	1.665
1000	4.971	3200	3.341	10000	1.584
1100	4.848	3400	3.250	$v_{max} = 60$ 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, driver pulley, limited to $z_{eB\ max}$
$z_{eB\ max}$	ALPHA LINEAR: 12, ALPHA V: 6
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

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

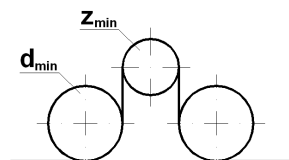
n_1	Speed, driver pulley [1/min]
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Cord tensile force, minimum belt length, belt weight

Belt width ¹ b [mm]	16	25	32	50	75	100	150
F_{Br} [N], ALPHA LINEAR	7600	12320	17080	28480	43680	60800	91200
F_{zul} [N] ² , ALPHA LINEAR, $\epsilon_{zul}=0,55\%$	1900	3080	4270	7120	10920	15200	22800
F_{zul} [N] ² , ALPHA V/short joining	950	1540/770 ³	2135/1070 ³	3560/1780 ³	5460	7600	11400
Minimum belt length/short joining [mm]	700	700/400 ³	700/400 ³	700/400 ³	900	900	1100
Weight per metre [kg/m]	0.096	0.150	0.192	0.300	0.450	0.600	0.900

¹ Smaller and intermediate widths possible ² Allowable tensile force $F_{zul} = 25\% / 12.5\%$ (ALPHA LINEAR / V) of cord breaking strength F_{Br} $C_{spez} = F_{zul} / \epsilon_{zul}$ [N]
³ Short joining from 400 mm, allowable tensile Force $F_{zul} = 50\%$ of a standard joining

Timing belt pulleys, idlers, clamping plates



Minimum no. of teeth of the pulleys:	$z_{min} = 15$
Minimum pitch diameter of the pulleys:	$d_{w\ min} = 47.75$ mm
Minimum no. of teeth in mesh, clamp. plate:	$z_{CP\ min} = 6$
Minimum-Ø of a plane inside idler:	$d_{min} = 42$ mm
Minimum-Ø of a plane outside idler:	$d_{min} = 100$ mm