

Technical Data Sheet

Optibelt ALPHA linear / V AT5 - HF

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



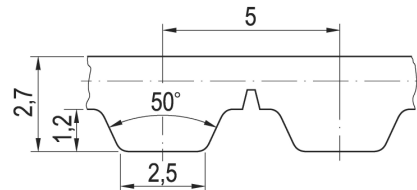
Power Transmission

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:	±0.5 mm/m
Width tolerance:	±0.5 mm
Thickness tolerance:	±0.15 mm

Construction

Polyurethane:	Thermoplastic, 92 Shore A, white
Tension cord:	Steel, high flexible, Ø 0.5 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	$v_{max} = 80\text{ m/s}$	

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

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

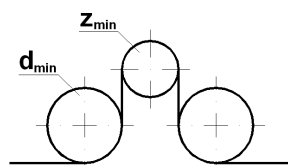
n_1	Speed, driver pulley [1/min]
-------	------------------------------

Cord tensile force, minimum belt length, belt weight

Belt width * b [mm]	10	16	25	32	50	75	100
F_{Br} [N], ALPHA linear	1880	3480	5920	7840	13230	20800	28360
F_{zul} [N] **, ALPHA linear $\epsilon_{zul} = 0,55\%$	470	870	1480	1960	3310	5200	7090
F_{zul} [N] **, ALPHA V	235	435	740	980	1655	2600	3545
Minimum belt length [mm]	700	700	700	700	700	900	900
Weight per metre [kg/m]	0.033	0.053	0.083	0.106	0.165	0.248	0.330

* Smaller and intermediate widths possible ** Allowable tensile force $F_{zul} = 25\% / 12,5\%$ (ALPHA linear / V) of cord breaking strength F_{Br} $C_{spez} = F_{zul} / \epsilon_{zul}$ [N]

Timing belt pulleys, idlers, clamping plates



Minimum no. of teeth of the pulleys:	$z_{min} = 12$
Minimum pitch diameter of the pulleys:	$d_{w\ min} = 19.10\text{ mm}$
Minimum no. of teeth in mesh, clamp. plate:	$z_{CP\ min} = 6$
Minimum-Ø of a plane inside idler:	$d_{min} = 16\text{ mm}$
Minimum-Ø of a plane outside idler:	$d_{min} = 40\text{ mm}$

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 10/2012. Subject to technical modification and change, errors and omissions excepted.