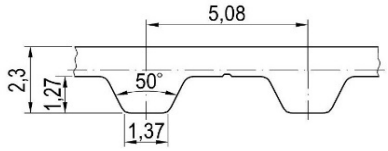
Technical Data Sheet
optibelt ALPHA LINEAR / V XL - ST
PU Timing Belt, Optionally with Fabric PAZ/PAR, Open-Ended / Endless Joined

Dimensions, Tolerances

Profile:	XL
Tooth pitch t:	1/5 in. = 5.08 mm
Total thickness:	2.3 mm
Tooth height:	1.27 mm
Tooth tip width:	1.37 mm
Tooth flank angle:	50°
Length tolerance:	± 0.5 mm/m
Width tolerance:	± 0.5 mm
Thickness tolerance:	± 0.2 mm

Construction

Polyurethane:	Thermoplastic, 92 Shore A, white
Tension cord:	Steel, ø 0.3 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	2.500	1200	1.542	3600	1.175
20	2.415	1300	1.516	3800	1.157
40	2.354	1400	1.492	4000	1.140
60	2.303	1500	1.469	4500	1.099
80	2.258	1600	1.448	5000	1.063
100	2.218	1700	1.428	5500	1.031
200	2.067	1800	1.409	6000	1.001
300	1.962	1900	1.391	6500	0.973
400	1.882	2000	1.374	7000	0.948
500	1.817	2200	1.342	7500	0.924
600	1.762	2400	1.313	8000	0.902
700	1.714	2600	1.286	8500	0.881
800	1.672	2800	1.261	9000	0.861
900	1.635	3000	1.237	9500	0.842
1000	1.601	3200	1.215	10000	0.825
1100	1.571	3400	1.195	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, driver pulley, limited to $z_{eB\,max}$
$z_{eB\,max}$	ALPHA LINEAR: 12, ALPHA V: 6
b	Belt width [mm]

Nominal torque M_N

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

$$d_{w1} = z_1 \cdot t / \pi$$

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]

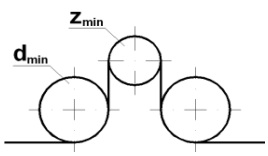
Cord tensile force, minimum belt length, belt weight

Belt width [1] b [mm] / Width code	6.35 / 025	7.94 / 031	9.53 / 037	12.7 / 050	19.05 / 075	25.4 / 100	50.8 / 200	76.2 / 300	101.6 / 400
F_{Br} [N], ALPHA LINEAR	720	880	1120	1480	2240	3000	6000	9000	12000
F_{zul} [N] [2], ALPHA LINEAR ε_{zul} = 0.44%	180	220	280	370	560	750	1500	2250	3000
F_{zul} [N] [2], ALPHA V	90	110	140	185	280	375	750	1125	1500
Min. belt length ALPHA V [mm]	-	-	-	701.04	701.04	701.04	701.04	-	-
Weight per metre [kg/m]	0.014	0.017	0.021	0.028	0.042	0.056	0.112	0.168	0.224

[1] Smaller and intermediate widths possible

[2] Allowable tensile force F_{zul} = 25% / 12.5 % (ALPHA LINEAR / V) of cord breaking strength F_{Br} $c_{spez} = F_{zul} / \varepsilon_{zul}$ [N]

Timing belt pulleys, idlers, clamping plates



Minimum no. of teeth of the pulleys:	z_{min} = 10
Minimum pitch diameter of the pulleys:	$d_{w\,min}$ = 16.17 mm
Minimum no. of teeth in mesh, clamping plate:	$z_{CP\,min}$ = 8
Minimum- of a plane inside idler:	d_{min} = 25 mm
Minimum- of a plane outside idler:	d_{min} = 30 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.