

Technical Data Sheet

optibelt ALPHA FLEX 8M - ST

PU Timing Belt, Optionally with Fabric PAZ, Endless

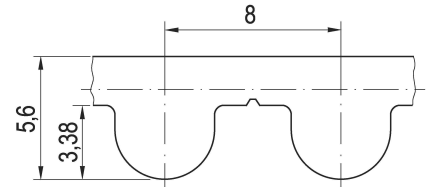


Dimensions, Tolerances

Profile:	8M
Tooth pitch t:	8 mm
Total thickness:	5.6 mm
Tooth height:	3.38 mm
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 side (PAZ), green PAZ from 1504 mm production length



Specific nominal power transmittable per tooth

rpm, small idler n_k [1/min]	Spec. nom. power $P_{N\ spez}$ [W/mm]	rpm, small idler n_k [1/min]	Spec. nom. power $P_{N\ spez}$ [W/mm]	rpm, small idler n_k [1/min]	Spec. nom. power $P_{N\ spez}$ [W/mm]
0 ¹	0.000	1200	0.713	3600	1.409
20	0.019	1300	0.754	3800	1.448
40 ²	0.037	1400	0.794	4000	1.485
60	0.055	1500	0.832	4500	1.569
80 ³	0.072	1600 ⁷	0.869	5000	1.643
100	0.089	1700	0.905	5500	1.707
200 ⁴	0.168	1800	0.939	6000	1.762
300	0.239	1900	0.973	6500	1.810
400 ⁵	0.305	2000	1.005	7000	1.851
500	0.366	2200	1.066	7500	1.886
600	0.424	2400	1.124	8000	1.915
700	0.478	2600	1.179	8500	1.938
800 ⁶	0.530	2800	1.230	9000	1.956
900	0.579	3000	1.279	9500	1.970
1000	0.625	3200 ⁸	1.325	10000	1.979
1100	0.670	3400	1.368		$v_{max} = 60\text{ m/s}$

¹ $F_{N\ spez}$ [N/mm] 7.200 ² 6.973 ³ 6.775 ⁴ 6.294 ⁵ 5.720 ⁶ 4.966 ⁷ 4.075 ⁸ 3.105

Nominal power P_N

$$P_N = P_{N\ spez} \cdot z_k \cdot z_{eB} \cdot b / 10^3 \quad [\text{kW}]$$

$P_{N\ spez}$	Specific nominal power transmittable per tooth [W/mm]
z_k	Number of teeth, small idler
z_{eB}	Number of teeth in mesh, small idler, limited to $z_{eB\ max}$
$z_{eB\ max}$	12, max. allowable no. of teeth
b	belt width [mm]

Nominal torque M_N

$$M_N = P_N \cdot 9.55 \cdot 10^3 / n_k \quad [\text{Nm}]$$

n_k rpm, small idler [1/min]

Nominal tensile force F_N

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

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

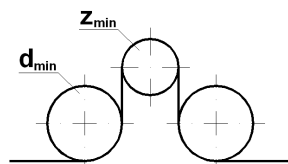
$F_{N\ spez}$	Specific nominal tensile force transmittable per tooth [N/mm]
t	Tooth pitch [mm]

Cord tensile forces, belt weight

Belt width ¹ b [mm]	10	15	20	25	30	50	85	100
Breaking strength F_{Br} [N]	3800	6600	9500	13300	16160	28400	51200	60800
Allowable tensile force ² F_{zul} [N]	950	1650	2375	3325	4040	7100	11800	15200
Weight per metre [kg/m]	0.064	0.096	0.128	0.160	0.192	0.320	0.544	0.640
Min. belt length [mm]	1104	1104	1104	1104	1104	1104	1104	1104

¹ Smaller 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



Minimum no. of teeth of the pulleys:
 Minimum pitch diameter of the pulleys:
 Plane, cylindrical idlers:
 Minimum-Ø of a plane inside idler:
 Minimum-Ø of a plane outside idler:

$z_{min} = 18$
 $d_{w\ min} = 45,84\text{ mm}$
 not recommended, see pulley
 $d_{min} = 100\text{ mm}$