

Technical Data Sheet

optibelt ALPHA FLEX T10 - ST

PU Timing Belt, Optionally With Fabric PAZ, Endless

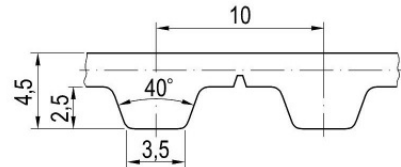


Dimensions, Tolerances

Profile:	T10
Tooth pitch t:	10 mm
Total thickness:	4.5 mm
Tooth height:	2.5 mm
Tooth tip width:	3.5 mm
Tooth flank angle:	40°
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 0.6 mm
Fabric, optional:	Polyamide, tooth side (PAZ), green, PAZ from 1500 mm production length



Specific nominal power transmittable per tooth

Speed, small pulley n_k [1/min]	Specific nom. power $P_{N\ spez}$ [W/mm]	Speed, small pulley n_k [1/min]	Specific nom. power $P_{N\ spez}$ [W/mm]	Speed, small pulley n_k [1/min]	Specific nom. power $P_{N\ spez}$ [W/mm]
0 ¹	0.000	1200	0.585	3600	1.222
20	0.017	1300	0.620	3800	1.262
40 ²	0.033	1400	0.654	4000	1.300
60	0.048	1500	0.687	4500	1.390
80 ³	0.062	1600 ⁷	0.719	5000	1.472
100	0.076	1700	0.750	5500	1.546
200 ⁴	0.140	1800	0.780	6000	1.615
300	0.197	1900	0.810	6500	1.678
400 ⁵	0.249	2000	0.839	7000	1.735
500	0.299	2200	0.894	7500	1.787
600	0.345	2400	0.948	8000	1.835
700	0.389	2600	0.998	8500	1.877
800 ⁶	0.432	2800	1.047	9000	1.917
900	0.472	3000	1.093	9500	1.952
1000	0.511	3200 ⁸	1.138	10000	1.983
1100	0.548	3400	1.181	$v_{max} = 60 \text{ m/s}$	

¹ $F_{N\ spez}$ [N/mm] 5.200 ² 4.879 ³ 4.646 ⁴ 4.189 ⁵ 3.742 ⁶ 3.237 ⁷ 2.695 ⁸ 2.134

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 pulley
z_{eB}	Number of teeth in mesh, small pulley, limited to $z_{eB\ max}$
$z_{eB\ max}$	12, maximum 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 Speed, small pulley [1/min]

Nominal tensile force F_N

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

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

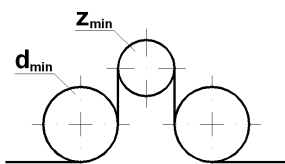
$F_{N\ spez}$	Specific nominal tensile force transmittable per tooth [N/mm]
t	Tooth pitch [mm]

Cord tensile forces, belt weight

Belt width ¹ b [mm]	12	16	20	25	32	50	75	100	150
Breaking strength F_{Br} [N]	3360	4620	6300	8400	10920	17640	27300	36960	55860
Allowable tensile force ² F_{zul} [N]	840	1155	1575	2100	2730	4410	6825	9240	13965
Weight per metre [kg/m]	0.055	0.074	0.092	0.115	0.147	0.230	0.345	0.460	0.690
Min. belt length [mm]	1100	1100	1100	1100	1100	1100	1100	1100	1500

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 number of teeth of the pulley:

$$z_{min} = 12$$

Minimum pitch diameter of the pulley:

$$d_{w\ min} = 38.20 \text{ mm}$$

Plane, cylindrical idlers:

Minimum pitch diameter of an inside idler:

$$d_{min} = 50 \text{ mm}$$

Minimum pitch diameter of an outside idler:

$$d_{min} = 55 \text{ mm}$$