

Technical Data Sheet

optibelt ALPHA FLEX 14M - RF

PU Timing Belt, Endless

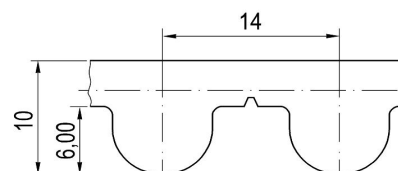


Dimensions, Tolerances

Profile:	14M
Tooth pitch t:	14 mm
Total thickness:	10 mm
Tooth height:	6 mm
Length tolerance:	±0.5 mm/m
Width tolerance:	±1.0 mm
Thickness tolerance:	±0.3 mm

Construction

Polyurethane:	Thermoplastic, 85 Shore A FDA, transparent
Tension cord:	Stainless steel, Ø 1.2 mm



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	1.984	3600	3.330
20	0.058	1300	2.085	3800	3.371
40 ²	0.114	1400	2.180	4000	3.405
60	0.168	1500	2.270	4500	3.457
80 ³	0.221	1600 ⁷	2.355	5000	3.468
100	0.271	1700	2.435	5500	3.440
200 ⁴	0.505	1800	2.511	6000	3.381
300	0.713	1900	2.584	6500	3.289
400 ⁵	0.901	2000	2.651		
500	1.073	2200	2.777		
600	1.231	2400	2.889		
700	1.378	2600	2.989		
800 ⁶	1.515	2800	3.077		
900	1.644	3000	3.155		
1000	1.764	3200 ⁸	3.222		
1100	1.877	3400	3.280		
					v _{max} = 40 m/s

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]

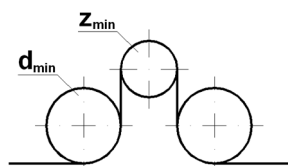
¹F_{N spez} [N/mm] 12.700 ²12.227 ³11.815 ⁴10.825 ⁵9.651 ⁶8.119 ⁷6.309 ⁸4.315

Cord tensile forces, belt weight

Belt width ¹ b [mm]	25	40	55	85	100	115
Breaking strength F _{Br} [N]	16160	27920	39680	64680	76440	89640
Allowable tensile force ² F _{zul} [N]	4040	6980	9920	16170	19110	22410
Weight per metre [kg/m]	0.295	0.472	0.649	1.003	1.180	1.357
Min. belt length [mm]	1512	1512	1512	1512	1512	1512

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:

$$z_{\min} = 40$$

Minimum pitch diameter of the pulleys:

$$d_{w\ \min} = 178.25 \text{ mm}$$

Plane, cylindrical idlers:

Minimum-Ø of a plane inside idler:

not recommended, see idler

Minimum-Ø of a plane outside idler:

$$d_{\min} = 280 \text{ mm}$$