

Technical Data Sheet

optibelt ALPHA FLEX AT10 - ST

PU Timing Belt, Optionally With Fabric PAZ, Endless

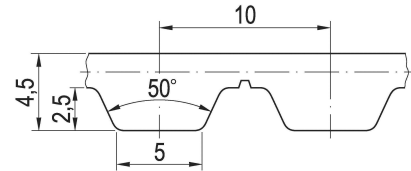


Dimensions, Tolerances

Profile:	AT10
Tooth pitch t:	10 mm
Total thickness:	4.5 mm
Tooth height:	2.5 mm
Tooth tip width:	5.0 mm
Tooth flank angle:	50°
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 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	0.947	3600	1.898
20	0.025	1300	1.002	3800	1.952
40 ²	0.048	1400	1.056	4000	2.003
60	0.072	1500	1.108	4500	2.119
80 ³	0.094	1600 ⁷	1.158	5000	2.220
100	0.116	1700	1.207	5500	2.308
200 ⁴	0.220	1800	1.253	6000	2.383
300	0.314	1900	1.299	6500	2.447
400 ⁵	0.401	2000	1.343	7000	2.500
500	0.482	2200	1.427	7500	2.545
600	0.559	2400	1.506	8000	2.580
700	0.631	2600	1.581	8500	2.606
800 ⁶	0.700	2800	1.652	9000	2.625
900	0.766	3000	1.718	9500	2.636
1000	0.828	3200 ⁸	1.782	10000	2.640
1100	0.889	3400	1.842		$v_{max} = 60\text{ m/s}$

¹ $F_{N\ spez}$ [N/mm] 7.500 ² 7.273 ³ 7.073 ⁴ 6.590 ⁵ 6.012 ⁶ 5.250 ⁷ 4.343 ⁸ 3.341

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

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]

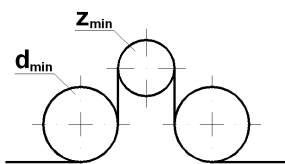
t Tooth pitch [mm]

Cord tensile forces, belt weight

Belt width ¹ b [mm]	16	20	25	32	50	75	100	150
Breaking strength F_{Br} [N]	7600	9500	13300	17000	28400	44800	60800	92000
Allowable tensile force ² F_{zul} [N]	1900	2375	3325	4250	7100	11200	15200	23000
Weight per metre [kg/m]	0.096	0.120	0.150	0.192	0.300	0.450	0.600	0.900
Min. belt length [mm]	1100	1100	1100	1100	1100	1100	1100	1100

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:

$$Z_{min} = 15$$

Minimum pitch diameter of the pulley:

$$d_{w\ min} = 47.75\text{ mm}$$

Plane, cylindrical idlers:

Minimum pitch diameter of an inside idler:

$$d_{min} = 42\text{ mm}$$

Minimum pitch diameter of an outside idler:

$$d_{min} = 100\text{ mm}$$