

Technical Data Sheet

Optibelt ALPHaflex AT20

Polyurethane Timing Belt, Thermoplastic PU, Endless

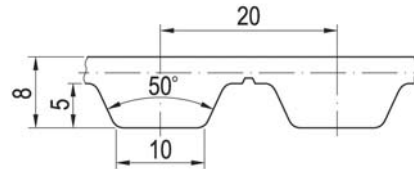


Dimensions, Tolerances

Profile:	AT20
Tooth pitch t:	20 mm
Total thickness:	8 mm
Tooth height:	5 mm
Tooth tip width:	10 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 1.2 mm



Specific nominal power transmittable per tooth

Speed, small pulley n_k [1/min]	Specific nom. power $P_{N\text{ spez}}$ [W/mm]	Speed, small pulley n_k [1/min]	Specific nom. power $P_{N\text{ spez}}$ [W/mm]	Speed, small pulley n_k [1/min]	Specific nom. power $P_{N\text{ spez}}$ [W/mm]
0 ¹	0.000	1200	3.348	3600	5.619
20	0.098	1300	3.518	3800	5.689
40 ²	0.193	1400	3.678	4000	5.745
60	0.284	1500	3.830	4500	5.833
80 ³	0.372	1600 ⁷	3.973	5000	5.851
100	0.458	1700	4.109	5500	5.806
200 ⁴	0.852	1800	4.238	6000	5.704
300	1.203	1900	4.359	6500	5.550
400 ⁵	1.520	2000	4.474		
500	1.810	2200	4.686		
600	2.077	2400	4.874		
700	2.325	2600	5.042		
800 ⁶	2.557	2800	5.191		
900	2.774	3000	5.322		
1000	2.977	3200 ⁸	5.436		
1100	3.168	3400	5.535		
$v_{\text{max}} = 40 \text{ m/s}$					

¹ $F_{N\text{ spez}}$ [N/mm] 15.000 ² 14.441 ³ 13.955 ⁴ 12.786 ⁵ 11.399 ⁶ 9.589 ⁷ 7.451 ⁸ 5.097

Nominal power P_N

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

$P_{N\text{ spez}}$ 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 $z_{eB\text{ max}}$
 $z_{eB\text{ max}}$ 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

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

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

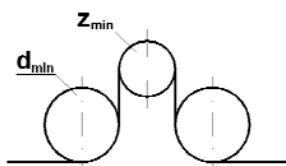
$F_{N\text{ spez}}$ Specific nominal tensile force transmittable per tooth [N/mm]
 t Tooth pitch [mm]

Cord tensile forces, belt weight

Belt width * b [mm]	16	20	25	32	50	75	100
Allowable tensile force** F_{zul} [N]	2600	3450	4750	6500	10800	16500	22500
Breaking strength F_{Br} [N]	10400	13800	19000	26000	43200	66000	90000
Weight per metre [kg/m]	0.165	0.206	0.258	0.330	0.515	0.773	1.030

* Smaller and intermediate widths possible ** 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: $z_{\text{min}} = 18$
 Minimum pitch diameter of the pulley: $d_{w\text{ min}} = 114.59 \text{ mm}$
 Plane, cylindrical idlers:
 Minimum pitch diameter of an inside idler: $d_{\text{min}} = 105 \text{ mm}$
 Minimum pitch diameter of an outside idler: $d_{\text{min}} = 160 \text{ mm}$