

Technical Data Sheet

optibelt ALPHA FLEX AT20 HP - ST

PU Timing Belt, Optionally with Fabric PAZ, Endless

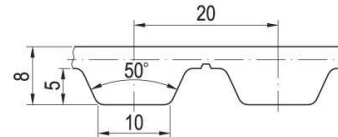


Dimensions, Tolerances

Profile:	AT20
Tooth pitch t:	20 mm
Total thickness:	8.0 mm
Tooth height:	5.0 mm
Tooth tip width:	10.0 mm
Tooth flank angle:	50°
Length tolerance:	±0.5 mm/m
Width tolerance:	±1.0 mm
Thickness tolerance:	±0.5 mm

Construction

Polyurethane:	Thermoplastic, 92 Shore A, white
Tension cord:	Steel, Ø 1.6 mm
Fabric, optional:	Polyamide, tooth side (PAZ), green or black



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	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		
$v_{max} = 40\text{ m/s}$					

¹ $F_{N\ spez}$ [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

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

$P_{N\ spez}$	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

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

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

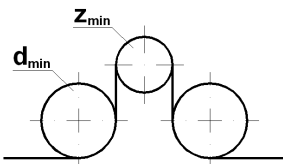
$F_{N\ spez}$	Specific nominal tensile force transmittable per tooth [N/mm]
t	Tooth pitch [mm]

Cord tensile forces, belt weight

Belt width ¹ b [mm]	16	20	25	32	50	75	100	150
Breaking strength F_{Br} [N]	12800	19200	25600	35200	60800	99200	134400	208000
Allowable tensile force ² F_{zul} [N]	3200	4800	6400	8800	15200	24800	33600	52000
Weight per metre [kg/m]	0.182	0.228	0.285	0.365	0.570	0.855	1.140	1.710
Min. belt length [mm]	2000	2000	2000	2000	2000	2000	2000	2000

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:

$$z_{min} = 22$$

Minimum pitch diameter of the pulley:

$$d_{w\ min} = 140.06\text{ mm}$$

Plane, cylindrical idlers:

Minimum pitch diameter of an inside idler:

$$d_{min} = 140\text{ mm}$$

Minimum pitch diameter of an outside idler:

$$d_{min} = 220\text{ mm}$$