

# Technical Data Sheet

## optibelt ALPHA FLEX AT20 - RF

### PU Timing Belt, Optionally With Fabric PAZ, Endless

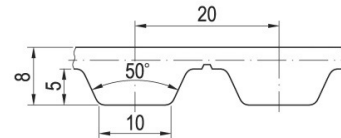


#### Dimensions, Tolerances

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:	Stainless steel, Ø 1.2 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 $P_{N\text{ spez}}$ [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 <sup>1</sup>	0.000	1200	3.348	3600	5.619
20	0.098	1300	3.518	3800	5.689
40 <sup>2</sup>	0.193	1400	3.678	4000	5.745
60	0.284	1500	3.830	4500	5.833
80 <sup>3</sup>	0.372	1600 <sup>7</sup>	3.973	5000	5.851
100	0.458	1700	4.109	5500	5.806
200 <sup>4</sup>	0.852	1800	4.238	6000	5.704
300	1.203	1900	4.359	6500	5.550
400 <sup>5</sup>	1.520	2000	4.474		
500	1.810	2200	4.686		
600	2.077	2400	4.874		
700	2.325	2600	5.042		
800 <sup>6</sup>	2.557	2800	5.191		
900	2.774	3000	5.322		
1000	2.977	3200 <sup>8</sup>	5.436		
1100	3.168	3400	5.535		
$v_{\text{max}} = 40 \text{ m/s}$					

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

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

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

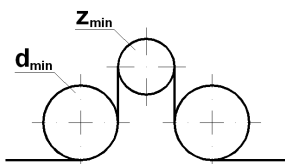
$F_{N\text{ spez}}$	Specific nominal tensile force transmittable per tooth [N/mm]
$t$	Tooth pitch [mm]

#### Cord tensile forces, belt weight

Belt width <sup>1</sup> $b$ [mm]	16	20	25	32	50	75	100
Breaking strength $F_{Br}$ [N]	8820	11760	16160	22000	36720	55860	76440
Allowable tensile force <sup>2</sup> $F_{zul}$ [N]	2205	2940	4040	5500	9180	13965	19110
Weight per metre [kg/m]	0.165	0.206	0.258	0.330	0.515	0.773	1.030
Min. belt length [mm]	1500	1500	1500	1500	1500	1500	1500

<sup>1</sup> Smaller and intermediate widths possible <sup>2</sup> 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:

$$z_{\text{min}} = 22$$

Minimum pitch diameter of the pulley:

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

Plane, cylindrical idlers:

Minimum pitch diameter of an inside idler:

$$d_{\text{min}} = 130 \text{ mm}$$

Minimum pitch diameter of an outside idler:

$$d_{\text{min}} = 190 \text{ mm}$$