

# Technical Data Sheet

## optibelt ALPHA POWER AT3 - RF

PU Timing Belt, Cast Polyurethane, Endless

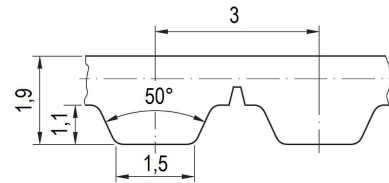


### Dimensions, Tolerances

Profile:	AT3
Tooth pitch t:	3 mm
Total thickness:	1.9 mm
Tooth height:	1.1 mm
Tooth tip width:	1.5 mm
Tooth flank angle:	50°
Length tolerance:	See table
Width tolerance, b ≤ 20 mm:	± 0.5 mm
Thickness tolerance:	± 0.30 mm

### Construction

Polyurethane: Thermoset, 86 +/-4 Shore A, grey  
Tension cord: Stainless Steel, Ø 0.3 mm



### Specific nominal power transmittable per tooth

Speed, small pulley n <sub>k</sub> [1/min]	Specific nom. power P <sub>N spez</sub> [W/mm]	Speed, small pulley n <sub>k</sub> [1/min]	Specific nom. power P <sub>N spez</sub> [W/mm]	Speed, small pulley n <sub>k</sub> [1/min]	Specific nom. power P <sub>N spez</sub> [W/mm]
0 <sup>1</sup>	0.000	1200	0.197	3600	0.449
20	0.005	1300	0.210	3800	0.466
40 <sup>2</sup>	0.009	1400	0.223	4000	0.483
60	0.013	1500	0.235	4500	0.522
80 <sup>3</sup>	0.017	1600 <sup>7</sup>	0.248	5000	0.559
100	0.022	1700	0.259	5500	0.594
200 <sup>4</sup>	0.042	1800	0.271	6000	0.628
300	0.060	1900	0.282	6500	0.659
400 <sup>5</sup>	0.078	2000	0.294	7000	0.689
500	0.095	2200	0.315	7500	0.717
600	0.111	2400	0.336	8000	0.744
700	0.127	2600	0.357	8500	0.770
800 <sup>6</sup>	0.142	2800	0.376	9000	0.794
900	0.156	3000	0.395	9500	0.817
1000	0.170	3200 <sup>8</sup>	0.414	10000	0.839
1100	0.184	3400	0.432	v <sub>max</sub> = 80 m/s	

<sup>1</sup>F<sub>N spez</sub> [N/mm] 4.550 <sup>2</sup>4.458 <sup>3</sup>4.375 <sup>4</sup>4.167 <sup>5</sup>3.904 <sup>6</sup>3.541 <sup>7</sup>3.094 <sup>8</sup>2.586

### Nominal power P<sub>N</sub>

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

P<sub>N spez</sub> Specific nominal power transmittable per tooth [W/mm]  
z<sub>k</sub> Number of teeth, small pulley  
z<sub>eB</sub> Number of teeth in mesh, small pulley, limited to z<sub>eB max</sub>  
z<sub>eB max</sub> 12, maximum allowable no. of teeth  
b Belt width [mm]

### Nominal torque M<sub>N</sub>

$$M_N = P_N \cdot 9.55 \cdot 10^3 / n_k \quad [\text{Nm}]$$

n<sub>k</sub> Speed, small pulley [1/min]

### Nominal tensile force F<sub>N</sub>

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

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

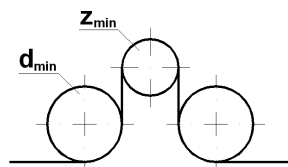
F<sub>N spez</sub> Specific nominal tensile force transmittable per tooth [N/mm]  
t Tooth pitch [mm]

### Cord tensile forces, belt weight

Belt width <sup>1</sup> b [mm]	6	10	12	16	20	25	32	50	75	100
Breaking strength F <sub>Br</sub> [N]	480	880	1040	1440	1840	2320	3040	4880	7360	9840
Allowable tensile force <sup>2</sup> F <sub>zul</sub> [N]	120	220	260	360	460	580	760	1220	1840	2460
Weight per metre [kg/m]	0.013	0.021	0.026	0.034	0.043	0.053	0.068	0.107	0.160	0.213

<sup>1</sup> Other and intermediate widths possible <sup>2</sup> Allowable tensile force F<sub>zul</sub> equivalent to 25% breaking strength F<sub>Br</sub> of the cords

### Timing belt pulleys, inside and outside idlers



No. of teeth: z<sub>min</sub> = 22  
Pitch-Ø: d<sub>w min</sub> = 21.01 mm  
Plane, cylindrical idlers, Ø  
Inside idler: d<sub>min</sub> = 30 mm  
Outside idler: d<sub>min</sub> = 30 mm

### Length tolerances, shown as centre distance tolerances

Length L <sub>w</sub> [mm]	Tolerance a <sub>LTol</sub> [mm]	Length L <sub>w</sub> [mm]	Tolerance a <sub>LTol</sub> [mm]
≤ 305	± 0.14	> 780 ≤ 990	± 0.28
> 305 ≤ 390	± 0.16	> 990 ≤ 1250	± 0.32
> 390 ≤ 525	± 0.18	> 1250 ≤ 1560	± 0.38
> 525 ≤ 630	± 0.21	> 1560 ≤ 1960	± 0.44
> 630 ≤ 780	± 0.24	> 1960 ≤ 2350	± 0.52