

Technical Data Sheet

optibelt ALPHA POWER AT10 - RF

PU Timing Belt, Cast Polyurethane, Endless

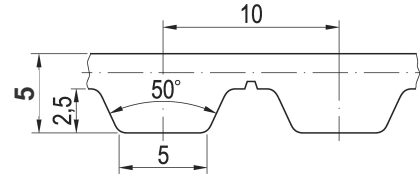


Dimensions, Tolerances

| | |
|-----------------------------|-----------|
| Profile: | AT10 |
| Tooth pitch t: | 10 mm |
| Total thickness: | 5.0 mm |
| Tooth height: | 2.5 mm |
| Tooth tip width: | 5.0 mm |
| Tooth flank angle: | 50° |
| Length tolerance: | See table |
| Width tolerance, b ≤ 50 mm: | ±0.5 mm |
| Thickness tolerance: | ±0.3 mm |

Construction

Polyurethane: Thermoset, 86 +/-4 Shore A, grey
Tension cord: Stainless steel, Ø 0.9 mm



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 | 1.231 | 3600 | 2.468 |
| 20 | 0.032 | 1300 | 1,303 | 3800 | 2.538 |
| 40 ² | 0.063 | 1400 | 1.373 | 4000 | 2.604 |
| 60 | 0.093 | 1500 | 1.440 | 4500 | 2.755 |
| 80 ³ | 0.123 | 1600 ⁷ | 1.505 | 5000 | 2.886 |
| 100 | 0.151 | 1700 | 1.569 | 5500 | 3.000 |
| 200 ⁴ | 0.286 | 1800 | 1.629 | 6000 | 3.098 |
| 300 | 0.408 | 1900 | 1.689 | 6500 | 3.181 |
| 400 ⁵ | 0.521 | 2000 | 1.746 | 7000 | 3.250 |
| 500 | 0.627 | 2200 | 1.855 | 7500 | 3.308 |
| 600 | 0.726 | 2400 | 1.958 | 8000 | 3.354 |
| 700 | 0.820 | 2600 | 2.055 | 8500 | 3.388 |
| 800 ⁶ | 0.910 | 2800 | 2.147 | 9000 | 3.412 |
| 900 | 0.995 | 3000 | 2.234 | 9500 | 3.427 |
| 1000 | 1.077 | 3200 ⁸ | 2.316 | 10000 | 3.432 |
| 1100 | 1.155 | 3400 | 2.394 | v _{max} = 60 m/s | |

¹F_{N spez} [N/mm] 9.750 ²9.455 ³9.195 ⁴8.567 ⁵7.816 ⁶6.825 ⁷5.646 ⁸4.343

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

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

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

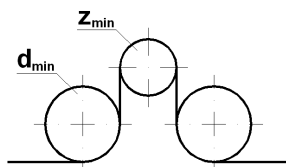
F_{N spez} Specific nominal tensile force transmittable per tooth [N/mm]
t Tooth pitch [mm]

Cord tensile forces, belt weight

| Belt width ¹ b [mm] | 10 | 12 | 16 | 20 | 25 | 32 | 50 | 75 | 100 |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Breaking strength F _{Br} [N] | 3760 | 4520 | 6780 | 8300 | 11320 | 14340 | 23400 | 36240 | 49060 |
| Allowable tensile force ² F _{zul} [N] | 940 | 1130 | 1695 | 2075 | 2830 | 3585 | 5850 | 9060 | 12265 |
| Weight per metre [kg/m] | 0.065 | 0.078 | 0.104 | 0.130 | 0.163 | 0.208 | 0.325 | 0.488 | 0.650 |

¹ Other 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



No. of teeth: z_{min} = 18
Pitch-Ø: d_{w min} = 57.30 mm
Plane, cylindrical idlers, Ø
Inside idler: d_{min} = 50 mm
Outside idler: d_{min} = 120 mm

Length tolerances, shown as centre distance tolerances

| Length L _w [mm] | Tolerance a _{LTol} [mm] | Length L _w [mm] | Tolerance a _{LTol} [mm] |
|-------------------------------|-------------------------------------|-------------------------------|-------------------------------------|
| > 390 ≤ 525 | ± 0.18 | > 780 ≤ 990 | ± 0.28 |
| > 525 ≤ 630 | ± 0.21 | > 990 ≤ 1250 | ± 0.32 |
| > 630 ≤ 780 | ± 0.24 | > 1250 ≤ 1560 | ± 0.38 |
| | | > 1560 ≤ 1960 | ± 0.44 |
| | | > 1960 ≤ 2350 | ± 0.52 |