

Technical Data Sheet

optibelt ALPHA FLEX AT10K6 - ST

PU Timing Belt, Optionally with Fabric PAZ, Endless

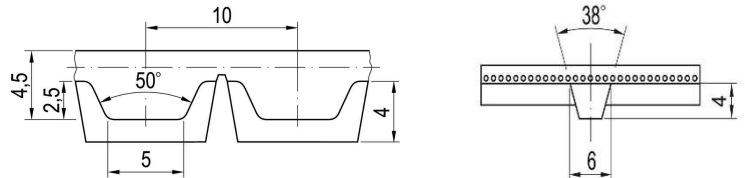


Dimensions, Tolerances

| | |
|-----------------------------------------|-----------------|
| Profile: | AT10K6 |
| Tooth pitch t: | 10 mm |
| Total thickness without V guide: 4.5 mm | |
| Tooth height: | 2.5 mm |
| Tooth tip width: | 5.0 mm |
| Tooth flank angle: | 50° |
| Length tolerance: | ±0.5 mm/m |
| Width tolerance: | ±0.5 mm |
| Thickness tolerance: | ±0.3 mm |
| V guide width, -height, -angle: | 6 mm, 4 mm, 38° |

Construction

| | |
|-------------------|--------------------------------------------------------------------------|
| Polyurethane: | Thermoplastic, 92 Shore A, white |
| Tension cord: | Steel, Ø 0.9 mm |
| Fabric, optional: | Polyamide, tooth side (PAZ), green PAZ from 2000 mm production length |



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 | 0.947 | 3600 | 1.898 |
| 20 | 0.025 | 1300 | 1.002 | 3800 | 1.952 |
| 40 ² | 0.048 | 1400 | 1.056 | 4000 | 2.003 |
| 60 | 0.072 | 1500 | 1.108 | 4500 | 2.119 |
| 80 ³ | 0.094 | 1600 ⁷ | 1.158 | 5000 | 2.220 |
| 100 | 0.116 | 1700 | 1.207 | 5500 | 2.308 |
| 200 ⁴ | 0.220 | 1800 | 1.253 | 6000 | 2.383 |
| 300 | 0.314 | 1900 | 1.299 | 6500 | 2.447 |
| 400 ⁵ | 0.401 | 2000 | 1.343 | 7000 | 2.500 |
| 500 | 0.482 | 2200 | 1.427 | 7500 | 2.545 |
| 600 | 0.559 | 2400 | 1.506 | 8000 | 2.580 |
| 700 | 0.631 | 2600 | 1.581 | 8500 | 2.606 |
| 800 ⁶ | 0.700 | 2800 | 1.652 | 9000 | 2.625 |
| 900 | 0.766 | 3000 | 1.718 | 9500 | 2.636 |
| 1000 | 0.828 | 3200 ⁸ | 1.782 | 10000 | 2.640 |
| 1100 | 0.889 | 3400 | 1.842 | | $v_{max} = 60\text{ m/s}$ |

¹ $F_{N\ spez}$ [N/mm] 7.500 ² 7.273 ³ 7.073 ⁴ 6.590 ⁵ 6.012 ⁶ 5.250 ⁷ 4.343 ⁸ 3.341

Nennleistung P_N

$$P_N = P_{N\ spez} \cdot Z_k \cdot Z_{eB} \cdot (b-6) / 10^3 \text{ [kW]}$$

$P_{N\ spez}$ 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

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

n_k Speed, small pulley [1/min]

Nominal tensile force F_N

$$F_N = F_{N\ spez} \cdot Z_{eB} \cdot (b-6) \text{ [N]}$$

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

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

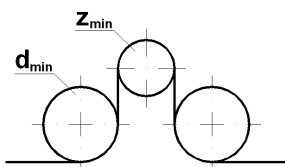
t Tooth pitch [mm]

Cord tensile forces, belt weight

| Belt width ¹ b [mm] | 16 | 25 | 32 | 50 |
|----------------------------------------------------|-------|-------|-------|-------|
| Breaking strength F_{Br} [N] | 7600 | 13300 | 17000 | 28400 |
| Allowable tensile force ² F_{zul} [N] | 1900 | 3325 | 4250 | 7100 |
| Weight per metre [kg/m] | 0.108 | 0.142 | 0.216 | 0.290 |
| Min. belt length [mm] | 1500 | 1500 | 1500 | 1500 |

¹ Smaller and intermediate widths possible ² Allowable tensile force F_{zul} equivalent to 25% breaking strength F_{Br} of the cord

Timing belt pulleys, inside and outside idlers



Minimum number of teeth of the pulley:

$$Z_{min} = 25$$

Minimum pitch diameter of the pulley:

$$d_{w\ min} = 79.58\text{ mm}$$

Plane, cylindrical idlers:

Minimum pitch diameter of an inside idler:

$$d_{min} = 76\text{ mm}$$

Minimum pitch diameter of an outside idler:

$$d_{min} = 100\text{ mm}$$