

Technical Data Sheet

optibelt ALPHA LINEAR / V AT10 - HF

PU Timing Belt, Optionally with Fabric PAZ/PAR, Open-Ended / Endless Joined

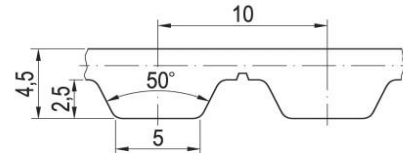


Dimensions, Tolerances

| | |
|----------------------|------------|
| Profile: | AT10 |
| Tooth pitch t: | 10 mm |
| Total thickness: | 4.5 mm |
| Tooth height: | 2.5 mm |
| Tooth tip width: | 5 mm |
| Tooth flank angle: | 50° |
| Length tolerance: | ± 0.5 mm/m |
| Width tolerance: | ± 0.5 mm |
| Thickness tolerance: | ± 0.3 mm |

Construction

| | |
|-------------------|---|
| Polyurethane: | Thermoplastic, 92 Shore A, white |
| Tension cord: | Steel, high flexible, ø 0.9 mm |
| Fabric, optional: | Polyamide, tooth and back, (PAZ/PAR), green |



Specific nominal tensile force transmittable per tooth

| Input speed n_1 [1/min] | Spec. nom. tensile force $F_{N\ spez}$ [N/mm] | Input speed n_1 [1/min] | Spec. nom. tensile force $F_{N\ spez}$ [N/mm] | Input speed n_1 [1/min] | Spec. nom. tensile force $F_{N\ spez}$ [N/mm] |
|---------------------------------|---|---------------------------------|---|---------------------------------|---|
| 0 | 7.500 | 1200 | 4.734 | 3600 | 3.164 |
| 20 | 7.382 | 1300 | 4.627 | 3800 | 3.083 |
| 40 | 7.273 | 1400 | 4.527 | 4000 | 3.005 |
| 60 | 7.170 | 1500 | 4.432 | 4500 | 2.826 |
| 80 | 7.073 | 1600 | 4.343 | 5000 | 2.664 |
| 100 | 6.982 | 1700 | 4.259 | 5500 | 2.518 |
| 200 | 6.590 | 1800 | 4.178 | 6000 | 2.383 |
| 300 | 6.275 | 1900 | 4.102 | 6500 | 2.259 |
| 400 | 6.012 | 2000 | 4.029 | 7000 | 2.143 |
| 500 | 5.785 | 2200 | 3.892 | 7500 | 2.036 |
| 600 | 5.586 | 2400 | 3.766 | 8000 | 1.935 |
| 700 | 5.409 | 2600 | 3.649 | 8500 | 1.840 |
| 800 | 5.250 | 2800 | 3.540 | 9000 | 1.750 |
| 900 | 5.104 | 3000 | 3.437 | 9500 | 1.665 |
| 1000 | 4.971 | 3200 | 3.341 | 10000 | 1.584 |
| 1100 | 4.848 | 3400 | 3.250 | $v_{max} = 60\text{ m/s}$ | |

Nominal tensile force F_N

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

$F_{N\ spez}$ Specific nominal tensile force transmittable per tooth [N/mm]
 z_{eB} Number of teeth in mesh, driver pulley, limited to $z_{eB\ max}$
 $z_{eB\ max}$ ALPHA LINEAR: 12, ALPHA V: 6
 b Belt width [mm]

Nominal torque M_N

$$M_N = F_N \cdot d_{w1} / (2 \cdot 10^3) \quad [Nm]$$

$d_{w1} = z_1 \cdot t / \pi$
 d_{w1} Pitch diameter, driver pulley [mm]
 z_1 Number of teeth, driver pulley
 t Tooth pitch [mm]

Nominal power P_N

$$P_N = F_N \cdot z_1 \cdot t \cdot n_1 / (6 \cdot 10^7) \quad [KW]$$

n_1 Speed, driver pulley [1/min]

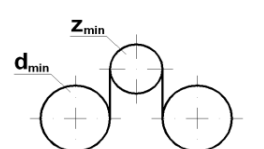
Cord tensile force, minimum belt length, belt weight

| Belt width ¹ b [mm] | 16 | 25 | 32 | 50 | 75 | 100 | 150 |
|--|-------|-----------|-----------|-----------|--------|--------|--------|
| F_{Br} [N], ALPHA LINEAR | 8,640 | 13,840 | 17,280 | 27,680 | 41,520 | 55,360 | 83,040 |
| F_{zul} [N] ² , ALPHA LINEAR | 2,160 | 3,460 | 4,320 | 6,920 | 10,380 | 13,840 | 20,760 |
| F_{zul} [N] ² , ALPHA V | 1,080 | 1,730 | 2,160 | 3,460 | 5,190 | 6,920 | 10,380 |
| F_{zul} [N] ³ , ALPHA V short joint | - | 860 | 1,080 | 1,730 | - | - | - |
| Min. belt length ALPHA V / s. j. ³ [mm] | 700 | 700 / 400 | 700 / 400 | 700 / 400 | 900 | 900 | 1,100 |
| Weight per metre [kg/m] | 0.090 | 0.140 | 0.179 | 0.280 | 0.420 | 0.560 | 0.840 |

¹ Smaller and intermediate widths possible ² Allowable tensile force $F_{zul} = 25\% / 12.5\%$ (ALPHA LINEAR / V) of cord breaking strength F_{Br} $c_{spez} = F_{zul} / \epsilon_{zul}$ [N]

³ short joint - allowable tensile force 50% of F_{zul} ALPHA V

Timing belt pulleys, idlers, clamping plates



| | |
|---|-------------------------------|
| Minimum no. of teeth of the pulleys: | $z_{min} = 12$ |
| Minimum pitch diameter of the pulleys: | $d_{w\ min} = 38.2\text{ mm}$ |
| Minimum no. of teeth in mesh, clamping plate: | $z_{CP\ min} = 8$ |
| Minimum- of a plane inside idler: | $d_{min} = 32\text{ mm}$ |
| Minimum- of a plane outside idler: | $d_{min} = 75\text{ mm}$ |