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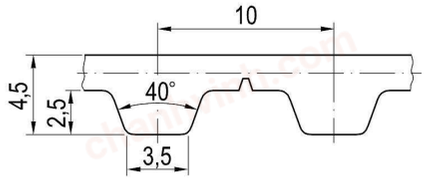
# Technical Data Sheet
# optibelt ALPHA TORQUE T10 - ST
## PU Timing Belt, Cast Polyurethane, Endless

### Dimensions, Tolerances

| | |
|---|---|
| Profile: | T10 |
| Tooth pitch t: | 10 mm |
| Total thickness: | 4.5 mm |
| Tooth height: | 2.5 mm |
| Tooth tip width: | 3.5 mm |
| Tooth flank angle: | 40° |
| Length tolerance: | See table |
| Width tolerance, b ≤ 50 mm: | ± 0.5 mm |
| Thickness tolerance: | ± 0.3 mm |

### Construction

Polyurethane: Thermoset, 84 +/-4 Shore A, transparent
Tension cord: Steel, Ø 0.6 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 | 0.585 | 3600 | 1.222 |
| 20 | 0.017 | 1300 | 0.620 | 3800 | 1.262 |
| 40 [2] | 0.033 | 1400 | 0.654 | 4000 | 1.300 |
| 60 | 0.048 | 1500 | 0.687 | 4500 | 1.390 |
| 80 [3] | 0.062 | 1600 [7] | 0.719 | 5000 | 1.472 |
| 100 | 0.076 | 1700 | 0.750 | 5500 | 1.546 |
| 200 [4] | 0.140 | 1800 | 0.780 | 6000 | 1.615 |
| 300 | 0.197 | 1900 | 0.810 | 6500 | 1.678 |
| 400 [5] | 0.249 | 2000 | 0.839 | 7000 | 1.735 |
| 500 | 0.299 | 2200 | 0.894 | 7500 | 1.787 |
| 600 | 0.345 | 2400 | 0.948 | 8000 | 1.835 |
| 700 | 0.389 | 2600 | 0.998 | 8500 | 1.877 |
| 800 [6] | 0.432 | 2800 | 1.047 | 9000 | 1.917 |
| 900 | 0.472 | 3000 | 1.093 | 9500 | 1.952 |
| 1000 | 0.511 | 3200 [8] | 1.138 | 10000 | 1.983 |
| 1100 | 0.548 | 3400 | 1.181 | $v_{max}$ = 60 m/s | |

[1] $F_{N\,spez}$ [N/mm] 5.200 [2] 4.879 [3] 4.646 [4] 4.189 [5] 3.742 [6] 3.237 [7] 2.695 [8] 2.134

### Nominal power $P_N$

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

$P_{N\,spez}$ 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 $M_N$

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

$n_k$ Speed, small pulley [1/min]

### Nominal tensile force $F_N$

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

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

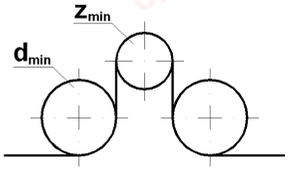
$F_{N\,spez}$ Specific nominal tensile force transmittable per tooth [N/mm]
t Tooth pitch [mm]

### Cord tensile forces, belt weight

| Belt width [1] b [mm] | 10 | 12 | 16 | 20 | 25 | 32 | 50 | 75 | 100 |
|---|---|---|---|---|---|---|---|---|---|
| Breaking strength $F_{Br}$ [N] | 3360 | 4200 | 5900 | 7600 | 9700 | 12600 | 20200 | 30700 | 41200 |
| Allowable tensile force [2] $F_{zul}$ [N] | 840 | 1050 | 1475 | 1900 | 2425 | 3150 | 5050 | 7675 | 10300 |
| Weight per metre [kg/m] | 0.046 | 0.055 | 0.074 | 0.092 | 0.115 | 0.147 | 0.230 | 0.345 | 0.460 |

[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: $z_{min}$ = 12
Pitch-Ø: $d_{w\,min}$ = 38.20 mm
Plane, cylindrical idlers, Ø
Inside idler: $d_{min}$ = 50 mm
Outside idler: $d_{min}$ = 55 mm

### Length tolerances, shown as centre distance tolerances

| Length $L_w$ [mm] | | Tolerance $a_{LTol}$ [mm] | Length $L_w$ [mm] | | Tolerance $a_{LTol}$ [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 |

We would be pleased to offer advice about technical characteristics and drive design as well as special requirements. Further information can be found in OPTIBELT documentation. © OPTIBELT GmbH 09/2015. Subject to technical modification and change, errors and omissions excepted.