

Technical Data Sheet

Optibelt ALPHA linear / V T10K13

Polyurethane Timing Belt With Cogged V Guide,
Thermoplastic PU, Open Ended / Endless Joined



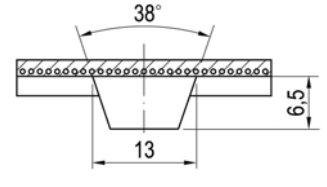
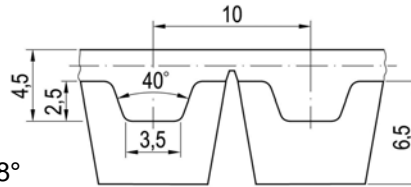
Power Transmission

Dimensions, Tolerances

| | |
|----------------------------------|--------------------|
| Profile: | T10K13 |
| Tooth pitch t: | 10 mm |
| Total thickness without V guide: | 4.5 mm |
| Tooth height: | 2.5 mm |
| Tooth tip width: | 3.5 mm |
| Tooth flank angle: | 40° |
| Length tolerance: | ±0.5 mm/m |
| Width tolerance: | ±0.5 mm |
| Thickness tolerance: | ±0.3 mm |
| V guide width, -height, -angle: | 13 mm, 6.5 mm, 38° |

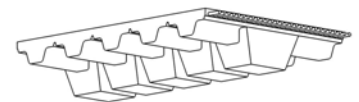
Construction

| | |
|------------------|----------------------------------|
| Polyurethane: | Thermoplastic, 92 Shore A, white |
| Tension cord: | Steel, Ø 0.6 mm |
| Polyamid fabric: | Optional on teeth, back |



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 | 5.200 | 1200 | 2.923 | 3600 | 2.037 |
| 20 | 5.024 | 1300 | 2.860 | 3800 | 1.993 |
| 40 | 4.879 | 1400 | 2.802 | 4000 | 1.950 |
| 60 | 4.755 | 1500 | 2.747 | 4500 | 1.853 |
| 80 | 4.646 | 1600 | 2.695 | 5000 | 1.766 |
| 100 | 4.551 | 1700 | 2.647 | 5500 | 1.687 |
| 200 | 4.189 | 1800 | 2.601 | 6000 | 1.615 |
| 300 | 3.936 | 1900 | 2.558 | 6500 | 1.549 |
| 400 | 3.742 | 2000 | 2.516 | 7000 | 1.487 |
| 500 | 3.585 | 2200 | 2.439 | 7500 | 1.430 |
| 600 | 3.452 | 2400 | 2.369 | 8000 | 1.376 |
| 700 | 3.338 | 2600 | 2.303 | 8500 | 1.325 |
| 800 | 3.237 | 2800 | 2.243 | 9000 | 1.278 |
| 900 | 3.147 | 3000 | 2.187 | 9500 | 1.233 |
| 1000 | 3.066 | 3200 | 2.134 | 10000 | 1.190 |
| 1100 | 2.991 | 3400 | 2.084 | | |



Nominal tensile force F_N

$$F_N = F_{N\ spez} \cdot z_{eB} \cdot (b - 13) \quad [N]$$

$F_{N\ spez}$ 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

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

$$d_{w1} = z_1 \cdot t / \pi \quad [mm]$$

d_{w1} Pitch diameter, driver pulley [mm]
 z_1 Number of teeth, driver pulley
 t Tooth pitch [mm]

Nominal power P_N

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

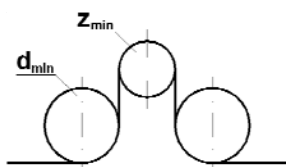
n_1 Speed, driver pulley [1/min]

Cord tensile force, minimum belt length, belt weight

| Belt width * b [mm] | 25 | 32 | 50 | 75 | 100 |
|--------------------------------|-------|-------|-------|-------|-------|
| F_{Br} [N], ALPHA linear | 9200 | 12200 | 19800 | 30200 | 40800 |
| F_{zul} [N] **, ALPHA linear | 2300 | 3050 | 4950 | 7550 | 10200 |
| F_{zul} [N] **, ALPHA V | 1150 | 1525 | 2475 | 3775 | 5100 |
| Minimum belt length [mm] | 1000 | 1000 | 1000 | 1000 | 1000 |
| Weight per metre [kg/m] | 0.178 | 0.212 | 0.295 | 0.411 | 0.526 |

* Smaller and intermediate widths possible ** Allowable tensile force $F_{zul} = 25\% / 12.5\%$ (ALPHA linear / V) of cord breaking strength F_{Br}

Timing belt pulleys, inside and outside idlers, clamping plates



| | |
|--|--------------------------|
| Minimum no. of teeth of V grooved pulleys: | $z_{min} = 25$ |
| Minimum pitch diameter of V grooved pulleys: | $d_{w\ min} = 79.58\ mm$ |
| Minimum no. of teeth in mesh per V grooved clamp. plate: | $z_{CP\ min} = 8$ |
| Minimum-Ø of a plane inside idler, V grooved: | $d_{min} = 76\ mm$ |
| Minimum diameter of a plane outside idler: | $d_{min} = 90\ mm$ |

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 05/2011. Subject to technical modification and change, errors and omissions excepted.