

# Technical Data Sheet

## optibelt ALPHA LINEAR / V T10 - HF

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

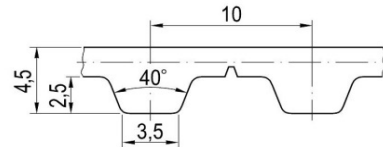


#### Dimensions, Tolerances

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:	± 0.5 mm/m
Width tolerance:	± 0.5 mm
Thickness tolerance:	± 0.3 mm

#### Construction

Polyurethane:	Thermoplastic, 92 Shore A, white
Tension cord:	Steel, ø 0.6 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	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	$v_{max} = 60\text{ m/s}$	

#### 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]

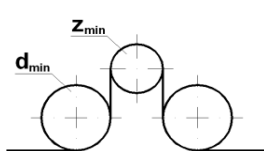
#### Cord tensile force, minimum belt length, belt weight

Belt width <sup>1</sup> $b$ [mm]	16	25	32	50	75	100	150
$F_{Br}$ [N], ALPHA LINEAR	5280	9240	12320	20240	30360	40480	60720
$F_{zul}$ [N] <sup>2</sup> , ALPHA LINEAR $\epsilon_{zul} = 0.54\%$	1320	2310	3080	5060	7590	10120	15180
$F_{zul}$ [N] <sup>2</sup> , ALPHA V / short joining	660	1155 / 575 <sup>3</sup>	1540 / 770 <sup>3</sup>	2530 / 1265 <sup>3</sup>	3795	5060	7590
Min. belt length / short joining [mm]	700	700 / 400 <sup>3</sup>	700 / 400 <sup>3</sup>	700 / 400 <sup>3</sup>	900	900	1100
Weight per metre [kg/m]	0.072	0.113	0.144	0.225	0.338	0.450	0.675

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

<sup>3</sup> Short joining from 400 mm. Allowable tensile force  $F_{zul} = 50\%$  of a standard joining

#### Timing belt pulleys, idlers, clamping plates



Minimum no. of teeth of the pulleys:	$z_{min} = 10$
Minimum pitch diameter of the pulleys:	$d_{w\ min} = 31.83\text{ mm}$
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:	$d_{min} = 50\text{ mm}$