

# Technical Data Sheet

## Optibelt ALPHA linear / V T5 - ST

Polyurethane Timing Belt With Antistatic Fabric PAZ/PAR,  
Thermoplastic PU, Open Ended / Endless Joined



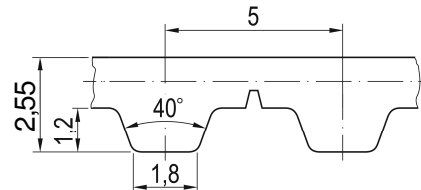
Power Transmission

### Dimensions, Tolerances

Profile:	T5
Tooth pitch t:	5 mm
Total thickness:	2.55 mm
Tooth height:	1.2 mm
Tooth tip width:	1.8 mm
Tooth flank angle:	40°
Length tolerance:	±0.5 mm/m
Width tolerance:	±0.5 mm
Thickness tolerance:	±0.15 mm

### Construction

Polyurethane:	Thermoplastic, 92 Shore A, transparent
Tension cord:	Steel, Ø 0.3 mm
Fabric:	Polyamid antistatic, tooth and back (PAZ/PAR), black



### 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	2.450	1200	1.518	3600	1.157
20	2.377	1300	1.493	3800	1.139
40	2.317	1400	1.469	4000	1.122
60	2.266	1500	1.446	4500	1.082
80	2.222	1600	1.425	5000	1.047
100	2.183	1700	1.406	5500	1.014
200	2.035	1800	1.387	6000	0.985
300	1.932	1900	1.369	6500	0.958
400	1.852	2000	1.352	7000	0.933
500	1.788	2200	1.321	7500	0.909
600	1.734	2400	1.292	8000	0.887
700	1.687	2600	1.266	8500	0.867
800	1.646	2800	1.241	9000	0.848
900	1.609	3000	1.218	9500	0.829
1000	1.576	3200	1.196	10000	0.812
1100	1.546	3400	1.176	$v_{max} = 80$ 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 $M_N$

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

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

$d_{w1}$  Pitch diameter, driver pulley [mm]

$z_1$  Number of teeth, driver pulley

$t$  Tooth pitch [mm]

### Nominal power $P_N$

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

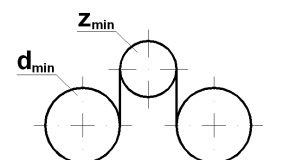
$n_1$  Speed, driver pulley [1/min]

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

Belt width * b [mm]	10	16	25	32	50	75	100
$F_{Br}$ [N], ALPHA linear	1000	1760	3120	4120	6600	10400	13800
$F_{zul}$ [N]**, ALPHA linear $\epsilon_{zul} = 0,44\%$	250	440	780	1030	1650	2600	3450
$F_{zul}$ [N]**, ALPHA V	125	220	390	515	825	1300	1725
Minimum belt length [mm]	700	700	700	700	700	900	900
Weight per metre [kg/m]	0.028	0.045	0.070	0.090	0.140	0.210	0.280

\* Smaller and intermediate widths possible \*\* Allowable tensile force  $F_{zul} = 25\% / 12,5\%$  (ALPHA linear / V) of cord breaking strength  $F_{Br}$   $C_{spez} = F_{zul} / \epsilon_{zul}$  [N]

### Timing belt pulleys, idlers, clamping plates



Minimum no. of teeth of the pulleys:

$$z_{min} = 10$$

Minimum pitch diameter of the pulleys:

$$d_{w\ min} = 15.92 \text{ mm}$$

Minimum no. of teeth in mesh, clamp. plate:

$$z_{CP\ min} = 6$$

Minimum-Ø of a plane inside idler:

$$d_{min} = 18 \text{ mm}$$

Minimum-Ø of a plane outside idler:

$$d_{min} = 30 \text{ mm}$$

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 11/2012. Subject to technical modification and change, errors and omissions excepted.