

Technical Data Sheet

optibelt ALPHA LINEAR / V T5K6 - ST PU Timing Belt with Cogged V-guide and Optionally with Fabric PAZ/PAR, Open-Ended / Endless Joined

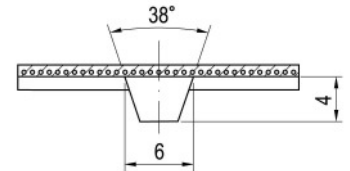
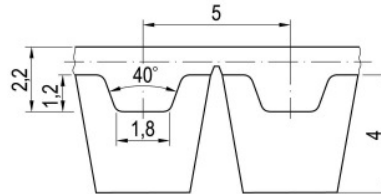


Dimensions, Tolerances

Profile:	T5K6
Tooth pitch t:	5 mm
Total thickness without V-guide:	2.2 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
V-guide width, -height, -angle:	6 mm, 4 mm, 38°

Construction

Polyurethane:	Thermoplastic, 92 Shore A, white
Tension cord:	Steel, Ø 0.3 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	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	$v_{max} = 80\text{ m/s}$	



Nominal tensile force F_N

$$F_N = F_{N\ spez} \cdot z_{eB} \cdot (b - 6) \quad [N]$$

- $F_{N\ spez}$ 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

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

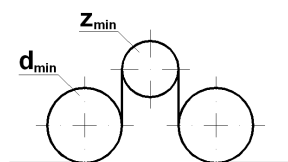
- n_1 Speed, driver pulley [1/min]

Cord tensile force, minimum belt length, belt weight

Belt width ¹ b [mm]	25	32	50	75	100
F_{Br} [N], ALPHA LINEAR	3120	4120	6600	10360	13840
F_{zul} [N] ² , ALPHA LINEAR, $\epsilon_{zul}=0,44\%$	780	1030	1650	2590	3460
F_{zul} [N] ² , ALPHA V	390	515	825	1295	1730
Minimum belt length [mm]	1000	1000	1000	1000	1000
Weight per metre [kg/m]	0.074	0.089	0.128	0.181	0.235

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]

Timing belt pulleys, inside and outside idlers, clamping plates



- Minimum no. of teeth of V-grooved pulleys: $z_{min} = 20$
- Minimum pitch diameter of V-grooved pulleys: $d_{w\ min} = 31.83\text{ mm}$
- Minimum no. of teeth in mesh per V-grooved clamp. plate: $z_{CP\ min} = 8$
- Minimum-Ø of a plane inside idler, V-grooved: $d_{min} = 28\text{ mm}$
- Minimum diameter of a plane outside idler: $d_{min} = 45\text{ mm}$