

Technical Data Sheet

Optibelt ALPHA linear / V T5 - AR

Polyurethane Timing Belt, Thermoplastic PU,
Open-Ended / Endless Joined

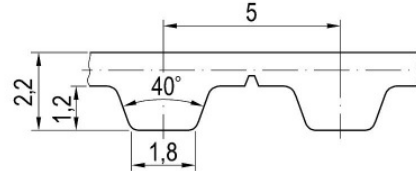


Dimensions, Tolerances

Profile:	T5
Tooth pitch t:	5 mm
Total thickness:	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

Construction

Polyurethane:	Thermoplastic, 85 Shore A FDA, blue
Tension cord:	Aramid, Ø 0.4 mm



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

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

$F_{N\ spez}$	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

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

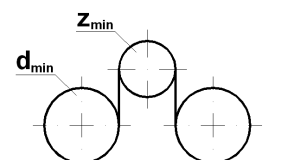
n_1	Speed, driver pulley [1/min]
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Cord tensile force, minimum belt length, belt weight

Belt width * b [mm]	10	12	16	20	25	32	50	75	100
F_{Br} [N], ALPHA linear	950	1250	1900	2550	3350	4450	7350	11350	15350
F_{zul} [N]**, ALPHA linear	190	250	380	510	670	890	1470	2270	3070
F_{zul} [N]**, ALPHA V	95	125	190	255	335	445	735	1135	1535
Minimum belt length [mm]	700	700	700	700	700	700	700	900	900
Weight per metre [kg/m]	0,019	0,023	0,030	0,038	0,048	0,061	0,095	0,143	0,190

* Smaller and intermediate widths possible ** Allowable tensile force $F_{zul} = 20\% / 10\%$ (ALPHA linear / V) of cord breaking strength F_{Br}

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