

Technical Data Sheet

optibelt ALPHA FLEX T5 - ST

PU Timing Belt, Optionally With Fabric PAZ, Endless

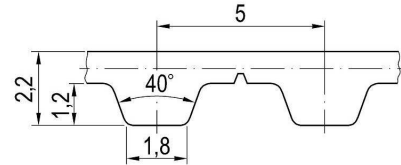


Dimensions, Tolerances

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, 92 Shore A, white
Tension cord:	Steel, Ø 0.3 mm
Fabric, optional:	Polyamide, tooth side (PAZ), green PAZ from 1500 mm production length



Specific nominal power transmittable per tooth

Speed, small pulley n_k [1/min]	Specific nom. power $P_{N\ spez}$ [W/mm]	Speed, small pulley n_k [1/min]	Specific nom. power $P_{N\ spez}$ [W/mm]	Speed, small pulley n_k [1/min]	Specific nom. power $P_{N\ spez}$ [W/mm]
0 ¹	0.000	1200	0.152	3600	0.347
20	0.004	1300	0.162	3800	0.361
40 ²	0.008	1400	0.171	4000	0.374
60	0.011	1500	0.181	4500	0.406
80 ³	0.015	1600 ⁷	0.190	5000	0.436
100	0.018	1700	0.199	5500	0.465
200 ⁴	0.034	1800	0.208	6000	0.492
300	0.048	1900	0.217	6500	0.519
400 ⁵	0.062	2000	0.225	7000	0.544
500	0.074	2200	0.242	7500	0.568
600	0.087	2400	0.258	8000	0.591
700	0.098	2600	0.274	8500	0.614
800 ⁶	0.110	2800	0.290	9000	0.636
900	0.121	3000	0.304	9500	0.656
1000	0.131	3200 ⁸	0.319	10000	0.677
1100	0.142	3400	0.333	$v_{max} = 80\text{ m/s}$	

¹ $F_{N\ spez}$ [N/mm] 2.450 ² 2.317 ³ 2.222 ⁴ 2.035 ⁵ 1.852 ⁶ 1.646 ⁷ 1.425 ⁸ 1.196

Nominal power P_N

$$P_N = P_{N\ spez} \cdot z_k \cdot z_{eB} \cdot b / 10^3 \quad [\text{kW}]$$

$P_{N\ spez}$ Specific nominal power transmittable per tooth [W/mm]

z_k Number of teeth, small pulley

z_{eB} Number of teeth in mesh, small pulley, limited to $z_{eB\ max}$

$z_{eB\ max}$ 12, maximum allowable no. of teeth

b Belt width [mm]

Nominal torque M_N

$$M_N = P_N \cdot 9.55 \cdot 10^3 / n_k \quad [\text{Nm}]$$

n_k Speed, small pulley [1/min]

Nominal tensile force F_N

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

$$F_{N\ spez} = P_{N\ spez} \cdot 6 \cdot 10^4 / (n_k \cdot t) \quad [\text{N/mm}]$$

$F_{N\ spez}$ Specific nominal tensile force transmittable per tooth [N/mm]

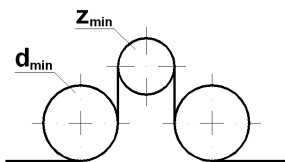
t Tooth pitch [mm]

Cord tensile forces, belt weight

Belt width ¹ b [mm]	10	12	16	20	25	32	50	75	100
Breaking strength F_{Br} [N]	1120	1360	2000	2600	3360	4400	7000	10600	14400
Allowable tensile force ² F_{zul} [N]	280	340	500	650	840	1100	1750	2650	3600
Weight per metre [kg/m]	0.022	0.026	0.035	0.044	0.055	0.070	0.110	0.165	0.220
Min. belt length [mm]	1100	1100	1100	1100	1100	1100	1100	1100	1100

¹ Other and intermediate widths possible ² Allowable tensile force F_{zul} equivalent to 25% breaking strength F_{Br} of the cords

Timing belt pulleys, inside and outside idlers



Minimum number of teeth of the pulley:

$$z_{min} = 10$$

Minimum pitch diameter of the pulley:

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

Plane, cylindrical idlers:

Minimum pitch diameter of an inside idler:

$$d_{min} = 25\text{ mm}$$

Minimum pitch diameter of an outside idler:

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