

# Technical Data Sheet

## optibelt ALPHA FLEX T5 - HF

### PU Timing Belt, Optionally with Fabric PAZ, Endless

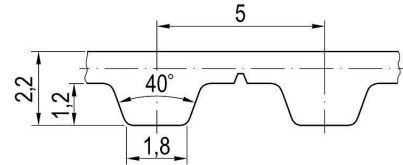


#### Dimensions, Tolerances

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, 85 Shore A, transparent
Tension cord:	Steel, high flexible, 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 <sup>1</sup>	0.000	1200	0.152	3600	0.347
20	0.004	1300	0.162	3800	0.361
40 <sup>2</sup>	0.008	1400	0.171	4000	0.374
60	0.011	1500	0.181	4500	0.406
80 <sup>3</sup>	0.015	1600 <sup>7</sup>	0.190	5000	0.436
100	0.018	1700	0.199	5500	0.465
200 <sup>4</sup>	0.034	1800	0.208	6000	0.492
300	0.048	1900	0.217	6500	0.519
400 <sup>5</sup>	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 <sup>6</sup>	0.110	2800	0.290	9000	0.636
900	0.121	3000	0.304	9500	0.656
1000	0.131	3200 <sup>8</sup>	0.319	10000	0.677
1100	0.142	3400	0.333	$v_{max} = 80\text{ m/s}$	

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

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

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

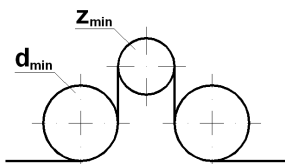
$F_{N\ spez}$	Specific nominal tensile force transmittable per tooth [N/mm]
$t$	Tooth pitch [mm]

#### Cord tensile forces, belt weight

Belt width <sup>1</sup> $b$ [mm]	10	12	16	20	25	32	50	75	100
Breaking strength $F_{Br}$ [N]	1360	1680	2440	3200	3960	5320	8520	12920	17480
Allowable tensile force <sup>2</sup> $F_{zul}$ [N]	340	420	610	800	990	1330	2130	3230	4370
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

<sup>1</sup> Other and intermediate widths possible <sup>2</sup> 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:	$d_{min} = 20\text{ mm}$
Minimum pitch diameter of an outside idler:	$d_{min} = 25\text{ mm}$