

Technical Data Sheet

optibelt ALPHA FLEX H - HF

PU Timing Belt, Optionally with Fabric PAZ, Endless

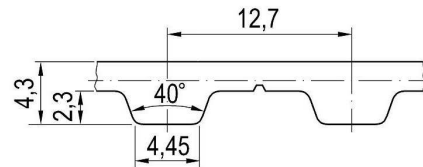


Dimensions, Tolerances

Profile:	H
Tooth pitch t:	12.7 mm
Total thickness:	4.3 mm
Tooth height:	2.3 mm
Length tolerance:	±0.5 mm/m
Width tolerance:	±0.5 mm
Thickness tolerance:	±0.3 mm

Construction

Polyurethane:	Thermoplastic, 92 Shore A, white
Tension cord:	Steel, high flexible, Ø 0.6 mm
Fabric, optional:	Polyamide, tooth side (PAZ), green



Specific nominal power transmittable per tooth

rpm, small idler n_k [1/min]	Spec. nom. power $P_{N\text{ spez}}$ [W/mm]	rpm, small idler n_k [1/min]	Spec. nom. power $P_{N\text{ spez}}$ [W/mm]	rpm, small idler n_k [1/min]	Spec. nom. power $P_{N\text{ spez}}$ [W/mm]
0 ¹	0.000	1200	0.669	3600	1.407
20	0.019	1300	0.710	3800	1.453
40 ²	0.037	1400	0.749	4000	1.498
60	0.054	1500	0.787	4500	1.602
80 ³	0.070	1600 ⁷	0.824	5000	1.698
100	0.086	1700	0.860	5500	1.786
200 ⁴	0.159	1800	0.895	6000	1.867
300	0.224	1900	0.929	6500	1.940
400 ⁵	0.284	2000	0.962	7000	2.008
500	0.341	2200	1.027	7500	2.070
600	0.394	2400	1.088	8000	2.127
700	0.445	2600	1.147	8500	2.179
800 ⁶	0.493	2800	1.203	9000	2.227
900	0.540	3000	1.257	9500	2.268
1000	0.584	3200 ⁸	1.309	10000	2.307
1100	0.627	3400	1.359	$v_{\text{max}} = 60 \text{ m/s}$	

Nominal power P_N

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

$P_{N\text{ spez}}$	Specific nominal power transmittable per tooth [W/mm]
z_k	Number of teeth, small idler
z_{eB}	Number of teeth in mesh, small idler, limited to $z_{eB\text{ max}}$
$z_{eB\text{ max}}$	12, max. 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 rpm, small idler [1/min]

Nominal tensile force F_N

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

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

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

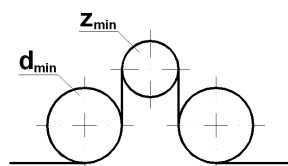
¹ $F_{N\text{ spez}}$ [N/mm] 4.600 ² 4.336 ³ 4.141 ⁴ 3.748 ⁵ 3.358 ⁶ 2.913 ⁷ 2.432 ⁸ 1.932

Cord tensile force, belt weight

Width code Belt width ¹ b [mm]	050	075	100	150	200	300	400
Belt width ¹ b [mm]	12.7	19.05	25.4	38.1	50.8	76.2	101.6
Cord breaking strength F_{Br} [N]	3360	5880	8400	13440	18060	27720	37380
Allowable tensile force ² F_{zul} [N]	840	1470	2100	3360	4515	6930	9345
Weight per metre [kg/m]	0.051	0.076	0.102	0.152	0.203	0.305	0.406

¹ Smaller and intermediate widths possible ² Allowable tensile force $F_{zul} = 25\%$ of cord breaking strength F_{Br}

Timing belt pulleys, inside and outside idlers



Minimum no. of teeth of the pulleys:
Minimum pitch diameter of the pulleys:

$$z_{\text{min}} = 12$$

$$d_{w\text{ min}} = 48.51 \text{ mm}$$

Plane, cylindrical idlers:

Minimum-Ø of a plane inside idler:
Minimum-Ø of a plane outside idler:

$$d_{\text{min}} = 50 \text{ mm}$$

$$d_{\text{min}} = 60 \text{ mm}$$