

# Technical Data Sheet

## optibelt ALPHA LINEAR / V T20 - HF

### PU Timing Belt, Optionally with Fabric PAZ/PAR, Open-Ended / Endless Joined

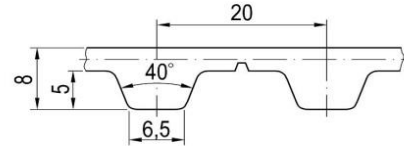


#### Dimensions, Tolerances

Profile:	T20
Tooth pitch t:	20 mm
Total thickness:	8 mm
Tooth height:	5 mm
Tooth tip width:	6.5 mm
Tooth flank angle:	40°
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 0.9 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	10.400	1200	5.403	3600	3.417
20	10.028	1300	5.262	3800	3.318
40	9.717	1400	5.131	4000	3.223
60	9.450	1500	5.008	4500	3.005
80	9.217	1600	4.893	5000	2.809
100	9.009	1700	4.784	5500	2.632
200	8.216	1800	4.682	6000	2.470
300	7.659	1900	4.584	6500	2.321
400	7.229	2000	4.492	7000	2.183
500	6.879	2200	4.319	7500	2.054
600	6.584	2400	4.161	8000	1.933
700	6.329	2600	4.015		
800	6.104	2800	3.879		
900	5.903	3000	3.753		
1000	5.721	3200	3.634		
1100	5.555	3400	3.523		
				$v_{max} = 40$ 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 $M_N$

$$M_N = F_N \cdot d_{w1} / (2 \cdot 10^3) \quad [Nm]$$

$$d_{w1} = z_1 \cdot t / \pi$$

$d_{w1}$  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]

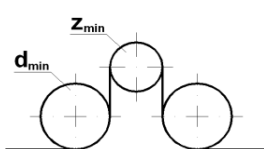
#### Cord tensile force, minimum belt length, belt weight

Belt width <sup>1</sup> b [mm]	25	32	50	75	100	150
$F_{Br}$ [N], ALPHA LINEAR	11,240	15,560	25,920	39,760	55,360	83,040
$F_{zul}$ [N] <sup>2</sup> , ALPHA LINEAR	2,810	3,890	6,480	9,940	13,840	20,760
$F_{zul}$ [N] <sup>2</sup> , ALPHA V	1,405	1,945	3,240	4,970	6,920	10,380
$F_{zul}$ [N] <sup>3</sup> , ALPHA V short joint	-	-	-	-	-	-
Min. belt length ALPHA V / s. j. <sup>3</sup> [mm]	900	900	900	900	1,100	1,100
Weight per metre [kg/m]	0.178	0.227	0.355	0.533	0.710	1.065

<sup>1</sup> Smaller and intermediate widths possible      <sup>2</sup> Allowable tensile force  $F_{zul} = 25\% / 12.5\%$  (ALPHA LINEAR / V) of cord breaking strength  $F_{Br}$        $cspez = F_{zul} / \epsilon_{zul}$  [N]

<sup>3</sup> short joint - allowable tensile force 50% of  $F_{zul}$  ALPHA V

#### Timing belt pulleys, idlers, clamping plates



Minimum no. of teeth of the pulleys:	$z_{min} = 12$
Minimum pitch diameter of the pulleys:	$d_{w\ min} = 76.39$ mm
Minimum no. of teeth in mesh, clamping plate:	$z_{CP\ min} = 8$
Minimum- of a plane inside idler:	$d_{min} = 80$ mm
Minimum- of a plane outside idler:	$d_{min} = 100$ mm