

# Technical Data Sheet

## optibelt ALPHA LINEAR 8ML - ST

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

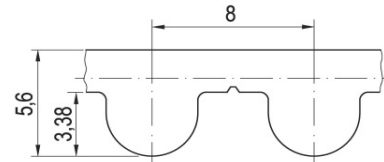


#### Dimensions, Tolerances

Profile:	8M
Tooth pitch t:	8 mm
Total thickness:	5.6 mm
Tooth height:	3.38 mm
Tooth tip width:	-
Tooth flank angle:	-
Length tolerance:	± 0.5 mm/m
Width tolerance:	± 0.5 mm
Thickness tolerance:	± 0.3 mm

#### Construction

Polyurethane:	Thermoplastic, 92 Shore A, black
Tension cord:	Steel, ø 1.2 mm
Fabric, optional:	Polyamide, tooth and back, (PAZ/PAR), black



#### 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	7.200	1200	4.458	3600	2.936
20	7.083	1300	4.353	3800	2.859
40	6.973	1400	4.255	4000	2.785
60	6.871	1500	4.162	4500	2.616
80	6.775	1600	4.075	5000	2.464
100	6.684	1700	3.993	5500	2.328
200	6.294	1800	3.914	6000	2.203
300	5.981	1900	3.840	6500	2.089
400	5.720	2000	3.769	7000	1.983
500	5.495	2200	3.636	7500	1.886
600	5.298	2400	3.514	8000	1.795
700	5.123	2600	3.401	8500	1.710
800	4.966	2800	3.296	9000	1.630
900	4.822	3000	3.197	9500	1.555
1000	4.691	3200	3.105	10000	1.484
1100	4.570	3400	3.018	$v_{max} = 60\text{ m/s}$	

#### 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  
 $b$  Belt width [mm]

#### Nominal torque $M_N$

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

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

$d_{w1}$  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

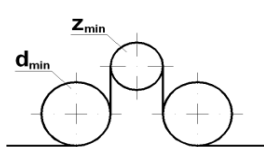
Belt width <sup>1</sup> b [mm]	15	20	25	30	50	85	100	150
$F_{Br}$ [N], ALPHA LINEAR	10360	15560	19000	22480	43240	76120	89960	136640
$F_{zul}$ [N] <sup>2</sup> , ALPHA LINEAR $\epsilon_{zul} = 0.51\%$	2590	3890	4750	5620	10810	19030	22490	34160
Weight per metre [kg/m]	0.120	0.160	0.200	0.240	0.400	0.680	0.800	1.200

<sup>1</sup> Smaller and intermediate widths possible

<sup>2</sup> Allowable tensile force  $F_{zul} = 25\%$  (ALPHA LINEAR) of cord breaking strength  $F_{Br}$

$c_{spez} = F_{zul} / \epsilon_{zul}$  [N]

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



Minimum no. of teeth of the pulleys:

$$z_{min} = 28$$

Minimum pitch diameter of the pulleys:

$$d_{w\ min} = 71.3\text{ mm}$$

Minimum no. of teeth in mesh, clamping plate:

$$z_{CP\ min} = 8$$

Minimum- of a plane inside idler:

$$d_{min} = \text{not recommended, see pulley}$$

Minimum- of a plane outside idler:

$$d_{min} = 120\text{ mm}$$