

# Technical Data Sheet

## optibelt ALPHA LINEAR 14ML - ST

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

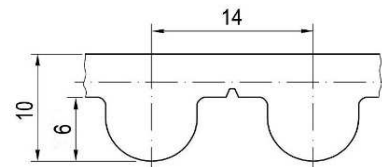


#### Dimensions, Tolerances

Profile:	14M
Tooth pitch t:	14 mm
Total thickness:	10 mm
Tooth height:	6 mm
Tooth tip width:	-
Tooth flank angle:	-
Length tolerance:	± 0,5 mm/m
Width tolerance:	± 0,7 mm
Thickness tolerance:	± 0,3 mm

#### Construction

Polyurethane:	Thermoplastic, 92 Shore A, white
Tension cord:	Steel, ø 1,6 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	12,700	1200	7,087	3600	3,965
20	12,455	1300	6,874	3800	3,803
40	12,227	1400	6,674	4000	3,649
60	12,014	1500	6,486	4500	3,293
80	11,815	1600	6,308	5000	2,973
100	11,627	1700	6,140	5500	2,682
200	10,825	1800	5,980	6000	2,415
300	10,185	1900	5,828	6500	2,169
400	9,651	2000	5,682		
500	9,194	2200	5,410		
600	8,794	2400	5,159		
700	8,439	2600	4,926		
800	8,119	2800	4,710		
900	7,828	3000	4,506		
1000	7,562	3200	4,315		
1100	7,316	3400	4,135		
				$v_{max} = 40\text{ m/s}$	

#### 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

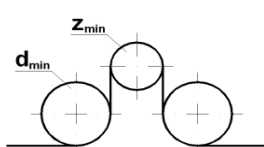
Belt width <sup>1</sup> $b$ [mm]	55	85	115	150	170
$F_{Br}$ [N], ALPHA LINEAR	73600	115200	160000	211200	240000
$F_{zul}$ [N] <sup>2</sup> , ALPHA LINEAR $\epsilon_{zul} = 0,65\%$	18400	28800	40000	52800	60000
Weight per metre [kg/m]	0,682	1,054	1,426	1,860	2,108

<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:

$$z_{min} = 32$$

Minimum pitch diameter of the pulleys:

$$d_{w\ min} = 142,6\text{ mm}$$

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:

$$d_{min} = 220\text{ mm}$$