

# Technical Data Sheet

## optibelt ALPHA LINEAR / V AT10K13 - ST

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

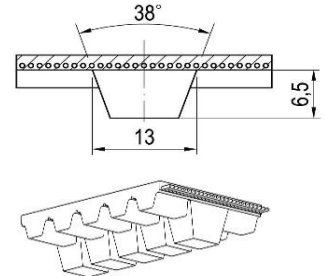
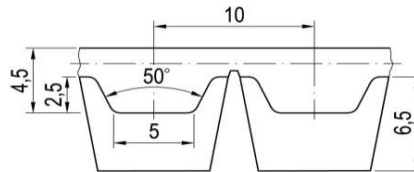


#### Dimensions, Tolerances

Profile:	AT10K13
Tooth pitch t:	10 mm
Total thickness:	4.5 mm
Tooth height:	2.5 mm
Tooth tip width:	5 mm
Tooth flank angle:	50°
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, 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	7.500	1200	4.734	3600	3.164
20	7.382	1300	4.627	3800	3.083
40	7.273	1400	4.527	4000	3.005
60	7.170	1500	4.432	4500	2.826
80	7.073	1600	4.343	5000	2.664
100	6.982	1700	4.259	5500	2.518
200	6.590	1800	4.178	6000	2.383
300	6.275	1900	4.102	6500	2.259
400	6.012	2000	4.029	7000	2.143
500	5.785	2200	3.892	7500	2.036
600	5.586	2400	3.766	8000	1.935
700	5.409	2600	3.649	8500	1.840
800	5.250	2800	3.540	9000	1.750
900	5.104	3000	3.437	9500	1.665
1000	4.971	3200	3.341	10000	1.584
1100	4.848	3400	3.250	$v_{max} = 60$ 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]

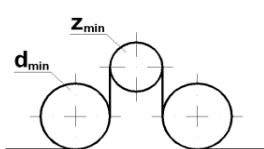
#### Cord tensile force, minimum belt length, belt weight

Belt width <sup>1</sup> $b$ [mm]	25	32	50	75	100
$F_{Br}$ [N], ALPHA LINEAR	8,520	13,280	24,680	39,880	57,000
$F_{zul}$ [N] <sup>2</sup> , ALPHA LINEAR	2,130	3,320	6,170	9,970	14,250
$F_{zul}$ [N] <sup>2</sup> , ALPHA V	1,065	1,660	3,085	4,985	7,125
$F_{zul}$ [N] <sup>3</sup> , ALPHA V short joint	-	-	-	-	-
Min. belt length ALPHA V / s. j. <sup>3</sup> [mm]	-	-	-	-	-
Weight per metre [kg/m]	0.182	0.223	0.323	0.482	0.645

<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:

$$z_{min} = 25$$

Minimum pitch diameter of the pulleys:

$$d_{w\ min} = 79.58 \text{ mm}$$

Minimum no. of teeth in mesh, clamping plate:

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

Minimum- of a plane inside idler:

$$d_{min} = 76 \text{ mm}$$

Minimum- of a plane outside idler:

$$d_{min} = 100 \text{ mm}$$