

# Technical Data Sheet

## optibelt ALPHA LINEAR ATL20 - ST Polyurethane Timing Belt, Optionally With Fabric PAZ/PAR, Thermoplastic PU, Open-Ended

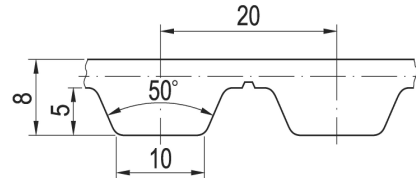


### Dimensions, Tolerances

Profile:	AT20
Tooth pitch t:	20 mm
Total thickness:	8 mm
Tooth height:	5 mm
Tooth tip width:	10.0 mm
Tooth flank angle:	50°
Length tolerance:	-0.3/-1.1 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	15.000	1200	8.371	3600	4.683
20	14.710	1300	8.119	3800	4.491
40	14.441	1400	7.883	4000	4.309
60	14.190	1500	7.661	4500	3.889
80	13.955	1600	7.451	5000	3.511
100	13.733	1700	7.252	5500	3.167
200	12.786	1800	7.063	6000	2.852
300	12.029	1900	6.883	6500	2.562
400	11.399	2000	6.711		
500	10.859	2200	6.390		
600	10.387	2400	6.093		
700	9.967	2600	5.819		
800	9.589	2800	5.563		
900	9.246	3000	5.323		
1000	8.931	3200	5.097		
1100	8.640	3400	4.884		
				$v_{max} = 40\text{ m/s}$	

### 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, small pulley, limited to $z_{eB\ max}$
$z_{eB\ max}$	ALPHA LINEAR: 12
$b$	Belt width [mm]

### Nominal torque $M_N$

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

$$d_{w1} = z_1 \cdot t / \pi \quad [mm]$$

$d_{w1}$	Pitch diameter, driver pulley [mm]
$z_1$	Number of teeth, driver pulley
$t$	Tooth pitch [mm]

### Nominal power $P_N$

$$P_N = F_N \cdot z_1 \cdot t \cdot n_1 / (6 \cdot 10^7) \quad [kW]$$

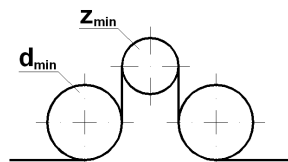
$n_1$	Speed, driver pulley [1/min]
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### Cord tensile forces, belt weight

Belt width <sup>1</sup> b [mm]	25	32	50	75	100	150
$F_{Br}$ [N], ALPHA LINEAR	28800	38400	64000	102400	137600	211200
$F_{zul}$ [N] <sup>2</sup> , ALPHA LINEAR, $\epsilon_{zul}=0,65\%$	7200	9600	16000	25600	34400	52800
Weight per metre [kg/m]	0.285	0.365	0.570	0.855	1.140	1.710

<sup>1</sup> Smaller and intermediate widths possible <sup>2</sup> Allowable tensile force  $F_{zul} = 25\%$  of cord breaking strength  $F_{Br}$   $c_{spez} = F_{zul} / \epsilon_{zul}$  [N]

### Timing belt pulleys, inside and outside idlers, clamping plates



Minimum number of teeth of the pulley:	$z_{min} = 22$
Minimum pitch diameter of the pulley:	$d_{w\ min} = 140.06\text{ mm}$
Minimum no. of teeth in mesh, clamping plate:	$z_{CP\ min} = 8$
Minimum diameter of a plane inside idler:	$d_{min} = 140\text{ mm}$
Minimum diameter of a plane outside idler:	$d_{min} = 220\text{ mm}$