Technical Data Sheet

optibelt ALPHA LINEAR / V 50/100/150 ATC20 - ST

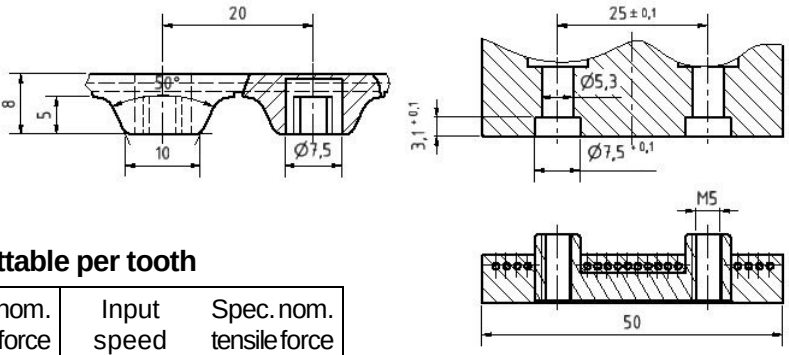
PU-Timing Belt with Cut-Outs for ATC-IN Inserts
Open-Ended / Endless Joined

Dimensions, Tolerances

Profile:	AT20
Tooth pitch t:	20 mm
Total thickness:	8.0 mm
Tooth height:	5.0 mm
Tooth tip width:	10.0 mm
Tooth flank angle:	50°
Centre distance (thread):	25 mm (M5)
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 1.2 mm



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	12.000	1200	6.767	3600	3.820
20	11.771	1300	6.571	3800	3.673
40	11.567	1400	6.384	4000	3.527
60	11.371	1500	6.204	4500	3.184
80	11.184	1600	6.033	5000	2.882
100	11.012	1700	5.878	5500	2.612
200	10.269	1800	5.722		
300	9.673	1900	5.584		
400	9.176	2000	5.445		
500	8.751	2200	5.192		
600	8.376	2400	4.955		
700	8.041	2600	4.735		
800	7.739	2800	4.531		
900	7.469	3000	4.335		
1000	7.216	3200	4.155		
1100	6.988	3400	3.984		

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

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

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

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

Nominal power P_N

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

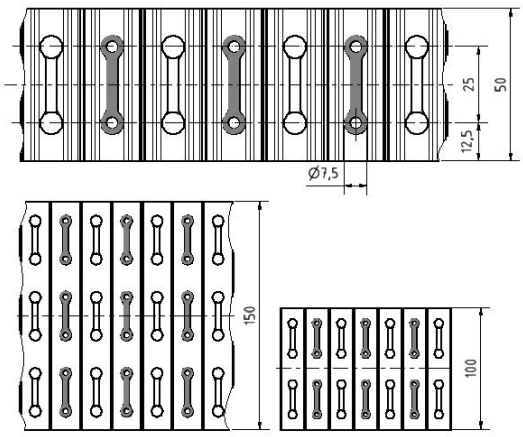
n_1 Speed, driver pulley [1/min]

Cord tensile force, minimum belt length, belt weight

Belt width b [mm]	50	100	150
F_{Br} [N], ALPHA LINEAR	31120	62280	93400
F_{zul} [N] [1], ALPHA LINEAR	7780	15570	23350
F_{zul} [N] [1], ALPHA V	3890	7785	11675
Minimum belt length [mm]	850	1050	1150
Weight per metre [kg/m]	0.380	0.760	1.140

[1] Allowable tensile force F_{zul} = 25 % / 12.5 % (ALPHA LINEAR / V) of cord breaking strength F_{Br}

Position of cut-outs (threads)



Timing belt pulleys, idlers, clamping plates

Minimum no. of teeth of the pulleys: z_{min} = 30
Minimum pitch diameter of the pulleys: $d_{w\,min}$ = 190.99 mm
Minimum no. of teeth in mesh, clamp. plate: $z_{CP\,min}$ = 8
Minimum-Ø of a plane inside idler: d_{min} = 200 mm
Minimum-Ø of a plane outside idler: d_{min} = - / beside the cleats depending on cleat thickness

We would be pleased to offer advice about technical characteristics and drive design as well as special requirements. Further information can be found in OPTIBELT documentation. © OPTIBELT GmbH 02/2021. Subject to technical modification and change, errors and omissions excepted.