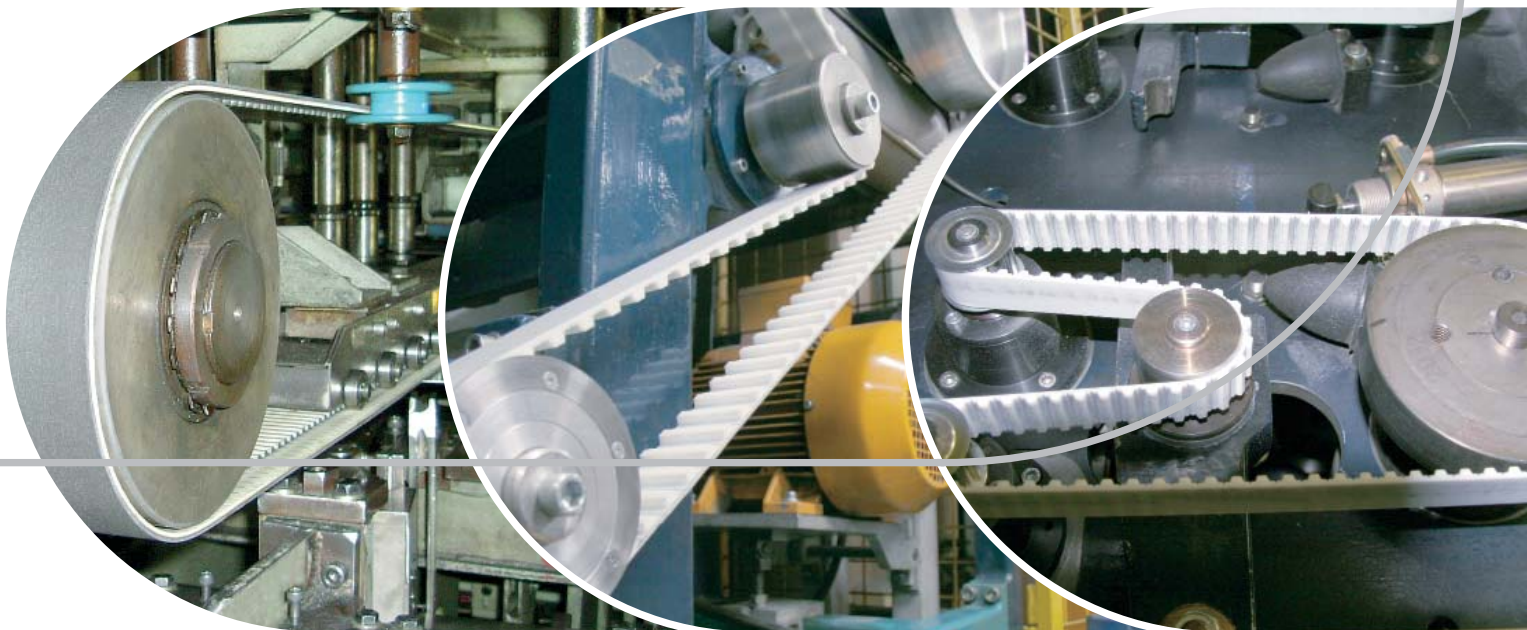
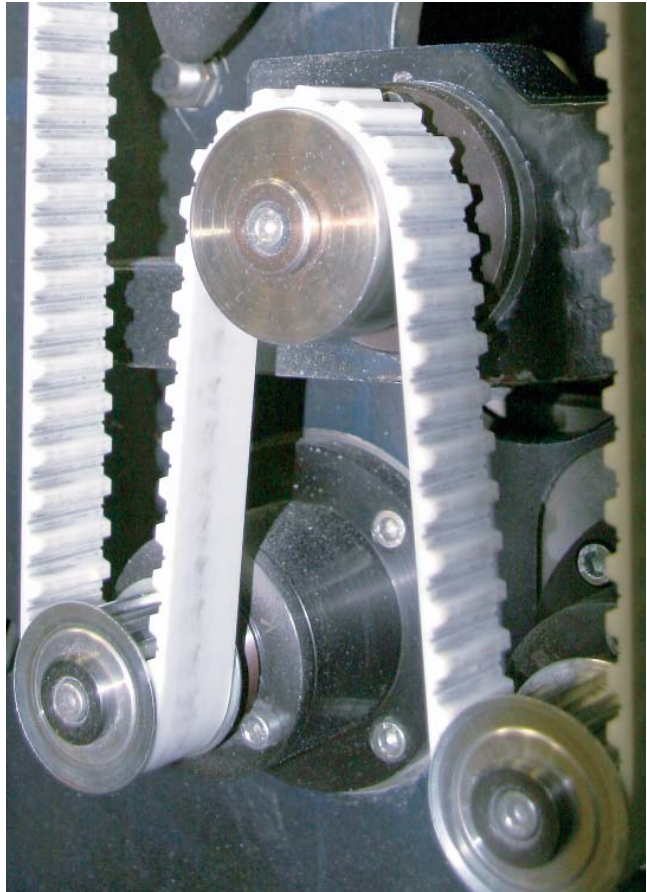


# HabaSYNC® Flex Truly Endless Timing Belts

Habasit – Solutions in motion



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HabaSYNC® Flex timing belts offer the reliability and precision performance of HabaSYNC® timing belts in a truly endless design. Its helically wound tensile members provide about double the strength of joined endless belts. Created for heavy-load conveying, HabaSYNC® Flex belts are also used in power transmission applications especially where chemical and wear resistance can be of benefit.

### Characteristics

- High abrasion resistance
- Hydrolysis resistant
- Resistant against UV light and ozone
- Good grease and oil resistance
- Partly resistant to acids and caustic solutions

### Matrix material

- White thermoplastic polyurethane type 01 with 92 Shore A

### Temperature range

- Continuous operating temperature from -5 °C up to 80 °C (23 °F to 176 °F)
- Short-time peak temperature max 120 °C (248 °F)

### Available pitches

T5	AT5	HTD5	H
T10	AT10	HTD8	
T20	AT20	HTD14	

### Belt length

Any length from 1.5 m up to 24 m in a broad range of widths can be delivered.

### Tensile members

S	<b>Standard</b> steel cord from 0.30 mm up to 1.20 mm diameter
P	<b>Performance</b> steel cord from 0.51 mm up to 1.70 mm diameter
I	<b>Stainless</b> steel cord from 0.90 mm up to 1.20 mm diameter
E	<b>Highly flexible</b> steel cord 0.90 mm diameter
PE	<b>Highly flexible, performance</b> steel cord 0.90 mm diameter
PI	<b>Highly flexible, performance</b> stainless steel cord 0.90 mm diameter

### Special fabrication options

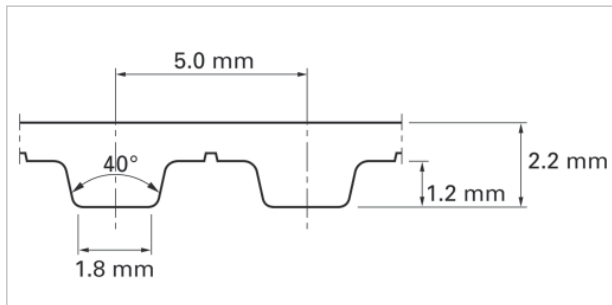
#### Conveying side - Covers, profiles and modifications

A wide range of cover materials can be applied onto HabaSYNC® Flex belts. The choice of material and structure depends on the specific application need and the materials properties. Additionally, profiles both thermally welded and mechanically attached can be fixed to the conveying side. Modifications such as profile grinding, surface grinding, lateral machining, and hole punching or perforations can enhance the performance of your applications.

#### Tooth side - Machined modifications and tracking guides

Available options are tooth grinding as well as partial tooth machining for mechanical profile mounting. Additionally, tracking guides can be added on narrow belts or side loading applications where accurate tracking is required.





Sketch of basic shape according to DIN7721

**Product details**

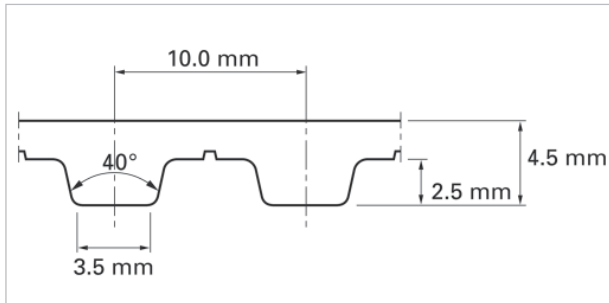
Types	$z_{min}$	Pulley $\varnothing$ [mm]	Idler $\varnothing$ [mm]	Weight per meter and belt width [g/mm]
Standard steel cord 0.3 mm	10	15.05	30.0	24/10
Performance steel cord 0.51 mm	12	18.25	50.0	28/10

**Tolerances**

Width	$\pm 0.5$ mm
Height	$\pm 0.2$ mm
Length	$\pm 0.8$ mm/m

**Unit load table**

$n$ [min <sup>-1</sup> ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]	$n$ [min <sup>-1</sup> ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]	$n$ [min <sup>-1</sup> ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]
0	24.0	0.0191	1,200	15.3	0.0121	3,600	11.7	0.0093
20	23.4	0.0186	1,300	15.1	0.0119	3,800	11.5	0.0092
40	22.9	0.0181	1,400	14.8	0.0118	4,000	11.4	0.0091
60	22.4	0.0178	1,500	14.6	0.0116	4,500	11.1	0.0087
80	22.1	0.0175	1,600	14.4	0.0114	5,000	10.6	0.0085
100	21.7	0.0172	1,700	14.2	0.0113	5,500	10.3	0.0082
200	20.3	0.0161	1,800	14.1	0.0112	6,000	10.1	0.0081
300	19.3	0.0153	1,900	13.8	0.0111	6,500	9.8	0.0078
400	18.5	0.0147	2,000	13.6	0.0108	7,000	9.5	0.0076
500	17.9	0.0142	2,200	13.4	0.0106	7,500	9.3	0.0074
600	17.4	0.0138	2,400	13.1	0.0104	8,000	9.1	0.0072
700	16.9	0.0134	2,600	12.8	0.0102	8,500	8.9	0.0071
800	16.5	0.0131	2,800	12.5	0.0101	9,000	8.7	0.0069
900	16.2	0.0128	3,000	12.3	0.0098	9,500	8.5	0.0067
1,000	15.8	0.0126	3,200	12.1	0.0096	10,000	8.3	0.0066
1,100	15.5	0.0124	3,400	11.9	0.0095			



Sketch of basic shape according to DIN7721

**Product details**

Types	$Z_{min}$	Pulley Ø [mm]	Idler Ø [mm]	Weight per meter and belt width [g/mm]
Standard steel cord 0.6 mm	12	36.35	60.0	48/10
Performance steel cord 0.9 mm	15	45.90	90.0	58/10

**Tolerances**

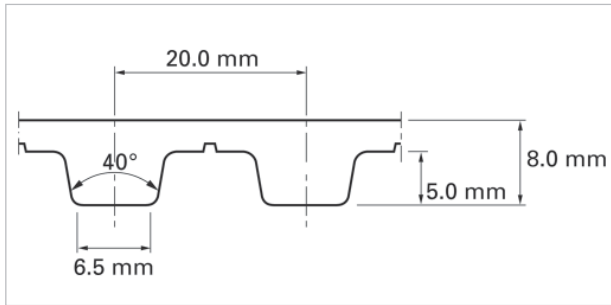
Width	± 0.5 mm
Height	± 0.3 mm
Length	± 0.8 mm/m

Nonstandard cords are available on request only.

I	Stainless steel cord from 0.90 mm up to 1.20 mm diameter
PE	Highly flexible, performance steel cord 0.90 mm diameter

**Unit load table**

$n$ [min <sup>-1</sup> ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]	$n$ [min <sup>-1</sup> ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]	$n$ [min <sup>-1</sup> ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]
0	50.5	0.080	1,200	29.3	0.046	3,600	20.7	0.033
20	49.0	0.078	1,300	28.7	0.045	3,800	20.3	0.032
40	47.7	0.076	1,400	28.2	0.044	4,000	19.8	0.031
60	46.6	0.074	1,500	27.6	0.043	4,500	18.9	0.030
80	45.7	0.072	1,600	27.1	0.043	5,000	18.0	0.028
100	44.8	0.071	1,700	26.7	0.042	5,500	17.2	0.027
200	41.4	0.066	1,800	26.2	0.041	6,000	16.5	0.026
300	39.1	0.062	1,900	25.8	0.041	6,500	15.9	0.025
400	37.2	0.059	2,000	25.4	0.040	7,000	15.3	0.024
500	35.7	0.056	2,200	24.6	0.039	7,500	14.7	0.023
600	34.4	0.054	2,400	23.9	0.038	8,000	14.2	0.022
700	33.3	0.053	2,600	23.3	0.037	8,500	13.7	0.021
800	32.4	0.051	2,800	22.7	0.036	9,000	13.2	0.021
900	31.5	0.050	3,000	22.2	0.035	9,500	12.8	0.020
1,000	30.7	0.048	3,200	21.7	0.034	10,000	12.4	0.019
1,100	30.0	0.047	3,400	21.2	0.033			



Sketch of basic shape according to DIN7721

**Product details**

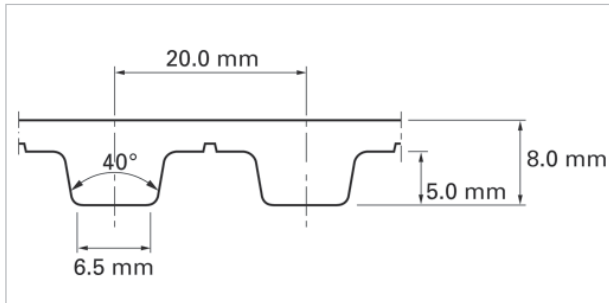
Types	$z_{min}$	Pulley Ø [mm]	Idler Ø [mm]	Weight per meter and belt width [g/mm]
Standard steel cord 0.9 mm	15	92.65	90.0	77/10

**Tolerances**

Width	± 1.0 mm
Height	± 0.4 mm
Length	± 0.8 mm/m

**Unit load table**

n [min <sup>-1</sup> ]	F <sub>i</sub> [N/cm]	M <sub>i</sub> [Nm/cm]	n [min <sup>-1</sup> ]	F <sub>i</sub> [N/cm]	M <sub>i</sub> [Nm/cm]	n [min <sup>-1</sup> ]	F <sub>i</sub> [N/cm]	M <sub>i</sub> [Nm/cm]
0	101.5	0.323	1,200	54.2	0.172	3,600	34.9	0.110
20	98.1	0.312	1,300	52.8	0.168	3,800	33.8	0.107
40	95.3	0.303	1,400	51.5	0.164	4,000	33.0	0.104
60	92.8	0.295	1,500	50.3	0.160	4,500	30.8	0.098
80	90.7	0.289	1,600	49.2	0.156	5,000	28.9	0.092
100	88.7	0.282	1,700	48.2	0.153	5,500	27.2	0.086
200	81.2	0.259	1,800	47.2	0.150	6,000	25.6	0.081
300	75.9	0.242	1,900	46.2	0.147	6,500	24.2	0.076
400	71.8	0.229	2,000	45.3	0.144			
500	68.4	0.218	2,200	43.6	0.138			
600	65.6	0.209	2,400	42.1	0.134			
700	63.1	0.201	2,600	40.7	0.129			
800	60.9	0.194	2,800	39.4	0.125			
900	59.0	0.187	3,000	38.1	0.121			
1,000	57.2	0.182	3,200	37.0	0.117			
1,100	55.6	0.177	3,400	35.9	0.114			



Sketch of basic shape according to DIN7721

**Product details**

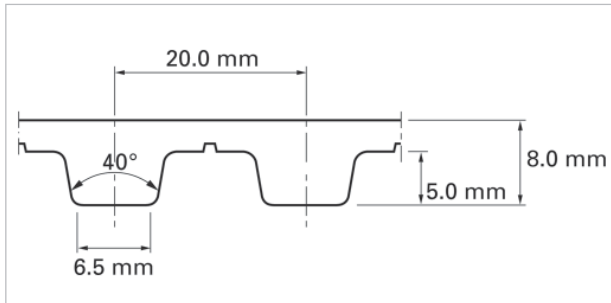
Types	$Z_{min}$	Pulley Ø [mm]	Idler Ø [mm]	Weight per meter and belt width [g/mm]
Performance steel cord 1.2 mm	22	124.50	120.0	86/10

**Tolerances**

Width	± 1.0 mm
Height	± 0.4 mm
Length	± 0.8 mm/m

**Unit load table**

$n$ [min <sup>-1</sup> ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]	$n$ [min <sup>-1</sup> ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]	$n$ [min <sup>-1</sup> ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]
0	101.5	0.378	1,200	54.2	0.213	3,600	34.9	0.120
20	98.1	0.371	1,300	52.8	0.207	3,800	33.8	0.116
40	95.3	0.365	1,400	51.5	0.201	4,000	33.0	0.111
60	92.8	0.358	1,500	50.3	0.196	4,500	30.8	0.100
80	90.7	0.353	1,600	49.2	0.190	5,000	28.9	0.091
100	88.7	0.347	1,700	48.2	0.185	5,500	27.2	0.082
200	81.2	0.323	1,800	47.2	0.180	6,000	25.6	0.074
300	75.9	0.305	1,900	46.2	0.176	6,500	24.2	0.066
400	71.8	0.289	2,000	45.3	0.171			
500	68.4	0.276	2,200	43.6	0.163			
600	65.6	0.264	2,400	42.1	0.156			
700	63.1	0.254	2,600	40.7	0.149			
800	60.9	0.244	2,800	39.4	0.142			
900	59.0	0.235	3,000	38.1	0.137			
1,000	57.2	0.227	3,200	37.0	0.131			
1,100	55.6	0.220	3,400	35.9	0.125			



Sketch of basic shape according to DIN7721

**Product details**

Types	$z_{min}$	Pulley Ø [mm]	Idler Ø [mm]	Weight per meter and belt width [g/mm]
Stainless steel cord 0.9 mm	15	92.65	90.0	72/10

**Tolerances**

Width	± 1.0 mm
Height	± 0.4 mm
Length	± 0.8 mm/m

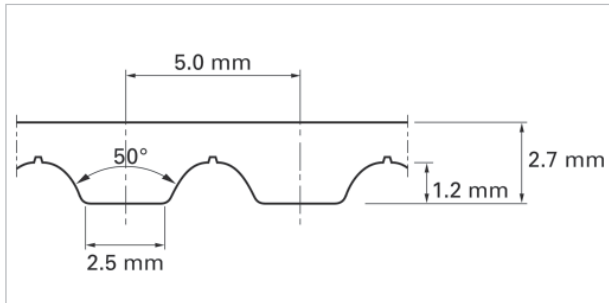
Nonstandard cords are available on request only.

PI	Highly flexible, performance stainless steel cord 0.90 mm diameter
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**Unit load table**

n [min <sup>-1</sup> ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]	n [min <sup>-1</sup> ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]	n [min <sup>-1</sup> ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]
0	82.1	0.183	1,200	43.8	0.103	3,600	28.2	0.058
20	79.3	0.179	1,300	42.7	0.100	3,800	27.3	0.056
40	77.1	0.176	1,400	41.6	0.097	4,000	26.7	0.053
60	75.0	0.173	1,500	40.7	0.094	4,500	24.9	0.048
80	73.3	0.170	1,600	39.8	0.092	5,000	23.4	0.044
100	71.7	0.167	1,700	36.6	0.083	5,500	22.0	0.039
200	65.7	0.156	1,800	35.3	0.079	6,000	20.7	0.036
300	61.4	0.147	1,900	34.0	0.075	6,500	19.6	0.032
400	58.1	0.140	2,000	32.9	0.072			
500	55.3	0.133	2,200	31.9	0.069			
600	53.0	0.128	2,400	30.8	0.066			
700	51.0	0.123	2,600	29.9	0.063			
800	49.2	0.118	2,800	29.0	0.061			
900	47.7	0.114	3,000	38.1	0.121			
1,000	46.2	0.110	3,200	37.0	0.117			
1,100	45.0	0.106	3,400	35.9	0.114			





Sketch of basic shape

### Product details

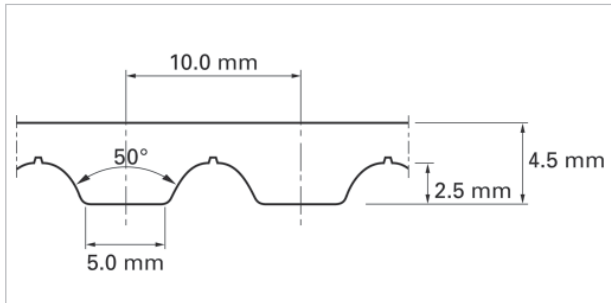
Types	$Z_{min}$	Pulley $\varnothing$ [mm]	Idler $\varnothing$ [mm]	Weight per meter and belt width [g/mm]
Standard steel cord 0.5 mm	12	17.85	50.0	30/10

### Tolerances

Width	$\pm 0.5$ mm
Height	$\pm 0.2$ mm
Length	$\pm 0.8$ mm/m

### Unit load table

n [min <sup>-1</sup> ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]	n [min <sup>-1</sup> ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]	n [min <sup>-1</sup> ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]
0	35.3	0.0281	1,200	24.8	0.0197	3,600	18.3	0.0145
20	34.9	0.0278	1,300	24.3	0.0194	3,800	17.9	0.0142
40	34.5	0.0275	1,400	23.9	0.0190	4,000	17.6	0.0140
60	34.1	0.0272	1,500	23.5	0.0187	4,500	16.8	0.0134
80	33.8	0.0269	1,600	23.2	0.0184	5,000	16.2	0.0128
100	33.5	0.0266	1,700	22.8	0.0182	5,500	15.5	0.0123
200	32.0	0.0255	1,800	22.5	0.0178	6,000	15.1	0.0119
300	30.9	0.0246	1,900	22.2	0.0176	6,500	14.5	0.0115
400	29.8	0.0237	2,000	21.9	0.0174	7,000	13.9	0.0111
500	29.0	0.0230	2,200	21.3	0.0169	7,500	13.5	0.0107
600	28.2	0.0224	2,400	20.8	0.0165	8,000	13.1	0.0104
700	27.5	0.0219	2,600	20.3	0.0161	8,500	12.7	0.0101
800	26.8	0.0214	2,800	19.8	0.0157	9,000	12.3	0.0098
900	26.3	0.0209	3,000	19.4	0.0154	9,500	11.9	0.0095
1,000	25.7	0.0205	3,200	19.1	0.0151	10,000	11.6	0.0092
1,100	25.2	0.0201	3,400	18.6	0.0148			



Sketch of basic shape

**Product details**

Types	$z_{min}$	Pulley $\varnothing$ [mm]	Idler $\varnothing$ [mm]	Weight per meter and belt width [g/mm]
Standard steel cord 0.9 mm	15	45.90	90.0	64/10
Performance steel cord 1.2 mm	25	77.70	120.0	68/10
Stainless steel cord 0.9 mm	15	45.90	90.0	60/10

**Tolerances**

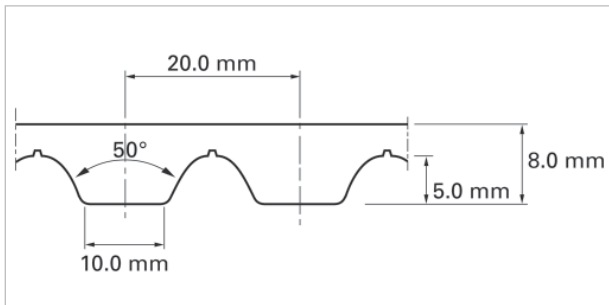
Width	$\pm$ 0.5 mm
Height	$\pm$ 0.3 mm
Length	$\pm$ 0.8 mm/m

Nonstandard cords are available on request only.

E	Highly flexible steel cord 0.90 mm diameter
PI	Highly flexible, performance stainless steel cord 0.90 mm diameter

**Unit load table**

n [min <sup>-1</sup> ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]	n [min <sup>-1</sup> ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]	n [min <sup>-1</sup> ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]
0	73.5	0.117	1,200	47.2	0.075	3,600	31.9	0.051
20	72.4	0.115	1,300	46.2	0.074	3,800	31.1	0.050
40	71.4	0.114	1,400	45.2	0.072	4,000	30.3	0.048
60	70.5	0.112	1,500	44.3	0.071	4,500	28.5	0.045
80	69.6	0.111	1,600	43.4	0.070	5,000	26.9	0.043
100	68.7	0.109	1,700	42.6	0.068	5,500	25.5	0.041
200	65.0	0.104	1,800	41.8	0.067	6,000	24.2	0.038
300	62.1	0.099	1,900	41.0	0.065	6,500	23.0	0.037
400	59.5	0.095	2,000	40.3	0.064	7,000	21.8	0.035
500	57.4	0.091	2,200	39.0	0.062	7,500	20.8	0.033
600	55.5	0.088	2,400	37.8	0.060	8,000	19.77	0.032
700	53.7	0.086	2,600	36.6	0.058	8,500	18.84	0.030
800	52.2	0.083	2,800	35.5	0.057	9,000	17.95	0.029
900	50.8	0.081	3,000	34.5	0.055	9,500	17.12	0.027
1,000	49.5	0.079	3,200	33.6	0.054	10,000	16.32	0.026
1,100	48.3	0.077	3,400	32.7	0.052			



Sketch of basic shape

**Product details**

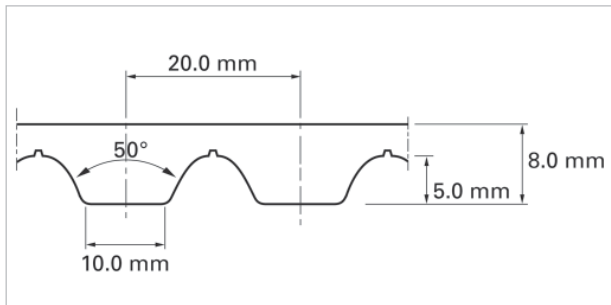
Types	$Z_{min}$	Pulley Ø [mm]	Idler Ø [mm]	Weight per meter and belt width [g/mm]
Standard steel cord 1.2 mm	18	111.75	120.0	100/10
Performance steel cord 1.7 mm	22	140.05	170.0	110/10

**Tolerances**

Width	± 1.0 mm
Height	± 0.4 mm
Length	± 0.8 mm/m

**Unit load table**

$n$ [min <sup>-1</sup> ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]	$n$ [min <sup>-1</sup> ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]	$n$ [min <sup>-1</sup> ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]
0	147.0	0.468	1,200	82.9	0.264	3,600	46.8	0.149
20	144.2	0.459	1,300	80.5	0.256	3,800	45.0	0.143
40	141.7	0.451	1,400	78.2	0.249	4,000	43.2	0.137
60	139.3	0.443	1,500	76.0	0.242	4,500	39.0	0.124
80	137.0	0.436	1,600	73.9	0.235	5,000	35.3	0.112
100	134.9	0.429	1,700	72.0	0.229	5,500	32.0	0.101
200	125.8	0.400	1,800	70.1	0.223	6,000	28.9	0.091
300	118.5	0.377	1,900	68.4	0.218	6,500	26.0	0.082
400	112.4	0.358	2,000	66.7	0.212			
500	107.2	0.341	2,200	63.6	0.202			
600	102.6	0.327	2,400	60.7	0.193			
700	98.5	0.314	2,600	58.0	0.184			
800	94.8	0.302	2,800	55.5	0.176			
900	91.5	0.291	3,000	53.1	0.169			
1,000	88.4	0.281	3,200	50.9	0.162			
1,100	85.6	0.272	3,400	48.8	0.155			



Sketch of basic shape

**Product details**

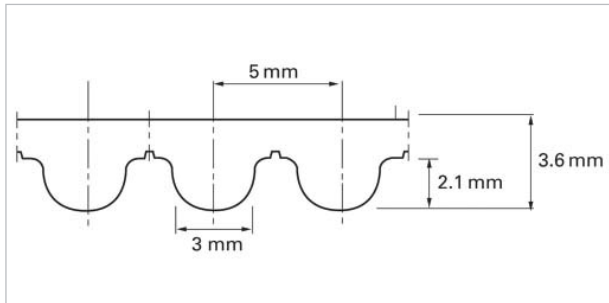
Types	$z_{min}$	Pulley Ø [mm]	Idler Ø [mm]	Weight per meter and belt width [g/mm]
Stainless steel cord 1.2 mm	18	111.75	120.0	110/10

**Tolerances**

Width	± 1.0 mm
Height	± 0.4 mm
Length	± 0.8 mm/m

**Unit load table**

n [min <sup>-1</sup> ]	F <sub>i</sub> [N/cm]	M <sub>i</sub> [Nm/cm]	n [min <sup>-1</sup> ]	F <sub>i</sub> [N/cm]	M <sub>i</sub> [Nm/cm]	n [min <sup>-1</sup> ]	F <sub>i</sub> [N/cm]	M <sub>i</sub> [Nm/cm]
0	124.8	0.277	1,200	66.7	0.148	3,600	42.9	0.095
20	120.7	0.268	1,300	64.9	0.144	3,800	41.6	0.092
40	117.2	0.260	1,400	63.3	0.141	4,000	40.6	0.090
60	114.1	0.253	1,500	61.9	0.137	4,500	37.9	0.084
80	111.6	0.248	1,600	60.5	0.134	5,000	35.5	0.079
100	109.1	0.242	1,700	59.3	0.132	5,500	33.5	0.074
200	99.9	0.222	1,800	58.1	0.129	6,000	31.5	0.070
300	93.4	0.207	1,900	56.8	0.128	6,500	29.8	0.066
400	88.3	0.196	2,000	55.7	0.124			
500	84.1	0.187	2,200	53.6	0.119			
600	80.7	0.179	2,400	51.8	0.115			
700	77.6	0.172	2,600	50.1	0.111			
800	74.9	0.166	2,800	48.5	0.108			
900	72.6	0.161	3,000	46.9	0.104			
1,000	70.4	0.156	3,200	45.5	0.101			
1,100	68.4	0.152	3,400	44.2	0.098			



Sketch of basic shape according to ISO 13050

**Product details**

Types	$Z_{min}$	Pulley Ø [mm]	Idler Ø [mm]	Weight per meter and belt width [g/mm]
Standard steel cord 0.5 mm	13	19.55	50.0	48/10

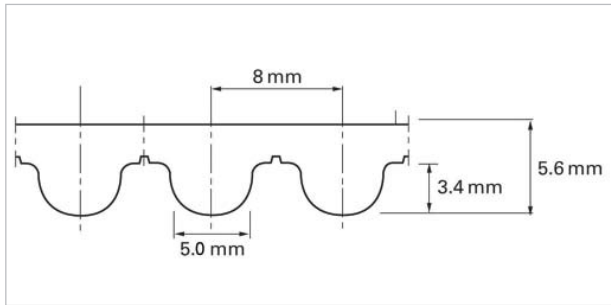
**Tolerances**

Width	± 0.5 mm
Height	± 0.2 mm
Length	± 0.8 mm/m

**Unit load table**

n [min <sup>-1</sup> ]	F <sub>i</sub> [N/cm]	M <sub>i</sub> [Nm/cm]	n [min <sup>-1</sup> ]	F <sub>i</sub> [N/cm]	M <sub>i</sub> [Nm/cm]	n [min <sup>-1</sup> ]	F <sub>i</sub> [N/cm]	M <sub>i</sub> [Nm/cm]
0	35.3	0.0281	1,200	24.8	0.0197	3,600	18.3	0.0145
20	34.9	0.0278	1,300	24.3	0.0194	3,800	17.9	0.0142
40	34.5	0.0275	1,400	23.9	0.0190	4,000	17.6	0.0140
60	34.1	0.0272	1,500	23.5	0.0187	4,500	16.8	0.0134
80	33.8	0.0269	1,600	23.2	0.0184	5,000	16.2	0.0128
100	33.5	0.0266	1,700	22.8	0.0182	5,500	15.5	0.0123
200	32.0	0.0255	1,800	22.5	0.0178	6,000	15.1	0.0119
300	30.9	0.0246	1,900	22.2	0.0176	6,500	14.5	0.0115
400	29.8	0.0237	2,000	21.9	0.0174	7,000	13.9	0.0111
500	29.0	0.0230	2,200	21.3	0.0169	7,500	13.5	0.0107
600	28.2	0.0224	2,400	20.8	0.0165	8,000	13.1	0.0104
700	27.5	0.0219	2,600	20.3	0.0161	8,500	12.7	0.0101
800	26.8	0.0214	2,800	19.8	0.0157	9,000	12.3	0.0098
900	26.3	0.0209	3,000	19.4	0.0154	9,500	11.9	0.0095
1,000	25.7	0.0205	3,200	19.1	0.0151	10,000	11.6	0.0092
1,100	25.2	0.0201	3,400	18.6	0.0148			





Sketch of basic shape according to ISO 13050

### Product details

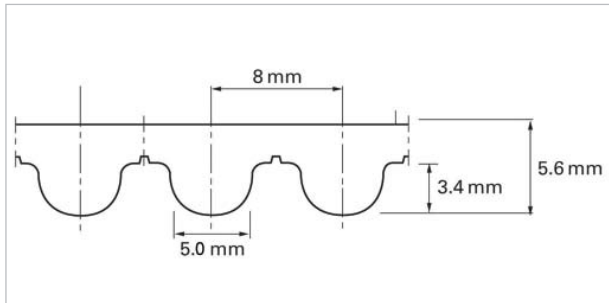
Types	$z_{min}$	Pulley Ø [mm]	Idler Ø [mm]	Weight per meter and belt width [g/mm]
Standard steel cord 0.9 mm	18	44.47	90.0	69/10

### Tolerances

Width	± 0.5 mm
Height	± 0.3 mm
Length	± 0.8 mm/m

### Unit load table

n [min <sup>-1</sup> ]	F <sub>i</sub> [N/cm]	M <sub>i</sub> [Nm/cm]	n [min <sup>-1</sup> ]	F <sub>i</sub> [N/cm]	M <sub>i</sub> [Nm/cm]	n [min <sup>-1</sup> ]	F <sub>i</sub> [N/cm]	M <sub>i</sub> [Nm/cm]
0	52.8	0.067	1,200	28.2	0.038	3,600	18.1	0.023
20	51.0	0.065	1,300	27.5	0.035	3,800	17.6	0.022
40	49.6	0.063	1,400	26.8	0.034	4,000	17.2	0.022
60	48.3	0.061	1,500	26.2	0.033	4,500	16.0	0.020
80	47.2	0.060	1,600	25.6	0.032	5,000	15.0	0.019
100	46.1	0.059	1,700	25.1	0.032	5,500	14.1	0.018
200	42.2	0.054	1,800	24.5	0.031	6,000	13.3	0.017
300	39.5	0.050	1,900	24.0	0.031	6,500	12.6	0.016
400	37.3	0.047	2,000	23.6	0.030			
500	35.6	0.045	2,200	22.7	0.029			
600	34.1	0.043	2,400	21.9	0.028			
700	32.8	0.042	2,600	21.2	0.027			
800	31.7	0.040	2,800	20.5	0.026			
900	30.7	0.039	3,000	19.8	0.025			
1,000	29.7	0.038	3,200	19.2	0.024			
1,100	28.9	0.037	3,400	18.7	0.024			



Sketch of basic shape according to ISO 13050

**Product details**

Types	$Z_{min}$	Pulley Ø [mm]	Idler Ø [mm]	Weight per meter and belt width [g/mm]
Stainless steel cord 0.9 mm	18	44.47	90.0	64/10

**Tolerances**

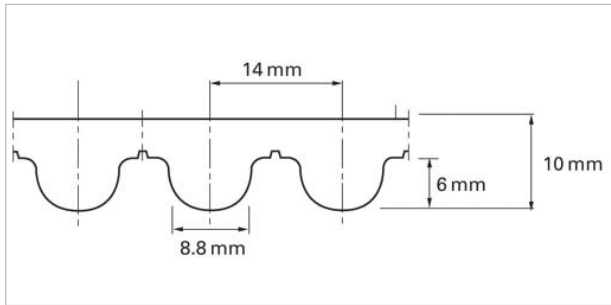
Width	± 0.5 mm
Height	± 0.3 mm
Length	± 0.8 mm/m

Nonstandard cords are available on request only.

E	Highly flexible steel cord 0.90 mm diameter
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**Unit load table**

n [min <sup>-1</sup> ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]	n [min <sup>-1</sup> ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]	n [min <sup>-1</sup> ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]
0	32.2	0.0409	1,200	20.5	0.0259	3,600	15.7	0.0199
20	31.4	0.0398	1,300	20.3	0.0255	3,800	15.4	0.0197
40	30.7	0.0387	1,400	19.9	0.0253	4,000	15.3	0.0195
60	29.7	0.0375	1,500	19.6	0.0248	4,500	14.9	0.0186
80	29.7	0.0375	1,600	19.3	0.0244	5,000	14.2	0.0182
100	29.1	0.0368	1,700	19.1	0.0242	5,500	13.8	0.0175
200	27.2	0.0345	1,800	18.9	0.0240	6,000	13.6	0.0173
300	25.9	0.0327	1,900	18.3	0.0231	6,500	13.2	0.0167
400	24.8	0.0315	2,000	18.0	0.0227	7,000	12.7	0.0163
500	24.0	0.0304	2,200	17.6	0.0223	7,500	12.5	0.0158
600	23.4	0.0295	2,400	17.2	0.0218	8,000	12.2	0.0154
700	22.7	0.0287	2,600	16.8	0.0216	8,500	11.9	0.0152
800	22.1	0.0280	2,800	16.5	0.0210	9,000	11.7	0.0148
900	21.7	0.0274	3,000	16.2	0.0205	9,500	11.4	0.0143
1,000	21.2	0.0270	3,200	16.0	0.0203	10,000	11.1	0.0141
1,100	20.8	0.0265	3,400	14.2	0.098			



Sketch of basic shape according to ISO 13050

### Product details

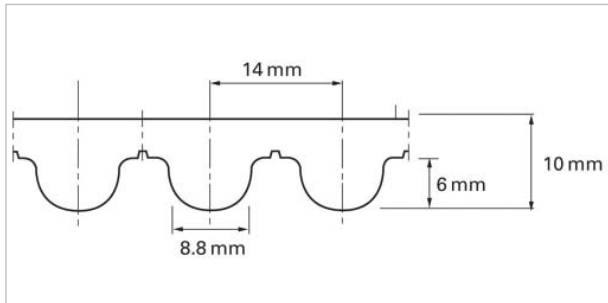
Types	$z_{min}$	Pulley Ø [mm]	Idler Ø [mm]	Weight per meter and belt width [g/mm]
Standard steel cord 1.2 mm	25	108.70	120.0	110/10

### Tolerances

Width	± 1.0 mm
Height	± 0.4 mm
Length	± 0.8 mm/m

### Unit load table

n [min <sup>-1</sup> ]	F <sub>i</sub> [N/cm]	M <sub>i</sub> [Nm/cm]	n [min <sup>-1</sup> ]	F <sub>i</sub> [N/cm]	M <sub>i</sub> [Nm/cm]	n [min <sup>-1</sup> ]	F <sub>i</sub> [N/cm]	M <sub>i</sub> [Nm/cm]
0	124.8	0.277	1,200	66.7	0.148	3,600	42.9	0.095
20	120.7	0.268	1,300	64.9	0.144	3,800	41.6	0.092
40	117.2	0.260	1,400	63.3	0.141	4,000	40.6	0.090
60	114.1	0.253	1,500	61.9	0.137	4,500	37.9	0.084
80	111.6	0.248	1,600	60.5	0.134	5,000	35.5	0.079
100	109.1	0.242	1,700	59.3	0.132	5,500	33.5	0.074
200	99.9	0.222	1,800	58.1	0.129	6,000	31.5	0.070
300	93.4	0.207	1,900	56.8	0.128	6,500	29.8	0.066
400	88.3	0.196	2,000	55.7	0.124			
500	84.1	0.187	2,200	53.6	0.119			
600	80.7	0.179	2,400	51.8	0.115			
700	77.6	0.172	2,600	50.1	0.111			
800	74.9	0.166	2,800	48.5	0.108			
900	72.6	0.161	3,000	46.9	0.104			
1,000	70.4	0.156	3,200	45.5	0.101			
1,100	68.4	0.152	3,400	44.2	0.098			



Sketch of basic shape according to ISO 13050

## Product details

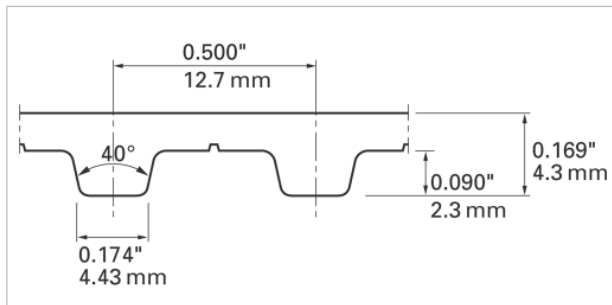
Types	$Z_{min}$	Pulley Ø [mm]	Idler Ø [mm]	Weight per meter and belt width [g/mm]
Stainless steel cord 1.2 mm	25	108.70	120.0	110/10

## Tolerances

Width	± 1.0 mm
Height	± 0.4 mm
Length	± 0.8 mm/m

## Unit load table

n [min <sup>-1</sup> ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]	n [min <sup>-1</sup> ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]	n [min <sup>-1</sup> ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]
0	106.6	0.237	1,200	56.9	0.134	3,600	36.6	0.076
20	103.0	0.233	1,300	55.4	0.130	3,800	35.5	0.073
40	100.1	0.229	1,400	54.1	0.126	4,000	34.7	0.069
60	97.4	0.225	1,500	52.8	0.123	4,500	32.3	0.063
80	95.2	0.221	1,600	51.7	0.119	5,000	30.3	0.057
100	93.1	0.218	1,700	50.6	0.116	5,500	28.6	0.051
200	85.3	0.203	1,800	49.6	0.113	6,000	26.9	0.046
300	79.7	0.191	1,900	48.5	0.111	6,500	25.4	0.042
400	75.4	0.182	2,000	47.6	0.107			
500	71.8	0.173	2,200	45.8	0.102			
600	68.9	0.166	2,400	44.2	0.098			
700	66.3	0.159	2,600	42.7	0.093			
800	63.9	0.153	2,800	41.4	0.089			
900	62.0	0.148	3,000	40.0	0.086			
1,000	60.1	0.142	3,200	38.9	0.082			
1,100	58.4	0.138	3,400	37.7	0.079			



Sketch of basic shape according to DIN ISO 5296

### Product details

Types	$z_{\min}$	Pulley $\varnothing$ [mm]	Idler $\varnothing$ [mm]	Weight per meter and belt width [g/mm]
Standard steel cord 0.6 mm	14	55.22	60.0	45/10
Performance steel cord 0.9 mm	15	59.29	90.0	55/10
Stainless steel cord 0.9 mm	15	59.27	90.0	55/10

### Tolerances

Width	$\pm$ 0.5 mm
Height	$\pm$ 0.3 mm
Length	$\pm$ 0.8 mm/m

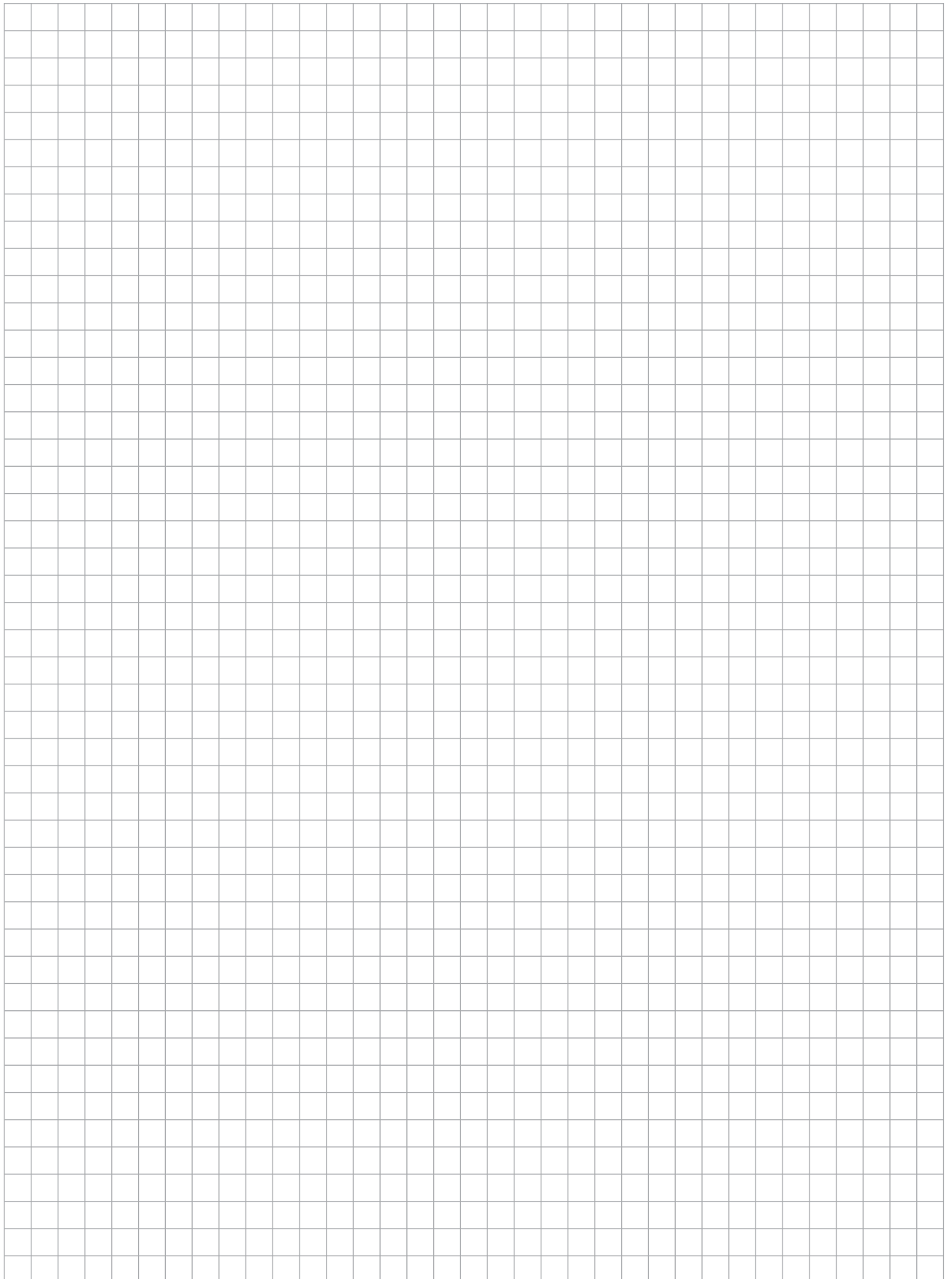
Nonstandard cords are available on request only.

PE	Highly flexible, performance steel cord 0.90 mm diameter
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### Unit load table

$n$ [ $\text{min}^{-1}$ ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]	$n$ [ $\text{min}^{-1}$ ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]	$n$ [ $\text{min}^{-1}$ ]	$F_i$ [N/cm]	$M_i$ [Nm/cm]
0	50.5	0.080	1,200	29.3	0.046	3,600	20.7	0.033
20	49.0	0.078	1,300	28.7	0.045	3,800	20.3	0.032
40	47.7	0.076	1,400	28.2	0.044	4,000	19.8	0.031
60	46.6	0.074	1,500	27.6	0.043	4,500	18.9	0.030
80	45.7	0.072	1,600	27.1	0.043	5,000	18.0	0.028
100	44.8	0.071	1,700	26.7	0.042	5,500	17.2	0.027
200	41.4	0.066	1,800	26.2	0.041	6,000	16.5	0.026
300	39.1	0.062	1,900	25.8	0.041	6,500	15.9	0.025
400	37.2	0.059	2,000	25.4	0.040	7,000	15.3	0.024
500	35.7	0.056	2,200	24.6	0.039	7,500	14.7	0.023
600	34.4	0.054	2,400	23.9	0.038	8,000	14.2	0.022
700	33.3	0.053	2,600	23.3	0.037	8,500	13.7	0.021
800	32.4	0.051	2,800	22.7	0.036	9,000	13.2	0.021
900	31.5	0.050	3,000	22.2	0.035	9,500	12.8	0.020
1,000	30.7	0.048	3,200	21.7	0.034	10,000	12.4	0.019
1,100	30.0	0.047	3,400	21.2	0.033			





Calculation	Formula
Power calculation	$P = M \cdot \omega = M \cdot 2 \cdot \pi \cdot n$
Peripheral force calculation	$F_u = F_i \cdot z_e \cdot b$
Torque calculation	$M = \frac{M_i \cdot d \cdot \pi \cdot z_e \cdot b}{P_b}$
Pitch diameter calculation	$d = \frac{z \cdot P_b}{\pi}$
Calculation of number of engaged teeth	$z_e = \frac{z_1}{180} \cdot \arccos \frac{(z_2 - z_1) \cdot P_b}{2 \pi e}$
Maximum number of engaged teeth for calculation	$z_e \text{ max} = 12$

Term	Habasit symbol
Rotational speed [rpm]	n
Belt speed [m/s]	v
Power [W]	P
Number of teeth on small pulley	$z_1$
Number of teeth on large pulley	$z_2$
Belt pitch [mm]	$P_b$
Centerline distance [mm]	e
Peripheral force of timing belt	$F_u$
Specific peripheral force per engaged tooth and per cm of belt width (see data tables)	$F_i$
Torque capacity of timing belt	M
Torque capacity per engaged tooth and per cm of belt width (see data tables)	$M_i$
Number of teeth engaged	$z_e$
Maximum number of teeth engaged that can be used for timing belt calculation	$z_e \text{ max}$
Pitch diameter [mm]	d
Belt width [cm]	b

## Given

Power	10 kW
Rotational speed	800 min <sup>-1</sup>
Pulley data	z = 30; d = 93.6 mm
Timing belt	AT10

What is the required belt width?

## Calculation

$$M = \frac{P}{\omega} = \frac{P}{2 \cdot \pi \cdot n}$$

$$M = \frac{10,000 \text{ Nm} \cdot 60 \text{ s}}{2 \cdot \pi \cdot 800 \text{ s}} = 119.37 \text{ Nm}$$

Using the AT10 torque table for 800 rpm, we find  $M_i = 0.083 \text{ Nm/cm}$  belt width.

With

$$M = \frac{M_i \cdot d \cdot \pi \cdot z_e \cdot b}{P_b}$$

we get the belt width b:

$$b = \frac{P_b \cdot M}{M_i \cdot d \cdot \pi \cdot z_e}$$

$$b = \frac{10 \text{ mm} \cdot 119.37 \text{ Nm} \cdot \text{cm}}{0.083 \text{ Nm} \cdot 93.6 \text{ mm} \cdot \pi \cdot 12} = 4.07 \text{ cm}$$

Choose the next larger belt width: **50 mm**

For longer periods of operation and high loads, the safety factors of 1.2 to 2.5 commonly used in engineering should be employed to ensure functional reliability.

For dimensioning timing belts in terms of applications engineering for power transmission jobs, the Unit Load Table is solely determinant.

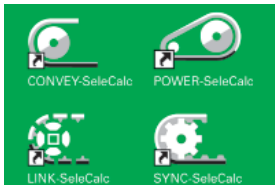
**Comprehensive services are central to Habasit’s belting solution approach.**

**As committed partners to our customers, we are dedicated to sharing our knowledge and to providing full support.**



**Comprehensive consulting and technical support**

Habasit offers the best consulting and technical support on the belting market. Everything revolves around our customers and each affiliate has its own belting experts. The Habasit team is proud to provide the highest levels of support together with top-quality products that have been leaders on the global market for decades.



**Assistance with belt selection and calculation**

We will select and calculate the most suitable belt for your specific application. You also may do this yourself with our state-of-the-art Habasit selection and calculation program “SeleCalc”. To order this program free of charge, simply call your nearest Habasit partner or contact: [info@habasit.com](mailto:info@habasit.com).



**Fabrication, assembly and local installation services for quick reaction times**

We make belts endless or assemble modular belts or chains, either at our own locations or on-site directly on your machine or system. Habasit operates over 30 affiliated companies worldwide, each with its own inventory, fabrication, assembly and service facilities. Together with our representative offices and numerous qualified distributors, we can react quickly, competently and reliably to satisfy all your demands.



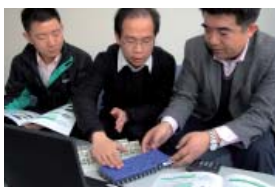
**Customer-training programs**

Habasit offers training programs and provides support tools to ensure optimal use of our products and to prolong their lifetimes. Training on fabrication, installation, assembly, maintenance and belt repair takes place at Habasit sites or at your location.



**Belt monitoring, inspections, analyses and process-optimization proposals**

We organize and handle belt maintenance, inspections, analyses and surveys for your locations. On request we will also work with you to develop optimization proposals, for example, to achieve added value from the machinery or process output.



**Design assistance for customized solutions**

Habasit believes in partnership. Our engineering team will work closely with your engineers on joint design developments, preferably from a very early stage. We particularly recommend this for projects involving new technologies or large-scale modifications and adaptations.



### Customers first

At Habasit we understand that our success depends on your success. This is why we offer solutions, not just products; partnership, not just sales. Since our foundation in 1946, Habasit has brought this understanding of customer needs to life every day and for every application. That's why we're the No. 1 in belting today. Worldwide. Learn more on [www.habasit.com](http://www.habasit.com)

### Committed to innovation

Because our customers' belting challenges and needs never cease, we consistently dedicate a substantial percentage of our employees and resources to the research and development of new products and solutions.

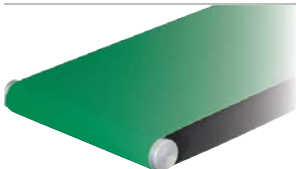
### Certified for quality

We deliver the highest quality standards not only in our products and solutions, but also in our employees' daily work processes. Habasit AG is certified according to ISO 9001:2008.



### Worldwide leading product range

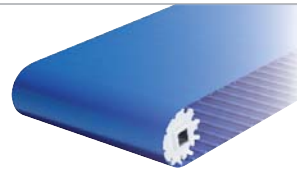
Habasit offers the largest selection of belting, conveying, processing and complementary products in the industry. Our response to any request is nothing less than a specific, tailor-made solution.



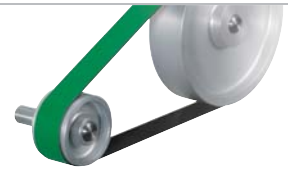
Fabric-based conveyor and processing belts  
**HabaFLOW®**



Plastic modular belts  
**HabasitLINK®**



Positive drive conveyor and processing belts  
**Habasit Cleandrive™**



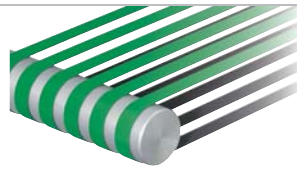
Power transmission belts  
**HabaDRIVE®**



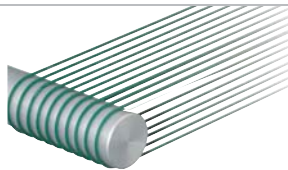
Timing belts  
**HabaSYNC®**



Chains (slat and conveyor chains)  
**HabaCHAIN®**



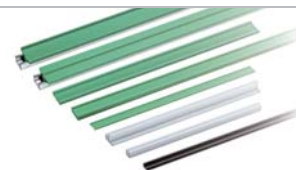
Machine tapes



Round belts



Seamless belts



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