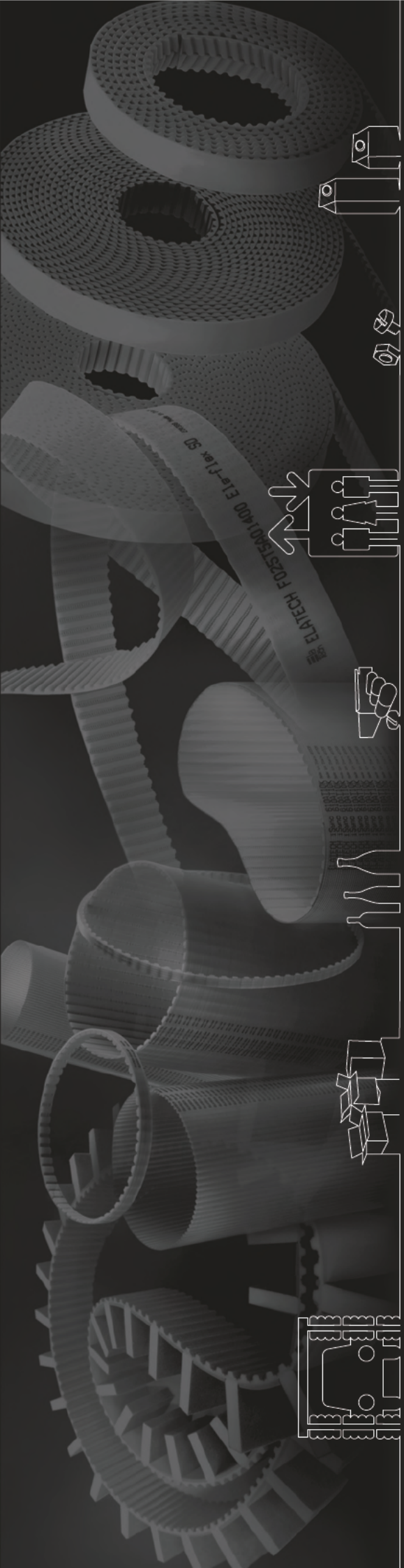

Polyurethane
BELTS

2019

Elatech
Technology in Motion.

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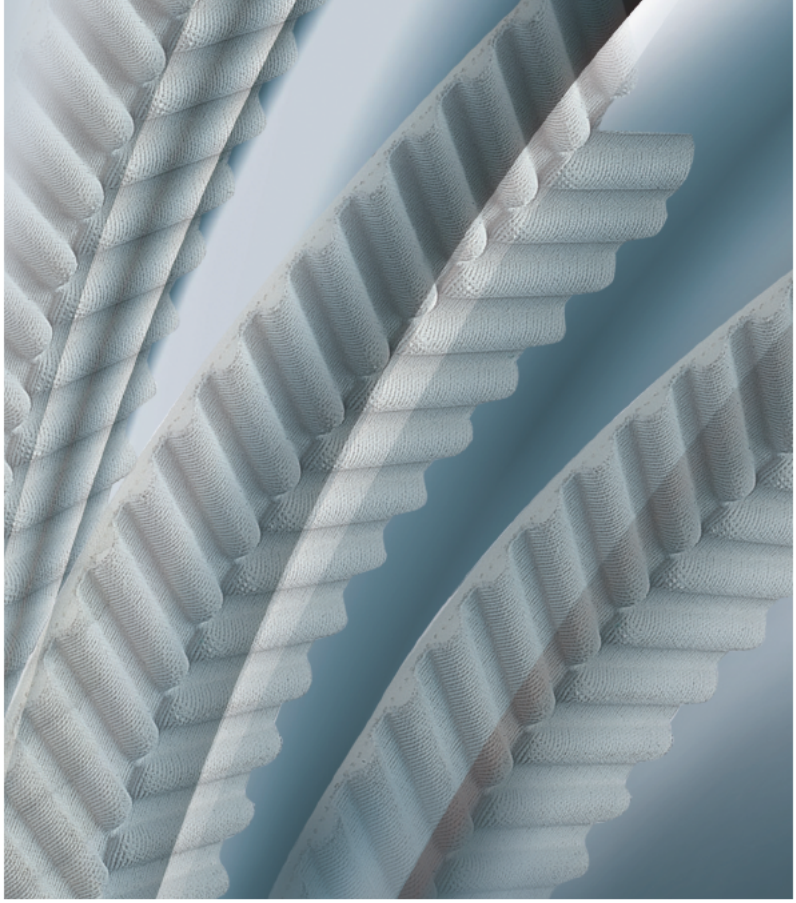


Designed for **Performance**, Engineered for **Excellence**

ELATECH® is a Company fully dedicated to the research, development and manufacture of polyurethane belts for industrial applications.

The unique manufacturing processes, made possible with the newest generation of technologies, the modern and efficient test and control equipment and a unique team of qualified technicians and engineers, allow **ELATECH®** to offer superior products with highest flexible service.

Global Presence

With 5 sister Companies on 3 continents and a wide range of qualified distributors, **ELATECH®** guarantees superior technical and delivery service worldwide.

Our Mission

Constantly growing, together with our customers, in product and process innovation to develop the best polyurethane belt for every industrial application.

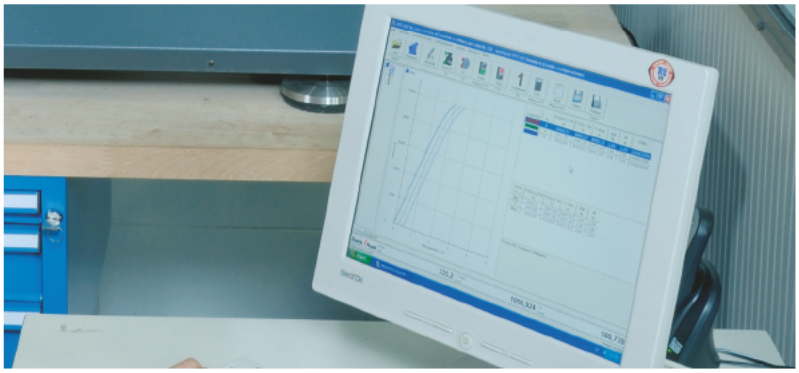
Research & Development

We strongly believe innovation is the key to success for our Customers. We are totally committed to quality and close cooperation with our customers to solve the problems of design engineers in the most advanced and economical way.

Our qualified technicians and our advanced test laboratory with the most modern resources allow us to offer the most effective solutions in all conveying, lifting or power transmission applications.

Total Quality

In **ELATECH®** the term "quality" is not only limited to the product. We offer professional and competent consulting services with fast and reliable deliveries. The certification of our quality system confirms the quality consciousness of our Company and of all our employees. Our management system is certified according to ISO 9001.



Introduction

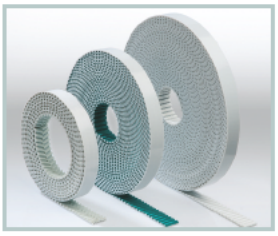
ELATECH® manufactures polyurethane belts for linear motion, conveying, lifting and power transmission applications. The combination of a polyurethane body reinforced with special steel or aramid tension members, allows the belt to fulfil the most severe requirements in all industrial applications.
The unique manufacturing processes developed with the newest generation technologies such as test and control equipment, give us the ability to deliver superior products with the highest flexibility of service.
ELATECH® offers the widest range of tooth profile to enable the design engineer the use of the best drive for every application.

In addition to that, for special applications, ELATECH® studies and delivers innovative and unique solutions for even the most complex requirements.

Product range

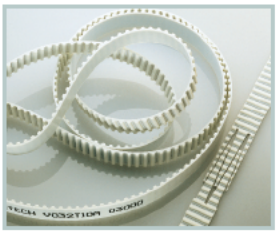
ELATECH® M - open end

ELATECH® M belts are produced in standard roll length of 100 m and delivered to any desired length. The excellent precision and dimensional stability and the high abrasion resistance make them ideal in all linear motion applications.



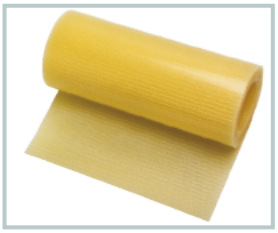
ELATECH® V - jointed

They are jointed belts obtained from open-end belts. The special manufacturing process, allows for obtaining any desired length. Due to the high flexibility and to the unique precision in positioning offered, ELATECH® V belts are ideal for all conveying applications where synchronisation is needed.
ELATECH® V have been designed specifically for transport applications with linear speeds up to 2 m/s. They can not be used for power transmission applications.



ELATECH® SYNCRO-MAX®

ELATECH® SYNCRO-MAX® are extra wide polyurethane timing belts with aramid tension members that extend the advantages of synchronous belts to wider surfaces, suitable for typical applications of flat or modular conveyor belts. They are available in the most common range with a maximum width up to 500mm.



ELATECH® ELA-flex SD®

ELA-flex SD® Synchro Drive belts are manufactured with truly endless steel tension cords. Having no splice or welding, they have no weak cross section and are therefore ideal for power transmission and high load conveying applications. They are available in a wide range of profiles and pitches and in any length tooth by tooth from **800 mm to 24.000 mm**.

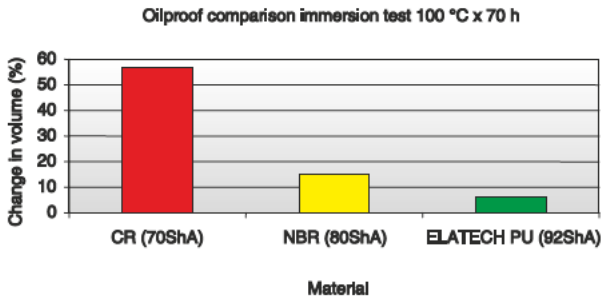
ELATECH® iSync®

ELATECH® iSync® belts are made with a special polyurethane compound and high resistance steel tension cords which are processed with a unique and highly sophisticated technology to obtain a superior polyurethane belt.
iSync® belts offer optimal performances on all type of industrial applications and particularly where high precision and accuracy are needed.
iSync® belts are able to transmit up to 30% more than conventional T, AT type of belts in the same space or same power with a more compact drive.

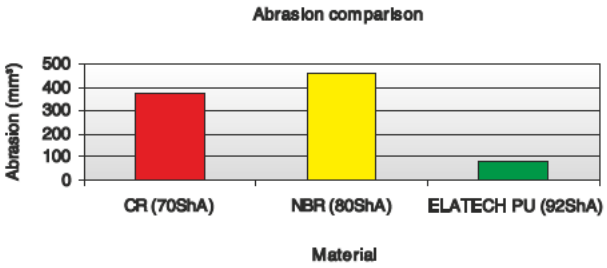
Material characteristics

ELATECH® belts are manufactured as standard in thermoplastic polyurethane 92 Sh. A hardness. Non standard material and compounds are available for applications in special enviroments or for special specifications. Standard colour, unless differently specified, is white. Other colours are available upon request.

Resistance to oils
ELATECH® polyurethane has an high resistance to most oils. The following graph compares synthetic rubber CR and NBR with ELATECH® polyurethane.



Abrasion resistance
ELATECH® polyurethane has excellent abrasion resistance properties. The graph below shows comparison with synthetic rubber.



Food Compliance
Standard material is not suitable for food contact. For applications where food compliance approval is required, a special material will be used.

Chemical resistance
The impact of chemicals on ELATECH® polyurethane results in different modification of the material's properties. As the resistance mainly depends on the concentration and the temperatures used, the information provided can only be general. If further detailed information is required please contact our technical department.

Oil and Grease
ELATECH® polyurethane is well-resistant to oil and grease and specifically to pure oils even at 80°C.

Acids and alkaline solutions
The resistance to acids and alkaline solutions of the ELATECH® polyurethane is limited. It has shown to be moderately resistant to diluted acids and alkaline solutions at room temperature and to be resistant for a very a short time with high concentration solutions. Special compounds are available on specific request.

Bacteria and microbes
In case of high exposure to microbe attack it is recommended to use a special material. Please contact our technical department.

UV resistance
ELATECH® polyurethane is UV resistant. A long exposure to UV radiation (sunlight) will slightly change the color of the belt. However the technical performances of the product will remain unchanged.

Low temperature compound
For low temperature use special compound (-30 +5 °C).
U-LT can be supplied.

High temperature compound
For high temperature use special compound (+20 +110 °C).
U-HT can be supplied.

Chemical resistance

Chemical reference	0/40° C	40/80°C
Acetic acid 20%	B	C
Acetic acid 3 n	C	C
Acetic acid 5%	B	C
Acetone	C	C
Alluminun chloride aqueous, 5%	A	-
Ammonia 10%	A	-
Amyl acetate	C	C
Amylum	A	A
Aniline	B	C
ASTM fuel A	A	-
ASTM Fuel B	A	-
ASTM Fuel C	B	-
Benzene	B	C
Blood	A	B
Brine	A	B
Butyl acetate	C	-
Butyl alcohol	B	B
Butter	A	A
Butyric acid	B	B
Chloro benzene	C	C
Chloroform	B	B
Cyclohexanol	B	B
Cyclohexanone	C	C
Dibutylphthalate	B	-
Dimethilformamide	D	-
Dioctyl phthalate	A	A
Ethanol	B	C
Ethanol 96%	B	-
Ethilene glycol	A	B
Ethyl acetate	C	C
Ethylene dichloride	B	B
Ethylether	B	C
Fat (animal)	A	A
Fe chloride , 5%	B	C
Formalin	B	C
Freon 22	B	C
Fructose	A	A
Fruit juice	A	A
Gasoline	A	-
Gelatin	A	A
Glycerin (glycerol)	B	C
Glysantin / water 1:1	B	-
Honey	A	B
Hydrochloric acid 20%	B	-
Hydrogen	A	-
Ink	B	B
Isopropanol	B	-
Kerosene	A	B

Chemical reference	0/40° C	40/80°C
Lactic acid	B	C
Liqueur	A	B
Margarine	A	A
Methil ethyl ketone (MEK)	C	-
Methyl alcohol (methanol)	B	C
Methyl chloride	D	-
Milk	A	A
Molasses	A	A
Nicotine	A	-
Nitric acid 20%	D	-
Oil animal	B	B
Oil ASTM 1	A	A
Oil ASTM 2	A	A
Oil ASTM 3	A	A
Oil heavy	A	B
Oil light	A	B
Oil Machine	B	B
Oil mineral	A	B
Oil tar	B	B
Oil turpentine	B	B
Oil vegetable (peanut , pine ,...)	A	A
Oleic acid	B	-
Ozone	A	A
Paraffin	B	B
Petrol, premium grade	C	-
Petrol, standard grade	A	-
Petroleum ether	B	C
Sea water	B	B
Silicone grease	A	A
Soap	A	B
Sodium carbonate	A	-
Sodium chloride solution	A	B
Sodium hydroxide solution 1N	B	C
Styrene	B	C
Sugar	A	A
Sulphuric acid 20%	B	C
Tannic acid	A	B
Tetrachloroethylene	C	C
Tetrahydrofuran	D	-
Toluene	B	C
Trichloroethylene	C	C
Triocesyl phosphate (TPC)	B	C
Vaseline	A	A
Water	A	B
Water oxygenated	B	B
Water soapy	A	B
Wax	A	A
Yeast	A	B

Note
- The above table is valid for material to be conveyed containing chemicals and or oil. In case of immersion, please contact our technical department.
- It must be considered that alkalis, acids, peroxides, water and water solutions may corrode the steel tension member. Please contact our technical department for solutions.

A = resistant over a prolonged period
B = conditionally resistant, after a certain time appreciable differences are possible
C = not resistant, short-term contact possible
D = not resistant, pronounced attack

Material overview

Materials for standard applications

Material type	Belt Type	Color	Hardness	Temperature range	Tension member
TPU11	ELATECH® M ELA-flex SD®	White	92 Sh A	-10°C +80°C	A - Steel cord S - Stainless steel cord K - Aramid cord
TPU13	ELATECH® M ELA-flex SD®	Black	92 Sh A	-10°C +80°C	A - Steel cord S - Stainless steel cord K - Aramid cord
TPU12	ELATECH® M ELA-flex SD®	Transparent	92 Sh A	-10°C +80°C	A - Steel cord S - Stainless steel cord K - Aramid cord
TPU22	ELATECH® M ELA-flex SD®	Transparent	85 Sh A	0°C +60°C	A - Steel cord S - Stainless steel cord K - Aramid cord
PU51	iSync®	Transparent	90 Sh A	-10°C +80°C	A - Steel cord S - Stainless steel cord K - Aramid cord

Materials for applications involving contact with food

Material type	Belt Type	Color	Hardness	Temperature range	Tension member
TPU17	ELATECH® M ELA-flex SD®	Transparent	92 Sh A	0°C +80°C	S - Stainless steel cord K - Aramid cord
TPU16	ELATECH® M ELA-flex SD®	White	92 Sh A	0°C +80°C	S - Stainless steel cord K - Aramid cord
TPU19	ELATECH® M ELA-flex SD®	Blue	92 Sh A	0°C +80°C	S - Stainless steel cord K - Aramid cord
PU52	iSync®	Transparent	90 Sh A	0°C +80°C	S - Stainless steel cord K - Aramid cord

Materials for high temperature applications

Material type	Belt Type	Color	Hardness	Temperature range	Tension member
TPU32	ELATECH® M ELA-flex SD®	Transparent	92 Sh A	-20°C +110°C	A - Steel cord S - Stainless steel cord
PU53	iSync®	Transparent	90 Sh A	-20°C +125°C	A - Steel cord S - Stainless steel cord

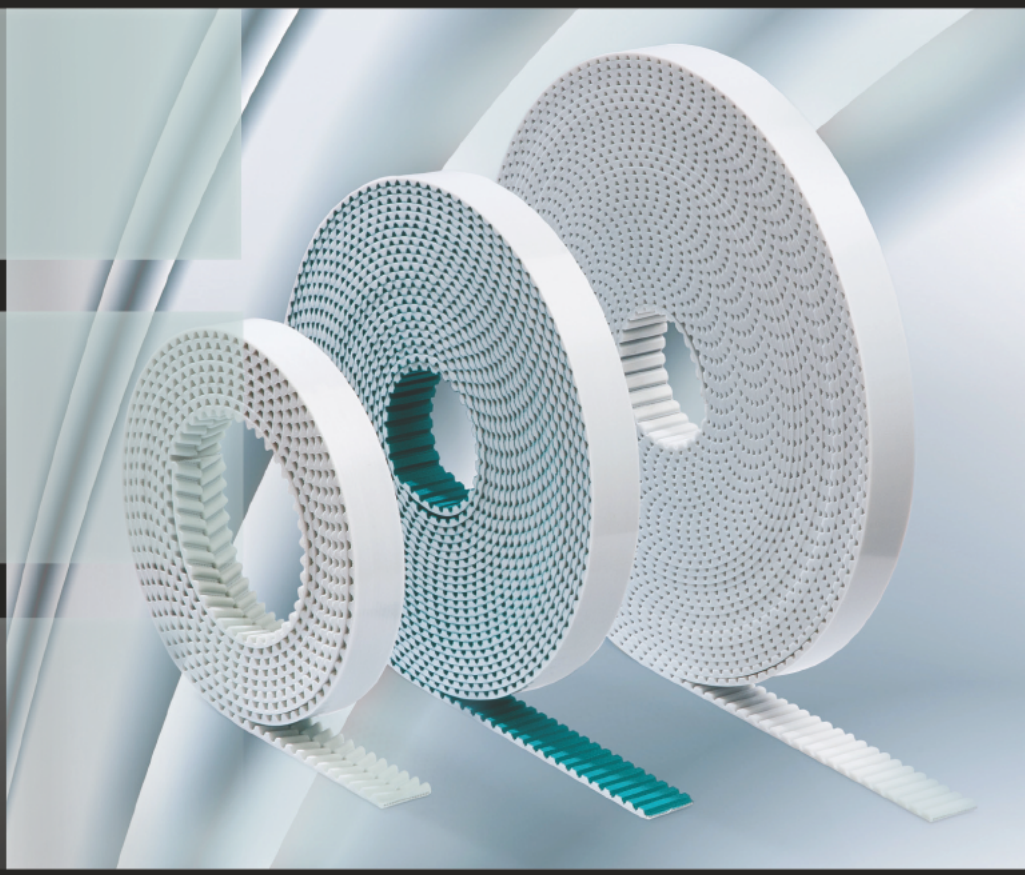
Materials for low temperature applications

Material type	Belt Type	Color	Hardness	Temperature range	Tension member
TPU18	ELATECH® M ELA-flex SD®	Transparent	92 Sh A	-30°C +80°C	A - Steel cord S - Stainless steel cord K - Aramid cord
TPU27	ELATECH® M ELA-flex SD®	Transparent	85 Sh A	-30°C +80°C	A - Steel cord S - Stainless steel cord K - Aramid cord
PU54	iSync®	Transparent	90 Sh A	-30°C +80°C	A - Steel cord S - Stainless steel cord K - Aramid cord

Materials for applications where antistatic properties are required - Static conductive materials

Available on request, please contact our sales department.

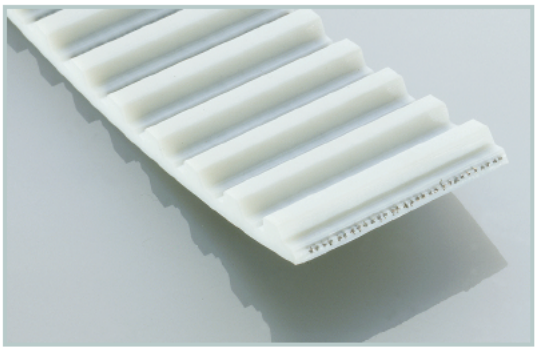
ELATECH® M and V



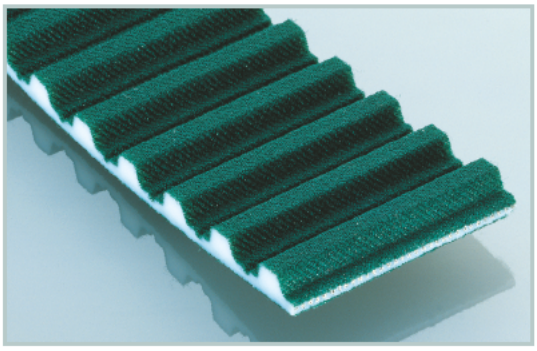
Elatech
Technology in Motion.

The timing belts manufactured by ELATECH® have been designed to comply with every need of the design engineer in linear motion, power transmission and in conveying applications where precise synchronisation is needed. ELATECH® timing belts are manufactured with the body in thermoplastic polyurethane with excellent wear resistance and with high tensile strength steel cords. A special polyamide fabric on the tooth (on request) reduces the coefficient of friction, improves the tooth engagement and reduces noise.

Standard belt



Belt with Polyamide fabric on teeth PAZ



Product declaration

- ELATECH® belts are certified to be according RoHS 2011/65/UE
- On request, it is possible to deliver belts:
  - with antistatic properties according to ISO9563
  - other special certifications available on request

Colour

The standard colour ELATECH® timing belt is white.
On demand it is possible to deliver belts in different colours.

Tension Cords

In order to maximize the application of ELATECH® timing belts, construction with special cords is available on request:

Standard Cord

HFE Cord

HPL Cord

- **HPL** high performance cords: the cord cross section is increased compared with standard. This results in a lower belt elongation and more precise positioning accuracy.

- **HFE** high Flexibility cords: the cord cross section is spread on a higher number of single filaments. This results in a lower bending stress and therefore in a higher resistance at reverse bending of the cords.
  They allow using pulleys and idlers up to 30% smaller in diameter compared to standard.

- **INOX** stainless steel cords are suitable for application in aggressive environments. They have lower tensile strength than standard cords.

- **ARAMID**: increases belt flexibility and decreases belt weight.

It is to be noted that steel cords offer the best technical performances and dimensional stability of the belts.
Belt length tolerances are valid for steel cord reinforcement. In case of other material (aramid, fibreglass) length tolerance may change.
For application with special cords ask our engineering department.

Mechanical properties:

- Excellent dimensional stability
- High abrasion resistance
- Low pretension and shaft load
- Maintenance free
- High linear and angular positioning precision
- High efficiency

Chemical properties:

High resistance to:

- Hydrolysis
- Ozone
- UVA
- Ageing
- Oils, greases and fats
- Gasoline
- Good resistance to acids
- Working temperatures range for standard material -10°C +80°C (peaks up to 110°C).
  For very low temperature special compound material is available on request (see dedicated table)
- Silicon free production (on request)

Executions

ELATECH® M

They are manufactured in rolls with standard length of 100 m. On request longer or shorter lengths are available. Main applications are linear drives.

Ordering example roll 100 m profile T :

ELATECH® "R" - Roll 100 m **R 025 T 10 A / Z**

- ELATECH® timing belt type "R"
- Width 25 mm (3 digits)
- Profile "T"
- Pitch 10 mm
- A= steel cords
  S= stainless steel cords
  K= Kevlar® cords
  F= high flexiblity cords
  P= high power cords
- Z= fabric on teeth (PAZ)
  R= fabric on back (PAR)
  D= fabric on PAZ + PAR

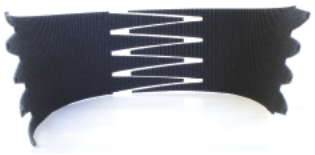
Ordering example profile H cut to length:

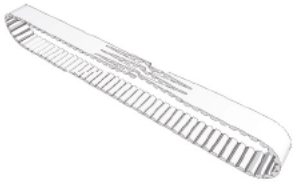
ELATECH® "M" cut to length **M 100 H A 01270 / Z**

- ELATECH® timing belt type "M"
- Width (x 0,254 = mm) - 3 digits
- Profile "H"
- A= steel cords
  S= stainless steel cords
  K= Kevlar® cords
  F= high flexiblity cords
  P= high power cords
- Length 1270 mm (5 digits)
- Z= fabric on teeth (PAZ)
  R= fabric on back (PAR)
  D= fabric on PAZ + PAR

ELATECH® V

They are jointed belts manufactured from open-end ELATECH® belts.Thanks to the specific manufacturing process, any length may be obtained tooth by tooth. Free combinations with special backing materials and welded profiles, make ELATECH® V belts ideal in synchronized conveying and highly specialised applications.





Ordering example profile AT :

ELATECH® "V" jointed **V 020 AT5 A 03410 / Z**

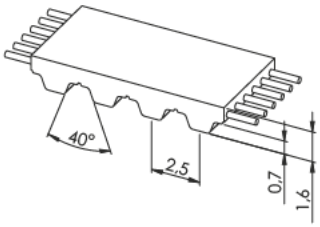
- ELATECH timing belt type "V" jointed
- Width 20 mm (3 digits)
- Profile "AT" - Pitch 5 mm
- A= steel cords
  S= stainless steel cords
  K= Kevlar® cords
  F= high flexiblity cords
  P= high power cords
- Length 3410 mm (5 digits)
- Z= fabric on teeth (PAZ)
  R= fabric on back (PAR)
  D= fabric on PAZ + PAR

Ordering example profile XL :

ELATECH® "V" jointed **V 150 XL A 00762 / Z**

- ELATECH timing belt type "V" jointed
- Width (x 0,254 = mm) - 3 digits
- Profile "XL"
- A= steel cords
  S= stainless steel cords
  K= Kevlar® cords
  F= high flexiblity cords
  P= high power cords
- Length 762 mm (5 digits)
- Z= fabric on teeth (PAZ)
  R= fabric on back (PAR)
  D= fabric on PAZ + PAR

T 2,5



Belt characteristics

- Polyurethane timing belt with steel tension cords
- Tooth profile according to ISO 17396
- Metric pitch 2,5 mm
- Ideal for drives where high belt flexibility is requested
- Widely used for conveying, linear drive and light power transmission applications
- Color: white

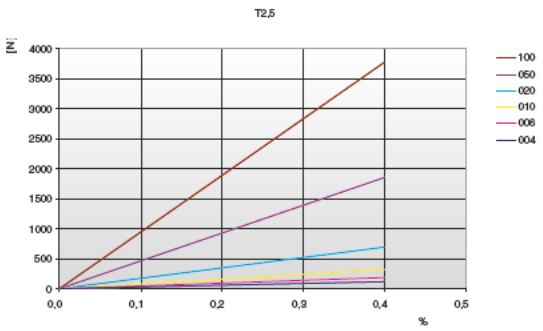
- Width tolerance: ±0,3 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,15 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
4	130	-	500	32500	0,004
6	190	-	750	47500	0,007
10	320	160	1250	80000	0,011
20	700	350	2750	175000	0,022
50	1860	930	7250	465000	0,055
100	3780	1890	14750	945000	0,110

Other widths are available on request.

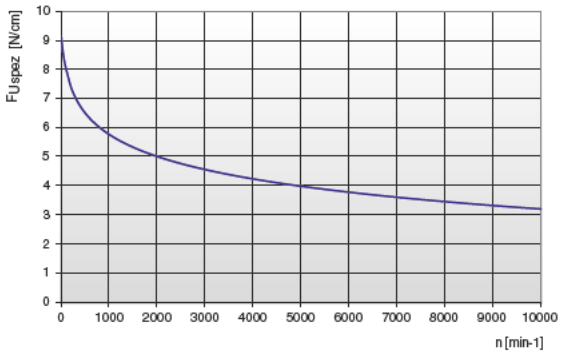
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	9,10	**800**	5,99	**1900**	5,05	**4500**	4,09
20	8,77	**900**	5,86	**2000**	4,99	**5000**	3,97
40	8,51	**1000**	5,75	**2200**	4,88	**5500**	3,86
60	8,30	**1100**	5,64	**2400**	4,79	**6000**	3,76
80	8,13	**1200**	5,55	**2600**	4,70	**6500**	3,67
100	8,00	**1300**	5,46	**2800**	4,62	**7000**	3,59
200	7,39	**1400**	5,38	**3000**	4,54	**7500**	3,51
300	7,00	**1440**	5,35	**3200**	4,47	**8000**	3,44
400	6,71	**1500**	5,31	**3400**	4,40	**8500**	3,37
500	6,48	**1600**	5,24	**3600**	4,34	**9000**	3,30
600	6,29	**1700**	5,17	**3800**	4,28	**9500**	3,24
700	6,13	**1800**	5,11	**4000**	4,22	**10000**	3,18

Tooth shear strength / rpm

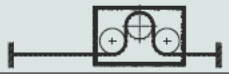


The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord STANDARD
Drive without reverse bending	Timing pulley z_{min}	15
	Flat idler running on belt teeth d_{min}	15 mm
Drive with reverse bending	Timing pulley z_{min}	18
	Flat idler running on belt back d_{min}	18 mm

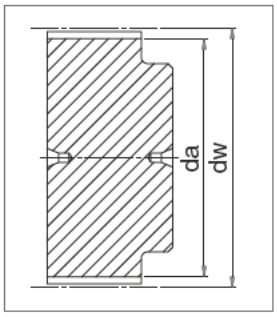
Timing pulleys

z	da	dw
10	7,46	7,96
11	8,25	8,75
12	9,05	9,55
13	9,85	10,35
14	10,64	11,14
15	11,44	11,94
16	12,23	12,73
17	13,03	13,53
18	13,82	14,32
19	14,62	15,12
20	15,42	15,92
21	16,21	16,71
22	17,01	17,51
23	17,80	18,30
24	18,60	19,10
25	19,39	19,89
26	20,19	20,69
27	20,99	21,49
28	21,78	22,28
29	22,58	23,08
30	23,37	23,87
31	24,17	24,67
32	24,97	25,47
33	25,76	26,26
34	26,56	27,06
35	27,35	27,85
36	28,15	28,65
37	28,94	29,44
38	29,74	30,24
39	30,54	31,04
40	31,33	31,83
41	32,13	32,63
42	32,92	33,42

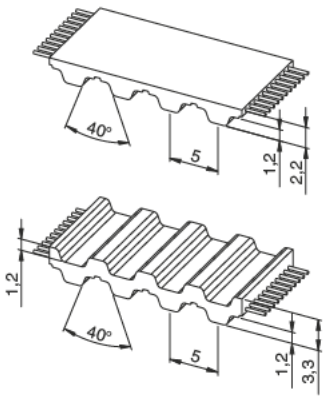
z	da	dw
43	33,72	34,22
44	34,52	35,02
45	35,31	35,81
46	36,11	36,61
47	36,90	37,40
48	37,70	38,20
49	38,49	38,99
50	39,29	39,79
51	40,09	40,59
52	40,88	41,38
53	41,68	42,18
54	42,47	42,97
55	43,27	43,77
56	44,06	44,56
57	44,86	45,36
58	45,66	46,16
59	46,45	46,95
60	47,25	47,75
61	48,04	48,54
62	48,84	49,34
63	49,64	50,14
64	50,43	50,93
65	51,23	51,73
66	52,02	52,52
67	52,82	53,32
68	53,61	54,11
69	54,41	54,91
70	55,21	55,71
71	56,00	56,50
72	56,80	57,30
73	57,59	58,09
74	58,39	58,89
75	59,18	59,68

z	da	dw
76	59,98	60,48
77	60,78	61,28
78	61,57	62,07
79	62,37	62,87
80	63,16	63,66
81	63,96	64,46
82	64,76	65,26
83	65,55	66,05
84	66,35	66,85
85	67,14	67,64
86	67,94	68,44
87	68,73	69,23
88	69,53	70,03
89	70,33	70,83
90	71,12	71,62
91	71,92	72,42
92	72,71	73,21
93	73,51	74,01
94	74,31	74,81
95	75,10	75,60
96	75,90	76,40
97	76,69	77,19
98	77,49	77,99
99	78,28	78,78
100	79,08	79,58
101	79,88	80,38
102	80,67	81,17
103	81,47	81,97
104	82,26	82,76
105	83,06	83,56
106	83,85	84,35
107	84,65	85,15
108	85,45	85,95

z	da	dw
109	86,24	86,74
110	87,04	87,54
111	87,83	88,33
112	88,63	89,13
113	89,43	89,93
114	90,22	90,72
115	91,02	91,52
116	91,81	92,31
117	92,61	93,11
118	93,40	93,90
119	94,20	94,70
120	95,00	95,50
121	95,79	96,29
122	96,59	97,09
123	97,38	97,88
124	98,18	98,68
125	98,97	99,47
126	99,77	100,27
127	100,57	101,07
128	101,36	101,86
129	102,16	102,66
130	102,95	103,45
131	103,75	104,25
132	104,55	105,05
133	105,34	105,84
134	106,14	106,64
135	106,93	107,43
136	107,73	108,23
137	108,52	109,02
138	109,32	109,82
139	110,12	110,62
140	110,91	111,41



T 5



Belt characteristics

- Polyurethane timing belt with steel tension cords
- Tooth profile according to ISO 17396
- Metric pitch 5 mm
- Ideal for drives where high belt flexibility is requested
- Widely used for conveying, linear drive and light power transmission applications
- Double sided tooth construction available

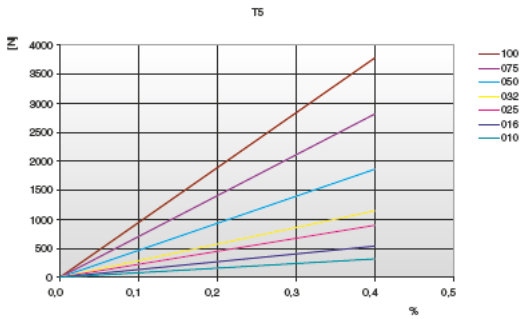
- Width tolerance: ±0,5 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,15 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
10	320	160	1250	80000	0,021
16	540	270	2125	135000	0,034
25	900	450	3500	225000	0,053
32	1150	575	4500	287500	0,067
50	1860	930	7250	465000	0,105
75	2820	1410	11000	705000	0,158
100	3780	1890	14750	945000	0,210

Other widths are available on request.

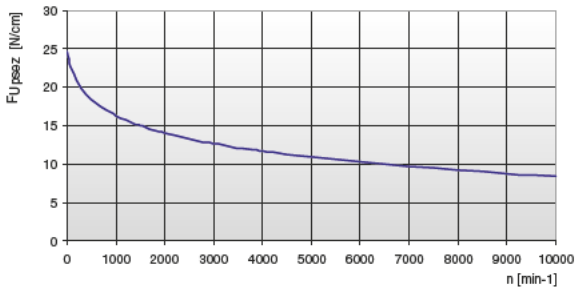
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	24,70	**800**	17,02	**1900**	14,21	**4500**	11,25
20	24,07	**900**	16,65	**2000**	14,03	**5000**	10,88
40	23,53	**1000**	16,32	**2200**	13,71	**5500**	10,55
60	23,05	**1100**	16,01	**2400**	13,42	**6000**	10,24
80	22,64	**1200**	15,73	**2600**	13,14	**6500**	9,96
100	22,28	**1300**	15,47	**2800**	12,89	**7000**	9,70
200	20,90	**1400**	15,22	**3000**	12,65	**7500**	9,46
300	19,89	**1440**	15,13	**3200**	12,43	**8000**	9,23
400	19,10	**1500**	15,00	**3400**	12,22	**8500**	9,01
500	18,45	**1600**	14,78	**3600**	12,03	**9000**	8,81
600	17,91	**1700**	14,58	**3800**	11,84	**9500**	8,62
700	17,44	**1800**	14,39	**4000**	11,66	**10000**	8,44

Tooth shear strength / rpm



The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

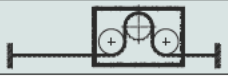
$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Specialties

Belt width b [mm]	ARAMID CORD		HPL High Performance	
	F_{Tzul} [N] M type	F_{Br} [N]	F_{Tzul} [N] M type	F_{Br} [N]
10	700	2800	920	3360
16	1190	4760	1610	5880
25	1960	7840	2645	9660
32	2520	10080	3450	12600
50	4060	16240	5520	20160
75	6160	24640	8395	30660
100	8260	33040	11270	41160
150	-	-	16905	61740

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord		
		STANDARD	ARAMID	HPL
Drive without reverse bending	Timing pulley z_{min}	10	10	24
	Flat idler running on belt teeth d_{min}	30 mm	30 mm	60 mm
Drive with reverse bending	Timing pulley z_{min}	15	15	38
	Flat idler running on belt back d_{min}	30 mm	30 mm	60 mm

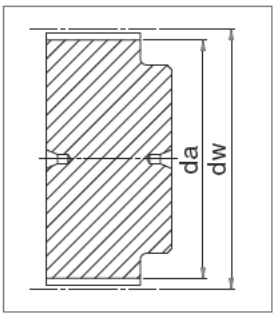
Timing pulleys

z	da	dw
10	15,05	15,92
11	16,65	17,51
12	18,25	19,10
13	19,85	20,70
14	21,45	22,29
15	23,05	23,88
16	24,60	25,47
17	26,20	27,06
18	27,80	28,65
19	29,40	30,25
20	31,00	31,83
21	32,70	33,43
22	34,25	35,02
23	35,85	36,62
24	37,40	38,21
25	39,00	39,80
26	40,60	41,39
27	42,20	42,98
28	43,75	44,58
29	45,35	46,17
30	46,95	47,76
31	48,55	49,35
32	50,10	50,94
33	51,70	52,54
34	53,25	54,13
35	54,85	55,72
36	56,45	57,31
37	58,05	58,90
38	59,65	60,50
39	61,25	62,09

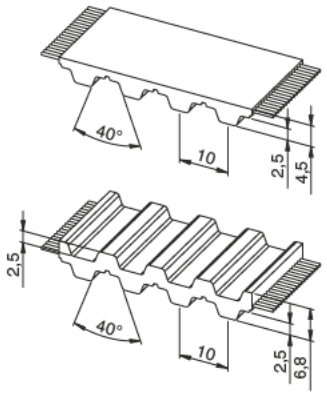
z	da	dw
40	62,85	63,66
41	64,4	65,27
42	66	66,86
43	67,7	68,46
44	69,2	70,05
45	70,8	71,64
46	72,4	73,23
47	73,95	74,82
48	75,55	76,42
49	77,15	78,01
50	78,75	79,60
51	80,35	81,19
52	81,95	82,78
53	83,5	84,38
54	85,1	85,97
55	86,7	87,54
56	88,3	89,15
57	89,9	90,74
58	91,5	92,34
59	93,05	93,93
60	94,65	95,52
61	96,25	97,11
62	97,85	98,70
63	99,45	100,30
64	101,05	101,89
65	102,65	103,48
66	104,2	105,07
67	105,8	106,66
68	107,40	108,26
69	109,00	109,85

z	da	dw
70	110,60	111,44
71	112,20	113,03
72	113,75	114,62
73	115,35	116,22
74	116,95	117,81
75	118,55	119,40
76	120,15	120,99
77	121,75	122,58
78	123,30	124,18
79	124,90	125,77
80	126,50	127,36
81	128,10	128,95
82	129,70	130,54
83	131,30	132,14
84	132,85	133,73
85	134,45	135,32
86	136,05	136,91
87	137,65	138,50
88	139,25	140,10
89	140,85	141,69
90	142,45	143,28
91	144,00	144,87
92	145,60	146,46
93	147,20	148,06
94	148,80	149,65
95	150,40	151,24
96	152,00	152,83
97	153,55	154,42
98	155,15	156,02
99	156,75	157,61

z	da	dw
100	158,35	159,20
101	159,95	160,79
102	161,55	162,38
103	163,10	163,97
104	164,70	165,57
105	166,30	167,16
106	167,90	168,75
107	169,50	170,34
108	171,10	171,94
109	172,65	173,53
110	174,25	175,12
111	175,85	176,71
112	177,45	178,30
113	179,05	179,84
114	180,65	181,49
115	182,23	183,08
116	183,82	184,67
117	185,42	186,26
118	187,01	187,86
119	188,61	189,45
120	190,21	191,04



T 10



Belt characteristics

- Polyurethane timing belt with steel tension cords
- Tooth profile according to ISO 17396
- Metric pitch 10 mm
- Ideal for drives where high belt flexibility is requested
- Widely used for conveying, linear drive and medium power transmission applications
- Double sided tooth construction available

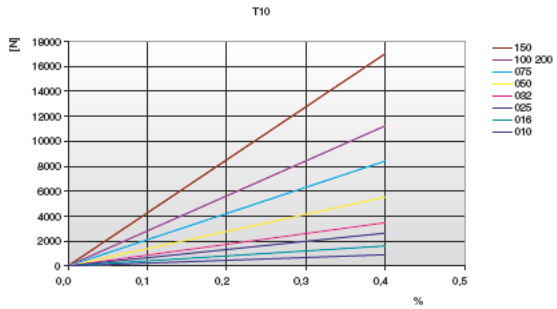
- Width tolerance: ±0,5 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
10	920	460	3360	230000	0,05
16	1610	805	5880	402500	0,07
25	2650	1325	9660	662500	0,11
32	3450	1725	12600	862500	0,15
50	5520	2760	20160	1380000	0,23
75	8400	4200	30660	2100000	0,34
100	11270	5635	41160	2817500	0,45
150	17020	8510	62160	4255000	0,68
200*	11270	5635	41160	2817500	0,60

Other widths are available on request. * = double cords spacing

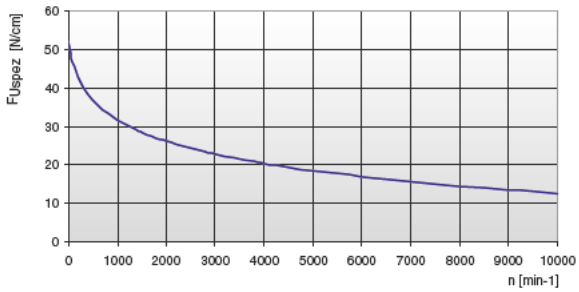
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	51,80	**800**	33,34	**1900**	26,53	**4500**	19,40
20	50,32	**900**	32,44	**2000**	26,12	**5000**	18,51
40	49,04	**1000**	31,63	**2200**	25,34	**5500**	17,70
60	47,92	**1100**	30,89	**2400**	24,63	**6000**	16,97
80	46,95	**1200**	30,21	**2600**	23,97	**6500**	16,29
100	46,11	**1300**	29,58	**2800**	23,36	**7000**	15,66
200	42,75	**1400**	28,99	**3000**	22,78	**7500**	15,07
300	40,28	**1440**	28,76	**3200**	22,25	**8000**	14,52
400	38,36	**1500**	28,44	**3400**	21,74	**8500**	14,00
500	36,80	**1600**	27,92	**3600**	21,27	**9000**	13,51
600	35,49	**1700**	27,43	**3800**	20,81	**9500**	13,05
700	34,35	**1800**	26,97	**4000**	20,39	**10000**	12,61

Tooth shear strength / rpm



The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

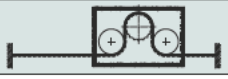
F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Specialties

Belt width b [mm]	ARAMID CORD		STAINLESS STEEL		HPL High Performance		HFE High Flexibility	
	F_{Tzul} [N] M type	F_{Br} [N]	F_{Tzul} [N] M type	F_{Br} [N]	F_{Tzul} [N] M type	F_{Br} [N]	F_{Tzul} [N] M type	F_{Br} [N]
10	880	3600	600	2400	-	-	960	3440
16	1540	6300	1050	4200	2450	9500	1680	6020
25	2530	10350	1730	6900	4165	16150	2760	9890
32	3300	13500	2250	9000	5390	20900	3600	12900
50	5280	21600	3600	14400	8575	33250	5760	20640
75	8030	32850	-	-	12990	50350	-	-
100	10780	44100	-	-	17400	67450	-	-
150	16280	66600	-	-	-	-	-	-
200*	10780	44100	-	-	-	-	-	-

* = double cords spacing

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord				
		STANDARD	ARAMID	STAINLESS	HPL	HFE
Drive without reverse bending	Timing pulley z_{min}	12	15	15	15	10
	Flat idler running on belt teeth d_{min}	60 mm	60 mm	60 mm	100 mm	50 mm
Drive with reverse bending	Timing pulley z_{min}	20	20	40	30	15
	Flat idler running on belt back d_{min}	60 mm	60 mm	120 mm	100 mm	50 mm

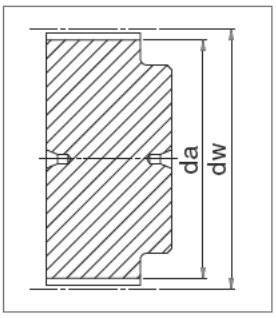
Timing pulleys

z	da	dw
10	30,05	31,84
11	33,25	35,02
12	36,35	38,20
13	39,50	41,38
14	42,70	44,56
15	45,90	47,75
16	49,05	50,93
17	52,25	54,11
18	55,45	57,29
19	58,65	60,48
20	61,80	63,66
21	65,00	66,84
22	68,15	70,03
23	71,35	73,20
24	74,55	76,39
25	77,70	79,58
26	80,90	82,76
27	84,10	85,95
28	87,25	89,12
29	90,45	92,21
30	93,65	95,49
31	96,85	98,67
32	100,00	101,86
33	103,20	105,04
34	106,40	108,22
35	109,55	111,41
36	112,75	114,59
37	115,90	117,77
38	119,10	120,95
39	122,30	124,14

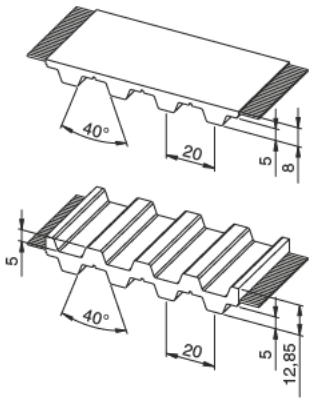
z	da	dw
40	125,45	127,32
41	128,65	130,50
42	131,85	133,69
44	138,20	140,05
45	141,40	143,24
46	144,60	146,42
47	147,75	149,60
48	150,95	152,78
49	154,10	155,97
50	157,30	159,15
51	160,50	162,33
52	163,65	165,52
53	166,85	168,70
54	170,05	171,88
55	173,20	175,06
56	176,40	178,25
57	179,60	181,43
58	182,75	184,61
59	185,95	187,80
60	189,10	190,98
61	192,30	194,16
62	195,50	197,35
63	198,65	200,53
64	201,85	203,71
65	205,05	206,90
66	208,20	210,08
67	211,40	213,26
68	214,60	216,44
69	217,75	219,63
70	220,95	222,81

z	da	dw
71	224,15	225,99
72	227,30	229,18
73	230,50	232,36
74	233,70	235,54
75	236,90	238,72
76	240,05	241,94
77	243,25	245,09
78	246,40	248,27
79	249,60	251,46
80	252,80	254,64
81	256,00	257,82
82	259,15	261,00
83	262,30	264,19
84	265,50	267,37
85	268,70	270,55
86	271,90	273,74
87	275,05	276,92
88	278,25	280,10
89	281,45	283,28
90	284,60	286,47
91	287,80	289,65
92	291,00	292,84
93	294,20	296,02
94	297,35	299,20
95	300,55	302,39
96	303,75	305,57
97	306,90	308,75
98	310,10	311,93
99	313,25	315,12
100	316,45	318,30

z	da	dw
101	319,65	321,48
102	322,80	324,66
103	326,00	327,85
104	329,20	331,03
105	332,35	334,21
106	335,55	337,40
107	338,75	340,58
108	341,95	343,76
109	345,15	346,95
110	348,30	350,13
111	351,45	353,31
112	354,65	356,50
113	357,80	359,68
114	361,00	362,86
115	364,19	366,04
116	367,39	369,23
117	370,56	372,41
118	373,76	375,59
119	376,93	378,78
120	380,11	381,96



T 20



Belt characteristics

- Polyurethane timing belt with steel tension cords
- Tooth profile according to ISO 17396
- Metric pitch 20 mm
- Ideal for drives where high belt flexibility is requested
- Widely used for conveying, linear drive and heavy power transmission applications
- Double sided tooth construction available

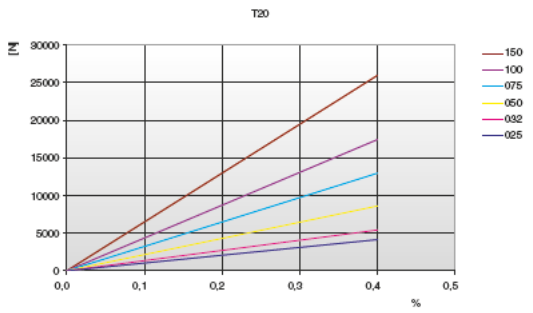
- Width tolerance: ±1,0 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,4 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
25	4170	2085	16150	1042500	0,20
32	5390	2695	20900	1347500	0,26
50	8580	4290	33250	2145000	0,41
75	12990	6495	50350	3247500	0,61
100	17400	8700	67450	4350000	0,82
150	26220	13110	101650	6555000	1,23

Other widths are available on request.

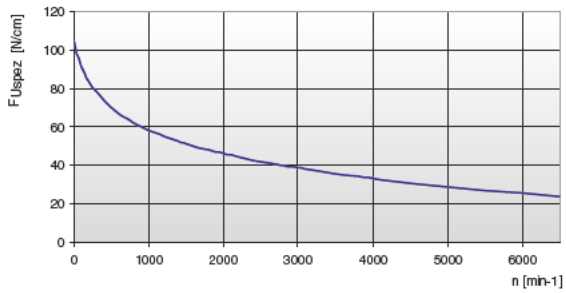
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	104,50	**800**	62,15	**1900**	46,88	**4500**	30,92
20	101,10	**900**	60,13	**2000**	45,94	**5000**	28,93
40	98,15	**1000**	58,31	**2200**	44,20	**5500**	27,14
60	95,58	**1100**	56,64	**2400**	42,61	**6000**	25,49
80	93,35	**1200**	55,11	**2600**	41,13	**6500**	23,97
100	91,41	**1300**	53,70	**2800**	39,77	-	-
200	83,50	**1400**	52,38	**3000**	38,49	-	-
300	77,84	**1440**	51,87	**3200**	37,29	-	-
400	73,49	**1500**	51,14	**3400**	36,16	-	-
500	69,96	**1600**	49,98	**3600**	35,10	-	-
600	66,98	**1700**	48,89	**3800**	34,09	-	-
700	64,41	**1800**	47,86	**4000**	33,13	-	-

Tooth shear strength / rpm



The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

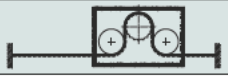
$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Specialties

Belt width b [mm]	ARAMID CORD		STAINLESS STEEL		HFE High Flexibility	
	F_{Tzul} [N] M type	F_{Br} [N]	F_{Tzul} [N] M type	F_{Br} [N]	F_{Tzul} [N] M type	F_{Br} [N]
25	3740	17000	3060	12750	3400	14450
32	4840	22000	3960	16500	4400	18700
50	7700	35000	6300	26250	7000	29750
75	11660	53000	-	-	-	-
100	15620	71000	-	-	-	-
150	23540	107000	-	-	-	-

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord			
		STANDARD	ARAMID	STAINLESS	HFE
Drive without reverse bending	Timing pulley z_{min}	15	15	20	12
	Flat idler running on belt teeth d_{min}	120 mm	120 mm	130 mm	100 mm
Drive with reverse bending	Timing pulley z_{min}	25	25	30	22
	Flat idler running on belt back d_{min}	120 mm	120 mm	150 mm	120 mm

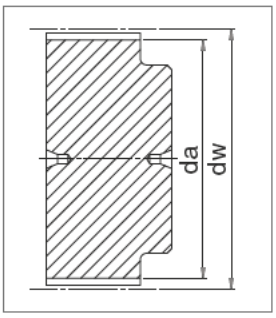
Timing pulleys

z	da	dw
15	92,65	95,49
16	99,00	101,86
17	105,40	108,22
18	111,75	114,59
19	118,10	120,96
20	124,50	127,32
21	130,75	133,69
22	137,20	140,06
23	143,55	146,43
24	149,95	152,78
25	156,30	159,15
26	162,65	165,52
27	169,00	171,89
28	175,40	178,25
29	181,75	184,62
30	188,10	190,99
31	194,50	197,35
32	200,85	203,72
33	207,20	210,09
34	213,60	216,44
35	219,95	222,81
36	226,35	229,18
37	232,70	235,54
38	239,05	241,91
39	245,40	248,28
40	251,75	254,65
41	258,15	261,02
42	264,50	267,37
43	270,85	273,74
44	277,25	280,10

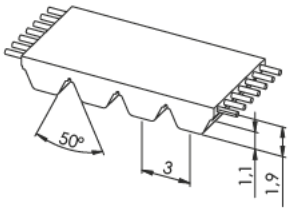
z	da	dw
45	283,60	286,47
46	289,95	292,84
47	296,35	299,21
48	302,70	305,58
49	309,10	311,93
50	315,45	318,30
51	321,80	324,67
52	328,15	331,03
53	334,50	337,40
54	340,90	343,76
55	347,25	350,13
56	353,60	356,50
57	360,00	362,86
58	366,35	369,23
59	372,75	375,59
60	379,10	381,96
61	385,45	388,33
62	391,85	394,70
63	398,20	401,06
64	404,55	407,43
65	410,95	413,80
66	417,30	420,17
67	423,65	426,52
68	430,05	432,89
69	436,40	439,26
70	442,80	445,63
71	449,15	451,99
72	455,50	458,36
73	461,85	464,73
74	468,25	471,08

z	da	dw
75	474,60	477,45
76	480,95	483,82
77	487,35	490,19
78	493,70	496,56
79	500,05	502,91
80	506,45	509,28
81	512,80	515,65
82	519,15	522,02
83	525,55	528,39
84	531,90	534,74
85	538,25	541,11
86	544,60	547,48
87	551,00	553,85
88	557,35	560,22
89	563,70	566,57
90	570,10	572,94
91	576,45	579,31
92	582,85	585,67
93	589,20	592,04
94	595,55	598,41
95	601,90	604,77
96	608,30	611,14
97	614,65	617,51
98	621,00	623,88
99	627,35	630,25
100	633,75	636,60
101	640,10	642,97
102	646,50	649,34
103	652,85	655,71
104	659,20	662,06

z	da	dw
105	665,60	668,43
106	671,95	674,80
107	678,30	681,17
108	684,70	687,54
109	691,05	693,89
110	697,40	700,26
111	703,80	706,63
112	710,15	712,99
113	716,50	719,36
114	722,90	725,73
115	729,24	732,09
116	735,61	738,46
117	741,96	744,83
118	748,34	751,19
119	754,70	757,56
120	761,07	763,93



AT 3



Belt characteristics

- Polyurethane timing belt with steel tension cords
- Tooth profile according to ISO 17396
- Metric pitch 3 mm
- Tooth profile and dimension are optimised to guarantee unifor load distribution and minimum deformation under load
- High resistance and low stretch steel cords to guarantee high stability and low elongation
- Reduced polygonal effect with reduced drive vibration
- Particularly suitable for linear drives and light power transmission applications with high axial and angular positioning accuracy
- Negative length tolerance available on request

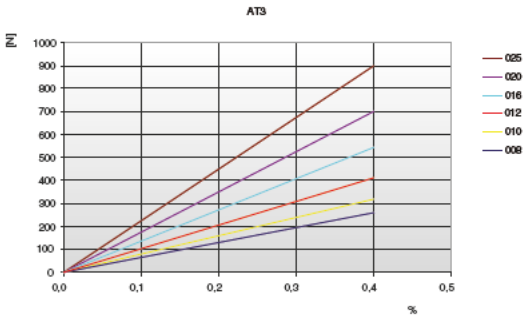
- Width tolerance: ±0,5 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
8	260	130	1000	65000	0,018
10	320	160	1250	80000	0,022
12	416	208	1625	104000	0,026
16	540	270	2125	135000	0,035
20	700	350	2750	175000	0,044
25	900	450	3500	225000	0,054

Other widths are available on request.

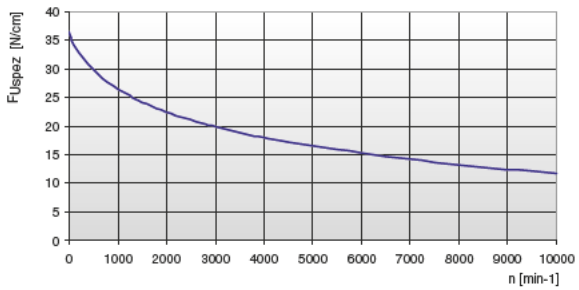
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	32,50	**800**	25,62	**1900**	20,98	**4500**	15,64
20	32,13	**900**	25,05	**2000**	20,68	**5000**	14,96
40	31,79	**1000**	24,52	**2200**	20,11	**5500**	14,33
60	31,48	**1100**	24,02	**2400**	19,59	**6000**	13,76
80	31,19	**1200**	23,56	**2600**	19,10	**6500**	13,23
100	30,92	**1300**	23,13	**2800**	18,64	**7000**	12,74
200	29,86	**1400**	22,72	**3000**	18,22	**7500**	12,28
300	29,15	**1440**	22,57	**3200**	17,81	**8000**	11,84
400	28,47	**1500**	22,34	**3400**	17,43	**8500**	11,43
500	27,66	**1600**	21,97	**3600**	17,07	**9000**	11,05
600	26,92	**1700**	21,63	**3800**	16,73	**9500**	10,68
700	26,25	**1800**	21,29	**4000**	16,40	**10000**	10,34

Tooth shear strength / rpm

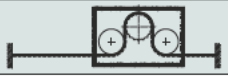


The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

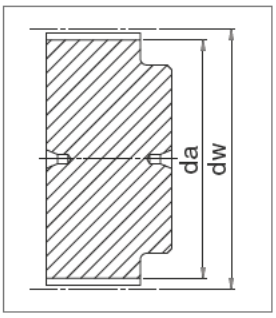
Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord
		STANDARD
Drive without reverse bending	Timing pulley z_{min}	15
	Flat idler running on belt teeth d_{min}	20 mm
Drive with reverse bending	Timing pulley z_{min}	20
	Flat idler running on belt back d_{min}	20 mm

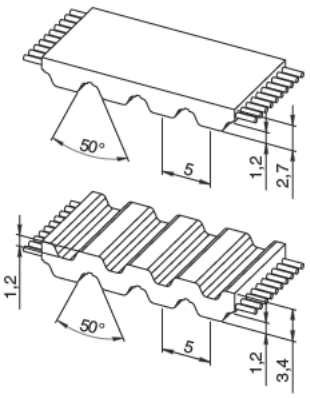
Timing pulleys

z	da	dw
15	13,92	14,32
16	14,87	15,28
17	15,82	16,23
18	16,78	17,19
19	17,73	18,14
20	18,69	19,10
21	19,64	20,05
22	20,60	21,01
23	21,55	21,96
24	22,51	22,92
25	23,46	23,87
26	24,42	24,83
27	25,37	25,78
28	26,33	26,74
29	27,28	27,69
30	28,24	28,65
31	29,19	29,60
32	30,15	30,56
33	31,10	31,51
34	32,06	32,47
35	33,01	33,42
36	33,97	34,38
37	34,92	35,33
38	35,88	36,29
39	36,83	37,24
40	37,79	38,20
41	38,74	39,15
42	39,70	40,11
43	40,65	41,06
44	41,61	42,02

z	da	dw
45	42,56	42,97
46	43,52	43,93
47	44,47	44,88
48	45,43	45,84
49	46,38	46,79
50	47,34	47,75
51	48,29	48,70
52	49,25	49,66
53	50,20	50,61
54	51,16	51,57
55	52,11	52,52
56	53,07	53,48
57	54,02	54,43
58	54,98	55,39
59	55,93	56,34
60	56,89	57,30
61	57,84	58,25
62	58,80	59,21
63	59,75	60,16
64	60,71	61,12
65	61,66	62,07
66	62,62	63,03
67	63,57	63,98
68	64,53	64,94
69	65,48	65,89
70	66,44	66,85
71	67,39	67,80
72	68,35	68,75



AT 5



Belt characteristics

- Polyurethane timing belt with steel tension cords
- Tooth profile according to ISO 17396
- Metric pitch 5 mm
- Tooth profile and dimension are optimised to guarantee uniform load distribution and minimum deformation under load
- High resistance and low stretch steel cords to guarantee high stability and low elongation
- Reduced polygonal effect with reduced drive vibration
- Particularly suitable for linear drives and light power transmission applications with high axial and angular positioning accuracy
- Double sided tooth construction available
- Negative length tolerance available on request

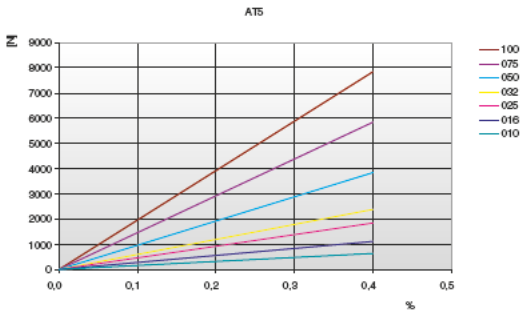
- Width tolerance: ±0,5 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
10	640	320	2160	160000	0,03
16	1120	560	3780	280000	0,05
25	1840	920	6210	460000	0,09
32	2400	1200	8100	600000	0,11
50	3840	1920	12960	960000	0,17
75	5840	2920	19710	1460000	0,26
100	7840	3920	26460	1960000	0,34

Other widths are available on request.

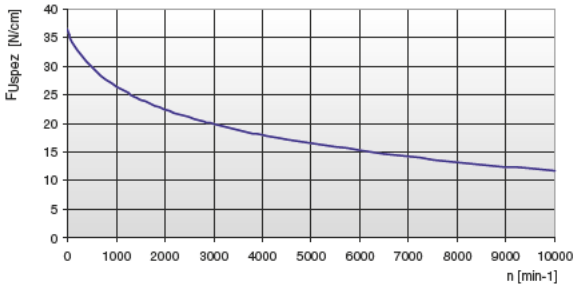
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	36,40	**800**	27,69	**1900**	22,73	**4500**	17,18
20	35,88	**900**	27,06	**2000**	22,42	**5000**	16,47
40	35,40	**1000**	26,49	**2200**	21,82	**5500**	15,83
60	34,97	**1100**	25,96	**2400**	21,28	**6000**	15,24
80	34,59	**1200**	25,47	**2600**	20,77	**6500**	14,69
100	34,24	**1300**	25,01	**2800**	20,29	**7000**	14,18
200	32,92	**1400**	24,57	**3000**	19,85	**7500**	13,71
300	31,92	**1440**	24,41	**3200**	19,43	**8000**	13,26
400	30,89	**1500**	24,16	**3400**	19,03	**8500**	12,85
500	29,95	**1600**	23,78	**3600**	18,66	**9000**	12,45
600	29,12	**1700**	23,41	**3800**	18,30	**9500**	12,07
700	28,37	**1800**	23,07	**4000**	17,96	**10000**	11,72

Tooth shear strength / rpm



The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

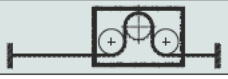
$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Specialties

Belt width b [mm]	ARAMID CORD		STAINLESS STEEL		HFE High Flexibility	
	F_{Tzul} [N] M type	F_{Br} [N]	F_{Tzul} [N] M type	F_{Br} [N]	F_{Tzul} [N] M type	F_{Br} [N]
10	880	3600	600	2400	960	3440
16	1540	6300	1050	4200	1680	6020
25	2530	10350	1725	6900	2760	9890
32	3300	13500	2250	9000	3600	12900
50	5280	21600	3600	14400	5760	20640
75	8030	32850	5475	21900	8760	31390
100	10780	44100	7350	29400	11760	42140

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord			
		STANDARD	ARAMID	STAINLESS	HFE
Drive without reverse bending	Timing pulley z_{min}	15	15	18	15
	Flat idler running on belt teeth d_{min}	30 mm	30 mm	40 mm	25 mm
Drive with reverse bending	Timing pulley z_{min}	25	25	25	20
	Flat idler running on belt back d_{min}	60 mm	60 mm	65 mm	50 mm

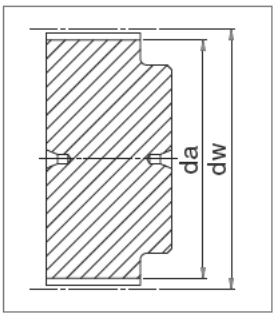
Timing pulleys

z	da	dw
15	22,65	23,88
16	24,20	25,47
17	25,80	27,06
18	27,40	28,65
19	29,00	30,25
20	30,60	31,83
21	32,20	33,43
22	33,80	35,02
23	35,40	36,62
24	37,00	38,21
25	38,60	39,80
26	40,20	41,39
27	41,80	42,98
28	43,35	44,58
29	44,95	46,17
30	46,55	47,76
31	48,15	49,35
32	49,70	50,94
33	51,30	52,54
34	52,85	54,13
35	54,45	55,72
36	56,05	57,31
37	57,65	58,90
38	59,25	60,50
39	60,85	62,09
40	62,45	63,66
41	64,00	65,27
42	65,60	66,86
43	67,30	68,46
44	68,80	70,05

z	da	dw
45	70,40	71,64
46	72,00	73,23
47	73,55	74,82
48	75,15	76,42
49	76,75	78,01
50	78,35	79,60
51	79,95	81,19
52	81,55	82,78
53	83,10	84,38
54	84,70	85,97
55	86,30	87,54
56	87,90	89,15
57	89,50	90,74
58	91,10	92,34
59	92,65	93,93
60	94,25	95,52
61	95,85	97,11
62	97,45	98,70
63	99,05	100,30
64	100,65	101,89
65	102,25	103,48
66	103,80	105,07
67	105,40	106,66
68	107,00	108,26
69	108,60	109,85
70	110,20	111,44
71	111,80	113,03
72	113,35	114,62
73	114,95	116,22
74	116,55	117,81

z	da	dw
75	118,15	119,40
76	119,75	120,99
77	121,35	122,58
78	122,90	124,18
79	124,50	125,77
80	126,10	127,36
81	127,70	128,95
82	129,30	130,54
83	130,90	132,14
84	132,45	133,73
85	134,05	135,32
86	135,65	136,91
87	137,25	138,50
88	138,85	140,10
89	140,45	141,69
90	142,05	143,28
91	143,60	144,87
92	145,20	146,46
93	146,80	148,06
94	148,40	149,65
95	150,00	151,24
96	151,60	152,83
97	153,15	154,42
98	154,75	156,02
99	156,35	157,61
100	157,95	159,20
101	159,55	160,79
102	161,15	162,38
103	162,70	163,97
104	164,30	165,57

z	da	dw
105	165,90	167,16
106	167,50	168,75
107	169,10	170,34
108	170,70	171,94
109	172,25	173,53
110	173,85	175,12
111	175,45	176,71
112	177,05	178,30
113	178,65	179,84
114	180,25	181,49
115	181,85	183,08
116	183,45	184,67
117	185,00	186,26
118	186,60	187,86
119	188,20	189,45
120	189,80	191,04



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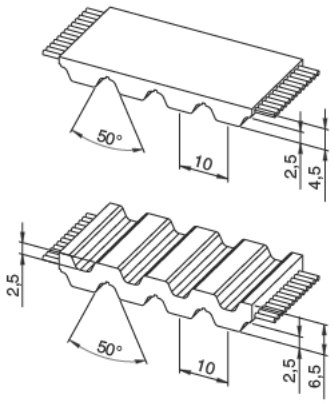


Belt characteristics

- Polyurethane timing belt with steel tension cords
- Tooth profile according to ISO 17396
- Metric pitch 10 mm
- Tooth profile and dimension are optimised to guarantee uniform load distribution and minimum deformation under load
- High resistance and low stretch steel cords to guarantee high stability and low elongation
- Reduced polygonal effect with reduced drive vibration
- Particularly suitable for linear drives and medium power transmission applications with high axial and angular positioning accuracy
- Double sided tooth construction available
- Negative length tolerance available on request

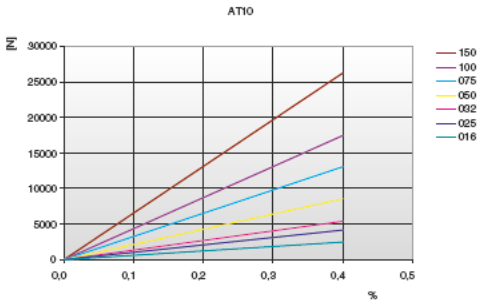
- Width tolerance: ±0,5 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
16	2450	1225	9500	612500	0,09
25	4170	2085	16150	1042500	0,15
32	5390	2695	20900	1347500	0,19
50	8580	4290	33250	2145000	0,30
75	12990	6495	50350	3247500	0,44
100	17400	8700	67450	4350000	0,59
150	26220	13110	101650	6555000	0,90

Other widths are available on request.

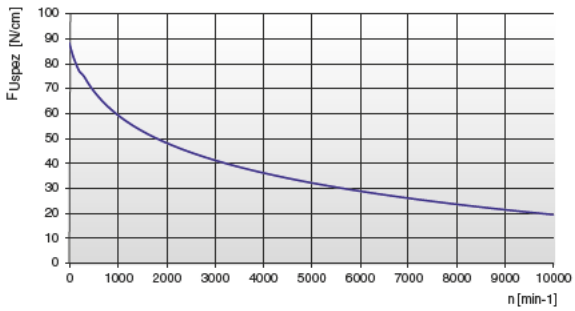
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	88,57	**800**	62,83	**1900**	49,16	**4500**	34,08
20	87,06	**900**	61,09	**2000**	48,29	**5000**	32,17
40	85,66	**1000**	59,49	**2200**	46,67	**5500**	30,43
60	84,35	**1100**	58,02	**2400**	45,18	**6000**	28,84
80	83,13	**1200**	56,66	**2600**	43,80	**6500**	27,37
100	81,99	**1300**	55,39	**2800**	42,51	**7000**	26,01
200	77,36	**1400**	54,20	**3000**	41,30	**7500**	24,73
300	75,09	**1440**	53,74	**3200**	40,17	**8000**	23,53
400	71,99	**1500**	53,08	**3400**	39,09	**8500**	22,41
500	69,27	**1600**	52,02	**3600**	38,08	**9000**	21,34
600	66,88	**1700**	51,02	**3800**	37,11	**9500**	20,33
700	64,75	**1800**	50,06	**4000**	36,20	**10000**	19,37

Tooth shear strength / rpm



The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

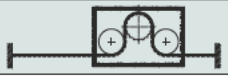
$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Specialties

Belt width b [mm]	ARAMID CORD		STAINLESS STEEL		HFE High Flexibility	
	F_{Tzul} [N] M type	F_{Br} [N]	F_{Tzul} [N] M type	F_{Br} [N]	F_{Tzul} [N] M type	F_{Br} [N]
16	2200	10000	1800	7500	2000	8500
25	3740	17000	3060	12750	3400	14450
32	4840	22000	3960	16500	4400	18700
50	7700	35000	6300	26250	7000	29750
75	11660	53000	9540	39750	-	-
100	15620	71000	12780	53250	-	-
150	23540	107000	-	-	-	-

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord			
		STANDARD	ARAMID	STAINLESS	HFE
Drive without reverse bending	Timing pulley z_{min}	15	15	20	12
	Flat idler running on belt teeth d_{min}	50 mm	50 mm	70 mm	50 mm
Drive with reverse bending	Timing pulley z_{min}	25	20	40	20
	Flat idler running on belt back d_{min}	120 mm	120 mm	120 mm	80 mm

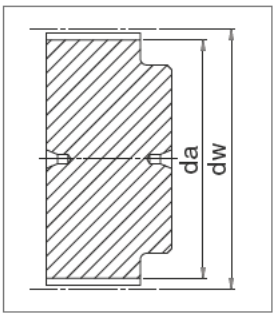
Timing pulleys

z	da	dw
15	45,70	47,75
16	49,05	50,93
17	52,25	54,11
18	55,45	57,29
19	58,60	60,48
20	61,80	63,66
21	65,00	66,84
22	68,15	70,03
23	71,35	73,20
24	74,55	76,39
25	77,70	79,58
26	80,90	82,76
27	84,10	85,95
28	87,25	89,12
29	90,45	92,21
30	93,65	95,49
31	96,80	98,67
32	100,00	101,86
33	103,20	105,04
34	106,40	108,19
35	109,55	111,41
36	112,75	114,59
37	115,90	117,77
38	119,10	120,95
39	122,30	124,14
40	125,45	127,32
41	128,65	130,50
42	131,85	133,69
43	135,00	136,87
44	138,20	140,05

z	da	dw
45	141,40	143,24
46	144,55	146,42
47	147,75	149,60
48	150,95	152,78
49	154,10	155,97
50	157,30	159,15
51	160,50	162,33
52	163,65	165,52
53	166,85	168,70
54	170,05	171,88
55	173,20	175,06
56	176,40	178,25
57	179,60	181,43
58	182,75	184,61
59	185,95	187,80
60	189,10	190,98
61	192,30	194,16
62	195,50	197,35
63	198,65	200,53
64	201,85	203,71
65	205,05	206,90
66	208,20	210,08
67	211,40	213,26
68	214,60	216,44
69	217,75	219,63
70	220,95	222,81
71	224,15	225,99
72	227,30	229,18
73	230,50	232,33
74	233,70	235,54

z	da	dw
75	236,90	238,72
76	240,05	241,94
77	243,25	245,09
78	246,40	248,24
79	249,60	251,46
80	252,80	254,64
81	255,95	257,82
82	259,15	261,00
83	262,30	264,19
84	265,50	267,37
85	268,70	270,52
86	271,90	273,74
87	275,05	276,92
88	278,25	280,10
89	281,45	283,28
90	284,60	286,47
91	287,80	289,65
92	291,00	292,84
93	294,20	296,02
94	297,35	299,20
95	300,55	302,39
96	303,70	305,57
97	306,90	308,75
98	310,10	311,93
99	313,25	315,12
100	316,45	318,30
101	319,65	321,48
102	322,80	324,66
103	326,00	327,85
104	329,20	331,03

z	da	dw
105	332,35	334,21
106	335,55	337,40
107	338,75	340,58
108	341,90	343,76
109	345,10	346,95
110	348,30	350,13
111	351,45	353,31
112	354,65	356,50
113	357,80	359,68
114	361,00	362,86
115	364,19	366,04
116	367,39	369,23
117	370,56	372,41
118	373,74	375,59
119	376,93	378,78
120	380,11	381,96



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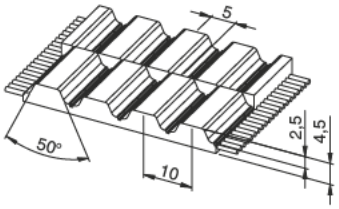


Belt characteristics

- Polyurethane timing belt with steel tension cords
- Metric pitch 10 mm
- Tooth profile and dimension are optimised to guarantee uniform load distribution and minimum deformation under load
- High resistance and low stretch steel cords to guarantee high stability and low elongation
- Reduced polygonal effect with reduced drive vibration thanks to the teeth offset
- Particularly suitable for linear drives and medium power transmission applications with high axial and angular positioning accuracy
- Negative length tolerance available on request

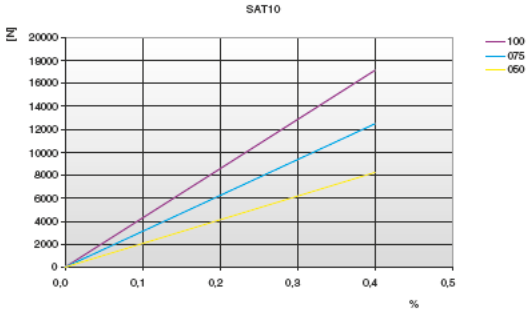
- Width tolerance: ±0,5 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
50	8330	4165	32300	2082500	0,29
75	12740	6370	49400	3185000	0,43
100	17150	8575	66500	4287500	0,57

Other widths are available on request.

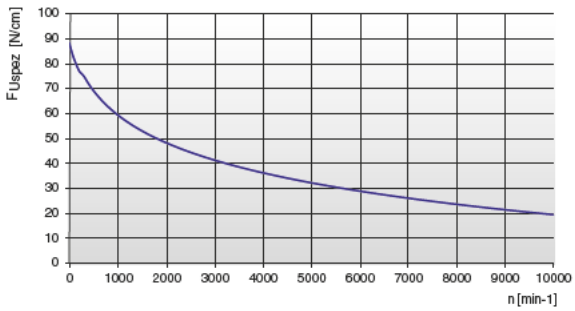
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	88,57	**800**	62,83	**1900**	49,16	**4500**	34,08
20	87,06	**900**	61,09	**2000**	48,29	**5000**	32,17
40	85,66	**1000**	59,49	**2200**	46,67	**5500**	30,43
60	84,35	**1100**	58,02	**2400**	45,18	**6000**	28,84
80	83,13	**1200**	56,66	**2600**	43,80	**6500**	27,37
100	81,99	**1300**	55,39	**2800**	42,51	**7000**	26,01
200	77,36	**1400**	54,20	**3000**	41,30	**7500**	24,73
300	75,09	**1440**	53,74	**3200**	40,17	**8000**	23,53
400	71,99	**1500**	53,08	**3400**	39,09	**8500**	22,41
500	69,27	**1600**	52,02	**3600**	38,08	**9000**	21,34
600	66,88	**1700**	51,02	**3800**	37,11	**9500**	20,33
700	64,75	**1800**	50,06	**4000**	36,20	**10000**	19,37

Tooth shear strength / rpm



The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

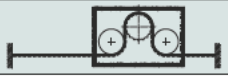
$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Specialties

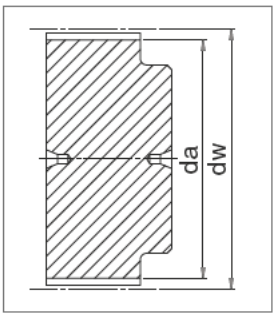
Belt width b [mm]	STAINLESS STEEL		HFE High Flexibility	
	F_{Tzul} [N] M type	F_{Br} [N]	F_{Tzul} [N] M type	F_{Br} [N]
50	6120	25500	6800	28900

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord			
		STANDARD	ARAMID	STAINLESS	HFE
Drive without reverse bending	Timing pulley z_{min}	15	15	20	12
	Flat idler running on belt teeth d_{min}	50 mm	50 mm	70 mm	50 mm
Drive with reverse bending	Timing pulley z_{min}	25	20	40	20
	Flat idler running on belt back d_{min}	120 mm	120 mm	120 mm	80 mm

Timing pulleys

z	da	dw	z	da	dw	z	da	dw	z	da	dw
15	45,70	47,75	**45**	141,40	143,24	**75**	236,90	238,72	**105**	332,35	334,21
16	49,05	50,93	**46**	144,55	146,42	**76**	240,05	241,94	**106**	335,55	337,40
17	52,25	54,11	**47**	147,75	149,60	**77**	243,25	245,09	**107**	338,75	340,58
18	55,45	57,29	**48**	150,95	152,78	**78**	246,40	248,24	**108**	341,90	343,76
19	58,60	60,48	**49**	154,10	155,97	**79**	249,60	251,46	**109**	345,10	346,95
20	61,80	63,66	**50**	157,30	159,15	**80**	252,80	254,64	**110**	348,30	350,13
21	65,00	66,84	**51**	160,50	162,33	**81**	255,95	257,82	**111**	351,45	353,31
22	68,15	70,03	**52**	163,65	165,52	**82**	259,15	261,00	**112**	354,65	356,50
23	71,35	73,20	**53**	166,85	168,70	**83**	262,30	264,19	**113**	357,80	359,68
24	74,55	76,39	**54**	170,05	171,88	**84**	265,50	267,37	**114**	361,00	362,86
25	77,70	79,58	**55**	173,20	175,06	**85**	268,70	270,52	**115**	364,19	366,04
26	80,90	82,76	**56**	176,40	178,25	**86**	271,90	273,74	**116**	367,39	369,23
27	84,10	85,95	**57**	179,60	181,43	**87**	275,05	276,92	**117**	370,56	372,41
28	87,25	89,12	**58**	182,75	184,61	**88**	278,25	280,10	**118**	373,74	375,59
29	90,45	92,21	**59**	185,95	187,80	**89**	281,45	283,28	**119**	376,93	378,78
30	93,65	95,49	**60**	189,10	190,98	**90**	284,60	286,47	**120**	380,11	381,96
31	96,80	98,67	**61**	192,30	194,16	**91**	287,80	289,65			
32	100,00	101,86	**62**	195,50	197,35	**92**	291,00	292,84			
33	103,20	105,04	**63**	198,65	200,53	**93**	294,20	296,02			
34	106,40	108,19	**64**	201,85	203,71	**94**	297,35	299,20			
35	109,55	111,41	**65**	205,05	206,90	**95**	300,55	302,39			
36	112,75	114,59	**66**	208,20	210,08	**96**	303,70	305,57			
37	115,90	117,77	**67**	211,40	213,26	**97**	306,90	308,75			
38	119,10	120,95	**68**	214,60	216,44	**98**	310,10	311,93			
39	122,30	124,14	**69**	217,75	219,63	**99**	313,25	315,12			
40	125,45	127,32	**70**	220,95	222,81	**100**	316,45	318,30			
41	128,65	130,50	**71**	224,15	225,99	**101**	319,65	321,48			
42	131,85	133,69	**72**	227,30	229,18	**102**	322,80	324,66			
43	135,00	136,87	**73**	230,50	232,33	**103**	326,00	327,85			
44	138,20	140,05	**74**	233,70	235,54	**104**	329,20	331,03			



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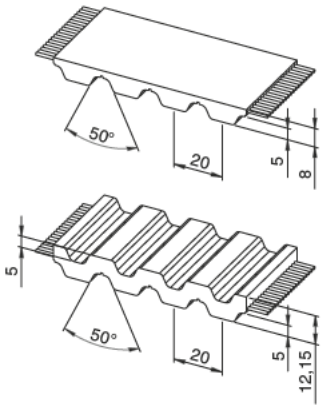


Belt characteristics

- Polyurethane timing belt with steel tension cords
- Tooth profile according to ISO 17396
- Metric pitch 20 mm
- Tooth profile and dimension are optimised to guarantee uniform load distribution and minimum deformation under load
- High resistance and low stretch steel cords to guarantee high stability and low elongation
- Reduced polygonal effect with reduced drive vibration
- Particularly suitable for linear drives and heavy power transmission applications with high axial and angular positioning accuracy
- Double sided tooth construction available

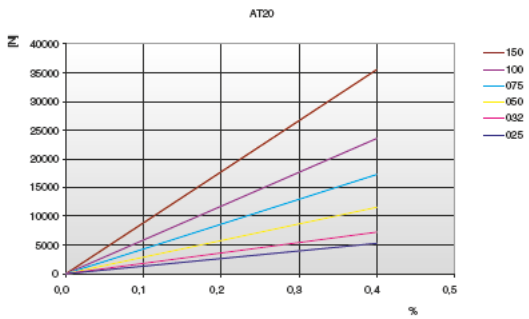
- Width tolerance: ±1,0 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,4 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
25	5280	2640	19250	1320000	0,24
32	7200	3600	26250	1800000	0,31
50	11520	5760	42000	2880000	0,48
75	17280	8640	63000	4320000	0,73
100	23520	11760	85750	5880000	0,97
150	35520	17760	129500	8880000	1,45

Other widths are available on request.

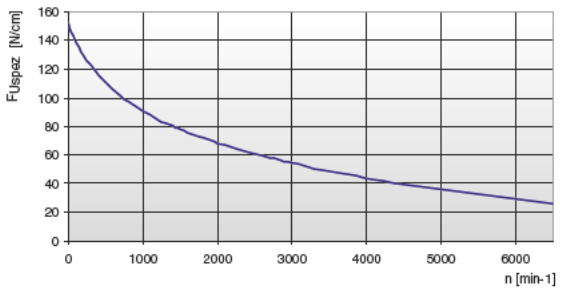
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	151,40	**800**	97,44	**1900**	69,96	**4500**	39,72
20	148,56	**900**	93,93	**2000**	68,22	**5000**	35,90
40	145,89	**1000**	90,73	**2200**	64,97	**5500**	32,42
60	143,38	**1100**	87,77	**2400**	61,98	**6000**	29,23
80	141,01	**1200**	85,02	**2600**	59,20	**6500**	26,29
100	138,78	**1300**	82,47	**2800**	56,62	-	-
200	129,43	**1400**	80,07	**3000**	54,20	-	-
300	122,28	**1440**	79,16	**3200**	51,92	-	-
400	115,96	**1500**	77,82	**3400**	49,77	-	-
500	110,45	**1600**	75,70	**3600**	47,74	-	-
600	105,61	**1700**	73,69	**3800**	45,80	-	-
700	101,31	**1800**	71,77	**4000**	43,96	-	-

Tooth shear strength / rpm



The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

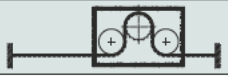
$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Specialties

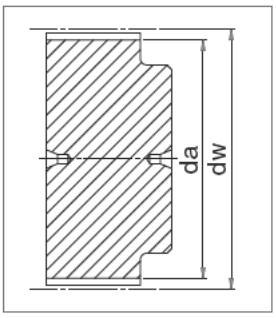
Belt width b [mm]	HFE High Flexibility		ARAMID CORD		STAINLESS STEEL	
	F_{Tzul} [N] M type	F_{Br} [N]	F_{Tzul} [N] M type	F_{Br} [N]	F_{Tzul} [N] M type	F_{Br} [N]
25	5060	21175	2420	11000	3300	15400
32	6900	28875	3300	15000	4500	21000
50	11040	46200	5280	24000	7200	33600
75	16560	69300	7920	36000	10800	50400
100	22540	94325	10780	49000	14700	68600

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord			
		STANDARD	HFE	ARAMID	STAINLESS STEEL
Drive without reverse bending	Timing pulley z_{min}	18	18	18	20
	Flat idler running on belt teeth d_{min}	120 mm	120 mm	120 mm	125 mm
Drive with reverse bending	Timing pulley z_{min}	25	25	25	30
	Flat idler running on belt back d_{min}	180 mm	150 mm	160 mm	200 mm

Timing pulleys

z	da	dw	z	da	dw	z	da	dw	z	da	dw
18	111,75	114,59	**48**	302,70	305,58	**78**	493,70	496,56	**108**	684,70	687,54
19	118,10	120,95	**49**	309,10	311,93	**79**	500,05	502,91	**109**	691,05	693,89
20	124,50	127,32	**50**	315,45	318,30	**80**	506,45	509,28	**110**	697,40	700,26
21	130,75	133,69	**51**	321,80	324,67	**81**	512,80	515,65	**111**	703,80	706,63
22	137,20	140,05	**52**	328,20	331,03	**82**	519,15	522,02	**112**	710,15	712,99
23	143,55	146,42	**53**	334,55	337,40	**83**	525,55	528,39	**113**	716,50	719,36
24	149,95	152,78	**54**	340,90	343,76	**84**	531,90	534,74	**114**	722,90	725,72
25	156,30	159,15	**55**	347,30	350,13	**85**	538,25	541,11	**115**	729,24	732,09
26	162,65	165,52	**56**	353,65	356,50	**86**	544,60	547,48	**116**	735,61	738,46
27	169,05	171,88	**57**	360,00	362,86	**87**	551,00	553,85	**117**	741,96	744,83
28	175,40	178,25	**58**	366,40	369,23	**88**	557,35	560,22	**118**	748,34	751,19
29	181,75	184,62	**59**	372,75	375,59	**89**	563,70	566,57	**119**	754,70	757,56
30	188,15	190,99	**60**	379,10	381,96	**90**	570,10	572,94	**120**	761,07	763,93
31	194,50	197,35	**61**	385,45	388,33	**91**	576,45	579,31			
32	200,85	203,72	**62**	391,85	394,69	**92**	582,85	585,67			
33	207,20	210,09	**63**	398,20	401,06	**93**	589,20	592,04			
34	213,60	216,44	**64**	404,55	407,43	**94**	595,55	598,40			
35	219,95	222,81	**65**	410,95	413,79	**95**	601,90	604,77			
36	226,35	229,18	**66**	417,30	420,16	**96**	608,30	611,14			
37	232,70	235,54	**67**	423,65	426,52	**97**	614,65	617,50			
38	239,05	241,91	**68**	430,05	432,89	**98**	621,00	623,87			
39	245,45	248,27	**69**	436,40	439,26	**99**	627,35	630,24			
40	251,80	254,64	**70**	442,80	445,63	**100**	633,75	636,60			
41	258,15	261,01	**71**	449,15	451,99	**101**	640,10	642,97			
42	264,50	267,37	**72**	455,50	458,36	**102**	646,50	649,34			
43	270,90	273,74	**73**	461,85	464,73	**103**	652,85	655,71			
44	277,25	280,10	**74**	468,25	471,08	**104**	659,20	662,06			
45	283,60	286,47	**75**	474,60	477,45	**105**	665,60	668,43			
46	290,00	292,84	**76**	480,95	483,82	**106**	671,95	674,80			
47	296,35	299,21	**77**	487,35	490,19	**107**	678,30	681,17			



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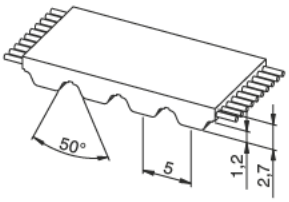


Belt characteristics

- High performance polyurethane timing belt with HPL steel tension cords
- Tooth profile according to ISO 17396
- Metric pitch 5 mm
- Specially designed for linear drives
- Tension cords with increased allowable tensile load compared to standard for lower elongation
- Produced with special pretension and pitch tolerance to guarantee high positioning precision in linear drives
- Negative length tolerance available on request

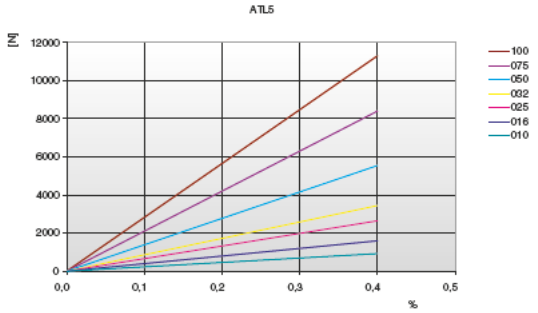
- Width tolerance: ±0,5 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
10	920	3360	230000	0,04
16	1610	5880	402500	0,06
25	2650	9660	662500	0,10
32	3450	12600	862500	0,12
50	5520	20160	1380000	0,19
75	8400	30660	2100000	0,29
100	11270	41160	2817500	0,38

Other widths are available on request.

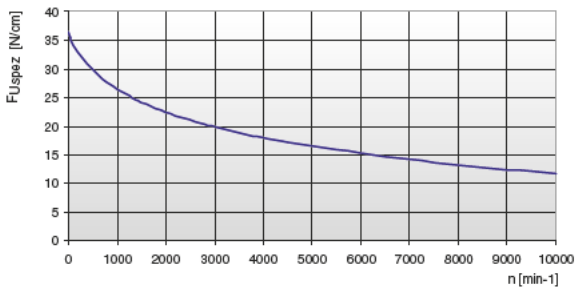
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	36,40	**800**	27,69	**1900**	22,73	**4500**	17,18
20	35,88	**900**	27,06	**2000**	22,42	**5000**	16,47
40	35,40	**1000**	26,49	**2200**	21,82	**5500**	15,83
60	34,97	**1100**	25,96	**2400**	21,28	**6000**	15,24
80	34,59	**1200**	25,47	**2600**	20,77	**6500**	14,69
100	34,24	**1300**	25,01	**2800**	20,29	**7000**	14,18
200	32,92	**1400**	24,57	**3000**	19,85	**7500**	13,71
300	31,92	**1440**	24,41	**3200**	19,43	**8000**	13,26
400	30,89	**1500**	24,16	**3400**	19,03	**8500**	12,85
500	29,95	**1600**	23,78	**3600**	18,66	**9000**	12,45
600	29,12	**1700**	23,41	**3800**	18,30	**9500**	12,07
700	28,37	**1800**	23,07	**4000**	17,96	**10000**	11,72

Tooth shear strength / rpm

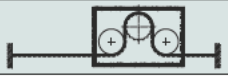


The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord
		STANDARD
Drive without reverse bending	Timing pulley z_{min}	25
	Flat idler running on belt teeth d_{min}	40 mm
Drive with reverse bending	Timing pulley z_{min}	25
	Flat idler running on belt back d_{min}	60 mm

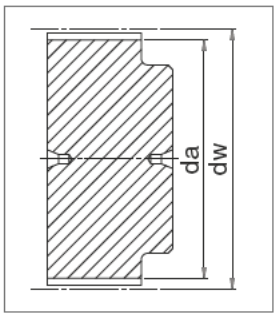
Timing pulleys

z	da	dw
15	22,65	23,88
16	24,20	25,47
17	25,80	27,06
18	27,40	28,65
19	29,00	30,25
20	30,60	31,83
21	32,20	33,43
22	33,80	35,02
23	35,40	36,62
24	37,00	38,21
25	38,60	39,80
26	40,20	41,39
27	41,80	42,98
28	43,35	44,58
29	44,95	46,17
30	46,55	47,76
31	48,15	49,35
32	49,70	50,94
33	51,30	52,54
34	52,85	54,13
35	54,45	55,72
36	56,05	57,31
37	57,65	58,90
38	59,25	60,50
39	60,85	62,09
40	62,45	63,66
41	64,00	65,27
42	65,60	66,86
43	67,30	68,46
44	68,80	70,05

z	da	dw
45	70,40	71,64
46	72,00	73,23
47	73,55	74,82
48	75,15	76,42
49	76,75	78,01
50	78,35	79,60
51	79,95	81,19
52	81,55	82,78
53	83,10	84,38
54	84,70	85,97
55	86,30	87,54
56	87,90	89,15
57	89,50	90,74
58	91,10	92,34
59	92,65	93,93
60	94,25	95,52
61	95,85	97,11
62	97,45	98,70
63	99,05	100,30
64	100,65	101,89
65	102,25	103,48
66	103,80	105,07
67	105,40	106,66
68	107,00	108,26
69	108,60	109,85
70	110,20	111,44
71	111,80	113,03
72	113,35	114,62
73	114,95	116,22
74	116,55	117,81

z	da	dw
75	118,15	119,40
76	119,75	120,99
77	121,35	122,58
78	122,90	124,18
79	124,50	125,77
80	126,10	127,36
81	127,70	128,95
82	129,30	130,54
83	130,90	132,14
84	132,45	133,73
85	134,05	135,32
86	135,65	136,91
87	137,25	138,50
88	138,85	140,10
89	140,45	141,69
90	142,05	143,28
91	143,60	144,87
92	145,20	146,46
93	146,80	148,06
94	148,40	149,65
95	150,00	151,24
96	151,60	152,83
97	153,15	154,42
98	154,75	156,02
99	156,35	157,61
100	157,95	159,20
101	159,55	160,79
102	161,15	162,38
103	162,70	163,97
104	164,30	165,57

z	da	dw
105	165,90	167,16
106	167,50	168,75
107	169,10	170,34
108	170,70	171,94
109	172,25	173,53
110	173,85	175,12
111	175,45	176,71
112	177,05	178,30
113	178,65	179,84
114	180,25	181,49
115	181,85	183,08
116	183,45	184,67
117	185,00	186,26
118	186,60	187,86
119	188,20	189,45
120	189,80	191,04



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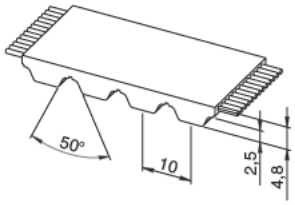


Belt characteristics

- High performance polyurethane timing belt with HPL steel tension cords
- Tooth profile according to ISO 17396
- Metric pitch 10 mm
- Specially designed for linear drives
- Tension cords with increased allowable tensile load compared to standard for lower elongation
- Produced with special pretension and pitch tolerance to guarantee high positioning precision in linear drives
- Negative length tolerance available on request

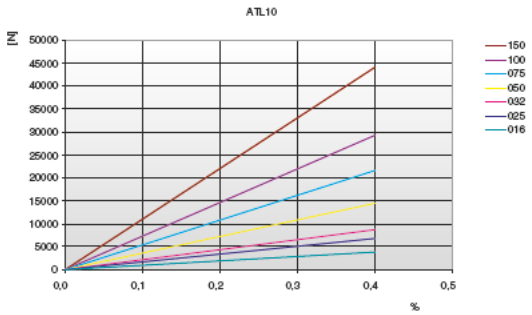
- Width tolerance: ±0,5 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
16	3840	14000	960000	0,11
25	6720	24500	1680000	0,17
32	8640	31500	2160000	0,22
50	14400	52500	3600000	0,35
75	21600	78750	5400000	0,52
100	29280	106750	7320000	0,69
150	44160	161000	11040000	0,85

Other widths are available on request.

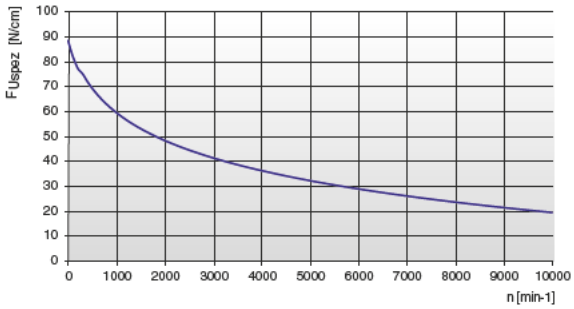
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	88,57	**800**	62,83	**1900**	49,16	**4500**	34,08
20	87,06	**900**	61,09	**2000**	48,29	**5000**	32,17
40	85,66	**1000**	59,49	**2200**	46,67	**5500**	30,43
60	84,35	**1100**	58,02	**2400**	45,18	**6000**	28,84
80	83,13	**1200**	56,66	**2600**	43,80	**6500**	27,37
100	81,99	**1300**	55,39	**2800**	42,51	**7000**	26,01
200	77,36	**1400**	54,20	**3000**	41,30	**7500**	24,73
300	75,09	**1440**	53,74	**3200**	40,17	**8000**	23,53
400	71,99	**1500**	53,08	**3400**	39,09	**8500**	22,41
500	69,27	**1600**	52,02	**3600**	38,08	**9000**	21,34
600	66,88	**1700**	51,02	**3800**	37,11	**9500**	20,33
700	64,75	**1800**	50,06	**4000**	36,20	**10000**	19,37

Tooth shear strength / rpm



The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

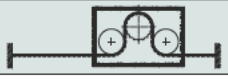
$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Specialties

Belt width b [mm]	HFE High Flexibility		STAINLESS STEEL	
	F_{Tzul} [N] M type	F_{Br} [N]	F_{Tzul} [N] M type	F_{Br} [N]
16	3680	15400	2400	11200
25	6440	26950	4200	19600
32	8280	34650	5400	25200
50	13800	57750	9000	42000
75	20700	86625	13500	63000
100	28060	117425	18300	85400
150	42320	177100	27600	128800

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord		
		STANDARD	HFE	STAINLESS
Drive without reverse bending	Timing pulley z_{min}	25	20	32
	Flat idler running on belt teeth d_{min}	80 mm	60 mm	100 mm
Drive with reverse bending	Timing pulley z_{min}	25	20	40
	Flat idler running on belt back d_{min}	150 mm	100 mm	250 mm

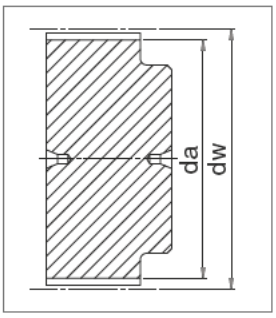
Timing pulleys

z	da	dw
18	55,45	57,29
19	58,60	60,48
20	61,80	63,66
21	65,00	66,84
22	68,15	70,03
23	71,35	73,20
24	74,55	76,39
25	77,70	79,58
26	80,90	82,76
27	84,10	85,95
28	87,25	89,12
29	90,45	92,21
30	93,65	95,49
31	96,80	98,67
32	100,00	101,86
33	103,20	105,04
34	106,40	108,19
35	109,55	111,41
36	112,75	114,59
37	115,90	117,77
38	119,10	120,95
39	122,30	124,14
40	125,45	127,32
41	128,65	130,50
42	131,85	133,69
43	135,00	136,87
44	138,20	140,05
45	141,40	143,24
46	144,55	146,42
47	147,75	149,60

z	da	dw
48	150,95	152,78
49	154,10	155,97
50	157,30	159,15
51	160,50	162,33
52	163,65	165,52
53	166,85	168,70
54	170,05	171,88
55	173,20	175,06
56	176,40	178,25
57	179,60	181,43
58	182,75	184,61
59	185,95	187,80
60	189,10	190,98
61	192,30	194,16
62	195,50	197,35
63	198,65	200,53
64	201,85	203,71
65	205,05	206,90
66	208,20	210,08
67	211,40	213,26
68	214,60	216,44
69	217,75	219,63
70	220,95	222,81
71	224,15	225,99
72	227,30	229,18
73	230,50	232,33
74	233,70	235,54
75	236,90	238,72
76	240,05	241,94
77	243,25	245,09

z	da	dw
78	246,40	248,24
79	249,60	251,46
80	252,80	254,64
81	255,95	257,82
82	259,15	261,00
83	262,30	264,19
84	265,50	267,37
85	268,70	270,52
86	271,90	273,74
87	275,05	276,92
88	278,25	280,10
89	281,45	283,28
90	284,60	286,47
91	287,80	289,65
92	291,00	292,84
93	294,20	296,02
94	297,35	299,20
95	300,55	302,39
96	303,70	305,57
97	306,90	308,75
98	310,10	311,93
99	313,25	315,12
100	316,45	318,30
101	319,65	321,48
102	322,80	324,66
103	326,00	327,85
104	329,20	331,03
105	332,35	334,21
106	335,55	337,40
107	338,75	340,58

z	da	dw
108	341,90	343,76
109	345,10	346,95
110	348,30	350,13
111	351,45	353,31
112	354,65	356,50
113	357,80	359,68
114	361,00	362,86
115	364,19	366,04
116	367,39	369,23
117	370,56	372,41
118	373,74	375,59
119	376,93	378,78
120	380,11	381,96



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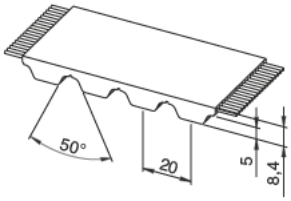


Belt characteristics

- High performance polyurethane timing belt with HPL steel tension cords
- Tooth profile according to ISO 17396
- Metric pitch 20 mm
- Specially designed for linear drives
- Tension cords with increased allowable tensile load compared to standard for lower elongation
- Produced with special pretension and pitch tolerance to guarantee high positioning precision in linear drives

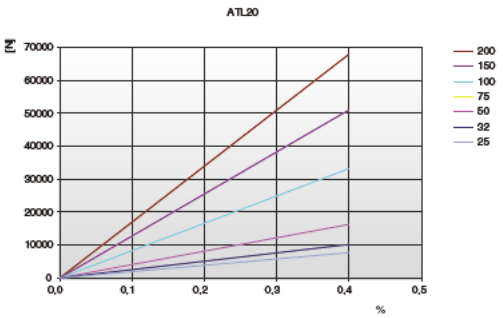
- Width tolerance: ±1,0 [mm]
- Thickness tolerance: ±0,4 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
25	7650	28800	1912500	0,28
32	10200	38400	2550000	0,36
50	16150	60800	4037500	0,56
75	24650	92800	6162500	0,84
100	33150	124800	8287500	1,12
150	51000	192000	12750000	1,68
200	68000	256000	17000000	2,25

Other widths are available on request.

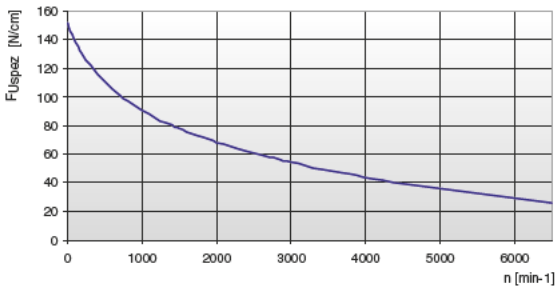
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	151,40	**800**	97,44	**1900**	69,96	**4500**	39,72
20	148,56	**900**	93,93	**2000**	68,22	**5000**	35,90
40	145,89	**1000**	90,73	**2200**	64,97	**5500**	32,42
60	143,38	**1100**	87,77	**2400**	61,98	**6000**	29,23
80	141,01	**1200**	85,02	**2600**	59,20	**6500**	26,29
100	138,78	**1300**	82,47	**2800**	56,62	-	-
200	129,43	**1400**	80,07	**3000**	54,20	-	-
300	122,28	**1440**	79,16	**3200**	51,92	-	-
400	115,96	**1500**	77,82	**3400**	49,77	-	-
500	110,45	**1600**	75,70	**3600**	47,74	-	-
600	105,61	**1700**	73,69	**3800**	45,80	-	-
700	101,31	**1800**	71,77	**4000**	43,96	-	-

Tooth shear strength / rpm



The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

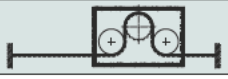
$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Specialties

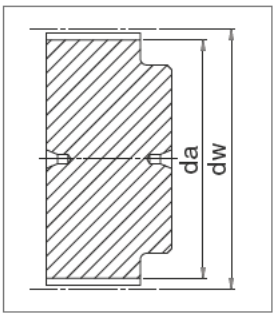
Belt width b [mm]	STAINLESS STEEL	
	F_{Tzul} [N] M type	F_{Br} [N]
25	5220	20700
32	6960	27600
50	11020	43700
75	16820	66700
100	22620	89700

Flexibility

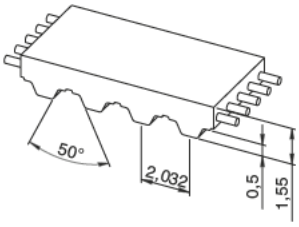
Minimum pulley number of teeth and minimum idler diameter		Type of cord	
		STANDARD	STAINLESS
Drive without reverse bending	Timing pulley z_{min}	25	32
	Flat idler running on belt teeth d_{min}	160 mm	200 mm
Drive with reverse bending	Timing pulley z_{min}	25	40
	Flat idler running on belt back d_{min}	250 mm	250 mm

Timing pulleys

z	da	dw	z	da	dw	z	da	dw	z	da	dw
18	111,75	114,59	**48**	302,70	305,58	**78**	493,70	496,56	**108**	684,70	687,54
19	118,10	120,95	**49**	309,10	311,93	**79**	500,05	502,91	**109**	691,05	693,89
20	124,50	127,32	**50**	315,45	318,30	**80**	506,45	509,28	**110**	697,40	700,26
21	130,75	133,69	**51**	321,80	324,67	**81**	512,80	515,65	**111**	703,80	706,63
22	137,20	140,05	**52**	328,20	331,03	**82**	519,15	522,02	**112**	710,15	712,99
23	143,55	146,42	**53**	334,55	337,40	**83**	525,55	528,39	**113**	716,50	719,36
24	149,95	152,78	**54**	340,90	343,76	**84**	531,90	534,74	**114**	722,90	725,72
25	156,30	159,15	**55**	347,30	350,13	**85**	538,25	541,11	**115**	729,24	732,09
26	162,65	165,52	**56**	353,65	356,50	**86**	544,60	547,48	**116**	735,61	738,46
27	169,05	171,88	**57**	360,00	362,86	**87**	551,00	553,85	**117**	741,96	744,83
28	175,40	178,25	**58**	366,40	369,23	**88**	557,35	560,22	**118**	748,34	751,19
29	181,75	184,62	**59**	372,75	375,59	**89**	563,70	566,57	**119**	754,70	757,56
30	188,15	190,99	**60**	379,10	381,96	**90**	570,10	572,94	**120**	761,07	763,93
31	194,50	197,35	**61**	385,45	388,33	**91**	576,45	579,31			
32	200,85	203,72	**62**	391,85	394,69	**92**	582,85	585,67			
33	207,20	210,09	**63**	398,20	401,06	**93**	589,20	592,04			
34	213,60	216,44	**64**	404,55	407,43	**94**	595,55	598,40			
35	219,95	222,81	**65**	410,95	413,79	**95**	601,90	604,77			
36	226,35	229,18	**66**	417,30	420,16	**96**	608,30	611,14			
37	232,70	235,54	**67**	423,65	426,52	**97**	614,65	617,50			
38	239,05	241,91	**68**	430,05	432,89	**98**	621,00	623,87			
39	245,45	248,27	**69**	436,40	439,26	**99**	627,35	630,24			
40	251,80	254,64	**70**	442,80	445,63	**100**	633,75	636,60			
41	258,15	261,01	**71**	449,15	451,99	**101**	640,10	642,97			
42	264,50	267,37	**72**	455,50	458,36	**102**	646,50	649,34			
43	270,90	273,74	**73**	461,85	464,73	**103**	652,85	655,71			
44	277,25	280,10	**74**	468,25	471,08	**104**	659,20	662,06			
45	283,60	286,47	**75**	474,60	477,45	**105**	665,60	668,43			
46	290,00	292,84	**76**	480,95	483,82	**106**	671,95	674,80			
47	296,35	299,21	**77**	487,35	490,19	**107**	678,30	681,17			



MXL



Belt characteristics

- Polyurethane timing belt with tooth profile according to UNI/ISO 5296 with steel tension cords
- Imperial pitch 2/25" = 2,032 mm
- Allow to use small diameter pulley
- Mainly used in applications where inch pitch is an advantage (USA / UK)
- Trasparent (natural) PU colour

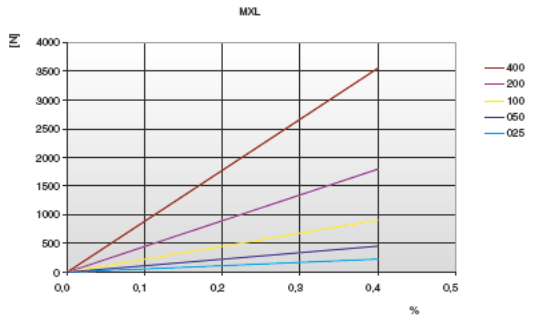
- Width tolerance: ±0,5 [mm]
- Length tolerance: ±0,8 [mm/m]
- Thickness tolerance: ±0,1 [mm]

Technical Data

Belt width b Code / mm	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
025 / 6,35	220	110	875	55000	0,014
050 / 12,7	450	225	1750	112500	0,025
100 / 25,4	900	450	3500	225000	0,050
200 / 50,8	1790	895	7000	447500	0,095
400 / 101,6	3580	1790	14000	895000	0,190

Other widths are available on request.

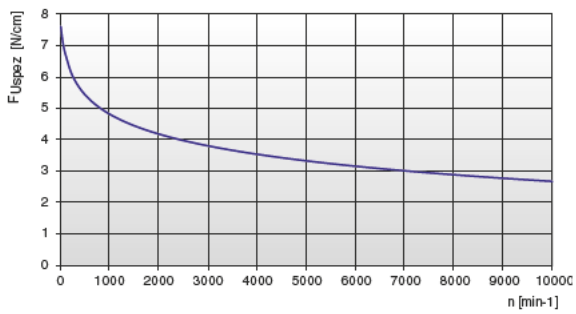
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	7,58	**800**	4,99	**1900**	4,21	**4500**	3,41
20	7,31	**900**	4,88	**2000**	4,16	**5000**	3,31
40	7,09	**1000**	4,79	**2200**	4,07	**5500**	3,22
60	6,92	**1100**	4,70	**2400**	3,99	**6000**	3,14
80	6,78	**1200**	4,62	**2600**	3,92	**6500**	3,06
100	6,67	**1300**	4,55	**2800**	3,85	**7000**	2,99
200	6,15	**1400**	4,48	**3000**	3,78	**7500**	2,93
300	5,83	**1440**	4,46	**3200**	3,72	**8000**	2,86
400	5,59	**1500**	4,42	**3400**	3,67	**8500**	2,81
500	5,40	**1600**	4,36	**3600**	3,61	**9000**	2,75
600	5,24	**1700**	4,31	**3800**	3,56	**9500**	2,70
700	5,11	**1800**	4,25	**4000**	3,52	**10000**	2,65

Tooth shear strength / rpm

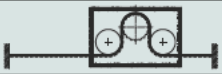


The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

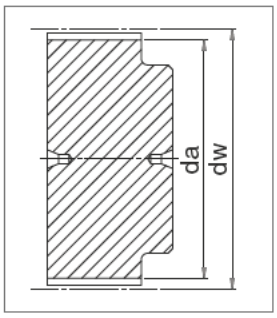
F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Flexibility

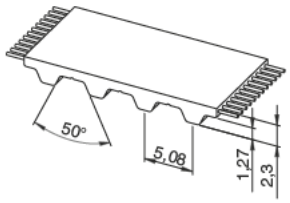
Minimum pulley number of teeth and minimum idler diameter		Type of cord
		STANDARD
Drive without reverse bending	Timing pulley z_{min}	12
	Flat idler running on belt teeth d_{min}	20 mm
Drive with reverse bending	Timing pulley z_{min}	15
	Flat idler running on belt back d_{min}	25 mm

Timing pulleys

z	da	dw	z	da	dw	z	da	dw	z	da	dw
10	5,96	6,47	**44**	27,95	28,46	**78**	49,94	50,45	**112**	71,93	72,44
11	6,61	7,12	**45**	28,60	29,11	**79**	50,59	51,10	**113**	72,58	73,09
12	7,25	7,76	**46**	29,24	29,75	**80**	51,23	51,74	**114**	73,23	73,74
13	7,90	8,41	**47**	29,89	30,40	**81**	51,88	52,39	**115**	73,87	74,38
14	8,55	9,06	**48**	30,54	31,05	**82**	52,53	53,04	**116**	74,52	75,03
15	9,19	9,70	**49**	31,18	31,69	**83**	53,17	53,68	**117**	75,17	75,68
16	9,84	10,35	**50**	31,83	32,34	**84**	53,82	54,33	**118**	75,81	76,32
17	10,49	11,00	**51**	32,48	32,99	**85**	54,47	54,98	**119**	76,46	76,97
18	11,13	11,64	**52**	33,12	33,63	**86**	55,12	55,63	**120**	77,11	77,62
19	11,78	12,29	**53**	33,77	34,28	**87**	55,76	56,27	**121**	77,75	78,26
20	12,43	12,94	**54**	34,42	34,93	**88**	56,41	56,92	**122**	78,40	78,91
21	13,07	13,58	**55**	35,06	35,57	**89**	57,06	57,57	**123**	79,05	79,56
22	13,72	14,23	**56**	35,71	36,22	**90**	57,70	58,21	**124**	79,69	80,20
23	14,37	14,88	**57**	36,36	36,87	**91**	58,36	58,86	**125**	80,34	80,85
24	15,01	15,52	**58**	37,00	37,51	**92**	59,00	59,51	**126**	80,99	81,50
25	15,66	16,17	**59**	37,65	38,16	**93**	59,64	60,15	**127**	81,63	82,14
26	16,31	16,82	**60**	38,30	38,81	**94**	60,29	60,80	**128**	82,28	82,79
27	16,95	17,46	**61**	38,95	39,46	**95**	60,94	61,45	**129**	82,93	83,44
28	17,60	18,11	**62**	39,59	40,10	**96**	61,58	62,09	**130**	83,57	84,08
29	18,25	18,76	**63**	40,24	40,75	**97**	62,23	62,74	**131**	84,22	84,73
30	18,89	19,40	**64**	40,89	41,40	**98**	62,88	63,39	**132**	84,87	85,38
31	19,54	20,05	**65**	41,53	42,04	**99**	63,52	64,03	**133**	85,51	86,02
32	20,19	20,70	**66**	42,18	42,69	**100**	64,17	64,68	**134**	86,16	88,67
33	20,83	21,34	**67**	42,83	43,34	**101**	64,82	65,33	**135**	86,81	87,32
34	21,48	21,99	**68**	43,47	43,98	**102**	65,46	65,97	**136**	87,46	87,97
35	22,13	22,64	**69**	44,12	44,63	**103**	66,11	66,62	**137**	88,10	88,61
36	22,78	23,29	**70**	44,77	45,28	**104**	66,76	67,27	**138**	88,75	89,26
37	23,42	23,93	**71**	45,41	45,92	**105**	67,40	67,91	**139**	89,40	89,91
38	24,07	24,58	**72**	46,06	46,57	**106**	68,05	68,56	**140**	90,04	90,55
39	24,72	25,23	**73**	46,71	47,22	**107**	68,70	69,21			
40	25,36	25,87	**74**	47,35	47,86	**108**	69,34	69,85			
41	26,01	26,52	**75**	48,00	48,51	**109**	69,99	70,50			
42	26,66	27,17	**76**	48,65	49,16	**110**	70,64	71,15			
43	27,30	27,81	**77**	49,20	49,80	**111**	71,29	71,80			



XL



Belt characteristics

- Polyurethane timing belt with tooth profile according to UNI/ISO 5296 with steel tension cords
- Imperial pitch 1/5" = 5,08 mm
- Allow to use small diameter pulley
- Mainly used in applications where inch pitch is an advantage (USA / UK)

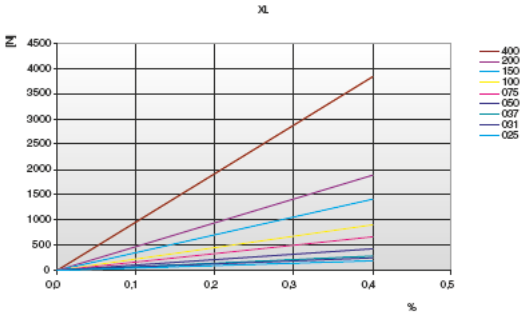
- Width tolerance: ±0,5 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width b Code / mm	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
025 / 6,35	190	95	750	47500	0,015
031 / 7,94	220	110	875	55000	0,019
037 / 9,53	290	145	1125	72500	0,023
050 / 12,7	420	210	1625	105000	0,031
075 / 19,1	670	335	2625	167500	0,046
100 / 25,4	900	450	3500	225000	0,061
150 / 38,1	1410	705	5500	352500	0,092
200 / 50,8	1890	945	7375	472500	0,122
400 / 101,6	3840	1920	15000	960000	0,244

Other widths are available on request.

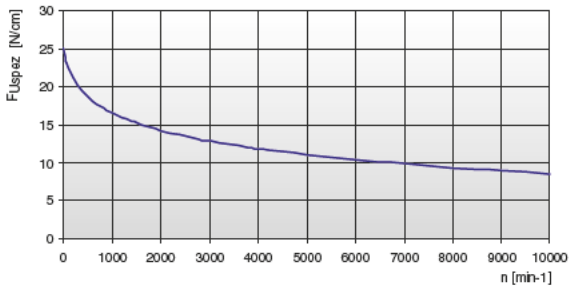
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	25,10	**800**	17,32	**1900**	14,46	**4500**	11,45
20	24,46	**900**	16,94	**2000**	14,28	**5000**	11,08
40	23,90	**1000**	16,60	**2200**	13,96	**5500**	10,74
60	23,42	**1100**	16,29	**2400**	13,66	**6000**	10,43
80	23,00	**1200**	16,01	**2600**	13,38	**6500**	10,14
100	22,63	**1300**	15,74	**2800**	13,12	**7000**	9,87
200	21,24	**1400**	15,49	**3000**	12,88	**7500**	9,63
300	20,22	**1440**	15,40	**3200**	12,65	**8000**	9,39
400	19,42	**1500**	15,26	**3400**	12,44	**8500**	9,17
500	18,77	**1600**	15,04	**3600**	12,24	**9000**	8,97
600	18,22	**1700**	14,84	**3800**	12,05	**9500**	8,77
700	17,74	**1800**	14,64	**4000**	11,87	**10000**	8,59

Tooth shear strength / rpm



The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

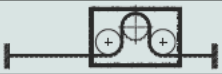
$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Specialties

Belt width b Code / mm	ARAMID CORD	
	F_{Tzul} [N] **M type**	F_{Br} [N]
025 / 6,35	420	1680
031 / 7,94	490	1960
037 / 9,53	630	2520
050 / 12,7	910	3640
075 / 19,1	1470	5880
100 / 25,4	1960	7840
150 / 38,1	3080	12320
200 / 50,8	4130	16520
400 / 101,6	8400	33600

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord	
		STANDARD	ARAMID
Drive without reverse bending	Timing pulley z_{min}	10	10
	Flat idler running on belt teeth d_{min}	30 mm	30 mm
Drive with reverse bending	Timing pulley z_{min}	15	15
	Flat idler running on belt back d_{min}	30 mm	30 mm

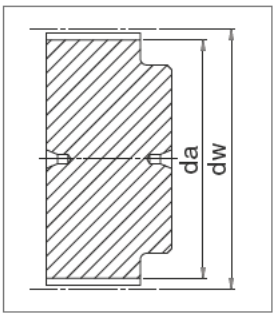
Timing pulleys

z	da	dw
10	15,66	16,17
11	17,28	17,79
12	18,89	19,40
13	20,51	21,02
14	22,13	22,64
15	23,74	24,25
16	25,36	25,87
17	26,98	27,49
18	28,60	29,11
19	30,21	30,72
20	31,83	32,34
21	33,45	33,96
22	35,06	35,57
23	36,68	37,19
24	38,30	38,81
25	39,92	40,43
26	41,53	42,04
27	43,15	43,66
28	44,77	45,28
29	46,38	46,89
30	48,00	48,51
31	49,62	50,13
32	51,23	51,74
33	52,85	53,36
34	54,47	54,98
35	56,09	56,60
36	57,70	58,21
37	59,32	59,83
38	60,94	61,45
39	62,55	63,06

z	da	dw
40	64,17	64,68
41	65,79	66,30
42	67,40	67,91
43	69,02	69,53
44	70,64	71,15
45	72,26	72,77
46	73,87	74,38
47	75,49	76,00
48	77,11	77,62
49	78,72	79,23
50	80,34	80,85
51	81,96	82,47
52	83,57	84,08
53	85,19	85,70
54	86,81	87,32
55	88,42	88,93
56	90,04	90,55
57	91,66	92,17
58	93,28	93,79
59	94,89	95,40
60	96,51	97,02
61	98,13	98,64
62	99,74	100,25
63	101,36	101,87
64	102,98	103,49
65	104,60	105,11
66	106,21	106,72
67	107,83	108,34
68	109,45	109,96
69	111,06	111,57

z	da	dw
70	112,68	113,19
71	114,30	114,81
72	115,92	116,43
73	117,53	118,04
74	119,15	119,66
75	120,77	121,28
76	122,38	122,89
77	124,00	124,51
78	125,62	126,13
79	127,23	127,74
80	128,85	129,36
81	130,47	130,98
82	132,08	132,59
83	133,70	134,21
84	135,32	135,83
85	136,93	137,44
86	138,55	139,06
87	140,17	140,68
88	141,75	142,30
89	143,36	143,91
90	145,02	145,53
91	146,64	147,15
92	148,25	148,76
93	149,87	150,38
94	151,49	152,00
95	153,11	153,62
96	154,72	155,23
97	156,34	156,85
98	157,96	158,47
99	159,57	160,08

z	da	dw
100	161,19	161,70
101	162,81	163,32
102	164,42	164,93
103	166,04	166,55
104	167,66	168,17
105	169,28	169,79
106	170,89	171,40
107	172,51	173,02
108	174,13	174,64
109	175,74	176,25
110	177,36	177,87
111	178,98	179,49
112	180,59	181,10
113	182,21	182,72
114	183,83	184,34
115	185,44	185,95
116	187,06	187,57
117	188,68	189,19
118	190,30	190,81
119	191,91	192,42
120	193,53	194,04



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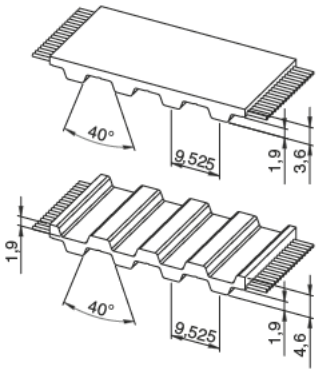


Belt characteristics

- Polyurethane timing belt with tooth profile according to UNI/ISO 5296 with steel tension cords
- Imperial pitch 3/8" = 9,525 mm
- Allow to use small diameter pulley
- Mainly used in applications where inch pitch is an advantage (USA / UK)

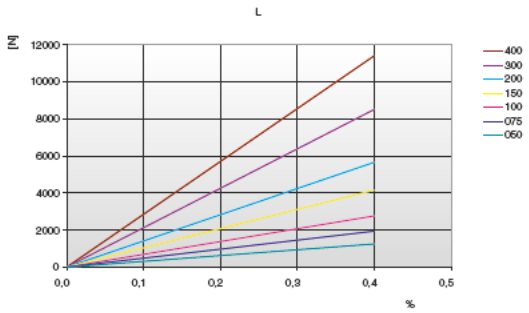
- Width tolerance: ±0,5 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width b Code / mm	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
050 / 12,7	1270	635	4620	317500	0,049
075 / 19,1	1960	980	7140	490000	0,073
100 / 25,4	2760	1380	10080	690000	0,098
150 / 38,1	4260	2130	15540	1065000	0,146
200 / 50,8	5640	2820	20580	1410000	0,195
300 / 76,2	8510	4255	31080	2127500	0,293
400 / 101,6	11390	5695	41580	2847500	0,390

Other widths are available on request.

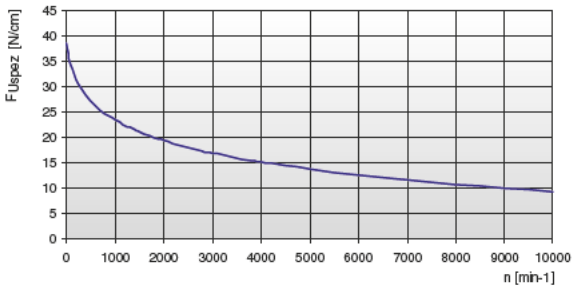
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	38,60	**800**	24,70	**1900**	19,66	**4500**	14,36
20	37,42	**900**	24,04	**2000**	19,35	**5000**	13,70
40	36,40	**1000**	23,44	**2200**	18,77	**5500**	13,10
60	35,51	**1100**	22,89	**2400**	18,24	**6000**	12,55
80	34,74	**1200**	22,38	**2600**	17,76	**6500**	12,05
100	34,07	**1300**	21,91	**2800**	17,30	**7000**	11,58
200	31,59	**1400**	21,48	**3000**	16,88	**7500**	11,14
300	29,79	**1440**	21,31	**3200**	16,48	**8000**	10,73
400	28,39	**1500**	21,07	**3400**	16,10	**8500**	10,35
500	27,25	**1600**	20,69	**3600**	15,75	**9000**	9,98
600	26,28	**1700**	20,33	**3800**	15,41	**9500**	9,64
700	25,44	**1800**	19,98	**4000**	15,09	**10000**	9,31

Tooth shear strength / rpm



The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

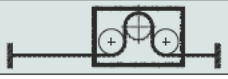
$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Specialties

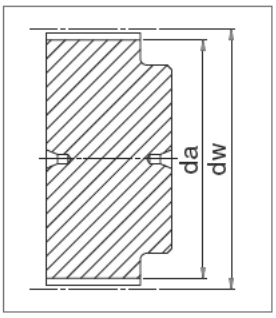
Belt width b Code / mm	ARAMID CORD		STAINLESS STEEL	
	F_{Tzul} [N] **M type**	F_{Br} [N]	F_{Tzul} [N] **M type**	F_{Br} [N]
050 / 12,7	1210	4950	830	3300
075 / 19,1	1870	7650	1280	5100
100 / 25,4	2640	10800	1800	7200
150 / 38,1	4070	16650	2780	11100
200 / 50,8	5390	22050	3680	14700
300 / 76,2	8140	33300	-	-
400 / 101,6	10890	44550	-	-

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord		
		STANDARD	ARAMID	STAINLESS
Drive without reverse bending	Timing pulley z_{min}	15	15	18
	Flat idler running on belt teeth d_{min}	60 mm	60 mm	65 mm
Drive with reverse bending	Timing pulley z_{min}	20	20	20
	Flat idler running on belt back d_{min}	60 mm	60 mm	65 mm

Timing pulleys

z	da	dw	z	da	dw	z	da	dw	z	da	dw
10	29,56	30,32	**40**	120,52	121,27	**70**	211,47	212,23	**100**	302,43	303,18
11	32,59	33,35	**41**	123,55	124,30	**71**	214,50	215,26	**101**	305,46	306,21
12	35,62	36,38	**42**	126,58	127,33	**72**	217,53	218,29	**102**	308,49	309,24
13	38,65	39,41	**43**	129,61	130,36	**73**	220,56	221,32	**103**	311,52	312,29
14	41,68	42,44	**44**	132,64	133,39	**74**	223,59	224,35	**104**	314,55	315,32
15	44,71	45,47	**45**	135,67	136,44	**75**	226,62	227,38	**105**	317,58	318,35
16	47,74	48,50	**46**	138,70	139,47	**76**	229,65	230,41	**106**	320,61	321,38
17	50,77	51,53	**47**	141,73	142,50	**77**	232,70	233,46	**107**	323,64	324,41
18	53,80	54,56	**48**	144,76	145,53	**78**	235,73	236,49	**108**	326,69	327,44
19	56,83	57,61	**49**	147,80	148,56	**79**	238,76	239,52	**109**	329,72	330,47
20	59,88	60,64	**50**	150,83	151,59	**80**	241,79	242,55	**110**	332,75	333,50
21	62,91	63,67	**51**	153,86	154,62	**81**	244,82	245,58	**111**	335,78	336,53
22	65,94	66,70	**52**	156,89	157,65	**82**	247,85	248,61	**112**	338,81	339,56
23	68,97	69,73	**53**	159,92	160,68	**83**	250,88	251,64	**113**	341,84	342,61
24	72,00	72,76	**54**	162,95	163,71	**84**	253,91	254,67	**114**	344,87	345,64
25	75,03	75,80	**55**	166,00	166,76	**85**	256,94	257,70	**115**	347,90	348,67
26	78,06	78,83	**56**	169,03	169,79	**86**	259,97	260,73	**116**	350,93	351,70
27	81,09	81,86	**57**	172,06	172,82	**87**	263,02	263,78	**117**	353,96	354,73
28	84,12	84,89	**58**	175,09	175,85	**88**	266,05	266,81	**118**	357,00	357,76
29	87,15	87,92	**59**	178,12	178,88	**89**	269,08	269,84	**119**	360,03	360,79
30	90,20	90,95	**60**	181,15	181,91	**90**	272,11	272,87	**120**	363,07	363,82
31	93,23	93,98	**61**	184,18	184,94	**91**	275,14	275,90			
32	96,26	97,01	**62**	187,21	187,97	**92**	278,17	278,93			
33	99,29	100,04	**63**	190,24	191,00	**93**	281,20	281,96			
34	102,32	103,07	**64**	193,27	194,03	**94**	284,23	285,00			
35	105,35	106,12	**65**	196,30	197,06	**95**	287,26	288,03			
36	108,38	109,15	**66**	199,33	200,11	**96**	290,30	291,06			
37	111,41	112,18	**67**	202,38	203,14	**97**	293,33	294,09			
38	114,44	115,21	**68**	205,41	206,17	**98**	296,36	297,12			
39	117,47	118,24	**69**	208,44	209,20	**99**	299,40	300,15			



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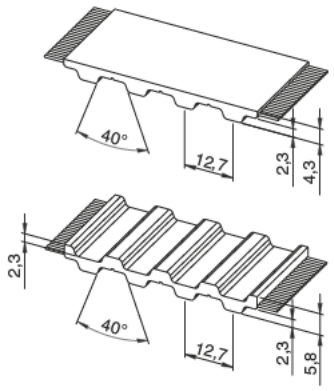


Belt characteristics

- Polyurethane timing belt with tooth profile according to UNI/ISO 5296 with steel tension cords
- Imperial pitch 1/2" = 12,7 mm
- Allow to use small diameter pulley
- Mainly used in applications where inch pitch is an advantage (USA / UK)

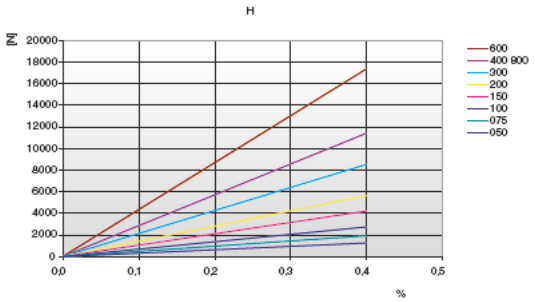
- Width tolerance: ±0,5 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width b Code / mm	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
050 / 12,7	1270	635	4620	317500	0,05
075 / 19,1	1960	980	7140	490000	0,08
100 / 25,4	2760	1380	10080	690000	0,11
150 / 38,1	4260	2130	15540	1065000	0,16
200 / 50,8	5640	2820	20580	1410000	0,22
300 / 76,2	8510	4255	31080	2127500	0,32
400 / 101,6	11390	5695	41580	2847500	0,43
600 / 152,4	17250	8625	63000	4312500	0,56
800 / 203,2*	11390	5695	41580	2847500	0,65

Other widths are available on request. *= double cords spacing

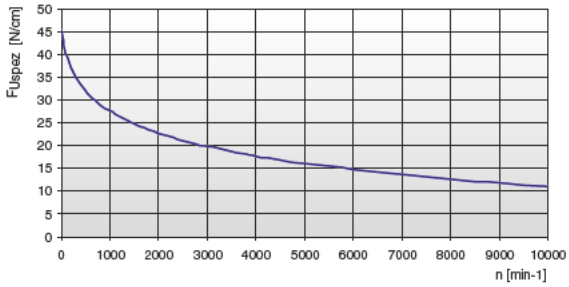
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	45,30	**800**	29,04	**1900**	23,11	**4500**	16,88
20	43,95	**900**	28,26	**2000**	22,74	**5000**	16,11
40	42,78	**1000**	27,55	**2200**	22,07	**5500**	15,41
60	41,77	**1100**	26,90	**2400**	21,44	**6000**	14,76
80	40,88	**1200**	26,31	**2600**	20,87	**6500**	14,17
100	40,11	**1300**	25,76	**2800**	20,34	**7000**	13,62
200	37,22	**1400**	25,25	**3000**	19,84	**7500**	13,11
300	35,07	**1440**	25,05	**3200**	19,37	**8000**	12,63
400	33,41	**1500**	24,77	**3400**	18,93	**8500**	12,18
500	32,05	**1600**	24,32	**3600**	18,51	**9000**	11,75
600	30,90	**1700**	23,89	**3800**	18,12	**9500**	11,35
700	29,91	**1800**	23,49	**4000**	17,75	**10000**	10,96

Tooth shear strength / rpm



The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

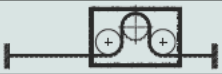
F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Specialties

Belt width b Code / mm	ARAMID CORD		STAINLESS STEEL	
	F_{Tzul} [N] **M type**	F_{Br} [N]	F_{Tzul} [N] **M type**	F_{Br} [N]
050 / 12,7	1210	4950	830	3300
075 / 19,1	1870	7650	1280	5100
100 / 25,4	2640	10800	1800	7200
150 / 38,1	4070	16650	2780	11100
200 / 50,8	5390	22050	3680	14700
300 / 76,2	8140	33300	-	-
400 / 101,6	10890	44550	-	-
600 / 152,4	16500	67500	-	-
800 / 203,2*	10890	45500	-	-

*= double cords spacing

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord		
		STANDARD	ARAMID	STAINLESS
Drive without reverse bending	Timing pulley z_{min}	14	14	20
	Flat idler running on belt teeth d_{min}	60 mm	60 mm	80 mm
Drive with reverse bending	Timing pulley z_{min}	20	20	40
	Flat idler running on belt back d_{min}	80 mm	80 mm	100 mm

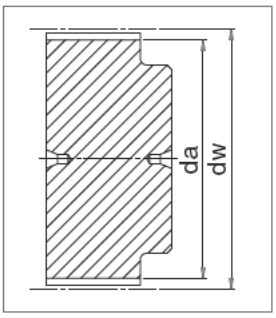
Timing pulleys

z	da	dw
14	55,23	56,60
15	59,27	60,64
16	63,31	64,68
17	67,35	68,72
18	71,40	72,76
19	75,44	76,80
20	79,48	80,84
21	83,52	84,88
22	87,57	88,94
23	91,61	92,98
24	95,65	97,02
25	99,69	101,06
26	103,73	105,10
27	107,77	109,14
28	111,81	113,18
29	115,85	117,22
30	119,91	121,28
31	123,95	125,32
32	127,99	129,36
33	132,03	133,40
34	136,07	137,44
35	140,11	141,48
36	144,15	145,52
37	148,20	149,56
38	152,24	153,62
39	156,28	157,66
40	160,32	161,70
41	164,36	165,74
42	168,42	169,78
43	172,46	173,82

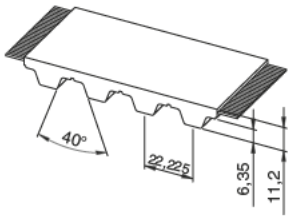
z	da	dw
44	176,50	177,86
45	180,54	181,90
46	184,58	185,96
47	188,62	190,00
48	192,67	194,04
49	196,71	198,08
50	200,75	202,13
51	204,80	206,17
52	208,84	210,21
53	212,88	214,25
54	216,92	218,29
55	220,96	222,33
56	225,00	226,37
57	229,04	230,41
58	233,10	234,47
59	237,14	238,51
60	241,18	242,55
61	245,22	246,59
62	249,26	250,63
63	253,30	254,67
64	257,34	258,71
65	261,38	262,75
66	265,44	266,81
67	269,48	270,85
68	273,52	274,89
69	277,56	278,93
70	281,60	282,97
71	285,64	287,01
72	289,68	291,05
73	293,72	295,10

z	da	dw
74	297,78	299,14
75	301,82	303,18
76	305,86	307,22
77	309,90	311,26
78	313,94	315,32
79	317,98	319,36
80	322,02	323,40
81	326,06	327,44
82	330,12	331,48
83	334,16	335,52
84	338,20	339,56
85	342,24	343,60
86	346,28	347,66
87	350,33	351,70
88	354,37	355,74
89	358,41	359,78
90	362,45	363,82
91	366,50	367,86
92	370,54	371,90
93	374,58	375,94
94	378,62	380,00
95	382,66	384,04
96	386,70	388,08
97	390,74	392,12
98	394,80	396,16
99	398,84	400,20
100	402,88	404,24
101	406,92	408,28
102	410,96	412,34
103	415,00	416,38

z	da	dw
104	419,04	420,42
105	423,08	424,46
106	427,14	428,50
107	431,18	432,54
108	435,22	436,58
109	439,26	440,62
110	443,30	444,68
111	447,34	448,72
112	451,38	452,76
113	455,42	456,80
114	459,48	460,84
115	463,52	464,88
116	467,56	468,92
117	471,60	472,96
118	475,64	477,02
119	479,68	481,06
120	483,72	485,10



XH



Belt characteristics

- Polyurethane timing belt with tooth profile according to UNI/ISO 5296 with steel tension cords
- Imperial pitch 7/8" = 22,225 mm
- Mainly used in applications where inch pitch is an advantage (USA / UK)

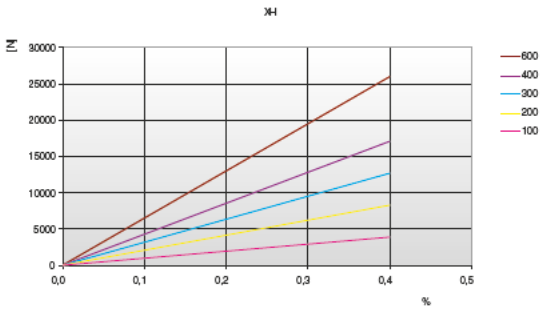
- Width tolerance: ±1,0 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,4 [mm]

Technical Data

Belt width b Code / mm	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
100 / 25,4	3920	1960	15200	980000	0,370
200 / 50,8	8330	4165	32300	2082500	0,660
300 / 76,2	12740	6370	49400	3185000	0,990
400 / 101,6	17150	8575	66500	4287500	1,330
600 / 152,4	25970	12985	100700	6492500	1,990

Other widths are available on request.

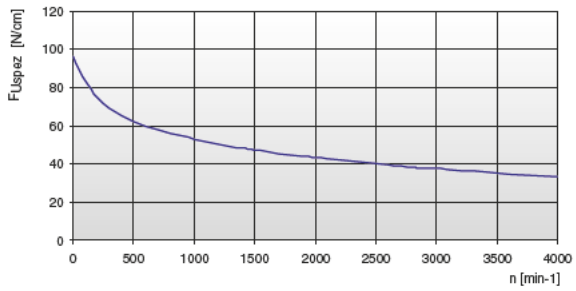
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	96,00	**800**	55,99	**1900**	43,86	**4000**	33,31
20	92,98	**900**	54,35	**2000**	43,14	-	-
40	90,27	**1000**	52,88	**2200**	41,79	-	-
60	87,85	**1100**	51,55	**2400**	40,56	-	-
80	85,68	**1200**	50,33	**2600**	39,43	-	-
100	83,73	**1300**	49,20	**2800**	38,37	-	-
200	74,80	**1400**	48,16	**2880**	37,98	-	-
300	69,42	**1440**	47,77	**3000**	37,40	-	-
400	65,53	**1500**	47,19	**3200**	36,48	-	-
500	62,48	**1600**	46,29	**3400**	35,62	-	-
600	59,97	**1700**	45,43	**3600**	34,81	-	-
700	57,84	**1800**	44,62	**3800**	34,04	-	-

Tooth shear strength / rpm



The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

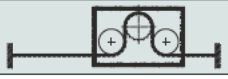
$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Specialties

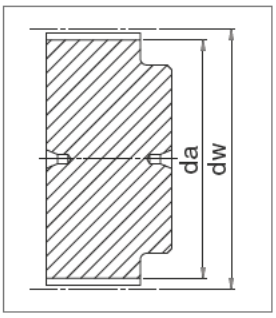
Belt width b Code / mm	ARAMID CORD		STAINLESS STEEL	
	F_{Tzul} [N] **M type**	F_{Br} [N]	F_{Tzul} [N] **M type**	F_{Br} [N]
100 / 25,4	3520	16000	2880	12000
200 / 50,8	7480	34000	6120	25500
300 / 76,2	11440	52000	9360	39000
400 / 101,6	15400	70000	12600	52500
600 / 152,4	23320	106000	-	-

Flexibility

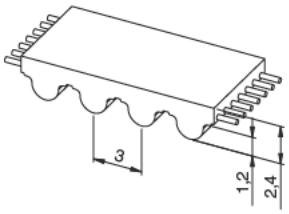
Minimum pulley number of teeth and minimum idler diameter		Type of cord		
		STANDARD	ARAMID	STAINLESS
Drive without reverse bending	Timing pulley z_{min}	18	18	24
	Flat idler running on belt teeth d_{min}	150 mm	150 mm	160 mm
Drive with reverse bending	Timing pulley z_{min}	20	20	30
	Flat idler running on belt back d_{min}	180 mm	180 mm	200 mm

Timing pulleys

z	da	dw	z	da	dw	z	da	dw	z	da	dw
18	124,55	127,34	**48**	336,77	339,57	**78**	549,00	551,79	**108**	761,22	764,03
19	131,62	134,41	**49**	343,87	346,66	**79**	556,07	558,88	**109**	768,30	771,10
20	138,68	141,48	**50**	350,93	353,73	**80**	563,15	565,95	**110**	775,37	778,17
21	145,76	148,55	**51**	358,00	360,80	**81**	570,22	573,02	**111**	782,44	785,26
22	152,84	155,64	**52**	365,07	367,87	**82**	577,29	580,09	**112**	789,51	792,33
23	159,91	162,71	**53**	372,14	374,94	**83**	584,36	587,18	**113**	796,60	799,40
24	167,00	169,78	**54**	379,21	382,01	**84**	591,43	594,25	**114**	803,67	806,47
25	174,07	176,85	**55**	386,30	389,08	**85**	598,60	601,32	**115**	810,74	813,54
26	181,13	183,94	**56**	393,37	396,17	**86**	605,61	608,39	**116**	817,81	820,63
27	188,20	191,01	**57**	400,44	403,24	**87**	612,68	615,46	**117**	824,88	827,70
28	195,27	198,08	**58**	407,51	410,31	**88**	619,75	622,55	**118**	831,95	834,77
29	202,37	205,15	**59**	414,58	417,38	**89**	626,82	629,62	**119**	839,03	841,84
30	209,44	212,22	**60**	421,68	424,47	**90**	633,89	636,69	**120**	846,12	848,93
31	216,51	219,31	**61**	428,75	431,54	**91**	640,96	643,76			
32	223,58	226,38	**62**	435,90	438,61	**92**	648,04	650,85			
33	230,66	233,45	**63**	442,90	445,68	**93**	655,11	657,92			
34	237,73	240,52	**64**	449,97	452,75	**94**	662,18	664,99			
35	244,80	247,59	**65**	457,05	459,84	**95**	669,25	672,06			
36	251,87	254,68	**66**	464,10	466,91	**96**	676,33	679,13			
37	258,94	261,75	**67**	471,20	473,98	**97**	683,40	686,22			
38	266,02	268,82	**68**	478,25	481,05	**98**	690,47	693,29			
39	273,11	275,89	**69**	485,32	488,12	**99**	697,55	700,36			
40	280,18	282,98	**70**	492,39	495,21	**100**	704,62	707,43			
41	287,25	290,05	**71**	499,48	502,28	**101**	711,70	714,50			
42	294,33	297,12	**72**	506,57	509,35	**102**	718,77	721,59			
43	301,40	304,19	**73**	513,63	516,42	**103**	725,85	728,66			
44	308,47	311,26	**74**	520,70	523,51	**104**	732,92	735,73			
45	315,54	318,35	**75**	527,77	530,58	**105**	740,01	742,80			
46	322,61	325,42	**76**	534,84	537,65	**106**	747,08	749,87			
47	329,70	332,49	**77**	541,93	544,72	**107**	754,15	756,96			



HTD 3M



Belt characteristics

- Polyurethane timing belt with round tooth profile and high tensile load tension cords.
- Tooth profile according to ISO 13050
- Metric pitch 3 mm
- The round tooth profile allows a uniform load distribution that guarantees high performances, high transmissible torque and precise tooth engagement
- Widely used in linear positioning, light power transmission applications

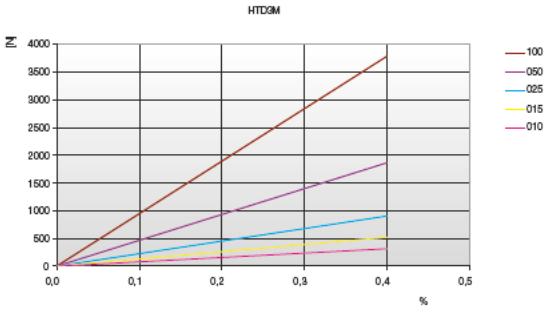
- Width tolerance: ±0,5 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
10	320	160	1250	80000	0,02
15	510	255	2000	127500	0,03
25	900	450	3500	225000	0,06
50	1860	930	7250	465000	0,12
100	3780	1890	14750	945000	0,24

Other widths are available on request.

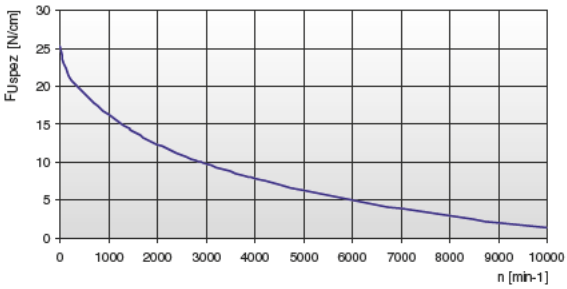
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	25,20	**800**	17,30	**1900**	12,67	**4500**	7,05
20	24,60	**900**	16,75	**2000**	12,36	**5000**	6,32
40	24,06	**1000**	16,24	**2200**	11,77	**5500**	5,66
60	23,57	**1100**	15,75	**2400**	11,22	**6000**	5,04
80	23,12	**1200**	15,29	**2600**	10,71	**6500**	4,47
100	22,72	**1300**	14,86	**2800**	10,24	**7000**	3,94
200	21,22	**1400**	14,45	**3000**	9,79	**7500**	3,44
300	20,31	**1440**	14,29	**3200**	9,36	**8000**	2,98
400	19,75	**1500**	14,06	**3400**	8,96	**8500**	2,54
500	19,14	**1600**	13,69	**3600**	8,57	**9000**	2,12
600	18,50	**1700**	13,33	**3800**	8,21	**9500**	1,72
700	17,88	**1800**	12,99	**4000**	7,86	**10000**	1,35

Tooth shear strength / rpm

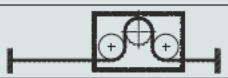


The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord STANDARD
Drive without reverse bending	Timing pulley z_{min}	20
	Flat idler running on belt teeth d_{min}	30 mm
Drive with reverse bending	Timing pulley z_{min}	20
	Flat idler running on belt back d_{min}	30 mm

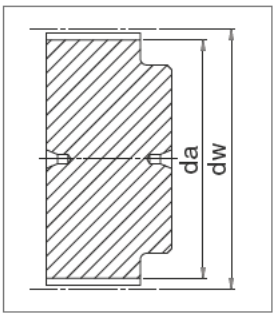
Timing pulleys

z	da	dw
10	8,79	9,55
11	9,74	10,50
12	10,70	11,46
13	11,65	12,41
14	12,61	13,37
15	13,56	14,32
16	14,52	15,28
17	15,47	16,23
18	16,43	17,19
19	17,38	18,14
20	18,34	19,10
21	19,29	20,05
22	20,25	21,01
23	21,20	21,96
24	22,16	22,92
25	23,11	23,87
26	24,07	24,83
27	25,02	25,78
28	25,98	26,74
29	26,93	27,69
30	27,89	28,65
31	28,84	29,60
32	29,80	30,56
33	30,75	31,51
34	31,71	32,47
35	32,66	33,42
36	33,62	34,38
37	34,57	35,33
38	35,53	36,29
39	36,48	37,24
40	37,44	38,20
41	38,39	39,15
42	39,35	40,11
43	40,30	41,06

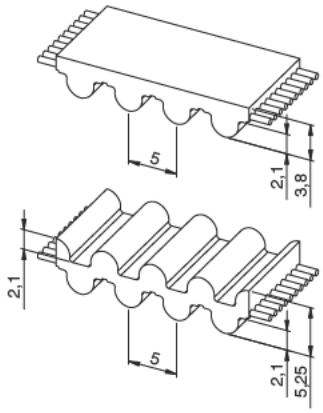
z	da	dw
44	41,26	42,02
45	42,21	42,97
46	43,17	43,93
47	44,12	44,88
48	45,08	45,84
49	46,03	46,79
50	46,99	47,75
51	47,94	48,70
52	48,90	49,66
53	49,85	50,61
54	50,81	51,57
55	51,76	52,52
56	52,72	53,48
57	53,67	54,43
58	54,63	55,39
59	55,58	56,34
60	56,54	57,30
61	57,49	58,25
62	58,45	59,21
63	59,40	60,16
64	60,36	61,12
65	61,31	62,07
66	62,27	63,03
67	63,22	63,98
68	64,18	64,94
69	65,13	65,89
70	66,09	66,85
71	67,04	67,80
72	68,00	68,76
73	68,95	69,71
74	69,91	70,67
75	70,86	71,62
76	71,82	72,58
77	72,77	73,53

z	da	dw
78	73,73	74,49
79	74,68	75,44
80	75,64	76,40
81	76,59	77,35
82	77,55	78,31
83	78,50	79,26
84	79,46	80,22
85	80,41	81,17
86	81,37	82,13
87	82,32	83,08
88	83,28	84,04
89	84,23	84,99
90	85,19	85,95
91	86,14	86,90
92	87,10	87,86
93	88,05	88,81
94	89,01	89,77
95	89,96	90,72
96	90,92	91,68
97	91,87	92,63
98	92,83	93,59
99	93,78	94,54
100	94,74	95,50
101	95,69	96,45
102	96,65	97,41
103	97,60	98,36
104	98,56	99,32
105	99,51	100,27
106	100,47	101,23
107	101,42	102,18
108	102,38	103,14
109	103,33	104,09
110	104,29	105,05
111	105,24	106,00

z	da	dw
112	106,2	106,96
113	107,15	107,91
114	108,11	108,87
115	109,06	109,82
116	110,02	110,78
117	110,97	111,73
118	111,93	112,69
119	112,88	113,64
120	113,83	114,59
121	114,79	115,55
122	115,74	116,50
123	116,70	117,46
124	117,65	118,41
125	118,61	119,37
126	119,56	120,32
127	120,52	121,28
128	121,47	122,23
129	122,43	123,19
130	123,38	124,14
131	124,34	125,10
132	125,29	126,05
133	126,25	127,01
134	127,20	127,96
135	128,16	128,92
136	129,11	129,87
137	130,07	130,83
138	131,02	131,78
139	131,98	132,74
140	132,93	133,69



HTD 5M



Belt characteristics

- Polyurethane timing belt with round tooth profile and high tensile load tension cords.
- Tooth profile according to ISO 13050
- Metric pitch 5 mm
- The round tooth profile allows a uniform load distribution that guarantees high performances, high transmissible torque and precise tooth engagement
- Widely used in linear positioning, light power transmission applications
- Double sided tooth construction available

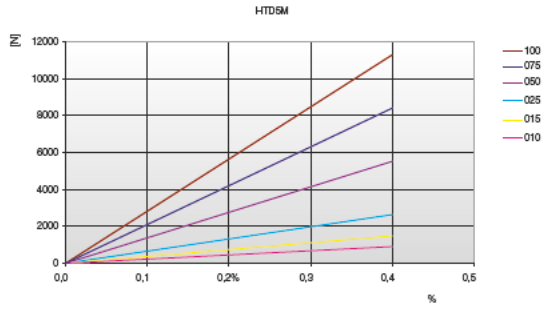
- Width tolerance: ±0,5 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
10	920	460	3360	230000	0,050
15	1500	750	5460	375000	0,070
25	2650	1325	9660	662500	0,120
50	5520	2760	20160	1380000	0,240
75	8400	4200	30660	2100000	0,360
100	11270	5635	41160	2817500	0,480

Other widths are available on request.

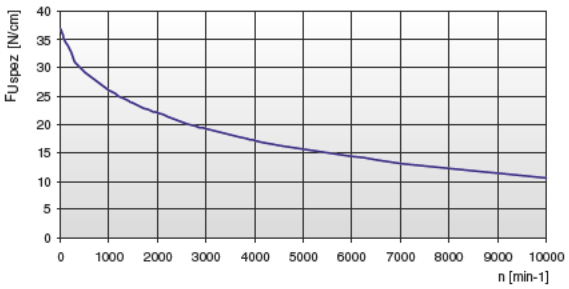
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	36,80	**800**	27,21	**1900**	22,24	**4500**	16,40
20	36,25	**900**	26,61	**2000**	21,91	**5000**	15,64
40	35,75	**1000**	26,05	**2200**	21,30	**5500**	14,95
60	35,30	**1100**	25,52	**2400**	20,72	**6000**	14,32
80	34,89	**1200**	25,03	**2600**	20,19	**6500**	13,74
100	34,52	**1300**	24,56	**2800**	19,69	**7000**	13,19
200	33,13	**1400**	24,13	**3000**	19,23	**7500**	12,68
300	30,87	**1440**	23,96	**3200**	18,78	**8000**	12,20
400	30,10	**1500**	23,71	**3400**	18,37	**8500**	11,75
500	29,31	**1600**	23,32	**3600**	17,97	**9000**	11,33
600	28,56	**1700**	22,94	**3800**	17,59	**9500**	10,92
700	27,86	**1800**	22,58	**4000**	17,23	**10000**	10,53

Tooth shear strength / rpm



The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

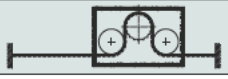
$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Specialties

Belt width b [mm]	ARAMID CORD		STAINLESS STEEL	
	F_{Tzul} [N] M type	F_{Br} [N]	F_{Tzul} [N] M type	F_{Br} [N]
10	880	3600	600	2400
15	1430	5850	980	3900
25	2530	10350	1730	6900
50	5280	21600	3600	14400
75	8030	32850	5475	21900
100	10780	44100	7350	29400

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord		
		STANDARD	ARAMID	STAINLESS
Drive without reverse bending	Timing pulley z_{min}	16	16	18
	Flat idler running on belt teeth d_{min}	30 mm	30 mm	40 mm
Drive with reverse bending 	Timing pulley z_{min}	25	25	25
	Flat idler running on belt back d_{min}	60 mm	60 mm	65 mm

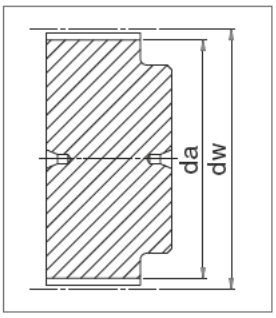
Timing pulleys

z	da	dw
10	14,77	15,91
11	16,36	17,50
12	17,96	19,10
13	19,55	20,69
14	21,14	22,28
15	22,73	23,87
16	24,32	25,46
17	25,91	27,05
18	27,51	28,65
19	29,09	30,23
20	30,69	31,83
21	32,28	33,42
22	33,87	35,01
23	35,46	36,60
24	37,06	38,20
25	38,64	39,78
26	40,24	41,38
27	41,83	42,97
28	43,42	44,56
29	45,01	46,15
30	46,61	47,75
31	48,19	49,33
32	49,79	50,93
33	51,38	52,52
34	52,97	54,11
35	54,56	55,70
36	56,16	57,30
37	57,75	58,89
38	59,34	60,48
39	60,93	62,07

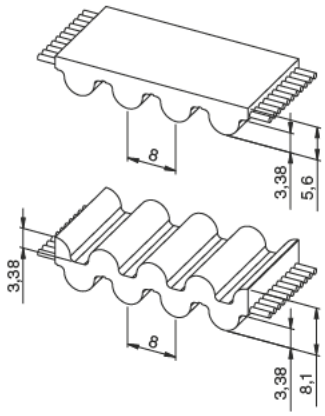
z	da	dw
40	62,52	63,66
41	64,11	65,25
42	65,70	66,84
43	67,29	68,43
44	68,88	70,02
45	70,47	71,61
46	72,06	73,20
47	73,65	74,79
48	75,24	76,38
49	76,84	77,98
50	78,44	79,58
51	80,03	81,17
52	81,62	82,76
53	83,21	84,35
54	84,80	85,94
55	86,39	87,53
56	87,98	89,12
57	89,57	90,71
58	91,17	92,31
59	92,76	93,90
60	94,35	95,49
61	95,94	97,08
62	97,53	98,67
63	99,12	100,26
64	100,72	101,86
65	102,31	103,45
66	103,90	105,04
67	105,49	106,63
68	107,08	108,22
69	108,67	109,81

z	da	dw
70	110,27	111,41
71	111,86	113,00
72	113,45	114,59
73	115,04	116,18
74	116,63	117,77
75	118,22	119,36
76	119,81	120,95
77	121,40	122,54
78	122,99	124,13
79	124,58	125,72
80	126,18	127,32
81	127,77	128,91
82	129,36	130,50
83	130,95	132,09
84	132,54	133,68
85	134,14	135,28
86	135,73	136,87
87	137,32	138,46
88	138,91	140,05
89	140,51	141,65
90	142,10	143,24
91	143,69	144,83
92	145,28	146,42
93	146,87	148,01
94	148,46	149,60
95	150,06	151,20
96	151,64	152,78
97	153,24	154,38
98	154,83	155,97
99	156,42	157,56

z	da	dw
100	158,01	159,15
101	159,61	160,75
102	161,2	162,34
103	162,81	163,95
104	164,38	165,52
105	165,97	167,11
106	167,56	168,70
107	169,09	170,23
108	170,75	171,89
109	172,34	173,48
110	173,93	175,07
111	175,52	176,66
112	177,11	178,25
113	178,70	179,84
114	180,29	181,43
115	181,88	183,02
116	183,47	184,61
117	185,07	186,21
118	186,66	187,80
119	188,25	189,39
120	189,84	190,98



HTD 8M



Belt characteristics

- Polyurethane timing belt with round tooth profile and high tensile load tension cords.
- Tooth profile according to ISO 13050
- Metric pitch 8 mm
- The round tooth profile allows a uniform load distribution that guarantees high performances, high transmissible torque and precise tooth engagement
- Widely used in linear positioning, medium power transmission applications
- Double sided tooth construction available

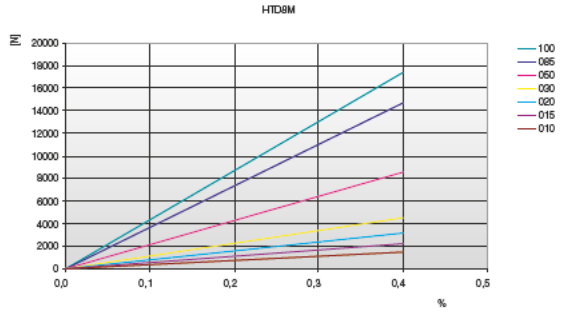
- Width tolerance: ±0,5 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
10	1470	735	5700	367500	0,07
15	2210	1105	8550	552500	0,10
20	3190	1595	12350	797500	0,14
30	4660	2330	18050	1165000	0,21
50	8580	4290	33250	2145000	0,35
85	14700	7350	57000	3675000	0,59
100	17400	8700	67450	4350000	0,69

Other widths are available on request.

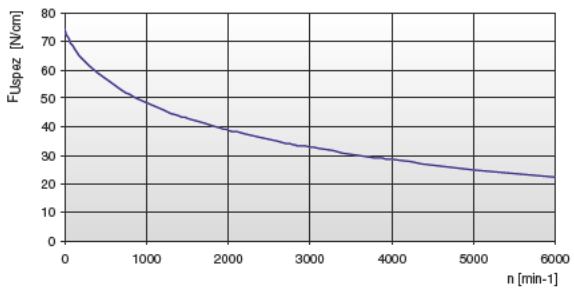
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	74,00	**800**	51,20	**1900**	39,52	**4500**	26,63
20	72,62	**900**	49,71	**2000**	38,78	**5000**	25,00
40	71,34	**1000**	48,35	**2200**	37,39	**5500**	23,51
60	70,16	**1100**	47,09	**2400**	36,12	**6000**	22,15
80	69,07	**1200**	45,93	**2600**	34,94	-	-
100	68,07	**1300**	44,84	**2800**	33,83	-	-
200	64,09	**1400**	43,82	**3000**	32,80	-	-
300	61,68	**1440**	43,43	**3200**	31,83	-	-
400	59,03	**1500**	42,86	**3400**	30,91	-	-
500	56,71	**1600**	41,96	**3600**	30,05	-	-
600	54,66	**1700**	41,10	**3800**	29,22	-	-
700	52,84	**1800**	40,29	**4000**	28,44	-	-

Tooth shear strength / rpm



The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

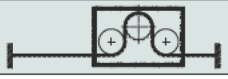
$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Specialties

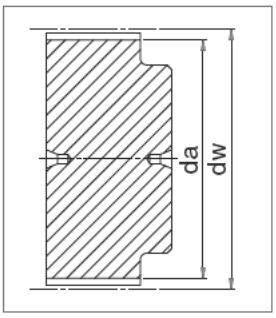
Belt width b [mm]	ARAMID CORD		STAINLESS STEEL		HPL High Performance	
	F_{Tzul} [N] M type	F_{Br} [N]	F_{Tzul} [N] M type	F_{Br} [N]	F_{Tzul} [N] M type	F_{Br} [N]
10	1320	6000	1080	4500	-	-
15	1980	9000	1620	6750	-	-
20	2860	13000	2340	9750	5280	19250
30	4180	19000	3420	14250	8160	29750
50	7700	35000	6300	26250	14400	52500
85	13200	60000	10800	45000	24480	89250
100	15620	71000	12780	53250	29280	106750

Flexibility

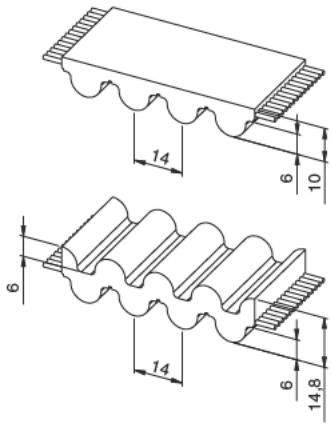
Minimum pulley number of teeth and minimum idler diameter		Type of cord			
		STANDARD	ARAMID	STAINLESS	HPL
Drive without reverse bending	Timing pulley z_{min}	18	18	24	30
	Flat idler running on belt teeth d_{min}	50 mm	50 mm	70 mm	80 mm
Drive with reverse bending 	Timing pulley z_{min}	30	30	40	30
	Flat idler running on belt back d_{min}	120 mm	120 mm	120 mm	150 mm

Timing pulleys

z	da	dw	z	da	dw	z	da	dw	z	da	dw
18	44,46	45,83	**48**	120,86	122,23	**78**	197,25	198,62	**108**	273,64	275,01
19	47,01	48,38	**49**	123,40	124,77	**79**	199,80	201,17	**109**	276,19	277,56
20	49,56	50,93	**50**	125,95	127,32	**80**	202,35	203,72	**110**	278,74	280,11
21	52,10	53,47	**51**	128,50	129,87	**81**	204,89	206,26	**111**	281,29	282,66
22	54,65	56,02	**52**	131,05	132,41	**82**	207,44	208,81	**112**	283,84	285,21
23	57,20	58,57	**53**	133,59	134,96	**83**	209,98	211,35	**113**	286,38	287,75
24	59,75	61,12	**54**	136,14	137,51	**84**	212,53	213,90	**114**	288,93	290,30
25	62,29	63,66	**55**	138,68	140,05	**85**	215,08	216,45	**115**	291,47	292,84
26	64,84	66,21	**56**	141,23	142,60	**86**	217,63	219,00	**116**	294,02	295,39
27	67,38	68,75	**57**	143,78	145,15	**87**	220,17	221,54	**117**	296,57	297,94
28	70,08	71,30	**58**	146,32	147,69	**88**	222,72	224,09	**118**	299,11	300,48
29	72,59	73,84	**59**	148,87	150,24	**89**	225,26	226,63	**119**	301,66	303,03
30	75,13	76,39	**60**	151,42	152,79	**90**	227,81	229,18	**120**	304,20	305,57
31	77,65	78,94	**61**	153,96	155,33	**91**	230,35	231,72			
32	80,16	81,49	**62**	156,52	157,89	**92**	232,90	234,27			
33	82,68	84,03	**63**	159,06	160,43	**93**	235,45	236,82			
34	85,21	86,58	**64**	161,60	162,97	**94**	238,00	239,37			
35	87,76	89,12	**65**	164,15	165,52	**95**	240,54	241,91			
36	90,30	91,67	**66**	166,69	168,06	**96**	243,09	244,46			
37	92,85	94,22	**67**	169,24	170,61	**97**	245,63	247,00			
38	95,40	96,77	**68**	171,79	173,16	**98**	248,18	249,55			
39	97,94	99,31	**69**	174,33	175,70	**99**	250,73	252,10			
40	100,49	101,86	**70**	176,88	178,25	**100**	253,28	254,67			
41	103,04	104,40	**71**	179,43	180,80	**101**	255,82	257,19			
42	105,58	106,95	**72**	181,98	183,35	**102**	258,37	259,74			
43	108,13	109,50	**73**	184,52	185,89	**103**	260,91	262,28			
44	110,68	112,05	**74**	187,07	188,44	**104**	263,46	264,83			
45	113,22	114,59	**75**	189,61	190,98	**105**	266,01	267,38			
46	115,77	117,14	**76**	192,16	193,53	**106**	268,55	269,92			
47	118,31	119,68	**77**	194,71	196,08	**107**	271,10	272,47			



HTD 14M



Belt characteristics

- Polyurethane timing belt with round tooth profile and high tensile load tension cords.
- Tooth profile according to ISO 13050
- Metric pitch 14 mm
- The round tooth profile allows a uniform load distribution that guarantees high performances, high transmissible torque and precise tooth engagement
- Widely used in linear positioning, heavy power transmission applications
- Double sided tooth construction available

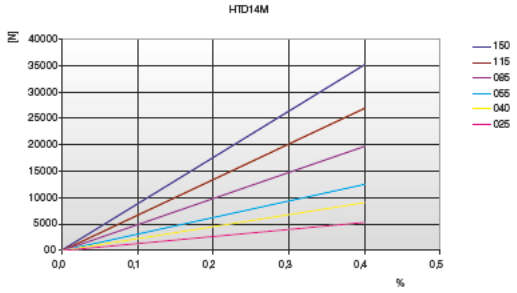
- Width tolerance: ±1,0 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,4 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
25	5280	2640	19250	1320000	0,28
40	9120	4560	33250	2280000	0,44
55	12480	6240	45500	3120000	0,61
85	19680	9840	71750	4920000	0,94
115	26880	13440	98000	6720000	1,25
150	35520	17760	129500	8880000	1,68

Other widths are available on request.

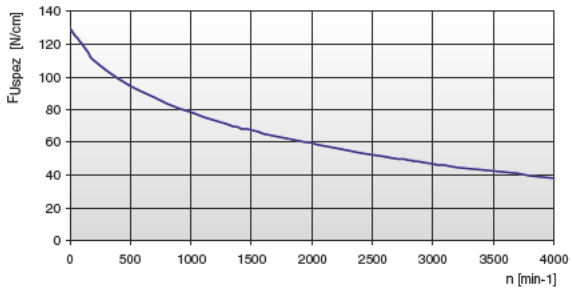
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	130,00	**800**	83,80	**1900**	60,49
20	127,69	**900**	80,85	**2000**	59,01
40	125,56	**1000**	78,14	**2200**	56,23
60	123,60	**1100**	75,63	**2400**	53,68
80	121,78	**1200**	73,31	**2600**	51,30
100	120,11	**1300**	71,14	**2800**	49,09
200	109,77	**1400**	69,11	**3000**	47,01
300	104,29	**1440**	68,33	**3200**	45,06
400	99,19	**1500**	67,19	**3400**	43,22
500	94,65	**1600**	65,38	**3600**	41,48
600	90,64	**1700**	63,67	**3800**	39,82
700	87,04	**1800**	62,04	**4000**	38,24

Tooth shear strength / rpm

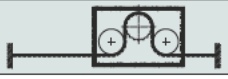


The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord
		STANDARD
Drive without reverse bending	Timing pulley z_{min}	28
	Flat idler running on belt teeth d_{min}	120 mm
Drive with reverse bending	Timing pulley z_{min}	28
	Flat idler running on belt back d_{min}	180 mm

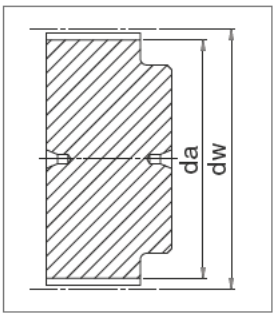
Timing pulleys

z	da	dw
28	122,12	124,77
29	126,58	129,22
30	130,99	133,69
31	135,45	138,14
32	139,88	142,59
33	144,35	147,06
34	148,79	151,51
35	153,25	155,96
36	157,68	160,41
37	162,14	164,88
38	166,60	169,34
39	171,02	173,79
40	175,48	178,24
41	179,92	182,71
42	184,37	187,16
43	188,83	191,61
44	193,29	196,08
45	197,75	200,53
46	202,21	204,98
47	206,65	209,43
48	211,11	213,90
49	215,57	218,35
50	220,03	222,80
51	224,49	227,27
52	228,95	231,72
53	233,39	236,18
54	237,85	240,64
55	242,30	245,09
56	246,76	249,55
57	251,22	254,01

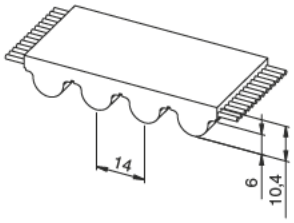
z	da	dw
58	255,68	258,46
59	260,14	262,91
60	264,60	267,38
61	269,04	271,83
62	273,50	276,28
63	277,96	280,75
64	282,42	285,20
65	286,88	289,65
66	291,32	294,11
67	295,78	298,56
68	300,24	303,03
69	304,70	307,48
70	309,16	311,93
71	313,61	316,40
72	318,07	320,85
73	322,53	325,30
74	326,98	329,77
75	331,44	334,22
76	335,90	338,67
77	340,34	343,12
78	344,80	347,59
79	349,26	352,04
80	353,72	356,49
81	358,17	360,96
82	362,63	365,41
83	367,09	369,86
84	371,54	374,33
85	376,00	378,78
86	380,46	383,23
87	384,91	387,70

z	da	dw
88	389,37	392,15
89	393,83	396,60
90	398,29	401,07
91	402,73	405,52
92	407,19	409,97
93	411,65	414,44
94	416,10	418,89
95	420,56	423,35
96	425,02	427,80
97	429,48	432,25
98	433,94	436,72
99	438,38	441,17
100	442,84	445,62
101	447,30	450,09
102	451,76	454,54
103	456,21	459,00
104	460,67	463,45
105	465,13	467,90
106	469,58	472,37
107	474,03	476,82
108	478,49	481,28
109	482,95	485,74
110	487,41	490,19
111	491,87	494,64
112	496,32	499,10
113	500,78	503,55
114	505,23	508,02
116	514,14	516,93
117	518,60	521,38
118	523,06	525,83

z	da	dw
119	527,51	530,30
120	531,97	534,75



HTD 14M XHPL



Belt characteristics

- Polyurethane timing belt with round tooth profile and high tensile load tension cords.
- Tooth profile according to ISO 13050
- Metric pitch 14 mm
- The round tooth profile allows a uniform load distribution that guarantees high performances, high transmissible torque and precise tooth engagement
- **HTD14M - XHPL is the ideal belt for heavy duty synchronous lifting applications**
- **Black color and PAZ fabric as standard for XHPL execution**

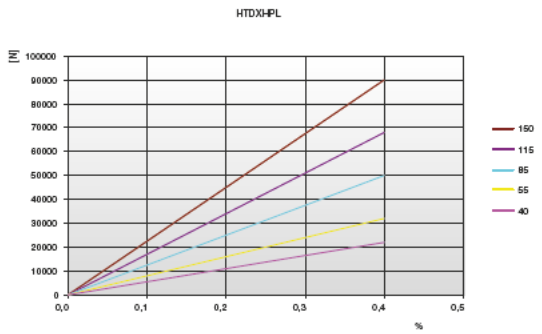
- Width tolerance: ±1,0 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,5 [mm]

Technical Data - HTD14M XHPL

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
40	22000	77000	5500000	0,59
55	32000	112000	8000000	0,75
85	50000	175000	12500000	1,29
115	68000	238000	17000000	1,75
150	90000	315000	22500000	2,21

Other widths are available on request.

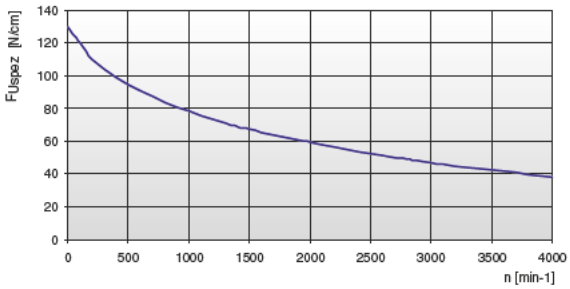
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	130,00	**800**	83,80	**1900**	60,49
20	127,69	**900**	80,85	**2000**	59,01
40	125,56	**1000**	78,14	**2200**	56,23
60	123,60	**1100**	75,63	**2400**	53,68
80	121,78	**1200**	73,31	**2600**	51,30
100	120,11	**1300**	71,14	**2800**	49,09
200	109,77	**1400**	69,11	**3000**	47,01
300	104,29	**1440**	68,33	**3200**	45,06
400	99,19	**1500**	67,19	**3400**	43,22
500	94,65	**1600**	65,38	**3600**	41,48
600	90,64	**1700**	63,67	**3800**	39,82
700	87,04	**1800**	62,04	**4000**	38,24

Tooth shear strength / rpm

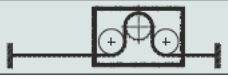


The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord
		STANDARD
Drive without reverse bending	Timing pulley z_{min}	34
	Flat idler running on belt teeth d_{min}	140 mm
Drive with reverse bending	Timing pulley z_{min}	34
	Flat idler running on belt back d_{min}	200 mm

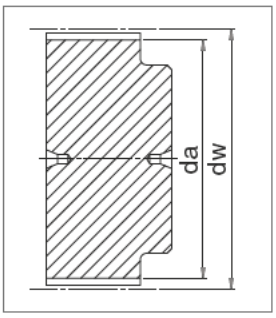
Timing pulleys

z	da	dw
28	122,12	124,77
29	126,58	129,22
30	130,99	133,69
31	135,45	138,14
32	139,88	142,59
33	144,35	147,06
34	148,79	151,51
35	153,25	155,96
36	157,68	160,41
37	162,14	164,88
38	166,60	169,34
39	171,02	173,79
40	175,48	178,24
41	179,92	182,71
42	184,37	187,16
43	188,83	191,61
44	193,29	196,08
45	197,75	200,53
46	202,21	204,98
47	206,65	209,43
48	211,11	213,90
49	215,57	218,35
50	220,03	222,80
51	224,49	227,27
52	228,95	231,72
53	233,39	236,18
54	237,85	240,64
55	242,30	245,09
56	246,76	249,55
57	251,22	254,01

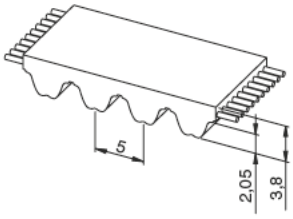
z	da	dw
58	255,68	258,46
59	260,14	262,91
60	264,60	267,38
61	269,04	271,83
62	273,50	276,28
63	277,96	280,75
64	282,42	285,20
65	286,88	289,65
66	291,32	294,11
67	295,78	298,56
68	300,24	303,03
69	304,70	307,48
70	309,16	311,93
71	313,61	316,40
72	318,07	320,85
73	322,53	325,30
74	326,98	329,77
75	331,44	334,22
76	335,90	338,67
77	340,34	343,12
78	344,80	347,59
79	349,26	352,04
80	353,72	356,49
81	358,17	360,96
82	362,63	365,41
83	367,09	369,86
84	371,54	374,33
85	376,00	378,78
86	380,46	383,23
87	384,91	387,70

z	da	dw
88	389,37	392,15
89	393,83	396,60
90	398,29	401,07
91	402,73	405,52
92	407,19	409,97
93	411,65	414,44
94	416,10	418,89
95	420,56	423,35
96	425,02	427,80
97	429,48	432,25
98	433,94	436,72
99	438,38	441,17
100	442,84	445,62
101	447,30	450,09
102	451,76	454,54
103	456,21	459,00
104	460,67	463,45
105	465,13	467,90
106	469,58	472,37
107	474,03	476,82
108	478,49	481,28
109	482,95	485,74
110	487,41	490,19
111	491,87	494,64
112	496,32	499,10
113	500,78	503,55
114	505,23	508,02
116	514,14	516,93
117	518,60	521,38
118	523,06	525,83

z	da	dw
119	527,51	530,30
120	531,97	534,75



RTD 5M



Belt characteristics

- Polyurethane timing belt with round tooth profile and high tensile load tension cords.
- Tooth profile according to ISO 13050
- Metric pitch 5 mm
- The round tooth profile allows a uniform load distribution that guarantees high performances, high transmissible torque and precise tooth engagement
- PAZ fabric on tooth side delivered as standard reduces noise in the drive
- Widely used in linear positioning, light power transmission applications

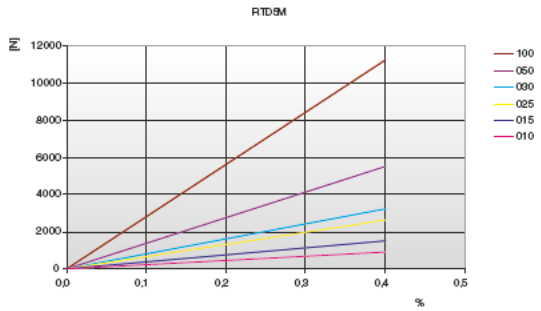
- Width tolerance: ±0,5 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
10	920	460	3360	230000	0,05
15	1500	750	5460	375000	0,07
25	2650	1325	9660	662500	0,12
30	3220	1610	11760	805000	0,15
50	5520	2760	20160	1380000	0,23
100	11270	5635	41160	2817500	0,46

Other widths are available on request.

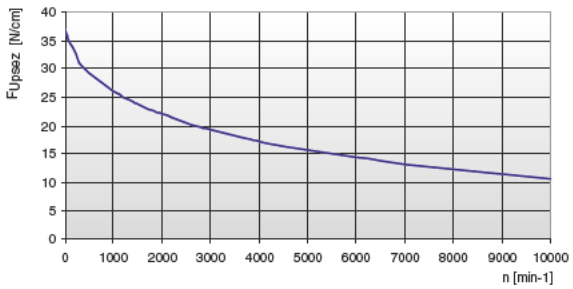
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	37,80	**900**	28,61	**2200**	23,30	**5500**	16,95
20	37,25	**1000**	28,05	**2400**	22,72	**6000**	16,32
40	36,75	**1100**	27,52	**2600**	22,19	**6500**	15,74
60	36,30	**1200**	27,03	**2800**	21,69	**7000**	15,19
80	35,89	**1300**	26,56	**2880**	21,50	**7500**	14,68
100	35,52	**1400**	26,13	**3000**	21,23	**8000**	14,20
200	34,13	**1440**	25,96	**3200**	20,78	**8500**	13,75
300	32,87	**1500**	25,71	**3400**	20,37	**9000**	13,33
400	32,10	**1600**	25,32	**3600**	19,97	**9500**	12,92
500	31,31	**1700**	24,94	**3800**	19,59	**10000**	12,53
600	30,56	**1800**	24,58	**4000**	19,23	**-**	-
700	29,86	**1900**	24,24	**4500**	18,40	**-**	-
800	29,21	**2000**	23,91	**5000**	17,64	**-**	-

Tooth shear strength / rpm



The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

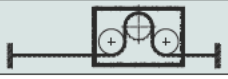
$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Specialties

Belt width b [mm]	ARAMID CORD		STAINLESS STEEL		HFE High Flexibility	
	F_{Tzul} [N] M type	F_{Br} [N]	F_{Tzul} [N] M type	F_{Br} [N]	F_{Tzul} [N] M type	F_{Br} [N]
10	880	3600	600	2400	960	3440
15	1430	5850	980	3900	1560	5590
25	2530	10350	1730	6900	2760	9890
30	3080	12600	2100	8400	3360	12040
50	5280	21600	3600	14400	5760	20640
100	10780	44100	-	-	-	-

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord			
		STANDARD	ARAMID	STAINLESS	HFE
Drive without reverse bending	Timing pulley z_{min}	16	16	18	15
	Flat idler running on belt teeth d_{min}	30 mm	30 mm	40 mm	25 mm
Drive with reverse bending	Timing pulley z_{min}	25	25	25	20
	Flat idler running on belt back d_{min}	60 mm	60 mm	65 mm	60 mm

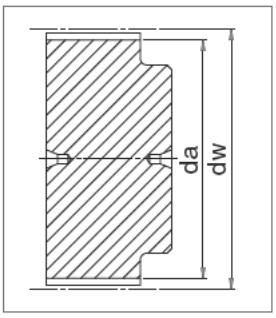
Timing pulleys

z	da	dw
10	14,77	15,91
11	16,36	17,50
12	17,96	19,10
13	19,55	20,69
14	21,14	22,28
15	22,73	23,87
16	24,32	25,46
17	25,91	27,05
18	27,51	28,65
19	29,09	30,23
20	30,69	31,83
21	32,28	33,42
22	33,87	35,01
23	35,46	36,60
24	37,06	38,20
25	38,64	39,78
26	40,24	41,38
27	41,83	42,97
28	43,42	44,56
29	45,01	46,15
30	46,61	47,75
31	48,19	49,33
32	49,79	50,93
33	51,38	52,52
34	52,97	54,11
35	54,56	55,70
36	56,16	57,30
37	57,75	58,89
38	59,34	60,48
39	60,93	62,07

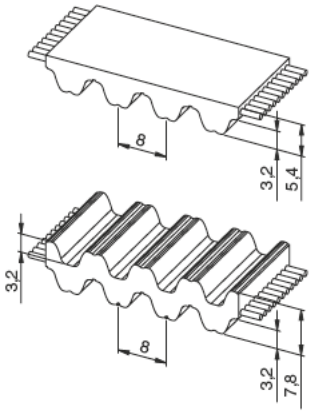
z	da	dw
40	62,52	63,66
41	64,11	65,25
42	65,70	66,84
43	67,29	68,43
44	68,88	70,02
45	70,47	71,61
46	72,06	73,20
47	73,65	74,79
48	75,24	76,38
49	76,84	77,98
50	78,44	79,58
51	80,03	81,17
52	81,62	82,76
53	83,21	84,35
54	84,80	85,94
55	86,39	87,53
56	87,98	89,12
57	89,57	90,71
58	91,17	92,31
59	92,76	93,90
60	94,35	95,49
61	95,94	97,08
62	97,53	98,67
63	99,12	100,26
64	100,72	101,86
65	102,31	103,45
66	103,90	105,04
67	105,49	106,63
68	107,08	108,22
69	108,67	109,81

z	da	dw
70	110,27	111,41
71	111,86	113,00
72	113,45	114,59
73	115,04	116,18
74	116,63	117,77
75	118,22	119,36
76	119,81	120,95
77	121,40	122,54
78	122,99	124,13
79	124,58	125,72
80	126,18	127,32
81	127,77	128,91
82	129,36	130,50
83	130,95	132,09
84	132,54	133,68
85	134,14	135,28
86	135,73	136,87
87	137,32	138,46
88	138,91	140,05
89	140,51	141,65
90	142,10	143,24
91	143,69	144,83
92	145,28	146,42
93	146,87	148,01
94	148,46	149,60
95	150,06	151,20
96	151,64	152,78
97	153,24	154,38
98	154,83	155,97
99	156,42	157,56

z	da	dw
100	158,01	159,15
101	159,61	160,75
102	161,20	162,34
103	162,81	163,95
104	164,38	165,52
105	165,97	167,11
106	167,56	168,70
107	169,09	170,23
108	170,75	171,89
109	172,34	173,48
110	173,93	175,07
111	175,52	176,66
112	177,11	178,25
113	178,70	179,84
114	180,29	181,43
115	181,88	183,02
116	183,47	184,61
117	185,07	186,21
118	186,66	187,80
119	188,25	189,39
120	189,84	190,98



RTD 8M



Belt characteristics

- Polyurethane timing belt with round tooth profile and high tensile load tension cords.
- Tooth profile according to ISO 13050
- Metric pitch 8 mm
- The round tooth profile allows a uniform load distribution that guarantees high performances, high transmissible torque and precise tooth engagement
- PAZ fabric on tooth side delivered as standard reduces noise in the drive
- Widely used in linear positioning, medium power transmission applications

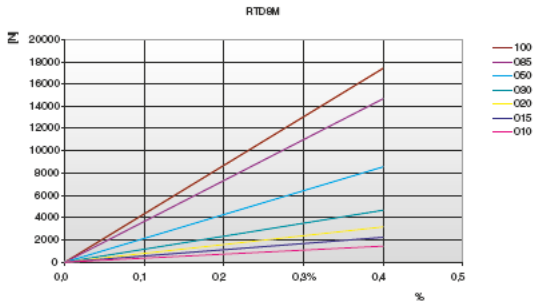
- Width tolerance: ±0,5 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
10	1470	735	5700	367500	0,07
15	2210	1105	8550	552500	0,10
20	3190	1595	12350	797500	0,14
30	4660	2330	18050	1165000	0,20
50	8580	4290	33250	2145000	0,35
85	14700	7350	57000	3675000	0,60
100	17400	8700	67450	4350000	0,75

Other widths are available on request.

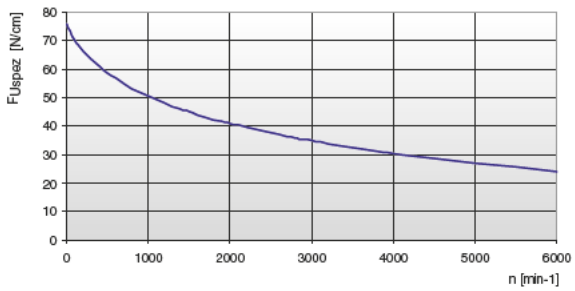
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	76,00	**800**	53,20	**1900**	41,52	**4000**	30,44
20	74,62	**900**	51,71	**2000**	40,78	**4500**	28,63
40	73,34	**1000**	50,35	**2200**	39,39	**5000**	27,00
60	72,16	**1100**	49,09	**2400**	38,12	**5500**	25,51
80	71,07	**1200**	47,93	**2600**	36,94	**6000**	24,15
100	70,07	**1300**	46,84	**2800**	35,83	-	-
200	66,09	**1400**	45,82	**2880**	35,41	-	-
300	63,68	**1440**	45,43	**3000**	34,80	-	-
400	61,03	**1500**	44,86	**3200**	33,83	-	-
500	58,71	**1600**	43,96	**3400**	32,91	-	-
600	56,66	**1700**	43,10	**3600**	32,05	-	-
700	54,84	**1800**	42,29	**3800**	31,22	-	-

Tooth shear strength / rpm



The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

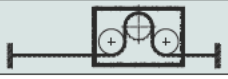
$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Specialties

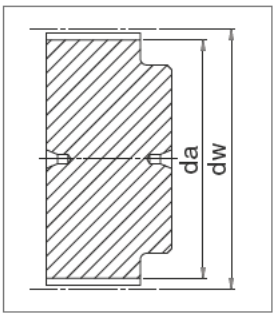
Belt width b [mm]	ARAMID CORD		STAINLESS STEEL		HPL High Performance	
	F_{Tzul} [N] M type	F_{Br} [N]	F_{Tzul} [N] M type	F_{Br} [N]	F_{Tzul} [N] M type	F_{Br} [N]
10	1320	6000	1080	4500	-	-
15	1980	9000	1620	6750	-	-
20	2860	13000	2340	9750	5280	19250
30	4180	19000	3420	14250	8160	29750
50	7700	35000	6300	26250	14400	52500
85	13200	60000	10800	45000	24480	89250
100	15620	71000	12780	53250	29280	106750

Flexibility

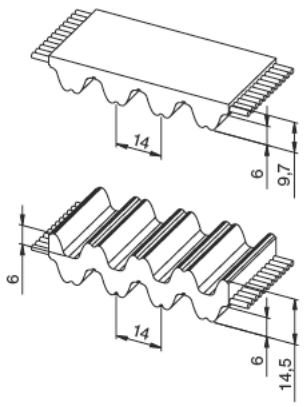
Minimum pulley number of teeth and minimum idler diameter		Type of cord			
		STANDARD	ARAMID	STAINLESS	HPL
Drive without reverse bending	Timing pulley z_{min}	18	18	24	30
	Flat idler running on belt teeth d_{min}	50 mm	50 mm	70 mm	80 mm
Drive with reverse bending 	Timing pulley z_{min}	30	30	40	30
	Flat idler running on belt back d_{min}	120 mm	120 mm	120 mm	150 mm

Timing pulleys

z	da	dw	z	da	dw	z	da	dw	z	da	dw
18	44,46	45,83	**48**	120,86	122,23	**78**	197,25	198,62	**108**	273,64	275,01
19	47,01	48,38	**49**	123,40	124,77	**79**	199,80	201,17	**109**	276,19	277,56
20	49,56	50,93	**50**	125,95	127,32	**80**	202,35	203,72	**110**	278,74	280,11
21	52,10	53,47	**51**	128,50	129,87	**81**	204,89	206,26	**111**	281,29	282,66
22	54,65	56,02	**52**	131,05	132,41	**82**	207,44	208,81	**112**	283,84	285,21
23	57,20	58,57	**53**	133,59	134,96	**83**	209,98	211,35	**113**	286,38	287,75
24	59,75	61,12	**54**	136,14	137,51	**84**	212,53	213,90	**114**	288,93	290,30
25	62,29	63,66	**55**	138,68	140,05	**85**	215,08	216,45	**115**	291,47	292,84
26	64,84	66,21	**56**	141,23	142,60	**86**	217,63	219,00	**116**	294,02	295,39
27	67,38	68,75	**57**	143,78	145,15	**87**	220,17	221,54	**117**	296,57	297,94
28	70,08	71,30	**58**	146,32	147,69	**88**	222,72	224,09	**118**	299,11	300,48
29	72,59	73,84	**59**	148,87	150,24	**89**	225,26	226,63	**119**	301,66	303,03
30	75,13	76,39	**60**	151,42	152,79	**90**	227,81	229,18	**120**	304,20	305,57
31	77,65	78,94	**61**	153,96	155,33	**91**	230,35	231,72			
32	80,16	81,49	**62**	156,52	157,89	**92**	232,90	234,27			
33	82,68	84,03	**63**	159,06	160,43	**93**	235,45	236,82			
34	85,21	86,58	**64**	161,60	162,97	**94**	238,00	239,37			
35	87,76	89,12	**65**	164,15	165,52	**95**	240,54	241,91			
36	90,30	91,67	**66**	166,69	168,06	**96**	243,09	244,46			
37	92,85	94,22	**67**	169,24	170,61	**97**	245,63	247,00			
38	95,40	96,77	**68**	171,79	173,16	**98**	248,18	249,55			
39	97,94	99,31	**69**	174,33	175,70	**99**	250,73	252,10			
40	100,49	101,86	**70**	176,88	178,25	**100**	253,28	254,67			
41	103,04	104,40	**71**	179,43	180,80	**101**	255,82	257,19			
42	105,58	106,95	**72**	181,98	183,35	**102**	258,37	259,74			
43	108,13	109,50	**73**	184,52	185,89	**103**	260,91	262,28			
44	110,68	112,05	**74**	187,07	188,44	**104**	263,46	264,83			
45	113,22	114,59	**75**	189,61	190,98	**105**	266,01	267,38			
46	115,77	117,14	**76**	192,16	193,53	**106**	268,55	269,92			
47	118,31	119,68	**77**	194,71	196,08	**107**	271,10	272,47			



RTD 14M



Belt characteristics

- Polyurethane timing belt with round tooth profile and high tensile load tension cords.
- Tooth profile according to ISO 13050
- Metric pitch 14 mm
- The round tooth profile allows a uniform load distribution that guarantees high performances, high transmissible torque and precise tooth engagement
- PAZ fabric on tooth side delivered as standard reduces noise in the drive
- Widely used in linear positioning, heavy power transmission applications

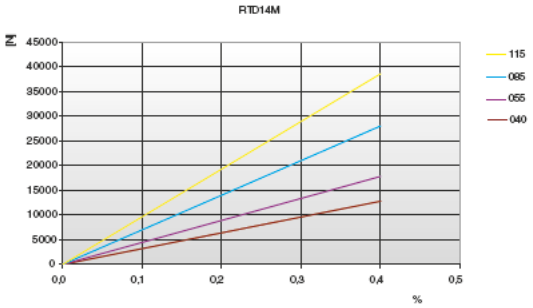
- Width tolerance: ±1,0 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,4 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
40	12750	6375	48000	3187500	0,48
55	17850	8925	67200	4462500	0,68
85	28050	14025	105600	7012500	1,00
115	39100	19550	147200	9775000	1,40

Other widths are available on request.

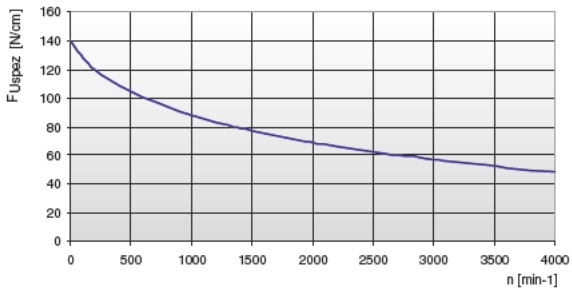
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	140,00	**800**	93,80	**1900**	70,49	**4000**	48,24
20	137,31	**900**	90,85	**2000**	69,01	-	-
40	134,83	**1000**	88,14	**2200**	66,23	-	-
60	132,53	**1100**	85,63	**2400**	63,68	-	-
80	130,42	**1200**	83,31	**2600**	61,30	-	-
100	128,46	**1300**	81,14	**2800**	59,09	-	-
200	119,77	**1400**	79,11	**2880**	58,24	-	-
300	114,29	**1440**	78,33	**3000**	57,01	-	-
400	109,19	**1500**	77,19	**3200**	55,06	-	-
500	104,65	**1600**	75,38	**3400**	53,22	-	-
600	100,64	**1700**	73,67	**3600**	51,48	-	-
700	97,04	**1800**	72,04	**3800**	49,82	-	-

Tooth shear strength / rpm



The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

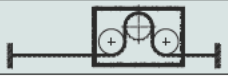
$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Specialties

Belt width b [mm]	HPL High Performance	
	F_{Tzul} [N] M type	F_{Br} [N]
40	14300	58500
55	19800	81000
75	27500	112500
85	30800	126000
100	35200	144000
115	41800	171000
150	55000	225000

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord	
		STANDARD	HPL
Drive without reverse bending	Timing pulley z_{min}	32	32
	Flat idler running on belt teeth d_{min}	140 mm	140 mm
Drive with reverse bending	Timing pulley z_{min}	32	32
	Flat idler running on belt back d_{min}	200 mm	200 mm

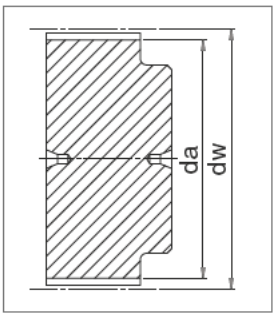
Timing pulleys

z	da	dw
28	122,12	124,77
29	126,58	129,22
30	130,99	133,69
31	135,45	138,14
32	139,88	142,59
33	144,35	147,06
34	148,79	151,51
35	153,25	155,96
36	157,68	160,41
37	162,14	164,88
38	166,60	169,34
39	171,02	173,79
40	175,48	178,24
41	179,92	182,71
42	184,37	187,16
43	188,83	191,61
44	193,29	196,08
45	197,75	200,53
46	202,21	204,98
47	206,65	209,43
48	211,11	213,90
49	215,57	218,35
50	220,03	222,80
51	224,49	227,27
52	228,95	231,72
53	233,39	236,18
54	237,85	240,64
55	242,30	245,09
56	246,76	249,55
57	251,22	254,01

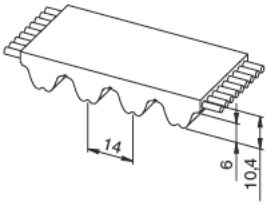
z	da	dw
58	255,68	258,46
59	260,14	262,91
60	264,60	267,38
61	269,04	271,83
62	273,50	276,28
63	277,96	280,75
64	282,42	285,20
65	286,88	289,65
66	291,32	294,11
67	295,78	298,56
68	300,24	303,03
69	304,70	307,48
70	309,16	311,93
71	313,61	316,40
72	318,07	320,85
73	322,53	325,30
74	326,98	329,77
75	331,44	334,22
76	335,90	338,67
77	340,34	343,12
78	344,80	347,59
79	349,26	352,04
80	353,72	356,49
81	358,17	360,96
82	362,63	365,41
83	367,09	369,86
84	371,54	374,33
85	376,00	378,78
86	380,46	383,23
87	384,91	387,70

z	da	dw
88	389,37	392,15
89	393,83	396,60
90	398,29	401,07
91	402,73	405,52
92	407,19	409,97
93	411,65	414,44
94	416,10	418,89
95	420,56	423,35
96	425,02	427,80
97	429,48	432,25
98	433,94	436,72
99	438,38	441,17
100	442,84	445,62
101	447,30	450,09
102	451,76	454,54
103	456,21	459,00
104	460,67	463,45
105	465,13	467,90
106	469,58	472,37
107	474,03	476,82
108	478,49	481,28
109	482,95	485,74
110	487,41	490,19
111	491,87	494,64
112	496,32	499,10
113	500,78	503,55
114	505,23	508,02
116	514,14	516,93
117	518,60	521,38
118	523,06	525,83

z	da	dw
119	527,51	530,30
120	531,97	534,75



RTD 14M XHPL



Belt characteristics

- Polyurethane timing belt with round tooth profile and high tensile load tension cords.
- Tooth profile according to ISO 13050
- Metric pitch 14 mm
- The round tooth profile allows a uniform load distribution that guarantees high performances, high transmissible torque and precise tooth engagement
- PAZ fabric on tooth side delivered as standard reduces noise in the drive
- **RTD14M - XHPL is the ideal belt for heavy duty synchronous lifting applications. Black colour as standard.**

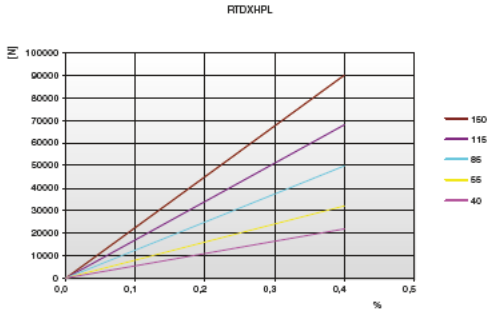
- Width tolerance: ±1,0 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,4 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
40	22000	77000	5500000	0,59
55	32000	112000	8000000	0,75
85	50000	175000	12500000	1,29
115	68000	238000	17000000	1,75
150	90000	315000	22500000	2,21

Other widths are available on request.

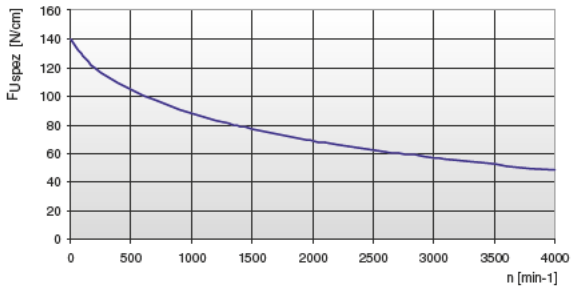
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	140,00	**800**	93,80	**1900**	70,49	**4000**	48,24
20	137,31	**900**	90,85	**2000**	69,01	-	-
40	134,83	**1000**	88,14	**2200**	66,23	-	-
60	132,53	**1100**	85,63	**2400**	63,68	-	-
80	130,42	**1200**	83,31	**2600**	61,30	-	-
100	128,46	**1300**	81,14	**2800**	59,09	-	-
200	119,77	**1400**	79,11	**2880**	58,24	-	-
300	114,29	**1440**	78,33	**3000**	57,01	-	-
400	109,19	**1500**	77,19	**3200**	55,06	-	-
500	104,65	**1600**	75,38	**3400**	53,22	-	-
600	100,64	**1700**	73,67	**3600**	51,48	-	-
700	97,04	**1800**	72,04	**3800**	49,82	-	-

Tooth shear strength / rpm

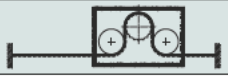


The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord
		STANDARD
Drive without reverse bending	Timing pulley z_{min}	34
	Flat idler running on belt teeth d_{min}	140 mm
Drive with reverse bending	Timing pulley z_{min}	34
	Flat idler running on belt back d_{min}	250 mm

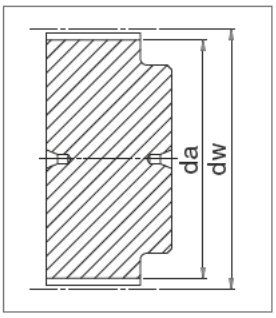
Timing pulleys

z	da	dw
28	122,12	124,77
29	126,58	129,22
30	130,99	133,69
31	135,45	138,14
32	139,88	142,59
33	144,35	147,06
34	148,79	151,51
35	153,25	155,96
36	157,68	160,41
37	162,14	164,88
38	166,60	169,34
39	171,02	173,79
40	175,48	178,24
41	179,92	182,71
42	184,37	187,16
43	188,83	191,61
44	193,29	196,08
45	197,75	200,53
46	202,21	204,98
47	206,65	209,43
48	211,11	213,90
49	215,57	218,35
50	220,03	222,80
51	224,49	227,27
52	228,95	231,72
53	233,39	236,18
54	237,85	240,64
55	242,30	245,09
56	246,76	249,55
57	251,22	254,01

z	da	dw
58	255,68	258,46
59	260,14	262,91
60	264,60	267,38
61	269,04	271,83
62	273,50	276,28
63	277,96	280,75
64	282,42	285,20
65	286,88	289,65
66	291,32	294,11
67	295,78	298,56
68	300,24	303,03
69	304,70	307,48
70	309,16	311,93
71	313,61	316,40
72	318,07	320,85
73	322,53	325,30
74	326,98	329,77
75	331,44	334,22
76	335,90	338,67
77	340,34	343,12
78	344,80	347,59
79	349,26	352,04
80	353,72	356,49
81	358,17	360,96
82	362,63	365,41
83	367,09	369,86
84	371,54	374,33
85	376,00	378,78
86	380,46	383,23
87	384,91	387,70

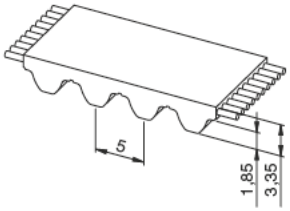
z	da	dw
88	389,37	392,15
89	393,83	396,60
90	398,29	401,07
91	402,73	405,52
92	407,19	409,97
93	411,65	414,44
94	416,10	418,89
95	420,56	423,35
96	425,02	427,80
97	429,48	432,25
98	433,94	436,72
99	438,38	441,17
100	442,84	445,62
101	447,30	450,09
102	451,76	454,54
103	456,21	459,00
104	460,67	463,45
105	465,13	467,90
106	469,58	472,37
107	474,03	476,82
108	478,49	481,28
109	482,95	485,74
110	487,41	490,19
111	491,87	494,64
112	496,32	499,10
113	500,78	503,55
114	505,23	508,02
116	514,14	516,93
117	518,60	521,38
118	523,06	525,83

z	da	dw
119	527,51	530,30
120	531,97	534,75



Note
Special pulley profile required.
Contact ELATECH Technical Dept. for details.

STD 5M



Belt characteristics

- Polyurethane timing belt with involute tooth, high tensile load steel cords and high torque capacity
- Tooth profile according to ISO 13050
- Metric pitch 5 mm
- Low noise generation in high speed drives
- Offers excellent operational reliability in linear positioning and light power transmission applications
- The special profile allows smooth running properties

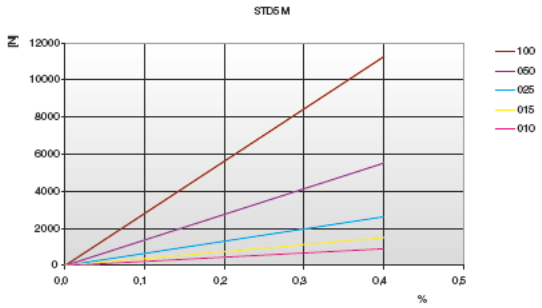
- Width tolerance: ±0,5 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
10	920	460	3360	230000	0,05
15	1500	750	5460	375000	0,07
25	2650	1325	9660	662500	0,12
50	5520	2760	20160	1380000	0,23
100	11270	5635	41160	2817500	0,46

Other widths are available on request.

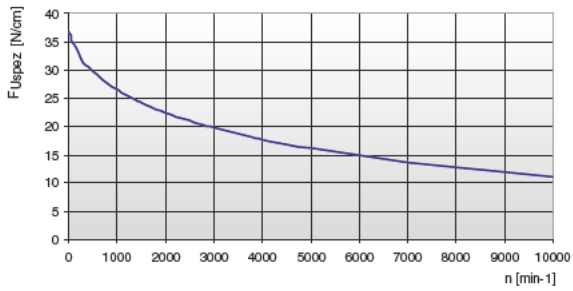
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	36,90	**800**	27,71	**1900**	22,74	**4500**	16,90
20	36,35	**900**	27,11	**2000**	22,41	**5000**	16,14
40	35,85	**1000**	26,55	**2200**	21,80	**5500**	15,45
60	35,40	**1100**	26,02	**2400**	21,22	**6000**	14,82
80	34,99	**1200**	25,53	**2600**	20,69	**6500**	14,24
100	34,62	**1300**	25,06	**2800**	20,19	**7000**	13,69
200	33,23	**1400**	24,63	**3000**	19,73	**7500**	13,18
300	31,37	**1440**	24,46	**3200**	19,28	**8000**	12,70
400	30,60	**1500**	24,21	**3400**	18,87	**8500**	12,25
500	29,81	**1600**	23,82	**3600**	18,47	**9000**	11,83
600	29,06	**1700**	23,44	**3800**	18,09	**9500**	11,42
700	28,36	**1800**	23,08	**4000**	17,73	**10000**	11,03

Tooth shear strength / rpm



The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

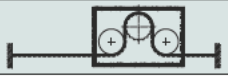
$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Specialties

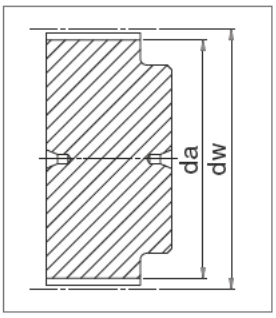
Belt width b [mm]	ARAMID CORD		STAINLESS STEEL		HFE High Flexibility	
	F_{Tzul} [N] M type	F_{Br} [N]	F_{Tzul} [N] M type	F_{Br} [N]	F_{Tzul} [N] M type	F_{Br} [N]
10	880	3600	600	2400	960	3440
15	1430	5850	980	3900	1560	5590
25	2530	10350	1730	6900	2760	9890
50	5280	21600	3600	14400	5760	20640
100	10780	44100	-	-	-	-

Flexibility

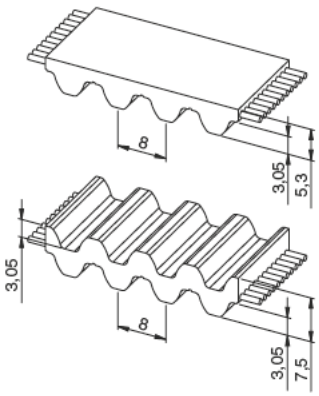
Minimum pulley number of teeth and minimum idler diameter		Type of cord			
		STANDARD	ARAMID	STAINLESS	HFE
Drive without reverse bending	Timing pulley z_{min}	16	16	18	15
	Flat idler running on belt teeth d_{min}	30 mm	30 mm	40 mm	40 mm
Drive with reverse bending	Timing pulley z_{min}	25	25	25	20
	Flat idler running on belt back d_{min}	60 mm	60 mm	65 mm	40 mm

Timing pulleys

z	da	dw	z	da	dw	z	da	dw	z	da	dw
10	14,95	15,91	**40**	62,70	63,66	**70**	110,45	111,41	**100**	158,19	159,15
11	16,54	17,50	**41**	64,30	65,26	**71**	112,04	113,00	**101**	159,79	160,75
12	18,14	19,10	**42**	65,89	66,85	**72**	113,63	114,59	**102**	161,38	162,34
13	19,73	20,69	**43**	67,48	68,44	**73**	115,23	116,19	**103**	162,99	163,95
14	21,32	22,28	**44**	69,07	70,03	**74**	116,82	117,78	**104**	164,56	165,52
15	22,91	23,87	**45**	70,66	71,62	**75**	118,41	119,37	**105**	166,15	167,11
16	24,51	25,47	**46**	72,25	73,21	**76**	120,00	120,96	**106**	167,74	168,70
17	26,10	27,06	**47**	73,84	74,80	**77**	121,59	122,55	**107**	169,34	170,3
18	27,69	28,65	**48**	75,43	76,39	**78**	123,18	124,14	**108**	170,93	171,89
19	29,27	30,23	**49**	77,03	77,99	**79**	124,77	125,73	**109**	172,52	173,48
20	30,87	31,83	**50**	78,62	79,58	**80**	126,36	127,32	**110**	174,10	175,06
21	32,46	33,42	**51**	80,21	81,17	**81**	127,95	128,91	**111**	175,7	176,66
22	34,05	35,01	**52**	81,80	82,76	**82**	129,54	130,50	**112**	177,29	178,25
23	35,65	36,61	**53**	83,39	84,35	**83**	131,14	132,10	**113**	178,88	179,84
24	37,23	38,19	**54**	84,99	85,95	**84**	132,73	133,69	**114**	180,47	181,43
25	38,83	39,79	**55**	86,58	87,54	**85**	134,32	135,28	**115**	182,06	183,02
26	40,42	41,38	**56**	88,17	89,13	**86**	135,91	136,87	**116**	183,65	184,61
27	42,01	42,97	**57**	89,76	90,72	**87**	137,51	138,47	**117**	185,25	186,21
28	43,60	44,56	**58**	91,35	92,31	**88**	139,09	140,05	**118**	186,84	187,8
29	45,19	46,15	**59**	92,94	93,90	**89**	140,69	141,65	**119**	188,43	189,39
30	46,79	47,75	**60**	94,53	95,49	**90**	142,28	143,24	**120**	190,02	190,98
31	48,38	49,34	**61**	96,13	97,09	**91**	143,87	144,83			
32	49,97	50,93	**62**	97,72	98,68	**92**	145,46	146,42			
33	51,56	52,52	**63**	99,31	100,27	**93**	147,05	148,01			
34	53,15	54,11	**64**	100,90	101,86	**94**	148,64	149,60			
35	54,75	55,71	**65**	102,49	103,45	**95**	150,24	151,20			
36	56,34	57,30	**66**	104,08	105,04	**96**	151,83	152,71			
37	57,93	58,89	**67**	105,67	106,63	**97**	153,42	154,38			
38	59,52	60,48	**68**	107,27	108,23	**98**	155,01	155,97			
39	61,11	62,07	**69**	108,86	109,82	**99**	156,60	157,56			



STD 8M



Belt characteristics

- Polyurethane timing belt with involute tooth, high tensile load steel cords and high torque capacity
- Tooth profile according to ISO 13050
- Metric pitch 8 mm
- Low noise generation in high speed drives
- Offers excellent operational reliability in linear positioning and medium power transmission applications
- Widely used in automatic doors
- The special profile allows smooth running properties

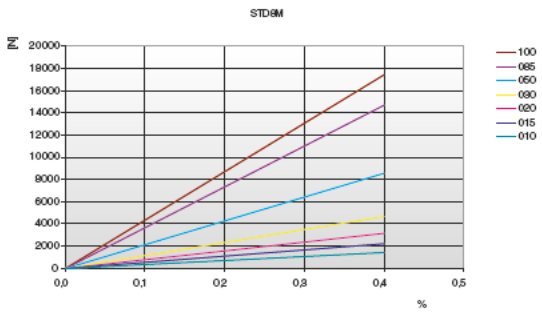
- Width tolerance: ±0,5 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
10	1470	735	5700	367500	0,07
15	2210	1105	8550	552500	0,10
20	3190	1595	12350	797500	0,13
30	4660	2330	18050	1165000	0,20
50	8580	4290	33250	2145000	0,33
85	14700	7350	57000	3675000	0,56
100	17400	8700	67450	4350000	0,66

Other widths are available on request.

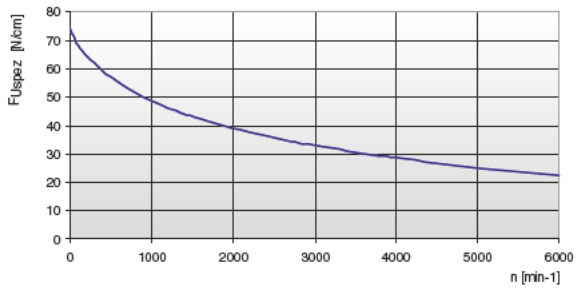
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	74,10	**800**	51,53	**1900**	39,76	**4500**	26,79
20	73,05	**900**	50,03	**2000**	39,02	**5000**	25,14
40	72,06	**1000**	48,66	**2200**	37,62	**5500**	23,65
60	71,13	**1100**	47,39	**2400**	36,34	**6000**	22,28
80	70,26	**1200**	46,22	**2600**	35,15	-	-
100	69,43	**1300**	45,12	**2800**	34,04	-	-
200	65,98	**1400**	44,10	**3000**	33,00	-	-
300	62,11	**1440**	43,70	**3200**	32,02	-	-
400	59,43	**1500**	43,13	**3400**	31,10	-	-
500	57,08	**1600**	42,22	**3600**	30,23	-	-
600	55,02	**1700**	41,36	**3800**	29,40	-	-
700	53,18	**1800**	40,54	**4000**	28,61	-	-

Tooth shear strength / rpm



The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

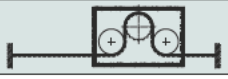
$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Specialties

Belt width b [mm]	ARAMID CORD		STAINLESS STEEL		HPL High Performance	
	F_{Tzul} [N] M type	F_{Br} [N]	F_{Tzul} [N] M type	F_{Br} [N]	F_{Tzul} [N] M type	F_{Br} [N]
10	1320	6000	1080	4500	-	-
15	1980	9000	1620	6750	-	-
20	2860	13000	2340	9750	5280	19250
30	4180	19000	3420	14250	8160	29750
50	7700	35000	6300	26250	14400	52500
85	13200	60000	10800	45000	24480	89250
100	15620	71000	12780	53250	29280	106750

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord			
		STANDARD	ARAMID	STAINLESS	HPL
Drive without reverse bending	Timing pulley z_{min}	18	18	24	30
	Flat idler running on belt teeth d_{min}	50 mm	50 mm	70 mm	80 mm
Drive with reverse bending 	Timing pulley z_{min}	30	30	40	30
	Flat idler running on belt back d_{min}	120 mm	120 mm	120 mm	150 mm

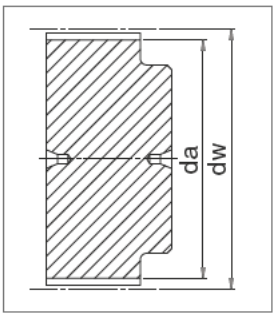
Timing pulleys

z	da	dw
18	44,46	45,83
19	47,01	48,38
20	49,56	50,93
21	52,10	53,47
22	54,65	56,02
23	57,20	58,57
24	59,75	61,12
25	62,29	63,66
26	64,84	66,21
27	67,38	68,75
28	70,08	71,30
29	72,59	73,84
30	75,13	76,39
31	77,65	78,94
32	80,16	81,49
33	82,68	84,03
34	85,21	86,58
35	87,76	89,12
36	90,30	91,67
37	92,85	94,22
38	95,40	96,77
39	97,94	99,31
40	100,49	101,86
41	103,04	104,40
42	105,58	106,95
43	108,13	109,50
44	110,68	112,05
45	113,22	114,59
46	115,77	117,14
47	118,31	119,68

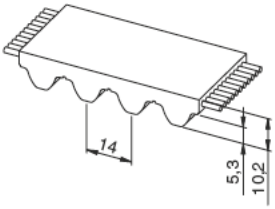
z	da	dw
48	120,86	122,23
49	123,40	124,77
50	125,95	127,32
51	128,50	129,87
52	131,05	132,41
53	133,59	134,96
54	136,14	137,51
55	138,68	140,05
56	141,23	142,60
57	143,78	145,15
58	146,32	147,69
59	148,87	150,24
60	151,42	152,79
61	153,96	155,33
62	156,52	157,89
63	159,06	160,43
64	161,60	162,97
65	164,15	165,52
66	166,69	168,06
67	169,24	170,61
68	171,79	173,16
69	174,33	175,70
70	176,88	178,25
71	179,43	180,8
72	181,98	183,35
73	184,52	185,89
74	187,07	188,44
75	189,61	190,98
76	192,16	193,53
77	194,71	196,08

z	da	dw
78	197,25	198,62
79	199,80	201,17
80	202,35	203,72
81	204,89	206,26
82	207,44	208,81
83	209,98	211,35
84	212,53	213,90
85	215,08	216,45
86	217,63	219,00
87	220,17	221,54
88	222,72	224,09
89	225,26	226,63
90	227,81	229,18
91	230,35	231,72
92	232,90	234,27
93	235,45	236,82
94	238,00	239,37
95	240,54	241,91
96	243,09	244,46
97	245,63	247,00
98	248,18	249,55
99	250,73	252,10
100	253,28	254,67
101	255,82	257,19
102	258,37	259,74
103	260,91	262,28
104	263,46	264,83
105	266,01	267,38
106	268,55	269,92
107	271,10	272,47

z	da	dw
108	273,64	275,01
109	276,19	277,56
110	278,74	280,11
111	281,29	282,66
112	283,84	285,21
113	286,38	287,75
114	288,93	290,30
115	291,47	292,84
116	294,02	295,39
117	296,57	297,94
118	299,11	300,48
119	301,66	303,03
120	304,20	305,57



STD 14M



Belt characteristics

- Polyurethane timing belt with involute tooth, high tensile load steel cords and high torque capacity
- Tooth profile according to ISO 13050
- Metric pitch 14 mm
- Low noise generation in high speed drives
- Tension cords with increased tensile load for lower elongation
- Superior perfomance in lifting applications
- The special profile allows smooth running properties

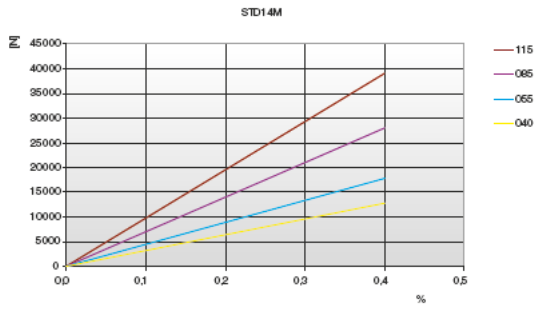
- Width tolerance: ±1,0 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,4 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
40	12750	6375	48000	3187500	0,50
55	17850	8925	67200	4462500	0,70
85	28050	14025	105600	7012500	1,08
115	39100	19550	147200	9775000	1,48

Other widths are available on request.

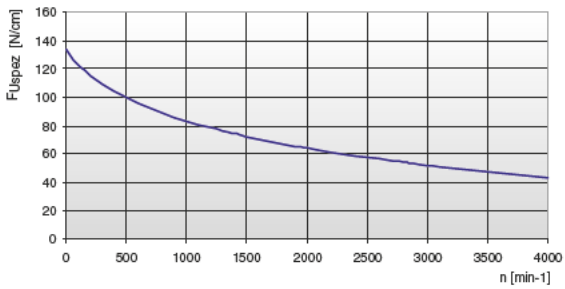
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	134,00	**800**	88,80	**1900**	65,49	**4000**	43,24
20	131,31	**900**	85,85	**2000**	64,01	-	-
40	128,83	**1000**	83,14	**2200**	61,23	-	-
60	126,53	**1100**	80,63	**2400**	58,68	-	-
80	124,42	**1200**	78,31	**2600**	56,30	-	-
100	122,46	**1300**	76,14	**2800**	54,09	-	-
200	114,77	**1400**	74,11	**2880**	53,24	-	-
300	109,29	**1440**	73,33	**3000**	52,01	-	-
400	104,19	**1500**	72,19	**3200**	50,06	-	-
500	99,65	**1600**	70,38	**3400**	48,22	-	-
600	95,64	**1700**	68,67	**3600**	46,48	-	-
700	92,04	**1800**	67,04	**3800**	44,82	-	-

Tooth shear strength / rpm

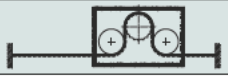


The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord
		STANDARD
Drive without reverse bending	Timing pulley z_{min}	32
	Flat idler running on belt teeth d_{min}	140 mm
Drive with reverse bending	Timing pulley z_{min}	32
	Flat idler running on belt back d_{min}	250 mm

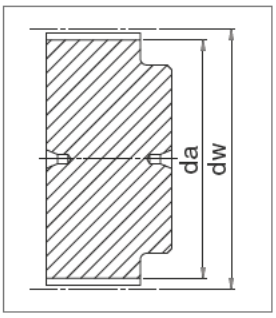
Timing pulleys

z	da	dw
28	122,12	124,77
29	126,58	129,22
30	130,99	133,69
31	135,45	138,14
32	139,88	142,59
33	144,35	147,06
34	148,79	151,51
35	153,25	155,96
36	157,68	160,41
37	162,14	164,88
38	166,60	169,34
39	171,02	173,79
40	175,48	178,24
41	179,92	182,71
42	184,37	187,16
43	188,83	191,61
44	193,29	196,08
45	197,75	200,53
46	202,21	204,98
47	206,65	209,43
48	211,11	213,90
49	215,57	218,35
50	220,03	222,80
51	224,49	227,27
52	228,95	231,72
53	233,39	236,18
54	237,85	240,64
55	242,30	245,09
56	246,76	249,55
57	251,22	254,01

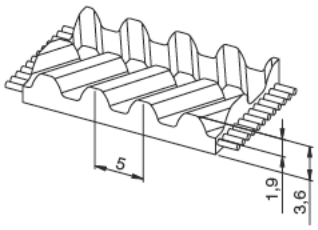
z	da	dw
58	255,68	258,46
59	260,14	262,91
60	264,60	267,38
61	269,04	271,83
62	273,50	276,28
63	277,96	280,75
64	282,42	285,20
65	286,88	289,65
66	291,32	294,11
67	295,78	298,56
68	300,24	303,03
69	304,70	307,48
70	309,16	311,93
71	313,61	316,40
72	318,07	320,85
73	322,53	325,30
74	326,98	329,77
75	331,44	334,22
76	335,90	338,67
77	340,34	343,12
78	344,80	347,59
79	349,26	352,04
80	353,72	356,49
81	358,17	360,96
82	362,63	365,41
83	367,09	369,86
84	371,54	374,33
85	376,00	378,78
86	380,46	383,23
87	384,91	387,70

z	da	dw
88	389,37	392,15
89	393,83	396,60
90	398,29	401,07
91	402,73	405,52
92	407,19	409,97
93	411,65	414,44
94	416,10	418,89
95	420,56	423,35
96	425,02	427,80
97	429,48	432,25
98	433,94	436,72
99	438,38	441,17
100	442,84	445,62
101	447,30	450,09
102	451,76	454,54
103	456,21	459,00
104	460,67	463,45
105	465,13	467,90
106	469,58	472,37
107	474,03	476,82
108	478,49	481,28
109	482,95	485,74
110	487,41	490,19
111	491,87	494,64
112	496,32	499,10
113	500,78	503,55
114	505,23	508,02
116	514,14	516,93
117	518,60	521,38
118	523,06	525,83

z	da	dw
119	527,51	530,30
120	531,97	534,75



EAGLE 5M



Belt characteristics

- Polyurethane timing belt with helical offset tooth, high tensile load steel cords and high torque capacity
- **Self tracking no need of pulley flanges**
- Metric pitch 5 mm
- **Extremely reduced noise generation**
- Offers excellent operational reliability in linear positioning and medium power transmission applications
- The special profile allows most compact drive
- Black colour and black fabric on tooth side (PAZ) as standard

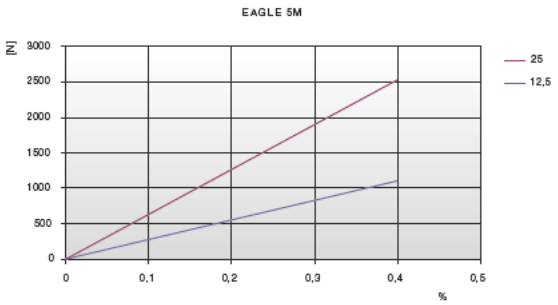
- Width tolerance: ±0,5 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
12,5	1150	575	4200	287500	0,06
25	2530	1265	9240	632500	0,12

Other widths are available on request.

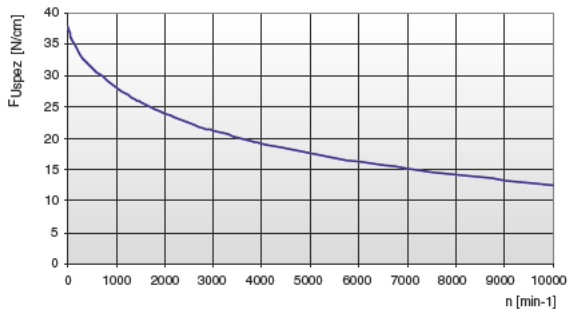
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	37,80	**900**	28,61	**2200**	23,30	**5500**	16,95
20	37,25	**1000**	28,05	**2400**	22,72	**6000**	16,32
40	36,75	**1100**	27,52	**2600**	22,19	**6500**	15,74
60	36,30	**1200**	27,03	**2800**	21,69	**7000**	15,19
80	35,89	**1300**	26,56	**2880**	21,50	**7500**	14,68
100	35,52	**1400**	26,13	**3000**	21,23	**8000**	14,20
200	34,13	**1440**	25,96	**3200**	20,78	**8500**	13,75
300	32,87	**1500**	25,71	**3400**	20,37	**9000**	13,33
400	32,10	**1600**	25,32	**3600**	19,97	**9500**	12,92
500	31,31	**1700**	24,94	**3800**	19,59	**10000**	12,53
600	30,56	**1800**	24,58	**4000**	19,23	-	-
700	29,86	**1900**	24,24	**4500**	18,40	-	-
800	29,21	**2000**	23,91	**5000**	17,64	-	-

Tooth shear strength / rpm

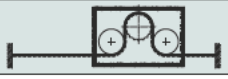


The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord
		STANDARD
Drive without reverse bending	Timing pulley z_{min}	16
	Flat idler running on belt teeth d_{min}	30 mm
Drive with reverse bending	Timing pulley z_{min}	25
	Flat idler running on belt back d_{min}	60 mm

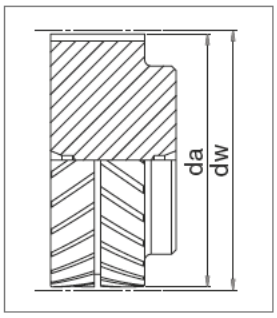
Timing pulleys

z	da	dw
10	14,95	15,91
11	16,54	17,50
12	18,14	19,10
13	19,73	20,69
14	21,32	22,28
15	22,91	23,87
16	24,51	25,47
17	26,10	27,06
18	27,69	28,65
19	29,27	30,23
20	30,87	31,83
21	32,46	33,42
22	34,05	35,01
23	35,65	36,61
24	37,23	38,19
25	38,83	39,79
26	40,42	41,38
27	42,01	42,97
28	43,60	44,56
29	45,19	46,15
30	46,79	47,75
31	48,38	49,34
32	49,97	50,93
33	51,56	52,52
34	53,15	54,11
35	54,75	55,71
36	56,34	57,30
37	57,93	58,89
38	59,52	60,48
39	61,11	62,07

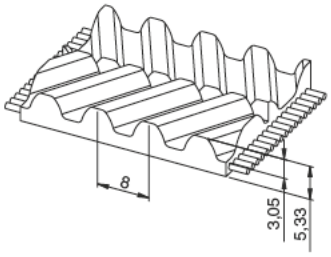
z	da	dw
40	62,70	63,66
41	64,30	65,26
42	65,89	66,85
43	67,48	68,44
44	69,07	70,03
45	70,66	71,62
46	72,25	73,21
47	73,84	74,80
48	75,43	76,39
49	77,03	77,99
50	78,62	79,58
51	80,21	81,17
52	81,80	82,76
53	83,39	84,35
54	84,99	85,95
55	86,58	87,54
56	88,17	89,13
57	89,76	90,72
58	91,35	92,31
59	92,94	93,90
60	94,53	95,49
61	96,13	97,09
62	97,72	98,68
63	99,31	100,27
64	100,90	101,86
65	102,49	103,45
66	104,08	105,04
67	105,67	106,63
68	107,27	108,23
69	108,86	109,82

z	da	dw
70	110,45	111,41
71	112,04	113,00
72	113,63	114,59
73	115,23	116,19
74	116,82	117,78
75	118,41	119,37
76	120,00	120,96
77	121,59	122,55
78	123,18	124,14
79	124,77	125,73
80	126,36	127,32
81	127,95	128,91
82	129,54	130,50
83	131,14	132,10
84	132,73	133,69
85	134,32	135,28
86	135,91	136,87
87	137,51	138,47
88	139,09	140,05
89	140,69	141,65
90	142,28	143,24
91	143,87	144,83
92	145,46	146,42
93	147,05	148,01
94	148,64	149,60
95	150,24	151,20
96	151,83	152,71
97	153,42	154,38
98	155,01	155,97
99	156,60	157,56

z	da	dw
100	158,19	159,15
101	159,79	160,75
102	161,38	162,34
103	162,99	163,95
104	164,56	165,52
105	166,15	167,11
106	167,74	168,70
107	169,34	170,30
108	170,93	171,89
109	172,52	173,48
110	174,1	175,06
111	175,7	176,66
112	177,29	178,25
113	178,88	179,84
114	180,47	181,43
115	182,06	183,02
116	183,65	184,61
117	185,25	186,21
118	186,84	187,8
119	188,43	189,39
120	190,02	190,98



EAGLE 8M



Belt characteristics

- Polyurethane timing belt with helical offset tooth, high tensile load steel cords and high torque capacity
- **Self tracking no need of pulley flanges**
- Metric pitch 8 mm
- **Extremely reduced noise generation**
- Offers excellent operational reliability in linear positioning and medium power transmission applications
- The special profile allows most compact drive
- White colour and grey fabric on tooth side (PAZ) as standard

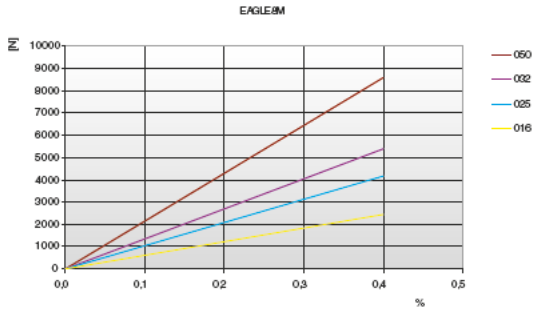
- Width tolerance: ±0,8 [mm]
- Length tolerance: ±0,8 [mm/m]
- Thickness tolerance: ±0,3 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
16	2450	1200	9500	612500	0,085
25	4170	2100	16150	1042500	0,145
32	5390	2700	20900	1347500	0,180
50	8580	4300	33250	2145000	0,300

Other widths are available on request.

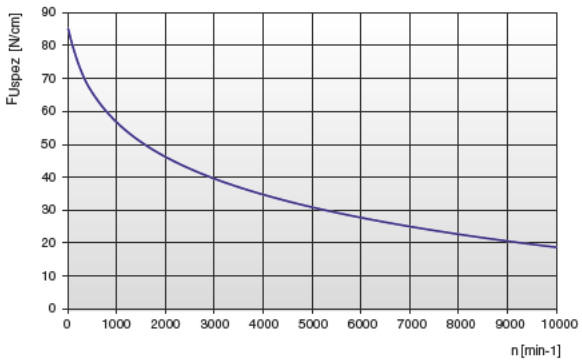
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	85,00	**800**	59,66	**1900**	46,95	**4500**	32,75
20	83,78	**900**	58,05	**2000**	46,14	**5000**	30,94
40	82,62	**1000**	56,58	**2200**	44,62	**5500**	29,30
60	81,49	**1100**	55,22	**2400**	43,22	**6000**	27,79
80	80,42	**1200**	53,95	**2600**	41,91	**6500**	26,40
100	79,38	**1300**	52,77	**2800**	40,70	**7000**	25,11
200	74,78	**1400**	51,66	**3000**	39,56	**7500**	23,90
300	71,01	**1440**	51,23	**3200**	38,49	**8000**	22,77
400	67,93	**1500**	50,61	**3400**	37,48	**8500**	21,70
500	65,52	**1600**	49,62	**3600**	36,52	**9000**	20,69
600	63,36	**1700**	48,69	**3800**	35,61	**9500**	19,73
700	61,42	**1800**	47,80	**4000**	34,75	**10000**	18,82

Tooth shear strength / rpm



The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

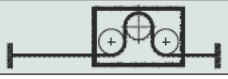
$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Specialties

Belt width b [mm]	ARAMID CORD		STAINLESS STEEL		HPL High Performance	
	F_{Tzul} [N] M type	F_{Br} [N]	F_{Tzul} [N] M type	F_{Br} [N]	F_{Tzul} [N] M type	F_{Br} [N]
16	2200	10000	1800	7500	3840	14000
25	3740	17000	3060	12750	6720	24500
32	4840	22000	3960	16500	8640	31500
50	7700	35000	6300	26250	14400	52500

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord		
		STANDARD	STAINLESS	HPL
Drive without reverse bending	Timing pulley z_{min}	20	24	30
	Flat idler running on belt teeth d_{min}	50 mm	70 mm	80 mm
Drive with reverse bending	Timing pulley z_{min}	30	40	30
	Flat idler running on belt back d_{min}	120 mm	120 mm	150 mm

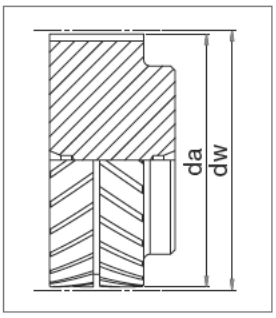
Timing pulleys

z	da	dw
18	44,46	45,83
19	47,01	48,38
20	49,56	50,93
21	52,10	53,47
22	54,65	56,02
23	57,20	58,57
24	59,75	61,12
25	62,29	63,66
26	64,84	66,21
27	67,38	68,75
28	70,08	71,30
29	72,59	73,84
30	75,13	76,39
31	77,65	78,94
32	80,16	81,49
33	82,68	84,03
34	85,21	86,58
35	87,76	89,12
36	90,30	91,67
37	92,85	94,22
38	95,40	96,77
39	97,94	99,31
40	100,49	101,86
41	103,04	104,40
42	105,58	106,95
43	108,13	109,50
44	110,68	112,05
45	113,22	114,59
46	115,77	117,14
47	118,31	119,68

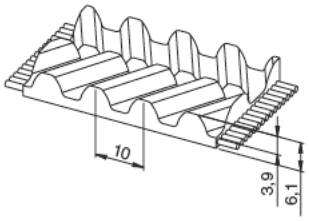
z	da	dw
48	120,86	122,23
49	123,40	124,77
50	125,95	127,32
51	128,50	129,87
52	131,05	132,41
53	133,59	134,96
54	136,14	137,51
55	138,68	140,05
56	141,23	142,60
57	143,78	145,15
58	146,32	147,69
59	148,87	150,24
60	151,42	152,79
61	153,96	155,33
62	156,52	157,89
63	159,06	160,43
64	161,6	162,97
65	164,15	165,52
66	166,69	168,06
67	169,24	170,61
68	171,79	173,16
69	174,33	175,70
70	176,88	178,25
71	179,43	180,80
72	181,98	183,35
73	184,52	185,89
74	187,07	188,44
75	189,61	190,98
76	192,16	193,53
77	194,71	196,08

z	da	dw
78	197,25	198,62
79	199,80	201,17
80	202,35	203,72
81	204,89	206,26
82	207,44	208,81
83	209,98	211,35
84	212,53	213,90
85	215,08	216,45
86	217,63	219,00
87	220,17	221,54
88	222,72	224,09
89	225,26	226,63
90	227,81	229,18
91	230,35	231,72
92	232,90	234,27
93	235,45	236,82
94	238,00	239,37
95	240,54	241,91
96	243,09	244,46
97	245,63	247,00
98	248,18	249,55
99	250,73	252,10
100	253,28	254,67
101	255,82	257,19
102	258,37	259,74
103	260,91	262,28
104	263,46	264,83
105	266,01	267,38
106	268,55	269,92
107	271,1	272,47

z	da	dw
108	273,64	275,01
109	276,19	277,56
110	278,74	280,11
111	281,29	282,66
112	283,84	285,21
113	286,38	287,75
114	288,93	290,30
115	291,47	292,84
116	294,02	295,39
117	296,57	297,94
118	299,11	300,48
119	301,66	303,03
120	304,2	305,57



EAGLE 10M



Belt characteristics

- Polyurethane timing belt with helical offset tooth, high tensile load steel cords and high torque capacity
- **Self tracking no need of pulley flanges**
- Metric pitch 10 mm
- **Extremely reduced noise generation**
- Offers excellent operational reliability in linear positioning and medium power transmission applications
- The special profile allows most compact drive
- White colour and grey fabric on tooth side (PAZ) as standard

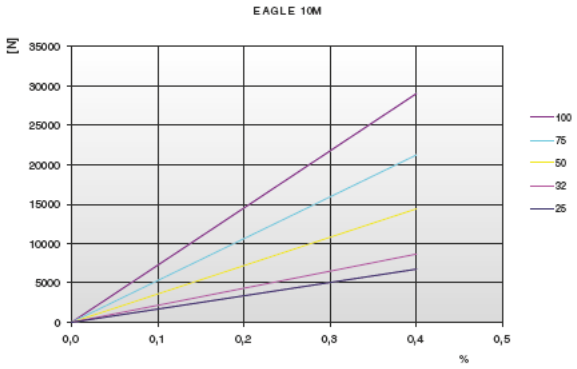
- Width tolerance: ±0,8 [mm]
- Length tolerance: ±0,8 [mm/m]
- Thickness tolerance: ±0,3 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
25	6720	24500	1680000	0,18
32	8640	31500	2160000	0,23
50	14400	52500	3600000	0,37
75	21120	77000	5280000	0,54
100	28800	105000	7200000	0,74

Other widths are available on request.

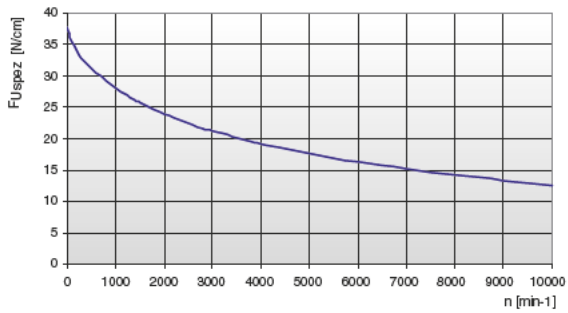
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	93,50	**800**	64,43	**1900**	50,70	**4500**	35,37
20	92,03	**900**	62,70	**2000**	49,83	**5000**	33,42
40	90,63	**1000**	61,11	**2200**	48,19	**5500**	31,65
60	89,28	**1100**	59,63	**2400**	46,67	**6000**	30,02
80	88,00	**1200**	58,27	**2600**	45,27	**6500**	28,51
100	86,77	**1300**	56,99	**2800**	43,96	**7000**	27,12
200	81,36	**1400**	55,79	**3000**	42,73	**7500**	25,81
300	77,02	**1440**	55,33	**3200**	41,57	**8000**	24,59
400	73,54	**1500**	54,66	**3400**	40,48	**8500**	23,43
500	70,76	**1600**	53,59	**3600**	39,45	**9000**	22,34
600	68,43	**1700**	52,58	**3800**	38,46	**9500**	21,31
700	66,33	**1800**	51,62	**4000**	37,53	**10000**	20,33

Tooth shear strength / rpm

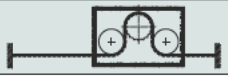


The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord
		STANDARD
Drive without reverse bending	Timing pulley z_{min}	25
	Flat idler running on belt teeth d_{min}	80 mm
Drive with reverse bending	Timing pulley z_{min}	25
	Flat idler running on belt back d_{min}	150 mm

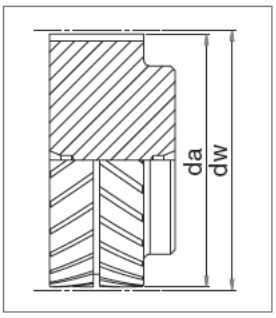
Timing pulleys

z	da	dw
18	55,29	57,29
19	58,48	60,48
20	61,66	63,66
21	64,84	66,84
22	68,03	70,03
23	71,20	73,20
24	74,39	76,39
25	77,58	79,58
26	80,76	82,76
27	83,95	85,95
28	87,12	89,12
29	90,21	92,21
30	93,49	95,49
31	96,67	98,67
32	99,86	101,86
33	103,04	105,04
34	106,19	108,19
35	109,41	111,41
36	112,59	114,59
37	115,77	117,77
38	118,95	120,95
39	122,14	124,14
40	125,32	127,32
41	128,50	130,50
42	131,69	133,69
43	134,87	136,87
44	138,05	140,05
45	141,24	143,24
46	144,42	146,42
47	147,60	149,60

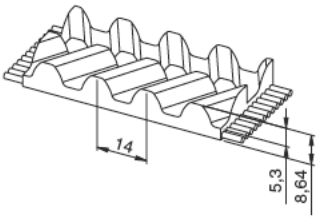
z	da	dw
48	150,78	152,78
49	153,97	155,97
50	157,15	159,15
51	160,33	162,33
52	163,52	165,52
53	166,70	168,70
54	169,88	171,88
55	173,06	175,06
56	176,25	178,25
57	179,43	181,43
58	182,61	184,61
59	185,80	187,80
60	188,98	190,98
61	192,16	194,16
62	195,35	197,35
63	198,53	200,53
64	201,71	203,71
65	204,90	206,90
66	208,08	210,08
67	211,26	213,26
68	214,44	216,44
69	217,63	219,63
70	220,81	222,81
71	223,99	225,99
72	227,18	229,18
73	230,33	232,33
74	233,54	235,54
75	236,72	238,72
76	239,94	241,94
77	243,09	245,09

z	da	dw
78	246,24	248,24
79	249,46	251,46
80	252,64	254,64
81	255,82	257,82
82	259,00	261,00
83	262,19	264,19
84	265,37	267,37
85	268,52	270,52
86	271,74	273,74
87	274,92	276,92
88	278,10	280,10
89	281,28	283,28
90	284,47	286,47
91	287,65	289,65
92	290,84	292,84
93	294,02	296,02
94	297,20	299,20
95	300,39	302,39
96	303,57	305,57
97	306,75	308,75
98	309,93	311,93
99	313,12	315,12
100	316,30	318,30
101	319,48	321,48
102	322,66	324,66
103	325,85	327,85
104	329,03	331,03
105	332,21	334,21
106	335,40	337,40
107	338,58	340,58

z	da	dw
108	341,76	343,76
109	344,95	346,95
110	348,13	350,13
111	351,31	353,31
112	354,50	356,50
113	357,68	359,68
114	360,86	362,86
115	364,04	366,04
116	367,23	369,23
117	370,41	372,41
118	373,59	375,59
119	376,78	378,78
120	379,96	381,96



EAGLE 14M



Belt characteristics

- Polyurethane timing belt with helical offset tooth, high tensile load steel cords and high torque capacity
- **Self tracking no need of pulley flanges**
- Metric pitch 14 mm
- **Extremely reduced noise generation**
- Offers excellent operational reliability in linear positioning, heavy power transmission and lifting applications
- The special profile allows most compact drive
- White colour and grey fabric on tooth side (PAZ) as standard

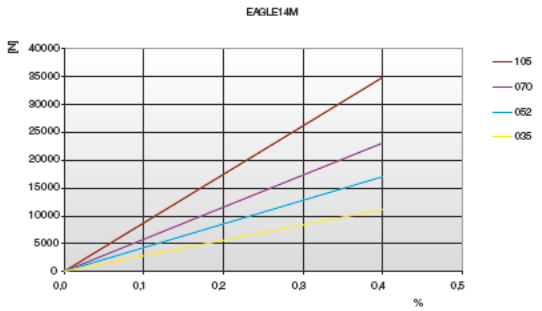
- Width tolerance: ±1,2 [mm]
- Length tolerance: ±0,8 [mm/m]
- Thickness tolerance: ±0,4 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
35	11050	5525	41600	2762500	0,40
52,5	17000	8500	64000	4250000	0,60
70	22950	11475	86400	5737500	0,80
105	34850	17425	131200	8712500	1,20

Other widths are available on request.

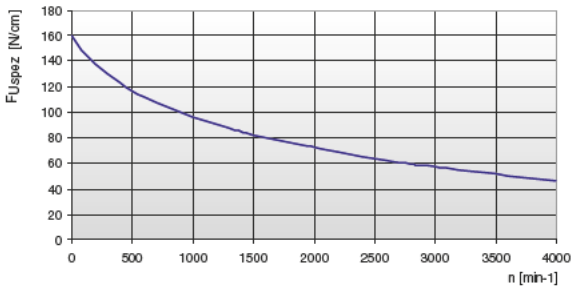
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	160,00	**800**	103,35	**1900**	73,99	**4000**	46,21
20	157,00	**900**	99,60	**2000**	72,13	-	-
40	154,22	**1000**	96,17	**2200**	68,66	-	-
60	151,64	**1100**	93,01	**2400**	65,46	-	-
80	149,24	**1200**	90,08	**2600**	62,50	-	-
100	147,01	**1300**	87,35	**2800**	59,73	-	-
200	138,04	**1400**	84,80	**2880**	58,68	-	-
300	129,87	**1440**	83,82	**3000**	57,15	-	-
400	123,12	**1500**	82,39	**3200**	54,71	-	-
500	117,24	**1600**	80,12	**3400**	52,42	-	-
600	112,07	**1700**	77,97	**3600**	50,24	-	-
700	107,48	**1800**	75,93	**3800**	48,18	-	-

Tooth shear strength / rpm



The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

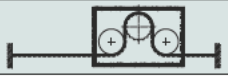
$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Specialties

Belt width b [mm]	HPL High Performance	
	F_{Tzul} [N] M type	F_{Br} [N]
35	12100	49500
52,5	17600	72000
70	24200	99000
105	37400	153000

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord	
		STANDARD	HPL
Drive without reverse bending	Timing pulley z_{min}	32	32
	Flat idler running on belt teeth d_{min}	140 mm	140 mm
Drive with reverse bending	Timing pulley z_{min}	32	32
	Flat idler running on belt back d_{min}	200 mm	200 mm

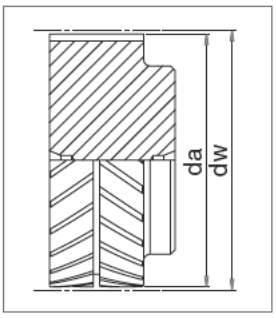
Timing pulleys

z	da	dw
28	122,12	124,77
29	126,58	129,22
30	130,99	133,69
31	135,45	138,14
32	139,88	142,59
33	144,35	147,06
34	148,79	151,51
35	153,25	155,96
36	157,68	160,41
37	162,14	164,88
38	166,60	169,34
39	171,02	173,79
40	175,48	178,24
41	179,92	182,71
42	184,37	187,16
43	188,83	191,61
44	193,29	196,08
45	197,75	200,53
46	202,21	204,98
47	206,65	209,43
48	211,11	213,90
49	215,57	218,35
50	220,03	222,80
51	224,49	227,27
52	228,95	231,72
53	233,39	236,18
54	237,85	240,64
55	242,30	245,09
56	246,76	249,55
57	251,22	254,01

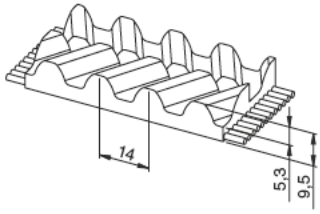
z	da	dw
58	255,68	258,46
59	260,14	262,91
60	264,60	267,38
61	269,04	271,83
62	273,50	276,28
63	277,96	280,75
64	282,42	285,20
65	286,88	289,65
66	291,32	294,11
67	295,78	298,56
68	300,24	303,03
69	304,70	307,48
70	309,16	311,93
71	313,61	316,40
72	318,07	320,85
73	322,53	325,30
74	326,98	329,77
75	331,44	334,22
76	335,90	338,67
77	340,34	343,12
78	344,80	347,59
79	349,26	352,04
80	353,72	356,49
81	358,17	360,96
82	362,63	365,41
83	367,09	369,86
84	371,54	374,33
85	376,00	378,78
86	380,46	383,23
87	384,91	387,70

z	da	dw
88	389,37	392,15
89	393,83	396,60
90	398,29	401,07
91	402,73	405,52
92	407,19	409,97
93	411,65	414,44
94	416,10	418,89
95	420,56	423,35
96	425,02	427,80
97	429,48	432,25
98	433,94	436,72
99	438,38	441,17
100	442,84	445,62
101	447,30	450,09
102	451,76	454,54
103	456,21	459,00
104	460,67	463,45
105	465,13	467,90
106	469,58	472,37
107	474,03	476,82
108	478,49	481,28
109	482,95	485,74
110	487,41	490,19
111	491,87	494,64
112	496,32	499,10
113	500,78	503,55
114	505,23	508,02
116	514,14	516,93
117	518,60	521,38
118	523,06	525,83

z	da	dw
119	527,51	530,30
120	531,97	534,75



EAGLE 14M XHPL



Belt characteristics

- Polyurethane timing belt with helical offset tooth, high tensile load steel cords and high torque capacity.
- **Self tracking no need of pulley flanges**
- Metric pitch 14 mm
- **Extremely reduced noise generation**
- **E14M - XHPL is the ideal belt for heavy duty synchronous lifting applications.**
- The special profile allows most compact drive
- White colour and grey fabric on tooth side (PAZ) as standard

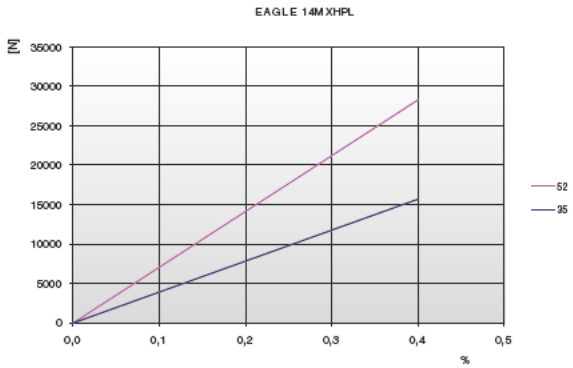
- Width tolerance: ±1,2 [mm]
- Length tolerance: ±1,0 [mm/m]
- Thickness tolerance: ±0,5 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
35	16000	56000	4000000	0,50
52,5	28000	98000	7000000	0,70

Other widths are available on request.

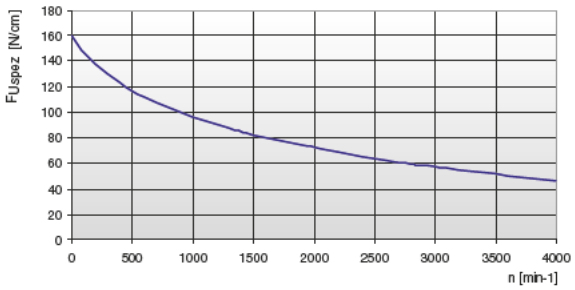
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	160,00	**800**	103,35	**1900**	73,99	**4000**	46,21
20	157,00	**900**	99,60	**2000**	72,13	-	-
40	154,22	**1000**	96,17	**2200**	68,66	-	-
60	151,64	**1100**	93,01	**2400**	65,46	-	-
80	149,24	**1200**	90,08	**2600**	62,50	-	-
100	147,01	**1300**	87,35	**2800**	59,73	-	-
200	138,04	**1400**	84,80	**2880**	58,68	-	-
300	129,87	**1440**	83,82	**3000**	57,15	-	-
400	123,12	**1500**	82,39	**3200**	54,71	-	-
500	117,24	**1600**	80,12	**3400**	52,42	-	-
600	112,07	**1700**	77,97	**3600**	50,24	-	-
700	107,48	**1800**	75,93	**3800**	48,18	-	-

Tooth shear strength / rpm

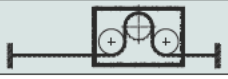


The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

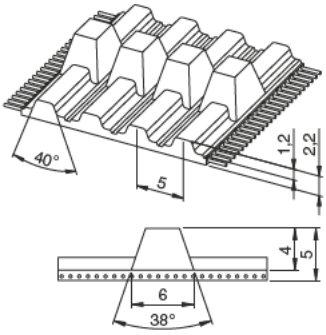
Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord
		STANDARD
Drive without reverse bending	Timing pulley z_{min}	34
	Flat idler running on belt teeth d_{min}	140 mm
Drive with reverse bending	Timing pulley z_{min}	34
	Flat idler running on belt back d_{min}	200 mm

Timing pulleys

Nota
Pulleys with special EAGLE 14M - XHPL profile on request.
Contact our technical department.

TK 5
K6



Belt characteristics

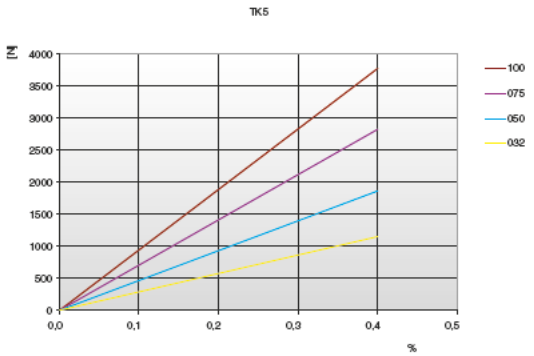
- Polyurethane self tracking timing belt with steel tension cords
- Tooth profile according to ISO 17396
- Profile T5 with central guide - K6 x 4 mm
- Allow to use pulleys without flanges
- The central guide is notched in order to maximize belt flexibility
- Ideal for conveying applications where a side load is generated by loading/unloading transferring a product

- Width tolerance: ±0,5 [mm]
- Length tolerance: ±0,5 [mm/m]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
32	1150	575	4500	287500	0,080
50	1860	930	7250	465000	0,130
75	2820	1410	11000	705000	0,200
100	3780	1890	14750	945000	0,260

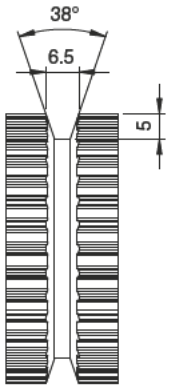
Load / Elongation [%]



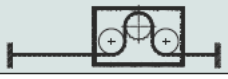
Specialties

Belt width b [mm]	ARAMID CORD	
	F_{Tzul} [N] **M type**	F_{Br} [N]
32	2520	10080
50	4060	16240
75	6160	24640
100	8260	33040

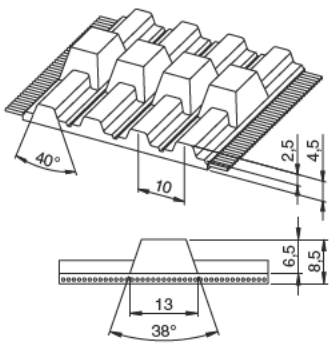
Pulley profile



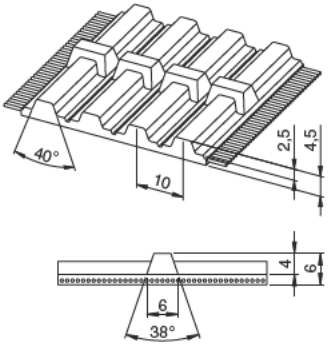
Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord STANDARD
Drive without reverse bending	Timing pulley z_{min}	14
	Flat idler running on belt teeth d_{min}	40 mm
Drive with reverse bending	Timing pulley z_{min}	15
	Flat idler running on belt back d_{min}	40 mm

TK 10
K13 - K6



K13



K6

Belt characteristics

- Polyurethane self tracking timing belt with steel tension cords
- Tooth profile according to ISO 17396
- Profile T10 with central guide - K13 x 6,5 mm
- Profile T10 with central guide - K6 x 4,0 mm
- Allow to use pulleys without flanges
- The central guide is notched in order to maximize belt flexibility
- Ideal for conveying applications where a side load is generated by loading/unloading transferring a product

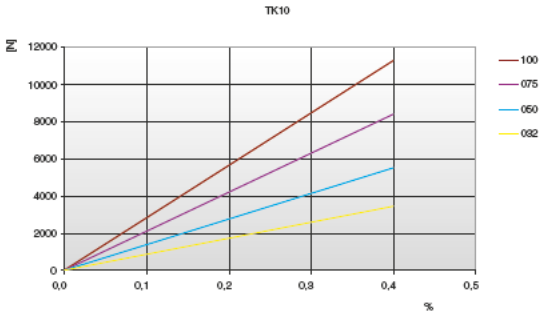
- Width tolerance: ±0,5 [mm]
- Length tolerance: ±0,5 [mm/m]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
32	3450	1725	12600	862500	0,220
50	5520	2760	20160	1380000	0,300
75	8400	4200	30660	2100000	0,410
100	11270	5635	41160	2817500	0,530
150	17020	8510	62160	4255000	0,850

150 mm width available only in K6 execution.

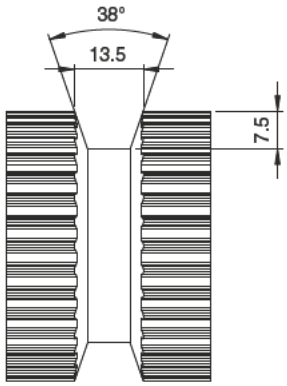
Load / Elongation [%]



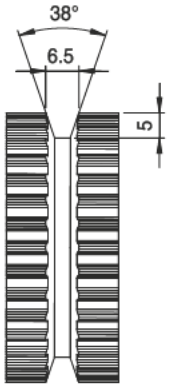
Specialties

Belt width b [mm]	ARAMID CORD	
	F_{Tzul} [N] **M type**	F_{Br} [N]
32	3300	13500
50	5280	21600
75	8030	32850
100	10780	44100
150	16280	66600

Pulley profile

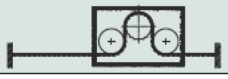


K13

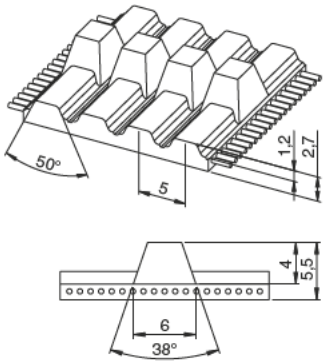


K6

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Guide	
		K6	K13
Drive without reverse bending	Timing pulley z_{min}	14	16
	Flat idler running on belt teeth d_{min}	60 mm	80 mm
Drive with reverse bending 	Timing pulley z_{min}	20	20
	Flat idler running on belt back d_{min}	60 mm	60 mm

ATK 5
K6



Belt characteristics

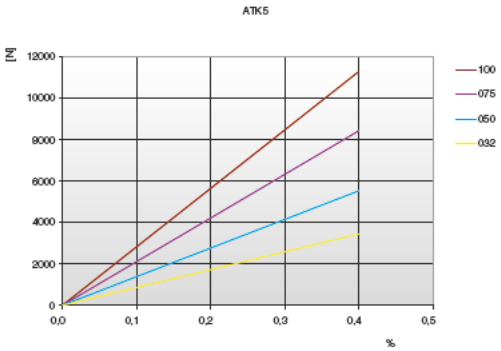
- Polyurethane self tracking timing belt with steel tension cords
- Tooth profile according to ISO 17396
- Profile AT5 with central guide - K6 x 4 mm
- Allow to use pulleys without flanges
- The central guide is notched in order to maximize belt flexibility
- Ideal for conveying applications where a side load is generated by loading/unloading transferring a product

- Width tolerance: ±0,5 [mm]
- Length tolerance: ±0,5 [mm/m]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
32	3450	1725	12600	862500	0,11
50	5520	2760	20160	1380000	0,19
75	8400	4200	30660	2100000	0,29
100	11270	5635	41160	2817500	0,38

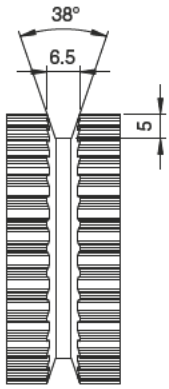
Load / Elongation [%]



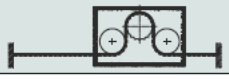
Specialties

Belt width b [mm]	ARAMID CORD	
	F_{Tzul} [N] **M type**	F_{Br} [N]
32	3300	13500
50	5280	21600
75	8030	32850
100	10780	44100

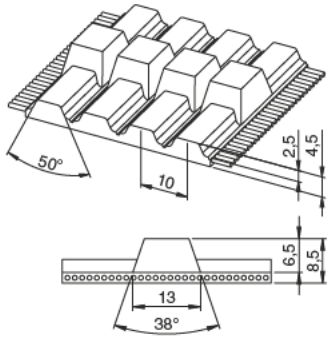
Pulley profile



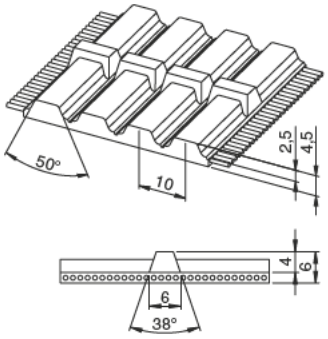
Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord STANDARD
Drive without reverse bending	Timing pulley z_{min}	25
	Flat idler running on belt teeth d_{min}	60 mm
Drive with reverse bending	Timing pulley z_{min}	25
	Flat idler running on belt back d_{min}	80 mm

ATK 10
K13 - K6



K13



K6

Belt characteristics

- Polyurethane self tracking timing belt with steel tension cords
- Tooth profile according to ISO 17396
- Profile AT10 with central guide - K13 x 6,5 mm
- Profile AT10 with central guide - K6 x 4 mm
- Allow to use pulleys without flanges
- The central guide is notched in order to maximize belt flexibility
- Ideal for conveying applications where a side load is generated by loading/unloading transferring a product

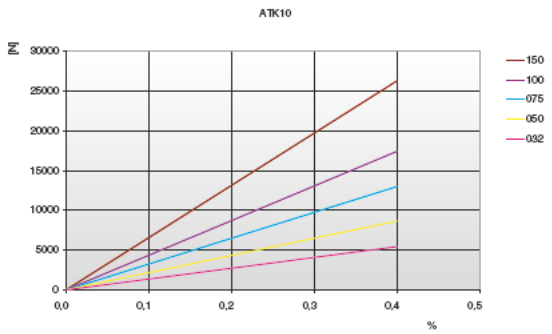
- Width tolerance: ±0,5 [mm]
- Length tolerance: ±0,5 [mm/m]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
32	5390	2695	20900	1347500	0,27
50	8580	4290	33250	2145000	0,36
75	12990	6495	50350	3247500	0,50
100	17400	8700	67450	4350000	0,72
150	26220	13110	101650	6555000	1,08

150 mm width available only in K13 execution.

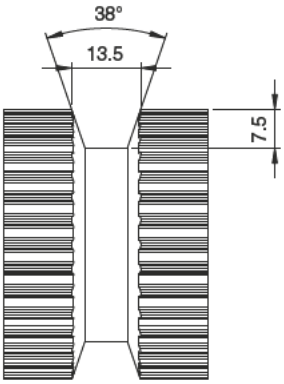
Load / Elongation [%]



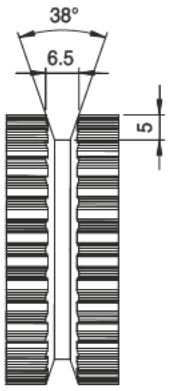
Specialties

Belt width b [mm]	ARAMID CORD	
	F_{Tzul} [N] **M type**	F_{Br} [N]
32	4840	22000
50	7700	35000
75	11660	53000
100	15620	71000
150	23540	107000

Pulley profile

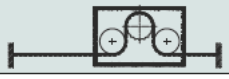


K13

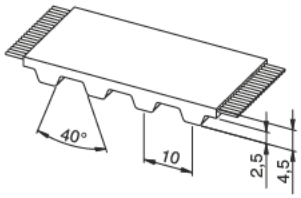


K6

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Guide	
		K6	K13
Drive without reverse bending	Timing pulley z_{min}	15	17
	Flat idler running on belt teeth d_{min}	50 mm	50 mm
Drive with reverse bending	Timing pulley z_{min}	25	25
	Flat idler running on belt back d_{min}	120 mm	120 mm

T 10
TOTAL PROTECTION



Belt characteristics
- Polyurethane timing belt with steel tension cords
- Tooth profile according to ISO 17396
- Metric pitch 10 mm
- **TP (Total Protection) belt. The absence of tooth gap makes the belt cords protected against corrosion**
- **Widely used in applications with corrosive enviroment, high humidity**
- Light blue color available on request

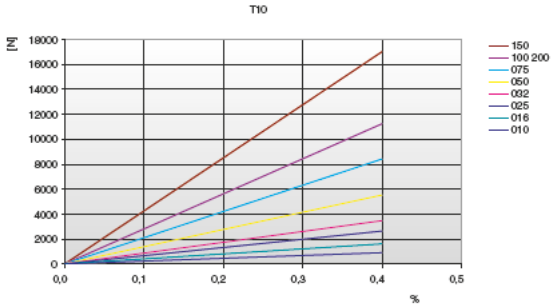
- Width tolerance: ±0,5 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
10	920	460	3360	230000	0,05
16	1610	805	5880	402500	0,07
25	2650	1325	9660	662500	0,11
32	3450	1725	12600	862500	0,15
50	5520	2760	20160	1380000	0,23
75	8400	4200	30660	2100000	0,34
100	11270	5635	41160	2817500	0,45

Other widths are available on request.

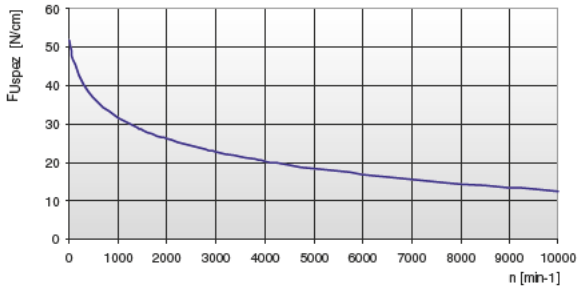
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	51,80	**800**	33,34	**1900**	26,53	**4500**	19,40
20	50,32	**900**	32,44	**2000**	26,12	**5000**	18,51
40	49,04	**1000**	31,63	**2200**	25,34	**5500**	17,70
60	47,92	**1100**	30,89	**2400**	24,63	**6000**	16,97
80	46,95	**1200**	30,21	**2600**	23,97	**6500**	16,29
100	46,11	**1300**	29,58	**2800**	23,36	**7000**	15,66
200	42,75	**1400**	28,99	**3000**	22,78	**7500**	15,07
300	40,28	**1440**	28,76	**3200**	22,25	**8000**	14,52
400	38,36	**1500**	28,44	**3400**	21,74	**8500**	14,00
500	36,80	**1600**	27,92	**3600**	21,27	**9000**	13,51
600	35,49	**1700**	27,43	**3800**	20,81	**9500**	13,05
700	34,35	**1800**	26,97	**4000**	20,39	**10000**	12,61

Tooth shear strength / rpm

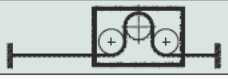


The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord
		STANDARD
Drive without reverse bending	Timing pulley z_{min}	12
	Flat idler running on belt teeth d_{min}	60 mm
Drive with reverse bending	Timing pulley z_{min}	20
	Flat idler running on belt back d_{min}	60 mm

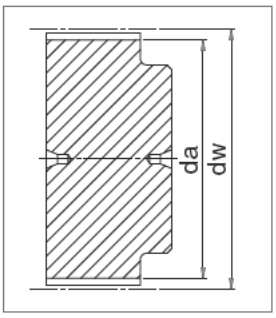
Timing pulleys

z	da	dw
10	30,05	31,84
11	33,25	35,02
12	36,35	38,20
13	39,50	41,38
14	42,70	44,56
15	45,90	47,75
16	49,05	50,93
17	52,25	54,11
18	55,45	57,29
19	58,65	60,48
20	61,80	63,66
21	65,00	66,84
22	68,15	70,03
23	71,35	73,20
24	74,55	76,39
25	77,70	79,58
26	80,90	82,76
27	84,10	85,95
28	87,25	89,12
29	90,45	92,21
30	93,65	95,49
31	96,85	98,67
32	100,00	101,86
33	103,20	105,04
34	106,40	108,22
35	109,55	111,41
36	112,75	114,59
37	115,90	117,77
38	119,10	120,95
39	122,30	124,14

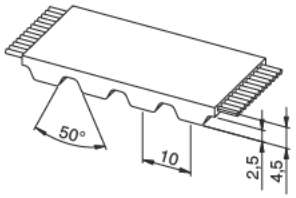
z	da	dw
40	125,45	127,32
41	128,65	130,50
42	131,85	133,69
44	138,20	140,05
45	141,40	143,24
46	144,60	146,42
47	147,75	149,60
48	150,95	152,78
49	154,10	155,97
50	157,30	159,15
51	160,50	162,33
52	163,65	165,52
53	166,85	168,70
54	170,05	171,88
55	173,20	175,06
56	176,40	178,25
57	179,60	181,43
58	182,75	184,61
59	185,95	187,80
60	189,10	190,98
61	192,30	194,16
62	195,50	197,35
63	198,65	200,53
64	201,85	203,71
65	205,05	206,90
66	208,20	210,08
67	211,40	213,26
68	214,60	216,44
69	217,75	219,63
70	220,95	222,81

z	da	dw
71	224,15	225,99
72	227,30	229,18
73	230,50	232,36
74	233,70	235,54
75	236,90	238,72
76	240,05	241,94
77	243,25	245,09
78	246,40	248,27
79	249,60	251,46
80	252,80	254,64
81	256,00	257,82
82	259,15	261,00
83	262,30	264,19
84	265,50	267,37
85	268,70	270,55
86	271,90	273,74
87	275,05	276,92
88	278,25	280,10
89	281,45	283,28
90	284,60	286,47
91	287,80	289,65
92	291,00	292,84
93	294,20	296,02
94	297,35	299,20
95	300,55	302,39
96	303,75	305,57
97	306,90	308,75
98	310,10	311,93
99	313,25	315,12
100	316,45	318,30

z	da	dw
101	319,65	321,48
102	322,80	324,66
103	326,00	327,85
104	329,20	331,03
105	332,35	334,21
106	335,55	337,40
107	338,75	340,58
108	341,95	343,76
109	345,15	346,95
110	348,30	350,13
111	351,45	353,31
112	354,65	356,50
113	357,80	359,68
114	361,00	362,86
115	364,19	366,04
116	367,39	369,23
117	370,56	372,41
118	373,76	375,59
119	376,93	378,78
120	380,11	381,96



AT 10
TOTAL PROTECTION



Belt characteristics

- Polyurethane timing belt with steel tension cords
- Metric pitch 10 mm
- Tooth profile according to ISO 17396
- Tooth profile and dimension are optimised to guarantee uni form load distribution and minimum deformation under load
- High resistance and low stretch steel cords to guarantee high stability and low elongation
- Reduced polygonal effect with reduced drive vibration
- **TP (Total Protection) belt. The absence of tooth gap makes the belt cords protected against corrosion**
- **Widely used in applications with corrosive enviroment, high humidity**
- Light blue color available on request

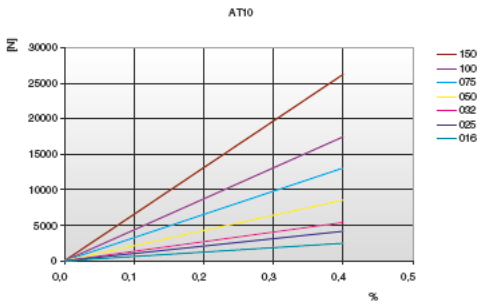
- Width tolerance: ±0,5 [mm]
- Length tolerance: ±0,8 [mm/m]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
16	2450	1225	9500	612500	0,09
25	4170	2085	16150	1042500	0,15
32	5390	2695	20900	1347500	0,19
50	8580	4290	33250	2145000	0,30
75	12990	6495	50350	3247500	0,44
100	17400	8700	67450	4350000	0,59

Other widths are available on request.

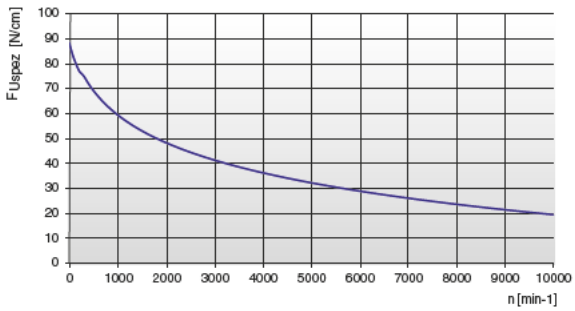
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	88,57	**800**	62,83	**1900**	49,16	**4500**	34,08
20	87,06	**900**	61,09	**2000**	48,29	**5000**	32,17
40	85,66	**1000**	59,49	**2200**	46,67	**5500**	30,43
60	84,35	**1100**	58,02	**2400**	45,18	**6000**	28,84
80	83,13	**1200**	56,66	**2600**	43,80	**6500**	27,37
100	81,99	**1300**	55,39	**2800**	42,51	**7000**	26,01
200	77,36	**1400**	54,20	**3000**	41,30	**7500**	24,73
300	75,09	**1440**	53,74	**3200**	40,17	**8000**	23,53
400	71,99	**1500**	53,08	**3400**	39,09	**8500**	22,41
500	69,27	**1600**	52,02	**3600**	38,08	**9000**	21,34
600	66,88	**1700**	51,02	**3800**	37,11	**9500**	20,33
700	64,75	**1800**	50,06	**4000**	36,20	**10000**	19,37

Tooth shear strength / rpm

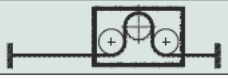


The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord
		STANDARD
Drive without reverse bending	Timing pulley z_{min}	15
	Flat idler running on belt teeth d_{min}	50 mm
Drive with reverse bending	Timing pulley z_{min}	25
	Flat idler running on belt back d_{min}	120 mm

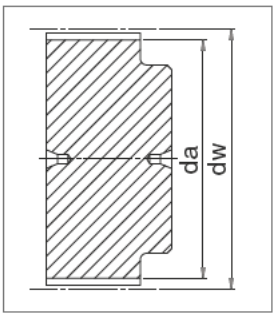
Timing pulleys

z	da	dw
18	55,45	57,29
19	58,60	60,48
20	61,80	63,66
21	65,00	66,84
22	68,15	70,03
23	71,35	73,20
24	74,55	76,39
25	77,70	79,58
26	80,90	82,76
27	84,10	85,95
28	87,25	89,12
29	90,45	92,21
30	93,65	95,49
31	96,80	98,67
32	100,00	101,86
33	103,20	105,04
34	106,40	108,19
35	109,55	111,41
36	112,75	114,59
37	115,90	117,77
38	119,10	120,95
39	122,30	124,14
40	125,45	127,32
41	128,65	130,50
42	131,85	133,69
43	135,00	136,87
44	138,20	140,05
45	141,40	143,24
46	144,55	146,42
47	147,75	149,60

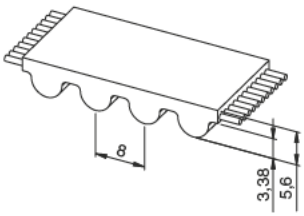
z	da	dw
48	150,95	152,78
49	154,10	155,97
50	157,30	159,15
51	160,50	162,33
52	163,65	165,52
53	166,85	168,70
54	170,05	171,88
55	173,20	175,06
56	176,40	178,25
57	179,60	181,43
58	182,75	184,61
59	185,95	187,80
60	189,10	190,98
61	192,30	194,16
62	195,50	197,35
63	198,65	200,53
64	201,85	203,71
65	205,05	206,90
66	208,20	210,08
67	211,40	213,26
68	214,60	216,44
69	217,75	219,63
70	220,95	222,81
71	224,15	225,99
72	227,30	229,18
73	230,50	232,33
74	233,70	235,54
75	236,90	238,72
76	240,05	241,94
77	243,25	245,09

z	da	dw
78	246,40	248,24
79	249,60	251,46
80	252,80	254,64
81	255,95	257,82
82	259,15	261,00
83	262,30	264,19
84	265,50	267,37
85	268,70	270,52
86	271,90	273,74
87	275,05	276,92
88	278,25	280,10
89	281,45	283,28
90	284,60	286,47
91	287,80	289,65
92	291,00	292,84
93	294,20	296,02
94	297,35	299,20
95	300,55	302,39
96	303,70	305,57
97	306,90	308,75
98	310,10	311,93
99	313,25	315,12
100	316,45	318,30
101	319,65	321,48
102	322,80	324,66
103	326,00	327,85
104	329,20	331,03
105	332,35	334,21
106	335,55	337,40
107	338,75	340,58

z	da	dw
108	341,90	343,76
109	345,10	346,95
110	348,30	350,13
111	351,45	353,31
112	354,65	356,50
113	357,80	359,68
114	361,00	362,86
115	364,19	366,04
116	367,39	369,23
117	370,56	372,41
118	373,74	375,59
119	376,93	378,78
120	380,11	381,96



HTD 8M
TOTAL PROTECTION



Belt characteristics

- Polyurethane timing belt with round tooth profile and high tensile load tension cords.
- Tooth profile according to ISO 13050
- Metric pitch 8 mm
- The round tooth profile allows a uniform load distribution that guarantees high performances, high transmissible torque and precise tooth engagement
- **TP (Total Protection) belt. The absence of tooth gap makes the belt protected against corrosion**
- **Widely used in applications with corrosive enviroment**
- Light blue color available on request

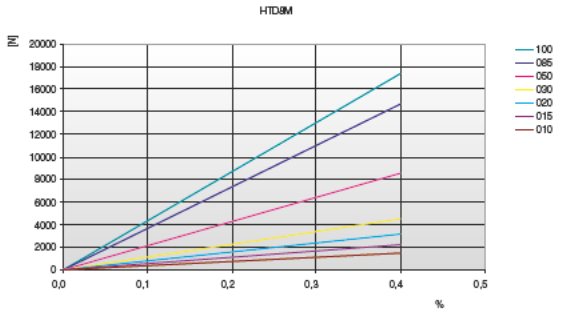
- Width tolerance: ±0,5 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
10	1470	735	5700	367500	0,07
15	2210	1105	8550	552500	0,11
20	3190	1595	12350	797500	0,14
30	4660	2330	18050	1165000	0,21
50	8580	4290	33250	2145000	0,35
85	14700	7350	57000	3675000	0,60
100	17400	8700	67450	4350000	0,70

Other widths are available on request.

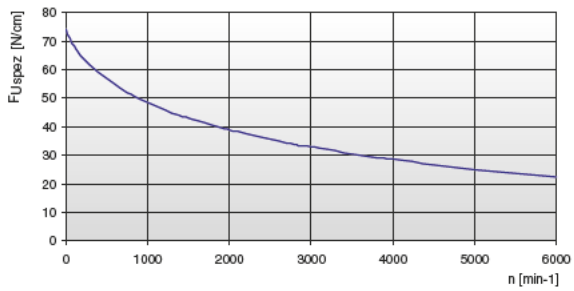
Load / Elongation [%]



Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	74,00	**800**	51,20	**1900**	39,52	**4500**	26,63
20	72,62	**900**	49,71	**2000**	38,78	**5000**	25,00
40	71,34	**1000**	48,35	**2200**	37,39	**5500**	23,51
60	70,16	**1100**	47,09	**2400**	36,12	**6000**	22,15
80	69,07	**1200**	45,93	**2600**	34,94	-	-
100	68,07	**1300**	44,84	**2800**	33,83	-	-
200	64,09	**1400**	43,82	**3000**	32,80	-	-
300	61,68	**1440**	43,43	**3200**	31,83	-	-
400	59,03	**1500**	42,86	**3400**	30,91	-	-
500	56,71	**1600**	41,96	**3600**	30,05	-	-
600	54,66	**1700**	41,10	**3800**	29,22	-	-
700	52,84	**1800**	40,29	**4000**	28,44	-	-

Tooth shear strength / rpm

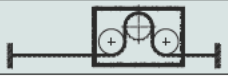


The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

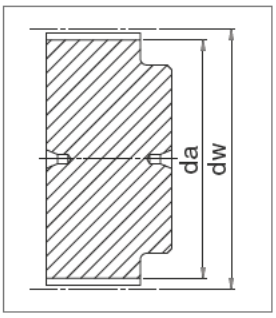
F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord
		STANDARD
Drive without reverse bending	Timing pulley z_{min}	18
	Flat idler running on belt teeth d_{min}	50 mm
Drive with reverse bending	Timing pulley z_{min}	18
	Flat idler running on belt back d_{min}	120 mm

Timing pulleys

z	da	dw	z	da	dw	z	da	dw	z	da	dw
18	44,46	45,83	**48**	120,86	122,23	**78**	197,25	198,62	**108**	273,64	275,01
19	47,01	48,38	**49**	123,40	124,77	**79**	199,80	201,17	**109**	276,19	277,56
20	49,56	50,93	**50**	125,95	127,32	**80**	202,35	203,72	**110**	278,74	280,11
21	52,10	53,47	**51**	128,50	129,87	**81**	204,89	206,26	**111**	281,29	282,66
22	54,65	56,02	**52**	131,05	132,41	**82**	207,44	208,81	**112**	283,84	285,21
23	57,20	58,57	**53**	133,59	134,96	**83**	209,98	211,35	**113**	286,38	287,75
24	59,75	61,12	**54**	136,14	137,51	**84**	212,53	213,90	**114**	288,93	290,30
25	62,29	63,66	**55**	138,68	140,05	**85**	215,08	216,45	**115**	291,47	292,84
26	64,84	66,21	**56**	141,23	142,60	**86**	217,63	219,00	**116**	294,02	295,39
27	67,38	68,75	**57**	143,78	145,15	**87**	220,17	221,54	**117**	296,57	297,94
28	70,08	71,30	**58**	146,32	147,69	**88**	222,72	224,09	**118**	299,11	300,48
29	72,59	73,84	**59**	148,87	150,24	**89**	225,26	226,63	**119**	301,66	303,03
30	75,13	76,39	**60**	151,42	152,79	**90**	227,81	229,18	**120**	304,20	305,57
31	77,65	78,94	**61**	153,96	155,33	**91**	230,35	231,72			
32	80,16	81,49	**62**	156,52	157,89	**92**	232,90	234,27			
33	82,68	84,03	**63**	159,06	160,43	**93**	235,45	236,82			
34	85,21	86,58	**64**	161,60	162,97	**94**	238,00	239,37			
35	87,76	89,12	**65**	164,15	165,52	**95**	240,54	241,91			
36	90,30	91,67	**66**	166,69	168,06	**96**	243,09	244,46			
37	92,85	94,22	**67**	169,24	170,61	**97**	245,63	247,00			
38	95,40	96,77	**68**	171,79	173,16	**98**	248,18	249,55			
39	97,94	99,31	**69**	174,33	175,70	**99**	250,73	252,10			
40	100,49	101,86	**70**	176,88	178,25	**100**	253,28	254,67			
41	103,04	104,40	**71**	179,43	180,80	**101**	255,82	257,19			
42	105,58	106,95	**72**	181,98	183,35	**102**	258,37	259,74			
43	108,13	109,50	**73**	184,52	185,89	**103**	260,91	262,28			
44	110,68	112,05	**74**	187,07	188,44	**104**	263,46	264,83			
45	113,22	114,59	**75**	189,61	190,98	**105**	266,01	267,38			
46	115,77	117,14	**76**	192,16	193,53	**106**	268,55	269,92			
47	118,31	119,68	**77**	194,71	196,08	**107**	271,10	272,47			



ELATECH® flat belts

ELATECH® flat belt's superior construction makes them the best solution in a wide range of lifting applications. Compared to steel cable they offer proven reliability, highly compact drives, maintenance-free operation and excellent dynamic properties.

Compact size and maintenance-free operation allow:

- low inertia, space savings and therefore lower manufacturing cost solutions
- lower power consumption in operation and therefore reduced running costs

In order to optimize the application in load and flexibility, ELATECH® flat belts are produced in a range of different thicknesses and steel cord diameters.

Pulley diameter depends on the type of belt and on the design load required by the application. Our catalogue suggests minimum diameters for use with the maximum allowable load. For an accurate pulley diameter calculation under different load conditions please contact our technical department.
The recommended pulley geometry is cylindrical with side flanges.
Proper design of belt ends is recommended to ensure application safety. Some possible design solutions for belt end clamping are shown here as examples.
ELATECH® flat belts are produced with a polyurethane body ensuring very high wear resistance. Steel tension cords of opposite construction (Z and S) are laid out in pairs to maximize dynamic properties. They provide excellent operational performance with low noise and vibrations and long lifetime.

Pulleys
In some cases it is also possible to use guiding pulleys with a convex barrel shape. In this case we recommend following the specifications of the ISO R22 - DIN 111 norms. The use of the convex barrel pulleys, will result in an uneven force distribution in the belt. Therefore the allowable forces in the belt need to be revised.

Belt storage
Belts must be stored in a dry environment (max 60% relative humidity) with a temperature from 5 to 35 °C.

Belt installation
For a correct belt installation it is important that the belt's ends are securely and firmly fastened by the use of the correct belt end attachments. It is also recommended to use a very rigid and accurate assembly with perfectly parallel and rigid shafts. Belts and pulleys must be free from oil and grease and any dust or residual material which may affect the belt integrity during operation.

In applications with more belts acting in parallel it is suggested to use belts from the same manufacturing batch with minimum belt thickness tolerance. The belt drive must be started up only when the entire machine or assembly has the necessary protective systems which meetsthe machine's safety guidelines. Belts are maintenance free, however, an accurate visual inspection of the belts and end attachments must be taken at least once per year.

TP (Total Protection) Belts
TP flat belts (without tooth gap) are available on demand.
Ask our technical Department for product specifications.

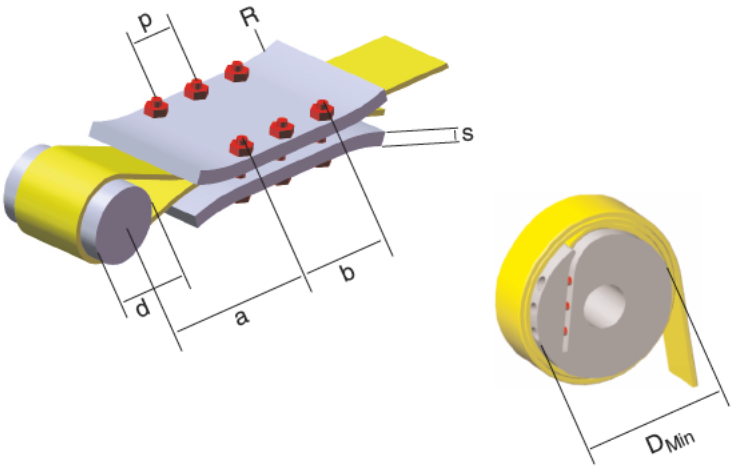
Belt life
Due to the wide application range and considering the fact that belts are one component of complex equipment, the loads in the belt itself are very seldom precisely predictable. This fact makes it impossible to confirm a precise belt service life. In order to optimize the belt life, it is important to follow the catalogue technical specifications related to pulley geometry and belt storage and installation. When all the catalogues of specifications are followed, a belt life of 3 million reverse bending cycles occurring over 10 years can be expected. This value was measured in tests under laboratory conditions.

Belt fastening guidelines

Belt type [mm]	F1	F2	F2,5	F3
a	25	45	50	75
b	40	60	80	125
p	20	20	20	25
s	3	5	5	5
d	15	30	30	50
Bolt	M5	M6	M8	M8
R (Radius)	12	12	12	20

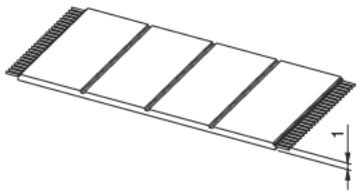
Pulley [mm]	F1	F2	F2,5	F3
D	50	60	80	120

It's recommended to have at least 2 turns on pulley.



Picture is not representative of real number of minimum required bolts.

F1



Belt characteristics

- Polyurethane self tracking timing belt with steel tension cords
- Tooth profile according to ISO 17396
- Profile T10 with central guide - K13 x 6,5 mm
- Profile T10 with central guide - K6 x 4,0 mm
- Allow to use pulleys without flanges
- The central guide is notched in order to maximize belt flexibility
- Ideal for conveying applications where a side load is generated by loading/unloading transferring a product

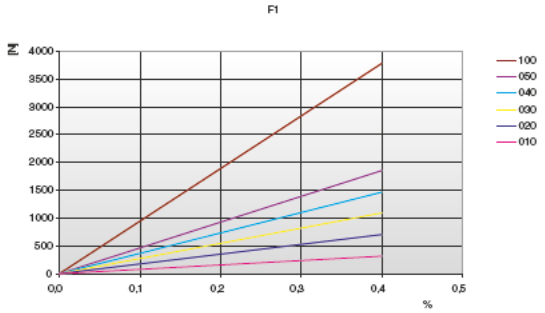
- Width tolerance: ±0,5 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
10	320	160	1250	80000	0,02
20	700	350	2750	175000	0,04
30	1090	545	4250	272500	0,05
40	1470	735	5750	367500	0,08
50	1860	930	7250	465000	0,09
100	3780	1890	14750	945000	0,21

Other widths are available on request.

Load / Elongation [%]

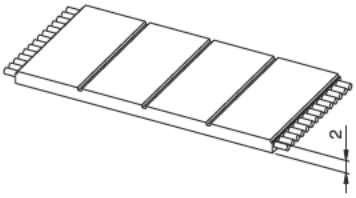


Minimum pulley diameter	Drive without reverse bending [mm]	Drive with reverse bending [mm]
	16	30

Specialties

Belt width b [mm]	ARAMID CORD	
	F_{Tzul} [N] **M type**	F_{Br} [N]
10	700	2800
20	1540	6160
30	2380	9520
40	3220	12880
50	4060	16240
100	8260	33040

F2



Belt characteristics

- Polyurethane flat belt with steel tension cords
- It is mainly used in lifting application where there is no need for synchronization
- Allows the use of small diameter pulleys
- Black colour as standard
- Maintenance free
- Reduced thickness tolerance available on request

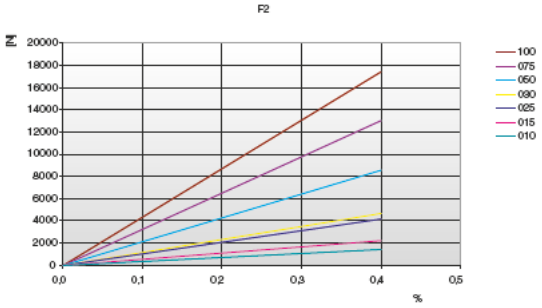
- Width tolerance: ±0,5 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
10	1470	735	5700	367500	0,03
15	2210	1105	8550	552500	0,05
25	4170	2085	16150	1042500	0,08
30	4660	2330	18050	1165000	0,10
50	8580	4290	33250	2145000	0,17
75	12990	6495	50350	3247500	0,25
100	17400	8700	67450	4350000	0,34

Other widths are available on request.

Load / Elongation [%]

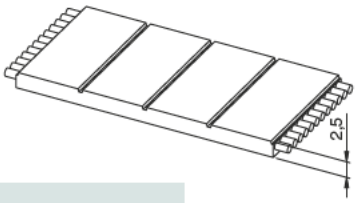


Minimum pulley diameter	Drive without reverse bending [mm]	Drive with reverse bending [mm]
	50	100

Specialties

Belt width b [mm]	ARAMID CORD		STAINLESS STEEL	
	F_{Tzul} [N] **M type**	F_{Br} [N]	F_{Tzul} [N] **M type**	F_{Br} [N]
10	1320	6000	1080	4500
15	1980	9000	1620	6750
25	3740	17000	3060	12750
30	4180	19000	3420	14250
50	7700	35000	6300	26250
75	11660	53000	9540	39750
100	15620	71000	12780	53250

F2,5



- Width tolerance: ±0,5 [mm]
- Thickness tolerance: ±0,2 [mm]

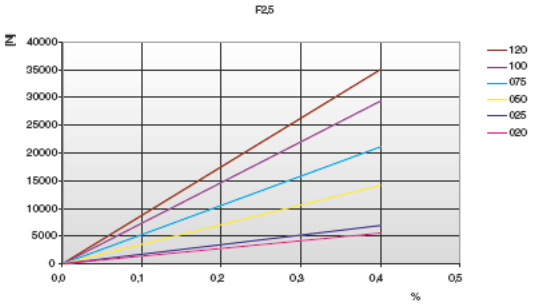
Belt characteristics
- Polyurethane flat belt with steel tension cords
- It is mainly used in lifting application where there is no need for synchronization
- Allows the use of small diameter pulleys
- Black colour as standard
- Maintenance free
- Reduced thickness tolerance available on request

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
20	5280	2640	19250	1320000	0,08
25	6720	3360	24500	1680000	0,09
50	14400	7200	52500	3600000	0,18
75	21600	10800	78750	5400000	0,27
100	29280	14640	106750	7320000	0,36
120	35040	17520	127750	8760000	0,42

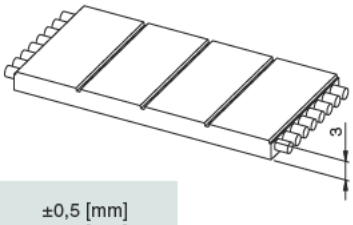
Other widths are available on request.

Load / Elongation [%]



Minimum pulley diameter	Drive without reverse bending [mm]	Drive with reverse bending [mm]
	80	150

F3



- Width tolerance: ±0,5 [mm]
- Thickness tolerance: ±0,2 [mm]

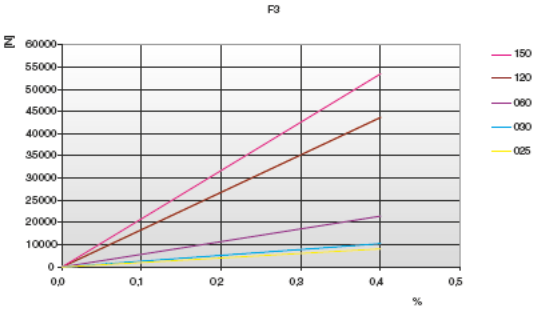
Belt characteristics
- Polyurethane flat belt with steel tension cords
- It is mainly used in lifting application where there is no need for synchronization
- Allows the use of small diameter pulleys
- Black colour as standard
- Maintenance free
- Reduced thickness tolerance available on request

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
25	8500	4250	32000	2125000	0,11
30	10200	5100	38400	2550000	0,12
60	21250	10625	80000	5312500	0,24
120	43350	21675	163200	10837500	0,48
150	53550	26775	201600	13387500	0,60

Other widths are available on request.

Load / Elongation [%]

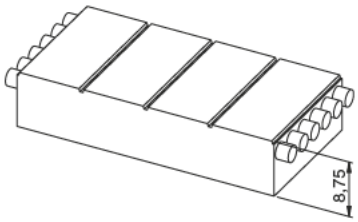


Minimum pulley diameter	Drive without reverse bending [mm]	Drive with reverse bending [mm]
	120	180

FLAT
Heavy Series

ELATECH® FLAT belt heavy series has been developed for the need in the automotive industry. They are used to lift car bodies in production lines or to convey car bodies or finished cars (skid supporting belt). They are made with 85 Sh A polyurethane body to ensure high grip on the motor pulley and with high performance steel tension member.

F9



Belt characteristics

- Polyurethane flat belt with steel tension cords
- Long service life
- Black colour as standard
- Maintenance free
- Minimum elastic elongation
- No cords exposed

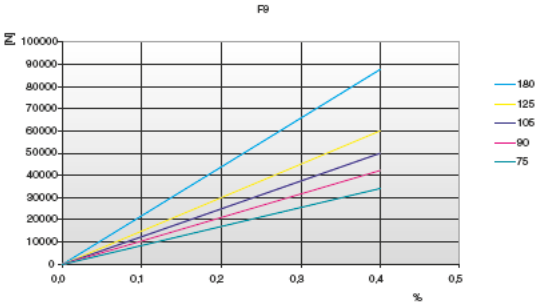
F9 - Technical Data

- Width tolerance: ±1,0 [mm]
- Thickness tolerance: ±0,5 [mm]

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
75	34000	119000	8500000	1,1
90	42000	147000	10500000	1,6
105	50000	175000	12500000	1,6
125	60000	210000	15000000	1,9
180	88000	308000	22000000	2,8

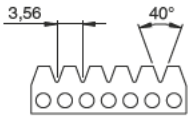
Other widths are available on request.

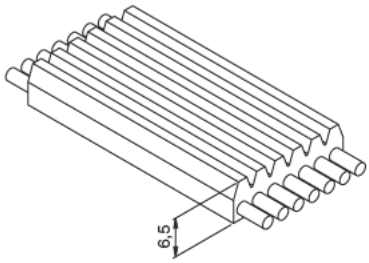
Load / Elongation [%]



Minimum pulley diameter	Drive without reverse bending [mm]	Drive with reverse bending [mm]
	200	300

POLY-V K





Belt characteristics

- Polyurethane Poly-V belt with K profile and high tensile load steel cords for high performance and increased flexibility
- The Poly-V profile allows torque high transmission, small pulley diameter
- Low noise generation
- Widely used in lifting applications
- Special cords available on request

- Width tolerance: ±1,0 [mm]
- Thickness tolerance: ±0,4 [mm]

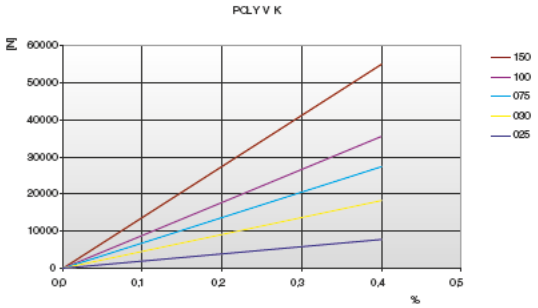
Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
25	7700	31500	1925000	0,28
30	9900	40500	2475000	0,34
75	27500	112500	6875000	0,89
100	35200	144000	8800000	1,11
150	55000	225000	13750000	1,67

Other widths are available on request.

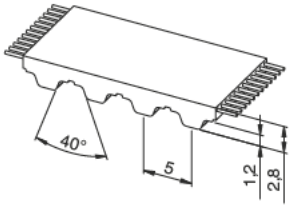
Minimum pulley diameter	Drive without reverse bending [mm]	Drive with reverse bending [mm]
	150	250

Load / Elongation [%]



TT5 Polyurethane timing belts

ELATECH® manufactures special TT5 belts which have been expressly designed for application in circular knitting machines drives.



Belt characteristics
- Trapezoidal tooth profile according to ISO 17396
- Metric pitch 5 mm
- Standard colour: blue with kevlar® cords, white with steel cords, other colours available on request
- Polyurethane 88 Sh A

- Width tolerance: ±0,5 [mm]
- Length tolerance: ±0,5 [mm/m]
- Thickness tolerance: ±0,2 [mm]

Technical Data

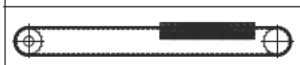
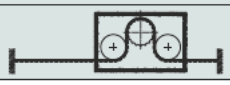
ELATECH® belts TT5 are available in the following executions:

ELATECH® - V
- A special splicing and welding process offers superior traction load resistance
- They are available both with steel and aramid cords
- Special colours available on demand
- Available in any length tooth by tooth

ELA-flex SD® truly endless
- ELA-flex SD® TT5 have no splice and welding and therefore offer best traction resistance load
- They are available both with steel and aramid cords
- Special colours available on demand
- Available in all lengths tooth by tooth up to a length of 17900 mm

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Weight [kg/m]
ARAMID (Kevlar) cords				
10	840	420	3360	0,019
STEEL cords				
10	320	190	1250	0,021

Flexibility

Minimum pulley number of teeth and minimum idler diameter		Type of cord	
		STANDARD	ARAMID
Drive without reverse bending	Timing pulley z_{min}	12	12
	Flat idler running on belt teeth d_{min}	30 mm	30 mm
Drive with reverse bending	Timing pulley z_{min}	15	15
	Flat idler running on belt back d_{min}	30 mm	30 mm

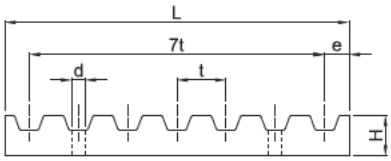
Type	Belt length [mm]
10TT5/4800K	4800
10TT5/5000K	5000
10TT5/5200K	5200
10TT5/5600K	5600
10TT5/5800K	5800
10TT5/6000K	6000
10TT5/6200K	6200
10TT5/6400K	6400
10TT5/6600K	6600
10TT5/6800K	6800
10TT5/7000K	7000
10TT5/7200K	7200
10TT5/7400K	7400
10TT5/7500K	7500
10TT5/7600K	7600
10TT5/7800K	7800
10TT5/8000K	8000
10TT5/8200K	8200
10TT5/8300K	8300
10TT5/8400K	8400
10TT5/8600K	8600
10TT5/8800K	8800
10TT5/8900K	8900
10TT5/9000K	9000

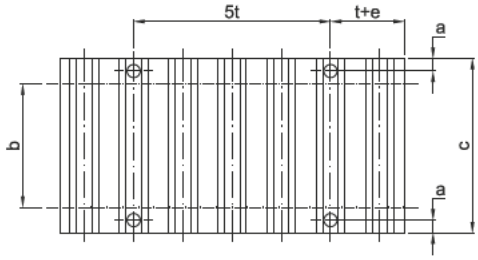
Type	Belt length [mm]
10TT5/9200K	9200
10TT5/9400K	9400
10TT5/9600K	9600
10TT5/9800K	9800
10TT5/10000K	10000
10TT5/10200K	10200
10TT5/10300K	10300
10TT5/10400K	10400
10TT5/10600K	10600
10TT5/10800K	10800
10TT5/11200K	11200
10TT5/11300K	11300
10TT5/11800K	11800
10TT5/12000K	12000
10TT5/12300K	12300
10TT5/12700K	12700
10TT5/12800K	12800
10TT5/13000K	13000
10TT5/13200K	13200
10TT5/13400K	13400
10TT5/13600K	13600
10TT5/15400K	15400
10TT5/17900K	17900

Note: Steel tensile cord member available upon request

Clamp plates

Clamp plates may be used as positive attachment of the belt ends in numerous applications in linear drives. Clamp plates must have the correct belt profile, guarantee a uniform clamping force on all the clamped belt surface and must be rigid.
For **standard applications** a minimum of **7 teeth** in clamp is recommended.
For use with timing belts with **HPL cords**, a minumum of **12 teeth** in clamp is recommended.
EAGLE clamp plates are available as semi finished product. Standard material for clamp plates is aluminium.



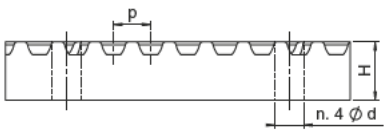


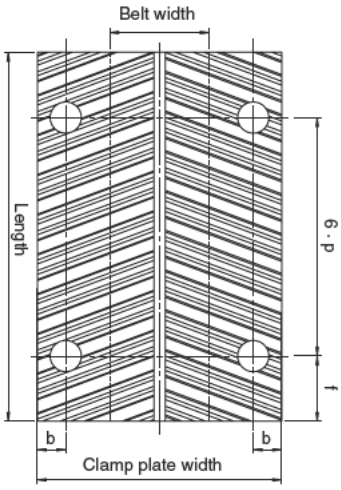
Type	a [mm]	d [mm]	e [mm]	L [mm]	H [mm]	Belt width [mm]							
						6	10	16	25	32	50	75	100
						C							
T5	6	5,5	3,2	41,8	8	-	29	35	44	-	-	-	-
AT5	6	5,5	3,2	41,8	8	-	29	35	44	-	-	-	-
T10	8	9	5	80	15	-	-	41	50	57	75	100	125
AT10	8	9	5	80	15	-	-	41	50	57	75	100	125
T20	10	11	10	160	20	-	-	-	56	63	81	106	132
AT20	10	11	10	160	20	-	-	-	56	63	81	106	132

Type	a [mm]	d [mm]	e [mm]	L [mm]	H [mm]	Belt width [inch/100]							
						025	032	037	050	075	100	150	200
						C [mm]							
XL	6	5,5	3,5	42,5	8	25,5	27	28,5	-	-	-	-	-
L	8	9	6	76,6	15	-	-	36	39	45	51,5	64	77
H	10	11	9	106,9	22	-	-	-	45	51	57,5	70	83

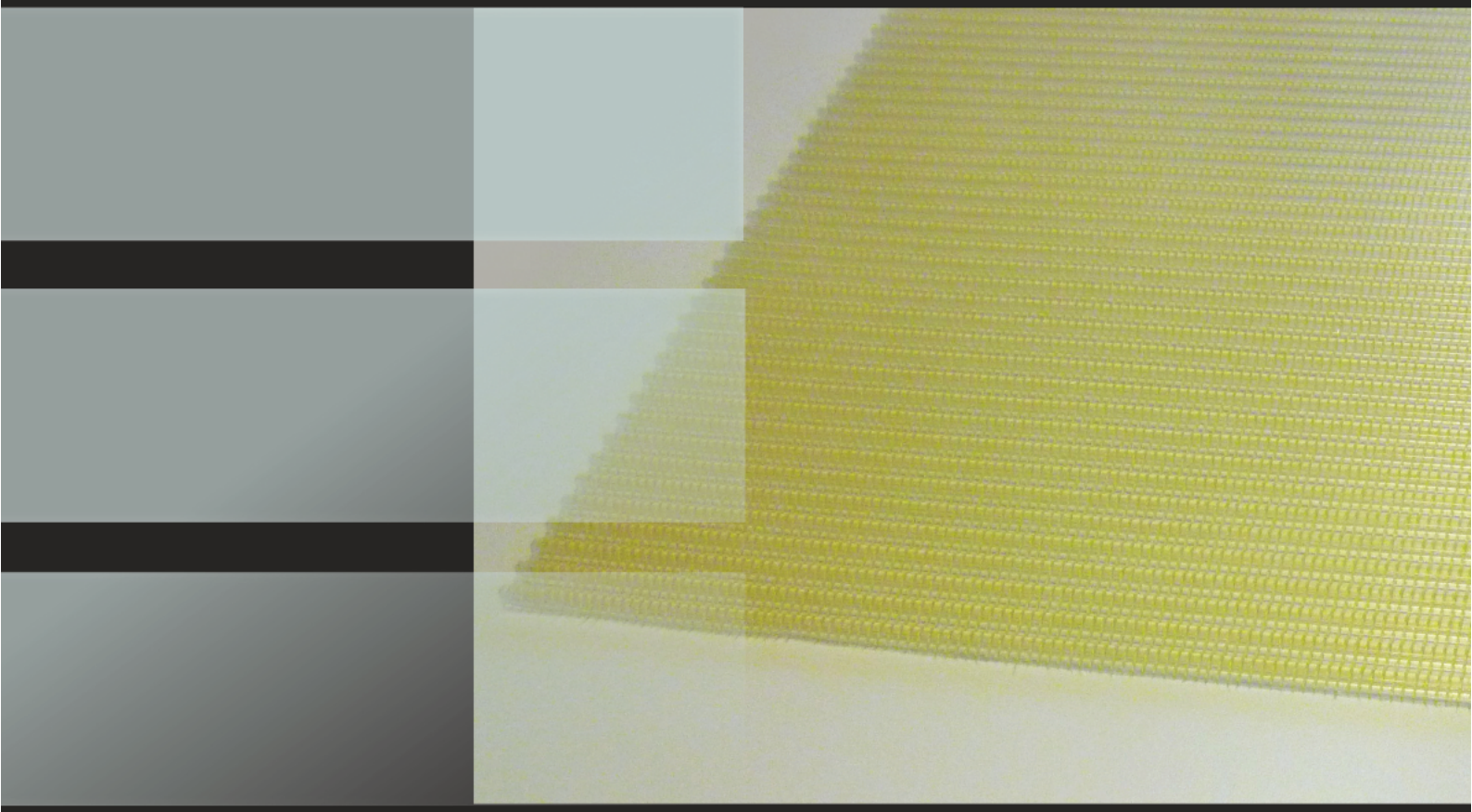
Type	a [mm]	d [mm]	e [mm]	L [mm]	H [mm]	Belt width [mm]								
						15	20	25	30	40	50	55	85	115
						C [mm]								
3M	5	4,5	2	25	5	21	24	30	-	-	-	-	-	-
5M	6	5,5	3,4	41,8	8	34	-	44	-	-	-	-	-	-
8M	8	9	5	66	15	40	45	-	55	-	75	-	110	-
14M	10	11	9	116	22	-	-	56	-	71	-	86	116	146

EAGLE Belts	Clamp plates					Belt width [mm]									
Pitch	b	d	f	Length [mm]	H	12,5	25	16	25	32	50	35	52,5	70	105
						Clamp plate width [mm]									
EAGLE 5	6	5,5	8,5	47	7,5	30	-	-	-	-	-	-	-	-	-
	7					-	45	-	-	-	-	-	-	-	-
EAGLE 8	7,5	9	13	74	14,5	-	-	40	-	-	-	-	-	-	-
	8					-	-	-	50	57	75	-	-	-	-
EAGLE 10	8	9	17	94	14,5	-	-	-	50	57	75	-	-	-	-
EAGLE 14	9,5	11	23	130	22	-	-	-	-	-	-	65	82,5	100	-
	10					-	-	-	-	-	-	-	-	-	136





ELATECH® SYNCRO-MAX®



Elatech
Technology in Motion.

ELATECH® SYNCRO-MAX® Extra-wide

ELATECH® SYNCRO-MAX® Extra-wide Polyurethane Belts extend the advantages of synchronous timing belts to wider surfaces and to the typical applications of flat and modular conveyor belts.
Made of Polyurethane and reinforced with Aramid, ELATECH® SYNCRO-MAX® Extra-wide Belts provide positive drive and synchronous conveying resulting in no slippage, better tracking, higher indexing/positioning precision, smaller drive pulley requirements, lower belt tension, lower shaft loads and consequently power saving.

Open or jointed, coated with Silicon, Rubber, PU or PVC backings, perforated or grooved with complex design, and equipped with a wide range of tracking guides and profiles of different shapes and dimensions, ELATECH® SYNCRO-MAX® Extra-wide Belts offer the best solution for a great number of applications such as the production of baby diapers and feminine hygiene products and the production of tires as well as in many other industrial fields like food, tobacco, metal, wood, glass, and of course conveying and packaging.

Product overview

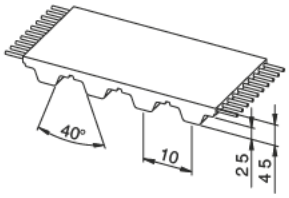
- Natural colour PU compound material
- High durability
- Cut resistant
- Grease, chemicals and water resistant
- Non-marking
- Kevlar (Aramid) parallel cord reinforcement
- No cords exposure on belt edges
- Even cord tension

Available options

- PU compund for food contact
- PAZ/PAR for noise reduction
- Tracking guides on teeth and/or on back
- Silicon, PU, PVC and rubber backings
- Wide range of cleats, flights and profiles
- Perforation by high precision water-jet cutting technology

SYNCRO-MAX®

W-T10



Belt characteristics

- Polyurethane timing belt with Aramid tension cords
- Tooth profile according to ISO 17396
- Metric pitch 10 mm
- Natural colour PU compound 92 Sh A
- Standard roll length = 50 m

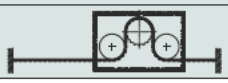
- Width tolerance: ±1,0 [mm]
- Thickness tolerance: ±0,3 [mm]

Technical Data

Belt width b [mm]	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
250	10210	5105	39088	1276250	0,95
300	12280	6140	47016	1535000	1,14
350	14360	7180	54945	1795000	1,33
400	16430	8215	62874	2053750	1,52
450	18500	9250	70802	2312500	1,71
500 / 510	20570	10285	78731	2571250	1,90

Other widths are available on request.

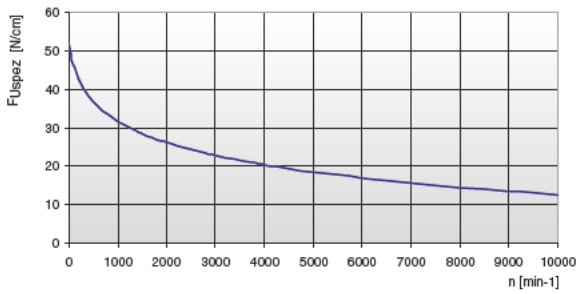
Flexibility

Minimum pulley number of teeth and minimum idler diameter		**Type of cord**
		ARAMID
Drive without reverse bending	Timing pulley z_{min}	15
	Flat idler running on belt teeth d_{min}	60 mm
Drive with reverse bending	Timing pulley z_{min}	20
	Flat idler running on belt back d_{min}	60 mm

Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	51,80	**800**	33,34	**1900**	26,53	**4500**	19,40
20	50,32	**900**	32,44	**2000**	26,12	**5000**	18,51
40	49,04	**1000**	31,63	**2200**	25,34	**5500**	17,70
60	47,92	**1100**	30,89	**2400**	24,63	**6000**	16,97
80	46,95	**1200**	30,21	**2600**	23,97	**6500**	16,29
100	46,11	**1300**	29,58	**2800**	23,36	**7000**	15,66
200	42,75	**1400**	28,99	**3000**	22,78	**7500**	15,07
300	40,28	**1440**	28,76	**3200**	22,25	**8000**	14,52
400	38,36	**1500**	28,44	**3400**	21,74	**8500**	14,00
500	36,80	**1600**	27,92	**3600**	21,27	**9000**	13,51
600	35,49	**1700**	27,43	**3800**	20,81	**9500**	13,05
700	34,35	**1800**	26,97	**4000**	20,39	**10000**	12,61

Tooth shear strength / rpm



The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

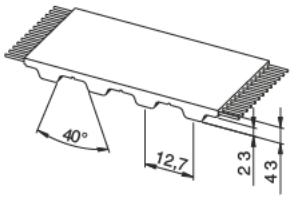
$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

Note: Ultimate tensile strengths are listed for reference purposes only. The values listed above are a theoretical calculation based on average cord strength and may not represent actual tensile test results.

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

SYNCRO-MAX®

W-H



Belt characteristics

- Polyurethane timing belt with Aramid tension cord
- Tooth profile according to UNI/ISO 5296
- Imperial pitch 1/2" = 12,7 mm
- Natural colour PU compound 92 Sh A
- Standard roll length = 50 m

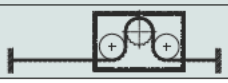
- Width tolerance: ±1,0 [mm]
- Thickness tolerance: ±0,3 [mm]

Technical Data

Belt width b Code / mm	Allowable tensile load **Type M** F_{Tzul} [N]	Allowable tensile load **Type V** F_{Tzul} [N]	Breaking load **Type M** F_{Br} [N]	Specific spring rate C_{spez} [N]	Weight [kg/m]
10 / 254	10210	5105	39088	1276250	0,90
12 / 304,8	12280	6140	47016	1535000	1,05
14 / 355,6	14360	7180	54945	1795000	1,24
16 / 406,4	16430	8215	62874	2053750	1,42
18 / 457,2	18500	9250	70802	2312500	1,60
20 / 508	20570	10285	78731	2571250	1,80

Other widths are available on request.

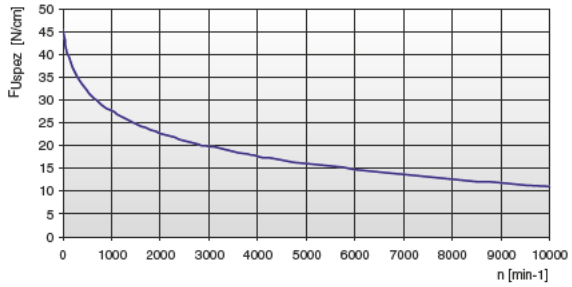
Flexibility

Minimum pulley number of teeth and minimum idler diameter		**Type of cord**
		ARAMID
Drive without reverse bending	Timing pulley z_{min}	14
	Flat idler running on belt teeth d_{min}	60 mm
Drive with reverse bending	Timing pulley z_{min}	20
	Flat idler running on belt back d_{min}	80 mm

Tooth shear strength

rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]	rpm	F_{Uspez} [N/cm]
0	45,30	**800**	29,04	**1900**	23,11	**4500**	16,88
20	43,95	**900**	28,26	**2000**	22,74	**5000**	16,11
40	42,78	**1000**	27,55	**2200**	22,07	**5500**	15,41
60	41,77	**1100**	26,90	**2400**	21,44	**6000**	14,76
80	40,88	**1200**	26,31	**2600**	20,87	**6500**	14,17
100	40,11	**1300**	25,76	**2800**	20,34	**7000**	13,62
200	37,22	**1400**	25,25	**3000**	19,84	**7500**	13,11
300	35,07	**1440**	25,05	**3200**	19,37	**8000**	12,63
400	33,41	**1500**	24,77	**3400**	18,93	**8500**	12,18
500	32,05	**1600**	24,32	**3600**	18,51	**9000**	11,75
600	30,90	**1700**	23,89	**3800**	18,12	**9500**	11,35
700	29,91	**1800**	23,49	**4000**	17,75	**10000**	10,96

Tooth shear strength / rpm



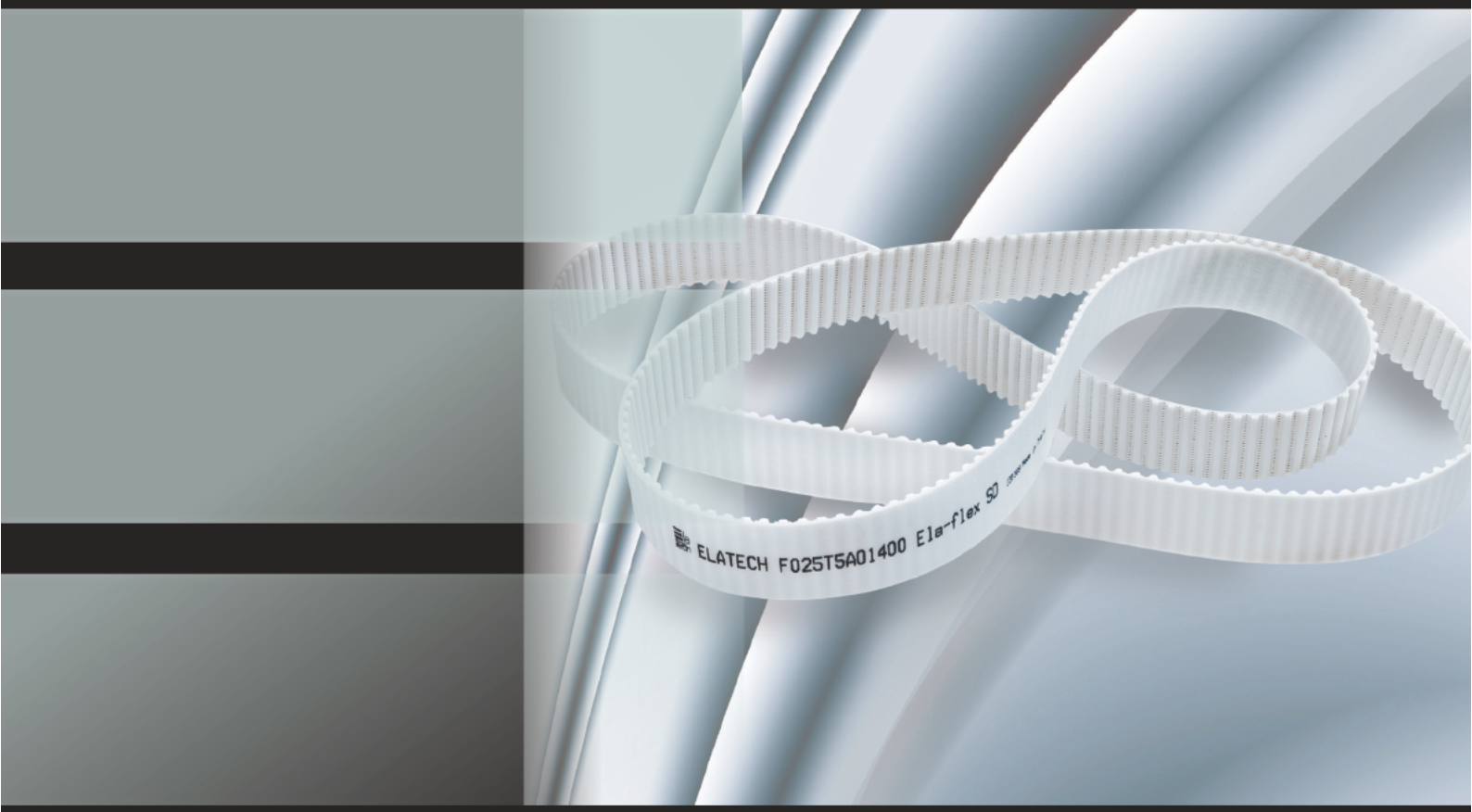
The specific load F_{Uspez} is the maximum load which one single belt tooth 1 cm wide can withstand in all operating conditions.
This force is related to the drive rpm.
The total load F_U transmissible by the belt in the drive is calculated by:

$$F_U\,[N] = F_{Uspez} \cdot z_e \cdot b$$

Note: Ultimate tensile strengths are listed for reference purposes only. The values listed above are a theoretical calculation based on average cord strength and may not represent actual tensile test results.

F_U [N]	= peripheral force
F_{Uspez} [N/cm]	= specific load
z_e	= number of teeth in mesh in the small pulley
z_{emax}	= max. no of teeth in mesh to be considered for the calculation of the drive
z_{emax}	= 12 for ELATECH® M
z_{emax}	= 6 for ELATECH® V
b [cm]	= belt width in cm

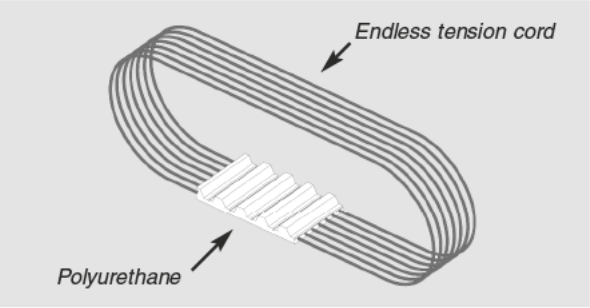
ELA-flex SD® **timing belts**



Elatech
Technology in Motion.

ELA-flex SD® Synchro Drive timing belts

ELA-flex SD® timing belts are manufactured with truly endless high tension strength steel tension cords and high wear, abrasion and tear resistant polyurethane.



Having no splice or welding, the belts have no weak cross sections. ELA-flex SD® timing belts are therefore ideal for high speed power transmission and high load conveying applications.

The unique high tech manufacturing process designed by our research and development allows the production of every belt length, tooth by tooth from a **minimum of 800 mm** to a maximum of 24.000 mm to permit the best flexibility in application.

Length tolerances

Belt length [mm]	Length tolerance (+/-) [mm]	Belt length [mm]	Length tolerance (+/-) [mm]
900	0,75	4000	2,11
1100	0,85	4250	2,24
1300	0,95	4500	2,32
1500	1,04	4750	2,40
1700	1,13	5000	2,52
1900	1,22	5300	2,64
2120	1,30	5600	2,72
2240	1,35	6000	2,92
2360	1,44	6300	3,04
2500	1,49	6700	3,19
2650	1,57	7100	3,35
2800	1,61	7500	3,51
3000	1,70	8000	3,70
3550	1,91	9000	4,09
3750	2,03	more	on request

Double sided timing belts

On demand it is possible to supply ELA-flex SD® as double sided belts. Please ask for the minimum quantity.

Product certification

- ELATECH® belts are certified according to RoHS 2011/65/UE
- On request, it is possible to deliver belts with antistatic properties.

Special cords

In order to solve any design needs, ELA-flex SD® belts may be produced with special cords:

HPL high performance
HFE high Flexibility
INOX stainless steel for high aggressive environments
ARAMID low weight, non magnetic

Antistatic belts

On request it is possible to deliver ELA-flex SD® belts with antistatic properties by using a specific electrically conductive coating or a special compound. A minimum quantity is applied.

Thickness and width tolerance

Standard ELA-flex SD® belts are ground on the back and are manufactured at precise width (see technical tables).
For special application needs, special thickness and width tolerances can be produced.

Belt designation

Ordering example "AT" metric pitch :

ELA-flex SD® metric pitch — **F 075 AT20 A 11200 / Z**

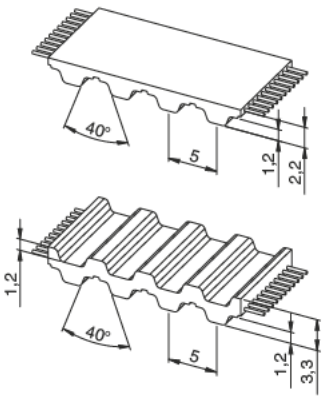
- F: ELA-flex SD® Belt
- 075: Width mm (3 digits)
- AT20: Profile "AT" pitch 20 mm
- A: A= steel cords; S= stainless steel cords; K= Kevlar® cords; F= high flexiblity cords; P= high power cords
- 11200: Length 11200 mm (5 digits)
- Z: Z= fabric on teeth (PAZ); R= fabric on back (PAR); D= fabric on PAZ + PAR

Ordering example "H" inch pitch:

ELA-flex SD® Inch pitch — **F 200 H A 01702 / Z**

- F: ELA-flex SD® Belt
- 200: Width (x 0,254 = mm) - 3 digits
- H: Profile "H"
- A: A= steel cords; S= stainless steel cords; K= Kevlar® cords; F= high flexiblity cords; P= high power cords
- 01702: Length 1702 mm (5 digits)
- Z: Z= fabric on teeth (PAZ); R= fabric on back (PAR); D= fabric on PAZ + PAR

T 5



Belt characteristics

- Truly endless polyurethane timing belt with steel tension cords
- Tooth profile according to ISO 17396
- Metric pitch 5 mm
- Ideal for drives where high belt flexibility is required
- Allows the use of small diameter pulleys
- Transmissible power up to 5 kW
- Rpm up to 10.000 [1/min]
- **Dual toothing available from 1500 mm**

- Maximum width: 150 [mm]
- Width tolerance: ±0,5 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [mm]	10	16	25	32	50	75	100	150
Allowable tensile load [N]	384	610	930	1215	1890	2815	3775	5665
Weight [kg/m]	0,02	0,03	0,05	0,07	0,11	0,16	0,21	0,32

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	1,966	0,000	**1200**	1,252	1,573	**3400**	0,972	3,462
20	1,915	0,040	**1300**	1,231	1,676	**3600**	0,957	3,609
40	1,872	0,078	**1400**	1,211	1,776	**3800**	0,942	3,749
60	1,834	0,115	**1440**	1,204	1,815	**4000**	0,928	3,886
80	1,802	0,151	**1500**	1,194	1,875	**4500**	0,895	4,218
100	1,773	0,186	**1600**	1,176	1,971	**5000**	0,866	4,533
200	1,663	0,348	**1700**	1,160	2,065	**5500**	0,840	4,835
300	1,583	0,497	**1800**	1,145	2,158	**6000**	0,815	5,120
400	1,520	0,637	**1900**	1,131	2,250	**6500**	0,793	5,395
500	1,468	0,769	**2000**	1,116	2,338	**7000**	0,772	5,658
600	1,425	0,895	**2200**	1,091	2,513	**7500**	0,753	5,912
700	1,388	1,017	**2400**	1,068	2,684	**8000**	0,735	6,153
800	1,354	1,135	**2600**	1,046	2,847	**8500**	0,717	6,382
900	1,325	1,249	**2800**	1,026	3,007	**9000**	0,701	6,607
1000	1,299	1,360	**3000**	1,007	3,162	**9500**	0,686	6,824
1100	1,274	1,467	**3200**	0,989	3,314	**10000**	0,672	7,033

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

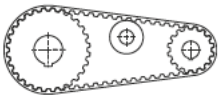
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A}\right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

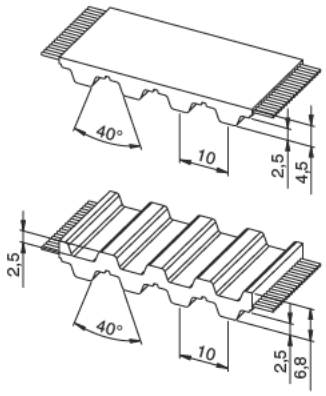
Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	10
		Flat idler running on belt teeth d_{min}	30 mm
Drive with reverse bending		Timing pulley z_{min}	15
		Flat idler running on belt back d_{min}	30 mm

Minimum available length

Execution	Max width	
	100 mm	150 mm
Standard	≥ 800 mm	≥ 1500 mm
PAZ	≥ 800 mm	≥ 1800 mm

ELA-flex SD®
T 10



Belt characteristics
- Truly endless polyurethane timing belt with steel tension cords
- Tooth profile according to ISO 17396
- Metric pitch 10 mm
- Ideal for drives where high belt flexibility is required
- Allows the use of small diameter pulleys
- Transmissible power up to 30 kW
- Rpm up to 10.000 [1/min]
- **Dual toothing available from 1500 mm**

- Maximum width: 150 [mm]
- Width tolerance: ±0,5 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [mm]	10	16	25	32	50	75	100	150
Allowable tensile load [N]	1150	1840	2760	3570	5640	8400	11160	16790
Weight [kg/m]	0,05	0,07	0,12	0,15	0,23	0,35	0,46	0,69

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	8,244	0,000	**1200**	4,808	6,042	**3400**	3,460	12,318
20	8,009	0,168	**1300**	4,708	6,409	**3600**	3,385	12,761
40	7,805	0,327	**1400**	4,614	6,764	**3800**	3,312	13,179
60	7,627	0,479	**1440**	4,577	6,902	**4000**	3,245	13,592
80	7,472	0,626	**1500**	4,526	7,109	**4500**	3,088	14,549
100	7,339	0,768	**1600**	4,444	7,445	**5000**	2,946	15,424
200	6,804	1,425	**1700**	4,366	7,771	**5500**	2,817	16,224
300	6,411	2,014	**1800**	4,292	8,090	**6000**	2,701	16,969
400	6,105	2,557	**1900**	4,222	8,401	**6500**	2,593	17,646
500	5,857	3,066	**2000**	4,157	8,706	**7000**	2,492	18,269
600	5,648	3,549	**2200**	4,033	9,291	**7500**	2,398	18,836
700	5,467	4,007	**2400**	3,920	9,851	**8000**	2,311	19,359
800	5,306	4,445	**2600**	3,815	10,386	**8500**	2,228	19,832
900	5,163	4,866	**2800**	3,718	10,901	**9000**	2,150	20,264
1000	5,034	5,271	**3000**	3,626	11,389	**9500**	2,077	20,661
1100	4,916	5,663	**3200**	3,541	11,866	**10000**	2,007	21,015

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

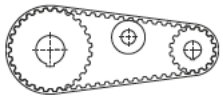
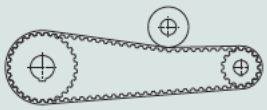
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A}\right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

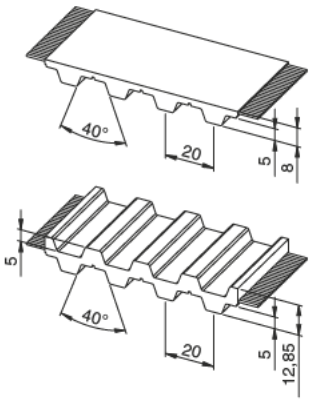
Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	12
		Flat idler running on belt teeth d_{min}	60 mm
Drive with reverse bending		Timing pulley z_{min}	20
		Flat idler running on belt back d_{min}	60 mm

Minimum available length

Execution	Max width	
	100 mm	150 mm
Standard	≥ 800 mm	≥ 1500 mm
PAZ	≥ 800 mm	≥ 1800 mm

T 20



Belt characteristics

- Truly endless polyurethane timing belt with steel tension cords
- Tooth profile according to ISO 17396
- Metric pitch 20 mm
- Ideal for drives where high belt flexibility is required
- Transmissible power up to 100 kW
- Rpm up to 6.000 [1/min]
- **Dual toothing available from 1500 mm**
- **HPL cord execution available**

- Maximum width: 150 [mm]
- Width tolerance: ±1,0 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [mm]	25	32	50	75	100	150
Allowable tensile load [N]	4040	5120	8090	12400	16440	24790
Weight [kg/m]	0,18	0,23	0,37	0,55	0,73	1,10

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	33,263	0,000	**1200**	17,542	22,042	**3400**	11,510	40,978
20	32,181	0,674	**1300**	17,093	23,268	**3600**	11,173	42,117
40	31,242	1,309	**1400**	16,673	24,442	**3800**	10,851	43,178
60	30,424	1,911	**1440**	16,511	24,896	**4000**	10,546	44,170
80	29,714	2,489	**1500**	16,278	25,568	**4500**	9,842	46,377
100	29,097	3,047	**1600**	15,909	26,654	**5000**	9,209	48,213
200	26,579	5,566	**1700**	15,562	27,702	**5500**	8,639	49,753
300	24,777	7,783	**1800**	15,234	28,714	**6000**	8,114	50,976
400	23,393	9,798	**1900**	14,922	29,689	**6500**	7,630	51,931
500	22,269	11,659	**2000**	14,623	30,624	-	-	-
600	21,320	13,395	**2200**	14,069	32,411	-	-	-
700	20,502	15,028	**2400**	13,563	34,086	-	-	-
800	19,783	16,572	**2600**	13,092	35,643	-	-	-
900	19,140	18,038	**2800**	12,659	37,116	-	-	-
1000	18,561	19,435	**3000**	12,252	38,487	-	-	-
1100	18,029	20,766	**3200**	11,870	39,773	-	-	-

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

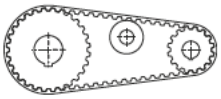
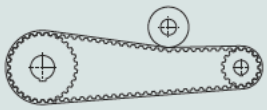
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A}\right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

Flexibility

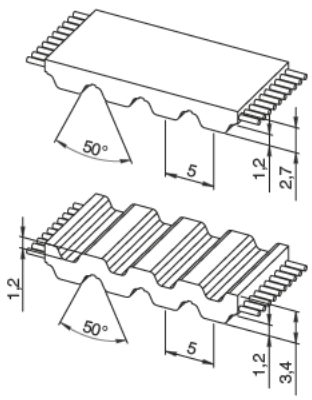
Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	15
		Flat idler running on belt teeth d_{min}	120 mm
Drive with reverse bending		Timing pulley z_{min}	25
		Flat idler running on belt back d_{min}	120 mm

Minimum available length

Execution	Max width	
	100 mm	150 mm
Standard	≥ 900 mm	≥ 1500 mm
PAZ	≥ 900 mm	≥ 1800 mm

ELA-flex SD®

AT 5



Belt characteristics

- Truly endless polyurethane timing belt with steel tension cords
- Tooth profile according to ISO 17396
- Metric pitch 5 mm
- Tooth profile and dimension are optimised to guarantee uniform load distribution and minimum deformation under load
- High resistance and low stretch steel cords to guarantee high stability and low elongation
- Reduced polygonal effect with reduced drive vibration and noise
- Transmissible power up to 15 kW
- Rpm up to 10.000 [1/min]
- **Dual toothing available from 1500 mm**

- Maximum width: 150 [mm]
- Width tolerance: ±0,5 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [mm]	10	16	25	32	50	75	100	150
Allowable tensile load [N]	1150	1840	2760	3570	5640	8400	11160	16790
Weight [kg/m]	0,03	0,05	0,08	0,11	0,17	0,25	0,33	0,50

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	2,897	0,000	**1200**	2,027	2,547	**3400**	1,514	5,391
20	2,855	0,060	**1300**	1,990	2,709	**3600**	1,485	5,598
40	2,817	0,118	**1400**	1,955	2,866	**3800**	1,456	5,795
60	2,783	0,175	**1440**	1,942	2,929	**4000**	1,429	5,986
80	2,753	0,231	**1500**	1,923	3,020	**4500**	1,367	6,442
100	2,725	0,285	**1600**	1,892	3,170	**5000**	1,311	6,862
200	2,620	0,549	**1700**	1,863	3,316	**5500**	1,260	7,255
300	2,540	0,798	**1800**	1,836	3,460	**6000**	1,213	7,619
400	2,458	1,030	**1900**	1,809	3,599	**6500**	1,169	7,957
500	2,383	1,248	**2000**	1,784	3,736	**7000**	1,128	8,271
600	2,317	1,456	**2200**	1,736	4,000	**7500**	1,091	8,568
700	2,258	1,655	**2400**	1,693	4,256	**8000**	1,055	8,839
800	2,204	1,846	**2600**	1,653	4,500	**8500**	1,023	9,101
900	2,153	2,029	**2800**	1,615	4,734	**9000**	0,991	9,337
1000	2,108	2,207	**3000**	1,580	4,962	**9500**	0,961	9,555
1100	2,066	2,379	**3200**	1,546	5,181	**10000**	0,933	9,766

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

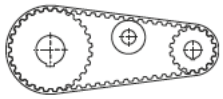
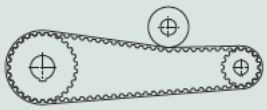
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A} \right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

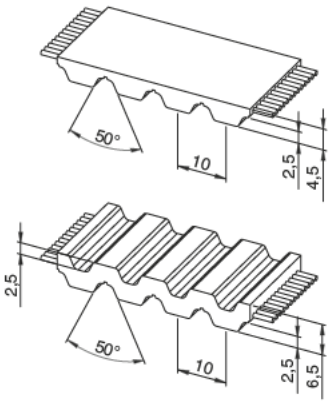
Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	15
		Flat idler running on belt teeth d_{min}	30 mm
Drive with reverse bending		Timing pulley z_{min}	25
		Flat idler running on belt back d_{min}	60 mm

Minimum available length

Execution	Max width	
	100 mm	150 mm
Standard	≥ 800 mm	≥ 1500 mm
PAZ	≥ 800 mm	≥ 1800 mm

AT 10



Belt characteristics

- Truly endless polyurethane timing belt with steel tension cords
- Tooth profile according to ISO 17396
- Metric pitch 10 mm
- Tooth profile and dimension are optimised to guarantee uniform load distribution and minimum deformation under load
- High resistance and low stretch steel cords to guarantee high stability and low elongation
- Reduced polygonal effect with reduced drive vibration and noise
- Transmissible power up to 70 kW
- Rpm up to 10.000 [1/min]
- **Dual toothing available from 1500 mm**
- **HPL cord execution available**

- Maximum width: 150 [mm]
- Width tolerance: ±0,5 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [mm]	16	25	32	50	75	100	150
Allowable tensile load [N]	2430	4040	5120	8090	12400	16440	24790
Weight [kg/m]	0,09	0,14	0,18	0,29	0,43	0,57	0,86

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	14,096	0,000	**1200**	9,018	11,331	**3400**	6,222	22,152
20	13,856	0,290	**1300**	8,815	12,000	**3600**	6,060	22,846
40	13,633	0,571	**1400**	8,626	12,645	**3800**	5,907	23,504
60	13,424	0,843	**1440**	8,553	12,897	**4000**	5,761	24,130
80	13,230	1,108	**1500**	8,447	13,268	**4500**	5,424	25,557
100	13,049	1,366	**1600**	8,279	13,871	**5000**	5,120	26,807
200	12,312	2,578	**1700**	8,119	14,454	**5500**	4,844	27,897
300	11,951	3,754	**1800**	7,968	15,018	**6000**	4,591	28,841
400	11,457	4,799	**1900**	7,824	15,566	**6500**	4,357	29,652
500	11,025	5,772	**2000**	7,686	16,097	**7000**	4,139	30,339
600	10,644	6,687	**2200**	7,429	17,113	**7500**	3,936	30,912
700	10,305	7,553	**2400**	7,191	18,072	**8000**	3,746	31,377
800	10,000	8,377	**2600**	6,971	18,978	**8500**	3,566	31,742
900	9,723	9,163	**2800**	6,766	19,836	**9000**	3,397	32,012
1000	9,469	9,915	**3000**	6,573	20,649	**9500**	3,236	32,193
1100	9,235	10,637	**3200**	6,393	21,420	**10000**	3,084	32,289

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

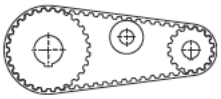
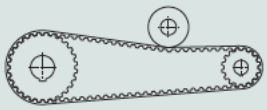
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A}\right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	15
		Flat idler running on belt teeth d_{min}	50 mm
Drive with reverse bending		Timing pulley z_{min}	25
		Flat idler running on belt back d_{min}	120 mm

Minimum available length

Execution	Max width	
	100 mm	150 mm
Standard	≥ 800 mm	≥ 1500 mm
PAZ	≥ 800 mm	≥ 1800 mm

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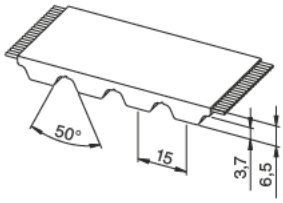


Belt characteristics

- Truly endless polyurethane timing belt with steel tension cords.
- Metric pitch 15 mm
- Tooth profile and dimension are optimised to guarantee uniform load distribution and minimum deformation under load
- High resistance and low stretch steel cords to guarantee high stability and low elongation
- Reduced polygonal effect with reduced drive vibration and noise
- Transmissible power up to 200 kW
- Rpm up to 6.000 [1/min]

- Maximum width: 150 [mm]
- Width tolerance: ±1,0 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [mm]	25	32	50	75	100	150
Allowable tensile load [N]	8500	10200	16150	24650	33150	49300
Weight [kg/m]	0,22	0,28	0,44	0,66	0,88	1,33

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	34,330	0,000	**1200**	19,103	24,004	**3400**	10,688	38,052
20	33,874	0,709	**1300**	18,495	25,176	**3600**	10,203	38,463
40	33,435	1,400	**1400**	17,922	26,273	**3800**	9,740	38,757
60	33,012	2,074	**1440**	17,704	26,696	**4000**	9,301	38,957
80	32,606	2,731	**1500**	17,385	27,306	**4500**	8,289	39,057
100	32,217	3,374	**1600**	16,878	28,278	**5000**	7,377	38,622
200	30,489	6,385	**1700**	16,399	29,191	**5500**	6,546	37,700
300	27,999	8,795	**1800**	15,940	30,044	**6000**	5,784	36,342
400	26,490	11,095	**1900**	15,508	30,854	-	-	-
500	25,174	13,180	**2000**	15,093	31,608	-	-	-
600	24,019	15,090	**2200**	14,317	32,981	-	-	-
700	22,992	16,853	**2400**	13,603	34,186	-	-	-
800	22,068	18,487	**2600**	12,939	35,227	-	-	-
900	21,230	20,008	**2800**	12,323	36,131	-	-	-
1000	20,467	21,431	**3000**	11,746	36,897	-	-	-
1100	19,760	22,760	**3200**	11,201	37,533	-	-	-

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

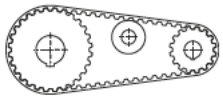
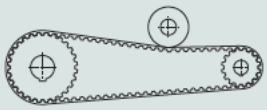
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A}\right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

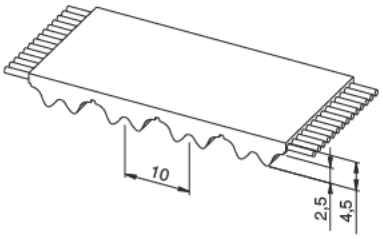
Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	25
		Flat idler running on belt teeth d_{min}	120 mm
Drive with reverse bending		Timing pulley z_{min}	40
		Flat idler running on belt back d_{min}	250 mm

Minimum available length

Execution	Max width 150 mm
Standard	≥ 1500 mm
PAZ	≥ 1800 mm

ATM 10



Belt characteristics

- Truly endless polyurethane timing belt with steel tension cords.
- Metric pitch 10 mm
- Tooth profile and dimension are optimised to guarantee uniform load distribution and minimum deformation under load
- High resistance and low stretch steel cords to guarantee high stability and low elongation
- Reduced polygonal effect with reduced drive vibration and noise
- Transmissible power up to 70 kW
- Rpm up to 10.000 [1/min]
- **Max. length 2400 mm**

- Maximum width: 100 [mm]
- Width tolerance: ±0,5 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [mm]	16	25	32	50	75	100
Allowable tensile load [N]	2430	4040	5120	8090	12400	16440
Weight [kg/m]	0,09	0,14	0,18	0,29	0,43	0,57

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	15,51	0,00	**1200**	9,92	12,46	**3400**	6,84	24,37
20	15,22	0,32	**1300**	9,70	13,20	**3600**	6,67	25,13
40	14,95	0,63	**1400**	9,49	13,91	**3800**	6,50	25,85
60	14,70	0,92	**1440**	9,41	14,19	**4000**	6,34	26,54
80	14,47	1,21	**1500**	9,29	14,59	**4500**	5,97	28,11
100	14,26	1,49	**1600**	9,11	15,26	**5000**	5,63	29,49
200	13,41	2,81	**1700**	8,93	15,90	**5500**	5,33	30,69
300	13,15	4,13	**1800**	8,76	16,52	**6000**	5,05	31,73
400	12,60	5,28	**1900**	8,61	17,12	**6500**	4,79	32,62
500	12,13	6,35	**2000**	8,45	17,71	**7000**	4,55	33,37
600	11,71	7,36	**2200**	8,17	18,82	**7500**	4,33	34,00
700	11,34	8,31	**2400**	7,91	19,88	**8000**	4,12	34,51
800	11,00	9,21	**2600**	7,67	20,88	**8500**	3,92	34,92
900	10,69	10,08	**2800**	7,44	21,82	**9000**	3,74	35,21
1000	10,42	10,91	**3000**	7,23	22,71	**9500**	3,56	35,41
1100	10,16	11,70	**3200**	7,03	23,56	**10000**	3,39	35,52

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

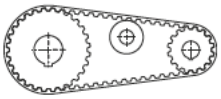
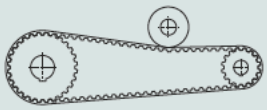
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A}\right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	15
		Flat idler running on belt teeth d_{min}	50 mm
Drive with reverse bending		Timing pulley z_{min}	25
		Flat idler running on belt back d_{min}	120 mm

Minimum available length

Execution	Max width 100 mm
Standard	≥ 800 mm
PAZ	≥ 800 mm

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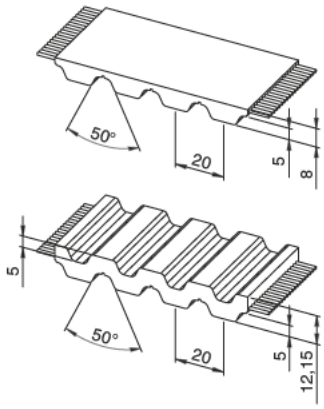
AT 20



Belt characteristics

- Truly endless polyurethane timing belt with steel tension cords
- Tooth profile according to ISO 17396
- Metric pitch 20 mm
- Tooth profile and dimension are optimised to guarantee uniform load distribution and minmum deformation under load
- High resistance and low stretch steel cords to guarantee high stability and low elongation
- Reduced polygonal effect with reduced drive vibration and noise
- Transmissible power up to 200 kW
- Rpm up to 6.000 [1/min]
- **Dual toothing available from 1500 mm**
- **HPL cord execution available**

- Maximum width: 150 [mm]
- Width tolerance: ±1,0 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [mm]	25	32	50	75	100	150
Allowable tensile load [N]	5760	7200	11520	17280	23040	34560
Weight [kg/m]	0,24	0,31	0,48	0,73	0,97	1,45

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	48,192	0,000	**1200**	27,063	34,006	**3400**	15,842	56,402
20	47,288	0,990	**1300**	26,251	35,734	**3600**	15,196	57,284
40	46,438	1,945	**1400**	25,487	37,363	**3800**	14,579	58,009
60	45,639	2,867	**1440**	25,197	37,994	**4000**	13,993	58,609
80	44,885	3,760	**1500**	24,771	38,907	**4500**	12,643	59,576
100	44,175	4,626	**1600**	24,096	40,370	**5000**	11,427	59,829
200	41,199	8,628	**1700**	23,456	41,755	**5500**	10,320	59,432
300	38,923	12,227	**1800**	22,845	43,059	**6000**	9,304	58,456
400	36,911	15,460	**1900**	22,269	44,305	-	-	-
500	35,157	18,407	**2000**	21,715	45,477	-	-	-
600	33,617	21,120	**2200**	20,681	47,641	-	-	-
700	32,248	23,637	**2400**	19,729	49,580	-	-	-
800	31,016	25,982	**2600**	18,844	51,303	-	-	-
900	29,899	28,177	**2800**	18,023	52,841	-	-	-
1000	28,880	30,241	**3000**	17,252	54,196	-	-	-
1100	27,938	32,180	**3200**	16,527	55,377	-	-	-

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

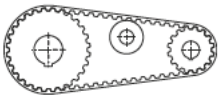
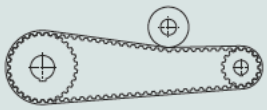
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A} \right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

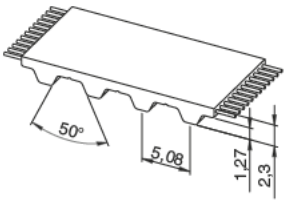
Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	18
		Flat idler running on belt teeth d_{min}	120 mm
Drive with reverse bending		Timing pulley z_{min}	25
		Flat idler running on belt back d_{min}	180 mm

Minimum available length

Execution	Max width	
	100 mm	150 mm
Standard	≥ 900 mm	≥ 1500 mm
PAZ	≥ 900 mm	≥ 1800 mm

XL



Belt characteristics

- Truly endless polyurethane timing belt with steel tension cords
- Tooth profile according to UNI/ISO 5296
- Imperial pitch 1/5" = 5,08 mm
- Allow to use small diameter pulley
- Mainly used in applications where inch pitch is an advantage
- Transmissible power up to 5 kW
- Rpm up to 10.000 [1/min]

- Maximum width: 101,6 [mm]
- Width tolerance: ±0,5 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [inch] / [mm]	0,25 / 6,35	0,37 / 9,53	0,50 / 12,7	0,75 / 19,1	1,00 / 25,4	1,50 / 38,1	2,00 / 50,8	4,00 / 101,6
Allowable tensile load [N]	224	352	480	704	960	1440	1920	3840
Weight [kg/m]	0,016	0,024	0,033	0,049	0,065	0,098	0,130	0,260

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	2,029	0,000	**1200**	1,294	1,626	**3400**	1,006	3,581
20	1,978	0,041	**1300**	1,273	1,732	**3600**	0,990	3,730
40	1,932	0,081	**1400**	1,252	1,836	**3800**	0,974	3,877
60	1,894	0,119	**1440**	1,245	1,877	**4000**	0,960	4,020
80	1,860	0,156	**1500**	1,234	1,938	**4500**	0,926	4,362
100	1,830	0,192	**1600**	1,216	2,037	**5000**	0,896	4,690
200	1,717	0,360	**1700**	1,200	2,136	**5500**	0,868	5,001
300	1,635	0,514	**1800**	1,184	2,231	**6000**	0,843	5,298
400	1,570	0,658	**1900**	1,169	2,326	**6500**	0,820	5,580
500	1,518	0,795	**2000**	1,155	2,418	**7000**	0,798	5,849
600	1,473	0,926	**2200**	1,129	2,600	**7500**	0,779	6,115
700	1,434	1,051	**2400**	1,104	2,776	**8000**	0,759	6,360
800	1,400	1,173	**2600**	1,082	2,945	**8500**	0,741	6,599
900	1,370	1,291	**2800**	1,061	3,110	**9000**	0,725	6,835
1000	1,342	1,405	**3000**	1,041	3,271	**9500**	0,709	7,053
1100	1,317	1,517	**3200**	1,023	3,427	**10000**	0,695	7,272

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

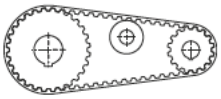
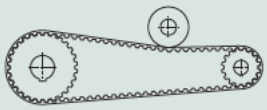
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A}\right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	10
		Flat idler running on belt teeth d_{min}	30 mm
Drive with reverse bending		Timing pulley z_{min}	15
		Flat idler running on belt back d_{min}	30 mm

Minimum available length

Execution	Max width 4"
Standard	≥ 800 mm
PAZ	≥ 800 mm

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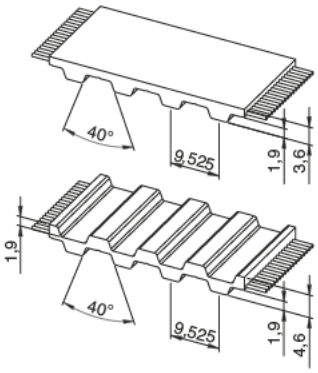
L



Belt characteristics

- Truly endless polyurethane timing belt with steel tension cords
- Tooth profile according to UNI/ISO 5296
- Imperial pitch 3/8" = 9,525 mm
- Mainly used in applications where inch pitch is an advantage
- Transmissible power up to 20 kW
- Rpm up to 10.000 [1/min]
- **Dual toothing available from 1500 mm**

- Maximum width: 101,6 [mm]
- Width tolerance: ±0,5 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [inch] / [mm]	0,50 / 12,7	0,75 / 19,1	1,00 / 25,4	1,50 / 38,1	2,00 / 50,8	3,00 / 76,2	4,00 / 101,6
Allowable tensile load [N]	1380	2185	2875	4255	5635	8510	11385
Weight [kg/m]	0,05	0,08	0,10	0,15	0,20	0,30	0,40

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	5,852	0,000	**1200**	3,393	4,263	**3400**	2,441	8,689
20	5,673	0,119	**1300**	3,321	4,521	**3600**	2,388	9,000
40	5,518	0,231	**1400**	3,256	4,774	**3800**	2,336	9,295
60	5,383	0,338	**1440**	3,230	4,871	**4000**	2,288	9,581
80	5,266	0,441	**1500**	3,194	5,017	**4500**	2,177	10,258
100	5,165	0,541	**1600**	3,137	5,255	**5000**	2,077	10,874
200	4,789	1,003	**1700**	3,082	5,486	**5500**	1,986	11,437
300	4,516	1,419	**1800**	3,029	5,709	**6000**	1,903	11,953
400	4,304	1,803	**1900**	2,980	5,930	**6500**	1,827	12,433
500	4,131	2,163	**2000**	2,933	6,143	**7000**	1,755	12,867
600	3,984	2,503	**2200**	2,845	6,555	**7500**	1,689	13,263
700	3,857	2,827	**2400**	2,765	6,949	**8000**	1,627	13,626
800	3,744	3,137	**2600**	2,692	7,330	**8500**	1,569	13,965
900	3,644	3,434	**2800**	2,623	7,689	**9000**	1,513	14,258
1000	3,553	3,721	**3000**	2,559	8,039	**9500**	1,461	14,537
1100	3,470	3,997	**3200**	2,498	8,371	**10000**	1,411	14,779

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

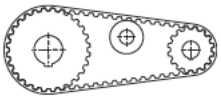
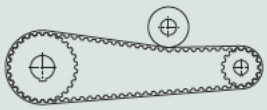
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A} \right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

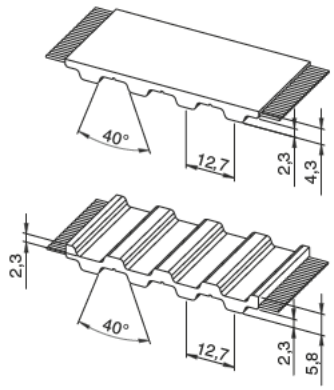
Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	15
		Flat idler running on belt teeth d_{min}	60 mm
Drive with reverse bending		Timing pulley z_{min}	20
		Flat idler running on belt back d_{min}	60 mm

Minimum available length

Execution	Max width 4"
Standard	≥ 800 mm
PAZ	≥ 800 mm

H



Belt characteristics

- Truly endless polyurethane timing belt with steel tension cords
- Tooth profile according to UNI/ISO 5296
- Imperial pitch 1/2" = 12,7 mm
- Allow to use small diameter pulley
- Mainly used in applications where inch pitch is an advantage
- Transmissible power up to 30 kW
- Rpm up to 10.000 [1/min]
- **Dual toothing available from 1500 mm**

- Maximum width: 101,6 [mm]
- Width tolerance: ±0,5 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [inch] / [mm]	0,50 / 12,7	0,75 / 19,1	1,00 / 25,4	1,50 / 38,1	2,00 / 50,8	3,00 / 76,2	4,00 / 101,6
Allowable tensile load [N]	1380	2185	2875	4255	5635	8510	11385
Weight [kg/m]	0,056	0,084	0,113	0,169	0,225	0,338	0,450

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	9,156	0,000	**1200**	5,318	6,682	**3400**	3,826	13,622
20	8,883	0,186	**1300**	5,207	7,088	**3600**	3,741	14,104
40	8,647	0,362	**1400**	5,104	7,482	**3800**	3,663	14,573
60	8,443	0,530	**1440**	5,063	7,635	**4000**	3,588	15,027
80	8,263	0,692	**1500**	5,007	7,864	**4500**	3,412	16,077
100	8,107	0,849	**1600**	4,916	8,236	**5000**	3,256	17,049
200	7,523	1,576	**1700**	4,829	8,596	**5500**	3,115	17,939
300	7,089	2,227	**1800**	4,748	8,949	**6000**	2,983	18,744
400	6,753	2,829	**1900**	4,671	9,293	**6500**	2,864	19,494
500	6,478	3,392	**2000**	4,596	9,626	**7000**	2,753	20,179
600	6,246	3,924	**2200**	4,461	10,277	**7500**	2,650	20,811
700	6,046	4,431	**2400**	4,334	10,891	**8000**	2,553	21,385
800	5,870	4,917	**2600**	4,218	11,485	**8500**	2,462	21,912
900	5,712	5,383	**2800**	4,111	12,054	**9000**	2,375	22,382
1000	5,569	5,831	**3000**	4,010	12,597	**9500**	2,294	22,821
1100	5,437	6,263	**3200**	3,915	13,119	**10000**	2,215	23,197

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

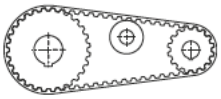
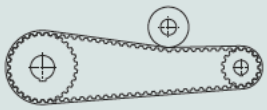
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A} \right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

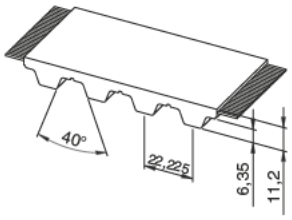
Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	14
		Flat idler running on belt teeth d_{min}	60 mm
Drive with reverse bending		Timing pulley z_{min}	20
		Flat idler running on belt back d_{min}	80 mm

Minimum available length

Execution	Max width 4"
Standard	≥ 800 mm
PAZ	≥ 800 mm

XH



Belt characteristics

- Truly endless polyurethane timing belt with steel tension cords
- Tooth profile according to UNI/ISO 5296
- Imperial pitch 7/8" = 22,225 mm
- Mainly used in applications where inch pitch is an advantage
- Transmissible power up to 100 kW
- Rpm up to 4.000 [1/min]

- Maximum width: 152,4 [mm]
- Width tolerance: ±1,0 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [inch] / [mm]	1,00 / 25,4	2,00 / 50,8	3,00 / 76,2	4,00 / 101,6	6,00 / 152,4
Allowable tensile load [N]	3675	7350	11270	14945	22295
Weight [kg/m]	0,27	0,53	0,80	1,06	1,59

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	33,957	0,000	**1200**	17,802	22,369	**3200**	12,904	43,237
20	32,889	0,689	**1300**	17,405	23,692	**3400**	12,599	44,855
40	31,932	1,337	**1400**	17,037	24,975	**3600**	12,312	46,411
60	31,074	1,952	**1440**	16,897	25,477	**3800**	12,040	47,907
80	30,306	2,539	**1500**	16,693	26,220	**4000**	11,782	49,347
100	29,618	3,101	**1600**	16,372	27,430	-	-	-
200	26,460	5,541	**1700**	16,070	28,606	-	-	-
300	24,554	7,713	**1800**	15,785	29,752	-	-	-
400	23,178	9,708	**1900**	15,515	30,867	-	-	-
500	22,100	11,571	**2000**	15,259	31,955	-	-	-
600	21,213	13,327	**2200**	14,782	34,053	-	-	-
700	20,459	14,996	**2400**	14,347	36,054	-	-	-
800	19,804	16,590	**2600**	13,946	37,967	-	-	-
900	19,224	18,117	**2800**	13,574	39,798	-	-	-
1000	18,704	19,586	**2880**	13,433	40,509	-	-	-
1100	18,233	21,001	**3000**	13,228	41,553	-	-	-

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

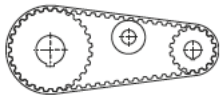
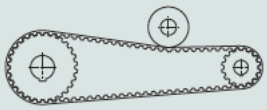
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A} \right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

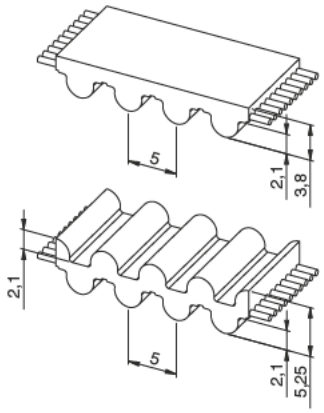
Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	18
		Flat idler running on belt teeth d_{min}	150 mm
Drive with reverse bending		Timing pulley z_{min}	20
		Flat idler running on belt back d_{min}	180 mm

Minimum available length

Execution	Max width 6"
Standard	≥ 1500 mm
PAZ	≥ 1800 mm

HTD 5M



Belt characteristics

- Truly endless polyurethane timing belt with round tooth profile and steel tension cords
- Tooth profile according to ISO 13050
- Metric pitch 5 mm
- The round tooth profile allows a uniform load distribution that guarantees high performance, high transmissible torque and precise tooth engagement
- Transmissible power up to 6 kW
- Rpm up to 10.000 [1/min]
- **Dual toothing available from 1500 mm**

- Maximum width: 150 [mm]
- Width tolerance: ±0,5 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [mm]	10	15	25	50	100	150
Allowable tensile load [N]	1150	1725	2760	5635	11155	16790
Weight [kg/m]	0,05	0,07	0,11	0,23	0,46	0,68

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	2,928	0,000	**1200**	1,992	2,503	**3400**	1,461	5,203
20	2,885	0,060	**1300**	1,955	2,661	**3600**	1,430	5,390
40	2,845	0,119	**1400**	1,920	2,814	**3800**	1,400	5,570
60	2,809	0,176	**1440**	1,906	2,875	**4000**	1,371	5,743
80	2,776	0,233	**1500**	1,887	2,964	**4500**	1,305	6,148
100	2,747	0,288	**1600**	1,855	3,109	**5000**	1,245	6,517
200	2,637	0,552	**1700**	1,826	3,250	**5500**	1,190	6,854
300	2,457	0,772	**1800**	1,797	3,387	**6000**	1,140	7,161
400	2,395	1,003	**1900**	1,770	3,521	**6500**	1,093	7,440
500	2,333	1,221	**2000**	1,744	3,652	**7000**	1,050	7,695
600	2,273	1,428	**2200**	1,695	3,904	**7500**	1,009	7,926
700	2,217	1,625	**2400**	1,649	4,145	**8000**	0,971	8,135
800	2,166	1,814	**2600**	1,607	4,375	**8500**	0,935	8,324
900	2,118	1,996	**2800**	1,567	4,595	**9000**	0,901	8,493
1000	2,073	2,170	**3000**	1,530	4,806	**9500**	0,869	8,644
1100	2,031	2,339	**3200**	1,495	5,009	**10000**	0,838	8,778

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

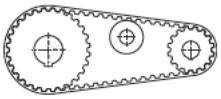
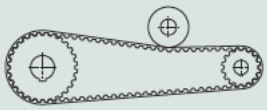
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A}\right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	16
		Flat idler running on belt teeth d_{min}	30 mm
Drive with reverse bending		Timing pulley z_{min}	25
		Flat idler running on belt back d_{min}	60 mm

Minimum available length

Execution	Max width	
	100 mm	150 mm
Standard	≥ 800 mm	≥ 1500 mm
PAZ	≥ 800 mm	≥ 1800 mm

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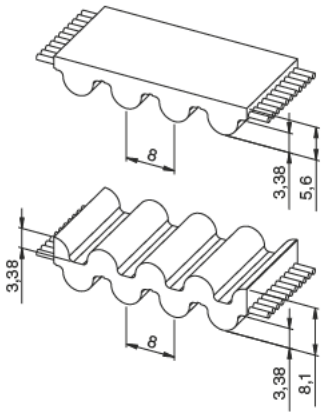


Belt characteristics

- Truly endless polyurethane timing belt with round tooth profile and steel tension cords
- Tooth profile according to ISO 13050
- Metric pitch 8 mm
- The round tooth profile allows a uniform load distribution that guarantees high performance, high transmissible torque and precise tooth engagement
- Transmissible power up to 80 kW
- Rpm up to 6.000 [1/min]
- **Dual toothing available from 1500 mm**

- Maximum width: 150 [mm]
- Width tolerance: ±0,5 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [mm]	10	15	20	30	50	85	100	150
Allowable tensile load [N]	1470	2205	2940	4410	7350	12495	14700	22050
Weight [kg/m]	0,07	0,10	0,13	0,20	0,33	0,56	0,66	1,00

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	9,422	0,000	**1200**	5,848	7,348	**3400**	3,936	14,013
20	9,246	0,194	**1300**	5,709	7,772	**3600**	3,826	14,421
40	9,083	0,380	**1400**	5,580	8,180	**3800**	3,721	14,805
60	8,933	0,561	**1440**	5,530	8,338	**4000**	3,621	15,166
80	8,794	0,737	**1500**	5,458	8,572	**4500**	3,390	15,975
100	8,666	0,907	**1600**	5,343	8,951	**5000**	3,183	16,663
200	8,160	1,709	**1700**	5,233	9,316	**5500**	2,994	17,241
300	7,853	2,467	**1800**	5,130	9,669	**6000**	2,821	17,720
400	7,516	3,148	**1900**	5,031	10,010	-	-	-
500	7,220	3,780	**2000**	4,937	10,340	-	-	-
600	6,959	4,372	**2200**	4,761	10,968	-	-	-
700	6,728	4,931	**2400**	4,599	11,557	-	-	-
800	6,519	5,461	**2600**	4,448	12,110	-	-	-
900	6,330	5,965	**2800**	4,308	12,630	-	-	-
1000	6,156	6,446	**3000**	4,176	13,119	-	-	-
1100	5,996	6,907	**3200**	4,053	13,580	-	-	-

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

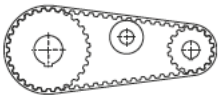
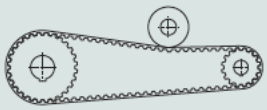
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A}\right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

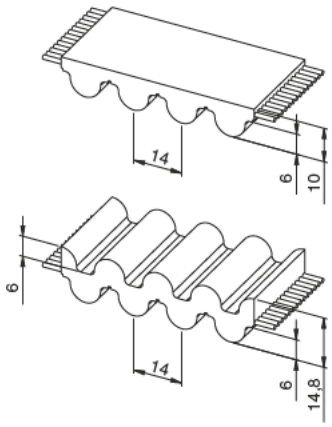
Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	18
		Flat idler running on belt teeth d_{min}	50 mm
Drive with reverse bending		Timing pulley z_{min}	30
		Flat idler running on belt back d_{min}	120 mm

Minimum available length

Execution	Max width	
	100 mm	150 mm
Standard	≥ 800 mm	≥ 1500 mm
PAZ	≥ 800 mm	≥ 1800 mm

HTD 14M



Belt characteristics

- Truly endless polyurethane timing belt with round tooth profile and steel tension cords
- Tooth profile according to ISO 13050
- Metric pitch 14 mm
- The round tooth profile allows a uniform load distribution that guarantees high performance, high transmissible torque and precise tooth engagement
- Transmissible power up to 200 kW
- Rpm up to 4.000 [1/min]
- **Dual toothing available from 1500 mm**

- Maximum width: 150 [mm]
- Width tolerance: ±1,0 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [mm]	**40**	**55**	**85**	**115**	**150**
Allowable tensile load [N]	9120	12480	19680	26400	34560
Weight [kg/m]	0,42	0,57	0,89	1,24	1,70

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	**rpm** [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	**rpm** [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	28,966	0,000	**1200**	16,335	20,526	**3400**	9,630	34,286
20	28,452	0,596	**1300**	15,852	21,578	**3600**	9,242	34,837
40	27,978	1,172	**1400**	15,398	22,573	**3800**	8,872	35,303
60	27,540	1,730	**1440**	15,225	22,957	**4000**	8,521	35,688
80	27,136	2,273	**1500**	14,972	23,516	-	-	-
100	26,762	2,802	**1600**	14,569	24,408	-	-	-
200	24,458	5,122	**1700**	14,187	25,254	-	-	-
300	23,239	7,300	**1800**	13,824	26,056	-	-	-
400	22,100	9,257	**1900**	13,478	26,816	-	-	-
500	21,091	11,042	**2000**	13,148	27,536	-	-	-
600	20,195	12,688	**2200**	12,530	28,865	-	-	-
700	19,394	14,216	**2400**	11,960	30,056	-	-	-
800	18,672	15,641	**2600**	11,431	31,121	-	-	-
900	18,014	16,976	**2800**	10,938	32,069	-	-	-
1000	17,410	18,230	**3000**	10,476	32,908	-	-	-
1100	16,853	19,411	**3200**	10,041	33,645	-	-	-

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

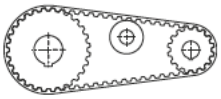
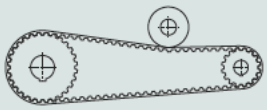
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A}\right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	28
		Flat idler running on belt teeth d_{min}	120 mm
Drive with reverse bending		Timing pulley z_{min}	28
		Flat idler running on belt back d_{min}	180 mm

Minimum available length

Execution	**Max width**
	150 mm
Standard	≥ 1500 mm
PAZ	≥ 1800 mm

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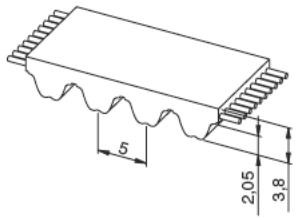


Belt characteristics

- Truly endless polyurethane timing belt with round tooth profile and steel tension cords
- Tooth profile according to ISO 13050
- Metric pitch 5 mm
- PAZ fabric on tooth delivered as standard decreases noise in high speed drives
- Transmissible power up to 6 kW
- Rpm up to 10.000 [1/min]

- Maximum width: 150 [mm]
- Width tolerance: ±0,5 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [mm]	10	15	25	50	100	150
Allowable tensile load [N]	1150	1725	2760	5635	11155	16790
Weight [kg/m]	0,05	0,07	0,11	0,23	0,46	0,69

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	3,01	0,000	**1200**	2,15	2,703	**3400**	1,62	5,770
20	2,96	0,062	**1300**	2,11	2,878	**3600**	1,59	5,990
40	2,92	0,122	**1400**	2,08	3,048	**3800**	1,56	6,203
60	2,89	0,181	**1440**	2,07	3,115	**4000**	1,53	6,410
80	2,86	0,239	**1500**	2,05	3,214	**4500**	1,46	6,898
100	2,83	0,296	**1600**	2,01	3,375	**5000**	1,40	7,351
200	2,72	0,569	**1700**	1,98	3,533	**5500**	1,35	7,770
300	2,62	0,822	**1800**	1,96	3,687	**6000**	1,30	8,161
400	2,55	1,070	**1900**	1,93	3,838	**6500**	1,25	8,524
500	2,49	1,305	**2000**	1,90	3,985	**7000**	1,21	8,861
600	2,43	1,528	**2200**	1,85	4,271	**7500**	1,17	9,176
700	2,38	1,742	**2400**	1,81	4,545	**8000**	1,13	9,468
800	2,32	1,947	**2600**	1,77	4,808	**8500**	1,09	9,740
900	2,28	2,146	**2800**	1,73	5,062	**9000**	1,06	9,993
1000	2,23	2,337	**3000**	1,69	5,306	**9500**	1,03	10,228
1100	2,19	2,523	**3200**	1,65	5,542	**10000**	1,00	10,445

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

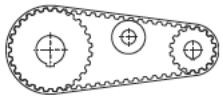
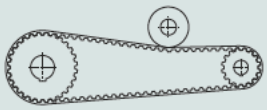
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A} \right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

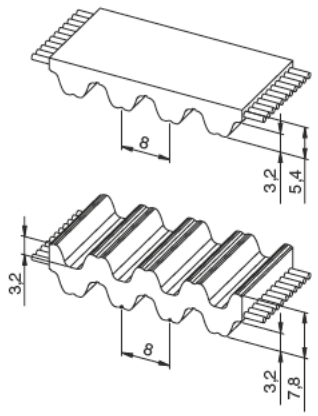
Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	16
		Flat idler running on belt teeth d_{min}	30 mm
Drive with reverse bending		Timing pulley z_{min}	25
		Flat idler running on belt back d_{min}	60 mm

Minimum available length

Execution	Max width 100 mm
Standard	≥ 1500 mm
PAZ	≥ 1800 mm

RTD 8M



Belt characteristics

- Truly endless polyurethane timing belt with round tooth profile and steel tension cords
- Tooth profile according to ISO 13050
- Metric pitch 8 mm
- PAZ fabric on tooth delivered as standard decreases noise in high speed drives
- Transmissible power up to 80 kW
- Rpm up to 6.000 [1/min]
- **Dual toothing available from 1500 mm**

- Maximum width: 150 [mm]
- Width tolerance: ±0,5 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [mm]	10	15	20	30	50	85	100	150
Allowable tensile load [N]	1470	2205	2940	4410	7350	12495	14700	22050
Weight [kg/m]	0,07	0,10	0,13	0,20	0,33	0,56	0,66	1,00

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	9,68	0,000	**1200**	6,10	7,668	**3400**	4,19	14,920
20	9,50	0,199	**1300**	5,96	8,118	**3600**	4,08	15,381
40	9,34	0,391	**1400**	5,83	8,553	**3800**	3,98	15,818
60	9,19	0,577	**1440**	5,78	8,722	**4000**	3,88	16,232
80	9,05	0,758	**1500**	5,71	8,972	**4500**	3,64	17,175
100	8,92	0,934	**1600**	5,60	9,377	**5000**	3,44	17,996
200	8,41	1,762	**1700**	5,49	9,769	**5500**	3,25	18,708
300	8,11	2,547	**1800**	5,38	10,149	**6000**	3,08	19,320
400	7,77	3,255	**1900**	5,29	10,517	-	-	-
500	7,47	3,913	**2000**	5,19	10,873	-	-	-
600	7,21	4,532	**2200**	5,02	11,554	-	-	-
700	6,98	5,118	**2400**	4,85	12,197	-	-	-
800	6,77	5,674	**2600**	4,70	12,803	-	-	-
900	6,58	6,205	**2800**	4,56	13,377	-	-	-
1000	6,41	6,713	**3000**	4,43	13,919	-	-	-
1100	6,25	7,200	**3200**	4,31	14,433	-	-	-

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

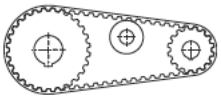
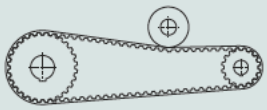
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A}\right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

Flexibility

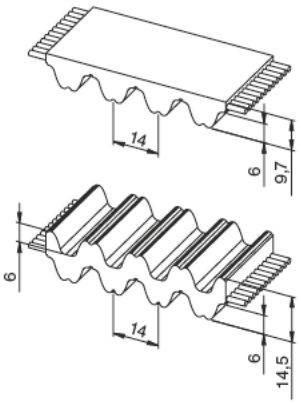
Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	18
		Flat idler running on belt teeth d_{min}	50 mm
Drive with reverse bending		Timing pulley z_{min}	30
		Flat idler running on belt back d_{min}	120 mm

Minimum available length

Execution	Max width	
	100 mm	150 mm
Standard	≥ 800 mm	≥ 1500 mm
PAZ	≥ 800 mm	≥ 1800 mm

ELA-flex SD®

RTD 14M



Belt characteristics

- Truly endless polyurethane timing belt with round tooth profile and steel tension cords
- Tooth profile according to ISO 13050
- Metric pitch 14 mm
- PAZ fabric on tooth delivered as standard decreases noise in high speed drives
- Transmissible power up to 200 kW
- Rpm up to 4.000 [1/min]
- **Dual toothing available from 1500 mm**

• Maximum width:	150 [mm]
• Width tolerance:	±1,0 [mm]
• Thickness tolerance:	±0,2 [mm]

Technical Data

Belt width [mm]	40	55	85	115	150
Allowable tensile load [N]	13600	17850	28050	38250	49300
Weight [kg/m]	0,48	0,63	1,0	1,40	1,85

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	31,19	0,000	**1200**	18,56	23,325	**3400**	11,86	42,219
20	30,59	0,641	**1300**	18,08	24,611	**3600**	11,47	43,237
40	30,04	1,258	**1400**	17,63	25,840	**3800**	11,10	44,169
60	29,53	1,855	**1440**	17,45	26,316	**4000**	10,75	45,021
80	29,06	2,434	**1500**	17,20	27,016	-	-	-
100	28,62	2,997	**1600**	16,80	28,141	-	-	-
200	26,69	5,589	**1700**	16,42	29,220	-	-	-
300	25,47	8,000	**1800**	16,05	30,255	-	-	-
400	24,33	10,190	**1900**	15,71	31,249	-	-	-
500	23,32	12,209	**2000**	15,38	32,202	-	-	-
600	22,42	14,088	**2200**	14,76	33,998	-	-	-
700	21,62	15,849	**2400**	14,19	35,656	-	-	-
800	20,90	17,508	**2600**	13,66	37,187	-	-	-
900	20,24	19,076	**2800**	13,17	38,602	-	-	-
1000	19,64	20,564	**3000**	12,70	39,907	-	-	-
1100	19,08	21,978	**3200**	12,27	41,111	-	-	-

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

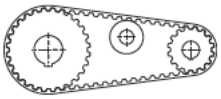
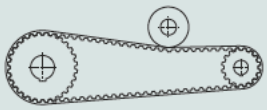
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A} \right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

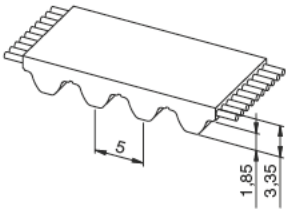
Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	32
		Flat idler running on belt teeth d_{min}	140 mm
Drive with reverse bending		Timing pulley z_{min}	32
		Flat idler running on belt back d_{min}	200 mm

Minimum available length

Execution	Max width 150 mm
Standard	≥ 1500 mm
PAZ	≥ 1800 mm

STD 5M



Belt characteristics

- Truly endless polyurethane timing belt with high tensile load steel cords and high torque capacity
- Tooth profile according to ISO 13050
- Metric pitch 5 mm
- Low noise generation in high speed drives
- Offer excellent operational reliability
- The special profile allows smooth running properties
- Transmissible power up to 6 Kw
- Rpm up to 10.000 [1/min]

- Maximum width: 150 [mm]
- Width tolerance: ±0,5 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [mm]	10	15	25	50	100	150
Allowable tensile load [N]	1150	1725	2760	5635	11155	16790
Weight [kg/m]	0,046	0,068	0,114	0,228	0,456	1,368

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	2,936	0,000	**1200**	2,031	2,553	**3400**	1,501	5,345
20	2,892	0,061	**1300**	1,995	2,715	**3600**	1,470	5,540
40	2,853	0,119	**1400**	1,960	2,873	**3800**	1,440	5,728
60	2,817	0,177	**1440**	1,946	2,935	**4000**	1,411	5,910
80	2,784	0,233	**1500**	1,927	3,026	**4500**	1,345	6,336
100	2,755	0,288	**1600**	1,895	3,175	**5000**	1,285	6,726
200	2,645	0,554	**1700**	1,865	3,321	**5500**	1,230	7,083
300	2,497	0,784	**1800**	1,837	3,462	**6000**	1,180	7,411
400	2,435	1,020	**1900**	1,810	3,600	**6500**	1,133	7,711
500	2,372	1,242	**2000**	1,784	3,735	**7000**	1,090	7,987
600	2,313	1,453	**2200**	1,734	3,996	**7500**	1,049	8,238
700	2,257	1,654	**2400**	1,689	4,245	**8000**	1,011	8,469
800	2,205	1,847	**2600**	1,647	4,483	**8500**	0,975	8,678
900	2,157	2,033	**2800**	1,607	4,712	**9000**	0,941	8,868
1000	2,113	2,212	**3000**	1,570	4,931	**9500**	0,909	9,040
1100	2,071	2,385	**3200**	1,535	5,142	**10000**	0,878	9,195

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

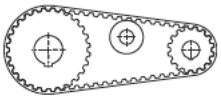
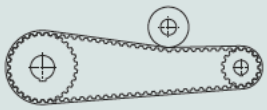
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A} \right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

Flexibility

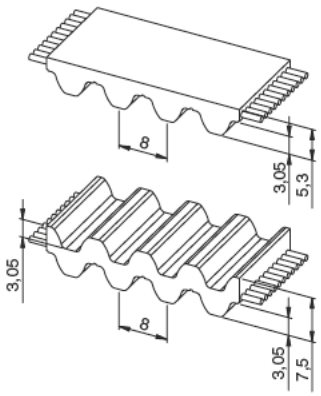
Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	16
		Flat idler running on belt teeth d_{min}	30 mm
Drive with reverse bending		Timing pulley z_{min}	25
		Flat idler running on belt back d_{min}	60 mm

Minimum available length

Execution	Max width	
	100 mm	150 mm
Standard	≥ 800 mm	≥ 1500 mm
PAZ	≥ 800 mm	≥ 1800 mm

ELA-flex SD®

STD 8M



Belt characteristics

- Truly endless polyurethane timing belt with high tensile load steel cords and high torque capacity
- Tooth profile according to ISO 13050
- Metric pitch 8 mm
- Low noise generation in high speed drives
- Offer excellent operational reliability
- The special profile allows smooth running properties
- Transmissible power up to 80 Kw
- Rpm up to 6.000 [1/min]
- **Dual toothing available from 1500 mm**

- Maximum width: 150 [mm]
- Width tolerance: ±0,5 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [mm]	10	15	20	30	50	85	100	150
Allowable tensile load [N]	1470	2205	2940	4410	7350	12495	14700	22050
Weight [kg/m]	0,07	0,10	0,13	0,20	0,33	0,56	0,66	1,00

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	9,435	0,000	**1200**	5,885	7,394	**3400**	3,960	14,098
20	9,301	0,195	**1300**	5,745	7,821	**3600**	3,849	14,508
40	9,176	0,384	**1400**	5,615	8,231	**3800**	3,743	14,894
60	9,057	0,569	**1440**	5,565	8,391	**4000**	3,643	15,257
80	8,946	0,749	**1500**	5,492	8,626	**4500**	3,410	16,070
100	8,841	0,926	**1600**	5,376	9,007	**5000**	3,201	16,762
200	8,401	1,759	**1700**	5,266	9,374	**5500**	3,011	17,343
300	7,908	2,484	**1800**	5,162	9,729	**6000**	2,837	17,824
400	7,567	3,169	**1900**	5,063	10,072	-	-	-
500	7,268	3,805	**2000**	4,968	10,404	-	-	-
600	7,005	4,401	**2200**	4,790	11,035	-	-	-
700	6,772	4,963	**2400**	4,627	11,628	-	-	-
800	6,561	5,496	**2600**	4,475	12,184	-	-	-
900	6,370	6,003	**2800**	4,334	12,707	-	-	-
1000	6,195	6,487	**3000**	4,202	13,199	-	-	-
1100	6,034	6,950	**3200**	4,077	13,662	-	-	-

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

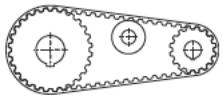
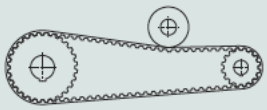
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A} \right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

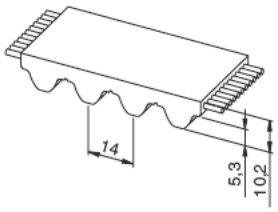
Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	18
		Flat idler running on belt teeth d_{min}	50 mm
Drive with reverse bending		Timing pulley z_{min}	30
		Flat idler running on belt back d_{min}	120 mm

Minimum available length

Execution	Max width 150 mm
Standard	≥ 1500 mm
PAZ	≥ 1800 mm

STD 14M



Belt characteristics

- Truly endless polyurethane timing belt with high tensile load steel cords and high torque capacity
- Tooth profile according to ISO 13050
- Metric pitch 14 mm
- Low noise generation in high speed drives
- Offer excellent operational reliability
- The special profile allows smooth running properties
- Transmissible power up to 200 Kw
- Rpm up to 4.000 [1/min]

- Maximum width: 100 [mm]
- Width tolerance: ±1,0 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [mm]	40	55	85	100
Allowable tensile load [N]	13600	17850	28050	33150
Weight [kg/m]	0,48	0,85	1,10	1,54

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	29,86	0,000	**1200**	17,45	21,925	**3400**	10,74	38,252
20	29,26	0,613	**1300**	16,97	23,095	**3600**	10,36	39,037
40	28,70	1,202	**1400**	16,51	24,207	**3800**	9,99	39,736
60	28,19	1,771	**1440**	16,34	24,636	**4000**	9,63	40,354
80	27,72	2,322	**1500**	16,09	25,266	-	-	-
100	27,29	2,857	**1600**	15,68	26,275	-	-	-
200	25,57	5,355	**1700**	15,30	27,237	-	-	-
300	24,35	7,650	**1800**	14,94	28,156	-	-	-
400	23,21	9,723	**1900**	14,59	29,032	-	-	-
500	22,20	11,626	**2000**	14,26	29,869	-	-	-
600	21,31	13,388	**2200**	13,64	31,431	-	-	-
700	20,51	15,032	**2400**	13,07	32,856	-	-	-
800	19,79	16,575	**2600**	12,55	34,154	-	-	-
900	19,13	18,026	**2800**	12,05	35,335	-	-	-
1000	18,52	19,397	**3000**	11,59	36,408	-	-	-
1100	17,97	20,695	**3200**	11,15	37,378	-	-	-

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

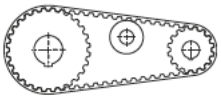
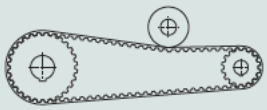
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A} \right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	32
		Flat idler running on belt teeth d_{min}	140 mm
Drive with reverse bending		Timing pulley z_{min}	32
		Flat idler running on belt back d_{min}	250 mm

Minimum available length

Execution	Max width 100 mm
Standard	≥ 1500 mm
PAZ	≥ 1800 mm

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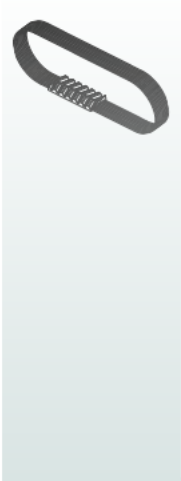
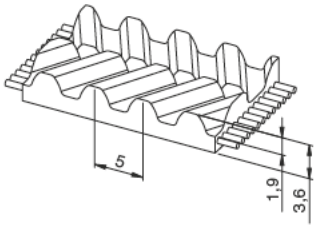




Belt characteristics

- Truly endless polyurethane timing belt with helical offset tooth, high tensile load steel cords and high torque capacity
- **Self tracking no need of pulley flanges**
- Metric pitch 5 mm
- **Extremely reduced noise generation**
- The special profile allows most compact drive
- **Max. length 2400 mm**

- Maximum width: 25 [mm]
- Width tolerance: ±0,8 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [mm]	**12,5**	**25**
Allowable tensile load [N]	1380	2760
Weight [kg/m]	0,06	0,12

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	3,01	0,000	**1200**	2,15	2,702	**3400**	1,62	5,768
20	2,96	0,062	**1300**	2,11	2,872	**3600**	1,59	5,994
40	2,92	0,122	**1400**	2,08	3,049	**3800**	1,56	6,208
60	2,89	0,182	**1440**	2,07	3,121	**4000**	1,53	6,409
80	2,86	0,240	**1500**	2,05	3,220	**4500**	1,46	6,880
100	2,83	0,296	**1600**	2,01	3,368	**5000**	1,40	7,330
200	2,72	0,570	**1700**	1,98	3,525	**5500**	1,35	7,775
300	2,62	0,823	**1800**	1,96	3,695	**6000**	1,30	8,168
400	2,55	1,068	**1900**	1,93	3,840	**6500**	1,25	8,508
500	2,49	1,304	**2000**	1,90	3,979	**-**	-	-
600	2,43	1,527	**2200**	1,85	4,262	**-**	-	-
700	2,38	1,745	**2400**	1,81	4,549	**-**	-	-
800	2,32	1,944	**2600**	1,77	4,819	**-**	-	-
900	2,28	2,149	**2800**	1,73	5,073	**-**	-	-
1000	2,23	2,335	**3000**	1,69	5,306	**-**	-	-
1100	2,19	2,523	**3200**	1,65	5,542	**-**	-	-

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

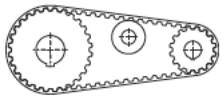
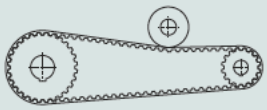
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A} \right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

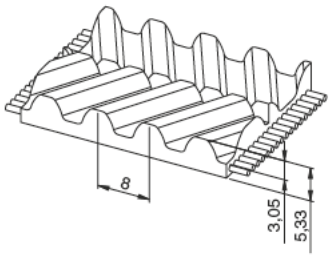
Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	16
		Flat idler running on belt teeth d_{min}	30 mm
Drive with reverse bending		Timing pulley z_{min}	25
		Flat idler running on belt back d_{min}	60 mm

Minimum available length

Execution	Max width 25 mm
Standard	≥ 800 mm
PAZ	≥ 800 mm

EAGLE 8M



Belt characteristics

- Truly endless polyurethane timing belt with helical offset tooth, high tensile load steel cords and high torque capacity
- **Self tracking no need of pulley flanges**
- Metric pitch 8 mm
- **Extremely reduced noise generation**
- The special profile allows most compact drive

- Maximum width: 50 [mm]
- Width tolerance: ±0,8 [mm]
- Thickness tolerance: ±0,3 [mm]

Technical Data

Belt width [mm]	16	25	32	50
Allowable tensile load [N]	2430	4040	5120	8090
Weight [kg/m]	0,085	0,145	0,180	0,300

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	10,82	0,000	**1200**	6,87	8,631	**3200**	4,90	16,422
20	10,67	0,223	**1300**	6,72	9,146	**3400**	4,77	16,991
40	10,52	0,441	**1400**	6,58	9,642	**3600**	4,65	17,531
60	10,38	0,652	**1440**	6,52	9,836	**3800**	4,53	18,044
80	10,24	0,858	**1500**	6,44	10,122	**4000**	4,42	18,531
100	10,11	1,058	**1600**	6,32	10,585	**4500**	4,17	19,647
200	9,52	1,994	**1700**	6,20	11,035	**5000**	3,94	20,627
300	9,04	2,840	**1800**	6,09	11,470	**5500**	3,73	21,486
400	8,65	3,623	**1900**	5,98	11,892	**6000**	3,54	22,234
500	8,34	4,368	**2000**	5,87	12,302	**6500**	3,36	22,880
600	8,07	5,068	**2200**	5,68	13,087	-	-	-
700	7,82	5,732	**2400**	5,50	13,828	-	-	-
800	7,60	6,363	**2600**	5,34	14,529	-	-	-
900	7,39	6,966	**2800**	5,18	15,194	-	-	-
1000	7,20	7,543	**2880**	5,12	15,450	-	-	-
1100	7,03	8,098	**3000**	5,04	15,824	-	-	-

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

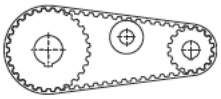
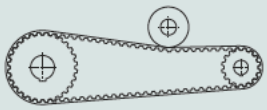
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A}\right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	20
		Flat idler running on belt teeth d_{min}	50 mm
Drive with reverse bending		Timing pulley z_{min}	30
		Flat idler running on belt back d_{min}	120 mm

Minimum available length

Execution	Max width 50 mm
Standard	≥ 900 mm
PAZ	≥ 900 mm

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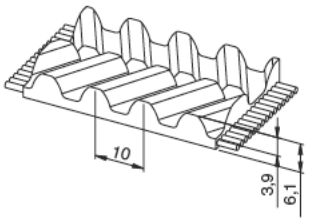
EAGLE 10M



Belt characteristics

- Truly endless polyurethane timing belt with helical offset tooth, high tensile load steel cords and high torque capacity
- **Self tracking no need of pulley flanges**
- Metric pitch 10 mm
- **Extremely reduced noise generation**
- The special profile allows most compact drive

- Maximum width: 50 [mm]
- Width tolerance: ±0,8 [mm]
- Thickness tolerance: ±0,3 [mm]

Technical Data

Belt width [mm]	25	32	50
Allowable tensile load [N]	5810	7920	12140
Weight [kg/m]	0,18	0,23	0,37

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	14,881	0,000	**1200**	9,273	11,653	**3400**	6,443	22,937
20	14,647	0,307	**1300**	9,070	12,347	**3600**	6,278	23,666
40	14,424	0,604	**1400**	8,879	13,017	**3800**	6,122	24,359
60	14,210	0,893	**1440**	8,806	13,278	**4000**	5,973	25,017
80	14,005	1,173	**1500**	8,699	13,664	**4500**	5,629	26,523
100	13,809	1,446	**1600**	8,530	14,290	**5000**	5,319	27,847
200	12,949	2,712	**1700**	8,369	14,897	**5500**	5,036	29,006
300	12,259	3,851	**1800**	8,215	15,485	**6000**	4,778	30,016
400	11,705	4,903	**1900**	8,070	16,055	**6500**	4,540	30,890
500	11,263	5,897	**2000**	7,930	16,608	**7000**	4,320	31,630
600	10,890	6,842	**2200**	7,669	17,667	**7500**	4,110	32,260
700	10,556	7,738	**2400**	7,428	18,668	**8000**	3,910	32,780
800	10,254	8,590	**2600**	7,205	19,615	**8500**	3,730	33,190
900	9,979	9,404	**2800**	6,996	20,512	**9000**	3,560	33,510
1000	9,725	10,184	**3000**	6,800	21,363	**9500**	3,390	33,740
1100	9,491	10,932	**3200**	6,616	22,170	**10000**	3,230	33,870

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

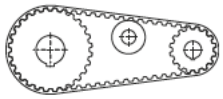
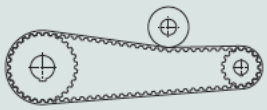
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A}\right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

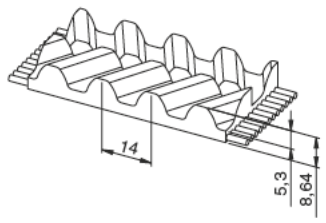
Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	25
		Flat idler running on belt teeth d_{min}	80 mm
Drive with reverse bending		Timing pulley z_{min}	25
		Flat idler running on belt back d_{min}	150 mm

Minimum available length

Execution	Max width 50 mm
Standard	≥ 900 mm
PAZ	≥ 900 mm

EAGLE 14M



Belt characteristics

- Truly endless polyurethane timing belt with helical offset tooth, high tensile load steel cords and high torque capacity
- **Self tracking no need of pulley flanges**
- Metric pitch 14 mm
- **Extremely reduced noise generation**
- The special profile allows most compact drive

- Maximum width: 105 [mm]
- Width tolerance: ±1,2 [mm]
- Thickness tolerance: ±0,4 [mm]

Technical Data

Belt width [mm]	**35**	**52,5**	**70**	**105**
Allowable tensile load [N]	13090	18700	26180	39270
Weight [kg/m]	0,4	0,6	0,8	1,2

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	35,65	0,000	**1200**	20,07	25,222	**3200**	12,19	40,849
20	34,98	0,733	**1300**	19,46	26,495	**3400**	11,68	41,581
40	34,36	1,439	**1400**	18,89	27,698	**3600**	11,19	42,201
60	33,79	2,123	**1440**	18,68	28,160	**3800**	10,73	42,715
80	33,25	2,786	**1500**	18,36	28,834	**4000**	10,30	43,129
100	32,76	3,430	**1600**	17,85	29,909	-	-	-
200	30,76	6,441	**1700**	17,37	30,926	-	-	-
300	28,94	9,090	**1800**	16,92	31,888	-	-	-
400	27,43	11,491	**1900**	16,49	32,798	-	-	-
500	26,12	13,677	**2000**	16,07	33,659	-	-	-
600	24,97	15,689	**2200**	15,30	35,243	-	-	-
700	23,95	17,553	**2400**	14,59	36,656	-	-	-
800	23,03	19,290	**2600**	13,93	37,912	-	-	-
900	22,19	20,915	**2800**	13,31	39,023	-	-	-
1000	21,43	22,439	**2880**	13,07	39,429	-	-	-
1100	20,73	23,872	**3000**	12,73	39,999	-	-	-

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

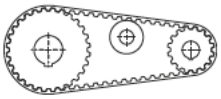
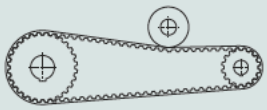
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A} \right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

Flexibility

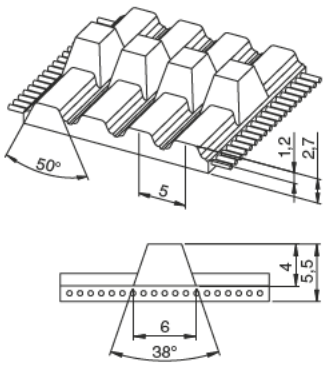
Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	32
		Flat idler running on belt teeth d_{min}	140 mm
Drive with reverse bending		Timing pulley z_{min}	32
		Flat idler running on belt back d_{min}	200 mm

Minimum available length

Execution	Max width 105 mm
Standard	≥ 1800 mm
PAZ	≥ 1800 mm

ELA-flex SD®

AT K5 - K6



Belt characteristics

- Polyurethane self tracking timing belt with steel tension cords
- Tooth profile according to ISO 17396
- Profile AT5 with central guide - K6 x 4 mm
- Central guide height 4,0 mm
- Allow to use pulleys without flanges
- The central guide is notched in order to maximize belt flexibility
- Ideal for conveying applications where a side load is generated by loading/unloading transferring a product
- **Max length 2500 mm**
- **Dual toothing available from1500 mm**

• Maximum width:	50 [mm]
• Width tolerance:	±0,5 [mm]
• Thickness tolerance:	±0,2 [mm]

Technical Data

Belt width [mm]	25	32	50
Allowable tensile load [N]	2760	3565	5635
Weight [kg/m]	0,08	0,11	0,17

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	2,897	0,000	**1200**	2,027	2,547	**3400**	1,514	5,391
20	2,855	0,060	**1300**	1,990	2,709	**3600**	1,485	5,598
40	2,817	0,118	**1400**	1,955	2,866	**3800**	1,456	5,795
60	2,783	0,175	**1440**	1,942	2,929	**4000**	1,429	5,986
80	2,753	0,231	**1500**	1,923	3,020	**4500**	1,367	6,442
100	2,725	0,285	**1600**	1,892	3,170	**5000**	1,311	6,862
200	2,620	0,549	**1700**	1,863	3,316	**5500**	1,260	7,255
300	2,540	0,798	**1800**	1,836	3,460	**6000**	1,213	7,619
400	2,458	1,030	**1900**	1,809	3,599	**6500**	1,169	7,957
500	2,383	1,248	**2000**	1,784	3,736	**7000**	1,128	8,271
600	2,317	1,456	**2200**	1,736	4,000	**7500**	1,091	8,568
700	2,258	1,655	**2400**	1,693	4,256	**8000**	1,055	8,839
800	2,204	1,846	**2600**	1,653	4,500	**8500**	1,023	9,101
900	2,153	2,029	**2800**	1,615	4,734	**9000**	0,991	9,337
1000	2,108	2,207	**3000**	1,580	4,962	**9500**	0,961	9,555
1100	2,066	2,379	**3200**	1,546	5,181	**10000**	0,933	9,766

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

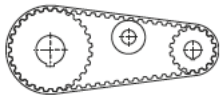
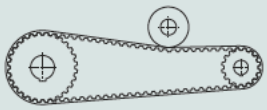
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A} \right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

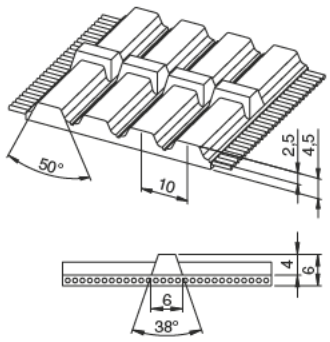
Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	15
		Flat idler running on belt teeth d_{min}	30 mm
Drive with reverse bending		Timing pulley z_{min}	25
		Flat idler running on belt back d_{min}	60 mm

Minimum available length

Execution	Max width 50 mm
Standard	≥ 800 mm
PAZ	≥ 800 mm

AT K10 - K6



Belt characteristics

- Polyurethane self tracking timing belt with steel tension cords
- Profile AT10 with central guide
- Central guide height 4 mm
- Allows to use pulleys without flanges
- The central guide is notched in order to maximize belt flexibility
- Ideal for conveying applications where a side load is generated by loading/unloading or transferring a product
- **Dual toothing available from1500 mm**

- Maximum width: 75 [mm]
- Width tolerance: ±0,5 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [mm]	32	50	75
Allowable tensile load type V [N]	5120	8090	12400
Weight [kg/m]	0,27	0,36	0,54

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	12,048	0,000	**1200**	7,708	9,685	**3400**	5,317	18,931
20	11,871	0,249	**1300**	7,534	10,256	**3600**	5,180	19,529
40	11,706	0,490	**1400**	7,372	10,807	**3800**	5,048	20,088
60	11,550	0,726	**1440**	7,310	11,022	**4000**	4,924	20,625
80	11,403	0,955	**1500**	7,219	11,339	**4500**	4,636	21,846
100	11,265	1,180	**1600**	7,076	11,855	**5000**	4,377	22,915
200	10,684	2,238	**1700**	6,939	12,352	**5500**	4,140	23,841
300	10,215	3,209	**1800**	6,810	12,836	**6000**	3,923	24,648
400	9,793	4,102	**1900**	6,688	13,305	**6500**	3,724	25,348
500	9,424	4,934	**2000**	6,570	13,759	**7000**	3,538	25,933
600	9,097	5,716	**2200**	6,349	14,625	**7500**	3,365	26,423
700	8,808	6,456	**2400**	6,147	15,447	**8000**	3,202	26,825
800	8,547	7,159	**2600**	5,959	16,223	**8500**	3,048	27,127
900	8,309	7,831	**2800**	5,782	16,953	**9000**	2,903	27,358
1000	8,093	8,474	**3000**	5,618	17,649	**9500**	2,766	27,516
1100	7,893	9,091	**3200**	5,464	18,308	**10000**	2,636	27,598

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A}\right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

Flexibility

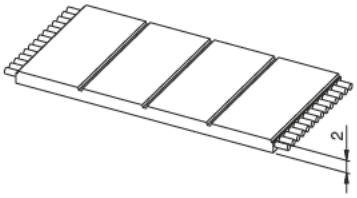
Minimum pulley number of teeth and minimum idler diameter		
Drive without reverse bending	Timing pulley z_{min}	15
	Flat idler running on belt teeth d_{min}	50 mm
Drive with reverse bending	Timing pulley z_{min}	25
	Flat idler running on belt back d_{min}	120 mm

Minimum available length

Execution	Max width 75 mm
Standard	≥ 1500 mm
PAZ	≥ 1800 mm

ELA-flex SD®

F2



Belt characteristics

- Polyurethane flat belt with steel tension cords
- It is mainly used in drive applications where there is no need for synchronization
- Allows the use of small diameter pulleys

- Width tolerance: ±0,5 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [mm]	25	32	50	75	100
Allowable tensile load [N]	4040	4850	8090	12400	16440
Weight [kg/m]	0,07	0,1	0,16	0,24	0,3

Other widths are available on request.

Flexibility

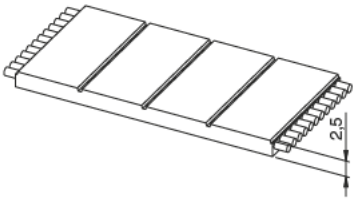
Minimum pulley diameter	Drive without reverse bending [mm]	Drive with reverse bending [mm]
	50	100

Minimum available length

Execution	Max width 100 mm
Standard	≥ 1500 mm
PAZ	≥ 1800 mm

ELA-flex SD®

F2,5



Belt characteristics

- Polyurethane flat belt with steel tension cords
- It is mainly used in drive applications where there is no need for synchronization
- Allows the use of small diameter pulleys

- Width tolerance: ±0,8 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [mm]	20	25	50	75	100
Allowable tensile load [N]	4800	5760	11520	17280	23040
Weight [kg/m]	0,08	0,09	0,18	0,27	0,36

Other widths are available on request.

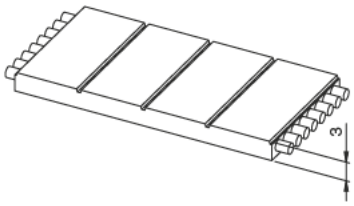
Flexibility

Minimum pulley diameter	Drive without reverse bending [mm]	Drive with reverse bending [mm]
	80	150

Minimum available length

Execution	Max width 100 mm
Standard	≥ 1500 mm
PAZ	≥ 1800 mm

F3



Belt characteristics

- Polyurethane flat belt with steel tension cords
- It is mainly used in drive applications where there is no need for synchronization
- Allows the use of small diameter pulleys

- Width tolerance: ±1,0 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [mm]	25	30	60	100
Allowable tensile load [N]	9350	11220	22440	37400
Weight [kg/m]	0,20	0,25	0,50	1,00

Other widths are available on request.

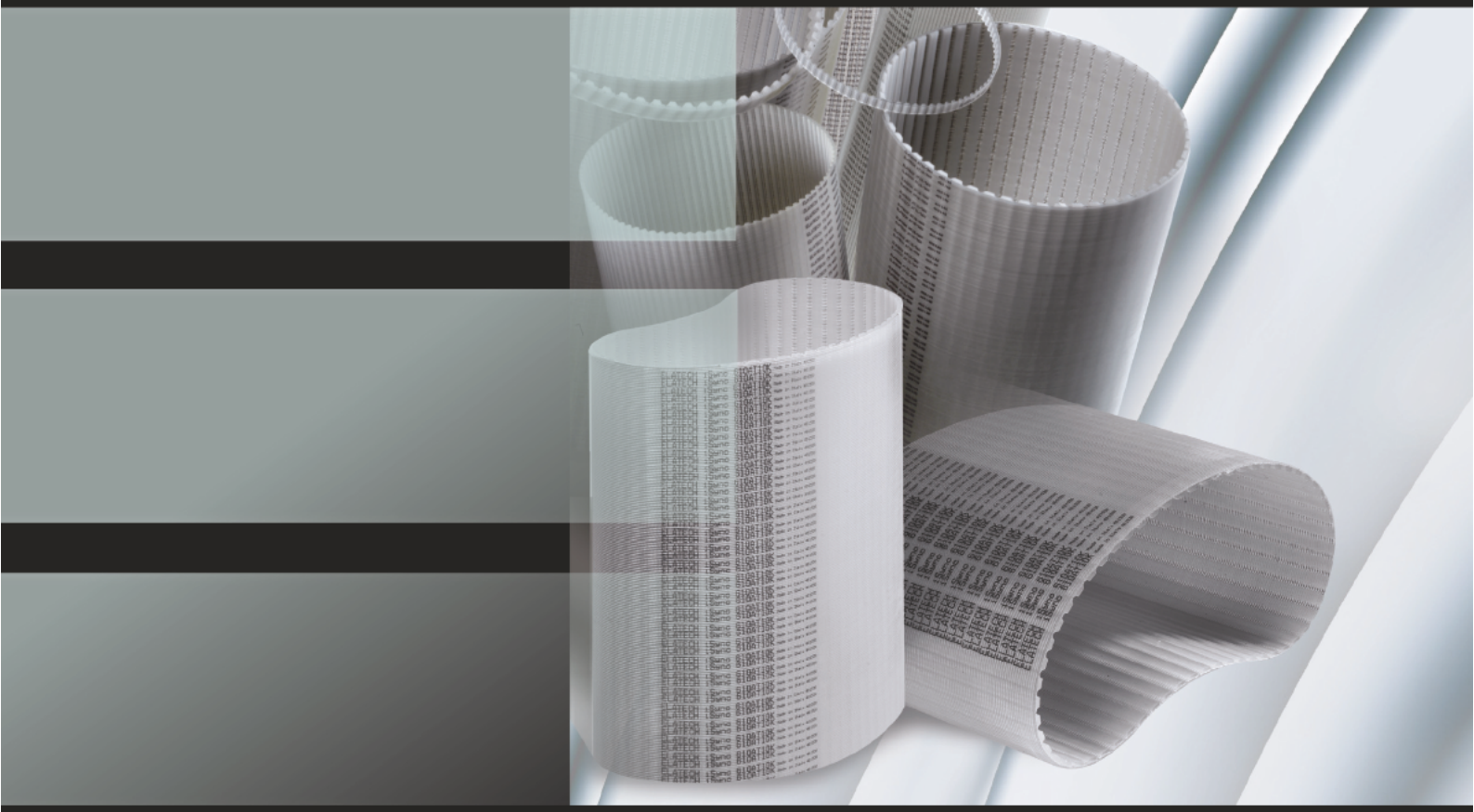
Flexibility

Minimum pulley diameter	Drive without reverse bending [mm]	Drive with reverse bending [mm]
	120	180

Minimum available length

Execution	Max width 100 mm
Standard	≥ 1500 mm
PAZ	≥ 1800 mm

ELATECH® iSync®
high performance timing belts

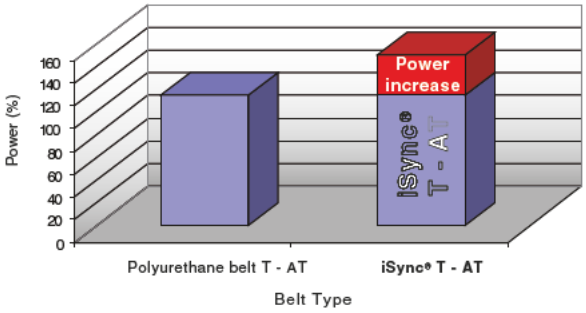


Elatech
Technology in Motion.

ELATECH® iSync®

In the spirit of continuos innovation, in order to answer to the increased need of industry in power transmission, **ELATECH®** has developed the **iSync®** range of belts. **iSync®** belts are made with special polyurethane compound and high resistance steel tension cords which are processed with a unique and highly sophisticated technology to get a superior polyurethane belt. **iSync®** belts offer optimal performances on all types of industrial applications.

iSync® belts are able to transmit up to 30% more than conventional T, AT type of belts in the same space or same power with a more compact drive.



Features
- High power transmission capabilities
- Maintenance free
- Superior length stability
- Clean power transmission with no dust dispersion
- No contamination of object in contact
- Very high chemical resistance and particularly to oils, greases and gasoline
- Superior abrasion resistance
- High quality, thermo-set polyurethane designed specifically for timing belt applications
- Available with either steel or Kevlar® reinforcement
- Application temperature -10°C - +80 °C (standard)
- Up to +125 °C with special compound PU 53

Typical application fields

ELATECH® iSync® belts are suitable for power transmission drives where high precision is needed, cleanliness is critical and in difficult environment (presence of chemicals).
- Plotters
- Office automation
- Medical technology
- Packaging machines
- Swimming pool cleaning robots
- Banking machines
- Coin dispenser
- Vending machines
- Optical instruments
- Cameras
- Machine tools
- Robot arms
- Home appliances
- Vacuum systems
- Food processing machines
- Textile machines
- Gardening equipment and machines

Applications with special backing and cleats are specifically designed for special heavy duty conveying drives.

Available profile range

ELATECH® iSync® belts are available in a standard range in the following profile range:

T2,5, T5, T10, AT5, AT10, XL, L

As special the following profile can be manufactured on request **MXL, H, HTD5M, DD double sided executions.**

Tension cords

ELATECH® iSync® timing belts are manufactured with high tensile strength steel cords as standard. All technical data shown in the catalogue are valid for standard cords. Belt with special cords have different mechanical and chemical properties. Special type of tension member such as stainless steel, HFE high flexibility or aramid fiber (Kevlar®) are available on request for special applications.
Aramid (Kevlar®) tension cords are used where non-magnetic drives are requested.
Stainless steel is used where high corrosion resistance is required.
Fiberglass and polyester are used where high flexibility and water restistance are required.

FDA - Approved Belts

ELATECH® has developed a special formulation for iSync® moulded belts for application in:

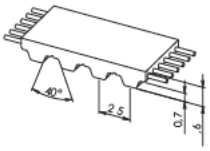
- packing
- conveying
- processing

of dairy, meat and food products which complies to the U.S. Food and Drugs Administration (FDA) law and regulations.

Please contact our Sales Department.

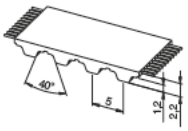
Standard belt sizes - Single toothing

T2,5



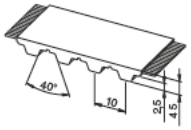
Length [mm] z	Length [mm]
48	120
58	145
64	160
71	177,5
72	180
74	185
80	200
84	210
92	230
98	245
106	265
111	277,5
114	285
116	290
122	305
127	317,5
132	330
137	342,5
152	380
168	420
192	480
200	500
216	540
240	600
260	650
312	780
366	915
380	950
590	1475

T5



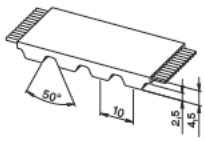
Number of teeth z	Length [mm]	Number of teeth z	Length [mm]
33	165	**112**	560
36	180	**115**	575
37	185	**118**	590
40	200	**120**	600
42	210	**122**	610
43	215	**124**	620
44	220	**125**	625
45	225	**126**	630
49	245	**128**	640
50	250	**130**	650
51	255	**132**	660
52	260	**135**	675
54	270	**138**	690
55	275	**140**	700
56	280	**144**	720
59	295	**145**	725
60	300	**150**	750
61	305	**153**	765
64	320	**156**	780
65	325	**160**	800
66	330	**163**	815
68	340	**166**	830
70	350	**168**	840
71	355	**170**	850
72	360	**172**	860
73	365	**180**	900
75	375	**188**	940
78	390	**198**	990
80	400	**200**	1000
82	410	**215**	1075
84	420	**220**	1100
85	425	**223**	1115
86	430	**228**	1140
88	440	**240**	1200
89	445	**243**	1215
90	450	**253**	1265
91	455	**255**	1275
92	460	**256**	1280
95	475	**263**	1315
96	480	**270**	1350
100	500	**271**	1355
102	510	**276**	1380
105	525	**288**	1440
109	545	**391**	1955
110	550	**-**	-

T10



Number of teeth z	Length [mm]	Number of teeth z	Length [mm]
26	260	**96**	960
32	320	**97**	970
35	350	**98**	980
37	370	**100**	1000
40	400	**101**	1010
41	410	**105**	1050
44	440	**108**	1080
45	450	**110**	1100
48	480	**111**	1110
50	500	**114**	1140
53	530	**115**	1150
55	550	**120**	1200
56	560	**121**	1210
60	600	**124**	1240
61	610	**125**	1250
63	630	**130**	1300
65	650	**132**	1320
66	660	**135**	1350
68	680	**139**	1390
69	690	**140**	1400
70	700	**142**	1420
72	720	**144**	1440
73	730	**145**	1450
75	750	**146**	1460
76	760	**150**	1500
78	780	**156**	1560
80	800	**160**	1600
81	810	**161**	1610
84	840	**170**	1700
85	850	**175**	1750
88	880	**178**	1780
89	890	**180**	1800
90	900	**188**	1880
91	910	**196**	1960
92	920	**225**	2250
95	950	**-**	-

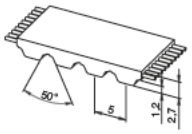
VACUUM - T10



Number of teeth z	Length [mm]
60	600
63	630
72	720
80	800
92	920

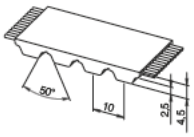
Order example
ELATECH® iSync® Timing Belt U 420 T5 / 16

AT5



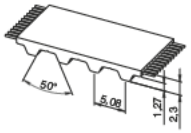
Number of teeth z	Length [mm]
45	225
51	255
56	280
60	300
68	340
75	375
78	390
84	420
90	450
91	455
100	500
109	545
120	600
122	610
132	660
142	710
144	720
150	750
156	780
165	825
172	860
195	975
210	1050
225	1125
257	1285
300	1500

AT10



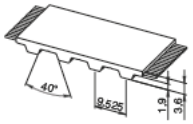
Number of teeth z	Length [mm]
50	500
53	530
56	560
58	580
60	600
61	610
66	660
70	700
73	730
78	780
80	800
81	810
84	840
88	880
89	890
92	920
96	960
98	980
100	1000
101	1010
105	1050
108	1080
110	1100
115	1150
120	1200
121	1210
123	1230
125	1250
128	1280
130	1300
132	1320
135	1350
136	1360
140	1400
142	1420
148	1480
150	1500
160	1600
170	1700
172	1720
180	1800
186	1860
194	1940

XL



Number of teeth z	Length [mm]	Length [inch]
30	152,4	6
35	177,8	7
40	203,2	8
45	228,6	9
50	254,0	10
55	279,4	11
60	304,8	12
65	330,2	13
70	355,6	14
75	381,0	15
80	406,4	16
85	431,8	17
90	457,2	18
95	482,6	19
100	508,6	20
105	533,4	21
110	558,8	22
115	584,2	23
120	609,6	24

L

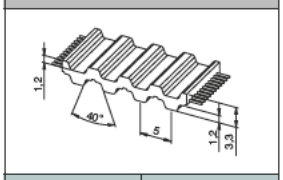


Number of teeth z	Length [inch]
33	12,38
40	15
44	16,5
46	17,3
50	18,75
54	20,25
56	21
60	22,5
64	24
68	25,5
72	27
76	28,5
80	30
86	32,5
92	34,5
98	36,7
104	39
112	42
136	51
144	54

Order example
ELATECH® iSync® Timing Belt U 450 AT5 / 16
ELATECH® iSync® Timing Belt U 225 L / 100

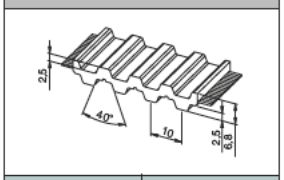
Standard belt sizes - Dual toothing

DT5



Number of teeth z	Length [mm]
82	410
92	460
118	590
124	620
125	625
150	750
160	800
163	815
168	840
172	860
188	940
220	1100

DT10



Number of teeth z	Length [mm]
26	260
53	530
63	630
66	660
72	720
81	810
84	840
92	920
98	980
110	1100
121	1210
124	1240
125	1250
132	1320
135	1350
142	1420
161	1610
188	1880

Order example
ELATECH® iSync® Timing Belt U 620 DT5 / 16

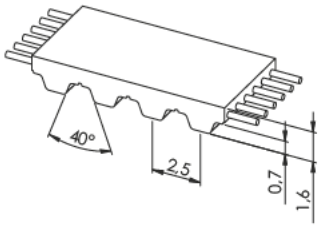
Special belts

Special belts with cleats, backing and with special moulded shape are designed and manufactured to maximize application performance.

ELATECH® iSync® high performance endless timing belt technical data

iSync®

T 2,5



Belt characteristics

- Truly endless polyurethane timing belt with steel tension cords
- Tooth profile according to ISO 17396
- Metric pitch 2,5 mm
- Ideal for drives where high belt flexibility is required
- Allows the use of small diameter pulleys
- Transmissible power up to 5 kW
- Rpm up to 10.000 [1/min]

- Width tolerance: ±0,3 [mm]
- Thickness tolerance: ±0,15 [mm]

Technical Data

Belt width [mm]	4	6	8	10	12	16	25	32
Allowable tensile load [N]	45	81	108	135	162	225	351	459
Weight [g/m]	6	9	12	15	18	24	37	48

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	0,471	0,000	**1200**	0,287	0,361	**3400**	0,228	0,810
20	0,454	0,010	**1300**	0,283	0,385	**3600**	0,224	0,845
40	0,44	0,018	**1400**	0,278	0,408	**3800**	0,221	0,880
60	0,429	0,027	**1440**	0,277	0,417	**4000**	0,218	0,914
80	0,421	0,035	**1500**	0,274	0,431	**4500**	0,211	0,996
100	0,414	0,043	**1600**	0,271	0,454	**5000**	0,205	1,074
200	0,382	0,080	**1700**	0,267	0,476	**5500**	0,200	1,150
300	0,362	0,114	**1800**	0,264	0,498	**6000**	0,195	1,223
400	0,347	0,145	**1900**	0,261	0,519	**6500**	0,19	1,293
500	0,335	0,175	**2000**	0,258	0,541	**7000**	0,186	1,360
600	0,325	0,204	**2200**	0,253	0,582	**7500**	0,182	1,426
700	0,317	0,232	**2400**	0,248	0,622	**8000**	0,178	1,489
800	0,31	0,259	**2600**	0,243	0,662	**8500**	0,174	1,551
900	0,303	0,286	**2800**	0,239	0,700	**9000**	0,171	1,611
1000	0,297	0,311	**3000**	0,235	0,715	**9500**	0,168	1,668
1100	0,292	0,336	**3200**	0,231	0,738	**10000**	0,165	1,725

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

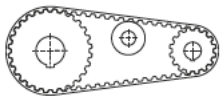
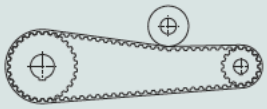
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

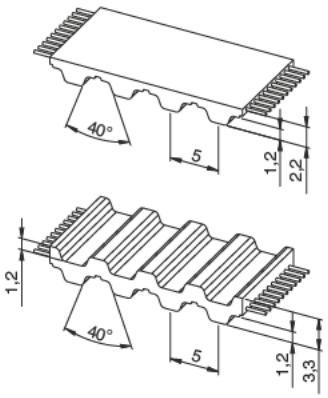
$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A} \right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	10
		Flat idler running on belt teeth d_{min}	15 mm
Drive with reverse bending		Timing pulley z_{min}	18
		Flat idler running on belt back d_{min}	15 mm

T 5 / T 5 Dual



Belt characteristic

- Truly endless polyurethane timing belt with steel tension cords
- Tooth profile according to ISO 17396
- Metric pitch 5 mm
- Ideal for drives where high belt flexibility is required
- Allows the use of small diameter pulleys
- Rpm up to 10.000 [1/min]

- Width tolerance: ±0,5 [mm]
- Thickness tolerance: ±0,15 [mm]

Technical Data

Belt width [mm]	10	12	16	25	32	50	75	100
Allowable tensile load [N]	430	520	690	1090	1380	2170	3290	4160
Weight [g/m]	24	28	38	60	77	120	180	240
Weight DT5 [g/m]	27	32	43	68	97	138	210	270

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	2,523	0,000	**1200**	1,607	2,019	**3400**	1,248	4,444
20	2,458	0,051	**1300**	1,580	2,151	**3600**	1,229	4,632
40	2,403	0,101	**1400**	1,555	2,279	**3800**	1,209	4,812
60	2,354	0,148	**1440**	1,545	2,330	**4000**	1,191	4,988
80	2,312	0,194	**1500**	1,532	2,406	**4500**	1,149	5,414
100	2,276	0,238	**1600**	1,510	2,529	**5000**	1,111	5,818
200	2,135	0,447	**1700**	1,489	2,651	**5500**	1,078	6,206
300	2,032	0,638	**1800**	1,470	2,770	**6000**	1,046	6,571
400	1,951	0,817	**1900**	1,451	2,888	**6500**	1,017	6,924
500	1,884	0,987	**2000**	1,433	3,001	**7000**	0,991	7,262
600	1,829	1,149	**2200**	1,400	3,226	**7500**	0,966	7,588
700	1,781	1,306	**2400**	1,371	3,445	**8000**	0,943	7,897
800	1,738	1,456	**2600**	1,342	3,654	**8500**	0,920	8,191
900	1,701	1,603	**2800**	1,317	3,860	**9000**	0,900	8,480
1000	1,667	1,745	**3000**	1,306	3,940	**9500**	0,880	8,758
1100	1,635	1,884	**3200**	1,292	4,059	**10000**	0,862	9,027

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

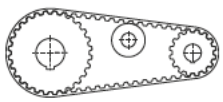
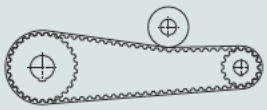
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A}\right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	10
		Flat idler running on belt teeth d_{min}	30 mm
Drive with reverse bending		Timing pulley z_{min}	15
		Flat idler running on belt back d_{min}	30 mm

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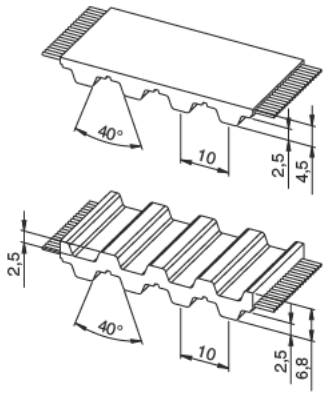
T 10 / T 10 Dual



Belt characteristics

- Truly endless polyurethane timing belt with steel tension cords
- Tooth profile according to ISO 17396
- Metric pitch 10 mm
- Ideal for drives where high belt flexibility is required
- Allows the use of small diameter pulleys
- Rpm up to 10.000 [1/min]

- Width tolerance: ±0,5 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [mm]	10	16	25	32	50	75	100	150
Allowable tensile load [N]	890	1520	2280	3040	4680	7080	9490	14170
Weight [g/m]	50	77	120	155	240	365	480	725
Weight DT10 [g/m]	62	92	145	190	290	430	570	900

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	10,717	0	**1200**	6,25	7,854	**3400**	4,499	16,017
20	10,412	0,218	**1300**	6,119	8,330	**3600**	4,400	16,587
40	10,147	0,425	**1400**	5,998	8,792	**3800**	4,307	17,136
60	9,916	0,623	**1440**	5,951	8,974	**4000**	4,218	17,666
80	9,715	0,814	**1500**	5,884	9,242	**4500**	4,013	18,910
100	9,541	0,999	**1600**	5,777	9,678	**5000**	3,829	20,049
200	8,846	1,853	**1700**	5,676	10,104	**5500**	3,663	21,094
300	8,334	2,618	**1800**	5,58	10,518	**6000**	3,510	22,054
400	7,938	3,325	**1900**	5,49	10,922	**6500**	3,370	22,935
500	7,615	3,987	**2000**	5,404	11,316	**7000**	3,239	23,743
600	7,342	4,613	**2200**	5,243	12,077	**7500**	3,118	24,484
700	7,106	5,209	**2400**	5,095	12,805	**8000**	3,004	25,162
800	6,899	5,779	**2600**	4,959	13,501	**8500**	2,897	25,781
900	6,713	6,326	**2800**	4,832	14,168	**9000**	2,795	26,345
1000	6,545	6,853	**3000**	4,714	14,809	**9500**	2,700	26,855
1100	6,391	7,362	**3200**	4,603	15,424	**10000**	2,609	27,317

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

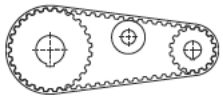
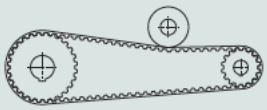
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

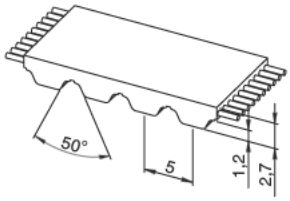
$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A}\right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	12
		Flat idler running on belt teeth d_{min}	60 mm
Drive with reverse bending		Timing pulley z_{min}	20
		Flat idler running on belt back d_{min}	60 mm

AT 5



Belt characteristics

- Truly endless polyurethane timing belt with steel ension cords
- Tooth profile according to ISO 17396
- Metric pitch 5 mm
- Tooth profile and dimension are optimised to guarantee uniform load distribution and minimum deformation under load
- High resistance and low stretch steel cords to guarantee high stability and low elongation
- Reduced polygonal effect with reduced drive vibration and noise
- Rpm up to 10.000 [1/min]

- Width tolerance: ±0,5 [mm]
- Thickness tolerance: ±0,15 [mm]

Technical Data

Belt width [mm]	6	10	16	25	32	50	75	100
Allowable tensile load [N]	430	790	1350	2200	2950	4700	7100	9500
Weight [g/m]	21	34	54	86	110	175	260	350

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	3,813	0,000	**1200**	2,668	3,352	**3400**	1,993	7,096
20	3,758	0,079	**1300**	2,620	3,566	**3600**	1,954	7,368
40	3,708	0,155	**1400**	2,574	3,773	**3800**	1,917	7,627
60	3,663	0,230	**1440**	2,557	3,855	**4000**	1,881	7,879
80	3,623	0,304	**1500**	2,531	3,975	**4500**	1,799	8,479
100	3,586	0,376	**1600**	2,491	4,173	**5000**	1,725	9,032
200	3,448	0,722	**1700**	2,452	4,365	**5500**	1,658	9,549
300	3,343	1,050	**1800**	2,416	4,554	**6000**	1,596	10,029
400	3,235	1,355	**1900**	2,381	4,737	**6500**	1,539	10,473
500	3,137	1,642	**2000**	2,348	4,918	**7000**	1,485	10,887
600	3,050	1,916	**2200**	2,285	5,265	**7500**	1,436	11,278
700	2,972	2,178	**2400**	2,229	5,601	**8000**	1,389	11,635
800	2,900	2,430	**2600**	2,175	5,923	**8500**	1,346	11,980
900	2,834	2,671	**2800**	2,125	6,231	**9000**	1,304	12,289
1000	2,775	2,905	**3000**	2,106	6,352	**9500**	1,264	12,576
1100	2,719	3,132	**3200**	2,079	6,531	**10000**	1,228	12,854

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

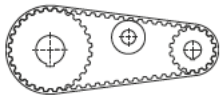
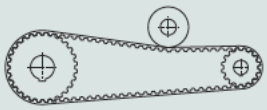
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A}\right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	15
		Flat idler running on belt teeth d_{min}	25 mm
Drive with reverse bending		Timing pulley z_{min}	20
		Flat idler running on belt back d_{min}	60 mm

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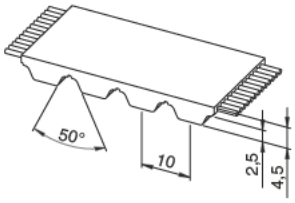
AT 10



Belt characteristics

- Truly endless polyurethane timing belt with steel tension cords
- Tooth profile according to ISO 17396
- Metric pitch 10 mm
- Tooth profile and dimension are optimised to guarantee uniform load distribution and minimum deformation under load
- High resistance and low stretch steel cords to guarantee high stability and low elongation
- Reduced polygonal effect with reduced drive vibration and noise
- Rpm up to 10.000 [1/min]

- Width tolerance: ±0,5 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [mm]	16	25	32	50	75	100	150
Allowable tensile load [N]	3150	5450	7100	11000	17200	23000	34600
Weight [g/m]	101	158	200	316	475	630	950

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	15,903	0,000	**1200**	10,174	12,785	**3400**	7,019	24,989
20	15,670	0,328	**1300**	9,945	13,538	**3600**	6,838	25,778
40	15,452	0,647	**1400**	9,731	14,266	**3800**	6,664	26,516
60	15,246	0,958	**1440**	9,649	14,550	**4000**	6,500	27,225
80	15,053	1,261	**1500**	9,529	14,968	**4500**	6,120	28,837
100	14,870	1,557	**1600**	9,340	15,649	**5000**	5,777	30,248
200	14,103	2,954	**1700**	9,160	16,305	**5500**	5,464	31,470
300	13,483	4,236	**1800**	8,990	16,944	**6000**	5,179	32,536
400	12,927	5,414	**1900**	8,828	17,563	**6500**	4,916	33,460
500	12,439	6,513	**2000**	8,672	18,162	**7000**	4,670	34,232
600	12,008	7,545	**2200**	8,380	19,305	**7500**	4,441	34,878
700	11,626	8,522	**2400**	8,113	20,390	**8000**	4,227	35,409
800	11,282	9,451	**2600**	7,866	21,414	**8500**	4,023	35,808
900	10,969	10,337	**2800**	7,632	22,378	**9000**	3,832	36,113
1000	10,683	11,186	**3000**	7,544	22,751	**9500**	3,651	36,322
1100	10,418	12,000	**3200**	7,416	23,296	**10000**	3,479	36,429

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

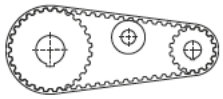
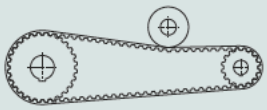
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

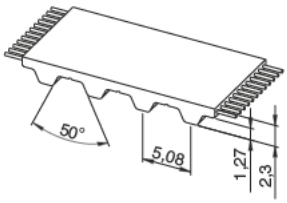
$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A} \right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	15
		Flat idler running on belt teeth d_{min}	50 mm
Drive with reverse bending		Timing pulley z_{min}	25
		Flat idler running on belt back d_{min}	120 mm

XL



Belt characteristics

- Truly endless polyurethane timing belt with steel tension cords and trapezoidal tooth profile according to UNI/ISO 5296
- Imperial pitch 1/5" = 5,08 mm
- Mainly used in applications where inch pitch is an advantage
- Transmissible power up to 5 kW
- Rpm up to 10.000 [1/min]

- Width tolerance: ±0,5 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [inch]	**0,25**	**0,31**	**0,37**	**0,50**
Allowable tensile load [N]	224	320	384	512
Weight [g/m]	12	16	19	22

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	**rpm** [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	**rpm** [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	2,638	0	**1200**	1,682	2,114	**3400**	1,308	4,655
20	2,571	0,054	**1300**	1,654	2,252	**3600**	1,287	4,850
40	2,512	0,105	**1400**	1,628	2,387	**3800**	1,266	5,039
60	2,462	0,155	**1440**	1,618	2,44	**4000**	1,247	5,225
80	2,417	0,202	**1500**	1,604	2,519	**4500**	1,204	5,671
100	2,379	0,249	**1600**	1,581	2,649	**5000**	1,164	6,095
200	2,233	0,468	**1700**	1,560	2,776	**5500**	1,129	6,499
300	2,125	0,668	**1800**	1,539	2,901	**6000**	1,096	6,885
400	2,041	0,855	**1900**	1,520	3,024	**6500**	1,066	7,253
500	1,973	1,033	**2000**	1,501	3,144	**7000**	1,038	7,606
600	1,915	1,203	**2200**	1,467	3,379	**7500**	1,012	7,945
700	1,865	1,367	**2400**	1,435	3,607	**8000**	0,987	8,270
800	1,821	1,525	**2600**	1,406	3,828	**8500**	0,964	8,582
900	1,781	1,678	**2800**	1,379	4,043	**9000**	0,943	8,883
1000	1,745	1,827	**3000**	1,354	4,253	**9500**	0,922	9,172
1100	1,712	1,972	**3200**	1,330	4,457	**10000**	0,903	9,450

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

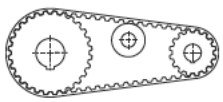
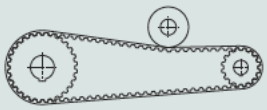
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

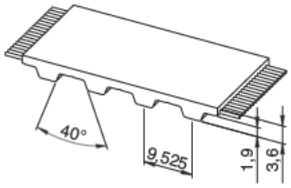
$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A}\right]$$

P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	10
		Flat idler running on belt teeth d_{min}	30 mm
Drive with reverse bending		Timing pulley z_{min}	15
		Flat idler running on belt back d_{min}	30 mm

L



Belt characteristics

- Truly endless polyurethane timing belt with steel tension cords and trapezoidal tooth profile according to UNI/ISO 5296
- Imperial pitch 3/8" = 9,525 mm
- Mainly used in applications where inch pitch is an advantage
- Transmissible power up to 20 kW
- Rpm up to 10.000 [1/min]

- Width tolerance: ±0,5 [mm]
- Thickness tolerance: ±0,2 [mm]

Technical Data

Belt width [inch]	**0,50**	**0,75**	**1,00**	**1,50**	**2,00**	**3,00**	**4,00**
Allowable tensile load [N]	1150	1725	2300	3565	4715	7245	9660
Weight [g/m]	50	80	100	150	200	300	400

Other widths are available on request.

Tooth shear strength

rpm [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	**rpm** [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]	**rpm** [min⁻¹]	M_{spez} [Ncm/cm]	P_{spez} [W/cm]
0	7,607	0	**1200**	4,411	5,543	**3400**	3,174	11,299
20	7,375	0,154	**1300**	4,319	5,879	**3600**	3,104	11,701
40	7,174	0,300	**1400**	4,233	6,205	**3800**	3,038	12,087
60	6,999	0,440	**1440**	4,200	6,333	**4000**	2,975	12,46
80	6,847	0,574	**1500**	4,153	6,522	**4500**	2,830	13,335
100	6,714	0,703	**1600**	4,077	6,831	**5000**	2,700	14,135
200	6,225	1,304	**1700**	4,006	7,131	**5500**	2,582	14,869
300	5,872	1,844	**1800**	3,938	7,423	**6000**	2,474	15,542
400	5,596	2,344	**1900**	3,874	7,708	**6500**	2,374	16,159
500	5,370	2,811	**2000**	3,813	7,986	**7000**	2,282	16,725
600	5,179	3,254	**2200**	3,700	8,523	**7500**	2,196	17,243
700	5,013	3,675	**2400**	3,596	9,036	**8000**	2,115	17,716
800	4,867	4,077	**2600**	3,499	9,527	**8500**	2,039	18,148
900	4,737	4,464	**2800**	3,410	9,997	**9000**	1,967	18,540
1000	4,618	4,836	**3000**	3,326	10,448	**9500**	1,899	18,894
1100	4,510	5,195	**3200**	3,248	10,882	**10000**	1,835	19,214

The total power "P" and the total torque "M" transmitted by the belt, are calculated with the following formulas:

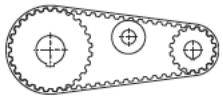
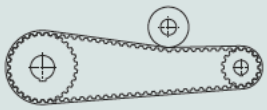
$$P\,[kW] = P_{spez} \cdot z_e \cdot z_k \cdot b / 1000$$

$$M\,[Nm] = M_{spez} \cdot z_e \cdot z_k \cdot b / 100$$

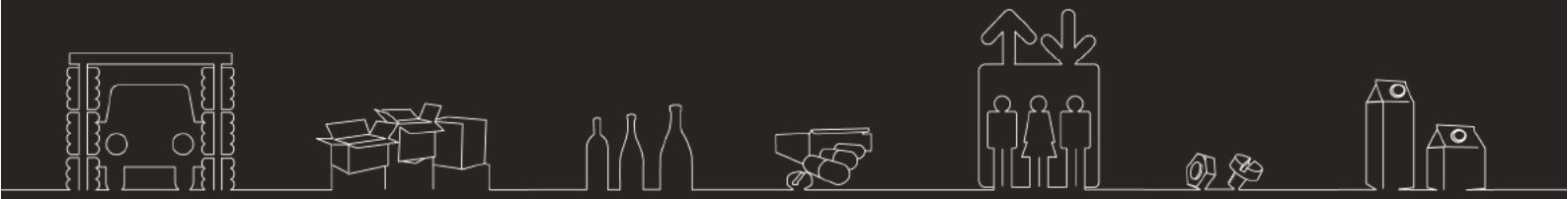
$$z_e = \frac{Z_k}{180} \cdot \arccos \cdot \left[\frac{t \cdot (z_g - z_k)}{2 \cdot \pi \cdot A} \right]$$

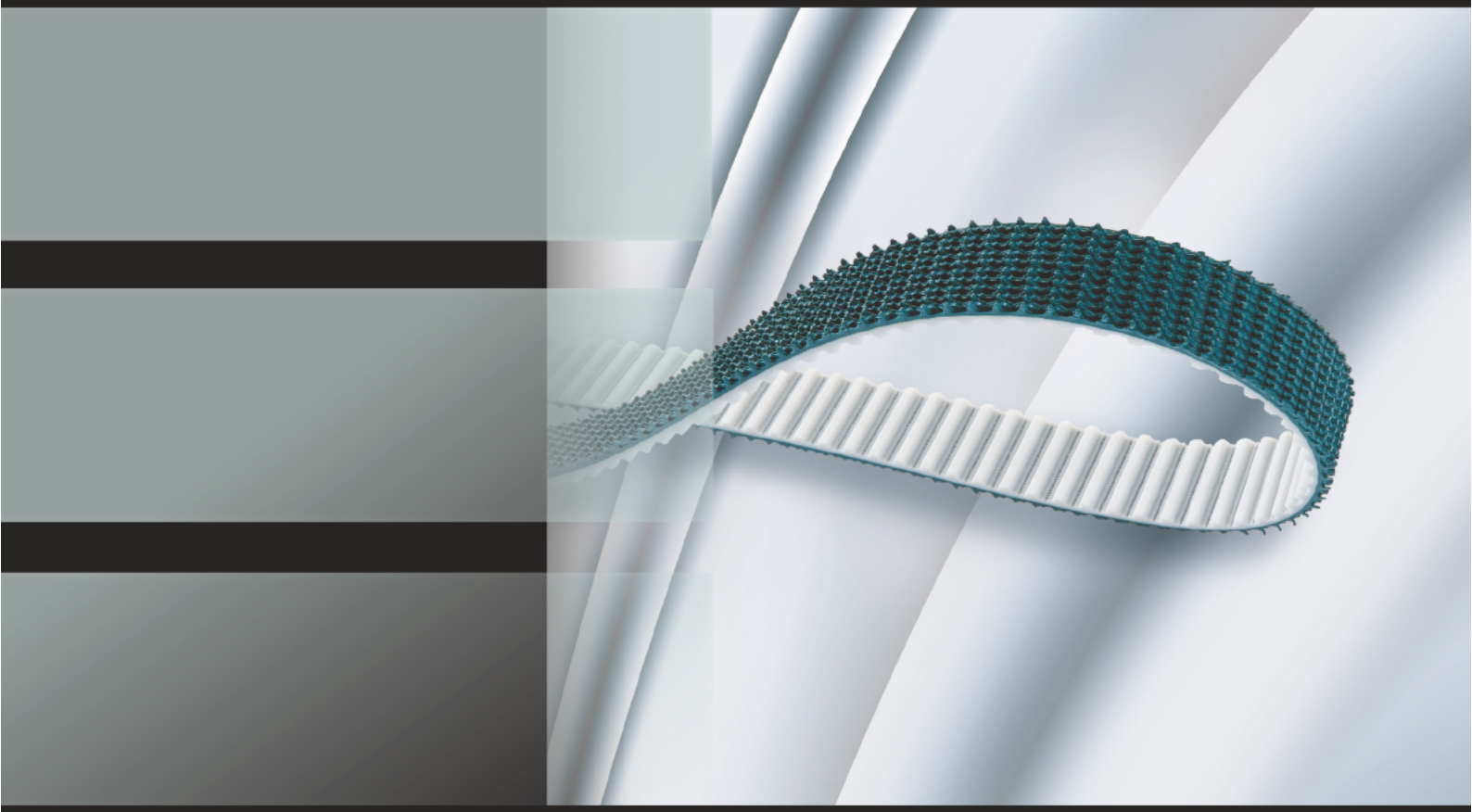
P = power in kW
M = torque in Nm
P_{spez} = specific power
M_{spez} = specific torque
z_e = number of teeth in mesh of the small pulley
z_{emax} = 12
z_k = number of teeth of the small pulley
b = belt width in cm
A = centre distance [mm]
t = pitch

Flexibility

Minimum pulley number of teeth and minimum idler diameter			
Drive without reverse bending		Timing pulley z_{min}	15
		Flat idler running on belt teeth d_{min}	60 mm
Drive with reverse bending		Timing pulley z_{min}	20
		Flat idler running on belt back d_{min}	60 mm

ELATECH® Conveying Applications





Elatech
Technology in Motion.

Polyurethane belts for conveying applications:

Backings

The unique chemical and mechanical features of ELATECH® belts together with the possibility of a wide range of backings in different materials make ELATECH® belts ideal for all conveying applications where synchronization is required. The engineer designer has unlimited possibilities to make a unique design.

Minimum pulley diameter
The minimum pulley diameter can be calculated by means of the "pulley multiplier" shown for each type of backing.

Minimum pulley diameter = backing thickness x pulley multiplier C_D

As a general rule, we may say that the smaller the pulley, the thinner the backing has to be.
The diameters obtained are valid for application with speed up to 1 m/s and a temperature of 20° C.
If smaller pulley diameters are needed, please contact Elatech's technical dept.

Drive with reverse bending
ELATECH® polyurethane timing belts are suitable for drives with reverse bending. Tension should be adjusted, depending on backing hardness.

Temperature range
The choice of the correct backing may allow the conveying of hot items. However, the toothed structure of the belt must not be exposed to temperatures over 80° C.
The minimum contact temperature should be -10° C for all backing materials, however, special material compounds may be available for lower temperatures. In such cases, please check with Elatech's technical department.

Coefficient of friction
The values shown in the table refer to the approximate static coefficient of friction against steel.
In order to reduce the pulley's diameter, it is possible to splice the backing allowing a better flexibility. Pulley diameter, should never be smaller than the minimum diameter recommended for the standard belt.
Please ask ELATECH's technical dept. for further details on coefficient of friction with other materials.

Colours
Standard colours shown in the table may change without notice. Special/personalized colours are available on request.

Chemical resistance
The values given in the table for the resistance to oils and fat of each backing material are purely indicative and may vary depending on the concentration and the temperature of chemical agents. When in doubt, please check with Elatech's technical department.

General remarks
ELATECH's wide range of different backings can be grouped into four main categories: cellular, PVC & PU, rubber, and special. Each different category provides special features and top quality performance and endurance making the various backings especially suitable for specific applications. These features include different degrees of hardness, cellular, fabric, felt or solid material compounds, different levels of grip, FDA-compliant materials, antistatic materials, different resistance to oils and fats, and different resistance to abrasion, tear and wear.
Such variety, combined with top quality mechanical and technical properties and state of the art manufacturing systems and techniques including the application of different flights and cleats, the combination of different backing materials, the slitting and grinding of the final product to match exact dimensions and shapes without any burrs or any other imperfections left on the surface, as well as water jet cutting for extremely precise perforations, make ELATECH®'s coated belts the best and the most reliable solution for specific applications in the most diversified fields of industry.

FABRIC

Polyamide fabric backings
The special polyamide fabric backings allow a reduction of the friction coefficient and when applied on teeth, decrease noise in high speed drives. They are very useful in applications with sliding surfaces or product accumulation.
Polyamide fabrics with antistatic properties are available.

PAZ: Polyamide backing on tooth side.
Reduces coefficient of friction and allows a smoother tooth engagement.

PAR: Polyamide backing on back side.
Reduces coefficient of friction.

PAZ-PAR: Polyamide backing on both tooth and back side

Coefficient of static friction

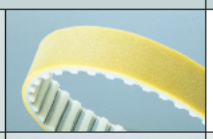
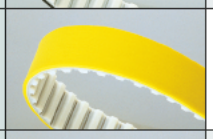
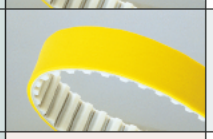
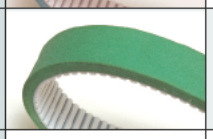
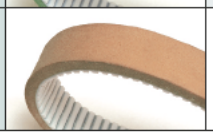
- Polyurethane on steel $\mu = 0,7$
- Polyamide on steel $\mu = 0,35$
- Polyurethane on aluminum $\mu = 0,8$
- Polyamide on aluminum $\mu = 0,45$

Elatech Code	Description		
TZ11	**PAZ Standard**		Nylon fabric on teeth
TZ21	**PAR Standard**		Nylon fabric on back
TZ15	**PAZ Antistatic**		Antistatic nylon fabric on teeth
TZ25	**PAR Antistatic**		Antistatic nylon fabric on back

CELLULAR

Polyurethane / Rubber foam backings are easily compressible according to the cellular structure of the material. Due to this main characteristic, common applications are: labelling equipment, light and/or fragile materials conveying, glass and paper industry, vacuum conveyors.

Pulley diameter: C_D • Backing Thickness

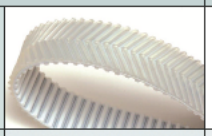
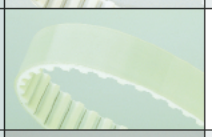
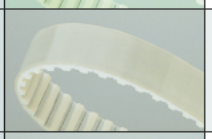
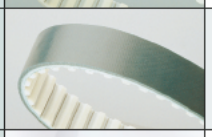
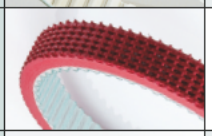
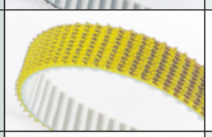
Elatech Code	Description		Material	Color	Hardness [°Sh A]	Standard thickness [mm]	Max contact temperature	Oil and fat resistance	Coefficient of static friction on steel	FDA food grade	Pulley multiplier C_D
CFX	**CELLOFLEX**		Microcellular elastomeric polyurethane	brown / yellow	-	3 - 10	+80°C	medium	0,3	No	16
POR	**POROL**		cellular rubber	black	ca 15	3, 5, 8,10,15	+70°C	medium	0,8	No	6
PY50	**PU YELLOW 50**		polyurethane	yellow	50	2, 3, 4, 5 6 ,8,10	+70°C	high	0,8	No	20
PY70	**PU YELLOW 70**		polyurethane	yellow	70	2, 3, 4, 5, 6, 8,10	+80°C	high	0,75	No	25
SYL-B	**SYLOMER BLU**		Elastomeric PUR	blue	-	6, 12, 25	+70°C	medium	0,5	No	12
SYL-V	**SYLOMER GREEN**		Elastomeric PUR	green	-	6, 12, 25	+70°C	medium	0,5	No	14
SYL-M	**SYLOMER BROWN**		Elastomeric PUR	brown	-	6, 12, 25	+70°C	medium	0,5	No	15

PVC and PU

PVC has a high coefficient of friction and a good resistance to acids. Due to its versatility, it is used in many applications in the paper, glass, ceramic industry, labelling and packing equipment. Its quality allows the application in food industry processes.

Among all synthetic materials and rubber compounds, polyurethane is the material which offers the best resistance to abrasion. Polyurethane films of different thickness and different shore hardness, applied on ELATECH® belts, are an ideal solution in many applications in the wood processing, ceramic and glass industry.
On request it is possible to supply polyurethane backings approved for food contact.

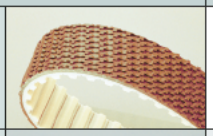
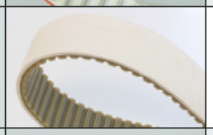
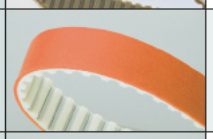
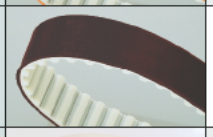
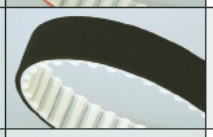
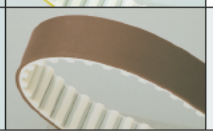
Pulley diameter: C_D • Backing Thickness

Elatech Code	Description		Material	Color	Hardness [°Sh A]	Standard thickness [mm]	Max contact temperature	Oil and fat resistance	Coefficient of static friction on steel	FDA food grade	Pulley multiplier C_D
FBPU	**FISHBONE PU**		PU	transparent	70 / 85	4	+70°C	medium	0,7	No	18
FBPVC	**FISHBONE PVC**		PVC	white	65	4	+80°C	high	0,7	Yes	18
PUR70	**PUR70**		PU	transparent	70	2 - 5	+70°C	high	0,7	No	25
PUR85	**PUR85**		PU	transparent	85	2 - 5	+70°C	high	0,6	No	30
PVCW	**PVC WHITE**		PVC	white	ca 65	2,3	+90°C	medium	1,0	Yes	35
PVCG	**PVC GREEN**		PVC	green	ca 40	1	+90°C	high	0,9	No	40
SG50R	**SUPERGRIP 50 R**		Thermoplastic compound	red	55	4,5 - 12	+80°C	medium	0,9	No	12
SG60	**SUPERGRIP 60 GL**		PVC	green	60	4,5	+90°C	medium	0,9	No	12
SG70	**SUPERGRIP 70 Y**		PU	yellow	70	4,5	+80°C	high	0,8	No	12
MG	**MINIGRIP PVC**		PVC	green	ca 65	1,5	+100°C	medium	0,4	No	40

RUBBER

Many different rubber backings in both synthetic and natural rubber are available. Due to rubber's high friction coefficient and high temperature resistance, ELATECH® polyurethane belt with rubber backing is used in many different conveying application: paper industry, ceramic industry, wood processing industry, glass industry, labelling and packaging machines.

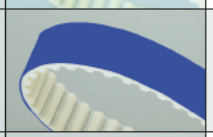
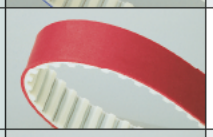
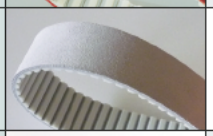
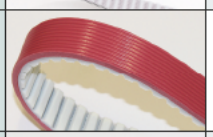
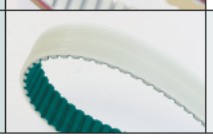
Pulley diameter: C_D • Backing Thickness

Elatech Code	Description		Material	Color	Hardness [°Sh A]	Standard thickness [mm]	Max contact temperature	Oil and fat resistance	Coefficient of static friction on steel	FDA food grade	Pulley multiplier C_D
SG50T	SUPERGRIP 50 RT		natural rubber	red	40	4,5	+80°C	low	1,0	No	15
LTX	LINATEX		natural rubber	red	ca 40	2,4 - 3,2 - 4,8 6,4 - 8,0 - 9,6	+70°C	low	1,1	No	15
LNP	LINAPLUS		natural rubber	white	ca 40	2,4 - 3,2 - 4,8 6, 4 - 8,0 - 9,6	+70°C	low	1,1	Yes	15
LTR	LINATRILE		nitrile rubber	orange	ca 55	3 - 6	+110°C	medium	1,0	No	20
NBR	NITRILE		nitrile rubber	black	65	-	+110°C	high	0,7	No	18
NBR-W	NITRILE		nitrile rubber	white	65	-	+80°C	high	0,7	No	18
TNX	TENAX / ISOGUM		rubber	red	40	2 - 15	+60°C	low	0,75	No	15
VTN	VITON		FKM Fluoroelastomer	black	ca 75	2/4	+275°C	high	0,7	No	30
RP400	YELLOW RUBBER		natural rubber	yellow	ca 35	3 - 4 - 5 - 6 - 8 10 - 12 - 15 20 - 25 - 30	+65°C	low	1,2	No	13
CRX	CORREX		para rubber	brown	ca 40	6 - 10	+60°C	low	0,9	No	15

SPECIAL

Special backings are available in quite a different range of materials to cover even the most demanding design requirements.

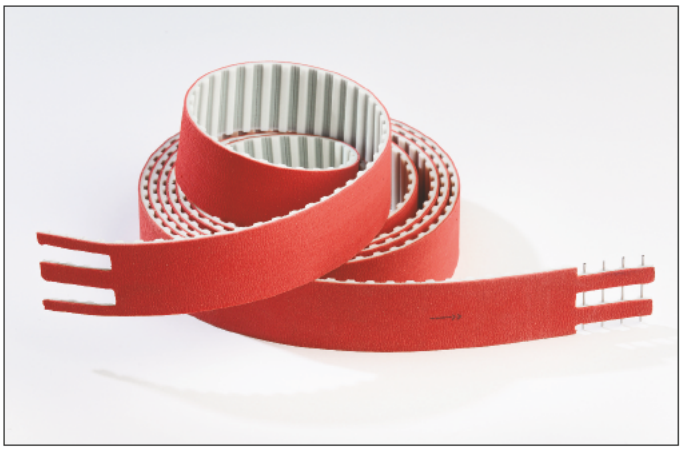
Pulley diameter: C_D • Backing Thickness

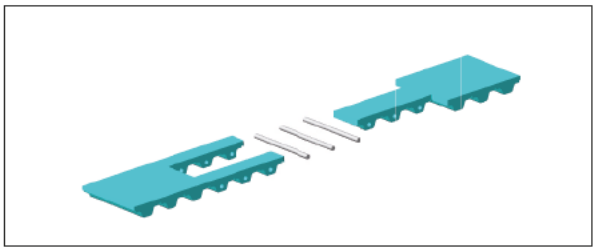
Elatech Code	Description		Material	Color	Hardness [°Sh A]	Standard thickness [mm]	Max contact temperature	Oil and fat resistance	Coefficient of static friction on steel	FDA food grade	Pulley multiplier C_D
APL	**APL**		Thermoplastic compound	red-purple	55	3,5	+60°c	high	0,7	No	25
SLC	**SILICONE**		Silicon	transparent	30	3 - 10	+200°C	high	1,0	No	20
SLCPU	**SILICONE**		Special Silicon Compound	white	60	3 - 10	+200°C	high	0,85	No	20
SLCF	**SILICONE FDA**		Silicon	blue	30	3 - 10	+220°C	high	1,1	Yes	20
TG50	**TECNOGUM 50**		Thermoplastic rubber compound	red	ca 50	1 - 6	+80°C	high	0,7	No	20
TG70	**TECNOGUM 70**		Thermoplastic rubber compound	red	ca 70	1 - 6	+80°C	high	0,6	No	25
CHRL	**CHROME LEATHER**		Chrome leather	grey / blue	-	3	+80°C	high	0,8	No	30
TZ26	**TZ PAR**		HDPE	green	-	0,3	+80°C	high	0,18	No	-
APLM	**MULTIRIB**		Thermoplastic compound	red	60	3,5	+80°C	medium	-	No	-
APLM-T	**MULTIRIB**		Thermoplastic compound	trasparent	60	3,5	+80°C	medium	-	No	-

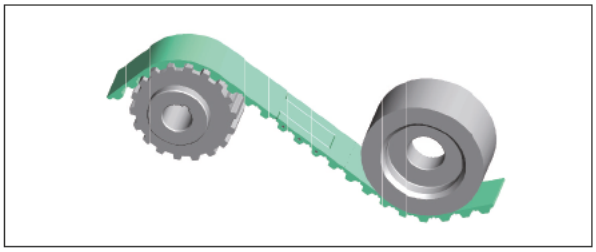
ELATECH® EMF - Mechanical Fastening System

(patent pending)

ELATECH® EMF - Mechanical Fastening System allows in many conveying applications cost savings associated with being able to design equipment around the installation principle of EMF.







Features

• EMF has no exposed metal parts, therefore no metal contact is made with pulleys, so it runs very quietly. Since there are no exposed metal parts, EMF will not damage conveyed products like competing metal based mechanical fastening alternatives.

• EMF maintains the same minimum pulley requirements as the belt and can operate with back bend idlers.

• It is excellent for belt applications with special backings such as Linatex, Supergrip, PVC, Fishbone, etc. EMF fits snug, which eliminates gaps otherwise seen in competing designs.

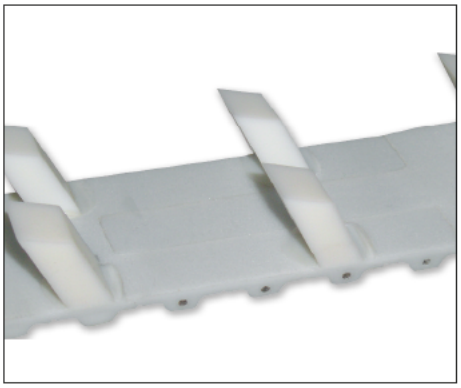
• It is suitable for belts with profiles for quick installation, saving time and money.

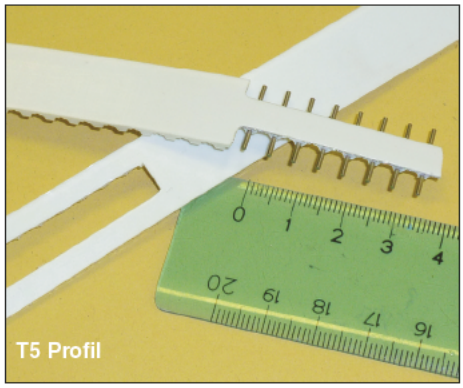
• EMF installs in seconds, making it the fastest timing belt installation for product conveyance.
There is no need for time-consuming field welding.

• It is simple to install and requires no cumbersome or expensive field welding equipment.

• It can be custom designed according to the application strength needed. EMF can reach the same strength as the traditional welding.

• It is available on all pitches, making it a "must have" for all of your customer's conveying applications.





No tools needed

ELATECH® EMF - Module

Profile	Width [mm]	Number of pins	Max working tension [N]	Carbon pin available
T 5	10	5	96	
	16	5	144	
		8	224	
	20	5	176	
		8	232	
	25	5	176	
		8	256	
	32	5	304	
		8	450	
	50	5	360	
		8	480	
T 10	16	4	216	
		8	320	
		12	640	
	20	4	240	
	25	4	304	•
		8	504	•
		11	680	•
	32	4	400	•
		8	576	•
		12	880	•
	50	4	624	•
		8	1120	•
		11	1480	•
	75	4	800	
		8	1600	
		11	1760	
	100	4	1040	
		8	2000	
		11	2280	
T 20	25	4	536	
		11	1600	
	32	4	784	
		6	1200	
	50	4	960	
		11	3040	
	75	4	1600	
		11	3560	
	100	4	2130	
		11	7600	
AT 5	10	5	144	
	16	5	168	
		8	240	
	20	5	280	
		8	320	
	25	5	208	
		8	288	
	32	5	320	
		8	380	
	50	5	440	
		8	600	
AT 10	16	4	256	
		8	500	
		12	960	
	20	4	344	
	25	4	384	•
		8	624	•
		11	904	•
	32	4	640	•
		8	800	•
		12	1200	•
	50	4	880	•
		8	1680	•
		11	2160	•
	75	4	1040	
		8	2320	
		11	2640	
	100	4	1440	
		8	2720	
		11	3440	

Profile	Width [mm]	Number of pins	Max working tension [N]	Carbon pin available
AT 20	25	4	800	
		11	1760	
	32	4	1200	
		6	1520	
	50	4	1600	
		11	4400	
	75	4	1920	
		11	6080	
	100	4	2700	
		11	7700	
HT 5	10	5	120	
	15	5	168	
		8	240	
	20	5	224	
		8	296	
	25	5	280	•
		8	376	•
	32	5	320	•
		8	510	•
	50	5	480	•
		8	640	•
	75	4	728	
		8	1096	
	100	5	800	
		8	1520	
HT 8	15	5	256	
	20	5	360	
	25	5	376	•
		10	784	•
		14	960	•
	30	5	400	
		11	960	
	50	5	800	•
		10	1440	•
		14	2080	•
		22	2300	•
	75	5	1320	
		10	2400	
		14	2880	
	85	9	2320	
	100	5	1760	
		10	3200	
		14	3600	
HT 14	40	5	1120	
	55	5	1600	
	85	5	2400	

Profile	Width [mm]	Number of pins	Max working tension [N]	Carbon pin available
RP 5	10	5	120	
	15	5	168	
		8	240	
	20	5	224	
		8	296	
	25	5	280	•
		8	376	•
	32	5	320	•
		8	510	•
	50	5	480	•
		8	640	•
	75	4	728	
		8	1096	
	100	5	800	
		8	1520	
RP 8	15	5	256	
	20	5	360	
	25	5	376	•
		10	784	•
		14	960	•
	30	5	400	
		11	960	
	50	5	800	•
		10	1440	•
		14	2080	•
		22	2300	•
	75	5	1320	
		10	2400	
		14	2880	
	85	9	2320	
	100	5	1760	
		10	3200	
		14	3600	
RP 14	40	5	1120	
	55	5	1600	
	85	5	2400	

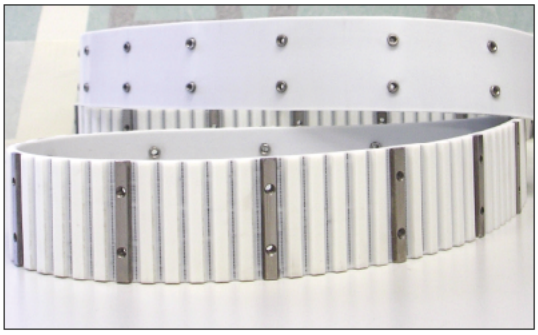
Profile	Width [mm]	Number of pins	Max working tension [N]	Carbon pin available
ST 5	10	5	120	
	15	5	168	
		8	240	
	20	5	224	
		8	296	
	25	5	280	•
		8	376	•
	32	5	320	•
	50	5	480	•
		8	640	•
	75	4	728	
		8	1096	
	100	5	800	
		8	1520	
ST 8	15	5	256	
	20	5	360	
	25	5	376	•
		10	784	•
		14	960	•
	30	5	400	
		11	960	
	50	5	800	•
		10	1440	•
		14	2080	•
		22	2300	•
	75	5	1320	
		10	2400	
		14	2880	
	85	9	2320	
	100	5	1760	
		10	3200	
		14	3600	
ST 14	40	5	1120	
	55	5	1600	
	85	5	2400	
L	12,7	4	144	
	19,05	5	256	
	25,4	5	288	•
	38,1	5	480	
	50,8	5	560	•
	76,2	5	1000	
	101,6	5	1200	
H	12,7	3	120	
	19,05	4	240	
	25,4	4	304	•
	38,1	4	520	
	50,8	4	640	•
	76,2	4	880	
	101,6	4	1120	
XH	50,8	10	3060	

EMF available with carbon pins.

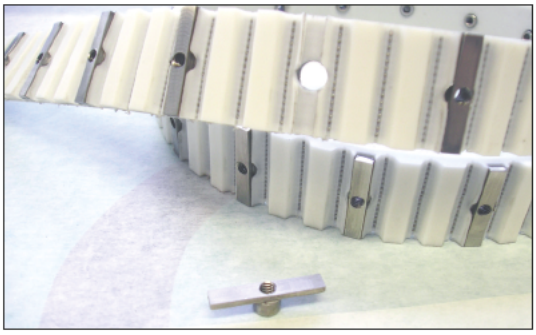
ELATECH® EFT - False Tooth System

EFT is ELATECH's mechanical profile application system specially designed for fastening cleats that cannot be welded onto polyurethane timing belts.
Zinc-coated or stainless steel teeth are available, either with our embedded tooth or total tooth design. With the total tooth design, the EFT replaces the entire tooth of the belt and is safely secured by means of two threaded holes. The embedded tooth design prevents any metal-to-metal contact, ensuring more silent operation.

Total tooth design



Embedded tooth design



Many are the advantages offered by ELATECH® EFT:

• EFT allows to apply cleats that cannot be welded onto polyurethane timing belts because of their overall dimension and/or material (such as steel, stainless steel, plastic, urethane, wood etc.)

• EFT is in stock in stainless suitable for food and pharmaceutical industry and humid environments

• EFT design has a self-centering effect on profile positioning, which makes it more precise than welded profiles

• EFT can handle much higher loads than welded profiles, making it a strong solution

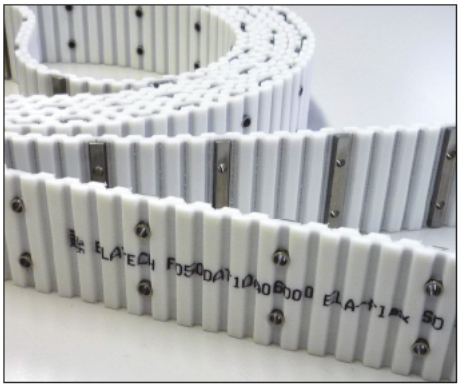
• EFT is the precise solution eliminating any welded profile positioning tolerances. The profile positioning tolerance for EFT mirrors the ELATECH® timing belt tooth pitch tolerance

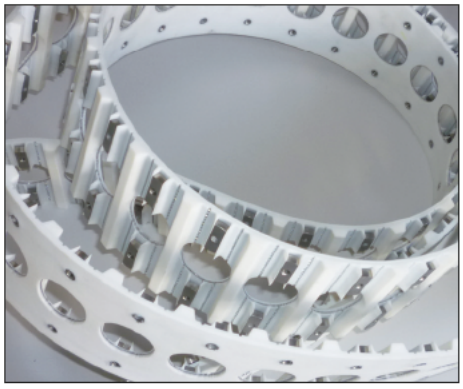
• EFT is flexible, allowing customers to reposition cleats for regularly scheduled application changes

• EFT is economical because customers can replace worn profiles without having to replace the entire belt.

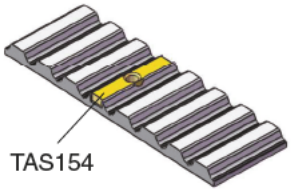
• EFT is available in any of the following pitches:
AT10, AT20, H, XH with or without self-tracking guide.

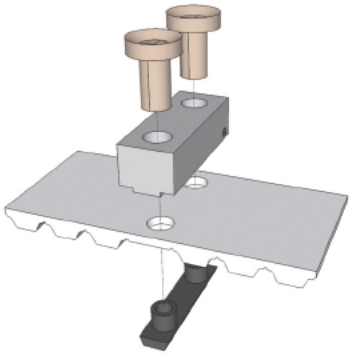
• EFT allows to use basic belts in all their possible executions: Flex, welded, with PAZ or PAR, FDA PU, steel, aramid or stainless steel cord.



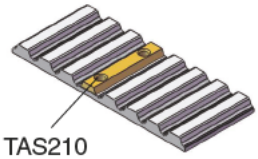


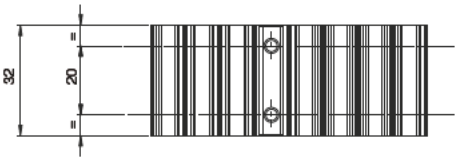
TAS154 - suitable for AT10 and H profile 25 mm wide, one pin



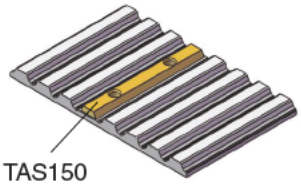


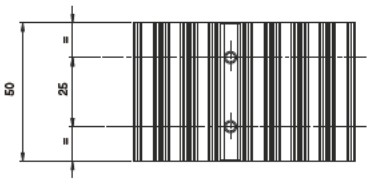
TAS210 - suitable for AT10 profile 32 mm wide, two pins at 20 mm centre distance



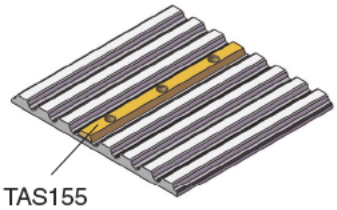


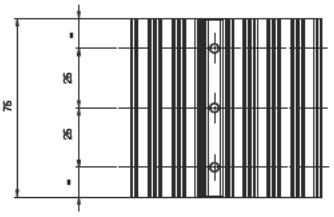
TAS150 - suitable for AT10 profile, 50 mm wide, two pins at 25 mm centre distance



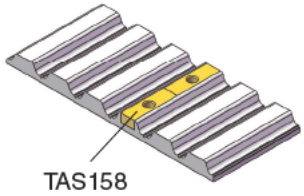


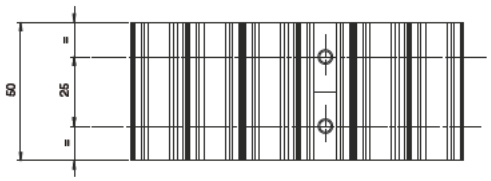
TAS155 - suitable for AT10 profile, 75 mm wide, three pins at 25 mm centre distance



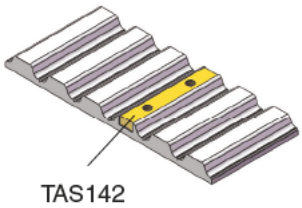


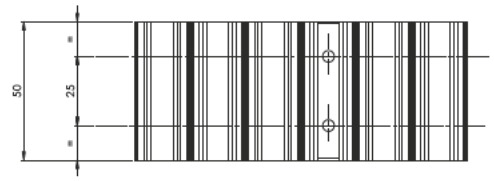
TAS158 - suitable for AT20 and XH profile, 25-50-75-100 mm wide, number of pins multiple of 25 mm centre distance





TAS142 - suitable for AT20 and XH profile, 50 mm wide, two pins at 25 mm centre distance

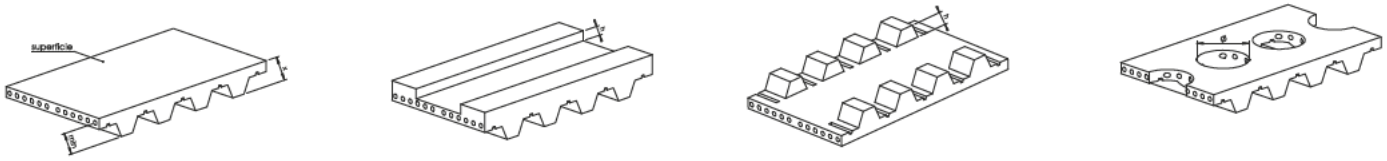




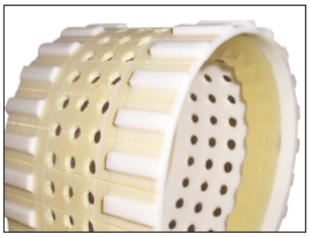
Mechanical processing

Thanks to top-quality, state-of-the-art machinery and techniques such as water jet cutting, ELATECH® timing belts can be mechanically processed to perform special and complex tasks. The extremely precise machining and finishing operations guarantee the respect of the strictest tolerance requirements and the maximum reliability of ELATECH® timing belts in all the most complex and demanding industrial applications.

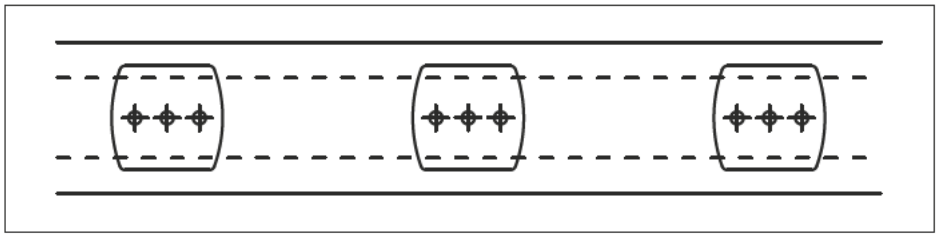
Depending on the application requirements, mechanical processing may include longitudinal milling of the teeth and/or of the back, back and side grinding, teeth removal, belt surface perforation and/or engraving, as well as surface preparation for the application of special profiles.



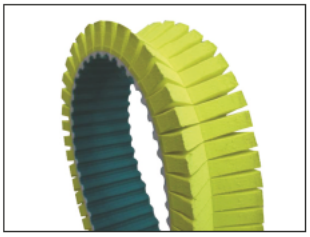
The great precision and the versatility of water jet cutting technology allow the creation of bores of any dimensions and shapes, from the smallest to the largest, from perfectly circular to oval or square.



Special backings can also be machined to optimize the performance of the belts in special applications. A typical example is the hollow milling of the backing to create a “vacuum cup effect” and maximize the suction provided by water jet cut bores. In this case, perfect suction is also granted by the absence of any tension members within the vacuum areas.

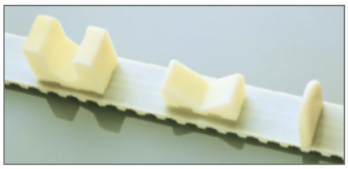


In another application, the thick V-shaped yellow PU backing on a belt used for transporting aluminium bars is slitted transversely to enhance the flexibility of the belt itself and to improve its revolution around smaller pulleys.



ELATECH® polyurethane belts with profiles

It is possible to attach profiles on all ELATECH®, ELA-flex SD® and iSync® polyurethane belts for conveying, handling and positioning applications. The cleats are produced in the same material of the belts in order to guarantee the maximum strength.
The belts with profiles allow a syncronised translation of the products at very high speeds and low noise.
A very wide range of profiles is available. If the required profile is not shown in the following pages, please contact our technical office.



Pitch
It is recommended to choose the pitch of the profile corresponding to the belt profile or multiple. This allows to minimize the effects of the belt overall length tolerance on profile spacing.

Position
Profile position may be over the tooth or not over the tooth. Belt Flexibility is maximized when the profiles are applied over the tooth.

Fig. 1

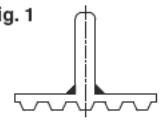
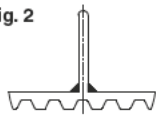
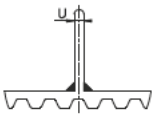
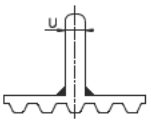


Fig. 2



Arc of contact
It is to be noted that the belt's arc of contact may be restricted by the jointed profile. It is therefore recommended to select profiles with the minimum allowable thickness "U".





Tolerances
The tolerance of position of the profiles is +/- 0,5 mm. If required it is possible to reduce the tolerance down to +/- 0,2 mm with an extra machining. During the welding process a bead of polyurethane of about 0,5-1 mm develops at the meeting point between the profile and the belt. Should it be necessary for the application, it is possible to remove the bead with mechanical machining.

Belt type	Profile thickness "U" [mm]																							
	2		3		5		6		8		10		12		14		16		20		25		30	
	Recommended minimum pulley number of teeth z																							
T5	14	20	14	30	20	45	25	50	40	60	60	100	80	-	100	-	-	-	-	-	-	-	-	-
T10	16	20	16	20	16	30	16	40	20	50	25	50	35	60	50	70	80	80	100	100	120	120	-	-
T20	20	20	18	20	18	25	18	40	18	50	20	50	25	50	30	60	40	60	50	60	70	80	-	-
AT5	12	20	12	30	20	45	25	50	40	60	60	100	-	-	100	-	-	-	-	-	-	-	-	-
AT10	18	20	18	20	18	30	18	40	20	50	25	50	35	60	50	70	80	80	100	100	120	120	-	-
AT20	20	20	20	20	20	25	20	40	20	50	20	50	25	50	40	40	50	50	50	60	70	80	100	100
XL	10	20	10	30	20	45	25	50	40	60	50	100	60	100	-	-	-	-	-	-	-	-	-	-
L	12	16	12	20	12	40	20	50	30	60	40	60	50	70	60	80	100	100	-	-	-	-	-	-
H	14	16	14	16	14	25	14	30	20	50	25	50	40	60	50	70	80	80	100	100	120	120	-	-
XH	18	18	18	20	18	20	18	30	18	40	20	50	20	50	25	55	35	60	50	60	70	80	-	-
HTD5M	12	20	12	30	20	45	25	50	40	60	60	100	80	-	100	-	-	-	-	-	-	-	-	-
HTD8M	18	18	18	18	18	24	18	32	18	40	20	40	28	48	40	56	64	64	80	80	100	100	-	-
HTD14M	28	28	28	28	28	28	28	40	28	50	28	50	28	50	30	60	40	50	50	60	100	100	110	110
STD5M	12	20	12	30	20	45	25	50	40	60	60	100	80	-	100	-	-	-	-	-	-	-	-	-
STD8M	18	18	18	18	18	24	18	32	18	40	20	40	28	48	40	56	64	64	80	80	100	100	-	-

Minimum number of teeth when the profile is welded on tooth gap **(fig. 2)**
Minimum number of teeth when the profile is welded on tooth **(fig. 1)**

Ordering
When ordering it is necessary to indicate: type of belt (width, profile, pitch, length), the belt length in number of teeth, the belt and profile drawing with the number and the pitch of the requested profiles

ELACLEATS

download in CAD or PDF format the most suitable cleat

ELATECH® offers a wide variety of custom-made and standard cleats specially designed for different applications in many industries.
ELACLEATS is a web-based tool for quickly selecting among ELATECH® standard cleats by shape, size and features.
2D and 3D drawings can be easily downloaded for the selected cleats.

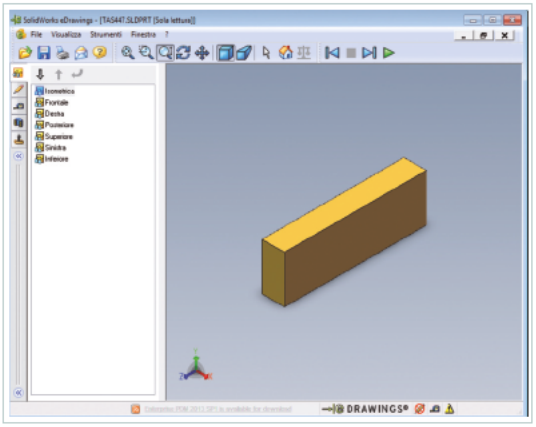
Elatech online cleat selection support at:
www.elatech.com

Always up to date
ELACLEATS online version is always up to date with new types and sizes.

RELIABLE SOLUTIONS!

Fast and easy
ELACLEATS offers an intelligent search for a quick selection of most suitable cleat with an easy to follow menu for fastest navigation.

SAVE YOUR TIME!



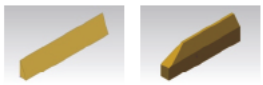
Comprehensive range
ELACLEATS offers widest range of cleats to optimize your conveying application.

IMPROVE EFFICIENCY!

Hundreds of cleats available for all applications!

ST = Square Top: flat faces at right angles to each other

RT = Round Top: the upper part of the cleat has a rounded shape



TR = Triangular or Trapezoidal: flat faces, some of which are not at right angles to other faces; cross-sections can be triangular, trapezoidal, pentagonal, etc.

TT = "T" Shaped: a portion of the cleat (usually the upper one) is wider than the rest, so that a cross-section resembles the shape of a capital “T”

AN = Angular Shape: two portions of the cleat are set at an angle to each other

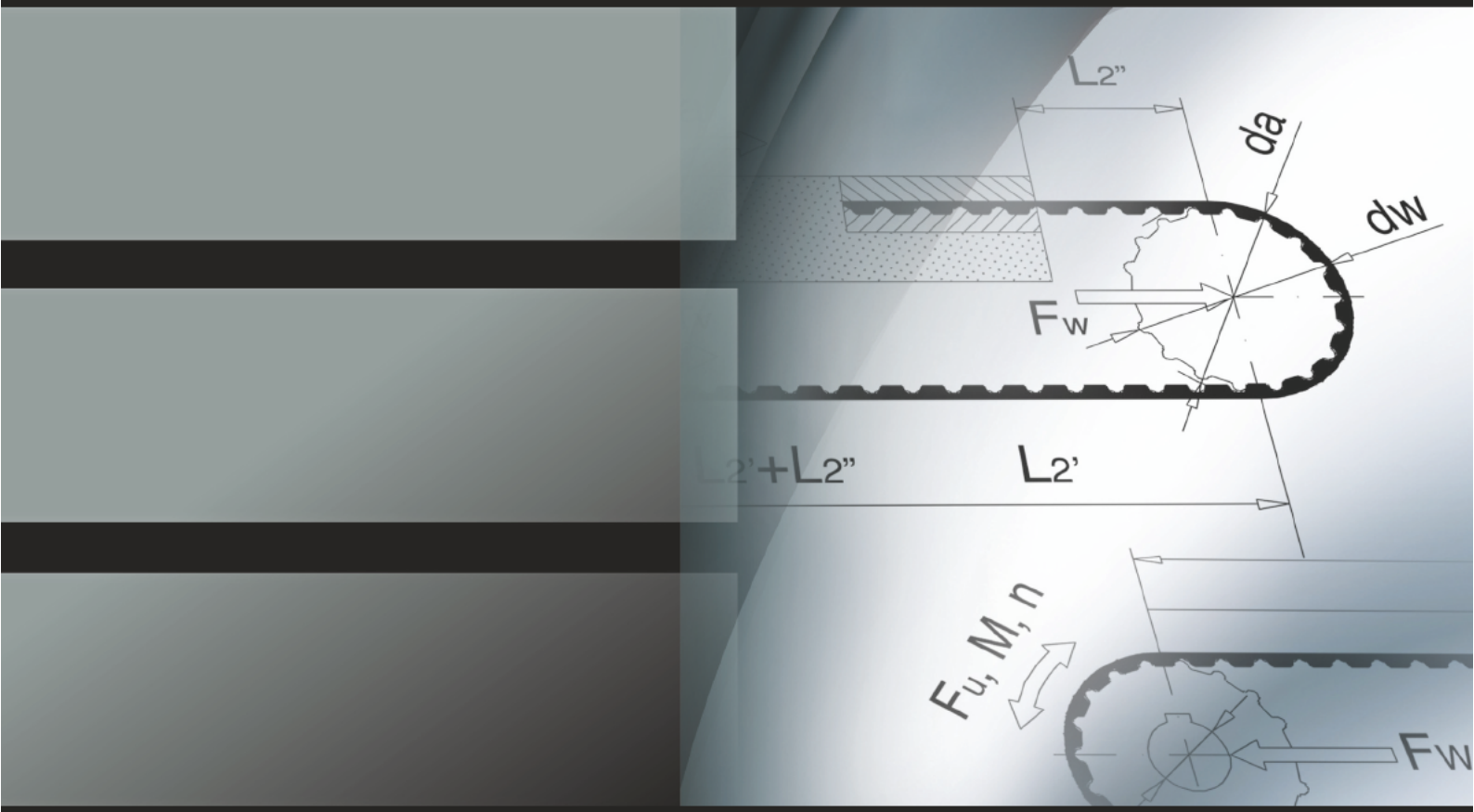
GB = Gusset Back: having a fin on one side that is not attached to the belt but rests on it and increases rigidity when the cleat is pushed in one direction

CR = Cradle Shape: “U” or “V” shaped so that an object can rest in the seat created by the sides of the cleat

CY = Cylindrical Shape: a cylinder with vertical or horizontal axis

SP = Special Shape: any other shape, usually a structure especially designed for a specific use

ELATECH® Drive Calculation



Elatech
Technology in Motion.

Drive calculation

guidelines

Pulleys
It is recommended to use pulleys with the maximum diameter allowed by the application in order to maximise the number of teeth in mesh and increase the belt peripheral speed. For applications where high positioning precision is required, it might be useful to use zero backlash pulleys.
In order to guarantee a reliable drive, it is recommended to use superior quality pulleys.

Minimum pulley diameter
Minimum pulley diameter depends on belt construction but also on the load and the configuration of the drive. The values reported in the catalogue have been calculated and proven for drives with maximum allowable load and standard configurations.
For drives where smaller pulleys are needed, please apply to ELATECH® technical department.

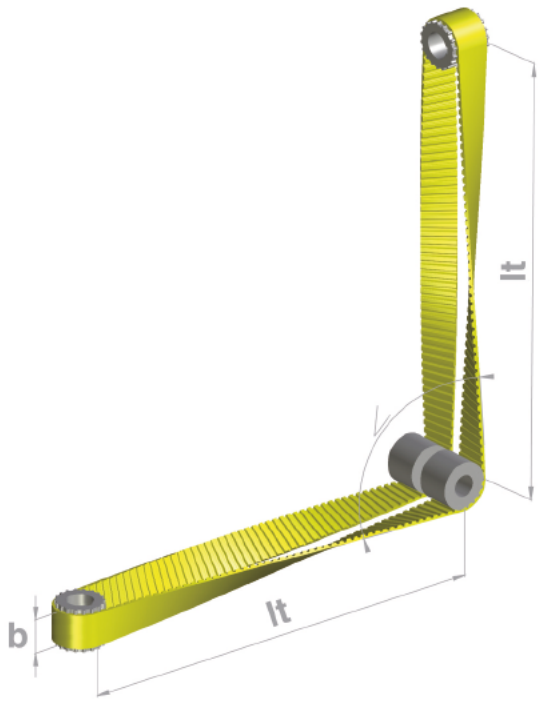
Clamping plates
In case of use of clamping plates, they must have the belt profile, be rigid and guarantee a uniform clamping force on all the surface. It is recommended to have a minimum of 7 teeth in clamp to guarantee catalogue performances. In case of belts with HPL cords, the recommended number of teeth in clamp is 12.

Machine structure
For a trouble free drive, it is recommended that the structure of application of the timing belt drive is as rigid as possible.
That will guarantee high work repeatability.

Angular drives
Elatech belts can be used in angular drives as a “Twisted” drive. In such an application, it is recommended to keep a span length “lt” > 20 • b (belt width) for 90° twist.

Omega drive
In case of omega drive application it is recommended to keep a span length between driver pulleys and idlers > 3 • b (belt width)

Belt life
Due to the wide application range and considering the fact that belts are one component of complex equipment, the loads in the belt itself are very seldom precisely predictable. This fact makes it impossible to confirm a precise belt service life. In order to optimize belt life of the belts, it is important to follow the catalogue technical specifications related to pulley geometry and belt storage and installation. When all catalogues specifications are followed, a belt life of 3 million reverse bending cycles occurring over 10 years can be expected. This value was measured in tests under laboratory conditions.



Belt installation

Drive installation
When installing belts on pulleys, before tensioning the drive, check that the belt teeth and pulley grooves correctly match.

Breaking load
Belt breaking load is highly dependent on several factors including pulley alignment, clamping system and others. The data given in the catalogue are average values tested in our laboratory. It is recommended to use adequate safety factors and ask the ELATECH® technical department for minimum guaranteed breaking load in applications where it is needed.

Belt drive tension
Correct belt drive tension and alignment are very important to optimize belt life and minimize noise level. In fact, improper tension in the belt drive will affect belt fit in the pulley grooves while correct tension minimizes belt pulley interference reducing the noise in the drive.

Drive Alignment
Pulley misalignment will result in an unequal tension, edge wear and reduction of belt life. Also, misaligned drives are much noisier than correctly aligned drives due to the amount of interference that is created between the belt teeth and the pulley grooves.
Proper pulley alignement should be checked with a straight edge or by using a laser alignment tool.

Belt width [mm]	10	16	32 over
Allowable pulley misalignment [°]	0,28	0,16	0,1

Idlers
Idlers are often a means to apply tension to the drive when the centre distance is fixed but also to increase the number of teeth in mesh of the small pulley. A toothed idler on the inside of the belt on the slack side is recommended with respect to a back side idler. Drives with inside flat idlers are not recommended as noise and abnormal belt wear may occur.

- Idler location is on the slack side span of the belt drive
- Diameter for inside toothed idler must be ≥ of the diameter of the small pulley in the drive
- Idler must be mounted on a rigid support
- Idlers both flat and toothed, should be uncrowned with a minimum arc of contact.
- Idler should be positioned respecting: 2 • (dwk + dwg)< A
- Idler width should be ≥ of pulley width B

Backside idlers, however, increase the teeth in mesh on both pulleys in the drive and force a counter flexure of the belt and thus contribution to premature belt failure. When such an idler is necessary, it should be at least 1,25 times the diameter of the small pulley in the drive and it must be located as close as possible to the small pulley in the drive in order to maximise the number of teeth in mesh of the small pulley.

Belt handling and storage

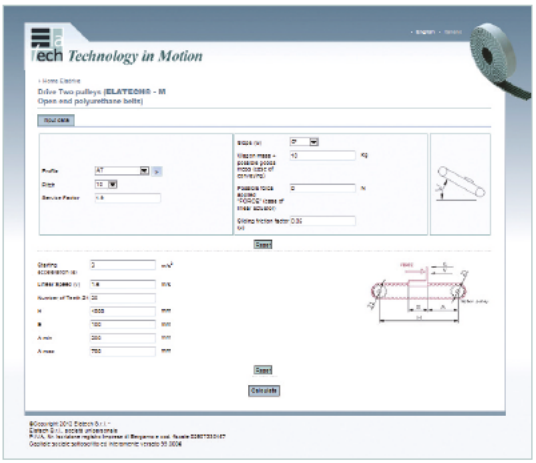
Proper storage is important in order avoid damaging the belts which may cause premature belt failure. Do not store belts on the floor unless in a protective container to avoid damages which may be accidentally caused by people or machine traffic.
Belts should be stored in order to prevent direct sunlight and in a dry and cool environment without presence of chemicals in the atmosphere.
Avoid belt storage near windows (to avoid sunlight and moisture), near electric motors or devices which generate ozone, near direct airflow of heating/cooling systems.

Do not crimp belts while handling or when stored to avoid damage to tensile cords. Belts must not be hung on small pins to avoid bending to a small diameter. Handle belts with care while moving and installing. On installation, never force the belt over the pulley flange.

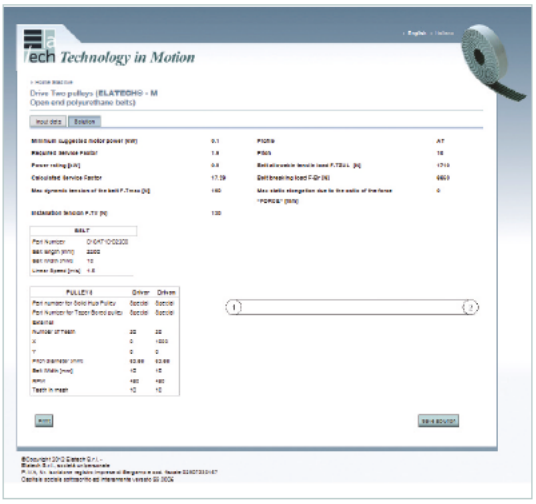
ELADRIVE

online calculation software for quick and reliable drive calculation

Elatech online drive calculation support at:
www.elatech.com



ELATECH's **ELADRIVE** is a drive calculation program allowing efficient and time saving drive calculation with improved performances.

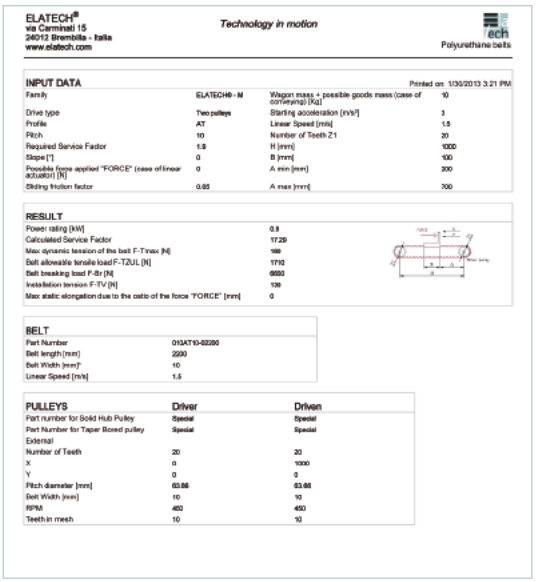


Always up to date
ELADRIVE online version is always up to date.

RELIABLE SOLUTIONS!

Fast and easy
ELADRIVE offers a step by step drive calculation by an easy to follow menu with improved screen layouts for quicker navigation.

SAVE YOUR TIME!



Comprehensive application range
ELADRIVE offers a drive calculation for all application technology fields: power transmission, linear, transport. Two pulley drives are calculated and multiple drive design solutions are generated.

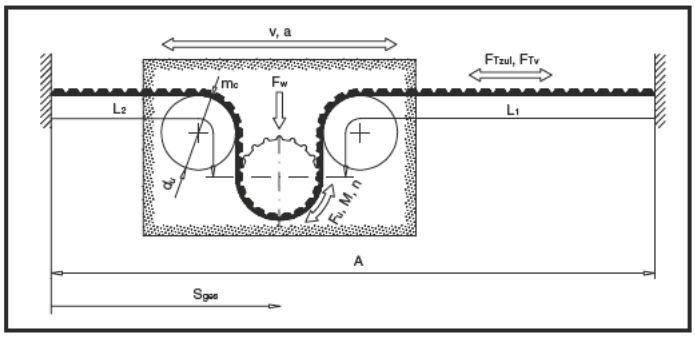
IMPROVE EFFICIENCY!

LINEAR drives calculation

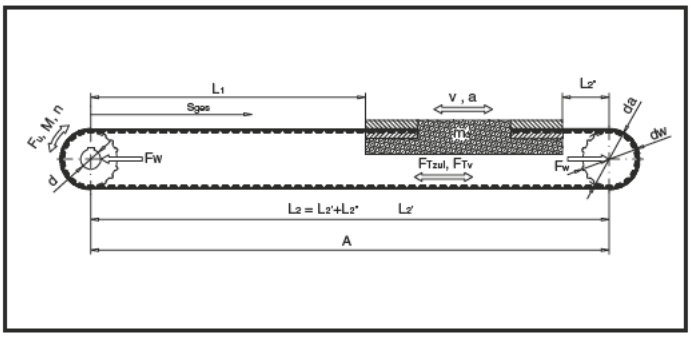
Definitions and transmission cycle

In most cases linear drives may be taken back to one of the two layouts shown, where a specific system of forces acts.

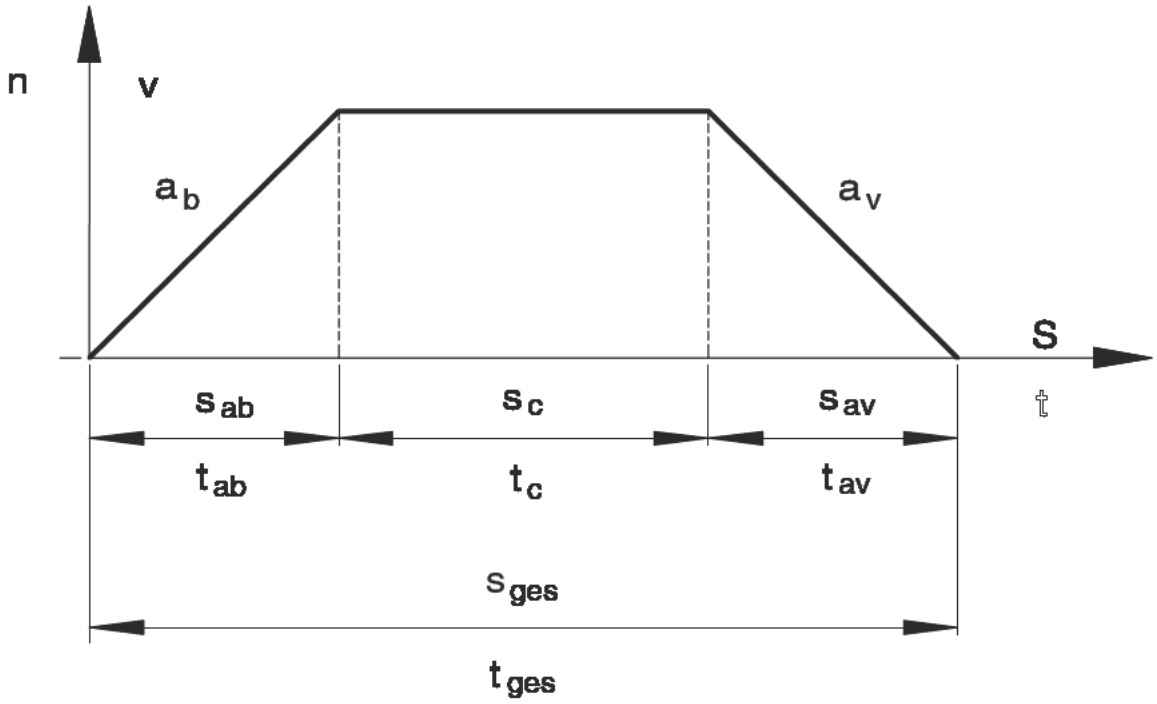
“ OMEGA “ drive



Linear drive



Transmission cycle (rpm/time)



Definitions and abbreviations

a_b	[m/s²]	Acceleration
a_v	[m/s²]	Deceleration
B	[mm]	Pulley width
b	[cm]	Belt width
t	[mm]	Belt pitch
C	[N/mm]	Belt modulus / spring rate
C_{spez}	[N]	Specific spring rate
A	[mm]	Centre distance
A_{eff}	[mm]	Effective centre distance
d	[mm]	Bore diameter
d_a	[mm]	Outside pulley diameter
d_w	[mm]	Pitch circle diameter
d_U	[mm]	Idler pulley diameter
F_{wdyn}	[N]	Dynamic shaft load
F_{wsta}	[N]	Static shaft load
F_{Tmax}	[N]	Maximum span force
F_R	[N]	Resisting force of friction
F_{Uspez}	[N/cm]	Specific tooth shear strength
F_{Tv}	[N]	Pretension force per belt side
F_{Tzul}	[N]	Allowable tensile load
F_U	[N]	Peripheral force
F_H	[N]	Vertical lifting force
F_{ab}	[N]	Acceleration force
F_{av}	[N]	Deceleration force
g	[m/s²]	Acceleration due to gravity (= 9,81 m/s²)
Δl	[mm]	Elongation
Δs	[mm]	Difference of position due to force
L_1, L_2	[mm]	Length of tight and slack side
L_R	[mm]	Belt length
M	[Nm]	Torque
M_{ab}	[Nm]	Torque during acceleration
M_{av}	[Nm]	Braking torque
ρ	[kg/dm³]	Specific weight
m	[kg]	Total mass
m_R	[kg]	Mass of belt
m_c	[kg]	Mass of carriage / slide
m_S	[kg]	Pulley mass
m_{Sred}	[kg]	Pulley reduced mass
m_U	[kg]	Idler mass
m_{Ured}	[kg]	Idler reduced mass
n	[min⁻¹]	Rpm
n_1	[min⁻¹]	Rpm driver pulley
Δn	[min⁻¹]	Rpm variation
c_1	-	Service factor
P	[kW]	Power
s_{ges}	[mm]	Total travel
s_{ab}	[mm]	Travel during acceleration
s_{av}	[mm]	Travel during deceleration / braking
s_c	[mm]	Travel at constant speed
t_{ges}	[sec]	Total time of travel
t_{ab}	[sec]	Acceleration time
t_{av}	[sec]	Deceleration time / braking time
t_c	[sec]	Time at constant speed
v	[m/s]	Peripheral speed
z	-	No. of teeth of pulley
z_k	-	No. of teeth of small pulley
z_g	-	No. of teeth of big pulley
z_R	-	No. of teeth of belt
z_e	-	No. of teeth in mesh
i	-	Drive ratio
ω	[s⁻¹]	Angular velocity
μ	-	Coefficient of friction

Calculation formula

Torque

$$M = \frac{F_U \cdot d_W}{2000} = \frac{P \cdot 9550}{n}$$

Power

$$P = \frac{M\ n}{955} = \frac{F_U \cdot v}{1000}$$

Peripheral force

$$F_U = \frac{2000 \cdot M}{d_W} = \frac{P \cdot 1000}{v}$$

Linear speed

$$v = \frac{d_W \cdot n}{19100} = \frac{n \cdot z \cdot t}{60000}$$

Angular velocity

$$\omega = \frac{\pi \cdot n}{}$$

Rpm

$$n = \frac{19100 \cdot v}{d_W} = \frac{60000 \cdot v}{z \cdot t}$$

Acceleration time

$$t_{ab} = \frac{v}{a_b} = \sqrt{\frac{2 \cdot s_{ab}}{a_b \cdot 1000}}$$

Accelerat on travel

$$s_{ab} = \frac{a_b \cdot t_{ab}^2 \cdot 1000}{2} = \frac{v^2 \cdot 1000}{2 \cdot a_b}$$

Braking time

$$t_{av} = \frac{v}{a_v} = \sqrt{\frac{2 \cdot s_{av}}{a_v \cdot 1000}}$$

Braking travel

$$s_{av} = \frac{a_v \cdot t_{av}^2 \cdot 1000}{2} = \frac{v^2 \cdot 1000}{2 \cdot a_v}$$

Total time

$$t_{ges} = t_{ab} + t_c + t_{av}$$

Total travel

$$s_{ges} = s_{ab} + s_c + s_{av}$$

Time at constant speed

$$t_c = \frac{s_c}{v \cdot 1000}$$

Travel at constant speed

$$s_c = v \cdot t_c \cdot 1000$$

Safety factor

ELATECH® belts do not need any safety factor However if there are unknown peaks or shock loads or swings in the peripheral force unknown at design time, which therefore can not be included in the calculation parameters, a suitable safety factor should be considered by the designer.

Steady load	$c_1 = 1$

Peak or fluctuating loads:

Light	$c_1 = 1{,}4$
Medium	$c_1 = 1{,}7$
Heavy	$c_1 = 2{,}0$

Calculation

Linear drives are correctly dimensioned when the total peripheral force, necessary for the requested work, satisfies the 3 technical parameters of the selected belt:

- **tooth shear strength**
- **allowable tensile load**
- **flexibility**

The necessary data for the calculation are: the mass to be moved, the transmission cycle, the drive layout with the related forces, the resisting force of friction.
Friction force is generally determined by the linear bearing manufacturer.
In case of conveying applications, it is resulting from the weight of the conveyed goods and the coefficient of friction between sli der bed and belt surface. In case of accumulating conveyors the friction between the conveyed goods and the backside of the belt must be considered additionally.

Select belts and pulleys

For initial belt profile and pitch selection, use the graphs available in the related catalogue section.
For the choice of the pulleys it is recommended to use pulleys with the largest possible diameter.
That will reduce the belt width and optimise drive performances.

Calculate total mass in motion (m)

$$m = m_c + m_R + m_{Sred} + m_{Ured}$$

With:

$$m_{Sred} = \frac{m_S}{2} \cdot \left(1 + \frac{d^2}{d_a{}^2}\right) \; ; \quad \textit{inertia of the idler timing pulley}$$

$$m_{Ured} = \frac{m_U}{2} \cdot \left(1 + \frac{d^2}{d_u{}^2}\right) \; ; \quad \textit{inertia of the idler tensioning pulley}$$

Calculate the necessary total peripheral force F_U and torque M

$$F_U = m \cdot a_b + m \cdot g + m \cdot g \cdot \mu$$

$$F_U = F_{ab} + F_H + F_R$$

The load ($m \bullet g \bullet \sin\alpha$) must be considered only in vertical or inclined drives when a mass is lifted against gravity.

$$M = \frac{F_U \cdot d_w}{2000}$$

Determine the belt width

$$b = \frac{F_U \cdot C_1}{F_{Uspez} \cdot z_e}$$

with F_{Uspez} depending on the rpm of the small pulley (see technical data on tooth shear strength for the selected belt type).

Note: z_{emax} = 12 for belts ELATECH® M
z_{emax} = 6 for belts ELATECH® V

Determine installation pretension F_{TV}

Linear motion drives are correctly tensioned when in the slack side a minimum tension is guaranteed in all working conditions and for every value of F_{Tmax} (acceleration, deceleration).
It is recommended a pretension of:

$$F_{TV} \geq F_U$$

Verify of allowable tensile load

The maximum load on the belt will appear when both the pretension F_{Tv} and the working load F_U will act at the same time:

$$F_{Tmax} = F_{TV} + F_U \bullet C_1$$

The maximum allowable tensile load of the belt F_{tzul} (see technical tables of corresponding selected belt) must be greater than the maximum working load:

$$F_{Tzul} > F_{Tmax}$$

Verify flexibiliy

The diameter of the chosen pulleys, must be greater or equal to the minimum recommended diameter for the specific belt profile chosen (see technical data).

Calculate shaft load

The shaft load under static conditions is:

$F_{Wsta} = 2 \cdot F_{TV}$

The shaft load under dynamic conditions is:

$F_{Wdyn} = 2 \cdot F_{TV} + F_U$

Ca culate necessary static elongation

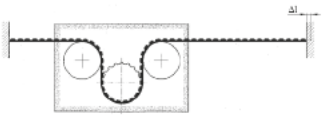
Installation tension generates a belt elongation "Δl" between the shafts (for linear drives) or the clamping plates (for "Omega" drives).

Linear drive

$$\Delta l = \frac{F_{TV} \cdot L_R}{2 \cdot C_{spez}}$$

"Omega" drive

$$\Delta l = \frac{F_{TV} \cdot L_R}{C_{spez}}$$



If the resulting elongation is not acceptable for the application, it is possible to reduce it by increasing the belt width or by increasing belt rigidity (HPL cords).

Determine the positioning accuracy

The stiffness coefficient of linear rives depends on the length of slack and tight side in the drive. Every position of the system has its own stiffness coefficient calculated with the formula:

$$C = \frac{L_R}{L_1 \cdot L_2} \cdot C_{spez} \qquad L_R = L_1 + L_2$$

For C_{spez} value see technical data of selected belt type.

Stiffness coefficient will be minimum when slack and tight side will have the same length during the working cycle.

$$C_{min} = \frac{4 \cdot C_{spez}}{L_R}$$

With L_R equal to the belt length free to elongate (excluding contact length on timing pulleys).

Being F_U the resulting force on the slide, the positioning deviation generated by belt elongation is:

$$\Delta_S = \frac{F_U}{C}$$

The positioning accuracy is also depending on other parameters and therefore for an accurate calculation, please consult our technical department. When positioning is reached from both directions the actual position is affected by an error caused by backlash between belt and pulley. The use of zero backlash pulleys helps reduce the positioning error.

Installation and drive pretensioning:

In order to pretension a drive it is possible to use one of the following methods:

1) Measuring elongation
ELATECH® timing belts with steel cords have a constant elongation to the maximum allowable load F_{Tzul}. Therefore the correct pretension can be set by measuring the belt elongation with a gauge and using as a reference the graph load/elongation of the selected belt type. This is a simple method but requires good accessibility of the drive.

2) Using span deflection
The pretension is checked by applying a force in the centre of the span length and measuring the span deflection

3) Measuring frequency
The tension of the belt is calculated from the natural frequency of vibration of the belt span which is measured by means of a special belt tension meter. This is the most accurate and easiest method

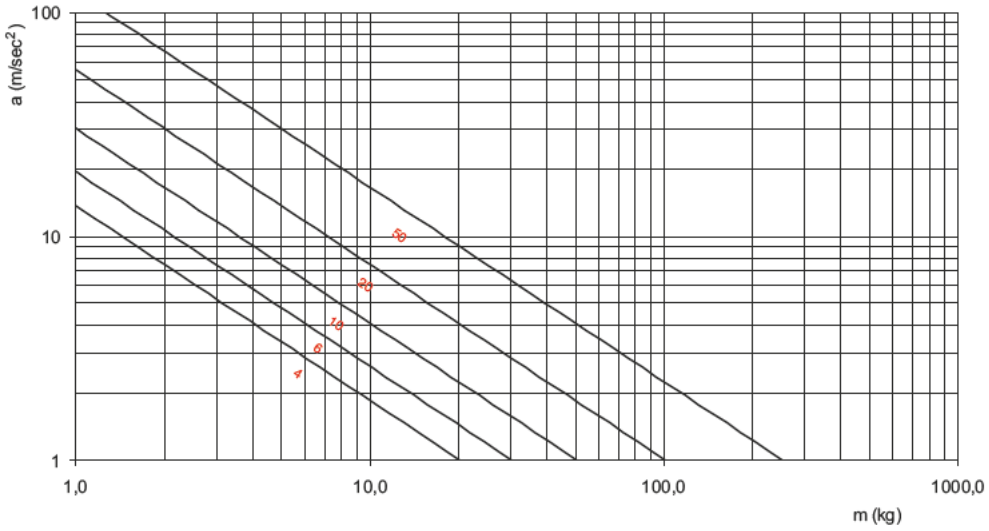
A suitable belt tension meter is availabile from ELATECH®

Selection graphs mass / acceleration

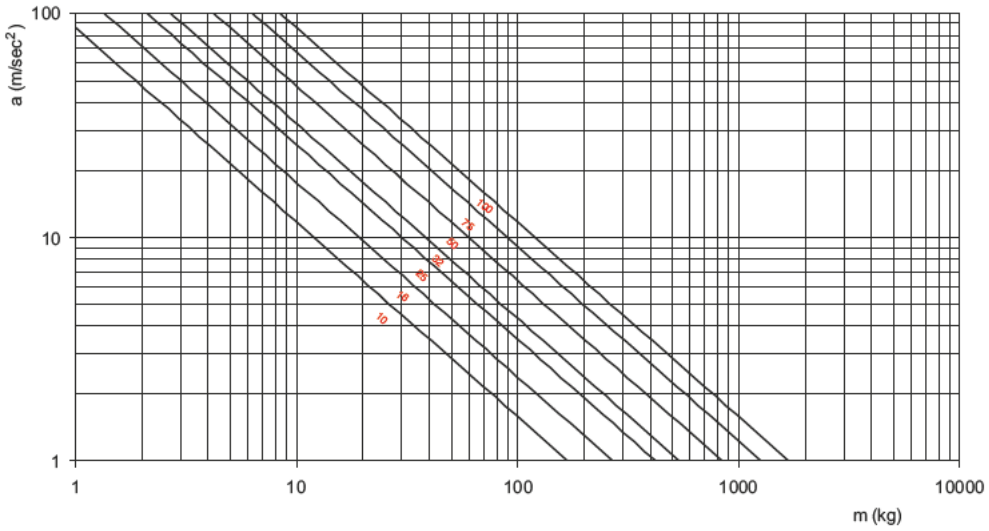
LINEAR drives

The selection graphs **mass/acceleration**, are a useful aid to the designer for the initial selection of the belt type and width in the linear motion applications. The graphs have been designed considering the maximum speed (rpm) generally used in the applications for every belt profile and pitch and have included a safety factor increasing with the acceleration.
Therefore, depending on the specific values of the application, it might be necessary to change the belt width upon calculation.

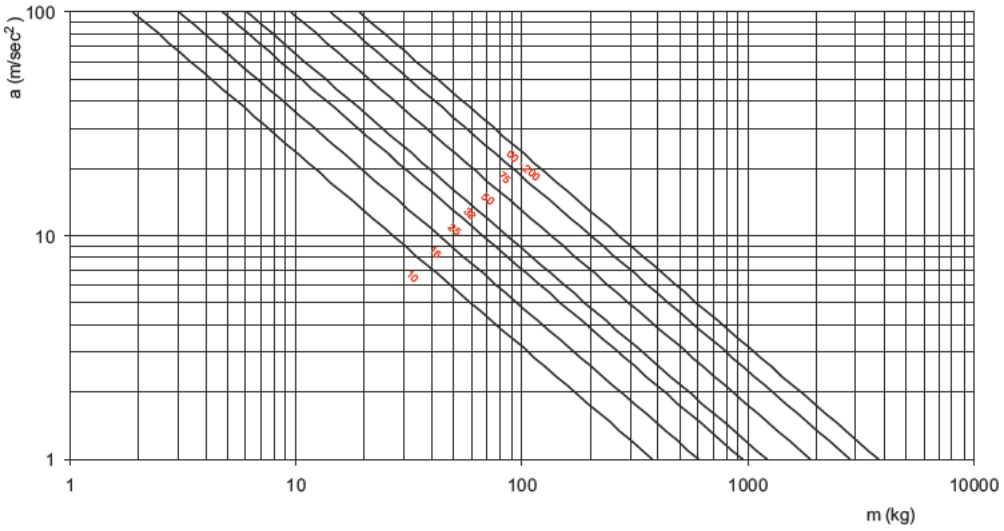
T2,5



T5



T10


a (m/sec²)
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10
1
1
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m (kg)
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25
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50
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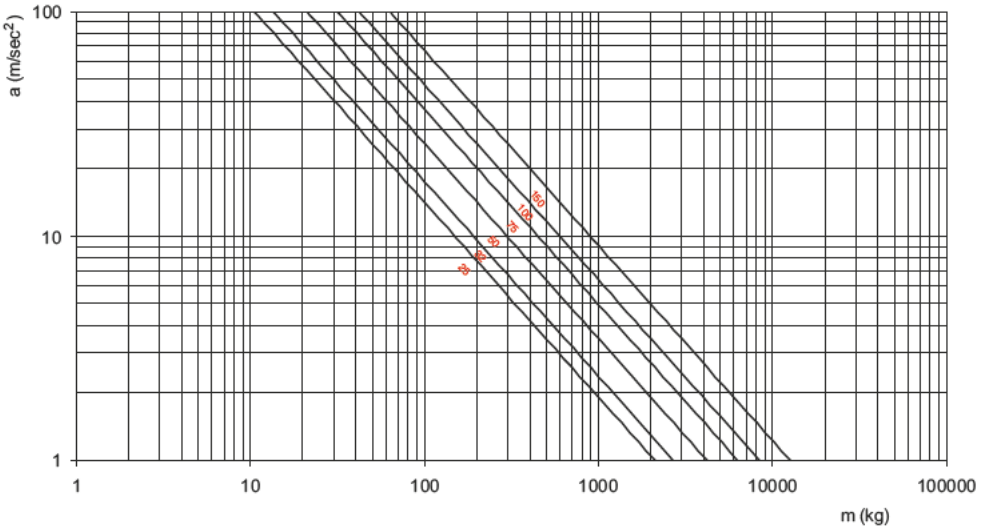
T20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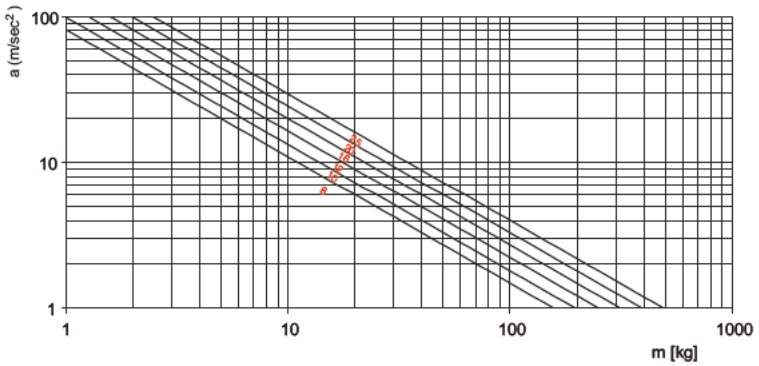
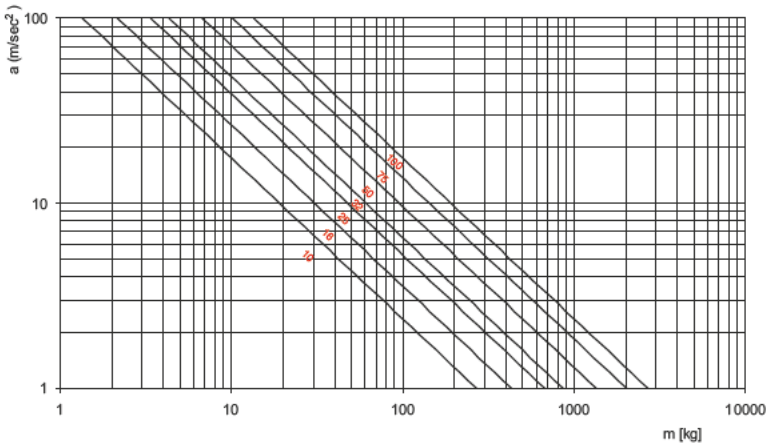
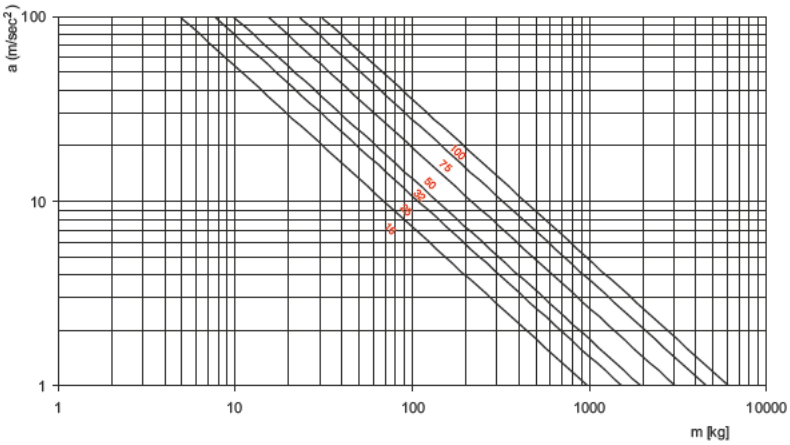
AT3



AT5 - ATL5



AT10 - ATL10



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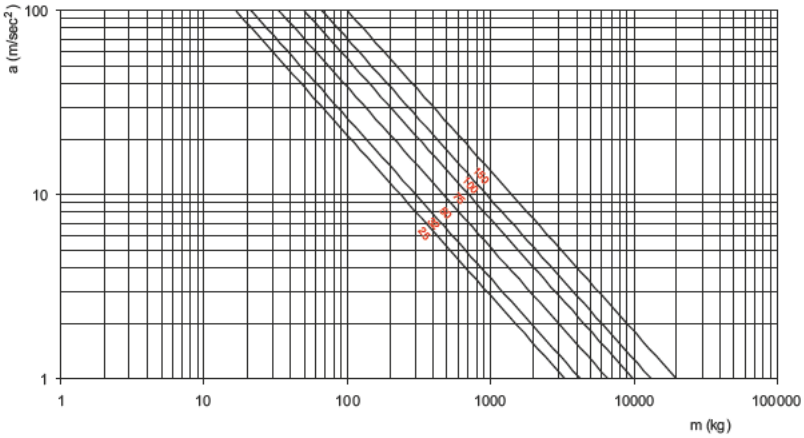
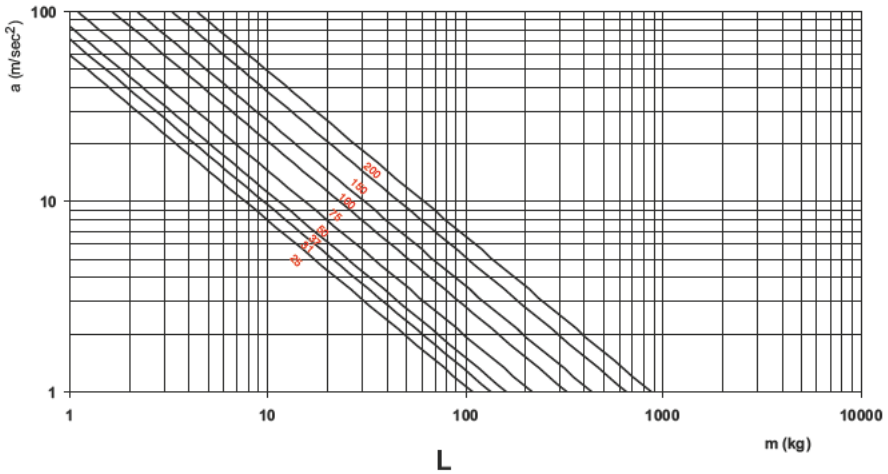


XL


a (m/sec²)
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m (kg)
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175
100
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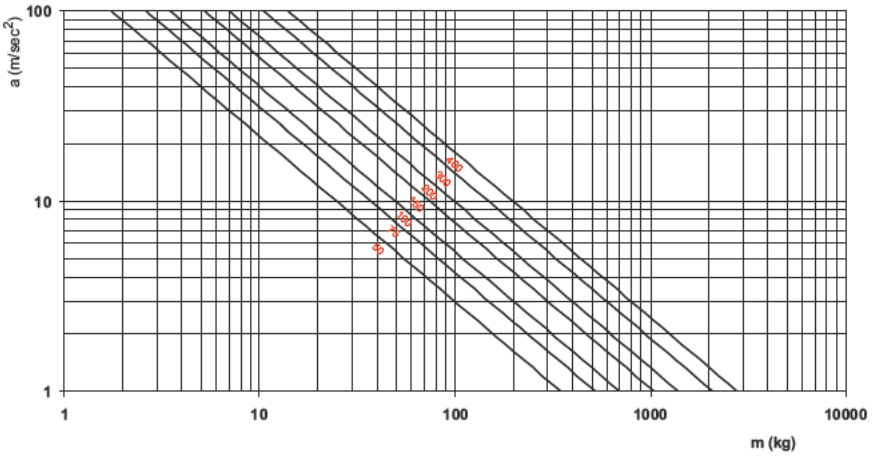
50

L


a (m/sec²)
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m (kg)
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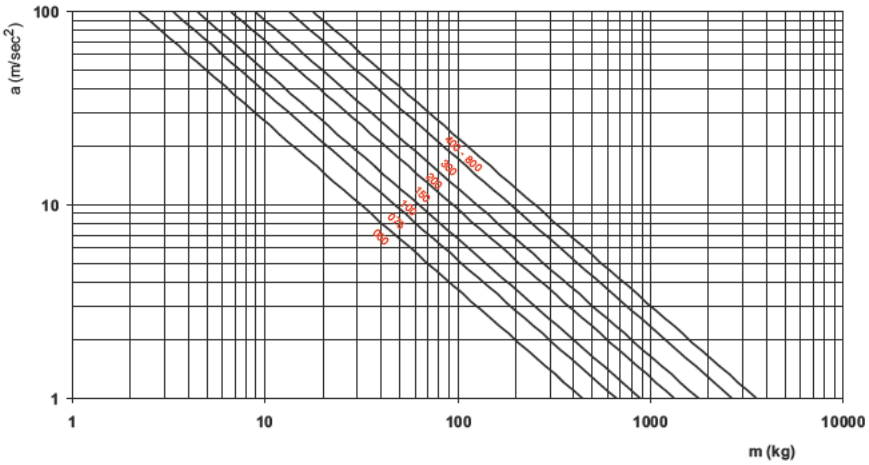
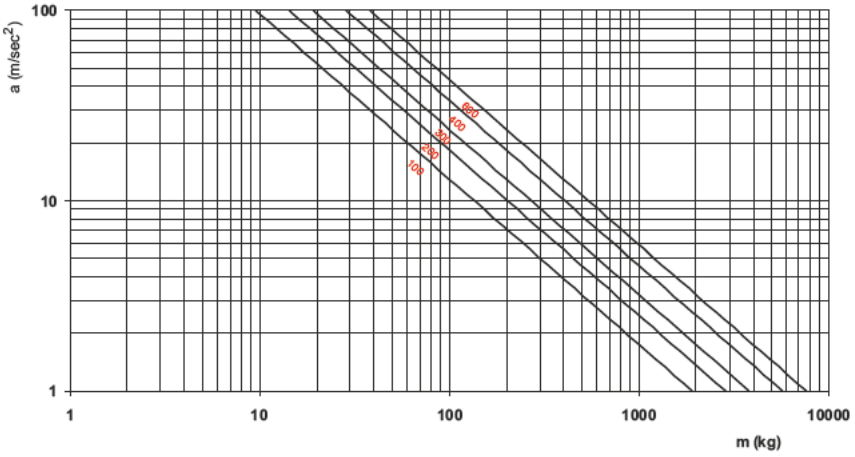
300
125
100
75
50

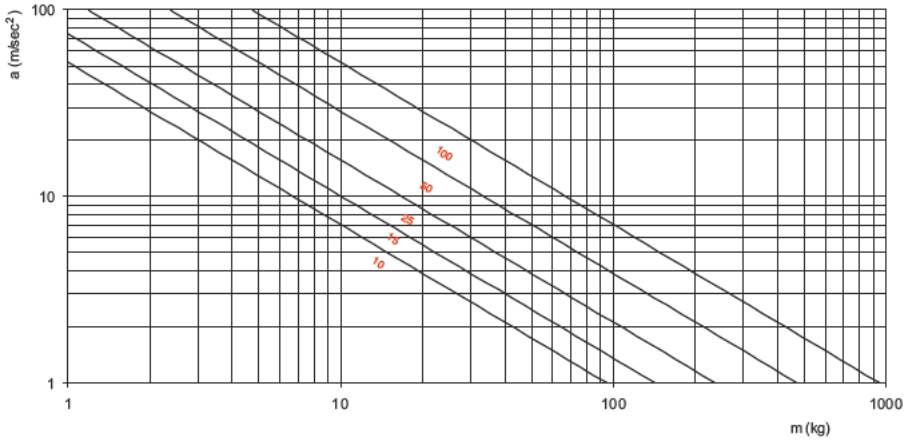
H


a (m/sec²)
100
10
1
1
10
100
1000
10000
m (kg)
500 - 800
400
300
250
200
150
100

XH


a (m/sec²)
100
10
1
1
10
100
1000
10000
m (kg)
600
400
300
200
100

HTD3M



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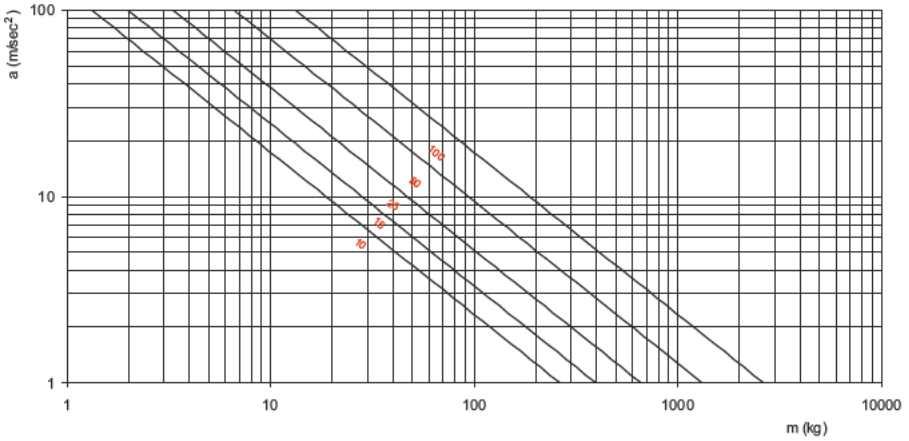

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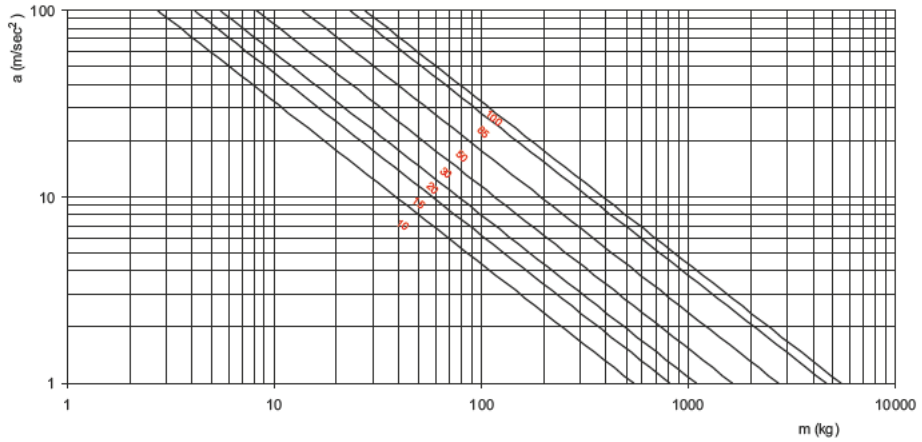

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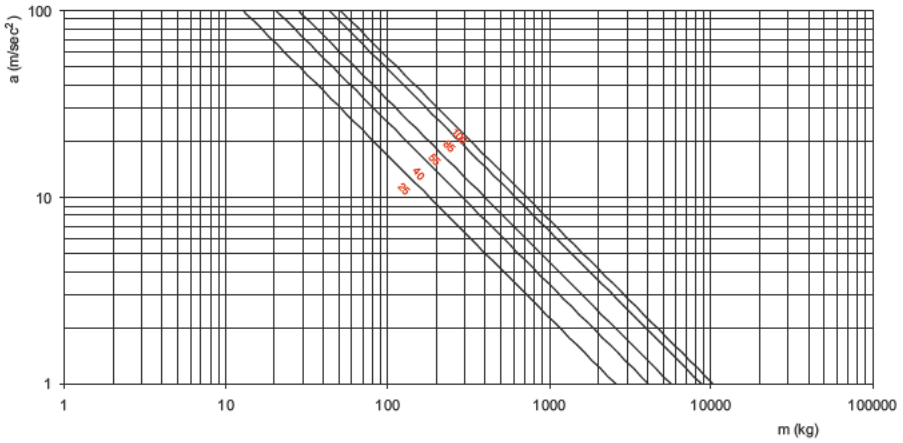

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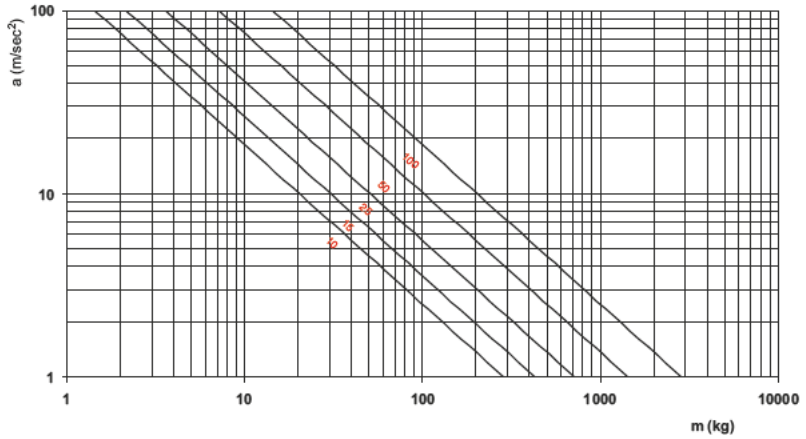

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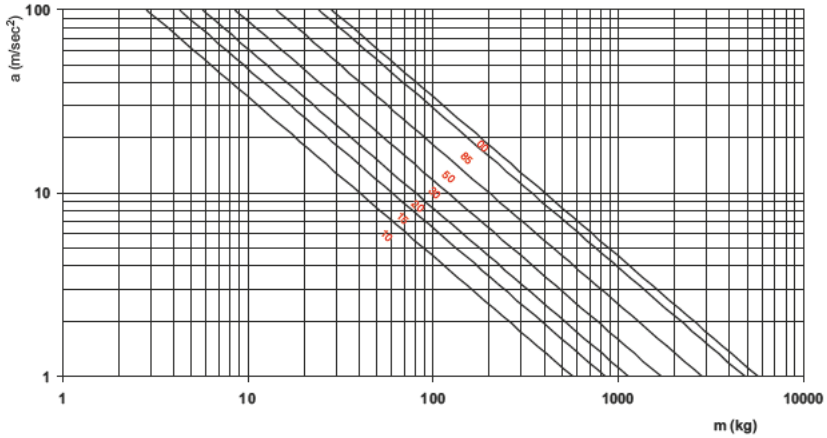

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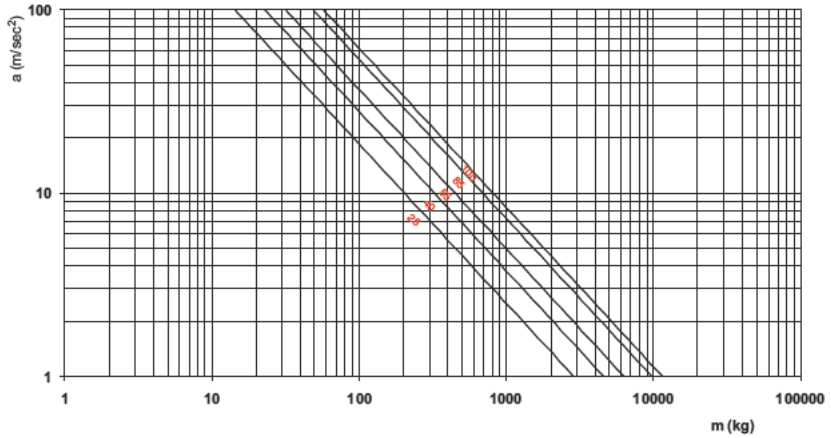

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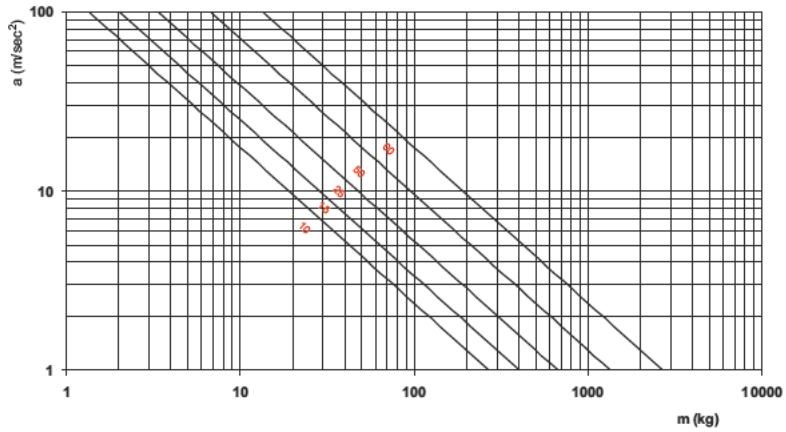

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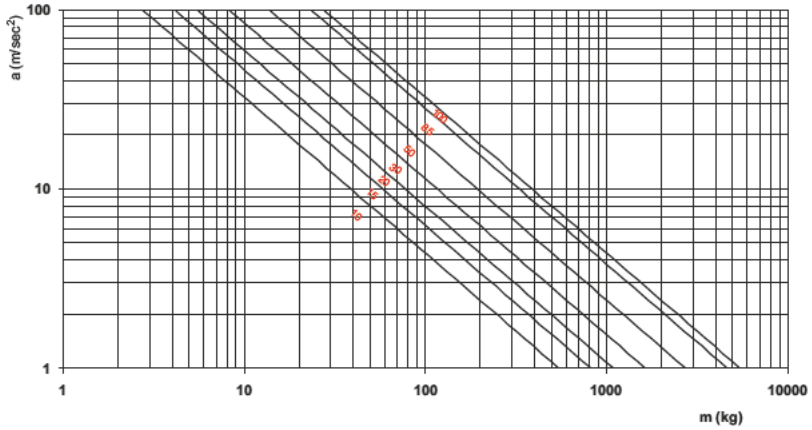

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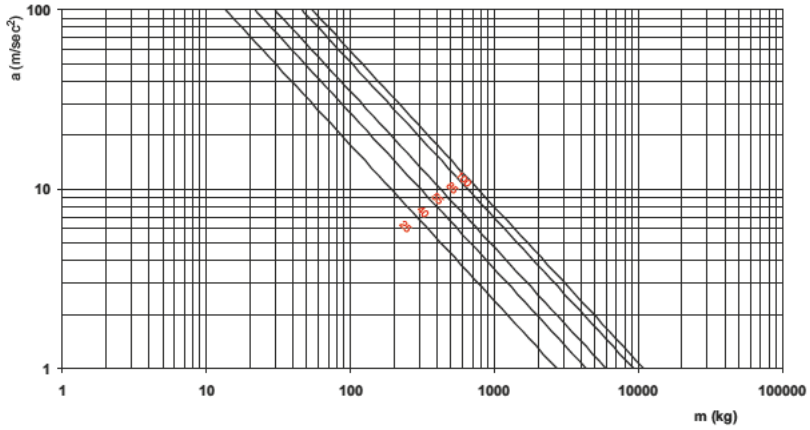
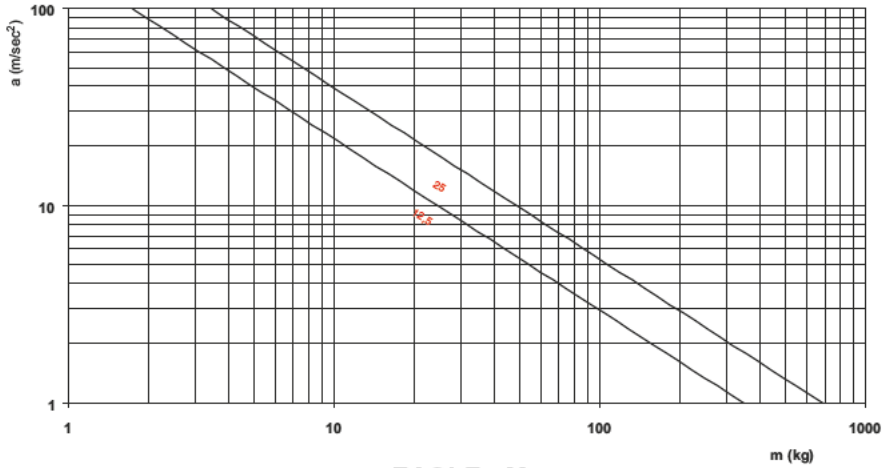


EAGLE 5M



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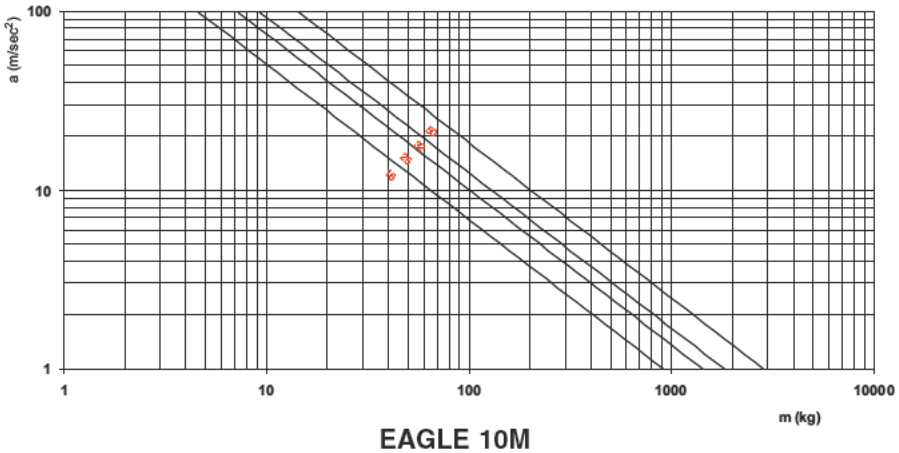

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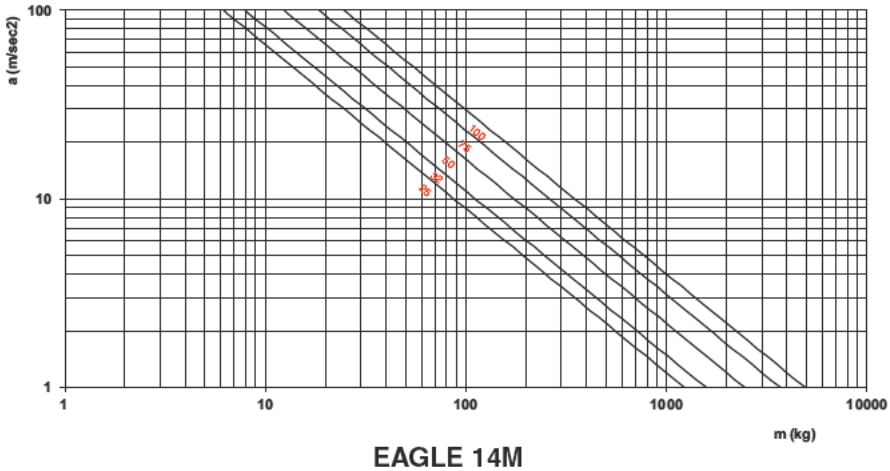

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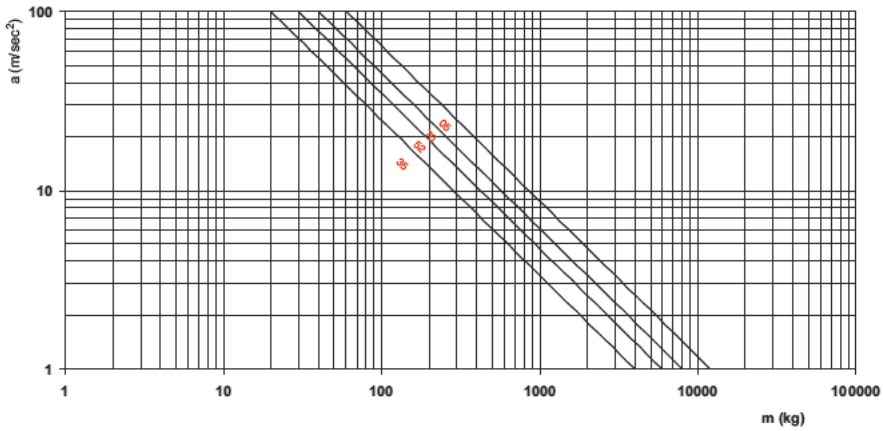
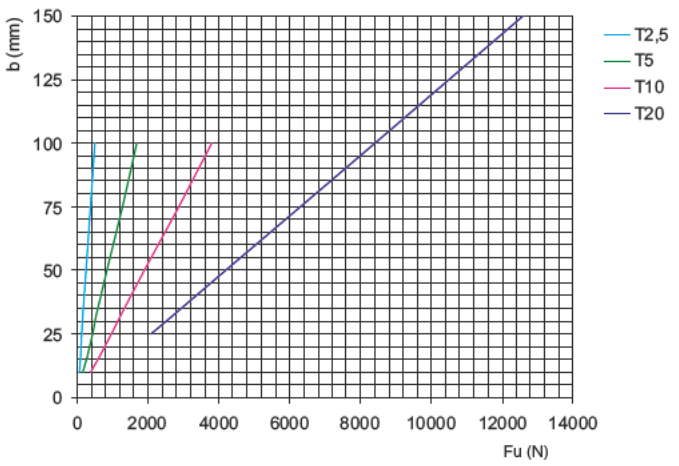


Selection graphs corrected peripheral force / belt width

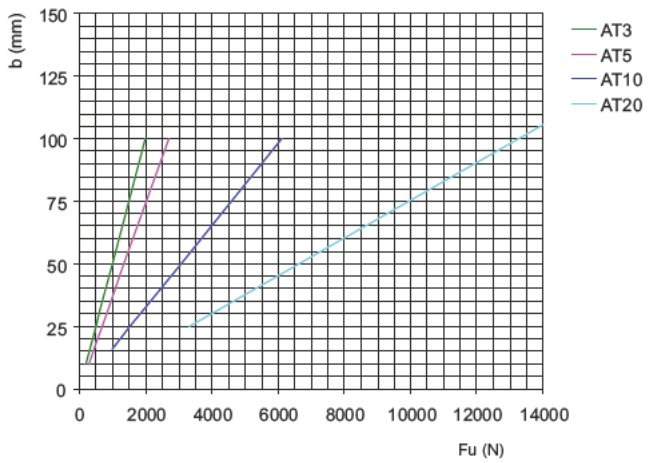
LINEAR drives

The selection graphs **corrected peripheral force / belt width** provide a quick indication on the belt width needed for each belt profile when a specific corrected load is applied. The graphs have been designed considering the maximum speed (rpm) generally used in the applications for every belt profile and pitch. No safety factor is included as safety factor usually depends on acceleration. Therefore, depending on the specific values of the application, it might be necessary to change the belt width upon calculation.

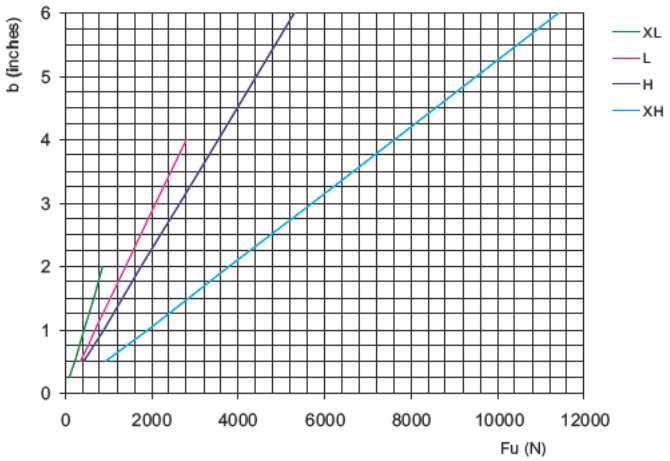
T profile



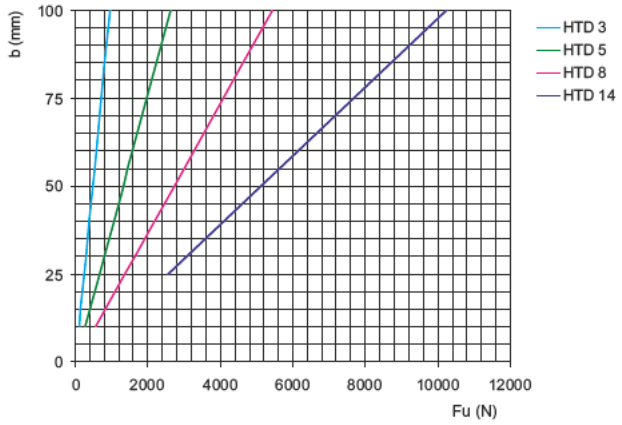
AT profile



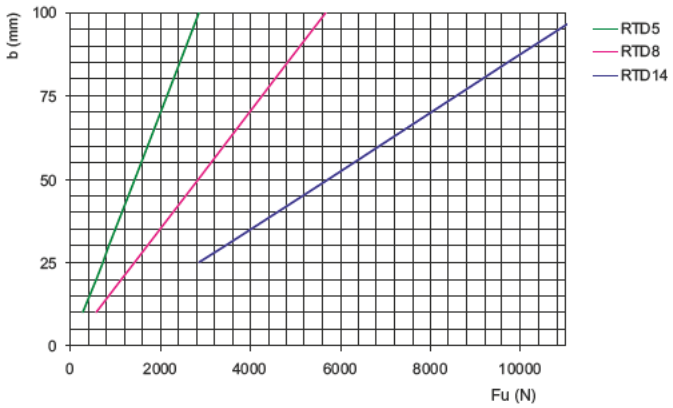
Inches Profile



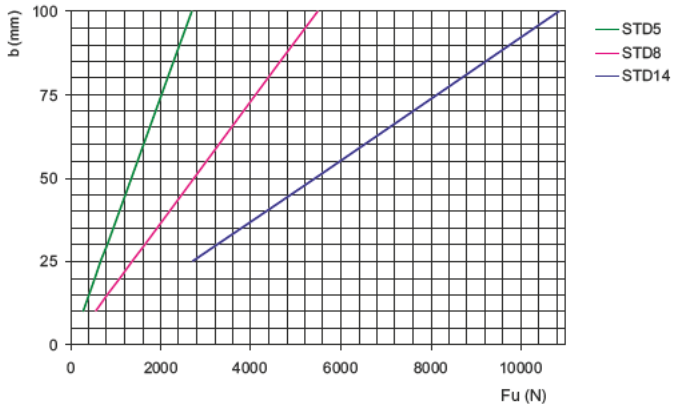
HTD profile



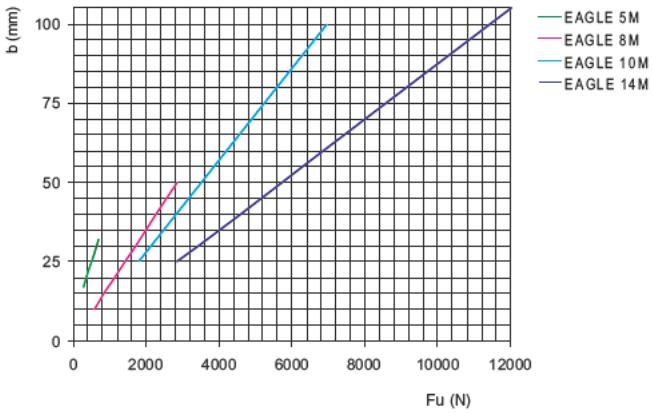
RTD profile



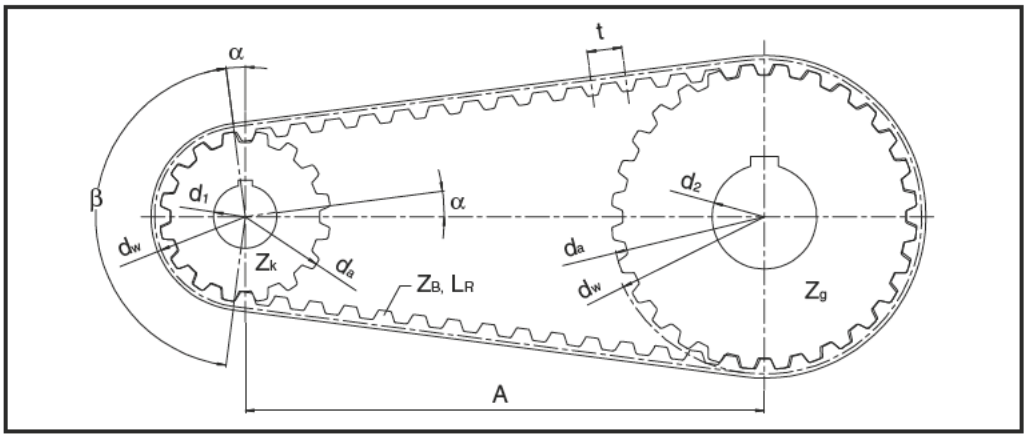
STD profile



EAGLE profile



Power transmission drives ELA-flex SD® and iSync®



Definitions

b	[cm]	Belt width
L_R	[mm]	Belt length
z_R	-	Number of teeth of the belt
B	[mm]	Pulley width
A	[mm]	Center distance
A_{eff}	[mm]	Effective center distance
d	[mm]	Pulley bore diameter
d_a	[mm]	Pulley outside diameter
d_{ak}	[mm]	Small pulley outside diameter
d_{ag}	[mm]	Large pulley outside diameter
d_w	[mm]	Pulley pitch diameter
d_{wk}	[mm]	Small pulley pitch circle diameter
d_{wg}	[mm]	Large pulley pitch circle diameter
F_{Wsta}	[N]	Static Shafts load
F_{TV}	[N]	Pretension force per belt side
F_{Tzul}	[N]	Allowable tensile load
F_U	[N]	Peripheral force
M	[Nm]	Torque
P	[kW]	Power
t_{ab}	[s]	Acceleration time
t_{av}	[s]	Deceleration time
v	[m/s]	Peripheral speed
z_e	-	N. of teeth in mesh
z_k	-	Number of teeth of the small pulley
z_g	-	Number of teeth of the large pulley
i	-	Drive ratio [$n_1 : n_2$]
ρ	[kg/dm³]	Specific weight
J	[kgm²]	Moment of inertia
t	[mm]	Pitch
n	[min⁻¹]	Rpm
n_1	[min⁻¹]	Rpm of driver pulley
ω	[s⁻¹]	Angular speed
β	[°]	Wrap angle

Calculation formula

Power

$$P = \frac{M \cdot n}{9550}$$

$$P = \frac{F_u \cdot d_w \cdot n}{19100 \cdot 10^3}$$

Peripheral force

$$F_u = \frac{19100 \cdot P \cdot 10^3}{n \cdot d_w}$$

$$F_u = \frac{2000 \cdot M}{d_w}$$

Torque

$$M = \frac{F_U \cdot d_W}{2000}$$

$$M = \frac{9550 \cdot P}{n}$$

Moment of inertia

$$J = 98{,}2 \cdot 10^{-15} \cdot B \cdot \rho \cdot \left(d_a^4 - d^4\right)$$

Angular speed

$$\omega = \frac{\pi \cdot n}{30}$$

Peripheral speed

$$v = \frac{d_W \cdot n}{19100}$$

Acceleration torque

$$M_{ab} = \frac{J \cdot \Delta n}{9{,}55 \cdot t_{ab}}$$

rpm

$$n = \frac{19100 \cdot v}{d_w}$$

Safety factors

Belt selection is made according to a constant working load. For start up torque and in case of peak loads and vibrations a safety factor c_1 must be considered.

Transmission with steady load	$c_1 = 1{,}0$

Transmission with peak or fluctuating loads:

Light	$c_1 = 1{,}4$
Medium	$c_1 = 1{,}7$
Heavy	$c_1 = 2{,}0$

For speed up driver factor c_2 must be considered:

i = from 0,66 to 1	$c_2 = 1{,}1$
i = from 0,40 to 0,66	$c_2 = 1{,}2$
i < 0,40	$c_2 = 1{,}3$

The resulting total safety factor is:

$$c_0 = c_1 \cdot c_2$$

Drive calculation

The necessary data for drive calculation are:

• Power to be transmitted	P	[kW]
• Driver rpm	n_1	[min^{-1}]
• Motor starting torque	M_{ab}	[Nm]
• Required center distance	A	[mm]
• Maximum driver pulley diameter	d_{w1}	[mm]

Select type of belt

For the initial drive selection, use the selection graphs illustrated in the relative ELA-flex SD® catalog section. For initial pulley choice, it is recommended to use the driver pulley with maximum diameter allowable in the application.

Calculate drive ratio

$$i = \frac{n_{driver}}{n_{driven}}$$

Calculate belt length

Belt length for drive with ratio $i \neq 1$

$$L_R \approx \frac{t}{2} \cdot (z_g + z_k) + 2A + \frac{1}{4A} \cdot \left[\frac{(z_g - z_k) \cdot t}{\pi}\right]^2$$

and more precisely:

$$L_R = 2A \cdot \sin \cdot \frac{\beta}{2} + \frac{t}{2} \cdot \left[z_g + z_k + \left(1 - \frac{\beta}{180}\right) \cdot (z_g - z_k)\right]$$

Belt length for drive with ratio i = 1

$$L_R = 2 \cdot A + \pi \cdot d_w = 2 \cdot A + z \cdot t$$

Calculate teeth in mesh

$$z_e = \frac{\beta}{360} \, z_k$$

with $\beta\,[°] =$ wrap angle

$$\beta = 2 \cdot \arccos \cdot \left[\frac{t \, (z_g - z_k)}{2 \cdot \pi \cdot A}\right]$$

Determine belt width

$$b = \frac{P \cdot 1000 \cdot c_0}{z_k \cdot z_e \cdot P_{spez}} \qquad b = \frac{100 \cdot M \cdot c_0}{z_k \cdot z_e \cdot M_{spez}}$$

Determine installation tension

A drive is correctly tensioned when the belt slack side is tensioned in all working conditions. It is also important to use the minimum necessary tension to minimize shaft loads. Belt tension is dependent also on belt length L_R and its number of teeth Z_R. According to belt number of teeth, following tension is suggested:

2 shafts drive

$Z_R < 75$	$F_{TV} = 1/3\ F_U$
$75 < Z_R < 150$	$F_{TV} = 1/2\ F_U$
$Z_R > 150$	$F_{TV} = 2/3\ F_U$

More than 2 shafts drive

$$F_{TV} > F_U$$

Verify allowable tensile load

The allowable tensile load of the belt must be higher than the total corrected peripheral force.

$$F_{Tzul} \geq F_{TV} + \frac{1}{2} \cdot F_U \cdot C_0 \quad \text{with} \quad F_u = \frac{2000 \cdot M}{d_w}$$

Calculate shaft load

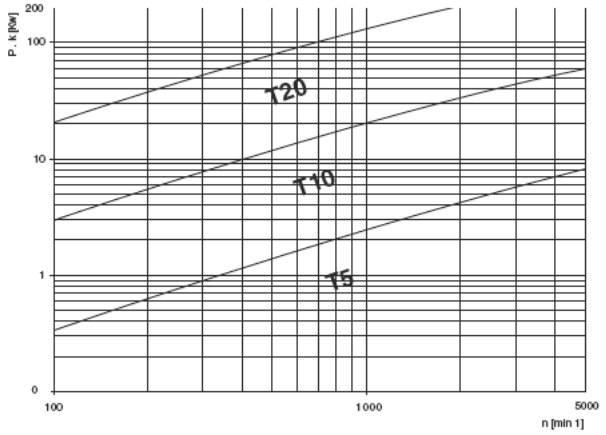
$$F_{Wsta} = 2 \cdot F_{Tv} \cdot \cos \cdot \beta$$
$$F_{Wsta} = 2 \cdot F_{Tv} \ (\text{for } i = 1)$$

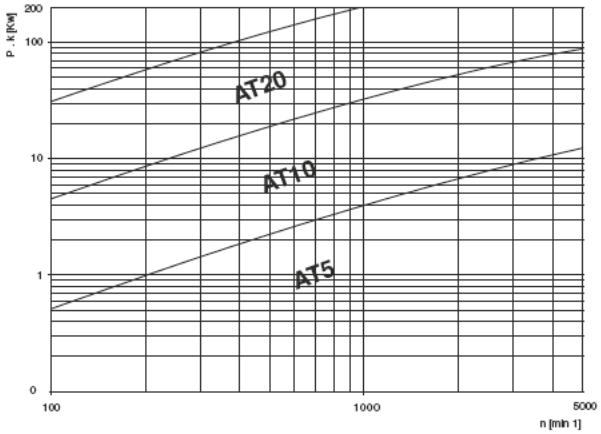
In order to ensure the correct drive installation tension, it is recommended to use the special belt tension meter available from ELATECH®.

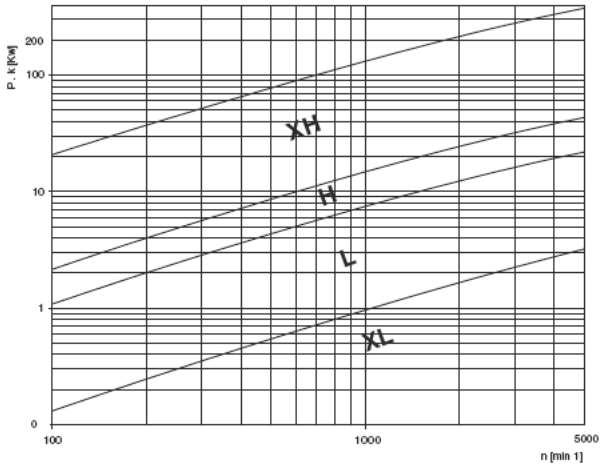
Selection graphs

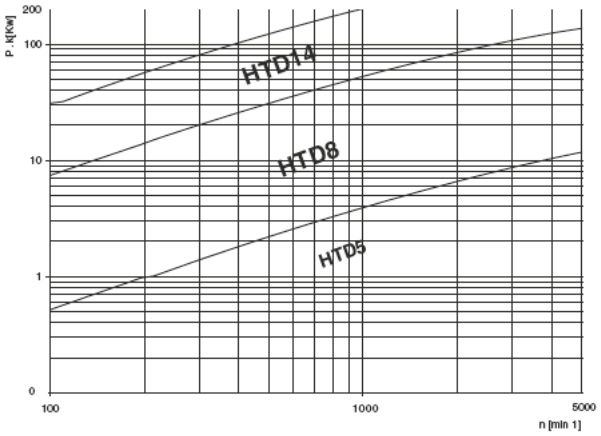
ELA-flex SD®

The selection graphs allows the customer to select the most suitable timing belt pitch for each belt profile and for the power to be transmitted. The rpm on the horizontal axis refers to the small pulley. The corrected power (safety factor x nominal power) is read on the vertical axis.









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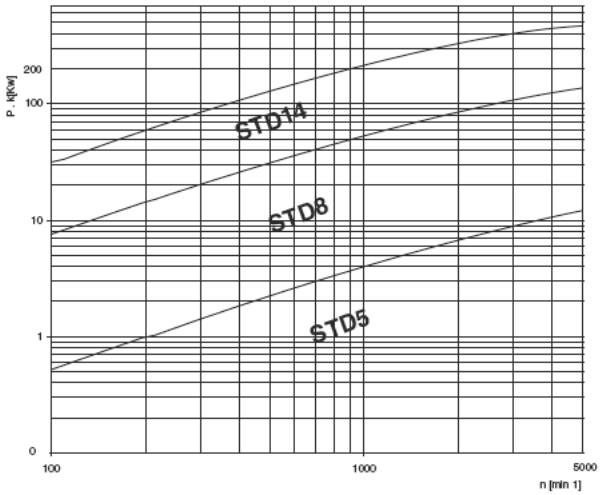
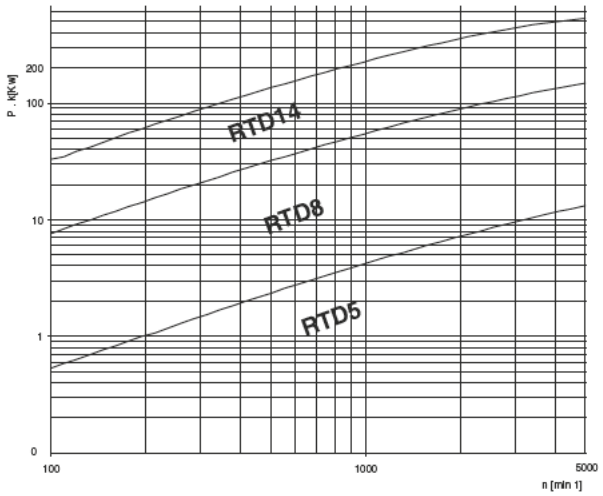
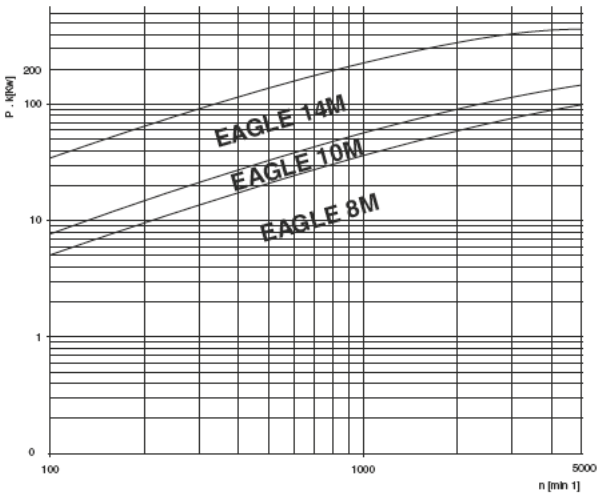
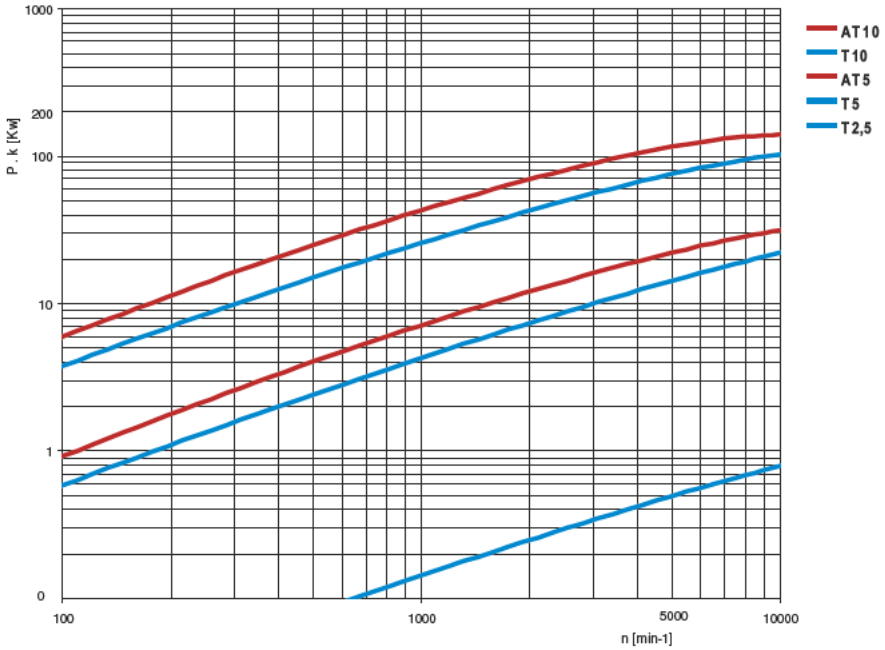






Selection graphs

iSync® high performance timing belts



Troubleshooting

DAMAGE	CAUSE	REMEDY
Belt tooth jumping	Over load (shock on the machine) Overload due to machine accident Shortage of teeth in mesh Lack of initial tension Pulley diameter too small Moment of inertia for start and stop is not considered	Increase belt size/modify design Prevent recurrence of the accident Increase teeth in mesh by using an idler Correct initial tension Change design Change design
Abnormal noise level	Bad pulley alignment Incorrect pulley tooth shape Belt wider than pulley diameter Over load Belt over-tension	Adjust alignment Change pulley Change design Change design Correct initial tension
Belt side abrasion	Bad pulley alignment Poor flange shape Pulley flange roughness	Adjust alignment Correct flange shape or change flange Change flange to an appropriate one
Belt tooth abrasion	Presence of particles between belt and pulley Over load Over tension Belt tooth jumping due to lack of initial tension	Improve environment or apply a protective cover Change design (increase belt size) Correct initial tension Correct initial tension
Belt tooth bottom abrasion	Bad pulley profile Over tension	Use correct pulley Correct initial tension
Belt back abrasion	Contact with undesired element (i.e. machine frame)	Eliminate contact
Belt back cracking	Running under too low temperature Pulleys too small	Increase environment temperature or ask for special compound Observe minimum pulley diameter recommendations
Belt breakage	Over load (shock on the machine) Undesired particles in mesh Tension member corrosion Belt run off over pulley flange Not enough belt teeth in clamping plate Clamping plate screws tightened incorrectly	Increase belt size/modify design Improve environment or apply a protective cover Improve environment or use aramid/stainless steel cords Adjust alignment and change pulley flange Use larger clamping plate Apply optimum torque to clamp plate screws
Tension member partial tear	Presence of undesired particles in mesh Improper installation Belt folded or twisted Fatigue on side due to bad alignment	Improve environment or apply a protective cover Exercise care when installing Exercise care in handling Correct alignment
Back covering abnormal abrasion	Aggressive environment	Change belt back cover or improve environment conditions
Pulley tooth abrasion	Presence of undesired particles in mesh Over load Belt over tension Pulley material not adequate (too soft)	Improve environment or apply a protective cover Change design Correct initial tension Change pulley material or adopt surface treatment

Notes:

The data contained in this publication are for information purposes only and do not enlarge, amend or imply any warranty other than provided by the manufacturer with the product. In the spirit of continuos technical improvement, the specifications in this catalogue are subject to change without notice.

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