

DYSTRYBUTOR



TECHNICAL

GRZEGORZ TĘGOS

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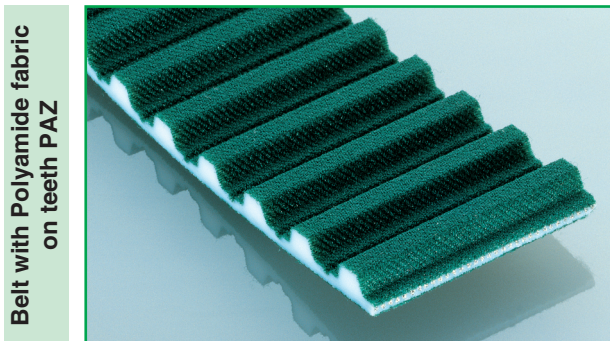
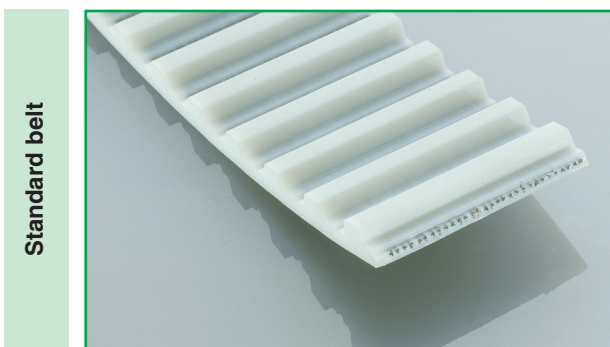
Pasy zębate PU z metra podziałka STD



Antriebsselemente

ELATECH® M and V

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.



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:



- **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

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 :

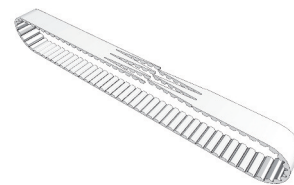
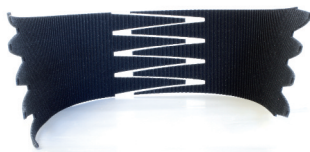
ELATECH® "R" - Roll 100 m	R	025	T	10	A / Z
ELATECH® timing belt type "R"					
Width 25 mm (3 digits)					
Profile "T"					
Pitch 10 mm					
A= steel cords S= inox cords K= Kevlar® cords F= high flexibility cords P= high power cords					
Z= fabric on teeth (PAZ) R= fabric on back (PAR) D= fabric on PAZ + PAR					

Ordering example profile H cut to length:

ELATECH® "M" cut to length	M	100	H	A	01000 / Z
ELATECH® timing belt type "M"					
Width (x 0,254 = mm) - 3 digits					
Profile "H"					
A= stainless steel cords S= inox cords K= Kevlar® cords F= high flexibility cords P= high power cords					
Length 1000 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.



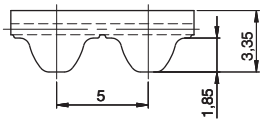
Ordering example profile AT :

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= stainless steel cords S= inox cords K= Kevlar® cords F= high flexibility 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	00750 / Z
ELATECH timing belt type "V" jointed					
Width (x 0,254 = mm) - 3 digits					
Profile "XL"					
A= stainless steel cords S= inox cords K= Kevlar® cords F= high flexibility cords P= high power cords					
Length 750 mm (5 digits)					
Z= fabric on teeth (PAZ) R= fabric on back (PAR) D= fabric on PAZ + PAR					

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

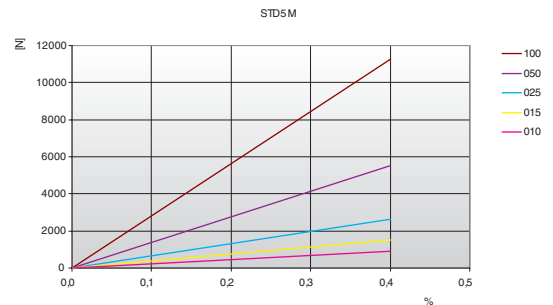
- Width tolerance: $\pm 0,5$ [mm]
- Length tolerance: $\pm 0,5$ [mm/m]
- Thickness tolerance: $\pm 0,2$ [mm]

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.

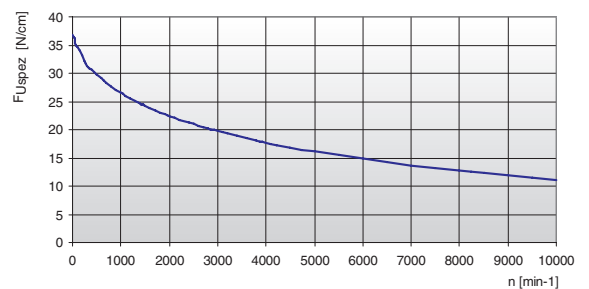
Load / Elongation [%]



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:

$$F_u [N] = F_{Uspez} \cdot Z_e \cdot b$$

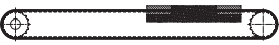
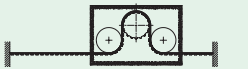
- $F_u [N]$ = peripheral force
- $F_{Uspez} [N/cm]$ = specific load
- Z_e = number of teeth in mesh in the small pulley
- Z_{emax} = max. no of teeth in mesh to be considered for the calculation of the drive
- Z_{emax} = 12 for ELATECH® M
- Z_{emax} = 6 for ELATECH® V
- $b [cm]$ = belt width in cm

STD 5M

Specialties

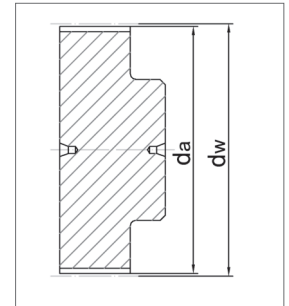
Belt width b [mm]	ARAMID CORD		STAINLESS STEEL		HFE High Flexibility	
	F _{Tzul} [N] M type	F _{Br} [N]	F _{Tzul} [N] M type	F _{Br} [N]	F _{Tzul} [N] M type	F _{Br} [N]
10	880	3600	600	2400	960	3440
15	1430	5850	980	3900	1560	5590
25	2530	10350	1730	6900	2760	9890
50	5280	21600	3600	14400	5760	20640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

Flexibility

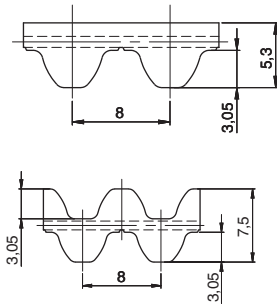
Minimum pulley number of teeth and minimum idler diameter		Type of cord			
		STANDARD	ARAMID	STAINLESS	HFE
Drive without reverse bending 	Timing pulley z _{min}	16	16	18	15
	Flat idler running on belt teeth d _{min}	30 mm	30 mm	40 mm	40 mm
Drive with reverse bending 	Timing pulley z _{min}	25	25	25	20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

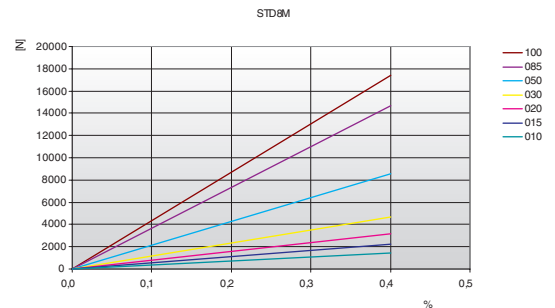
- Width tolerance: $\pm 0,5$ [mm]
- Length tolerance: $\pm 0,5$ [mm/m]
- Thickness tolerance: $\pm 0,2$ [mm]

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.

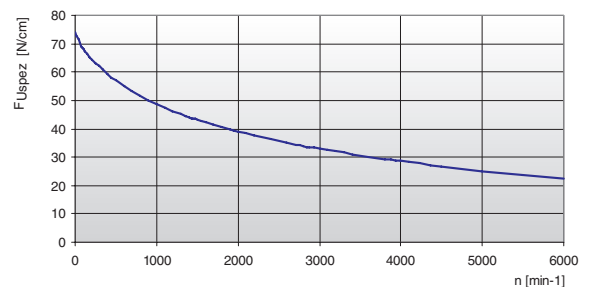
Load / Elongation [%]



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:

$$F_u [N] = F_{Uspez} \cdot Z_e \cdot b$$

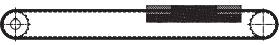
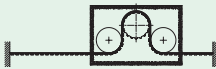
- $F_u [N]$ = peripheral force
- $F_{Uspez} [N/cm]$ = specific load
- Z_e = number of teeth in mesh in the small pulley
- Z_{emax} = max. no of teeth in mesh to be considered for the calculation of the drive
- Z_{emax} = 12 for ELATECH® M
- Z_{emax} = 6 for ELATECH® V
- $b [cm]$ = belt width in cm

STD 8M

Specialties

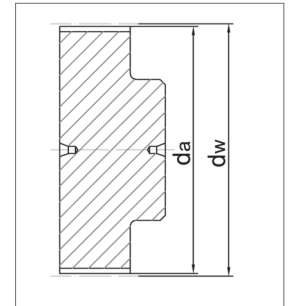
Belt width b [mm]	ARAMID CORD		STAINLESS STEEL		HPL High Performance	
	F _{Tzul} [N] M type	F _{Br} [N]	F _{Tzul} [N] M type	F _{Br} [N]	F _{Tzul} [N] M type	F _{Br} [N]
10	1140	4740	1080	4500	-	-
15	1710	7110	1620	6750	-	-
20	2470	10270	2340	9750	5280	19250
30	3800	15800	3600	15000	8160	29750
50	6650	27650	6300	26250	14400	52500
85	11400	47400	10800	45000	24480	89250
100	13500	56000	12780	53250	29280	106750

Flexibility

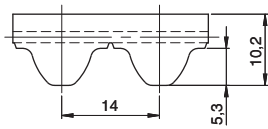
Minimum pulley number of teeth and minimum idler diameter		Type of cord			
		STANDARD	ARAMID	STAINLESS	HPL
Drive without reverse bending 	Timing pulley z _{min}	18	18	24	30
	Flat idler running on belt teeth d _{min}	50 mm	50 mm	70 mm	80 mm
Drive with reverse bending 	Timing pulley z _{min}	30	30	40	30
	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	180,8	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			



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 performance in lifting applications
- The special profile allows smooth running properties

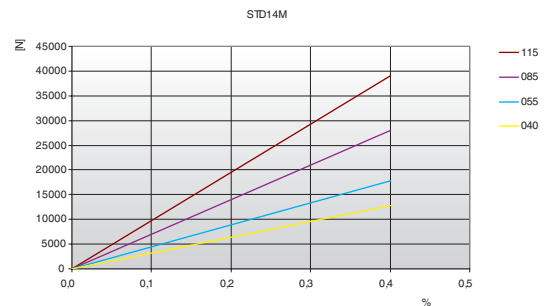
- Width tolerance: $\pm 1,0$ [mm]
- Length tolerance: $\pm 0,5$ [mm/m]
- Thickness tolerance: $\pm 0,4$ [mm]

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.

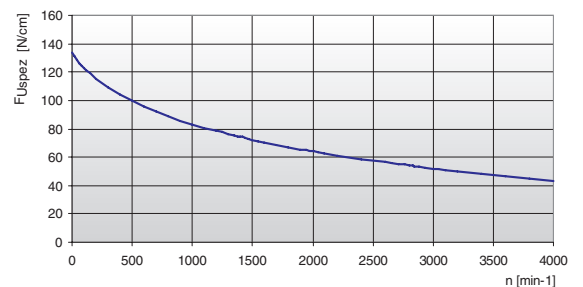
Load / Elongation [%]



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.

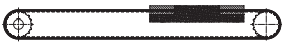

The total load F_u transmissible by the belt in the drive is calculated by:

$$F_u [N] = F_{Uspez} \cdot Z_e \cdot b$$

- $F_u [N]$ = 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

STD 14M

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	z	da	dw	z	da	dw	z	da	dw
28	122,12	124,77	58	255,68	258,46	88	389,37	392,15	119	527,51	530,30
29	126,58	129,22	59	260,14	262,91	89	393,83	396,60	120	531,97	534,75
30	130,99	133,69	60	264,60	267,38	90	398,29	401,07			
31	135,45	138,14	61	269,04	271,83	91	402,73	405,52			
32	139,88	142,59	62	273,50	276,28	92	407,19	409,97			
33	144,35	147,06	63	277,96	280,75	93	411,65	414,44			
34	148,79	151,51	64	282,42	285,20	94	416,10	418,89			
35	153,25	155,96	65	286,88	289,65	95	420,56	423,35			
36	157,68	160,41	66	291,32	294,11	96	425,02	427,80			
37	162,14	164,88	67	295,78	298,56	97	429,48	432,25			
38	166,60	169,34	68	300,24	303,03	98	433,94	436,72			
39	171,02	173,79	69	304,70	307,48	99	438,38	441,17			
40	175,48	178,24	70	309,16	311,93	100	442,84	445,62			
41	179,92	182,71	71	313,61	316,40	101	447,30	450,09			
42	184,37	187,16	72	318,07	320,85	102	451,76	454,54			
43	188,83	191,61	73	322,53	325,30	103	456,21	459,00			
44	193,29	196,08	74	326,98	329,77	104	460,67	463,45			
45	197,75	200,53	75	331,44	334,22	105	465,13	467,90			
46	202,21	204,98	76	335,90	338,67	106	469,58	472,37			
47	206,65	209,43	77	340,34	343,12	107	474,03	476,82			
48	211,11	213,90	78	344,80	347,59	108	478,49	481,28			
49	215,57	218,35	79	349,26	352,04	109	482,95	485,74			
50	220,03	222,80	80	353,72	356,49	110	487,41	490,19			
51	224,49	227,27	81	358,17	360,96	111	491,87	494,64			
52	228,95	231,72	82	362,63	365,41	112	496,32	499,10			
53	233,39	236,18	83	367,09	369,86	113	500,78	503,55			
54	237,85	240,64	84	371,54	374,33	114	505,23	508,02			
55	242,30	245,09	85	376,00	378,78	116	514,14	516,93			
56	246,76	249,55	86	380,46	383,23	117	518,60	521,38			
57	251,22	254,01	87	384,91	387,70	118	523,06	525,83			

