

# ELATECH® flat belts

ELATECH® flat belts 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.

## 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 needs 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 ends are securely and firmly fastened by 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

## Belt fastening guidelines

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

Pulley [mm]	F1	F2	F2,5	F3
<b>D</b>	50	60	80	120

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

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.

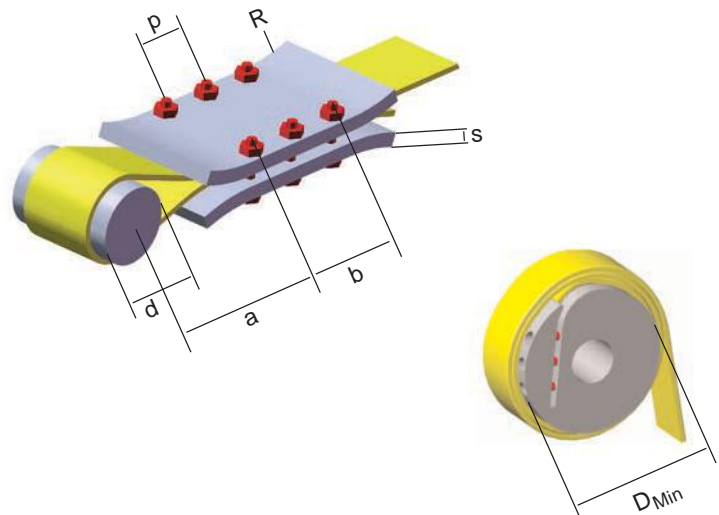
Proper design of belt ends is recommended to ensure application safety. Some possible design solutions for belt end clamping are shown here as examples.

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.

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 meets machine 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.

## 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 catalogue 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.



# F1



## Belt characteristics

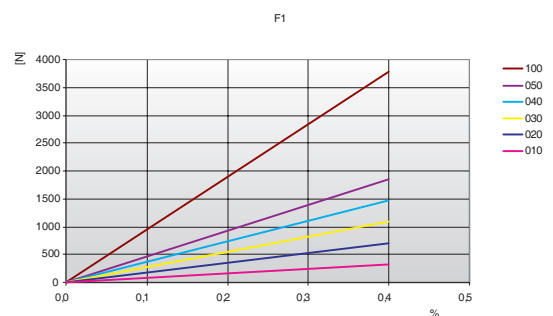
- Polyurethane flat belt with steel tension cords
- It is mainly used in lifting applications where there is no need for synchronization
- Allows the use of small diameter pulleys and compact drive design
- Black colour as standard
- Maintenance free
- Reduced thickness tolerance available on request

- Width tolerance:  $\pm 0,5$  [mm]
- 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	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

## Load / Elongation [ % ]



Other widths are available on request.

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



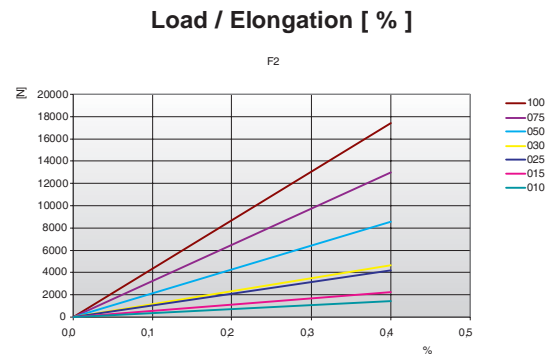
### Belt characteristics

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## 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.

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:  $\pm 0,5$  [mm]
- Thickness tolerance:  $\pm 0,2$  [mm]

### Belt characteristics

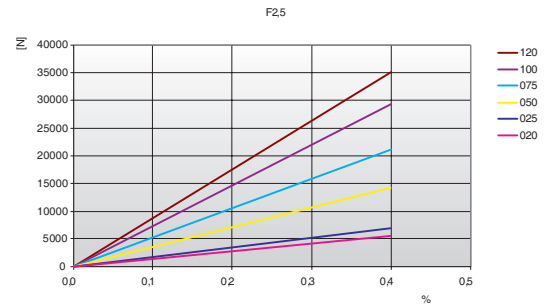
- Polyurethane flat belt with steel tension cords
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- Allows the use of small diameter pulleys
- Black colour as standard
- Maintenance free
- Reduced thickness tolerance available on request

### 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	2665	19250	1320000	0,08
25	6720	3335	24500	1680000	0,09
50	14400	7200	52500	3600000	0,18
75	21600	10000	78750	5400000	0,27
100	29280	14640	106750	7320000	0,36
120	35040	17280	127750	8670000	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:  $\pm 0,5$  [mm]
- Thickness tolerance:  $\pm 0,2$  [mm]

### Belt characteristics

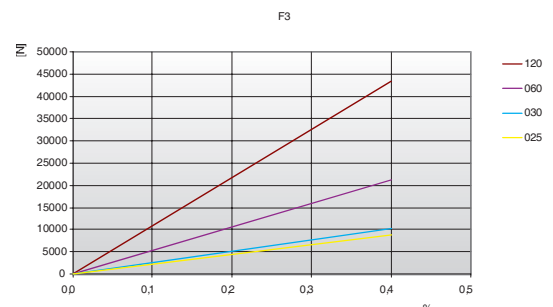
- Polyurethane flat belt with steel tension cords
- It is mainly used in lifting application where there is no need for synchronization
- Allows the use of small diameter pulleys
- Black colour as standard
- Maintenance free
- Reduced thickness tolerance available on request

### 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	3400	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

Other widths are available on request.

### Load / Elongation [ % ]

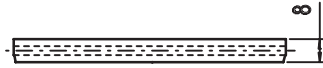


Minimum pulley diameter	Drive without reverse bending [mm]	Drive with reverse bending [mm]
	120	180

# FLAT Heavy Series

ELATECH® FLAT belt heavy series, have 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 in 85 Sh A polyurethane body to ensure high grip on the motor pulley and with high performance steel tension member.

## F8



### Belt characteristics

- Polyurethane flat belt with steel tension cords
- Long service life
- Black colour as standard
- Maintenance free
- Minimum elastic elongation

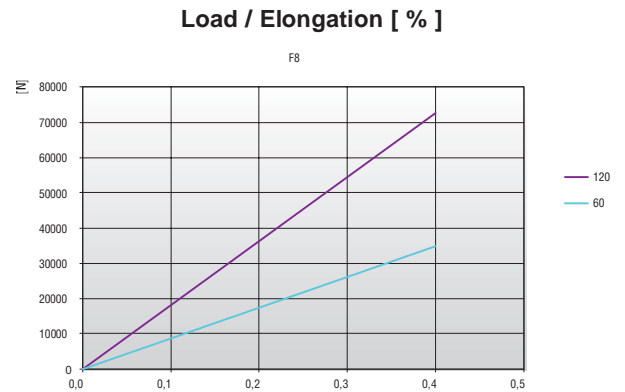
### F8 - Technical Data

- Width tolerance:  $\pm 1,5$  [mm]
- Thickness tolerance:  $\pm 0,8$  [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]
60	34800	157200	8700000	1,2
120	72500	327500	18125000	2,4

Other widths are available on request.

Minimum pulley diameter	Drive without reverse bending [mm]	Drive with reverse bending [mm]
	250	300



## F9



### Belt characteristics

- Polyurethane flat belt with steel tension cords
- Long service life
- Black colour as standard
- Maintenance free
- Minimum elastic elongation

### F9 - Technical Data

- Width tolerance:  $\pm 1,5$  [mm]
- Thickness tolerance:  $\pm 0,8$  [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]
105	37400	148500	9350000	1,7
125	44000	175500	11000000	2,1
150	55000	220500	13750000	2,5

Other widths are available on request.

Minimum pulley diameter	Drive without reverse bending [mm]	Drive with reverse bending [mm]
	200	250

