


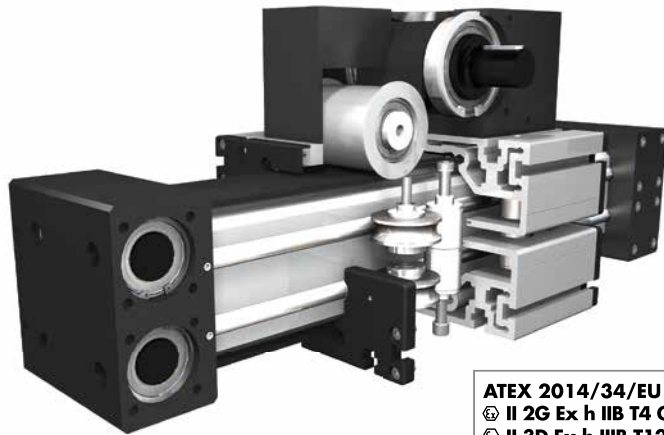
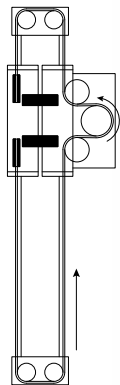




**BELT DRIVE - EX GUIDE**

-  **PULLEY PRINCIPLE**
-  **VERTICAL INSTALLATION POSITION**
-  **EX-GUIDE**



**ATEX 2014/34/EU**  
 **II 2G Ex h IIB T4 Gb**  
 **II 3D Ex h IIB T125 °C Dc**

**Function:**

Special lifting system with roll guides outside of profile. System is driven by one rotating timing belt with one drive. The function corresponds to a simple pulley block. The positioning system is suitable for use according to the intended purpose in potentially explosive areas (see ATEX 95 marking). An operating manual is included in the scope of delivery. The system is certified for the following areas:

**ATEX 2014/34/EU**

**II 2G Ex h IIB T4 Gb:**

All application areas except for underground mining. Gas atmosphere category 2, explosion protection category: protection due to secure construction (design security). Equipment group IIB. Temperature class T4=135 °C

**ATEX 2014/34/EU**

**II 3D Ex h IIB T125 °C Dc:**

All application areas except for underground mining. Dust atmosphere category 3. Maximum permissible surface temperature: 125 °C.

**Fitting position:**

As required. Max. length without joints 3.000 mm.

**Carriage mounting:**

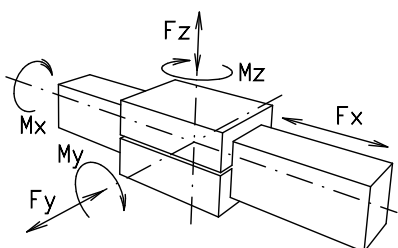
By T-slots.

**Unit mounting:**

By T-slots or tapped holes in the bearing blocks, or mounting sets.

**Belt type:**

HTD with steel reinforcement, no backlash when changing direction, repeatability ± 0,1 mm.

Forces and torques	Size	ELFZex 60S		ELFZex 80S		ELFZex 100		ELFZex 125	
	Forces/Torques	static	dynamic	static	dynamic	static	dynamic	static	dynamic
	F <sub>x</sub> (N)	1800	1550	3000	2600	4200	3650	6000	5200
	F <sub>y</sub> (N)	3820	3056	4438	3550	6200	4960	9960	7968
	F <sub>z</sub> (N)	1870	1496	1052	842	1292	1043	2190	1752
	M <sub>x</sub> (Nm)	104	82	134	108	202	162	440	352
	M <sub>y</sub> (Nm)	132	106	154	140	272	218	560	448
	M <sub>z</sub> (Nm)	274	220	364	292	652	520	1272	1018
	<b>All forces and torques relate to the following:</b> existing values $\frac{F_y}{F_{y_{dyn}}} + \frac{F_z}{F_{z_{dyn}}} + \frac{M_x}{M_{x_{dyn}}} + \frac{M_y}{M_{y_{dyn}}} + \frac{M_z}{M_{z_{dyn}}} \leq 1$ table values								
<b>No-load torque</b>									
Nm		1,2		1,5		2		2	
<b>Speed</b>									
(m/s) max		1		1		1		1	
<b>Drive torque</b>									
max (Nm)		27		62		101		145	
<b>Geometrical moments of inertia of aluminium profile</b>									
I <sub>x</sub> mm <sup>4</sup>		6,79x10 <sup>5</sup>		1,89x10 <sup>6</sup>		4,44x10 <sup>6</sup>		10,15x10 <sup>6</sup>	
I <sub>y</sub> mm <sup>4</sup>		6,97x10 <sup>5</sup>		1,89x10 <sup>6</sup>		4,48x10 <sup>6</sup>		10,15x10 <sup>6</sup>	
E-Modulus N/mm <sup>2</sup>		70000		70000		70000		70000	

For life-time calculation of rollers use our homepage.

Driving torque:

$$M_o = \frac{F \cdot P \cdot S_i}{2000 \cdot \pi \cdot 2} + M_n$$

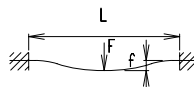
$$P_o = \frac{M_o \cdot n}{9550}$$

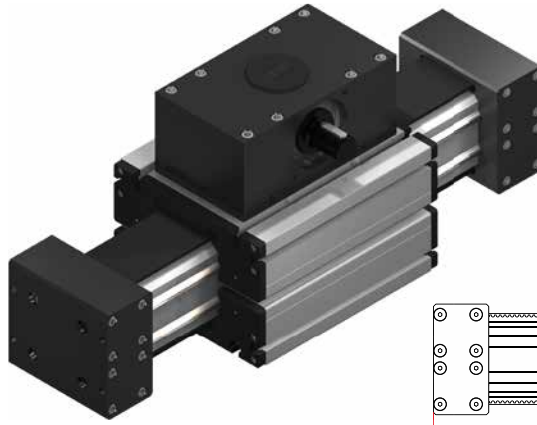
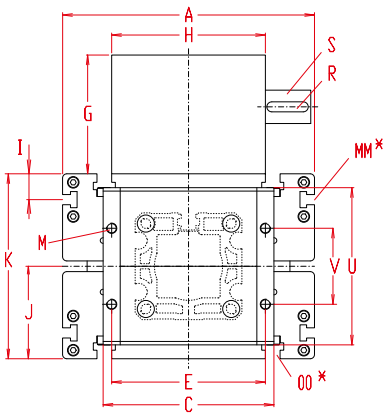
- F = force (N)
- P = pulley action perimeter (mm)
- S<sub>i</sub> = safety factor 1,2 ... 2
- M<sub>n</sub> = no-load torque (Nm)
- n = rpm pulley (min<sup>-1</sup>)
- M<sub>o</sub> = driving torque (Nm)
- P<sub>o</sub> = motor power (KW)

Deflection:

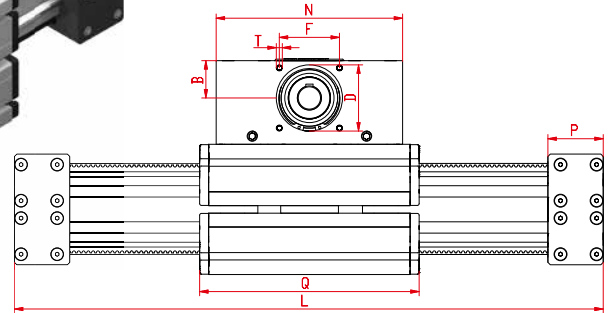
$$f = \frac{F \cdot L^3}{E \cdot I \cdot 192}$$

- f = deflection (mm)
- F = load (N)
- L = free length (mm)
- E = elastic modulus 70000 (N/mm<sup>2</sup>)
- I = second moment of area (mm<sup>4</sup>)





**ATEX 2014/34/EU**  
 Ⓜ II 2G Ex h IIB T4 Gb  
 Ⓜ II 3D Ex h IIB T125 °C Dc



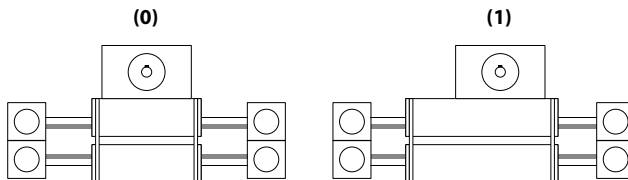
\*For slide nuts refer to chapter 2.2 page 2

Increasing the carriage length will increase the basic length by the same amount.

Size	Basic length L	A	B	C	D -0,05	E	F	G	H	I	J	K	MM for	M	N	OO for	P	Q	R	S	T	U	V	Basic weight	Weight per 100 mm
<b>ELFZex 60S</b>	430	170	38	108	68	97	60	102	100	-	53	106	-	M8	180	M8	97	214	6x6x40	18x45	M8	97	60	23,2 kg	0,64 kg
<b>ELFZex 80S</b>	600	190	60	154	90	135	80	139	130	12,5	71	142	M6	M10	270	M 8	130	315	8x7x40	30x45	M10	130	70	51 kg	1,20 kg
<b>ELFZex 100</b>	560	230	62	170	110	150	100	143	160	29	89	178	M10	M10	310	M10	77	365	12x8x50	40x55	M10	150	80	69 kg	1,80 kg
<b>ELFZex 125</b>	590	295	62	200	110	180	100	139	180	30	107,5	215	M10	M12	310	M12	92	365	12x8x50	40x55	M10	186	89	87,5 kg	2,70 kg

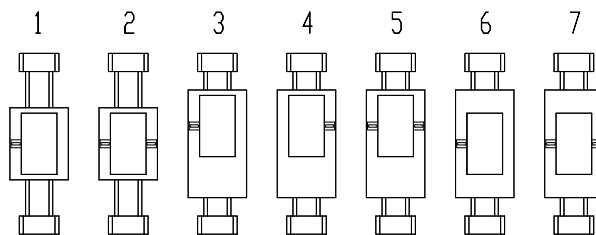
**0** Choice of guide body profile:  
 (0) Standard (2) corrosion-protected guide rods and screws

**0** Choice of carriages:



Size	Version 1	
	Q	L
<b>60S</b>	380	600
<b>80S</b>	489	770
<b>100</b>	575	770
<b>125</b>	640	860

**1** Drive version:



**Belt table:**

Code No.	Size	Belt	mm/rev. ≈ linear	Number of teeth
<b>0 3</b>	<b>60S</b>	8M30	192 ≈ 96	24
<b>0 4</b>	<b>80S</b>	8M50	256 ≈ 128	32
<b>0 7</b>	<b>100</b>	8M70	304 ≈ 152	38
<b>0 9</b>	<b>125</b>	8M100	304 ≈ 152	38

**Shaft dimensions:**

Size	Shaft ø h6 x length	Key
<b>60S</b>	18 x 45	6x6x40
<b>80S</b>	30 x 45	8x7x40
<b>100</b>	40 x 55	12x8x50
<b>125</b>	40 x 55	12x8x50

**ELFZEX125 0 0 0 1 0 9 1 1500**

Pos. 1 2 3 4 5 6 7

Basic length + stroke = total length

For combination kits and connecting elements refer to chapter 2.2

Sample ordering code:

ELFZ 125 with standard body profile, standard carriage, shaft Pos. 1, 910 mm stroke