


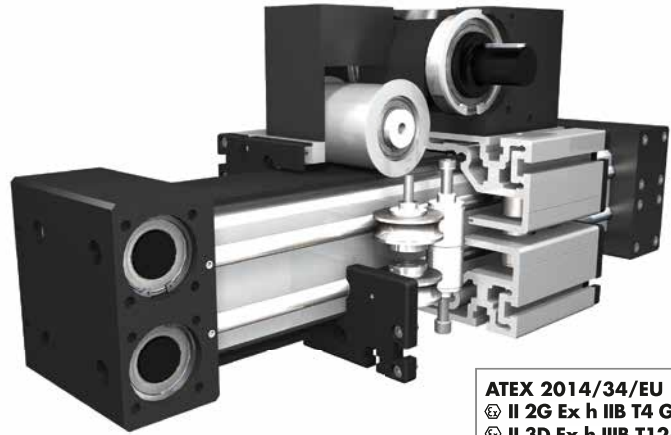
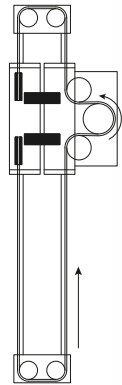




Linear system **ELFZ** **60S, 80S, 100, 125**

BELT DRIVE - EX GUIDE

-  PULLEY PRINCIPLE
-  VERTICAL INSTALLATION POSITION
-  EX-GUIDE

3.1



ATEX 2014/34/EU
 **II 2G Ex h IIB T4 Gb**
 **II 3D Ex h IIIB 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 IIIB 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:

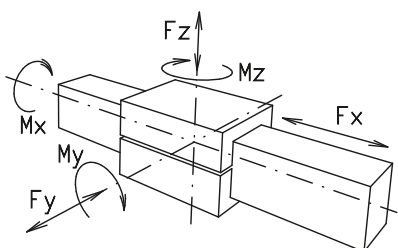
By T-slots.

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 _z (N) | 1800 | 1550 | 3000 | 2600 | 4200 | 3650 | 6000 | 5200 |
| | F _x (N) | 3820 | 3056 | 4438 | 3550 | 6200 | 4960 | 9960 | 7968 |
| | F _y (N) | 1870 | 1496 | 1052 | 842 | 1292 | 1043 | 2190 | 1752 |
| | M _x (Nm) | 104 | 82 | 134 | 108 | 202 | 162 | 440 | 352 |
| | M _y (Nm) | 132 | 106 | 154 | 140 | 272 | 218 | 560 | 448 |
| | M _z (Nm) | 274 | 220 | 364 | 292 | 652 | 520 | 1272 | 1018 |
| | All forces and torques relate to the following: 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 | | | | | | | | |
| No-load torque | | | | | | | | | |
| Nm | | 1,2 | | 1,5 | | 2 | | 2 | |
| Speed | | | | | | | | | |
| (m/s) max | | 1 | | 1 | | 1 | | 1 | |
| Drive torque | | | | | | | | | |
| max (Nm) | | 27 | | 62 | | 101 | | 145 | |
| Geometrical moments of inertia of aluminium profile | | | | | | | | | |
| I _x mm ⁴ | | 6,79x10 ⁵ | | 1,89x10 ⁶ | | 4,44x10 ⁶ | | 10,15x10 ⁶ | |
| I _y mm ⁴ | | 6,97x10 ⁵ | | 1,89x10 ⁶ | | 4,48x10 ⁶ | | 10,15x10 ⁶ | |
| E-Modulus N/mm ² | | 70000 | | 70000 | | 70000 | | 70000 | |

For life-time calculation of rollers use our homepage.

Driving torque:

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

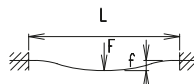
$$P_o = \frac{M_o \cdot n}{9550}$$

- F = force (N)
- P = pulley action perimeter (mm)
- S_i = safety factor 1,2 ... 2
- M_n = no-load torque (Nm)
- n = rpm pulley (min⁻¹)
- M_o = driving torque (Nm)
- P_o = motor power (KW)

Deflection:

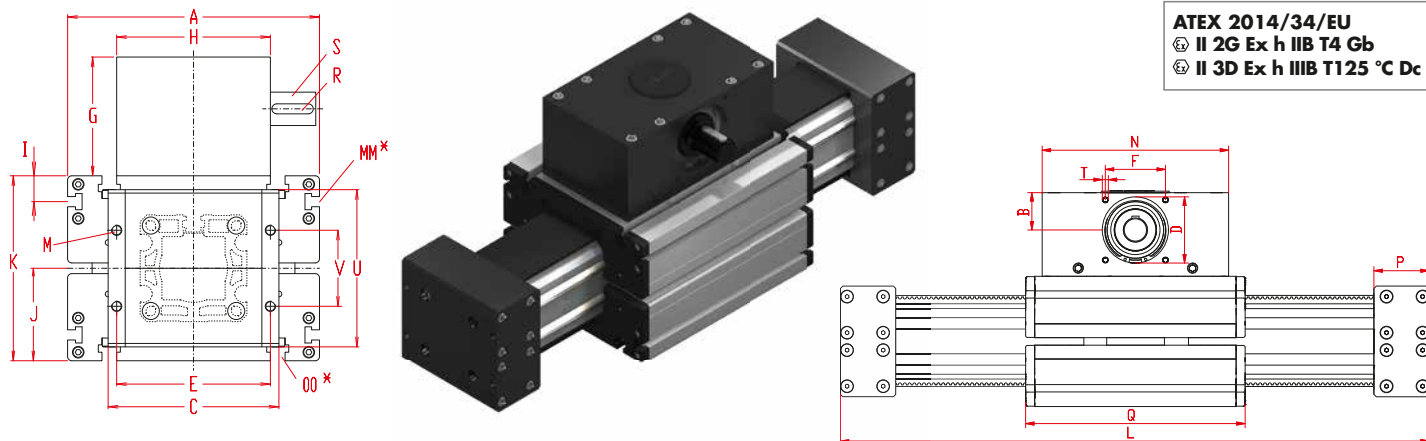
$$f = \frac{F \cdot L^3}{E \cdot I \cdot 192}$$

- f = deflection (mm)
- F = load (N)
- L = free length (mm)
- E = elastic modulus 70000 (N/mm²)
- I = second moment of area (mm⁴)



Linear system **ELFZ** **60S, 80S, 100, 125**

Dimensions (mm)



3.1

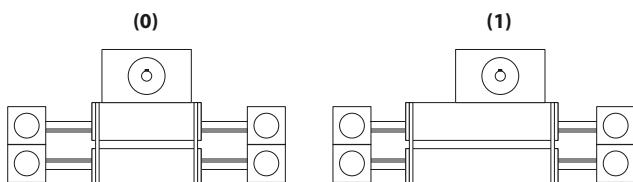
*For slide nuts refer to chapter 2.2 page 2

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 |
|-------------------|----------------|-----|----|-----|------------|-----|-----|-----|-----|------|-------|-----|--------|-----|-----|--------|-----|-----|---------|-------|-----|-----|----|--------------|-------------------|
| ELFZex 60S | 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 |
| ELFZex 80S | 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 |
| ELFZex 100 | 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 |
| ELFZex 125 | 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 |

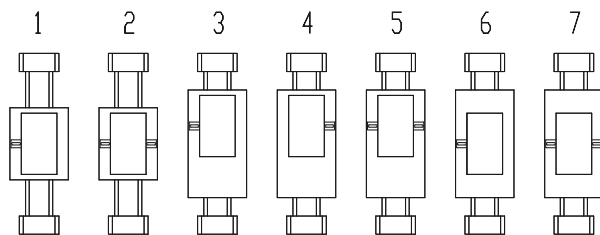
0 Choice of guide body profile:
 (0) Standard (2) corrosion-protected guide rods and screws

0 Choice of carriages:



| Size | Version 1 | |
|------------|-----------|-----|
| | Q | L |
| 60S | 380 | 600 |
| 80S | 489 | 770 |
| 100 | 575 | 770 |
| 125 | 640 | 860 |

1 Drive version:



Belt table:

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

Shaft dimensions:

| Size | Shaft ø h6 x length | Key |
|------------|------------------------|---------|
| 60S | 18 x 45 | 6x6x40 |
| 80S | 30 x 45 | 8x7x40 |
| 100 | 40 x 55 | 12x8x50 |
| 125 | 40 x 55 | 12x8x50 |

ELFZEX125 0 0 0 1 0 9 1 1500

Basic length + stroke = total length

Pos. 1 2 3 4 5 6 7

Sample ordering code:

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

For combination kits and connecting elements refer to chapter 2.2

