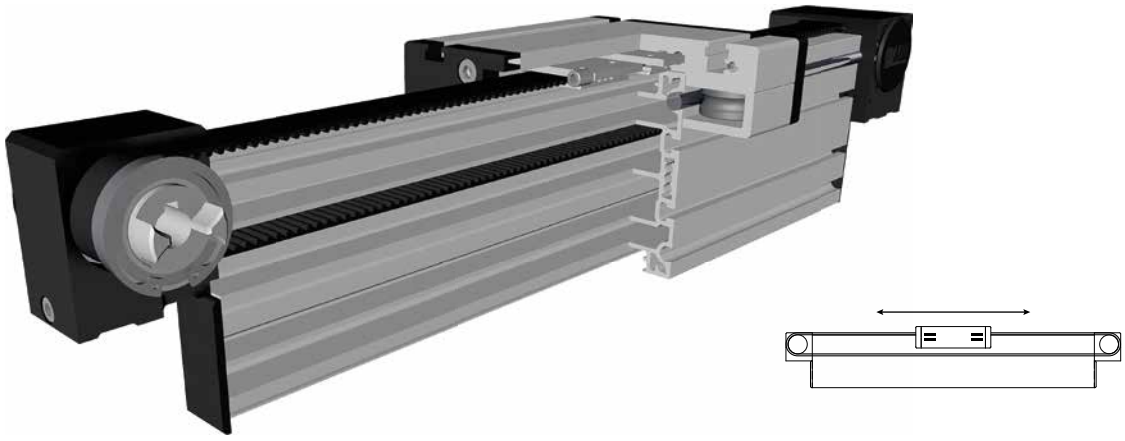
Positioning system ELZ 60 (S) W

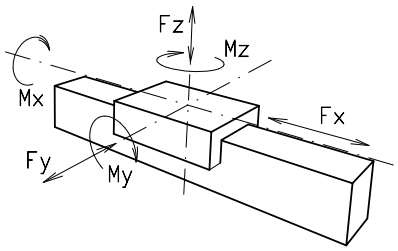
Belt drive



Function:
The guide body consists of an aluminium square profile with lateral, parallel, form-fit, internal hardened steel rods. The guide carriage, which is driven along the shafts by a timing belt, moves on the guide body with internal linear ball bearings that are adjustable free of play. Due to the rectangular profile high torques and loads can be taken up. In addition, a very high stability and low deflection are ensured for long axis systems. The belt tension can be easily readjusted via a tensioning device within the carriage. This device also helps to adjust the symmetry of the carriages in applications where two parallel linear units are used.

Fitting position: As required. Max. length 6.000 mm without joints.
Carriage mounting: By T-slots.
Unit mounting: By T-slots or tapped holes in the bearing block, mounting sets.
Belt type: HTD with steel reinforcement, no backlash when changing direction, repeatability: ± 0,1 mm.

Forces and torques



Size	60		60 S	
Forces/Torques	static	dynamic	static	dynamic
F_x (N)	894	800	894	800
F_y (N)	3000	2000	4100	3100
F_z (N)	1700	1100	2160	1600
M_x (Nm)	67	43	88	65
M_y (Nm)	90	70	190	140
M_z (Nm)	120	100	230	170
All forces and torques relate to the following: existing values / table values $\frac{Fy}{Fy_{dyn}} + \frac{Fz}{Fz_{dyn}} + \frac{Mx}{Mx_{dyn}} + \frac{My}{My_{dyn}} + \frac{Mz}{Mz_{dyn}} \leq 1$				
No-load torque				
Nm	0,6		0,7	
Speed				
(m/s) max	5		7	
Tensile force				
permanent (N)	900		900	
0,2 s (N)	1000		1000	
Geometrical moments of inertia of aluminium profile				
I_x mm⁴	2,8 x 10⁶		2,8 x 10⁶	
I_y mm⁴	9,6 x 10⁵		9,6 x 10⁵	
E-Modulus N/mm²	70000		70000	

For life-time calculation of rollers use our homepage.

Driving torque:

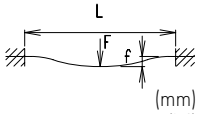
$$M_a = \frac{F * P * S_i}{2000 * \pi} + M_n$$

$$P_a = \frac{M_a * n}{9550}$$

F = force (N)
P = pulley action perimeter (mm)
Si = safety factor 1,2 ... 2
M_n = no-load torque (Nm)
n = rpm pulley (min^{-1})
M_a = driving torque (Nm)
P_a = motor power (KW)

Deflection:

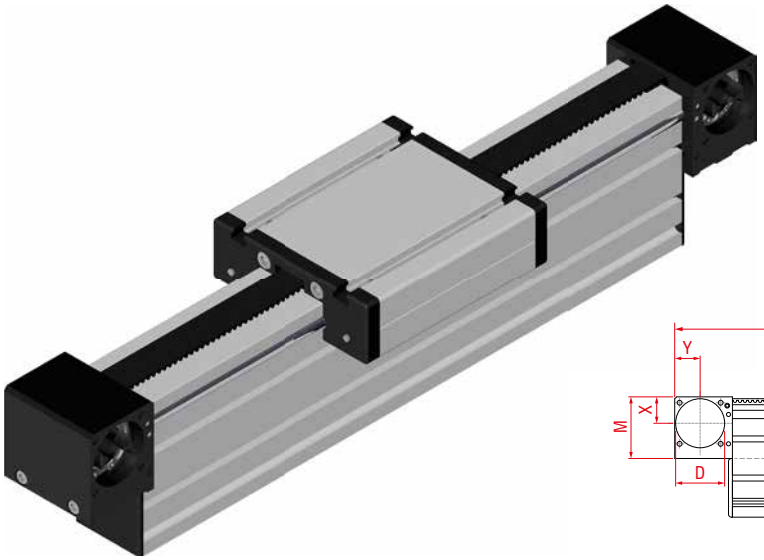
$$f = \frac{F * L^3}{E * I * 192}$$

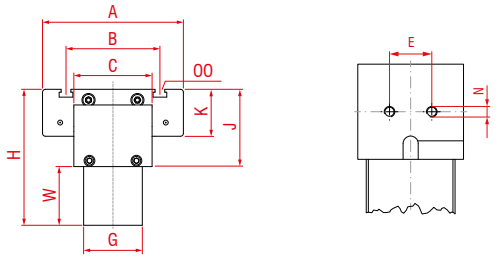


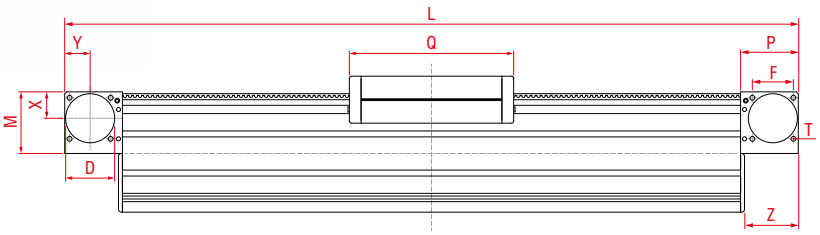
f = deflection (mm)
F = load (N)
L = free length (mm)
E = elastic modulus 70000 (N/mm²)
I = second moment of area (mm⁴)

Positioning system ELZ 60 (S) W

Dimensions (mm)







*For slide nuts refer to chapter 2.2 page 2

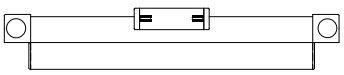
Increasing the carriage length will increase the basic length by the same amount.

Size	Basic length L	A	B	C	D -0,05	E	F	G	H	J	K	M	N	OO for	P	Q	T	W	X	Y	Z	Basic weight	Weight per 100 mm
ELZ 60 **W**	290	144	96	80	47	30	42	60	139	79	48	71	M8	M8	59	168	M6	60	27	26	55	5,4 kg	0,8 kg
ELZ 60S **W**	315	170	108	80	47	30	42	60	143	83	52	71	M8	M8	59	194	M6	60	27	26	55	6,4 kg	0,8 kg

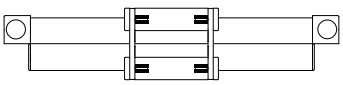
0 **Choice of guide body profile:**
(0) Standard **(2)** corrosion-protected guide rods and screws
(4) expanded corrosion-protected version (depending on the availability of components)

0 **Choice of carriages:**

(0)

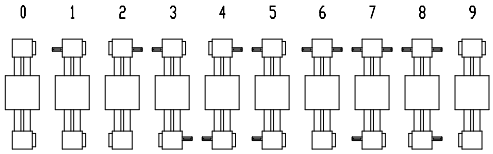


(1)



Size	Version 1	
	Q	L
60	184	306
60 S	214	335

0 **Drive version:**



Version 9 is the same as 0,
but with double sided coupling claw.

Belt table

Code No.		Size	Belt	mm/rev.	Number of teeth
0	4	**60 (S)**	5M25	130	26

Shaft dimensions / Coupling claw

Size	Shaft ø h6 x length	Key	Coupling
60 (S)	14 x 35	5x5x28	14

ELZ	60 W	1	0	0	0	0	4	1	01500
	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:
ELZ 60 W, standard body profile, standard carriage, coupling claw on one side, 1210 mm stroke