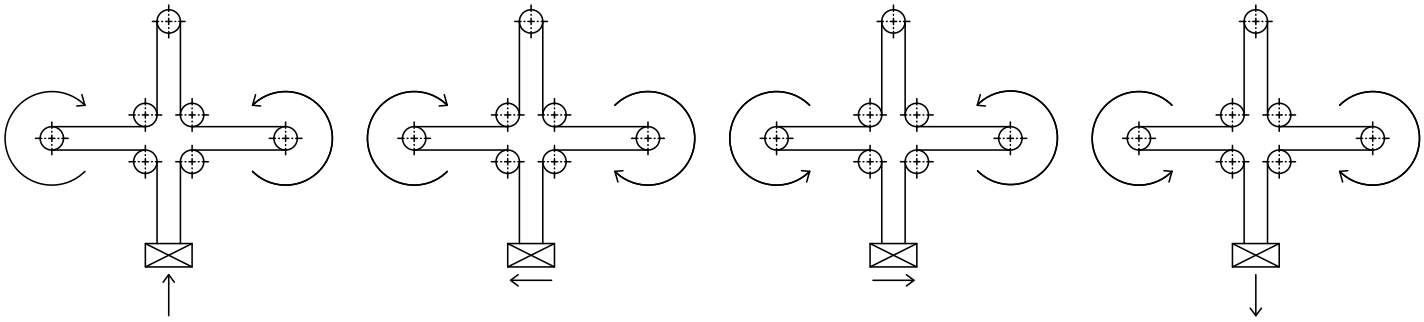
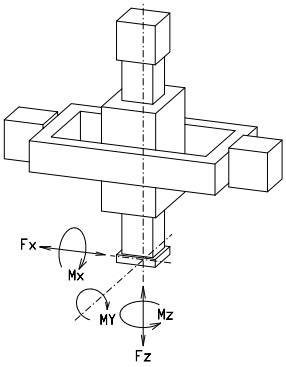
Positioning system ELZI 30, 40, 60



Function:
X/Z gantry consisting of a double guide in the horizontal X level and a vertical Z axis. The belt is fixed and tensioned at the load end. The unit is driven by a rotating belt, which remains connected through various deflection points. The movement is realised by two motors. The coordinate lies diagonal to the deflection points of the X axes and the Z axis.
Advantage: Only small masses are moved and thus it is possible to achieve high accelerations.

Fitting position: As required, max. length for x-axes 2000mm, for z-axis 1000mm
Unit mounting: By 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	ELZI 30		ELZI 40		ELZI 60	
Forces/torques	static	dynam.	static	dynam.	static	dynam.
F_x (N)	390	350	894	800	1900	1800
F_z (N)	180	160	1200	900	1600	1200
M_x (Nm)	15	9	25	20	67	43
M_y (Nm)	20	13	32	22	90	70
M_z (Nm)	23	18	35	25	120	100
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 horizontal movement						
Nm	2 x 0,4		2 x 0,6		2 x 1,1	
Speed						
(m/s) max	2		4		5	
Tensile force (please use necessarily the Mulco life-time calculation, see Chapter 4.2						
permanent (N)	390		894		1900	
0,2 s (N)	480		1000		2090	
Geometrical moments of inertia of aluminium profile						
I_x mm⁴ (X-/Z-Achse)	0,31x10⁵ / 0,41x10⁵		1,12x10⁵ / 1,32x10⁵		4,06x10⁵ / 6,79x10⁵	
I_y mm⁴ (X-/Z-Achse)	1,70x10⁵ / 0,40x10⁵		7,20x10⁵ / 1,34x10⁵		24,3x10⁵ / 6,97x10⁵	
E-Modulus N/mm²	70000		70000		70000	

For life-time calculation of rollers use our homepage.

Driving torque:

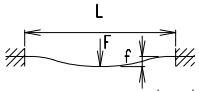
$$M_a = \frac{F * P * S_i}{2000 * \pi} + M_n$$

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

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:

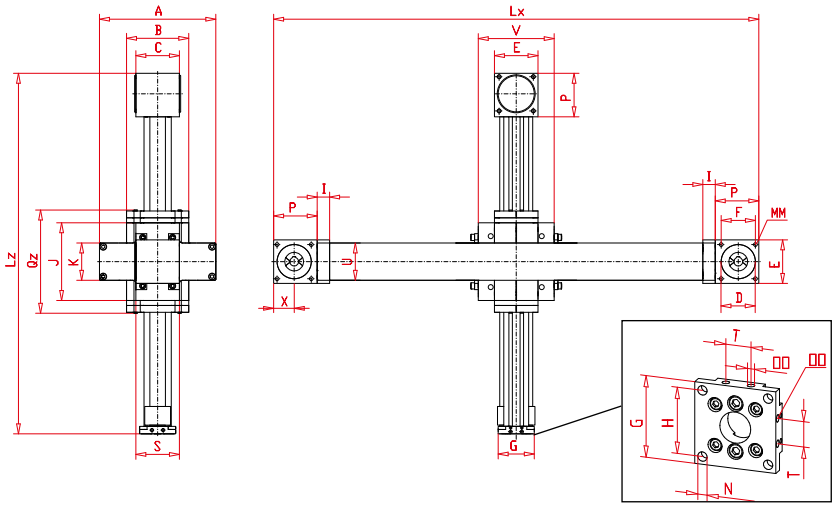
$$f = \frac{F * L^3}{E * I * 192}$$

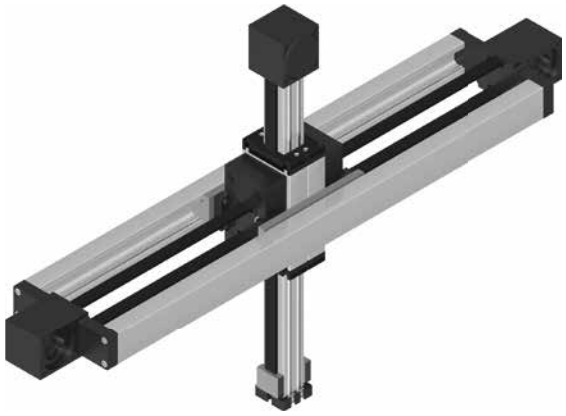


f = deflection (mm)
F = load (N)
L = free length (mm)
E = elastic modulus 70000 (N/mm^2)
I = second moment of area (mm^4)

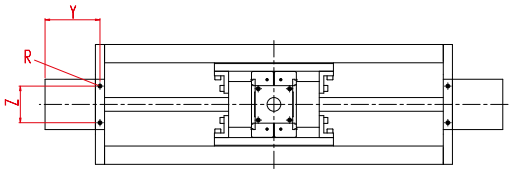
Positioning system ELZI 30, 40, 60

Dimensions (mm)





Endpiece for gripper



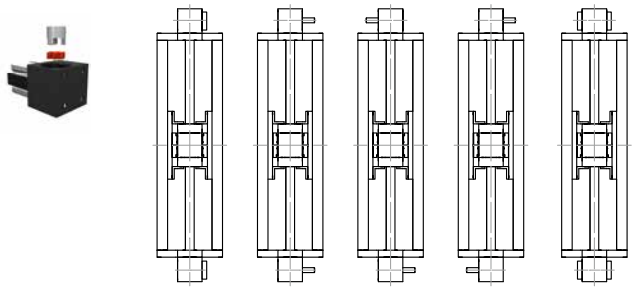
Size	X-Axie		Z-Axis	
	Profile	moving mass	Profile	moving mass
30	2 x UL40	4,5 kg	EL30	1,0 kg
40	2 x UL60	7,0 kg	EL40	2,4 kg
60	2 X UL80	19,0 kg	EL60	6,5 kg

Size ❒	Basic legth		A	B	C	D - 0,05	E	F	G	H	I	J	K	MM for	⌀ N	OO for	P	Qz	R for	S	T	U	V	X	Y	Z	Basic weight	Weight per 100 mm X-/Z-axis
	Lx	Lz																									
ELZI 30	290	245	137	70	51	47	52	42	42	35	15	114	40	M6	4,2	M6	55	144	M6	60	-	40	112	26,5	62,5	35	5,20 kg	0,32/0,18 kg
ELZI 40	380	290	187	100	70	55	70	55	58	47	20	125	60	M6	6,6	M6	70	165	M8	70	18	60	122	33	80	50	11,5 kg	0,68/0,3 kg
ELZI 60	525	425	262	144	110	90	100	80	82	68	20	192	80	M10	8,5	M8	110	235	M10	100	30	80	198	50	120	80	33,0 kg	1,13/0,67 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 **Drive version:**

(0) **(0)** **(1)** **(2)** **(3)** **(4)**



Belt table

Code No.		Size	Belt	mm/rev.	Number of teeth
0	**3**	**30**	5M15	120	24
0	**4**	**40**	5M25	160	32
0	**6**	**60**	8M30	224	28

Shaft dimensions / Coupling claw

Size	Shaft ⌀ h6 x length	Key	Coupling
30	10x27	3x3x25	9
40	14x35	5x5x28	14
60	22x45	6x6x35	24

X-Axis Basic length + stroke = total length
Y-Axes Basic length + stroke = total length

ELZI	40	0	0	0	0	0	4	1	01500

ELZI	40	1	0	0	0	0	4	1	00700

Pos. 1 2 3 4 5 6 7

Sample ordering code:
ELZI 40, with standard body profile, coupling claw on one side, stroke X = 1120 / Z = 410mm