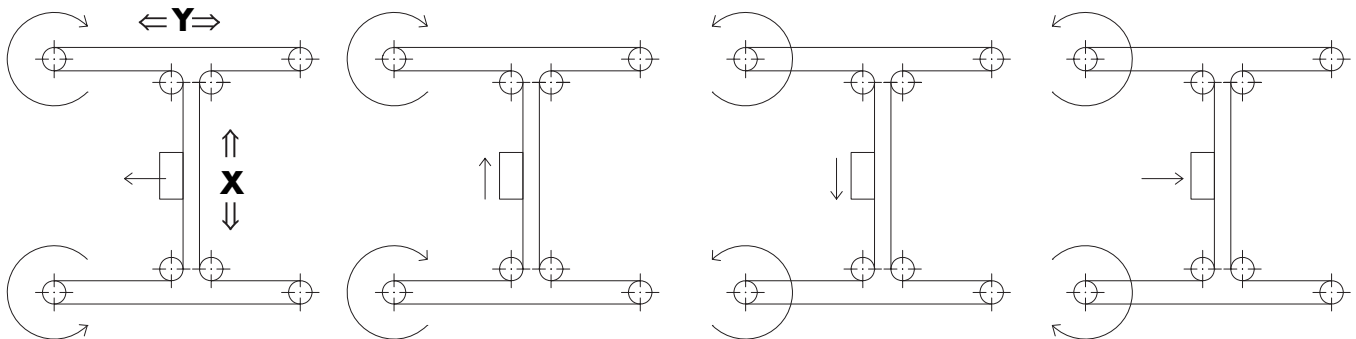


# Modular Linear Actuator ELZU 30, 40, 60, 80, 80S

## Dual-Axis Belt Drive

3



### Function:

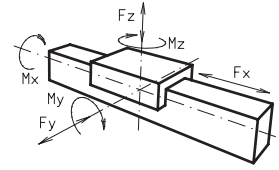
Dual-axis system, consisting of two parallel Y-axes and one X-axis, driven by a single rotating belt. This belt travels around eight pulleys. Positioning is achieved by only two motors. High accelerations can be achieved because motors (weight) do not need to be moved with travel.

**Fitting length:** As required. Max. length 3,000 mm single/extrusion.

**Carriage mounting:** T-slots

**Unit mounting:** T-slots or tapped holes in the bearing block

**Belt type:** HTD with steel reinforcement, no backlash when changing direction, repeatability:  $\pm 0,1$  mm.

Forces and torques	Size	ELZU 30		ELZU 40		ELZU 60		ELZU 80		ELZU 80 S	
	Forces/Torques	static	dynamic	static	dynamic	static	dynamic	static	dynamic	static	dynamic
	$F_x$ (N)	200	180	390	350	894	800	1900	1800	1900	1800
	$F_y$ (N)	90	60	1200	700	3000	2000	3000	2000	4600	3600
	$F_z$ (N)	90	60	900	650	1700	1100	1700	1100	3000	1800
	$M_x$ (Nm)	10	5	25	20	67	43	90	55	170	140
	$M_y$ (Nm)	13	6	32	18	90	70	110	80	270	230
	$M_z$ (Nm)	14	7	35	25	120	100	150	120	300	220
<b>No-load torque</b>											
Nm		0,2		0,6		1,2		1,8		1,8	
<b>Speed</b>											
(m/sec) max		2		4		5		6		6	
<b>Tensile force</b>											
permanent (N)		200		390		900		1900		1900	
0,2 sec (N)		280		480		1000		2090		2090	
<b>Geometrical moments of inertia of aluminium profile</b>											
$I_x$ mm <sup>4</sup>		4,09x10 <sup>4</sup>		1,32x10 <sup>5</sup>		6,79x10 <sup>5</sup>		18,99x10 <sup>5</sup>		18,99x10 <sup>5</sup>	
$I_y$ mm <sup>4</sup>		4,00x10 <sup>4</sup>		1,34x10 <sup>5</sup>		6,97x10 <sup>5</sup>		18,97x10 <sup>5</sup>		18,97x10 <sup>5</sup>	
E-Modul N/mm <sup>2</sup>		70000		70000		70000		70000		70000	

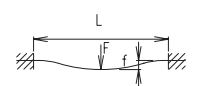
### Formula: ELZU

Driving torque:

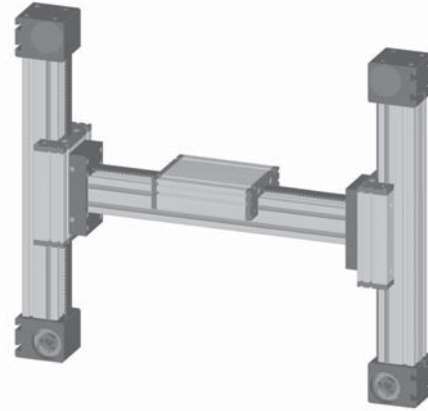
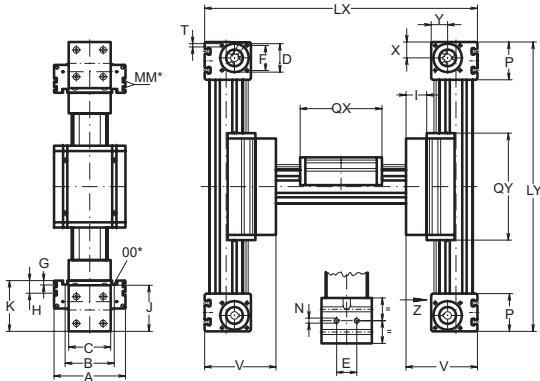
$$M_a = \frac{F \cdot P \cdot S}{2000 \cdot \pi} + M_{leer}$$

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

F = force (N)  
 P = pulley action perimeter (mm)  
 S = safety factor 1,2 ... 2  
 $M_{leer}$  = no-load torque (Nm)  
 n = rpm pulley (min<sup>-1</sup>)  
 $M_a$  = driving torque (Nm)  
 $P_a$  = motor power (KW)

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


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



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\*For T-nuts refer to the accessory section

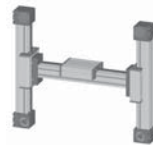
Size	Basic length		A	B	C	D	E	F	G	H	I	J	K	MM	N	OO	P	Qx	Qy	T	V	X	Y	Basic weight	Additional Weight per 100 mm
	Lx	Ly																							
ELZU 30	240	210	70	56	42	28	13	25	-	-	27	44	47	-	M 5	M 6	36	82	126	M 5	74	16	16	6,3 kg	0,13 kg
ELZU 40	304	250	100	66	58	37	18	32	-	-	26	58	64	-	M 6	M 6	49	122	147	M 5	90	20,5	20,5	6,8 kg	0,24 kg
ELZU 60	426	330	144	96	80	47	30	42	-	-	33	82	90	-	M 8	M 8	59	168	208	M 6	123	27	26	14,7 kg	0,62 kg
ELZU 80	535	435	170	117	100	68	40	60	10	30	44	110	121	M 6	M 10	M 10	90	194	244	M 8	165	39	38	31,0 kg	1,00 kg
ELZU 80S	555	455	190	126	100	68	40	60	12,5	30	44	110	122	M 6	M 10	M 8	90	214	264	M 8	167	39	38	32,0 kg	1,00 kg

**Choice of guide body profile:**  
**0** (0) standard (1) stainless guide rods (2) stainless guide rods and screws (3) stainless guide rods, rollers and screws

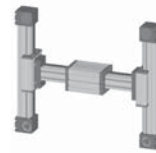
**Choice of carriages:**

**0**

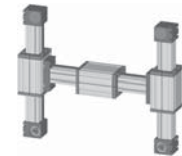
(0)



(1)



(2)



For standard carriage length see 'Qx' and 'Qy' in table. The carriages can be delivered in any non-standard lengths upon request; the longer the carriage, the greater the load capacity.

Top and bottom carriages are rigidly joined, thus enabling higher loads to be applied. This increases the basic length by 16 - 24 mm. For thickness of jointing plate refer to accessory section.

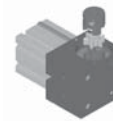
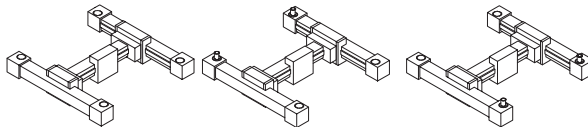
**Selection of shaft mounting:**

**0**

(0)

(1) Rear Shafts

(2) Front Shafts



The standard version is supplied without shaft. A shaft can be retrofitted by inserting in the pulley bore and securing with 2 locking rings.

**Belt table**

Code No.	Size	Belt	mm/rev.	Number of teeth
0 1	30	3M12	75	25
0 3	40	5M15	100	20
0 4	60	5M25	130	26
0 7	80 (S)	8M30	192	24

**Shaft dimensions**

Size	Shaft $\varnothing$ h6 x length	Key
30	6 x 15	2x2x12
40	10 x 27	3x3x25
60	14 x 35	5x5x28
80 (S)	18 x 45	6x6x40

**X-Axis** Basic length + stroke = total length

**Y-Axis** Basic length + stroke = total length

ELZU	60	7	0	0	0	0	4	1	01500
ELZU	60	8	0	0	0	0	4	1	00700

Pos. 1 2 3 4 5 6 7

Sample ordering code:

ELZU 60 with standard body profile, standard carriage, jaw coupling on one side, stroke X = 1074 / Y = 370 mm