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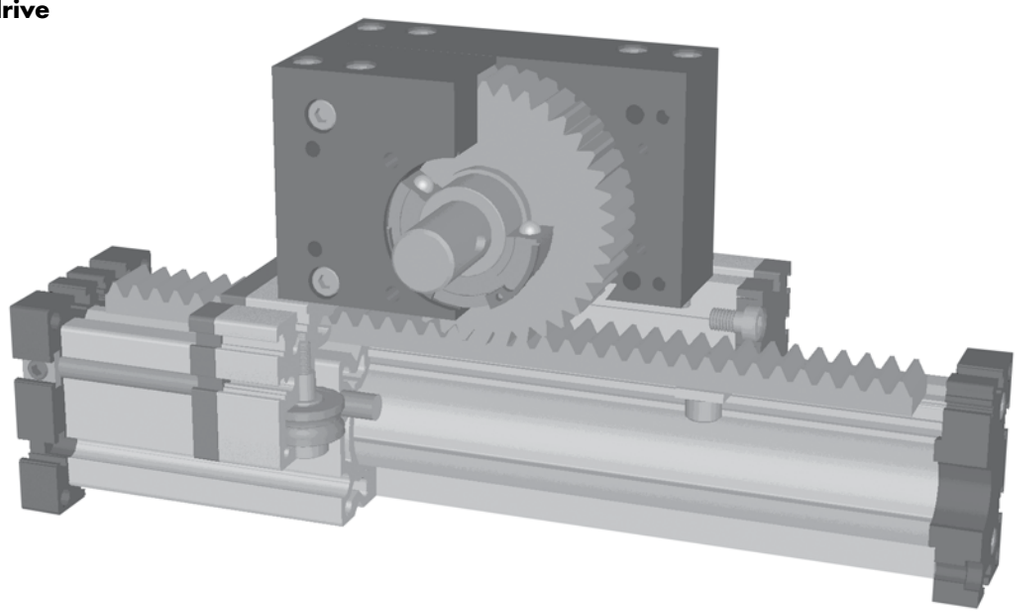
Positioning system ELZA 40, 60, 80, 80S, 100

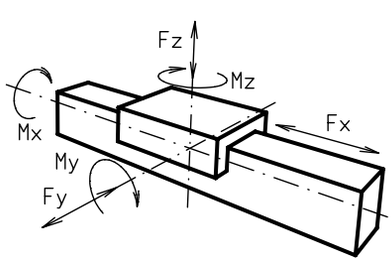
Rack and pinion drive



Function:
This unit consists of an aluminium square profile with integrated, hardened steel guide rods. The carriage which has internal linear ball bearings that can be adjusted free of play is driven by a rack and pinion. The pinion is equiped with maintenance-free ball bearings.

Fitting position: As required. Max. length without joints 6.000 mm.
Carriage mounting: By T-slots.
Unit mounting: By T-slots and holes in the bearing blocks, mounting sets.
Rack: C 45 or St 60 zinc coated, stainless steel on request. Repeatability: ± 0,2 mm.

Forces and torques



Size	ELZA 40		ELZA 60		ELZA 80		ELZA 80 S		ELZA 100	
Forces/Torques	static	dynamic	static	dynamic	static	dynamic	static	dynamic	static	dynamic
F_x (N)	900	750	1500	1200	2200	1800	2200	1800	2900	2500
F_y (N)	1200	700	3000	2000	3000	2000	4600	3600	8000	6500
F_z (N)	900	650	1700	1100	1700	1100	3000	1800	3600	2200
M_x (Nm)	25	20	67	43	90	55	170	140	300	230
M_y (Nm)	32	18	90	70	110	80	270	230	400	270
M_z (Nm)	35	25	120	100	150	120	300	220	750	500
All forces and torques related to the following: existing values / values of table	$\frac{Fy}{Fy_{dyn}} + \frac{Fz}{Fz_{dyn}} + \frac{Mx}{Mx_{dyn}} + \frac{My}{My_{dyn}} + \frac{Mz}{Mz_{dyn}} \leq 1$									
Speed										
(m/sec) max	2		2,5		3		3		3	
Geometrical moments of inertia of aluminium profile										
I_x mm^4	1,32x10^5		6,79x10^5		18,99x10^5		18,99x10^5		44,4x10^5	
I_y mm^4	1,34x10^5		6,97x10^5		18,97x10^5		18,97x10^5		44,8x10^5	
E-Modulus N/mm^2	70000		70000		70000		70000		70000	

For life-time calculation of rollers use our CD-ROM or homepage!

Formula: ELZA

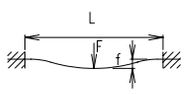
Driving torque:

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

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

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

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



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

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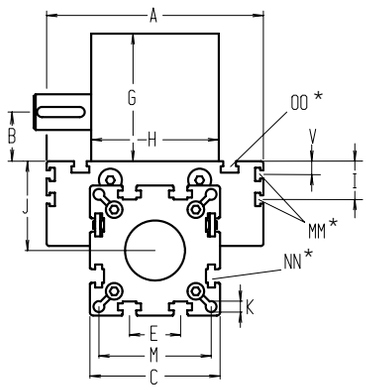
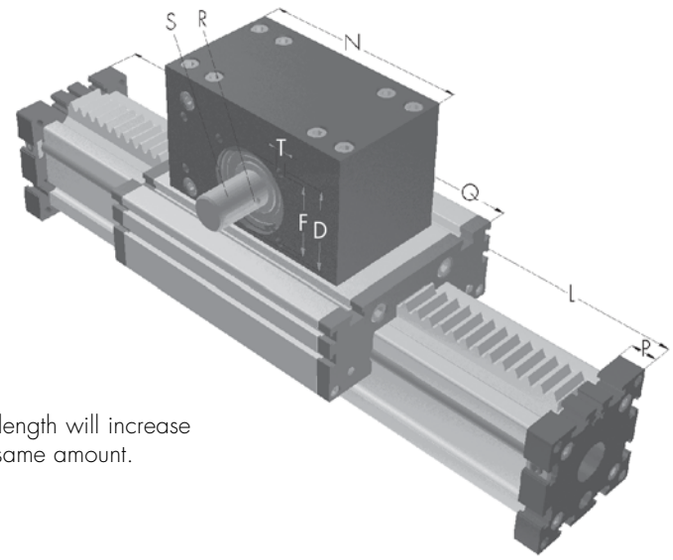
Positioning system ELZA 40, 60, 80, 80S, 100

Dimensions (mm)





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

*For slide-nuts refer to chapter 2.2 page 2

Size ❐	Basic length L	A	B	C	D	E	F	G	H	I	J	K	M	MM for	N	NN for	OO for	P	Q	T	V	Basic weight	Weight per 100 mm
ELZA 40	150	100	21,5	58	37	18	32	60	56	-	35	6,5	47	-	100	M 6	M 6	12	122	M 6	-	2,0 kg	0,35 kg
ELZA 60	205	144	28,0	82	47	30	42	75	63	-	49	8,5	69	-	130	M 8	M 8	16	168	M 6	-	5,3 kg	0,68 kg
ELZA 80	240	170	39,0	102	68	40	60	105	100	30	70	8,5	88	M 6	170	M 10	M 10	20	194	M 8	10	11,9 kg	1,19 kg
ELZA 80S	260	190	39,0	102	68	40	60	105	100	30	71	8,5	88	M 6	170	M 10	M 8	20	214	M 8	12,5	12,9 kg	1,19 kg
ELZA 100	360	230	55,3	130	90	50	80	155	120	29	89	10,5	112	M 10	240	M 10	M 10	30	300	M 10	-	24,0 kg	1,75 kg

Choice of guide body profile:

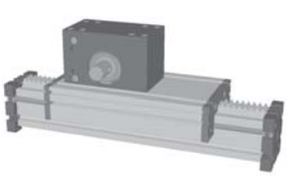
0 **(0)** Standard **(1)** stainless guide rods **(2)** stainless guide rods and screws **(3)** stainless guide rods, rollers and screws

Choice of carriages:

0

(0)

(1)



(2)

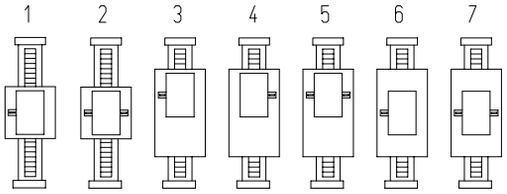
(3)

For standard carriage length see 'Q' in table. The carriages can be delivered in any non-standard length 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 - 20 mm. For thickness of jointing plate refer to chapter 1.2 page 6.

Selection of shaft mounting:

1 1 2 3 4 5 6 7



Size ❐	Shaft ø h6 x length	Key	Pinion	
	S	R	mm/rev.	Modul
40	14 x 30	5x5x28	188,5	1,5
60	18 x 30	6x6x28	251,6	2
80 (S)	28 x 40	8x7x35	358,0	3
100	28 x 40	8x7x35	508,9	3

1500 Basic length + stroke = total length

ELZA	60	0	0	0	1	0	3	0	01500
Pos.	1	2	3	4	5	6	7		

For combination kits and connecting elements refer to chapter 2.2

Sample ordering code:
ELZA 60 with standard body profile, standard carriage, standard shaft , 1295 mm stroke

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