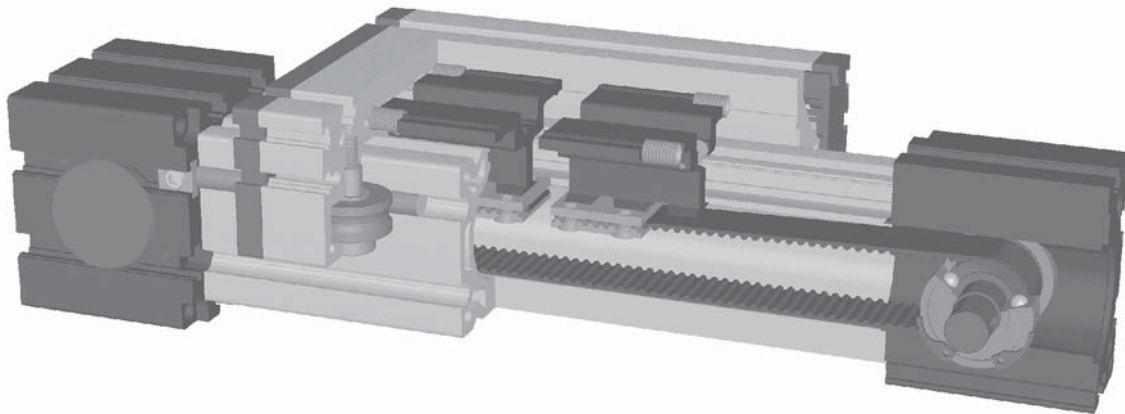


Modular Linear Actuator ELHZ 60, 80, 80S, 100, 125

Internal Belt Drive

3



Function:

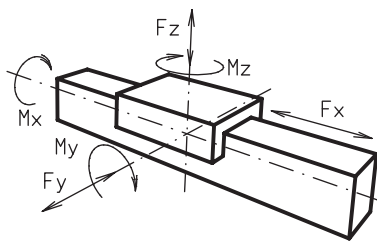
This linear unit consists of an aluminium square profile with integrated, hardened steel guide rods. The carriage which has internal linear ball bearings that can be adjusted free of play is driven along the guide rods by a timing belt. Pulley has maintenance-free ball bearings. Belt tension can be adjusted by a simple screw adjustment device in the carriage. The pulleys have device can also be used for symmetrical adjustment of two or more linear units running parallel. This linear unit is suitable for application in clean rooms (classification 1,000 corresponding to US Fed. Standard 209 E).

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

Forces and torques	Size	ELHZ 60		ELHZ 80		ELHZ 80 S		ELHZ 100		ELHZ 125	
	Forces/Torques	static	dynamic	static	dynamic	static	dynamic	static	dynamic	static	dynamic
F_x (N)		700	580	1000	840	1000	840	3100	2600	5000	4950
F_y (N)		3000	2000	3000	2000	4600	3600	8000	6500	12000	9000
F_z (N)		1700	1100	1700	1100	3000	1800	3600	2200	6000	4500
M_x (Nm)		67	43	90	55	170	140	300	230	600	450
M_y (Nm)		90	70	110	80	270	230	400	270	750	600
M_z (Nm)		120	100	150	120	300	220	750	500	1350	1150
No-load torque											
Nm		0,5		0,8		1,2		1,2		1,6	
Speed											
(m/sec) max		3		4		4		5		6	
Tensile force											
permanent (N)		700		1000		1000		3100		5000	
0,2 sec (N)		800		1150		1150		3400		5450	
Geometrical moments of inertia of aluminium profile											
I_x mm ⁴		6,79x10 ⁵		18,99x10 ⁵		18,99x10 ⁵		44,4x10 ⁵		101,5x10 ⁵	
I_y mm ⁴		6,97x10 ⁵		18,97x10 ⁵		18,97x10 ⁵		44,8x10 ⁵		101,5x10 ⁵	
E-Modulus N/mm ²		70000		70000		70000		70000		70000	



Formula: ELHZ

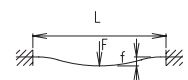
Driving torque:

$$M_o = \frac{F \cdot P \cdot S_f}{2000 \cdot \pi} + M_{leer}$$

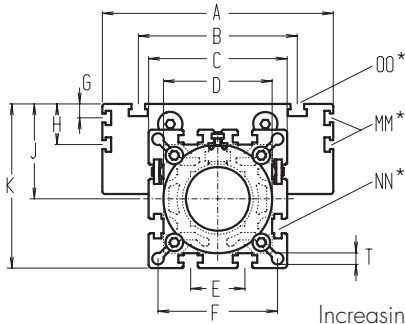
$$P_o = \frac{M_o \cdot n}{9550}$$

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

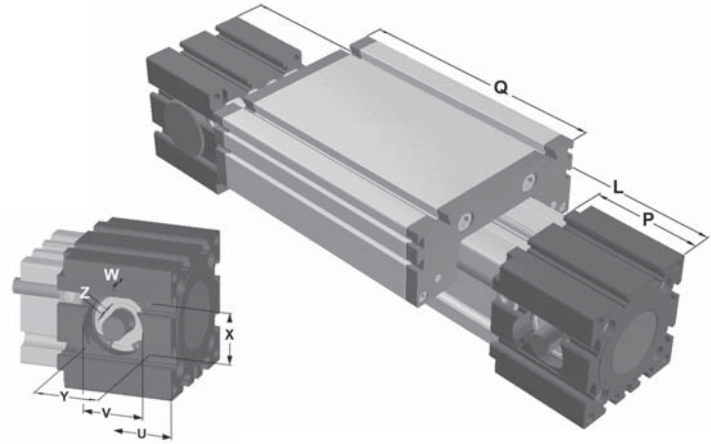
$$f = \frac{F \cdot L^3}{E \cdot I \cdot 192}$$



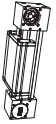
f = deflection (mm)
 F = load (N)
 L = free length (mm)
 E = elastic modulus 70000 (N/mm²)
 I = second moment of area (mm⁴)



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



3



*For T-nuts refer to the accessory section

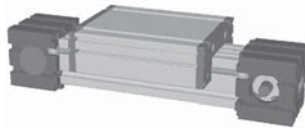
Size	Basic length L	A	B	C	D	E	F	G	H	J	K	MM	NN	OO	P	Q	T	U	V	W	X	Y	Z	Basic weight	Additional Weight per 100 mm
ELHZ 60	290	144	96	82	62x1	30	69	-	-	49	90	-	M8	M8	59	168	8,5	23	37	14	30	36	M6	4,8 kg	0,62 kg
ELHZ 80	375	170	117	102	80x1	40	88	10	30	70	121	M6	M10	M10	90	194	8,5	38	47	18	40	50	M8	10,0 kg	1,00 kg
ELHZ 80S	395	190	126	102	80x1	40	88	12,5	30	71	122	M6	M10	M8	90	214	8,5	38	47	18	40	50	M8	11,0 kg	1,00 kg
ELHZ 100	530	230	155	130	110x1	50	112	-	30	90	155	M10	M10	M10	110	300	10,5	45	68	19	50	64	M10	24,0 kg	1,60 kg
ELHZ 125	625	295	200	165	130x2	60	142	-	30	107,5	190	M10	M10	M12	132	365	13,0	58	90	35	60	85	M10	37,0 kg	2,10 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

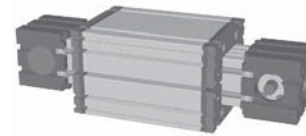
Choice of carriages:

0 (0)



For standard carriage length see 'Q' in table. The carriages can be provided in any non-standard length on request; the longer the carriage, the greater the load capacity.

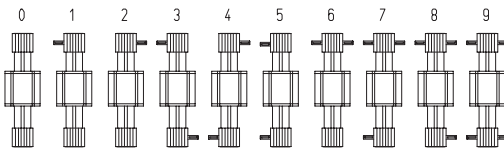
(1)



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



The standard version 0 is supplied with 4 flush mounted shafts.

Belt table

Code No.	Size	Belt	mm/rev.	Number of teeth
0 4	60	5M25	80	16
0 4	80 (S)	5M25	110	22
0 9	100	8M50	144	18
0 9	125	8M50	192	24

Shaft dimensions

Size	Shaft ø h6 x length	Key
60	14 x 35	5x5x28
80 (S)	18 x 45	6x6x40
100	22 x 45	6x6x40
125	30 x 55	8x7x40

Basic length + stroke = total length

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

Sample ordering code:
ELHZ 60, with standard body profile, standard carriage and 4 flush mounted shafts, 1210 mm stroke.