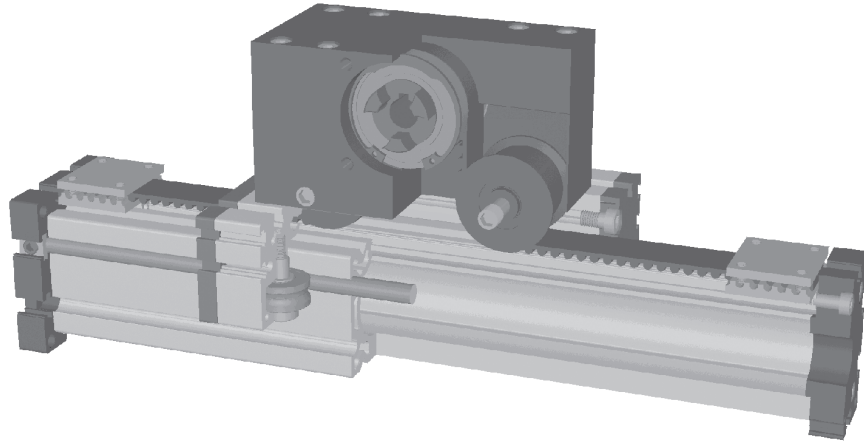


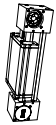
# Positioning system ELSZ 40, 60, 80, 80S, 100, 125

Specifications

With standard belt



3.1



**Function:**

This linear unit consists of an aluminium square profile with 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. The pulley has maintenance-free ball bearings. Belt tension can be readjusted by a simple tensioning device in one of the end blocks. This device can also be used for symmetrical adjustment of two or more linear units running parallel.

**Fitting position:**

As required. Max. length without joints 6.000 mm.

**Carriage mounting:**

By T-slots.

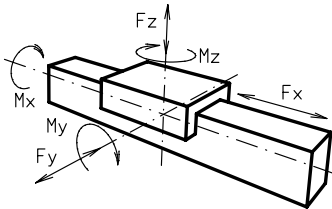
**Unit mounting:**

By T-slots or tapped holes in the bearing blocks, or mounting sets.

**Belt type:**

HTD with steel reinforcement, no backlash when changing direction, repeatability ± 0,1 mm.

Forces and torques	Size	ELSZ 40		ELSZ 60		ELSZ 80		ELSZ 80 S		ELSZ 100		ELSZ 125	
	Forces/Torques	static	dynam.	static	dynam.	static	dynam.	static	dynam.	static	dynam.	static	dynam.
$F_x$ (N)		390	350	894	800	1900	1800	1900	1800	4000	3800	5900	5750
$F_y$ (N)		1200	700	3000	2000	3000	2000	4600	3600	8000	6500	12000	9000
$F_z$ (N)		900	650	1700	1100	1700	1100	3000	1800	3600	2200	6000	4500
$M_x$ (Nm)		25	20	67	43	90	55	170	140	300	230	600	450
$M_y$ (Nm)		32	18	90	70	110	80	270	230	400	270	750	600
$M_z$ (Nm)		35	25	120	100	150	120	300	220	750	500	1350	1150
<b>All forces and torques relate to the following:</b>													
existing values $\frac{F_y}{F_{y_{dyn}}} + \frac{F_z}{F_{z_{dyn}}} + \frac{M_x}{M_{x_{dyn}}} + \frac{M_y}{M_{y_{dyn}}} + \frac{M_z}{M_{z_{dyn}}} \leq 1$													
<b>No-load torque</b>													
Nm		0,7		0,9		1,1		1,2		1,5		1,8	
<b>Speed</b>													
(m/sec) max		4		5		6		8		8		10	
<b>Tensile force</b>													
permanent (N)		390		900		1900		1900		4000		5900	
0,2 sec (N)		480		1000		2090		2090		4300		6350	
<b>Geometrical moments of inertia of aluminium profile</b>													
$I_x$ mm <sup>4</sup>		1,32x10 <sup>5</sup>		6,79x10 <sup>5</sup>		18,99x10 <sup>5</sup>		18,99x10 <sup>5</sup>		44,4x10 <sup>5</sup>		101,5x10 <sup>5</sup>	
$I_y$ mm <sup>4</sup>		1,34x10 <sup>5</sup>		6,97x10 <sup>5</sup>		18,97x10 <sup>5</sup>		18,97x10 <sup>5</sup>		44,8x10 <sup>5</sup>		101,5x10 <sup>5</sup>	
E-Modulus N/mm <sup>2</sup>		70000		70000		70000		70000		70000		70000	



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

**Formula: ELSZ**

Driving torque:

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

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

- 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>)
- $M_o$  = driving torque (Nm)
- $P_o$  = motor power (KW)

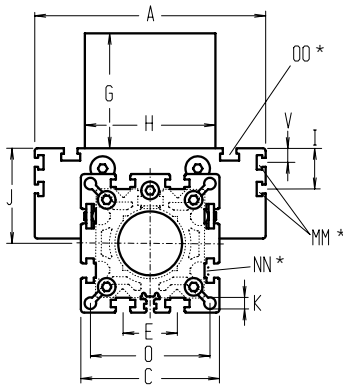
$$f = \frac{F \cdot L^3}{E \cdot I \cdot 192}$$

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

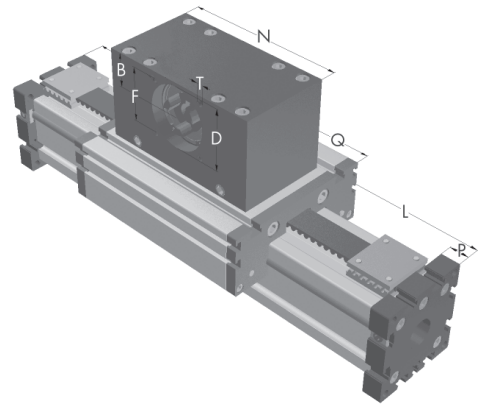


# Positioning system ELSZ 40, 60, 80, 80S, 100, 125

Dimensions (mm)



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



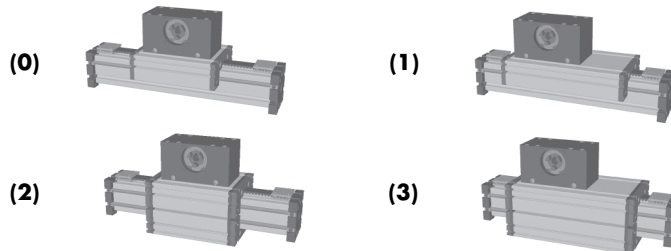
\*For slide-nuts refer to chapter 2.2 page 2

Size □	Basic length L	A	B	C	D	E	F	G	H	I	J	K	MM for	N	NN for	O	OO for	P	Q	T	V	Basic weight	Weight per 100 mm
ELSZ 40	230	100	20	58	37	25	32	65	60	-	35	6,5	-	110	M 6	47	M 6	12	142	M 5	-	2,1 kg	0,24 kg
ELSZ 60	280	144	30	82	47	30	42	80	80	-	49	8,5	-	130	M 8	69	M 8	16	168	M 6	-	5,1 kg	0,62 kg
ELSZ 80	360	170	39	102	68	40	60	100	100	30	70	8,5	M 6	180	M 10	88	M 10	20	214	M 8	10	11,0 kg	1,00 kg
ELSZ 80S	370	190	39	102	68	40	60	100	100	30	71	8,5	M 6	180	M 8	88	M 8	20	214	M 8	12,5	12,0 Kg	1,00 Kg
ELSZ 100	520	230	60	130	90	50	80	130	130	29	89	10,5	M 10	270	M 12	112	M 10	30	310	M 10	-	25,8 kg	1,60 kg
ELSZ 125	595	295	62	165	110	60	100	139	160	30	107,5	M 10	M 10	310	M 12	140	M 12	30	365	M 10	-	54,5 kg	1,94 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

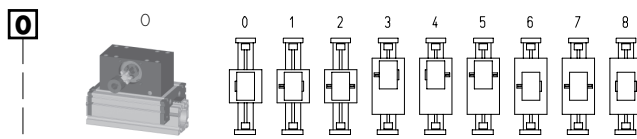
### Choice of carriages:



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 - 24 mm. For thickness of jointing plate refer to chapter 1.2 page 6.

### Coupling - shaft mounting:



The standard version is supplied without shaft. A shaft can be retrofitted by inserting in the pulley bore and securing with 2 locking rings or tension sets (size 100 + 125).

Version 8 is the same as 0, but with double sided coupling claw.

### Belt table

Code No.	Size	Belt	mm/rev.	Number of teeth
0 3	40	5M15	100	20
0 4	60	5M25	130	26
0 7	80 [S]	8M30	192	24
0 9	100	8M50	256	32
1 0	125	8M70	304	38

### Shaft dimensions

Size	Shaft ø h6 x length	Key
40	10 x 27	3x3x25
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

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

For combination kits and connecting elements refer to chapter 2.2

Sample ordering code:

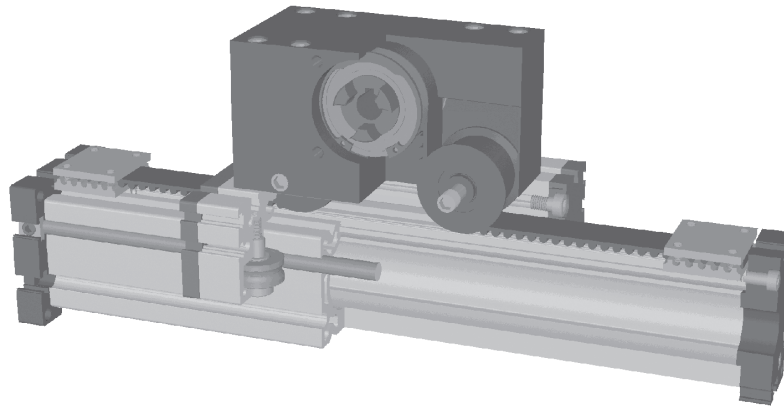
ELSZ 60 with standard body profile, standard carriage and coupling claw on one side, 1220 mm stroke.



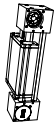
# Positioning system ELSZ 30, 40, 60, 80, 80S, 100, 125

Specifications

With widened belt drive



3.1



**Function:**

This linear unit consists of an aluminium square profile with 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. The pulley has maintenance-free ball bearings. Belt tension can be readjusted by a simple tensioning device in one of the end blocks. This device can also be used for symmetrical adjustment of two or more linear units running parallel.

**Fitting position:**

As required. Max. length without joints 6.000 mm.

**Carriage mounting:**

By T-slots.

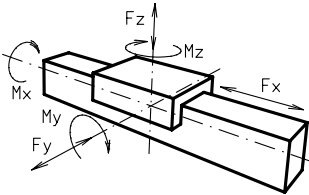
**Unit mounting:**

By T-slots or tapped holes in the bearing blocks, or mounting sets.

**Belt type:**

HTD with steel reinforcement, no backlash when changing direction, repeatability ± 0,1 mm.

Forces and torques	Size		ELSZ 30		ELSZ 40		ELSZ 60		ELSZ 80		ELSZ 80 S		ELSZ 100		ELSZ 125	
	static	dynam.	static	dynam.	static	dynam.	static	dynam.	static	dynam.	static	dynam.	static	dynam.	static	dynam.
$F_x$ (N)	390	350	894	800	1900	1800	4000	3800	4000	3800	5900	5750	7900	7500		
$F_y$ (N)	90	60	1200	700	3000	2000	3000	2000	4600	3600	8000	6500	12000	9000		
$F_z$ (N)	90	60	900	650	1700	1100	1700	1100	3000	1800	3600	2200	6000	4500		
$M_x$ (Nm)	10	5	25	20	67	43	90	55	170	140	300	230	600	450		
$M_y$ (Nm)	13	6	32	18	90	70	110	80	270	230	400	270	750	600		
$M_z$ (Nm)	14	7	35	25	120	100	150	120	300	220	750	500	1350	1150		
<p><b>All forces and torques relate to the following:</b></p> <p>existing values <math>\frac{F_y}{F_{y_{dyn}}} + \frac{F_z}{F_{z_{dyn}}} + \frac{M_x}{M_{x_{dyn}}} + \frac{M_y}{M_{y_{dyn}}} + \frac{M_z}{M_{z_{dyn}}} \leq 1</math></p> <p>values of table</p>																
<b>No-load torque</b>																
Nm	0,5		0,7		0,9		1,2		1,2		1,5		1,8			
<b>Speed</b>																
(m/sec) max	2		4		5		8		8		8		10			
<b>Tensile force</b>																
permanent (N)	390		390		1 900		4000		4000		5900		7900			
0,2 sec (N)	480		480		2090		4300		4300		6350		8500			
<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>		44,4x10 <sup>5</sup>		101,5x10 <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>		44,8x10 <sup>5</sup>		101,5x10 <sup>5</sup>			
EModulus N/mm <sup>2</sup>	70000		70000		70000		70000		70000		70000		70000			



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

**Formula: ELSZ**

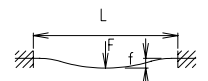
Driving torque:

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

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

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

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

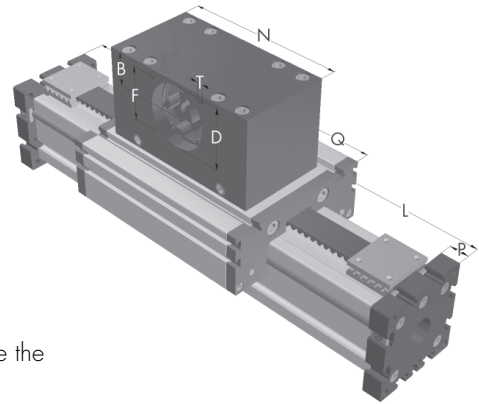
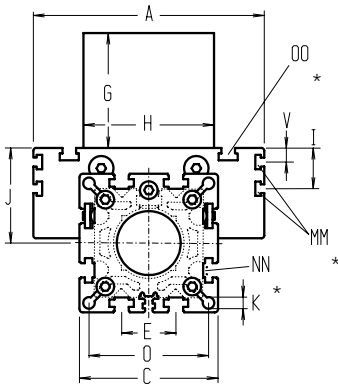


- f = deflection (mm)
- F = load (N)
- L = free length (mm)
- E = elastic modulus 70000 (N/mm<sup>2</sup>)
- I = second moment of area (mm<sup>4</sup>)



# Positioning system ELSZ 30, 40, 60, 80, 80S, 100, 125

Dimensions (mm)



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

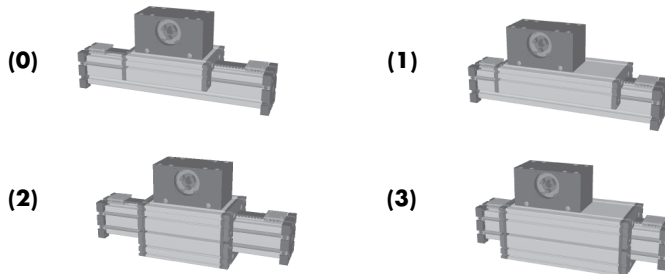
\*For slide-nuts refer to chapter 2.2 page 2

Size □	Basic length L	A	B	C	D	E	F	G	H	I	J	K	MM for	N	NN for	O	OO for	P	Q	T	V	Basic weight	Weight per 100 mm
ELSZ 30	210	70	20	42	37	13	32	55	60	-	26	4,2	-	110	M 6	35	M 6	12	128	M 5	-	1,5 kg	0,16 kg
ELSZ 40	250	100	30	58	47	25	42	83	80	-	35	6,5	-	130	M 6	47	M 6	12	162	M 6	-	2,7 kg	0,24 kg
ELSZ 60	330	144	39	82	68	30	60	105	100	-	49	8,5	-	180	M 8	69	M 8	16	214	M 8	-	6,3 kg	0,62 kg
ELSZ 80	450	170	60	102	90	40	80	140	130	30	70	8,5	M 6	270	M 10	88	M 10	20	304	M 10	10	14,0 kg	1,00 kg
ELSZ 80S	450	190	60	102	90	40	80	139	130	30	71	8,5	M 6	270	M 8	88	M 8	20	304	M 10	12,5	15,0 Kg	1,00 Kg
ELSZ 100	540	230	62	130	110	50	100	143	160	29	89	10,5	M 10	310	M 12	112	M 10	30	350	M 10	-	31,0 kg	1,60 kg
ELSZ 125	595	295	62	165	110	60	100	139	180	30	107,5	M 10	M 10	310	M 12	140	M 12	30	365	M 10	-	57,4 kg	1,96 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

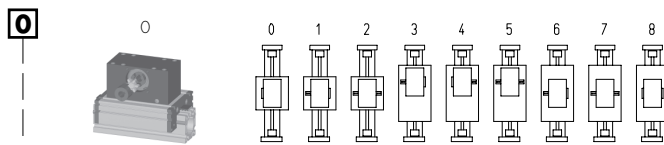
### Choice of carriages:



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 12 - 24 mm. For thickness of jointing plate refer to chapter 1.2 page 6.

### Coupling - shaft mounting:



Version 8 is the same as 0, but with double sided coupling claw.

The standard version is supplied without shaft. A shaft can be retrofitted by inserting in the pulley bore and securing with 2 locking rings or tension sets (size 80 + 100).

### Belt table

Code No.	Size	Belt	mm/rev.	Number of teeth
0 3	30	5M15	100	20
0 4	40	5M25	130	26
0 7	60	8M30	192	24
0 9	80 (S)	8M50	256	32
1 0	100	8M70	304	38
1 4	125	8M100	304	38

### Shaft dimensions

Size	Shaft ø h6 x length	Key
30	10 x 27	3x3x25
40	14 x 35	5x5x28
60	18 x 45	6x6x40
80 (S)	22 x 45	6x6x40
100	30 x 55	8x7x40
125	40 x 55	12x8x50

Basic length + stroke = total length

ELSZ 60 0 0 0 0 0 7 1 01500

For combination kits and connecting elements refer to chapter 2.2

Sample ordering code:

ELSZ 60 with standard body profile, standard carriage with widened belt and coupling claw on one side, 1170 mm stroke.

