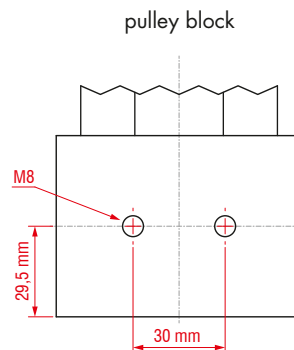
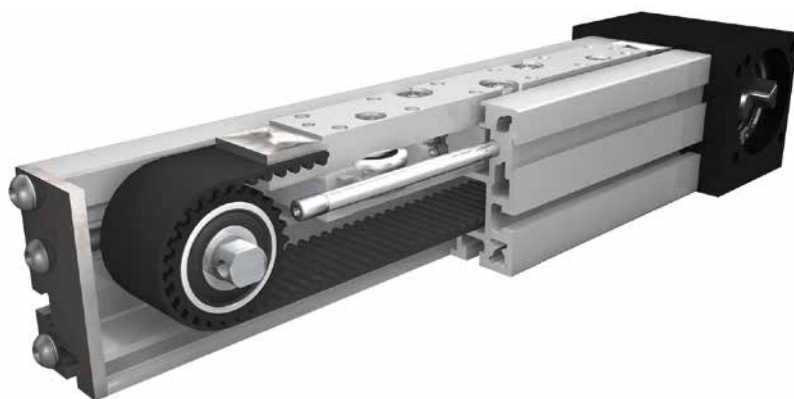


# Positioning system LLZ 60

## Belt drive



### Function:

The guide body consists of an aluminium square profile, with an integrated roller guide. The carriage is moved by means of an internal rotating toothed belt. On one end there is a pulley block with coupling claws on both sides (standard version). On the opposite end there is a plate with a retensioning device for the toothed belt.

### Fitting position:

As required. Max. length 6.000 mm without joints.

### Carriage mounting:

By tapped holes.

### Unit mounting:

By T-slots and mounting sets. The linear axis can be combined with any T-slot profile.

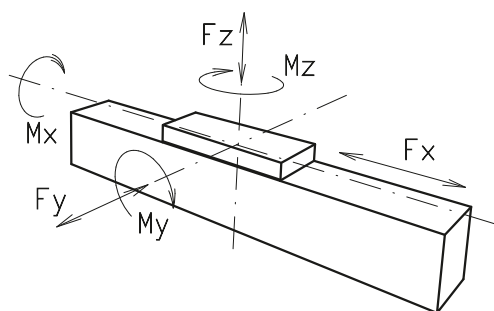
### Belt performance:

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

### Carriage support:

The carriage runs on 5 rollers which can be adjusted and serviced at each central servicing position. Two grease nipples at the carriage enable relubrication of the positioning system.

### Forces and torques



Size	60	
	static	dynamic
<b>Forces/Torques</b>		
$F_x$ (N)	1073	960
$F_y$ (N)	780	650
$F_z$ (N)	1170	845
$M_x$ (Nm)	20	13
$M_y$ (Nm)	78	65
$M_z$ (Nm)	52	39
<b>All forces and torques related to the following:</b>		
existing values	$\frac{F_y}{F_{y_{dyn}}} + \frac{F_z}{F_{z_{dyn}}} + \frac{M_x}{M_{x_{dyn}}} + \frac{M_y}{M_{y_{dyn}}} + \frac{M_z}{M_{z_{dyn}}} \leq 1$	
table values		
<b>No-load torque</b>		
Nm	0,6	
<b>Speed</b>		
(m/s) max	4	
<b>Tensile force</b>		
permanent (N)	1050	
0,2 s (N)	1150	
<b>Geometrical moments of inertia of aluminium profile</b>		
$I_x$ mm <sup>4</sup>	4,47x10 <sup>5</sup>	
$I_y$ mm <sup>4</sup>	5,59x10 <sup>5</sup>	
Elastic modulus N/mm <sup>2</sup>	70000	

For life-time calculation of rollers use our homepage · [www.bahr-modultechnik.com](http://www.bahr-modultechnik.com)

Driving torque:

$$M_o = \frac{F \cdot P \cdot S_i}{2000 \cdot \pi} + M_n$$

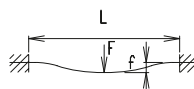
$$P_o = \frac{M_o \cdot n}{9550}$$

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

Deflection:

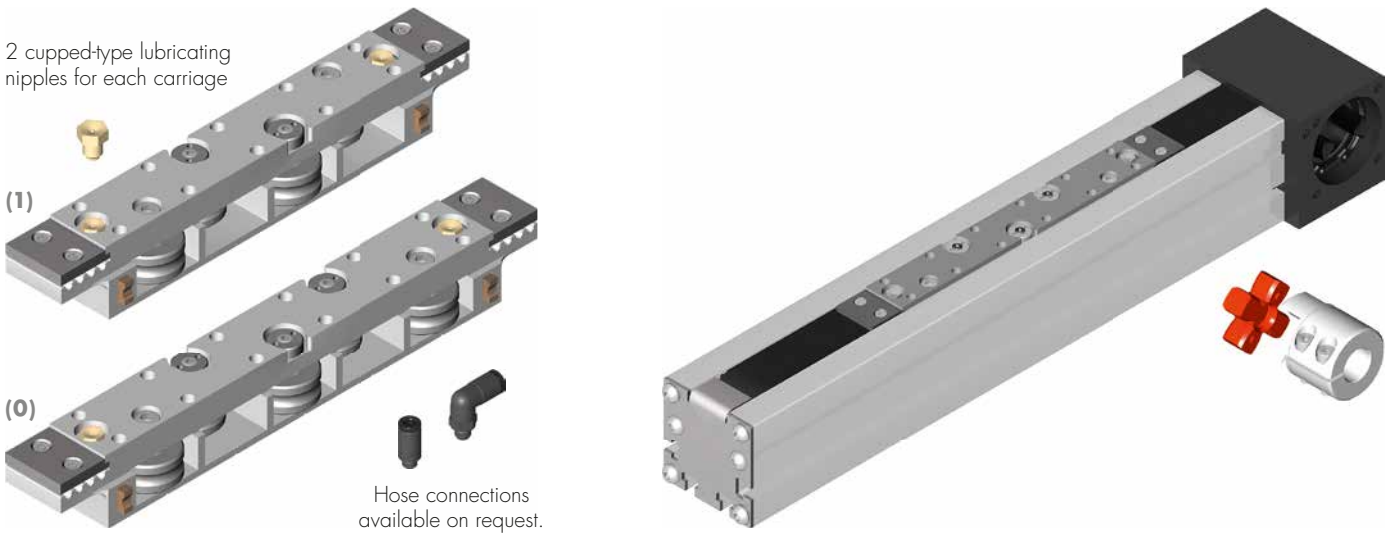
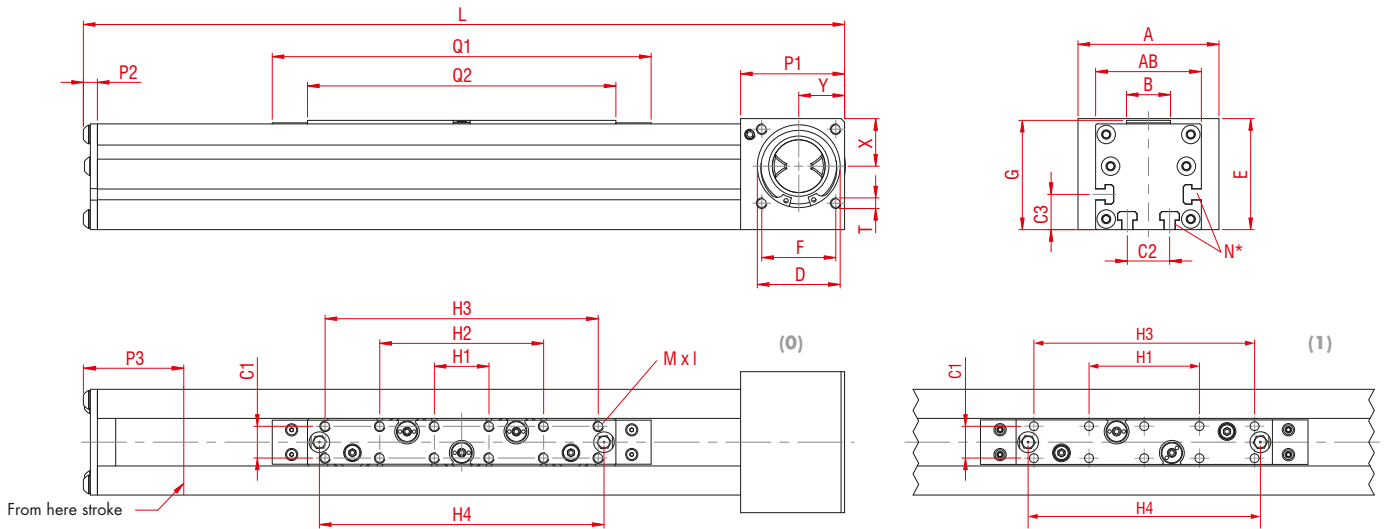
$$f = \frac{F \cdot L^3}{E \cdot I \cdot 192}$$

- 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 LLZ 60

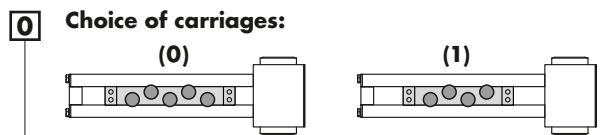
Dimensions (mm)



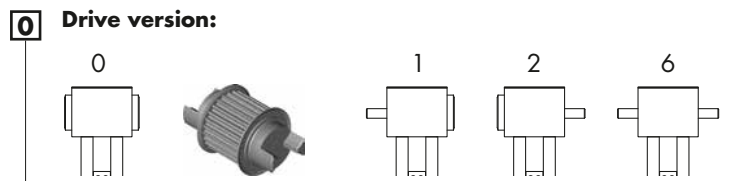
\*For slide nuts refer to chapter 2.2 page 2

Size	Basic length L	A	AB	B	C1	C2	C3	D -0,05	E	F	G	M	N for	P1	P2	P3	T	X	Y	Basic weight	Weight per 100 mm
LLZ 60	330	80	60	25	18	24	20	47	63	42	62	M6x6	M5	59	6	55	M6	27	26	2,75 kg	0,41 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)



Carriage	L	Q1	Q2	H1	H2	H3	H4
Version (0)	330	215	175	31	93	155	161,5
Version (1)	299	184	144	62	---	124	130,5



**Belt table:**

Code No.	Size	Belt	mm/rev.	Number of teeth
0 3	60	5M30	130	26

**Shaft dimensions / Coupling claw:**

Size	Shaft	Feather key	Coupling
60	14 h6 x 35	5x5x28	14

**LLZ 60 1 0 0 0 0 3 1 01500** — Basic length + stroke = total length  
 Pos. 1 2 3 4 5 6 7

Sample ordering code: LLZ60, standard body profile, double-sided coupling claw, 1170 mm stroke

