Positioning system LLZ 60

Belt drive

pulley block

M8

29,5 mm

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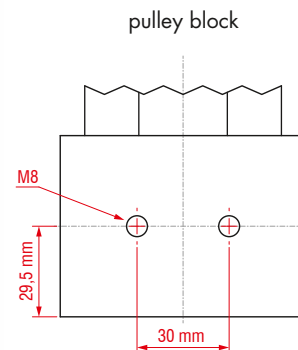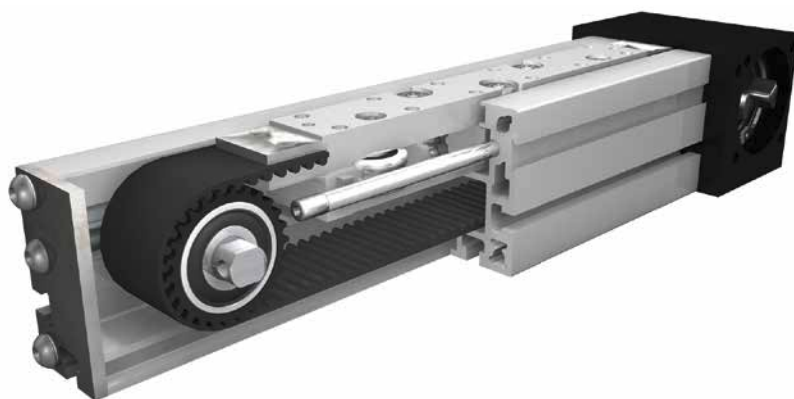
Function:
The guide body consists of an aluminium square profile, with an integrated roller guide. The carriage is moved by means of an internal rotating toothed belt. On one end there is a pulley block with coupling claws on both sides (standard version). On the opposite end there is a plate with a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

Fitting position: As required. Max. length 6.000 mm without joints.
Carriage mounting: By tapped holes.
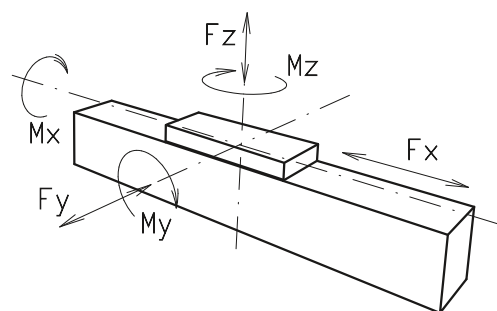**Unit mounting:** By T-slots and mounting sets. The linear axis can be combined with any T-slot profile.
Belt performance: HTD with steel reinforcement, no backlash when changing direction, repeatability ± 0,1 mm.
Carriage support: The carriage runs on 5 rollers which can be adjusted and serviced at each central servicing position.
Two grease nipples at the carriage enable relubrication of the positioning system.

Forces and torques

Size	60	
Forces/Torques	static	dynamic
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

All forces and torques related to the following:

$$\frac{F_y}{F_{y_{dyn}}} + \frac{F_z}{F_{z_{dyn}}} + \frac{M_x}{M_{x_{dyn}}} + \frac{M_y}{M_{y_{dyn}}} + \frac{M_z}{M_{z_{dyn}}} \leq 1$$

existing values / table values

No-load torque	
Nm	0,6

Speed	
(m/s) max	4

Tensile force	
permanent (N)	1050
0,2 s (N)	1150

Geometrical moments of inertia of aluminium profile	
I_x mm^4	$4,47 \times 10^5$
I_y mm^4	$5,59 \times 10^5$
Elastic modulus N/mm^2	70000

For life-time calculation of rollers use our homepage · www.bahr-modultechnik.com

Driving torque:

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

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

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

Deflection:

L

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

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

15.1

Positioning system LLZ 60

2 cupped-type lubricating nipples for each carriage

(1)

(0)

Hose connections available on request.
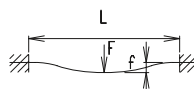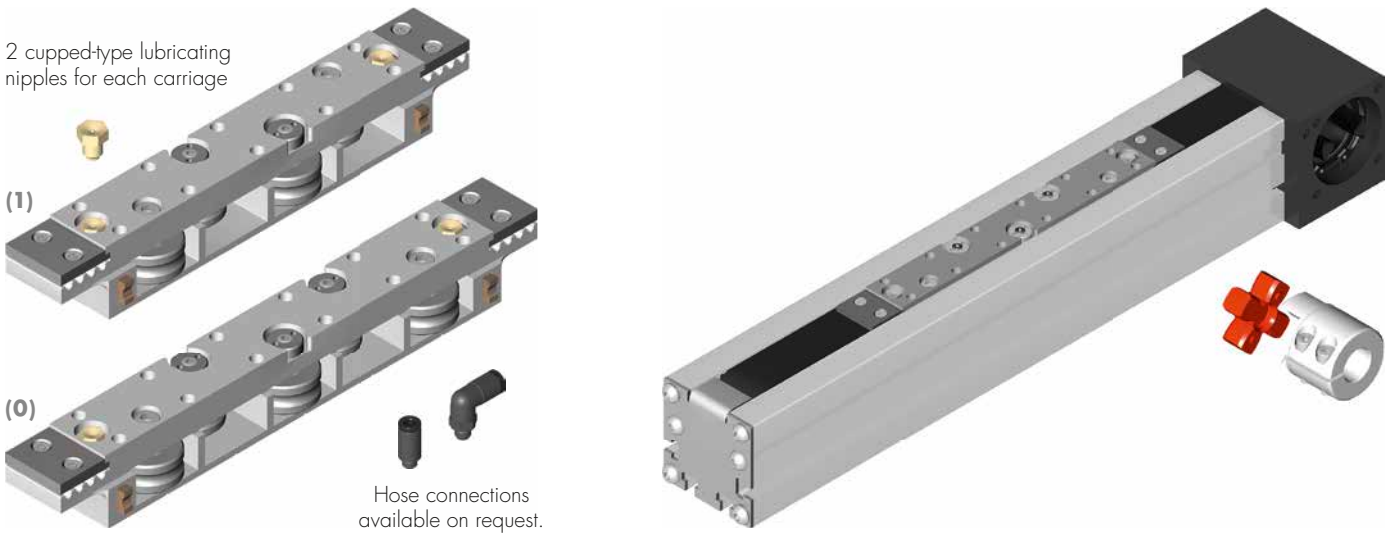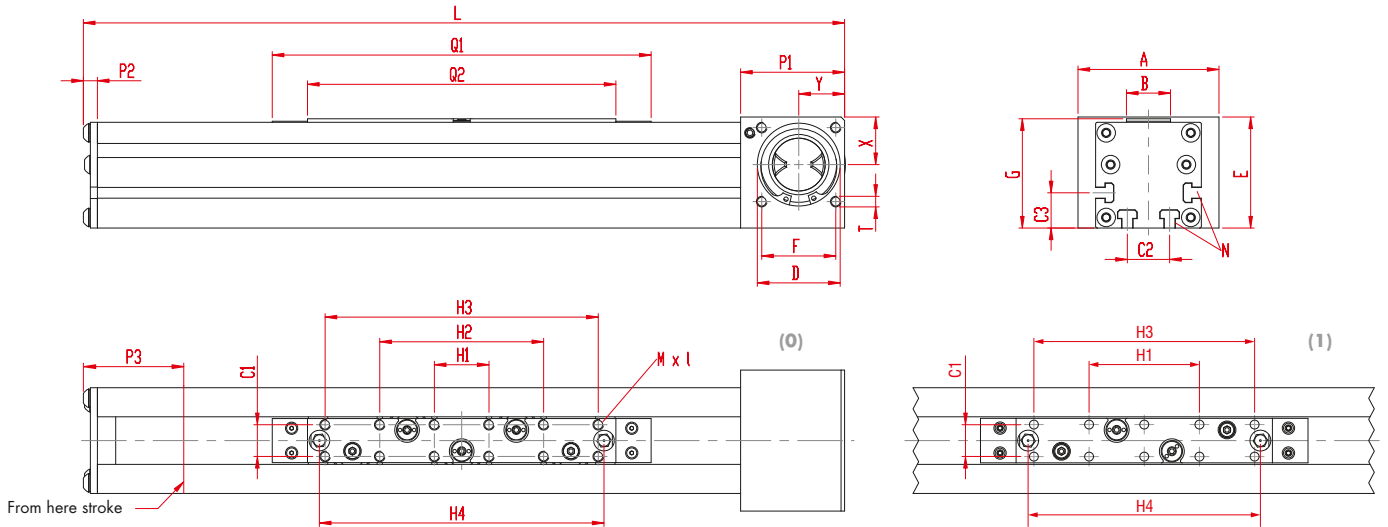
*For slide nuts refer to chapter 2.2 page 2

Size ☐	Basic length L	A	B	C1	C2	C3	D -0,05	E	F	G	M	N for	P1	P2	P3	T for	X	Y	Basic weight	Weight per 100 mm
LLZ 60	330	80	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)

0 **Choice of carriages:**

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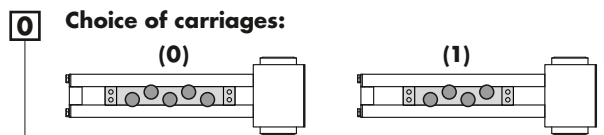
Carriage	L	Q1	Q2	H1	H2	H3	H4
Version (0)	330	215	175	31	93	155	161,5
Version (1)	299	184	144	62	---	124	130,5

0 **Drive version:**

0 1 2 6
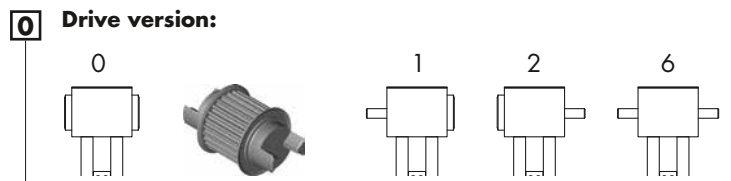
Belt table:

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

From here stroke

M x l

(0)

(1)

15.1