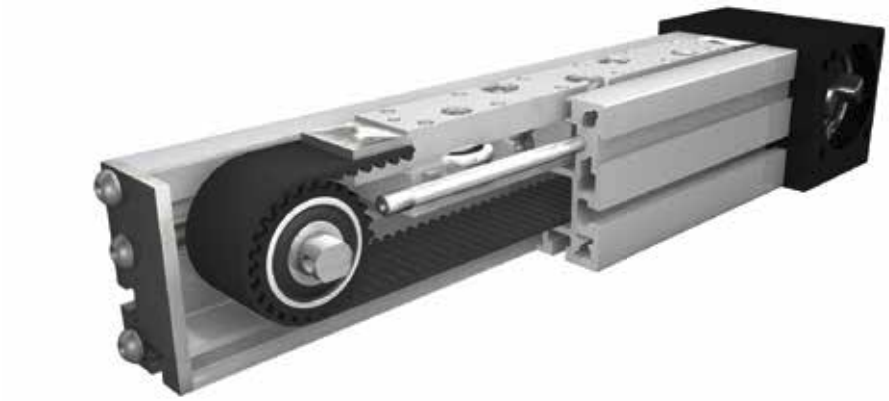
Positioning system LLZ 60

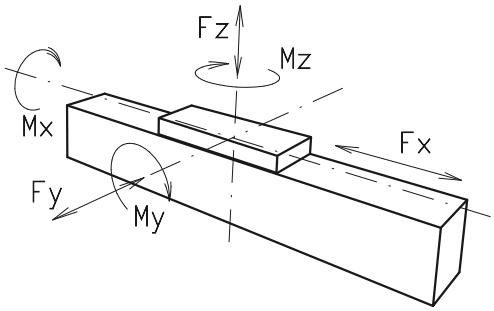
Belt drive



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 a central servicing position. Two hose connections 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: existing values / table values: $\frac{Fy}{Fy_{dyn}} + \frac{Fz}{Fz_{dyn}} + \frac{Mx}{Mx_{dyn}} + \frac{My}{My_{dyn}} + \frac{Mz}{Mz_{dyn}} \leq 1$		
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	4,47x10^5	
I_y mm^4	5,59x10^5	
Elastic modulus N/mm^2	70000	

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

Formula: LLZ

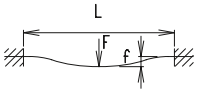
Driving torque:

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

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

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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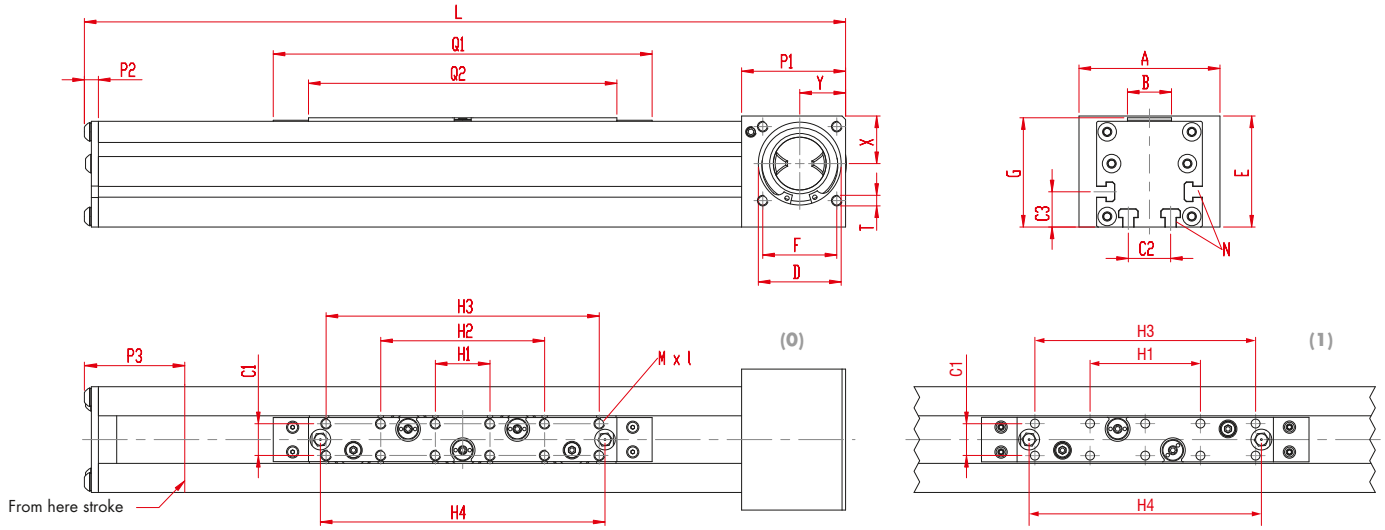
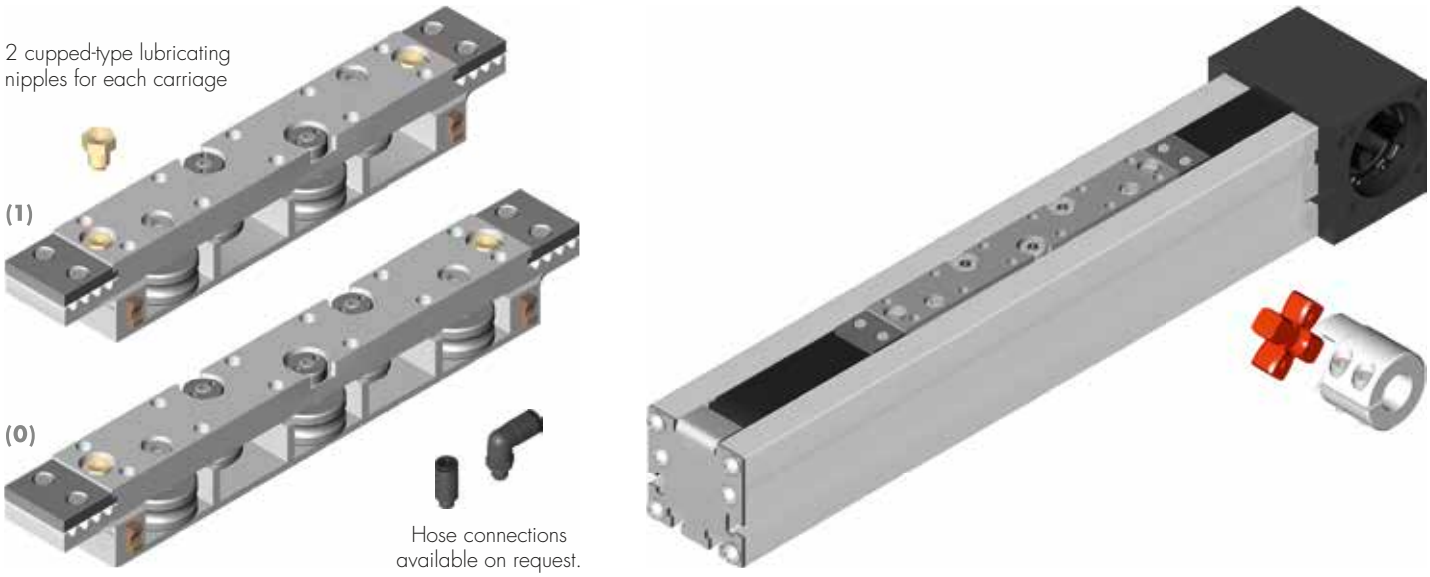


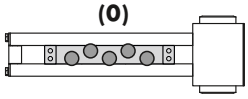


*For slide nuts refer to chapter 2.2 page 2

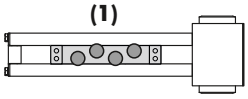
Size ❐	Basic length L	A	B	C1	C2	C3	D	E	F	G	M	N for	P1	P2	P3	T for	X	Y	Basic weight	Weight per 100 mm
LLZ 60	330	80	25	18	24	20	47	63	42	62	M6x6	M5	59	6	55	M6	27	26	2,75 kg	0,41 kg

0 **Choice of carriages:**

(0)

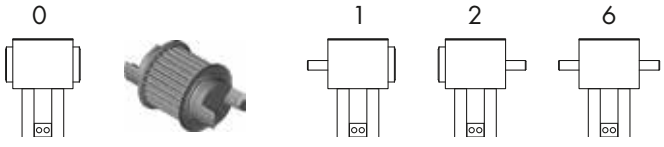


(1)



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:**



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 x 35	5x5x28	14

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

Basic length + stroke = total length

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

15.1