

Belt drive

**Function:**

This unit consists of a square aluminium profile with an integrated roller guide and is covered by a stainless steel sheet (thickness 0.37mm, material 1.4301). The carriage is moved by means of an internal rotating toothed belt. On one end there is a pulley block with shaft(s). On the opposite end there is a plate with a retensioning device for the toothed belt.

Fitting position:

As required. Max. length 3.000 mm without joints.

Carriage mounting:

By tapped holes.

Unit mounting:

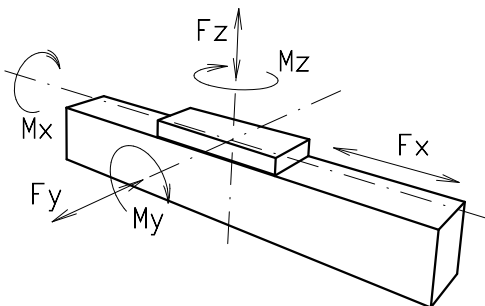
By T-slots and mounting sets, bores through the cover. The linear axis can be combined with any T-slot profile.

Belt performance:

HTD with steel reinforcement, no backlash when changing direction, repeatability $\pm 0,1$ 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
Forces/Torques		
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	$\frac{F_y}{F_{y_{dyn}}} + \frac{F_z}{F_{z_{dyn}}} + \frac{M_x}{M_{x_{dyn}}} + \frac{M_y}{M_{y_{dyn}}} + \frac{M_z}{M_{z_{dyn}}} \leq 1$	
table values		
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.

Driving torque:

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

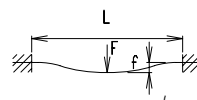
$$P_o = \frac{M_o \cdot n}{9550}$$

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⁻¹)
 M_o = driving torque (Nm)
 P_o = motor power (KW)

Deflection:

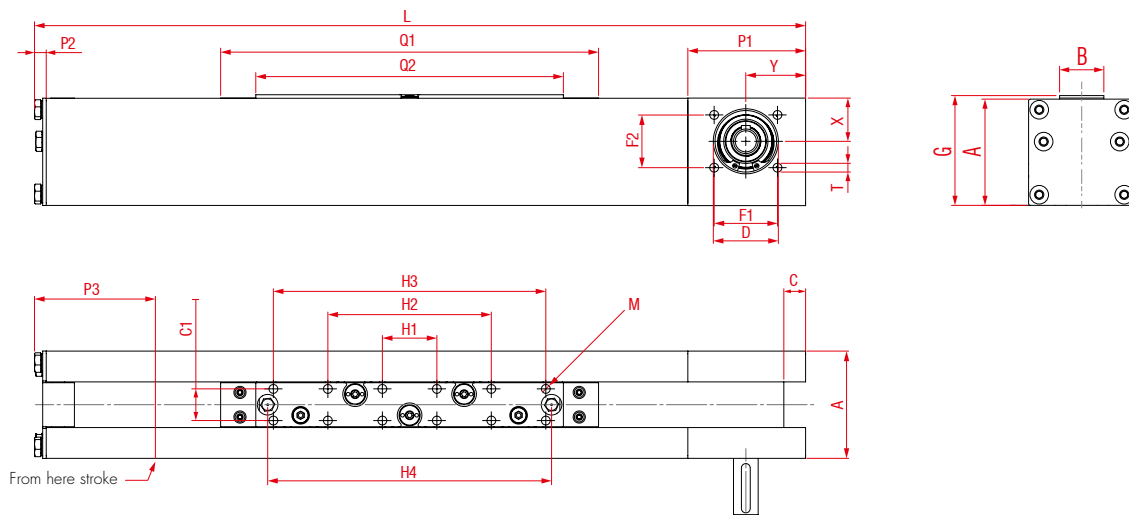
$$f = \frac{F \cdot L^3}{E \cdot I \cdot 192}$$

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

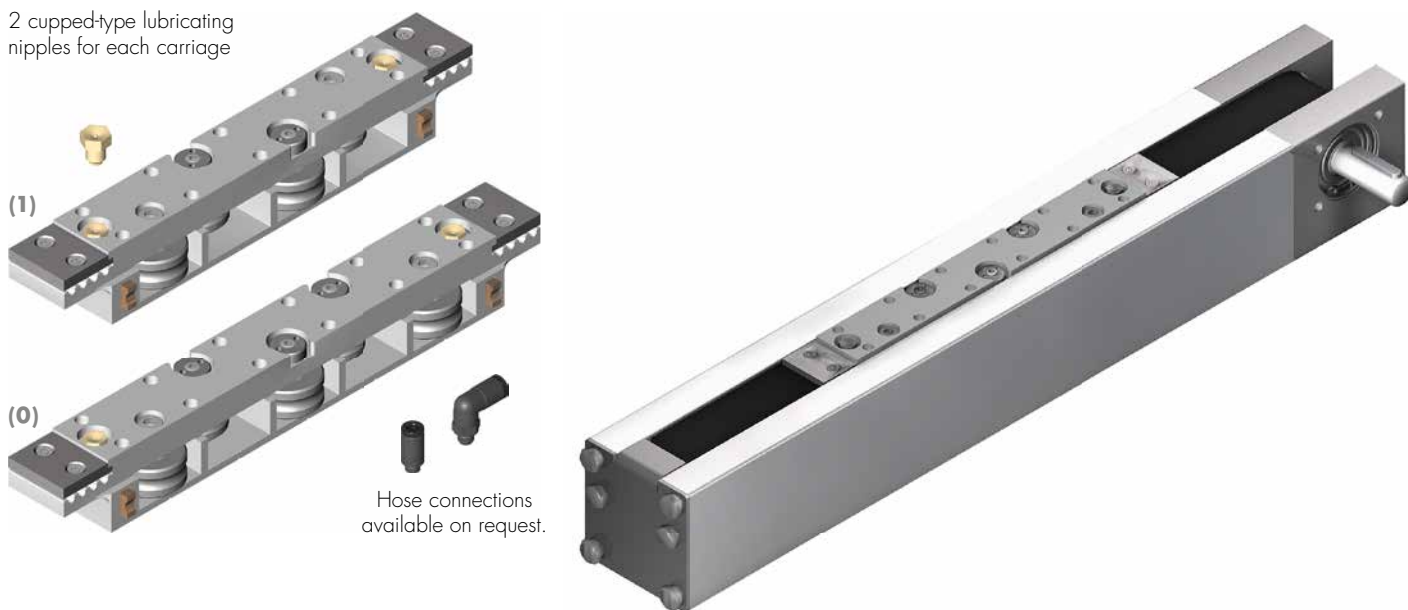


Positioning system LLZE 60

Dimensions (mm)



2 cupped-type lubricating nipples for each carriage



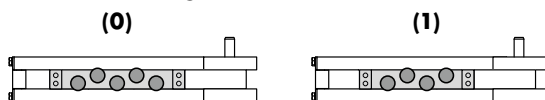
Hose connections available on request.

*For slide nuts refer to chapter 2.2 page 2

Size	Basic length L	A	B	C	C1	D -0,05	F1	F2	G	H1	H2	H3	H4	M	P1	P2	P3	Q1	Q2	T	X	Y	Basic weight	Weight per 100 mm
LLZE 60	339	61	26	12,4	18	37	36	30	63	31	93	155	161,5	M6x6	67	7	56	215	175	M6	24,6	34	2,99 kg	0,49 kg

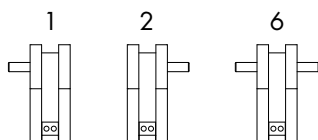
0 Choice of guide body profile:
(0) Version with corrosion-protected components

Choice of carriages:



Carriage	L	Q1	Q2	H1	H2	H3	H4
Version (0)	339	215	175	31	93	155	161,5
Version (1)	308	184	144	62	—	124	130,5

1 Drive version:



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

Belt table:

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

LLZE 60 1 0 0 1 0 3 1 01500 — Basic length + stroke = total length

Pos. 1 2 3 4 5 6 7

Sample ordering code:

LLZE60, standard body profile, drive version 1, 1161 mm stroke

15.1