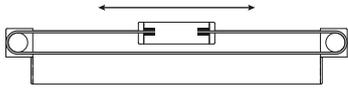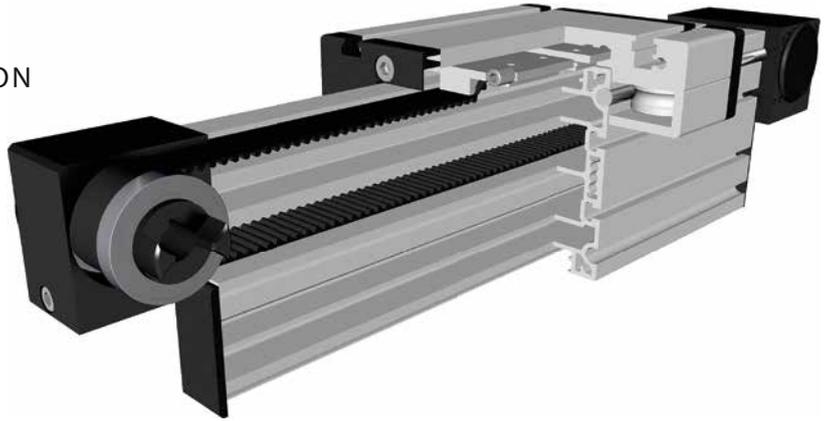# Linear system **MLZ 60 (S) W**

BELT DRIVE

- INDEPENDENT INSTALLATION POSITION
- HIGHER PROFILE STABILITY
- HIGHER FORCE FIXTURE
- LONG TRAVERSE PATH

5.1

Function:
The guide body consists of an aluminium square profile with lateral, parallel, form-fit, internal hardened steel rods. The guide carriage, which is driven along the shafts by a timing belt, moves on the guide body with internal linear ball bearings that are adjustable free of play. The advantage of this system: The timing belt is guided within the profile, so that the system is independent of the mounting position. Due to the rectangular profile high torques and loads can be taken up. In addition, a very high stability and low deflection are ensured for long axis systems. The belt tension can be easily readjusted via a tensioning device within the carriage. This device also helps to adjust the symmetry of the carriages in applications where two parallel linear units are used.

Fitting position: As required, max. length 6.000 mm without joints.
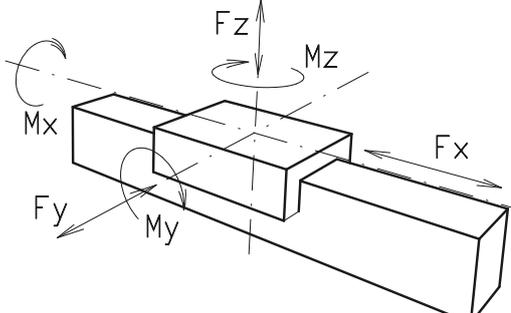**Carriage mounting:** By T-slots.
Unit mounting: By T-slots or tapped holes in the bearing block, mounting sets.
Belt type: HTD with steel reinforcement, no backlash when changing direction, repeatability: ± 0,1 mm.

Forces and torques		Size	60		60 S	
		Forces/Torques	static	dynamic	static	dynamic
		F_x (N)	894	800	894	800
		F_y (N)	3000	2000	4100	3100
		F_z (N)	1700	1100	2160	1600
		M_x (Nm)	67	43	88	65
		M_y (Nm)	90	70	190	140
		M_z (Nm)	120	100	230	170

All forces and torques relate to the following:

$$\frac{Fy}{Fy_{dyn}} + \frac{Fz}{Fz_{dyn}} + \frac{Mx}{Mx_{dyn}} + \frac{My}{My_{dyn}} + \frac{Mz}{Mz_{dyn}} \leq 1$$

existing values / table values

No-load torque		
Nm	0,6	0,7
Speed		
(m/s) max	5	7
Tensile force		
permanent (N)	900	900
0,2 s (N)	1000	1000
Geometrical moments of inertia of aluminium profile		
I_x mm^4	2,8 x 10^6	2,8 x 10^6
I_y mm^4	9,6 x 10^5	9,6 x 10^5
E-Modulus N/mm^2	70000	70000

For life-time calculation of rollers use our homepage.

Driving torque:

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

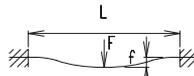$$P_a = \frac{M_a*n}{9550}$$

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:

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

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

BAHR Modultechnik

Positioning system MLZ 60 (S) W

Dimensions (mm)
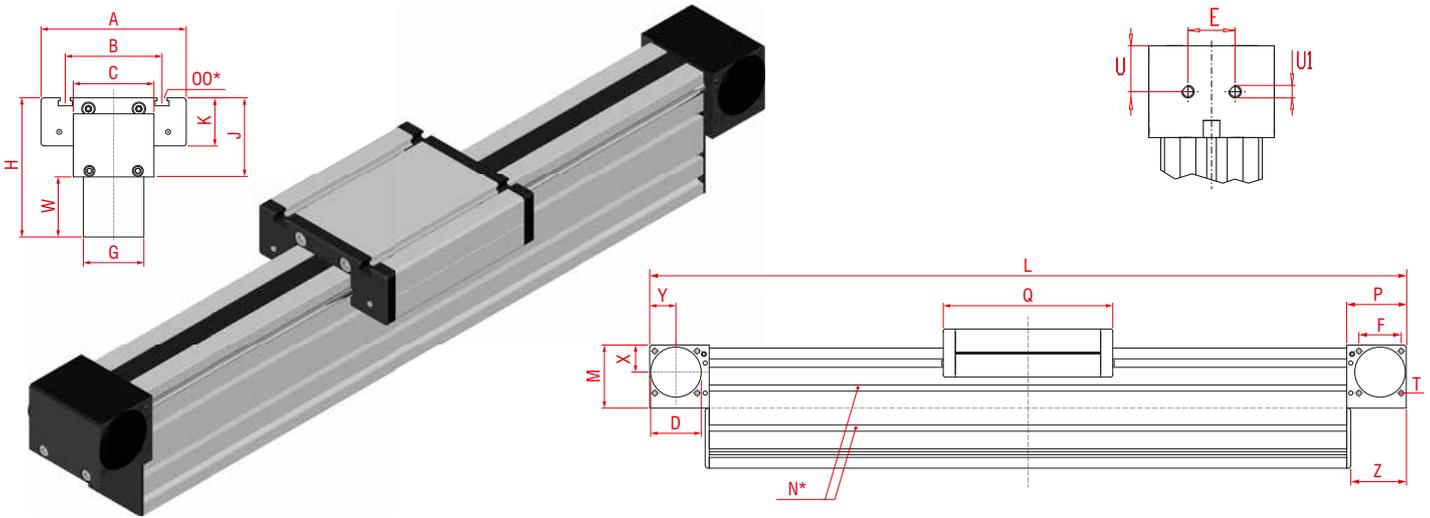
*For slide nuts refer to chapter 2.2 page 2   Increasing the carriage length will increase the basic length by the same amount.

| Size	Basic length L	A	B	C	D - 0,05	E	F	G	H	J	K	M	N for	OO for	P	Q	T	U	U1	W	X	Y	Z	Basic weight	Weight per 100 mm
MLZ 60 W	290	144	96	80	47	30	42	60	139	79	48	63	M5	M8	59	168	M6	29,5	M8	60	27	26	55	5,2 kg	0,8 kg
MLZ 60S W	315	170	108	80	47	30	42	60	143	83	52	63	M5	M8	59	194	M6	29,5	M8	60	27	26	55	6,2 kg	0,8 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)**

Size	Version 1	
	Q	L
60	184	306
60 S	214	336

0 **Drive version:**

0   0   1   2   3   4   5   6   7   8   9
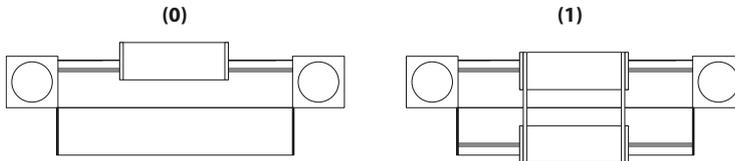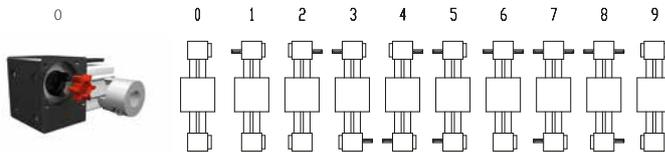
Version 9 is the same as 0, but with double sided coupling claw.

The standard version is supplied without shaft.

Belt table

Code No.		Size	Belt	mm/rev.	Number of teeth
0	4	60 (S)	5M25	130	26

* effective toothed belt width

Shaft dimensions / Coupling claw

Size	Shaft ø h6 x length	Key	Coupling
60 (S)	14 x 35	5x5x28	14

For combination kits and connecting elements refer to chapter 2.2

MLZ	60 W	1	0	0	0	0	4	1	1500
Pos.		1	2	3	4	5	6	7	

Basic length + stroke = total length

Sample ordering code:
MLZ 60 W, standard body profile, standard carriage, coupling claw on one side, 1210 mm stroke