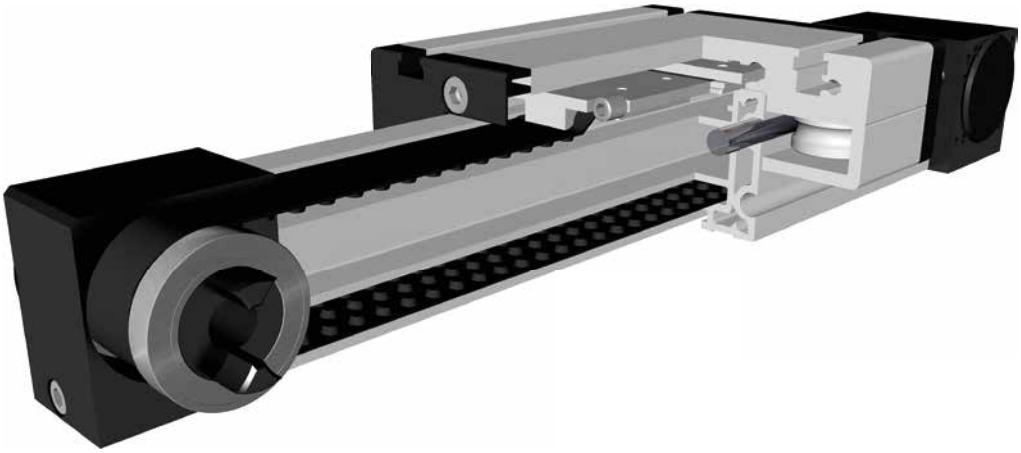
Positioning system MLN 60, 60S

Nubbed belt drive

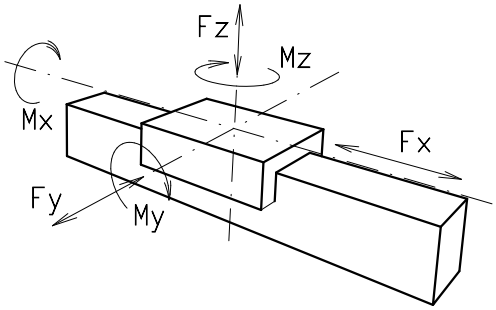


5.1

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 nobbed belt, moves on the guide body with internal linear ball bearings that are adjustable free of play. The advantage of this system: The belt is guided within the profile, so that the system is independent of the mounting position. The nobbed belt is self-tracking and has a very low operating noise level thanks to its nobs being offset by 45°. Furthermore, it is almost vibration-free in the transition sections.

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: N10 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)	1950	1300	1950	1300
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: 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		0,7	
Speed				
(m/s) max	5		7	
Tensile force				
permanent (N)	1050		1050	
0,2 s (N)	1150		1150	
Geometrical moments of inertia of aluminium profile				
I_x mm^4	4,67x10^5		4,67x10^5	
I_y mm^4	5,21x10^5		5,21x10^5	
E-Modulus N/mm^2	70000		70000	

For life-time calculation of rollers use our homepage.

Driving torque:

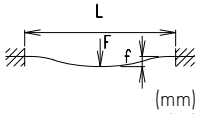
$$M_a = \frac{F * P * S_i}{2000 * \pi} + M_n$$

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

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)

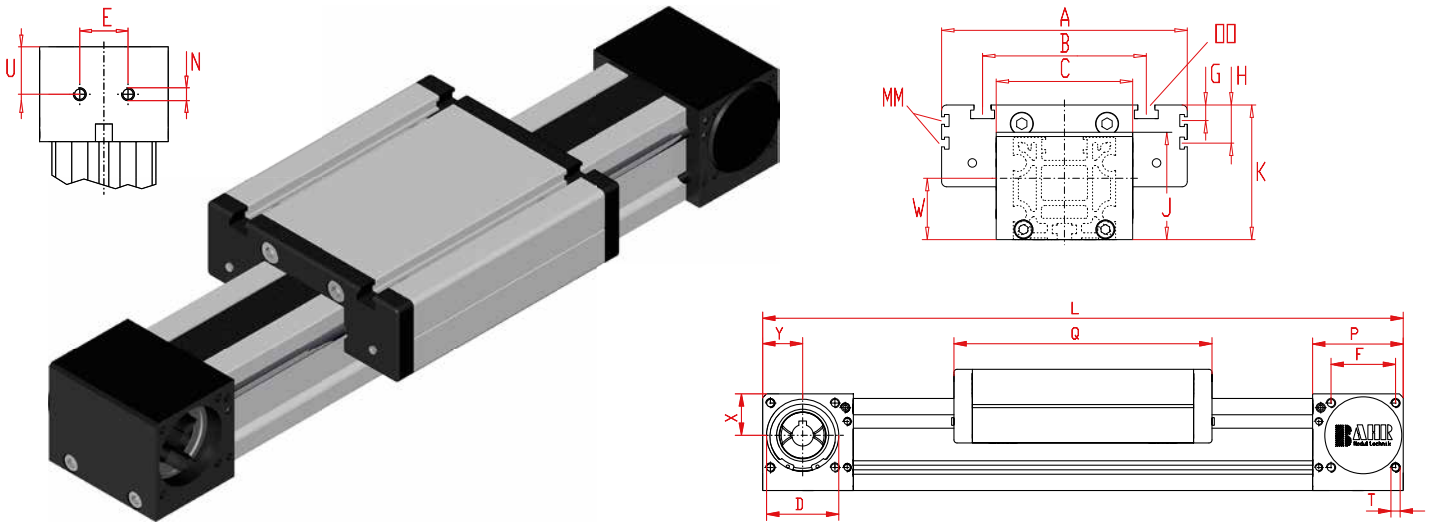
Deflection:

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



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

Positioning system MLN 60, 60S



*For slide nuts refer to chapter 2.2 page 2

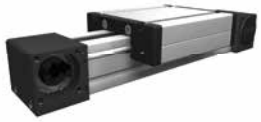
Increasing the carriage length will increase the basic length by the same amount.

Size ❒	Basic length L	A	B	C	D - 0,05	E	F	J	K	N	OO for	P	Q	T	U	W	X	Y	Basic weight	Weight per 100 mm
MLN 60	290	144	96	80	47	30	42	63	79	M 8	M 8	59	168	M 6	29,5	30	27	26	4,7 kg	0,6 kg
MLN 60S	315	170	108	80	47	30	42	63	83	M 8	M 8	59	194	M 6	29,5	30	27	26	5,7 kg	0,6 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:**

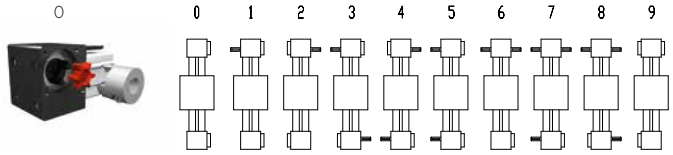
(0)



(1)

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

0 **Drive version:**



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	**8**	**60 (S)**	Nobbed belt N10	130	13/3

Shaft dimensions / Coupling claw

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

MLN	60	1	0	0	0	0	8	1	01500
Pos.	1	2	3	4	5	6	7		

Basic length + stroke = total length

For combination kits and connecting elements refer to chapter 2.2

Sample ordering code:
MLN 60, standard body profile, standard carriage, drive version 0, knobbelt belt, 1210 mm stroke