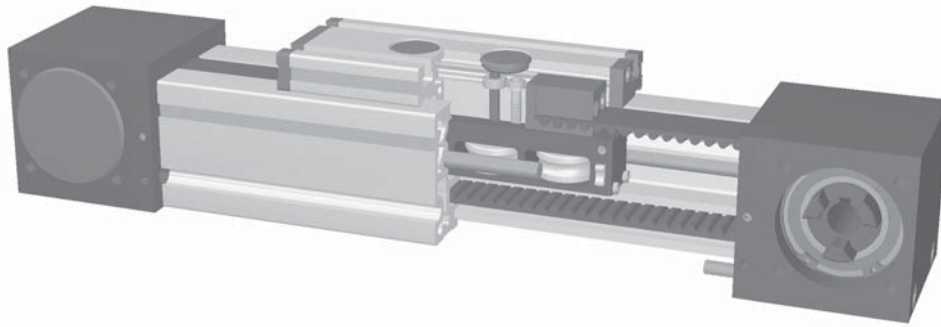


Modular Linear Actuator QLZ 60, 80, 100

Belt Driven Unit

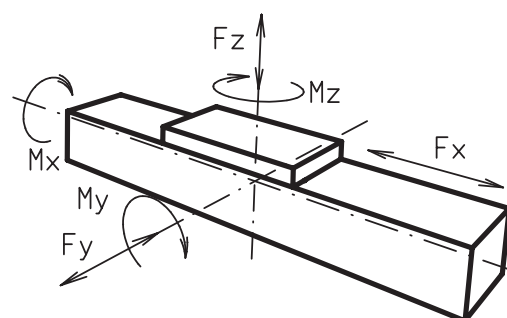


4

Function:

This unit consists of a square aluminium profile with an integrated roller guide. The carriage is driven by a timing belt. Each standard pulley includes one jaw coupling on one side. Belt tension can be adjusted by a simple screw adjustment device in the carriage. This device can also be used for symmetrical adjustment of two or more linear units running parallel. This linear unit is suitable for application in clean-room classification 1,000 (corresponding to US Fed. Standard 209 E).

- Fitting length:** As required. Max. length 6,000 mm single/extrusion.
- Carriage mounting:** T-slots
- Unit mounting:** T-slots or tapped holes in the bearing block
- Belt type:** HTD with steel reinforcement, no backlash when changing direction, repeatability: $\pm 0,1$ mm.
- Carriage support:** In the standard version, the carriage runs on 4 rollers which can be adjusted and serviced at a central servicing position. For longer carriages the number of rollers can be increased.

Forces and torques	Size	60		80		100	
	Forces/Torques	static	dynamic	static	dynamic	static	dynamic
	F_x (N)	894	800	1900	1800	4000	3800
	F_y (N)	600	500	1600	1240	1900	1500
	F_z (N)	900	650	1500	1200	2100	1700
	M_x (Nm)	15	10	50	40	85	60
	M_y (Nm)	60	50	100	80	140	110
	M_z (Nm)	40	30	75	60	110	90
No-load torque							
Nm	0,6		0,8		1,2		
Speed							
(m/sec) max	4		6		7		
Tensile force							
permanent (N)	900		1900		4000		
0,2 sec (N)	1000		2090		4300		
Geometrical moments of inertia of aluminium profile							
I_x mm ⁴	4,3x10 ⁵		16,5x10 ⁵		43,0x10 ⁵		
I_y mm ⁴	4,8x10 ⁵		18,7x10 ⁵		48,8x10 ⁵		
Elastic modulus N/mm ²	70000		70000		70000		

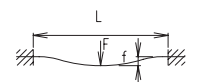
Formula: QLZ

Driving torque:

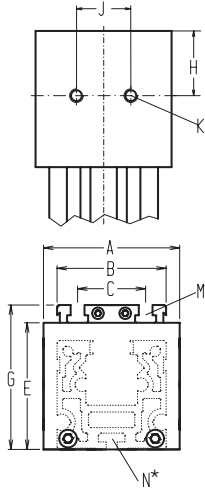
$$M_a = \frac{F \cdot P \cdot S_s}{2000 \cdot \pi} + M_{leer}$$

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

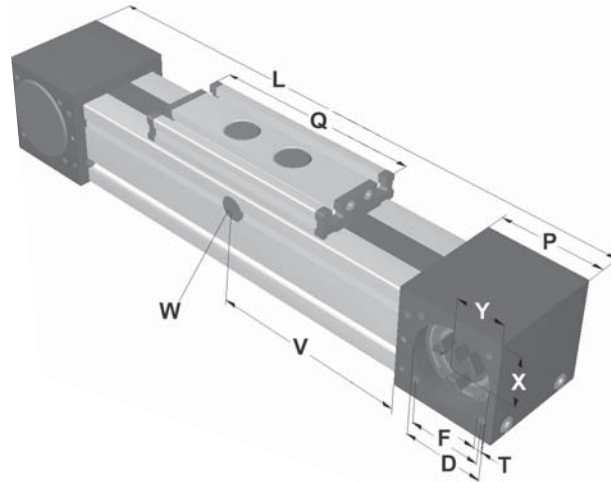
- F = force (N)
- P = pulley action perimeter (mm)
- S_s = safety factor 1,2 ... 2
- M_{leer} = no-load torque (Nm)
- n = rpm pulley (min⁻¹)
- M_a = driving torque (Nm)
- P_a = motor power (KW)

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


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



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



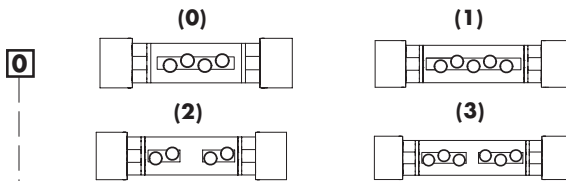
*For T-nuts refer to the accessory section

Size	Basic length L	A	B	C	D	E	F	G	H	J	K	N	M	P	Q	T	X	Y	Basic weight	Additional Weight per 100 mm
QLZ 60	280	80	60	36	47	63	42	79	29,5	30	M8	M5	M6	59	152	M6	27	26	3,2 kg	0,39 kg
QLZ 80	390	100	80	50	68	93	60	106	47,5	40	M10	M6	M8	90	196	M8	45	40	9,6 kg	0,78 kg
QLZ 100	490	130	100	66	90	110	80	129	55	50	M12	M10	M10	110	260	M10	49	50	15,8 kg	1,45 kg

Choice of guide body profile:

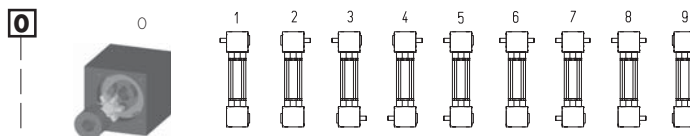
- 0** (0) standard (1) stainless guide rods (2) stainless guide rods and screws (3) stainless guide rods, rollers and screws

Choice of carriages:



Size	Version 0		Version 1		Version 2		Version 3	
	Q	L	Q	L	Q	L	Q	L
60	152	280	192	320	>152	>280	>232	>360
80	196	390	246	440	>196	>390	>296	>490
100	260	490	320	550	>260	>490	>380	>610

Coupling - Selection of shaft mounting:



Size	Shaft ø h6 x length	Key
60	14 x 35	5x5x28
80	18 x 45	6x6x40
100	22 x 45	6x6x40

9 is as 0, but with jaw couplings on both sides. The standard version is supplied without shaft. A shaft can be retrofitted by inserting in the pulley bore and securing with 2 locking rings or tension sets (size 100).

Belt table

Code No.	Size	Belt	Pulley	
			mm/rev.	Number of teeth
0 3	60	5M25	130	26
0 4	80	8M30	176	22
0 7	100	8M50	224	28

Basic length + stroke = total length



Pos. 1 2 3 4 5 6 7

Sample ordering code:
QLZ80, standard body profile, standard carriage, jaw coupling on one side, 1110 mm stroke