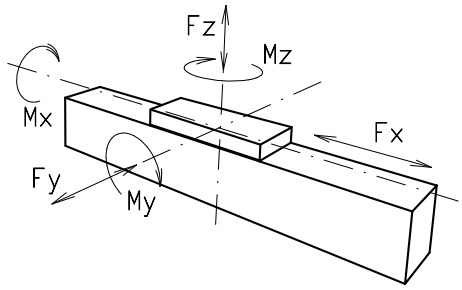
Positioning system DLZA 120, 160, 200

Rack and pinion drive

Function:
This unit consists of a rectangular aluminium profile with 2 integrated roller guides. The carriage, which has internal linear ball bearings that can be adjusted free of play, is driven along the guide rods by a high precision rack. The rack and pinion system is suitable for highly dynamic servo operation and ideal for lifting movements. The pinion is equipped with maintenance-free ball bearings. The rack is lubricated by a toothed felt wheel.

Fitting position: As required. Max. length 6.000 mm without joints.
Carriage mounting: By T-slots.
Unit mounting: By T-slots and mounting sets. The linear axis can be combined with any T-slot profile.
Rack: 6h23 Modul 2 (hardened and ground), repeatability ± 0,1 mm.
Carriage support: In the standard version, the carriage runs on 8 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	120		160		200	
Forces/Torques	statisch	dynam.	statisch	dynam.	statisch	dynam.
F_x (N)			1900	1800		
F_y (N)			3000	2000		
F_z (N)			3500	2800		
M_x (Nm)			400	320		
M_y (Nm)			360	300		
M_z (Nm)			180	150		
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			1,5		2,6	
Speed						
(m/sec) max			3		5,0	
Tensile force						
permanent (N)			1900		3000	
Geometrical moments of inertia of aluminium profile						
I_x mm^4			22,2x10^5			
I_y mm^4			122,0x10^5			
Elastic modulus N/mm^2			70000			

For life-time calculation of rollers use our CD-ROM or homepage!

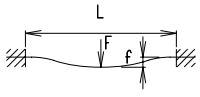
Formula: DLZA
Driving torque:

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

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

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)

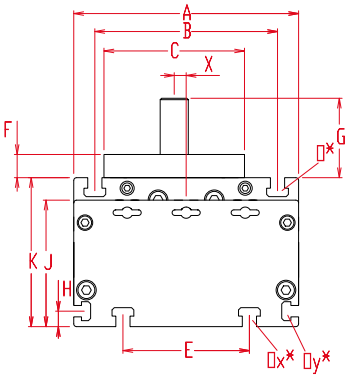
$$f = \frac{F*l^3}{E*I*192}$$



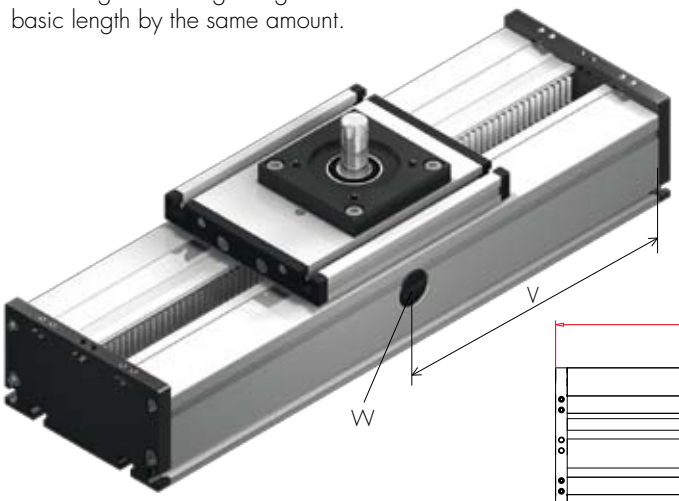
f= deflection (mm)
F = load (N)
L= free length (mm)
E= elastic modulus 70000 (N/mm^2)
I= second moment of area (mm^4)

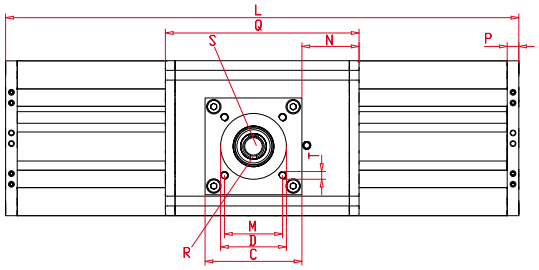
Positioning system DLZA 120, 160, 200

Dimensions (mm)



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





*For slide nuts refer to chapter 2.2 page 2 V = Q + 100 mm W = servicing position

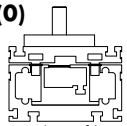
Size ❒	Basic length L	A	B	C	D	E	F	G	H	J	K	M	N	O for	Ox for	Oy for	P	Q	T for	U	X	Basic weight	Weight per 100 mm
DLZA 120																							
DLZA 160	240	160	130	100	68	90	16,5	56,5	11	90	106	60	59	M 8	M 8	M 6	12	200	M 8	80	8,5	13,0 kg	2,10 kg
DLZA 200																							

7.1

Choice of guide body profile:

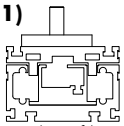
0

(0)



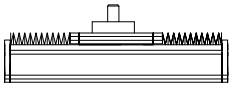
internal profile with cover bands

(1)



internal profile without cover bands

(3)



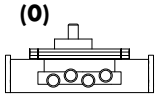
with bellows

Stainless versions upon request.

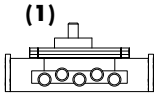
Choice of carriage:

0

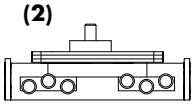
(0)



(1)



(2)

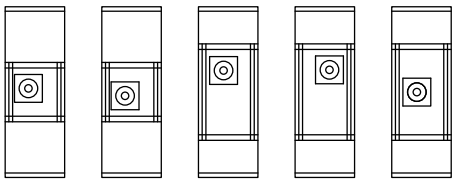


Size ❒	Version 0		Version 1		Version 2	
	Q	L	Q	L	Q	L
120						
160	200	240	250	290	>300	>340
200						

1

Drive version:

1 2 3 4 5

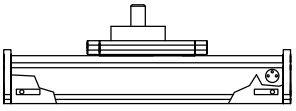


Shaft dimensions

Size ❒	Shaft ø h6 x length	Key	Pinion	
	S	R	mm/rev.	Modul
120				
160	20 x 40	6x6x35	100,53	2
200				

Basic length + stroke = total length

DLZA	160	1	0	0	1	0	0	1	01500
	Pos.	1	2	3	4	5	6	7	



Inductive proximity switch sets, which can be mounted inside of the square profile, are available as accessories. Coupling and a special plug are mounted from the outside. For additional accessories refer to chapter 2.2 – 4.2.

Sample ordering code:
DLZA160 with internal profile and cover bands, standard carriage, 1260 mm stroke.