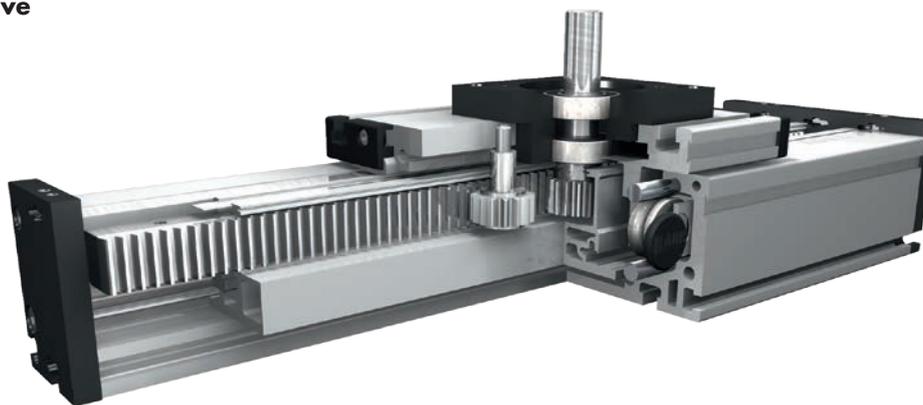


# Positioning system DLZA 120, 160, 200

Specifications

## 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:

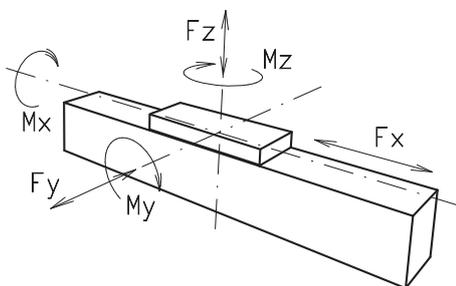
6h23 Modul 2 (hardened and ground), repeatability  $\pm 0,1$  mm.

### 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.

7.1

### Forces and torques



Size	120		160		200	
	static	dynam.	static	dynam.	static	dynam.
<b>Forces/Torques</b>						
$F_x$ (N)			1900	1800	4000	3800
$F_y$ (N)			3000	2000	4400	3100
$F_z$ (N)			3500	2800	4900	4400
$M_x$ (Nm)			400	320	600	510
$M_y$ (Nm)			360	300	560	480
$M_z$ (Nm)			180	150	310	275
<b>All forces and torques related to the following:</b>						
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						
<b>No-load torque</b>						
Nm			1,5		2,6	
<b>Speed</b>						
(m/s) max			3		5,0	
<b>Tensile force</b>						
permanent (N)			1900		3000	
<b>Geometrical moments of inertia of aluminium profile</b>						
$I_x$ mm <sup>4</sup>			22,2x10 <sup>5</sup>		63,8x10 <sup>5</sup>	
$I_y$ mm <sup>4</sup>			122,0x10 <sup>5</sup>		335x10 <sup>5</sup>	
Elastic modulus N/mm <sup>2</sup>			70000		70000	

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

### Formula: DLZA

Driving torque:

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

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

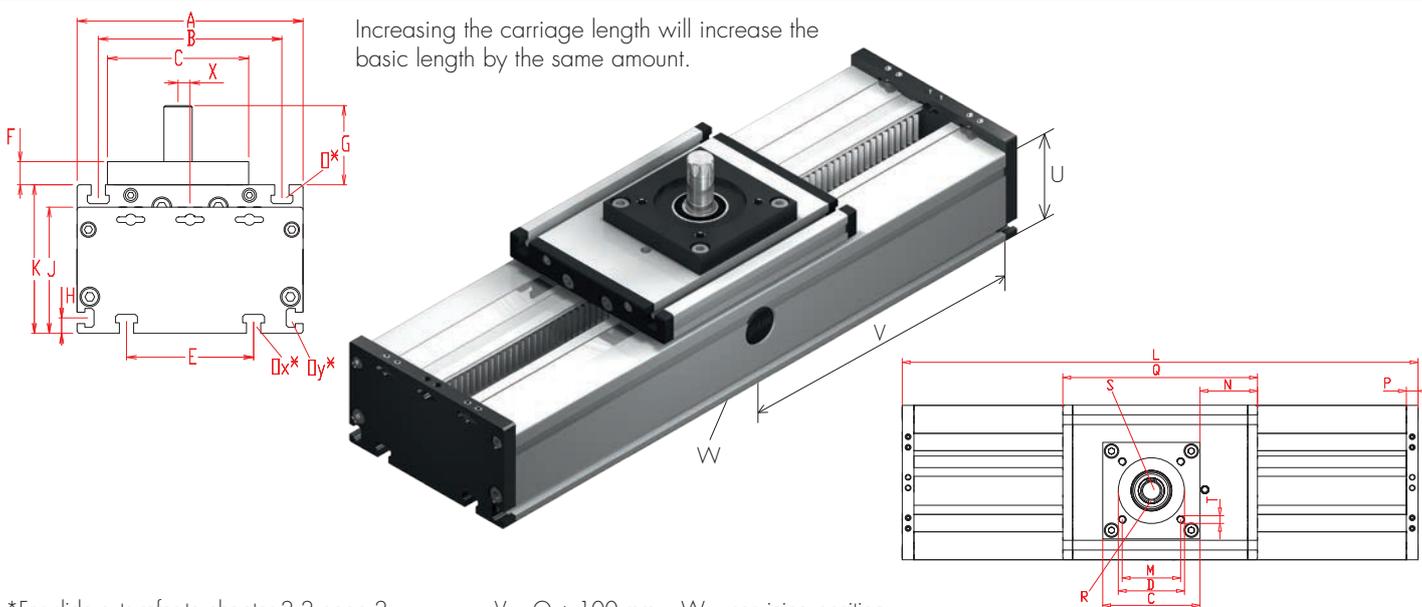
F	= force	(N)
P	= pulley action perimeter	(mm)
$S_s$	= safety factor 1,2 ... 2	
$M_{leer}$	= no-load torque	(Nm)
n	= rpm pulley	(min <sup>-1</sup> )
$M_o$	= driving torque	(Nm)
$P_o$	= motor power	(KW)

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

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

# Positioning system DLZA 120, 160, 200

Dimensions (mm)



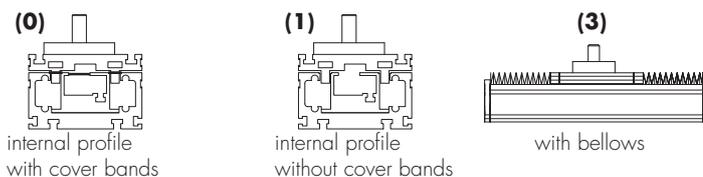
\*For slide nuts refer to chapter 2.2 page 2

$V = Q + 100 \text{ mm}$     $W = \text{servicing position}$

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	320	200	160	120	90	140	20	45	15	110	129	80	95	M 10	M 10	M 8	15	270	M 8	100	5	28,9 kg	6,15 kg	

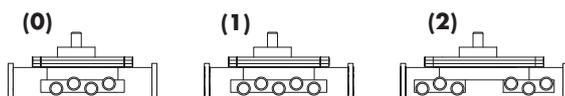
7.1

## 0 Choice of guide body profile:



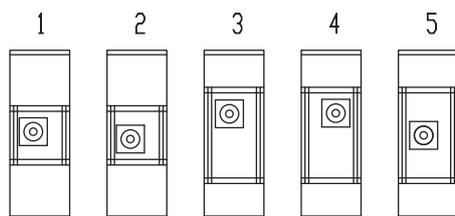
Stainless versions upon request.

## 0 Choice of carriage:



Size □	Version 0		Version 1		Version 2	
	Q	L	Q	L	Q	L
120						
160	200	240	250	290	>300	>340
200	270	320	330	380	>410	>460

## 1 Drive version:



## Shaft dimensions

Size □	Shaft ∅ h6 x length	Key R	Pinion	
			mm/rev.	Modul
120				
160	20 x 40	6x6x35	100,53	2
200	18 x 25	6x6x20	94,25	2

Basic length + stroke = total length

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

Sample ordering code:

DLZA160 with internal profile and cover bands, standard carriage, 1260 mm stroke.