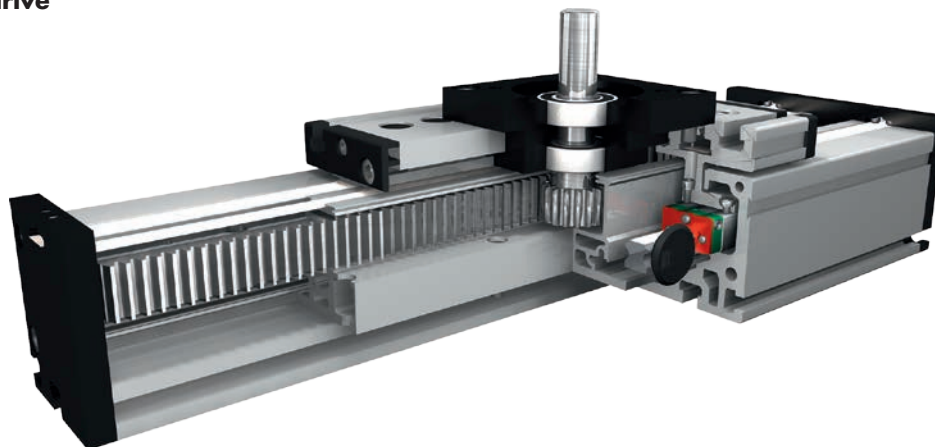


Positioning system DSZA 160, 200

Specifications

Rack and pinion drive



Function:

This unit consists of a rectangular aluminium profile with 2 integrated rail guides. The carriage is driven by a pinion on 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:

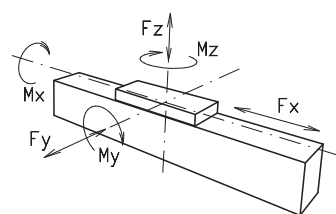
6h23 Modul 2 (hardened and ground), repeatability $\pm 0,1$ mm.

Carriage support:

In the standard version, the carriage runs on 4 runner blocks which can be serviced at a central servicing position. For longer carriages the number of runner blocks can be increased.

8.1

Forces and torques



Size	120		160		200		
	permitted dyn. Forces*	5000 km	10000 km	5000 km	10000 km	5000 km	10000 km
F_x (N)	894	800	1900	1800	4000	3800	
F_y (N)	1776	1405	2236	1775	5155	4092	
F_z (N)	2090	1650	5278	4189	11311	8977	
M_x (Nm)	81	64	282	224	752	597	
M_y (Nm)	97	77	283	225	813	646	
M_z (Nm)	96	76	300	238	862	684	
C (N)	2310		7800		22800		
All forces and torques related to the following:							
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 $\frac{F_y}{F_{y_{dyn}}} + \frac{F_z}{F_{z_{dyn}}} + \frac{M_x}{M_{x_{dyn}}} + \frac{M_y}{M_{y_{dyn}}} + \frac{M_z}{M_{z_{dyn}}} \leq 1$							
No-load torque							
Nm without cover bands	1,2		1,5		2,0		
Nm with cover bands	1,6		2,1		4		
Speed							
(m/s) max	5		5		5		
Tensile force							
permanent (N)	900		1900		4000		
0,2 s (N)	1000		2090		4300		
Geometrical moments of inertia of aluminium profile							
I_x mm ⁴	5,61x10 ⁵		2,13x10 ⁶		4,81 x10 ⁶		
I_y mm ⁴	34,19x10 ⁵		12,33x10 ⁶		26,0 x10 ⁶		
Elastic modulus N/mm ²	70000		70000		70000		

* referred to life-time

Formula: DSZA

Driving torque:

$$M_o = \frac{F \cdot p \cdot S_i}{2000 \cdot \pi} + M_{leer}$$

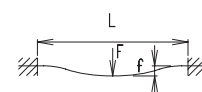
$$P_o = \frac{M_o \cdot n}{9550}$$

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_o = driving torque (Nm)
 P_o = motor power (KW)

Deflection:

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

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



Nominal lifetime:

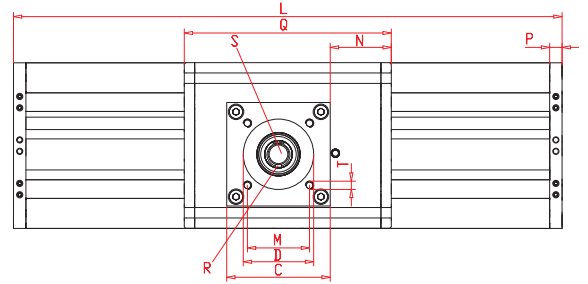
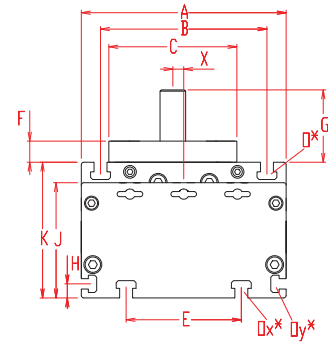
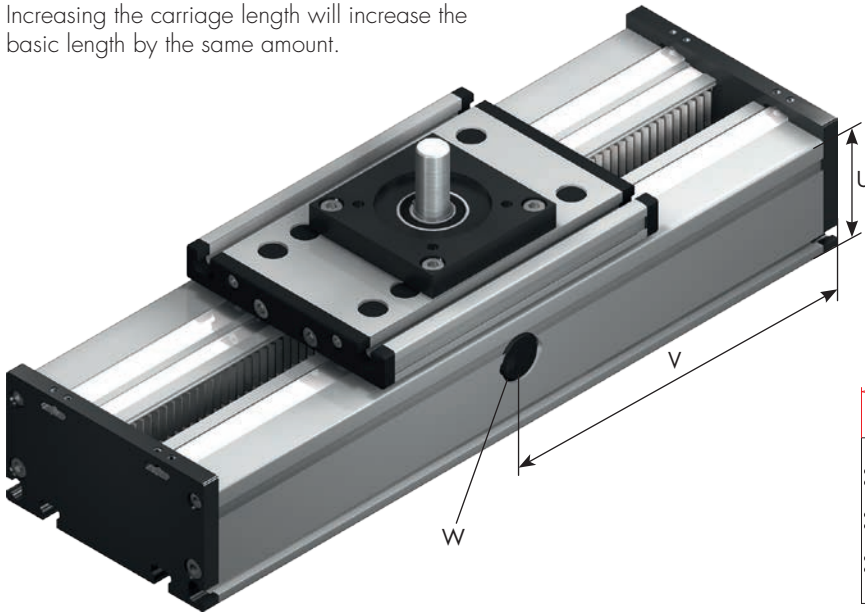
$$L = \left(\frac{C}{F} \right)^3 \times 10^5$$

L = Lifetime in meter
 C = Dynamic load factor (N)
 F = Middle load (N)

Positioning system DSZA 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

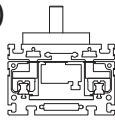
$V = Q + 100 \text{ mm}$

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
DSZA 160	250	160	130	100	68	90	16,5	56,5	11	90	106	60	62	M 8	M 8	M 6	12	224	M 8	80	8,5	9,4 kg	2,15 kg
DSZA 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	9	28,9 kg	7,10 kg

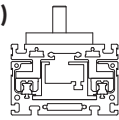
0 Choice of guide body profile:

(0)



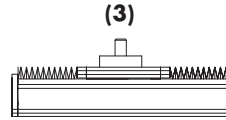
internal profile with cover bands

(1)



internal profile without cover bands

(3)

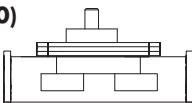


with bellows

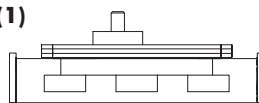
Stainless versions upon request.

0 Choice of carriage:

(0)



(1)



Size	Version 0		Version 1	
	Q	L	Q	L
160	224	250	360	390
200	270	320	320	360

1 Drive version:

1



2



3



4



5



Shaft dimensions:

Size	Shaft $\varnothing h6 \times \text{length}$	Key	Pinion	
	S	R	mm/U	Modul
160	20 x 40	6x6x35	100,53	2
200	18 x 26	6x6x20	94,25	2

DSZA 160 1 0 0 1 0 0 1 01500 — — Basic length + stroke = total length

Pos. 1 2 3 4 5 6 7

Sample ordering code:

DSZA 160 with internal profile and cover bands, standard carriage, 1250mm stroke.