Linear system **DSZA 160, 200**

RACK AND PINION DRIVE

- HIGH LOADS
- HIGH DYNAMICS
- LONG TRAVERSE PATH > 6000 mm
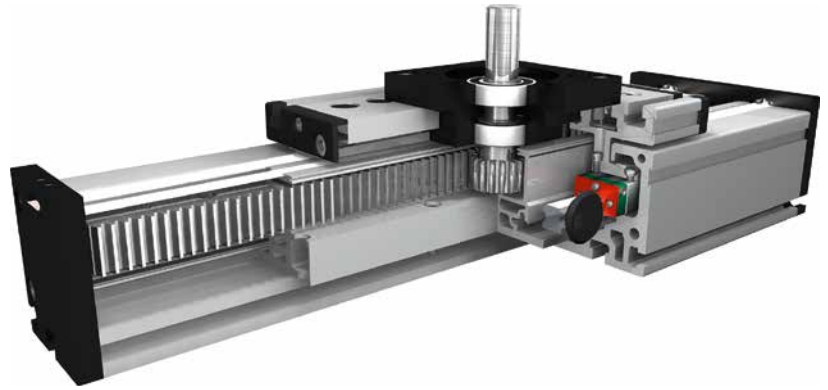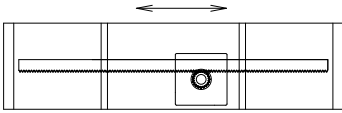- SPACE SAVING

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. With this series, multi-part assembled units with long strokes can be realized.

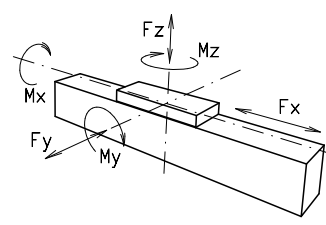|	
Fitting position:	As required. Max. length 6.000 mm without joints.
Carriage mounting:	By T-slots.
Unit mounting:	By T-slots and mounting sets. The linear axis can be combined with any T-slot profile.
Rack:	6h23 Modul 2 (hardened and ground), repeatability ± 0,1 mm.
Carriage support:	In the standard version, the carriage runs on 4 runner blocks which can be serviced at a central servicing position. For longer carriages the number of runner blocks can be increased.

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	5570	3900	15600	11080
F_z (N)	2090	1650	7050	5020	20600	14600
M_x (Nm)	81	64	358	255	1285	915
M_y (Nm)	97	77	369	262	1375	980
M_z (Nm)	96	76	364	258	1345	960

All forces and torques related to the following:

$$\frac{\text{existing values}}{\text{table values}} \quad \frac{F_y}{F_{y_{dyn}}} + \frac{F_z}{F_{z_{dyn}}} + \frac{M_x}{M_{x_{dyn}}} + \frac{M_y}{M_{y_{dyn}}} + \frac{M_z}{M_{z_{dyn}}} \leq 1$$

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	$5,61 \times 10^5$		$2,13 \times 10^6$		$4,81 \times 10^6$	
I_y mm^4	$34,19 \times 10^5$		$12,33 \times 10^6$		$26,0 \times 10^6$	
Elastic modulus N/mm^2	70000		70000		70000	

For life-time calculation use our homepage.

* *referred to life-time*

Driving torque:

$$M_a = \frac{F * P * S_i}{2000 * \pi} + M_n$$
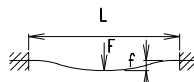
$$P_a = \frac{M_a * n}{9550}$$

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)

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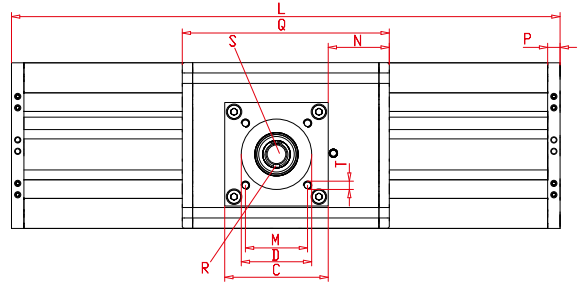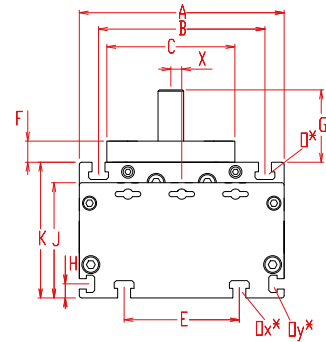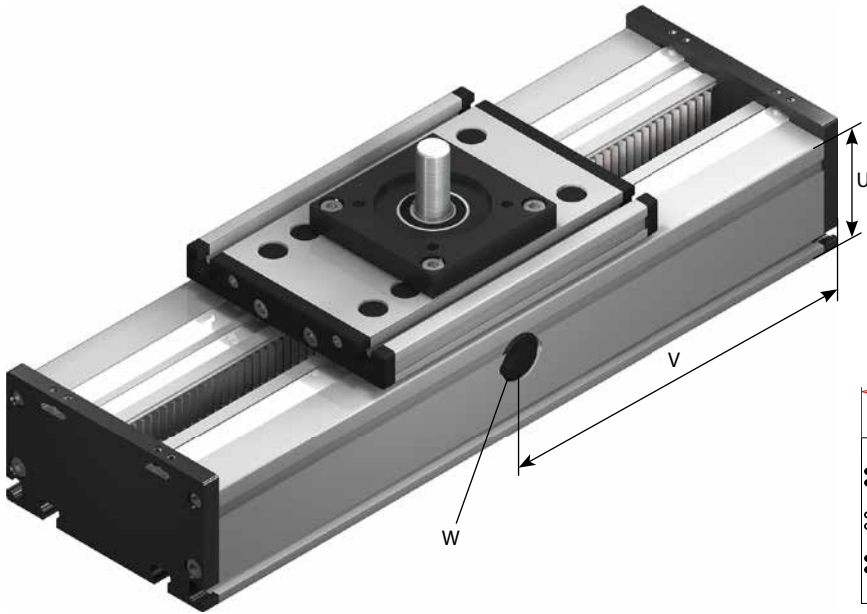
V = Q + 100 mm
W = servicing position

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	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:** Stainless versions upon request.

(0)

internal profile
with cover bands

(1)

internal profile
without cover bands
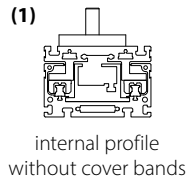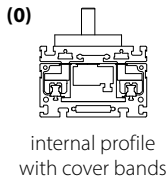
[0] **Choice of carriage:**

(0)

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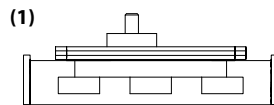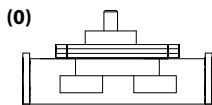
Size	Version 0		Version 1	
	Q	L	Q	L
160	224	250	360	390
200	270	320	320	360

[1] **Drive version:**
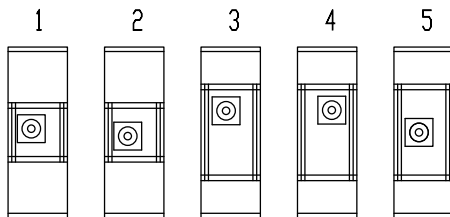
1   2   3   4   5

Shaft dimensions:

Size	Shaft ø h6 x 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	1500

Pos.   1   2   3   4   5   6   7

Basic length + stroke = total length

Sample ordering code:
DSZA 160 with internal profile and cover bands, standard carriage, 1250mm stroke.

IMI   **en 21.06.705.B**