

# Linear system **DLZS 120 P, 160 P, 200 P**



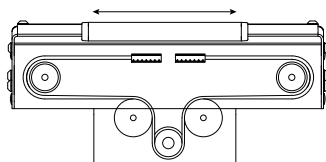
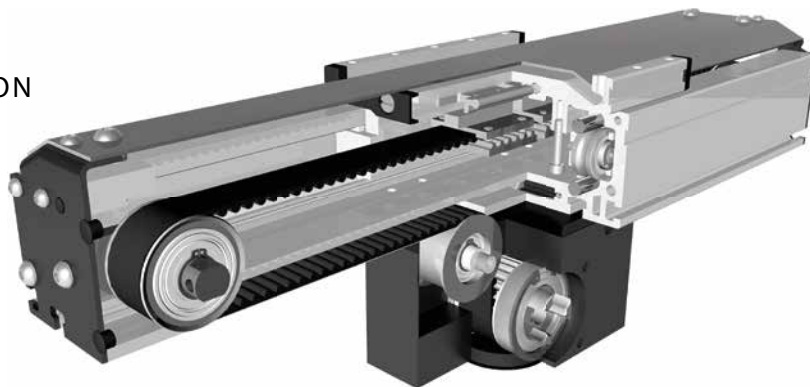
## BELT DRIVE

INDEPENDENT INSTALLATION POSITION

OMEGA SYSTEM

LIFTING SYSTEM

COVER PROFILE



**Function:**

The guide body consists of a rectangular aluminium profile two integrated roller guides. The carriage is moved by a belt drive. The novelty is that the timing belt is diverted into a drive block positioned centrally. This results in an extraordinary compactness with regard to the overall length of the system. The driving toothed pulley is provided with a coupling claw as a standard. The belt tension can be easily readjusted via a tensioning device within the bearing block. The openings in the guide body are closed by an aluminium profile, leaving only small slits open on the sides. The cover profile can be adjusted according to the mounting position.

**The advantages compared to the DLZS positioning system are:** The number of components prone to wear such as cover bands and sliding blocks is reduced and the fact that there is no friction makes it possible to use smaller motors. In addition, the cover profile, which is fixed with only a few screws, improves the serviceability and maintainability.

**Fitting position:** As required. Max. length DLZS 120P / 1600mm, DLZS 160P / 1800mm, DLZS 200P / 2000mm

**Carriage mounting:** By tapped holes.

**Unit mounting:** By T-slots and mounting sets. The linear axis can be combined with any T-slot profile.

**Belt type:** HTD with steel reinforcement, no backlash when changing direction, repeatability ± 0,1 mm.

**Carriage support:** In the standard version, the carriage runs on 8 rollers which can be 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	static	dynamic	static	dynamic.	static	dynamic.
$F_x$ (N)		894	800	1900	1800	4000	3800
$F_y$ (N)		1100	900	3000	2000	4400	3100
$F_z$ (N)		1250	1000	3500	2800	4900	4400
$M_x$ (Nm)		150	125	400	320	600	510
$M_y$ (Nm)		140	120	360	300	560	480
$M_z$ (Nm)		100	90	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 $\frac{F_y}{F_{y_{dyn}}} + \frac{F_z}{F_{z_{dyn}}} + \frac{M_x}{M_{x_{dyn}}} + \frac{M_y}{M_{y_{dyn}}} + \frac{M_z}{M_{z_{dyn}}} \leq 1$							
<b>No-load torque</b>							
Nm		1,2		1,5		1,8	
<b>Speed</b>							
(m/s) max		4		6		8	
<b>Geometrical moments of inertia of aluminium profile</b>							
$I_x$ mm <sup>4</sup>		6,6 x 10 <sup>5</sup>		22,2 x 10 <sup>5</sup>		57,2 x 10 <sup>5</sup>	
$I_y$ mm <sup>4</sup>		38,6 x 10 <sup>5</sup>		122 x 10 <sup>5</sup>		310 x 10 <sup>5</sup>	
Elastic modulus N/mm <sup>2</sup>		70.000		70.000		70.000	

For life-time calculation of rollers use our homepage.

Driving torque:

$$M_o = \frac{F \cdot P \cdot S_i}{2000 \cdot \pi} + M_n$$

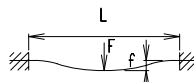
$$P_o = \frac{M_o \cdot n}{9550}$$

- F = force (N)
- P = pulley action perimeter (mm)
- S<sub>i</sub> = safety factor 1,2 ... 2
- M<sub>n</sub> = no-load torque (Nm)
- n = rpm pulley (min<sup>-1</sup>)
- M<sub>o</sub> = driving torque (Nm)
- P<sub>o</sub> = motor power (KW)

Deflection:

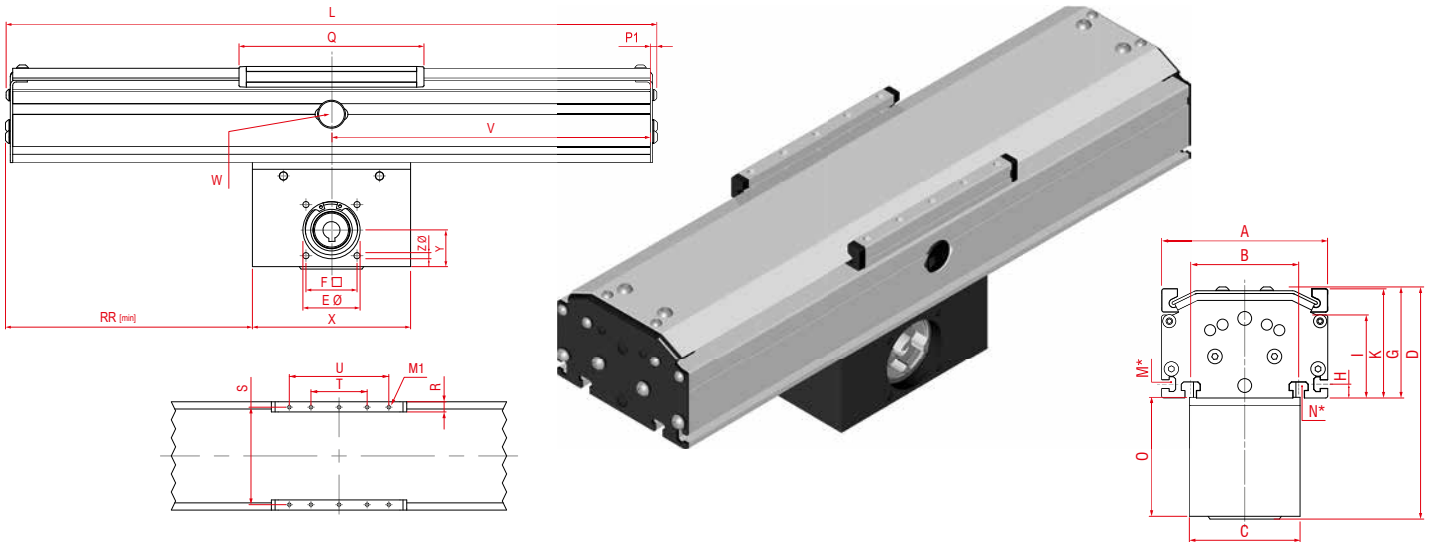
$$f = \frac{F \cdot L^3}{E \cdot I \cdot 192}$$

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



# Linear system DLZS 120 P, 160 P, 200 P

Dimensions (mm)



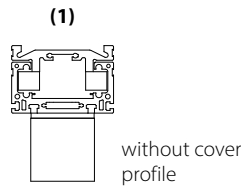
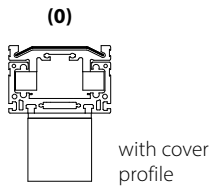
$V = Q + 100 \text{ mm}$

W = servicing position

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

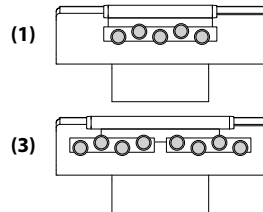
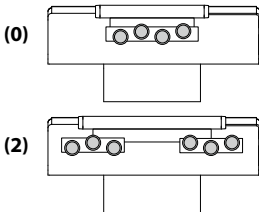
Size	A	B	C	D	E $\varnothing$	F $\square$	G	H	I	K	M for	N for	O	P1	P2	R	RR	S	T	U	X	Y	Z	Basic weight	Weight per 100 mm
DLZS 120 P	120	78	80	169	47	42	80,5	10	60	79	M5	M6	85,5	6	32	11,5	47,5	106	40	120	130	30	M6	5,5 kg	0,77 kg
DLZS 160 P	160	90	100	219	68	60	108,5	11	80	106	M6	M8	107	8,2	51,2	15	61,5	144	80	160	180	38	M8	14,1 kg	1,5 kg
DLZS 200 P	200	140	130	281	90	80	132,5	15	100	129	M8	M10	146	10	37,5	17	57,5	180	100	200	270	60	M10	30,2 kg	2,1 kg

**0** Choice of guide body profile: Stainless versions upon request.



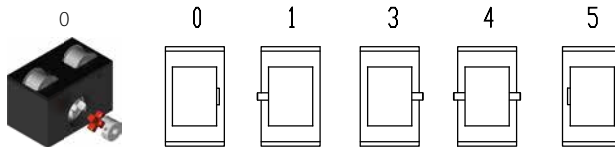
DL 120 M1 = M6 x 8  
only 8 threaded holes in the carriage  
DL 160 M1 = M8 x 12 DL 200 M1 = M10 x 12

**0** Choice of carriages:



Size	Version 0		Version 1	
	Q	L	Q	L
120	152	192	192	232
160	196	282	246	332
200	256	345	320	409
Size	Version 2		Version 3	
	Q	L	Q	L
120	232	272	---	---
160	296	382	396	482
200	396	485	521	610

**0** Drive version:



5 is as 0, but with coupling claws on both sides. The standard version is supplied without shaft. A shaft can be retrofitted by inserting it into the pulley bore and securing it with 2 locking rings or tension sets (size 200).

**Belt table:**

Code No.	Size	Belt	mm/rev.	Number of teeth
0 4	120	5M 25	130	26
0 7	160	8M 30	192	24
0 9	200	8M 50	256	32

**Shaft dimensions / Coupling claw:**

Size	Shaft $\varnothing$ h6 x length	Key	Coupling
120	14 x 35	5 x 5 x 28	14
160	18 x 45	6 x 6 x 40	19
200	22 x 45	6 x 6 x 40	24

**DLZS 120 P 1 0 0 0 0 4 1 1500**

Basic length + stroke = total length

Pos. 1 2 3 4 5 6 7

Sample ordering code:  
with cover profile, standard carriage, coupling claw on one side, 1308 mm stroke.

