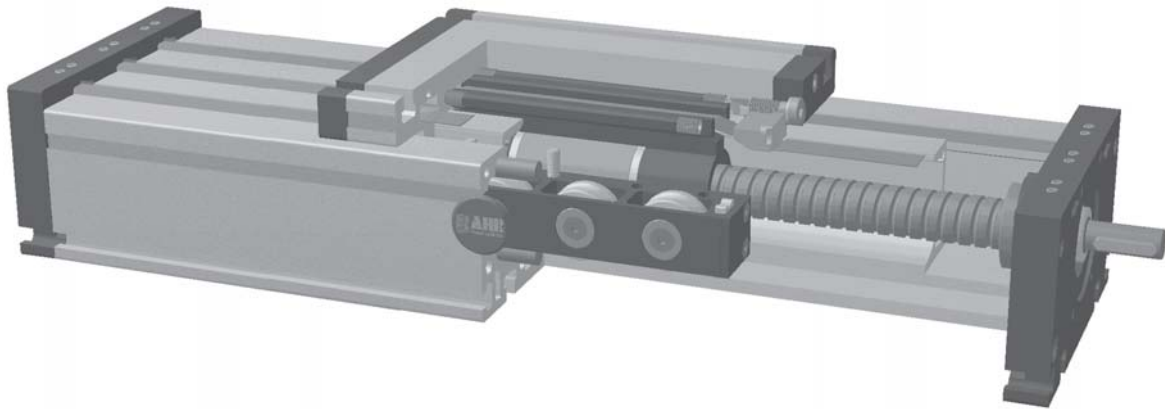


Positioning system DLT/DLK 120, 160, 200

Specifications

Spindle drives



Function:

This unit consists of a rectangular aluminium profile with 2 integrated roller guides. The carriage is driven by means of a rotating spindle with leading nut. Where two parallel linear units are used or where two carriages are mounted on one unit, the leading-nut receiver can be used to adjust the symmetry of the carriages. The openings of the guide body are sealed with 3 stainless steel cover bands to protect the drive from splash water and dust.

Fitting position:

As required. Max. length 3.000 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.

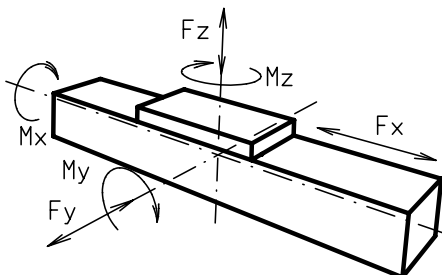
Carriage support:

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. Repeatability ballscrew $\pm 0,025$ mm, trapezoidal thread $\pm 0,2$ mm.

7.1



Forces and torques	Size	120		160		200	
	Forces/Torques	static	dynamic	static	dynamic	static	dynamic
F_x (N)		900	800	5000	4000	10000	8000
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
All forces and torques related to the following:							
existing values		$\frac{F_y}{F_{y_{dyn}}} + \frac{F_z}{F_{z_{dyn}}} + \frac{M_x}{M_{x_{dyn}}} + \frac{M_y}{M_{y_{dyn}}} + \frac{M_z}{M_{z_{dyn}}} \leq 1$					
values of table							
No-load torque							
Trapezoidal thread		18 x 4	18 x 8	24 x 5	24 x 10	32 x 6	32 x 12
(Nm)		0,6	0,9	0,6	0,9	0,9	1,1
Ballscrew		16 x 5	16 x 10	25 x 5	20 x 20	32 x 5	32 x 10
(Nm)		0,5	0,8	0,5	0,8	0,7	0,9
Geometrical moments of inertia of aluminium profile							
I_x mm ⁴		6,6x10 ⁵		22,2x10 ⁵		63,8x10 ⁵	
I_y mm ⁴		38,6x10 ⁵		122,0x10 ⁵		335,0x10 ⁵	
Elastic modulus N/mm ²		70000		70000		70000	



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

Formula: DLT/K

Driving torque:

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

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

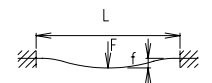
- F = force (N)
- P = thread pitch (mm)
- S = safety factor 1,2 ... 2
- M_{leer} = no-load torque (Nm)
- n = rpm of screw (min⁻¹)
- M_o = driving torque (Nm)
- μ = screw efficiency
- P_o = motor power (KW)

Efficiency of lead screws:

All ballscrew 0.900

- Tr 18x4 0,399
- Tr 18x8 0,565
- Tr 24x5 0,384
- Tr 24x10 0,550
- Tr 32x6 0,360
- Tr 32x12 0,524

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



- f = deflection (mm)
- F = load (N)
- L = free length (mm)
- E = elastic modulus 70000 (N/mm²)
- I = second moment of area (mm⁴)

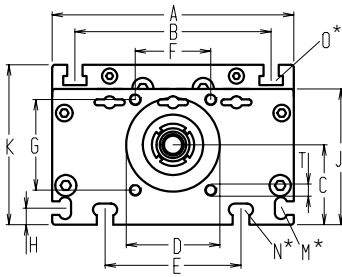
The diagram for critical speeds of lead screws refer to chapter 5.2 page 3

7.1 / 2

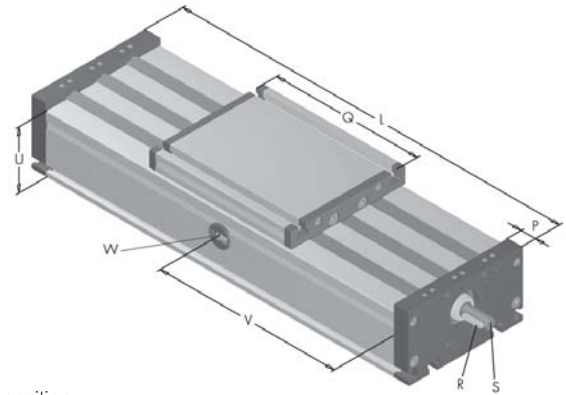


Positioning system DLT/DLK 120, 160, 200

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

Size □	Basic length L	A	B	C	D	E	F	G	H	J	K	M for	N for	O for	P	Q	Shaft		T	U	Basic weight	Weight per 100 mm
																	R Key	S $\varnothing \times \text{length}$				
DL 120	200	120	96	39	47	78	42	42	10	68	79	M 5	M 6	M 6	15	156	3x3x25	10 h6 x 27	M 6	60	3,9 kg	0,92 kg
DL 160	260	160	130	53	62	90	50	60	11	90	106	M 6	M 8	M 8	20	200	5x5x28	14 h6 x 35	M 8	80	8,2 kg	1,96 kg
DL 200	320	200	160	66	68	140	60	60	15	110	129	M 8	M10	M10	20	270	6x6x40	22 h6 x 45	M 8	100	19,6 kg	2,82 kg

Spindle:

T (T) Trapezoidal thread (K) Ballscrew

Selection of screw:

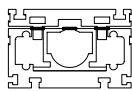
1 (1) right hand (2) left hand (Ballscrew by inquiry)

Choice of guide body profile:

0

(0)

(3)



internal profile with cover bands



with bellows

Stainless versions upon request.

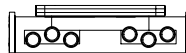
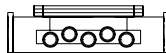
Choice of carriages:

0

(0)

(2)

(3)



Size	Version 0		Version 2		Version 3	
	Q	L	Q	L	Q	L
120	156	200	196	240	>236	>280
160	200	260	250	310	>300	>360
200	270	320	330	380	>410	>460

0

Choice of journal:

(0) one shaft (locating bearing side) (1) one shaft (non-locating bearing side) (2) shaft on both sides

Selection of screw:

Ballscrew right hand

Size

Standard

Multistart-screw

120

(0) 16x5

(1) 16x10 (2) 16x16 (3) 20x20 (4) 25x5 (5) 25x10

160

(0) 25x5

(1) 20x20 (2) 25x10 (3) 25x25

200

(0) 32x5

(1) 32x10 (2) 32x20 (3) 32x32

Ballscrew left hand

upon request

0

Trapezoidal right hand thread

120

(0) 18x4

(1) 18x8

160

(0) 24x5

(1) 24x10

200

(0) 32x6

(1) 32x12

Trapezoidal left hand thread

120

(0) 18x4

(1) 18x8

160

(0) 24x5

(1) 24x10

200

(0) 32x6

(1) 32x12

Ballscrew pitch accuracy:

(0) 0,1 mm / 300 mm (Standard) (1) 0,05 mm / 300 mm (2) 0,025 mm / 300 mm

End play of ball nut:

(0) 0,04 mm (Standard), (1)* < 0,02 mm, (2)* 2% apply prestress
* only in combination with pitch accuracy (1) or (2)

Repeatability:

± 0,2 mm Trapezoidal
± 0,025 mm Ballscrew

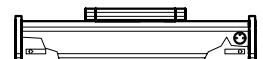
1500

Basic length + stroke = total length

DL T 160 1 0 0 0 0 0 0 0 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:

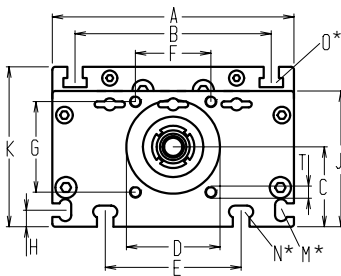
DLT160, trapezoidal right hand thread, with internal profile and cover bands, standard carriage, one shaft (locating bearing side), spindle 24x5, 1240 mm stroke.



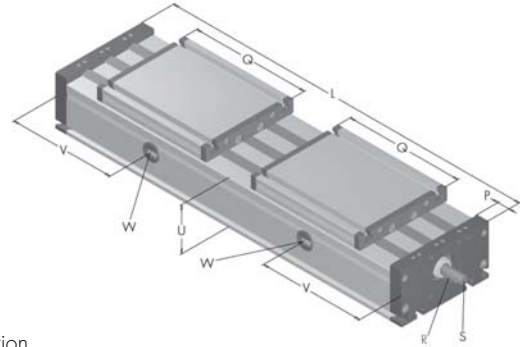
Positioning system DLT/DLK 120, 160, 200

Dimensions (mm)

with trapezoidal thread or ballscrew, right-hand and left-hand thread or divided spindles



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



*For slide-nuts refer to chapter 2.2 page 2 $V = Q + 100 \text{ mm}$ $W = \text{servicing position}$

Size □	Basic length L	A	B	C	D	E	F	G	H	J	K	M for	N for	O for	P	Q	Shaft		T	U	Basic weight	Weight per 100 mm
																	R Key	S $\varnothing \times \text{length}$				
DL 120	360	120	96	39	47	78	42	42	10	68	79	M 5	M 6	M 6	15	156	3x3x25	10 h6 x 27	M 6	60	5,1 kg	0,92 kg
DL 160	470	160	130	53	62	90	50	60	11	90	106	M 6	M 8	M 8	20	200	5x5x28	14 h6 x 35	M 8	80	12,0 kg	1,96 kg
DL 200	600	200	160	66	68	140	60	60	15	110	129	M 8	M10	M10	20	270	6x6x40	22 h6 x 45	M 8	100	27,1 kg	2,82 kg

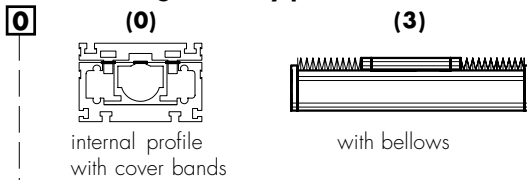
Spindle:

T (T) Trapezoidal thread (K) Ballscrew

Selection of screw:

3 (3) right - left hand (4) divided spindle

Choice of guide body profile:



Stainless versions upon request.

Choice of carriages:



Size	Version 0		Version 2		Version 3	
	Q	L	Q	L	Q	L
120	156	360	196	440	>236	>530
160	200	470	250	570	>300	>670
200	270	600	330	720	>410	>880

Choice of journal:

0 (0) shaft right hand thread (1) shaft left hand thread (2) shaft on both sides

Selection of screw:

	Size	Standard	Multistart-screw
Ballscrew right hand	120	(0) 16x5	(1) 16x10* (2) 16x16* (3) 20x20* (4) 25x5* (5) 25x10*
	160	(0) 25x5	(1) 20x20* (2) 25x10* (3) 25x25*
	200	(0) 32x5	(1) 32x10* (2) 32x20* (3) 32x32*
Ballscrew left hand	upon request		

	Size	(0)	(1)
Trapezoidal right hand thread	120	(0) 18x4	(1) 18x8
	160	(0) 24x5	(1) 24x10
	200	(0) 32x6	(1) 32x12
Trapezoidal left hand thread	120	(0) 18x4	(1) 18x8
	160	(0) 24x5	(1) 24x10
	200	(0) 32x6	(1) 32x12

* = only for selection of divided spindle

Ballscrew pitch accuracy:

0 (0) 0,1 mm / 300 mm (Standard) (1) 0,05 mm / 300 mm (2) 0,025 mm / 300 mm

End play of ball nut:

0 (0) 0,04 mm (Standard), (1)* < 0,02 mm, (2)* 2% apply prestress
* only in combination with pitch accuracy (1) or (2)

Repeatability:

± 0,2 mm Trapezoidal
± 0,025 mm Ballscrew

1500 Basic length + stroke = total length

DL T 160 3 0 0 0 0 0 0 0 0 1500

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:

DLT160, trapezoidal right - left hand thread, with internal profile and cover bands, standard carriage, shaft on the right hand side, spindle 24x5, 1030 mm stroke