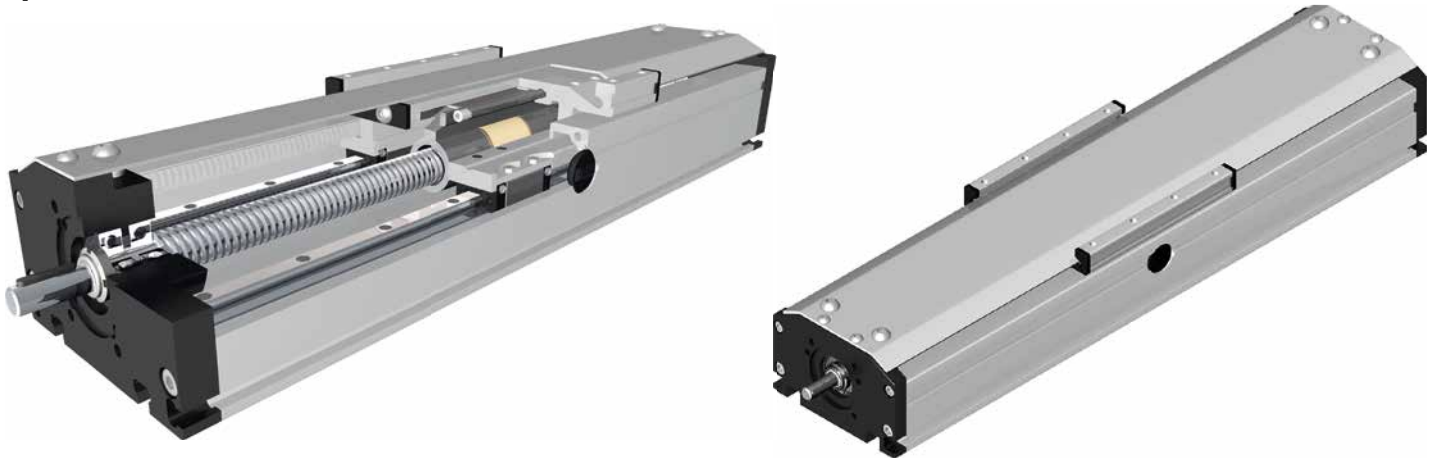


Spindle drives



Function:

This unit consists of a rectangular aluminium profile with 2 integrated rail 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. A special curved aluminium sheet is covering the carriage side. There is only a small gap between carriage and aluminium sheet. The cover profile can be adjusted according to the mounting position.

Fitting position:

As required, max. length DST/K 120P / 1600mm, DST/K 160P / 1800mm, DST/K 200P / 2000mm

Carriage mounting:

By tapped holes.

Unit mounting:

T-slots

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.
Repeatability: Ballscrew ± 0,025 mm, trapezoidal thread ± 0,2 mm.

9.1

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)	900	800	5000	4000	10000	8000	
	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: 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							
No-load torque								
Trapezoidal thread	18 x 4	18 x 8	24 x 5	24 x 10	32 x 6	32 x 12	--	--
(Nm)	0,8	1,1	1,0	1,3	1,5	1,7	--	--
Ballscrew	16 x 5	16 x 10	25 x 5	20 x 20	32 x 5	32 x 10	32 x 20	32 x 32
(Nm)	0,7	1,0	1,0	1,2	1,3	1,6	1,7	1,7
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			

For life-time calculation use our homepage.

* referred to life-time

Driving torque:

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

- F = force (N)
- P = thread pitch (mm)
- S_i = safety factor 1,2 ... 2
- M_n = no-load torque (Nm)
- n = rpm of screw (min⁻¹)
- M_a = driving torque (Nm)
- μ = screw efficiency
- P_a = motor power (KW)

Efficiency of lead screws:

- All ballscrew 0,900
- Tr 24x5 0,384
- Tr 24x10 0,550
- Tr 32x6 0,360
- Tr 32x12 0,524

Deflection:

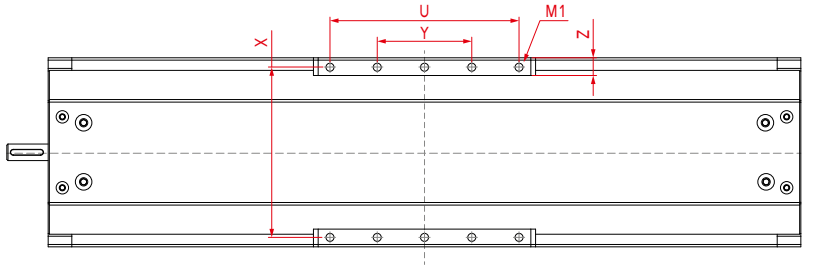
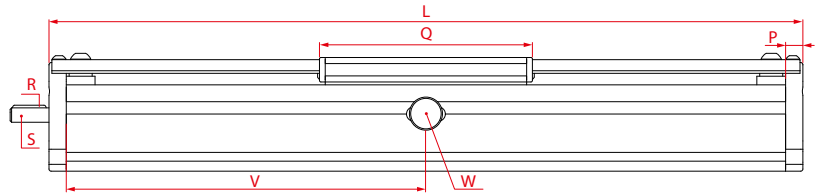
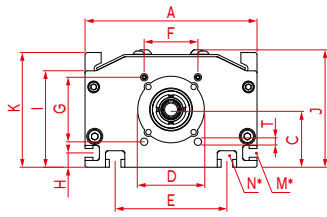
$$f = \frac{F \cdot L^3}{E \cdot I \cdot 192}$$

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

For the diagram for critical speeds of lead screws refer to catalog - chapter 4.2

Positioning system DST/DSK 120 P, 160 P, 200 P

Dimensions (mm)



*For slide nuts refer to chapter 2.2 page 2
Increasing the carriage length will increase the basic length by the same amount.

DS 120 M1 = M6 x 8 only 8 threaded holes in the carriage

DS 160 M1 = M8 x 12 **DS 200** M1 = M10 x 12

V = Q + 100 mm

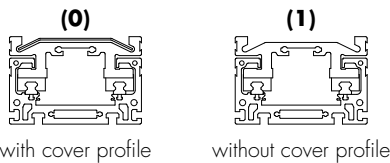
W = servicing position

Size	Basic length L	A	C	D +0,1 +0,05	E	F	G	H	I	J	K	M for	N for	P	Q	Shaft		T	U	X	Y	Z	Basic weight	Weight per 100 mm
																R Key	S Ø h6 x length							
DS 120	225	120	39	47	78	42	42	10	67	82	79	M5	M6	12	152	3x3x25	10 x 27	M6	120	106	40	11,5	3,67 kg	1,05 kg
DS 160	285	160	53	62	90	50	60	11	89	109	106	M6	M8	20	196	5x5x28	14 x 35	M8	160	144	80	15	9,45 kg	2,71 kg
DS 200	340	200	66	68	140	60	60	15	100	133	129	M8	M10	20	256	6x6x40	22 x 45	M8	200	180	100	17	17,43 kg	3,43 kg

T Spindle: **(T)** Trapezoidal thread **(K)** Ballscrew

1 Selection of screw: **(1)** right hand (Standard) **(2)** left hand (Ballscrew by inquiry)

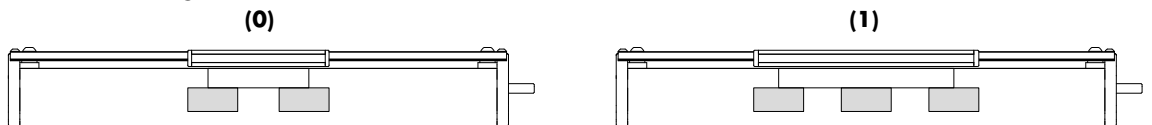
0 Choice of guide body profile:



Stainless versions upon request.

Size	Version 1	
	Q	L
120	>152	>225
160	>228	>315
200	>296	>384

0 Choice of carriages:



0 Drive version:

(0) one shaft (locating bearing side) **(1)** one shaft (non-locating bearing side) **(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	
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

* by inquiry

0 Ballscrew pitch accuracy:

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

0 End play of ball nut:

(0) 0,04 mm (Standard) **(1)** < 0,02 mm **(2)** 2% apply prestress

DS T 160 P 1 0 0 0 0 0 0 0 0 1500 — **1500** Basic length + stroke = total length

Pos. 1 2 3 4 5 6 7

Sample ordering code:

DST 160 P, trapezoidal right hand thread, with cover profile, standard carriage, one shaft (locating bearing side), spindle 24x5, 1215 mm stroke.