

Positioning system HDT/K 16

Function:

Combined lifting/rotating unit, in which a rotating motion of the leading nut is transferred into a linear movement.

A splined shaft is mounted parallel to the spindle and serves in a double function both as a guide and as a transfer element for a rotating motion of a gripper or tool that is mounted on the pivot of the splined shaft.

Fitting position:

As required. Max. length size HD 16 = 600 mm

Unit mounting:

By bores, mounting sets.



Forces and torques	Size	HDT/K		
	Forces / Torques	static	dynam.	
	F _x (N)	150	90	
	F _y (N)	150	90	
	F _z (N)	260	180	
	M _x (Nm)	90	70	
	M _y (Nm)	90	70	
	M _z (Nm)	110	48	
	All forces and torques relate 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		18x4	18x8	
(Nm)		0,60	0,80	
Ballscrew		16 x 5	16 x 10	16 x 16
(Nm)		0,40	0,6	0,7

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Driving torque:

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

$$P_a = \frac{M_a \cdot n}{9550}$$

- 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
- w = friction coefficient ~1,22
- P_a = motor power (KW)

Efficiency of lead screws:

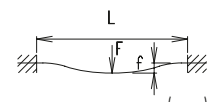
All ballscrew 0,900

Tr 18x4 0,399 Tr 18x8 0,565

Deflection:

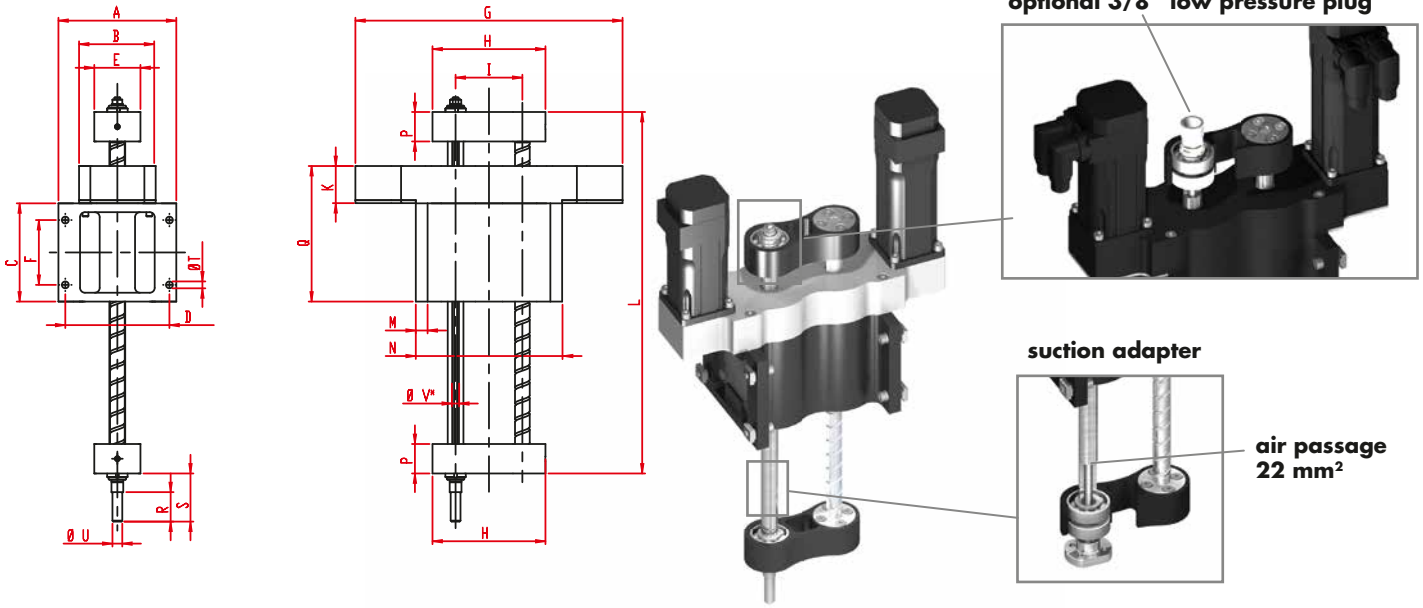
$$f = \frac{F \cdot L^3}{E \cdot I \cdot 192}$$

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



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Dimensions (mm)



Size □	Basic length L	A	B	C	D	E	F	G	H	I	K	M	N	P	Q	R	S	T ∅	U ∅ h6	V** ∅	Basic weight	Weight per 100 mm
HD 16	210	120	78	100	106	47	66	272	115	68	37,8	12	149	30	138	30	49	7	10	8	6,48 kg	0,25 kg

** Hollow shaft diameter

K Spindle:
(T) trapezoidal thread (K) ballscrew

1 Selection of screw:
(1) right hand (2) left hand

0 Choice of guide body profile:
(0) standard (1) corrosion-protected screws

0 Selection of screw:	Size	Standard	Multistart screw	Standard	Multistart screw
	16	(0) Tr 18x4	(1) Tr 18x8	(0) Kg 16x5	(1) Kg 16x10 (2) Kg 16x16

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

380 Basic length + stroke = total length

Repeatability:
± 0,2 mm trapezoidal
± 0,025 mm ballscrew

HDK	16	1	0	0	0	0	0	0	00380
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Pos. 1 2 3 4 5 6 7

Sample ordering code:
HDK16, ballscrew right hand thread, standard body profile, spindle 16x5, 180 mm stroke

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