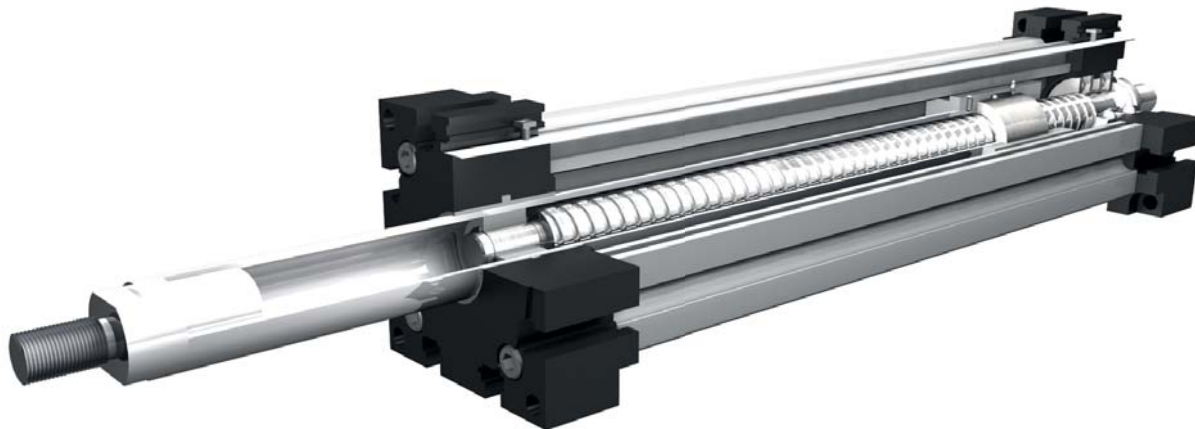


# Positioning system EHT/EHK 40, 60, 80, 100, 125

## Spindle driven with trapezoidal or ballscrew spindle



**Function:**

The rotary movement of the spindle is translated into a linear movement. The result is a telescopic movement.

**Fitting position:** As required. Max. length size 40 = 500 mm, size 60 = 1000 mm, size 80 and 100 = 1500 mm

**Unit mounting:** By T-slots.

Forces and torques	Size	EH 40		EH 60		EH 80		EH 100		EH 125	
	Forces / Torques	static	dynam.	static	dynam.	static	dynam.	static	dynam.	static	dynam.
	F <sub>x</sub> (N)	800	550	1800	1200	2600	1500	3100	1900	6310	5050
	F <sub>y</sub> (N)	50	27	130	80	210	140	300	175	640	400
	F <sub>z</sub> (N)	50	27	130	80	210	140	300	175	640	400
	M <sub>x</sub> (Nm)	12	8	20	11	27	16	34	20	43	25
	M <sub>y</sub> (Nm)	25	13	95	60	190	110	290	180	738	600
	M <sub>z</sub> (Nm)	25	13	95	60	190	110	290	180	738	600
<b>All forces and torques relate 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>											
Trapezoidal thread		10 x 3	18 x 4	18 x 8	24x5	24x10	32x6	32x12	40x7/40x14		
(Nm)		0,30	0,40	0,50	0,60	0,80	0,80	1,00	1,20/1,40		
Ballscrew		12 x 5	12x10	16 x 5	16 x 10	20 x 5	32x5	32x10	40x10/40x20		
(Nm)		0,20	0,40	0,20	0,40	0,40	0,60	0,80	1,00/1,20		
<b>Geometrical moments of inertia of aluminium profile</b>											
I <sub>y</sub> mm <sup>4</sup>		1,32x10 <sup>5</sup>	6,79x10 <sup>5</sup>	18,99x10 <sup>5</sup>	44,4x10 <sup>5</sup>	101,5x10 <sup>5</sup>					
I <sub>z</sub> mm <sup>4</sup>		1,34x10 <sup>5</sup>	6,97x10 <sup>5</sup>	18,97x10 <sup>5</sup>	44,8x10 <sup>5</sup>	101,5x10 <sup>5</sup>					
E-modulus N/mm <sup>2</sup>		70000	70000	70000	70000	70000					

**Formula: EHT/K**

Driving torque:

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

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

- F = force (N)
- P = thread pitch (mm)
- S<sub>f</sub> = safety factor 1,2 ... 2
- M<sub>leer</sub> = no-load torque (Nm)
- n = rpm of screw (min<sup>-1</sup>)
- M<sub>o</sub> = driving torque (Nm)
- μ = screw efficiency
- w = friction coefficient (~ 1,22)
- P<sub>o</sub> = motor power (KW)

Efficiency of lead screws:

- All ballscrew 0.900
- Tr 10x3 0,375
- Tr 18x4 0,399
- Tr 24x5 0,384
- Tr 32x6 0,360
- Tr 40x7 0,344
- Tr 18x8 0,565
- Tr 24x10 0,550
- Tr 32x12 0,524
- Tr 40x14 0,509

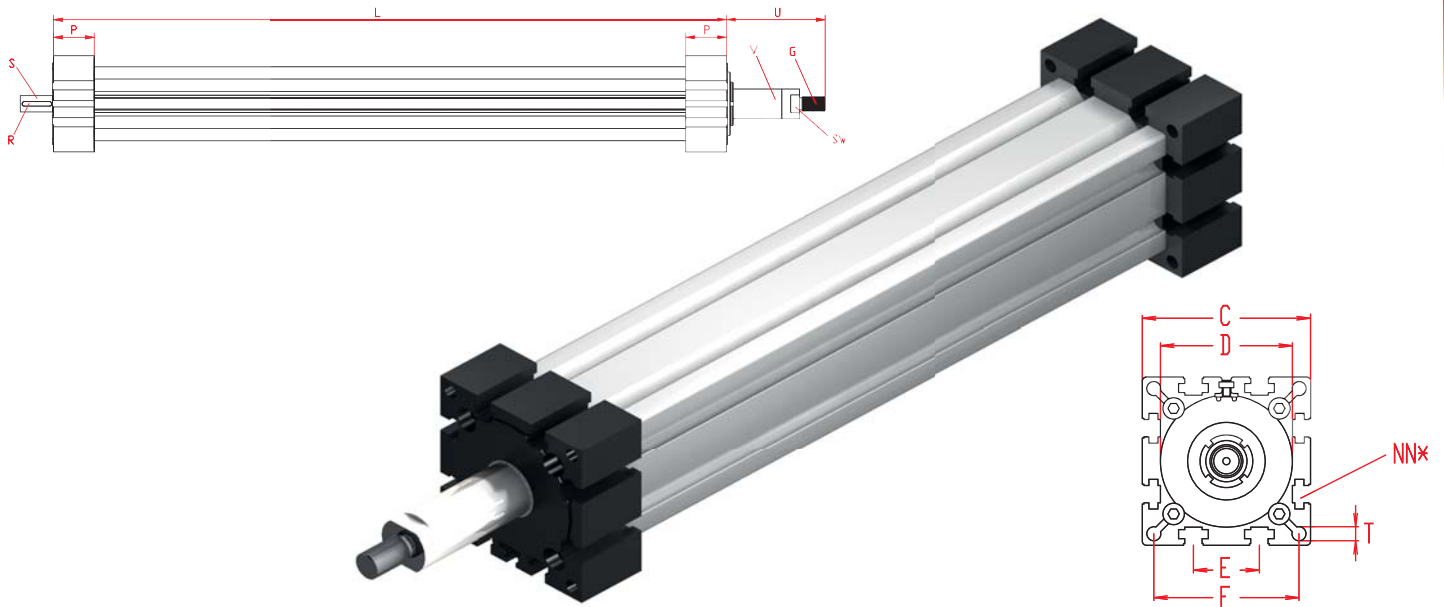
$$f = \frac{F \cdot L^3}{E \cdot I \cdot 192}$$

- 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>)

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

# Positioning system EHT/EHK 40, 60, 80, 100, 125

Dimensions (mm)



\*For slide nuts refer to chapter 2.2 page 2

Size □	Basic length L	C	D	E	F	G Ø x length	NN for	P	R	S Ø x length	SW	T	U	V Ø	Basic weight	Weight per 100 mm
EH 40	125	58	48x1	18	47	M 12 x 1,25 x 24	M 6	25	2x2x22	6x27	17	6,5	54	20		
EH 60	170	82	62x1	30	69	M 16 x 1,5 x 32	M 8	35	3x3x25	10x27	27	8,5	77	30		
EH 80	180	102	80x1	40	88	M 20 x 1,5 x 40	M 10	45	5x5x28	14x35	30	8,5	100	40		
EH 100	250	130	110x1	50	112	M 30 x 2 x 45	M 10	55	6x6x40	22x45	46	10,5	105	50	6,5 kg	2,10 kg
EH 125	323	165	130x2	60	142	M 36 x 2 x 45	M 12	65	8x7x50	25x55	50	13	65	60	18,2 kg	3,20 kg

**[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)** stainless screws

Size	Standard		Multistart screw	
	trapezoidal thread	ballscrew	trapezoidal thread	ballscrew
40	<b>(0)</b> Tr 10x3	<b>(0)</b> Kg 12x5	<b>(1)</b> Tr 18x8	<b>(1)</b> Kg 12x10
60	<b>(0)</b> Tr 18x4	<b>(0)</b> Kg 16x5	<b>(1)</b> Tr 24x10	<b>(1)</b> Kg 16x10
80	<b>(0)</b> Tr 24x5	<b>(0)</b> Kg 20x5	<b>(1)</b> Tr 32x12	<b>(1)</b> Kg 32x10
100	<b>(0)</b> Tr 32x6	<b>(0)</b> Kg 32x5	<b>(1)</b> Tr 40x14	<b>(1)</b> Kg 40x20
125	<b>(0)</b> Tr 40x7	<b>(0)</b> Kg 40x10		

**[0]** Ballscrew pitch accuracy:  
**(0)** 0,1 mm / 300 mm (Standard) **(1)** 0,05 mm / 300 mm **(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  
\* only in combination with **pitch accuracy (1) or (2)**

**[680]** Basic length + stroke = total length

**Repeatability:**  
± 0,2 mm Trapezoidal  
± 0,025 mm Ballscrew

EH K 100 1 0 0 0 0 0 0 00680  
Pos. 1 2 3 4 5 6 7

For combination kits and connecting elements refer to chapter 2.2

Sample ordering code:  
Ehk100, ballscrew right hand thread, standard body profile, spindle 32x5, 430 mm stroke

