# Positioning system EGTH/EGKH 40, 60, 80



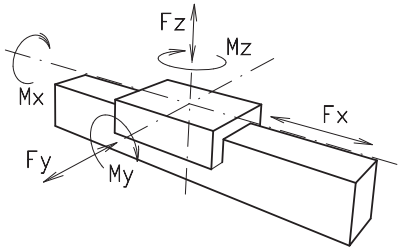


## Spindle driven with trapezoidal or ballscrew spindle

**Function:**
The rotary movement of the spindle is translated into a linear motion. Guiding profile and square tube are connected by a clamping block. The result is a telescopic movement.

**Fitting position:** As required. Max. length 3.000 mm
**Carriage mounting:** By T-slots and tapped holes
**Unit mounting:** By T-slots and tapped holes in the mounting surface.

**Forces and torques**




| Size | EG(T/K)H 40 | | EG(T/K)H 60 | | EG(T/K)H 80 | |
|---|---|---|---|---|---|---|
| **Forces / Torques** | static | dynamic | static | dynamic | static | dynamic |
| $F_x$ (N) | 1500 | 1200 | 2500 | 2000 | 4200 | 3500 |
| $F_y$ (N) | 350 | 315 | 500 | 450 | 1000 | 900 |
| $F_z$ (N) | 500 | 450 | 750 | 675 | 1125 | 1000 |
| $M_x$ (Nm) | 20 | 18 | 33 | 30 | 82 | 75 |
| $M_y$ (Nm) | 44 | 40 | 77 | 70 | 220 | 200 |
| $M_z$ (Nm) | 33 | 30 | 55 | 50 | 165 | 150 |
| **All forces and torques relate to the following:** | | | | | | |
| existing values / table values | $\frac{Fy}{Fy_{dyn}} + \frac{Fz}{Fz_{dyn}} + \frac{Mx}{Mx_{dyn}} + \frac{My}{My_{dyn}} + \frac{Mz}{Mz_{dyn}} \leq 1$ | | | | | |
| **No-load torque** | | | | | | |
| Trapezoidal thread | 18x4 | 18x8 | 24x5 | 24x10 | 28x5 | 28x10 |
| (Nm) | 0,70 | 0,70 | 0,50 | 0,80 | 0,80 | 1,0 |
| **Geometrical moments of inertia of aluminium profile** | | | | | | |
| $I_x$ mm$^4$ | 1,35x10$^5$ | | 5,65x10$^5$ | | 19,14x10$^5$ | |
| $I_y$ mm$^4$ | 1,48x10$^5$ | | 6,12x10$^5$ | | 20,12x10$^5$ | |
| E-modulus N/mm$^2$ | 70000 | | 70000 | | 70000 | |

**Formula: EGTH**

Driving torque:

$$M_a = \frac{F*P*S_i*w}{2000*\pi*\mu} + M_{leer}$$

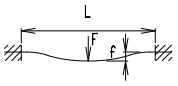
$$P_a = \frac{M_a*n}{9550}$$

| | | |
|---|---|---|
| F | = force | (N) |
| P | = thread pitch | (mm) |
| $S_i$ | = safety factor 1,2 ... 2 | |
| $M_{leer}$ | = 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 |
| Tr 24x5 | 0.384 | Tr 24x10 | 0.550 |
| Tr 28x5 | 0.349 | Tr 28x10 | 0.513 |

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




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

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

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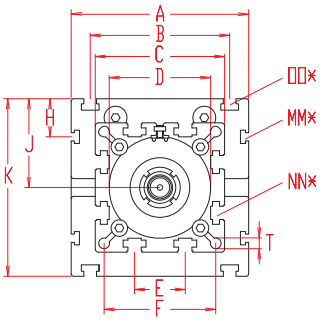
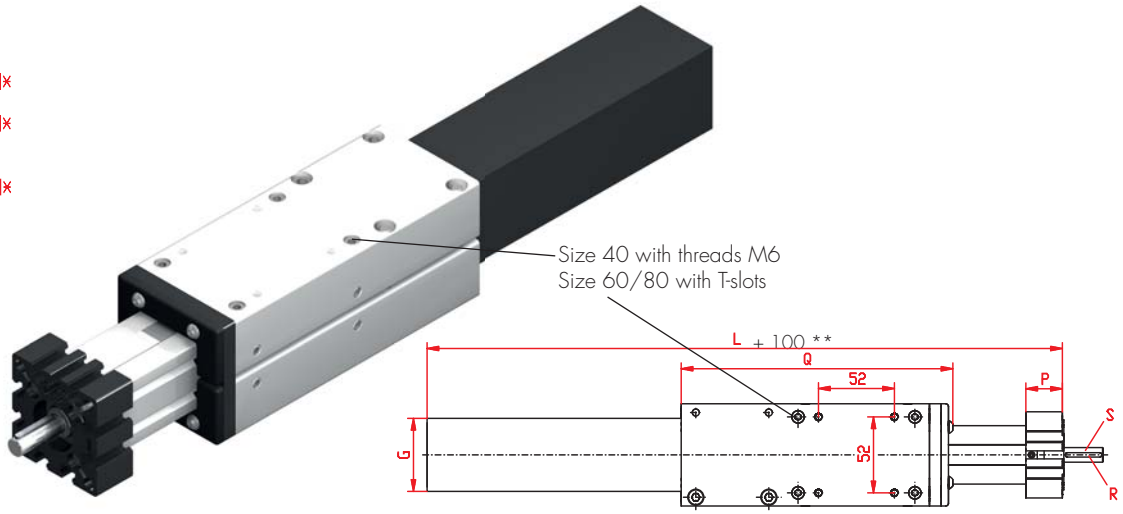
Dimensions (mm)






*For slide nuts refer to chapter 2.2 page 2

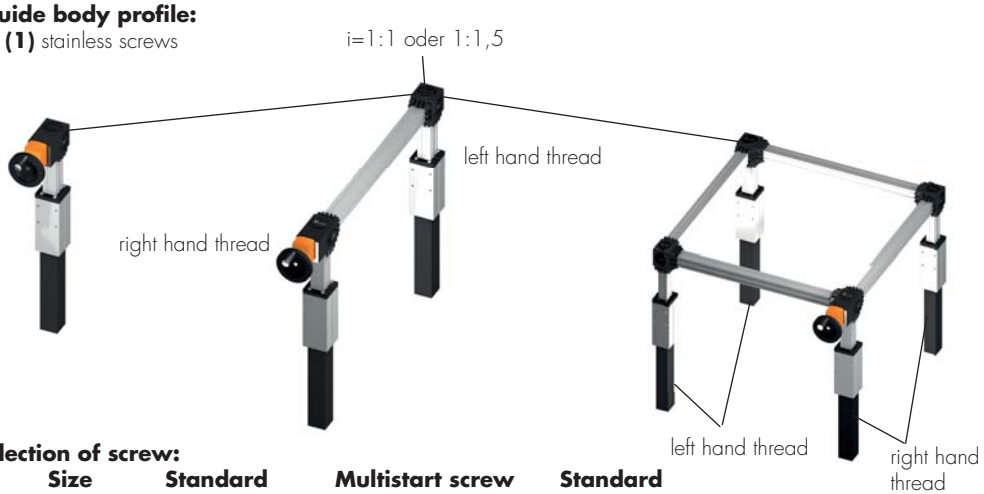
** The basic length (minimum length) of the unit (L+100) includes a stroke of 100mm

| Size ❒ | Basic length L +** | A | B | C | D | E | F | G | H | J | K | MM for | NN for | OO for | P | Q | R | S Ø x length | T | Basic weight | Weight per 100 mm |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **EG H**40 | 255 | 70 | - | 58 | 48x1 | 18 | 47 | 50 | - | 35 | 70 | - | M 6 | - | 25 | 190 | 3x3x25 | 10x27 | 6,5 | 3,0 kg | 0,44 kg |
| **EG H**60 | 345 | 100 | 80 | 82 | 62x1 | 30 | 69 | 70 | - | 49 | 98 | - | M 8 | M 8 | 35 | 250 | 5x5x28 | 14x35 | 8,5 | 7,0 kg | 0,71 kg |
| **EG H**80 | 390 | 140 | 110 | 102 | 80x1 | 40 | 88 | 90 | 30 | 70 | 140 | M 6 | M 10 | M 10 | 45 | 300 | 6x6x40 | 18x45 | 8,5 | 12,8 kg | 1,35 kg |

**T** **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




**0** **Selection of screw:**

| Size | Standard trapezoidal thread | Multistart screw trapezoidal thread | Standard ballscrew |
|---|---|---|---|
| 40 | **(0)** Tr 18x4 | **(1)** Tr 18x8 | **(0)** Kg 16x5 |
| 60 | **(0)** Tr 24x5 | **(1)** Tr 24x10 | **(0)** Kg 25x5 |
| 80 | **(0)** Tr 28x5 | **(1)** Tr 28x10 | **(0)** Kg 32x5 |

**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)**

**655** Basic length + stroke = total length

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

| EG | T | H | 40 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 00655 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Pos. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |

For combination kits and connecting elements refer to chapter 2.2

Sample ordering code:
EGTH40, trapezoidal right hand thread, standard body profile, 500 mm stroke