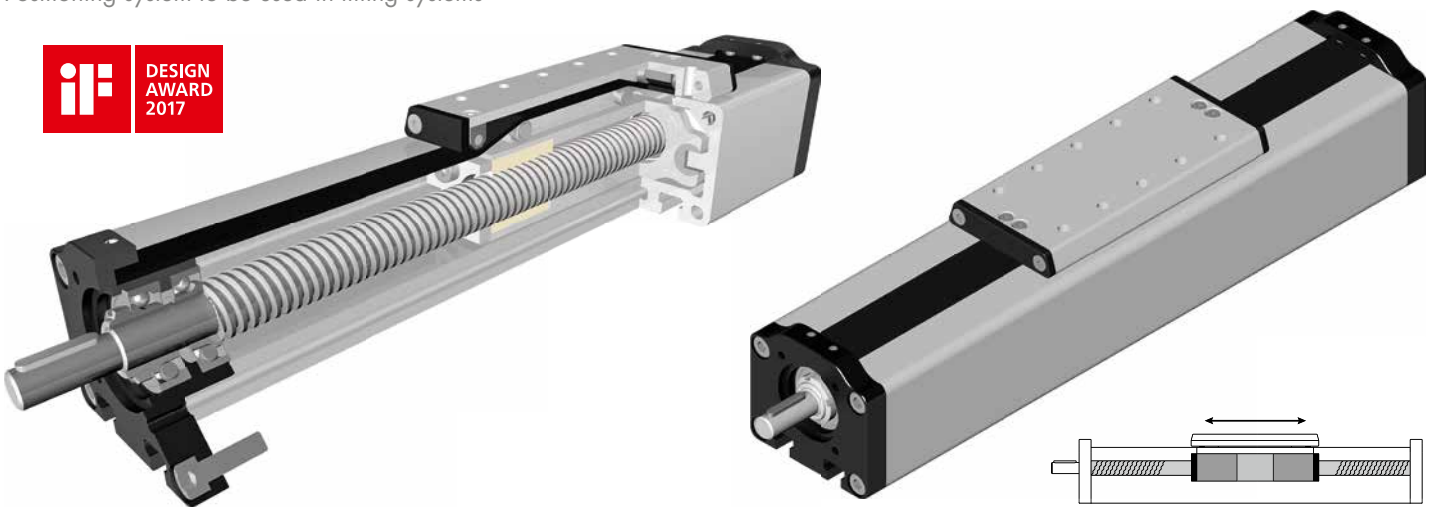
Slide with spindle drive

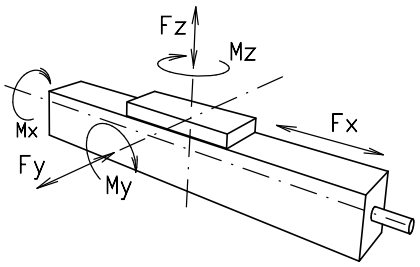
Positioning system to be used in lifting systems



Function:
Optimized spindle axis for wheelchair lifting systems, lifting platforms and other lifting applications. The guide body consists of an aluminium square profile with an integrated sliding guide. The plastic slide bushes integrated in the carriage ensure a very low friction resistance on anodized aluminium. The carriage is moved by means of a rotating thread spindle with an assigned follower nut. The opening in the guide body is closed by a plastic cover band. This plastic cover band is abrasion-free and is pressed into the profile by means of ball bearings.

Fitting position: As required. Max. length 3.000 mm
Carriage mounting: By tapped holes in the carriage.
Unit mounting: By T-slots or tapped holes in the bearing block and mounting sets.

Forces and torques



Size	GGT/K 90	
Forces / Torques	static	dynamic
F_x (N)	4200	3500
F_y (N)	1000	900
F_z (N)	1125	1000
M_x (Nm)	82	75
M_y (Nm)	220	200
M_z (Nm)	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	24x5	24x10
(Nm)	0,50	0,80
Ballscrew	25x5	25x10
(Nm)	0,40	0,60
Geometrical moments of inertia of aluminium profile		
I_x mm^4	11,05x10^5	
I_y mm^4	23,60x10^5	
Elastic-modulus N/mm^2	70000	

Driving torque:

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

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

F = force (N)
P = thread pitch (mm)
Si = 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)

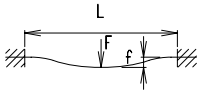
Efficiency of lead screws:

All ballscrew 0,900

Tr 24x5 0,384
Tr 24x10 0,550

Deflection:

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

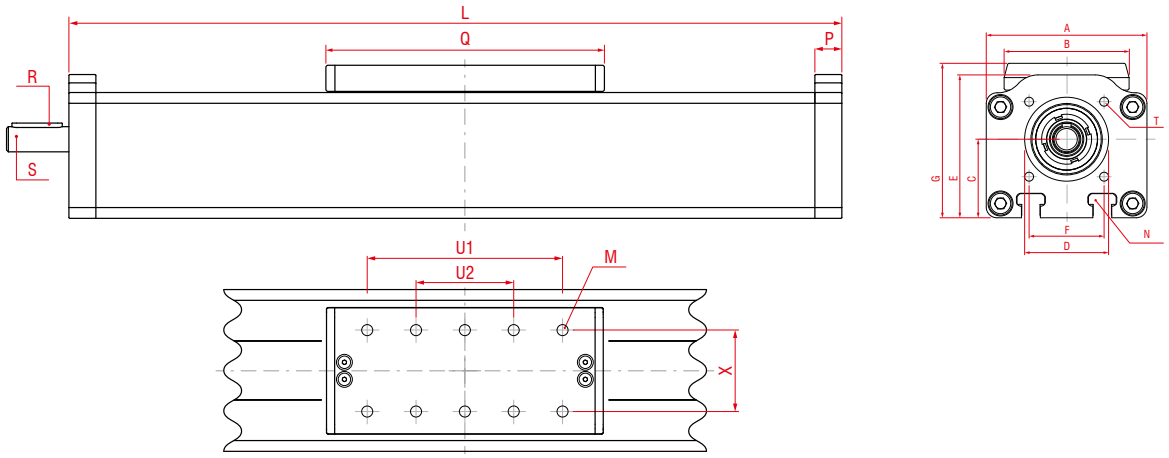


f = deflection (mm)
F = load (N)
L = free length (mm)
E = elastic modulus 70000 (N/mm²)
I = second moment of area (mm⁴)

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

Positioning system GGT / GGK 90

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.

Size	Basic length L	A	B	C	D -0,05	E	F ❐	G	M	N for	P	Q	Shaft R key	Shaft S Ø h6 x length	T for	U1	U2	X	Basic weight	Weight per 100 mm
GGT/K 90	242	90	78	44	47	80	42	87	M8	M8	15	170	5x5x28	14x35	M6	120	60	44	4,5 kg	1,134 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:**
(0) Standard **(1)** corrosion-protected screws
(4) expanded corrosion-protected version (depending on the availability of components)

0 **Choice of carriages:**

(0)

0 **Drive version:**
(0) right (locating bearing side) **(1)** left (non-locating bearing side) **(2)** shaft on both sides

0 **Selection of screw:** Tr = trapezoidal thread Kg = ballscrew

Size	Standard	Multistart screw	Standard	Multistart screw	
90	**(0)** Tr 24x5	**(1)** Tr 24x10	**(0)** Kg 25x5	**(1)** Kg 25x10	**(2)** Kg 25x25

0 **Ballscrew pitch accuracy:** *(only ballscrew)*
(0) 0,05 mm / 300 mm **(2)** 0,025 mm / 300 mm

0 **End play of ball nut:** *(only ballscrew)*
(0) 0,04 mm *(Standard)*, **(1)** < 0,02 mm, **(2)** 2% apply prestress

GG	T	90	1	0	0	0	0	0	0	1500
		Pos.	1	2	3	4	5	6	7	

Basic length + stroke = total length

Sample ordering code:
GGT 90, trapezoidal thread right hand thread, standard body profile, carriage version 0, drive version 0, spindle Tr 24x5, 1258 mm stroke