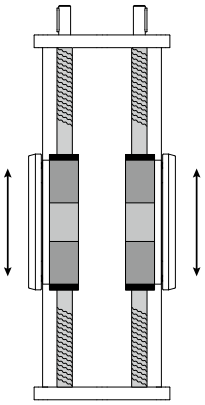
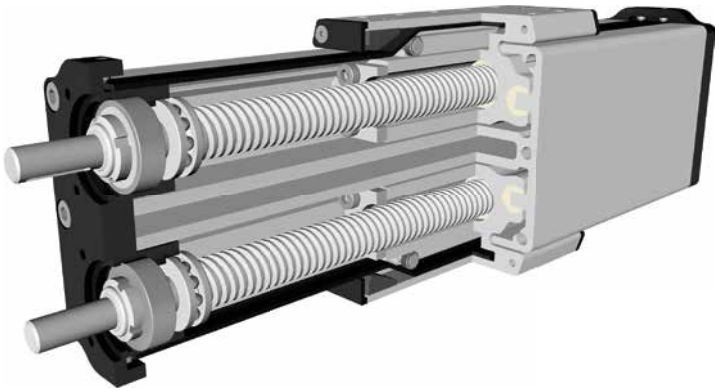
Linear system **GDGT/K 90**

TECHNICAL SUMMARY
REFERENCE ONLY

SPINDLE DRIVEN

- SLIDE UNIT
- LIFTING SYSTEM
- HIGH RIGIDITY
- EASY CLEANING
- SMOOTH SURFACES

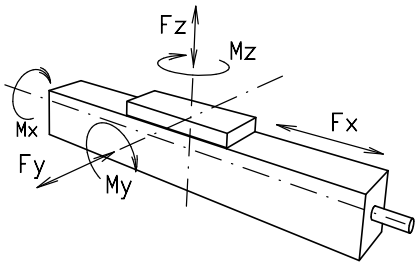




Function:
Optimized spindle axis for lift systems, bicycle assembly stands, lifting platforms and other lifting applications. The guide body consists of an aluminium profile with an integrated sliding guide. The plastic slide bushes integrated in the carriage ensure a very low friction resistance on anodized aluminium. The so-called double G profile ensures a very high stability. The carriage is moved by a rotating threaded spindle provided with a follower nut. The opening in the guide body is closed by a cover band made of plastic material. 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.

Forces and torques



Size	90	
Forces / Torques	statisch	dynamisch
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	4,1x10^6	
I_y mm^4	4,0x10^6	
Elastic-modulus N/mm^2	70000	

Driving torque:

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

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

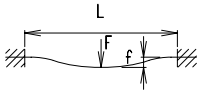
F	= force	(N)
P	= thread pitch	(mm)
Si	= safety factor 1,2 … 2	
M_n	= no-load torque	(Nm)
n	= rpm of screw	(min^{-1})
M_a	= driving torque	(Nm)
μ	= screw efficiency	
P_a	= motor power	(KW)

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/mm^2)
I = second moment of area	(mm^4)

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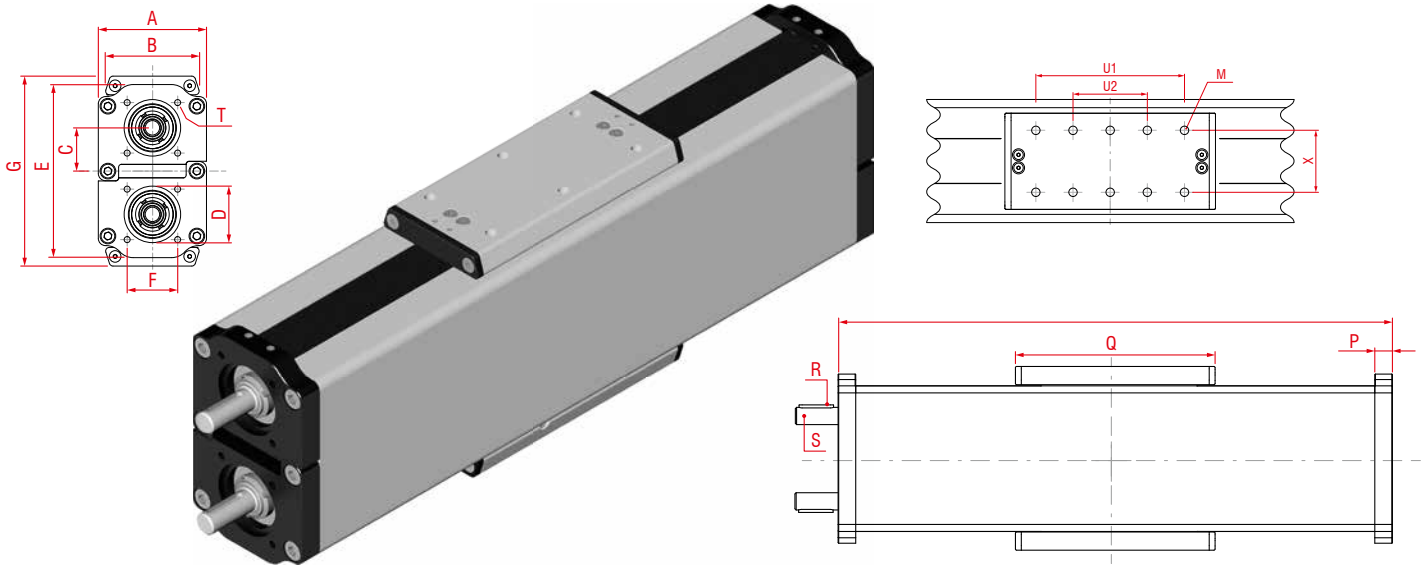


Increasing the carriage length will increase the basic length by the same amount.

Size	Basic length L	A	B	C	D -0,05	E	F ❐	G	M for	P1	P2	Q	Shaft R key	Shaft S Ø h6 x length	T for	U1	X	Basic weight	Weight per 100 mm
GDGT/K 90	242	90	78	36	47	144	42	158	M8	15	36	170	5x5x28	14x35	M6	120	50	7,8 kg	1,5 kg

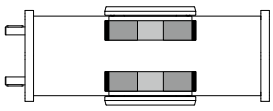
T **Spindle:**
(T) Trapezoidal thread **(K)** Ballscrew

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, only for trapezoidal thread (on request)

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:

Size	Standard	Multistart screw	Standard	Multistart screw	
				Tr = trapezoidal thread / Kg = ballscrew	
90	**(0)** Tr 24x5	**(1)** Tr 24x10	**(0)** Kg 25x5	**(1)** Kg 25x10	**(2)** Kg 20x20

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

GDG	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:
GDGT 90, trapezoidal thread right hand thread, carriage version 0, drive version 0, spindle Tr 24x5, 1258 mm stroke