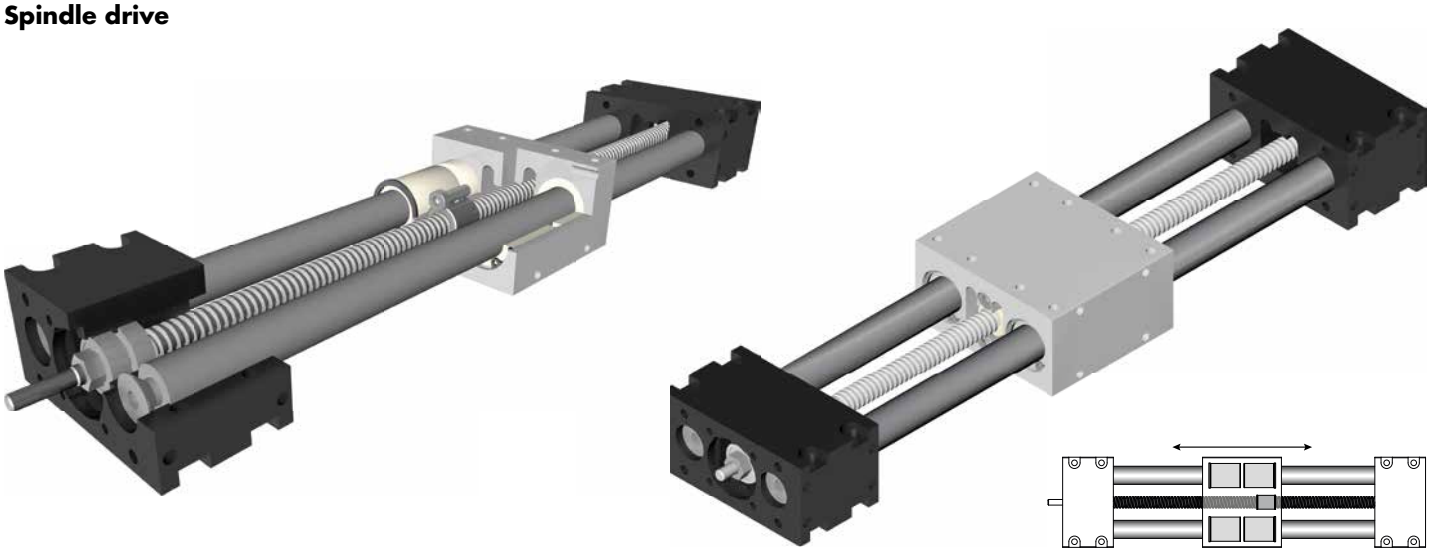
Positioning system WGT/K | WKT/K 16

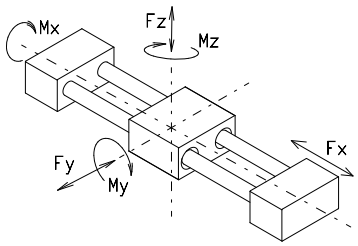
Spindle drive



Function:
This positioning system can be guided through either sliding bushings (WG) or ball bushings (WK). The carriage is moved by means of a rotating thread spindle with an assigned follower nut. Due to various threaded holes and a small installation height, this system can be integrated individually and easily into any application. Motors of any make can be connected by means of pivots. The open arrangement of the axes ensures that no dirt can accumulate in the interior parts. Optionally, the units are also available with two carriages, which can be driven in the same direction or in opposite directions.

Fitting position: As required. Max. length 2000 mm
Carriage mounting: By tapped holes in the carriage.
Unit mounting: By tapped holes in the bearing block.

Forces and torques



Size	WGT/K 16		WKT/K 16	
Forces / Torques	static	dynamic	static	dynamic
F_x (N)	750	600	750	600
F_y (N)	90	60	90	60
F_z (N)	90	60	90	60
M_x (Nm)	10	5	12	10
M_y (Nm)	13	6	12	10
M_z (Nm)	14	7	15	12
All forces and torques relate to the following:				
No-load torque				
Trapezoidal thread	10 x 3		10 x 3	
Nm	0,35		0,3	
Ballscrew	8 x 2,5		8 x 2,5	
Nm	0,20		0,15	
Geometrical moments of inertia of aluminium profile				
I_x mm⁴	0,6434 x 10^4		0,6434 x 10^4	
I_y mm⁴	2,38 x 10^5		2,38 x 10^5	
Elastic-modulus N/mm²	2,1 x 10^5		2,1 x 10^5	

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)

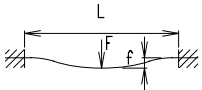
Efficiency of lead screws:

All ballscrew 0,900

Tr 10x3 0,375

Deflection:

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

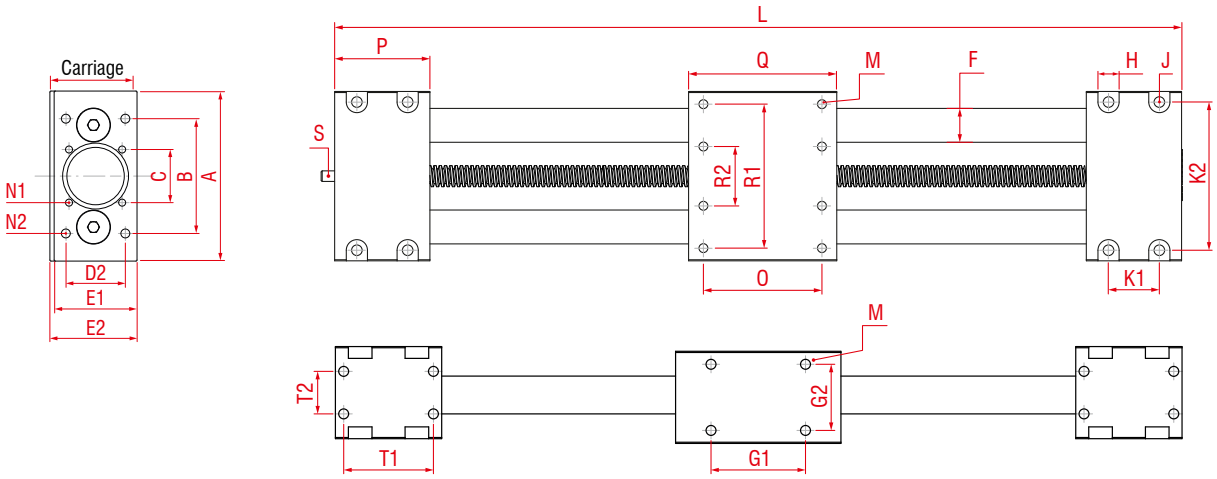


f	= deflection	(mm)
F	= load	(N)
L	= free length	(mm)
E	= elastic modulus 70000	(N/mm²)
I	= second moment of area	(mm⁴)

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

Positioning system WGT/K | WKT/K 16

Dimensions (mm)



Size	Basic length L	A	B	C □	D2	E1	E2	F ∅	H	J	K1	K2	N1	N2	M	O	P	Q	R1	R2	S	Basic weight	Weight per 100 mm
W 16	162	80	54	25	28	39	41	16	10	M6	24	70	M5	M4	M5	56	45	70	68	28	5	1,75 kg	0,37 kg

Size	G1	G2	T1	T2
W 16	40	28	38	18

K **Version:**
(G) Slide bushing **(K)** Ball bushing

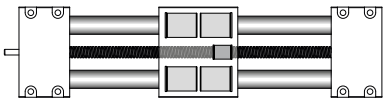
T **Spindle:**
(T) Trapezoidal thread **(K)** Ballscrew

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

0 **Choice of guide body profile:**
(0) Standard **(2)** 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 trapezoidal thread	Standard ballscrew
16	**(0)** Tr 10x3	**(0)** Kg 8x2,5

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

W	K	T	16	1	0	0	0	0	1	1	1500
			Pos.	1	2	3	4	5	6	7	

Basic length + stroke = total length

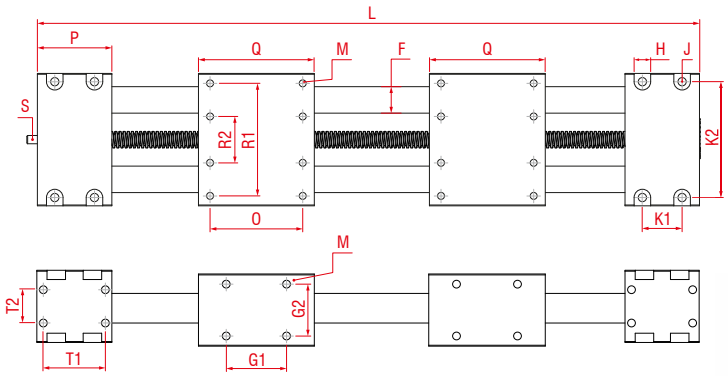
Sample ordering code:
WKT 16 with ball bushings, trapezoidal thread right hand thread, standard body profile, carriage version 0, drive version 0, spindle Tr 10x3, 1338 mm stroke

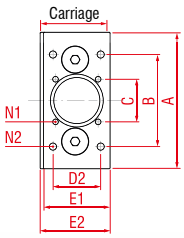
14.1

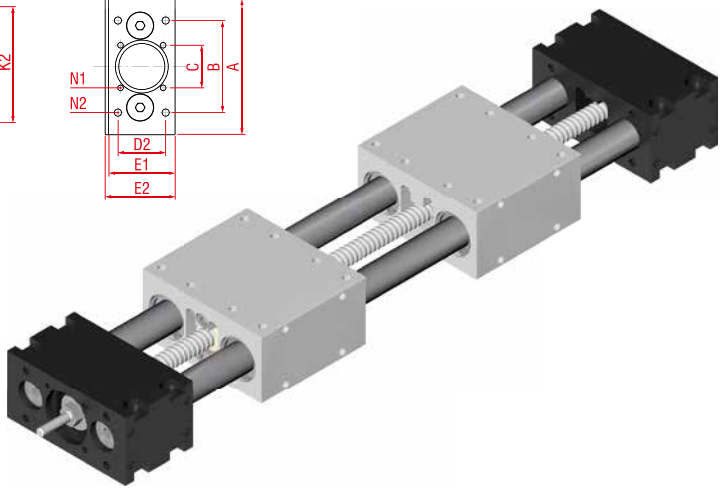
Positioning system WGT/K | WKT/K 16

Dimensions (mm)

Spindle drive | right-hand and left-hand thread or divided spindles







Size	Basic length L	A	B	C □	D2	E1	E2	F ∅	H	J	K1	K2	N1	N2	M	O	P	Q	R1	R2	S	Basic weight	Weight per 100 mm
W 16	230	80	54	25	28	39	41	16	10	M6	24	70	M5	M4	M5	56	45	70	68	28	5	1,87 kg	0,37 kg

Size	G1	G2	T1	T2
W 16	40	28	38	18

K **Version:**
(G) Slide bushing **(K)** Ball bushing

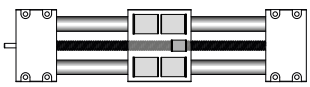
0 **Spindle:**
(T) Trapezoidal thread **(K)** Ballscrew

0 **Selection of screw:**
(3) right - left hand

0 **Choice of guide body profile:**
(0) Standard **(2)** 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 trapezoidal thread	Standard ballscrew
16	**(0)** Tr 10x3	**(0)** Kg 8x2,5

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

W	K	T	16	1	0	0	0	0	1	1	1500
			Pos.	1	2	3	4	5	6	7	

Basic length + stroke = total length

Sample ordering code:
WKT 16 with ball bushings, trapezoidal thread, standard body profile, carriage version 0, drive version 0, spindle Tr 10x3, 1268 mm stroke

14.1