Datasheet

Our modular system for a complete and flexible solution. The screw jack **MAR40** allows the transformation of rotary movements into linear "push/pull" movements.

Features at a glance

- Screw jack for lifting and actuation systems
- For conversion of rotary movements into linear "push/pull" movements
- For motorised or manually adjustable rotary movements
- Trapezoidal threaded spindle in stainless steel (AISI 304), **TPN Ø 14 - 4 mm pitch**
- Housing in anodised aluminium, bevel gear and shaft in steel, surface-hardened
- High wear and fatigue resistance
- Maintenance-free: lubricated with long-life grease
- Standard stroke lengths of the threaded spindle in mm: **100 - 200 - 300 - 400 - 700 – 1,000**
- Can be used individually or combined with flexible shafts, couplings, and gearboxes
- Screw jack for lifting and actuation systems

Optional available on request:

- Version supplied complete with flange and extension shaft; compatible for mounting a spindle position indicator **OP3**, for manual adjustment and direct reading of a measured value (see dimensions MAR40 FL-OP3).
- Lower protective cover made of stainless steel (AISI 303), upper protective cover – spiral spring made of stainless steel (AISI 301) for lengths up to 400 mm.

Technical characteristics

Rotation direction	Clockwise (clockwise rotation)
Radial load	50 N (10 N ≅ 1 kg)
Axial load (push/pull)	700 N (10 N ≅ 1 kg)
Screw load	not allowed
Revolution	max. 1,500 rpm
Backlash	0,75° up to 1.5° max.
Dimensions Spindle Stroke length Protective cover length	 TPN Ø 14 – 4 mm pitch 100 - 200 - 300 - 400 - 700 – 1,000 mm < 400 mm
Material Spindle Housing Bevel gearbox and shaft Upper protective cover Lower protective cover	 Stainless steel (AISI 304) Aluminium, black anodised Steel, surface-hardened Spiral spring Stainless steel (AISI 301) Stainless steel AISI 303)
Weight Spindle/meter Housing gearbox	 900 g/m 500 g
Transmission ratio	1:1 – 1:2 – 1:4 – 1:7,5 – 1:10 – 1:15 – 1:20 – 1:30 – 1:40
Input torque	see performance table
Operating temperature	-20 … +80 °C
Life	10,000 h
Grease lubrication	SANEG LX EP 2

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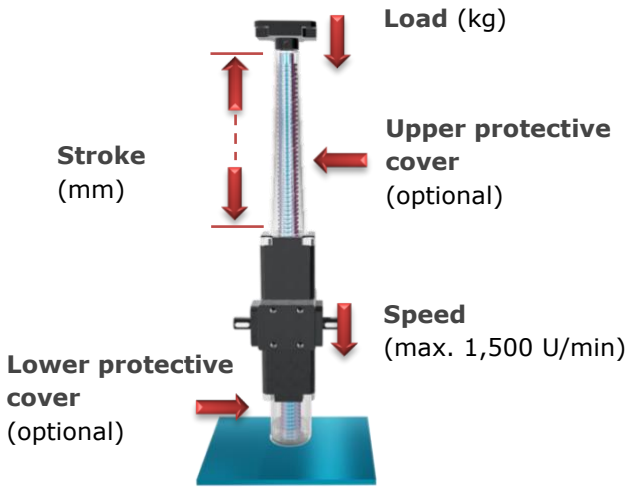
Installation

The main cause of breakage on the trapezoidal threaded spindle is radial loads caused by eccentricity. It is necessary to align the spindle and mounting surface of the gearbox orthogonally.
When mounting multiple screw jacks (also connected by shafts), it is essential that the couplings are perfectly aligned to distribute the load evenly. In this case, the use of flexible couplings is recommended to compensate for misalignments.

Sizing verification

Load (kg) – Mass on screw jack
Speed (rpm) – Required max. 1.500 rpm
Stroke (mm) – Useful linear travel
Protection (opt.) – Spindel cover



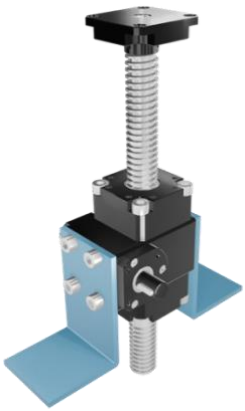
Support and mounting

The unit must be firmly secured to the machine structure using a flat, rigid base (supports not included in the supply).

Bottom support

Plate/bracket under housing for **optimal mounting**

Lateral support

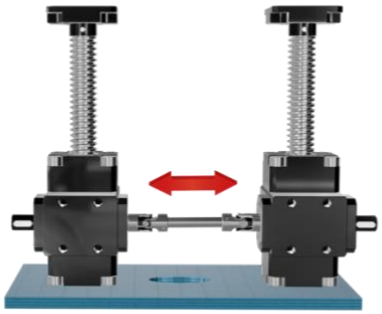


The side support allows a max. load of **100 kg**

Installation

Avoid radial/lateral loads on threaded bar, main cause of failure.

Threaded bar and reducer plane orthogonal; ensure load/bar coaxial, avoid eccentricity.



Multiple screw jacks: terminals aligned for uniform load; use couplings to compensate misalignments.

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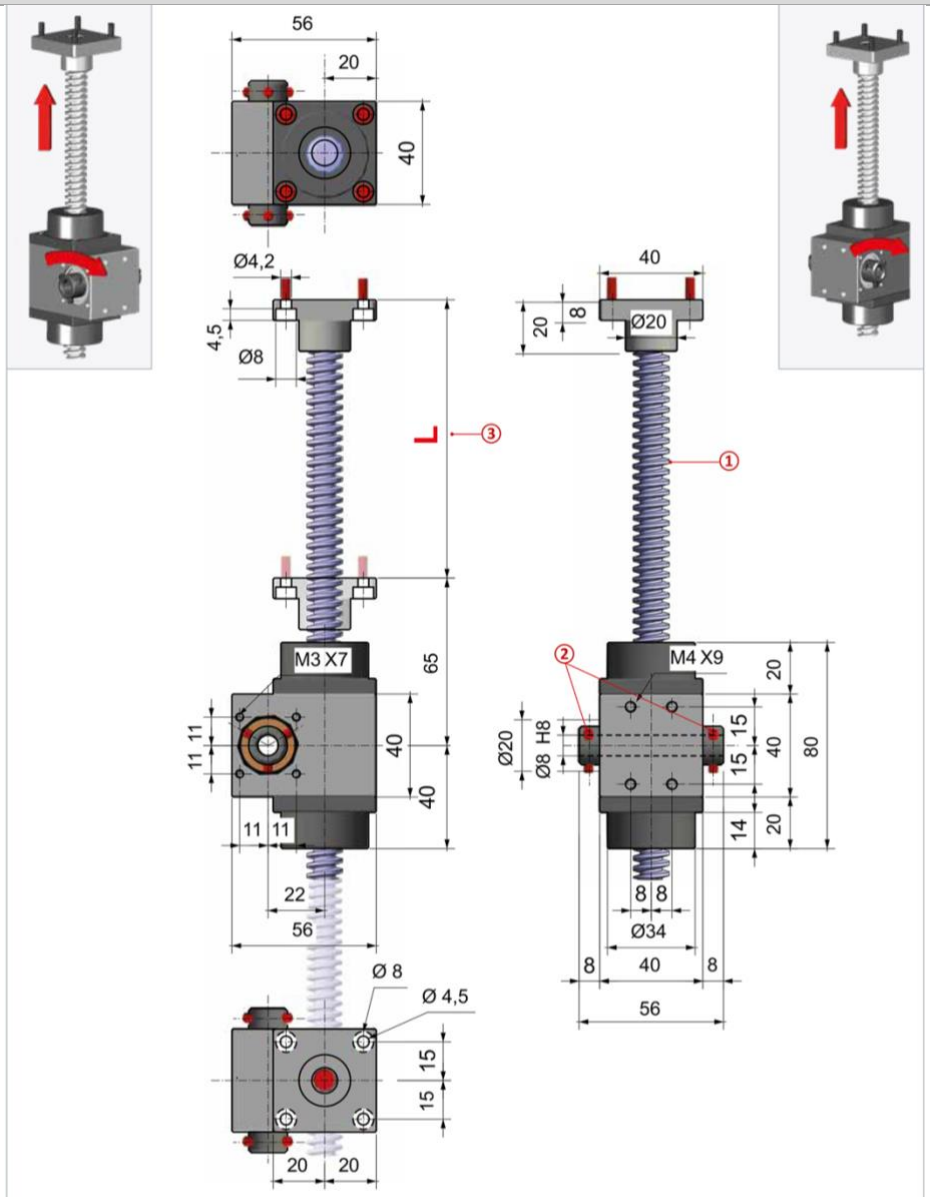
Sizing verification

- Load (kg) = the force which is applied to the threaded spindle of the screw jack.
- Linear speed (mm/s) = the desired linear speed of load handling; it is recommended to limit the input rotatory speed to a maximum of 1,500 rpm.
- Stroke length (mm) = the linear distance the load must be moved, generally equal to the total length of the threaded spindle.
- Protective cover (optional on request) = to protect the threaded spindle in case of contamination, dust, foreign objects and/or oscillating installation and movements.
- Torque (Nm) = torque required to the load handling.

Dimensions

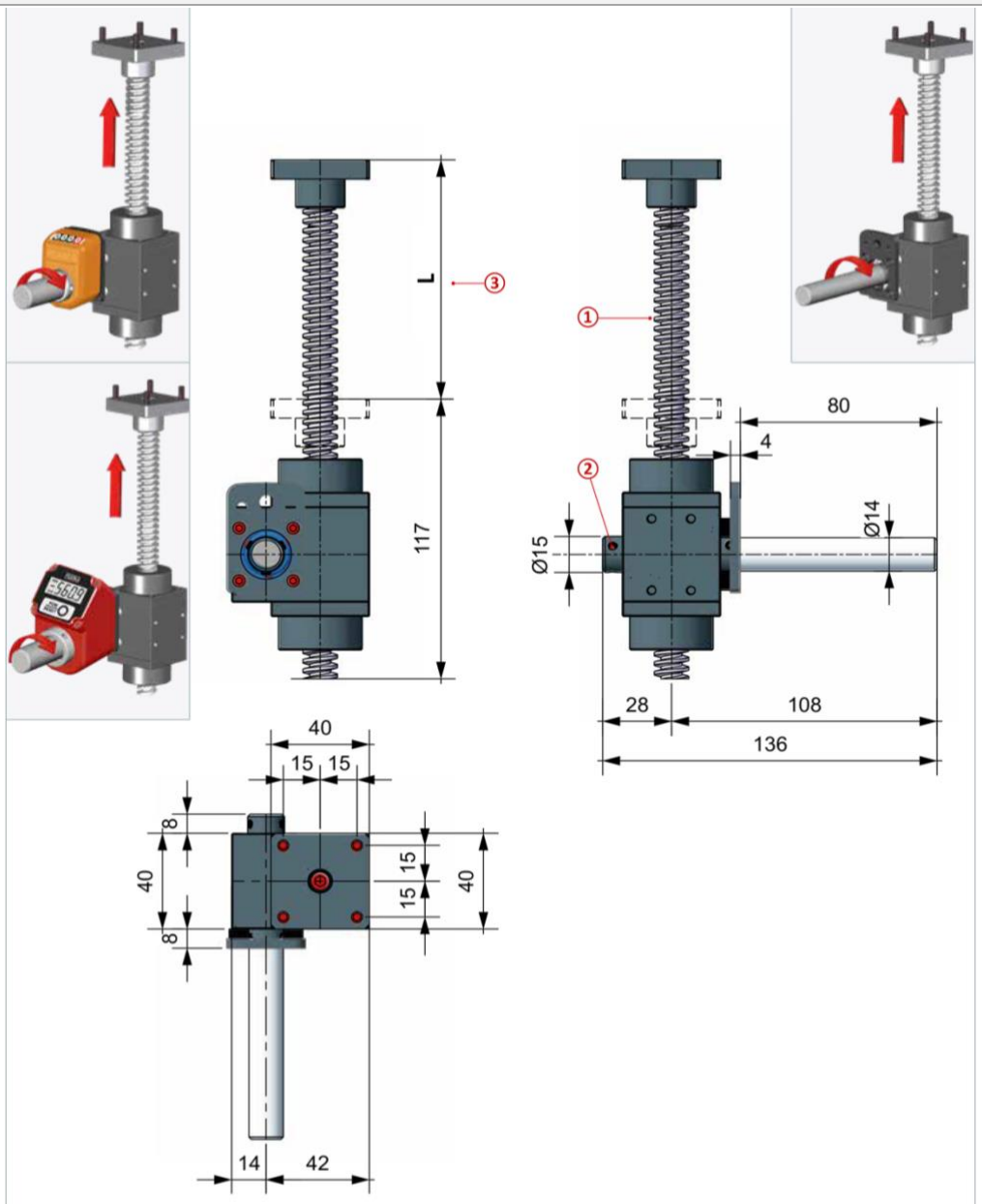
MAR40



All dimensions in mm

MAR40 FL-OP3/EP3

Version complete with flange and extension shaft; compatible for mounting a spindle position indicator OP3 or programmable indicator EP3, for manual setting and direct reading of a measured value



① Trapezoidal threaded Ø14x4, ② M4 fixing screws - No. 3 M4,
③ Measuring path (mm)

All dimensions in mm

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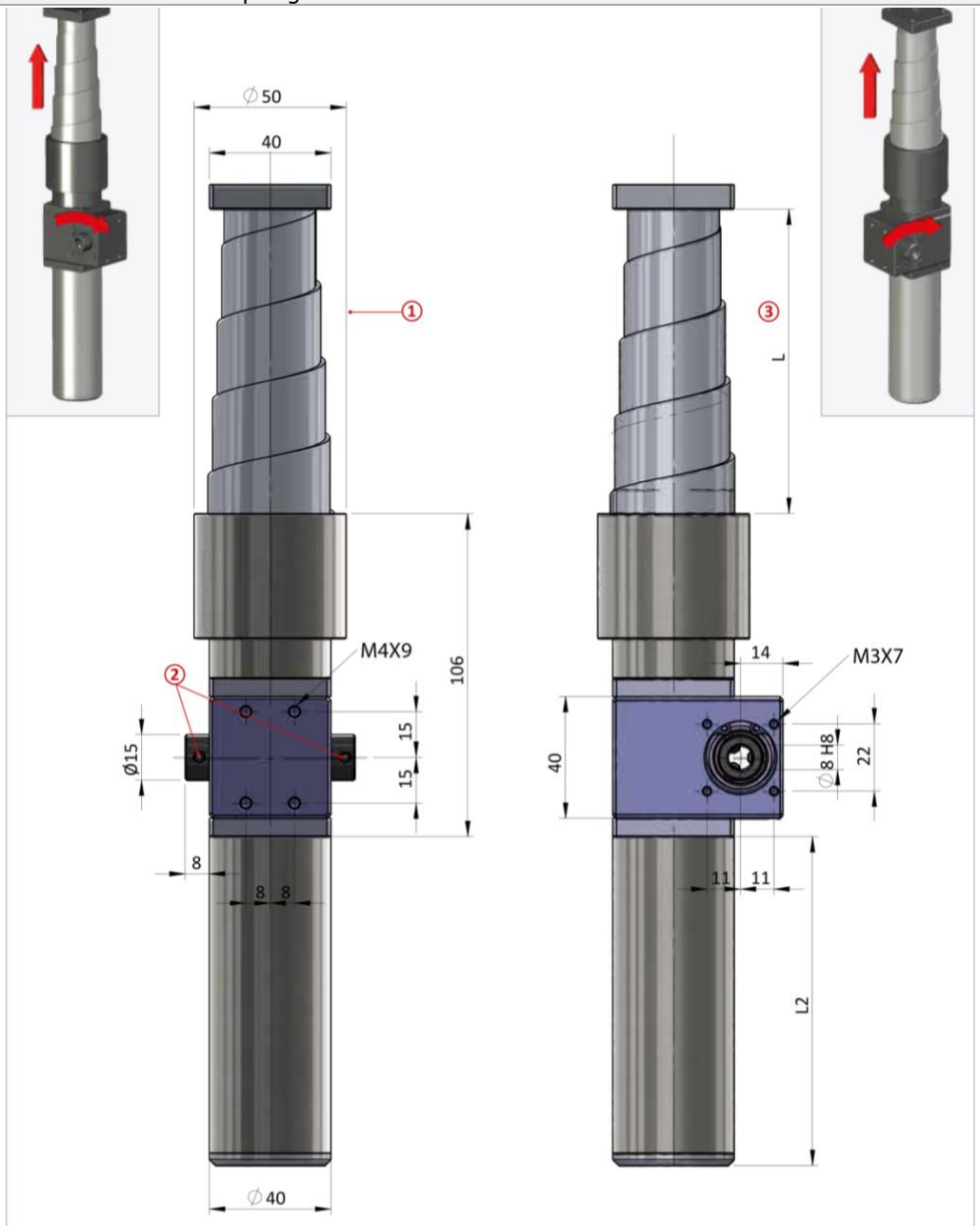
MAR40-PROT

With protective cover and coil spring

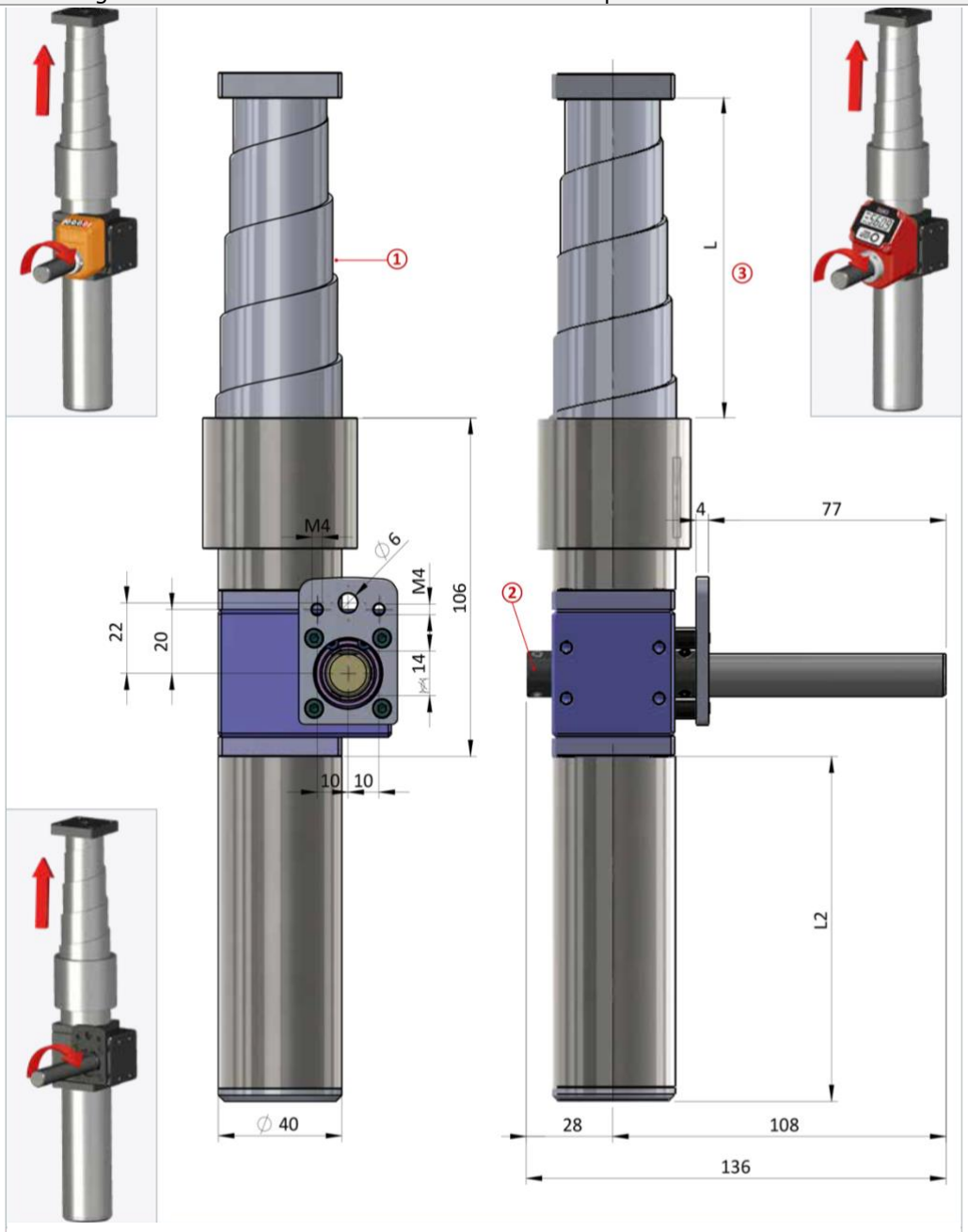


① Stainless steel trapezoidal spindle guard and stainless steel spiral spring
② M4 fixing screws - No. 3 M4, ③ Measuring path (mm)

All dimensions in mm

MAR40-PROT FL-OP3/EP3

Complete with flange and extension shaft for visualization with position indicator OP3 or EP3



① Stainless steel trapezoidal spindle guard and stainless steel spiral spring
② M4 fixing screws - No. 3 M4, ③ Measuring path (mm)

All dimensions in mm

Performance table

Tab. 1 =	Handling of loads according to the input torque
Tab. 2 =	Handling of loads according to the trapezoidal spindle (with guides)
Tab. 3 =	Spindle travel speed according to input speed
i =	Gear ratio [/]
T =	Torque [Nm]
C =	Handling of loads [kg]
s =	Measuring path [mm]
ω =	rotational speed [rpm]
v =	Traversing speed [mm/s]

i [/]	**Tab.1**		**Tab. 2**		**Tab. 3**	
	T [Nm]	**C** [kg]	**s** [mm]	**C** [kg] (**T** max)	**ω** [rpm]	**v** [mm/s]
1/1	1	32,0	100	265,8	250	16,67
	2	64,0	200	265,8	500	33,33
	3	96,1	300	265,8	750	50,00
	4	128,1	400	265,8	1000	66,67
	5	160,1	500	194,4	1250	83,33
	6	192,1	600	135,0	1500	100,00
	7	224,2	700	99,2		
	8	256,2	800	75,9		
	8,3	265,8	900	60,0		
			1000	48,6		
1/2	0,5	32,0	100	269,0	250	8,33
	1	64,0	200	265,8	500	16,67
	1,5	96,1	300	265,8	750	25,00
	2	128,1	400	265,8	1000	33,33
	2,5	160,1	500	194,4	1250	41,67
	3	192,1	600	135,0	1500	50,00
	3,5	224,2	700	99,2		
	4	256,2	800	75,9		
	4,2	269,0	900	60,0		
			1000	48,6		
1/4	0,25	32,0	100	288,2	250	4,17
	0,5	64,0	200	288,2	500	8,33
	0,75	96,1	300	288,2	750	12,50
	1	128,1	400	288,2	1000	16,67
	1,25	160,1	500	194,4	1250	20,83
	1,5	192,1	600	135,0	1500	25,00
	1,75	224,2	700	99,2		
	2	256,2	800	75,9		
	2,25	288,2	900	60,0		
			1000	48,6		

Datasheet

i [/]	Tab.1		Tab. 2		Tab. 3	
	T [Nm]	C [kg]	s [mm]	C [kg] (T max)	ω [rpm]	v [mm/s]
1/7,5	0,1	24,0	100	288,2	250	2,22
	0,2	48,0	200	288,2	500	4,44
	0,3	72,1	300	288,2	750	6,67
	0,4	96,1	400	288,2	1000	8,89
	0,5	120,1	500	194,4	1250	11,11
	0,6	144,1	600	135,0	1500	13,33
	0,7	168,1	700	99,2		
	0,8	192,1	800	75,9		
	0,9	216,2	900	60,0		
	1	240,2	1000	48,6		
	1,1	264,2				
	1,2	288,2				
1/10	0,1	21,1	100	253,6	250	1,67
	0,2	42,3	200	253,6	500	3,33
	0,3	63,4	300	253,6	750	5,00
	0,4	84,5	400	253,6	1000	6,67
	0,5	105,7	500	194,4	1250	8,33
	0,6	126,8	600	135,0	1500	10,00
	0,7	148,0	700	99,2		
	0,8	169,1	800	75,9		
	0,9	190,2	900	60,0		
	1	211,4	1000	48,6		
	1,1	232,5				
	1,2	253,6				
1/15	0,1	24,5	100	295,9	250	1,11
	0,2	49,0	200	295,9	500	2,22
	0,3	73,5	300	295,9	750	3,33
	0,4	98,0	400	295,9	1000	4,44
	0,5	122,5	500	194,4	1250	5,56
	0,6	147,0	600	135,0	1500	6,67
	0,7	171,5	700	99,2		
	0,8	196,0	800	75,9		
	0,9	220,5	900	60,0		
	1	245,0	1000	48,6		
	1,1	269,5				
	1,2	294,0				

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Datasheet

i [/]	Tab.1		Tab. 2		Tab. 3	
	T [Nm]	C [kg]	s [mm]	C [kg] (T max)	ω [rpm]	v [mm/s]
1/20	0,1	42,3	100	295,9	250	0,83
	0,2	84,5	200	295,9	500	1,67
	0,3	126,8	300	295,9	750	2,50
	0,4	169,1	400	295,9	1000	3,33
	0,5	211,4	500	194,4	1250	4,17
	0,6	253,6	600	135,0	1500	5,00
	0,7	295,9	700	99,2		
			800	75,9		
			900	60,0		
			1000	48,6		
1/30	0,1	30,3	100	302,6	250	0,56
	0,2	60,5	200	302,6	500	1,11
	0,3	90,8	300	302,6	750	1,67
	0,4	121,1	400	302,6	1000	2,22
	0,5	151,3	500	194,4	1250	2,78
	0,6	181,6	600	135,0	1500	3,33
	0,7	211,8	700	99,2		
	0,8	242,1	800	75,9		
	0,9	272,4	900	60,0		
	1	302,6	1000	48,6		
1/40	0,1	55,7	100	278,6	250	0,42
	0,2	111,4	200	278,6	500	0,83
	0,3	167,2	300	278,6	750	1,25
	0,4	222,9	400	278,6	1000	1,67
	0,5	278,6	500	194,4	1250	2,08
			600	135,0	1500	2,50
			700	99,2		
			800	75,9		
			900	60,0		
			1000	48,6		

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Order example

Typ	MAR40	-	1:1	-	200	-		-		-
MAR40										

Transmission ratios
1:1 - 1:2 - 1:4 - 1:7,5 - 1:10 - 1:15 - 1:20 –
1:30 - 1:40

Stroke length (mm)
100 – **200** – 300 – 400 – 650 – 700 – 1,000

Model - Lower protection cover (optional)
Not specified = without protective cover (standard)
PROT-INF-IN = with protective tube, stainless steel (AISI 303)

Model - Upper protection cover Spiral spring (optional)
Not specified = without protective cover (standard)
PROT-SUP-IN = with protective tube, stainless steel (AISI 301)

Coupling flange (optional)
Not specified = without a coupling flange (standard)
FL-OP3/EP3 = for Spindle position indicator

Position indicator (optional) please order separately
Not specified = without a Spindle position indicator
OP3 = Spindle position indicator OP3
EP3 = Spindle position indicator EP3

Our **MAR40** spindle position indicator are available in combination with mechanical digital spindle position indicator **OP3** and electronic digital spindle position indicator **EP3**. Please order spindle position indicator separately. Further information on our spindle position indicators can be found on the corresponding data sheet.

Other versions that cannot be generated from the order code may be available as special versions on request.

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Accessory

Hand wheels 	Reversible handles 	Bearing brackets 	Flanges 
Cardan joints 	Coupling shafts 	Clamping flanges 	

System components

Electronic/digital position indicator 	Programmable position indicator 	Angular gearboxes 	Axle modules 

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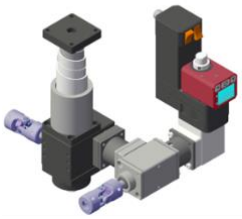
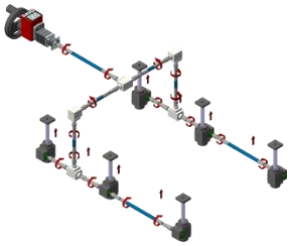
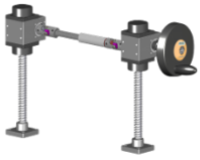
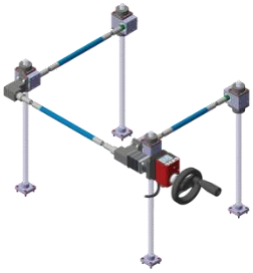
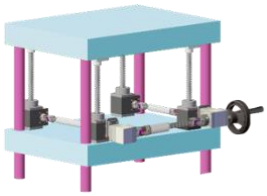
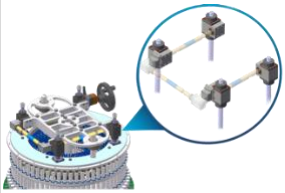
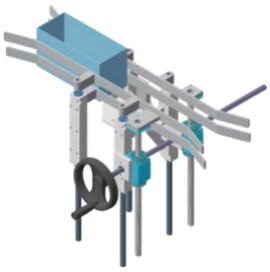
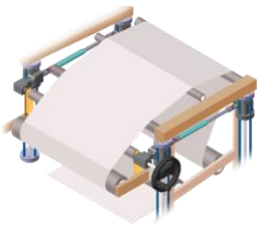
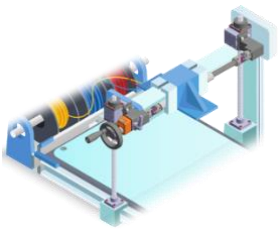
Combination / application options




You can find more information on our homepage www.willtec.de

Manufacturer: FIAMA since 1913

The manufacturer reserves the right to make changes to the products that it deems necessary for their improvement without prior notice.

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