

# METRIC BALL SCREW JACKS

With over twenty-five years of experience manufacturing precision worm gear screw jacks, Nook Industries has expanded the ActionJac™ offering to include metric models providing design engineers a globally accepted product. All the efficiency advantages that come with ball screw technology are available in ActionJac™ metric ball screw jacks. A full line of IEC motor mounts are available.

See the technical introduction at the beginning of this section for additional Metric Ball Screw Jack features and comparison to Machine Screw Jacks.



METRIC BALL SCREW JACKS TECHNICAL DATA

**Download Accurate Moveable Assembly 3D Models and 2D Drawings**

**For ActionJac™ Worm Gear Screw Jacks:**

- **Configure** specific requirements for your Worm Gear Screw Jack application in a simple interface, including motor adapter, right angle reducer, bellows boots and limit switch accessories.
- **View** complete assemblies on-line with zoom, pan and rotate capabilities.
- **Download** true assembly models with full range of motion in native AutoCAD®, SolidWorks®, Pro/E®, CATIA®, ParaSolids®, SAT® and many other formats.
- **Order** complete jack assemblies with generated part number.

Download  
**3D Models**



[www.nookindustries.com](http://www.nookindustries.com)



JACK SIZES					JACK SELECTION										Page Ref
MODEL	Capacity (kN)	Lifting Screw Dia. (mm)	Screw Lead (mm)	Root Dia. (mm)	Gear Ratio	Raise for One Turn of Worm (mm)	Maximum Input Torque (N·m)	Maximum Allowable Input (kW)	Max. Worm Speed at Rated Load (rpm)	Maximum Load at 1425 RPM (kN)	Torque to Raise 1 kN (N·m)	No Load Torque (N·m)	BackDrive Holding Torque (N·m)		
EM05-BSJ	5	15.7	5	12.9	5:1	1.00	1.21	0.21	1625	5.0	0.24	0.11	1.0	349	
					20:1	0.25	0.51	0.09	1625	5.0	0.10	0.11	0.5	349	
EM1-BSJ	10	20.0	5	17.5	5:1	1.00	2.41	0.38	1500	10.0	0.24	0.34	2.0	350	
					20:1	0.25	1.14	0.19	1585	10.0	0.11	0.34	1.0	350	
EM2.5-BSJ	25	25.0	5	22.5	6:1	0.83	5.05	1.08	2035	25.0	0.20	0.56	4.5	351	
					12:1	0.42	3.05	0.65	2035	25.0	0.12	0.56	2.5	351	
					24:1	0.21	2.13	0.38	1695	25.0	0.09	0.56	2.0	351	
EM5-BSJ	50	40	10	34.8	6:1	1.67	19.3	2.28	1125	39.4	0.39	1.13	16.0	352	
					24:1	0.42	7.7	0.56	695	24.4	0.15	1.13	6.5	352	
EM10-BSJ	100	50	10	45.2	8:1	1.25	31.9	3.75	1125	78.9	0.32	2.26	26.0	353	
					24:1	0.42	16.2	1.12	665	46.6	0.16	2.26	13.5	353	
EM20-BSJ	200	63	12	57	8:1	1.50	75.2	5.6	710	99.8	0.38	4.52	61.0	354	
					24:1	0.50	37.7	1.9	470	66.1	0.19	4.52	31.0	354	

**NOTES:**

- 1) The recommended maximum speed is 3000 RPM providing that the recommended horsepower and temperature are not exceeded.
- 2) Input torque is shown as torque to lift one kN of load. Starting Torque is 100% greater than torque shown. For loads less than 25% of rated loads add tare drag torque.
- 3) Maximum allowable horsepower ratings are based on a 35% duty cycle. For operation at higher duty cycles or repeated use over any segment of the total travel, temperature must be monitored and remain less than 95°C.
- 4) Overload capacity of the Metric ball Screw Jack is as follows: 0% for dynamic loads, 20% for static loads.
- 5) All Ball Screw Jacks can backdrive and require some means of holding the load, such as a brake on the motor. The product specification pages show holding torque values. Holding torque represents the amount of input torque required to restrain the load and does not indicate recommended brake size to bring dynamic load to stop.
- 6) All units are suitable for intermittent operation providing that the housing temperature including ambient is not lower than -30°C. or higher than +95°C. Factory supplied grease in standard units will operate in this range. For higher or lower operating temperature ranges consult Nook Industries.

- 7) Accessories such as boots, limit switches, top plates and clevises are available.
- 8) Catalog dimensions are representative only and are subject to change without notice. For construction, use only certified prints.
- 9) Units are not to be used as personnel support or movement.
- 10) End-of-travel stops are not provided.

Δ Starting torque is 100% greater than torque shown.

$$\text{kW per jack} = \frac{\text{Torque to raise one kN(N·m)} \times \text{Number of kN to be raised} \times \text{RPM}}{9,549}$$

\* No load torque need only be added if operating under 25% rated load.

Column strength is the ability of the lift shaft to hold compressive loads without buckling. With longer screw lengths, column strength may be substantially lower than nominal jack capacity.

If the lift shaft is in tension only, the screw jack travel is limited by the available screw material or by the critical speed of the screw. Refer to the ball screw technical section for critical speed limitations. If there is any possibility for the lift shaft to go into compression, the application should be sized for sufficient column strength.

The chart below is used to determine the required jack size in applications where the lift shaft is loaded in compression.

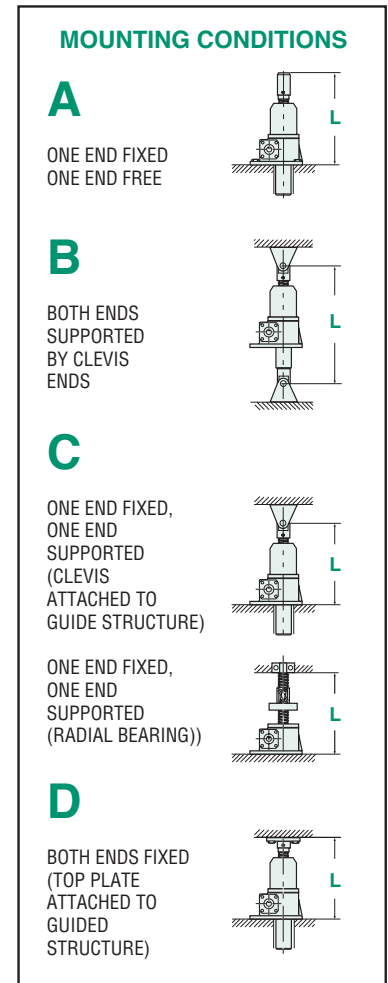
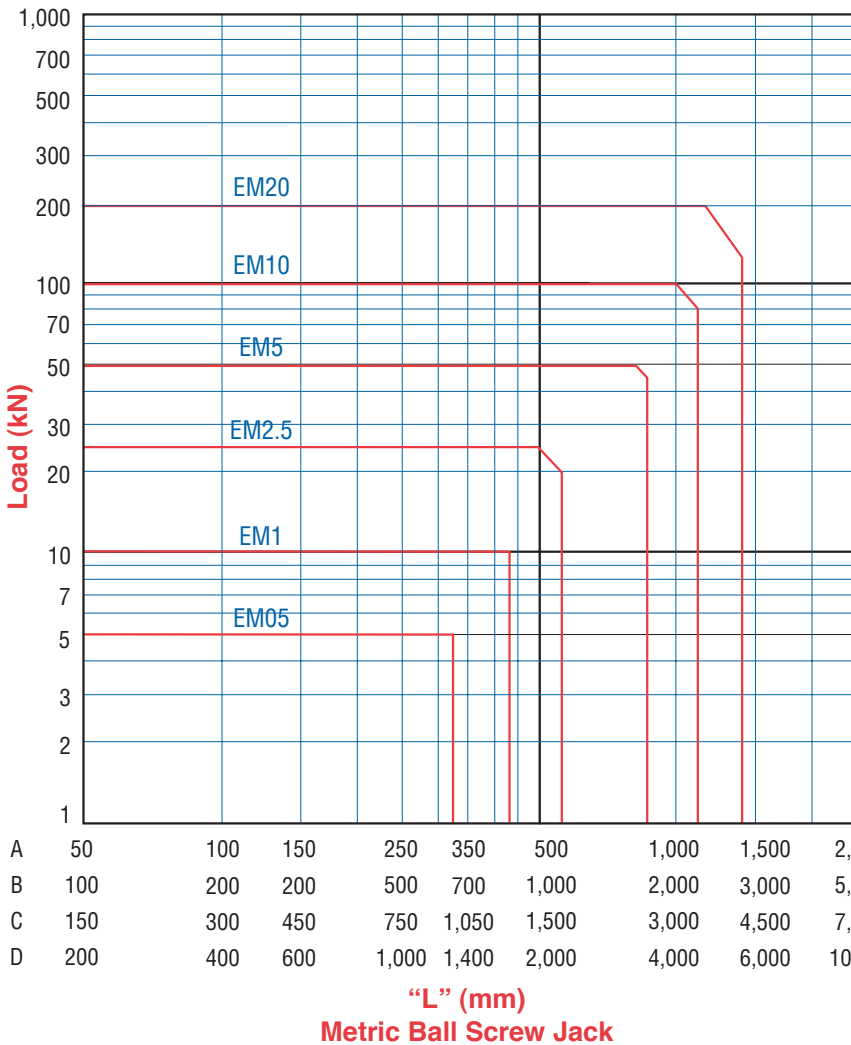
To use this chart:

Find a point at which the maximum length “L” intersects the maximum load. Be sure the jack selected is above and to the right of that point.

**CAUTION:** chart does not include a design factor.

The chart assumes proper jack alignment with no bending loads on the screw. Effects from side loading are not included in this chart. Jacks operating horizontally with long lift shafts can experience bending from the weight of the screw. Consult Nook Industries, Inc. if side thrust is anticipated, operating horizontally, or maximum raise is greater than 30 times the screw diameter.

METRIC BALL SCREW JACKS TECHNICAL DATA



**AVAILABLE LIFT SCREW LENGTHS**

As a major manufacturer of industrial lead screws, Nook Industries stocks a wide selection of ball screws. Nook Industries has the capacity to make long ball screws for

special applications. Rotating screw jacks can be built with a larger diameter lift screw for greater column strength, or a different lead to change the jack operating speed.

The following Chart provides the minimum life expectancy in total meters of travel for the ball screws.

MODEL	Operating Load (kN)	MINIMUM METERS OF TRAVEL		Page Number
		UPRIGHT & INVERTED	UPRIGHT & INVERTED ROTATING	
		Standard	Standard	
EM05-BSJ	4	34,295	42,869	349
	2	274,360	342,950	
	1	2,194,880	2,743,600	
EM1-BSJ	8	21,455	26,819	350
	5	87,880	109,850	
	2.5	703,040	878,800	
EM2.5-BSJ	22	2,793	3,716	351
	12	18,321	22,901	
	6	146,565	183,206	
EM5-BSJ	44	28,660	35,825	352
	22	229,283	286,604	
	10	2,441,406	3,051,758	
EM10-BSJ	88	6,315	7,894	353
	44	50,522	63,153	
	22	404,178	505,223	
EM20-BSJ	170	6,702	8,378	354
	85	53,618	67,023	
	42	444,444	555,555	

**LEAD ACCURACY**

The metric rolled thread ball screw, as employed in ActionJac™ products, is held within .1mm per 300 mm cumulative from nominal dimension. Jacks can be matched to within ±.05mm per 300mm when ordered as matched sets. Special ground threads having lead accuracies of .013mm per 300mm can be provided if necessary.

**BACKLASH**

Axial backlash ranges from .2 to .5 mm. Specify optional selective fit lift shaft for 0.13 to 0.2mm backlash.

**MATERIAL HARDNESS**

Ball screws have a race hardness of Rockwell C 58 minimum. Core hardness will run from Rc 20 to 35.

**NOTES:**

- Refer to Lubrication Instructions in order to obtain maximum life from ball screw assemblies
- These values may be greatly reduced if the units are subjected to misalignment, shock loads, side thrust, contamination or lack of proper lubrication and maintenance.

**EM2.5-BSJ- U 6:1 / SSE-1 / 80B5-2 / FT / 580mm / SB**

**BALL SCREW MODEL**

<b>kN</b>	<b>Model #</b>	<b>kN</b>	<b>Model #</b>
5	= EM05-BSJ	50	= EM5-BSJ
10	= EM1-BSJ	100	= EM10-BSJ
25	= EM2.5-BSJ	200	= EM20-BSJ

**CONFIGURATION**

- U** = Upright
- I** = Inverted
- UR** = Upright Rotating
- IR** = Inverted Rotating

**GEAR RATIO**

Refer to product pages for available ratios.

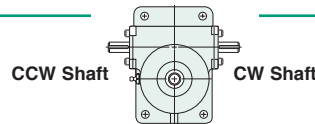
**SHAFT ORDER CODE**

CCW Position 1  
CW Position 2

**ORDER CODES (Must Include A Position)**

**NO ACCESSORY**

- SSE-** = Standard Shaft Extension, Position 1 or 2
- 000-** = Delete Shaft Extension, Position 1 or 2
- SPC-** = Special Modified Shaft Extension, Position 1 or 2



**Motor Mounts Without Motor**  
(Position 1 or 2)

<b>56B5</b> = EM05	<b>80B5</b> = EM2.5 and EM5
<b>56B14</b> = EM05	<b>80B14</b> = EM2.5 and EM5
<b>63B5</b> = EM1	<b>90B5</b> = EM5 and EM10
<b>63B14</b> = EM1	<b>90B14</b> = EM5 and EM10
<b>71B5</b> = EM1 and EM2.5	<b>100B5</b> = EM10 and EM20
<b>71B14</b> = EM1 and EM2.5	<b>100B14</b> = EM10 and EM20

**NOTE:** Both Shaft Extensions Must Be Specified

**HOUSING CONFIGURATION**

**F** = Standard Flange Base

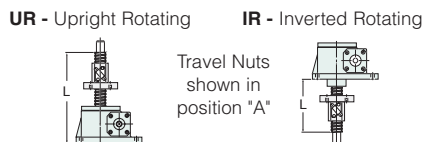
**SCREW CONFIGURATION**

**TRANSLATING - U and I MODELS**

- T** = Standard Threaded End
- C** = Clevis End
- P** = Top Plate

**ROTATING - UR and IR MODELS**

- A** = Travel Nut Position "A"
- B** = Travel Nut Position "B"



**TRAVEL**

For Translating Screw Models (U and I) use actual Travel in mm. For Rotating Screw Models (UR and IR) use "L" Dimension in Inches.

**MODIFIER LIST**

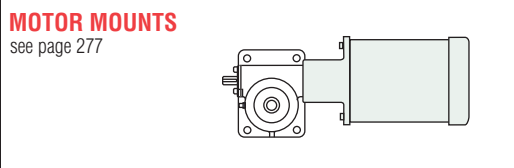
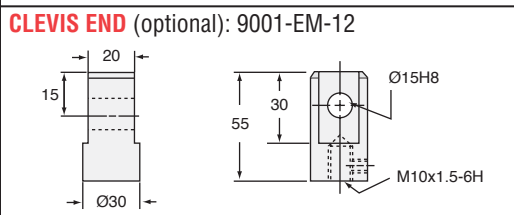
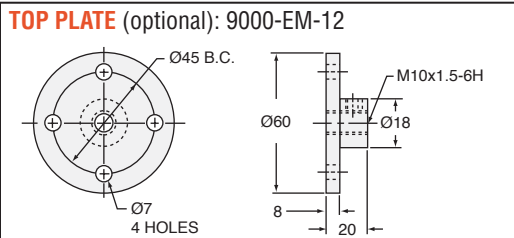
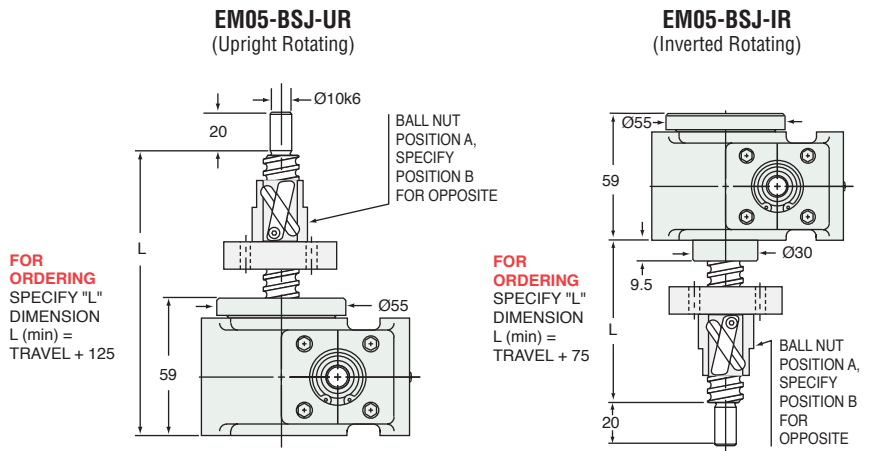
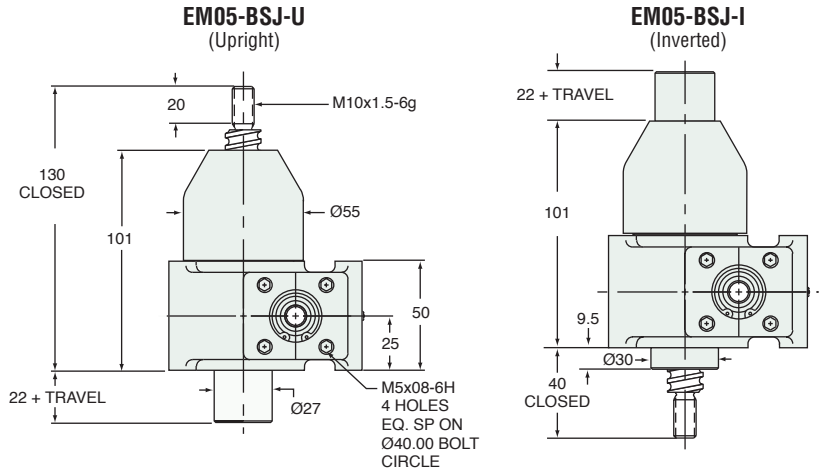
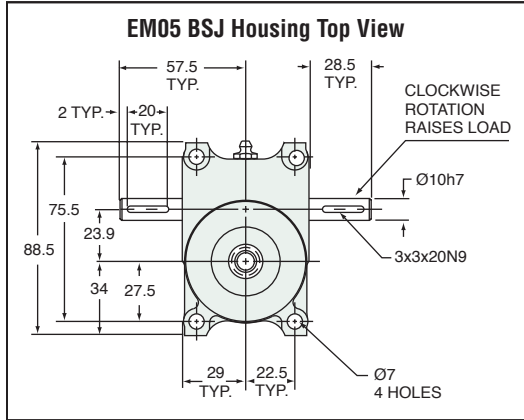
**S or M Required**

- S** = Standard, no additional description required
- M** = Modified, additional description required

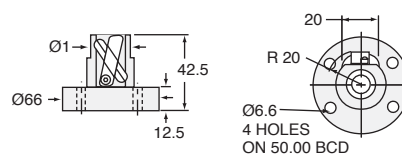
**E and/or B Optional**

- E** = In-Line Encoder (motor or motor mount required)
- B** = Bellows Boots (must calculate retracted and extended boot length, see page 280-281)

METRIC BALL SCREW JACKS TECHNICAL DATA



**BALL NUT & FLANGE DIMENSIONS**

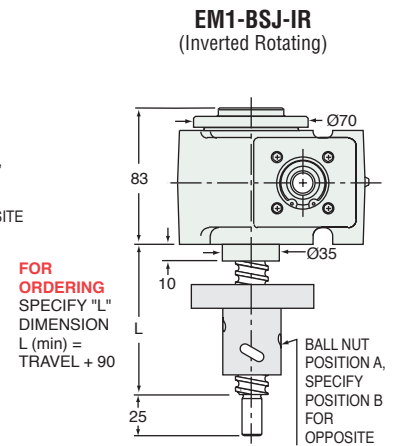
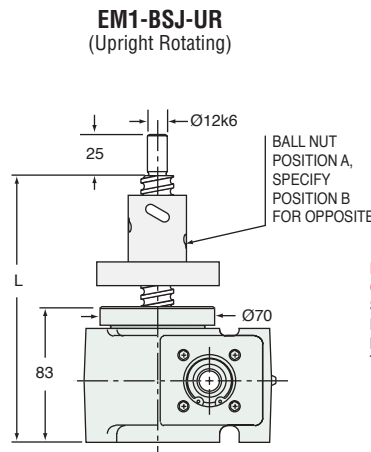
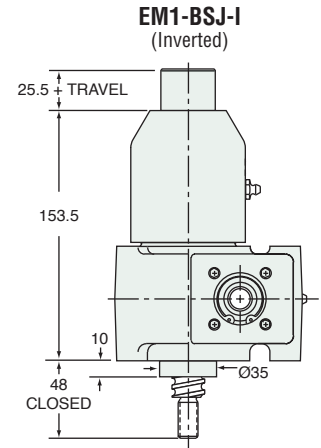
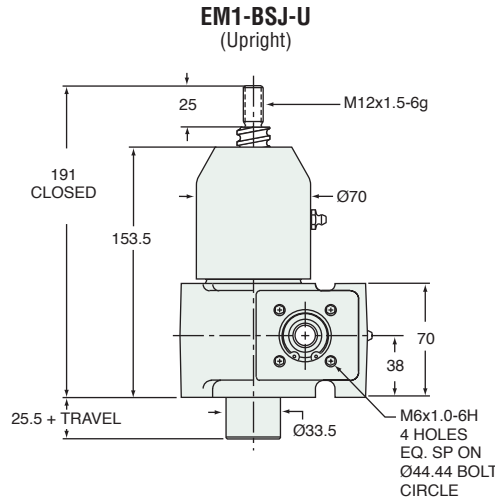
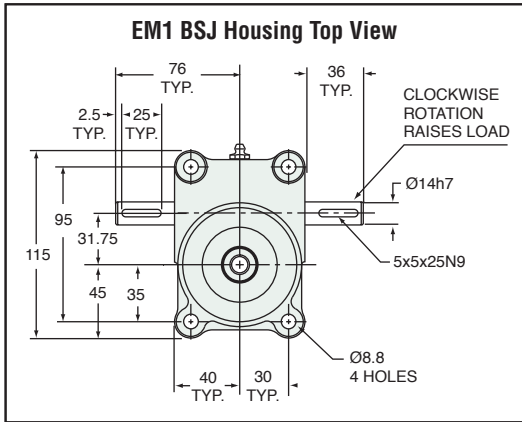


**EM05-BSJ SCREW**

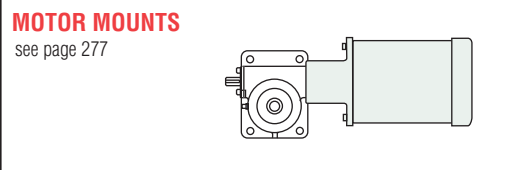
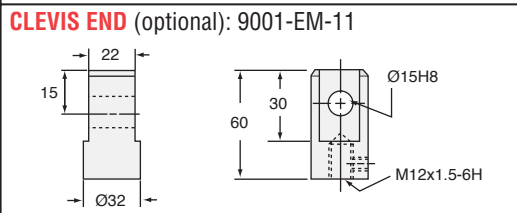
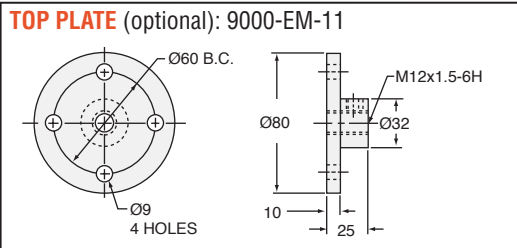
SCREW: MRT16x5  
 ROOT DIAMETER: 12.9  
 DRAG TORQUE: .11  
 START TORQUE: 2 x Running Torque  
 WEIGHT (Approx. in Kg)  
 "0" TRAVEL: 1.36  
 PER 100mm TRAVEL: 0.14  
 GREASE: 0.14

RATIO	TRAVEL PER 1 TURN OF WORM	TORQUE TO RAISE ONE kN NON-KEYED	MAX. kW	MAX. WORM SPEED AT RATED LOAD NON-KEYED	MAX. LOAD AT 1425 RPM NON-KEYED
5:1	1.00 mm	0.24 Nm	0.21	1625 rpm	5.0 kN
20:1	0.25 mm	0.10 Nm	0.09	1625 rpm	5.0 kN

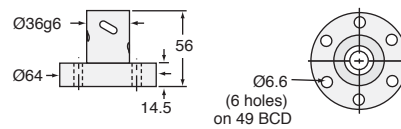
**CAUTION!** JACK IS SELF-LOWERING. LIFTING SCREW OR NUT MUST BE SECURED TO PREVENT ROTATION FOR NON-KEYED UNITS.



METRIC BALL SCREW JACKS TECHNICAL DATA



**BALL NUT & FLANGE DIMENSIONS**



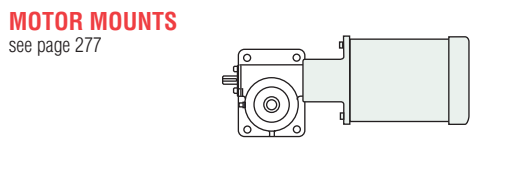
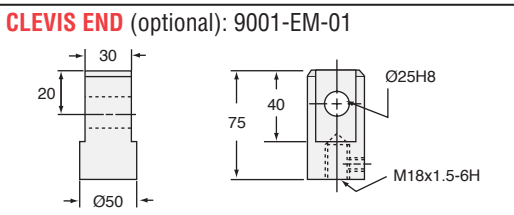
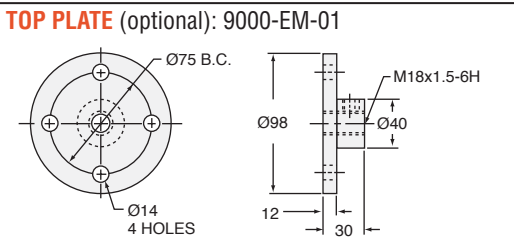
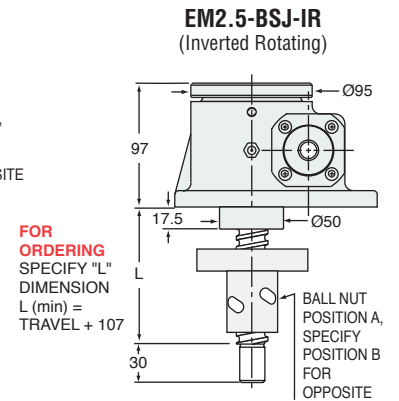
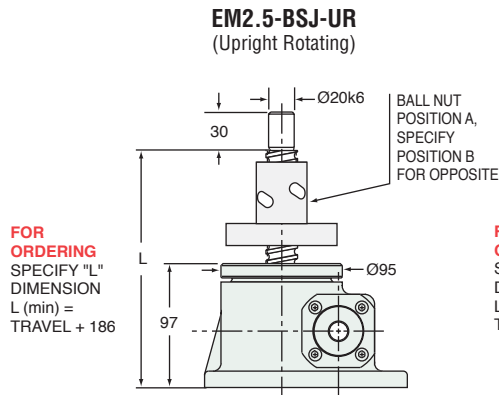
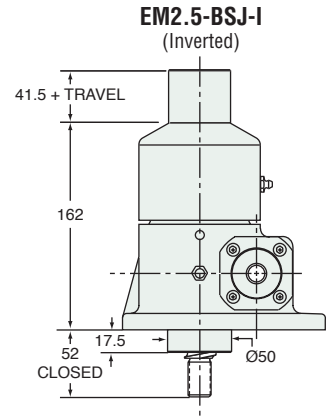
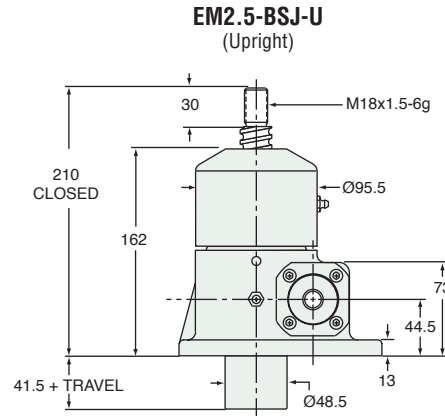
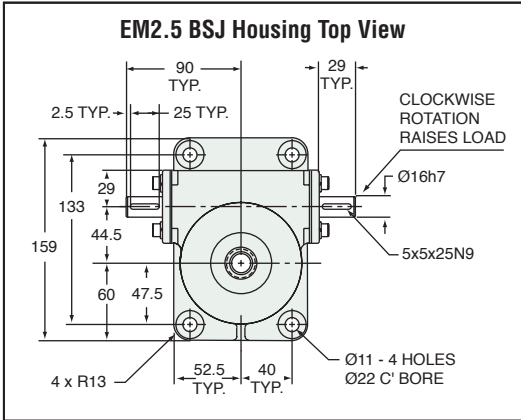
**EM1-BSJ SCREW**

SCREW: MRT20x5  
 ROOT DIAMETER: 17.5  
 DRAG TORQUE: 0.34  
 START TORQUE: 2 x Running Torque  
 WEIGHT (Approx. in Kg)  
 "0" TRAVEL: 3.6  
 PER 100mm TRAVEL: 0.23  
 GREASE: 0.23

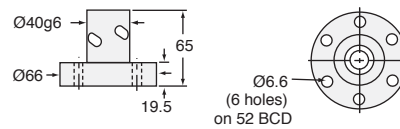
RATIO	TRAVEL PER 1 TURN OF WORM	TORQUE TO RAISE ONE kN NON-KEYED	MAX. kW	MAX. WORM SPEED AT RATED LOAD NON-KEYED	MAX. LOAD AT 1425 RPM NON-KEYED
5:1	1.00 mm	0.24 Nm	0.38	1500 rpm	10.0 kN
20:1	0.25 mm	0.11 Nm	0.19	1585 rpm	10.0 kN

**CAUTION!** JACK IS SELF-LOWERING. LIFTING SCREW OR NUT MUST BE SECURED TO PREVENT ROTATION FOR NON-KEYED UNITS.





**BALL NUT & FLANGE DIMENSIONS**



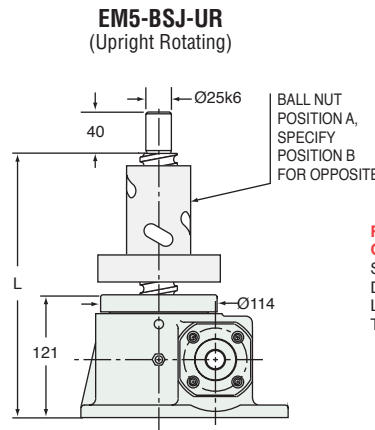
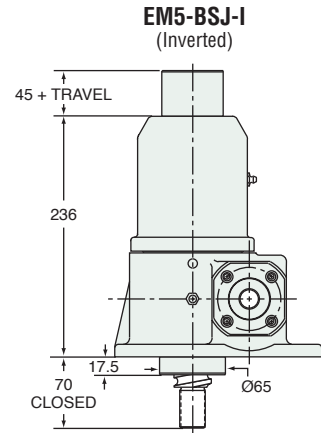
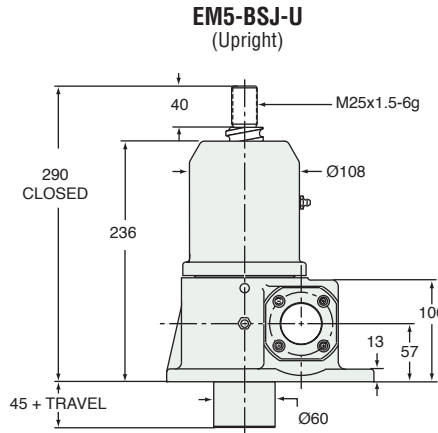
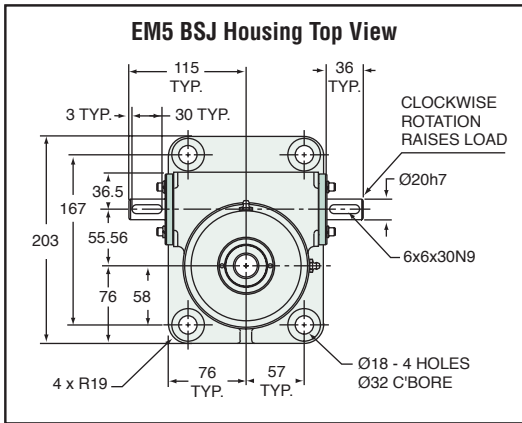
**EM2.5-BSJ SCREW**

SCREW: MRT25x5  
 ROOT DIAMETER: 22.5  
 DRAG TORQUE: 0.56  
 START TORQUE: 2 x Running Torque  
 WEIGHT (Approx. in Kg)  
 "0" TRAVEL: 7.7  
 PER 100mm TRAVEL: 0.36  
 GREASE: 0.22

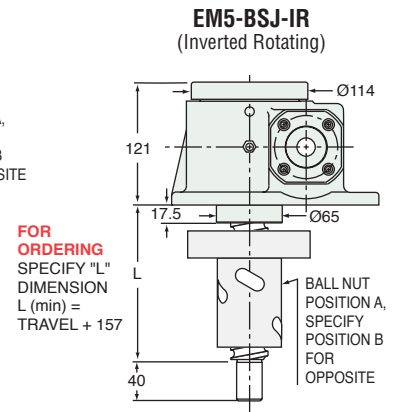
RATIO	TRAVEL PER 1 TURN OF WORM	TORQUE TO RAISE ONE kN NON-KEYED	MAX. kW	MAX. WORM SPEED AT RATED LOAD NON-KEYED	MAX. LOAD AT 1425 RPM NON-KEYED
6:1	0.83 mm	0.20 Nm	1.08	2035 rpm	25.0 kN
12:1	0.42 mm	0.12 Nm	0.65	2035 rpm	25.0 kN
24:1	0.21 mm	0.09 Nm	0.38	1695 rpm	25.0 kN

**CAUTION!** JACK IS SELF-LOWERING. LIFTING SCREW OR NUT MUST BE SECURED TO PREVENT ROTATION FOR NON-KEYED UNITS.



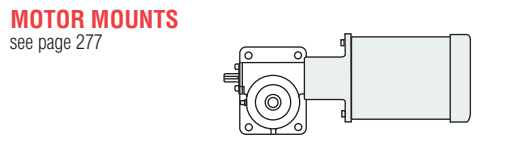
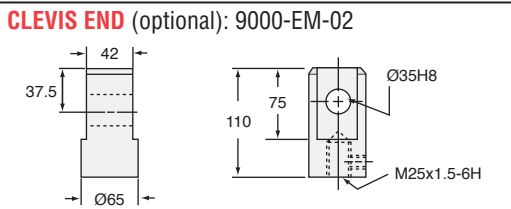
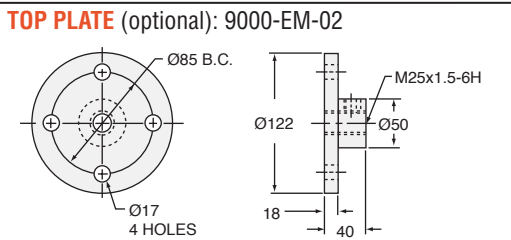


**FOR ORDERING SPECIFY "L" DIMENSION**  
L (min) = TRAVEL + 260

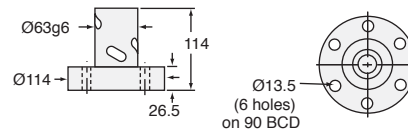


**FOR ORDERING SPECIFY "L" DIMENSION**  
L (min) = TRAVEL + 157

METRIC BALL SCREW JACKS TECHNICAL DATA



**BALL NUT & FLANGE DIMENSIONS**

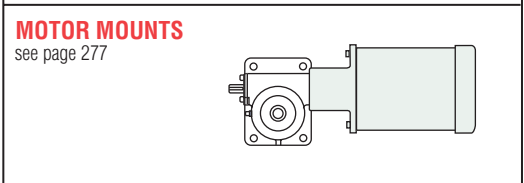
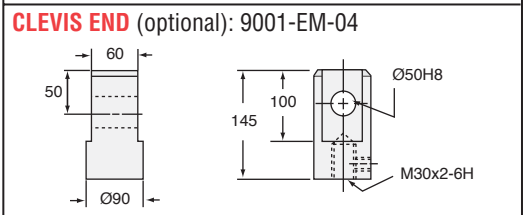
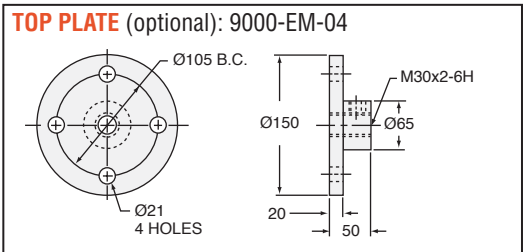
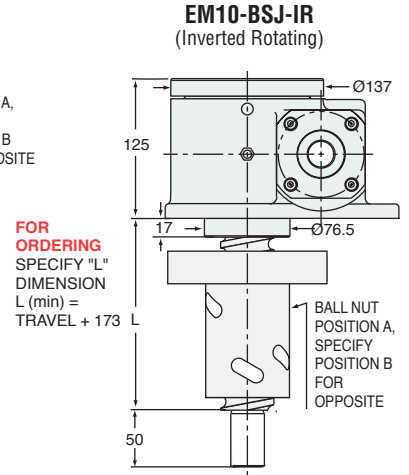
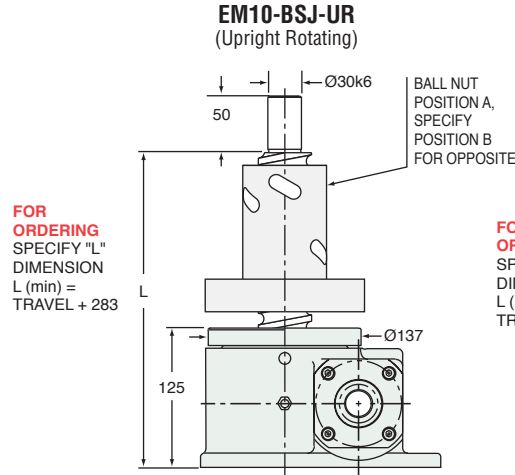
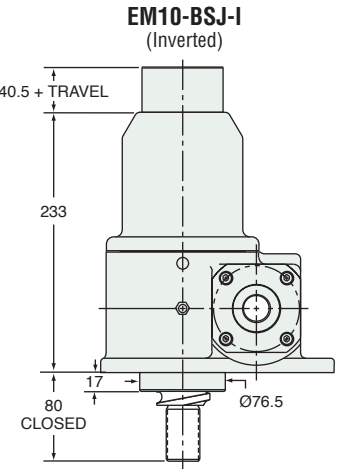
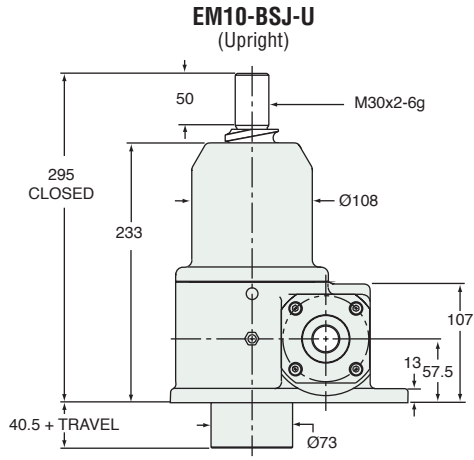
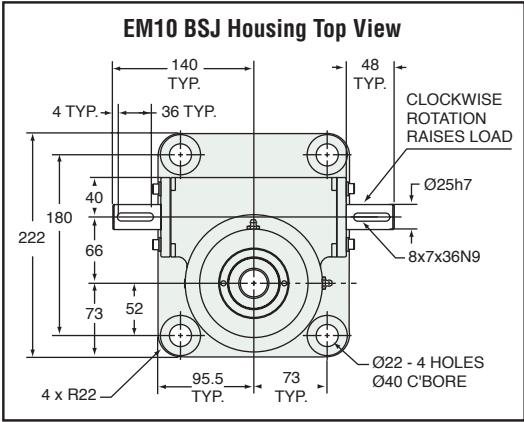


**EM5-BSJ SCREW**

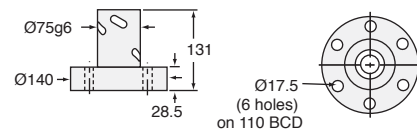
SCREW: MRT40x10  
 ROOT DIAMETER: 34.8  
 DRAG TORQUE: 1.13  
 START TORQUE: 2 x Running Torque  
 WEIGHT (Approx. in Kg)  
 "0" TRAVEL: 15.9  
 PER 100mm TRAVEL: 0.93  
 GREASE: 0.45

RATIO	TRAVEL PER 1 TURN OF WORM	TORQUE TO RAISE ONE kN NON-KEYED	MAX. kW	MAX. WORM SPEED AT RATED LOAD NON-KEYED	MAX. LOAD AT 1425 RPM NON-KEYED
6:1	1.67 mm	0.39 Nm	2.28	1125 rpm	39.4 kN
24:1	0.42 mm	0.15 Nm	0.56	695 rpm	24.4 kN

**CAUTION!** JACK IS SELF-LOWERING. LIFTING SCREW OR NUT MUST BE SECURED TO PREVENT ROTATION FOR NON-KEYED UNITS.



**BALL NUT & FLANGE DIMENSIONS**

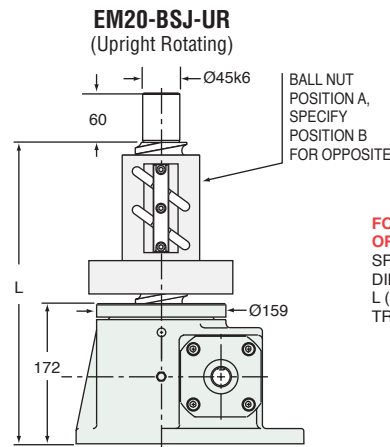
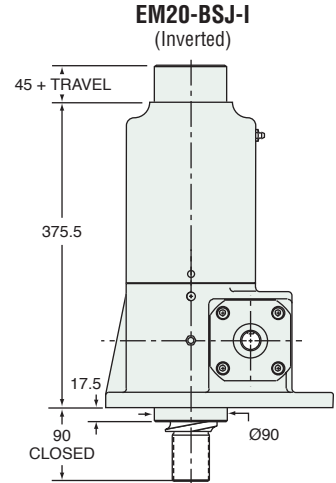
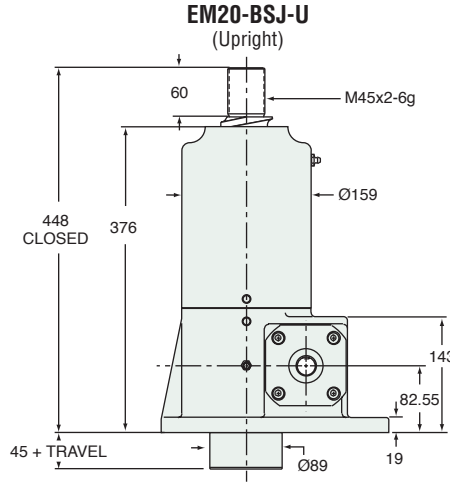
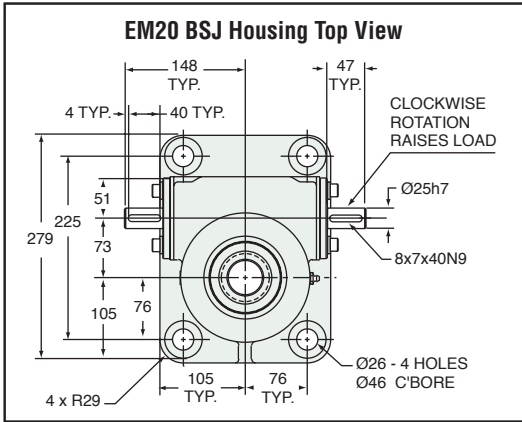


**EM10-BSJ SCREW**

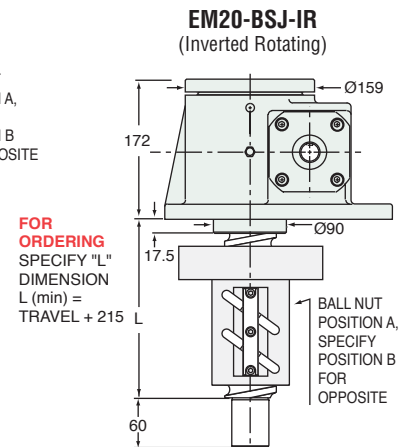
SCREW: MRT50x10  
 ROOT DIAMETER: 45.2  
 DRAG TORQUE: 2.26  
 START TORQUE: 2 x Running Torque  
 WEIGHT (Approx. in Kg)  
 "0" TRAVEL: 22.7  
 PER 100mm TRAVEL: 1.46  
 GREASE: 0.68

RATIO	TRAVEL PER 1 TURN OF WORM	TORQUE TO RAISE ONE kN NON-KEYED	MAX. kW	MAX. WORM SPEED AT RATED LOAD NON-KEYED	MAX. LOAD AT 1425 RPM NON-KEYED
8:1	1.25 mm	0.32 Nm	3.75	1125 rpm	78.9 kN
24:1	0.42 mm	0.16 Nm	1.12	665 rpm	46.6 kN

**CAUTION!** JACK IS SELF-LOWERING. LIFTING SCREW OR NUT MUST BE SECURED TO PREVENT ROTATION FOR NON-KEYED UNITS.



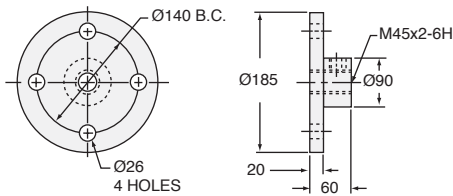
**FOR ORDERING**  
SPECIFY "L"  
DIMENSION  
L (min) =  
TRAVEL + 370



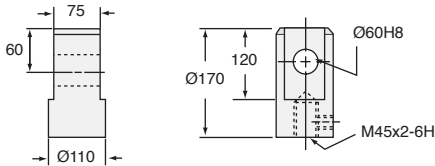
**FOR ORDERING**  
SPECIFY "L"  
DIMENSION  
L (min) =  
TRAVEL + 215

METRIC BALL SCREW JACKS TECHNICAL DATA

**TOP PLATE (optional): 9000-EM-06**

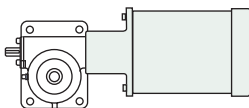


**CLEVIS END (optional): 9001-EM-06**

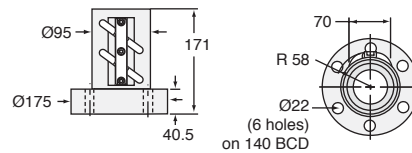


**MOTOR MOUNTS**

see page 277



**BALL NUT & FLANGE DIMENSIONS**



**EM20-BSJ SCREW**

SCREW: MRT63x12  
 ROOT DIAMETER: 57.0  
 DRAG TORQUE: 4.52  
 START TORQUE: 2 x Running Torque  
 WEIGHT (Approx. in Kg)  
 "0" TRAVEL: 38.6  
 PER 100mm TRAVEL: 2.31  
 GREASE: 1.0

RATIO	TRAVEL PER 1 TURN OF WORM	TORQUE TO RAISE ONE kN NON-KEYED	MAX. kW	MAX. WORM SPEED AT RATED LOAD NON-KEYED	MAX. LOAD AT 1425 RPM NON-KEYED
8:1	1.5 mm	0.38 Nm	5.6	710 rpm	99.8 kN
24:1	0.5 mm	0.19 Nm	1.9	470 rpm	66.1 kN

**CAUTION!** JACK IS SELF-LOWERING. LIFTING SCREW OR NUT MUST BE SECURED TO PREVENT ROTATION FOR NON-KEYED UNITS.

# METRIC TRAPEZOIDAL SCREW JACKS



The ActionJac™ Trapezoidal Screw Jacks utilize the same rugged design as the ActionJac™ machine screw jacks. These true metric jacks include a lift shaft with a special trapezoidal thread form. This thread form has been created to stay within ISO standards yet retains the centralizing feature of our 2C acme threads. These jacks may be assembled with IEC motor mounts.

See the technical introduction at the beginning of this section for additional Trapezoidal Screw Jack features and comparison to Ball Screw Jacks.



### **Download Accurate Moveable Assembly 3D Models and 2D Drawings**

#### **For ActionJac™ Worm Gear Screw Jacks:**

- **Configure** specific requirements for your Worm Gear Screw Jack application in a simple interface, including motor adapter, right angle reducer, bellows boots and limit switch accessories.
- **View** complete assemblies on-line with zoom, pan and rotate capabilities.
- **Download** true assembly models with full range of motion in native AutoCAD®, SolidWorks®, Pro/E®, CATIA®, ParaSolids®, SAT® and many other formats.
- **Order** complete jack assemblies with generated part number.

Download  
**3D Models**



[www.nookindustries.com](http://www.nookindustries.com)





JACK SIZES					JACK SELECTION								
MODEL	Capacity (kN)	Lifting Screw Dia. (mm)	Screw Lead (mm)	Root Dia. (mm)	Gear Ratio	Raise for One Turn of Worm (mm)	Maximum Input Torque (N·m)	Maximum Allowable Input (kW)	Max. Worm Speed at Rated Load (rpm)	Maximum Load at 1425 RPM (kN)	Torque to Raise 1 kN (N·m)	No Load Torque (N·m)	Page Ref
EM05-MSJ	5	16	4	10.9	5:1	0.80	2.25	0.27	1130	4.0	0.45	0.11	359
					20:1	0.20	0.94	0.13	1130	4.6	0.19	0.11	359
EM1-MSJ	10	20	4	14.9	5:1	0.80	5.19	0.36	665	4.7	0.52	0.34	360
					20:1	0.20	2.44	0.19	730	5.1	0.24	0.34	360
EM2.5-MSJ	25	26	6	17.8	6:1	1.0	14.9	1.51	975	17.0	0.59	0.56	361
					12:1	0.5	8.7	1.13	1235	21.7	0.35	0.56	361
					24:1	0.25	6.3	0.38	575	10.1	0.25	0.56	361
EM5-MSJ	50	40	7	30.9	6:1	1.17	40.3	1.87	445	15.6	0.81	1.13	362
					24:1	0.29	16.0	0.51	300	10.7	0.32	1.13	362
EM10-MSJ	100	55	12	40.0	8:1	1.50	97.2	3.65	360	25.2	0.97	2.26	363
					24:1	1.50	215	5.60	250	14.8	0.50	2.26	363
EM20-MSJ	200	65	12	50.0	8:1	1.50	215	5.60	250	35.0	1.08	4.52	364
					24:1	0.50	108	1.9	165	23.0	0.54	4.52	364

**NOTES:**

- 1) The recommended maximum speed is 1800 RPM providing the recommended horsepower and temperature are not exceeded.
- 2) Input torque is shown as torque to lift one kN of load. Starting Torque is 100% greater than torque shown. For loads less than 25% of rated loads add tare drag torque.
- 3) Maximum allowable power ratings are based on a 25% duty cycle. For operation at higher duty cycles or repeated use over any segment of the total travel, temperature must be monitored and remain less than 95°C.
- 4) Overload capacity of the Trapezoidal Screw Jack is as follows: 10% for dynamic loads, 30% for static loads.
- 5) Trapezoidal Screw Jacks having gear ratios between 20:1 and 32:1, are self-locking and will hold loads without backdriving in the absence of vibrations. All other ratios may require a brake to prevent backdriving.
- 6) All units are suitable for intermittent operation providing that the housing temperature including ambient is not lower than -30°C. or higher than +95°C. Factory supplied grease in standard units will operate in this range. For higher or lower operating temperature ranges consult Nook Industries.

- 7) Accessories such as boots, limit switches, top plates and clevises are available.
- 8) Catalog dimensions are representative only and are subject to change without notice. For construction, use only certified prints.
- 9) Units are not to be used as personnel support or movement.
- 10) End-of-travel stops are not provided.

$$\text{kW per jack} = \frac{\text{Torque to raise one kN(N·m)} \times \text{Number of kN to be raised} \times \text{RPM}}{9,549}$$

Starting torque is 100% greater than torque shown.

\* No load torque need only be added if operating under 25% rated load.

Column strength is the ability of the lift shaft to hold compressive loads without buckling. With longer screw lengths, column strength may be substantially lower than nominal jack capacity.

If the lift shaft is in tension only, the screw jack travel is limited by the available screw material or by the critical speed of the screw. Refer to the trapezoidal screw technical section for critical speed limitations. If there is any possibility for the lift shaft to go into compression, the application should be sized for sufficient column strength.

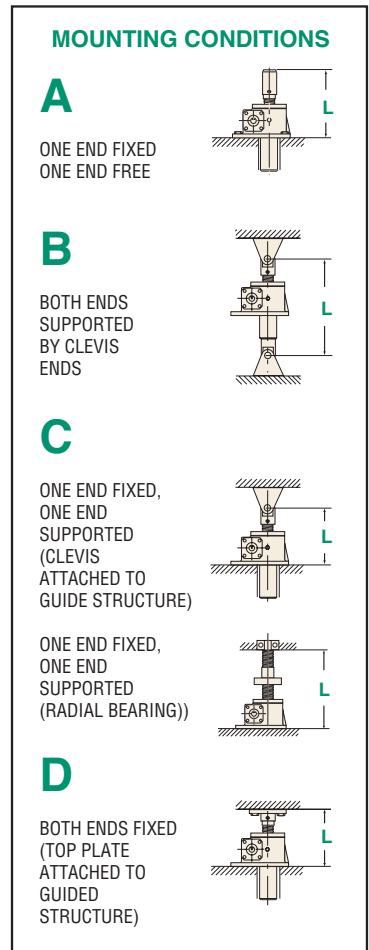
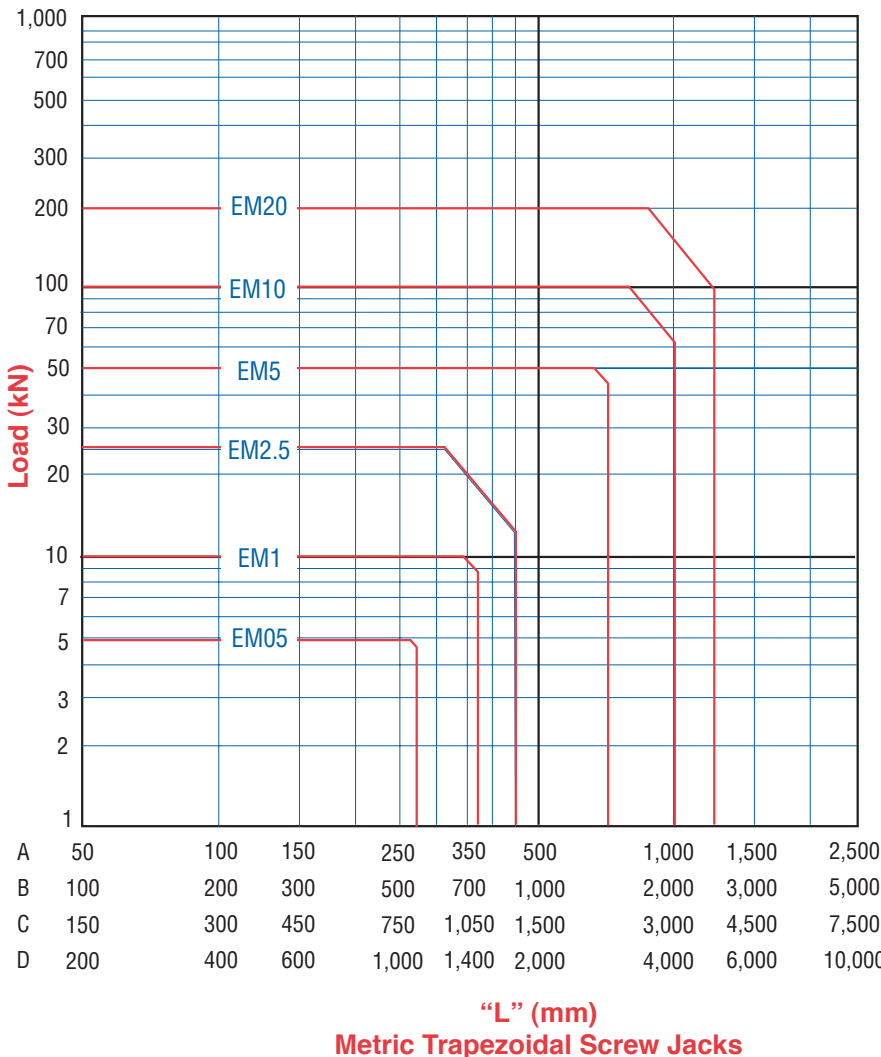
The chart below is used to determine the required jack size in applications where the lift shaft is loaded in compression.

To use this chart:

Find a point at which the maximum length “L” intersects the maximum load. Be sure the jack selected is above and to the right of that point.

**CAUTION:** chart does not include a design factor.

The chart assumes proper jack alignment with no bending loads on the screw. Effects from side loading are not included in this chart. Jacks operating horizontally with long lift shafts can experience bending from the weight of the screw. Consult Nook Industries, Inc. if side thrust is anticipated, operating horizontally, or maximum raise is greater than 30 times the screw diameter.



METRIC TRAPEZOIDAL SCREW JACKS TECHNICAL DATA

**AVAILABLE LIFT SCREW LENGTHS**

As a major manufacturer of industrial lead screws, Nook Industries stocks a broad selection of trapezoidal screws. Nook Industries has the capacity to make long trapezoidal

screws for special applications. Rotating screw jacks can be built with a larger diameter lift shaft for greater column strength.

**EM2.5-MSJ- U 6:1 / SSE-1 / 80B5-2 / FT / 580mm / SB**

**TRAPEZOIDAL SCREW MODEL**

kN	Model #	kN	Model #
5	= EM05-MSJ	50	= EM5-MSJ
10	= EM1-MSJ	100	= EM10-MSJ
25	= EM2.5-MSJ	200	= EM20-MSJ

**CONFIGURATION**

- U** = Upright
- I** = Inverted
- UR** = Upright Rotating
- IR** = Inverted Rotating

**GEAR RATIO**

Refer to product pages for available ratios.

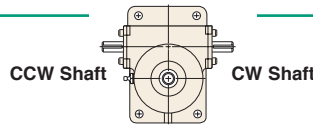
**SHAFT ORDER CODE**

- CCW Position 1
- CW Position 2

**ORDER CODES (Must Include A Position)**

**NO ACCESSORY**

- SSE-** = Standard Shaft Extension, Position 1 or 2
- 000-** = Delete Shaft Extension, Position 1 or 2
- SPC-** = Special Modified Shaft Extension, Position 1 or 2



**Motor Mounts Without Motor**  
(Position 1 or 2)

<b>56B5</b> = EM05	<b>80B5</b> = EM2.5 and EM5
<b>56B14</b> = EM05	<b>80B14</b> = EM2.5 and EM5
<b>63B5</b> = EM1	<b>90B5</b> = EM5 and EM10
<b>63B14</b> = EM1	<b>90B14</b> = EM5 and EM10
<b>71B5</b> = EM1 and EM2.5	<b>100B5</b> = EM10 and EM20
<b>71B14</b> = EM1 and EM2.5	<b>100B14</b> = EM10 and EM20

**NOTE:** Both Shaft Extensions Must Be Specified

**HOUSING CONFIGURATION**

- F** = Standard Flange Base

**SCREW CONFIGURATION**

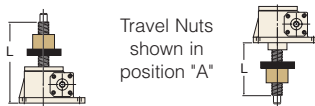
**TRANSLATING - U and I MODELS**

- T** = Standard Threaded End
- C** = Clevis End
- P** = Top Plate

**ROTATING - UR and IR MODELS**

- A** = Travel Nut Position "A"
- B** = Travel Nut Position "B"

**UR** - Upright Rotating      **IR** - Inverted Rotating



**TRAVEL**

For Translating Screw Models (U and I) use actual Travel in mm. For Rotating Screw Models (UR and IR) use "L" Dimension in Inches.

**MODIFIER LIST**

**S or M Required**

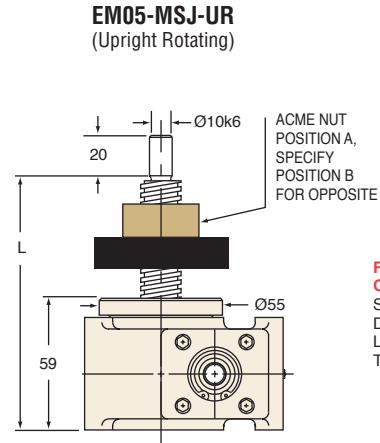
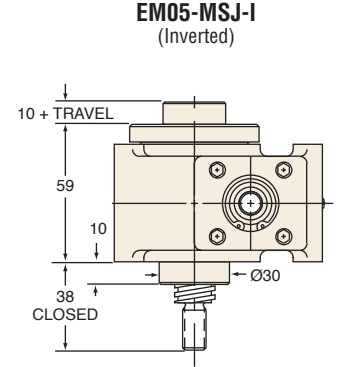
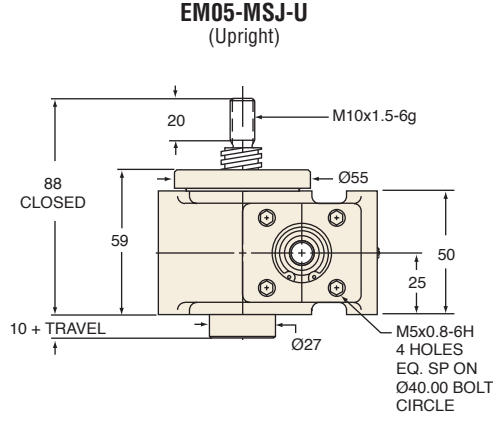
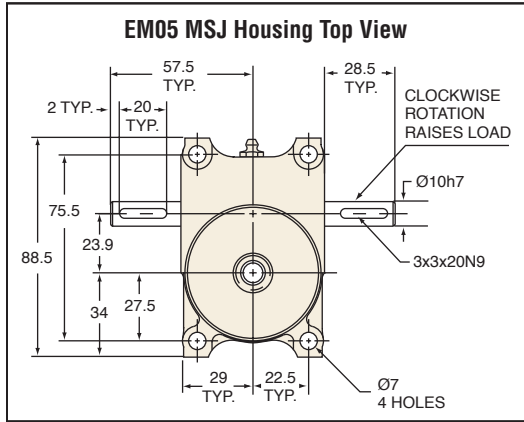
- S** = Standard, no additional description required
- M** = Modified, additional description required

**E and/or B Optional**

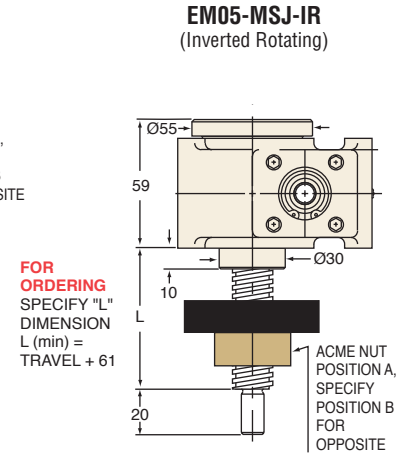
- E** = In-Line Encoder (motor or motor mount required)
- B** = Bellows Boots (must calculate retracted and extended boot length, see page 280-281)

METRIC TRAPEZOIDAL SCREW JACKS TECHNICAL DATA

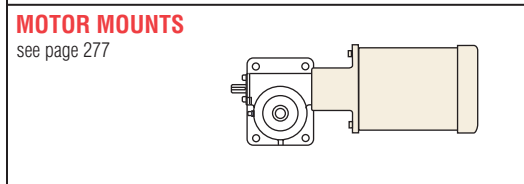
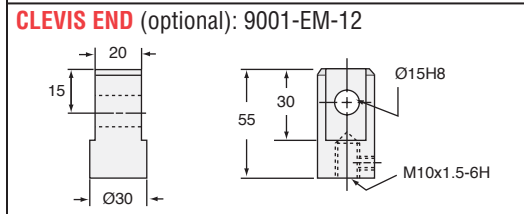
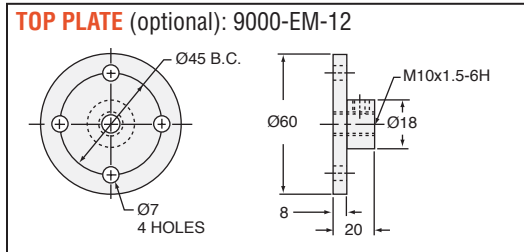




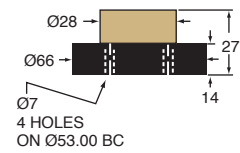
**FOR ORDERING**  
SPECIFY "L"  
DIMENSION  
L (min) =  
TRAVEL + 111



**FOR ORDERING**  
SPECIFY "L"  
DIMENSION  
L (min) =  
TRAVEL + 61



**ACME NUT & FLANGE DIMENSIONS**

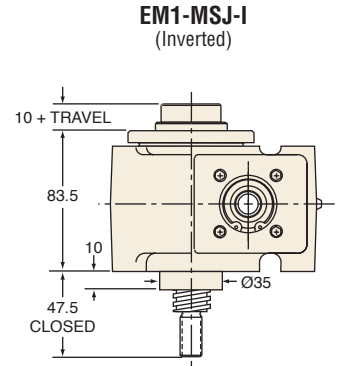
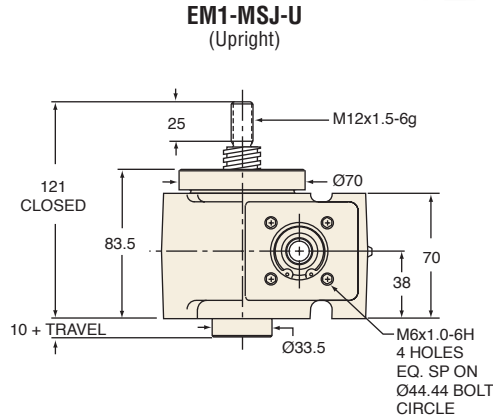
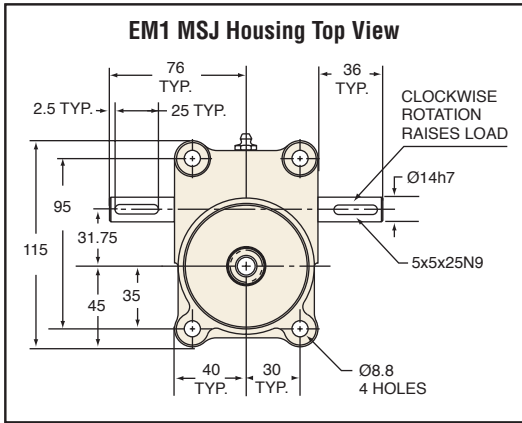


**EM05-MSJ SCREW**

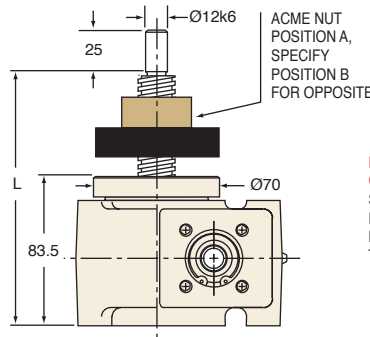
SCREW: Tr16x4  
 ROOT DIAMETER: 10.9  
 DRAG TORQUE: 0.11  
 START TORQUE: 2 x Running Torque  
 WEIGHT (Approx. in Kg)  
 "0" TRAVEL: 1.13  
 PER 100mm TRAVEL: 0.12  
 GREASE: 0.23

RATIO	TRAVEL PER 1 TURN OF WORM	TORQUE TO RAISE ONE kN NON-KEYED	MAX. kW	MAX. WORM SPEED AT RATED LOAD NON-KEYED	MAX. LOAD AT 1425 RPM NON-KEYED
5:1	0.80 mm	0.45 Nm	0.27	1130 rpm	4.0 kN
20:1	0.20 mm	0.19 Nm	0.13	1300 rpm	4.6 kN

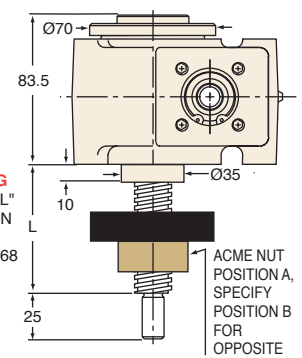
LIFTING SCREW OR NUT MUST BE SECURED TO PREVENT ROTATION FOR NON-KEYED UNITS.  
**CAUTION!** JACK MAY BE SELF-LOWERING IN SOME OPERATING CONDITIONS.



**EM1-MSJ-UR (Upright Rotating)**

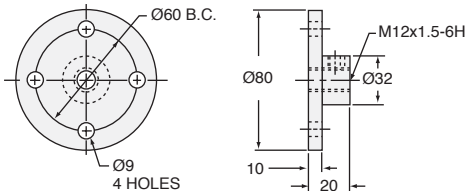


**EM1-MSJ-IR (Inverted Rotating)**

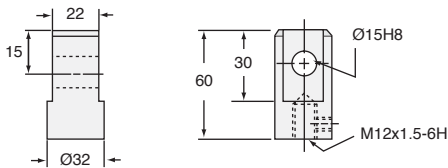


METRIC TRAPEZOIDAL SCREW JACKS TECHNICAL DATA

**TOP PLATE (optional): 9000-EM-11**

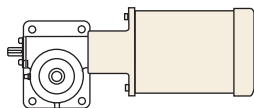


**CLEVIS END (optional): 9001-EM-11**

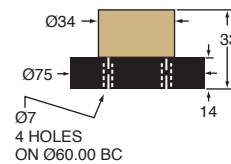


**MOTOR MOUNTS**

see page 277



**ACME NUT & FLANGE DIMENSIONS**

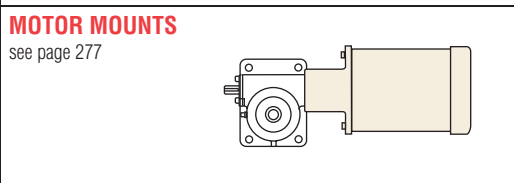
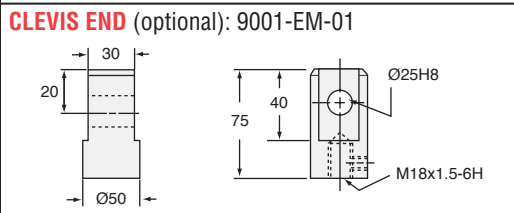
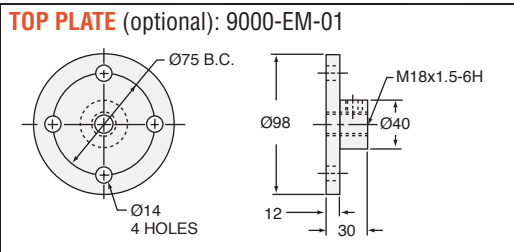
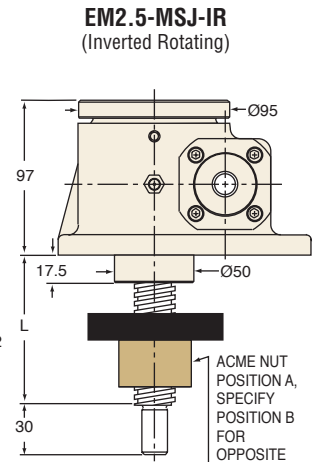
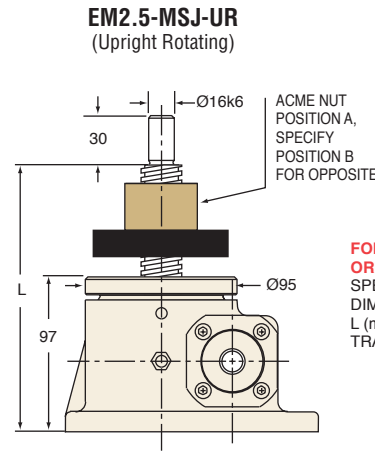
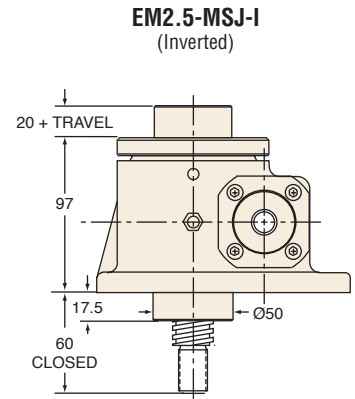
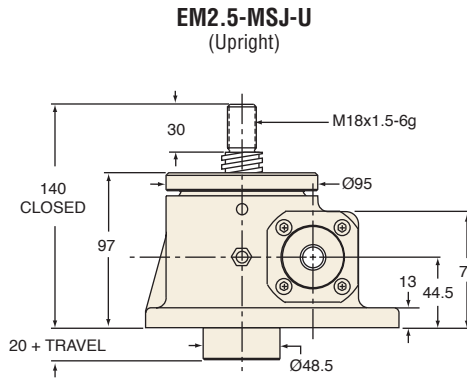
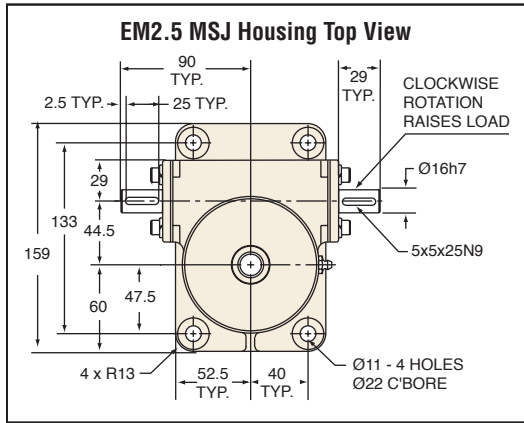


**EM1-MSJ SCREW**

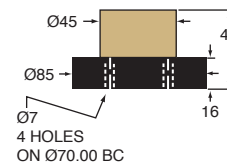
SCREW: Tr20x4  
 ROOT DIAMETER: 14.9  
 DRAG TORQUE: 0.34  
 START TORQUE: 2 x Running Torque  
 WEIGHT (Approx. in Kg)  
 "0" TRAVEL: 2.5  
 PER 100mm TRAVEL: 0.19  
 GREASE: 0.23

RATIO	TRAVEL PER 1 TURN OF WORM	TORQUE TO RAISE ONE kN NON-KEYED	MAX. kW	MAX. WORM SPEED AT RATED LOAD NON-KEYED	MAX. LOAD AT 1425 RPM NON-KEYED
5:1	0.80 mm	0.52 Nm	0.36	665 rpm	4.7 kN
20:1	0.20 mm	0.24 Nm	0.19	730 rpm	5.1 kN

LIFTING SCREW OR NUT MUST BE SECURED TO PREVENT ROTATION FOR NON-KEYED UNITS.  
**CAUTION!** JACK MAY BE SELF-LOWERING IN SOME OPERATING CONDITIONS.



**ACME NUT & FLANGE DIMENSIONS**



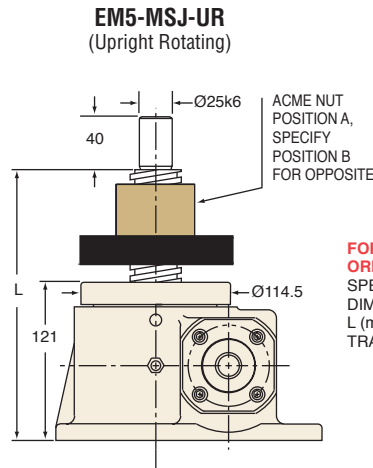
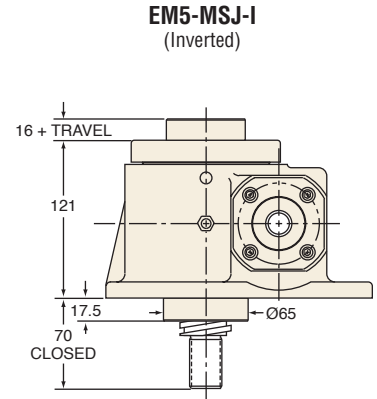
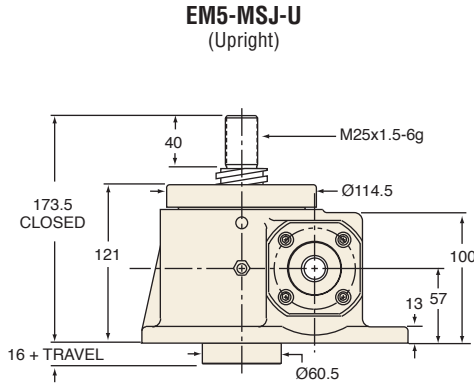
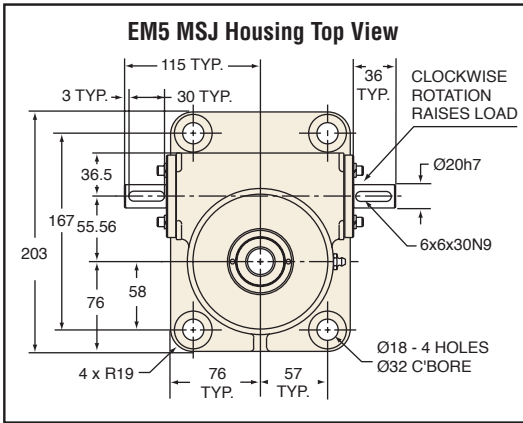
**EM2.5-MSJ SCREW**

SCREW: Tr26x6  
ROOT DIAMETER: 17.8  
DRAG TORQUE: .56  
START TORQUE: 2 x Running Torque  
WEIGHT (Approx. in Kg)  
"0" TRAVEL: 7.7  
PER 100mm TRAVEL: 0.32  
GREASE: 0.22

RATIO	TRAVEL PER 1 TURN OF WORM	TORQUE TO RAISE ONE kN NON-KEYED	MAX. kW	MAX. WORM SPEED AT RATED LOAD NON-KEYED	MAX. LOAD AT 1425 RPM NON-KEYED
6:1	1.0 mm	0.59 Nm	1.51	975 rpm	17.0 kN
12:1	0.5 mm	0.35 Nm	1.13	1235 rpm	21.7 kN
24:1	0.25 mm	0.25 Nm	0.38	575 rpm	10.1 kN

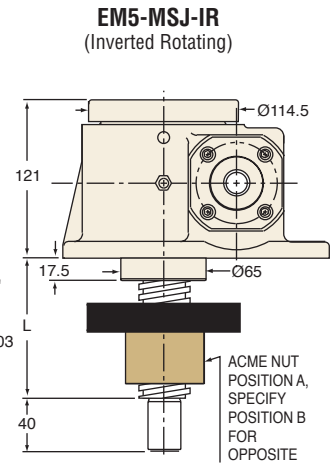
LIFTING SCREW OR NUT MUST BE SECURED TO PREVENT ROTATION FOR NON-KEYED UNITS.  
**CAUTION!** JACK MAY BE SELF-LOWERING IN SOME OPERATING CONDITIONS.

METRIC TRAPEZOIDAL SCREW JACKS TECHNICAL DATA

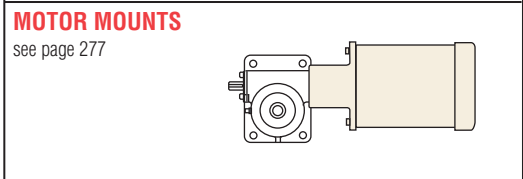
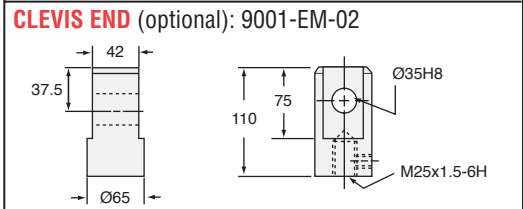
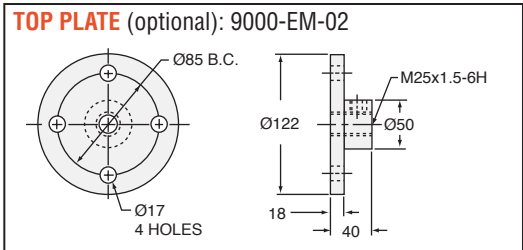


**FOR ORDERING**  
SPECIFY "L"  
DIMENSION  
L (min) =  
TRAVEL + 207

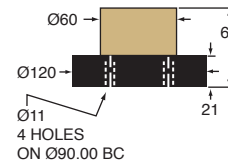
**FOR ORDERING**  
SPECIFY "L"  
DIMENSION  
L (min) =  
TRAVEL + 103



METRIC TRAPEZOIDAL SCREW JACKS TECHNICAL DATA



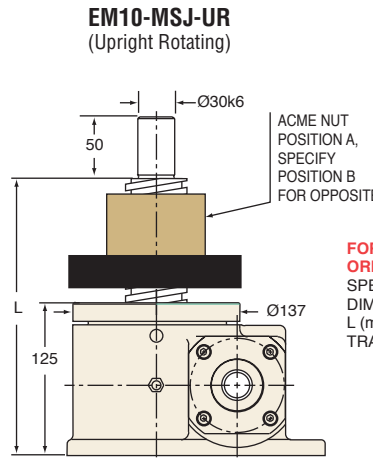
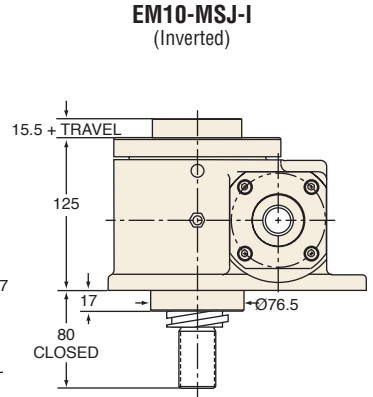
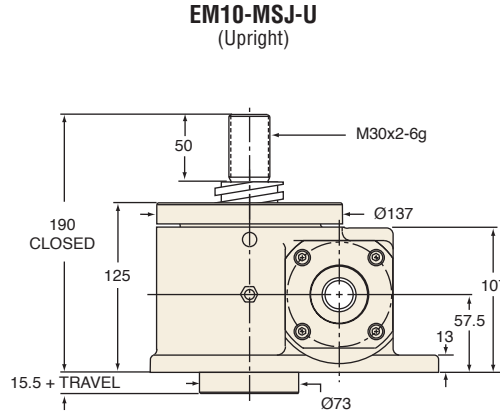
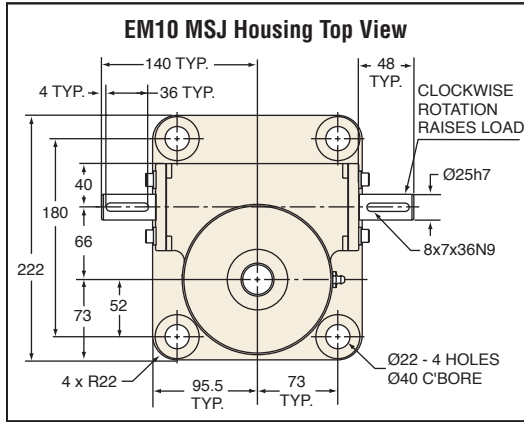
**ACME NUT & FLANGE DIMENSIONS**



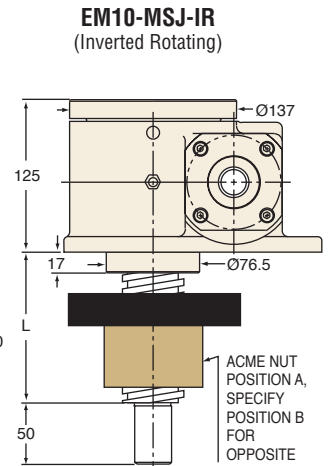
**EM5-MSJ SCREW**  
 SCREW: Tr40x7  
 ROOT DIAMETER: 30.9  
 DRAG TORQUE: 1.13  
 START TORQUE: 2 x Running Torque  
 WEIGHT (Approx. in Kg)  
 "0" TRAVEL: 13.6  
 PER 100mm TRAVEL: 0.81  
 GREASE: 0.45

RATIO	TRAVEL PER 1 TURN OF WORM	TORQUE TO RAISE ONE kN NON-KEYED	MAX. kW	MAX. WORM SPEED AT RATED LOAD NON-KEYED	MAX. LOAD AT 1425 RPM NON-KEYED
6:1	1.17 mm	0.81 Nm	1.87	445 rpm	15.6 kN
24:1	0.29 mm	0.32 Nm	0.51	300 rpm	10.7 kN

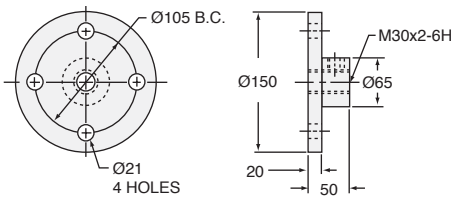
LIFTING SCREW OR NUT MUST BE SECURED TO PREVENT ROTATION FOR NON-KEYED UNITS.  
**CAUTION!** JACK MAY BE SELF-LOWERING IN SOME OPERATING CONDITIONS.



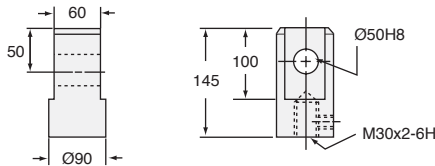
**FOR ORDERING**  
SPECIFY "L" DIMENSION  
L (min) = TRAVEL + 227



**TOP PLATE (optional): 9000-EM-04**

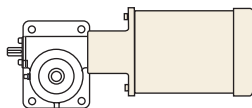


**CLEVIS END (optional): 9001-EM-04**

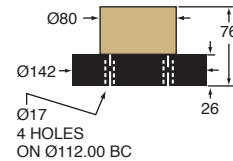


**MOTOR MOUNTS**

see page 277



**ACME NUT & FLANGE DIMENSIONS**

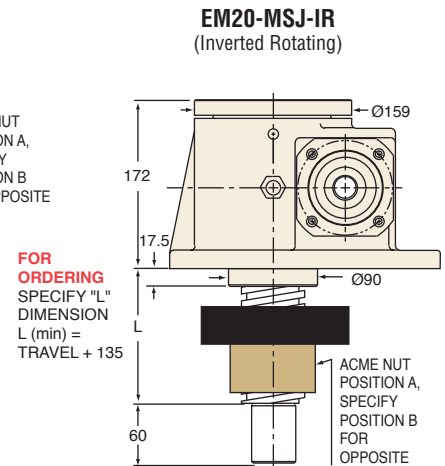
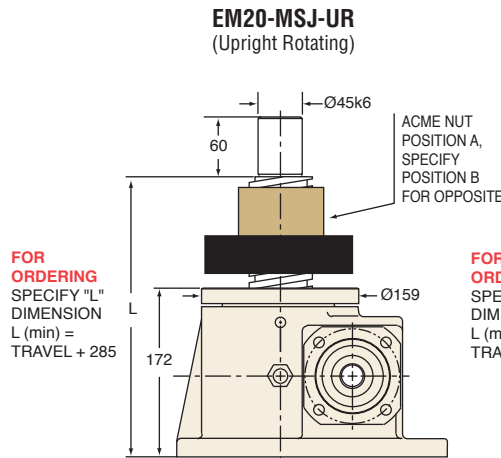
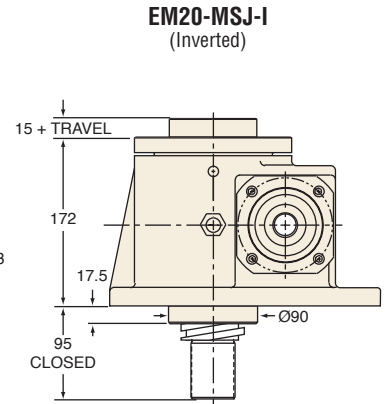
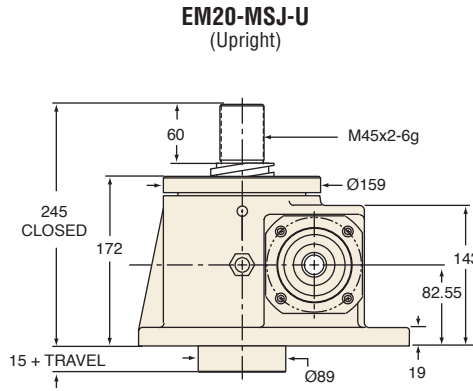
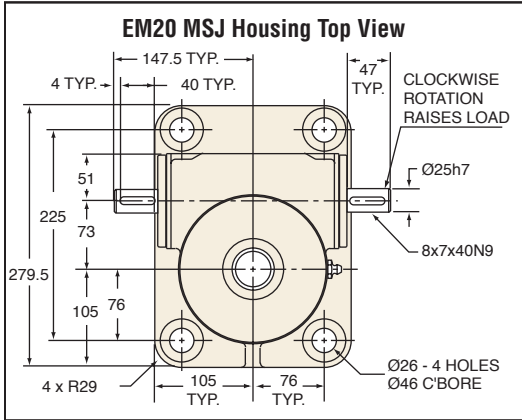


**EM10-MSJ SCREW**

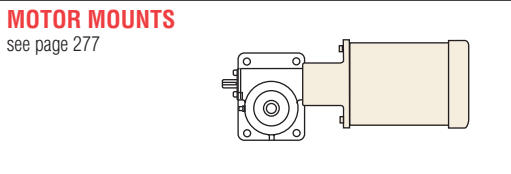
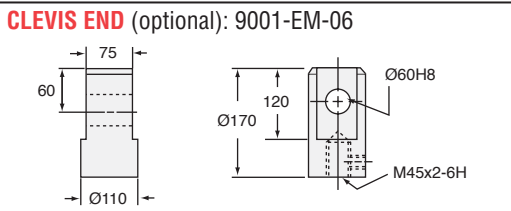
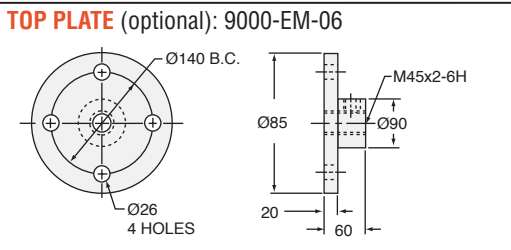
SCREW: Tr55x12  
ROOT DIAMETER: 40  
DRAG TORQUE: 2.26  
START TORQUE: 2 x Running Torque  
WEIGHT (Approx. in Kg)  
"0" TRAVEL: 20.4  
PER 100mm TRAVEL: 1.46  
GREASE: 0.68

RATIO	TRAVEL PER 1 TURN OF WORM	TORQUE TO RAISE ONE kN NON-KEYED	MAX. kW	MAX. WORM SPEED AT RATED LOAD NON-KEYED	MAX. LOAD AT 1425 RPM NON-KEYED
8:1	1.5 mm	0.97 Nm	3.65	360 rpm	25.2 kN
24:1	0.5 mm	0.50 Nm	1.10	210 rpm	14.8 kN

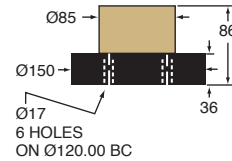
LIFTING SCREW OR NUT MUST BE SECURED TO PREVENT ROTATION FOR NON-KEYED UNITS.  
**CAUTION!** JACK MAY BE SELF-LOWERING IN SOME OPERATING CONDITIONS.



METRIC TRAPEZOIDAL SCREW JACKS TECHNICAL DATA



**ACME NUT & FLANGE DIMENSIONS**



**EM20-MSJ SCREW**

SCREW: Tr65x12  
 ROOT DIAMETER: 50  
 DRAG TORQUE: 4.52  
 START TORQUE: 2 x Running Torque  
 WEIGHT (Approx. in Kg)  
 "0" TRAVEL: 36.3  
 PER 100mm TRAVEL: 2.12  
 GREASE: 1.0

RATIO	TRAVEL PER 1 TURN OF WORM	TORQUE TO RAISE ONE kN NON-KEYED	MAX. KW	MAX. WORM SPEED AT RATED LOAD NON-KEYED	MAX. LOAD AT 1425 RPM NON-KEYED
8:1	1.50 mm	1.08 Nm	5.6	250 rpm	35.0 kN
24:1	0.5 mm	0.54 Nm	1.9	165 rpm	23.0 kN

LIFTING SCREW OR NUT MUST BE SECURED TO PREVENT ROTATION FOR NON-KEYED UNITS.  
**CAUTION!** JACK MAY BE SELF-LOWERING IN SOME OPERATING CONDITIONS.