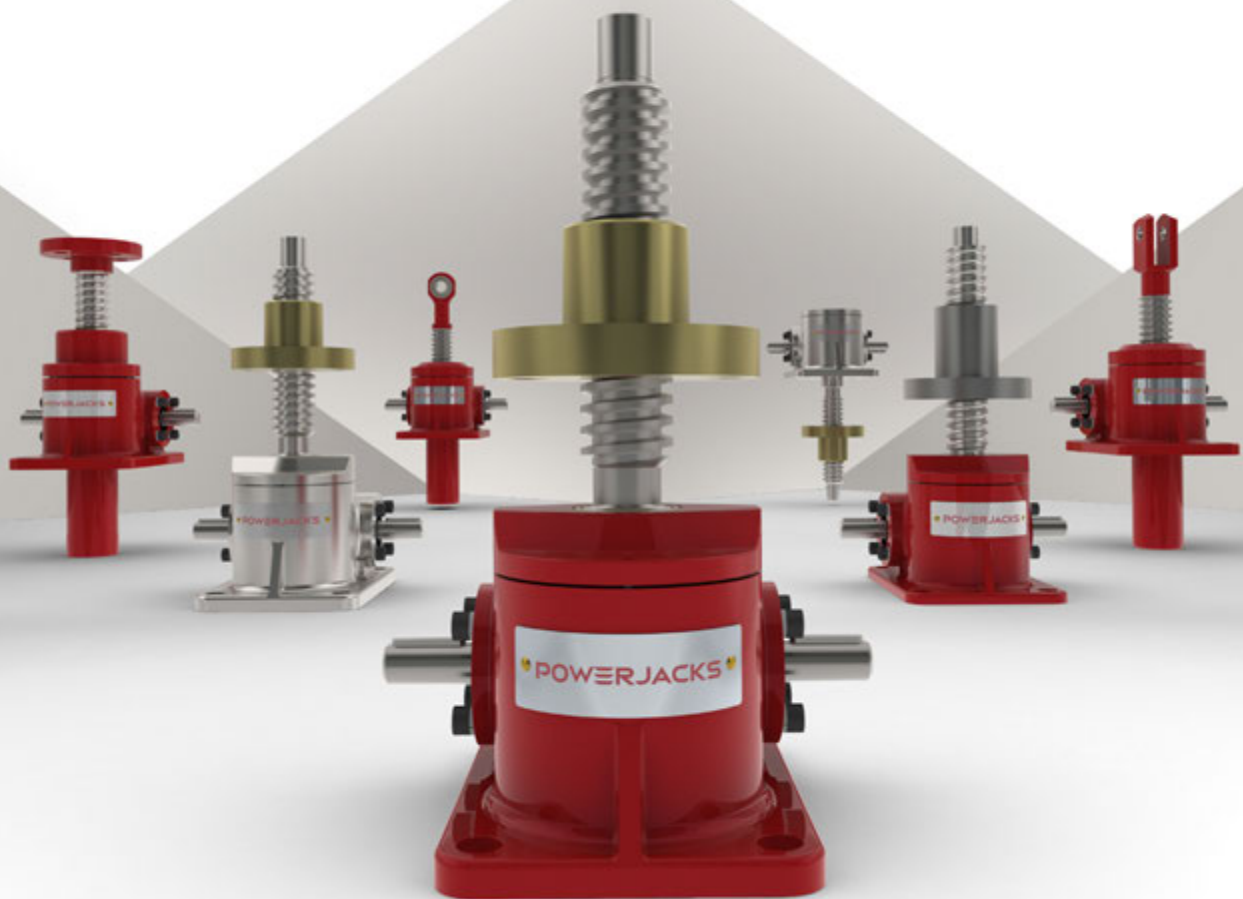


# POWERJACKS

PRECISION ACTUATION



## E-SERIES SCREW JACKS

**POWERJACKS**

Best engineered  
solution for precision  
linear actuation,  
power transmission  
& jacking systems.



# Capability



OUR EXPERTISE HAS BEEN BUILT ON A HISTORY OF MORE THAN 100 YEARS OF ENGINEERING, CRAFTSMANSHIP, VISIONARY DESIGN, QUALITY MANUFACTURE AND CUSTOMER CARE.



Power Jacks is a manufacturing/engineering company specialising in the design and manufacture of actuation, lifting and positioning solutions for applications in Industrial Automation, Energy, Defence, Medical, Transport, and the Civil Engineering sectors.

Headquartered near Aberdeen in the UK, the company is the UK's largest screw jack manufacturing facility, that uses the latest engineering technologies to deliver quality products (ISO 9001) that offer reliability, performance and economy.

Power Jacks deliver this high quality service in a safe (ISO 45001) and environmentally friendly (ISO 14001) working environment thanks to the highly trained, flexible and motivated teams that work throughout the business driving the company to higher levels of performance.

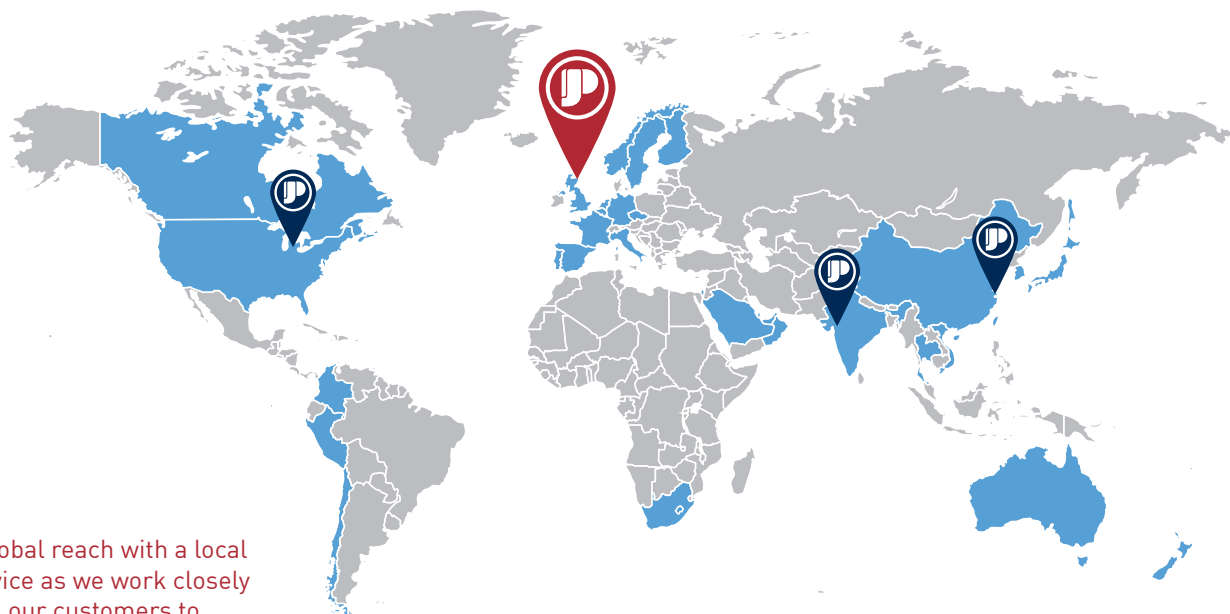
We know our customers demand our engineering expertise to help find a solution for their applications. We take pride in designing and delivering the best solution using standard or special designs that help improve your business.

Our Vision is to become the partner of choice for our products globally

Our Mission is to provide high quality lifting & positioning solutions.

# Global Reach

Power Jacks has local representation in 26 countries and supplies its products to more than 80 countries worldwide.



A global reach with a local service as we work closely with our customers to ensure the best solution for all their Electro-Mechanical solution applications.

- Headquarters & Factory
- Local Power Jacks Sales Offices
- Local Representative

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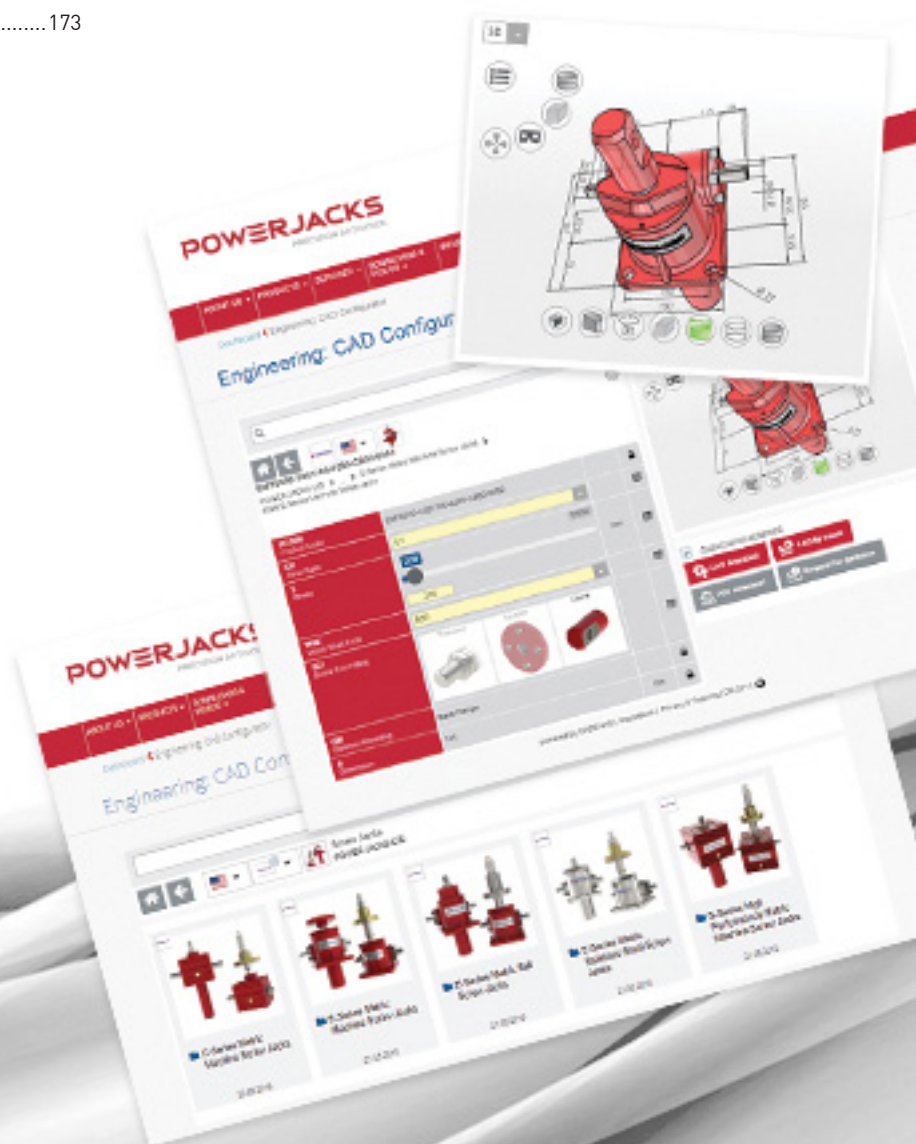
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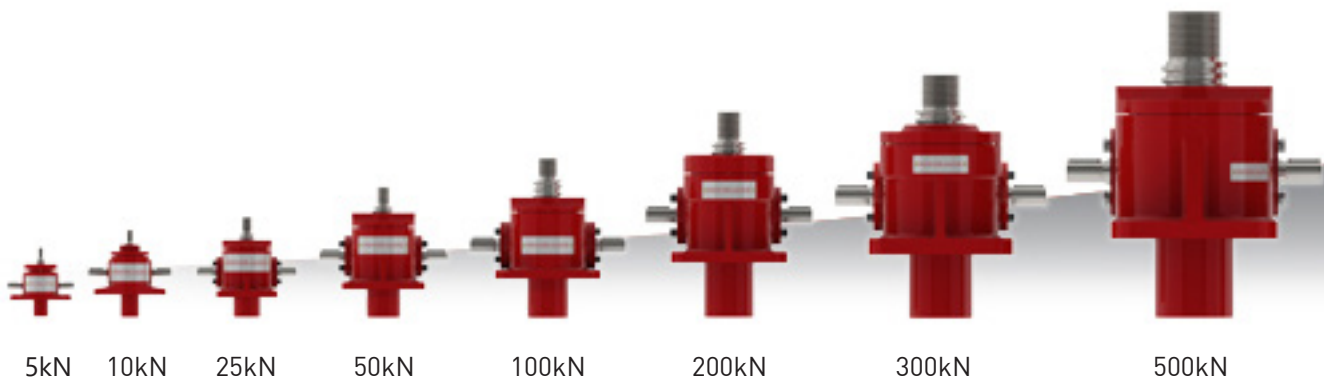
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# TRY OUR 3D CAD PORTAL

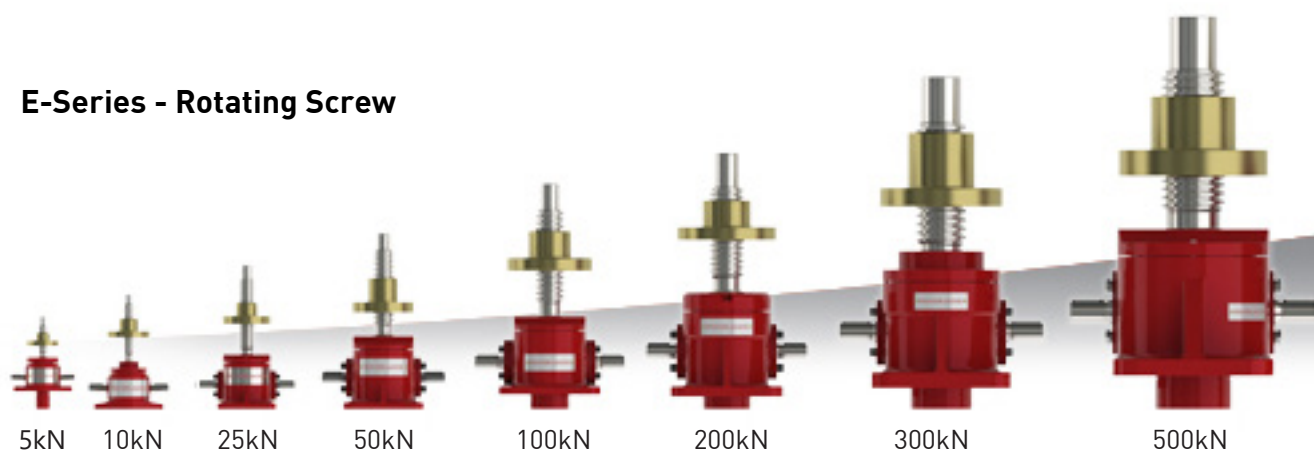
- 2D CAD Drawings
- 3D CAD Models
- Dimensioned Data Sheet



### E-Series - Translating Screw



### E-Series - Rotating Screw





1000kN



1500kN



2000kN



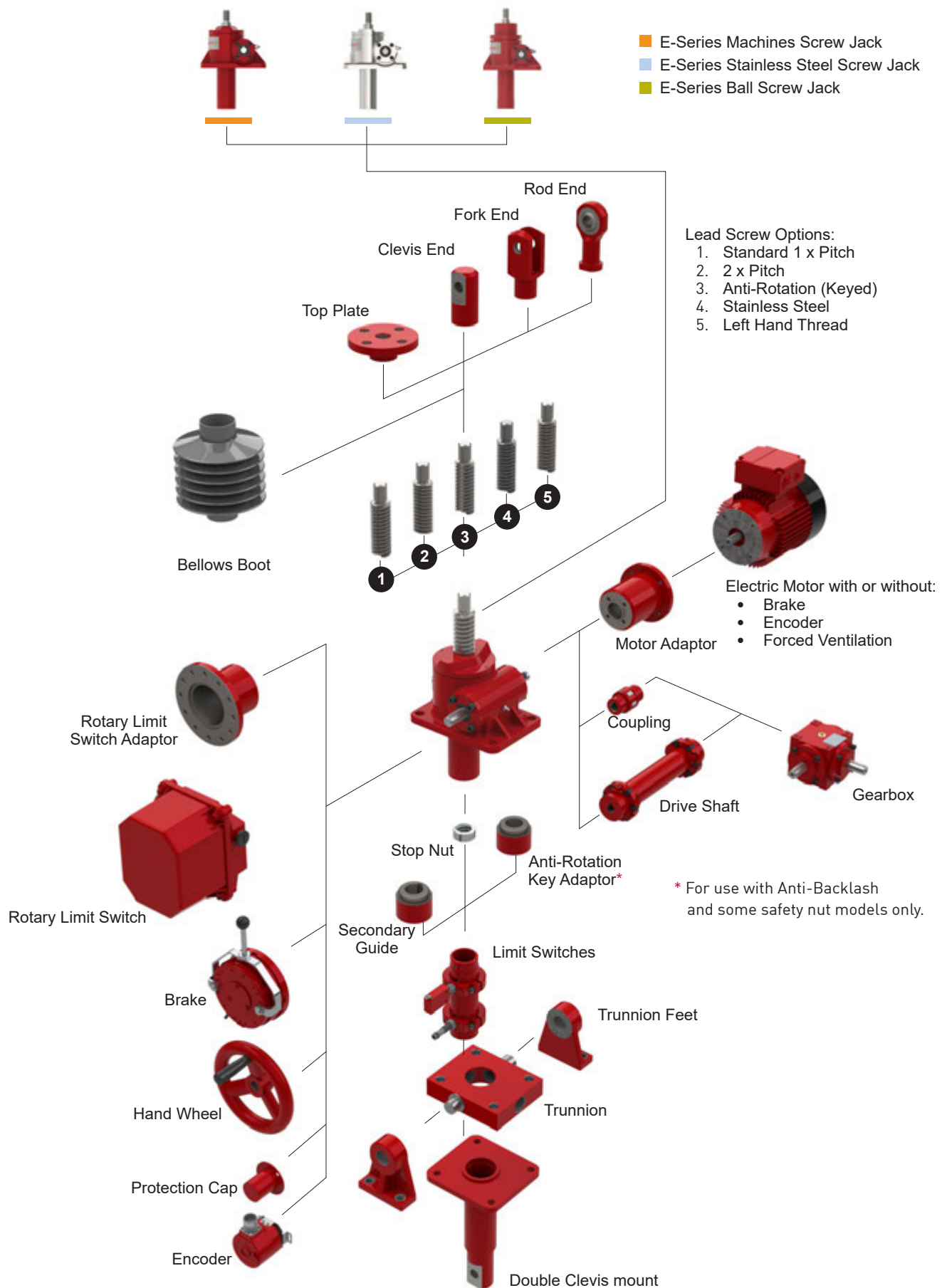
1000kN



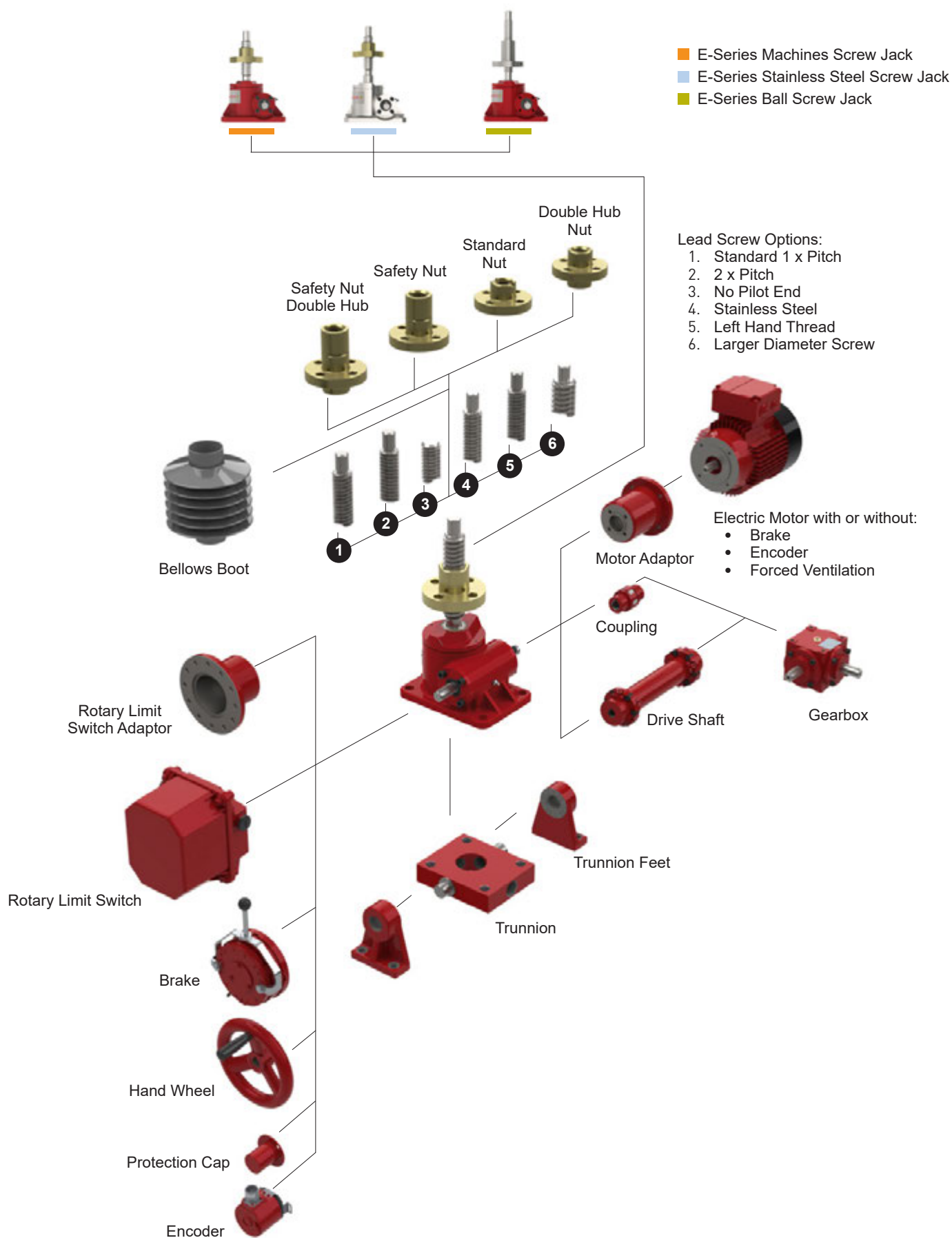
1500kN



2000kN



■ Special Screw Jacks Design Available when you need more than the standard solution.

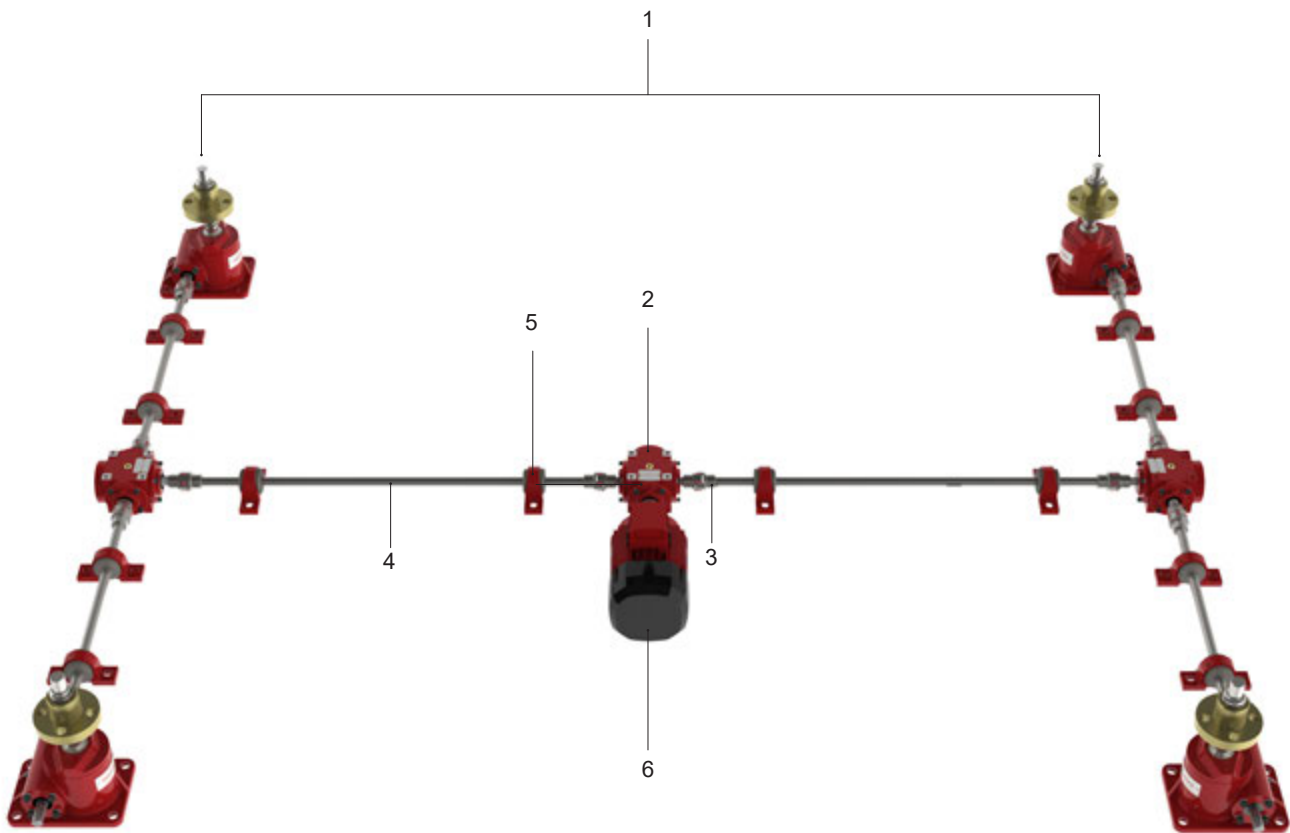


■ Special Screw Jacks Design Available when you need more than the standard solution.

Screw jacks can be connected together in systems so that multiple units can be operated and controlled together. These jacking system arrangements or configurations can be built in many formats with the use of bevel gearboxes, motors, reduction gearboxes, drive shafts, couplings, plummer blocks and motion control devices.

Four of the most popular system configurations are the 'H', 'U', 'T' and 'I' configured jacking systems. Note that multiple screw jacks can be linked together mechanically or electrically. The latter is useful if there is no space for linking drive shafts.

#### Typical 'H' configuration System



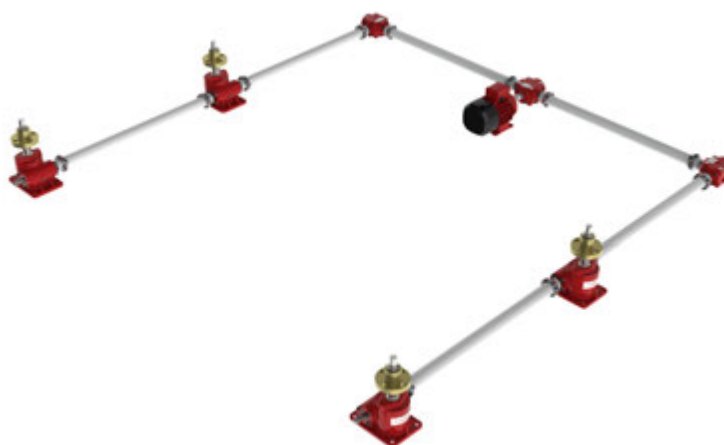
1. Screw Jack  
E-Series Rotating Machine Screw Jack shown here.
2. Bevel Gearbox  
Range-N Spiral Bevel Gearboxes
3. Flexible Coupling  
A range of couplings are available to suit each systems requirements including Jaw, Spacer and Geared types.
4. Drive Shaft  
Every drive shaft is manufactured to order for each system design. Self supporting drive shafts (spacer couplings) are also available.
5. Shaft Supports (plummer blocks).
6. Electric Motor  
Standard electric motors in 3 phase, 1 phase, DC and servo designs. Supplied as a basic motor or as part of a geared motor. Brakes are available for all motors.



Jacking systems are not limited to the number of screw jacks shown here. They are regularly supplied to clients with 2, 4, 6, 8 jack systems. Larger systems can extend up to 16 or higher. With the use of electronic synchronisation/control multiple systems or screw jacks can be used in unison. Extending the possible number of screw jacks used in unison in excess of 100.

To facilitate electronic control of screw jacks, feedback devices (eg encoder, limit switch) are available, mounted on the screw jack or its motor or another system component.

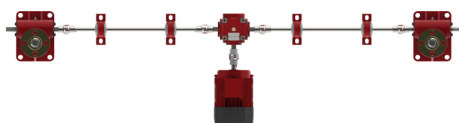
#### 'U' Configuration System



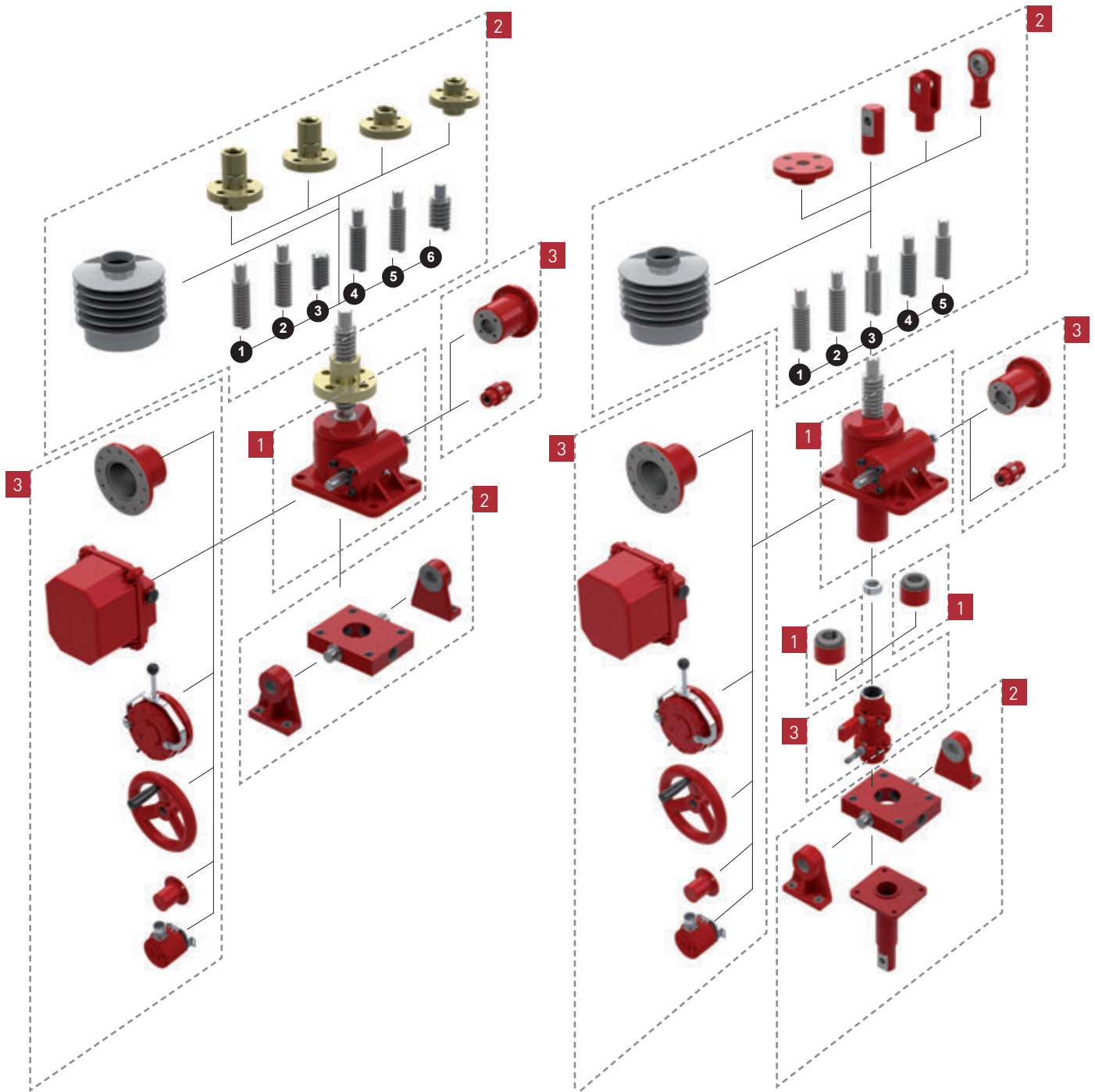
#### 'I' Configuration System



#### 'T' Configuration System





**1 GROUP-1 - Screw Jack Gearbox Definition****2 GROUP-2 - Screw Jack Features****3 GROUP-3 - Accessories**

**1 GROUP-1 - Screw Jack Gearbox Definition****1-Screw Jack Series**

|   |        |
|---|--------|
| E | Series |
| C | Series |

**2 - Screw Type**

|   |               |
|---|---------------|
| M | Machine Screw |
| B | Ball Screw    |

**3- Screw Configuration**

|   |                   |
|---|-------------------|
| R | Rotating Screw    |
| T | Translating Screw |

|                |      |      |      |      |      |      |      |      |      |      |      |
|----------------|------|------|------|------|------|------|------|------|------|------|------|
| 4-7 - Capacity | 0005 | 0010 | 0025 | 0050 | 0100 | 0200 | 0300 | 0500 | 1000 | 1500 | 2000 |
| kN             | 5    | 10   | 25   | 50   | 100  | 200  | 300  | 500  | 1000 | 1500 | 2000 |

**8 - Character Space****9-Gearbox Type**

|   |                                                                                     |
|---|-------------------------------------------------------------------------------------|
| U | Upright (Standard, Type-1 Housing)                                                  |
| I | Inverted (Standard, Type-1 Housing)                                                 |
| V | Upright - All Stainless Steel Screw Jack <sup>#16</sup> (Standard, Type-1 Housing)  |
| J | Inverted - All Stainless Steel Screw Jack <sup>#16</sup> (Standard, Type-1 Housing) |
| C | Cubic                                                                               |
| T | Upright (Type-2 Housing Option)                                                     |
| H | Inverted (Type-2 Housing Option)                                                    |
| S | Upright - All Stainless Steel Screw Jack <sup>#16</sup> (Type-2 Housing Option)     |
| G | Inverted - All Stainless Steel Screw Jack <sup>#16</sup> (Type-2 Housing Option)    |

**10 - Gearbox Feature - 1**

|   |                                            |
|---|--------------------------------------------|
| 0 | None                                       |
| K | Anti-Rotation (Keyed)                      |
| C | Secondary Guide                            |
| E | Anti-Rotation (keyed) with Secondary Guide |
| H | Double Hub Nut <sup>#1, #12</sup>          |
| T | Trunnion Nut                               |
| U | Trunnion Nut with Feet                     |

**11 - Gearbox Feature - 2**

|   |                                                              |
|---|--------------------------------------------------------------|
| 0 | None                                                         |
| A | Anti-Backlash (this option is zero backlash for ball screws) |
| B | Anti-Backlash with wear monitor - Visual                     |
| C | Anti-Backlash with wear monitor - Sensor                     |
| R | Safety Nut Tension                                           |
| S | Safety Nut Compression                                       |
| T | Safety Nut Tension with Wear Monitor - visual                |
| U | Safety Nut Compression with wear monitor - visual            |
| V | Safety Nut Tension with Wear Monitor - Sensor                |
| W | Safety Nut Compression with wear monitor - Sensor            |

**12 - Gear Ratio**

|   |                                                          |
|---|----------------------------------------------------------|
| 1 | Option 1 Ratio                                           |
| 2 | Option 2 Ratio                                           |
| A | Option 1 Ratio with gear rotation monitor <sup>#12</sup> |
| B | Option 2 Ratio with gear rotation monitor <sup>#12</sup> |

**13 - Lifting Screw Lead**

|   |                                                     |
|---|-----------------------------------------------------|
| 1 | Option 1 Lead - Right Hand (Standard) <sup>#4</sup> |
| 2 | Option 2 Lead - Right Hand <sup>#4</sup>            |
| A | Option 1 Lead - Left Hand <sup>#5</sup>             |
| B | Option 2 Lead - Left Hand <sup>#5</sup>             |

**14 - Worm Shaft Type <sup>#16</sup>**

|   |                            |
|---|----------------------------|
| 0 | Standard Material          |
| N | Nickel Plated Worm Shaft   |
| S | Stainless Steel Worm Shaft |

**15 - Worm Shaft Ends**

|   |                                                |
|---|------------------------------------------------|
| 0 | Both                                           |
| L | Left Hand Only                                 |
| R | Right Hand Only                                |
| X | Both with Protective Cap on LHS <sup>#11</sup> |
| Y | Both with Protective Cap on RHS <sup>#11</sup> |

**16 - Character Space**

### 2 GROUP-2 - Screw Jack Features

|                |        |
|----------------|--------|
| 17-20 - Stroke | 0000   |
| Stroke in mm   | 0-9999 |

#### 21 - Character Space

| 22 - End Type #16 #17 |                                           |
|-----------------------|-------------------------------------------|
| E                     | Threaded End                              |
| C                     | Clevis End                                |
| T                     | Top Plate                                 |
| F                     | Fork End (standard available up to 200kN) |
| R                     | Rod End (standard available up to 200kN)  |
| J                     | Plain End                                 |
| P                     | Pilot End #1                              |
| N                     | No Pilot End #1                           |

| 23 - Gearbox Mounting |                                            |
|-----------------------|--------------------------------------------|
| B                     | Base Mount                                 |
| C                     | Second Clevis on Cover Pipe Standard #6 #9 |
| E                     | Second Clevis on Cover Pipe 90 degree #9   |
| T                     | Trunnion Mount Standard #2                 |
| U                     | T + Trunnion Feet                          |
| X                     | Trunnion Mount 90 degree #3                |
| Y                     | X + Trunnion Feet                          |

| 24 - Lifting Screw Material #16 |                                               |
|---------------------------------|-----------------------------------------------|
| 0                               | Standard                                      |
| S                               | Stainless Steel                               |
| M                               | Standard with Low Friction Coating (Molycote) |
| A                               | Standard with Protective Coating (Armaloy)    |

| 25 - Lifting Screw Covers |                                                |
|---------------------------|------------------------------------------------|
| 0                         | Cover Pipe & No Bellows Boot #15               |
| B                         | Cover Pipe & Fabric Bellows Boot #9            |
| F                         | Fabric Bellows Boot x 2 - Rotating Screw       |
| R                         | Cover Pipe & Rubber Bellows Boot #9            |
| S                         | Rubber Bellows Boot x 2 - Rotating Screw       |
| N                         | No Cover Pipe & No Bellows Boot #9             |
| W                         | Cover Pipe & PU Waterproof Bellows Boot #9     |
| X                         | PU Waterproof Bellows Boot x2 - Rotating Screw |

#### 26 - Character Space

### 3 GROUP-3 - Accessories

| 27 - Drive Type #11 |                                                                   |   |                                                 |
|---------------------|-------------------------------------------------------------------|---|-------------------------------------------------|
| 0                   | None, Standard Features (tapped holes on gearbox side if present) | H | Hand Wheel - LHS                                |
| A                   | Motor Adapter Only, B14 - LHS                                     | J | Hand Wheel - RHS                                |
| B                   | Motor Adapter Only, B14 - RHS                                     | R | Rotation Indicator (Visual) on worm shaft - LHS |
| C                   | Motor Adapter B14 & Coupling - LHS                                | T | Rotation Indicator (Visual) on worm shaft - RHS |
| E                   | Motor Adapter B14 & Coupling - RHS                                |   |                                                 |

| 28- Motor Frame Size / Drive Interface Size #11 |                    |   |                    |
|-------------------------------------------------|--------------------|---|--------------------|
| 0                                               | Not Applicable     | F | 112 Size IEC Frame |
| A                                               | 63 Size IEC Frame  | G | 132 Size IEC Frame |
| B                                               | 71 Size IEC Frame  | H | 160 Size IEC Frame |
| C                                               | 80 Size IEC Frame  | I | 180 Size IEC Frame |
| D                                               | 90 Size IEC Frame  | J | 200 Size IEC Frame |
| E                                               | 100 Size IEC Frame |   |                    |

| 29 - Mounting Kit for Limit Switches & Stop Nuts #18 |                                                                  |   |                                                             |
|------------------------------------------------------|------------------------------------------------------------------|---|-------------------------------------------------------------|
| 0                                                    | None                                                             | P | Inductive Proximity Sensor, 2, End of Stroke, Adjustable #9 |
| C                                                    | RLS-51 Rotary Cam Limit Switch - RHS #11                         | S | SKA Rotary Cam Limit Switch - RHS #11                       |
| D                                                    | RLS-51 Rotary Cam Limit Switch - LHS #11                         | T | SKA Rotary Cam Limit Switch - LHS #11                       |
| E                                                    | RLS-51 Rotary Cam Limit Switch - RHS with Stop Nut #11           | U | SKA Rotary Cam Limit Switch - RHS with Stop Nut #11         |
| F                                                    | RLS-51 Rotary Cam Limit Switch - LHS with Stop Nut #11           | V | SKA Rotary Cam Limit Switch - LHS with Stop Nut #11         |
| M                                                    | Electro-Mechanical Limit Switch, 2, End of Stroke, Adjustable #9 | W | Stop Nut                                                    |

| 30 - Paint, Lubricant, Seals #13 #14 |                                                           |
|--------------------------------------|-----------------------------------------------------------|
| 0                                    | Standard Paint, Lubricant & Seals                         |
| 1                                    | Standard Paint & Food Grade Lubricant & Standard Seals    |
| 2                                    | Standard Paint, Nuclear Grade Lubricant & Seals           |
| 3                                    | Standard Paint, High Temperature Lubricant & Seals        |
| 4                                    | Standard Paint, Low Temperature Lubricant & Seals         |
| 5                                    | Standard Paint, Biodegradable Lubricant & Standard Seals  |
| A                                    | No Paint, Standard Lubricant & Seals                      |
| B                                    | No Paint & Food Grade Lubricant & Standard Seals          |
| C                                    | No Paint, Nuclear Grade Lubricant & Seals                 |
| D                                    | No Paint, High Temperature Lubricant & Seals              |
| E                                    | No Paint, Low Temperature Lubricant & Seals               |
| F                                    | No Paint, Biodegradable Lubricant & Standard Seals        |
| G                                    | Standard Primer, Lubricant & Seals                        |
| H                                    | Standard Primer & Food Grade Lubricant & Standard Seals   |
| I                                    | Standard Primer, Nuclear Grade Lubricant & Seals          |
| J                                    | Standard Primer, High Temperature Lubricant & Seals       |
| K                                    | Standard Primer, Low Temperature Lubricant & Seals        |
| L                                    | Standard Primer, Biodegradable Lubricant & Standard Seals |
| M                                    | Epoxy Paint, Standard Lubricant & Seals                   |
| N                                    | Epoxy Paint & Food Grade Lubricant & Standard Seals       |
| P                                    | Epoxy Paint, Nuclear Grade Lubricant & Seals              |
| R                                    | Epoxy Paint, High Temperature Lubricant & Seals           |
| S                                    | Epoxy Paint, Low Temperature Lubricant & Seals            |
| T                                    | Epoxy Paint, Biodegradable Lubricant & Standard Seals     |

## Notes:

- #1 Rotating screw models only.
- #2 Trunnions on same side as worm shaft (standard).
- #3 Trunnions at 90° to worm shaft.
- #4 Standard right hand thread form. Worm shaft turns clockwise to extend screw.
- #5 Left hand thread form. Worm shaft turns anti-clockwise to extend screw.
- #6 Standard is clevis axis parallel to worm shaft.
- #7 Limit switch mounting included.
- #8 Plain End "A" has same dimensions as "E - threaded end" except no thread form.
- #9 Translating screw models only.
- #10 Basic Translating and Rotating units in both Upright and Rotating versions (all variant & accessories on application).
- #11 All models except E-Series 5 kN & 10 kN Type-1 models
- #12 Models 10kN to 100kN only
- #13 Power Jacks defined standard paint - available as a data sheet.
- #14 Power Jacks defined standard lubricant.
- #15 For Rotating Screw Jacks the "Cover Pipe" may actually be a "Plug"
- #16 All Stainless Steel Screw Jack by default defines the worm shaft, lifting screw and end fitting as Power Jacks standard stainless steel material.
- #17 If Lifting Screw is Stainless Steel material then the End Fitting is Stainless Steel as well by default.
- #18 Limit Switches not included. Limit switch specification to be detailed as separate item.

## Product Code Example

**EMT0100-U001100-0790-TB00-0000** E-Series, Machine Screw, Translating, 100kN, Upright, No extra gearbox features, 8:1 gear ratio, 12mm lead on screw, 790mm Stroke, Top Plate, Base Mount, standard drive features, standard paint and lubrication.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| E | M | T | 0 | 1 | 0 | 0 | - | U | 0  | 0  | 1  | 1  | 0  | 0  | -  | 0  | 7  | 9  | 0  | -  | T  | B  | 0  | 0  | -  | 0  | 0  | 0  | 0  |

**EMT0200-V002100-1250-CB00-0000** E-Series, Machine Screw, Translating, 200kN, Upright, Stainless Steel Screw Jack, No extra gearbox features, 8:1 gear ratio, 12mm lead on screw, 1250mm Stroke, Clevis End, Base Mount, standard drive features, standard paint and lubrication.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| E | M | T | 0 | 2 | 0 | 0 | - | V | 0  | 0  | 2  | 1  | 0  | 0  | -  | 1  | 2  | 5  | 0  | -  | C  | B  | 0  | 0  | -  | 0  | 0  | 0  | 0  |

**EBR0025-I001200-0500-FB0B-CAE0** E-Series, Ball Screw, Rotating, 25kN, Inverted, No extra gearbox features, 6:1 gear ratio, 10mm lead on screw, 500mm Stroke, Fork End, Base Mount, Bellows Boot screw protection, Motor Adapter & Coupling Kit for IEC 63 Frame size on Left Hand Side (LHS), RLS-51 rotary cam limit switch on Right Hand Side (RHS) with Stop Nut, standard paint and lubrication.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| E | B | R | 0 | 0 | 2 | 5 | - | I | 0  | 0  | 1  | 2  | 0  | 0  | -  | 0  | 5  | 0  | 0  | -  | F  | B  | 0  | B  | -  | C  | A  | E  | 0  |

## Five Step Guide to Initial Screw Jack Selection

The following selection procedure is applicable for Machine Screw and Ball Screw Jacks.

### Calculate Power and Torque Requirements

Select a screw jack from the tables with adequate load carrying capacity and note the screw jack static and dynamic efficiency for required input speed.

#### Step 1 - Screw Jack Input Speed

$$N \text{ (rpm)} = \frac{\text{Linear Speed (mm/min)} \times \text{Gear Ratio}}{\text{Pitch (mm)} \times N^{\circ} \text{ of Starts on Lifting Screw}}$$

Input speed should not exceed 1800 rpm.  
Number of starts on lifting screw is usually 1, unless otherwise stated.

**Note:** Screw Lead = Pitch x No of Starts

#### Step 2 - Operating Input Power (kW), $P_{in}$

$$P_{in} \text{ (kW)} = \frac{\text{Load (kN)} \times \text{Linear Speed (mm/min)}}{60000 \times \eta_d}$$

$\eta_d$  = Dynamic Screw Jack Efficiency

#### Step 3 - Operating Input Torque

$$T_{ino} \text{ (Nm)} = \frac{P_{in} \text{ (kW)} \times 9550}{N \text{ (rpm)}}$$

#### Step 4 - Screw Jack Start-Up Torque

$$T_{ins} = \frac{\text{Load (kN)} \times \text{Pitch (mm)} \times N^{\circ} \text{ of Starts on Lifting Screw}}{2 \times \pi \times \eta_s \times \text{Gear Ratio}}$$

$\eta_s$  = Static Screw Jack Efficiency

**Note:** Screw Lead = Pitch x No of Starts

#### Step 5 - Mechanical Power and Torque Check

Check whether the screw jack power and torque required for the application is not greater than the maximum allowable mechanical input power ( $P_{mechanical}$ ) and Start-Up Torque at Full Load ( $T_s$ ) values specified in the screw jack performance tables.

If  $P_{mechanical} > P_{in}$  &  $T_s > T_{ins}$  then the screw jack selected is acceptable for power requirements.

## Example Selection

### Application Constraints

- Load on Screw Jack = 15 kN in Tension
- Linear Speed required = 100 mm/min

Consider all application constraints then choose a screw jack that looks suitable for the application with a load rating equal to or greater than the maximum working load. For this example, a 25 kN E-Series Machine Screw Jack (refer P60) with translating screw, 6:1 gear ratio, single start lifting screw (6 mm lead).

### Calculate Power and Torque Requirements

#### Step 1 - Screw Jack Input Speed

$$N \text{ (rpm)} = \frac{100 \text{ (mm/min)} \times 6 \text{ (Gear Ratio)}}{6 \text{ (mm)} \times 1 \text{ (N° of starts on Lifting Screw)}}$$

$$N = 100 \text{ rpm}$$

Input speed should not exceed 1800 rpm.

#### Step 2 - Operating Input Power (kW), $P_{in}$

$$P_{in} \text{ (kW)} = \frac{15 \text{ (kN)} \times 100 \text{ (mm/min)}}{60000 \times 0.264}$$

$$\eta_d = 0.264 \text{ (Refer P60)}$$

$$P_{in} = 0.095 \text{ kW}$$

#### Step 3 - Operating Input Torque

$$T_{ino} \text{ (Nm)} = \frac{0.095 \text{ (kW)} \times 9550}{100 \text{ (rpm)}}$$

$$T_{ino} = 9.1 \text{ Nm}$$

#### Step 4 - Screw Jack Start-Up Torque

$$T_{ins} = \frac{15 \text{ (kN)} \times 6 \text{ (mm)} \times 1 \text{ (N° of starts on Lifting Screw)}}{2 \times \pi \times 0.201 \times 6 \text{ (Gear Ratio)}}$$

$$T_{ins} = 11.9 \text{ Nm}$$

$$\eta_s = 0.201 \text{ (refer P60)}$$

#### Step 5 - Mechanical Power and Torque Check

Find the screw jacks mechanical power and torque rating from the performance data tables (refer P60).

$$P_{\text{mechanical}} = 1.5 \text{ kW} > P_{in} \text{ and } T_s = 19 \text{ Nm} > T_{ins}$$

Therefore the screw jack selected is suitable for application for initial constraints tested, further analysis may be required to ensure the screw jack is suitable for all application conditions. Continue with further selection calculations or consult Power Jacks Ltd.

## Screw Jack Constraints for Detailed Selection

### Lifting Screw Column Strength

For compressive loads on the screw jack lifting screw column strength calculations are required to check for buckling. As a screw jack selection guide use the following process:

1. Determine the maximum column strength (L) for the screw jack being considered.
2. Referring to the relevant column buckling chart determine the permissible compressive load ( $W_p$ ) corresponding to the column length (L) for the appropriate end constraints. This permissible compressive load is the maximum load (inclusive of shock loads) which may be applied to the screw jack for a given column length.
3. Where an application involves human cargo or there is a risk to personnel, it is highly recommended that the permissible compressive load (as calculated above) be factored by 0.7 to enhance working safety. (Equivalent to a column strength safety factor of 5).

$$W_{phc} = W_p \times 0.7 \quad \text{(Permissible compressive load for personnel risk applications)}$$

**Note** 1. For detailed analysis of screw jacks and their systems consult Power Jacks.  
2. Safety factor of 3.5 for column strength's used for normal industrial cargo.

### Lifting Screw Critical Speed

For fast operating rotating screw jacks, the critical speed (rotational speed) of the lifting screw needs to be considered in case of shaft whirling. To calculate the critical speed for rotating screw jacks:

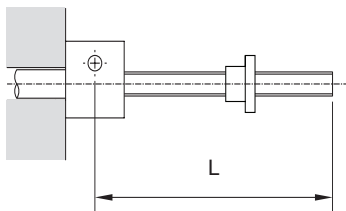
1. Refer to the appropriate critical speed chart.
2. Select the correction factor  $F_{cs}$  corresponding to the end support conditions for the application.
3. From the critical speed chart, select the critical speed corresponding to the unsupported screw length (m) and the screw jack load rating (kN).
4. Calculate the limiting critical speed with the formula: **Limiting Critical Speed = Critical screw speed x  $F_{cs}$**

### Lifting Screw Deflection

The lifting screw of a screw jack mounted horizontally will deflect under its own weight to some extent. The amount of deflection tolerable ( $y_t$ ) should be less than 0.5 mm per metre.

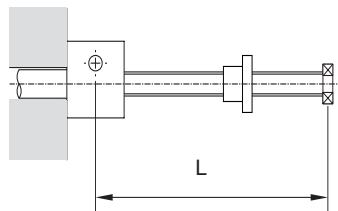
#### Deflection Factors, $F_{sd}$

Fixed/Fixed.  $F_{sd} = 8$



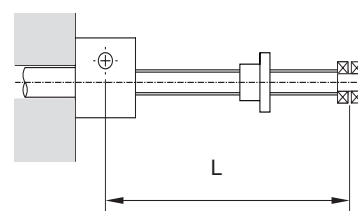
$$\text{Deflection, } y, (\text{mm}) = \frac{6 \times 10^{-9} \times L^4}{F_{sd} (d-p)^2}$$

Fixed/Fixed.  $F_{sd} = 186$



$$\text{Deflection Tolerable, } y_t, (\text{mm}) = \frac{0.5 \times L}{1000}$$

Fixed/Fixed.  $F_{sd} = 384$



L = Lifting Screw Length (mm)  
d = Diameter of Lifting Screw (mm)  
p = Pitch of Lifting Screw (mm)

If  $y < y_t$  then the lifting screw deflection is acceptable.

**Note:** This is only a deflection guide. For detailed analysis, including methods to reduce deflections, consult Power Jacks Ltd.



### Screw Jack Input Torque

Start up/static torque values are listed in all performance tables. Whereas dynamic torque values are either calculated using the tabulated dynamic efficiencies or taken direct from torque tables where listed. For detailed screw jack analysis consult Power Jacks Ltd.

### Side Loads on Screw Jacks

It is recommended that all side loads ( $F_{sl}$ ) are carried by guides in your arrangement and not by the lifting screw and nut. If there are any side loads on the screw jack, they must not exceed those tabulated in the Engineering Guide, Side Load Rating Section, and it must be noted that any such loads will adversely affect the life of the lifting screw and nut.

### Radial Forces on Screw Jack Worm Shaft

For applications where a screw jack is belt driven, radial force ( $F_R$ ) values exerted on the worm shaft must not exceed those tabulated in the Engineering Guide Section. Values are tabulated for the metric machine screw jacks and ball screw jacks. The values are maximum values for the screw jacks at rated load regardless of worm speed or load direction.

### Screw Jack Self-Locking

Approximately 50% of machine screw jacks are self-locking either in the gearbox or the lifting screw, however to ensure there is no self-lowering and to reduce drift due to the motor slowing, a brake is recommended. Standard motor frame size brakes will be suitable for most applications with only slight vibration and thermal fluctuation present. Motor selection as normal.

For dynamic braking consult Power Jacks.

Ball screw jacks and roller screw jacks always require a brake as their high efficiency makes them self-lowering.

Use the closest standard brake size that is greater or equal to the motor brake torque required.

- Note**
1. Self lowering can occur in any jacking system not fitted with a brake, where high levels of vibration are present in the application.
  2. Power Jacks recommend the use of a brake on single screw jack applications in the vertical position.

### Jacking System Power Input

Total Input Power for Jacking Systems (kW),  $P_s$ :

$$P_s = \frac{\text{Input Power per Screw Jack (kW)} \times \text{Number of Screw jacks}}{\text{Arrangement Efficiency} \times \text{Gearbox Efficiency}}$$

| Number of Screw Jacks in System | 2    | 3    | 4    | 6-8  |
|---------------------------------|------|------|------|------|
| Jacking System Efficiency       | 0.95 | 0.90 | 0.85 | 0.80 |

**Gearbox Efficiency** = Bevel Gearbox Efficiency x Reduction Gearbox Efficiency

**Bevel Gearbox Efficiency** = 0.95 typical

**Reduction Gearbox Efficiency** = Consult unit details, if no reduction gearbox present assume efficiency of 1.

### Note

For Screw Jacks connected in-line, the worm shaft can transmit up to 3 times the torque for a single screw jack at its maximum capacity, except the E--0200 (200kN) Unit which can transmit 1.5 times the torque.

## E-Series Machine Screw Jack

AVAILABLE IN MANY  
STANDARD MODELS  
WITH A WIDE RANGE OF  
CAPABILITIES, THERE IS  
A STANDARD MODEL FOR  
ALMOST ANY REQUIREMENT.

### TRANSLATING SCREW JACKS



#### Key Features

- Standard Performance Power Jack
- Metric Single Face Machine Screw Jacks
- Capacities - 5kN to 2000 kN as standard
- Translating and Rotating Screw in Upright and Inverted types
- Precision Worm Gear Set
- 2 Gear ratios and 2 screw lead options for most sizes
- Anti-backlash and anti-rotation (keyed) options
- 6 mounting options including trunnion and double clevis
- Special custom designs available



### ROTATING SCREW JACKS

End Fittings as Standard

1. Top Plate (shown)
2. Clevis End
3. Fork End
4. Rod End

Threaded end on screw as standard. End fittings screw on.

Bellows Boot Screw Protection  
Prevents ingress of dirt and debris onto screw threads.

Shell Cap  
Locked in place by set screws.

Precision Machined Lifting Screw available in standard material or stainless steel.

Load Bearings  
Bearings, top and bottom to take loads in tension or compression.

Accurately hobbled aluminium bronze worm gear for greater gear contact.

Worm Shaft  
Available with double or single shaft extension. In standard, plated or stainless steel material.

Thrust Bearings and Grease Seals  
At each end of worm. 5 & 10 kN models do not have separate seals.

Grease Application Point

Mounting Bolt Holes

Housing  
Aluminium on 5 & 10 kN models, ductile iron on 25 kN through 100 kN models, cast steel on 200 kN through 2000 kN models.

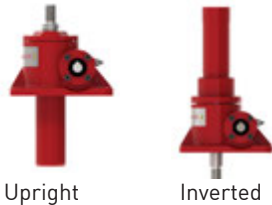
Corrosion Protection to suit all economic needs including:

- Standard Industrial Paint
- Arduous Environment Paint
- Customer Specified Paint
- Plated Finish
- Stainless Steel - refer Section-3

Integrated Lubrication Systems  
Both gear set and lifting screw are grease lubricated. Grease reservoirs are in the Gearbox Housing and in the Cover Pipe. The lifting screw dips itself in grease from the Cover Pipe. Plus a small film of grease is applied via the "Forced Grease Lubrication" system directly onto the screw thread. This is where the worm shaft pushes grease through small radial holes in the gear directly onto the screw thread ensuring optimum lubrication.

Cover Pipe  
Protects lifting screw threads.

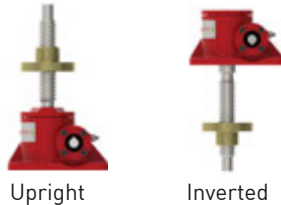
## Translating Screw



Upright

Inverted

## Rotating Screw



Upright

Inverted

## Typical Applications

Conventional Machine Screw Jacks are most widely used for intermittent duty cycles, as the screw jack incorporates a precision worm gear set in a rugged casting delivering positive, precise actuation. Available in a comprehensive range of materials and fittings with the option for special designs for specific application requirements. They are used in wide variety of automation applications including those in steel, automotive, communications, civil, defence, energy, glass and aerospace sectors.

## Standard Designs

The standard E-Series screw jack is available in translating and rotating screw designs in capacity sizes from 5kN to 2000kN. The design is optimised for performance, function and reliability with a highly flexible platform for customisation in addition to the standard options. The options and accessories (section-6) list is long and varied and allows you to configure a standard design that is just right for your application. These options include Anti-Backlash, Anti-Rotation (Keyed) and Safety Nut designs.

There are 2 types of screw jack housing available:

- Type-1 - (Standard Housing) Has bolt-on worm shaft flanges that secure the worm shaft bearings on 25kN to 2000kN models and for 5kN & 10kN designs no flange, no bolt connections at worm shaft and circlips secure bearings.
- Type-2 - Has a PCD of tapped bolt holes around the worm shaft ends with the worm shaft bearings secured by circlips. Currently only available for 10kN models.

## Special Designs

We can fully customise our screw jacks so that your application can be the best.

Customisation can be anything from a small modification such as an extra bolt hole on an end fitting to a completely new design of screw jack based on our class leading technology.

For more details please see the Special Screw Jack information in Section-7 or contact us today with your requirements. Our team are looking forward to working with you.

## Systems

The screw jacks can be connected together in systems so that multiple units can be operated and controlled together. These jacking system arrangements or configurations can be built in many formats with the use of bevel gearboxes, motors, reduction gearbox, drive shafts, couplings, plummer blocks and motion control devices.

The use of bevel gearboxes allows the distribution of drive throughout a jacking system. The gearboxes come in 2,3 and 4 way drive types. Bevel Gearbox catalogue for more details.

Bevel gearboxes and other system components can also be supplied in stainless steel or other corrosion resistant designs. Two of the most popular system configurations are the 'H' and 'U'



configured jacking systems. Remember that multiple screw jacks can be linked together mechanically or electrically. The latter is useful if there is no space for linking drive shafts.

If multiple machine screw jacks are connected in a mechanically linked system then the complete system may be considered self-locking. If you would like this checked consult Power Jacks. Alternatively, to be sure, include a brake on the system either as a stand alone device or as a brake motor.

## Selecting the Right Screw Jack

Consider all application constraints then choose a product that looks suitable for the intended application. Calculate the power and torque requirements. This is a 5 step process:

- Screw Jack Input Speed (RPM)
- Operating Input Power (kW)
- Operating Input Torque (Nm)
- Screw Jack Start-up Torque (Nm)
- Mechanical Power and Torque Check





## ADJUSTABLE TABLE STOPS FOR TATA STEEL PRODUCTION

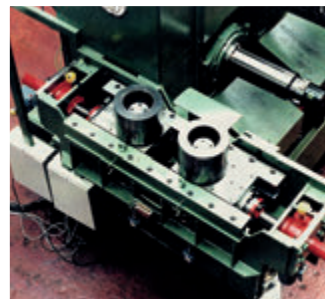
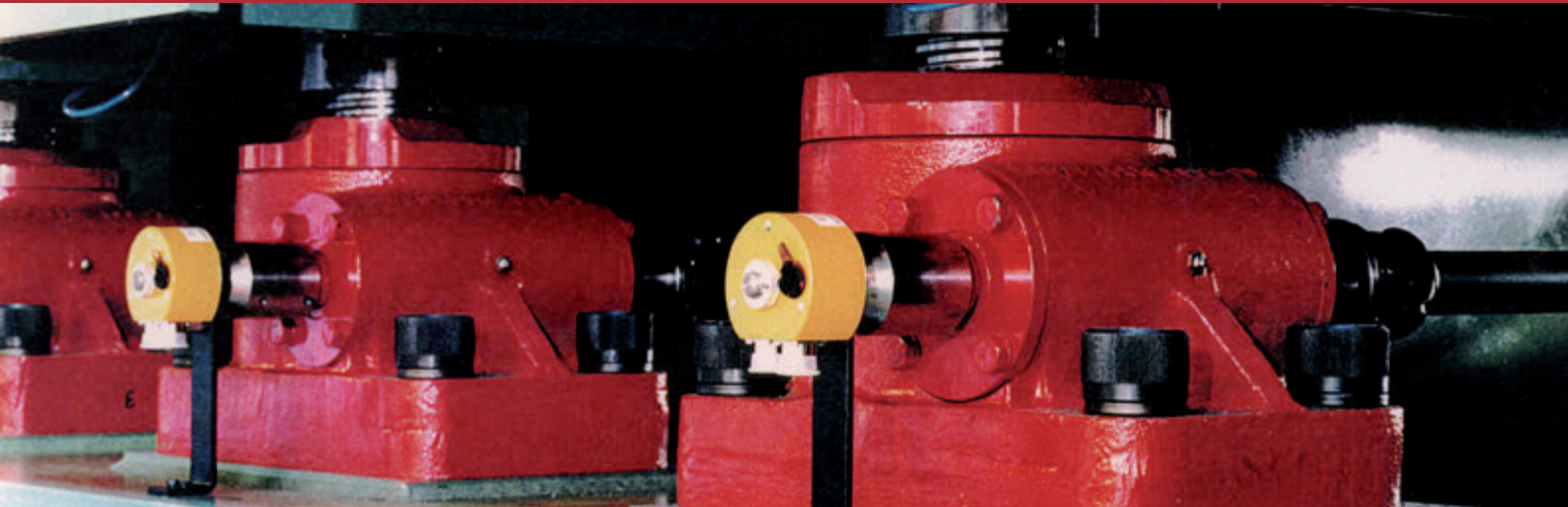
E-Series Machine Screw Jacks are installed on the adjustable table and centring stops for the Rectangular Hollow Sections (RHS) department at TATA Steel Europe 20" pipe mill in Hartlepool.

Automated adjustable stop mechanisms use 50kN E-Series translating machine screw jacks in inverted screw configuration. Each stop mechanism uses a four screw jack system that is driven by one electric motor. The electric motor is positioned in the centre of the system with 2 screw jacks either side.

A bevel gearbox is used to split the drive line to each side from the motor with self-supporting drive shafts (spacer couplings) used to connect each screw jack to the system. One screw jack in each system is fitted with an encoder for speed and position feedback, which is displayed on an electronic display.

For more application examples see the 'Power at Work' brochure or [www.powerjacks.com](http://www.powerjacks.com).





## BRONX METAL SECTION STRAIGHTENER

Variable centre straighteners for moving the centre straightening rollers, end pinch rollers and the landing legs.

A jacking system for each straightening roller has two special design screw jacks and a strengthened gearbox, rated for a 700kN dynamic capacity in compression. The pinch rollers have their position adjusted by two horizontally opposing screw jacks, driven individually by motorised helical gearboxes.

For more application examples see the 'Power at Work' brochure or [www.powerjacks.com](http://www.powerjacks.com).







## MAINTAINING TENSION FOR SUBSEA CABLE LAYING

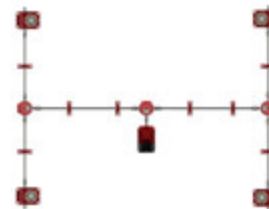
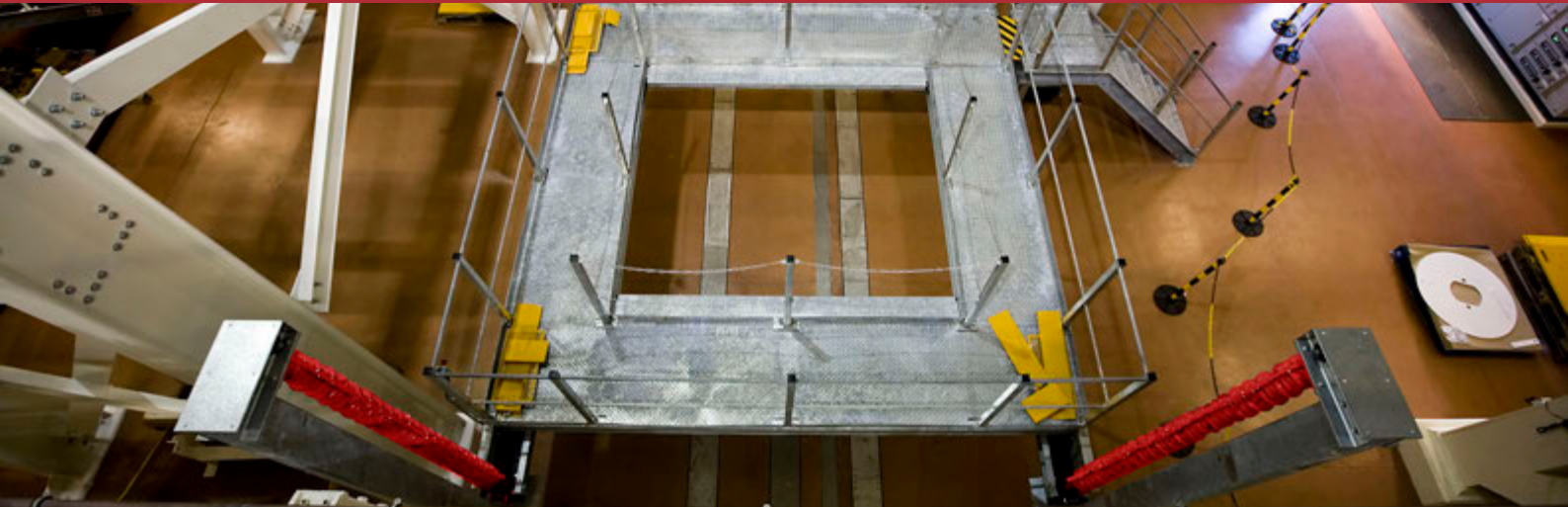
For submarine cable laying maintaining tension in the cable within required tolerances is critical during the laying process to minimise the risk of cable damage due to cable cores being crushed or the minimum bend radius being exceeded.

To regulate this tension specialist machines are used to handle the cable as it is laid. One such machine is the MAATS 45Te 4-Track Tensioner, which features electro-mechanical screw jacks for the positioning of the lower tracks. This gives this tensioner the advantage of more accurate positioning for better tension control compared to hydraulic only systems.

4 sets of 2 x EMT0500 (500kN) screw jacks arranged in "in-line" jacking system pairs position the 2 lower tracks. With one jacking system installed at each end of the lower tracks. Each jacking system pair is driven by an electric motor with speed and position feedback from an absolute encoder. With 1 motor revolution equal to 0.06mm linear movement, the system can provide some very accurate positioning. By using pairs of screw jacks the track is supported on each side for an even load distribution over the structure.

For more application examples see the 'Power at Work' brochure or [www.powerjacks.com](http://www.powerjacks.com).





## SAFE WORK ACCESS FOR NUCLEAR CONTAINERS

As part of the decommissioning process at Dounreay, Scotland, drums containing waste pass through the import / export section of the cementation facility where they need to be removed from their transportation container. Before this can happen the lid of each container is removed or attached. In order to carry out safe operations while working around the container for the lid removal / attachment process workers need a removable safe access platform that is height adjustable.

The solution was to use a jacking system to lift and lower the access platform over the nuclear containers once in position. The jacking system is configured with 4 x EMT0050 (50kN) screw jacks arranged in an "H-configuration" with each screw jack at a corner of the platform. The screw jacks are equipped with safety nuts, wear monitors and secondary guides to meet nuclear process safety requirements. They are mechanically linked together using bevel gearboxes, drive shafts and couplings and driven by one electric motor. Normally the drive motor is placed centrally, however for this platform the cross drive shaft and drive motor are placed at one end of the system to provide the central access hole in the platform for the nuclear container.



For more application examples see the 'Power at Work' brochure or [www.powerjacks.com](http://www.powerjacks.com).

## E-Series - Machine Screw Jacks - Standard Performance

| Model                                                   |                               |        | EMT0005<br>EMR0005 |       | EMT0010<br>EMR0010 |       | EMT0025<br>EMR0025 |       | EMT0050<br>EMR0050 |       | EMT0100<br>EMR0100 |       |
|---------------------------------------------------------|-------------------------------|--------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|
| Capacity                                                | kN                            |        | 5                  |       | 10                 |       | 25                 |       | 50                 |       | 100                |       |
| Lifting<br>Screw <sup>1</sup>                           | mm                            |        | 16                 |       | 20                 |       | 30                 |       | 40                 |       | 55                 |       |
|                                                         | Lead                          | Option | 1                  | 2     | 1                  | 2     | 1                  | 2     | 1                  | 2     | 1                  | 2     |
|                                                         |                               | mm     | 3                  | 6     | 5                  | 10    | 6                  | 12    | 9                  | 18    | 12                 | 24    |
| Gear<br>Ratios                                          | Option 1                      |        | 5:1                |       | 5:1                |       | 6:1                |       | 6:1                |       | 8:1                |       |
|                                                         | Option 2                      |        | 20:1               |       | 20:1               |       | 24:1               |       | 24:01:00           |       | 24:1               |       |
| Turn of<br>worm<br>for travel<br>of lifting<br>screw    | Ratio Option 1                | 1 Turn | 0.6mm              | 1.2mm | 1mm                | 2mm   | 1mm                | 2mm   | 1.5mm              | 3mm   | 1.5mm              | 3mm   |
|                                                         | Ratio Option 2                | 4 Turn | 0.6mm              | 1.2mm | 1mm                | 2mm   | 1mm                | 2mm   | 1.5mm              | 3mm   | 2mm                | 4mm   |
| Max. Input<br>Power<br>(kW)                             | Gear Ratio Option 1           |        | 0.25               |       | 0.375              |       | 1.5                |       | 3.0                |       | 3.75               |       |
|                                                         | Gear Ratio Option 2           |        | 0.12               |       | 0.19               |       | 0.375              |       | 0.55               |       | 1.125              |       |
| Start up<br>torque at<br>full<br>load (Nm) <sup>2</sup> | Gear Ratio Option 1           |        | 2.5                | 3.3   | 6.8                | 9.4   | 19.8               | 26.3  | 56                 | 76    | 115.9              | 156.5 |
|                                                         | Gear Ratio Option 2           |        | 1.1                | 1.4   | 3                  | 4.2   | 8.7                | 11.6  | 25.5               | 34.7  | 60.5               | 81.8  |
| Maximum Through<br>Torque (Nm) <sup>7</sup>             |                               |        | 7.5                |       | 20                 |       | 59                 |       | 168                |       | 347                |       |
| Lead Screw Restraining<br>Torque (Nm) <sup>5</sup>      |                               |        | 8                  | 11    | 22                 | 30    | 76                 | 102   | 210                | 34.7  | 575                | 780   |
| Worm Shaft Maximum<br>Radial Load (N) <sup>6</sup>      |                               |        | 180                |       | 325                |       | 380                |       | 740                |       | 1000               |       |
| Maximum Input Speed (rpm)                               |                               |        | 1800               |       | 1800               |       | 1800               |       | 1800               |       | 1800               |       |
| Gear Case Material                                      |                               |        | Aluminium          |       | Aluminium          |       | SG Iron            |       | SG Iron            |       | SG Iron            |       |
| Housing Type Available                                  |                               |        | 1                  |       | 1 & 2              |       | 1                  |       | 1                  |       | 1                  |       |
| Weight (kg) -<br>stroke = 150mm                         |                               | EMT    | 1.3                |       | 2.36               |       | 8.45               |       | 14.9               |       | 24.3               |       |
|                                                         |                               | EMR    | 1.36               |       | 2.6                |       | 8.85               |       | 16.54              |       | 28.8               |       |
| Weight (kg) per<br>extra 25mm                           |                               | EMT    | 0.08               |       | 0.11               |       | 0.21               |       | 0.32               |       | 0.58               |       |
|                                                         |                               | EMR    | 0.03               |       | 0.05               |       | 0.11               |       | 0.19               |       | 0.36               |       |
| Gear<br>Ratio<br>Option<br>1                            | Gear Ratio                    |        | 5:1                |       | 5:1                |       | 6:1                |       | 6:1                |       | 8:1                |       |
|                                                         | Screw Jack Static Efficiency  |        | 0.189              | 0.291 | 0.233              | 0.339 | 0.201              | 0.302 | 0.213              | 0.314 | 0.206              | 0.305 |
|                                                         | Screw Jack Dynamic Efficiency |        | 0.252              | 0.370 | 0.306              | 0.424 | 0.264              | 0.383 | 0.281              | 0.398 | 0.272              | 0.388 |
| Gear<br>Ratio<br>Option<br>2                            | Gear Ratio                    |        | 20:1               |       | 20:1               |       | 24:1               |       | 24:1               |       | 24:1               |       |
|                                                         | Screw Jack Static Efficiency  |        | 0.107              | 0.165 | 0.130              | 0.192 | 0.115              | 0.171 | 0.117              | 0.172 | 0.132              | 0.195 |
|                                                         | Screw Jack Dynamic Efficiency |        | 0.160              | 0.235 | 0.194              | 0.268 | 0.167              | 0.242 | 0.172              | 0.244 | 0.190              | 0.271 |

## Notes 1-3 of 7

- Efficiency values for standard grease lubricated worm gear box and lifting screw.
- For loads of 25% to 100% of screw jack capacity, torque requirements are approximately proportional to the load.
- Efficiency values for standard grease lubricated worm gear box and lifting screw.

## E-Series - Machine Screw Jacks - Standard Performance

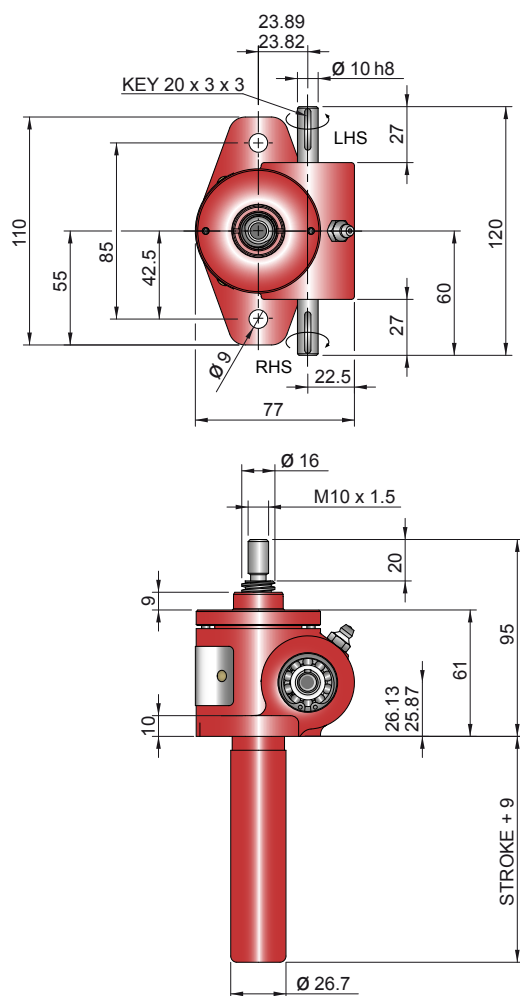
| Model                                                   |                               |        | EMT0200<br>EMR0200 |       | EMT0300<br>EMR0300 |       | EMT0500<br>EMR0500 |       | EMT1000<br>EMR1000 | EMT1500<br>EMR1500 | EMT2000<br>EMR2000 |
|---------------------------------------------------------|-------------------------------|--------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|--------------------|--------------------|
| Capacity                                                | kN                            |        | 200                |       | 300                |       | 500                |       | 1000               | 1500               | 2000               |
| Lifting<br>Screw <sup>1</sup>                           | mm                            |        | 65                 |       | 95                 |       | 120                |       | 160                | 180                | 220                |
|                                                         | Lead                          | Option | 1                  | 2     | 1                  | 2     | 1                  | 2     | 1                  | 1                  | 1                  |
|                                                         |                               | mm     | 12                 | 24    | 16                 | 32    | 16                 | 32    | 20                 | 20                 | 24                 |
| Gear<br>Ratios                                          | Option 1                      |        | 8:1                |       | 10 2/3:1           |       | 10 2/3:1           |       | 12:1               | 11 2/3:1           | 18:1               |
|                                                         | Option 2                      |        | 24:1               |       | 32:1               |       | 32:1               |       | 36:1               | N/A                | N/A                |
| Turn of<br>worm<br>for travel<br>of lifting<br>screw    | Ratio Option 1                | 1 Turn | 1.5mm              | 3mm   | 1.5mm              | 3mm   | 1.5mm              | 3mm   | 1.67mm             | 1.71               | 1.33               |
|                                                         | Ratio Option 2                | 4 Turn | 2mm                | 4mm   | 2mm                | 4mm   | 2mm                | 4mm   | 6.67mm             | N/A                | N/A                |
| Max. Input<br>Power<br>(kW)                             | Gear Ratio Option 1           |        | 3.75               |       | 6.0                |       | 11.25              |       | 18.5               | 25.3               | 32.5               |
|                                                         | Gear Ratio Option 2           |        | 1.125              |       | 19                 |       | 4.5                |       | 8.25               | N/A                | N/A                |
| Start up<br>torque at<br>full<br>load (Nm) <sup>2</sup> | Gear Ratio Option 1           |        | 263.8              | 343   | 480                | 618   | 904                | 1113  | 2025               | 3655               | 3895               |
|                                                         | Gear Ratio Option 2           |        | 137                | 179   | 284                | 365   | 504                | 618   | 1119               | N/A                | N/A                |
| Maximum Through<br>Torque (Nm) <sup>7</sup>             |                               |        | 396                |       | 1440               |       | 2712               |       | 6075               | 7310               | 7790               |
| Lead Screw Restraining<br>Torque (Nm) <sup>5</sup>      |                               |        | 1300               | 1705  | 5645               | 6975  | 5645               | 6975  | 14890              | 24610              | 39995              |
| Worm Shaft Maximum<br>Radial Load (N) <sup>6</sup>      |                               |        | 1600               |       | 2170               |       | 2190               |       | 2220               | 4450               | 7800               |
| Maximum Input Speed (rpm)                               |                               |        | 1800               |       | 1800               |       | 1800               |       | 1800               | 1000               | 600                |
| Gear Case Material                                      |                               |        | Steel              |       | Steel              |       | Steel              |       | Steel              | Steel              | Steel              |
| Housing Type Available                                  |                               |        | 1                  |       | 1                  |       | 1                  |       | 1                  | 1                  | 1                  |
| Weight (kg)<br>- stroke =<br>150mm                      | EMT                           |        | 42.4               |       | 92.4               |       | 183.7              |       | 459.1              | 563                | 1172               |
|                                                         | EMR                           |        | 49.58              |       | 113.78             |       | 224                |       | 560.4              | 708                | 1534               |
| Weight (kg) per<br>extra 25mm                           | EMT                           |        | 0.84               |       | 1.55               |       | 2.48               |       | 4.11               | 5.8                | 9                  |
|                                                         | EMR                           |        | 0.52               |       | 1.13               |       | 1.94               |       | 3.38               | 4.4                | 6.5                |
| Gear<br>Ratio<br>Option<br>1                            | Gear Ratio                    |        | 8:1                |       | 10 2/3:1           |       | 10 2/3:1           |       | 12:1               | 11 2/3:1           | 18:1               |
|                                                         | Screw Jack Static Efficiency  |        | 0.181              | 0.279 | 0.149              | 0.232 | 0.132              | 0.215 | 0.131              | 0.112              | 0.109              |
|                                                         | Screw Jack Dynamic Efficiency |        | 0.242              | 0.357 | 0.205              | 0.308 | 0.181              | 0.284 | 0.178              | 0.155              | 0.151              |
| Gear<br>Ratio<br>Option<br>2                            | Gear Ratio                    |        | 24:1               |       | 32:1               |       | 32:1               |       | 36:1               | N/A                | N/A                |
|                                                         | Screw Jack Static Efficiency  |        | 0.116              | 0.178 | 0.084              | 0.131 | 0.079              | 0.129 | 0.079              | N/A                | N/A                |
|                                                         | Screw Jack Dynamic Efficiency |        | 0.169              | 0.250 | 0.128              | 0.192 | 0.120              | 0.188 | 0.123              | N/A                | N/A                |

## Notes 4-7 of 7

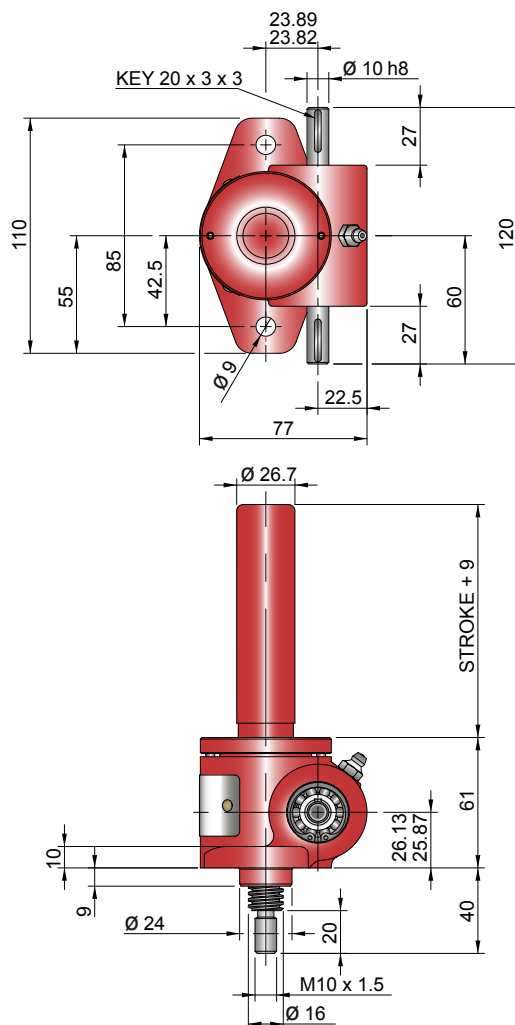
- All E-Series screw jacks have grease lubricated gearbox and lead screw as standard.
- Torque required to prevent the lead screw or lead nut from rotating if no anti-rotation device fitted to screw jack.
- Radial force applied midway along worm shaft key at 90° to key.
- Maximum transmittable torque through worm shaft, not through gear set.



## Upright EMT0005-U00



## Inverted EMT0005-I00



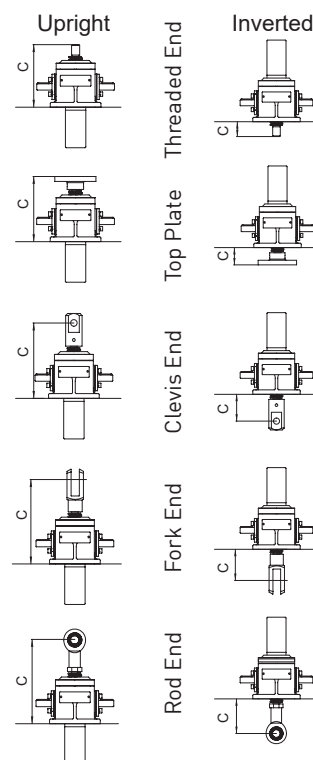
## Performance

| Model                             |                     | EMT0005<br>EMR0005 |       |
|-----------------------------------|---------------------|--------------------|-------|
| Capacity                          | kN                  | 5                  |       |
| Lifting Screw                     | Diameter (mm)       | 16                 |       |
|                                   | Lead                | Option             | 1 2   |
|                                   |                     | mm                 | 3 6   |
| Gear Ratio Option 1               | Gear Ratio          | 5:1                |       |
|                                   | Static Efficiency   | 0.189              | 0.291 |
|                                   | Dynamic Efficiency  | 0.252              | 0.370 |
| Gear Ratio Option 2               | Gear Ratio          | 20:1               |       |
|                                   | Static Efficiency   | 0.107              | 0.165 |
|                                   | Dynamic Efficiency  | 0.160              | 0.235 |
| Max. Input power (kW)             | Gear Ratio Option 1 | 0.25               |       |
|                                   | Gear Ratio Option 2 | 0.12               |       |
| Start up torque at full load (Nm) | Gear Ratio Option 1 | 2.5                | 3.3   |
|                                   | Gear Ratio Option 2 | 1.1                | 1.4   |

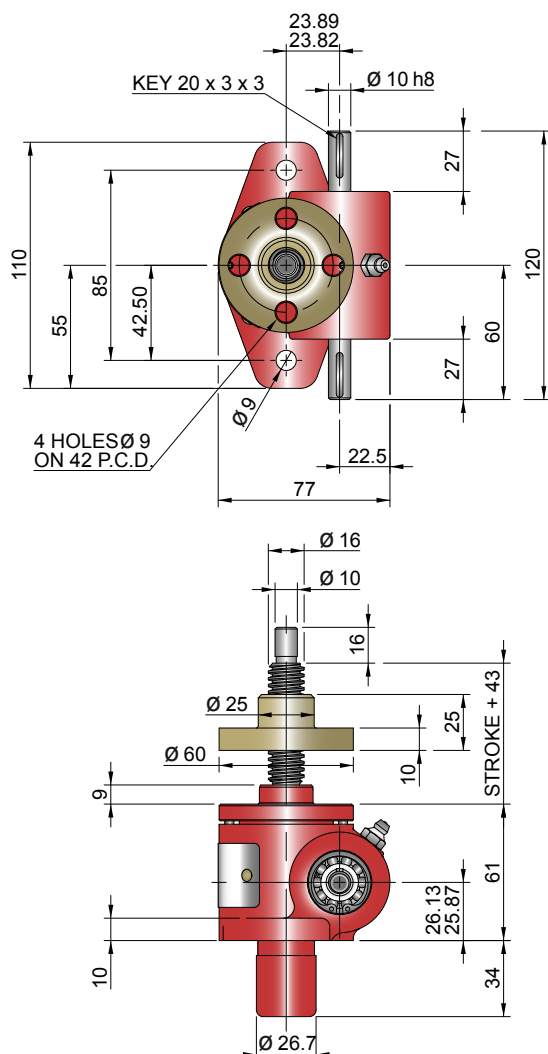
| Model                                    |              | EMT0005<br>EMR0005 |             |
|------------------------------------------|--------------|--------------------|-------------|
| Capacity                                 | kN           | 5                  |             |
| Lifting Screw Lead (mm)                  |              | 3                  | 6           |
| Turn of worm for travel of lifting screw | Gear Ratio 1 | 1 Turn             | 0.6mm 1.2mm |
|                                          | Gear Ratio 2 | 4 Turn             | 0.6mm 1.2mm |
| Maximum Through Torque (Nm)              |              | 7.5                |             |
| Lifting Screw Restraining Torque (Nm)    |              | 8                  | 11          |
| Worm Shaft Maximum Radial Load (N)       |              | 180                |             |
| Maximum Input Speed (rpm)                |              | 1800               |             |
| Gear Case Material                       |              | Aluminium          |             |
| Weight (kg) - stroke = 150mm             |              | EMT                | 1.3         |
|                                          |              | EMR                | 1.36        |
| Weight (kg) - per extra 25mm stroke      |              | EMT                | 0.08        |
|                                          |              | EMR                | 0.03        |

Note: All dimension in millimetres unless otherwise stated.  
Designs subject to change without notice

## Closed Height



## Upright EMR0005-U00



## Closed Height & Bellows Boots

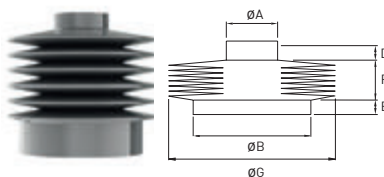
| Closed Height "C" | Threaded End               |          | Top Plate |          | Clevis End |          | Fork End |          | Rod End |          |
|-------------------|----------------------------|----------|-----------|----------|------------|----------|----------|----------|---------|----------|
|                   | Upright                    | Inverted | Upright   | Inverted | Upright    | Inverted | Upright  | Inverted | Upright | Inverted |
| EMT0005           | 95                         | 40       | 95        | 40       | 115        | 60       | 114      | 59       | 117     | 62       |
| Stroke (mm)       | EMT0005 with Bellows Boots |          |           |          |            |          |          |          |         |          |
| 1-150             | 95                         | 70       | 95        | 70       | 115        | 90       | 114      | 89       | 132     | 107      |
| 151-300           | 120                        | 90       | 120       | 90       | 140        | 110      | 139      | 109      | 157     | 127      |
| 301-600           | 120                        | 90       | 120       | 90       | 140        | 110      | 139      | 109      | 157     | 127      |

| Model   | A  | B  | D  | E  | G   |
|---------|----|----|----|----|-----|
| EMT0005 | 25 | 60 | 13 | 13 | 100 |

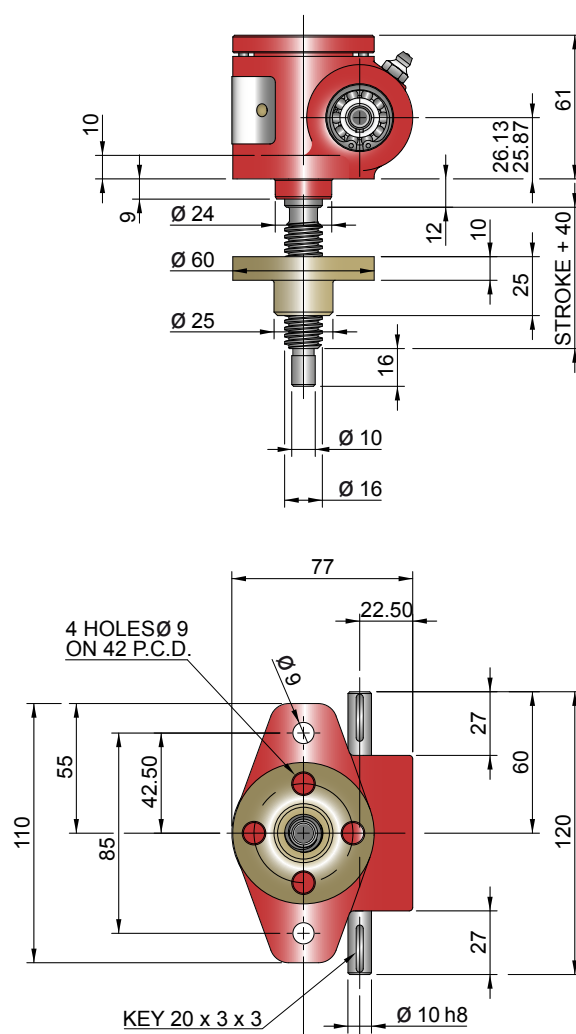
| Stroke  | 1-150 | 151-300 | 301-600 | 601-900 | 901-1050 |
|---------|-------|---------|---------|---------|----------|
| EMT0005 | 10    | 20      | 30      | -       | -        |

Note:

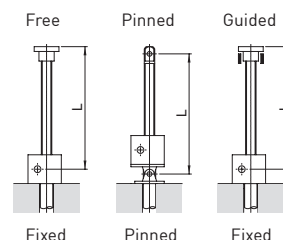
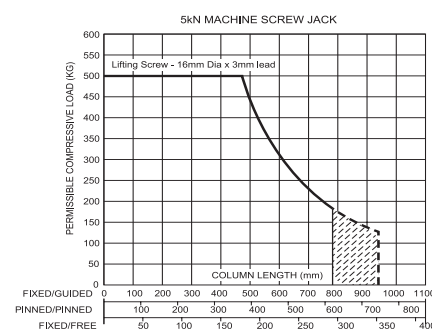
- 1 Inverted Screw Jacks - Bellows Boot Closed Height assumes screw jack mounted on a structure with thickness = 15mm  
2 Inverted Screw Jacks - Recommended bellows boot mounting plate ØB x [E +5mm] thick.  
3 Inverted Screw Jacks - Screw Jack mounting plate & bellows boot mounting plate are customers own supply  
4 † Control tapes fitted (increase outer diameter by 20mm approximately).  
5 For horizontal installations with than 450 mm of stroke, internal boot guides are recommended.  
6 Customers with threaded end screw jacks must provide a fixing for the unattached bellows boot collar.  
7 Bellows boots for Rotating Screw Jacks, other sizes, stroke and materials please consult Power Jacks.



## Inverted EMR0005-100

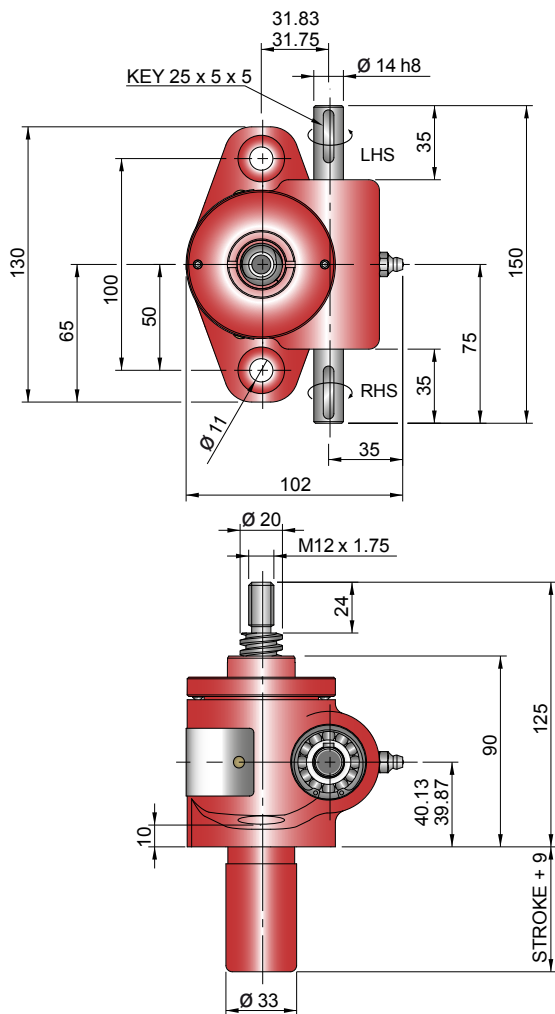


## Column Strength

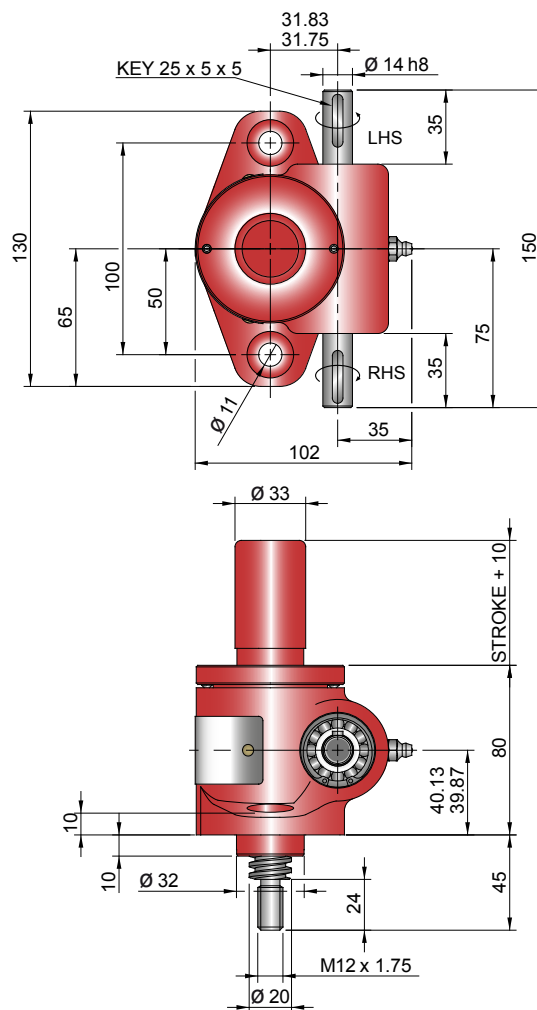




## Upright EMT0010-U00



## Inverted EMT0010-I00



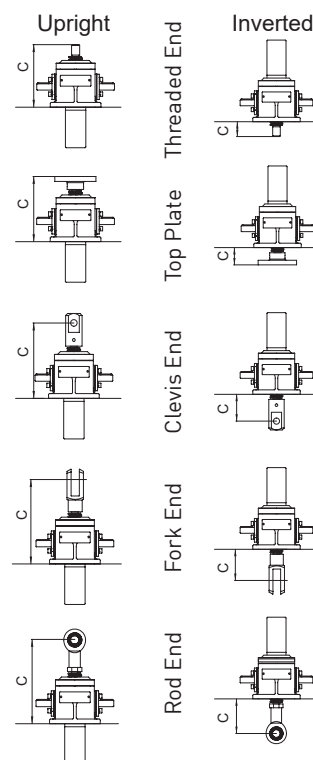
## Performance

| Model                             |                     | EMT0010<br>EMR0010 |       |
|-----------------------------------|---------------------|--------------------|-------|
| Capacity                          | kN                  | 10                 |       |
| Lifting Screw                     | Diameter (mm)       | 20                 |       |
|                                   | Lead                | Option             | 1 2   |
|                                   |                     | mm                 | 5 10  |
| Gear Ratio Option 1               | Gear Ratio          | 5:1                |       |
|                                   | Static Efficiency   | 0.233              | 0.339 |
|                                   | Dynamic Efficiency  | 0.306              | 0.424 |
| Gear Ratio Option 2               | Gear Ratio          | 20:1               |       |
|                                   | Static Efficiency   | 0.130              | 0.192 |
|                                   | Dynamic Efficiency  | 0.194              | 0.268 |
| Max. Input power (kW)             | Gear Ratio Option 1 | 0.375              |       |
|                                   | Gear Ratio Option 2 | 0.19               |       |
| Start up torque at full load (Nm) | Gear Ratio Option 1 | 6.8                | 9.4   |
|                                   | Gear Ratio Option 2 | 3                  | 4.2   |

| Model                                    |              | EMT0010<br>EMR0010 |         |
|------------------------------------------|--------------|--------------------|---------|
| Capacity                                 | kN           | 10                 |         |
| Lifting Screw Lead (mm)                  |              | 5                  | 10      |
| Turn of worm for travel of lifting screw | Gear Ratio 1 | 1 Turn             | 1mm 2mm |
|                                          | Gear Ratio 2 | 4 Turn             | 1mm 2mm |
| Maximum Through Torque (Nm)              |              | 20                 |         |
| Lifting Screw Restraining Torque (Nm)    |              | 22                 | 30      |
| Worm Shaft Maximum Radial Load (N)       |              | 325                |         |
| Maximum Input Speed (rpm)                |              | 1800               |         |
| Gear Case Material                       |              | Aluminium          |         |
| Weight (kg) - stroke = 150mm             |              | EMT                | 2.36    |
|                                          |              | EMR                | 2.6     |
| Weight (kg) - per extra 25mm stroke      |              | EMT                | 0.11    |
|                                          |              | EMR                | 0.05    |

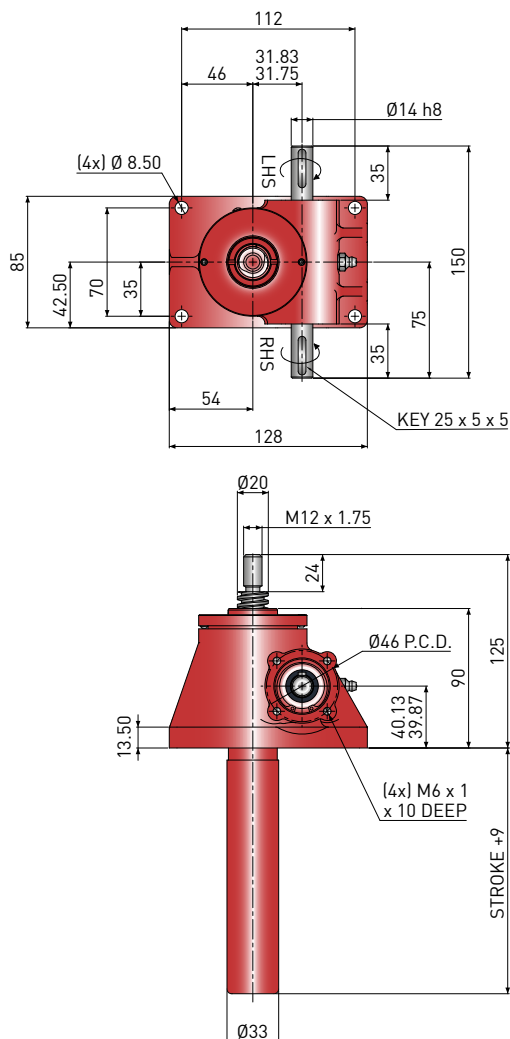
Note: All dimension in millimetres unless otherwise stated.  
Designs subject to change without notice

## Closed Height

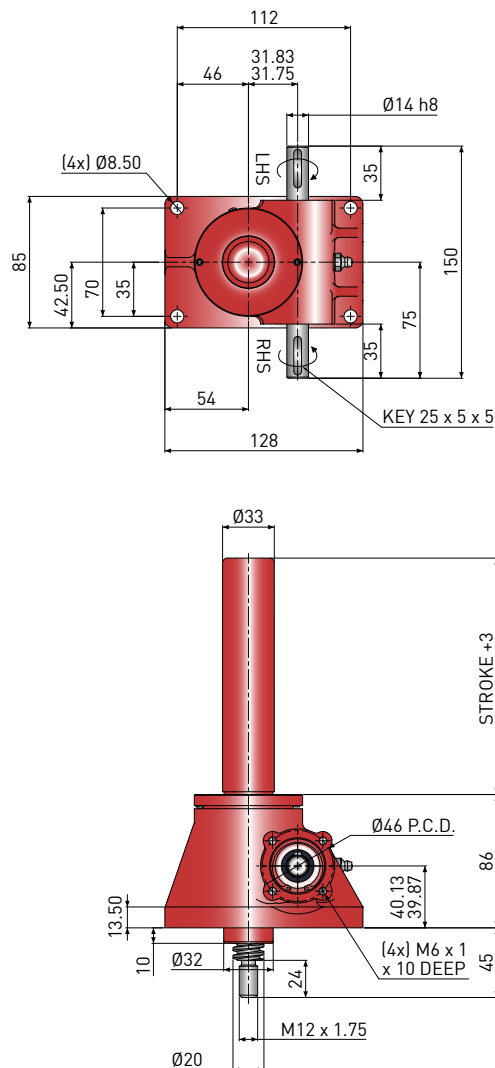




## Upright EMT0010-T00



## Inverted EMT0010-H00



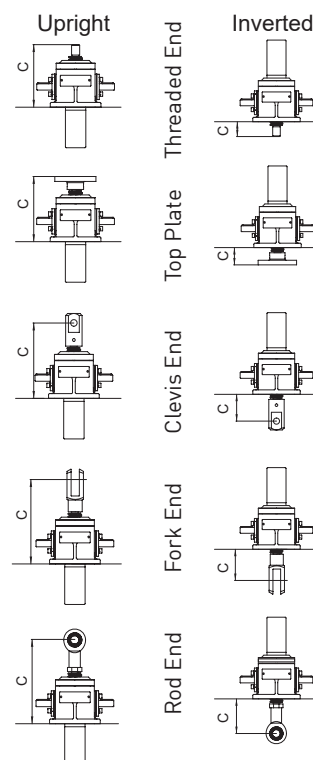
## Performance

| Model (Housing Type-2)            |                     | EMT0010<br>EMR0010 |       |
|-----------------------------------|---------------------|--------------------|-------|
| Capacity                          | kN                  | 10                 |       |
| Lifting Screw                     | Diameter (mm)       | 20                 |       |
|                                   | Lead                | Option             | 1 2   |
|                                   |                     | mm                 | 5 10  |
| Gear Ratio Option 1               | Gear Ratio          | 5:1                |       |
|                                   | Static Efficiency   | 0.233              | 0.339 |
|                                   | Dynamic Efficiency  | 0.306              | 0.424 |
| Gear Ratio Option 2               | Gear Ratio          | 20:1               |       |
|                                   | Static Efficiency   | 0.130              | 0.192 |
|                                   | Dynamic Efficiency  | 0.194              | 0.268 |
| Max. Input power (kW)             | Gear Ratio Option 1 | 0.375              |       |
|                                   | Gear Ratio Option 2 | 0.19               |       |
| Start up torque at full load (Nm) | Gear Ratio Option 1 | 6.8                | 9.4   |
|                                   | Gear Ratio Option 2 | 3                  | 4.2   |

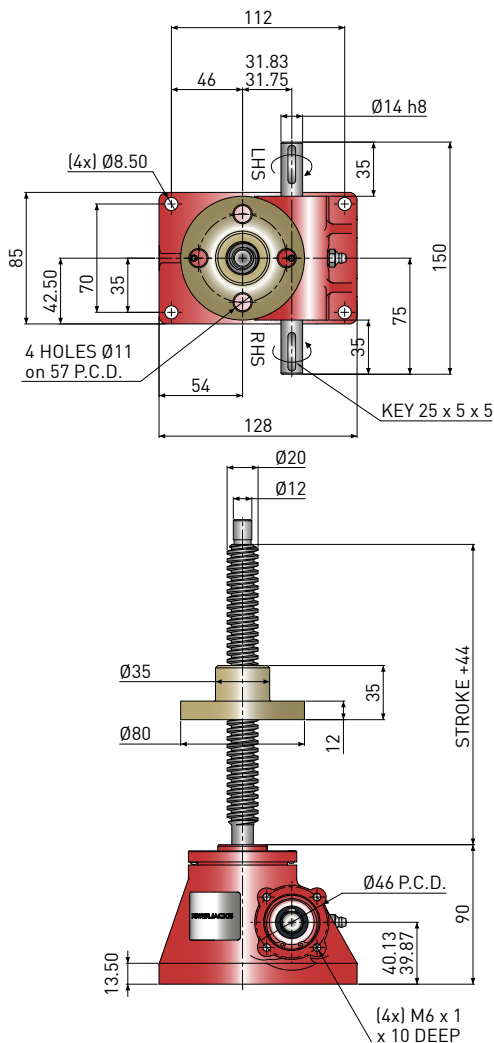
| Model (Housing Type-2)                   |              | EMT0010<br>EMR0010 |         |
|------------------------------------------|--------------|--------------------|---------|
| Capacity                                 | kN           | 10                 |         |
| Lifting Screw Lead (mm)                  |              | 5                  | 10      |
| Turn of worm for travel of lifting screw | Gear Ratio 1 | 1 Turn             | 1mm 2mm |
|                                          | Gear Ratio 2 | 4 Turn             | 1mm 2mm |
| Maximum Through Torque (Nm)              |              | 20                 |         |
| Lifting Screw Restraining Torque (Nm)    |              | 22                 | 30      |
| Worm Shaft Maximum Radial Load (N)       |              | 325                |         |
| Maximum Input Speed (rpm)                |              | 1800               |         |
| Gear Case Material                       |              | Aluminium          |         |
| Weight (kg) - stroke = 150mm             |              | EMT                | 2.36    |
|                                          |              | EMR                | 2.6     |
| Weight (kg) - per extra 25mm stroke      |              | EMT                | 0.11    |
|                                          |              | EMR                | 0.05    |

Note: All dimension in millimetres unless otherwise stated.  
Designs subject to change without notice

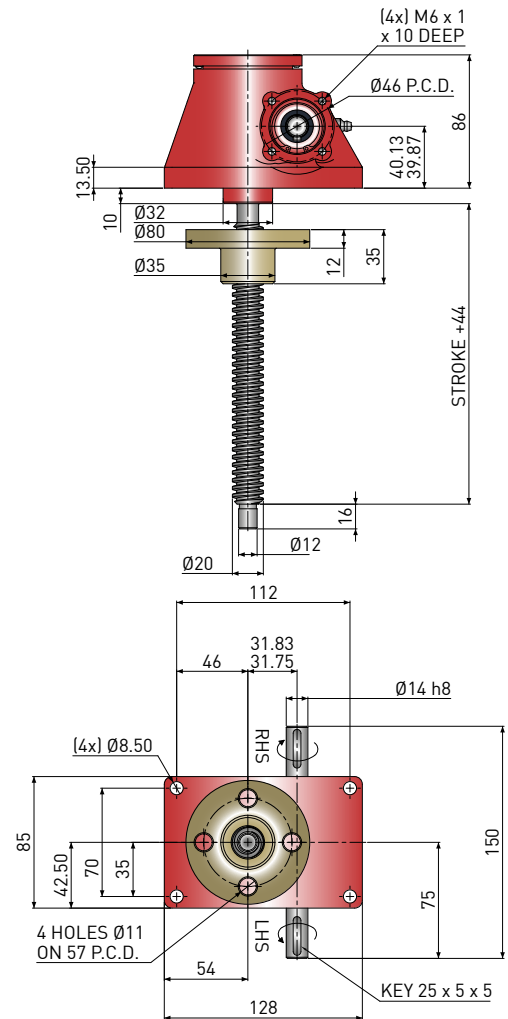
## Closed Height



## Upright EMR0010-T00



## Inverted EMR0010-H00

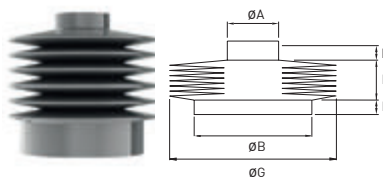


## Closed Height & Bellows Boots

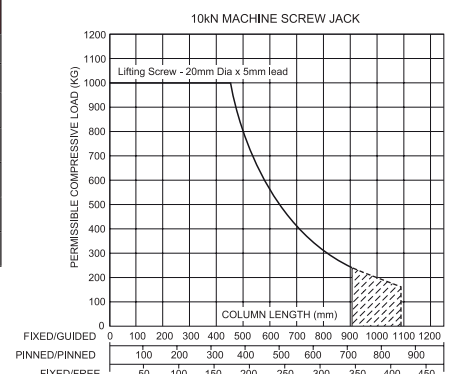
| Closed Height "C" | Threaded End               |          | Top Plate |          | Clevis End |          | Fork End |          | Rod End |          |
|-------------------|----------------------------|----------|-----------|----------|------------|----------|----------|----------|---------|----------|
|                   | Upright                    | Inverted | Upright   | Inverted | Upright    | Inverted | Upright  | Inverted | Upright | Inverted |
| EMT0010           | 125                        | 45       | 125       | 45       | 145        | 65       | 148      | 98       | 150     | 70       |
| Stroke (mm)       | EMT0010 with Bellows Boots |          |           |          |            |          |          |          |         |          |
| 0-150             | 125                        | 75       | 125       | 75       | 145        | 95       | 148      | 98       | 165     | 115      |
| 151-300           | 130                        | 95       | 130       | 95       | 150        | 115      | 153      | 118      | 170     | 135      |
| 301-600           | 140                        | 95       | 140       | 95       | 160        | 115      | 163      | 118      | 180     | 135      |
| 751-1000          | -                          | -        | -         | -        | -          | -        | -        | -        | -       | -        |

| Model   | A  | B  | D  | E  | G   |
|---------|----|----|----|----|-----|
| EMT0010 | 30 | 70 | 15 | 15 | 110 |

| Stroke  | 1-150 | 151-300 | 301-600 | 601-900 | 901-1050 |
|---------|-------|---------|---------|---------|----------|
| EMT0010 | 8     | 20      | 35      | -       | -        |

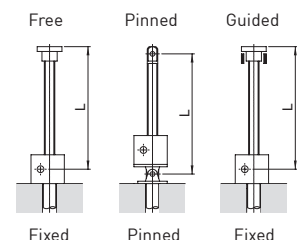


## Column Strength

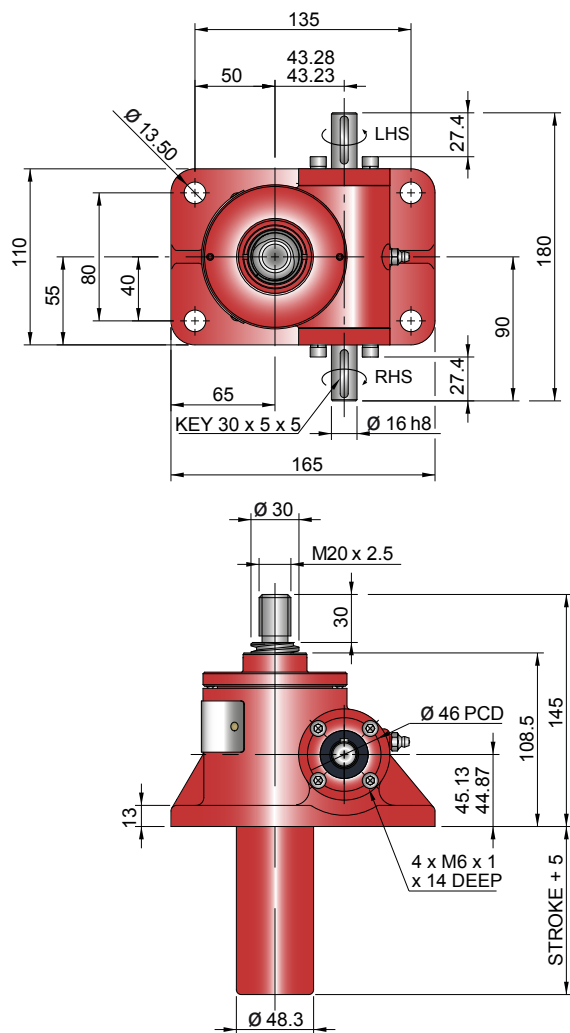


### Note:

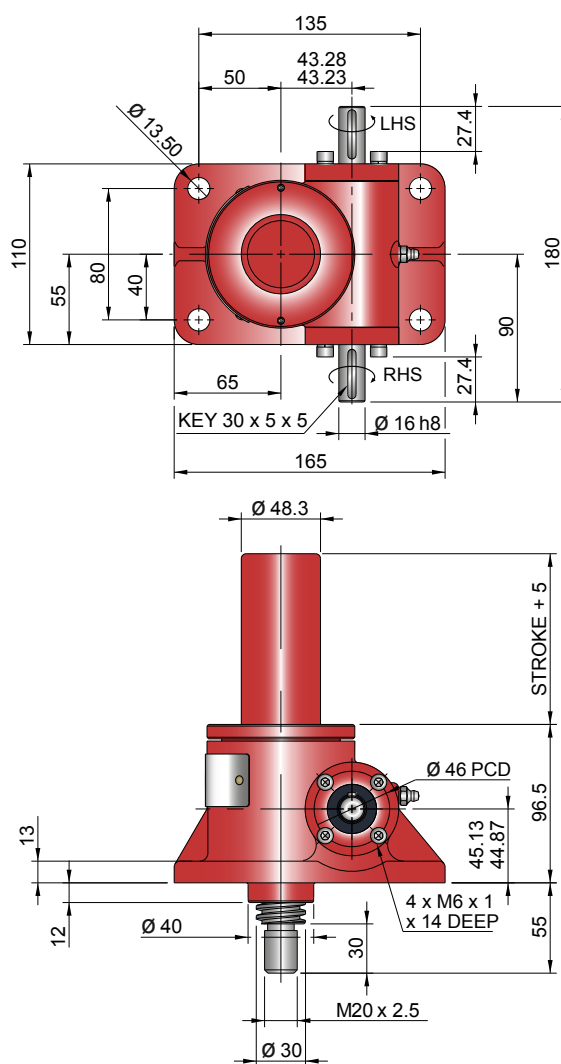
- 1 Inverted Screw Jacks - Bellows Boot Closed Height assumes screw jack mounted on a structure with thickness = 15mm
- 2 Inverted Screw Jacks - Recommended bellows boot mounting plate ØB x [E +5mm] thick.
- 3 Inverted Screw Jacks - Screw Jack mounting plate & bellows boot mounting plate are customers own supply
- 4 † Control tapes fitted (increase outer diameter by 20mm approximately).
- 5 For horizontal installations with than 450 mm of stroke, internal boot guides are recommended.
- 6 Customers with threaded end screw jacks must provide a fixing for the unattached bellows boot collar.
- 7 Bellows boots for Rotating Screw Jacks, other sizes, stroke and materials please consult Power Jacks.



Upright EMT0025-U00



Inverted EMT0025-I00



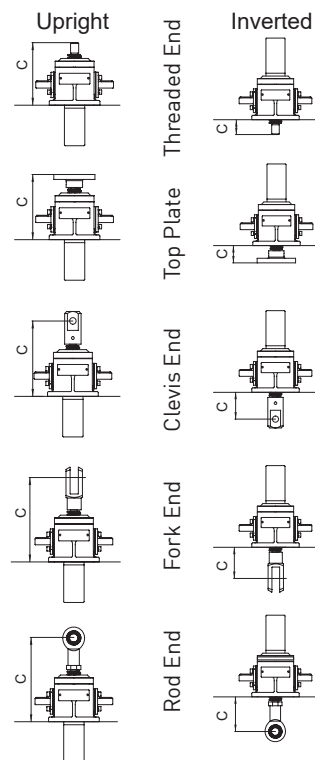
## Performance

| Model                             |                     | EMT0025<br>EMR0025 |       |
|-----------------------------------|---------------------|--------------------|-------|
| Capacity                          | kN                  | 25                 |       |
| Lifting Screw                     | Diameter (mm)       | 30                 |       |
|                                   | Lead                | Option             | 1 2   |
|                                   |                     | mm                 | 6 12  |
| Gear Ratio Option 1               | Gear Ratio          | 6:1                |       |
|                                   | Static Efficiency   | 0.201              | 0.302 |
|                                   | Dynamic Efficiency  | 0.264              | 0.383 |
| Gear Ratio Option 2               | Gear Ratio          | 24:1               |       |
|                                   | Static Efficiency   | 0.115              | 0.171 |
|                                   | Dynamic Efficiency  | 0.167              | 0.242 |
| Max. Input power (kW)             | Gear Ratio Option 1 | 1.5                |       |
|                                   | Gear Ratio Option 2 | 0.375              |       |
| Start up torque at full load (Nm) | Gear Ratio Option 1 | 19.8               | 26.3  |
|                                   | Gear Ratio Option 2 | 8.7                | 11.6  |

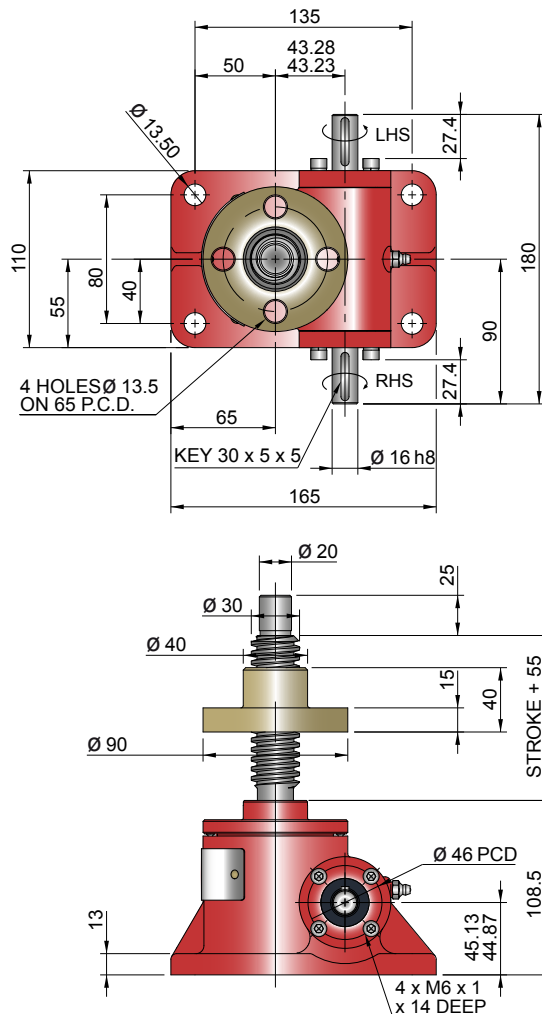
| Model                                    |              | EMT0025<br>EMR0025 |         |
|------------------------------------------|--------------|--------------------|---------|
| Capacity                                 | kN           | 25                 |         |
| Lifting Screw Lead (mm)                  |              | 6                  | 12      |
| Turn of worm for travel of lifting screw | Gear Ratio 1 | 1 Turn             | 1mm 2mm |
|                                          | Gear Ratio 2 | 4 Turn             | 1mm 2mm |
| Maximum Through Torque (Nm)              |              | 59                 |         |
| Lifting Screw Restraining Torque (Nm)    |              | 76                 | 102     |
| Worm Shaft Maximum Radial Load (N)       |              | 380                |         |
| Maximum Input Speed (rpm)                |              | 1800               |         |
| Gear Case Material                       |              | Aluminium          |         |
| Weight (kg) - stroke = 150mm             |              | EMT                | 8.45    |
|                                          |              | EMR                | 8.85    |
| Weight (kg) - per extra 25mm stroke      |              | EMT                | 0.21    |
|                                          |              | EMR                | 0.11    |

Note: All dimension in millimetres unless otherwise stated.  
Designs subject to change without notice

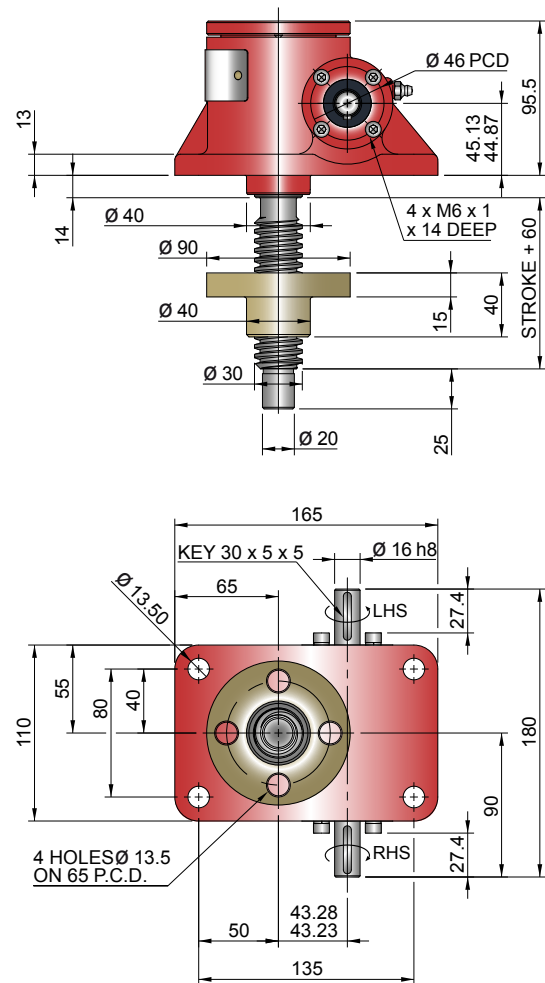
## Closed Height



## Upright EMR0025-U00



## Inverted EMR0025-I00



## Closed Height & Bellows Boots

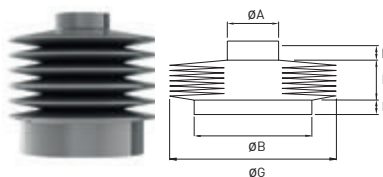
| Closed Height "C" | Threaded End               |          | Top Plate |          | Clevis End |          | Fork End |          | Rod End |          |
|-------------------|----------------------------|----------|-----------|----------|------------|----------|----------|----------|---------|----------|
|                   | Upright                    | Inverted | Upright   | Inverted | Upright    | Inverted | Upright  | Inverted | Upright | Inverted |
| EMT0025           | 145                        | 55       | 145       | 55       | 170        | 80       | 194      | 104      | 190     | 100      |
| Stroke (mm)       | EMT0025 with Bellows Boots |          |           |          |            |          |          |          |         |          |
| 1-300             | 145                        | 80       | 145       | 80       | 170        | 105      | 194      | 129      | 205     | 140      |
| 301-600           | 145                        | 80       | 145       | 80       | 170        | 105      | 194      | 129      | 205     | 140      |
| 601-1050          | 170                        | 105      | 170       | 105      | 195        | 130      | 219      | 154      | 230     | 165      |
| 1051-1500         | 195                        | 130      | 195       | 130      | 220        | 155      | 244      | 179      | 255     | 190      |

| Model   | A  | B  | D  | E  | G   |
|---------|----|----|----|----|-----|
| EMT0025 | 40 | 90 | 15 | 23 | 120 |

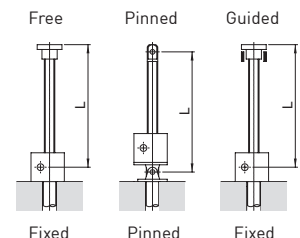
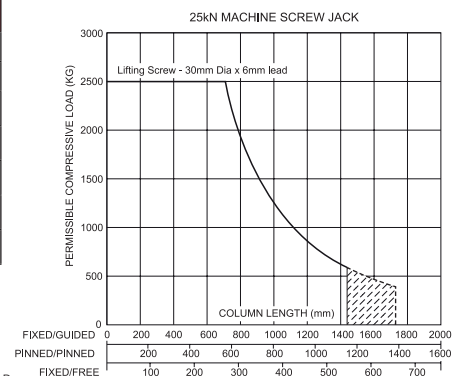
| Stroke  | 1-150 | 151-301 | 301-600 | 601-1050 | 1051-1500 |
|---------|-------|---------|---------|----------|-----------|
| EMT0025 | 8     | 20      | 30      | 50       | 70        |

Note:

- 1 Inverted Screw Jacks - Bellows Boot Closed Height assumes screw jack mounted on a structure with thickness = 15mm
- 2 Inverted Screw Jacks - Recommended bellows boot mounting plate  $\varnothing B \times [E + 5\text{mm}]$  thick.
- 3 Inverted Screw Jacks - Screw Jack mounting plate & bellows boot mounting plate are customers own supply
- 4 † Control tapes fitted (increase outer diameter by 20mm approximately).
- 5 For horizontal installations with than 450 mm of stroke, internal boot guides are recommended.
- 6 Customers with threaded end screw jacks must provide a fixing for the unattached bellows boot collar.
- 7 Bellows boots for Rotating Screw Jacks, other sizes, stroke and materials please consult Power Jacks.

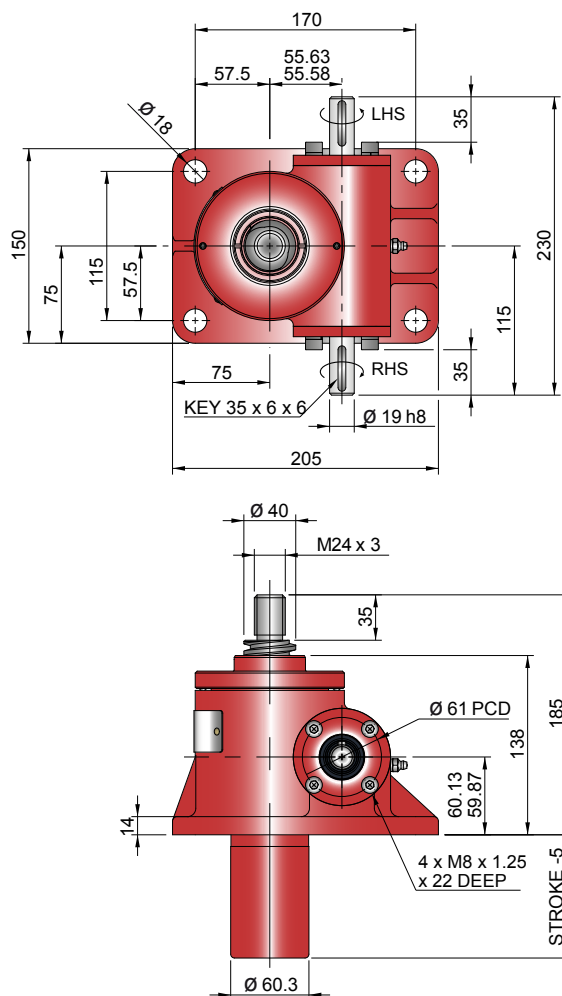


## Column Strength

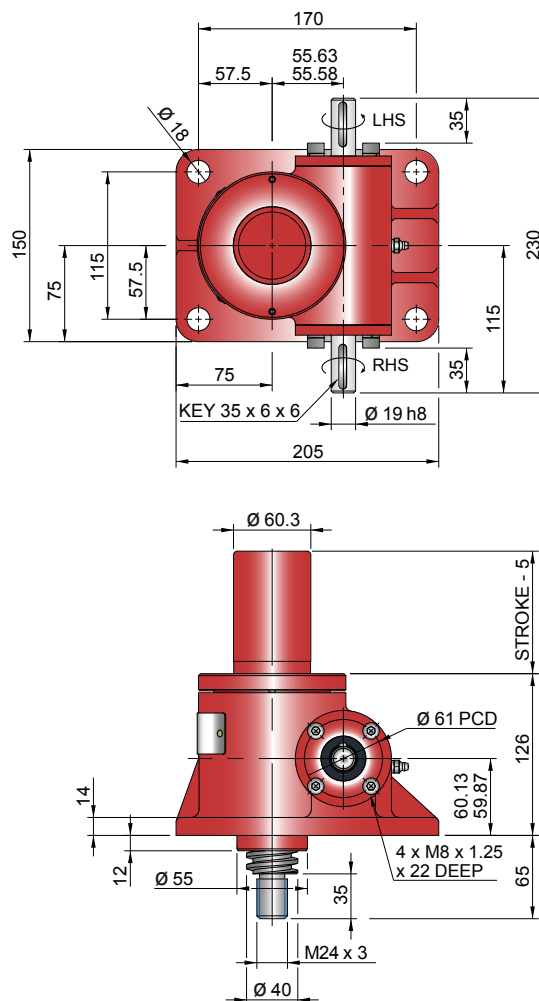




Upright EMT0050-U00



Inverted EMT0050-100



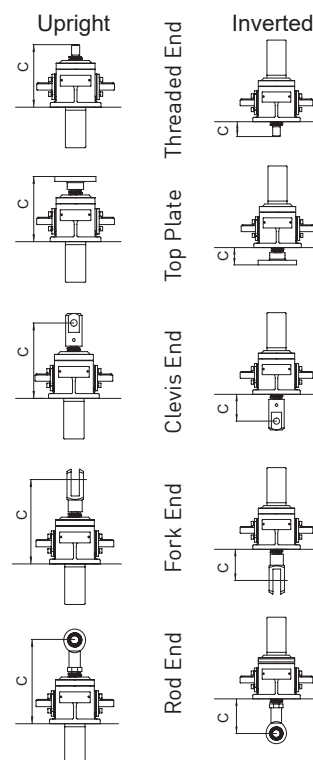
## Performance

| Model                             |                     |        | EMT0050<br>EMR0050 |       |
|-----------------------------------|---------------------|--------|--------------------|-------|
| Capacity                          | kN                  |        | 50                 |       |
| Lifting Screw                     | Diameter (mm)       |        | 40                 |       |
|                                   | Lead                | Option | 1                  | 2     |
|                                   |                     | mm     | 9                  | 18    |
| Gear Ratio Option 1               | Gear Ratio          |        | 6:1                |       |
|                                   | Static Efficiency   |        | 0.213              | 0.314 |
|                                   | Dynamic Efficiency  |        | 0.281              | 0.398 |
| Gear Ratio Option 2               | Gear Ratio          |        | 24:1               |       |
|                                   | Static Efficiency   |        | 0.117              | 0.172 |
|                                   | Dynamic Efficiency  |        | 0.172              | 0.244 |
| Max. Input power (kW)             | Gear Ratio Option 1 |        | 3.0                |       |
|                                   | Gear Ratio Option 2 |        | 0.55               |       |
| Start up torque at full load (Nm) | Gear Ratio Option 1 |        | 56                 | 76    |
|                                   | Gear Ratio Option 2 |        | 25.5               | 34.7  |

Closed Height

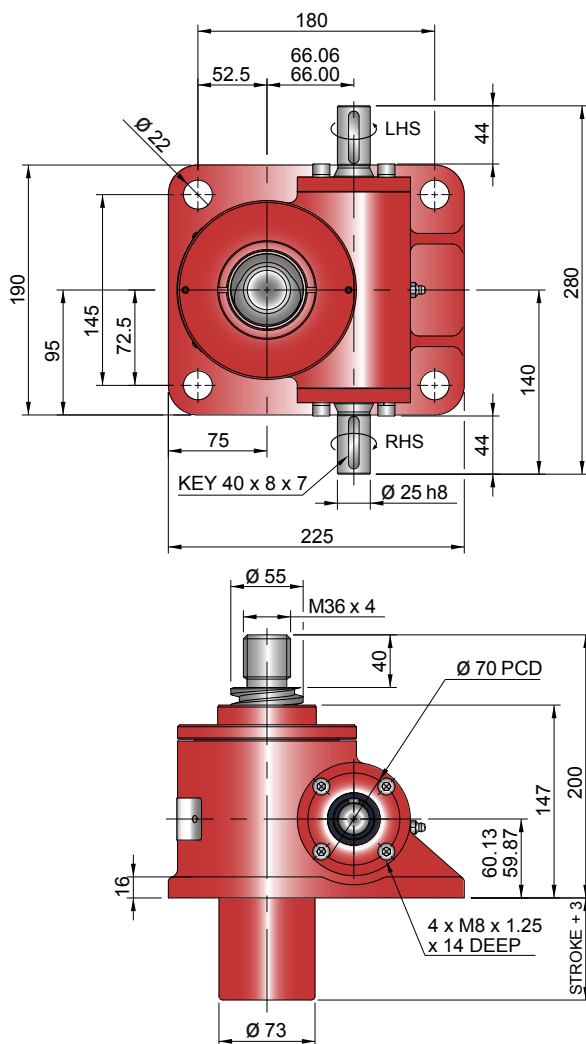
| Model                                    |              |        | EMT0050<br>EMR0050 |       |
|------------------------------------------|--------------|--------|--------------------|-------|
| Capacity                                 | kN           |        | 50                 |       |
| Lifting Screw (mm)                       |              |        | 9                  | 18    |
| Turn of worm for travel of lifting screw | Gear Ratio 1 | 1 Turn | 1.5mm              | 3mm   |
|                                          | Gear Ratio 2 | 4 Turn | 1.5mm              | 3mm   |
| Maximum Through Torque (Nm)              |              |        | 168                |       |
| Lifting Screw Restraining Torque (Nm)    |              |        | 210                | 290   |
| Worm Shaft Maximum Radial Load (N)       |              |        | 740                |       |
| Maximum Input Speed (rpm)                |              |        | 1800               |       |
| Gear Case Material                       |              |        | SG Iron            |       |
| Weight (kg) - stroke = 150mm             |              |        | EMT                | 14.9  |
|                                          |              |        | EMR                | 16.54 |
| Weight (kg) - per extra 25mm stroke      |              |        | EMT                | 0.32  |
|                                          |              |        | EMR                | 0.19  |

Note: All dimension in millimetres unless otherwise stated.  
 Designs subject to change without notice

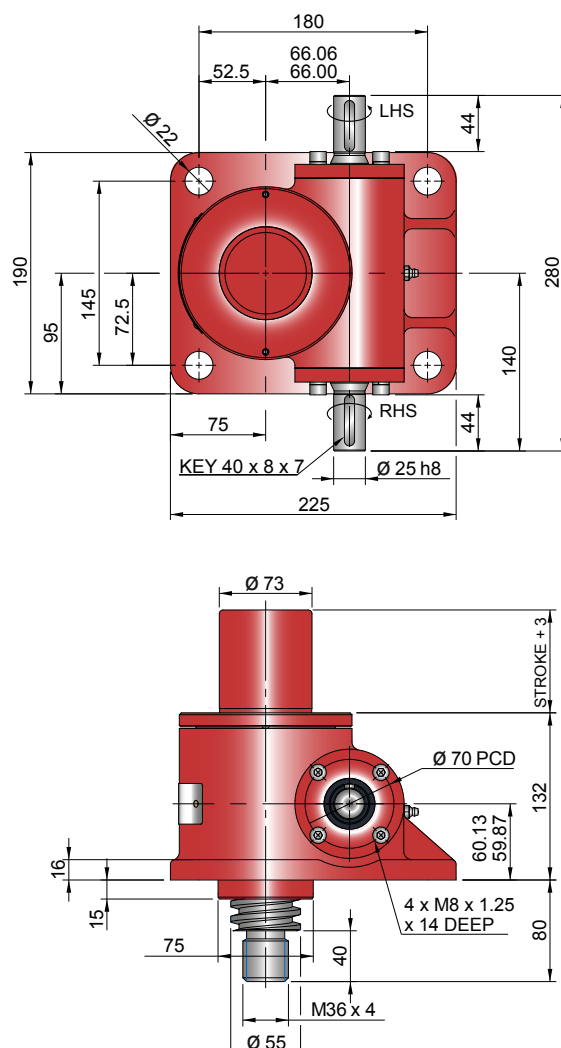




Upright EMT0100-U00



Inverted EMT0100-I00



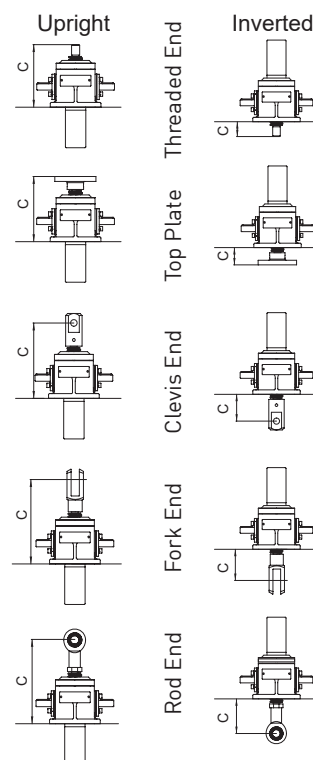
## Performance

| Model                             |                     | EMT0100<br>EMR0100 |       |
|-----------------------------------|---------------------|--------------------|-------|
| Capacity                          | kN                  | 100                |       |
| Lifting Screw                     | Diameter (mm)       | 55                 |       |
|                                   | Lead                | Option             | 1 2   |
|                                   |                     | mm                 | 12 24 |
| Gear Ratio Option 1               | Gear Ratio          | 8:1                |       |
|                                   | Static Efficiency   | 0.206              | 0.305 |
|                                   | Dynamic Efficiency  | 0.272              | 0.388 |
| Gear Ratio Option 2               | Gear Ratio          | 24:1               |       |
|                                   | Static Efficiency   | 0.132              | 0.195 |
|                                   | Dynamic Efficiency  | 0.190              | 0.271 |
| Max. Input power (kW)             | Gear Ratio Option 1 | 3.75               |       |
|                                   | Gear Ratio Option 2 | 1.125              |       |
| Start up torque at full load (Nm) | Gear Ratio Option 1 | 115.9              | 156.5 |
|                                   | Gear Ratio Option 2 | 60.5               | 81.8  |

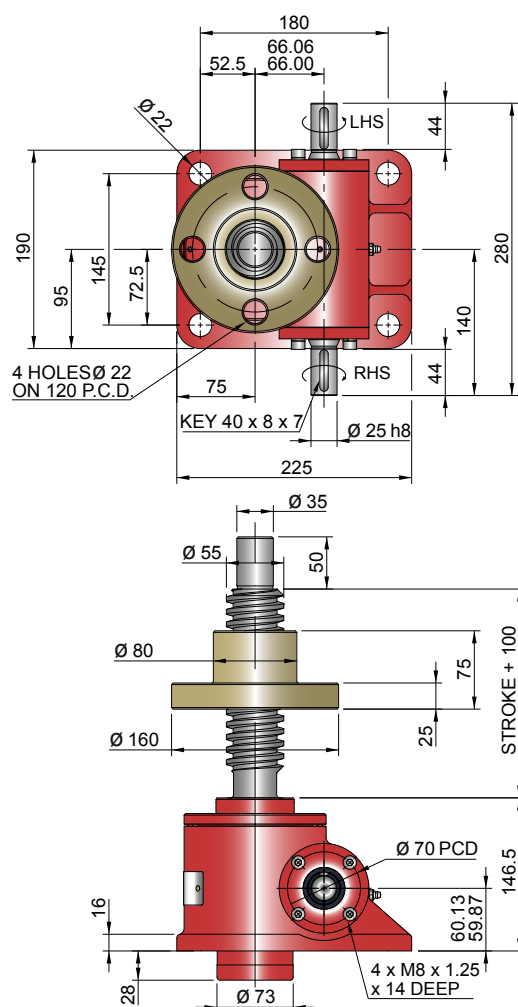
| Model                                    |              | EMT0100<br>EMR0100 |           |
|------------------------------------------|--------------|--------------------|-----------|
| Capacity                                 | kN           | 100                |           |
| Lifting Screw (mm)                       |              | 12                 | 24        |
| Turn of worm for travel of lifting screw | Gear Ratio 1 | 1 Turn             | 1.5mm 3mm |
|                                          | Gear Ratio 2 | 4 Turn             | 2mm 4mm   |
| Maximum Through Torque (Nm)              |              | 347                |           |
| Lifting Screw Restraining Torque (Nm)    |              | 575                | 780       |
| Worm Shaft Maximum Radial Load (N)       |              | 1000               |           |
| Maximum Input Speed (rpm)                |              | 1800               |           |
| Gear Case Material                       |              | SG Iron            |           |
| Weight (kg) - stroke = 150mm             |              | EMT                | 24.3      |
|                                          |              | EMR                | 28.8      |
| Weight (kg) - per extra 25mm stroke      |              | EMT                | 0.58      |
|                                          |              | EMR                | 0.36      |

Note: All dimension in millimetres unless otherwise stated.  
Designs subject to change without notice

## Closed Height



## Upright EMR0100-U00



## Closed Height & Bellows Boots

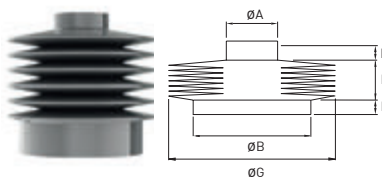
| Closed Height "C" | Threaded End               |          | Top Plate |          | Clevis End |          | Fork End |          | Rod End |          |
|-------------------|----------------------------|----------|-----------|----------|------------|----------|----------|----------|---------|----------|
|                   | Upright                    | Inverted | Upright   | Inverted | Upright    | Inverted | Upright  | Inverted | Upright | Inverted |
| EMT0100           | 200                        | 80       | 200       | 80       | 245        | 125      | 302      | 182      | 283     | 163      |
| Stroke (mm)       | EMT0100 with Bellows Boots |          |           |          |            |          |          |          |         |          |
| 1-300             | 200                        | 105      | 200       | 105      | 245        | 150      | 302      | 207      | 298     | 203      |
| 301-600           | 200                        | 130      | 200       | 130      | 245        | 175      | 302      | 232      | 298     | 228      |
| 601-1050          | 225                        | 130      | 225       | 130      | 270        | 175      | 327      | 232      | 323     | 228      |
| 1051-1500         | 250                        | 155      | 250       | 155      | 295        | 200      | 352      | 257      | 348     | 253      |

| Model   | A  | B   | D  | E  | G   |
|---------|----|-----|----|----|-----|
| EMT0100 | 65 | 136 | 15 | 31 | 150 |

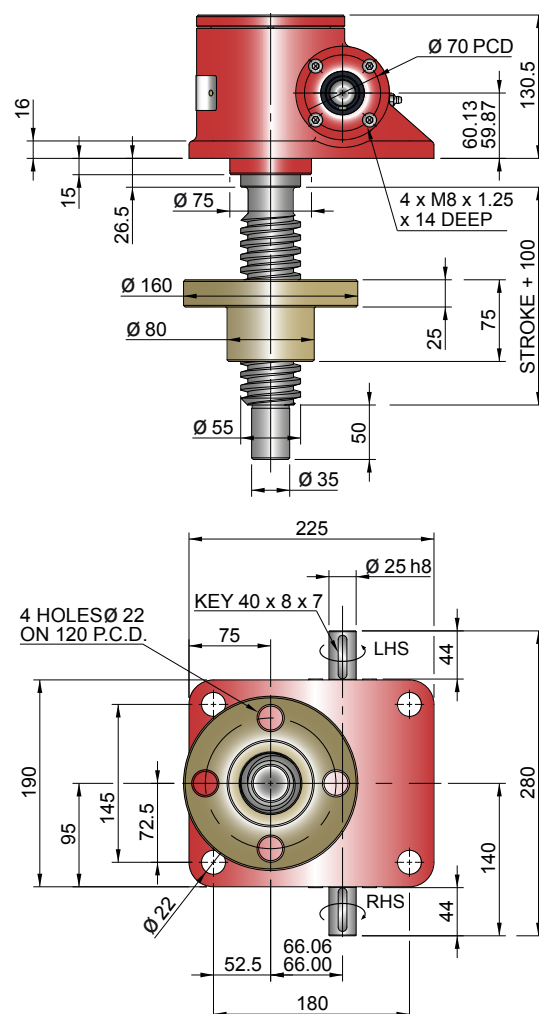
| Stroke  | 1-300 | 301-600 | 601-1050 | 1051-1500 |
|---------|-------|---------|----------|-----------|
| EMT0100 | 20    | 30      | 50       | 70        |

Note:

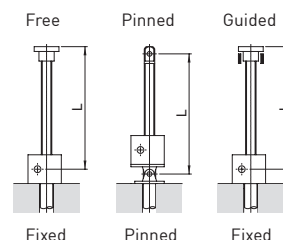
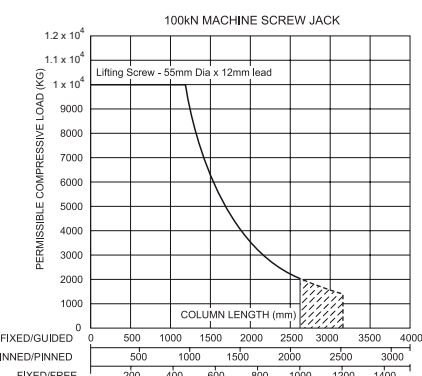
- 1 Inverted Screw Jacks - Bellows Boot Closed Height assumes screw jack mounted on a structure with thickness = 15mm  
2 Inverted Screw Jacks - Recommended bellows boot mounting plate ØB x [E +5mm] thick.  
3 Inverted Screw Jacks - Screw Jack mounting plate & bellows boot mounting plate are customers own supply  
4 † Control tapes fitted (increase outer diameter by 20mm approximately).  
5 For horizontal installations with than 450 mm of stroke, internal boot guides are recommended.  
6 Customers with threaded end screw jacks must provide a fixing for the unattached bellows boot collar.  
7 Bellows boots for Rotating Screw Jacks, other sizes, stroke and materials please consult Power Jacks.



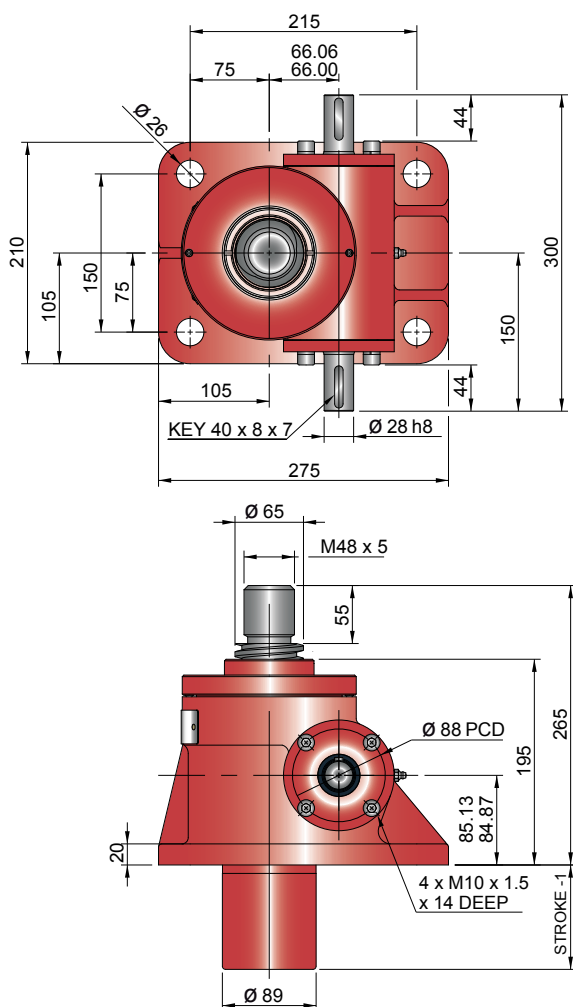
## Inverted EMR0100-100



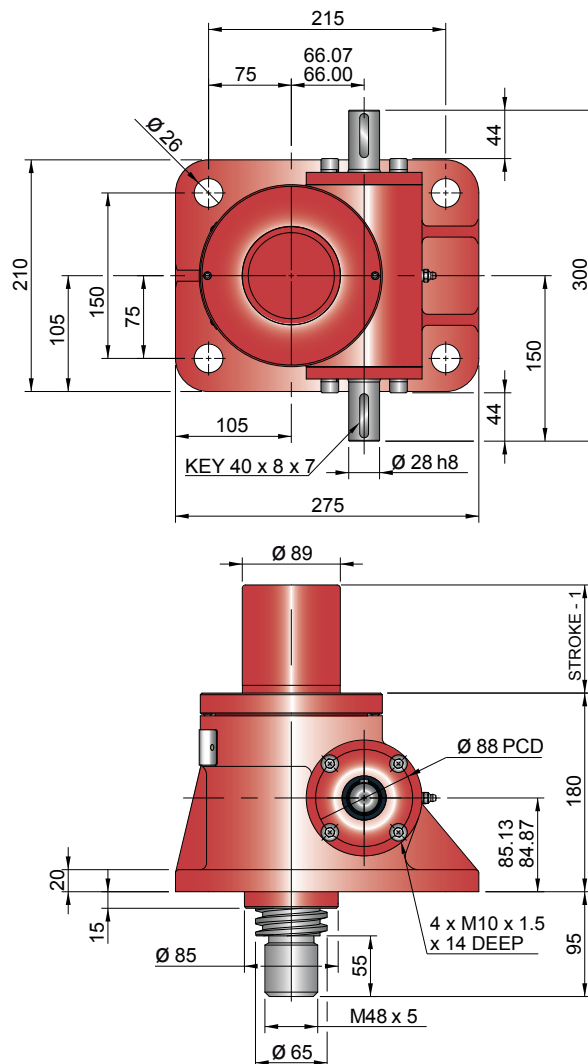
## Column Strength



Upright EMT0200-U00



Inverted EMT0200-I00



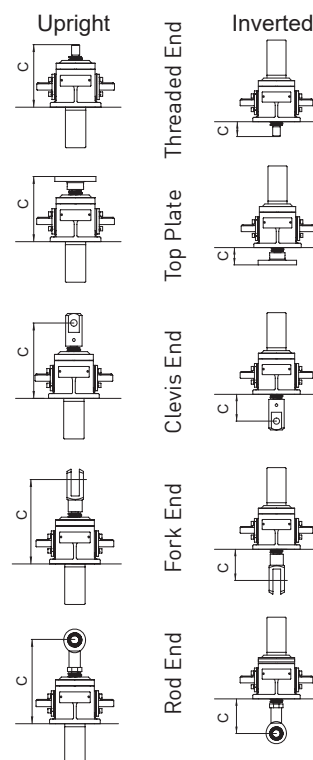
## Performance

| Model                                   |                     | EMT0200<br>EMR0200 |       |
|-----------------------------------------|---------------------|--------------------|-------|
| Capacity                                | kN                  | 200                |       |
| Lifting Screw                           | Diameter (mm)       | 65                 |       |
|                                         | Lead                | Option             | 1 2   |
|                                         |                     | mm                 | 12 24 |
| Gear Ratio<br>Option 1                  | Gear Ratio          | 8:1                |       |
|                                         | Static Efficiency   | 0.181              | 0.279 |
|                                         | Dynamic Efficiency  | 0.242              | 0.357 |
| Gear Ratio<br>Option 2                  | Gear Ratio          | 24:1               |       |
|                                         | Static Efficiency   | 0.116              | 0.178 |
|                                         | Dynamic Efficiency  | 0.169              | 0.250 |
| Max. Input<br>power (kW)                | Gear Ratio Option 1 | 3.75               |       |
|                                         | Gear Ratio Option 2 | 1.125              |       |
| Start up torque<br>at full load<br>(Nm) | Gear Ratio Option 1 | 263.8              | 343   |
|                                         | Gear Ratio Option 2 | 137                | 179   |

| Model                                             |              | EMT0200<br>EMR0200 |           |
|---------------------------------------------------|--------------|--------------------|-----------|
| Capacity                                          | kN           | 200                |           |
| Lifting Screw (mm)                                |              | 12                 | 24        |
| Turn of<br>worm for<br>travel of<br>lifting screw | Gear Ratio 1 | 1 Turn             | 1.5mm 3mm |
|                                                   | Gear Ratio 2 | 4 Turn             | 2mm 4mm   |
| Maximum Through Torque (Nm)                       |              | 396                |           |
| Lifting Screw Restraining Torque (Nm)             |              | 1300               | 1705      |
| Worm Shaft Maximum Radial Load<br>(N)             |              | 1600               |           |
| Maximum Input Speed (rpm)                         |              | 1800               |           |
| Gear Case Material                                |              | Steel              |           |
| Weight (kg) - stroke = 150mm                      |              | EMT                | 42.4      |
|                                                   |              | EMR                | 49.58     |
| Weight (kg) - per extra 25mm stroke               |              | EMT                | 0.84      |
|                                                   |              | EMR                | 0.52      |

Note: All dimension in millimetres unless otherwise stated.  
Designs subject to change without notice

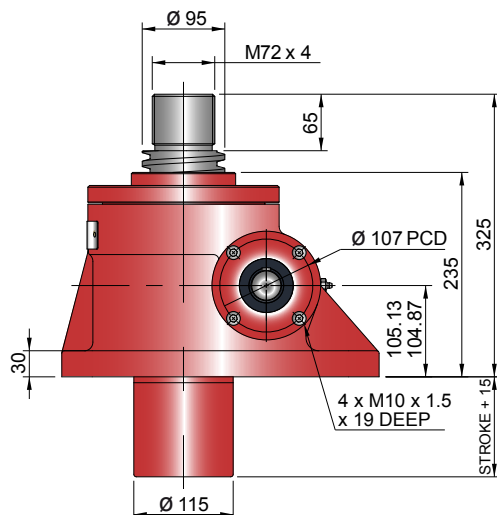
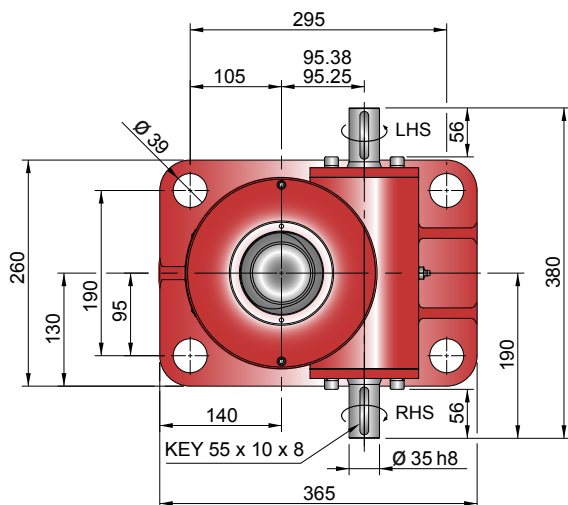
## Closed Height



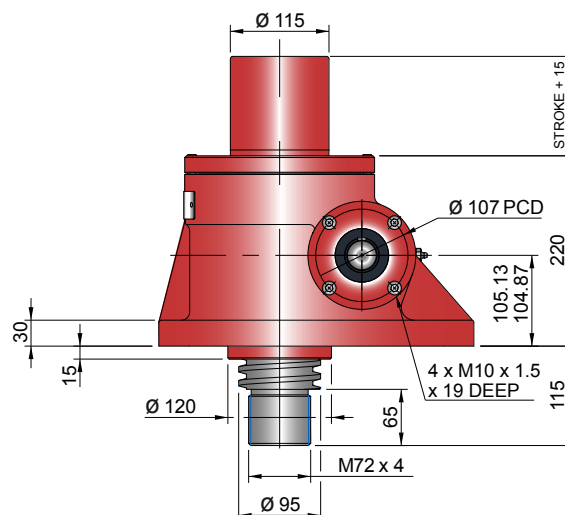
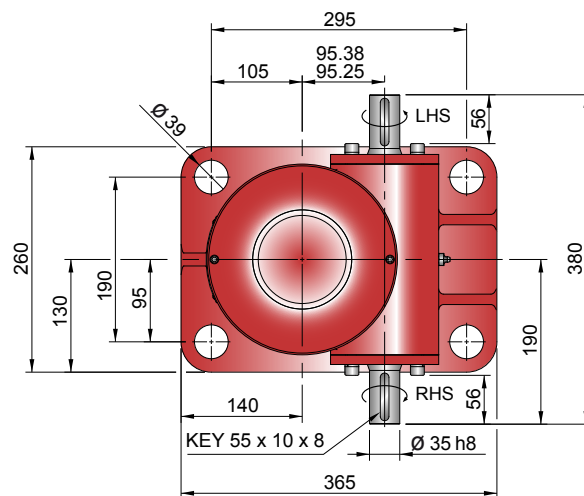




Upright EMT0300-U00



Inverted EMT0300-I00



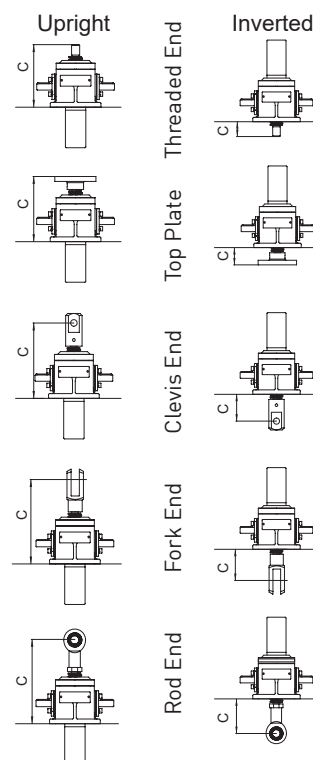
## Performance

| Model                                   |                     | EMT0300<br>EMR0300 |       |
|-----------------------------------------|---------------------|--------------------|-------|
| Capacity                                | kN                  | 300                |       |
| Lifting Screw                           | Diameter (mm)       | 95                 |       |
|                                         | Lead                | Option             | 1 2   |
|                                         |                     | mm                 | 16 32 |
| Gear Ratio<br>Option 1                  | Gear Ratio          | 10 2/3:1           |       |
|                                         | Static Efficiency   | 0.149              | 0.232 |
|                                         | Dynamic Efficiency  | 0.205              | 0.308 |
| Gear Ratio<br>Option 2                  | Gear Ratio          | 32:1               |       |
|                                         | Static Efficiency   | 0.084              | 0.131 |
|                                         | Dynamic Efficiency  | 0.128              | 0.192 |
| Max. Input<br>power (kW)                | Gear Ratio Option 1 | 6.0                |       |
|                                         | Gear Ratio Option 2 | 1.9                |       |
| Start up torque<br>at full load<br>(Nm) | Gear Ratio Option 1 | 480                | 618   |
|                                         | Gear Ratio Option 2 | 284                | 365   |

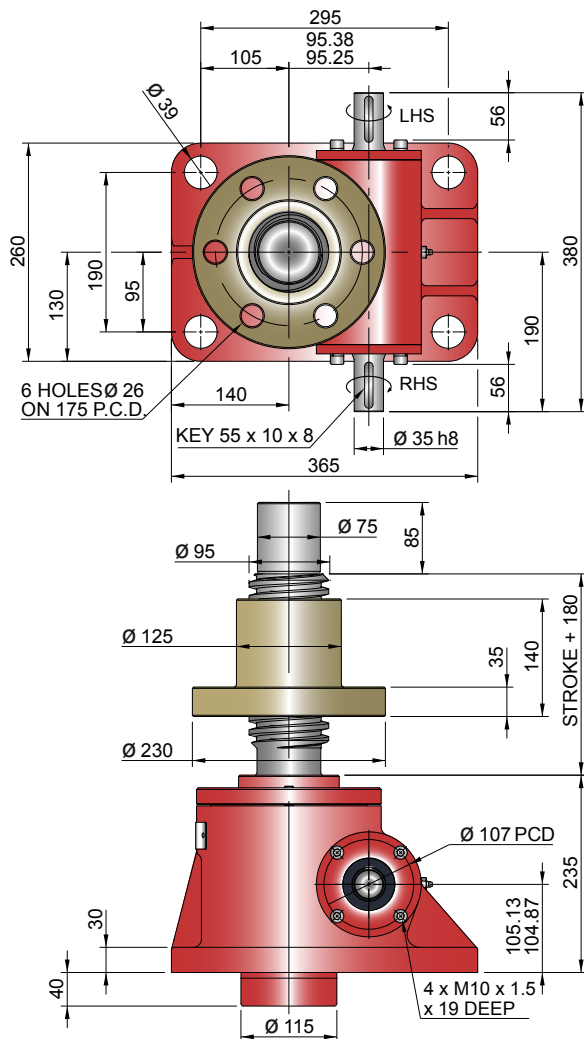
| Model                                             |              | EMT0300<br>EMR0300 |           |
|---------------------------------------------------|--------------|--------------------|-----------|
| Capacity                                          | kN           | 300                |           |
| Lifting Screw (mm)                                |              | 16                 | 32        |
| Turn of<br>worm for<br>travel of<br>lifting screw | Gear Ratio 1 | 1 Turn             | 1.5mm 3mm |
|                                                   | Gear Ratio 2 | 4 Turn             | 2mm 4mm   |
| Maximum Through Torque (Nm)                       |              | 1440               |           |
| Lifting Screw Restraining Torque (Nm)             |              | 2805               | 3610      |
| Worm Shaft Maximum Radial Load (N)                |              | 2170               |           |
| Maximum Input Speed (rpm)                         |              | 1800               |           |
| Gear Case Material                                |              | Steel              |           |
| Weight (kg) - stroke = 150mm                      |              | EMT                | 92.4      |
|                                                   |              | EMR                | 113.78    |
| Weight (kg) - per extra 25mm stroke               |              | EMT                | 1.55      |
|                                                   |              | EMR                | 1.13      |

Note: All dimension in millimetres unless otherwise stated.  
Designs subject to change without notice

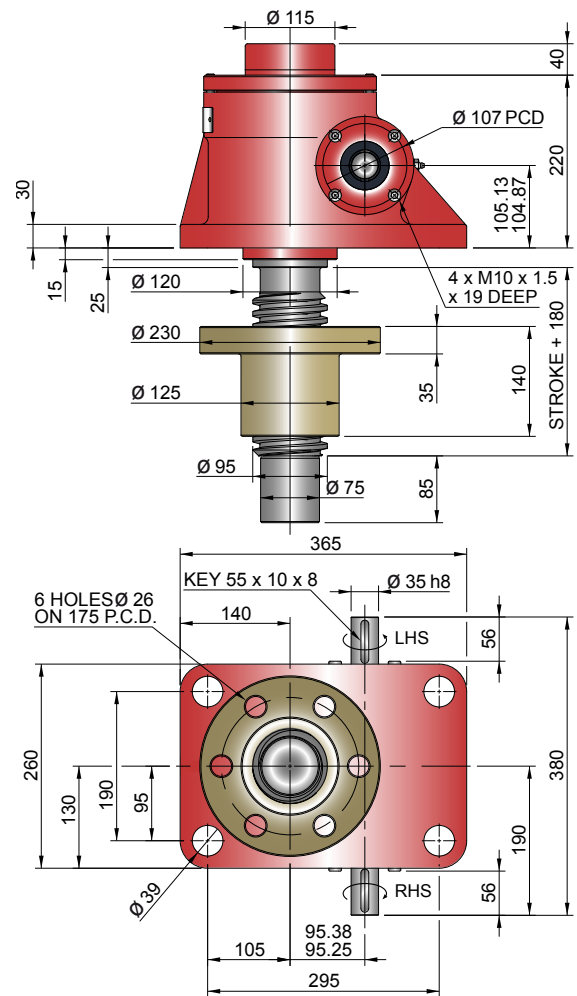
## Closed Height



## Upright EMR0300-U00



## Inverted EMR0300-I00

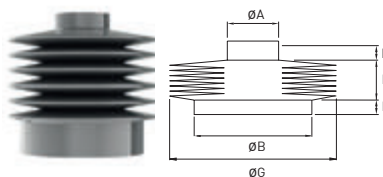


## Closed Height & Bellows Boots

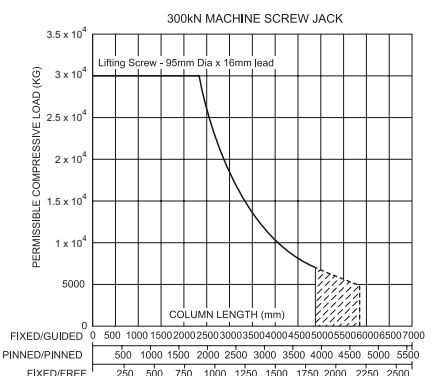
| Closed Height "C" | Threaded End               |          | Top Plate |          | Clevis End |          | Fork End   |          | Rod End    |          |
|-------------------|----------------------------|----------|-----------|----------|------------|----------|------------|----------|------------|----------|
|                   | Upright                    | Inverted | Upright   | Inverted | Upright    | Inverted | Upright    | Inverted | Upright    | Inverted |
| EMT0300           | 325                        | 115      | 325       | 115      | 365        | 155      | on request |          | on request |          |
| Stroke (mm)       | EMT0300 with Bellows Boots |          |           |          |            |          |            |          |            |          |
| 1-300             | 325                        | 140      | 325       | 140      | 365        | 180      | -          | -        | -          | -        |
| 301-600           | 325                        | 165      | 325       | 165      | 365        | 205      | -          | -        | -          | -        |
| 601-1050          | 350                        | 165      | 350       | 165      | 390        | 205      | -          | -        | -          | -        |
| 1051-1500         | 375                        | 190      | 375       | 190      | 415        | 230      | -          | -        | -          | -        |

| Model   | A   | B   | D  | E  | G   |
|---------|-----|-----|----|----|-----|
| EMT0300 | 110 | 220 | 20 | 20 | 191 |

| Stroke  | 1-300 | 301-600 | 601-1050 | 1051-1500 |
|---------|-------|---------|----------|-----------|
| EMT0300 | 20    | 30      | 50       | 70        |

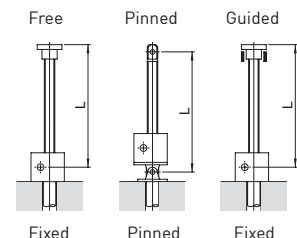


## Column Strength

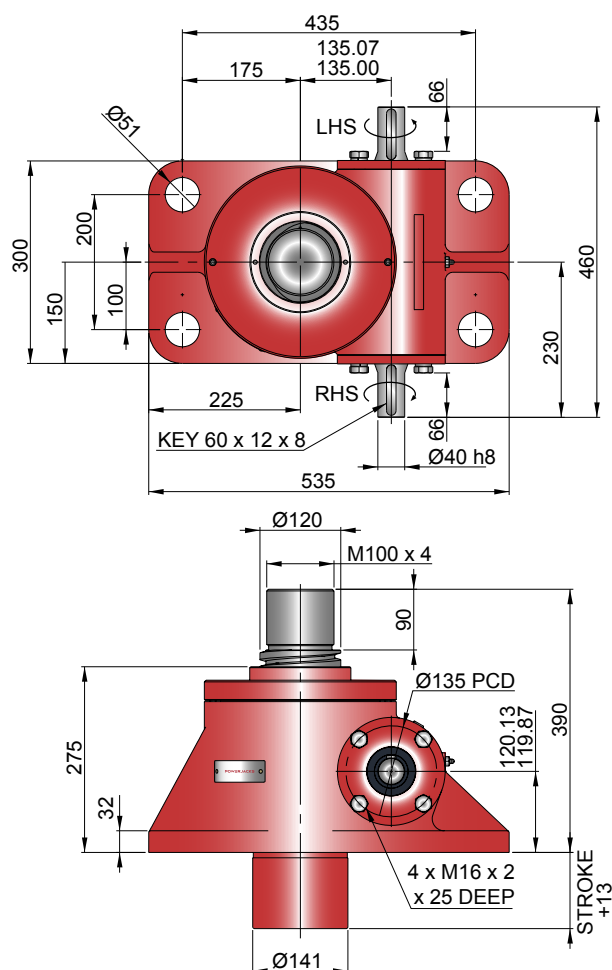


### Note:

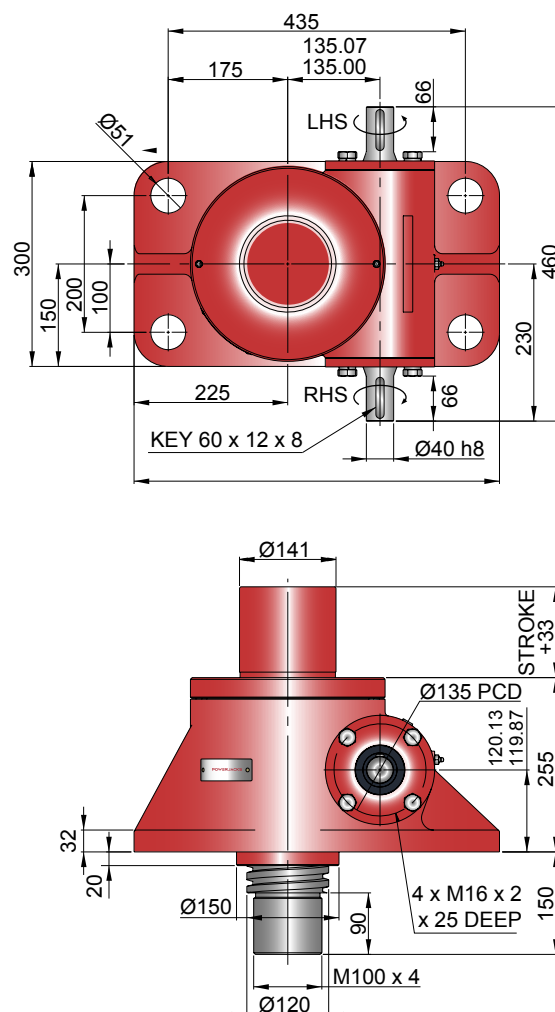
- 1 Inverted Screw Jacks - Bellows Boot Closed Height assumes screw jack mounted on a structure with thickness = 15mm
- 2 Inverted Screw Jacks - Recommended bellows boot mounting plate ØB x [E +5mm] thick.
- 3 Inverted Screw Jacks - Screw Jack mounting plate & bellows boot mounting plate are customers own supply
- 4 † Control tapes fitted (increase outer diameter by 20mm approximately).
- 5 For horizontal installations with than 450 mm of stroke, internal boot guides are recommended.
- 6 Customers with threaded end screw jacks must provide a fixing for the unattached bellows boot collar.
- 7 Bellows boots for Rotating Screw Jacks, other sizes, stroke and materials please consult Power Jacks.



Upright EMT0500-U00



Inverted EMT0500-I00



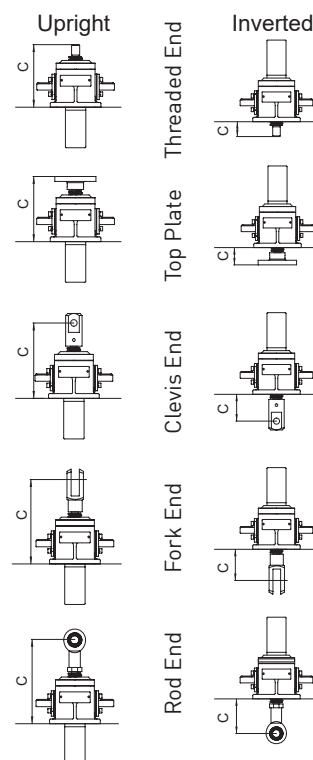
## Performance

| Model                                   |                     | EMT0500<br>EMR0500 |       |
|-----------------------------------------|---------------------|--------------------|-------|
| Capacity                                | kN                  | 500                |       |
| Lifting Screw                           | Diameter (mm)       | 120                |       |
|                                         | Lead                | Option             | 1 2   |
|                                         |                     | mm                 | 16 32 |
| Gear Ratio<br>Option 1                  | Gear Ratio          | 10 2/3:1           |       |
|                                         | Static Efficiency   | 0.132              | 0.215 |
|                                         | Dynamic Efficiency  | 0.181              | 0.284 |
| Gear Ratio<br>Option 2                  | Gear Ratio          | 32:1               |       |
|                                         | Static Efficiency   | 0.079              | 0.129 |
|                                         | Dynamic Efficiency  | 0.120              | 0.188 |
| Max. Input<br>power (kW)                | Gear Ratio Option 1 | 11.25              |       |
|                                         | Gear Ratio Option 2 | 4.5                |       |
| Start up torque<br>at full load<br>(Nm) | Gear Ratio Option 1 | 904                | 1113  |
|                                         | Gear Ratio Option 2 | 504                | 618   |

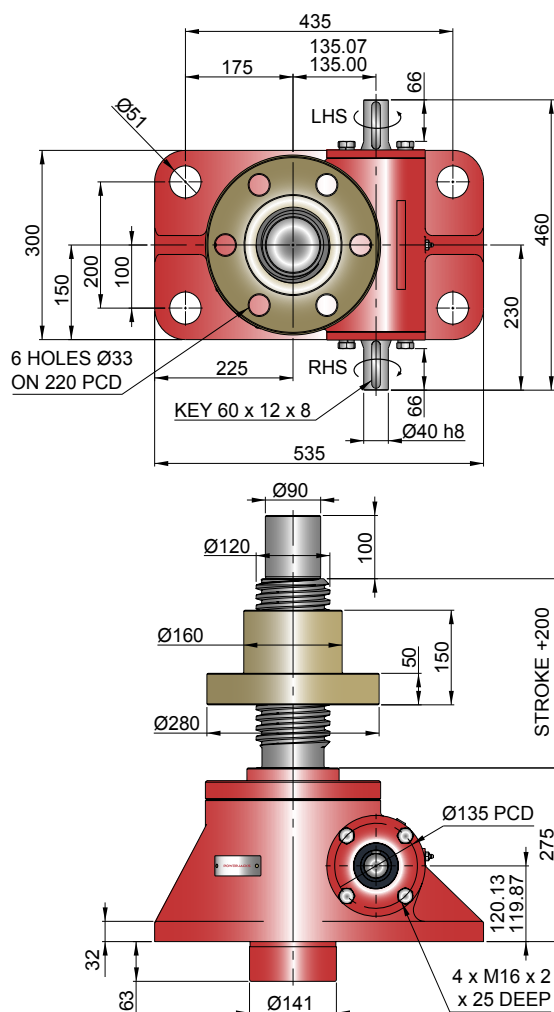
| Model                                          |              | EMT0500<br>EMR0500 |           |
|------------------------------------------------|--------------|--------------------|-----------|
| Capacity                                       | kN           | 500                |           |
| Lifting Screw (mm)                             |              | 16                 | 32        |
| Turn of worm for<br>travel of<br>lifting screw | Gear Ratio 1 | 1 Turn             | 1.5mm 3mm |
|                                                | Gear Ratio 2 | 4 Turn             | 2mm 4mm   |
| Maximum Through Torque (Nm)                    |              | 2712               |           |
| Lifting Screw Restraining Torque (Nm)          |              | 5645               | 6975      |
| Worm Shaft Maximum Radial Load<br>(N)          |              | 2190               |           |
| Maximum Input Speed (rpm)                      |              | 1800               |           |
| Gear Case Material                             |              | Steel              |           |
| Weight (kg) - stroke = 150mm                   |              | EMT                | 183.7     |
|                                                |              | EMR                | 224       |
| Weight (kg) - per extra 25mm stroke            |              | EMT                | 2.48      |
|                                                |              | EMR                | 1.94      |

Note: All dimension in millimetres unless otherwise stated.  
Designs subject to change without notice

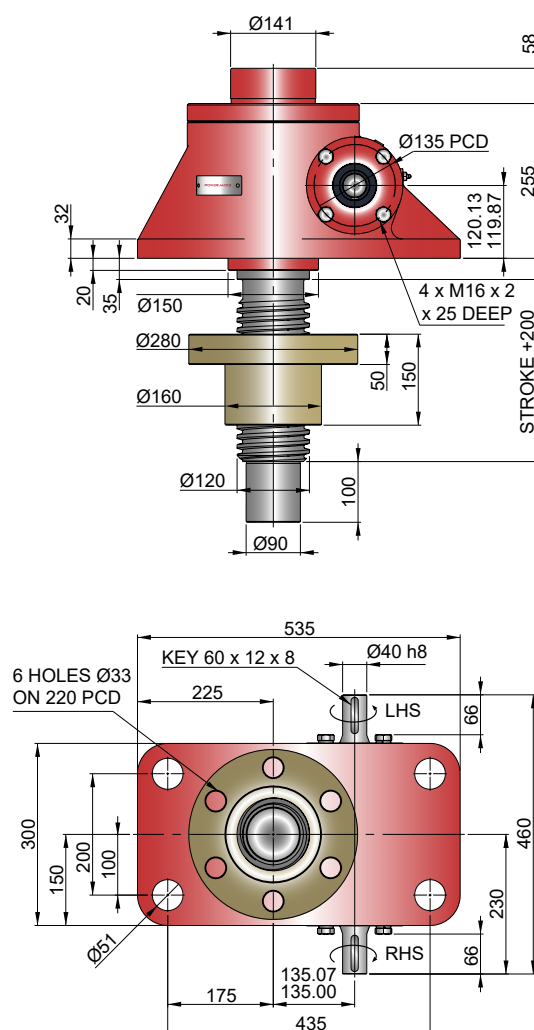
## Closed Height



## Upright EMR0500-U00



## Inverted EMR0500-I00



## Closed Height & Bellows Boots

| Closed Height "C" | Threaded End               |          | Top Plate |          | Clevis End |          | Fork End   |          | Rod End    |          |
|-------------------|----------------------------|----------|-----------|----------|------------|----------|------------|----------|------------|----------|
|                   | Upright                    | Inverted | Upright   | Inverted | Upright    | Inverted | Upright    | Inverted | Upright    | Inverted |
| EMT0500           | 390                        | 150      | 390       | 150      | 440        | 200      | on request |          | on request |          |
| Stroke (mm)       | EMT0500 with Bellows Boots |          |           |          |            |          |            |          |            |          |
| 1-300             | 390                        | 175      | 390       | 175      | 440        | 225      | -          | -        | -          | -        |
| 301-600           | 415                        | 200      | 415       | 200      | 465        | 250      | -          | -        | -          | -        |
| 601-1050          | 440                        | 225      | 440       | 225      | 490        | 275      | -          | -        | -          | -        |
| 1051-1500         | 465                        | 250      | 465       | 250      | 515        | 300      | -          | -        | -          | -        |

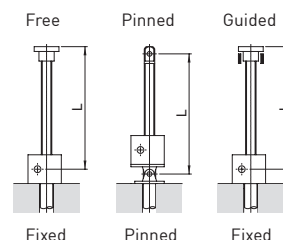
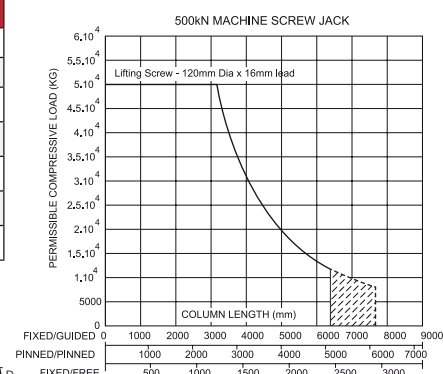
| Model   | A   | B   | D  | E  | G   |
|---------|-----|-----|----|----|-----|
| EMT0500 | 150 | 285 | 20 | 45 | 210 |

| Stroke  | 1-300 | 301-600 | 601-1050 | 1051-1500 |
|---------|-------|---------|----------|-----------|
| EMT0500 | 20    | 30      | 50       | 70        |

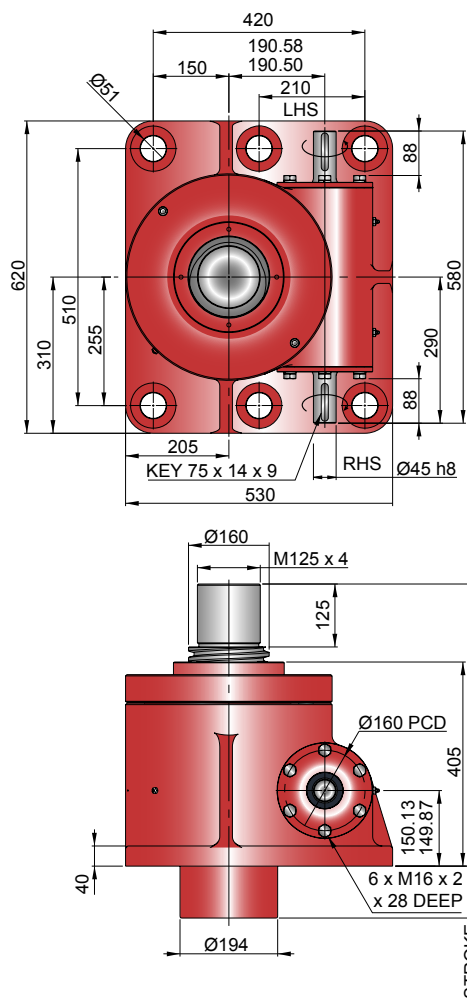
Note:

- 1 Inverted Screw Jacks - Bellows Boot Closed Height assumes screw jack mounted on a structure with thickness = 15mm
- 2 Inverted Screw Jacks - Recommended bellows boot mounting plate ØB x [E +5mm] thick.
- 3 Inverted Screw Jacks - Screw Jack mounting plate & bellows boot mounting plate are customers own supply
- 4 † Control tapes fitted (increase outer diameter by 20mm approximately).
- 5 For horizontal installations with than 450 mm of stroke, internal boot guides are recommended.
- 6 Customers with threaded end screw jacks must provide a fixing for the unattached bellows boot collar.
- 7 Bellows boots for Rotating Screw Jacks, other sizes, stroke and materials please consult Power Jacks.

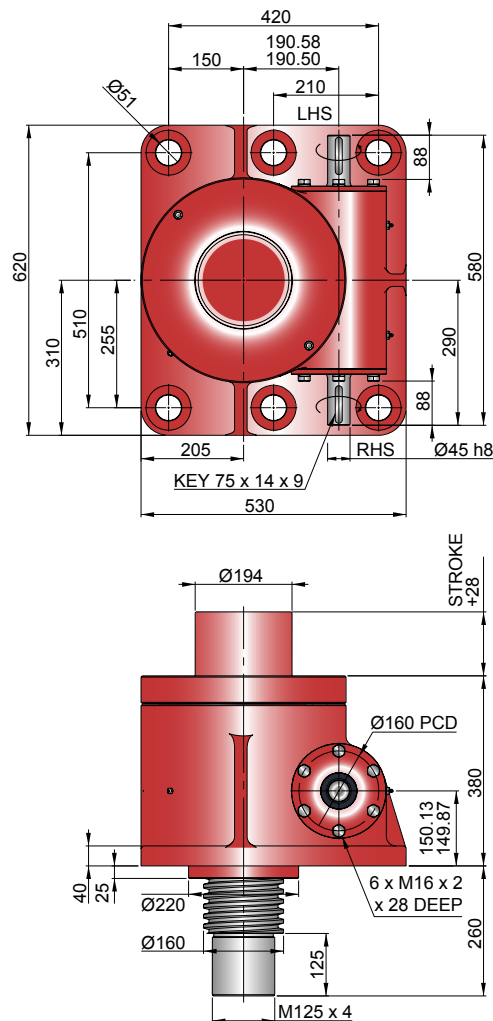
## Column Strength



## Upright EMT1000-U00



## Inverted EMT1000-I00



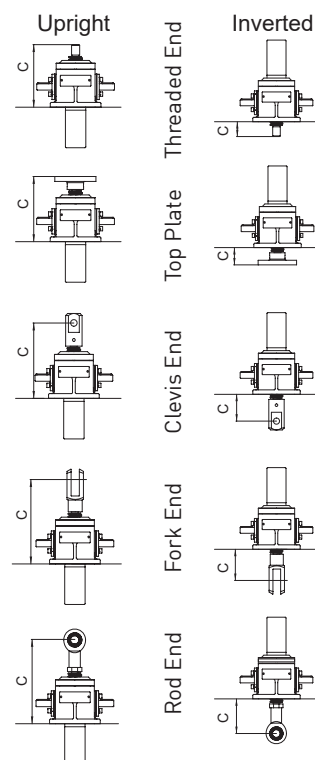
## Performance

| Model                                   |                     | EMT1000<br>EMR1000 |
|-----------------------------------------|---------------------|--------------------|
| Capacity                                | kN                  | 1000               |
| Lifting Screw                           | Diameter (mm)       | 160                |
|                                         | Lead                | Option 1<br>mm 20  |
| Gear Ratio<br>Option 1                  | Gear Ratio          | 12:1               |
|                                         | Static Efficiency   | 0.131              |
|                                         | Dynamic Efficiency  | 0.178              |
| Gear Ratio<br>Option 2                  | Gear Ratio          | 36:1               |
|                                         | Static Efficiency   | 0.079              |
|                                         | Dynamic Efficiency  | 0.123              |
| Max. Input<br>power (kW)                | Gear Ratio Option 1 | 18.5               |
|                                         | Gear Ratio Option 2 | 8.25               |
| Start up torque<br>at full load<br>(Nm) | Gear Ratio Option 1 | 2025               |
|                                         | Gear Ratio Option 2 | 1119               |

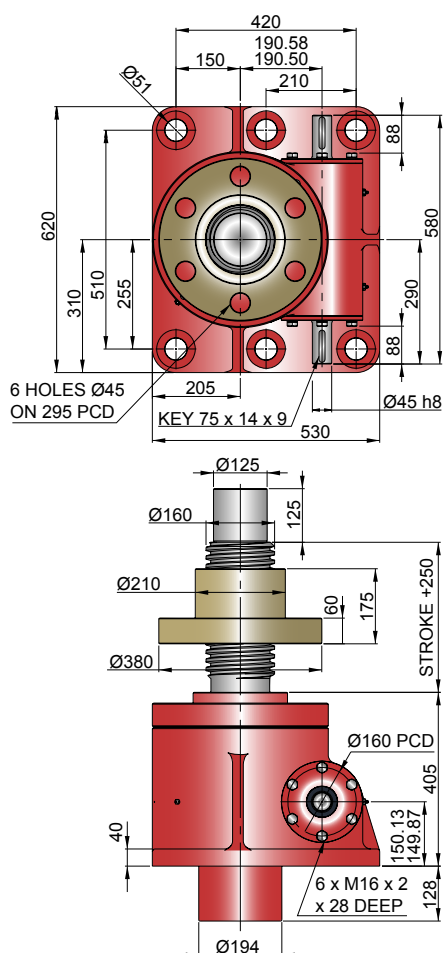
| Model                                          |              | EMT1000<br>EMR1000 |
|------------------------------------------------|--------------|--------------------|
| Capacity                                       | kN           | 1000               |
| Lifting Screw (mm)                             |              | 20                 |
| Turn of worm for<br>travel of<br>lifting screw | Gear Ratio 1 | 1 Turn             |
|                                                | Gear Ratio 2 | 4 Turn             |
| Maximum Through Torque (Nm)                    |              | 6075               |
| Lifting Screw Restraining Torque (Nm)          |              | 14890              |
| Worm Shaft Maximum Radial Load (N)             |              | 2220               |
| Maximum Input Speed (rpm)                      |              | 1800               |
| Gear Case Material                             |              | Steel              |
| Weight (kg) - stroke = 150mm                   | EMT          | 459.1              |
|                                                | EMR          | 560.4              |
| Weight (kg) - per extra 25mm stroke            | EMT          | 4.11               |
|                                                | EMR          | 3.38               |

Note: All dimension in millimetres unless otherwise stated.  
Designs subject to change without notice

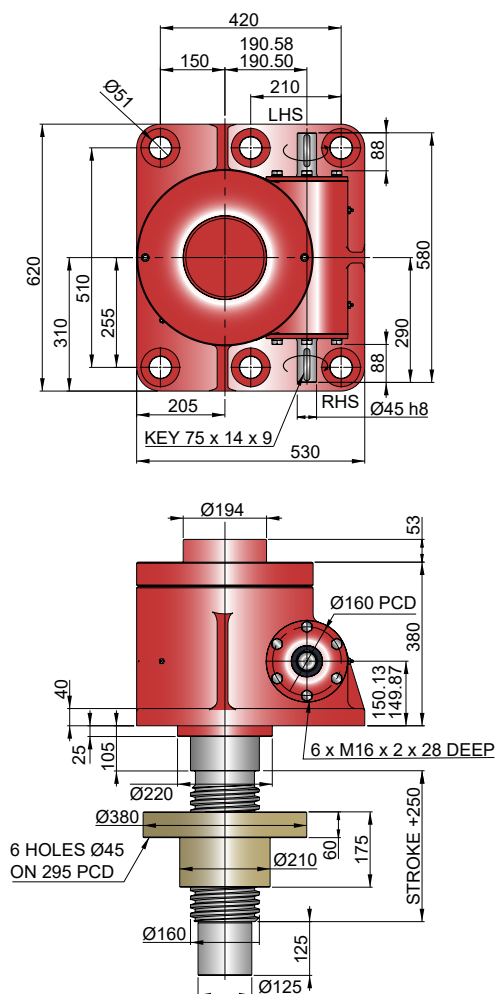
## Closed Height



## Upright EMR1000-U00



## Inverted EMR1000-I00



## Closed Height & Bellows Boots

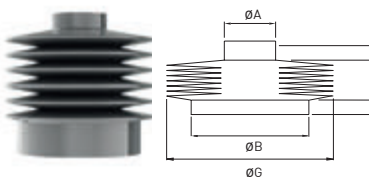
| Closed Height "C" | Threaded End               |          | Top Plate |          | Clevis End |          | Fork End   |          | Rod End    |          |
|-------------------|----------------------------|----------|-----------|----------|------------|----------|------------|----------|------------|----------|
|                   | Upright                    | Inverted | Upright   | Inverted | Upright    | Inverted | Upright    | Inverted | Upright    | Inverted |
| EMT1000           | 560                        | 260      | 560       | 260      | 625        | 325      | on request |          | on request |          |
| Stroke (mm)       | EMT1000 with Bellows Boots |          |           |          |            |          |            |          |            |          |
| 1-300             | 560                        | 260      | 560       | 260      | 625        | 325      | -          | -        | -          | -        |
| 301-600           | 560                        | 260      | 560       | 260      | 625        | 325      | -          | -        | -          | -        |
| 601-1050          | 585                        | 285      | 585       | 285      | 650        | 350      | -          | -        | -          | -        |
| 1051-1500         | 610                        | 310      | 610       | 310      | 675        | 375      | -          | -        | -          | -        |

| Model   | A   | B   | D  | E  | G   |
|---------|-----|-----|----|----|-----|
| EMT1000 | 200 | 220 | 20 | 20 | 244 |

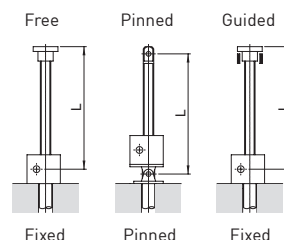
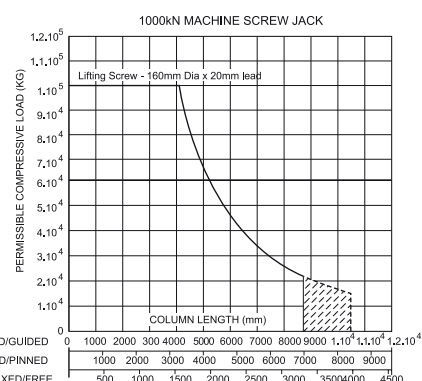
| Stroke  | 1-300 | 301-600 | 601-1050 | 1051-1500 |
|---------|-------|---------|----------|-----------|
| EMT1000 | 20    | 30      | 50       | 70        |

Note:

- 1 Inverted Screw Jacks - Bellows Boot Closed Height assumes screw jack mounted on a structure with thickness = 15mm
- 2 Inverted Screw Jacks - Recommended bellows boot mounting plate  $\varnothing B \times [E + 5mm]$  thick.
- 3 Inverted Screw Jacks - Screw Jack mounting plate & bellows boot mounting plate are customers own supply
- 4 † Control tapes fitted (increase outer diameter by 20mm approximately).
- 5 For horizontal installations with than 450 mm of stroke, internal boot guides are recommended.
- 6 Customers with threaded end screw jacks must provide a fixing for the unattached bellows boot collar.
- 7 Bellows boots for Rotating Screw Jacks, other sizes, stroke and materials please consult Power Jacks.

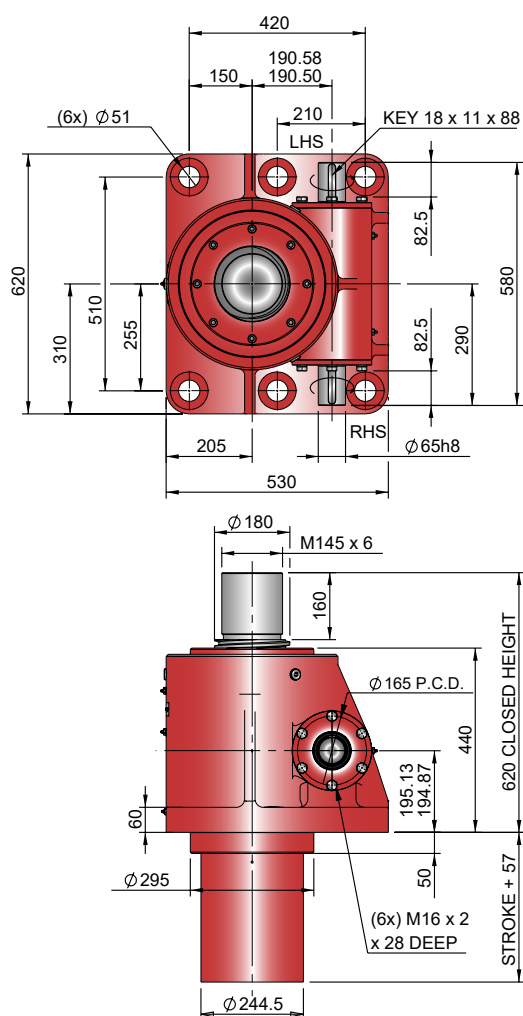


## Column Strength

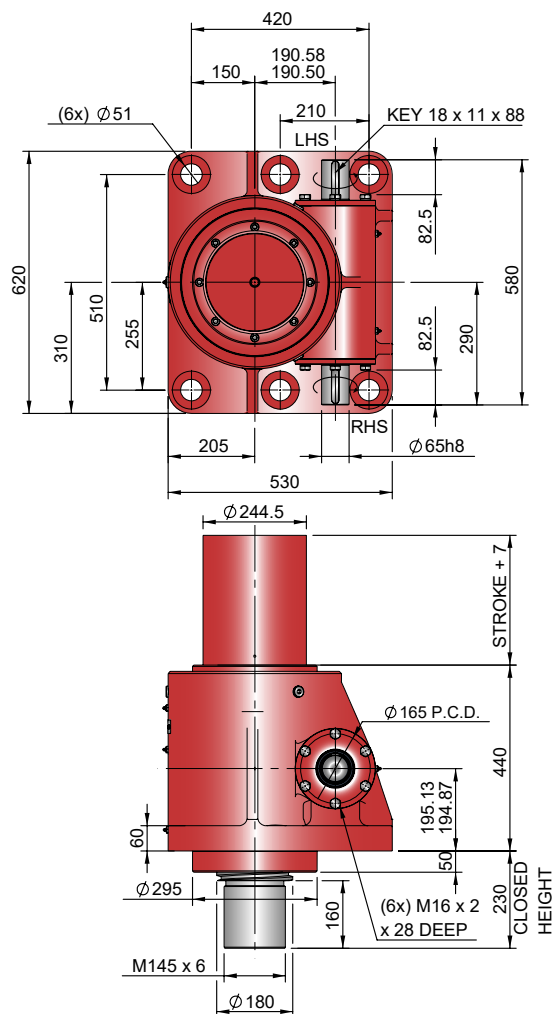




## Upright EMT1500-U00



## Inverted EMT1500-I00



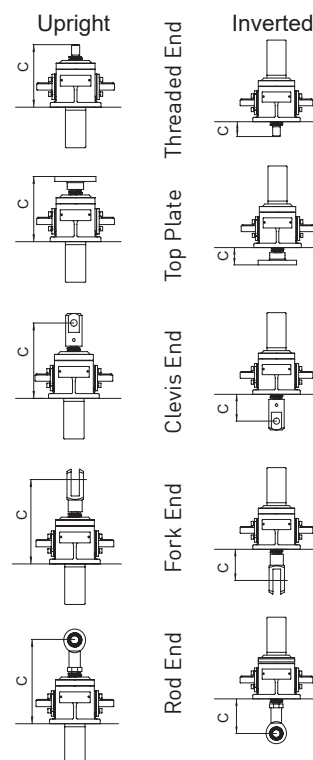
## Performance

| Model                                   |                     | EMT1500<br>EMR1500 |
|-----------------------------------------|---------------------|--------------------|
| Capacity                                | kN                  | 1500               |
| Lifting Screw                           | Diameter (mm)       | 180                |
|                                         | Lead                | Option 1<br>mm 20  |
| Gear Ratio<br>Option 1                  | Gear Ratio          | 11.67:1            |
|                                         | Static Efficiency   | 0.112              |
|                                         | Dynamic Efficiency  | 0.155              |
| Gear Ratio<br>Option 2                  | Gear Ratio          | on request         |
|                                         | Static Efficiency   | on request         |
|                                         | Dynamic Efficiency  | on request         |
| Max. Input<br>power (kW)                | Gear Ratio Option 1 | 25.3               |
|                                         | Gear Ratio Option 2 | on request         |
| Start up torque<br>at full load<br>(Nm) | Gear Ratio Option 1 | 3655               |
|                                         | Gear Ratio Option 2 | on request         |

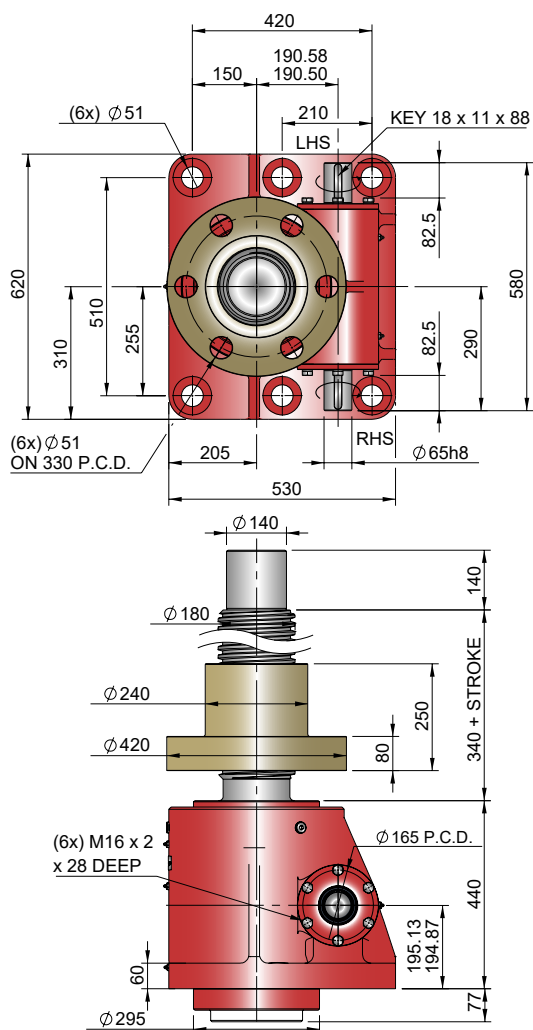
| Model                                             |              | EMT1500<br>EMR1500 |
|---------------------------------------------------|--------------|--------------------|
| Capacity                                          | kN           | 1500               |
| Lifting Screw (mm)                                |              | 20                 |
| Turn of<br>worm for<br>travel of<br>lifting screw | Gear Ratio 1 | 1 Turn             |
|                                                   | Gear Ratio 2 | 4 Turn             |
| Maximum Through Torque (Nm)                       |              | 7310               |
| Lifting Screw Restraining Torque (Nm)             |              | 24610              |
| Worm Shaft Maximum Radial Load (N)                |              | 4450               |
| Maximum Input Speed (rpm)                         |              | 1000               |
| Gear Case Material                                |              | Steel              |
| Weight (kg) - stroke = 150mm                      | EMT          | 563                |
|                                                   | EMR          | 708                |
| Weight (kg) - per extra 25mm stroke               | EMT          | 5.80               |
|                                                   | EMR          | 4.40               |

Note: All dimension in millimetres unless otherwise stated.  
Designs subject to change without notice

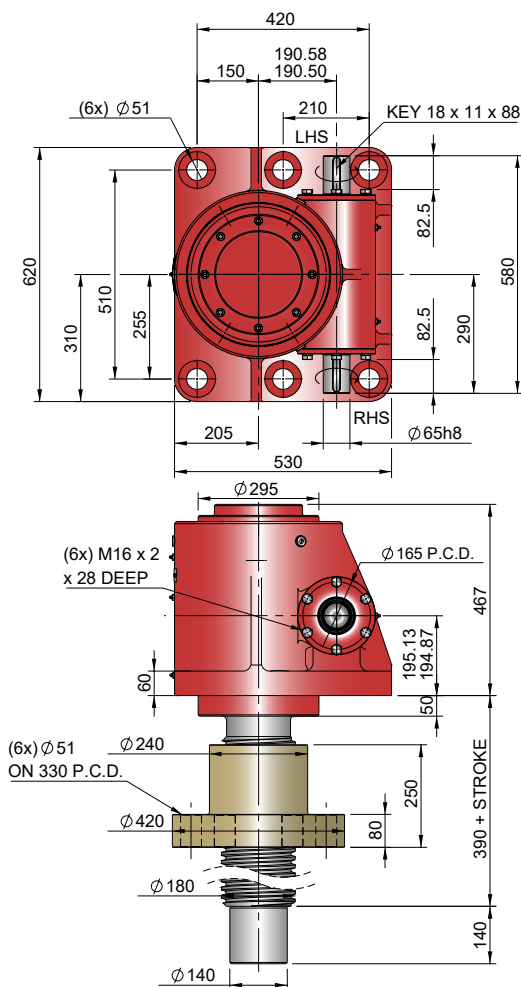
## Closed Height



## Upright EMR1500-U00



## Inverted EMR1500-I00



## Closed Height & Bellows Boots

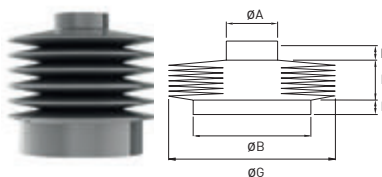
| Closed Height "C" | Threaded End               |          | Top Plate |          | Clevis End |          | Fork End   |          | Rod End    |          |
|-------------------|----------------------------|----------|-----------|----------|------------|----------|------------|----------|------------|----------|
|                   | Upright                    | Inverted | Upright   | Inverted | Upright    | Inverted | Upright    | Inverted | Upright    | Inverted |
| EMT1500           | 620                        | 230      | 620       | 230      | 760        | 370      | on request |          | on request |          |
| Stroke (mm)       | EMT1500 with Bellows Boots |          |           |          |            |          |            |          |            |          |
| 1-500             | 620                        | 230      | 620       | 230      | 760        | 370      | -          | -        | -          | -        |
| 501-1000          | 630                        | 255      | 630       | 255      | 770        | 395      | -          | -        | -          | -        |
| 1001-2000         | 665                        | 290      | 665       | 290      | 805        | 430      | -          | -        | -          | -        |
| 2001-4000         | 745                        | 370      | 745       | 370      | 885        | 510      | -          | -        | -          | -        |

| Model   | A   | B   | D  | E  | G   |
|---------|-----|-----|----|----|-----|
| EMT1500 | 215 | 410 | 25 | 25 | 480 |

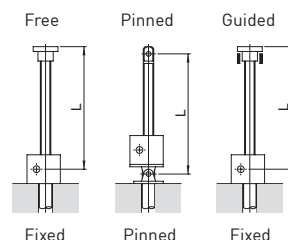
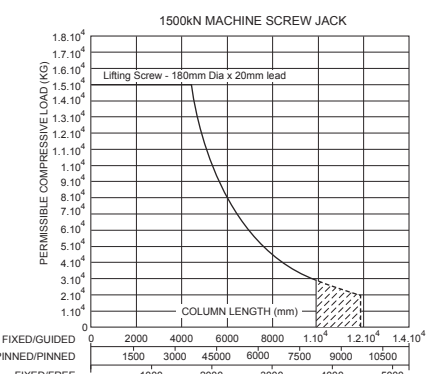
| Stroke  | 1-500 | 751-1000 | 1001-2000 | 2001-4000 |
|---------|-------|----------|-----------|-----------|
| EMT1500 | 20    | 45       | 80        | 160       |

Note:

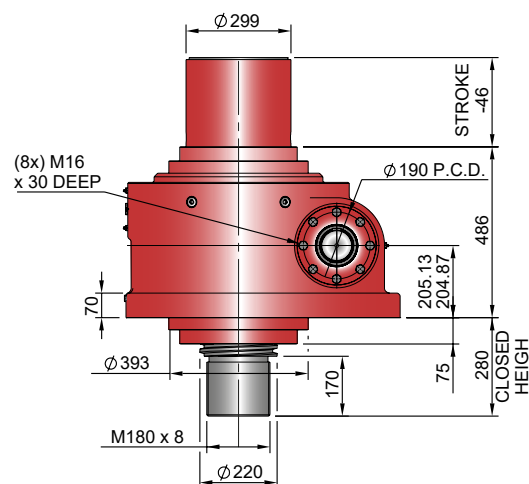
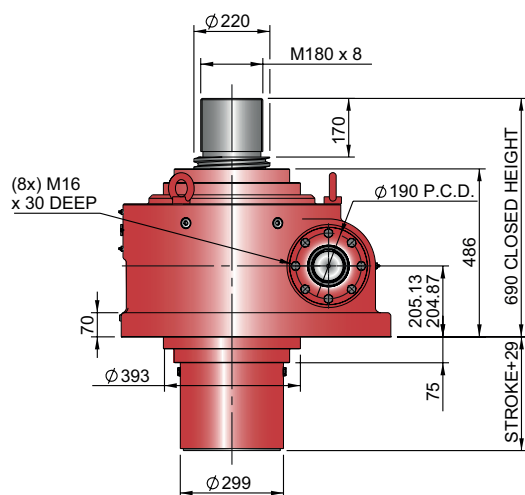
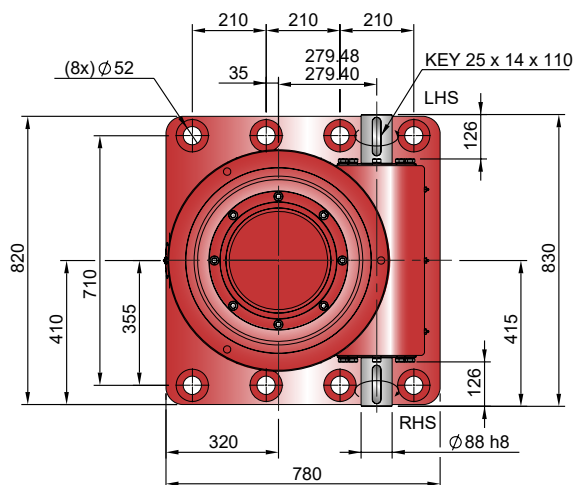
- 1 Inverted Screw Jacks - Bellows Boot Closed Height assumes screw jack mounted on a structure with thickness = 15mm
- 2 Inverted Screw Jacks - Recommended bellows boot mounting plate ØB x [E +5mm] thick.
- 3 Inverted Screw Jacks - Screw Jack mounting plate & bellows boot mounting plate are customers own supply
- 4 † Control tapes fitted (increase outer diameter by 20mm approximately).
- 5 For horizontal installations with than 450 mm of stroke, internal boot guides are recommended.
- 6 Customers with threaded end screw jacks must provide a fixing for the unattached bellows boot collar.
- 7 Bellows boots for Rotating Screw Jacks, other sizes, stroke and materials please consult Power Jacks.



## Column Strength



Inverted EMT2000-100

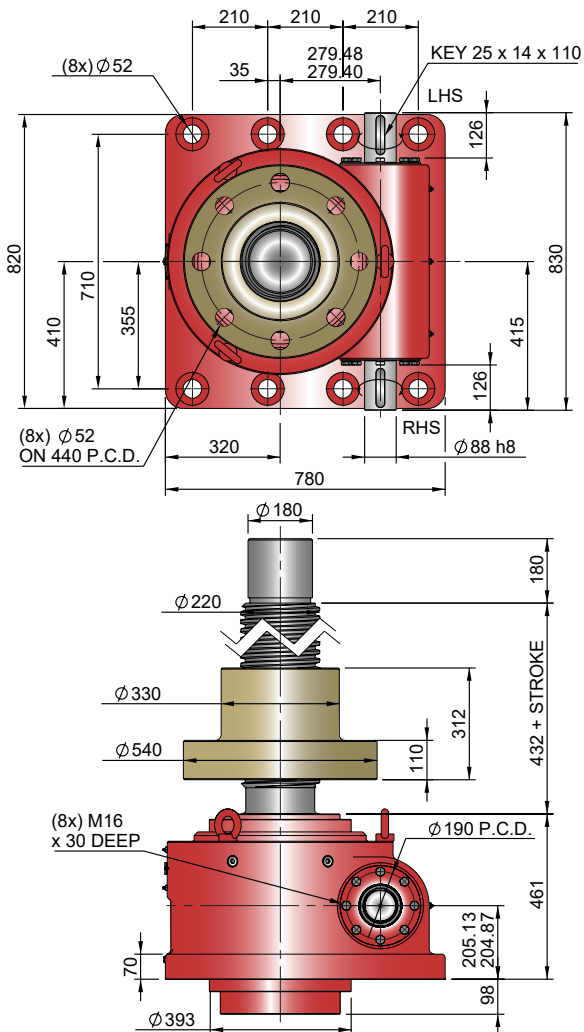


Closed Height

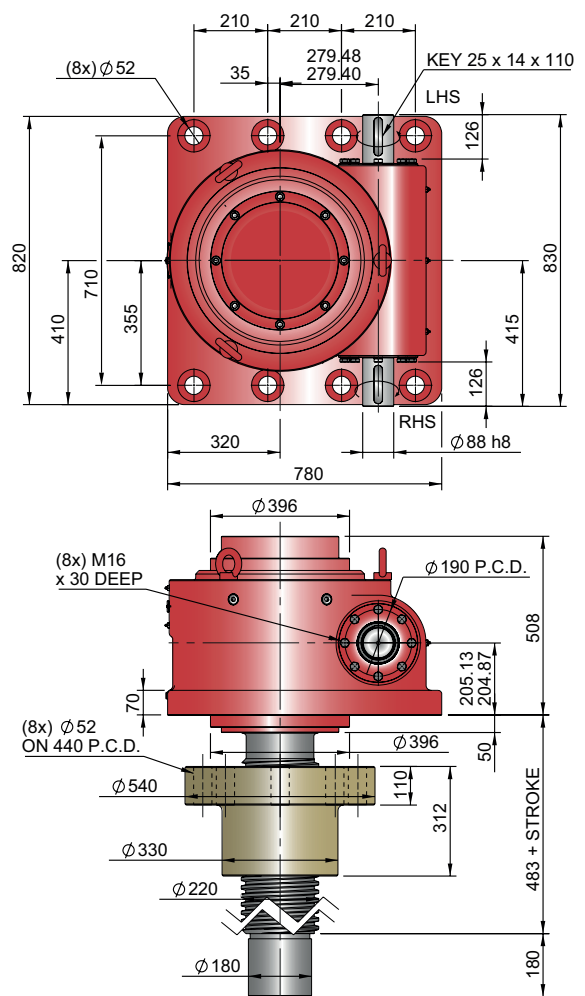
| Model                                    |              |        | EMT2000<br>EMR2000 |      |
|------------------------------------------|--------------|--------|--------------------|------|
| Capacity                                 | kN           |        | 2000               |      |
| Lifting Screw (mm)                       |              |        | 24                 |      |
| Turn of worm for travel of lifting screw | Gear Ratio 1 | 1 Turn | 1.33mm             |      |
|                                          | Gear Ratio 2 | 4 Turn | on request         |      |
| Maximum Through Torque (Nm)              |              |        | 7790               |      |
| Lifting Screw Restraining Torque (Nm)    |              |        | 39995              |      |
| Worm Shaft Maximum Radial Load (N)       |              |        | 7800               |      |
| Maximum Input Speed (rpm)                |              |        | 600                |      |
| Gear Case Material                       |              |        | Steel              |      |
| Weight (kg) - stroke = 150mm             |              |        | EMT                | 1172 |
|                                          |              |        | EMR                | 1534 |
| Weight (kg) - per extra 25mm stroke      |              |        | EMT                | 9.00 |
|                                          |              |        | EMR                | 6.50 |

| Upright                                                                               | Threaded End                                                                          | Inverted                                                                              |
|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

## Upright EMR2000-U00



## Inverted EMR2000-I00



## Closed Height & Bellows Boots

| Closed Height "C" | Threaded End               |          | Top Plate |          | Clevis End |          | Fork End   |          | Rod End    |          |
|-------------------|----------------------------|----------|-----------|----------|------------|----------|------------|----------|------------|----------|
|                   | Upright                    | Inverted | Upright   | Inverted | Upright    | Inverted | Upright    | Inverted | Upright    | Inverted |
| EMT2000           | 690                        | 280      | 690       | 280      | 880        | 470      | on request |          | on request |          |
| Stroke (mm)       | EMT2000 with Bellows Boots |          |           |          |            |          |            |          |            |          |
| 1-500             | 690                        | 280      | 690       | 280      | 880        | 470      | -          | -        | -          | -        |
| 501-1000          | 690                        | 280      | 690       | 280      | 880        | 470      | -          | -        | -          | -        |
| 1001-2000         | 695                        | 285      | 695       | 285      | 885        | 475      | -          | -        | -          | -        |
| 2001-4000         | 795                        | 350      | 795       | 350      | 985        | 540      | -          | -        | -          | -        |

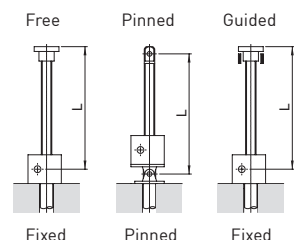
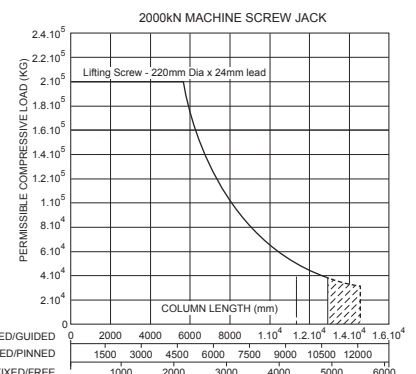
| Model   | A   | B   | D  | E  | G   |
|---------|-----|-----|----|----|-----|
| EMT2000 | 265 | 396 | 25 | 25 | 470 |

| Stroke  | 1-500 | 751-1000 | 1001-2000 | 2001-4000 |
|---------|-------|----------|-----------|-----------|
| EMT2000 | 25    | 40       | 75†       | 145†      |

Note:

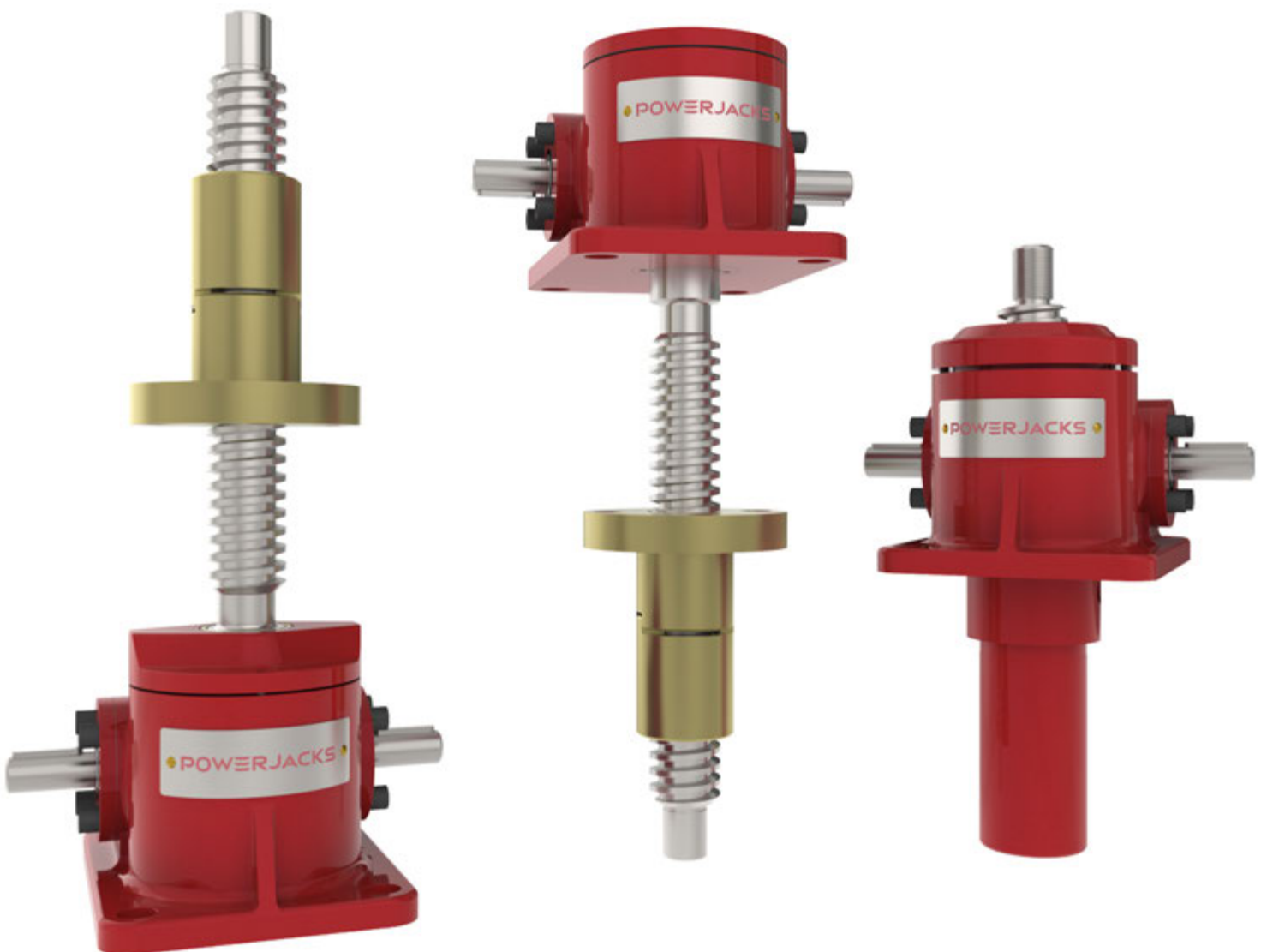
- 1 Inverted Screw Jacks - Bellows Boot Closed Height assumes screw jack mounted on a structure with thickness = 15mm
- 2 Inverted Screw Jacks - Recommended bellows boot mounting plate ØB x [E +5mm] thick.
- 3 Inverted Screw Jacks - Screw Jack mounting plate & bellows boot mounting plate are customers own supply
- 4 † Control tapes fitted (increase outer diameter by 20mm approximately).
- 5 For horizontal installations with than 450 mm of stroke, internal boot guides are recommended.
- 6 Customers with threaded end screw jacks must provide a fixing for the unattached bellows boot collar.
- 7 Bellows boots for Rotating Screw Jacks, other sizes, stroke and materials please consult Power Jacks.

## Column Strength



## E-Series Metric Machine Screw Jack

PERFORMANCE  
ENHANCED VARIANTS  
TO SOLVE SPECIFIC  
APPLICATION  
REQUIREMENTS





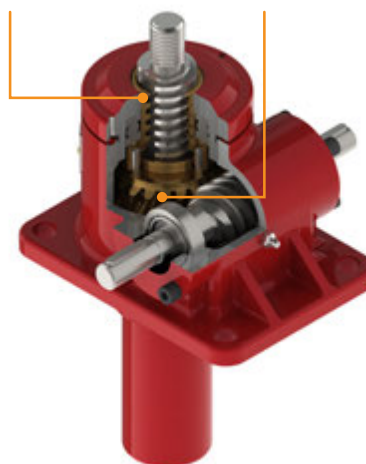
## Minimise Axial Backlash for Reversing Loads

The Anti-Backlash feature provides a reliable method to regulate the axial backlash in a screw jack for applications where there is a reversal of loading from tension to compression. The amount of backlash between the screw and worm gear nut can be adjusted (adjust shell cap) to a desired amount or a practical minimum. To avoid binding and excessive wear do not adjust backlash to less than 0.025mm.

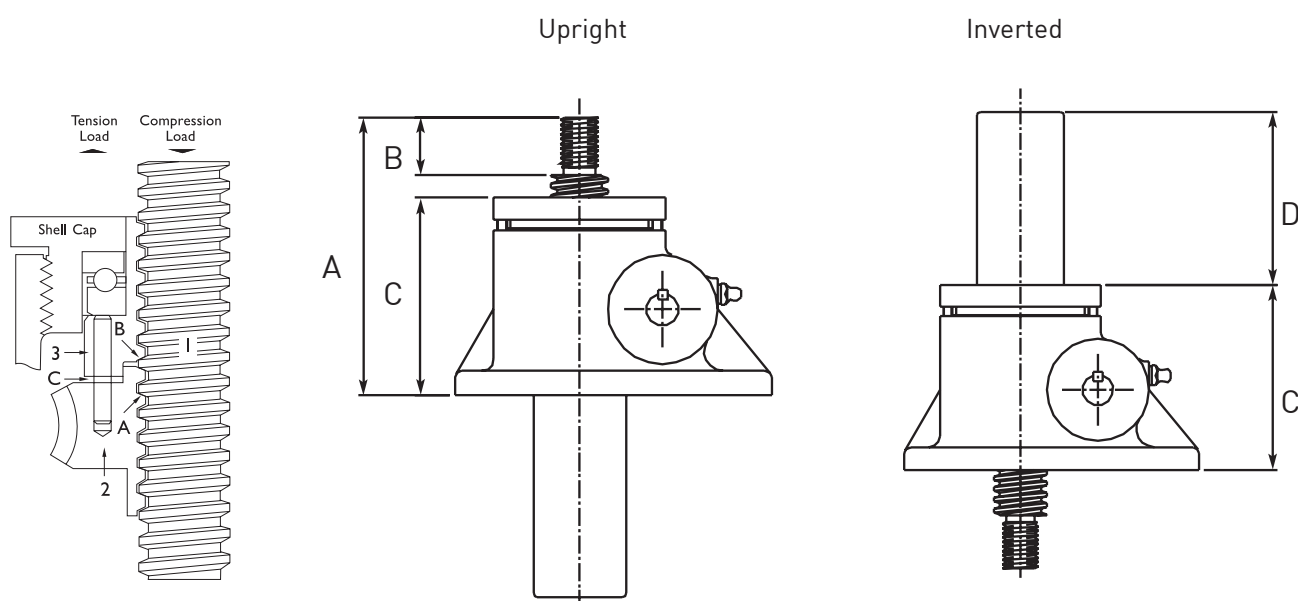
The Anti-Backlash feature also acts as a safety device, providing dual nut load carrying unit, when the worm gear becomes worn.

A visual wear indicator is available on request for all models and a "feeler" gauge can be used to measure the wear. This can be upgraded to use a sensor for wear monitoring. Consult Power Jacks for either option.

Anti-Backlash Nut Anti-Backlash Gear



## Dimensions



How it works -  
refer p193

The dimensions for these screw jacks are the same as the standard units except those detailed below.

| Model | EMT0005        | EMT0010        |                | EMT0025        | EMT0050        | EMT0100       | EMT0200        | EMT0300       | EMT0500        | EMT1000       | EMT1500       | EMT2000        |
|-------|----------------|----------------|----------------|----------------|----------------|---------------|----------------|---------------|----------------|---------------|---------------|----------------|
| Type  | 1              | 1              | 2              | 1              | 1              | 1             | 1              | 1             | 1              | 1             | 1             | 1              |
| A     | 95             | 125            | 125            | 145            | 185            | 200           | 265            | 340           | 415            | 585           | 833           | 910            |
| B     | 20             | 24             | 24             | 30             | 35             | 40            | 55             | 65            | 90             | 125           | 160           | 170            |
| C     | 65             | 86             | 90             | 103.5          | 138            | 146.5         | 195            | 250           | 295            | 415           | 652           | 709            |
| D     | Stroke<br>+ 34 | Stroke<br>+ 35 | Stroke<br>+ 35 | Stroke<br>+ 30 | Stroke<br>+ 20 | Stroke<br>+ 3 | Stroke<br>+ 24 | Stroke<br>+38 | Stroke<br>+ 28 | Stroke<br>+ 3 | Stroke<br>+ 7 | Stroke<br>- 46 |

## E-Series - Machine Screw Jacks - Anti-Backlash - Performance

| Model                                          |                               |        | EMT0005-U0A<br>EMT0005-I0A |       | EMT0010-U0A & T0A<br>EMT0010-I0A & H0A |       | EMT0025-U0A<br>EMT0025-I0A |       | EMT0050-U0A<br>EMT0050-I0A |       | EMT0100-U0A<br>EMT0100-I0A |       |
|------------------------------------------------|-------------------------------|--------|----------------------------|-------|----------------------------------------|-------|----------------------------|-------|----------------------------|-------|----------------------------|-------|
| Capacity                                       | kN                            |        | 5                          |       | 10                                     |       | 25                         |       | 50                         |       | 100                        |       |
| Lifting Screw <sup>1</sup>                     | mm                            |        | 16                         |       | 20                                     |       | 30                         |       | 40                         |       | 55                         |       |
|                                                | Lead                          | Option | 1                          | 2     | 1                                      | 2     | 1                          | 2     | 1                          | 2     | 1                          | 2     |
|                                                |                               | mm     | 3                          | 6     | 5                                      | 10    | 6                          | 12    | 9                          | 18    | 12                         | 24    |
| Gear Ratios                                    | Option 1                      |        | 5:1                        |       | 5:1                                    |       | 6:1                        |       | 6:1                        |       | 8:1                        |       |
|                                                | Option 2                      |        | 20:1                       |       | 20:1                                   |       | 24:1                       |       | 24:1                       |       | 24:1                       |       |
| Max. Input Power (kW)                          | Gear Ratio Option 1           |        | 0.25                       |       | 0.375                                  |       | 1.5                        |       | 3.0                        |       | 3.75                       |       |
|                                                | Gear Ratio Option 2           |        | 0.12                       |       | 0.19                                   |       | 0.375                      |       | 0.55                       |       | 1.125                      |       |
| Start up torque at full load (Nm) <sup>2</sup> | Gear Ratio Option 1           |        | 2.9                        | 3.8   | 7.8                                    | 10.9  | 23.5                       | 31.3  | 62.3                       | 84.9  | 129.2                      | 147.8 |
|                                                | Gear Ratio Option 2           |        | 1.3                        | 1.7   | 3.6                                    | 5.1   | 9.8                        | 13.0  | 28.5                       | 38.8  | 66.8                       | 90.4  |
| Weight (kg) - stroke = 150mm                   |                               |        | 1.48                       |       | 2.72                                   |       | 8.62                       |       | 16.78                      |       | 26.12                      |       |
| Weight (kg) per extra 25mm                     |                               |        | 0.073                      |       | 0.13                                   |       | 0.21                       |       | 0.32                       |       | 0.57                       |       |
| Gear Ratio Option 1                            | Gear Ratio                    |        | 5:1                        |       | 5:1                                    |       | 6:1                        |       | 6:1                        |       | 8:1                        |       |
|                                                | Screw Jack Static Efficiency  |        | 0.164                      | 0.249 | 0.203                                  | 0.291 | 0.169                      | 0.254 | 0.192                      | 0.281 | 0.185                      | 0.273 |
|                                                | Screw Jack Dynamic Efficiency |        | 0.216                      | 0.317 | 0.263                                  | 0.365 | 0.222                      | 0.322 | 0.251                      | 0.356 | 0.243                      | 0.325 |
| Gear Ratio Option 2                            | Gear Ratio                    |        | 20:1                       |       | 20:1                                   |       | 24:1                       |       | 24:1                       |       | 24:1                       |       |
|                                                | Screw Jack Static Efficiency  |        | 0.090                      | 0.137 | 0.109                                  | 0.157 | 0.102                      | 0.153 | 0.105                      | 0.154 | 0.119                      | 0.176 |
|                                                | Screw Jack Dynamic Efficiency |        | 0.133                      | 0.195 | 0.159                                  | 0.220 | 0.150                      | 0.217 | 0.154                      | 0.218 | 0.172                      | 0.245 |

| Model                                          |                               | EMT0200-U0A<br>EMT0200-I0A |       | EMT0300-U0A<br>EMT0300-I0A |          | EMT0500-U0A<br>EMT0500-I0A |          | EMT1000-U0A<br>EMT1000-I0A | EMT1500-U0A<br>EMT1500-I0A | EMT2000-U0A<br>EMT2000-I0A |
|------------------------------------------------|-------------------------------|----------------------------|-------|----------------------------|----------|----------------------------|----------|----------------------------|----------------------------|----------------------------|
| Capacity                                       | kN                            | 200                        |       | 300                        |          | 500                        |          | 1000                       | 1500                       | 2000                       |
| Lifting Screw <sup>1</sup>                     | mm                            |                            | 65    |                            | 95       |                            | 120      |                            | 160                        | 220                        |
|                                                | Lead                          | Option                     | 1     | 2                          | 1        | 2                          | 1        | 2                          | 1                          | 1                          |
|                                                |                               | mm                         | 12    | 24                         | 16       | 32                         | 16       | 32                         | 20                         | 24                         |
| Gear Ratios                                    | Option 1                      |                            | 8:1   |                            | 10 2/3:1 |                            | 10 2/3:1 |                            | 12:1                       | 11 2/3:1                   |
|                                                | Option 2                      |                            | 24:1  |                            | 32:1     |                            | 32:1     |                            | 36:1                       | N/A                        |
| Max. Input Power (kW)                          | Gear Ratio Option 1           |                            | 3.75  |                            | 6.0      |                            | 11.25    |                            | 18.5                       | 25.3                       |
|                                                | Gear Ratio Option 2           |                            | 1.125 |                            | 1.9      |                            | 4.5      |                            | 8.25                       | N/A                        |
| Start up torque at full load (Nm) <sup>2</sup> | Gear Ratio Option 1           |                            | 281.2 | 368.5                      | 534      | 687                        | 1000     | 1236                       | 2243                       | 4061                       |
|                                                | Gear Ratio Option 2           |                            | 153.7 | 201.4                      | 315      | 405                        | 568      | 702                        | 1244                       | N/A                        |
| Weight (kg) - stroke = 150mm                   |                               | 49                         |       | 91                         |          | 209                        |          | 610                        | 620                        | 1290                       |
| Weight (kg) per extra 25mm                     |                               | 0.86                       |       | 1.58                       |          | 2.49                       |          | 4.31                       | 5.80                       | 9.00                       |
| Gear Ratio Option 1                            | Gear Ratio                    |                            | 8:1   |                            | 10 2/3:1 |                            | 10 2/3:1 |                            | 12:1                       | 11 2/3:1                   |
|                                                | Screw Jack Static Efficiency  |                            | 0.170 | 0.259                      | 0.134    | 0.209                      | 0.119    | 0.193                      | 0.118                      | 0.100                      |
|                                                | Screw Jack Dynamic Efficiency |                            | 0.226 | 0.332                      | 0.184    | 0.277                      | 0.163    | 0.256                      | 0.160                      | 0.139                      |
| Gear Ratio Option 2                            | Gear Ratio                    |                            | 24:1  |                            | 32:1     |                            | 32:1     |                            | 36:1                       | N/A                        |
|                                                | Screw Jack Static Efficiency  |                            | 0.104 | 0.158                      | 0.076    | 0.118                      | 0.070    | 0.113                      | 0.071                      | N/A                        |
|                                                | Screw Jack Dynamic Efficiency |                            | 0.151 | 0.222                      | 0.115    | 0.173                      | 0.105    | 0.165                      | 0.106                      | N/A                        |

## Note

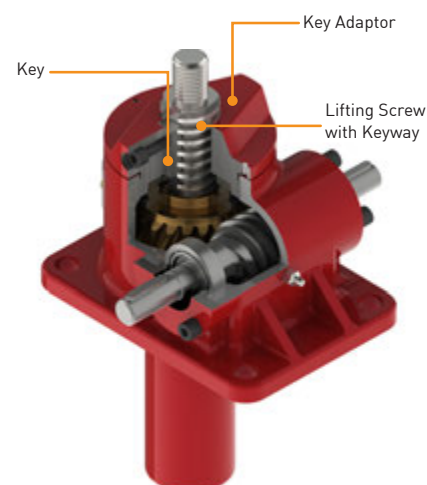
1. All metric machine screws have a trapezoidal thread form.
2. For loads of 25% to 100% of screw jack capacity, torque requirements are approximately proportional to the load.
3. Efficiency values for standard grease lubricated worm gear box and lifting screw.
4. All E-Series screw jacks have grease lubricated gearbox and lead screw as standard.

### Linear Movement for Rationally Unconstrained Loads

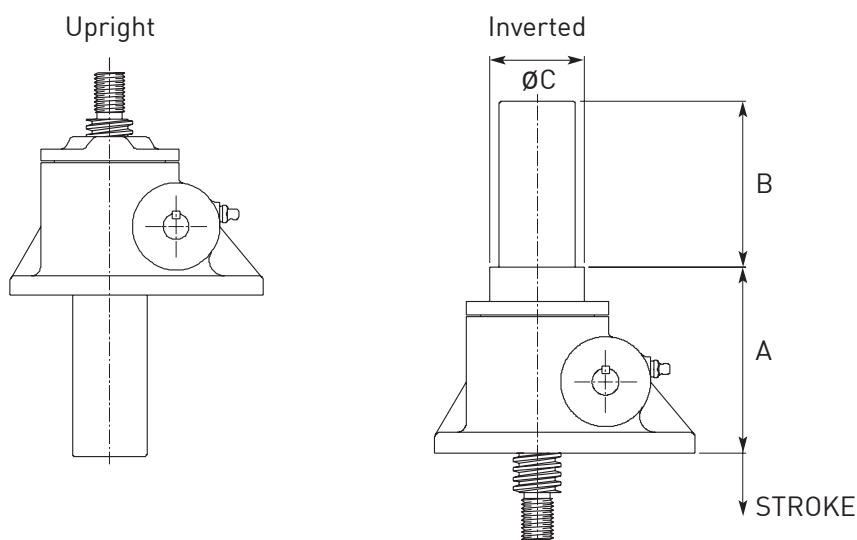
The Anti-Rotation feature for translating screw jacks stops the lifting screw from rotating without the need for end fixing. This is done by keying the lifting screw.

#### Benefits:

- Compact unit integrates anti-rotation into gearbox
- Dimensions are the same as the standard translating screw jack
- Standard round cover pipe for easy installation
- Proven industrial anti-rotation design



### Dimensions



### Dimensions for Upright Models with Anti-Rotation (Keyed)

Dimensions for upright E-Series machine screw jacks with anti-rotation (keyed) mechanism are the same as the standard screw jacks without the feature.

### Dimensions for Inverted Models with Anti-Rotation (Keyed)

The dimensions for these screw jacks are the same as the standard units except those detailed below.

| Model | EMT0005    | EMT0010     |             | EMT0025     | EMT0050     | EMT0100    | EMT0200    | EMT0300     | EMT0500     | EMT1000    | EMT1500    | EMT2000     |
|-------|------------|-------------|-------------|-------------|-------------|------------|------------|-------------|-------------|------------|------------|-------------|
| Type  | 1          | 1           | 2           | 1           | 1           | 1          | 1          | 1           | 1           | 1          | 1          | 1           |
| A     | 79         | 78          | 86          | 125.5       | 159         | 167.5      | 210        | 267         | 307         | 445        | 440        | 486         |
| B     | Stroke + 9 | Stroke + 35 | Stroke + 35 | Stroke + 30 | Stroke + 20 | Stroke + 3 | Stroke - 1 | Stroke + 15 | Stroke + 13 | Stroke + 3 | Stroke + 7 | Stroke - 46 |
| ØC    | 35         | N/A         | 52          | 60          | 75          | 90         | 102        | 141.5       | 180         | 236        | 295        | 396         |

## E-Series - Machine Screw Jacks - Anti-Rotation (Keyed) - Performance

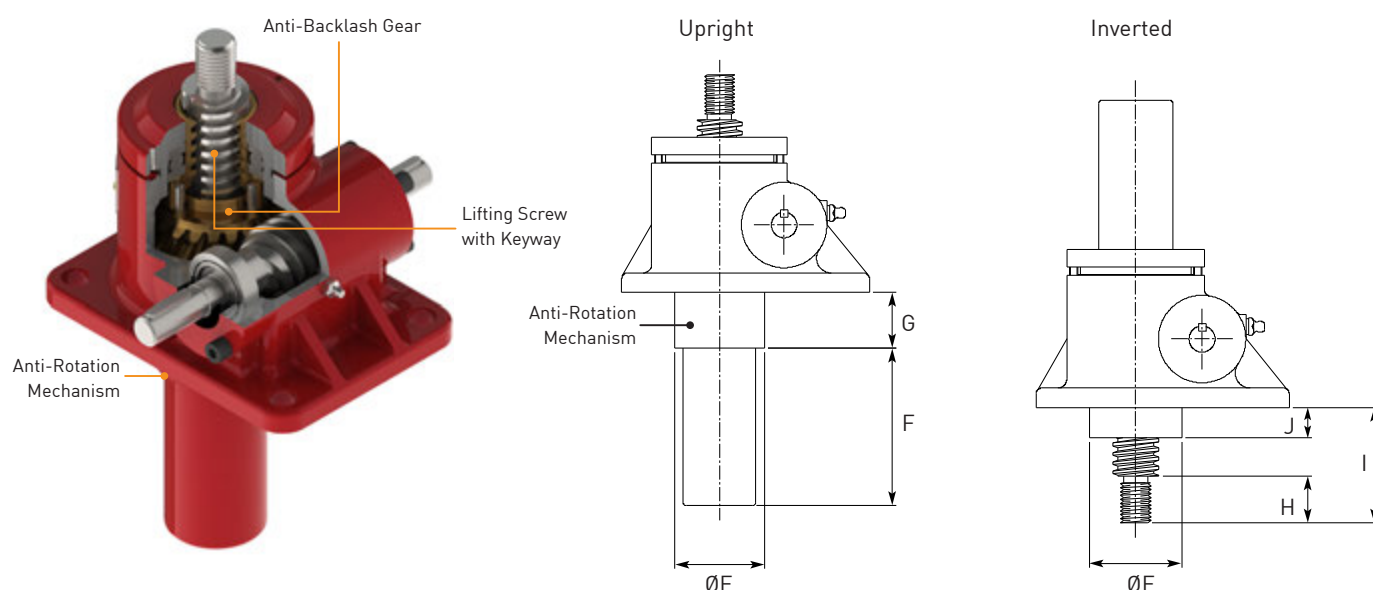
| Model                                          |                               |        | EMT0005-UK0<br>EMT0005-IK0 |       | EMT0010-UK0 & TK0<br>EMT0010-IK0 & HK0 |       | EMT0025-UK0<br>EMT0025-IK0 |       | EMT0050-UK0<br>EMT0050-IK0 |       | EMT0100-UK0<br>EMT0100-IK0 |       |
|------------------------------------------------|-------------------------------|--------|----------------------------|-------|----------------------------------------|-------|----------------------------|-------|----------------------------|-------|----------------------------|-------|
| Capacity                                       | kN                            |        | 5                          |       | 10                                     |       | 25                         |       | 50                         |       | 100                        |       |
| Lifting Screw <sup>1</sup>                     | mm                            |        | 16                         |       | 20                                     |       | 30                         |       | 40                         |       | 55                         |       |
|                                                | Lead                          | Option | 1                          | 2     | 1                                      | 2     | 1                          | 2     | 1                          | 2     | 1                          | 2     |
|                                                |                               | mm     | 3                          | 6     | 5                                      | 10    | 6                          | 12    | 9                          | 18    | 12                         | 24    |
| Gear Ratios                                    | Option 1                      |        | 5:1                        |       | 5:1                                    |       | 6:1                        |       | 6:1                        |       | 8:1                        |       |
|                                                | Option 2                      |        | 20:1                       |       | 20:1                                   |       | 24:1                       |       | 24:1                       |       | 24:1                       |       |
| Max. Input Power (kW)                          | Gear Ratio Option 1           |        | 0.25                       |       | 0.375                                  |       | 1.5                        |       | 3.0                        |       | 3.75                       |       |
|                                                | Gear Ratio Option 2           |        | 0.12                       |       | 0.19                                   |       | 0.375                      |       | 0.55                       |       | 1.125                      |       |
| Start up torque at full load (Nm) <sup>2</sup> | Gear Ratio Option 1           |        | 2.9                        | 3.8   | 7.1                                    | 9.9   | 20.8                       | 27.7  | 58.7                       | 80    | 121.7                      | 164.7 |
|                                                | Gear Ratio Option 2           |        | 1.3                        | 1.7   | 3.1                                    | 4.4   | 9.2                        | 12.2  | 26.8                       | 36.6  | 63.6                       | 86.1  |
| Weight (kg) - stroke = 150mm                   |                               |        | 1.03                       |       | 2.27                                   |       | 8.17                       |       | 15.88                      |       | 24.72                      |       |
| Weight (kg) per extra 25mm                     |                               |        | 0.073                      |       | 0.13                                   |       | 0.21                       |       | 0.32                       |       | 0.57                       |       |
| Gear Ratio Option 1                            | Gear Ratio                    |        | 5:1                        |       | 5:1                                    |       | 6:1                        |       | 6:1                        |       | 8:1                        |       |
|                                                | Screw Jack Static Efficiency  |        | 0.182                      | 0.277 | 0.224                                  | 0.322 | 0.191                      | 0.287 | 0.203                      | 0.299 | 0.196                      | 0.290 |
|                                                | Screw Jack Dynamic Efficiency |        | 0.240                      | 0.352 | 0.291                                  | 0.403 | 0.251                      | 0.364 | 0.267                      | 0.378 | 0.258                      | 0.368 |
| Gear Ratio Option 2                            | Gear Ratio                    |        | 20:1                       |       | 20:1                                   |       | 24:1                       |       | 24:1                       |       | 24:1                       |       |
|                                                | Screw Jack Static Efficiency  |        | 0.103                      | 0.157 | 0.127                                  | 0.182 | 0.108                      | 0.162 | 0.111                      | 0.163 | 0.125                      | 0.185 |
|                                                | Screw Jack Dynamic Efficiency |        | 0.152                      | 0.223 | 0.184                                  | 0.255 | 0.159                      | 0.230 | 0.164                      | 0.232 | 0.180                      | 0.257 |

| Model                                          |                               | EMT0200-UK0<br>EMT0200-IK0 |       | EMT0300-UK0<br>EMT0300-IK0 |          | EMT0500-UK0<br>EMT0500-IK0 |          | EMT1000-UK0<br>EMT1000-IK0 | EMT1500-UK0<br>EMT1500-IK0 | EMT2000-UK0<br>EMT2000-IK0 |       |
|------------------------------------------------|-------------------------------|----------------------------|-------|----------------------------|----------|----------------------------|----------|----------------------------|----------------------------|----------------------------|-------|
| Capacity                                       | kN                            |                            | 200   |                            | 300      |                            | 500      |                            | 1000                       | 1500                       | 2000  |
| Lifting Screw <sup>1</sup>                     | mm                            |                            | 65    |                            | 95       |                            | 120      |                            | 160                        | 180                        | 220   |
|                                                | Lead                          | Option                     | 1     | 2                          | 1        | 2                          | 1        | 2                          | 1                          | 1                          | 1     |
|                                                |                               | mm                         | 12    | 24                         | 16       | 32                         | 16       | 32                         | 20                         | 20                         | 24    |
| Gear Ratios                                    | Option 1                      |                            | 8:1   |                            | 10 2/3:1 |                            | 10 2/3:1 |                            | 12:1                       | 11 2/3:1                   | 18:1  |
|                                                | Option 2                      |                            | 24:1  |                            | 32:1     |                            | 32:1     |                            | 36:1                       | N/A                        | N/A   |
| Max. Input Power (kW)                          | Gear Ratio Option 1           |                            | 3.75  |                            | 6.0      |                            | 11.25    |                            | 18.5                       | 25.3                       | 32.5  |
|                                                | Gear Ratio Option 2           |                            | 1.125 |                            | 1.9      |                            | 4.5      |                            | 8.25                       | N/A                        | N/A   |
| Start up torque at full load (Nm) <sup>2</sup> | Gear Ratio Option 1           |                            | 275.3 | 360.7                      | 506      | 651                        | 947      | 1170                       | 2125                       | 3847                       | 4100  |
|                                                | Gear Ratio Option 2           |                            | 144   | 188.7                      | 298      | 384                        | 526      | 650                        | 1126                       | N/A                        | N/A   |
| Weight (kg) - stroke = 150mm                   |                               |                            | 45    |                            | 86       |                            | 195      |                            | 553                        | 563                        | 1172  |
| Weight (kg) per extra 25mm                     |                               |                            | 0.86  |                            | 1.58     |                            | 2.49     |                            | 4.31                       | 5.80                       | 9.00  |
| Gear Ratio Option 1                            | Gear Ratio                    |                            | 8:1   |                            | 10 2/3:1 |                            | 10 2/3:1 |                            | 12:1                       | 11 2/3:1                   | 18:1  |
|                                                | Screw Jack Static Efficiency  |                            | 0.173 | 0.265                      | 0.142    | 0.220                      | 0.126    | 0.204                      | 0.125                      | 0.106                      | 0.103 |
|                                                | Screw Jack Dynamic Efficiency |                            | 0.230 | 0.34                       | 0.195    | 0.292                      | 0.172    | 0.270                      | 0.169                      | 0.147                      | 0.143 |
| Gear Ratio Option 2                            | Gear Ratio                    |                            | 24:1  |                            | 32:1     |                            | 32:1     |                            | 36:1                       | N/A                        | N/A   |
|                                                | Screw Jack Static Efficiency  |                            | 0.111 | 0.169                      | 0.080    | 0.124                      | 0.076    | 0.122                      | 0.079                      | N/A                        | N/A   |
|                                                | Screw Jack Dynamic Efficiency |                            | 0.161 | 0.237                      | 0.121    | 0.182                      | 0.144    | 0.178                      | 0.117                      | N/A                        | N/A   |

**Note**

1. All metric machine screws have a trapezoidal thread form.
2. For loads of 25% to 100% of screw jack capacity, torque requirements are approximately proportional to the load.
3. Efficiency values for standard grease lubricated worm gear box and lifting screw.
4. All E-Series screw jacks have grease lubricated gearbox and lead screw as standard.

### Combine Anti-Backlash & Anti-Rotation in One Screw Jack



### Dimensions for E-Series Machine Screw Jacks with Anti-Backlash & Anti-Rotation

| Model | EMT0005-UKA<br>EMT0005-IKA | EMT0010-UKA & TKA<br>EMT0010-IKA & HKA | EMT0025-UKA<br>EMT0025-IKA | EMT0050-UKA<br>EMT0050-IKA | EMT0100-UKA<br>EMT0100-IKA | EMT0200-UKA<br>EMT0200-IKA |
|-------|----------------------------|----------------------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| ØE    | 36                         | 38                                     | 60                         | 75                         | 90                         | 102                        |
| F     | Stroke + 9                 | Stroke + 9                             | Stroke + 30                | Stroke + 20                | Stroke + 28                | Stroke + 24                |
| G     | 25                         | 30                                     | 37                         | 40                         | 37                         | 58                         |
| H     | 20                         | 24                                     | 30                         | 35                         | 30                         | 55                         |
| I     | 40                         | 45                                     | 55                         | 65                         | 55                         | 110                        |
| J     | 16                         | 16                                     | 19.5                       | 24                         | 19.5                       | 39                         |

| Model | EMT0300-UKA<br>EMT0300-IKA | EMT0500-UKA<br>EMT0500-IKA | EMT1000-UKA<br>EMT1000-IKA | EMT1500-UKA<br>EMT1500-IKA | EMT2000-UKA<br>EMT2000-IKA |
|-------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| ØE    | 138                        | 206                        | 264                        | 295                        | 396                        |
| F     | Stroke + 15                | Stroke + 13                | Stroke + 28                | Stroke + 7                 | Stroke - 15                |
| G     | 73                         | 58                         | 180                        | 50                         | 201                        |
| H     | 65                         | 55                         | 125                        | 160                        | 170                        |
| I     | 115                        | 110                        | 405                        | 286                        | 395                        |
| J     | 43                         | 39                         | 145                        | 106                        | 200                        |

The dimensions for these screw jacks are the same as the Anti-Backlash units except those detailed above.

## E-Series - Machine Screw Jacks - Anti-Backlash &amp; Anti-Rotation (Keyed) - Performance

| Model                                          |                               | EMT0005-UKA<br>EMT0005-IKA |       | EMT0010-UKA & TKA<br>EMT0010-IKA & HKA |       | EMT0025-UKA<br>EMT0025-IKA |       | EMT0050-UKA<br>EMT0050-IKA |       | EMT0100-UKA<br>EMT0100-IKA |       |       |
|------------------------------------------------|-------------------------------|----------------------------|-------|----------------------------------------|-------|----------------------------|-------|----------------------------|-------|----------------------------|-------|-------|
| Capacity                                       | kN                            |                            | 5     |                                        | 10    |                            | 25    |                            | 50    |                            | 100   |       |
| Lifting Screw <sup>1</sup>                     | mm                            |                            | 16    |                                        | 20    |                            | 30    |                            | 40    |                            | 55    |       |
|                                                | Lead                          | Option                     | 1     | 2                                      | 1     | 2                          | 1     | 2                          | 1     | 2                          | 1     | 2     |
|                                                |                               | mm                         | 3     | 6                                      | 5     | 10                         | 6     | 12                         | 9     | 18                         | 12    | 24    |
| Gear Ratios                                    | Option 1                      |                            | 5:1   |                                        | 5:1   |                            | 6:1   |                            | 6:1   |                            | 8:1   |       |
|                                                | Option 2                      |                            | 20:1  |                                        | 20:1  |                            | 24:1  |                            | 24:1  |                            | 24:1  |       |
| Max. Input Power (kW)                          | Gear Ratio Option 1           |                            | 0.25  |                                        | 0.375 |                            | 1.5   |                            | 3.0   |                            | 3.75  |       |
|                                                | Gear Ratio Option 2           |                            | 0.12  |                                        | 0.19  |                            | 0.375 |                            | 0.55  |                            | 1.125 |       |
| Start up torque at full load (Nm) <sup>2</sup> | Gear Ratio Option 1           |                            | 3.1   | 4                                      | 8.3   | 11.5                       | 24.8  | 33                         | 65.6  | 89.3                       | 136   | 184   |
|                                                | Gear Ratio Option 2           |                            | 1.4   | 1.8                                    | 3.8   | 5.3                        | 10.3  | 13.7                       | 30    | 40.9                       | 70.3  | 958.2 |
| Weight (kg) – stroke = 150mm                   |                               |                            | 1.48  |                                        | 2.72  |                            | 8.62  |                            | 16.78 |                            | 26.12 |       |
| Weight (kg) per extra 25mm                     |                               |                            | 0.073 |                                        | 0.13  |                            | 0.21  |                            | 0.32  |                            | 0.57  |       |
| Gear Ratio Option 1                            | Gear Ratio                    |                            | 5:1   |                                        | 5:1   |                            | 6:1   |                            | 6:1   |                            | 8:1   |       |
|                                                | Screw Jack Static Efficiency  |                            | 0.156 | 0.237                                  | 0.193 | 0.277                      | 0.161 | 0.241                      | 0.182 | 0.267                      | 0.176 | 0.259 |
|                                                | Screw Jack Dynamic Efficiency |                            | 0.205 | 0.301                                  | 0.250 | 0.346                      | 0.211 | 0.306                      | 0.239 | 0.338                      | 0.231 | 0.330 |
| Gear Ratio Option 2                            | Gear Ratio                    |                            | 20:1  |                                        | 20:1  |                            | 24:1  |                            | 24:1  |                            | 24:1  |       |
|                                                | Screw Jack Static Efficiency  |                            | 0.086 | 0.130                                  | 0.104 | 0.149                      | 0.097 | 0.145                      | 0.100 | 0.146                      | 0.113 | 0.167 |
|                                                | Screw Jack Dynamic Efficiency |                            | 0.126 | 0.185                                  | 0.151 | 0.209                      | 0.142 | 0.206                      | 0.146 | 0.208                      | 0.163 | 0.233 |

| Model                                          |                               | EMT0200-UKA<br>EMT0200-IKA |       | EMT0300-UKA<br>EMT0300-IKA |       | EMT0500-UKA<br>EMT0500-IKA |       | EMT1000-UKA<br>EMT1000-IKA |       | EMT1500-UKA<br>EMT1500-IKA |    | EMT2000-UKA<br>EMT2000-IKA |    |
|------------------------------------------------|-------------------------------|----------------------------|-------|----------------------------|-------|----------------------------|-------|----------------------------|-------|----------------------------|----|----------------------------|----|
| Capacity                                       | kN                            | 200                        |       | 300                        |       | 500                        |       | 1000                       |       | 1500                       |    | 2000                       |    |
| Lifting Screw <sup>1</sup>                     | mm                            | 65                         |       | 95                         |       | 120                        |       | 160                        |       | 180                        |    | 220                        |    |
|                                                | Lead                          | Option                     | 1     | 2                          | 1     | 2                          | 1     | 2                          | 1     | 1                          | 1  | 1                          | 1  |
|                                                |                               | mm                         | 12    | 24                         | 16    | 32                         | 16    | 32                         | 20    | 20                         | 24 | 24                         | 24 |
| Gear Ratios                                    | Option 1                      | 8:1                        |       | 10 2/3:1                   |       | 10 2/3:1                   |       | 12:1                       |       | 11 2/3:1                   |    | 18:1                       |    |
|                                                | Option 2                      | 24:1                       |       | 32:1                       |       | 32:1                       |       | 36:1                       |       | N/A                        |    | N/A                        |    |
| Max. Input Power (kW)                          | Gear Ratio Option 1           | 3.75                       |       | 6.0                        |       | 11.25                      |       | 18.5                       |       | 25.3                       |    | 32.5                       |    |
|                                                | Gear Ratio Option 2           | 1.125                      |       | 1.9                        |       | 4.5                        |       | 8.25                       |       | N/A                        |    | N/A                        |    |
| Start up torque at full load (Nm) <sup>2</sup> | Gear Ratio Option 1           | 296                        | 387.9 | 562                        | 723   | 1052                       | 1301  | 2361                       | 4275  | 4555                       |    |                            |    |
|                                                | Gear Ratio Option 2           | 161.8                      | 387.9 | 331                        | 426   | 598                        | 739   | 1309                       | N/A   | N/A                        |    |                            |    |
| Weight (kg) - stroke = 150mm                   |                               | 49                         |       | 91                         |       | 209                        |       | 610                        |       | 620                        |    | 1290                       |    |
| Weight (kg) per extra 25mm                     |                               | 0.86                       |       | 1.58                       |       | 2.49                       |       | 4.31                       |       | 5.80                       |    | 9.00                       |    |
| Gear Ratio Option 1                            | Gear Ratio                    | 8:1                        |       | 10 2/3:1                   |       | 10 2/3:1                   |       | 12:1                       |       | 11 2/3:1                   |    | 18:1                       |    |
|                                                | Screw Jack Static Efficiency  | 0.161                      | 0.246 | 0.128                      | 0.198 | 0.113                      | 0.184 | 0.112                      | 0.096 | 0.093                      |    |                            |    |
|                                                | Screw Jack Dynamic Efficiency | 0.214                      | 0.316 | 0.175                      | 0.263 | 0.155                      | 0.243 | 0.152                      | 0.132 | 0.129                      |    |                            |    |
| Gear Ratio Option 2                            | Gear Ratio                    | 24:1                       |       | 32:1                       |       | 32:1                       |       | 36:1                       |       | N/A                        |    | N/A                        |    |
|                                                | Screw Jack Static Efficiency  | 0.098                      | 0.150 | 0.072                      | 0.112 | 0.067                      | 0.108 | 0.068                      | N/A   | N/A                        |    |                            |    |
|                                                | Screw Jack Dynamic Efficiency | 0.143                      | 0.211 | 0.109                      | 0.164 | 0.100                      | 0.157 | 0.100                      | N/A   | N/A                        |    |                            |    |

## Note

1. All metric machine screws have a trapezoidal thread form.
2. For loads of 25% to 100% of screw jack capacity, torque requirements are approximately proportional to the load.
3. Efficiency values for standard grease lubricated worm gear box and lifting screw.
4. All E-Series screw jacks have grease lubricated gearbox and lead screw as standard.

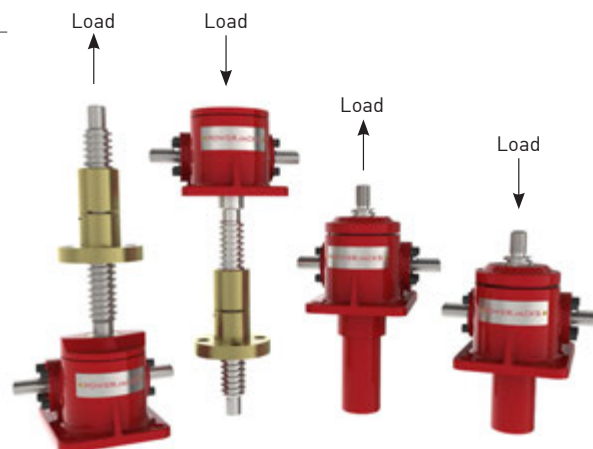


## Extra Safety for Critical Applications

Power Jacks machine screw jacks can be fitted with a safety nut, which provides 2 safety roles:

1. In the event of excessive wear on the nut thread the load will be transferred from the standard nut to the safety nut. This will also provide visual wear indication as the gap between the safety nut decreases to zero as the standard lifting nut wears.
2. In the unlikely event of catastrophic nut thread failure the safety nut will sustain the load. The safety of industrial and human cargo is therefore improved.

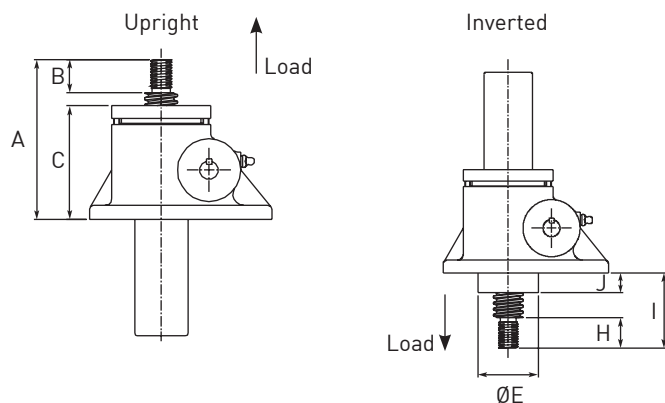
There are several configurations for each safety nut device as they only work in one load direction. For this reason when ordering please supply a sketch of your application showing load directions.



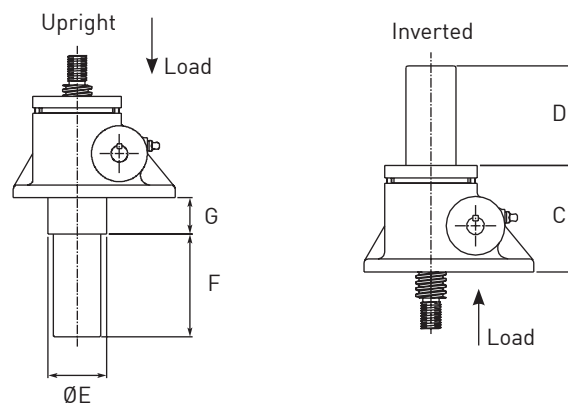
**All Safety Nuts are BS EN 1570 Compliant**

## Translating Screw Jacks with Safety Nuts

### Tension Safety Nut



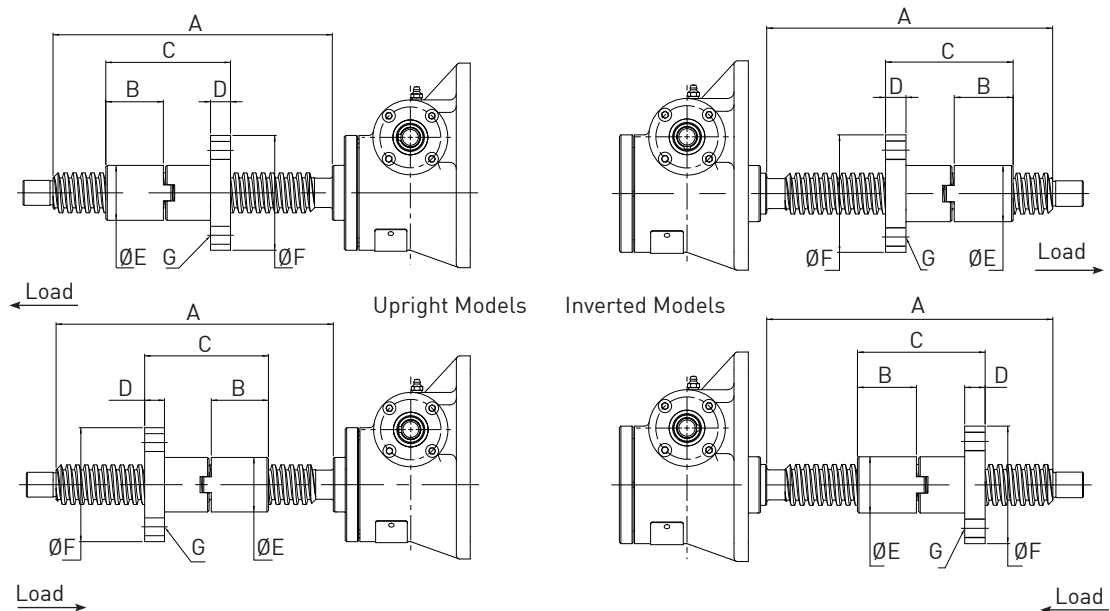
### Compression Safety Nut



## Dimensions - Translating Screw

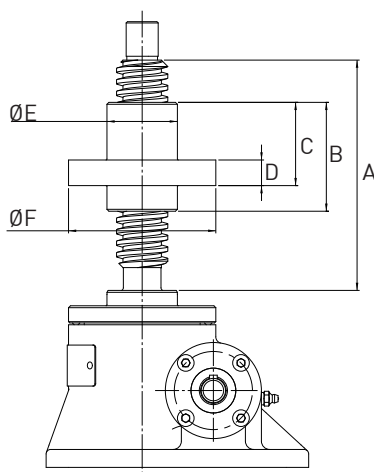
| Model   | Rating (kN) | Type | A          | B  | C   | D           | ØE  | F           | G  | H  | I   | J  |
|---------|-------------|------|------------|----|-----|-------------|-----|-------------|----|----|-----|----|
| EMT0005 | 5           | 1    | On Request |    |     |             |     |             |    |    |     |    |
| EMT0010 | 10          | 1    | 125        | 24 | 86  | Stroke + 35 | 38  | Stroke + 9  | 30 | 24 | 45  | 16 |
|         |             | 2    | 125        | 24 | 90  | Stroke + 35 | 38  | Stroke + 9  | 30 | 24 | 45  | 16 |
| EMT0025 | 25          | 1    | 145        | 30 | 104 | Stroke + 30 | 60  | Stroke + 30 | 37 | 30 | 55  | 20 |
| EMT0050 | 50          | 1    | 185        | 35 | 138 | Stroke + 20 | 75  | Stroke + 20 | 40 | 35 | 65  | 24 |
| EMT0100 | 100         | 1    | 200        | 40 | 146 | Stroke + 3  | 90  | Stroke + 28 | 48 | 40 | 80  | 30 |
| EMT0200 | 200         | 1    | 265        | 55 | 195 | Stroke + 24 | 102 | Stroke + 24 | 58 | 55 | 110 | 39 |
| EMT0300 | 300         | 1    | On Request |    |     |             |     |             |    |    |     |    |
| EMT0500 | 500         | 1    | On Request |    |     |             |     |             |    |    |     |    |
| EMT1000 | 1000        | 1    | On Request |    |     |             |     |             |    |    |     |    |
| EMT1500 | 1500        | 1    | On Request |    |     |             |     |             |    |    |     |    |
| EMT2000 | 2000        | 1    | On Request |    |     |             |     |             |    |    |     |    |

## Rotating Screw Jacks with Safety Nuts



## Dimensions - Rotating Screw

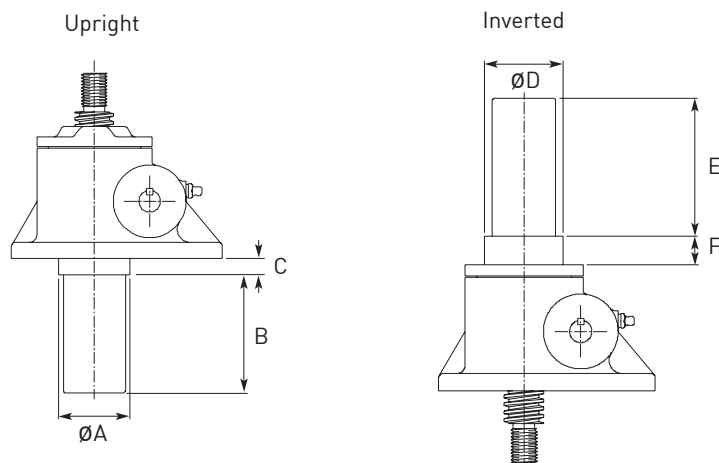
| Model   | Rating (kN) | A            | B    | C    | D  | ØE  | ØF  | G                  |
|---------|-------------|--------------|------|------|----|-----|-----|--------------------|
| EMR0005 | 5           | On Request   |      |      |    |     |     |                    |
| EMR0010 | 10          | Stroke + 76  | 30   | 66.5 | 12 | 35  | 80  | 4 x Ø11, Ø57 PCD   |
| EMR0025 | 25          | Stroke + 95  | 33.5 | 75   | 15 | 40  | 90  | 4 x Ø13.5, Ø65 PCD |
| EMR0050 | 50          | Stroke + 140 | 58   | 125  | 20 | 55  | 115 | 4 x Ø18, Ø85 PCD   |
| EMR0100 | 100         | Stroke + 170 | 67   | 145  | 25 | 80  | 160 | 4 x Ø22, Ø120 PCD  |
| EMR0200 | 200         | Stroke + 170 | 67   | 145  | 25 | 90  | 185 | 4 x Ø26, Ø135 PCD  |
| EMR0300 | 300         | Stroke + 310 | 126  | 270  | 35 | 125 | 230 | 6 x Ø26, Ø175 PCD  |
| EMR0500 | 500         | Stroke + 335 | 130  | 284  | 50 | 160 | 280 | 6 x Ø33, Ø220 PCD  |
| EMR1000 | 1000        | Stroke + 410 | 155  | 335  | 60 | 210 | 380 | 6 x Ø45, Ø295 PCD  |
| EMR1500 | 1500        | On Request   |      |      |    |     |     |                    |
| EMR2000 | 2000        | On Request   |      |      |    |     |     |                    |



| Model   | A            | B   | C   | D  | ØE  | F                  | ØG  |
|---------|--------------|-----|-----|----|-----|--------------------|-----|
| EMR0010 | Stroke + 55  | 40  | 25  | 10 | 25  | 4 x Ø9, Ø42 PCD    | 60  |
| EMR0010 | Stroke + 61  | 52  | 35  | 12 | 35  | 4 x Ø11, Ø57 PCD   | 80  |
| EMR0025 | Stroke + 80  | 60  | 40  | 15 | 40  | 4 x Ø13.5, Ø65 PCD | 90  |
| EMR0050 | Stroke + 100 | 85  | 65  | 20 | 55  | 4 x Ø18, Ø85 PCD   | 115 |
| EMR0100 | Stroke + 120 | 95  | 75  | 25 | 80  | 4 x Ø22, Ø120 PCD  | 160 |
| EMR0200 | Stroke + 120 | 95  | 75  | 25 | 90  | 4 x Ø26, Ø135 PCD  | 185 |
| EMR0300 | Stroke + 200 | 160 | 140 | 35 | 125 | 6 x Ø26, Ø175 PCD  | 230 |
| EMR0500 | Stroke + 225 | 175 | 150 | 50 | 160 | 6 x Ø33, Ø220 PCD  | 280 |
| EMR1000 | Stroke + 275 | 200 | 175 | 60 | 210 | 6 x Ø45, Ø295 PCD  | 380 |
| EMR1500 | On Request   |     |     |    |     |                    |     |
| EMR2000 | On Request   |     |     |    |     |                    |     |

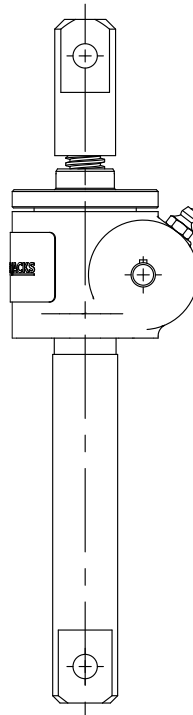
## Secondary Guide - Greater Lateral Rigidity for Lifting Screw

Secondary Guiding for the screw for greater lateral rigidity aiding screw guidance and improved side load resilience.

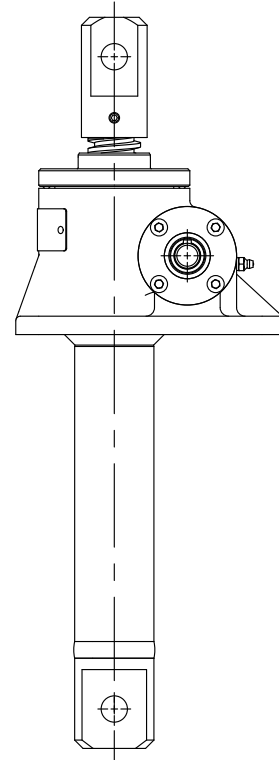


## Dimensions for Screw Jacks with Secondary Guides

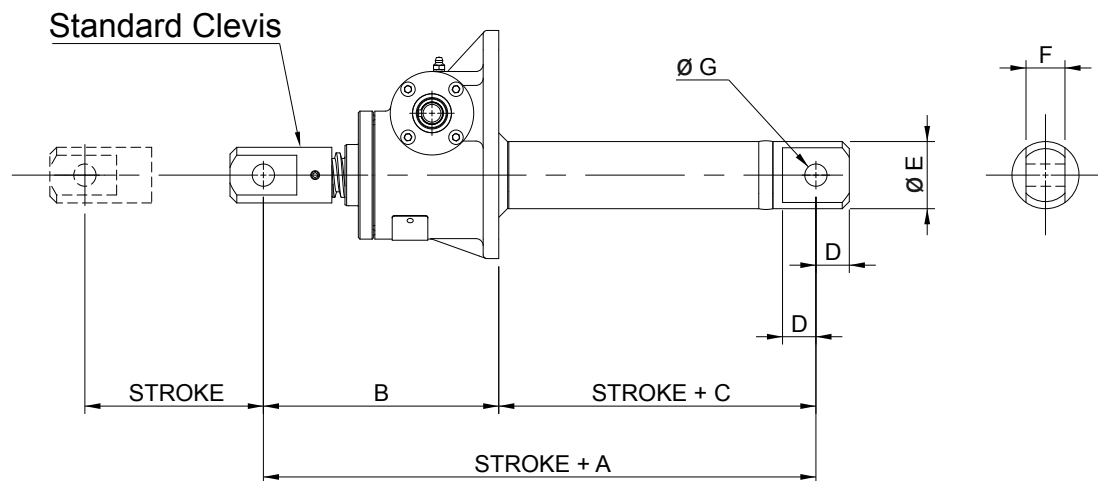
| Model    |    | EMT0005     | EMT0010     | EMT0025     | EMT0050     | EMT0100     | EMT0200     | EMT0300     | EMT0500     | EMT1000     | EMT1500    | EMT2000    |
|----------|----|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------------|------------|
| Upright  | ØA | 36          | 38          | 60          | 70          | 90          | 100         | 138         | 155         | 225         | On Request | On Request |
|          | B  | Stroke + 34 | Stroke + 34 | Stroke + 30 | Stroke + 20 | Stroke + 29 | Stroke + 24 | Stroke + 40 | Stroke + 38 | Stroke + 50 |            |            |
|          | C  | 16          | 20          | 20          | 18          | 20          | 20          | 38          | 38          | 65          |            |            |
| Inverted | ØD | 36          | On Request  | 60          | 70          | 90          | 100         | 138         | 155         | On Request  |            |            |
|          | E  | Stroke + 34 | Stroke + 34 | Stroke + 30 | Stroke + 20 | Stroke + 29 | Stroke + 24 | Stroke + 40 | Stroke + 38 |             |            |            |
|          | F  | 16          | On Request  | 20          | 18          | 20          | 20          | 38          | 38          |             |            |            |



Style 1



Style 2

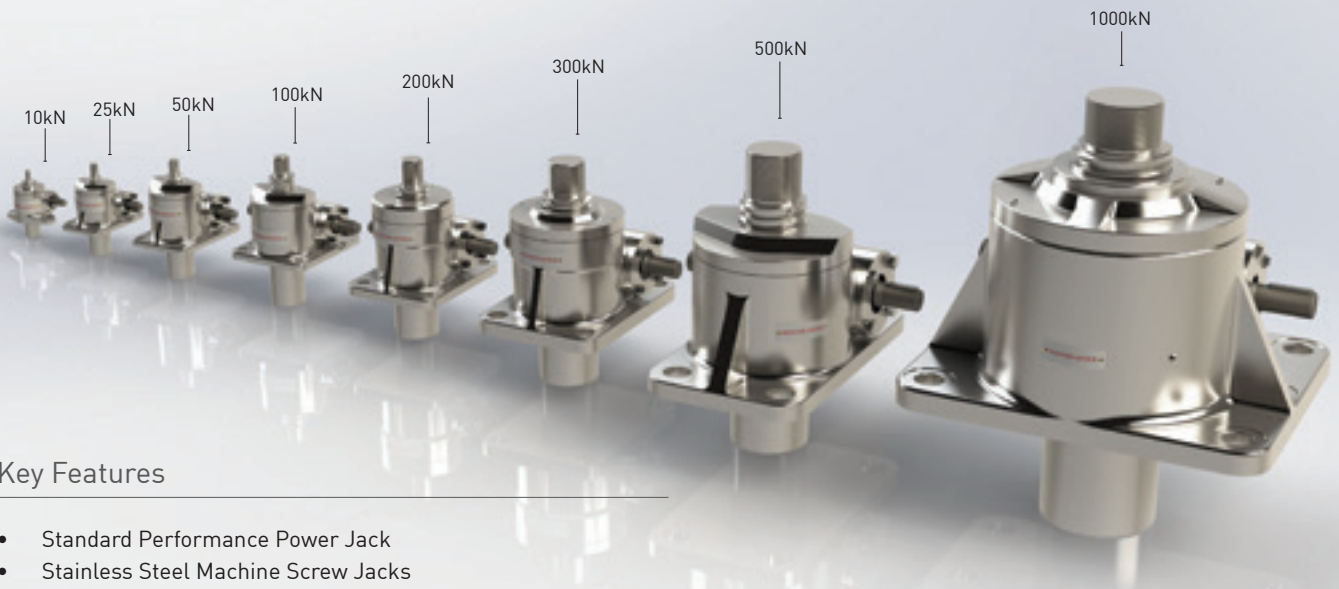


| Model                                  | EMT0005 | EMT0010 |      | EMT0025 | EMT0050 | EMT0100 | EMT0200 | EMT0300 | EMT0500 | EMT1000    |
|----------------------------------------|---------|---------|------|---------|---------|---------|---------|---------|---------|------------|
| Capacity (kN)                          | 5       | 10      | 10   | 25      | 50      | 100     | 200     | 300     | 500     | 1000       |
| Housing Type                           | 1       | 1       | 2    | 1       | 1       | 1       | 1       | 1       | 1       | On Request |
| Style                                  | 1       | 1       | 2    | 2       | 2       | 2       | 2       | 2       | 2       |            |
| A                                      | 150     | 180     | 180  | 213     | 260     | 352     | 428     | 492     | 570     |            |
| B                                      | 115     | 145     | 145  | 170     | 210     | 247     | 313     | 367     | 440     |            |
| C                                      | 35      | 35      | 35   | 43      | 50      | 105     | 115     | 125     | 130     |            |
| D                                      | 15      | 20      | 20   | 23      | 30      | 33      | 40      | 60      | 75      |            |
| ØE                                     | 26.7    | 33.4    | 33.4 | 48.3    | 60.3    | 73      | 102     | 133     | 168     |            |
| F                                      | 15      | 20      | 20   | 30      | 35      | 40      | 50      | 80      | 110     |            |
| ØG                                     | 10      | 12      | 12   | 16      | 20      | 22      | 30      | 45      | 60      |            |
| Max Stroke at Rated Load (Compression) | 220     | 175     | 175  | 352     | 420     | 593     | 592     | 1338    | 1920    |            |

**Note:** All dimensions in millimetres unless otherwise stated.

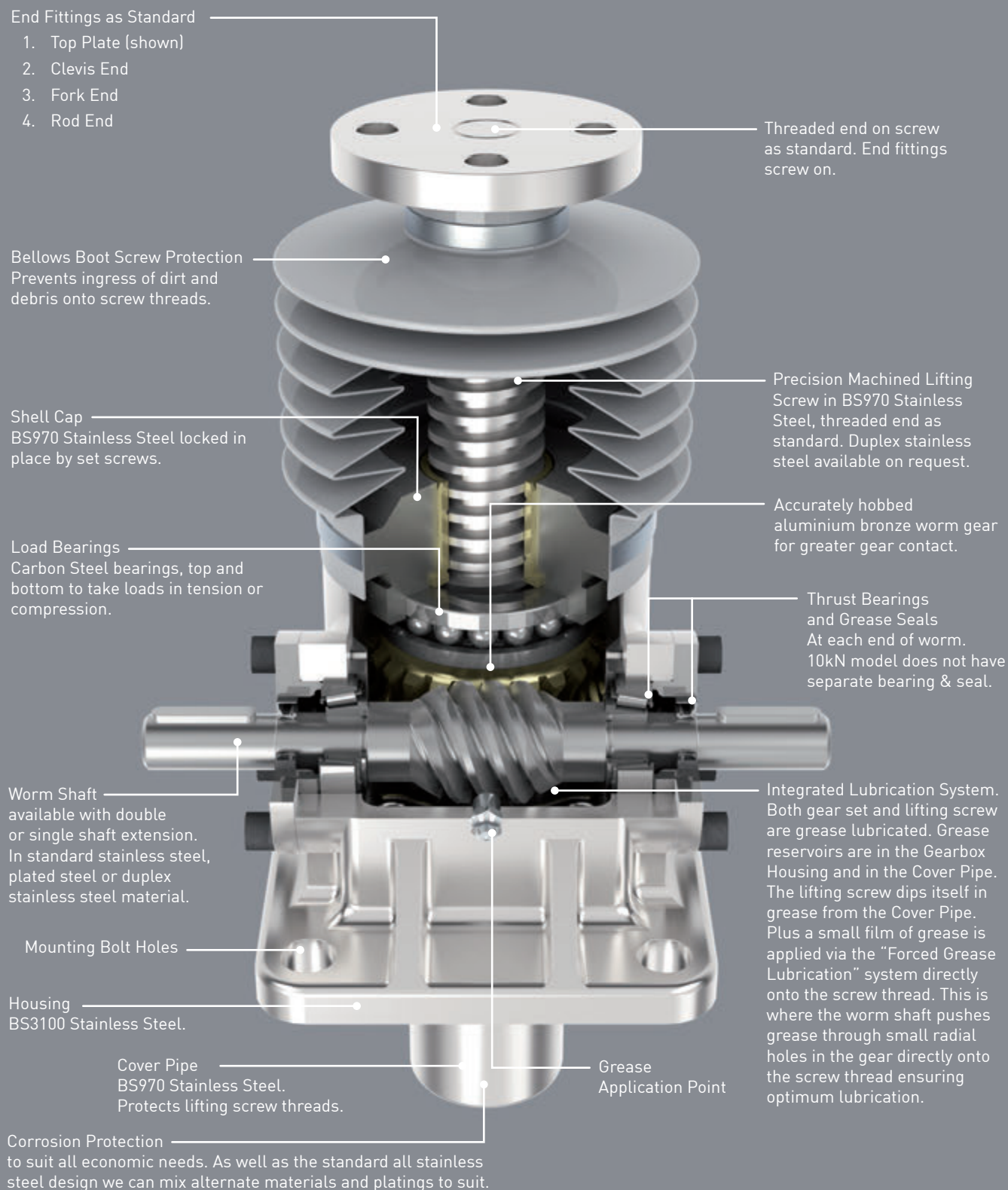
## E-Series Stainless Steel Screw Jacks

DESIGNED FOR USE IN  
HARSH & CORROSIVE  
ENVIRONMENTS  
CAPACITIES - 10KN TO  
1000KN AS STANDARD.

**TRANSLATING SCREW JACKS****Key Features**

- Standard Performance Power Jack
- Stainless Steel Machine Screw Jacks
- Capacities - 10kN to 1000kN as standard
- Translating and Rotating Screw in Upright and Inverted types
- Precision Worm Gear Set
- 2 Gear ratios and 1 screw lead as standard
- Anti-backlash and anti-rotation (keyed) options
- 6 mounting options including trunnion and double clevis
- Special custom designs available

**ROTATING SCREW JACKS**



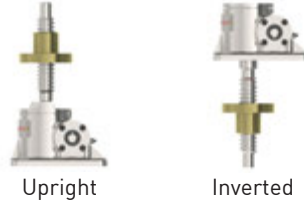
The stainless steel screw jacks are ideal for use in harsh or corrosive environments such as marine, nuclear, water, food processing or paper making machinery, where standard materials may be inadequate.



## Translating Screw



## Rotating Screw



## Typical Applications

Stainless Steel Machine Screw Jacks are typically used in harsh or corrosive environments or those with a regular wash down requirement. Industries such as Marine, Water Treatment, Nuclear, Food Processing, Offshore, Pulp and Paper use stainless steel screw jacks. For each application, variants with different material grades or plated components can be used, tailoring the product for the specific application and budget.

## Standard Designs

Stainless steel E-Series machine screw jacks are available in translating and rotating screw designs in capacity sizes from 10kN to 1000kN. The design is optimised for reliable performance in some of the most arduous environments. Plus there is a large selection of standard accessories (section-6) and options so you can configure a standard design that is just right for your application. These options include Anti-Backlash, Anti-Rotation (Keyed) and Safety Nut designs.

## Special Designs

We can fully customise our screw jacks so that your application can be the best.

Customisation can be anything from a small modification such as an extra bolt hole on an end fitting to a completely new design of screw jack based on our class leading technology.

For more details please see the Special Screw Jack information in Section-7 or contact us today with your requirements. Our team are looking forward to working with you.

## Selecting the Right Screw Jack

Consider all application constraints then choose a product that looks suitable for the intended application. Calculate the power and torque requirements. This is a 5 step process:

- Screw Jack Input Speed (RPM)
- Operating Input Power (kW)
- Operating Input Torque (Nm)
- Screw Jack Start-up Torque (Nm)
- Mechanical Power and Torque Check

## Systems

The screw jacks can be connected together in systems so that multiple units can be operated and controlled together. These jacking system arrangements or configurations can be built in many formats with the use of bevel gearboxes, motors, reduction gearbox, drive shafts, couplings, plummer blocks and motion control devices.

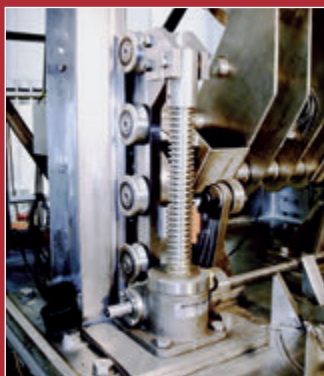
The use of bevel gearboxes allows the distribution of drive throughout a jacking system. The gearboxes come in 2,3 and 4 way drive types. See the Bevel Gearbox catalogue for more details.

Bevel gearboxes and other system components can also be supplied in stainless steel or other corrosion resistant designs.



Two of the most popular system configurations are the 'H' and 'U' configured jacking systems. Remember that multiple screw jacks can be linked together mechanically or electrically. The latter is useful if there is no space for linking drive shafts.

If multiple machine screw jacks are connected in a mechanically linked system then the complete system may be considered self-locking. If you would like this checked consult Power Jacks. Alternatively, to be sure, include a brake on the system either as a stand alone device or as a brake motor.



## DRUM POSTING EQUIPMENT (DPE)

Dunreay cementation plant waste transfer facility.

Raise and lower drum transfer table.

Two stainless steel E-Series translating machine screw jacks  
100kN capacity with 24:1 gear ratio and 1805mm stroke connected  
in series by a stainless steel drive shaft and geared couplings.

For more application examples see the 'Power at Work' brochure or [www.powerjacks.com](http://www.powerjacks.com).



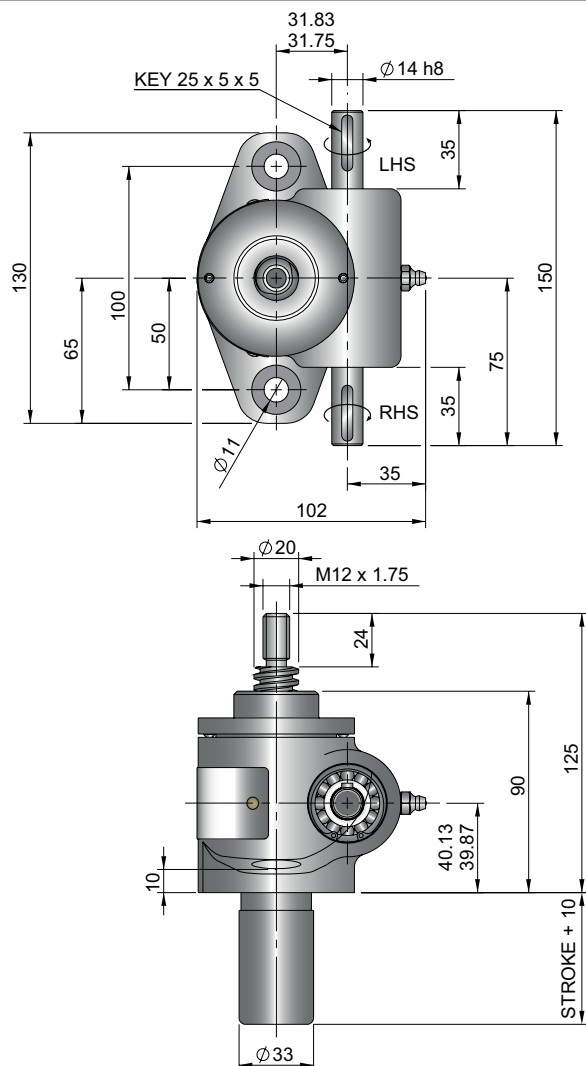
## Stainless Steel Screw Jack Standard Performance

| Model                                    |                                               |             | EMT0010<br>EMR0010 | EMT0025<br>EMR0025 | EMT0050<br>EMR0050 | EMT0100<br>EMR0100 | EMT0200<br>EMR0200 | EMT0300<br>EMR0300 | EMT0500<br>EMR0500 | EMT1000<br>EMR1000 |
|------------------------------------------|-----------------------------------------------|-------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Capacity                                 | kN                                            |             | 10                 | 25                 | 50                 | 100                | 200                | 300                | 500                | 1000               |
| Sustaining Capacity (kN)                 | Standard 316 Lifting Screw                    | Tension     | 6.6                | 16.5               | 33                 | 66                 | 132                | 200                | 333                | 666                |
|                                          |                                               | Compression | 10                 | 25                 | 50                 | 100                | 200                | 300                | 500                | 1000               |
|                                          | Duplex Lifting Screw                          |             | 10                 | 25                 | 50                 | 100                | 200                | 300                | 500                | 1000               |
| Operating Capacity (kN)                  | Stainless Steel Worm Shaft                    |             | 3.3                | 8.25               | 16.5               | 33                 | 66                 | 100                | 167                | 333                |
|                                          | Duplex or Plated Worm Shaft with 316 Screw    | Tension     | 6.6                | 16.5               | 33                 | 66                 | 132                | 200                | 333                | 666                |
|                                          |                                               | Compression | 10                 | 25                 | 50                 | 100                | 200                | 300                | 500                | 1000               |
|                                          | Duplex or Plated Worm Shaft with Duplex Screw |             | 10                 | 25                 | 50                 | 100                | 200                | 300                | 500                | 1000               |
| Lifting Screw                            | Diameter (mm)                                 |             | 20                 | 30                 | 40                 | 55                 | 65                 | 95                 | 120                | 160                |
|                                          | Lead (mm)                                     |             | 5                  | 6                  | 9                  | 12                 | 12                 | 16                 | 16                 | 20                 |
| Gear ratios                              | Option 1                                      |             | 5:1                | 6:1                | 6:1                | 8:1                | 8:1                | 10 2/3             | 10 2/3:1           | 12:1               |
|                                          | Option 2                                      |             | 20:1               | 24:1               | 24:1               | 24:1               | 24:1               | 32:1               | 32:1               | 36:1               |
| Turn of worm for travel of lifting screw | Ratio Option 1                                | 1 Turn      | 1mm                | 1mm                | 1.5mm              | 1.5mm              | 1.5mm              | 1.5mm              | 1.5mm              | 1.67mm             |
|                                          | Ratio Option 2                                | 4 Turn      | 1mm                | 1mm                | 1.5mm              | 2mm                | 2mm                | 2mm                | 2mm                | 2.22mm             |
| Max. Input power (kW)                    | Gear Ratio Option 1                           |             | 0.375              | 1.5                | 3.0                | 3.75               | 3.75               | 6.0                | 11.25              | 18.5               |
|                                          | Gear Ratio Option 2                           |             | 0.19               | 0.375              | 0.55               | 1.125              | 1.125              | 1.9                | 4.5                | 8.25               |
| Start up torque at full load (Nm)        | Gear Ratio Option 1                           |             | 6.8                | 19.8               | 56                 | 115.9              | 263.8              | 480                | 904                | 2025               |
|                                          | Gear Ratio Option 2                           |             | 3                  | 8.7                | 25.5               | 60.5               | 137                | 284                | 504                | 1119               |
| Weight (kg) - stroke = 150mm             | EMT                                           |             | 2.36               | 8.45               | 14.9               | 24.3               | 42.4               | 92.4               | 183.7              | 459.1              |
|                                          | EMR                                           |             | 2.6                | 8.85               | 16.54              | 28.8               | 49.58              | 113.78             | 224                | 560.4              |
| Weight (kg) per extra 25mm               | EMT                                           |             | 0.11               | 0.21               | 0.32               | 0.58               | 0.84               | 1.55               | 2.48               | 4.11               |
|                                          | EMR                                           |             | 0.05               | 0.11               | 0.19               | 0.36               | 0.52               | 1.13               | 1.94               | 3.38               |
| Gear Ratio Option 1                      | Gear Ratio                                    |             | 5:1                | 6:1                | 6:1                | 8:1                | 8:1                | 10 2/3:1           | 10 2/3:1           | 12:1               |
|                                          | Screw Jack Static Efficiency                  |             | 0.233              | 0.201              | 0.213              | 0.206              | 0.181              | 0.149              | 0.132              | 0.131              |
|                                          | Screw Jack Dynamic Efficiency                 |             | 0.306              | 0.264              | 0.281              | 0.272              | 0.242              | 0.205              | 0.181              | 0.178              |
| Gear Ratio Option 2                      | Gear Ratio                                    |             | 20:1               | 24:1               | 24:1               | 24:1               | 24:1               | 32:1               | 32:1               | 36:1               |
|                                          | Screw Jack Static Efficiency                  |             | 0.130              | 0.115              | 0.117              | 0.132              | 0.116              | 0.084              | 0.079              | 0.079              |
|                                          | Screw Jack Dynamic Efficiency                 |             | 0.194              | 0.167              | 0.172              | 0.190              | 0.169              | 0.128              | 0.120              | 0.123              |

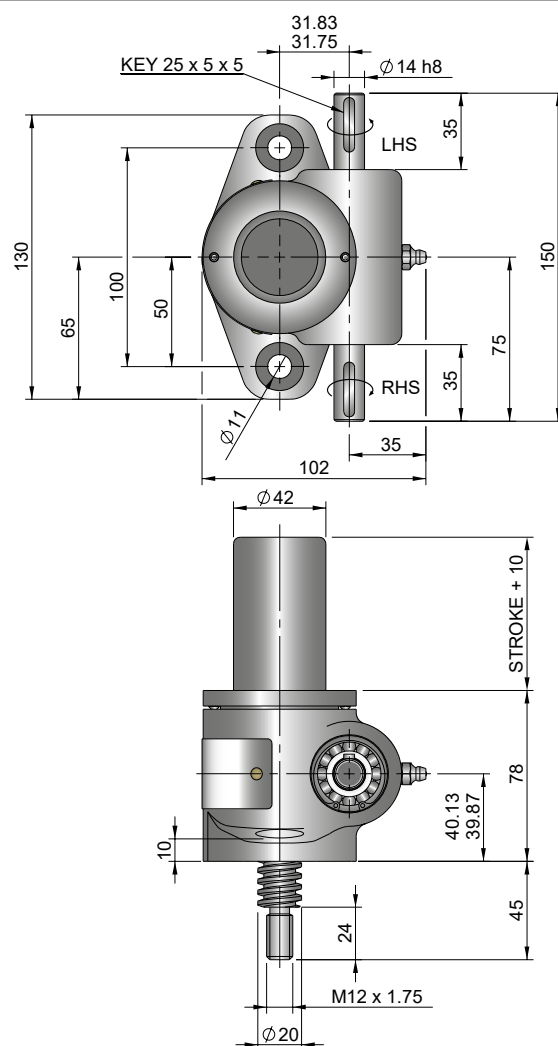
## Notes

1. All metric stainless steel machine screws have a trapezoidal thread form, single start as standard. Other screw lead options are available on request.
2. Based on operating capacity for loads of 25% to 100% of screw jack capacity, torque requirements are approximately proportional to the load.
3. Efficiency values for standard grease lubricated worm gear box and lifting screw

Upright EMT0010-V00



Inverted EMT0010-J00



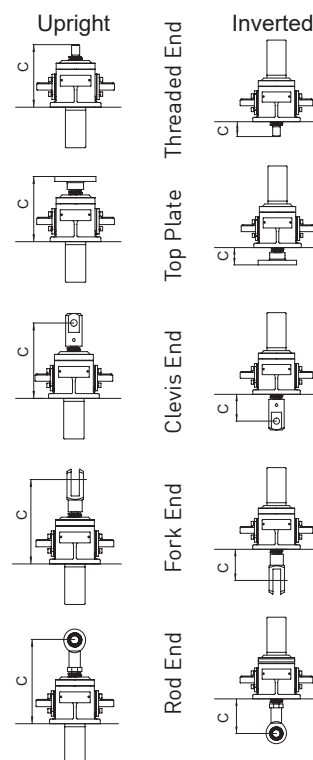
## Performance

| Model                    |                                               |             |    | EMT0010<br>EMR0010 |       |
|--------------------------|-----------------------------------------------|-------------|----|--------------------|-------|
| Capacity (kN)            |                                               |             |    | 10                 |       |
| Sustaining Capacity (kN) | Standard 316 Lifting Screw                    | Tension     |    | 6.6                |       |
|                          |                                               | Compression |    | 10                 |       |
|                          | Duplex Lifting Screw                          |             | 10 |                    |       |
| Operating Capacity (kN)  | Standard 316 Worm Shaft                       |             |    | 3.3                |       |
|                          | Duplex or Plated Worm Shaft with 316 Screw    | Tension     |    | 6.6                |       |
|                          |                                               | Compression |    | 10                 |       |
|                          | Duplex or Plated Worm Shaft with Duplex Screw |             |    | 10                 |       |
| Lifting Screw            | Diameter (mm)                                 |             |    | 20                 |       |
|                          | Lead                                          | Option      |    | 1                  | 2     |
|                          |                                               | mm          |    | 5                  | 10    |
| Gear Ratio Option 1      | Gear Ratio                                    |             |    | 5:1                |       |
|                          | Screw Jack Static Efficiency                  |             |    | 0.233              | 0.339 |
|                          | Screw Jack Dynamic Efficiency                 |             |    | 0.306              | 0.424 |
| Gear Ratio Option 2      | Gear Ratio                                    |             |    | 20:1               |       |
|                          | Screw Jack Static Efficiency                  |             |    | 0.130              | 0.192 |
|                          | Screw Jack Dynamic Efficiency                 |             |    | 0.194              | 0.268 |

| Model                                    |              |        | EMT0010<br>EMR0010 |      |
|------------------------------------------|--------------|--------|--------------------|------|
| Capacity                                 | kN           |        | 10                 |      |
| Lifting Screw                            | Lead (mm)    |        | 5                  | 10   |
| Turn of worm for travel of lifting screw | Gear Ratio 1 | 1 Turn | 1mm                | 2mm  |
|                                          | Gear Ratio 2 | 4 Turn | 1mm                | 2mm  |
| Maximum Through Torque (Nm)              |              |        | 20                 |      |
| Lifting Screw Restraining Torque (Nm)    |              |        | 22                 | 30   |
| Worm Shaft Maximum Radial Load (N)       |              |        | 325                |      |
| Maximum Input Speed (rpm)                |              |        | 1800               |      |
| Gear Case Material                       |              |        | Stainless Steel    |      |
| Weight (kg) - stroke = 150mm             |              |        | EMT                | 2.36 |
|                                          |              |        | EMR                | 2.6  |
| Weight (kg) - per extra 25mm stroke      |              |        | EMT                | 0.11 |
|                                          |              |        | EMR                | 0.05 |

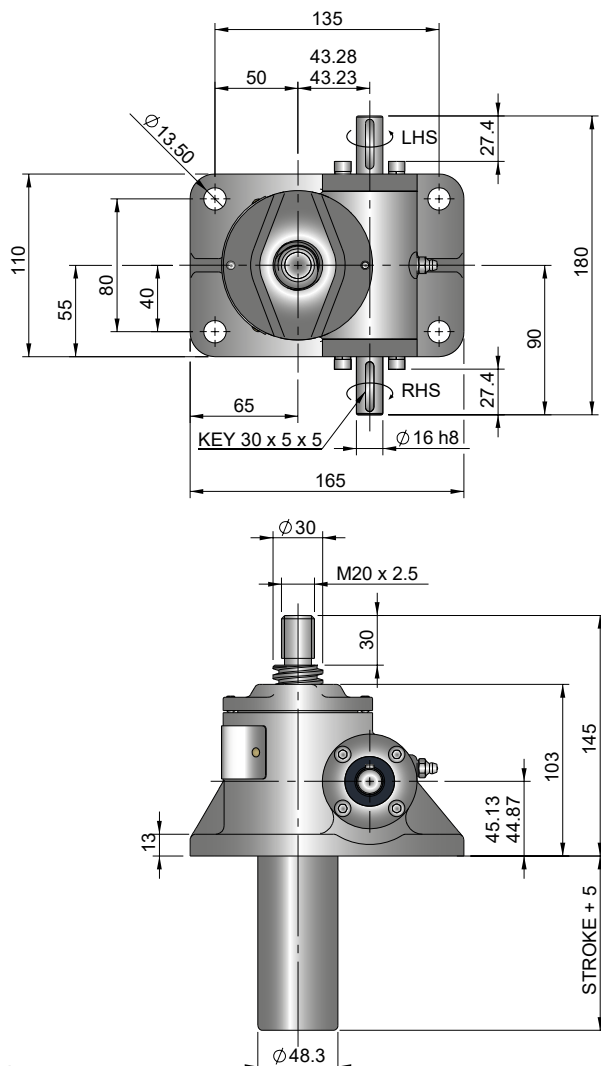
Note: All dimension in millimetres unless otherwise stated.  
Designs subject to change without notice

## Closed Height

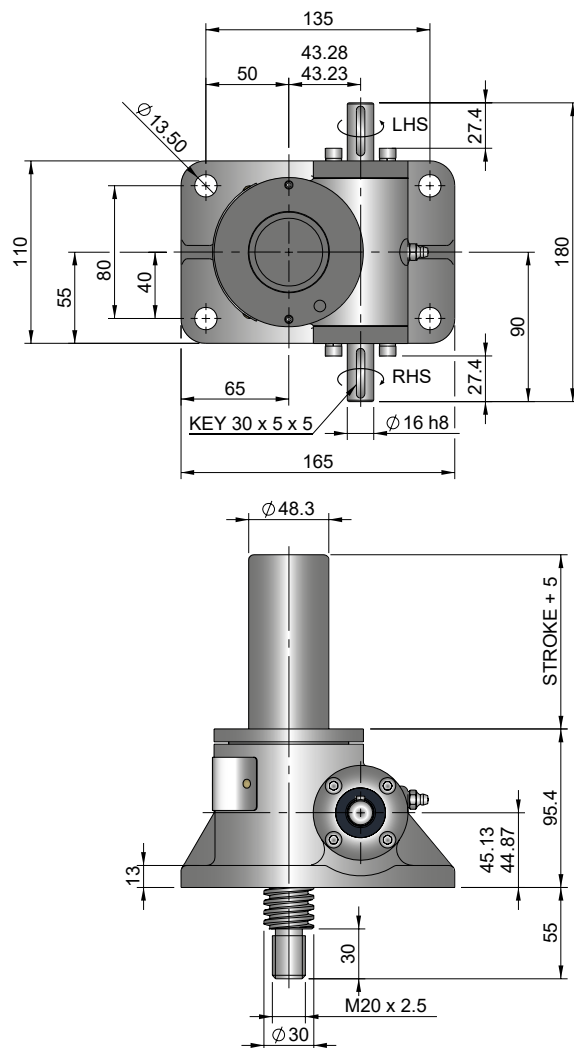




Upright EMT0025-V00



Inverted EMT0025-J00



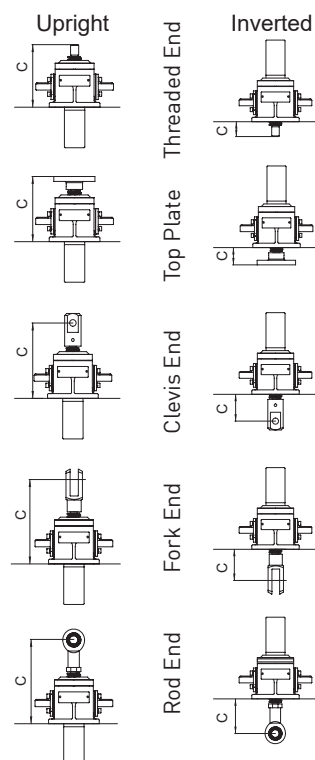
## Performance

| Model                    |                                               |             | EMT0025<br>EMR0025 |       |
|--------------------------|-----------------------------------------------|-------------|--------------------|-------|
| Capacity (kN)            |                                               |             | 25                 |       |
| Sustaining Capacity (kN) | Standard 316 Lifting Screw                    | Tension     | 16.5               |       |
|                          |                                               | Compression | 25                 |       |
|                          | Duplex Lifting Screw                          |             | 25                 |       |
| Operating Capacity (kN)  | Standard 316 Worm Shaft                       |             | 8.25               |       |
|                          | Duplex or Plated Worm Shaft with 316 Screw    | Tension     | 16.5               |       |
|                          |                                               | Compression | 59                 |       |
|                          | Duplex or Plated Worm Shaft with Duplex Screw |             | 25                 |       |
| Lifting Screw            | Diameter (mm)                                 |             | 30                 |       |
|                          | Lead                                          | Option      | 1                  | 2     |
|                          |                                               | mm          | 6                  | 12    |
| Gear Ratio Option 1      | Gear Ratio                                    |             | 6:1                |       |
|                          | Screw Jack Static Efficiency                  |             | 0.201              | 0.302 |
|                          | Screw Jack Dynamic Efficiency                 |             | 0.264              | 0.383 |
| Gear Ratio Option 2      | Gear Ratio                                    |             | 24:1               |       |
|                          | Screw Jack Static Efficiency                  |             | 0.115              | 0.171 |
|                          | Screw Jack Dynamic Efficiency                 |             | 0.167              | 0.242 |

| Model                                    |              |        | EMT0025<br>EMR0025 |      |
|------------------------------------------|--------------|--------|--------------------|------|
| Capacity                                 | kN           |        | 25                 |      |
| Lifting Screw Lead (mm)                  |              |        | 6                  | 12   |
| Turn of worm for travel of lifting screw | Gear Ratio 1 | 1 Turn | 1mm                | 2mm  |
|                                          | Gear Ratio 2 | 4 Turn | 1mm                | 2mm  |
| Maximum Through Torque (Nm)              |              |        | 59                 |      |
| Lifting Screw Restraining Torque (Nm)    |              |        | 76                 | 102  |
| Worm Shaft Maximum Radial Load (N)       |              |        | 380                |      |
| Maximum Input Speed (rpm)                |              |        | 1800               |      |
| Gear Case Material                       |              |        | Stainless Steel    |      |
| Weight (kg) - stroke = 150mm             |              |        | EMT                | 8.45 |
|                                          |              |        | EMR                | 8.85 |
| Weight (kg) - per extra 25mm stroke      |              |        | EMT                | 0.21 |
|                                          |              |        | EMR                | 0.11 |

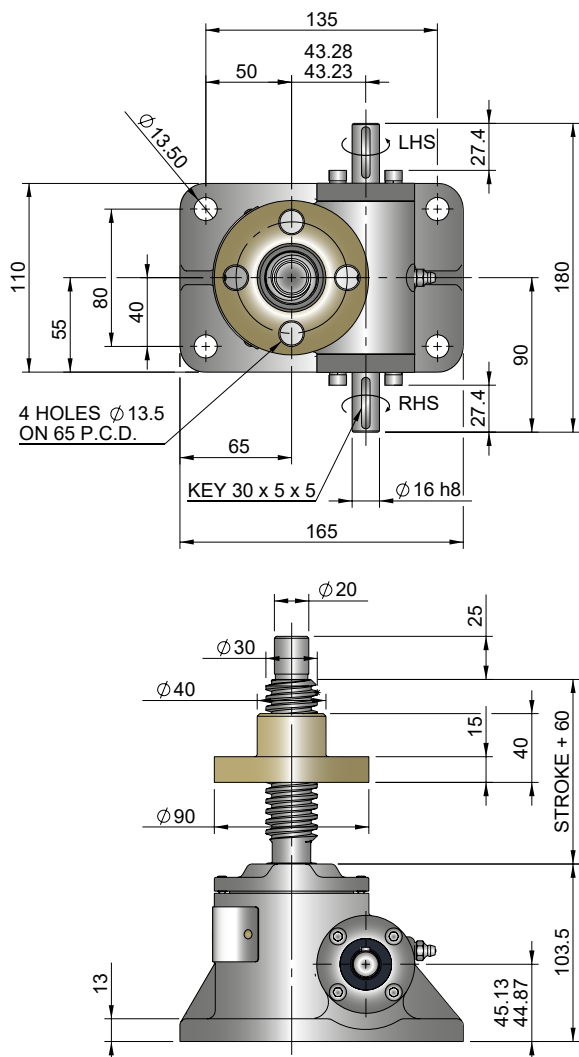
Note: All dimension in millimetres unless otherwise stated.  
Designs subject to change without notice

## Closed Height

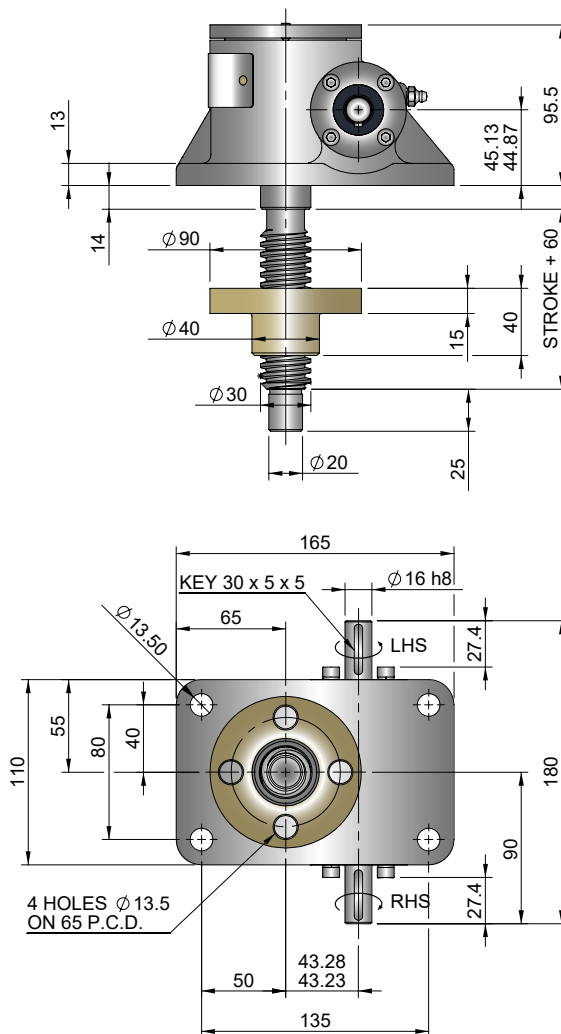




### Upright EMR0025-V00



### Inverted EMR0025-J00



### Closed Height & Bellows Boots

### Column Strength

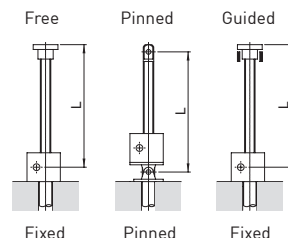
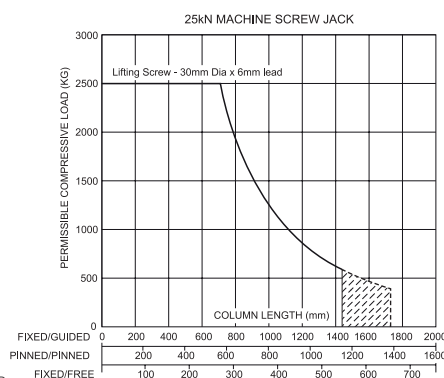
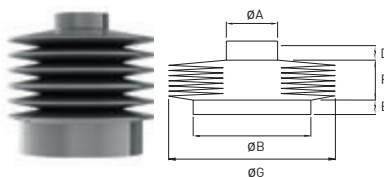
| Closed Height "C" | Threaded End               |          | Top Plate |          | Clevis End |          | Fork End |          | Rod End |          |
|-------------------|----------------------------|----------|-----------|----------|------------|----------|----------|----------|---------|----------|
|                   | Upright                    | Inverted | Upright   | Inverted | Upright    | Inverted | Upright  | Inverted | Upright | Inverted |
| EMT0025           | 145                        | 55       | 145       | 55       | 170        | 80       | 194      | 104      | 190     | 100      |
| Stroke (mm)       | EMT0025 with Bellows Boots |          |           |          |            |          |          |          |         |          |
| 1-300             | 145                        | 80       | 145       | 80       | 170        | 105      | 194      | 129      | 205     | 140      |
| 301-600           | 145                        | 80       | 145       | 80       | 170        | 105      | 194      | 129      | 205     | 140      |
| 601-1050          | 170                        | 105      | 170       | 105      | 195        | 130      | 219      | 154      | 230     | 165      |
| 1051-1500         | 195                        | 130      | 195       | 130      | 220        | 155      | 244      | 179      | 255     | 190      |

| Model   | A  | B  | D  | E  | G   |
|---------|----|----|----|----|-----|
| EMT0025 | 40 | 90 | 15 | 23 | 120 |

| Stroke  | 1-150 | 151-301 | 301-600 | 601-1050 | 1051-1500 |
|---------|-------|---------|---------|----------|-----------|
| EMT0025 | 8     | 20      | 30      | 50       | 70        |

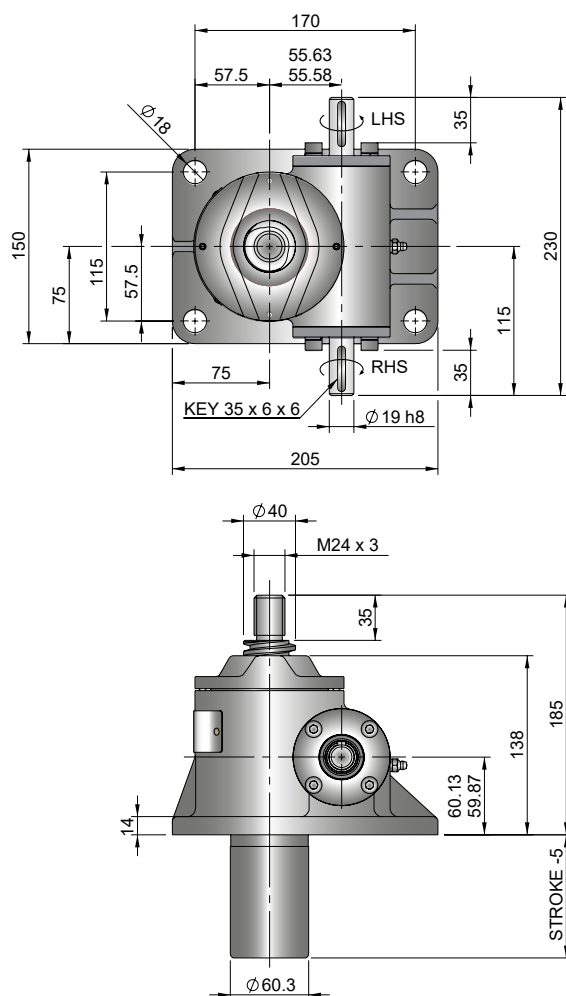
Note:

- 1 Inverted Screw Jacks - Bellows Boot Closed Height assumes screw jack mounted on a structure with thickness = 15mm
- 2 Inverted Screw Jacks - Recommended bellows boot mounting plate ØB x [E +5mm] thick.
- 3 Inverted Screw Jacks - Screw Jack mounting plate & bellows boot mounting plate are customers own supply
- 4 † Control tapes fitted (increase outer diameter by 20mm approximately).
- 5 For horizontal installations with than 450 mm of stroke, internal boot guides are recommended.
- 6 Customers with threaded end screw jacks must provide a fixing for the unattached bellows boot collar.
- 7 Bellows boots for Rotating Screw Jacks, other sizes, stroke and materials please consult Power Jacks.

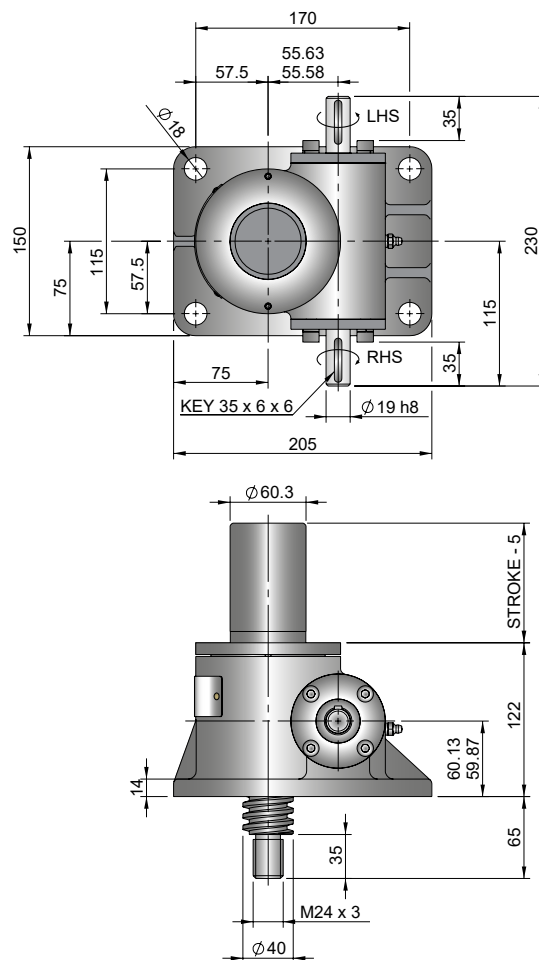




## Upright EMT0050-V00



## Inverted EMT0050-J00



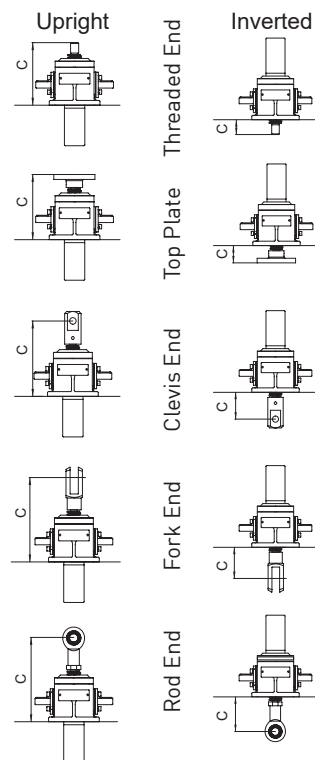
## Performance

| Model                    |                                            | EMT0050<br>EMR0050 |             |
|--------------------------|--------------------------------------------|--------------------|-------------|
| Capacity (kN)            |                                            | 50                 |             |
| Sustaining Capacity (kN) | Standard 316 Lifting Screw                 | Tension            | 33          |
|                          |                                            | Compression        | 33          |
|                          | Duplex Lifting Screw                       | 50                 |             |
| Operating Capacity (kN)  | Standard 316 Worm Shaft                    | 16.5               |             |
|                          | Duplex or Plated Worm Shaft with 316 Screw | Tension            | 33          |
|                          |                                            | Compression        | 50          |
| Lifting Screw            | Diameter (mm)                              |                    | 40          |
|                          | Lead                                       | Option             | 1 2         |
|                          |                                            | mm                 | 9 18        |
| Gear Ratio Option 1      | Gear Ratio                                 |                    | 6:1         |
|                          | Screw Jack Static Efficiency               |                    | 0.213 0.314 |
|                          | Screw Jack Dynamic Efficiency              |                    | 0.281 0.398 |
| Gear Ratio Option 2      | Gear Ratio                                 |                    | 24:1        |
|                          | Screw Jack Static Efficiency               |                    | 0.117 0.172 |
|                          | Screw Jack Dynamic Efficiency              |                    | 0.172 0.244 |

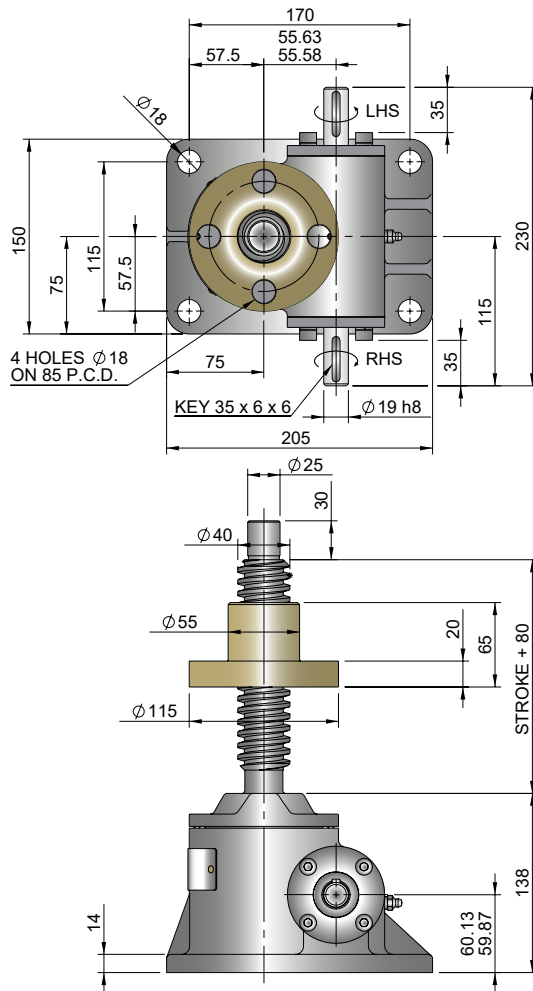
| Model                                    |              | EMT0050<br>EMR0050 |           |
|------------------------------------------|--------------|--------------------|-----------|
| Capacity                                 | kN           | 50                 |           |
| Lifting Screw Lead (mm)                  |              | 9                  | 18        |
| Turn of worm for travel of lifting screw | Gear Ratio 1 | 1 Turn             | 1.5mm 3mm |
|                                          | Gear Ratio 2 | 4 Turn             | 1.5mm 3mm |
| Maximum Through Torque (Nm)              |              | 168                |           |
| Lifting Screw Restraining Torque (Nm)    |              | 210                | 290       |
| Worm Shaft Maximum Radial Load (N)       |              | 740                |           |
| Maximum Input Speed (rpm)                |              | 1800               |           |
| Gear Case Material                       |              | Stainless Steel    |           |
| Weight (kg) - stroke = 150mm             |              | EMT                | 14.9      |
|                                          |              | EMR                | 16.54     |
| Weight (kg) - per extra 25mm stroke      |              | EMT                | 0.32      |
|                                          |              | EMR                | 0.19      |

Note: All dimension in millimetres unless otherwise stated.  
Designs subject to change without notice

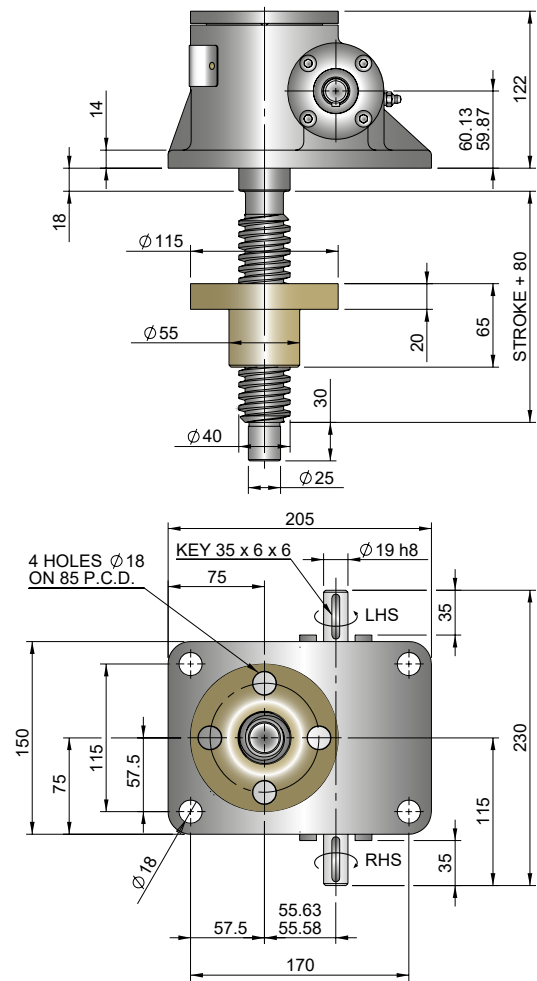
## Closed Height



#### Upright EMR0050-V00



#### Inverted EMR0050-J00

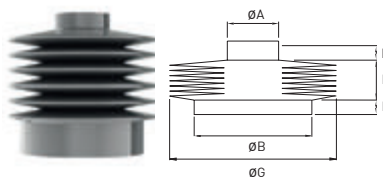


#### Closed Height & Bellows Boots

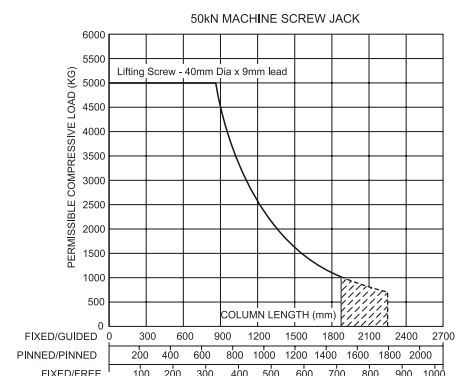
| Closed Height "C" | Threaded End               |          | Top Plate |          | Clevis End |          | Fork End |          | Rod End |          |
|-------------------|----------------------------|----------|-----------|----------|------------|----------|----------|----------|---------|----------|
|                   | Upright                    | Inverted | Upright   | Inverted | Upright    | Inverted | Upright  | Inverted | Upright | Inverted |
| EMT0050           | 185                        | 65       | 185       | 65       | 210        | 90       | 248      | 128      | 242     | 122      |
| Stroke (mm)       | EMT0050 with Bellows Boots |          |           |          |            |          |          |          |         |          |
| 1-150             | 185                        | 110      | 185       | 110      | 210        | 135      | 248      | 173      | 257     | 182      |
| 151-300           | 185                        | 120      | 185       | 120      | 210        | 145      | 248      | 183      | 257     | 192      |
| 301-600           | 210                        | 130      | 210       | 130      | 235        | 155      | 273      | 193      | 282     | 202      |
| 601-1050          | 210                        | 150      | 210       | 150      | 235        | 175      | 273      | 213      | 282     | 222      |
| 1051-1500         | 235                        | 170      | 235       | 170      | 260        | 195      | 298      | 233      | 307     | 242      |

| Model   | A  | B   | D  | E  | G   |
|---------|----|-----|----|----|-----|
| EMT0050 | 50 | 115 | 15 | 31 | 140 |

| Stroke  | 1-150 | 151-300 | 301-600 | 601-1050 | 1051-1500 |
|---------|-------|---------|---------|----------|-----------|
| EMT0050 | 8     | 20      | 30      | 50       | 70        |

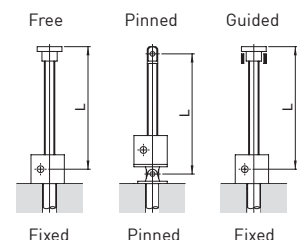


#### Column Strength

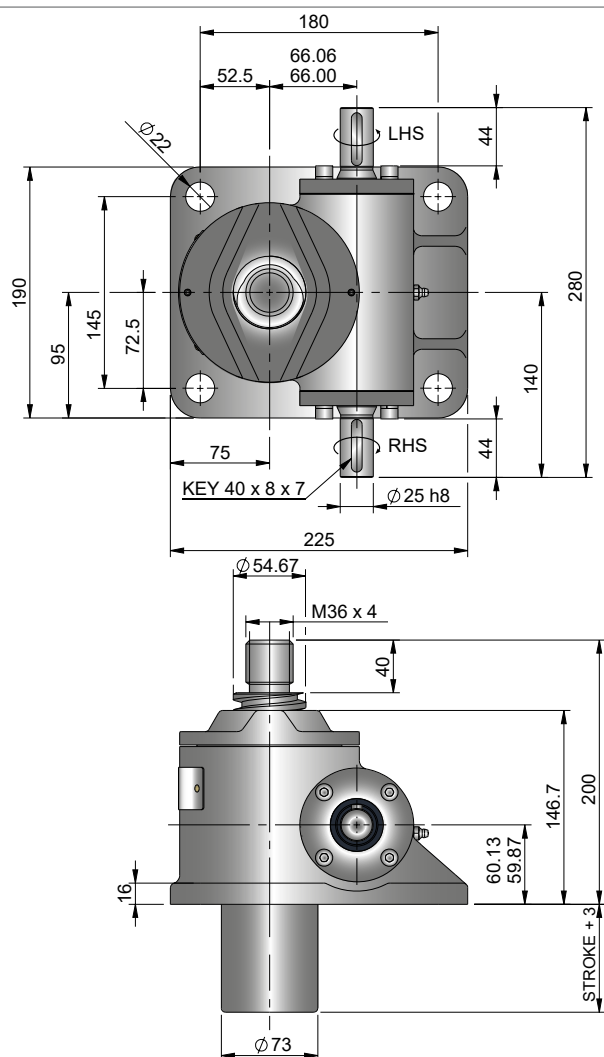


#### Note:

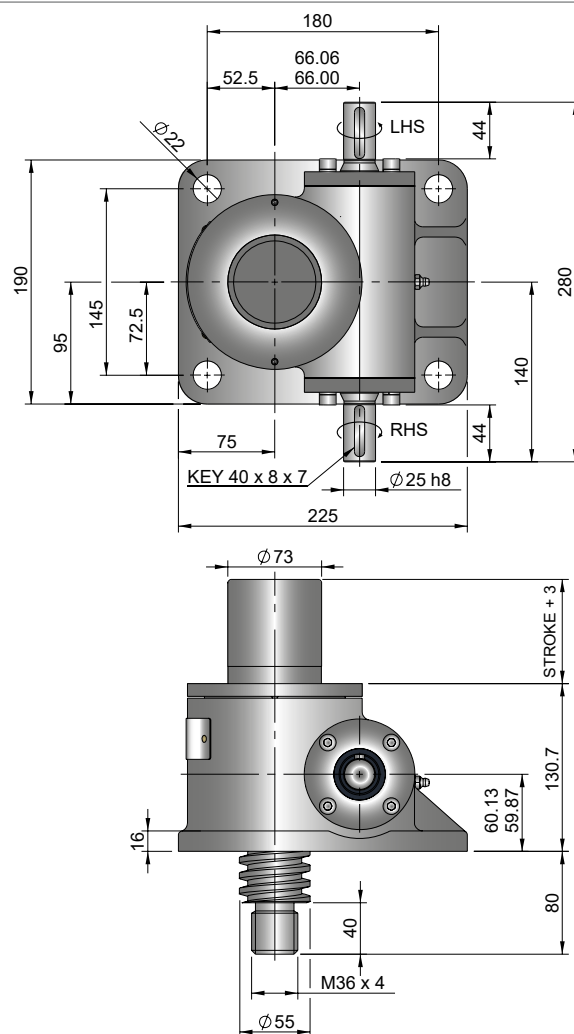
- 1 Inverted Screw Jacks - Bellows Boot Closed Height assumes screw jack mounted on a structure with thickness = 15mm
- 2 Inverted Screw Jacks - Recommended bellows boot mounting plate  $\varnothing B \times [E + 5\text{mm}]$  thick.
- 3 Inverted Screw Jacks - Screw Jack mounting plate & bellows boot mounting plate are customers own supply
- 4 † Control tapes fitted (increase outer diameter by 20mm approximately).
- 5 For horizontal installations with than 450 mm of stroke, internal boot guides are recommended.
- 6 Customers with threaded end screw jacks must provide a fixing for the unattached bellows boot collar.
- 7 Bellows boots for Rotating Screw Jacks, other sizes, stroke and materials please consult Power Jacks.



Upright EMT0100-V00



Inverted EMT0100-J00



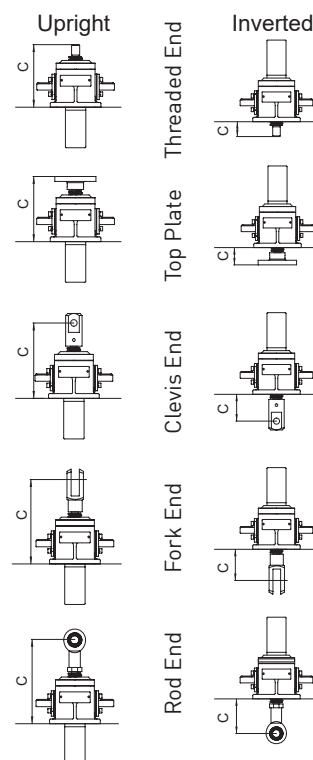
## Performance

| Model                          |                                                  |             | EMT0100<br>EMR0100 |       |
|--------------------------------|--------------------------------------------------|-------------|--------------------|-------|
| Capacity (kN)                  |                                                  |             | 100                |       |
| Sustaining<br>Capacity<br>(kN) | Standard 316<br>Lifting Screw                    | Tension     | 66                 |       |
|                                |                                                  | Compression | 100                |       |
|                                | Duplex Lifting Screw                             |             | 100                |       |
| Operating<br>Capacity<br>(kN)  | Standard 316 Worm Shaft                          |             | 33                 |       |
|                                | Duplex or Plated<br>Worm Shaft with<br>316 Screw | Tension     | 66                 |       |
|                                |                                                  | Compression | 100                |       |
|                                | Duplex or Plated Worm<br>Shaft with Duplex Screw |             | 100                |       |
| Lifting<br>Screw               | Diameter (mm)                                    |             | 55                 |       |
|                                | Lead                                             | Option      | 1                  | 2     |
|                                |                                                  | mm          | 12                 | 24    |
| Gear Ratio<br>Option 1         | Gear Ratio                                       |             | 8:1                |       |
|                                | Screw Jack Static Efficiency                     |             | 0.206              | 0.305 |
|                                | Screw Jack Dynamic Efficiency                    |             | 0.272              | 0.388 |
| Gear Ratio<br>Option 2         | Gear Ratio                                       |             | 24:1               |       |
|                                | Screw Jack Static Efficiency                     |             | 0.132              | 0.195 |
|                                | Screw Jack Dynamic Efficiency                    |             | 0.190              | 0.271 |

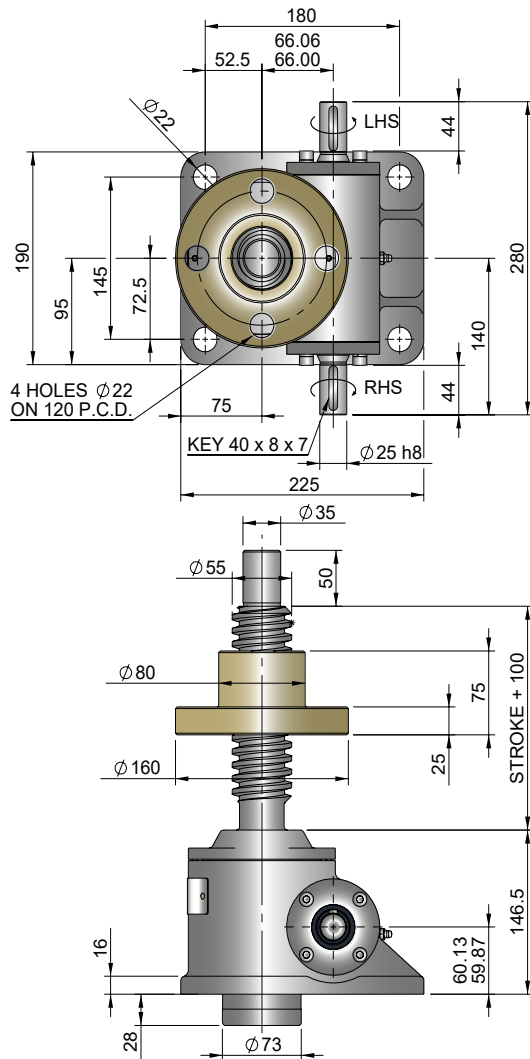
| Model                                    |              | EMT0100         | EMR0100   |
|------------------------------------------|--------------|-----------------|-----------|
| Capacity                                 | kN           | 100             |           |
| Lifting Screw Lead (mm)                  |              | 12              | 24        |
| Turn of worm for travel of lifting screw | Gear Ratio 1 | 1 Turn          | 1.5mm 3mm |
|                                          | Gear Ratio 2 | 4 Turn          | 2mm 4mm   |
| Maximum Through Torque (Nm)              |              | 347             |           |
| Lifting Screw Restraining Torque (Nm)    |              | 575             | 780       |
| Worm Shaft Maximum Radial Load (N)       |              | 1000            |           |
| Maximum Input Speed (rpm)                |              | 1800            |           |
| Gear Case Material                       |              | Stainless Steel |           |
| Weight (kg) - stroke = 150mm             |              | EMT             | 24.3      |
|                                          |              | EMR             | 28.8      |
| Weight (kg) - per extra 25mm stroke      |              | EMT             | 0.58      |
|                                          |              | EMR             | 0.36      |

Note: All dimension in millimetres unless otherwise stated.  
Designs subject to change without notice

## Closed Height



## Upright EMR0100-V00



## Closed Height & Bellows Boots

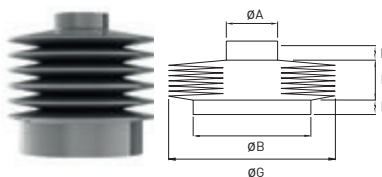
| Closed Height "C" | Threaded End               |          | Top Plate |          | Clevis End |          | Fork End |          | Rod End |          |
|-------------------|----------------------------|----------|-----------|----------|------------|----------|----------|----------|---------|----------|
|                   | Upright                    | Inverted | Upright   | Inverted | Upright    | Inverted | Upright  | Inverted | Upright | Inverted |
| EMT0100           | 200                        | 80       | 200       | 80       | 245        | 125      | 302      | 182      | 283     | 163      |
| Stroke (mm)       | EMT0100 with Bellows Boots |          |           |          |            |          |          |          |         |          |
| 1-300             | 200                        | 105      | 200       | 105      | 245        | 150      | 302      | 207      | 298     | 203      |
| 301-600           | 200                        | 130      | 200       | 130      | 245        | 175      | 302      | 232      | 298     | 228      |
| 601-1050          | 225                        | 130      | 225       | 130      | 270        | 175      | 327      | 232      | 323     | 228      |
| 1051-1500         | 250                        | 155      | 250       | 155      | 295        | 200      | 352      | 257      | 348     | 253      |

| Model   | A  | B   | D  | E  | G   |
|---------|----|-----|----|----|-----|
| EMT0100 | 65 | 136 | 15 | 31 | 150 |

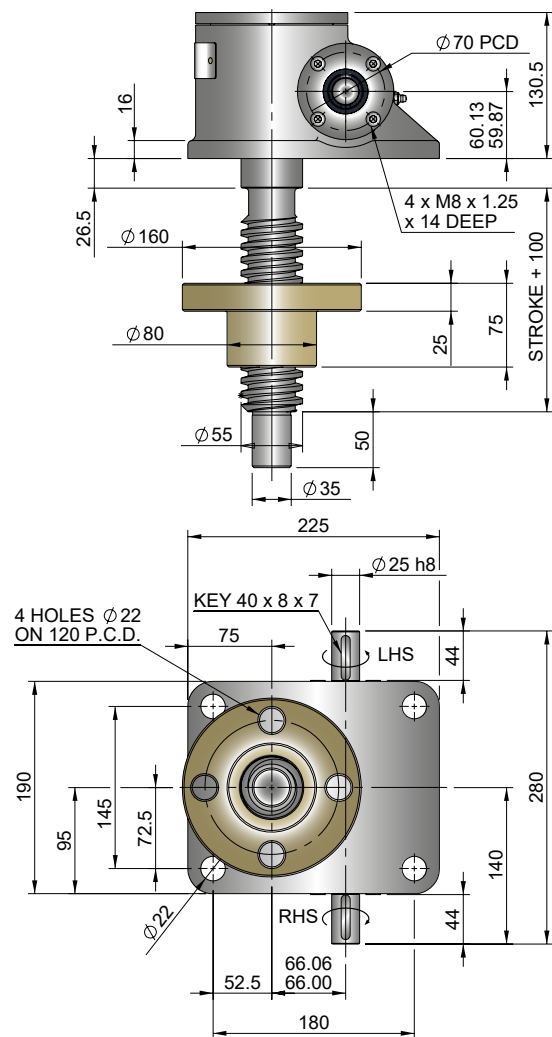
| Stroke  | 1-300 | 301-600 | 601-1050 | 1051-1500 |
|---------|-------|---------|----------|-----------|
| EMT0100 | 20    | 30      | 50       | 70        |

### Note:

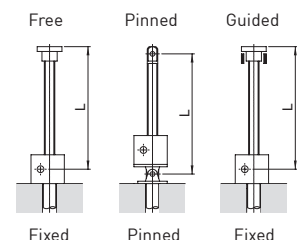
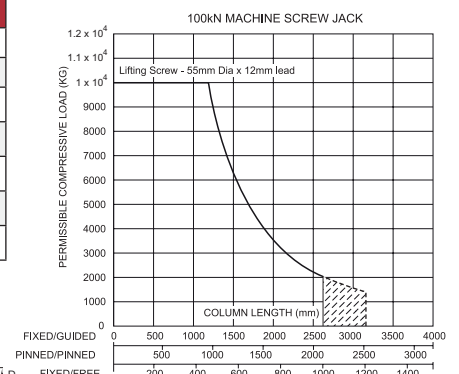
- 1 Inverted Screw Jacks - Bellows Boot Closed Height assumes screw jack mounted on a structure with thickness = 15mm
- 2 Inverted Screw Jacks - Recommended bellows boot mounting plate  $\varnothing B \times [E + 5\text{mm}]$  thick.
- 3 Inverted Screw Jacks - Screw Jack mounting plate & bellows boot mounting plate are customers own supply
- 4 † Control tapes fitted (increase outer diameter by 20mm approximately).
- 5 For horizontal installations with than 450 mm of stroke, internal boot guides are recommended.
- 6 Customers with threaded end screw jacks must provide a fixing for the unattached bellows boot collar.
- 7 Bellows boots for Rotating Screw Jacks, other sizes, stroke and materials please consult Power Jacks.



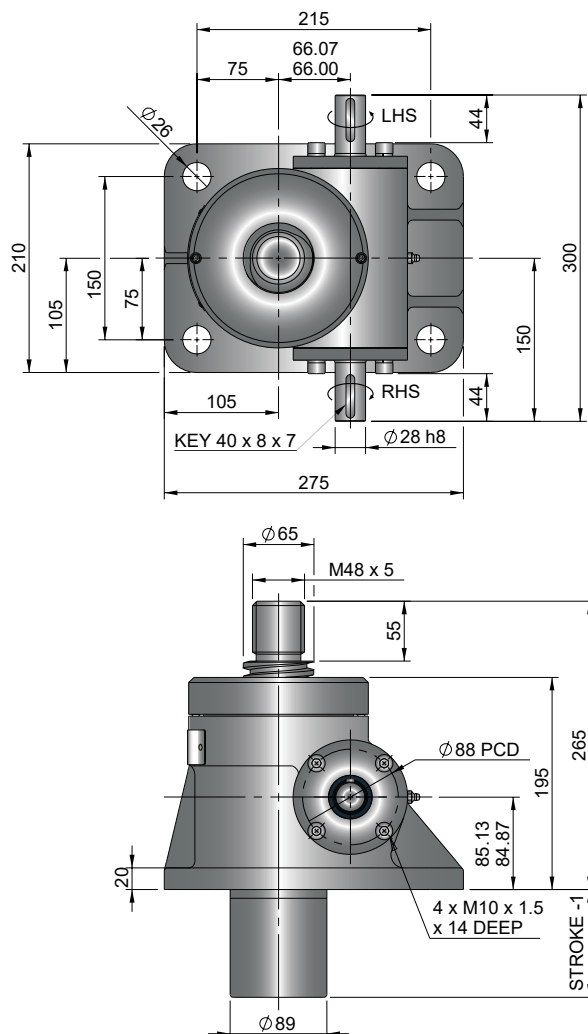
## Inverted EMR0100-J00



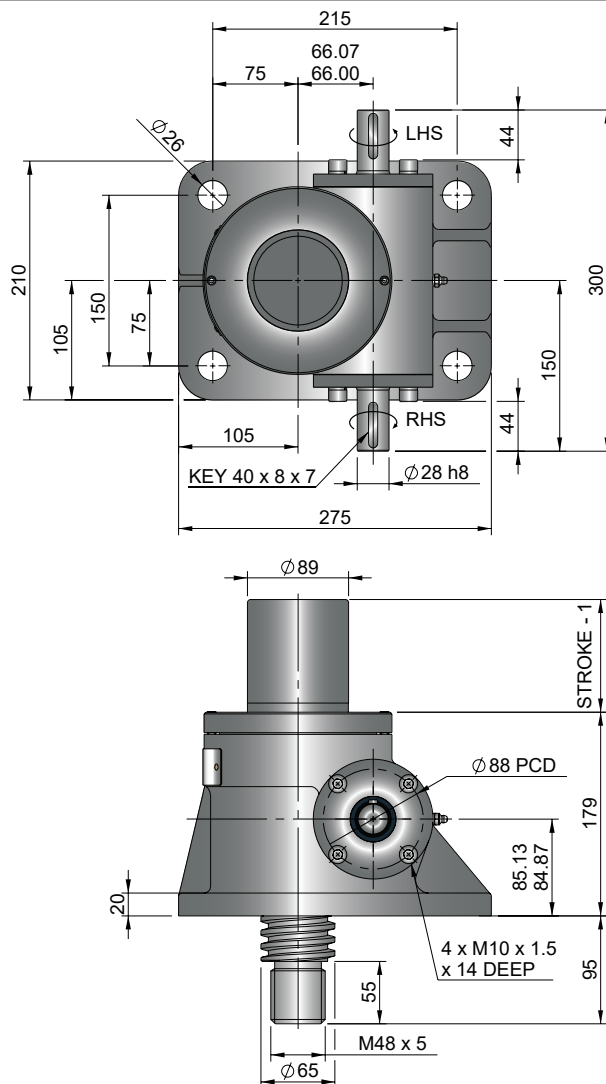
## Column Strength



## Upright EMT0200-V00



## Inverted EMT0200-J00



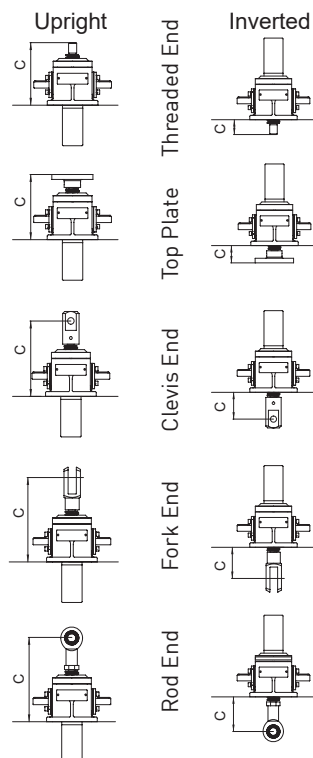
## Performance

| Model                    |                                               |             |     | EMT0200<br>EMR0200 |       |
|--------------------------|-----------------------------------------------|-------------|-----|--------------------|-------|
| Capacity (kN)            |                                               |             |     | 200                |       |
| Sustaining Capacity (kN) | Standard 316 Lifting Screw                    | Tension     |     | 132                |       |
|                          |                                               | Compression |     | 200                |       |
|                          | Duplex Lifting Screw                          |             | 200 |                    |       |
| Operating Capacity (kN)  | Standard 316 Worm Shaft                       |             |     | 66                 |       |
|                          | Duplex or Plated Worm Shaft with 316 Screw    | Tension     |     | 132                |       |
|                          |                                               | Compression |     | 200                |       |
|                          | Duplex or Plated Worm Shaft with Duplex Screw |             |     | 200                |       |
| Lifting Screw            | Diameter (mm)                                 |             |     | 65                 |       |
|                          | Lead                                          | Option      |     | 1                  | 2     |
|                          |                                               | mm          |     | 12                 | 24    |
| Gear Ratio Option 1      | Gear Ratio                                    |             |     | 8:1                |       |
|                          | Screw Jack Static Efficiency                  |             |     | 0.181              | 0.279 |
|                          | Screw Jack Dynamic Efficiency                 |             |     | 0.242              | 0.357 |
| Gear Ratio Option 2      | Gear Ratio                                    |             |     | 24:1               |       |
|                          | Screw Jack Static Efficiency                  |             |     | 0.116              | 0.178 |
|                          | Screw Jack Dynamic Efficiency                 |             |     | 0.169              | 0.250 |

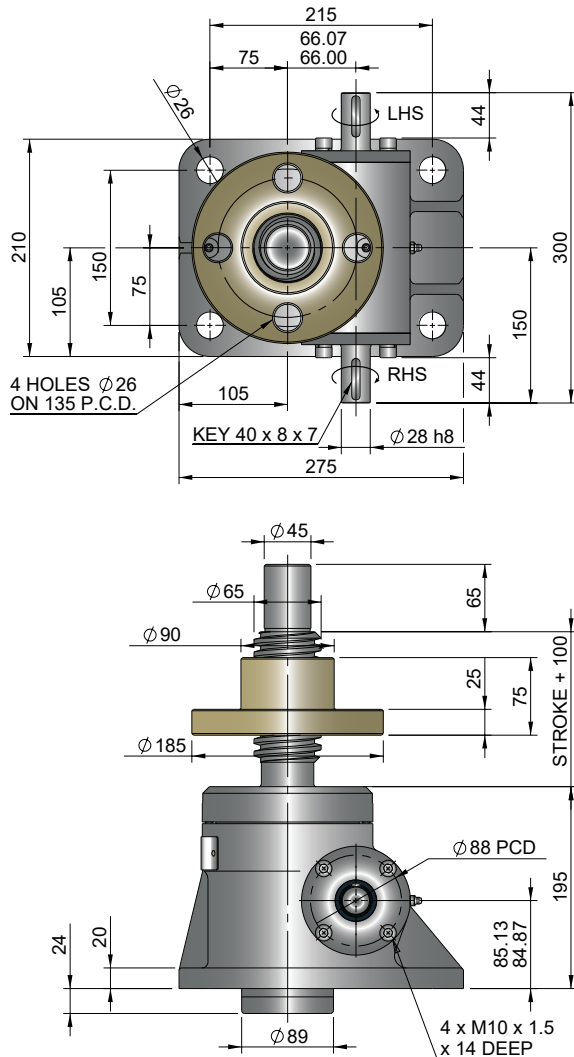
| Model                                    |              | EMT0200         | EMR0200   |
|------------------------------------------|--------------|-----------------|-----------|
| Capacity                                 | kN           | 200             |           |
| Lifting Screw Lead (mm)                  |              | 12              | 24        |
| Turn of worm for travel of lifting screw | Gear Ratio 1 | 1 Turn          | 1.5mm 3mm |
|                                          | Gear Ratio 2 | 4 Turn          | 2mm 4mm   |
| Maximum Through Torque (Nm)              |              | 396             |           |
| Lifting Screw Restraining Torque (Nm)    |              | 1300            | 1705      |
| Worm Shaft Maximum Radial Load (N)       |              | 1600            |           |
| Maximum Input Speed (rpm)                |              | 1800            |           |
| Gear Case Material                       |              | Stainless Steel |           |
| Weight (kg) - stroke = 150mm             |              | EMT             | 42.4      |
|                                          |              | EMR             | 49.58     |
| Weight (kg) - per extra 25mm stroke      |              | EMT             | 0.84      |
|                                          |              | EMR             | 0.52      |

Note: All dimension in millimetres unless otherwise stated.  
Designs subject to change without notice

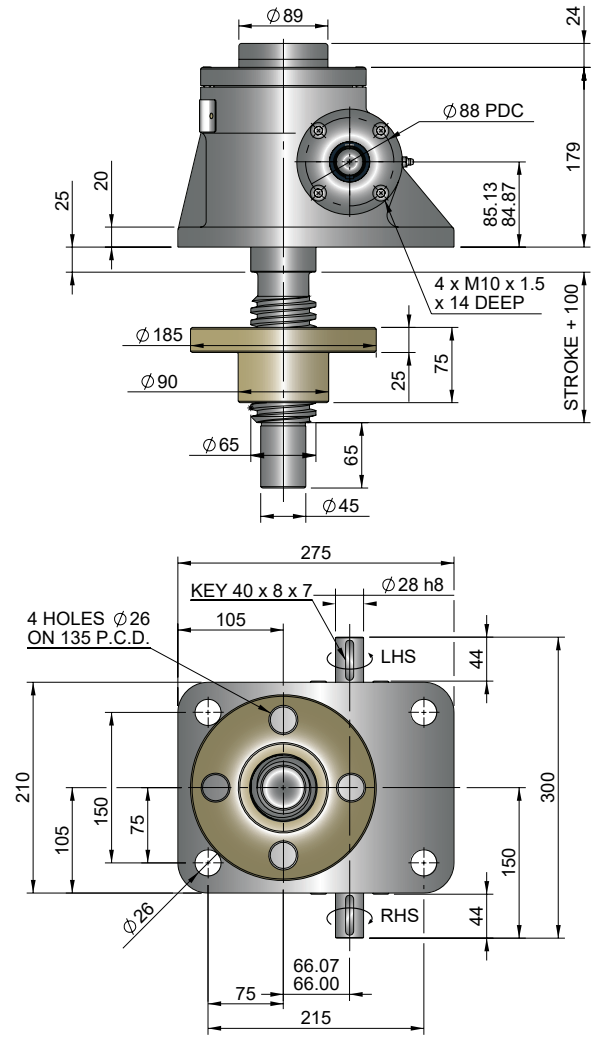
## Closed Height



#### Upright EMR0200-V00



#### Inverted EMR0200-J00

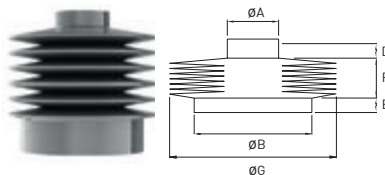


#### Closed Height & Bellows Boots

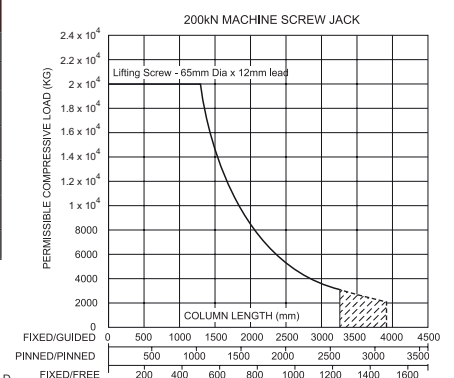
| Closed Height "C" | Threaded End               |          | Top Plate |          | Clevis End |          | Fork End |          | Rod End |          |
|-------------------|----------------------------|----------|-----------|----------|------------|----------|----------|----------|---------|----------|
|                   | Upright                    | Inverted | Upright   | Inverted | Upright    | Inverted | Upright  | Inverted | Upright | Inverted |
| EMT0200           | 265                        | 95       | 265       | 95       | 310        | 140      | 400      | 230      | 367     | 197      |
| Stroke (mm)       | EMT0200 with Bellows Boots |          |           |          |            |          |          |          |         |          |
| 1-300             | 265                        | 120      | 265       | 120      | 310        | 165      | 400      | 255      | 387     | 242      |
| 301-600           | 265                        | 145      | 265       | 145      | 310        | 190      | 400      | 280      | 387     | 267      |
| 601-1050          | 290                        | 145      | 290       | 145      | 335        | 190      | 425      | 280      | 412     | 267      |
| 1051-1500         | 315                        | 170      | 315       | 170      | 360        | 215      | 450      | 305      | 437     | 292      |

| Model   | A  | B   | D  | E  | G   |
|---------|----|-----|----|----|-----|
| EMT0200 | 75 | 165 | 20 | 20 | 165 |

| Stroke  | 1-300 | 301-600 | 601-1050 | 1051-1500 |
|---------|-------|---------|----------|-----------|
| EMT0200 | 20    | 30      | 50       | 70        |

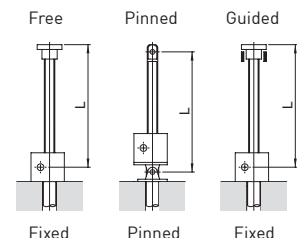


#### Column Strength

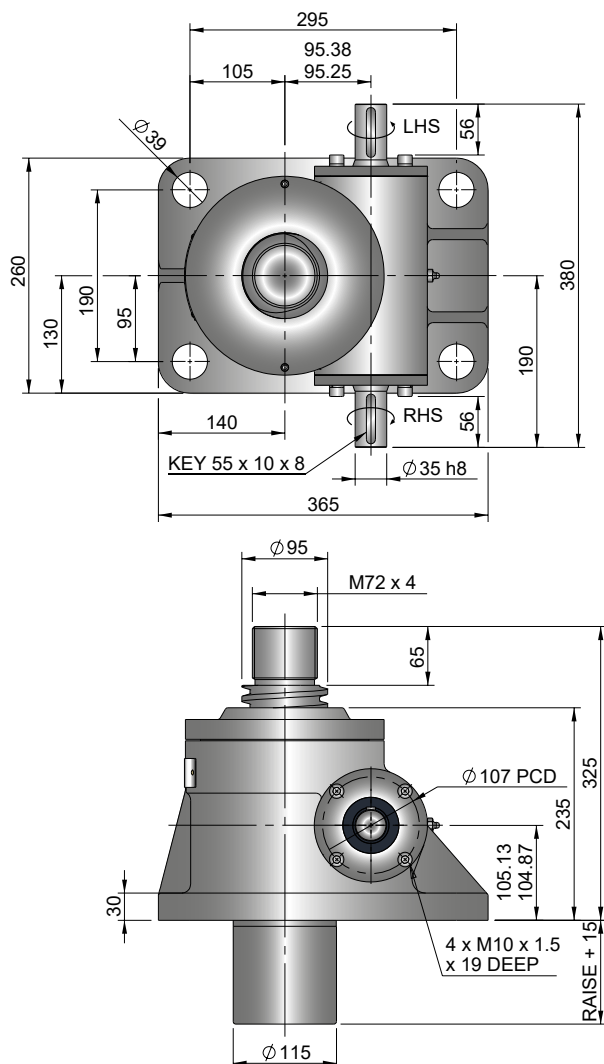


Note:

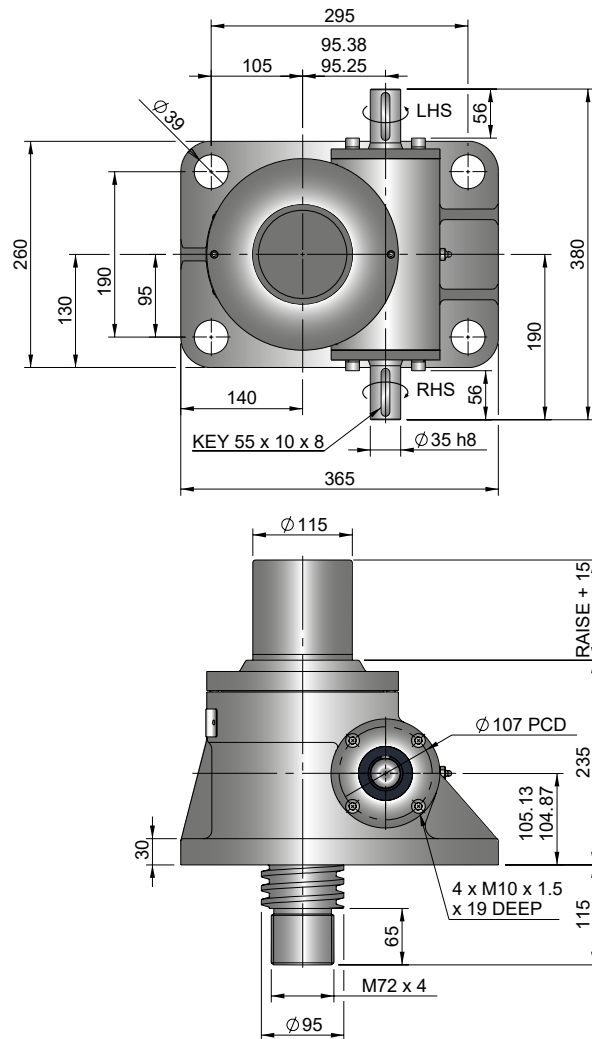
- 1 Inverted Screw Jacks - Bellows Boot Closed Height assumes screw jack mounted on a structure with thickness = 15mm
- 2 Inverted Screw Jacks - Recommended bellows boot mounting plate ØB x [E +5mm] thick.
- 3 Inverted Screw Jacks - Screw Jack mounting plate & bellows boot mounting plate are customers own supply
- 4 † Control tapes fitted (increase outer diameter by 20mm approximately).
- 5 For horizontal installations with than 450 mm of stroke, internal boot guides are recommended.
- 6 Customers with threaded end screw jacks must provide a fixing for the unattached bellows boot collar.
- 7 Bellows boots for Rotating Screw Jacks, other sizes, stroke and materials please consult Power Jacks.



Upright EMT0300-V00



Inverted EMT0300-J00



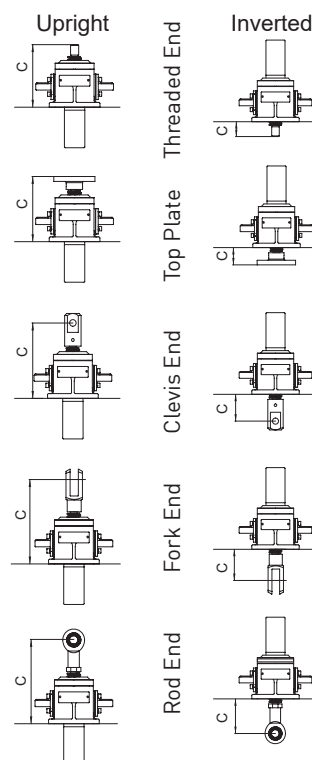
## Performance

| Model                    |                                               |             | EMT0300<br>EMR0300 |       |
|--------------------------|-----------------------------------------------|-------------|--------------------|-------|
| Capacity (kN)            |                                               |             | 300                |       |
| Sustaining Capacity (kN) | Standard 316 Lifting Screw                    | Tension     | 200                |       |
|                          |                                               | Compression | 300                |       |
|                          | Duplex Lifting Screw                          |             | 300                |       |
| Operating Capacity (kN)  | Standard 316 Worm Shaft                       |             | 100                |       |
|                          | Duplex or Plated Worm Shaft with 316 Screw    | Tension     | 200                |       |
|                          |                                               | Compression | 300                |       |
|                          | Duplex or Plated Worm Shaft with Duplex Screw |             | 300                |       |
| Lifting Screw            | Diameter (mm)                                 |             | 95                 |       |
|                          | Lead                                          | Option      | 1                  | 2     |
|                          |                                               | mm          | 16                 | 32    |
| Gear Ratio Option 1      | Gear Ratio                                    |             | 10 2/3:1           |       |
|                          | Screw Jack Static Efficiency                  |             | 0.149              | 0.232 |
|                          | Screw Jack Dynamic Efficiency                 |             | 0.205              | 0.308 |
| Gear Ratio Option 2      | Gear Ratio                                    |             | 32:1               |       |
|                          | Screw Jack Static Efficiency                  |             | 0.084              | 0.131 |
|                          | Screw Jack Dynamic Efficiency                 |             | 0.128              | 0.192 |

| Model                                    |              | EMT0300<br>EMR0300 |           |
|------------------------------------------|--------------|--------------------|-----------|
| Capacity                                 | kN           | 300                |           |
| Lifting Screw Lead (mm)                  |              | 16                 | 32        |
| Turn of worm for travel of lifting screw | Gear Ratio 1 | 1 Turn             | 1.5mm 3mm |
|                                          | Gear Ratio 2 | 4 Turn             | 2mm 4mm   |
| Maximum Through Torque (Nm)              |              | 1440               |           |
| Lifting Screw Restraining Torque (Nm)    |              | 2805               | 3610      |
| Worm Shaft Maximum Radial Load (N)       |              | 2170               |           |
| Maximum Input Speed (rpm)                |              | 1800               |           |
| Gear Case Material                       |              | Stainless Steel    |           |
| Weight (kg) - stroke = 150mm             |              | EMT                | 92.4      |
|                                          |              | EMR                | 113.78    |
| Weight (kg) - per extra 25mm stroke      |              | EMT                | 1.55      |
|                                          |              | EMR                | 1.13      |

Note: All dimension in millimetres unless otherwise stated.  
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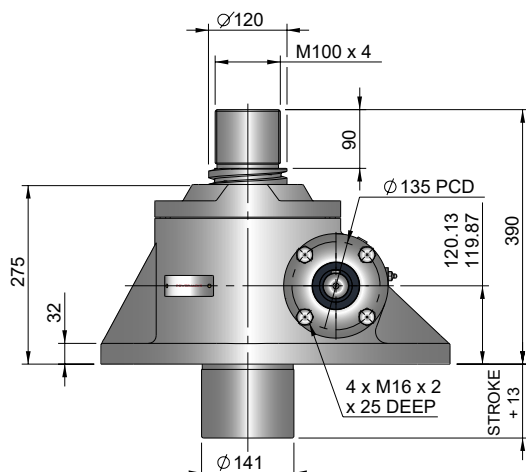
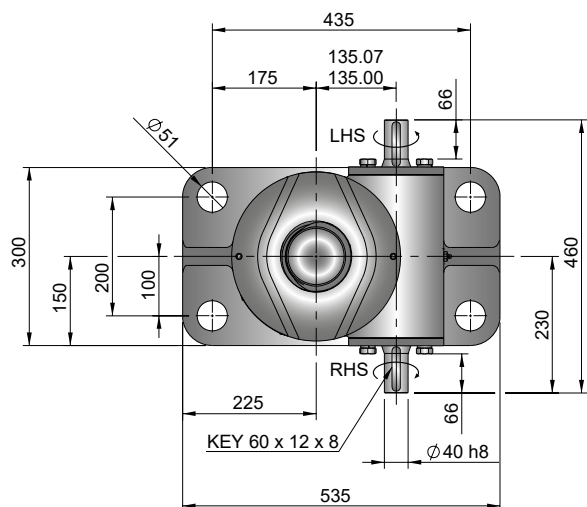
## Closed Height



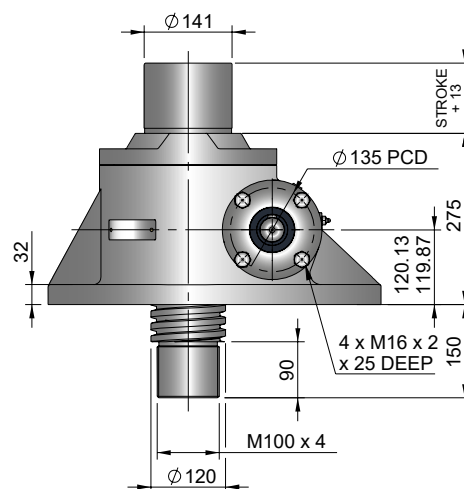
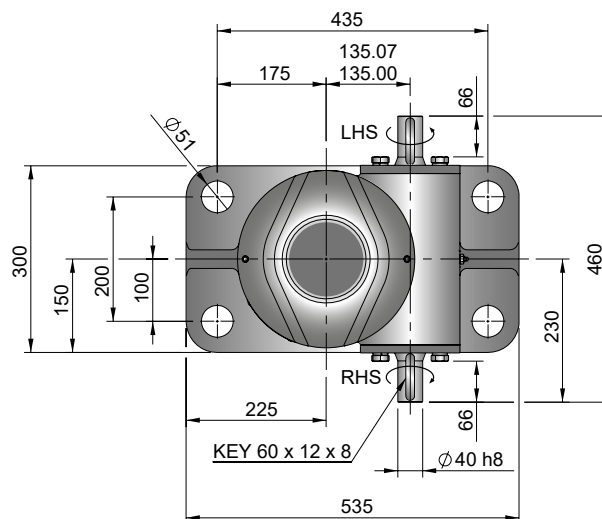




Upright EMT0500-V00



Inverted EMT0500-J00



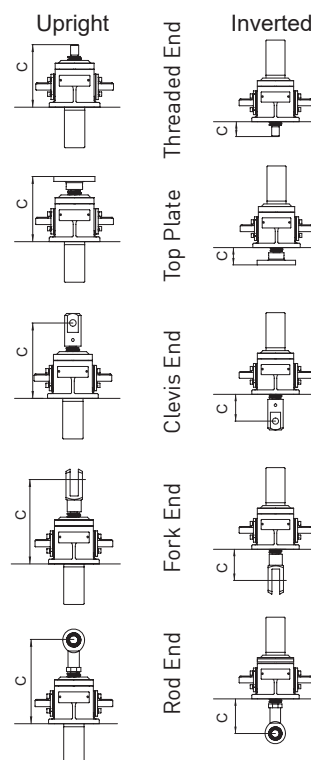
## Performance

| Model                    |                                               |             | EMT0500<br>EMR0500 |       |
|--------------------------|-----------------------------------------------|-------------|--------------------|-------|
| Capacity (kN)            |                                               |             | 500                |       |
| Sustaining Capacity (kN) | Standard 316 Lifting Screw                    | Tension     | 333                |       |
|                          |                                               | Compression | 500                |       |
|                          | Duplex Lifting Screw                          |             | 500                |       |
| Operating Capacity (kN)  | Standard 316 Worm Shaft                       |             | 167                |       |
|                          | Duplex or Plated Worm Shaft with 316 Screw    | Tension     | 333                |       |
|                          |                                               | Compression | 500                |       |
|                          | Duplex or Plated Worm Shaft with Duplex Screw |             | 500                |       |
| Lifting Screw            | Diameter (mm)                                 |             | 120                |       |
|                          | Lead                                          | Option      | 1                  | 2     |
|                          |                                               | mm          | 16                 | 32    |
| Gear Ratio Option 1      | Gear Ratio                                    |             | 10 2/3:1           |       |
|                          | Screw Jack Static Efficiency                  |             | 0.132              | 0.215 |
|                          | Screw Jack Dynamic Efficiency                 |             | 0.181              | 0.284 |
| Gear Ratio Option 2      | Gear Ratio                                    |             | 32:1               |       |
|                          | Screw Jack Static Efficiency                  |             | 0.079              | 0.129 |
|                          | Screw Jack Dynamic Efficiency                 |             | 0.120              | 0.188 |

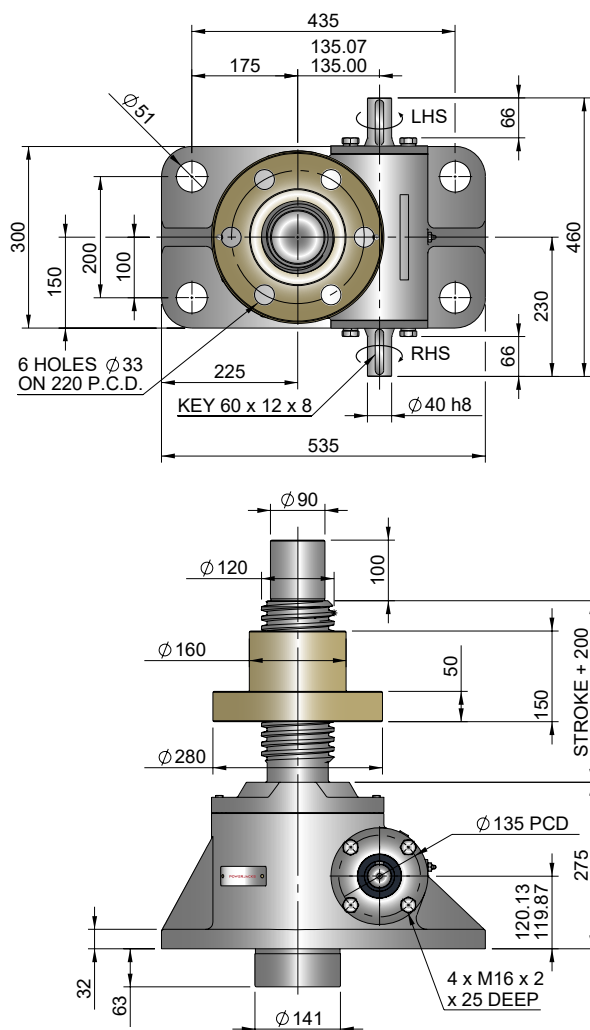
| Model                                    |              | EMT0500<br>EMR0500 |           |
|------------------------------------------|--------------|--------------------|-----------|
| Capacity                                 | kN           | 500                |           |
| Lifting Screw Lead (mm)                  |              | 16                 | 32        |
| Turn of worm for travel of lifting screw | Gear Ratio 1 | 1 Turn             | 1.5mm 3mm |
|                                          | Gear Ratio 2 | 4 Turn             | 2mm 4mm   |
| Maximum Through Torque (Nm)              |              | 2712               |           |
| Lifting Screw Restraining Torque (Nm)    |              | 5645               | 6975      |
| Worm Shaft Maximum Radial Load (N)       |              | 2190               |           |
| Maximum Input Speed (rpm)                |              | 1800               |           |
| Gear Case Material                       |              | Stainless Steel    |           |
| Weight (kg) - stroke = 150mm             |              | EMT                | 183.7     |
|                                          |              | EMR                | 224       |
| Weight (kg) - per extra 25mm stroke      |              | EMT                | 2.48      |
|                                          |              | EMR                | 1.94      |

Note: All dimension in millimetres unless otherwise stated.  
Designs subject to change without notice

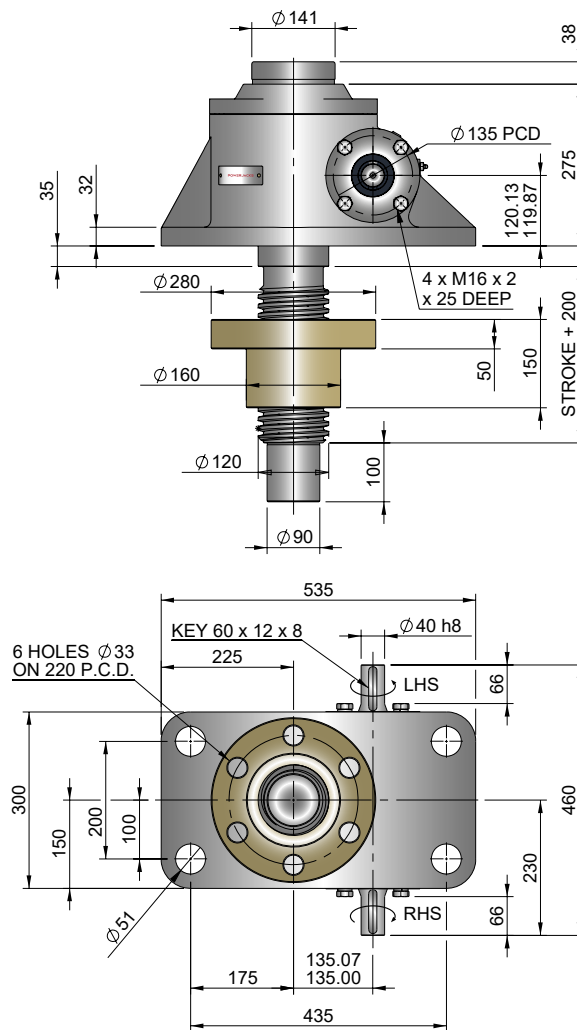
## Closed Height



#### Upright EMR0500-V00



#### Inverted EMR0500-J00



#### Closed Height & Bellows Boots

| Closed Height "C" | Threaded End               |          | Top Plate |          | Clevis End |          | Fork End   |          | Rod End    |          |
|-------------------|----------------------------|----------|-----------|----------|------------|----------|------------|----------|------------|----------|
|                   | Upright                    | Inverted | Upright   | Inverted | Upright    | Inverted | Upright    | Inverted | Upright    | Inverted |
| EMT0500           | 390                        | 150      | 390       | 150      | 440        | 200      | on request |          | on request |          |
| Stroke (mm)       | EMT0500 with Bellows Boots |          |           |          |            |          |            |          |            |          |
| 1-300             | 390                        | 175      | 390       | 175      | 440        | 225      | -          | -        | -          | -        |
| 301-600           | 415                        | 200      | 415       | 200      | 465        | 250      | -          | -        | -          | -        |
| 601-1050          | 440                        | 225      | 440       | 225      | 490        | 275      | -          | -        | -          | -        |
| 1051-1500         | 465                        | 250      | 465       | 250      | 515        | 300      | -          | -        | -          | -        |

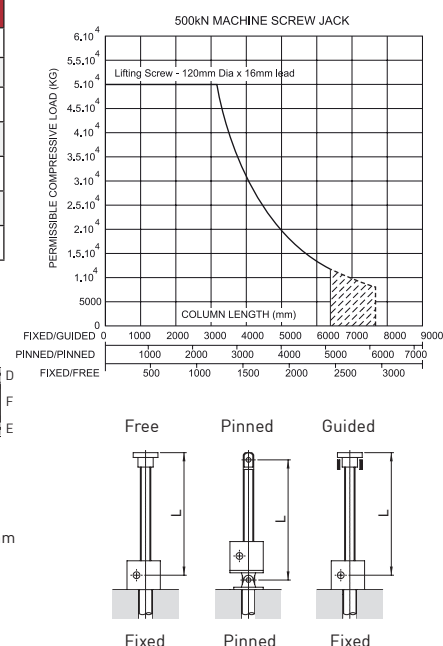
| Model   | A   | B   | D  | E  | G   |
|---------|-----|-----|----|----|-----|
| EMT0500 | 150 | 285 | 20 | 45 | 210 |

| Stroke  | 1-300 | 301-600 | 601-1050 | 1051-1500 |
|---------|-------|---------|----------|-----------|
| EMT0500 | 20    | 30      | 50       | 70        |

Note:

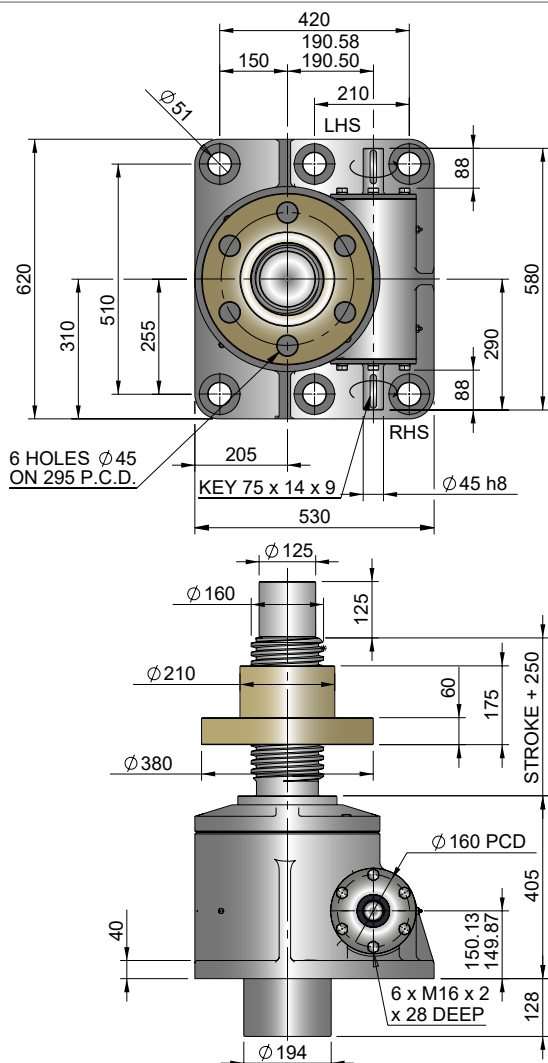
- 1 Inverted Screw Jacks - Bellows Boot Closed Height assumes screw jack mounted on a structure with thickness = 15mm
- 2 Inverted Screw Jacks - Recommended bellows boot mounting plate  $\varnothing B \times [E + 5mm]$  thick.
- 3 Inverted Screw Jacks - Screw Jack mounting plate & bellows boot mounting plate are customers own supply
- 4 † Control tapes fitted (increase outer diameter by 20mm approximately).
- 5 For horizontal installations with than 450 mm of stroke, internal boot guides are recommended.
- 6 Customers with threaded end screw jacks must provide a fixing for the unattached bellows boot collar.
- 7 Bellows boots for Rotating Screw Jacks, other sizes, stroke and materials please consult Power Jacks.

#### Column Strength

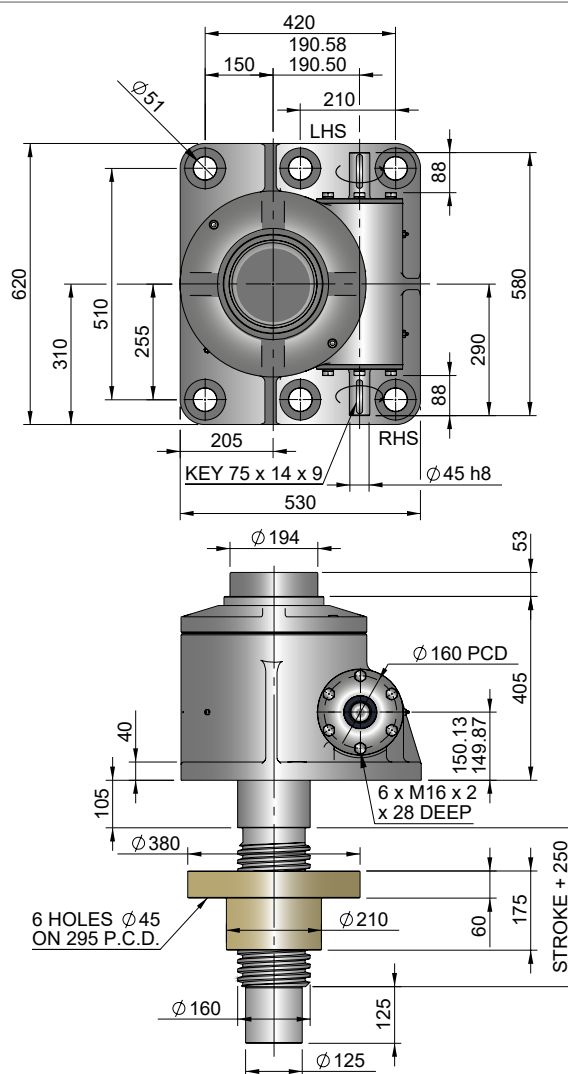




## Upright EMR1000-V00



## Inverted EMR1000-J00



## Closed Height & Bellows Boots

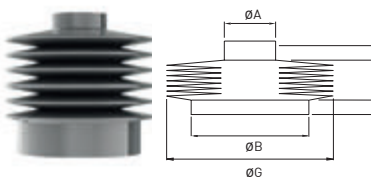
| Closed Height "C" | Threaded End               |          | Top Plate |          | Clevis End |          | Fork End   |          | Rod End    |          |
|-------------------|----------------------------|----------|-----------|----------|------------|----------|------------|----------|------------|----------|
|                   | Upright                    | Inverted | Upright   | Inverted | Upright    | Inverted | Upright    | Inverted | Upright    | Inverted |
| EMT1000           | 560                        | 260      | 560       | 260      | 625        | 325      | on request |          | on request |          |
| Stroke (mm)       | EMT1000 with Bellows Boots |          |           |          |            |          |            |          |            |          |
| 1-300             | 560                        | 260      | 560       | 260      | 625        | 325      | -          | -        | -          | -        |
| 301-600           | 560                        | 260      | 560       | 260      | 625        | 325      | -          | -        | -          | -        |
| 601-1050          | 585                        | 285      | 585       | 285      | 650        | 350      | -          | -        | -          | -        |
| 1051-1500         | 610                        | 310      | 610       | 310      | 675        | 375      | -          | -        | -          | -        |

| Model   | A   | B   | D  | E  | G   |
|---------|-----|-----|----|----|-----|
| EMT1000 | 200 | 220 | 20 | 20 | 244 |

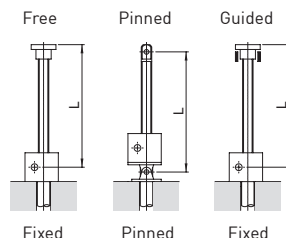
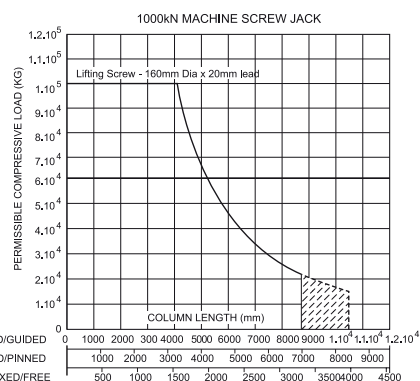
| Stroke  | 1-300 | 301-600 | 601-1050 | 1051-1500 |
|---------|-------|---------|----------|-----------|
| EMT1000 | 20    | 30      | 50       | 70        |

Note:

- 1 Inverted Screw Jacks - Bellows Boot Closed Height assumes screw jack mounted on a structure with thickness = 15mm
- 2 Inverted Screw Jacks - Recommended bellows boot mounting plate ØB x [E + 5mm] thick.
- 3 Inverted Screw Jacks - Screw Jack mounting plate & bellows boot mounting plate are customers own supply
- 4 † Control tapes fitted (increase outer diameter by 20mm approximately).
- 5 For horizontal installations with than 450 mm of stroke, internal boot guides are recommended.
- 6 Customers with threaded end screw jacks must provide a fixing for the unattached bellows boot collar.
- 7 Bellows boots for Rotating Screw Jacks, other sizes, stroke and materials please consult Power Jacks.

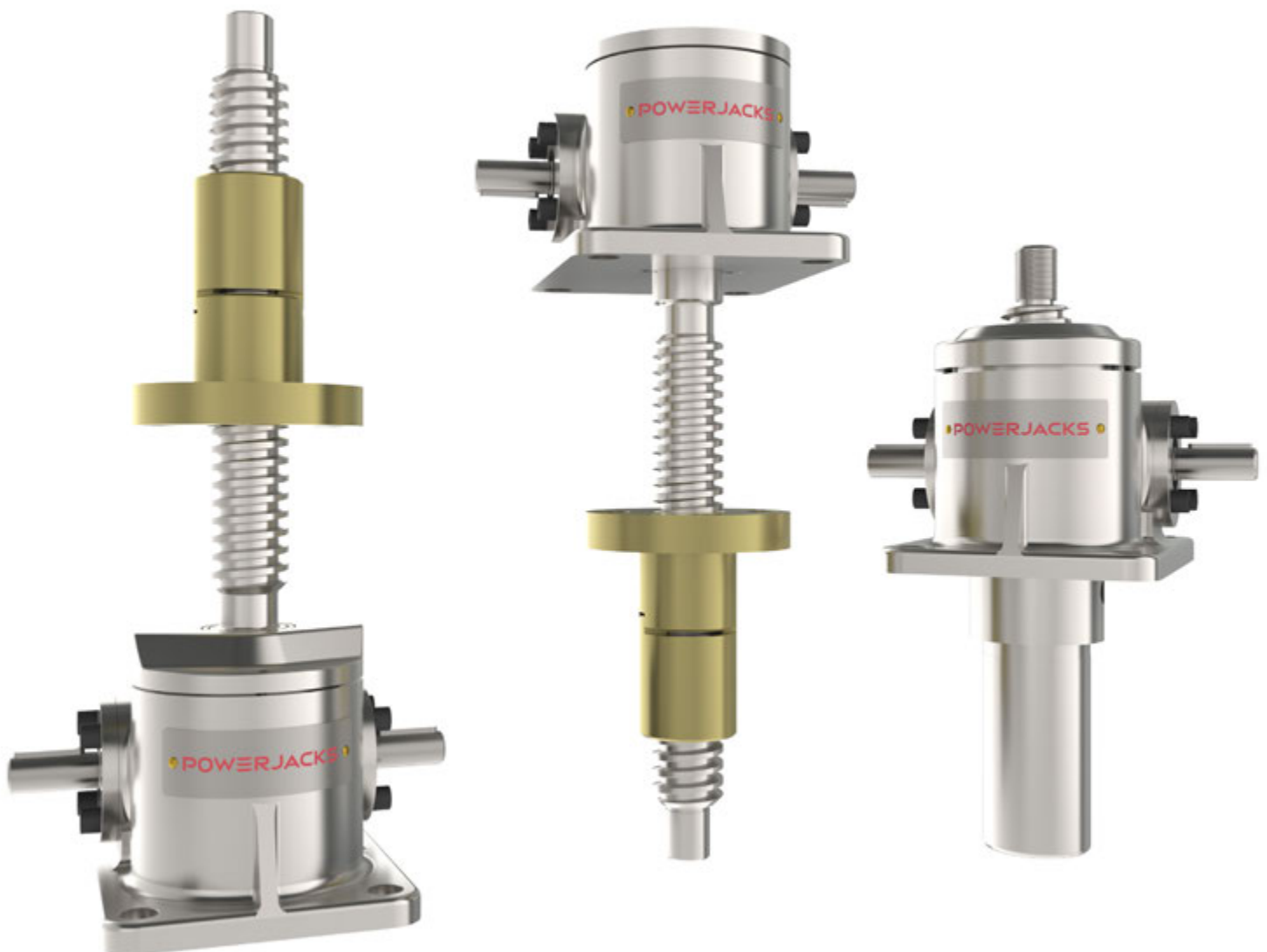


## Column Strength



## E-Series Stainless Steel Screw Jacks

PERFORMANCE  
ENHANCED VARIANTS  
TO SOLVE SPECIFIC  
APPLICATION  
REQUIREMENTS





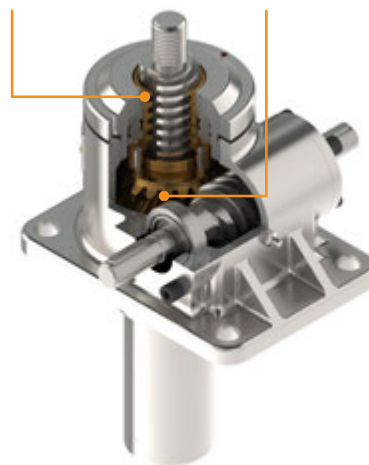
## Minimise Axial Backlash for Reversing Loads

The Anti-Backlash feature provides a reliable method to regulate the axial backlash in a screw jack for applications where there is a reversal of loading from tension to compression. The amount of backlash between the screw and worm gear nut can be adjusted (adjust shell cap) to a desired amount or a practical minimum. To avoid binding and excessive wear do not adjust backlash to less than 0.025mm.

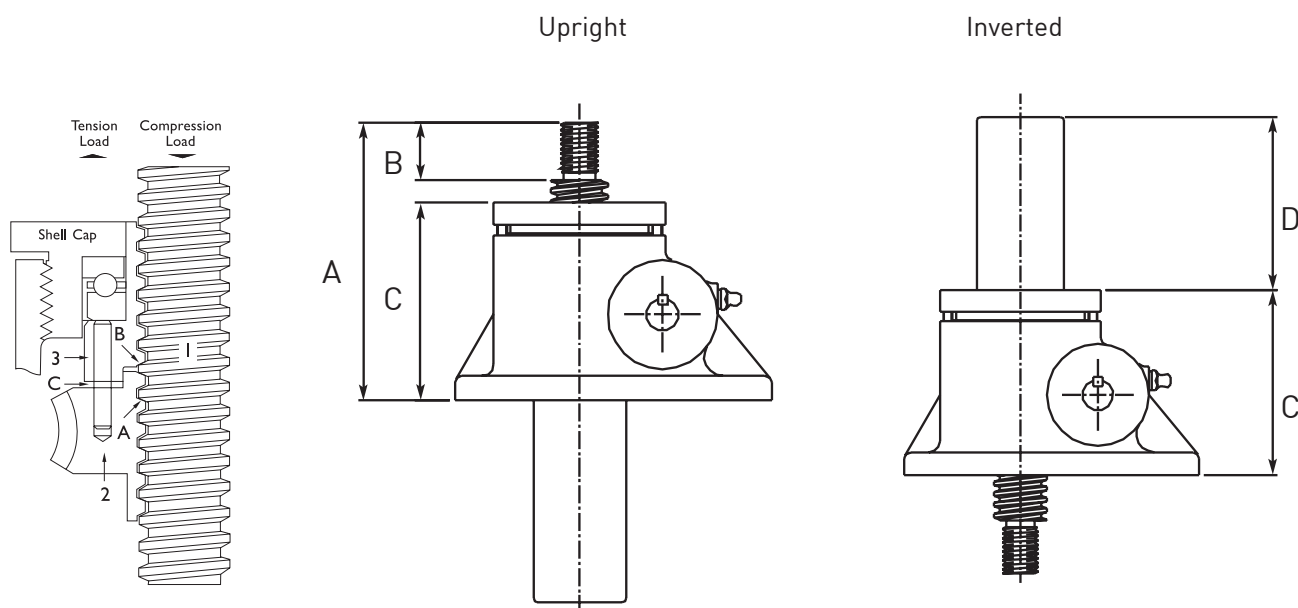
The Anti-Backlash feature also acts as a safety device, providing dual nut load carrying unit, when the worm gear becomes worn.

A visual wear indicator is available on request for all models and a "feeler" gauge can be used to measure the wear. This can be upgraded to use a sensor for wear monitoring. Consult Power Jacks for either option.

Anti-Backlash Nut Anti-Backlash Gear



## Dimensions



How it works -  
refer p193

The dimensions for these screw jacks are the same as the standard units except those detailed below.

| Model | EMT0010     | EMT0025     | EMT0050     | EMT0100    | EMT0200     | EMT0300     | EMT0500     | EMT1000    |
|-------|-------------|-------------|-------------|------------|-------------|-------------|-------------|------------|
| A     | 125         | 145         | 185         | 200        | 265         | 340         | 415         | 585        |
| B     | 24          | 30          | 35          | 40         | 55          | 65          | 90          | 125        |
| C     | 86          | 103.5       | 138         | 146.5      | 195         | 250         | 295         | 415        |
| D     | Stroke + 35 | Stroke + 30 | Stroke + 20 | Stroke + 3 | Stroke + 24 | Stroke + 38 | Stroke + 28 | Stroke + 3 |

## E-Series - Stainless Steel Screw Jacks - Anti-Backlash - Performance

| Model                                          |                               |             | EMT0010-V0A<br>EMT0010-J0A |       | EMT0025-V0A<br>EMT0025-J0A |       | EMT0050-V0A<br>EMT0050-J0A |       | EMT0100-V0A<br>EMT0100-J0A |       |
|------------------------------------------------|-------------------------------|-------------|----------------------------|-------|----------------------------|-------|----------------------------|-------|----------------------------|-------|
| Capacity                                       | kN                            |             | 10                         |       | 25                         |       | 50                         |       | 100                        |       |
| Sustaining Capacity (kN)                       | Tension                       |             | 6.6                        |       | 16.5                       |       | 33                         |       | 66                         |       |
|                                                | Compression                   |             | 10                         |       | 25                         |       | 50                         |       | 100                        |       |
| Operating Capacity (kN)                        | Stainless Steel Worm Shaft    |             | 3.3                        |       | 8.25                       |       | 16.5                       |       | 33                         |       |
|                                                | Plated Worm Shaft             | Tension     | 6.6                        |       | 16.5                       |       | 33                         |       | 66                         |       |
|                                                |                               | Compression | 10                         |       | 25                         |       | 50                         |       | 100                        |       |
| Lifting Screw <sup>1</sup>                     | mm                            |             | 20                         |       | 30                         |       | 40                         |       | 55                         |       |
|                                                | Lead                          | Option      | 1                          | 2     | 1                          | 2     | 1                          | 2     | 1                          | 2     |
|                                                |                               | mm          | 5                          | 10    | 6                          | 12    | 9                          | 18    | 12                         | 24    |
| Gear Ratios                                    | Option 1                      |             | 5:1                        |       | 6:1                        |       | 6:1                        |       | 8:1                        |       |
|                                                | Option 2                      |             | 20:1                       |       | 24:1                       |       | 24:1                       |       | 24:1                       |       |
| Max. Input Power (kW)                          | Gear Ratio Option 1           |             | 0.375                      |       | 1.5                        |       | 3.0                        |       | 3.75                       |       |
|                                                | Gear Ratio Option 2           |             | 0.19                       |       | 0.375                      |       | 0.55                       |       | 1.125                      |       |
| Start up torque at full load (Nm) <sup>2</sup> | Gear Ratio Option 1           |             | 7.8                        | 10.9  | 23.5                       | 31.3  | 62.3                       | 84.9  | 129.2                      | 147.8 |
|                                                | Gear Ratio Option 2           |             | 3.6                        | 5.1   | 9.8                        | 13.0  | 28.5                       | 38.8  | 66.8                       | 90.4  |
| Weight (kg) - stroke = 150mm                   |                               |             | 2.72                       |       | 8.62                       |       | 16.78                      |       | 26.12                      |       |
| Weight (kg) per extra 25mm                     |                               |             | 0.13                       |       | 0.21                       |       | 0.32                       |       | 0.57                       |       |
| Gear Ratio Option 1                            | Gear Ratio                    |             | 5:1                        |       | 6:1                        |       | 6:1                        |       | 8:1                        |       |
|                                                | Screw Jack Static Efficiency  |             | 0.203                      | 0.291 | 0.169                      | 0.254 | 0.192                      | 0.281 | 0.185                      | 0.273 |
|                                                | Screw Jack Dynamic Efficiency |             | 0.263                      | 0.365 | 0.222                      | 0.322 | 0.251                      | 0.356 | 0.243                      | 0.325 |
| Gear Ratio Option 2                            | Gear Ratio                    |             | 20:1                       |       | 24:1                       |       | 24:1                       |       | 24:1                       |       |
|                                                | Screw Jack Static Efficiency  |             | 0.109                      | 0.157 | 0.102                      | 0.153 | 0.105                      | 0.154 | 0.119                      | 0.176 |
|                                                | Screw Jack Dynamic Efficiency |             | 0.159                      | 0.220 | 0.150                      | 0.217 | 0.154                      | 0.218 | 0.172                      | 0.245 |

| Model                                          |                               |             | EMT0200-V0A<br>EMT0200-J0A |       | EMT0300-V0A<br>EMT0300-J0A |       | EMT0500-V0A<br>EMT0500-J0A |       | EMT1000-V0A<br>EMT1000-J0A |  |
|------------------------------------------------|-------------------------------|-------------|----------------------------|-------|----------------------------|-------|----------------------------|-------|----------------------------|--|
| Capacity                                       | kN                            |             | 200                        |       | 300                        |       | 500                        |       | 1000                       |  |
| Sustaining Capacity (kN)                       | Tension                       |             | 132                        |       | 200                        |       | 333                        |       | 666                        |  |
|                                                | Compression                   |             | 200                        |       | 300                        |       | 500                        |       | 1000                       |  |
| Operating Capacity (kN)                        | Stainless Steel Worm Shaft    |             | 3.3                        |       | 100                        |       | 167                        |       | 333                        |  |
|                                                | Plated Worm Shaft             | Tension     | 6.6                        |       | 200                        |       | 333                        |       | 666                        |  |
|                                                |                               | Compression | 10                         |       | 300                        |       | 500                        |       | 1000                       |  |
| Lifting Screw <sup>1</sup>                     | mm                            |             | 65                         |       | 95                         |       | 120                        |       | 160                        |  |
|                                                | Lead                          | Option      | 1                          | 2     | 1                          | 2     | 1                          | 2     | 1                          |  |
|                                                |                               | mm          | 12                         | 24    | 16                         | 32    | 16                         | 32    | 20                         |  |
| Gear Ratios                                    | Option 1                      |             | 8:1                        |       | 10 2/3:1                   |       | 10 2/3:1                   |       | 12:1                       |  |
|                                                | Option 2                      |             | 24:1                       |       | 32:1                       |       | 32:1                       |       | 36:1                       |  |
| Max. Input Power (kW)                          | Gear Ratio Option 1           |             | 3.75                       |       | 6.0                        |       | 11.25                      |       | 18.5                       |  |
|                                                | Gear Ratio Option 2           |             | 1.125                      |       | 1.9                        |       | 4.5                        |       | 8.25                       |  |
| Start up torque at full load (Nm) <sup>2</sup> | Gear Ratio Option 1           |             | 281.2                      | 368.5 | 534                        | 687   | 1000                       | 1236  | 2243                       |  |
|                                                | Gear Ratio Option 2           |             | 153.7                      | 201.4 | 315                        | 405   | 568                        | 702   | 1244                       |  |
| Weight (kg) - stroke = 150mm                   |                               |             | 49                         |       | 91                         |       | 209                        |       | 610                        |  |
| Weight (kg) per extra 25mm                     |                               |             | 0.86                       |       | 1.58                       |       | 2.49                       |       | 4.31                       |  |
| Gear Ratio Option 1                            | Gear Ratio                    |             | 8:1                        |       | 10 2/3:1                   |       | 10 2/3:1                   |       | 12:1                       |  |
|                                                | Screw Jack Static Efficiency  |             | 0.170                      | 0.259 | 0.134                      | 0.209 | 0.119                      | 0.193 | 0.118                      |  |
|                                                | Screw Jack Dynamic Efficiency |             | 0.226                      | 0.332 | 0.184                      | 0.277 | 0.163                      | 0.256 | 0.160                      |  |
| Gear Ratio Option 2                            | Gear Ratio                    |             | 24:1                       |       | 32:1                       |       | 32:1                       |       | 36:1                       |  |
|                                                | Screw Jack Static Efficiency  |             | 0.104                      | 0.158 | 0.076                      | 0.118 | 0.070                      | 0.113 | 0.071                      |  |
|                                                | Screw Jack Dynamic Efficiency |             | 0.151                      | 0.222 | 0.115                      | 0.173 | 0.105                      | 0.165 | 0.106                      |  |

## Note

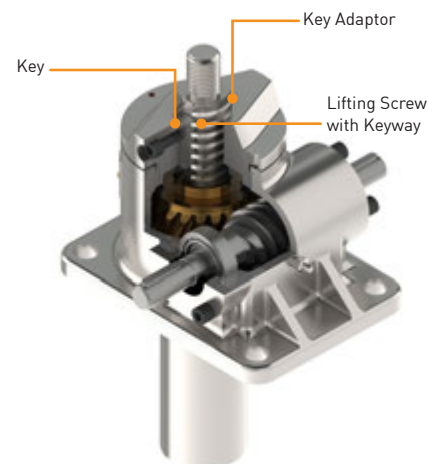
1. All metric machine screws have a trapezoidal thread form.
2. For loads of 25% to 100% of screw jack capacity, torque requirements are approximately proportional to the load.
3. Efficiency values for standard grease lubricated worm gear box and lifting screw.
4. All E-Series screw jacks have grease lubricated gearbox and lead screw as standard.

## Linear Movement for Rotationally Unconstrained Loads

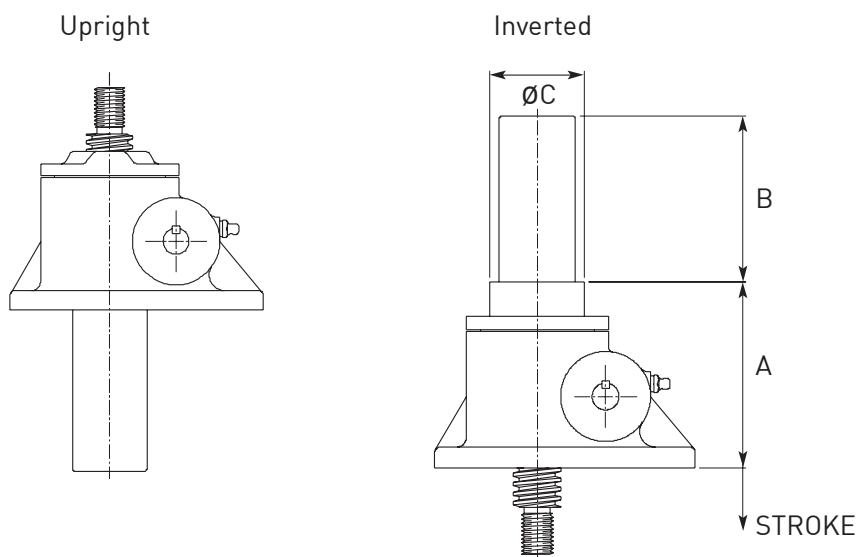
The Anti-Rotation feature for translating screw jacks stops the lifting screw from rotating without the need for end fixing. This is done by keying the lifting screw.

### Benefits:

- Compact unit integrates anti-rotation into gearbox
- Dimensions are the same as the standard translating screw jack
- Standard round cover pipe for easy installation
- Proven industrial anti-rotation design



## Dimensions



## Dimensions for Upright Models with Anti-Rotation (Keyed)

The Dimensions for upright E-Series machine screw jacks with anti-rotation (keyed) mechanism are the same as the standard screw jacks without the feature.

## Dimensions for Inverted Models with Anti-Rotation (Keyed)

The dimensions for these screw jacks are the same as the standard units except those detailed below.

| Model | EMT0010     | EMT0025     | EMT0050     | EMT0100    | EMT0200    | EMT0300     | EMT0500     | EMT1000    |
|-------|-------------|-------------|-------------|------------|------------|-------------|-------------|------------|
| A     | 78          | 125.5       | 159         | 167.5      | 210        | 267         | 307         | 445        |
| B     | Stroke + 35 | Stroke + 30 | Stroke + 20 | Stroke + 3 | Stroke - 1 | Stroke + 15 | Stroke + 13 | Stroke + 3 |
| ØC    | N/A         | 60          | 75          | 90         | 102        | 141.5       | 180         | 236        |

## E-Series - Stainless Steel Screw Jacks - Anti-Rotation (Keyed) - Performance

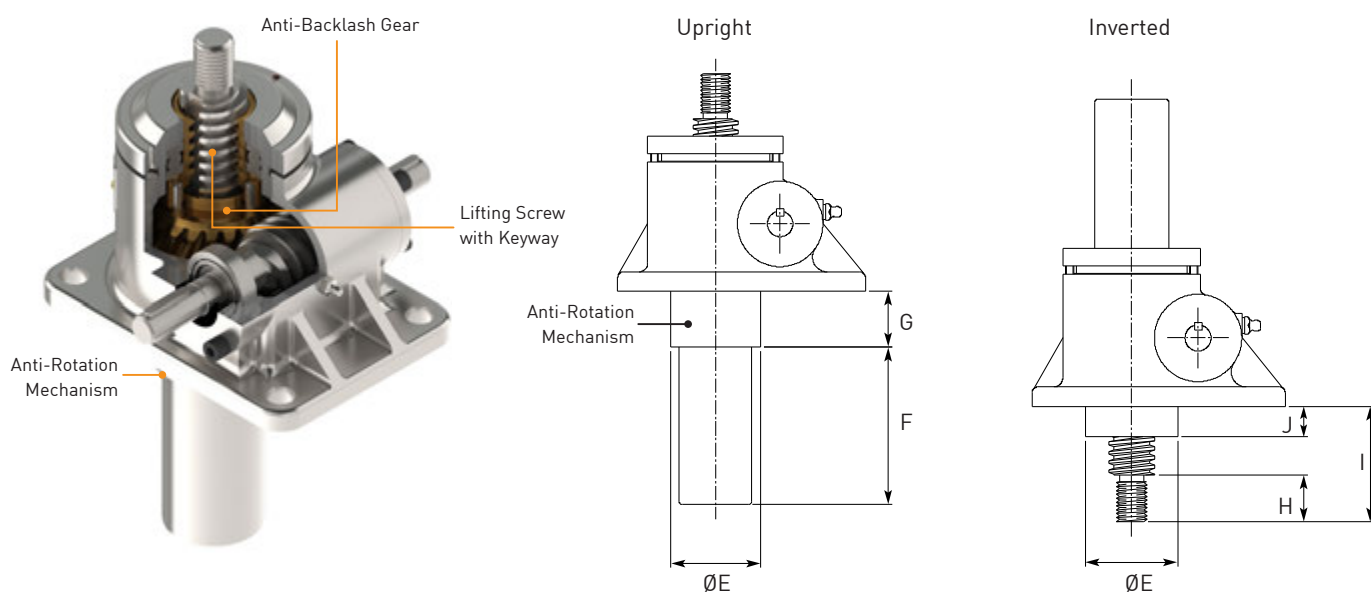
| Model                                          |                               | EMT0010-VK0<br>EMT0010-JK0 |       | EMT0025-VK0<br>EMT0025-JK0 |       | EMT0050-VK0<br>EMT0050-JK0 |       | EMT0100-VK0<br>EMT0100-JK0 |       |
|------------------------------------------------|-------------------------------|----------------------------|-------|----------------------------|-------|----------------------------|-------|----------------------------|-------|
| Capacity                                       | kN                            | 10                         |       | 25                         |       | 50                         |       | 100                        |       |
| Sustaining Capacity (kN)                       | Tension                       | 6.6                        |       | 16.5                       |       | 33                         |       | 66                         |       |
|                                                | Compression                   | 10                         |       | 25                         |       | 50                         |       | 100                        |       |
| Operating Capacity (kN)                        | Stainless Steel Worm Shaft    |                            | 3.3   | 8.25                       |       | 16.5                       |       | 33                         |       |
|                                                | Plated Worm Shaft             | Tension                    |       | 6.6                        |       | 16.5                       |       | 33                         |       |
|                                                |                               | Compression                |       | 10                         |       | 25                         |       | 50                         |       |
| Lifting Screw <sup>1</sup>                     | mm                            |                            | 20    | 30                         |       | 40                         |       | 55                         |       |
|                                                | Lead                          | Option                     |       | 1                          | 2     | 1                          | 2     | 1                          | 2     |
|                                                |                               | mm                         |       | 5                          | 10    | 6                          | 12    | 9                          | 18    |
| Gear Ratios                                    | Option 1                      |                            | 5:1   | 6:1                        |       | 6:1                        |       | 8:1                        |       |
|                                                | Option 2                      |                            | 20:1  | 24:1                       |       | 24:1                       |       | 24:1                       |       |
| Max. Input Power (kW)                          | Gear Ratio Option 1           |                            | 0.375 | 1.5                        |       | 3.0                        |       | 3.75                       |       |
|                                                | Gear Ratio Option 2           |                            | 0.19  | 0.375                      |       | 0.55                       |       | 1.125                      |       |
| Start up torque at full load (Nm) <sup>2</sup> | Gear Ratio Option 1           |                            | 7.1   | 9.9                        | 20.8  | 27.7                       | 58.7  | 80                         | 121.7 |
|                                                | Gear Ratio Option 2           |                            | 3.1   | 4.4                        | 9.2   | 12.2                       | 26.8  | 36.6                       | 63.6  |
| Weight (kg) - stroke = 150mm                   |                               | 2.27                       |       | 8.17                       |       | 15.88                      |       | 24.72                      |       |
| Weight (kg) per extra 25mm                     |                               | 0.13                       |       | 0.21                       |       | 0.32                       |       | 0.57                       |       |
| Gear Ratio Option 1                            | Gear Ratio                    |                            | 5:1   | 6:1                        |       | 6:1                        |       | 8:1                        |       |
|                                                | Screw Jack Static Efficiency  |                            | 0.224 | 0.322                      | 0.191 | 0.287                      | 0.203 | 0.299                      | 0.196 |
|                                                | Screw Jack Dynamic Efficiency |                            | 0.291 | 0.403                      | 0.251 | 0.364                      | 0.267 | 0.378                      | 0.258 |
| Gear Ratio Option 2                            | Gear Ratio                    |                            | 20:1  | 24:1                       |       | 24:1                       |       | 24:1                       |       |
|                                                | Screw Jack Static Efficiency  |                            | 0.127 | 0.182                      | 0.108 | 0.162                      | 0.111 | 0.163                      | 0.125 |
|                                                | Screw Jack Dynamic Efficiency |                            | 0.184 | 0.255                      | 0.159 | 0.230                      | 0.164 | 0.232                      | 0.180 |

| Model                                          |                               | EMT0200-VK0<br>EMT0200-JK0 |       | EMT0300-VK0<br>EMT0300-JK0 |       | EMT0500-VK0<br>EMT0500-JK0 |       | EMT1000-VK0<br>EMT1000-JK0 |       |
|------------------------------------------------|-------------------------------|----------------------------|-------|----------------------------|-------|----------------------------|-------|----------------------------|-------|
| Capacity                                       | kN                            | 200                        |       | 300                        |       | 500                        |       | 1000                       |       |
| Sustaining Capacity (kN)                       | Tension                       | 200                        |       | 300                        |       | 500                        |       | 1000                       |       |
|                                                | Compression                   | 132                        |       | 200                        |       | 333                        |       | 666                        |       |
| Operating Capacity (kN)                        | Stainless Steel Worm Shaft    |                            | 200   | 300                        |       | 500                        |       | 1000                       |       |
|                                                | Plated Worm Shaft             | Tension                    |       | 3.3                        |       | 100                        |       | 167                        |       |
|                                                |                               | Compression                |       | 6.6                        |       | 200                        |       | 333                        |       |
| Lifting Screw <sup>1</sup>                     | mm                            |                            | 10    | 300                        |       | 500                        |       | 1000                       |       |
|                                                | Lead                          | Option                     |       | 65                         |       | 95                         |       | 120                        |       |
|                                                |                               | mm                         |       | 12                         | 24    | 16                         | 32    | 16                         | 32    |
| Gear Ratios                                    | Option 1                      |                            | 8:1   | 10 2/3:1                   |       | 10 2/3:1                   |       | 12:1                       |       |
|                                                | Option 2                      |                            | 24:1  | 32:1                       |       | 32:1                       |       | 36:1                       |       |
| Max. Input Power (kW)                          | Gear Ratio Option 1           |                            | 3.75  | 6.0                        |       | 11.25                      |       | 18.5                       |       |
|                                                | Gear Ratio Option 2           |                            | 1.125 | 1.9                        |       | 4.5                        |       | 8.25                       |       |
| Start up torque at full load (Nm) <sup>2</sup> | Gear Ratio Option 1           |                            | 275.3 | 360.7                      | 506   | 651                        | 947   | 1170                       | 2125  |
|                                                | Gear Ratio Option 2           |                            | 144   | 188.7                      | 298   | 384                        | 526   | 650                        | 1126  |
| Weight (kg) - stroke = 150mm                   |                               | 45                         |       | 86                         |       | 195                        |       | 553                        |       |
| Weight (kg) per extra 25mm                     |                               | 0.86                       |       | 1.58                       |       | 2.49                       |       | 4.31                       |       |
| Gear Ratio Option 1                            | Gear Ratio                    |                            | 8:1   | 10 2/3:1                   |       | 10 2/3:1                   |       | 12:1                       |       |
|                                                | Screw Jack Static Efficiency  |                            | 0.173 | 0.265                      | 0.142 | 0.220                      | 0.126 | 0.204                      | 0.125 |
|                                                | Screw Jack Dynamic Efficiency |                            | 0.230 | 0.34                       | 0.195 | 0.292                      | 0.172 | 0.270                      | 0.169 |
| Gear Ratio Option 2                            | Gear Ratio                    |                            | 24:1  | 32:1                       |       | 32:1                       |       | 36:1                       |       |
|                                                | Screw Jack Static Efficiency  |                            | 0.111 | 0.169                      | 0.080 | 0.124                      | 0.076 | 0.122                      | 0.079 |
|                                                | Screw Jack Dynamic Efficiency |                            | 0.161 | 0.237                      | 0.121 | 0.182                      | 0.144 | 0.178                      | 0.117 |

## Note

1. All metric machine screws have a trapezoidal thread form.
2. For loads of 25% to 100% of screw jack capacity, torque requirements are approximately proportional to the load.
3. Efficiency values for standard grease lubricated worm gear box and lifting screw.
4. All E-Series screw jacks have grease lubricated gearbox and lead screw as standard.

## Combine Anti-Backlash &amp; Anti-Rotation in One Screw Jack



## Dimensions for E-Series Stainless Steel Screw Jacks with Anti-Backlash &amp; Anti-Rotation

| Model           | EMT0010-VKA<br>EMT0010-JKA | EMT0025-VKA<br>EMT0025-JKA | EMT0050-VKA<br>EMT0050-JKA | EMT0100-VKA<br>EMT0100-JKA | EMT0200-VKA<br>EMT0200-JKA | EMT0300-VKA<br>EMT0300-JKA | EMT0500-VKA<br>EMT0500-JKA | EMT1000-VKA<br>EMT1000-JKA |
|-----------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| $\varnothing E$ | 38                         | 60                         | 75                         | 90                         | 102                        | 138                        | 206                        | 264                        |
| F               | Stroke + 9                 | Stroke + 30                | Stroke + 20                | Stroke + 3                 | Stroke + 24                | Stroke + 15                | Stroke + 13                | Stroke + 28                |
| G               | 30                         | 37                         | 40                         | 37                         | 58                         | 73                         | 58                         | 180                        |
| H               | 24                         | 30                         | 35                         | 30                         | 55                         | 65                         | 55                         | 125                        |
| I               | 45                         | 55                         | 65                         | 55                         | 110                        | 115                        | 110                        | 405                        |
| J               | 16                         | 19.5                       | 24                         | 19.5                       | 39                         | 43                         | 39                         | 145                        |

The dimensions for these screw jacks are the same as the Anti-Backlash units except those detailed above.

## E-Series - Stainless Steel Screw Jacks - Anti-Backlash &amp; Anti-Rotation (Keyed) - Performance

| Model                              |                               |             | EMT0010-VKA<br>EMT0010-JKA |       | EMT0025-VKA<br>EMT0025-JKA |       | EMT0050-VKA<br>EMT0050-JKA |       | EMT0100-VKA<br>EMT0100-JKA |       |
|------------------------------------|-------------------------------|-------------|----------------------------|-------|----------------------------|-------|----------------------------|-------|----------------------------|-------|
| Capacity                           | kN                            |             | 10                         |       | 25                         |       | 50                         |       | 100                        |       |
| Sustaining Capacity (kN)           | Tension                       |             | 6.6                        |       | 16.5                       |       | 33                         |       | 66                         |       |
|                                    | Compression                   |             | 10                         |       | 25                         |       | 50                         |       | 100                        |       |
| Operating Capacity (kN)            | Stainless Steel Worm Shaft    |             | 3.3                        |       | 8.25                       |       | 16.5                       |       | 33                         |       |
|                                    | Plated Worm Shaft             | Tension     | 6.6                        |       | 16.5                       |       | 33                         |       | 66                         |       |
|                                    |                               | Compression | 10                         |       | 25                         |       | 50                         |       | 100                        |       |
| Lifting Screw¹                     | mm                            |             | 20                         |       | 30                         |       | 40                         |       | 55                         |       |
|                                    | Lead                          | Option      | 1                          | 2     | 1                          | 2     | 1                          | 2     | 1                          | 2     |
|                                    |                               | mm          | 5                          | 10    | 6                          | 12    | 9                          | 18    | 12                         | 24    |
| Gear Ratios                        | Option 1                      |             | 5:1                        |       | 6:1                        |       | 6:1                        |       | 8:1                        |       |
|                                    | Option 2                      |             | 20:1                       |       | 24:1                       |       | 24:1                       |       | 24:1                       |       |
| Max. Input Power (kW)              | Gear Ratio Option 1           |             | 0.375                      |       | 1.5                        |       | 3.0                        |       | 3.75                       |       |
|                                    | Gear Ratio Option 2           |             | 0.19                       |       | 0.375                      |       | 0.55                       |       | 1.125                      |       |
| Start up torque at full load (Nm)² | Gear Ratio Option 1           |             | 8.3                        | 11.5  | 24.8                       | 33    | 65.6                       | 89.3  | 136                        | 184   |
|                                    | Gear Ratio Option 2           |             | 3.8                        | 5.3   | 10.3                       | 13.7  | 30                         | 40.9  | 70.3                       | 958.2 |
| Weight (kg) - stroke = 150mm       |                               |             | 2.72                       |       | 8.62                       |       | 16.78                      |       | 26.12                      |       |
| Weight (kg) per extra 25mm         |                               |             | 0.13                       |       | 0.21                       |       | 0.32                       |       | 0.57                       |       |
| Gear Ratio Option 1                | Gear Ratio                    |             | 5:1                        |       | 6:1                        |       | 6:1                        |       | 8:1                        |       |
|                                    | Screw Jack Static Efficiency  |             | 0.193                      | 0.277 | 0.161                      | 0.241 | 0.182                      | 0.267 | 0.176                      | 0.259 |
|                                    | Screw Jack Dynamic Efficiency |             | 0.250                      | 0.346 | 0.211                      | 0.306 | 0.239                      | 0.338 | 0.231                      | 0.330 |
| Gear Ratio Option 2                | Gear Ratio                    |             | 20:1                       |       | 24:1                       |       | 24:1                       |       | 24:1                       |       |
|                                    | Screw Jack Static Efficiency  |             | 0.104                      | 0.149 | 0.097                      | 0.145 | 0.100                      | 0.146 | 0.113                      | 0.167 |
|                                    | Screw Jack Dynamic Efficiency |             | 0.151                      | 0.209 | 0.142                      | 0.206 | 0.146                      | 0.208 | 0.163                      | 0.233 |

| Model                                          |                               |             | EMT0200-VKA<br>EMT0200-JKA |       | EMT0300-VKA<br>EMT0300-JKA |       | EMT0500-VKA<br>EMT0500-JKA |       | EMT1000-VKA<br>EMT1000-JKA |  |
|------------------------------------------------|-------------------------------|-------------|----------------------------|-------|----------------------------|-------|----------------------------|-------|----------------------------|--|
| Capacity                                       | kN                            |             | 200                        |       | 300                        |       | 500                        |       | 1000                       |  |
| Sustaining Capacity (kN)                       | Tension                       |             | 132                        |       | 200                        |       | 333                        |       | 666                        |  |
|                                                | Compression                   |             | 200                        |       | 300                        |       | 500                        |       | 1000                       |  |
| Operating Capacity (kN)                        | Stainless Steel Worm Shaft    |             | 66                         |       | 100                        |       | 167                        |       | 333                        |  |
|                                                | Plated Worm Shaft             | Tension     | 132                        |       | 200                        |       | 333                        |       | 666                        |  |
|                                                |                               | Compression | 200                        |       | 300                        |       | 500                        |       | 333                        |  |
| Lifting Screw <sup>1</sup>                     | mm                            |             | 65                         |       | 95                         |       | 120                        |       | 160                        |  |
|                                                | Lead                          | Option      | 1                          | 2     | 1                          | 2     | 1                          | 2     | 1                          |  |
|                                                |                               | mm          | 12                         | 24    | 16                         | 32    | 16                         | 32    | 20                         |  |
| Gear Ratios                                    | Option 1                      |             | 8:1                        |       | 10 2/3:1                   |       | 10 2/3:1                   |       | 12:1                       |  |
|                                                | Option 2                      |             | 24:1                       |       | 32:1                       |       | 32:1                       |       | 36:1                       |  |
| Max. Input Power (kW)                          | Gear Ratio Option 1           |             | 3.75                       |       | 6.0                        |       | 11.25                      |       | 18.5                       |  |
|                                                | Gear Ratio Option 2           |             | 1.125                      |       | 1.9                        |       | 4.5                        |       | 8.25                       |  |
| Start up torque at full load (Nm) <sup>2</sup> | Gear Ratio Option 1           |             | 296                        | 387.9 | 562                        | 723   | 1052                       | 1301  | 2361                       |  |
|                                                | Gear Ratio Option 2           |             | 161.8                      | 387.9 | 331                        | 426   | 598                        | 739   | 1309                       |  |
| Weight (kg) - stroke = 150mm                   |                               |             | 49                         |       | 91                         |       | 209                        |       | 610                        |  |
| Weight (kg) per extra 25mm                     |                               |             | 0.86                       |       | 1.58                       |       | 2.49                       |       | 4.31                       |  |
| Gear Ratio Option 1                            | Gear Ratio                    |             | 8:1                        |       | 10 2/3:1                   |       | 10 2/3:1                   |       | 12:1                       |  |
|                                                | Screw Jack Static Efficiency  |             | 0.161                      | 0.246 | 0.128                      | 0.198 | 0.113                      | 0.184 | 0.112                      |  |
|                                                | Screw Jack Dynamic Efficiency |             | 0.214                      | 0.316 | 0.175                      | 0.263 | 0.155                      | 0.243 | 0.152                      |  |
| Gear Ratio Option 2                            | Gear Ratio                    |             | 24:1                       |       | 32:1                       |       | 32:1                       |       | 36:1                       |  |
|                                                | Screw Jack Static Efficiency  |             | 0.098                      | 0.150 | 0.072                      | 0.112 | 0.067                      | 0.108 | 0.068                      |  |
|                                                | Screw Jack Dynamic Efficiency |             | 0.143                      | 0.211 | 0.109                      | 0.164 | 0.100                      | 0.157 | 0.100                      |  |

## Note

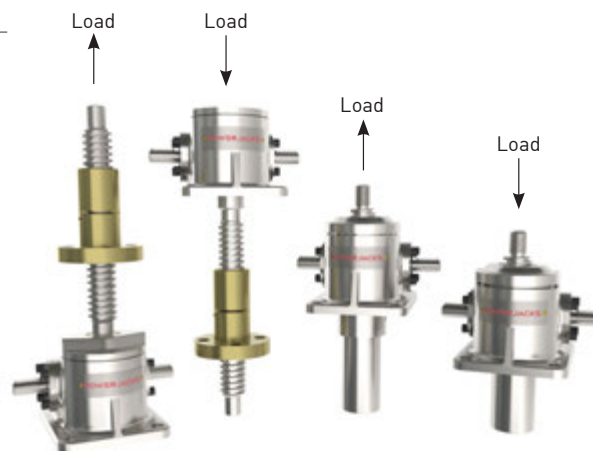
1. All metric machine screws have a trapezoidal thread form.
2. For loads of 25% to 100% of screw jack capacity, torque requirements are approximately proportional to the load.
3. Efficiency values for standard grease lubricated worm gear box and lifting screw.
4. All E-Series screw jacks have grease lubricated gearbox and lead screw as standard.

## Extra Safety for Critical Applications

Power Jacks metric machine screw jacks can be fitted with a safety nut, which provides 2 safety roles:

1. In the event of excessive wear on the nut thread the load will be transferred from the standard nut to the safety nut. This will also provide visual wear indication as the gap between the safety nut decreases to zero as the standard lifting nut wears.
2. In the unlikely event of catastrophic nut thread failure the safety nut will sustain the load. The safety of industrial and human cargo is therefore improved.

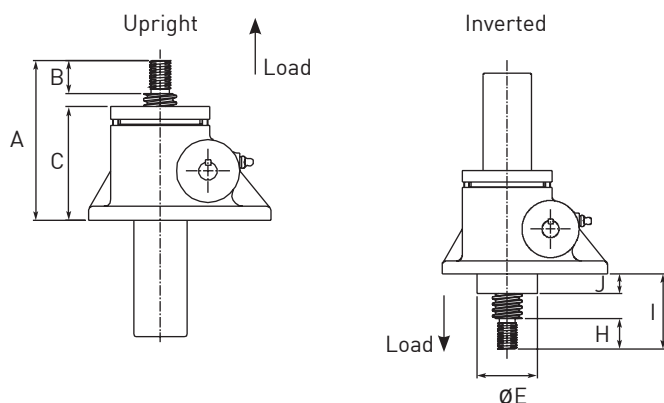
There are several configurations for each safety nut device as they only work in one load direction. For this reason when ordering please supply a sketch of your application showing load directions.



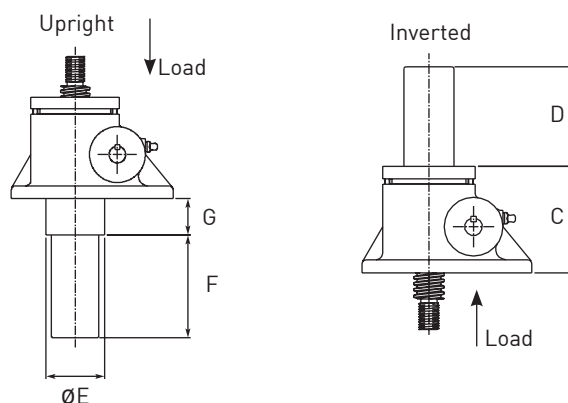
**All Safety Nuts are BS EN 1570 Compliant**

## Translating Screw Jacks with Safety Nuts

### Tension Safety Nut



### Compression Safety Nut

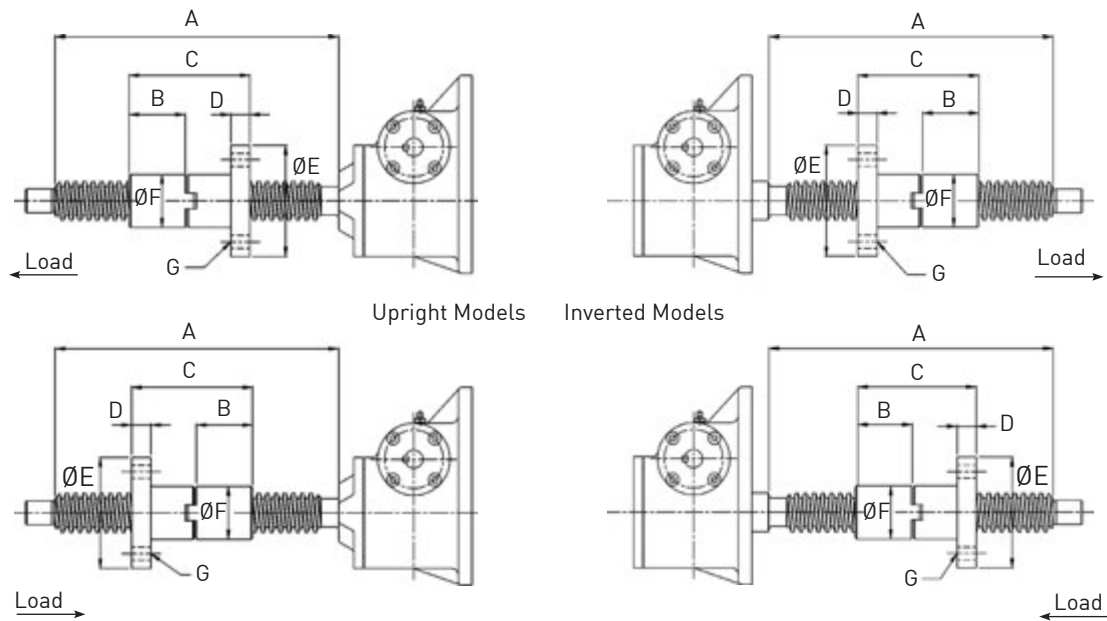


## Dimensions - Translating Screw

| Model   | Rating (kN) | A   | B  | C   | D           | ØE  | F           | G  | H  | I   | J  |
|---------|-------------|-----|----|-----|-------------|-----|-------------|----|----|-----|----|
| EMT0010 | 10          | 125 | 24 | 86  | Stroke + 35 | 38  | Stroke + 9  | 30 | 24 | 45  | 16 |
| EMT0025 | 25          | 145 | 30 | 104 | Stroke + 30 | 60  | Stroke + 30 | 37 | 30 | 55  | 20 |
| EMT0050 | 50          | 185 | 35 | 138 | Stroke + 20 | 75  | Stroke + 20 | 40 | 35 | 65  | 24 |
| EMT0100 | 100         | 200 | 40 | 146 | Stroke + 3  | 90  | Stroke + 28 | 48 | 40 | 80  | 30 |
| EMT0200 | 200         | 265 | 55 | 195 | Stroke + 24 | 102 | Stroke + 24 | 58 | 55 | 110 | 39 |

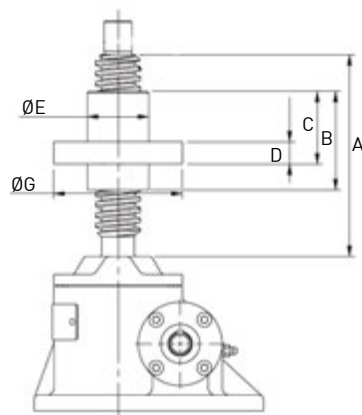


## Rotating Screw Jacks with Safety Nuts



## Dimensions - Rotating Screw

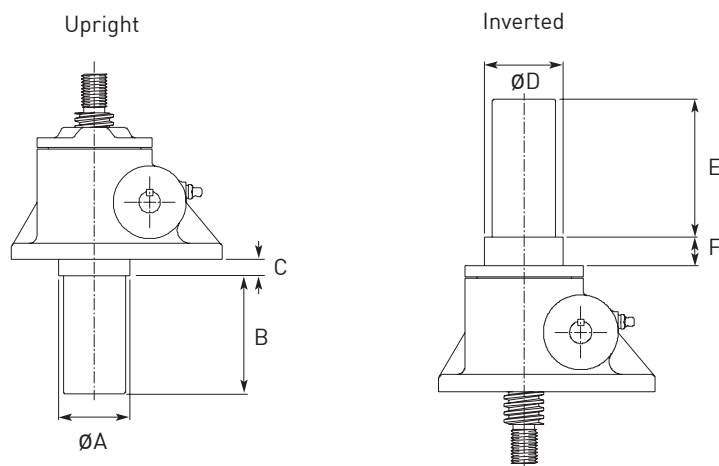
| Model   | Rating (kN) | A            | B    | C    | D  | ØE  | ØF  | G                  |
|---------|-------------|--------------|------|------|----|-----|-----|--------------------|
| EMR0010 | 10          | Stroke + 76  | 30   | 66.5 | 12 | 80  | 35  | 4 x Ø11, Ø57 PCD   |
| EMR0025 | 25          | Stroke + 95  | 33.5 | 75   | 15 | 90  | 40  | 4 x Ø13.5, Ø65 PCD |
| EMR0050 | 50          | Stroke + 140 | 58   | 125  | 20 | 115 | 55  | 4 x Ø18, Ø85 PCD   |
| EMR0100 | 100         | Stroke + 170 | 67   | 145  | 25 | 160 | 80  | 4 x Ø22, Ø120 PCD  |
| EMR0200 | 200         | Stroke + 170 | 67   | 145  | 25 | 185 | 90  | 4 x Ø26, Ø135 PCD  |
| EMR0300 | 300         | Stroke + 310 | 126  | 270  | 35 | 230 | 125 | 6 x Ø26, Ø175 PCD  |
| EMR0500 | 500         | Stroke + 335 | 130  | 284  | 50 | 280 | 160 | 6 x Ø33, Ø220 PCD  |
| EMR1000 | 1000        | Stroke + 410 | 155  | 335  | 60 | 380 | 210 | 6 x Ø45, Ø295 PCD  |



| Model   | A            | B   | C   | D  | ØE  | F                  | ØG  |
|---------|--------------|-----|-----|----|-----|--------------------|-----|
| EMR0010 | Stroke + 61  | 52  | 35  | 12 | 35  | 4 x Ø11, Ø57 PCD   | 80  |
| EMR0025 | Stroke + 80  | 60  | 40  | 15 | 40  | 4 x Ø13.5, Ø65 PCD | 90  |
| EMR0050 | Stroke + 100 | 85  | 65  | 20 | 55  | 4 x Ø18, Ø85 PCD   | 115 |
| EMR0100 | Stroke + 120 | 95  | 75  | 25 | 80  | 4 x Ø22, Ø120 PCD  | 160 |
| EMR0200 | Stroke + 120 | 95  | 75  | 25 | 90  | 4 x Ø26, Ø135 PCD  | 185 |
| EMR0300 | Stroke + 200 | 160 | 140 | 35 | 125 | 6 x Ø26, Ø175 PCD  | 230 |
| EMR0500 | Stroke + 225 | 175 | 150 | 50 | 160 | 6 x Ø33, Ø220 PCD  | 280 |
| EMR1000 | Stroke + 275 | 200 | 175 | 60 | 210 | 6 x Ø45, Ø295 PCD  | 380 |

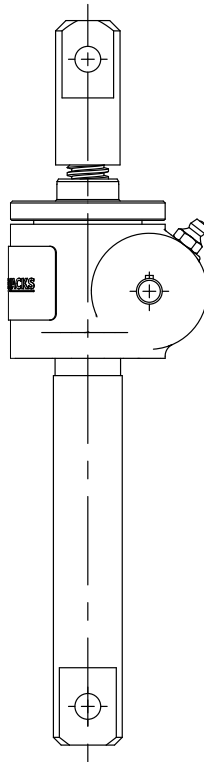
## Secondary Guide - Greater Lateral Rigidity for Lifting Screw

Secondary Guiding for the screw for greater lateral rigidity aiding screw guidance and improved side load resilience.

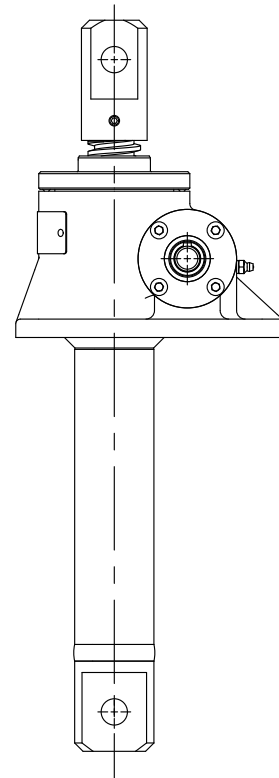


## Dimensions for Screw Jacks with Secondary Guides

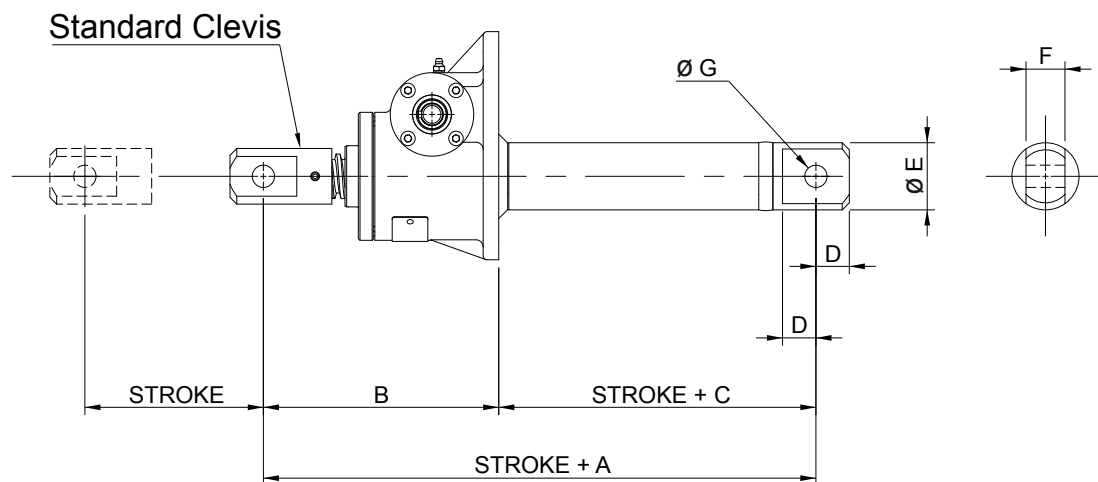
| Model    |    | EMT0010     | EMT0025     | EMT0050     | EMT0100     | EMT0200     | EMT0300     | EMT0500     | EMT1000     |
|----------|----|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Upright  | ØA | 38          | 60          | 70          | 90          | 100         | 138         | 155         | 225         |
|          | B  | Stroke + 34 | Stroke + 30 | Stroke + 20 | Stroke + 29 | Stroke + 24 | Stroke + 40 | Stroke + 38 | Stroke + 50 |
|          | C  | 20          | 20          | 18          | 20          | 20          | 38          | 38          | 65          |
| Inverted | ØD | N/A         | 60          | 70          | 90          | 100         | 138         | 155         | On Request  |
|          | E  | Stroke + 34 | Stroke + 30 | Stroke + 20 | Stroke + 29 | Stroke + 24 | Stroke + 40 | Stroke + 38 |             |
|          | F  | N/A         | 20          | 18          | 20          | 20          | 38          | 38          |             |



Style 1



Style 2



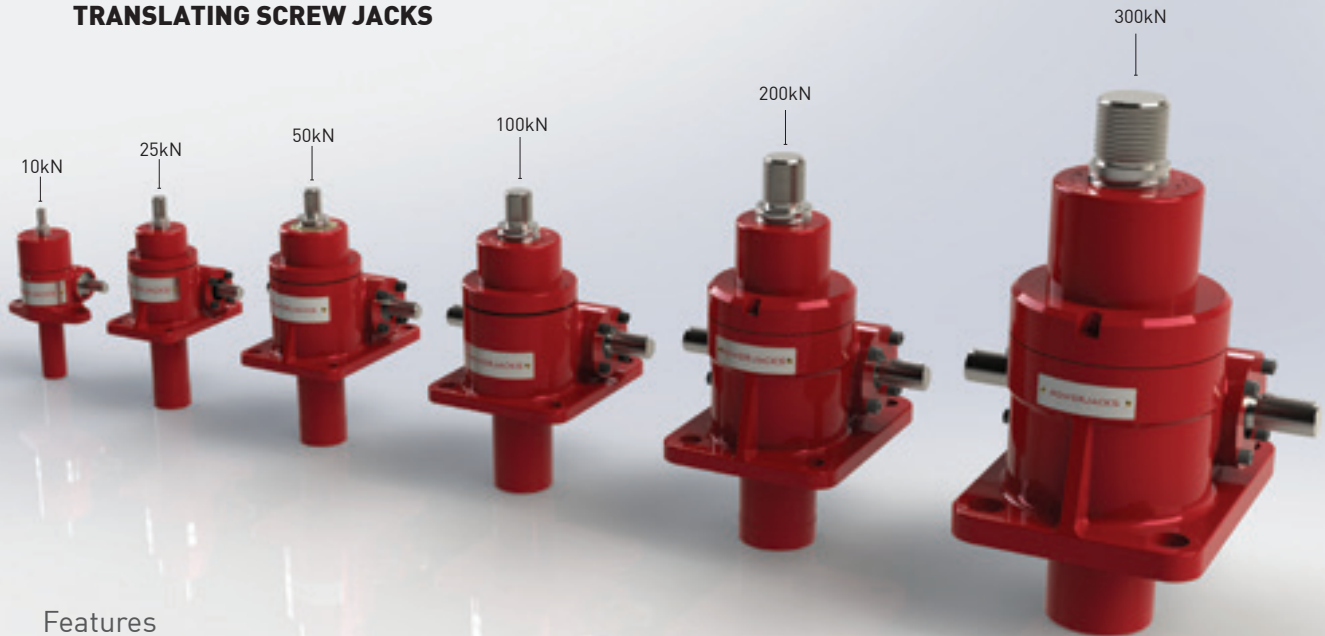
| Model                                  | EMT0010 | EMT0025 | EMT0050 | EMT0100 | EMT0200 | EMT0300 | EMT0500 | EMT1000    |
|----------------------------------------|---------|---------|---------|---------|---------|---------|---------|------------|
| Capacity (kN)                          | 10      | 25      | 50      | 100     | 200     | 300     | 500     | 1000       |
| Style                                  | 1       | 2       | 2       | 2       | 2       | 2       | 2       | On Request |
| A                                      | 180     | 213     | 260     | 352     | 428     | 492     | 570     |            |
| B                                      | 145     | 170     | 210     | 247     | 313     | 367     | 440     |            |
| C                                      | 35      | 43      | 50      | 105     | 115     | 125     | 130     |            |
| D                                      | 20      | 23      | 30      | 33      | 40      | 60      | 75      |            |
| E                                      | 33.4    | 48.3    | 60.3    | 73      | 102     | 133     | 168     |            |
| F                                      | 20      | 30      | 35      | 40      | 50      | 80      | 110     |            |
| ØG                                     | 12      | 16      | 20      | 22      | 30      | 45      | 60      |            |
| Max Stroke at Rated Load (Compression) | 175     | 352     | 420     | 593     | 592     | 1338    | 1920    |            |

**Note:** All dimensions in millimetres unless otherwise stated.

## E-Series Ball Screw Jack

HIGH EFFICIENCY BALL  
SCREW JACK IN A COMPACT  
DESIGN WITH INTEGRATED  
SAFETY DEVICE.

Overall operating efficiency is as high as 70% in some models, depending on the worm gear ratio.

**TRANSLATING SCREW JACKS****Features**

- High Efficiency Power Jack
- Metric Single Face Ball Screw Jacks
- Capacities - 10kN to 300 kN as standard
- Integral Safety Device for 25kN & above as standard
- Translating and Rotating Screw in Upright and Inverted types
- Precision Worm Gear Set and Ball Screw Drive
- 2 Gear ratios and 2 screw leads as standard
- Pre-loaded and Anti-rotation ball screw options
- 6 mounting options including trunnion and double clevis
- Special custom designs available

**ROTATING SCREW JACKS**

## End Fittings as Standard

1. Top Plate (shown)
2. Clevis End
3. Fork End
4. Rod End

Threaded end on screw as standard. End fittings screw on.

**Bellows Boot**  
Screw protection prevents ingress of dirt and debris onto screw threads.

**End Cap**  
Protective cap for ball nut with guide for ball screw.

**Ball Nut**  
Internal continuous recirculation of steel balls. Threaded and secured to worm gear. Equipped with INTEGRAL SAFETY DEVICE.

**Ball Screw**  
Standard with threaded end.

**Load Bearings**  
Top and bottom to take loads in either direction.

**Worm Shaft**  
Available with double or single shaft extension. In standard, plated or stainless steel material.

Accurately hobbled aluminium bronze worm gear for greater gear contact.

**Housing**  
Aluminium on 10 kN model. Ductile iron on 25 kN through 100 kN models, cast steel on 200 kN through 500 kN models.

**Thrust Bearings and Grease Seals** at each end of worm. 10kN version does not have separate seal.

**Cover Pipe**  
Protects Lifting Screw Threads.

**Grease Application Point.**

Mounting Bolt Holes.

**Corrosion Protection** to suit all economic needs including:

- Standard Industrial Paint
- Arduous Environment Paint
- Customer Specified Paint
- Plated Finish

## Translating Screw



Upright

Inverted

## Rotating Screw



Upright

Inverted

## Typical Applications

Ball Screw Jacks are generally used when the application has a relatively high duty cycle or the input power for a given screw jack is to be minimised. The high efficiency of the ball screw & nut significantly increase the efficiency of a screw jack in comparison to a Machine Screw Jack. Due to their high efficiency they nearly always require a brake to hold position. They are used in a wide variety of applications including Automotive, Steel, Glass, Defence, Nuclear and Solar industries.

## Standard Designs

The standard E-Series ball screw jack is available in translating and rotating screw designs in capacity sizes from 10kN to 500kN. The design is optimised for performance and a compact form, which includes an added safety device as standard for most models. There is a large selection of options and accessories (section-6) that allows you to configure a standard design that is just right for your application. These options include Zero-Backlash and Anti-Rotation designs.

## Special Designs

We can fully customise our screw jacks so that your application can be the best.

Customisation can be anything from a small modification such as an extra bolt hole on an end fitting to a completely new design of screw jack based on our class leading technology.

For more details please see the Special Screw Jack information in Section-7 or contact us today with your requirements. Our team are looking forward to working with you.

## Selecting the Right Screw Jack

Consider all application constraints then choose a product that looks suitable for the intended application. Calculate the power and torque requirements. This is a 5 step process:

- Screw Jack Input Speed (RPM)
- Operating Input Power (kW)
- Operating Input Torque (Nm)
- Screw Jack Start-up Torque (Nm)
- Mechanical Power and Torque Check

## Systems

The screw jacks can be connected together in systems so that multiple units can be operated and controlled together. These jacking system arrangements or configurations can be built in many formats with the use of bevel gearboxes, motors, reduction gearbox, drive shafts, couplings, plummer blocks and motion control devices.

The use of bevel gearboxes allows the distribution of drive throughout a jacking system. The gearboxes come in 2,3 and 4 way drive types. See the Bevel Gearbox catalogue for more details.

Bevel gearboxes and other system components can also be supplied in stainless steel or other corrosion resistant designs.

Two of the most popular system configurations are the 'H' and 'U' configured jacking systems. Remember that multiple screw jacks can be linked together mechanically or electrically. The latter is useful if there is no space for linking drive shafts.



If multiple ball screw jacks are connected in a mechanically linked system then the complete system in some designs may be considered self-locking. If you would like this checked consult Power Jacks. Alternatively, to be sure, include a brake on the system either as a stand alone device or as a brake motor.





## CAVENDISH LABORATORY ANTENNA DISH

Position adjustment of Arcminute Microkelvin Imager (AMI) to achieve a pointing accuracy of better than half a minute of arc (1/120 of a degree). 10 x antenna dishes all in close proximity of each other. Measuring the weight of the universe by analysing "dark matter".

10 x off 50kN E-Series special metric ball screw jacks based on EBT0050 in translating screw configuration with a stroke of 1050mm. These ball screw jacks operate in normal UK outdoor conditions and allow the antenna to operate at wind speeds of up to 50mph.

For more application examples see the 'Power at Work' brochure or [www.powerjacks.com](http://www.powerjacks.com).



## Screw Jack Standard Performance

| Model                                                |                     |           | EBT0010<br>EBR0010 | EBT0025<br>EBR0025 |      | EBT0050<br>EBR0050 |      | EBT0100<br>EBR0100 |      | EBT0200<br>EBR0200 |       | EBT0300<br>EBR0300 | EBT0500<br>EBR0500 |
|------------------------------------------------------|---------------------|-----------|--------------------|--------------------|------|--------------------|------|--------------------|------|--------------------|-------|--------------------|--------------------|
| Capacity (kN)                                        |                     |           | 10                 | 25                 |      | 50                 |      | 100                |      | 200                |       | 300                | 500                |
| Lifting<br>Screw                                     | Diameter (mm)       |           | 20                 | 25                 |      | 40                 |      | 50                 |      | 63                 |       | 80                 | On Request         |
|                                                      | Lead                | Option    | 1                  | 1                  | 2    | 1                  | 2    | 1                  | 2    | 1                  | 2     | 1                  |                    |
|                                                      |                     | Lead (mm) | 5                  | 5                  | 10   | 10                 | 20   | 10                 | 20   | 10                 | 20    | 20                 |                    |
| Gear Ratios                                          | Option 1            |           | 5:1                | 6:1                |      | 6:1                |      | 8:1                |      | 8:1                |       | 10 2/3:1           |                    |
|                                                      | Option 2            |           | 20:1               | 24:1               |      | 24:1               |      | 24:1               |      | 24:1               |       | 32:1               |                    |
| Turn of<br>worm for<br>travel<br>of Lifting<br>Screw | Option 1            | 6 Turn    | 6mm                | 5mm                | 10mm | 10mm               | 20mm | 7.5mm              | 15mm | 7.5mm              | 15mm  | 11.25mm            |                    |
|                                                      | Option 2            | 24 Turn   | 6mm                | 5mm                | 0mm  | 10mm               | 20mm | 10mm               | 20mm | 10mm               | 20mm  | 7.5mm              |                    |
| Maximum<br>Input<br>Power (kW)                       | Gear Ratio Option 1 |           | 0.375              | 1.5                |      | 3                  |      | 3.75               |      | 3.75               |       | 6.0                |                    |
|                                                      | Gear Ratio Option 2 |           | 0.19               | 0.375              |      | 0.55               |      | 1.125              |      | 1.125              |       | 1.9                |                    |
| Start-up<br>Torque at<br>full load<br>(Nm) †         | Gear Ratio Option 1 |           | 2.7                | 5.9                | 11.1 | 23.4               | 44.6 | 36.4               | 68.5 | 75.2               | 139.4 | 182                |                    |
|                                                      | Gear Ratio Option 2 |           | 1.2                | 2.6                | 4.9  | 10.7               | 20.4 | 19.1               | 35.8 | 39.4               | 72.9  | 107.3              |                    |
| Maximum Through Torque (Nm)                          |                     |           | 20                 | 59                 |      | 168                |      | 347                |      | 396                |       | 1440               |                    |
| Lead Screw Restraining Torque (Nm)                   |                     |           | 9                  | 23                 | 43   | 88                 | 167  | 181                | 340  | 370                | 690   | 1030               |                    |
| Worm Shaft Maximum Radial Load (N)                   |                     |           | 325                | 380                |      | 740                |      | 1000               |      | 1600               |       | 2170               |                    |
| Maximum Input Speed (rpm)                            |                     |           | 1800               | 1800               |      | 1800               |      | 1800               |      | 1800               |       | 1800               |                    |
| Gear Case Material                                   |                     |           | Aluminium          | SG Iron            |      | SG Iron            |      | SG Iron            |      | Steel              |       | Seel               |                    |
| Weight (kg) - stroke<br>= 150mm                      | EMT                 |           | 2.36               | 8.45               |      | 14.9               |      | 24.3               |      | 42.4               |       | 92.4               |                    |
|                                                      | EMR                 |           | 2.6                | 8.85               |      | 16.54              |      | 28.8               |      | 49.58              |       | 113.78             |                    |
| Weight (kg) - per<br>extra 25mm                      | EMT                 |           | 0.11               | 0.21               |      | 0.32               |      | 0.58               |      | 0.84               |       | 1.55               |                    |
|                                                      | EMR                 |           | 0.05               | 0.11               |      | 0.19               |      | 0.36               |      | 0.52               |       | 1.13               |                    |
| Ball Nut Safety Device                               |                     |           | On<br>Request      | Standard           |      | Standard           |      | Standard           |      | Standard           |       | On<br>Request      |                    |

† For loads of 25% to 100% of screw jack capacity, torque requirements are approximately proportional to the load.

## Efficiency - Option 1 Gear Ratio

| Model                   | EBT0010<br>EBR0010 | EBT0025<br>EBR0025 |       | EBT0050<br>EBR0050 |       | EBT0100<br>EBR0100 |       | EBT0200<br>EBR0200 |       | EBT0300<br>EBR0300 | EBT0500<br>EBR0500 |
|-------------------------|--------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|--------------------|
| Gear Ratio              | 5:1                | 6:1                |       | 6:1                |       | 8:1                |       | 8:1                |       | 10 2/3:1           | On Request         |
| Lifting Screw Lead (mm) | 5                  | 5                  | 10    | 10                 | 20    | 10                 | 20    | 10                 | 20    | 20                 |                    |
| Static Efficiency       | 0.603              | 0.565              | 0.600 | 0.567              | 0.595 | 0.546              | 0.581 | 0.529              | 0.571 | 0.492              |                    |
| Dynamic Efficiency      | 0.681              | 0.662              | 0.692 | 0.663              | 0.687 | 0.645              | 0.674 | 0.631              | 0.665 | 0.595              |                    |

## Efficiency - Option 2 Gear Ratio

| Model                   | EBT0010<br>EBR0010 | EBT0025<br>EBR0025 |       | EBT0050<br>EBR0050 |       | EBT0100<br>EBR0100 |       | EBT0200<br>EBR0200 |       | EBT0300<br>EBR0300 | EBT0500<br>EBR0500 |
|-------------------------|--------------------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|-------|--------------------|--------------------|
| Gear Ratio              | 20:1               | 24:1               |       | 24:1               |       | 24:1               |       | 24:1               |       | 32:1               | On Request         |
| Lifting Screw Lead (mm) | 5                  | 5                  | 10    | 10                 | 20    | 10                 | 20    | 10                 | 20    | 20                 |                    |
| Static Efficiency       | 0.341              | 0.320              | 0.340 | 0.310              | 0.325 | 0.348              | 0.370 | 0.337              | 0.364 | 0.278              |                    |
| Dynamic Efficiency      | 0.429              | 0.419              | 0.438 | 0.407              | 0.422 | 0.450              | 0.470 | 0.440              | 0.465 | 0.371              |                    |

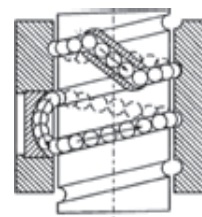
## Note

1. Efficiency values for standard grease lubricated worm gear box and lifting screw.

Power Jacks ball nut employs the internal ball transfer system for recirculating the balls. This design provides for:

- Robust design
- Small ball nut body outer diameter
- Smooth movement
- Less turns per circuit
- Absence of parts liable to wear.

Solid formed nylon wiper seals on the ball nut prevents ingress of foreign matter and retain lubrication within the nut.



Standard

## Ball Screw Life

Theoretical service life can be expressed in either  $L_{10}$   $10^6$  revolutions or  $L_h$   $10^3$  hours or  $L_d$  kilometres. As the life of a ball screw is determined by metal fatigue it is not possible to accurately predict life. However, it is practical to suppose that 90% of a sufficiently large number of equally sized ball screws running under equal working conditions will reach  $L_{10}$  or  $L_h$  without evidence of material fatigue. The  $L_{10}$  ball screw life is rated using the Dynamic Capacity, which is the maximum constant axial load that can be applied in running conditions for a life of  $1 \cdot 10^6$  revolutions of the ball screw. This can be expressed in linear travel ( $L_d$ ).

Where  $L_{10}$  = Service Life (millions of revolutions)  
 $L_d = L_{10} \cdot P$   $L_d$  = Service Life (km)  
 $P$  = Pitch of Ball Screw (mm)

| Linear Travel $L_d$ in km |               |            | Working Load (kN) |         |       |       |     |     |     |     |     |     |     |
|---------------------------|---------------|------------|-------------------|---------|-------|-------|-----|-----|-----|-----|-----|-----|-----|
| Model                     | Capacity (kN) | Pitch (mm) | 5                 | 10      | 25    | 30    | 50  | 75  | 100 | 150 | 200 | 250 | 300 |
| E28501                    | 10            | 5          | 20.5              | 2.5     | -     | -     | -   | -   | -   | -   | -   | -   | -   |
| E3802                     | 25            | 5          | 381               | 48      | 3     | -     | -   | -   | -   | -   | -   | -   | -   |
| E38021                    | 25            | 10         | 1 775             | 222     | 14    | -     | -   | -   | -   | -   | -   | -   | -   |
| E3805                     | 50            | 10         | 11 978            | 1 497   | 96    | 55    | 12  | -   | -   | -   | -   | -   | -   |
| E38051                    | 50            | 20         | 17 039            | 2 130   | 136   | 79    | 17  | -   | -   | -   | -   | -   | -   |
| E3810                     | 100           | 10         | 32 287            | 4 036   | 258   | 149   | 32  | 10  | 4   | -   | -   | -   | -   |
| E38101                    | 100           | 20         | 38 503            | 4 813   | 308   | 178   | 39  | 11  | 5   | -   | -   | -   | -   |
| E3820                     | 200           | 10         | 162 327           | 20 291  | 1 299 | 752   | 162 | 48  | 20  | 6   | 3   | -   | -   |
| E38201                    | 200           | 20         | 320 060           | 40 008  | 2 560 | 1 482 | 320 | 95  | 40  | 12  | 5   | -   | -   |
| E3830                     | 300           | 20         | 903 882           | 112 985 | 7 231 | 4 185 | 904 | 268 | 113 | 33  | 14  | 7   | 4   |

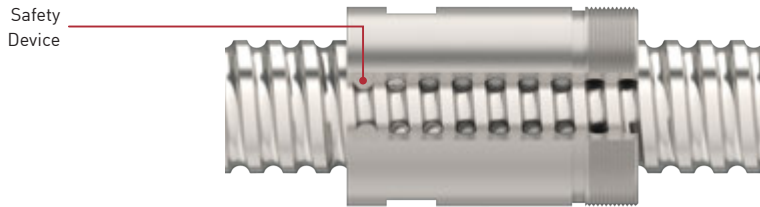
Use the following formulae to calculate the service life in terms of hours running:

Where  $L_h$  = Service Life (hours)  
 $L_{10}$  = Service Life (revolutions)  
 $n_m$  = Mean Screw Jack Input Speed (rpm)  
 $Gr$  = Gear Ratio

$$L_h = \frac{L_{10} \cdot Gr}{60 \cdot n_m}$$

**Note:** 1. Ball screw life based on dynamic load calculated according to DIN69051 Part 4.

## Extra Safety As Standard with Integral Safety Device



25kN TO 200kN Power Jacks Metric Ball Screw Jacks have an integral safety device as standard. This provides two important safety roles:

1. In the unlikely event of an excessive wear in the ball screw drive, the safety device will contact the screw shaft and act as an "ACME" Thread. This will provide early warning of any possible ball screw failure and is capable of providing drive in the event of any such failure. This can allow a control system to alert an operator to wear of this kind by monitoring the increase in motor current required to drive the system due to the increased friction generated by the device.
2. It allows the ball nut on the screw jack to sustain a load in the event of catastrophic ball failure. The safety of industrial and human cargo is therefore improved. Ball screw systems without this device could collapse under load or drop the carried load.

**Note:** Model 10kN & 300kN ball screw jack does not have safety device as standard, if required consult Power Jacks Ltd.

## Optimal Ball Nut Alignment & Load Capability

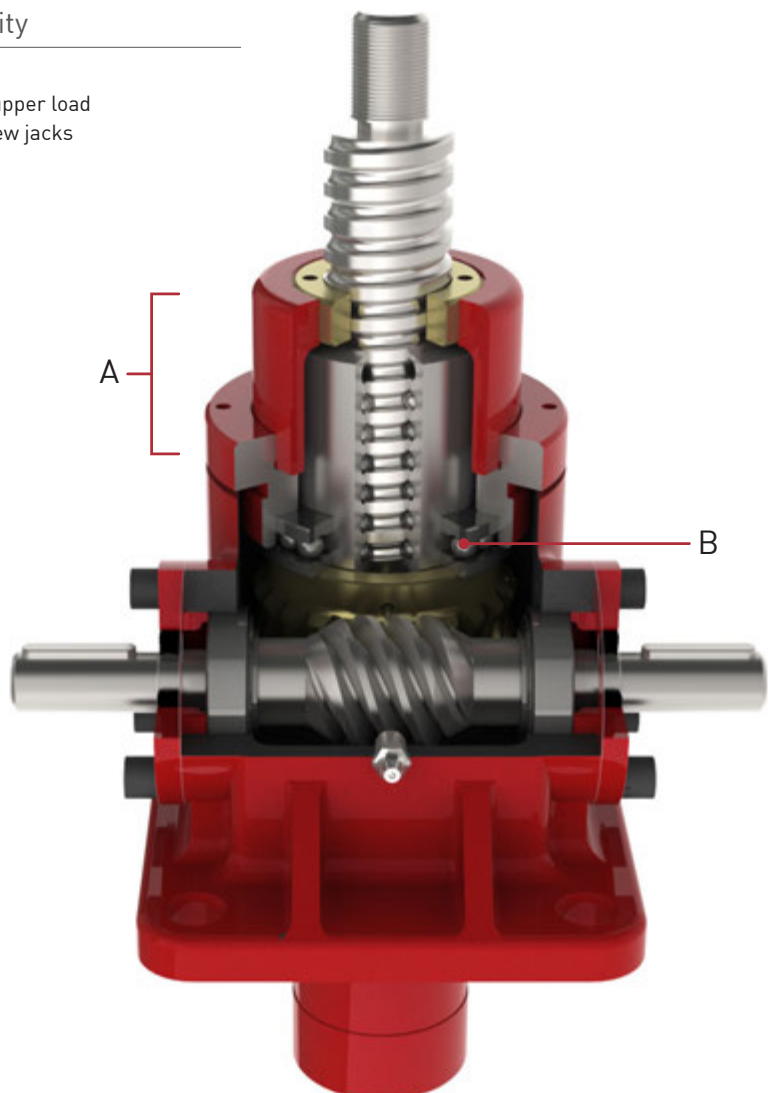
Better by Design Power Jacks Ball Screw Jacks mount the upper load bearing directly on top of the gear the same as all other screw jacks in our range.

Advantages:

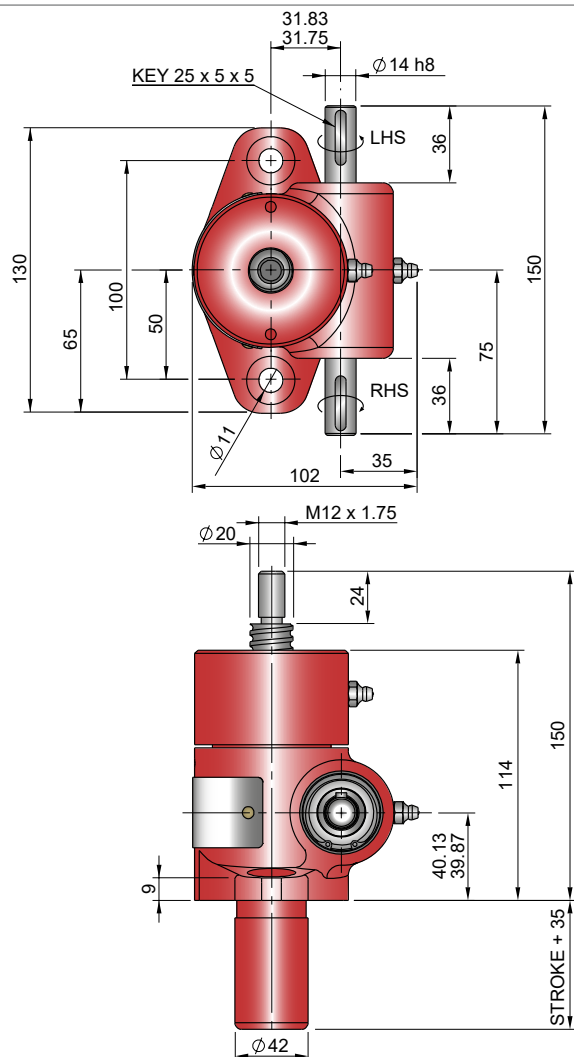
- A. Compact Design
- B. Optimum Gear Holding & Accuracy



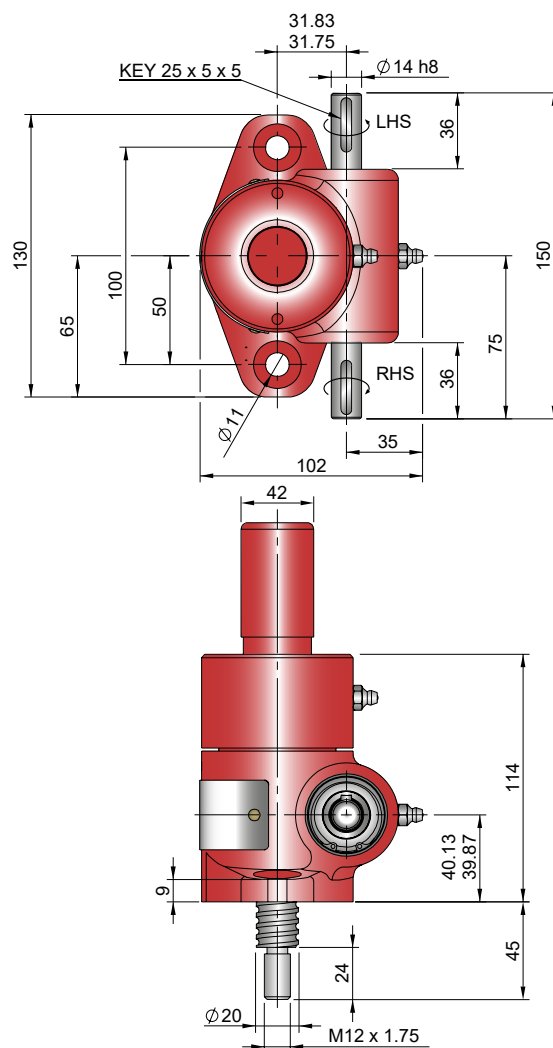
# BETTER BY DESIGN



Upright EBT0010-U00



Inverted EBT0010-I00



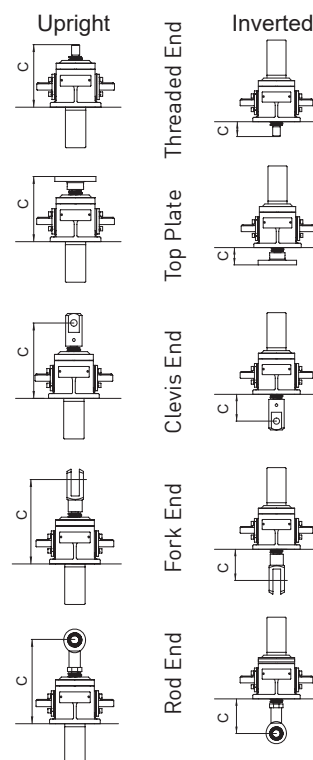
## Performance

| Model                                   |                     | EBR0010<br>EBT0010 |
|-----------------------------------------|---------------------|--------------------|
| Capacity                                | kN                  | 10                 |
| Lifting Screw                           | Diameter (mm)       | 20                 |
|                                         | Lead                | Option 1<br>5      |
| Gear Ratio<br>Option 1                  | Gear Ratio          | 5:1                |
|                                         | Static Efficiency   | 0.603              |
|                                         | Dynamic Efficiency  | 0.681              |
| Gear Ratio<br>Option 2                  | Gear Ratio          | 20:1               |
|                                         | Static Efficiency   | 0.341              |
|                                         | Dynamic Efficiency  | 0.429              |
| Max. Input<br>power (kW)                | Gear Ratio Option 1 | 0.375              |
|                                         | Gear Ratio Option 2 | 0.18               |
| Start up torque<br>at full load<br>(Nm) | Gear Ratio Option 1 | 2.7                |
|                                         | Gear Ratio Option 2 | 1.2                |

| Model                                          |              | EBR0010<br>EBT0010 |
|------------------------------------------------|--------------|--------------------|
| Capacity                                       | kN           | 10                 |
| Lifting Screw Lead (mm)                        |              | 5                  |
| Turn of worm for<br>travel of<br>lifting screw | Gear Ratio 1 | 6<br>Turn          |
|                                                | Gear Ratio 2 | 24<br>Turn         |
| Maximum Through Torque (Nm)                    |              | 20                 |
| Lifting Screw Restraining Torque (Nm)          |              | 9                  |
| Worm Shaft Maximum Radial Load<br>(N)          |              | 325                |
| Maximum Input Speed (rpm)                      |              | 1800               |
| Gear Case Material                             |              | Aluminium          |
| Weight (kg) - stroke = 150mm                   | EMT          | 2.36               |
|                                                | EMR          | 2.6                |
| Weight (kg) - per extra 25mm stroke            | EMT          | 0.11               |
|                                                | EMR          | 0.05               |

Note: All dimension in millimetres unless otherwise stated.  
Designs subject to change without notice

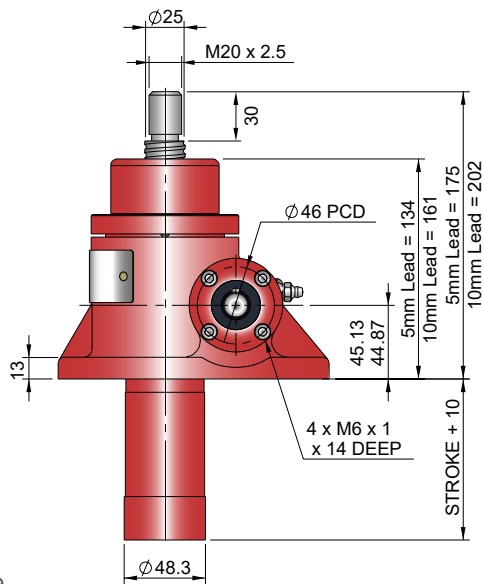
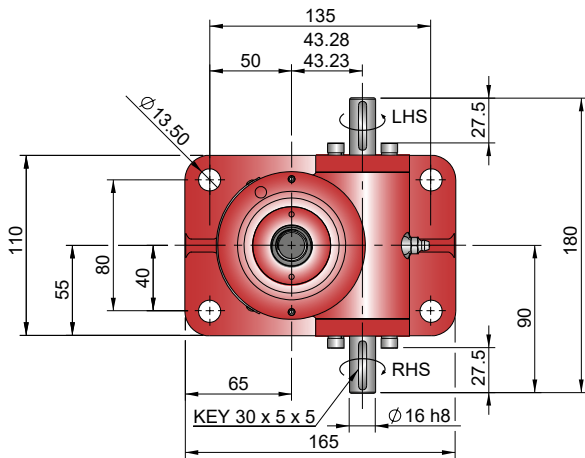
## Closed Height







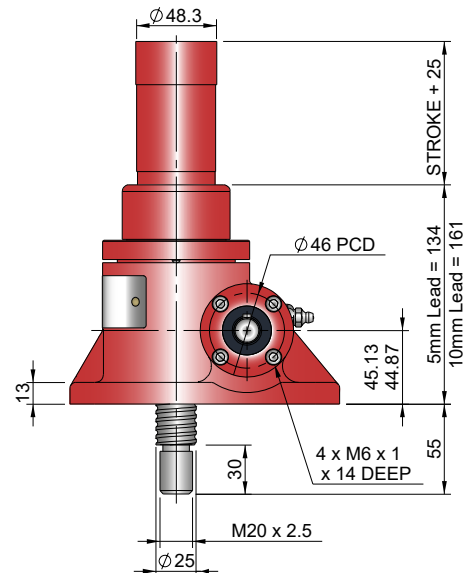
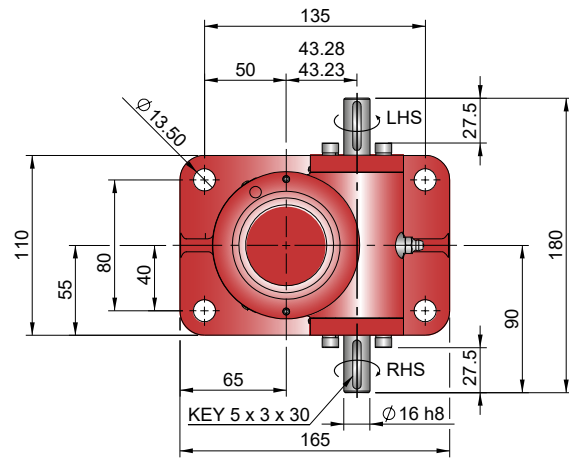
Upright EBT0025-U00



Performance

| Model                             |                     | EBT0025<br>EBR0025 |             |
|-----------------------------------|---------------------|--------------------|-------------|
| Capacity                          | kN                  | 25                 |             |
| Lifting Screw                     | Diameter (mm)       |                    | 25          |
|                                   | Lead                | Option             | 1 2         |
|                                   |                     | mm                 | 5 10        |
| Gear Ratio Option 1               | Gear Ratio          |                    | 6:1         |
|                                   | Static Efficiency   |                    | 0.565 0.600 |
|                                   | Dynamic Efficiency  |                    | 0.662 0.692 |
| Gear Ratio Option 2               | Gear Ratio          |                    | 24:1        |
|                                   | Static Efficiency   |                    | 0.320 0.340 |
|                                   | Dynamic Efficiency  |                    | 0.419 0.438 |
| Max. Input power (kW)             | Gear Ratio Option 1 |                    | 1.5         |
|                                   | Gear Ratio Option 2 |                    | 0.375       |
| Start up torque at full load (Nm) | Gear Ratio Option 1 |                    | 5.9 11.1    |
|                                   | Gear Ratio Option 2 |                    | 2.6 4.9     |

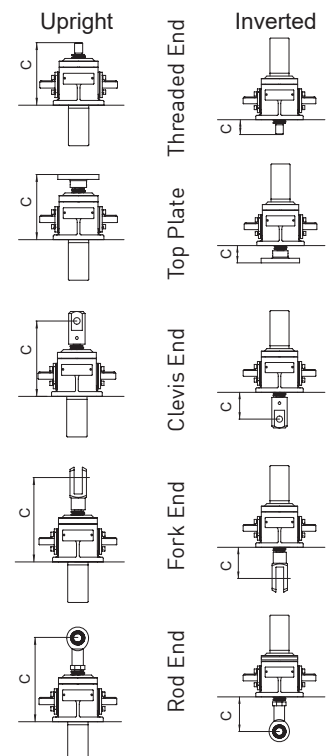
Inverted EBT0025-I00



Closed Height

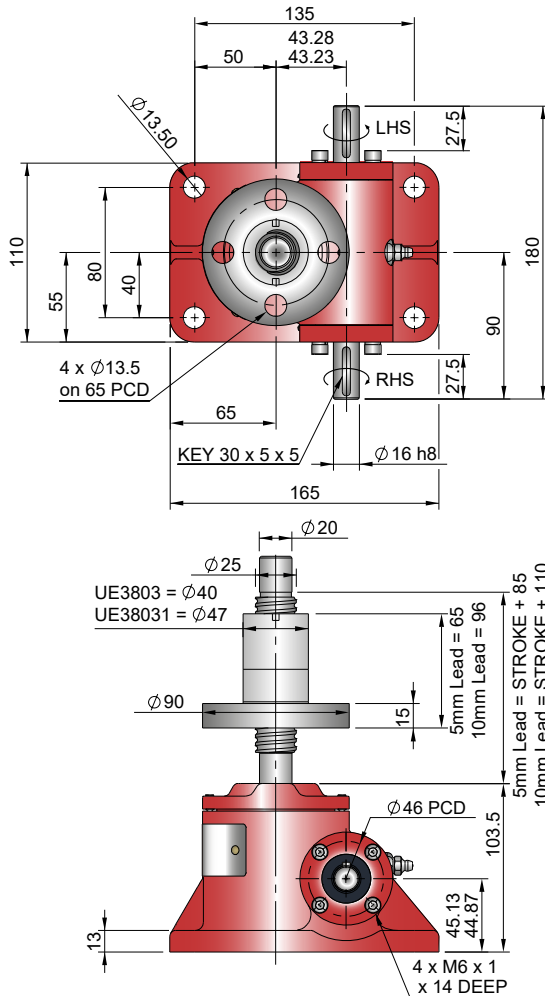
| Model                                    |              | EBT0025<br>EBR0025 |          |
|------------------------------------------|--------------|--------------------|----------|
| Capacity                                 | kN           | 25                 |          |
| Lifting Screw Lead (mm)                  |              | 5                  | 10       |
| Turn of worm for travel of lifting screw | Gear Ratio 1 | 6 Turn             | 5mm 10mm |
|                                          | Gear Ratio 2 | 24 Turn            | 5mm 10mm |
| Maximum Through Torque (Nm)              |              | 59                 |          |
| Lifting Screw Restraining Torque (Nm)    |              | 23                 | 43       |
| Worm Shaft Maximum Radial Load (N)       |              | 380                |          |
| Maximum Input Speed (rpm)                |              | 1800               |          |
| Gear Case Material                       |              | SG Iron            |          |
| Weight (kg) - stroke = 150mm             |              | EMT                | 8.45     |
|                                          |              | EMR                | 8.85     |
| Weight (kg) - per extra 25mm stroke      |              | EMT                | 0.21     |
|                                          |              | EMR                | 0.11     |

Note: All dimension in millimetres unless otherwise stated.  
Designs subject to change without notice

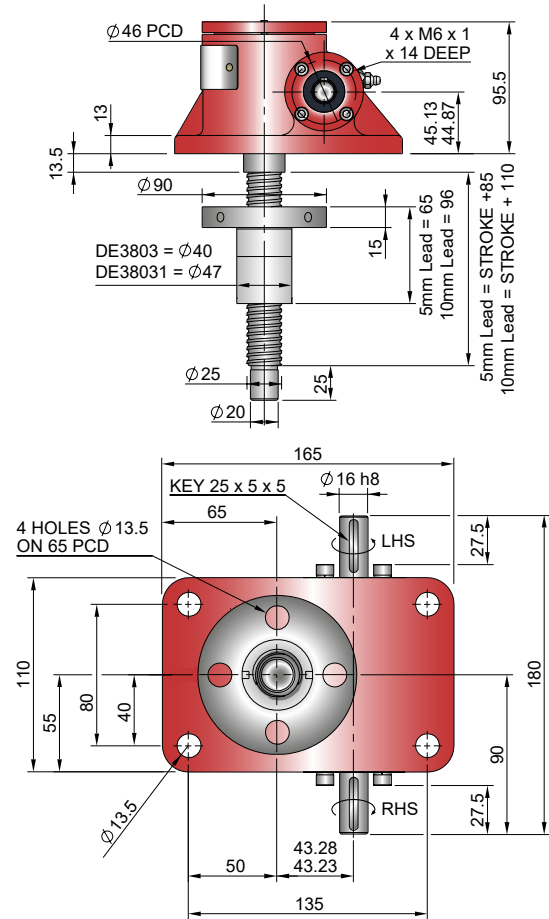




## Upright EBR0025-U00



## Inverted EBR0025-I00



## Closed Height & Bellows Boots

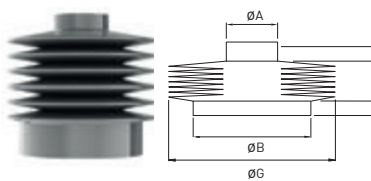
| Closed Height "C" | Threaded End               |          | Top Plate |          | Clevis End |          | Fork End |          | Rod End |          |
|-------------------|----------------------------|----------|-----------|----------|------------|----------|----------|----------|---------|----------|
|                   | Upright                    | Inverted | Upright   | Inverted | Upright    | Inverted | Upright  | Inverted | Upright | Inverted |
| EBT0025           | 145                        | 55       | 145       | 55       | 170        | 80       | 194      | 104      | 190     | 100      |
| Stroke (mm)       | EBT0025 with Bellows Boots |          |           |          |            |          |          |          |         |          |
| Lead (mm)         | 5                          | 10       | 5 & 10    | 5        | 10         | 5 & 10   | 5        | 10       | 5 & 10  | 5        |
| 1-300             | 180                        | 200      | 100       | 180      | 200        | 100      | 205      | 225      | 125     | 229      |
| 301-600           | 190                        | 210      | 110       | 190      | 210        | 110      | 215      | 235      | 135     | 239      |
| 601-1050          | 210                        | 230      | 130       | 210      | 230        | 130      | 235      | 255      | 155     | 259      |
| 1051-1500         | 230                        | 250      | 150       | 230      | 250        | 150      | 255      | 275      | 175     | 279      |

| Model   | A  | B  | D  | E  | G   |
|---------|----|----|----|----|-----|
| EBT0025 | 40 | 66 | 15 | 15 | 120 |

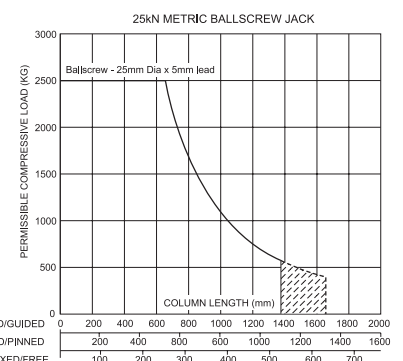
| Stroke  | 1-300 | 301-600 | 601-1050 | 1051-1500 |
|---------|-------|---------|----------|-----------|
| EBT0025 | 20    | 30      | 50       | 70        |

Note:

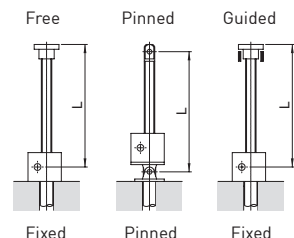
- 1 Inverted Screw Jacks - Bellows Boot Closed Height assumes screw jack mounted on a structure with thickness = 10mm
- 2 Inverted Screw Jacks - Recommended bellows boot mounting plate ØB x (E +5mm) thick.
- 3 Inverted Screw Jacks - Screw Jack mounting plate & bellows boot mounting plate are customers own supply
- 4 † Control tapes fitted (increase outer diameter by 20mm approximately).
- 5 For horizontal installations with than 450 mm of stroke, internal boot guides are recommended.
- 6 Customers with threaded end screw jacks must provide a fixing for the unattached bellows boot collar.
- 7 Bellows boots for Rotating Screw Jacks, other sizes, stroke and materials please consult Power Jacks.



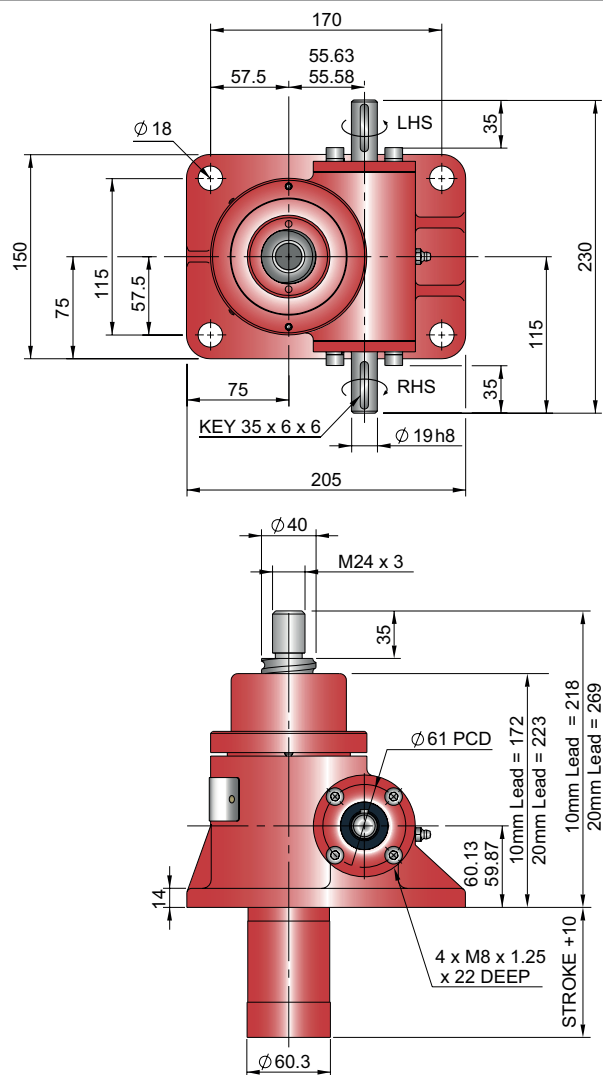
## Column Strength



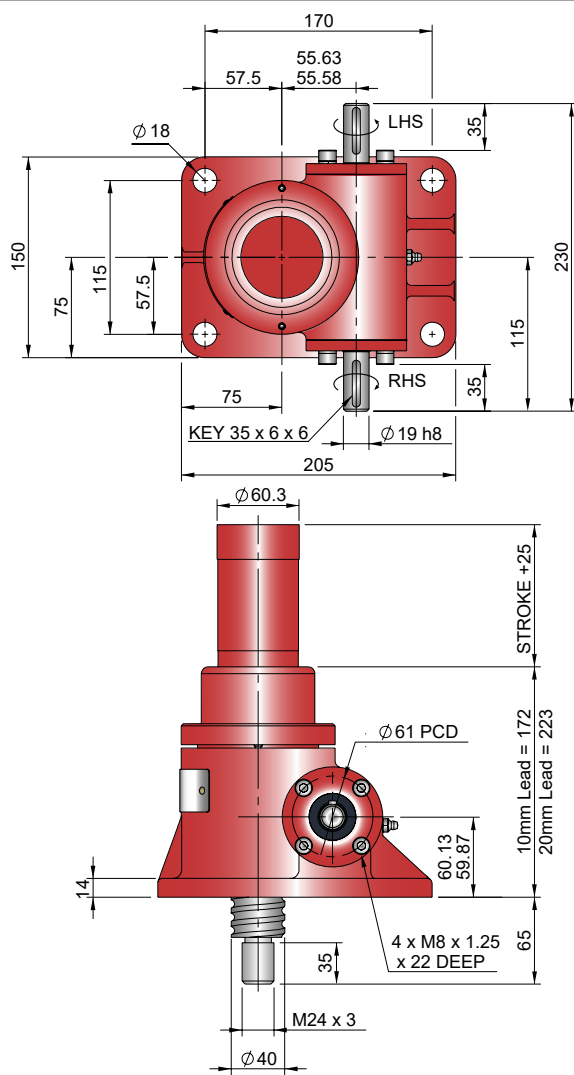
Note: For 25mm Dia x 10mm lead column strength chart refer to Engineering Guide



Upright EBT0050-U00



Inverted EBT0050-I00



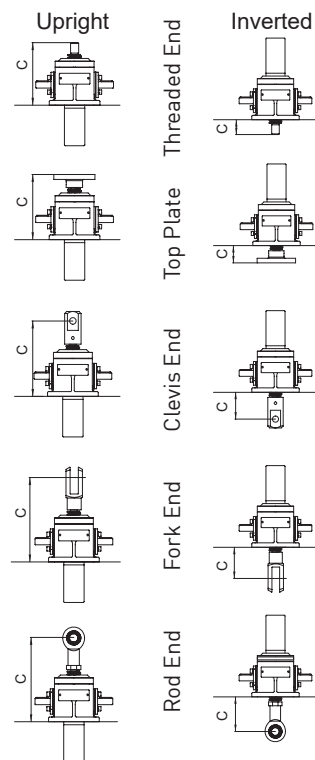
## Performance

| Model                             |                     | EBT0050<br>EBR0050 |             |
|-----------------------------------|---------------------|--------------------|-------------|
| Capacity                          | kN                  | 50                 |             |
| Lifting Screw                     | Diameter (mm)       | 40                 |             |
|                                   | Lead                | Option             | 1 2         |
| Gear Ratio Option 1               | mm                  |                    | 10 20       |
|                                   | Gear Ratio          |                    | 6:1         |
|                                   | Static Efficiency   |                    | 0.567 0.595 |
| Gear Ratio Option 2               | Dynamic Efficiency  |                    | 0.633 0.687 |
|                                   | Gear Ratio          |                    | 24:1        |
|                                   | Static Efficiency   |                    | 0.310 0.325 |
| Max. Input power (kW)             | Dynamic Efficiency  |                    | 0.407 0.422 |
|                                   | Gear Ratio Option 1 |                    | 3.0         |
| Start up torque at full load (Nm) | Gear Ratio Option 2 |                    | 0.55        |
|                                   | Gear Ratio Option 1 |                    | 23.4 44.6   |
|                                   | Gear Ratio Option 2 |                    | 10.7 20.4   |

| Model                                    |              | EBT0050<br>EBR0050 |           |
|------------------------------------------|--------------|--------------------|-----------|
| Capacity                                 | kN           | 50                 |           |
| Lifting Screw (mm)                       |              | 10                 | 20        |
| Turn of worm for travel of lifting screw | Gear Ratio 1 | 6 Turn             | 10mm 20mm |
|                                          | Gear Ratio 2 | 24 Turn            | 10mm 20mm |
| Maximum Through Torque (Nm)              |              | 168                |           |
| Lifting Screw Restraining Torque (Nm)    |              | 88                 | 167       |
| Worm Shaft Maximum Radial Load (N)       |              | 740                |           |
| Maximum Input Speed (rpm)                |              | 1800               |           |
| Gear Case Material                       |              | SG Iron            |           |
| Weight (kg) - stroke = 150mm             |              | EMT                | 14.9      |
| Weight (kg) - per extra 25mm stroke      |              | EMR                | 16.54     |
|                                          |              | EMT                | 0.32      |
|                                          |              | EMR                | 0.19      |

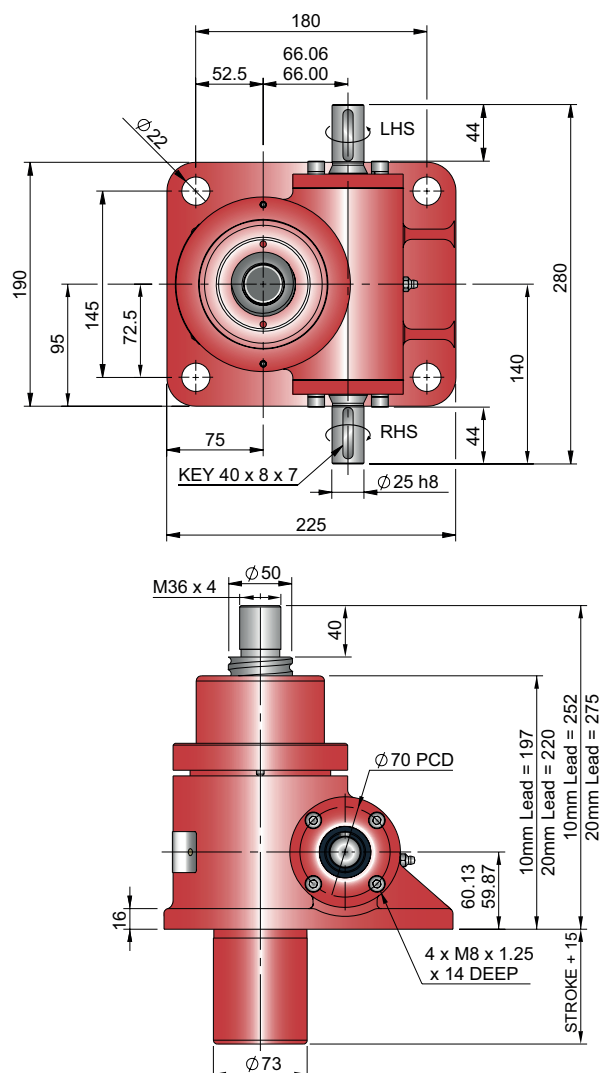
Note: All dimension in millimetres unless otherwise stated.  
Designs subject to change without notice

## Closed Height





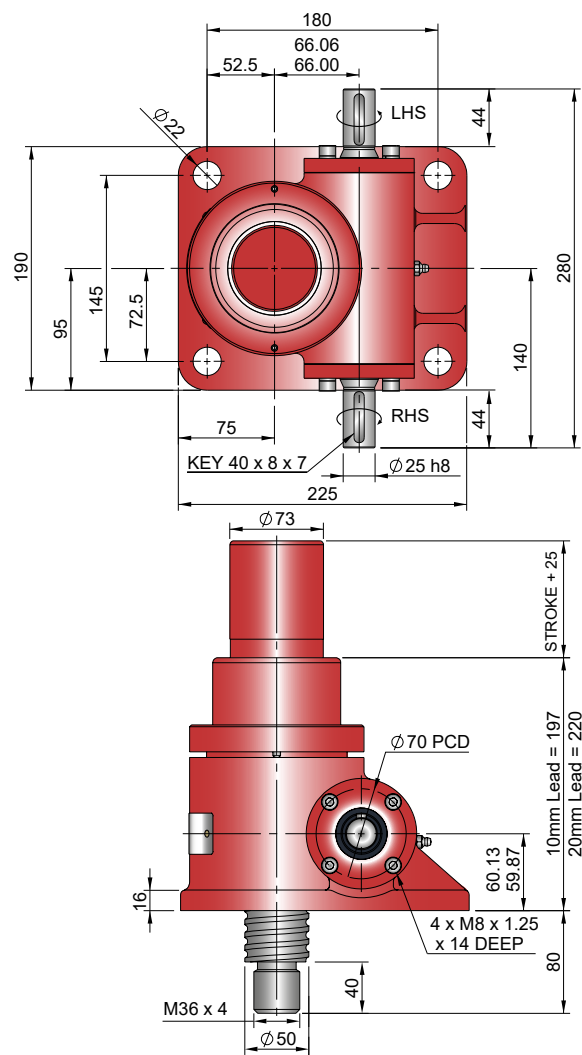
Upright EBT0100-U00



Performance

| Model                             |                     | EBT0100<br>EBR0100 |             |
|-----------------------------------|---------------------|--------------------|-------------|
| Capacity                          | kN                  | 100                |             |
| Lifting Screw                     | Diameter (mm)       | 50                 |             |
|                                   | Lead                | Option             | 1 2         |
| Gear Ratio Option 1               | Gear Ratio          | 8:1                |             |
|                                   |                     | Static Efficiency  | 0.546 0.581 |
|                                   | Dynamic Efficiency  | 0.645              | 0.674       |
| Gear Ratio Option 2               | Gear Ratio          | 24:1               |             |
|                                   |                     | Static Efficiency  | 0.348 0.370 |
|                                   | Dynamic Efficiency  | 0.450              | 0.470       |
| Max. Input power (kW)             | Gear Ratio Option 1 | 3.75               |             |
|                                   | Gear Ratio Option 2 | 1.125              |             |
| Start up torque at full load (Nm) | Gear Ratio Option 1 | 36.4               | 68.5        |
|                                   | Gear Ratio Option 2 | 19.1               | 35.8        |

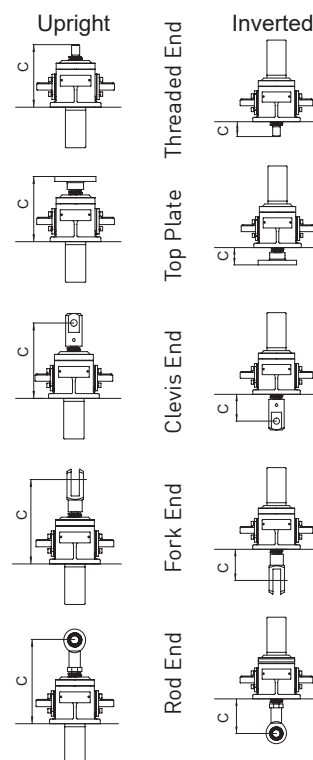
Inverted EBT0100-I00



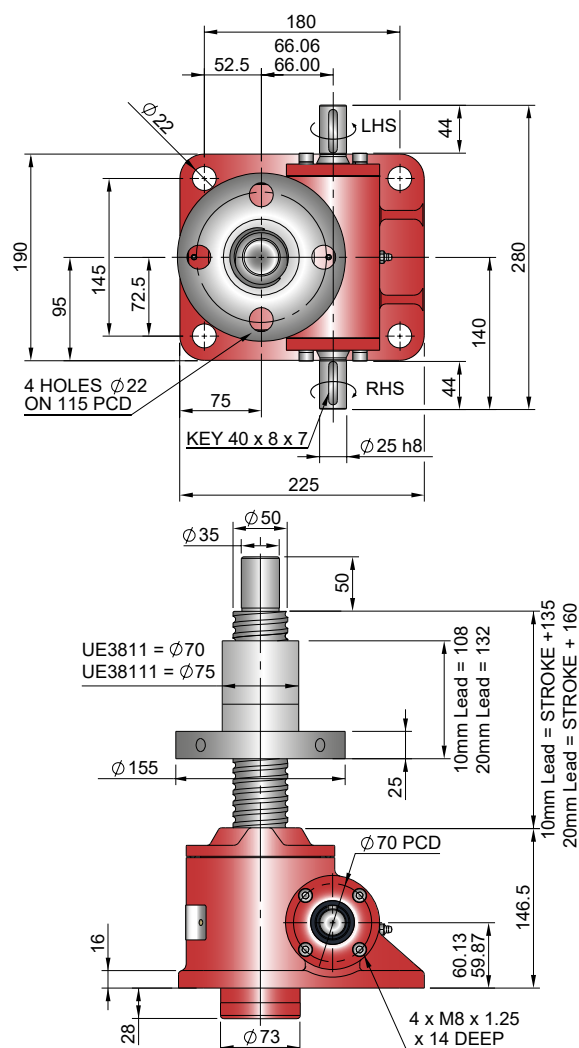
Closed Height

| Model                                    |              | EBT0100<br>EBR0100 |            |
|------------------------------------------|--------------|--------------------|------------|
| Capacity                                 | kN           | 100                |            |
| Lifting Screw (mm)                       |              | 10                 | 20         |
| Turn of worm for travel of lifting screw | Gear Ratio 1 | 6 Turn             | 7.5mm 15mm |
|                                          | Gear Ratio 2 | 24 Turn            | 10mm 20mm  |
| Maximum Through Torque (Nm)              |              | 347                |            |
| Lifting Screw Restraining Torque (Nm)    |              | 181                | 340        |
| Worm Shaft Maximum Radial Load (N)       |              | 1000               |            |
| Maximum Input Speed (rpm)                |              | 1800               |            |
| Gear Case Material                       |              | SG Iron            |            |
| Weight (kg) - stroke = 150mm             |              | EMT                | 24.3       |
|                                          |              | EMR                | 28.8       |
| Weight (kg) - per extra 25mm stroke      |              | EMT                | 0.58       |
|                                          |              | EMR                | 0.36       |

Note: All dimension in millimetres unless otherwise stated.  
Designs subject to change without notice

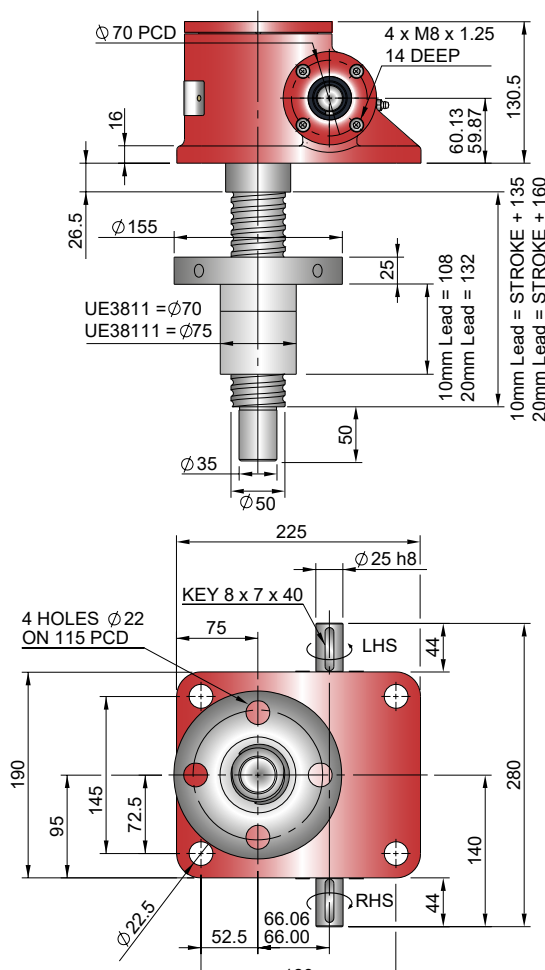


Upright EBR0100-U00



### Closed Height & Bellows Boots

## Inverted EBR0100-100

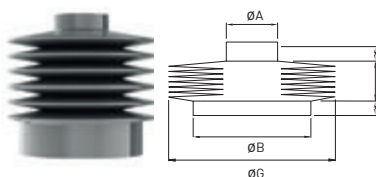


Column Strength

| Closed Height "C" | Threaded End               |          | Top Plate |          | Clevis End |          | Fork End |          | Rod End |          |     |         |     |     |         |
|-------------------|----------------------------|----------|-----------|----------|------------|----------|----------|----------|---------|----------|-----|---------|-----|-----|---------|
|                   | Upright                    | Inverted | Upright   | Inverted | Upright    | Inverted | Upright  | Inverted | Upright | Inverted |     |         |     |     |         |
| EBT0100           | 200                        | 80       | 200       | 80       | 245        | 125      | 302      | 182      | 283     | 163      |     |         |     |     |         |
| Stroke (mm)       | EBT0100 with Bellows Boots |          |           |          |            |          |          |          |         |          |     |         |     |     |         |
| Lead (mm)         | 10                         | 20       | 10 & 20   | 10       | 20         | 10 & 20  | 10       | 20       | 10 & 20 | 10       | 20  | 10 & 20 | 10  | 20  | 10 & 20 |
| 1-300             | 255                        | 285      | 120       | 255      | 285        | 120      | 300      | 330      | 165     | 337      | 367 | 202     | 353 | 383 | 218     |
| 301-600           | 265                        | 295      | 130       | 265      | 295        | 130      | 310      | 340      | 175     | 347      | 377 | 212     | 363 | 393 | 228     |
| 601-1050          | 285                        | 315      | 150       | 285      | 315        | 150      | 330      | 360      | 195     | 367      | 397 | 232     | 383 | 413 | 248     |
| 1051-1500         | 305                        | 335      | 170       | 305      | 335        | 170      | 350      | 380      | 215     | 387      | 417 | 252     | 403 | 433 | 268     |

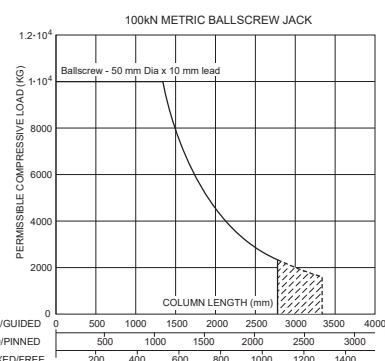
| Model   | A  | B   | D  | E  | G   |
|---------|----|-----|----|----|-----|
| EBT0100 | 65 | 100 | 15 | 15 | 150 |

| Stroke  | 1-300 | 301-600 | 601-1050 | 1051-1500 |
|---------|-------|---------|----------|-----------|
| EBT0100 | 20    | 30      | 50       | 70        |

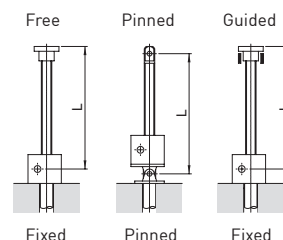


Note:

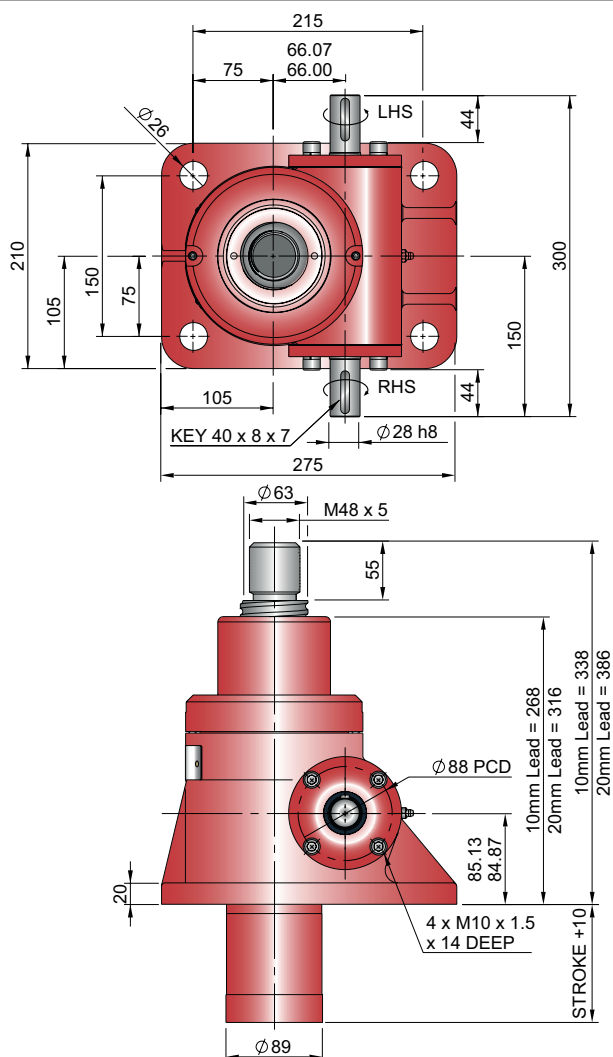
- 1 Inverted Screw Jacks - Bellows Boot Closed Height assumes screw jack mounted on a structure with thickness = 20mm  
2 Inverted Screw Jacks - Recommended bellows boot mounting plate ØB x [E +5mm] thick.  
3 Inverted Screw Jacks - Screw Jack mounting plate & bellows boot mounting plate are customers own supply  
4 † Control tapes fitted (increase outer diameter by 20mm approximately).  
5 For horizontal installations with than 450 mm of stroke, internal boot guides are recommended.  
6 Customers with threaded end screw jacks must provide a fixing for the unattached bellows boot collar.  
7 Bellows boots for Rotating Screw Jacks, other sizes, stroke and materials please consult Power Jacks.



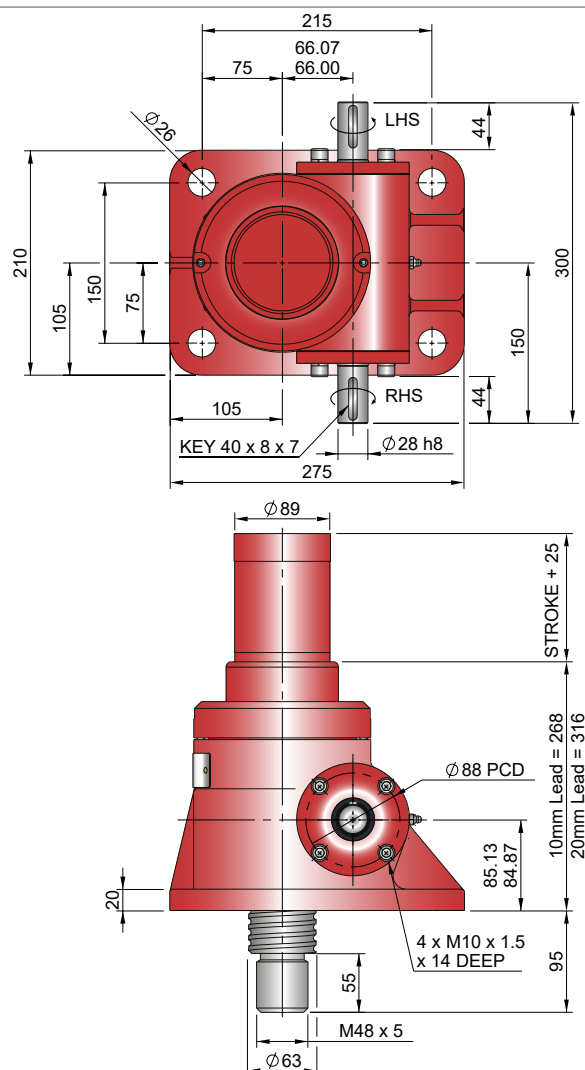
Note: For 50mm Dia x 20mm lead column strength chart refer to Engineering Guide



## Upright EBT0200-U00



## Inverted EBT0200-I00



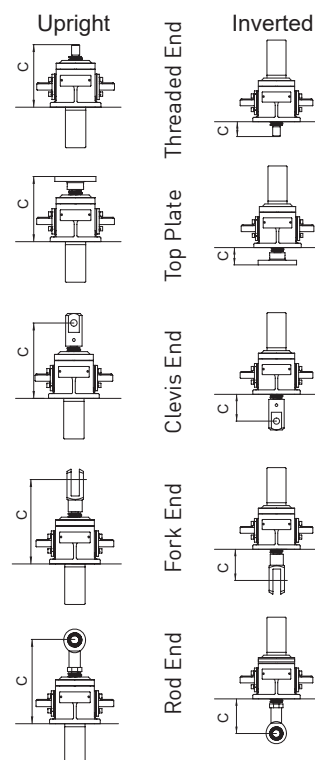
## Performance

| Model                             |                     | EBT0200<br>EBR0200 |       |
|-----------------------------------|---------------------|--------------------|-------|
| Capacity                          | kN                  | 200                |       |
| Lifting Screw                     | Diameter (mm)       | 63                 |       |
|                                   | Lead                | Option             | 1 2   |
|                                   |                     | mm                 | 10 20 |
| Gear Ratio Option 1               | Gear Ratio          | 8:1                |       |
|                                   | Static Efficiency   | 0.529              | 0.571 |
|                                   | Dynamic Efficiency  | 0.631              | 0.665 |
| Gear Ratio Option 2               | Gear Ratio          | 24:1               |       |
|                                   | Static Efficiency   | 0.337              | 0.364 |
|                                   | Dynamic Efficiency  | 0.440              | 0.465 |
| Max. Input power (kW)             | Gear Ratio Option 1 | 3.75               |       |
|                                   | Gear Ratio Option 2 | 1.125              |       |
| Start up torque at full load (Nm) | Gear Ratio Option 1 | 75.2               | 139.4 |
|                                   | Gear Ratio Option 2 | 39.4               | 72.9  |

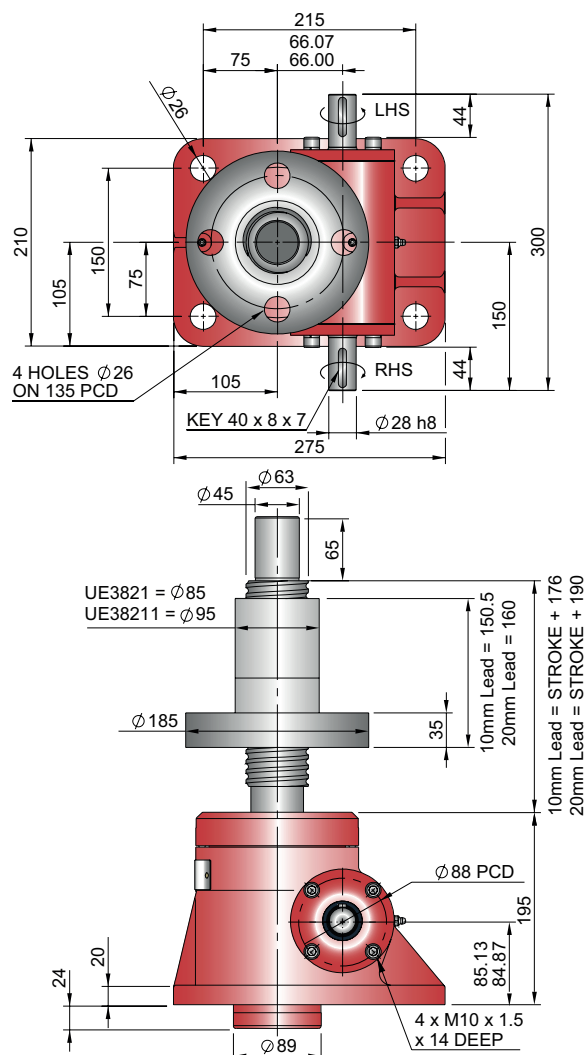
| Model                                    |              | EBT0200<br>EBR0200 |            |
|------------------------------------------|--------------|--------------------|------------|
| Capacity                                 | kN           | 200                |            |
| Lifting Screw (mm)                       |              | 10                 | 20         |
| Turn of worm for travel of lifting screw | Gear Ratio 1 | 6 Turn             | 7.5mm 15mm |
|                                          | Gear Ratio 2 | 24 Turn            | 10mm 20mm  |
| Maximum Through Torque (Nm)              |              | 396                |            |
| Lifting Screw Restraining Torque (Nm)    |              | 370                | 690        |
| Worm Shaft Maximum Radial Load (N)       |              | 1600               |            |
| Maximum Input Speed (rpm)                |              | 1800               |            |
| Gear Case Material                       |              | Steel              |            |
| Weight (kg) - stroke = 150mm             |              | EMT                | 42.4       |
|                                          |              | EMR                | 49.58      |
| Weight (kg) - per extra 25mm stroke      |              | EMT                | 0.84       |
|                                          |              | EMR                | 0.52       |

Note: All dimension in millimetres unless otherwise stated.  
Designs subject to change without notice

## Closed Height



Upright EBR0200-U00



## Closed Height & Bellows Boots

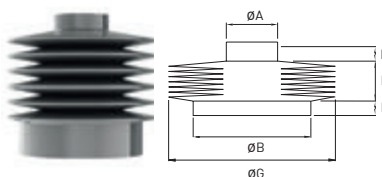
| Closed Height "C" | Threaded End               |          | Top Plate |          | Clevis End |          | Fork End |          | Rod End |          |     |         |     |     |         |
|-------------------|----------------------------|----------|-----------|----------|------------|----------|----------|----------|---------|----------|-----|---------|-----|-----|---------|
|                   | Upright                    | Inverted | Upright   | Inverted | Upright    | Inverted | Upright  | Inverted | Upright | Inverted |     |         |     |     |         |
| EBT0200           | 200                        | 80       | 200       | 80       | 245        | 125      | 302      | 182      | 283     | 163      |     |         |     |     |         |
| Stroke (mm)       | EBT0200 with Bellows Boots |          |           |          |            |          |          |          |         |          |     |         |     |     |         |
| Lead (mm)         | 10                         | 20       | 10 & 20   | 10       | 20         | 10 & 20  | 10       | 20       | 10 & 20 | 10       | 20  | 10 & 20 | 10  | 20  | 10 & 20 |
| 1-300             | 348                        | 396      | 140       | 348      | 396        | 140      | 393      | 441      | 185     | 483      | 531 | 275     | 470 | 518 | 262     |
| 301-600           | 358                        | 406      | 150       | 358      | 406        | 150      | 403      | 451      | 195     | 493      | 541 | 285     | 480 | 528 | 272     |
| 601-1050          | 378                        | 426      | 170       | 378      | 426        | 170      | 423      | 471      | 215     | 513      | 561 | 305     | 500 | 548 | 292     |
| 1051-1500         | 398                        | 446      | 190       | 398      | 446        | 190      | 443      | 491      | 235     | 533      | 581 | 325     | 520 | 568 | 312     |

| Model   | A  | B   | D  | E  | G   |
|---------|----|-----|----|----|-----|
| EBT0200 | 75 | 105 | 20 | 20 | 165 |

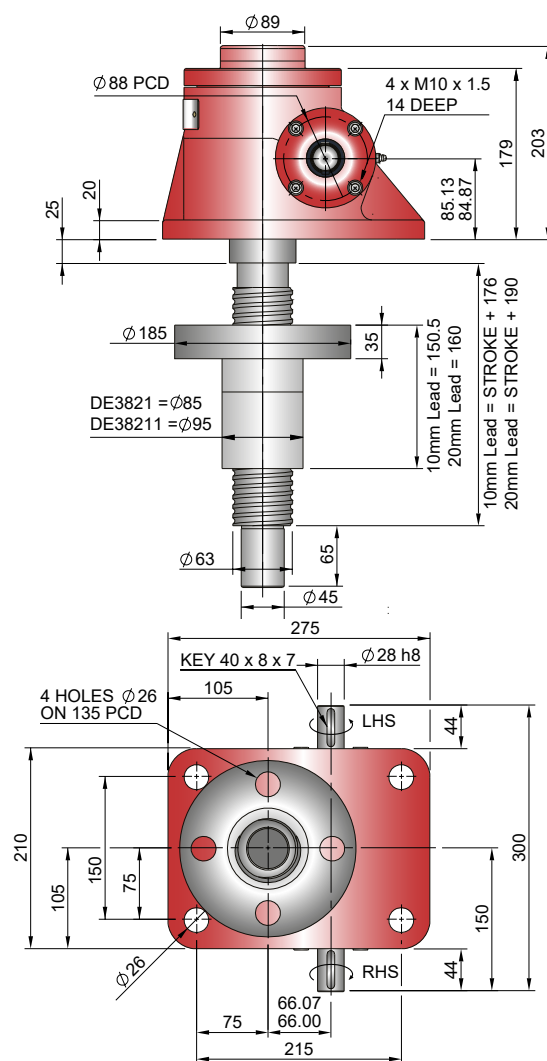
| Stroke  | 1-300 | 301-600 | 601-1050 | 1051-1500 |
|---------|-------|---------|----------|-----------|
| EBT0200 | 20    | 30      | 50       | 70        |

Note:

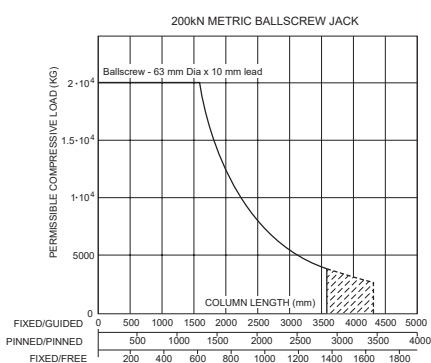
- 1 Inverted Screw Jacks - Bellows Boot Closed Height assumes screw jack mounted on a structure with thickness = 20mm  
2 Inverted Screw Jacks - Recommended bellows boot mounting plate ØB x [E +5mm] thick.  
3 Inverted Screw Jacks - Screw Jack mounting plate & bellows boot mounting plate are customers own supply  
4 † Control tapes fitted (increase outer diameter by 20mm approximately).  
5 For horizontal installations with than 450 mm of stroke, internal boot guides are recommended.  
6 Customers with threaded end screw jacks must provide a fixing for the unattached bellows boot collar.  
7 Bellows boots for Rotating Screw Jacks, other sizes, stroke and materials please consult Power Jacks.



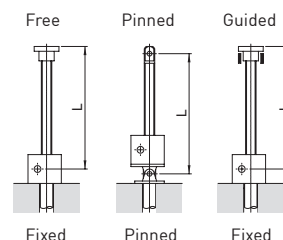
Inverted EBR0200-100



Column Strength

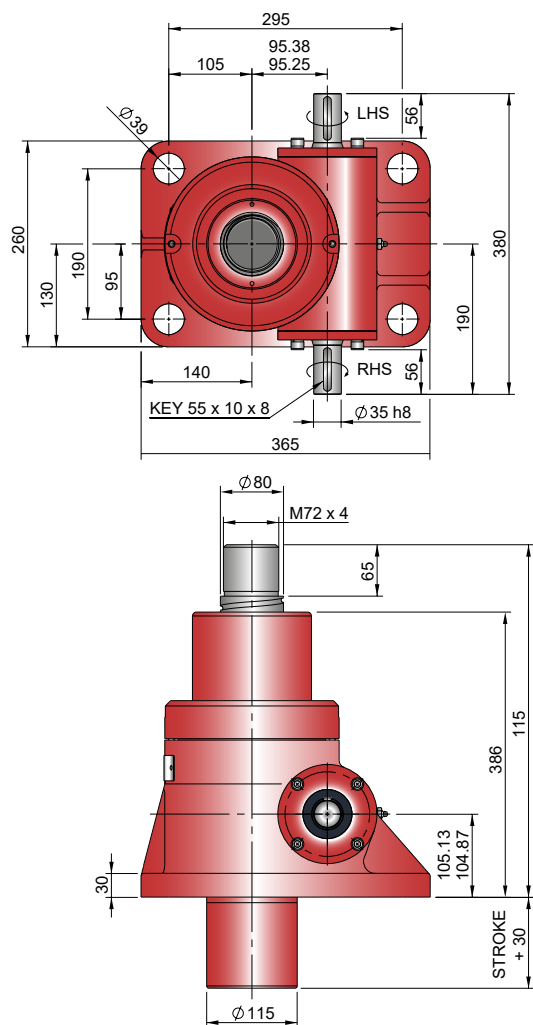


Note: For 63mm Dia x 20mm lead column strength chart refer to Engineering Guide

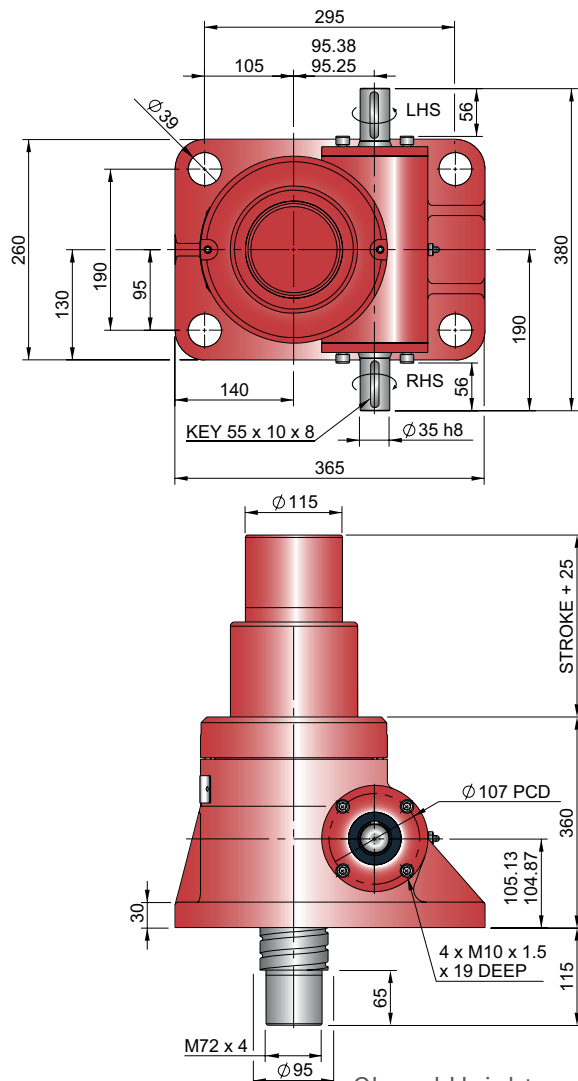




## Upright EBT0300-U00



## Inverted EBT0300-I00



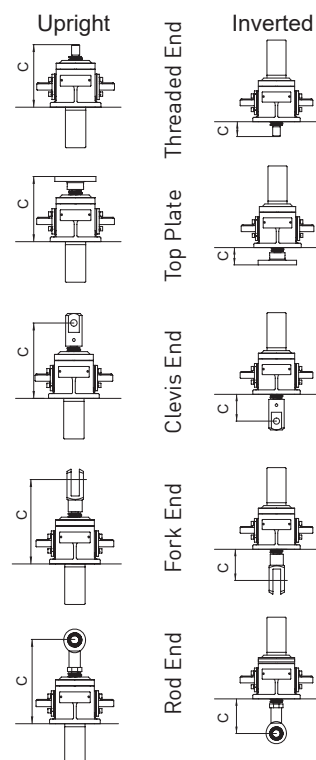
## Performance

| Model                             |                     | EBT0300<br>EBR0300 |
|-----------------------------------|---------------------|--------------------|
| Capacity                          | kN                  | 300                |
| Lifting Screw                     | Diameter (mm)       | 80                 |
|                                   | Lead                | Option 1<br>mm 20  |
| Gear Ratio Option 1               | Gear Ratio          | 10 2/3:1           |
|                                   | Static Efficiency   | 0.492              |
|                                   | Dynamic Efficiency  | 0.595              |
| Gear Ratio Option 2               | Gear Ratio          | 32:1               |
|                                   | Static Efficiency   | 0.278              |
|                                   | Dynamic Efficiency  | 0.371              |
| Max. Input power (kW)             | Gear Ratio Option 1 | 6.0                |
|                                   | Gear Ratio Option 2 | 1.9                |
| Start up torque at full load (Nm) | Gear Ratio Option 1 | 182                |
|                                   | Gear Ratio Option 2 | 107.3              |

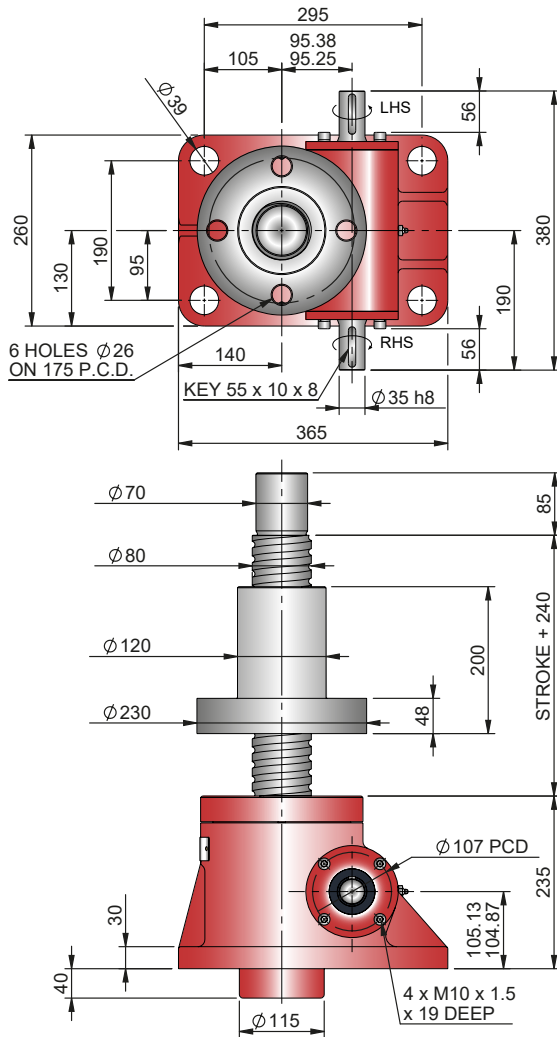
| Model                                    |              | EMT0300<br>EMR0300 |
|------------------------------------------|--------------|--------------------|
| Capacity                                 | kN           | 300                |
| Lifting Screw (mm)                       |              | 20                 |
| Turn of worm for travel of lifting screw | Gear Ratio 1 | 6 Turn<br>11.25mm  |
|                                          | Gear Ratio 2 | 24 Turn<br>7.5mm   |
| Maximum Through Torque (Nm)              |              | 1440               |
| Lifting Screw Restraining Torque (Nm)    |              | 1030               |
| Worm Shaft Maximum Radial Load (N)       |              | 2170               |
| Maximum Input Speed (rpm)                |              | 1800               |
| Gear Case Material                       |              | Steel              |
| Weight (kg) - stroke = 150mm             | EMT          | 92.4               |
|                                          | EMR          | 113.78             |
| Weight (kg) - per extra 25mm stroke      | EMT          | 1.55               |
|                                          | EMR          | 1.13               |

Note: All dimension in millimetres unless otherwise stated.  
Designs subject to change without notice

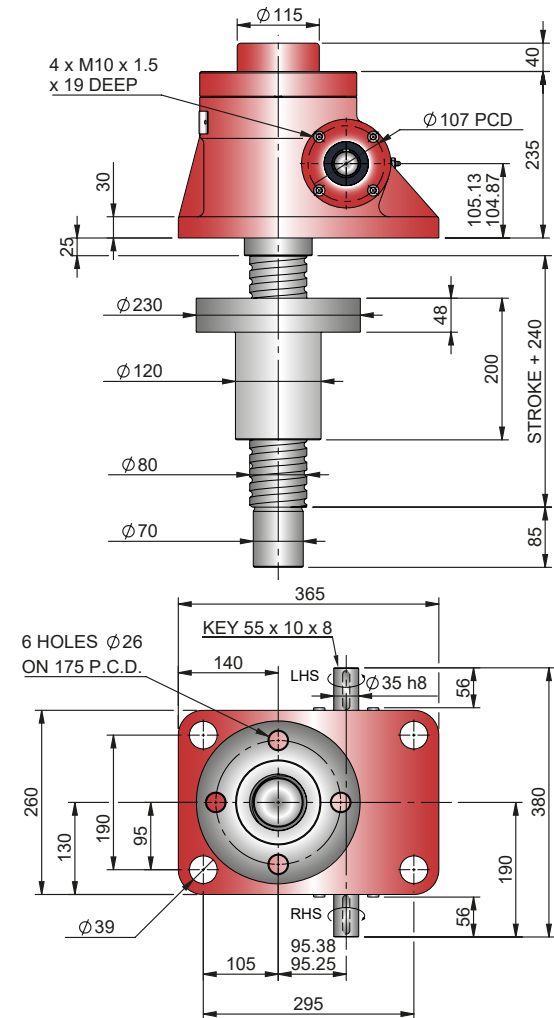
## Closed Height



## Upright EBR0300-U00



## Inverted EBR0300-I00

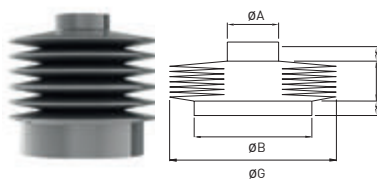


## Closed Height & Bellows Boots

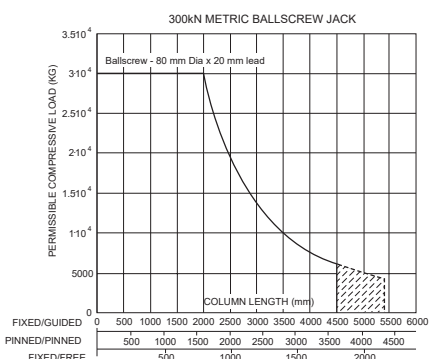
| Closed Height "C" | Threaded End               |          | Top Plate |          | Clevis End |          | Fork End |          | Rod End |          |
|-------------------|----------------------------|----------|-----------|----------|------------|----------|----------|----------|---------|----------|
|                   | Upright                    | Inverted | Upright   | Inverted | Upright    | Inverted | Upright  | Inverted | Upright | Inverted |
| EBT0300           | 325                        | 115      | 325       | 115      | 365        | 155      | 148      | 98       | 150     | 70       |
| Stroke (mm)       | EBT0300 with Bellows Boots |          |           |          |            |          |          |          |         |          |
| 1-300             | 470                        | 135      | 470       | 135      | 510        | 175      | -        | -        | -       | -        |
| 301-600           | 480                        | 145      | 480       | 145      | 520        | 185      | -        | -        | -       | -        |
| 601-1050          | 500                        | 165      | 500       | 165      | 540        | 205      | -        | -        | -       | -        |
| 1051-1500         | 520                        | 185      | 520       | 185      | 560        | 225      | -        | -        | -       | -        |

| Model   | A   | B   | D  | E  | G   |
|---------|-----|-----|----|----|-----|
| EBT0300 | 110 | 150 | 20 | 20 | 180 |

| Stroke  | 1-300 | 301-600 | 601-1050 | 1050-1500 |
|---------|-------|---------|----------|-----------|
| EBT0300 | 20    | 30      | 50       | 70        |

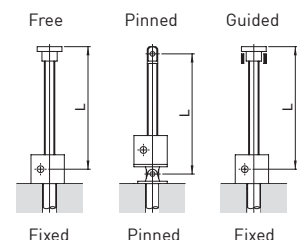


## Column Strength



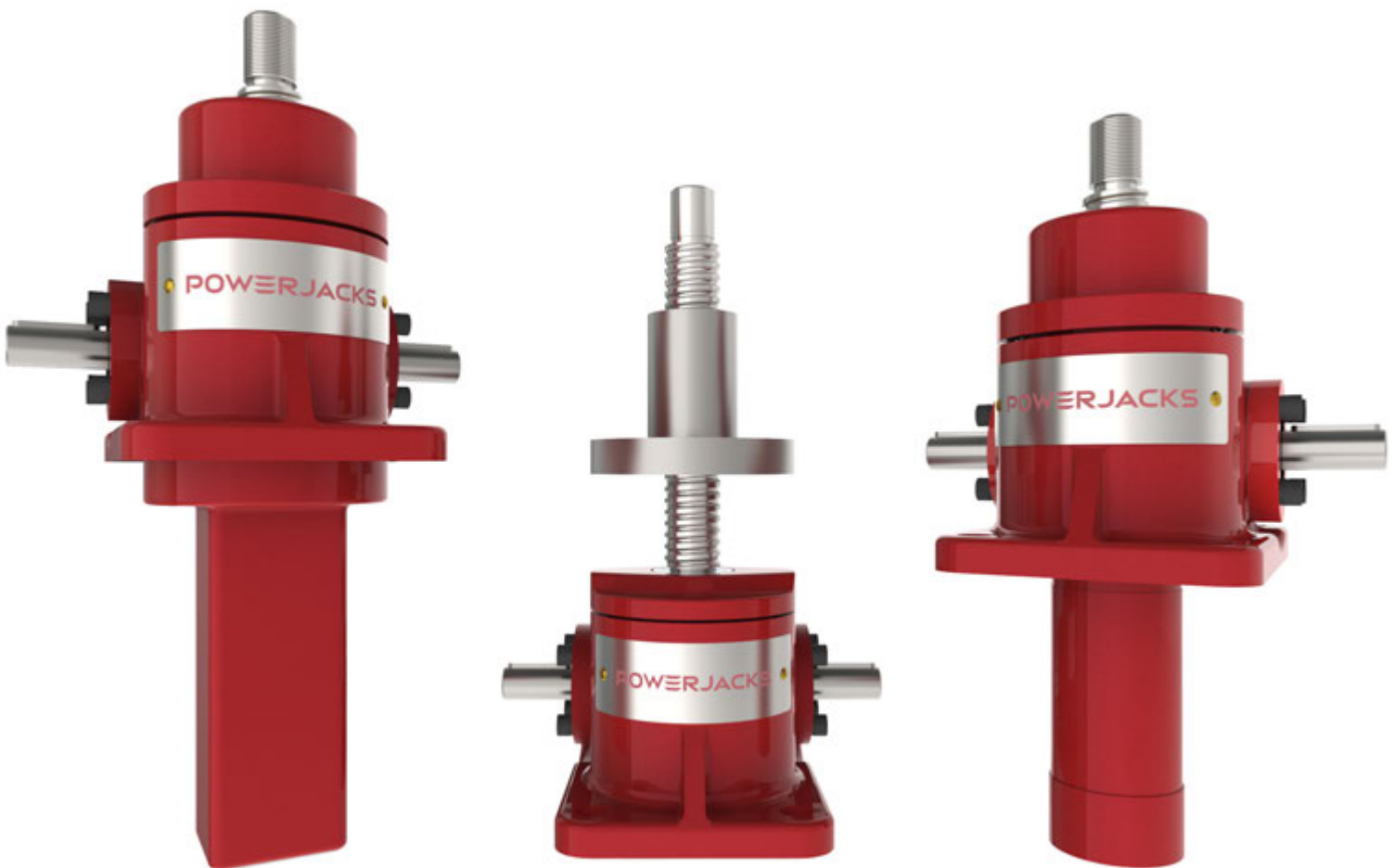
### Note:

- 1 Inverted Screw Jacks - Bellows Boot Closed Height assumes screw jack mounted on a structure with thickness = 30mm
- 2 Inverted Screw Jacks - Recommended bellows boot mounting plate  $\varnothing B \times [E + 5\text{mm}]$  thick.
- 3 Inverted Screw Jacks - Screw Jack mounting plate & bellows boot mounting plate are customers own supply
- 4 † Control tapes fitted (increase outer diameter by 20mm approximately).
- 5 For horizontal installations with than 450 mm of stroke, internal boot guides are recommended.
- 6 Customers with threaded end screw jacks must provide a fixing for the unattached bellows boot collar.
- 7 Bellows boots for Rotating Screw Jacks, other sizes, stroke and materials please consult Power Jacks.

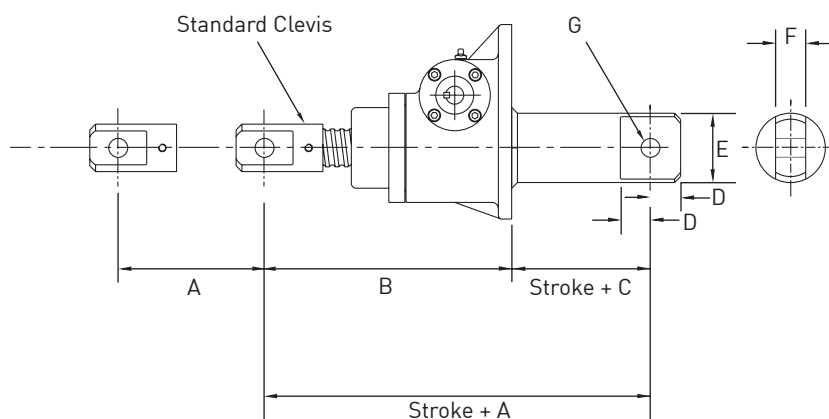


## E-Series Ball Screw Jack

PERFORMANCE  
ENHANCED VARIANTS  
TO SOLVE SPECIFIC  
APPLICATION  
REQUIREMENTS



### Double Clevis



| Model                                      | EBT0010              | EBT0025 |      | EBT0050 |      | EBT0100 |     | EBT0200 |     | EBT0300              | EBT0500              |
|--------------------------------------------|----------------------|---------|------|---------|------|---------|-----|---------|-----|----------------------|----------------------|
| Capacity                                   | 10                   | 25      | 25   | 50      | 50   | 100     | 100 | 200     | 200 | 300                  | 500                  |
| Lead Option                                | 1                    | 1       | 2    | 1       | 2    | 1       | 2   | 1       | 2   | 1                    | 1                    |
| A                                          | Available on Request | 260     | 287  | 313     | 364  | 427     | 450 | 525     | 573 | Available on Request | Available on Request |
| B                                          |                      | 202     | 229  | 245     | 296  | 299     | 322 | 386     | 434 |                      |                      |
| C                                          |                      | 58      | 58   | 68      | 68   | 128     | 128 | 139     | 139 |                      |                      |
| D                                          |                      | 23      | 23   | 30      | 30   | 33      | 33  | 40      | 40  |                      |                      |
| E                                          |                      | 48.3    | 48.3 | 60.3    | 60.3 | 73      | 73  | 102     | 102 |                      |                      |
| F                                          |                      | 30      | 30   | 35      | 35   | 40      | 40  | 50      | 50  |                      |                      |
| G                                          |                      | 16      | 16   | 20      | 20   | 22      | 22  | 30      | 30  |                      |                      |
| Max Raise at Max Rated Load in Compression |                      | 280     | 200  | 600     | 560  | 658     | 588 | 769     | 621 |                      |                      |

#### Note

1. For other performance and dimension information refer to translating screw models.
2. All dimensions in millimetres unless otherwise stated.

### Reduced Backlash Ball Screw Jacks



Metric Ball Screw Jacks can be provided with preloaded ball nuts to give reduced axial backlash as a high efficiency alternative to the metric machine screw anti-backlash option. Preloading on the ball nut is obtained by the "Interference Ball" method. By fitting Interference balls in the ball nut to obtain a diametrical interference fit and using the original track form, a four-point contact results.

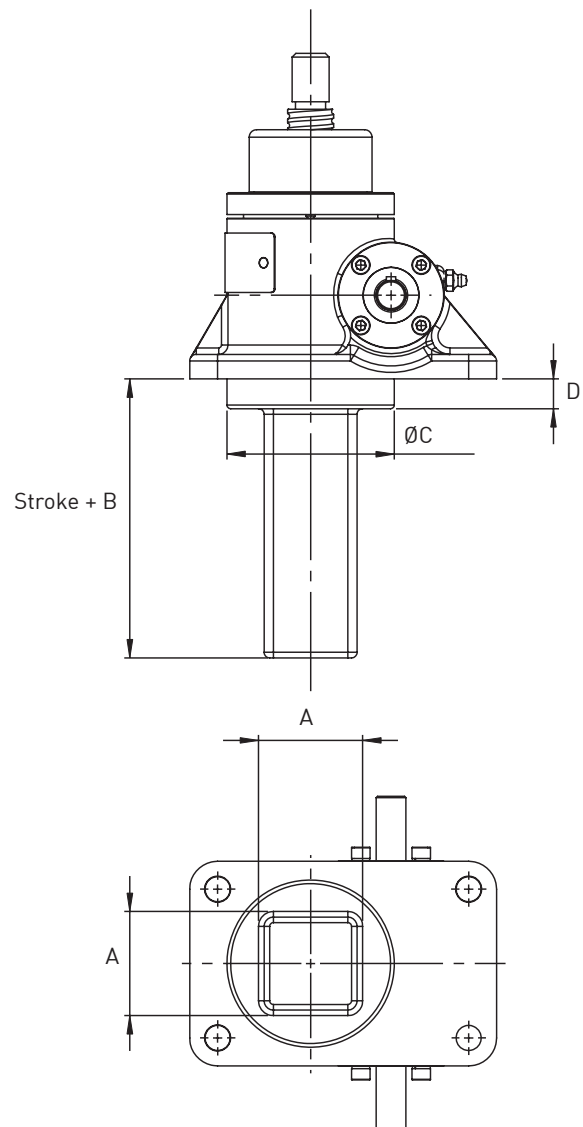
The anti-rotation device is available for translating ball screw models only. It is used only when the load to be moved (actuated) may rotate, i.e. the screw is unguided and does not prevent rotation.

The anti-rotation device consists of a square steel tube which guides the movement of a square aluminium bronze guide block fitted to the end of the ball screw. The guide block also acts as a stop nut.

| Model         | EBT0010 | EBT0025 | EBT0050 | EBT0100 | EBT0200 | EBT0300 | EBT0500 |
|---------------|---------|---------|---------|---------|---------|---------|---------|
| Capacity (kN) | 10      | 25      | 50      | 100     | 200     | 300     | 500     |
| A             | AOR     | 50      | 70      | AOR     | AOR     | AOR     | AOR     |
| B             | AOR     | 50      | 60      | AOR     | AOR     | AOR     | AOR     |
| C             | AOR     | 90      | 115     | AOR     | AOR     | AOR     | AOR     |
| D             | AOR     | 16      | 20      | AOR     | AOR     | AOR     | AOR     |

#### Note

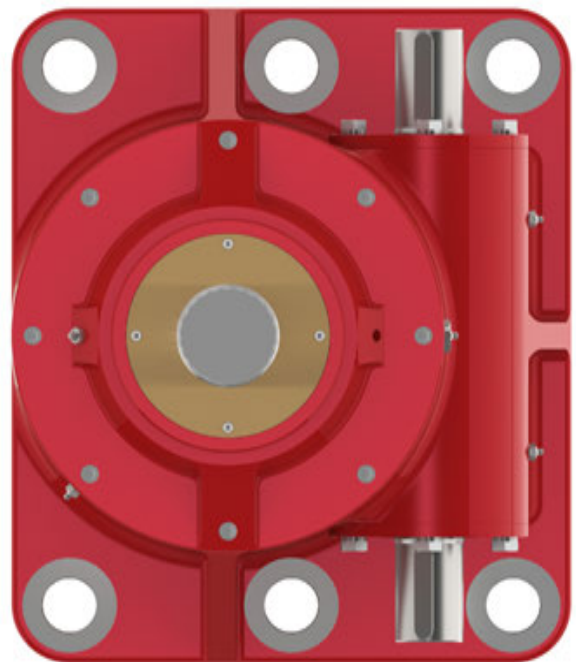
1. AOR = Application On Request, consult Power Jacks Ltd.
2. All dimensions in millimetres unless otherwise stated.



## E-Series Roller Screw Jack

HIGH PRECISION  
PLANETARY ROLLER SCREW  
INTEGRATED WITH OUR  
FLEXIBLE E-SERIES DESIGN  
FOR A SCREW JACK THAT  
MEETS THE NEEDS OF  
HIGH DUTY & HIGH LOAD  
APPLICATIONS.





### Features

- High Performance Power Jack
- Metric Single Face Roller Screw Jacks
- Capacities - up to 1000kN as standard
- High precision planetary roller screw
- Translating and Rotating Screw in Upright and Inverted types
- Precision Worm Gear Set
- 2 Gear ratios and 2 screw leads as standard
- Anti-Rotation Option
- 6 mounting options including trunnion and double clevis
- Special custom designs available



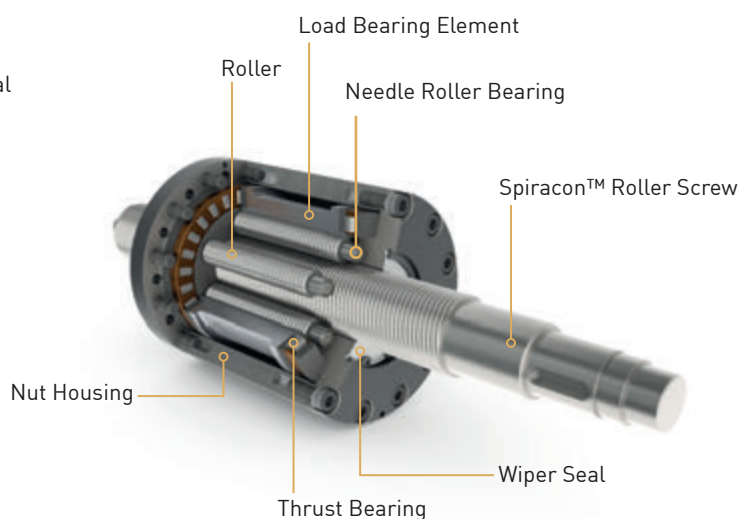
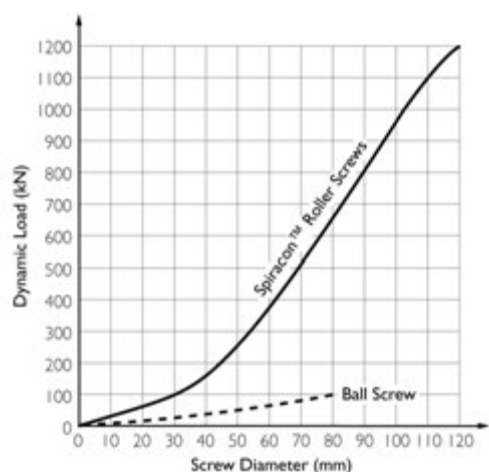
An extensive range of axially translating and rotating screw jacks fitted with the patented Spiracon roller screw and designed specifically to customers' application requirements. The Spiracon roller screw is an extremely high performance screw mechanism exhibiting almost no axial backlash and is designed to meet the following demands:

- High precision and repeatable positioning
- High speed
- High dynamic load capacity
- High duty
- High efficiency
- Long life
- Minimum maintenance requirements

The range covers lifting capacities up to 1000kN, with many design features available to meet the customers' particular requirements. The units' gearbox is based on the standard range of Power Jacks screw jacks, although other gearbox types can be designed for specific applications. The gearboxes are either grease or oil lubricated depending on the application. The roller screw is based around the standard Spiracon planetary roller screw range, with alternative nut housings available to meet the requirements of specific applications.

## Principle of Operation

The Spiracon™ system consists of a multi-start screw with an involute thread form and a number of planetary rollers with annular grooves, which engage with the screw. These rollers also engage with a grooved load bearing element, which transmits the load through roller thrust bearings, to the nut housing. The rolling action results in a high efficiency mechanism, while the line contact and hardened and ground construction achieves a high dynamic load carrying capacity, together with almost no axial backlash or wear.



## Typical Applications

Roller Screw Jacks are generally used when the application is moving a high load with a high duty cycle. Size for size roller screws offer higher load carrying capabilities than ball screws so for high load applications allow for more compact working envelopes. The high efficiency of the roller screw & nut significantly increase the efficiency of a screw jack in comparison to a Machine Screw Jack. Due to their high efficiency they nearly always require a brake to hold position. They are used in a wide variety of applications including Automotive, Steel, Defence and Nuclear.

## Standard Designs

The standard E-Series roller screw jack is available in translating and rotating screw designs in capacity sizes up to 1000kN.

The design is optimised for high load and high performance in a compact form. There is a large selection of options and accessories (section-6) available so you can configure a standard design that is just right for your application.

These options include Low-Backlash and Anti-Rotation designs.

## Special Designs

We can fully customise our screw jacks so that your application can be the best.

Customisation can be anything from a small modification such as an extra bolt hole on an end fitting to a completely new design of screw jack based on our class leading technology.

For more details please see the Special Screw Jack information in Section-7 or contact us today with your requirements. Our team are looking forward to working with you.

## Selecting the Right Screw Jack

Consider all application constraints then choose a product that looks suitable for the intended application. Calculate the power and torque requirements. This is a 5 step process:

- Screw Jack Input Speed (RPM)
- Operating Input Power (kW)
- Operating Input Torque (Nm)
- Screw Jack Start-up Torque (Nm)
- Mechanical Power and Torque Check

## Systems

The screw jacks can be connected together in systems so that multiple units can be operated and controlled together. These jacking system arrangements or configurations can be built in many formats with the use of bevel gearboxes, motors, reduction gearbox, drive shafts, couplings, plummer blocks and motion control devices.

The use of bevel gearboxes allows the distribution of drive throughout a jacking system. The gearboxes come in 2, 3 and 4 way drive types. See the Bevel Gearbox catalogue for more details.

Bevel gearboxes and other system components can also be supplied in stainless steel or other corrosion resistant designs.

Two of the most popular system configurations are the 'H' and 'U' configured jacking systems. Remember that multiple screw jacks can be linked together mechanically or electrically. The latter is useful if there is no space for linking drive shafts.

If multiple roller screw jacks are connected in a mechanically linked system then the complete system in some circumstances may be considered self-locking depending on the gear ratios and efficiencies of units in the system. In general, Power Jacks recommend a brake is used on **ALL** Roller Screw Jack systems. If you would like this checked, consult Power Jacks. Alternatively, to be sure, include a brake on the system either as a stand alone device or as a brake motor.



E-Series

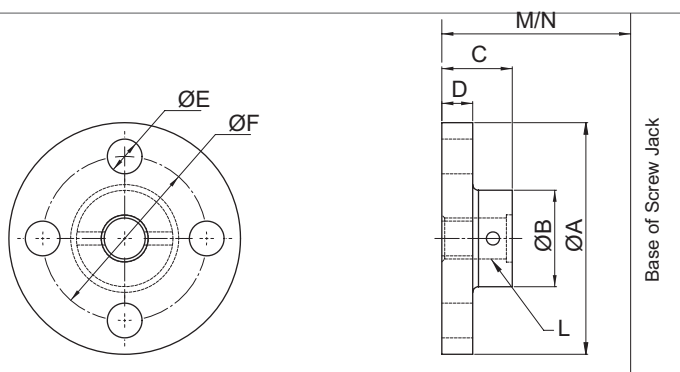
6

## E-Series Screw Jack

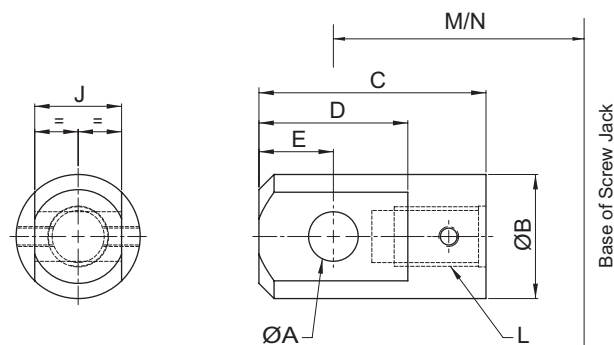
ACCESSORIES FOR ALL  
MACHINE SCREW,  
STAINLESS STEEL,  
BALL SCREW AND  
ROLLER SCREW JACKS



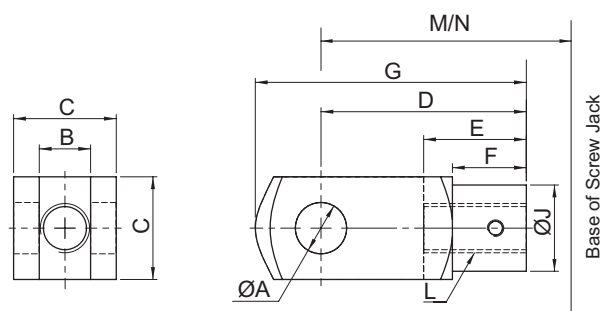
## Top Plate



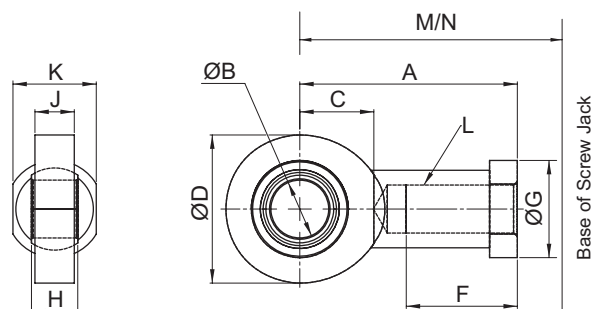
## Clevis End



## Fork End



## Rod End



| Capacity (kN) |                 | 5         | 10         | 25        | 50      | 100     | 200     | 300     | 500      | 1000     | 1500     | 2000     |
|---------------|-----------------|-----------|------------|-----------|---------|---------|---------|---------|----------|----------|----------|----------|
| Top Plate     | ØA              | 65        | 80         | 100       | 120     | 150     | 170     | 240     | 280      | 380      | 400      | 470      |
|               | ØB              | 25        | 30         | 40        | 50      | 65      | 75      | 110     | 150      | 200      | 215      | 265      |
|               | C               | 21        | 25         | 31.5      | 36.5    | 42      | 58      | 67      | 92       | 127      | 162      | 172      |
|               | D               | 8         | 10         | 12        | 16      | 20      | 25      | 30      | 35       | 75       | 80       | 100      |
|               | ØE x QTY        | 9 x 4     | 11 x 4     | 13.5 x 4  | 18 x 4  | 22 x 4  | 26 x 4  | 33 x 4  | 33 x 4   | 51 x 4   | 51 x 6   | 52 x 8   |
|               | ØF (PCD)        | 45        | 55         | 70        | 85      | 110     | 120     | 170     | 215      | 290      | 310      | 370      |
|               | L               | M10 x 1.5 | M12 x 1.75 | M20 x 2.5 | M24 x 3 | M36 x 4 | M48 x 5 | M72 x 4 | M100 x 4 | M125 x 4 | M145 x 6 | M180 x 8 |
|               | M <sup>#1</sup> | Upright   | 95         | 125       | 145     | 185     | 200     | 265     | 325      | 390      | 560      | 690      |
|               |                 | Inverted  | 40         | 45        | 55      | 65      | 80      | 95      | 115      | 150      | 260      | 280      |
|               | N <sup>#2</sup> | Upright   | -          | 150       | 175     | 218     | 252     | 338     | 445      | -        | -        | -        |
|               |                 | Inverted  | -          | 45        | 55      | 65      | 80      | 95      | 115      | -        | -        | -        |

| Capacity (kN) |                 | 5         | 10         | 25        | 50      | 100     | 200     | 300     | 500      | 1000     | 1500     | 2000     |
|---------------|-----------------|-----------|------------|-----------|---------|---------|---------|---------|----------|----------|----------|----------|
| Clevis Plate  | ØA              | 10        | 12         | 16        | 20      | 22      | 30      | 45      | 60       | 90       | 105      | 125      |
|               | ØB              | 25        | 30         | 40        | 50      | 65      | 75      | 110     | 150      | 200      | 230      | 270      |
|               | C               | 56        | 63         | 79.5      | 91.5    | 120     | 143     | 167     | 217      | 297      | 404      | 490      |
|               | D               | 30        | 36         | 46        | 60      | 66      | 80      | 120     | 150      | 210      | 215      | 270      |
|               | E               | 15        | 18         | 23        | 30      | 33      | 40      | 60      | 75       | 105      | 105      | 130      |
|               | J               | 15        | 20         | 30        | 35      | 40      | 50      | 80      | 110      | 140      | 150      | 175      |
|               | L               | M10 x 1.5 | M12 x 1.75 | M20 x 2.5 | M24 x 3 | M36 x 4 | M48 x 5 | M72 x 4 | M100 x 4 | M125 x 4 | M145 x 6 | M180 x 8 |
|               | M <sup>#1</sup> | Upright   | 115        | 145       | 170     | 210     | 245     | 310     | 365      | 440      | 625      | 880      |
|               |                 | Inverted  | 60         | 65        | 80      | 90      | 125     | 140     | 155      | 200      | 325      | 470      |
|               | N <sup>#2</sup> | Upright   | -          | 170       | 200     | 243     | 297     | 383     | 485      | -        | -        | -        |
|               |                 | Inverted  | -          | 65        | 80      | 90      | 125     | 140     | 155      | -        | -        | -        |

| Capacity (kN) |                 | 5         | 10         | 25        | 50      | 100     | 200     | 300                  | 500                  | 1000                 | 1500                 | 2000                 |
|---------------|-----------------|-----------|------------|-----------|---------|---------|---------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Fork End      | ØA              | 10        | 12         | 20        | 25      | 35      | 50      | Available on Request | Available on Request | Available on Request | Available on Request | Available on Request |
|               | B               | 10        | 12         | 20        | 25      | 35      | 50      |                      |                      |                      |                      |                      |
|               | C               | 20        | 24         | 40        | 50      | 70      | 96      |                      |                      |                      |                      |                      |
|               | D               | 40        | 48         | 80        | 100     | 144     | 192     |                      |                      |                      |                      |                      |
|               | E               | 20        | 24         | 40        | 50      | 72      | 96      |                      |                      |                      |                      |                      |
|               | F               | 15        | 18         | 30        | 36      | 54      | 73      |                      |                      |                      |                      |                      |
|               | G               | 52        | 62         | 105       | 132     | 188     | 265     |                      |                      |                      |                      |                      |
|               | ØJ              | 18        | 20         | 34        | 42      | 60      | 82      |                      |                      |                      |                      |                      |
|               | L               | M10 x 1.5 | M12 x 1.75 | M20 x 2.5 | M24 x 3 | M36 x 4 | M48 x 5 |                      |                      |                      |                      |                      |
|               | M <sup>#1</sup> | Upright   | 114        | 148       | 194     | 248     | 302     |                      |                      |                      |                      |                      |
|               |                 | Inverted  | 59         | 68        | 104     | 128     | 230     |                      |                      |                      |                      |                      |
|               | N <sup>#2</sup> | Upright   | -          | 173       | 224     | 281     | 354     |                      |                      |                      |                      |                      |
|               |                 | Inverted  | -          | 68        | 104     | 128     | 230     |                      |                      |                      |                      |                      |

| Capacity (kN) |                 | 5         | 10         | 25        | 50      | 100     | 200     | 300                  | 500                  | 1000                 | 1500                 | 2000                 |
|---------------|-----------------|-----------|------------|-----------|---------|---------|---------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Rod End       | A               | 43        | 50         | 77        | 94      | 125     | 160     | Available on Request | Available on Request | Available on Request | Available on Request | Available on Request |
|               | ØB              | 10        | 12         | 20        | 25      | 35      | 50      |                      |                      |                      |                      |                      |
|               | C               | 15        | 18         | 27        | 32      | 42      | 60      |                      |                      |                      |                      |                      |
|               | ØD              | 29        | 34         | 53        | 64      | 82      | 112     |                      |                      |                      |                      |                      |
|               | F               | -         | 23         | 40        | 48      | 60      | 68      |                      |                      |                      |                      |                      |
|               | ØG              | 19        | 22         | 35        | 42      | 58      | 75      |                      |                      |                      |                      |                      |
|               | H               | 9         | 10         | 16        | 20      | 25      | 35      |                      |                      |                      |                      |                      |
|               | J               | 7         | 8          | 13        | 17      | 21      | 30      |                      |                      |                      |                      |                      |
|               | K               | 17        | 19         | 32        | 36      | 50      | 65      |                      |                      |                      |                      |                      |
|               | L               | M10 x 1.5 | M12 x 1.75 | M20 x 1.5 | M24 x 2 | M36 x 3 | M45 x 3 |                      |                      |                      |                      |                      |
|               | M <sup>#1</sup> | Upright   | 117        | 150       | 190     | 242     | 283     |                      |                      |                      |                      |                      |
|               |                 | Inverted  | 62         | 70        | 100     | 122     | 163     |                      |                      |                      |                      |                      |
|               | N <sup>#2</sup> | Upright   | -          | 175       | 220     | 275     | 440     |                      |                      |                      |                      |                      |
|               |                 | Inverted  | -          | 70        | 100     | 122     | 163     |                      |                      |                      |                      |                      |

## Note

1. M = For Machine Screw Jacks
2. N = For Ball Screw Jacks, Standard Lead only.



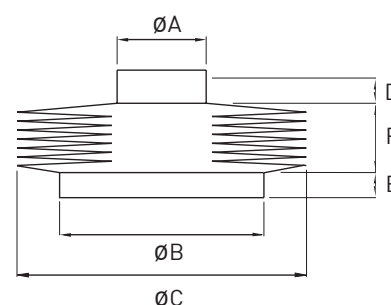
## Features

- Protects the screw from dust and dirt
- Guards against moisture and corrosive contaminants
- Helps maintain the proper lubrication
- Boots are made of P.V.C. coated nylon with sewn construction. Other materials are available for applications involving high temperatures, highly corrosive atmospheres and other special conditions.



## Boot Dimensions

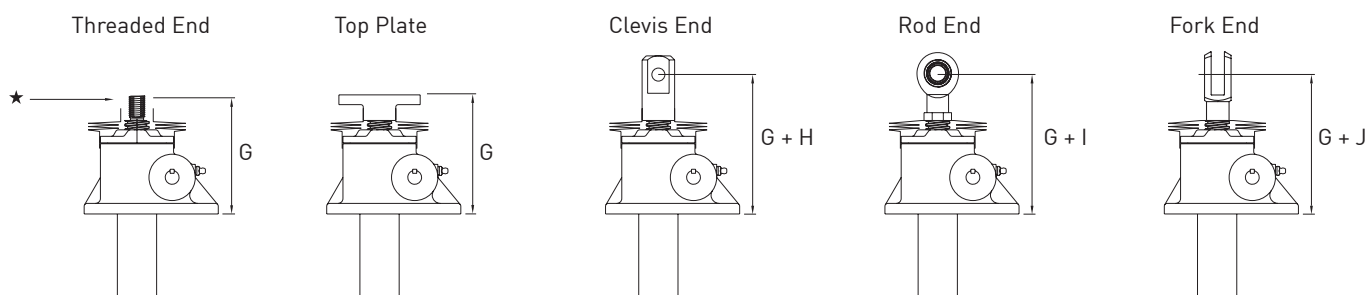
| Model   | A   | B   | C   | D  | E  |
|---------|-----|-----|-----|----|----|
| EMT0005 | 25  | 60  | 100 | 13 | 13 |
| EMT0010 | 30  | 70  | 110 | 15 | 15 |
| EMT0025 | 40  | 90  | 120 | 15 | 23 |
| EMT0050 | 50  | 115 | 140 | 15 | 31 |
| EMT0100 | 65  | 136 | 150 | 15 | 31 |
| EMT0200 | 75  | 165 | 165 | 20 | 20 |
| EMT0300 | 110 | 220 | 191 | 20 | 20 |
| EMT0500 | 150 | 285 | 210 | 20 | 45 |
| EMT1000 | 200 | 220 | 244 | 20 | 20 |
| EMT1500 | 215 | 410 | 480 | 25 | 25 |
| EMT2000 | 265 | 396 | 470 | 25 | 25 |



| Model |                    | EMT0005 | EMT0010 | EMT0025 | EMT0050 | EMT0100 | EMT0200 | EMT0300 | EMT0500 | EMT1000 | EMT1500 | EMT2000 |
|-------|--------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| F     | Stroke 0 → 150     | 10      | 8       | 8       | 8       | -       | -       | -       | -       | -       | -       | -       |
|       | Stroke 0 → 300     | 20      | 20      | 20      | 20      | 20      | 20      | 20      | 20      | 20      | -       | -       |
|       | Stroke 0 → 500     | -       | -       | -       | -       | -       | -       | -       | -       | -       | 20      | 25      |
|       | Stroke 301 → 600   | 30      | 35      | 30      | 30      | 30      | 30      | 30      | 30      | 30      | -       | -       |
|       | Stroke 501 → 1000  | -       | -       | -       | -       | -       | -       | -       | -       | -       | 45      | 40      |
|       | Stroke 601 → 1050  | -       | -       | 50      | 50      | 50      | 50      | 50      | 50      | 50      | -       | -       |
|       | Stroke 1051 → 1500 | -       | -       | 70      | 70      | 70      | 70      | 70      | 70      | 70      | -       | -       |
|       | Stroke 1001 → 2000 | -       | -       | -       | -       | -       | -       | -       | -       | -       | 80      | 75†     |
|       | Stroke 2001 → 4000 | -       | -       | -       | -       | -       | -       | -       | -       | -       | 160     | 145†    |

F = Bellows boot minimum closed thickness, - = Not applicable

## Closed Heights



### Notes for all metric machine screw jacks with bellows boots

1. Supplied complete with a set of corrosion-resistant 'jubilee' clips (2) suitable for fitting over collar diameters.
2. † Control tapes are fitted (approximately 20 mm increase to outer diameter).
3. For horizontal installation exceeding 450 mm of travel, internal boot guides are recommended.
4. Customers with threaded end screw jacks must provide a fixing for the unattached collar (★).
5. Bellows boots for Rotating Screw Jacks consult Power Jacks Ltd.
6. For other sizes, strokes and materials please consult Power Jacks Ltd.
7. All dimensions in millimetres unless otherwise stated.
8. Dimensions subject to change without notice.
9. Screw Jack mounting plate and bellows boot mounting plate are usually all part of the customers superstructure (★ ★).

For other options consult Power Jacks.

## Closed Height for all Upright Machine Screw Jacks and Anti-Rotation (Keyed) Types

| Model | EMT0005                         | EMT0010 | EMT0025 | EMT0050 | EMT0100 | EMT0200 | EMT0300 | EMT0500 | EMT1000 | EMT1500 | EMT2000 |
|-------|---------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| G     | Stroke 0 → 150                  | 95      | 125     | 145     | 185     | -       | -       | -       | -       | -       | -       |
|       | Stroke 0 → 300                  | 120     | 130     | 145     | 185     | 200     | 265     | 325     | 390     | 560     | -       |
|       | Stroke 0 → 500                  | -       | -       | -       | -       | -       | -       | -       | -       | 620     | 690     |
|       | Stroke 301 → 600                | 120     | 140     | 170     | 210     | 200     | 265     | 325     | 415     | 560     | -       |
|       | Stroke 501 → 1000               | -       | -       | -       | -       | -       | -       | -       | -       | 630     | 690     |
|       | Stroke 601 → 1050               | -       | -       | 195     | 210     | 225     | 290     | 350     | 440     | 585     | -       |
|       | Stroke 1051 → 1500              | -       | -       | 195     | 235     | 250     | 315     | 375     | 465     | 610     | -       |
|       | Stroke 1001 → 2000              | -       | -       | -       | -       | -       | -       | -       | -       | 665     | 695†    |
|       | Stroke 2001 → 4000              | -       | -       | -       | -       | -       | -       | -       | -       | 745     | 795†    |
| H     | Extra Closed Height for Clevis  | 20      | 20      | 25      | 25      | 45      | 45      | 40      | 50      | 65      | 140     |
| I     | Extra Closed Height for Fork    | 19      | 23      | 49      | 63      | 102     | 135     | Request | Request | Request | Request |
| J     | Extra Closed Height for Rod End | 37      | 40      | 60      | 72      | 98      | 122     | Request | Request | Request | Request |

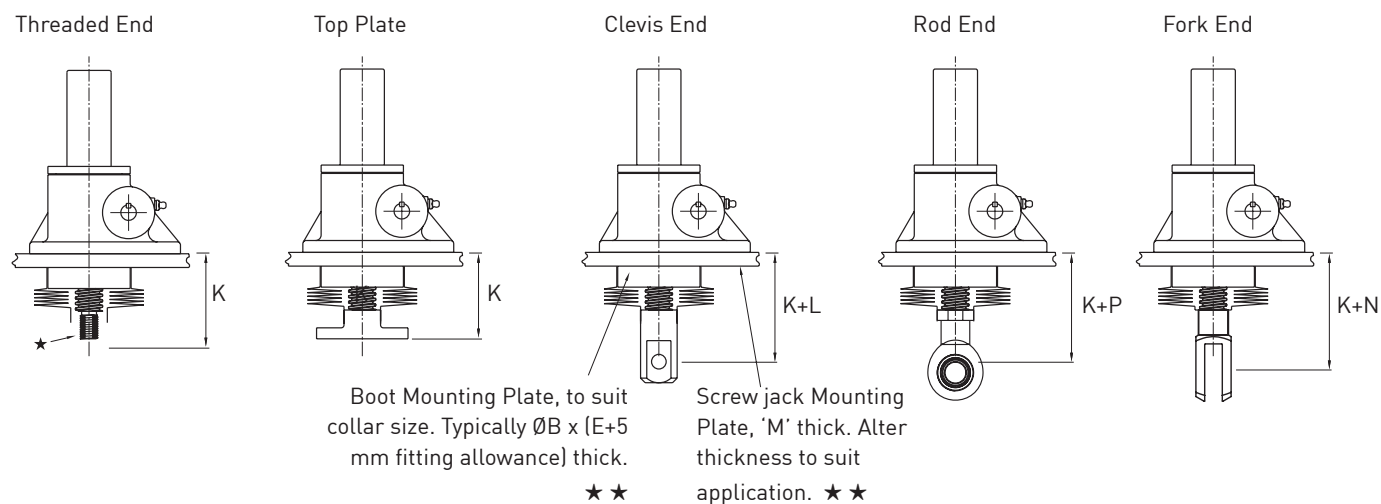
## Closed Height for all Upright Machine Screw Jacks with Anti-Backlash

| Model | EMT0005                         | EMT0010 | EMT0025 | EMT0050 | EMT0100 | EMT0200 | EMT0300 | EMT0500 | EMT1000 | EMT1500 | EMT2000 |
|-------|---------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| G     | Stroke 0 → 150                  | 95      | 125     | 145     | 185     | -       | -       | -       | -       | -       | -       |
|       | Stroke 0 → 300                  | 120     | 130     | 145     | 185     | 200     | 265     | 340     | 415     | 585     | -       |
|       | Stroke 0 → 500                  | -       | -       | -       | -       | -       | -       | -       | -       | Request | Request |
|       | Stroke 301 → 600                | 120     | 140     | 170     | 210     | 200     | 265     | 340     | 440     | 585     | -       |
|       | Stroke 501 → 1000               | -       | -       | -       | -       | -       | -       | -       | -       | Request | Request |
|       | Stroke 601 → 1050               | -       | -       | 195     | 210     | 225     | 290     | 340     | 465     | 610     | -       |
|       | Stroke 1051 → 1500              | -       | -       | 195     | 235     | 250     | 315     | 365     | 490     | 635     | -       |
|       | Stroke 1001 → 2000              | -       | -       | -       | -       | -       | -       | -       | -       | Request | Request |
|       | Stroke 2001 → 4000              | -       | -       | -       | -       | -       | -       | -       | -       | Request | Request |
| H     | Extra Closed Height for Clevis  | 20      | 20      | 25      | 25      | 45      | 45      | 40      | 50      | 65      | Request |
| I     | Extra Closed Height for Fork    | 19      | 23      | 49      | 63      | 102     | 135     | Request | Request | Request | Request |
| J     | Extra Closed Height for Rod End | 37      | 40      | 60      | 72      | 98      | 122     | Request | Request | Request | Request |

## Closed Height for all Upright Machine Screw Jacks with Anti-Backlash &amp; Anti-Rotation (Keyed)

| Model | EMT0005                         | EMT0010 | EMT0025 | EMT0050 | EMT0100 | EMT0200 | EMT0300 | EMT0500 | EMT1000 | EMT1500 | EMT2000 |
|-------|---------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| G     | Stroke 0 → 150                  | 95      | 125     | 145     | 185     | -       | -       | -       | -       | -       | -       |
|       | Stroke 0 → 300                  | 120     | 130     | 145     | 185     | 200     | 265     | 340     | 415     | 585     | -       |
|       | Stroke 0 → 500                  | -       | -       | -       | -       | -       | -       | -       | -       | Request | Request |
|       | Stroke 301 → 600                | 120     | 140     | 170     | 195     | 200     | 265     | 340     | 440     | 585     | -       |
|       | Stroke 501 → 1000               | -       | -       | -       | -       | -       | -       | -       | -       | Request | Request |
|       | Stroke 601 → 1050               | -       | -       | 195     | 195     | 225     | 290     | 365     | 465     | 610     | -       |
|       | Stroke 1051 → 1500              | -       | -       | 195     | 220     | 250     | 315     | 390     | 490     | 635     | -       |
|       | Stroke 1001 → 2000              | -       | -       | -       | -       | -       | -       | -       | -       | Request | Request |
|       | Stroke 2001 → 4000              | -       | -       | -       | -       | -       | -       | -       | -       | Request | Request |
| H     | Extra Closed Height for Clevis  | 20      | 20      | 25      | 25      | 45      | 45      | 40      | 50      | 65      | Request |
| I     | Extra Closed Height for Fork    | 19      | 23      | 49      | 63      | 102     | 135     | Request | Request | Request | Request |
| J     | Extra Closed Height for Rod End | 37      | 40      | 60      | 72      | 98      | 122     | Request | Request | Request | Request |

## Closed Heights



## Closed Height for all Inverted Machine Screw Jacks Standard or Anti-Backlash or Anti-Rotation (Keyed)

| Model |                                 | EMT0005 | EMT0010 | EMT0025 | EMT0050 | EMT0100 | EMT0200 | EMT0300 | EMT0500 | EMT1000 | EMT1500 | EMT2000 |
|-------|---------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| M     | Mounting Plate                  | 10      | 10      | 15      | 15      | 20      | 20      | 30      | 30      | 50      | 60      | 70      |
| K     | Stroke 0 → 150                  | 70      | 75      | 80      | 110     | -       | -       | -       | -       | -       | -       | -       |
|       | Stroke 0 → 300                  | 90      | 95      | 80      | 120     | 105     | 120     | 140     | 175     | 260     | -       | -       |
|       | Stroke 301 → 500                | -       | -       | -       | -       | -       | -       | -       | -       | -       | 230     | 280     |
|       | Stroke 301 → 500                | 90      | 95      | 105     | 130     | 130     | 145     | 165     | 200     | 260     | -       | -       |
|       | Stroke 501 → 1000               | -       | -       | -       | -       | -       | -       | -       | -       | -       | 225     | 280     |
|       | Stroke 601 → 1050               | -       | -       | 130     | 150     | 130     | 145     | 165     | 225     | 285     | -       | -       |
|       | Stroke 1051 → 1500              | -       | -       | 130     | 170     | 155     | 170     | 190     | 250     | 310     | -       | -       |
|       | Stroke 1001 → 2000              | -       | -       | -       | -       | -       | -       | -       | -       | -       | 290     | 285+    |
|       | Stroke 2001 → 4000              | -       | -       | -       | -       | -       | -       | -       | -       | -       | 370     | 350+    |
| L     | Extra Closed Height for Clevis  | 20      | 20      | 25      | 25      | 45      | 45      | 40      | 50      | 65      | 140     | 190     |
| N     | Extra Closed Height for Fork    | 19      | 23      | 49      | 63      | 102     | 135     | Request | Request | Request | Request | Request |
| P     | Extra Closed Height for Rod End | 37      | 40      | 60      | 72      | 98      | 122     | Request | Request | Request | Request | Request |

## Closed Height for all Inverted Machine Screw Jacks with Anti-Backlash and Anti-Rotation (Keyed)

| Model |                                 | EMT0005 | EMT0010 | EMT0025 | EMT0050 | EMT0100 | EMT0200 | EMT0300 | EMT0500 | EMT1000 | EMT1500 | EMT2000 |
|-------|---------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| M     | Mounting Plate                  | 10      | 10      | 15      | 15      | 20      | 20      | 30      | 30      | 50      | 60      | 70      |
| K     | Stroke 0 → 150                  | 70      | 75      | 80      | 110     | -       | -       | -       | -       | -       | -       | -       |
|       | Stroke 0 → 300                  | 90      | 95      | 80      | 120     | 105     | 135     | 140     | 238     | 405     | -       | -       |
|       | Stroke 301 → 500                | -       | -       | -       | -       | -       | -       | -       | -       | -       | Request | Request |
|       | Stroke 301 → 500                | 90      | 95      | 105     | 130     | 130     | 160     | 165     | 263     | 405     | -       | -       |
|       | Stroke 501 → 1000               | -       | -       | -       | -       | -       | -       | -       | -       | -       | Request | Request |
|       | Stroke 601 → 1050               | -       | -       | 130     | 150     | 130     | 160     | 165     | 288     | 430     | -       | -       |
|       | Stroke 1051 → 1500              | -       | -       | 130     | 170     | 155     | 185     | 190     | 313     | 455     | -       | -       |
|       | Stroke 1001 → 2000              | -       | -       | -       | -       | -       | -       | -       | -       | -       | Request | Request |
|       | Stroke 2001 → 4000              | -       | -       | -       | -       | -       | -       | -       | -       | -       | Request | Request |
| L     | Extra Closed Height for Clevis  | 20      | 20      | 25      | 25      | 45      | 45      | 40      | 50      | 65      | Request | Request |
| N     | Extra Closed Height for Fork    | 19      | 23      | 49      | 63      | 102     | 135     | Request | Request | Request | Request | Request |
| P     | Extra Closed Height for Rod End | 37      | 40      | 60      | 72      | 98      | 122     | Request | Request | Request | Request | Request |

## Features

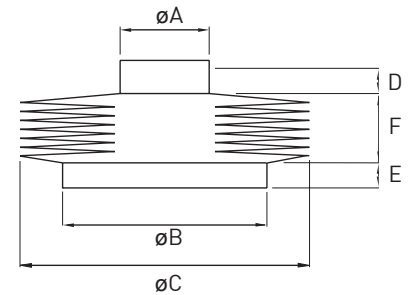
- Protects the screw from dust and dirt
- Guards against moisture and corrosive contaminants
- Helps maintain the proper lubrication
- Boots are made of P.V.C. coated nylon with sewn construction. Other materials are available for applications involving high temperatures, highly corrosive atmospheres and other special conditions.



## Boot Dimensions

| Model   | A  | B   | C   | D  | E  |
|---------|----|-----|-----|----|----|
| EBT0010 | 30 | 75  | 114 | 12 | 12 |
| EBT0025 | 40 | 66  | 120 | 15 | 15 |
| EBT0050 | 50 | 85  | 140 | 15 | 15 |
| EBT0100 | 65 | 100 | 150 | 15 | 15 |
| EBT0200 | 75 | 105 | 165 | 20 | 20 |

| Model   | A                    | B   | C   | D  | E  |
|---------|----------------------|-----|-----|----|----|
| EBT0300 | 110                  | 150 | 180 | 20 | 20 |
| EBT0500 | Available on Request |     |     |    |    |

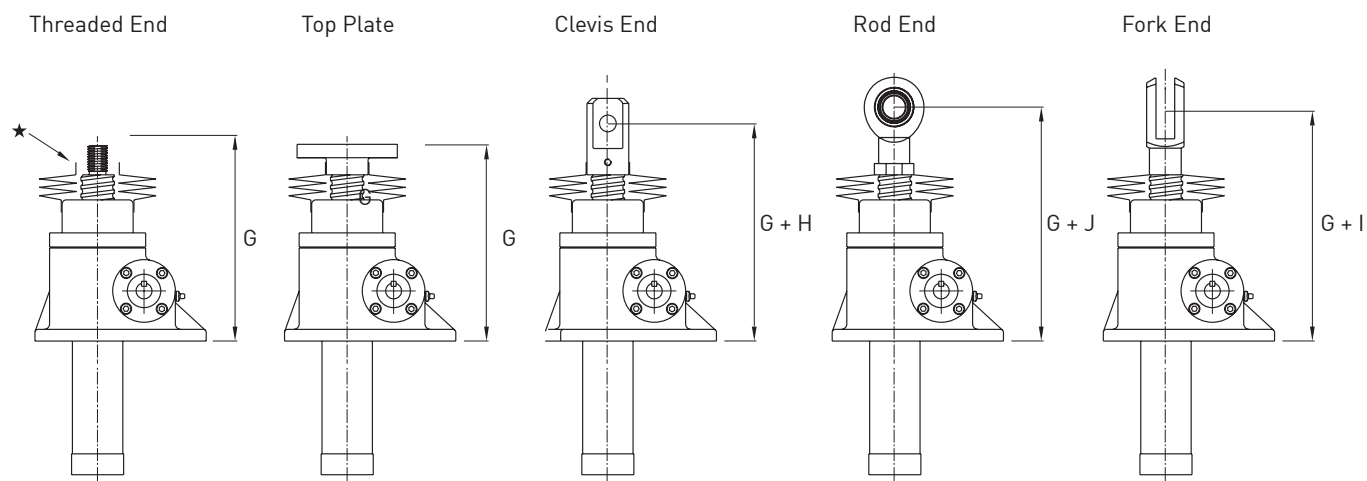


| Model |                    | EBT0010 | EBT0025 | EBT0050 | EBT0100 | EBT0200 | EBT0300 |
|-------|--------------------|---------|---------|---------|---------|---------|---------|
| F     | Stroke 0 → 300     | 16      | 20      | 20      | 20      | 20      | 20      |
|       | Stroke 301 → 600   | 32      | 30      | 30      | 30      | 30      | 30      |
|       | Stroke 601 → 900   | -       | -       | 45      | -       | -       | -       |
|       | Stroke 601 → 1050  | 56      | 50      | -       | 50      | 50      | 50      |
|       | Stroke 901 → 1050  | -       | -       | 50      | -       | -       | -       |
|       | Stroke 1051 → 1500 | 80      | 70      | 70      | 70      | 70      | 70      |

### Note

1. F = Bellows boot minimum closed thickness
2. - = Not applicable consult Power Jacks Ltd
3. † = Control tapes fitted (approximately 20 mm increase to outer diameter).
4. Supplied complete with a set of corrosion-resistant 'jubilee' clips (2) suitable for fitting over collar diameters.
5. For horizontal installation exceeding 450 mm of travel, internal boot guides are recommended.
6. Customers with threaded end screw jacks must provide a fixing for the unattached collar (★).
7. Bellows boots for rotating screw jacks consult Power Jacks Ltd.
8. For other sizes, strokes and materials please contact Power Jacks Ltd.
9. All dimensions in millimetres unless otherwise stated.
10. Dimensions subject to change without notice.
11. Screw Jack mounting plate and bellows boot mounting plate are usually all part of the customers superstructure (★ ★). For other options consult Power Jacks.

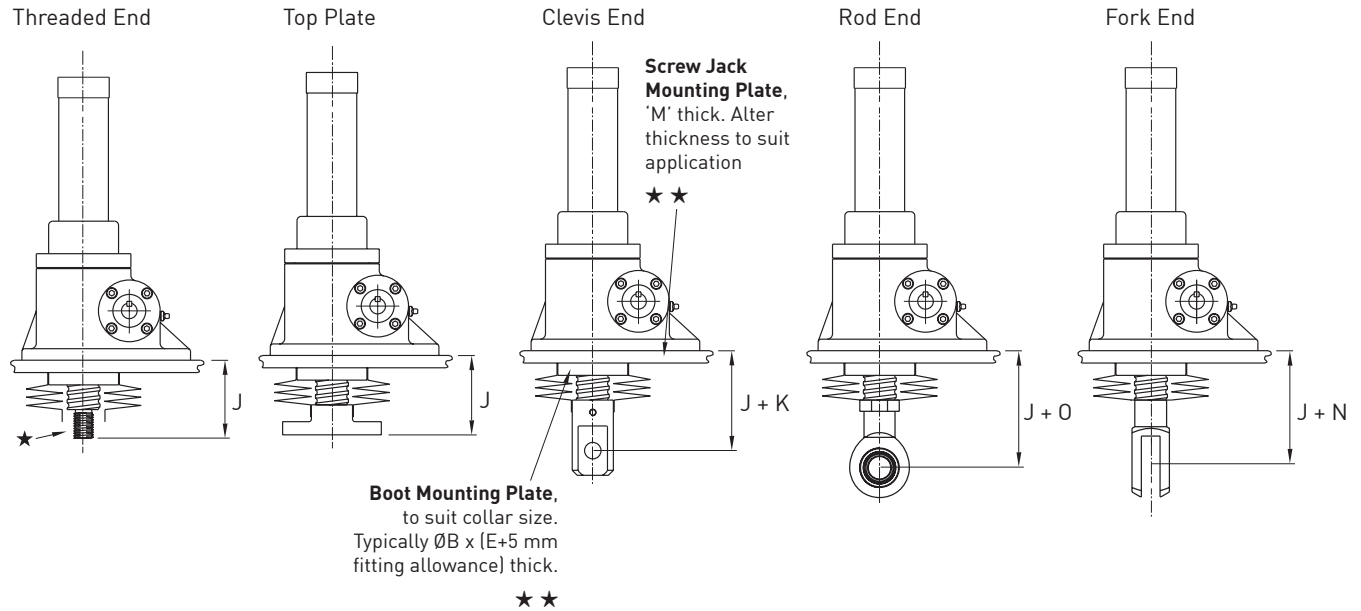
## Closed Heights



## Closed Height for all Upright Metric Ball Screw Jacks

| Model |                                 | EBT0010 | EBT0025 |     | EBT0050 |     | EBT0100 |     | EBT0200 |     | EBT0300 |
|-------|---------------------------------|---------|---------|-----|---------|-----|---------|-----|---------|-----|---------|
|       | Lead Option                     | 1       | 1       | 2   | 1       | 2   | 1       | 2   | 1       | 1   | 1       |
| G     | Stroke 0 → 300                  | 166     | 180     | 200 | 230     | 270 | 255     | 285 | 348     | 396 | 470     |
|       | Stroke 301 → 600                | 182     | 190     | 210 | 240     | 280 | 265     | 295 | 358     | 406 | 480     |
|       | Stroke 601 → 900                | -       | -       | -   | 255     | 295 | -       | -   | -       | -   | -       |
|       | Stroke 601 → 1050               | 206     | 210     | 230 | -       | -   | 285     | 315 | 378     | 426 | 500     |
|       | Stroke 901 → 1050               | -       | -       | -   | 260     | 300 | -       | -   | -       | -   | -       |
|       | Stroke 1051 → 1500              | 230     | 230     | 250 | 280     | 320 | 305     | 335 | 378     | 446 | 520     |
| H     | Extra Closed Height for Clevis  | 20      | 25      | 25  | 25      | 25  | 45      | 45  | 45      | 45  | 40      |
| I     | Extra Closed Height for Fork    | 23      | 49      | 49  | 63      | 63  | 82      | 82  | 135     | 135 | Request |
| J     | Extra Closed Height for Rod End | 43      | 60      | 60  | 72      | 72  | 98      | 98  | 122     | 122 | Request |

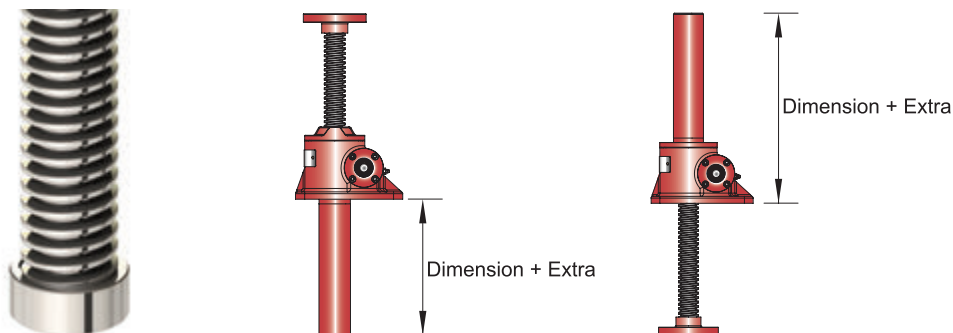
## Closed Heights



## Closed Height for all Inverted Metric Ball Screw Jacks

| Model |                                 | EBT0010 | EBT0025 |     | EBT0050 |     | EBT0100 |     | EBT0200 |     | EBT0300 |
|-------|---------------------------------|---------|---------|-----|---------|-----|---------|-----|---------|-----|---------|
|       | Lead Option                     | 1       | 1       | 2   | 1       | 2   | 1       | 2   | 1       | 2   | 1       |
| M     | Mounting Plate                  | 10      | 15      | 15  | 15      | 15  | 20      | 20  | 20      | 20  | 30      |
| G     | Stroke 0 → 300                  | 61      | 100     | 100 | 105     | 105 | 120     | 120 | 140     | 140 | 135     |
|       | Stroke 301 → 600                | 77      | 110     | 110 | 115     | 115 | 130     | 130 | 150     | 150 | 145     |
|       | Stroke 601 → 900                | -       | -       | -   | 130     | 130 | -       | -   | -       | -   | -       |
|       | Stroke 601 → 1050               | 101     | 130     | 130 | -       | -   | 150     | 150 | 170     | 170 | 165     |
|       | Stroke 901 → 1050               | -       | -       | -   | 135     | 135 | -       | -   | -       | -   | -       |
|       | Stroke 1051 → 1500              |         |         |     | 155     | 155 | 170     | 170 | 190     | 190 | 185     |
| K     | Extra Closed Height for Clevis  | 20      | 25      | 25  | 25      | 25  | 45      | 45  | 45      | 45  | 40      |
| N     | Extra Closed Height for Fork    | 23      | 49      | 49  | 63      | 63  | 82      | 82  | 135     | 135 | Request |
| O     | Extra Closed Height for Rod End | 43      | 60      | 60  | 72      | 72  | 98      | 98  | 122     | 122 | Request |

## Stop Nuts



## Machine Screw Jack

| Model   | Extra (mm) |          |
|---------|------------|----------|
|         | Upright    | Inverted |
| EMT0005 | 16         | 11       |
| EMT0010 | 15         | 50       |
| EMT0025 | 20         | 20       |
| EMT0050 | 40         | 40       |
| EMT0100 | 42         | 37       |
| EMT0200 | 41         | 31       |
| EMT0300 | 55         | 35       |
| EMT0500 | 47         | 47       |
| EMT1000 | 72         | 92       |
| EMT1500 | 160        | 210      |
| EMT2000 | 9          | 84       |

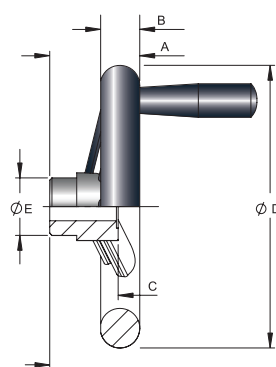
## Ball Screw Jack

| Model   | Extra (mm) |          |
|---------|------------|----------|
|         | Upright    | Inverted |
| EBT0010 | On Request |          |
| EBT0025 | 30         | 30       |
| EBT0050 | 57         | 57       |
| EBT0100 | 60         | 60       |
| EBT0200 | 56         | 56       |
| EBT0300 | On Request |          |
| EBT0500 | On Request |          |

## Note:

These are full power stop nuts. They should only be used as an emergency stop safety feature.

## Hand Wheels

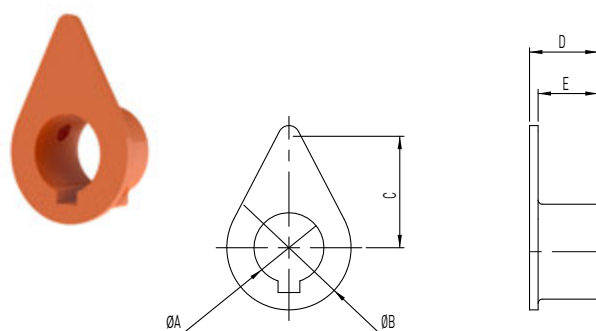


| Model  | A   | B  | C  | D   | E  | H7 Bore |
|--------|-----|----|----|-----|----|---------|
| HW 005 | 40  | 14 | 36 | 98  | 24 | Ø10     |
| HW 010 | 50  | 22 | 38 | 157 | 32 | Ø14     |
| HW 025 | 56  | 24 | 43 | 198 | 40 | Ø16     |
| HW 050 | 56  | 24 | 43 | 198 | 40 | Ø19     |
| HW 100 | 66  | 30 | 44 | 247 | 49 | Ø25     |
| HW 200 | 78  | 32 | 56 | 288 | 58 | Ø28     |
| HW 300 | 108 | 40 | 77 | 375 | 58 | Ø35     |
| HW 500 | 108 | 40 | 77 | 375 | 58 | Ø40     |

## Notes:

1. Material: Polished aluminium casting and rotating handle
2. Bored and keyed to BS4235 Part 1
3. All dimensions in millimetres unless otherwise stated
4. Other types of hand wheels are available on request.

## Rotation Indicators



| Model  | ØA | ØB | C  | D  | E  |
|--------|----|----|----|----|----|
| RI 010 | 14 | 25 | 20 | 14 | 13 |
| RI 025 | 16 | 29 | 26 | 16 | 14 |
| RI 050 | 19 | 32 | 27 | 16 | 14 |
| RI 100 | 25 | 50 | 40 | 21 | 19 |
| RI 200 | 28 | 50 | 45 | 25 | 22 |

## Notes:

1. Rotation Indicators are suitable for fitment to screw jack worm shafts with the corresponding bore size.
2. Material: Composite Plastic
3. Bored (H7) and keyed to BS4235 Part 1
4. All dimensions in millimetres unless otherwise stated
5. Other types of rotation indicators are available on request.



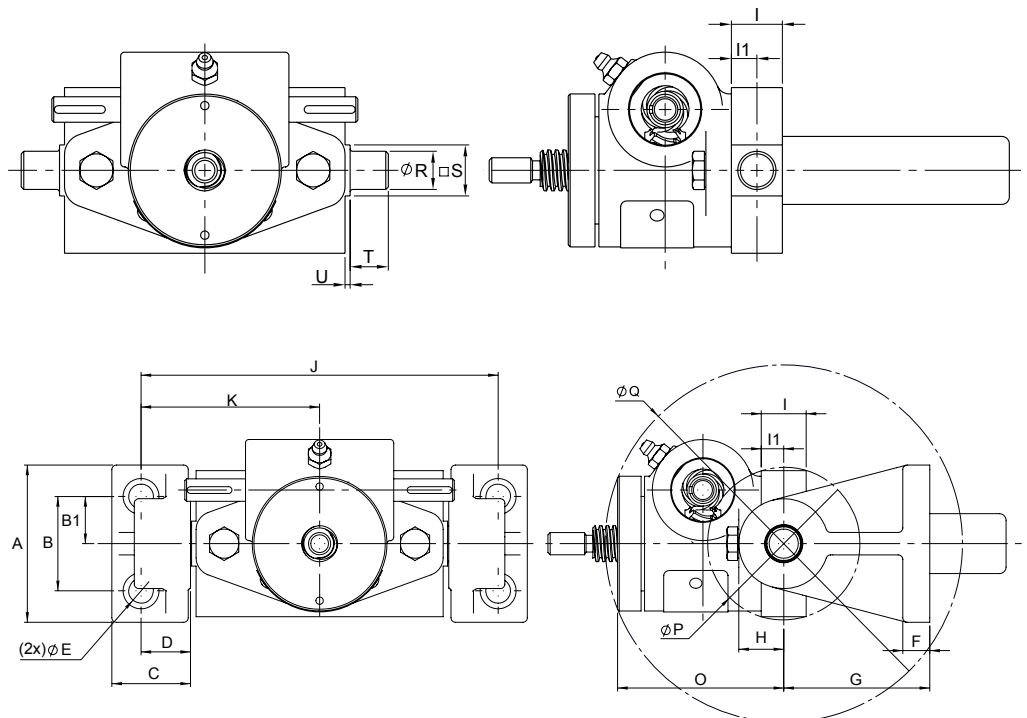
Base mounted trunnions are an ideal bolt-on accessory for a screw jack to add a pivot point to the gearbox of the screw jack. These base mounted trunnions can be used for both translating and rotating screw jacks with any lifting screw type.

Available in both male and female designs with the option to add standard trunnion feet. Most designs offer trunnions in 2 mounting positions.

If you need trunnions fitted at another position on a screw jack then please contact us as we can provide customised trunnion mounts to suit your exact applications needs

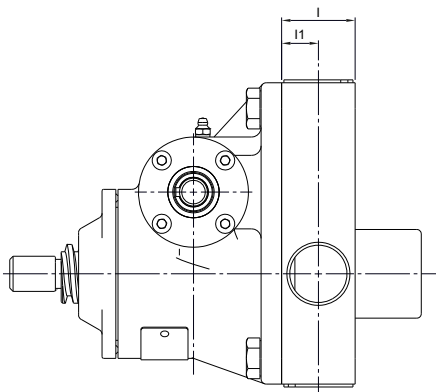
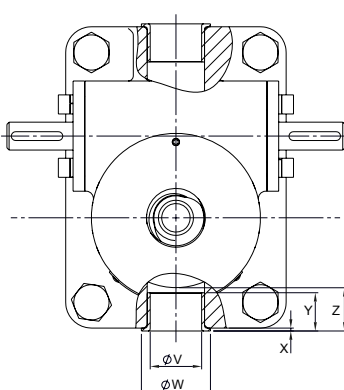
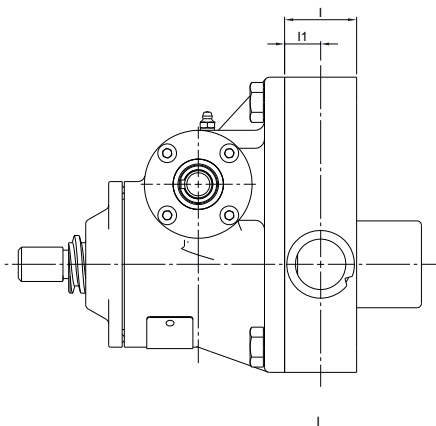
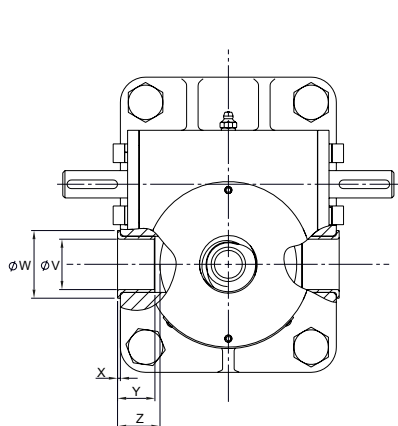
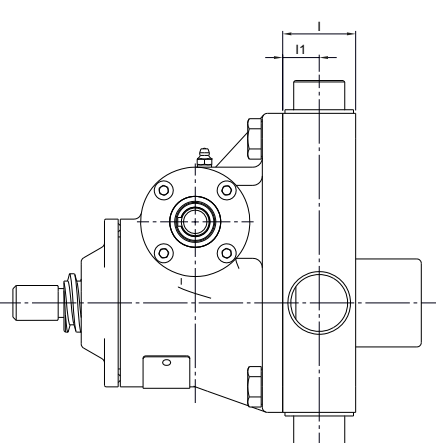
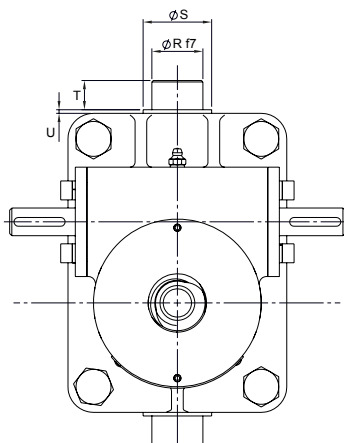
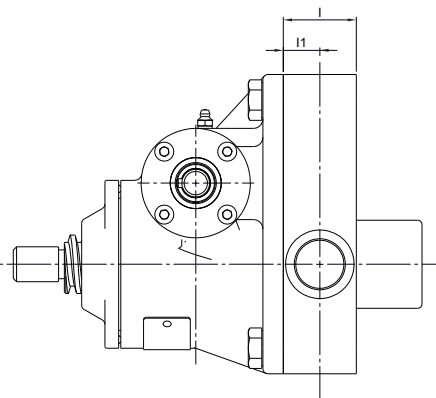
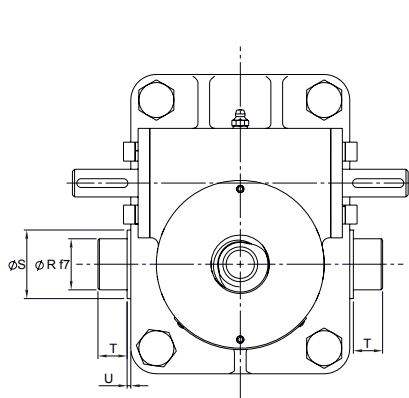


### 5kN and 10kN - Type-1 Housing - Trunnion Mounts

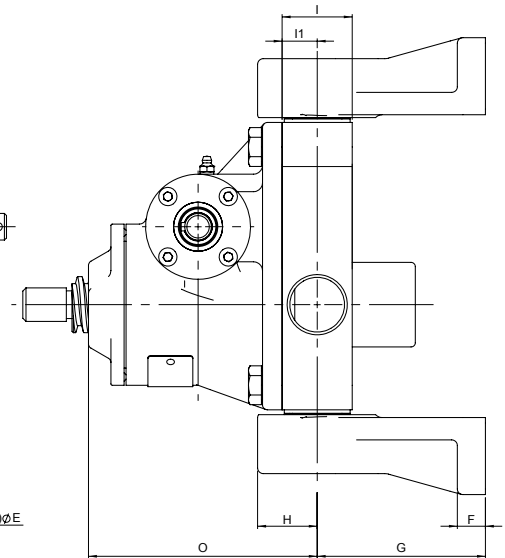
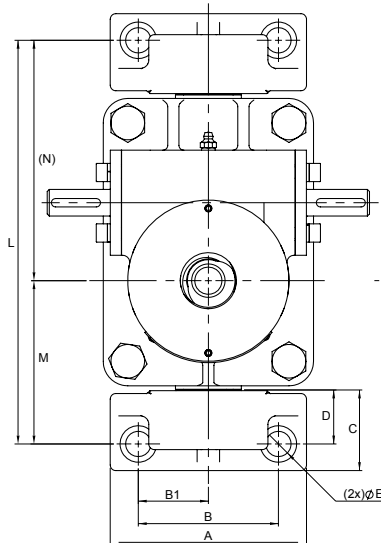
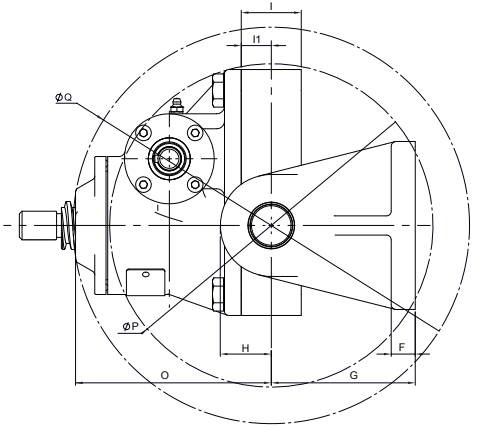
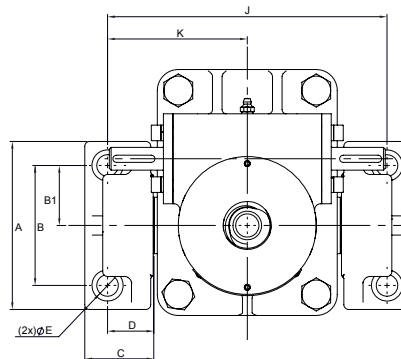


| Capacity | A  | B  | B1 | C  | D  | ØE | F  | G  | H  | I  | I1   | J   | K    | O   | P  | Q   | ØR (h6) | S  | T  | U   |
|----------|----|----|----|----|----|----|----|----|----|----|------|-----|------|-----|----|-----|---------|----|----|-----|
| 5kN      | 70 | 42 | 21 | 35 | 22 | 11 | 12 | 65 | 20 | 20 | 10   | 159 | 79.5 | 74  | 68 | 160 | 15      | 20 | 15 | 2   |
| 10kN     | 70 | 42 | 21 | 35 | 22 | 11 | 12 | 65 | 20 | 25 | 12.5 | 181 | 90.5 | 103 | 84 | 209 | 20      | 24 | 20 | 2.5 |

### 25kN to 500kN Trunnion Mounts



## 25kN to 500kN Trunnion Mounts



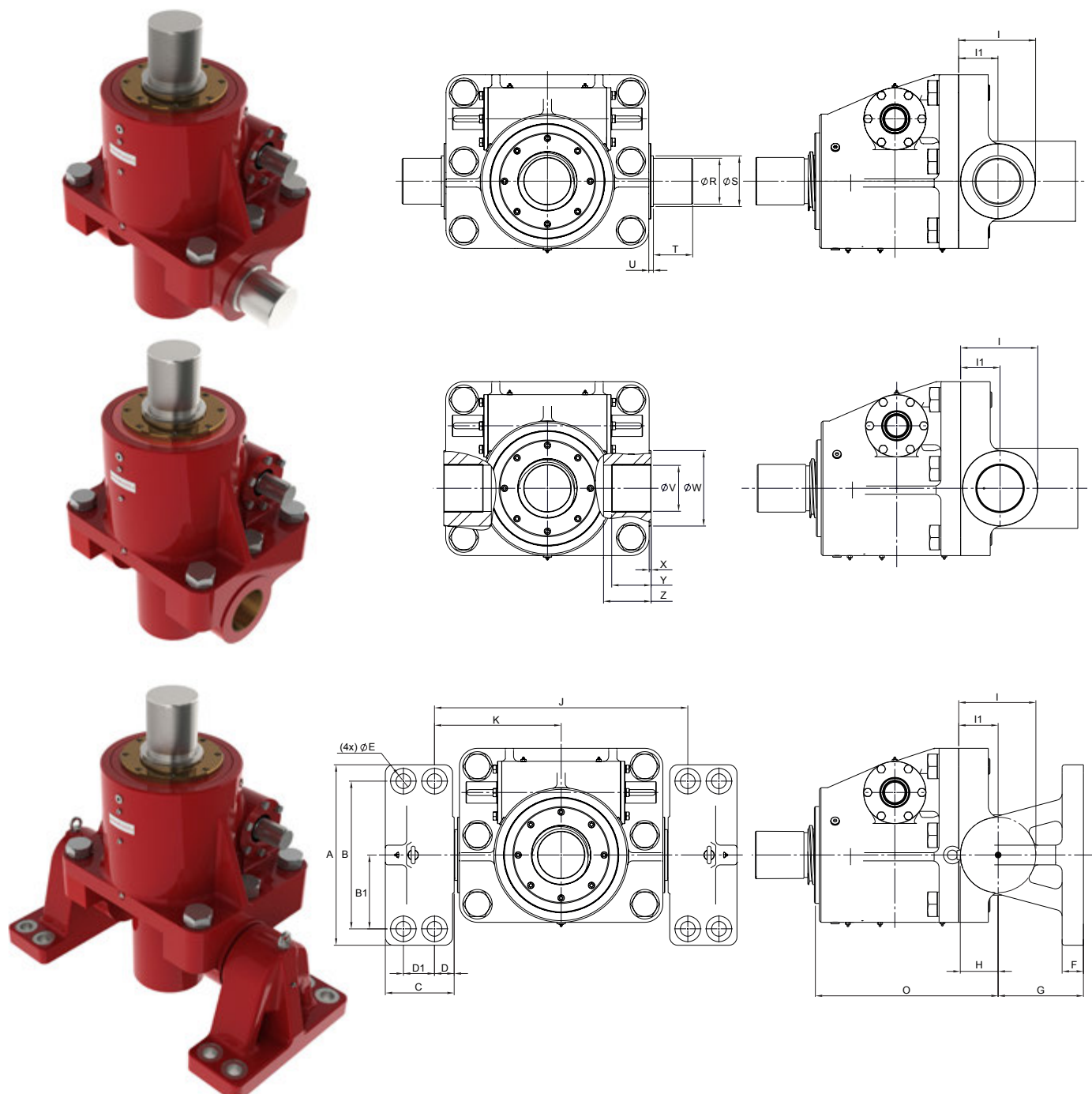
| Capacity | A   | B   | B1  | C   | D    | ØE   | F  | G   | H    | I   | I1   | J   | K     | L   |
|----------|-----|-----|-----|-----|------|------|----|-----|------|-----|------|-----|-------|-----|
| 10kN     | 70  | 42  | 21  | 34  | 21   | 11   | 12 | 65  | 20   | 30  | 15   | 134 | 67    | 177 |
| 25kN     | 100 | 70  | 35  | 40  | 26   | 13.5 | 14 | 85  | 30   | 36  | 18   | 171 | 85.5  | 226 |
| 50kN     | 140 | 100 | 50  | 55  | 35.5 | 18   | 20 | 120 | 42.5 | 50  | 25   | 233 | 116.5 | 288 |
| 100kN    | 170 | 120 | 60  | 70  | 43.5 | 22   | 25 | 130 | 47.5 | 60  | 30   | 292 | 146   | 327 |
| 200kN    | 220 | 150 | 75  | 90  | 61   | 33   | 25 | 170 | 59   | 85  | 42.5 | 344 | 172   | 409 |
| 300kN    | 280 | 190 | 95  | 120 | 80   | 39   | 35 | 180 | 60   | 100 | 45   | 434 | 217   | 539 |
| 500kN    | 360 | 250 | 125 | 155 | 100  | 51   | 40 | 200 | 70   | 120 | 55   | 514 | 257   | 749 |

| Capacity | M     | N     | O     | ØP  | ØQ  | ØR (f7) | ØS | T  | U   | ØV | ØW  | X   | Y    | Z    |
|----------|-------|-------|-------|-----|-----|---------|----|----|-----|----|-----|-----|------|------|
| 10kN     | 78.5  | 98.5  | 101   | 159 | 214 | 20      | 30 | 20 | 2.5 | 20 | 30  | 1.5 | 16.5 | 19.5 |
| 25kN     | 95.5  | 130.5 | 121.5 | 208 | 248 | 25      | 35 | 20 | 2.5 | 25 | 35  | 1.5 | 16.5 | 26   |
| 50kN     | 116.5 | 171.5 | 163   | 270 | 332 | 35      | 47 | 20 | 2.5 | 35 | 47  | 2   | 26   | 39   |
| 100kN    | 126   | 201   | 177   | 312 | 361 | 45      | 58 | 35 | 5   | 45 | 74  | 2   | 32   | 40   |
| 200kN    | 172   | 237   | 238   | 361 | 500 | 60      | 75 | 45 | 5   | 60 | 78  | 2   | 42   | 45   |
| 300kN    | 227   | 312   | 280   | 473 | 578 | 70      | 85 | 70 | 6   | 70 | 90  | 3   | 53   | 58   |
| 500kN    | 332   | 417   | 330   | 643 | 681 | 80      | 95 | 70 | 6   | 80 | 110 | 2   | 62   | 62   |

## Notes:

- 10kN is for Type-2 Housing screw jacks.
- Trunnion feet for 300kN and 500kN models are available on request.

### 1000kN to 2000kN Trunnion Mounts



Note: Trunnion feet for 1000kN, 1500kN and 2000kN models are available on request.

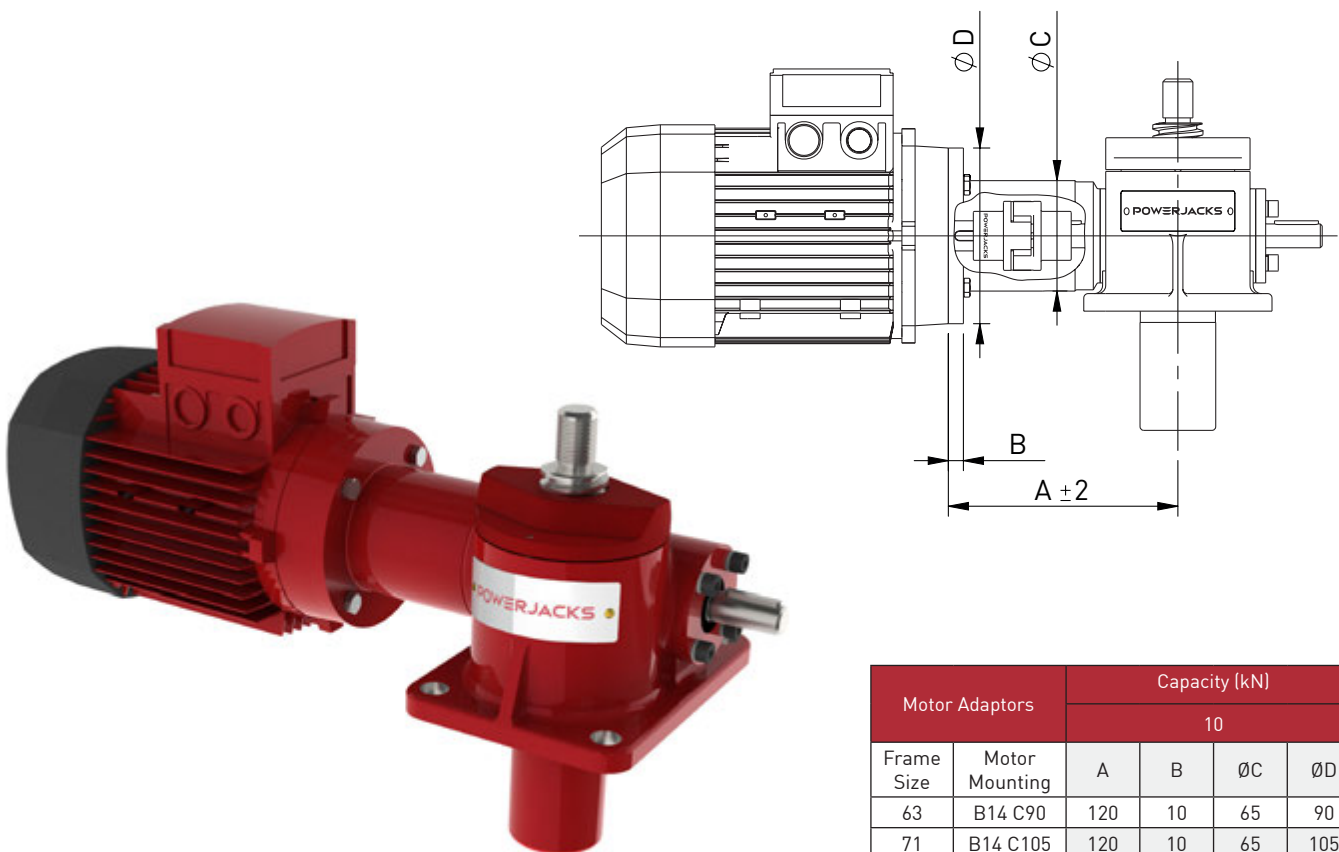
| Capacity | A   | B   | B1  | C   | D  | ØE  | F  | G  | H   | I    | I1    | J   | K   | L   |
|----------|-----|-----|-----|-----|----|-----|----|----|-----|------|-------|-----|-----|-----|
| 1000kN   | 550 | 450 | 225 | 210 | 60 | 95  | 45 | 50 | 240 | 92.5 | 212.5 | 120 | 772 | 386 |
| 1500kN   | 550 | 450 | 225 | 210 | 60 | 95  | 45 | 65 | 260 | 115  | 235   | 120 | 772 | 386 |
| 2000kN   | 640 | 530 | 265 | 235 | 65 | 110 | 52 | 70 | 265 | 135  | 275   | 140 | 976 | 488 |

| Capacity | M   | N   | O   | P    | Q    | ØR (f7) | S   | T   | U  | ØV  | W   | X | Y   | Z   |
|----------|-----|-----|-----|------|------|---------|-----|-----|----|-----|-----|---|-----|-----|
| 1000kN   | N/A | N/A | 525 | 725  | 1074 | 110     | 125 | 115 | 14 | 110 | 185 | 6 | 115 | 145 |
| 1500kN   | N/A | N/A | 560 | 758  | 1162 | 140     | 155 | 120 | 14 | 140 | 230 | 6 | 120 | 145 |
| 2000kN   | N/A | N/A | 626 | 1004 | 1295 | 160     | 180 | 145 | 11 | 160 | 270 | 3 | 145 | 148 |

- Standard adaptors for 10 kN - 200 kN metric machine screw and ball screw jacks
- Designed for standard IEC frame sizes
- Allows direct motor coupling on either side of the screw jack input shaft
- Complete with drive coupling and mounting hardware

#### Note

- When direct coupling a motor to a screw jack, it is necessary to match motor power to screw jack load so the motor does not exceed the maximum power for the screw jack gear set.



| Motor Adaptors |                | Capacity (kN) |    |    |     |
|----------------|----------------|---------------|----|----|-----|
|                |                | 10            |    |    |     |
| Frame Size     | Motor Mounting | A             | B  | ØC | ØD  |
| 63             | B14 C90        | 120           | 10 | 65 | 90  |
| 71             | B14 C105       | 120           | 10 | 65 | 105 |
| 80             | B14 C120       | 120           | 12 | 65 | 120 |

| Motor Adaptors |                | Capacity (kN) |    |    |     |     |    |    |     |     |    |    |     |     |    |     |     |
|----------------|----------------|---------------|----|----|-----|-----|----|----|-----|-----|----|----|-----|-----|----|-----|-----|
|                |                | 25            |    |    |     | 50  |    |    |     | 100 |    |    |     | 200 |    |     |     |
| Frame Size     | Motor Mounting | A             | B  | ØC | ØD  | A   | B  | ØC | ØD  | A   | B  | ØC | ØD  | A   | B  | ØC  | ØD  |
| 71             | B14 C105       | 142.5         | 10 | 71 | 105 | -   | -  | -  | -   | -   | -  | -  | -   | -   | -  | -   | -   |
| 80             | B14 C120       | 146.5         | 12 | 81 | 120 | 171 | 12 | 86 | 120 | -   | -  | -  | -   | -   | -  | -   | -   |
| 90             | B14 C140       | 157.5         | 12 | 81 | 140 | 183 | 12 | 88 | 140 | 208 | 12 | 98 | 140 | 218 | 12 | 125 | 140 |
| 100            | B14 C160       | 168           | 12 | 81 | 160 | 193 | 12 | 88 | 160 | 218 | 12 | 98 | 160 | 228 | 12 | 125 | 160 |
| 112            | B14 C190       | 168           | 12 | 81 | 160 | 193 | 12 | 88 | 160 | 218 | 12 | 98 | 160 | 228 | 12 | 125 | 160 |
| 132            | B14 C200       | -             | -  | -  | -   | 218 | 14 | 95 | 200 | 240 | 14 | 98 | 200 | 250 | 14 | 125 | 200 |

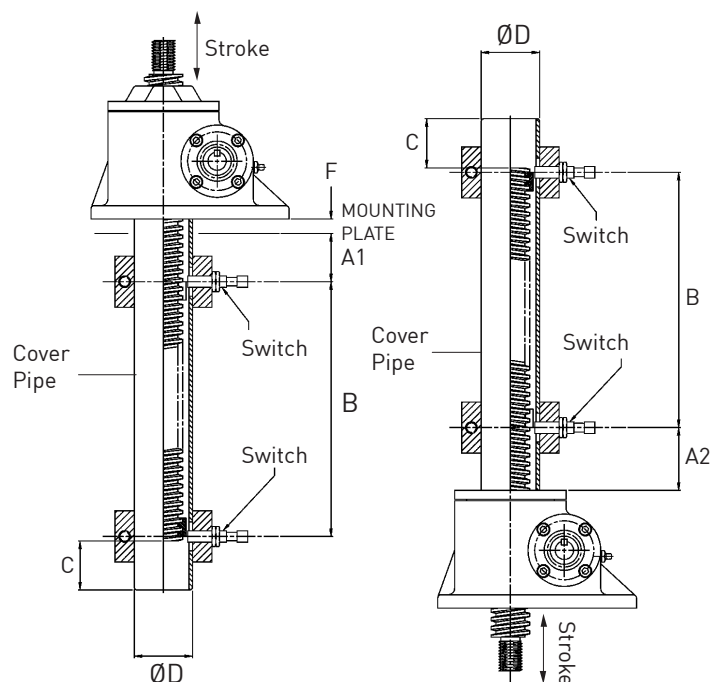
#### Notes:

1. Motor Adaptors for IEC Frames with B5 Flange mounts available on request.
2. Motor Adaptors for screw jacks of capacities 300kN and above are available on request.
3. Adaptors for geared motors are available on request for all types of geared motor or gear head.
4. Motor Adaptors for Servo Motors available on request.
5. Motor Adaptors for NEMA Frame motors are available on request.
6. All dimensions in millimetres unless otherwise stated.
7. Dimensions subject to change without notice.



### End of Travel Proximity Sensors Sensor Kit

- Inductive Proximity Sensors as standard, others available on request.
- No contact so no wearing parts.
- 2 wire sensor for either Normally Closed (NC) or Normally Open (NO) switching.
- Sensor has rugged one-piece metal housing.
- Optical setting aid with 2 LED colour settings:- Red LED indicates just in sensing range. Yellow LED only indicates within 80% safe sensing range.
- M12 plug in connection for fast change-ability.
- M12 sockets available straight or angled with 5-m cable (other cable lengths available on request).
- Full 360° visibility for switching with 4 yellow LED's at 90° offset.
- Sensor kit includes - sensor, mounting ring, target ring and modification to screw jacks cover pipe.



Upright & Inverted Machine Screw Jacks

| Capacity Rating (kN) | Switch Dia (mm) | A1 (mm) | A2 (mm) | B (mm)      | C (mm) | D (Ømm) | F (mm) | Switch Adjustment (mm) |
|----------------------|-----------------|---------|---------|-------------|--------|---------|--------|------------------------|
| 5                    | 8               | 40      | 40      | Stroke + 12 | 38     | 33.4    | 10     | ±5                     |
| 10                   | 8               | 40      | 40      | Stroke + 20 | 40     | 33.4    | 10     | ±5                     |
| 25                   | 12              | 35      | 60      | Stroke + 15 | 60     | 48      | 15     | ±5                     |
| 50                   | 12              | 40      | 70      | Stroke + 25 | 65     | 60      | 15     | ±5                     |
| 100                  | 12              | 55      | 85      | Stroke + 25 | 77     | 73      | 20     | ±10                    |
| 200                  | 12              | 65      | 80      | Stroke +25  | 77     | 89      | 20     | ±10                    |
| 300                  | 18              | 65      | 80      | Stroke +40  | 96     | 141     | 30     | ±10                    |
| 500                  | 18              | 95      | 95      | Stroke +40  | 108    | 168     | 30     | ±15                    |
| 1000                 | 18              | 155     | 105     | Stroke +50  | 135    | 245     | 50     | ±15                    |
| 1500                 | On Request      |         |         |             |        |         |        |                        |
| 2000                 | On Request      |         |         |             |        |         |        |                        |

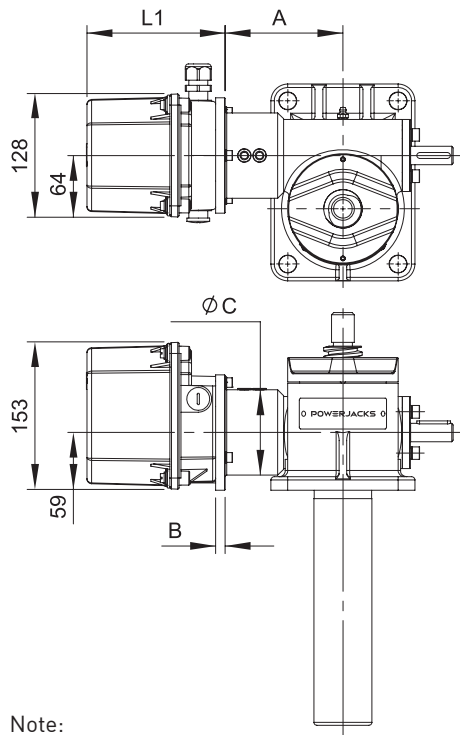
#### Note

1. All dimensions in mm unless otherwise stated.

### End of Travel Electro-Mechanical Switches

The screw jacks can be fitted with electro-mechanical limit switches in a similar design. For dimensions please consult Power Jacks Ltd.





Note:

- Use when cover pipe mounted limit switches are not possible e.g. rotating screw jacks.
- Switches fully enclosed.
- 1 cable for all limit switches



**Each Limit Switch is Fully Adjustable over full stroke of screw jack.**

Rotary limit switches can be used as end of travel limit switches, with the option of intermediate switches as well. These units are mounted onto a screw jacks free worm shaft. **Up to 8 limit switches** can be accommodated in one enclosure (IP66). Operating temperature -40°C to +80°C.

More RLS-51 rotary limit switch details in Screw Jack Design Guide.

| Screw Jack Capacity (kN) |           |       |    |    |
|--------------------------|-----------|-------|----|----|
| 10kN                     |           |       |    |    |
| Adapter Mounting         | Std. Part | A     | B  | ØC |
| B5                       | x         | -     | -  | -  |
| B14                      | ✓         | 106.5 | 10 | 86 |

| Screw Jack Capacity (kN) |           |     |    |    |           |     |    |    |
|--------------------------|-----------|-----|----|----|-----------|-----|----|----|
| 25                       |           |     |    |    |           |     |    |    |
| Adaptor Mounting         | Std. Part | A   | B  | ØC | Std. Part | A   | B  | ØC |
| B5                       | x         | -   | -  | -  | x         | -   | -  | -  |
| B14                      | ✓         | 117 | 10 | 70 | ✓         | 133 | 10 | 89 |

| Screw Jack Capacity (kN) |           |     |    |    |           |     |    |     |
|--------------------------|-----------|-----|----|----|-----------|-----|----|-----|
| 100                      |           |     |    |    |           |     |    |     |
| Adaptor Mounting         | Std. Part | A   | B  | ØC | Std. Part | A   | B  | ØC  |
| B5                       | ✓         | 150 | 13 | 98 | ✓         | 174 | 13 | 125 |
| B14                      | x         | -   | -  | -  | x         | -   | -  | -   |

| Gear Size | Usable revs. selected | Usable revs. theoretical with 15° cam discs | Gear Ratio | 1 rev. of the drive shaft - corresp. to an ang. motion of cam disc =° | Change - over contact reset rev. at driving shaft | Max drive speed (RPM) | Min drive shaft speed (only for change - over contact) | L1 (mm)        |     |     |     |
|-----------|-----------------------|---------------------------------------------|------------|-----------------------------------------------------------------------|---------------------------------------------------|-----------------------|--------------------------------------------------------|----------------|-----|-----|-----|
|           |                       |                                             |            |                                                                       |                                                   |                       |                                                        | Limit Switches |     |     |     |
|           |                       |                                             |            |                                                                       |                                                   |                       |                                                        | 2              | 4   | 6   | 8   |
| 1         | 4.1                   | 4.16                                        | 4.285      | 84                                                                    | 0.00714                                           | 1000                  | 0.67                                                   | 132            | 132 | 157 | 157 |
|           | 6.5                   | 6.88                                        | 7.083      | 50.8                                                                  | 0.0118                                            | 1200                  | 1.1                                                    |                |     |     |     |
|           | 11                    | 11.23                                       | 11.56      | 31.14                                                                 | 0.0193                                            | 1500                  | 1.8                                                    |                |     |     |     |
| 2         | 17.5                  | 17.84                                       | 18.361     | 19.6                                                                  | 0.0306                                            | 1800                  | 2.9                                                    | 132            | 132 | 157 | 182 |
|           | 29                    | 29.5                                        | 30.35      | 11.86                                                                 | 0.0505                                            | 1800                  | 4.7                                                    |                |     |     |     |
|           | 48                    | 48.13                                       | 49.538     | 7.27                                                                  | 0.0825                                            | 1800                  | 7.7                                                    |                |     |     |     |
| 3         | 75                    | 76.45                                       | 78.678     | 4.57                                                                  | 0.131                                             | 1800                  | 12.2                                                   | 132            | 132 | 157 | 182 |
|           | 125                   | 126.39                                      | 130.054    | 2.77                                                                  | 0.2166                                            | 1800                  | 20.2                                                   |                |     |     |     |
|           | 205                   | 206.26                                      | 212.272    | 1.69                                                                  | 0.3536                                            | 1800                  | 33                                                     |                |     |     |     |
| 4         | 323                   | 327.6                                       | 337.135    | 1.06                                                                  | 0.5616                                            | 1800                  | 52                                                     | 132            | 157 | 182 | 207 |
|           | 540                   | 541.5                                       | 557.284    | 0.65                                                                  | 0.9284                                            | 1800                  | 87                                                     |                |     |     |     |
|           | 880                   | 883.8                                       | 909.59     | 0.4                                                                   | 1.515                                             | 1800                  | 141                                                    |                |     |     |     |
| 5         | 1384                  | 1403.7                                      | 1444.62    | 0.25                                                                  | 2.406                                             | 1800                  | 224                                                    | 132            | 157 | 182 | 207 |
|           | 2288                  | 2320.2                                      | 2387.96    | 0.15                                                                  | 3.978                                             | 1800                  | 371                                                    |                |     |     |     |
|           | 3735                  | 3787.1                                      | 3897.58    | 0.09                                                                  | 6.493                                             | 1800                  | 606                                                    |                |     |     |     |
| 6         | 5900                  | 6014.77                                     | 6190.204   | 0.06                                                                  | 10.313                                            | 1800                  | *                                                      | 157            | 157 | 182 | 207 |
|           | 9800                  | 9942.2                                      | 10232.407  | 0.04                                                                  | 17.047                                            | 1800                  | *                                                      |                |     |     |     |
|           | 16000                 | 16227.6                                     | 16701.17   | 0.02                                                                  | 27.824                                            | 1800                  | *                                                      |                |     |     |     |

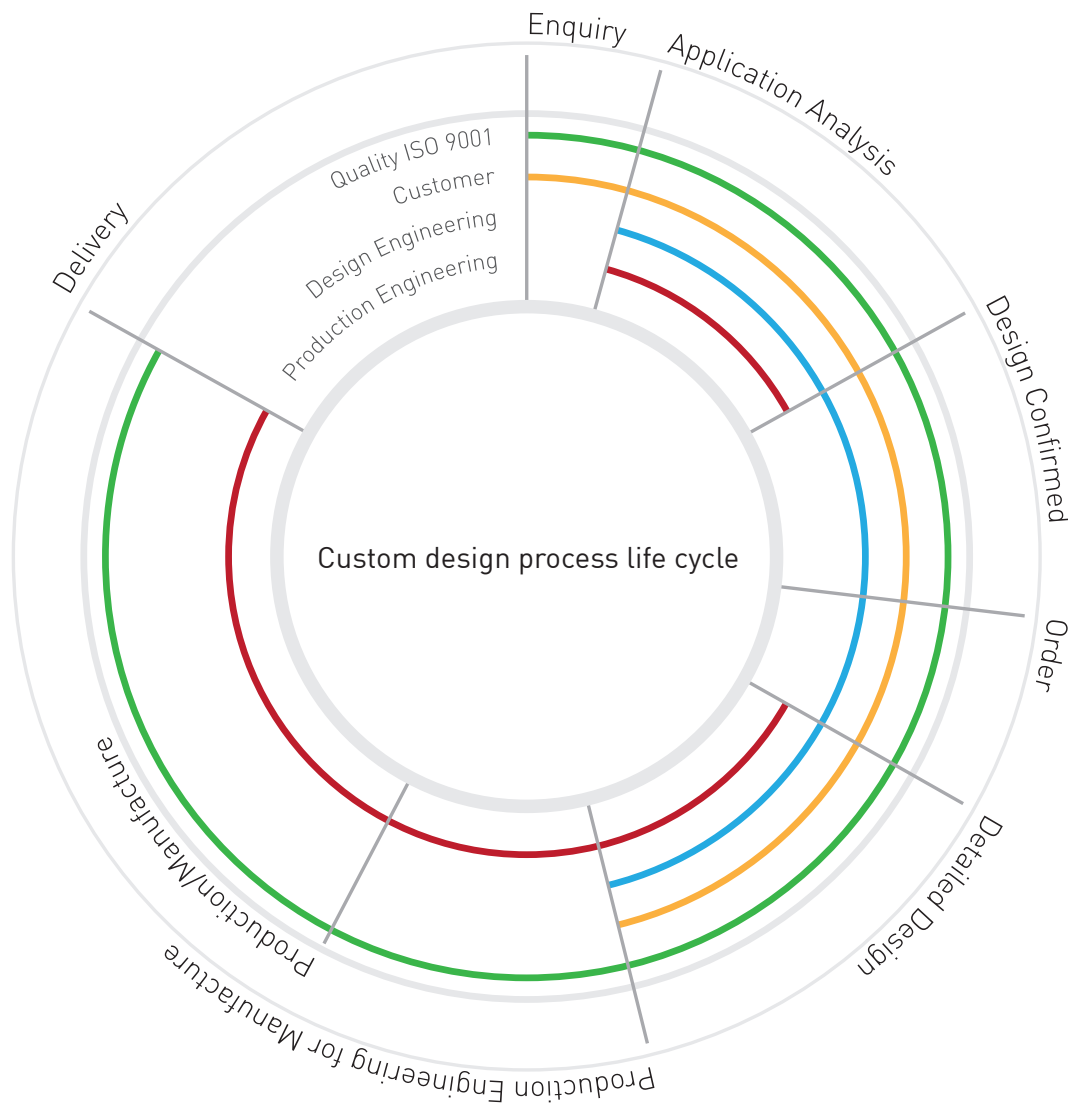
Notes:

1. The mounting kit includes the flexible coupling and drive adapter.
2. More than 8 contacts on request.
3. Dimensions with more than 8 contacts and with special executions, eg. potentiometer, on request.
4. RLS-51 B5 Flange thickness = 4mm.
5. Options include anti-condensation heaters, potentiometer, pulse transmitter, encoder, aluminium housing and VBG-70 STAGE technology.
6. Mounting kits available for all screw jacks. For those not listed, consult Power Jacks.



## Special Designs

OUR SCREW JACK  
DESIGNS ARE FULLY  
CUSTOMISABLE BY OUR  
ENGINEERING TEAM SO  
YOUR APPLICATION CAN  
BE THE BEST.



## Customised Products

For Power Jacks, every order is different.

We're ready every time to assess the precise requirements of the customer and formulate the right solution.

Off-the-shelf solutions are the norm for many engineering companies. And while they're certainly options for our customers, that's only the case if they're precisely the right options.

We pride ourselves on our adaptability – on our readiness to customise basic models, or even to start from scratch, so that we're providing products that offer optimum performance.

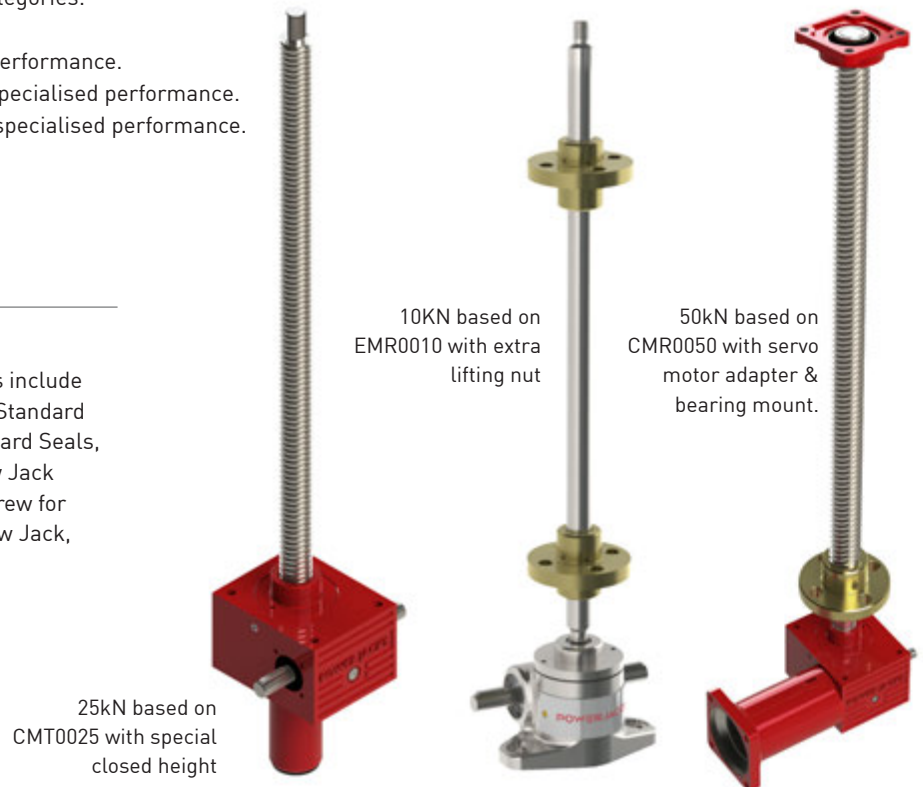
It's a customising service across our entire range of products that means customers get exactly what they need.

Special screw jack design are divided into 4 categories:

1. E-Class - simple customisation
2. SE-Class - enhanced design for specific performance.
3. HSE-Class - highly enhanced design for specialised performance.
4. XSD - extreme special designs for highly specialised performance.

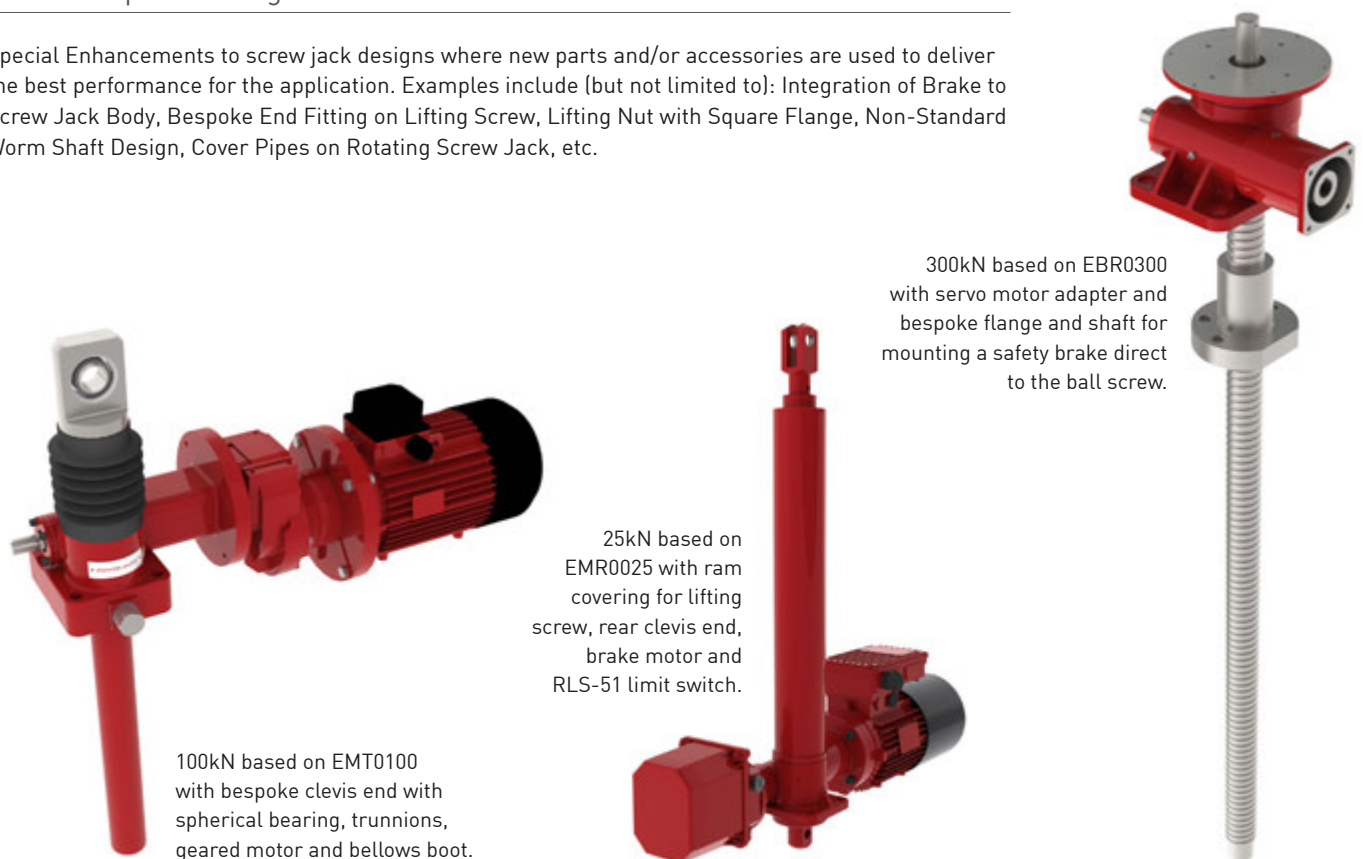
### E Class Special Design

Enhances screw jack design by making simple customisation and feature additions. Examples include (but not limited to): Non-Standard Paint, Non-Standard Plating, Non-Standard Lubrication, Non-Standard Seals, Non-Standard Motor Adapter, Plating of Screw Jack Gearbox Housing, 3-Start Thread on Lifting Screw for increased lead, Special Closed Height for Screw Jack, Extended Worm Shaft, etc..



### SE Class Special Design

Special Enhancements to screw jack designs where new parts and/or accessories are used to deliver the best performance for the application. Examples include (but not limited to): Integration of Brake to Screw Jack Body, Bespoke End Fitting on Lifting Screw, Lifting Nut with Square Flange, Non-Standard Worm Shaft Design, Cover Pipes on Rotating Screw Jack, etc.



## HSE Class Special Design

High Specification Enhancements to screw jack design where significant changes are made to main screw jack design and/or new and/or specialised accessories are integrated. Examples include (but not limited to): Bespoke Clutch on Worm Shaft, Coil Spring Load Limiter, Centre of Gravity Balanced Designs, Bespoke Trunnion Mounts, Telescopic Lifting Screw, Lifting Screw with Left & Right Threaded Sections, Increased Base Thickness for Screw Jack Gearbox Housing etc..



2000kN Based on EMT2000 with bespoke clutches for drives, geared motor integration, monitoring sensors, centre of gravity counter balance and bellows boot.



50kN based on EMT0050 complete stainless steel subsea screw jack with bespoke ROV interface.

200kN based on EMT0200 with bespoke trunnion mount, integrated motor and RLS-51 limit switches, customised fork end and bellows boot.



## XSD Class Special Design

eXtreme Special Design for screw jacks where a modification of our existing range is not practical for engineering and/or commercial goals. The way to get the best performance for the application is to design and manufacture a unique product using our state of the art screw jack technology. Examples include (but not limited to): Seismic Rated 3500kN Nuclear Screw Jacks, Large Valve Control Mechanisms, 200degC rated Screw Jacks, Ultra Light Weight Screw Jacks for mobile applications, Solar Tracking Screw Jacks



3500kN Seismic rated Nuclear Screw Jacks complete special design for translating and rotating machine screw jacks.

Note  
Units are not to scale on illustration

## U-Series Underwater / Subsea Screw Jack Overview

The U-Series subsea screw jacks are a proven and reliable technology for subsea lifting, positioning and actuation solutions down to a depth of 3000m. They are used in a wide variety of underwater applications in the oil & gas sector. Each submersible variant is tailored exactly to the customer application.



Rotating Screw, Upright



Rotating Screw, Inverted



Translating Screw, Upright



Translating Screw, Inverted

- Proven depth ratings up to 3000m subsea as standard (deeper on request)
- Pressure compensated or flooded designs available
- Capacities up to 2000 kN (200Te) as standard
- Capacities up to 35000 kN (3500Te) on request
- Machine Screw Jacks
- Translating and rotating screw configurations
- Full stainless steel Screw Jacks
- Self-locking (the products only use power when moving)
- Anti-rotation mechanism for unconstrained loads
- Anti-backlash mechanism for axial positioning
- Option for reinforced shaft design for up to 300% higher torque transmission
- Reinforced sealing
- Dual nut (safety nut) fail safe load-holding option
- Shock load rated units
- Full range of anti-corrosion options
- ROV drive interfaces
- Low (-65°C) to High (+250°C) temperature solutions available
- Vibration resistant designs
- Full range of feedback devices for speed, position, rotation, wear and load monitoring control
- Special custom designs available to meet your exact requiremen

U-Series Screw Jacks can be connected together in jacking systems so that multiple units can be operated and controlled together.

For more details request the U-Series brochure from Power Jacks or download a copy from [www.powerjacks.com](http://www.powerjacks.com)



## U-Series Subsea Screw Jack Performance

## Full Stainless Steel Construction

| Model                                              |                               | UM-0025   | UM-0050     | UM-0100     | UM-0200     | UM-0300                           | UM-0500                           | UM-1000   | UM-1500              | UM-2000 |
|----------------------------------------------------|-------------------------------|-----------|-------------|-------------|-------------|-----------------------------------|-----------------------------------|-----------|----------------------|---------|
| Capacity (kN)                                      |                               | 25        | 50          | 100         | 200         | 300                               | 500                               | 1000      | 1500                 | 2000    |
| Lifting Screw <sup>note1</sup>                     | Diameter X Pitch (mm)         | 30 x 6    | 40 x 9      | 55 x 12     | 65 x 12     | 95 x 16                           | 120 x 16                          | 160 x 20  | Available on Request |         |
| Gear Ratios                                        | Option 1                      | 6:1       | 6:1         | 8:1         | 8:1         | 10 <sup>2</sup> / <sub>3</sub> :1 | 10 <sup>2</sup> / <sub>3</sub> :1 | 12:1      |                      |         |
|                                                    | Option 2                      | 24:1      | 24:1        | 24:1        | 24:1        | 32:1                              | 32:1                              | 36:1      |                      |         |
| Turn of worm for raise of lifting screw            | Option 1                      | 1 for 1mm | 1 for 1.5mm | 1 for 1.5mm | 1 for 1.5mm | 1 for 1.5mm                       | 1 for 1.5mm                       | 3 for 5mm |                      |         |
|                                                    | Option 2                      | 4 for 1mm | 4 for 1.5mm | 2 for 1mm   | 2 for 1mm   | 2 for 1mm                         | 2 for 1mm                         | 9 for 5mm |                      |         |
| Maximum Input Power (kW)                           | Option 1                      | 1.5       | 3           | 3.75        | 3.75        | 6                                 | 11.25                             | 18.5      |                      |         |
|                                                    | Option 2                      | 0.375     | 0.55        | 1.125       | 1.125       | 1.9                               | 4.5                               | 8.25      |                      |         |
| Start up Torque at full load (Nm) <sup>note2</sup> | Option 1                      | 19.8      | 56          | 115.9       | 263.8       | 480                               | 900                               | 2025      |                      |         |
|                                                    | Option 2                      | 8.7       | 25.5        | 60.5        | 137         | 284                               | 504                               | 1119      |                      |         |
| Weight (kg) – stroke = 150mm                       | UMT                           | 8.45      | 14.9        | 24.3        | 42.4        | 92.4                              | 183.7                             | 459.1     |                      |         |
|                                                    | UMR                           | 8.85      | 16.54       | 28.8        | 49.58       | 113.78                            | 224                               | 560.4     |                      |         |
| Weight (kg) per extra 25mm                         | UMT                           | 0.21      | 0.32        | 0.58        | 0.84        | 1.55                              | 2.48                              | 4.11      |                      |         |
|                                                    | UMR                           | 0.11      | 0.19        | 0.36        | 0.52        | 1.13                              | 1.94                              | 3.38      |                      |         |
| Option 1                                           | Gear Ratio                    | 6:1       | 6:1         | 8:1         | 8:1         | 10 <sup>2</sup> / <sub>3</sub> :1 | 10 <sup>2</sup> / <sub>3</sub> :1 | 12:1      |                      |         |
|                                                    | Screw jack Static Efficiency  | 0.201     | 0.213       | 0.206       | 0.181       | 0.149                             | 0.132                             | 0.131     |                      |         |
|                                                    | Screw jack Dynamic Efficiency | 0.264     | 0.281       | 0.272       | 0.242       | 0.205                             | 0.181                             | 0.178     |                      |         |
| Option 2                                           | Gear Ratio                    | 24:1      | 24:1        | 24:1        | 24:1        | 32:1                              | 32:1                              | 36:1      |                      |         |
|                                                    | Screw jack Static Efficiency  | 0.115     | 0.117       | 0.132       | 0.116       | 0.084                             | 0.079                             | 0.079     |                      |         |
|                                                    | Screw jack Dynamic Efficiency | 0.167     | 0.172       | 0.190       | 0.169       | 0.128                             | 0.120                             | 0.123     |                      |         |
| Standard Depth Rating                              | m                             | 3000      | 3000        | 3000        | 3000        | 3000                              | 3000                              | 3000      | 3000                 | 3000    |
| Flooded Design Available                           |                               | Y         | Y           | Y           | Y           | Y                                 | Y                                 | Y         | Y                    | Y       |
| Pressure Compensated Design Available              |                               | Y         | Y           | Y           | Y           | Y                                 | Y                                 | Y         | Y                    | Y       |

## Notes:

1. All metric machine screws have a trapezoidal thread form, single start as standard (diameter x pitch)
2. For loads of 25% to 100% of Screw Jack capacity, torque requirements are approximately proportional to the load
3. Efficiency values for standard grease lubricated worm gear box and lifting screw
4. For performance of anti-backlash and anti-rotation (keyed) models, consult our Power Jacks experts

## Standard construction:

5. Stainless steel Screw Jack rated for rated capacity in tension or compression for static or dynamic movement
6. Lubrication = EP2 Grease
7. Paint finish = Power Jacks Standard Subsea Yellow (other colours available on request)
8. Other materials, plating and paint specifications are available to suit all applications and budgets

Please supply depth rating required with enquiry



## GRAPHITE HANDLING MACHINE

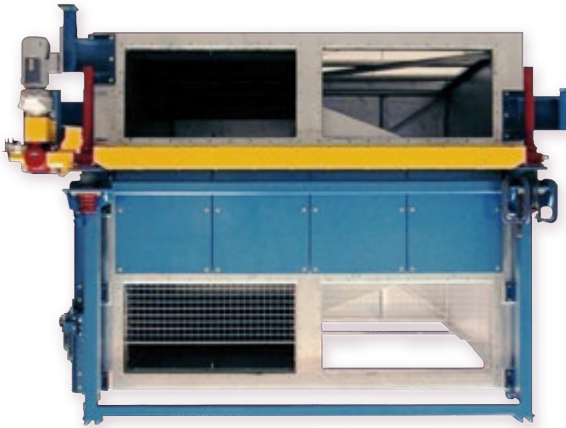
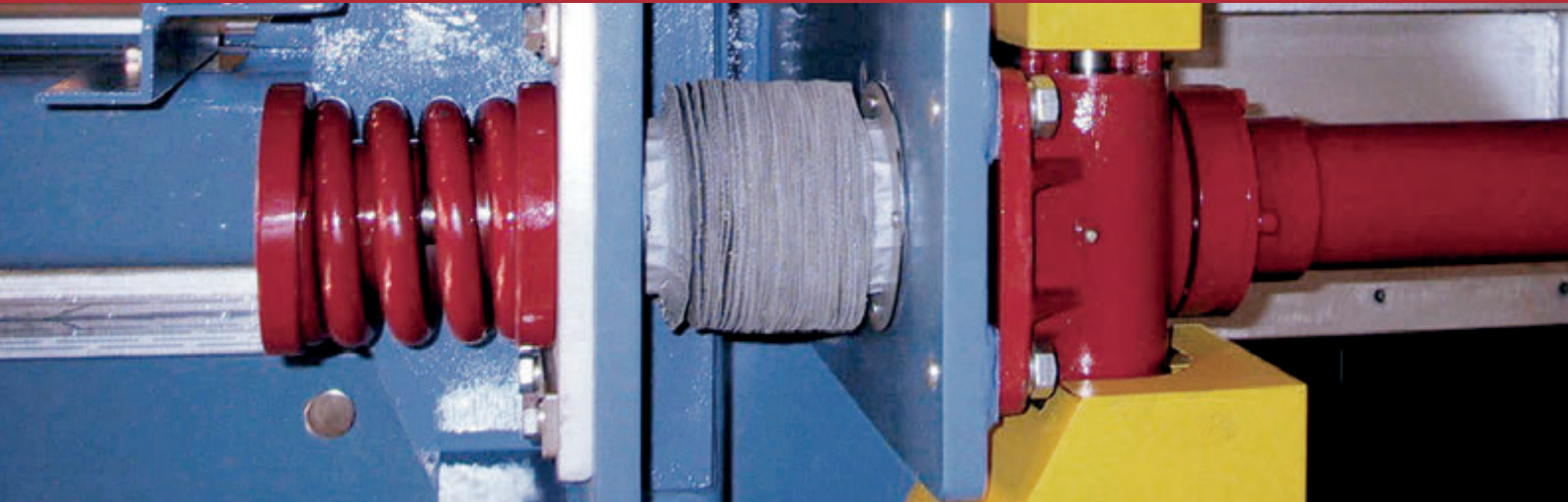
The Graphite Handling system was developed to retrieve graphite components, capping pieces and thermocouples from inside nuclear reactors, crush them for size reduction and deposit them into shielded flasks. The machine houses 4 types of flask.

The Crusher Jaws are driven by three 50 kN E-Series Ball Screw Jacks, complete with Bevel gearbox, brake and motor, to size reduce the component. The selected Flask is raised into the docking position by two more 50kN screw jacks, driven by a single electric motor via bevel gearboxes. The size reduced component is deposited into the flask and the flask is returned to its storage position.

For more application examples see the 'Power at Work' brochure or [www.powerjacks.com](http://www.powerjacks.com).







## COIL SPRING LOAD LIMITER

When an industrial machine needs to move a cover or lid onto a dead stop or sealing face it must do so precisely and positively, with contact on all dead stops or over the complete sealing face.

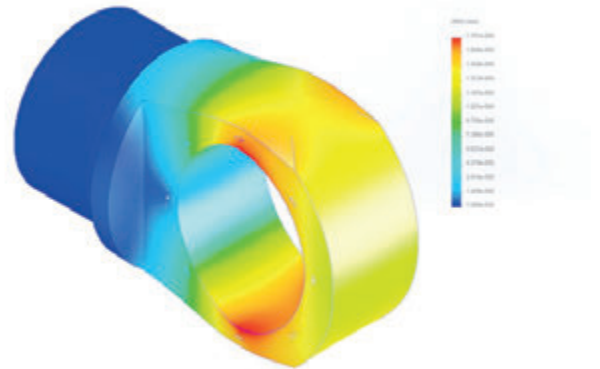
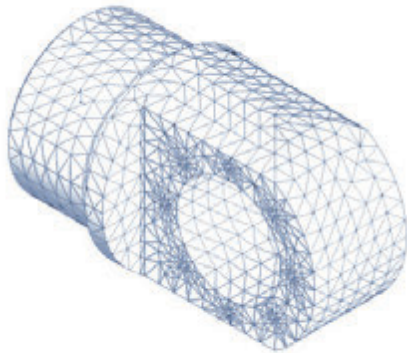
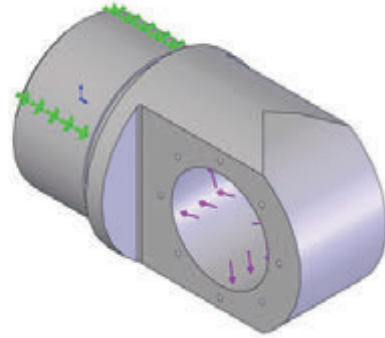
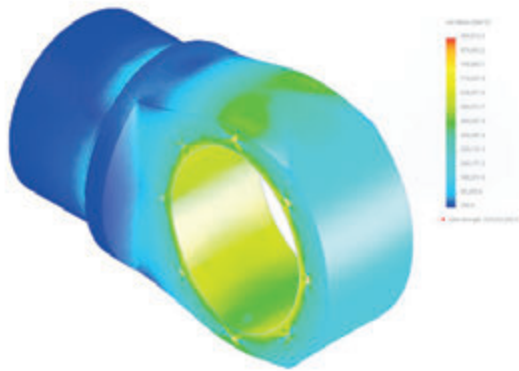
To push the cover into position precisely Power Jacks designed a special coil spring load limiter for the end of the jacks lifting screw.

For more application examples see the 'Power at Work' brochure or [www.powerjacks.com](http://www.powerjacks.com).



## ENGINEERING GUIDE

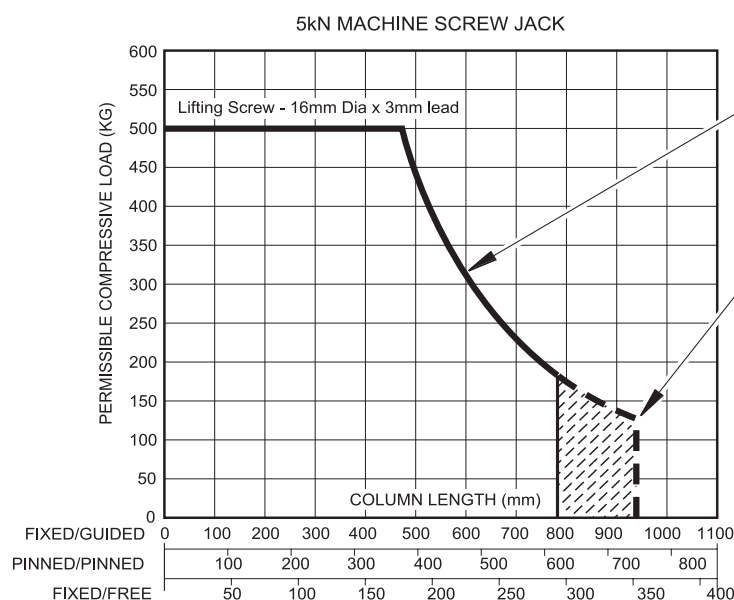
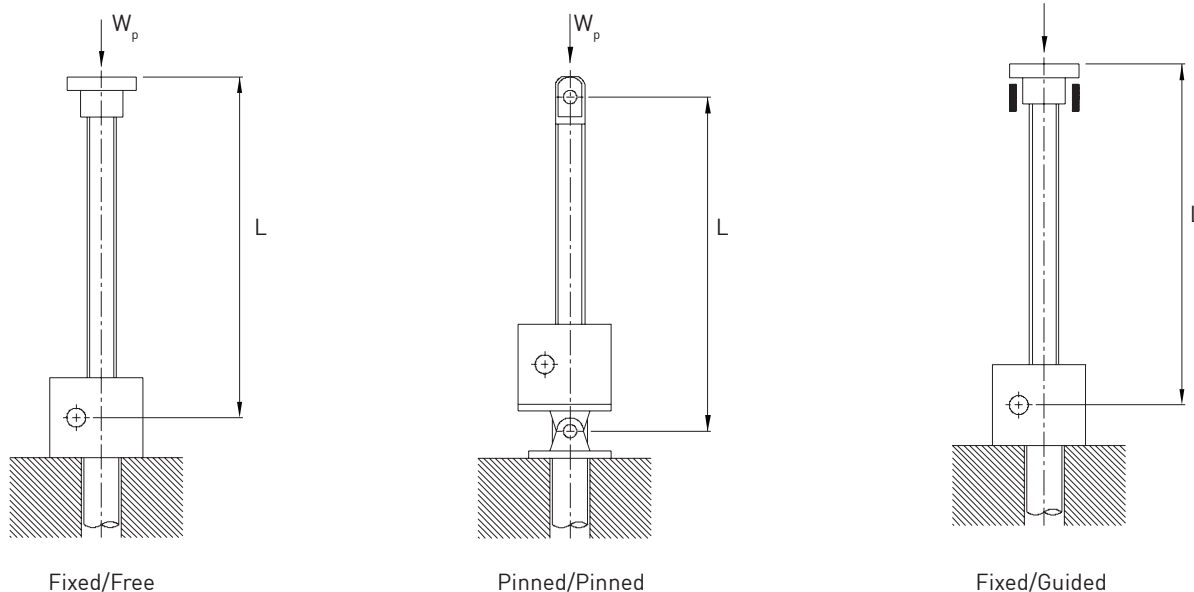
# USEFUL PERFORMANCE & OPERATIONAL DETAIL FOR SCREW JACKS



**Important Notes**

1. All charts are rated for industrial cargo with a safety factor of 3.5.
2. For human cargo a safety factor of 5 is recommended. To alter the permissible compressive load (WP) for human cargo multiply the load selected from the chart by 0.7 e.g.  $W_{PHC} = W_P * 0.7$ .

Column Length Correction Factors,  $F_{cb}$

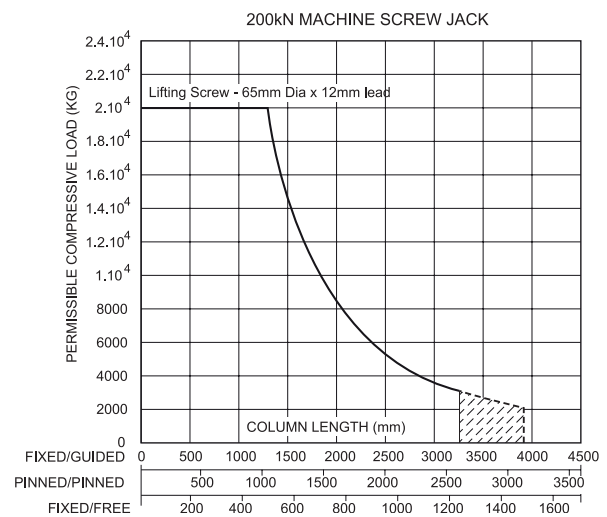
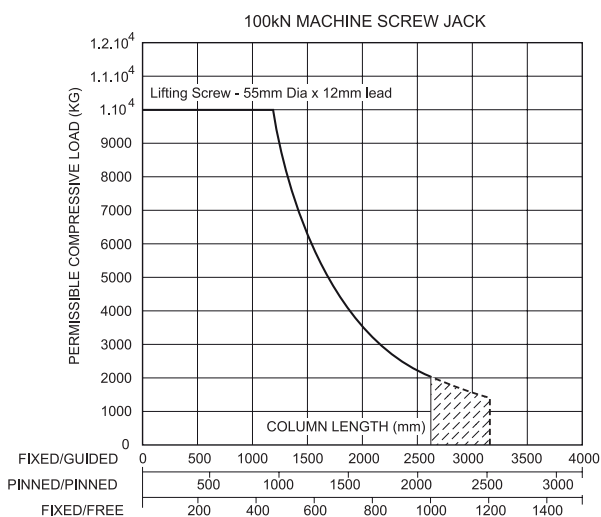
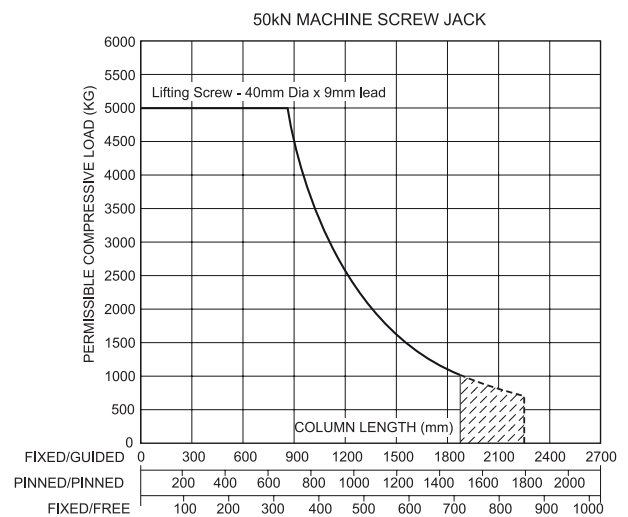
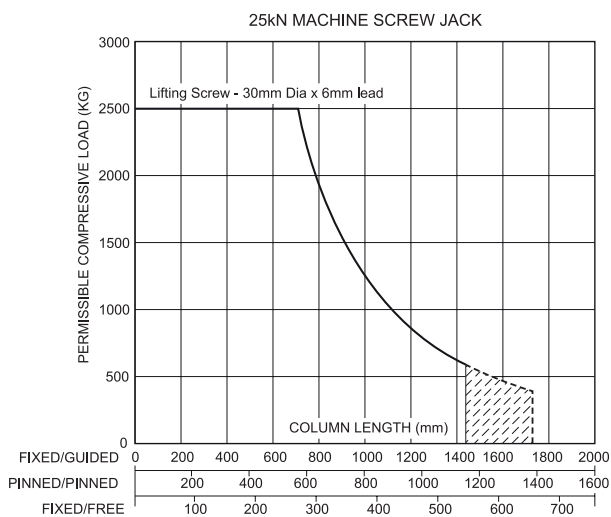
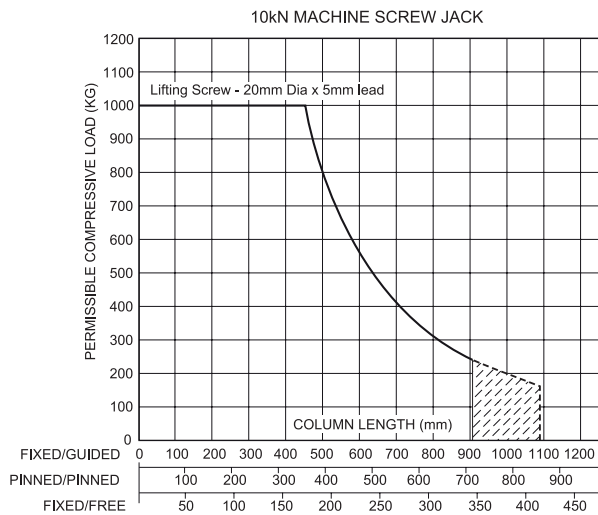


Euler Buckling Curve

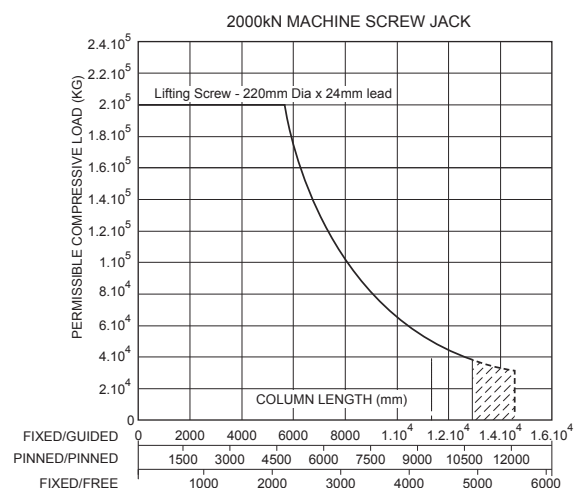
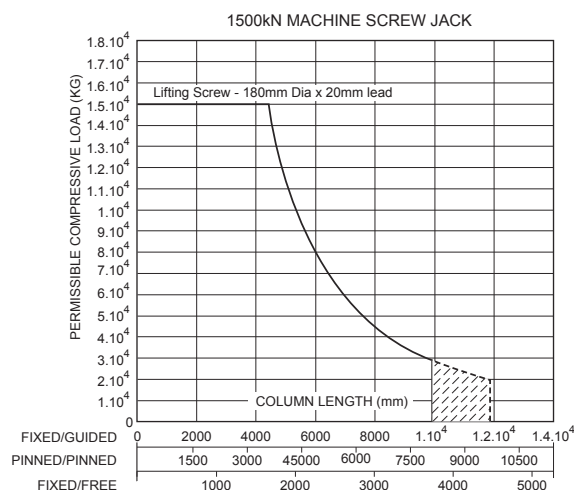
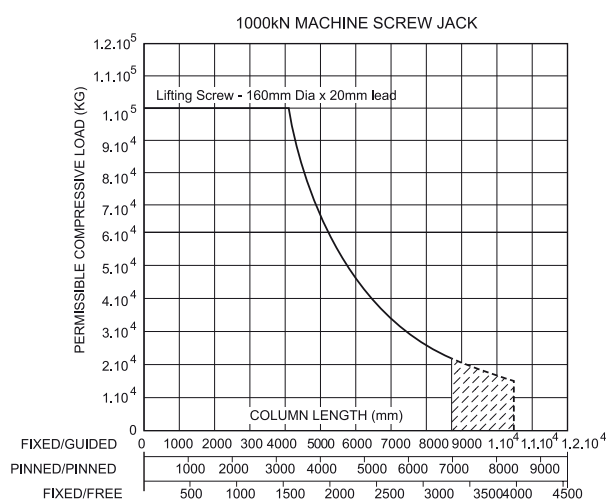
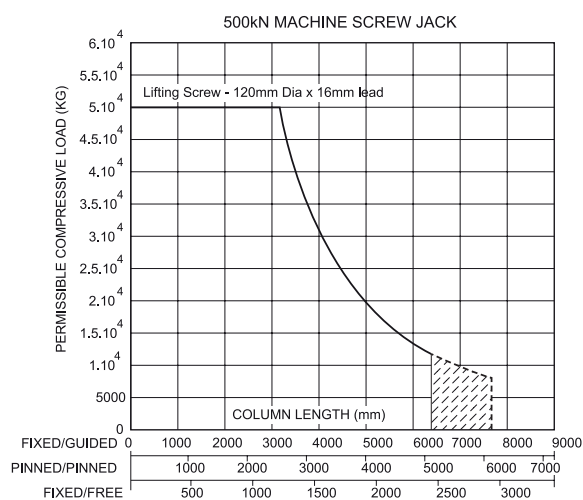
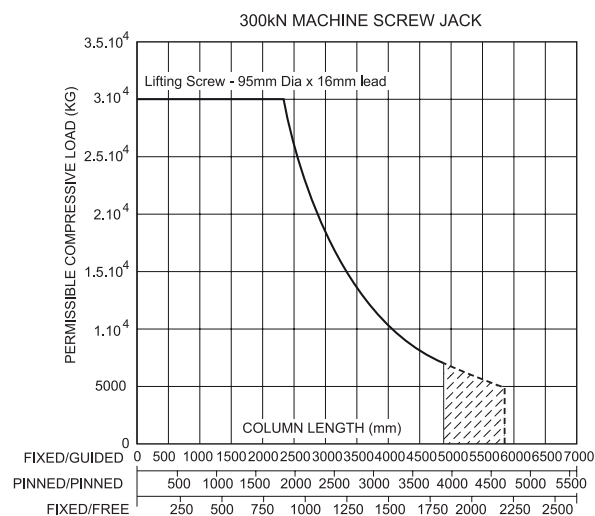
Column strength cut off point due to slenderness ratio considerations



**Applications in hatched area -**  
consult Power Jacks Ltd  
for detailed analysis.

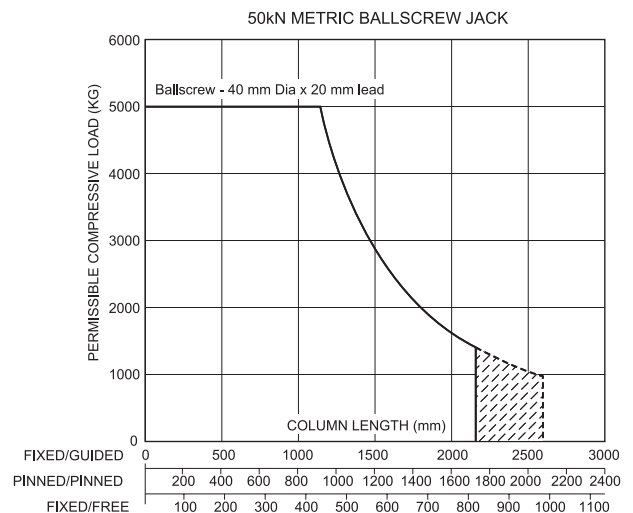
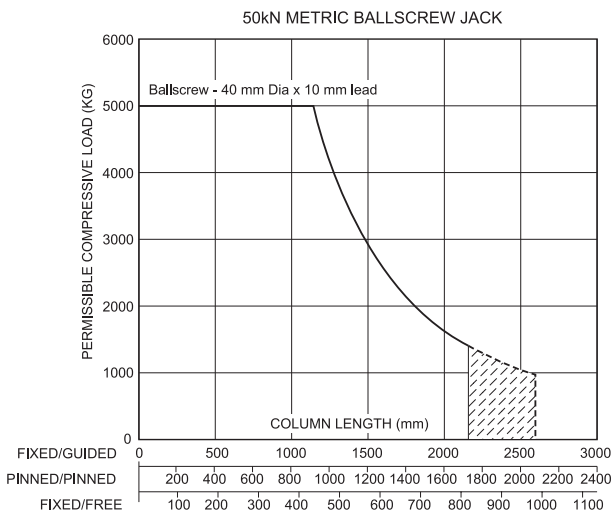
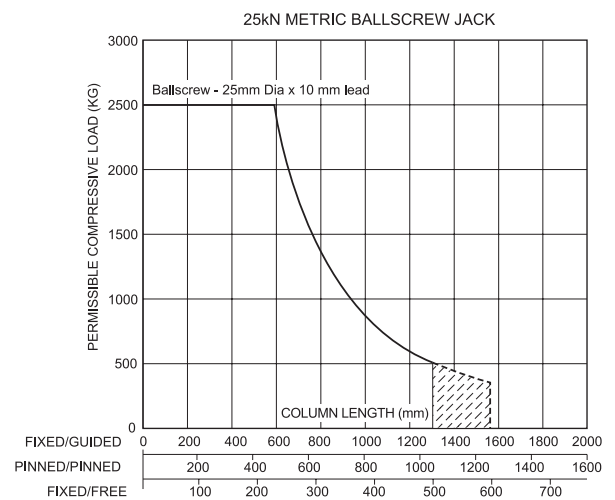
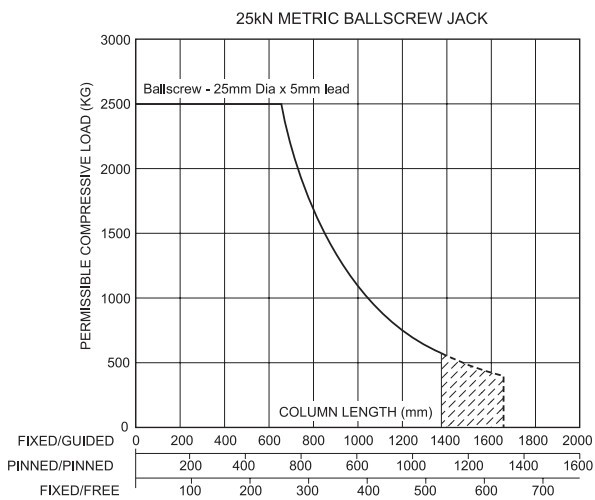
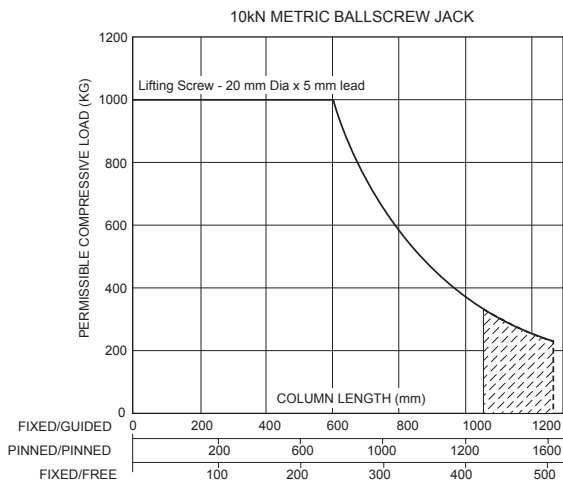
**Note**

1. Column end constraints based on A.I.S.C. recommended values
2. All screw jack column strength charts show a Euler buckling curve and three scales for the appropriate end condition for the application under analysis.



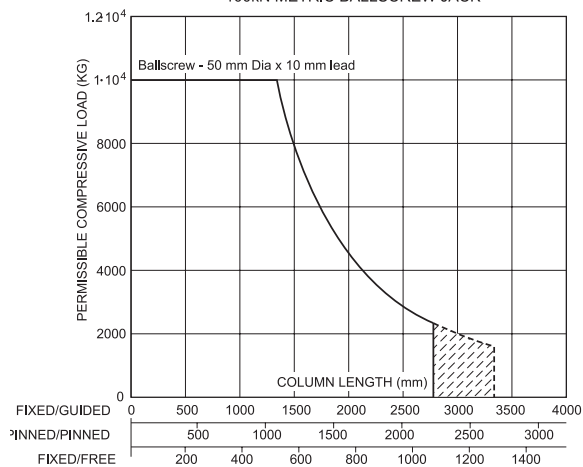
#### Note

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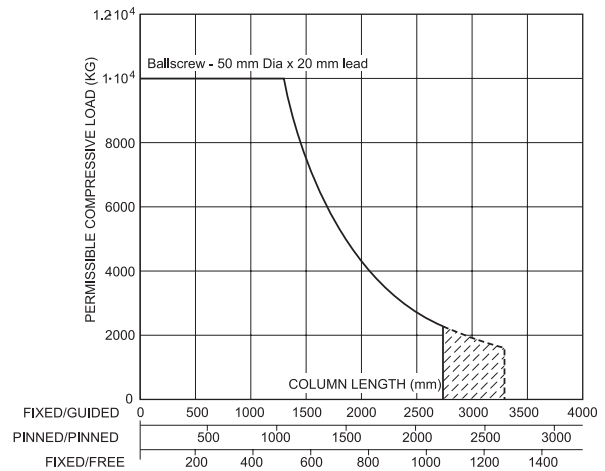




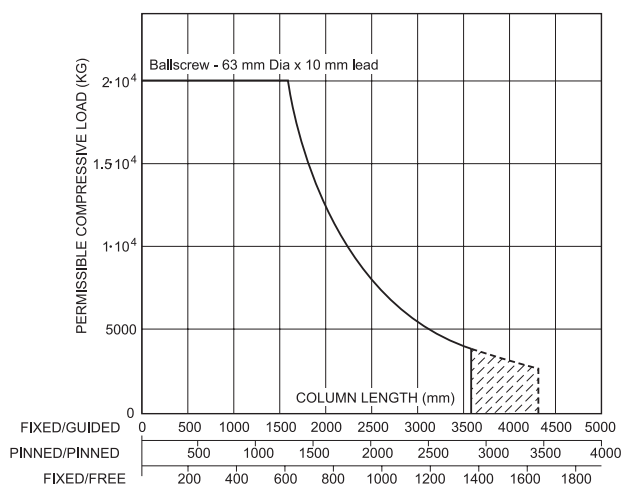
100kN METRIC BALLSCREW JACK



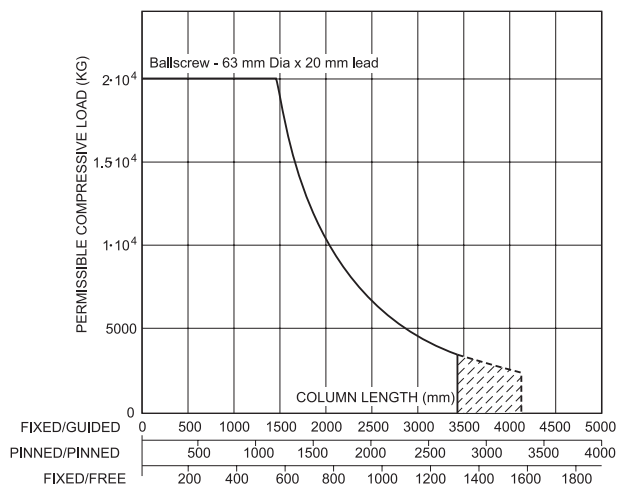
100kN METRIC BALLSCREW JACK



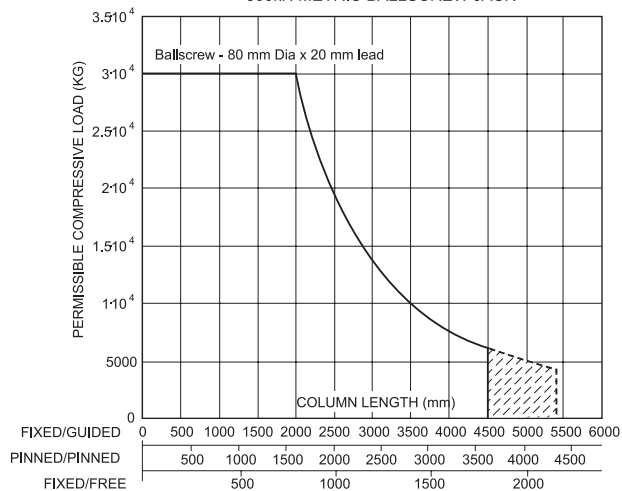
200kN METRIC BALLSCREW JACK

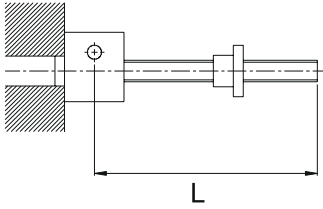
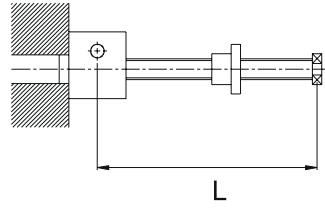
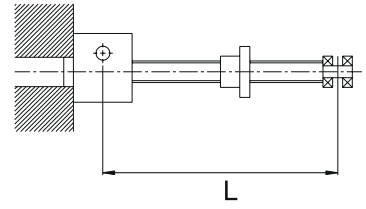


200kN METRIC BALLSCREW JACK

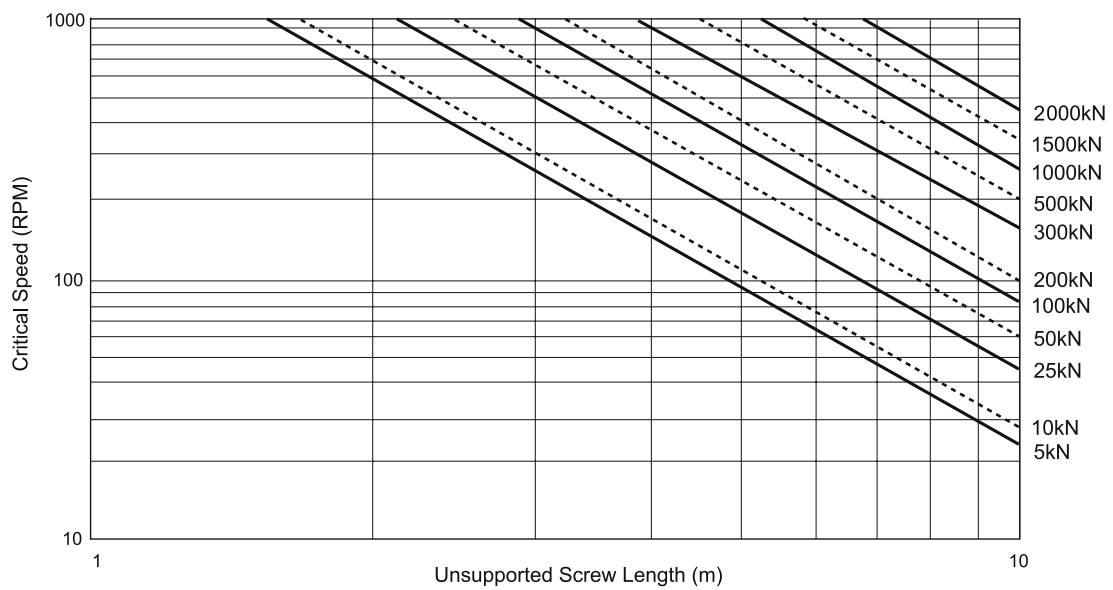


300kN METRIC BALLSCREW JACK



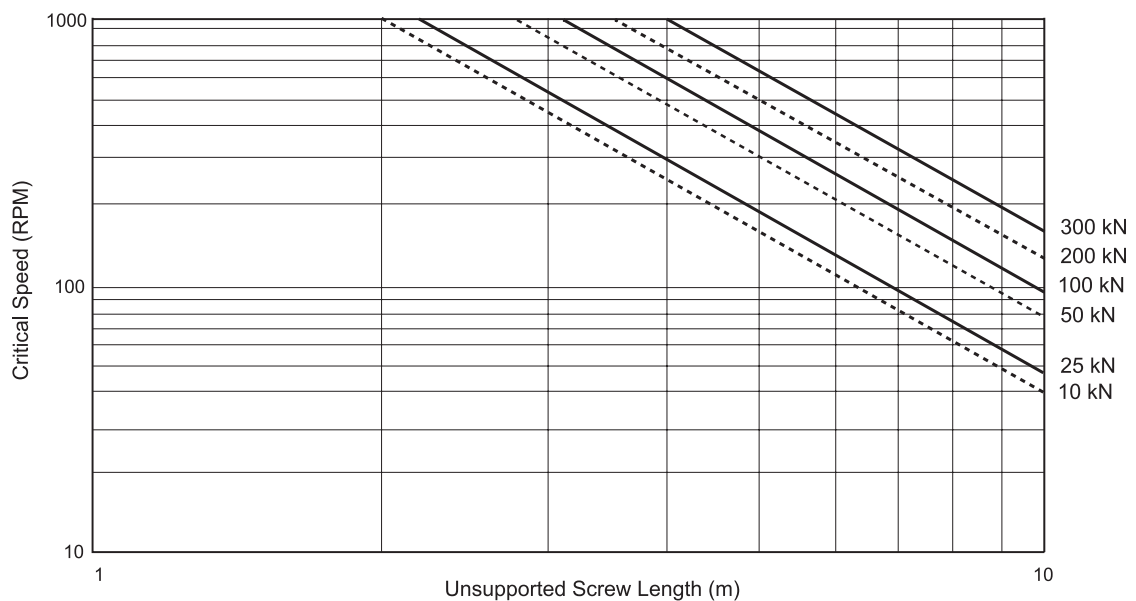
Critical Screw Speed Factors,  $F_{cs}$ Fixed/Free,  $F_{cs} = 0.15$ Fixed/Supported,  $F_{cs} = 0.7$ Fixed/Fixed,  $F_{cs} = 1$ 

## Machine Screw Critical Screw Speed (Shaft Whirling)



Based on both ends fixed and 80% of the critical speed.

## Ball Screw Critical Screw Speed (Shaft Whirling)



Based on both ends fixed and 80% of the critical speed.

The key torque (restraining torque) is caused by the tendency of the lifting screw to rotate. It is a function of the screw lead, screw efficiency and the load. It is not affected by the screw jack unit gear ratio.

#### Note

The values below are given at rated load. For a smaller load reduce the key torque in direct proportion.

#### Machine Screw Jacks

| Capacity (kN) | Screw Diam (mm) | Lead (mm) | Key Torque (Nm) |
|---------------|-----------------|-----------|-----------------|
| 5             | 16              | 0.003     | 8               |
| 5             | 16              | 0.006     | 11              |
| 10            | 20              | 0.005     | 22              |
| 10            | 20              | 0.010     | 30              |
| 25            | 30              | 0.006     | 76              |
| 25            | 30              | 0.012     | 102             |
| 50            | 40              | 0.009     | 210             |
| 50            | 40              | 0.018     | 290             |
| 100           | 55              | 0.012     | 575             |
| 100           | 55              | 0.024     | 780             |
| 200           | 65              | 0.012     | 1300            |
| 200           | 65              | 0.024     | 1705            |
| 300           | 95              | 0.016     | 2805            |
| 300           | 95              | 0.032     | 3610            |
| 500           | 120             | 0.016     | 5645            |
| 500           | 120             | 0.032     | 6975            |
| 1000          | 160             | 0.020     | 14890           |
| 1000          | 160             | 0.040     | 18220           |
| 1500          | 180             | 0.020     | 24610           |
| 2000          | 220             | 0.024     | 39995           |

#### Ball Screw Jacks

| Capacity (kN) | Screw Diam (mm) | Lead (mm) | Key Torque (Nm) |
|---------------|-----------------|-----------|-----------------|
| 10            | 20              | 0.005     | 9               |
| 10            | -               | -         | -               |
| 25            | 25              | 0.005     | 23              |
| 25            | 25              | 0.01      | 43              |
| 50            | 40              | 0.01      | 88              |
| 50            | 40              | 0.02      | 167             |
| 100           | 50              | 0.01      | 181             |
| 100           | 50              | 0.02      | 340             |
| 200           | 63              | 0.01      | 370             |
| 200           | 63              | 0.02      | 690             |
| 300           | 80              | 0.02      | 1030            |
| 500           | On Request      |           |                 |

## Maximum Jack Side Load Ratings with Full Jack Rated Load in Tension

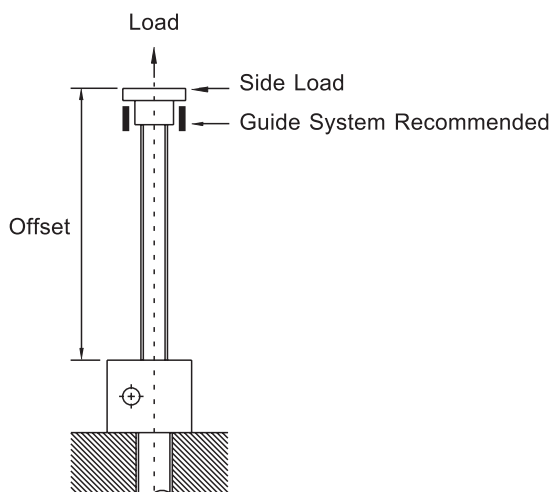
### Machine Screw Jacks

| Metric Machine Screw Jack       |     |     |     |      |      |      |       |       |       |
|---------------------------------|-----|-----|-----|------|------|------|-------|-------|-------|
| Capacity (kN)                   | 5   | 10  | 25  | 50   | 100  | 200  | 300   | 500   | 1000  |
| Max. Side Load 300mm Offset (N) | 100 | 150 | 540 | 1130 | 2900 | 3350 | 17500 | 37800 | 83400 |

### Ball Screw Jacks

| Ball Screw Jack                 |     |     |     |     |     |      |      |      |      |      |     |
|---------------------------------|-----|-----|-----|-----|-----|------|------|------|------|------|-----|
| Capacity (kN)                   | 10  | 25  | 25  | 50  | 50  | 100  | 100  | 200  | 200  | 300  | 500 |
| Ball Screw Lead (mm)            | 5   | 5   | 10  | 10  | 20  | 10   | 20   | 10   | 20   | 20   | *   |
| Max. Side Load 300mm Offset (N) | 105 | 195 | 195 | 980 | 980 | 1570 | 1570 | 2060 | 2060 | 4340 | *   |

\*Consult Power Jacks.



To calculate maximum side load for different raises for screw jacks in tension under full rated load use the following formula to modify the above tabulated values.

$$\text{Permissible Max. Side Load for Actual Offset} = \frac{\text{Max Side Load Rating Tabulated} \times \text{Stated Offset}}{\text{Actual Offset}}$$

#### Note

The correct units must be used

### Important Notes

1. **These figures are for Screw Jacks in tension only.**
2. The figures given above are permissible side load ratings, however, we recommend that all side loads be carried by guides in your arrangement and not by the screw and nut.
3. Life of the lifting screw and nut will be adversely affected the more side load they see.
4. These figures are based on acceptable stresses in the lifting screw and not on lifting screw deflection.
5. For maximum side load ratings for screw jacks in compression consult Power Jacks Ltd.
6. For precise calculations for your application consult Power Jacks Ltd.

For applications where a screw jack is belt/chain driven, a calculation must be made to determine the radial force ( $F_R$ ) and compared to the allowable radial load exerted on the worm shaft, that must not exceed those tabulated below. The values below are maximum values for the screw jacks at rated load regardless of worm speed or load direction and the radial load applied midway along the key of the worm shaft. For all applications the sprocket, gear etc. Should be positioned as close as possible to the screw jack housing in order to reduce bearing loads and shaft stresses and to prolong life.

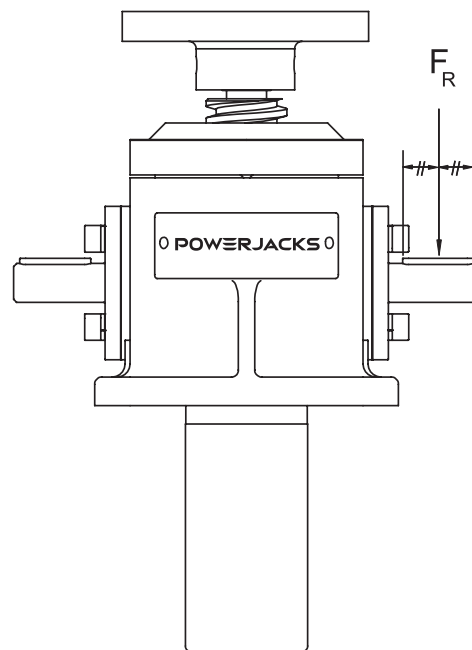
$$\text{Radial Force, } F_R = \frac{2000 \times T \times K}{D}$$

Where  $F_R$  = Radial Load (N)  
 $T$  = Torque applied to the screw jacks input shaft (Nm)  
 $K$  = Factor from table below  
 $D$  = PCD in mm of gear, sprocket

| Transmission Element           | Factor K |
|--------------------------------|----------|
| Chain sprocket                 | 1        |
| Gears (spur or helical pinion) | 1.25     |
| V-Belt pulley                  | 1.5      |
| Flatbelt pulley                | 2.0      |

| Ball Screw Jack |     |      |      |      |
|-----------------|-----|------|------|------|
| Capacity (kN)   | 25  | 50   | 100  | 200  |
| Radial Load (N) | 440 | 1100 | 1200 | 1600 |

| Machine Screw Jack |     |     |     |     |      |      |      |      |      |
|--------------------|-----|-----|-----|-----|------|------|------|------|------|
| Capacity (kN)      | 5   | 10  | 25  | 50  | 100  | 200  | 300  | 500  | 1000 |
| Radial Load (N)    | 180 | 325 | 380 | 740 | 1000 | 1600 | 2170 | 2190 | 2220 |



## Machine Screw Jacks

| Component             | Normal Backlash                   |
|-----------------------|-----------------------------------|
| Lifting Screw and Nut | 0.12mm → 0.2mm (0.005" → 0.008")  |
| Load Bearings         | 0.00mm → 0.03mm (0.000" → 0.001") |
| Total                 | 0.12mm → 0.23mm (0.005" → 0.009") |

### Note

1. The lifting screw backlash will increase during operation due to wear of threads in the nut
2. Axial play can be reduced by altering the load bearings preload to eliminate bearing play or by specifying a screw jack with the Anti-Backlash feature
3. For exact backlash ratings for an individual unit consult Power Jacks.

## Anti-Backlash Option

Machine screw jacks fitted with the anti-backlash feature can be adjusted for screw thread and bearing clearances to a minimum of 0.025 mm (0.001"). Some clearances must be maintained to keep torque requirements within reason and to provide adequate space for a lubrication film to form.

## Ball Screw Jacks

| Component          | Normal Backlash                    |
|--------------------|------------------------------------|
| Ball Track and Nut | 0.05mm → 0.15mm (0.002" → 0.006")  |
| Load Bearings      | 0.00mm → 0.03mm (0.000" → 0.003")  |
| Total              | 0.05mm → 0.18mm (0.0002" → 0.007") |

### Note

1. For exact backlash ratings for an individual unit consult Power Jacks.
2. Ball nuts can be supplied with zero backlash or with adjustable backlash via a special twin nut assembly (twin nut assembly for rotating screw units only). Consult Power Jacks for details.
3. Altering the load bearings preload to eliminate bearing play can reduce axial play.
4. There is no Anti-Backlash nut feature for the gear sets of these screw jacks.

## Pitch Deviation of Lifting Screw

| Lifting Screw | Pitch Deviation                             |
|---------------|---------------------------------------------|
| Machine Screw | 0.05mm → 0.25mm per 300mm                   |
| Ball Screw    | 0.025mm → 0.050mm per 300mm (DIN Class 5.7) |

### Note

1. Pitch deviation is cumulative and **NOT** detrimental to the operation of the Screw Jack
2. The Lifting screws are manufactured from material with a straightness tolerance of 0.2 mm per metre
3. Pitch deviation is related to the cutting machines tolerance and the material used.

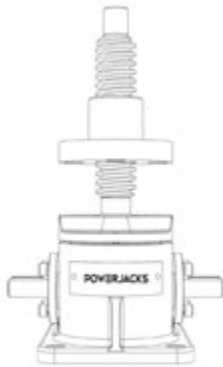
## Machine Screw Jacks

| Stroke (mm) | 5kN | 10kN | 25kN | 50kN | 100kN | 200kN | 300kN | 500kN | 1000kN |
|-------------|-----|------|------|------|-------|-------|-------|-------|--------|
| 100         | 0.7 | 0.6  | 0.8  | 1.0  | 1.0   | 0.4   | 0.4   | 0.7   | 0.7    |
| 200         | 1.3 | 1.1  | 1.4  | 1.7  | 1.7   | 0.7   | 0.6   | 1.0   | 1.0    |
| 300         | 1.9 | 1.5  | 1.9  | 2.3  | 2.3   | 0.9   | 0.8   | 1.3   | 1.3    |
| 400         | 2.5 | 2.0  | 2.5  | 2.9  | 2.9   | 1.2   | 1.0   | 1.7   | 1.6    |
| 500         | 3.1 | 2.4  | 3.1  | 3.6  | 3.6   | 1.4   | 1.2   | 2.0   | 1.9    |
| 600         | 3.7 | 2.8  | 3.6  | 4.2  | 4.2   | 1.6   | 1.4   | 2.3   | 2.2    |
| 700         | 4.3 | 3.3  | 4.2  | 4.8  | 4.8   | 1.9   | 1.6   | 2.6   | 2.4    |
| 800         | 4.8 | 3.7  | 4.8  | 5.5  | 5.5   | 2.1   | 1.8   | 2.9   | 2.7    |
| 900         | 5.4 | 4.2  | 5.3  | 6.1  | 6.1   | 2.4   | 1.9   | 3.2   | 3.0    |
| 1000        | 6.0 | 4.6  | 5.9  | 6.7  | 6.7   | 2.6   | 2.1   | 3.6   | 3.3    |

## Notes

1. Values quoted above are the maximum expected lateral movement for the given raise and screw jack model.
2. Does not allow for possible deflection due to side loads.
3. Lateral movements are for information only. For best results we recommend guides where possible.
4. Lateral movements will be reduced if the screw jack is fitted with secondary guides.
5. The above movements apply to machine screw jack only and not ball screw jacks. Permitting lateral movement on the ball screw jack under load will exert side thrust on the ball screw and ball nut and will be detrimental to the ball screw and nut life. Ball screw applications should be guided to ensure a minimum of lateral movement.
6. Where lateral movement is critical consult Power Jacks for exact values for the application.





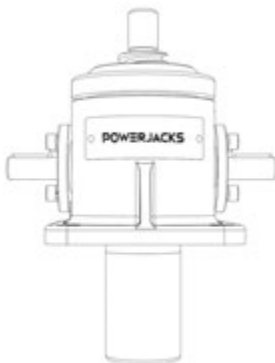
### How a Rotating Screw Jack Works

The rotation of the worm shaft causes the worm gear to rotate. For rotating screw jacks the lead screw is fixed to the worm gear and they rotate at the same speed. The lifting nut moves along the lead screw. As the worm gear turns, the friction forces on the screw thread act to turn the nut also. The greater the load on the screw jack unit, the greater the tendency of the nut to turn. If the nut turns with the screw, it will not raise the load. Therefore the nut needs to be fixed to a structure to prevent rotation. The restraining torque required for the structure, also known as the "lead screw key torque" can be found on the product performance tables in this catalogue or requested from Power Jacks.



### How a Translating Screw Jack Works

The rotation of the worm shaft causes the worm gear to rotate. For translating screw jacks the worm gear is threaded to accommodate the lead screw thread. The lead screw translates through the gear. As the worm gear turns, the friction forces on the screw thread act to turn the screw also. The greater the load on the screw jack unit, the greater the tendency of the screw to turn. If the screw turns with the nut (worm gear), it will not raise the load. In those cases where a single unit is used, and where the load cannot be restrained from turning, it is necessary to use a screw jack with an anti-rotation mechanism (keyed screw jack). Lead screw key torque (refer to the product performance tables in this catalogue or request from Power Jacks) must be checked as excessively heavy unguided loads could break the Anti-rotation mechanism (key).



### Anti-Backlash Screw Jack – When To Use

For reduced axial backlash of the lead screw in the screw jack select a model with the "Anti-Backlash" mechanism. This is typically used when the load direction changes from tension to compression and minimal axial backlash is required. This design is only available for translating screw jacks. It can be combined with Anti-Rotation mechanism as well.

### Input Torque Required for a Screw Jack

The input torque for a single screw jack depends on the load, the worm gear ratio, type of screw (machine screw, ball screw or roller screw) and the pitch of the lead screw. Torque values are listed in the individual product specification charts based on capacity loads. For loads from 25% to 100% of screw jack model capacity, torque requirements are approximately proportional to the load.

#### **Note**

The input torque, as well as the efficiency and side load ratings, is the same for both translating screw and rotating screw jacks.

### Maximum Input Power & Speed for a Screw Jack

The input power to the screw jacks should not exceed the power rating shown in the specifications table. Maximum input speed in rpm (revolutions per minute) to a screw jacks worm shaft should not exceed 1800 rpm for C & E-Series screw jacks.

### Efficiency of a Screw Jack

Screw Jack model efficiencies are listed in the individual product specification charts.

### Expected Life of a Screw Jack

The life expectancy of a screw jacks lead screw, bearings, nut and worm gear set varies considerably due to the extent of lubrication, abrasive or chemical action, overloading, excessive heat, improper maintenance, etc. For detailed life calculations, consult Power Jacks.

### Screw Jack with Anti-Rotation (Keyed) Mechanism

This design is only available for translating screw jacks. If the structure/object connected to the lead screw is not prevented from rotating or the lead screw is not always in contact with the structure then a screw jack with an "Anti-Rotation" mechanism (keyed) should be used.

### Standard Screw Jacks - How To Prevent The Load from Rotating

For multiple screw jack systems, fix the lead screw end fittings (e.g. top plate or clevis) to the common member being lifted by all the units. For single screw jack applications, bolt the lead screw end fitting (e.g. top plate or clevis) to the load and ensure the load is guided to prevent rotation.

A guided load is always recommended to ensure that the screw jack does not receive any side load and so guidance can be scaled suitably for the load without altering the screw jack design unnecessarily. Note that an external guidance system can provide a higher restraining "key" torque than compared to an anti-rotation mechanism in a screw jack.

### Self-Locking of Screw Jacks

Screw Jacks with 24:1 or higher gear ratios are considered self-locking in most cases. Consult Power Jacks for a recommendation specific to your application.

All screw jacks with multi-start lifting screws are considered not to be self-locking.

All ball screw and roller screw jacks are considered not to be self-locking.

Screw Jacks considered not self-locking will require a brake or other holding device.

### Shock Loads on a Screw Jack

Shock loads should be eliminated or reduced to a minimum, if they cannot be avoided, the screw jack model selected should be rated at twice the required static load.

For severe shock load applications, the load bearings can be replaced with heat-treated steel thrust rings which is an option available from Power Jacks. Note this will increase the input torque by approximately 100%.

## Axial Backlash in a Screw Jack

### Backlash in Standard Machine Screw Jacks

Machine screw jacks have backlash due not only to normal manufacturing tolerances, but to the fact that there must be some clearances to prevent binding and galling when the screw jack unit is under load. Usually, the axial backlash is not a problem unless the load on the screw jack unit changes between compression and tension. If a problem does exist, a unit with the anti-backlash feature should be considered.

### Screw Jacks with the Anti-Backlash Device

The anti-backlash device reduces the axial backlash between the lead screw and nut assembly to a regulated minimum. As the backlash will increase as the lead screw thread on the gear wears the anti-backlash device can be adjusted to remove this normal condition.

### How the Anti-Backlash Device Works

When the screw (1) is under a compression load, the bottom of its thread surfaces are supported by the top thread surfaces of the worm gear (2) at point (A). The anti-backlash nut (3), being pinned to the worm gear and floating on these pins and being adjusted downward by the shell cap, forces its bottom thread surfaces against the upper thread surfaces of the lifting screw at point (B). Thus, backlash between worm gear threads is reduced to a regulated minimum.

When wear occurs in the worm gear threads and on the load carrying surfaces of the lifting screw thread, the load carrying thickness of the worm gear thread will be reduced. This wear will create a gap at point (B) and provide backlash equal to the wear on the threads.

Under compression load, the lifting screw will no longer be in contact with the lower thread surface of the anti-backlash nut. Under this condition, backlash will be present when a tension load is applied. The anti-backlash feature can be maintained simply by adjusting the shell cap until the desired amount of backlash is achieved.

To avoid binding and excessive wear do not adjust lifting screw backlash to less than 0.025mm (0.001"). This will reduce the calculated separation (C) between the anti-backlash nut and worm gear and will reduce the backlash between the worm gear threads and the lifting screw to the desired minimum value.

When separation (C) has been reduced to zero, wear has taken place. Replace the worm gear (2) at this point. This feature acts as a built in safety device which can be used to provide wear indication for critical applications.

### Column Strength of the Screw Jack

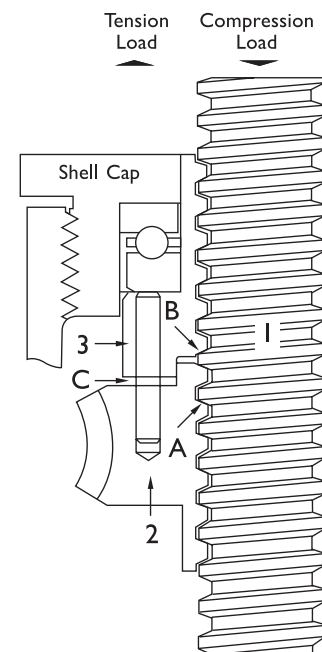
Column strength of a screw is determined by the relationship between the screw length and its diameter. For column strength charts consult product literature or Power Jacks.

### Side Loads on a Screw Jack

Screw jacks are designed primarily to move and position loads and any side loads (loads not acting axially on lead screw) should be avoided. The units will withstand some side loads, depending on the diameter of the lifting screw and the extended length of the lifting screw. Where side loads are present, the loads should be guided and the guides, rather than the screw jacks, should take the side loads - particularly when long raises are involved. Even a small side load can exert great force on the housings and bearings and increase the operating torque and reduce the life expectancy.

### Allowable Duty Cycle of Screw Jack

Because of the efficiency of conventional worm gear screw jacks, the duty cycle is intermittent at rated load. At reduced loading, the duty cycle may be increased. Ball screw jacks are more efficient than machine screw jacks and so can provide a higher duty cycle. In addition Power Jacks have special designs for high duty cycle screw jacks. For detailed analysis consult Power Jacks Ltd.



### Maximum Operating Temperatures For E-Series Screw Jack

Normal operation at ambient temperatures of up to 90°C. Operations above 90°C will require special lubricants. For temperatures above 90°C, the life of even special lubricants is limited. Therefore consult Power Jacks on your application. For temperatures above 90°C, advise Power Jacks of full particulars of the duration of such temperatures. Power Jacks suggest that a lubricant manufacturer be consulted for type of grease and lubrication schedule. As a general rule, the screw jack unit should be shielded to keep ambient temperatures to 90°C or less.

### Minimum Temperature For E-Series Screw Jacks

With the standard lubricant and materials of construction, the screw jacks are suitable for use at sustained temperatures of -20°C. Below -20°C, low temperature lubricant should be used and no shock loads are present. Power Jacks application engineers must be consulted in these instances for a recommendation. Screw Jacks with standard material of construction and lubrication may be safely stored at temperatures as low as -55°C.

### Thermal / Heat Build-Up in a Screw Jack as it is operated

The duty cycle, the length of the screw, the magnitude of the load, and the efficiency of the screw jack all have a direct influence on the amount of heat generated within the screw jack. Long lifts can cause serious overheating. Note that Power Jacks have special designs with higher thermal capacities than conventional worm gear screw jacks (consult Power Jacks for more details).

### Screw Jacks to Pivot a Load

A screw jack can be built to pivot a load by two methods:

1. Double Clevis Screw Jack

The screw jack can be furnished with a clevis at both ends (commonly referred to as a double clevis screw jack). The bottom clevis is welded to the bottom end of an extra strong cover pipe, which is fitted to the base of the screw jack. This cover pipe still performs its primary function of encasing the lifting screw in its retracted portion. The clevis ends can be replaced with other pivot options such as Fork End or Rod End.

2. Clevis - Trunnion Mounting

The screw jack is fitted with the pivot end fitting (e.g. Clevis, Fork or Rod End) on the lead screw and a trunnion mount adapter is bolted to the screw jacks base plate.

The design of the structure in which these types of screw jacks are to be used must be constructed so that screw jack can pivot at both ends. Use only direct compression or tension loads, thereby eliminating side load conditions.

### Corrosion Resistant Properties

Screw Jacks can be supplied with alternative materials and/or paint specifications for high corrosive areas. These options include stainless steel, chrome plating, electro-nickel plating, epoxy paint, etc. Check the unit specification is suitable before installation.

### Using Screw Jacks within a Rigid Structure or Press

Power Jacks recommend that the screw jack selected has a greater capacity than the rated capacity of the press or of the load capacity of the structure. We also recommend that a torque clutch or similar device be used to prevent overloading of the screw jack unit. Unless these precautions are taken, it is possible to overload the screw jack without realising it.

### Screw Jack Drift after Drive Motor is Switched Off

The screw jack will drift after the motor drive is switched off unless a brake of sufficient capacity is used to prevent it. The amount of drift will depend upon the load on the screw jack and the inertia of the rotor in the motor.

For machine screw jacks with no load, the amount of drift will depend upon the size and speed of the motor. For example, a 1500 RPM input directly connected to a screw jack without a load will give on average 35mm to 60mm of drift; a 1000 RPM input will give about 1/2 as much drift. Note that the drift varies as the square of the velocity (RPM). The drift of the screw jacks screw can be controlled by using a magnetic brake on the motor. Variations of drift will also be seen if the motor drives the screw jack via a reduction gearbox.

### Screw Jacks Operation where Vibration is Present

Screw Jacks will operate in areas with vibration, however the vibration may cause the lead screw to “creep” or “inch” under load. For applications involving slight vibration, select the higher of the worm gear ratios. If considerable vibration is present, use a motor equipped with a magnetic brake, which will prevent the screw jack from creep and/or back-driving.

### Use of Screw Jacks Fitted With Emergency Stop Disc

To prevent over travel of the lead screw, a stop disc or nut can be fitted to a screw jack that is hand operated. It should not be used as a full power stop.

### Use of Screw Jacks Fitted With Emergency Stop Nut

For motor driven units, it is possible for the full capacity of the screw jack or even a greater force (depending on the power of the motor) to be applied against the stop. These stops are called “full power stop nuts”. They must only be used as an emergency device and if such a condition occurs, an assessment made to discover why it happened in order to carry out preventative action. If the full power stop nut is used at full load in an emergency it might be driven into the unit jamming so tightly that it must be disassembled in order to free it.

It is recommended that external stops are fitted where possible, however they must only be used as a last resort (Note - limit switches are one possible solution to constrain screw jack movement safely - consult Power Jacks for system advice). Under ideal conditions where a slip clutch or torque limiting device is used, a stop pin or stop nut may be used - but Power Jacks should be consulted.

### Screw Jack System Arrangements

Perhaps the greatest single advantage of Power Jacks screw jacks is that they can be linked together mechanically, to lift, lower, move or position in unison. Typical mechanical system arrangements link 2, 4, 6 or 8 screw jacks together and are driven by one motor. As an alternative, screw jacks can be individually driven by electric motors and with suitable feedback devices, such as encoders, be synchronised electronically by a control system.

### Connecting Screw Jacks in Series

The number of screw jacks that can be connected in series is limited by input torque requirements on the first worm shaft in the line. For the C & E-Series the torque on the worm shaft of the first screw jack should not exceed 300% of its rated full load torque (this does not include the 200kN screw jacks which are rated at 150%).

### Efficiency of a Multiple Screw Jack System

In addition to individual device efficiencies, the efficiency of the screw jack arrangement must be taken into consideration. The arrangement efficiency allows for misalignment due to slight deformation of the structure under load, for the losses in couplings, bearings, and for a normal amount of misalignment in positioning the screw jacks and gearboxes. For efficiency values consult Power Jacks product literature or engineers.

| Number of Screw Jacks in System | 2    | 3    | 4    | 6-8  |
|---------------------------------|------|------|------|------|
| Jacking System Efficiency       | 0.95 | 0.90 | 0.85 | 0.80 |

### Screw Jack Fitted with 3rd Party Accessories

If your screw jack is fitted with a device not manufactured by Power Jacks then please consult the provided manual for this device.

## Installation and Maintenance Tips

The following installation and maintenance tips are for the C & E-Series, Metric machine screw and ball screw jacks models. General care should be taken to ensure that equipment is sufficient to handle the load.

1. The structure on which the screw jack unit is mounted should have ample strength to carry the maximum load, and be rigid enough to prevent undue deflection or distortion of the screw jack unit supporting members.
2. It is essential that the screw jack be carefully aligned during installation so that the lifting screws are vertically true and the connecting shafts are exactly in line with the worm shafts. After the screw jack, shafting, and gear boxes are coupled together, it should be possible to turn the main drive shaft by hand. If there are no signs of binding or misalignment, the jacking system is then ready for normal operation.
3. The screw jack should have a greater stroke than is needed in the screw jack installation. If it is necessary to operate the screw jack at the extreme limits of travel, it should be done with caution.

**CAUTION: Do not allow screw travel below catalogue closed height of the screw jack or serious damage to internal mechanism may result. Refer to table specifications for closed height of respective units.**

4. The input power should not exceed the power rating shown in the specification table. Maximum RPM should not exceed 1800.
5. The lifting screw should not be permitted to accumulate dust and grit on the threads. If possible, lifting screws should be returned to closed position when not in use.
6. The ball screws in the ball screw jacks should be checked periodically for excessive backlash and spalling of raceways. A periodic check of backlash of the lifting screw thread is recommended to check wear of the worm gear internal threads on the machine screw jack models. Backlash in excess of 50% of the thread thickness indicates the need to replace the worm gear.
7. Unless otherwise specified, screw jacks are shipped packed with grease which should be sufficient for one month of normal operation. For normal operation, the screw jacks should be lubricated about once a month, using one of the following extreme pressure greases or their equivalent:

|         |                               |
|---------|-------------------------------|
| Shell   | Gadus S2V220AC2 (Alvania WR2) |
| BP      | Energrease LC2                |
| Castrol | Spheerol EPL2                 |
| Mobil   | Mobilux EP2                   |

For severe conditions, the screw jacks should be lubricated more frequently, using one of the above greases (daily to weekly depending on conditions). If duty is heavy, an automatic lubrication system is strongly recommended. If ambient temperatures exceed 90°C (194°F) consult Power Jacks.

8. On ball screw jack applications, periodically lubricate the exposed ball screw grooves with a cloth dampened with a good grade 10W30 oil for most applications. An instrument grade oil should be used in dirty and heavy duty environments, and bearing grease for environments at extremely high temperatures. Extreme temperature and other environmental conditions should be referred to Power Jacks for recommended lubricating procedures.

**CAUTION: Where ball screws are not protected from airborne dirt, dust, etc., bellows boots should be used. Inspect frequently at regular intervals to be certain a lubricating film is present. Ball screws should never be run dry.**

9. Due to the high efficiency of the ball screw jack design, a brake must be used in conjunction with motor selected to position the screw jack.

## Useful Formulae for Screw Jack Calculations

### Lifting Screw Lead

Lifting Screw lead (mm) = Screw Pitch (mm) \* Number of Starts on Lifting Screw

### Calculation of the Linear Speed

When the worm shaft speed is known, the linear speed can be determined with this formula:

$$\text{Linear Speed (mm/min)} = \frac{\text{RPM of Worm Shaft} \times \text{Lifting Screw Lead (mm)}}{\text{Gear Ratio}}$$

or alternatively

$$\text{Linear Speed (mm/min)} = \frac{\text{RPM of Worm Shaft}}{\text{Turns of Worm for 1mm Travel}}$$

### Calculation of Screw Jack Input Torque

$$\text{Input Torque (Nm)} = \frac{\text{Load (kN)} \times \text{Lifting Screw Lead (mm)}}{2 \times \pi \times \text{Efficiency} \times \text{Gear Ratio}}$$

or alternatively

$$\text{Input Torque (Nm)} = \frac{\text{Input Power (kW)} \times 9550}{\text{Input Speed (rpm)}}$$

### Calculation of Screw Jack Input Power

$$\text{Input Power (kW)} = \frac{\text{Load (kN)} \times \text{Lifting Screw Lead (mm)} \times \text{Input Speed (rpm)}}{60000 \times \text{Efficiency} \times \text{Gear Ratio}}$$

or alternatively

$$\text{Input Power (kW)} = \frac{\text{Load (kN)} \times \text{Linear Speed (mm/min)}}{60000 \times \text{Efficiency}}$$



## Useful Formulae for Screw Jack Calculations

## Power

## Metric

## Imperial

Lifting Motion

$$P = \frac{m \times g \times v}{\eta \times 1000}$$

$$P = \frac{w \times v}{\eta \times 33000}$$

Linear Motion

$$P = \frac{F_R \times v}{1000}$$

$$P = \frac{F_R \times v}{33000}$$

$$F_R = \mu \times m \times g$$

$$F_R = \mu \times w$$

Rotary Motion

$$P = \frac{T \times n}{9550}$$

$$P = \frac{T \times n}{63000}$$

## Torque

$$T = F_R \times r$$

$$T = T \times r$$

Linear Motion

$$T = \frac{P \times 9550}{n}$$

$$T = \frac{P \times 6300}{n}$$

| Symbol | Quantity                   | Metric Units          | Imperial Units          |
|--------|----------------------------|-----------------------|-------------------------|
| P      | Power                      | kW                    | HP                      |
| T      | Torque                     | Nm                    | lbf.in                  |
| $F_R$  | Resistance due to Friction | N                     | lbf                     |
| m      | Mass                       | kg                    | -                       |
| W      | Weight                     | -                     | lb                      |
| g      | Gravitational Acceleration | 9.81 ms <sup>-2</sup> | 32.185 ft <sup>-2</sup> |
| v      | Velocity                   | ms <sup>-1</sup>      | ft/min                  |
| $\eta$ | Efficiency                 | decimals              | decimals                |
| $\mu$  | Coefficient of Friction    | decimals              | decimals                |
| n      | Rotational Speed           | rpm                   | rpm                     |
| r      | Radius                     | m                     | in                      |

## Useful Formulae for Screw Jack Calculations

## Moment of Inertia

## Metric

## Imperial

$$\text{Solid Cylinder} \quad J = \frac{1}{2} \times m \times r_{od}^2$$

$$WK^2 = \frac{1}{2} \times W \times r_{od}^2$$

$$\text{Hollow Cylinder} \quad J = \frac{1}{32} \times \pi \times \rho \times d_{od}^4$$

$$WK^2 = \frac{\pi}{32} \times r \times l \times d_{od}^4$$

$$J = 0.098 \times \rho \times l \times d_{od}^4$$

$$WK^2 = 0.1 \times \rho \times l \times d_{od}^4$$

$$\text{Hollow Cylinder} \quad J = \frac{1}{2} \times m \times (r_{od}^2 - r_{id}^2)$$

$$WK^2 = \frac{1}{2} \times W \times (r_{od}^2 - r_{id}^2)$$

$$J = \frac{1}{32} \times \pi \times \rho \times l \times (d_{od}^4 - d_{id}^4)$$

$$WK^2 = \frac{\pi}{32} \times \pi \times \rho \times l \times (d_{od}^4 - d_{id}^4)$$

$$J = 0.098 \times \rho \times l \times (d_{od}^4 - d_{id}^4)$$

$$WK^2 = 0.1 \times \rho \times l \times (d_{od}^4 - d_{id}^4)$$

## Acceleration or Braking Time

$$T_{acc} = \frac{J \times n}{9.55 \times T_{acc}}$$

$$T_{acc} = \frac{WK^2 \times n}{308 \times T_{acc}}$$

| Symbol           | Quantity                              | Metric Units      | Imperial Units     |
|------------------|---------------------------------------|-------------------|--------------------|
| J                | Moment of Inertia (metric)            | kgm <sup>2</sup>  | -                  |
| WK <sup>2</sup>  | Moment of Inertia (imperial)          | -                 | lb.ft <sup>2</sup> |
| T <sub>acc</sub> | Torque due to Acceleration or Braking | Nm                | lbf.ft             |
| m                | Mass                                  | kg                | -                  |
| W                | Weight                                | m                 | lb                 |
| g                | Outer Radius                          | m                 | ft                 |
| v                | Internal Radius                       | m                 | ft                 |
| η                | Outer Diameter                        | m                 | ft                 |
| μ                | Internal Diameter                     | m                 | ft                 |
| n                | Density                               | kg/m <sup>3</sup> | kg/m <sup>3</sup>  |
| r                | Time for Acceleration or Braking      | s                 | s                  |
| r                | Rotational Speed                      | rpm               | rpm                |



Power Jacks specialises in the design and manufacture of precision linear actuation, positioning and lifting equipment.

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