Joyce metric screw jacks, series MWJ, are specifically designed for positioning and lifting applications that must be fully metric. These jacks are commonly used in OEM machinery manufactured in the U.S. and shipped to other countries around the world. They are fully interchangeable with several European products.

Metric screw jacks are available in four capacities: 10 kN, 25 kN, 50 kN, and 100 kN. MWJ screw jacks feature:

- Industry standard metric (trapezoidal) lifting screw diameters and pitches.
- Fully metric mounting hole locations, diameters and fasteners.
- Alloy steel worm shafts and bronze wormgears and traveling nuts.
- Tapered roller or ball thrust bearings provide rugged reliability.

Both upright and inverted configurations of these precision jacks operate at full capacity whether the load is in tension or compression. All MWJ jacks are self-locking under full capacity.

Metric screw jacks are available with one of four standard screw ends or special ends to meet your requirements. Double input shafts are standard. An optional anti-backlash feature (page 181) compensates for thread wear, assuring minimum play between lifting screw and wormgear for smooth, precise operation. All jack designs can be fitted with protective boots.

Joyce can customize metric screw jacks to meet your specifications.
Instructions: Select a model number from this chart.

<table>
<thead>
<tr>
<th>10 kN</th>
<th>25 kN</th>
<th>50 kN</th>
<th>100 kN</th>
</tr>
</thead>
<tbody>
<tr>
<td>MWJ51</td>
<td>MWJ82.5</td>
<td>MWJ85</td>
<td>MWJ810</td>
</tr>
<tr>
<td>MWJ201</td>
<td>MWJ122.5</td>
<td>MWJ125</td>
<td>MWJ2410</td>
</tr>
</tbody>
</table>

Sample Part Number: MWJ65U2S-300-STDX-STDX-B

**Jack Configuration**

- **U** = Upright
- **I** = Inverted

**End Conditions**

- **1** = T1 (plain end)
- **2** = T2 (load pad)
- **3** = T3 (threaded end)
- **4** = T4 (male clevis)

**Jack Designs**

- **S** = Translating
- **K** = Keyed for Non Rotation
- **N** = Traveling Nut
- **D** = Double Clevis*
- **A** = KFTN Trunnion*
- **T** = Trunnion*

*Contact Joyce with your requirements.

**Left Side Shaft Code**

- XXXX = Remove
- STDX = Standard
- CUST = Custom

For optional shaft codes, see page 73.

**Right Side Shaft Code**

- XXXX = Remove
- STDX = Standard
- CUST = Custom

For optional shaft codes, see page 73.

**Metric Screw Jack Rise**

Rise is travel expressed in millimeters and not the actual screw length.

**Additional Options**

- **X** = Standard Jack, no additional options
- **S** = Additional Specification Required (comment as necessary)
- Anti-Backlash p. 181
  - **A** = Split Nut
  - **A90** = A90 Design
  - **A95** = A95 Design
- Protective Boots pp. 170-173
  - **B** = Protective Boot
  - **D** = Dual Protective Boot
- Finishes p. 182
  - **F1** = Do Not Paint
  - **F2** = Epoxy Paint
  - **F3** = Outdoor Paint
  - Process
- Motor Options
  - **M1** = Less Motor
  - **M2** = Brake Motor
  - **M3** = Single Phase Motor (120VAC)
  - **M4** = 50Hz Motor
  - **M5** = Special Motor
- Grease/Seals
  - **H1** = High Temperature Operation
  - **H2** = Food Grade
- Screw Stops
  - **ST0** = Extending
  - **ST1** = Retracting
  - **ST2** = Both
  * Specify as many options as needed.
**METRIC SCREW JACKS**

**SHAFT CODES**

**Instructions:** Select the appropriate shaft codes for both right and left hand shafts. One shaft code must be specified for each side of the jack.

### Screw Stops (p. 10) and Boots (pp. 170-173)
Screw stops are optional on metric screw jacks. When specified, the closed height of the jack and the protection tube length may be increased. When boots are added to metric jacks, the closed height of the jack may be increased.

### Geared Potentiometers (p. 175)
- **POTA=0-10V**
- **POTB=4-20mA**
- **POTC=0-10V w/2 switches**
- **POTD=4-20mA w/2 switches**
- IP65 rated enclosures

### Encoders (pp. 176-177)
- **ENCA=Absolute Encoder 0-10 VDC, programmable**
- **ENCB=Absolute Encoder 4-20mA, programmable**
- **ENCC=Absolute Encoder CAN Open**
- **ENCD=Absolute Encoder SSI**
- **ENCS=Stainless Steel Incremental Encoder 1024 PPR**
- **ENCX=Incremental Encoder 200 PPR**
- **ENCY=Incremental Encoder 1024 PPR**

### Motors for Systems and Direct Drives (pp. 178-179)
- All standard motors are 3-phase, 208-230/460 VAC or 230/460 VAC. Other motor options are available. Specify the appropriate motor size from the chart on the right.
- Refer to the "Additional Options" chart on the preceding page as needed.
- If the motor frequency will be varied to provide a "soft" start, an inverter duty motor may be required.
- International voltage motors are available.

### Motors

<table>
<thead>
<tr>
<th>Size</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4 HP</td>
<td>K</td>
</tr>
<tr>
<td>1/3 HP</td>
<td>A</td>
</tr>
<tr>
<td>1/2 HP</td>
<td>B</td>
</tr>
<tr>
<td>3/4 HP</td>
<td>C</td>
</tr>
<tr>
<td>1 HP</td>
<td>D</td>
</tr>
<tr>
<td>1-1/2 HP</td>
<td>E</td>
</tr>
<tr>
<td>2 HP</td>
<td>F</td>
</tr>
<tr>
<td>3 HP</td>
<td>L</td>
</tr>
<tr>
<td>5 HP</td>
<td>G</td>
</tr>
</tbody>
</table>

### Motors for Systems and Direct Drives (pp. 178-179) (Cont.)
- Motor code from chart at left
- For servo motor mounts see p. 178

### Mechanical Counters (p. 180)
- **CNT0=0.025 mm increments**
- Note: Contact Joyce for availability and options.

### Hand Wheels (p. 180)
- **HW04=4” dia.(102 mm)**
- **HW06=6” dia.(152 mm)**
- **HW08=8” dia.(203 mm)**
- **HW10=10” dia.(254 mm)**
- **HW12=12” dia.(305 mm)**

### Motors

<table>
<thead>
<tr>
<th>Models</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS7-402</td>
<td>LI</td>
</tr>
<tr>
<td>LS8-402</td>
<td>LA</td>
</tr>
<tr>
<td>LS8-404</td>
<td>LB</td>
</tr>
</tbody>
</table>

### Available Positions

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2*</th>
<th>3</th>
<th>4*</th>
<th>5</th>
<th>6*</th>
<th>7*</th>
<th>8*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left Side Shaft Options</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Right Side Shaft Options</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Mechanical Limit Switches (p. 174)

**Ordering Example:** **LA13**

**Models**

<table>
<thead>
<tr>
<th>Model</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS7-402</td>
<td>LI</td>
</tr>
<tr>
<td>LS8-402</td>
<td>LA</td>
</tr>
<tr>
<td>LS8-404</td>
<td>LB</td>
</tr>
</tbody>
</table>

**Available Positions**

- 25 kN, 50 kN, and 100 kN metric jacks are available with positions #1, #3, and #5.
- *These positions are not standard. Contact Joyce with your requirements.*
Metric Screw Jacks Column Loading Chart

This chart includes a 2:1 Factor-of-Safety based on the Euler-Johnson equation for column loading.
The horizontal portion of each line represents the jack's maximum static capacity. Under static conditions, these lines can be exceeded. Please contact the factory for assistance.
## METRIC SCREW JACKS SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model</th>
<th>Capacity</th>
<th>Screw Diameter (mm)</th>
<th>Thread Pitch/Lead</th>
<th>Worm Gear Ratio</th>
<th>Worm Shaft Turns for 1mm Travel</th>
<th>Tare Torque (Nm)</th>
<th>Starting Torque (Nm)</th>
<th>Operating Torque (Nm)</th>
<th>Efficiency Rating % Approx.</th>
<th>Screw Torque (Nm)</th>
<th>Basic Jack Weight (Kg)</th>
<th>Screw Weight (Kg) per 25mm Travel</th>
</tr>
</thead>
<tbody>
<tr>
<td>MWJ51</td>
<td>10kN</td>
<td>20</td>
<td>5mm</td>
<td>5:1</td>
<td>1</td>
<td>0.33</td>
<td>.95W*</td>
<td>.70W* @ 500 RPM</td>
<td>22.7</td>
<td>2W*</td>
<td>2.7</td>
<td>0.14</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20:1</td>
<td>4</td>
<td></td>
<td>.41W*</td>
<td>.23W* @ 500 RPM</td>
<td>17.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MWJ62.5</td>
<td>25kN</td>
<td>30</td>
<td>6mm</td>
<td>6:1</td>
<td>1</td>
<td>0.67</td>
<td>1.01W*</td>
<td>.81W* @ 500 RPM</td>
<td>19.6</td>
<td>3W*</td>
<td>6.8</td>
<td>0.18</td>
</tr>
<tr>
<td>MWJ122.5</td>
<td></td>
<td></td>
<td></td>
<td>12:1</td>
<td>2</td>
<td></td>
<td>.62W*</td>
<td>.45W* @ 500 RPM</td>
<td>17.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MWJ242.5</td>
<td></td>
<td></td>
<td></td>
<td>24:1</td>
<td>4</td>
<td></td>
<td>.44W*</td>
<td>.27W* @ 500 RPM</td>
<td>14.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MWJ65</td>
<td>50kN</td>
<td>40</td>
<td>9mm</td>
<td>6:1</td>
<td>0.67</td>
<td>1.13</td>
<td>1.64W*</td>
<td>1.14W* @ 300 RPM</td>
<td>20.9</td>
<td>4W*</td>
<td>14.5</td>
<td>0.32</td>
</tr>
<tr>
<td>MWJ125</td>
<td></td>
<td></td>
<td></td>
<td>12:1</td>
<td>1.33</td>
<td></td>
<td>1.03W*</td>
<td>.64W* @ 300 RPM</td>
<td>18.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MWJ245</td>
<td></td>
<td></td>
<td></td>
<td>24:1</td>
<td>2.67</td>
<td></td>
<td>.74W*</td>
<td>.36W* @ 300 RPM</td>
<td>15.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MWJ810</td>
<td>100kN</td>
<td>55</td>
<td>12mm</td>
<td>8:1</td>
<td>0.67</td>
<td>2.26</td>
<td>1.53W*</td>
<td>1.18W* @ 200 RPM</td>
<td>20.2</td>
<td>5W*</td>
<td>19.5</td>
<td>0.59</td>
</tr>
<tr>
<td>MWJ2410</td>
<td></td>
<td></td>
<td></td>
<td>24:1</td>
<td>2</td>
<td></td>
<td>.76W*</td>
<td>.49W* @ 200 RPM</td>
<td>16.1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*W: Load in kN.

**Tare Torque:** Initial torque to overcome seal and normal assembly drag. This value must be added to starting torque or operating torque values.

**Starting Torque:** Torque value required to start moving a given load (dissipates to operating torque values once the load begins moving).

**Operating Torque:** Torque required to continuously raise a given load at the input RPM listed.

**Screw Torque:** Torque required to resist screw rotation (Translating Design Jacks) and traveling nut rotation (Keyed for Traveling Nut Design Jacks).

**Lead:** The distance traveled axially in one rotation of the lifting screw.

**Pitch:** The distance from a point on a screw thread to a corresponding point on the next thread measured axially.

**Note:** This chart is provided for reference only. For specific information such as column loading allowable continuous travel and other performance factors please contact Joyce/Dayton.
METRIC SCREW JACKS

10kN - 20mm SCREW

MWJ 51
MWJ 201

Upright

Upright keyed

Upright traveling nut

Inverted traveling nut

Inverted

Inverted keyed

Typical Plan View

Note: Drawings are artist’s conception — not for certification; dimensions are subject to change without notice.
**METRIC SCREW JACKS**

**25kN – 30mm SCREW**

MWJ 62.5
MWJ 122.5
MWJ 242.5

Upright

![Upright Diagram](image)

**Upright keyed**

![Upright Keyed Diagram](image)

**Upright traveling nut**

![Upright Traveling Nut Diagram](image)

**Inverted traveling nut**

![Inverted Traveling Nut Diagram](image)

**Inverted**

![Inverted Diagram](image)

**Inverted keyed**

![Inverted Keyed Diagram](image)

Typical Plan View

![Typical Plan View Diagram](image)

Right Side

![Right Side Diagram](image)

Left Side

![Left Side Diagram](image)

**Note:** Drawings are artist’s conception — not for certification; dimensions are subject to change without notice.

**800-523-5204**

sales@joycedayton.com

joycedayton.com

2D and 3D models available on website • Ordering information on pages 72 and 73
Note: Drawings are artist’s conception — not for certification; dimensions are subject to change without notice.
METRIC SCREW JACKS

100kN - 55mm SCREW

MWJ 810
MWJ 2410

Upright

Upright keyed

Upright traveling nut

Inverted traveling nut

Inverted

Inverted keyed

Typical Plan View

Right Side

Left Side

Note: Drawings are artist’s conception — not for certification; dimensions are subject to change without notice.