



# ABOUT MACHINE SCREW JACKS

Joyce worm gear machine screw jacks lift and precisely position loads (250 pounds to 250 tons). Upright or inverted jacks operate at full capacity in tension or compression. WJ and RWJ, single lead jacks are self-locking. DWJ and DRWJ, double lead jacks offer increased travel speed and require a brake or external locking device to hold position.

- ALLOY STEEL INPUT SHAFTS
- TAPERED OR BALL THRUST BEARINGS
- PROTECTIVE BOOTS AVAILABLE
- CUSTOMIZED TO YOUR SPECIFICATIONS
- ALUMINUM BRONZE WORMGEARS
- DOUBLE INPUT SHAFTS STANDARD
- ANTI-BACKLASH DEVICES AVAILABLE
- CUSTOM FINISHES AVAILABLE

Parts list and exploded views are included in the O&M Manual. The serial number is attached to the product housing.

Joyce/Dayton provides motor controls ranging from simple Motor Starters to complex positioning systems and Custom controls. Every system that is powered by an electric motor requires a control system. At Joyce, we know that choosing the best option can sometimes be a challenge. That's why our Engineers are available to help you through the process.

## WHAT YOU NEED TO KNOW TO SPECIFY SCREW JACKS IN AN INDUSTRIAL APPLICATION

Jacks are rated based on their static thrust capacity from 250-pounds to 250-tons. But the selection of the best jack for the application requires further consideration.

### WHERE ARE WORM GEAR MACHINE SCREW JACKS USED?

Worm gear machine screw jacks are the workhorses of the lifting industry, available in static capacities up to 250-tons. They are commonly used to lift, hold, and position loads. Examples include: Platform lifts, Damper adjustments, Ergonomic lifts, Maintenance lifts, Roll adjustments, Earth Station Antennas, Drilling equipment, Solar Trackers, Conveyor adjustments, Packaging equipment, Gate adjustments, Dam adjustment, and Mine door openers.



#### How high do you need to lift the load?

When jacks are loaded in compression one must consider the load carrying capacity of the lifting screw (column load). Choose a jack whose lifting screw is stout enough to handle the load at full rise.



#### How fast do you need to move the load?

Consider the travel speed of they DYNAMIC load. The speed at which the load will be moved is a limiting factor. Sometimes double lead machine screw jacks or ball screw jacks are a better choice in a given application.



#### How frequently will the jack need to move the load?

Remember that heat builds up between the machine screw and nut during normal operation. Duty cycles for machine screw jacks must include periods of rest to dissipate that heat.

## WHICH JACK DESIGN IS BEST FOR YOUR APPLICATION?

Once loads, duty cycles, and travel speeds are established, designers must select which of the three jack design to use.



Translating Design Jacks are most often selected. With this design, a driven input worm acts on an internal worm gear causing the lifting screw to extend or retract. Operation requires that rotation of the lifting screw be prevented. This rotation is restrained whenever two or more jacks are tied to the same load.



Keyed Design Jacks are used any time rotation of the lifting screw is not restrained. For instance, when you must lift the jack to meet a load. This is how they work: A key, fixed to the jack housing and inserted into a keyway milled into the length of the lifting screw forces the lifting screw to translate without rotating.



Keyed For Traveling Nut Design Jacks (KFTN) are another option. These jacks have a fixed length lifting screw that rotates. Loads are attached to a flanged "traveling" nut that translates up and down the length of the rotating screw. This type of jack is ideal for applications that cannot accommodate a screw protection tube or that require a flush mount.

### TAKE THE WORK OUT OF USING SCREW JACKS IN SYSTEMS

Joyce/Dayton screw jacks and lifting systems offer wide-ranging lifting and positioning solutions for diverse industries. Our robust jacks reliably move and accurately position loads up to 250-tons. Joyce configures jacks with components such as motors, gear reducers, shafting, coupling, and motion control devices to create complete multi-jack systems.

Tell us what you need or use our exclusive JAX® Online software (it's free). We will put together complete systems with single or multiple screw jacks for you. The software is great because it calculates motor horsepower and shaft diameters and torques. There are several common arrangements, but you can design your own.



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