Trans-Quip Inc.'s
Jacks Journal
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Protective Bellows Boots

Bellows boots may not seem like a hot topic but it is certainly worth your attention if you wish to prolong the life of your screws, shafts, u-joints, etc. or prevent people from being caught in an operating screw jack.

When foreign materials enter the screw lubricant, screw life will be diminished. The foreign materials become abrasives that wear away and damage the internal moving parts of the screw. **Using boots to prolong the screw life translates into reduced downtime and maintenance costs.**

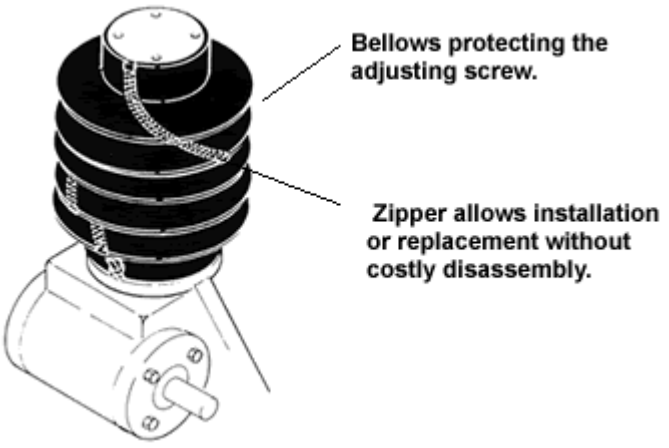
Trans-Quip Inc. offers a full line of standard and custom manufactured bellows and covers sewn into round, square or rectangular shapes with collars or flanged ends. Made from coated fabrics, the boots offer increased durability and greater abrasion resistance than moulded boots. A wide variety of fabrics and coatings are available to withstand both machine and environmental conditions at temperatures up to 1000°F.

Attachment Options
Bellows boots are typically attached to the screw jacks using wire or hose clamps. However, there are other options which you may wish to consider, such as custom collars, twist wires in the collar, and stainless steel clamps.

Special attention should be paid to the connection of bellows to inverted jacks. Due to the configuration of an inverted jack, there is no place to attach the bottom of the bellows. A standard or custom mounting collar is recommended. Normally, there is no additional cost to customize a collar.

Guidance Options
Depending on the length of your screw and how it is mounted, you may require the use of one of these guidance options: internal guides, external grommets for guide wire, support wires in boot, tie strips along the full length of the boot. Typically, if your screw jack runs horizontally, you will need to use one of these guidance options to keep the boot from falling onto the screw.

Other Options
When a standard bellows boot requires replacement, it is usually cut lengthwise and removed from the screw. To install the new boot, the screw may have to be disassembled *unless* a zippered boot is used. Zippered boots can be quickly and easily installed without the need for screw disassembly. Users should note that the zipper will slightly increase the minimum close required as it adds volume to the collapsed boot.



Q & A

Q - How do I measure the minimum close of a screw jack?

A -- Minimum close refers to the amount of screw still visible outside the jack when it is fully retracted (see Diagram A). It is measured from the machined base of the jack to the tip of the end condition.

Please note that on upright jacks, this measurement includes the jack housing as in Diagram B (e.g. you would add 8 3/4" to the measurement for your specific end condition).

Each jack model and end condition has a standard minimum close which is visible on the diagrams of each jack in the Joyce/Dayton catalogue. Although minimum close cannot be reduced without sacrificing the end condition, it can be increased to allow your screw jack to reach the load.

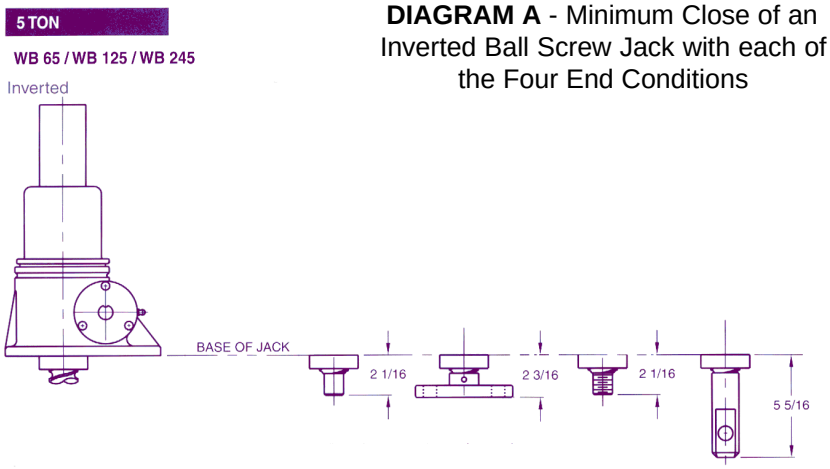


DIAGRAM A - Minimum Close of an Inverted Ball Screw Jack with each of the Four End Conditions

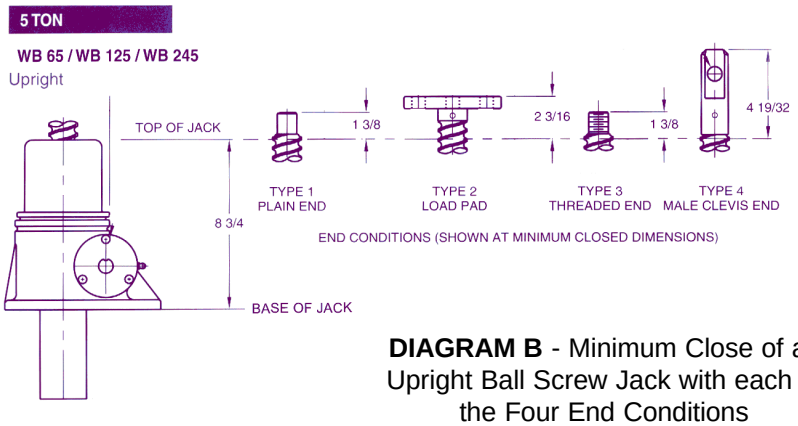


DIAGRAM B - Minimum Close of an Upright Ball Screw Jack with each of the Four End Conditions

Q -- Why does my jack with a T4 end condition spin in place?

A -- This is a common error usually involving an application where the screw jack is used to actuate a clevis or cable. The problem is the load that is attached to the screw does not provide enough resistance to rotational forces. The screw will not translate unless the minimum resistance requirements of the jack are met or exceeded.

To determine this minimum resistance requirement, refer to the Screw Torque figures in the model chart in your Joyce/Dayton catalogue. The formula is:

Minimum Resistance (in/lbs.) = load (lbs.) x screw torque (in./lbs.)

If after completing this calculation you find that your load does not provide sufficient resistance, the solution is to use a keyed jack instead. A key, fixed to the jack housing and inserted into a keyway milled into the lifting screw, forces the lifting screw to translate without rotating. NOTE: several dimensions of keyed jacks differ from normal jacks -- be sure to check the keyed jack drawings.

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