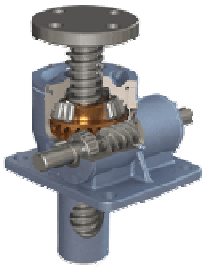
Machine Screw Jack vs. Ball Screw Jack

Engineers and designers frequently use screw jacks in the design of lifting and positioning equipment. They know that mechanical jacks offer reliable lifting and holding options that can be easily incorporated into their systems.

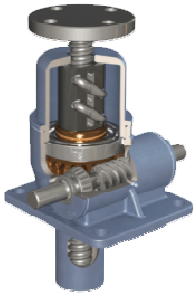
Once loads, duty cycles, and travel speeds are established, engineers and designers must choose the *type* of jack to select – Ball screw or Machine screw. Both are good choices for reliably lifting and positioning loads, but when should designers choose machine screw jacks and when should they choose ball screw jacks? Consider the inherent traits of each type of jack:

Machine Screw Jacks



- Are best for slower movement and low to moderate duty cycles
- Most machine screw jacks are inherently *self-locking* in the absence of vibration
- A brake motor is usually NOT required to hold position on self-locking jacks
- Anti-backlash devices can be specified to limit backlash in reversing loads
- Stainless steel, metric, and motorized jack models are available with machine screws
- Adaptable for wash down applications

Ball Screw Jacks



- Are suitable for higher travel speeds and moderate to high duty cycles
- Move loads faster and with less horsepower
- They are not self-locking and REQUIRE a brake motor to hold position
- They are NOT suited for manual operation
- Are good for moving loads with longer continuous travel
- Motorized ball screw jacks are available

As a General Rule

Choose a Machine screw jack if you have a low to moderate duty cycle, slow travel speed (typically 3-30 inches per minute), and require a self-locking screw. Machine screw jacks are used in countless applications. They are frequently used in steel machinery, packaging machinery, food processing machinery, and in wash down applications.

Choose a Ball screw jack if you have a higher duty cycle, faster travel speed (typically 20-200 inches per minute), and do not require a self-locking screw. Ball screw jacks are used in many of the same industries as machine screw jacks. Ball screw jacks should be chosen over machine screw jacks when faster speeds and higher duty cycles are required, or for quick, repetitive operations on presses and on cycling equipment where a calculated ball nut life is needed.