OPTIONS ANTI-BACKLASH DESIGNS

What are anti-backlash devices?

Anti-backlash devices are internal jack components used to minimize backlash (free movement between the lifting screw and nut) in machine screw jacks.

Why are anti-backlash devices needed?

Anti-backlash devices are typically used in reversing load applications where the lifting screw position is critical.

How many anti-backlash devices do you offer and how do they work?

Joyce/Dayton offers three unique anti-backlash designs, each use the same concept of clamping two independent nut halves against the lifting screw threads. Contact Joyce/Dayton to determine the best anti-backlash design for your requirements.

Where are anti-backlash devices used?

Anti-backlash devices are frequently used in steel mill applications where the screw jacks are used to set and maintain the position of the movable upper roll of a rolling mill. In operation, the initial weight of the roll pulls the lifting screw to one side of the nut. When steel passes through the rolls, the load reverses on the lifting screw and movement in the opposite direction is limited by the anti-backlash device. Other common applications include screw jacks used to position communication antennas and solar panels. In these applications, directional changes in the wind can buffet the panels thus affecting the position of the lifting screw. During these high wind conditions, anti-backlash devices minimize the lifting screw movement.

Will the anti-backlash device require adjustment?

When the internal nut threads begin to wear, lifting screw backlash increases. Subsequent adjustment of the anti-backlash device compensates for the nut wear and allows the user to limit the backlash to the recommended value. Adjustment frequency will vary depending on load, duty cycle, and temperature. The anti-backlash device should be replaced when no further adjustment is possible due to thread wear.

What effect do anti-backlash devices have on torque requirements?

Torque requirements for screw jack operation are affected by the clearance between the lifting screw and nut thread. Adjusting anti-backlash devices (within recommended values for each design) will not increase the torque to move a given load. If the backlash is set below the recommended values, torque values will increase significantly and thread wear will accelerate.

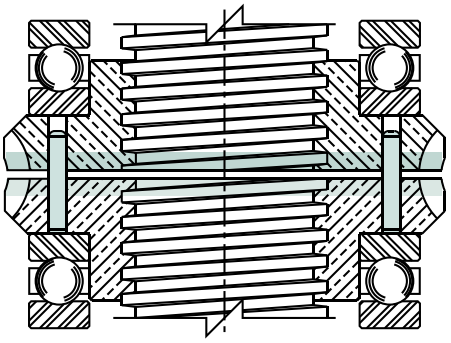
Can anti-backlash devices be used on ball screw jacks and bevel ball actuators?

No. Rather, the use of oversized ball bearings in ball nut assemblies is recommended to reduce endplay in ball screw jacks and bevel ball actuators. Contact Joyce/Dayton for more information.

OPTIONS ANTI-BACKLASH DESIGNS

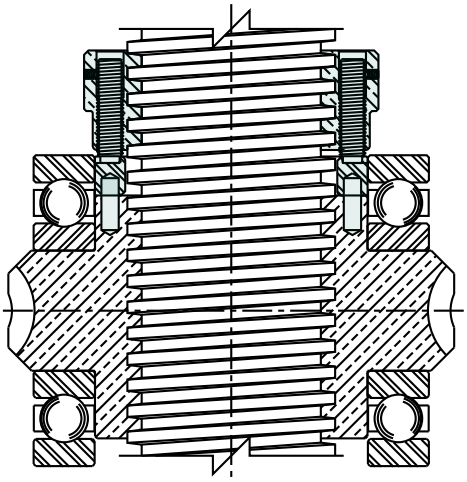
A-Split Gear Design

- Best suited for light dynamic loads (1/3 jack capacity or less) and full jack capacity for static loads.
- A split gear and dowel pins maintain gear alignment.
- Adjustments are made by tightening the sleeve (housing) cap.
- Typically reduces endplay to 0.010" — 0.015" without increased torque.*
- Available on Translating and KFTN models, 500-pound to 75-ton (upright and inverted).
- Available on some keyed models. Contact Joyce/Dayton.
- Order using an “A” designation in the suffix of the part number.



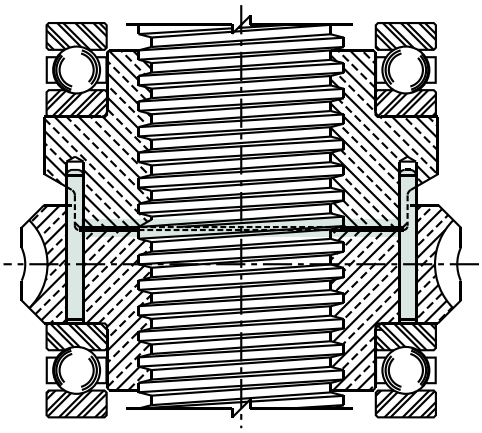
A90 Design

- Best suited for medium dynamic loads (1/2 to 3/4 jack capacity) and full jack capacity for static loads.
- This design incorporates a hardened steel plate pinned to the top of the internal gear and a secondary nut placed above the steel plate. Setting the backlash is accomplished by tightening the dog point set screws located inside the secondary nut. The set screws are externally adjustable.
- Typically reduces endplay to 0.008" — 0.012" without increased torque.*
- Available on upright translating models, 25-ton to 100-ton.
- Order using an “A90” designation in the suffix of the part number.



A95 Design

- Capable of handling full jack capacity in dynamic as well as static conditions.
- This design allows the gear teeth to remain intact and therefore retain their full load carrying capacity.
- Adjust endplay by tightening the sleeve (housing) cap.
- Typically reduces endplay to 0.008" — 0.012" without increased torque.*
- Available on upright and inverted translating models, 2-ton to150-ton.
- Order using an “A95” designation in the suffix of the part number.



*If the backlash is set below the recommended values, torque values will increase significantly and thread wear will accelerate. **Ordering information is found within specific product sections.**