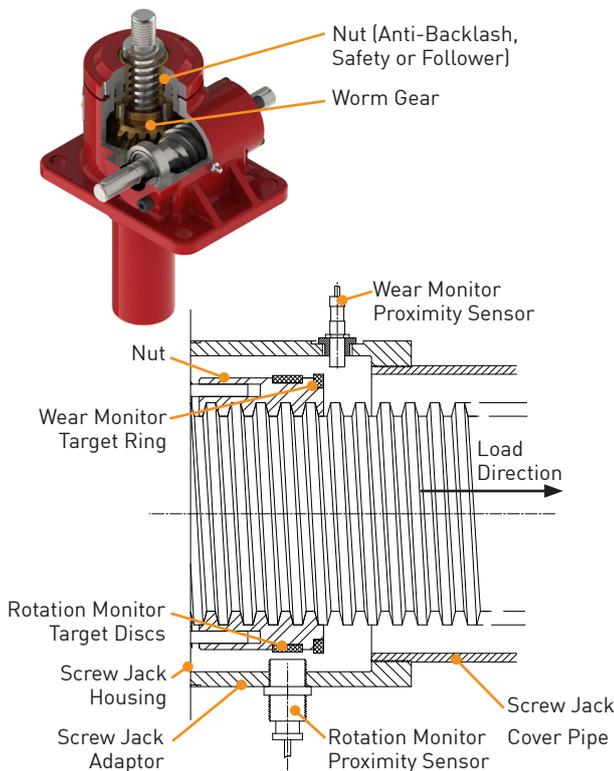


Rotation & Wear Monitoring

Rotation and Wear Monitoring sensors can be integrated into both translating screw and rotating screw configured screw jacks for position control and safety systems.

Translating Screw Jacks

For translating screw jacks the rotation and wear monitors are integrated to sense target discs mounted on either an anti-backlash nut, safety nut or follower nut. In all cases the principle of operation is the same.



The diagram below is for a lifting screw where the load is moving a Follower Nut closer to the wear monitor. If the load were in the opposite direction the target ring for the sensor would be to the right of the sensor.

The Follower Nut is connected to the worm gear via dowel pins. This allows the nut to rotate with the gear and follow the lifting screw as the thread in the gear wears. Note the follower nut is unloaded.

Wear Monitor Sensor is set to detect the target ring on the nut. As the gear set wears the follower nut and its target ring move closer to the sensor. The sensor triggers when the ring is in front of the sensor. When triggered the control system can process any safety procedure and indicate that the screw jack should be inspected and refurbished.

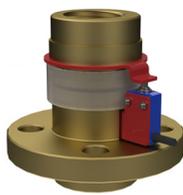
Rotation Monitor Sensor generates a series of pulses from the array of target discs mounted on the circumference of the nut. The nut rotates at the same speed as the worm gear. If the frequency of pulses is lower than a predetermined value or stops then the control system can initiate safety procedures. This can be used to indicate that the system is below speed (e.g. possibly overloaded) or a jamming condition has occurred.

The rotation and wear monitor devices can be supplied together or as separate devices for machine screw jacks in standard or stainless steel material.

Rotating Screw Jacks with Safety Nuts and Wear Monitoring



Safety Nut with Visual Monitoring



Safety Nut with Integrated Monitoring Switch (Electro-Mechanical or Proximity Types Available).

Safety nuts provide 2 safety roles:

1. In the event of excessive wear on the nut thread the load will be transferred from the standard nut to the safety nut. This will also provide visual wear indication as the gap between the safety nut decreases to zero as the standard lifting nut wears.
2. In the unlikely event of catastrophic nut thread failure the safety nut will sustain the load. The safety of industrial and human cargo is therefore improved.

There are several configurations for each safety nut device as they only work in one load direction. Operation is the same as for the follower nut detailed above.