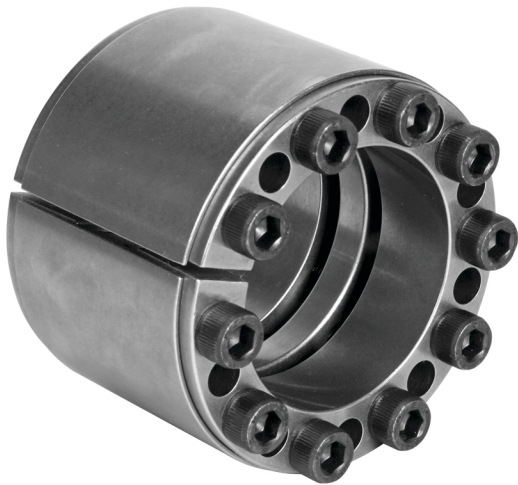


Mining Shovels & Excavators Benefit From the Use of Keyless Locking Devices

Climax keyless locking devices offer an alternative for clumsy clevis pin retention and brake rotors in excavators and dragline shovels.



For Rotating Applications:

- Keys, keyways, and set screws are prone to shaft damage and fretting corrosion
- Splines, prone to fretting and require expensive machining
- Shrink or press fits that are difficult to install and remove
- QD/Taperlock bushings use keyways where wallowing occurs causing fretting and backlash
- Hex nut keyless bushings are not self-locking and dynamic loading can loosen the connection

One of the most commonly used pieces of heavy mining equipment are excavators or power shovels. Every major construction project requires their use. Tasks such as removing large objects, digging trenches, site grading, hauling, demolition, mining, snow removal, would be practically impossible without this machinery.

Construction machinery is constantly subjected to the harshest environments and toughest loads for which an engineer can design. Maintenance is an important factor in keeping costs down and ensuring that construction site progress stays on schedule. Moving parts are expected to wear out over time especially where traditional keyed or interference fits are used. Climax Series C133, C405, or C415 KLDs are used in clevis pin retention and to mount brake rotors in excavators and dragline shovels. KLDs eliminate fretting corrosion, wallowing, and backlash of keyed connections. Their ability to transmit high torque and bending capacities and eliminate axial movement during installation makes them an ideal problem solver over traditional connections.

Climax keyless locking devices only require a straight bore with generous tolerances reducing component machining and complexity cost. When maintenance is required, KLDs are installed and removed using simple hand tools; no heat or high forces are required.

Climax offers an extensive line of keyless locking devices from stock and has the ability to engineer custom designs.

