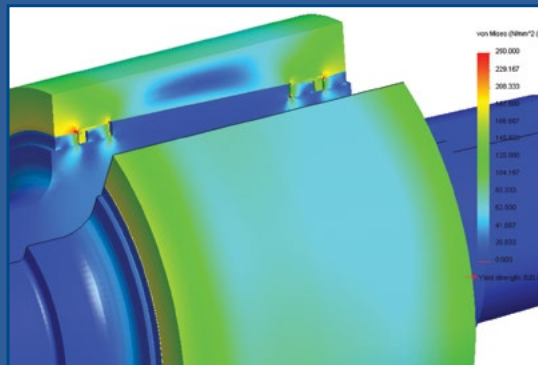
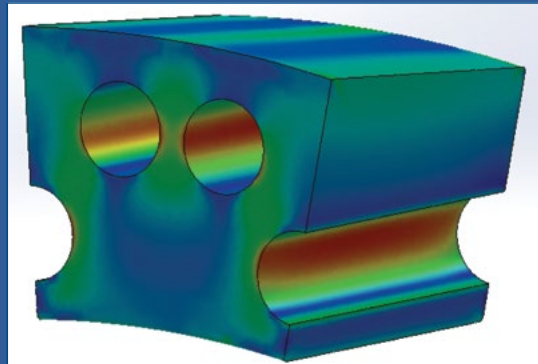


KEYLESS LOCKING DEVICES TECHNICAL CAPABILITIES





TAKE ADVANTAGE OF OUR EXPERIENCE!

At Fenner Drives, we know that our customers strive for innovation in a global marketplace and off-the-shelf products may not always meet your evolving requirements. Proven engineering expertise in design, material selection and product development puts Fenner Drives in the position to offer you cost effective, problem-solving solutions you need to stay ahead of your competition.

- ➔ **150+ years of engineering experience related to the design and manufacture of Keyless Locking Devices**
- ➔ **A proven track record of innovation with 20+ patents granted and multiple patents pending**



The Fenner Drives technical team is available for training and collaboration through onsite visits or webinars.

HIGH SPEED APPLICATION

Application Details:

Keyless connection for a flexible coupling in a high speed dynamometer

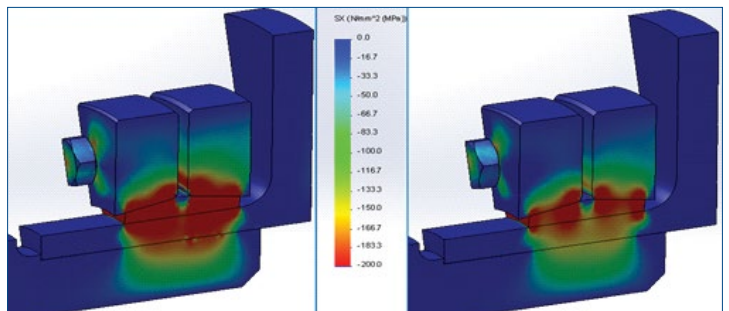
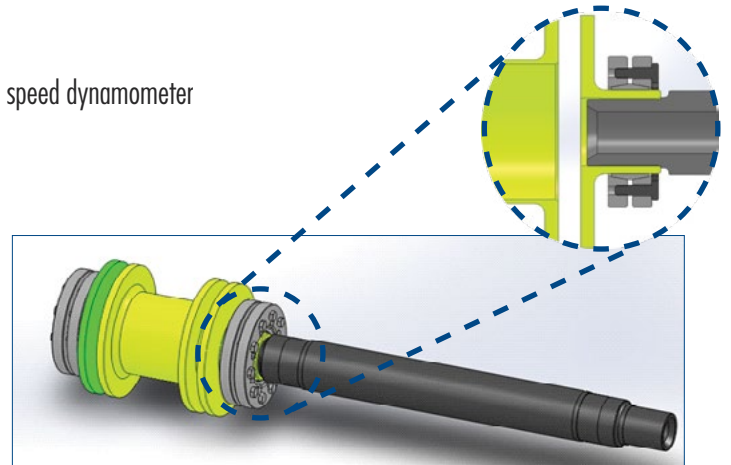
Challenges: High speed, hollow shaft

Application description:

In this application, the customer required a keyless connection that would operate at speeds in excess of 20,000 RPM.

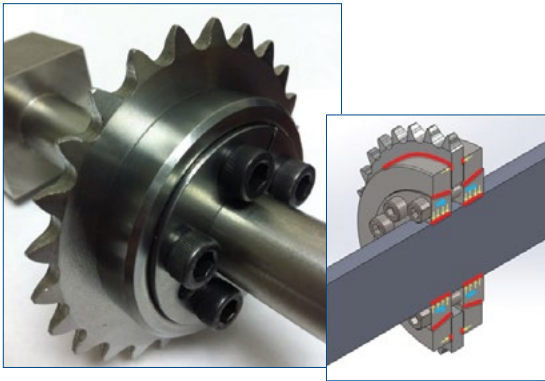
The inertial effects generated at high speeds can cause the keyless connection to fail by reducing interference fit pressures.

This application was further complicated by the need for a hollow shaft. Careful analysis of the Shrink Disc connection was required to prevent yielding of the shaft. The final design balanced peak stresses in the shaft with adequate fit pressure in the connection at maximum speed.



FEA analysis, the engineering team completed, showing a reduction of fit pressure at operating speeds

Fenner Drives is constantly expanding our knowledge of keyless locking devices in order to support our customers and to develop new products. B-LOC Compression Hubs are the most recent Keyless Locking Devices developed by Fenner Drives (launching early 2014). This new, patent pending locking device eliminates the need for a hub when mounting components to a shaft.



➔ Same Great B-LOC Benefits

- No keyway means smaller shafts/bearings = reduced costs
- Mechanical interference fit = ZERO backlash
- Simple installation and removal = Reduced Downtime
- Can be mounted directly over damaged or worn keyway = use existing machine components
- Infinite axial and radial positioning

➔ With some extras

- Eliminates the need for a hub = reduced costs
- Holds components with axial force/compression
 - Thin components
 - Materials or components that cannot handle high tensile stresses
- Split design accommodates various component dimensions

LARGE ROLL CRUSHER

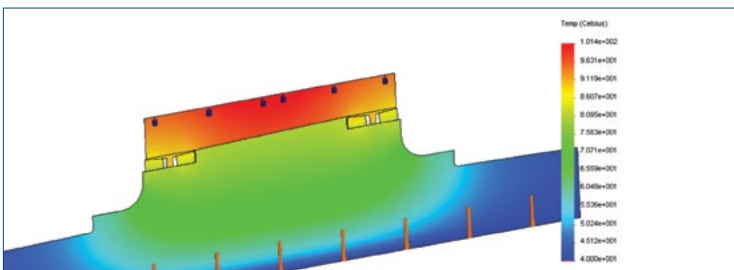
Application Details:

Keyless connection to mount the wear surface of a roll crusher.

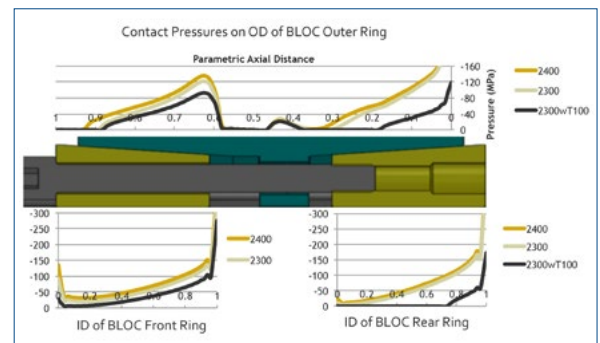
Challenges: Thermal effects, changing hub diameter, stress concentrations

Application description:

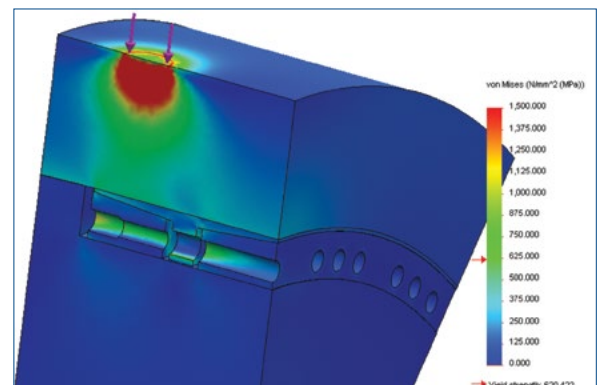
In this application, the customer requested a keyless connection to mount a steel tire on an extremely large roll crusher. The design presented multiple challenges. The wall thickness of the tire decreased with time (due to wear), reducing the fit pressure over the life of the component. Large temperature gradients were caused by the heat generated during crushing and the coolant circulated through the center of the shaft. The tire lagging design caused high stress concentrations on the tire and locking device. Multiple designs were developed and analyzed to ensure the right Keyless Locking Device for this demanding application.



Thermal analysis of the assembly



Contact pressure distributions with effects of heat and wear



Stress distribution under concentrated loading

Count on Fenner Drives.

We've got the right product for your application.

PowerTwist Plus
V-BELTS

SUPER T LINK
SP WEDGE BELTS

NUT LINK
V-BELTS

B-LOC
KEYLESS BUSHINGS

Trantorque
Keyless Bushings

EAGLE
POLYURETHANE BELTING & O-RINGS

T-MAX
BELT & CHAIN TENSIONERS

PowerMax
PULLEYS & IDLERS

Trackstar
UHMW BELT & CHAIN GUIDES



Fenner Drives is a proven leader in the design and manufacture of problem-solving power transmission and motion transfer components. Recognized widely for our expertise and innovation in manufacturing technology, we consistently blend reliability, quality and value in our products. As part of our commitment to provide unsurpassed technical support and service, we maintain extensive engineering, development and testing facilities.

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