

Oldham Coupling Lubrication Pump

Benefits

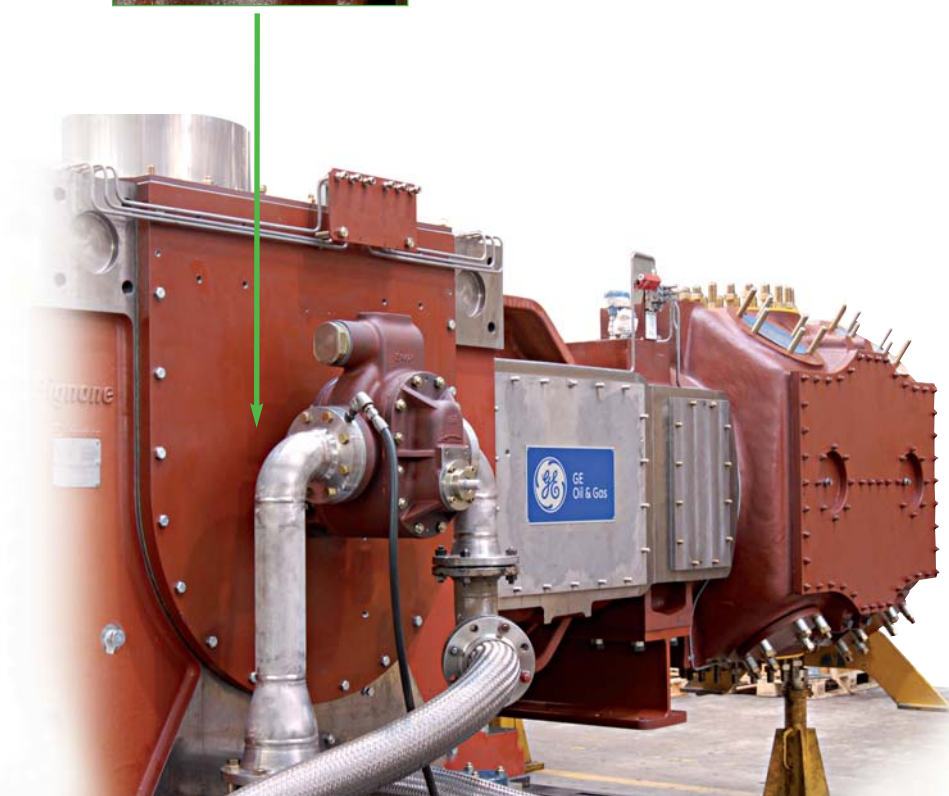
- Increased production
- ■ □ **Higher efficiency**
- Compliance with environmental regulations
- ■ ■ **Availability and Reliability**
- ■ ■ **Life extension**

Customer benefits include:

- Passive coupling lubrication
- Substantial increase in coupling life
- Substantial increase in maintenance intervals

What it is

The lubrication pump on GE reciprocating compressors is usually directly driven by the compressor shaft through an oldham coupling which transmits the torque from the reciprocating compressor crankshaft to the lube oil pump. In larger and high-speed (>700 RPM) compressors, the power absorbed by the lube oil pump is very high and therefore, the coupling is a very critical item for compressor reliability.



What it is

GE Oil & Gas has improved the design of the coupling and pump shaft with new materials and manufacturing procedures to reduce the risk of failures. The key features of the new lube oil pump coupling design are:

- Improved material (42CrMo4) with increased hardness and toughness
- Pump shaft surface treatment

(Nitration hardening) to increase hardness

- Passive lubrication of the coupling through a new pump shaft design (Figure 1)
- Oldham coupling, crankshaft flange and pump shaft interchangeable with the original design

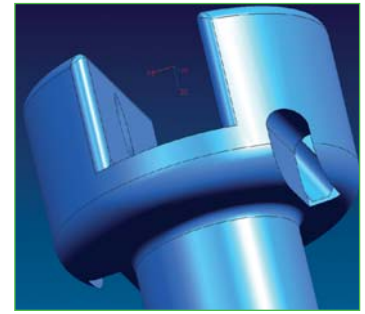


Figure 1: Pump shaft extension

How it works

The principal goals of this new design are to decrease local contact pressure and enhancement of lubrication in order to reduce:

- Friction loads
- Working temperature
- Parts wear
- Fatigue damage
- Brittle failure

These goals have been reached with the following actions:

- Passive lubrication of the contact areas by directing a source of oil from the pump to the coupling using special hardware on the shaft and control of tolerances that permits a continuous flow of oil to spill down onto the contact area (Figure 3)
- Increasing the dimensions of the coupling (Figure 2)
- An improved profile to reduce contact pressure
- Improving material and surface treatment

Scope of work

The scope of supply for a typical modification includes the following:

Engineering:

- Part number list
- Assembly drawings

Materials:

- Lube oil pump fully tested
- Oldham coupling
- Flange for compressor crankshaft connection

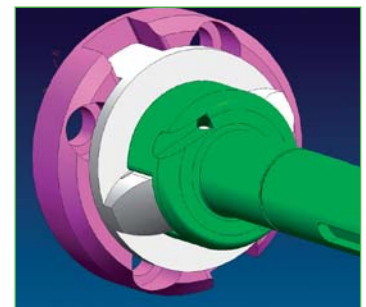


Figure 2: Pump oldham coupling assembly

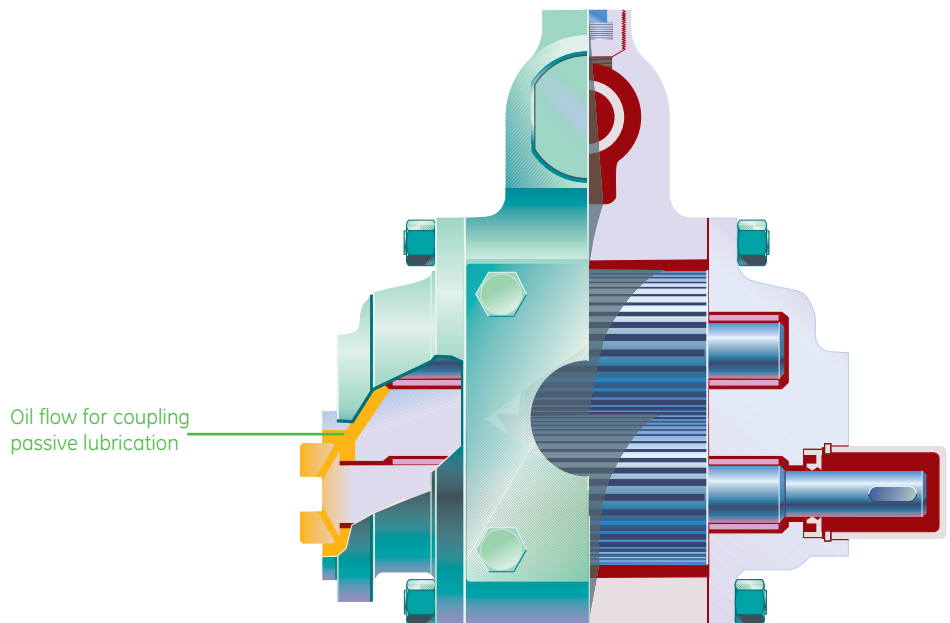


Figure 3: New pump arrangement



GE imagination at work