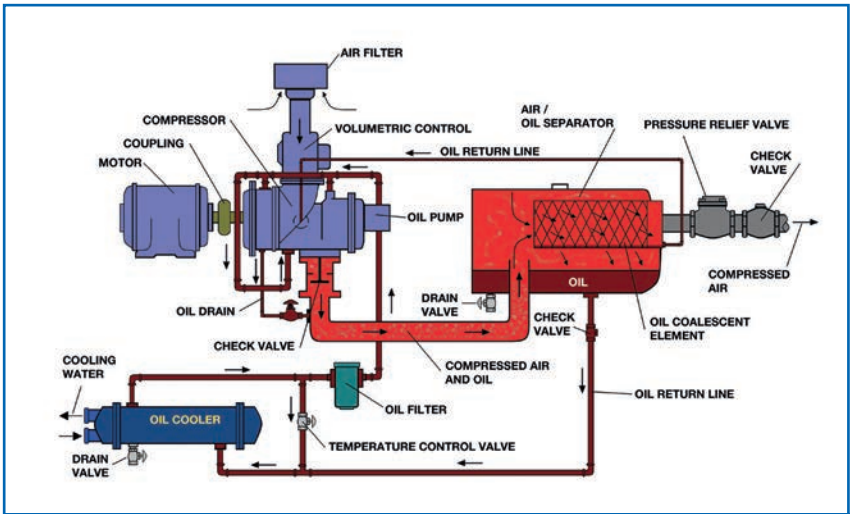
Technical topic

Procedure for flushing oil-flooded rotary screw air compressors

Switching to Mobil SHC™ Rarus Series products

Lubricants used in oil-flooded rotary screw air compressors come in many different base fluids (mineral and synthetic) and additive technologies. Synthetic base fluids include polyalphaolefins (PAO), esters, silicones and polyalkylene glycols (PAG). PAGs and silicones are immiscible with Mobil SHC™ Rarus Series oils (forms two phases with other types of oils) and need special handling with flushing. Other PAOs, mineral oils and esters are miscible with Mobil SHC Rarus Series oils (one phase); however, they can be incompatible. For this reason, it is always recommended to perform a compatibility test between the current oil and Mobil SHC Rarus before initiating a flush procedure. In the case of incompatibility, it is advisable to flush with one pass, depending on the compressor condition, to eliminate the old product and maximize the benefit.



Flow diagram for oil-flooded rotary screw air compressor

Flushing process

This procedure can be used for flushing any type of air compressor lubricant.

1. Start compressor and allow running up to normal temperatures (185°F/85°C) for approximately one hour.
2. Shut down compressor.
3. Drain and clean the lubrication system:

a. Drain sump tank of as much of the existing product as possible

b. Carefully blow out the low system spots or potential oil "traps" in the compressor using compressed air

c. If deposits are present, clean (by hand) the reservoir, accessible lubrication system parts, bearings and gears. Dismantle and clean the strainers and filter units

d. Blow down and drain air receiver

4. Change oil filter and gravity drain oil out of the fibrous materials of the air/oil separator.
5. Fill compressor sump to normal oil level with the flush oil. If a PAO, mineral or ester fluid was previously in use, Mobil SHC Rarus can be used as the flush oil. If a PAG oil was previously in use, Mobil Rarus 800, or an alternate diester fluid will provide optimal flushing performance. If a PAG is in use but Mobil Rarus 800 is not available, Mobil SHC Rarus may be used as the flush oil, upon consultation with your ExxonMobil representative. If alternate options for flush oils are desired, contact your ExxonMobil representative.

Procedure for flushing oil-flooded rotary screw air compressors

6. Start compressor and allow discharge oil temperature to reach a typical temperature of 185°F/85°C. Operate compressor for a minimum of four hours. Compressor does not need to be loaded, but must run long enough and at the appropriate temperatures to allow for the thermostat to open. Sample and check the lubricant with a regular (10-micron) Millipore membrane filter pad to assist in monitoring the efficiency of the flushing. The filter pad is a visual aid on the relative cleanliness of the compressor.

7. Shut down compressor.

8. Drain compressor of the flush lubricant, including coolers, sump, tank and strainers. Disconnect lines as required to drain oil trapped in low areas. Drain the flushing charge preferably when the fluid is warm (120°F/49°C – 140°F/60°C).

9. Clean strainers; replace air/oil separator and all oil filters that are not permanent. Check inlet filter for signs of oil coating of contaminated fluid and replace as required.

10. Fill compressor with a Mobil SHC™ Rarus Series lubricant (choose correct viscosity) and operate compressor as usual.

11. Circulate the new charge lubricant for four to 12 hours. Check the oil filters and air/oil separator for cleanliness and deposits. If not clean and deposit-free, repeat flushing procedure.

12. Drain off the Mobil SHC Rarus Series lubricant from the circuit. (Note: This oil may be reused for flushing other air compressors, if its inspection characteristics are judged satisfactory.)

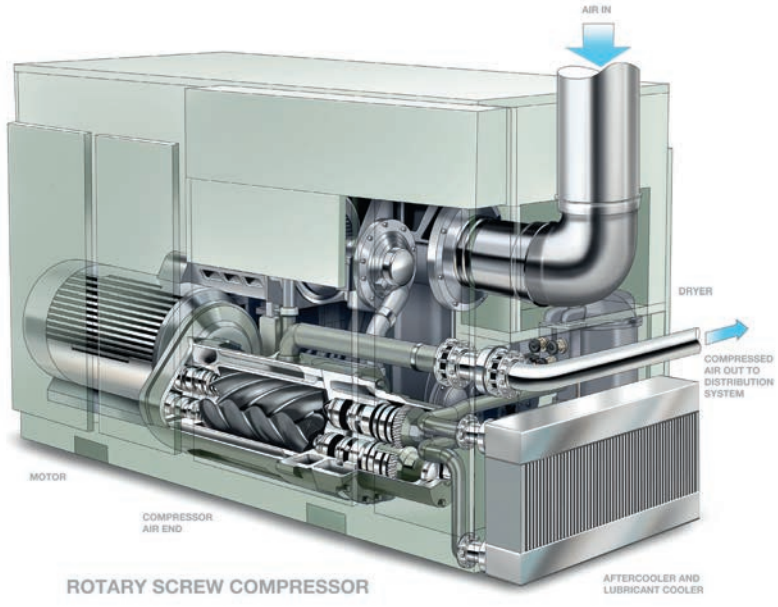
13. Refill the installation with fresh Mobil SHC Rarus Series lubricant (choose correct viscosity) and resume normal operation.

Note: Foaming of the lubricant can be caused by high discharge velocities (140+ mph) of the air in oil-flooded rotary screw compressors into the air/oil separator. However, foam should dissipate quickly in the separator. It is also recommended that the Mobil SHC Rarus Series lubricant be analyzed on a periodic basis to ensure proper performance and to get the most out of the product in service. Mobil Serv℠ Lubricant Analysis can be used for this service.

Air compressor lubricants

Our synthetic lubricants help keep your air compressor operating in top form. Mobil SHC™ scientifically engineered, supreme performance oils are specially formulated for high performance in a wide variety of extreme applications— for extended life compared to mineral oils. These are just a few of our synthetic lubricants for air compressors:

- **Mobil SHC Rarus Series** — synthetic rotary screw compressor oils
  Advantages and potential benefits: Designed for longer oil life and to resist deposit formation; reduce maintenance costs as compared to mineral oil products
- **Mobil SHC™ 600 Series** — synthetic gear, bearing and circulating oils
  Advantages and potential benefits: Improved operational reliability; extended oil life
- **Mobilith SHC™ 100 and Mobil Polyrex™ EM** — electric motor-bearing greases
  Advantages and potential benefits: Help extend bearing life to improve electric motor reliability
- **Mobil SHC Cibus™ Series** — synthetic lubricants for application in the food industry
  Advantages and potential benefits: NSF H1 registered lubricants; provide performance for food-related applications and are designed to enhance food safety initiatives



ROTARY SCREW COMPRESSOR

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