Lubrication for Rotary Lobe Blowers

Proper lubrication is the key to long life for your blowers. The Roots Universal RAI® series utilizes grease on the drive end and oil on the gear end. The vast majority of remaining Roots products utilize oil on the gear and drive end.

Oil Lubrication

Synthetic lubricants provide the longest life between oil change intervals and should be used wherever practical. Oils must be premium grade and non-detergent with rust, oxidation, and foam inhibitors.

The recommended oil for all Roots' products is ROOTS™ Synthetic Oil which is superior in performance to petroleum-based products. It has high oxidation stability, excellent corrosion protection, extremely high film strength and a low coefficient of friction. Typical oil change intervals are increased 2-3 times over petroleum-based lubricants. Another important property is it is 100% compatible with petroleum-based oils. Simply drain the oil in the blower and refill the reservoirs with ROOTS™ Synthetic Oil to maintain optimum performance.

Other oils listed below are recommended by the oil manufacturer as the product in their line that satisfies Roots' lubrication specifications:

ISO-320	ISO-220	ISO-100
Sunoco Sunvis 9320	Sunoco Sunvis 9220	Sunoco Sunvis 9100
Mobil DTE AA	Mobil DTE BB	Mobil DTE 18M
Exxon Teresstic 320	Exxon Teresstic 220	Exxon Teresstic 100
CITGO Pacemaker 320	CITGO Pacemaker 220	CITGO Pacemaker 100
Texaco Regal R&O 320	Texaco Regal R&O 220	Texaco Regal R&O 100
Roots Synthetic 320	Roots Synthetic 220	Roots Synthetic 100

Notes:

Not all of these oils are synthetic and may not have the same operating life as Roots synthetic oil.

Due to sludge build-up and seal leakage problems, do NOT use Mobil SHC synthetic oil.

Oil viscosity is dependent on the expected ambient conditions surrounding the blower and driver. The required viscosity is as follows:

Splash Lubricated Blowers

Ambient Temperature	ISO Viscosity
90°F to 120°F (32°C to 48°C)	320
32°F to 90°F (0°C to 32°C)	220
0°F to 32°F* (-18°C to 0°C)	150
below 0°F* (-18°C)	100

*Oil is to be heated to 60°F prior to starting the blower

Note: Ambient temperature is the temperature in the space the blower is located, not the outside air temperature

Pressure Lubricated Blowers

Ambient Temperature	ISO Viscosity
32°F to 120°F (0°C to 48°C)	220
0°F to 32°F* (-18°C to 0°C)	100

High Vacuum Blowers (RGS-HVB)

All HVB's require oil with a vapor pressure of 0.1 micron of mercury or less at 180°F and 1.8 micron of mercury or less at 250°F. Both Sunoco Sunvis and Roots Synthetic oil meet this requirement.

Oil should be changed after the initial 100 hours of operation. Normal life expectancy of petroleum-based oils is about 2000 hours with an oil temperature of about 180°F (82°C). As the oil temperature increases by increments of 15 to 18°F (8°C to 10°C), the life is reduced by half. Normal expectancy of ROOTS Synthetic Oil is about 4000 to 8000 hours with an oil temperature of about 180°F (82°C). As the oil temperature increases by increments of 15 to 18°F (8°C to 10°C), the life is reduced by half. The oil temperature may be estimated by multiplying the discharge temperature of the air or gas stream by 0.8. As an example, if the discharge air temperature of the blower is 200°F, it is estimated that the oil temperature is 160°F.

Grease Lubrication

For the Roots Universal RAI® blowers that utilize grease in the drive end, there are two primary types of grease that may be used, depending on which unit you have: a clay-based Shell grease and a synthetic Roots grease. Old Roots product manuals recommended the clay-based Shell Darina grease for general use (note: Shell has replaced the Darina grease with Gadus grease) and a NLGI Grade 2 premium grade aluminum complex grease for gas applications. Starting in fall of 2016, Roots standardized and began using synthetic grease on all units. If you have a new unit (look for a serial number starting with 16 followed by a letter) it will use the purple Roots synthetic grease. Older units could use either, but it is important to note that the two types of grease cannot be mixed as they will separate and no longer provide proper lubrication for your blower.

To maintain your Roots blower, you should continue using the same type of grease your blower has now. A quick visual inspection should help you identify your grease: Shell grease has a tan color and Roots synthetic grease is purple. Visit our website for more information on which type of grease to use with your blower.

Note: Lithium based greases are not approved for use with ROOTS™ blowers.