

Lubrication solutions for gas compressors

Reciprocating applications



Put our expertise to work

Reciprocating compressors are critical equipment in a plant, but lubricating them properly is a unique challenge. There are often many moving parts, diverse gas streams, high pressures and high temperatures.

This is an industry that requires a combination of great products and technical expertise. You need to predict how the oil will react to its conditions and that requires years of learned expertise. Summit has a global team solving gas compressor Put Our Expertise to Work issues every day, all over the world.

We do much more than offer cross references for products. We make specific recommendations for your application that will extend the life of your machine and help you solve specific problems both in your equipment and downstream.

Unplanned downtime is expensive, governmental and social penalties for flaring gas or polluting the environment are increasing, and lead times for spare parts and new equipment are at the mercy of an overextended supply chain, making getting it right extremely important.

We're experienced, we deliver highquality product quickly and we love to help customers. Let us know how we can help you.



Our lubricants solve problems

Summit is recognized as an industry leader in synthetic lubricant technology, with plants, sales offices and distributors around the world. Summit personnel work with gas compressor OEMs, packagers, operators and end users in various industries to solve reciprocating gas compressor lubrication-related issues. Our research staff is constantly evaluating new synthetic-base stocks and additives to provide customers with the best lubricants technically available, as well as finding solutions to unique lubrication problems.

To get the right lubricant into the right application it requires experience and expertise. Summit Lubrication has both.



What sets Summit Lubrication apart?

We're looking to do much more than just sell lubricants. We pride ourselves in being expert problem solvers. At Summit, we know that our success hinges directly on your success, and that knowledge drives the way we do business. In everything we do – from product development, to hiring, to plant visits, phone calls, technical support, oil analysis, training seminars and everything in between – we are looking to answer the question: "Does this add to our customers success?" We want to be a full-service lubrication resource for your business.



Application points

Each gas compressor application has its own unique set of operating parameters and issues. Summit offers a variety of base stocks to meet the requirements of the various systems. We offer our expertise in each of the following applications:

Upstream

- Natural gas gathering
- Shale
- High pressure gas injection
- Enhanced oil recovery (EOR)
- Offshore

Midstream

- Gas transmission & storage
- FPSO
- Liquefied petroleum gas (LPG)
- Landfill & biogas
- Vapor recovery units (VRU)

Downstream & Refinery

- Compressed natural gas (CNG)
- Hydrogen compression
- Refining, petrochemical & industrial gas industries



Proven expertise

Every gas stream is unique. Summit has specifically developed the technology to determine the tendency of individual gases to be dissolved in lubricating oil. We can help you by recommending the proper compressor lubricant for the following gases:

- | | | |
|------------------|---------------------|------------------|
| ▶ Ammonia | ▶ Hydrocarbon | ▶ Natural Gas |
| ▶ BioGas | ▶ Hydrogen | ▶ Nitrogen |
| ▶ Carbon Dioxide | ▶ Hydrogen Chloride | ▶ Propane |
| ▶ Ethylene | ▶ Hydrogen Sulfide | ▶ Sulfur Dioxide |
| ▶ Helium | ▶ Landfill | |

Challenges we solve

Issues with the cylinder lubrication system are a common problem that causes unscheduled shutdowns. The reliability of this system can directly affect the reliability of valves, pressure packing, piston rings and rider bands. In all these areas, choice of gas compressor lubricant plays a major role.

Typical issues when using petroleum oil to lubricate cylinders in a reciprocating compressor include:

- Washing of lubricant off cylinder walls
- Incompatibility with platforming catalyst
- Water contamination producing emulsion
- "Hydraulic" of packing
- Plugging of injectors
- High oil feed rates
- Part failures
- Low flow
- Poor lubricity
- Deposit on valves
- High oil carryover
- Corrosion

Product benefits

- ▶ Reduced friction leading to improved lubrication
- ▶ Minimum lubricant consumption
- ▶ Resistance to gas dilution
- ▶ Low oil carryover rates
- ▶ Eliminate downstream issues
- ▶ Optimum viscosity for all stages
- ▶ Eliminate cold weather flow issues



Reciprocating gas compressor lubricants

To determine which lubricant is right for your application, please send us all relevant data for the gas stream in your compressor and the operating conditions.

LCG Series

100% pure synthetic PAO designed to be inert to rotating compressors in corrosive and reactive environments

Applications: landfills, refineries, EOR and chemical process plants.

NGP® Series

Highly refined petroleum based lubricant for reciprocating compressor cylinders and frames.

Applications: Light Hydrocarbon Gas, Gas Gathering, Sour Gas

NGSH Series

Full synthetic, Polyalphaolefins (PAO) based lubricant for reciprocating compressor cylinders and frames. Preferred by many OEMs over petroleum based oils.

Applications: Light hydrocarbon Gas, Gas Gathering, Sour Gas

NGL® Series

Full synthetic, Polyglycol (PAG) based lubricant for reciprocating compressor frames and cylinders

Applications: Heavy Hydrocarbon Gas, Enhanced Oil Recovery, Compressed Natural Gas

DSL®-XM Series

Full synthetic, ester based lubricants for hydrogen reciprocating compressors.

Applications: Hydrogen Production

DSL®-1220

Full synthetic, ester based synthetic lubricants with a specialized additive package for dry nitrogen compression.

Applications: Nitrogen Compression



Let us prove it to you.

Summit wants to be your specialty lubrication partner the world over. We believe that specialty lubricants are an integral part of the design of air compressors and pay for themselves. Let us prove it to you.

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Therefore, Klüber Lubrication reserves the right to change all the technical data in this document at any time without notice.

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Summit Lubrication – partnering for success

Your expert in specialty lubricants. Since 1982, we have partnered with you to bring you the right solution and advanced lubrication technologies. With over 500 products, from air and gas compressor oils to refrigeration oils, we develop top-of-the-line products tailored to your specific needs. Your success is our success.

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