Non Lube Compressor Cylinders

Please refer all non-lube applications to the Ariel Application Engineering Department.

Non lube applications will be limited to the following compressor frame and cylinder classes:

- Frames – JGA, JGJ, JGK, JGT, KBK, KBT, JGD, JGF, KBU and KBB
- Cylinders - JG, RJ, JGK, JGT, KBK, KBT, JGD, JGF, KBU and KBB

Non-lube applications will require that the following application guidelines be strictly adhered to:

- Use a long two compartment distance piece (API – 618 Fourth edition Type C) with oil slingers in both compartments;
- Piston rod materials for non lube service will be as follows:
  - For non-corrosive applications – ETD 150 with a Tungsten Carbide coating.
  - For corrosive applications – 17-4 PH Stainless Steel with a Tungsten Carbide coating.
- Limit cylinder internal discharge temperature to 275°F (135°C) for selection, 325°F (163°C) for maximum shutdown limit
- Limit cylinder discharge pressure to 1500 psig (103 barG)
- All non lube cylinders are provided with water cooled packing and must be connected to a packing cooling system.
- Compressor valves, pistons (and piston trim) are specifically designed for non-lube service.

Non lubricated cylinder construction can be applied for sour gas services, but is limited to sour level 1, less than 2% H2S content by volume. NACE Stainless Steel Valves are required along with the Sour Level 1 trim (stainless steel piston rods, purged packing, proper purge / vent system, long two compartment distance piece).

Internal piston ring blow-by is accounted for in the Ariel performance program as a relation to the gas mole weight.

Rubbing speed is a factor that must be considered for all Non-Lube applications. The piston speed limit for Non-Lube applications is 750 feet per minute (3.81 meters per second). Refer to Process Rotative Speeds for maximum allowable rotative speeds for each frame model.