

Checklist R-404A Conversion to Klea® 407A

Converting a refrigeration system from R-404A to Klea® 407A is straightforward but must be done in accordance with good refrigeration engineering practices. In the absence of any system manufacturer's guidelines, this following general procedure should be followed.

Before converting R-404A systems to Klea® 407A

Whilst Klea® 407A is a good match for R-404A, check OEM recommendations to ensure the existing system design is sufficient, including equipment capacities, relief valve sizing, equipment and seal material compatibility.

Like R-404A, Klea® 407A is a HFC refrigerant and POE oil will be required. Whilst it is likely that the same lubricant grade may be suitable for use with both R-404A and Klea® 407A, check with the compressor manufacturer.

All regulatory and safety requirements for handling refrigerants should be followed.

System Preparation

1. Record system performance to obtain a baseline prior to the retrofit, e.g. suction and discharge pressures, discharge temperature, temperatures in and out of condenser and evaporator, and energy usage if practicable.
2. Check the system service history for any ongoing issues and to highlight any regular maintenance activities that may need to be undertaken.
3. Remove the R-404A refrigerant from system. Record weight removed.
4. Check and repair any existing leaks on the system.
5. Take the opportunity to identify and eliminate unnecessary or redundant sources of refrigerant loss from the system.
6. Check the condition of the compressor lubricant.

Charge with KLEA® 407A

1. Replace any identified equipment as required.
2. Replace all seals on joints that have been opened and on the liquid receiver.
3. Replace receiver float seal.
4. Replace or repair old solenoid valves and ball valves to minimise leaks.
5. Replace system filter drier.

6. Remove air in system by pulling a vacuum to at least 1 mbar.
7. Hold vacuum and check and repair any leaks.
8. Reset pressure controls for Klea® 407A. Temperature/pressure data is available at www.mexichemfluor.com or call Mexichem on +44 (0) 1928 518880.
9. Charge system with Klea® 407A. Typically the charge weight will be around 95% that of the R-404A charge. Note: the concentration of the Klea® 407A blend components will be different in the vapour than the liquid so when filling a system remove liquid from the cylinder to ensure the correct composition and if charging into the suction line on a running system the liquid from the cylinder must be vapourised before entering the system.

System Start-up

1. Start system and check for any leaks.
 2. Set expansion valve settings. For calculating sub-cool, use the Klea® 407A bubble point as the “saturation” temperature. For calculating superheat, use the Klea® 407A dew point as the “saturation” temperature.
 3. Monitor refrigerant and oil levels and adjust amounts as needed.
 4. Record performance data.
 5. Label the system to indicate refrigerant and oil type and amount.
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