



RS-90

EXTENSION PROCEDURE TO RS-45 (R434A)

RS-45 (R434A), which replaces R22 particularly in flooded systems, will be prohibited for service work in the European Union from 2020 under the F Gas regulation because its Global Warming Potential (GWP) exceeds the introduction of a maximum GWP 2,500 in that year. RS-90, which contains the identical components as RS-45 (R434A), can be added to the RS-45 (R434A) charge in the system to extend the use of the installation. RS-90 has a GWP less than 2,500 & available for use in 2020.

- (1) If after adding RS-90 to an installation already operating on RS-45 (R434A), a resultant composition contains RS-45 & RS-90 in equal proportions (ie a 50/50 mixture), this mixture still has a capacity within 7% of RS-45 (R434A).
- (2) If leakage of RS-45 (R434A) occurs at 10% pa over a 5-year period, capacity of the mixture at the end of this period is still within 5% of RS-45 (R434A). After 7 years' leakage at this rate, capacity of the remaining mixture is within 7% of RS-45 (R434A).
- (3) If leakage of RS-45 (R434A) occurs at 20% pa over a 5-year period, capacity of the mixture at the end of this period is within 8% of RS-45 (R434A). After 7 years' leakage at this rate, capacity of the remaining mixture is still within 10% of RS-45 (R434A).
- (4) Adding RS-90 to an installation containing RS-45 (R434A) can, therefore, extend the life of the plant by approx. another 10 years or so.
- (5) The components of RS-90 are identical to those in RS-45 (R434A) so that there are no technical issues around the blending of these two refrigerants.

Procedure

1. Ensure the right equipment is available, eg recovery unit and cylinders, container for recovered lubricant, vacuum pump, weighing scales, replacement drier etc.
2. Before adding RS-90 to the installation, operate the unit under standard operating conditions and record the pressures, temperatures and any other relevant measurable data to establish unit performance.
3. Recover the R404A or R507 in the system & establish the amount recovered before adding RS-90. Measure the amount of RS-90 to be added to the system & establish the ratio between RS-45 (R434A) & RS-90 to be charged into the system.

4. As in the case of RS-45 (R434A), RS-90 can be used with mineral oil or a polyol ester lubricant.
5. Operate the unit under conditions similar to those used in Step 2, closely watching the liquid line sight glass, the compressor oil level sight glass and the suction superheat.
6. Check performance of the system with the new charge, in particular cooling capacity.
7. The evaporator superheat should be checked and changed as necessary by adjusting the TX valve.
8. Adjust the expansion device superheat setting as required.
9. Check system thoroughly for leaks.
10. Remove all RS-45 (R434A) labels and clearly label system RS-45 & RS-90 combined.