REFRIGERANT SOLUTIONS LTD
RS-70
R22 DROP-IN
ZERO ODP

RS-70 (R453A)

RS REFRIGERANTS
RS-70 COMPARED TO OTHER R22 REPLACEMENTS NOT REQUIRING AN OIL CHANGE FOR AIR CONDITIONING

AIR CONDITIONING

Evap +7°C & Cond +45°C		R22	R417A M059	R422D M029	R417B 22L	R438A M099	R453A RS-70	R421A CHOICE
Discharge pressure	bar	17.29	15.86	18.11	19.45	17.83	17.66	16.84
Discharge temperature	deg C	78.80	61.20	60.10	59.00	65.10	70.50	61.3
Capacity	kJ/m^3	3639	3058	3366	3546	3456	3533	3211
% of R22			84.0	92.5	97.4	95.0	97.1	88.2
COP		4.34	4.20	4.08	4.01	4.19	4.27	4.17
Compression ratio		2.78	2.86	2.86	2.81	2.93	2.97	2.94
Flow rate	kg/(s.kW)x 10^3	6.18	7.96	8.90	9.67	7.41	6.27	8.49
GWP			2346	2729	3027	2264	1765	2631

from

REFRIGERANT SOLUTIONS LIMITED

The Refrigerant Specialists

RS-70 (R453A)

- Lowest Global Warming Potential of all R22 alternatives
- Mass flow rate very close to R22 which means RS-70 can be used in systems with a fixed or adjustable expansion device without any alterations to the TXV valve
- Because of the higher mass flow rates of all the other R22 Drop-in replacements for R22, they are not suitable for retrofitting systems with a capillary tube & may require the expansion device to be altered or changed entirely
- RS-70 has a cooling capacity within 3% of R22 & the highest of all these other replacements
- The energy efficiency of RS-70 is similar to R22 at 98%

Prime reasons for selecting R22 replacement without changing the existing lubricant

Experience over many years of replacing R22 in existing installations has shown that cooling capacity, energy efficiency & flow rate are the main criteria which users & contractors focus on to replace R22. Achieving a similar cooling capacity to R22 is critical to the whole process. Some systems have a built-in excess of capacity but there are wide variations so that a refrigerant with the closest capacity to R22 is to be favoured. Energy efficiency is also desirable of course. Mass flow rate is particularly important which needs to be close to R22 in order not to have to change any equipment (eg capillary tube) or adjust or change the TXV.

RS-70 is the closest in terms of performance of the refrigerants on the market today to R22 which do not need an oil change during retrofit to R22.

Retrofitting from R22 to alternative refrigerants not requiring an oil change

Contractors want to keep the replacement of components to a minimum during a retrofit. Costs can be significantly reduced with a refrigerant which does not require a change of lubricant thereby avoiding the costly & time consuming procedure of flushing out the system several times to reduce the existing lubricant to 5% or less, a process which has been found to be unsatisfactory in several cases. A higher mass flow of any replacement refrigerant can also result in extra costs, e.g. replacing capillary tubes, fixed expansion devices, pipework, expansion device etc. As in the case of replacing R22 with any HFC based refrigerant, it may be necessary to change some or all the seals dependent upon the type of elastomer used in the system.

RS-70 has the lowest mass flow rate of all these alternative refrigerants not needing an oil change by a minimum of 15% & higher in most cases.

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