



# RS-50 (R442A)

## LOW GWP & HIGH EFFICIENCY DROP-IN REPLACEMENT FOR R404A & R507

Extensive independent tests conducted on 6 refrigerants, including **RS-50 (R442A)**, under identical conditions show that **RS-50** has the highest energy efficiency & cooling capacity at lower temperatures. The other refrigerants tested were R404A, R507, R407F, R22 & R407A & were carried out by the University of Catalonia in Barcelona, Spain under strictly controlled conditions.

At typical supermarket refrigeration conditions, **RS-50 (R442A)** showed the following comparative performances compared to R404A, R407F & R407A:

	Coefficient of Performance	Cooling capacity
R404A	+42%	+49%
R407F	+10%	+18%
R407A	+21%	+58%

Tests were also conducted under dynamic conditions which clearly demonstrated that **RS-50 (R442A)** shows a faster pull-down time than any of the other refrigerants, especially at low temperature.

A specially constructed calorimeter was used for all these tests so that the results in terms of energy efficiency & capacity could be legitimately compared. A summary of a series of tests taken at -35°C evaporating & +35°C condensing temperatures are shown in the table below:

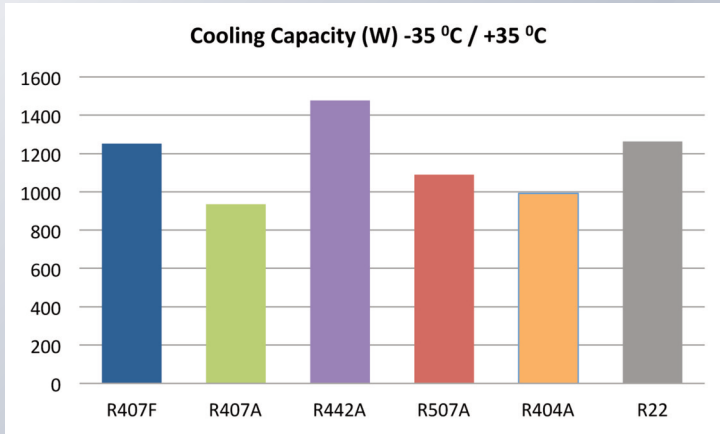
	R407F REF 1	R407A REF 2	<b>RS-50 REF 3</b>	R507 REF 4	R404A REF 5	R22 REF 6
P evaporation [bar]	1.35	1.3	1.35	1.7	1.64	1.27
P condensation [bar]	16.1	14.8	16.2	17	16.05	12.68
P high / P low	11.93	11.33	12	10	9.78	9.98
Discharge temperature [°C]	85	82	83	79	78	85
Cooling capacity [W]	1252	935	1477	1090	992	1263
Power input [W]	711	583	760	717	720	669
COP	1.76	1.6	1.94	1.52	1.37	1.89

*from*

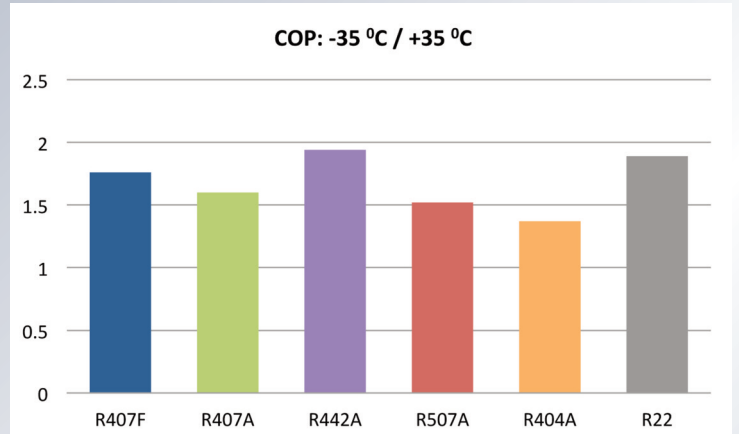
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The Refrigerant Specialists

### Cooling Capacity (W) at -35°C / 35°C



### COP at -35°C / 35°C

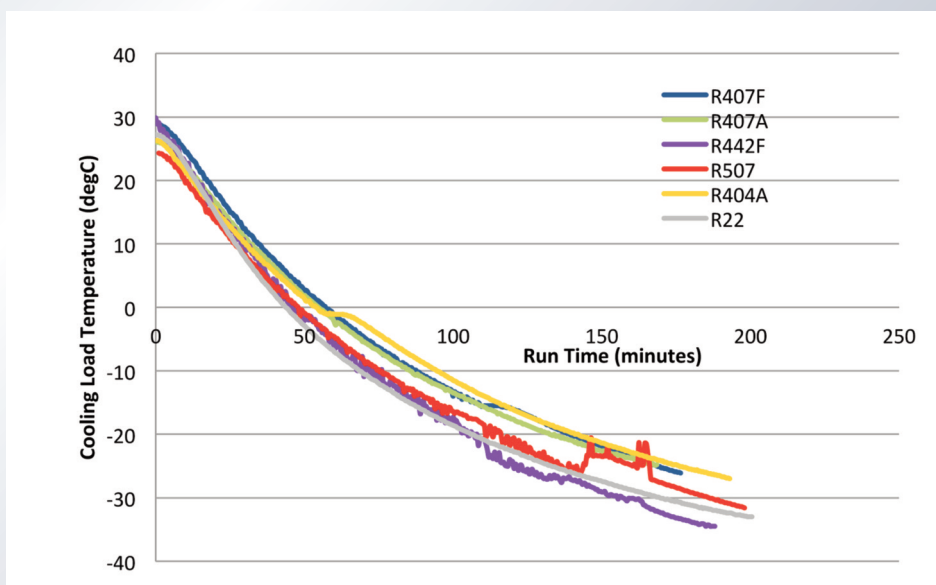


Further tests were undertaken to identify the pull-down times of these refrigerants, which showed that **RS-50 (R442A)** also had a faster pull-down time than any of the other refrigerants, especially at low temperature:

### Comparison of Pull-down Times

At -20°C evaporating temperature, the pull-down times were found to be as follows:

	Minutes	% R404A
R407F	140	0
R407A	135	96
RS-50 (R442A)	110	78
R507	115	82
R404A	140	0



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