Refrigerants RS Series

R-453A (RS70 / RS44B)

REFRIGERANT SOLUTIONS LTD
RS SERIES
ZERO ODP
DROP-IN
REFRIGERANT

R-453A: DIRECT SUBSTITUTE FOR R-22.

RS-70 is an HFC (Hydrofluorocarbon) refrigerant gas, a direct substitute for R-22 without affecting the ozone layer due to its zero depletion potential. It is characterised by being an easy, direct and highly efficient substitute for conversion. According to a study carried out by the Polytechnic University of Catalonia (UPC), R453A has a greater cooling capacity and higher performance than R-417A, R-422D and R-434A.

Due to its GWP of 1765, it is not affected by the restriction of use of regulation 517/2014 (F-gas) that since January 2020 affects refrigerants with a GWP ≥ 2,500.

It is not recommended as a direct substitute for R22 for flooded systems.

Commercial brand:	ASHRAE Code:
RS-70	R-453A

Technical specifications:

0	1765	A1	Mineral, alquil-benccenic and POE
ODP	GWP	Safety classification	Compatible lubricants

Temperature Range: High, medium and low up to -35ºC.

Replacement: R-22. **Type of replacement:** Direct Drop-in

Applications:

- A/C
- Industrial refrigeration
- Commercial refrigeration

Packaging sizes for R-453A (RS70 / RS44B):

- Cylinders
- Roll drums
- Isotanks

Normative:

GRIT (Gases Research Innovation & Technology) is committed to the continuous improvement of our inbuilt Quality Control, Environment and Major Accident Prevention Systems as well as close collaboration with our product and service providers. The scope of the system includes the packaging, commercialisation, storage and innovation of technical gases and the management of residual fluorinated gas and halogenated solvents.

All this work is reflected in our certificates ISO 9001 & ISO 14001. GRIT also meets AHRI 700 standard for new and recycled refrigerants.

Thermodinamic properties chart:

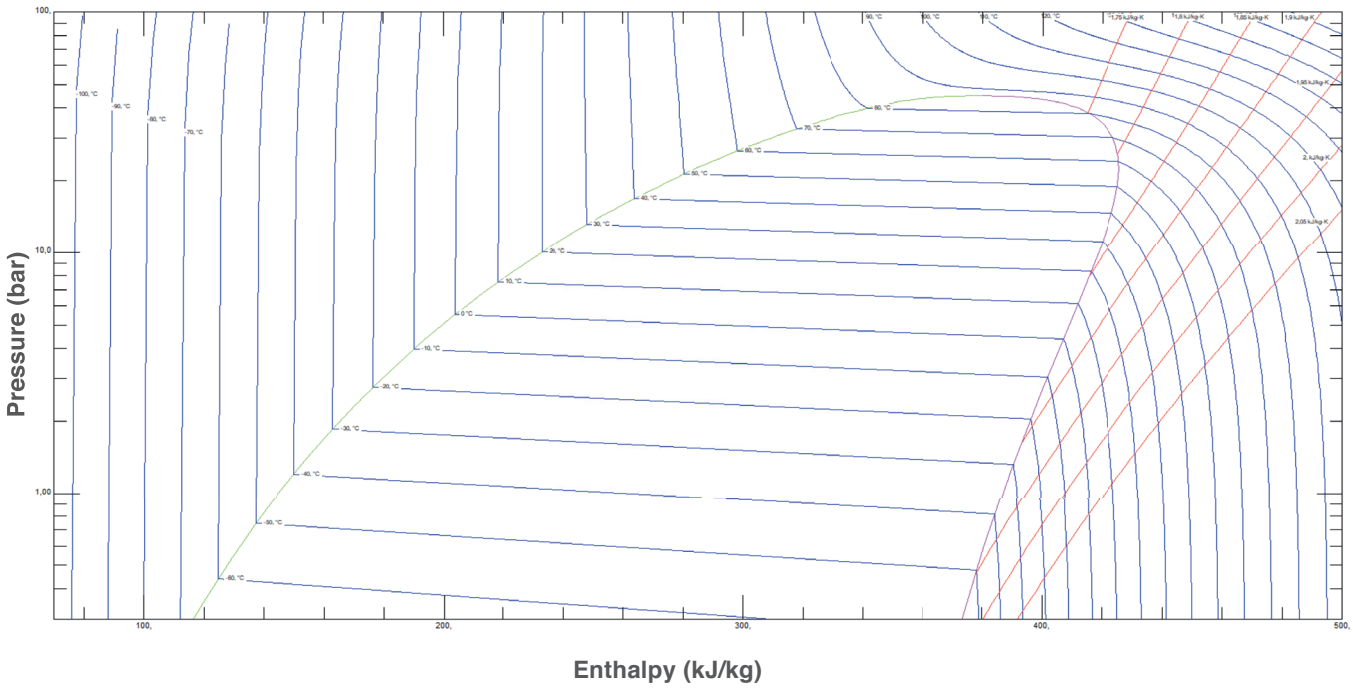
Bubble point

Temperature (ºC)	Absolute pressure (bar)	Liquid density (kg/l)	Gas density (kg/l)	Liquid enthalpy (kJ/kg)	Gas enthalpy (kJ/kg)
-50	0,74503	1,3867	0,0033666	137,3	386,53
-45	0,9521	1,3718	0,0042423	143,71	389,37
-40	1,2023	1,3567	0,0052891	150,16	392,16
-35	1,5017	1,3413	0,0065302	156,67	394,91
-30	1,8565	1,3257	0,0079907	163,23	397,61
-25	2,2734	1,3098	0,009698	169,85	400,25
-20	2,7592	1,2937	0,011682	176,53	402,83
-15	3,3212	1,2771	0,013976	183,28	405,33
-10	3,967	1,2602	0,016616	190,09	407,75
-5	4,7043	1,2429	0,019643	196,98	410,08
0	5,541	1,2251	0,023102	203,96	412,32
5	6,4855	1,2069	0,027046	211,02	414,44
10	7,5462	1,188	0,031534	218,17	416,45
15	8,7318	1,1686	0,036634	225,43	418,32
20	10,051	1,1484	0,042427	232,81	420,05
25	11,514	1,1274	0,049007	240,31	421,61
30	13,128	1,1055	0,056491	247,94	422,98
35	14,905	1,0825	0,065018	255,74	424,13
40	16,854	1,0583	0,074765	263,71	425,05
45	18,985	1,0326	0,085959	271,89	425,67
50	21,309	1,005	0,098897	280,31	425,97

Dew point

Temperature (ºC)	Absolute pressure (bar)	Liquid density (kg/l)	Gas density (kg/l)	Liquid enthalpy (kJ/kg)	Gas enthalpy (kJ/kg)
-50	0,47741	1,4136	0,0023417	135,73	378,13
-45	0,62802	1,3978	0,0030285	142	381,19
-40	0,81448	1,3818	0,0038666	148,33	384,22
-35	1,0426	1,3657	0,0048786	154,72	387,22
-30	1,3187	1,3494	0,0060894	161,17	390,18
-25	1,6493	1,3329	0,0075259	167,69	393,1
-20	2,0415	1,3162	0,0092178	174,28	395,97
-15	2,5027	1,2992	0,011197	180,94	398,77
-10	3,0408	1,282	0,013501	187,68	401,52
-5	3,6641	1,2643	0,016167	194,5	404,19
0	4,3811	1,2463	0,019241	201,4	406,77
5	5,2009	1,2279	0,022773	208,4	409,27
10	6,1327	1,2089	0,026819	215,5	411,66
15	7,1865	1,1894	0,031445	222,7	413,94
20	8,3724	1,1692	0,036729	230,02	416,09
25	9,7012	1,1483	0,042759	237,46	418,09
30	11,184	1,1265	0,049646	245,05	419,92
35	12,833	1,1036	0,057523	252,79	421,55
40	14,661	1,0796	0,066555	260,71	422,97
45	16,682	1,0542	0,076956	268,83	424,12
50	18,91	1,027	0,089003	277,19	424,96

Pressure diagram chart:



Instructions:

Use the liquid phase of the system for the charge. Oil change is not required. For making the conversion an adjustment on the expansion valve could be required. Some applications may require a change of the expansion valve. In case an electronic valve is used Antoine coeficients can be used to adjust the system. On the trials carried with capillary tube systems, the expansion conditions were not modified.

More information:

If you want more information about our products, contact us.

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