NU-22B® Performance Relevant to R-22

Question / Answer

Q: Do R-22 direct replacement refrigerants have lower capacity ratings compared to R-22?
A: Yes. All of the mainstream R-22 alternatives have lower capacity ratings.

Q: Do lower capacity ratings mean that any R-22 system converted to a direct replacement will not provide adequate cooling performance?
A: No! The average capacity loss in systems converted to NU-22B is minimal (less than 10%). When the system charge is optimized using the Super Heat / Sub Cooling method, capacity loss can be as little as 5%. (See NU-22B ARI 210/240 test results on reverse side).

Q: What is the average performance you can expect from a system converted to NU-22B?
A: When the system charge has been optimized using the Super Heat / Sub Cooling method, the system runtime will be slightly longer to achieve the desired temperature. The compressor will pull lower nameplate amps, and will have much lower discharge temperatures. NU-22B provides adequate cooling performance at typical conditions, and does so without compromising energy efficiency and system longevity.

Q: Has NU-22B been field tested?
A: Yes! Compared to all competitive R-22 direct replacements, NU-22B has the longest record of successful field performance. There are thousands of ACR systems worldwide that have been converted to NU-22B since 2001 and the product's track record of performance is impeccable.

Q: If the R-22 compressor is charged with mineral oil, will it need to be changed to POE oil?
A: NU-22B is designed for use with mineral oil and does not require the use of POE oil. However, there are several R-22 replacements that do require the use of POE oil to insure proper oil return. Always refer to the refrigerant manufactures written guidelines.

Q: Is R-407C a better R-22 replacement than NU-22B?
A: NO! R-407C requires the use of POE oil, which increases system conversion and maintenance costs. R-22 systems converted to R-407C will have higher compressor discharge pressures, temperatures, amp draws, and provide less dehumidification compared to NU-22B. R-407C reduces the system's coefficiency of performance (COP). Failure to use POE oil with R-407C will lead to poor cooling performance and potential compressor failure.

*ARI Standard 210/240-2003
Standard Rating Conditions Test
"A" Cooling Steady State Test

Test Conditions: Outdoor temp = 95°F (Dry Bulb) Indoor Temp = 80° F (Dry Bulb) 67°F (Wet Bulb)

	R-22	R-422B/NU-22B	R-422B/NU-22B ± %
Compressor Discharge (psig)	**239.79**	**242.78**	**+ 3.02**
Compressor Discharge (°F)	**172.5**	**144.53**	**- 27.97**
Subcooling (°F)	10.76	10.22	- 0.53
Compressor Suction (psig)	85.74	82.28	- 3.46
Evap Superheat (°F)	5.05	5.09	+ 0.04
Compressor Superheat (°F)	19.93	14.39	- 5.54
Compressor Oil Sump (°F)	108.87	100.01	- 8.86
Compressor Dome (°F)	120.79	114.02	- 6.77
Evap Grid Inlet (°F)	79.96	80.09	+ 0.13
Evap Grid Outlet (°F)	59.35	60.31	+ 0.96
Evap Grid Delta T	20.61	19.78	- 0.83
AMPs L1	**11.61**	**11.3**	**- 3.0 %**
AMPs L2	**11.64**	**11.3**	**- 3.1 %**
Sensible Capacity (Btu/hr)	**26305.42**	**25276.77**	**- 4.0 %**
Gross Air Side Capacity (Btu/hr)	35904.28	33575.82	- 7.0 %
EER (COP)	11.34	10.79	- 5.0%

	R-407C	R-422B/NU-22B	R-422B/NU-22B ± %
Compressor Discharge (psig)	**268.75**	**242.78**	- 25.97
Compressor Discharge (°F)	**163.28**	**144.53**	- 18.75
Subcooling (°F)	10.06	10.22	+ 0.16
Compressor Suction (psig)	88.54	82.28	- 6.26
Evap Superheat (°F)	5.15	5.09	- 0.06
Compressor Superheat (°F)	15.1	14.39	- 0.71
Compressor Oil Sump (°F)	108.54	100.01	- 8.53
Compressor Dome (°F)	119.41	114.02	-5.39
Evap Grid Inlet (°F)	80.11	80.09	- 0.02
Evap Grid Outlet (°F)	59.75	60.31	+ 0.56
Evap Grid Delta T	20.36	19.78	- 0.58
AMPs L1	**12.05**	**11.3**	- 6 %
AMPs L2	**12.06**	**11.3**	- 6 %
Sensible Capacity (Btu/hr)	25585.69	25276.77	- 1.5 %
Gross Air Side Capacity (Btu/hr)	34753.73	33575.82	- 4.0 %
EER (COP)	10.67	10.79	+ 1.5 %

*Third party ARI testing conducted by Intertek, Columbus, OH