



# HVAC-R and CO<sub>2</sub> Refrigeration Fittings

## What's the difference?

### Materials

While refrigeration copper fittings typically are made of C12200 copper, CO<sub>2</sub> refrigeration copper fittings are made out of C19400 alloy, which offers superior properties when high pressure systems are considered.

#### C1220 Copper

%	ELEMENTS	
	Cu	P
Minimum	99.9%	0.015%
Maximum	-	0.040%

#### C19400 Copper

%	ELEMENTS				
	Cu	Pb	Zn	Fe	P
Minimum	97.0%	-	0.05%	2.1%	0.015%
Maximum	-	0.03%	0.20%	2.6%	0.15%

### Pressure Ratings

Refrigeration copper fittings have varying pressure limits contingent on size, whereas CO<sub>2</sub> fittings consistently withstand pressures up to 130 BAR, reflecting the heightened demands of CO<sub>2</sub> Refrigeration systems.

SIZE (IN)	NDL ACR COPPER FITTINGS		NDL CO <sub>2</sub> COPPER FITTINGS	
	PSI	BAR	PSI	BAR
1/4"	1000	68.9	130	1885
3/8"	1000	68.9	130	1885
1/2"	1000	68.9	130	1885
5/8"	1000	68.9	130	1885
3/4"	1000	68.9	130	1885
7/8"	900	62	130	1885
1-1/8"	700	48.2	130	1885
1-3/8"	700	48.2	130	1885
1-5/8"	700	48.2	130	1885
2-1/8"	700	48.2	130	1885
2-5/8"	700	48.2	-	-
2-5/8"+	Above 2-5/8" according to ASME B16.22		-	-

### Size Range

Refrigeration copper fittings are available in larger diameters, catering to applications exceeding 4 inches, whereas CO<sub>2</sub> copper fittings are typically limited to sizes up to 2-1/8 inches, aligning with the CO<sub>2</sub> refrigeration tubes.

### Brazing Process

The brazing process for both ACR copper fittings and CO<sub>2</sub> refrigeration copper fittings is the same. It is recommended for the brazing alloy to contain at least 2% silver. When brazing either of the copper alloys to brass, a silver content above 44% is recommended.

