



# Carrier® Product Bulletin

**Subject:** Dry R22 to R410a Transition  
**Department:** Product Marketing  
**Date:** July 21, 2016  
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**Related Bulletins:** (a) Bulletin 101-15-87 Dry R22 update  
(b) Bulletin 101-16-12 Regional Standards Cut-off Date Reminder

**Bulletin Number:** 101-16-43

**Model Family:**

## Dry R-22 Equipment Changes and What They Mean to You

As referenced in bulletin 101-15-87, dry charge R-22 condensing units ceased production as of January 2016. This was mandated by an Enforcement Notice from the U.S. Department of Energy (DOE). This bulletin will attempt to clarify several related questions concerning this equipment.

13 SEER air conditioners are not legal to install in the South and Southwest regions of The United States. See reference bulletin 101-16-12 for additional information on Regional Standards.

For component replacement of R22, equipment already installed will consist of one of two scenarios:

- 1) **Replacement of the outdoor component(s) to allow the system to continue to operate as an R22 system.** This scenario has two possible options:
  - a. Install a dry-R22 condensing unit component. With the aforementioned cut-off of new dry R-22 production and rising R-22 refrigerant costs, this option will not be a sustainable option in the future. At a minimum, this would only be a short term solution with potentially very expensive longer term costs to the owner.
  - b. Install a 407c condensing unit component. While this situation would work from a technical perspective (since R407c compressors are compatible with R-22 refrigerant) it has the following issues:
    - i. Typically, compressor manufacturers and/or HVAC equipment manufactures do not recommend charging a condensing unit with R-22 if it has been charged with R407c due to differences in the system oils.
    - ii. R407c is a zeotropic blend refrigerant. This means the refrigerant system is a blend of different molecules. As these molecules pass through a heat exchanger, there will be a change in the refrigerant composition by preferential evaporation or condensation of the more- or less-volatile component in the blend. This is commonly referred to as “refrigerant glide”.
    - iii. Due to the different molecule sizes of a zeotropic refrigerant, a system leak will typically allow the smaller molecules to leak first, thus changing the refrigerant performance and easily leading to a change in system cooling or heating capacity.

- 2) **Change to an R410a system.** At a minimum, this will mean changing the outdoor unit to an R410a component. Carrier also recommends changing the indoor metering device to a properly sized R410a TXV. For Carrier equipment, the indoor coil does not need to be changed unless other conditions require it.

When comparisons of like 14 SEER / 12.2 EER compliant R407c and R410a condenser designs are made, the Carrier® Puron® refrigerant design offers advantages in unit volume (28% smaller on average), and weight (10% less on average) – see below:

<b>Carrier Information</b>				<b>R407c Information</b>				<b>Volume Difference (% smaller)</b>	<b>Operating weight (% lighter)</b>
<b>Tonnage</b>	<b>Model #</b>	<b>Volume (cft)</b>	<b>Operating weight (lbs)</b>	<b>Tonnage</b>	<b>York model</b>	<b>Volume (cft)</b>	<b>Operating weight (lbs)</b>		
1.5	CA14NA018	7.7	123	1.5	GAW14L18C21S	14.9	135	48%	9%
2	CA14NA024	9.6	119	2	GAW14L24C21S	14.9	135	35%	12%
2.5	CA14NA030	17.9	151	2.5	GAW14L30C21S	17.9	150	0%	-1%
3	CA14NA036	14.0	134	3	GAW14L36C21S	21.2	195	34%	31%
3.5	CA14NA042	22.0	192	3.5	GAW14L42C21S	21.2	195	-4%	2%
4	CA14NA048	16.0	182	4	GAW14L48C21S	27.3	200	41%	9%
5	CA14NA060	17.9	197	5	GAW14L60C21S	31.8	210	44%	6%

**Carrier Advantage**  
Lower volume and lower operating weight compared to R407c units

Other field service advantages when comparing R410a and R407c units include:

- R410a refrigerant is charged at the factory, while R407c is field sourced and charged
- R410a requires less charge per foot of lineset
- R410a designed for up to 250 feet max lineset, while R407c has a max lineset of 80 feet
- R407c units come with nitrogen holding charge that must be removed
- R410a equipped with standard aluminum round tube and fin coil, while R407c uses microchannel aluminum coil