

Natural Refrigerant Training Summit

Building a Sustainable Workforce

AHC Overview

Rich Boedeker

True



NORTH AMERICAN
Sustainable
Refrigeration



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- 2012 EPA APPROVES USE OF HYDROCARBON (HC) REFRIGERANTS

 - R290 propane for commercial (max 5.3 oz.).

 - R600 isobutene for residential (max 2.01 oz.).

- JUNE 2014 – EPA APPROVES VENTING OF HYDROCARBON REFRIGERANTS.

 - Allows for effective field service & repair.**

- 1/2017 EPA approved the use of R-290 in commercial ice machine





Global-warming potential (GWP) is a relative measure of how much heat a greenhouse gas traps in the atmosphere. It compares the amount of heat trapped by a certain mass of the gas in question to the amount of heat trapped by a similar mass of carbon dioxide.

Low GWP Refrigerant Alternatives



R290 PROPANE

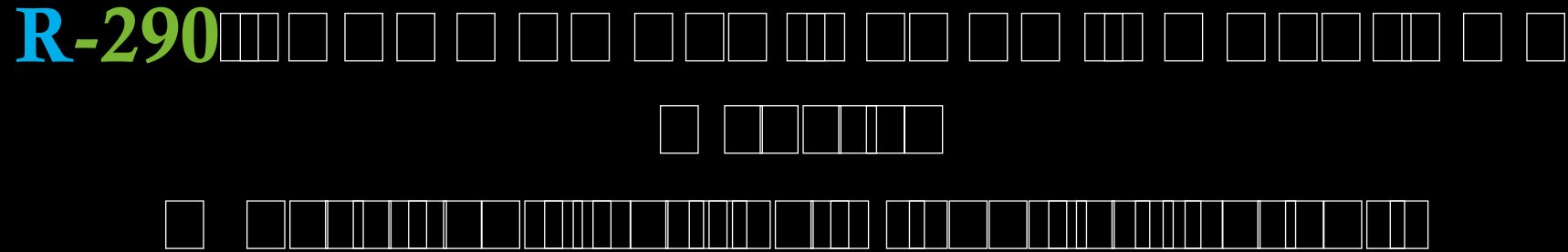


R600A ISOBUTANE*



R744A CO2

Refrigerant	GWP	ODP
R404A	3922	0
R134a	1340	0
R290 PROPANE	3	0
R600A* ISOBUTANE	3	0
R744 CO2	3	0

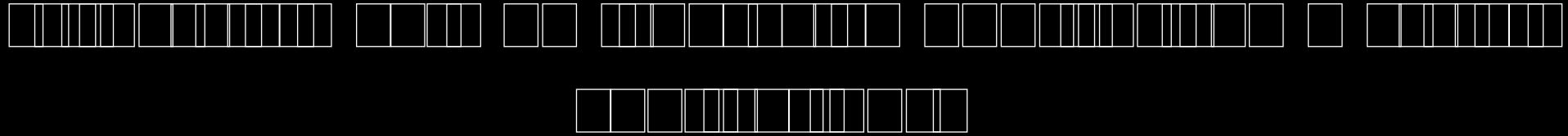


- True Parts Department (800-424-8783) or local supply house



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R-290



- Yes, at this time, 150 grams (5.3)

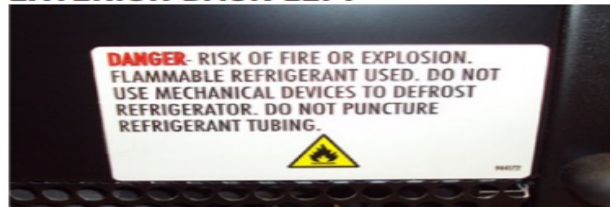




R-290



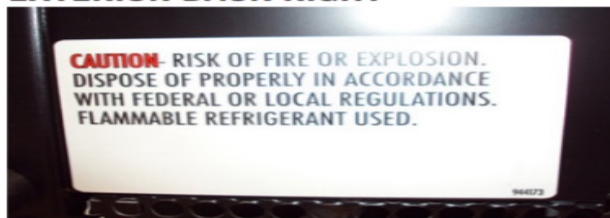
EXTERIOR BACK LEFT



CONDENSER COIL SHROUD



EXTERIOR BACK RIGHT



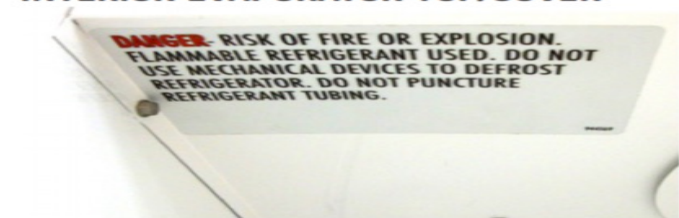
INTERIOR SERIAL TAG



CONDENSING UNIT AREA SIDEWALL

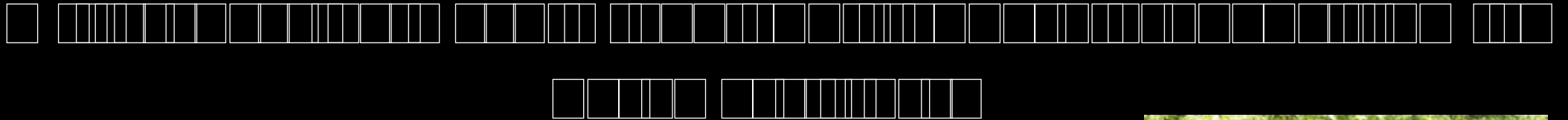


INTERIOR EVAPORATOR TOP/COVER



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R-290





R-290



- **No, the system must be designed and built with R-290.**





R-290

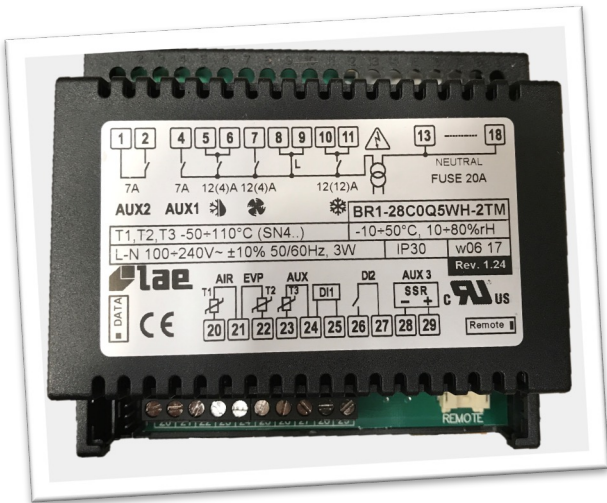


**Parts on HC units
must be specific UL
certifications for
non-sparking
components**





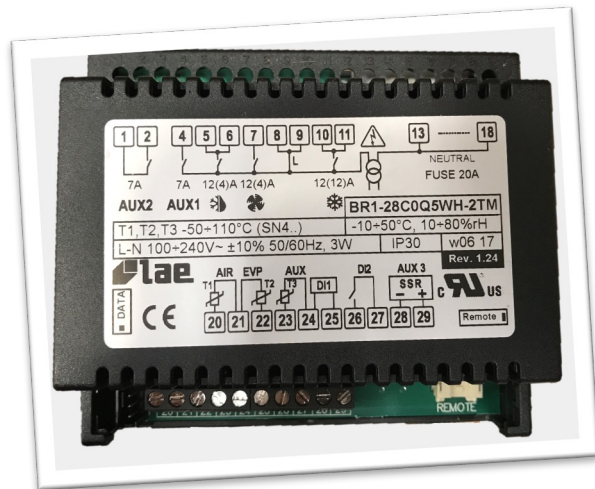
R-290



Parts on HC units must be specific UL certifications for non-sparking components



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P#819576
Charging Valve



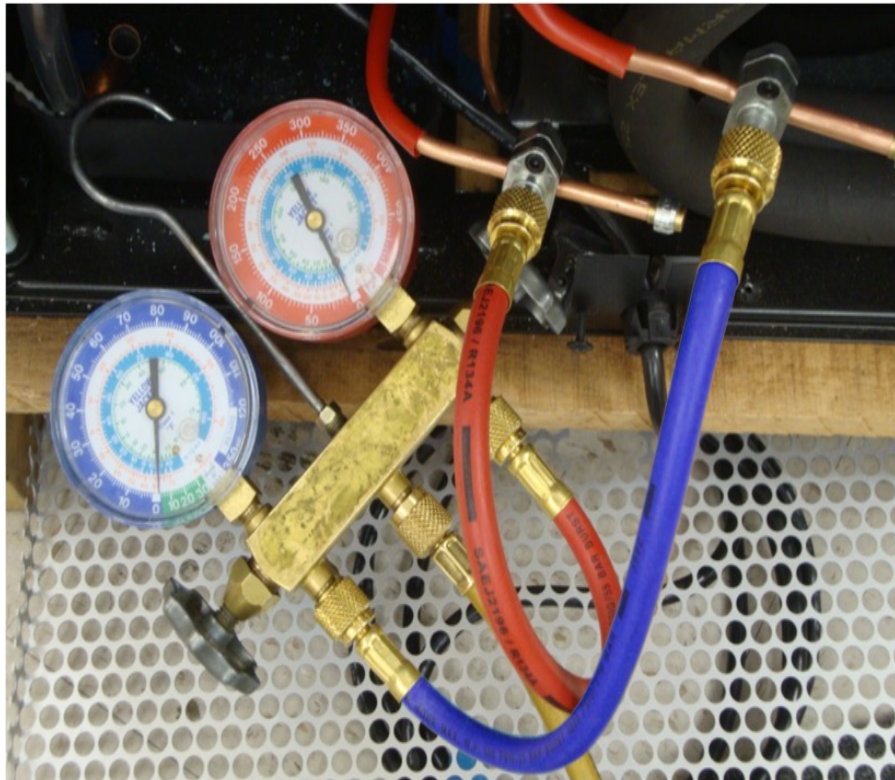
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Replacement Style R-290 Cylinder & P#819576 Charging Valve



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221725

Building The Finest Commercial Refrigeration – True, “The Best of the Cold Ones”



Good Refrigeration Practices

Good refrigeration practices will always start with good detective work to find out what caused the failure so we can eliminate the possibility of a repeat failure. Below is a step by step set of procedures we would recommend is followed when repairing a refrigeration system.

- Before opening the refrigeration system remember that the POE oil is very hygroscopic and absorbs moisture very quickly. You should not leave the system open to the atmosphere for more than 15 minutes. Any vacuum that exists before any repair should be broken with nitrogen to avoid moisture being pulled into the system.
- When accessing the system do not remove process tube ends. Use Temporary bolt on access valves for diagnosing and repair.
- When repair is complete valves need to be removed.
- For your manifold gauges, use as short as hose as possible. We recommend a maximum length of 12”.
- The introduction to the refrigeration system of anything other than a flushing agent, nitrogen, refrigerant, or oil is prohibited.
- If you are changing a component keep the system closed up with plugs or caps to reduce moisture contamination.
- Recover the refrigerant from the system. Note R-290 can be vented in a well ventilated area with no source of ignition.
- Remove the faulty refrigeration component and filter drier by cutting them out with a tubing cutter.
- Take a look at the filter drier and the components that have been removed for signs of oil breakdown, foreign objects like desiccant from drier, metal pieces from valves, etc.
- Be sure and test the oil from the refrigeration system for contamination using the proper test kit for the type of oil.
- When replacing a compressor make sure to also remove all the old oil from the system.
- If the oil shows signs of contamination. Flush the system.
- While purging nitrogen through the system drill (approximately 1/8”) (3.18 mm) hole in the bottom of the accumulator (IF EQUIPPED) so we do not leave contaminated oil in the system. After blowing this out with nitrogen, be sure to braze the hole closed.
- Always replace the drier with the exact OEM size.
- When brazing on R-290 system always purge nitrogen through the system.
- Place a nitrogen charge in the system to check for any leaks.
- Release the nitrogen down to 2 PSI.
- Change vacuum pump oil regularly to ensure the deepest vacuum your pump is capable of.
- Start pulling a vacuum as soon as possible to help remove moisture.
- Using a micron gauge pull down to 500 microns.
- See if the system will hold this micron with the gauges closed and the pump switched off to test for leaks of moisture.
- Once the system is evacuated, weigh in the listed refrigerant charge located on the serial tag inside the cabinet. R-290 can be added as a liquid or vapor. Refrigerant 134a/404A charge as a liquid only. Refrigerant should be charged through the high side.
- Test run unit and check for proper operation.
- Remove access valves.

ANY NITROGEN ADDED TO THE SYSTEM SHOULD NOT EXCEED 200 PSI (13.8 BAR).

Please call True Technical Service with any questions regarding the above practices.

1.855.372.1368
service@truemfg.com

World Headquarters: O’Fallon, Missouri, USA • **Service Department:** Hours of Operation 7:00-7:00 CST Monday – Thursday, 7:00 - 6:00 Friday, 8:00 - 12:00 Saturdays

UK

Fald’s End Road,
Goldthorpe, Nr. Rotherham
South Yorkshire, S63 9EU
8.30AM - 5.30PM (M-F)
+44 1709 888 080

GERMANY

Hauptstr. 269,
79650 Schopfheim
8.00AM - 5.00PM (M-F)
+49 (0)7622 86830

AUSTRALIA

88 Phrayn Place,
Ingleburn, NSW 2565
8.30AM - 5.00PM (M-F)
+61 2 9618 9999

MEXICO CITY

Caj 5 Sur “B”
Colonia Paseos de
Churubusco C.P. 09040
Mexico, Distrito Federal
9.00AM - 5.30PM (M-F)
+52 555 804 6343/6344

CHILE

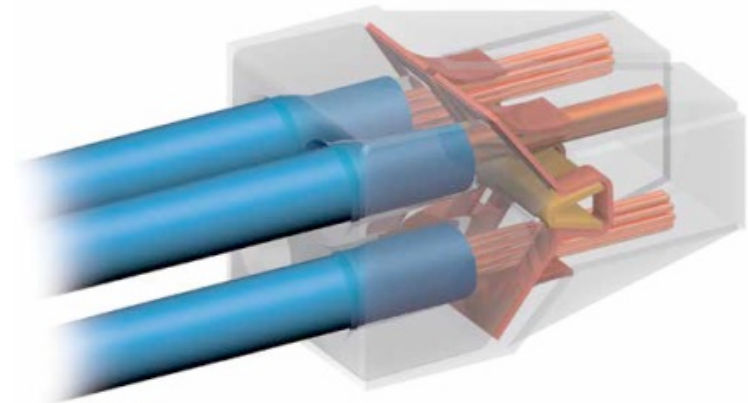
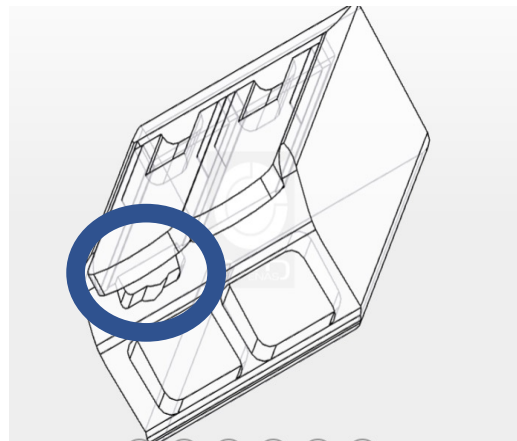
Avenda Las Condes #7009,
Las Condes, Santiago, Chile
C.P. 7580764
9.00AM - 5.30PM (M-F)
+56 232 12 5600



Compound Gauge

Reading in. HG Vacuum	Microns
25.849	103,430
29.107	20,686
29.717	5,171
500 Microns Minimum	

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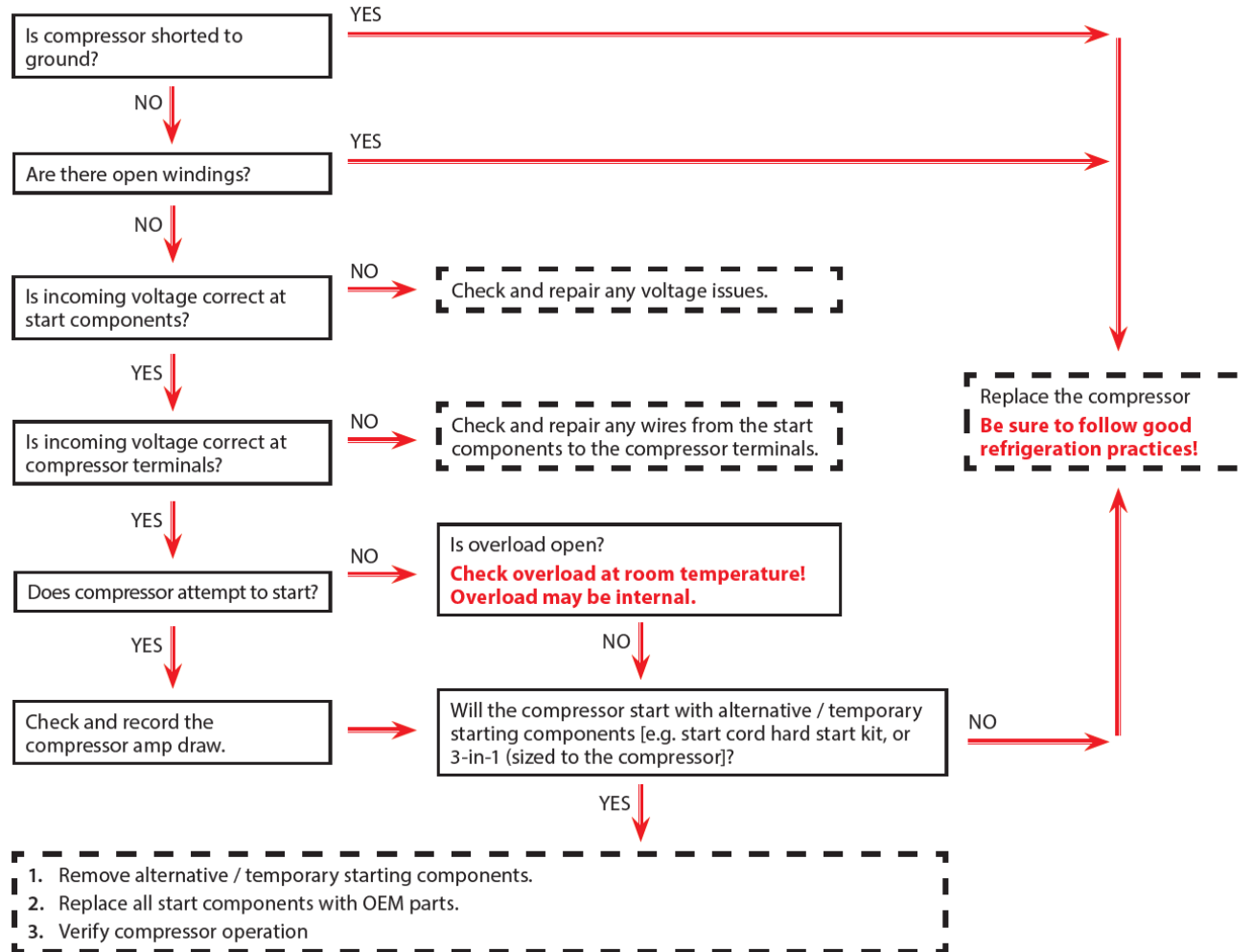
CHARGING A SYSTEM

-
-
-



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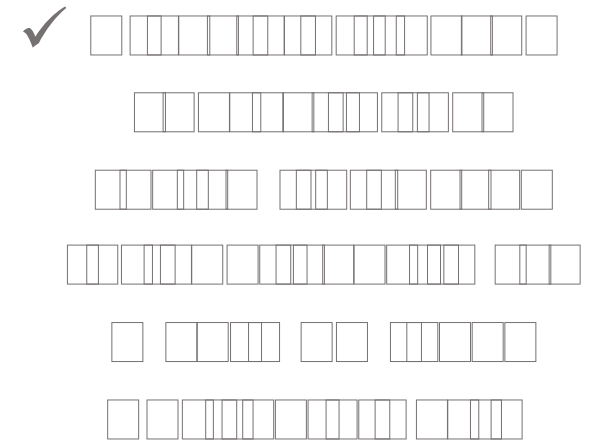




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TECHNICAL SUPPORT HOURS

Monday – Friday 7:00 a.m. - 6:00 p.m. Central Time

Saturday 8:00 a.m. - 12:00 p.m. Central Time

True Main # 800-325-6152

True Service # 855-372-1368

service@truemfg.com



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HC Overview

Rich Boedeker

True Manufacturing