



# **HC Refrigerants**

# Requirements & Recovery

HOSHIZAKI

**R290 Refrigerant R600a Refrigerant** 

EPA Recommends certified training for handling R290 and R600a refrigerants.



As a world-class corporation, Hoshizaki America, Inc. is committed to developing original, energy efficient products with clear benefits for our customers. We seek natural solutions - such as hydrocarbon refrigerants in our products – for a clean and healthy environment.

# What are R290 & R600a refrigerants?

- They are hydrocarbon (HC) refrigerants.
- R290: Common name for high purity propane (C<sub>2</sub>H<sub>6</sub>)
- **R600a**: Common name for isobutane  $(C_4H_{10})^*$
- R290/R600a refrigerants are proven safe, not an environmental threat, and have been used in international markets for more than 10 years.
- Only refrigerant grade R290 or R600a should be used.

# Why not R134a?

- Regulations ban R134a in certain uses, effective 2019.
- Most commercial refrigeration manufacturers are moving to R290 as the alternative to R134a.

## **R290 Service Overview**

- R290 & R600a are FLAMMABLE. You MUST observe caution and follow proper safety practices when servicing R290/R600a refrigeration systems.
- Servicing refers to making repairs to the hermetically sealed system and any part of the electrical system. There is a 150 gram (5.29 ounces) charge limit of R290/R600a for commercial applications.
- Repair on R290/R600a systems MUST always be done in a well ventilated area.
- Because R290/R600a is highly flammable, a combustible gas leak detector and safety placard is required when servicing R290/R600a systems.

# Servicing R290/R600a vs. R134a

- Operationally very similar systems:
  - Operating pressures of R290/R600a systems are slightly higher than an equivalent R134a system.

# Example:

- At 100°F, evaporating pressure in an R290 system is approx. 46 psig.
- At 100°F, evaporating pressure in an R134a system is 26.6 psig.
- Specialized training is not mandated, but is recommended. (Online Training Available) www.rses.org

# **R290 and R600a Parts and Requirements**

- Spark resistant/sealed electrical components are required.
  - Only like component replacement parts are to be used on R290/R600a systems. NO substitutes.
  - Avoid unapproved parts at all times.

# R290/R600a Recovery

Hoshizaki recommends recovery as outlined by RSES procedures and noted in our service manual.

Using proper refrigerant practices, place piercing valves toward the end (crimped area) of the high and low-side process tubes, then recover the refrigerant into an approved container or device.

Note: Warning labels as provided by Hoshizaki.

To be repaired only by trained service personnel.

Do not puncture refrigerant tubing. Risk of fire or explosion due to puncture or refrigerant tubing; explosion due to puncture of remigerant buting; follow handling instructions carefully. Consult instruction manual / service manual before attempting to install or service the product. All safety precautions must be followed. Dispose of properly in accordance with federal or local regulations.

local regulations.

Risuse De Feu Ou D'Emiosion Le Frigorigiene Est Inflammable

Confier les réparations à un technicien spécialisé.

Ne pas perforer la tubulure contenant le frigorigiene. Risque de feu ou d'explosion si la tubulure contenant le frigorigiene est perforée; suiver les instructions de manutention avec soin.

Consulter le manuel du propriétaire/guide de réparation avent de tenter ur les masures de sécurité doisi 

REFRIG

les mesures de sécurité doiv Éliminer conformément aux r ou locaux.

# **REFRIGERATOR**



Risk of fire or explosion. Flammable refrigerant used. Do not use mechanical devices to defrost used. Do not use mechanical devices to derrost. Do not puncture refrigerant tubing. Risque de feu ou d'explosion. Le frigorigène est inflammable. Ne pas utiliser d'appareit mécaniques pour dégivrer le réfrigérateur. Ne pas perforer la tubulure contenant le frigorigène.

All products containing R290 or R600a must be clearly labeled.

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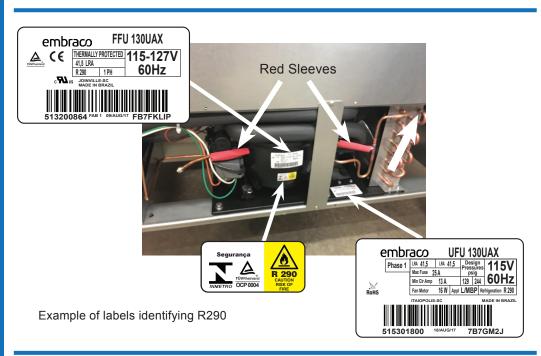


Need Service or Repair? Locate your closest Hoshizaki Certified Service Tech: hoshizakiamerica.com/locate-service-rep

# **Red and Blue Hoses**

Standard refrigeration gauge manifold hoses may be used on R290 and R600a systems.

However, the red and blue hoses are to be as short as reasonably possible.



# R290/R600a Recovery

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# **Red Sleeves**

Red sleeves are installed on the process tubes on R290 and R600a systems. These sleeves are to remain in place. If removed for service, they must be returned to their original position.

# **Training**

Hoshizaki recommends servicing as outlined by RSES procedures.

Refrigeration Service Engineering Society (RSES) offers an online course on R290 and R600a refrigeration.

There is a charge for this course: www.rses.org

# Read the Hoshizaki Service Manual Before Any Repair

- Before starting any refrigeration repair, post the **Danger Propane** or **Danger Isobutane** placard on the front of the appliance.
- A Combustible Gas Leak Detector MUST be turned on prior to starting any work and remain on and near the work area for the duration of the servicing or repair.
- Power to the appliance being serviced **MUST** be disconnected.
- Service personnel should wear appropriate Personal Protective Equipment (PPE).
- When purging the system, **ONLY Oxygen Free Dry Nitrogen** should be used.
- Replacement refrigerant MUST be approved Refrigerant Grade of the proper type.
- A fully charged and recently serviced (within past year) Carbon Dioxide or Dry Powder Fire Extinguisher *MUST* be in the work area.
- Maintain good ventilation in the area at ALL times and eliminate ALL ignition sources in the area.
- R290/R600a MUST be removed from the system, via the R290/R600a Recovery Process (piercing valve), before cutting into the system with tubing cutters. Use CAUTION as there may be residual R290/R600a still in the system.
- Solder joints MUST NOT be heated (touched with a flame) to remove a component, such as a compressor or filter dryer, from an R290/R600a System.
- You MUST use tubing cutters to cut connections to remove a compressor or other component in an R290/R600a System.

### **Publications:**

Hydrocarbon Refrigerants: A Study Guide for Service Technicians, published 2012 by RSES

ISBN-13: 978-1-61607-180-6

Hoshizaki Service Manuals available for all refrigeration products



Scan the QR Code to look up manuals:



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