



# HC REFRIGERANTS Requirements and Recovery R290/R600a

Hoshizaki America, Inc. is committed to developing energy efficient products for a clean and healthy environment. R290/R600a are hydrocarbon (HC) refrigerants proven safe for use in refrigeration products. Most commercial refrigeration manufacturers are moving to R290 as the alternative to R134a since regulations ban R134a in certain uses effective 2019.

## R290/R600a Service Overview

EPA recommends certified training for handling R290 & R600a refrigerants. R290 & R600a are flammable. You must observe caution and follow proper safety practices when servicing these refrigeration systems.

**HOSHIZAKI**  
R290 Refrigerant  
R600a Refrigerant

### HC Refrigerants Requirements & Recovery

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>3</sub>H<sub>8</sub>)
- R600a:** Common name for isobutane (C<sub>4</sub>H<sub>10</sub>)
- 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.
- Service 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.

**Recovery 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](http://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 (capped 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.

**REFRIGERATOR**

**ADANGER**

Labels as shown in the image above are required on all HC refrigerant labels. Do not use refrigerant labels that do not contain the following information: Refrigerant name, Refrigerant grade, Refrigerant quantity, Refrigerant recovery instructions, and Refrigerant recovery instructions.

All products containing R290 or R600a must be clearly labeled. (continued on Page 2)

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

**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](http://www.rses.org)

**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

**RSES**  
The HVACR Training Authority

Scan the QR Code to look up manuals:

Example of labels identifying R290

**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.
- 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.

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(Click on the Picture Above to Learn more about R290 & R600)

Hoshizaki Tech Support: 800-233-1940

**Replacing Commercial Series  
with the New Steelheart Series**

With the change to the refrigerant comes changes to the model numbers. The new model numbers are shorter and easier to decipher but feel free to call or email us with any questions. As the factory makes new models available and as inventory is depleted, we will transition to the new Steelheart series.

HOSHIZAKI		HOSHIZAKI (DPS) FREEZERS		HOSHIZAKI (DPS) PREP TABLES	
Existing Model	Transition To:	Existing Model	Transition To:	Existing Model	Transition To:
CRM27-1M	SR7A-1M	CRM27-1M	SR7A-1M	CR154	CR15A
CRM27-2M	SR7A-2M	CRM27-2M	SR7A-2M	CR154B	CR15A
CRM36-1M	SR1A-1M	CRM36-1M	SR1A-1M	CR156	CR15A
CRM36-2M	SR1A-2M	CRM36-2M	SR1A-2M	CR157	CR15A
CRM48-1M	SR4A-1M	CRM48-1M	SR4A-1M	CR157	CR15A
CRM48-2M	SR4A-2M	CRM48-2M	SR4A-2M	CR158	CR15A
CRM48-3M	SR4A-3M	CRM48-3M	SR4A-3M	CR159	CR15A
CRM48-4M	SR4A-4M	CRM48-4M	SR4A-4M	CR1510	CR15A
CRM48-5M	SR4A-5M	CRM48-5M	SR4A-5M		
CRM48-6M	SR4A-6M	CRM48-6M	SR4A-6M		
CRM48-7M	SR4A-7M	CRM48-7M	SR4A-7M		
CRM48-8M	SR4A-8M	CRM48-8M	SR4A-8M		
CRM48-9M	SR4A-9M	CRM48-9M	SR4A-9M		
CRM48-10M	SR4A-10M	CRM48-10M	SR4A-10M		
CRM48-11M	SR4A-11M	CRM48-11M	SR4A-11M		
CRM48-12M	SR4A-12M	CRM48-12M	SR4A-12M		
CRM48-13M	SR4A-13M	CRM48-13M	SR4A-13M		
CRM48-14M	SR4A-14M	CRM48-14M	SR4A-14M		
CRM48-15M	SR4A-15M	CRM48-15M	SR4A-15M		
CRM48-16M	SR4A-16M	CRM48-16M	SR4A-16M		
CRM48-17M	SR4A-17M	CRM48-17M	SR4A-17M		
CRM48-18M	SR4A-18M	CRM48-18M	SR4A-18M		
CRM48-19M	SR4A-19M	CRM48-19M	SR4A-19M		
CRM48-20M	SR4A-20M	CRM48-20M	SR4A-20M		
CRM48-21M	SR4A-21M	CRM48-21M	SR4A-21M		
CRM48-22M	SR4A-22M	CRM48-22M	SR4A-22M		
CRM48-23M	SR4A-23M	CRM48-23M	SR4A-23M		
CRM48-24M	SR4A-24M	CRM48-24M	SR4A-24M		
CRM48-25M	SR4A-25M	CRM48-25M	SR4A-25M		
CRM48-26M	SR4A-26M	CRM48-26M	SR4A-26M		
CRM48-27M	SR4A-27M	CRM48-27M	SR4A-27M		
CRM48-28M	SR4A-28M	CRM48-28M	SR4A-28M		
CRM48-29M	SR4A-29M	CRM48-29M	SR4A-29M		
CRM48-30M	SR4A-30M	CRM48-30M	SR4A-30M		
CRM48-31M	SR4A-31M	CRM48-31M	SR4A-31M		
CRM48-32M	SR4A-32M	CRM48-32M	SR4A-32M		
CRM48-33M	SR4A-33M	CRM48-33M	SR4A-33M		
CRM48-34M	SR4A-34M	CRM48-34M	SR4A-34M		
CRM48-35M	SR4A-35M	CRM48-35M	SR4A-35M		
CRM48-36M	SR4A-36M	CRM48-36M	SR4A-36M		
CRM48-37M	SR4A-37M	CRM48-37M	SR4A-37M		
CRM48-38M	SR4A-38M	CRM48-38M	SR4A-38M		
CRM48-39M	SR4A-39M	CRM48-39M	SR4A-39M		
CRM48-40M	SR4A-40M	CRM48-40M	SR4A-40M		
CRM48-41M	SR4A-41M	CRM48-41M	SR4A-41M		
CRM48-42M	SR4A-42M	CRM48-42M	SR4A-42M		
CRM48-43M	SR4A-43M	CRM48-43M	SR4A-43M		
CRM48-44M	SR4A-44M	CRM48-44M	SR4A-44M		
CRM48-45M	SR4A-45M	CRM48-45M	SR4A-45M		
CRM48-46M	SR4A-46M	CRM48-46M	SR4A-46M		
CRM48-47M	SR4A-47M	CRM48-47M	SR4A-47M		
CRM48-48M	SR4A-48M	CRM48-48M	SR4A-48M		
CRM48-49M	SR4A-49M	CRM48-49M	SR4A-49M		
CRM48-50M	SR4A-50M	CRM48-50M	SR4A-50M		
CRM48-51M	SR4A-51M	CRM48-51M	SR4A-51M		
CRM48-52M	SR4A-52M	CRM48-52M	SR4A-52M		
CRM48-53M	SR4A-53M	CRM48-53M	SR4A-53M		
CRM48-54M	SR4A-54M	CRM48-54M	SR4A-54M		
CRM48-55M	SR4A-55M	CRM48-55M	SR4A-55M		
CRM48-56M	SR4A-56M	CRM48-56M	SR4A-56M		
CRM48-57M	SR4A-57M	CRM48-57M	SR4A-57M		
CRM48-58M	SR4A-58M	CRM48-58M	SR4A-58M		
CRM48-59M	SR4A-59M	CRM48-59M	SR4A-59M		
CRM48-60M	SR4A-60M	CRM48-60M	SR4A-60M		
CRM48-61M	SR4A-61M	CRM48-61M	SR4A-61M		
CRM48-62M	SR4A-62M	CRM48-62M	SR4A-62M		
CRM48-63M	SR4A-63M	CRM48-63M	SR4A-63M		
CRM48-64M	SR4A-64M	CRM48-64M	SR4A-64M		
CRM48-65M	SR4A-65M	CRM48-65M	SR4A-65M		
CRM48-66M	SR4A-66M	CRM48-66M	SR4A-66M		
CRM48-67M	SR4A-67M	CRM48-67M	SR4A-67M		
CRM48-68M	SR4A-68M	CRM48-68M	SR4A-68M		
CRM48-69M	SR4A-69M	CRM48-69M	SR4A-69M		
CRM48-70M	SR4A-70M	CRM48-70M	SR4A-70M		
CRM48-71M	SR4A-71M	CRM48-71M	SR4A-71M		
CRM48-72M	SR4A-72M	CRM48-72M	SR4A-72M		
CRM48-73M	SR4A-73M	CRM48-73M	SR4A-73M		
CRM48-74M	SR4A-74M	CRM48-74M	SR4A-74M		
CRM48-75M	SR4A-75M	CRM48-75M	SR4A-75M		
CRM48-76M	SR4A-76M	CRM48-76M	SR4A-76M		
CRM48-77M	SR4A-77M	CRM48-77M	SR4A-77M		
CRM48-78M	SR4A-78M	CRM48-78M	SR4A-78M		
CRM48-79M	SR4A-79M	CRM48-79M	SR4A-79M		
CRM48-80M	SR4A-80M	CRM48-80M	SR4A-80M		
CRM48-81M	SR4A-81M	CRM48-81M	SR4A-81M		
CRM48-82M	SR4A-82M	CRM48-82M	SR4A-82M		
CRM48-83M	SR4A-83M	CRM48-83M	SR4A-83M		
CRM48-84M	SR4A-84M	CRM48-84M	SR4A-84M		
CRM48-85M	SR4A-85M	CRM48-85M	SR4A-85M		
CRM48-86M	SR4A-86M	CRM48-86M	SR4A-86M		
CRM48-87M	SR4A-87M	CRM48-87M	SR4A-87M		
CRM48-88M	SR4A-88M	CRM48-88M	SR4A-88M		
CRM48-89M	SR4A-89M	CRM48-89M	SR4A-89M		
CRM48-90M	SR4A-90M	CRM48-90M	SR4A-90M		
CRM48-91M	SR4A-91M	CRM48-91M	SR4A-91M		
CRM48-92M	SR4A-92M	CRM48-92M	SR4A-92M		
CRM48-93M	SR4A-93M	CRM48-93M	SR4A-93M		
CRM48-94M	SR4A-94M	CRM48-94M	SR4A-94M		
CRM48-95M	SR4A-95M	CRM48-95M	SR4A-95M		
CRM48-96M	SR4A-96M	CRM48-96M	SR4A-96M		
CRM48-97M	SR4A-97M	CRM48-97M	SR4A-97M		
CRM48-98M	SR4A-98M	CRM48-98M	SR4A-98M		
CRM48-99M	SR4A-99M	CRM48-99M	SR4A-99M		
CRM48-100M	SR4A-100M	CRM48-100M	SR4A-100M		

(Click on the Picture Above For a List of New Models)

### HKE Solutions Presents: Hoshizaki America Service School



**Four Opportunities to Attend:**  
 Denver, CO - Tuesday, January 29th, 2019  
 Colorado Springs, CO - Thursday, January 31st, 2019  
 Cheyenne, WY - Tuesday, March 5th, 2019  
 Missoula, MT - Thursday, March 7th, 2019

8:00A - 3:30P for all locations

More information will be distributed in the near future. Contact Marty Connelly with questions regarding the upcoming service schools.  
 303-577-1260 Ext. 229

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