

PRODUCT DESCRIPTION

- Designed to protect instruments and regulators from overpressurization.
- Specifically designed to relieve moderate capacity instruments in the 0–200 psig range.

For inquiries regarding relief valve calculations, please contact our Service Department:
281.207.1887

SPECIFICATIONS

Materials of Construction

316/316L Stainless Steel, Ceramic, FFKM, FKM (Others Available)

Maximum Allowable Inlet Pressure

2500 psig (172.3 barg)
5000 psig (344.7 barg) (Standard)
6000 psig (413.6 barg)

Temperature Range

-20 °F to 120 °F (-28.8 °C to 48.8 °C)
Temperature Range Might Vary Based on Seal Material Selection

Spring Range Options

Up to 200 psig (0–13.7 barg)

Flow Rates

$C_v = .89$
Full Flow Accomplished at 150% Over Set Pressure

Connections

Inlet: ¼" MNPT (Standard) or ⅛" MNPT
Outlet: Atmospheric, ¼" FNPT, or ½" FNPT

Approximate Dimensions

3⅜" x 1" x 1" (L x W x H)

Approximate Weight

½ lb

Maintenance Schedule

Every 12 Months
Severe Service, Dirty Conditions,
Excessive Usage: More Frequently

Options

Pre-Set Relief
Sulfinert®-Treated Wetted Parts
CE Compliance
CRN Certification
NACE Compliance

The following procedures have been written for use with standard Welker® parts and equipment. Assemblies that have been modified might have additional requirements and specifications that are not listed in this document.

If you received a damaged RV-1 Relief Valve, please contact a Welker® representative immediately.

For all product inquiries, please contact our Service Department:
281.207.1887



SETTING, TESTING, INSTALLATION, AND MAINTENANCE MANUAL

WELKER® RV-1 RELIEF VALVE

IOM-263 | REV. 0 | 02/12/2025



The installation, operation, and maintenance liability for this equipment becomes that of the purchaser at the time of receipt. Reading the instructions that comprise IOM-263 prior to installation and operation of this equipment is required for a full understanding of its application and performance prior to use.



To accurately set and test the RV-1 Relief Valve, a safe gas source, regulator, and pressure gauge are needed.

RV-1: SETTING, TESTING, AND INSTALLATION

Setting the RV-1 Relief Valve

- Connect the regulator to a safe gas source.
- Screw the spring adjuster of the relief valve clockwise to fully close the relief valve.
- Install the relief valve to the regulator.
- Set the regulator to the desired pressure. Then apply auxiliary gas through the regulator to the relief valve.
- Use a hex key to screw the RV-1's spring adjuster counterclockwise until pressure starts to relieve. A hissing sound will be audible.
- Screw the RV-1's spring adjuster clockwise until the hissing sound stops and the relief valve obtains a positive shutoff.

Testing the RV-1 Relief Valve

- Set the regulator to a pressure slightly below the relief valve set point. Then slowly increase the outlet pressure of the regulator until it is slightly higher than the relief valve set point. A hissing sound should be audible.
- Slowly decrease the outlet pressure of the regulator until it is slightly below the relief valve set point. The hissing sound should stop as the relief valve reseats.
- If the relief valve does not begin to relieve pressure or does not reseal, it might be necessary to repeat steps 4–6 to reset the relief valve.
- If the relief valve is to be used with the regulator it was set with, reset the regulator to the desired point.

Installing the RV-1 Relief Valve

- Either wrap the threads of the relief valve with PTFE tape or apply pipe dope to the threads.
- Using a wrench, install the relief valve to the correct port on the instrument it will be relieving.
- Installation is complete and the RV-1 is now operational.

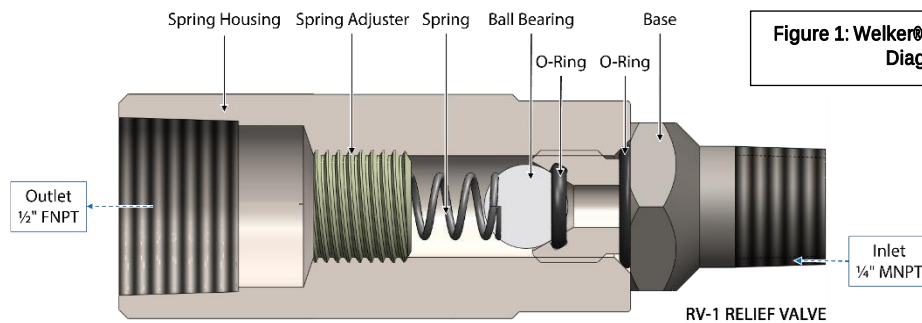


Figure 1: Welker® RV-1 Relief Valve Diagram

RV-1: MAINTENANCE



New seals supplied in spare parts kits should be lightly lubricated before being installed to ease the installation of the seals and reduce the risk of damage when positioning them on parts. Wipe excess lubricant from the seals, because it might adversely affect analytical results.



The ball bearing **MUST** rest on the O-ring (*Figure 1*). If the ball bearing rests on the metal trim, the relief will not seat.



For sample-exposed seals, Welker® recommends non-hydrocarbon-based lubricants such as Krytox®. For non-sample-exposed seals, Welker® recommends lubricants such as Molykote® 111.

- Isolate and depressurize the RV-1 from the supply source.
- Remove the RV-1 from the supply.
- Using a hex key, remove the spring adjuster, spring, and ball bearing.
- Inspect the spring. If the spring is in good condition, it can be reused.
- Inspect the ball bearing for nicks and scratches. Replace as necessary.
- Unscrew the base from the spring housing. Then replace the O-ring on the base.
- Remove and replace the O-ring on which the ball bearing will rest.
- Screw the base into the spring housing.
- Return the ball bearing (see *Caution Note* above) and spring to the spring housing.
- Screw the spring adjuster into the spring body.
- The RV-1 is now ready to be reset and reinstalled.

PRODUCT DESCRIPTION

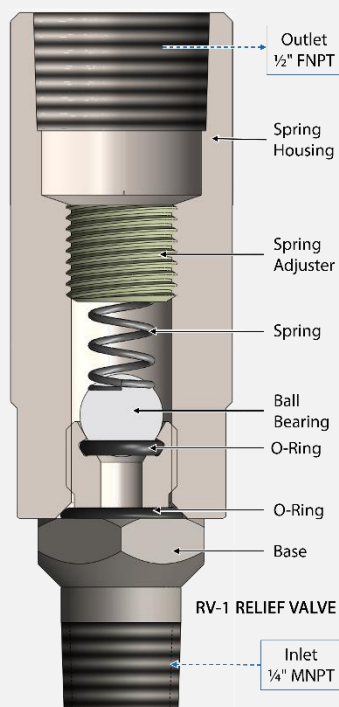
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**Welker® RV-1
Relief Valve Diagram**



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IMPORTANT SAFETY INSTRUCTIONS WELKER® RV-1 RELIEF VALVE IOM-263 | REV. 0 | 02/12/2025

BEFORE YOU BEGIN

Read These Instructions Completely and Carefully



NOTES emphasize information and/or provide additional information to assist the user.



CAUTION messages appear before procedures that could result in damage to equipment if not observed.



WARNING messages appear before procedures that could result in personal injury if not observed.

The instructions that comprise IOM-263 are intended to be used as basic setup and installation guidelines for the Welker® Relief Valve, Model RV-1. The information in IOM-263 has been carefully checked for accuracy and is intended to be used as guidelines for the setup and installation of the Welker® equipment described in IOM-263. Correct setup, installation, and operation, however, are the responsibility of the end user. Welker® reserves the right to make changes to IOM-263 and all products in order to improve performance and reliability.

SAVE INSTRUCTIONS

Save these Safety instructions and the instructions that comprise IOM-263 for local inspectors' use.

OBSERVE

Observe all governing codes and ordinances.

NOTE TO INSTALLER

Leave these Safety instructions and the instructions that comprise IOM-263 with the end user.

NOTE TO END USER

Keep these Safety instructions and the instructions that comprise IOM-263 for future reference.

NATURE OF INSTALLATION

Installation of this relief valve is of a mechanical nature.

INSTALLATION RESPONSIBILITY

Proper installation is the responsibility of the installer. Product failure due to improper installation is not covered under the warranty.



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