

PRODUCT DESCRIPTION

- The Welker® F-4 Filter Dryer is designed to filter and dry natural gas to prepare it for use as an instrument supply.
- As gas flows through the F-4, water, aerosols, odorant, and liquid hydrocarbons are removed by the filter media.
- The clean, dry gas is now ready for use by downstream pneumatic controllers or other instruments.

SPECIFICATIONS

Products Sampled

Natural Gas and Instrument Air

Materials of Construction

Carbon Steel, NBR, and PTFE

Others Available

Maximum Allowable Operating Pressure

1500 psig (103.42 barg) @ -20 °F to 120 °F
(-28.8 °C to 48.8 °C)

High-Pressure Models Available

Connections

¼" FNPT (Standard)

Others Available

Flow Rate

Up to 50 scfm

Nominal Filter Rating

3 Micron

Substances & Combinations Filtered

- Water
- Mercaptan
- H₂S (Wet Gas)
- Particles Up to 4 microns
- Water, Liquid Hydrocarbons, Mercaptan
- Water, Mercaptan, Elemental Sulfur, H₂S
- Mercaptan, Elemental Sulfur, H₂S
- Moisture, Volatile Organic Compounds (VOCs), Odors
- Moisture, VOCs, Odors, Mercaptan, Elemental Sulfur, H₂S

Others Available

Options

Bypass

Drain Valve

Heavy-Duty Filter Cartridge

Moisture Indicator

Regulator With Gauge and Relief

CE Compliance

CRN Alberta Certification

Maintenance Schedule

Welker® recommends that the unit have standard maintenance every six (6) months under normal operating conditions. In cases of severe service, dirty conditions, excessive usage, or other unique applications that might lead to excess wear on the unit, a more frequent maintenance schedule might be appropriate.

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 not listed in this document.

If you received a damaged F-4 Filter Dryer, please contact a Welker® representative immediately.

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



INSTALLATION, OPERATION, AND MAINTENANCE MANUAL

WELKER® F-4 FILTER DRYER

IOM-284 | REV. 0 | 08/05/2025



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-284 prior to installation and operation of this equipment is required for a full understanding of its application and performance prior to use.

F-4: INSTALLATION AND OPERATION



Welker® recommends installing a Welker® NV-1 Instrument Valve to the drain port to ease draining and safe depressurization of the F-4 Filter Dryer.

1. As necessary, mount the F-4 vertically to the desired location.
2. As necessary, either plug the drain port or install a valve to the drain port (*Figure 2*).
3. As necessary, connect from the drain valve to a safe and environmentally responsible drainage location.
4. Using customer-supplied tubing, connect from the pneumatic supply source to the F-4 inlet (*Figure 2*).
5. Using customer-supplied tubing, connect from the F-4 outlet (*Figure 2*) to the instrument to be supplied with the filtered natural gas or instrument air.
6. SLOWLY open the outlet valve on the pneumatic supply source. Check for leaks and repair or replace as necessary.
7. If a valve is installed between the F-4 and the instrument to be supplied with the filtered natural gas or instrument air, open that valve to allow the pneumatic supply to reach the instrument.
8. The F-4 is now operational.

F-4: MAINTENANCE

1. Drain the F-4 frequently to determine how quickly condensation or free liquids accumulate in the F-4.
2. Isolate the F-4. If the F-4 is not equipped with the optional bypass, close the bypass valve on the pneumatic supply source and shut down any instrumentation connected to the F-4. If the F-4 is equipped with the optional bypass, open the bypass valve. Then close the F-4 inlet and outlet valves (*Figure 2*).
3. Drain the F-4 to vent pressure remaining in the body (*Figure 1*). See **Caution Notes*** below.
4. Unscrew the body from the top cap.
5. Unscrew the filter cartridge from the top cap.
6. The optional moisture indicator needs to be replaced if it has changed color from blue to pink. From the top of the top cap push the moisture indicator out. Then install a new moisture indicator along with a new O-ring.
7. If necessary, replace the O-rings in the top cap.

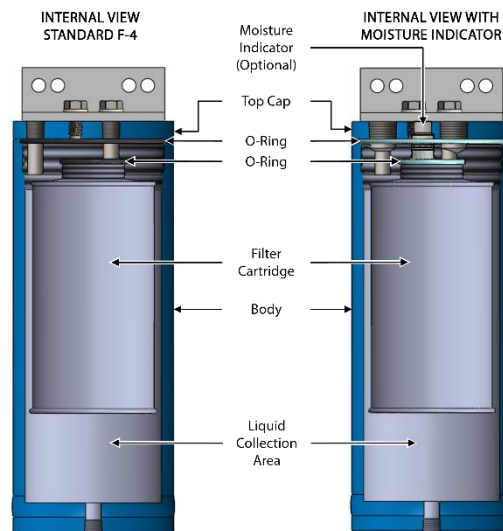


Figure 1: Welker® F-4 Filter Dryer – Internal Front View



*The standard filter cartridge is **NOT** designed for high-volume reverse flow. Care should thus be taken to protect the filter cartridge during depressurization. Welker® recommends **SLOWLY** opening the drain valve a **quarter turn**, waiting approximately 5 seconds, then **SLOWLY** opening the drain valve **completely** until the F-4 is depressurized.



*Failure to **SLOWLY** depressurize the F-4 is strongly likely to result in the loss of filter media from the filter cartridge.



New seals should be **LIGHTLY** lubricated beforehand to ease their installation and reduce damage risk when positioning them on parts. Wipe excess lubricant from the seals, because it might adversely affect analytical results. For sample-exposed seals, Welker® recommends non-hydrocarbon-based lubricants, such as Krytox®. For non-sample-exposed seals, Welker® recommends either non-hydrocarbon-based lubricants or silicone-based lubricants, such as Molykote® 111.

8. Install the replacement filter cartridge to the top cap (*Figure 1*).
9. Apply a small amount of anti-galling compound or thread lubricant to the top cap threads. For use with the F-4, Welker® recommends Never-Seez® or an equivalent anti-galling compound.
10. Fully screw the body onto the top cap.
11. Maintenance is now complete.

Table 1: F-4 Filter Dryer Troubleshooting Guidelines		
Issue	Possible Cause	Solution
Supply pressure from the F-4 has dropped.	The filter is clogged or filled with liquid.	Drain the F-4 to remove any accumulated free liquids. See <i>Maintenance</i> for instructions on maintaining the F-4.
Filter media was lost from the filter cartridge during depressurization.	The F-4 was depressurized too quickly and/or the reverse flow rate through the filter cartridge was too high during depressurization.	Install a Welker® NV-1 Instrument Valve to the drain port. See Caution Notes* above for further instructions.

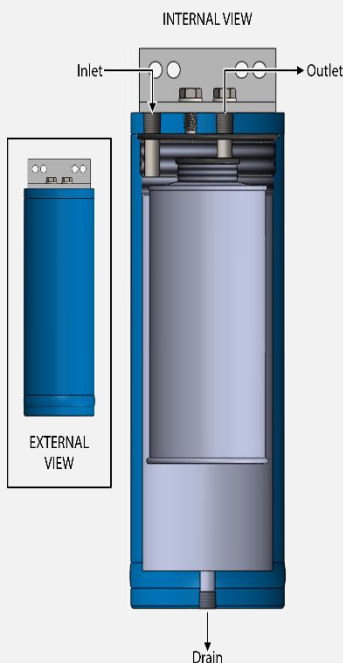
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**Welker® F-4 Filter Dryer:
Figure 2**



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IMPORTANT SAFETY INSTRUCTIONS WELKER® F-4 FILTER DRYER IOM-284 | REV. 0 | 08/05/2025

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-284 are intended to be used as basic setup and installation guidelines for the Welker® Filter Dryer, Model F-4. The information in IOM-284 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-284. Correct setup, installation, and operation, however, are the responsibility of the end user. Welker® reserves the right to make changes to IOM-284 and all products in order to improve performance and reliability.

SAVE INSTRUCTIONS

Save these Safety instructions and the instructions that comprise IOM-284 for local inspectors' use.

OBSERVE

Observe all governing codes and ordinances.

NOTE TO INSTALLER

Leave these Safety instructions and the instructions that comprise IOM-284 with the end user.

NOTE TO END USER

Keep these Safety instructions and the instructions that comprise IOM-284 for future reference.

NATURE OF INSTALLATION

Installation of this F-4 Filter Dryer 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.

