

**Installation,
Operation,
&
Maintenance
Manual**

**Welker[®] Dehydration Assembly
*Model
DA-1***

The information in this manual has been carefully checked for accuracy and is intended to be used as a guide for the installation, operation, and maintenance of the Welker equipment described above. Correct operating and/or installation techniques, however, are the responsibility of the end user. Welker reserves the right to make changes to this and all products in order to improve performance and reliability.

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INTRODUCTION

1. GENERAL

1.1 Introduction

We appreciate your business and your choice of Welker products. The installation, operation, and maintenance liability for this product becomes that of the purchaser at the time of receipt. Reading the applicable *Installation, Operation, and Maintenance (IOM) Manual* prior to installation and operation of this equipment is required for a full understanding of its application and performance prior to use. If you have any questions, please call 1-800-776-7267 in the USA or 1-281-491-2331.

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

Notes, Warnings, and Cautions



NOTE

Notes emphasize information or set it off from the surrounding text.



CAUTION

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



WARNING

Warnings alert users to a specific procedure or practice that, if not followed correctly, could cause personal injury.

1.2 Product description

The Welker[®] Dehydration Assembly is designed for filtering, drying, and regulating natural gas or instrument air in order to prepare it for use as an instrument supply. The assembly utilizes instrument regulators to reduce the pressure of the product as it enters instrumentation. Two Welker[®] F-5 filter/dryers are incorporated to remove the unwanted elements from the instrument supply. One filter is designated for operation, while the other one serves as a backup. When the primary filter in operation needs maintenance, the backup filter is automatically placed into operation and maintenance can be performed without interrupting operation.

Adjustable Relief Valve

The adjustable relief valve functions as a safety device for the assembly. During continuous operation, the relief valve assures that the DA-1 maintains a constant outlet pressure and does not exceed the maximum allowable pressure for downstream instruments. The valve will relieve any pressure that exceeds the set pressure.

SPECIFICATIONS

N NOTE

The specifications listed in this section are generalized for this equipment. Welker can modify the equipment according to your company's needs. However, please note that **the specifications may vary depending on the customization of your product.**

Specifications	
Products	Natural gas and instrument air supply systems
Materials of Construction	316 Stainless Steel, Brass, Carbon Steel, Viton [®] (others available)
Outlet Connection	1/4" FNPT (others available)
Inlet Connection	1/4" FNPT (others available)
Relief Valve Outlet Connection (Optional)	1/2"-20 UNF (1/4" NPT available)
Maximum Allowable Operating Pressure	1,500 psi @ -20° F to 100 ° F (106 bar @ -29° C to 37° C) (600 ANSI)
Flow Rates	40-50 cfm
Filter Media	Silica gel and activated charcoal (standard)
Final Filtration	4 micron
Maximum Allowable Operating Temperature	200° F @ 1,240 psi (93° C @ 83 bar)

SPECIFICATIONS

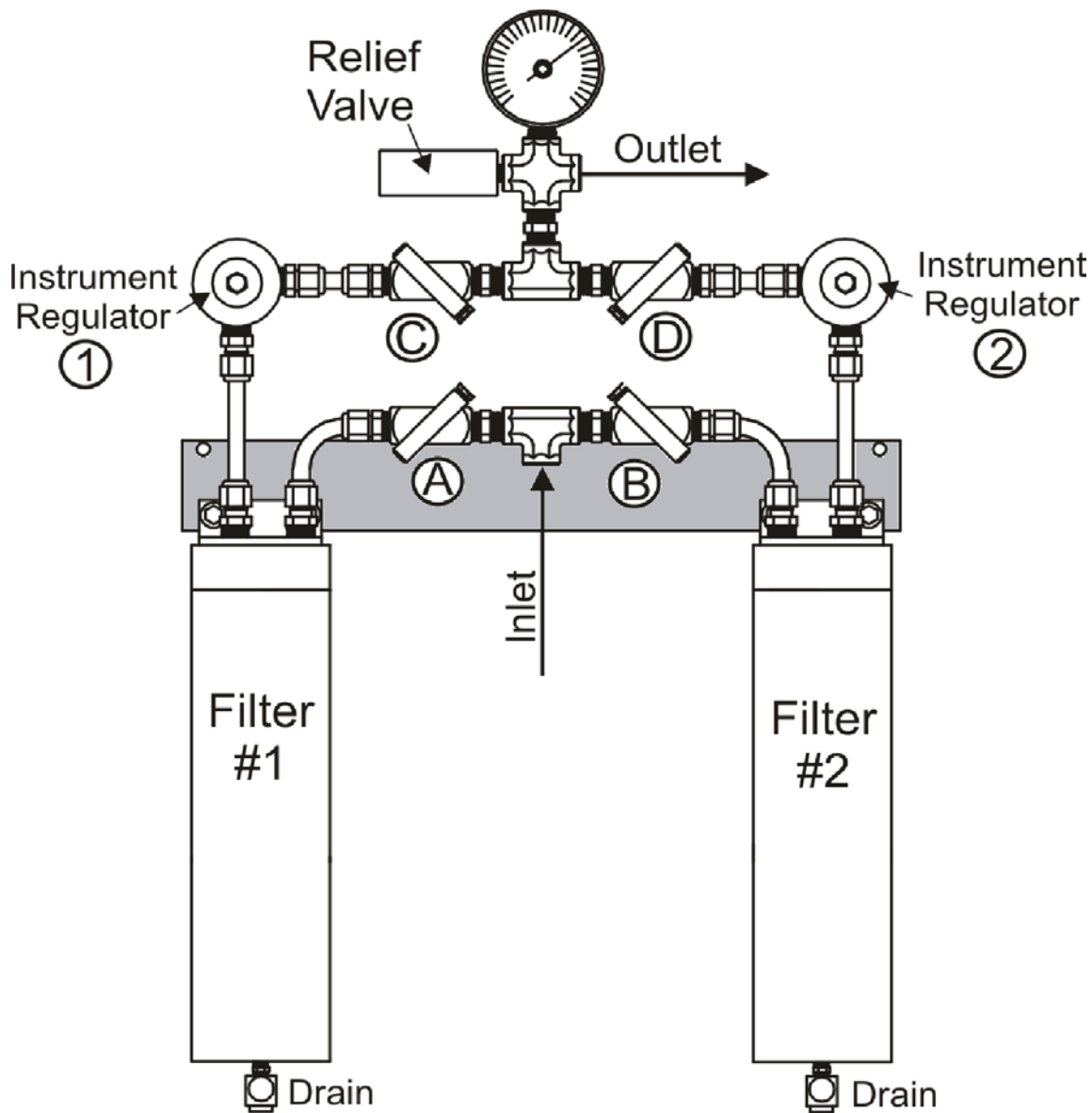


Figure 1

Refer to this figure throughout the installation, operation, and maintenance instructions.

INSTALLATION & OPERATION

2. INSTALLATION & OPERATION INSTRUCTIONS

2.1 General

After unpacking the unit, check it for compliance and for any damages that may have occurred during shipment.

N NOTE

Claims for damages caused during shipping must be initiated by the receiver and directed to the shipping carrier. Welker is not responsible for any damages caused from mishandling by the shipping company.

N NOTE

When sealing fittings with PTFE tape, refer to the proper sealing instructions for the tape used.

Recommended Tools

It would be advisable to have the following tools available for installation of the unit. However, tools used will vary depending on model.

- $\frac{3}{8}$ " stainless steel tubing or high-pressure stainless steel braided hose rated for 1440 psi
- Tubing cutters
- 6" adjustable wrench (2)

2.2 Instructions

N NOTE

The following instructions are written assuming that filter #1 will be the primary operating filter and filter #2 will be the backup.

- 2.2.1 Mount the DA-1 assembly securely to a pipe stand or other mounting surface.
- 2.2.2 Close all valves (*A, B, C, and D of Figure 1*) on the assembly.
- 2.2.3 Tube from the pressurized supply source to the inlet connection of the assembly.

N NOTE

Typically, there will be a valve on a tapped connection on the pipeline. If such a valve does not exist, either a hot tap procedure or a blow-down procedure may be required for installation. Consult company policy for these procedures.

- 2.2.4 Tube from the assembly outlet to the instrument's inlet port connection.

N NOTE

A relief valve and gauge are installed on the outlet of the assembly (see Figure 1).

- 2.2.5 Slowly open the supply source valve on the pipeline.

INSTALLATION & OPERATION

- 2.2.6 Check for leaks on tubing connections.
- 2.2.7 Open inlet valves A and B. Check for leaks.
- 2.2.8 Open outlet valve C. Make sure outlet valve D is closed.
- 2.2.9 The DA-1 assembly regulators leave the factory with a '0' psi pressure setting. Determine the desired output pressure for the downstream instrument.
- 2.2.10 Set instrument regulator #1 to the desired output pressure by tightening the adjusting screw (see Figure 2) until the gauge reads the desired outlet pressure.
- 2.2.11 Tighten the nut on the adjusting screw to secure it into place.

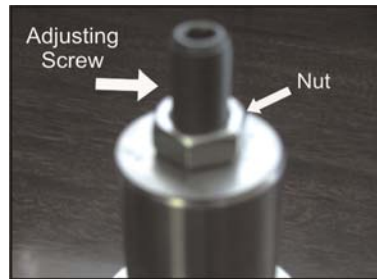


Figure 2

- 2.2.12 Set the relief valve 5-10 psi above the instrument regulator's pressure setting (*refer to corresponding relief valve manual*).
- 2.2.13 Close valve C.
- 2.2.14 Loosen the tubing cap fitting connected to the downstream instrumentation tubing and vent the downstream pressure to atmosphere.
- 2.2.15 Retighten fitting.
- 2.2.16 Open valve D.
- 2.2.17 Set instrument regulator #2 to 5-10 psi below the desired output pressure of filter #1 as determined in steps 9 and 10 of this section.

N NOTE

Setting regulator #2 to a lower pressure than regulator #1 assures that instrument supply will flow only to the output from filter assembly #1 until the filter needs replacement or maintenance.

- 2.1.18 Open valve C.
- 2.1.19 Make sure all valves (A, B, C, and D) are open. The system is now in operation.

MAINTENANCE

3. MAINTENANCE INSTRUCTIONS

3.1 General

N NOTE

When the filter cartridge needs replacement, the gauge will read a decreased pressure from the original set pressure, as supply will not be able to flow freely through the primary filter. Maintenance can be performed on a Welker® Dehydration Assembly without interrupting service.

N NOTE

We recommend that the unit have annual maintenance under normal operating conditions. In the case of severe service, dirty conditions, excessive cycling usage, or other unique applications that may subject the equipment to unpredictable circumstances, a more frequent maintenance schedule may be appropriate.

Recommended Tools

It would be advisable to have the following tools available for maintenance of the unit. However, tools used will vary depending on model.

- Small hex key set
- 6" crescent wrench (2)
- Strap wrench or large pipe wrench
(Filter cases are 4.5" [114 mm] in diameter)

3.2 Instructions

N NOTE

The following instructions are written assuming that maintenance will be performed on filter #1. If maintenance will be performed on filter #2, follow the directions correspondingly.

- 3.2.1 Close valves A and C on filter assembly #1. Filter assembly #2 will take over operations at a slightly reduced pressure.
- 3.2.2 Slowly open the drain valve to vent existing pressure from assembly #1.
- 3.2.3 Use a strap wrench to remove the outer body of filter #1.
- 3.2.4 Remove the cartridge inside the filter.
- 3.2.5 Replace the two seals in the top cap, if needed.

MAINTENANCE

N NOTE

New seals supplied in spare parts kits are not lubricated. They should be lightly coated with lubrication grease (silicone grease or other) before they are installed into the equipment. This helps in the installation of the seals while reducing the risk of damage when positioning them on the parts. After the seals are installed, some additional lubrication can be applied.

- 3.2.6 Install a new cartridge into the filter.
- 3.2.7 Apply a light amount of Never-Seeze[®] on the threads.
- 3.2.8 Securely reattach the filter body.
- 3.2.9 Close drain valve #1.
- 3.2.10 Slowly open valve A. Check for leaks.
- 3.2.11 Open valve C. Filter assembly #1 will now recover operations.
- 3.2.12 To perform maintenance on the relief valve or instrument regulators, refer to their corresponding manuals.

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