WELKER

INSTALLATION, OPERATION, AND MAINTENANCE MANUAL

WELKER® DEHYDRATION ASSEMBLY

MODEL
DA-6

DRAWING NUMBER
AD821BE

MANUAL NUMBER
IOM-145

REVISION
Rev. A, 08/14/2024

TABLE OF CONTENTS

IMPORTANT SAFETY INFORMATION
READ ALL INSTRUCTIONS

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.

This manual is intended to be used as a basic installation and operation guide for the Welker® Dehydration Assembly, DA-6. For comprehensive instructions, please refer to the IOM Manuals for each individual component. A list of relevant component IOM Manuals is provided in Appendix A of this manual.

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 in this manual. Correct installation and operation, however, are the responsibility of the end user. Welker® reserves the right to make changes to this manual and all products in order to improve performance and reliability.

BEFORE YOU BEGIN

Read these instructions completely and carefully.

IMPORTANT – Save these instructions for local inspector's use.

IMPORTANT – Observe all governing codes and ordinances.

Note to Installer – Leave these instructions with the end user.

Note to End User – Keep these instructions for future reference.

Installation of this Dehydration Assembly is of a mechanical nature.

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

If you received a damaged Dehydration Assembly, please contact a Welker® representative immediately.

Phone: 281.491.2331
Address: 13839 West Bellfort Street
Sugar Land, TX 77498

SECTION 1: PRODUCT INFORMATION

1.1 Introduction

We appreciate your business and your choice of Welker® products. The installation, operation, and maintenance liability for this equipment becomes that of the purchaser at the time of receipt. Reading the applicable *Installation, Operation, and Maintenance* (IOM) *Manuals* 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 Welker® at 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.*

1.2 Product Description

The Welker® *DA-6* Dehydration Assembly is designed to properly condition natural gas or instrument air for use as a pneumatic instrument supply.

The Welker® MLD-1 Manual Liquid Dump upstream of the Welker® F-5 Filter/Dryer increases liquid removal, which will decrease the frequency of maintenance required for the filter cartridge. Gas flows freely through the MLD-1 to the F-5, but any aerosols or free liquids are separated from the stream as they pass through the internal coalescer. Gravity causes the separated liquids to fall to the bottom of the MLD-1, where they collect until drained by an operator. The gas is further dried and unwanted elements are removed as the gas flows through the F-5.

The optional bypass allows product to continue flowing to downstream equipment in the event the F-5 becomes obstructed and requires maintenance.

Welker® may custom design the DA-6 to suit the particular application and specifications of each customer.

1.3 Specifications

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

Table 1: DA-6 Specifications	
Products Sampled	Natural Gas and Instrument Air
Materials of Construction	Carbon Steel, PTFE, and Viton®
Maximum Allowable Operating Pressure	500 psig @ -20 °F to 120 °F (*103 barg @ -28 °C to 48 °C*)
Connections	**Drains:** ¼" FNPT **Inlet:** ¼" FNPT **Outlet:** ¼" FNPT
Nominal Filter Rating	3 Micron
Filter Media	Silica Gel and Sulfur-Gon™
Features	Welker® F-5 Filter/Dryer Welker® MLD-1 Manual Liquid Dump
Options	System Bypass

1.4 Equipment Diagrams

Figure 1: DA-6 Connections Diagram

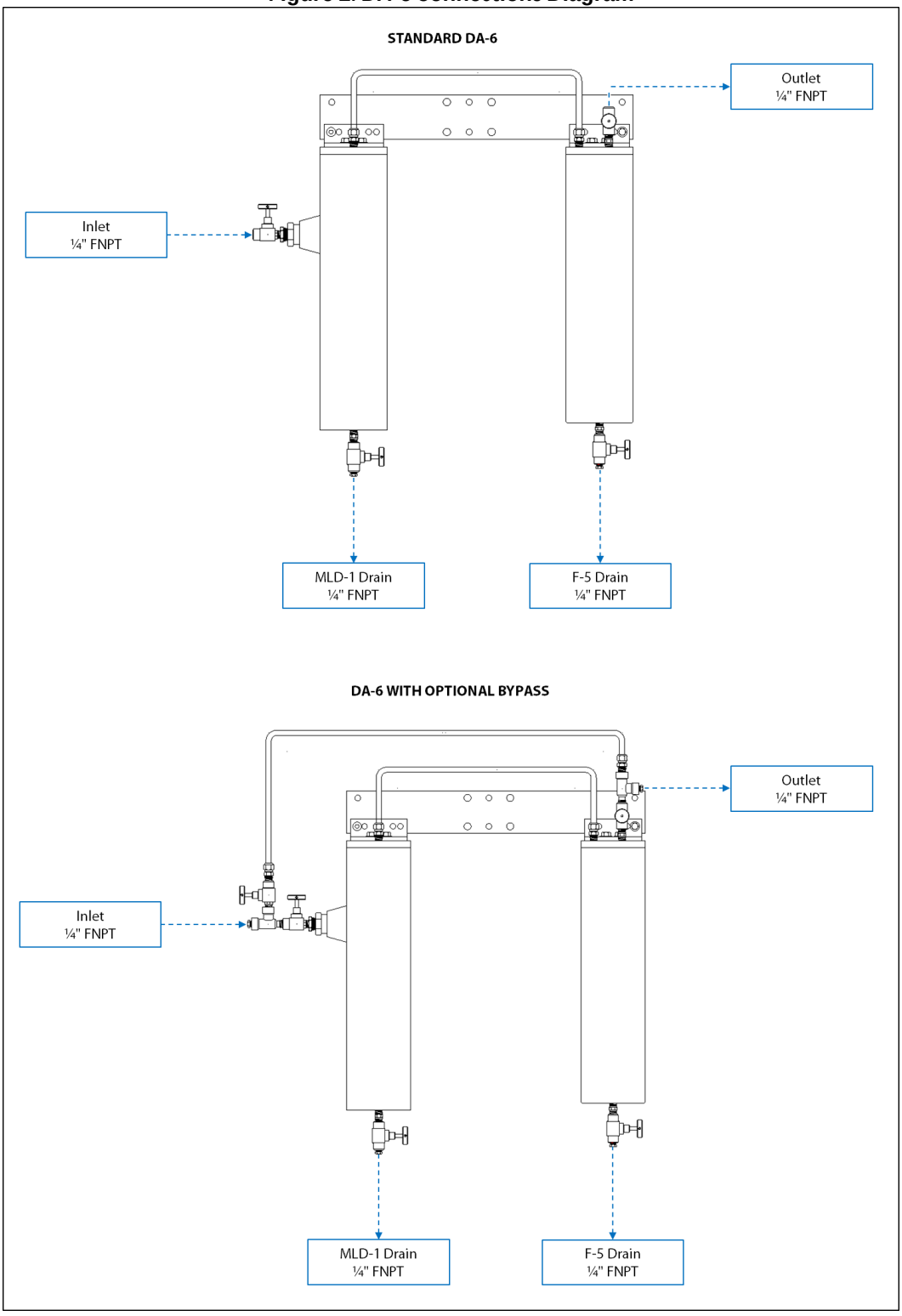
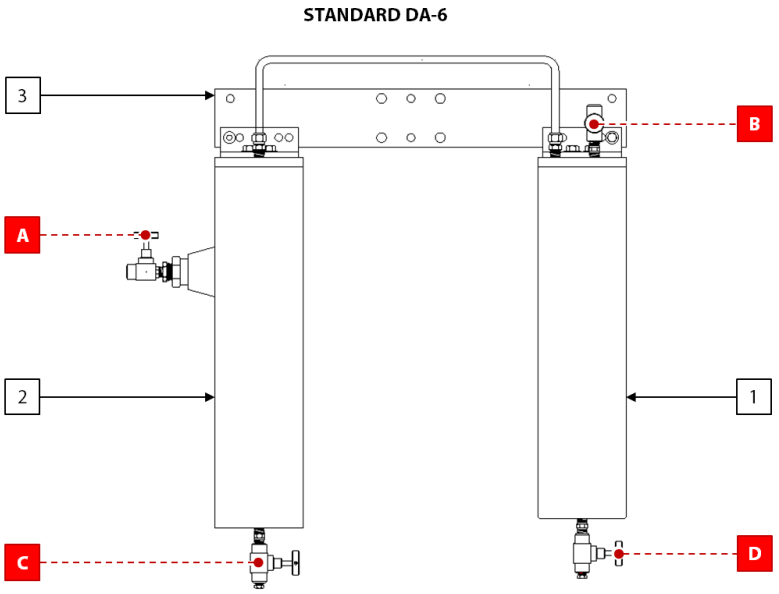
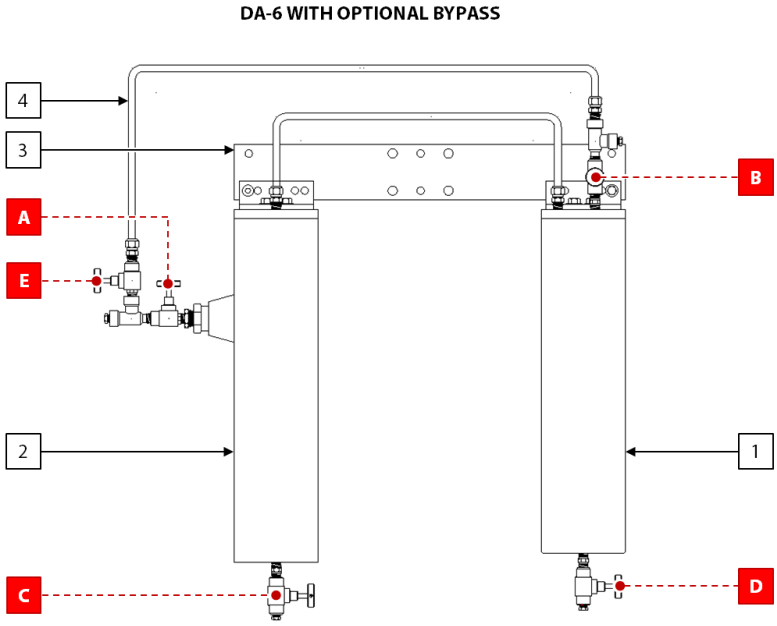


Figure 2: DA-6 Diagram





No..	Description
1	Welker® F-5 Filter/Dryer
2	Welker® MLD-1 Manual Liquid Dump
3	Mounting Bracket
4	System Bypass (Optional)
A	Inlet Valve
B	Outlet Valve
C	MLD-1 Drain Valve
D	F-5 Drain Valve
E	Bypass Valve (Optional)

SECTION 2: INSTALLATION & OPERATION

2.1 Before You Begin

After unpacking the unit, check the equipment for compliance and any damage that may have occurred during shipment. Immediately contact a Welker® representative if you received damaged equipment.

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

2.2 Installation and Operation

Welker® recommends installing a pressure gauge upstream.

1. Mount the DA-6 to a wall mount, pipe stand, or other mounting surface.
2. Ensure that all valves on the DA-6 are closed (Figure 2).
3. As necessary, remove the plugs from the valves and/or ports.
4. Connect the inlet of the DA-6 to a pressurized pneumatic supply source (Figure 1).
5. Connect the outlet of the DA-6 to the inlet port of the instrument to be supplied with the conditioned natural gas or instrument air (Figure 1).
6. Open the valve of the pressurized pneumatic supply source to begin supply flow to the DA-6.
7. Open inlet valve A and outlet valve B (Figure 2).
8. If a valve is installed between the DA-6 and the instrument to be supplied with the conditioned natural gas or instrument air, open that valve to allow the pneumatic supply to reach the instrument.
9. The unit is now operational.

If a pressure drop is noticed on a downstream pressure gauge, it may be an indication that the F-5 is not functioning and that the bypass needs to be put into service. Maintenance on the F-5 may be required.

SECTION 3: MAINTENANCE

3.1 Before You Begin

1. **Welker® recommends that the unit have standard yearly maintenance under normal operating conditions.** In cases of severe service, dirty conditions, excessive usage, or other unique applications that may lead to excess wear on the unit, a more frequent maintenance schedule may be appropriate.
2. Prior to maintenance or disassembly of the unit, it is advisable to have a repair kit available for repairs of the system in case of unexpected wear or faulty seals.

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, as it may adversely affect analytical instrument 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.

After the seals are installed, the outer diameter of shafts and inner diameter of cylinders may be lubricated to allow smooth transition of parts.

3. All maintenance and cleaning of the unit should be performed on a smooth, clean surface.
   Welker® recommends having the following tools available for maintenance. Please note that the exact tools required may vary by model.
   a. Adjustable Wrench
   b. Seal Pick

3.2 Maintenance

1. Determine how quickly free liquids accumulate in the MLD-1 and the DA-6 by frequently opening MLD-1 drain valve C and F-5 drain valve D (*Figure 2*).

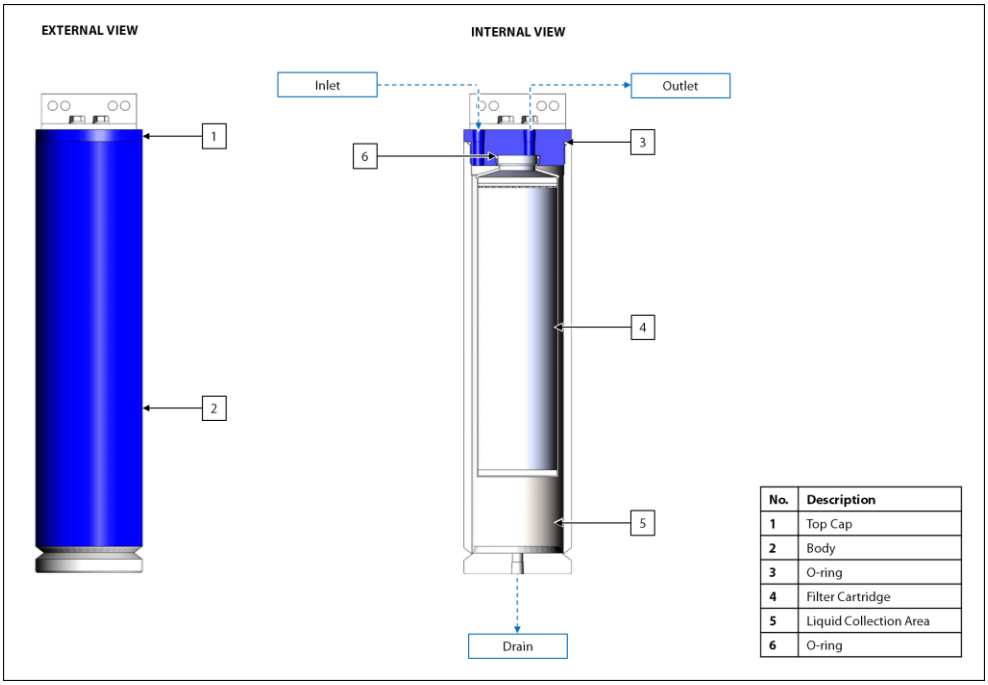
Take the necessary precautions and wear appropriate personal protective equipment (PPE) to protect from potential harm caused by exposure to the unwanted elements filtered from the natural gas stream..

2. To perform complete maintenance on the DA-6, continue to step 3. To perform maintenance on the F-5 while maintaining supply to the instrument by using the optional bypass, proceed to step 16.

Complete Maintenance

3. Halt all operations of the DA-6.
4. Disconnect the customer-supplied tubing or fittings attached to the MLD-1.
5. Close inlet valve A and outlet valve B (*Figure 2*).
6. Open MLD-1 drain valve C to drain any remaining liquids from the MLD-1 (*Figure 2*). To perform maintenance on the MLD-1, refer to the Installation, Operation, and Maintenance (IOM) Manual for the MLD-1.
7. Slowly open F-5 drain valve D to vent any pressure remaining in the filter assembly (*Figure 2*).
8. Unscrew the body of the F-5 from the top cap (*Figure 3*).

Figure 3: Filter Detail



No.	Description
1	Top Cap
2	Body
3	O-ring
4	Filter Cartridge
5	Liquid Collection Area
6	O-ring

9. If necessary, replace the O-rings in the top cap (*Figure 3*).
10. Remove and replace the filter cartridge (*Figure 3*).
11. Apply a small amount of anti-galling compound or thread lubricant to the top cap threads.
12. Screw the body onto the top cap (*Figure 3*).
13. Close F-5 drain valve D (*Figure 2*).
14. Reinstall customer-supplied tubing or fittings to the MLD-1.
15. Open inlet valve A and outlet valve B (*Figure 2*). The DA-6 will now resume normal operation.

Maintenance on F-5 While Maintaining Supply to the Instrument

To maintain supply to the instrument while performing maintenance on the F-5, the bypass must be put into service.

16. Close inlet valve A and outlet valve B (*Figure 2*).
17. Open bypass valve E (*Figure 2*).
18. Slowly open F-5 drain valve D to vent any pressure remaining in the filter assembly (*Figure 2*).
19. Unscrew the body of the F-5 from the top cap (*Figure 3*).
20. If necessary, replace the O-rings in the top cap (*Figure 3*).
21. Remove and replace the filter cartridge (*Figure 3*).
22. Apply a small amount of anti-galling compound or thread lubricant to the top cap threads.
23. Screw the body onto the top cap (*Figure 3*).
24. Close F-5 drain valve D (*Figure 2*).
25. Open inlet valve A and outlet valve B (*Figure 2*).
26. Close bypass valve E (*Figure 2*). The DA-6 will now resume normal operation.

APPENDIX A: REFERENCED OR ATTACHED DOCUMENTS

Welker® *Installation, Operation, and Maintenance* (IOM) *Manuals* suggested for use with this unit:

- IOM-046: Welker® F-4, F-5, F-19, F-23, and F-31 Filters/Dryers
- IOM-160: Welker® MLD-1 Manual Liquid Dump

Other *Installation, Operation, and Maintenance* (IOM) *Manuals* suggested for use with this unit:

- Metso Automation Series 5H & 5HW Value-Line® 1/4" - 2" (DN 6 - 50) 2-Piece High-Pressure Ball Valves (Welker® IOM-V244)

Welker® drawings and schematics suggested for use with this unit:

- Assembly Drawing: AD821BE

NOTES

13839 West Bellfort Street
Sugar Land, TX 77498
Phone: 281.491.2331

welker.com