INSTALLATION, OPERATION, AND MAINTENANCE MANUAL

WELKER® SIGHT FLOW ASSEMBLY

MODEL
SFA

DRAWING NUMBER
AD813BO

MANUAL NUMBER
IOM-187

REVISION
Rev. 0, 4/14/2016

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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® OdorEyes® Sight Flow Assembly, SFA. 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® OdorEyes® 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 Sight Flow 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 Sight Flow 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® OdorEyes® 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® OdorEyes® *SFA* Sight Flow Assembly is designed to be used in conjunction with an odorant injection system, such as the Welker® OdorEyes® Accu/Line™ Injection System, to provide visual verification of odorant injection.

The SFA is installed to the pipeline and connected to the outlet of the injection system. As the injection system's injection pump strokes, positive flow of odorant from the injection pump to the pipeline can be visually verified by examining the window of the incorporated Welker® SG-4 Sight Glass.

Welker may custom design the SFA to suit the particular application and specifications of each customer.

1.3 Specifications

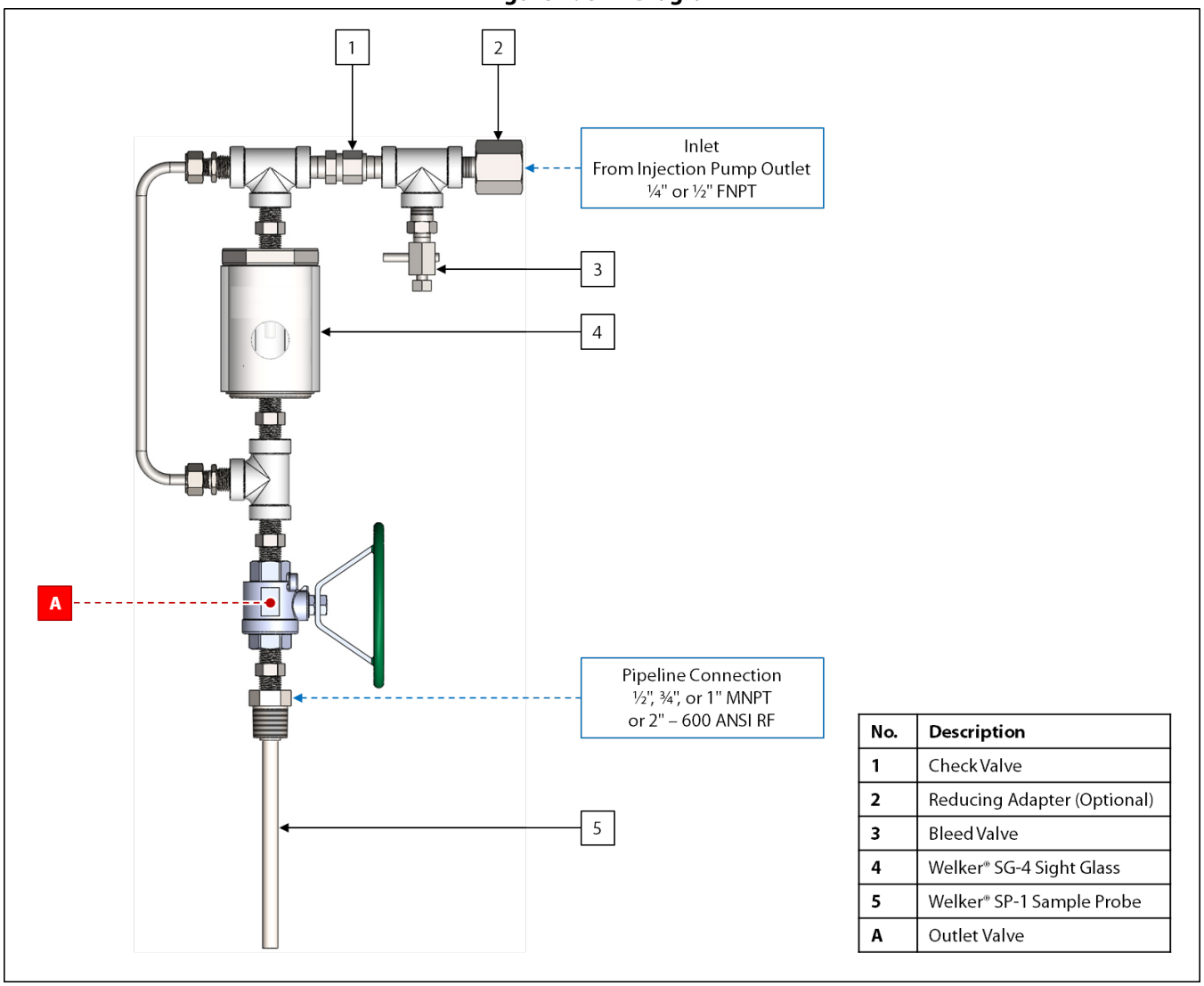
The specifications listed in this section are generalized for this equipment. Welker can modify the equipment according to your company's needs. **Please note that the specifications may vary depending on the customizations of your equipment.**

Table 1: SFA Specifications

Application	Visual Verification of Liquid Chemical Injection	
Products	Liquids Compatible With the Materials of Construction	
Materials of Construction	316/316L Stainless Steel, Glass, Plexiglass, PTFE, and Viton®	
Maximum Allowable Operating Pressure	2000 psig @ -20 °F to 120 °F (*137 barg @ -28 °C to 48 °C*) Others Available	
Inlet Connection	¼" FNPT (Standard) ½" FNPT	
Pipeline Connection	**NPT** **Size:** ½", ¾", or 1" MNPT	**Flanged** **Size:** 2" **Rating:** 600 ANSI
Features	Bleed Valve Check Valve Welker® SG-4 Sight Glass Welker® SP-1 Sample Probe	
Option	Reducing Adapter at Inlet	

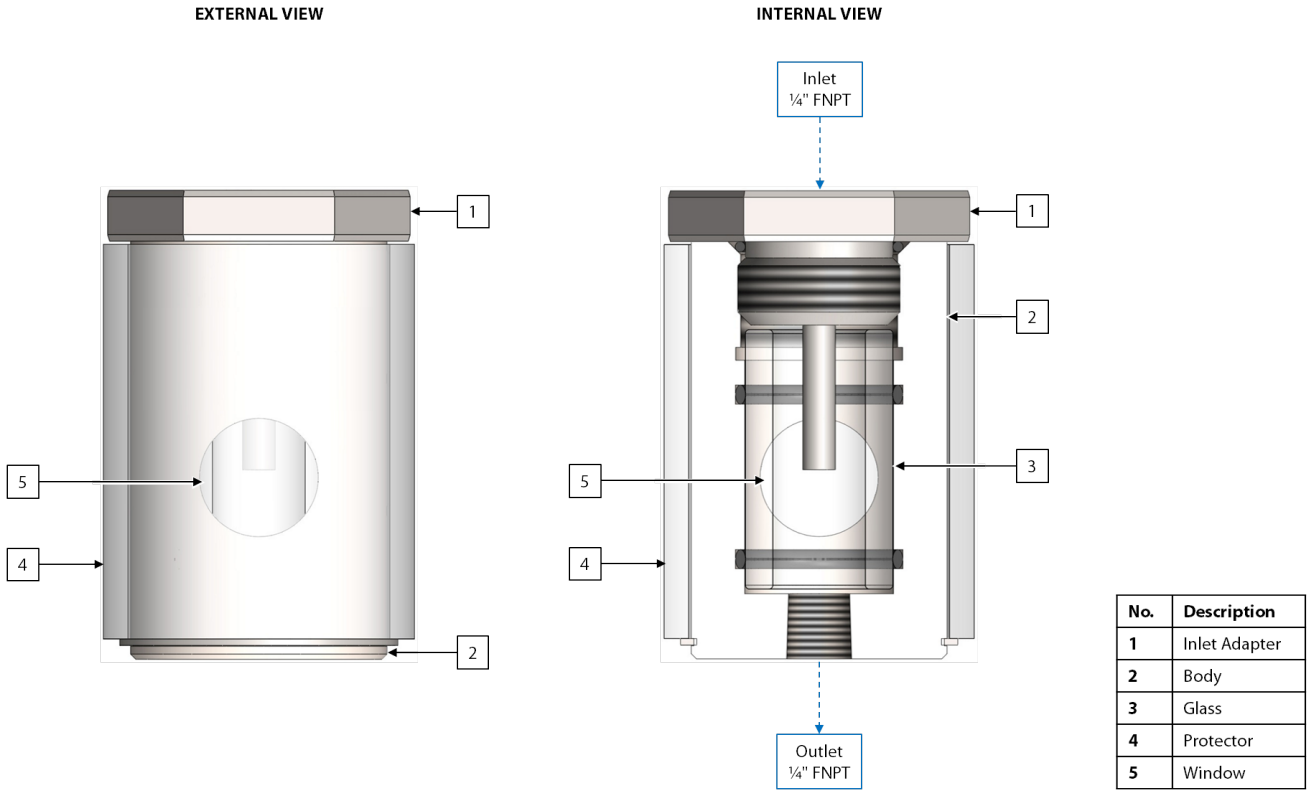
1.4 Equipment Diagrams

Figure 1: SFA Diagram



No.	Description
1	Check Valve
2	Reducing Adapter (Optional)
3	Bleed Valve
4	Welker® SG-4 Sight Glass
5	Welker® SP-1 Sample Probe
A	Outlet Valve

Figure 2: Welker® SG-4 Sight Glass



No.	Description
1	Inlet Adapter
2	Body
3	Glass
4	Protector
5	Window

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

1. Depressurize the pipeline.

STOP The pipeline must be depressurized prior to installing and removing the unit.

2. Ensure that outlet valve A is closed (*Figure 1*).
3. As necessary, wrap the threads of the threaded pipeline connection with PTFE tape.
4. Install the SFA to the pipeline.

Welker recommends that the probe be installed in the top of the pipe and inserted into the center one-third (⅓) of the pipeline in a high-velocity area of the flowing stream.

5. Connect from the odorant outlet of the injection system to the inlet of the SFA (*Figure 1*).

Welker recommends installing a valve at the inlet of the SFA so that the SFA can be isolated for maintenance.

6. Pressurize the pipeline and check for leaks.
7. Slowly open the outlet valve on the injection system.

If there is a temperature difference greater than 200 °F (*93 °C*) between the Welker® SG-4 Sight Glass and the liquid product, opening the valve too quickly may cause thermal shock and could damage the glass.

8. If a valve is installed between the injection system and the SFA, slowly open that valve.

If there is a temperature difference greater than 200 °F (*93 °C*) between the Welker® SG-4 Sight Glass and the liquid product, opening the valve too quickly may cause thermal shock and could damage the glass.

9. After the temperature between the SG-4 and the liquid product has equalized, fully open the outlet valve on the injection system.
10. If a valve is installed between the injection system and the SFA, fully open that valve.
11. Using a wrench, slowly open the cap on the bleed valve to bleed any trapped air from the SFA (*Figure 1*).

Take necessary precautions and wear appropriate personal protective equipment (PPE) to protect from potential harm caused by exposure to the injection chemical.

If desired, a small hose may be connected to the bleed valve to collect any chemical that may appear at the bleed valve.

Welker recommends collecting liquid odorant in a container with Welker® OdorEyes® OdorXice™ Plus to prevent the odorant smell from being noticeable. Liquid odorant can also be collected in a container and then burned or otherwise properly disposed of.

12. Once all air has been bled from the SFA, close the bleed valve.
13. Open outlet valve A (*Figure 1*).
14. The SFA is now operational.
15. Visually check the SG-4 to verify chemical flow. The liquid chemical should be visible through the window (*Figure 2*).

3.1 Before You Begin

1. **Maintenance is necessary if a leak occurs.**
2. **Welker recommends that the SG-4 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.
3. 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.

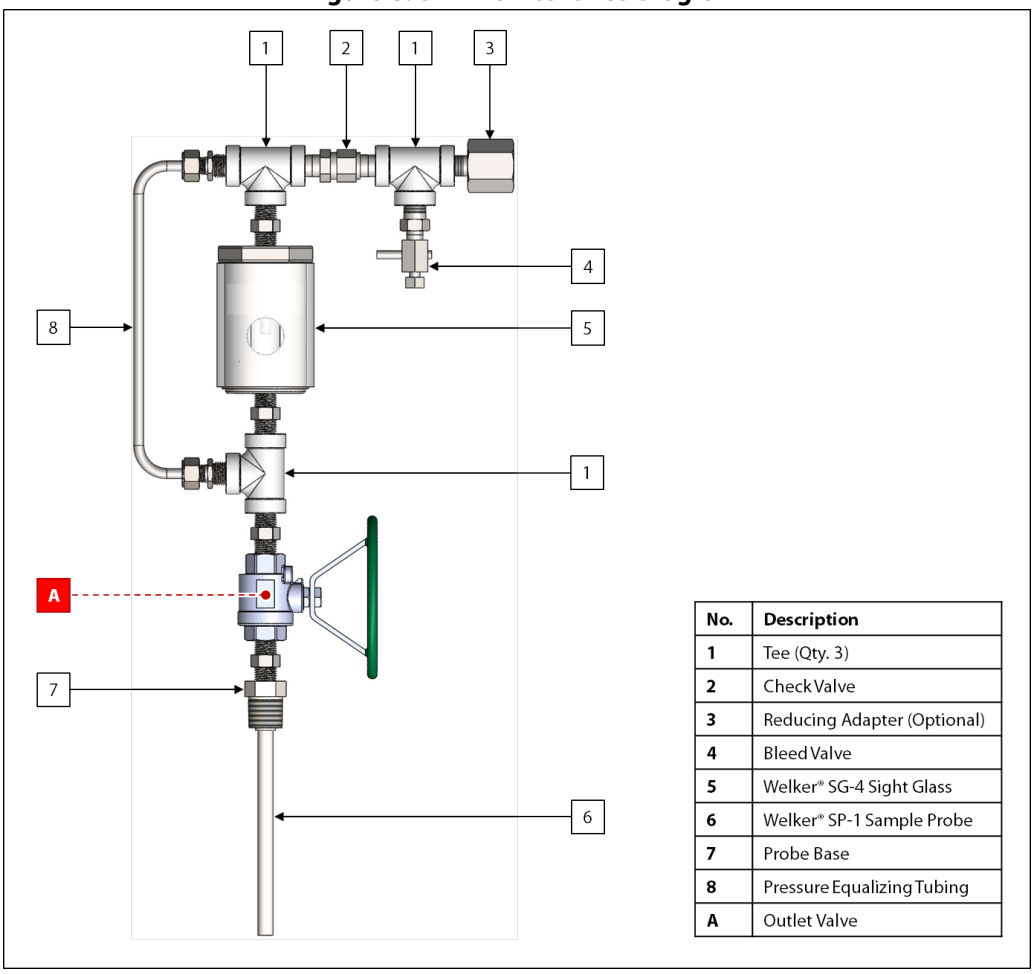
After the seals are installed, the outer diameter of shafts and inner diameter of cylinders may be lubricated to allow smooth transition of parts.

4. All maintenance and cleaning of the unit should be performed on a smooth, clean surface.
5. Welker recommends having the following tools available for maintenance. Please note that the exact tools required may vary by model.
    a. Adjustable Wrench (Qty. 2)
    b. Seal Pick

3.2 Maintenance

Maintenance is needed when a leak occurs.

Figure 3: SFA Maintenance Diagram



No.	Description
1	Tee (Qty. 3)
2	Check Valve
3	Reducing Adapter (Optional)
4	Bleed Valve
5	Welker® SG-4 Sight Glass
6	Welker® SP-1 Sample Probe
7	Probe Base
8	Pressure Equalizing Tubing
A	Outlet Valve

1. Prior to performing maintenance, the SFA must be isolated from pressure. Close the outlet valve on the injection system. If a valve is installed between the injection system and the SFA, close that valve. Close outlet valve A.
2. Disconnect the SFA from the odorant outlet of the injection system.
3. Remove the sight glass assembly from the Welker® SP-1 Sample Probe at outlet valve A.
4. Remove the pressure equalizing tubing connecting the tee at the inlet of the SG-4 to the tee at the outlet of the SG-4.
5. Remove the tee and connected check and bleed valves from the inlet of the SG-4.
6. Remove the tee from the outlet of the SG-4.
7. To perform maintenance on the SG-4, refer to the *Installation, Operation, and Maintenance* (IOM) *Manual* for the SG-4.
8. To perform maintenance on the check valve, refer to the *Installation, Operation, and Maintenance* (IOM) *Manual* for the check valve.
9. To perform maintenance on the bleed valve, refer to the *Installation, Operation, and Maintenance* (IOM) *Manual* for the bleed valve.

10. Return the tee to the top of outlet valve A.
11. Connect the outlet of the SG-4 to the tee on outlet valve A.
12. Install the tee and connected check and bleed valves to the inlet of the SG-4.
13. Using the pressure equalizing tubing, connect the tee at the inlet of the SG-4 to the tee at the outlet of the SG-4.
14. Maintenance is now complete. To return the SFA to operation, see *Section 2.2, Installation and Operation*.

APPENDIX A: REFERENCED OR ATTACHED DOCUMENTS

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

- IOM-035: Welker® SP-1, SP-1W, SP-2, SP-3, and SP-5 Sample Probes
- IOM-094: Welker® SG-4 Sight Glass

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

- Inline Industries, Inc. 2-Piece Full Port Ball Valve 201F (Welker® IOM-V222)
- Swagelok® Bleed Valves and Purge Valves (Welker® IOM-V208)
- Swagelok® Check Valves C, CA, CH, CP, and CPA Series (Welker® IOM-V076)

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

- Assembly Drawing: AD813BO

NOTES

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welker.com