



*Installation, Operation, and
Maintenance Manual*

***Welker[®] Double-Acting MPS Bypass Sampler
Model
MPS-2DA***

***Drawing No.: AD625BP
Manual No.: IOM-141***

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.

This manual is intended to be used as a basic installation and operations guide for the Welker[®] Double-Acting MPS Bypass Sampler, *MPS-2DA*. For comprehensive instructions, please refer to the IOM Manuals for each individual component. A list of relevant component IOM Manuals is given in the Appendix section of this manual.

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Section 1: SPECIFICATIONS

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 (USA) or 1-281-491-2331.

Notes, Cautions, and Warnings



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



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



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

*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 DESCRIPTION OF PRODUCT

The Welker® Double-Acting MPS Bypass Sampler (MPS-2DA) is a positive displacement pump designed to take a representative sample of product at pipeline conditions and pump the sample into a sample container. Welker® recommends that the MPS2 be used as part of a complete sampling system, which might also include a sample probe, an instrument regulator with downstream relief valve and gauge, a 4-way electronic solenoid valve or other actuator, and a constant pressure sample cylinder.

Used singly or as part of a complete sampling system, the MPS will provide the user with an accurate and representative sample of product as presented to the pump.

1.3 SPECIFICATIONS

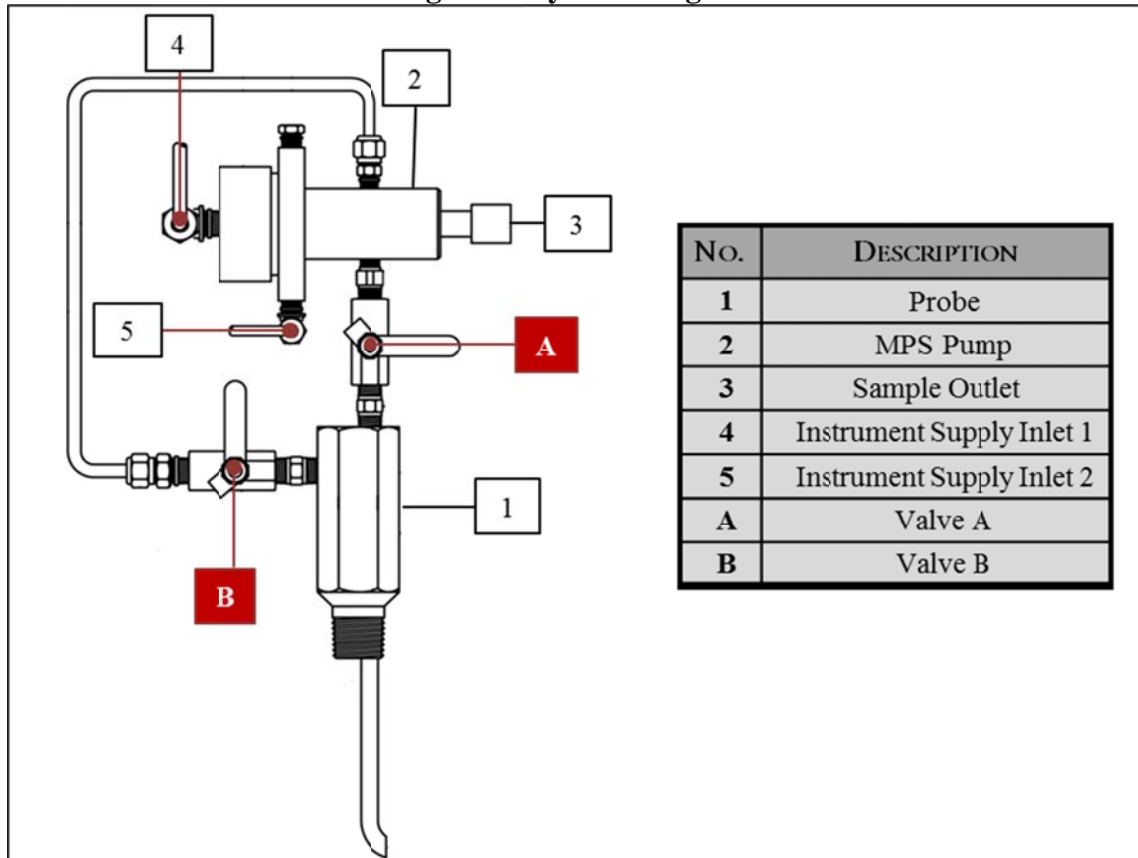


The specifications listed in this section are generalized for this equipment. Welker® can modify the equipment according to your company’s needs. However, **please note that the specifications may vary depending on the customization of your product.**

Table 1: System Specifications	
Products Sampled	Liquids
Materials of Construction	316 Stainless Steel, Viton®, Teflon®
Probe Inlet Connection	1” or ¾” NPT Standard. Others available upon request.
Maximum Allowable Operating Pressure	1440 psi @ -20° to 120°F (99.3 bar @ -29° to 49°C)
Instrument Supply Inlet 1 Connection	¼” NPT Standard Others available upon request.
Instrument Supply Inlet 2 Connection	¼” Tubed Connection Standard Others available upon request.

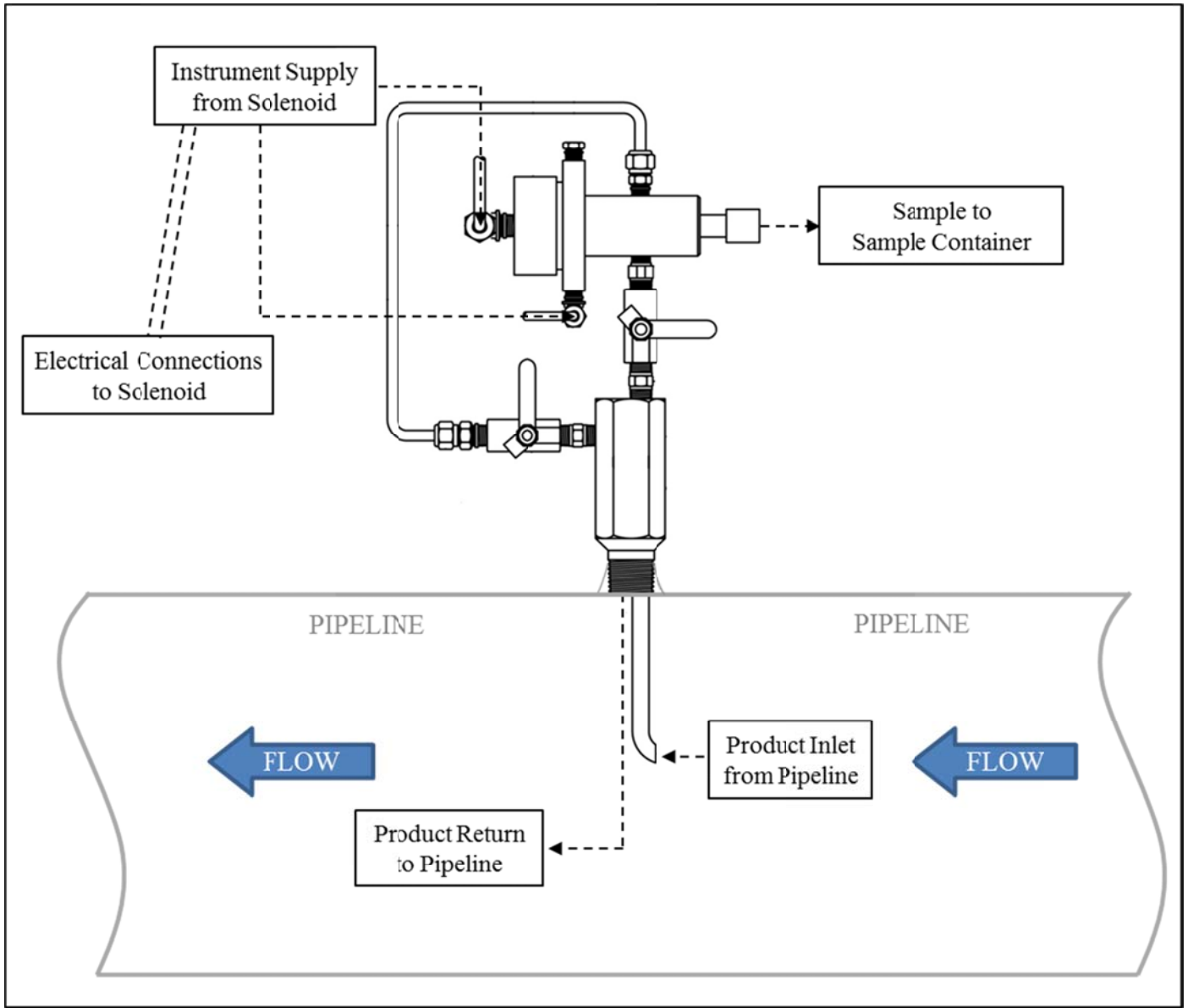
1.4 SYSTEM DIAGRAM

Figure 1: System Diagram



REFER TO *FIGURE 1* AND *DRAWING AD625BP* THROUGHOUT THIS MANUAL.

**Figure 2: Recommended General Arrangement
(Top View- Probe Mounted in Side of Pipeline)**



Section 2:

INSTALLATION & OPERATIONS

2.1 BEFORE YOU BEGIN



After unpacking the unit, check the equipment for compliance and for any damage that may have occurred during shipment. **Claims for damage caused during shipping must be initiated by the receiver and directed to the shipping carrier.** Welker® is not responsible for any damage caused by mishandling by the shipping company.



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

2.2 INSTALLATION

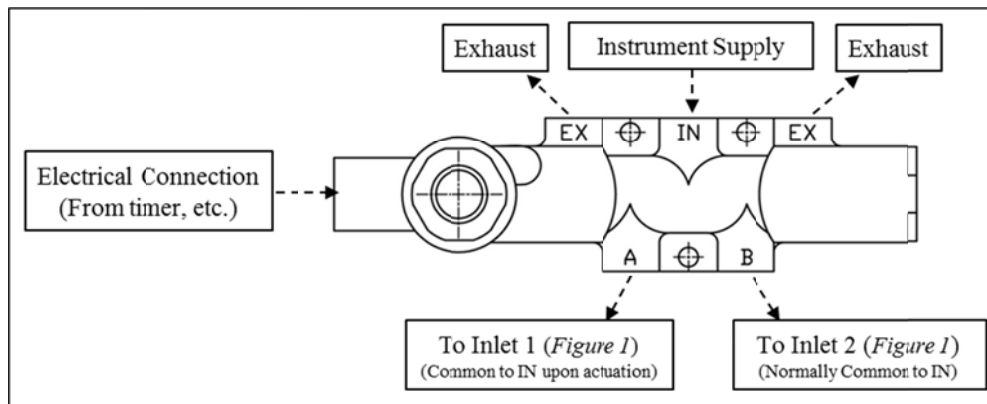
1. Install the sampler onto the pipeline thread-o-let.



Welker® recommends the probe be connected to the side of the pipe and inserted into the center one-third (1/3) of the pipeline in a location where the product is well-mixed and will yield an accurate and representative sample.

2. Connect 1/8" or other small-diameter tubing from the sample outlet port on the sampler to the sample container. The sample container should be located as close to the sampler as possible. Refer to the *Installation, Operation, and Maintenance Manual* for the appropriate sample container for any additional installation instructions.
3. Connect instrument actuator supply (e.g., clean, dry instrument air) to a 4-way solenoid. The instrument supply port of the solenoid should be normally common with solenoid outlet connected to Inlet 2 (*Figure 3*).

Figure 3: Solenoid Connections



4. Connect any necessary electrical devices (e.g., RTU, flow computer, timer, totalizer, etc.) to the 4-way solenoid. Refer to the *Installation, Operation, and Maintenance Manual* for the appropriate electrical device(s) for any additional installation or set-up instructions.

2.3 OPERATIONS

1. Open Valves A and B to begin product flow through the system.
2. Set the instrument supply regulator to approximately 40 psi.
3. Actuate the sampler several times by energizing the solenoid valve.
4. Check all connections carefully for leaks. Ensure that sample enters the sample container upon each actuation. If no leaks are present, the system is now operational.

Section 3: MAINTENANCE

3.1 BEFORE YOU BEGIN

1. **Welker® recommends that the unit have annual 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 are not lubricated. They should be lightly coated with lubrication grease before installation. Welker® recommends silicone grease (DOW CORNING® 111 or an equivalent lubricant) for use with this unit.

3. All maintenance and cleaning of the unit should be done on a smooth, clean surface.

Recommended Tools

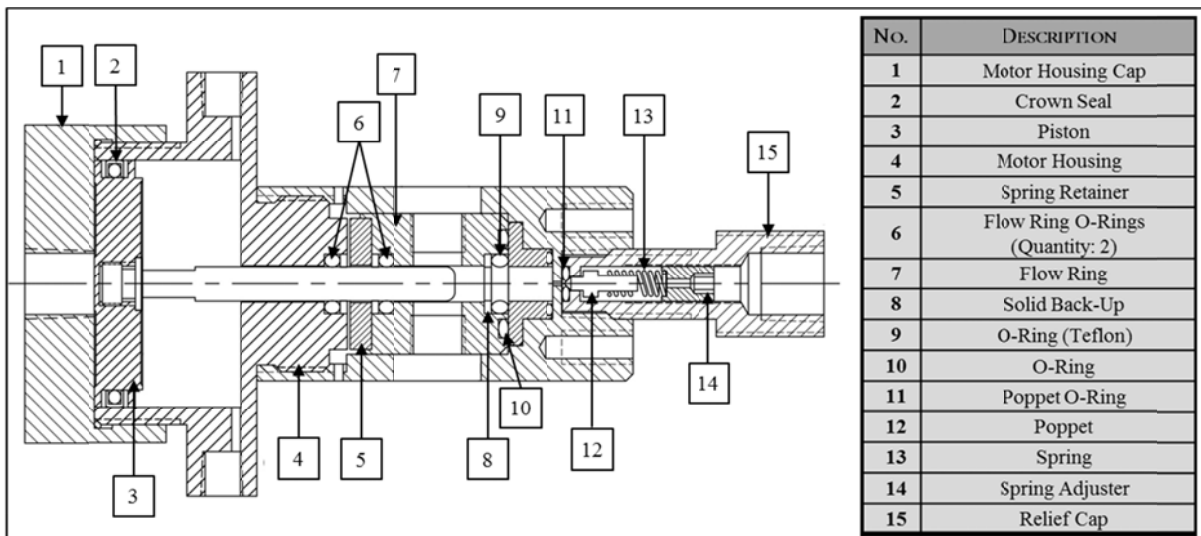
It is advisable to have the following tools available for maintenance of this unit. Tools needed may vary depending on the product model.

- 1/8" Allen wrench
- 6" adjustable crescent wrench
- Small pick, knife or other pointed instrument

3.2 MAINTENANCE (FIGURE 4)

1. Close Valves A and B (Figure 1).
2. Remove the instrument supply and solenoid.
3. Disconnect the sample outlet tubing.
4. Remove the sample pump from the probe.

Figure 4: MPS Sample Pump Maintenance Diagram



5. Unscrew the cap from the motor housing.
6. Remove the piston and spring retainer.
7. Inspect the piston for scratches or abrasions. Replace if the polished surface has been damaged.
8. Remove the flow ring.
9. Replace the O-rings and solid back-up on the flow ring (*Figure 4, Parts 6, 8, 9, & 10*)
10. Remove the relief cap from the body.
11. Unscrew the spring adjuster.
12. Remove the poppet and spring.
13. Inspect the poppet for scratches. Replace as necessary.
14. Clean the relief cap as necessary.
15. Replace the poppet O-ring.
16. Set the poppet, spring, and spring adjuster back into place.
17. Reattach the relief cap to the body.
18. Reinsert the flow ring into the body.
19. Set the piston and spring back into place.
20. Screw the cap back onto the motor housing.
21. Reconnect the sampler to the probe. The system is now ready for reinstallation.

APPENDIX

ATTACHED DOCUMENTS:

Welker[®] *Installation, Operation, and Maintenance* Manuals suggested for use with this unit:

- None

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

- Appropriate Sample Container
- Appropriate Electrical Devices

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

- Assembly Drawing: AD625BP
- Assembly Drawing, MPS Pump Detail: AD625BQ



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