



## *Welker<sup>®</sup> Volume Regulator with Electric Valve Actuator*

### *Model AWL-3 HP*

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 Volume Regulator when used in conjunction with an electrical actuator*. For complete instructions please also refer to the attached IOM Manual provided by the manufacturer of the electric valve.

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# INSTALLATION & OPERATIONS

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## 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.

#### **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 Volume Regulator is designed to take samples of crude oil from a pipeline and regulate the samples to a desired volume. In this model, an electric actuator is used to open a three-way valve to the pipeline, allowing sample to enter the volume regulator. The actuator will then close the valve to the pipeline while opening the sample in the volume regulator to an appropriate container. The spring on the back of the piston inside the volume regulator will ensure the sample is pushed out into the container. The adjuster knob allows the end user to change the desired volume of sample to be collected.

# INSTALLATION & OPERATIONS

## 1.3 SPECIFICATIONS



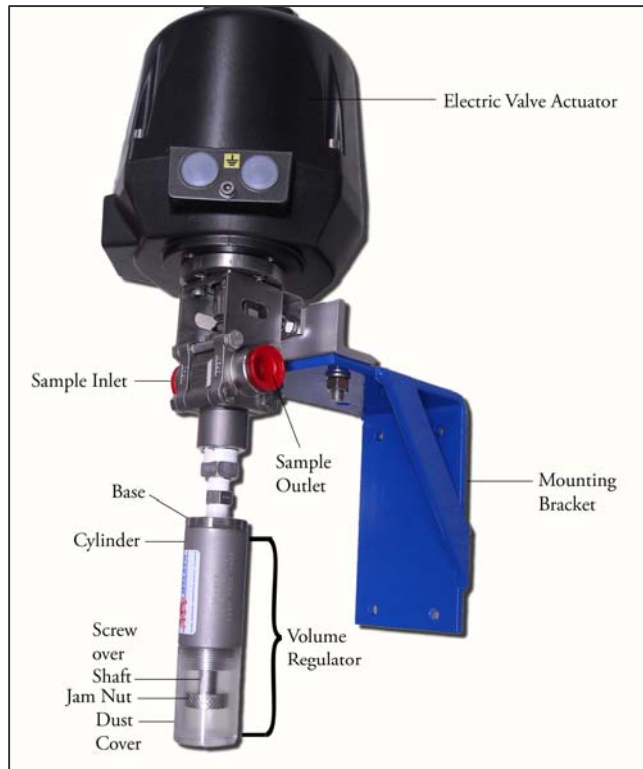
The specifications listed in this section are generalized for this equipment. Welker can modify the equipment according to your company's needs. However, please note that **\*the specifications may vary depending on the customization of your product.**

Table 1

General	
Products	Crude Oil
Materials of Construction	Aluminum, 316 Stainless Steel, Viton <sup>®</sup> and PTFE (others available)
Pipeline Connection	¼" NPT (others available)
Sample Outlet Connection	¼" NPT (others available)
Electrical Connection	See appropriate manufacturer's IOM attached
Maximum Allowable Operating Pressure	2,160 psi @ -20° F to +100° F (148.9 bar @ -29° C to +38° C)

## 1.4 DIAGRAM\*

\*Valve Actuators may vary



# INSTALLATION & OPERATIONS

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## 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.



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.



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

### 2.2 INSTALLATION INSTRUCTIONS

1. Use 3/8" tubing to tube from the sample point to the sample inlet on the electric valve actuator assembly.
2. Use 3/8" tubing to tube from the sample outlet on the electric valve actuator assembly to an appropriate sample container. The tubing should slope down or horizontally, thus do not place the container at a higher point than the volume regulator.
3. Make the appropriate electrical connections from a customer-supplied metering device to the electric valve actuator. (See appropriate manufacturer's IOM attached).
4. The volume measurement is indicated in cubic centimeters (cc) on the body of the adjusting screw. Tighten the adjusting knob (jam nut) on the volume regulator to correspond with the desired volume.

### 2.3 OPERATION INSTRUCTIONS

1. Open the product supply to the unit.
2. Turn on the customer-supplied metering device.
3. Turn on the electric valve actuator. (See appropriate manufacturer's IOM attached).

# MAINTENANCE

## 3. MAINTENANCE

### 3.1 GENERAL

Maintenance should not be necessary unless a leak occurs due to improper or excessive use of the unit. Prior to maintenance or disassembly of the unit, it is advisable to have a repair kit handy for the system in case of unexpected wear or faulty seals.



We recommend 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.

### 3.2 READY THE SYSTEM FOR MAINTENANCE

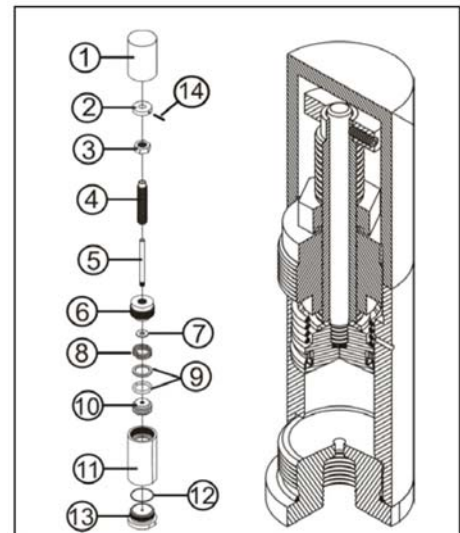
1. Turn off the metering device and the electric actuator.
2. Close the pipeline supply to the unit.
3. Disconnect the electrical connections from the electric actuator. (See appropriate manufacturer's IOM attached).
4. Disconnect tubing to inlet and outlet ports on the actuator.
5. Remove the volume regulator from the actuator, and perform appropriate maintenance procedures to actuator. (See appropriate manufacturer's IOM attached).



New seals supplied in spare parts kits are not lubricated. They should be lightly coated with lubrication grease (Dow Corning 111 [DC 111] or equivalent lubricant) before they are installed into the equipment.

### 3.3 VOLUME REGULATOR MAINTENANCE

1. Remove the clear plastic dust cover (Part 1).
2. Remove the set screw (Part 14) from both the adjusting knob (Part 2) and the adjusting screw (Part 4).
3. Unscrew the jam nut (Part 3) on the adjusting screw.
4. Unscrew and remove the adjusting screw from the top cap (Part 6).
5. Remove the top cap connected to the cylinder (Part 11).
6. Remove the shaft (Part 5), washer (Part 7), spring (Part 8), and piston (Part 10) from the cylinder.
7. Examine the piston and the shaft for scratches. If scratches are present, the parts will need to be replaced.
8. Replace the seals (Part 9) in the piston.
9. Examine the cylinder for scratches.
10. Replace the seal (Part 12) on the base (Part 13).
11. Reinstall the piston, spring, washer and top cap into the cylinder.
12. Reinsert the shaft.
13. Screw the adjusting screw back into the top cap.
14. Screw the jam nut back onto the adjusting screw.
15. Place the knob back on the adjusting screw and reinsert the set screw into both.
16. Replace the dust cover.
17. Reattach the regulator to the solenoid on the assembly.
18. The assembly is now ready for reinstallation.





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