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INSTRUCTION MANUAL

# W-Series Mix Proof Valves

**W71, W72RS, W72RSP, W73 (IN O.D. TUBING SIZES)**

FORM NO.: 95-03087 REVISION: 10/2012

READ AND UNDERSTAND THIS MANUAL PRIOR TO OPERATING OR SERVICING THIS PRODUCT.




Waukesha Cherry-Burrell

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**This manual is also available in an interactive PDF version online at:**
**http://www.spx.com/en/assets/pdf/95-03087_w70mixproofv_wcb.pdf**

**This interactive manual incorporates links to maintenance videos designated by this symbol**


**throughout the maintenance section of the manual, to help you better service your valve.**
**An internet connection is required for the video hyperlinks to be active.**
**If an internet connection is unavailable, please contact your local distributor to have a CD version (request CD-1802) of this manual shipped to you, for use without an internet connection.**

**This enhanced operation and maintenance manual shows you step by step videos on how to maintain your Waukesha Cherry-Burrell product. Creating these new tools shows our commitment to provide you with the most up-to-date maintenance technology available.**



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**Warranty ..... 5**
Shipping Damage or Loss ..... 5
Warranty Claim ..... 5
**Safety ..... 6**
**Care of Stainless Steel ..... 7**
Stainless Steel Corrosion ..... 7
Elastomer Seal Replacement Following Passivation ..... 7
**Introduction ..... 8**
General Information ..... 8
Factory Inspection ..... 8
Models and Specifications ..... 8
Equipment Serial Number ..... 8
Operating Parameters ..... 9
Seal Compatibility ..... 9
Seat Options ..... 10
Pressure Ratings ..... 10
**Installation ..... 11**
Location ..... 11
Welding Instructions ..... 11
Air Supply ..... 11
Flow Direction ..... 11
Fittings ..... 12
Pipeline Support ..... 12
Installing Valve Manifolds ..... 12
Installing the Valve ..... 12
Quality of Control Air to Control Module ..... 13
External Flush - Liquid Vent Cavity ..... 13
Liquid Vent Cavity Only ..... 13
Liquid Vent Cavity and Lower Stem ..... 13
External Flush - Steam Vent Cavity ..... 14
Steam Vent Cavity, Upper and Lower Stem ..... 14
Installation ..... 14
Function ..... 15
**Operation ..... 16**
Solenoid Valve Port Connections ..... 16
Automatic Fail-Safe System ..... 17
Test Procedures ..... 17
Positive Fail-Safe Detection Test ..... 17
Corrective Action ..... 18
Valve Operating Conditions ..... 18
Valve Open ..... 18
Valve Closed ..... 18
Valve Closed, Upper Seat Lifted ..... 19
Valve Closed, Lower Seat Push (for W72RS/W72RSP Series Only) ..... 19
Valve Closed, Lower Seat Lift (for W71/W73 Series valves only) ..... 19
**Maintenance ..... 20**
Maintenance Intervals ..... 20
Inspection ..... 20
Lubrication ..... 20
Cleaning ..... 21
Cleaning-In-Place (CIP) ..... 21
Seat Cleaning Adjustment ..... 22
Lower seat ..... 22
Upper seat ..... 22
Removing Valve from System ..... 23
Disassembly of Valve Stems ..... 24

Adapter Bearings and O-rings ..... 24
Inner O-ring and Bearing Replacement ..... 24
Outer O-ring Replacement ..... 25
Tri Ring Seat Replacement ..... 25
Radial Seat Ring Replacement (for W72RS Lower Stem) ..... 26
Lower Bearing Carrier O-ring and Bearing Replacement ..... 27
Actuator O-ring and Bearing Replacement ..... 28
Removal of O-rings and Bearings, Non-Seat Lifting Actuators ..... 28
Removal of O-rings and Bearings, Seat Lifting Actuators ..... 29
Installation of Piston and Spring Assembly Using Insertion Sleeve for W71/W73 4" Diameter Actuators ..... 30
Reassembly of Valve Stems ..... 31
Upper Stem Assembly ..... 31
Lower Stem Assembly ..... 31
**Parts Lists ..... 32**
W71 Mix Proof Non-Seat Lift Valve ..... 32
W71 Mix Proof Non-Seat Lift Valve with External Flush ..... 34
W71 Mix Proof Non-Seat Lift Valve with Steam Adapter ..... 36
W71 Mix Proof Seat Lift Valve ..... 38
W71 Mix Proof Seat Lift Valve with External Flush ..... 40
W71 Mix Proof Seat Lift Valve with Steam Adapter ..... 42
W72RS Mix Proof Non-Seat Lift Valve ..... 44
W72RS Mix Proof Non-Seat Lift Valve with External Flush ..... 46
W72RS Mix Proof Non-Seat Lift Valve with Steam Adapter ..... 48
W72RS Mix Proof Seat Lift Valve ..... 50
W72RS Mix Proof Seat Lift Valve with External Flush ..... 52
W72RS Mix Proof Seat Lift Valve with Steam Adapter ..... 54
W72RS Mix Proof Seat Lift Valve with Upper Balancer Option ..... 56
W72RS Mix Proof Seat Lift Tank Outlet Valve ..... 58
W72RS Mix Proof Seat Lift Tank Outlet Valve with External Flush ..... 60
W72RSP Mix Proof Seat Lift Valve ..... 62
W72RSP Mix Proof Seat Lift Valve with External Flush ..... 64
W73 Divert Mix Proof Seat Lift Valve ..... 66
W73 Divert Mix Proof Seat Lift Valve with External Flush ..... 68
W71 Valve Stems ..... 70
W72RS Valve Stems ..... 71
W72RSP Valve Stems ..... 72
W73 Valve Stems ..... 73
Mix Proof Valve Bodies for W71, W72RS, W72RSP, and W73 Valves ..... 74
W71/W73 Non-Seat Lift Actuator ..... 76
W71/W73 Seat Lift Actuator ..... 78
W72RS Non Seat Lift Actuator ..... 80
W72RS/W72RSP Seat Lift Actuator ..... 82
**Installation Tools ..... 84**
**Troubleshooting ..... 86**

# Warranty

Seller warrants its products to be free from defect in materials and workmanship for a period of one (1) year from the date of shipment. This warranty shall not apply to products which require repair or replacement due to normal wear and tear or to products which are subjected to accident, misuse or improper maintenance. This warranty extends only to the original Buyer. Products manufactured by others but furnished by Seller are exempted from this warranty and are limited to the original manufacturer's warranty.

Seller's sole obligation under this warranty shall be to repair or replace any products that Seller determines, in its discretion, to be defective. Seller reserves the right either to inspect the products in the field or to request their prepaid return to Seller. Seller shall not be responsible for any transportation charges, duty, taxes, freight, labor or other costs. The cost of removing and/or installing products which have been repaired or replaced shall be at Buyer's expense.

Seller expressly disclaims all other warranties, express or implied, including without limitation any warranty of merchantability of fitness for a particular purpose. The foregoing sets forth Seller's entire and exclusive liability, and Buyer's exclusive and sole remedy, for any claim of damages in connection with the sale of products. In no event shall Seller be liable for any special consequential incidental or indirect damages (including without limitation attorney's fees and expenses), nor shall Seller be liable for any loss of profit or material arising out of or relating to the sale or operation of the products based on contract, tort (including negligence), strict liability or otherwise.

## Shipping Damage or Loss

If equipment is damaged or lost in transit, file a claim at once with the delivering carrier. The carrier has signed the Bill of Lading acknowledging that the shipment has been received from SPX Flow Technology in good condition. SPX Flow Technology is not responsible for the collection of claims or replacement of materials due to transit shortages or damages.

## Warranty Claim

Warranty claims must have a **Returned Goods Authorization (RGA)** from the Seller before returns will be accepted.

Claims for shortages or other errors, exclusive of transit shortages or damages, must be made in writing to Seller within ten (10) days after delivery. Failure to give such notice shall constitute acceptance and waiver of all such claims by Buyer.

# Safety

## READ AND UNDERSTAND THIS MANUAL PRIOR TO INSTALLING, OPERATING, OR SERVICING THIS EQUIPMENT

Waukesha Cherry-Burrell recommends users of our equipment and designs follow the latest Industrial Safety Standards. At a minimum, these should include the industrial safety requirements established by:

1. Occupational Safety and Health Administration (OSHA), Title 29 of the CFR
   Section 1910.212- General Requirements for all Machines
2. National Fire Protection Association, ANSI/NFPA 79
   ANSI/NFPA 79- Electrical Standards for Industrial Machinery
3. National Electrical Code, ANSI/NFPA 70
   ANSI/NFPA 70- National Electrical Code
   ANSI/NFPA 70E- Electrical Safety Requirement for Employee Workplaces
4. American National Standards Institute, Section B11

**Attention:** Servicing energized industrial equipment can be hazardous. Severe injury or death can result from electrical shock, burn, or unintended actuation of controlled equipment. Recommended practice is to disconnect and lockout industrial equipment from power sources, and release stored energy, if present. Refer to the National Fire Protection Association Standard No. NFPA70E, Part II and (as applicable) OSHA rules for Control of Hazardous Energy Sources (Lockout-Tagout) and OSHA Electrical Safety Related Work Practices, including procedural requirements for:

- Lockout-tagout
- Personnel qualifications and training requirements
- When it is not feasible to de-energize and lockout-tagout electrical circuits and equipment before working on or near exposed circuit parts

**Locking and Interlocking Devices:** These devices should be checked for proper working condition and capability of performing their intended functions. Make replacements only with the original manufacturer's renewal parts or kits. Adjust or repair in accordance with the manufacturer's instructions.

**Periodic Inspection:** Industrial equipment should be inspected periodically. Inspection intervals should be based on environmental and operating conditions and adjusted as indicated by experience. At a minimum, an initial inspection within 3 to 4 months after installation is recommended. Inspection of the electrical control systems should meet the recommendations as specified in the National Electrical Manufacturers Association (NEMA) Standard No. ICS 1.3, Preventative Maintenance of Industrial Control and Systems Equipment, for the general guidelines for setting-up a periodic maintenance program.

**Replacement Equipment:** Use only replacement parts and devices recommended by the manufacturer to maintain the integrity of the equipment. Make sure the parts are properly matched to the equipment series, model, serial number, and revision level of the equipment.

Warnings and cautions are provided in this manual to help avoid serious injury and/or possible damage to equipment:

***DANGER:*** *marked with a stop sign.*
*Immediate hazards which WILL result in severe personal injury or death.*

***WARNING:*** *marked with a warning triangle.*
*Hazards or unsafe practices which COULD result in severe personal injury or death.*

***CAUTION:*** *marked with a warning triangle.*
*Hazards or unsafe practices which COULD result in minor personal injury or product or property damage.*

# Care of Stainless Steel

## Stainless Steel Corrosion

Corrosion resistance is greatest when a layer of oxide film is formed on the surface of stainless steel. If film is disturbed or destroyed, stainless steel becomes much less resistant to corrosion and may rust, pit or crack.

Corrosion pitting, rusting and stress cracks may occur due to chemical attack. Use only cleaning chemicals specified by a reputable chemical manufacturer for use with 300 series stainless steel. Do not use excessive concentrations, temperatures or exposure times. Avoid contact with highly corrosive acids such as hydrofluoric, hydrochloric or sulfuric. Also avoid prolonged contact with chloride-containing chemicals, especially in presence of acid. If chlorine-based sanitizers are used, such as sodium hypochlorite (bleach), do not exceed concentrations of 150 ppm available chlorine, do not exceed contact time of 20 minutes, and do not exceed temperatures of 104°F (40°C).

Corrosion discoloration, deposits or pitting may occur under product deposits or under gaskets. Keep surfaces clean, including those under gaskets or in grooves or tight corners. Clean immediately after use. Do not allow equipment to set idle, exposed to air with accumulated foreign material on the surface.

Corrosion pitting may occur when stray electrical currents come in contact with moist stainless steel. Ensure all electrical devices connected to the equipment are correctly grounded.

## Elastomer Seal Replacement Following Passivation

Passivation chemicals can damage product contact areas of this equipment. Elastomers (rubber components) are most likely to be affected. Always inspect all elastomer seals after passivation is completed. Replace any seals showing signs of chemical attack. Indications may include swelling, cracks, loss of elasticity or any other noticeable changes when compared with new components.

# Introduction

*For control top information, please refer to publication 95-03083 (2-piece) or 95-03077 (3-Piece (obsoleted)). For additional product information, please see our web site at www.spx.com/en/waukesha-cherry-burrell/resources/product-literature.*

## General Information

Information in this manual should be read by all personnel involved in installation, setup, operation and maintenance.

Always use installation tools and lubricants recommended by Waukesha Cherry-Burrell. Waukesha Cherry-Burrell products are subject to intensive intermediate and final leakage and functional tests.

Waukesha Cherry-Burrell Mix Proof valves meet 3A and EHEDG standards for sanitation, design, and style.

Double-Seat Mix Proof valves provide safe separation of dissimilar products within the same valve body. WCB offers several basic valve types:

- W71 Series for standard shut-off service
- W73 Series for divert applications
- W72RS and W72RSP Series for standard shut-off service

W72RS Mix Proof valves feature a lower radial seal for minimal spill operation when opening or closing.

## Factory Inspection

Each Waukesha Cherry-Burrell valve is shipped completely assembled, lubricated and ready for use.

## Models and Specifications

### Materials

- Product Wetted: ASTM 316L (UNS-S31603); (DIN-1.4404) AL6XN upon request
- Non-Product: ASTM 304 (UNS-S30400); (DIN-1.4301)
- Elastomers: EPDM (optional) FKM (standard) FFKM upon request

## Equipment Serial Number

Waukesha Cherry-Burrell valves are identified by a serial number found on the label on the actuator cylinder.

## Operating Parameters

### Temperature Range:

The recommended operating temperature is determined by the material used for the seals.

No special precautions are required for applications within a temperature range of 32°F to 180°F (0°C to 82°C).

For applications above 190°F (88°C), clearances can be affected by excessive thermal expansion when the valve is installed in compact fabrications or manifolds. Valve bodies have thicker cross-sections than tubing, but thermal expansion can affect clearances in interconnecting piping sections.

If operating below 32°F (0°C):

- Control air must have an appropriately low dew point.
- Valve stems must be protected from icing to ensure long working life for valve stem seals.

Solenoid valves may not be used in the control module in room environments below 32°F (0°C) and over 140°F (60°C), as function cannot be guaranteed.

### Seal Compatibility

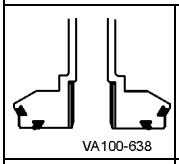
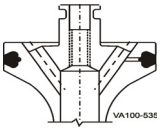
**Table 1: Seal Compatibility for FKM/EPDM Seals**

| | Fluorelastomer (FKM) Seals | EPDM Seals |
|---|---|---|
| **Thermal Range of Application** | 32°F to 375°F (0°C to 190°C) | 0°F to 275°F (-18°C to 135°C) |
| **Chemical Resistance** | Silicone oil and grease | Silicone oil and grease |
| | Ozone, aging and weather resistant | Ozone, aging and weather resistant |
| | Oils and fats | Hot water and steam up to 275°F (135°C) |
| | Aliphatic, chlorinated and aromatic hydrocarbons | Many organic and inorganic acids |
| | | Cleaning agents, soda and potassium alkalis |
| | | Many polar solvents (alcohols, ketones, esters) |
| **Not compatible with** | Superheated steam | Mineral oil products (oils, greases and fuels) |
| | Formic and acetic acids | |

Contact WCB Application Engineering for other fluid compatibility.

FKM and EPDM seals comply with FDA regulations.

## Seat Options

| Seat Type | | Material / Maximum Temp. | |
|---|---|---|---|
|  VA100-638 | Tri Ring (TR) Compression Seal: Upper on W71/W72RS Lower on W71/W73 | **EPDM** | Operation 280°F (137°C) Sterile 275°F (135°C) or Operation 350°F (176°C) Sterile (Consult Factory) |
|  | Radial: Lower on W72RS/W72RSP | **FKM** | |

For higher temperature applications than those listed, please consult the factory.

Operating conditions such as flow rate and pressure must be considered when operating near the maximum temperature rating. Contact the Factory for FFKM.

## Pressure Ratings

| Parameter | Valve Size | Pressure Rating |
|---|---|---|
| Operating Pressure | 1-1/2" - 3" | 150 psi (10.3 bar) |
| | 4" | 90 psi (6.2 bar) |
| | 6" | Contact Factory |
| Holding Pressure | All sizes | 150 psi (10.3 bar) |

# Installation

***CAUTION:*** *When installing the valve, ensure that no foreign materials (e.g. tools, screws, welding wire, lubricants, cloths, etc.) are enclosed in the system.*

## Location

The valve must be in a vertical position to ensure that the vent/drain outlet system functions properly.

The vent/drain outlet at the bottom of the Mix Proof valve must not be obstructed. The unrestricted vent/drain outlet must allow leakages and cleaning/rinsing/sterilization fluids to go to atmosphere in order to guarantee mix proof safe separation. If hoses, pipes, or other components are mounted to the vent/drain outlet to prevent splashing of leakage and cleaning/rinsing/sterilization fluids, then they must be designed such that the fluids flow freely to atmosphere.

***CAUTION:*** *Isolate products away from the valve prior to performing maintenance.*

Locate the valve for easy access for inspection.

Ensure that the valves and pipe systems drain properly. The two-piece body option enables the positions of the connections to be adjusted in relation to each other.

## Welding Instructions

***CAUTION:*** *Before attempting to buttweld an automatic valve into a line, disassemble the body from the actuator. Dissipate heat away from the valve body to prevent warping.*

Prior to installing, thoroughly inspect each valve. When using buttweld two-piece body valves, clamp connections must be used on either the upper or lower body to allow for servicing of the o-ring seal between the bodies. This does not apply single-piece bodies.

Mix Proof valves with welded connections require the following to be performed before installation:

- Prior to installation, remove the stem actuator assembly and lower bearing carrier.
- Remove all seals from the body.
- Weld the body into position, ensuring that the connection is free of tension and distortion.

***NOTE:*** *Orient the valve so that the "UP" inscription (near the adapter-to-body connection) is pointed toward the actuator. See Figure 1.*

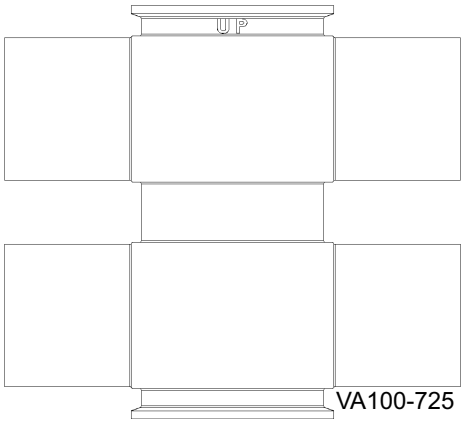



***Figure 1 - Valve orientation***

***CAUTION:*** *Welding must be carried out by qualified personnel.*

For manifold welding, fixture tables are recommended. Matrix manifold welding requires a controlled deliberate process to maintain the alignment of the parts.

## Air Supply

Install the valves using dry, filtered air. Lubrication is not required. If using lubricated air, refer to the solenoid manufacturer's specifications. The air supply must be 75 to 100 psi (5.2 to 6.9 bar).

## Flow Direction

The valves should be installed to close against the flow to prevent hammering.

## Fittings

When using suitable fittings, Mix Proof valves with detachable connections can be installed in a pipe system per the fitting requirements. The valve must be installed free of tension. After the valve is installed in the pipe system, attach the control air hoses and connect them to the electrical supply.

Contact WCB at 1-800-252-5200 for more information on our wide variety of fittings for all applications.

## Pipeline Support

Install adequate supports to prevent strain on the fittings, valves and equipment connections.

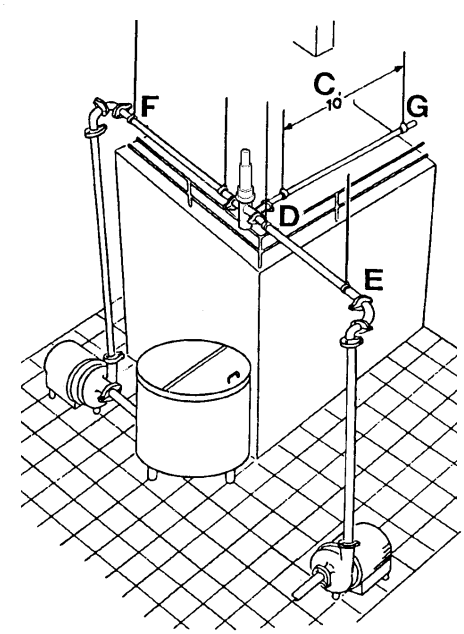



***Figure 2 - Pipeline Support***

1. Install supports at least every 10 feet on straight runs of piping. (Figure 2, item C).
2. Install supports on both sides of the valves as close as possible to the connections. (Figure 2, item D).
3. Install supports at each change of pipeline direction. (Figure 2, item E and F).
4. For pipelines passing through walls, floors or ceilings, provide at least 1 inch (25 mm) of clearance around the pipe to allow for expansion and contraction. (Figure 2, item G).

⚠ ***CAUTION:*** *In higher temperature applications, ensure proper accommodation for thermal expansion in the pipeline design to minimize stresses on the valve bodies. Excessive mechanical and thermal stresses can distort and damage the valve bodies.*

## Installing Valve Manifolds

Install automatic valve manifolds with a uniform pitch for proper drainage. Elevate one corner of the cluster and pitch 1/16" per foot (1.59 mm per meter) if desired. Arrange the supports for the floor-mounted valve manifolds to provide alignment of the inlet and outlet lines.

## Installing the Valve

1. If solenoids are mounted in a control top, connect the air supply lines to “air in.” If solenoids are mounted externally from the control top, connect the air lines as explained in “Solenoid Valve Port Connections” on page 16.
2. Using caution, lift the actuator assembly and set the actuator in the body assembly.
3. Lower the valve slowly into the body, making sure the lower stem enters the lower bearing carrier.
4. Tightly clamp the yoke/body flange.
5. Connect the air lines to A, B and C, as shown in Figure 9 on page 15

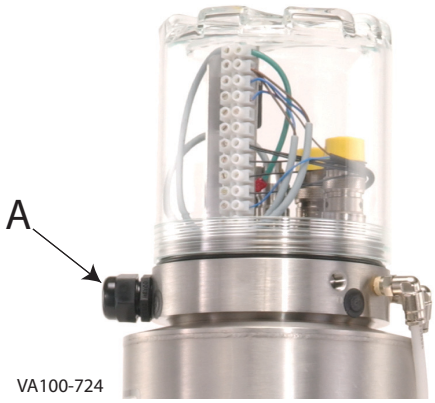



***Figure 3 - Control Top Wire Connection Point***

6. Connect the electrical control cord to the valve at location A (see Figure 3).

***NOTE:*** *Control tops are available with strain relief cord grip for hard wiring or threaded pin connectors for quick disconnect. Mating cables must be ordered separately.*

7. Operate the valve through the four conditions (closed, open, upper seat cleaning and lower seat cleaning). See “Solenoid/ Valve Position” on page 16.

## Quality of Control Air to Control Module

Do not exceed the following values:

- Suspended solids content:
  Particle size: 5 microns max.
  Particle Density: 5 mg/$m^3$ max. (= quality class 3)
- Water content: Dewpoint +35°F (+1.6°C)
  (= quality class 3). For applications at great elevations or at low ambient temperatures, the dewpoint changes.
- Oil content (if possible, without oil): Up to 25mg/$m^3$ max. oil (= quality class 5).

## External Flush - Liquid Vent Cavity

***NOTE:*** *Liquid flush of the vent cavity is typically used in applications with high sugar content product that may crystallize if dried. Cavity flush is recommended after valve transitions to keep the seats and cavity moist.*

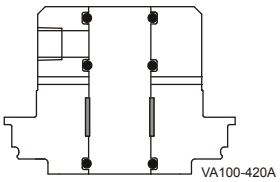



***Figure 4 - Upper Stem Flush Adapter***

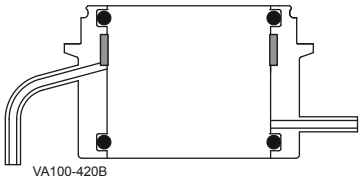



***Figure 5 - Lower Stem Flush Adapter***

### Liquid Vent Cavity Only

Use Upper Stem Flush Adapter

### Liquid Vent Cavity and Lower Stem

Use both Upper Stem Flush Adapter and Lower Stem Flush/ Steam Adapter.

Options allow for the liquid flush of the vent cavity and leakage channel alone or with the lower stem flush.

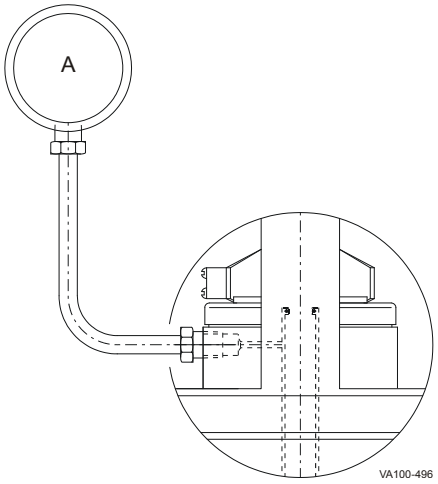



***Figure 6 - Connection of Flush Supply***

Connect the cavity cleaning supply to a suitable liquid supply to flush the vent/drain (Figure 6) during the operation of the processing system.

The flush supply line can be connected to the pipe system by 1/4" (6 mm) rigid or poly flow tubing. The flush supply is blocked when the valve is open.

Connect the supply line to the adapter connection with poly flow tubing (Figure 6).

***WARNING:*** *During CIP cleaning and valve opening (W71/W73), fluid escapes from the drain port. Drain this off to prevent a possible hazard to personnel.*

Regulate the flush supply (Figure 6, item A) for pressures of 30 psi minimum, 50 psi maximum.

The maximum solution temperature is 180°F (60°C).

***WARNING:*** *Cavity cleaning operation must fall within the fail-safe control system. See "Cleaning" on page 21.*

***WARNING:*** *Take proper precaution to safeguard the flush water supply, such as installing backflow prevention devices.*

## External Flush - Steam Vent Cavity

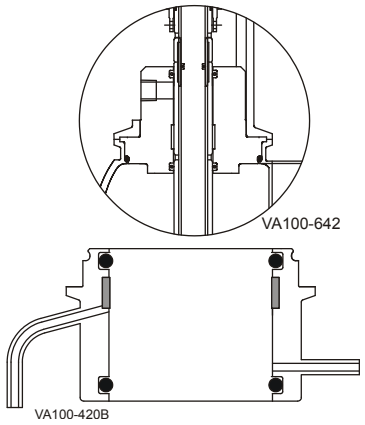



***Figure 7 - External Steam Barrier - upper stem***

***WARNING:*** *The W-Series Mix Proof Valve equipped with the steam flush option for stem and vent cavity is designed* ***only*** *for* ***low-pressure, product-compatible saturated steam*** *with a maximum pressure of 10 psig (0.65 bar) = 240°F (115°C) temperature.*

### Steam Vent Cavity, Upper and Lower Stem

Use both Upper Stem Steam Flush Adapter and Lower Stem Steam Adapter.

This option allows continuous steaming of the vent cavity (in both open and closed positions), upper and lower stems.

***DANGER:*** *Valves equipped with the steam flush option for stem and vent cavity can produce high temperatures and steam hazards that may result in personal injury or death.*

To steam flush the upper and/or lower stem as well as the vent cavity, the Mix Proof Valve must be ordered with the Steam Flush for stem and vent cavity. This option (See Figure 8 on page 15) contains the following components:

- External flush connection, 1/4" NPT.
- Modified adapter with removed o-rings to flush the stem.
- Jacket with 1/4" Tube (S.S.) on lower balancer to flush the lower stem (balancer).
- EPDM gaskets for all seals in the wetted area.

### Installation

Installation of a steam flush system on a W-Series Mix Proof valve should be done only by a licensed Steam Fitter.

The valve must be installed vertically to drain out any steam/condensate and have a drain funnel placed directly below it. Refer to Figure 8 to see the shut-off valves in the supply lines.

***DANGER:** The steam connection must be shut off and the valve must cool before servicing the valve.*

## Function

The low pressure steam enters through port B of the upper stem steam flush adapter. Steam purges the outside and inside of the upper stem and the vent cavity. Steam exits out the leakage port F.

For steam flushing the outside of the lower stem (balancer), the low pressure steam enters port D and exits at port E.

**Table 2: Callout table for Figure 8**

| |
|---|
| A. Saturated Steam (wet steam) Max 10 psig |
| B. Steam IN (Upper Stem Adapter) |
| C. Product |
| D. Steam IN (Lower Stem Adapter) |
| E. Steam out of Lower Stem Adapter |
| F. Steam out from vent cavity (leakage port) |

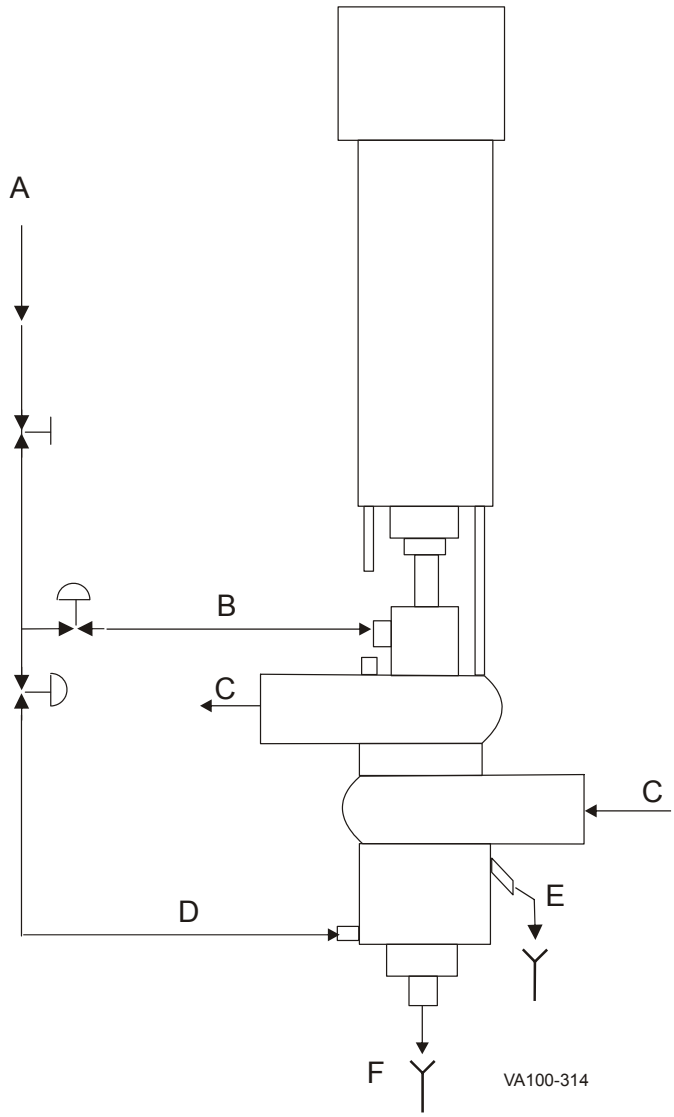



***Figure 8 - Steam Flush Option for Stem and Vent Cavity Schematic***

# Operation

All functions of W-Series mix proof valves are pneumatically controlled using a 75 min. to 100 max. psi (5.2 to 6.9 bar) clean air supply.

The valve contains a large and small spring in the valve actuator. The springs hold the valve seats in the closed position.

***Large Spring***

- Located in top air chamber of cylinder.
- Holds valve in the closed position.

***Small Spring***

- Located in the extended hub of the upper piston.
- When the valve is open, the spring acts on the upper seat stem to hold the upper and lower plugs together.

## Solenoid Valve Port Connections

Up to three air supplies controlled by solenoid valves supply air to the valve actuator (Figure 9).

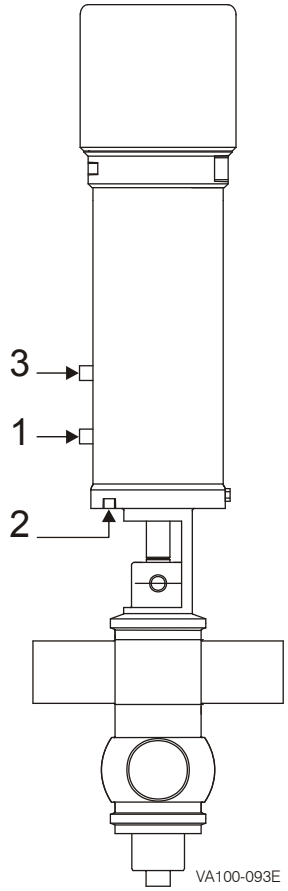



***Figure 9 - Solenoid Valve Port Connections***

**Table 3: Solenoid/Valve Position**

| Condition | Solenoid 1 | Solenoid 2 | Solenoid 3 |
|---|---|---|---|
| Closed | OFF | OFF | OFF |
| Open | ON | OFF | OFF |
| Upper Seat Cleaning * | OFF | ON | OFF |
| Lower Seat Cleaning * | OFF | OFF | ON |

1 = Valve Open Inlet Solenoid

2 = Upper Seat Clean Inlet Solenoid*

3 = Lower Seat Clean Inlet Solenoid*

ON = Solenoid energized (OPEN). LED is lit.

OFF = Solenoid de-energized (CLOSED). LED is off.

Solenoids are normally closed.

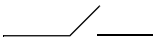
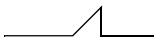
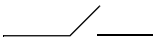
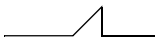
Air connections are 1/8" NPT x 1/4" push-to-connect poly tube fittings.

* Seat lifting is an option which requires (2) two additional air supplies. Non-seat lifting valves (NSL) only have one air inlet (1).

For specific air-routing and solenoid porting, please refer to control module publications 95-03083 (2-piece) or 95-03077 (3-Piece (obsoleted)).

## Automatic Fail-Safe System

**Table 4: Valve Stem Detection Conditions**

| | W71/W73 | | W72RS/W72RSP | |
|---|---|---|---|---|
| **Condition** | **Upper Switch (NO)** | **Lower Switch (NC)** | **Upper Switch (NO)** | **Lower Switch (NC)** |
| Switch Symbol |  |  |  |  |
| Valve Closed | 0 | 1 | 0 | 1 |
| Valve Open | 1 | 0 | 1 | 0 |
| Valve Closed with Upper Seat Clean * | 0 | 1 | 0 | 0 |
| Valve Closed with Lower Seat Clean * | 0 | 0 | 0 | 1 |

**Notes:**

1 = Energized, LED is lit; 0 = De-energized, LED is off

Upper Switch: Sends an input signal when the valve is properly open.

Lower Switch: Sends an input signal when the valve is properly closed.

Additional Switch: A third yoke-mounted proximity switch is available for additional signal feedback.

* W71/W73 Valves: Seat lift during both upper and lower seat clean; indicator stem raises;
W72RS/W72RSP Valves: Seat lift during upper seat clean; seat push during lower seat clean, indicator stem lowers.

## Test Procedures

### Positive Fail-Safe Detection Test

Perform a test to verify the fully closed fail-safe position. The valve plug feedback proximity switches should be set for the fully opened and fully closed positions of the valve. See Figure 9 on page 16 for port and corresponding chambers.

Decommission the system, drain the lines and lock out the pumps.

1. With the valve fully closed, confirm that the proximity switches conform to Table 4. Verify the switch status on the PLC control system.
2. Pressurize chamber 1 to open the valve (Figure 9, page 16). Confirm that the proximity switches conform to Table 4. Verify the switch status on the PLC control system.
3. Vent chamber 1 to close the valve.
4. If used, activate the upper seat lift either through the control system or by supplying air to port 2.
5. When the upper seat lifts, confirm that the proximity switches conform to the values in Table 4. If the yoke area does not have a limit switch, visually confirm the upper seat lifting.

6. Vent the air in chamber 2 (Figure 9, page 16) to deactivate the seat lift.
7. If used, pressurize chamber 3 to activate the lower seat push.
8. Confirm that the proximity switches conform to Table 4 on page 17. Verify the switch status on the PLC control system.
9. Vent the air in chamber A to deactivate the seat lift.
10. Disconnect the air from the valve actuator. placing the valve in the fail-safe position. Verify that the proximity switches register that the valve is fully closed.

### Corrective Action

If the double seat Mix Proof valve fails to respond as indicated above, immediately check the valve assembly and wiring to locate and correct the cause:

- First, check the proximity switch adjustment.
- Check for the correct assembly and adjustment of the valve.
- For specific information on switch setting, please refer to control module publications 95-03083 (2-piece) or 95-03077 (3-Piece (obsoleted)).

## Valve Operating Conditions

See Figure 9 on page 16 for port and corresponding chambers.

### Valve Open

The valve is open when Chamber 1 is pressurized and Chambers 3 and 2 are vented. See Figure 10.

### Valve Closed

The valve is closed when Chambers 3, 1, and 2 are vented. The large spring closes the valve to the fail safe position. See Figure 11.

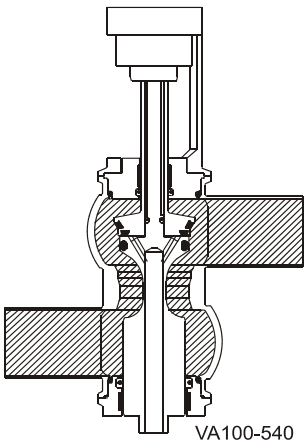



***Figure 10 - Valve Open***

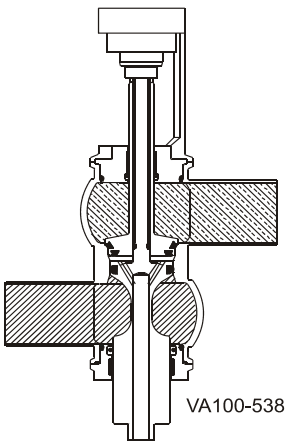



***Figure 11 - Valve Closed***

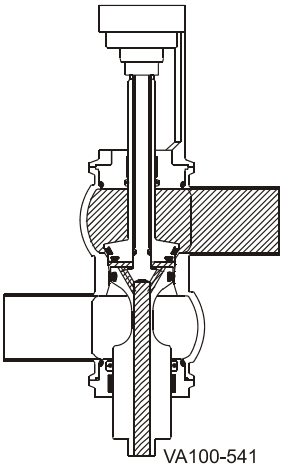



*Figure 12 - Valve Closed, Upper Seat Lifted*

## Valve Closed, Upper Seat Lifted

For cleaning the upper seat on seat lifting models only. Chamber 2 is pressurized, and Chambers 3 and 1 are vented. See Figure 12.

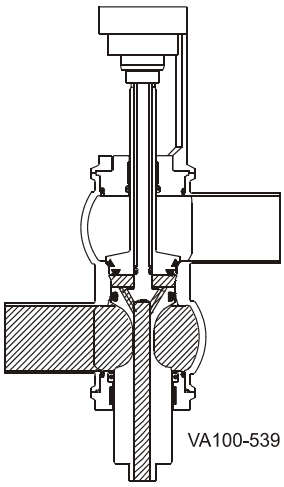



*Figure 13 - Lower Seat Lowering for W72RS Series*

## Valve Closed, Lower Seat Push (for W72RS/W72RSP Series Only)

Chamber 3 is pressurized, and Chambers 1 and 2 are vented. See Figure 13. For W72RS/W72RSP Series valves, the lower seat is pushed down for seat cleaning.

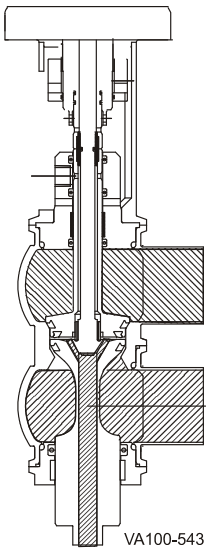



*Figure 14 - Lower Seat Lift for W71/W73*

## Valve Closed, Lower Seat Lift (for W71/W73 Series valves only)

The lower seat is lifted for seat cleaning. See Figure 14.

***NOTE:*** *On W73 Series valves, the middle-to-lower port divert stem has single-seat protection and cannot perform an independent seat clean operation when the valve is closed or open.*

# Maintenance

## Maintenance Intervals

Maintain adequate stock of replacement parts. See the items in bold beginning on page 32 for recommended spare parts.

Maintenance intervals should be determined by the user and specific application, based on the following conditions:

- Daily operation period
- Switching frequency
- Application parameters, such as temperature, pressure, and flow
- Product type
- CIP time and temperature

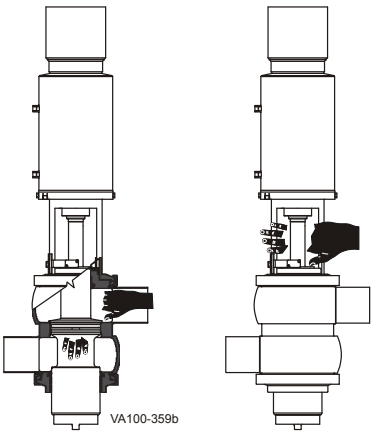
Use the following recommendation as a rough guide:

- For fluid temperatures ranging from 180°F to 212°F (82°C to 100°C): approx. every 3 to 6 months
- For fluid temperatures of 140°F (60°C): approx. every 12 months

The values listed above are only general guidelines and do not apply, for example, to fluids which crystallize on contact with air. The values listed are subject to the chemical resistance of the seal material.

## Inspection

STOP ***DANGER:*** *Do not put a hand into the yoke or body of a pneumatically-actuated valve.*




Inspect the following on a regular basis:

- Actuator connections for air leaks
- Valve body and stem o-rings
- Valve seats (If leakage occurs, see “Troubleshooting” on page 86.)
- Pneumatic connections:
  - Air pressure at supply connection
  - Air lines for kinks and leaks
  - Threaded connections for tight fit
  - Clean air filter at regular intervals
- Electrical connections secure on control module:
  - Wire connections tight on terminal strip
  - Electrical connections to control module
  - Threaded strain relief for tight fit.

## Lubrication

No lubrication is required other as than noted in the disassembly and assembly procedures. (Use food grade non-petroleum (silicone) grease on seals and o-rings.)

Apply Bostik Never-Seez® White Food Grade with PTFE or equivalent to all bolts and threaded stem parts.

## Cleaning

***CAUTION:*** *Avoid splashing any liquid into the air vent of the actuator during clean up..*

***NOTE:*** *Actuate each valve or use seat lifting to ensure effective cleaning and sanitizing. Expose all product-contact surfaces to the appropriate cleaning solutions.*

***CAUTION:*** *During valve opening and CIP cleaning, fluid escapes from the drain port. Drain it off to prevent any possible hazard to personnel.*

***NOTE:*** *If heavy soils are experienced, seat cleaning is not recommended during the initial rinse.*

### Cleaning-In-Place (CIP)

CIP methods can be used to clean installed automatic valves without disassembly. Select methods based on the specific requirements of sanitarians and each application. Check with local chemical suppliers for the most effective cleaning agents and procedures intended for the application, in order to properly dissolve the product residue. Ensure that the cleaning agent is compliant with the temperature range.

Mix Proof valves can be fitted with a 1/4 NPT flush connection for rinsing the area between the seats and the vent/drain port. The area can be flushed regularly in the event of long times between CIP cleanings. See “External Flush - Liquid Vent Cavity” on page 13.

### Cleaning Procedure

Mix Proof valves are designed to use a cleaning solution supplied by a CIP system. The vent outlet/cavity must be unobstructed to guarantee the leakage of fluid to atmosphere.

Establish cleaning procedures for each installation depending on product characteristics, operating parameters (temperature, velocity, valve cycles), and product velocities.

The following statements are intended as suggestions or guidelines for cleaning procedures and will vary by application:

For seat lifting valves, when the upper or lower body is in CIP, seat movement should occur. Seat cleaning positions are factory-set and marked in the yoke area. Seat cleaning will produce visible leakage from the vent outlet. Brief multiple lifts should occur for each step in the CIP program, excluding the initial rinse.

The lower seat lift cleans the full lower stem product contact area. The cleaning solution exits the valve from the vent cavity.

Maximum Solution Temperature is 160°F (71°C).

Maximum line pressure during seat cleaning is 90 psi (6.2 bar).

Minimum cleaning solution velocity is 5 ft/s (0.3 m/s).

Cleaning time is dependent on the inlet pressure. The recommended cycle time is 3 to 5 seconds per cycle after the valve achieves the seat clean position. This seat clean cycle time of each valve should be visually confirmed during commissioning.

Typical cleaning procedures include pulsing the seat during cleaning until the valve has been demonstrated to be clean. This is usually accomplished in 3 to 5 consecutive pulses per step in the CIP program; however, each installation and product varies, so pulsing should continue until all product/debris is removed.

For the optional external flush of the vent cavity, water flush can be activated during the final rinse.

Every few months of operation, remove and inspect one valve in the system to ensure that complete cleaning is being achieved.

## Seat Cleaning Adjustment

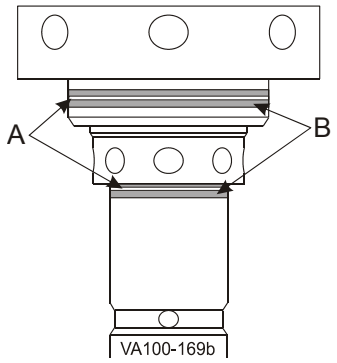



***Figure 15 - Adjustment zones with scribe lines***

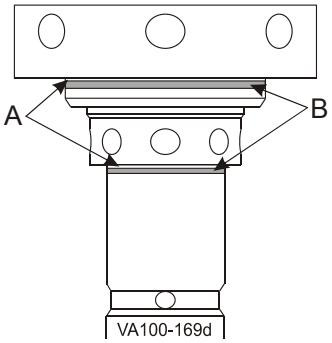
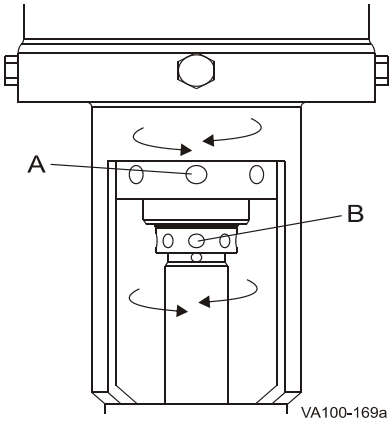



***Figure 16 - Bottom edges align with scribe lines***




A. Adjusting nut, upper seat
B. Adjusting nut, lower seat

***Figure 17 - Location of Adjusting Nut***

Seat lifting models are factory set. Scribe lines (Figure 15, item A) within the acid-etched adjustment zone (Figure 15, item B) provide a visual indication of the correct factory-set adjustment. Screw the adjusting sleeve and adjusting nut until the bottom edges align with the scribe line (Figure 16, item A).

***NOTE:*** *Always adjust the lower seat first.*

***WARNING:*** *Do not adjust the seat lift collars with pliers, vice-grips or adjustable jaw pliers (channel locks).*

If required, adjust the seat movement. With the valve closed, using a 3/16" diameter pin spanner or allen wrench, adjust the movement of the seats to the factory settings or within the adjustment zone (Figure 15 and Figure 16, item B). Once a successful seat movement is established, clearly mark where the bottom edges of the adjusting sleeve and adjusting nut align, to ensure proper resetting after disassembly.

***NOTE:*** *The seat lift stroke for the W72RSP is fixed at 0.12" upper and 0.28" lower. Confirm the stroke length after proper assembly; tighten both stems clockwise until they are stopped metal-to-metal.*

### Lower seat

Operate the lower seat lift cycle. Observe the indicator stem movement at the top of the valve or at the balancer on the bottom of the valve.

To adjust the movement of the lower seat for cleaning, rotate the adjusting sleeve in the yoke (Figure 17, item B):

W71/W73: Rotate right to increase; left to decrease.
W72RS: Rotate left to increase; right to decrease.

**Table 5: Proper Movement: Lower Seat**

| Valve | Setting |
|---|---|
| W71/W73 | 0.04" - 0.1" (0.060" Factory Setting) |
| W72RS | 0.18" (1-1/2" and 2" Valves)<br>0.28" (2-1/2", 3" and 4" Valves) |

### Upper seat

Operate the upper lift cycle once. Operate three more times to observe the outer stem movement by watching the adjusting nut in the yoke.

To adjust the movement of the upper seat, rotate the adjusting nut (Figure 17, item A) left to increase; right to decrease.

**Table 6: Proper Movement: Upper Seat**

| Valve | Setting |
|---|---|
| W71/ W73 | 0.04" - 0.1" (.060" Factory Setting) |
| W72RS | 0.12" |

This icon indicates a link to a maintenance video available online or in the CD version of this manual. To access the PDF online, go to: http://www.spx.com/en/assets/pdf/95-03087_w70mixproofv_wcb.pdf, or for a CD version, contact your local distributor and ask for CD-1802.

## Removing Valve from System

***NOTE:*** *If the valve has a control module with a solenoid, the air and electric must remain ON until the valve is properly disassembled.*

***NOTE:*** *On seat lifting model valves, clearly mark on the other stem and adjusting threads where the bottom edges of the adjusting sleeve and adjusting nut align to ensure proper resetting of seat movements after disassembly.*

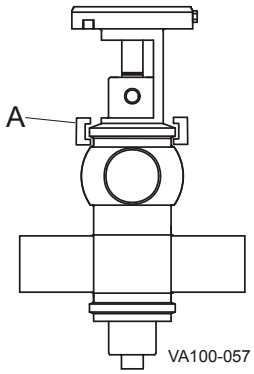



***Figure 18 - Location of Adapter Clamp***

***WARNING:*** *Before removing the actuator/valve stem assembly from the valve body, drain all product lines connected to the body.*

1. Clean, rinse, and drain the pipe system elements attached to the valve. Remove or block the fluid and gas lines to prevent material from entering the pipe system elements attached to the valve. If present, disconnect the flush water supply connection. If supplied, seat lifts can be used to check for pressurization.
2. Disconnect the external flush if used.
3. Disconnect the electrical supply and lock out all power.
4. Supply air to the open valve.
5. Remove the clamp between the yoke and the adapter (Figure 18, item A).

*Maintenance Video 1: Remove valve from body*

6. Remove the air pressure to cycle the valve closed, lifting the valve approximately 3/8" (9.5 mm) out of the body. Shut off and disconnect the air supply.
7. Disconnect and lock out electrical power to the valve.
8. Lift the complete valve actuator and stems out of the valve body, being careful not to damage the stems or internals.
9. Move the valve to a work station.
10. Re-install in reverse order. Keep in mind that air must be applied to cycle the valve open and lower the valve insert approximately 3/8'', in order to completely reseat the valve in the body. Re-fasten the clamp between the yoke and the adapter, then remove the air pressure to cycle the valve closed.

*Maintenance Video 2: Re-install valve into body*

## Disassembly of Valve Stems

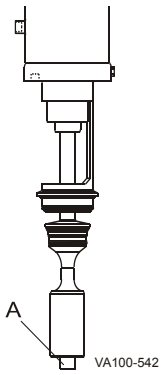



***Figure 19 - Valve Stem Removal***

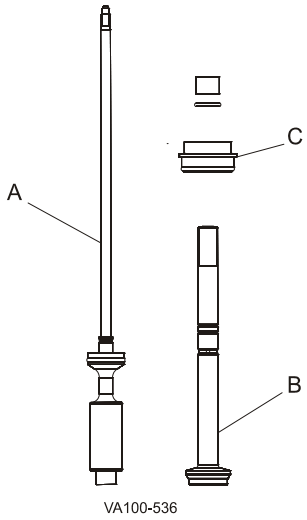



***Figure 20 - Stem Removal***

## Adapter Bearings and O-rings

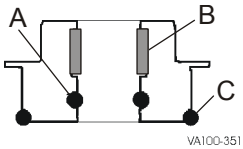



***Figure 21 - Standard Top Adapter***

Disassembly of the valve stems is required for seat ring replacement. (For ”Reassembly of Valve Stems," turn to page 31.)

***NOTE:*** *Seals, seal grooves, and contact surfaces are precision parts and must not be damaged.*

1. Lower stem removal: Using an open end wrench, remove the lower stem (Figure 19, item A) from the actuator by turning it counter-clockwise.

*Maintenance Video 3: Remove lower stem*

***NOTE:*** *(For seat lifting valves) Before disassembly, note the position of the upper and lower seat lifting adjustment nuts. See Figure 17.*

2. Upper stem removal: Hold the adjusting sleeve stationary with a spanner wrench, turn the stem (Figure 20, item B) counter-clockwise, and remove it from the actuator. If the adapter (Figure 20, item C) comes out of the yoke, handle it with care.

**Table 7: Call-out table for Figure 20**

| |
|---|
| A = Lower Stem |
| B = Upper Stem |
| C = Top Adapter (Bonnet) |

*Maintenance Video 5: Remove upper stem*

***WARNING:*** *Do not pressurize the actuator with the stems removed, as internal o-ring damage will result.*

### Inner O-ring and Bearing Replacement

1. Remove the valve stem assembly from the actuator and slide the adapter off the outer stem.

2. Remove and replace the o-ring (Figure 21, item A) inside the adapter. For the flush/steam barrier adapters, see Figure 4 on page 13 and Figure 7 on page 14, respectively.

*Maintenance Video 7: Adapter o-rings and bearing removal and replacement*

3. Check the split bearing (Figure 21, item B) inside the adapter by feeling the amount protruding from the adapter wall. If the bearing is flush with the wall, replace the bearing.

4. Place a screwdriver behind the bearing and pry it away from the wall of the adapter. A needle-nose pliers can be used to grip the bearing for removal. Be careful not to scratch or damage the metal surfaces.

***NOTE:** The bearing will be damaged during removal and must be replaced with a new bearing.*

5. To install a new bearing, coil the bearing to a size smaller than the inside diameter of the adapter and insert it into the proper location.
6. Using your finger, ensure that the bearing is properly seated. Visually inspect the seating.
7. If necessary, push the actuator stem into the adapter to help properly seat the bearing.

### Outer O-ring Replacement

1. Remove the valve stem assembly from the actuator and slide the adapter off the outer stem.
2. Slide or cut the outer o-ring (Figure 21, item C) off the adapter. Do not nick or scratch the o-ring groove.
3. Lubricate the new o-ring with grease and install it.

## Tri Ring Seat Replacement

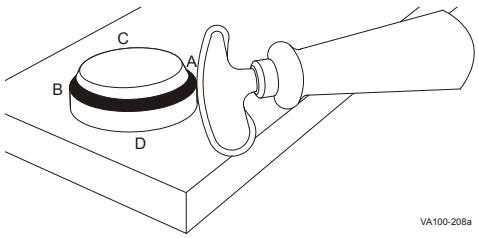



***Figure 23 - Pressing Tri Ring Into Plug***

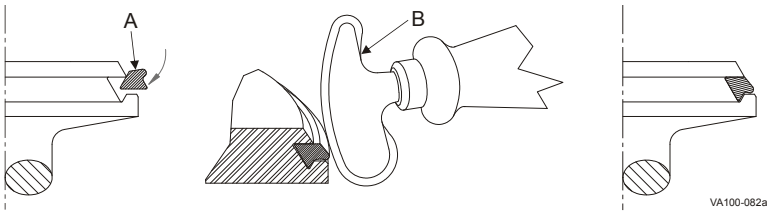



***Figure 22 - Installing New Tri Ring Seat***

1. Remove the Tri Ring seat by carefully cutting or using an o-ring tool to pull the seat out of the groove. Do not scratch or nick the metal seating surface.

*Maintenance Video 8: Upper stem Tri Ring removal*

2. Clean the Tri Ring groove after removing the seat.
3. Lubricate the new Tri Ring (Figure 22, item A) with acceptable cleansing solution or lubricant.
4. Place the stem through a 1-1/8 inch (30 mm) hole bored through a board, secured by a vise.
5. Start the Tri Ring as shown in Figure 22.

*Maintenance Video 9: Upper stem Tri Ring replacement*

6. Using the installation tool, part number 102797+ (Figure 22, item B), press the Tri Ring into the plug at locations A, B, C, and D (Figure 23). If the tool is not used, DO NOT use a knife or any other sharp item that will tear or cut the Tri Ring.
7. To finish installation, press small sections of the seal, alternating from side to side (A-B-C-D), avoiding large loops of seal.
8. When properly installed, the Tri Ring seat lip will protrude slightly from the seat edge as shown in Figure 22.

*Maintenance Video 10: Lower stem o-ring and Tri Ring replacement (W71/W73)*

## Radial Seat Ring Replacement (for W72RS Lower Stem)

1. Remove the lower stem radial seal by carefully prying up and cutting the o-ring. Pry up the o-ring and pull it out to remove it. Do not scratch or nick the metal seating surface.

*Maintenance Video 11: Radial Seal Removal*

2. Clean the radial seal groove after removal.
3. Ensure that the vent port in the back of the groove is clean and unblocked.
4. Lubricate the o-ring seal and expand it over the stem groove.
5. Place the assembly tool over the stem, ensuring proper tool orientation. Extrude the o-ring seal into the groove by evenly tightening the cap screws on the installation tool.
6. Remove the tool. The dovetail groove permanently retains the o-ring seal.

*Maintenance Video 12: Radial Seat Ring Replacement*

For a list of installation tools, see “Installation Tools” on page 84.

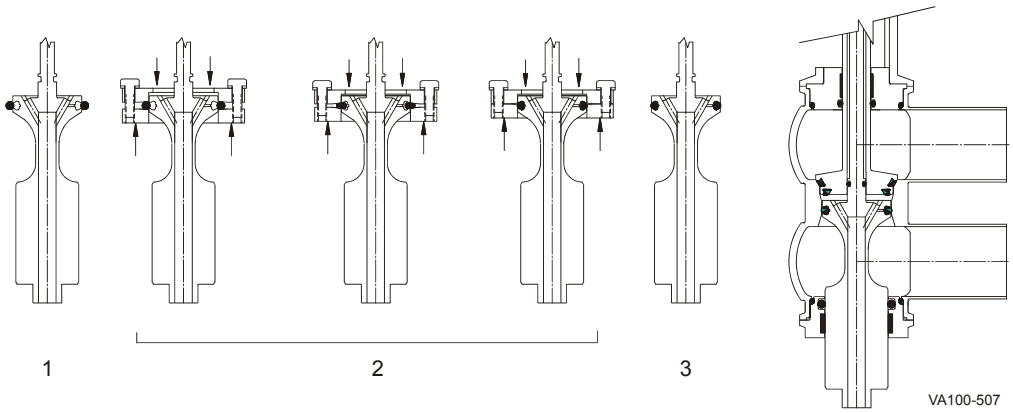



***Figure 24 - Radial Seal Installation***

## Lower Bearing Carrier O-ring and Bearing Replacement

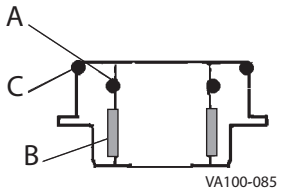



***Figure 25 - Standard Lower Bearing Carrier***

***NOTE:*** *The bearing will be damaged during removal and must be replaced with a new bearing.*

1. Remove and replace the o-ring (Figure 25, item A) located inside the lower bearing carrier. For the flush/steam barrier adapter, see Figure 4 on page 13.

*Maintenance Video 13: Lower bearing carrier; removal and replacement of o-ring and bearings*

2. Check the split bearing (Figure 25, item B) inside the lower bearing carrier by feeling the amount protruding from the lower bearing carrier wall. If the bearing is flush with the wall, replace the bearing.
3. Place a screwdriver behind the bearing and pry it away from the wall of the lower bearing carrier. A needle-nose pliers can be used to grip the bearing for removal.
4. To install the new bearing, coil the bearing to a size smaller than the inside diameter of the lower bearing carrier and insert it into the proper location.
5. Push the lower stem into the lower bearing carrier to help seat the bearing properly.
6. Using your finger, ensure that the bearing is properly seated. Visually inspect the seating.
7. To remove the outer o-ring (Figure 25, item C), slide or cut the o-ring off the lower bearing carrier. Do not nick or scratch the o-ring groove.
8. Lubricate the new o-ring with grease and install it.
9. Re-install the lower bearing carrier into the body prior to re-installing the entire valve.

## Actuator O-ring and Bearing Replacement

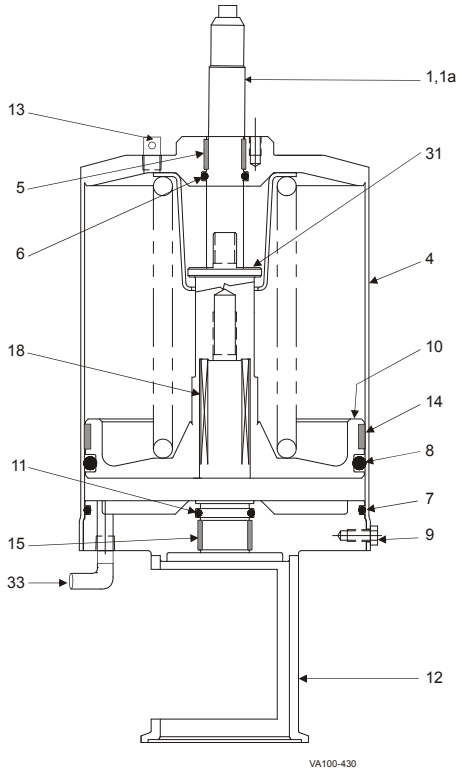



***Figure 26 - W71/W73 Actuator Assembly (Non-Seat Lift Valve)***

***NOTE:*** *The bearing will be damaged during removal and must be replaced with a new bearing.*

***NOTE:*** *Installation of the piston and spring assembly on 4" actuators requires a special sleeve to contain the bearing on the piston while installing the assembly. See Figure 28 and Figure 29 on page 30.*

***CAUTION:*** *The valve stems and actuator must be removed from the valve body before servicing the actuator components.*

***NOTE:*** *Do not pressurize the actuator with air when the stems are removed. This may tear the o-rings and cause the actuator to leak air when it is re-assembled.*

### Removal of O-rings and Bearings, Non-Seat Lifting Actuators

***NOTE:*** *If present, the control module must be removed to replace the o-rings and bearings in the top of the cylinder assembly. Pleaserefer to control module publications 95-03083 (2-piece) or 95-03077 (3-Piece (obsoleted)).*

***Non Seat Lifting Actuators***

1. For non-seat lifting valves, remove the cap screws (Figure 26, item 9) and remove the yoke (item 12) from the cylinder assembly. Set the yoke aside.

*Maintenance Video 14: Actuator disassembly; lower cartridge removal*

2. Pull the piston and spring assembly (Figure 26, item 10) from the cylinder assembly.

3. Inspect the four o-rings (Figure 26, items 6, 7, 8, and 11). Replace them if they are worn or damaged.

*Maintenance Video 17: Main piston o-ring removal*

*Maintenance Video 18: Main piston o-ring replacement with bearing*

4. Inspect the three bearings (Figure 26, items 5, 14, and 15). If the bearing does not extend slightly above the edge of the metal surface, replace the bearing.

5. The bearing is split to allow its removal from the groove. Place a screwdriver behind the bearing and pry it away from the wall of the yoke. A needle-nose pliers can be used to grip the bearing for removal.

6. For non-seat lifting valves, assemble the stack components as shown in Figure 26. Install the yoke and cap screws.

*Maintenance Video 22: Using insertion sleeve for W71/W73 Actuators*

***NOTE:*** *For larger drawings and complete partlists, see "W71/W73 Non-Seat Lift Actuator" on page 76 and "W72RS Non Seat Lift Actuator" on page 80.*

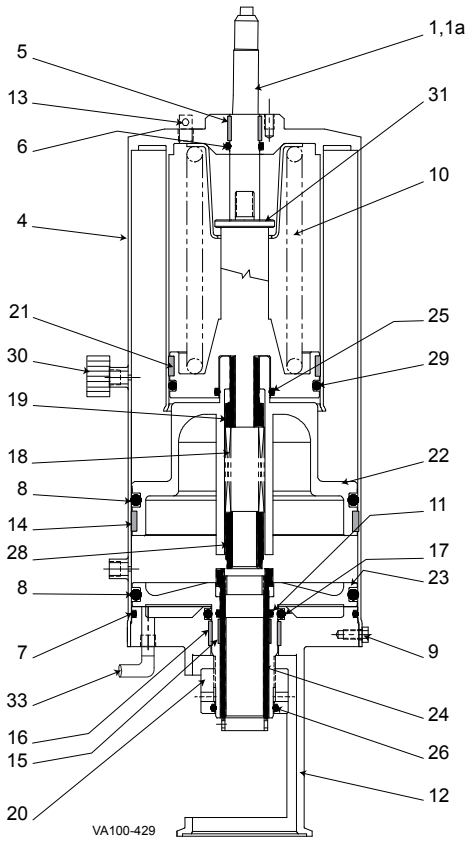



***Figure 27 - W71/W73 Actuator Assembly (Seat Lift Valve)***

*Maintenance Video 18: Main piston o-ring replacement with bearing*

*Maintenance Video 19: Can top bearing and o-ring; removal and replacement*

*Maintenance Video 20: Main piston bearing*

*Maintenance Video 21: Lower seat lift piston reassembly*

*Maintenance Video 23: Reassembly of actuator: spacers and inner spring*

*Maintenance Video 24: Reassembly of lower cartridge o-rings and bearings*

*Maintenance Video 25: Re-installation of lower cartridge*

## Removal of O-rings and Bearings, Seat Lifting Actuators

***NOTE:*** *For larger drawings and complete partlists, see "W71/W73 Seat Lift Actuator" on page 78 and "W72RS/W72RSP Seat Lift Actuator" on page 82.*

1. For seat lifting valves, remove the cap screws (Figure 27, item 9) and remove the lower cartridge (yoke, item 12; adjusting nut, item 20; adjusting sleeve, item 24; and upper seat piston, item 23).

*Maintenance Video 14: Actuator disassembly; lower cartridge removal*

2. To disassemble the cartridge, remove the adjusting nut (item 20) and separate the parts.

*Maintenance Video 15: Adjusting Nut removal*

3. Remove the small spring (Figure 27, item 18). On W71/W73 valves, also remove the bushing (Figure 26, item 28).

4. Pull out the upper cartridge (main piston, item 22; lower seat spring and piston, item 10), by carefully threading in the lower stem to pull it. Do not bend the lower stem.

   Alternate method: Flip the canister right-side up and gently tap it on the table (or push down the indicator stem) until the air vacuum releases and the upper cartridge slides out the open end.

*Maintenance Video 17: Main piston o-ring removal*

5. Inspect the nine o-rings (Figure 27, items 6, 7, 8, and 11) and replace them if they are worn or damaged.

6. Inspect the five bearings on W71/W73 (Figure 27, items 5, 14, 15, 16, and 21) or four bearings on W72RS actuators (items 5, 14, 15, and 16). If the bearing does not extend slightly above the edge of the metal surface, replace it.

7. The bearing is split to allow its removal from the groove. Place a screwdriver behind the bearing and pry it away from the wall of the yoke. A needle-nose pliers can be used to grip the bearing for removal.

***NOTE:*** *The bearing will be damaged during removal and must be replaced with a new bearing.*

8. For seat lifting valves, assemble the stack components as shown. Make sure that the upper cartridge components are fully inserted. Install the yoke and adjustment nut.

***NOTE:*** *Installation of the piston and spring assembly on 4" actuators requires a special sleeve to contain the bearing on the piston while installing the assembly. See Figure 29 and Figure 28 on page 30.*

*Maintenance Video 22: Using insertion sleeve for W71/W73 Actuators*

## Installation of Piston and Spring Assembly Using Insertion Sleeve for W71/W73 4" Diameter Actuators

The installation of the piston and spring assembly in the cylinder requires a special sleeve to contain the bearing on the piston during installation. See Figure 29 and Figure 28. See Figure 32 on page 84 for part number and dimensional details.

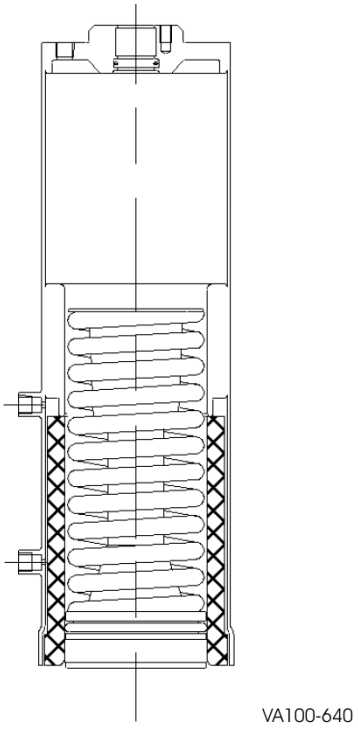



***Figure 28 - Installation of Piston and Spring Assembly Using Insertion Sleeve***

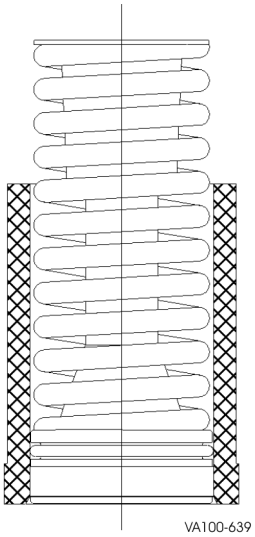



***Figure 29 - Piston and Spring Assembly Installed in Insertion Sleeve***

- Push the insertion sleeve up into the cylinder assembly.
- When the sleeve is stopped, push the piston and spring assembly up into the cylinder assembly.

*Maintenance Video 22: Using insertion sleeve for W71/W73 Actuators*

## Reassembly of Valve Stems

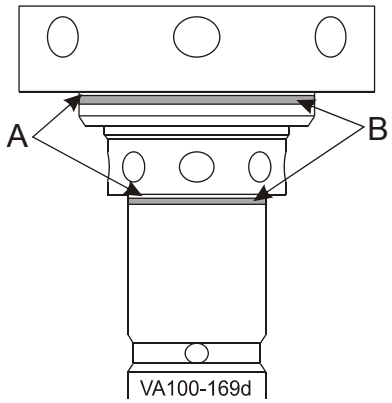



***Figure 30 - Assembly***

***NOTE:*** *Perform maintenance on stems and adapter bearings and o-rings while the stems are removed from the actuator and before reassembly.*

### Upper Stem Assembly

1. Apply Bostik® Never-Seez White Food Grade with PTFE or equivalent to the threads of the upper stem.
2. Screw the upper stem clockwise into the actuator. Hold the adjusting sleeve stationary with a spanner or allen wrench.
3. Screw the upper stem in until the scribe line (Figure 30, item A) within the etch mark adjustment zone (item B) aligns with the bottom of the adjustment sleeve. This is the factory-set lower seat clean position. See “Seat Cleaning Adjustment” on page 22 for instructions on modifying the seat clean movement.

*Maintenance Video 6: Upper stem reassembly into valve*

***WARNING:*** *Do not screw the upper stem all the way into the actuator, as internal o-ring damage may result.*

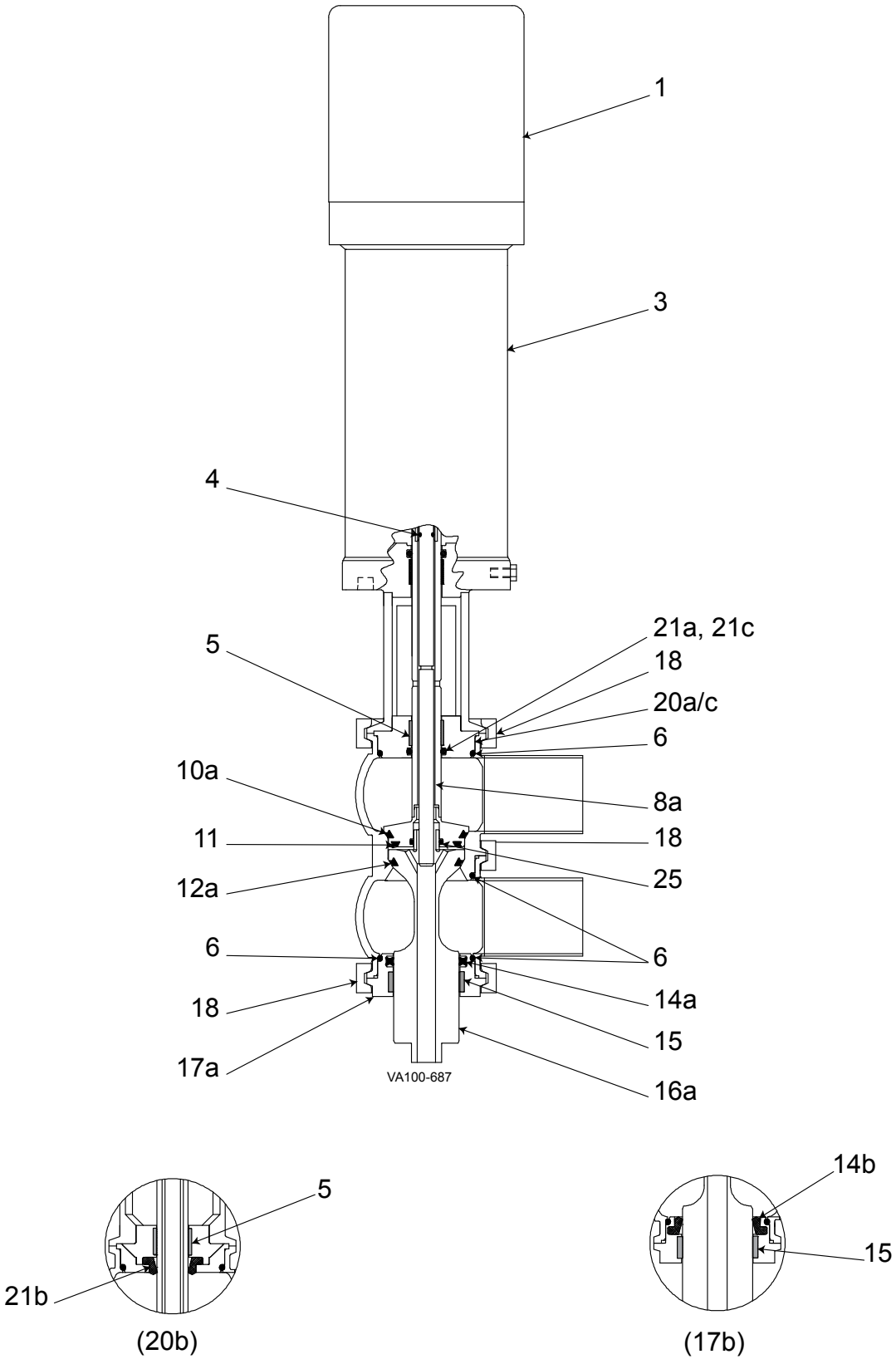
### Lower Stem Assembly

1. Apply Bostik® Never-Seez White Food Grade with PTFE or equivalent to the threads of lower stem.
2. If the valve has external flush, slide the spray bushing onto the inner stem of the lower stem.
3. Screw the lower stem clockwise into the actuator until metal-to-metal contact stops.
4. Using an open-end wrench and rubber hammer, rap the lower stem to lock the threads into place within the actuator.

*Maintenance Video 4: Lower stem reassembly into valve*

# Parts Lists

## W71 Mix Proof Non-Seat Lift Valve



# W71 Mix Proof Non-Seat Lift Valve

| | Item # | Part Description | | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | Control Top | | Contact Factory | | | | | |
| | 3 | Actuator | | *** | | | | | |
| * | **4** | **O-ring, Inner Stem** | **Nitrile** | N70010 | N70010 | N70111 | N70111 | N70111 | N70111 |
| * | **5** | **Bearing, Upper Adapter** | | 102757+ | 102757+ | 106047+ | 106047+ | 106047+ | 101995+ |
| * | **6** | **O-ring, Body (see note 2)** | **EPDM** | E70223 | E70228 | E70232 | E70236 | E70244 | E70258 |
| | | | **FKM** | V70223 | V70228 | V70232 | V70236 | V70244 | V70258 |
| | 8 | Stem, Upper (see note 1) | | | | | | | |
| * | **10a** | **Seat Ring -Tri Ring, Upper** | **EPDM** | 106031+ | 102736+ | 107048+ | 102488+ | 102491+ | 102738+ |
| | | | **FKM** | 107990+ | 107980+ | 107982+ | 107974+ | 107977+ | 108020+ |
| * | **11** | **Seat Ring -Tri Ring, Vent** | **EPDM** | 106041+ | 107693+ | 107696+ | 107697+ | 102490+ | 102737+ |
| | | | **FKM** | 107992+ | 107984+ | 107987+ | 107988+ | 107976+ | 108019+ |
| * | **12a** | **Seat Ring -Tri Ring, Lower** | **EPDM** | 106036+ | 107693+ | 102487+ | 102489+ | 102492+ | 102739+ |
| | | | **FKM** | 107991+ | 107984+ | 107973+ | 107975+ | 107978+ | 108021+ |
| * | **14a** | **Quad Ring, Lower** | **EPDM** | 122689+ | 35413+ | 34429+ | 117561+ | 116952+ | 122350+ |
| | | | **FKM** | 122690+ | 35414+ | 35415+ | 117562+ | 116953+ | 122351+ |
| * | **14b** | **Wiping Stem Seal, Lower** | **EPDM** | 116186+ | 116188+ | 116190+ | 116195+ | 116199+ | POA |
| | | | **FKM** | 116187+ | 116189+ | 116191+ | 116196+ | 116200+ | POA |
| * | **15** | **Bearing, Lower Seal Retainer** | | 101947+ | 102000+ | 106049+ | 106048+ | 102003+ | 102004+ |
| | 16 | Stem, Lower Assembly (see note 1) | | | | | | | |
| | 17a | Seal Retainer, Quad Ring | | 106066+ | 106067+ | 106068+ | 106069+ | 106070+ | 125047+ |
| | 17b | Seal Retainer, Wiping Stem Seal | | 117444+ | 117445+ | 117446+ | 117447+ | 117448+ | POA |
| | 18 | Clamp (see note 2) | | 119-30 | 119-33 | 119-34 | 119-51 | 119-87 | 119-123 |
| | 20a/c | Adapter, O-ring or Quad Ring | | 111043+ | 111017+ | 111196+ | 111026+ | 111029+ | 123970+ |
| | 20b | Adapter, Wiping Stem Seal | | 117840+ | 117841+ | 117842+ | 117843+ | 117878+ | POA |
| * | **21a** | **O-ring, Upper Stem** | **EPDM** | E70210 | E70210 | E70214 | E70214 | E70214 | N/A |
| | | | **FKM** | V70210 | V70210 | V70214 | V70214 | V70214 | N/A |
| * | **21c** | **Quad Ring, Upper Stem** | **EPDM** | 121300+ | 121300+ | 124163+ | 124163+ | 124163+ | 114221+ |
| | | | **FKM** | 124088+ | 124088+ | 121299+ | 121299+ | 121299+ | 114223+ |
| * | **21b** | **Wiping Stem Seal, Upper** | **EPDM** | 116183+ | 116183+ | 116184+ | 116184+ | 116184+ | POA |
| | | | **FKM** | 115626+ | 115626+ | 116185+ | 116185+ | 116185+ | POA |
| * | **25** | **O-ring, Non-Flush** | **EPDM** | E70115 | E70115 | E70121 | E70121 | E70121 | E70121 |
| | | | **FKM** | V70115 | V70115 | V70121 | V70121 | V70121 | V70121 |

Notes:

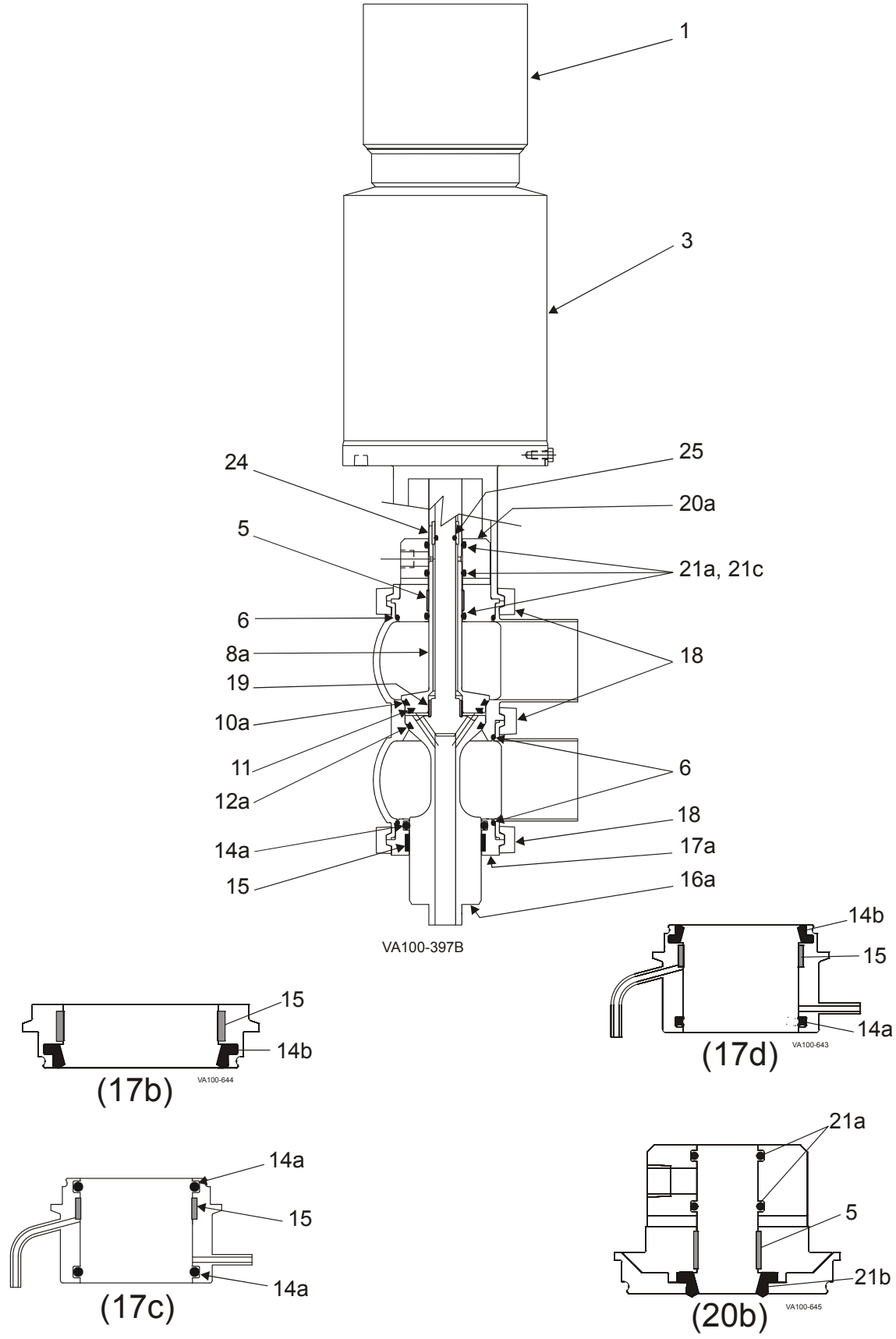
PL5027-CH47a

* Recommended Spare Parts

*** See actuator parts lists

1. For items 8 and 16, see W71 Mix Proof Non-Seat Lift Valve Stems Chart.
2. For one-piece body, qty. 2 are required for item 6 and item 18; for a clamped body, qty. 3 are required.
4. Unless otherwise noted, quantity required is 1.
6. POA = Part # on availability; N/A = not available with this design.

## W71 Mix Proof Non-Seat Lift Valve with External Flush



# W71 Mix Proof Non-Seat Lift Valve with External Flush

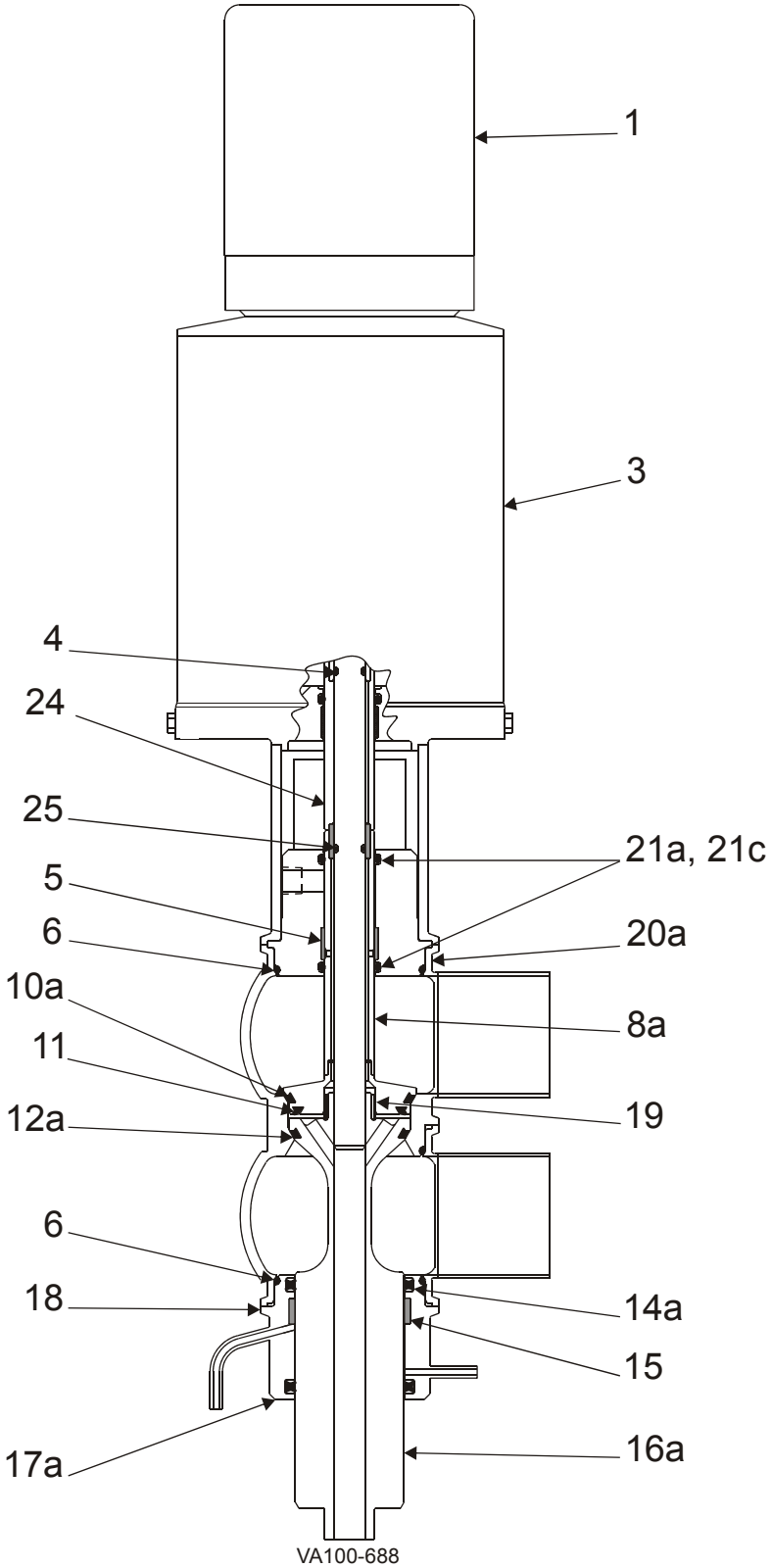
| | Item # | Part Description | | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | Control Top | | Contact Factory | | | | | |
| | 3 | Actuator | | *** | | | | | |
| * | **4** | **O-ring, Inner Stem (not shown)** | **Nitrile** | N70010 | N70010 | N70111 | N70111 | N70111 | N70111 |
| * | **5** | **Bearing, Upper Adapter** | | 102757+ | 102757+ | 106047+ | 106047+ | 106047+ | 101995+ |
| * | **6** | **O-ring, Body (see note 2)** | **EPDM** | E70223 | E70228 | E70232 | E70236 | E70244 | E70258 |
| | | | **FKM** | V70223 | V70228 | V70232 | V70236 | V70244 | V70258 |
| | 8 | Stem, Upper Assembly - See note 1, below | | | | | | | |
| * | **10a** | **Seat Ring -Tri Ring, Upper** | **EPDM** | 106031+ | 102736+ | 107048+ | 102488+ | 102491+ | 102738+ |
| | | | **FKM** | 107990+ | 107980+ | 107982+ | 107974+ | 107977+ | 108020+ |
| * | **11** | **Seat Ring -Tri Ring, Vent** | **EPDM** | 106041+ | 107693+ | 107696+ | 107697+ | 102490+ | 102737+ |
| | | | **FKM** | 107992+ | 107984+ | 107987+ | 107988+ | 107976+ | 108019+ |
| * | **12a** | **Seat Ring -Tri Ring, Lower** | **EPDM** | 106036+ | 107693+ | 102487+ | 102489+ | 102492+ | 102739+ |
| | | | **FKM** | 107991+ | 107984+ | 107973+ | 107975+ | 107978+ | 108021+ |
| * | **14a** | **Quad Ring, Lower** | **EPDM** | 122689+ | 35413+ | 34429+ | 117561+ | 116952+ | 122350+ |
| | | | **FKM** | 122690+ | 35414+ | 35415+ | 117562+ | 116953+ | 122351+ |
| * | **14b** | **Wiping Stem Seal, Lower** | **EPDM** | 116186+ | 116188+ | 116190+ | 116195+ | 116199+ | POA |
| | | | **FKM** | 116187+ | 116189+ | 116191+ | 116196+ | 116200+ | POA |
| * | **15** | **Bearing, Lower Seal Retainer** | | 101947+ | 102000+ | 106049+ | 106048+ | 102003+ | 102004+ |
| | 16 | Stem, Lower Assembly - See note 1, below | | | | | | | |
| | 17a | Seal Retainer, Quad Ring | | 106066+ | 106067+ | 106068+ | 106069+ | 106070+ | 125047+ |
| | 17b | Seal Retainer, Wiping Stem Seal | | 117444+ | 117445+ | 117446+ | 117447+ | 117448+ | POA |
| | 17c | Seal Retainer, Lower Flush, Quad Ring | | 114918+ | 117728+ | 114920+ | 117736+ | 118364+ | POA |
| | 17d | Seal Retainer, Lower Flush, Wiping Stem Seal | | 119050+ | 119035+ | 118226+ | 117559+ | 118253+ | POA |
| | 18 | Clamp | | 119-30 | 119-33 | 119-34 | 119-51 | 119-87 | 119-123 |
| | 19 | Spray Bushing | | 106030+ | 106030+ | 107950+ | 107950+ | 107950+ | 107950+ |
| | 20a/c | Adapter, O-ring or Quad Ring | | 106020+ | 106021+ | 106022+ | 106023+ | 106024+ | 128651+ |
| | 20b | Adapter, Wiping Stem Seal | | 119467+ | 119468+ | 119569+ | 119470+ | 119471+ | POA |
| * | **21a** | **O-ring, Upper Stem (qty 3 req'd)** | **EPDM** | E70210 | E70210 | E70214 | E70214 | E70214 | N/A |
| | | | **FKM** | V70210 | V70210 | V70214 | V70214 | V70214 | POA |
| * | **21c** | **Quad Ring, Upper Stem (qty 3 req'd)** | **EPDM** | 121300+ | 121300+ | 124163+ | 124163+ | 124163+ | 114221+ |
| | | | **FKM** | 124088+ | 124088+ | 121299+ | 121299+ | 121299+ | 114223+ |
| * | **21b** | **Wiping Stem Seal, Upper (qty 3 req'd)** | **EPDM** | 116183+ | 116183+ | 116184+ | 116184+ | 116184+ | POA |
| | | | **FKM** | 115626+ | 115626+ | 116185+ | 116185+ | 116185+ | POA |
| | 24 | Stem, Actuator, NSL Flush - See note 1, below | | | | | | | |
| * | **25** | **O-ring, Flush** | **EPDM** | E70010 | E70010 | E70111 | E70111 | E70111 | E70111 |
| | | | **FKM** | V70010 | V70010 | V70111 | V70111 | V70111 | V70111 |

**Notes:** *** Recommended Spare Parts** PL5027-CH48a

*** See actuator parts lists

1. For items 8, 16, and 24, see W71 Mix Proof Non-Seat Lift with External Flush Valve Stems Chart.
2. For one-piece body, qty. 2 are required for item 6 and item 18; for a clamped body, qty. 3 are required.
4. Unless otherwise noted, quantity required is 1.
6. POA = Part # on availability; N/A = not available with this design.

## W71 Mix Proof Non-Seat Lift Valve with Steam Adapter



# W71 Mix Proof Non-Seat Lift Valve with Steam Adapter

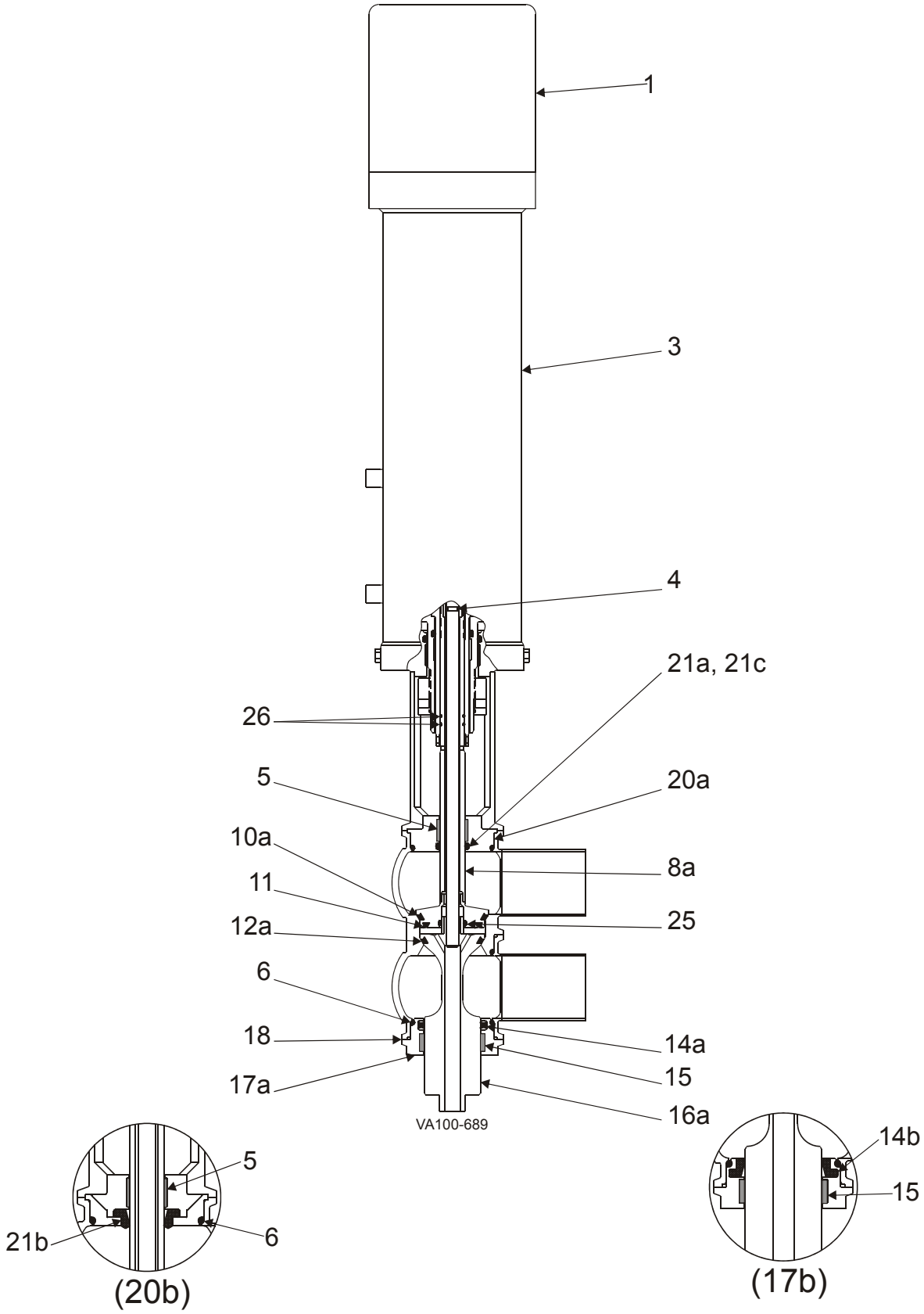
| | Item # | Part Description | | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | Control Top | | Contact Factory | | | | | |
| | 3 | Actuator | | *** | | | | | |
| * | **4** | **O-ring, Inner Stem** | **Nitrile** | N70010 | N70010 | N70111 | N70111 | N70111 | N70111 |
| * | **5** | **Bearing, Upper Adapter** | | 102757+ | 102757+ | 106047+ | 106047+ | 106047+ | 101995+ |
| * | **6** | **O-ring, Body (see note 2)** | **EPDM** | E70223 | E70228 | E70232 | E70236 | E70244 | E70258 |
| | | | **FKM** | V70223 | V70228 | V70232 | V70236 | V70244 | V70258 |
| | 8 | Stem, Upper Assembly - See note 1, below | | | | | | | |
| * | **10a** | **Seat Ring -Tri Ring, Upper** | **EPDM** | 106031+ | 102736+ | 107048+ | 102488+ | 102491+ | 102738+ |
| | | | **FKM** | 107990+ | 107980+ | 107982+ | 107974+ | 107977+ | 108020+ |
| * | **11** | **Seat Ring -Tri Ring, Vent** | **EPDM** | 106041+ | 107693+ | 107696+ | 107697+ | 102490+ | 102737+ |
| | | | **FKM** | 107992+ | 107984+ | 107987+ | 107988+ | 107976+ | 108019+ |
| * | **12a** | **Seat Ring -Tri Ring, Lower** | **EPDM** | 106036+ | 107693+ | 102487+ | 102489+ | 102492+ | 102739+ |
| | | | **FKM** | 107991+ | 107984+ | 107973+ | 107975+ | 107978+ | 108021+ |
| * | **14a** | **Quad Ring, Lower (qty 2 req)** | **EPDM** | 122689+ | 35413+ | 34429+ | 117561+ | 116952+ | 122350+ |
| | | | **FKM** | 122690+ | 35414+ | 35415+ | 117562+ | 116953+ | 122351+ |
| * | **15** | **Bearing, Lower Seal Retainer** | | 101947+ | 102000+ | 106049+ | 106048+ | 102003+ | 102004+ |
| | 16 | Stem, Lower Assembly - See note 1, below | | | | | | | |
| | 17a | Seal Retainer, Lower Flush, Quad Ring | | POA | 117728+ | 122609+ | 117736+ | 118364+ | POA |
| | 18 | Clamp | | 119-30 | 119-33 | 119-34 | 119-51 | 119-87 | 119-123 |
| | 19 | Spray Bushing | | 106030+ | 106030+ | 107950+ | 107950+ | 107950+ | 107950+ |
| | 20a | Adapter, O-ring or Quad Ring | | POA | 117741+ | 114925+ | 117742+ | 114927+ | POA |
| * | **21a** | **O-ring, Upper Stem (qty 2 req)** | **EPDM** | E70210 | E70210 | E70214 | E70214 | E70214 | N/A |
| | | | **FKM** | V70210 | V70210 | V70214 | V70214 | V70214 | POA |
| * | **21c** | **Quad Ring, Upper Stem (qty 2 req)** | **EPDM** | 121300+ | 121300+ | 124163+ | 124163+ | 124163+ | 114221+ |
| | | | **FKM** | 124088+ | 124088+ | 121299+ | 121299+ | 121299+ | 114223+ |
| | 24 | Stem, Actuator, NSL Flush - See note 1, below | | | | | | | |
| * | **25** | **O-ring, Flush (not shown)** | **EPDM** | E70010 | E70010 | E70111 | E70111 | E70111 | E70111 |
| | | | **FKM** | V70010 | V70010 | V70111 | V70111 | V70111 | V70111 |

**Notes:** *** Recommended Spare Parts** PL5027-CH86a

*** See actuator parts lists

1. For items 8, 16, and 24, see W71 Mix Proof Non-Seat Lift with Steam Adapter Valve Stems Chart.
2. For one-piece body, qty. 2 are required for item 6 and item 18; for a clamped body, qty. 3 are required.
4. Unless otherwise noted, quantity required is 1.
5. **EPDM recommended on all steam-contact seals.**
6. POA = Part # on availability; N/A = not available with this design.

## W71 Mix Proof Seat Lift Valve



# W71 Mix Proof Seat Lift Valve

| | Item # | Part Description | | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | Control Top | | Contact Factory | | | | | |
| | 3 | Actuator | | *** | | | | | |
| * | 4 | **O-ring, Inner Stem** | **Nitrile** | N70010 | N70010 | N70111 | N70111 | N70111 | N70111 |
| * | 5 | **Bearing, Upper Adapter** | | 102757+ | 102757+ | 106047+ | 106047+ | 106047+ | 101995+ |
| * | 6 | **O-ring, Body (see note 2)** | **EPDM** | E70223 | E70228 | E70232 | E70236 | E70244 | E70258 |
| | | | **FKM** | V70223 | V70228 | V70232 | V70236 | V70244 | V70258 |
| | 8 | Stem, Upper - See note 1, below | | | | | | | |
| * | 10a | **Seat Ring -Tri Ring, Upper** | **EPDM** | 106031+ | 102736+ | 107048+ | 102488+ | 102491+ | 102738+ |
| | | | **FKM** | 107990+ | 107980+ | 107982+ | 107974+ | 107977+ | 108020+ |
| * | 11 | **Seat Ring -Tri Ring, Vent** | **EPDM** | 106041+ | 107693+ | 107696+ | 107697+ | 102490+ | 102737+ |
| | | | **FKM** | 107992+ | 107984+ | 107987+ | 107988+ | 107976+ | 108019+ |
| * | 12a | **Seat Ring -Tri Ring, Lower** | **EPDM** | 106036+ | 107693+ | 102487+ | 102489+ | 102492+ | 102739+ |
| | | | **FKM** | 107991+ | 107984+ | 107973+ | 107975+ | 107978+ | 108021+ |
| * | 14a | **Quad Ring, Lower** | **EPDM** | 122689+ | 35413+ | 34429+ | 117561+ | 116952+ | 122350+ |
| | | | **FKM** | 122690+ | 35414+ | 35415+ | 117562+ | 116953+ | 122351+ |
| * | 14b | **Wiping Stem Seal, Lower** | **EPDM** | 116186+ | 116188+ | 116190+ | 116195+ | 116199+ | POA |
| | | | **FKM** | 116187+ | 116189+ | 116191+ | 116196+ | 116200+ | POA |
| * | 15 | **Bearing, Lower Seal Retainer** | | 101947+ | 102000+ | 106049+ | 106048+ | 102003+ | 102004+ |
| | 16 | Stem, Lower Assembly - See note 1, below | | | | | | | |
| | 17a | Seal Retainer, Quad Ring | | 106066+ | 106067+ | 106068+ | 106069+ | 106070+ | 125047+ |
| | 17b | Seal Retainer, Wiping Stem Seal | | 117444+ | 117445+ | 117446+ | 117447+ | 117448+ | POA |
| | 18 | Clamp | | 119-30 | 119-33 | 119-34 | 119-51 | 119-87 | 119-123 |
| | 20a | Adapter, O-ring or Quad Ring | | 111043+ | 111017+ | 111196+ | 111026+ | 111029+ | 123970+ |
| | 20b | Adapter, Wiping Stem Seal | | 117840+ | 117841+ | 117842+ | 117843+ | 117878+ | POA |
| * | 21a | **O-ring, Upper Stem** | **EPDM** | E70210 | E70210 | E70214 | E70214 | E70214 | N/A |
| | | | **FKM** | V70210 | V70210 | V70214 | V70214 | V70214 | N/A |
| * | 21c | **Quad Ring, Upper Stem** | **EPDM** | 121300+ | 121300+ | 124163+ | 124163+ | 124163+ | 114221+ |
| | | | **FKM** | 124088+ | 124088+ | 121299+ | 121299+ | 121299+ | 114223+ |
| * | 21b | **Wiping Stem Seal, Upper** | **EPDM** | 116183+ | 116183+ | 116184+ | 116184+ | 116184+ | POA |
| | | | **FKM** | 115626+ | 115626+ | 116185+ | 116185+ | 116185+ | POA |
| * | 25 | **O-ring, Non-Flush** | **EPDM** | E70115 | E70115 | E70121 | E70121 | E70121 | E70121 |
| | | | **FKM** | V70115 | V70115 | V70121 | V70121 | V70121 | V70121 |
| * | 26 | **O-ring, outer stem (qty 2 req)** | **Nitrile** | N90016 | N90016 | N90020 | N90020 | N90020 | N90020 |

PL5027-CH49a

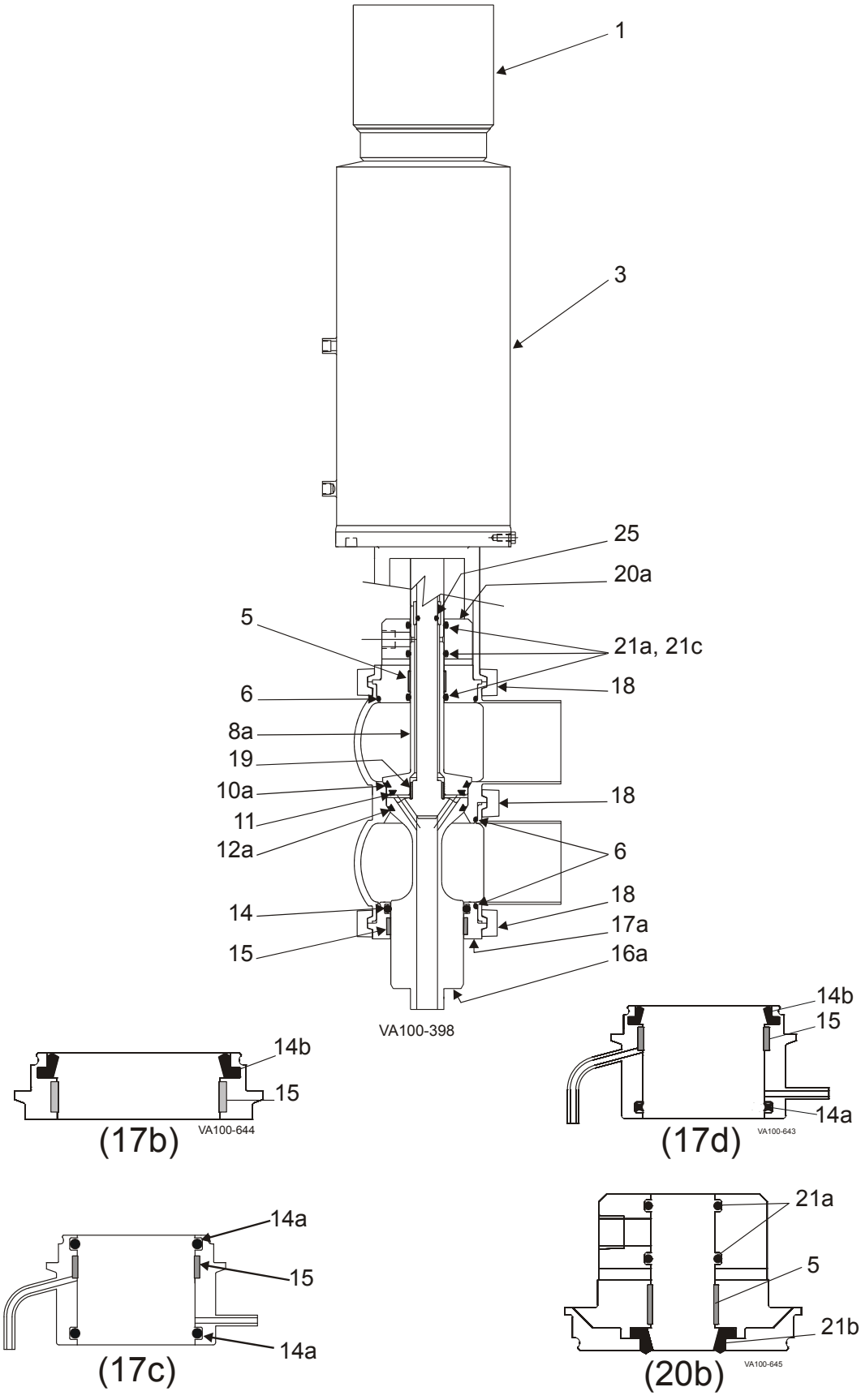
Notes:

* Recommended Spare Parts

*** See actuator parts lists

1. For items 8 and 16, see W71 Mix Proof Seat Lift Valve Stems Chart.
2. For one-piece body, qty. 2 are required for item 6 and item 18; for a clamped body, qty. 3 are required.
4. Unless otherwise noted, quantity required is 1.
6. POA = Part # on availability; N/A = not available with this design.

## W71 Mix Proof Seat Lift Valve with External Flush



# W71 Mix Proof Seat Lift Valve with External Flush

| | Item # | Part Description | | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | Control Top | | Contact Factory | | | | | |
| | 3 | Actuator | | *** | | | | | |
| * | 4 | **O-ring, inner stem (not shown)** | **Nitrile** | N70010 | N70010 | N70111 | N70111 | N70111 | N70111 |
| * | 5 | **Bearing, Upper Adapter** | | 102757+ | 102757+ | 106047+ | 106047+ | 106047+ | 101995+ |
| * | 6 | **O-ring, Body (see note 2)** | **EPDM** | E70223 | E70228 | E70232 | E70236 | E70244 | E70258 |
| | | | **FKM** | V70223 | V70228 | V70232 | V70236 | V70244 | V70258 |
| | 8 | Stem, Upper Assembly - See note 1, below | | | | | | | |
| * | 10a | **Seat Ring -Tri Ring, Upper** | **EPDM** | 106031+ | 102736+ | 107048+ | 102488+ | 102491+ | 102738+ |
| | | | **FKM** | 107990+ | 107980+ | 107982+ | 107974+ | 107977+ | 108020+ |
| * | 11 | **Seat Ring -Tri Ring, Vent** | **EPDM** | 106041+ | 107693+ | 107696+ | 107697+ | 102490+ | 102737+ |
| | | | **FKM** | 107992+ | 107984+ | 107987+ | 107988+ | 107976+ | 108019+ |
| * | 12a | **Seat Ring -Tri Ring, Lower** | **EPDM** | 106036+ | 107693+ | 102487+ | 102489+ | 102492+ | 102739+ |
| | | | **FKM** | 107991+ | 107984+ | 107973+ | 107975+ | 107978+ | 108021+ |
| * | 14a | **Quad Ring, Lower** | **EPDM** | 122690+ | 35413+ | 34429+ | 117561+ | 116952+ | 122350+ |
| | | | **FKM** | 122689+ | 35414+ | 35415+ | 117562+ | 116953+ | 122351+ |
| * | 14b | **Wiping Stem Seal, Lower** | **EPDM** | 116186+ | 116188+ | 116198+ | 116195+ | 116199+ | POA |
| | | | **FKM** | 116187+ | 116189+ | 116191+ | 116196+ | 116200+ | POA |
| * | 15 | **Bearing, Lower Seal Retainer** | | 101947+ | 102000+ | 106049+ | 106048+ | 102003+ | 102004+ |
| | 16 | Stem, Lower Assembly - See note 1, below | | | | | | | |
| | 17a | Seal Retainer, Quad Ring | | 106066+ | 106067+ | 106068+ | 106069+ | 106070+ | 125047+ |
| | 17b | Seal Retainer, Wiping Stem Seal | | 117444+ | 117445+ | 117446+ | 117447+ | 117448+ | POA |
| | 17c | Seal Retainer, Lower Flush, Quad Ring | | 121374+ | 117728+ | 122609+ | 117736+ | 118364+ | POA |
| | 17d | Seal Retainer, Lower Flush, Wiping Stem Seal | | 119050+ | 119035+ | 118226+ | 117559+ | 118253+ | POA |
| | 18 | Clamp | | 119-30 | 119-33 | 119-34 | 119-51 | 119-87 | 119-123 |
| | 19 | Spray Bushing | | 106030+ | 106030+ | 107950+ | 107950+ | 107950+ | 107950+ |
| | 20a | Adapter (External Flush), O-ring or Quad Ring | | 106020+ | 106021+ | 106022+ | 106023+ | 106024+ | 128651+ |
| | 20b | Adapter, Wiping Stem Seal | | 119467+ | 119468+ | 119469+ | 119470+ | 119471+ | POA |
| * | 21a | **O-ring, Upper Stem (qty 3 required)** | **EPDM** | E70210 | E70210 | E70214 | E70214 | E70214 | N/A |
| | | | **FKM** | V70210 | V70210 | V70214 | V70214 | V70214 | N/A |
| * | 21c | **Quad Ring, Upper Stem (qty 3 req)** | **EPDM** | 121300+ | 121300+ | 124163+ | 124163+ | 124163+ | 114221+ |
| | | | **FKM** | 124088+ | 124088+ | 121299+ | 121299+ | 121299+ | 114223+ |
| * | 21b | **Wiping Stem Seal, Upper** | **EPDM** | 116183+ | 116183+ | 116184+ | 116184+ | 116184+ | POA |
| | | | **FKM** | 115626+ | 115626+ | 116185+ | 116185+ | 116185+ | POA |
| * | 25 | **O-ring, Flush** | **EPDM** | E70010 | E70010 | E70111 | E70111 | E70111 | E70111 |
| | | | **FKM** | V70010 | V70010 | V70111 | V70111 | V70111 | V70111 |
| * | 26 | **O-ring, Outer Stem (not shown, qty 2)** | **Nitrile** | N90016 | N90016 | N90020 | N90020 | N90020 | N90020 |

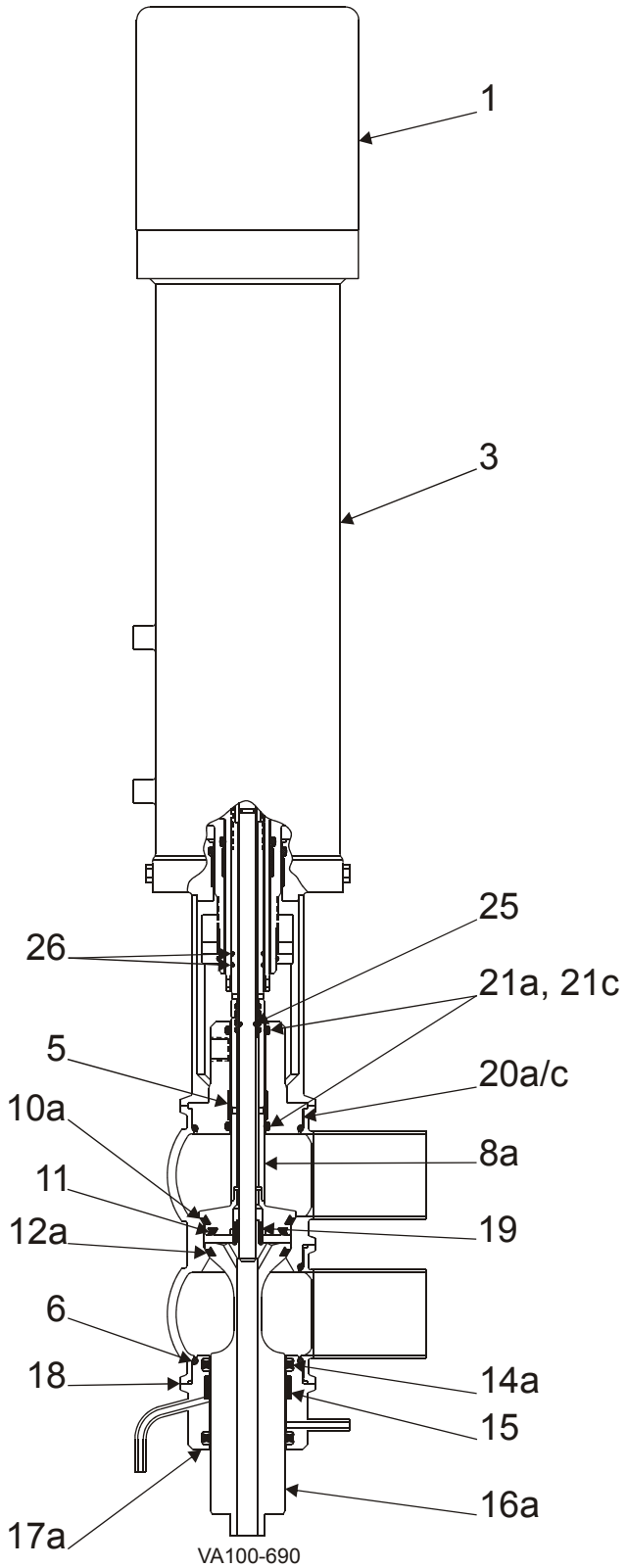
Notes: PL5027-CH50a

* Recommended Spare Parts

*** See actuator parts lists

1. For items 8 and 16, see W71 Mix Proof Seat Lift with External Flush Valve Stems Chart.
2. For one-piece body, qty. 2 are required for item 6 and item 18; for a clamped body, qty. 3 are required.
4. Unless otherwise noted, quantity required is 1.
6. POA = Part # on availability; N/A = not available with this design.

## W71 Mix Proof Seat Lift Valve with Steam Adapter



# W71 Mix Proof Seat Lift Valve with Steam Adapter

| | Item # | Part Description | | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | Control Top | | Contact Factory | | | | | |
| | 3 | Actuator | | *** | | | | | |
| * | **4** | **O-ring (not shown)** | **Nitrile** | N70010 | N70010 | N70111 | N70111 | N70111 | N70111 |
| * | **5** | **Bearing, Upper Adapter** | | 102757+ | 102757+ | 106047+ | 106047+ | 106047+ | 101995+ |
| * | **6** | **O-ring, Body (see note 2)** | **EPDM** | E70223 | E70228 | E70232 | E70236 | E70244 | E70258 |
| | | | **FKM** | V70223 | V70228 | V70232 | V70236 | V70244 | V70258 |
| | 8 | Stem, Upper Assembly - See note 1, below | | | | | | | |
| * | **10a** | **Seat Ring -Tri Ring, Upper** | **EPDM** | 106031+ | 102736+ | 107048+ | 102488+ | 102491+ | 102738+ |
| | | | **FKM** | 107990+ | 107980+ | 107982+ | 107974+ | 107977+ | 108020+ |
| * | **11** | **Seat Ring -Tri Ring, Vent** | **EPDM** | 106041+ | 107693+ | 107696+ | 107697+ | 102490+ | 102737+ |
| | | | **FKM** | 107992+ | 107984+ | 107987+ | 107988+ | 107976+ | 108019+ |
| * | **12a** | **Seat Ring -Tri Ring, Lower** | **EPDM** | 106036+ | 107693+ | 102487+ | 102489+ | 102492+ | 102739+ |
| | | | **FKM** | 107991+ | 107984+ | 107973+ | 107975+ | 107978+ | 108021+ |
| | **14a** | **Quad Ring, Lower (qty 2 req)** | **EPDM** | E70322 | E70327 | E70331 | E70335 | E70342 | N/A |
| * | | | **FKM** | V70322 | V70327 | V70331 | V70335 | V70342 | N/A |
| * | **15** | **Bearing, Lower Seal Retainer** | | 101947+ | 102000+ | 106049+ | 106048+ | 102003+ | POA |
| | 16 | Stem, Lower Assembly - See note 1, below | | | | | | | |
| | 17a | Seal Retainer, Lower Flush, Quad Ring | | POA | 117728+ | 122609+ | 117736+ | 118364+ | POA |
| | 18 | Clamp | | 119-30 | 119-33 | 119-34 | 119-51 | 119-87 | 119-123 |
| | 19 | Spray Bushing | | 106030+ | 106030+ | 107950+ | 107950+ | 107950+ | 107950+ |
| | 20a/c | Adapter, O-ring or Quad Ring | | POA | 117741+ | 114925+ | 117742+ | 114927+ | POA |
| * | **21a** | **O-ring, Upper Stem (qty 2 req)** | **EPDM** | E70210 | E70210 | E70214 | E70214 | E70214 | N/A |
| | | | **FKM** | V70210 | V70210 | V70214 | V70214 | V70214 | N/A |
| * | **21c** | **Quad Ring, Upper Stem (qty 2 req)** | **EPDM** | 121300+ | 121300+ | 124163+ | 124163+ | 124163+ | 114221+ |
| | | | **FKM** | 124088+ | 124088+ | 121299+ | 121299+ | 121299+ | 114223+ |
| * | **25** | **O-ring, Flush (not shown)** | **EPDM** | E70010 | E70010 | E70111 | E70111 | E70111 | E70111 |
| | | | **FKM** | V70010 | V70010 | V70111 | V70111 | V70111 | V70111 |
| * | **26** | **O-ring, Outer Stem (qty 2 req)** | **Nitrile** | N90016 | N90016 | N90020 | N90020 | N90020 | N90020 |

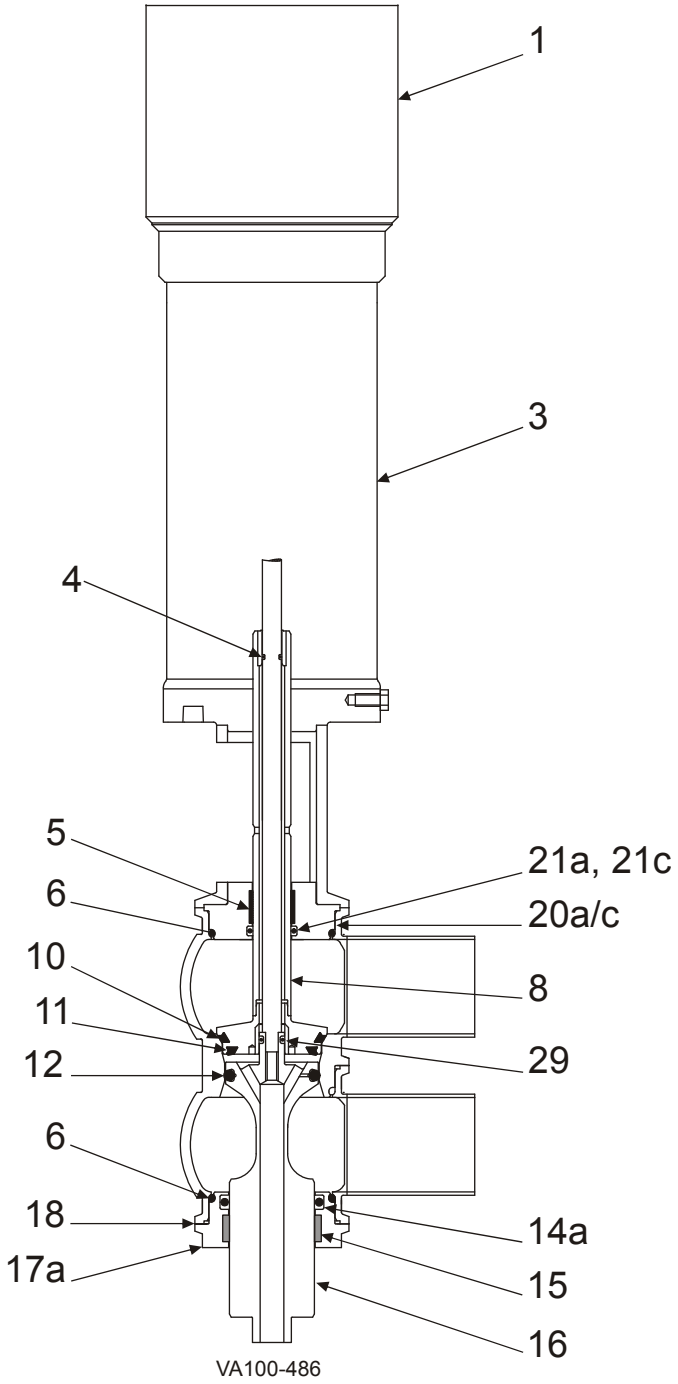
**Notes:** PL5027-CH87a

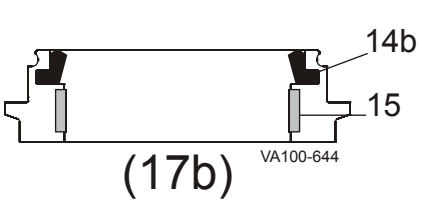
* Recommended Spare Parts

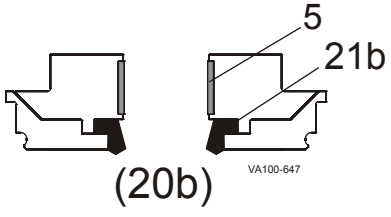
*** See actuator parts lists

1. For items 8 and 16, see W71 Mix Proof Seat Lift with Steam Adapter Valve Stems Chart.
2. For one-piece body, qty. 2 are required for item 6 and item 18; for a clamped body, qty. 3 are required.
4. Unless otherwise noted, quantity required is 1.
5. **EPDM recommended on all steam-contact seals.**
6. POA = Part # on availability; N/A = not available with this design.

## W72RS Mix Proof Non-Seat Lift Valve



## W72RS Mix Proof Non-Seat Lift Valve

| | Item # | Part Description | | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | Control Top | | Contact Factory *** | | | | | |
| | 3 | Actuator | | | | | | | |
| * | **4** | **O-ring, Inner Stem** | **Nitrile** | N70010 | N70010 | N70111 | N70111 | N70111 | N70111 |
| * | **5** | **Bearing, Upper Adapter** | | 102757+ | 102757+ | 106047+ | 106047+ | 106047+ | 101995+ |
| * | **6** | **O-ring, Body (see note 2)** | **EPDM** | E70223 | E70228 | E70232 | E70236 | E70244 | E70258 |
| | | | **FKM** | V70223 | V70228 | V70232 | V70236 | V70244 | V70258 |
| | 8 | Stem, Upper - See note 1, below | | | | | | | |
| * | **10** | **Seat Ring - Tri Ring, Upper** | **EPDM** | 106031+ | 102736+ | 107048+ | 102488+ | 102491+ | 102738+ |
| | | | **FKM** | 107990+ | 107980+ | 107982+ | 107974+ | 107977+ | 108020+ |
| * | **11** | **Seat Ring - Tri Ring, Vent** | **EPDM** | 106041+ | 107693+ | 107696+ | 107697+ | 102490+ | 102737+ |
| | | | **FKM** | 107992+ | 107984+ | 107987+ | 107988+ | 107976+ | 108019+ |
| * | **12** | **Seat Ring - Radial O-ring, Lower** | **EPDM** | E80319 | E80325 | E80329 | E80333 | E80340 | E80354 |
| | | | **FKM** | V80319 | V80325 | V80329 | V80333 | V80340 | V80354 |
| * | **14a** | **Quad Ring, Lower** | **EPDM** | N/A | N/A | 117992+ | 117561+ | 116952+ | 122350+ |
| | | | **FKM** | N/A | 35414+ | 117993+ | 117562+ | 116953+ | 122351+ |
| * | **14b** | **Wiping Stem Seal, Lower** | **EPDM** | 116186+ | 116188+ | 116190+ | 116195+ | 116199+ | POA |
| | | | **FKM** | 116187+ | 116189+ | 116191+ | 116196+ | 116200+ | POA |
| * | **15** | **Bearing, Lower Seal Retainer** | | 101947+ | 102000+ | 106049+ | 106048+ | 102003+ | 102004+ |
| | 16 | Stem, Lower Assembly - See note 1, below | | | | | | | |
| | 17a | Seal Retainer, Quad Ring | | 106066+ | 106067+ | 106068+ | 106069+ | 106070+ | 125047+ |
| | 17b | Seal Retainer, Wiping Stem Seal | | 117444+ | 117445+ | 117446+ | 117447+ | 117448+ | POA |
| | 18 | Clamp | | 119-30 | 119-33 | 119-34 | 119-51 | 119-87 | 119-123 |
| | 20a/c | Adapter | | 111043+ | 111017+ | 111196+ | 111026+ | 111029+ | 123970+ |
| | 20b | Adapter, Wiping Stem Seal | | 119482+ | 119483+ | 119484+ | 119485+ | 119486+ | POA |
| * | **21a** | **O-ring, Upper Stem** | **EPDM** | E70210 | E70210 | E70214 | E70214 | E70214 | N/A |
| | | | **FKM** | V70210 | V70210 | V70214 | V70214 | V70214 | N/A |
| * | **21c** | **Quad Ring, Upper Stem** | **EPDM** | 121300+ | 121300+ | 124163+ | 124163+ | 124163+ | 114221+ |
| | | | **FKM** | 124088+ | 124088+ | 121299+ | 121299+ | 121299+ | 114223+ |
| * | **21b** | **Wiping Stem Seal, Upper** | **EPDM** | 116183+ | 116183+ | 116184+ | 116184+ | 116184+ | POA |
| | | | **FKM** | 115626+ | 115626+ | 116185+ | 116185+ | 116185+ | POA |
| * | **29** | **O-ring, Non-Flush** | **EPDM** | E70109 | E70109 | E70113 | E70113 | E70113 | E70113 |
| | | | **FKM** | V70109 | V70109 | V70113 | V70113 | V70113 | V70113 |

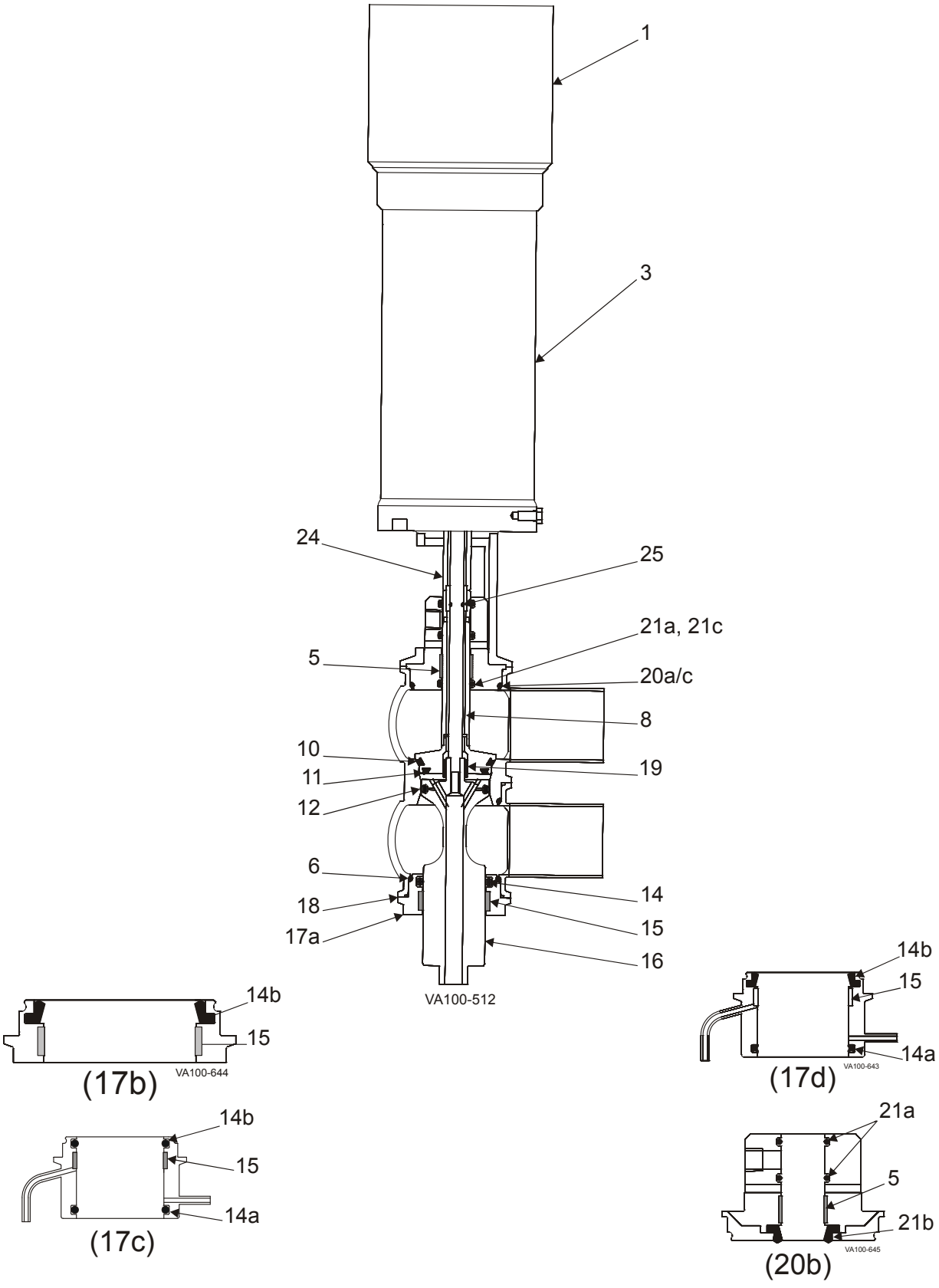
* Recommended Spare Parts

PL5027-CH51

*** See actuator parts lists

1. For items 8 and 16, see W72RS Mix Proof Non-Seat Lift Valve Stems Chart.
2. For one-piece body, qty. 2 are required for item 6 and item 18; for a clamped body, qty. 3 are required.
4. Unless otherwise noted, quantity required is 1.
6. POA = Part # on availability; N/A = not available with this design.

## W72RS Mix Proof Non-Seat Lift Valve with External Flush



## W72RS Mix Proof Non-Seat Lift Valve with External Flush

| | Item # | Part Description | | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | Control Top | | Contact Factory | | | | | |
| | 3 | Actuator | | *** | | | | | |
| * | **4** | **O-ring, Inner Stem (not shown)** | **Nitrile** | N70010 | N70010 | N70111 | N70111 | N70111 | N70111 |
| * | **5** | **Bearing, Upper Adapter** | | 102757+ | 102757+ | 106047+ | 106047+ | 106047+ | 101995+ |
| * | **6** | **O-ring, Body (see note 2)** | **EPDM** | E70223 | E70228 | E70232 | E70236 | E70244 | E70258 |
| | | | **FKM** | V70223 | V70228 | V70232 | V70236 | V70244 | V70258 |
| | 8 | Stem, Upper Assembly - See note 1, below | | | | | | | |
| * | **10** | **Seat Ring - Tri Ring, Upper** | **EPDM** | 106031+ | 102736+ | 107048+ | 102488+ | 102491+ | 102738+ |
| | | | **FKM** | 107990+ | 107980+ | 107982+ | 107974+ | 107977+ | 108020+ |
| * | **11** | **Seat Ring - Tri Ring, Vent** | **EPDM** | 106041+ | 107693+ | 107696+ | 107697+ | 102490+ | 102737+ |
| | | | **FKM** | 107992+ | 107984+ | 107987+ | 107988+ | 107976+ | 108019+ |
| * | **12** | **Seat Ring - Radial O-ring, Lower** | **EPDM** | E80319 | E80325 | E80329 | E80333 | E80340 | E80354 |
| | | | **FKM** | V80319 | V80325 | V80329 | V80333 | V80340 | V80354 |
| * | **14a** | **Quad Ring, Lower** | **EPDM** | 122689+ | 35413+ | 34429+ | 117561+ | 116952+ | 122350+ |
| | | | **FKM** | 122690+ | 35414+ | 35415+ | 117562+ | 116953+ | 122351+ |
| * | **14b** | **Wiping Stem Seal, Lower** | **EPDM** | 116186+ | 116188+ | 116198+ | 116195+ | 116199+ | POA |
| | | | **FKM** | 116187+ | 116189+ | 116191+ | 116196+ | 116200+ | POA |
| * | **15** | **Bearing, Lower Seal Retainer** | | 101947+ | 102000+ | 106049+ | 106048+ | 102003+ | POA |
| | 16a | Stem, Lower Assembly - See note 1, below | | | | | | | |
| | 16b | Stem, Lower Flush - See note 1, below | | | | | | | |
| | 17a | Seal Retainer, Quad Ring | | 106066+ | 106067+ | 106068+ | 106069+ | 106070+ | 125047+ |
| | 17b | Seal Retainer, Wiping Stem Seal | | 117444+ | 117445+ | 117446+ | 117447+ | 117448+ | POA |
| | 17c | Seal Retainer, Lower Flush, Quad Ring | | 121374+ | 117728+ | 122609+ | 117736+ | 118364+ | POA |
| | 17d | Seal Retainer, Lower Flush, Wiping Stem Seal | | 119050+ | 119035+ | 118226+ | 117559+ | 118253+ | POA |
| | 18 | Clamp | | 119-30 | 119-33 | 119-34 | 119-51 | 119-87 | 119-123 |
| | 19 | Spray Bushing | | 106030+ | 106030+ | 118210+ | 118210+ | 118210+ | 118210+ |
| | 20a/c | Adapter | | 106020+ | 106021+ | 106022+ | 106023+ | 106024+ | 128651+ |
| | 20b | Adapter, Wiping Stem Seal | | 119467+ | 119468+ | 119469+ | 119470+ | 119471+ | POA |
| * | **21a** | **O-ring, Upper Stem (qty 3 req)** | **EPDM** | E70210 | E70210 | E70214 | E70214 | E70214 | N/A |
| | | | **FKM** | E70210 | V70210 | V70214 | V70214 | V70214 | N/A |
| * | **21c** | **Quad Ring, Upper Stem (qty 3 req)** | **EPDM** | 121300+ | 121300+ | 124163+ | 124163+ | 124163+ | 114221+ |
| | | | **FKM** | 124088+ | 124088+ | 121299+ | 121299+ | 121299+ | 114223+ |
| * | **21b** | **Wiping Stem Seal, Upper (qty 3 req)** | **EPDM** | 116183+ | 116183+ | 116184+ | 116184+ | 116184+ | POA |
| | | | **FKM** | 115626+ | 115626+ | 116185+ | 116185+ | 116185+ | POA |
| | 24 | Stem, Actuator, NSL Flush - See note 1, below | | | | | | | |
| * | **25** | **O-ring, Flush** | **EPDM** | E70010 | E70010 | E70111 | E70111 | E70111 | E70111 |
| | | | **FKM** | V70010 | V70010 | V70111 | V70111 | V70111 | V70111 |

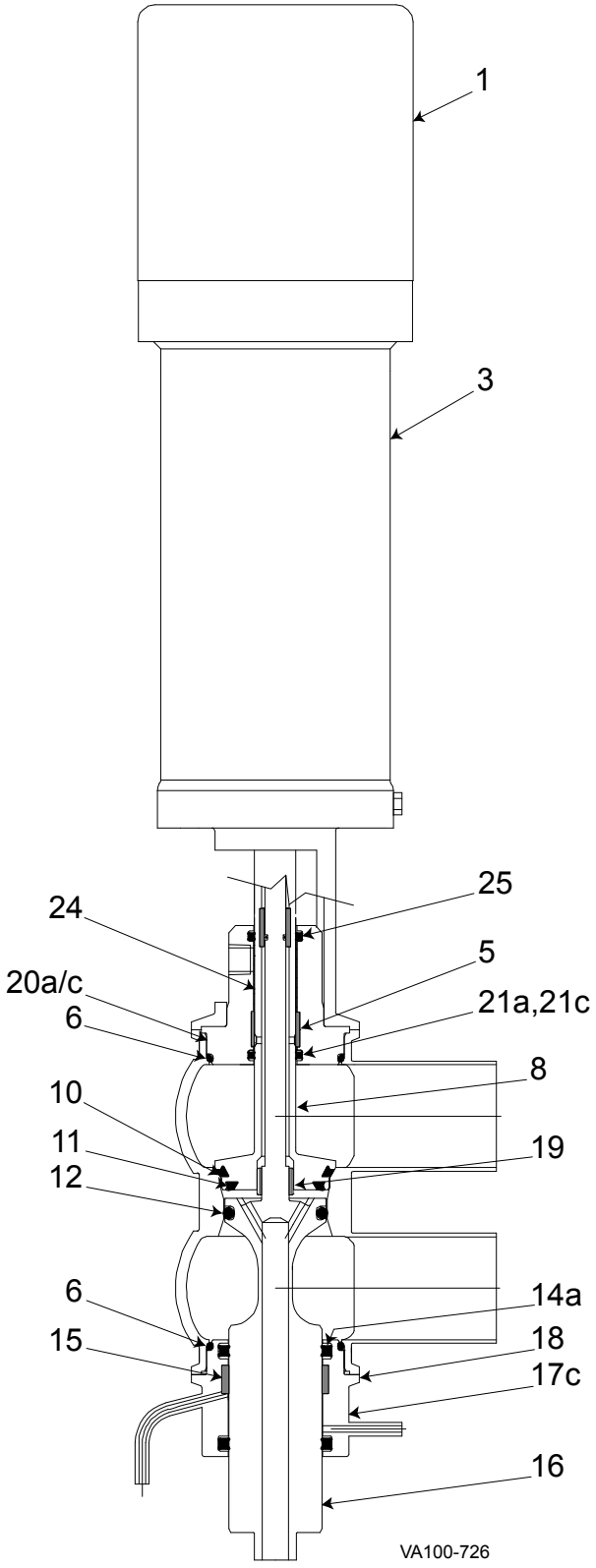
**Notes:** PL5027-CH52

* Recommended Spare Parts

*** See actuator parts lists

1. For items 8, 16, and 24, see W72RS Mix Proof Non-Seat Lift with External Flush Valve Stems Chart.
2. For one-piece body, qty. 2 are required for item 6 and item 18; for a clamped body, qty. 3 are required.
4. Unless otherwise noted, quantity required is 1.
6. POA = Part # on availability; N/A = not available with this design.

## W72RS Mix Proof Non-Seat Lift Valve with Steam Adapter



## W72RS Mix Proof Non-Seat Lift Valve with Steam Adapter

| | Item # | Part Description | | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | Control Top | | Contact Factory | | | | | |
| | 3 | Actuator | | *** | | | | | |
| * | **4** | **O-ring (not shown)** | **Nitrile** | N70010 | N70010 | N70111 | N70111 | N70111 | N70111 |
| * | **5** | **Bearing** | | 102757+ | 102757+ | 106047+ | 106047+ | 106047+ | 101995+ |
| * | **6** | **O-ring, Body (see note 2)** | **EPDM** | E70223 | E70228 | E70232 | E70236 | E70244 | E70258 |
| | | | **FKM** | V70223 | V70228 | V70232 | V70236 | V70244 | V70258 |
| | 8 | Stem, Upper Assembly - See note 1, below | | | | | | | |
| * | **10** | **Seat Ring - Tri Ring, Upper** | **EPDM** | 106031+ | 102736+ | 107048+ | 102488+ | 102491+ | 102738+ |
| | | | **FKM** | 107990+ | 107980+ | 107982+ | 107974+ | 107977+ | 108020+ |
| * | **11** | **Seat Ring - Tri Ring, Vent** | **EPDM** | 106041+ | 107693+ | 107696+ | 107697+ | 102490+ | 102737+ |
| | | | **FKM** | 107992+ | 107984+ | 107987+ | 107988+ | 107976+ | 108019+ |
| * | **12** | **Seat Ring - O-ring, Lower** | **EPDM** | E80319 | E80325 | E80329 | E80333 | E80340 | E80354 |
| | | | **FKM** | V80319 | V80325 | V80329 | V80333 | V80340 | V80354 |
| * | **14a** | **Quad Ring, Lower (qty 2 req)** | **EPDM** | 122690+ | 35413+ | 34429+ | 117561+ | 116952+ | 122350+ |
| | | | **FKM** | 122689+ | 35414+ | 35415+ | 117562+ | 116953+ | 122351+ |
| * | **15** | **Bearing, Lower Seal Retainer** | | 101947+ | 102000+ | 106049+ | 106048+ | 102003+ | 102004+ |
| | 16 | Stem, Lower Assembly - See note 1, below | | | | | | | |
| | 17c | Seal Retainer, Lower Flush, Quad Ring | | POA | 117728+ | 122609+ | 117736+ | 118364+ | POA |
| | 18 | Clamp | | 119-30 | 119-33 | 119-34 | 119-51 | 119-87 | 119-123 |
| | 19 | Spray Bushing | | 106030+ | 106030+ | 118210+ | 118210+ | 118210+ | 118210+ |
| | 20a/c | Adapter, O-ring or Quad Ring | | POA | 114924+ | 114925+ | 117742+ | 114927+ | POA |
| * | **21a** | **O-ring, Upper Stem (qty 2 req)** | **EPDM** | E70210 | E70210 | E70214 | E70214 | E70214 | N/A |
| | | | **FKM** | E70210 | V70210 | V70214 | V70214 | V70214 | N/A |
| * | **21c** | **Quad Ring, Upper Stem (qty 2 req)** | **EPDM** | 121300+ | 121300+ | 124163+ | 124163+ | 124163+ | 114221+ |
| | | | **FKM** | 124088+ | 124088+ | 121299+ | 121299+ | 121299+ | 114223+ |
| | 24 | Stem, Actuator, NSL Flush - See note 1, below | | | | | | | |
| * | **25** | **O-ring, Flush** | **EPDM** | E70010 | E70010 | E70111 | E70111 | E70111 | E70111 |
| | | | **FKM** | V70010 | V70010 | V70111 | V70111 | V70111 | V70111 |

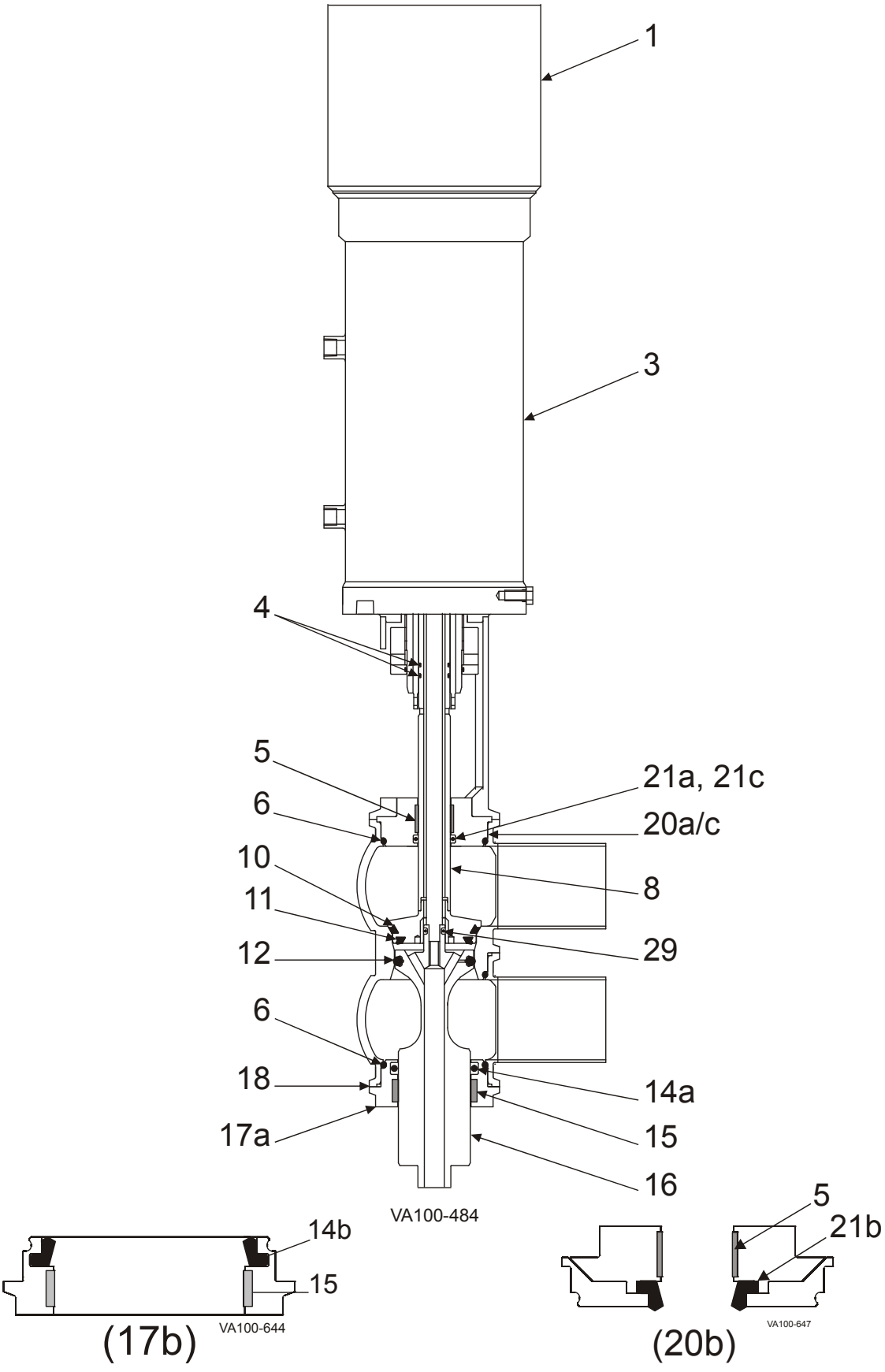
**Notes:** PL5027-CH88

* Recommended Spare Parts

*** See actuator parts lists

1. For items 8, 16, and 24, see W72RS Mix Proof Non-Seat Lift with External Flush Valve Stems Chart.
2. For one-piece body, qty. 2 are required for item 6 and item 18; for a clamped body, qty. 3 are required.
3. **EPDM recommended on all steam-contact seals.**
4. Unless otherwise noted, quantity required is 1.
6. POA = Part # on availability; N/A = not available with this design.

## W72RS Mix Proof Seat Lift Valve



## W72RS Mix Proof Seat Lift Valve

| | Item # | Part Description | | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | Control Top | | Contact Factory | | | | | |
| | 3 | Actuator | | *** | | | | | |
| * | **4** | **O-ring, Outer Stem (qty 2 req)** | **Nitrile** | N90016 | N90016 | N90020 | N90020 | N90020 | N90020 |
| * | **5** | **Bearing, Upper Adapter** | | 102757+ | 102757+ | 106047+ | 106047+ | 106047+ | 101995+ |
| * | **6** | **O-ring, Body (see note 2)** | **EPDM** | E70223 | E70228 | E70232 | E70236 | E70244 | E70258 |
| | | | **FKM** | V70223 | V70228 | V70232 | V70236 | V70244 | V70258 |
| | 8 | Stem, Upper Assembly - See note 1, below | | | | | | | |
| * | **10** | **Seat Ring - Tri Ring, Upper** | **EPDM** | 106031+ | 102736+ | 107048+ | 102488+ | 102491+ | 102738+ |
| | | | **FKM** | 107990+ | 107980+ | 107982+ | 107974+ | 107977+ | 108020+ |
| * | **11** | **Seat Ring - Tri Ring, Vent** | **EPDM** | 106041+ | 107693+ | 107696+ | 107697+ | 102490+ | 102737+ |
| | | | **FKM** | 107992+ | 107984+ | 107987+ | 107988+ | 107976+ | 108019+ |
| * | **12** | **Seat Ring - O-ring, Lower** | **EPDM** | E80319 | E80325 | E80329 | E80333 | E80340 | E80354 |
| | | | **FKM** | V80319 | V80325 | V80329 | V80333 | V80340 | V80354 |
| * | **14a** | **Quad Ring, Lower** | **EPDM** | 122689+ | 35413+ | 117992+ | 117561+ | 116952+ | 122350+ |
| | | | **FKM** | 122690+ | 35414+ | 117993+ | 117562+ | 116953+ | 122351+ |
| * | **14b** | **Wiping Stem Seal, Lower** | **EPDM** | 116186+ | 116188+ | 116190+ | 116195+ | 116199+ | POA |
| | | | **FKM** | 116187+ | 116189+ | 116191+ | 116196+ | 116200+ | POA |
| * | **15** | **Bearing, Lower Seal Retainer** | | 101947+ | 102000+ | 106049+ | 106048+ | 102003+ | 102004+ |
| | 16 | Stem, Lower Assembly - See note 1, below | | | | | | | |
| | 17a | Seal Retainer, Quad Ring | | 106066+ | 106067+ | 106068+ | 106069+ | 106070+ | 125047+ |
| | 17b | Seal Retainer, Wiping Stem Seal | | 117444+ | 117445+ | 117446+ | 117447+ | 117448+ | POA |
| | 18 | Clamp | | 119-30 | 119-33 | 119-34 | 119-51 | 119-87 | 119-123 |
| | 20a/c | Adapter, O-ring or Quad Ring | | 111043+ | 111017+ | 111196+ | 111026+ | 111029+ | 123970+ |
| | 20b | Adapter, Wiping Stem Seal | | 119441+ | 119442+ | 119443+ | 119444+ | 119445+ | POA |
| * | **21a** | **O-ring, Upper Stem** | **EPDM** | E70210 | E70210 | E70214 | E70214 | E70214 | N/A |
| | | | **FKM** | V70210 | V70210 | V70214 | V70214 | V70214 | N/A |
| * | **21c** | **Quad Ring, Upper Stem** | **EPDM** | 121300+ | 121300+ | 124163+ | 124163+ | 124163+ | 114221+ |
| | | | **FKM** | 124088+ | 124088+ | 121299+ | 121299+ | 121299+ | 114223+ |
| * | **21b** | **Wiping Stem Seal, Upper** | **EPDM** | 116183+ | 116183+ | 116184+ | 116184+ | 116184+ | POA |
| | | | **FKM** | 115626+ | 115626+ | 116185+ | 116185+ | 116185+ | POA |
| * | **29** | **O-ring, Non-Flush** | **EPDM** | E70109 | E70109 | E70113 | E70113 | E70113 | E70113 |
| | | | **FKM** | V70109 | V70109 | V70113 | V70113 | V70113 | V70113 |

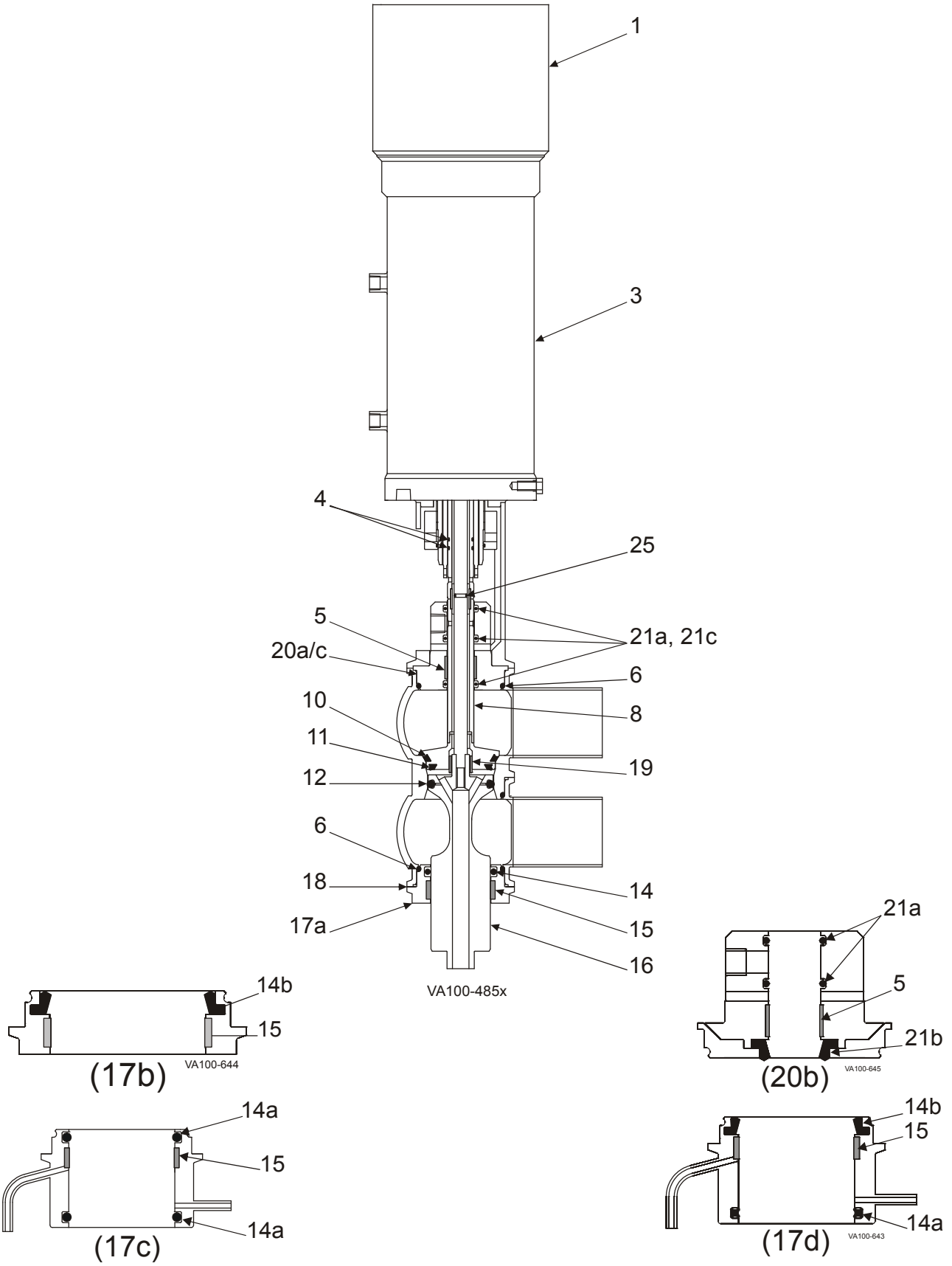
* Recommended Spare Parts

PL5027-CH53

*** See actuator parts lists

1. For items 8 and 16, see W72RS Mix Proof Seat Lift Valve Stems Chart.
2. For one-piece body, qty. 2 are required for item 6 and item 18; for a clamped body, qty. 3 are required.
4. Unless otherwise noted, quantity required is 1.
6. POA = Part # on availability; N/A = not available with this design.

## W72RS Mix Proof Seat Lift Valve with External Flush



## W72RS Mix Proof Seat Lift Valve with External Flush

| | Item # | Part Description | | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | Control Top | | Contact Factory | | | | | |
| | 3 | Actuator | | *** | | | | | |
| * | **4** | **O-ring, Outer Stem (qty 2 req)** | **Nitrile** | N90016 | N90016 | N90020 | N90020 | N90020 | N90020 |
| * | **5** | **Bearing, Upper Adapter** | | 102757+ | 102757+ | 106047+ | 106047+ | 106047+ | 101995+ |
| * | **6** | **O-ring, Body (see note 2)** | **EPDM** | E70223 | E70228 | E70232 | E70236 | E70244 | E70258 |
| | | | **FKM** | V70223 | V70228 | V70232 | V70236 | V70244 | V70258 |
| | 8 | Stem, Upper Assembly - See note 1, below | | | | | | | |
| * | **10** | **Seat Ring - Tri Ring, Upper** | **EPDM** | 106031+ | 102736+ | 107048+ | 102488+ | 102491+ | 102738+ |
| | | | **FKM** | 107990+ | 107980+ | 107982+ | 107974+ | 107977+ | 108020+ |
| * | **11** | **Seat Ring - Tri Ring, Vent** | **EPDM** | 106041+ | 107693+ | 107696+ | 107697+ | 102490+ | 102737+ |
| | | | **FKM** | 107992+ | 107984+ | 107987+ | 107988+ | 107976+ | 108019+ |
| * | **12** | **Seat Ring - O-ring, Lower** | **EPDM** | E80319 | E80325 | E80329 | E80333 | E80340 | E80354 |
| | | | **FKM** | V80319 | V80325 | V80329 | V80333 | V80340 | V80354 |
| * | **14a** | **Quad Ring, Lower** | **EPDM** | 122690+ | 35413+ | 117992+ | 117561+ | 116952+ | 122350+ |
| | | | **FKM** | 122689+ | 35414+ | 117993+ | 117562+ | 116953+ | 122351+ |
| * | **14b** | **Wiping Stem Seal, Lower** | **EPDM** | 116186+ | 116188+ | 116190+ | 116195+ | 116199+ | POA |
| | | | **FKM** | 116187+ | 116189+ | 116191+ | 116196+ | 116200+ | POA |
| * | **15** | **Bearing, Lower Seal Retainer** | | 101947+ | 102000+ | 106049+ | 106048+ | 102003+ | 102004+ |
| | 16 | Stem, Lower Assembly - See note 1, below | | | | | | | |
| | 17a | Seal Retainer, Quad Ring | | 106066+ | 106067+ | 106068+ | 106069+ | 106070+ | 125047+ |
| | 17b | Seal Retainer, Wiping Stem Seal | | 117444+ | 117445+ | 117446+ | 117447+ | 117448+ | POA |
| | 17c | Seal Retainer, Lower Flush, Quad Ring | | 114918+ | 117728+ | 114920+ | 117736+ | 118364+ | POA |
| | 17d | Seal Retainer, Lower Flush, Wiping Stem Sea | | 119050+ | 119036+ | 118226+ | 117559+ | 118253+ | POA |
| | 18 | Clamp | | 119-30 | 119-33 | 119-34 | 119-51 | 119-87 | 119-123 |
| | 19 | Spray Bushing | | 106030+ | 106030+ | 118210+ | 118210+ | 118210+ | 118210+ |
| | 20a/c | Adapter, O-ring or Quad Ring | | 106020+ | 106021+ | 106022+ | 106023+ | 106024+ | 128651+ |
| | 20b | Adapter, Wiping Stem Seal | | 119467+ | 119468+ | 119469+ | 119470+ | 119471+ | POA |
| * | **21a** | **O-ring, Upper Stem (qty 3 req)** | **EPDM** | E70210 | E70210 | E70214 | E70214 | E70214 | N/A |
| | | | **FKM** | V70210 | V70210 | V70214 | V70214 | V70214 | N/A |
| * | **21c** | **Quad Ring, Upper Stem (qty 3 req)** | **EPDM** | 121300+ | 121300+ | 124163+ | 124163+ | 124163+ | 114221+ |
| | | | **FKM** | 124088+ | 124088+ | 121299+ | 121299+ | 121299+ | 114223+ |
| * | **21b** | **Wiping Stem Seal, Upper** | **EPDM** | 116183+ | 116183+ | 116184+ | 116184+ | 116184+ | POA |
| | | | **FKM** | 115626+ | 115626+ | 116185+ | 116185+ | 116185+ | POA |
| * | **25** | **O-ring, Flush** | **EPDM** | E70010 | E70010 | E70111 | E70111 | E70111 | E70111 |
| | | | **FKM** | V70010 | V70010 | V70111 | V70111 | V70111 | V70111 |

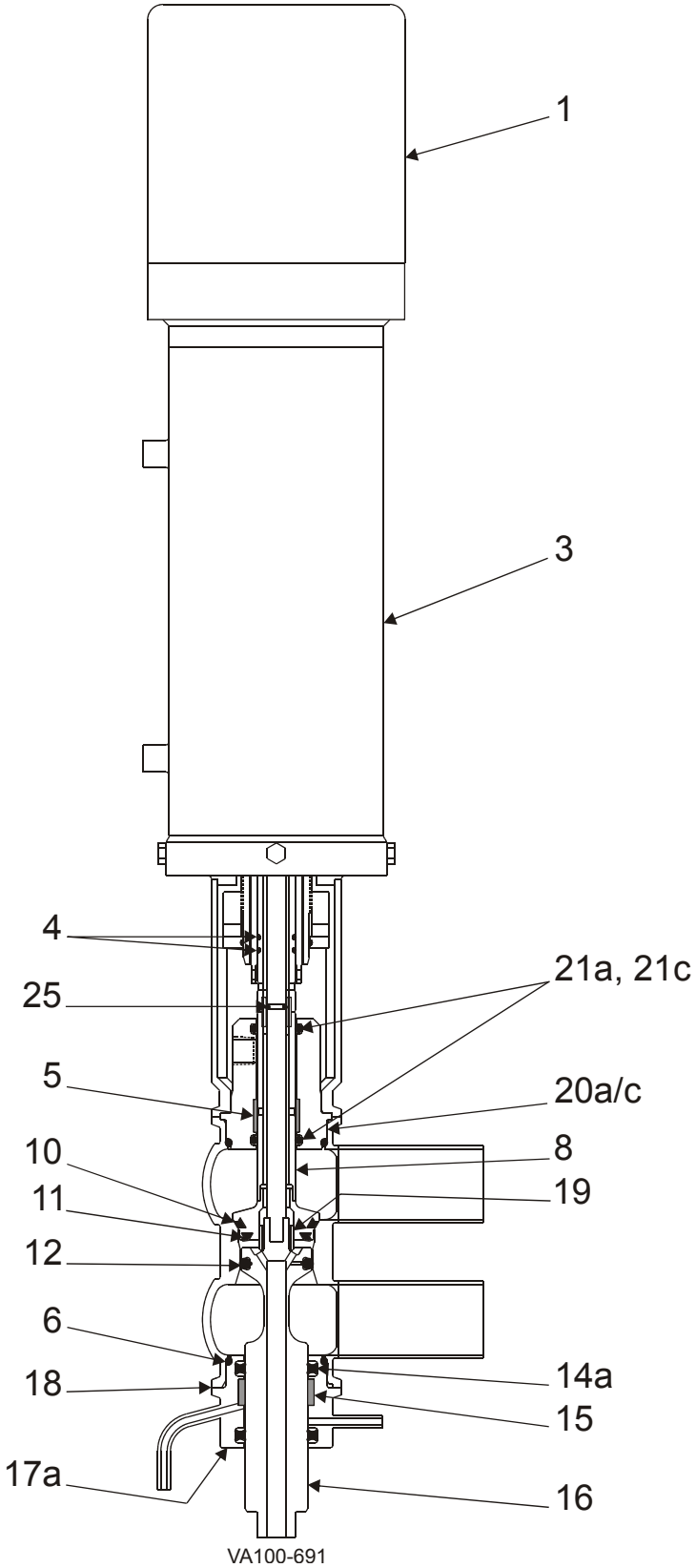
Notes: PL5027-CH54

* Recommended Spare Parts

*** See actuator parts lists

1. For items 8 and 16, see W72RS Mix Proof Seat Lift with External Flush Valve Stems Chart.
2. For one-piece body, qty. 2 are required for item 6 and item 18; for a clamped body, qty. 3 are required.
4. Unless otherwise noted, quantity required is 1.
6. POA = Part # on availability; N/A = not available with this design.

## W72RS Mix Proof Seat Lift Valve with Steam Adapter



## W72RS Mix Proof Seat Lift Valve with Steam Adapter

| | Item # | Part Description | | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | Control Top | | Contact Factory | | | | | |
| | 3 | Actuator | | *** | | | | | |
| * | **4** | **O-ring, Outer Stem (qty 2 req)** | **Nitrile** | N90016 | N90016 | N90020 | N90020 | N90020 | N90020 |
| * | **5** | **Bearing, Upper Adapter** | | 102757+ | 102757+ | 106047+ | 106047+ | 106047+ | 101995+ |
| * | **6** | **O-ring, Body (see note 2)** | **EPDM** | E70223 | E70228 | E70232 | E70236 | E70244 | E70258 |
| | | | **FKM** | V70223 | V70228 | V70232 | V70236 | V70244 | V70258 |
| | 8 | Stem, Upper Assembly - See note 1, below | | | | | | | |
| * | **10** | **Seat Ring - Tri Ring, Upper** | **EPDM** | 106031+ | 102736+ | 107048+ | 102488+ | 102491+ | 102738+ |
| | | | **FKM** | 107990+ | 107980+ | 107982+ | 107974+ | 107977+ | 108020+ |
| * | **11** | **Seat Ring - Tri Ring, Vent** | **EPDM** | 106041+ | 107693+ | 107696+ | 107697+ | 102490+ | 102737+ |
| | | | **FKM** | 107992+ | 107984+ | 107987+ | 107988+ | 107976+ | 108019+ |
| * | **12** | **Seat Ring - O-ring, Lower** | **EPDM** | E80319 | E80325 | E80329 | E80333 | E80340 | E80354 |
| | | | **FKM** | V80319 | V80325 | V80329 | V80333 | V80340 | V80354 |
| * | **14a** | **Quad Ring, Lower (qty 2 req)** | **EPDM** | 122690+ | 35413+ | 117992+ | 117561+ | 116952+ | 122350+ |
| | | | **FKM** | 122689+ | 35414+ | 35415+ | 117562+ | 116953+ | 122351+ |
| * | **15** | **Bearing, Lower Seal Retainer** | | 101947+ | 102000+ | 106049+ | 106048+ | 102003+ | POA |
| | 16 | Stem, Lower Assembly - See note 1, below | | | | | | | |
| | 17a | Seal Retainer, Lower Flush, Quad Ring | | 114918+ | 117728+ | 114920+ | 117736+ | 118364+ | POA |
| | 18 | Clamp | | 119-30 | 119-33 | 119-34 | 119-51 | 119-87 | 119-123 |
| | 19 | Spray Bushing | | 106030+ | 106030+ | 118210+ | 118210+ | 118210+ | 118210+ |
| | 20a/c | Adapter, O-ring or Quad Ring | | 114923+ | 114924+ | 114925+ | 117742+ | 114927+ | POA |
| * | **21a** | **O-ring, Upper Stem (qty 2 req)** | **EPDM** | E70210 | E70210 | E70214 | E70214 | E70214 | N/A |
| | | | **FKM** | V70210 | V70210 | V70214 | V70214 | V70214 | N/A |
| * | **21c** | **Quad Ring, Upper Stem (qty 2 req)** | **EPDM** | 121300+ | 121300+ | 124163+ | 124163+ | 124163+ | 114221+ |
| | | | **FKM** | 124088+ | 124088+ | 121299+ | 121299+ | 121299+ | 114223+ |
| * | **25** | **O-ring, Flush (not shown)** | **EPDM** | E70010 | E70010 | E70111 | E70111 | E70111 | E70111 |
| | | | **FKM** | V70010 | V70010 | V70111 | V70111 | V70111 | V70111 |

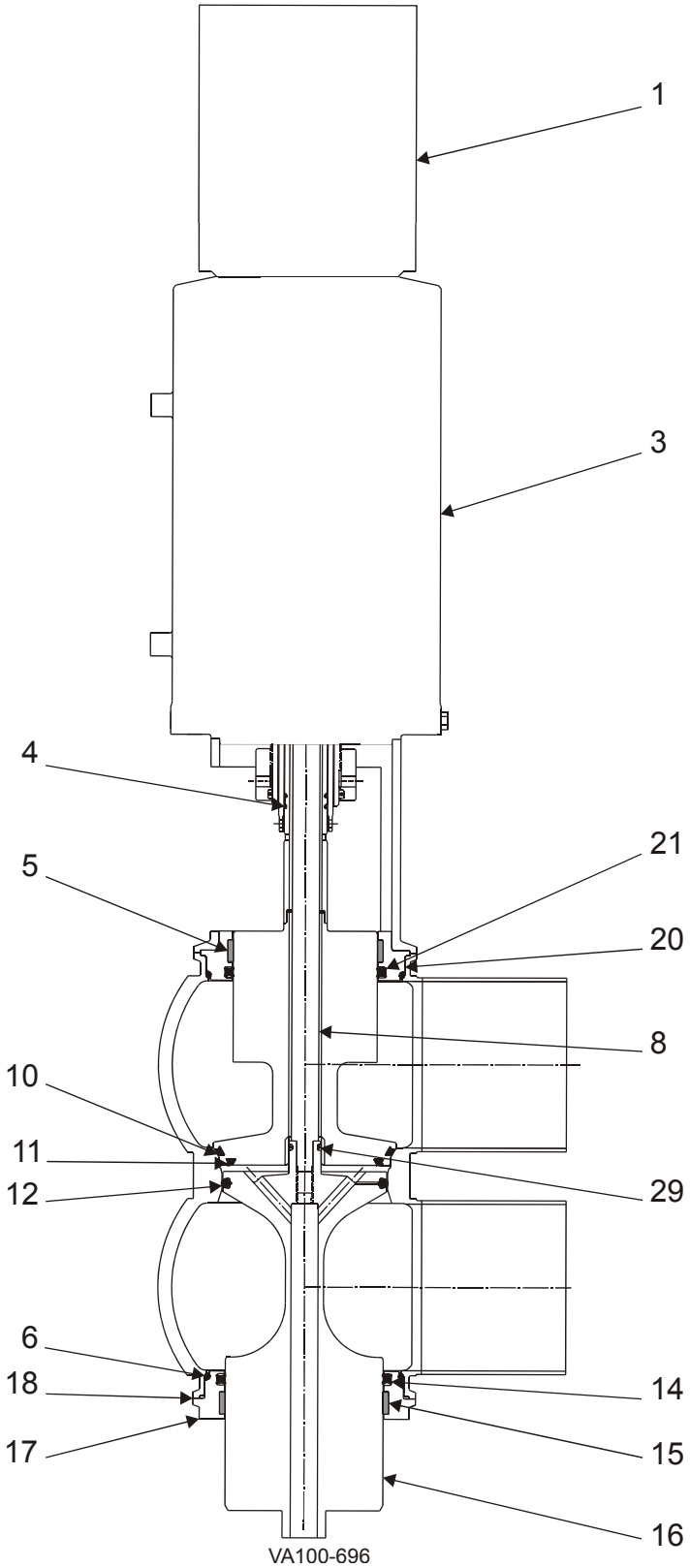
Notes: PL5027-CH89

* Recommended Spare Parts

*** See actuator parts lists

1. For items 8 and 16, see W72RS Mix Proof Seat Lift with Steam Adapter Valve Stems Chart.
2. For one-piece body, qty. 2 are required for item 6 and item 18; for a clamped body, qty. 3 are required.
4. Unless otherwise noted, quantity required is 1.
5. **EPDM recommended on all steam-contact seals.**
6. POA = Part # on availability; N/A = not available with this design.

## W72RS Mix Proof Seat Lift Valve with Upper Balancer Option



## W72RS Mix Proof Seat Lift Valve with Upper Balancer Option

| | Item # | Part Description | | 2" | 2-1/2" | 3" | 4" |
|---|---|---|---|---|---|---|---|
| | 1 | Control Top | | Contact Factory | | | |
| | 3 | Actuator | | *** | | | |
| * | **4** | **O-ring, Outer Stem** | **Nitrile** | N90016 | N90020 | N90020 | N90020 |
| * | **5** | **Bearing, Upper Adapter** | | 126066+ | 126771+ | 102002+ | 126069+ |
| * | **6** | **O-ring, Body (see note 2)** | **EPDM** | E70228 | E70232 | E70236 | E70244 |
| | | | **FKM** | V70228 | V70232 | V70236 | V70244 |
| | 8 | Stem, Upper Assembly - See note 1, below | | | | | |
| * | **10** | **Seat Ring - Tri Ring, Upper** | **EPDM** | 102736+ | 107048+ | 102488+ | 102491+ |
| | | | **FKM** | 107980+ | 107982+ | 107974+ | 107977+ |
| * | **11** | **Seat Ring - Tri Ring, Vent** | **EPDM** | 107693+ | 107696+ | 107697+ | 102490+ |
| | | | **FKM** | 107984+ | 107987+ | 107988+ | 107976+ |
| * | **12** | **Seat Ring - Radial O-ring, Lower** | **EPDM** | E80325 | E80329 | E80333 | E80340 |
| | | | **FKM** | V80325 | V80329 | V80333 | V80340 |
| * | **14a** | **Quad Ring, Lower** | **EPDM** | 122689+ | 35415+ | 117561+ | 116952+ |
| | | | **FKM** | 122690+ | 35429+ | 117562+ | 116953+ |
| * | **15** | **Bearing, Lower Seal Retainer** | | 102000+ | 106049+ | 106048+ | 102003+ |
| | 16 | Stem, Lower Assembly - See note 1, below | | | | | |
| | 17a | Seal Retainer, Quad Ring | | 106067+ | 106068+ | 106069+ | 106070+ |
| | 18 | Clamp | | 119-33 | 119+34 | 119-51 | 119-87 |
| | 20a | Adapter, O-ring or Quad Ring | | 126041+ | 128440+ | 126050+ | 126057+ |
| * | **21a** | **Quad Ring, Upper Stem** | **EPDM** | 126065+ | 128579+ | 116954+ | 126071+ |
| | | | **FKM** | 126064+ | 128580+ | 116955+ | 126070+ |
| * | **29** | **O-ring, Non-Flush** | **EPDM** | E70109 | E70113 | E70113 | E70113 |
| | | | **FKM** | V70109 | V70113 | V70113 | V70113 |

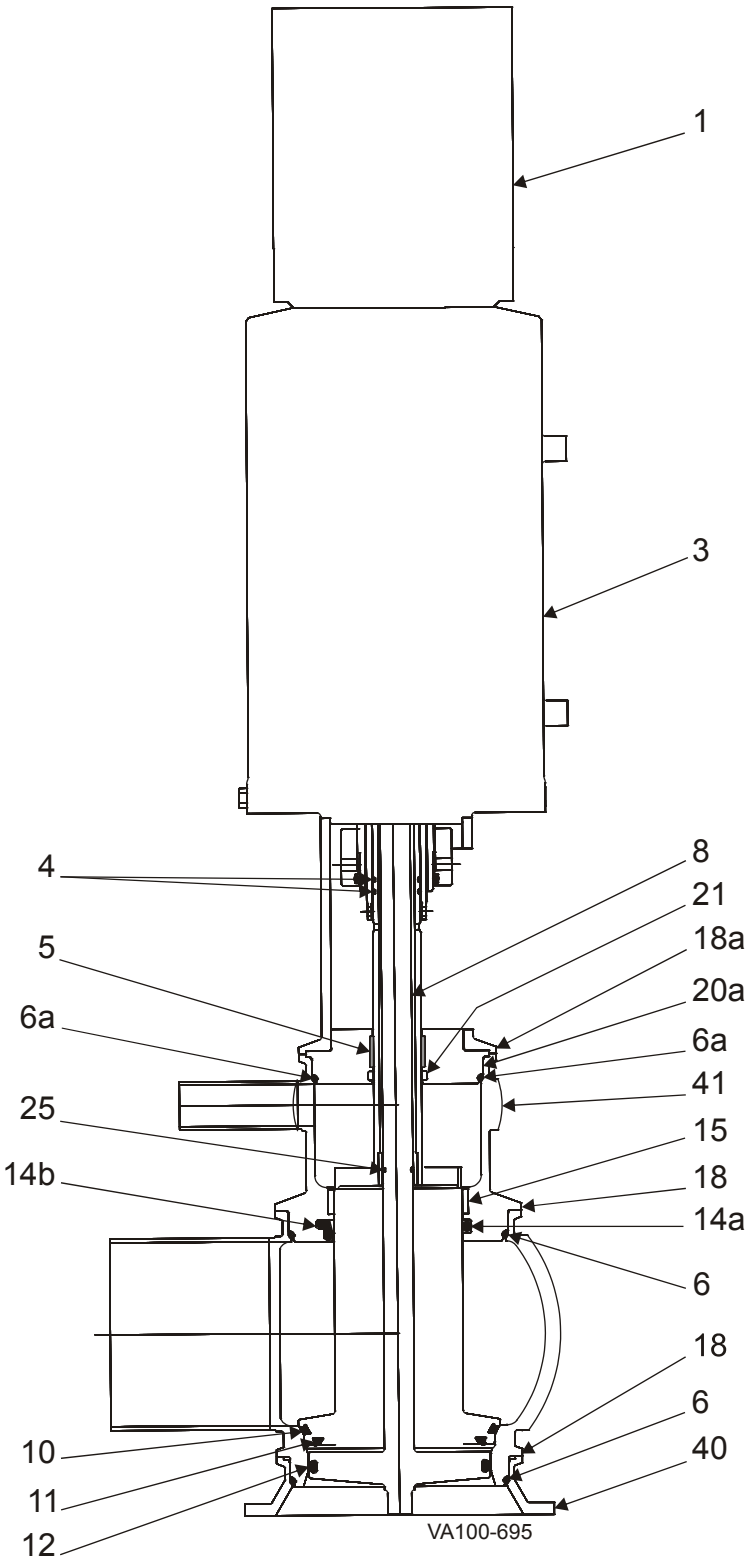
* Recommended Spare Parts

PL5027-CH135

*** See actuator parts lists

1. For items 8 and 16, see W72RS Mix Proof Seat Lift with Upper Balancer Option Valve Stems Chart.
2. For one-piece body, qty. 2 are required for item 6 and item 18; for a clamped body, qty. 3 are required.
4. Unless otherwise noted, quantity required is 1.

## W72RS Mix Proof Seat Lift Tank Outlet Valve



## W72RS Mix Proof Seat Lift Tank Outlet Valve

| | Item # | Part Description | | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|
| | 1 | Control Top | | Contact Factory | | | |
| | 3 | Actuator Assembly | | *** | | | |
| * | **4** | **O-ring, Outer Stem (qty 2 req)** | **Nitrile** | N90020 | N90020 | N90020 | N90020 |
| * | **5** | **Bearing, Adapter** | | 106047+ | 106047+ | 106047+ | POA |
| * | **6** | **O-ring, Body (qty 2 req)** | **EPDM** | E70323 | E70236 | E70244 | E70258 |
| | | | **FKM** | V70323 | V70236 | V70244 | V70258 |
| * | **6a** | **O-ring, Leak Chamber** | **EPDM** | E70323 | E70232 | E70236 | POA |
| | | | **FKM** | V70323 | V70232 | V70236 | POA |
| | 8 | Stem, Outer (Pipe Side) - See note 1, below | | | | | |
| * | **10** | **Seat Ring - Tri Ring, Pipe Side** | **EPDM** | 107048+ | 102488+ | 102491+ | 102738+ |
| | | | **FKM** | 107902+ | 107974+ | 107976+ | 108020+ |
| * | **11** | **Seat Ring - Tri Ring, Vent** | **EPDM** | 107696+ | 107697+ | 102490+ | 102737+ |
| | | | **FKM** | 107987+ | 107988+ | 107977+ | 108019+ |
| * | **12** | **Seat Ring - Radial O-ring, Tank Side** | **EPDM** | E80329 | E80333 | E80340 | E80354 |
| | | | **FKM** | V80329 | V80333 | V80340 | V80354 |
| * | **14a** | **Quad Ring, Leak Chamber** | **EPDM** | 34429+ | 34429+ | 117561+ | POA |
| | | | **FKM** | 35414+ | 35415+ | 117562+ | POA |
| * | **14b** | **Wiping Stem Seal, Leak Chamber** | **EPDM** | 116190+ | 116190+ | 116195+ | POA |
| | | | **FKM** | 116191+ | 116191+ | 116196+ | POA |
| * | **15** | **Bearing, Leak Chamber** | | 106049+ | 106049+ | 106048+ | POA |
| | 16 | Stem, Inner (Tank Side) - See note 1, below | | | | | |
| | 18 | Clamp (qty 2 req) | | 119-51 | 119-51 | 119-87 | 119-123 |
| | 18a | Clamp, Leak Chamber | | 119-34 | 119-34 | 119-51 | POA |
| | 20a | Adapter, O-ring | | 111196+ | 111196+ | 111026+ | POA |
| * | **21a** | **O-ring, Adapter** | **EPDM** | E70214 | E70214 | E70214 | POA |
| | | | **FKM** | V70214 | V70214 | V70214 | POA |
| * | **25** | **O-ring, Inner Stem** | **EPDM** | E70111 | E70111 | E70111 | E70111 |
| | | | **FKM** | V70111 | V70111 | V70111 | V70111 |
| | 40 | Tank Flange (see note 2) | | 114831+ | 114832+ | 114833+ | POA |
| | 41a | Leak Chamber, Quad Ring | | 126804+ | 126805+ | 126802+ | POA |
| | 41b | Leak Chamber, Wiping Stem Seal | | 126016+ | 125962+ | 126025+ | POA |

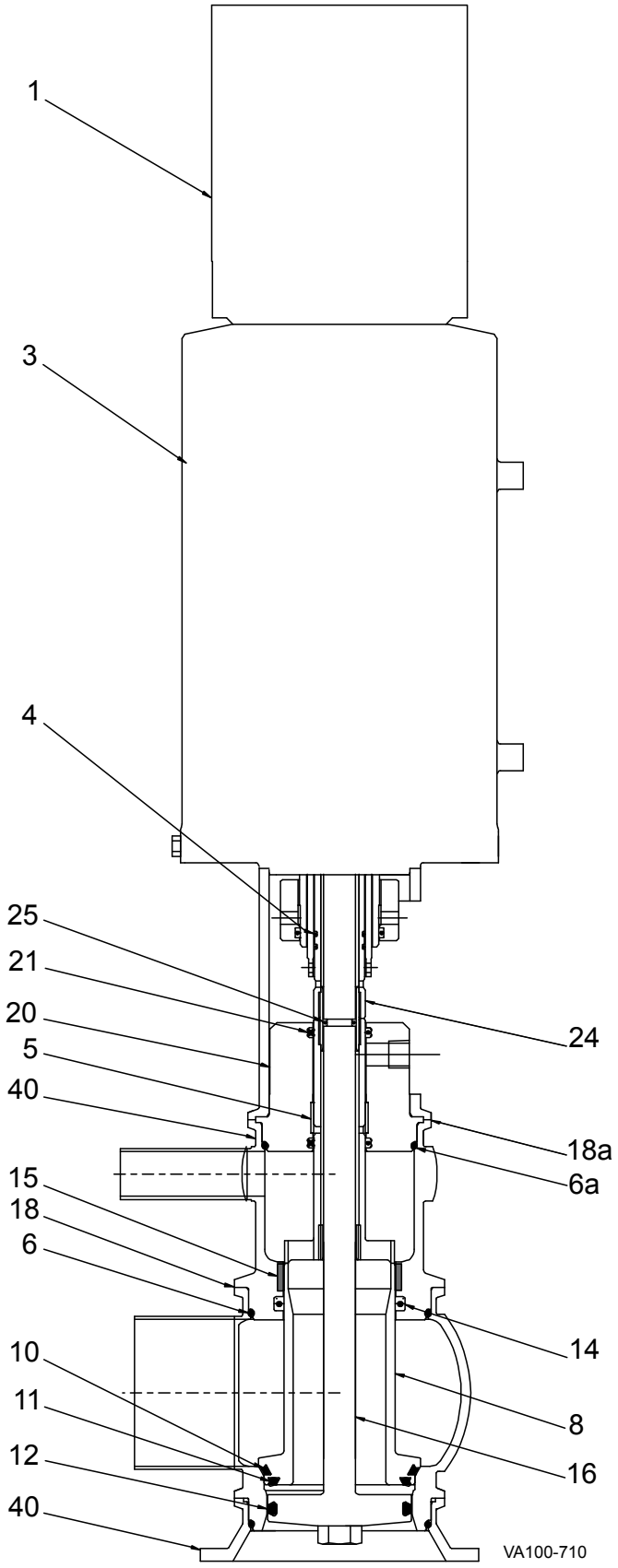
* Recommended Spare Parts

PL5027-CH134

*** See actuator parts lists

1. For items 8 and 16, see W72RS Mix Proof Seat Lift Tank Outlet Valve Stems Chart.
2. 1/4" tank flange must be ordered separately.

## W72RS Mix Proof Seat Lift Tank Outlet Valve with External Flush



## W72RS Mix Proof Seat Lift Tank Outlet Valve with External Flush

| | Item # | Part Description | | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|
| | 1 | Control Top | | | | | |
| | 3 | Actuator Assembly | | *** | | | |
| * | **4** | **O-ring, Outer Stem (qty 2 req)** | **Nitrile** | N90020 | N90020 | N90020 | N90020 |
| * | **5** | **Bearing, Adapter** | | 106047+ | 106047+ | 106047+ | POA |
| * | **6** | **O-ring, Body (qty 2 req)** | **EPDM** | E70323 | E70236 | E70244 | E70258 |
| | | | **FKM** | V70323 | V70236 | V70244 | V70258 |
| * | **6a** | **O-ring, Leak Chamber** | **EPDM** | E70232 | E70232 | E70236 | POA |
| | | | **FKM** | V70232 | V70232 | V70236 | POA |
| | 8 | Stem, Outer (Pipe Side) - See note 1, below | | | | | |
| * | **10** | **Seat Ring - Tri Ring, Pipe Side** | **EPDM** | 107048+ | 102488+ | 102491+ | 102738+ |
| | | | **FKM** | 107902+ | 107974+ | 107976+ | 108020+ |
| * | **11** | **Seat Ring - Tri Ring, Vent** | **EPDM** | 107696+ | 107697+ | 102490+ | 102737+ |
| | | | **FKM** | 107987+ | 107988+ | 107977+ | 108019+ |
| * | **12** | **Seat Ring - Radial O-ring, Tank Side** | **EPDM** | E80329 | E80333 | E80340 | E80354 |
| | | | **FKM** | V80329 | V80333 | V80340 | V80354 |
| * | **14** | **Quad Ring, Leak Chamber** | **EPDM** | 34429+ | 34429+ | 117561+ | POA |
| | | | **FKM** | 35414+ | 35415+ | 117562+ | POA |
| * | **15** | **Bearing, Leak Chamber** | | 106049+ | 106049+ | 106048+ | POA |
| | 16 | Stem, Inner (Tank Side) - See note 1, below | | | | | |
| | 18 | Clamp, Body (qty 2 req) | | 119-51 | 119-51 | 119-87 | 119-123 |
| | 18a | Clamp, Leak Chamber | | 119-34 | 119-34 | 119-51 | POA |
| | 20 | Adapter, O-ring | | POA | 114925+ | 114926+ | POA |
| * | **21** | **O-ring, Adapter (qty 2 req)** | **EPDM** | E70214 | E70214 | E70214 | POA |
| | | | **FKM** | V70214 | V70214 | V70214 | POA |
| | 24 | Stem, Actuator - See note 1, below | | | | | |
| * | **25** | **O-ring, Inner Stem** | **EPDM** | E70111 | E70111 | E70111 | E70111 |
| | | | **FKM** | V70111 | V70111 | V70111 | V70111 |
| | 40 | Tank Flange (see note 2) | | 114321+ | 114832+ | 114833+ | POA |
| | 41 | Leak Chamber, Quad Ring | | 126804+ | 126805+ | 126802+ | POA |

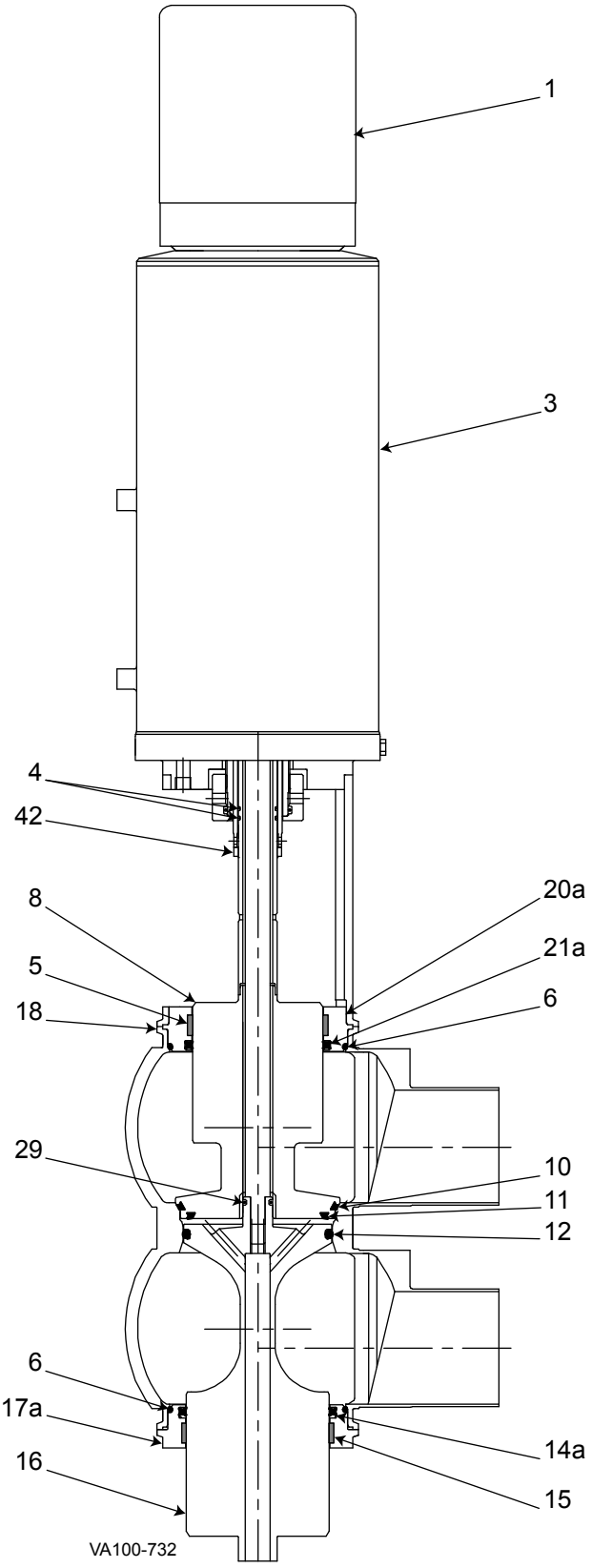
* Recommended Spare Parts

PL5027-CH148

*** See actuator parts lists

1. For items 8, 16, and 24, see W72RS Mix Proof Seat Lift Tank Outlet Valve with External Flush Stems Chart.
2. 1/4" tank flange must be ordered separately.
6. POA = Part # on availability; N/A = not available with this design.

## W72RSP Mix Proof Seat Lift Valve



## W72RSP Mix Proof Seat Lift Valve

| | Item # | Part Description | | 2.5" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|
| | 1 | Control Top | | Contact Factory | | | |
| | 3 | Actuator | | *** | | | |
| * | **4** | **O-ring, Outer Stem (qty 2 req)** | **Nitrile** | N90020 | N90020 | N90020 | N90020 |
| * | **5** | **Bearing, Upper Adapter (qty 2 req)** | | 126069+ | 126069+ | 126069+ | POA |
| * | **6** | **O-ring, Body (qty 2 req)** | **EPDM** | E70244 | E70244 | E70244 | E70258 |
| | | | **FKM** | V70244 | V70244 | V70244 | V70258 |
| | 8 | Stem, Upper Assembly - See note 1, below | | | | | |
| * | **10** | **Seat Ring - Tri Ring, Upper** | **EPDM** | 102491+ | 102491+ | 102491+ | 102738+ |
| | | | **FKM** | 107977+ | 107977+ | 107977+ | 108020+ |
| * | **11** | **Seat Ring - Tri Ring, Vent** | **EPDM** | 102490+ | 102490+ | 102490+ | 102737+ |
| | | | **FKM** | 107976+ | 107976+ | 107976+ | 108019+ |
| * | **12** | **Seat Ring - O-ring, Lower** | **EPDM** | E80340 | E80340 | E80340 | E80354 |
| | | | **FKM** | V80340 | V80340 | V80340 | V80354 |
| * | **14a** | **Quad Ring, Lower** | **EPDM** | 116952+ | 116952+ | 116952+ | 122350+ |
| | | | **FKM** | 116953+ | 116953+ | 116953+ | 122351+ |
| * | **15** | **Bearing, Lower Seal Retainer** | | 102003+ | 102003+ | 102003+ | 102004+ |
| | 16 | Stem, Lower Assembly - See note 1, below | | | | | |
| | 17a | Seal Retainer, Quad Ring | | 106070+ | 106070+ | 106070+ | 125047+ |
| | 18 | Clamp (qty 2 required) | | 119-87 | 119-87 | 119-87 | 119-123 |
| | 20a | Adapter, O-ring or Quad Ring | | 126877+ | 126877+ | 126877+ | POA |
| * | **21a** | **Quad Ring, Upper Stem** | **EPDM** | 126071+ | 126071+ | 126071+ | POA |
| | | | **FKM** | 126070+ | 126070+ | 126070+ | POA |
| * | **29** | **O-ring, Non-Flush** | **EPDM** | E70113 | E70113 | E70113 | E70113 |
| | | | **FKM** | V70113 | V70113 | V70113 | V70113 |
| | 42 | Stop Ring | | 122357+ | 122357+ | 122357+ | 122357+ |

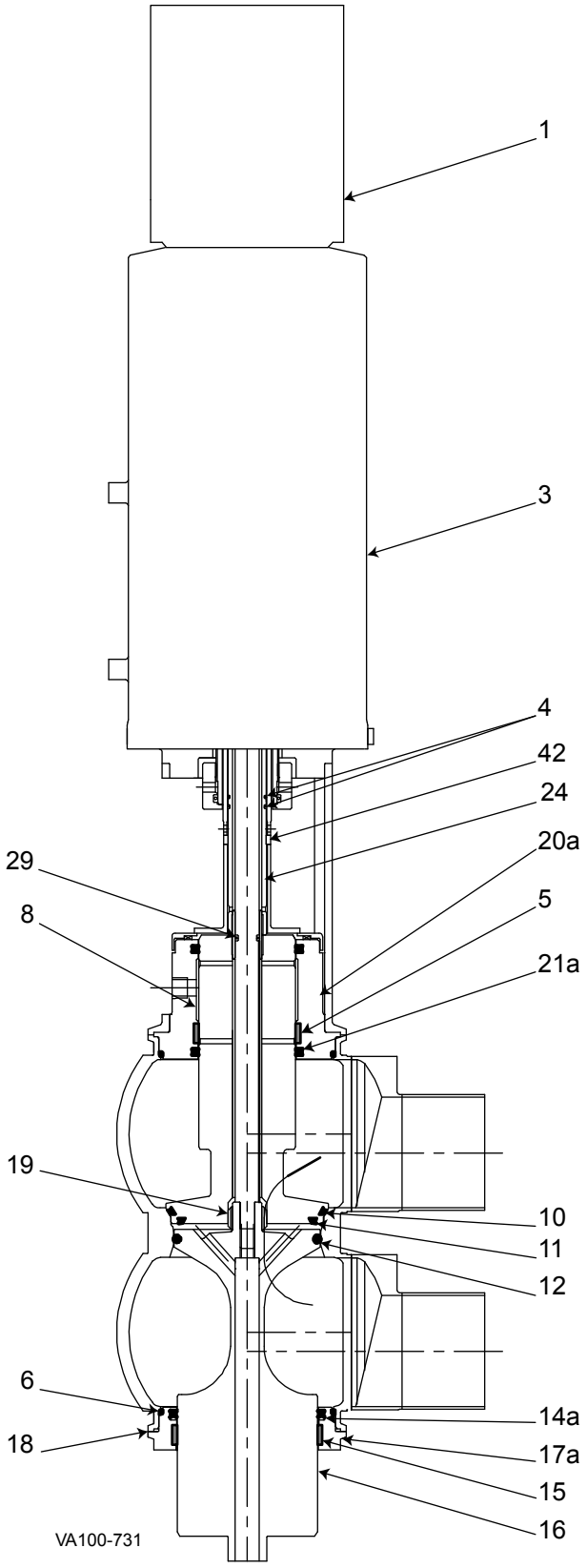
* Recommended Spare Parts

PL5027-CH162

*** See actuator parts lists

1. For items 8 and 16, see W72RSP Mix Proof Seat Lift Valve Stems Chart.

## W72RSP Mix Proof Seat Lift Valve with External Flush



## W72RSP Mix Proof Seat Lift Valve with External Flush

| | Item # | Part Description | | 2.5" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|
| | 1 | Control Top | | Contact Factory | | | |
| | 3 | Actuator | | *** | | | |
| * | **4** | **O-ring, Outer Stem (qty 2 req)** | **Nitrile** | N90020 | N90020 | N90020 | N90020 |
| * | **5** | **Bearing, Upper Adapter (qty 2 req)** | | 102002+ | 102002+ | 102002+ | POA |
| * | **6** | **O-ring, Body (qty 4 req)** | **EPDM** | E70244 | E70244 | E70244 | E70258 |
| | | | **FKM** | V70244 | V70244 | V70244 | V70258 |
| | 8 | Stem, Upper Assembly - See note 1, below | | | | | |
| * | **10** | **Seat Ring - Tri Ring, Upper** | **EPDM** | 102491+ | 102491+ | 102491+ | 102738+ |
| | | | **FKM** | 107977+ | 107977+ | 107977+ | 108020+ |
| * | **11** | **Seat Ring - Tri Ring, Vent** | **EPDM** | 102490+ | 102490+ | 102490+ | 102737+ |
| | | | **FKM** | 107976+ | 107976+ | 107976+ | 108019+ |
| * | **12** | **Seat Ring - O-ring, Lower** | **EPDM** | E80340 | E80340 | E80340 | E80354 |
| | | | **FKM** | V80340 | V80340 | V80340 | V80354 |
| * | **14a** | **Quad Ring, Lower** | **EPDM** | 116952+ | 116952+ | 116952+ | 122350+ |
| | | | **FKM** | 116953+ | 116953+ | 116953+ | 122351+ |
| * | **15** | **Bearing, Lower Seal Retainer** | | 102003+ | 102003+ | 102003+ | 102004+ |
| | 16 | Stem, Lower Assembly - See note 1, below | | | | | |
| | 17a | Seal Retainer, Quad Ring | | 106070+ | 106070+ | 106070+ | 125047+ |
| | 18 | Clamp (qty 2 required) | | 119-87 | 119-87 | 119-87 | 119-123 |
| | 19 | Spray Bushing | | 118210+ | 118210+ | 118210+ | 118210+ |
| | 20a | Adapter, O-ring or Quad Ring | | 128538+ | 128538+ | 128538+ | POA |
| * | **21a** | **Quad Ring, Upper Stem (qty 2 req)** | **EPDM** | 116282+ | 116282+ | 116282+ | POA |
| | | | **FKM** | 116283+ | 116283+ | 116283+ | POA |
| | 24 | Stem, Actuator - See note 1, below | | | | | |
| * | **29** | **O-ring, Flush** | **EPDM** | E70111 | E70111 | E70111 | E70111 |
| | | | **FKM** | V70111 | V70111 | V70111 | V70111 |
| | 42 | Stop Ring | | 122357+ | 122357+ | 122357+ | 122357+ |

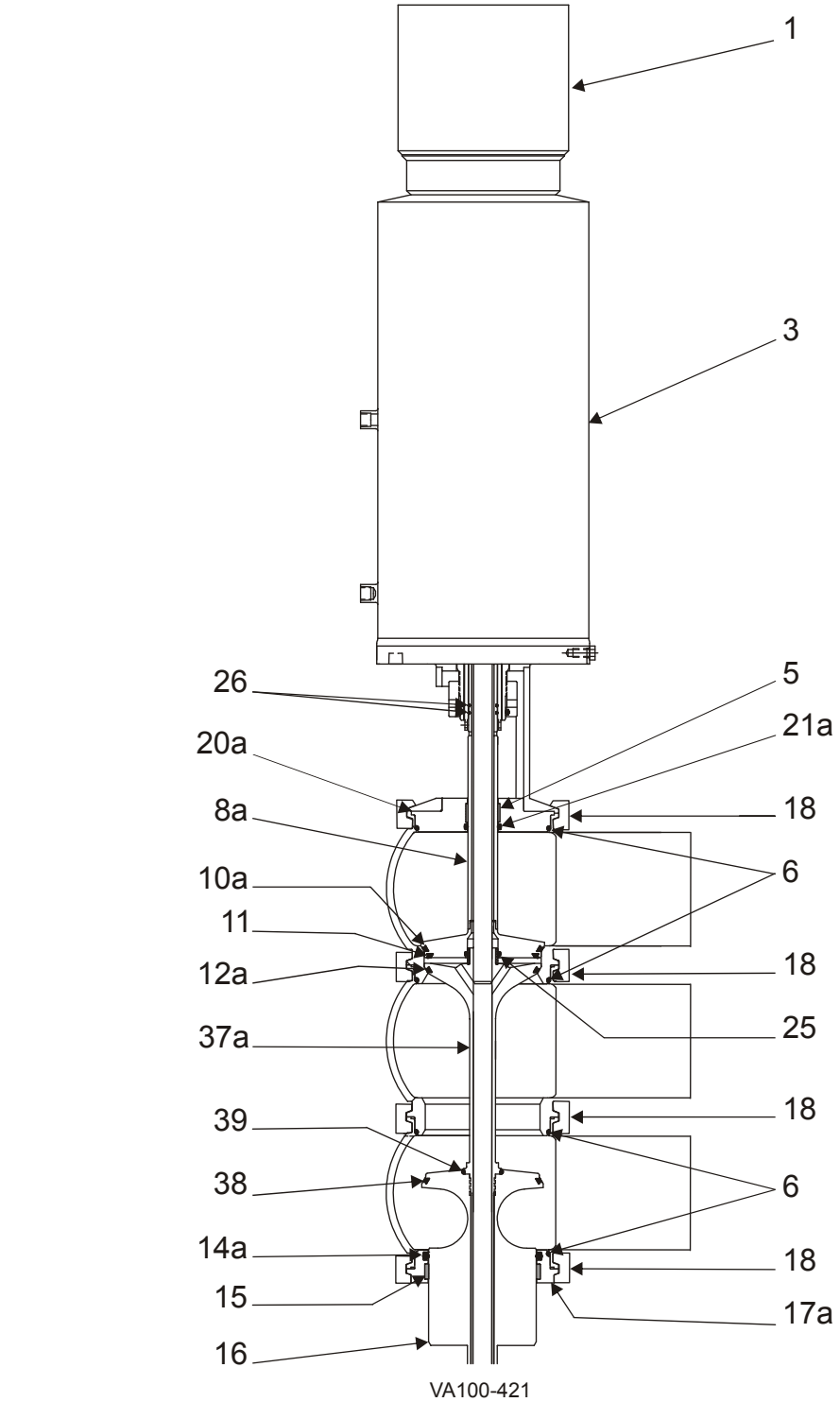
* Recommended Spare Parts

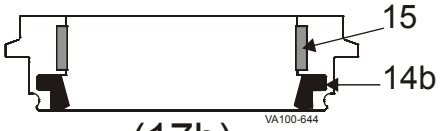
PL5027-CH155

*** See actuator parts lists

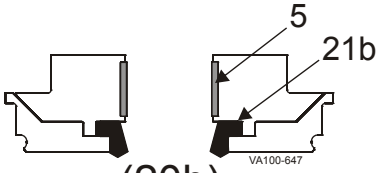
1. For items 8, 16, and 24, see W72RSP Mix Proof Seat Lift with External Flush Valve Stems Chart.
4. Unless otherwise noted, quantity required is 1.
6. POA = Part # on availability; N/A = not available with this design.

## W73 Divert Mix Proof Seat Lift Valve




(17b)




(20b)

# W73 Divert Mix Proof Seat Lift Valve

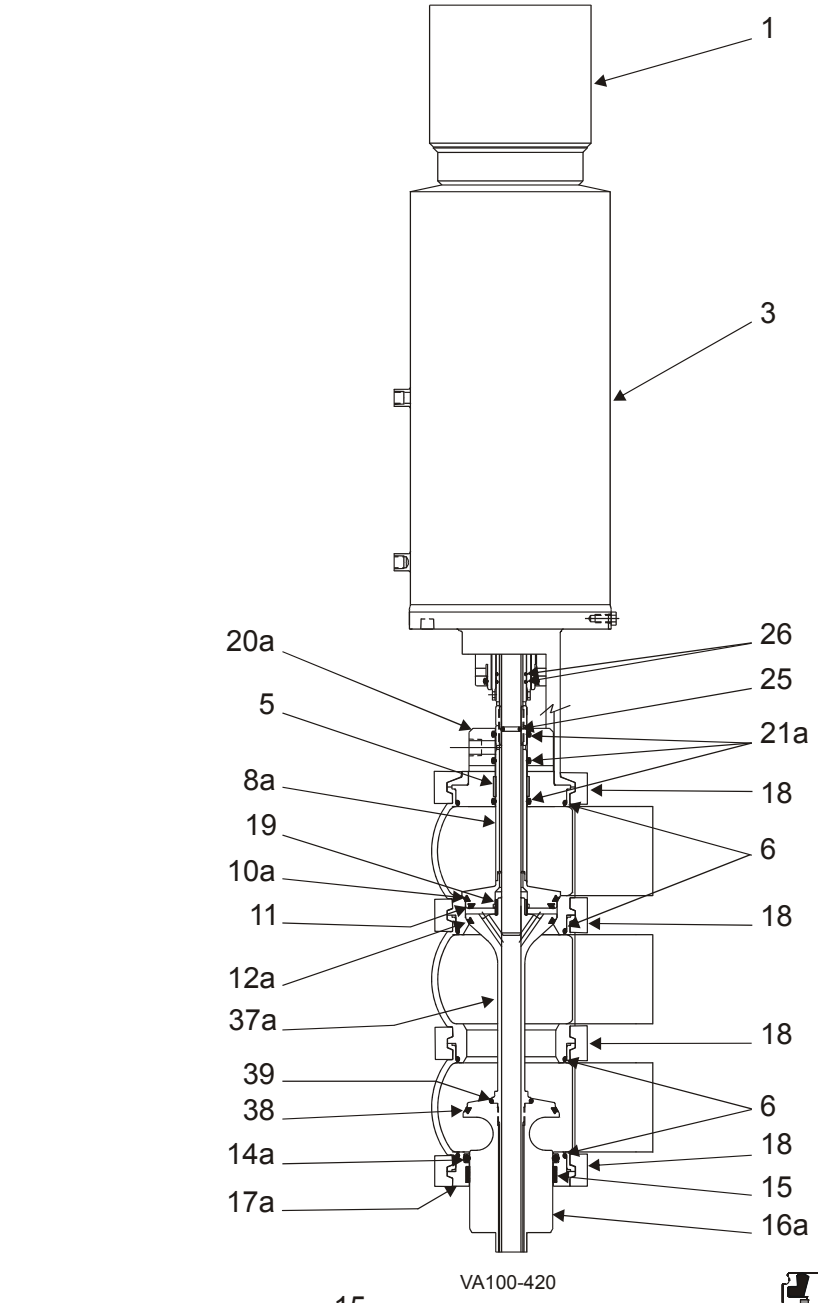
| | Item # | Part Description | | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | Control Top | | Contact Factory | | | | | |
| | 3 | Actuator | | *** | | | | | |
| * | **4** | **O-ring** | **Nitrile** | N70010 | N70010 | N70111 | N70111 | N70111 | N70111 |
| * | **5** | **Bearing** | | 102757+ | 102757+ | 106047+ | 106047+ | 106047+ | 101995+ |
| * | **6** | **O-ring, Body (qty 4 req)** | **EPDM** | E70223 | E70228 | E70232 | E70236 | E70244 | E70258 |
| | | | **FKM** | V70223 | V70228 | V70232 | V70236 | V70244 | V70258 |
| | 8 | Stem, Upper - See note 1, below | | | | | | | |
| * | **10a** | **Seat Ring -Tri Ring, Upper** | **EPDM** | 106031+ | 102736+ | 107048+ | 102488+ | 102491+ | 102738+ |
| | | | **FKM** | 107990+ | 107980+ | 107982+ | 107974+ | 107977+ | 108020+ |
| * | **11** | **Seat Ring -Tri Ring, Vent** | **EPDM** | 106041+ | 107693+ | 107696+ | 107697+ | 102490+ | 102737+ |
| | | | **FKM** | 107992+ | 107984+ | 107987+ | 107988+ | 107976+ | 108019+ |
| * | **12a** | **Seat Ring -Tri Ring, Lower** | **EPDM** | 106036+ | 107693+ | 102487+ | 102489+ | 102492+ | 102739+ |
| | | | **FKM** | 107991+ | 107984+ | 107973+ | 107975+ | 107978+ | 108021+ |
| | **14a** | **O-ring, Lower Stem** | **EPDM** | E70322 | E70327 | E70331 | E70335 | E70342 | N/A |
| | | | **FKM** | V70322 | V70327 | V70331 | V70335 | V70342 | N/A |
| * | | **Quad Ring, Lower** | **EPDM** | 122690+ | 35413+ | 117992+ | 117561+ | 116952+ | 122350+ |
| | | | **FKM** | 122689+ | 35414+ | 117993+ | 117562+ | 116953+ | 122351+ |
| * | **15** | **Bearing** | | 101947+ | 102000+ | 106049+ | 106048+ | 102003+ | 102004+ |
| | 16 | Stem, Lower - See note 1, below | | | | | | | |
| | 17a | Seal Retainer, O-ring or Quad Ring | | 106066+ | 106067+ | 106068+ | 106069+ | 106070+ | 125047+ |
| | 17b | Seal Retainer, Wiping Stem Seal | | 117444+ | 117445+ | 117446+ | 117447+ | 117448+ | POA |
| | 18 | Clamp | | 119-30 | 119-33 | 119-34 | 119-51 | 119-87 | 119-123 |
| | 20a | Adapter, O-ring or Quad Ring | | 111043+ | 111017+ | 111196+ | 111026+ | 111029+ | POA |
| | 20b | Adapter, Wiping Stem Seal | | 119467+ | 119468+ | 119469+ | 119470+ | 119471+ | POA |
| | **21a** | **O-ring, Upper Stem** | **EPDM** | E70210 | E70210 | E70214 | E70214 | E70214 | N/A |
| | | | **FKM** | V70210 | V70210 | V70214 | V70214 | V70214 | N/A |
| * | | **Quad Ring, Upper** | **EPDM** | 121300+ | 121300+ | 124163+ | 124163+ | 124163+ | 114221+ |
| | | | **FKM** | 124088+ | 124088+ | 121299+ | 121299+ | 121299+ | 114223+ |
| * | **21b** | **Wiping Stem Seal, Upper** | **EPDM** | 116183+ | 116183+ | 116184+ | 116184+ | 116184+ | POA |
| | | | **FKM** | 115626+ | 115626+ | 116185+ | 116185+ | 116185+ | POA |
| * | **25** | **O-ring** | **EPDM** | E70115 | E70115 | E70121 | E70121 | E70121 | E70111 |
| | | | **FKM** | V70115 | V70115 | V70121 | V70121 | V70121 | V70111 |
| * | **26** | **O-ring (qty 2 required)** | **Nitrile** | N90016 | N90016 | N90020 | N90020 | N90020 | N90020 |
| | 37 | Stem, Middle - See note 1, below | | | | | | | |
| * | **38** | **Tri Ring, Divert Stem** | **EPDM** | 106036+ | 107693+ | 107048+ | 111633+ | 102492+ | 114216+ |
| | | | **FKM** | 107991+ | 107984+ | 107982+ | 111635+ | 107978+ | 114219+ |
| * | **39** | **O-ring, Divert stem** | **EPDM** | E70210 | E70215 | E70217 | E70217 | E70217 | E70223 |
| | | | **FKM** | V70210 | V70215 | V70217 | V70217 | V70217 | V70223 |

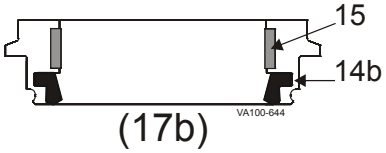
**Notes:** *** Recommended Spare Parts** PL5027-CH55a

*** See actuator parts lists

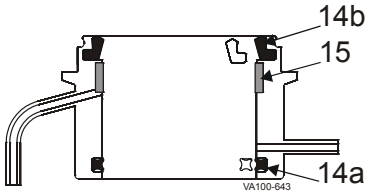
1. For items 8, 16, 37, see W73 Mix Proof Seat Lift Valve Stems Chart.
4. Unless otherwise noted, quantity required is 1.
6. POA = Part # on availability; N/A = not available with this design.

## W73 Divert Mix Proof Seat Lift Valve with External Flush

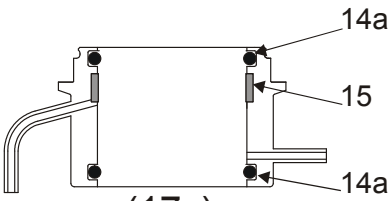


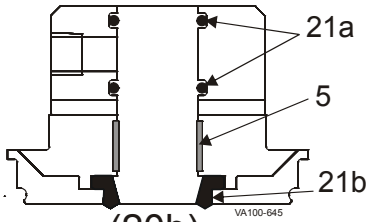

(17b)




(17d)




(17c)




(20b)

# W73 Divert Mix Proof Seat Lift Valve with External Flush

| | Item # | Part Description | | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | Control Top | | Contact Factory | | | | | |
| | 3 | Actuator | | *** | | | | | |
| * | 4 | **O-ring** | **Nitrile** | N70010 | N70010 | N70111 | N70111 | N70111 | N70111 |
| * | 5 | **Bearing** | | 102757+ | 102757+ | 106047+ | 106047+ | 106047+ | 101995+ |
| * | 6 | **O-ring, Body (qty 4 req)** | **EPDM** | E70223 | E70228 | E70232 | E70236 | E70244 | E70258 |
| | | | **FKM** | V70223 | V70228 | V70232 | V70236 | V70244 | V70258 |
| | 8 | Stem, Upper Assembly - See note 1, below | | | | | | | |
| * | 10a | **Seat Ring -Tri Ring, Upper** | **EPDM** | 106031+ | 102736+ | 107048+ | 102488+ | 102491+ | 102738+ |
| | | | **FKM** | 107990+ | 107980+ | 107982+ | 107974+ | 107977+ | 108020+ |
| * | 11 | **Seat Ring -Tri Ring, Vent** | **EPDM** | 106041+ | 107693+ | 107696+ | 107697+ | 102490+ | 102737+ |
| | | | **FKM** | 107992+ | 107984+ | 107987+ | 107988+ | 107976+ | 108019+ |
| * | 12a | **Seat Ring -Tri Ring, Lower** | **EPDM** | 106036+ | 107693+ | 102487+ | 102489+ | 102492+ | 102739+ |
| | | | **FKM** | 107991+ | 107984+ | 107973+ | 107975+ | 107978+ | 108021+ |
| | 14a | **O-ring, Lower Stem** | **EPDM** | E70322 | E70327 | E70331 | E70335 | E70342 | N/A |
| * | | | **FKM** | V70322 | V70327 | V70331 | V70335 | V70342 | N/A |
| | | **Quad Ring, Lower** | **EPDM** | 122690+ | 35413+ | 117992+ | 117561+ | 116952+ | 122350+ |
| | | | **FKM** | 122689+ | 35414+ | 117993+ | 117562+ | 116953+ | 122351+ |
| * | 14b | **Wiping Stem Seal, Lower** | **EPDM** | 116186+ | 116188+ | 116190+ | 116195+ | 116199+ | POA |
| | | | **FKM** | 116187+ | 116189+ | 116191+ | 116196+ | 116200+ | POA |
| * | 15 | **Bearing** | | 101947+ | 102000+ | 106049+ | 106048+ | 102003+ | 102004+ |
| | 16 | Stem, Lower Assembly - See note 1, below | | | | | | | |
| | 17a | Seal Retainer, O-ring or Quad Ring | | 106066+ | 106067+ | 106068+ | 106069+ | 106070+ | 125047+ |
| | 17b | Seal Retainer, Wiping Stem Seal | | 117444+ | 117445+ | 117446+ | 117447+ | 117448+ | POA |
| | 17c | Seal Retainer, Lower Flush, O-ring or Quad Ring | | 114918+ | 114919+ | 114920+ | 114921+ | 114922+ | POA |
| | 17d | Seal Retainer, Lower Flush, Wiping Stem Seal | | 119050+ | 119035+ | 118226+ | 117559+ | 118253+ | POA |
| | 18 | Clamp | | 119-30 | 119-33 | 119-34 | 119-51 | 119-87 | 119-123 |
| | 19 | Spray Bushing | | 106030+ | 106030+ | 107950+ | 107950+ | 107950+ | 107950+ |
| | 20a | Adapter, O-ring or Quad Ring | | 106020+ | 106021+ | 106022+ | 106023+ | 106024+ | 128651+ |
| | 20b | Adapter, Wiping Stem Seal | | 119482+ | 119483+ | 119484+ | 119485+ | 119486+ | POA |
| | 21a | **O-ring, Upper Stem** | **EPDM** | E70210 | E70210 | E70214 | E70214 | E70214 | N/A |
| * | | | **FKM** | V70210 | V70210 | V70214 | V70214 | V70214 | N/A |
| | | **Quad Ring, Upper (qty 3 required)** | **EPDM** | 121300+ | 121300+ | 124163+ | 124163+ | 124163+ | 114221+ |
| | | | **FKM** | 124088+ | 124088+ | 121299+ | 121299+ | 121299+ | 114223+ |
| * | 21b | **Wiping Stem Seal, Upper** | **EPDM** | 116183+ | 116183+ | 116184+ | 116184+ | 116184+ | POA |
| | | | **FKM** | 115626+ | 115626+ | 116185+ | 116185+ | 116185+ | POA |
| * | 25 | **O-ring** | **EPDM** | E70010 | E70010 | E70111 | E70111 | E70111 | E70111 |
| | | | **FKM** | V70010 | V70010 | V70111 | V70111 | V70111 | V70111 |
| * | 26 | **O-ring (qty 2 required)** | **Nitrile** | N90016 | N90016 | N90020 | N90020 | N90020 | N90020 |
| | 37 | Stem, Middle - See note 1, below | | | | | | | |
| * | 38 | **Tri Ring, Divert Stem** | **EPDM** | 106036+ | 107693+ | 107048+ | 111633+ | 102492+ | 114216+ |
| | | | **FKM** | 107991+ | 107984+ | 107982+ | 111635+ | 107978+ | 114219+ |
| * | 39 | **O-ring, Divert stem** | **EPDM** | E70210 | E70215 | E70217 | E70217 | E70217 | E70223 |
| | | | **FKM** | V70210 | V70215 | V70217 | V70217 | V70217 | V70223 |

**Notes:** *** Recommended Spare Parts** PL5027-CH56a

*** See actuator parts lists

1. For items 8, 16, 37, see W73 Divert Mix Proof Seat Lift with External Flush Valve Stems Chart.
4. Unless otherwise noted, quantity required is 1.
6. POA = Part # on availability; N/A = not available with this design.

# W71 Valve Stems

## W71 Mix Proof Non-Seat Lift (See page 32)

| Item # | Part Description | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|
| 8a | Stem, Upper | 116615+ | 115788+ | 115663+ | 115648+ | 115793+ | POA |
| 16a | Stem, Lower Assembly[7] | 118150+ | 118151+ | 118152+ | 118153+ | 118154+ | POA |

PL5027-CH104a

## W71 Mix Proof Non-Seat Lift with External Flush (See page 34)

| Item # | Part Description | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|
| 8a | Stem, Upper Assembly[8, 10] | 106015+ | 106016+ | 106017+ | 106018+ | 106019+ | 128647+ |
| 16a | Stem, Lower Assembly[9] | 106051+ | 106052+ | 106053+ | 106054+ | 106055+ | 129719+ |
| 24 | Stem, Actuator, NSL Flush | 107790+ | 107756+ | 107949+ | 107949+ | 107949+ | 129703+ |

PL5027-CH105a

## W71 Mix Proof Non-Seat Lift with Steam Adapter (See page 36)

| Item # | Part Description | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|
| 8a | Stem, Upper Assembly[8] | 130673+ | 126218+ | POA | 122284+ | POA | POA |
| 16a | Stem, Lower Assembly[9] | 114933+ | 114934+ | 114935+ | 114936+ | 114937+ | POA |
| 24 | Stem, Actuator, NSL Flush | 107790+ | 107756+ | 107949+ | 107949+ | 107949+ | 129703+ |

PL5027-CH130a

## W71 Mix Proof Seat Lift (See page 38)

| Item # | Part Description | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|
| 8a | Stem, Upper | 111042+ | 111014+ | 111052+ | 111022+ | 111049+ | POA |
| 16a | Stem, Lower Assembly[7] | 118247+ | 118248+ | 118249+ | 118250+ | 118251+ | POA |

PL5027-CH106a

## W71 Mix Proof Seat Lift with External Flush (See page 40)

| Item # | Part Description | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|
| 8a | Stem, Upper Assembly[11] | 119199+ | 119200+ | 119201+ | 119202+ | 119203+ | POA |
| 16a | Stem, Lower Assembly[9] | 111499+ | 111513+ | 111519+ | 111520+ | 111524+ | POA |

PL5027-CH107a

## W71 Mix Proof Seat Lift with Steam Adapter (See page 42)

| Item # | Part Description | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|
| 8a | Stem, Upper Assembly[11] | POA | POA | POA | POA | POA | N/A |
| 16a | Stem, Lower Assembly[9] | 118241+ | 118409+ | 118243+ | 118244+ | 118245+ | N/A |

PL5027-CH131a

**Notes**

5. EPDM recommended on all steam-contact seals.
6. POA = Part # on availability; N/A = not available with this design.
7. Part number includes lower stem and stem bushing, which are assembled together.
8. Part number includes upper stem and coupling sleeve, which are assembled together.
9. Part number includes lower stem and inner stem, which are assembled together.
10. A separate actuator stem (item 24) mates with item 8.
11. Part number includes upper stem, outer stem and coupling sleeve, which are assembled together.
12. Part number includes upper stem, outer stem and outer stem bushing, which are assembled together.
13. Unless otherwise noted, quantity required is 1.

PL5027-CH138

# W72RS Valve Stems

## W72RS Mix Proof Non-Seat Lift (See page 44)

| Item # | Part Description | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|
| 8 | Stem, Upper | 119268+ | 118484+ | 119281+ | 118534+ | 119346+ | POA |
| 16 | Stem, Lower Assembly[9] | 119477+ | 119478+ | 119479+ | 119480+ | 119481+ | POA |

PL5027-CH102

## W72RS Mix Proof Non-Seat Lift with External Flush (See page 46)

| Item # | Part Description | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|
| 8 | Stem, Upper Assembly[11] | 106015+ | 106016+ | 106017+ | 106018+ | 106019+ | POA |
| 16 | Stem, Lower Assembly[9] | POA | 120893+ | 125484+ | 120894+ | POA | POA |
| 24 | Stem, Actuator, NSL Flush | 122389+ | 118642+ | 118625+ | 118625+ | 107949+ | 129703+ |

PL5027-CH108

## W72RS Mix Proof Non-Seat Lift with Steam Adapter (See page 48)

| Item # | Part Description | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|
| 8 | Stem, Upper Assembly[7] | 119452+ | 119453+ | 119454+ | 119455+ | 119456+ | POA |
| 16 | Stem, Lower Assembly[8] | 119462+ | 119463+ | 119464+ | 119465+ | 119466+ | POA |
| 24 | Stem, Actuator, NSL Flush | 122389+ | 118642+ | 118625+ | 118625+ | 107949+ | 129703+ |

PL5027-CH132

## W72RS Mix Proof Seat Lift (See page 50)

| Item # | Part Description | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|
| 8 | Stem, Upper | 113390+ | 113091+ | 113263+ | 113102+ | 113265+ | POA |
| 16 | Stem, Lower Assembly[9] | 119436+ | 119437+ | 119438+ | 119439+ | 119440+ | POA |

PL5027-CH121

## W72RS Mix Proof Seat Lift with External Flush (See page 52)

| Item # | Part Description | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|
| 8 | Stem, Upper Assembly[11] | 119447+ | 119448+ | 119449+ | 119450+ | 119451+ | POA |
| 16 | Stem, Lower Assembly[9] | 119457+ | 119458+ | 119459+ | 119460+ | 119461+ | POA |

PL5027-CH122

## W72RS Mix Proof Seat Lift with Steam Adapter (See page 54)

| Item # | Part Description | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|
| 8 | Stem, Upper Assembly[11] | 119452+ | 119453+ | 119454+ | 119455+ | 119456+ | POA |
| 16 | Stem, Lower Assembly[9] | 119462+ | 119463+ | 119464+ | 119465+ | 119466+ | POA |

PL5027-CH133

**Notes**

5. EPDM recommended on all steam-contact seals.
6. POA = Part # on availability; N/A = not available with this design.
7. Part number includes lower stem and stem bushing, which are assembled together.
8. Part number includes upper stem and coupling sleeve, which are assembled together.
9. Part number includes lower stem and inner stem, which are assembled together.
10. A separate actuator stem (item 24) mates with item 8.
11. Part number includes upper stem, outer stem and coupling sleeve, which are assembled together.
12. Part number includes upper stem, outer stem and outer stem bushing, which are assembled together.
13. Unless otherwise noted, quantity required is 1.

PL5027-CH138

W72RS Valve Stems continued on next page.

### W72RS Mix Proof Seat Lift with Upper Balancer Option (See page 56)

| Item # | Part Description | 2" | 2-1/2" | 3" | 4" |
|---|---|---|---|---|---|
| 8 | Stem, Upper | 126052+ | POA | 126043+ | 126059+ |
| 16 | Stem, Lower Assembly[9] | 119437+ | 119438+ | 119439+ | 119440+ |

PL5027-CH137

### W72RS Mix Proof Seat Lift Tank Outlet (See page 58)

| Item # | Part Description | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|
| 8 | Stem, Outer (Pipe Side) | 126015+ | 125970+ | 126020+ | POA |
| 16 | Stem, Inner (Tank Side) | 125996+ | 125967+ | 126024+ | POA |

PL5027-CH136

### W72RS Mix Proof Seat Lift Tank Outlet with External Flush (See page 60)

| Item # | Part Description | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|
| 8 | Stem, Outer (Pipe Side) | POA | 127748+ | 129289+ | POA |
| 16 | Stem, Inner (Tank Side) | POA | 127749+ | 129381+ | POA |
| 24 | Stem, Actuator | POA | 109910+ | 116821+ | POA |

PL5027-CH149

## W72RSP Valve Stems

### W72RSP Mix Proof Seat Lift (See page 62)

| Item # | Part Description | 2.5" | 3" | 4" | 6" |
|---|---|---|---|---|---|
| 8 | Stem, Upper Assembly[11] | 126880+ | 126880+ | 126880+ | POA |
| 16 | Stem, Lower Assembly[9] | 129983+ | 129983+ | 129983+ | POA |

PL5027-CH158

### W72RSP Mix Proof Seat Lift with External Flush (See page 64)

| Item # | Part Description | 2.5" | 3" | 4" | 6" |
|---|---|---|---|---|---|
| 8 | Stem, Upper Assembly[11] | 128536+ | 128536+ | 128536+ | POA |
| 16 | Stem, Lower Assembly[9] | 129984+ | 129984+ | 129984+ | POA |
| 24 | Stem, Actuator | 128535+ | 128535+ | 128535+ | POA |

PL5027-CH157

**Notes**

5. EPDM recommended on all steam-contact seals.
6. POA = Part # on availability; N/A = not available with this design.
7. Part number includes lower stem and stem bushing, which are assembled together.
8. Part number includes upper stem and coupling sleeve, which are assembled together.
9. Part number includes lower stem and inner stem, which are assembled together.
10. A separate actuator stem (item 24) mates with item 8.
11. Part number includes upper stem, outer stem and coupling sleeve, which are assembled together.
12. Part number includes upper stem, outer stem and outer stem bushing, which are assembled together.
13. Unless otherwise noted, quantity required is 1.

PL5027-CH138

# W73 Valve Stems

## W73 Divert Mix Proof Seat Lift (See page 66)

| Item # | Part Description | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|
| 8 | Stem, Upper | 111042+ | 111014+ | 111052+ | 111022+ | 111049+ | POA |
| 16a | Stem, Lower | 116686+ | 115911+ | 116388+ | 114506+ | 115651+ | 128650+ |
| 37a | Stem, Middle, Tri-Ring | POA | POA | POA | POA | POA | POA |

PL5027-CH124a

## W73 Divert Mix Proof Seat Lift with External Flush (See page 68)

| Item # | Part Description | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 6" |
|---|---|---|---|---|---|---|---|
| 8 | Stem, Upper Assembly[12] | 119200+ | 119201+ | 119202+ | 119203+ | 119204+ | 128647+ |
| 16a | Stem, Lower | 116686+ | 115911+ | 116388+ | 114506+ | 115651+ | 128650+ |
| 16c | Stem, Lower Flush | POA | POA | POA | POA | POA | POA |
| 37a | Stem, Middle, Tri-Ring | POA | POA | POA | POA | POA | POA |

PL5027-CH126a

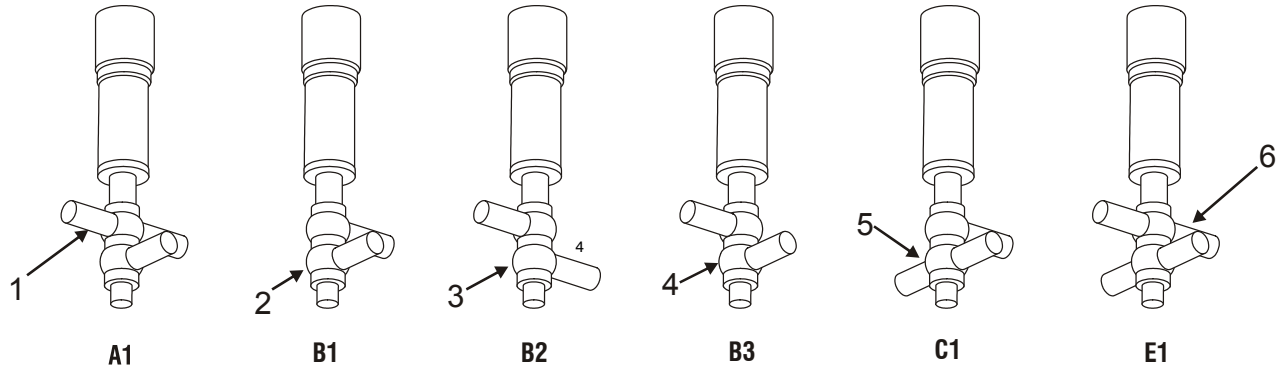
**Notes**

5. EPDM recommended on all steam-contact seals.
6. POA = Part # on availability; N/A = not available with this design.
7. Part number includes lower stem and stem bushing, which are assembled together.
8. Part number includes upper stem and coupling sleeve, which are assembled together.
9. Part number includes lower stem and inner stem, which are assembled together.
10. A separate actuator stem (item 24) mates with item 8.
11. Part number includes upper stem, outer stem and coupling sleeve, which are assembled together.
12. Part number includes upper stem, outer stem and outer stem bushing, which are assembled together.
13. Unless otherwise noted, quantity required is 1.

PL5027-CH138

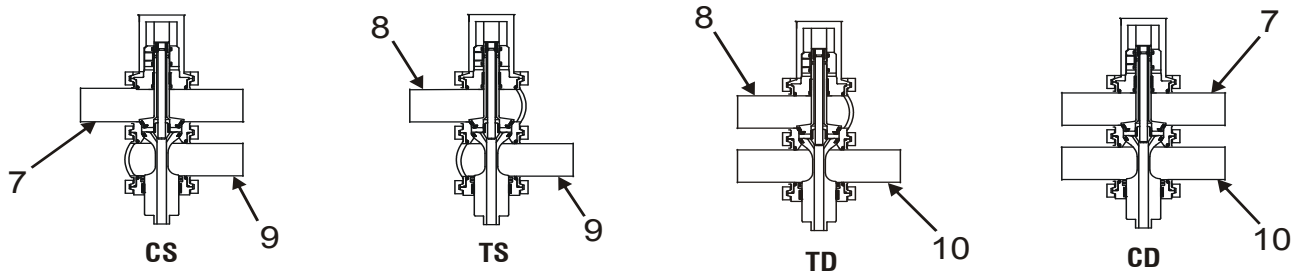
## Mix Proof Valve Bodies for W71, W72RS, W72RSP, and W73 Valves

### W71, W72RS, W72RSP One Piece Bodies



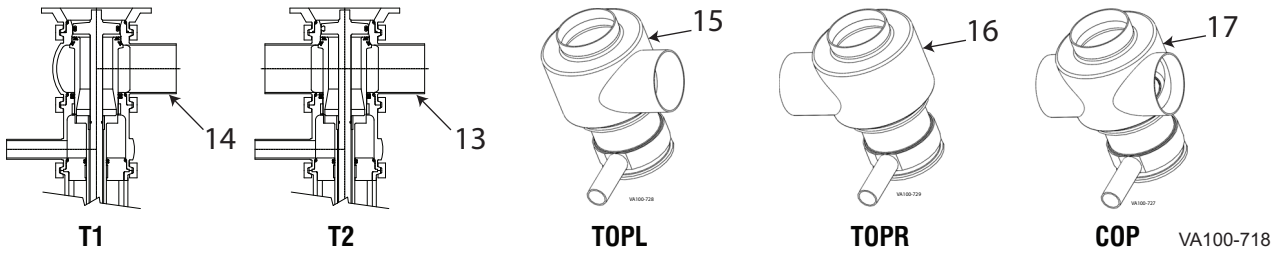

VA100-436b

### W71 & W72RS Two Piece Clamped Bodies *



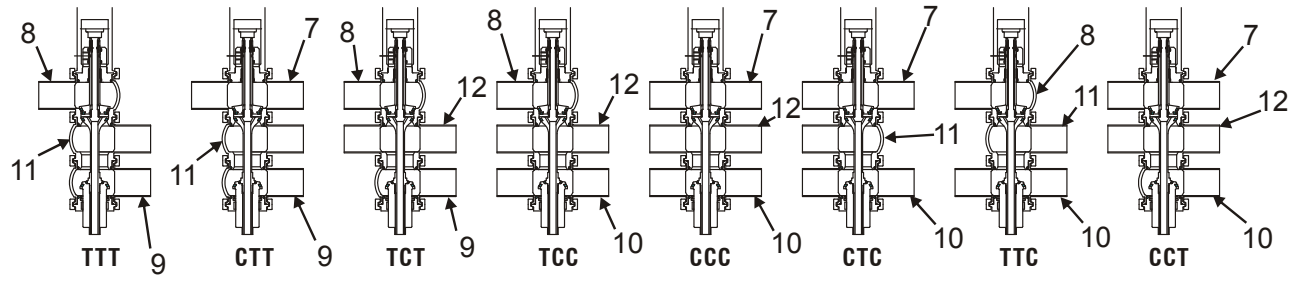

VA100-436c

### W72RS Tank Outlet Valve Two Piece Clamped Bodies *




VA100-718

### W73-Divert Three Piece Clamped Bodies *




VA100-436d

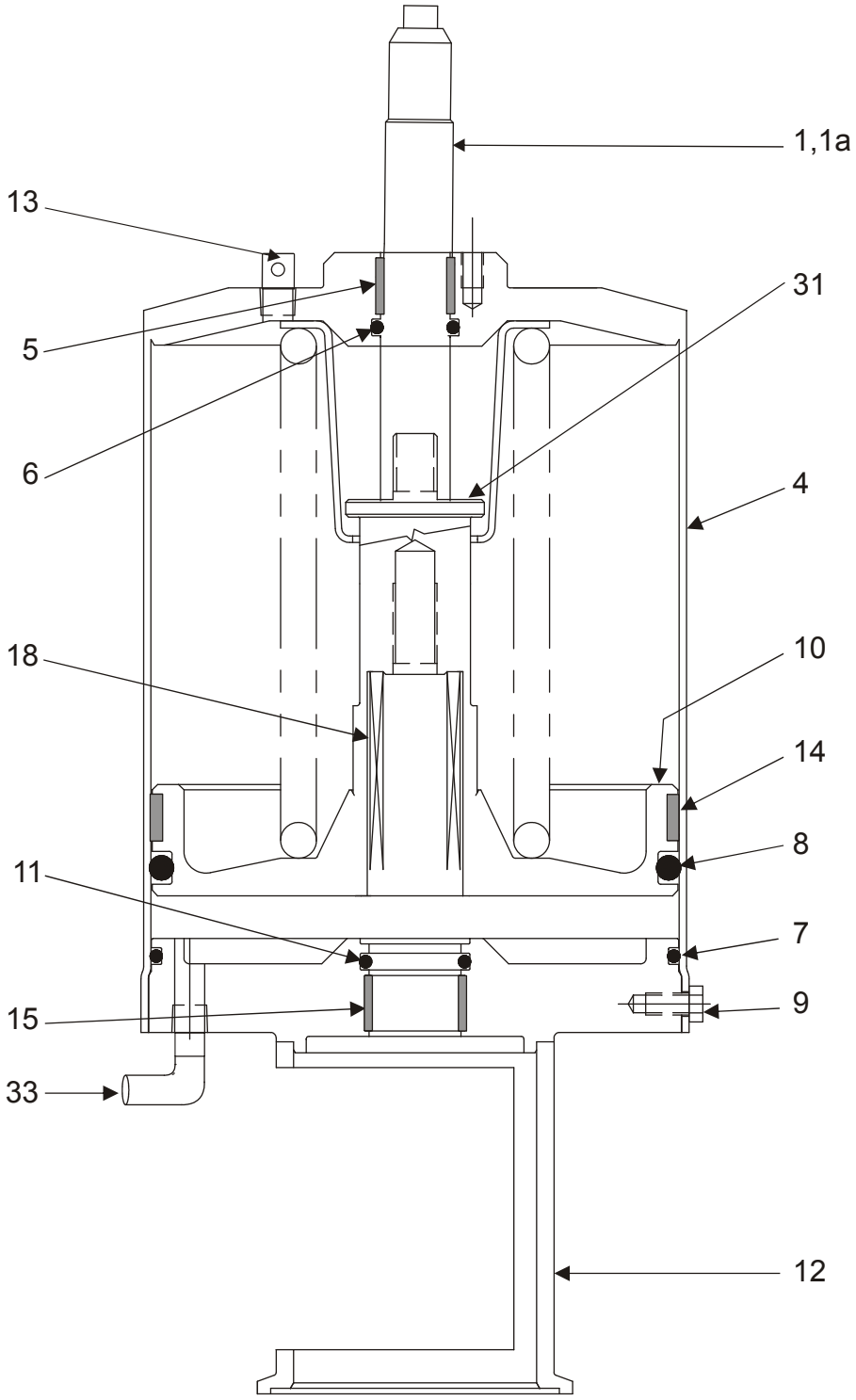
* Clamped bodies allow for ports to be rotated in any direction.

## Mix Proof Valve Bodies for W71, W72RS, W72RSP, and W73 Valves

| Item # | Part Description | 1-1/2" | 2" | 2-1/2" | 3" | 4" |
|---|---|---|---|---|---|---|
| **W71 One Piece Body** | | | | | | |
| 1 | Buttweld - A1 | 107758+ | 107803+ | 107898+ | 107922+ | 107945+ |
| 2 | Buttweld - B1 | 107760+ | 107805+ | 107900+ | 107924+ | 107947+ |
| 3 | Buttweld - B2 | 114652+ | 112515+ | 114458+ | 113726+ | 114579+ |
| 4 | Buttweld - B3 | 107761+ | 107806+ | 107901+ | 107925+ | 107948+ |
| 5 | Buttweld - C1 | 107759+ | 107804+ | 107899+ | 107923+ | 107946+ |
| 6 | Buttweld - E1 | 107757+ | 107802+ | 107897+ | 107921+ | 107944+ |
| **W72RS One Piece Body** | | | | | | |
| 1 | Buttweld - A1 | 113274+ | 113082+ | 113268+ | 113076+ | 113254+ |
| 2 | Buttweld - B1 | 113276+ | 113084+ | 113270+ | 113078+ | 113256+ |
| 3 | Buttweld - B2 | 113277+ | 113085+ | 113271+ | 114835+ | 113257+ |
| 4 | Buttweld - B3 | 113278+ | 113086+ | 113272+ | 113079+ | 113258+ |
| 5 | Buttweld - C1 | 113275+ | 113083+ | 113269+ | 113077+ | 113255+ |
| 6 | Buttweld - E1 | 113273+ | 113081+ | 113267+ | 113075+ | 113253+ |
| **W72RSP One Piece Body** | | | | | | |
| 1 | Buttweld - A1 | N/A | N/A | 126926+ | 126916+ | 113254+ |
| 2 | Buttweld - B1 | N/A | N/A | 126928+ | 126918+ | 113256+ |
| 3 | Buttweld - B2 | N/A | N/A | 126929+ | 126919+ | 113257+ |
| 4 | Buttweld - B3 | N/A | N/A | 126930+ | 126920+ | 113258+ |
| 5 | Buttweld - C1 | N/A | N/A | 126927+ | 126917+ | 113255+ |
| 6 | Buttweld - E1 | N/A | N/A | 126925+ | 126915+ | 113253+ |
| **W71/W73** | | | | | | |
| 7 | Upper Cross, S-Line | 108560+ | 108565+ | 108570+ | 108575+ | 108580+ |
| 8 | Upper Tee, S-Line | 108530+ | 108535+ | 108540+ | 108545+ | 108550+ |
| **W72RS** | | | | | | |
| 7 | Upper Cross, S-Line | 119488+ | 119489+ | 119490+ | 119491+ | 119492+ |
| 8 | Upper Tee, S-Line | 119493+ | 119494+ | 119495+ | 119496+ | 119497+ |
| **W72RS Tank Outlet** | | | | | | |
| 13 | Upper Cross, T2 | N/A | N/A | 123784+ | 119026+ | 123786+ |
| 14 | Upper Tee, T1 | N/A | N/A | 123783+ | 119025+ | 123785+ |
| 15 | Tee, Offset Port - Right (TOPR) | N/A | N/A | POA | POA | POA |
| 16 | Tee, Offset Port - Left (TOPL) | N/A | N/A | POA | POA | POA |
| 17 | Cross, Offset Port (COP) | N/A | N/A | POA | POA | POA |
| **W71/W72RS/W73** | | | | | | |
| 9 | Lower Tee, S-Line | 108590+ | 108595+ | 108600+ | 108605+ | 108610+ |
| 10 | Lower Cross, S-Line | 108620+ | 108625+ | 108630+ | 108635+ | 108640+ |
| **W73** | | | | | | |
| 11 | Middle Tee, S-Line | 118262+ | 118267+ | 118272+ | 118277+ | 118282+ |
| 12 | Middle Cross, S-Line | 118292+ | 118297+ | 118302+ | 118307+ | 118312+ |

PL5027-CH57

## W71/W73 Non-Seat Lift Actuator



## W71/W73 Non-Seat Lift Actuator

| | Item # | Part Description | | 4" Diameter[1] | 6" Diameter[1] | 8" Diameter[1] |
|---|---|---|---|---|---|---|
| | 1 | Indicator Stem - Visual | | 106050+ | 107951+ | POA |
| | 1a | Indicator Stem - Control Top | | 106003+ | 106004+ | 110800+ |
| | 4 | Cylinder | | 106006+ | 106007+ | 128394+ |
| * | **5** | **Bearing, Indicator Stem** | | 102757+ | 102757+ | 102757+ |
| * | **6** | **O-ring, Indicator Stem** | **Nitrile** | N70210 | N70210 | N70210 |
| * | **7** | **O-ring, Outer Yoke** | **Nitrile** | N70240 | N70255 | N70367 |
| * | **8** | **O-ring, Piston** | **Nitrile** | N70342 | N70433 | N70443 |
| | 9 | Cap Screw, 1/4-20 x .375" lg. | | 30-68 (qty 4 req) | 30-68 (qty 8 req) | 30-361 (qty 12 req) |
| | 10 | Piston & Spring Assembly | | 106009+ | 106010+ | 129822+ |
| * | **11** | **O-ring, Yoke** | **Nitrile** | N70210 | N70214 | N70214 |
| | 12 | Yoke | 1-1/2" Valve | 106119+ | -- | -- |
| | | | 2" Valve | 107764+ | -- | -- |
| | | | 2 1/2" Valve | -- | 106120+ | -- |
| | | | 3" Valve | -- | 106121+ | -- |
| | | | 4" Valve | -- | 106118+ | -- |
| | | | 6" Valve | -- | -- | 128396+ |
| | 13 | Vent Plug (see note 2) | | 3023957+ | 3023957+ | 3023957+ |
| * | **14** | **Bearing, Piston** | | 101995+ | 102052+ | 100256+ |
| * | **15** | **Bearing, Yoke** | | 102757+ | 106047+ | 106047+ |
| | 18 | Spring, Upper Stem | | 101946+ | 5901106+ | 5901106+ |
| | 31 | Washer (see note 3) | | 43-55 | -- | -- |
| | 33 | Elbow swivel 90° | | 78-157 | 78-157 | 78-157 |

## Complete Actuator Assemblies

| Part Description | | | 4" Diameter[1] | 6" Diameter[1] | 8" Diameter[1] |
|---|---|---|---|---|---|
| Air-to-Raise | Visual Indicator Stem | 1-1/2" | ACT00188 | -- | -- |
| | | 2" | ACT00122 | -- | -- |
| | | 2-1/2" | -- | ACT00279 | -- |
| | | 3" | -- | ACT00280 | -- |
| | | 4" | -- | ACT00281 | -- |
| | | 6" | -- | -- | POA |

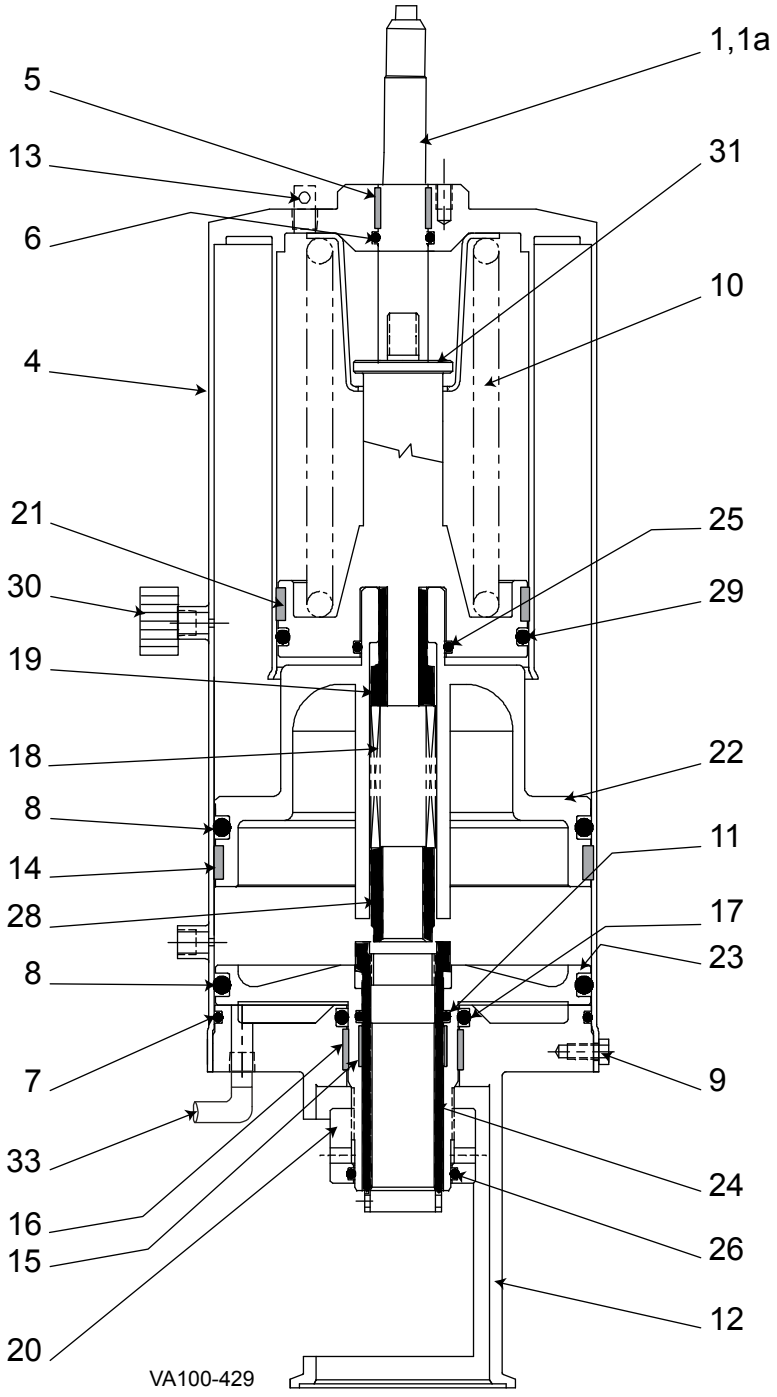
**Notes:**

PL5027-CH58

*** Recommended Spare Parts**

1. 4-inch diameter actuator for 1-1/2inch and 2-inch valves; 6-inch diameter actuator for 2-1/2 inch and 4-inch valves; 8" diameter for 6 inch valves.
2. Only required for valves without control top.
3. Item 31 is required on 1-1/2" valves only.
4. Unless otherwise noted, quantity required is 1.

## W71/W73 Seat Lift Actuator



## W71/W73 Seat Lift Actuator

| | Item # | Part Description | | 4" Diameter[1] | 6" Diameter[1] | 8" Diameter[1] |
|---|---|---|---|---|---|---|
| | 1 | Indicator Stem - Visual | | 106050+ | 107951+ | POA |
| | 1a | Indicator Stem - Control Top | | 106003+ | 106004+ | 110800+ |
| | 4 | Cylinder | | 111506+ | 111491+ | 123974+ |
| * | **5** | **Bearing, Indicator Stem** | | 102757+ | 102757+ | 102757+ |
| * | **6** | **O-ring, Indicator Stem** | **Nitrile** | N70210 | N70210 | N70210 |
| * | **7** | **O-ring, Outer Yoke** | **Nitrile** | N70240 | N70255 | N70367 |
| * | **8** | **O-ring, Upper Seat Piston (qty 2 req)** | **Nitrile** | N70342 | N70433 | N70443 |
| | 9 | Cap Screw, 1/4-20 x .375" lg. | | 30-68 (qty 4 req) | 30-68 (qty 8 req) | 30-361 (qty 12 req) |
| | 10 | Lower Seat Piston & Spring Assembly | | 113661+ | 113660+ | 129823+ |
| * | **11** | **O-ring, Adjustment Sleeve (qty 2 req)** | **Nitrile** | N70214 | N70219 | N70219 |
| | 12 | Yoke | 1-1/2" Valve | 109823+ | -- | -- |
| | | | 2" Valve | 109940+ | -- | -- |
| | | | 2 1/2" Valve | -- | 109928+ | -- |
| | | | 3" Valve | -- | 109934+ | -- |
| | | | 4" Valve | -- | 109905+ | -- |
| | | | 6" Valve | -- | -- | 128655+ |
| | 13 | Vent Plug (see note 2) | | 3023957+ | 3023957+ | 3023957+ |
| * | **14** | **Bearing, Main Piston** | | 101995+ | 102052+ | 100256+ |
| * | **15** | **Bearing, Adjusting Sleeve** | | 106047+ | 109919+ | 109919+ |
| * | **16** | **Bearing, Lifting piston** | | 109820+ | 109920+ | 109920+ |
| * | **17** | **O-ring, Inner Yoke** | **Nitrile** | N70222 | N70328 | N70328 |
| | 18 | Spring, Upper Stem | | 101946+ | 5901106+ | 5901106+ |
| | 19 | Stop, Lifter | | 109817+ | 109913+ | 123998+ |
| | 20 | Adjusting Nut, Upper Seat Lift | | 109822+ | 109918+ | 122345+ |
| * | **21** | **Bearing, Lower seat piston** | | 111044+ | 101995+ | 102052+ |
| | 22 | Main Piston | | 111510+ | 111486+ | 123979+ |
| | 23 | Upper Seat Lift Piston | | 111507+ | 111489+ | 124555+ |
| | 24 | Adjusting Sleeve, Lower Seat Clean | | 109821+ | 109912+ | 126834+ |
| * | **25** | **O-ring, Inner Lower Seat Piston** | **Nitrile** | N70216 | N70219 | N70219 |
| * | **26** | **O-ring, Adjusting Nut** | **Nitrile** | N80026 | N80222 | N80222 |
| | 28 | Bushing | | 112427+ | 112517+ | 112517+ |
| * | **29** | **O-ring, Outer Lower Seat Piston** | Nitrile | N70335 | N70342 | N70433 |
| | 30 | Quick Exhaust (avail. upon request) | | 114680+ | 114680+ | 114680+ |
| | 31 | Washer (see note 3) | | 43-55 | -- | -- |
| | 33 | Elbow swivel 90° | | 78-157 | 78-157 | 78-157 |

## Complete Actuator Assemblies

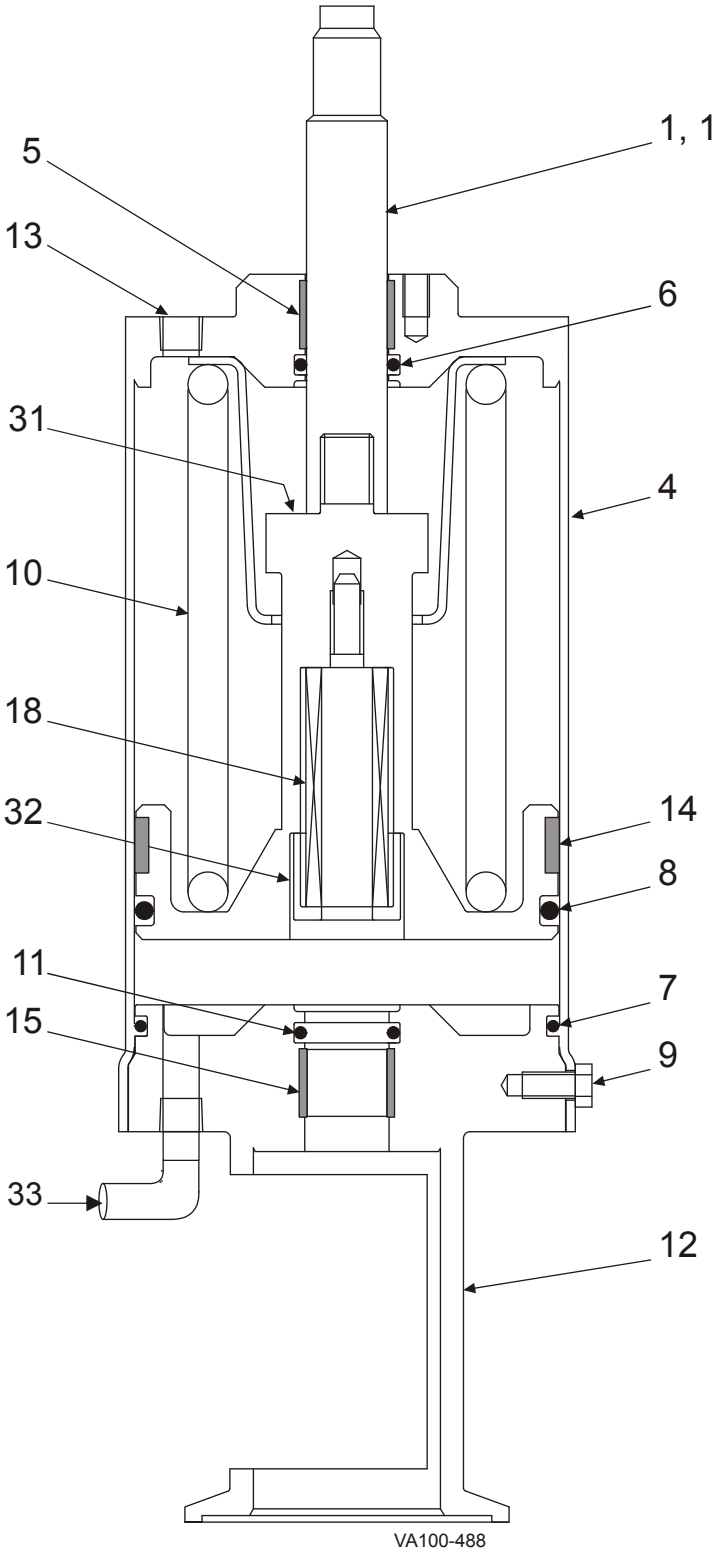
| Part Description | | | 4" Diameter[1] | 6" Diameter[1] | 8" Diameter[1] |
|---|---|---|---|---|---|
| Air-to-Raise | Visual Indicator Stem | 1-1/2" | ACT00282 | -- | -- |
| | | 2" | ACT00283 | -- | -- |
| | | 2-1/2" | -- | ACT00284 | -- |
| | | 3" | -- | ACT00285 | -- |
| | | 4" | -- | ACT00286 | -- |
| | | 6" | -- | -- | POA |

**Notes:** PL5027-CH60

*** Recommended Spare Parts**

1. 4-inch diameter actuator for 1-1/2inch and 2-inch valves; 6-inch diameter actuator for 2-1/2 inch and 4-inch valves; 8" diameter for 6 inch valves.
2. Only required for valves without control top.
3. Item 31 is required on 1-1/2" valves only.
4. Unless otherwise noted, quantity required is 1.

## W72RS Non Seat Lift Actuator



## W72RS Non Seat Lift Actuator

| | Item # | Part Description | | 4" Diameter[1] | 6" Diameter[1] | 8" Diameter[1] |
|---|---|---|---|---|---|---|
| | 1 | Indicator Stem - Visual | | 106050+ | 107951+ | POA |
| | 1a | Indicator Stem - Control Top | | 106003+ | 106004+ | POA |
| | 4 | Cylinder | | 106006+ | 106007+ | 128394+ |
| * | **5** | **Bearing, Indicator Stem** | | 102757+ | 102757+ | 102757+ |
| * | **6** | **O-ring, Indicator Stem** | **Nitrile** | N70210 | N70210 | N70210 |
| * | **7** | **O-ring, Cylinder** | **Nitrile** | N70240 | N70255 | N70367 |
| * | **8** | **O-ring, Piston** | **Nitrile** | N70342 | N70433 | N70443 |
| | 9 | Cap Screw, 1/4-20 x .375" lg. | | 30-68 (4 req) | 30-68 (8 req) | 30-361 (12 req) |
| | 10 | Piston & Spring Assembly | | 118461+ | 118530+ | POA |
| * | **11** | **O-ring, Yoke** | **Nitrile** | N70210 | N70214 | N70214 |
| | 12 | Yoke | 1-1/2" | 106119+ | -- | -- |
| | | | 2" | 107764+ | -- | -- |
| | | | 2-1/2" | -- | 106120+ | -- |
| | | | 3" | -- | 106121+ | -- |
| | | | 4" | -- | 106118+ | -- |
| | | | 6" | -- | -- | 128396+ |
| | 13 | Vent Plug (see note 2) | | 3023957+ | 3023957+ | 3023957 |
| * | **14** | **Bearing, Piston** | | 101995 | 102052 | 100256+ |
| * | **15** | **Bearing, Yoke** | | 102757+ | 106047+ | 106047+ |
| | 18 | Spring, Upper Stem | | 101946 | 5901106 | 5901106+ |
| | 31 | Washer (see note 3) | | 43-55 | -- | |
| | 32 | Spring Guide | | 118459 | 118529 | POA |
| | 33 | Elbow swivel 90° | | 78-157 | 78-157 | 78-157 |

## Complete Actuator Assemblies

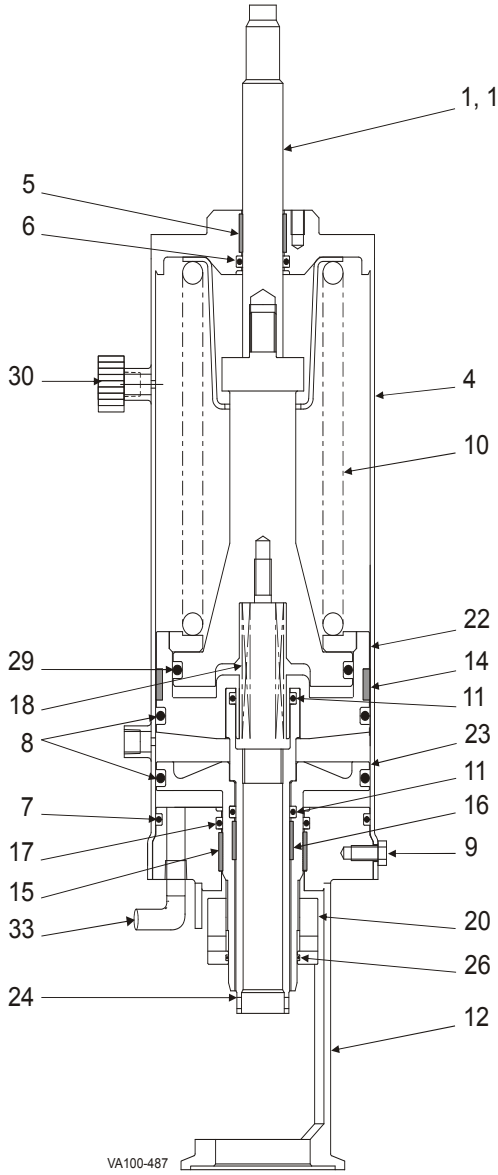
| Part Description | | For Valve Size | 4" Diameter[1] | 6" Diameter[1] | 8" Diameter[1] |
|---|---|---|---|---|---|
| Air-to-Raise | Visual Indicator Stem | 1-1/2" | ACT00342 | -- | -- |
| | | 2" | ACT00343 | -- | -- |
| | | 2-1/2" | -- | ACT00344 | -- |
| | | 3" | -- | ACT00345 | -- |
| | | 4" | -- | ACT00346 | -- |
| | | 6" | -- | -- | POA |
| | Control Top Indicator Stem | 1-1/2" | ACT00352 | -- | -- |
| | | 2" | ACT00353 | -- | -- |
| | | 2-1/2" | -- | ACT00354 | ACT00354 |
| | | 3" | -- | ACT00355 | ACT00355 |
| | | 4" | -- | ACT00356 | ACT00356 |
| | | 6" | -- | -- | POA |

**Notes:** PL5027-CH62

*** Recommended Spare Parts**

1. 4-inch diameter actuator for 1-1/2inch and 2-inch valves, 6-inch diameter actuator for 2-1/2 inch through 4-inch valves, 8-inch diameter actuator for 6-inch valves.
2. Only required for valves without control top
3. Item 31 is required on 1-1/2" valves only.

## W72RS/W72RSP Seat Lift Actuator




### W72RS/W72RSP Complete Actuator Assemblies (see note 3)

| Part Description | For Valve Size | W72RS 4" Dia.[1] | W72RS 6" Dia.[1] | W72RS 8" Dia.[1] | W72RSP |
|---|---|---|---|---|---|
| Air-to-Raise Visual Indicator Stem | 1-1/2" | ACT00337 | -- | -- | POA |
| | 2" | ACT00338 | -- | -- | |
| | 2-1/2" | -- | ACT00339 | -- | |
| | 3" | -- | ACT00340 | -- | |
| | 4" | -- | ACT00341 | -- | |
| | 6" | -- | -- | POA | |
| Control Top Indicator Stem | 1-1/2" | ACT00347 | -- | -- | POA |
| | 2" | ACT00348 | -- | -- | |
| | 2-1/2" | -- | ACT00349 | -- | |
| | 3" | -- | ACT00350 | -- | |
| | 4" | -- | ACT00351 | -- | |
| | 6" | -- | -- | POA | |
| Control Top Indicator Stem - Tank Outlet Valve | 2-1/2 & 3" | -- | 126096+ | -- | -- |
| | 4" | -- | 126097+ | -- | -- |

PL5027-64a

# W72RS/W72RSP Seat Lift Actuator

| | Item # | Part Description | W72RS 4" Diameter[1] | W72RS 6" Diameter[1] | W72RS 8" Diameter[1] | W72RSP |
|---|---|---|---|---|---|---|
| | 1 | Indicator Stem - Visual | 106050+ | 107951+ | POA | POA |
| | 1a | Indicator Stem - Control Top | 106003+ | 106004+ | POA | 128787+ |
| | 1b | Indicator Stem - used with yoke switch | -- | -- | -- | 128787+ |
| | 4 | Cylinder | 113099+ | 113112+ | POA | 126871+ |
| * | **5** | **Bearing, Indicator Stem** | 102757+ | 102757+ | 102757+ | 102757+ |
| * | **6** | **O-ring, Indicator Stem Nitrile** | N70210 | N70210 | N70210 | N70210 |
| * | **7** | **O-ring, Cylinder Nitrile** | N70240 | N70255 | N70367 | N70255 |
| * | **8** | **O-ring, Upper Seat Piston (qty 2 req) Nitrile** | N70342 | N70433 | N70443 | N70433 |
| | 9 | Cap Screw, 1/4-20 x .375" lg. | 30-68 (4 req) | 30-68 (8 req) | 30-68 (12 req) | 30-68 (8 req) |
| | 10 | Lower Seat Piston & Spring Assembly 1-1/2" | 113680+ | -- | -- | POA |
| | | 2" | 113679+ | -- | -- | |
| | | 2-1/2" - 4" | -- | 113678+ | -- | |
| | | 6" | -- | -- | POA | |
| | | 2-1/2" - 4" Tank Outlet | -- | 129868+ | -- | |
| * | **11** | **O-ring, Adjusting Sleeve (qty 2 req) Nitrile** | N70214 | N70219 | N70219 | N70219 |
| | 12 | Yoke 1-1/2" | 109823+ | -- | -- | 119591+ |
| | | 2" | 109940+ | -- | -- | |
| | | 2-1/2"; 2-1/2" - 3" Tank Outlet | -- | 109928+ | -- | |
| | | 3"; 4" Tank Outlet | -- | 109934+ | -- | |
| | | 4" | -- | 109905+ | -- | |
| | | 6" | -- | -- | POA | POA |
| | 12a | Yoke with 3rd. prox switch (not shown) | See Note 3 | See Note 3 | See Note 3 | 128532+ |
| | 13 | Vent Plug (not shown) | 3023957+ | 3023957+ | 3023957+ | 3023957+ |
| * | **14** | **Bearing, Main Piston (See note 5)** | 101995+ | 102052+ | 100256+ | 102052+ |
| * | **15** | **Bearing, Adjusting Sleeve** | 106047+ | 109919+ | 109919+ | 109919+ |
| * | **16** | **Bearing, Lifting Piston** | 109820+ | 109920+ | 109920+ | 109920+ |
| * | **17** | **O-ring, Inner Yoke Nitrile** | N70222 | N70328 | N70328 | N70328 |
| | 18 | Spring, Upper Stem | 101946+ | 5901106+ | 5901106+ | 5901106+ |
| | 20 | Adjusting Nut, Upper Seat Lift | 109822+ | 109918+ | 122345+ | 122345+ |
| | 22 | Main Piston | 117215+ | 116472+ | POA | 116472+ |
| | | Main Piston, Tank Outlet Valve | -- | 116472A | -- | -- |
| | 23 | Upper Seat Piston | 111507+ | 111489+ | 124555+ | 124543+ |
| | 24 | Adjusting Sleeve, Lower Seat Clean | 117439+ | 116469+ | POA | 116469+ |
| * | **26** | **O-ring, Adjusting Nut Nitrile** | N80026 | N90222 | N90222 | N90222 |
| * | **29** | **O-ring, Outer Lower Seat Piston** Nitrile | N70337 | N70427 | N70433 | N70427 |
| | 30 | Quick Exhaust (avail. upon request) | 114680+ | 114680+ | 114680+ | 114680+ |
| | 33 | Elbow swivel 90° | 78-157 | 78-157 | 78-157 | 78-157 |

PL5027-CH64

**Notes:**

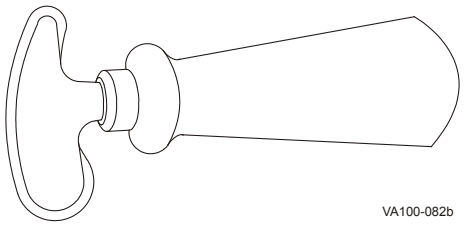
* **Recommended Spare Parts**

1. For W72RS, 4-inch diameter actuator for 1-1/2 inch and 2-inch valves; 6-inch diameter actuator for 2-1/2 inch through 4-inch valves; 8-inch diameter actuator for 6-inch valves. (Does not apply to W72RSP Actuator.)
2. Only required for valves without control top
3. For yokes with 3rd prox. switch, please contact factory.
4. Unless otherwise noted, quantity required is 1.
5. Quantity 2 on Tank Outlet Valve only.

# Installation Tools

| Item | Used with Valve Model |
|---|---|
| Tri Ring Tool (Figure 31) | W71 / W72RS / W73 |
| 4" Actuator Rebuild Insertion Sleeve (Figure 32) | W71 / W73 |
| Seal Insertion Collar Tool (Figure 33) | W72RS / W72RSP |
| Mix Proof Valve Lifter (Figure 34) | All Mix Proof Valves |

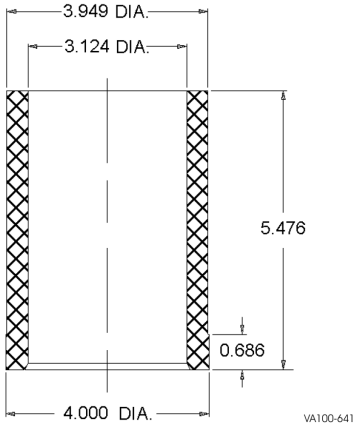
***Figure 31 - Tri Ring Tool (for W71 / W73 and W72RS Valves)***




| | |
|---|---|
| Tri Ring Tool | 102797+ |

PL5027-CH85

***Figure 32 - 4" Actuator Rebuild Insertion Sleeve (for W71 / W73 Valves)***



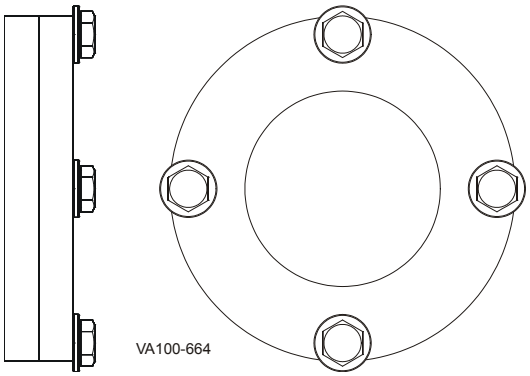

***NOTE:*** *The insertion sleeve is available from WCB using the part number below, or it can be created by most machine shops using #6 nylon round stock. See insertion sleeve dimensions shown at left.*

- *Material is #6 nylon round stock.*
- *Bevel the inside and outside end corners.*

| | |
|---|---|
| 4" Actuator Rebuild Insertion Sleeve | 111840+ |

PL5027-CH90

***Figure 33 - Seal Insertion Collar Tool (for W72RS and W72RSP Valves)***




| Valve Size | 1-1/2" | 2" | 2-1/2" |
|---|---|---|---|
| Part No. | 120048+ | 120049+ | 120051+ |

| Valve Size | 3" | 4" * | 6" |
|---|---|---|---|
| Part No. | 120053+ | 120055+ | 120057+ |

PL5027-CH67

* W72RSP Valves only require the 4" tool.

# Troubleshooting

| PROBLEM | POSSIBLE CAUSE | SUGGESTED ACTION |
|---|---|---|
| ***Leakage*** | | |
| **Leakage from vent/ drain with valve closed.** | Upper or lower seat ring failure. | Remove valve. Replace seat rings. |
| | Debris trapped in upper seat or lower seat. | Inspect/change cleaning procedure to correct. |
| | Upper or lower seat not closed. | Inspect inner and outer stems for galling and burrs on adapter. |
| | | Check actuator function. |
| | Upper or lower seat clean activated. | Check control sequence. |
| **Leakage from vent/ drain with valve open.** | Tri-ring on bottom of top seat failed. | Replace seal. |
| | | Inspect inner and outer stems for galling and burrs. |
| | Small spring not holding upper stem in place. | Check and replace small spring and stems in actuator. |
| **Leakage around yoke.** | Internal adapter o-ring failure. | Replace o-ring. |
| | External adapter o-ring failure. | Replace o-ring. |
| **Leakage through outer stem.** | Inner stem o-ring failure. | Replace o-ring. |
| ***Operation*** | | |
| **Valve fails to open.** | Air pressure too low. | Set air pressure to 72 psi (5 bar) minimum. |
| | Control failure. | Check control sequence. |
| | | Check control wiring and power source. |
| **Valve fails to close.** | Controls failed. | Check control sequence. |
| | | Check control wiring and power source. |
| **Upper seat fails to lift during seat lift.** | Lifting piston not adjusted correctly. | Adjust adjusting sleeve. See “Seat Cleaning Adjustment” on page 22. |
| **Lower seat fails to lift during seat lift.** | Adjusting sleeve not adjusted correctly. | Adjust adjusting sleeve. See “Seat Cleaning Adjustment” on page 22. |
| **Actuator moves when valve opened.** | Clamp loose. | Tighten clamp with valve open. |
| ***Electrical*** | | |
| **No valve closed or open indication.** | Lower switch not adjusted properly. | Adjust switch. See control module publications 95-03083 (2-piece) or 95-03077 (3-Piece (obsoleted)). |
| **No valve open signal.** | Upper switch not adjusted. | Adjust switch. See control module publications 95-03083 (2-piece) or 95-03077 (3-Piece (obsoleted)). |
| **Moisture in switch housing.** | Missing and/or damaged gaskets. | Replace gaskets. |

# W-Series Mix Proof Valves

**W71, W72RS, W72RSP, W73**

**(IN O.D. TUBING SIZES)**

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