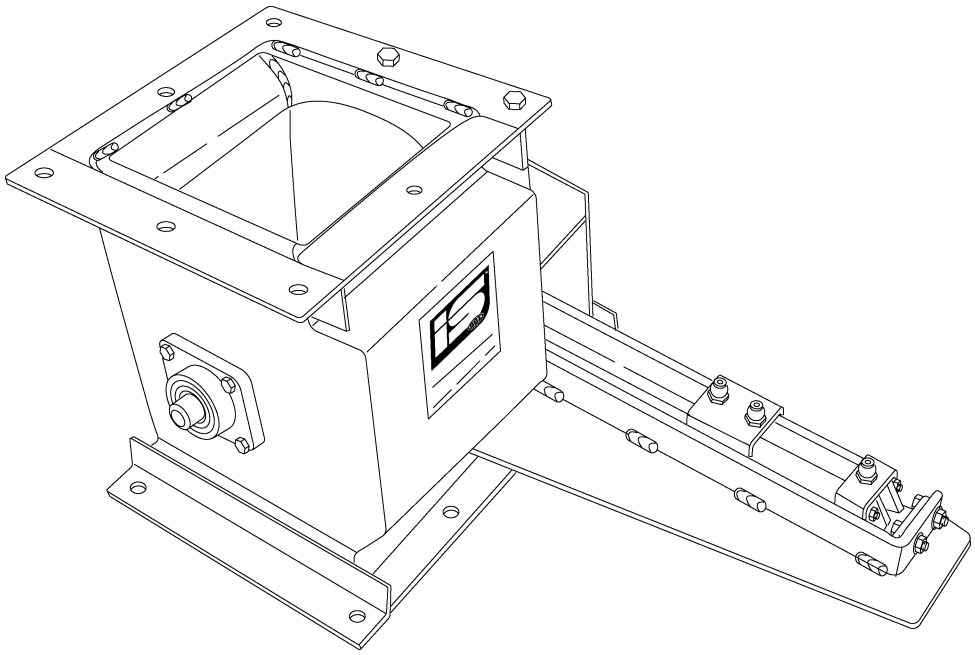


Salem Valve

Owner’s Manual

PNEG-2094

Version: 1.0

Date: 06-20-16

PNEG-2094

All information, illustrations, photos, and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

Contents

General Information

InterSystems reserves the right to improve its product whenever possible and practical to do so. We reserve the right to change, improve and modify products at any time without obligation to make changes, improvements and modifications on equipment sold previously.

This manual covers the installation and operation for the Salem Valve Assembly. This manual provides guidelines for installing the product. You must retain a qualified contractor to provide on-site expertise. InterSystems is not responsible for the installation of this product.

General Safety Statements

1. The Salem Valve Assembly is designed and manufactured with operator safety in mind. However, residual hazards remain due to the nature of fertilizer. Use extreme caution at all times.
2. Modifications to equipment may cause extremely dangerous situations that could result in damage to the equipment as well as serious injury or death. Never modify the equipment.
3. InterSystems recommends that you contact the local power company to have a representative survey the installation to ensure wiring is compatible with their system and adequate power is supplied to the unit.

Receiving Inspection

1. Carefully inspect the shipment for damage as soon as it is received. Verify that the quantity of parts or packages actually received corresponds to the quantity shown on the packing slip. One or more cartons containing the fasteners required for assembly are included with the shipment. Report any damage or shortage to the delivering carrier as soon as possible.
2. InterSystems responsibility for damage to the equipment ended with acceptance by the delivering carrier. Refer to the bill of lading for more detailed information.
3. Save all paperwork and documentation furnished with any of the Salem Valve Assembly components.

Pre-Installation Preparation

1. The MOST IMPORTANT preparations are retaining a licensed engineer to plan the installation and a qualified millwright or contractor to install the Salem Valve Assembly and the accompanying equipment and structures. Before starting the Salem Valve Assembly installation, review this manual, the drawing(s) furnished with the equipment and other applicable documents, including but not limited to, O.S.H.A. Regulations and the National Electrical Code and all other applicable federal, state and local codes and regulations.
2. InterSystems does not assume responsibility for the installation.
3. The installation recommendations contained within this manual are for consideration only. The user or installer will want to consult a civil or structural engineer regarding the design, construction and supervision of the entire installation.

Safety Guidelines

Safety guidelines are general-to-specific safety rules that must be followed at all times. This manual is written to help you understand safe operating procedures and problems that can be encountered by the operator and other personnel when using this equipment. Save these safety guidelines for future reference.

As owner or operator, you are responsible for understanding the requirements, hazards, and precautions that exist and to inform others as required. Unqualified persons must stay out of the work area at all times.

Alterations must not be made to the equipment. Alterations can produce dangerous situations resulting in SERIOUS INJURY or DEATH.

This equipment must be installed in accordance with the current installation codes and applicable regulations, which must be carefully followed in all cases. Authorities having jurisdiction must be consulted before installations are made.

When necessary, you must consider the installation location relative to electrical, fuel and water utilities.

Personnel operating or working around equipment must read this manual. This manual must be delivered with equipment to its owner. Failure to read this manual and its safety instructions is a misuse of the equipment.

ST-0001-3

Cautionary Symbols Definitions

Cautionary symbols appear in this manual and on product decals. The symbols alert the user of potential safety hazards, prohibited activities and mandatory actions. To help you recognize this information, we use the symbols that are defined below.

DANGER This symbol indicates an imminently hazardous situation which, if not avoided, **will result in serious injury or death.**

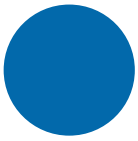
WARNING This symbol indicates a potentially hazardous situation which, if not avoided, **can result in serious injury or death.**

CAUTION This symbol indicates a potentially hazardous situation which, if not avoided, **can result in minor or moderate injury.**

NOTICE This symbol is used to address practices not related to personal injury.

This symbol indicates a general hazard.

This symbol indicates a prohibited activity.



This symbol indicates a mandatory action.

ST-0005-2

Safety Cautions

Use Personal Protective Equipment

- Use appropriate personal protective equipment:

Eye Protection

Respiratory Protection

Foot Protection

Hearing Protection

Head Protection

Fall Protection

Hand Protection

- Wear clothing appropriate to the job.
- Remove all jewelry.
- Tie long hair up and back.

ST-0004-1

Follow Safety Instructions

- Carefully read all safety messages in this manual and safety signs on your machine. Keep signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from the manufacturer.
- Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.
- If you do not understand any part of this manual or need assistance, contact your dealer.

ST-0002-1

Install and Operate Electrical Equipment Properly

- Electrical controls must be installed by a qualified electrician and must meet the standards set by applicable local codes (National Electrical Code for the US, Canadian Electric Code, or EN60204 along with applicable European Directives for Europe).
- Lock-out power source before making adjustments, cleaning, or maintaining equipment.
- Make sure all equipment and bins are properly grounded.

ST-0027-3

Maintain Equipment and Work Area

- Understand service procedures before doing work. Keep area clean and dry.
- Never service equipment while it is operating. Keep hands, feet, and clothing away from moving parts.
- Keep your equipment in proper working condition. Replace worn or broken parts immediately.

ST-0003-1

Toxic Fume and Dust Hazard

- Remove paint before welding or heating.
- Avoid potentially toxic fumes and dust. Hazardous fumes can be generated when paint is heated by welding, soldering, or using a torch.
- Do all work outside or in a well-ventilated area. Dispose of paint and solvent properly.
- Remove paint before welding or heating:
  - — If you sand or grind paint, avoid breathing the dust. Wear an approved respirator.
  - — If you use solvent or paint-stripper, remove stripper with soap and water before welding.
  - — Remove solvent or stripper containers and other flammable material from area. Allow fumes to disperse at least 15 minutes before welding or heating.

ST-0043-1

Stay Clear of Moving Parts

- Stay clear — machine can start without warning.
- Entanglement in gate will cause serious injury.
- Keep all shields and covers in place at all times.
- Lock-out power source before making adjustments, cleaning, or maintaining equipment.

ST-0070-1

Flying Material and High Pressure Air Hazard

- Flying material and/or high pressure air can cause severe eye injury or blindness.
- Wear safety glasses around operating equipment.

ST-0071-1

Safety Sign-Off Sheet

Below is a sign-off sheet that can be used to verify that all personnel have read and understood the safety instructions. This sign-off sheet is provided for your convenience and personal record keeping.

Date	*Employee Name*	*Supervisor Name*

ST-0007

Salem Valve Measurements

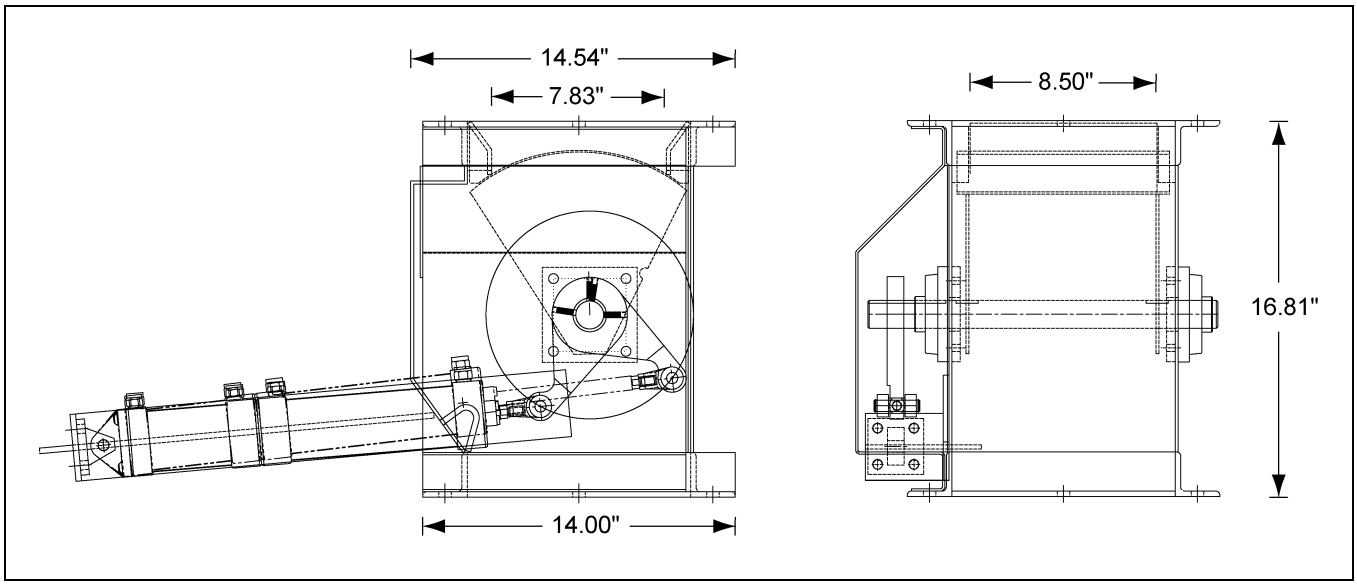


Figure 3A *10" Salem Valve*

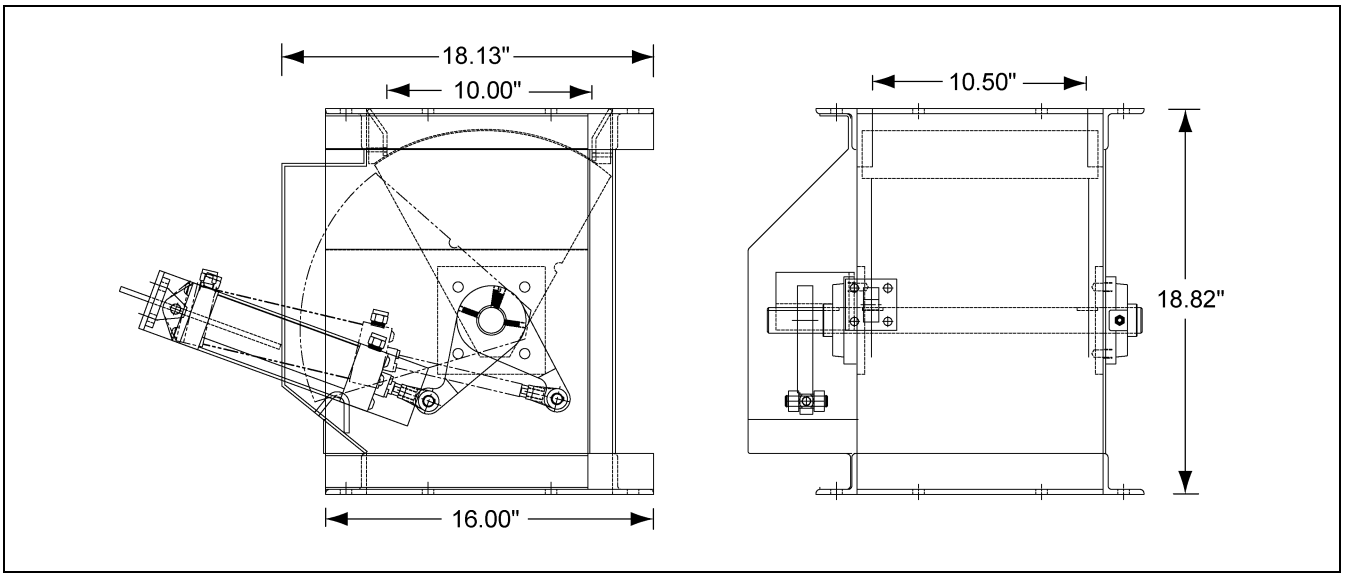


Figure 3B *12" Salem Valve*

Salem Valve Assembly Measurements (Continued)

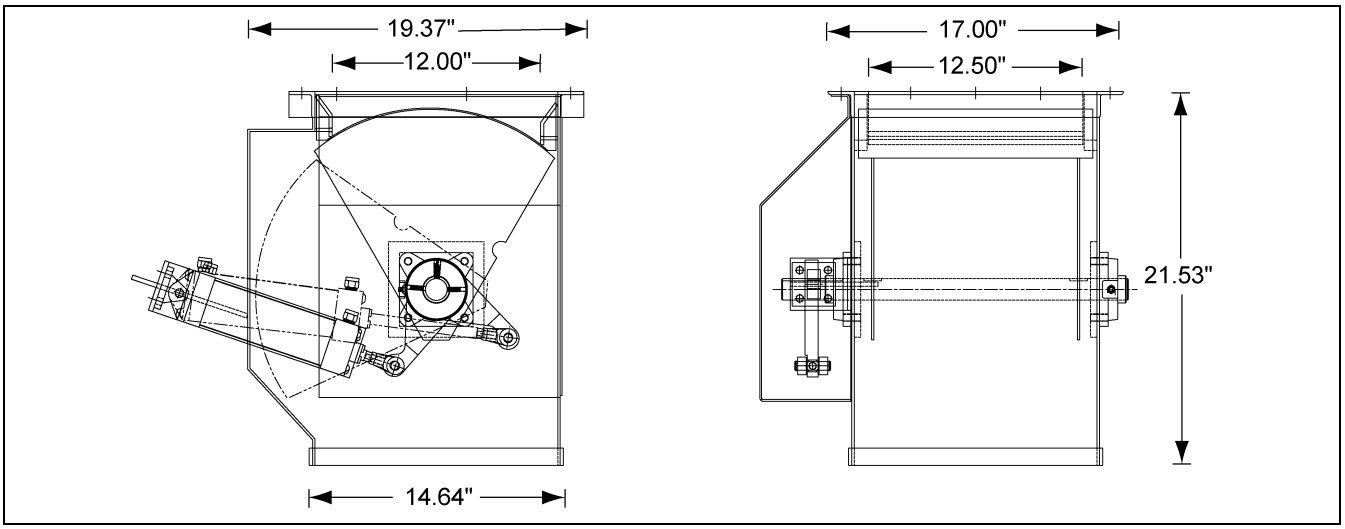


Figure 3C *14" Salem Valve*

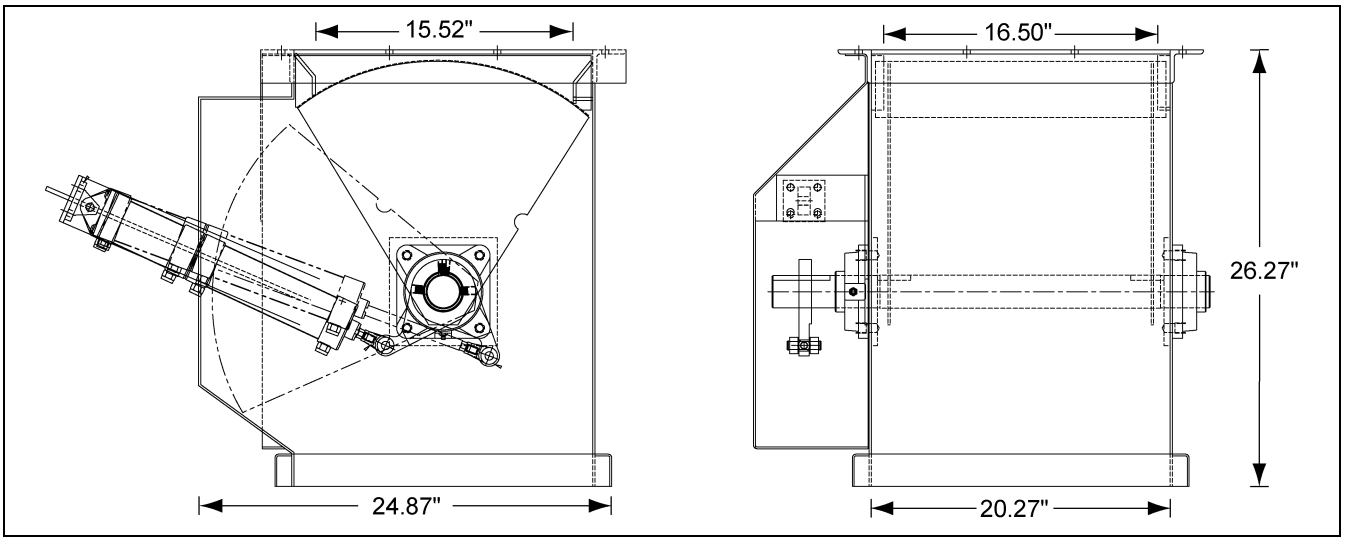


Figure 3D *18" Salem Valve (L.H.)*

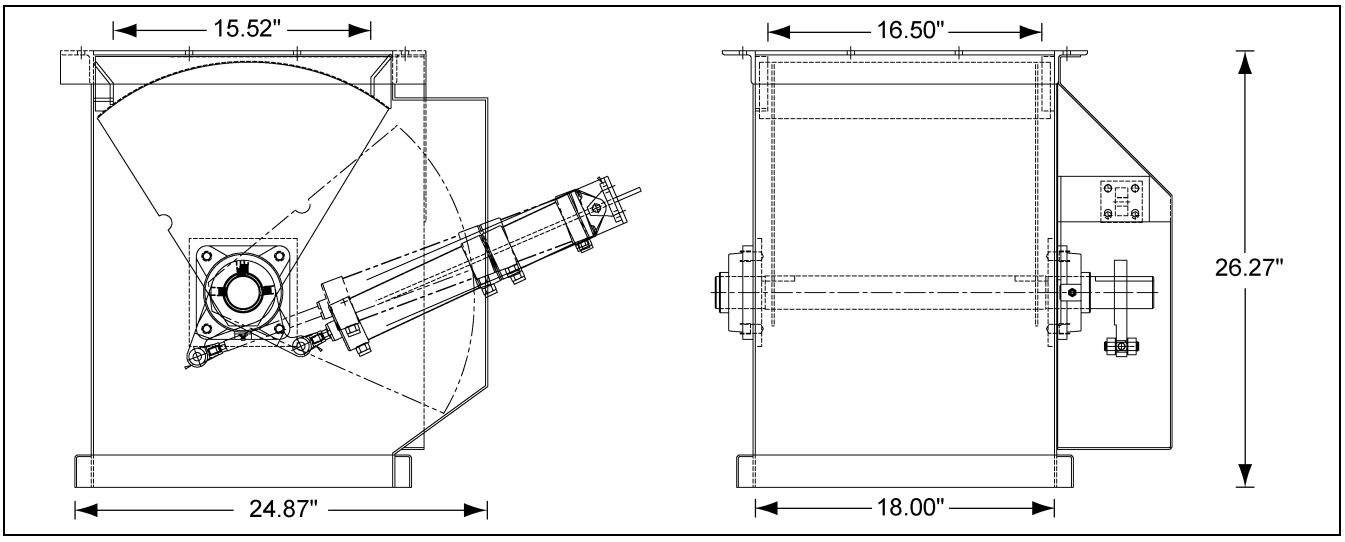


Figure 3E *18" Salem Valve (R.H.)*

Salem Valve Assembly Measurements (Continued)

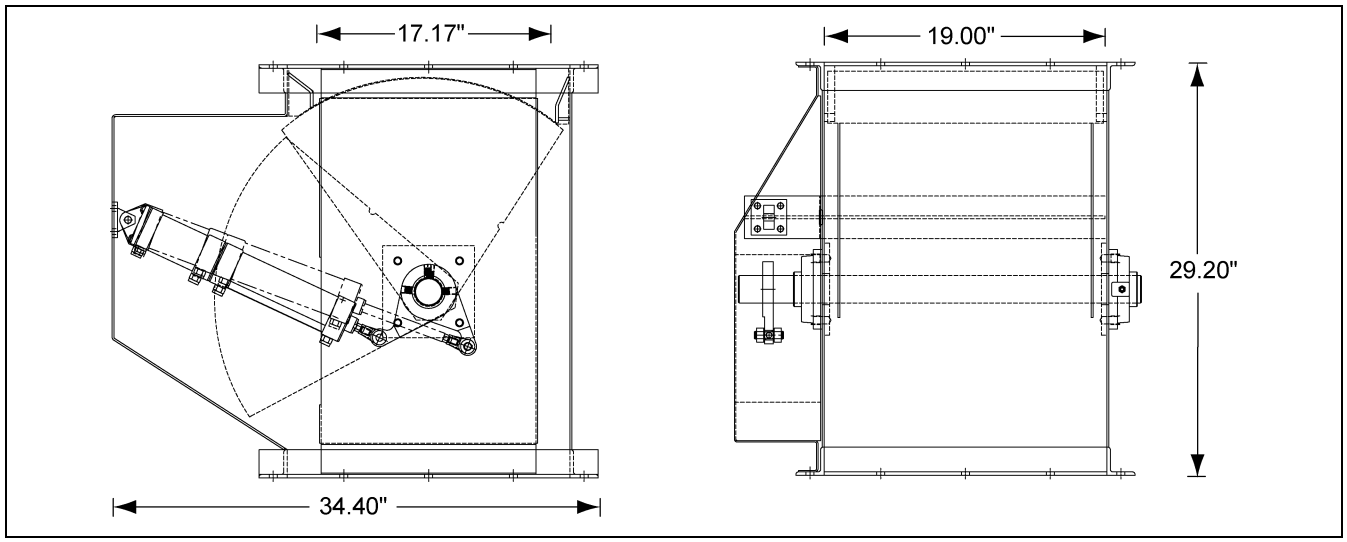


Figure 3F *20" Salem Valve*

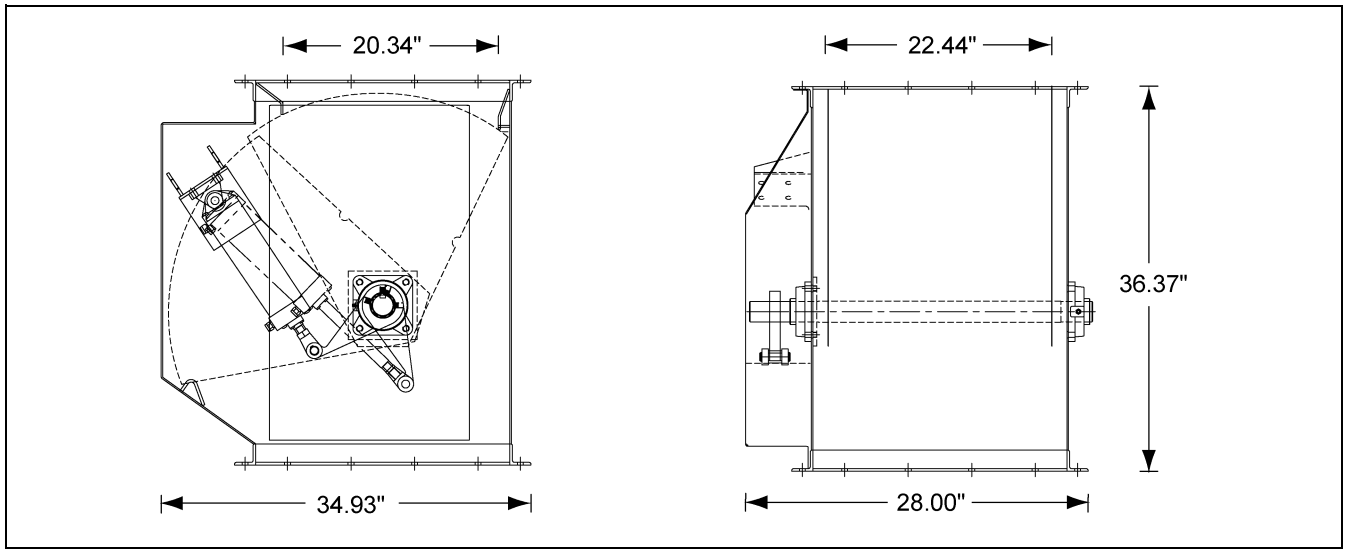


Figure 3G *24" Salem Valve*

Installation Procedure

The InterSystems factory assembled Salem Valve Assembly can be shipped directly on a conventional truck trailer. Refer to *Pages 11-13* to determine the size and dimension of the Salem Valve Assembly.

1. The top of this assembly should be level with the bin foundation.

   NOTE: *Make sure the correct orientation of the housing section.*

2. Align the connecting holes so that bolts and nuts can be loosely inserted at this time.

   NOTE: *Use stainless steel bolts and nuts.*

3. With all holes aligned, tighten with power impact.

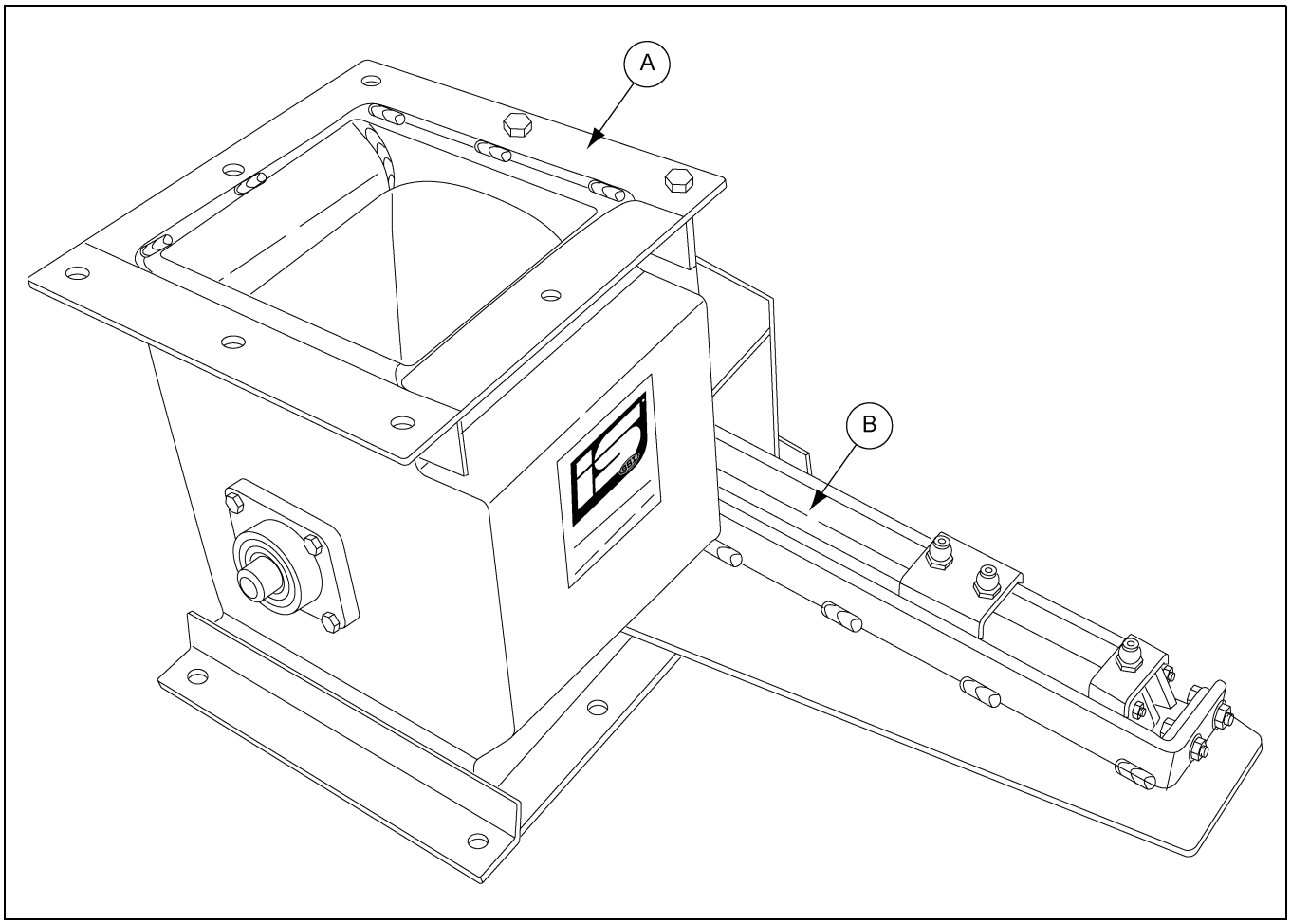


Figure 4A *Salem Valve Assembly*

Ref #	Description
A	Housing
B	Cylinder

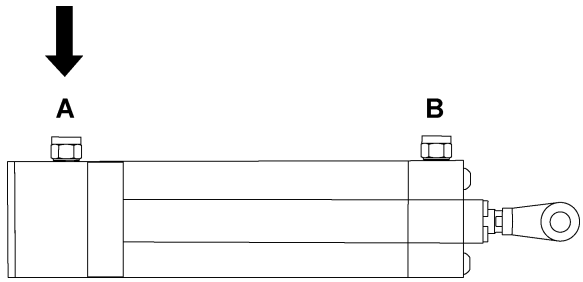
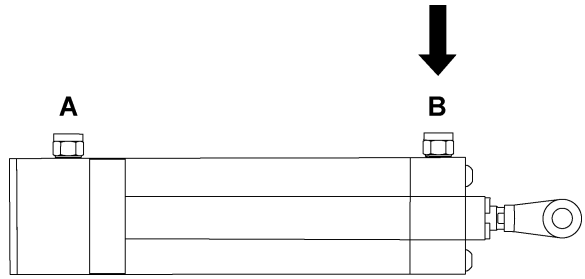
Pneumatic Cylinder Operational Procedures

The following types of cylinders are used in Salem Valve Assembly.

1. Double Acting Single Cylinder (XU6867, XU6873 and XV0280)
2. Double Acting Duplex Cylinder (XU6872, XU6870, XU6871 and XU6869)

Double Acting Single Cylinder

A double acting single cylinder requires two (2) air supplies, one to outstroke the piston and the other to instroke the piston. If the compressed air is to the left side of the piston, then the cylinder will extend. If the compressed air is due to the right side of the piston rod, the cylinder will be retracted. The operational sequences of a double acting single cylinder is shown *below*.

Cylinder Position	Description	Conditions
	When the pressure is applied through port “A”.	The cylinder will be fully opened.
	When the pressure is applied through port “B”.	The cylinder will be fully retracted.

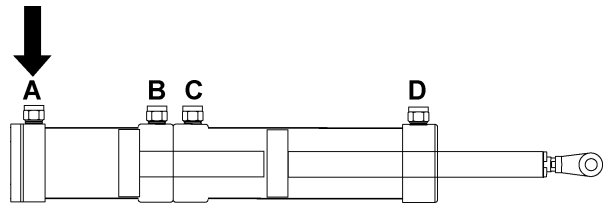
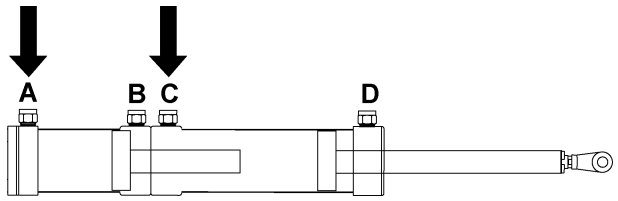
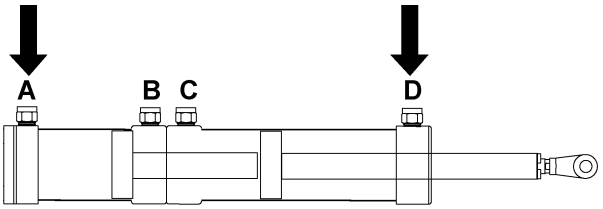
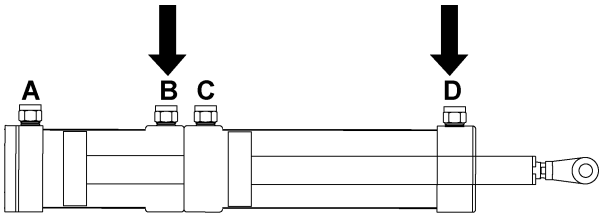
NOTE: *Front and rear ports of a cylinder may both be vented, but both will not be pressurized. Pressurization of both the port of a cylinder results in an unknown condition.*

Double Acting Duplex Cylinder

The double acting duplex cylinder type will open and close fully, also partially open and partially close. The duplex cylinder is designed with the intention to double the compressive force at the beginning of the action.

The two (2) cylinders are mounted together so that the rod of one pushes the cylinder of the other. The head of the rear cylinder is the cap of the front cylinder. The rear cylinder has a shorter stroke than the front cylinder. Only the front cylinder has an exposed rod. By only using alternating two (2) cylinders, we get a cylinder with two (2) stroke lengths.

The rear cylinder has a stroke of 2" and the front cylinder has a stroke of 6". With the rear cylinder fully retracted, the front cylinder may extend and retract its full 6". If the rear cylinder is extended its 2", the front cylinder can then operate only between the stop at 2" and the full extended 6" position. In this way, the cylinder positions at 0", 2" and 6". The operational sequences of a double acting duplex cylinder is shown *below*.

Cylinder Position	Description	Conditions
	When the pressure is applied through port “A”.	The cylinder will be opened to mid position (2").
	When the pressure is applied through port “A” and port “C”.	The cylinder will be fully opened (6").
	When the pressure is applied through port “A” and port “D”.	The cylinder will be retracted to mid position (2").
	When the pressure is applied through port “B” and port “D”.	The cylinder will be fully retracted (2").

NOTE: *Front and rear ports of a cylinder may both be vented, but both will not be pressurized. Pressurization of both the port of a cylinder results in an unknown condition.*

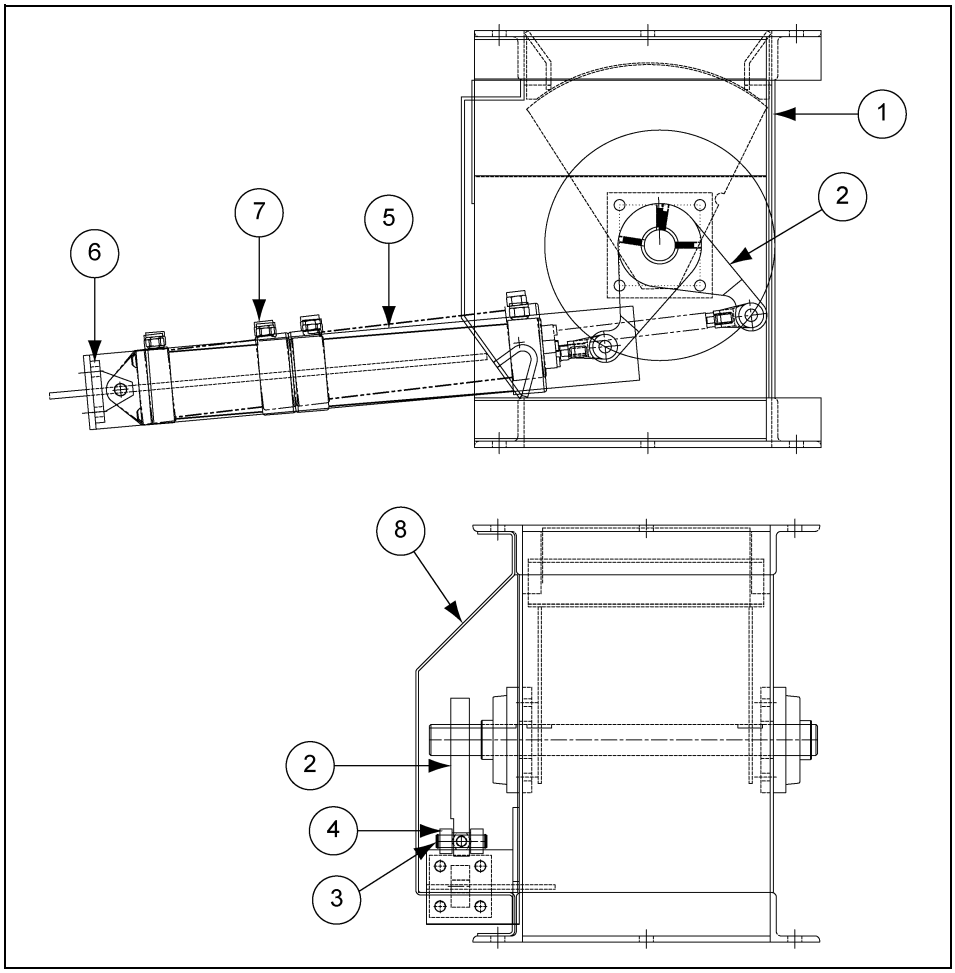
1. **10" (XU6872) Salem Valve Parts List -** *(See Pages 18.)*

2. **12" (XU6873) and 14" (XV0280) Salem Valve Parts List -** *(See Pages 19.)*

3. **18" (XU6870 - L.H.), 18" (XU6871 - R.H.) and 20" (XU6869) Salem Valve Parts List -** *(See Pages 20.)*

4. **24" (XU6867) Salem Valve Parts List -** *(See Pages 21.)*

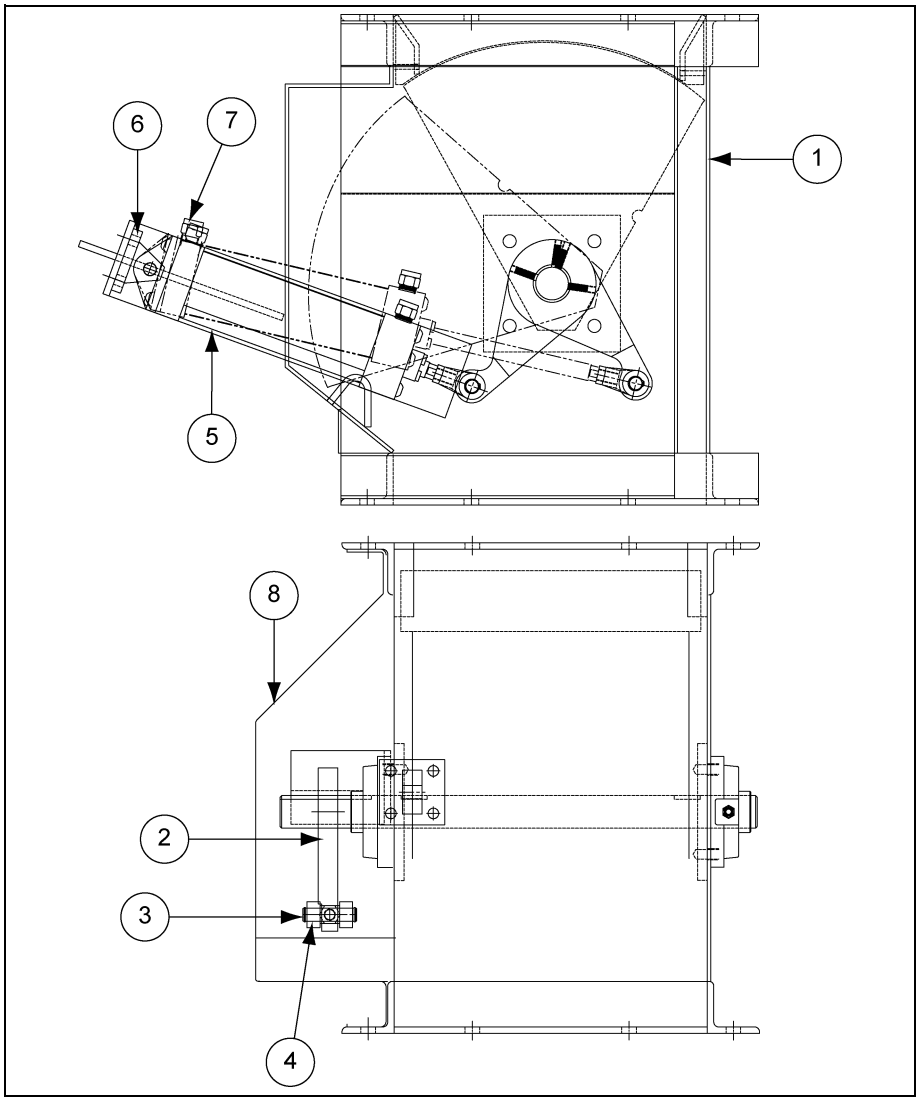
10" (XU6872) Salem Valve Parts



10" (XU6872) Salem Valve Parts List

Ref #	Part #	Description	Qty
1	XU9462	Housing Valve Salem 10 SQ 304SS FA	1
2	XU9463	Drive Arm 2-1/2" CYL 4.53 Keyed	1
3	35869	Pivot Pin 1/2" Diameter x 1.88" Long	1
4	35868	Rod Clevis for 1/2" Pin 7/16-20" UNF	1
5	XR6960	CYL Air 2.5 B x 2/6" STK 4MA BB MAG 2-STA	1
6	34544	Eye Bracket for 1/2" Pin	1
7	25501	Fit Air 3/8" Tube x 3/8" NPT STR	4
8	XU9471	Salem Valve 10 SQ 304SS Guard (F.A.)	1

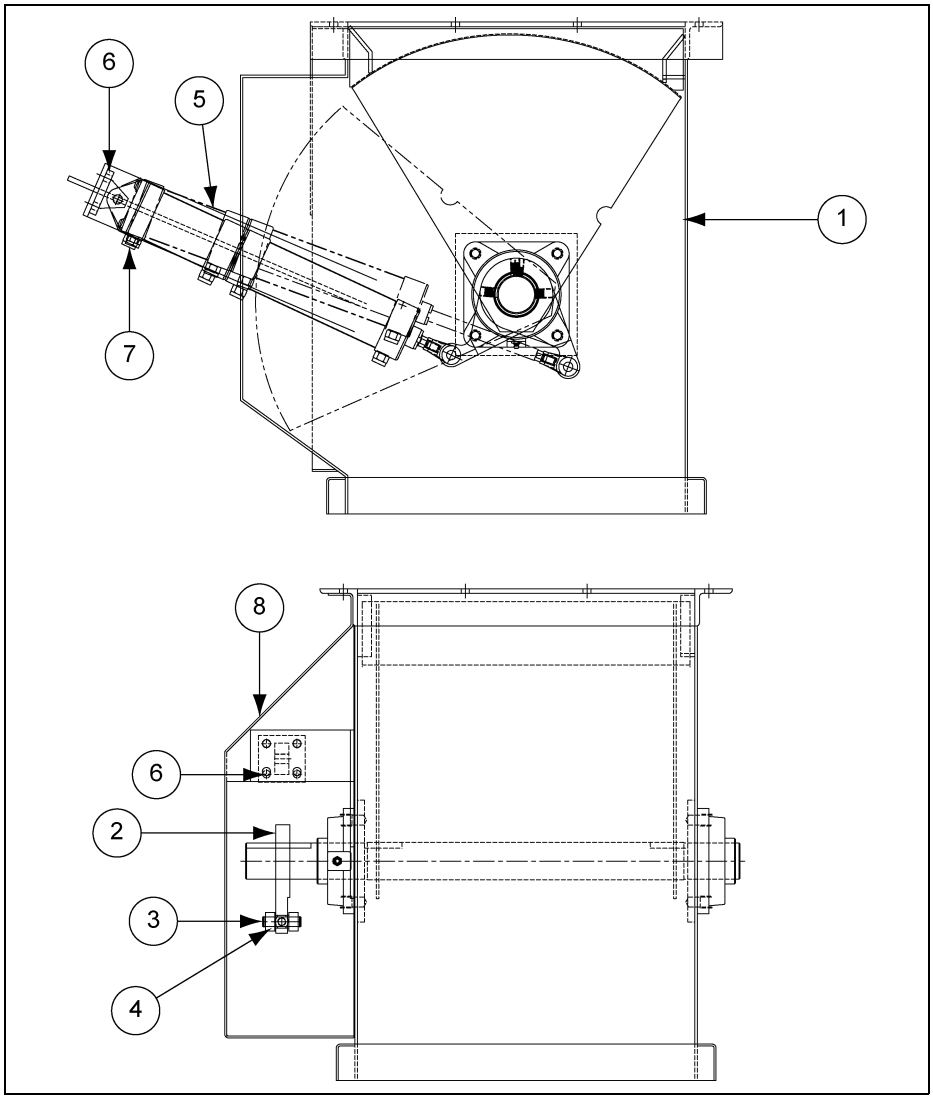
12" (XU6873) and 14" (XV0280) Salem Valve Parts



12" (XU6873) and 14" (XV0280) Salem Valve Parts List

Ref #	Part #	Description	Qty
1	XU9464	Housing Valve Salem 12 SQ 304SS (F.A.)	1
	XU9468	Housing Valve Salem 14 SQ 304SS (F.A.)	1
2	XU9465	Drive Arm 2-1/2" CYL 5.00 Keyed	1
3	35869	Pivot Pin 1/2" Diameter x 1.88 Long	1
4	35868	Rod Clevis for 1/2" Pin 7/16-20" UNF	1
5	XQ6472	CYL Air 2.5 B X 6STK 4MA BB MAG	1
6	34544	Eye Bracket for 1/2" Pin	1
7	25501	Fit Air 3/8" Tube x 3/8" NPT STR	2
8	XU9472	Salem Valve 12 SQ 304SS Guard (F.A.)	1
	XU9475	Salem Valve 14 SQ 304SS Guard (F.A.)	1

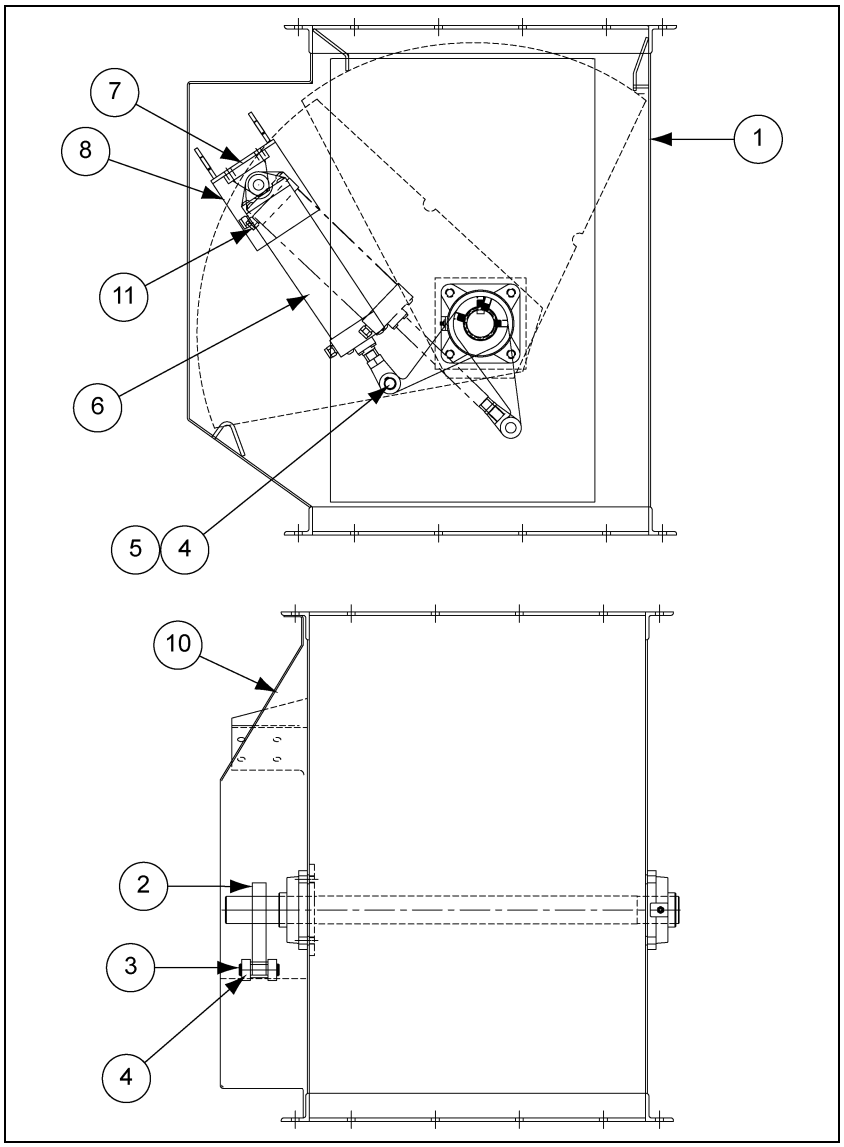
18" (XU6870 - L.H.), 18" (XU6871 - R.H.) and 20" (XU6869) Salem Valve Parts



18" (XU6870 - L.H.), 18" (XU6871 - R.H.) and 20" (XU6869) Salem Valve Parts List

Ref #	Part #	Description	Qty
1	XU9460	Housing Valve Salem 18 SQ 304SS FA L.H.	1
	XU9461	Housing Valve Salem 18 SQ 304SS FA R.H.	1
	XU7501	Housing Valve Salem 20 SQ 304SS (Fall Away)	1
2	XU5063	Drive Arm 2-1/2" CYL 4-3/4" Keyed	1
3	35869	Pivot Pin 1/2" Diameter x 1.88" Long	1
4	35868	Rod Clevis for 1/2" Pin 7/16-20" UNF	1
5	XR6960	CYL Air 2.5 B x 2/6" STK 4MA BB MAG 2-STA	1
6	34544	Eye Bracket for 1/2" Pin	1
7	25501	Fit Air 3/8" Tube x 3/8" NPT STR	4
8	XU9473	Salem Valve 18 SQ 304SS Guard (F.A.) L.H.	1
	XU9474	Salem Valve 18 SQ 304SS Guard (F.A.) R.H.	1
	XU6876	Salem Valve 20 SQ 304SS Guard (F.A.)	1

24" (XU6867) Salem Valve Parts



24" (XU6867) Salem Valve Parts List

Ref #	Part #	Description	Qty
1	XR6968	Housing Valve Salem 24 SQ 304SS	1
2	511370	Trantorque 1-15/16" I.D. Hub	1
3	XR6970	Drive Arm 2-1/2" CYL Diameter 2.88"	1
4	35869	Pivot Pin 1/2" Diameter x 1.00" Long	1
5	35868	Rod Clevis for 1/2"	1
6	XQ6472	CYL Air 2.5 B x 6 STK 4MA BB MAG	1
7	34544	Eye Bracket for 1/2" Pin	1
8	XP1991	SW Limit MAG REED 4MA	2
9	XF8501	Stop Tube 3/4" LG 2-1/2" Bore CYL	1
10	XR9589	Salem Valve 24 SQ 304SS Guard	1
11	24553	Fit Air Push-Loc 3/8" x 3/8" MPT STR	2

Failure to perform any or all of these pre-start checks may cause damage to the equipment and/or cause SERIOUS INJURY or DEATH to those in the work area.

Failure to perform any or all of these pre-start checks may also be a misuse of the equipment. Any misuse of the equipment may void the warranty.

Once you are sure all installations, safety checks, adjustments and lubrications have been completed:

1. Ensure all connections are securely fitted.
2. Check the Salem valve for any leakage.
3. Look and listen for any irregularities before running any material through the unit.
4. Monitor the pressure level before operating the Salem Valve.
5. Properly vent all systems before starting work.

Normal Shut Down

1. Before shutting down the unit, make certain that the Salem Valve is closed.
2. Turn off all control valves and lock out the power source before leaving the work area.

Emergency Shut Down

1. Turn off all control valves and lock out the power source.

Lock Out

1. Always turn off control valves and lock out the power source before leaving the work area or before performing any maintenance or service.

ALWAYS shut down and disconnect the power supply before adjusting, servicing or cleaning the equipment.

The care and maintenance section is provided to help extend the life of the unit. Like all equipment, the useful life of the Salem Valve is greatly reduced if not used properly and well-maintained.

Please follow the next few simple steps to ensure the safety and longevity of the equipment:

1. Make sure ALL components are in good working condition before use.
2. Check all bearings and moving parts daily during use.
3. Verify the pressure ratings of hoses, fittings, gaskets and other manifold materials.

Welding

Remove paint before welding or heating. Toxic fumes can be generated when paint is heated by welding, soldering, or using a torch. Always wear an approved respirator and work in well-ventilated area.

1. Welding on or to the valve may cause damage to both the valve assembly and its pneumatic system.
2. If welding is necessary, measures should be taken to protect the valve assembly. Should it be necessary to fasten anything to the Salem Valve Assembly permanently, careful consideration should be given to methods of maintenance, removal and replacement of the assembly and/or its parts.

NOTES

InterSystems, Inc. reserves the right to make changes in design or in construction of equipment and components without obligation to incorporate such changes in equipment and components previously ordered.

WARRANTY, LIMITATION OF LIABILITY, DISCLAIMER OF IMPLIED WARRANTIES: InterSystems, Inc. manufactured equipment and components are guaranteed against defects in workmanship or materials for one year from date of shipment. The obligation of InterSystems, Inc. with respect to any goods is limited to replacement or repair of defective parts and equipment provided those parts are returned, shipping costs prepaid, to InterSystems' factory and provided the product has not been subject to misuse, negligence, or accident, or repaired or altered outside of our factory, or other than by an Authorized Service Representative. This warranty does not cover the replacement of parts inoperative because of wear occasioned by use, the cost of replacing parts by a person other than an InterSystems employee or an Authorized Service Representative, or the adjustment of a product where the product was improperly adjusted by the purchaser. In addition, this warranty does not cover components manufactured by others such as motors, drives, clutches, cylinders, valves, blowers, and the like. On those components the standard Manufacturers' warranty applies. In any event, liability is limited to the purchase price paid, and InterSystems, Inc. will, under no circumstances, be responsible for special or consequential damages, or for incidental damages.

INTERSYSTEMS, INC. NEITHER MAKES NOR AUTHORIZES ANY WARRANTY OTHER THAN AS HEREIN CONTAINED. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

This equipment shall be installed in accordance with the current installation codes and applicable regulations, which should be carefully followed in all cases. Authorities having jurisdiction should be consulted before installations are made.

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