

A76 Seal Vent Panel



These instructions must be read prior to installing, operating, and maintaining this equipment.

Content

1.	Introduction.....	4
1.1.	About this manual.....	4
1.2.	How to use this manual.....	4
1.3.	Other supplied Documents.....	4
1.4.	Use of alerts and icons.....	4
2.	Safety.....	5
2.1.	Types of hazardous exposures.....	5
2.2.	General safety.....	5
2.3.	Trained and qualified personnel.....	5
2.4.	Personal protective equipment (PPE).....	5
2.5.	Actions in extreme conditions.....	5
3.	Environmental Considerations.....	6
3.1.	Disposing of waste products.....	6
3.2.	End of life equipment.....	6
4.	Description.....	6
4.1.	Product purpose.....	7
4.2.	Design Features.....	7
4.3.	Product components.....	7
4.4.	The operating principle.....	8
4.5.	Identifying the Product (Type Plate).....	8
4.6.	Pressure Gauge Information.....	8
4.7.	Pressure Switch Information.....	9
4.8.	Pressure Transmitter Information.....	9
5.	Preservation, Packing, Transport and Storage Requirements.....	9
5.1.	Mechanical preservation instructions.....	9
5.1.1.	Preservation.....	9
5.1.2.	De-Preservation.....	9
5.2.	Packing.....	10
5.3.	Transportation and storage requirements.....	10

6. Installation.....	10
6.1. Introduction.....	10
6.2. Safety considerations.....	10
6.3. Installation requirements.....	10
6.4. Product Set-Up.....	11
6.4.1. Mounting.....	11
6.4.2. Connections.....	11
6.4.3. Interconnecting piping.....	12
6.4.4. Earthing.....	12
6.5. Installation procedure.....	12
7. Operation.....	13
7.1. Start-Up.....	13
7.2. Product Monitoring.....	13
7.3. Shut-Down Product.....	14
8. Maintenance.....	14
8.1. General guidelines.....	14
8.2. Periodic maintenance tables.....	15
8.3. Inspection Procedure.....	15
9. Troubleshooting.....	15
ANNEX I.....	16
ANNEX II.....	17

1 Introduction

1.1 About this manual

This manual (which is intended for operating, maintenance, and supervisory personnel) provides information on installing, operating, and maintaining the A76 Seal Vent Panel.

Installation in accordance with the following instructions will contribute to long and trouble-free operation of the assembly.

1.2 How to use this manual

Before using this manual, make sure you have fully read and understood the safety section, which can be found in chapter 2. When new to the A76 Seal Vent Panel, pay attention to section 4, which describes the A76 Seal Vent Panel in detail.

Only trained and qualified personnel should use this manual. Refer to section 2.3. Inexperienced personnel should only work on this system under the supervision of qualified personnel.

When maintaining the A76 Seal Vent Panel, always make sure maintenance procedures are followed. Pay particular attention to the alerts and icons.

The A76 Seal Vent Panel may only be used for its main purposes as described in this manual. No adjustments can be made without the approval of Flowserve.

Changes, modifications, repairs or use under conditions deviating from the design specifications without prior permission of Flowserve will make the declaration of conformity and the nameplate invalid.

1.3 Other supplied documents

Annex II contains the assembly drawing and sub-component manuals.

1.4 Use of alerts and icons

This manual uses “Notes”, “Cautions”, “Warnings” and “Dangers” to alert you of important information and/or hazardous situations.

NOTE: “Notes” inform you of important additional information.

 **CAUTION:** *The equipment, product or surrounding area can be damaged if the “caution” is not obeyed.*

 **WARNING:** *Personnel can be (seriously) injured, or the equipment can be seriously damaged if the “warning” is not obeyed.*

 **DANGER:** *Personnel can be (seriously) injured if the “danger” sign is not obeyed.*

The above icons are the general icons that are used for “Cautions”, “Warnings” and “Dangers”. More specific icons are also used, depending on the type of hazard. All icons used in this manual are listed below:

 **WARNING HIGH PRESSURE:** *Take caution when de-pressurizing the A76 Seal Vent Panel. A76 Seal Vent Panel might have energy stored inside. Make sure that de-pressurizing happens slowly.*

 **WARNING HOT SURFACES:** *The A76 Seal Vent Panel and surrounding surfaces might be hot. Take care when touching components. Wear the appropriate Personal Protection Equipment (PPE), according to plant regulations.*

 **WARNING HAZARDOUS CHEMICALS:** *Dangerous chemical might be released during removal of the A76 Seal Vent Panel. Wear Personal Protective Equipment (PPE). Follow all safety regulations and Plant regulations.*

2 Safety

2.1 Types of hazardous exposures

The following hazards can be present in the A76 Seal Vent Panel:

- High pressure
- Dangerous chemicals
- Temperature (hot surfaces)
- Heavy Components (during installation)
- Electrical Hazards

If the A76 Seal Vent Panel has any external leaks, the process in which the A76 Seal Vent Panel is used should be stopped immediately and have the leak repaired by qualified personnel. When extreme conditions occur, and the possibility of a failure is imminent, plant-/end-user safety regulations shall be followed.

2.2 General safety

When installing, operating and maintaining the A76 Seal Vent Panel, pay attention to the following:

- Obey all applicable safety laws and regulations.
- Obey all plant regulations.
- Make sure that only trained and qualified personnel work on it. Refer to section 2.3.
- Read and understand each part of this manual.
- Follow the installation, operation, and maintenance procedures exactly.
- Wear the relevant Personal Protective Equipment (PPE). Refer to section 2.4.
- Never work alone (if there is a possibility of an accident).
- Read the plant requirements for handling hazardous materials

2.3 Trained and qualified personnel

Qualified personnel are people who have been authorized by those responsible for the safety of the plant to perform the necessary work, and who can recognize and avoid possible dangers. The following aspects determine the qualification of personnel:

- Appropriate training
- Relevant experience
- Knowledge of relevant standards and specifications
- Knowledge of accident prevention regulations
- Knowledge of plant regulations and operating conditions

2.4 Personal protective equipment (PPE)

The A76 Seal Vent Panel may be used for applications containing high-pressure, high-temperature and/or toxic chemicals. When performing operating or maintenance tasks, make sure you wear the appropriate Personal Protective Equipment (PPE): protective clothing, gloves, safety glasses, etc.

Always follow local regulations regarding PPE.

2.5 Actions in extreme conditions

In the unlikely event of emergency operating conditions always follow emergency plant regulations. Immediate evacuation of service personnel to be according to plant regulations.

3 Environmental considerations

 **CAUTION:** You are required by law to dispose waste products and end of life equipment, according to local regulations.

3.1 Disposing of waste products

Make sure waste products are diverted to a safe and suitable location. Always follow local and plant regulations.

Any waste products resulting from the use or maintenance of the A76 Seal Vent Panel must be disposed of according to local environmental laws and regulations.

3.2 End of life equipment

 **WARNING HAZARDOUS CHEMICALS:** Dangerous chemical might be released during removal of the A76 Seal Vent Panel. Wear Personal Protective Equipment (PPE). Follow all safety regulations and Plant regulations.

 **WARNING HIGH PRESSURE:** Take caution when de-pressurizing the A76 Seal Vent Panel. The A76 Seal Vent Panel might have energy stored inside. Make sure that de-pressurizing happens slowly.

 **WARNING HOT SURFACES:** The A76 Seal Vent Panel and surrounding surfaces might be hot. Take care when touching components. Wear the appropriate Personal Protection Equipment (PPE), according to plant regulations

When the equipment reaches the end of life, the shutdown procedure (section 7.3) shall be followed. The equipment must then be deinstalled and transported to a safe location. Always pay extra attention to safety!

NOTE: End of life equipment must be disposed of according to local environment laws and regulations.

4 Description

Flowserve Standard A76 Seal Vent Panel is a modular API 682 Plan 76 intended for comply with most facility piping requirements. The A76 Seal Vent Panel is optioned with a number of instruments and transmitters allowing it to be configured to meet most customer instrumentation strategies. The panel is designed to be mounted to an existing structure or can come with a stand.

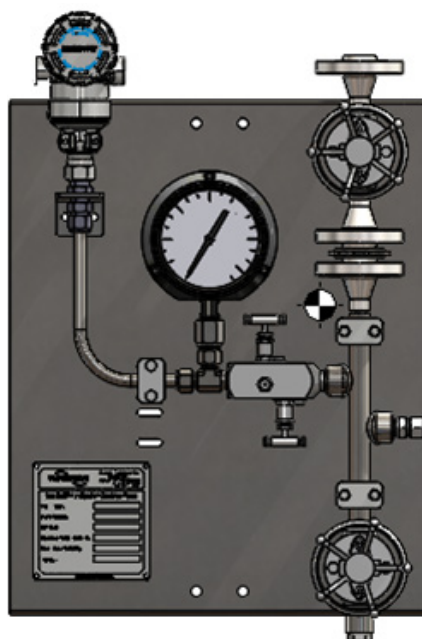


Figure 1. A76 Seal Vent Panel

4.1 Product purpose

The A76 Seal Vent Panel, displayed in figure 1, is intended to interface between the seal and the facilities piping. It serves as a flare connection and monitors leakage from the seal. The vent header has an orifice installed upstream of the pressure instruments and is intended to create a restriction. As gas leakage from the seal increases due to wear or failure, the backpressure created by the orifice can be measured by the instrumentation attached to the A76 Seal Vent Panel. The A76 Seal Vent Panel is designed to comply with API 682 latest edition.

Although a plan 76 is intended for dry gas operations, the continual upward sloping of the seal connection tubing to the A76 Seal Vent Panel allows for any condensates that may be present to drain to the seal. The connection of the seal to the midsection of the pipe spool creates a place where any additional condensation can collect and be drained off as needed.

Ideal process products would be fluids that are non-condensing at ambient temperature, light hydrocarbons, high vapor pressure fluids or hazardous/toxic chemicals.

The A76 Seal Vent Panel should be used with a gas seal and can be used in conjunction with a plan 72.

4.2 Design features

Operating conditions may vary but shall never exceed the design conditions. Refer to the customer drawing of the A76 Seal Vent Panel for boundary dimensions, design conditions and operating constraints.

The key design features of the A76 Seal Vent Panel are listed below:

- Meets API standard 682 4th edition design requirements
- Meets ASME B31.3 design requirements
- ATEX classifications available based on instrumentation choice
- Piping manufactured from 316/L stainless components
- Panel constructed from 304 stainless steel
- Compact design can be fitted on an auxiliary system stand without the need to increase the system stand mounting plate
- Exempt from Pressure Equipment Directive based on volume and pressure
- Compliance to CRN Canada-wide for certain options
- Designed to withstand pressures up to 1,240 psig (85 barg), refer to attached drawing for design specifications
- Designed to withstand temperatures up to 200°F (93°C), refer to the customer drawing for design specifications

4.3 Product components

The A76 Seal Vent Panel is an engineered product developed by Flowserve. For design specifics refer to the customer and manufacturing drawing. The parts and materials can deviate per design:

Number	Part	Function	Material
1	Upper and Lower Manifold	Standardized manifolds for connecting and directing the vent gas from the seal to the vent header.	316/L Stainless Steel
2	Back Panel	A folded metal plate designed to rigidly support both the pipe manifold and the instrumentation.	Stainless Steel
3	Pressure Instrument	An instrument for measuring the pressure of the vent gas.	Stainless Steel / Aluminum
4	Pressure Gauge	An instrument for measuring the pressure of the vent gas.	Stainless Steel
5	Fasteners	Attach loose components to each other.	Stainless Steel

Table 1 – A76 Seal Vent Panel Components

4.4 The operating principle

As vapor or gas leaks out of the seal, they are directed to the inlet of the A76 Seal Vent Panel. The line from the seal to the A76 Seal Vent Panel may be as long as needed to connect. As the vapor enters the A76 Seal Vent Panel, it is restricted from flow using a 1/8 in orifice. Once the vapor passes through the orifice, it flows through an isolation valve and into the facility piping for disposal. As the vapor passes through the orifice, it creates a backpressure that increases as the leakage rate increases. This pressure change is measured using a pressure gauge or transmitter, or can be detected once it reaches a threshold by a pressure switch.

There is a drain valve included in the manifold of the A76 Seal Vent Panel to allow any potential condensate to be drained, or the manifold to be cleaned.

The manifold is offered in both a butt weld and a socket weld design and can come in either a FNPT vent connection or a 1/2 in CL600 flange vent connection. The tube connection is 1/2 in FNPT x 1/2 in tube and can be removed and replaced as needed.

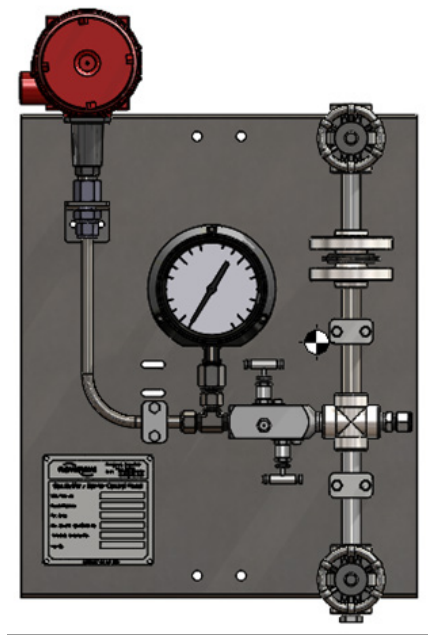


Figure 2. A76 Seal Vent Panel

4.5 Identifying the product (type plate)

The nameplate is, as per Flowserve standard, shown on the general assembly drawing.

4.6 Pressure gauge information

The pressure gauge options include a 4.5 in process gauge and a 4 in pressure gauge using a bourdon tube. The wetted parts are stainless steel.

Accuracy of the process gauge is 0.5% of span per ASME B40.100 Grade 2A. The gauge has a 1/2 NPT connection. The process gauge does not come with an ATEX rating.

Pressure range available is: 30 psi / 2 bar

Accuracy of the pressure gauge is 1% of span per ASME B40.100 Grade 2A. The gauge has a 1/2 NPT connection. The pressure gauge does not come with an ATEX rating.

Pressure range available is: 2 bar

Each pressure gauge is installed in a two-valve block and bleed with a 1/2 in process and instrument connection.

4.7 Pressure switch information

The pressure switch is a DPDT Dry contact switch rated up to 11 amps on AC voltage and 5 amps on DC voltages. The switch has a settable range of 5 to 30 psi (0.3 to 2 bar) which triggers on pressure rise. The two switches defined are United Electric J-120, with the difference being the hazardous area rating. Both switches are ½ in MNPT.

Hazardous Ratings for the two switches are noted below.

UL/CSA CL 1, DIV 1, GRP B,C,D

ATEX II 1 G EEx ia IIC T6

4.8 Pressure transmitter information

Two pressure transmitter models are offered: one from Endress Hauser model PMP-71 and one from Rosemount 2051. These two transmitters come with digital displays and ½ in FNPT connections. Each transmitter comes with a large pressure range but, has a high turn down to create a reasonable pressure range to span the operating conditions.

The Endress Hauser PMP-71 is offered with an adjustable range of -15 psi to 1,500 psi (-1 bar to 100 bar)

It is offered in Hart communication and Foundation Fieldbus.

Hazardous Rating for the two types of transmitters are noted below.

ATEX II 1/2G Ex ia IIC T6 and ATEX II 2G Ex d IIC T6

FM/CSA Cl.I.II Div.1 Gr.A-G/B-G FM: ZONE 1,2/CSA: ZONE 1,2

The Rosemount 2051 is offered with an adjustable range -14.7 psi to 800 psi (-1 bar to 55 bar)

It is offered in Hart communication and Foundation Fieldbus.

Hazardous Rating for the two types of transmitters are noted below.

FM/CSA XP CL I, DIV I, GP B, C, & D T5

FM/CSA IS: CL I GP A, B, C, D T4; CL II GP EFG; CL III T4; CL I ZN 0 AEx ia IIC T4 Ga;

ATEX II 1 G Ex ia IIC T4 Ga (-60 °C ≤ Ta ≤ +70 °C)

5 Preservation, Packing, Transport and Storage requirements

5.1 Mechanical preservation instructions

5.1.1. Preservation

Equipment should not be sealed in a way that it will obstruct inspection. Access for normal inspection and preservation maintenance shall be provided. Internal surfaces of piping systems and similar equipment shall be dried and cleaned of surface corrosion and foreign material.

The A76 Seal Vent Panel shall be thoroughly cleaned and dried after manufacturing and testing, prior to application of preservatives.

For equipment where water is used for cleaning or pressure testing, the water shall have antifreeze medium added unless the water is completely drained off. This also applies if the ambient temperature is below 40°F (4°C) during any of these operations.

Internal surfaces wholly consisting of corrosion resistant materials shall not be preserved unless stated otherwise.

5.1.2. De-preservation

For de-preservation the applicable dust caps/plugs need to be removed prior to commissioning. During hook up it is mandatory to keep these caps/plugs in place for as long as possible to prevent contamination.

5.2 Packing

 **WARNING CRUSH HAZARD: Possible injury and/or trapped limbs. Take care to avoid being trapped or crushed between heavy, moving objects when (un)boxing the cooler**

The A76 Seal Vent Panel is to be carefully lifted into its timber shipping container.

Always make sure that proper lifting devices are used.

To prevent damage during transport all equipment needs to be properly secured inside their timber package with suitable bolting, straps, or wooden supports.

For unboxing, the equipment must be lifted carefully out of its shipping box.

5.3 Transportation and storage requirements

NOTE: The following requirements apply to the A76 Seal Vent Panel and all related equipment:

Transport and storage criteria	Requirements
Transportation	The system must be transported and stored in the unopened, original shipping box.
Suspect damaged during transportation	Inspect vent panels that have been dropped or have been subjected to impacts during transport to confirm that they are operational before installation.
Warehouse requirements	The warehouse must be dry and dust free.
Long-term storage	After a storage period of 2 years, inspect the A76 Seal Vent Panel before installation.
Preserving installed A76 Seal Vent Panel	The preserving medium prevents damage to the installed system or mechanical seal (i.e. preventing fouling or chemical attack). Contact Flowserve if you are unsure which preserving medium to use.

Table 2 - Transport and Storage Criteria

6 Installation

6.1 Introduction

 **WARNING CRUSH HAZARD: Possible injury and/or trapped limbs. Take care to avoid being trapped or crushed between heavy, moving objects when installing the coolers**

Before installing the A76 Seal Vent Panel, make sure you have read and understood the installation requirements in this section. If you have any questions regarding the installation of the A76 Seal Vent Panel, contact your local Flowserve representative.

6.2 Safety considerations

 **WARNING CHECK BEFORE DISASSEMBLING: Under no circumstances should the A76 Seal Vent Panel be disassembled while it still contains any hazardous materials or when it is pressurized.**

 **DANGER SUFFOCATION HAZARD: Breathing hazardous chemicals in a confined space can result in sudden unconsciousness or death. Take extra care when working in confined areas.**

Position the A76 Seal Vent Panel near the seal being supported. No minimum or maximum distance is defined by API 682. Make sure there is sufficient room for:

- Evacuation of the plant in case of an emergency (do not block walkways and emergency exits)
- Safe operation and maintenance of the system

6.3 Installation requirements

Before installation the following shall be checked:

- Any possible damage due to transport or storage
- Cleanliness, required before operation
- Existence of the nameplate with correct inspection markings and design/test conditions

6.4 Product set-up

6.4.1. Mounting

The A76 Seal Vent Panel is mounted directly to a backplate that supports the piping and instrumentation. The backplate is intended to be mounted to any stand with 4 in (100 mm) or 5 in (125 mm) mounting holes when using the backplate spacer. It can be mounted on any other appropriate structure. The vertical spacing between the frame mounting holes are 20 in (508 mm), spaced 2 in (50.8 mm) and are 0.44 in (11 mm) diameter. They are intended to accept a 7/16 in (11 mm) bolt for securing it to the stand or other structure.

The pipe and tube manifolds are electrically isolated from the stand and will require an additional ground connection. See Figure 3 for mounting details.

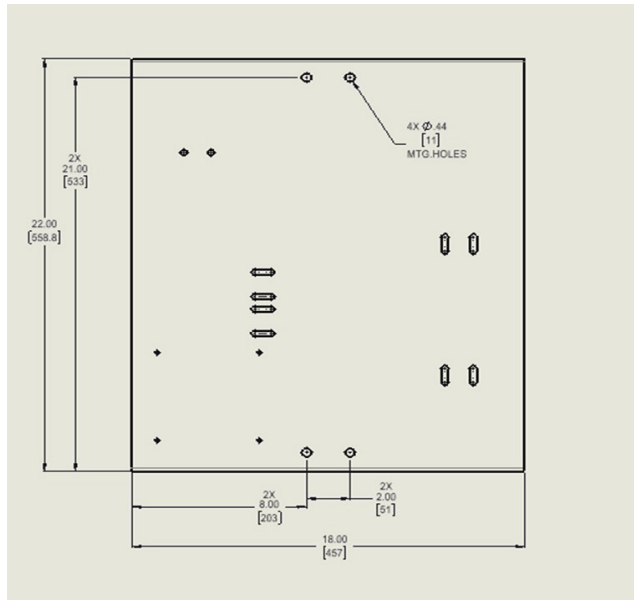


Figure 3. A76 Seal Vent Panel Mounting Holes

Mounting of the A76 Seal Vent Panel should always comply to the points listed below:

- The A76 Seal Vent Panel shall be mounted with the pipe spool in the vertical position so that it can operate as intended.
- When mounting the A76 Seal Vent Panel, it has clearance for operating the hand valves on the isolation valve and the instrument block and bleed valve.

6.4.2. Connections

When the A76 Seal Vent Panel is mounted in place, the interconnecting piping needs to be connected. From the seal, the connection can be made with ½ in 0.065 wall minimum tubing. The A76 Seal Vent Panel comes supplied with a tube fitting. The vent should be connected with piping, ½ in nom S/80 minimum. This should be connecting with a ½" CL600 flange or with a ½ in MNPT connection depending on the option selected. Hardware, gaskets and mating flanges are not supplied, but will be required for installation.

6.4.3. Interconnecting piping

The flow of fluid through the A76 Seal Vent Panel is generated by a differential pressure from the seal leakage and the flare header.

Pay attention to the following points:

- Minimize the number of restrictions (for example, limit the number of elbow/tee fittings).
- Unless otherwise specified by engineering, the pipe size and schedule should be at least the same through the interconnecting pipe
- The pipes and tubes must be clean and free of burrs.
- The total length and number of bends shall be kept to a minimum.
- Use smooth, large radius bends; do not use elbows, tees, etc.
- Pipe runs should be sloped continuously up or down to allow for proper venting and draining.
- For threaded connections, do not use Teflon tape but an anaerobic thread sealant.
- For flanged connections, use a ½ in CL600 gasket. Ensure that the flanges are aligned correctly during installation.
- Leak testing is recommended after assembly. Refer to end user specifications or procedures.

6.4.4. Earthing

Make sure the A76 Seal Vent Panel is properly earthed. It can be grounded through the flange connection, through the conduit connection of the pressure instrument or by clamp. Ensure that both the A76 Seal Vent Panel piping and the frame are grounded as they are electrically isolated.



WARNING EXPLOSION RISK: Static electricity can build up and ignite flammable vapors. The system must be correctly earthed to minimize the risk of explosion caused by static electricity.

6.5 Installation procedure

Use this procedure to install or reinstall the system.

Procedure

1. Before installing the A76 Seal Vent Panel, inspect all components for damage. If any of the components are damaged, you should report this to your local Flowserve representative. Refer to section 6.3.
2. Determine the installed position of the system. Refer to the mounting requirements, section 6.4.1.
3. The A76 Seal Vent Panel shall not be moved by hand when attached to the stand. It is equipped with a lifting lug on the stand and should use an appropriate lifting device to position the A76 Seal Vent Panel as close as possible to the main equipment. Make sure you leave sufficient room for operation and maintenance purposes. If shipped without a stand, the A76 Seal Vent Panel may be moved in place by hand, but it is preferred if lifted with a sling attached to the frame.



WARNING CRUSH HAZARD: Possible injury and/or trapped limbs. Take care to avoid being trapped or crushed between heavy, moving objects when installing the cooler

4. Make sure that the A76 Seal Vent Panel is installed in a rigid support to counteract any vibrations and instability.



WARNING HIGH PRESSURE: Take caution when de-pressurizing the A76 Seal Vent Panel. A76 Seal Vent Panel might have energy stored inside. Make sure that de-pressurizing happens slowly.

5. Connect the A76 Seal Vent Panel connections. Refer to section 6.4.2.
6. Manufacture the interconnecting piping according to the Installation requirement. Refer to section 6.4.3.
7. Make sure the installation is correctly earthed to prevent the potential risk of explosion caused by static electricity.
8. Once installed, a pneumatic leak test should be performed per the end user specifications to ensure that the interconnecting piping is leak free.

7 Operation

7.1 Start-up

Use this procedure if:

- The A76 Seal Vent Panel is being set-up for the first time, or
- The vent fluid has been completely cleared from the system.

The below procedure shall be used for starting up the A76 Seal Vent Panel.

1. Make sure the A76 Seal Vent Panel is installed correctly, refer to chapter 6.5.
2. Connect the pressure instrument to the local DCS or other controlling system. Install per the manufacturers' recommendation.
3. Ensure that the vent valve and the instrument valve is open fully.
4. Make sure that the pressure at the pressure gauge is zero or nearly zero.
5. Make sure commissioning of the system has been performed properly. Ensure that all the trapped gas/air is vented from the system and interconnecting piping and that the system can be completely drained.
6. Start up the pump according end user/plant procedures.

7.2 Product monitoring



WARNING HIGH PRESSURE: Take caution when de-pressurizing the A76 Seal Vent Panel. The A76 Seal Vent Panel might have energy stored inside. Make sure that de-pressurizing happens slowly.



WARNING HOT SURFACES: The A76 Seal Vent Panel and surrounding surfaces might be hot. Take care when touching components. Wear the appropriate Personal Protection Equipment (PPE), according to plant regulations



WARNING HAZARDOUS CHEMICALS: Hazardous chemicals might be released during removal of the A76 Seal Vent Panel. Wear Personal Protective Equipment (PPE). Follow all safety regulations and Plant regulations.

Use this procedure to monitor the system:

1. Monitor the A76 Seal Vent Panel for correct operation. Also refer to the Periodic maintenance tables in section 8.2.
2. Make sure:
 - There are no leaks
 - There is no heavy vibration in the system
 - The pressure gauge and pressure instrument are steady and not fluctuating in their readings.
3. If you notice any problems with the A76 Seal Vent Panel, follow plant regulation for reporting and correcting faulty equipment.

A76 Seal Vent Panel performance should be monitored periodically. Baseline flow, pressure and temperature should be collected soon after equipment commissioning.

Periodically the A76 Seal Vent Panel should be inspected to ensure that the conditions of service have not changed. Any significant deviation should be investigated.

7.3 Shut-down product



WARNING HIGH PRESSURE: Take caution when de-pressurizing the A76 Seal Vent Panel. The A76 Seal Vent Panel might have energy stored inside. Make sure that de-pressurizing happens slowly.



WARNING HOT SURFACES: The A76 Seal Vent Panel and surrounding surfaces might be hot. Take care when touching components. Wear the appropriate Personal Protection Equipment (PPE), according to plant regulations.



WARNING HAZARDOUS CHEMICALS: Hazardous chemicals might be released during removal of the A76 Seal Vent Panel. Wear Personal Protective Equipment (PPE). Follow all safety regulations and Plant regulations.

The A76 Seal Vent Panel may be disconnected only by qualified personnel, in accordance with national, plant- and end-user safety regulations and Chapter 2 in this manual.

Check if the A76 Seal Vent Panel can be shut down. Check if the A76 Seal Vent Panel can be de-pressurized without negatively affecting the mechanical seal installed in main equipment. System cannot be shut down if any of the following main equipment conditions occur:

- Main equipment/ Pump is on hot stand-by
- Main equipment/ Pump is pressurized
- Main equipment/ Pump is in operation

NOTE: Always shut down the system according to plant regulations/ end user safety procedures.

If the above points are checked, the A76 Seal Vent Panel can be shut down according to the procedure below:

- Make sure the pump is shut down according to end-user/plant regulations
- Isolate the A76 Seal Vent Panel
- Close the vent valve and instrument valve
- De-pressurize the A76 Seal Vent Panel
- Drain the A76 Seal Vent Panel

NOTE: For (re)-installation, removal and maintenance work, the A76 Seal Vent Panel must be de-pressurized (and drained if required).

8 Maintenance

8.1 General guidelines

Periodic maintenance must be done at regular intervals (weekly, monthly, yearly). Refer to the following tables.

All liabilities and warranties to Flowserve for damage incurred using non-original replacement parts and accessories will be rendered null and void.

To avoid potential explosion hazards during maintenance, the tools, cleaning and painting materials used must not give rise to sparking or adversely affect the ambient conditions. Where there is a risk from such tools or materials the Cooler must be moved to a safe area for dismantling.

8.2 Periodic maintenance tables

Use the following tables to plan the periodic maintenance for your system (refer to the table of contents and the Appendix for the relevant information)

Weekly maintenance
Check the A76 Seal Vent Panel, and interconnecting pipe work for leaks. Rectify if necessary.
Check the pressure instrument to verify it is still functioning.
Check the vent pressure and confirm that it is in an acceptable range.
Check the mounting hardware to make sure it is secure.
Monthly maintenance
Do all weekly periodic maintenance procedures.
Check the drain by removing the plug and cracking open the valve. Have a bucket available to catch any collected condensate. Clean as needed.
Remove and clean the orifice of any contaminants. Reinstall with new gaskets and torque per end user requirements.
Check all electrical connections if no damage has occurred.
Yearly maintenance
Verify calibration of all instruments per facilities requirements.

Table 3 - Periodic Maintenance Tables

8.3 Inspection procedure

 **WARNING HIGH PRESSURE:** Take caution when de-pressurizing the A76 Seal Vent Panel. The A76 Seal Vent Panel might have energy stored inside. Make sure that de-pressurizing happens slowly.

 **WARNING HOT SURFACES:** The A76 Seal Vent Panel and surrounding surfaces might be hot. Take care when touching components. Wear the appropriate Personal Protection Equipment (PPE), according to plant regulations.

 **WARNING HAZARDOUS CHEMICALS:** Hazardous chemicals might be released during removal of the A76 Seal Vent Panel. Wear Personal Protective Equipment (PPE). Follow all safety regulations and Plant regulations.

The product maintenance procedure is as follows:

- Remove the A76 Seal Vent Panel from service. Refer to section 7.3. Shut-Down Product.
- Internally and externally clean the A76 Seal Vent Panel without damaging the equipment. Refer to the instrument manufactures process for cleaning and inspection. The manifolds can be disassembled and cleaned as required. Re-assemble according to the manufacturing drawing. If there are any doubts during this step, please ask a Flowserve representative for clarification.
- Inspect all components for damage or corrosion and replace as needed.
- Re-install the A76 Seal Vent Panel. Refer to section 6.5. Installation Procedure.

9 Troubleshooting

Use the following table to troubleshoot the system. Once you have identified the problem, use the procedures in this manual to maintain the A76 Seal Vent Panel. If you are not sure how to troubleshoot or maintain your A76 Seal Vent Panel, please contact your local Flowserve representative.

NOTE: the recommended response actions always include notify the supervisory authority and respond according plant regulation.

Parameter	Indication	Possible Cause	Solution
Pressure	High	• Restriction in orifice • Vent valve closed	• Inspect orifice • Open vent valve

Table 4 - Localization and Elimination of Vaults, Damages and their Consequences

ANNEX I

System logbook

Copy and use this logbook to record periodic or corrective maintenance done on your system. Use the following codes and enter remarks, the date, and your name:

Weekly maint.= W Monthly maint. = M Yearly maint.= Y Adjust = A Replace = R

Code	Remarks	Date	Name

ANNEX II



Headquarters

Flowserve Corporation
5215 North O'Connor Blvd.
Suite 700
Irving, Texas 75039-5421 USA

Flowserve Corporation has established industry leadership in the design and manufacture of its products. When properly selected, this Flowserve product is designed to perform its intended function safely during its useful life. However, the purchaser or user of Flowserve products should be aware that Flowserve products might be used in numerous applications under a wide variety of industrial service conditions. Although Flowserve can provide general guidelines, it cannot provide specific data and warnings for all possible applications. The purchaser/user must therefore assume the ultimate responsibility for the proper sizing and selection, installation, operation, and maintenance of Flowserve products. The purchaser/user should read and understand the Installation Instructions included with the product, and train its employees and contractors in the safe use of Flowserve products in connection with the specific application.

While the information and specifications contained in this literature are believed to be accurate, they are supplied for informative purposes only and should not be considered certified or as a guarantee of satisfactory results by reliance thereon. Nothing contained herein is to be construed as a warranty or guarantee, express or implied, regarding any matter with respect to this product. Because Flowserve is continually improving and upgrading its product design, the specifications, dimensions and information contained herein are subject to change without notice. Should any question arise concerning these provisions, the purchaser/user should contact Flowserve Corporation at any one of its worldwide operations or offices.

©2026 Flowserve Corporation. All rights reserved. This document contains registered and unregistered trademarks of Flowserve Corporation. Other company, product, or service names may be trademarks or service marks of their respective companies.

SSIOM003244-01 (EN/LTR) July 2026