

VS100 Series Slam-Shut Device

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Type VS110

Type VS120

Figure 1. VS100 Series Slam-Shut Device

WARNING

Failure to follow these instructions or to properly install and maintain this equipment could result in an explosion and/or fire causing property damage and personal injury or death.

Fisher® slam-shut device must be installed, operated and maintained in accordance with federal, state and local codes, rules and regulations and Emerson Process Management Regulator Technologies, Inc. (Emerson™) instructions.

Only a qualified person must install or service the VS100 Series slam-shut device. If a leak develops or if the slam-shut device continually vents gas, service to the unit may be required. Failure to correct trouble could result in a hazardous condition.

Installation, operation and maintenance procedures performed by unqualified personnel may result in improper adjustment and unsafe operations which may result in equipment damage or personal injury.

Introduction

Scope of the Manual

This Instruction Manual provides installation, maintenance and parts ordering information for the VS100 Series slam-shut device. Refer to VSX4 and VSX8 Series Controller Instruction Manual, Form 5867 included with the VS100 Series for additional VSX4 and VSX8 Series information. Instructions for other equipment used with the VS100 Series can be found in separate Instruction Manuals.

Product Description

The VS100 Series slam-shut device is designed to shut off the flow of gas to the downstream system in the event of outlet pressure rising above or falling below the predefined levels.

The VS100 Series consists of the following:

- A body with a removable orifice, enclosed by a bonnet.
- A VSX4 or VSX8 Series controller.

VS100 Series

Specifications

The Specifications section lists the specifications for the VS100 Series slam-shut device. The following information is stamped on the label of VS100 Series: Type and Class, Maximum Outlet Pressure and Spring Range. Additional operating information is located on the slam-shut device label.

Available Configurations

See Table 3

Connections

Slam-Shut Vent: 1/4 NPT

External Sensing Line: 1/4 NPT

Body Material

Ductile Iron (GS)

Steel (WCC)

Body Sizes and End Connection Styles

See Table 6

Maximum Allowable Pressure (PS)⁽¹⁾

Differential Strength (DS): 20.0 bar / 290 psig

Integral Strength (IS): 6.0 bar / 87 psig

Specific Maximum Allowable Pressure (PSd)⁽¹⁾

6.0 bar / 87 psig

Maximum Inlet Pressure (P_{u,max})⁽¹⁾

Differential Strength (DS): 16.0 bar / 232 psig

Integral Strength (IS): 6.0 bar / 87 psig

Operating Temperature (TS)⁽¹⁾

PED: -20 to 66°C / -4 to 150°F

NON-PED: -30 to 66°C / -20 to 150°F

Response Time (ta)

< 1 second

Slam-shut Type

DS: Differential Strength

IS: Integral Strength

Functional Class

A: Min, Min and Max installation

B: Max installation only

CE Marking

0062

European EN Reference Standard

EN 14382

Orifice Diameter

Medium Capacity Body (MC): 19 mm / 0.75 in.

High Capacity Body (HC): 30 mm / 1.18 in.

Valve Plug Size

Medium Capacity Body (MC) Ø: 24 mm / 0.94 in.

High Capacity Body (HC) Ø: 39 mm / 1.53 in.

Resetting Trip Mechanism

Manually after fault rectification

Position Indicator

Extended stem visible in center of reset button

refer to VSX4 and VSX8 Series controller

Instruction Manual

Casing Material

Aluminum

Pressure Detection

External

Approximate Shipping Weights

See Table 6

Option

• Wire Seal

The VS100 Series can be ordered with an optional tamper-proof lock wire to preclude unauthorized access to the adjustment springs.

- **Inductive Limit switch** (available only on Type VSX8) An optional remote notification switch can be installed offering the capability to remotely notify the operator should Type VSX8 shutoff occur.

Flow Coefficient and Power Loss

Symbols

Q = Natural gas flow rate in Nm³/h

P_u = Absolute inlet pressure in bar

C_g = Flow rate coefficient

C_1 = Body shape factor

Flow Coefficients

COEFFICIENT	DN 25*
C_g	306
C_1	52

*NPS 1 x 2-1/4, Gaz Body

Pressure Drop

$$\Delta P = \frac{P_u - \sqrt{P_u^2 - 4 \left(\frac{Q}{1.05 \times C_g} \right)^2}}{2}$$

1. The pressure/temperature limits in this Instruction Manual or any applicable standard limitation should not be exceeded.

Table 1. PED Information

TYPE	DESCRIPTION	PED DIRECTORY	FLUID GROUP
VS100	Regulator body with VSX4 or VSX8 Series controller	IV	Groups 1 and 2 according to PED 97/23/EC, 1st and 2nd family gas according to EN 437 or other gases (compressed air and nitrogen). The gas must be non-corrosive, clean (filtration on inlet side necessary) and dry.

Table 2. Accuracy According to EN 14382 - VS100 Series

ACCURACY GROUP (AG)	$P_d < 35 \text{ mbar} / 0.507 \text{ psig}$	$35 \text{ mbar} \leq P_d < 60 \text{ mbar} / 0.507 \text{ psig} \leq P_d < 0.87 \text{ psig}$	$60 \text{ mbar} \leq P_d < 100 \text{ mbar} / 0.87 \text{ psig} \leq P_d < 1.5 \text{ psig}$	$P_d \geq 100 \text{ mbar} / 1.5 \text{ psig}$
AG _{min}	30	15	10	5
AG _{max}	10	10		

Note: Stable inlet pressure AG_{min} = AG 10 ($P_d < 60 \text{ mbar} / 0.87 \text{ psig}$) and AG 5 ($P_d > 60 \text{ mbar} / 0.87 \text{ psig}$), AG_{max} = AG 5

Table 3. VS100 Series Configurations

PRODUCT TYPE	BODY SIZE	ORIFICE DIAMETER		CONTROLLER	OVERPRESSURE MONITORING RANGE (W_{dc})		UNDERPRESSURE MONITORING RANGE (W_{du})	
		mm	In.		mbar	psig	mbar	psig
VS111	Medium Capacity	19	0.75	VSX4L	30 to 1600	0.44 to 23.2	5 to 750	0.07 to 10.9
VS112				VSX4H	1100 to 5500	16.0 to 79.8	500 to 2800	7.25 to 40.6
VS121	High Capacity	30	1.18	VSX8L	30 to 1600	0.44 to 23.2	5 to 500	0.07 to 7.25

Table 4. VS100 Series Overpressure Shutoff (OPSO) Spring Ranges

REGULATOR SETPOINT						CONTROLLER				
Minimum		Nominal		Maximum		Type	Spring Range Overpressure Shutoff (OPSO) / Maximum ⁽¹⁾	Part Number ⁽²⁾ OPSO / Maximum ⁽¹⁾		
mbar	psig	mbar	psig	mbar	psig					
10	0.15	20	0.29	30	0.44	VSX4L and VSX8L	30 to 60 mbar / 12 to 25 in. w.c.	GF02168X012		
> 30	0.44	35	0.51	50	0.73		40 to 110 mbar / 16 to 43 in. w.c.	GF02169X012		
> 50	0.73	60	0.87	80	1.16		60 to 190 mbar / 25 to 75 in. w.c.	GF02170X012		
> 80	1.16	100	1.45	130	1.89		95 to 280 mbar / 1.4 to 4.1 psig	GF02171X012		
> 130	1.89	160	2.32	250	3.63		400 to 1450 mbar / 5.8 to 21.0 psig	GF04353X012		
> 250	3.63	300	4.35	400	5.80					
> 400	5.80	500	7.25	700	10.2					
> 700	10.2	1000	14.5	1100	16.0	VSX4H	0.9 to 3.0 bar / 13.1 to 43.5 psig	GF02173X012		
> 1100	16.0	1250	18.1	1500	21.8					
> 1500	21.8	2000	29.0	2500	36.3				1.6 to 5.5 bar / 23.2 to 79.8 psig	GF04353X012
> 2500	36.3	3000	43.5	4000	58.0					

1. OPSO spring range for OPSO installation only.
2. See VSX4 and VSX8 Series Instruction Manual, Table 4 for Spring Characteristics (wire diameter, free length and color).

Table 5A. Types VS111 and VS112 Over Pressure (OPSO) and Under Pressure Shut-off (UPS) - Range Equations

SLAM-SHUT DEVICE						
Type	Underpressure Shutoff (UPS)			Overpressure Shutoff (OPSO) ⁽¹⁾⁽²⁾		
	Spring Range		Spring Part Number and Color	Spring Range Over UPS		Spring Part Number and Color
	mbar	In. w.c.		mbar	In. w.c.	
VS111	5 to 30	2 to 12	ERAA05835A0 / White	30 to 60	12 to 25	GF02167X012 / Black
	10 to 75	4 to 30	T14169T0012 / Blue	50 to 130	20 to 52	GF02168X012 / Brown
				95 to 270	1.38 to 3.92 psig	GF02169X012 / Red
	25 to 160	0.36 to 2.3 psig	T14170T0012 / Silver	150 to 380	2.18 to 5.51 psig	GF02170X012 / Orange
	100 to 500	1.45 to 7.25 psig	FA142869X12 / Orange Stripe	260 to 600	3.8 to 8.7 psig	GF02171X012 / Pink
400 to 1100				5.8 to 16	GF02172X012 / Green	
VS112	100 to 750	1.45 to 10.9 psig	T14171T0012 / Olive	800 to 1600	11.6 to 23.2	GF02173X012 / Silver
	500 to 2000	7.25 to 29 psig	FA142869X12 / Orange Stripe	1100 to 2000	16 to 29	GF02171X012 / Pink
				1700 to 3700	24.7 to 53.7	GF02172X012 / Green
	500 to 2800	7.25 to 40.6 psig	T14171T0012 / Olive	2800 to 5500	40.6 to 79.8	GF02173X012 / Silver

1. OPSO spring range for the combined OPSO and UPS installation.
2. When selecting OPSO set points, the outlet pressure rating of the regulator should be considered.

Table 5B. Type VS121 Over Pressure (OPSO) and Under Pressure Shut-off (UPS) - Range Equations

SLAM-SHUT DEVICE						
Type	Underpressure Shutoff (UPS)			Overpressure Shutoff (OPSO) ⁽¹⁾⁽²⁾		
	Set Range UPS		Spring Part Number and Color	Set Range Over UPS		Spring Part Number and Color
	mbar	In. w.c.		mbar	In. w.c.	
VS121	5 to 30	2 to 12	ERAA05835A0 / White	42 to 69	17 to 28	GF02168X012 / Brown
	25 to 160	0.36 to 2.3 psig	T14170T0012 / Silver	90 to 214	1.3 to 3.1 psig	GF02170X012 / Orange
	100 to 500	1.5 to 7.3 psig	FA142869X12 / Orange Stripe	186 to 379	2.7 to 5.5 psig	GF02171X012 / Pink

1. OPSO spring range for the combined OPSO and UPS installation.
2. When selecting OPSO set points, the outlet pressure rating of the regulator should be considered.

VS100 Series

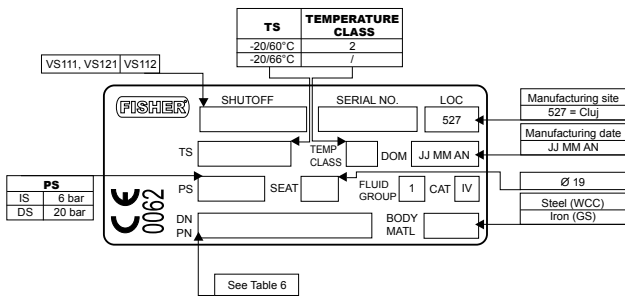


Figure 2. PED VS100 Series Label

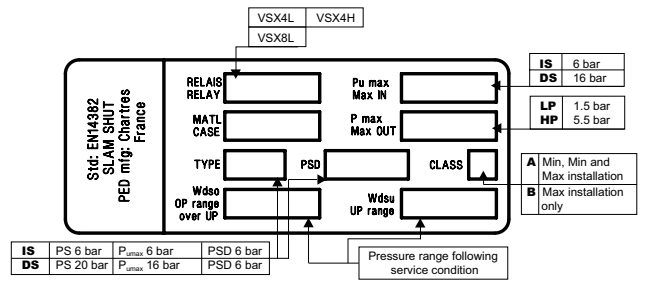


Figure 3. EN 14382 VSX4 and VSX8 Series Label

Principle of Operation

The pressure in the zone to be protected (generally the pipeline on the outlet side of the pressure regulator and situated after the slam-shut device (see Figures 4 and 6) activates the VSX4 and VSX8 Series controller.

The pressure measuring element of the VSX4 and VSX8 Series controller consists of a diaphragm that senses downstream pressure. The downstream pressure is controlled by the regulator (Figure 6). The top side of the VSX4 and VSX8 Series diaphragm encounters the force imposed by the overpressure shut-off spring and underpressure shut-off spring.

When the downstream pressure increases above the overpressure shut-off (OPSO) setting, the diaphragm moves up.

When the downstream pressure decreases below the underpressure shut-off (UPSO) setting, the diaphragm moves down.

Both of these actions result in the rotation of the cam and the release of the reset pin.

The valve plug spring moves the valve plug against the regulator port, stopping the flow of gas.

Before opening the valve plug, an equal pressure balance on inlet and outlet sides is required.

Refer to the VSX4 and VSX8 Series Instruction Manual, Form 5867. Using the reset button, activate the internal bypass, then rearm the valve plug in accordance with the Manual Reset Procedure. Rearming and pressure balancing are achieved at the same time.

Installation and Overpressure Protection



Personal injury or system damage may result if this slam-shut device is installed, without appropriate overpressure

protection, where service conditions could exceed the limits given on the Specifications section and slam-shut device nameplate.

All vents should be kept open to permit free flow of gas to the atmosphere. Protect openings against entrance of rain, snow, insects or any other foreign material that may plug the vent or vent line. When installing outdoors, point the spring case vent of the regulator and of the slam-shut device downward to allow condensate to drain. This minimizes the possibility of freezing and accumulation of water or other foreign materials entering the vent and interfering with proper operation.

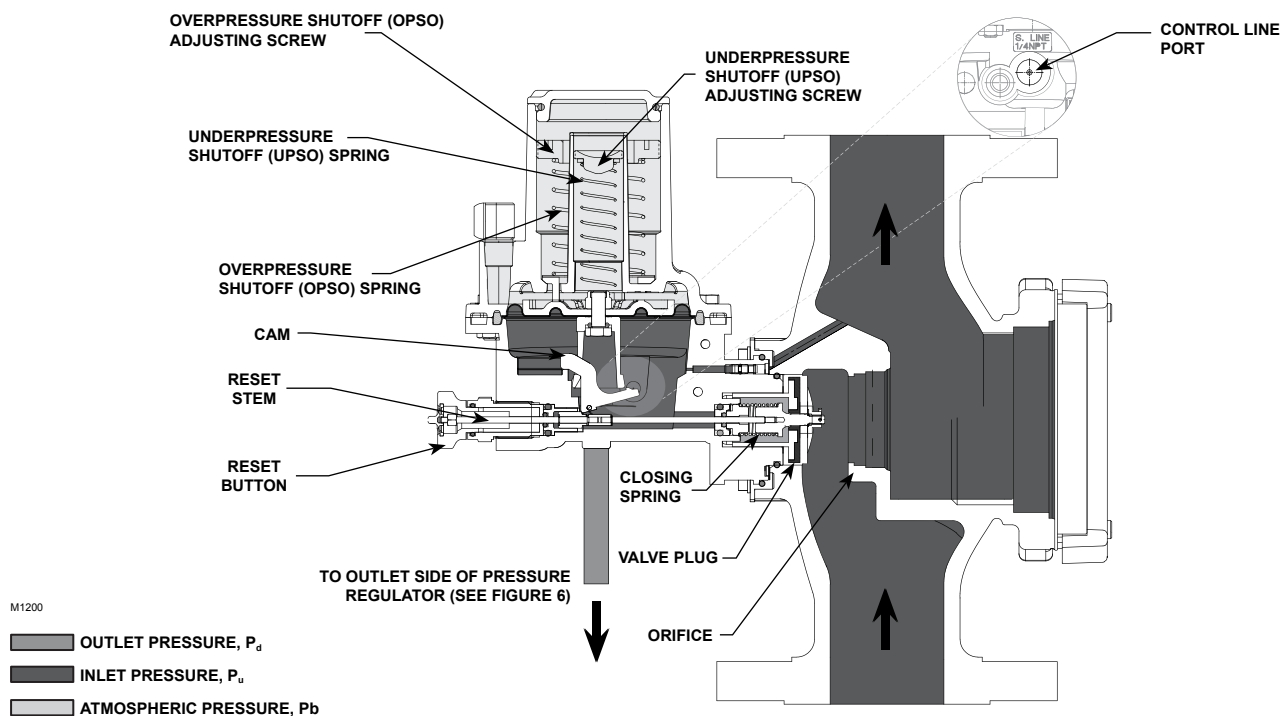
Slam-shut device installations should be adequately protected from physical damage.

The equipment should not receive any type of shock causing damage to the casing and therefore causing leaks.

No modification should be made to the structure of the equipment (drilling, grinding and soldering).

Under enclosed conditions or indoors, escaping gas may accumulate and be an explosion hazard. In these cases, the vent(s) should be piped away from the regulator/slam-shut device to the outdoors.

Failure to install a downstream control line could result in a hazardous condition. A downstream control line is required for the VS100 Series installation. The slam-shut device will not control pressure or shutoff if a downstream control line is not installed.



VSX4 AND VSX8 SERIES CONTROLLER

Figure 4. Typical VS100 Series Operational Schematic

If the slam-shut device is exposed to an overpressure condition, it should be inspected for any damage that may have occurred. Slam-shut device operation below the limits specified in the Specifications section and slam-shut device nameplate does not preclude the possibility of damage from external sources or from debris in the pipeline.

General Installation Instructions

Note

The VSX4 and VSX8 Series can be rotated 360° for easy installation and maintenance.

- Install according to EN 12186 and EN 12279.

Before proceeding to installation:

- The slam-shut device must be compatible with the gas being regulated.
- Check for damage, which might have occurred during shipment.
- Check for and remove any dirt or foreign material, which may have accumulated in the regulator or slam-shut device body.
- Blow out any debris or dirt in the tubing and the pipeline.

- Ensure that the external sense orifice is clean.
- Apply pipe compound to the external threads of the pipe before installing the slam-shut device.
- Verify these points:
 - Equipment limits of utilization (PS, TS) correspond to the desired operating conditions.
 - The inlet is protected by an appropriate device(s) to avoid exceeding the allowable limits (PS, TS).
 - The slam-shut device and its springs correspond to the desired operating conditions of the associated regulator.
- When assembling piping and flanges, do not apply excessive pressure force on the body and the bolts, O-rings, flanges or fittings. All connections should be compatible with the geometry and working conditions of the pipeline.
- If needed, a support may be used under the piping and regulator / slam-shut device body to avoid excessive pressure force on the regulator / slam-shut device.
- Connect downstream control line tubing to the 1/4 NPT connection in the lower casing, and run the tubing downstream of the regulator outlet a minimum distance of 4 times the outlet pipe diameter (see Figure 6).
- Periodically check all vent openings to be sure that they are not plugged.

VS100 Series

Startup and Shutdown



WARNING

This Instruction Manual must be used with the VSX4 and VSX8 Series Instruction Manual and Instruction Manual of the associated equipment.

Commissioning



WARNING

All interventions on the equipment should only be performed by qualified and trained personnel.



CAUTION

Equipment installed downstream the controller can be damaged if the following procedure for resetting the controller is not followed. This equipment includes the integral controller / regulator configurations.

Step 1:

- To properly reset the controller after it has been tripped to the closed position, a flat-head screwdriver must be inserted into the position shown in Figure 5 on the backside of the reset button (key 30).

Step 2:

- The screwdriver should be slowly rotated to gradually pull the reset button (key 30) away from the controller. This slow movement allows for a slow bleed of the pressure across the slam-shut's disk and seat area. The operator should be able to hear the pressure bleeding through the system.

Step 3:

- When the pressure has equalized and the air bleeding sound has dissipated, the reset button (key 30) should be pulled completely away from the controller by hand until the internal shut-off mechanism has been re-latched.

Step 4:

- Once the operator feels the click of the re-latch occurring, the reset button (key 30) should be pushed completely back into its original position.

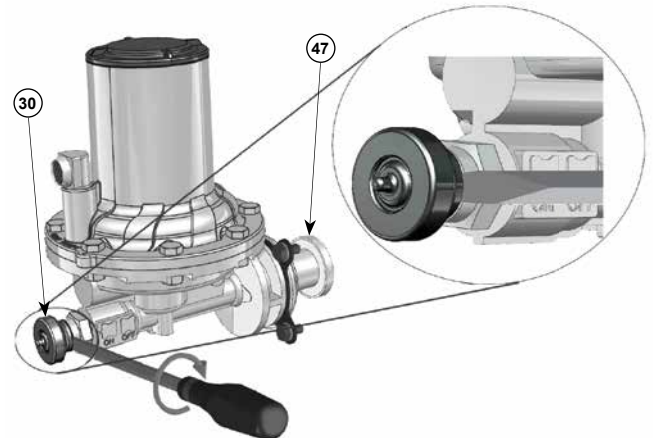


Figure 5. Controller Bypass with Screwdriver

Preliminary Verifications (Refer to Figure 6)

- Start-up positions:
 - Inlet and Outlet valves (V1 and V2)
 - Closed
- Verify absence of pressure between inlet and outlet valves:
 - Slam-shut device valve plug
 - Closed
 - Impulse isolation valve (V3)
 - Closed
 - Impulse atmospheric valves (V4 and V5)
 - Open

Setpoint Verification

- Using the atmospheric valve V4, inject pressure equal to the outlet pressure of the regulator:
 - Step 1
 - Reset the slam-shut device
(see VSX4 and VSX8 Series Instruction Manual)
 - Step 2
 - Progressively increase the pressure at V4 to reach tripping point of VS100 Series
 - Step 3
 - Adjust setting if necessary
(see VSX4 and VSX8 Series Instruction Manual)

Note the setpoint value on the equipment or mark it in a commissioning document.

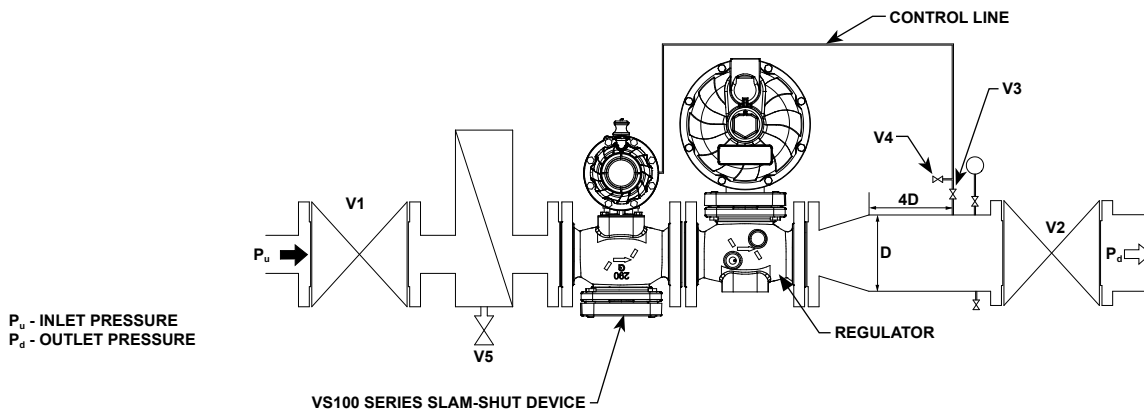


Figure 6. VS100 Series Installation

Position before Commissioning

- Impulse isolation valve (V3)
→ Open
- Impulse atmospheric valves (V4 and V5)
→ Closed
- Slam-shut device valve plug
→ Closed

The equipment is ready for commissioning

Commissioning (Max. only or Max. and Min.)

- Inlet valve (V1)
→ Open slowly
- Internal bypass
→ Open slowly
(see VSX4 and VSX8 Series Instruction Manual)
- Reset the VS100 Series
→ Reset slowly
(see VSX4 and VSX8 Series Instruction Manual)
- Outlet valve (V2)
→ Open slowly

The equipment is commissioned

After checking and commissioning the slam-shut device, it is recommended to seal it.

Maintenance



Only a qualified person shall perform maintenance procedures. If necessary, contact your local Sales Office.

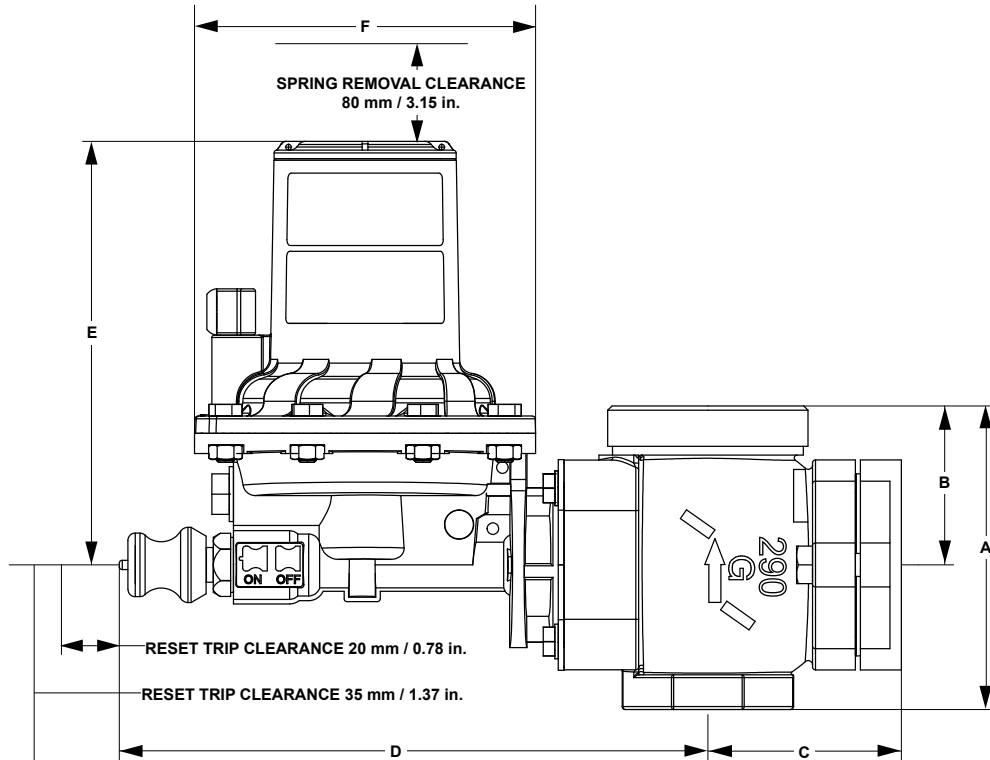
Failure to test the slam-shut device for proper shutoff can result in a hazardous condition. Test the slam-shut device for operation per applicable federal, state and local codes, rules and regulations and Emerson™ instructions.

Due to normal wear or damage that may occur from external sources, the slam-shut device should be inspected and maintained periodically. The frequency of inspection and replacement depends on the severity of service conditions, test results found during the annual test and on applicable codes and regulations. In accordance with applicable National or Industry codes, standards and regulations/recommendations, all hazards covered by specific tests after final assembling before applying the CE marking, shall also be covered after every subsequent reassembly at installation site, in order to ensure that the equipment will be safe throughout its intended life.

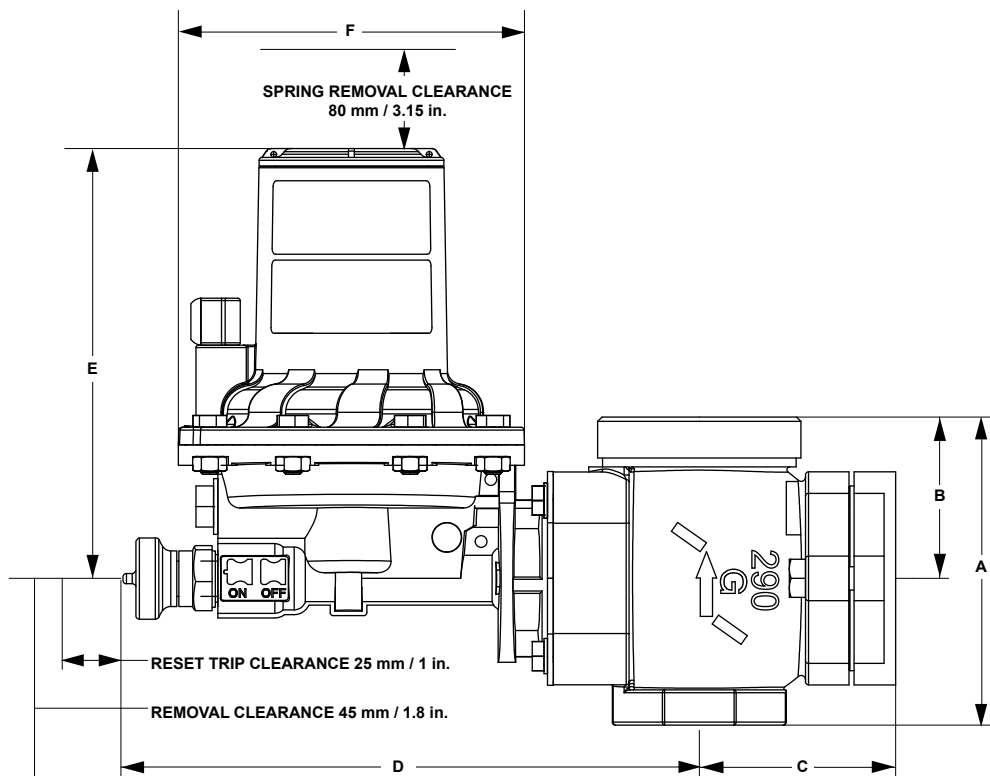
Periodic inspection must be performed on the VS100 Series. The slam-shut device should be tested for both under and overpressure shutoff activation and pressure tight shutoff annually with test intervals not to exceed 15 months but at least once each calendar year. If the slam-shut device does not close at the desired pressures or leaks gas after closure, repair and/or replace the slam-shut device.

VS100 Series

Dimensions and Weights



VS110 SERIES



TYPE VS120

Figure 7. VS100 Series Dimensions

Table 6. VS100 Series Bodies, Dimensions and Weights

TYPE	BODY MATERIAL	PART NUMBER	INLET SIZE, NPS	OUTLET SIZE, NPS	END CONNECTION	DIMENSION, mm / In.						WEIGHT, kg / lbs		
						A	B	C	D	E	F			
VS111 and VS112 (Medium Capacity)	Ductile Iron	GE26482X012	1	2-1/4	Rp x GAZ	105 / 4.1	55 / 2.2	67 / 2.6	205 / 8.1	46.3 / 1.8	210 / 8.3	147 / 5.8	118 / 4.7	3.5 / 7.7
		GE26469X012	1-1/4	1-1/4	Rp	114 / 4.5	57 / 2.3							
		GE26470X012	1-1/2	1-1/2	Rp									
		GE26463X012	1	1	NPT	100 / 3.9	50 / 2.0							
		GE26468X012	1	1	Rp									
		GE26465X012	1-1/4	1-1/4	NPT	114 / 4.5	57 / 2.3							
		GE26466X012	1-1/2	1-1/2	NPT									
		GE44902X012	1-1/2	1-1/2	PN 16 slip-on	184 / 7.2	57 / 2.3							
	Steel	GE26463X022	1	1	NPT	100 / 3.9	50 / 2.0							
		GE26465X022	1-1/4	1-1/4	NPT	114 / 4.5	57 / 2.3							
		GE26466X022	1-1/2	1-1/2	NPT	114 / 4.5	57 / 2.3							
		GE26468X022	1	1	Rp	100 / 3.9	50 / 2.0							
		GE26469X022	1-1/4	1-1/4	Rp	114 / 4.5	57 / 2.3							
		GE26470X022	1-1/2	1-1/2	Rp	114 / 4.5	57 / 2.3							
VS121 (High Capacity)	Ductile Iron	GE26306X012	1-1/4	1-1/4	NPT	155 / 6.1	77.5 / 3.1	91.4 / 3.6	212.7 / 8.4	147 / 5.8	118 / 4.6	3.5 / 7.7		
		GE26308X012	1-1/2	1-1/2	NPT									
		GE48290X012	2	2	NPT									
		GE26310X012	1-1/4	1-1/4	Rp									
		GE26311X012	1-1/2	1-1/2	Rp									
		GE48291X012	2	2	Rp									
		GE48292X012	2	2	CL125 FF x CL150 FF	191 / 7.5	95.5 / 3.8							
		GE48293X012	2	2	CL125 FF x CL150 FF	254 / 10	127 / 5.0							
		GE48294X012	2	2	CL125 FF x CL150 FF	267 / 11	133.5 / 5.3							
		GE48296X012	2	2	PN 10/16	191 / 7.5	95.5 / 3.8							
	GE48297X012	2	2	PN 10/16	254 / 10	127 / 5.0								
	Steel	GE26306X022	1-1/4	1-1/4	NPT	155 / 6.1	77.5 / 3.1							
		GE26308X022	1-1/2	1-1/2	NPT									
		GE48290X022	2	2	NPT									
GE26310X022		1-1/4	1-1/4	Rp										
GE26311X022		1-1/2	1-1/2	Rp										
GE48291X022		2	2	Rp										
GE48295X012		2	2	CL150 RF	254 / 10			127 / 5.0						
GE48297X022		2	2	PN 10/16	254 / 10			127 / 5.0						

Note: Reset trip clearance 25 mm / 1.0 in. on all sizes.

VS100 Series

Table 7. VS100 Series Troubleshooting

INDICATION	CAUSE	ACTION
If the valve will not close	Operating fault	Check the following: <ul style="list-style-type: none"> The shutoff pressure settings for high and low pressure values are correct. The O-rings are tight shut. The sensing line is plugged. Remove the VS100 Series and check the following: <ul style="list-style-type: none"> The reset latch is not stuck. The state of the diaphragm assembly for wear and tear Or contact your local Sales Office.
If the downstream pressure in the slam-shut device decreases	External leak	Locate and seal the leak or contact your local Sales Office.
If the outlet pressure in the slam-shut device is constant	----	<ul style="list-style-type: none"> Bleed off the outlet side of the regulator. Observe the evolution of the outlet pressure (check tightness).
If the downstream pressure in the slam-shut device increases	Internal leak	Check the following: <ul style="list-style-type: none"> The valve plug (disk) Or contact your local Sales Office.

Table 8. VS100 Series Recommended Tools

WRENCH		PART		TORQUE	
mm	In.	Key	Identification	N·m	ft-lbs
27	1.063	60	Orifice	47 to 61	35 to 45
51	2	63		107 to 160	79 to 118
13	0.512	34	Screw	6	4.4
		71		15	11

Servicing Check

- Recommended frequency:
 - Annually but not to exceed 15 months
- Verification:
 - Tripping and tripping value
 - Slam-shut device valve plug tightness
- Beginning valve positions refer to Figure 6:
 - Inlet valve (V1)
 - Open
 - Outlet valve (V2)
 - Open
 - Slam-shut device valve plug
 - Open
 - Regulator
 - In operation
- Recommended frequency:
 - Every 3 years minimum
- Verification:
 - Condition of O-rings, diaphragm, disk, orifice and lubrication
- Replace parts
 - Refer to Figure 13 in the VSX4 and VSX8 Series Instruction Manual. O-rings (keys 33 and 46), diaphragm (key 6) and safety valve plug (key 47). Refer to disassembly section of the VSX4 and VSX8 Series Instruction Manual
 - Refer to Figure 8 in VS100 Series Instruction Manual. Orifices (keys 60 and 63) and O-rings (keys 61 and 73). Refer to disassembly section of the VS100 Series Instruction Manual
 - Or replace the VSX4 and VSX8 Series controller

Inlet and outlet sides of the regulator under pressure.

- Tripping verification:
 - Inlet valve (V1)
 - Closed
 - Outlet valve (V2)
 - Closed
 - Regulator
 - Increase setpoint to reach tripping without exceeding outlet limits

Disassembly



WARNING

Only parts manufactured by Emerson™ should be used for repairing the VS100 Series Slam-shut Device.

Disassembly of the VSX4 and VSX8 Series Controller

Refer to VSX4 and VSX8 Series Instruction Manual.

Disassembly of the VS100 Series Slam-Shut Device



WARNING

To avoid personal injury or equipment damage, do not attempt any maintenance or disassembly without first isolating the regulator/slam-shut device from system pressure and relieving all internal pressure.



CAUTION

Removing the two orifices must be performed with care so as not to damage the orifice seating surfaces.

Medium Capacity Body Disassembly

- Before removing the orifice (key 60), the slam-shut device must be removed from the body.
- Using a 27 mm / 1.063 in. wrench, unthread and remove the orifice and O-ring (key 61). Removing the orifice must be performed with caution.
- Using a 13 mm / 0.512 in. wrench, unthread and remove the two screws (key 71), the union ring (key 75) and body plug (key 74) with its O-ring (key 73).

High Capacity Body Disassembly

- Using a 13 mm / 0.512 in. wrench, unthread and remove the four screws (key 71), the union ring (key 75) and body plug (key 74) with its O-ring (key 73).
- Once the body plug is removed, the orifice (keys 60 and 63) may then be removed.
- Using a 51 mm / 2 in. wrench, unthread and remove the orifice (key 63) and its O-ring (key 64).
- Then manually remove the orifice (key 60) with its O-ring (key 61) without any hand tool. This last action can be facilitated by removing the slam-shut device (key 84).

Parts List

VS100 Series Slam-Shut Device

KEY	DESIGNATION	PART NUMBER	
		Medium Capacity Body	High Capacity Body
6*	Diaphragm	GF01929X012	GF01929X012, ERAA08900A0 ⁽¹⁾
8*	Valve plug spring	GF02174X012	ERAA06243A0
30	Reset button	GF01930X012	ERCA01254A0, ERCA01044A0 ⁽²⁾
33*	Inlet O-ring (35 x 2)	GF03442X012	
34	Screw H M6x12 (4 required)	GE38176X012	
36	Half flange (2 required)	GF01942X012	
42	Maxi washer	GF01925X012	
43	Maxi adjusting screw	GF01923X012	
44	Fastening clip	GF04079X012	-----
46*	Outlet O-ring (54.0 x 2.0)	GF03443X012	
47*	Safety valve plug	GF01940X012	ERAA05852A0
48	Vent	27A5516X012	
60*	Safety orifice	GE28684X012	GE32066X012
61*	Safety orifice O-ring	10A3802X022	GE32723X012
63*	Regulator orifice	-----	GE29710X012
64*	Regulator orifice O-ring	-----	GE30397X012
71	Screw H M6x12	GE32061X012 (2 required)	GE29974X012 (4 required)
72	Pipe plug steel plate	1C333528992	
	Pipe plug stainless steel	1C3335X0012	
73*	Body plug O-ring	GE45216X012	ERAA01118A0
74	Body plug	GF04373X012	GE34190X012
75	Union ring	GF04335X012	GF04994X012
84	Controller (VSX4 and VSX8 Series)	See VSX4 and VSX8 Series Instruction Manual	

*Recommended spare part.

1. For Type VSX8L only.

2. Applicable for Type VSX8 with remote trip sensor.

Reassembly

Reassembly of the VSX4 and VSX8 Series Controller

- Refer to VSX4 and VSX8 Series Instruction Manual.

Reassembly of the VS100 Series Slam-Shut Device

- Perform the above operations in reverse order (respect tightening torques).
- Reinstall the orifices (old or new) with caution.

Test After Repair

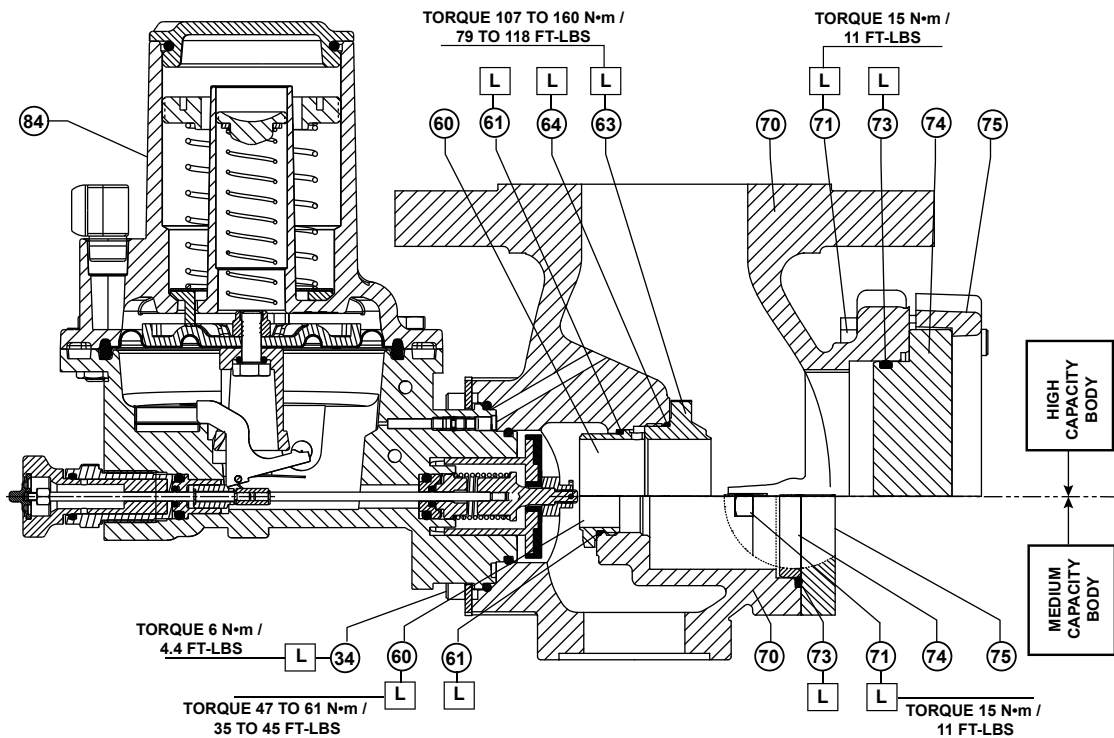
- Slam-shut devices that have been disassembled for repair must be tested for proper operation before being returned to service.

Parts Ordering

The type number, pressure ranges, functional class and date of manufacture are stamped on the nameplate. Always provide this information when corresponding with your local Sales Office regarding replacement parts or technical assistance.

When ordering replacement parts, refer to the key number of each needed part as found in the parts list.

VS100 Series



GF04352

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Figure 8. VS100 Series Slam-Shut Device Assembly

Industrial Regulators

Emerson Process Management Regulator Technologies, Inc.

USA - Headquarters
McKinney, Texas 75070 USA
Tel: +1 800 558 5853
Outside U.S. +1 972 548 3574

Asia-Pacific
Shanghai 201206, China
Tel: +86 21 2892 9000

Europe
Bologna 40013, Italy
Tel: +39 051 419 0611

Middle East and Africa
Dubai, United Arab Emirates
Tel: +971 4811 8100

Natural Gas Technologies

Emerson Process Management Regulator Technologies, Inc.

USA - Headquarters
McKinney, Texas 75070 USA
Tel: +1 800 558 5853
Outside U.S. +1 972 548 3574

Asia-Pacific
Singapore 128461, Singapore
Tel: +65 6770 8337

Europe
Bologna 40013, Italy
Tel: +39 051 419 0611
Chartres 28008, France
Tel: +33 2 37 33 47 00

Middle East and Africa
Dubai, United Arab Emirates
Tel: +971 4811 8100

TESCOM

Emerson Process Management Tescom Corporation

USA - Headquarters
Elk River, Minnesota 55330-2445, USA
Tels: +1 763 241 3238
+1 800 447 1250

Europe
Selmsdorf 23923, Germany
Tel: +49 38823 31 287

Asia-Pacific
Shanghai 201206, China
Tel: +86 21 2892 9499



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