

Replacement of Fisher™ DSV High-Performance Digester Switching Valve with Fisher 8580 Valve and 2052 Actuator

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Fisher DSV Valve and 1061 Actuator



Fisher 8580 Valve and 2052 Actuator

Management of Change

Management of Change (MOC) is a procedure used to proactively manage changes that have the potential to impact safety or the process within a plant. Evaluating new techniques for improving MOC approval procedures can have an impact on plant efficiency. Historically, upgrading obsolete products or replacing existing process control equipment had been delayed or abandoned due to the extensive paperwork involved in completing a complex MOC approval sheet.

Background

The Fisher DSV high-performance digester switching valve package was specifically designed for high-cycle, full stroke applications. The DSV valve used a specially-designed Fisher 8510 eccentric disk control valve with a 1061 pneumatic piston rotary actuator created for rapid on/off, high-cycle, digester switching applications. The valve body had no seal and the narrow body-to-disk proximity allowed the disk to clean away scale build-up from the valve. The 1061 actuator featured a unique sealing surface and piston combination that reduced wear during rapid cycling operation.

The DSV valve package is now obsolete and should be replaced with the Fisher 8580 high-performance butterfly valve and 2052 pneumatic spring and diaphragm actuator. The 8580 valve and 2052 actuator have been developed and tested specifically for use in high-cycle applications. A seal-less (flow ring) option is available with the 8580 valve, which will provide the same narrow body-to-disk proximity as the DSV valve. The seal-less (flow ring) construction allows the 8580 valve with 2052 actuator to directly replace the DSV package.

For more information regarding Fisher rotary valves, please contact your [local Emerson sales office](#).

Question & Answer Checklist

- 1 Q:** Does the proposed modification cause any changes to the piping and instrumentation diagram (P&ID)?

A: No.
- 2 Q:** Does the proposed modification change process chemistry, technology, or operating and control philosophies?

A: No.
- 3 Q:** Does the proposed modification change how the existing plant is operated?

A: No.

- 4** Q: Does the proposed modification change process flows?
A: No.
- 5** Q: Does the proposed modification change existing pressure relief cases?
A: No.
- 6** Q: Does the proposed modification change the process description?
A: No.
- 7** Q: Have the codes and standards to which the new equipment was designed changed?
A: No.
- 8** Q: Does the proposed modification change the materials of construction, such as a change in material form (cast, forged, or alloy)?
A: No.
- 9** Q: Does the proposed modification introduce new equipment items that require periodic predictive maintenance?
A: No.
- 10** Q: Does the proposed modification change existing operator training requirements?
A: No.
- 11** Q: Does the proposed modification introduce new equipment items that require spare parts, training manuals, maintenance procedures or training to teach the maintenance department how to maintain them?
A: No.
- 12** Q: Does the proposed modification introduce new equipment items that require spares or obsolete spares for existing equipment?
A: No.

- 13 Q:** Does the proposed modification permanently remove the spares for existing pieces of equipment?
A: No.
- 14 Q:** Does the proposed modification change the inspection scope or inspection interval?
A: No.
- 15 Q:** Does the proposed modification require welding work to be performed?
A: No.
- 16 Q:** Have the materials of construction been reviewed to ensure that the metallurgy is correct?
A: No.

Valve Comparison

The following sections are intended to provide a nominal comparison between DSV valve and the 8580 valve.

Scope, Size, Class

The DSV valve was available in Class 300, NPS 4 through NPS 14. The 8580 valve can replace the DSV valve up through NPS 12. For NPS 14, a Fisher 8532 valve will need to be used.

Capacity

Some minor geometry changes, as well as increased analysis and testing capabilities, cause the 8580 valve to have different flow coefficients than the DSV valve. Refer to the [8580 valve product literature](#) for the valve flow coefficients.

Face-to-Face Dimensions

The DSV package used a modified Class 300, 8510 valve body, which did not have the same face-to-face length of the Class 300, 8580 valve. The standard 8580 valve meets API 609 face-to-face dimensions for lugged category B valves. See Table 1 for the dimensions of the two valve types.

When replacing a DSV valve with an 8580 valve, an option is available to match the face-to-face length.

	DSV Valve		8580 Valve, Class 300	
	mm	in	mm	in
NPS 4	56	2.19	53	2.09
NPS 6	57	2.25	57	2.24
NPS 8	64	2.50	73	2.87
NPS 10	71	2.81	83	3.27
NPS 12	81	3.19	92	3.62

Table 1. Standard Face-to-Face Dimensions

Body Style

The DSV valve was available in a wafer (flangeless) valve body style only. The 8580 valve is available in a lugged (single flange) body style and can be supplied with drilled-through flange holes, which allows the valve to be installed in the same manner as a wafer valve body.

Shaft Size and Actuator Mounting

The DSV and 8580 valves have the same shaft size and actuator mounting dimensions. The actuator portion of the DSV package could be re-used on an 8580 valve, however the actuator sizing would need to be confirmed.

	DSV Valve		8580 Valve, Class 300	
	mm	in	mm	in
NPS 4	19	3/4	19	3/4
NPS 6	25	1	25	1
NPS 8	32	1 1/4	32	1 1/4
NPS 10	32	1 1/4	32	1 1/4
NPS 12	38	1 1/2	38	1 1/2

Table 2. Shaft Size

		T (Indicated in Figure 1)		U (Indicated in Figure 1)	
		DSV	8580	DSV	8580
NPS 4	mm	152	152	32	32
	in	6.00	6.00	1.25	1.25
NPS 6	mm	152	152	32	32
	in	6.00	6.00	1.25	1.25
NPS 8	mm	235	235	46	46
	in	9.25	9.25	1.81	1.81
NPS 10	mm	235	235	46	46
	in	9.25	9.25	1.81	1.81
NPS 12	mm	235	235	46	46
	in	9.25	9.25	1.81	1.81

Table 3. Actuator Mounting Dimensions

Material Availability

Generally, material availability is unchanged. The 8580 valve is available in the same materials as the DSV valve.

Valve Body, Seal, Seal Retainer

The DSV valve did not include a seal or seal retainer ring. The valve body was machined to provide a specific clearance between the valve body and disk. To replace the DSV valve, the 8580 valve should be specified with a flow ring. This ring provides the same clearance between the valve body and disk of the DSV valve and replaces the seal and seal retaining ring from the standard 8580 valve.

Actuator

The DSV package included a 1061 size 30 or 40 actuator with special options to increase the cycle life capability of the actuator. This actuator can be replaced with a standard 2052 size 1 or 2 actuator. The 2052 actuator has been designed and tested for non-stop, high-cycle applications. It does not require any special options to replace the 1061 actuator in the digester switching applications.

Conclusion

Emerson offers the Fisher 8580 valve and 2052 actuator as a replacement for the obsolete Fisher DSV package. The 8580 valve must be specified with the flow ring construction and may require the use of a face-to-face length option to directly replace existing DSV valve installations.

For more information regarding the Fisher 8580 rotary valve, please contact your [local Emerson sales office](#).

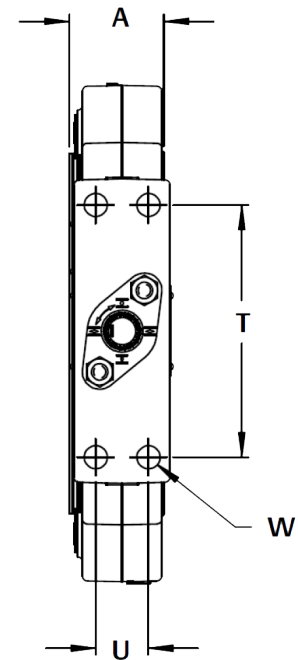


Figure 1. Actuator Mounting Pad Dimensions

 <http://www.Facebook.com/FisherValves>

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 <http://www.YouTube.com/user/FisherControlValve>

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To find the Emerson sales contact in your area, scan or click the QR code.



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