



SEVERE SERVICE CHECK VALVE

Installation, Operation and Maintenance Manual



DSSVALVES.COM

Thank You for Choosing DSS Valves

At DSS Valves we have mastered the design and manufacture of the preeminent Severe Service Check Valves on the market. We're excited that you've decided to put your trust in our product.

To make sure you achieve maximum service life and trouble free operation from your investment, we've put together this **instruction, operation and maintenance manual** that highlights the key features and benefits of your valve, as well as important information for valve upkeep.

Should you have any questions, please feel free to contact us directly.

Sincerely,
The Team at DSS Valves

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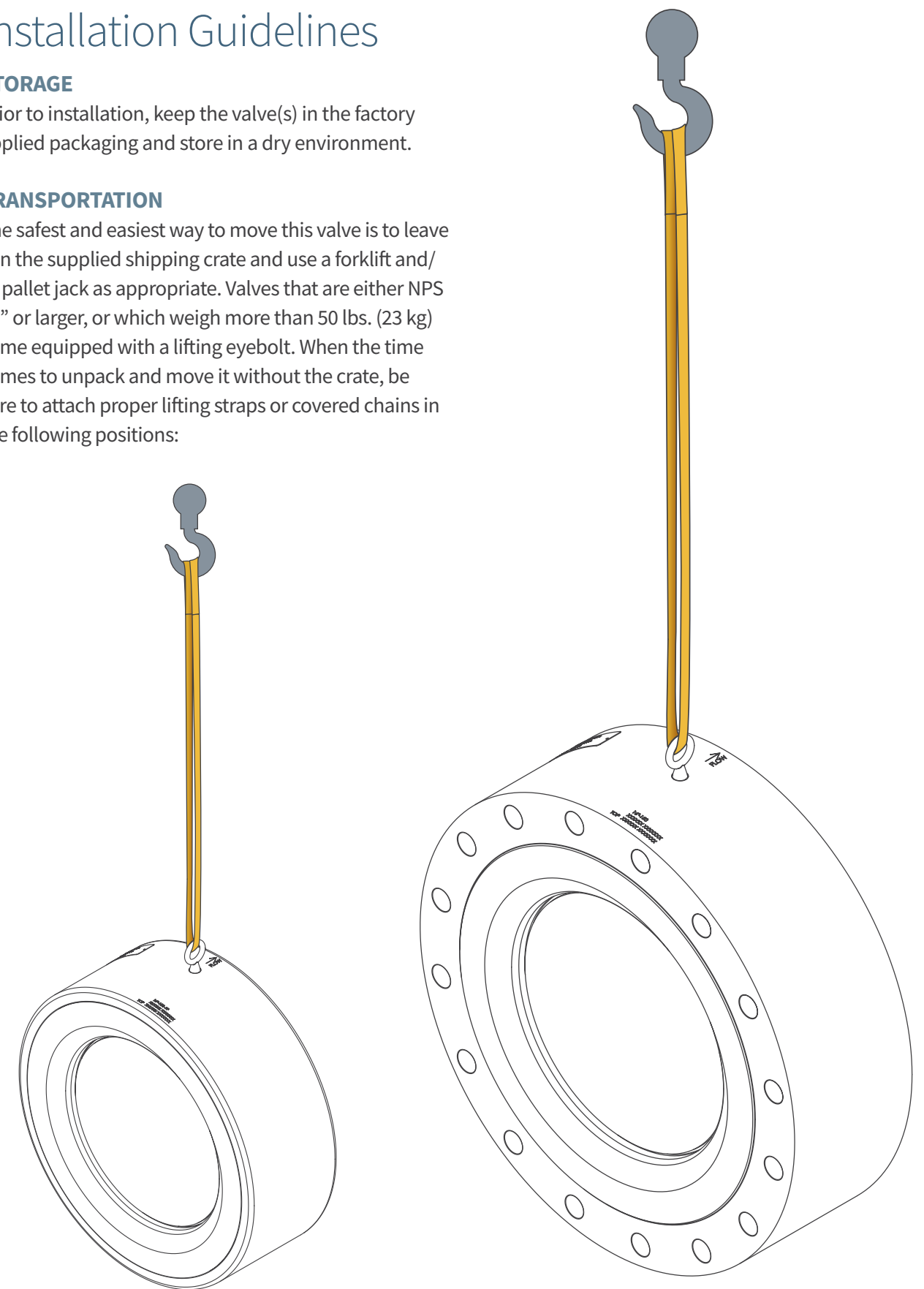
Installation Guidelines

STORAGE

Prior to installation, keep the valve(s) in the factory applied packaging and store in a dry environment.

TRANSPORTATION

The safest and easiest way to move this valve is to leave it in the supplied shipping crate and use a forklift and/or pallet jack as appropriate. Valves that are either NPS 10" or larger, or which weigh more than 50 lbs. (23 kg) come equipped with a lifting eyebolt. When the time comes to unpack and move it without the crate, be sure to attach proper lifting straps or covered chains in the following positions:



DISCLAIMER:



Working with industrial valves is inherently dangerous, and appropriate precautions should be taken at all times. Only skilled professionals with qualified experience using the tools and equipment required should be involved.

Proper understanding of the system and application the valve is being inserted into is a must.



Safety equipment should always be worn during the process, and should include but is not limited to steel toed boots, hard hats, ear and eye protection, and high visibility clothing.

Any alteration or modification to the valve supplied by DSS Valves must receive written approval. DSS Valves is not responsible for consequential damages should this written approval not be obtained.

Installation Guidelines

CLEANING THE INSTALLATION SITE

Remove dust, dirt, debris, and any applied corrosion protection from pipeline and flanges before installing the valve.

FLOW DIRECTION

Check Valves are designed to open with flow and close with the absence of flow or upon flow reversal. This valve must be installed with the flow arrow pointing in the direction of flow.

INSTALLATION ORIENTATION

Install the valve in horizontal or vertical-up flow. For horizontal orientation, be sure the word “Top” is located at the top. It is recommended to allow for 5 pipe diameters between the check valve and any other turbulence-producing valves or fittings.

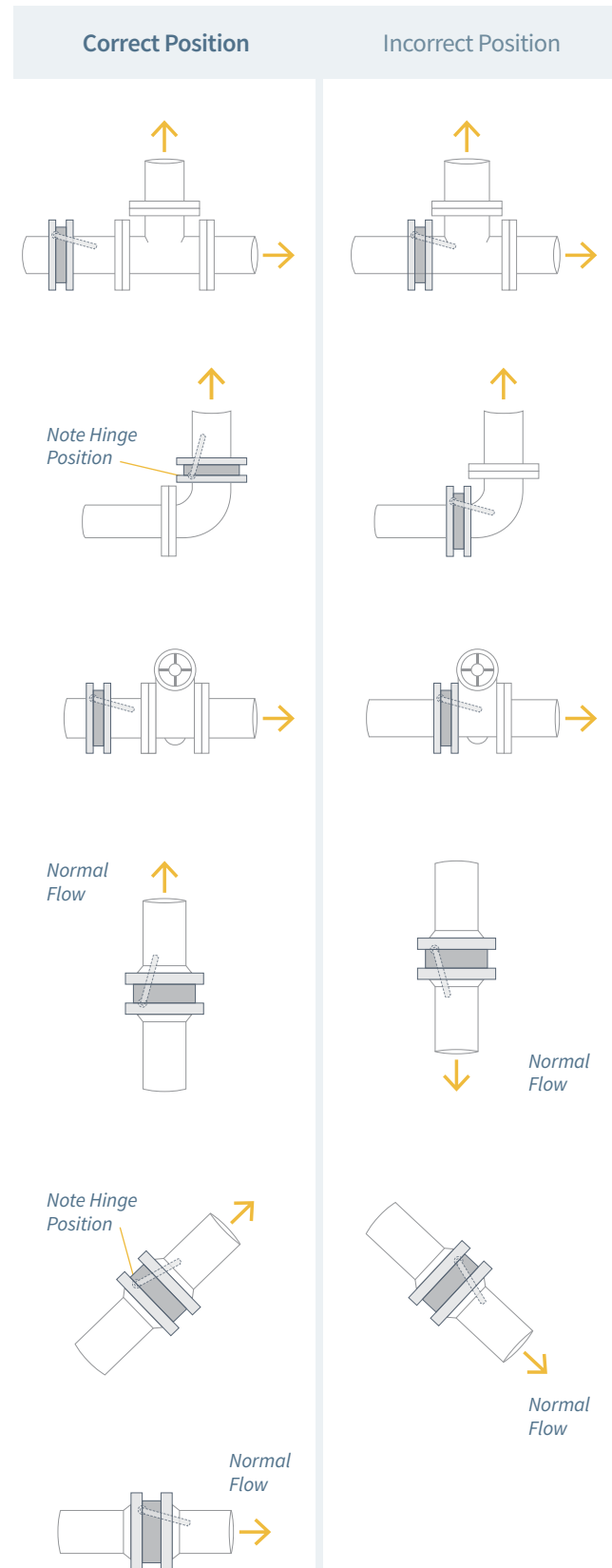
Care must also be given to ensure the disc does not open into any downstream valves or fittings. The valve shall not be used with reciprocating pumps and compressors.

MATING FLANGES

DSS Check Valves are designed to be installed between ASME B16.5 or B16.47 Series A flanges. Gaskets shall be selected by the end user in accordance with sound engineering practice. Always check to make sure the mating flanges have a proper seal.

INSTALLING INTO A PIPELINE:

1. Bolt the valve between mating flanges using proper sized all-thread studs or hex head bolts. If using stainless steel fasteners, lubricate to prevent galling.
2. Bolt and stud lengths can be obtained by contacting DSS Valves directly. Adjust length as necessary if using nuts, gaskets, washers, or flanges not in accordance with DSS assumptions.
3. Tighten the flange bolts in an alternating sequence.
4. Hydro test the system to check for leaks.



Maintenance Guidelines

DSS Check Valves are designed to be maintenance free and do not require routine maintenance.

The valves have a renewable seat insert and, in many circumstances, may be repaired. Contact DSS to discuss spare parts and repairs.

FLANGE BOLTS AND STUDS

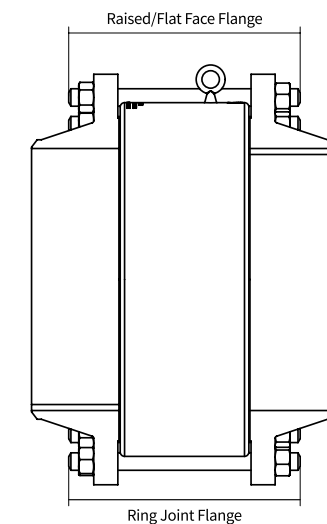
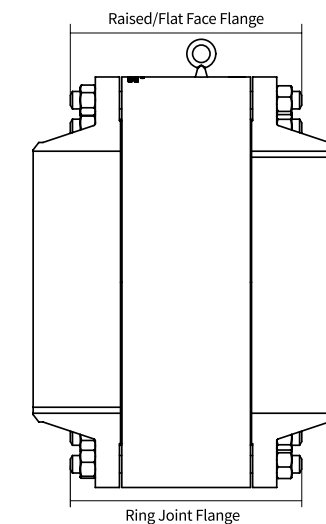
ASME Class 150					Stud Length					
					Wafer/Lug Body			Double Flange		
Valve Size		Bolt Diameter			Raised Face			Raised Face		
in	mm	in	Pitch	mm	# of Studs	in	mm	# of Studs	in	mm
1	25	0.5	13	13	4	4.5	115	--	--	--
1.5	40	0.5	13	13	4	5.25	134	--	--	--
2	50	0.625	11	16	4	5.5	140	8	3.5	89
2.5	65	0.625	11	16	4	6.25	159	--	--	--
3	80	0.625	11	16	4	6.75	172	8	3.75	96
4	100	0.625	11	16	8	6.75	172	16	3.75	96
6	150	0.75	10	19	8	8	204	16	4.25	108
8	200	0.75	10	19	8	9.5	242	16	4.5	115
10	250	0.875	9	22	12	10.5	267	24	4.75	121
12	300	0.875	9	22	12	12.25	312	24	5	127
14	350	1	8	25	12	12.75	324	24	5.5	140
16	400	1	8	25	16	13.25	337	32	5.75	147
18	450	1.125	8	29	16	14.25	362	32	6.25	159
20	500	1.125	8	29	20	15	381	40	6.5	166
22	550	1.25	8	32	20	15.75	401	--	--	--
24	600	1.25	8	32	20	15.75	401	40	7	178
26	650	1.25	8	32	24	17.5	445	--	--	--
28	700	1.25	8	32	28	21	534	--	--	--
30	750	1.25	8	32	28	21.25	540	--	--	--
32	800	1.5	8	38	28	24.25	616	--	--	--
36	900	1.5	8	38	32	25.5	648	--	--	--
40	1000	1.5	8	38	36	28.5	724	--	--	--
42	1050	1.5	8	38	36	28.5	724	--	--	--
48	1200	1.5	8	38	44	33	839	--	--	--

Operation Guidelines

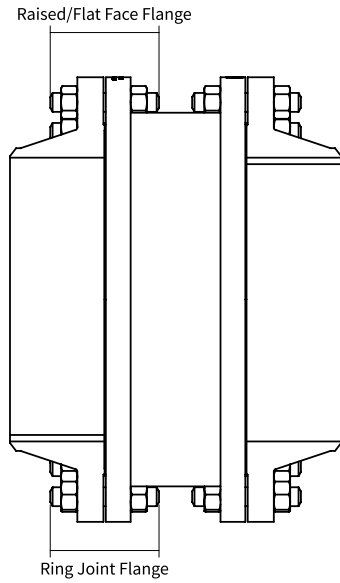
Check Valves are operated by internal pipeline flow, therefore there are no operation guidelines.

If further technical advice is required, feel free to consult DSS Valves directly: info@dssvalves.com

ASME Class 300					Stud Length					
					Wafer/Lug Body			Double Flange		
Valve Size		Bolt Diameter			Raised Face			Raised Face		
in	mm	in	Pitch	mm	# of Studs	in	mm	# of Studs	in	mm
1	25	0.625	11	16	4	5.25	134	--	--	--
1.5	40	0.75	10	19	4	6.25	159	--	--	--
2	50	0.625	11	16	8	6	153	16	3.75	96
2.5	65	0.75	10	19	8	6.75	172	--	--	--
3	80	0.75	10	19	8	7.25	185	16	4.5	115
4	100	0.75	10	19	8	7.5	191	16	4.75	121
6	150	0.75	10	19	12	9	229	24	5	127
8	200	0.875	9	22	12	10.75	274	24	5.75	147
10	250	1	8	25	16	12.25	312	32	6.5	166
12	300	1.125	8	29	16	14.25	362	32	7	178
14	350	1.125	8	29	20	16	407	40	7.25	185
16	400	1.25	8	32	20	17	432	40	7.75	197
18	450	1.25	8	32	24	18.5	470	48	8	204
20	500	1.25	8	32	24	19.75	502	48	8.25	210
22	550	1.5	8	38	24	21.25	540	--	--	--
24	600	1.5	8	38	24	21.75	553	48	9.25	235
26	650	1.625	8	41	28	22.75	578	--	--	--
28	700	1.625	8	41	28	25.25	642	--	--	--
30	750	1.75	8	44	28	26	661	--	--	--
32	800	1.875	8	48	28	26.75	680	--	--	--
36	900	2	8	51	32	32	813	--	--	--
42	1050	1.625	8	41	32	35.75	909	--	--	--
48	1200	1.875	8	48	32	39.75	1010	--	--	--



FLANGE BOLTS AND STUDS



ASME Class 600					Stud Length									
					Wafer/Lug Body					Double Flange				
Valve Size		Bolt Diameter			# of Studs	Raised Face		Ring Joint		# of Studs	Raised Face		Ring Joint	
in	mm	in	Pitch	mm		in	mm	in	mm		in	mm	in	mm
1	25	0.625	11	16	4	5.75	147	5.75	147	--	--	--	--	--
1.5	40	0.75	10	19	4	6.75	172	6.75	172	--	--	--	--	--
2	50	0.625	11	16	8	6.75	172	7	178	16	4.5	115	4.5	115
2.5	65	0.75	10	19	8	7.5	191	7.75	197	--	--	--	--	--
3	80	0.75	10	19	8	8	204	8.25	210	16	5.25	134	5.25	134
4	100	0.875	9	22	8	9.25	235	9.25	235	16	6	153	6.25	159
6	150	1	8	25	12	12.5	318	12.5	318	24	7	178	7.25	185
8	200	1.125	8	29	12	14.5	369	14.5	369	24	8	204	8	204
10	250	1.25	8	32	16	17.25	439	17.25	439	32	8.75	223	9	229
12	300	1.25	8	32	20	18	458	18.25	464	40	9	229	9.25	235
14	350	1.375	8	35	20	20.25	515	20.5	521	40	9.5	242	9.75	248
16	400	1.5	8	38	20	22.25	566	22.5	572	40	10.25	261	10.5	267
18	450	1.625	8	41	20	25.25	642	25.5	648	40	11	280	11.25	286
20	500	1.625	8	41	24	26	661	26.25	667	48	11.5	293	11.75	299
22	550	1.75	8	44	24	28.75	731	29	737	--	--	--	--	--
24	600	1.875	8	48	24	30.25	769	30.75	782	48	13	331	13.5	343
30	750	2	8	51	28	36.25	921	36.75	934	--	--	--	--	--
36	900	2.5	8	64	28	44	1118	44.75	1137	--	--	--	--	--
42	1050	2.5	8	64	28	47.5	1207	--	--	--	--	--	--	--

ASME Class 900					Stud Length									
					Wafer/Lug Body					Double Flange				
Valve Size		Bolt Diameter			# of Studs	Raised Face		Ring Joint		# of Studs	Raised Face		Ring Joint	
in	mm	in	Pitch	mm		in	mm	in	mm		in	mm	in	mm
1	25	0.875	9	22	4	7.25	185	7.25	185	--	--	--	--	--
1.5	40	1	8	25	4	8.25	210	8.25	210	--	--	--	--	--
2	50	0.875	9	22	8	8.75	223	9	229	16	6	153	6.25	159
2.5	65	1	8	25	8	9.75	248	10	254	--	--	--	--	--
3	80	0.875	9	22	8	9.25	235	9.5	242	16	6	153	6.25	159
4	100	1.125	8	29	8	11	280	11.25	286	16	7	178	7.25	185
6	150	1.125	8	29	12	14.25	362	14.25	362	24	8	204	8	204
8	200	1.375	8	35	12	17.25	439	17.25	439	24	9	229	9.25	235
10	250	1.375	8	35	16	19	483	19.25	489	32	9.5	242	9.75	248
12	300	1.375	8	35	20	21.75	553	22	559	40	10.25	261	10.5	267
14	350	1.5	8	38	20	25	635	25.25	642	40	11	280	11.25	286
16	400	1.625	8	41	20	26.75	680	26.75	680	40	11.5	293	11.75	299
18	450	1.875	8	48	20	30.75	782	31	788	40	13	331	13.25	337
20	500	2	8	51	24	31.5	801	31.75	807	48	13.75	350	14	356
24	600	2.5	8	64	24	36.75	934	37.25	947	48	17.25	439	17.75	451

ASME Class 1500					Stud Length									
					Wafer/Lug Body					Double Flange				
Valve Size		Bolt Diameter			# of Studs	Raised Face		Ring Joint		# of Studs	Raised Face		Ring Joint	
in	mm	in	Pitch	mm		in	mm	in	mm		in	mm	in	mm
1	25	0.875	9	22	4	7.25	185	7.25	185	--	--	--	--	--
1.5	40	1	8	25	4	8.25	210	8.25	210	--	--	--	--	--
2	50	0.875	9	22	8	8.75	223	9	229	16	6	153	6.25	159
2.5	65	1	8	25	8	9.75	248	10	254	--	--	--	--	--
3	80	1.125	8	22	8	10.5	267	10.75	274	16	7.25	185	7.5	191
4	100	1.25	8	29	8	12	305	12.25	312	16	8	204	8.25	210
6	150	1.375	8	29	12	16.75	426	17	432	24	10.5	267	10.75	274
8	200	1.625	8	35	12	20	508	20.25	515	24	11.75	299	12.25	312
10	250	1.875	8	35	12	23.25	591	23.75	604	24	13.5	343	14	356
12	300	2	8	35	16	27	686	27.75	705	32	15	381	15.75	401
14	350	2.25	8	38	16	30.25	769	31	788	32	16.25	413	17	432
16	400	2.5	8	41	16	33	839	33.75	858	32	17.75	451	18.75	477
18	450	2.75	8	48	16	38	966	38.75	985	32	19.5	496	20.5	521
20	500	3	8	51	16	42.25	1074	43.25	1099	32	21.25	540	22.25	566
24	600	3.5	8	64	16	46.25	1175	47.5	1207	32	24.25	616	25.5	648

Troubleshooting

PROBLEM	POSSIBLE CAUSE	RECOMMENDATIONS
Valve will not open	Installed backwards	Reinstall valve with flow arrow pointing in the direction of flow.
Leaking past disc	Improper installation	Check to make sure the word "TOP" is on top in horizontal flow. Confirm installation orientation is per recommendations above.
	Compromised seat seal	Inspect seat seal for trapped solids. Inspect metal-to-metal or resilient seat seal. Consult factory for repair options.
Disc chatter*	Valve installed too close to other valves and/or fittings	Move valve at least 5 pipe diameters distance away from other turbulence-producing valves or fittings.
	Improper sizing	Provide process conditions to factory to check proper bore sizing.
Slamming*	Water hammer	If not spring-assisted, install spring to assist with rapid closure. Consult factory for retrofit options.
	Valve installed in reciprocating service	It is not recommended to use swing type check valves in reciprocating service.

*Some applications require a Check Valve to be installed in suboptimal locations or flow scenarios. DSS Check Valves are designed with a robust single piece disc/shaft/hinge and will greatly outlast standard Check Valve designs in these instances.



Contact Us

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