



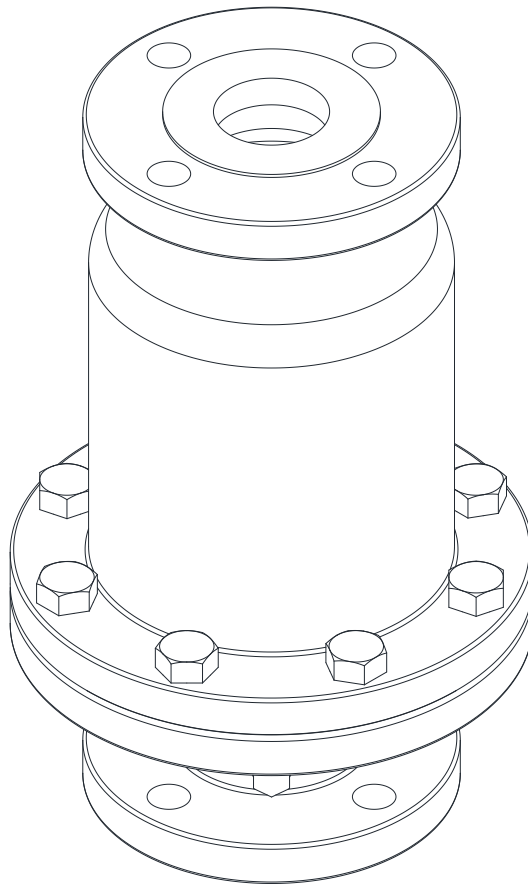
# SPECIAL ENGINEERING INSTRUCTIONS

DRAWN BY J. Sattler NO. II-F0-0002  
CHK'D. BY J. Tompkins DATE 21-SEP-18 SHEET 1 OF 6  
APP. BY CSB REVISION 0 RELEASE NO. 18-T-0342

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## INSTALLATION INSTRUCTIONS FOR THE IDV VALVE



US Patents and International Patents Pending

**Danger:** IDV's are intended to provide a pressure relief opening. The IDV is designed to instantaneously open at a specified temperature and pressure, thereby relieving excess pressure or preventing excessive vacuum in a system.

**IT IS IMPERATIVE THAT THIS IDV BE PROPERLY INSTALLED AND SAFELY VENTED IN ORDER TO AVOID BODILY INJURY, DAMAGE TO PROPERTY, POLLUTION AND LOSS OF PRODUCT.**

BS&B Pressure Safety Management, L.L.C. supply IDV's selected by their customers, which are manufactured in reliance upon information and specifications supplied by the customer. BS&B Pressure Safety Management, L.L.C. is not liable for any damage resulting from improper installation, improper system design, unsafe venting, or other factors beyond BS&B Pressure Safety Management, L.L.C. control.



# SPECIAL ENGINEERING INSTRUCTIONS

DRAWN BY J. Sattler NO. II-F0-0002  
CHK'D. BY J. Tompkins DATE 21-SEP-18 SHEET 2 OF 6  
APP. BY CSB REVISION 0 RELEASE NO. 18-T-0342

REV.:	ECN NO.:	DRAWN:	CHK'D.:	DATE:
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## SAFETY PRECAUTIONS:

- Caution:** Provide adequate support for the piping and the connections to absorb recoil/reaction forces when the IDV opens. If the discharge is free vented, a baffle plate may be mounted downstream of the outlet companion pipe flange with extra length studs to minimize recoil.
- Caution:** The IDV valve should not be subjected to bending stresses such as those developed by misaligned piping, unsupported piping or improper torque application to companion flanges. Mating flanges faces shall be parallel to IDV flanges.
- Caution:** Do not locate the IDV where it may be subjected to thermal shock. Review any concerns with BS&B Safety Management, L.L.C. before installation.
- Caution:** Corrosion and process conditions may cause deterioration and necessitate periodic inspection and/or replacement of component parts.
- Caution:** When the IDV opens, a pressure shock wave may be generated. Take account of the affect this may have on the operating performance of downstream and upstream equipment.
- Caution:** The IDV valve must not be machined or modified in any way except with the approval of BS&B Pressure Safety Management, L.L.C. Failure to obtain such approval voids the warranty on this product. Any work performed on the valve shall be done by BS&B Pressure Safety Management, LLC personnel.
- Warning:** Do not locate the IDV where personnel will be exposed to released product and pressure through the IDV.
- Warning:** The IDV relief pressure is set at the factory and then wire sealed to prevent tampering or adjustment. If wire seal is missing or broken do not install the IDV valve and contact BS&B Pressure Safety Management, LLC.

## BEFORE YOU INSTALL THE IDV VALVE

### Handling Instructions

1. The IDV valve can be manually lifted and handled up to 3in size. For 4in and above please use the tap holes provided in inlet and outlet Body flange

## **DO NOT LIFT THE IDV BY ATTACHING LIFTING EQUIPMENT TO OTHER LOCATIONS – THIS MAY DAMAGE THE VALVE; BS&B SHALL NOT BE RESPONSIBLE FOR SUCH DAMAGE**

2. Shouldered eye bolts shall be used whenever the chain or sling is rigged at an angle from the axis of the bolt. The eye bolt must be screwed into the valve until the shoulder fits flat and tight against the surface of the load. To make sure the eye bolt will not be bent sideways, the chain or sling must be in the plane of the eye of the eyebolt. To ensure that the shoulder is firmly seated on the surface of the valve when the eye has been correctly aligned with the chain of sling, a metal washer of suitable size and shape may be used under the shoulder. It is recommended that forged steel material be used for eye bolts.
3. Do not use shoulderless eye bolts unless the hoist chain or sling is aligned with the axis of the bolt, so that it pulls in exactly the same direction as the shaft of the bolt. The bolt must be fully screwed into place to accept the valve load. If the chain or sling pulls at an angle to the axis of the eye bolt, the bolt may snap. It is recommended that forged steel material be used for eye bolts.
4. In any situation where there is doubt about the safety of using eye bolts, it is recommended that swivel hoist rings be used instead of eye bolts. Follow supplier recommendations in selecting and using these rings.



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# SPECIAL ENGINEERING INSTRUCTIONS

DRAWN BY J. Sattler NO. II-F0-0002  
 CHK'D. BY J. Tompkins DATE 21-SEP-18 SHEET 3 OF 6  
 APP. BY CSB REVISION 0 RELEASE NO. 18-T-0342

REV.:	ECN NO.:	DRAWN:	CHK'D.:	DATE:
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- Never over-torque a lifting device. Never use a lifting device that has bad threads. Never use a lifting device that is corroded, cracked, bent, twisted, stretched, fatigued, undersized, or questionable.
- Extra care should be taken while handling IDV valve to avoid injury to personnel and damage to property and this valve.
- It is recommended to lift and place the valve in its vertical position by holding the outlet flange. Care should be taken not to impact or damage the wire sealed tamper proofing in any way during handling.

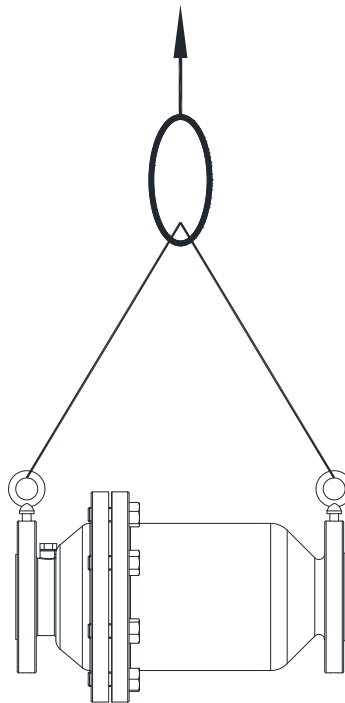


Figure 2: IDV lifting for horizontal installation for 3in IDV and above sizes



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DRAWN BY J. Sattler NO. II-F0-0002  
CHK'D. BY J. Tompkins DATE 21-SEP-18 SHEET 4 OF 6  
APP. BY CSB REVISION 0 RELEASE NO. 18-T-0342

REV.:	ECN NO.:	DRAWN:	CHK'D.:	DATE:
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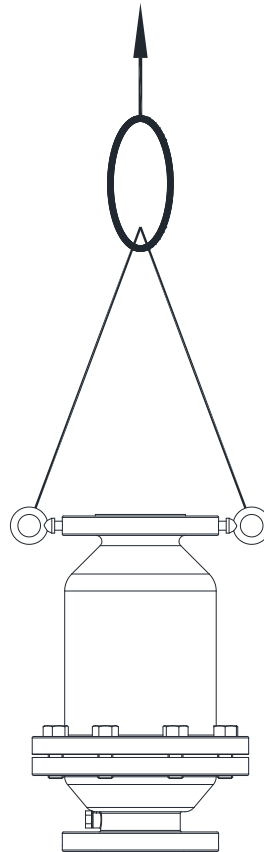


Figure 3: IDV lifting for vertical installation for 3in IDV and above sizes

## Inspect the IDV Valve

1. Inspect the IDV valve mating surfaces for foreign materials. Dirt or grit can cause the companion flange gaskets to not seal properly and leak.
2. Inspect the valve for physical damage and ensure the wire sealed tamper proofing is in place and not compromised or damaged. Damage to the valve could cause the valve to open at a pressure other than the rated pressure.
3. The IDV valve size and rating must match the size and rating of the companion flange.
4. If the IDV has a rust preventative applied, clean with an appropriate solvent, such as MEK.
5. The IDV valve must not be machined or modified in any way except with the approval of BS&B Pressure Safety Management, L.L.C. Failure to obtain such approval voids the warranty on this product.

## Check the Installation Conditions for the IDV Valve

1. Ensure that the flow path orientation of the installation matches that for which the IDV was tagged and certified.



# SPECIAL ENGINEERING INSTRUCTIONS

DRAWN BY J. Sattler NO. II-F0-0002  
 CHK'D. BY J. Tomasco DATE 21-SEP-18 SHEET 5 OF 6  
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REV.:	ECN NO.:	DRAWN:	CHK'D.:	DATE:
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## IDV Installation Procedure between Companion Flanges

**Note:** Safe and proper lifting procedures and practices shall be employed during installation of the IDV valve.

- Place the IDV valve body in between companion flanges. Make certain that the flow arrow on the body is correctly oriented.
- Install the companion flange gaskets. Ensure gaskets meet the required BS&B installation torque values shown in Table 1 for compressed fiber. If Flexitallic® or other gasket types are required, companion flange stud torque values must be approved by BS&B Pressure Safety Management, L.L.C. before use.
- Install the studs with nuts. Tighten all nuts finger-tight before torquing. Even torque can be achieved by applying the torque in 1/3 increments of the desired final torque. The torque shall be applied in a crisscross pattern using a calibrated torque wrench.
  - Compressed Fiber Gaskets** – Evenly torque the studs to the value listed in Table 1, using a calibrated torque wrench.
  - Flexitallic® Type “CGI” Gasket Only** –Evenly torque the studs following the Flexitallic® installation instructions to the value listed in Table 2 using a calibrated torque wrench. Should the torque value in Table 2 differ from that recommended by Flexitallic®, consult BS&B before proceeding with installation.

**TABLE 1: IDV VALVE COMPANION FLANGE TORQUE  
(COMPRESSED FIBER GASKETS)**

SIZE	COMPANION FLANGE CLASS	NUMBER OF STUDS	DIAMETER OF STUDS IN	MINIMUM LENGTH OF STUDS		STUD TORQUE	
				IN	MM	Ft.-Lbs	Nm
1	150	4	0.500	4.00	101.6	23	31
	300	4	0.625	4.00	101.6	51	69
1-1/2	150	4	0.500	4.50	114.3	27	37
	300	4	0.750	4.50	114.3	95	129
2	150	4	0.625	4.25	108.0	51	69
	300	8	0.625	4.25	108.0	52	70
3	150	4	0.625	5.25	133.3	60	82
	300	8	0.750	5.25	133.3	95	129
4	150	8	0.625	5.00	127.0	51	70
	300	8	0.750	5.00	127.0	112	152
6	150	8	0.750	5.75	146.0	85	115
	300	12	0.750	5.75	146.0	120	162
8	150	8	0.750	6.00	152.4	97	132
	300	12	0.875	6.00	152.4	191	259
10	150	12	0.875	6.50	165.1	127	173
	300	16	1.000	6.50	165.1	240	325

**NOTE:** Table 1 – Recommended compressed fiber stud torques are derived from Flexitallic® recommended gasket values for the ASME Section VIII Div 1, Mandatory Appendix 2 calculation.



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**TABLE 2: IDV VALVE COMPANION FLANGE TORQUE  
(Flexitallic ® CGI GASKETS)**

SIZE	COMPANION FLANGE CLASS	NUMBER OF STUDS	DIAMETER OF STUDS IN	MINIMUM LENGTH OF STUDS		STUD TORQUE	
				IN	MM	Ft.-Lbs	Nm
1	150	4	0.500	4.00	101.6	45	61
	300	4	0.625	4.00	101.6	90	122
1 1/2	150	4	0.500	4.50	114.3	45	61
	300	4	0.750	4.50	114.3	150	203
2	150	4	0.625	4.25	108.0	90	122
	300	8	0.625	4.25	408.0	90	122
3	150	4	0.625	5.25	133.3	90	122
	300	8	0.750	5.25	133.3	150	203
4	150	8	0.625	5.00	127.0	90	122
	300	8	0.750	5.00	127.0	150	203
6	150	8	0.750	5.75	146.0	150	203
	300	12	0.750	5.75	146.0	150	203
8	150	8	0.750	6.00	152.4	150	203
	300	12	0.875	6.00	152.4	240	325
10	150	12	0.875	6.50	165.1	240	325
	300	16	1.000	6.50	165.1	368	498

**NOTE:** The Table 2 recommended CGI stud torques are based on a design stress of 45,000 psi.