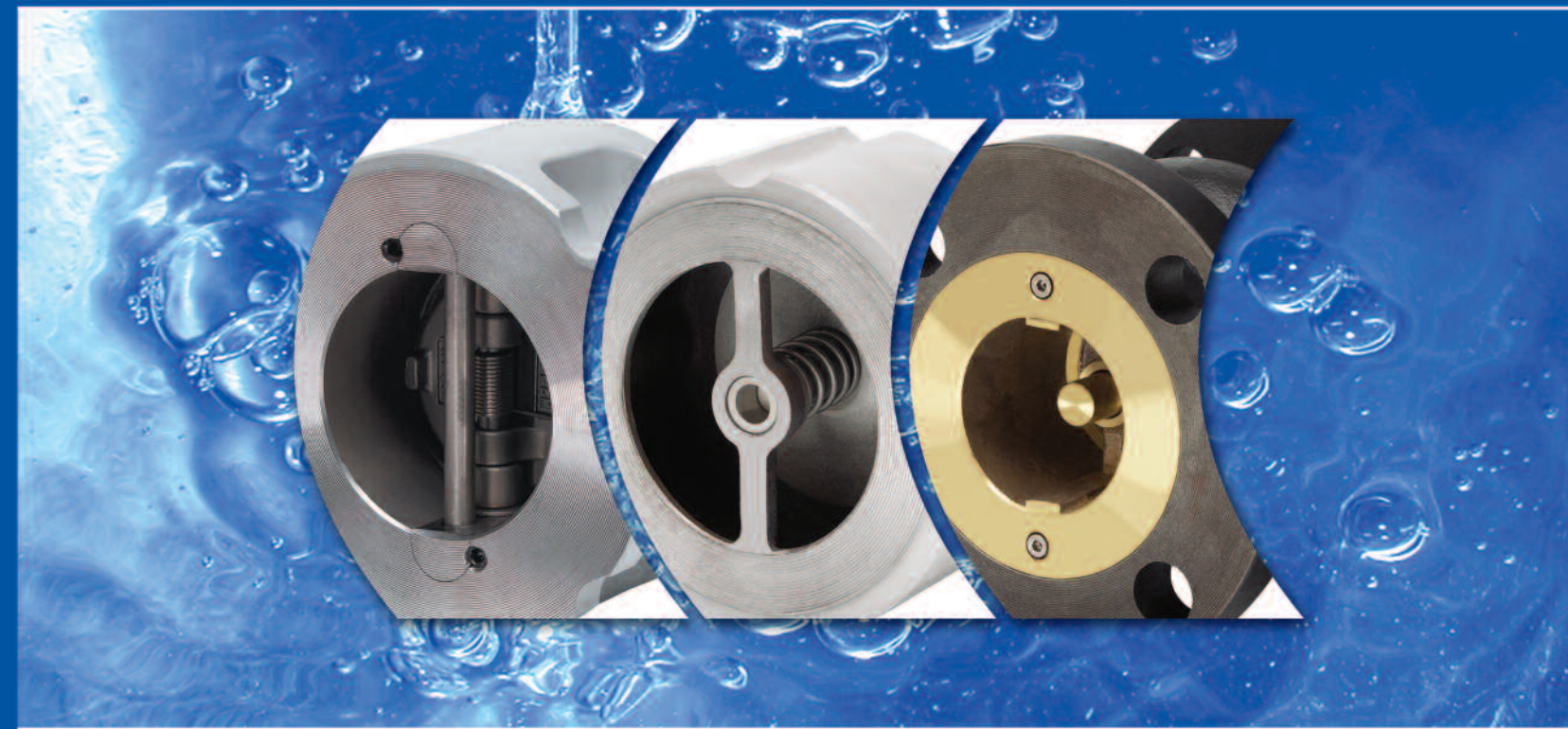
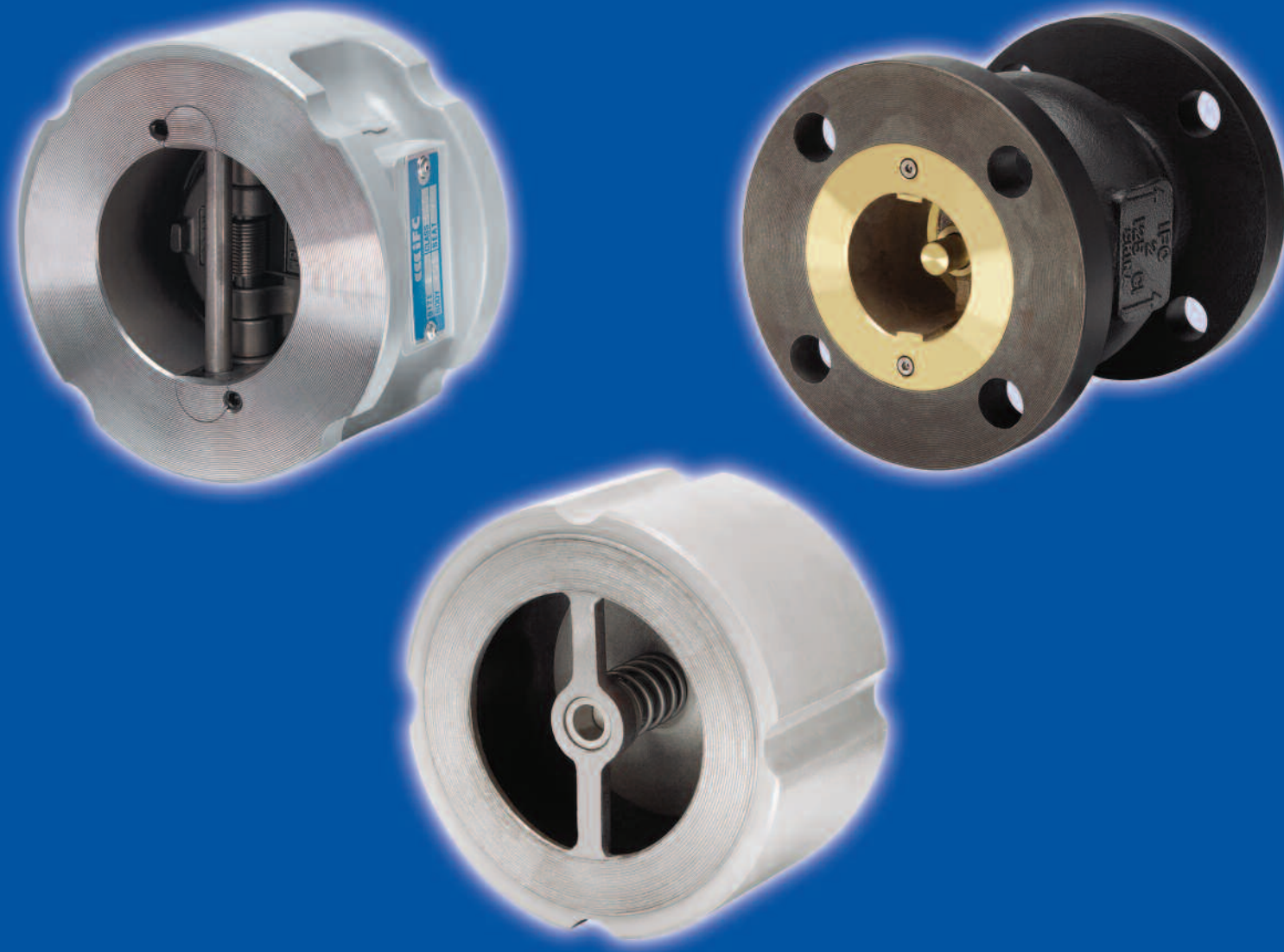


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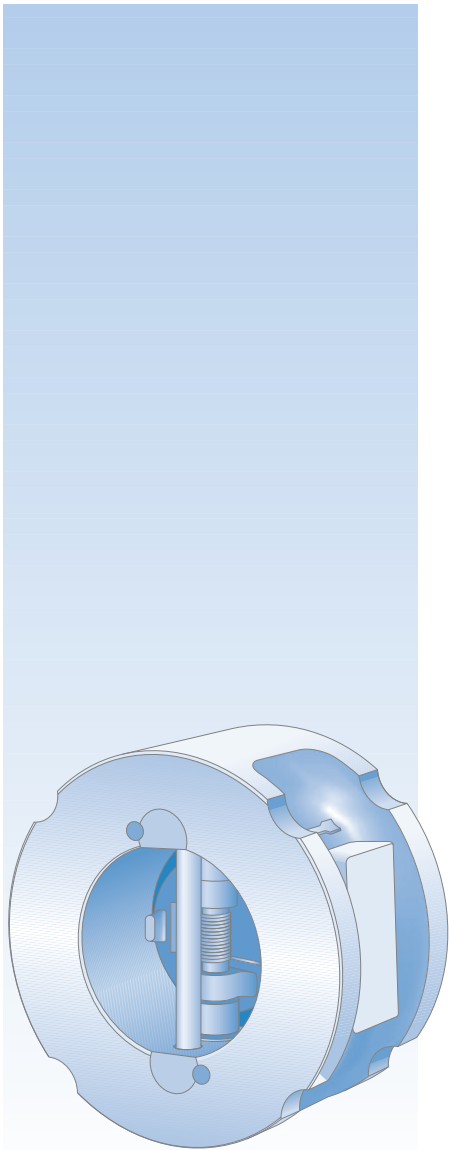
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C h e c k V a l v e s



Dual Disc and Silent Check Valves 2

Dual Disc Check Valves

Dual Disc Check Valve Design Features3

IFC Series DC Cast Iron Dual Disc Check Valves5

IFC Series DC Cast Steel Dual Disc Check Valves7

IFC Series DR Retainerless Dual Disc Check Valves9

Dual Disc Check Valve Engineering Data:

Dual Disc Pressure Drop – Liquids14

Cv Values (US-GPM @ 1 PSID)14

Dual Disc Pressure Drop – Air15

Method of Calculating Flow15

Material Selection Guide16

Installation and Maintenance Instructions17

How to Order18

Silent Check Valves

Silent Check Valve Design Features19

IFC Series SC Silent Check Valves (NPT, SW Ends)21

IFC Series SC Cast Iron Wafer Silent Check Valves23

IFC Series SC Cast Iron Flanged Silent Check Valves25

IFC Series SC Cast Steel Wafer Silent Check Valves27

IFC Series SC Cast Steel Flanged Silent Check Valves29

IFC Series FV Flanged Foot Valves31

Silent Check Valve Engineering Data:

Silent Check Valve Pressure Drop (NPT, SW Ends)33

Silent Wafer Check Valve Pressure Drop33

Silent Flanged Check Valve Pressure Drop34

Method of Calculating Flow34

Installation and Maintenance Instructions35

Installation Requirements36

Pressure-Temperature Ratings37

How to Order38

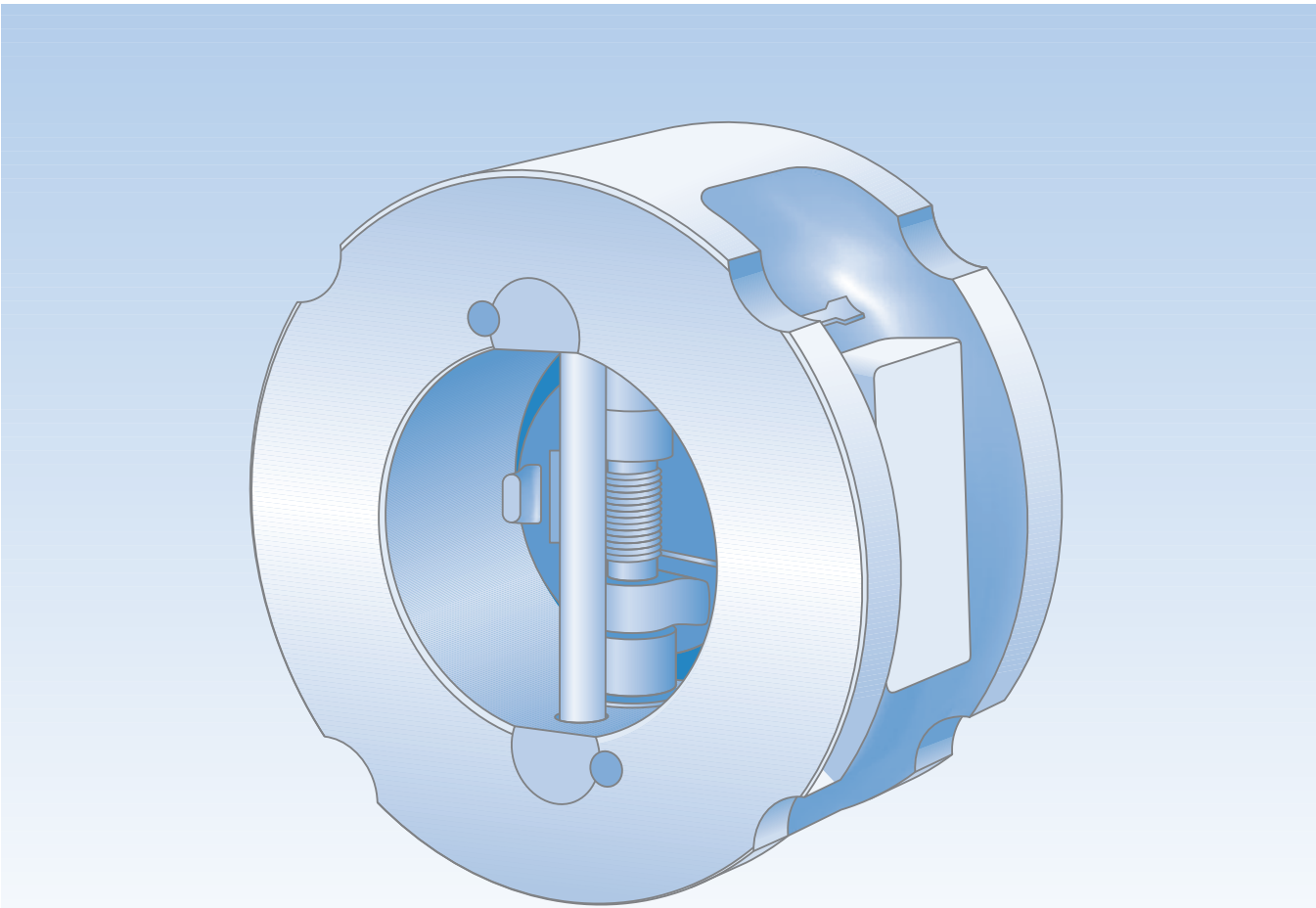
Notes: The material in this catalogue is for general information. For specific performance data and proper material selection, consult factory or your IFC representative. Although every attempt has been made to ensure that the information contained in this catalogue is correct IFC Inc. reserves the right to change designs, materials and/or specifications without notice.

Limited Warranty

All products are warranted to be free of defects in material and workmanship for a period of one year from the date of shipment, subject to the limitations below: If the purchaser believes a product defective, the purchaser shall: **(a)** Notify the manufacturer, state the alleged defect and request permission to return the product. **(b)** If permission is given, return the product with transportation prepaid. If the product is accepted for return and found to be defective, the manufacturer will, at its discretion, either repair or replace the product, f.o.b. factory, within 60 days of receipt, or refund the purchase price.

Other than to repair, replace or refund described above, the purchaser agrees that the manufacturer shall not be liable for any losses, costs, expenses or damages of any kind arising out of the product, its use, installation or replacement, labeling, instructions, information or technical data of any kind, description of product use, sample or model, warnings or lack of foregoing. No other warranties, written or oral, expressed or implied, including the warranties of fitness for a particular purpose and merchantability, are made or authorized.

No affirmation of fact, promise, description of product use or sample or model shall create any warranty from the manufacturer, unless signed by the president. These products are not manufactured, sold or intended for personal, family or household purposes.



Applications:

- Process Industry
- Power Industry
- Chemical Industry
- Oil and Gas
- Pulp and Paper
- Metals and Mining
- Water and Waste

Available Seat Materials:

- Buna-N
- EPDM
- Viton
- PTFE
- Metal to Metal

Features:

- Compact design.
- Low pressure loss.
- Minimal installation costs.
- Optional Dual Disc retainerless model.

Available Materials of Construction:

- Cast iron body, bronze & stainless steel trim.
- Carbon steel body, stainless steel trim.
- Stainless steel body, stainless steel trim.
- Various exotic alloys.

Size Range:

- 2"-48" (50mm - 1200mm)

End Connections:

- Threaded (NPT)
- Socket Weld (SW)
- Wafer Flat Face
- Wafer Raised Face
- Wafer RTJ
- Flanged

Wafer Dual Disc Design Advantage

The short face to face design inherently makes this check valve significantly lighter¹. The valve is designed to fit between two flanges and requires no flanges of its own. The dual disc check valve can be installed in any position as the spring aids in keeping the valve closed². These features allow you to design your piping layout in the most efficient and least expensive fashion.

¹10% of the weight of a conventional swing check

²Consult factory for vertical downward flow

Shock Bumpers

An integral cast bumper (Fig. 1) is present on all IFC Dual Disc Check Valves (Except class 125 lb). The bumpers can be found on both discs, which meet when the valve reaches a fully open position. This design feature prevents the discs from pressing against the stop pin and eliminates leverage that would cause unnecessary stresses and wear. The purpose of the stop pin is to prevent over-travel of either disc, which would result in valve failure.

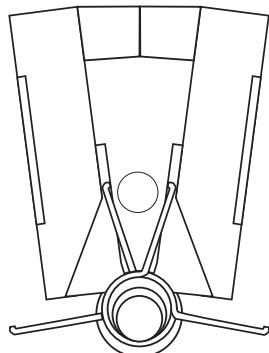


Fig. 1

Resilient Seat

The basic design of the IFC Dual Disc Check Valve is illustrated in Fig. 2. This seal is chemically bonded using specially designed adhesives that provide rubber tearing bonds throughout the operating range of the seat material. In case of resilient seat failure, the IFC design permits the discs to float and make contact with the metal surface the seats were adhered to. This feature allows the valve to function even if the resilient seat is not present. IFC also has available a seat design illustrated in Fig. 3. This design results in a controlled seat squeeze and provides a metal-to-metal backup seal (Fig.4).

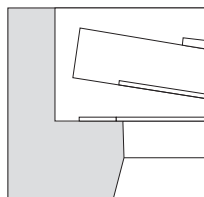


Fig. 2

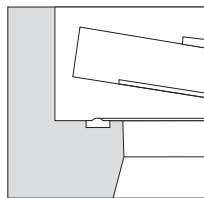


Fig. 3

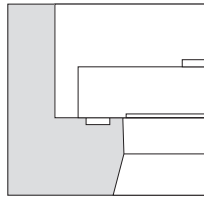


Fig. 4

Minimal Seat Wear

The IFC Dual Disc Check Valve was designed to eliminate the possibility of seat wear caused by friction at the heel of the dual discs while maintaining low back pressure sealing capabilities. The clearance between the body, disc and hinge pin results in the discs cracking open at the heel location first (Fig. 5). When the valve opens the heel does not drag across the seating surface and cause wear (Fig. 6). As the valve closes, the spring will take the toe of the disc into the seating surface first, while the line back pressure will force the heels and hinge pin back to the seat to complete the seal (Fig. 7).

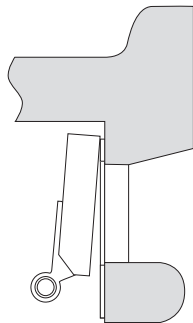


Fig. 5

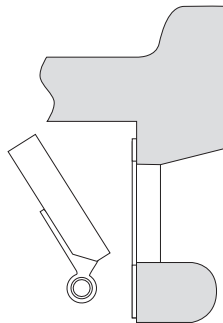


Fig. 6

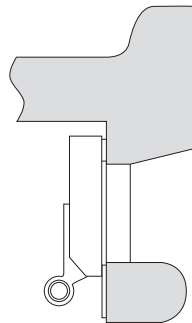


Fig. 7

Retainerless Option

The IFC Series DR Dual Disc Check Valve incorporates a retainerless hinge pin design, such that no screwed plugs are required in the assembly of the valve. This design feature eliminates the potential leak path to atmosphere associated with many competitors' designs. The IFC Series DR utilizes Allen set screws to retain two pin guides that house both the hinge and stop pins. This allows for quick disassembly of the valve without the use of force or special tools other than an Allen wrench. This unique feature ensures that today's and the future's valve fugitive emission requirements are met.

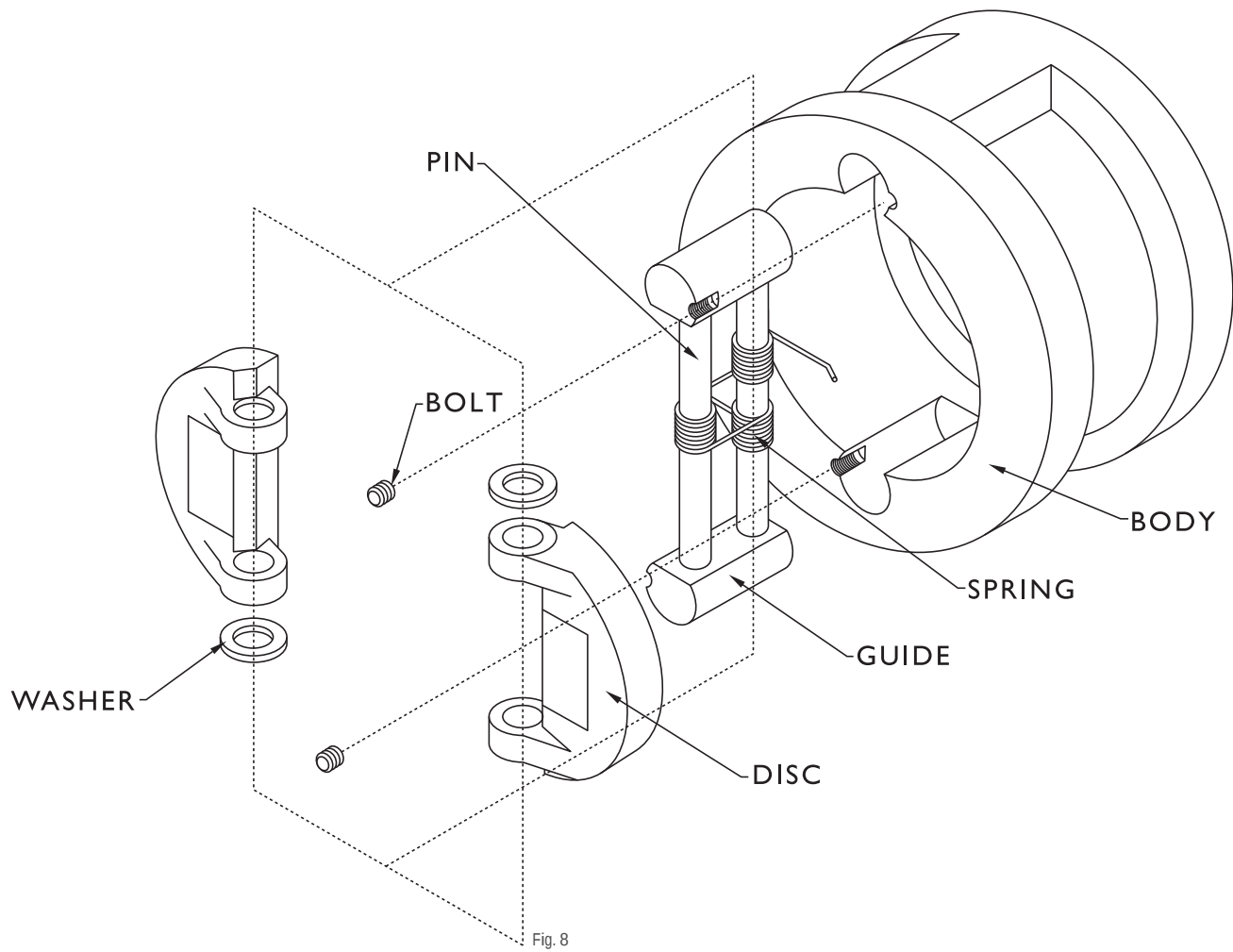
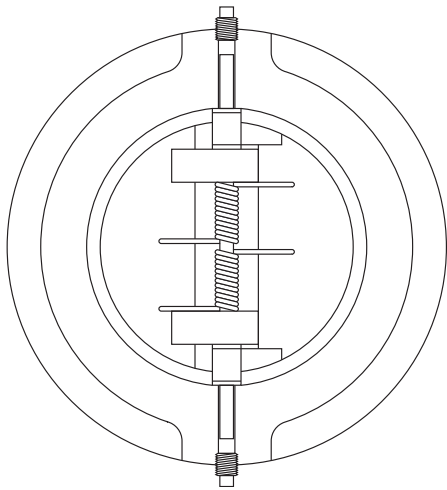


Fig. 8

Standards of Construction	
Component	Standard
Pressure Boundary Design	ASME B16.34
Dimensional Criteria	ASME B16.1, B16.42, B16.47, API-594
Pressure / Temp. Rating	ASME B16.1, ASME B16.34
Visual Examination	MSS SP-55
Pressure Testing	API-598

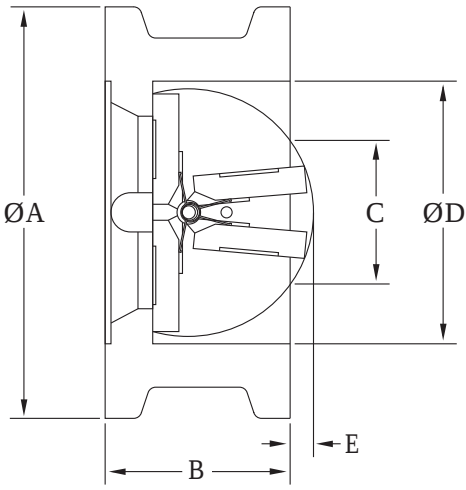
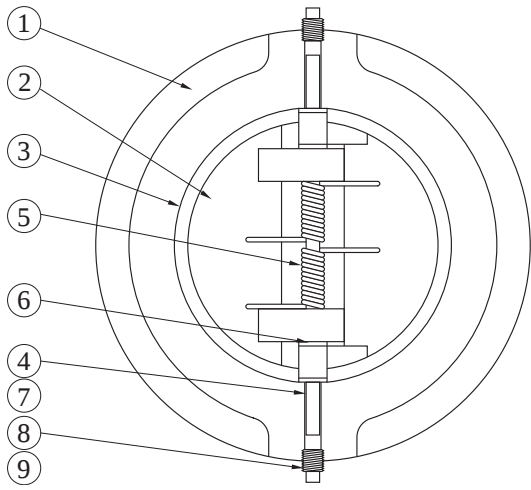
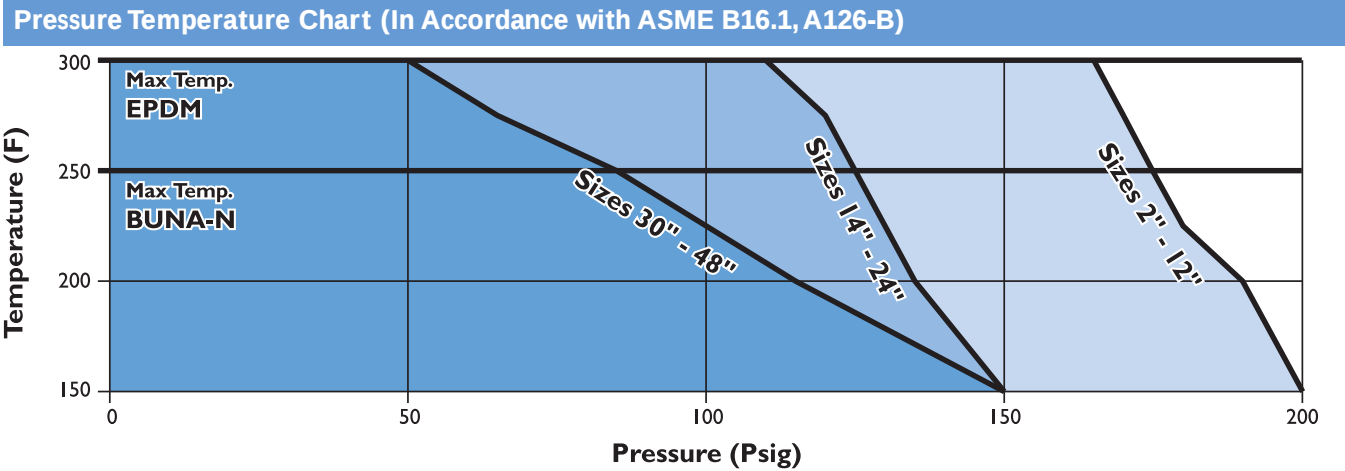


Design Features

- Available in wafer body style. Suitable for installation between FF or RF flanges.
- Valve sizes 6" and larger are complete with a valve lifting lug tap.
- Teflon thrust washers are standard.
- Available with resilient (Buna-N or EPDM) seats.
- Seat design lifts then swings discs to minimize seat wear.
- Body meets ASME B16.1, space API 594.
- Testing is performed in accordance with API 598.
- All valves are equipped with independent springs that optimize the closing rates of each valve plate, while minimizing spring stress.

Parts List and Standard Materials		
Part	Description	Specifications
1	Body	A126-B Cast Iron
2	Discs	Aluminum Bronze B148 C954 or 316 SS A351-CF8M
3	Seat	Buna-N or EPDM
4	Hinge Pin	316 SS
5	Spring	316 SS
6	Thrust Washers	Teflon / Phenolic
7	Stop Pin	316 SS
8	Hinge Pin Retainer ¹	A126-B
9	Stop Pin Retainer ¹	A126-B

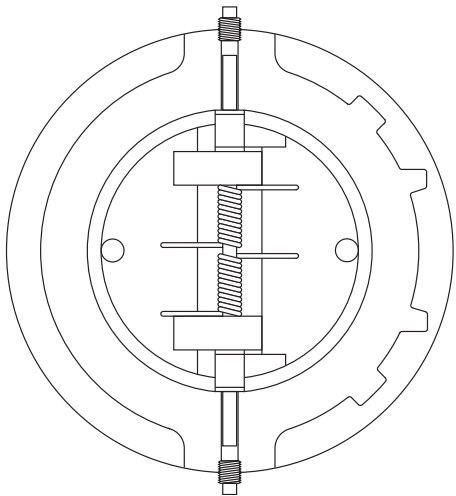
- Notes:**
1. Materials of equivalent strength may be substituted at manufacturer's option.
 2. See page 6 for part identification.



Dimensional Data (Class 125)						Stud Selection			
Size ¹ in. (mm)	ØA in. (mm)	B in. (mm)	C ² in. (mm)	ØD in. (mm)	E in. (mm)	Qty.	Dia. in. (mm)	Length in. (mm)	Weight lb. (kg)
2 (50)	4.13 (105)	2.13 (54)	2.00 (51)	2.38 (60)	0.13 (3)	4	0.63 (16)	5.50 (140)	4 (1.8)
2.5 (65)	4.88 (124)	2.13 (54)	2.50 (64)	2.88 (73)	0.50 (13)	4	0.63 (16)	6.00 (152)	5.5 (2.5)
3 (80)	5.38 (137)	2.25 (57)	3.00 (76)	3.50 (89)	0.63 (16)	4	0.63 (16)	6.25 (159)	7.5 (3.4)
4 (100)	6.88 (175)	2.50 (64)	4.00 (102)	4.50 (114)	1.00 (25)	8	0.63 (16)	6.25 (159)	13.5 (6.1)
5 (125)	7.75 (197)	2.75 (70)	5.00 (127)	5.50 (140)	1.25 (32)	8	0.75 (19)	7 (184)	17.5 (7.9)
6 (150)	8.75 (222)	3.00 (76)	6.00 (152)	6.63 (168)	1.63 (41)	8	0.75 (19)	8.00 (203)	26.5 (12.0)
8 (200)	11.00 (279)	3.75 (95)	8.00 (203)	8.63 (219)	2.38 (60)	8	0.75 (19)	9.50 (241)	50 (22.7)
10 (250)	13.38 (340)	4.25 (108)	10.00 (254)	10.75 (273)	3.00 (76)	12	0.88 (22)	10.50 (267)	70 (31.8)
12 (300)	16.13 (410)	5.63 (143)	12.00 (305)	12.75 (324)	3.88 (99)	12	0.88 (22)	12.25 (311)	110 (49.9)
14 (350)	17.75 (451)	7.25 (184)	12.50 (318)	14.00 (356)	4.00 (102)	12	1.00 (25)	13.00 (330)	170 (77.1)
16 (400)	20.25 (514)	7.50 (191)	15.00 (381)	16.00 (406)	5.25 (133)	16	1.00 (25)	13.50 (343)	225 (102.1)
18 (450)	21.61 (549)	8.00 (203)	17.00 (432)	18.00 (457)	6.00 (152)	16	1.13 (29)	14.50 (368)	280 (127.0)
20 (500)	23.86 (606)	8.38 (213)	19.00 (483)	20.00 (508)	6.88 (175)	20	1.13 (29)	15.25 (387)	390 (176.9)
24 (600)	28.25 (718)	8.75 (222)	22.75 (578)	24.00 (610)	8.25 (210)	20	1.25 (32)	16.25 (413)	590 (267.6)

- Notes:**
1. Dimensions are in accordance with API 594 except face to face dimensions of 2.5" thru 12" valves.
 2. Minimum bore diameter of companion flanges.
 3. Larger sizes available upon request.

- General:**
1. For pressure loss information please see page 14.
 2. For ordering information please see page 18.
 3. Dimensions are subject to change. Contact factory for certified prints when required.



Design Features

- Available in wafer body style.
- Suitable for installation between RF or RTJ (Optional) flanges.
- Valve sizes 6" and larger are complete with a valve lifting lug.
- Upper and lower stainless steel thrust washers are standard.
- Available with resilient or metal to metal seats.
- Seat design lifts then swings discs to minimize seat wear.
- Discs are equipped with shock bumpers to minimize stresses in hinge pins.
- Body meets ASME B16.34 and API 594.
- Testing is performed in accordance with API 598.

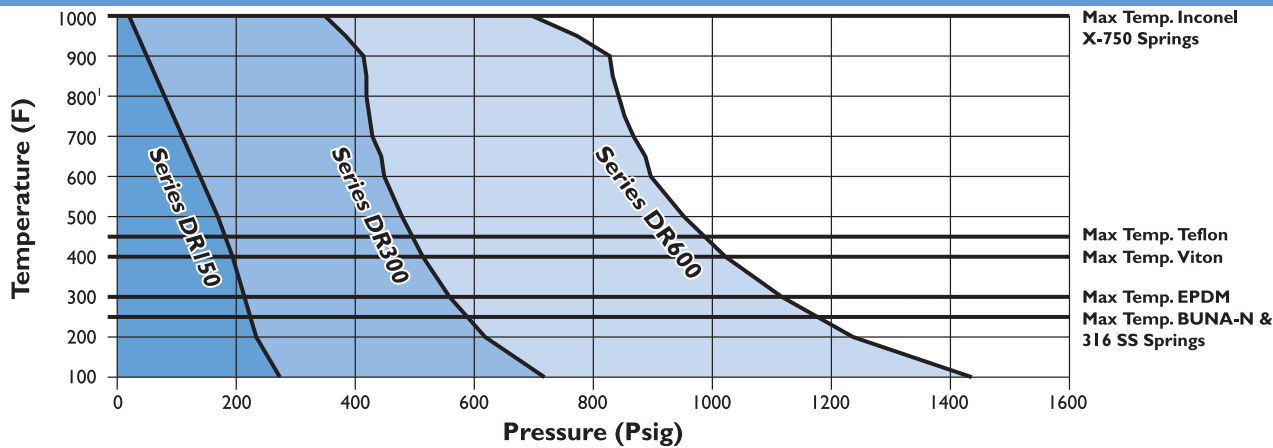
Parts List and Standard Materials			
Part	Description	Carbon Steel	Stainless Steel
1	Body	A216-WCB	A351-CF8M
2	Discs	A351-CF8M	A351-CF8M
3	Seat	Viton or Metal to Metal	Viton or Metal to Metal
4	Hinge Pin	316 SS	316 SS
5	Spring	316 SS	316 SS
6	Thrust Washers	316 SS	316 SS
7	Stop Pin	316 SS	316 SS
8	Hinge Pin Retainer ¹	A105	A182-316
9	Stop Pin Retainer ¹	A105	A182-316

- Notes:**
1. Materials of equivalent strength may be substituted at manufacturer's option.
 2. See page 8 for part identification.

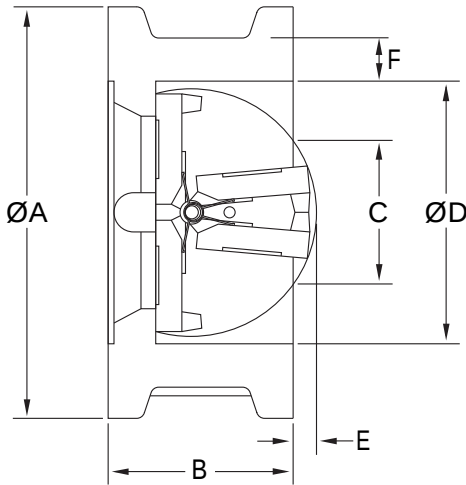
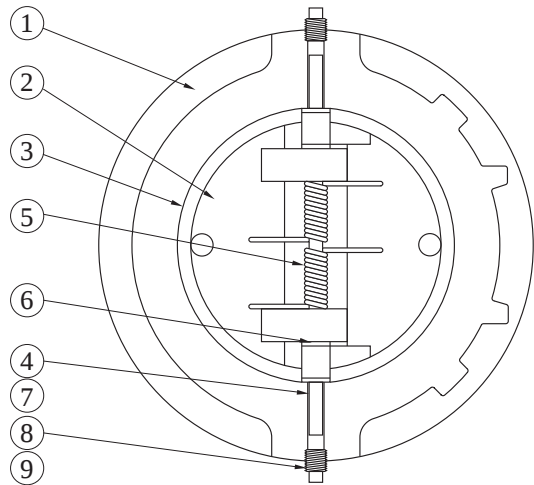
Upper Pressure Limits (Non-Shock)		
IFC Model	Body Material	M.A.W.P. psig (Bars)
DC150	A216-WCB A351-CF8M	285 (19.65) 275 (18.96)
DC300	A216-WCB A351-CF8M	740 (51.02) 720 (49.64)
DC600	A216-WCB A351-CF8M	1480 (102.04) 1440 (99.28)

Lower Temperature Limits	
Body/Seat Material	Lower Limit °F (°C)
WCB, CF8M	-20° (-28.9°)
Viton	-40° (-40°)

Pressure Temperature Chart (In Accordance with ASME B16.34, CF8M)



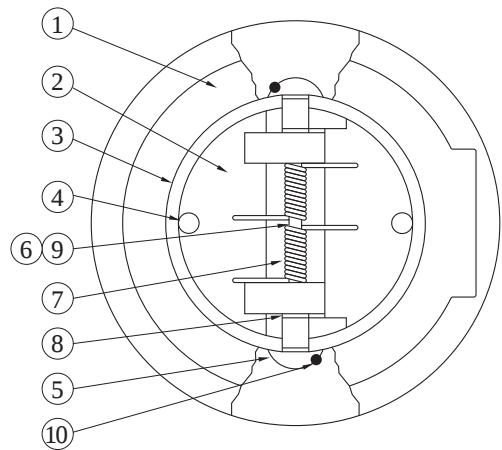
- Notes:**
1. Upon prolonged exposure to temperatures above 800°F, the carbide phase of carbon steel may be converted to graphite.



Dimensional Data (Class 125)								Stud Selection			
Size ¹ in. (mm)	ANSI Rating	ØA in. (mm)	B in. (mm)	C ² in. (mm)	ØD in. (mm)	E in. (mm)	F ³ in. (mm)	Qty.	Dia. in. (mm)	Length in. (mm)	Weight lb. (Kg.)
2 (50)	150	4.13 (105)	2.38 (60)	-	2.38 (60)	-	0.63 (16)	4	0.63 (16)	6.00 (152)	6 (2.7)
	300	4.38 (111)	2.38 (60)	-	2.38 (60)	-	0.63 (16)	8	0.63 (16)	6.88 (175)	6 (2.7)
	600	4.38 (111)	2.38 (60)	-	2.38 (60)	-	0.63 (16)	8	0.63 (16)	6.88 (175)	6 (2.7)
3 (80)	150	5.38 (137)	2.88 (73)	2.00 (51)	3.50 (89)	0.25 (6)	0.66 (17)	4	0.63 (16)	7.00 (178)	13 (5.9)
	300	5.88 (149)	2.88 (73)	2.00 (51)	3.50 (89)	0.25 (6)	0.66 (17)	8	0.75 (19)	8.13 (207)	13 (5.9)
	600	5.88 (149)	2.88 (73)	2.00 (51)	3.50 (89)	0.25 (6)	0.66 (17)	8	0.75 (19)	8.13 (207)	13 (5.9)
4 (100)	150	6.88 (175)	2.88 (73)	3.38 (86)	4.50 (114)	0.75 (19)	0.66 (17)	8	0.63 (16)	7.00 (178)	18 (8.2)
	300	7.13 (181)	2.88 (73)	3.38 (86)	4.50 (114)	0.75 (19)	0.66 (17)	8	0.75 (19)	8.13 (207)	18 (8.2)
6 (150)	150	8.75 (222)	3.88 (99)	5.38 (137)	6.63 (168)	1.38 (35)	0.66 (17)	8	0.75 (19)	8.25 (210)	35 (15.9)
	300	9.88 (251)	3.88 (99)	5.38 (137)	6.63 (168)	1.38 (35)	0.81 (21)	12	0.75 (19)	9.63 (245)	44 (20.0)
8 (200)	150	11.00 (279)	5.00 (127)	7.38 (187)	8.63 (219)	2.00 (51)	0.69 (18)	8	0.75 (19)	9.75 (248)	63 (28.7)
	300	12.13 (308)	5.00 (127)	7.38 (187)	8.63 (219)	2.00 (51)	0.88 (22)	12	0.88 (22)	11.25 (286)	76 (34.6)
10 (250)	150	13.38 (340)	5.75 (146)	9.50 (241)	10.75 (273)	2.88 (73)	0.81 (21)	12	0.88 (22)	11.00 (279)	106 (48.2)
	300	14.25 (362)	5.75 (146)	9.50 (241)	10.75 (273)	2.88 (73)	1.00 (25)	16	1.00 (25)	12.75 (324)	126 (57.3)
12 (300)	150	16.13 (410)	7.13 (181)	11.25 (286)	12.75 (324)	3.38 (86)	0.88 (22)	12	0.88 (22)	12.25 (311)	180 (81.8)
	300	16.63 (422)	7.13 (181)	11.25 (286)	12.75 (324)	3.38 (86)	1.06 (27)	16	1.13 (29)	14.63 (372)	200 (90.7)

- Notes:**
1. Valve sizes 2", 3" and 4" are multi/dual pressure class rated.
 2. Minimum bore diameter of companion flanges.
 3. Design wall thickness only. Contact factory for actual measurements.

- General:**
1. For pressure loss information please see page 14.
 2. For ordering information please see page 18.
 3. Dimensions are subject to change. Contact factory for certified prints when required.



Design Features

- Retainerless design meets industry fugitive emissions control requirements. This design eliminates the potential leak path to atmosphere associated with competitors' valves with threaded retaining plugs.
- Available in wafer, lug and double flanged body styles.
- Suitable for installation between RF or RTJ (Optional) flanges.
- Valve sizes 6" and larger are supplied with a valve lifting lug.
- Upper and lower stainless steel thrust washers are standard.
- Available with resilient or metal-to-metal seats.
- Seat design lifts then swings disc to minimize seat wear.
- Discs are equipped with shock bumpers to minimize stress in hinge pins.
- Body meets ASME B16.34 and API 598.

Parts List and Standard Materials

Part	Description	Cast Iron	Carbon Steel ¹	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
		Resilient Seal	Resilient Seal	API Trim #1 Metal Overlay Seal	API Trim #5 Metal Overlay Seal	API Trim #8 Metal Overlay Seal	API Trim #10 Metal Overlay Seal
1	Body	A126-B	A216-WCB A352-LCC	A216-WCB	A216-WCB	A216-WCB	A352-LCC
2	Plates ¹	A351-CF8M	A351-CF8M	A217 CA15	A217 CA15	A217 CA15	A351-CF8M
3	Body Seat	Buna-N / EPDM	Viton	410 SS	Stellite 6	Stellite 6	316 SS
4	Plate Seat	As Plate	As Plate	As Plate	Stellite 6	As Plate	As Plate
5	Guide	316 SS	316 SS	410 SS	410 SS	410 SS	316 SS
6	Hinge Pin	316 SS	316 SS	410 SS	410 SS	410 SS	316 SS
7	Spring ²	316 SS	316 SS	Inconel X750	Inconel X750	Inconel X750	Inconel X750
8	Thrust Washers	316 SS	316 SS	410 SS	410 SS	410 SS	316 SS
9	Stop Pin	316 SS	316 SS	410 SS	410 SS	410 SS	410 SS
10	Set Screw	316 SS	316 SS	316 SS	316 SS	316 SS	316 SS

Part	Description	Carbon Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
		API Trim #12 Metal Overlay Seal	Resilient Seal	Resilient Seal	API Trim #5 Metal Overlay Seal	API Trim #10 Metal Overlay Seal	API Trim #12 Metal Overlay Seal
1	Body	A352-LCC	A351-CF8M	A351-CF8M	A351-CF8M	A351-CF8M	A351-CF8M
2	Plates ¹	A351-CF8M	A351-CF8M	A351-CF8M	A351-CF8M	A351-CF8M	A351-CF8M
3	Body Seat	Stellite 6	Viton	PTFE	Stellite 6	As Body	Stellite 6
4	Plate Seat	As Plate	As Plate	As Plate	Stellite 6	As Plate	As Plate
5	Guide	316 SS	316 SS	316 SS	316 SS	316 SS	316 SS
6	Hinge Pin	316 SS	316 SS	316 SS	316 SS	316 SS	316 SS
7	Spring ²	Inconel X750	316 SS	316 SS	Inconel X750	Inconel X750	Inconel X750
8	Thrust Washers	316 SS	316 SS	316 SS	316 SS	316 SS	316 SS
9	Stop Pin	316 SS	316 SS	316 SS	316 SS	316 SS	316 SS
10	Set Screw	316 SS	316 SS	316 SS	316 SS	316 SS	316 SS

- Notes:**
1. If required plates are available in 316 SS (CF8M) instead of 410 SS (CA15).
 2. Springs are available in either 316 SS or Inconel X750. Other spring material available upon request.
 3. Various body, plate and trim combinations are available. Contact factory for materials not shown.
 4. A352-LCC material not to be used above 650°F.

Upper Temperature Limits

Spring Material	Upper Limit °F (°C)
316 SS	250° (121°)
Inconel X750	1000° (537°)
Monel	400° (204°)
Hastelloy	800° (426°)
Inconel 625	1000° (537°)
Alloy 20	250° (121°)

Seat Material Upper Limit °F (°C)

Buna-N	250° (121°)
EPDM	300° (149°)
Viton	400° (204°)
PTFE	450° (232°)
Metal Overlay	As Body
Metal to Metal	As Body

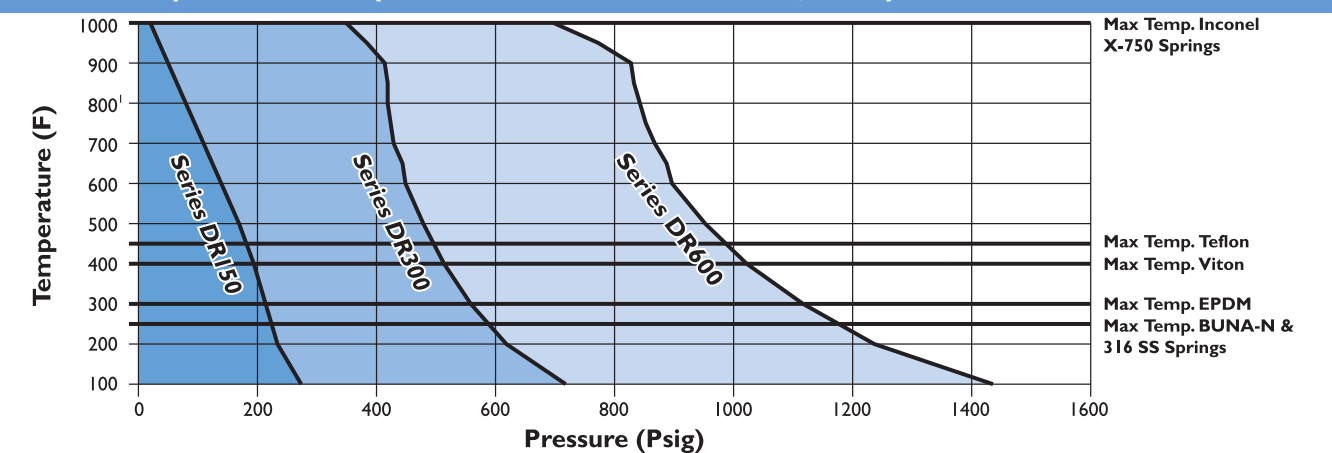
Lower Temperature Limits¹

Material	Lower Limit °F (°C)
A126-B/WCB	-20° (-28.9°)
LCC	-50° (-45.6°)
CF8M	-450° (-268°)
Buna-N	-70° (-56.7°)
EPDM	-14° (-25.6°)
Viton	-40° (-40°)
PTFE	-200° (-129°)
Metal	As Body

Upper Pressure Limits (Non-Shock)

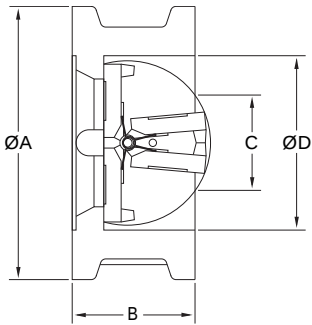
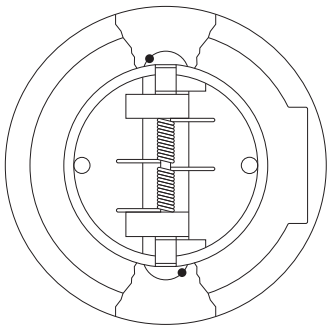
IFC Model	Body Material	MAWP psig (bars)
DR125	A126-B	200 (13.79)
	A126-B (>12")	150 (10.34)
DR150	WCB	285 (19.65)
	LCC	290 (19.99)
	CF8M	275 (18.96)
DR300	WCB	740 (51.02)
	LCC	750 (51.71)
	CF8M	720 (51.02)
DR600	WCB	1480 (102.04)
	LCC	1500 (103.42)
	CF8M	1440 (99.28)
DR900	WCB	2220 (153.06)
	LCC	2250 (155.13)
	CF8M	2160 (148.93)
DR1500	WCB	3705 (255.45)
	LCC	3750 (258.55)
	CF8M	3600 (248.21)
DR2500	WCB	6170 (425.41)
	LCC	6250 (430.92)
	CF8M	6000 (413.69)

Pressure Temperature Chart (In Accordance with ASME B16.34, CF8M)



- Notes:**
1. Upon prolonged exposure to temperatures above 800°F, the carbide phase of carbon steel may be converted to graphite.

**IFC Series DR Retainerless
Cast Steel Dual Disc Check Valves**

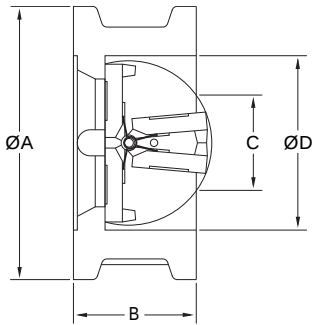
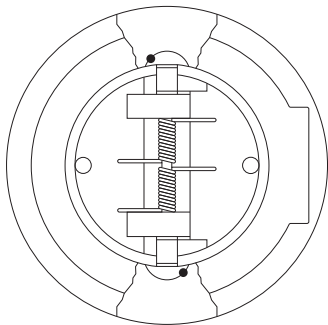


Dimensional Data (Class 125-2500)							Stud Selection			Weight lb. (Kg.)
Size in. (mm)	ANSI Rating	End Facing	A in. (mm)	B in. (mm)	C ⁶ in. (mm)	D in. (mm)	Qty.	Dia. in. (mm)	Length in. (mm)	
2 (50)	125	FF	4.09 (104)	2.13 (54)	-	2.38 (60)	4	0.63 (16)	5.75 (146)	6 (2.7)
	150	RF	4.13 (105)	2.38 (60)	-	2.38 (60)	4	0.63 (16)	6.00 (152)	7 (3.2)
	300	RF/RJ-23	4.38 (111)	2.38 (60)	-	2.38 (60)	8	0.63 (16)	6.88 (175)	7 (3.2)
	600	RF/RJ-23	4.38 (111)	2.38 (60)	-	2.38 (60)	8	0.63 (16)	6.88 (175)	7 (3.2)
	900	RF/RJ-24	5.63 (143)	2.75 (70)	-	2.25 (57)	8	0.88 (22)	8.75 (222)	18 (8.2)
	1500	RF/RJ-24	5.63 (143)	2.75 (70)	-	2.25 (57)	8	0.88 (22)	8.75 (222)	18 (8.2)
	2500	RF/RJ-26	5.75 (146)	2.75 (70)	-	2.25 (57)	8	1.00 (25)	10.00 (254)	29 (13.2)
2.5 (65)	125	FF	4.88 (124)	2.13 (54)	-	2.88 (73)	4	0.63 (16)	6.00 (152)	6 (2.7)
	150	RF	4.88 (124)	2.38 (60)	-	3.00 (76)	4	0.63 (16)	6.38 (162)	11 (5)
3 (80)	125	FF	5.38 (137)	2.25 (57)	2.00 (51)	3.75 (76)	4	0.63 (16)	6.25 (159)	8 (3.6)
	150	RF	5.38 (137)	2.88 (73)	2.00 (51)	3.50 (89)	8	0.63 (16)	7.00 (178)	13 (5.9)
	300	RF	5.88 (149)	2.88 (73)	2.00 (51)	3.50 (89)	8	0.75 (19)	8.13 (207)	13 (5.9)
	600	RF	5.88 (149)	2.88 (73)	2.00 (51)	3.50 (89)	8	0.75 (19)	8.13 (207)	13 (5.9)
	900	RF/RJ-31	6.63 (168)	3.25 (83)	2.38 (60)	3.50 (89)	8	0.88 (22)	9.50 (241)	26 (12)
	1500	RF/RJ-35	6.88 (175)	3.25 (83)	2.38 (60)	3.50 (89)	8	1.13 (29)	10.50 (267)	28 (12.7)
	2500	RF/RJ-32	7.75 (197)	3.38 (86)	2.38 (60)	3.50 (89)	8	1.25 (32)	12.25 (311)	35 (15.9)
4 (100)	125	FF	6.88 (175)	2.50 (64)	3.50 (89)	4.50 (114)	8	0.63 (16)	6.25 (159)	14 (6.4)
	150	RF	6.88 (175)	2.88 (73)	3.50 (89)	4.50 (114)	8	0.63 (16)	7.00 (178)	18 (8.2)
	300	RF	7.13 (181)	2.88 (73)	3.50 (89)	4.50 (114)	8	0.75 (19)	8.13 (207)	18 (8.2)
	600	RF/RJ-37	7.63 (194)	3.13 (80)	3.50 (89)	4.50 (114)	8	0.88 (22)	9.50 (241)	28 (12.8)
	900	RF/RJ-37	8.13 (207)	4.00 (102)	3.25 (83)	4.50 (114)	8	1.13 (29)	11.00 (279)	42 (19.1)
	1500	RF/RJ-39	8.25 (210)	4.00 (102)	3.25 (83)	4.50 (114)	8	1.25 (32)	12.00 (305)	45 (20.5)
	2500	RF/RJ-38	9.25 (235)	4.13 (105)	3.25 (83)	4.50 (114)	8	1.50 (38)	14.63 (371)	64 (29.1)
6 (150)	125	FF	8.75 (222)	3.00 (76)	5.50 (140)	6.63 (168)	8	0.75 (19)	8.00 (203)	27 (12.3)
	150	RF	8.75 (222)	3.88 (99)	5.50 (140)	6.63 (168)	8	0.75 (19)	8.25 (210)	35 (15.9)
	300	RF	9.88 (251)	3.88 (99)	5.50 (140)	6.63 (168)	12	0.75 (19)	9.63 (245)	44 (20)
	600	RF/RJ-45	10.50 (267)	5.38 (137)	3.50 (89)	6.50 (168)	12	1.00 (25)	12.38 (314)	80 (36.4)
	900	RF/RJ-45	11.38 (289)	6.25 (159)	3.50 (89)	6.50 (168)	12	1.13 (29)	14.00 (356)	119 (54.1)
	1500	RF/RJ-46	11.13 (283)	6.25 (159)	3.50 (89)	6.50 (168)	12	1.38 (35)	16.75 (425)	116 (53)
	2500	RF/RJ-47	12.50 (318)	6.25 (159)	3.50 (89)	6.50 (168)	8	2.00 (51)	20.50 (521)	154 (70)

(Continued...)

- Notes:** See Page 13
- General:**
1. For pressure loss information please see page 14.
 2. For ordering information please see page 18.
 3. Dimensions are subject to change. Contact factory for certified prints when required.

**IFC Series DR Retainerless
Cast Steel Dual Disc Check Valves**

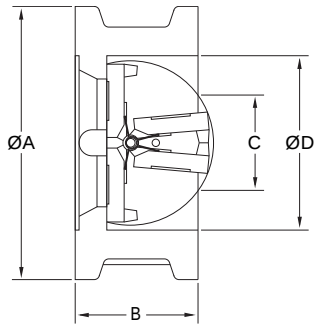
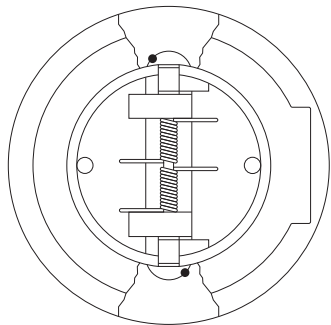


Dimensional Data (Class 125-2500)							Stud Selection			Weight lb. (Kg.)
Size in. (mm)	ANSI Rating	End Facing	A in. (mm)	B in. (mm)	C ⁶ in. (mm)	D in. (mm)	Qty.	Dia. in. (mm)	Length in. (mm)	
8 (200)	125	FF	11.00 (279)	3.75 (95)	6.75 (171)	8.63 (219)	8	0.75 (19)	9.50 (241)	50 (22.8)
	150	RF	11.00 (279)	5.00 (127)	6.75 (171)	8.63 (219)	8	0.75 (19)	9.75 (248)	63 (28.6)
	300	RF	12.13 (308)	5.00 (127)	6.75 (171)	8.63 (219)	12	0.88 (22)	11.25 (286)	76 (34.5)
	600	RF/RJ-49	12.63 (321)	6.50 (165)	6.63 (168)	8.13 (207)	12	1.13 (29)	14.50 (368)	160 (72.7)
	900	RF/RJ-49	14.13 (359)	8.13 (207)	5.13 (130)	8.13 (207)	12	1.38 (35)	17.13 (435)	271 (123.2)
	1500	RF/RJ-50	13.88 (353)	8.13 (207)	5.13 (130)	8.13 (207)	12	1.63 (41)	20.25 (514)	257 (116.8)
	2500	RF/RJ-51	15.25 (387)	8.13 (207)	5.63 (143)	8.13 (207)	12	2.00 (51)	24.00 (610)	293 (133.2)
10 (250)	125	FF	13.38 (340)	4.25 (108)	9.25 (235)	10.75 (273)	12	0.88 (22)	10.50 (267)	70 (31.8)
	150	RF	13.38 (340)	5.75 (146)	9.25 (235)	10.75 (273)	12	0.88 (22)	11.00 (279)	106 (48.2)
	300	RF	14.25 (362)	5.75 (146)	9.25 (235)	10.75 (273)	16	1.00 (25)	12.75 (324)	126 (57.3)
	600	RF/RJ-53	15.75 (400)	8.38 (213)	7.88 (200)	10.25 (260)	16	1.25 (32)	17.13 (435)	260 (118.2)
	900	RF/RJ-53	17.13 (435)	9.50 (241)	7.69 (195)	10.25 (260)	16	1.38 (35)	19.00 (483)	434 (197.3)
	1500	RF/RJ-54	17.13 (435)	9.75 (248)	7.25 (184)	10.25 (260)	12	1.88 (48)	23.50 (597)	449 (204.1)
	2500	RF/RJ-55	18.75 (476)	10.00 (254)	7.50 (191)	10.25 (260)	12	2.50 (64)	30.50 (775)	480 (218.2)
12 (300)	125	FF	16.00 (406)	5.63 (143)	10.25 (260)	12.50 (318)	12	0.88 (22)	10.75 (273)	110 (50)
	150	RF	16.13 (410)	7.13 (181)	10.25 (260)	12.75 (324)	12	0.88 (22)	12.25 (311)	180 (81.8)
	300	RF	16.63 (422)	7.13 (181)	10.25 (260)	12.75 (324)	16	1.13 (29)	14.63 (372)	200 (90.9)
	600	RF/RJ-57	18.00 (457)	9.00 (229)	9.13 (232)	11.82 (300)	20	1.25 (32)	18.00 (457)	360 (163.6)
	900	RF/RJ-57	19.63 (499)	11.50 (292)	8.13 (207)	11.82 (300)	20	1.38 (35)	21.75 (552)	644 (292.7)
	1500	RF/RJ-58	20.50 (521)	12.00 (305)	8.25 (210)	11.82 (300)	16	2.00 (51)	27.50 (699)	824 (374.5)
	2500	RF/RJ-60	21.63 (549)	12.00 (305)	8.88 (226)	11.82 (300)	12	2.75 (70)	34.50 (876)	870 (395)
14 (350)	125	FF	17.75 (451)	7.25 (184)	11.25 (286)	14.00 (356)	12	1.00 (25)	13.00 (330)	170 (77.3)
	150	RF	17.75 (451)	7.25 (184)	11.25 (286)	13.38 (340)	12	1.00 (25)	13.00 (330)	270 (122.7)
	300	RF	19.38 (486)	8.75 (222)	11.25 (286)	13.34 (339)	20	1.13 (29)	16.50 (419)	390 (177.3)
	600	RF/RJ-61	19.38 (486)	10.75 (273)	9.13 (232)	13.38 (340)	20	1.38 (35)	20.25 (419)	410 (186.4)
	900	RF/RJ-62	20.50 (521)	14.00 (356)	-	13.38 (340)	20	1.50 (38)	25.50 (648)	872 (396.4)
	1500	RF/RJ-63	22.75 (521)	14.00 (356)	-	13.38 (340)	16	2.25 (57)	31.50 (800)	1068 (485.5)

(Continued...)

- Notes:** See Page 13
- General:**
1. For pressure loss information please see page 14.
 2. For ordering information please see page 18.
 3. Dimensions are subject to change. Contact factory for certified prints when required.

**IFC Series DR Retainerless
Cast Steel Dual Disc Check Valves**



Dimensional Data (Class 125-2500)							Stud Selection			
Size in. (mm)	ANSI Rating	End Facing	A in. (mm)	B in. (mm)	C ⁶ in. (mm)	D in. (mm)	Qty.	Dia. in. (mm)	Length in. (mm)	Weight lb. (Kg.)
16 (400)	125	FF	20.25 (514)	7.50 (191)	13.00 (330)	16.63 (422)	16	1.00 (25)	13.50 (343)	225 (102.3)
	150	RF	20.25 (514)	7.50 (191)	13.00 (330)	15.25 (387)	16	1.00 (25)	13.50 (343)	295 (134.1)
	300	RF	21.25 (540)	9.13 (232)	13.00 (330)	15.25 (387)	20	1.25 (32)	17.38 (441)	458 (208.2)
	600	RF/RJ-65	22.25 (565)	12.00 (305)	13.00 (330)	15.25 (387)	20	1.50 (38)	22.25 (565)	728 (330.9)
	900	RF/RJ-66	22.63 (575)	15.13 (384)	6.38 (162)	15.25 (387)	20	1.63 (38)	27.13 (689)	1174 (533.6)
	1500	RF/RJ-67	25.25 (641)	15.13 (384)	6.38 (162)	15.25 (387)	16	2.50 (64)	34.25 (870)	1295 (588.6)
18 (450)	125	FF	21.61 (549)	8.00 (203)	15.50 (394)	18.00 (457)	16	1.13 (29)	14.50 (368)	280 (127.3)
	150	RF	21.63 (549.5)	8.00 (203)	15.50 (394)	17.25 (438)	16	1.13 (29)	14.50 (368)	312 (141.8)
	300	RF	23.50 (597)	10.38 (264)	15.38 (391)	17.25 (438)	24	1.25 (32)	18.88 (480)	650 (295.5)
	600	RF/RJ-69	24.13 (613)	14.25 (362)	13.00 (330)	17.25 (438)	20	1.63 (41)	25.25 (641)	870 (395.5)
	900	RF/RJ-70	25.13 (638)	17.75 (451)	9.63 (245)	17.25 (438)	20	1.88 (48)	34.50 (876)	1344 (610.9)
	1500	RF/RJ-71	27.75 (705)	18.44 (468)	7.25 (184)	17.25 (438)	16	2.75 (70)	39.75 (1010)	1745 (793.2)
20 (450)	125	FF	23.86 (606)	8.38 (213)	17.25 (438)	20.16 (512)	20	1.13 (29)	15.25 (387)	390 (177.3)
	150	RF	23.88 (607)	8.63 (219)	17.25 (438)	19.19 (487)	20	1.13 (29)	15.13 (384)	472 (214.5)
	300	RF	25.75 (654)	11.50 (292)	17.25 (438)	19.19 (487)	24	1.25 (32)	20.50 (521)	801 (364.1)
	600	RF/RJ-73	26.88 (683)	14.50 (368)	17.00 (432)	19.19 (487)	24	1.63 (41)	26.25 (667)	1196 (543.6)
	900	RF/RJ-74	27.50 (699)	17.75 (451)	16.00 (406)	19.19 (487)	20	2.00 (51)	32.50 (826)	1406 (639.1)
	1500	RF/RJ-75	29.75 (756)	21.00 (533)	8.25 (210)	19.19 (487)	16	3.00 (76)	44.25 (1124)	2812 (1278.2)
24 (600)	125	FF	28.25 (718)	8.75 (222)	21.13 (537)	23.75 (603)	20	1.25 (32)	16.25 (413)	590 (268.2)
	150	RF	28.25 (718)	8.75 (222)	21.13 (537)	22.75 (578)	20	1.25 (32)	16.25 (413)	788 (358.2)
	300	RF	30.50 (775)	12.50 (318)	20.63 (524)	22.75 (578)	24	1.50 (38)	22.75 (578)	1150 (526.4)
	600	RF/RJ-77	31.13 (791)	17.25 (438)	20.63 (524)	22.75 (578)	24	1.88 (48)	30.75 (781)	1802 (819.1)
	900	RF/RJ-78	33.00 (838)	19.50 (495)	17.50 (445)	22.75 (578)	20	2.50 (64)	38.00 (965)	2713 (1233.2)
	1500	RF/RJ-79	35.50 (902)	22.00 (559)	15.38 (391)	22.75 (578)	16	3.50 (89)	48.50 (1232)	5968 (2712.7)
30 (750)	125	FF	34.75 (883)	12.00 (305)	25.25 (641)	30.00 (762)	28	1.25 (32)	21.00 (533)	1450 (659.1)
	150	RF	34.75 (883)	12.00 (305)	25.25 (641)	28.93 (735)	28	1.25 (32)	21.00 (533)	1456 (661.8)
36 (750)	125	FF	41.25 (1048)	14.50 (368)	25.50 (648)	36.00 (914)	32	1.50 (38)	25.88 (657)	1505 (684.1)
	150	RF	41.25 (1048)	14.50 (368)	25.50 (648)	34.00 (864)	32	1.50 (38)	25.88 (657)	1505 (684.1)

- Notes:**
1. Dimensions are in accordance with API 594 except face to face dimension of 2.5" through 12" cast iron body (A126-B) valves.
 2. Valve sizes 2" and 3" Class 150, 300 and 600 lb. are multi/dual pressure class rated.
 3. Valve sizes 4" Class 150 and 300 lb. are multi/dual pressure class rated.
 4. Valves sizes through 24" are designed for installation between flanges in dimensional accordance with ASME B16.1 and ASME B16.5.
 5. Valves sizes 30" and larger are designed for installation between flanges in dimensional accordance with ASME B16.47 Series A.
 6. Minimum Bore Diameter of companion flanges.

- General:**
1. For pressure loss information please see page 14.
 2. For ordering information please see page 18.
 3. Dimensions are subject to change. Contact factory for certified prints when required.

**Dual Disc Check Valve
Engineering Data**

Dual Disc Check Valve Pressure Drop – Liquids (Sizes 2"-30")

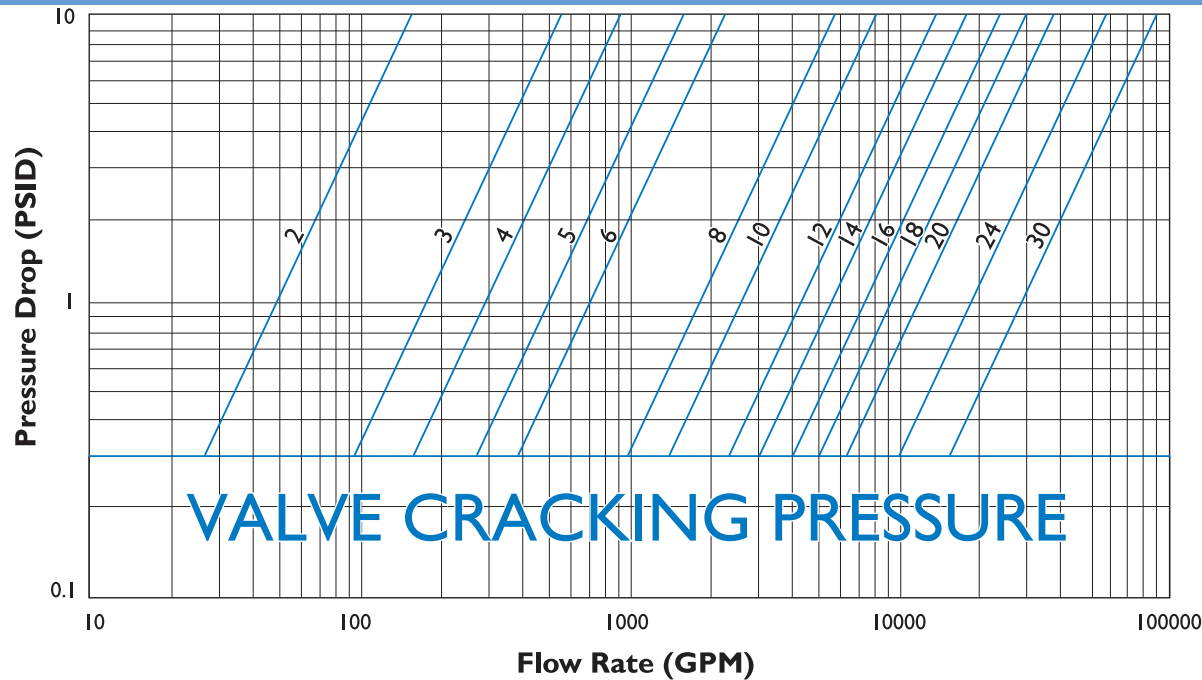


FIGURE 9

- Notes:**
1. Pressure drop curves are based on water flow.
 2. Valve cracking pressure is equal to or less than 0.3 psid.
 3. Valve cracking pressure increases to between 0.75 and 1.25 psid when installed vertically with flow upwards.

Cv Values (US-GPM @ 1 PSID)

Valve Size - in (mm)	Cv	Valve Size - in (mm)	Cv
2" (50mm)	48	12" (300mm)	4295
3" (75mm)	171	14" (350mm)	5463
4" (100mm)	291	16" (400mm)	7355
5" (125mm)	494	18" (450mm)	9537
6" (150mm)	705	20" (500mm)	12004
8" (200mm)	1795	24" (600mm)	17804
10" (250mm)	2563	30" (750mm)	28660

Dual Disc Check Valve Pressure Drop–Air @ 60°F, 1 ATM (Sizes 2" - 30")

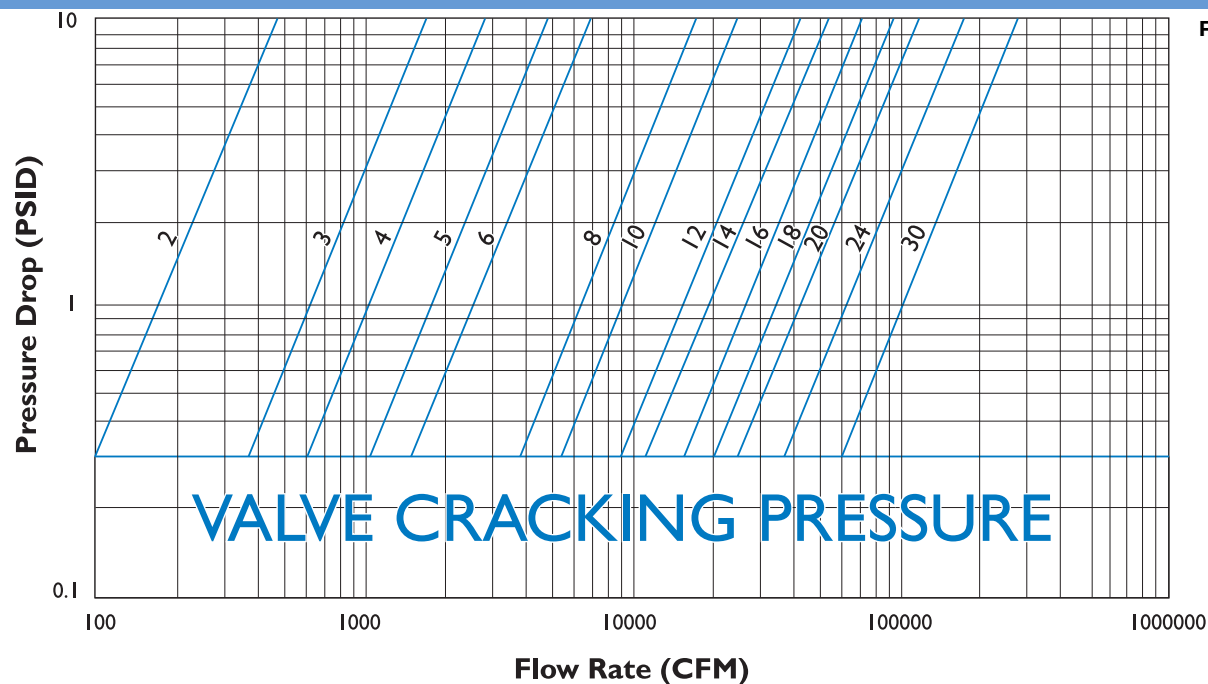


FIGURE 10

- Notes:**
1. Pressure drop curves are based on air flow at 60°F and 1 ATM pressure.
 2. Valve cracking pressure is equal to or less than 0.3 psid.
 3. Valve cracking pressure increases to between 0.75 and 1.25 psid when installed vertically with flow upwards.

Method of Calculating Flow

Liquid Flow

$$C_v = Q \sqrt{\frac{G}{\Delta P}} \quad Q = C_v \sqrt{\frac{\Delta P}{G}} \quad \Delta P = G \left(\frac{Q}{C_v} \right)^2$$

Gas Flow

$$C_v = \frac{Q}{963} \sqrt{\frac{GT}{\Delta P (P_1 + P_2)}} \quad Q = 963 C_v \sqrt{\frac{\Delta P (P_1 + P_2)}{GT}}$$

Saturated Vapour

$$C_v = \frac{W}{K} \sqrt{\frac{1}{\Delta P (P_1 + P_2)}} \quad W = C_v K \sqrt{\Delta P (P_1 + P_2)}$$

Superheated Vapour

$$C_v = \frac{W(1+0.0007T_{SH})}{K} \sqrt{\frac{1}{\Delta P (P_1 + P_2)}} \quad C_v = \frac{C_v K}{(1+0.0007T_{SH})} \sqrt{\Delta P (P_1 + P_2)}$$

Variables

Cv	=	Valve Coefficient	Q	=	Flow
ΔP	=	(P ₁ - P ₂) Pressure Drop	Liquid	=	USGPM
P ₁	=	Inlet Pressure (PSIA)	Gas	=	SCFH
P ₂	=	Outlet Pressure (PSIA)	T	=	Absolute Temperature (°F + 460)
G	=	Specific Gravity	T _{SH}	=	Superheat (°F)
Water	=	1.0 at 60°F and 1 ATM			Total Temperature Minus Saturation Temperature
Air	=	1.0 at 60°F and 1 ATM	W	=	Lbs. Per Hour (LB/H)
			K	=	Constant For Vapours

A - Recommended, B - May Be Acceptable (Testing Recommended), N - Not Recommended

CORROSIVE MEDIA	AB	CS	316	EPDM	BUNA-N	VITON	CORROSIVE MEDIA	AB	CS	316	EPDM	BUNA-N	VITON
Acetaldehyde	A	B	A	A	N	N	Lactic Acid	N		A	70°	70°	A
Acetone	A	A	A	B	N	N	Lime	A		A	A	B	A
Acetylene	N	A	A	A		A	Liquefied Petroleum Gas	A	A	A	N	A	A
Air	A	A	A	A	A	A	Mercuric Chloride	B	N	B	A	A	A
Aluminum Acetate	A	A	A	A	B	N	Mercury	N	A	A	A	A	A
Aluminum Nitrate	N	N	A	A	A	A	Methane	A	A	A	N	A	A
Amino Acids	N		A	N	N	A	Methyl Alcohol	A	A	A	A	B	N
Ammonia Gas		A	A	B	70°	N	Methyl Acetate		B	A	B	N	N
Ammonium Bicarbonate		B	A	A	N	N	Methyl Chloride	A	A	A	N	N	A
Ammonium Phosphate		N	A	A	A	A	Naphtha	A	A	A	N	N	A
Arsenic Acid	N	N	A	A	A	A	Natural Gas	A	A	A	N	A	A
Beer-Breweries	N	N	A	A	A	A	Nitrogen - Gas	A	A	A	A	A	A
Beet Sugar Liquors	A	N	A	A	A	A	Nitrous Oxide	B	B	A		B	
Benzene	A	A	A	N	N	70°	Oil - Crude (sweet)	A	A	A	N	A	A
Brine	B	N	A	A	A	A	Oil - Crude (sour)	A	A	A	N	B	A
Bromine - Anhydrous	N	N	N	N	N	A	Oil - Vegetable	B	N	A	B	A	A
Bromine - Wet	N	N	N	N	N	A	Oleic Acid		B	A	N	N	B
Butane	A	A	A	N	A	A	Olive Oil	B	B	A	B	A	A
Butanoic Acid			A				Oxalic Acid			A	A	B	A
Butyl Alcohol	A	A	A	B	A	A	Oxygen - Gas	A	A	A	A	B	A
Butylene (Gas)	A	A	A	N	N	A	Palm Oil		N	A		A	A
Calcium Chlorate	N	A	A	A	A	A	Paint - Thinner/Remover	A	A	A	N	N	A
Calcium Hydroxide	B	B	A	A	A	A	Phenol	B	B	A	B	N	A
Carbonated Water	N	B	A	A	A	A	Plating Solutions	N	A	N	A	N	A
Carbon Monoxide	A	A	A	A	A	B	Potassium Acetate		N	A	A	B	N
Carbonic Acid	N	B	A	A	A	A	Potassium Bisulfate			A			
Caster Oil	A	A	A	B	A	A	Potassium Chlorate		N	A	A	B	A
Chlorine (Wet or Dry)	N	70°	N	N	N	A	Potassium Cyanide	A	A	A	A	A	A
Cider	B	N	A	A	B	A	Potassium Sulfide	N	A	A	B	N	A
Citric Acid	B	N	A	A	A	A	Potassium Sulfate	A	A	A	A	A	A
Citrus Juices	B	N	A	A	A	A	Propylene Glycol		N	A	A	A	A
Corn Oil	A	A	A	N	A	A	Propylene Oxide	N		A	A	B	
Diacetone Alcohol	A	A	A	A	N	N	Pyridene	B	A	A	B	N	N
Dibutyl Phthalate		A	A	B	N	N	Shellac	B	A	A	A	A	
Dichloroethane			A	N	N	A	Silver Nitrate	N	N	A	A	N	A
Diesel Fuel	A	A	A	N	A	A	Sodium Bicarbonate	A	A	A	A	A	A
Diethylamine	N	A	A	N	B	A	Sodium Carbonate	N	B	A	A	A	A
Diphenyl Oxide	B	A	A	N	N	A	Sodium Chlorate	N		A	A	B	A
Dowtherm	A	A	A	N	N	A	Sodium Chloride	N	B	B	A	A	A
Ethanol	A	A	A	A	A	N	Sodium Nitrite	B	A	A	A	A	A
Ether	A	A	A	N	N	N	Sodium Sulfate	A	B	A	A	A	A
Ethyl Acetate	B	A	A	B	N	N	Sodium Sulfide	B	A	A	A	A	A
Ethyl Chloride	B	200°	A	A	A	A	Sodium Thiosulfate		B	A	A	B	A
Ethylene Glycol	A	A	A	A	A	A	Soybean Oil	B	B	A	N	A	A
Ethylene Oxide	N	A	A	N	N	N	Steam and Hot Water	A	B	A	A	N	
Fatty Acids	N	N	A	N	A	A	Sulfur	N	B	A	A	N	N
Ferrous Chloride	N	N	N	A	A	A	Sulfuric Acid	N	N	B	N	N	A
Fish Oils	B	B	A		A		Sulfurous Acid	N	N	B	N	N	A
Gas-Natural	A	A	A	N	A	A	Tartaric Acid		B	A	B	A	A
Gasoline - Ethyl	A	A	A	N	N	A	Tetrachloroethane	B	75°	A	N	N	A
Gasoline - Regular	A	A	A	N	A	A	Turpentine	A	A	A	N	A	A
Glucose	A	A	A	A	A	A	Varnish	A	A	A	N	N	A
Glycerine	A	A	A	A	A	A	Vinegar	N	N	A	A	B	A
Helium Gas	A	A	A	A	A	A	Water, Carbonated	N	B	A	A	A	A
Hydraulic Fluid (Pydraul)	A	A	A	N	N	A	Water, Chilled	A	B	A	A	A	A
Hydrocarbons (Aromatic)	N	A	A	N	N	A	Water, Distilled	N	B	A	A	A	A
Hydrogen Peroxide	N	N	A	A	N	A	Water, Salt, Sea	A	N	A	A	A	B
Hydrogen Sulfide	N	B	A	A	70°	N	Wine	B	N	A	A	A	A
Iodine	N	N	N	N	N	A	Zinc Bromide	N		A		A	
Isopropyl Acetate			B	B	N	N	Zinc Cyanide	N	N	A		A	
Kerosene	A	A	A	N	A	A	Zinc Sulfate	N	N	A	A	A	A

- Notes:**
1. If # appears material is recommended for use up to indicated temperature (°F).
 2. AB = Aluminum Bronze, CS = Carbon Steel, 316 = 316 Stainless Steel.
 3. If uncertain please contact factory concerning valve compatibility.

No representation, warranty or guarantee of compatibility, expressed or implied, is made by this Selection Guide due to the complexity and almost infinite variations of mixtures, concentrations, temperatures and flow conditions possible in actual service. As a result, the end user must assume all responsibility for ultimate determination of value compatibility.

1.0 Valve Location and Orientation in Piping

Check valves should be installed if possible a minimum of 6 pipe diameters from other line elements. i.e. elbows, pumps, valves, etc.

Horizontal Lines

- Valves installed in horizontal lines must be bolted in place with the hinge post in the vertical position. i.e. in such a manner that the hinge pin retainers are at the top and bottom of the installed valve, perpendicular to the flow.

Vertical Lines

- In the upward position, no special attention needs to be given to the hinge post position. The only exception being when mounted directly downstream of an elbow. In this case the hinge post should be mounted perpendicular to the outermost portion of the elbow. Consult factory for vertical down flow applications.

2.0 Precautions

- Do not install IFC Dual Disc Check Valves directly against another valve whereby the check valve discharges downstream directly into the valve.
- Do not install the valve whereby it directly discharges downstream into a tee or elbow fitting.
- IFC Dual Disc Check Valves should not be used in severe pulsating services such as reciprocating compressor discharges.
- It is recommended that the check valves be installed a minimum of three pipe diameters downstream of a pump or compressor.

3.0 Maintenance

IFC Dual Disc Check Valves are permanently lubricated and normally require no routine maintenance.

4.0 Reconditioning

IMPORTANT! PRIOR TO DISASSEMBLY, VALVE MUST FIRST BE ISOLATED FROM SYSTEM PRESSURE AND FLOW.

CAUTION! BEFORE ATTEMPTING THE FOLLOWING SHAFT EXTRACTION, BE SURE TO PRESS A HAND OVER THE DISC SPRING. FAILURE TO DO THIS MAY RESULT IN PERSONAL INJURY DUE TO THE SPRING “LAUNCHING” ITSELF UNEXPECTEDLY ONCE THE SHAFT IS PULLED FREE OF IT.

Series DC Disc & Shaft Removal

- After observing the above precaution, remove the valve from the pipeline and lay flat with open, body cavity side facing up. Remove pipe plugs from top and bottom of body with a wrench. Insert a punch and lightly tap the top of the shaft until it is accessible on the other side of the body. Pull shaft through body to remove. The internals of the valve are now ready to be cleaned and inspected.

Series DC Reassembly

Use new replacement parts, as required and a liberal amount of general-purpose grease (such as Mystic JT-6) on seals and machined mating surfaces. Reinsert the disc into the body cavity with the shaft holes inline with top and bottom shaft port. Slide the shaft into the body through the shaft opening on one side of the valve. Continue sliding the shaft through the disc, spring and remaining shaft port the opposite side of the body. Install pipe plugs into the body using a good industrial grade thread sealant compound.

Series DR Disc & Shaft Removal

- After observing the above precaution, remove the valve from the pipeline and lay flat with open, body cavity side facing up. Using an Allen wrench, remove the set screws that hold the upper and lower pin guides in place. Cautiously remove the pin guides from the body by sliding the assembly upwards. The pin guides then can be removed and the internals of the valve are ready to be cleaned and inspected. (It is important to inspect the set screw female threads for wear and damage.)

Series DR Reassembly

Use new replacement parts, as required and a liberal amount of general-purpose grease (such as Mystic JT-6) on seals and machined mating surfaces. Reinsert the discs, washers and springs into pins and realign with upper and lower guides. Press guides into pins and reinsert the complete assembly into the body. Pay attention not to damage set screw threads. Once insertion of the guides is complete, gently thread back into place the set screws using an Allen wrench.

Do not over torque.

Size In.	10"
Valve Type	DC = Dual Disc Standard DR = Dual Disc Retainerless
Class	125 = 125 lb. 150 = 150 lb. 300 = 300 lb. 600 = 600 lb. 900 = 900 lb. 1500 = 1500 lb. 2500 = 2500 lb.
Body Type	W = Wafer L = Lug WRTJ = Wafer RTJ LRTJ = Lug RTJ DF = Double Flanged
Body Material	I = A126-B Cast Iron S = A216-WCB Carbon Steel SS = A351-CF8M Stainless Steel LCC = A352-LCC Low Temp Carbon Steel
Disc Material	B = Aluminum Bronze SS = Type 316 Stainless Steel 4S = Type 410 Stainless Steel
Seat Material	B = Buna-N E = EPDM V = Viton T = PTFE M = Metal to Metal (No Overlay) M1 = API Trim No. 1 M5 = API Trim No. 5 M8 = API Trim No. 8 M10 = API Trim No. 10 M12 = API Trim No. 12
Specials / Other	Specify

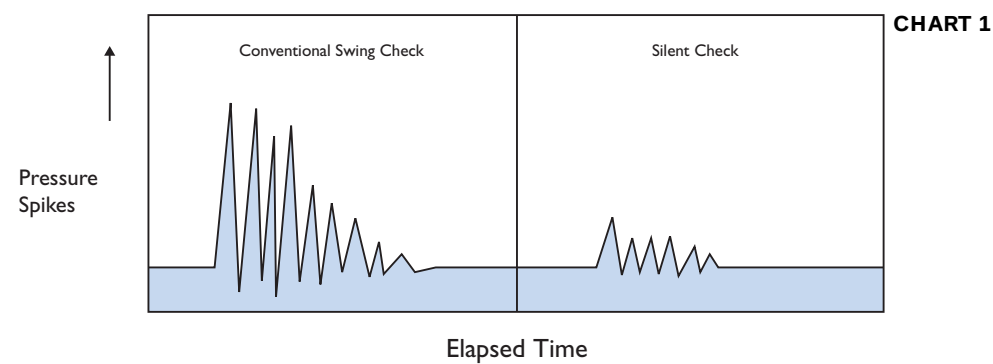
A B C D E F G H

Why Use a Silent Check Valve?

Water hammer is the generation and effect of high pressure shock waves (transients) in relatively incompressible fluids. When a liquid is decelerated abruptly in a pipe by a valve disc, water hammer is caused by the resulting shock waves. These high pressure waves act against the piping and the valve, exerting very high forces that can result in large stress on the metal and vibrations in the

system. If not accounted for, these high transient forces can damage the pipe or other components in the system. The problems of water hammer can be eliminated or greatly minimized by installing an IFC Silent Check Valve. Unlike a swing check valve, IFC Series Silent Check Valves do not rely on gravity or reverse flow to successfully close and seat. Instead, as the forward

moving fluid slows, a spring assists the valve in closing. Due to the relative short distance the disc must travel when compared to other types of check valves, the valve closes prior to the fluid forward velocity reaching zero. When reverse flow is eliminated, the forces necessary to produce water hammer are substantially minimized.



It is known that the magnitude of these surge pressures is proportional to the velocity change that occurs and the properties of the fluid and pipe (namely the compressibility of the fluid and the expandability of the pipe). The magnitude of the pressure rise can be modeled as:

$$PR = a(VR_{max})P$$

Where:

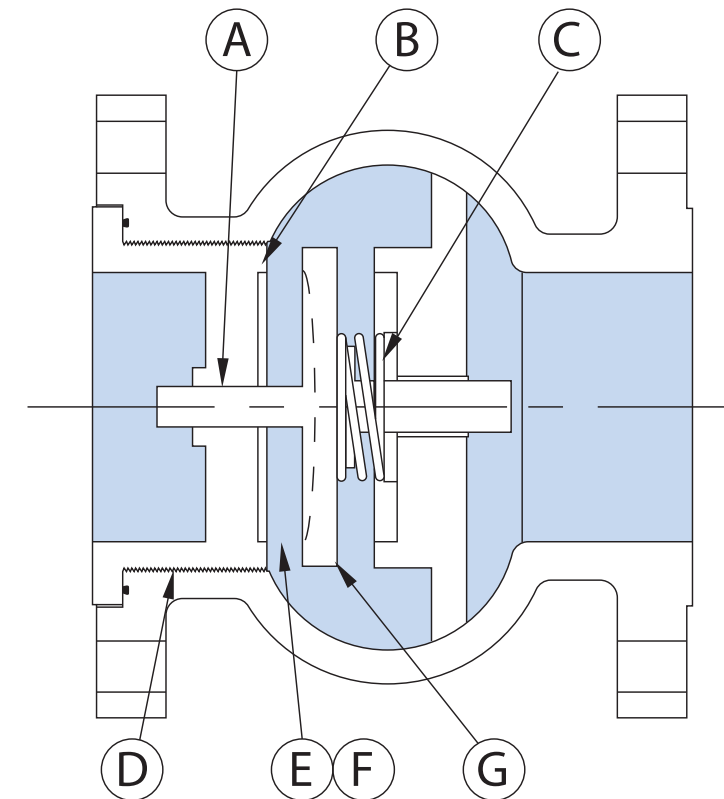
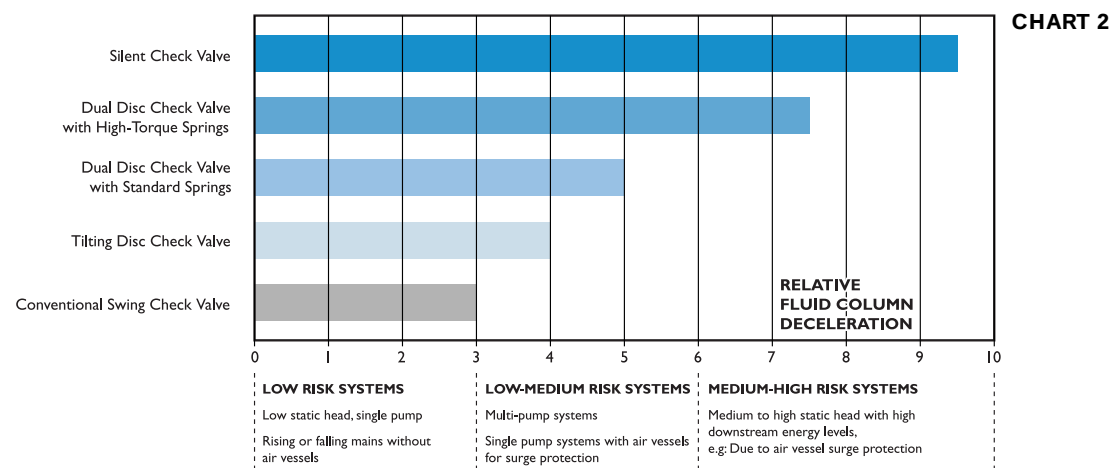
PR = Pressure Rise

a = Speed of Sound

VR_{max} = Maximum Reverse Velocity of the fluid which is a function of the system deceleration and check valve type.

P = Density

Therefore, different valves will produce different pressure surge magnitudes. Chart 2 outlines the relative effectiveness of various types of check valves in handling fluid deceleration.



A Valves are equipped with double guided stems and large bearing surfaces to minimize wear and ensure proper disc seating. (SC600T valves are single guided only)

B Standard metal to metal seating and optional resilient seating results in a check valve that is suitable for various liquid, gas or steam applications.

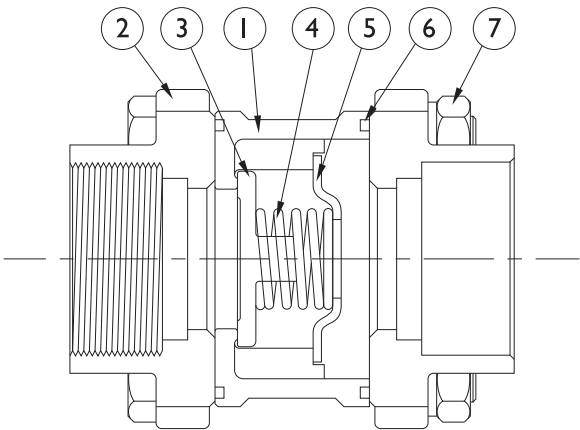
C The spring-assisted design insures that as forward flow decreases, the disc begins to move towards the seat. By the time the flow stops, the disc is closed thus minimizing the effects of water hammer.

D Seat Retainer DOES NOT rely on gasket compression to remain in place, thus eliminating possible line gasket blow-out. (Series SC150 and SC300 only)

E Valves designed to open at 0.5 psid differential pressure and fully open at 1.0 psid differential pressure.

F With most sizes, valves' disc lift meets or exceeds 1/4" for each inch of nominal pipe size, thus minimizing the valve pressure drop in the full open condition.

G The concave discs minimize side thrust that can result in premature valve failure.



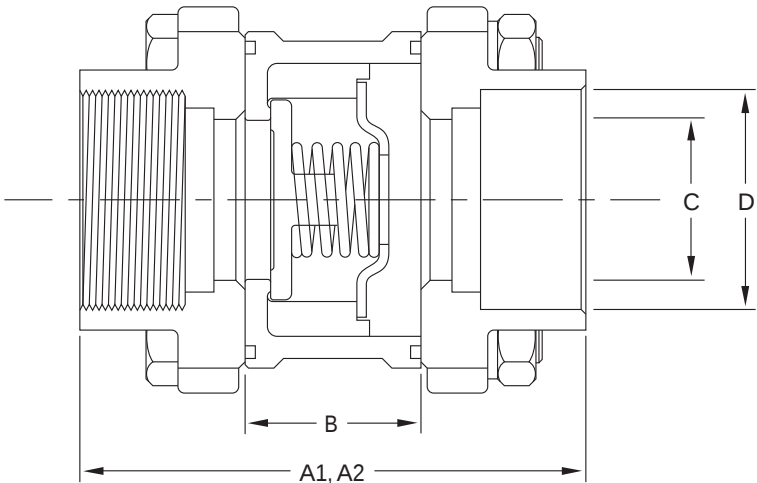
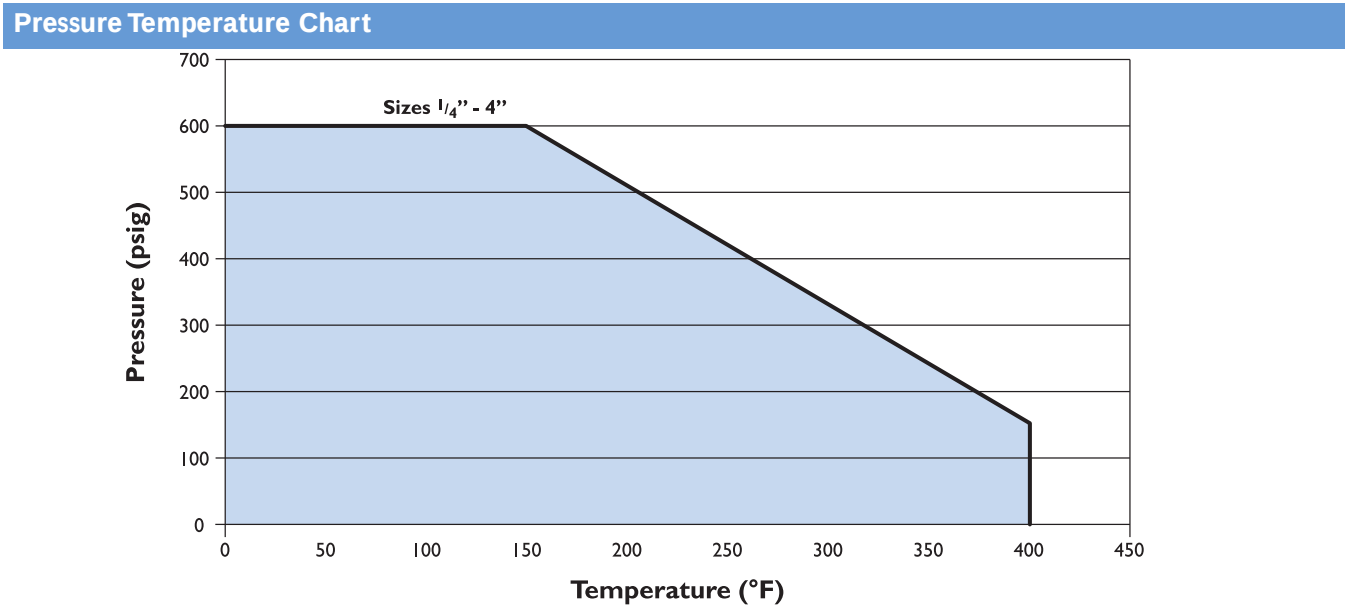
Design Features

- Valves are available with threaded (N.P.T.), socket weld or butt-weld inlet/outlet connections.
- Three-piece body style for ease of maintenance.
- 316 SS construction with Teflon “O” ring body seals.
- Spring assisted silent closing.
- Standard metal to metal seating.
- Threaded and socket weld connections meet the requirements of table 4 of ASME B16.34
- Testing is performed in accordance with ASME B16.34

Parts List and Standard Materials		
Part	Description	Specifications
1	Body	A351-CF8M 316 Stainless Steel
2	Cap	A351-CF8M 316 Stainless Steel
3	Plug	A351-CF8M 316 Stainless Steel
4	Spring ¹	Type 316 SS
5	Holder	A351-CF8M 316 Stainless Steel
6	Gasket	PTFE
7	Assembly Hardware	300 Series Stainless Steel

Notes: 1. Materials of equivalent strength may be substituted at manufacturer's option.

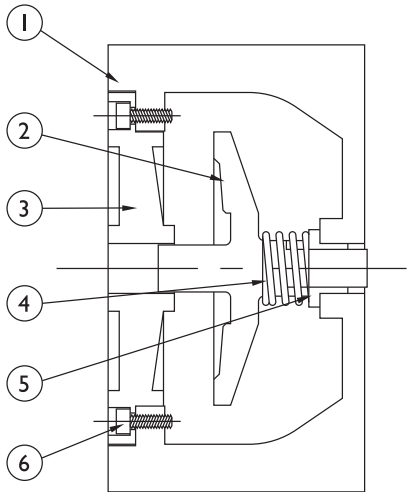
Upper Pressure Limits (Non-Shock)	
Valve Size - in. (mm)	M.A.W.P. - psig (Bars)
1/4" - 4" (8-200mm)	600 (41.36)
Upper Temperature Limits	
Gasket Material	Upper Limit °F (°C)
PTFE	400° (204°)
Lower Temperature Limits	
Body	Lower Limit °F (°C)
A351-CF8M	-20° (-28.9°)



Dimensional Data (Class 125)							
Size in. (mm)	A1 ¹ in. (mm)	A2 ¹ in. (mm)	B in. (mm)	C in. (mm)	D ² in. (mm)	Weight lb. (Kg.)	Cv
1/4 (8)	2.09 (53)	2.50 (64)	0.56 (14)	0.50 (13)	0.555 (14.10)	1 (0.5)	3
3/8 (10)	2.09 (53)	2.50 (64)	0.56 (14)	0.50 (13)	0.690 (17.53)	1 (0.5)	5
1/2 (15)	2.63 (67)	2.63 (67)	0.69 (18)	0.59 (15)	0.855 (21.72)	1 (0.5)	7
3/4 (20)	2.63 (67)	3.13 (80)	0.88 (22)	0.75 (19)	1.065 (27.05)	3 (1.4)	13
1 (25)	3.12 (79)	3.50 (89)	1.09 (28)	1.00 (25)	1.330 (33.78)	3.5 (1.6)	22
1 1/4 (32)	3.62 (92)	3.63 (92)	1.25 (32)	1.25 (32)	1.675 (42.55)	4 (1.8)	39
1 1/2 (40)	3.98 (101)	4.19 (106)	1.46 (37)	1.59 (40)	1.915 (48.64)	5 (2.3)	54
2 (50)	4.50 (114)	4.93 (125)	1.88 (48)	2.00 (51)	2.406 (61.11)	5.5 (2.5)	93
2 1/2 (65)	5.75 (146)	5.88 (149)	1.88 (48)	2.50 (64)	2.906 (73.81)	6 (2.7)	123
3 (80)	6.06 (154)	6.63 (168)	2.19 (56)	3.13 (80)	3.535 (89.79)	7 (3.2)	180
4 (100)	7.09 (180)	8.25 (210)	2.75 (70)	4.00 (102)	4.545 (115.44)	12 (5.4)	323

Notes: 1. Dimension A1 refers to NPT and socket weld valves, Dimension A2 refers to Buttweld Valves.
2. Dimension D refers to socket weld valves only.

General: 1. For pressure loss information please see page 33.
2. For ordering information please see page 38.
3. Dimensions are subject to change. Contact factory for certified prints when required.



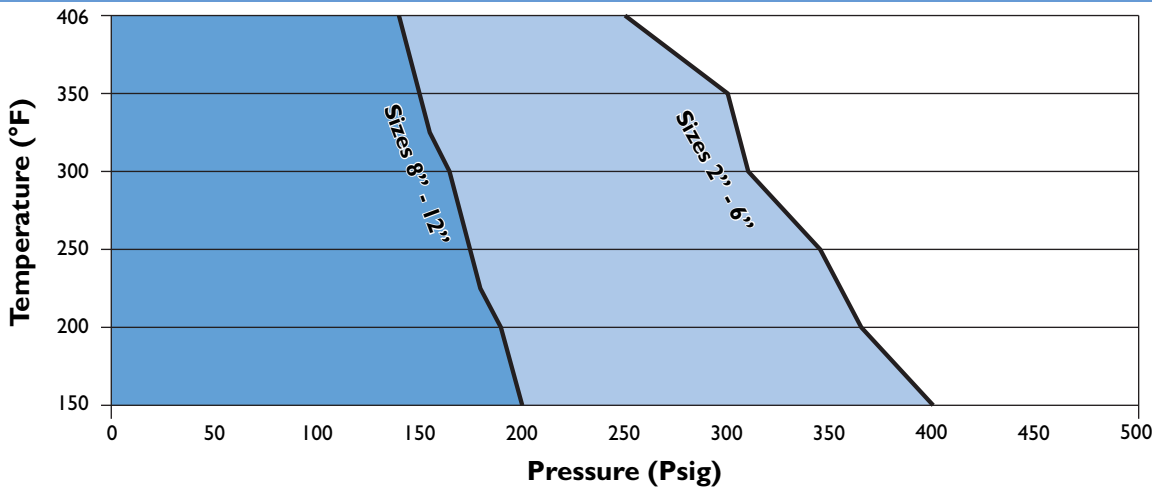
Design Features

- Available in wafer body style. Suitable for installation between FF flanges only.
- May be installed between ANSI Class 125/250 and 150/300 flanges. (Sizes 8" and smaller only)
- Available with aluminum bronze or 316 SS trim.
- Standard metal to metal seating. Optional resilient seats.
- Body meets ASME B16.1
- Testing is performed in accordance with API 598.

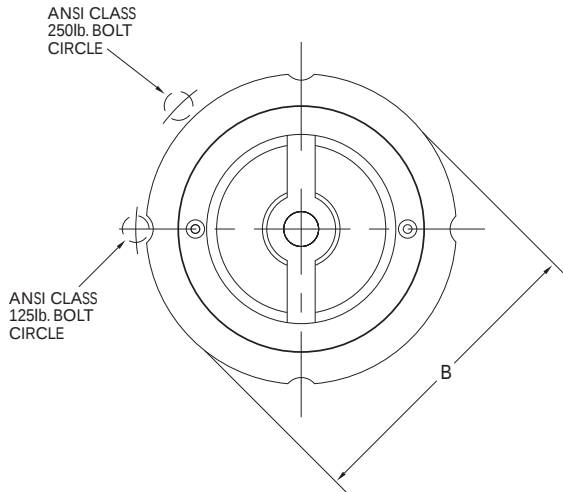
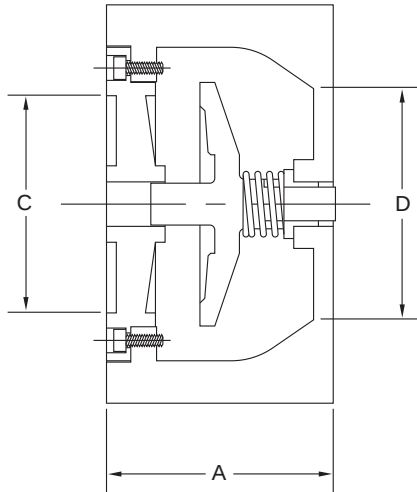
Parts List and Standard Materials		
Part	Description	Specifications
1	Body	A126-B Cast Iron
2	Plug	B148 C954 Aluminum Bronze A351-CF8M 316 SS
3	Seat ²	B148 C954 Aluminum Bronze A351-CF8M 316 SS
4	Spring ¹	Type 316 SS
5	Bushing ¹	B148 C954 Aluminum Bronze A351-CF8M 316 SS
6	Set Screw	300 Series Stainless Steel

- Notes:**
1. Materials of equivalent strength may be substituted at manufacturer's option.
 2. Resilient seats are available. Contact factory.

Pressure Temperature Chart (In Accordance with ASME B16.1, ASME B16.4, A126-B)



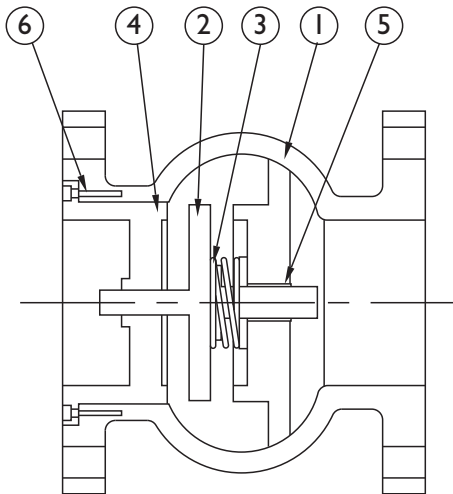
- Notes:**
1. Cast Iron Valves are recommended for liquid service only.



Dimensional Data (Class 125/250)					Stud Selection						
Size ¹ in. (mm)	A in. (mm)	B in. (mm)	C ² in. (mm)	D in. (mm)	Qty. 125lb.	Qty. 250lb.	Dia. 125lb. in. (mm)	Dia. 250lb. in. (mm)	Length in. (mm)	Weight lb. (kg)	Cv
2 (50)	2.63 (67)	4.25 (108)	2.00 (51)	2.38 (60)	4	8	0.63 (16)	0.63 (16)	6.00 (152)	5 (2.3)	57
2.5 (65)	2.88 (73)	5.00 (127)	2.75 (70)	2.88 (60)	4	8	0.63 (16)	0.75 (19)	6.75 (171)	8 (3.6)	87
3 (80)	3.13 (80)	5.75 (146)	3.25 (83)	3.50 (89)	4	8	0.63 (16)	0.75 (19)	7.25 (184)	10 (4.5)	127
4 (100)	4.00 (102)	7.00 (178)	4.00 (102)	4.50 (114)	8	8	0.63 (16)	0.75 (19)	7.75 (197)	17 (7.7)	228
5 (125)	4.75 (121)	8.38 (213)	5.00 (127)	5.50 (140)	8	8	0.75 (19)	0.75 (19)	9.00 (229)	27 (12.3)	357
6 (150)	5.50 (140)	9.75 (248)	6.25 (159)	6.63 (168)	8	12	0.75 (19)	0.75 (19)	10.50 (267)	40 (18.2)	432
8 (200)	6.50 (165)	12.00 (305)	8.38 (213)	8.63 (219)	8	12	0.75 (19)	0.88 (22)	12.25 (311)	90 (40.9)	768
10 (250)	8.25 (210)	16.00 (406)	10.00 (254)	10.38 (264)	12	-	0.88 (22)	-	14.50 (368)	160 (72.6)	1240
12 (300)	11.25 (286)	19.00 (483)	11.75 (298)	12.50 (318)	24	-	0.88 (22)	-	6.50 (165)	340 (154.4)	1740

- Notes:**
1. 12" valves are supplied in lug body style.
 2. Sizes 2" thru 8" can be installed between both ANSI Class 125lb. and ANSI Class 250lb. flanges.
 3. Sizes 10" and larger can only be installed between ANSI Class 125lb. flanges.
 4. Full face gaskets are recommended for installation.
 5. Soft seats are available. Please consult factory.

- General:**
1. For pressure loss information please see page 33.
 2. For ordering information please see page 38.
 3. Dimensions are subject to change. Contact factory for certified prints when required.



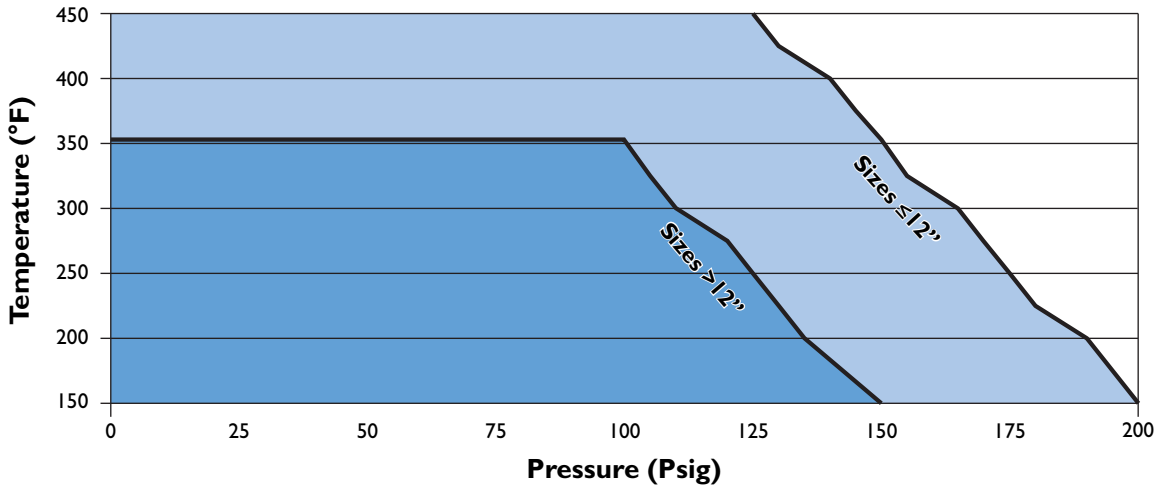
Design Features

- Available in flanged body style. Suitable for installation between FF flanges only.
- Available with aluminum bronze or 316 SS trim.
- Standard metal to metal seating. Optional resilient seats.
- Body meets ASME B16.1
- Testing is performed in accordance with API 598.

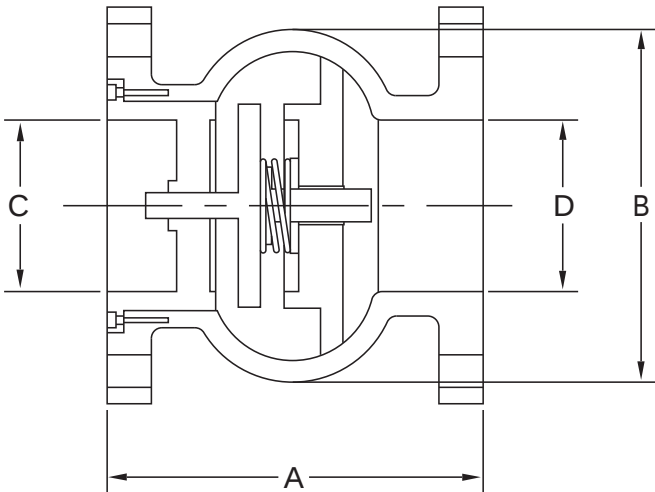
Parts List and Standard Materials		
Part	Description	Specifications
1	Body	A126-B Cast Iron
2	Plug	B148 C954 Aluminum Bronze A351-CF8M 316 SS
3	Seat ²	B148 C954 Aluminum Bronze A351-CF8M 316 SS
4	Spring ¹	Type 316 SS
5	Bushing ¹	B148 C954 Aluminum Bronze A351-CF8M 316 SS
6	Set Screw	300 Series Stainless Steel

- Notes:**
1. Materials of equivalent strength may be substituted at manufacturer's option.
 2. Resilient seats are available. Contact factory.

Pressure Temperature Chart (In Accordance with ASME B16.1, A126-B)



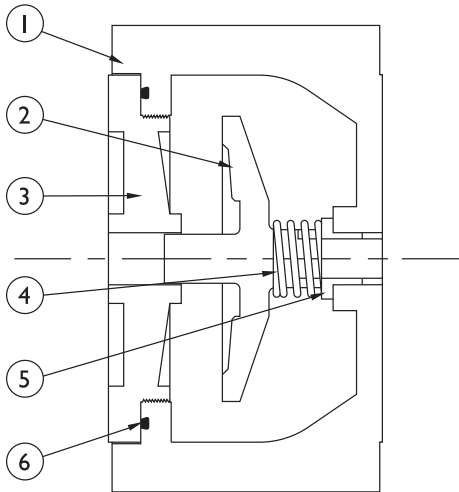
- Notes:**
1. Cast Iron Valves are recommended for liquid service only.



Dimensional Data (Class 125)					Stud Selection				
Size in. (mm)	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	Qty. 125lb.	Dia. 125lb. in. (mm)	Length in. (mm)	Weight lb. (kg)	Cv
2 (50)	6.25 (159)	4.75 (121)	2.25 (57)	2.00 (51)	4	0.63 (16)	3.25 (83)	16 (7.3)	69
2.5 (65)	7.00 (178)	5.50 (140)	2.63 (67)	2.50 (64)	4	0.63 (16)	3.50 (89)	24 (10.9)	108
3 (80)	7.50 (191)	6.38 (162)	3.38 (86)	3.00 (76)	4	0.63 (16)	3.75 (95)	32 (14.5)	155
4 (100)	8.50 (216)	9.00 (229)	4.38 (111)	4.00 (102)	8	0.63 (16)	3.75 (95)	59 (26.8)	277
5 (125)	9.50 (241)	10.00 (254)	5.25 (133)	5.00 (127)	8	0.75 (16)	4.00 (102)	75 (34.1)	433
6 (150)	10.50 (267)	11.00 (279)	6.25 (159)	6.00 (152)	8	0.75 (16)	4.00 (102)	96 (43.6)	623
8 (200)	13.50 (343)	15.50 (394)	8.38 (213)	8.00 (203)	8	0.75 (16)	4.25 (108)	178 (80.8)	1109
10 (250)	16.25 (413)	18.00 (457)	10.00 (254)	10.00 (254)	12	0.88 (22)	4.75 (121)	280 (127.1)	1733
12 (300)	20.25 (514)	21.00 (533)	12.00 (305)	12.00 (305)	12	0.88 (22)	4.75 (121)	450 (204.3)	2495
14 (350)	22.75 (578)	25.00 (635)	13.25 (337)	13.75 (337)	12	1.00 (25)	5.25 (133)	568 (257.9)	3397
16 (400)	24.75 (629)	26.00 (660)	15.25 (387)	15.75 (400)	16	1.00 (25)	5.50 (140)	840 (381.4)	4437

- Notes:**
1. In most cases, valve sizes 2" thru 10" will mate up to wafer style butterfly valves without the use of spool pieces or other adapters.
 2. Valves can be installed between ANSI Class 125lb. flanges.
 3. Full face gaskets are recommended for installation.
 4. Soft seats are available. Please consult factory.

- General:**
1. For pressure loss information please see page 33.
 2. For ordering information please see page 38.
 3. Dimensions are subject to change. Contact factory for certified prints when required.



Design Features

- Available in wafer body style. Suitable for installation between RF flanges.
- May be installed between ANSI Class 150/300 flanges (Sizes 6" and smaller only).
- Standard metal to metal seating. Optional resilient seats.
- Body meets ASME B16.5 and ASME B16.34.
- Testing is performed in accordance with API 598.

Upper Pressure Limits (Non-Shock)

Valve Size - in. (mm)	Body Material	M.A.W.P. - psig (Bars)
2" - 4" (50 - 100mm)	A216-WCB	740 (51.02)
	A351-CF8M	720 (49.64)
6" - 12" (150 - 250mm)	A216-WCB	285 (19.65)
	A351-CF8M	275 (18.96)

Parts List and Standard Materials

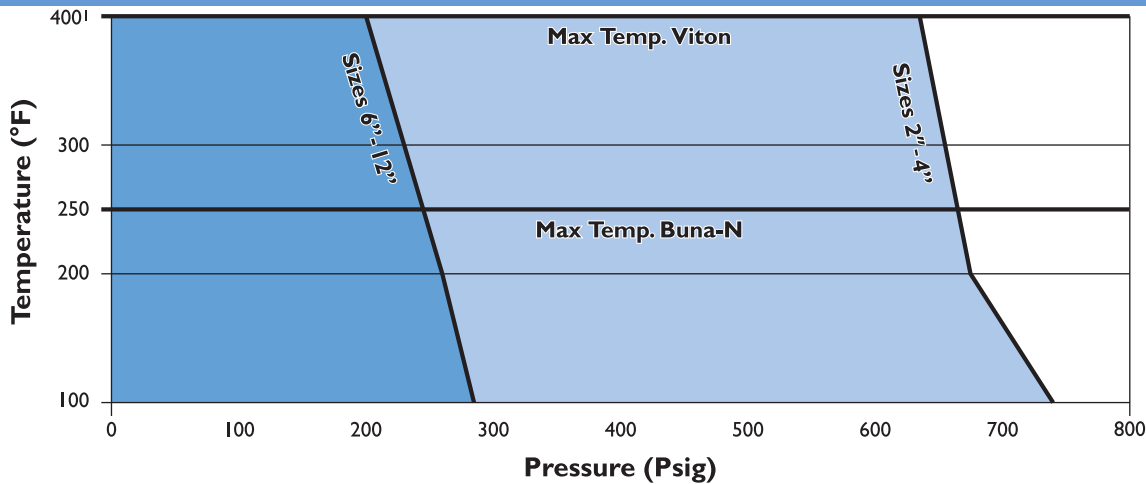
Part	Description	Carbon Steel	Stainless Steel
1	Body	A216-WCB	A351-CF8M 316 SS
2	Plug	A351-CF8M 316 SS	A351-CF8M 316 SS
3	Seat ²	A351-CF8M 316 SS	A351-CF8M 316 SS
4	Spring ¹	Type 316 SS	Type 316 SS
5	Bushing ¹	Type 316 SS	Type 316 SS
6	Seat Seal	Buna-N	Buna-N

- Notes:**
1. Materials of equivalent strength may be substituted at manufacturer's option.
 2. Resilient seats are available. Contact factory.

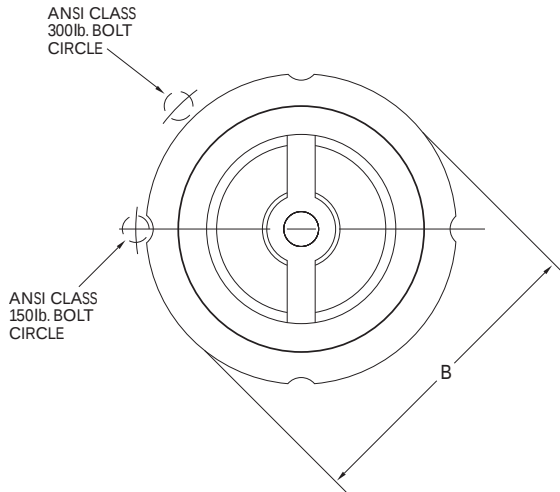
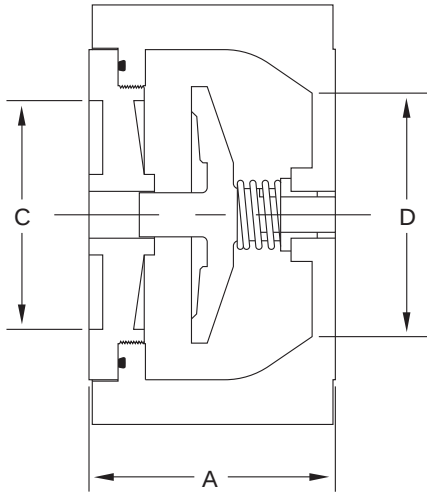
Lower Temperature Limits

Body/Seat Material	Lower Limit °F (°C)
A126-WCB, A351-CF8M	-20° (-28.9°)
Buna-N, EPDM, Viton	-13° (-25°)

Pressure Temperature Chart (In Accordance with ASME B16.34, A126-WCB)



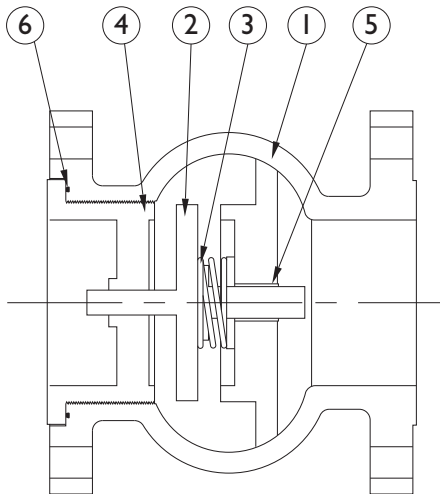
- Notes:**
1. Maximum operating temperature limited by seat seal material.
 2. Valves recommended for liquid service only.



Dimensional Data (Class 125)					Stud Selection						
Size in. (mm)	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	Qty. 150lb.	Qty. 300lb.	Dia. 150lb. in. (mm)	Dia. 300lb. in. (mm)	Length in. (mm)	Weight lb. (kg)	Cv
2 (50)	2.63 (67)	4.25 (108)	2.00 (51)	2.38 (60)	4	8	0.63 (16)	0.63 (16)	6.00 (152)	5 (2.3)	57
2.5 (65)	2.88 (73)	5.00 (127)	2.75 (70)	2.88 (60)	4	8	0.63 (16)	0.75 (19)	6.75 (171)	8 (3.6)	87
3 (80)	3.13 (80)	5.75 (146)	3.25 (83)	3.50 (89)	4	8	0.63 (16)	0.75 (19)	7.25 (184)	10 (4.5)	127
4 (100)	4.00 (102)	7.00 (178)	4.00 (102)	4.50 (114)	8	8	0.63 (16)	0.75 (19)	7.75 (197)	17 (7.7)	228
5 (125)	4.63 (118)	8.38 (213)	5.00 (127)	5.50 (140)	8	8	0.75 (19)	0.75 (19)	9.00 (229)	27 (12.3)	357
6 (150)	5.50 (140)	9.75 (248)	6.25 (159)	6.63 (168)	8	12	0.75 (19)	0.75 (19)	10.50 (267)	40 (18.2)	432
8 (200)	6.50 (165)	12.00 (305)	8.38 (213)	8.63 (219)	8	-	0.75 (19)	-	12.25 (311)	90 (40.9)	768
10 (250)	8.25 (210)	16.00 (406)	10.00 (254)	10.38 (264)	12	-	0.88 (22)	-	14.50 (368)	160 (72.6)	1240
12 (300)	11.25 (286)	19.00 (483)	11.75 (298)	12.50 (318)	24	-	0.88 (22)	-	6.50 (165)	340 (154.4)	1740

- Notes:**
1. Sizes 2" thru 6" can be installed between both ANSI Class 150lb. and ANSI Class 300lb. flanges.
 2. Sizes 8" and larger can only be installed between ANSI Class 150lb. flanges.
 3. Soft seats are available. Please consult factory.
 4. All sizes have Buna-N (-13°F to 250°F) body O-Ring Seals. Contact factory for other materials.

- General:**
1. For pressure loss information please see page 33.
 2. For ordering information please see page 38.
 3. Dimensions are subject to change. Contact factory for certified prints when required.



Design Features

- Available in flanged body style. Suitable for installation between RF flanges.
- Standard metal to metal seating. Optional resilient seats.
- Body meets ASME B16.5 and ASME B16.34.
- Testing is performed in accordance with API 598.

Upper Pressure Limits (Non-Shock)

Valve Size - in. (mm)	Body Material	M.A.W.P. - psig (Bars)
2" - 12" (50 - 300mm)	A216-WCB	285 (19.65)
	A351-CF8M	275 (18.96)

Parts List and Standard Materials

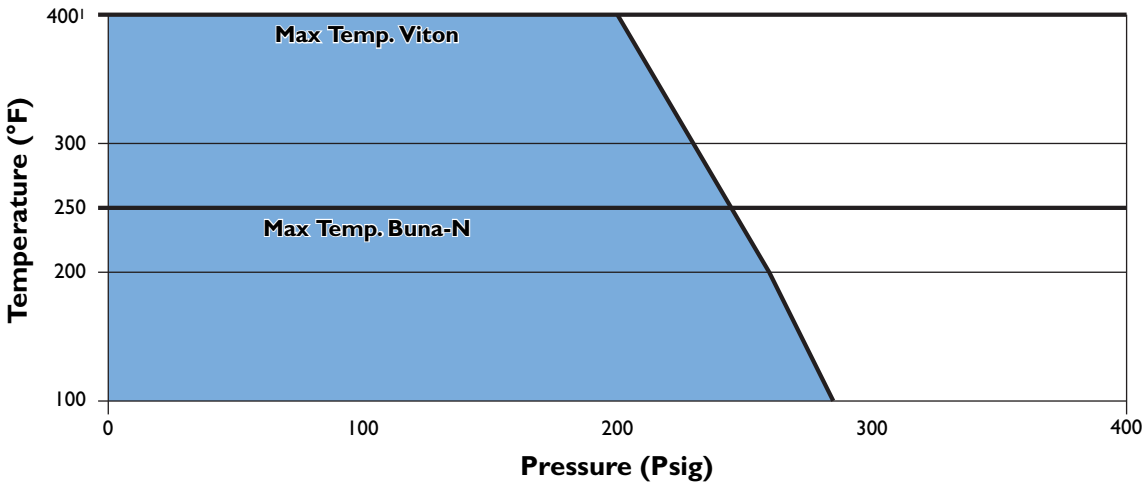
Part	Description	Carbon Steel	Stainless Steel
1	Body	A216-WCB	A351-CF8M 316 SS
2	Plug	A351-CF8M 316 SS	A351-CF8M 316 SS
3	Spring ¹	Type 316 SS	Type 316 SS
4	Seat ²	A351-CF8M 316 SS	A351-CF8M 316 SS
5	Bushing ¹	Type 316 SS	Type 316 SS
6	Seat Seal	Buna-N	Buna-N

- Notes:**
1. Materials of equivalent strength may be substituted at manufacturer's option.
 2. Resilient seats are available. Contact factory.

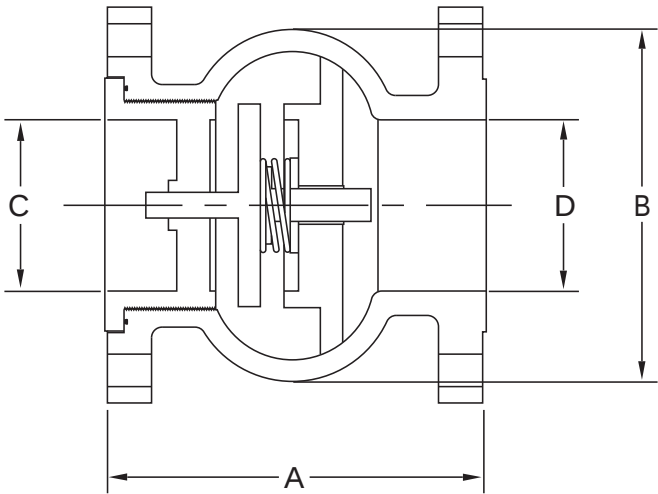
Lower Temperature Limits

Body/Seat Material	Lower Limit °F (°C)
A216-WCB, A351-CF8M	-20° (-28.9°)
Buna-N, EPDM, Viton	-13° (-25°)

Pressure Temperature Chart (In Accordance with ASME B16.34, A216-WCB)



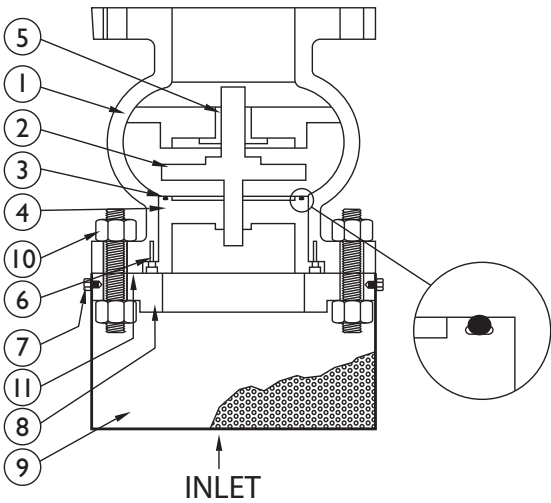
- Notes:**
1. Maximum operating temperature limited by seat seal material.
 2. Valves recommended for liquid service only.



Dimensional Data (Class 150)					Stud Selection				
Size in. (mm)	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	Qty. 150lb.	Dia. 150lb. in. (mm)	Length in. (mm)	Weight lb. (kg)	Cv
2 (50)	6.25 (159)	4.75 (121)	2.25 (57)	2.00 (51)	4	0.63 (16)	3.25 (83)	16 (7.3)	69
2.5 (65)	7.00 (178)	5.50 (140)	2.63 (67)	2.50 (64)	4	0.63 (16)	3.50 (89)	24 (10.9)	108
3 (80)	7.50 (191)	6.38 (162)	3.38 (86)	3.00 (76)	4	0.63 (16)	3.75 (95)	32 (14.5)	155
4 (100)	8.50 (216)	9.00 (229)	4.38 (111)	4.00 (102)	8	0.63 (16)	3.75 (95)	59 (26.8)	277
5 (125)	9.50 (241)	10.00 (254)	5.25 (133)	5.00 (127)	8	0.75 (16)	4.00 (102)	75 (34.1)	433
6 (150)	10.50 (267)	11.00 (279)	6.25 (159)	6.00 (152)	8	0.75 (16)	4.00 (102)	96 (43.6)	623
8 (200)	13.50 (343)	15.50 (394)	8.38 (213)	8.00 (203)	8	0.75 (16)	4.25 (108)	178 (80.8)	1109
10 (250)	16.25 (413)	18.00 (457)	10.00 (254)	10.00 (254)	12	0.88 (22)	4.75 (121)	280 (127.1)	1733
12 (300)	20.25 (514)	21.00 (533)	12.00 (305)	12.00 (305)	12	0.88 (22)	4.75 (121)	450 (204.3)	2495

- Notes:**
1. Valved sizes 2" thru 10" will mate up to wafer style butterfly valves without the use of spool pieces or other adapters.
 2. Valves can be installed between ANSI Class 150lb. flanges.
 3. Soft seats are available. Please consult factory.
 4. All sizes have Buna-N (-13°F to 250°F) body O-Ring Seals. Contact factory for other materials.

- General:**
1. For pressure loss information please see page 33.
 2. For ordering information please see page 38.
 3. Dimensions are subject to change. Contact factory for certified prints when required



Design Features

- Available in flanged body style.
- IFC Series FV125 are complete with FF flanges in accordance with ASME B16.1
- IFC Series FV150 are complete with RF flanges in accordance with ASME B16.5
- Standard Screen has 1/8" dia. holes on 3/16" centers.
- Standard "Dove Tail" resilient seating.
- Body meets applicable ASME Standard.

Upper Pressure Limits (Non-Shock)

Valve Size - in. (mm)	Body Material	M.A.W.P. - psig (Bars)
2" - 12" (50 - 300mm)	A126-B	200 (13.79)
	A216-WCB	285 (19.65)
	A351-CF8M	275 (18.96)

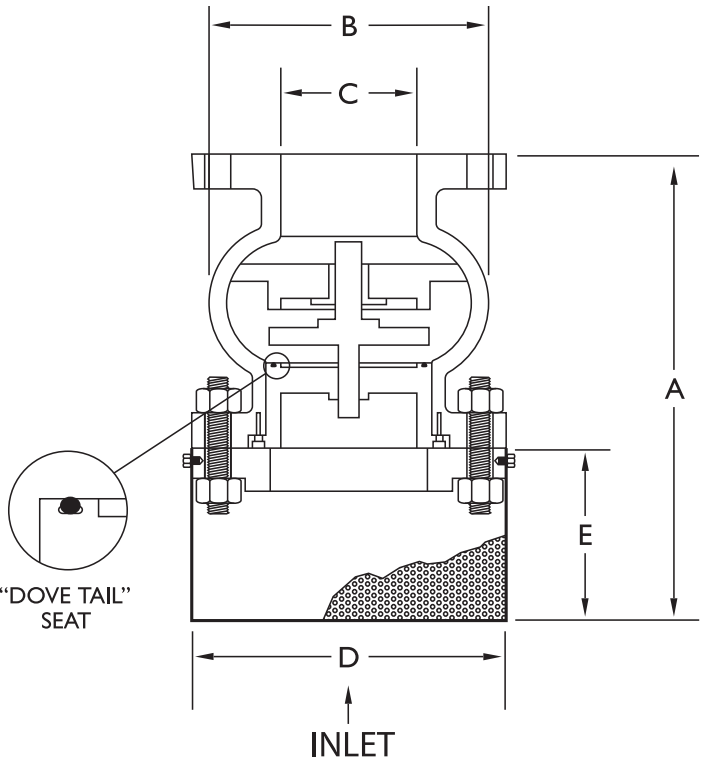
Lower Temperature Limits

Body/Seat Material	Lower Limit °F (°C)
A216-WCB, A351-CF8M	-20° (-28.9°)
Buna-N, EPDM, Viton	-13° (-25°)

Parts List and Standard Materials

Part	Description	Cast Iron	Carbon Steel	Stainless Steel
1	Body	A126-B Cast Iron	A216-WCB	A351-CF8M 316 SS
2	Plug	B148 C954 Aluminum Bronze A351-CF8M 316 SS	A351-CF8M 316 SS	A351-CF8M 316 SS
3	Seal ¹	Buna-N	Buna-N	Viton
4	Seat	B148 C954 Aluminum Bronze A351-CF8M 316 SS	A351-CF8M 316 SS	A351-CF8M 316 SS
5	Bushing	B148 C954 Aluminum Bronze A351-CF8M 316 SS	A351-CF8M 316 SS	A351-CF8M 316 SS
6	Set Screw	300 Series SS	N/A	N/A
7	Screen Retainer	300 Series SS	300 Series SS	300 Series SS
8	Ring Plate	A105 Carbon Steel	A105 Carbon Steel	A182 Stainless Steel
9	Screen	304 SS	304 SS	304 SS
10	Bolting	A193-B7/A194-2H Carbon Steel	A193-B7/A194-2H Carbon Steel	A193-88-1/A194-8 Carbon Steel
11	Gasket	Rubber	Rubber	Viton

Notes: 1. Materials of equivalent strength may be substituted at manufacturer's option.



Dimensional Data (Class 125, 150)								Stud Selection			Weight lb. (kg)	Cv
Size in. (mm)	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	E in. (mm)	Open Area in². (mm²)	Open Area Ratio %	Qty/Flange 125lb./150lb.	Dia. in. (mm)	Length in. (mm)		
2 (50)	10.75 (273)	4.75 (121)	2.00 (51)	6.00 (152)	4.38 (111)	38.68 (982)	1231%	4	0.63 (16)	3.25 (83)	23 (10.4)	61
2.5 (65)	11.63 (295)	5.50 (140)	2.50 (64)	7.00 (178)	4.50 (114)	47.32 (1202)	964%	4	0.63 (16)	3.50 (89)	34 (15.4)	94
3 (80)	11.63 (295)	6.38 (162)	3.00 (76)	7.50 (191)	4.00 (102)	45.95 (1167)	650%	4	0.63 (16)	3.75 (95)	43 (19.5)	140
4 (100)	12.63 (321)	9.00 (229)	4.00 (102)	9.00 (229)	4.00 (102)	59.38 (1508)	473%	8	0.63 (16)	3.75 (95)	66 (30.0)	246
5 (125)	14.63 (372)	10.00 (254)	5.00 (127)	10.00 (254)	5.00 (127)	81.68 (2075)	416%	8	0.75 (19)	4.00 (102)	95 (43.1)	388
6 (150)	16.63 (422)	11.00 (279)	6.00 (152)	11.00 (279)	6.00 (152)	107.13 (2721)	379%	8	0.75 (19)	4.00 (102)	120 (54.5)	556
8 (200)	20.75 (527)	15.50 (394)	8.00 (203)	13.50 (343)	7.13 (181)	159.04 (4040)	316%	8	0.75 (19)	4.25 (108)	215 (97.6)	989
10 (250)	25.38 (645)	18.00 (457)	10.00 (254)	16.00 (406)	9.00 (229)	236.25 (6001)	300%	12	0.88 (22)	4.75 (121)	335 (152.1)	1561
12 (300)	31.13 (791)	21.00 (533)	12.00 (305)	19.00 (483)	10.75 (273)	340.23 (8642)	300%	12	0.88 (22)	4.75 (121)	526 (238.8)	2241
14 (350)	36.50 (927)	25.00 (635)	13.75 (349)	21.00 (533)	13.63 (346)	461.81 (11730)	300%	12	1.00 (25)	5.25 (133)	675 (306.5)	3034
16 (400)	41.00 (1041)	26.00 (660)	15.75 (400)	23.50 (597)	16.13 (410)	605.53 (15381)	300%	12	1.00 (25)	5.50 (140)	960 (435.8)	3891

- Notes:
1. Screen open area based on a screen constructed from perforated plate with 1/8" dia. holes on 3/16" centers. (40% Open Area Media)
 2. Cast Iron valves can be installed between ANSI Class 125lb. flanges.
 3. Cast Steel and Stainless Steel valves can be installed between ANSI Class 150lb. flanges.
 4. It is recommended that Cast Iron valves have full face gaskets for installation.

- General:
1. For pressure loss information please see page 33.
 2. For ordering information please see page 38.
 3. Dimensions are subject to change. Contact factory for certified prints when required

Series SC600 Check Valve Pressure Drop – Liquid (Sizes 1/4" - 4")

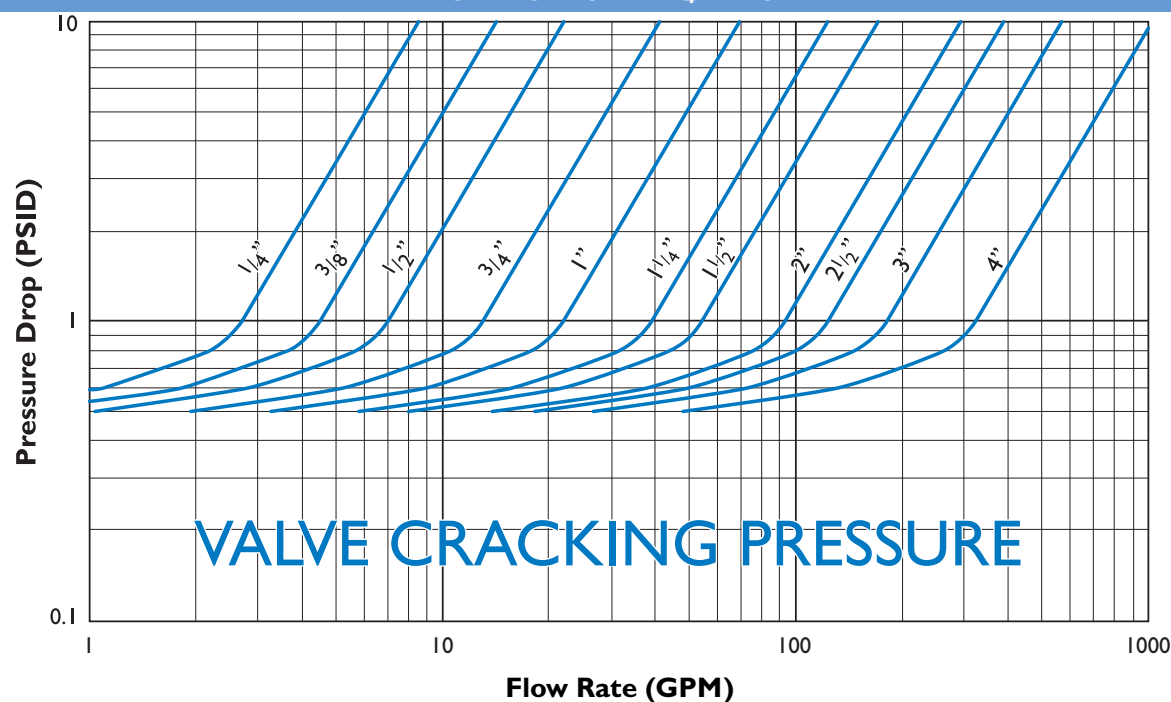


FIGURE 11

Wafer Silent Check Valve Pressure Drop – Liquids (Sizes 2" - 12")

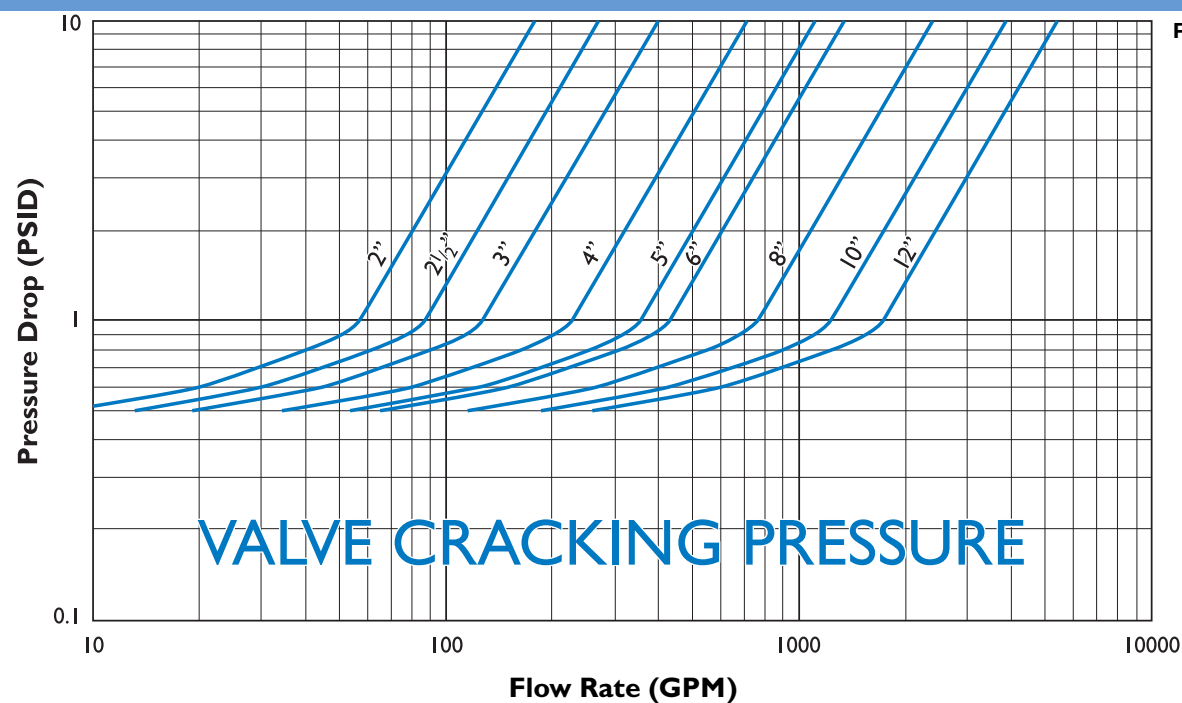


FIGURE 12

Flanged Silent Check Valve Pressure Drop – Liquids (Sizes 2" - 16")

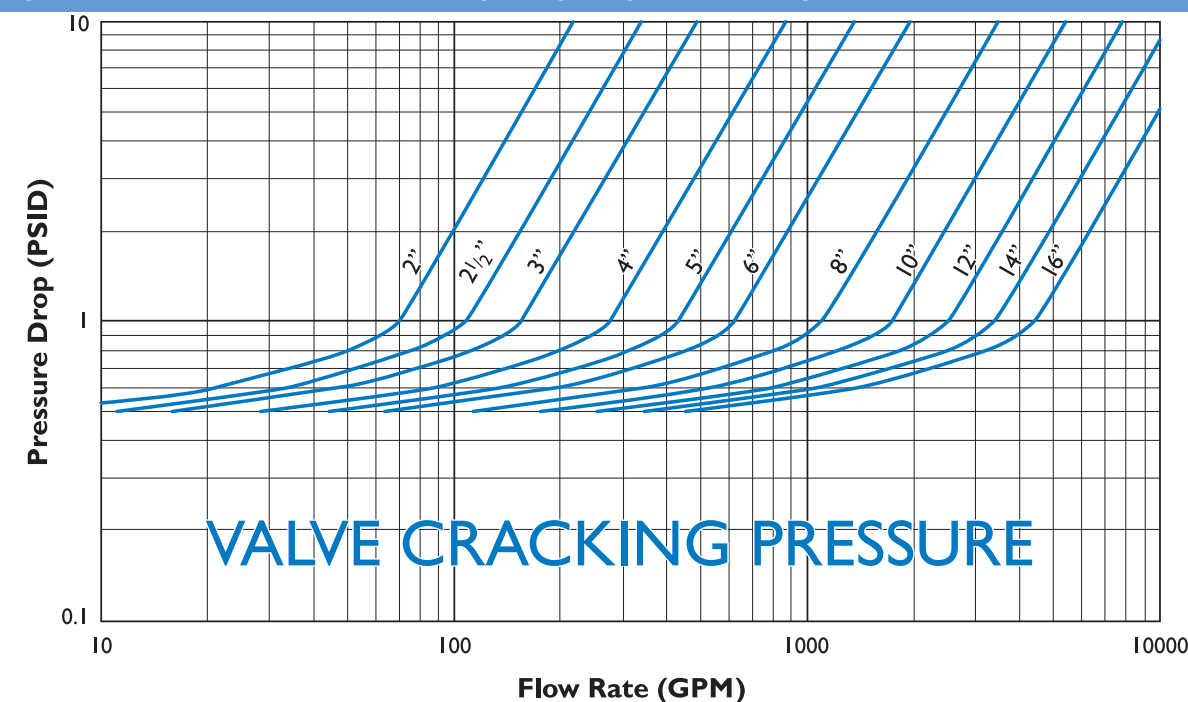


FIGURE 13

Notes:

1. Pressure drop curves are based on water flow.
2. Valve cracking pressure is equal to or less than 0.5 psid.
3. Valve cracking pressure increases to between 0.75 and 1.25 psid when installed vertically with flow upwards.

Method of Calculating Flow

Liquid Flow

$$C_v = Q \sqrt{\frac{G}{\Delta P}} \quad Q = C_v \sqrt{\frac{\Delta P}{G}} \quad \Delta P = G \left(\frac{Q}{C_v} \right)^2$$

Gas Flow

$$C_v = \frac{Q}{963} \sqrt{\frac{GT}{\Delta P (P_1 + P_2)}} \quad Q = 963 C_v \sqrt{\frac{\Delta P (P_1 + P_2)}{GT}}$$

Saturated Vapour

$$C_v = \frac{W}{K} \sqrt{\frac{I}{\Delta P (P_1 + P_2)}} \quad W = C_v K \sqrt{\Delta P (P_1 + P_2)}$$

Superheated Vapour

$$C_v = \frac{W(1+0.0007T_{SH})}{K} \sqrt{\frac{I}{\Delta P (P_1 + P_2)}} \quad C_v = \frac{C_v K}{(1+0.0007T_{SH})} \sqrt{\Delta P (P_1 + P_2)}$$

Variables

C_v = Valve Coefficient
 ΔP = $(P_1 - P_2)$ Pressure Drop
 P_1 = Inlet Pressure (PSIA)
 P_2 = Outlet Pressure (PSIA)
 G = Specific Gravity
 Water = 1.0 at 60°F and 1 ATM
 Air = 1.0 at 60°F and 1 ATM

Q = Flow
 Liquid = USGPM
 Gas = SCFH
 T = Absolute Temperature (°F + 460)
 T_{SH} = Superheat (°F)
 Total Temperature Minus Saturation Temperature
 W = lbs. Per Hour (LB/H)
 K = Constant For Vapours

1.0 Valve Location and Orientation in Piping

The IFC Silent Check Valve is designed to open fully to allow forward flow and close rapidly prior to flow reversal. These valves are used to prevent reverse flow through pumps or in piping systems. IFC Silent Check Valves are not intended for use with fluids containing suspended solids such as wastewater, or any type of hazardous gas. Check valves should be installed a minimum of 3 pipe diameters from other line elements. i.e. elbows, pumps, valves, etc.

Valves may be installed vertically, horizontally, or at other angles. Install the valve with proper positioning of the flow arrow. Support and align piping and valve. Install lubricated flange bolts and torque using the cross-over flange bolt tightening method.

Cast iron valves must be mounted to ANSI flat faced cast iron or steel flanges, while carbon and stainless steel valves may be mounted between either flat faced or raised face flanges (Note: The use of raised face flanges against cast iron valves may cause external leakage and/or damage to the valve). Gaskets may be full faced or ring type. It is very important to center the valve to the pipe inner diameter to prevent internal leakage.

2.0 Maintenance

IFC Series SC Check Valves normally require no routine maintenance.

3.0 Reconditioning

IMPORTANT! PRIOR TO DISASSEMBLY, VALVE MUST FIRST BE ISOLATED FROM SYSTEM PRESSURE AND FLOW.

When removing the valve from the pipeline, loosen the outlet flange bolting first, then loosen the inlet flange bolting

CAUTION: Protect eyes and other body parts from any residual line pressure that may exist in the pipeline.

The valve may then be removed from the pipeline and inspected for wear. For cast iron valves the valve seat ring is removed by removing the seat retaining screws. The seat ring on steel and stainless steel valves are removed by unthreading the seat ring in the counterclockwise direction. After the seat ring is removed, remove the disc, which will expose the guide bushing and valve spring. The parts that are worn should be replaced. NOTE: For valves supplied with soft seats, carefully inspect the O-Ring condition and dovetail machined groove for damage.

When the valve is to be reassembled, carefully place the disc and seat in the valve body to prevent damage to lapped or soft seat. Reinstall the valve in the line using new flange gaskets, and replace and torque the bolts using the cross-over flange bolt tightening the method.

CAUTION: The valve seating should never be inspected by only removing the valve inlet flange piping, because seat damage or injury could occur.

4.0 Troubleshooting

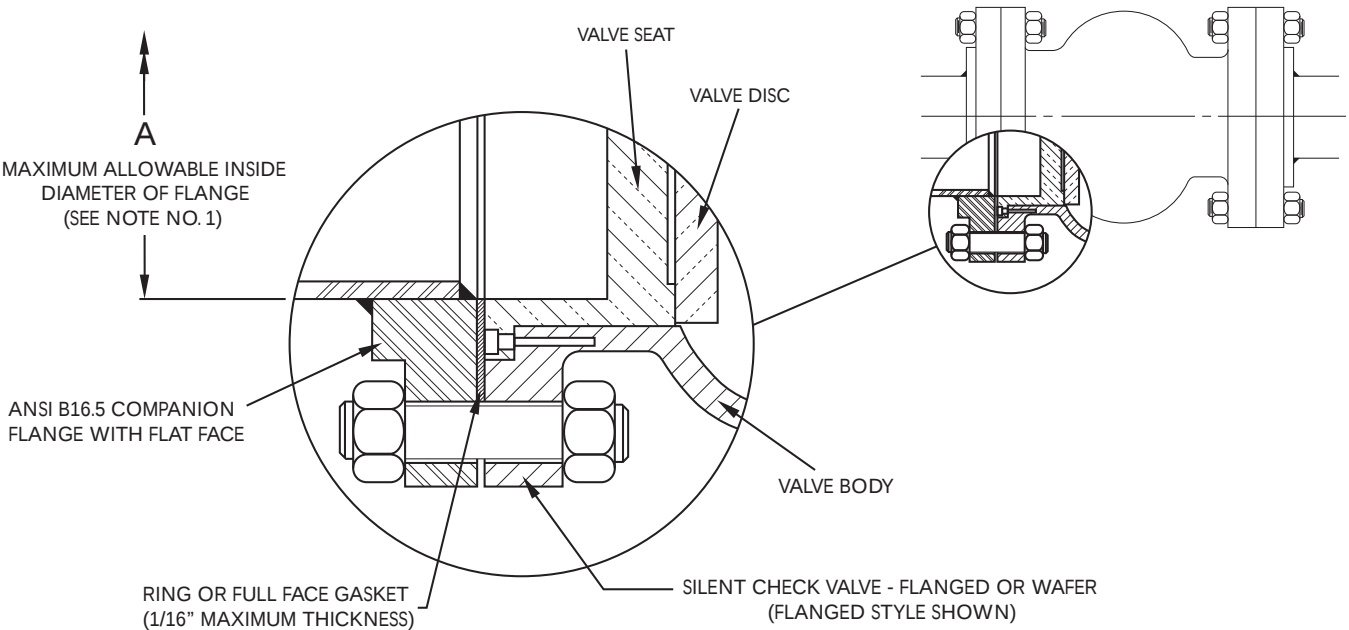
Presented below are several possible valve installation problems along with possible solutions:

- Valve chatters or vibrates: Verify that the velocity is at least 4 ft/sec. A “clunking” noise may be the result of line cavitations due to high velocities, low downstream pressure, or an upstream expander. It is preferred that 3 pipe diameters of straight pipe are located upstream of the valve.
- Valve leakage: Check the upstream gasket and flange and verify that the flange ID meets the maximum “A” dimension found on page 36. If found to be acceptable, remove the valve from service and inspect valve seating surface.
- Valve does not pass flow: Ensure valve is installed in the correct flow direction. Verify that downstream isolation valve is open and that no blockage exists inside the valve body cavity.
- Valve slams: Remove valve and inspect spring. Heavier springs can be furnished for severe applications. Contact factory.

Installation Requirements

For cast iron valves, damage to the valve and/or internal leakage may result if pipe flanges other than those with standard flat faces, conforming to ASME B16.1 or ASME B16.5 are used.

Warning: Flanges having an expanded inside diameter (often found on mortar lined pipe) cannot be used on the inlet side of the valve. A ring flange having a maximum inside diameter, as shown in “A” dimension below, must be inserted between the valve and mortar lined pipe flange.



Max. Diameter of Flange ¹	
Valve Size - in. (mm)	A
2" (50mm)	2.440
2½" (65mm)	2.940
3" (75mm)	3.570
4" (100mm)	4.570
5" (125mm)	5.660
6" (150mm)	6.720
8" (200mm)	8.720
10" (250mm)	10.880
12" (300mm)	12.880
14" (350mm)	14.160
16" (400mm)	16.160

Standard Ring Gasket Dimensions ²			
Valve Size in. (mm)	Gasket I.D. 125lb./250lb.	Gasket O.D.	
		125lb.	250lb.
2" (50mm)	2.375	3.875	4.125
2½" (65mm)	2.875	4.875	5.125
3" (75mm)	3.500	5.375	5.875
4" (100mm)	4.500	6.875	7.125
5" (125mm)	5.562	7.750	8.500
6" (150mm)	6.625	8.750	9.875
8" (200mm)	8.625	11.000	12.125
10" (250mm)	10.750	13.375	14.250
12" (300mm)	12.750	16.125	16.625
14" (350mm)	14.000	17.750	19.125
16" (400mm)	16.000	20.250	21.250

- Notes:**
- The mating companion flange I.D. must overlap the valve seat. This is required to provide proper seat retention.
 - The flange gasket must be properly centered and of the size indicated. This is required to achieve a seal between the seat O.D. and the body I.D. interface area.

Cast Iron A126-B			
Class	125	125	125
NPS	1-12	14-24	30-48
Temp °F	Maximum Non-Shock Working Pressure (psig)		
-20°-150°	200	150	150
200°	190	135	115
225°	180	130	100
250°	175	125	85
275°	170	120	65
300°	165	110	50
325°	155	105	-
353° ¹	150	100	-
375°	145	-	-
406°	140	-	-
425°	130	-	-
450°	125	-	-

Notes: 1. 353°F (max) to reflect the temperature of saturated steam at 125 psig.
2. 406°F (max) to reflect the temperature of saturated steam at 250 psig.

Cast Carbon Steel A216-WCB					
Class	150	300	600	900	1500
Shell Test, psig.	450	1125	2225	3330	5575
Temp °F	Maximum Non-Shock Working Pressure (psig)				
-20°-100°	285	740	1480	2200	3705
200°	260	675	1350	2025	3375
300°	230	655	1315	1970	3280
400°	200	635	1270	1900	3170
500°	170	600	1200	1795	2995
600°	140	550	1095	1640	2735
650°	125	535	1075	1610	2685
700°	110	535	1065	1600	2665
750°	95	505	1010	1510	2520
800°	80	410	825	1235	2060
850° ¹	65	270	535	805	1340

Notes: 1. Permissible but not recommended for prolonged usage above 800°F.
2. Flanged end ratings terminate at 1000°F.

Cast Stainless Steel A351-CF8M					
Class	150	300	600	900	1500
Shell Test, psig.	425	1100	2175	3240	5400
Temp °F	Maximum Non-Shock Working Pressure (psig)				
-20°-100°	275	720	1440	2160	3600
200°	240	620	1240	1860	3095
300°	215	560	1120	1680	2795
400°	195	515	1030	1540	2570
500°	170	480	955	1435	2390
600°	140	450	905	1355	2255
650°	125	445	890	1330	2220
700°	110	430	865	1295	2160
750°	95	425	845	1270	2110
800°	80	415	830	1245	2075
850°	65	405	810	1215	2030
900° ¹	50	395	790	1180	1970
950°	35	385	775	1160	1930
1000° ²	20	365	725	1090	1820

Notes: 1. Contact factory for use at higher temperatures.
2. Flanged end ratings terminate at 1000°F.

