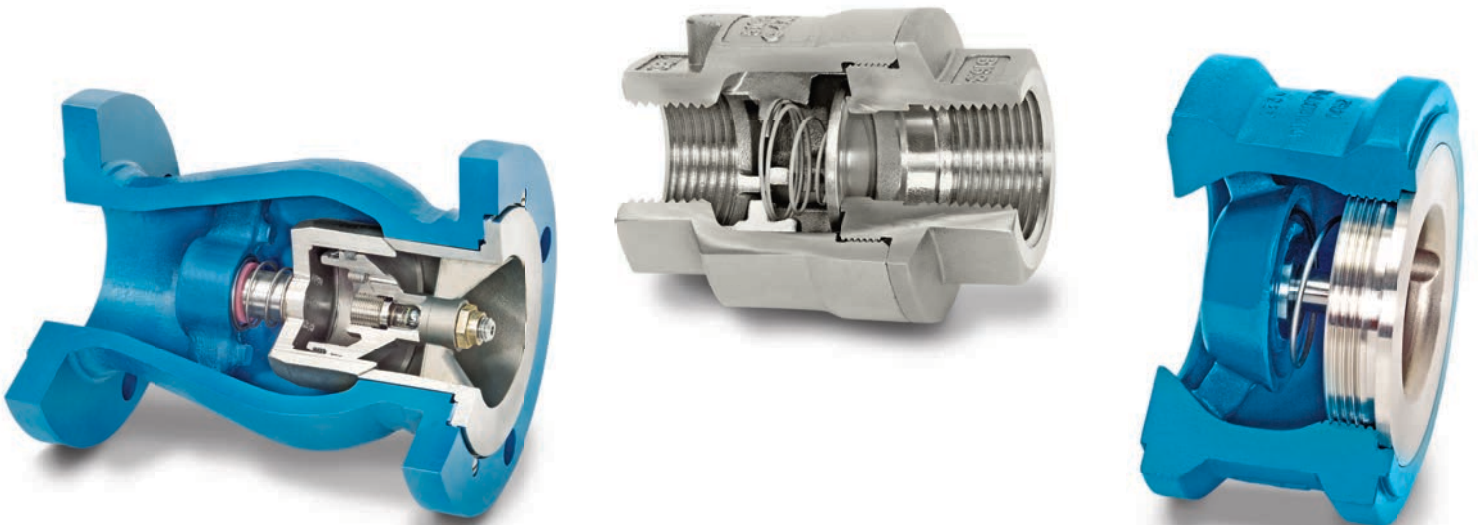


DFT[®]

World Class Manufacturer of Check Valves



Spring-assisted, Non-slam, Axial Flow, Silent Check Valves

The Check Valve Doctor™

DFT in-line check valves began over 75 years ago with a customer's need for a small metal-seated check valve that could be installed in any position while providing tight shutoff. The Basic-Check® valve was developed to satisfy that need. Over the following decades, other customers' needs led to the development of the ALC®, BNC®, DLC®, DSV®, Excalibur®, GLC®, PDC®, SCV®, TLW®, WLC® and Y-Calibur® styles of axial flow, non-slam silent check valves. Each of these DFT check valves addresses the particular needs of today's customer.

DFT's objective is to diagnose check valve problems, provide solutions and prevent failures. DFT has learned by listening to customers like you that each industry has special needs that can exceed other check valve designs. We specialize in providing in-line check valves that meet customer requirements as opposed to simply meeting line size. In some cases, minor modifications to our valves have solved customer problems while improving performance and extending service life.

The Check Valve Doctor™ continues to grow as a result of satisfying these needs and solving problems, supported by quick response manufacturing and relentless quality control. That's why DFT non-slam check valves are known around the world as the valve to use to prevent or eliminate water hammer problems. Whatever your size, pressure or piping configurations, DFT has a check valve for you. Thank you for considering DFT for your check valve requirements.

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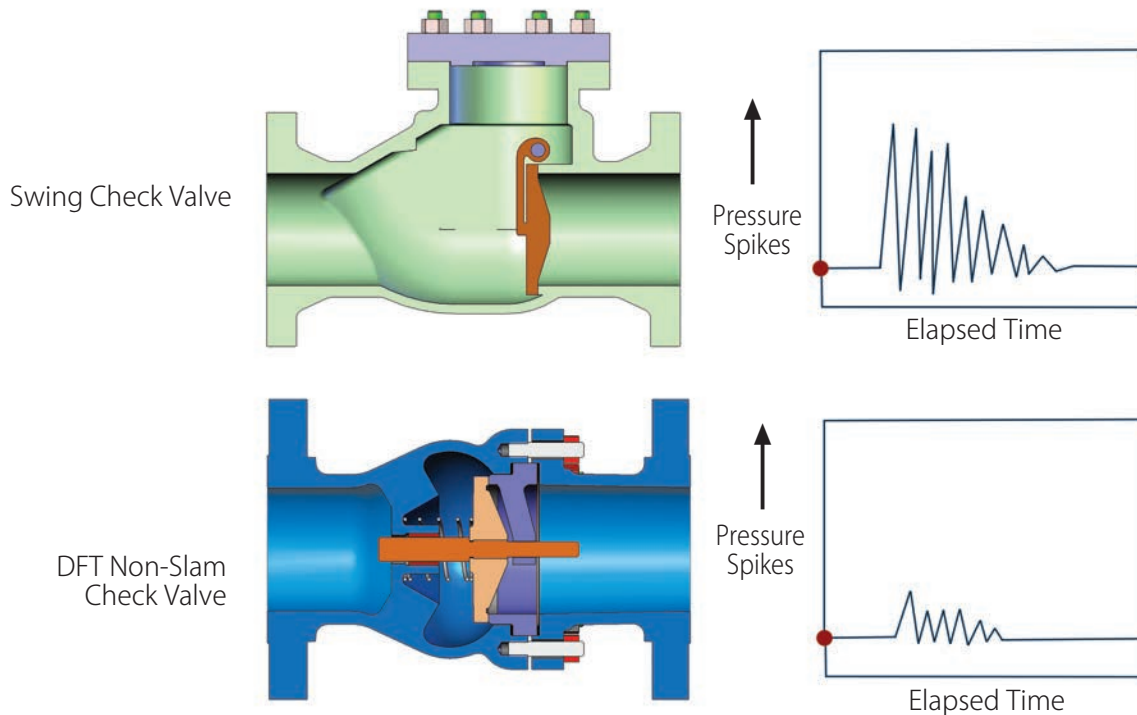
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Water Hammer

How DFT Non-Slam Check Valves Prevent Water Hammer

Water hammer is the generation and effect of high-pressure shock waves (transients) in relatively incompressible fluids. Water hammer is caused by the shock waves that are generated when a liquid is stopped abruptly in a pipe by an object such as a valve disc. Symptoms include noise, vibration and hammering pipe sounds which can result in flange breakage, equipment damage, ruptured piping and damage to pipe supports. Whenever incompressible fluids exist in a piping system, the potential exists for water hammer. The risks of water hammer developing are particularly high when the velocity of the fluid is high, when there is a large mass of fluid moving and/or when there are large elevation changes within the piping systems. Since the swing check must rely on gravity and/or fluid flow to help it close, flow reversal must occur before closure begins. When the swing check finally closes, it abruptly stops the flow and causes a pressure surge resulting in shock waves. These shock waves continue until the energy generated from this sudden action dissipates.

Visit www.dft-valves.com to view DFT's check valve animations.



These high-pressure waves act against the piping and the valve, exerting very high forces. This causes severe stress on the metal and vibrations in the system. If the system is not designed to withstand these high transient forces, the pipe could rupture and/or other components in the system, such as pumps and valves, could possibly be damaged. These problems can be eliminated or greatly minimized by installing a spring assisted non-slam check valve. Non-slam check valves do not rely on gravity or fluid flow for their closure. Instead as the forward velocity of the fluid slows, the spring assist on the valve starts to close the disc. Due to the spring assist and the relatively short distance the disc must travel, by the time the forward velocity has decreased to zero, the valve disc has reached the seat and the valve is closed. With reverse flow eliminated, the forces necessary to produce water hammer on both the upstream and downstream sides of the valves are substantially eliminated.

DFT Smart Part Number Scheme

DFT® has put into effect a Smart numbering system to assist in identifying and ordering DFT check valves.

Within the part number you will be able to identify key elements of your check valve.

Below is an example of how the Smart number scheme will work.

Example: Excalibur 4" 600# WCB / 316 / X750 Spring/Spiral Wound gaskets

2 2	2	L	1	C	4	A	5	—	—	—																														
MODEL	BODY MATERIAL	SIZE	ENDS ⁽¹⁾	CLASS ⁽²⁾ RATING	TRIM MATERIALS	SEATING	SPRING	SPECIAL ⁽³⁾ (Consult Factory)																																
22= Excalibur	1= LCB	C=0.5	1= Raised Face	A=150	4=316	A=Metal	1=Hast C	Based on Application, specials are available for: <ul style="list-style-type: none"> • Custom Sizing • Special cracking pressure variation • DSV 15 Ra Internal Finish EP=Electropolish • SCV Body Seals N=BUNA E=EPDM F=Viton TF=TFE/Viton W=Seal Welded 																																
31= PDC	2= WCB	D=0.75	2= RTJ	B=300 *	5=Monel	B=Buna-N (75 dur.)	3=316																																	
42= TLW	3= CK3MCuN	E=1	3= Flat Face	C=600	6=Alloy 20	C=EPDM	4=Monel																																	
47= Y-Calibur	5= 316/CF8M ⁽⁴⁾	F=1.25	5= Socket Weld	D=900	8=410	D=Viton	5=X-750																																	
52= ALC	6= Monel	G=1.5	6=Grooved (Victaulic)	E=1500 *	9=Special	E=Kalrez	6=Alloy 20																																	
61= BNC	7= 317-L	H=2	7=Threaded NPT	F=2500	A=NAB	F=Stellite** Seat & Disc	7=17-7																																	
94= DLC	8= LCC	J=2.5	9= Special	Z=Special	E=Hast C	G= Teflon Encapsulated Viton	8=not used																																	
21= DSV	9= Special	K=3	A=DSV Vertical		F=Ti Gr 12	H=Viton F	9=special																																	
95= GLC	0= Repair Kit	L=4	B=DSV Horizontal		G=17-4	J=Buna 90 durometer	A= Ti 6-4																																	
83= SCV	A=Alloy 20	M=5	C= SCH 40 Butt Weld		H=316L	S=Special																																		
84= SCV-R	B=410 SS	N=6	D= SCH 80 Butt Weld			Z=Zelon																																		
90= WLC	C=WC9	O=8	E= SCH 120 Butt Weld			8=Stellite Seat only																																		
	D= NAB	P=10	F= SCH 160 Butt Weld																																					
	E= Hast C	R=12																																						
	F=Ti Gr 12	S=14																																						
	G= 316L/CF3M	T=16																																						
		U=18																																						
		W=20																																						
		X=24																																						
		Y=30																																						
		1=36																																						
		2=42																																						
		3=48																																						
		Z=Special																																						
NOTES: (1) ENDS: C-F are only for Welded End Valves (2) DUAL CLASS: Use the higher rating when selecting. Ex: 150/300=B (3) SPECIALS: Consult with DFT for Special Options or Alternatives based on application. (4) For DSV Only: Use body material code "5" for 316L * For SCV & SCV-R, Class "B" identifies at 750 CWP, and Class "E" identifies at 3600 CWP ** Includes Seat and Disc																																								
The Smart part number scheme does not apply to the following DFT models: † Basic-Check Valves, Reducing Couplings, Restrictor Check Valves, Vacuum Breakers, FBC, GPV, or cast iron valves. These model part numbers will remain unchanged.				Body Seal Part Number Reference <table border="1"> <thead> <tr> <th>Material</th> <th>Temperature</th> <th>Old P/N†</th> <th>Body & Seat</th> <th>Only Body Seal</th> </tr> </thead> <tbody> <tr> <td>BUNA</td> <td>-70° F to 250° F</td> <td>- 49</td> <td>= B</td> <td>N</td> </tr> <tr> <td>VITON</td> <td>-40° F to 400° F</td> <td>- 51</td> <td>= D</td> <td>F</td> </tr> <tr> <td>ZELON</td> <td>+37° F to 470° F (750CWP) +37° F to 400° F (3600CWP)</td> <td>- 54</td> <td>= Z</td> <td></td> </tr> <tr> <td>EPDM</td> <td>-75° F to 300° F</td> <td>- 57</td> <td>= C</td> <td>E</td> </tr> <tr> <td>TFE/VITON</td> <td>-40° F to 400° F</td> <td>- 98</td> <td>= G</td> <td>TF</td> </tr> </tbody> </table>							Material	Temperature	Old P/N†	Body & Seat	Only Body Seal	BUNA	-70° F to 250° F	- 49	= B	N	VITON	-40° F to 400° F	- 51	= D	F	ZELON	+37° F to 470° F (750CWP) +37° F to 400° F (3600CWP)	- 54	= Z		EPDM	-75° F to 300° F	- 57	= C	E	TFE/VITON	-40° F to 400° F	- 98	= G	TF
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You can also find our full catalog online at www.dft-valves.com.

Valve Selection Chart

	THREADED VALVES					FLANGED VALVES					SANITARY VALVES	WAFER VALVES				IN-LINE REPAIRABLE VALVES	BUTT WELD
	Basic-Check®	Restrictor Check	SCV®	SCV-R®	Vacuum Breaker	DLC®	Excalibur®	GLC®	GLC® - CAST IRON	PDC®	DSV®	ALC®/TLW®	FBC®	WLC®	WLC® - CAST IRON	Y-CALIBUR®	BNC®
PAGE	10	12	14	16	18	20	22	24	26	28	30	32-34	36	38	40	42	44
SIZE	¼ to 2-½	¼ to 2-½	½ to 3	½ to 2	1 to 4 (OD)	½ to 3	2 to 24	1 to 42	2-½ to 42	2 to 26	½ to 4	2 to 24	1 to 4	1 to 10	2 to 10	4 to 14	2 to 24
ENDS																	
NPT	X	X	X(1)	X(1)	X												
SW			X(1)	X(1)													
FLG						X	X	X	X	X							
RTJ							X	X		X				X			
BW							X									X	X
FLG/BW							X										
Victaulic®							X										
Wafer												X	X	X	X		
Clamped											X						
ASME CLASS																	
125									X						X		
150						X	X	X		X		X	X	X			X
250									X						X		
300						X	X	X		X		X	X	X			X
600							X	X		X		X(7)		X		X	X
900							X	X		X		X(7)		X		X	X
1500							X	X		X		X(7)		X		X	X
2500								X						X		X	
750 CWP			X	X													
3600 CWP			X														
OTHER	X(2)	X(2)			X(2)			X(3)			X(2)			X(3)			
MATERIALS									BODY/TRIM								
Cast Iron									X(4)						X(4)		
WCB/316 SS*							X	X		X		X		X		X	X
316 SS/316 SS*	X(5)	X(5)	X	X	X(5)	X	X	X		X	X(5)	X	X	X			X
Other Alloys			X	X		X	X	X		X	X			X		X	
OPTIONS																	
Soft Seat	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	
X-750 Spring	X	X	X(6)	X(6)	X	X(6)	X	X		X		X(6)	X	X		X	X

Notes: 1. NPT x SW available.

2. CWP RATING BSS, BSA, BSE, BSSV, Restrictor Check: 450 to 2500 CWP depending on size; BSSH6, BSSV6: 450 to 6000 CWP depending on size. BSSH7: 800 to 6000 CWP depending on size. DSV: ASME/ANSI Class 108.

3. API 2000 and 5000 ARE AVAILABLE. Contact DFT for sizes.

4. TRIM MATERIAL: BRONZE OR 316 SS

5. BODY & SEAT: BSE, BSS, BSSV. Restrictor Check: 303 SS, BSA: 416 SS, BSSH6, BSSH7, BSSV6: 316 SS, DSV: 316L SS (A351/CF3M)

6. Inconel® X-750 spring is standard.

7. Class 600, 900, & 1500 available for TLW only (not available for ALC).

* CF8M is the cast grade of 316 SS.

Use the DFT® VALVE DATA SHEET to collect your valve data specifications (see page 9 or download from the resource library at dft-valves.com).

Features

Designed to prevent “Water Hammer.”

The spring-assisted, axial flow, in-line, nozzle style, non-slam design featured in all DFT® check valves insures that as the forward flow in a pipeline decreases, the disc begins moving closer to the seat. By the time the flow stops, the disc is closed against the seat preventing flow reversal. This prevents the valve from slamming closed which can cause “Water Hammer” and the resultant noise and damage to piping systems.

Designed to open at approx. 0.5 psi differential pressure and fully open at 1.0 psi differential pressure.

See product tables for specific cracking pressures.

Can be installed in ANY orientation.

Including vertical with flow up or down. (Special springs may be required)

MSS SP 126-2000 Steel Non-slam Spring-Assisted Center Guided Check Valves Standard

DFT carbon steel, stainless steel and alloy valves meet this standard. (Does not apply to the Basic-Check, Restrictor Check or Vacuum Breaker)

API 6D- Pipeline Valves

API 6D specification holds hydrostatic and pneumatic testing to an elite new standard. Unlike the base API 598 testing, API 6D testing requires increased pressure testing durations, rust inhibitor, medium PH testing and more stringent design and manufacturing process controls. Contact DFT about products that meet API 6D.

API 6FD- Fire Test for Check Valves

ASME Class 150 and 300 GLC meet API 6FD. (Line sizes 2-24")

Meet or exceed MSS SP-61 leakage requirements.

Metal-to-metal seating is standard in all DFT non-slam check valves. Cast iron valves meet AWWA seat leakage requirements. DFT's standard test medium is water and meets or exceeds testing requirements.

Additional Quality Tests for Check Valves

FaroArm® Inspection ensures bolt hole alignment and face-to-face parallelism.

Available with soft seats for bubble-tight shutoff.

Soft seat material selected based on operating temperature and chemical compatibility. See page 48 for available options.

Dual-guided stems.

The stem is guided upstream and downstream to guard against vibrations and insure proper disc seating. (Does not apply to the ALC®, Basic-Check®, DLC®, DSV® (1/2"-2"), Restrictor Check, SCV®, SCV-R® or Vacuum Breaker)

Custom sizing available.

The following DFT check valves can be sized to the appropriate flow conditions: ALC®, BNC®, Excalibur®, GLC®, TLW®, WLC®, and Y-Calibur®.

Pulse-damping design.

The DFT Model PDC® is specifically designed for use on the discharge of reciprocating air or gas compressors. The design includes a pulse-damping chamber to protect against premature seat wear due to chattering.

Liquids, gas or steam.

All DFT non-slam check valves provide positive shutoff for applications involving liquids, gas or steam and can be used in most industries including oil and gas, petrochemical, pulp and paper, textiles, food and beverage and commercial construction. Applications include chemical lines, fluid injection, condensate recovery, steam, nitrogen, pump and compressor discharge, chiller and boiler feed systems. See page 7 for additional information.

NACE

Optional body and trim materials to meet the NACE standards MR0103/ISO 17945 and MR0175/ISO 15156. See page 47.

Maintenance and Installation guides available for all DFT non-slam check valves.

Applications

Chemical Processing

Boiler Feed & Discharge
Compressor Discharge
Condensate Lines
Cooling Towers
Cryogenics
Evaporators
Nitrogen Purge
Process Lines
Pump Discharge
Metering Pumps
Mineral Dewatering
Steam Lines
Vacuum Lines & Breakers
Water Treatment

Petroleum Production & Refining

Boiler Feed & Discharge
Condensate Lines
Cooling Towers
Crude & Refined Product Lines
Compressor Discharge
Desalination
Evaporators
Generator Inlet & Discharge
Pump Discharge
Steam Lines
Vacuum Lines & Breakers
Water Treatment

Mining

Autoclaves
Boiler Feed & Discharge
Mine Dewatering

Pulp & Paper

Boiler Feed & Discharge
Chemical Lines
Condensate Lines
Generator Inlet & Discharge
Metering Pumps
Pump Discharge
Steam Lines
(Digester & Paper Machines)
Water Treatment

Textiles

Boiler Feed & Discharge
Chemical Dye Lines
Compressor Discharge
Condensate Lines
Metering Pumps
Pump Discharge
Steam Lines

Power Generation

Boiler Feed & Discharge
Compressor Discharge
Cooling Towers
Desalination
Evaporators
Pump Discharge
Steam Lines
Vacuum System
(Fly Ash System)
Water Lines

Food, Beverage & Drug

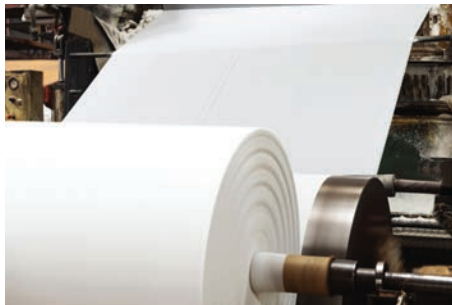
Autoclaves
Boiler Feed & Discharge
Chemical Lines
Compressor Discharge
Condensate Lines
Cookers
Evaporators
Metering Pumps
Pump Discharge
Refrigeration (Hot Gas Defrost)
Steam Lines
Vacuum Lines & Breakers

Primary Metals

Chemical Lines
Compressor Discharge
Condensate Lines
Extrusion Equipment
Evaporators
Hydraulic Lines
Presses - Water Inlet & Outlet
Pump Discharge
Steam Lines
Water Lines
Water Treatment

Building Maintenance

Condensate Lines
Compressor Discharge
Pump Discharge
Steam Lines
Water Lines



DFT Recommends to
Always Size Your Check Valves

The Importance of Check Valve Selection and Sizing

Knowing which check valves can withstand different environmental factors, and how check valve sizing works is the key to a longer lifetime of use, proper flow and overall efficiency of your fluid, steam or gas flow system.

It is important that check valves be sized for their application and flow, not based just on their line size. Choosing the appropriate-sized check valve means it will be working at its highest level, providing efficient service with maximum protection. Proper check valve sizing will optimize a system's reliability, providing the longest and most trouble free service.

An undersized valve will cause higher pressure losses and create excessive noise and vibration, and an oversized valve can lead to premature wear and failure of the valve's internal components. When the valve's disc is stable and in the fully open position against the internal stop or fully closed position against the seat, no disc fluttering will occur.

The correct valve selection not only allows the valves to last longer, but pumps and other related components on the same system will have increased longevity as well, resulting in reduced overall maintenance and costs. Well- functioning check valves also enhance the safety of their applications.

Lower Lifetime Maintenance Costs

Every fluid handling system has its own unique requirements. When customers purchase inappropriately sized valves, it can create costs that go far beyond the valves themselves. When a valve fails, the labor costs to fix it can be very high. For example, if a maintenance team is needed only two people are sent to replace a valve, the costs will accumulate depending on time and number of crew needed.

When you add in down time and lost production time on top of that, the costs can be staggering—sometimes exceeding up into thousands of dollars per hour or higher.

The price of poor valve choice could be even higher when working with potentially hazardous materials. A valve malfunction could create a spill that could harm the environment. Most chemical spills need to be reported, impacting environmental safety, worker safety, and damage to the reputation of the company as well as the potential for large fines.

When maintenance, safety and replacement costs are included in the purchasing decision, it becomes clear that higher-quality check valves are a much more cost-effective option. DFT® check valves are made to last, designed for durability and superior sealing.

A professional consultation to get the most appropriate and best-sized valve is far more cost effective when considering lifetime maintenance costs, system reliability and optimizing system performance through maintenance reductions. Contact DFT Inc. for more information.



Valve Data Sheet



TEL: (610) 363-8903
FAX: (610) 524-9242
dft@dft-valves.com
www.dft-valves.com

VALVE DATA SHEET
NON-SLAM CHECK VALVE
"CHECK VALVE DOCTOR"[™]

Customer: _____ Contact: _____ Phone: _____ Fax: _____ email: _____	Date: _____ Page: _____ of _____ QUOTE NO.: _____ ITEM NO. _____
--	---

GENERAL INFORMATION	Quantity: *		
	Line Size: *		
	Class (ANSI/API):*		
	Model:		
	End Connections: *		
	Material: Body*		
	Trim *		
	Spring		
	Seating	Metal <input type="checkbox"/>	Soft <input type="checkbox"/>
	Gaskets/O-ring		
Bolting			
Tag No: _____	Brass <input type="checkbox"/>	Stainless <input type="checkbox"/>	Other: _____

FLUID DATA	Fluid State *	Liquid <input type="checkbox"/>	Gas <input type="checkbox"/>	Steam <input type="checkbox"/>
	Fluid: *			
	Specific Gravity: *			
	Design Conditions:	Pressure:	Temp.:	
	Operating Conditions:	Flow*	Pressure *	Temperature*
	Units: (i.e. GPM, PSI, °F, etc.)	_____	_____	° _____
	Normal *			
	Maximum			
Minimum				

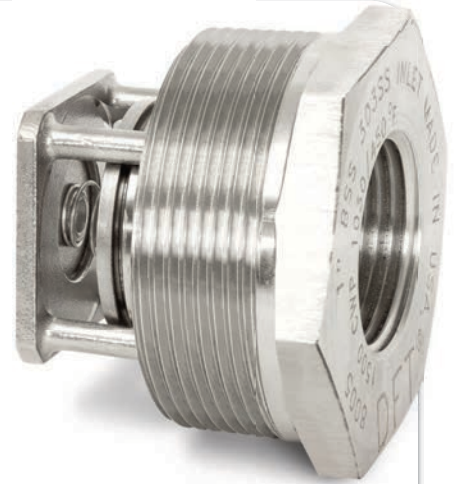
INSTALLATION DATA	Orientation: *	Horizontal <input type="checkbox"/>	Vert. flow: Up <input type="checkbox"/>	Down <input type="checkbox"/>
	Service Application:			

SPECIAL REQUIREMENTS	Specification Nos.:			
	CE MARK	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
	Cert. of Compliance:	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
	CMTRs:	Body <input type="checkbox"/>	Trim <input type="checkbox"/>	
	Drawings:	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
	NACE MR 0175/ISO 15156	Yes <input type="checkbox"/>	No <input type="checkbox"/>	% H ₂ S: _____
	NACE MR 0103-2003	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
	NDE: (Specify)			
	Packaging:			
	Other:			

NOTES			
DELIVERY: _____ wks.	* Denotes Required		

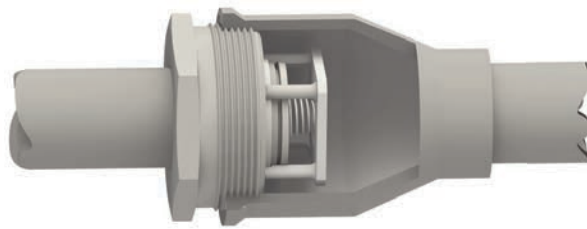
Basic-Check®

The **DFT® Basic-Check Valve** is a versatile all-purpose, non-slam valve that provides reliable, low-maintenance service for a wide range of liquids, steam and gases at various pressure/temperature combinations. The valve consists of a guard cage, spring, valve disc, retaining ring and seat. It can be combined with pipe fittings such as reducing couplings, drain elbows, etc. to form a complete check valve unit ideally suited for a broad range of pipeline applications or incorporated into machinery for OEM applications. The metal-to-metal sealing area of the Basic-Check valve's disc and seat is precision-lapped, providing very tight shutoff of gas, steam and liquid. If bubble-tight shutoff is required, optional resilient soft seats are available.



FEATURES:

- 1/4" to 2 1/2" Line size
- 450 to 6000 CWP
- Threaded ends
- Stainless steel construction
- Spring-assisted silent closing
- Horizontal or vertical installation
- Tight shutoff - lapped disc & seat
- Easy maintenance
- Versatile
- Options:
 - Inconel® X-750 spring
 - Soft seat (for bubble-tight shutoff)



Can be used with reducing coupling

Basic-Check				Cracking Pressure	
A Line Size Inlet (FNPT)	B Outside Thread (MNPT)	Weight	Cv	PSI	Inches of Water
1/4	1	0.38	5.8	0.60 (1)	16.7
3/8	1	0.38	5.8	0.60 (1)	16.7
1/2	1	0.38	5.8	0.60 (1)	16.7
3/4	1 1/2	0.88	13.2	0.45	12.5
1	2	1.25	23.1	0.38	10.5
1 1/4	2 1/2	2.25	36	0.20	5.5
1 1/2	3	3.75	57.4	0.14	3.9
2	4	7	90	0.15	4.3
2 1/2	4	7	90	0.15	4.3

*Cracking pressure shown for horizontal installation. Cracking pressure for vertical flow will be slightly different: upward flow, slightly higher; downward flow, slightly less.

Not recommended for use on discharge of reciprocating compressors.

Consult pages 48 and 49 for Pressure/Temperature ratings and soft seat materials.

Basic-Check®

COLD, NON-SHOCK PRESSURE RATING (PSIG) (2)

	1/4", 3/8", 1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"
Basic-Check BSS	2500	2000	1500	850	700	450	450
Basic-Check BSA				850	700	450	
Basic-Check BSE	2500	2000					
High-Pressure BSSH6	6000	5500	3000	1100	900	450	450
High-Pressure BSSH7	6000	6000	6000	4000	2700	800	800

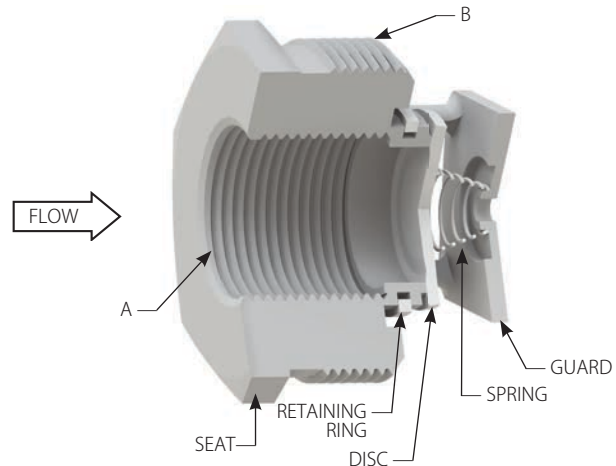
Sat. Steam Pressure (PSIG) Ref. (3)	Temperature (°F)	Adjusted Rating as Percent of Cold Rating
-3	200	86%
15	250	82%
52	300	78%
232	400	71%
407	450	69%
665	500	66%
1526	600	62%
3075	700	60%

All stainless steel construction is suitable for cryogenic service. For pressure rating at elevated temperatures for standard metal-seated valves, reduce rating per chart above.

Maximum valve temperature rating is limited by soft seat (if any) and spring materials. For ratings of soft seals using some other elastomers, consult DFT.

Warning: Use with extra deep, bell reducer only.

SOFT SEAT	
Maximum operating temperatures of materials	
MATERIALS	MAX. TEMP. (°F)
BUNA-N	-70 to 250
EPDM	-75 to 300
VITON® & TFE-Encapsulated VITON®	-40 to 400
ZELON®	37 to 470



MATERIALS OF CONSTRUCTION

COMPONENT	Basic-Check BSS	Basic-Check BSA	Basic-Check BSE	High Pressure Basic-Check BSSH6	High Pressure Basic-Check BSSH7
Seat	303 SS	416 SS	303 SS	316 SS	316 SS
Disc	316 SS	316 SS	316 SS	316 SS	17-7 SS
Guard	CF8M	CF8M	17-4 SS	CF8M	CF8M
Spring	316 SS	316 SS	Inconel® X-750	316 SS	316 SS
Retaining Ring	316 SS	316 SS	316 SS	316 SS	316 SS

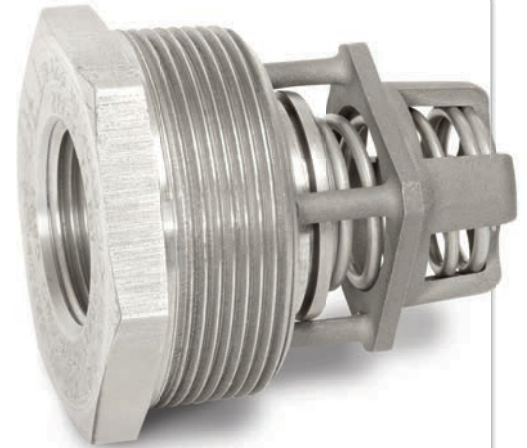
- Notes:**
1. Light spring available: Cracking Pressure = .24 PSI (6.5 inches of water)
 2. Contingent on service ratings of matching pipe and fittings.
 3. Saturated steam pressure is given for reference only; pressure limit of valve is the adjusted rating at the given temperature.

All dimensions are in inches. Weights are in pounds. For metric measurements, visit www.dft-valves.com. CP: Cracking Pressure (psig)

THREADED VALVES

Restrictor Check

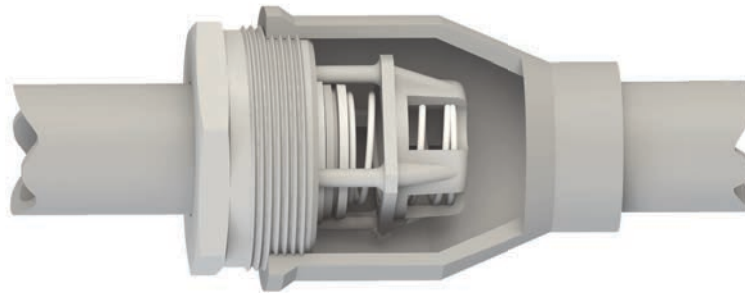
The **DFT® Restrictor Check Valve (RCV)** is a versatile, all-purpose, spring-assisted, non-slam check valve for applications that require higher cracking pressures to open the check valve than those offered by other DFT check valves. Cracking pressures are available from 2 to 40 psi depending on valve size. Like the Basic-Check® valve, the Restrictor Check provides reliable, low maintenance service for a wide range of fluids and gases at various pressure/temperature combinations. The valve consists of a guard cage, spring, valve disc, retaining ring and seat. It can be combined with pipe fittings such as couplings, drain elbows, etc. (not provided by DFT) to form a complete check valve unit ideally suited for a broad range of applications. The RCV should not be considered a substitute for a Pressure Relief Valve.



FEATURES:

- Higher cracking pressures (2 to 40 psi — See chart)
- 1/4" to 2 1/2" Line size
- 450 to 2500 CWP
- Threaded ends
- Stainless steel construction
- Spring-assisted silent closing
- Horizontal or vertical installation
- Tight shutoff - lapped disc & seat
- Easy maintenance
- Versatile
- Options:
 - Soft seat (for bubble-tight shutoff)

Warning: Use with extra deep, bell reducer only



Typical Installation

COLD, NON-SHOCK PRESSURE RATING (1)

Size	1/4", 3/8", 1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"
Rated Working Pressure	2500	2000	1500	850	700	450	450

Consult pages 48 and 49 for Pressure/Temperature ratings and soft seat materials.

Restrictor Check

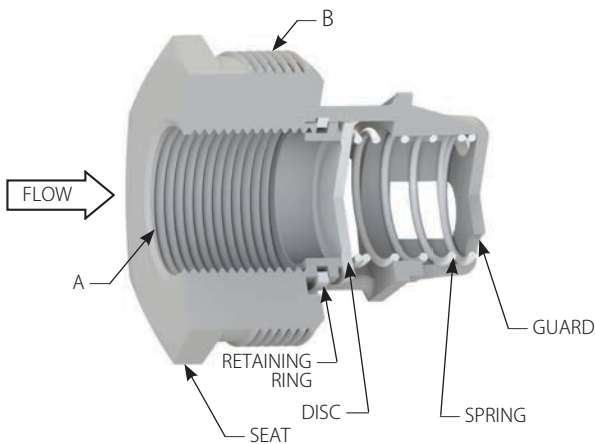
Sat. Steam Pressure (PSIG) Ref. (2)	Temperature (°F)	Adjusted Rating as Percent of Cold Rating
-3	200	86%
15	250	82%
52	300	78%
232	400	71%
407	450	69%
665	500	66%
1526	600	62%
3075	700	60%

All stainless steel construction is suitable for cryogenic service. For pressure rating at elevated temperatures for standard metal-seated valves, reduce above rating per chart above.

Maximum valve temperature rating is limited by soft seal (if any) and spring materials in chart below. For ratings of soft seals using some other elastomers, consult DFT.

MATERIALS OF CONSTRUCTION

Component	Restrictor Check
Seat	303 SS
Disc	316 SS
Guard	CF8M
Spring	302 SS
Retaining Ring	316 SS



Warning: Use with extra deep, bell reducer only

SOFT SEAT

Maximum operating temperatures of materials

MATERIALS	MAX. TEMP. (°F)
BUNA-N	-70 to 250
EPDM	-75 to 300
VITON® & TFE-Encapsulated VITON®	-40 to 400
ZELON®	37 to 470

All dimensions are in inches. Weights are in pounds. For metric measurements, visit www.dft-valves.com. CP: Cracking Pressure (psig)

Restrictor Check

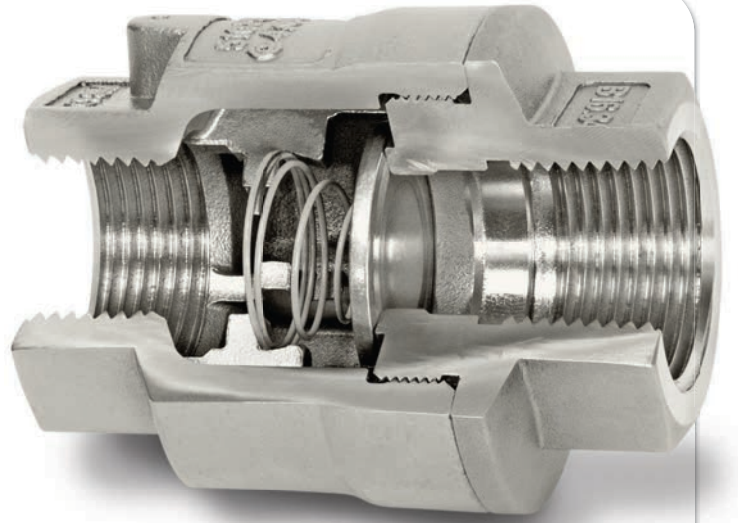
1/4"	A	0.25
	B	1
	Weight	0.38
	Cv	5.8
3/8"	CP	3.3 to 20.4
	A	0.38
	B	1
	Weight	0.38
1/2"	Cv	5.8
	CP	3.3 to 20.4
	A	0.50
	B	1
3/4"	Weight	0.38
	Cv	5.8
	CP	3.3 to 20.4
	A	0.75
1"	B	1.50
	Weight	0.88
	Cv	13.2
	CP	3.3 to 15.5
1 1/4"	A	1.00
	B	2.00
	Weight	1.25
	Cv	23.1
1 1/2"	CP	4.2 to 40.7
	A	1.25
	B	2.50
	Weight	2.25
2"	Cv	36
	CP	1.8 to 18.8
	A	1.50
	B	3.00
2 1/2"	Weight	3.75
	Cv	57.4
	CP	2.4 to 19.1
	A	2.00
3"	B	4.00
	Weight	7.00
	Cv	90
	CP	1.7 to 9.4
4"	A	2.50
	B	4.00
	Weight	7.00
	Cv	90
6"	CP	4.6 to 10.8

Not recommended for use on discharge of reciprocating compressors.

Notes:

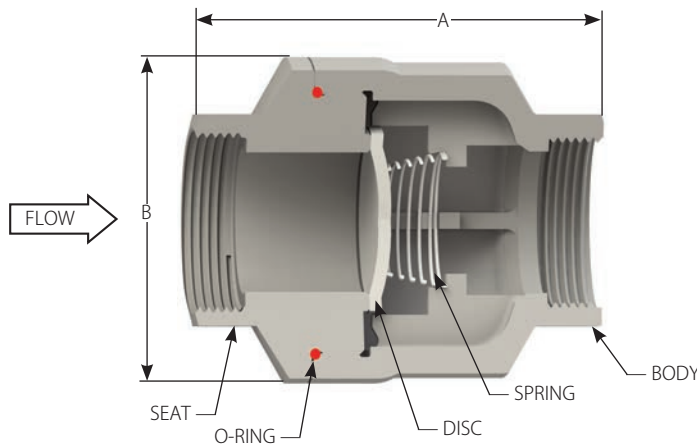
- Contingent on service ratings of matching pipe and fittings.
- Saturated steam pressure is given for reference only; pressure limit of valve is the adjusted rating at the given temperature.

The **DFT[®] Model SCV Check Valve** is a corrosion-resistant, dependable, versatile and economical spring-assisted, non-slam check valve for a wide range of applications. Whether the fluid is liquid, gas or steam, the SCV provides tight shutoff and protects other equipment in the system from water hammer. Its stainless steel construction assures a long service life.



FEATURES:

- 1/2" to 3" Line size
- 750 & 3600 CWP
- NPT & SW ends
- Stainless steel construction
- Inconel[®] X-750 spring
- Spring-assisted silent closing, non-slam
- Zelon[®] "O" ring body seal
- Horizontal or vertical installation
- Body-guided disc
- Tight shutoff lapped disc & seat
- Simplified 5-part construction
- Easy maintenance
- Versatile
- Options:
 - 316 SS springs
 - Body seal weld
 - Soft seat (for bubble-tight shutoff)
- Alloy 20 body & seat (ASME 300)
- Hastelloy[®] C body & seat (ASME 300)
- NPT x socket weld ends
- SCV-R (higher cracking pressure)
- NACE (Page 47)



MATERIALS OF CONSTRUCTION

COMPONENT	750 CWP	3600 CWP
Body	A351 CF8M	A351 CF8M
Seat (1)	A351 CF8M	A351 CF8M
Disc	A240 316	A240 316
Spring	Inconel [®] X-750	Inconel [®] X-750
Body Seal (7)	Standard: Zelon (470°F max.) Option: Body seal weld (700°F max.)	Standard: Zelon (400°F max.)(2) Option: Body seal weld (700°F max.)

Consult pages 48 and 49 for Pressure/Temperature ratings and soft seat materials.



Class		750 CWP/ 500 WSP	3600 CWP
1/2"	A	2.68	3.16
	B	1.62	1.88
	Weight	1.1	1.5
	Cv	7	6
3/4"	CP	0.29	0.62
	A	3	3
	B	2.13	2.33
	Weight	1.5	3
1"	Cv	13	11
	CP	0.24	0.26
	A	3.32	3.75
	B	2.54	2.75
1 1/4"	Weight	1.9	4.5
	Cv	22	19
	CP	0.36	0.36
	A	3.85	3.85
1 1/2"	B	3.06	3.06
	Weight	3.9	3.9
	Cv	39	39
	CP	0.28	0.28
2"	A	4.75	5.50
	B	3.44	3.75
	Weight	4.7	10
	Cv	54	49
3"	CP	0.24	0.24
	A	5	6.38
	B	4.4	4.31
	Weight	7.7	14.0
3"	Cv	93	65
	CP	0.42	0.36
	A	6.75	7.50
	B	6.19	6.75
3"	Weight	18.8	40
	Cv	180	158
	CP	0.20	0.20

Not recommended for use on discharge of reciprocating compressors.

PRESSURE TEMPERATURE RATING (PSIG) (3)

Temp. (F°)	A351 CF8M		Alloy 20 (CN7M)	Hastelloy® C (CW-12MW)
	750 CWP	3600 CWP	ASME 300	ASME 300
100	750	3600	600	600
200	645	3095	520	550
250 (4)	610	2945	490	535
300	580	2795	465	520
400 (5)	535	2570	420	490
470 (6)	510			

SOFT SEAT - Maximum operating temperatures of materials

MATERIALS	BUNA-N	EPDM	VITON® & TFE-EN-CAPSULATED VITON®	ZELON®
TEMP. (F°)	-70 to 250	-75 to 300	-40 to 400	37 to 470

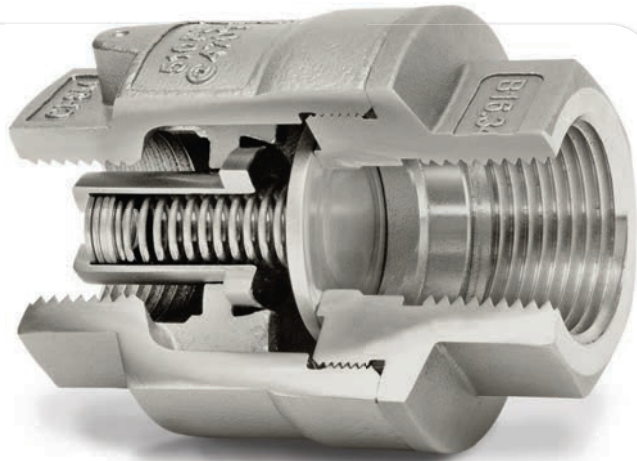
- Notes:**
1. Soft seats are available for bubble-tight shutoff. Body seal and soft seat material are the same unless otherwise requested.
 2. Buna-N CO₂ resistant "O" ring is available upon request.
 3. ASME B16.34

4. Maximum temperature for Buna-N.
5. Maximum temperature for Viton® and Zelon® w/3600 CWP SCV.
6. Maximum temperature for Zelon® w/750 CWP SCV. (Body Seal)
7. Only Zelon is recommended for steam service.

All dimensions are in inches. Weights are in pounds. For metric measurements, visit www.dft-valves.com. CP: Cracking Pressure (psig)

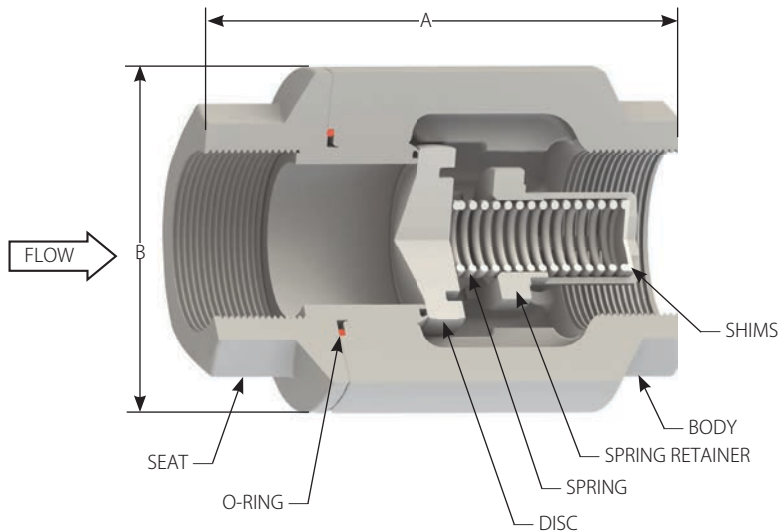
SCV-R®

The **SCV-R Check Valve** is a non-slam spring-assisted check valve designed for applications requiring “higher cracking pressures” than the DFT Model SCV® check valve. The SCV-R check valve is a self-contained check valve that installs directly in a pipeline and contains all of the proven features of the SCV check valve.



FEATURES:

- 1/2" to 2" Line size
- 750 CWP
- NPT & SW ends
- Stainless steel construction
- Inconel® X-750 spring
- Spring-assisted silent closing, non-slam
- Cracking Pressures: 0.8 to 40.8 psig (See chart)
- Zelon® "O" ring body seal
- Horizontal or vertical installation
- Body guided disc
- Tight shutoff lapped disc & seat
- Easy maintenance
- Versatile
- Options:
 - 316 SS springs
 - Body seal weld
- Soft seat (for bubble-tight shutoff)
- Alloy 20 body & seat (ASME 300)
- Hastelloy® C body & seat (ASME 300)
- NPT x socket weld ends
- Repair kits
- Field conversion kits



Consult pages 48 and 49 for Pressure/Temperature ratings and soft seat materials.

SCV-R®

PRESSURE TEMPERATURE RATING (PSIG) (2)

Temp. (F°)	750 CWP
100	750
200	645
250	610
300	580
400	535
470	510

MATERIALS OF CONSTRUCTION

COMPONENT	750 CWP
Body	A351 CF8M
Seat (1)	A351 CF8M
Disc	A240 316
Spring	Inconel® X-750
"O" Ring	Zelcon (470°F max.)
Spring Retainer	A479 316
Shims	A240 316

SOFT SEAT

Maximum operating temperatures of materials

MATERIALS	MAX. TEMP. (°F)
BUNA-N	-70 to 250
EPDM	-75 to 300
VITON® & TFE-Encapsulated VITON®	-40 to 400
ZELON®	37 to 470

- Notes:** 1. Soft seats are available for bubble-tight shutoff. See chart. Body seal and soft seat material are the same unless otherwise requested.
2. ASME B16.34

All dimensions are in inches. Weights are in pounds. For metric measurements, visit www.dft-valves.com. CP: Cracking Pressure (psig)

	Class	750 CWP
1/2"	A	2.68
	B	1.62
	Weight	1.1
	Cv	6
	CP	1 to 25
3/4"	A	3
	B	2.13
	Weight	1.5
	Cv	10
	CP	0.80 to 20
1"	A	3.32
	B	2.54
	Weight	1.9
	Cv	17
	CP	1.2 to 23.5
1 1/4"	A	3.87
	B	3.06
	Weight	3.9
	Cv	33
	CP	7.7 to 22
1 1/2"	A	4.75
	B	3.44
	Weight	4.7
	Cv	36
	CP	1.4 to 40.8
2"	A	5
	B	4.4
	Weight	7.7
	Cv	64
	CP	0.9 to 21.4

Not recommended for use on discharge of reciprocating compressors.

Contact DFT for other cracking pressures.

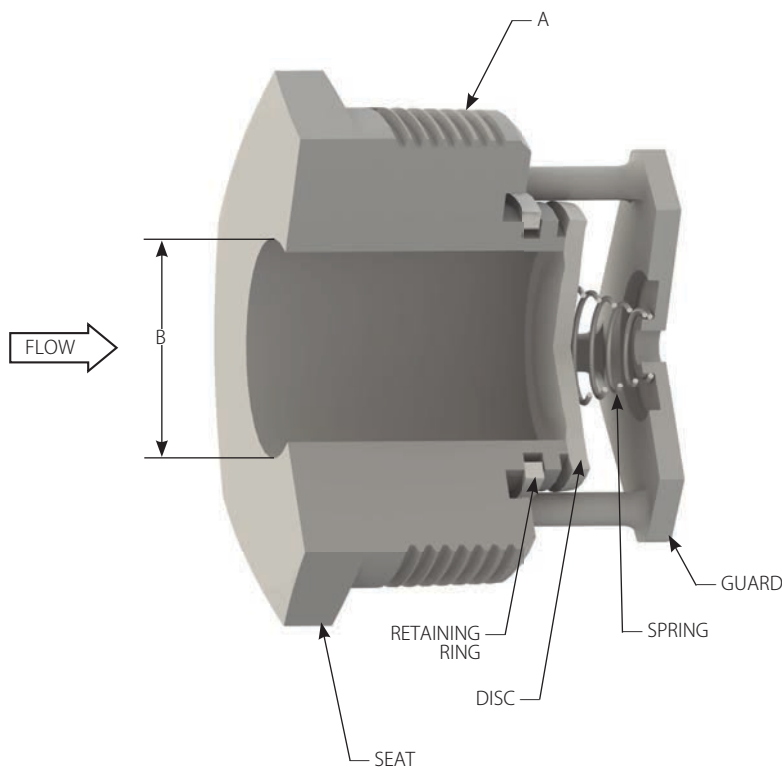
Vacuum Breaker

DFT® Vacuum Breakers provide effective protection against collapse of pressure vessels, tanks and rolls. They prevent condensate “back-up” when equipment is shut down or inlet steam is reduced by modulating control valves. In piping systems, DFT Vacuum Breakers are used to break siphons, prevent pipe collapse during transient pressure drops, and to provide addition of air on the downstream side of check valves to dampen water hammer.



FEATURES:

- 1" to 4" size (Outside diameter)
- 450 to 6000 CWP
- Threaded O.D. (MNPT)
- Unthreaded inlet bore
- Stainless steel construction
- Spring-assisted silent closing
- Horizontal or vertical installation
- Tight shutoff - lapped disc & seat
- Easy maintenance
- Versatile
- Options:
 - Inconel® X-750 spring
 - Soft seat (for bubble-tight shutoff)



Consult pages 48 and 49 for Pressure/Temperature ratings and soft seat materials.

Vacuum Breaker

Vacuum Breaker				Cracking Pressure	
A Nominal Size (MNPT)	B Unthreaded Inlet Bore	Weight	Cv	PSI	Inches of Water
1	0.56	0.38	5.8	0.60 (1)	16.7
1 1/2	0.88	0.88	13.2	0.45	12.5
2	1.09	1.25	23.1	0.38	10.5
2 1/2	1.50	2.25	36	0.20	5.5
3	1.72	3.75	57.4	0.14	3.9
4	2.22	7.00	90	0.15	4.3

*Cracking pressure for vertical flow will be slightly different: upward flow, slightly higher; downward flow, slightly less.

COLD, NON-SHOCK PRESSURE RATING (PSIG) (2)

	1"	1 1/2"	2"	2 1/2"	3"	4"
Vacuum Breaker BSSV	2500	2000	1500	850	700	450
Vacuum Breaker BSSV6	6000	5500	3000	1100	900	450

MATERIALS OF CONSTRUCTION

COMPONENT	Vacuum Breaker BSSV	High Pressure Vacuum Breaker BSSV6
Seat	303 SS	316 SS
Disc	316 SS	316 SS
Guard	CF8M	CF8M
Spring	316 SS	316 SS
Retaining Ring	316 SS	316 SS

Sat. Steam Pressure (PSIG) Ref. (3)	Temperature (°F)	Adjusted Rating as Percent of Cold Rating
-3	200	86%
15	250	82%
52	300	78%
232	400	71%
407	450	69%
665	500	66%
1526	600	62%
3075	700	60%

SOFT SEAT	
Maximum operating temperatures of materials	
MATERIALS	MAX. TEMP. (°F)
BUNA-N	-70 to 250
EPDM	-75 to 300
VITON® & TFE-Encapsulated VITON®	-40 to 400
ZELON®	37 to 470

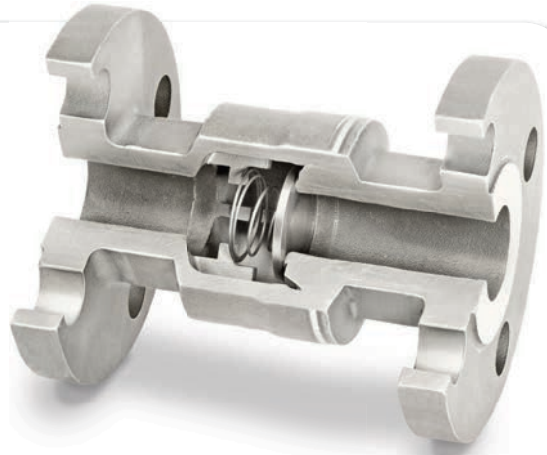
All stainless steel construction is suitable for cryogenic service. For pressure rating at elevated temperatures for standard metal-seated valves, reduce above rating per chart above.

Maximum valve temperature rating is limited by soft seal (if any) and spring materials in chart above.

- Notes:**
1. Light spring available: Cracking Pressure = .24 PSI (6.5 inches of water)
 2. Contingent on service ratings of matching pipe and fittings.
 3. Saturated steam pressure is given for reference only; pressure limit of valve is the adjusted rating at the given temperature.

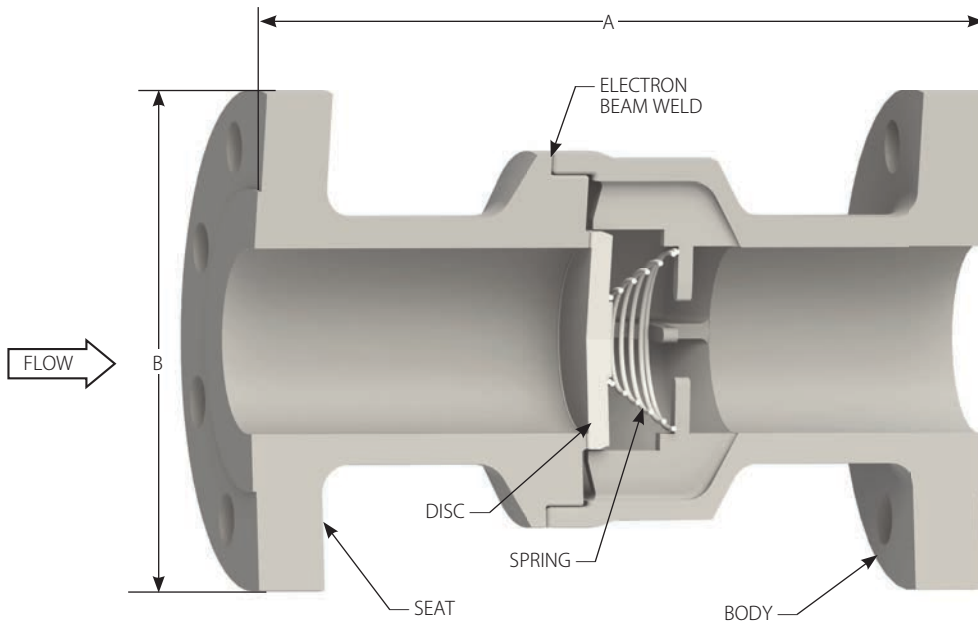
All dimensions are in inches. Weights are in pounds. For metric measurements, visit www.dft-valves.com. CP: Cracking Pressure (psig)

The **DFT® Model DLC Check Valve** is a corrosion-resistant, dependable, versatile and economical spring assisted, non-slam check valve for a wide range of applications. Whether the fluid is liquid, gas or steam, the DLC check valve provides tight shutoff and protects other equipment in the system from water hammer. Its stainless steel construction insures a long service life.



FEATURES:

- ANSI B16.10 Face-to-Face dimensions
- Spring-assisted silent closing, non-slam
- 1/2" to 3" Line size
- ASME Class 150 and 300
- Standard body material:
 - A351 CF8M
- Optional body materials:
 - Alloy 20
 - Hastelloy®
- Stainless steel construction
- Raised face flanged ends
- Inconel® X-750 spring
- Electron beam welded body
- Meets ASME B16.34
- Horizontal or vertical installation
- Body-guided disc
- Tight shutoff - lapped disc & seat
- Simplified construction - 4 parts
- Versatile
- Options:
 - 316 SS Springs
 - NACE (Page 47)
 - Soft seat (only Teflon® Encapsulated Viton® available. Max. Temp. -40 to 400 °F)



PRESSURE TEMPERATURE RATING (PSIG) (1)

Temp. (°F)	A351 CF8M		Temp. (°F)	Alloy 20 (CN7M)		Hastelloy® C (CW-12MW)	
	ASME 150	ASME 300		ASME 150	ASME 300	ASME 150	ASME 300
-460	275	720	-325	230	600	230	600
100	275	720	100	230	600	230	600
200	235	620	200	200	520	210	550
300	215	560	300	180	465	200	520
400	195	515	400	160	420	190	490
500	170	480	500	150	390	170	465
600	140	450	600	140	360	140	440
700	110	435	700			110	420

MATERIALS OF CONSTRUCTION

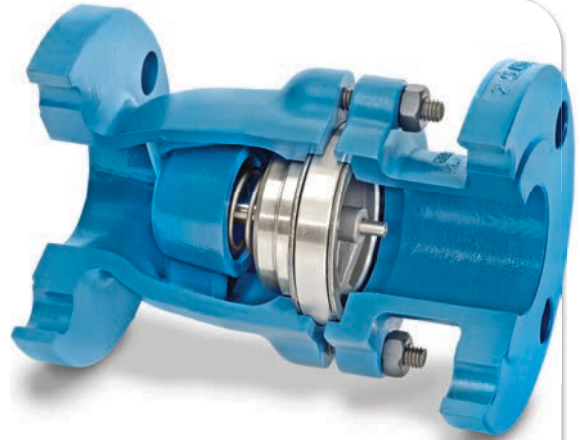
COMPONENT	
Body	A351 CF8M
Seat	A351 CF8M
Disc	316 SS
Spring	Inconel® X-750

Class		150 RF	300 RF
1/2"	A	4.25	6.00
	B	3.50	3.75
	Weight	3.2	4.5
	Cv	7	7
	CP	0.29	0.29
3/4"	A	4.62	7.00
	B	3.88	4.62
	Weight	4.5	7.2
	Cv	13	13
	CP	0.24	0.24
1"	A	5.00	8.50
	B	4.25	4.88
	Weight	6.0	9.9
	Cv	22	22
	CP	0.36	0.36
1 1/2"	A	6.50	9.50
	B	5.00	6.12
	Weight	11.7	18.5
	Cv	54	54
	CP	0.24	0.24
2"	A	8.00	10.50
	B	6.00	6.50
	Weight	19.1	24.3
	Cv	93	93
	CP	0.42	0.23
3"	A	9.50	12.50
	B	7.50	8.25
	Weight	39.2	50.5
	Cv	180	180
	CP	0.20	0.20

Notes: 1. Pressure/temperature ratings in accordance with ASME/ANSI B16.34. All dimensions are in inches. Weights are in pounds. For metric measurements, visit www.dft-valves.com. CP: Cracking Pressure (psig)

Excalibur®

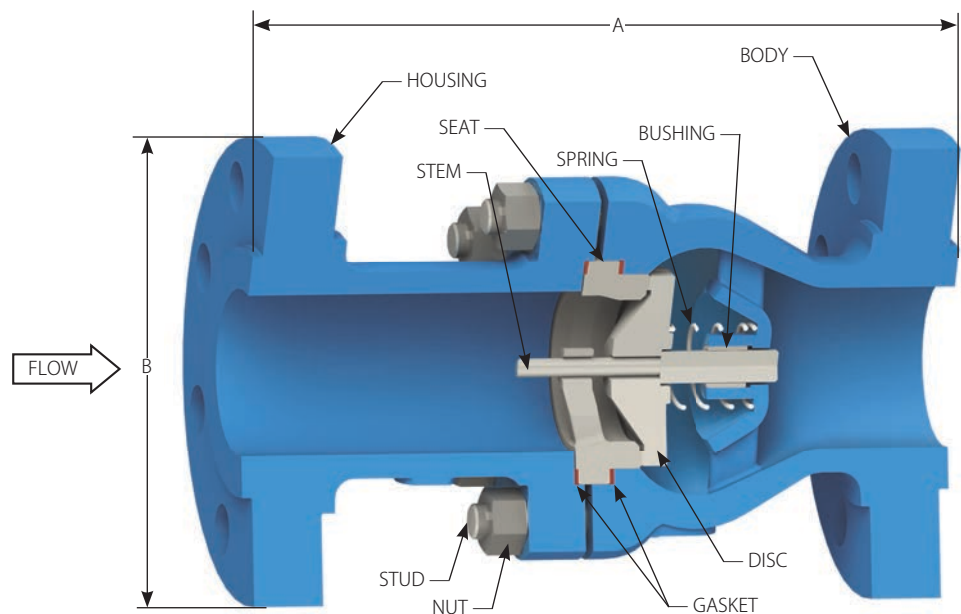
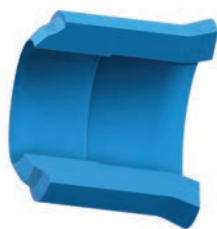
The **DFT® Excalibur Silent Check Valve** is a spring-assisted, center guided, non-slam check valve that provides reliable, low-maintenance service for a wide range of fluids and pressure/temperature combinations. The valve consists of a body, gasket, seat, spring, disc with stem and guide bushing. Excalibur check valves are available in a wide range of sizes and pressure ratings and in a variety of metals to meet most check valve requirements.



FEATURES:

- ASME B16.10 Face-to-Face dimensions
- Spring-assisted silent closing, non-slam
- 2" to 24" Line size
- ASME Class 150 to 1500 (See chart)
- Standard body materials:
 - A216 Grade WCB carbon steel
 - A351 CF8M stainless steel
- Optional body materials:
 - Alloy 20
 - Duplex SS
 - Hastelloy®
 - Inconel® 600
 - Monel®
- Nickel-Aluminum Bronze (See page 45)
- Standard ends:
 - RF Flanged
- Optional ends (4):
 - Butt weld
 - Flanged x Butt weld
 - RTJ
 - Victaulic®
- Stainless steel trim
- Center-guided
- Dual-guided stem
- Horizontal or vertical installation
- Tight shutoff
- Two-piece body
- Protected spring
- Easy maintenance
- Versatile
- Axial flow
- Nozzle style
- Options:
 - Soft seat (for bubble-tight shutoff)
 - Inconel® X-750 Spring
 - Custom sizing low flow
 - Severe service trim
 - Stellite® trim
 - NACE (Page 47)

FLANGED VALVES



Standard Raised Face ends

Consult pages 48 and 49 for Pressure/Temperature ratings and soft seat materials.

Excalibur®

MATERIALS OF CONSTRUCTION

COMPONENT	CARBON STEEL BODY	STAINLESS STEEL BODY
Body	A216 Grade WCB	A351 CF8M
Disc/Stem Assembly	A351 CF8M/A479 316	A351 CF8M/A479 316
Seat	A351 CF8M	A351 CF8M
Spring (1)	A313 316	A313 316
Bushing	A479 316	A479 316
Bolting (2)	A193-B7 (Stud) & A194-2h (Nut)	
Gasket (3)	Cl. 150 & 300	Corrugated Flexible Graphite
	Cl. 600+	316 Spiral wound with Flexible Graphite Filler

Class	150 RF	300 RF	600 RF	900 RF	1500 RF	
2"	A	8	10.50	11.50	14.50	14.50
	B	6	6.50	6.50	8.50	8.50
	Weight	22	29	35	81	81
	Cv	65	65	65	51	51
CP	0.64	0.64	0.64	0.85	0.85	
2 1/2"	A	8.50	11.50	*	*	*
	B	7.00	7.50			
	Weight	30	42			
	Cv	105	105			
CP	0.44	0.37				
3"	A	9.50	12.50	14	15	18.50
	B	7.50	8.25	8.25	9.50	10.50
	Weight	32.5	52	69	100	158
	Cv	155	155	155	138	109
CP	0.26	0.26	0.26	0.22	0.28	
4"	A	11.50	14	17	18	21.50
	B	9	10	10.75	11.50	12.25
	Weight	64	92	139	176	267
	Cv	265	265	265	242	187
CP	0.60	0.41	0.51	0.58	0.74	
6"	A	14	17.50	22	24	27.75
	B	11	12.50	14	15	15.50
	Weight	114	181	300	498	780
	Cv	685	685	584	512	512
CP	0.40	0.40	0.73	0.83	0.83	
8"	A	19.50	21	26	29	32.75
	B	13.50	15	16.50	18.50	19
	Weight	207	294	481	638	1270
	Cv	1050	1050	985	777	777
CP	0.58	0.60	0.67	0.54	0.83	
10"	A	24.50	24.50	31	33	39
	B	16	17.50	20	21.50	24.31
	Weight	377	462	981	1650	1890
	Cv	1650	1650	1650	1449	1240
CP	0.52	0.52	0.47	0.58	0.53	

Class	150 RF	300 RF	600 RF	900 RF	1500 RF	
12"	A	27.50	28	33	38	*
	B	19	20.50	22	24	
	Weight	457	696	1218	1925	
	Cv	2400	2400	2400	1190	
CP	0.53	0.53	0.50	0.53		
14"	A	31	33	35	*	*
	B	21	23	23.75		
	Weight	642	725	1549		
	Cv	3600	3600	*		
CP	0.28	0.28	*			
16"	A	34	34	39	44.5	*
	B	23.50	25.50	27	27.75	
	Weight	825	1337	2250	2534	
	Cv	5200	5200	*	*	
CP	0.51	0.51	*	*		
18"	A	38.50	38.50	*	*	*
	B	25	28.00			
	Weight	1225	1900			
	Cv	6250	6250			
CP	0.50	0.50				
20"	A	38.50	39	47	52	*
	B	27.50	30.50	32	33.75	
	Weight	1500	2375	4338	5220	
	Cv	7850	7850	*	6240	
CP	0.50	0.50	0.66	0.82		
24"	A	51	53	55	*	*
	B	32	36	37		
	Weight	2450	4110	6670		
	Cv	11300	11310	11070		
CP	0.42	0.42	0.42			

- Notes:**
1. Inconel® X-750 spring is available.
 2. Contact DFT for stainless steel or other bolting materials.
 3. 316 graphite material.
- * Consult DFT for valve availability.

SOFT SEAT - Maximum operating temperatures of materials

MATERIALS	BUNA-N	EPDM	VITON® & TFE-EN-CAPSULATED VITON®	ZELON®
TEMP. (°F)	-70 to 250	-75 to 300	-40 to 400	37 to 470

All dimensions are in inches. Weights are in pounds. For metric measurements, visit www.dft-valves.com. CP: Cracking Pressure (psig)

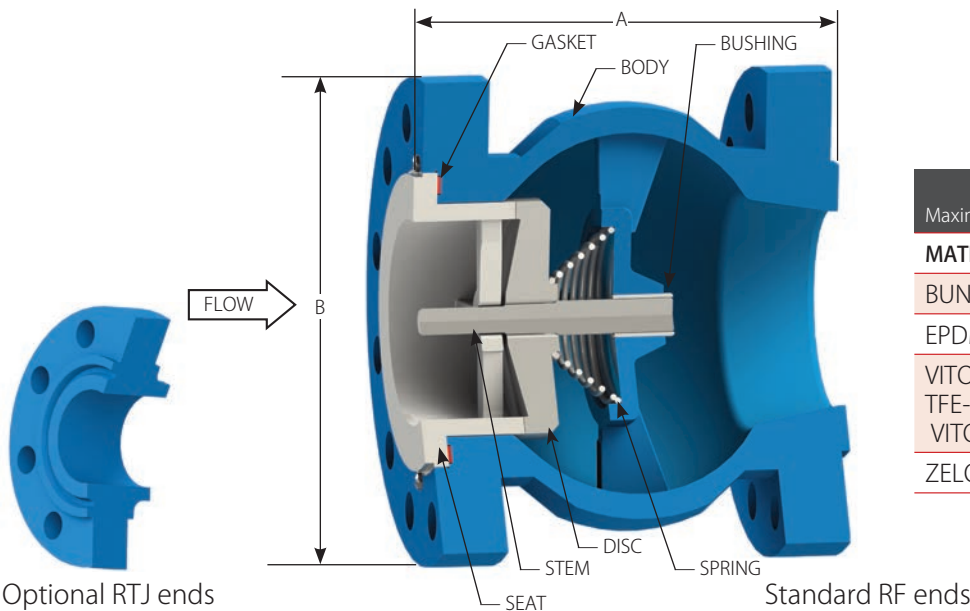
FLANGED VALVES

The **DFT[®] Model GLC Silent Check Valve** is a spring-assisted, center-guided, non-slam, flanged check valve that provides reliable, low-maintenance service for a wide range of fluids and pressure/ temperature combinations. The valve consists of a body, seat, spring, disc with stem, guide bushing and gasket. The DFT GLC check valve has the advantage of minimum pressure loss with silent operation.



FEATURES:

- "Short" Face-to-Face dimensions
- API 6FD Fire Test
 - ASME Class 150 and 300
 - 2" to 24"
- Meets API 6D
- Standard body materials:
 - A216 Grade WCB carbon steel
 - A351 CF8M stainless steel
- Optional body materials:
 - Alloy 20
 - Duplex SS
 - Hastelloy[®]
 - Monel[®]
- Nickel-Aluminum Bronze (See page 45)
- One-piece body
- Spring-assisted silent closing, non-slam
- Center-guided
- Dual-guided stem
- Horizontal or vertical installation
- Protected spring
- Easy maintenance
- Versatile
- ASME Class 150 To 2500 (See chart)
- 1" to 42" Line size
- 316 SS trim
- RF Flanged ends
- MSS-SP61 seat leakage
- Axial flow
- Nozzle style
- OPTIONS:
 - Inconel[®] X-750 Spring
 - Soft seat (for bubble-tight shutoff)
 - Custom sizing low flow
 - Severe service trim
 - Stellite[®] trim
 - RTJ Ends (3)
 - NACE (Page 47)



SOFT SEAT	
Maximum operating temperatures of materials	
MATERIALS	MAX. TEMP. (°F)
BUNA-N	-70 to 250
EPDM	-75 to 300
VITON [®] & TFE-Encapsulated VITON [®]	-40 to 400
ZELON [®]	37 to 470

MATERIALS OF CONSTRUCTION

COMPONENT	CARBON STEEL BODY	STAINLESS STEEL BODY
Body	A216 WCB	A351 CF8M
Disc/Stem Assembly	A351 CF8M/A479 316	A351 CF8M/A479 316
Seat	A351 CF8M	A351 CF8M
Spring (1)	A313 316	A313 316
Bushing	A479 316	A479 316
Gasket (2)	CFG/316 SS/Graphite	

Consult pages 48 and 49 for Pressure/Temperature ratings and soft seat materials.

Class	150 RF	300 RF	600 RF	900 RF	1500 RF	2500 RF	
1"	A	4.50	4.75	5.25	6.38	6.38	*
	B	4.25	4.88	4.88	5.88	5.88	
	Weight	6.2	8.2	10.2	20	20	
	Cv	19	19	17	17	17	14
	CP	0.85	0.85	0.85	0.50	0.50	0.50
1 1/2"	A	5.75	6	6.63	7.38	7.38	*
	B	5	6.12	6.12	7	7	
	Weight	13	16.2	19	30	30	
	Cv	35	35	35	26	26	
	CP	0.29	0.29	0.29	0.64	0.40	
2"	A	6.25	6.50	7.25	8.25	8.25	9.25
	B	6	6.50	6.50	8.50	8.50	9.25
	Weight	17	23	25	56	56	77
	Cv	63	63	63	46	46	32
	CP	0.29	0.29	0.29	0.32	0.32	0.47
2 1/2"	A	7.00	7.25	*	9	9	*
	B	7.00	7.50		9.63	9.63	
	Weight	31	41		78	78	
	Cv	100	100		81	81	
	CP	0.18	0.18		0.11	0.11	
3"	A	7.50	7.88	8.63	9.13	9.88	14
	B	7.50	8.25	8.25	9.50	10.50	12
	Weight	33	46	57	87	110	211
	Cv	148	148	125	114	114	77
	CP	0.20	0.20	0.41	0.26	0.52	0.43
4"	A	8.50	9.12	10.13	10.62	11.38	15.50
	B	9	10	10.75	11.50	12.25	14
	Weight	51	71.4	115	127	166	332
	Cv	260	267	237	217	192	133
	CP	0.49	0.48	0.54	0.49	0.67	1.15
5"	A	9.50	10.38	*	*	*	*
	B	10	11				
	Weight	72	89				
	Cv	415	415				
	CP	0.28	0.28				
6"	A	10	11	12.38	13	15.13	*
	B	11	12.50	14	15	15.50	
	Weight	91	140	215	271	385	
	Cv	620	620	549	549	441	
	CP	0.41	0.39	0.46	0.46	0.42	

- Notes:**
1. Inconel[®] X-750 spring is available.
 2. CFG corrugated flexible graphite (Class 150 & 300), 316 SS/Graphite Spiral Wound (Class 600 & up).
1" and 1 1/2" does not contain a gasket.
 3. Contact DFT for availability
- * Consult DFT for valve availability.

Class	150 RF	300 RF	600 RF	900 RF	1500 RF	2500 RF	
8"	A	12	13	14.62	15.25	17.50	*
	B	13.5	15	16.50	18.50	19	
	Weight	172	232	332	396	670	
	Cv	1030	933	1115	851	742	650
	CP	0.41	0.45	0.45	0.50	0.55	0.50
10"	A	14	15.38	17.13	17.63	23	*
	B	16	17.50	20	21.50	23	
	Weight	266	348	450	539	1281	
	Cv	1630	1704	1782	1499	1231	
	CP	0.55	0.52	0.35	0.64	0.53	
12"	A	18	19.50	21.25	24	44.50	*
	B	19	20.50	22	24	26.50	
	Weight	387	550	730	1324	2550	
	Cv	2370	2370	2272	2063	1689	
	CP	0.47	0.49	0.41	0.60	0.60	
14"	A	21	23	24	*	*	*
	B	21	23	23.75			
	Weight	456	724	975			
	Cv	3500	3465	3369			
	CP	0.52	0.43	0.43			
16"	A	22.50	24	26	25.81	*	*
	B	23.50	25.5	27	27.75		
	Weight	700	1035	1450	1940		
	Cv	4600	4600	5100	4950		
	CP	0.51	0.59	0.59	0.57		
18"	A	24	24	*	*	*	*
	B	25	30.88				
	Weight	753	1367				
	Cv	*	*				
	CP	0.59	0.59				
20"	A	24	24	30	*	*	*
	B	27.50	30.50	32			
	Weight	1442	1686	2636			
	Cv	*	*	*			
	CP	0.49	0.55	0.59			
24"	A	28	28	29.33	*	*	*
	B	32	36	37			
	Weight	1571	2514	3470			
	Cv	*	*	*			
	CP	0.44	0.46	0.57			
30"	A		36				
	B		43				
	Weight		4570				
	Cv		*				
	CP		0.50				

All dimensions are in inches. Weights are in pounds. For metric measurements, visit www.dft-valves.com. CP: Cracking Pressure (psig)

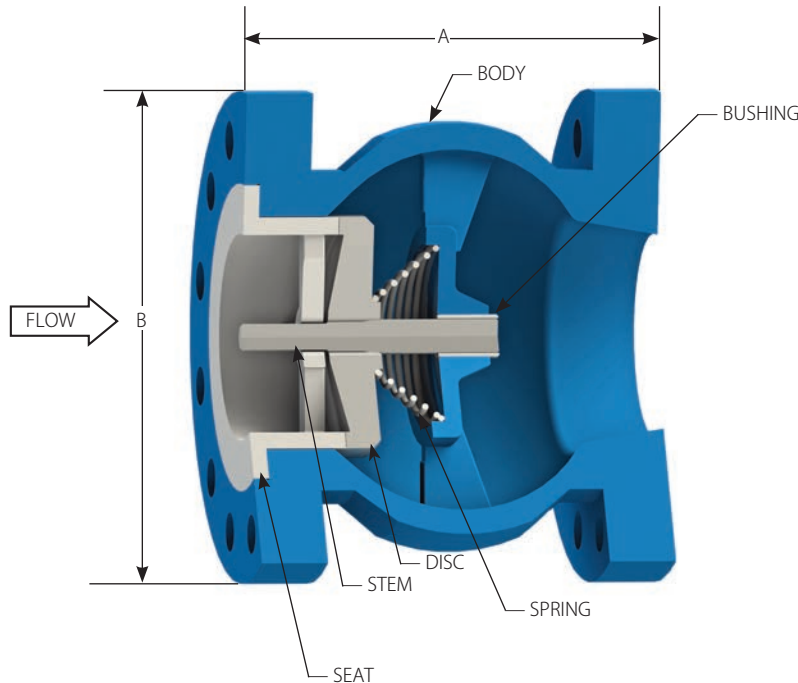
GLC[®]-Cast Iron

The **DFT[®] Model GLC Silent Check Valve** is a spring-assisted, center-guided, non-slam, flanged check valve that provides reliable, low-maintenance service for a wide range of fluids and pressure/ temperature combinations. The valve consists of a body, seat, spring, disc with stem and guide bushing. Some valves have O-ring or gasket body seals. The DFT GLC check valve has the advantage of minimum pressure loss with silent operation.



FEATURES:

- "Short" Face-to-Face dimensions
- One-piece body
- Spring-assisted silent closing
- Center-guided
- Dual-guided stem
- Horizontal or vertical installation
- Easy maintenance
- Versatile
- ASME Class 125 & 250
 - 2 1/2" to 24" Line size (CI.125)
 - 2 1/2" to 8" Line size (CI.250)
 - Cast Iron Body
 - Bronze or 316 SS trim
 - Ends:
- Flat Face Flanged
 - AWWA seat leakage
- Axial flow
- Nozzle style
 - Options:
 - Buna-N Soft Seat (for bubble-tight shutoff)



Consult pages 48 and 49 for Pressure/Temperature ratings and soft seat materials.

GLC®-Cast Iron

	Class	125 CAST IRON FF	250 CAST IRON FF
2 1/2"	A	5.50	5.50
	B	7	7.50
	Weight	24	30
	Cv	110	110
3"	A	6	6
	B	7.50	8.25
	Weight	29	36
	Cv	155	155
4"	A	7.25	7.25
	B	9	10
	Weight	42	59
	Cv	278	278
5"	A	8.50	8.50
	B	10	11
	Weight	52	78
	Cv	435	435
6"	A	9.75	9.75
	B	11	12.50
	Weight	73	103
	Cv	625	625
8"	A	12.50	12.50
	B	13.50	15
	Weight	126	179
	Cv	1115	1115
10"	A	15.5	
	B	16	
	Weight	205	
	Cv	1770	

	Class	125 CAST IRON FF	250 CAST IRON FF
12"	A	14.25	
	B	19	
	Weight	306	
	Cv	2500	
14"	A	15.75	
	B	21	
	Weight	380	
	Cv	3400	
16"	A	17.63	
	B	23.50	
	Weight	501	
	Cv	4400	
18"	A	18.75	
	B	25	
	Weight	724	
	Cv	5600	
20"	A	20.63	
	B	27.50	
	Weight	890	
	Cv	6900	
24"	A	24	
	B	32	
	Weight	1220	
	Cv	10000	

MATERIALS OF CONSTRUCTION

COMPONENT	CAST IRON BODY/BRONZE TRIM	CAST IRON BODY/316 TRIM (1)
Body	A126 Class B Cast Iron	A126 Class B Cast Iron
Disc/Stem Assembly	B584 836 - Bronze	A351 CF8M
Seat (2)	B584 836 - Bronze	A351 CF8M
Spring	A313 T302 SS	A313 T302 SS
Bushing	B584 836 - Bronze	316 SS

MAXIMUM OPERATING TEMPERATURES OF MATERIALS

	SOFT SEAT (2)
MATERIALS	BUNA-N
TEMP. °F	-70 to 250

PRESSURE TEMPERATURE RATING FOR CAST IRON (PSIG)

	CLASS 125		CLASS 250	
Temp. (°F)	2 1/2" to 12"	14" +	2 1/2" to 12"	14" +
0-150°	200 psig	150 psig	400 psig	300 psig
200° Max (1)	190 psig	135 psig	370 psig	280 psig

- Notes:**
1. 316 stainless steel trim recommended for temperatures from 180°F to 200°F.
 2. Buna-N soft seat available for bubble-tight shutoff.

All dimensions are in inches. Weights are in pounds. For metric measurements, visit www.dft-valves.com. CP: Cracking Pressure (psig)

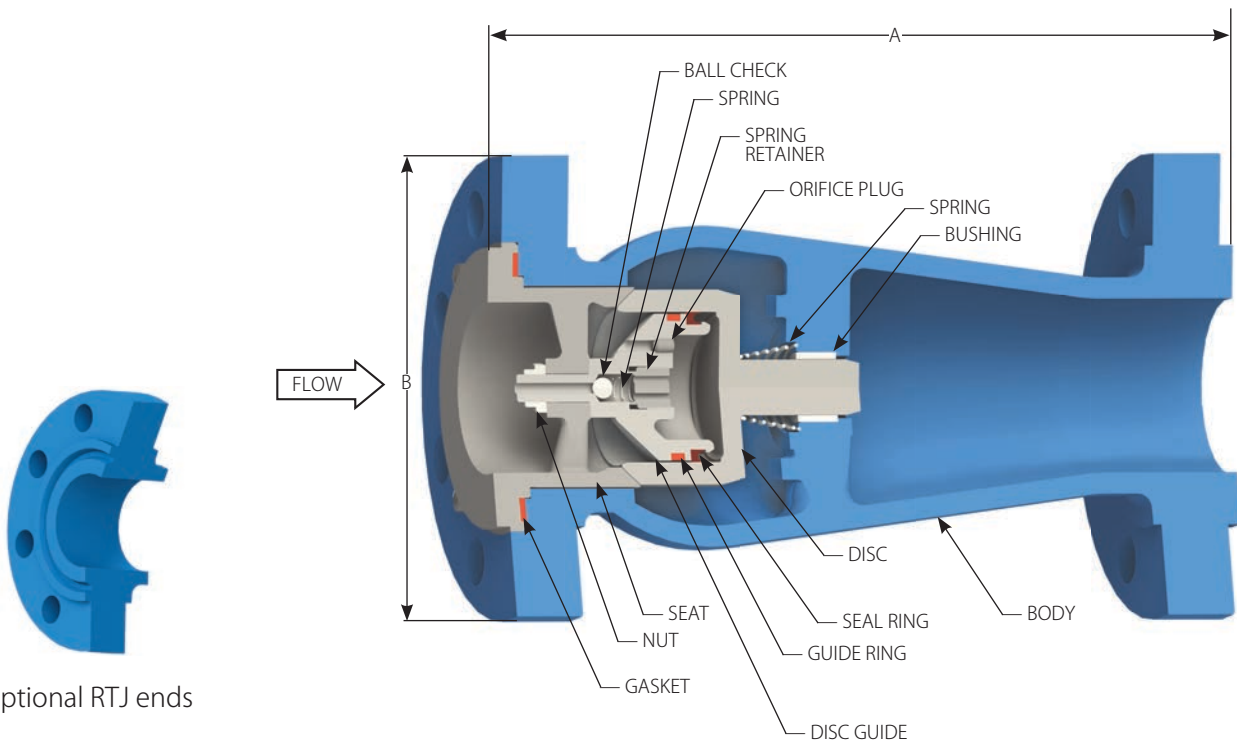
FLANGED VALVES

The **DFT® Model PDC Check Valve** is a silent, non-slam check valve specially designed for use on the discharge side of reciprocating air or gas compressors. It includes a pulse-damping chamber to maintain the disc in the open position during the momentary reductions in flow associated with each cycle of a reciprocating compressor and to protect against premature seat wear.



FEATURES:

- Pulse-damped design
- Modulating "air" or "gas" applications:
 - Discharge of reciprocating air/gas compressors
 - Self sizing accommodates varying flows without chattering
- Meets API 6D
- ASME B16.10 Face-to-Face dimensions
- One-piece body
- Spring-assisted silent closing
- 2" to 26" Line size*
- ASME Class 150 to 1500
- Standard body materials:
 - Carbon steel
 - Stainless steel
- Stainless steel trim
- Stainless steel spring
- Ends:
 - RF Flanged
 - RTJ
- Horizontal or vertical installation
- Center guided trim
- Tight shutoff
- Protected spring
- Easy maintenance
- Versatile
- Axial flow
- Nozzle style
- OPTIONS:
 - Soft seat (for bubble-tight shutoff)
 - Inconel® X-750 spring
 - NACE (Page 47)



Optional RTJ ends

Standard RF ends

* Other sizes available on application

Consult pages 48 and 49 for Pressure/Temperature ratings and soft seat materials.

Class	150 RF	300 RF	600 RF	900 RF	1500 RF	
2"	A	8	10.50	11.50	14.50	14.50
	B	6	6.50	6.50	8.50	8.50
	Weight	20	27	30	65	65
	Cv	62	62	62	55	55
	CP	0.41	0.49	0.41	0.35	0.35
3"	A	9.50	12.50	14	15	18.50
	B	7.50	8.25	8.25	9.50	10.50
	Weight	40	50	56	84	171
	Cv	148	148	142	118	118
	CP	0.62	0.62	0.66	0.78	0.78
4"	A	11.50	14	17	18	*
	B	9	10	10.75	11.50	
	Weight	64	87	120	144	
	Cv	255	255	255	224	
	CP	0.68	0.68	0.31	0.82	
6"	A	14	17.50	22	24	27.75
	B	11	12.50	14	15	15.5
	Weight	105	152	265	322	526
	Cv	660	660	660	567	567
	CP	0.51	0.51	0.49	0.63	0.63
8"	A	19.50	21	26	29	32.75
	B	13.50	15	16.50	18.50	19
	Weight	158	293	450	575	1051
	Cv	1005	1005	1005	740	*
	CP	0.66	0.66	0.42	0.60	*

Class	150 RF	300 RF	600 RF	900 RF	1500 RF	
10"	A	24.50	24.50	31	*	39
	B	16	17.50	20		23
	Weight	260	452	708		1818
	Cv	1610	1580	1540		*
	CP	0.50	0.38	0.46		0.81
12"	A	27.50	28	33	38	44.50
	B	19	20.50	22	24	26.50
	Weight	445	673	1021	1940	2590
	Cv	2300	2300	2300	1990	1590
	CP	0.29	0.29	0.29	0.70	0.70
16"	A	*	34	39	44.5	*
	B		25.5	27	27.75	
	Weight		1352	2041	2797	
	Cv		5100	5100	3170	
	CP		0.51	0.46	0.60	
20"	A	38.5	39	47	*	*
	B	27.50	30.50	32		
	Weight	2192	2447	4019		
	Cv	6990	6780	6780		
	CP	0.50	0.50	0.50		
26"	A	*	*	*	76.50	*
	B				42.75	
	Weight				7920	
	Cv				5820	
	CP				0.51	

Contact DFT for additional sizes/pressure classes.

MATERIALS OF CONSTRUCTION

COMPONENT	CARBON STEEL BODY	STAINLESS STEEL BODY
Body	A216 Grade WCB	A351 CF8M
Disc	A351 CF8M	A351 CF8M
Seat	A351 CF8M	A351 CF8M
Spring (1)	A313 316 (450°F max.)	A313 316 (450°F max.)
Spring for ball check	Inconel® X-750	Inconel® X-750
Disc Guide	A479 316	A479 316
Bushing	Rulon® (2)	Rulon® (2)
Seal Ring	Teflon®/Hastelloy® C276	Teflon®/Hastelloy® C276
Spring Retainer - Ball Check	A479 316	A479 316
Guide Ring	Teflon®	Teflon®
Ball Check	440C SS	440C SS
Orifice Plug	A479 316	A479 316
Gasket	Durlon® 9000 for 150 & 300, Stainless/Graphite for 600/900/1500 (500°F Max.)	Durlon® 9000 for 150 & 300, Stainless/Graphite for 600/900/1500 (500°F Max.)

PDC temperature rating is limited by the spring material and nonmetallic components.

SOFT SEAT - Maximum operating temperatures of materials

MATERIALS	BUNA-N	EPDM	VITON® & TFE-EN-CAPSULATED VITON®	ZELON®
TEMP. (°F)	-70 to 250	-75 to 300	-40 to 400	37 to 470

Notes: 1. Inconel® X-750 spring is available. (500°F maximum)
2. 500°F maximum.

* Consult DFT for valve availability.

All dimensions are in inches. Weights are in pounds. For metric measurements, visit www.dft-valves.com. CP: Cracking Pressure (psig)

The **DSV Check Valve** is a non-slam spring-assisted check valve designed to prevent flow reversal in industries with strict cleanliness codes. To accommodate various piping arrangements, the DSV Check Valve is available as a “Vertical” or “Horizontal” valve. The Horizontal valve is for Horizontal lines requiring a self-draining valve. The “Vertical” design is for “Vertical” installations and “Horizontal” lines when a self-draining valve is not required. The DSV Check Valve, with a 316L stainless steel body and seat, is fastened with a quick release clamp and elastomeric gasket body seal to permit fast and easy access to the internals. The disc and seat are lapped to provide excellent shutoff.

Horizontal

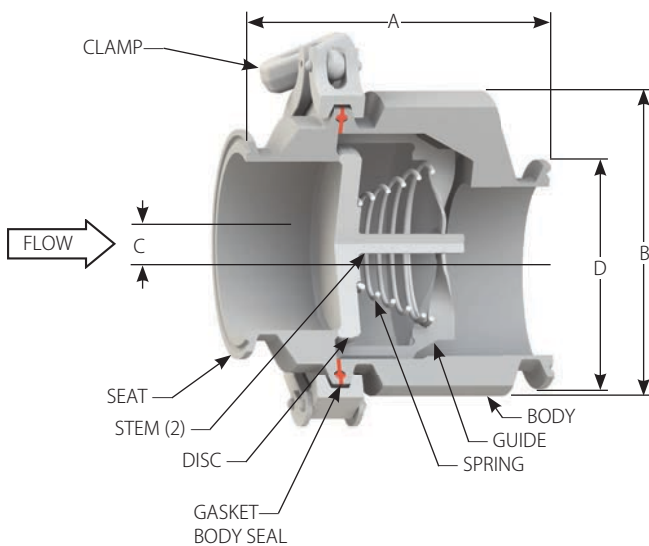


Vertical

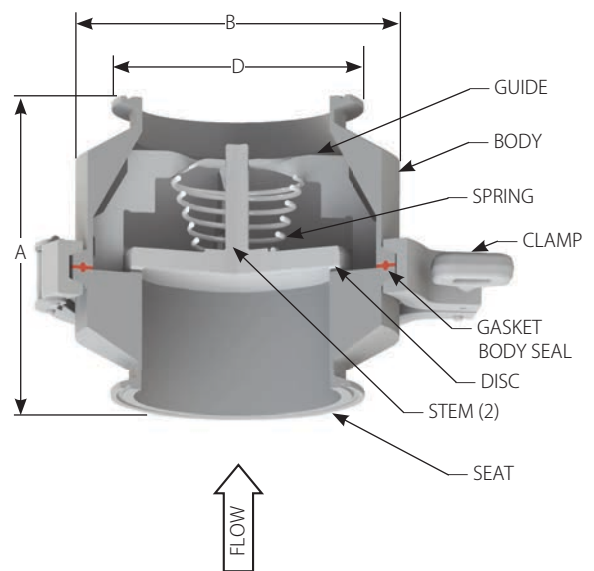
FEATURES:

- Meets 3A Sanitary Standard 58-02
- Spring-assisted silent closing
- Horizontal or vertical installation
- Sizes 1/2" thru 4"
- 150 CWP, 108 ANSI Pressure Class
- 316L body and seat (A351 CF3M)
- 316 disc, spring and guide assembly
- 32 Ra Internal Surface Finish (#4 Ground Finish)
- Edge-guided disc: 1/2" thru 2"
- Edge/center-guided disc: 2 1/2", 3", 4"
- Lapped “metal” seat and disc
- Springs:
 - Low cracking pressures
 - .16 psig to .66 psig
 - Conical design
 - Electropolished finish
- Standard gasket body seal:
 - EPDM (300°F max temperature)
 - Optional gasket body seal:
 - Tuf-Steel[®] (1) (450°F max temperature)
 - Viton[®] (400°F max temperature)
 - CIP (Clean in Place)
 - Clamped ends
 - Seat leakage per MSS SP-61
 - Options:
 - 15 Ra Internal Finish

Horizontal



Vertical



Consult pages 48 and 49 for Pressure/Temperature ratings and soft seat materials.

HORIZONTAL		
1/2"	A	2.50
	B (Dia.)	1.50
	D (Dia.)	0.98
	Weight	1.4
	C	0.44
	Cv	2.4
3/4"	CP	0.29
	A	2.50
	B	1.50
	D (Dia.)	0.98
	Weight	1.4
	C	0.31
1"	Cv	7
	CP	0.29
	A	3.48
	B (Dia.)	3.00
	D (Dia.)	1.98
	Weight	3.7
1 1/2"	C	0.50
	Cv	12
	CP	0.36
	A	3.67
	B (Dia.)	3.12
	D (Dia.)	1.98
2"	Weight	4.0
	C	0.50
	Cv	36
	CP	0.28
	A	4.41
	B (Dia.)	3.62
2 1/2"*	D (Dia.)	2.52
	Weight	5.8
	C	0.50
	Cv	47
	CP	0.23
	A	5.56
3"*	B (Dia.)	4.75
	D (Dia.)	3.05
	Weight	11.2
	C	0.73
	Cv	69
	CP	0.54
4"*	A	4.88
	B (Dia.)	4.75
	D (Dia.)	3.58
	Weight	9.9
	C	0.48
	Cv	90
4"*	CP	0.54
	A	6.25
	B (Dia.)	7.00
	D (Dia.)	4.68
	Weight	22.2
	C	0.97
4"*	Cv	137
	CP	0.50

VERTICAL		
1/2"	A	2.50
	B (Dia.)	1.5
	D (Dia.)	0.98
	Weight	1.4
	Cv	2.4
	Flow Down	0.26
3/4"	CP	0.33
	A	2.25
	B (Dia.)	1.5
	D (Dia.)	0.98
	Weight	1.3
	Cv	7
1"	CP	0.26
	Flow Up	0.33
	A	2.92
	B (Dia.)	2.00
	D (Dia.)	1.98
	Weight	2.3
1 1/2"	Cv	18
	CP	0.31
	Flow Down	0.41
	A	3.29
	B (Dia.)	2.50
	D (Dia.)	1.98
2"	Weight	2.8
	Cv	38
	CP	0.23
	Flow Down	0.33
	Flow Up	0.33
	A	4.03
2 1/2"*	B (Dia.)	3.00
	D (Dia.)	2.52
	Weight	3.9
	Cv	53
	CP	0.16
	Flow Down	0.31
3"*	Flow Up	0.31
	A	5.6
	B (Dia.)	4.75
	D (Dia.)	3.05
	Weight	9.9
	Cv	81
3"*	CP	0.42
	Flow Down	0.66
	Flow Up	0.66
	A	4.38
	B (Dia.)	4.00
	D (Dia.)	3.58
4"*	Weight	6.1
	Cv	109
	CP	0.42
	Flow Down	0.66
	Flow Up	0.66
	A	5.50
4"*	B (Dia.)	6.00
	D (Dia.)	4.68
	Weight	14.9
	Cv	174
	CP	0.40
	Flow Down	0.60
4"*	Flow Up	0.60

MATERIALS OF CONSTRUCTION

COMPONENT	
Body	A351 CF3M
Seat	A351 CF3M
Disc	316 SS
Spring	316 SS
Guide Assembly	(electropolished) 316 SS
Gasket Body Seal	EPDM** (-75°F to 300°F)
Clamp	304 SS

** Other gasket body seal materials available upon request

PRESSURE/TEMPERATURE RATING

Temp. (°F)	Pressure	Material Temp. Limit
100	150	
200	125	
300	115	EPDM
400	105	Viton [®]
450	90	Tuf-Steel [®] (1)

- Notes:**
- Blend of non-pigmented PTFE and 316L passivated and atomized Stainless Steel. Good for steam applications. Meets USDA, FDA and 3A Sanitary Standards and U.S. Pharmacopeia Class VI Certification.
 - Sizes 2 1/2", 3", 4"
- * Edge/Center Guided Disc

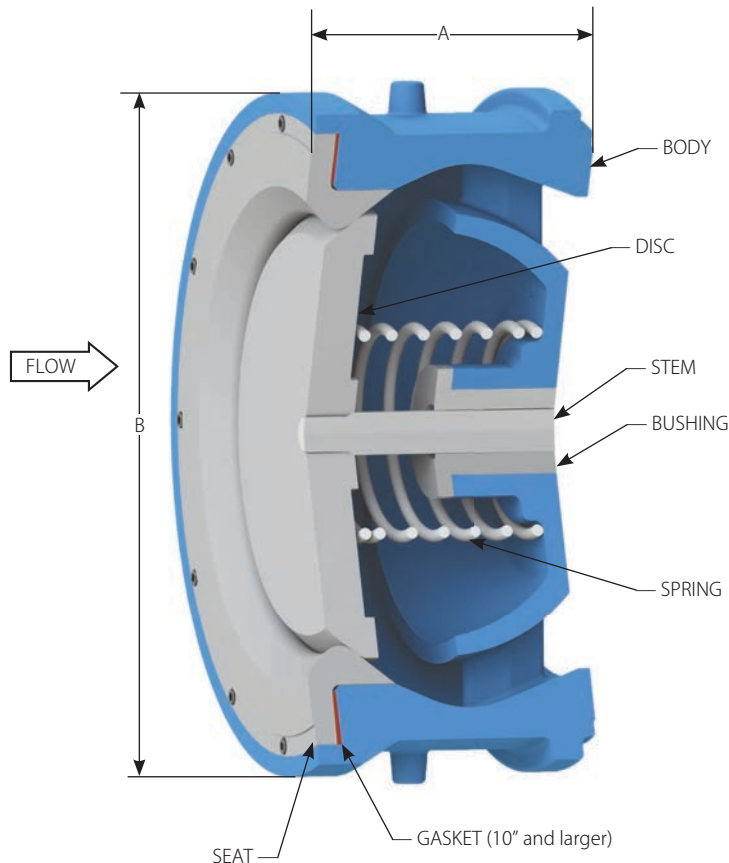
All dimensions are in inches. Weights are in pounds. For metric measurements, visit www.dft-valves.com. CP: Cracking Pressure (psig)

The **ALC Check Valve** is a non-slam spring-assisted, center-guided “wafer” check valve designed to prevent “water hammer” and “reverse” flow. The lightweight compact design fits between mating flanges and meets API 594 Face-to-Face dimensions. The ALC Check Valve is an easy-to-maintain check valve for applications involving liquids, gases or steam. Tapped holes are provided in the body for lifting lugs to assist with installation (10” and larger sizes only).



FEATURES:

- API 594 Face-to-Face dimensions
- RF Wafer ends
- Spring-assisted silent closing
- Sizes 2” thru 24”
- Horizontal or vertical installation
- ASME Class 150 and 300
- Standard body materials:
 - A216 Grade WCB carbon steel
- A351 CF8M stainless steel
- Stainless steel seat, disc & bushing
- Nitronic[®] 60 stem
- Inconel[®] X-750 Spring
- Seat Leakage per MSS SP-61
- Tapped holes in body for lifting lugs (10” size and larger)
- Axial flow
- Nozzle style
- Options:
 - 316 SS spring
 - Custom sizing - low flow
 - Soft seat (for bubble-tight shutoff)
 - NACE (Page 47)
 - Tapped lug design available (Consult DFT for availability)



Consult pages 48 and 49 for Pressure/Temperature ratings and soft seat materials.

Class	150 RF	300 RF	
2"*	A	2.38	2.38
	B	4.25	4.25
	Weight	5.7	5.7
	Cv	120	120
	CP	0.65	0.65
2 1/2"*	A	2.62	2.62
	B	5.00	5.00
	Weight	7.5	7.5
	Cv	205	205
	CP	0.69	0.69
3"*	A	2.88	2.88
	B	5.75	5.75
	Weight	12.25	12.25
	Cv	260	260
	CP	0.63	0.63
4"*	A	2.88	2.88
	B	7.00	7.00
	Weight	17.4	17.4
	Cv	430	430
	CP	0.59	0.59
6"*	A	3.88	3.88
	B	9.75	9.75
	Weight	38	38
	Cv	825	825
	CP	0.59	0.59

Class	150 RF	300 RF	
8"*	A	5.00	5.00
	B	12.00	12.00
	Weight	70	70
	Cv	1310	1310
	CP	0.55	0.55
10"*	A	5.75	5.75
	B	14.00	14.00
	Weight	115	115
	Cv	1875	1875
	CP	0.53	0.53
12"*	A	7.12	7.12
	B	16.38	16.38
	Weight	200	200
	Cv	2525	2525
	CP	0.53	0.53
14"*	A	7.25	8.75
	B	17.63	19.00
	Weight	225	320
	Cv	2950	3275
	CP	0.55	0.55

Class	150 RF	300 RF	
16"*	A	7.56	9.12
	B	20.00	21.00
	Weight	315	430
	Cv	3330	4100
	CP	0.50	0.50
18"*	A	8.00	10.38
	B	21.50	23.25
	Weight	390	594
	Cv	3475	5040
	CP	0.55	0.55
20"*	A	8.62	11.50
	B	23.75	25.63
	Weight	545	760
	Cv	3750	6050
	CP	0.54	0.57
24"*	A	8.75	12.50
	B	28.13	30.38
	Weight	745	1200
	Cv	5150	8325
	CP	0.52	0.57

* Sizes 2" to 12" are Dual Rated

MATERIALS OF CONSTRUCTION

COMPONENT	CARBON STEEL BODY	STAINLESS STEEL BODY
Body	A216 Grade WCB	A351 CF8M
Disc/Stem Assembly	316 SS/Nitronic [®] 60	316 SS/Nitronic [®] 60
Seat	316 SS	316 SS
Spring	Inconel [®] X-750	Inconel [®] X-750
Bushing	316 SS (1)	316 SS (1)
Gasket (2)	CFG (3)	CFG (3)

SOFT SEAT - Maximum operating temperatures of materials

MATERIALS	BUNA-N	EPDM	VITON [®] & TFE-EN-CAPSULATED VITON [®]	ZELON [®]
TEMP. (°F)	-70 to 250	-75 to 300	-40 to 400	37 to 470

- Notes:**
1. Teflon[®] bushing on 14", 16", 18", 20" and 24". Max temperature 450° F.
 2. Gaskets only used on valves 10" and larger.
 3. 316/Graphite material.

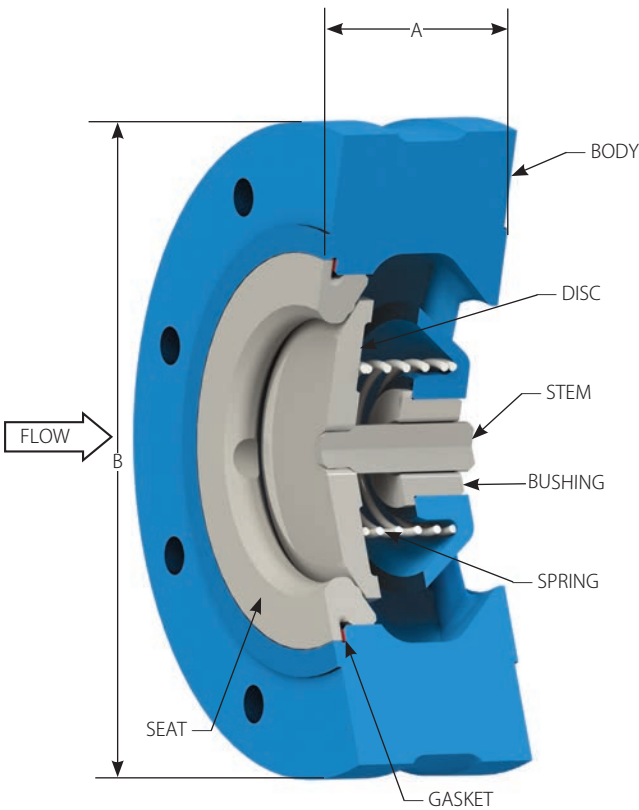
All dimensions are in inches. Weights are in pounds. For metric measurements, visit www.dft-valves.com. CP: Cracking Pressure (psig)

The **TLW[®] Check Valve** (Tapped Lug Wafer) was engineered for applications where exposed bolts are not suitable. This non-slam spring-assisted, center-guided, lugged pattern wafer check valve is designed to prevent water hammer and reverse flow. The lightweight compact design fits between mating flanges and meets API 594 Face-to-Face dimensions. The TLW Check Valve body design eliminates potential leak paths to the environment and is an easy-to-maintain check valve for applications involving liquids, gases, or steam. Tapped holes are provided in the body for lifting lugs to assist with installation (10" and larger sizes only).

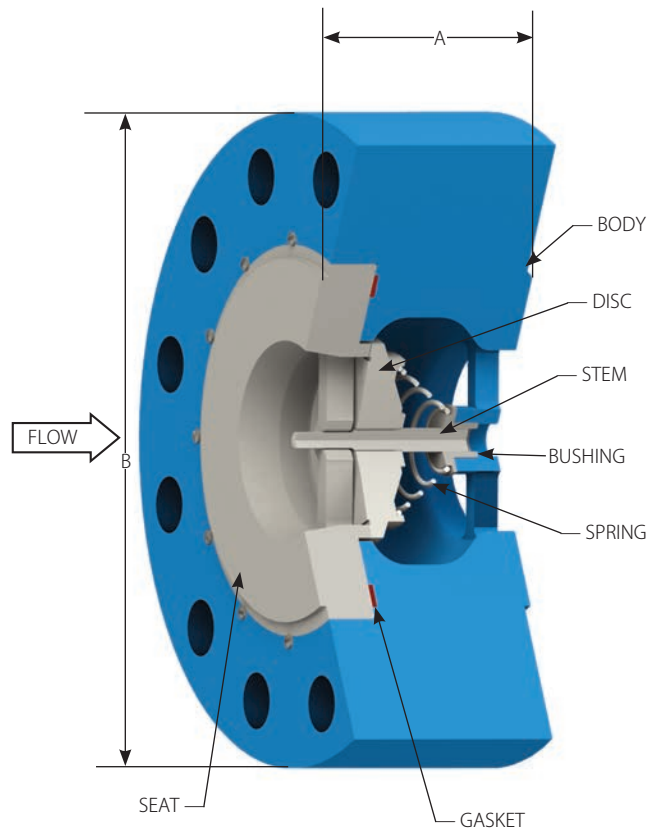


FEATURES:

- API 594 Face-to-Face dimensions
- Threaded Lug Design
- ASME B16.5 bolt hole pattern
- RF Wafer ends
- Spring-assisted silent closing
- Sizes 2" thru 24"
- Horizontal or vertical installation
- ASME Class 150 and 300
- Standard body materials:
 - A216 Grade WCB carbon steel
 - A351 CF8M stainless steel
- Stainless steel seat, disc & bushing
- Nitronic[®] 60 stem
- Inconel[®] X-750 Spring
- Seat Leakage per MSS SP-61
- Tapped holes in body for lifting lugs (10" size and larger)
- Axial flow
- Nozzle style
- Options:
 - 316 SS spring
 - Custom sizing - low flow
 - Soft seat (for bubble-tight shutoff)
 - NACE (Page 47)



TLW[®] Body Style for Class 150/300



TLW[®] Dual Guided Body Style for
2" to 12"
Class 600 / 900 / 1500

Consult pages 48 and 49 for Pressure/Temperature ratings and soft seat materials.

Class	150 RF	300 RF	
2"	A	2.38	2.38
	B	6.00	6.50
	Weight	15	17
	Cv	120	120
	CP	0.65	0.65
2 1/2"	A	2.62	2.62
	B	7.00	7.50
	Weight	20	22
	Cv	205	205
	CP	0.69	0.69
3"	A	2.88	2.88
	B	7.50	8.25
	Weight	29	32
	Cv	260	260
	CP	0.63	0.63
4"	A	2.88	2.88
	B	9.00	10.00
	Weight	38	42
	Cv	430	430
	CP	0.59	0.59
6"	A	3.88	3.88
	B	11	12.50
	Weight	71	79
	Cv	825	825
	CP	0.59	0.59

Class	150 RF	300 RF	
8"	A	5.00	5.00
	B	13.50	15.00
	Weight	123	134
	Cv	1310	1310
	CP	0.55	0.55
10"	A	5.75	5.75
	B	16.00	17.50
	Weight	197	210
	Cv	1875	1875
	CP	0.53	0.53
12"	A	7.13	7.13
	B	19	20.50
	Weight	289	302
	Cv	2525	2525
	CP	0.53	0.53
14"	A	7.25	8.75
	B	20.25	22.00
	Weight	317	440
	Cv	2950	3275
	CP	0.55	0.55

Class	150 RF	300 RF	
16"	A	7.50	9.13
	B	23.00	24.50
	Weight	440	635
	Cv	3300	4100
	CP	0.50	0.50
18"	A	8.00	10.38
	B	24.38	26.88
	Weight	520	810
	Cv	3475	5040
	CP	0.55	0.55
20"	A	8.62	11.50
	B	27.00	29.00
	Weight	708	1012
	Cv	3750	6050
	CP	0.54	0.57
24"	A	8.75	12.50
	B	31.50	35.00
	Weight	945	1550
	Cv	5150	8325
	CP	0.52	0.57

For Class 600 / 900 / 1500 / 2500, consult DFT factory.

MATERIALS OF CONSTRUCTION

COMPONENT	CARBON STEEL BODY	STAINLESS STEEL BODY
Body	A216 Grade WCB	A351 CF8M
Disc/Stem Assembly	316 SS/Nitronic® 60	316 SS/Nitronic® 60
Seat	316 SS	316 SS
Spring	Inconel® X-750	Inconel® X-750
Bushing	316 SS (1)	316 SS (1)
Gasket (2)	CFG (3)	CFG (3)

SOFT SEAT - Maximum operating temperatures of materials

MATERIALS	BUNA-N	EPDM	VITON® & TFE-EN-CAPSULATED VITON®	ZELON®
TEMP. (°F)	-70 to 250	-75 to 300	-40 to 400	37 to 470

- Notes:**
1. Teflon® bushing on 14", 16", 18", 20" and 24".
 2. Gaskets only used on valves 10" and larger.
 3. 316/Graphite material.

Contact DFT for additional sizes/pressure classes.

WARNING: It is NOT recommended that any DFT check valve be used for dead end service.

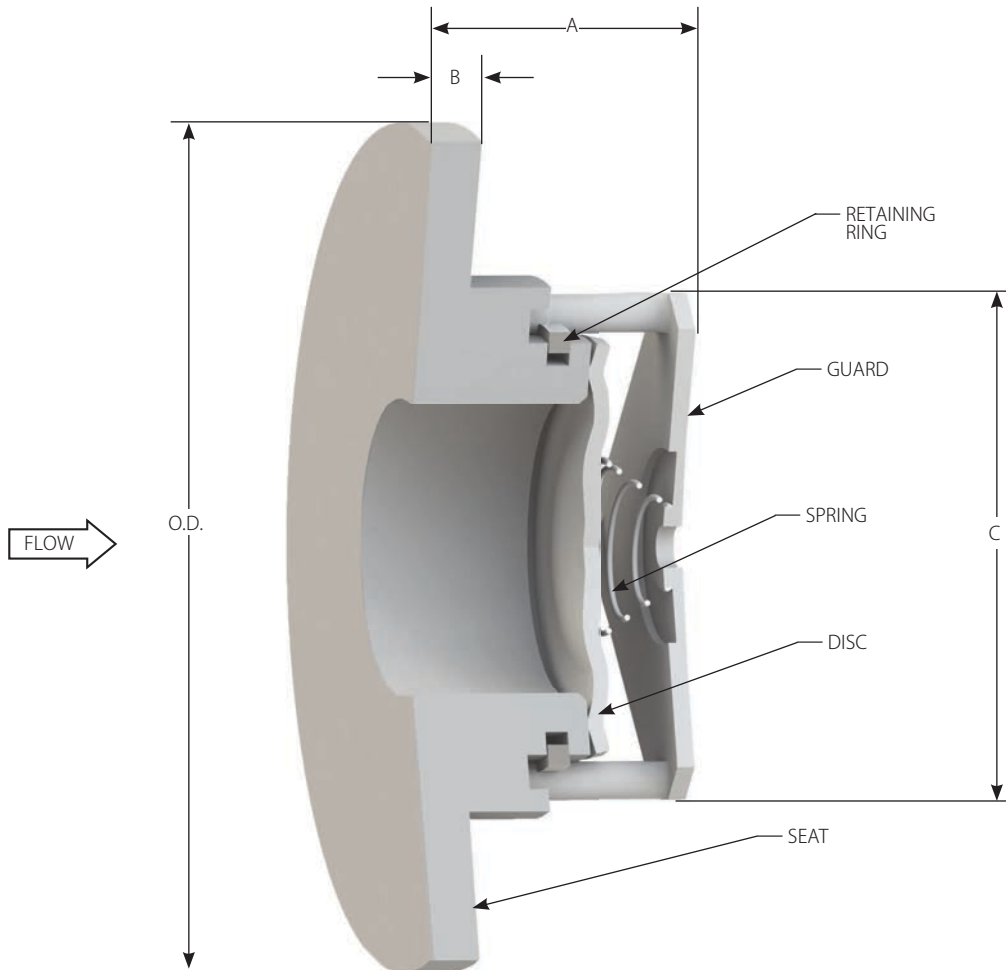
All dimensions are in inches. Weights are in pounds. For metric measurements, visit www.dft-valves.com. CP: Cracking Pressure (psig)

The **FBC Check Valve** is a compact, lightweight, insert wafer check valve that easily installs between two flanges. The non-slam, spring-assisted design prevents “water hammer” and “reverse flow”. The FBC Check Valve contains all of the proven features of the Basic-Check® valve developed originally by DFT® and still in use after 70 years. Like the Basic-Check® Valve, the metal-to-metal sealing area of the disc and seat is precision lapped, providing tight shutoff for applications involving liquids, gases or steam. Resilient soft seats are available for applications requiring bubble-tight shutoff.



FEATURES:

- Spring-assisted silent closing
- Horizontal or vertical installations
- Sizes 1” through 4”
- ASME/ANSI Class 150 and 300
- Stainless steel seat, disc, guard, retaining ring & spring
- Cracking pressure: 0.6 to 0.15 psi (See chart)
- Temperatures to 450°F for standard valves
- Extended tag for easy identification of the installed valve
- Use in Schedule 40 or Schedule 80 pipe (See chart on pg. 37)
- Meets ASME B16.34 & MSS SP-126
- Flange finish per MSS SP-6
- Seat leakage per MSS SP-61
- Options:
 - Soft seat (for bubble-tight shutoff)
 - Inconel® X-750 spring



Consult pages 48 and 49 for Pressure/Temperature ratings and soft seat materials.

MATERIALS OF CONSTRUCTION

COMPONENT		
Seat		A479 316
Disc	1" to 3"	316 SS
	4"	17-7 SS
Guard		316 SS
Spring		316 SS
Retaining Ring		316 SS

PRESSURE TEMPERATURE RATING — 316 SS (PSIG) (1)

Temp. (°F)	ASME/ANSI CLASS	
	150	300
100	275	720
200	235	620
250 (2)	225	590
300 (3)	215	560
400 (4)	195	515
450	180	495

SOFT SEAT

Maximum operating temperatures of materials

MATERIALS	MAX. TEMP. (°F)
BUNA-N	-70 to 250
EPDM	-75 to 300
VITON® & TFE-Encapsulated VITON®	-40 to 400
ZELON®	37 to 470

- Notes:**
1. Pressure/temperature ratings in accordance with ASME/ANSI B16.34
 2. Maximum temperature for Buna
 3. Maximum temperature for EPDM
 4. Maximum temperature for Viton®, TFE-encapsulated Viton® and Zelon®
- * Fits schedule 40 pipe only.
** Fits schedule 40 and schedule 80 pipe ID.

All dimensions are in inches. Weights are in pounds. For metric measurements, visit www.dft-valves.com. CP: Cracking Pressure (psig)

Class	150/300	150
1"*	A	0.87
	B	0.25
	C	1.03
	O.D.	2.00
	Weight	0.2
	Cv	5.8
	CP	0.60
1 1/2"*	A	1.10
	B	0.25
	C	1.56
	O.D.	2.88
	Weight	0.6
	Cv	13.2
	CP	0.45
2"***	A	1.22
	B	0.25
	C	1.94
	O.D.	3.62
	Weight	0.9
	Cv	23.1
	CP	0.38
2 1/2"*	A	1.31
	B	0.25
	C	2.40
	O.D.	4.12
	Weight	1.2
	Cv	36
	CP	0.2
3"*	A	1.47
	B	0.31
	C	2.97
	O.D.	5.00
	Weight	2.2
	Cv	57.4
	CP	0.14
4"***	A	2.11
	B	0.38
	C	3.70
	O.D.	6.19
	Weight	5.2
	Cv	90
	CP	0.15

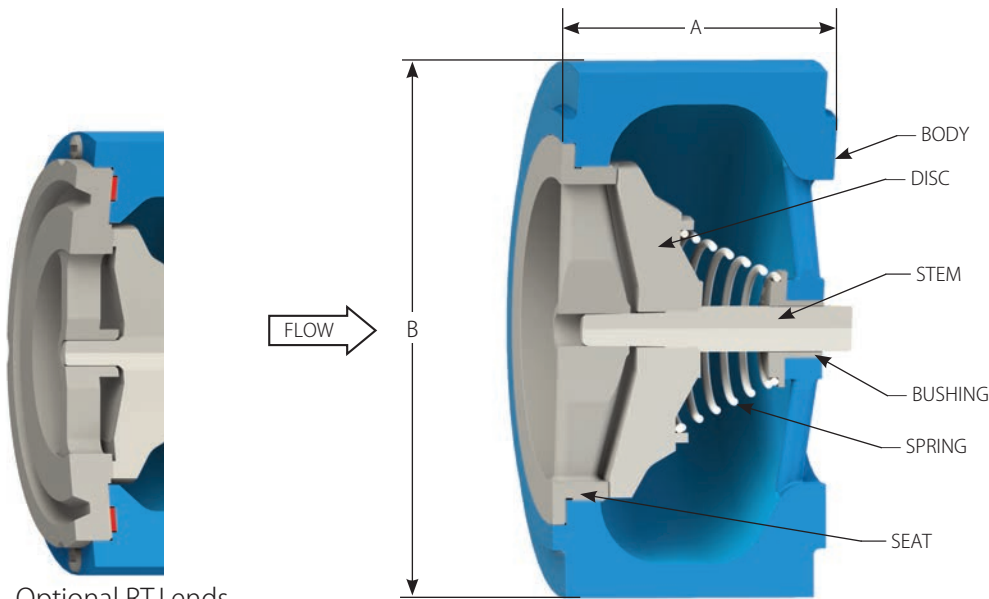
Not recommended for use on discharge of reciprocating compressors.

The **DFT® Model WLC Wafer Style Check Valve** is a lightweight, spring-assisted, center-guided, non-slam check valve that provides reliable, low-maintenance service for a wide range of fluids and pressure/ temperature combinations. The joint between the seat ring and body is sealed by the flange gasket upon installation preventing any leakage through the joint when the valve is in service.



FEATURES:

- Wafer design
- Standard body material:
 - A216 Grade WCB carbon steel
 - A351 CF8M stainless steel
- Optional body materials:
 - Alloy 20
 - Hastelloy®
 - Inconel® 625
 - Duplex SS
 - Titanium
- Center-guided/Dual-guided stem
- Horizontal or vertical installation
- Protected spring
- Spring-assisted silent closing
- ASME Class 150 to 1500
 - 1" to 10" Line Size
 - 316 SS trim
 - Ends:
 - Wafer RF
 - Wafer RTJ
 - MSS-SP 61 seat leakage
 - MSS 126 Face-to-Face dimension:
 - Class 150 & 300 RF
 - API 594 Face-to-Face dimension:
 - Class 600 RF
 - Class 900 & 1500 RF
- Axial flow
- Nozzle style
- Lightweight
- Options:
 - Inconel® X-750 spring
 - Soft seat (for bubble-tight shutoff)
 - Custom sizing - low flow
 - Stellite® trim
 - NACE (page 47)
 - Severe Service
 - Tapped lug design available



Optional RTJ ends

Standard RF ends

Consult factory for more details.

MATERIALS OF CONSTRUCTION

COMPONENT	CARBON STEEL BODY	STAINLESS STEEL BODY
Body	A216 Grade WCB	A351 CF8M
Disc/Stem Assembly	A351 CF8M/A479 316	A351 CF8M/A479 316
Seat	A351 CF8M	A351 CF8M
Spring	A313 316	A313 316
Bushing	A479 316	A479 316

SOFT SEAT - Maximum operating temperatures of materials

MATERIALS	BUNA-N	EPDM	VITON® & TFE-Encapsulated VITON®	ZELON®
TEMP. (°F)	-70 to 250	-75 to 300	-40 to 400	37 to 470

Consult pages 48 and 49 for Pressure/Temperature ratings and soft seat materials.

Class	150 RF	300 RF	600 RF	900 RF	1500 RF	1500 RTJ	2500 RF	2500 RTJ
1" *	A	2	2	2.38	2.38	2.38	2.38	2.38
	B	2.88	2.88	2.88	3.13	3.13	3.13	3.25
	Weight	2	2	2.50	4	4	4	4.75
	Cv	19	19	19	19	19	19	19
	CP	0.36	0.36	0.36	0.44	0.44	0.44	0.44
1 1/2"*	A	2.50	2.50	2.88	2.88	2.88	2.88	**
	B	3.75	3.75	3.75	3.88	3.88	3.88	
	Weight	4	4	6.5	8	8	7	
	Cv	36	36	23	23	23	23	
	CP	0.17	0.17	0.44	0.54	0.54	0.54	
2" *	A	2.63	2.63	2.38	2.75	2.75	3.13	2.81
	B	4.38	4.38	4.38	5.50	5.50	5.50	5.75
	Weight	4	4	5	14	14	14	17
	Cv	57	57	53	48	48	48	35
	CP	0.24	0.24	0.26	0.24	0.24	0.24	0.97
2 1/2"*	A	2.88	2.88		3.63	3.63	3.63	
	B	5.13	5.13		6.40	6.40	6.40	
	Weight	10	10		20	20	20	
	Cv	95	95		70	70	70	
	CP	0.37	0.37		0.18	0.18	0.18	
3" *	A	3.13	3.13	2.88	3.25	3.25	3.25	3.38
	B	5.75	5.75	5.75	6.75	6.75	6.75	7.50
	Weight	12	12	11	21	21	21	33
	Cv	140	140	133	113	113	113	80
	CP	0.19	0.19	0.26	0.19	0.19	0.19	0.56
4" *	A	4	4	3.13	4	4	4.13	4.125
	B	7.09	7.09	7.50	8.19	8.19	8.25	9.13
	Weight	20	20	21	38	38	38	113
	Cv	265	265	234	211	211	211	130
	CP	0.19	0.19	0.49	0.46	0.46	0.46	0.69
5" *	A	4.63	4.63		6.25	6.25		
	B	8.50	8.50		11.25	11.25		
	Weight	35	35		100	100		
	Cv	360	360		370	370		
	CP	0.29	0.29		0.58	0.58		
6" *	A	5.50	5.50	5.38	6.25	6.25	6.25	5.88
	B	9.81	9.81	10.38	11.25	11.25	11.25	19
	Weight	41	41	68	100	100	100	350
	Cv	506	506	441	370	370	370	150
	CP	0.45	0.45	0.66	0.58	0.58	0.58	0.62
8" *	A	6.50	6.50	6.50	8	8.13	8.12	
	B	12.13	12.13	12.63	14.05	13.81	13.86	
	Weight	86	86	134	237	244	237	
	Cv	860	860	780	620	620	620	
	CP	0.56	0.56	0.56	0.66	0.66	0.66	
10"	A	8.25			9.50	9.75	9.75	
	B	17.62			17.06	17.06	17.06	
	Weight	138			430	430	426	
	Cv	1355			755	755	755	
	CP	0.45			0.61	0.61	0.61	

* Sizes 1" to 8" are Dual Rated Class 150 / 300

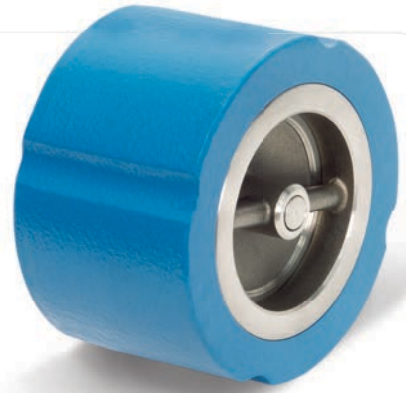
** Consult DFT factory

Consult DFT for 2500 RF availability.

All dimensions are in inches. Weights are in pounds. For metric measurements, visit www.dft-valves.com. CP: Cracking Pressure (psig)

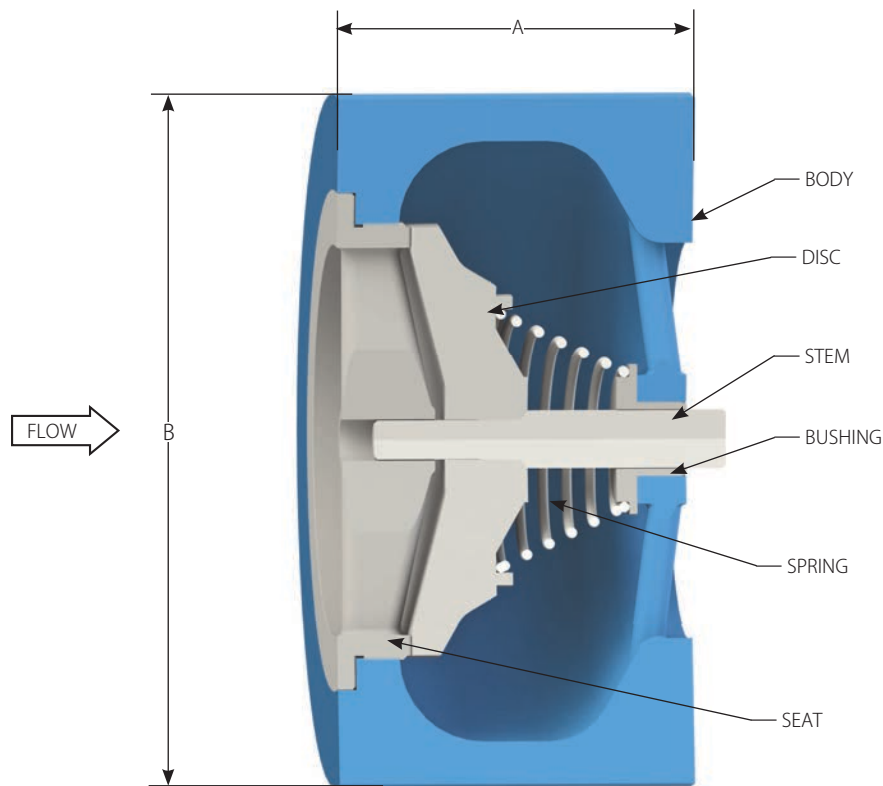
WLC®-Cast Iron

The **DFT® Model WLC-Cast Iron Wafer Style Check Valve** is a lightweight, spring-assisted, center-guided, non-slam check valve that provides reliable, low-maintenance service for a wide range of fluids and pressure/ temperature combinations. The joint between the seat ring and body is sealed by the flange gasket upon installation, preventing any leakage through the joint when the valve is in service.



FEATURES:

- Wafer design
- Lightweight
- Spring-assisted silent closing
- Center-guided / dual-guided stem
- Horizontal or vertical installation
- Protected spring
- ASME Class 125 & 250
 - 2" to 10" line size
 - Cast iron body
 - Bronze or 316 SS trim
 - Ends: Wafer FF
 - AWWA seat leakage
- Axial flow
- Nozzle style
- Options:
 - Buna-N Soft Seat (for bubble-tight shutoff)



Consult pages 48 and 49 for Pressure/Temperature ratings and soft seat materials.

WLC[®]-Cast Iron

Class	125 CAST IRON FF	250 CAST IRON FF	
2"	A	2.63	2.63
	B	4.25	4.25
	Weight	6	6
	Cv	66	66
2 1/2"	A	2.88	2.88
	B	5	5
	Weight	7	7
	Cv	88	88
3"	A	3.13	3.13
	B	5.75	5.75
	Weight	12	12
	Cv	130	130
4"	A	4	4
	B	7	7
	Weight	18	18
	Cv	228	228
5"	A	4.75	4.75
	B	8.38	8.38
	Weight	27	27
	Cv	350	350
6"	A	5.50	5.50
	B	9.75	9.75
	Weight	42	42
	Cv	520	520
8"	A	6.50	6.50
	B	13.38	13.38
	Weight	85	86
	Cv	900	900
10"	A	8.25	8.25
	B	16	16
	Weight	129	137
	Cv	1450	1450

PRESSURE TEMPERATURE RATING FOR CAST IRON (PSIG)

Temp. (°F)	CLASS 125	CLASS 250
0-150°	200 psig	400 psig
200° Max (1)	190 psig	370 psig

MATERIALS OF CONSTRUCTION

COMPONENT	CAST IRON BODY/BRONZE TRIM	CAST IRON BODY/316 TRIM (1)
Body	A126 Class B Cast Iron	A126 Class B Cast Iron
Disc/Stem Assembly	B584 836 - Bronze	A351 CF8M
Seat (2)	B584 836 - Bronze	A351 CF8M
Spring	A313 T302 SS	A313 T302 SS
Bushing	B584 836 - Bronze	316 SS

- Notes:**
1. 316 stainless steel trim recommended for temperatures from 180°F to 200°F.
 2. Buna-N soft seat available for bubble-tight shutoff.

All dimensions are in inches. Weights are in pounds. For metric measurements, visit www.dft-valves.com. CP: Cracking Pressure (psig)

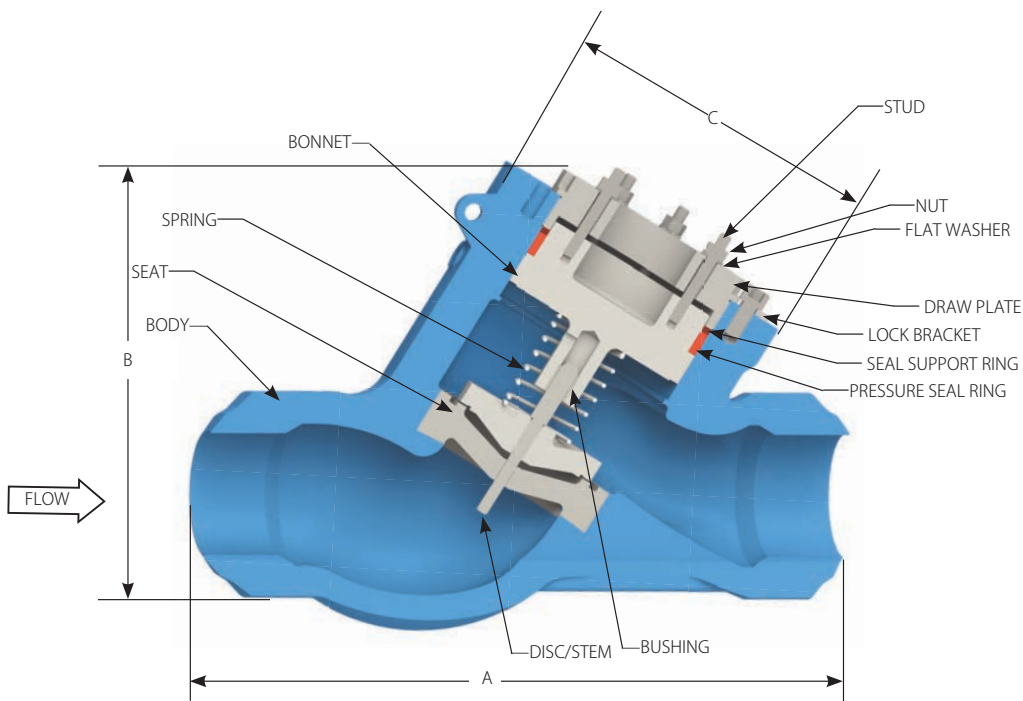
Y-Calibur®

The **DFT® Y-Calibur® Silent Check Valve** is an in line repairable, spring-assisted, center guided, non-slam check valve that provides reliable, low-maintenance service for a wide range of fluids and pressure/temperature combinations. The valve consists of a body, bonnet, gasket, seat, spring, disc with stem and guide bushing. Y-Calibur check valves are available in a wide range of sizes and pressure ratings and in a variety of materials to meet most check valve requirements.



FEATURES:

- ASME B16.10 Face-to-Face dimensions
- Spring-assisted silent closing, non-slam
- 4" to 14" Line size *
- ASME Class 600 to 2500 (See chart)
- Standard body materials:
 - A216 WCB carbon steel
 - A351 CF8M stainless steel
- Optional body materials:
 - Duplex SS
- Hastelloy®
- Inconel® 600
- Monel®
- Standard ends:
 - Butt weld
- Stainless steel trim
- Other materials available
- Center-guided
- Dual-guided stem & disc
- Horizontal or vertical installation
- Tight shutoff
- Protected spring
- Fully repairable in-line
- Versatile
- Axial flow/non-slam design
- Options:
 - Inconel® X-750 Spring
 - Custom sizing low flow
 - Severe service trim
 - Stellite® trim
 - NACE (Page 47)



* other sizes available on application

Consult pages 48 and 49 for Pressure/Temperature ratings and soft seat materials.

Y-Calibur®

MATERIALS OF CONSTRUCTION

COMPONENT	CARBON STEEL BODY	STAINLESS STEEL BODY
Body and Bonnet	A216 WCB (3)	A351 CF8M (3)
Disc/Stem Assembly	A351 CF8M/A479 316	A351 CF8M/A479 316
Seat	A351 CF8M	A351 CF8M
Spring (1)	A313 316	A313 316
Bushing	A479 316	A479 316
Bolting (2)	A193-B7 (Stud) & A194-2H (Nut)	
Seal	Graphite	

Class	600	900	1500	2500	
4"	A	17	18	21.5	*
	B	13.29	13.85	14.73	*
	C	8.38	8.88	10.00	*
	Weight	103	150	211	*
	Cv	265	265	265	*
	CP	0.84	0.84	0.84	*
6"	A	22	24	27.75	*
	B	18.67	19.87	19.87	*
	C	11.63	12.25	13.75	*
	Weight	250	312	479	*
	Cv	685	685	685	*
	CP	0.73	0.73	0.73	*
8"	A	26	29	32.75	*
	B	24.78	24.32	24.95	*
	C	14.50	15.38	15.25	*
	Weight	461	597	1020	*
	Cv	1050	1050	1050	*
	CP	0.84	0.84	0.84	*
10"	A	31	33	39	*
	B	29.79	28.26	29.57	*
	C	18.50	19.63	21.88	*
	Weight	801	1084	1886	*
	Cv	1650	1650	1650	*
	CP	1.11	1.11	1.11	*
12"	A	33	38	44.5	*
	B	30.26	30.77	35.19	*
	C	22.38	22.38	24.00	*
	Weight	1058	1440	2625	*
	Cv	2400	2400	2400	*
	CP	1.24	1.24	1.24	*

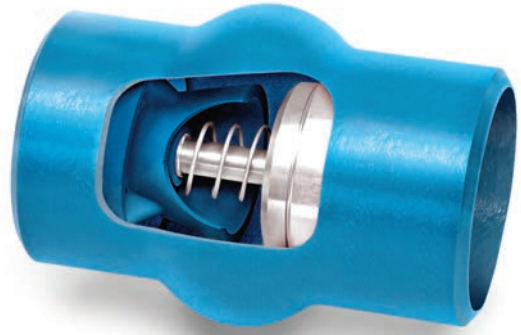
* Contact DFT for additional sizes/pressure classes. (4)

- Notes:**
1. Inconel® X-750 spring is available.
 2. Contact DFT for stainless steel or other bolting materials.
 3. Mating pipe schedule required when ordering.
 4. CP values listed are standard, other CP's are available.

All dimensions are in inches. Weights are in pounds. For metric measurements, visit www.dft-valves.com. CP: Cracking Pressure (psig)

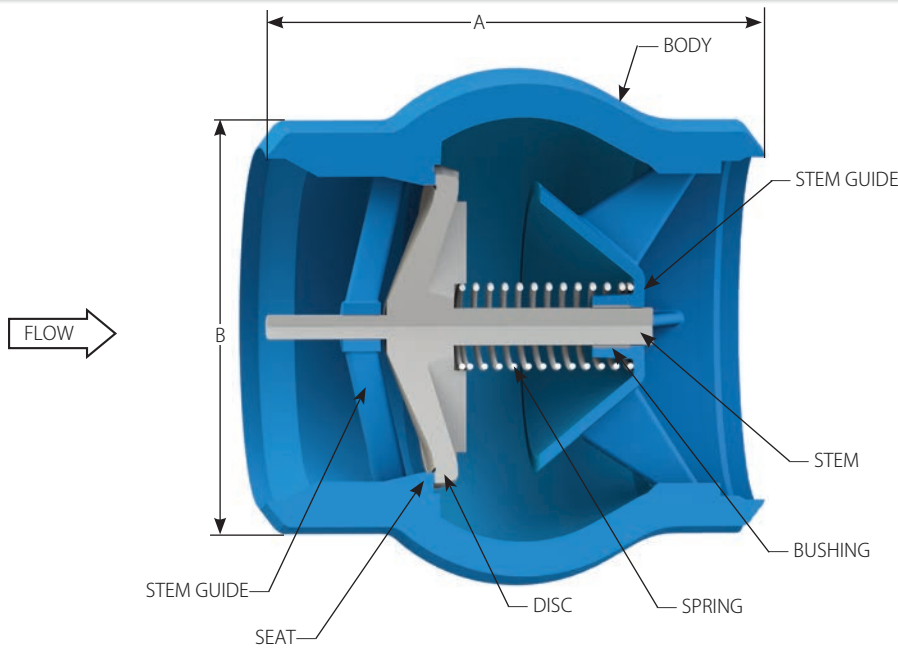
IN-LINE REPAIRABLE VALVES

The **DFT[®] BNC[®] Check Valve** is a spring-assisted, center-guided, non-slam check valve. The valve has an inline globe style body with butt weld ends. The seat is integral to the valve body. The valve is designed for long life and low maintenance. Because it is welded into piping for service, the valve does not have any inline maintenance capabilities.



FEATURES:

- Inline globe style with butt weld end connections
- Butt weld ends per ASME B16.25
- Design meets ASME B16.34 Valves - Flanged, threaded, and welding end
- Testing meets MSS SP-61 & API 598 (shell and seat)
- Allowable seat leakage per MSS SP-61
- Available in 2" to 24" line size
- One-piece body
- Standard body materials:
 - A216 grade WCB carbon steel
 - Other alloys per ASME 16.34 by request
- Trim materials:
 - Carbon steel and stainless steel
 - Hardfaced seat and disc
- Spring-assisted silent closing, non-slam
- Center-guided
- Dual-guided stem
- Horizontal or vertical installation
- Protected spring
- ASME Classes
 - 150, 300, 600, 900, 1500
- Maximum Temperature
 - WCB: 700° F (375° C)
- Compatible fluids:
 - Steam, water or gaseous media
- OPTIONS:
 - Custom sizing available



MATERIALS OF CONSTRUCTION

COMPONENT	CARBON STEEL BODY
Body	A216 WCB
Disc/Stem Assembly	A216 WCB*
Seat	A216 WCB*
Spring	Inconel [®] X-750 (special Alloys by request)

Consult pages 48 and 49 for Pressure/Temperature ratings and soft seat materials.

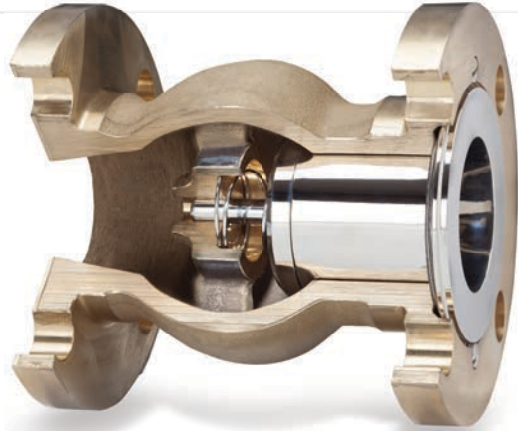
GLC® - NAB

The **DFT® GLC® NAB (Nickel-Aluminum Bronze) Silent Check Valve** is a spring-assisted, nozzle style, non-slam check valve that is designed to withstand the harsh environments of salt and brackish water applications where corrosion resistance and marine life deterrents are a must. DFT's center guided check valves provide reliable, low-maintenance service and solve the problems associated with water hammer and severe applications and environments.

FEATURES:

- "Short" Face-to-Face dimensions
- Standard body materials:
 - Nickel-Aluminum Bronze
- One-piece body
- Spring-assisted silent closing, non-slam
- Center-guided
- Dual-guided stem
- Horizontal or vertical installation
- Protected spring
- Easy maintenance
- Versatile
- ASME Class 150 & 300
 - 1" to 24" Line size
 - Flat face flanged ends
 - MSS-SP61 seat leakage
- Axial flow
- Nozzle style
- Options:
 - Inconel® X-750 Spring
 - Soft seat (for bubble-tight shutoff)
 - Custom sizing low flow
 - Severe service trim
 - Stellite® trim
- Trim Options:
 - Nickel-Aluminum Bronze
 - Monel®
 - Stainless Steel
 - Duplex SS

For more information see GLC® page 24-25



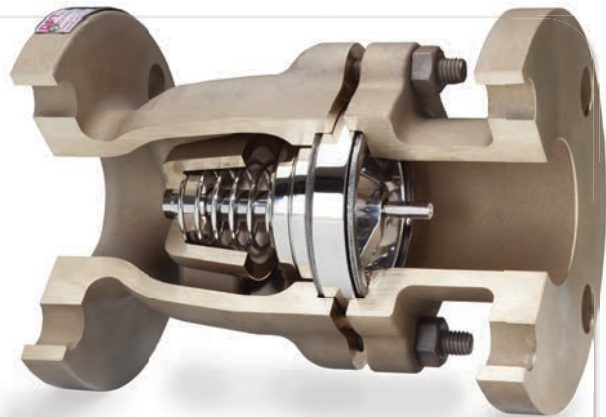
Excalibur® - NAB

The **DFT® Excalibur® NAB (Nickel-Aluminum Bronze) Silent Check Valve** is a spring-assisted, nozzle style, non-slam check valve that is designed to withstand the harsh environments of salt and brackish water applications where corrosion resistance and marine life deterrents are a must. DFT's center guided check valves provide reliable, low-maintenance service and solve the problems associated with water hammer and severe applications and environments.

FEATURES:

- ASME B16.10 Face-to-Face dimensions
- Spring-assisted silent closing, non-slam
- 2" to 24" Line size
- ASME Class 150 & 300
- Standard body materials:
 - Nickel-Aluminum Bronze
- Standard ends:
 - Flat face flanged
- Optional ends:
 - Butt weld
- Flanged x Butt weld
 - Raised face
- Center-guided
- Dual-guided stem
- Horizontal or vertical installation
- Tight shutoff
- Two-piece body
- Protected spring
- Easy maintenance
- Versatile
- Axial flow
- Nozzle style
- Options:
 - Soft seat (for bubble-tight shutoff)
 - Inconel® X-750 Spring
 - Custom sizing low flow
 - Severe service trim
 - Stellite® trim
- Trim Options:
 - Nickel-Aluminum Bronze
 - Monel®
 - Stainless Steel
 - Duplex SS

For more information see Excalibur® page 22-23



All dimensions are in inches. Weights are in pounds. For metric measurements, visit www.dft-valves.com. CP: Cracking Pressure (psig)

NICKEL-ALUMINUM BRONZE VALVES

Codes & Standards

CODES & STANDARDS

	ALC®	Basic-Check®	BNC®	DLC®	DSV®	Excalibur®	FBC®	GLC & GLC-Cast Iron	PDC®	Restrictor Check	SCV®	SCV-R®	TLW®	Vacuum Breaker	WLC® & WLC-Cast Iron	Y-Calibur®
ANSI																
B1.1	X										X	X	X		X	
B1.20.1		X								X	X	X		X		
B16.5	X			X		X		X	X				X		X	X
B16.10				X		X			X							X
B16.11		X								X	X	X		X		
B16.20						X		X	X						X	
B16.25			X			X					X	X				X
B16.34	X		X	X		X	X	X	X		X	X	X		X	X
MSS																
SP-6	X			X		X	X	X	X				X		X	
SP-25	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SP-61	X		X	X	X	X	X	X (1)	X		X	X	X		X (1)	X
SP-125								X (2)							X (2)	
SP-126				X		X		X (3)	X		X	X			X (3)	X
SP-144																X
ASTM																
A126 CLASS B								X							X	
A216GR WCB	X		X			X		X	X				X		X	X
A351GR CF8M	X		X	X		X		X	X		X	X	X		X	X
A351 CF3M			X		X											
API 6D*																
6FD								X (4)								
594	X												X		X (5)	
PED	X					X		X (3)	X		X		X		X (3)	
3A 58-02					X											
CRN	X	X (6)		X		X	X	X	X	X (6)	X		X	X (6)	X	X
NACE	X (7)			X (7)		X (7)		X (7)	X (7)		X (7)	X (7)	X (7)		X (7)	X (7)

ANSI B1.1	Unified Inch Screw Threads	ASTM A126	CLASS B Grey Iron Castings
ANSI B1.20.1	Pipe Threads, General Purpose	ASTM A216 GR WCB	Carbon Steel Castings
ANSI 16.5	Pipe Flanges & Flanged Fittings.	ASTM A351 GR CF8M	Austenitic Steel Castings
ANSI 16.10	Face-to-Face & End-to-End Dimensions of Valves	API Q1 9TH ED.	Quality Management System specification for manufacturing organizations for the petroleum and natural gas industry.
ANSI 16.11	Forged Fittings, Socket-Welding and Threaded	API 6D 24TH ED.	Pipeline and Piping Valves
ANSI 16.20	Ring-Joint Gaskets & Grooves for Steel Pipe Flanges	API 6FD	Fire Test for Check Valves
ANSI 16.25	Buttwelding Ends	API 594	Wafer & Wafer-Lug Check Valves
ANSI 16.34	Valves - Flanged, Threaded & Welding Ends	PED	Pressure Equipment Directive #2014/068/EU
ISO 9001-2015	Quality Management System requirements to consistently provide products and services that meet customer and applicable statutory and regulatory requirements.	3A	Standard 58-01: Vacuum Breakers and Check Valves
MSS SP-6	Standard finishes for contact faces of pipe flanges and connecting end flanges of valves & fittings	CRN	Canadian Registration Number
MSS SP-25	Standard marking system for valves, fittings, flanges and unions	NACE MR 0175 / ISO 15156	Petroleum and Natural Gas Industries-Materials for use in H2S Containing Environments in Oil and Gas Production
MSS SP-61	Pressure testing of steel valves	NACE MR 0103 / ISO 17945	Material resistant to sulfide stress cracking in corrosive petroleum refining environments
MSS SP-125	Grey Iron & Ductile Iron In-Line Check Valves		
MSS SP-126	Steel In-Line Spring-Assisted Center Guided Check Valves		
MSS SP-144	Pressure Seal Bonnet Valves		

Notes: 1. Class 125 and 250 Cast Iron valves are leak tested in accordance with AWWA.
2. Cast Iron Valves only.
3. Except Cast Iron Valves.

4. ASME Class 150 & 300, 2" to 24" only.
5. ANSI Class 600 RF and 900/1500 RF valves meet face-to-face dimensions.
6. Contact DFT for acceptable materials.

7. Contact DFT for NACE.
* Contact DFT for current codes and standards.

NACE

DFT in-line check valves can meet the “new” **NACE** Standards NACE **MR0175/ISO 15156** and NACE **MR0103/ISO 17945**. The ALC®, DLC®, Excalibur®, GLC®, GPV™, PDC®, SCV®, SCV-R®, WLC®, Y-Calibur® can be constructed of the proper materials depending on the applicable NACE standard.

Prior to April 2003, all NACE applications were handled by NACE Standard MR0175. Compliance allowed 316 (CF8M) body material, 316 stainless steel (CF8M) trim with an Inconel® X-750. In April 2003, the requirements changed with the introduction of NACE MR0103-2003 and the updating of NACE MR0175 to NACE MR0175/ISO 15156.

NACE MR0103/ISO 17945 – “Material Resistant to Sulfide Stress Cracking in Corrosive Petroleum Refining Environments” in April 2003 applies to “refinery” applications. The material restrictions imposed by this standard relate to potential failures due to sulfide stress cracking (SSC). Typical material selection consists of WCB or 316 (CF8M) body material, 316 stainless steel (CF8M) trim with an Inconel® X-750 spring.

NACE MR0175/ISO 15156 – “Petroleum and Natural Gas Industries – Materials for Use in H₂S-Containing Environments in Oil and Gas Production” developed with the European Federation of Corrosion replaced the original MR0175. The new standard primarily pertains to “oil field” applications and is concerned with sulfide stress cracking (SSC), chloride stress corrosion cracking, hydrogen-induced cracking and stepwise cracking, stress oriented hydrogen-induced cracking, soft zone cracking and galvanically-induced hydrogen stress. In order to select materials of construction it is necessary to know the H₂S and Chloride content, pH, operating temperatures, etc. Because of the information required, the standard makes the end user responsible for the proper selection of materials and their performance. It also limits the use of Austenitic Stainless Steels (i.e. 316 stainless steel, CF8M) and certain High Alloy Austenitic Stainless Steels (i.e. Alloy 20) to operating temperatures less than 140°F (60°C). Other stainless materials and alloys are used for temperatures greater than 140°F.

There are three parts to the standard that must be considered for material selection:

- 1) General Principles for the Selection of Cracking-Resistant Materials
- 2) Cracking-Resistant Carbon and Low Alloy Steels
- 3) Cracking-Resistant Corrosion-Resistant Alloys (CRA's) and Other Alloys.

A detailed explanation of the “new” NACE standards can be found at the DFT web site www.dft-valves.com. You can also contact DFT Engineering at 610-363-8903 or 800-206-4013 to discuss material selections for DFT non-slam check valves to your NACE requirements.

When contacting DFT for NACE material recommendations, please provide the following information:

NACE MR0103/ ISO 17945

Line size
ASME/ANSI Class
Design pressure & temperature
Operating pressure & temperature
Fluid

MR0175/ISO 15156

Line size
ASME/ANSI Class
Design pressure & temperature
Operating pressure & temperature
Fluid
pH
H₂S content
Chloride content

Pressure - Temperature Ratings

WCB (1)							CF8M (1)						
TEMP. (°F)	WORKING PRESSURE BY CLASS (PSIG)						TEMP. (°F)	WORKING PRESSURE BY CLASS (PSIG)					
	150	300	600	900	1500	2500		150	300	600	900	1500	2500
-20	285	740	1480	2220	3705	6170	-462	275	720	1440	2160	3600	6000
100	285	740	1480	2220	3705	6170	100	275	720	1440	2160	3600	6000
200	260	680	1360	2035	3395	5655	200	235	620	1240	1860	3095	5160
250 (2)	245	665	1335	2000	3330	5550	250 (2)	225	590	1180	1770	2945	4910
300	230	655	1310	1965	3270	5450	300	215	560	1120	1680	2795	4660
400 (3)	200	635	1265	1900	3170	5280	400 (3)	195	515	1025	1540	2570	4280
450 (4)	185	620	1235	1855	3090	5150	450 (4)	180	495	990	1485	2480	4130
470 (5)	175	610	1220	1835	3060	5100	470 (5)	175	490	975	1465	2440	4070
500	170	605	1205	1810	3015	5025	500	170	480	955	1435	2390	3980
600	140	570	1135	1705	2840	4730	600	140	450	900	1355	2255	3760
650	125	550	1100	1650	2745	4575	650	125	440	885	1325	2210	3680
700 (6)	110	530	1060	1590	2665	4425	700 (6)	110	435	870	1305	2170	3620
750	95	505	1015	1520	2535	4230	750	95	425	855	1280	2135	3560
800	80	410	825	1235	2055	3430	800	80	420	845	1265	2110	3520
							850	65	420	835	1255	2090	3480
							900	50	415	830	1245	2075	3460
							950	35	385	775	1160	1930	3220
							1000	20	365	725	1090	1820	3030
							1050 (7)	20	360	720	1080	1800	3000
							1100 (7)	20	305	610	915	1525	2545

PRESSURE TEMPERATURE RATING FOR CAST IRON (PSIG) (8, 9)

TEMP. (°F)	CLASS 125		CLASS 250	
	2 1/2" to 12"	14" +	2 1/2" to 12"	14" +
0-150°	200 psig	150 psig	400 psig	300 psig
200° Max (1)	190 psig	135 psig	370 psig	280 psig

MAXIMUM OPERATING TEMPERATURES OF MATERIALS (10)

MATERIALS	SOFT SEAT				SPRING		
	BUNA-N	EPDM	VITON® & TFE-EN-CAPSULATED VITON®	ZELON® (11)	316 SS	INCONEL® X-750	HASTELLOY® C
TEMP. (°F)	-70 to 250	-75 to 300	-40 to 400	37 to 470	-460 to 450	-460 to 700	-460 to 1000

- Notes:**
1. Pressure/temperature ratings in accordance with ASME/ANSI B16.34-2013.
 2. Maximum temperature for Buna-N.
 3. Maximum temperature for Viton® & Zelon® with 3600 CWP SCV.
 4. Maximum temperature for 316 SS spring.
 5. Maximum temperature for Zelon with 750 CWP SCV.
 6. Maximum temperature for Inconel® X-750 spring.

7. Butt weld end valves only. Flanged ratings terminate at 1000° F.
8. 316 stainless steel trim recommended for temperatures from 180° F to 200° F.
9. Not recommended for gas or steam service
10. Maximum valve temperature rating is limited by seal and spring materials shown above.
11. Zelon is recommended for steam service (as a body seal).

Pressure - Temperature Ratings

CK3MCUN (DUPLEX SS) (1)

TEMP. (°F)	WORKING PRESSURE BY CLASS (PSIG)					
	150	300	600	900	1500	2500
-20	290	750	1500	2250	3750	6250
100	290	750	1500	2250	3750	6250
200	260	745	1490	2230	3720	6200
250 (2)	245	705	1410	2115	3525	5880
300	230	665	1335	2000	3335	5560
400 (3)	200	615	1230	1845	3070	5120
450 (4)	185	595	1195	1790	2985	4980
500	170	580	1160	1740	2905	4840
600	140	555	1115	1670	2785	4640
650	125	545	1095	1640	2735	4560
700 (5)	110	540	1085	1625	2710	4520
750	95	530	1065	1595	2660	4430

CW-12 MW (CAST HASTELLOY® "C") (1)

TEMP. (°F)	WORKING PRESSURE BY CLASS (PSIG)					
	150	300	600	900	1500	2500
-325	230	600	1200	1800	3000	5000
100	230	600	1200	1800	3000	5000
200	210	550	1105	1655	2760	4600
250 (2)	205	535	1070	1605	2680	4470
300	200	520	1040	1560	2605	4340
400 (3)	190	490	980	1470	2450	4080
450 (4)	180	475	950	1430	2380	3970
500	170	465	925	1390	2315	3860
600	140	440	880	1320	2195	3660
650	125	430	860	1290	2150	3580
700 (5)	110	420	835	1255	2090	3480
750	95	410	820	1230	2050	3420
800	80	400	800	1200	2005	3340
850	65	395	785	1180	1970	3280
900	50	385	775	1160	1930	3220
950	35	380	760	1140	1895	3160
1000	20	365	725	1090	1820	3030

CN7M (CAST ALLOY 20) (1)

TEMP. (°F)	WORKING PRESSURE BY CLASS (PSIG)					
	150	300	600	900	1500	2500
-325	230	600	1200	1800	3000	5000
100	230	600	1200	1800	3000	5000
200	200	520	1035	1555	2590	4320
250 (2)	190	490	980	1475	2460	4100
300	180	465	930	1395	2330	3880
400 (3)	160	420	845	1265	2110	3520
450 (4)	155	405	810	1215	2025	3380
500	150	390	780	1165	1945	3240
600	140	360	720	1080	1800	3000

HASTELLOY® C-276 AND INCONEL® 625 (1) (8)

TEMP. (°F)	WORKING PRESSURE BY CLASS (PSIG)					
	150	300	600	900	1500	2500
-325	290	750	1500	2250	3750	6250
100	290	750	1500	2250	3750	6250
200	260	750	1500	2250	3750	6250
250 (2)	245	740	1475	2215	3695	6160
300	230	730	1455	2185	3640	6070
400 (3)	200	700	1395	2095	3490	5820
450 (4)	185	680	1360	2045	3405	5680
500	170	665	1330	1995	3325	5540
600	140	605	1210	1815	3025	5040
650	125	590	1175	1765	2940	4905
700 (5)	110	570	1135	1705	2840	4730
750	95	530	1065	1595	2660	4430
800	80	510	1015	1525	2540	4230
850	65	485	975	1460	2435	4060
900	50	450	900	1350	2245	3745
950	35	385	775	1160	1930	3220
1000	20	365	725	1090	1820	3030
1050 (6)	20	360	720	1080	1800	3000
1100 (6)	20	325	645	965	1610	2685
1150 (6)	20	275	550	825	1370	2285
1200 (7)	20	205	410	615	1030	1715
1250 (6)	20	165	330	495	825	1370

LCC (LOW CARBON CARBON STEEL) (1)

TEMP. (°F)	WORKING PRESSURE BY CLASS (PSIG)					
	150	300	600	900	1500	2500
-50	290	750	1500	2250	3750	6250
100	290	750	1500	2250	3750	6250
200	260	750	1500	2250	3750	6250
250 (2)	245	740	1475	2215	3695	6160
300	230	770	1455	2185	3640	6070
400 (3)	200	705	1405	2110	3520	5865
450 (4)	185	685	1365	2050	3420	5700
500	170	665	1330	1995	3325	5540
600	140	605	1210	1815	3025	5040
650	125	590	1175	1765	2940	4905

NAB (NICKEL-ALUMINUM BRONZE)

TEMP. (°F)	WORKING PRESSURE BY CLASS (PSIG)	
	150	300
100	275	720
200	215	550
300	185	520
400	155	390
500	115	300

- Notes:**
1. Pressure/temperature ratings in accordance with ASME/ANSI B16.34.
 2. Maximum temperature for Buna-N.
 3. Maximum temperature for Viton® & Zelon® with 3600 CWP SCV.
 4. Maximum temperature for 316 SS spring.
 5. Maximum temperature for Inconel® X-750 spring.
 6. Butt weld end valves only. Flanged ratings terminate at 1000° F.
 7. Maximum temperature for Inconel® 625.
 8. Only bar stock grades in accordance with ASME/ANSI B16.34

Flange Dimensions

ANSI CLASS	NOMINAL PIPE SIZE	OUTSIDE DIAMETER OF FLANGE	OUTSIDE DIAMETER OF RAISED FACE	THICKNESS OF FLANGE t_f	DIAMETER OF BOLT CIRCLE	DIAMETER OF BOLT HOLES	NUMBER OF BOLTS	DIAMETER OF BOLTS
150	3/4	3.88	1.69	0.44	2.75	0.62	4	0.50
	1	4.25	2.00	0.50	3.12	0.62	4	0.50
	1 1/2	5.00	2.88	0.62	3.88	0.62	4	0.50
	2	6.00	3.62	0.69	4.75	0.75	4	0.62
	3	7.50	5.00	0.88	6.00	0.75	4	0.62
	4	9.00	6.19	0.88	7.50	0.75	8	0.62
	6	11.00	8.50	0.94	9.50	0.88	8	0.75
	8	13.50	10.62	1.06	11.75	0.88	8	0.75
	10	16.00	12.75	1.12	14.25	1.00	12	0.87
	12	19.00	15.00	1.19	17.00	1.00	12	0.87
	14	21.00	16.25	1.31	18.75	1.12	12	1.00
	16	23.50	18.50	1.38	21.25	1.12	16	1.00
	18	25.00	21.00	1.50	22.75	1.25	16	1.12
	20	27.50	23.99	1.62	25.00	1.25	20	1.12
24	32.00	27.25	1.81	29.50	1.38	20	1.25	
300	3/4	4.62	1.69	0.56	3.25	0.75	4	0.62
	1	4.88	2.00	0.62	3.50	0.75	4	0.62
	1 1/2	6.12	2.88	0.75	4.50	0.88	4	0.75
	2	6.50	3.62	0.81	5.00	0.75	8	0.62
	3	8.25	5.00	1.06	6.62	0.88	8	0.75
	4	10.00	6.19	1.19	7.88	0.88	8	0.75
	6	12.50	8.50	1.38	10.62	0.88	12	0.75
	8	15.00	10.62	1.56	13.00	1.00	12	0.87
	10	17.50	12.75	1.81	15.25	1.12	16	1.00
	12	20.50	15.00	1.94	17.75	1.25	16	1.12
	14	23.00	16.25	2.06	20.25	1.25	20	1.12
	16	25.50	18.50	2.19	22.50	1.38	20	1.25
	18	28.00	21.00	2.31	24.75	1.38	24	1.25
	20	30.50	23.00	2.44	27.00	1.38	24	1.25
600	1	4.88	2.00	0.69	3.50	0.75	4	0.62
	1 1/2	6.12	2.88	0.88	4.50	0.88	4	0.75
	2	6.50	3.62	1.00	5.00	0.75	8	0.62
	3	8.25	5.00	1.25	6.62	0.88	8	0.75
	4	10.75	6.19	1.50	8.50	1.00	8	0.87
	6	14.00	8.50	1.88	11.50	1.12	12	1.00
	8	16.50	10.62	2.19	13.75	1.25	12	1.12
	10	20.00	12.75	2.50	17.00	1.38	16	1.25
	12	22.00	15.00	2.62	19.25	1.38	20	1.25
	14	23.75	16.25	2.75	20.75	1.50	20	1.37
900	1 1/2	7.00	2.88	1.25	4.88	1.12	4	1.00
	2	8.50	3.62	1.50	6.50	1.00	8	0.87
	3	9.50	5.00	1.50	7.50	1.00	8	0.87
	4	11.50	6.19	1.75	9.25	1.25	8	1.12
	6	15.00	8.50	2.19	12.50	1.25	12	1.12
	8	18.50	10.62	2.50	15.50	1.50	12	1.37
	10	21.50	12.75	2.75	18.50	1.50	16	1.37
1500	1 1/2	7.00	2.88	1.25	4.88	1.12	4	1.00
	2	8.50	3.62	1.50	6.50	1.00	8	0.87
	3	10.50	5.00	1.88	8.00	1.25	8	1.12
	4	12.25	6.19	2.12	9.50	1.38	8	1.25
	6	15.50	8.50	3.25	12.50	1.50	12	1.37
	8	19.00	10.62	3.62	15.50	1.75	12	1.62

- Notes:**
1. Class 150 and 300 flanges have a 0.06" raised face which is not included in the " t_f " dimension.
 2. Class 600 to 1500 have a 0.25" raised face which is not included in the " t_f " dimension.
 3. DFT's standard flange finish is 125 - 250 Ra.
 4. All dimensions are in inches

ASME B16.5 RAISED FACE

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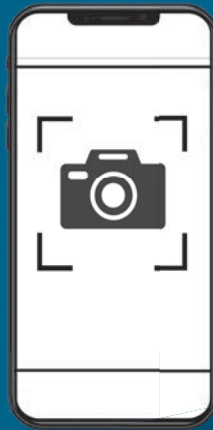
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