



## SERIES ASM

### NEOPRENE/EPMD FLANGED SINGLE SPHERE CONNECTOR

Pressures to 225 PSIG (15.51 barg)  
Temperatures to 230°F (110°C)

#### APPLICATIONS

- Process Industry
- Oil & Gas
- Weak Acids
- Water & Waste
- Alkalies
- Pump suction & discharge
- Compressed Air
- Sea water
- Pulp & Paper
- Chemical lines

#### MODELS

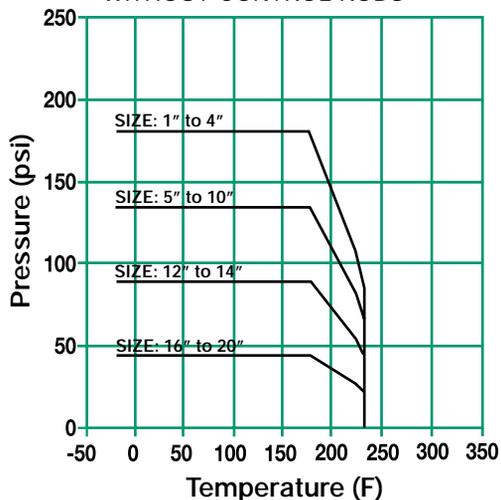
- ASM - Flanged Connection

#### OPTIONS

- Control Rods

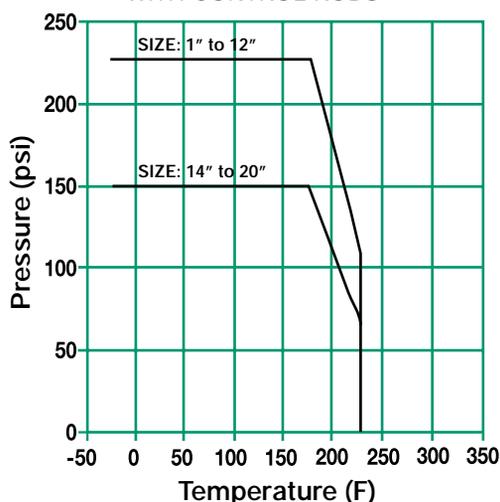
#### PRESSURE/TEMPERATURE RATINGS

WITHOUT CONTROL RODS



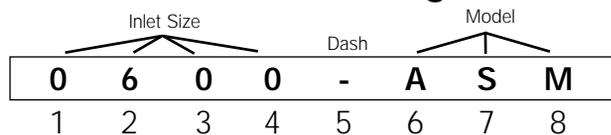
#### PRESSURE/TEMPERATURE RATINGS

WITH CONTROL RODS



- For connection pipes and equipment where flanged ends are preferred
- Flat faced flanged single sphere connectors
- Easy to install floating flanges allow variable pressure, temperature and movement
- Increased acoustic resistance, dampens hydraulic surge and shock
- Accommodates thermal movement and misalignment
- Four way greater movement provides high level of installation flexibility
- Precision molded synthetic rubber reinforced with nylon cord
- Horizontal or vertical mounting

#### Series ASM Ordering Code



#### Inlet Size\* - Position 1 - 4

0100 - 1"	0600 - 6"
0125 - 1¼"	0800 - 8"
0150 - 1½"	1000 - 10"
0200 - 2"	1200 - 12"
0250 - 2½"	1400 - 14"
0300 - 3"	1600 - 16"
0400 - 4"	1800 - 18"
0500 - 5"	2000 - 20"

#### Dash - Position 5

Model - Position 6 -8  
ASM - Single Sphere, FLG, CI, Neoprene

#### Part Numbers for Ordering Single Sphere Connector Control Rods

ASM	
Size	Part Number
1	0100-ASMROD
1¼	0125-ASMROD
1½	0150-ASMROD
2	0200-ASMROD
2½	0250-ASMROD
3	0300-ASMROD
4	0400-ASMROD
5	0500-ASMROD
6	0600-ASMROD
8	0800-ASMROD
10	1000-ASMROD
12	1200-ASMROD
14	1400-ASMROD
16	1600-ASMROD
18	1800-ASMROD
20	2000-ASMROD

Other sizes available. Consult factory.

# SERIES ASM

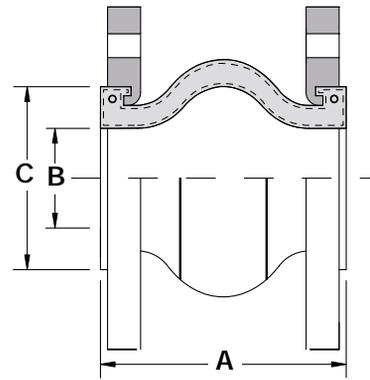
## NEOPRENE/EPMD FLANGED SINGLE SPHERE CONNECTOR

### SPECIFICATION

Single Sphere Connector body material shall be neoprene cover and tube elastomer with nylon cord fabric reinforcement. The single sphere connector will have Carbon Steel, Zinc Plated flanges and a hard steel wire frame. The twin sphere connector shall be SSI ASM Series.

### MATERIALS OF CONSTRUCTION

Body .....Neoprene  
 Reinforcing Fabric .....Nylon Cord Fabric  
 Wire .....Hard Steel Wire  
 Floating Flanges .....Carbon Steel Zinc Plated RST 37-2



Connections: 1" to 20" Flanged

Burst Pressure 850 PSIG

### DIMENSIONS inches (mm) AND WEIGHTS pounds (kg)

Size	A	Allowable Movement				B	C	Weight	
		Axial Compression	Axial Extension	Lateral Deflection	Angular Deflection			Connector Only	With Rods
1 (25)	6 (152)	3/4 (19)	15/32 (12)	9/16 (14)	19/32 (15)	1 1/32 (39)	2 5/16 (75)	5 (2.3)	10 (4.7)
1 1/4 (32)	6 (152)	3/4 (19)	15/32 (12)	9/16 (14)	19/32 (15)	1 1/32 (39)	2 5/16 (75)	7 (3.2)	10 (4.7)
1 1/2 (38)	6 (152)	3/4 (19)	15/32 (12)	9/16 (14)	19/32 (15)	1 1/32 (39)	2 5/16 (75)	8 (3.6)	12 (5.4)
2 (51)	6 (152)	3/4 (19)	15/32 (12)	9/16 (14)	19/32 (15)	1 29/32 (48)	3 5/8 (86)	11 (5.0)	15 (7.0)
2 1/2 (64)	6 (152)	3/4 (19)	15/32 (12)	9/16 (14)	19/32 (15)	2 15/32 (63)	4 5/8 (105)	11 (5.0)	19 (8.7)
3 (76)	6 (152)	3/4 (19)	15/32 (12)	9/16 (14)	19/32 (15)	2 7/8 (73)	4 21/32 (118)	13 (5.9)	23 (10.4)
4 (102)	6 1/8 (156)	3/4 (19)	15/32 (12)	9/16 (14)	19/32 (15)	3 15/16 (100)	5 27/32 (148)	17 (7.7)	25 (11.4)
5 (127)	6 1/8 (156)	3/4 (19)	15/32 (12)	9/16 (14)	19/32 (15)	5 (127)	7 1/4 (178)	21 (9.5)	30 (13.6)
6 (152)	6 1/8 (156)	3/4 (19)	15/32 (12)	9/16 (14)	19/32 (15)	5 25/32 (147)	8 3/32 (210)	25 (11.3)	37 (16.8)
8 (203)	6 1/8 (156)	1 (25)	15/32 (12)	7/8 (22)	19/32 (15)	7 27/32 (199)	10 1/4 (260)	37 (16.8)	53 (24.0)
10 (254)	8 (203)	1 (25)	5/8 (16)	7/8 (22)	19/32 (15)	9 3/4 (248)	12 11/16 (322)	58 (26.3)	82 (37.2)
12 (305)	8 (203)	1 (25)	5/8 (16)	7/8 (22)	19/32 (15)	11 27/32 (296)	14 5/16 (370)	80 (36.3)	109 (49.4)
14 (356)	8 (203)	1 (25)	5/8 (16)	7/8 (22)	19/32 (15)	13 3/32 (336)	16 1/4 (413)	101 (45.8)	138 (62.6)
16 (406)	8 (203)	1 (25)	5/8 (16)	7/8 (22)	19/32 (15)	15 5/32 (385)	18 3/32 (464)	127 (57.6)	176 (79.8)
18 (457)	8 (203)	1 (25)	5/8 (16)	7/8 (22)	19/32 (15)	17 7/16 (440)	20 5/8 (524)	136 (61.7)	183 (83.0)
20 (508)	8 (203)	1 (25)	5/8 (16)	7/8 (22)	19/32 (15)	19 9/32 (490)	22 7/16 (573)	158 (71.7)	212 (96.1)

Other sizes available. Consult factory.  
 Dimensions are subject to change. Consult factory for certified drawings when required.

**Installation Note:**  
 For correct Installation & Maintenance instructions see page 244





# SERIES ATM

## NEOPRENE FLANGED TWIN SPHERE CONNECTOR

Pressures to 225 PSIG (15.51 barg)  
Temperatures to 230°F (110°C)

### APPLICATIONS

- Process Industry
- Oil & Gas
- Weak Acids
- Water & Waste
- Alkalies
- Pump suction & discharge
- Compressed Air
- Sea water
- Pulp & Paper
- Chemical lines

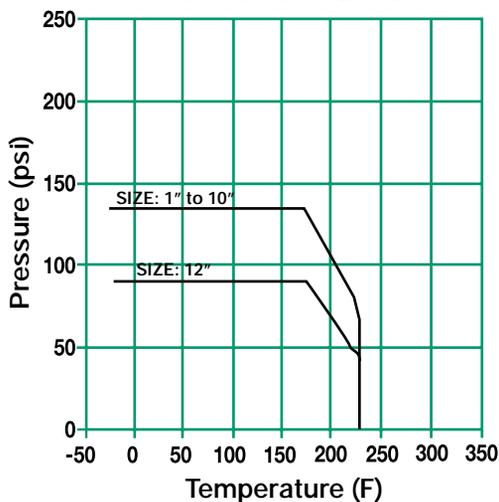
### MODELS

- ATM - Flanged Connection

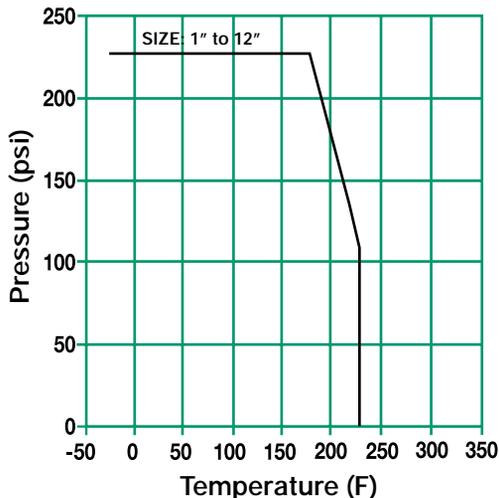
### OPTIONS

- Control Rods

### PRESSURE/TEMPERATURE RATINGS WITHOUT CONTROL RODS



### PRESSURE/TEMPERATURE RATINGS WITH CONTROL RODS



- For connection pipes and equipment where flanged ends are preferred
- Flat faced flanged double sphere connectors
- Easy to install floating flanges allow variable pressure, temperature and movement
- Increased acoustic resistance, dampens hydraulic surge and shock
- Accommodates thermal movement and misalignment
- Four way greater movement provides high level of installation flexibility.
- Precision molded synthetic rubber reinforced with nylon cord.
- Horizontal or vertical mounting

### Series ATM Ordering Code

Inlet Size				Dash	Model		
0	6	0	0	-	A	T	M
1	2	3	4	5	6	7	8

Inlet Size* - Position 1 - 4	
0100 - 1"	0400 - 4"
0125 - 1¼"	0500 - 5"
0150 - 1½"	0600 - 6"
0200 - 2"	0800 - 8"
0250 - 2½"	1000 - 10"
0300 - 3"	1200 - 12"

Dash - Position 5
Model - Position 6 - 8
ATM - Twin Sphere, FLG, CI, Neoprene

### Part Numbers for Twin Sphere Connector Control Rods

ATM	
Size	Part Number
1	0100-ATMROD
1¼	0125-ATMROD
1½	0150-ATMROD
2	0200-ATMROD
2½	0250-ATMROD
3	0300-ATMROD
4	0400-ATMROD
5	0500-ATMROD
6	0600-ATMROD
8	0800-ATMROD
10	1000-ATMROD
12	1200-ATMROD

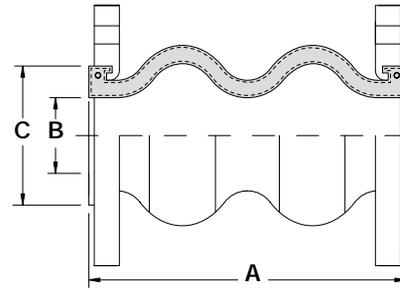
Other sizes available. Consult factory.

# SERIES ATM

## NEOPRENE FLANGED TWIN SPHERE CONNECTOR

### SPECIFICATION

Twin Sphere Connector body material shall be neoprene cover and tube elastomer with nylon fabric reinforcement. The twin sphere connector will have Carbon Steel, Zinc Plated flanges and a steel wire frame. The twin sphere connector shall be SSI ATM Series.



Connections: 1" to 12"

Burst Pressure 854 PSIG

### MATERIALS OF CONSTRUCTION

Body .....Neoprene  
 Reinforcing Fabric .....Nylon Cord Fabric  
 Wire .....Hard Steel Wire  
 Floating Flanges .....Mild Steel Zinc Plated RST 37-2

### DIMENSIONS inches (mm) AND WEIGHTS pounds (kg)

Size	A	Allowable Movement				B	C	Weight	
		Axial Compression	Axial Extension	Lateral Deflection	Angular Deflection			Connector Only	With Rods
1 (25)	4 3/4 (121)	2 3/32 (53)	1 1/16 (27)	1 25/32 (45)	1 19/32 (40)	1 17/32 (39)	2 61/64 (75)	5 (2.3)	10.6 (4.8)
1 1/4 (32)	7 (178)	2 3/32 (53)	1 1/16 (27)	1 25/32 (45)	1 19/32 (40)	1 17/32 (39)	2 61/64 (75)	5 (2.3)	10.6 (4.8)
1 1/2 (38)	7 (178)	2 3/32 (53)	1 1/16 (27)	1 25/32 (45)	1 19/32 (40)	1 17/32 (39)	2 61/64 (75)	5 (2.3)	12.1 (5.5)
2 (51)	7 (178)	2 3/32 (53)	1 1/16 (27)	1 25/32 (45)	1 19/32 (40)	1 29/32 (48)	3 11/32 (85)	8 (3.6)	15.9 (7.2)
2 1/2 (64)	7 (178)	2 3/32 (53)	1 1/16 (27)	1 25/32 (45)	1 19/32 (40)	2 15/32 (63)	4 1/8 (105)	10 (4.5)	19.6 (8.9)
3 (76)	7 (178)	2 3/32 (53)	1 1/16 (27)	1 25/32 (45)	1 19/32 (40)	2 1/8 (73)	4 21/32 (118)	13 (5.9)	23.1 (10.5)
4 (102)	9 (229)	2 3/32 (53)	1 1/32 (31)	1 19/32 (40)	1 3/8 (35)	3 15/16 (100)	5 27/32 (148)	19 (8.6)	26.7 (12.1)
5 (127)	9 (229)	2 3/32 (53)	1 1/32 (31)	1 19/32 (40)	1 3/8 (35)	5 (127)	7 (178)	22 (10.0)	31.5 (14.3)
6 (152)	9 (229)	2 3/16 (65)	1 1/32 (31)	1 19/32 (40)	1 3/8 (35)	5 25/32 (147)	8 5/32 (210)	27 (12.2)	39.2 (17.8)
8 (203)	13 (330)	2 3/16 (65)	1 3/16 (30)	1 3/8 (35)	1 3/8 (30)	7 27/32 (199)	10 1/4 (260)	42 (19.0)	59.5 (27.0)
10 (254)	13 (330)	2 3/16 (65)	1 3/16 (30)	1 3/8 (35)	1 3/8 (30)	9 3/4 (248)	12 11/16 (322)	58 (26.3)	88 (39.9)
12 (305)	13 (330)	2 3/16 (65)	1 3/16 (30)	1 3/8 (35)	1 3/8 (30)	11 21/32 (296)	14 1/16 (370)	84 (38.1)	117.9 (53.5)

Other sizes available. Consult factory.

Dimensions are subject to change. Consult factory for certified drawings when required.

**Installation Note:**  
 For correct Installation & Maintenance instructions see page 244



# SERIES AUM

## NEOPRENE NPT END CONNECTION DOUBLE SPHERE CONNECTORS

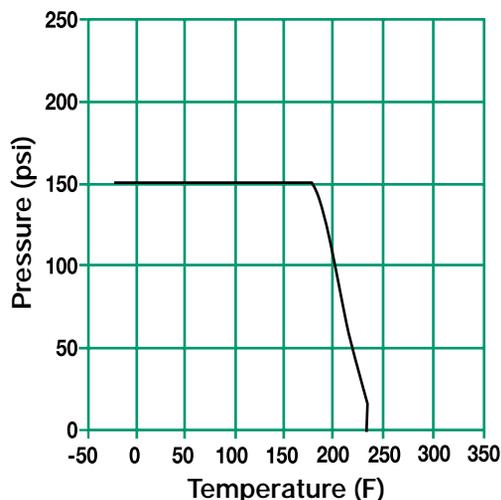
Pressures to 150 PSIG (10.34 barg)  
Temperatures to 230°F (110°C)

### APPLICATIONS

- Process Industry
- Weak Acids
- Alkalies
- Compressed Air
- Pulp & Paper
- Oil & Gas
- Water & Waste
- Pump suction & discharge
- Chemical lines

- For connection pipes and equipment where threaded union ends are preferred
- Accommodates thermal movement and misalignment
- Four way greater movements provide high level of installation flexibility.
- Precision molded of synthetic rubber reinforced with nylon cord.
- Excellent ability to absorb vibrations, sounds and withstand high pressures.
- Easy to install.

### PRESSURE/TEMPERATURE RATINGS



### MODELS

- AUM - NPT Connection

### APPLICABLE CODES

- ASME/ANSI B1-20.1

### Series AUM Ordering Code

Inlet Size				Dash	Model		
1	2	3	4	5	6	7	8
0	2	0	0	-	A	U	M
<b>Inlet Size*</b> - Position 1 - 4 0050 - 1/2" 0075 - 3/4" 0100 - 1" 0125 - 1 1/4" 0150 - 1 1/2" 0200 - 2"				<b>Dash</b> - Position 5 <b>Model</b> - Position 6 -8 AUM - Twin Sphere, NPT, CI, Neoprene			

# SERIES AUM

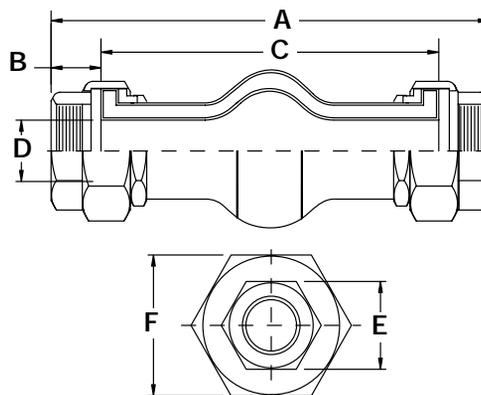
## NEOPRENE NPT END CONNECTION DOUBLE SPHERE CONNECTORS

### SPECIFICATION

Union End Connector body material shall be neoprene cover and tube elastomer with nylon cord fabric reinforcement. The twin sphere connector will have Cast Ductile Iron threaded union ends. The twin sphere connector shall be SSI AUM Series.

### MATERIALS OF CONSTRUCTION

Body .....Neoprene  
 Reinforcing Fabric .....Nylon Cord Fabric  
 Wire .....Hard Steel Wire  
 Threaded Union Ends .....Cast Ductile Iron



Connections: 1/2" to 2"

Burst Pressure 570 PSIG

### DIMENSIONS inches (mm) AND WEIGHTS pounds (kg)

Size	Installed Length				Travel		Allowable Movement			Dimensions						Weight
	Neutral Length	Minimum Installed	Maximum Installed	Recommended Pipe Opening	Total Compressed	Total Extended	Axial Compression	Lateral Deflection	Angular Deflections	"B" Length of Fittings	"C" Length of Rubber	"D" Connector	Inner Diameter	"E" Width of Fitting Hex Head	"F" Width of Union Hex Head	
1/2 (13)	8 (203)	7 <sup>1</sup> / <sub>2</sub> (187)	8 <sup>1</sup> / <sub>8</sub> (206)	7 <sup>5</sup> / <sub>16</sub> (186)	7 <sup>1</sup> / <sub>8</sub> (181)	8 <sup>1</sup> / <sub>2</sub> (209)	7/8 (22)	1/4 (6)	7/8 (22)	32	29/32 (23)	6 <sup>1</sup> / <sub>2</sub> (155)	17/32 (13)	1 <sup>1</sup> / <sub>8</sub> (27)	1 <sup>1</sup> / <sub>8</sub> (43)	1 (0.5)
3/4 (19)	8 (203)	7 <sup>1</sup> / <sub>2</sub> (187)	8 <sup>1</sup> / <sub>8</sub> (206)	6 <sup>1</sup> / <sub>8</sub> (175)	7 <sup>1</sup> / <sub>8</sub> (181)	8 <sup>1</sup> / <sub>2</sub> (209)	7/8 (22)	1/4 (6)	7/8 (22)	32	1 (25)	5 <sup>29</sup> / <sub>32</sub> (150)	3/4 (19)	1 <sup>1</sup> / <sub>2</sub> (34)	1 <sup>3</sup> / <sub>2</sub> (50)	1 (0.5)
1 (25)	8 (203)	7 <sup>1</sup> / <sub>2</sub> (187)	8 <sup>1</sup> / <sub>8</sub> (206)	6 <sup>1</sup> / <sub>8</sub> (168)	7 <sup>1</sup> / <sub>8</sub> (181)	8 <sup>1</sup> / <sub>2</sub> (209)	7/8 (22)	1/4 (6)	7/8 (22)	25	1 <sup>3</sup> / <sub>8</sub> (30)	5 <sup>17</sup> / <sub>32</sub> (140)	1 (25)	1 5/8 (41)	2 <sup>1</sup> / <sub>2</sub> (64)	2 (0.9)
1 <sup>1</sup> / <sub>4</sub> (32)	8 (203)	7 <sup>1</sup> / <sub>2</sub> (187)	8 <sup>1</sup> / <sub>8</sub> (206)	6 <sup>1</sup> / <sub>8</sub> (168)	7 <sup>1</sup> / <sub>8</sub> (181)	8 <sup>1</sup> / <sub>2</sub> (209)	7/8 (22)	1/4 (6)	7/8 (22)	25	1 <sup>3</sup> / <sub>8</sub> (30)	5 <sup>17</sup> / <sub>32</sub> (140)	1 <sup>1</sup> / <sub>4</sub> (32)	1 <sup>3</sup> / <sub>2</sub> (50)	2 <sup>7</sup> / <sub>2</sub> (72)	3 (1.5)
1 <sup>1</sup> / <sub>2</sub> (38)	8 (203)	7 <sup>1</sup> / <sub>2</sub> (187)	8 <sup>1</sup> / <sub>8</sub> (206)	6 <sup>1</sup> / <sub>8</sub> (168)	7 <sup>1</sup> / <sub>8</sub> (181)	8 <sup>1</sup> / <sub>2</sub> (209)	7/8 (22)	1/4 (6)	7/8 (22)	20	1 <sup>3</sup> / <sub>8</sub> (35)	5 <sup>1</sup> / <sub>8</sub> (130)	1 <sup>17</sup> / <sub>32</sub> (39)	2 <sup>1</sup> / <sub>4</sub> (57)	3 <sup>23</sup> / <sub>32</sub> (94)	4 (2.0)
2 (51)	8 (203)	7 <sup>1</sup> / <sub>2</sub> (187)	8 <sup>1</sup> / <sub>8</sub> (206)	6 <sup>1</sup> / <sub>8</sub> (168)	7 <sup>1</sup> / <sub>8</sub> (181)	8 <sup>1</sup> / <sub>2</sub> (209)	7/8 (22)	1/4 (6)	7/8 (22)	15	2 (40)	4 <sup>23</sup> / <sub>32</sub> (120)	1 <sup>27</sup> / <sub>32</sub> (47)	2 3/4 (70)	3 <sup>23</sup> / <sub>32</sub> (94)	6 (2.6)

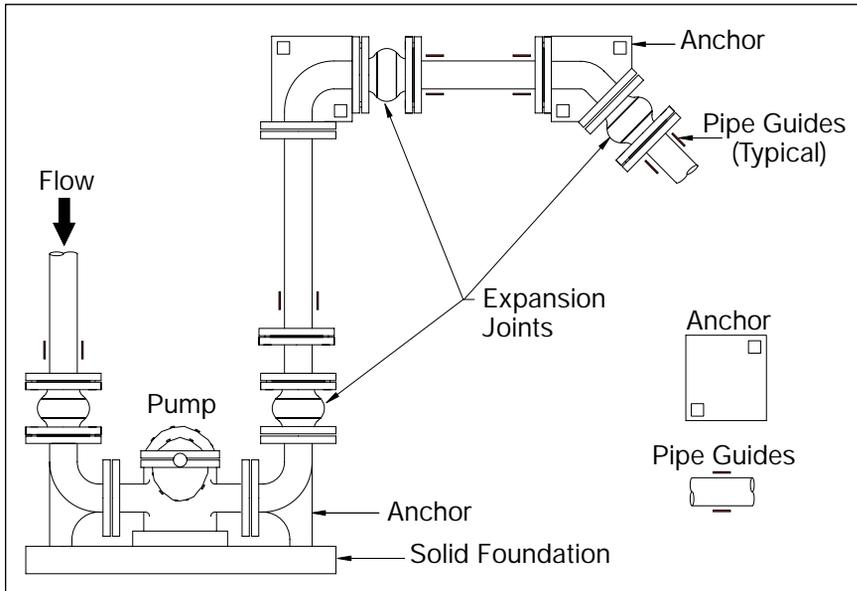
Dimensions are subject to change. Consult factory for certified drawings when required.

**Installation Note:**  
 For correct Installation & Maintenance instructions see page 244

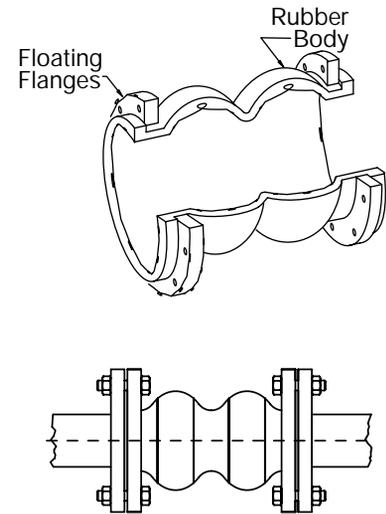
# CONNECTORS (EXPANSION JOINTS)

## INSTALLATION AND MAINTENANCE INSTRUCTIONS

### TYPICAL INSTALLATION



**Figure 1.** Typical piping layout utilizing Expansion Joints and the proper use of anchors in branch locations.



Series ATM Twin Sphere  
Expansion Joint

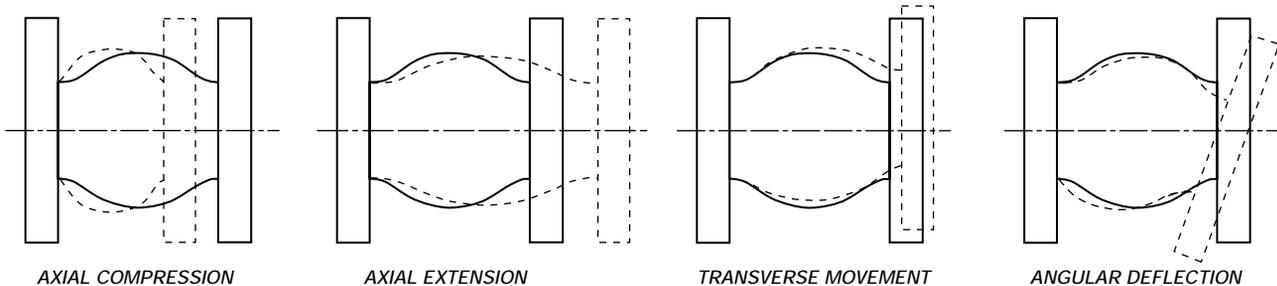
### WARNING

Expansion joints may operate in pipelines or equipment carrying fluids and or gases at elevated temperatures and pressures. Precaution should be taken to make sure these

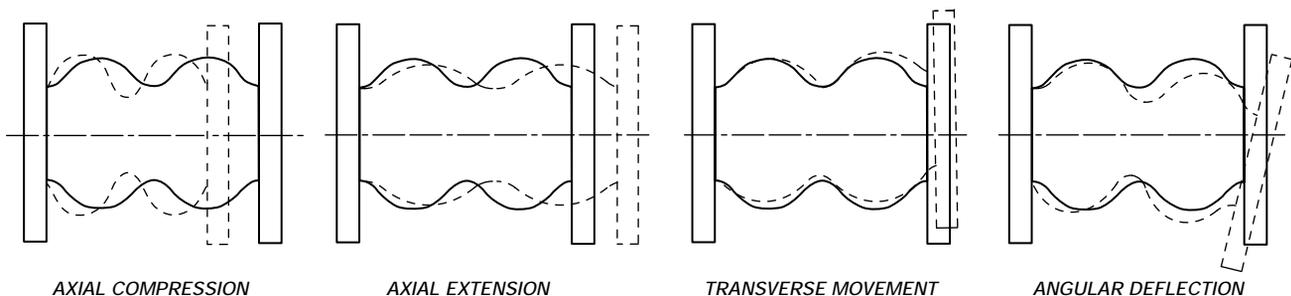
parts are installed correctly and inspected regularly. Caution should be taken to protect personnel in the event of leakage of fluids or gases.

### ALLOWABLE MOVEMENT

#### SERIES ASM

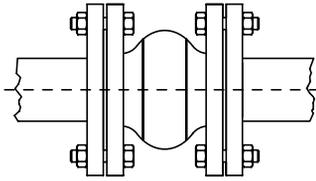


#### SERIES ATM

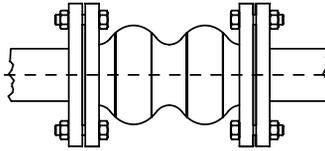


# CONNECTORS (EXPANSION JOINTS)

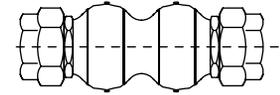
## INSTALLATION AND MAINTENANCE INSTRUCTIONS



Series ASM Single Sphere Connector



Series ATM Single Sphere Connector



Series AUM Connector

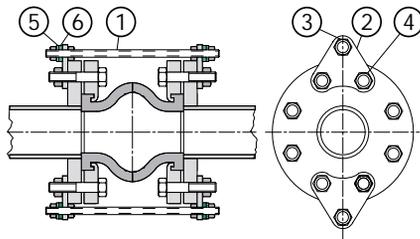
### CONNECTOR (EXPANSION JOINT) MOUNTING INSTRUCTIONS

- Make sure that the expansion joint rating, for temperature, pressure, vacuum, movement and elastomeric materials, matches the systems requirements.
  - Anchors are required whenever a piping system changes direction. Expansion joints should be located as close as possible to anchor points (See Figure 1).
  - For piping that is not anchored, control rods must be used to prevent excessive movement from occurring (See Installation & Maintenance Instructions Control Rod For Expansion Joints).
  - Expansion joints are not designed to make up for piping misalignment errors. Piping misalignments of more than 1/8", in any direction, will reduce the rated movement, stress the materials and reduce service life of the expansion joint.
  - Before installation, check the interior, exterior and flange faces of the expansion joint for cuts and gouges.
  - Piping must be supported so that expansion joint does not carry any weight. Make sure that the rubber expansion joints do not support compression or extension due to the weight of the upstream or downstream pipe.
  - When installing the rubber expansion joint, make sure that the connector not be twisted in any case (especially for Series AUM).
  - To determine end thrust, multiply thrust factor by PSIG.
  - Vacuum rating is based on installed length, without external load. Product should not be installed "extended" on vacuum applications.
  - Install at the face to face dimension shown on the drawing. Make sure the mating flanges are clean and are standard steel flat faced or no more than the 1/16" raised face type (See Figure 2).
  - Joints must be pre-compressed approximately 1/8" to 3/16" in order to obtain a correct installed fact-to-face dimension.
  - Floating metallic flanges freely rotate on the bellow to compensate for mating flange misalignment.
  - Install the expansion joint against the mating pipe flanges and install bolts so that the bolt head is against the expansion joint flange.
  - Flange-to-flange dimensions of the expansion joint must match the breech opening.
  - Make sure mating flanges are clean and are FLAT FACED TYPE. When attaching beaded end flange expansion joints to raised face flanges, a ring gasket is required to prevent metal flange faces from cutting rubber bead during installation.
  - Never install expansion joints next to wafer type check or butterfly valves. Serious damage to the rubber flange bead can result due to lack of flange mating surface and/or bolt connection.
  - Do not use gaskets. Care must be taken when pushing the joint into the breach between the mating flanges so as not to roll the leading edge of the joint out of its flange groove.
  - Do not bolt directly to another component with an elastomer face or to a specialty flange such as the Victualic® type without inserting a solid full-face metallic gasket.
  - Cross tighten the bolts. Minimum recommended flange bolt torque foot pounds for the following joint sizes are: 1" to 2" – 28.90ft-lbm 2-1/2" to 8" – 43.40 ft-lb., 10" to 20" – 57.90 ft-lb.
  - Do not over tighten to the point where there is metal to metal contact between the joint flange and the mating flange. Never tighten an expansion joint to the point that there is metal-to-metal contact between the expansion joint flange and the mating flange. NOTE: Over torquing bolts can cause deformation of the rubber expansion joint flanges, this resulting in possible premature failure.
- NOTE: Due to rubber's tendency to relax after initial tightening, it is necessary to retighten the flange bolts, typically within 1 week of initial installation.
- If bolt threads are facing the joint, trim the length of the bolts so they do not extend past the nut more than 1/8" to avoid contact with the joint.
  - Insulation over expansion joints is not recommended. However, if insulation is required, it should be a design that is easy to remove to allow access to the flanges.
  - Store expansion joints face down, in a cool dry location on a wooden pallet.
  - Check the tightness of retaining rings two or three weeks after installation and re-tighten as necessary.

# CONTROL RODS FOR EXPANSION JOINTS

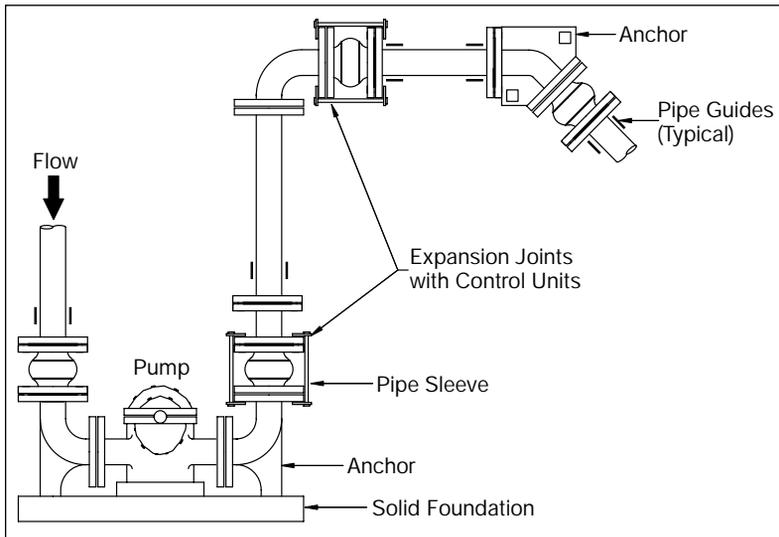
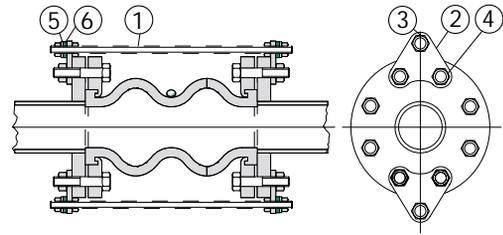
## INSTALLATION AND MAINTENANCE INSTRUCTIONS

### Series ASM With Control Rods

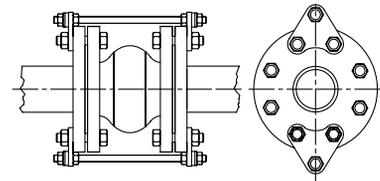


1. ROD
2. PLATE
3. NUT
4. HEAD NUT
5. STEEL WASHER
6. RUBBER WASHER

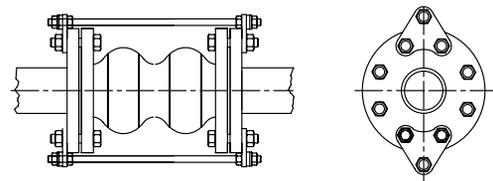
### Series ATM With Control Rods



**Figure 1.** Typical piping layout showing the use of Control Rods with Expansion Joints, when proper system anchoring is limited.



### Series ASM with Control Rods



### Series ATM with Control Rods

## WARNING

Expansion joints may operate in pipelines or equipment carrying fluids and or gases at elevated temperatures and pressures. Normal precautions should be taken to make

sure these parts are installed correctly and inspected regularly. Caution should be taken to protect personnel in the event of leakage of fluids or gasses.

## FUNCTION

Expansion joints are not designed to withstand excessive end thrusts, wide temperature fluctuations or high pressure changes (i.e. starting a pump). When pressures or temperatures exceed the unit's design capability, premature failure of the expansion joint will occur. To prevent excessive movement, Expansion joints must be installed in an anchored system, between two fixed anchor points in a piping system, to control expansion or contraction of the line. Piping anchors must be capable of withstanding the line thrust generated by internal pressure or wide temperature fluctuations. The failure of these anchors can cause excessive pipeline motion. When proper anchoring cannot be provided, control rods are required (See Figure 1).

A control rod assembly is a set of two or more control rods placed across an expansion joint, from flange to flange, to minimize or prevent damage to the expansion joint caused by excessive extension, compression or motion of a pipeline and to absorb static pressure thrust. Control rods allow specified expansion joint movement (axial extension) and pipe contraction (axial compression) which will then preclude the possibility of motion that would over-elongate and damage the joint. The control rod assembly can also be set at the maximum allowable expansion and or contraction of the expansion joint. Control rods are not required in systems that are anchored. However, when used in this manner, control units are an additional safety factor and minimizes possible damage to adjacent equipment. Control rods are always required in unanchored systems.

# CONTROL RODS FOR EXPANSION JOINTS

## INSTALLATION AND MAINTENANCE INSTRUCTIONS

### CONTROL RODS MOUNTING INSTRUCTIONS

- Anchors are required whenever a piping system changes direction. Expansion joints should be located as close as possible to anchor points. If an anchoring system is not used, it is recommended that control rods be installed on the expansion joint to prevent excessive movement from occurring due to pressure thrust in the line (See Figure 1).
- To determine end thrust, multiply thrust factor by operating pressure of system. This is the end thrust in PSIG.
- Vacuum rating is based on installed length, without external load. Product should not be installed "extended" on vacuum applications.
- Joints must be precompressed approximately 1/8" to 3/16" in order to obtain a correct installed face-to-face dimension. During installation, the precompression should not exceed 3/16" (5 mm).
- The alignment of the piping system should be adjusted and secured with fixation points as close as possible on each side of the expansion joint at a distance less than three times the pipe's nominal diameter.
- These fixation points must be installed when mounting an expansion joint with control rods or an elbow pipe. If there is considerable distance between two fixation points, guiding points can be installed in order to support and guide the pipe (cf. installation scheme).
- Before installation, check the interior, exterior and flange faces of the expansion joint for cuts and gouges.
- When installing, make sure that the rubber expansion joints do not support compression or extension due to the weight of the upstream or downstream pipe.
- When installing the rubber expansion joint, make sure that the connector is not twisted (especially for Series AUM).
- Mounting order: (1) upstream pipe – anchor, (2) downstream pipe – anchor, (3) expansion joint.
- Verify that the upstream and downstream pipe alignment does not deviate more than 1/8" (3 mm) and that the expansion joint does not support heavy weight.
- To prevent damage to the expansion joint surface, verify that the surfaces, coming in contact with the expansion joint, are clean and without cutting edges (pipe).
- Avoid direct contact with the expansion joint rubber surface by inserting the bolts on the arch side of the joint.
- If welding is carried out within close range, cover or dismount the expansion joint.
- Do not paint or coat the joint with insulation.
- Store the joint in a flat position avoiding humidity and extreme temperatures.
- Bolt tightness should be checked daily within the first month after services and checked periodically

**NOTES:**



## Applications

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

# Double Door Check Valves

Pressures to 1480 PSIG  
Temperatures to 600°F

DOUBLE DOOR  
CHECK VALVES

## FEATURES

- Compact Design
- Low Pressure Loss
- Minimal Installation Costs

## MATERIALS OF CONSTRUCTION

- Cast Iron Body, Bronze & Stainless Steel Disc
- Carbon Steel Body, Stainless Steel Disc
- Stainless Steel Body, Stainless Steel Disc

## END CONNECTIONS

- Wafer Flat Face
- Wafer Raised Face

## SEAT MATERIALS

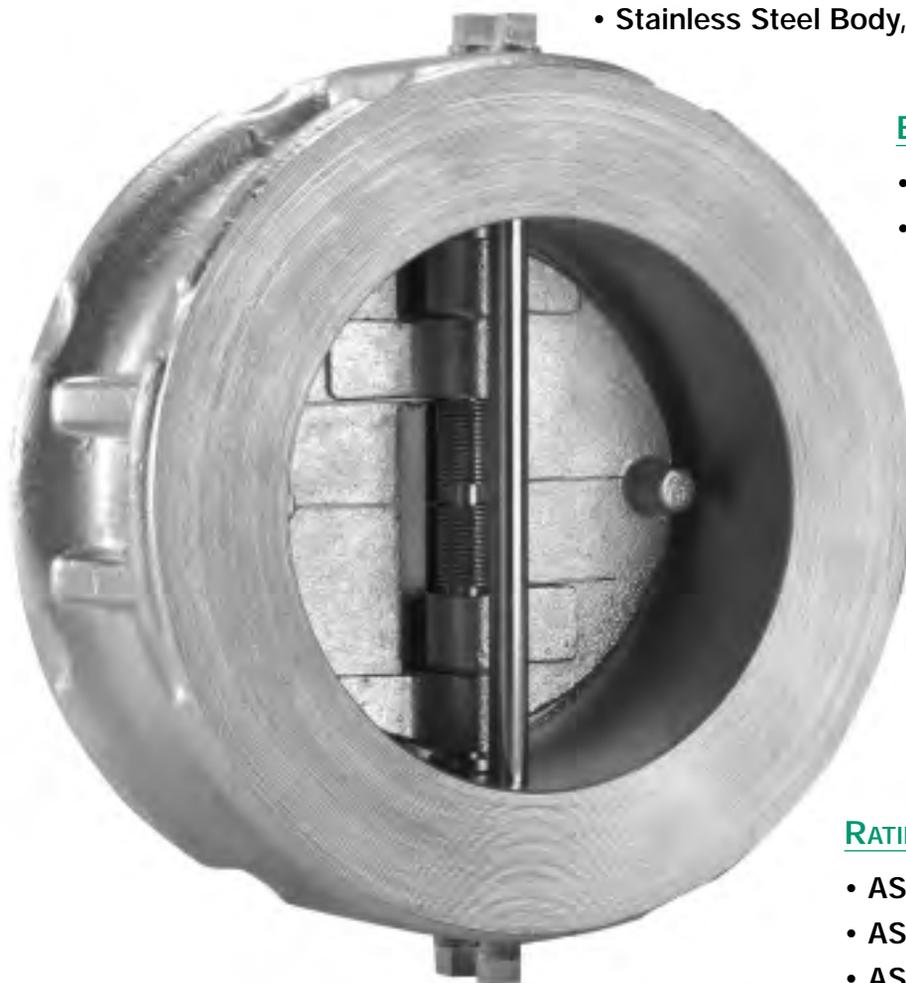
- Buna-N
- EPDM
- Viton
- Metal To Metal

## SIZE RANGE

- 2" (50mm) up to 24" (600mm)

## RATINGS

- ASME Class 125
- ASME Class 150
- ASME Class 300
- ASME Class 600



# DOUBLE DOOR CHECK VALVE

## DESIGN FEATURES

DOUBLE DOOR  
CHECK VALVES

### WAFER DOUBLE DOOR DESIGN ADVANTAGE

The short face to face design inherently makes this check valve significantly lighter (10% of the weight of a conventional swing check). The valve is designed to fit between two flanges and requires no flanges of its own. The double door check valve can be

installed in any position as the spring aids in keeping the valve closed (Consult factory for vertical downward flow). These features allow you to design your piping layout in the most efficient and least expensive fashion.

### SHOCK BUMPERS

An integral cast bumper is present on all Series WT double door check valves (Except class 125 Lb.). The bumpers can be found on both discs, which meet when the valve reaches a fully open position. This design feature prevents the discs from pressing against the stop pin and eliminates leverage that would cause unnecessary stresses and wear. The purpose of the stop pin is to prevent over travel of either disc, which would result in valve failure.

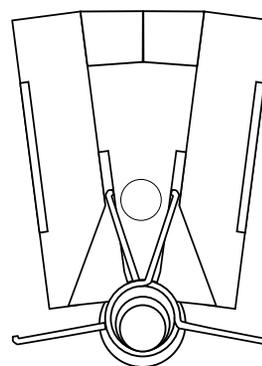


FIGURE 1

### RESILIENT SEAT

The basic design of the Series WT double door check valve is illustrated in Fig. 2. This seal is chemically bonded using specially designed adhesives that provide rubber tearing bonds throughout the operating range of the seat material. In case of resilient seat failure, the design permits the

doors to float and make contact with the metal surface the seats were adhered to. This feature allows the valve to function even if the resilient seat is not present. The seat design illustrated in Fig. 3 is also available. This design results in a controlled seat squeeze and provides a metal to metal backup seal (Fig.4).

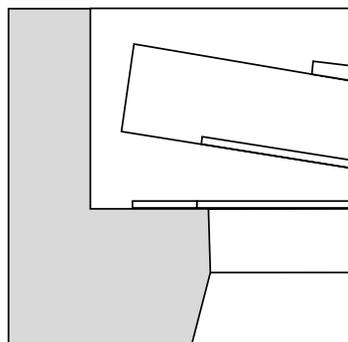


FIGURE 2

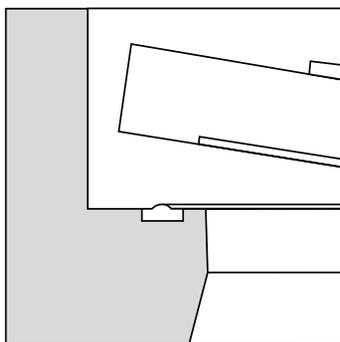


FIGURE 3

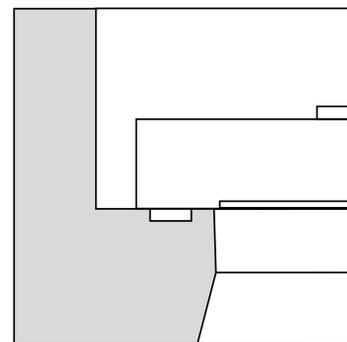


FIGURE 4

# DOUBLE DOOR CHECK VALVE

## DESIGN FEATURES

### MINIMAL SEAT WEAR

The Series WT double door check valve was designed to eliminate the possibility of seat wear caused by friction at the heel of the double doors while maintaining low back pressure sealing capabilities. The clearance between the body, disc and hinge pin results in the discs cracking open at the

heel location first. When the valve opens the heel does not drag across the seating surface and cause wear. As the valve closes, the spring will take the toe of the disc into the seating surface first, while the line back pressure will force the heels and hinge pin back to the seat to complete the seal.

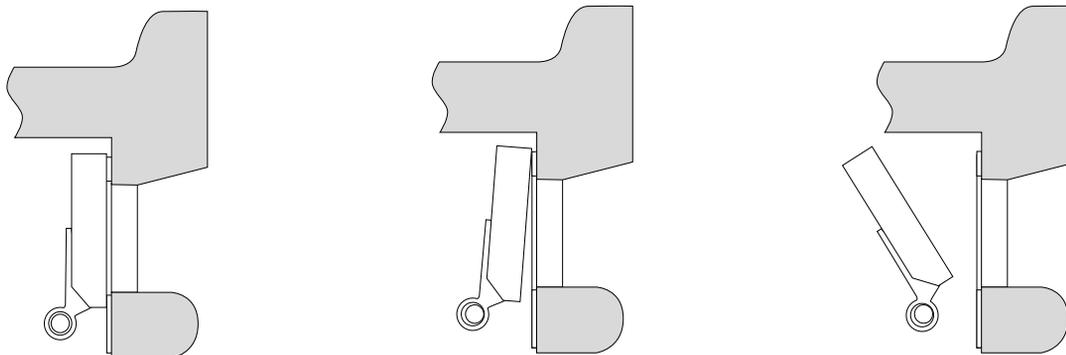


FIGURE 5

### SPRING CLOSING

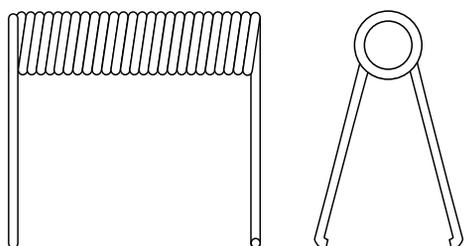


FIGURE 6

The specially designed torsion spring in the Series WT double door check valve holds the valve discs closed under no flow conditions (Consult factory for vertical downward flow). Pipeline flow (head) causes the discs to open and conversely when flow decays to a point near zero velocity, the force from the legs of the torsion spring instantly closes the valve discs for non-slam shutoff. The Series WT double door check valve comes complete with corrosion resistant stainless steel springs as standard.

DOUBLE DOOR  
CHECK VALVES



DOUBLE DOOR CHECK VALVES

# 125WT SERIES CAST IRON DOUBLE DOOR CHECK VALVES

PRESSURES TO 200 PSIG (13.8 BARG)  
TEMPERATURES TO 250°F (121°C)

- ASME Class 125 rated Check Valves
- Wafer body style fits between FF or RF flanges
- Teflon thrust washers
- Resilient Buna-N seats
- Seat design lifts then swings discs to minimize seat wear
- Independent springs optimizes valve plate closing rates while minimizing spring stress
- Lifting lug tap on all valves 6" and larger

### APPLICATIONS

- Liquid and Air Service
- Process Industry
- Power Industry
- Chemical Industry
- Oil & Gas
- Pulp & Paper
- Metal & Mining
- Water & Waste

### MODELS

- 125WTIB - Cast Iron Body, Bronze Disc, Buna Seat
- 125WTIT - Cast Iron Body, Stainless Steel Disc, Buna Seat

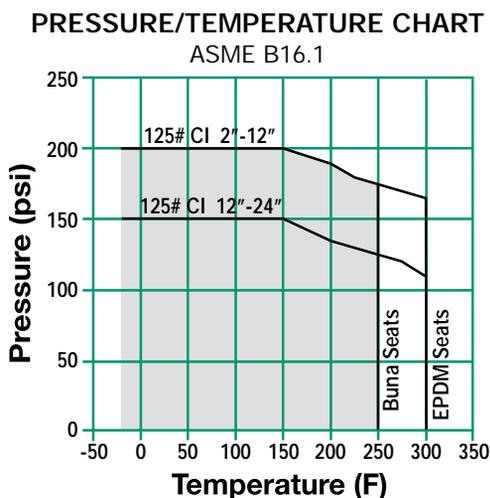
### OPTIONS

- EPDM Seats
- Other Spring Material

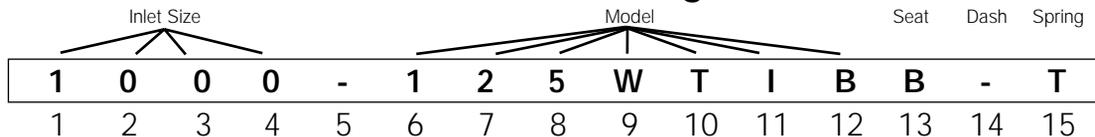
### APPLICABLE CODES

- ASME Sec VIII and B16.1 Bodies
- API 598
- FM approved 30246911 (2"-10" only)

Canadian Registration - OE10274.5C



## 125WT Series Ordering Code



<b>Inlet Size</b> - Position 1 - 4	
0200 - 2"	1000 - 10"
0250 - 2½"	1200 - 12"
0300 - 3"	1400 - 14"
0400 - 4"	1600 - 16"
0500 - 5"	1800 - 18"
0600 - 6"	2000 - 20"
0800 - 8"	2400 - 24"

<b>Dash</b> - Position 5
<b>Model</b> - Position 6 - 12
125WTIB - CI Body, Bz Disc
125WTIT - CI Body, SS Disc
<b>Seat</b> - Position 13
B - Buna-N
<b>Dash</b> - Position 14
<b>Spring</b> - Position 15
T - SS



# 125WT SERIES CAST IRON DOUBLE DOOR CHECK VALVES

## SPECIFICATION

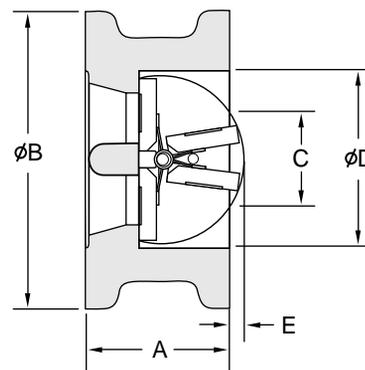
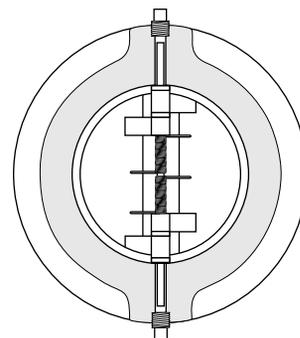
Check Valve shall be dual disc design with Cast Iron wafer body style designed to ASME B16.1 and/or ASME Sec. VIII. The check valve shall have an integral cast bumper and Buna-N resilient seat with bronze or SS discs. The check valve shall be ASME Class 125 rated. The spring shall be 316SS. The check valve shall be SSI 125WT Cast Iron Series.

### MATERIALS OF CONSTRUCTION

Body ..... A126-B Cast Iron  
 Discs ..... Al/Bz B148 C954 or 316SS A351-CF8M  
 Seat ..... Buna-N  
 Spring ..... 316SS

### CRACKING PRESSURE

Horizontal Mounting - .3psid  
 Vertical Mounting - .75 to 1.25 psid



**DOUBLE DOOR  
CHECK VALVES**

### DIMENSIONS inches (mm) AND WEIGHTS pounds (kg)

Size	A	B <sup>1</sup>	C <sup>1</sup>	D	E	STUD SELECTION			Weight
						Qty.	Dia.	Length	
2 (50)	2 1/2 (54)	4 1/2 (105)	2 (51)	2 1/2 (60)	1/8 (3)	4	5/8 (16)	5 1/2 (140)	3 (1.4)
2.5 (65)	2 1/2 (54)	4 1/2 (124)	2 1/2 (64)	2 1/2 (73)	1/2 (13)	4	5/8 (16)	6 (152)	5 (2.3)
3 (80)	2 1/2 (57)	5 1/2 (137)	3 (76)	3 1/2 (89)	5/8 (16)	4	5/8 (16)	6 1/4 (159)	8 (3.6)
4 (100)	2 1/2 (64)	6 1/2 (175)	4 (102)	4 1/2 (114)	1 (25)	8	5/8 (16)	6 1/4 (159)	13 (5.9)
5 (125)	2 1/2 (70)	7 1/2 (197)	5 (127)	5 1/2 (140)	1 1/4 (32)	8	3/4 (19)	7 (184)	16 (7.3)
6 (150)	3 (76)	8 1/2 (222)	6 (152)	6 1/2 (168)	1 1/2 (41)	8	3/4 (19)	8 (203)	20 (9.8)
8 (200)	3 1/2 (95)	11 (279)	8 (203)	8 1/2 (219)	2 1/2 (60)	8	3/4 (19)	9 1/2 (241)	37 (16.8)
10 (250)	4 1/2 (108)	13 1/2 (340)	10 (254)	10 1/4 (273)	3 (76)	12	7/8 (22)	10 1/2 (267)	57 (25.9)
12 (300)	5 1/2 (143)	16 1/2 (410)	12 (305)	12 1/4 (324)	3 1/2 (99)	12	7/8 (22)	12 1/4 (311)	93 (42.2)
14 (350)	7 1/2 (184)	17 1/2 (451)	12 1/2 (318)	14 (356)	4 (102)	12	1 (25)	13 (330)	205 (93.1)
16 (400)	7 1/2 (191)	20 1/4 (514)	15 (381)	16 (406)	5 1/4 (133)	16	1 (25)	13 1/2 (343)	271 (123.0)
18 (450)	8 (203)	21 1/2 (549)	17 (432)	18 (457)	6 (152)	16	1 1/2 (29)	14 1/2 (368)	310 (140.7)
20 (500)	8 1/2 (213)	23 1/2 (606)	19 (483)	20 (508)	6 1/2 (175)	20	1 1/2 (29)	15 1/4 (387)	377 (171.2)
24 (600)	8 1/2 (222)	28 1/4 (718)	22 1/4 (578)	24 (610)	8 1/4 (210)	20	1 1/4 (32)	16 1/4 (413)	551 (250.2)

Connections: 2" to 24"  
FF Wafer Flanged

Seats: 2" to 24"  
Buna-N All

Dimensions are subject to change. Consult factory for certified drawings when required.

\* Add the "B" dimensions and the diameter of the stud to achieve the ANSI B16.1 bolt hole circle diameter.

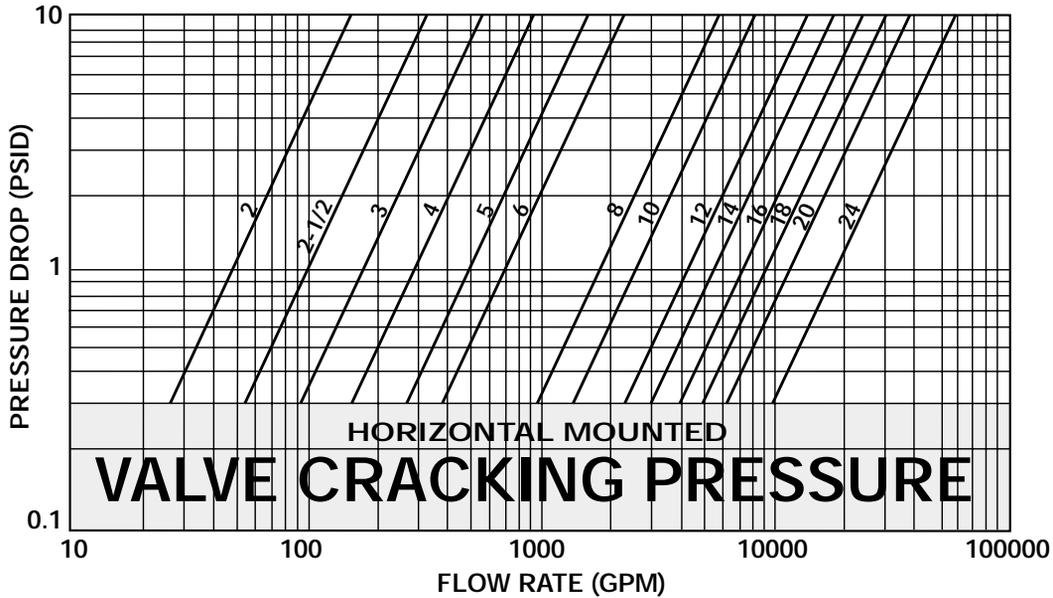
1. Minimum bore diameter of companion flanges



# 125WT SERIES DOUBLE DOOR CHECK VALVES CAST IRON

## PRESSURE DROP - LIQUIDS

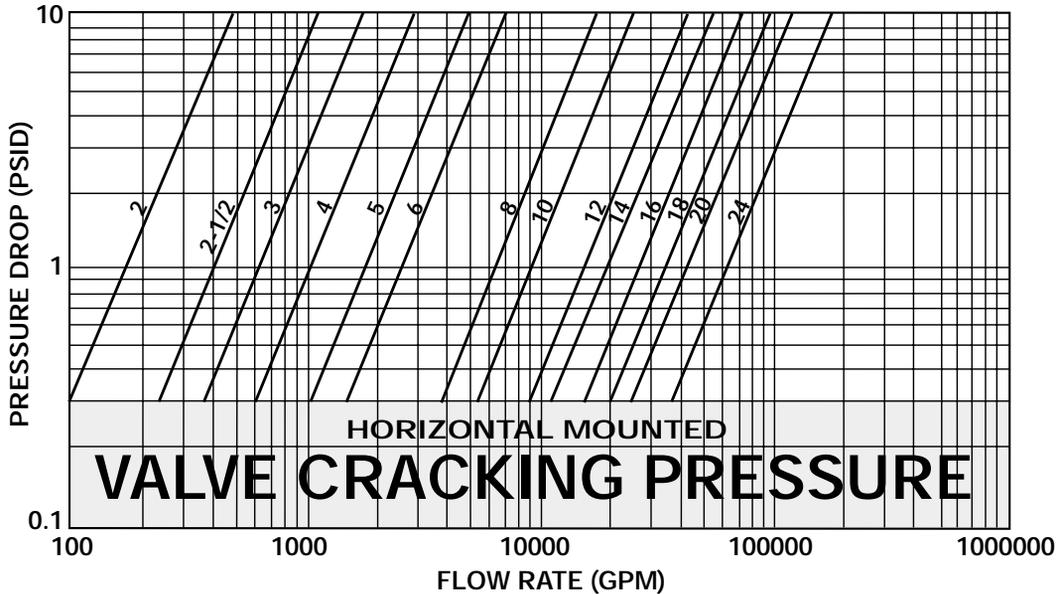
Sizes 2" - 24"



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

## PRESSURE DROP - AIR

Sizes 2" - 24"



- (1) Pressure drop curves are based on air flow at 60 OF and 1 ATM pressure.
- (2) Valve cracking pressure is equal to or less than 0.3 psid when mounted horizontally.
- (3) Valve cracking pressure increases to between 0.75 and 1.25 psid when installed vertically with flow upwards.

**Installation Note:**

- 1) For correct installation and maintenance please see our I&M manual.
- 2) Horizontal installation – Disc pin must be installed in vertical position.
- 3) Vertical installation (downward flow) – Consult factory.

## C<sub>v</sub> VALUES (US-GPM @ 1 PSID)

Valve Size (inches)	2	2½	3	4	5	6	8	10	12	14	16	18	20	24
C <sub>v</sub>	60	100	170	340	520	850	1600	2400	3800	4400	5800	7500	9800	15000

DOUBLE DOOR  
CHECK VALVES



## NOTES:

DOUBLE DOOR  
CHECK VALVES



**DOUBLE DOOR CHECK VALVES**

# 150WT SERIES

## CAST STEEL AND STAINLESS STEEL DOUBLE DOOR CHECK VALVES

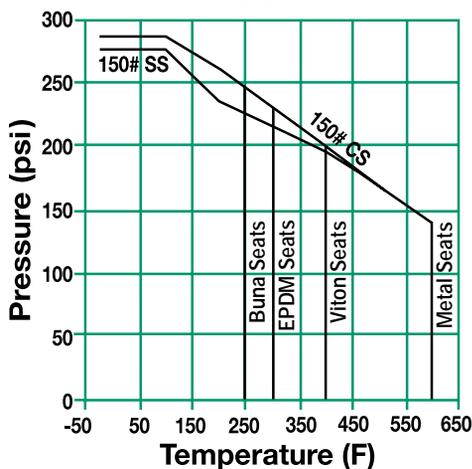
PRESSURES TO 285 PSIG (19.7 BARG)  
TEMPERATURES TO 600°F (316°C)

### APPLICATIONS

- Liquid and Air Service
- Process Industry
- Power Industry
- Chemical Industry
- Oil & Gas
- Pulp & Paper
- Metal & Mining
- Water & Waste

- ASME Class 150 rated check valves
- Wafer body style fits between FF or RF flanges
- Size 6" and larger are supplied with a valve lifting lug
- Upper and lower SS thrust washers
- Resilient Buna-N, Viton and metal seats
- Seat design lifts then swings discs to minimize seat wear
- Shock bumpers minimize stresses in hinge pins
- Independent springs optimizes valve plate closing rates while minimizing spring stress
- Dual rating 2" - 3" 150#, 300# and 600# Classes
- Dual ratings 4" 150# and 300# Classes

**PRESSURE/TEMPERATURE CHART**  
ASME B16.34



### MODELS

- 150WTCT – Cast Steel Body, Stainless Steel Disc, Buna Seat
- 150WTTT – Stainless Steel Body, Stainless Steel Disc, Metal or Viton Seat

### OPTIONS

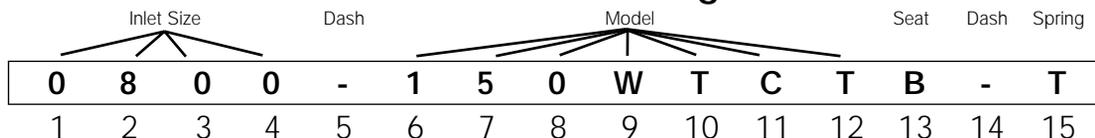
- EPDM Seats
- Other Spring Material

### APPLICABLE CODES

- ASME B16.34 ratings
- API 594
- API 598

Canadian Registration - OC10274.5C

## 150WT Series Ordering Code



**Inlet Size** - Position 1 - 4  
2", 2½", 3" sizes use 600WT Series.  
4" size use 300WT Series  
0600 - 6"  
0800 - 8"  
1000 - 10"  
1200 - 12"

**Dash** - Position 5

**Model** - Position 6 - 12  
150WTCT - CS Body  
150WTTT - SS Body

**Seat\*** - Position 13  
B - Buna-N (CS Body only)  
M - Metal (SS Body only)  
V - Viton (SS Body only)

**Dash** - Position 14

**Spring** - Position 15  
T - SS

\*150WTCT - Buna-N seat only  
150WTTT - Viton or Metal seat



# 150WT SERIES CAST STEEL AND STAINLESS STEEL DOUBLE DOOR CHECK VALVES

## SPECIFICATION

Check Valve shall be dual disc design with Cast Steel or Stainless Steel Body wafer body style designed to ASME B16.34 ratings and API 594. The check valve shall have an integral cast bumper and Buna-N, Viton or metal seat with SS discs. The check valve shall be ASME Class 150 rated. The spring shall be 316SS. The seat design shall lift then swing discs to minimize seat wear. The check valve shall be SSI 150WT Series.

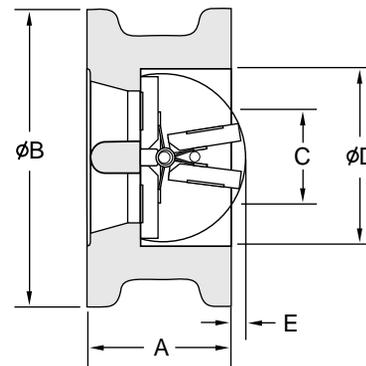
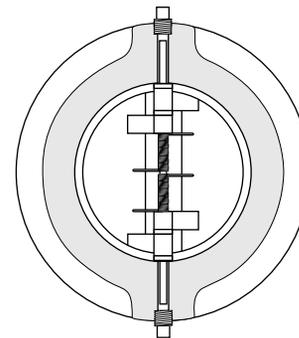
### MATERIALS OF CONSTRUCTION

Part	Carbon Steel	Stainless Steel
Body	A216-WCB	A351-CF8M
Discs	A351-CF8M	A351-CF8M
Seat	Buna-N	Viton or Metal
Spring	304 SS	304 SS

### CRACKING PRESSURE

Horizontal Mounting - .3psid

Vertical Mounting - .75 to 1.25 psid



**DOUBLE DOOR  
CHECK VALVES**

### DIMENSIONS inches (mm) AND WEIGHTS pounds (kg)

Size	A <sup>1</sup>	B <sup>2</sup>	C <sup>2</sup>	D	E	STUD SELECTION			Weight
						Qty.	Dia.	Length	
2 <sup>3</sup> (50)	<i>Use 2" 600WT-150# on page 191</i>								
2½ (66)	<i>Use 2½" 600WT-150# on page 191</i>								
3 <sup>3</sup> (80)	<i>Use 3" 600WT-150# on page 191</i>								
4 <sup>4</sup> (100)	<i>Use 4" 300WT-150# on page 187</i>								
6 (150)	3½ (99)	8¼ (222)	5½ (137)	6½ (168)	1½ (35)	8	¾ (19)	8¼ (210)	35 (15.9)
8 (200)	5 (127)	11 (279)	7½ (187)	8½ (219)	2 (51)	8	¾ (19)	9¼ (248)	70 (31.8)
10 (250)	5¾ (146)	13¾ (340)	9½ (241)	10¾ (273)	2½ (73)	12	7/8 (22)	11 (279)	114 (51.8)
12 (300)	7½ (181)	16½ (410)	11¼ (286)	12¾ (324)	3½ (86)	12	7/8 (22)	12¼ (311)	180 (81.8)

Connections: 6" to 12"  
RF Wafer Flanged

Seats:  
CS Body - 6" to 12" Buna-N  
SS Body - 6" to 12" Viton or Metal

- Dimensions in accordance with API 594.
- Minimum bore diameter of companion flanges.
- Sizes 2", 2½", 3" 150WT, 300WT & 600WT are interchangeable, use 600WT for all applications in these sizes.
- Size 4", 150WT & 300WT are interchangeable, use 300WT for 4" size.

\* Add the "B" dimension and the diameter of the stud to achieve the ANSI B16.5 bolt hole circle diameter.

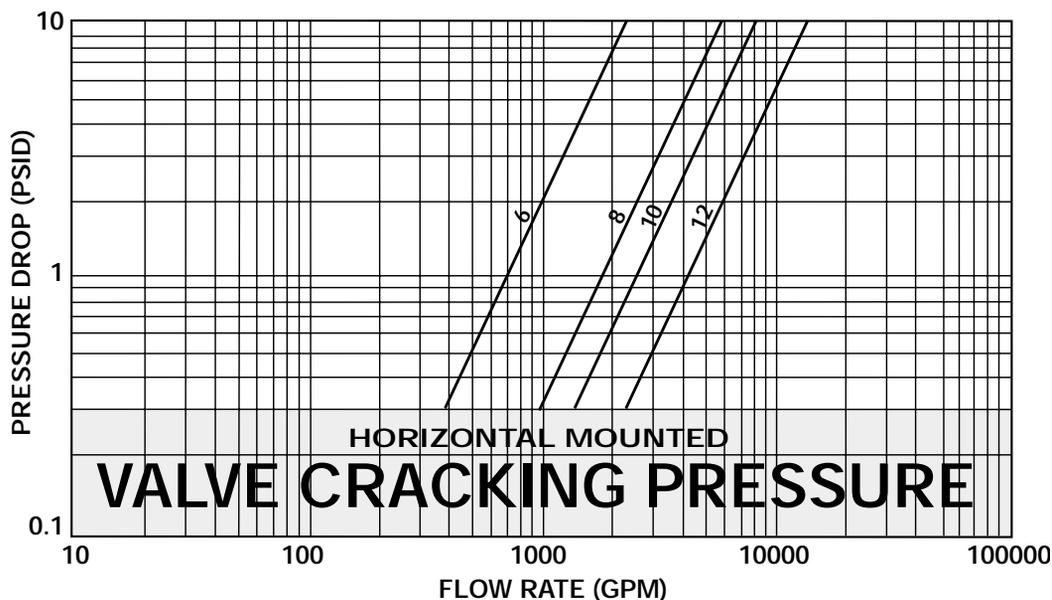


# 150WT SERIES DOUBLE DOOR CHECK VALVES

## CAST STEEL AND STAINLESS STEEL

### PRESSURE DROP - LIQUIDS

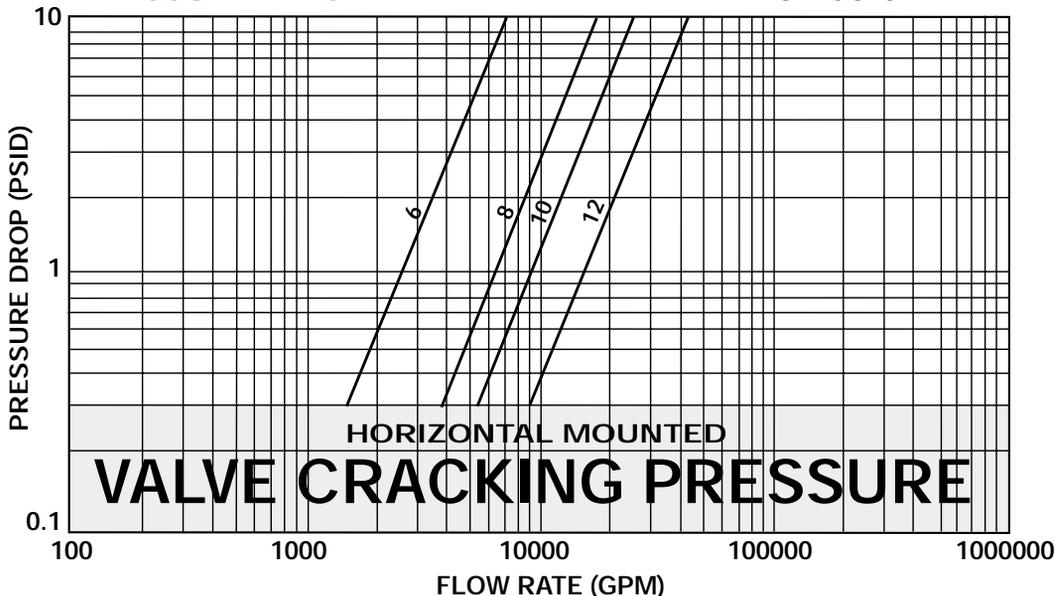
Sizes 6" - 12"



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

### PRESSURE DROP - AIR

Sizes 6" - 12"



- (1) Pressure drop curves are based on air flow at 60 OF and 1 ATM pressure.
- (2) Valve cracking pressure is equal to or less than 0.3 psid when mounted horizontally.
- (3) Valve cracking pressure increases to between 0.75 and 1.25 psid when installed vertically with flow upwards.

**Installation Note:**

- 1) For correct installation and maintenance please see our I&M manual.
- 2) Horizontal installation – Disc pin must be installed in vertical position.
- 3) Vertical installation (downward flow) – Consult factory.

## C<sub>v</sub> VALUES (US-GPM @ 1 PSID)

Valve Size (inches)	6	8	10	12
C <sub>v</sub>	705	1795	2563	4295



DOUBLE DOOR  
CHECK VALVES

## NOTES:

DOUBLE DOOR  
CHECK VALVES

**DOUBLE DOOR CHECK VALVES**



# 300WT SERIES CAST STEEL AND STAINLESS STEEL DOUBLE DOOR CHECK VALVES

PRESSURES TO 740 PSIG (51 BARG)  
TEMPERATURES TO 600°F (316°C)

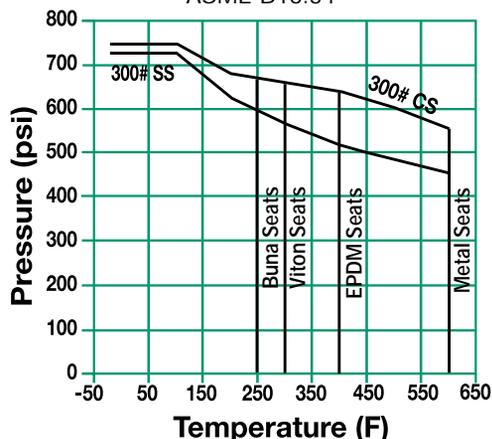
### APPLICATIONS

- Liquid and Air Service
- Process Industry
- Power Industry
- Chemical Industry
- Oil & Gas
- Pulp & Paper
- Metal & Mining
- Water & Waste

- ASME Class 300 rated check valves
- Wafer body style fits between FF or RF flanges
- Size 6" and larger are supplied with a valve lifting lug
- Upper and lower SS thrust washers
- Resilient Buna-N and Viton
- Seat design lifts then swings discs to minimize seat wear
- Shock bumpers minimize stresses in hinge pins
- Independent springs optimizes valve plate closing rates while minimizing spring stress
- Dual ratings 2"-3" 150#, 300# and 600#.
- Dual ratings 4" 150# and 300#.

### PRESSURE/TEMPERATURE CHART

ASME B16.34



Contact factory for EPDM pressure/temperature range.

### MODELS

- 300WTCT – Cast Steel Body, Stainless Steel Disc, Buna Seat
- 300WTTT – Stainless Steel Body, Stainless Steel Disc, Viton Seat

### OPTIONS (CONSULT FACTORY)

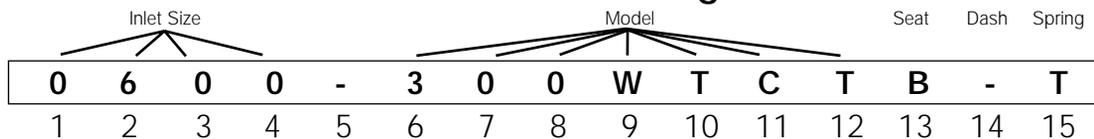
- EPDM Seats
- Other Spring Material

### APPLICABLE CODES

- ASME B16.34 ratings
- API 594
- API 598

Canadian Registration - OC10274.5C

## 300WT Series Ordering Code



**Inlet Size\*** - Position 1 - 4  
 2", 2½", 3" sizes use 600WT Series  
 0400 - 4"  
 0600 - 6"  
 0800 - 8"  
 1000 - 10"  
 1200 - 12"  
**Dash** - Position 5

**Model** - Position 6 - 12  
 300WTCT - CS Body  
 300WTTT - SS Body  
**Seat\*** - Position 13  
 B - Buna-N (CS Body only)  
 V - Viton (SS Body only)  
**Dash** - Position 14  
**Spring** - Position 15  
 T - SS

\*300WTCT - Buna-N seat only  
 300WTTT - Viton seat only



# 300WT SERIES CAST STEEL AND STAINLESS STEEL DOUBLE DOOR CHECK VALVES

## SPECIFICATION

Check Valve shall be dual disc design with Cast Steel or Stainless Steel Body wafer body style designed to ASME B16.34 ratings and API 594. The check valve shall have an integral cast bumper and Buna-N or Viton resilient seats with SS discs. The check valve shall be ASME Class 300 rated. The spring shall be 316SS. The seat design shall lift then swing discs to minimize seat wear. The check valve shall be SSI 300WT Series..

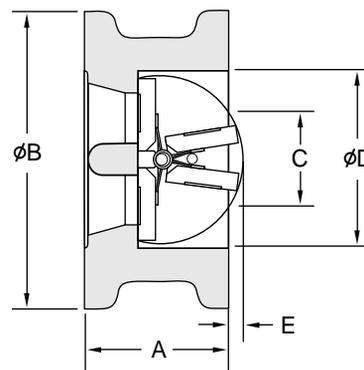
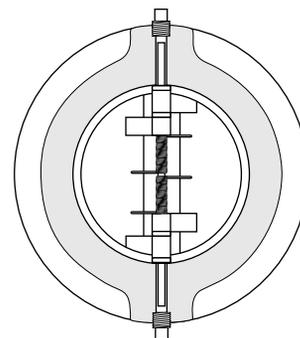
### MATERIALS OF CONSTRUCTION

Part	Carbon Steel	Stainless Steel
Body	A216-WCB	A351-CF8M
Discs	A351-CF8M	A351-CF8M
Seat	Buna-N	Viton
Spring	304 SS	304 SS

### CRACKING PRESSURE

Horizontal Mounting - .3psid

Vertical Mounting - .75 to 1.25 psid



**DOUBLE DOOR  
CHECK VALVES**

Connections: 4" to 12"  
Wafer Flanged

Seats:  
CS Body - 4" to 12" Buna-N  
SS Body - 4" to 12" Viton

### DIMENSIONS inches (mm) AND WEIGHTS pounds (kg)

Size	A <sup>1</sup>	B <sup>*</sup>	C <sup>2</sup>	D	E	STUD SELECTION			Weight	
						Qty.	Dia.	Length		
2 <sup>3</sup> (50)	<i>Use 2" 600WT 300# on page 191</i>									
2½ <sup>3</sup> (66)	<i>Use 2½" 600WT 300# on page 191</i>									
3 <sup>3</sup> (80)	<i>Use 3" 600WT 300# on page 191</i>									
4 <sup>4</sup> (100)	150WT	2½ (73)	6½ (175)	3½ (86)	4½ (114)	¾ (19)	8	5/8 (16)	7 (178)	18 (8.2)
	300WT	2½ (73)	7½ (181)	3½ (86)	4½ (114)	¾ (19)	8	¾ (19)	8½ (207)	18 (8.2)
6 (150)		3½ (99)	9½ (251)	5½ (137)	6½ (168)	1½ (35)	12	¾ (19)	9½ (245)	44 (20.0)
8 (200)		5 (127)	12½ (308)	7½ (187)	8½ (219)	2 (51)	12	7/8 (22)	11¼ (286)	75 (34.0)
10 (250)		5½ (146)	14¼ (362)	9½ (241)	10¼ (273)	2½ (73)	16	1 (25)	12¾ (324)	123 (55.8)
12 (300)		7½ (181)	16½ (422)	11¼ (286)	12¾ (324)	3½ (86)	16	1½ (29)	14½ (372)	196 (89.0)

1. Dimensions in accordance with API 594.
2. Minimum bore diameter of companion flanges.
3. Sizes 2", 2½" & 3" for 150WT, 300WT & 600WT are interchangeable, use 600WT for all applications in these sizes.
4. Size 4" for 150WT & 300WT are interchangeable, use 300WT for 4" size. 4" sizes fit between both 150# & 300# flanges.

\* Add the "B" dimension and the diameter of the stud to achieve the ANSI B16.5 bolt hole circle diameter.

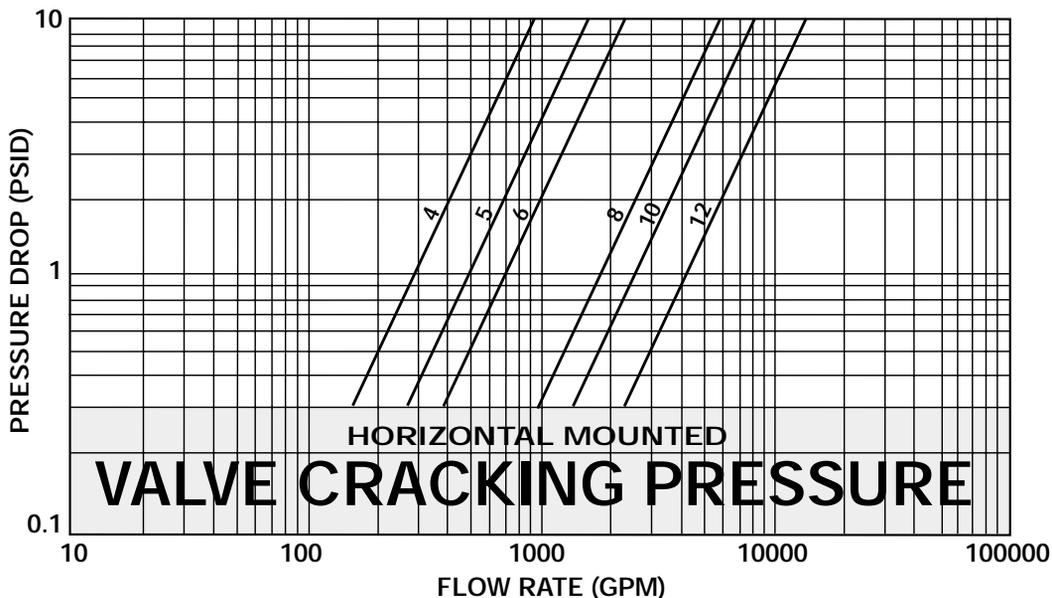


# 300WT SERIES DOUBLE DOOR CHECK VALVES

## CAST STEEL AND STAINLESS STEEL

### PRESSURE DROP - LIQUIDS

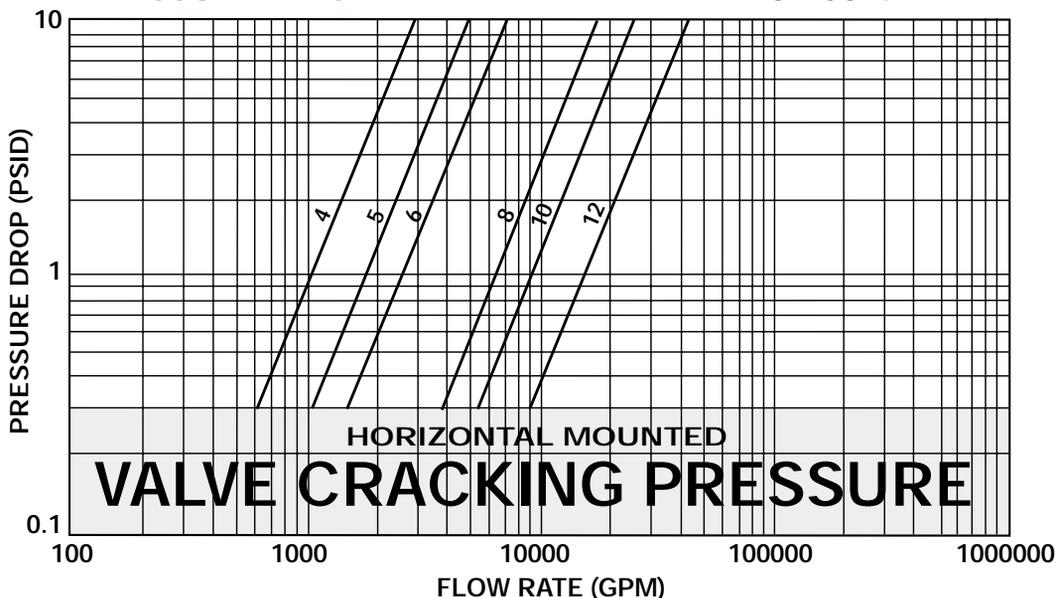
Sizes 4" - 12"



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

### PRESSURE DROP - AIR

Sizes 4" - 12"



- (1) Pressure drop curves are based on air flow at 60 OF and 1 ATM pressure.
- (2) Valve cracking pressure is equal to or less than 0.3 psid when mounted horizontally.
- (3) Valve cracking pressure increases to between 0.75 and 1.25 psid when installed vertically with flow upwards.

**Installation Note:**

- 1) For correct installation and maintenance please see our I&M manual.
- 2) Horizontal installation – Disc pin must be installed in vertical position.
- 3) Vertical installation (downward flow) – Consult factory.

### C<sub>v</sub> VALUES (US-GPM @ 1 PSID)

Valve Size (inches)	4	5	6	8	10	12
C <sub>v</sub>	291	494	705	1795	2563	4295

DOUBLE DOOR CHECK VALVES



## NOTES:

DOUBLE DOOR  
CHECK VALVES

**DOUBLE DOOR CHECK VALVES**



# 600WT SERIES

## CAST STEEL AND STAINLESS STEEL DOUBLE DOOR CHECK VALVES

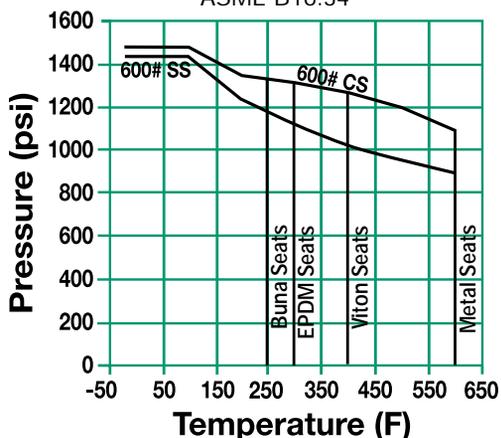
PRESSURES TO 1480 PSIG (101.9 BARG)  
TEMPERATURES TO 600°F (316°C)

- ASME Class 600 rated check valves
- Wafer body style fits between FF or RF flanges
- Upper and lower SS thrust washers
- Resilient Buna-N , Viton and metal seats
- Seat design lifts then swings discs to minimize seat wear
- Shock bumpers minimize stresses in hinge pins
- Independent springs optimizes valve plate closing rates while minimizing spring stress
- Dual ratings 2"-3" 150#, 300# and 600#.

### APPLICATIONS

- Liquid and Air Service
- Process Industry
- Power Industry
- Chemical Industry
- Oil & Gas
- Pulp & Paper
- Metal & Mining
- Water & Waste

**PRESSURE/TEMPERATURE CHART**  
ASME B16.34



### MODELS

- 600WTCT – Cast Steel Body, Stainless Steel Disc, Buna Seat
- 600WTTT – Stainless Steel Body, Stainless Steel Disc, Metal or Viton Seats

### OPTIONS (Consult Factory)

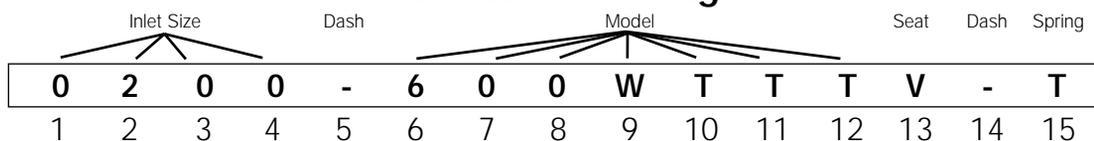
- EPDM Seats
- Other Spring Material

### APPLICABLE CODES

- ASME B16.34 ratings
- API 594
- API 598

Canadian Registration - OC10274.5C

## 600WT Series Ordering Code



<p><b>Inlet Size*</b> - Position 1 - 4</p> <p>0200 - 2"</p> <p>0250 - 2½"</p> <p>0300 - 3"</p>	<p><b>Seat**</b> - Position 13</p> <p>B - Buna-N (CS Body only)</p> <p>M - Metal (SS Body only)</p> <p>V - Viton (SS Body only)</p>
<p><b>Dash</b> - Position 5</p>	<p><b>Dash</b> - Position 14</p>
<p><b>Model</b> - Position 6 - 12</p> <p>300WTCT - CS Body</p> <p>300WTTT - SS Body</p>	<p><b>Spring</b> - Position 15</p> <p>T - SS</p>

\* For sizes 2", 2½", 3"  
600WT check valves fit between all ANSI 150#, 300# & 600# class flanges.

\*\* 600WTCT - Buna-N seat only,  
600WTTT - Viton or Metal seat



# 600WT SERIES CAST STEEL AND STAINLESS STEEL DOUBLE DOOR CHECK VALVES

## SPECIFICATION

Check Valve shall be dual disc design with Cast Steel or Stainless Steel Body wafer body style designed to ASME B16.34 and API 594. The check valve shall have an integral cast bumper and Buna-N or Viton resilient seats with SS discs. The check valve shall be ASME Class 600 rated. The spring shall be 316SS. The seat design shall lift then swing discs to minimize seat wear. The check valve shall be SSI 300WT Series.

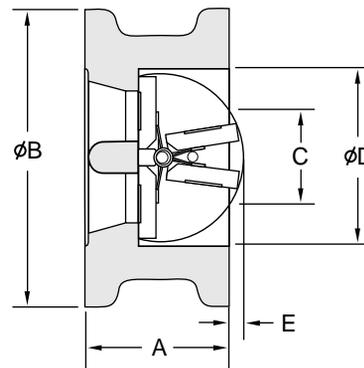
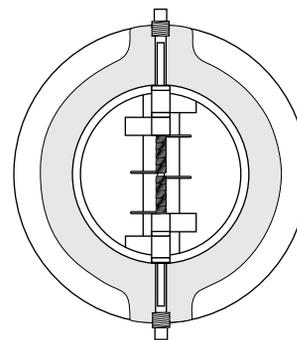
### MATERIALS OF CONSTRUCTION

Part	Carbon Steel	Stainless Steel
Body	A216-WCB	A351-CF8M
Discs	A351-CF8M	A351-CF8M
Seat	Buna-N	Viton or Metal
Spring	304 SS	304 SS

### CRACKING PRESSURE

Horizontal Mounting - .3psid

Vertical Mounting - .75 to 1.25 psid



**DOUBLE DOOR  
CHECK VALVES**

Connections: 2" to 3"  
Wafer Flanged

Seats:  
CS Body - 2" to 3" Buna-N  
SS Body - 2" to 3" Viton or Metal

### DIMENSIONS inches (mm) AND WEIGHTS pounds (kg)

Size		A <sup>1</sup>	B*	C <sup>2</sup>	D	E	STUD SELECTION			Weight
							Qty.	Dia.	Length	
2 <sup>3</sup> (50)	150#	2 1/8 (60)	4 1/8 (105)	—	2 1/8 (60)	—	4	5/8 (15.9)	6 (152)	6 (2.7)
	300#/ 600#	2 1/8 (60)	4 3/8 (111)	—	2 1/8 (60)	—	8	5/8 (15.9)	6 1/2 (175)	6 (2.7)
2 1/2 <sup>3</sup> (65)	150#	2 1/8 (67)	4 1/8 (124)	2 (51)	3 (77)	1/4 (6)	4	5/8 (15.9)	6 1/2 (159)	10 (4.5)
	300#/ 600#	2 1/8 (67)	5 1/8 (130)	2 (51)	3 (77)	1/4 (6)	8	3/4 (19)	7 1/2 (190)	10 (4.5)
3 <sup>3</sup> (80)	150#	2 1/8 (73)	5 1/8 (137)	2 (51)	3 1/2 (89)	1/4 (6)	4	5/8 (15.9)	7 (178)	13 (5.9)
	300#/ 600#	2 1/8 (73)	5 1/8 (149)	2 (51)	3 1/2 (89)	1/4 (6)	8	3/4 (19)	8 1/2 (207)	13 (5.9)

1. Dimensions in accordance with API 594.
2. Minimum diameter of companion flanges.
3. 300WT and 600WT are interchangeable, use 600WT for both applications.

Dimensions are subject to change. Consult factory for certified drawings when required.

\* Add the "B" dimension and the diameter of the stud to achieve the ANSI B16.5 bolt hole circle diameter.

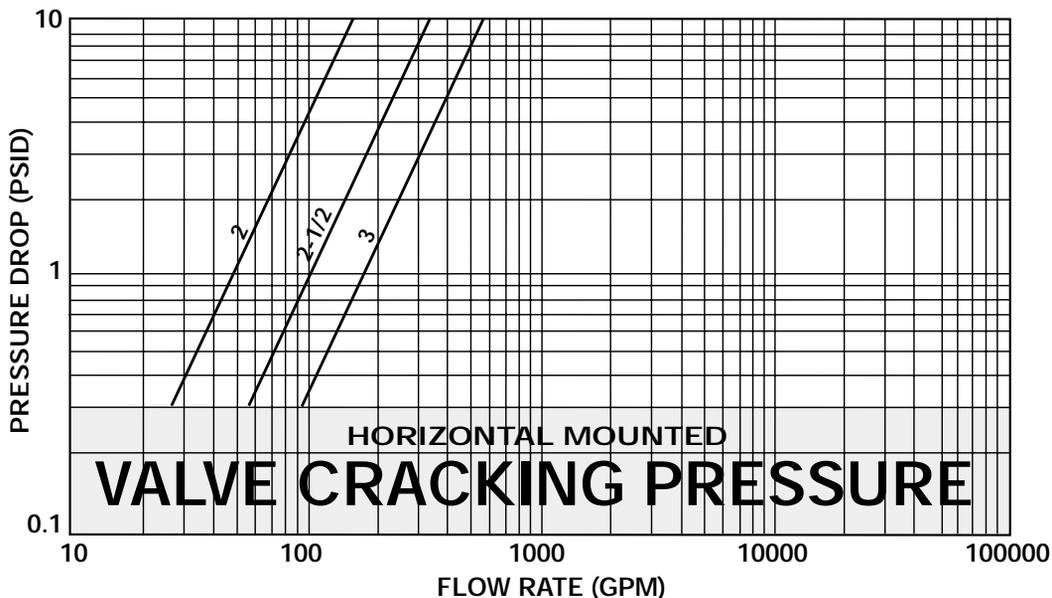


# 600WT SERIES DOUBLE DOOR CHECK VALVES

## CAST STEEL AND STAINLESS STEEL

### PRESSURE DROP - LIQUIDS

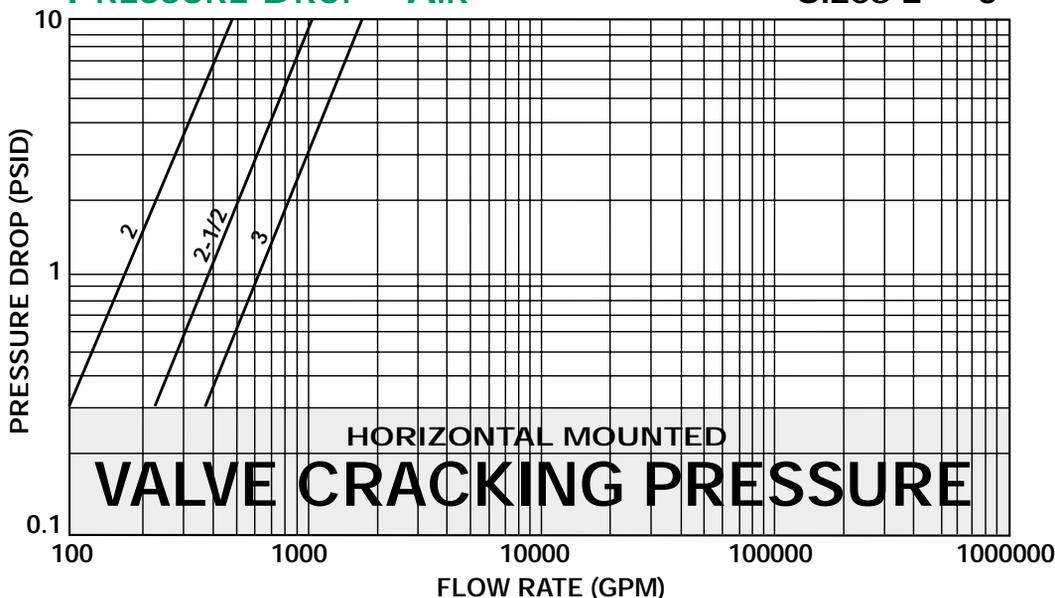
Sizes 2" - 3"



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

### PRESSURE DROP - AIR

Sizes 2" - 3"



- (1) Pressure drop curves are based on air flow at 60 OF and 1 ATM pressure.
- (2) Valve cracking pressure is equal to or less than 0.3 psid when mounted horizontally.
- (3) Valve cracking pressure increases to between 0.75 and 1.25 psid when installed vertically with flow upwards.

**Installation Note:**

- 1) For correct installation and maintenance please see our I&M manual.
- 2) Horizontal installation – Disc pin must be installed in vertical position.
- 3) Vertical installation (downward flow) – Consult factory.

### C<sub>v</sub> VALUES (US-GPM @ 1 PSID)

Valve Size (inches)	2	2½	3
C <sub>v</sub>	48	90	171

DOUBLE DOOR CHECK VALVES



# DOUBLE DOOR CHECK VALVES

## INSTALLATION AND MAINTENANCE INSTRUCTIONS

### VALVE LOCATION AND ORIENTATION IN PIPING

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

#### Horizontal Lines

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

#### Vertical Lines

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

### PRECAUTIONS

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

### MAINTENANCE

Spence Series WT check valves are permanently lubricated and normally require no routine maintenance.

### RECONDITIONING

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

#### Disc & Shaft Removal

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

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

### REASSEMBLY

Use new replacement parts, as required and a liberal amount of general-purpose grease (such as Mystic JT-6) on seals and machined mating surfaces. Reinsert the disc into the body cavity with the shaft holes inline with top and bottom shaft port. Slide the shaft into the

body through the shaft opening on one side of the valve. Continue sliding the shaft through the disc, spring and remaining shaft port the opposite side of the body. Install pipe plugs into the body using a good industrial grade thread sealant compound.

**WARNING:** *This product operates in pipelines or with equipment that carries fluids and/or gasses at elevated temperatures and pressures. Caution should be taken to make sure that this equipment is installed correctly and inspected regularly. Caution should also be taken to protect personnel from fluid or gas leakage.*

## NOTES:

DOUBLE DOOR  
CHECK VALVES



## Applications

- Liquid Service
- Process Industry
- Power Industry
- Chemical Industry
- Oil & Gas
- Metals & Mining
- Water & Waste Water
- Pulp & Paper
- Marine

# Flanged Silent Check Valves

Pressures to 285 PSIG  
Temperatures to 400°F

## FEATURES

- Silent Non-slam Closure
- Flanged Body Style
- Metal to Metal Seats



## MATERIALS

- Cast Iron Body;  
Bronze Disc
- Cast Steel Body;  
Stainless Steel Disc
- Stainless Steel Body;  
Stainless Steel Disc

## END CONNECTIONS

- Flat Faced
- Raised Faced

## SIZES

- 2" (20mm) up to  
18" (600mm)

## RATINGS

- ASME Class 125
- ASME Class 150
- ASME Class 250

FLANGED SILENT  
CHECK VALVES



# 125FC SERIES CAST IRON FLANGED SILENT CHECK VALVES

Pressures to 200 PSIG (13.8 barg)  
Temperatures to 300°F (149°C)

- ASME Class 125 rated check valve
- Designed to reduce surge and water hammer
- Silent, non-slam closure
- Center guided at both ends to prevent binding and cocking
- Flanged body style
- Bronze Metal to Metal Seats
- Designed to reduce Water Hammer

## APPLICATIONS

- Liquid Service
- Process Industry
- Power Industry
- Chemical Industry
- Oil & Gas
- Pulp & Paper
- Metal & Mining
- Water & Waste

## MODELS

- 125FCIB - Cast Iron Body, Bronze Seat and Disc

## OPTIONS *(Consult factory)*

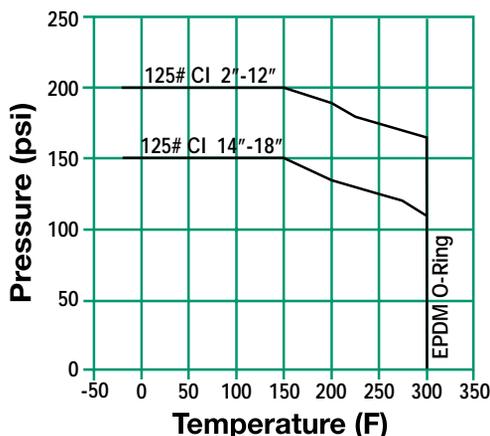
- Other Spring Material
- Heavier or Lighter Springs

## APPLICABLE CODES

- Bodies in accordance with ASME B16.1
- API 598

Canadian Registraton - OC10274.5C

**PRESSURE/TEMPERATURE CHART**  
ASME 16.1



FLANGED SILENT CHECK VALVES

## 125FC Series Ordering Code

Inlet Size				Dash	Model								Seat	Dash	Spring
0	8	0	0	-	1	2	5	F	C	I	B	M	-	T	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	

<b>Inlet Size</b> - Position 1 - 4
0200 - 2"
0250 - 2 1/2"
0300 - 3"
0400 - 4"
0500 - 5"
0600 - 6"
0800 - 8"
1000 - 10"
1200 - 12"
1400 - 14"
1600 - 16"
1800 - 18"

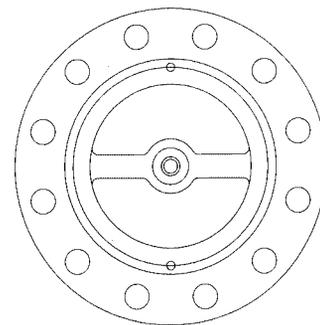
<b>Dash</b> - Position 5
<b>Model</b> - Position 6 - 12
125FCIB - CI Body, Bz Disc
<b>Seat</b> - Position 13
M - Metal
<b>Dash</b> - Position 14
<b>Spring</b> - Position 15
T - Stainless Steel



# 125FC SERIES CAST IRON FLANGED SILENT CHECK VALVES

## SPECIFICATION

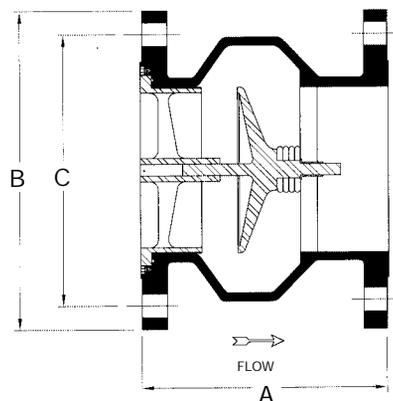
Check Valve shall be single disc design with Cast Iron Flanged body style designed to ASME B16.1. The check valve shall have a metal to metal seat with bronze seat and disc. The check valve shall be ASME Class 125 rated. The spring shall be 316SS. The check valve shall be SSI 125FC Cast Iron Series.



FRONT VIEW

## MATERIALS OF CONSTRUCTION

Body .....A126-B Cast Iron  
Discs.....B62 Bronze  
Seat .....B62 Bronze  
Spring .....316SS  
O-Ring .....EPDM



## DIMENSIONS inches (mm) AND WEIGHTS pounds (kg)

Size	A	B	C	Weight
2 (50)	6 <sup>1</sup> / <sub>8</sub> (156)	6 (152)	4 <sup>3</sup> / <sub>4</sub> (121)	21 (9.4)
2 <sup>1</sup> / <sub>2</sub> (65)	7 (178)	7 (178)	5 <sup>1</sup> / <sub>2</sub> (140)	31 (13.8)
3 (80)	7 <sup>1</sup> / <sub>2</sub> (191)	7 <sup>1</sup> / <sub>2</sub> (191)	6 (153)	37 (16.5)
4 (100)	8 <sup>1</sup> / <sub>2</sub> (216)	9 (229)	7 <sup>1</sup> / <sub>2</sub> (191)	62 (28)
5 (125)	9 <sup>1</sup> / <sub>2</sub> (241)	10 (254)	8 <sup>1</sup> / <sub>2</sub> (216)	80 (36)
6 (150)	10 <sup>1</sup> / <sub>2</sub> (267)	11 (280)	9 <sup>1</sup> / <sub>2</sub> (241)	106 (48)
8 (200)	13 <sup>1</sup> / <sub>2</sub> (343)	13 <sup>1</sup> / <sub>2</sub> (343)	11 <sup>3</sup> / <sub>4</sub> (299)	175 (79)
10 (250)	16 <sup>1</sup> / <sub>4</sub> (413)	16 (406)	14 <sup>1</sup> / <sub>4</sub> (362)	267 (121)
12 (300)	20 <sup>1</sup> / <sub>4</sub> (515)	19 (483)	17 (431)	477 (216)
14 (350)	22 <sup>3</sup> / <sub>4</sub> (580)	21 (533)	18 <sup>3</sup> / <sub>4</sub> (477)	785 (356)
16 (400)	24 <sup>3</sup> / <sub>4</sub> (629)	23 <sup>1</sup> / <sub>2</sub> (597)	21 <sup>1</sup> / <sub>4</sub> (540)	900 (408)
18 (450)	22 <sup>1</sup> / <sub>2</sub> (572)	25 (635)	22 <sup>3</sup> / <sub>4</sub> (578)	1032 (468)

Dimensions shown are subject to change.  
Contact factory for certified prints when required.

Connections: 2" to 18" Flanged FF

Seats: 2" to 18" Bronze

Cracking Pressure:  
Horizontal Mounting - .3 psid  
Vertical Mounting - .75 to 1.25 psid

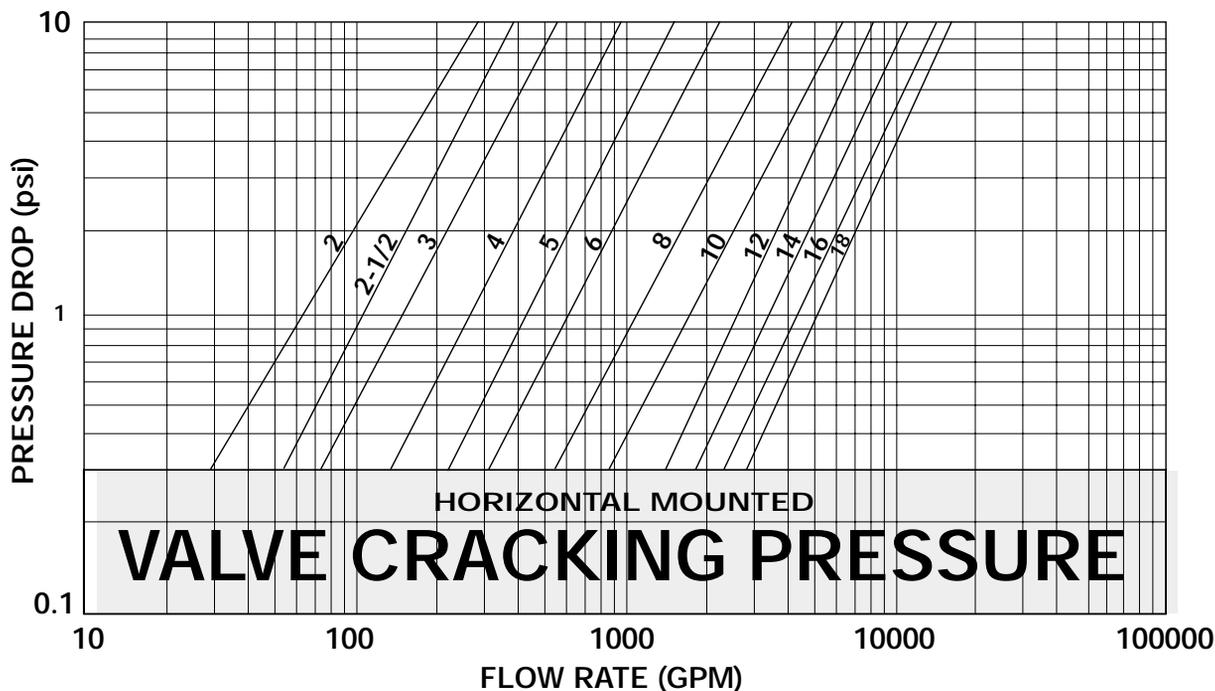
FLANGED SILENT  
CHECK VALVES

# 125FC SERIES

## CAST IRON FLANGED SILENT CHECK VALVES

### PRESSURE DROP VS FLOW RATE

(Sizes 2" - 18")



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

**Installation Note:**

1. For correct installation and maintenance please see our I&M manual.
2. Vertical installation (downward flow) – Consult factory.
3. Always use Strainers in upstream piping.
4. Not recommended for Steam Service

**Cv Values**

Size (inches)	2	2½	3	4	5	6	8	10	12	14	16	18
Min Cv (@.3 PSID)	53	99	135	246	402	566	1004	1579	2556	3286	4199	5112
CV (@1 PSID)	63	105	148	265	430	605	1105	1700	2575	3350	4300	5225
Max Cv (@10 PSID)	89	120	174	300	474	696	1297	1992	2593	3479	4427	5376

FLANGED SILENT CHECK VALVES



## NOTES:

FLANGED SILENT  
CHECK VALVES



# 150FC SERIES

## CAST STEEL AND STAINLESS STEEL FLANGED SILENT CHECK VALVES

Pressures to 285 PSIG (19.7 barg)  
Temperatures to 400°F (204°C)

- ASME Class 150 rated check valve
- Designed to reduce surge and water hammer
- Silent, non-slam closure
- Center guided at both ends to prevent binding and cocking
- Flanged body style
- Stainless Steel Metal to Metal Seats

### APPLICATIONS

- Liquid Service
- Process Industry
- Power Industry
- Chemical Industry
- Oil & Gas
- Pulp & Paper
- Metal & Mining
- Water & Waste

### MODELS

- 150FCCT - Cast Steel Body, Stainless Steel Seat and Disc
- 150FCTT - Stainless Steel Body, Stainless Steel Seat and Disc

### OPTIONS *(Consult factory)*

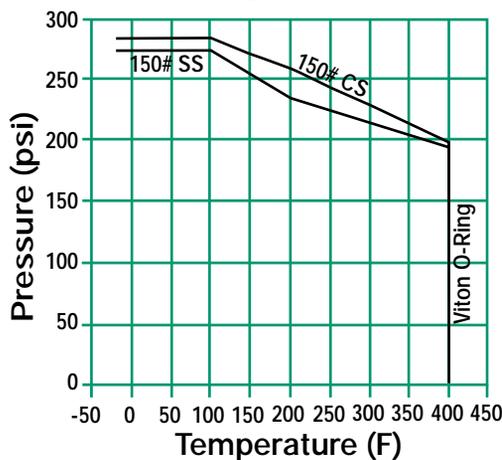
- Other Spring Material
- Heavier or Lighter Springs

### APPLICABLE CODES

- ASME Sec. VIII and B16.34 Bodies
- API 598

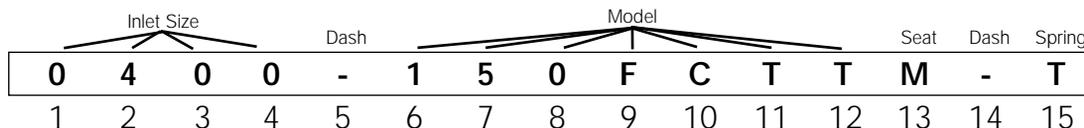
Canadian Registration - OC10274.5C

**PRESSURE/TEMPERATURE CHART**  
ASME 16.34



FLANGED SILENT CHECK VALVES

## 150FC Series Ordering Code



**Inlet Size\*** - Position 1 - 4

0200	-	2"
0250	-	2½"
0300	-	3"
0400	-	4"
0500	-	5"
0600	-	6"
0800	-	8"
1000	-	10"
1200	-	12"
1400	-	14"
1600	-	16"

<b>Dash</b> - Position 5
<b>Model</b> - Position 6 - 12 150FCCT - CS Body, SS Disc 150FCTT - SS Body, SS Disc
<b>Seat</b> - Position 13 M - Metal
<b>Dash</b> - Position 14
<b>Spring</b> - Position 15 T - Stainless Steel

\* Cast Steel body 2" - 16"  
Stainless Steel body 2" - 12"

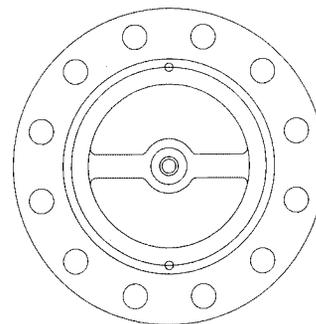


# 150FC SERIES

## CAST STEEL AND STAINLESS STEEL FLANGED SILENT CHECK VALVES

### SPECIFICATION

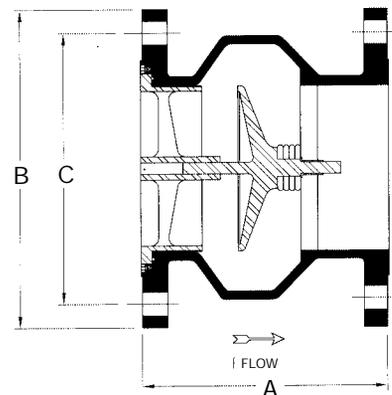
Check Valve shall be single disc design with Cast Steel or Stainless Steel Flanged body style designed to ASME Sec. VIII and ASME B16.34. The check valve shall have a metal to metal seat with Stainless Steel seat and disc. The check valve shall be ASME Class 150 rated. The spring shall be 316SS. The check valve shall be SSI 150FC Cast Steel or Stainless Steel Series.



FRONT VIEW

### MATERIALS OF CONSTRUCTION

Part	Cast Steel	Stainless Steel
Body	A216 WCB	A351 CF8M
Discs	A351 CF8M	A351 CF8M
Seat	A351 CF8M	A351 CF8M
Spring	316SS	316SS
O-Ring	Viton	Viton



### DIMENSIONS inches (mm) AND WEIGHTS pounds (kg)

Size	A	B	C	Weight
2 (50)	6 <sup>1</sup> / <sub>4</sub> (159)	6 (152)	4 <sup>3</sup> / <sub>4</sub> (121)	15 (6.6)
2 <sup>1</sup> / <sub>2</sub> (65)	7 (178)	7 (178)	5 <sup>1</sup> / <sub>2</sub> (140)	21 (9.3)
3 (80)	7 <sup>1</sup> / <sub>2</sub> (191)	7 <sup>1</sup> / <sub>2</sub> (191)	6 (153)	26 (11.5)
4 (100)	8 <sup>1</sup> / <sub>2</sub> (216)	9 (229)	7 <sup>1</sup> / <sub>2</sub> (191)	48 (21.3)
5 (125)	9 <sup>1</sup> / <sub>2</sub> (242)	10 (254)	8 <sup>1</sup> / <sub>2</sub> (216)	61 (27.3)
6 (150)	10 <sup>1</sup> / <sub>2</sub> (267)	11 (280)	9 <sup>1</sup> / <sub>2</sub> (241)	76 (34.1)
8 (200)	12 (305)	13 <sup>1</sup> / <sub>2</sub> (343)	11 <sup>3</sup> / <sub>4</sub> (299)	129 (58.4)
10 (250)	14 (356)	16 (406)	14 <sup>1</sup> / <sub>4</sub> (362)	183 (82.8)
12 (300)	18 (457)	19 (483)	17 (431)	344 (156)
14 * (350)	19 <sup>1</sup> / <sub>2</sub> (495)	21 (533)	18 <sup>3</sup> / <sub>4</sub> (477)	433 (196)
16 * (400)	21 (533)	23 <sup>1</sup> / <sub>2</sub> (597)	21 <sup>1</sup> / <sub>4</sub> (540)	607 (275)

\* 14" and 16" only available in Cast Steel body, contact factory for Stainless Body availability.

Dimensions are subject to change.  
Consult factory for certified drawings when required.

Connections :  
2" to 16" Cast Steel Body Flanged RF  
2" to 12" Stainless Steel Body Flanged RF

Seats: All sizes - Stainless Steel

Cracking Pressure:  
Horizontal Mounting - .3 psid  
Vertical Mounting - .75 to 1.25 psid

FLANGED SILENT CHECK VALVES

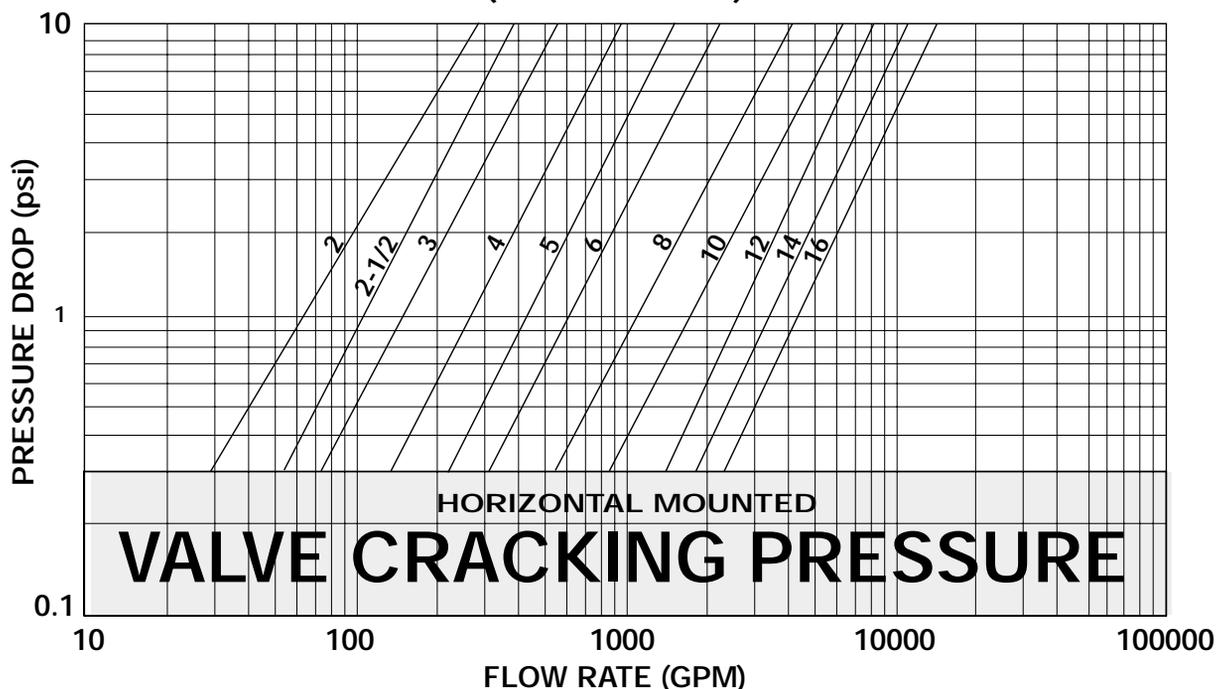


# 150FC SERIES

## CAST STEEL & STAINLESS STEEL FLANGED SILENT CHECK VALVES

### PRESSURE DROP VS FLOW RATE

(Sizes 2" - 16")



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

**Installation Note:**

1. For correct installation and maintenance please see our I&M manual.
2. Vertical installation (downward flow) – Consult factory.
3. Always use Strainers in upstream piping.
4. Not recommended for Steam Service

**Cv Values**

Size (inches)	2	2½	3	4	5	6	8	10	12	14	16
Min Cv (@.3 PSID)	53	99	135	246	402	566	1004	1579	2556	3286	4199
Cv (@1 PSID)	63	105	148	265	430	605	1105	1700	2575	3350	4300
Max Cv (@10 PSID)	89	120	174	300	474	696	1297	1992	2593	3479	4427

FLANGED SILENT CHECK VALVES



## NOTES:

FLANGED SILENT  
CHECK VALVES



# 250FC SERIES CAST IRON FLANGED SILENT CHECK VALVES

Pressures to 400 PSI (27.6. barg)  
Temperatures to 200°F (93°C)

## APPLICATIONS

- Liquid Service
- Process Industry
- Power Industry
- Chemical Industry
- Oil & Gas
- Pulp & Paper
- Metal & Mining
- Water & Waste

- ASME Class 250 rated check valve
- Designed to reduce surge and water hammer
- Silent, non-slam closure
- Center guided at both ends to prevent binding and cocking
- Flanged body style
- Bronze Metal to Metal Seats
- Designed to reduce Water Hammer

## MODELS

- 250FCIB - Cast Iron Body, Bronze Seat and Disc

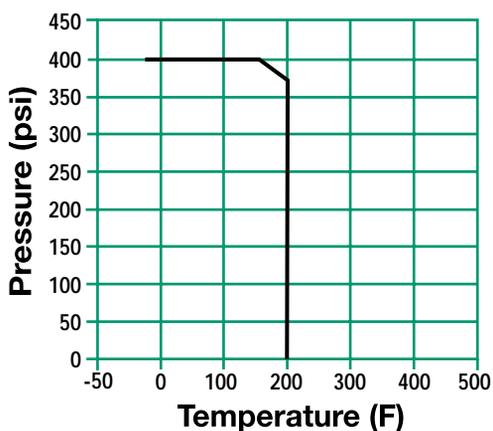
## OPTIONS *(Consult factory)*

- Other Spring Material
- Heavier or Lighter Springs

## APPLICABLE CODES *(Designed in accordance with)*

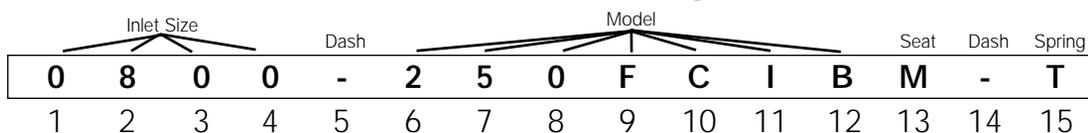
- ASME B16.1

**PRESSURE/TEMPERATURE CHART**  
ASME B16.1



FLANGED SILENT CHECK VALVES

## 250FC Series Ordering Code



<p><b>Inlet Size</b> - Position 1 - 4</p> <p>0250 - 2 1/2"</p> <p>0300 - 3"</p> <p>0400 - 4"</p> <p>0500 - 5"</p> <p>0600 - 6"</p> <p>0800 - 8"</p> <p>1000 - 10"</p> <p>1200 - 12"</p>
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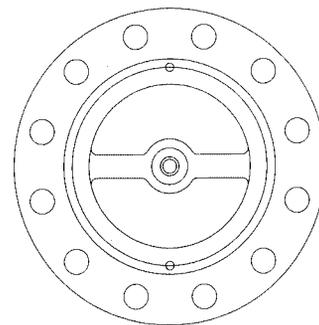
<p><b>Dash</b> - Position 5</p>
<p><b>Model</b> - Position 6 - 12</p> <p>250FCIB - CI Body, Bz Disc</p>
<p><b>Seat</b> - Position 13</p> <p>M - Metal</p>
<p><b>Dash</b> - Position 14</p>
<p><b>Spring</b> - Position 15</p> <p>T - Stainless Steel</p>



# 250FC SERIES CAST IRON FLANGED SILENT CHECK VALVES

## SPECIFICATION

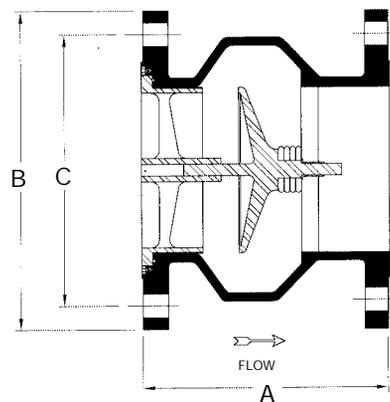
Check Valve shall be single disc design with Cast Iron Flanged body style designed to ASME B16.1. The check valve shall have a metal to metal seat with bronze seat and disc. The check valve shall be ASME Class 250 rated. The spring shall be 304SS. The check valve shall be SSI 250F Cast Iron Series.



FRONT VIEW

## MATERIALS OF CONSTRUCTION

Body .....A126-A Cast Iron  
Discs.....B62 Bronze  
Seat .....B62 Bronze  
Spring .....304SS  
O-Ring .....EPDM



## DIMENSIONS inches (mm) AND WEIGHTS pounds (kg)

Size	A	B	C	Weight
2½ (65)	5½ (127)	5½ (127)	5½ (150)	30 (13.6)
3 (80)	6 (140)	8¼ (216)	6¾ (168)	36 (16.4)
4 (100)	7¼ (184)	10 (254)	7¾ (200)	59 (27)
5 (125)	8½ (216)	11 (280)	9¼ (235)	78 (36)
6 (150)	9¾ (248)	12½ (318)	10¾ (270)	103 (47)
8 (200)	12½ (318)	15 (381)	13 (331)	179 (82)
10 (250)	15½ (394)	17½ (445)	15¼ (388)	253 (115)
12 (300)	14¾ (362)	20½ (521)	17¾ (451)	401 (182)

Dimensions shown are subject to change.  
Contact factory for certified prints when required.

Connections: 2½" to 12" Flanged FF

Seats: 2½" to 12" Bronze

Cracking Pressure: .5 psid

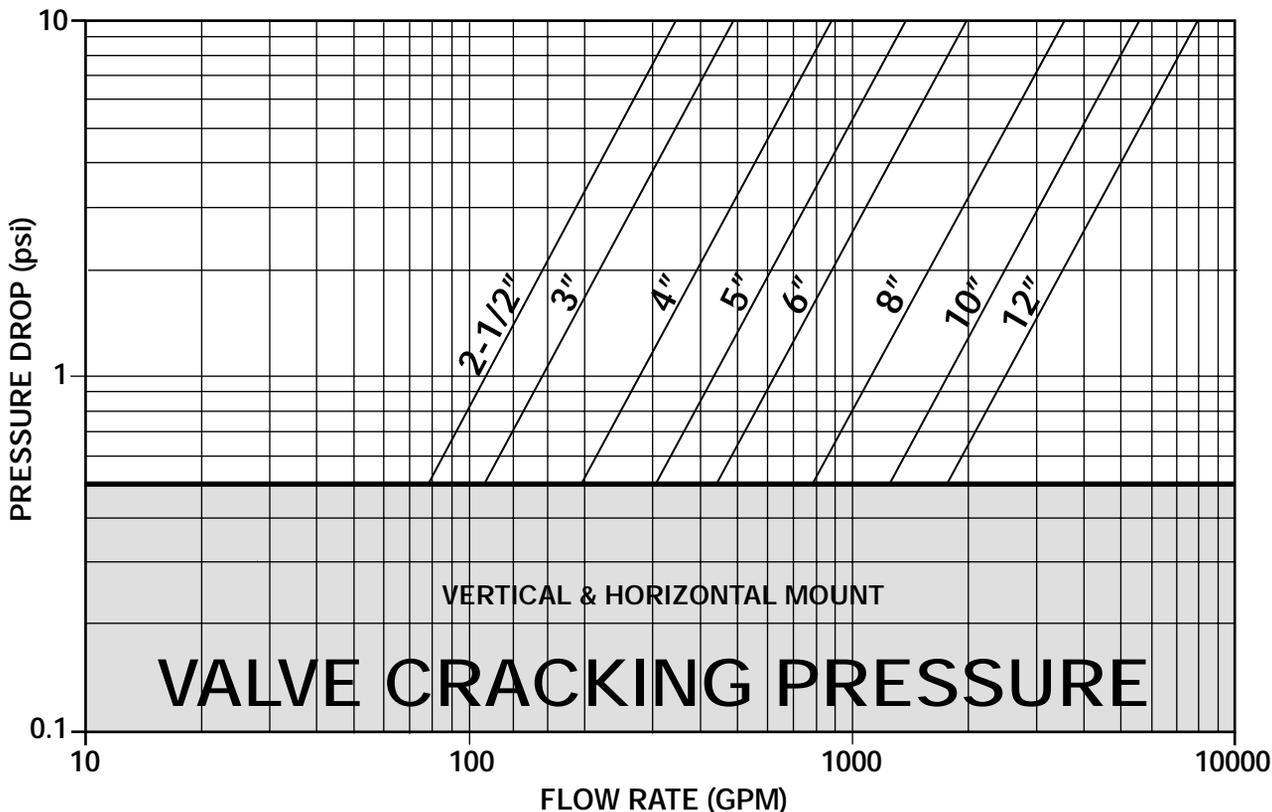
FLANGED SILENT  
CHECK VALVES

# 250FC SERIES

## CAST IRON FLANGED SILENT CHECK VALVES

### PRESSURE DROP VS FLOW RATE<sup>1</sup>

(Sizes 2½" - 12")



1. Pressure drop curves are based on water flow.
2. Valve cracking pressure is equal to or less than 0.5 psid when installed vertically and horizontally.

**Installation Note**

1. For correct installation and maintenance, please see our I&M manual.
2. Vertically installation (downward flow) – Consult factory
3. Always use Strainers in upstream piping.
4. Not recommended for Steam Service.

**Cv Values**

Size (inches)	2½	3	4	5	6	8	10	12
Min Cv (@.5 PSID)	78	110	197	308	442	788	1252	1768
Cv (@1 PSID)	110	155	278	435	625	1115	1770	2500
Max Cv (@10 PSID)	348	490	879	1376	1976	3526	5597	7906

FLANGED SILENT CHECK VALVES



# FLANGED SILENT CHECK VALVES

## INSTALLATION AND MAINTENANCE INSTRUCTIONS

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

### CHECK VALVE INSTALLATION

---

- Valves may be installed upward vertically, horizontally, or at other angles. For vertical downward flow please consult with the factory.
- Install the valve with proper positioning of the flow arrow.
- Support and align adjacent piping and the valve
- Install lubricated flange bolts.
- Hand tighten, then torque the bolts using the cross-over flange bolt tightening method to load the bolts evenly, and eliminate concentrated stresses.
- Valves must be mounted to ASME flanges with conventional flat face or ring gaskets.
- Proper centering of the ring gaskets is important to prevent internal leakage.
- Never lift the valve by the bronze or stainless steel trim.
- Install a strainer in the piping.

### PRECAUTIONS

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- Do not install check valves directly against another valve whereby the check valve discharges downstream directly into the valve.
- Do not install the valve whereby it directly discharges downstream into a tee or elbow fitting.
- These valves are not suggested for installation in sewage ejector piping.
- Careful consideration should be given to the selection of valves for use in an air, steam, hot water and boiler feed systems. Consult our factory on these applications.
- Individuals performing removal and disassembly should be provided with suitable protection from possibly hazardous liquids.
- Prior to disassembly, valve must first be isolated from system pressure and flow.
- Upon disassembly ensure spring pressure is released slowly to prevent personal injury due to the spring "launching" itself unexpectedly.

**WARNING:** *This product operates in pipelines or with equipment that carries fluids and/or gasses at elevated temperatures and pressures. Caution should be taken to make sure that this equipment is installed correctly and inspected regularly. Caution should also be taken to protect personnel from fluid or gas leakage.*

FLANGED SILENT  
CHECK VALVES



# 125FV SERIES CAST IRON FLANGED FOOT VALVES

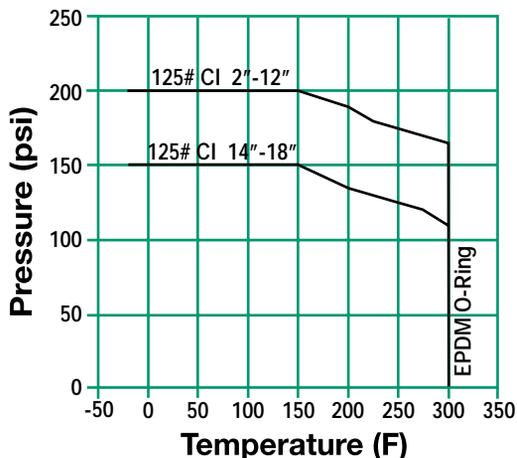
Pressures to 200 PSI (13.8 barg)  
Temperatures to 300°F (149°C)

## APPLICATIONS

- Liquid service: for preventing pump column from draining upon pump shutdown.
- Maintaining pump prime upon pump outage.

- ASME Class 125 rated foot valve
- Designed to reduced surge and water hammer
- Silent, non-slam closure
- Heavy duty stainless steel screening with flow areas three to four times that of the pipe area
- Center guided at both ends to prevent binding and cocking
- Flanged body style
- Bronze Metal to Metal Seats

**PRESSURE/TEMPERATURE CHART**  
ASME B16.1



## MODELS

- 125FVIB – Cast Iron Body, Bronze Seat and Disc

## OPTIONS

- Consult factory

## APPLICABLE CODES

- Bodies in accordance with ASME B16.1

Canadian Registration - OC10274.5C

FOOT VALVES

## 125FVIB Series Ordering Code

Inlet Size				Dash	Model								Seat	Dash	Perf	Add'l Mesh
0	6	0	0	-	1	2	5	F	V	I	B	M	-	4	5	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	

**Inlet Size\*** - Position 1 - 4

0200	-	2"
0250	-	2½"
0300	-	3"
0400	-	4"
0500	-	5"
0600	-	6"
0800	-	8"
1000	-	10"
1200	-	12"
1400	-	14"
1600	-	16"
1800	-	18"

**Dash** - Position 5

**Model** - Position 6 -12

125FVIB - CI Body,  
Bz Disc, Metal Seat

**Seat** - Position 13

M - Metal

**Dash** - Position 14

**Perf** - Position 15

**304SS Material'**

1	-	1/32"
B	-	3/64"
4	-	1/8" (std)
2	-	1/16"
3	-	3/32"
5	-	5/32"
6	-	3/16"
7	-	7/32"
8	-	1/4"
9	-	3/8"

**Additional Mesh** - Position 16

**Leave Blank If Not Required**

1	-	10
2	-	20
3	-	30
4	-	40
5	-	50
6	-	60
7	-	70
8	-	80
9	-	90



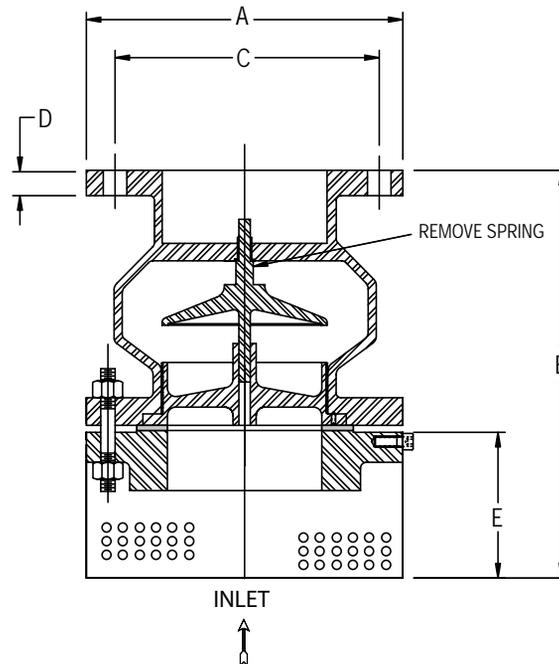
# 125FV SERIES CAST IRON FLANGED FOOT VALVES

## SPECIFICATION

Foot Valve shall be composed of a Check Valve with single disc design with Cast Iron Flanged body style designed to ASME B16.1. The check valve shall have a metal to metal seat with bronze seat and disc. The check valve shall be ASME Class 125 rated. The screen shall be constructed from SA240 304 stainless steel. The foot valve shall be SSI 125FV Cast Iron Series.

## MATERIALS OF CONSTRUCTION

Body .....A126-B Cast Iron  
 Disc .....B62 Bronze  
 Seat .....B62 Bronze  
 Screen Retainer Bolt .....SA193 B8  
 Studs .....SA193 B7  
 Hex Nuts.....SA194 2H  
 Screen Flange.....SA105  
 Screen.....SA240 304  
 Gasket .....Red Rubber



Connections : 2" to 18" Flanged FF

Seats: 2" to 18" Bronze

Cracking Pressure:  
Vertical Mounting – Consult Factory

## DIMENSIONS inches (mm) AND WEIGHTS pounds (kg)

Size	A	B	C	D	E	Stud Length	Bolt Size	No. of Bolts	Weight
2 (51)	6 (152)	8 <sup>3</sup> / <sub>8</sub> (213)	4 <sup>3</sup> / <sub>4</sub> (121)	3/4 (19)	3 (76)	3 <sup>3</sup> / <sub>4</sub> (83)	5/8 (16)	4	30 (14)
2 <sup>1</sup> / <sub>2</sub> (64)	7 (178)	8 <sup>3</sup> / <sub>8</sub> (219)	5 <sup>1</sup> / <sub>2</sub> (140)	7/8 (22)	3 (76)	3 <sup>1</sup> / <sub>2</sub> (89)	5/8 (16)	4	45 (20)
3 (76)	7 <sup>1</sup> / <sub>2</sub> (191)	9 <sup>3</sup> / <sub>8</sub> (244)	6 (152)	15/16 (24)	3 (76)	3 <sup>3</sup> / <sub>4</sub> (95)	5/8 (16)	4	51 (23)
4 (102)	9 (229)	11 <sup>1</sup> / <sub>8</sub> (283)	7 <sup>1</sup> / <sub>2</sub> (191)	15/16 (24)	3 (76)	3 <sup>3</sup> / <sub>4</sub> (95)	5/8 (16)	8	83 (38)
5 (127)	10 (254)	13 <sup>3</sup> / <sub>8</sub> (340)	8 <sup>1</sup> / <sub>2</sub> (216)	15/16 (24)	4 (102)	4 (102)	3/4 (19)	8	104 (47)
6 (152)	11 (279)	15 <sup>3</sup> / <sub>8</sub> (403)	9 <sup>1</sup> / <sub>2</sub> (241)	1 (25)	5 (127)	4 (102)	3/4 (19)	8	133 (60)
8 (203)	13 <sup>1</sup> / <sub>2</sub> (343)	19 <sup>3</sup> / <sub>8</sub> (498)	11 <sup>1</sup> / <sub>4</sub> (298)	1 <sup>1</sup> / <sub>8</sub> (29)	6 (152)	4 <sup>1</sup> / <sub>4</sub> (108)	3/4 (19)	8	215 (98)
10 (254)	16 (406)	23 <sup>3</sup> / <sub>8</sub> (600)	14 <sup>1</sup> / <sub>4</sub> (362)	1 <sup>1</sup> / <sub>2</sub> (30)	7 (178)	4 <sup>3</sup> / <sub>4</sub> (121)	7/8 (22)	12	324 (147)
12 (305)	19 (483)	23 <sup>3</sup> / <sub>8</sub> (594)	17 (432)	1 <sup>1</sup> / <sub>4</sub> (32)	8 (203)	4 <sup>3</sup> / <sub>4</sub> (121)	7/8 (22)	12	557 (253)
14 (356)	21 (533)	25 <sup>3</sup> / <sub>8</sub> (657)	18 <sup>3</sup> / <sub>4</sub> (476)	1 <sup>3</sup> / <sub>8</sub> (35)	9 (229)	5 <sup>1</sup> / <sub>4</sub> (133)	1 (25)	12	890 (404)
16 (406)	23 <sup>1</sup> / <sub>2</sub> (597)	29 (737)	21 <sup>1</sup> / <sub>4</sub> (540)	1 <sup>3</sup> / <sub>2</sub> (37)	10 (254)	5 <sup>1</sup> / <sub>2</sub> (140)	1 (25)	16	1034 (469)
18 (457)	25 (635)	31 <sup>1</sup> / <sub>8</sub> (791)	22 <sup>1</sup> / <sub>2</sub> (578)	1 <sup>3</sup> / <sub>2</sub> (40)	11 (279)	6 (152)	1 <sup>1</sup> / <sub>2</sub> (29)	16	1171 (531)

Dimensions are subject to change. Consult factory for certified drawings when required.

FOOT VALVES

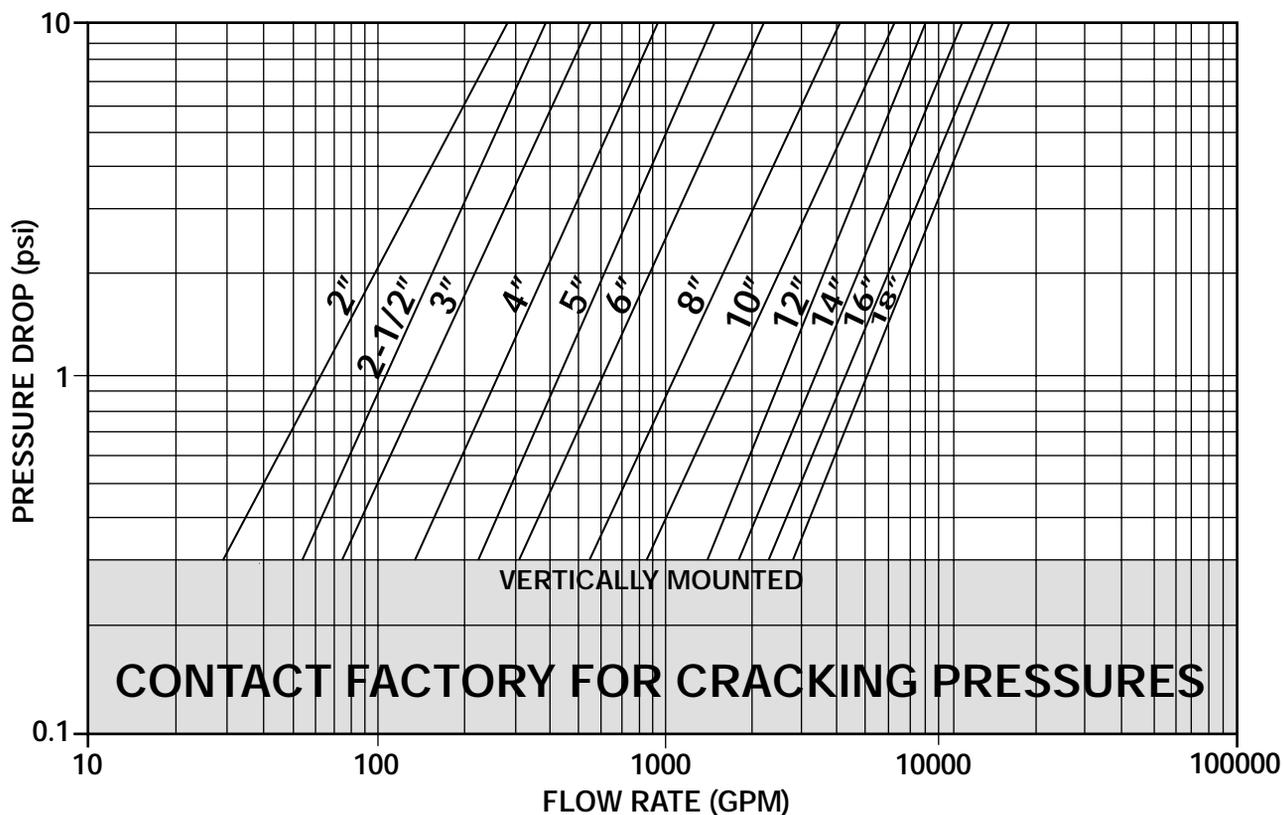


# 125FV SERIES

## CAST IRON FLANGED FOOT VALVES

### PRESSURE DROP VS FLOW RATE\*

(Sizes 2" - 18")



\* Pressure drop curves are based on water flow.

#### Installation Note

1. For correct installation and maintenance, please see our I & M manual.
2. Mount only in vertical position with upward flow.

#### Cv Values

Size (inches)	2	2½	3	4	5	6	8	10	12	14	16	18
Min Cv @ .3 PSID)	53	99	135	246	402	566	1004	1579	2556	3286	4199	5112
Cv (@ 1 PSID)	63	105	148	265	430	605	1105	1700	2575	3350	4300	5225
Max Cv (@ 10 PSID)	89	120	174	300	474	696	1297	1992	2593	3479	4427	5376

FOOT VALVES



## NOTES:



# 150FV SERIES CARBON STEEL AND STAINLESS STEEL FLANGED FOOT VALVES

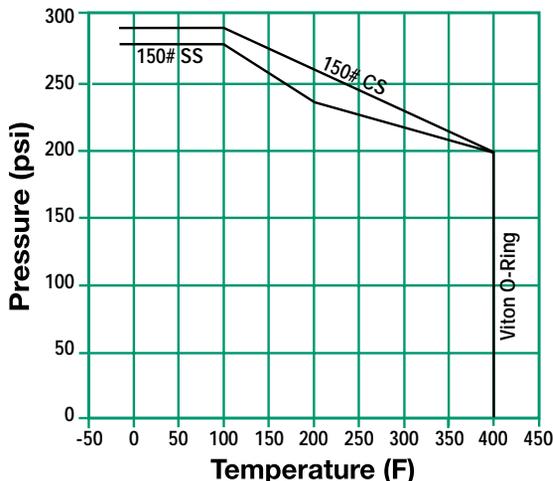
Pressures to 285 PSI (19.7 barg)  
Temperatures to 400°F (204°C)

## APPLICATIONS

- Liquid service: for preventing pump column from draining upon pump shutdown.
- Maintaining pump prime upon pump outage.

- ASME Class 150 rated foot valve
- Designed to reduced surge and water hammer
- Silent, non-slam closure
- Heavy duty stainless steel screening with flow areas three to four times that of the pipe area
- Center guided at both ends to prevent binding and cocking
- Flanged body style
- Stainless Steel Metal to Metal Seats

**PRESSURE/TEMPERATURE CHART  
ASME 16.34**



## MODELS

- 150FVCT – Carbon Steel Body, Stainless Steel Seat and Disc
- 150FVTT – Stainless Steel Body, Stainless Steel Seat and Disc

## OPTIONS (Consult factory)

- Consult factory

## APPLICABLE CODES

- ASME Sec. VIII and B16.34 Bodies

Canadian Registration - OC10274.5C

FOOT VALVES

## 150FVCT Series Ordering Code

Inlet Size				Dash	Model								Seat	Dash	Perf	Add'l Mesh
0	6	0	0	-	1	5	0	F	V	C	T	M	-	4	5	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	

**Inlet Size\*** - Position 1 - 4

0200	-	2"
0250	-	2 1/2"
0300	-	3"
0400	-	4"
0500	-	5"
0600	-	6"
0800	-	8"
1000	-	10"
1200	-	12"
1400	-	14"
1600	-	16"

**Dash** - Position 5

**Model** - Position 6 - 12

150FVCT	-	CS Body, SS Disc, Metal Seat
150FVTT	-	SS Body, SS Disc, Metal Seat

**Seat** - Position 13

M	-	Metal
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**Dash** - Position 14

**Perf** - Position 15

**304SS Material<sup>1</sup>**

1	-	1/32"
B	-	3/64"
4	-	1/8" (std)
2	-	1/16"
3	-	3/32"
5	-	5/32"
6	-	3/16"
7	-	7/32"
8	-	1/4"

**Additional Mesh** - Position 16

**Leave Blank If Not Required**

1	-	10
2	-	20
3	-	30
4	-	40
5	-	50
6	-	60
7	-	80
8	-	100



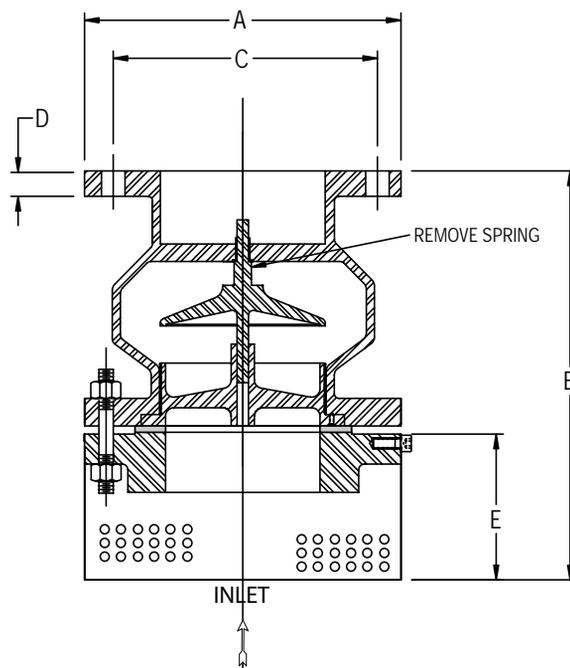
# 150FV SERIES CARBON STEEL AND STAINLESS STEEL FLANGED FOOT VALVES

## SPECIFICATION

Foot Valve shall be composed of a Check Valve with single disc design with Carbon Steel Flanged body style designed to ASME Sec. VIII and ASME B16.1. The check valve shall have a metal to metal seat with stainless steel seat and disc. The check valve shall be ASME Class 150 rated. The screen shall be SA240 304 stainless steel. The foot valve shall be SSI 150FC Carbon Steel Series.

## MATERIALS OF CONSTRUCTION

Part	Cast Steel	Stainless Steel
Body	A216 WCB	A351 CF8M
Disc	A351 CF8M	A351 CF8M
Seat	A351 CF8M	A351 CF8M
Screen Retainer Bolt	SA193 B8	SA193 B8
Studs	SA193 B7	SA193 B7
Hex Nuts	SA194 2H	SA194 2H
Screen Flange	SA105	SS-304
Screen	SA240 304	SA240 316
Gasket	Red Rubber	Red Rubber



Connections :  
2" to 16" Carbon Steel Body Flanged RF  
8" to 12" Stainless Steel Body Flanged RF

Seats: All sizes – Stainless Steel

Cracking Pressure:  
Vertical Mounting – Consult Factory

## DIMENSIONS inches (mm) AND WEIGHTS pounds (kg)

Size	A	B	C	D	E	Stud Length	Bolt Size	No. of Bolts	Weight
2 (51)	6 (152)	8 3/8 (213)	4 3/4 (121)	3/4 (19)	3 (76)	3 3/4 (83)	5/8 (16)	4	25 (11)
2 1/2 (64)	7 (178)	8 5/8 (219)	5 1/2 (140)	7/8 (22)	3 (76)	3 1/2 (89)	5/8 (16)	4	35 (16)
3 (76)	7 1/2 (191)	9 3/8 (244)	6 (152)	15/16 (24)	3 (76)	3 3/4 (95)	5/8 (16)	4	45 (20)
4 (102)	9 (229)	11 1/8 (283)	7 1/2 (191)	15/16 (24)	3 (76)	3 3/4 (95)	5/8 (16)	8	70 (32)
5 (127)	10 (254)	13 3/8 (340)	8 1/2 (216)	15/16 (24)	4 (102)	4 (102)	3/4 (19)	8	90 (41)
6 (152)	11 (279)	15 3/8 (403)	9 1/2 (241)	1 (25)	5 (127)	4 (102)	3/4 (19)	8	115 (52)
8 (200)	13 1/2 (343)	19 3/8 (498)	11 3/4 (298)	1 1/8 (29)	6 (152)	4 1/4 (108)	3/4 (19)	8	181 (82)
10 (254)	16 (406)	23 3/8 (600)	14 1/4 (362)	1 3/16 (30)	7 (178)	4 1/4 (121)	7/8 (22)	12	265 (120)
12 (305)	19 (483)	23 3/8 (594)	17 (432)	1 1/4 (32)	8 (203)	4 1/4 (121)	7/8 (22)	12	425 (193)
14 (356)	21 (533)	25 3/8 (657)	18 3/4 (476)	1 5/8 (35)	9 (229)	5 1/4 (133)	1 (25)	12	550 (249)
16 (406)	23 3/8 (597)	29 (737)	21 1/4 (540)	1 7/8 (37)	10 (254)	5 1/2 (140)	1 (25)	16	695 (315)

\* 14" and 16" only available in Cast Steel body, contact factory for Stainless Steel body availability. Dimensions are subject to change. Consult factory for certified drawings when required.

FOOT VALVES

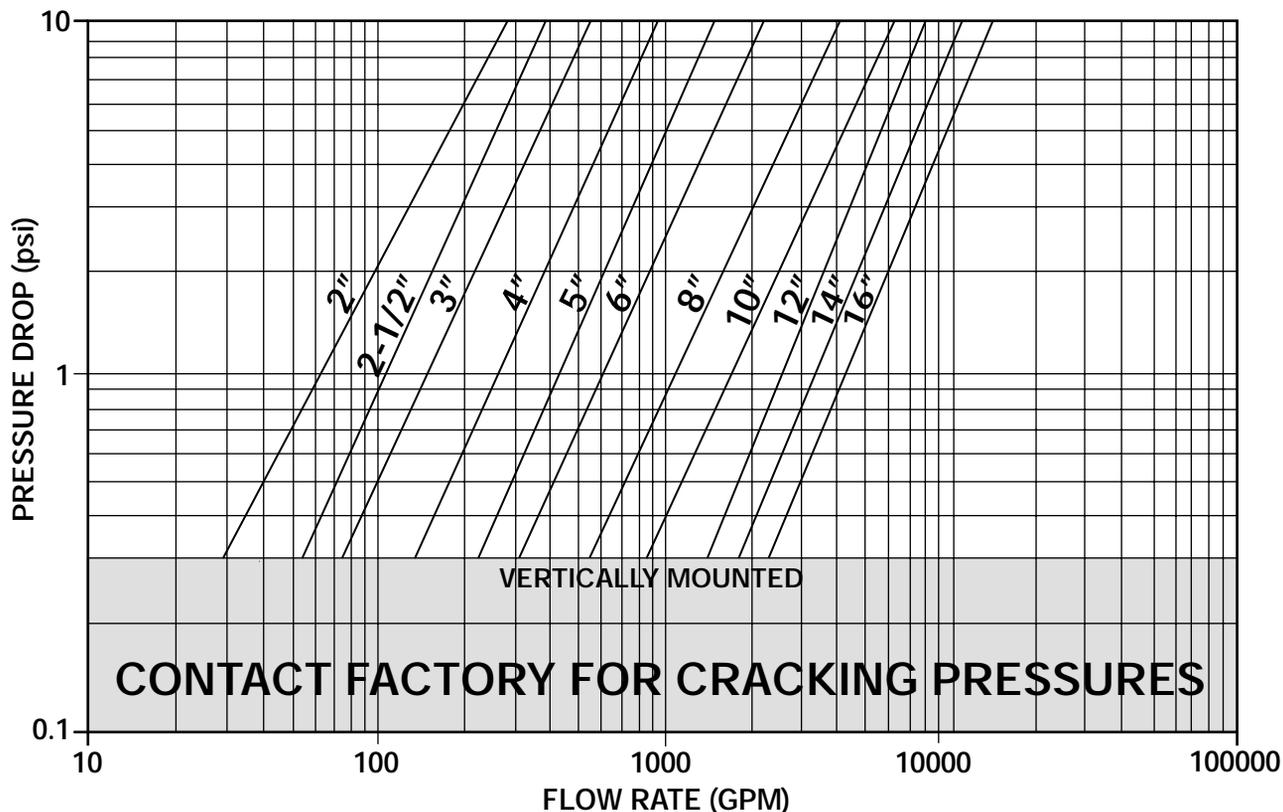


# 150FV SERIES

## CARBON STEEL AND STAINLESS STEEL FLANGED FOOT VALVES

### PRESSURE DROP VS FLOW RATE\*

(Sizes 2" - 16")



\* Pressure drop curves are based on water flow.

#### Installation Note

1. For correct installation and maintenance, please see our I & M manual.
2. Mount only in vertical position with upward flow.

#### Cv Values

Size (inches)	2	2½	3	4	5	6	8	10	12	14	16
Min Cv (@ .3 PSID)	53	99	135	246	402	566	1004	1579	2556	3286	4199
Cv (@ 1 PSID)	63	105	148	265	430	605	1105	1700	2575	3350	4300
Max Cv (@ 10 PSID)	89	120	174	300	474	696	1297	1992	2593	3479	4427

FOOT VALVES



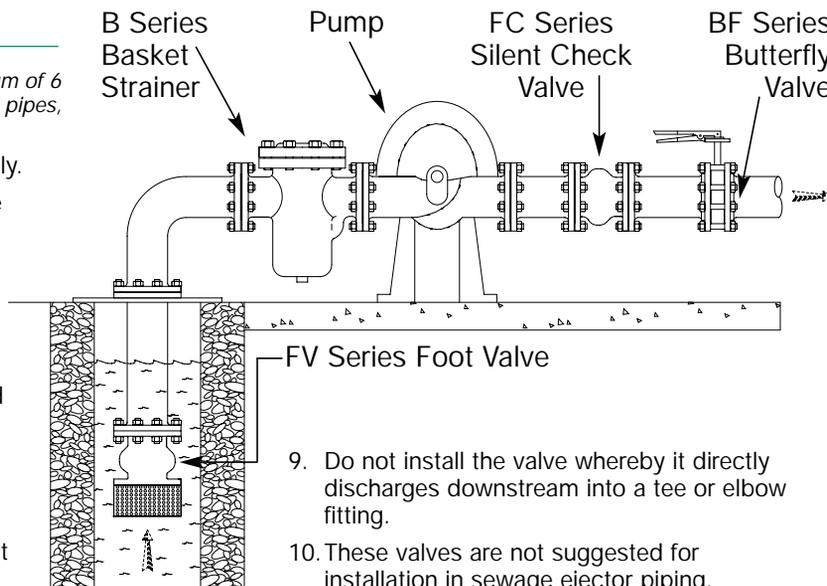
# FLANGED FOOT VALVES

## INSTALLATION AND MAINTENANCE INSTRUCTIONS

### INSTALLATION

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

1. Valves may be installed upward vertically only.
2. Install the valve with proper positioning of the flow arrow.
3. Support and align adjacent piping and the valve.
4. Install lubricated flange bolts.
5. Hand tighten, then torque the bolts using the crossover flange bolt tightening method to load the bolts evenly and eliminate concentrated stresses.
6. Valves must be mounted to ANSI flanges with conventional flat face or ring gaskets.
7. Proper centering of the gaskets is important to prevent internal leakage.
8. Do not install foot valve directly against another valve whereby the check valve discharges downstream directly into the valve.



9. Do not install the valve whereby it directly discharges downstream into a tee or elbow fitting.
10. These valves are not suggested for installation in sewage ejector piping.
11. Never lift the valve by the bronze or stainless steel trim.

### PRECAUTIONS

- Individuals performing removal and disassembly should be provided with suitable protection from possible hazardous liquids.
- Do not install foot valve directly against another valve whereby the foot valve discharges downstream directly into the valve.
- Foot valves are not recommended for installation in sewage ejector piping.
- Prior to disassembly, the valve must first be isolated from the system's (electrically isolated pump) pressure and flow.

### MAINTENANCE

1. Individuals performing removal and disassembly should be provided with suitable protection from possibly hazardous liquids.
2. Prior to disassembly, valve must first be isolated from system pressure and flow.
3. To replace screen remove two screen retainer bolts, replace the screen and reassemble retainer bolts.
4. To replace gasket, first dismantle the screen and then remove nuts of the strainer flange studs and separate the gasket from foot valve. Replace the gasket and reassemble in the reverse order.
5. To replace the valve seat, first dismantle the screen, screen flange and then remove two seat retaining counter-sunk screws and take out the valve seat. Replace the valve seat and reassemble in reverse order.
6. Lubricate bolts/nuts, hand tighten, then torque the bolts using the crossover flange bolt tightening method to load the bolts evenly, and eliminate concentrated stresses.

**WARNING:** This product operates in pipelines or with equipment that carries fluids and/or gasses at elevated temperatures and pressures. Caution should be taken to make sure that this equipment is installed correctly and inspected regularly. Caution should also be taken to protect personnel in the event of leakage of fluids or gasses.

FOOT VALVES

## NOTES:

FOOT  
VALVES



## Applications

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

# Suction Diffusers

Pressures to 790 PSIG  
Temperatures to 800°F

## FEATURES

- Filtration Down to 40 Microns
- Large Diffuser Screens
- Long and Short Neck Versions Available
- Cast and Fabricated Construction

## MATERIALS

- Cast Iron
- Carbon Steel
- Stainless Steel
- Other materials upon request

## END CONNECTIONS

- Flat Faced
- Raised Face
- Buttweld

## SIZE RANGES

- Cast-  
2" x 1¼" - 12" x 12"  
(50mm x 32mm -  
300mm x 300mm)
- Fabricated-  
Custom sizes to  
meet Requirement

## RATINGS

- ASME Class 125
- ASME Class 150
- ASME Class 300





# 125S SERIES CAST IRON SUCTION DIFFUSERS

Pressures To 200 PSIG (18.96 barg)  
Temperatures to 212°F (100°C)

- All encompassing Strainer, Flow Straightener, Elbow and Pipe Reducer for pump applications
- Direct mount to the suction side of a pump in either horizontal or vertical position
- Flow turbulence reduced through integral straightening vanes for improved pump efficiency
- All strainers supplied with removable Stainless Steel startup mesh over Stainless Steel perforated plate
- Cast Iron FF Flanges on all sizes
- All sizes complete with O-ring sealed covers with knob bolts to minimize down time
- Supporting pads for easy mounting of standard I.D. support foot
- Drain connection with plug furnished as standard

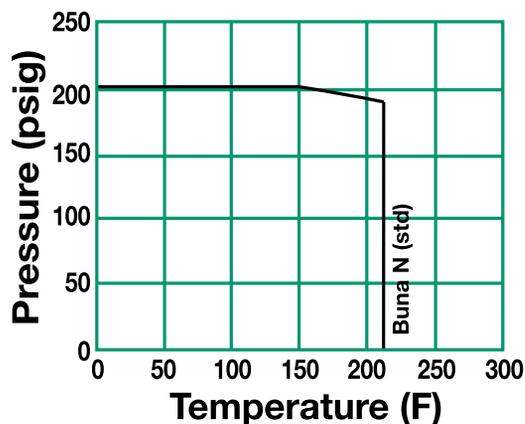
## APPLICATIONS

- Pump protection

## APPLICABLE CODES (Designed in accordance with)

- ASME B16.1

## PRESSURE/TEMPERATURE CHART



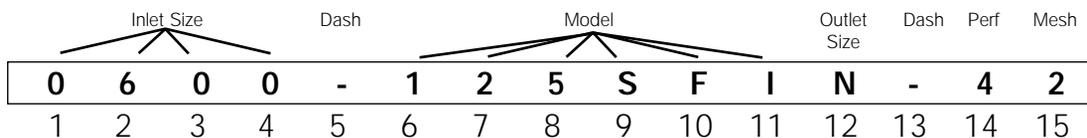
## MODELS

- 125SFI - Cast Suction Diffuser

## OPTIONS

- Other perforated screens and mesh liners
- EPDM or Viton cover O-ring
- Differential connections
- Bolted covers

## Cast Iron Suction Diffuser Ordering Code



**Inlet Size - Position 1-4**  
 0200 - 2"  
 0250 - 2½"  
 0300 - 3"  
 0400 - 4"  
 0500 - 5"  
 0600 - 6"  
 0800 - 8"  
 1000 - 10"  
 1200 - 12"

**Dash - Position 5**  
**Model - Position 6 - 11**  
 125SFI - 125# Flanged

**Outlet Size - Position 12**  
 G - 1½"  
 H - 2"  
 J - 2½"  
 K - 3"  
 M - 4"  
 N - 5"  
 P - 6"  
 Q - 8"  
 R - 10"  
 S - 12"

**Dash - Position 13**  
**Perf - Position 14**  
 4 - 1/8"  
**Mesh - Position 15**  
 2 - 20"

Cast Suction Diffusers are supplied standard with Buna N cover O-ring and 1/8" perforated screen with a removable 20 mesh start up liner.

For any variations, use the part numbering system above but clearly indicate the additional requirement.



# 125S SERIES CAST IRON SUCTION DIFFUSERS

## SPECIFICATION

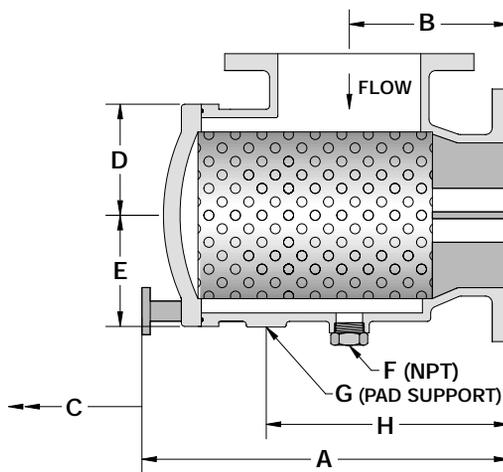
Suction Diffuser shall mount directly to the suction side of the pump in either a horizontal or vertical position. The cover shall have a Buna N O-ring and knobs to minimize down time. The Suction Diffuser shall be available with reduced outlet sizes. The Suction Diffuser shall be \_\_\_\_\_ inlet by \_\_\_\_\_ outlet with ASME Class 125 FF flanges and shall have a \_\_\_\_\_ start up mesh with a \_\_\_\_\_ perforated screen. The Suction Diffuser shall be SSI S Series.

## MATERIALS OF CONSTRUCTION

Body ..... Cast Iron A126-B  
 Cover ..... Cast Iron A126-B  
 Perforated Screen<sup>1</sup> ..... 304 SS  
 Mesh Screen ..... 304 SS  
 Knob<sup>2</sup> ..... Ductile Iron  
 O-ring<sup>1</sup> - Standard ..... Buna N  
                   Optional ..... EPDM  
                   Optional ..... Viton  
 Plug<sup>2</sup> ..... Malleable Iron

1 Recommended Spares.

2 Materials of equivalent strength may be substituted at manufacturer's option.



Connections:  
2" x 1 1/4" - 12" x 12" Flanged

## SCREEN OPENINGS

SIZE	STANDARD SCREEN	START UP LINER
All	1/8" Perf.	20 Mesh*

\*20 Mesh Liner is removable

## DIMENSIONS inches (mm) and WEIGHTS pounds (kg)

Size		A	B	C <sup>1</sup>	D	E	F	G <sup>2</sup>	H	Weight
Inlet	Outlet									
2 (50)	1 1/2 (40)	10 1/4 (260.00)	4 1/2 (114.30)	5 (127.00)	4 1/2 (114.30)	2 3/8 (55.00)	3/4 (20)	3/4 (20)	5 1/8 (151.00)	21 (9.5)
2 (50)	2 (50)	10 1/4 (260.00)	4 1/2 (114.30)	5 (127.00)	4 1/2 (114.30)	2 3/8 (55.00)	3/4 (20)	3/4 (20)	5 1/8 (151.00)	23 (10.4)
2 1/2 (65)	2 (50)	10 1/4 (276.00)	5 (127.00)	5 (127.00)	5 (127.00)	2 1/2 (64.00)	1/2 (15)	1 (25)	6 3/8 (167.00)	32 (14.5)
2 1/2 (65)	2 1/2 (65)	10 1/4 (276.00)	5 (127.00)	5 (127.00)	5 (127.00)	2 1/2 (64.00)	1/2 (15)	1 (25)	6 3/8 (167.00)	34 (15.4)
3 (80)	2 (50)	10 1/4 (260.00)	5 1/2 (139.70)	5 (127.00)	5 1/2 (139.70)	2 3/8 (55.00)	3/4 (20)	1 (25)	5 1/8 (151.00)	37 (16.8)
3 (80)	2 1/2 (65)	11 1/8 (288.00)	5 1/2 (139.70)	5 (127.00)	5 1/2 (139.70)	3 (76.00)	3/4 (20)	1 (25)	7 1/8 (179.00)	49 (22.2)
3 (80)	3 (80)	11 1/8 (288.00)	5 1/2 (139.70)	5 1/2 (133.00)	5 1/2 (139.70)	3 (76.00)	3/4 (20)	1 (25)	7 1/8 (179.00)	55 (24.9)
4 (100)	3 (80)	13 (332.00)	6 1/2 (165.10)	5 1/2 (133.00)	6 1/2 (165.10)	3 3/8 (98.00)	3/4 (20)	1 (25)	8 3/8 (223.00)	57 (25.9)
4 (100)	4 (100)	12 13/16 (325.00)	6 1/2 (165.10)	7 1/8 (181.00)	6 1/2 (165.10)	3 3/8 (98.00)	3/4 (20)	1 1/4 (32)	8 3/8 (210.10)	92 (41.7)
5 (125)	4 (100)	15 3/4 (400.00)	7 1/2 (190.50)	7 1/8 (181.00)	7 1/2 (190.50)	4 1/8 (112.70)	3/4 (20)	1 1/4 (32)	7 3/8 (194.00)	97 (44.0)
5 (125)	5 (125)	16 1/8 (411.00)	7 1/2 (190.50)	7 1/8 (181.00)	7 1/2 (190.50)	5 1/8 (141.00)	1 (25)	1 1/4 (32)	10 (254.00)	101 (45.8)
6 (150)	4 (100)	13 (332.00)	8 (203.20)	7 1/8 (181.00)	8 (203.20)	3 3/8 (98.00)	3/4 (20)	1 1/4 (32)	8 3/8 (223.00)	140 (63.5)
6 (150)	5 (125)	17 (433.00)	8 (203.20)	7 1/8 (181.00)	8 (203.20)	5 7/8 (138.00)	1 (25)	1 1/4 (32)	10 11/16 (272.00)	145 (65.8)
6 (150)	6 (150)	17 (433.00)	8 (203.20)	7 1/8 (200.00)	8 (203.20)	5 7/8 (138.00)	1 (25)	2 (50)	10 11/16 (272.00)	182 (82.6)
8 (200)	6 (150)	17 (433.00)	8 (203.20)	7 1/8 (200.00)	9 (228.60)	5 1/8 (138.00)	1 (25)	2 (50)	10 11/16 (272.00)	197 (89.4)
8 (200)	8 (200)	20 13/16 (528.00)	9 (228.60)	16 1/4 (413.00)	9 (228.60)	7 (176.50)	1 (25)	2 (50)	11 1/2 (295.00)	292 (132.5)
10 (250)	8 (200)	20 13/16 (528.00)	9 (228.60)	16 1/4 (413.00)	11 (279.40)	7 (176.50)	1 (25)	2 (50)	11 1/2 (295.00)	312 (141.5)
10 (250)	10 (250)	26 1/4 (667.00)	11 (279.40)	16 1/4 (413.00)	11 (279.40)	9 3/8 (248.00)	1 (25)	2 (50)	14 3/8 (360.00)	398 (180.5)
12 (300)	8 (200)	25 1/8 (643.00)	11 (279.40)	16 1/4 (413.00)	11 (279.40)	8 3/8 (209.00)	1 (25)	2 (50)	13 3/8 (349.00)	412 (186.9)
12 (300)	10 (250)	26 1/4 (667.00)	11 (279.40)	16 1/4 (413.00)	12 (304.80)	9 3/8 (248.00)	1 (25)	2 (50)	14 3/8 (360.00)	491 (222.7)
12 (300)	12 (300)	26 1/4 (667.00)	12 (304.80)	18 1/8 (461.00)	12 (304.80)	9 3/8 (248.00)	1 (25)	2 (50)	15 3/8 (390.00)	573 (259.9)

1. Distance required for Screen Removal.
2. Mounting Pad Support.



# 125S SERIES

## OPEN AREA RATIOS

### with Standard Perforated Screen

Opening 40%, 1/8" Diameter

Size	Nominal Outlet Area (in <sup>2</sup> )	Gross Screen Area (in <sup>2</sup> )	Free Screen Area (in <sup>2</sup> )	Open Area Ratio (OAR)
2 x 1½	1.77	25	10.00	5.6
2 x 2	3.14	36	14.40	4.6
2½ x 2	3.14	36	14.40	4.6
2½ x 2½	4.91	49	19.60	4.0
3 x 2	3.14	36	14.40	4.6
3 x 2½	4.91	49	19.60	4.0
3 x 3	7.07	60	24.00	3.4
4 x 3	7.07	111	44.40	6.3
4 x 4	12.57	105	42.00	3.3
5 x 4	12.57	111	44.40	3.5
5 x 5	19.64	176	70.40	3.6
6 x 4	12.57	111	44.40	3.5
6 x 5	19.64	245	98.00	5.0
6 x 6	28.27	245	98.00	3.5
8 x 6	28.27	245	98.00	3.5
8 x 8	50.27	428	171.20	3.4
10 x 8	50.27	428	171.20	3.4
10 x 10	78.54	665	266.00	3.4
12 x 8	50.27	428	171.20	3.4
12 x 10	78.54	665	266.00	3.4
12 x 12	113.10	739	295.60	2.6

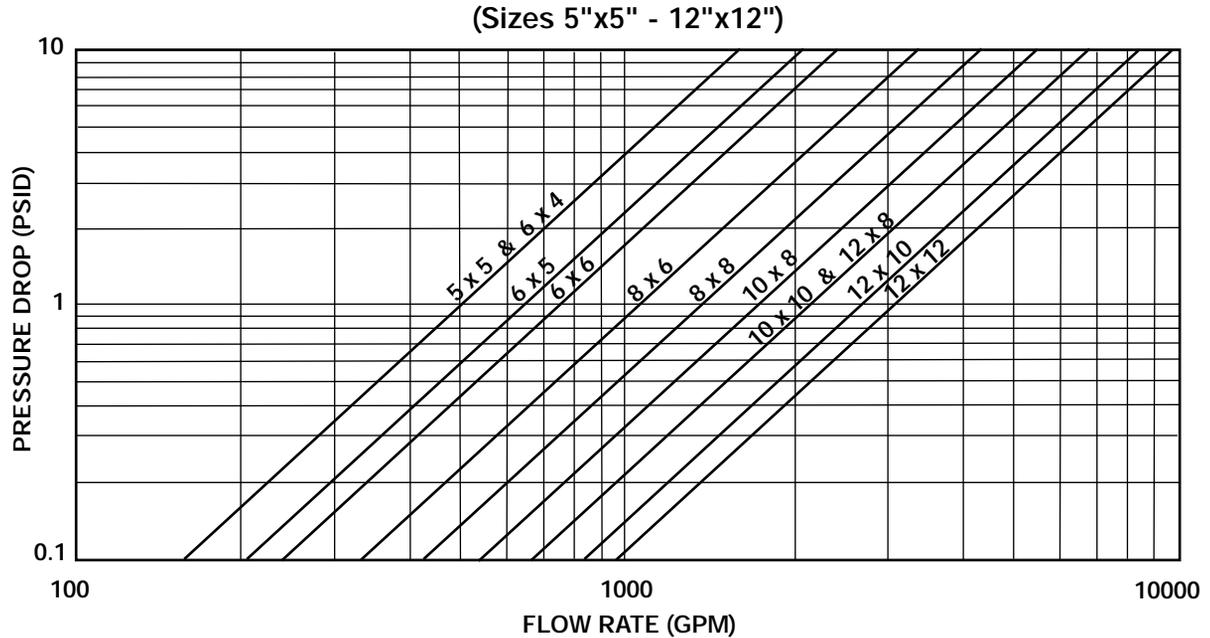
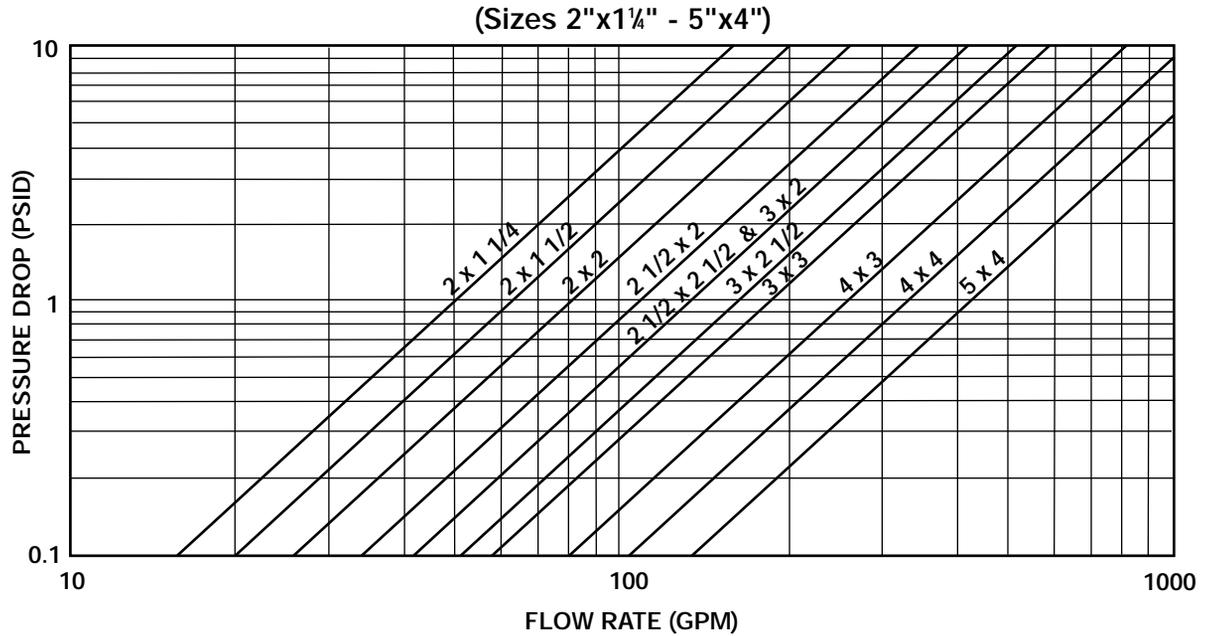
OAR = Free Screen Area divided by Nominal Outlet Area.  
 Free Screen Area = Opening % times Gross Screen Area.  
 Values shown are approximate. Contact factory for exact ratios.



# 125S SERIES

## PRESSURE DROP VS FLOW RATE

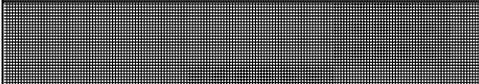
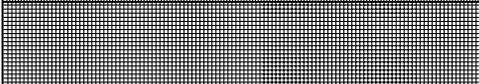
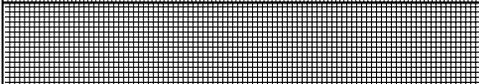
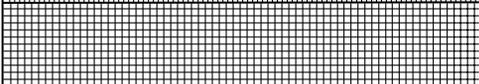
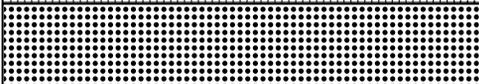
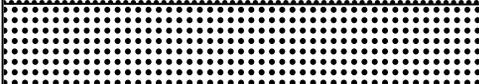
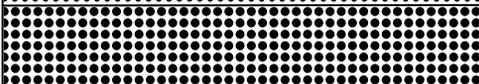
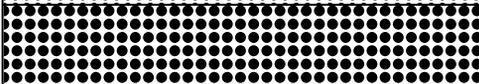
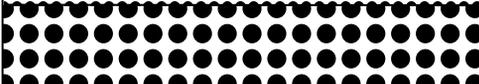
Water Service, Clean Basket, 1/32" - 1/4" Perforated Screen\*



For other viscous liquids or mesh liners, contact factory.

# PUMP PROTECTION TECHNICAL INFORMATION

# SCREEN OPENINGS

	100 Mesh - 30% O.A. 0.006" Openings
	80 Mesh - 36% O.A. 0.008" Openings
	60 Mesh - 38% O.A. 0.010" Openings
	40 Mesh - 41% O.A. 0.016" Openings
	30 Mesh - 45% O.A. 0.022" Openings
	20 Mesh - 49% O.A. 0.035" Openings
	0.027" Dia.- 23% O.A.
	0.033" Dia.- 28% O.A.
	3/64" Dia.- 36% O.A.
	1/16" Dia.- 37% O.A.
	3/32" Dia.- 39% O.A.
	1/8" Dia.- 40% O.A.
	5/32" Dia.- 58% O.A.
	3/16" Dia.- 50% O.A.
	1/4" Dia.- 40% O.A.

## FACTORS TO CONSIDER

### 1 Purpose

If the strainer is being used for protection rather than direct filtration, standard screens will suffice in most applications.

### 2 Service

With services that require extremely sturdy screens, such as high pressure/temperature applications or services with high viscosities, perforated screens without mesh liners are recommended. If a mesh liner is required to obtain a certain level of filtration, then a trapped perf/mesh/perf combination is recommended.

### 3 Filtration Level

When choosing a perf. or a mesh/perf. combination, attention should be given to ensure overstraining does not occur. As a general rule, the specified level of filtration should be no smaller than half the size of the particle to be removed. If too fine a filtration is specified, the pressure drop through the strainer will increase very rapidly, possibly causing damage to the screen.

Screen openings other than those shown above are readily available. Various mesh sizes as fine as 5 micron and perforated plate as coarse as 1/2" Dia. are in inventory.

Screens are available in a wide range of materials. Screens of carbon steel, stainless steel (304, 316), alloy 20, monel 400, hastelloy C and titanium grade 2 are in inventory.

Custom manufactured screens are available upon request. Please consult factory.

# SUCTION DIFFUSER CHECKLIST

Please take the factors listed below into account when selecting a strainer. Kindly photocopy this page and fill out the pertinent information, to your best ability, so that we can recommend a Strainer to suit your specific requirements.

- 1. Fluid to be strained \_\_\_\_\_
- 2. Flow rate \_\_\_\_\_
- 3. Density of fluid \_\_\_\_\_
- 4. Viscosity of fluid \_\_\_\_\_
- 5. Fluid working pressure \_\_\_\_\_  
Maximum pressure \_\_\_\_\_
- 6. Fluid Working Temp. \_\_\_\_\_  
Maximum Temp. \_\_\_\_\_
- 7. Preferred material of strainer construction \_\_\_\_\_
- 8. Present Pipeline size & material \_\_\_\_\_
- 9. Nature of solids to be strained out \_\_\_\_\_
- 10. Size of solids to be strained out \_\_\_\_\_  
Size of mesh or Perf. Req. \_\_\_\_\_

- 11. Clearance Limitation Above \_\_\_\_\_ Below \_\_\_\_\_  
Left side facing inlet \_\_\_\_\_ Right side facing inlet \_\_\_\_\_
- 12. Maximum pressure drop with clean screen \_\_\_\_\_
- 13. Expected cleaning frequency \_\_\_\_\_
- 14. Any other information deemed relevant \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- Name \_\_\_\_\_
- Company \_\_\_\_\_
- Address \_\_\_\_\_
- City/Town \_\_\_\_\_
- State \_\_\_\_\_ Zip Code \_\_\_\_\_
- Telephone ( \_\_\_\_\_ ) \_\_\_\_\_
- Fax ( \_\_\_\_\_ ) \_\_\_\_\_



# SUCTION DIFFUSER

## INSTALLATION AND MAINTENANCE INSTRUCTIONS

### INSTALLATION

- Ensure all machined surfaces are free of defects and that the inside of the diffuser is free of foreign objects.
- Provide for distance "C" as this dimension represents the distance required for removal of strainer.
- Mount standard support leg and foot to pad of suction diffuser.
- Align inlet and outlet pipe connections. For flanged connections, the flange bolting should be tightened gradually in a back and forth clockwise motion.
- Once installed, increase line pressure gradually and check for leak around joints.
- After piping and initial circulation is complete, remove fine mesh start-up strainer.

### MAINTENANCE

For maximum efficiency, determine the length of time it takes for the pressure drop to double that in the clean condition. Once the pressure drop reaches an unacceptable value, shut down the line, drain piping and

remove, clean and replace screen. A differential pressure gauge installed before and after diffuser in line will indicate pressure loss due to clogging and may be used to determine when cleaning is required.

# TRIPLE DUTY VALVE

## INSTALLATION AND MAINTENANCE INSTRUCTIONS

### INSTALLATION

- Ensure all machined surfaces are free of defects and that the inside of the valve is free of foreign objects.
- The valve should be installed on the discharge side of the pump with the flow arrow pointed away from the pump discharge.
- Minimum recommended space for pump sizes 2" through 6" is 12". Minimum recommended space for pump sizes 8" through 14" is 24".
- It is not recommended to mount a valve directly to the pump.
- Sufficient clearance should be left around the valve for removal and/or repair.
- Valve should be mounted with the stem pointing up to facilitate proper seating of the valve disc.
- When connecting the valve to the line be sure that the flanges are the same – flat face to flat face. Flat face flanges require full face gaskets. The specified face-to-face dimension of the valve is approximate due to machining tolerances. Allow adjustment in prefabricated piping or request certified dimensions.
- Check to see that flange gaskets are properly positioned before tightening the bolts. Tighten bolts gradually in a back and forth clockwise motion.
- Once installed, "crack" the valve open before starting the pump.
- Gradually adjust the stem until the proper flow rate is reached. Tapped ports are provided on the valve to insert equipment to measure the valve pressure differential.

### MAINTENANCE - PACKING REPLACEMENT

Before starting make a note of the position of the stem indicator.

Shut down the pump and close the isolation valves.

Open the valve completely so that the stem back seats against the inside of the yoke cover. Loosen the two nuts holding the flanged gland.

Remove the old packing and clean out the packing box.

Place a set (usually three or four) of the new packing rings around the stem. Be sure to stagger the 45 degree split in

the packing rings. Press packing rings into the packing box.

Replace the flanged gland and nuts. Do not over tighten or the stem may seize.

Adjust the valve stem indicator to its original position. If there is any leakage around the packing tighten both gland nuts a 1/4 turn at a time until the leakage stops. It is very important that the gland nuts be tightened evenly.

For all other maintenance please contact the factory.

**WARNING:** *This product operates in pipelines or with equipment that carries fluids and/or gasses at elevated temperatures and pressures. Caution should be taken to make sure that this equipment is installed correctly and inspected regularly. Caution should also be taken to protect personnel from fluid or gas leakage.*





# 125T SERIES CAST IRON TRIPLE DUTY VALVES

Pressures to 200 PSIG (13.8 barg)  
Temperatures to 212°F (100°C)

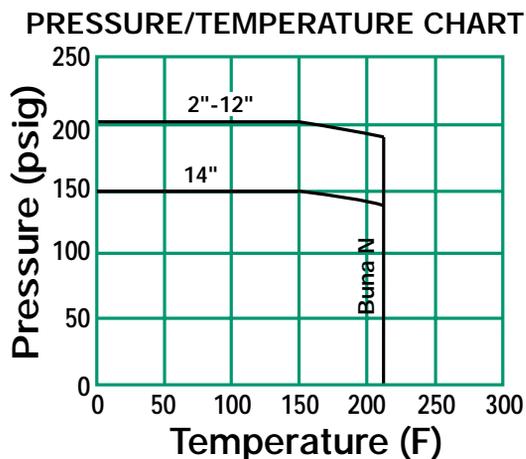
- Triple function includes a spring loaded silent check valve, balancing valve and shutoff valve to minimize cost and reduce installation time
- Operates automatically and silently
- Center guided soft seal disc ensures leak free performance
- Spring loaded Buna N disc provides no impact shutoff and prevents water hammer upon closing
- Graduated position indicator provides accurate visual check of valve position
- Standard handwheel for ease of operation
- Cracking pressure of 1/4 PSI
- Drain and differential connections with plug are furnished as standard

### APPLICATIONS

- Pump protection

### APPLICABLE CODES (Designed in accordance with)

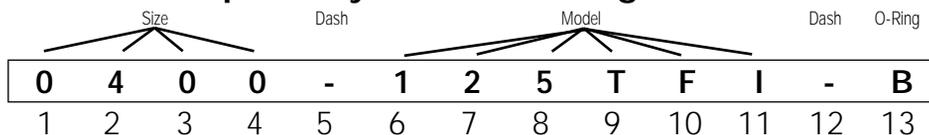
- ASME B16.1



### MODELS

- 125TFI - Cast Iron Triple Duty Valve

### Triple Duty Valve Ordering Code



**Size - Position 1-4**

0200 - 2"
0250 - 2½"
0300 - 3"
0400 - 4"
0500 - 5"
0600 - 6"
0800 - 8"
1000 - 10"
1200 - 12"

**Dash - Position 5**

**Model - Position 6 -11**

125TFI - Triple Duty Valve
----------------------------

**Dash - Position 12**

**O-Ring - Position 13**

B - Buna N
------------

For any variations, use the part numbering system above but clearly indicate the additional requirement.

### MAXIMUM RATED FLOW COEFFICIENTS (Cv)\*

Valve Size									
2	2-1/2	3	4	5	6	8	10	12	14
83	129	189	335	529	766	1372	2154	3106	4016

\* Maximum Cv rating is at 100% of stem rise.



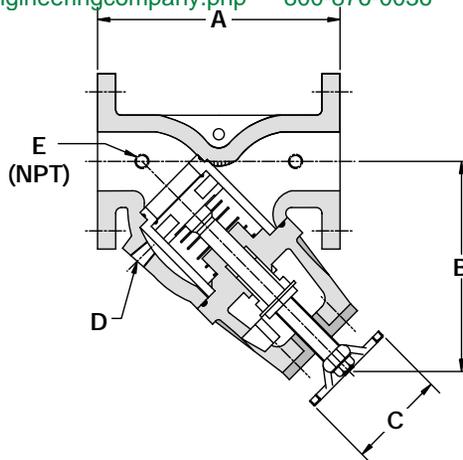
# 125T SERIES CAST IRON TRIPLE DUTY VALVES

## SPECIFICATION

Triple Duty Valve shall install in a straight run of pipe and perform as a center guided silent check valve, shutoff valve and balancing valve. The valve shall have \_\_\_\_\_ psi cracking pressure. The valve shall have Cast Iron ASME Class 125 FF flanges. The seat shall have Buna N O-ring seals. The valve shall be an inlet size of \_\_\_\_\_ and a Cv rating of \_\_\_\_\_. The Triple Duty Valve shall be SSI T Series.

## MATERIALS OF CONSTRUCTION

Body & Yoke .....Cast Iron A126-B  
 Disc Guide .....Ductile Iron/Nickel Plate  
 Disc .....Ductile Iron  
 Packing Gland .....Ductile Iron  
 Packing .....Graphite  
 Spring .....Stainless Steel  
 Stem.....Stainless Steel  
 Seat Seal .....Buna N  
 Disc Seal .....Buna N



Connections:  
2" - 14" FF Flanged

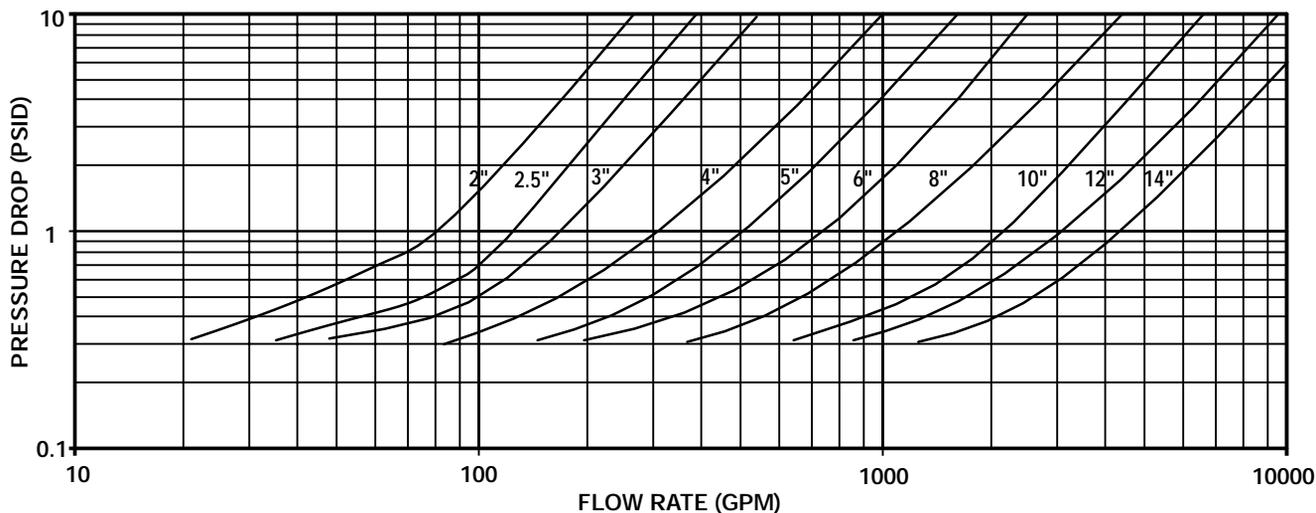
## DIMENSIONS inches (mm) AND WEIGHTS pounds (kg)

Size	A	B	C	D	E	Weight
2 (50)	8 <sup>3</sup> / <sub>8</sub> (213)	9 <sup>1</sup> / <sub>8</sub> (244)	6 <sup>5</sup> / <sub>8</sub> (159)	1/2 (15)	1/4 (8)	34 (15)
2 <sup>1</sup> / <sub>2</sub> (65)	9 <sup>13</sup> / <sub>8</sub> (250)	10 (254)	6 <sup>5</sup> / <sub>8</sub> (159)	1/2 (15)	1/4 (8)	40 (18)
3 (80)	10 (254)	10 <sup>1</sup> / <sub>8</sub> (257)	9 <sup>1</sup> / <sub>8</sub> (238)	1/2 (15)	1/4 (8)	50 (23)
4 (100)	14 <sup>1</sup> / <sub>2</sub> (368)	12 <sup>5</sup> / <sub>8</sub> (321)	9 <sup>1</sup> / <sub>8</sub> (238)	1/2 (15)	1/4 (8)	100 (45)
5 (125)	16 (407)	16 <sup>3</sup> / <sub>8</sub> (416)	11 (279)	1/2 (15)	1/4 (8)	155 (70)
6 (150)	18 (457)	17 <sup>1</sup> / <sub>2</sub> (444)	11 (279)	3/4 (20)	1/4 (8)	200 (91)
8 (200)	21 <sup>1</sup> / <sub>2</sub> (546)	18 <sup>1</sup> / <sub>2</sub> (470)	12 <sup>1</sup> / <sub>2</sub> (317)	3/4 (20)	1/4 (8)	350 (159)
10 (250)	25 <sup>1</sup> / <sub>2</sub> (648)	21 <sup>1</sup> / <sub>8</sub> (552)	12 <sup>1</sup> / <sub>2</sub> (317)	1 (25)	1/4 (8)	480 (218)
12 (300)	30 (762)	24 <sup>1</sup> / <sub>2</sub> (622)	12 <sup>1</sup> / <sub>2</sub> (317)	1 (25)	1/4 (8)	660 (299)
14 (350)	30 <sup>3</sup> / <sub>8</sub> (771)	24 <sup>1</sup> / <sub>2</sub> (622)	12 <sup>1</sup> / <sub>2</sub> (317)	1 (25)	1/4 (8)	790 (359)

Dimensions and Weights are approximate. Contact factory for Certified Drawings.  
 Dimensions shown are in full open position.

## PRESSURE DROP VS FLOW RATE

(Sizes 2" - 14")



# PUMP PROTECTION TECHNICAL INFORMATION

# SUCTION DIFFUSER

## INSTALLATION AND MAINTENANCE INSTRUCTIONS

### INSTALLATION

- Ensure all machined surfaces are free of defects and that the inside of the diffuser is free of foreign objects.
- Provide for distance "C" as this dimension represents the distance required for removal of strainer.
- Mount standard support leg and foot to pad of suction diffuser.
- Align inlet and outlet pipe connections. For flanged connections, the flange bolting should be tightened gradually in a back and forth clockwise motion.
- Once installed, increase line pressure gradually and check for leak around joints.
- After piping and initial circulation is complete, remove fine mesh start-up strainer.

### MAINTENANCE

For maximum efficiency, determine the length of time it takes for the pressure drop to double that in the clean condition. Once the pressure drop reaches an unacceptable value, shut down the line, drain piping and

remove, clean and replace screen. A differential pressure gauge installed before and after diffuser in line will indicate pressure loss due to clogging and may be used to determine when cleaning is required.

# TRIPLE DUTY VALVE

## INSTALLATION AND MAINTENANCE INSTRUCTIONS

### INSTALLATION

- Ensure all machined surfaces are free of defects and that the inside of the valve is free of foreign objects.
- The valve should be installed on the discharge side of the pump with the flow arrow pointed away from the pump discharge.
- Minimum recommended space for pump sizes 2" through 6" is 12". Minimum recommended space for pump sizes 8" through 14" is 24".
- It is not recommended to mount a valve directly to the pump.
- Sufficient clearance should be left around the valve for removal and/or repair.
- Valve should be mounted with the stem pointing up to facilitate proper seating of the valve disc.
- When connecting the valve to the line be sure that the flanges are the same – flat face to flat face. Flat face flanges require full face gaskets. The specified face-to-face dimension of the valve is approximate due to machining tolerances. Allow adjustment in prefabricated piping or request certified dimensions.
- Check to see that flange gaskets are properly positioned before tightening the bolts. Tighten bolts gradually in a back and forth clockwise motion.
- Once installed, "crack" the valve open before starting the pump.
- Gradually adjust the stem until the proper flow rate is reached. Tapped ports are provided on the valve to insert equipment to measure the valve pressure differential.

### MAINTENANCE - PACKING REPLACEMENT

Before starting make a note of the position of the stem indicator.

Shut down the pump and close the isolation valves.

Open the valve completely so that the stem back seats against the inside of the yoke cover. Loosen the two nuts holding the flanged gland.

Remove the old packing and clean out the packing box.

Place a set (usually three or four) of the new packing rings around the stem. Be sure to stagger the 45 degree split in

the packing rings. Press packing rings into the packing box.

Replace the flanged gland and nuts. Do not over tighten or the stem may seize.

Adjust the valve stem indicator to its original position. If there is any leakage around the packing tighten both gland nuts a 1/4 turn at a time until the leakage stops. It is very important that the gland nuts be tightened evenly.

For all other maintenance please contact the factory.

**WARNING:** *This product operates in pipelines or with equipment that carries fluids and/or gasses at elevated temperatures and pressures. Caution should be taken to make sure that this equipment is installed correctly and inspected regularly. Caution should also be taken to protect personnel from fluid or gas leakage.*



## Applications

- Liquid Service
- Process Industry
- Power Industry
- Chemical Industry
- Metals & Mining
- Water & Waste Water
- Pulp & Paper
- Oil & Gas

# Wafer Silent Check Valves

Pressures to 740 PSIG  
Temperatures to 400°F

## FEATURES

- Silent Non-slam Closure
- Wafer Body Style
- Reduces surge and water hammer

## MATERIALS

- Cast Iron Body;  
Bronze & Stainless Steel Disc
- Cast Steel Body;  
Stainless Steel Disc
- Stainless Steel;  
Stainless Steel Disc

WAFER SILENT  
CHECK VALVES



## END CONNECTIONS

- Wafer Flat Faced
- Wafer Raised Face

## SIZES

- 2" (50mm)  
up to 12" (300mm)

## RATINGS

- ASME Class 125
- ASME Class 150
- ASME Class 300

# 125WC SERIES CAST IRON WAFER SILENT CHECK VALVES

Pressures to 200 PSIG (13.8 barg)  
Temperatures to 300°F (149°C)



## APPLICATIONS

- Liquid Service
- Process Industry
- Power Industry
- Chemical Industry
- Oil & Gas
- Pulp & Paper
- Metal & Mining
- Water & Waste

- ASME Class 125 rated check valves
- Designed to reduce surge and water hammer
- Silent, non-slam closure
- Center guided at both ends to prevent binding and cocking
- Compact face to face length for space saving
- Wafer body style fits between FF or RF flanges

## MODELS

- 125WCIB - Cast Iron Body, Bronze Disc
- 125WCIT - Cast Iron Body, Stainless Steel Disc

## OPTIONS *(Consult factory)*

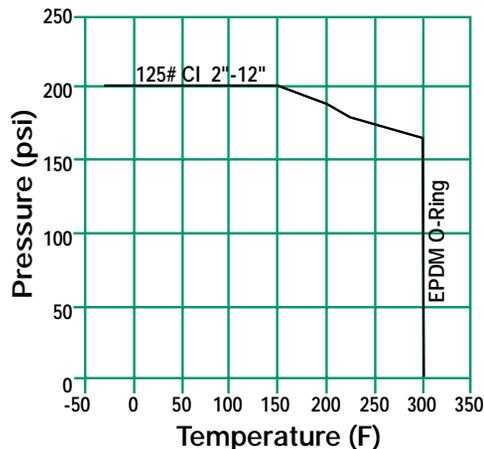
- EPDM Seats
- Other Spring Material
- Heavier or Lighter Springs

## APPLICABLE CODES

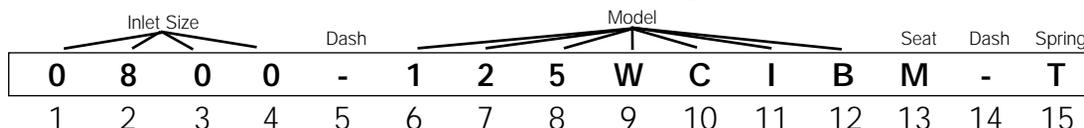
- ASME Sec VIII and B16.1 Bodies
- API 598

Canadian Registration - OC10274.5C

**PRESSURE/TEMPERATURE CHART  
ASME 16.1**



## 125WC Series Ordering Code



<b>Inlet Size</b> - Position 1 - 4
0200 - 2"
0250 - 2½"
0300 - 3"
0400 - 4"
0500 - 5"
0600 - 6"
0800 - 8"
1000 - 10"
1200 - 12"

<b>Dash</b> - Position 5
<b>Model</b> - Position 6 - 12
125WCIB - Cast Iron Body, Bronze Disc
125WCIT - Cast Iron Body, Stainless Steel Disc
<b>Seat</b> - Position 13
M - Metal
<b>Dash</b> - Position 14
<b>Spring</b> - Position 15
T - Stainless Steel

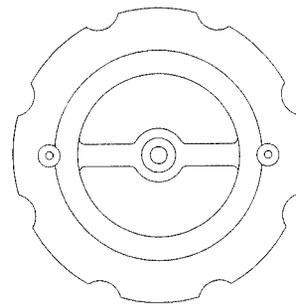
WAFER SILENT  
CHECK VALVES



# 125WC SERIES CAST IRON WAFER SILENT CHECK VALVES

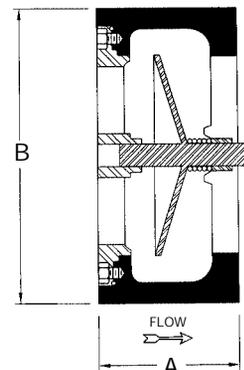
## SPECIFICATION

Check Valve shall be single disc design with Cast Iron wafer body style designed to ASME Sec. VIII and ASME B16.1. The check valve shall have a metal to metal seat with bronze or SS discs and be center guided from both ends. The check valve shall be ASME Class 125 rated. The spring shall be 316SS. The check valve shall be SSI 125WC Cast Iron Series.



## MATERIALS OF CONSTRUCTION

Body .....A126-B Cast Iron  
 Discs .....Al/Bz B148 C954 or 316SS A351-CF8M  
 Seat .....Bronze or SS  
 Spring .....316SS  
 O-Ring .....EPDM



## DIMENSIONS inches (mm) AND WEIGHTS pounds (kg)

Size	A	B*	QTY	Stud Selection		Weight
				Dia.	Length	
2 (50)	2 <sup>11</sup> / <sub>16</sub> (68)	4 <sup>1</sup> / <sub>8</sub> (105)	4	<sup>5</sup> / <sub>8</sub> (16)	6 <sup>1</sup> / <sub>2</sub> (165)	5 (2.3)
2 <sup>1</sup> / <sub>2</sub> (65)	2 <sup>7</sup> / <sub>8</sub> (73)	4 <sup>7</sup> / <sub>8</sub> (124)	4	<sup>5</sup> / <sub>8</sub> (16)	6 <sup>3</sup> / <sub>4</sub> (171)	8 (3.6)
3 (80)	3 <sup>3</sup> / <sub>16</sub> (81)	5 <sup>3</sup> / <sub>8</sub> (137)	4	<sup>5</sup> / <sub>8</sub> (16)	7 (178)	10 (4.5)
4 (100)	4 (103)	6 <sup>7</sup> / <sub>8</sub> (175)	8	<sup>5</sup> / <sub>8</sub> (16)	8 (203)	19 (8.6)
5 (125)	4 <sup>5</sup> / <sub>8</sub> (118)	7 <sup>3</sup> / <sub>4</sub> (197)	8	<sup>3</sup> / <sub>4</sub> (19)	8 <sup>3</sup> / <sub>4</sub> (222)	30 (13.6)
6 (150)	5 <sup>9</sup> / <sub>16</sub> (142)	8 <sup>3</sup> / <sub>4</sub> (222)	8	<sup>3</sup> / <sub>4</sub> (19)	10 <sup>1</sup> / <sub>2</sub> (267)	42 (19.1)
8 (200)	6 <sup>1</sup> / <sub>2</sub> (165)	11 (279)	8	<sup>3</sup> / <sub>4</sub> (19)	11 <sup>1</sup> / <sub>4</sub> (286)	87 (39.5)
10 (250)	8 <sup>7</sup> / <sub>32</sub> (209)	13 <sup>3</sup> / <sub>8</sub> (340)	12	<sup>7</sup> / <sub>8</sub> (22)	12 <sup>1</sup> / <sub>4</sub> (311)	146 (66.2)
12 (300)	11 <sup>1</sup> / <sub>4</sub> (286)	16 <sup>1</sup> / <sub>8</sub> (410)	12	<sup>7</sup> / <sub>8</sub> (22)	16 <sup>1</sup> / <sub>2</sub> (419)	304 (137.9)

\*Add the "B" dimension and the diameter of the stud to achieve the ANSI B16.5 Bolt Hole Circle Diameter

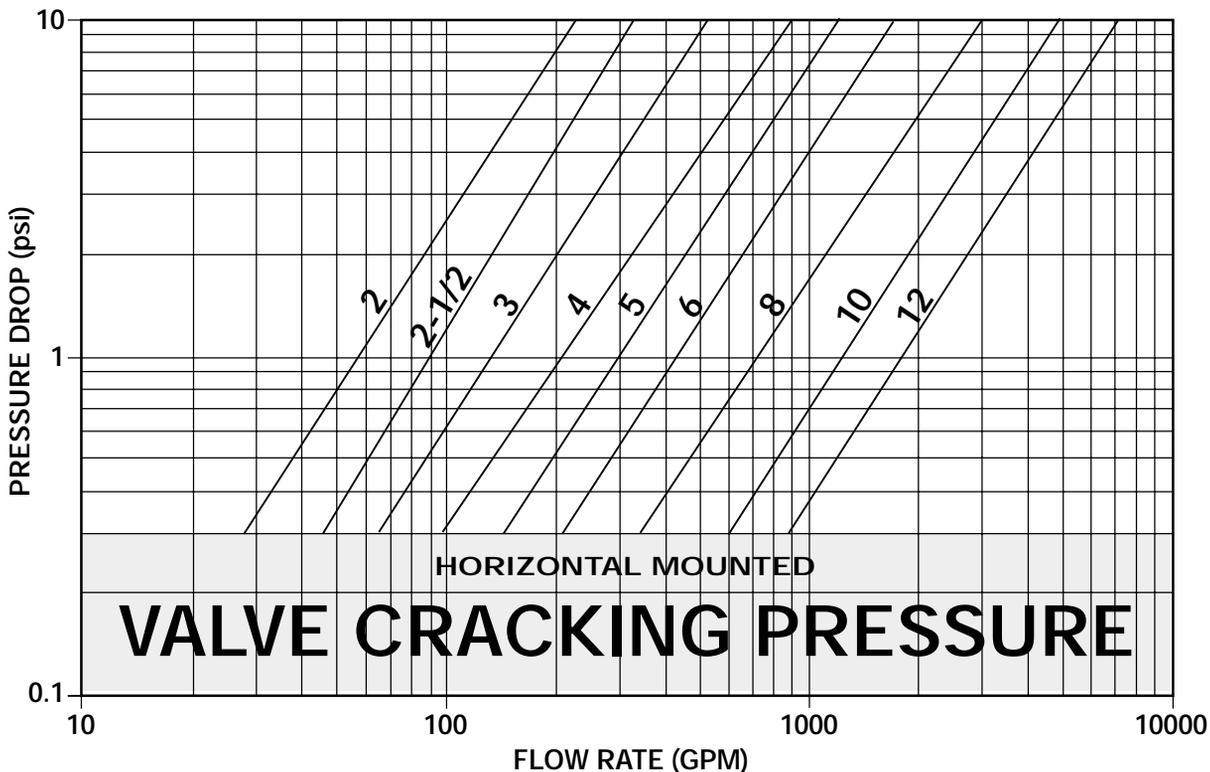
- Connections: 2" to 12" Flanged FF
- Seats: 2" to 12"  
Bronze or Stainless Steel
- Cracking Pressure:  
Horizontal Mounting - .3 psid  
Vertical Mounting - .75 to 1.25 psid

WAFER SILENT CHECK VALVES



# 125WC SERIES WAFER SILENT CHECK VALVE

## PRESSURE DROP VS FLOW RATE (Sizes 2" - 12")



WAFER SILENT  
CHECK VALVES

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

**Installation Note:**

1. For correct installation and maintenance please see our I&M manual.
2. Vertical installation (downward flow) – Consult factory.
3. Always use Strainers in upstream piping.
4. Not recommended for Steam Service

**Cv Values**

Size (inches)	2	2½	3	4	5	6	8	10	12
Min Cv (@ .3 PSID)	51	84	119	179	265	383	639	1114	1604
Cv (@ 1 PSID)	58	90	134	210	300	430	740	1250	1800
Max Cv (@ 10 PSID)	73	106	168	285	391	548	964	1581	2277



## NOTES:

WAFER SILENT  
CHECK VALVES



# 150WC SERIES

## CAST STEEL AND STAINLESS STEEL WAFER SILENT CHECK VALVES

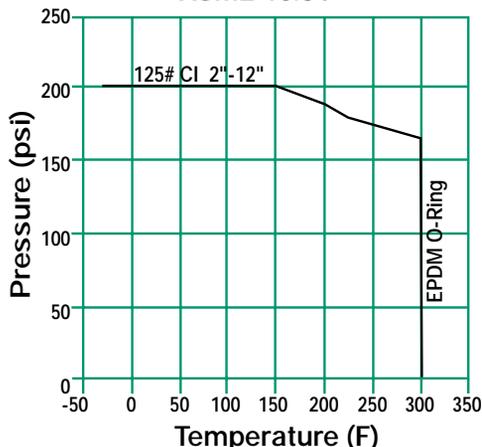
Pressures to 285 PSIG (19.7 barg)  
Temperatures to 400°F (204°C)

- ASME Class 150 rated check valves
- Designed to reduce surge and Water Hammer
- Silent, non-slam closure
- Center guided at both ends to prevent binding and cocking
- Compact face to face length for space saving
- Wafer body style fits between FF or RF flanges
- Dual rating 150# and 300# in sizes 2" through 6"

### APPLICATIONS

- Liquid Service
- Process Industry
- Power Industry
- Chemical Industry
- Oil & Gas
- Pulp & Paper
- Metal & Mining
- Water & Waste

**PRESSURE/TEMPERATURE CHART**  
ASME 16.34



### MODELS

- 150WCCT – Cast Steel Body, Stainless Steel Disc
- 150WCST – Stainless Steel Body, Stainless Steel Disc

### OPTIONS *(Consult factory)*

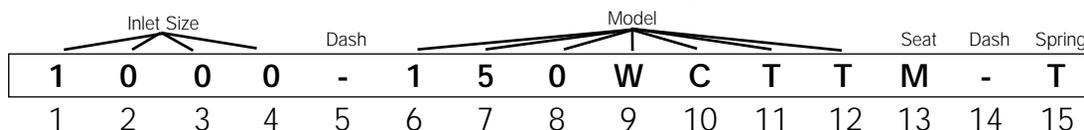
- Viton Seats
- Other Spring Material
- Heavier or Lighter Springs

### APPLICABLE CODES

- ASME Sec. VIII and B16.34 Bodies
- API 598

Canadian Registration - OC10274.5C

## 150WC Series Ordering Code



**Inlet Size\*** - Position 1 - 4  
2" through 6" sizes use 300WC Series  
0800 - 8"  
1000 - 10"  
1200 - 12"

**Dash** - Position 5

**Model** - Position 6 - 12  
150WCCT - Cast Steel Body, Stainless Steel Disc  
150WCST - Stainless Steel Body, Stainless Steel Disc

**Seat** - Position 13  
M - Metal

**Dash** - Position 14

**Spring** - Position 15  
T - Stainless Steel

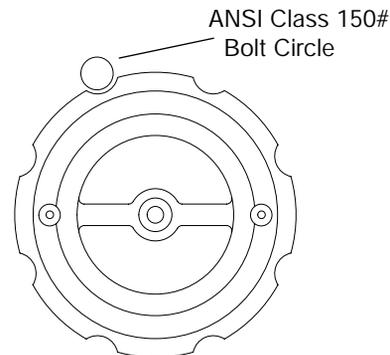
WAFER SILENT  
CHECK VALVES



# 150WC SERIES CAST STEEL AND STAINLESS STEEL WAFER SILENT CHECK VALVES

## SPECIFICATION

Check Valve shall be single disc design with Cast Steel or Stainless Steel wafer body style designed to ASME Sec. VIII and ASME B16.34 and API 594. The check valve shall have a SS seat and disc and be center guided from both ends. The check valve shall be ANSI 150 PSIG rated. The spring shall be 316SS. The check valve shall be SSI 150WC Cast Steel or Stainless Steel Series.



## MATERIALS OF CONSTRUCTION

Part	Carbon Steel	Stainless Steel
Body	A216-WCB	A351-CF8M
Discs	A351-CF8M	A351-CF8M
Seat	A351-CF8M	A351-CF8M
Spring	316SS	316SS
O-Ring	Viton	Viton

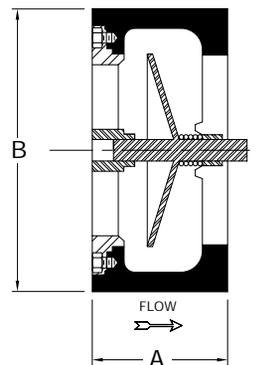
## DIMENSIONS inches (mm) AND WEIGHTS pounds (kg)

Size	A	B*	QTY	Stud Selection		Weight
				Dia.	Length	
2' (50)	Use 2" 300WC on page 205					
2½' (65)	Use 2½" 300WC on page 205					
3' (80)	Use 3" 300WC on page 205					
4' (100)	Use 4" 300WC on page 205					
5' (125)	Use 5" 300WC on page 205					
6' (150)	Use 6" 300WC on page 205					
8 (200)	6½ (165)	11 (279)	8	¾ (19)	11¼ (286)	79 (35.8)
10 (250)	8¼ (209)	13¾ (340)	12	7/8 (22)	12¼ (57)	147 (66.7)
12 (300)	11¼ (286)	16½ (410)	12	7/8 (22)	16½ (165)	280 (127)

1. Sizes 2" through 6" 150WC and 300WC are interchangeable, use 300WC for all applications in these sizes.

\* Add the "B" dimension and the diameter of the stud to achieve the ANSI B16.5 Bolt Hole Circle Diameter.

Dimensions are subject to change. Consult factory for certified drawings when required.



Connections: 8" to 12"  
Wafer Flanged RF\*

\* For sizes 2"-6" use 300WC on page 205

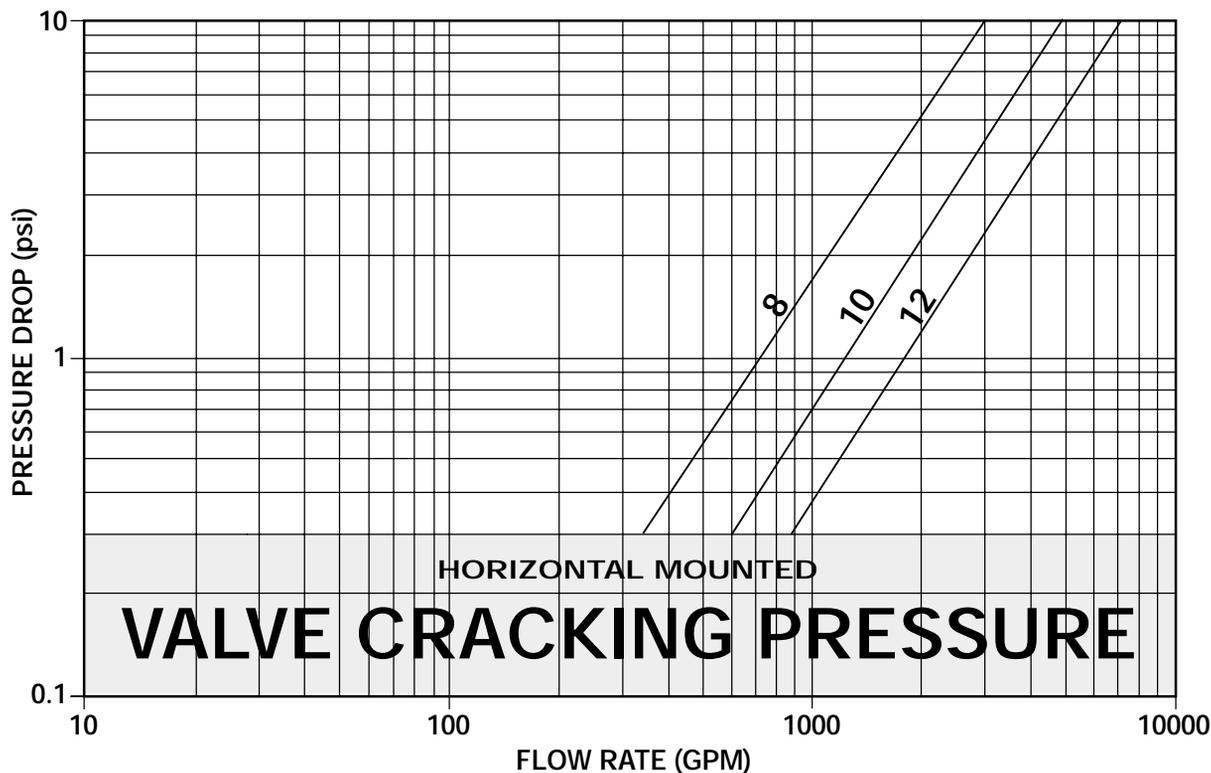
Seats: 8" to 12" Stainless Steel

Cracking Pressure:  
Horizontal Mounting - .3 psid  
Vertical Mounting - .75 to 1.25 psid

WAFER SILENT CHECK VALVES

# 150WC SERIES CAST STEEL & STAINLESS STEEL WAFER SILENT CHECK VALVES

## PRESSURE DROP VS FLOW RATE (Sizes 8" - 12")



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

**Installation Note:**

1. For correct installation and maintenance please see our I&M manual.
2. Vertical installation (downward flow) – Consult factory.
3. Always use Strainers in upstream piping.
4. Not recommended for Steam Service.

**Cv Values**

Size (inches)	8	10	12
Min Cv (.3 PSID)	639	1114	1604
Cv (@ 1 PSID)	740	1250	1800
Max Cv (@ 10 PSID)	1297	1992	2593



## NOTES:

WAFER SILENT  
CHECK VALVES

# 300WC SERIES CAST STEEL AND STAINLESS STEEL WAFER SILENT CHECK VALVES

Pressures to 740 PSIG (51 barg)  
Temperatures to 400°F (204°C)



## APPLICATIONS

- Liquid Service
- Process Industry
- Power Industry
- Chemical Industry
- Oil & Gas
- Pulp & Paper
- Metal & Mining
- Water & Waste

- ASME Class 300 rated check valves
- Designed to reduce surge and Water Hammer
- Silent, non-slam closure
- Center guided at both ends to prevent binding and cocking
- Compact face to face length for space saving
- Wafer body style fits between FF or RF flanges
- Dual rating 150# and 300# in sizes 2" through 6"

## MODELS

- 300WCCT – Cast Steel Body, Stainless Steel Disc
- 300WCTT – Stainless Steel Body, Stainless Steel Disc

## OPTIONS *(Consult factory)*

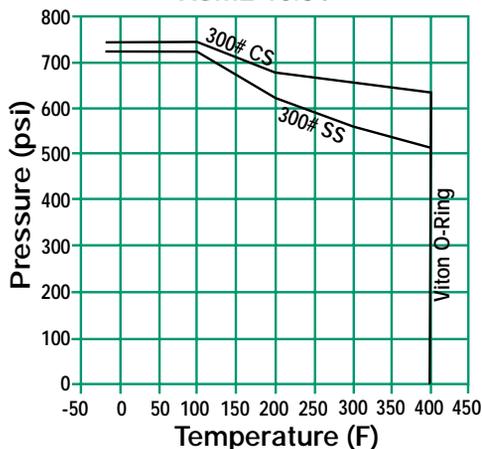
- Viton Seats
- Other Spring Material
- Heavier or Lighter Springs

## APPLICABLE CODES

- ASME Sec. VIII and B16.34 Bodies
- API 598

Canadian Registration - OC10274.5C

**PRESSURE/TEMPERATURE CHART  
ASME 16.34**



## 300WC Series Ordering Code

Inlet Size				Dash	Model								Seat	Dash	Spring
0	3	0	0	-	3	0	0	W	C	C	T	M	-	T	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	

### Inlet Size\* - Position 1 - 4

- 0200 - 2"
- 0250 - 2½"
- 0300 - 3"
- 0400 - 4"
- 0500 - 5"
- 0600 - 6"

### Dash - Position 5

### Model - Position 6 - 12

- 300WCCT - Cast Steel Body, Stainless Steel Disc
- 300WCTT - Stainless Steel Body, Stainless Steel Disc

### Seat - Position 13

- M - Metal

### Dash - Position 14

### Spring - Position 15

- T - Stainless Steel

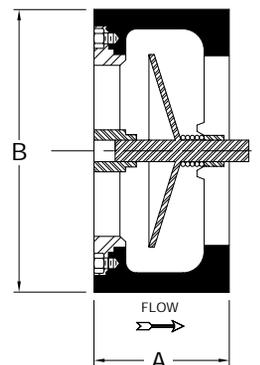
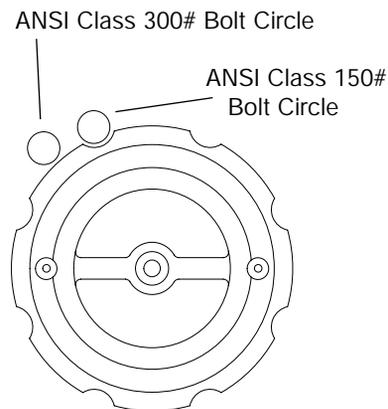
# 300WC SERIES CAST STEEL AND STAINLESS STEEL WAFER SILENT CHECK VALVES

## SPECIFICATION

Check Valve shall be single disc design with Cast Steel or Stainless Steel wafer body style designed to ASME Sec. VIII and ASME B16.34. The check valve shall have a SS seat and disc and be center guided from both ends. The check valve shall be ANSI 300 PSIG rated. The spring shall be 316SS. The check valve shall be SSI 300WC Cast Steel or Stainless Steel Series.

## MATERIALS OF CONSTRUCTION

Part	Carbon Steel	Stainless Steel
Body	A216-WCB	A351-CF8M
Discs	A351-CF8M	A351-CF8M
Seat	A351-CF8M	A351-CF8M
Spring	316SS	316SS
O-Ring	Viton	Viton



## DIMENSIONS inches (mm) AND WEIGHTS pounds (kg)

Size		A	B *	Stud Selection		Length	Weight
				QTY	Dia		
2 (50)	150	2 <sup>5</sup> / <sub>8</sub> (67)	4 <sup>1</sup> / <sub>8</sub> (105)	4	<sup>5</sup> / <sub>8</sub> (16)	6 <sup>1</sup> / <sub>4</sub> (159)	5 (2.3)
	300	2 <sup>5</sup> / <sub>8</sub> (67)	4 <sup>3</sup> / <sub>8</sub> (111)	8	<sup>5</sup> / <sub>8</sub> (16)	6 <sup>1</sup> / <sub>2</sub> (165)	5 (2.3)
2 <sup>1</sup> / <sub>2</sub> (65)	150	2 <sup>7</sup> / <sub>8</sub> (73)	4 <sup>7</sup> / <sub>8</sub> (124)	4	<sup>5</sup> / <sub>8</sub> (16)	6 <sup>3</sup> / <sub>4</sub> (171)	7 (3.2)
	300	2 <sup>7</sup> / <sub>8</sub> (73)	5 <sup>1</sup> / <sub>8</sub> (130)	8	<sup>3</sup> / <sub>4</sub> (19)	7 <sup>1</sup> / <sub>4</sub> (184)	7 (3.2)
3 (80)	150	3 <sup>1</sup> / <sub>8</sub> (79)	5 <sup>7</sup> / <sub>8</sub> (137)	4	<sup>5</sup> / <sub>8</sub> (16)	7 (178)	11 (5.0)
	300	3 <sup>1</sup> / <sub>8</sub> (79)	5 <sup>7</sup> / <sub>8</sub> (149)	8	<sup>3</sup> / <sub>4</sub> (19)	7 <sup>3</sup> / <sub>4</sub> (197)	11 (5.0)
4 (100)	150	4 (102)	6 <sup>7</sup> / <sub>8</sub> (175)	8	<sup>5</sup> / <sub>8</sub> (16)	8 (2.3)	20 (9.1)
	300	4 (102)	7 <sup>1</sup> / <sub>8</sub> (181)	8	<sup>3</sup> / <sub>4</sub> (19)	9 (229)	20 (9.1)
5 (125)	150	4 <sup>5</sup> / <sub>8</sub> (117)	7 <sup>3</sup> / <sub>4</sub> (197)	8	<sup>3</sup> / <sub>4</sub> (19)	8.5 (216)	34 (15.4)
	300	4 <sup>5</sup> / <sub>8</sub> (117)	8 <sup>1</sup> / <sub>2</sub> (216)	8	<sup>3</sup> / <sub>4</sub> (19)	9 <sup>3</sup> / <sub>4</sub> (247)	34 (15.4)
6 (150)	150	5 <sup>9</sup> / <sub>16</sub> (141)	8 <sup>3</sup> / <sub>4</sub> (222)	8	<sup>3</sup> / <sub>4</sub> (19)	10 (254)	42 (19.1)
	300	5 <sup>9</sup> / <sub>16</sub> (141)	9 <sup>7</sup> / <sub>8</sub> (251)	12	<sup>3</sup> / <sub>4</sub> (19)	10 <sup>3</sup> / <sub>4</sub> (273)	42 (19.1)

\* Add the "B" dimension and the diameter of the stud to achieve the ANSI B16.5 Bolt Hole Circle Diameter.

WAFER SILENT CHECK VALVES

Connections: 2" to 6"  
Wafer Flanged RF\*

\* Sizes 2"-6" are dual rated for 150# and 300# applications and fit between both flanges.

Seats: 2" to 6" Stainless Steel

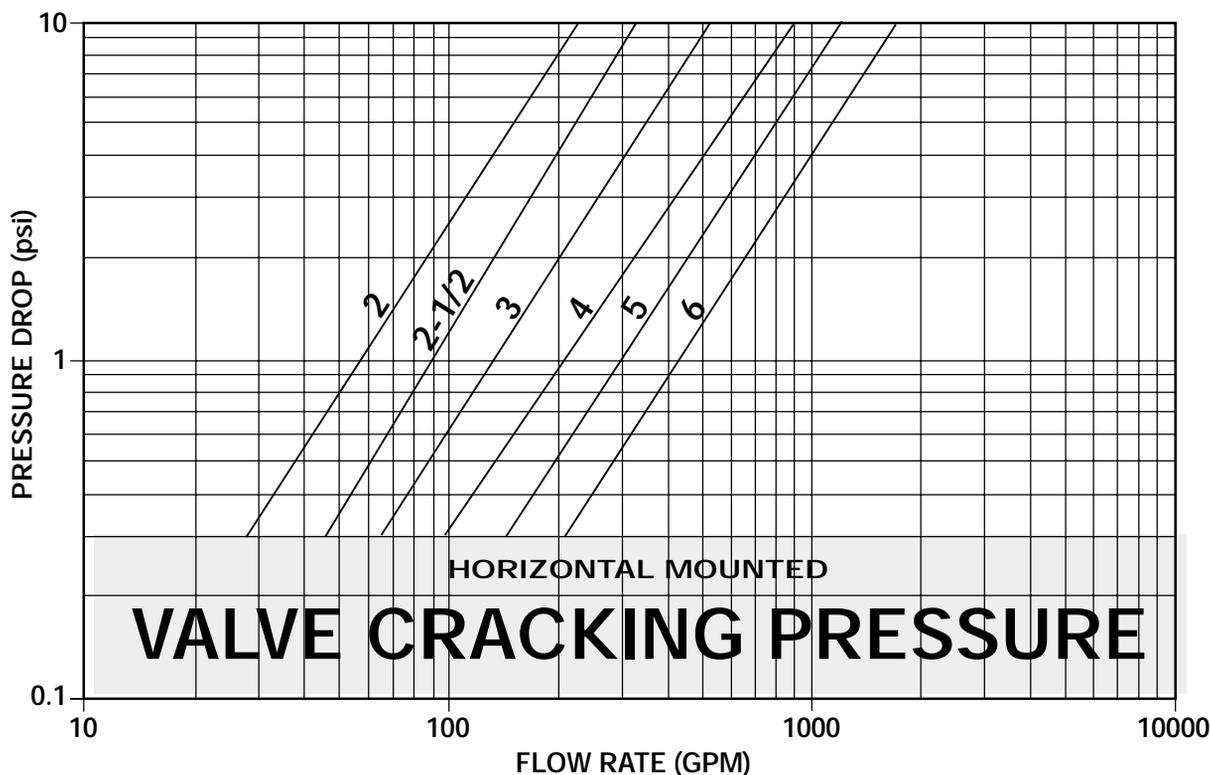
Cracking Pressure:  
Horizontal Mounting - .3 psid  
Vertical Mounting - .75 to 1.25 psid



# 300WC SERIES WAFER SILENT CHECK VALVE

## PRESSURE DROP VS FLOW RATE

(Sizes 2" - 6")



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

**Installation Note:**

1. For correct installation and maintenance please see our I&M manual.
2. Vertical installation (downward flow) – Consult factory.
3. Always use Strainers in upstream piping.
4. Not recommended for Steam Service

### Cv Values

Size (inches)	2	2½	3	4	5	6
Min Cv (@ .3 PSID)	51	84	119	179	265	383
Cv (@ 1 PSID)	58	90	134	210	300	430
Max Cv (@ 10 PSID)	73	106	168	285	391	548



# WAFER SILENT CHECK VALVES

## INSTALLATION AND MAINTENANCE INSTRUCTIONS

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

### CHECK VALVE INSTALLATION

- Valves may be installed upward vertically, horizontally, or at other angles. For vertical downward flow please consult with the factory.
- Install the valve with proper positioning of the flow arrow.
- Support and align adjacent piping and the valve
- Install lubricated flange bolts.
- Hand tighten, then torque the bolts using the cross-over flange bolt tightening method to load the bolts evenly, and eliminate concentrated stresses.
- Valves must be mounted to ANSI flanges with conventional flat face or ring gaskets.
- Proper centering of the ring gaskets is important to prevent internal leakage.
- Never lift the valve by the bronze or stainless steel trim.
- Install a strainer in the piping.

### PRECAUTIONS

- Do not install check valves directly against another valve whereby the check valve discharges downstream directly into the valve.
- Do not install the valve whereby it directly discharges downstream into a tee or elbow fitting.
- These valves are not suggested for installation in sewage ejector piping.
- Careful consideration should be given to the selection of valves for use in an air, steam, hot water and boiler feed systems. Consult our factory on these applications.
- Individuals performing removal and disassembly should be provided with suitable protection from possibly hazardous liquids.
- Prior to disassembly, valve must first be isolated from system pressure and flow.
- Upon disassembly ensure spring pressure is released slowly to prevent personal injury due to the spring "launching" itself unexpectedly.

**WARNING:** *This product operates in pipelines or with equipment that carries fluids and/or gasses at elevated temperatures and pressures. Caution should be taken to make sure that this equipment is installed correctly and inspected regularly. Caution should also be taken to protect personnel from fluid or gas leakage.*

## NOTES:

WAFER SILENT  
CHECK VALVES

