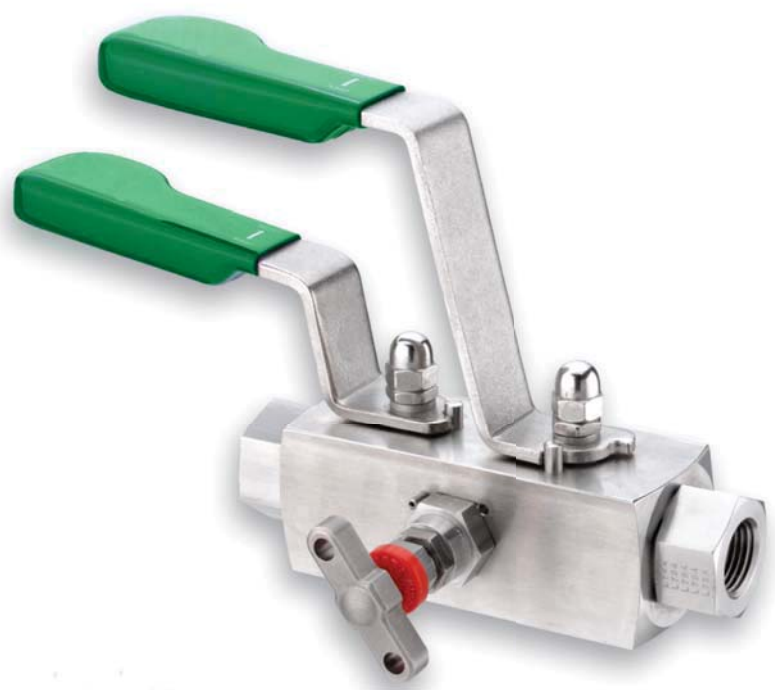


# INTEGRAL BLOCK & BLEED VALVES



## APPLICATION & INSTALLATION

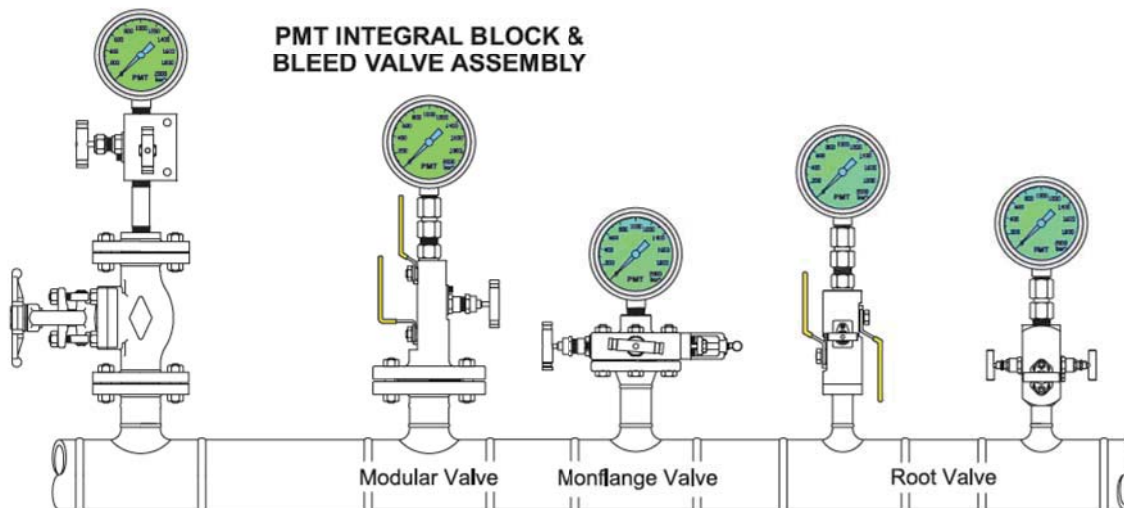
### Conventional Installation

- A welded flange, connected to a primary ANSI class isolating valve. The primary valve will be connected to a secondary instrument valve. A pressure gauge or transmitter will then be installed downstream of the instrument valve.

### Block & Bleed Type

- A one-piece integral forging incorporating up 3 ball valve or mixture of ball and needle design.
- Improved safety : leak paths reduced by up to 60%
- Reduced costs : installation and component costs reduced by up to 70%
- Reduced weight : by up to 80%
- Reduced susceptibility to problems caused by vibration.

#### CONVENTIONAL ASSEMBLY



#### Modular Manifold

Ball and Globe style Needle Valves  
Flange and Threaded Connections  
Integrally Forged Body

#### Monoflange Manifold

Globe Style Needle Valves  
Flanged and Threaded Connections  
Slimline Integrally Forged Body

#### Root Valve

Ball and Globe Style Needle Valves  
Weld or Threaded Connections  
Direct Connection to the Vessel  
Integrally Forged Body

### Features

- Bubble tight shut off.
- locking and anti tamper devices for all valve types available option.
- Positive lever stop.
- User preferred handles.
- Permanent affixed reference label.
- Raised face and ring type joint flange styles.
- Optional materials include Super Duplex, Monel, Hastelloy, Inconel.

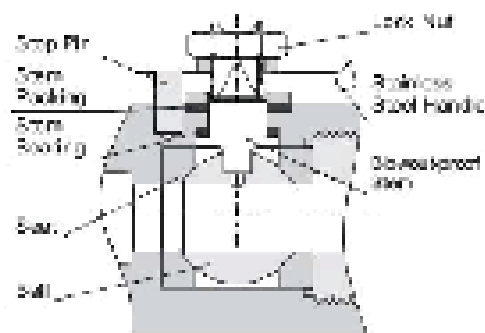
### Advantages

- More compact design
- Reduced weight
- Reduced height
- Reduced leakage points
- Reduced effect of system vibration
- Supporting brackets are not required

### Applications

- Double block and bleed instrument isolation
- Gauge isolation
- Instrument drain
- Chemical injection connection
- Sample connections
- Chemical seal instrument isolation
- Piping / instrument interface
- Direct mounting of instruments
- Remote mounting of instruments

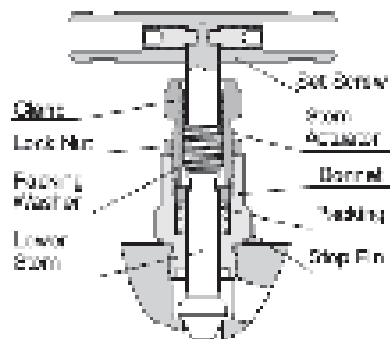
## Ball Valve Design



### Features

- One piece or two piece body design -minimize leakage paths.
- Ball seal choice of seal materials : PTFE , PEEK
- Fully encapsulated ball seat.
- Superior finished ball for low operating torque.
- Flaring ball design providing seat wear compensation
- Anti static design as standard.
- Blowout proof stem design.
- Optional : handle locking available
- 316 Stainless steel as standard materials.
- Pressure rating up to 10,000 psig (690bar).
- Temperature rating -71°F to 482°F (-57°C to 250°C).

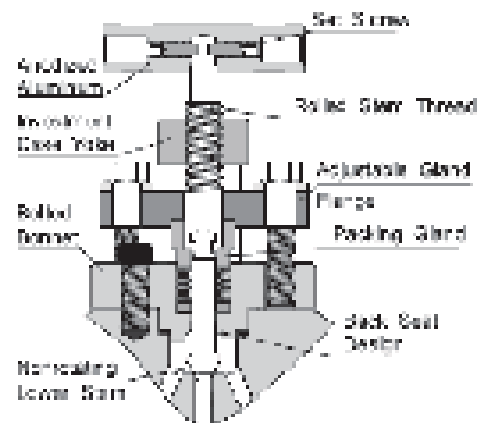
## Needle Valve Design



### Features

- Rolled stem operating threads for low torque operation
- Gland packing in PTFE or Graphite for bubble tight sealing.
- Glass contact dust cap for operating thread protection.
- Back seal design provides secondary stem sealing.
- Stem threads are completely isolated from the process.
- Packing bolt with easy access.
- Lock nut for vibration protection.
- 316 Stainless steel as standard materials.
- Pressure rating up to 10,000 psig (690bar).
- Temperature rating -65°F to 1000°F (-64°C to 538°C).

## OS&Y Bonnet Design



### Features

- Externally adjustable gland.
- PTFE or Graphite packing for bubble tight sealing
- Bonnet seal ensure a bubble tight between body and bonnet.
- Stem threads are completely isolated from the process.
- Yoke of Investment casting is precision casted for strength.
- Rolled bonnet for strength.
- 316 Stainless steel as standard materials.
- Pressure rating up to 6,000 psig (413bar).
- Temperature rating -65°F to 1000°F (-64°C to 538°C).

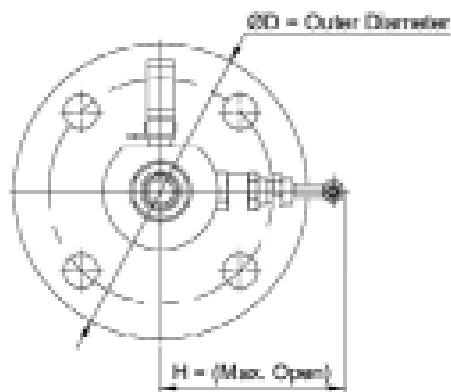
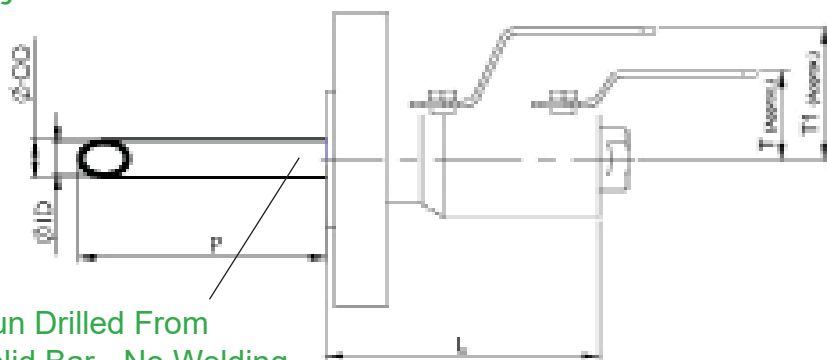
## Custom Configurations

TVI process interface valves and process manifolds can be configured to suit a variety of special applications. In addition to double block and bleed assemblies, single block and block and bleed combinations are available. Block and bleed globe valve module options are also available for all configurations.

# TVI Integral Block & Bleed Valve

## Injection Quill DBB

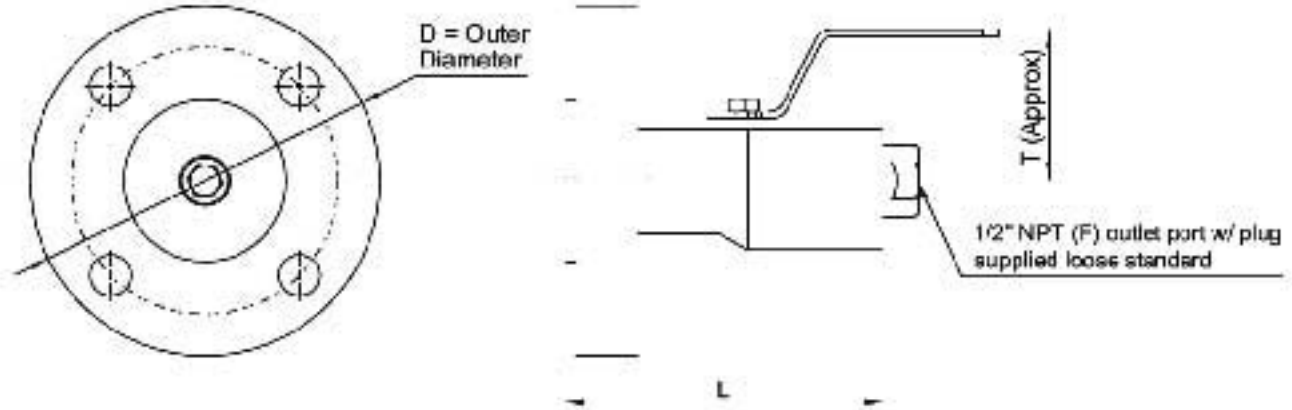
Gun Drilled From  
Solid Bar - No Welding



ANSI/ Flange Size	B16.34 Press Class	Raised Face Design - 10mm Ball					RTJ Design - 10mm Ball					Probe Dims		
		D	H	T	T1	L	D	H	T	T1	L	P	OD	ID
1/2"	150	3.5	4.0	2.8	4.3	7.0	NA	NA	NA	NA	7.3	USER SPECIFIED	USER SPECIFIED	USER SPECIFIED
1/2"	300	3.75	4.0	2.8	4.3	7.1	3.75	4.0	2.8	4.3	7.2			
1/2"	600	3.75	4.0	2.8	4.3	7.3	3.75	4.0	2.8	4.3	7.3			
1/2"	900/1500	4.75	4.0	2.8	4.3	7.7	4.75	4.0	2.8	4.3	7.3			
1/2"	2500	5.25	4.0	2.8	4.3	8.0	5.25	4.0	2.8	4.3	8.0			
3/4"	150	3.88	4.0	2.8	4.3	7.0	NA	NA	NA	NA	NA			
3/4"	300	4.62	4.0	2.8	4.3	7.1	4.62	4.0	2.8	4.3	7.3			
3/4"	600	4.62	4.0	2.8	4.3	7.4	4.62	4.0	2.8	4.3	7.4			
3/4"	900/1500	5.12	4.0	2.8	4.3	7.8	5.12	4.0	2.8	4.3	7.8			
3/4"	2500	5.50	4.0	2.8	4.3	8.0	5.50	4.0	2.8	4.3	8.0			
1.0"	150	4.25	4.0	2.8	4.3	7.1	4.25	4.0	2.8	4.3	7.3			
1.0"	300	4.88	4.0	2.8	4.3	7.2	4.88	4.0	2.8	4.3	7.4			
1.0"	600	4.88	4.0	2.8	4.3	7.5	4.88	4.0	2.8	4.3	7.5			
1.0"	900/1500	5.88	4.0	2.8	4.3	7.9	5.88	4.0	2.8	4.3	7.9			
1.0"	2500	6.25	4.0	2.8	4.3	8.2	6.25	4.0	2.8	4.3	8.2			
1.5"	150	5.00	4.0	2.8	4.3	7.2	5.00	4.0	2.8	4.3	7.4			
1.5"	300	6.12	4.0	2.8	4.3	7.3	6.12	4.0	2.8	4.3	7.5			
1.5"	600	6.12	4.0	2.8	4.3	7.7	6.12	4.0	2.8	4.3	7.7			
1.5"	900/1500	7.00	4.0	2.8	4.3	8.0	7.00	4.0	2.8	4.3	8.0			
1.5"	2500	8.00	4.0	2.8	4.3	8.5	8.00	4.0	2.8	4.3	8.6			
2.0"	150	6.00	4.0	2.8	4.3	7.3	6.00	4.0	2.8	4.3	7.5			
2.0"	300	6.50	4.0	2.8	4.3	7.4	6.50	4.0	2.8	4.3	7.6			
2.0"	600	6.50	4.0	2.8	4.3	7.8	6.50	4.0	2.8	4.3	7.8			
2.0"	900/1500	8.50	4.0	2.8	4.3	8.3	8.50	4.0	2.8	4.3	8.3			
2.0"	2500	9.25	4.0	2.8	4.3	8.8	9.25	4.0	2.8	4.3	8.8			

# TVI Integral Block & Bleed Valve

## 10mm Ball Valve - Single Flange



## 10mm Std Single Block

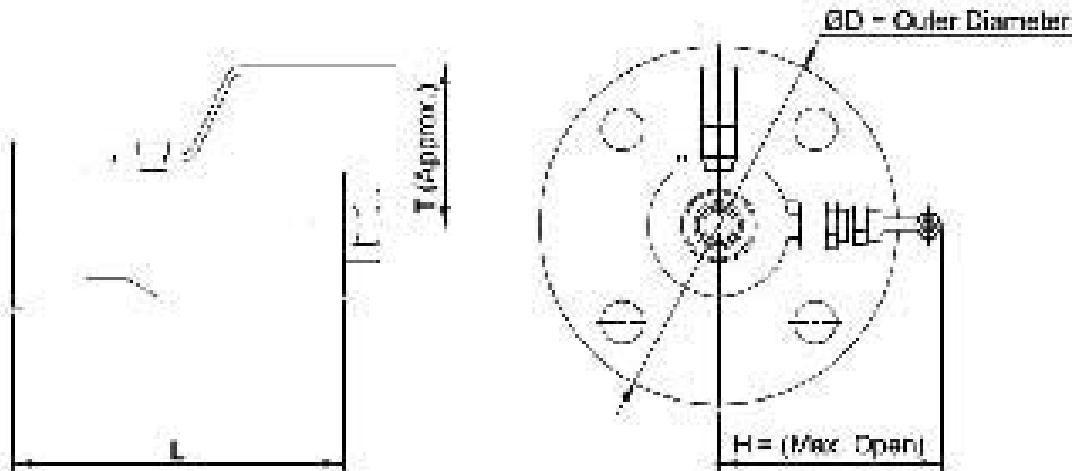
Units: Inches

ANSI/ Flange Size	B16.34 Press Class	Raised Face Design - 10mm Ball			RTJ Design - 10mm Ball		
		D	T	L	D	H	T
1/2"	150	3.50	2.5	4.1	N/A	N/A	N/A
1/2"	300	3.75	2.5	4.1	3.75	2.5	4.1
1/2"	800	3.75	2.5	4.3	3.75	2.5	4.3
1/2"	900/1500	4.75	2.5	4.7	4.75	2.5	4.7
1/2"	2500	5.25	2.5	5.1	5.25	2.5	5.1
3/4"	150	3.88	2.5	4.1	N/A	N/A	N/A
3/4"	300	4.62	2.5	4.1	4.82	2.5	4.1
3/4"	600	4.62	2.5	4.5	4.82	2.5	4.5
3/4"	900/1500	5.12	2.5	4.9	5.12	2.5	4.9
3/4"	2500	5.50	2.5	5.1	5.50	2.5	5.1
1"	150	4.25	2.5	4.1	4.25	2.5	4.1
1"	300	4.88	2.5	4.1	4.88	2.5	4.1
1"	600	4.88	2.5	4.5	4.88	2.5	4.5
1"	900/1500	5.88	2.5	4.9	5.88	2.5	4.9
1"	2500	6.25	2.5	5.1	6.25	2.5	5.1
1-1/2"	150	5.00	2.5	4.3	5.00	2.5	4.3
1-1/2"	300	6.12	2.5	4.3	6.12	2.5	4.3
1-1/2"	600	6.12	2.5	4.7	6.12	2.5	4.7
1-1/2"	900/1500	7.00	2.5	5.1	7.00	2.5	5.1
1-1/2"	2500	8.00	2.5	5.9	8.00	2.5	5.9
2"	150	6.00	2.5	4.3	6.00	2.5	4.3
2"	300	6.50	2.5	4.5	6.50	2.5	4.5
2"	600	6.50	2.5	4.9	6.50	2.5	4.9
2"	900/1500	8.50	2.5	5.3	8.50	2.5	5.3
2"	2500	9.25	2.5	5.9	9.25	2.5	5.9

# TVI Integral Block & Bleed Valve

## BLOCK & BLEED VALVES

### 10mm Ball Valve & Needle Bleed - Single Flange



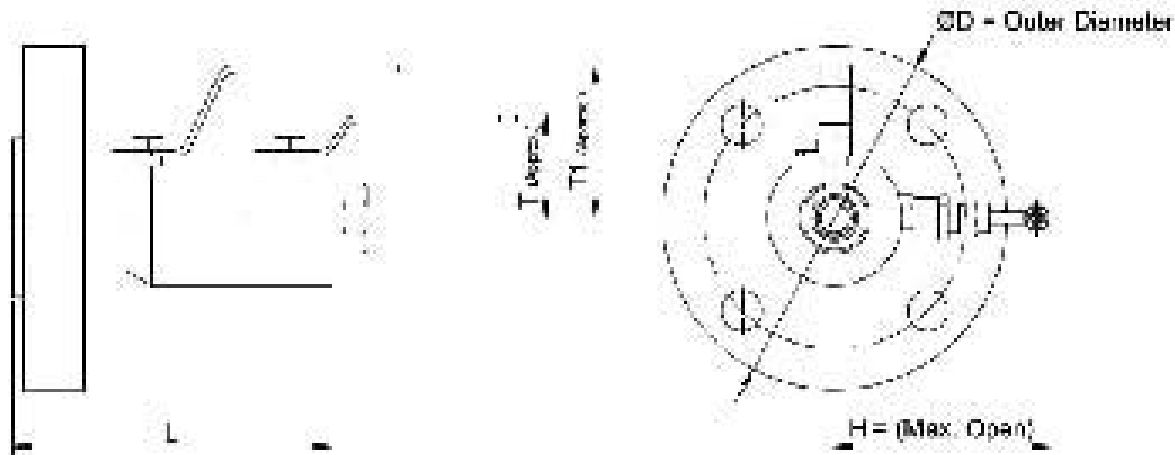
#### 10mm Std Single Block

Units: Inches

ANSI/ Flange Size	B16.34 Press Class	RF Design - 10mm Ball				RTJ Design - 10mm Ball			
		D	H*	T	L	D	H*	T	L
1/8"	150	2.50	4.0	2.8	6.1	N/A	N/A	N/A	N/A
1/8"	300	2.75	4.0	2.8	6.1	3.75	4.0	2.8	6.2
1/2"	900	3.75	4.0	2.8	7.3	3.75	4.0	2.8	7.3
1/2"	600/630	4.75	4.0	2.8	7.7	4.75	4.0	2.8	7.7
1/2"	2500	5.25	4.0	2.8	8.0	5.25	4.0	2.8	8.0
3/4"	150	3.00	4.0	2.8	7.1	N/A	N/A	N/A	N/A
3/4"	300	4.00	4.0	2.8	7.4	4.00	4.0	2.8	7.3
3/4"	600	4.50	4.0	2.8	7.4	4.50	4.0	2.8	7.4
3/4"	600/1500	5.2	4.0	2.8	7.8	5.2	4.0	2.8	7.8
3/4"	2500	5.40	4.0	2.8	8.0	5.40	4.0	2.8	8.0
1"	150	4.25	4.0	2.8	7.4	4.25	4.0	2.8	7.3
1"	300	4.88	4.0	2.8	7.2	4.88	4.0	2.8	7.4
1"	600	4.88	4.0	2.8	7.5	4.88	4.0	2.8	7.5
1"	600/1500	5.88	4.0	2.8	7.0	5.88	4.0	2.8	7.4
1"	2500	6.85	4.0	2.8	8.2	6.85	4.0	2.8	8.2
1-1/2"	150	5.00	4.0	2.8	7.2	5.00	4.0	2.8	7.4
1-1/2"	300	6.12	4.0	2.8	7.3	6.12	4.0	2.8	7.3
1-1/2"	600	6.12	4.0	2.8	7.7	6.12	4.0	2.8	7.7
1-1/2"	600/1500	7.00	4.0	2.8	8.4	7.00	4.0	2.8	8.0
1-1/2"	2500	8.00	4.0	2.8	8.5	8.00	4.0	2.8	8.6
2"	150	6.00	4.0	2.8	7.4	6.00	4.0	2.8	7.3
2"	300	6.50	4.0	2.8	7.4	6.50	4.0	2.8	7.4
2"	600	6.50	4.0	2.8	7.8	6.50	4.0	2.8	7.8
2"	600/1500	8.50	4.0	2.8	8.4	8.50	4.0	2.8	8.4
2"	2500	9.25	4.0	2.8	8.8	9.25	4.0	2.8	8.8

## BLOCK & BLEED VALVES

### 10mm Double Ball Valve & Needle Bleed - Single Flange



### 10mm Std Single Block

Units: Inches

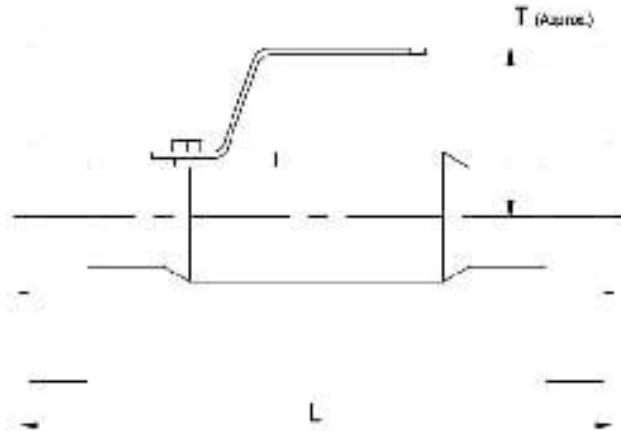
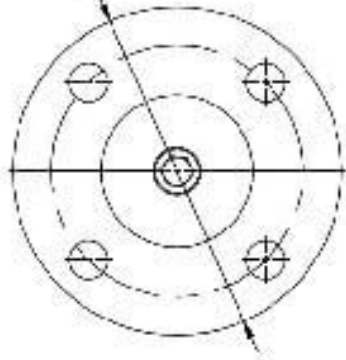
ANSI/ Flange Size	B16.34 Press Class	RF Design - 10mm Ball					RTJ Design - 10mm Ball				
		D	H*	T	T	L	D	H*	T	T1	L
1/2"	150	3.50	4.0	2.8	4.3	7.0	N/A	N/A	N/A	N/A	N/A
1/2"	300	3.75	4.0	2.8	4.3	7.1	3.75	4.0	2.8	4.3	7.2
1/2"	600	3.75	4.0	2.8	4.3	7.2	3.75	4.0	2.8	4.3	7.3
1/2"	900-1500	4.75	4.0	2.8	4.3	7.7	4.75	4.0	2.8	4.3	7.7
1/2"	2900	5.25	4.0	2.8	4.3	8.0	5.25	4.0	2.8	4.3	8.0
3/4"	150	3.86	4.0	2.8	4.3	7.0	N/A	N/A	N/A	N/A	N/A
3/4"	300	4.02	4.0	2.8	4.3	7.1	4.02	4.0	2.8	4.3	7.3
3/4"	600	4.32	4.0	2.8	4.3	7.4	4.32	4.0	2.8	4.3	7.4
3/4"	900-1500	5.12	4.0	2.8	4.3	7.8	5.12	4.0	2.8	4.3	7.8
3/4"	2900	5.32	4.0	2.8	4.3	8.0	5.32	4.0	2.8	4.3	8.0
-"	150	4.25	4.0	2.8	4.3	7.1	4.25	4.0	2.8	4.3	7.3
-"	300	4.35	4.0	2.8	4.3	7.2	4.35	4.0	2.8	4.3	7.4
-"	600	4.35	4.0	2.8	4.3	7.3	4.35	4.0	2.8	4.3	7.5
-"	900-1500	5.35	4.0	2.8	4.3	7.8	5.35	4.0	2.8	4.3	7.9
-"	2900	5.25	4.0	2.8	4.3	8.2	5.25	4.0	2.8	4.3	8.2
1-1/2"	150	5.00	4.0	2.8	4.3	7.2	5.00	4.0	2.8	4.3	7.4
1-1/2"	300	5.12	4.0	2.8	4.3	7.3	5.12	4.0	2.8	4.3	7.5
1-1/2"	600	5.12	4.0	2.8	4.3	7.7	5.12	4.0	2.8	4.3	7.7
1-1/2"	900-1500	7.00	4.0	2.8	4.3	8.0	7.00	4.0	2.8	4.3	8.0
1-1/2"	2900	6.00	4.0	2.8	4.3	8.8	6.00	4.0	2.8	4.3	8.8
2"	150	6.06	4.0	2.8	4.3	7.3	6.00	4.0	2.8	4.3	7.5
2"	300	6.30	4.0	2.8	4.3	7.4	6.30	4.0	2.8	4.3	7.6
2"	600	6.30	4.0	2.8	4.3	7.8	6.30	4.0	2.8	4.3	7.8
2"	900-1500	8.20	4.0	2.8	4.3	8.5	8.20	4.0	2.8	4.3	8.5
2"	2900	8.25	4.0	2.8	4.3	8.8	8.25	4.0	2.8	4.3	8.8



## BLOCK & BLEED VALVES

### 10mm Ball Valve - Double Flange

ØD = Outer Diameter



### 10mm Std Single Block

Units: Inches

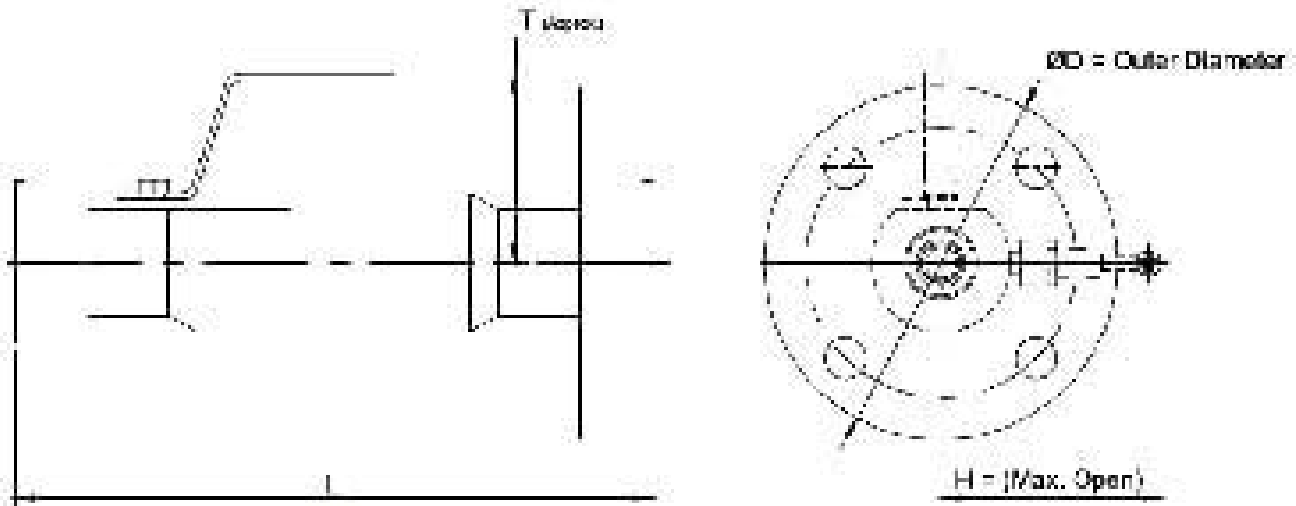
ANSI/ Flange Size	B16.34 Press Class	RF Double Flange - 10mm Ball			RTJ Double Flange- 10mm Ball		
		D	T	L	D	H	T
1/2"	150	3.50	4.3	6.5	NA	NA	NA
1/2"	300	3.75	4.3	6.7	3.75	4.3	9.1
1/2"	600	3.75	4.3	9.2	3.75	4.3	9.2
1/2"	900/1500	4.75	4.3	9.9	4.75	4.3	9.9
1/2"	2500	6.25	4.3	10.5	5.25	4.3	10.5
3/4"	150	3.88	4.3	6.6	NA	NA	NA
3/4"	300	4.62	4.3	6.9	4.62	4.3	9.2
3/4"	600	4.62	4.3	9.4	4.62	4.3	9.4
3/4"	900/1500	5.12	4.3	10.1	5.12	4.3	10.1
3/4"	2500	5.50	4.3	10.6	5.50	4.3	10.6
1"	150	4.25	4.3	6.7	4.25	4.3	9.1
1"	300	4.88	4.3	9.0	4.88	4.3	9.4
1"	600	4.88	4.3	9.5	4.88	4.3	9.5
1"	900/1500	5.88	4.3	10.4	5.88	4.3	10.4
1"	2500	6.25	4.3	10.9	6.25	4.3	10.9
1-1/2"	150	5.00	4.3	9.0	5.00	4.3	9.4
1-1/2"	300	6.12	4.3	9.2	6.12	4.3	9.6
1-1/2"	600	6.12	4.3	9.9	6.12	4.3	9.9
1-1/2"	900/1500	7.00	4.3	10.6	7.00	4.3	10.6
1-1/2"	2500	8.00	4.3	11.6	8.00	4.3	11.7
2"	150	6.00	4.3	9.1	6.00	4.3	9.5
2"	300	6.50	4.3	9.4	6.50	4.3	9.9
2"	600	6.50	4.3	10.1	6.50	4.3	10.2
2"	900/1500	8.50	4.3	11.1	8.50	4.3	11.2
2"	2500	9.25	4.3	12.1	9.25	4.3	12.2



# TVI Integral Block & Bleed Valve

## BLOCK & BLEED VALVES

### 10mm Ball Valve - Double Flange



### 10mm Std Block & Bleed

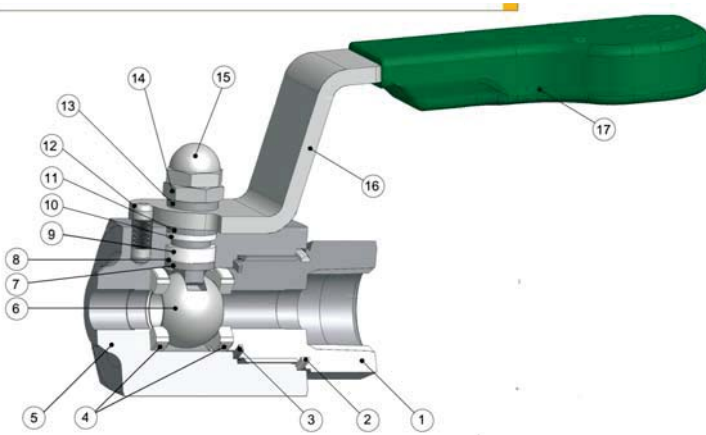
Units: Inches

ANSI/ Flange Size	B16.34 Press Class	RF Double Flange - 10mm Ball				RTJ Double Flange- 10mm Ball			
		D	H*	T	L	D	H*	T	L
1/2"	100	3.00	4.0	4.3	3.5	3.00	4.0	4.3	4.0
1/2"	300	3.75	4.0	4.3	3.7	3.75	4.0	4.3	4.1
1/2"	600	3.75	4.0	4.3	3.2	3.75	4.0	4.3	3.2
1/2"	500/1500	4.75	4.0	4.3	3.3	4.75	4.0	4.3	3.0
1/2"	2500	6.25	4.0	4.3	10.5	6.25	4.0	4.3	10.5
3/4"	100	3.58	4.0	4.3	4.0	3.58	4.0	4.3	4.0
3/4"	300	4.12	4.0	4.3	4.0	4.12	4.0	4.3	4.0
3/4"	600	4.12	4.0	4.3	4.2	4.12	4.0	4.3	4.4
3/4"	500/1500	5.12	4.0	4.3	10.1	5.12	4.0	4.3	10.1
3/4"	2500	5.50	4.0	4.3	10.5	5.50	4.0	4.3	10.5
1"	100	4.25	4.0	4.3	4.7	4.25	4.0	4.3	4.1
1"	300	4.68	4.0	4.3	4.0	4.35	4.0	4.3	4.4
1"	600	4.50	4.0	4.3	4.6	4.35	4.0	4.3	4.6
1"	500/1500	5.55	4.0	4.3	10.4	5.35	4.0	4.3	10.4
1"	2500	6.25	4.0	4.3	10.9	6.25	4.0	4.3	10.9
1-1/2"	150	5.00	4.0	4.3	9.0	5.00	4.0	4.3	5.4
1-1/2"	300	5.12	4.0	4.3	9.2	5.12	4.0	4.3	5.6
1-1/2"	600	5.12	4.0	4.3	9.0	5.12	4.0	4.3	5.0
1-1/2"	500/1500	7.00	4.0	4.3	10.8	7.00	4.0	4.3	10.8
1-1/2"	2500	5.00	4.0	4.3	11.6	4.00	4.0	4.3	11.7
2"	150	5.00	4.0	4.3	8.1	4.00	4.0	4.3	5.5
2"	300	5.50	4.0	4.3	8.4	4.50	4.0	4.3	5.8
2"	600	5.50	4.0	4.3	10.1	4.50	4.0	4.3	10.2
2"	500/1500	8.50	4.0	4.3	11.1	4.60	4.0	4.3	11.2
2"	2500	4.35	4.0	4.3	12.1	4.25	4.0	4.3	12.2

# TVI Integral Block & Bleed Valve

## Features

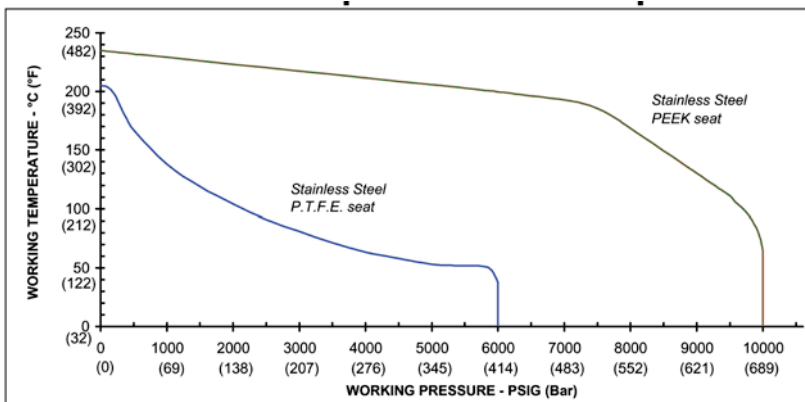
- Two piece body design - minimal leakage paths
- 4:1 Pressure boundary designed safety factor
- Designed to comply with requirements of ANSI/ASME B16.34 where applicable
- Bi-directional
- PEEK and PTFE standard ball seat materials.
- PTFE and Graphoil gland packings
- Bubble tight shutoff
- Floating ball principal with dynamic response seats featuring inherent self relief
- Anti blowout stem
- Integral compression ends available eliminating taper threads and thread sealants
- Low torque operation
- Quarter turn positive stop handle with ergonomically designed protective sleeve
- Full hydrostatic and low pressure air tested
- Connector thread environmentally sealed
- Anti static
- Optional firesafe designed to meet API 607, BS6755 Pt2



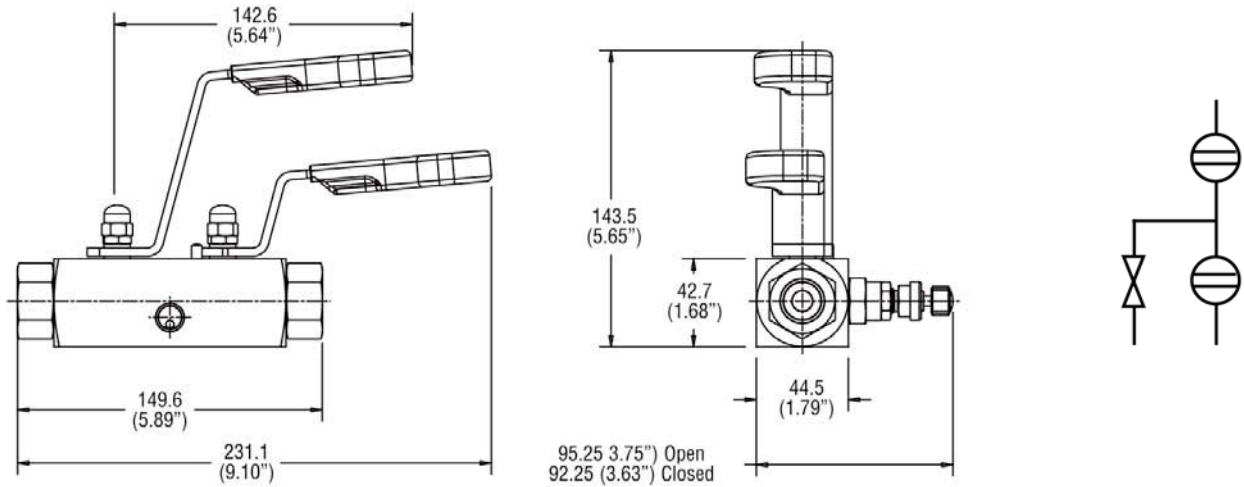
## Part Legend

Item	Description
1	End Connector
2	Seal
3	Sealing washer
4	Seats
5	Body
6	Ball
7	Anti blowout stem
8	Thrust Seal
9	Gland packing
10	Upper gland packing
11	Thrust bush
12	Stop pin
13	Thrust bush
14	Lock nut
15	Locking dome nut
16	Handle
17	Handle grip

## Temperature Performance



# TVI Integral Block & Bleed Valve



## Ordering Tree

### Typical Ordering Part Number

**TMDBB - SWX - 8 - P - SS - X**

#### Process Conn

4 = 1/4" NPT  
 8 = 1/2" NPT  
 F = Flange - size & type  
 SW = SOCKET WELD  
 SWX = SW WITH XTENSION

#### Inst. Conn

4 = 1/4" NPT  
 8 = 1/2" NPT  
 SW = SOCKET WELD

#### Packing

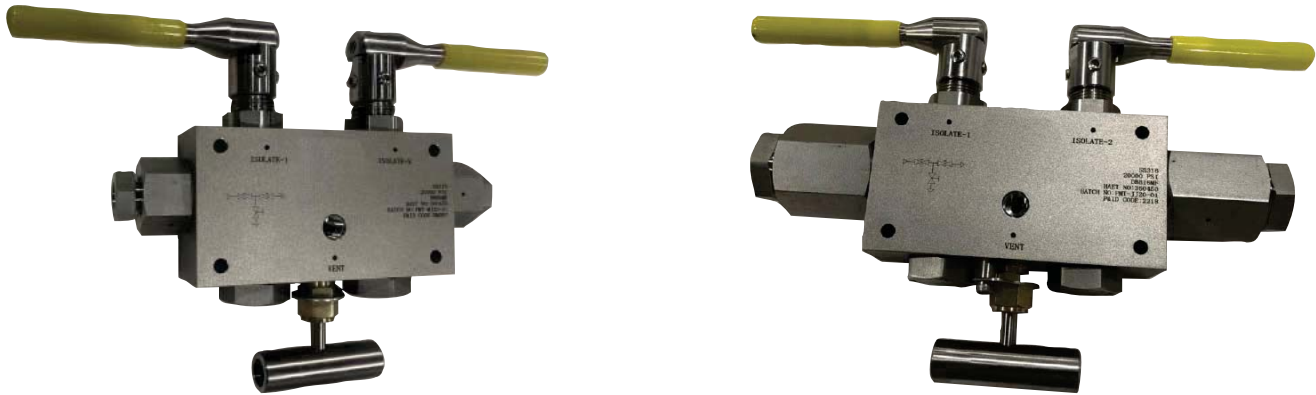
P = PCTFE  
 G = Graphoil  
 K = PEEK

#### Options

X\_\_ = SPECIFY LENGTH OF XTENSION

#### Wetted Metal Components

SS = 316/316L  
 M4 = Monel 400  
 I6 = Inconel 600



These are double block and bleed ball valves specifically design for chemical injection and drain line isolation of high pressure systems. They are panel mountable and require only a simple quarter turn to operate. They are available with up to 20,000 psig MAWP. They come standard with 316SS construction and are available in Super Duplex 2507.

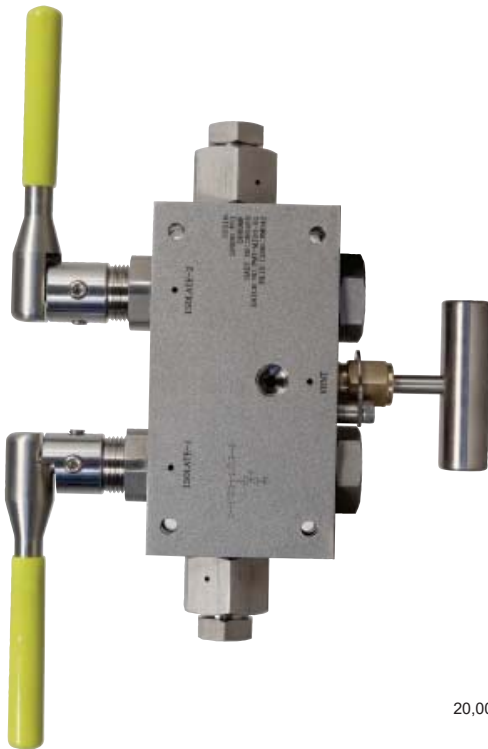
## MP DOUBLE BLOCK & BLEED FEATURES:

- 316 SS construction is standard  
Super Duplex 2507 & others available
- PEEK-carbon filled seats
- Full port construction
- FKM o-rings are standard; others available
- Single piece trunnion mounted stem
- Packing glands may be torqued
- Metal seated vent valve
- Robust stem handles

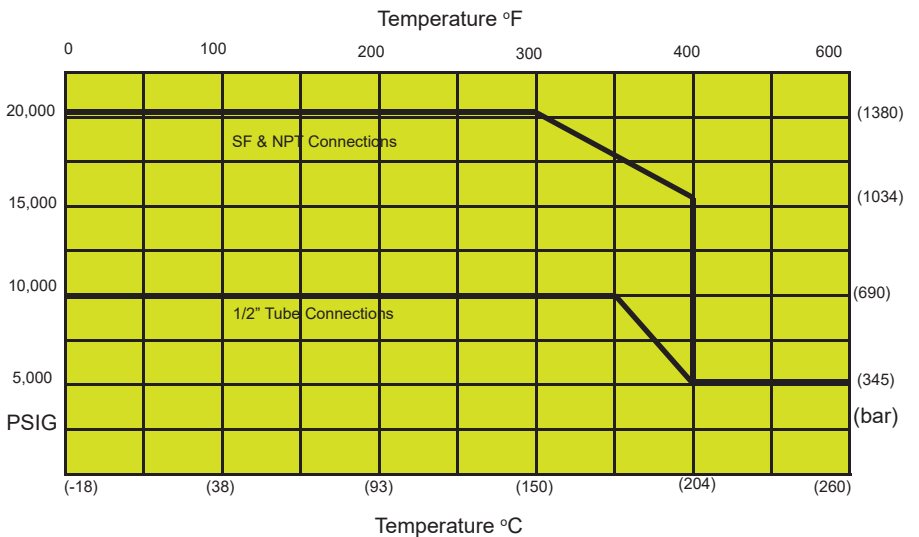
General Performance Specifications:

End Connection	MAWP @ 70°F psig (bar)	Orifice in(mm)
1/2" Tube	10,000 (690)	0.328 (8.33)
SF3750CX20	20,000 (1380)	0.203 (5.16)
SF5620CX20	20,000 (1380)	0.312 (7.92)
SF7500CX20	20,000 (1380)	0.328 (8.33)
SF1000CX20	20,000 (1380)	0.416 (10.57)
1/4" FNPT	20,000 (1380)	0.328 (8.33)
3/8" FNPT	20,000 (1380)	0.328 (8.33)
1/2" FNPT	20,000 (1380)	0.328 (8.33)
Cv = 2.3		

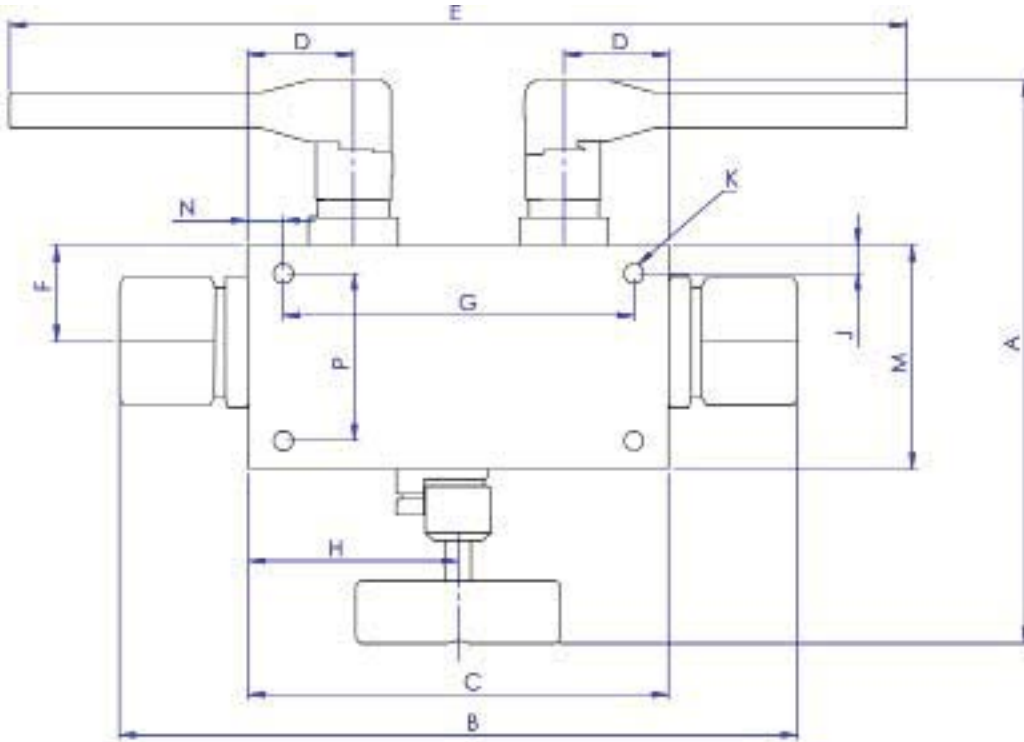
Maximum Working Pressure@ 70°F



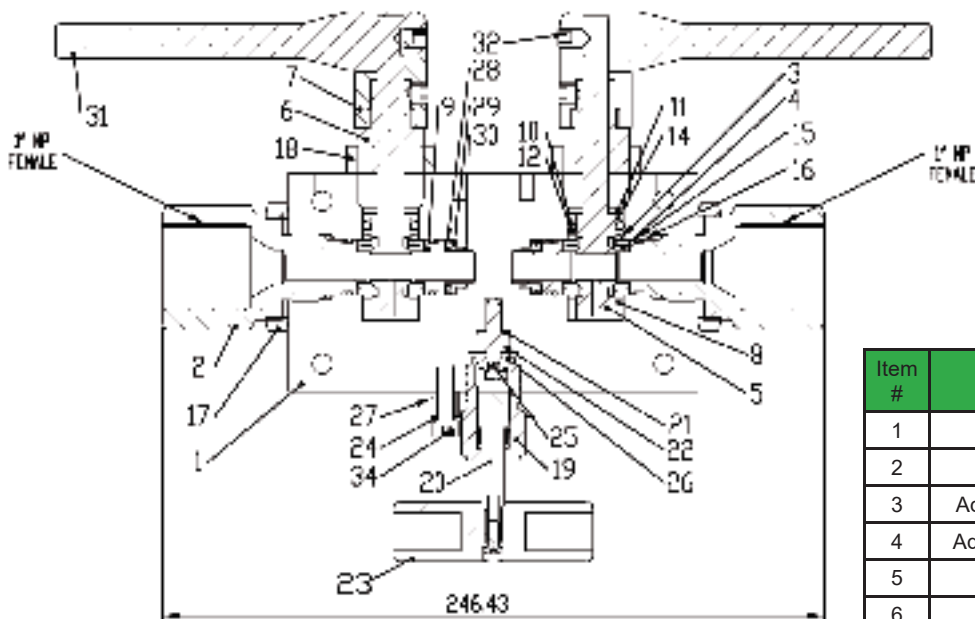
Temperature Constraints



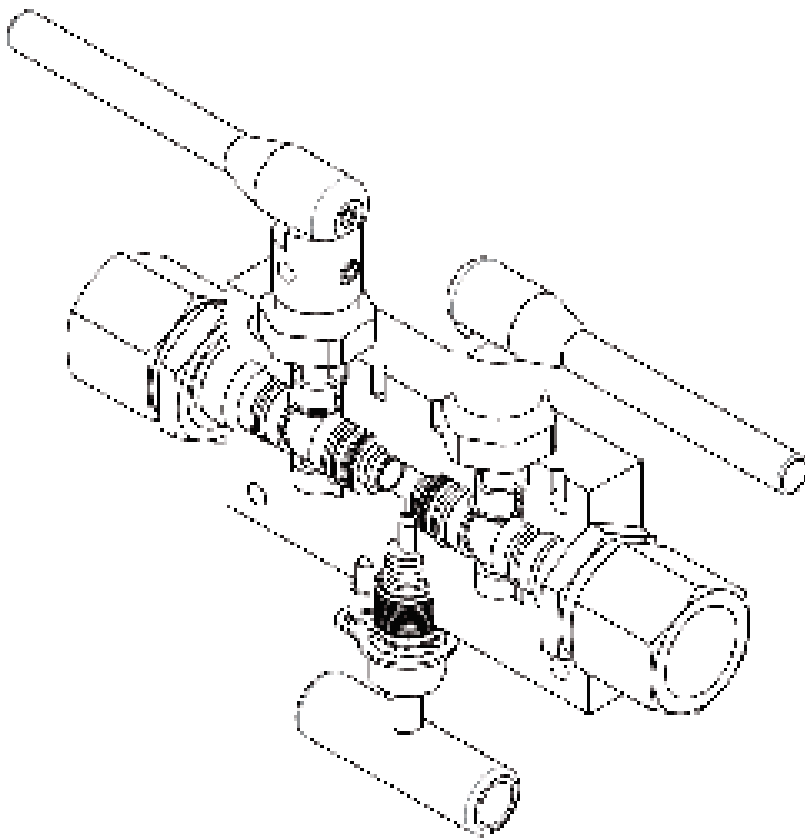
Basic Dimensions



Model TDBB Valve Dimension in (mm)	
A	7.17 (181.4)
B	8.81 (223.8) 1" size- 9.7(246.4)
C	6.00 (152.4)
D	1.5 (38.1)
E	12.94 (32.87)
F	1.38 (34.9)
G	5.00 (127.0)
H	3.00 (76.2)
J	0.41 (10.3)
K	0.28 (7.14)
L	3.19 (81.0)
M	2.38 (60.4)
N	0.50 (12.7)
Body Width	1.75 (44.5)
Aprox Wt.	10.5 lb (23.1kg)

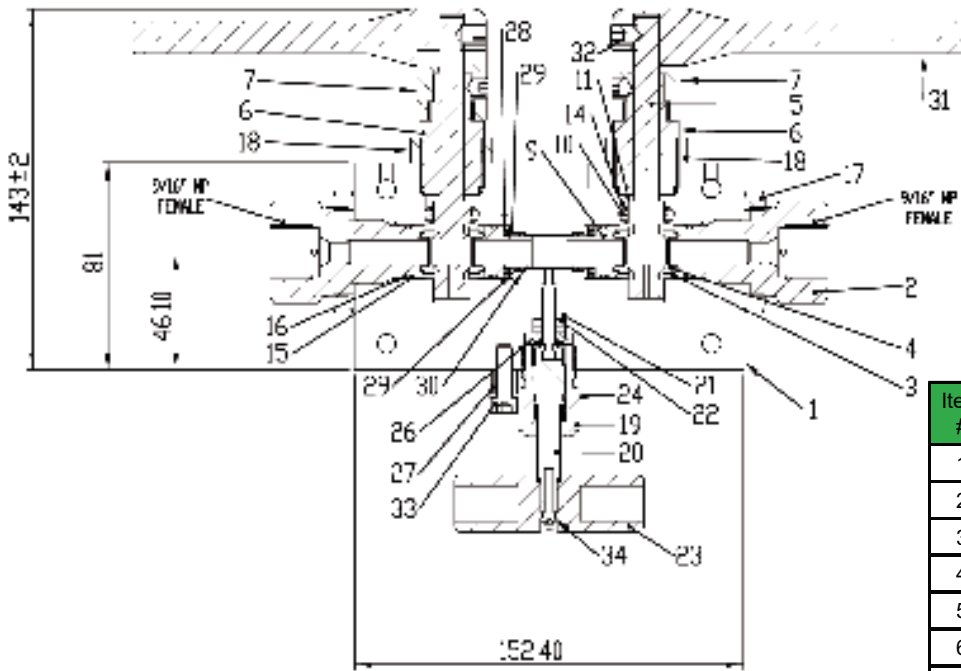


**Model TDBB-16-20**  
 1.0" MP Connection - 20,000 psig

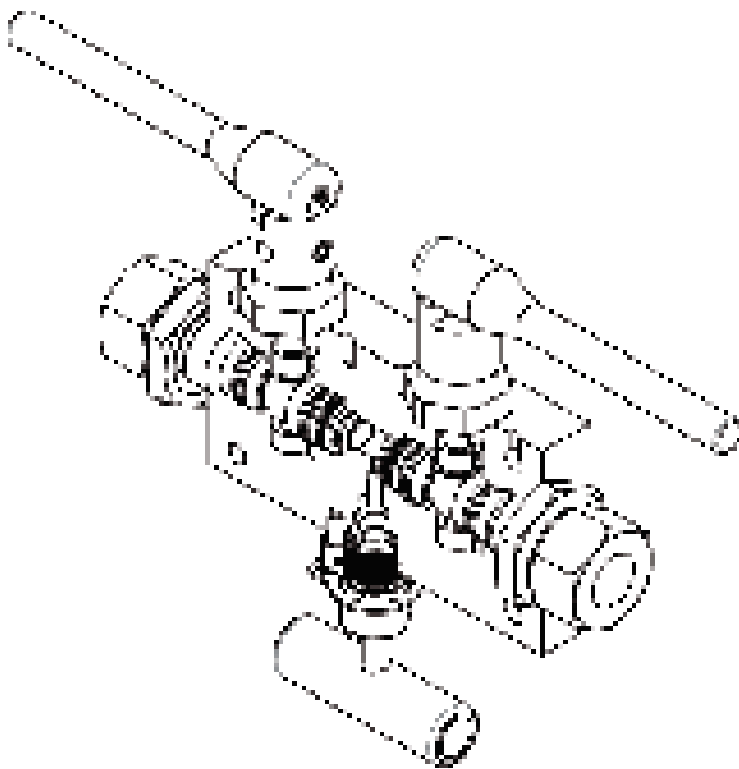


Item #	Part	Material	Qty
1	Body	316SS	1
2	Adaptor	316SS	2
3	Adaptor Collar	316SS	4
4	Adj Collar Seat	PEEK	4
5	Ball Stem	Duplex 2205	2
6	Bonnet	316SS	2
7	Bonnet Head	316SS	2
8	Stem Seat	PEEK	2
9	Adj Seat Gland	316SS	2
10	Gland O-ring	FKM	2
11	Gland Washer	316SS	2
12	Gland Packing	PEEK	2
13	Gland Packing	PTFE	2
14	Gland Packing	PEEK	2
15	O-ring	FKM	8
16	Adj Seat Retainer	PTFE	8
17	Adaptor Nut	316SS	2
18	Bonnet Nut	316SS	2
19	NV-Bonnet	AL-Bronze	1
20	Spindle	316SS	1
21	Riser	316SS	1
22	Packing Washer	316SS	2
23	NV - Handle	316SS	1
24	NV-Lock	Steel	1
25	NV- Stem	17-4PH	1
26	Packing Ring	PTFE	1
27	NV-Spacer	316SS	1
28	Spring Washer	Steel	4
29	Spring Retainer	316SS	2
30	O-Ring	FKM	2
31	Handle	V	2
32	Screw	Steel	4
33	Screw	Steel	1
34	Screw	Steel	1

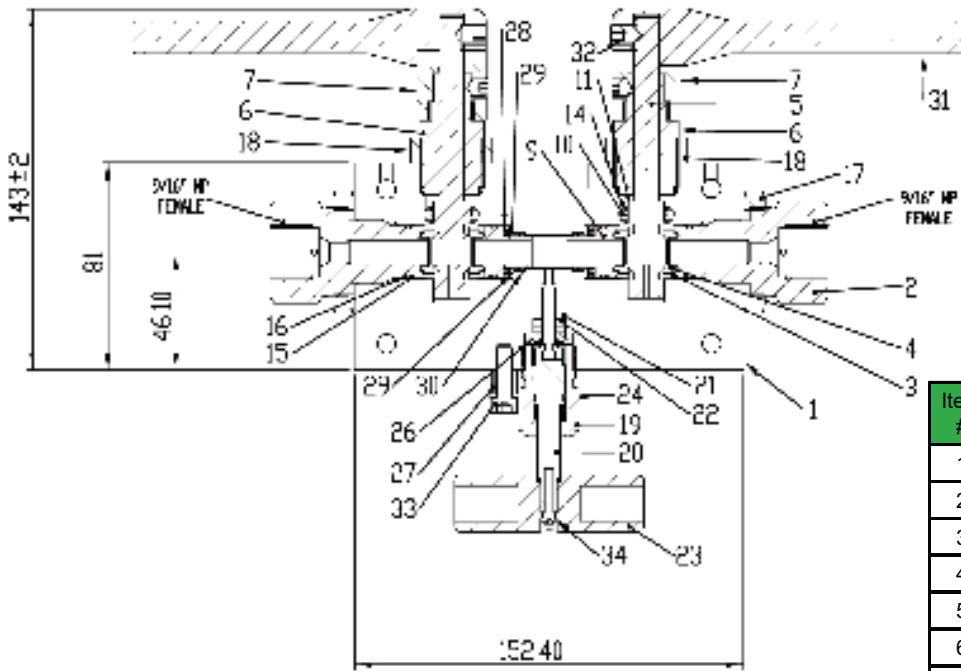




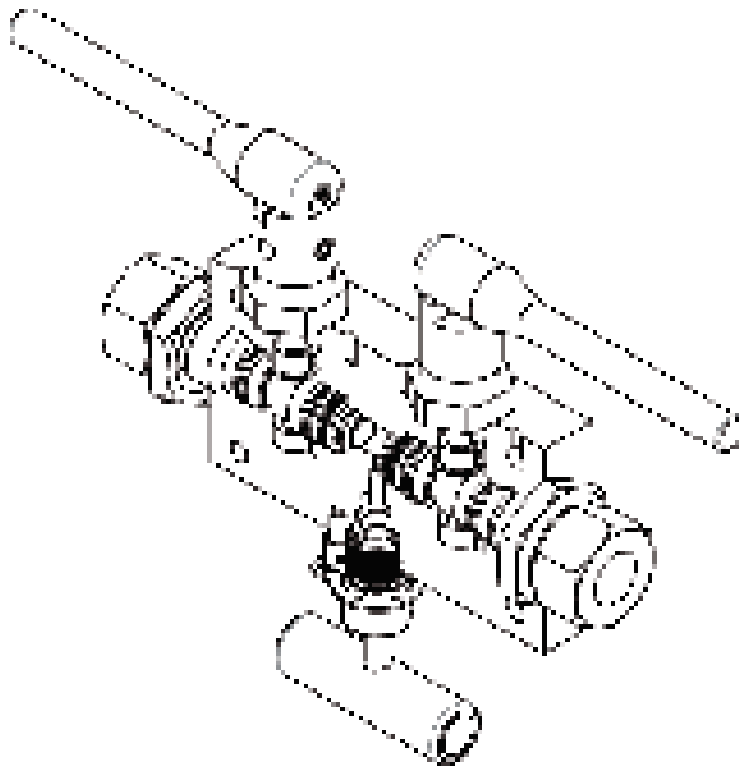
Model TDBB-09-20  
9/16" & 3/4" MP Connection - 20,000 psig



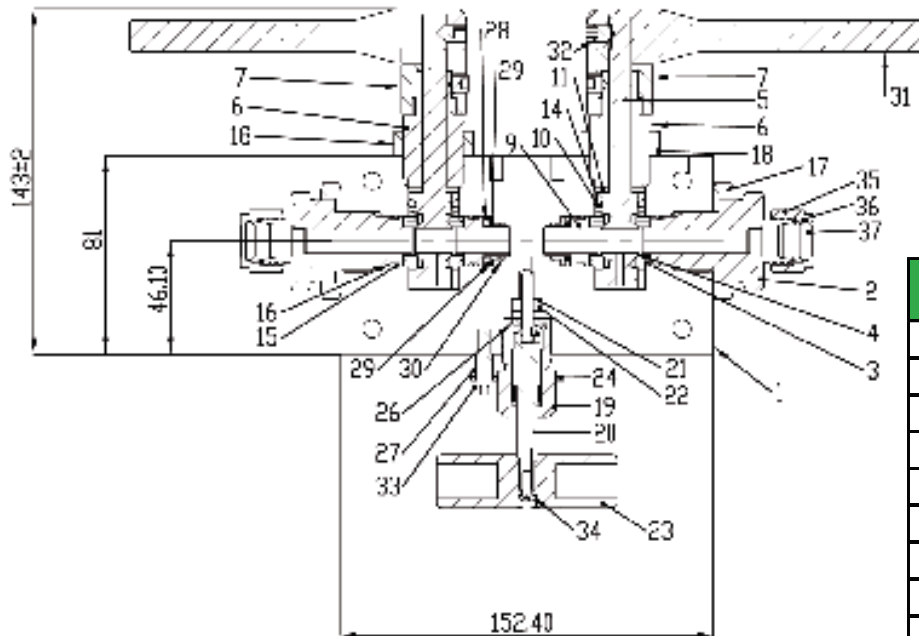
Item #	Part	Material	Qty
1	Body	316SS	1
2	Adaptor	316SS	2
3	Adaptor Collar	316SS	4
4	Adj Collar Seat	PEEK	4
5	Ball Stem	Duplex 2205	2
6	Bonnet	316SS	2
7	Bonnet Head	316SS	2
8	Stem Seat	PEEK	2
9	Adj Seat Gland	316SS	2
10	Gland O-ring	FKM	2
11	Gland Washer	316SS	2
12	Gland Packing	PEEK	2
13	Gland Packing	PTFE	2
14	Gland Packing	PEEK	2
15	O-ring	FKM	8
16	Adj Seat Retainer	PTFE	8
17	Adaptor Nut	316SS	2
18	Bonnet Nut	316SS	2
19	NV-Bonnet	AL-Bronze	1
20	Spindle	316SS	1
21	Riser	316SS	1
22	Packing Washer	316SS	2
23	NV - Handle	316SS	1
24	NV-Lock	Steel	1
25	NV- Stem	17-4PH	1
26	Packing Ring	PTFE	1
27	NV-Spacer	316SS	1
28	Spring Washer	Steel	4
29	Spring Retainer	316SS	2
30	O-Ring	FKM	2
31	Handle	V	2
32	Screw	Steel	4
33	Screw	Steel	1
34	Screw	Steel	1



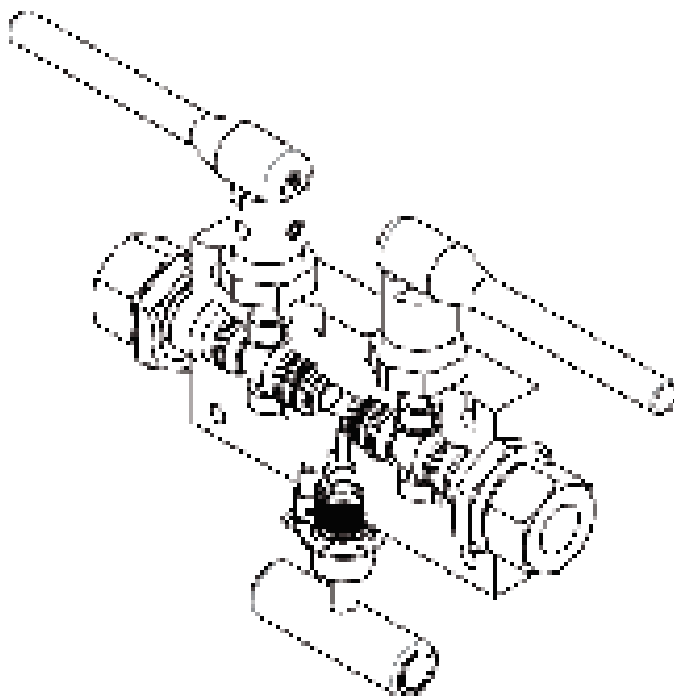
**Model TDBB-06-20**  
 3/8" MP Connection - 20,000 psig



Item #	Part	Material	Qty
1	Body	316SS	1
2	Adaptor	316SS	2
3	Adaptor Collar	316SS	4
4	Adj Collar Seat	PEEK	4
5	Ball Stem	Duplex 2205	2
6	Bonnet	316SS	2
7	Bonnet Head	316SS	2
8	Stem Seat	PEEK	2
9	Adj Seat Gland	316SS	2
10	Gland O-ring	FKM	2
11	Gland Washer	316SS	2
12	Gland Packing	PEEK	2
13	Gland Packing	PTFE	2
14	Gland Packing	PEEK	2
15	O-ring	FKM	8
16	Adj Seat Retainer	PTFE	8
17	Adaptor Nut	316SS	2
18	Bonnet Nut	316SS	2
19	NV-Bonnet	AL-Bronze	1
20	Spindle	316SS	1
21	Riser	316SS	1
22	Packing Washer	316SS	2
23	NV - Handle	316SS	1
24	NV-Lock	Steel	1
25	NV- Stem	17-4PH	1
26	Packing Ring	PTFE	1
27	NV-Spacer	316SS	1
28	Spring Washer	Steel	4
29	Spring Retainer	316SS	2
30	O-Ring	FKM	2
31	Handle	V	2
32	Screw	Steel	4
33	Screw	Steel	1
34	Screw	Steel	1

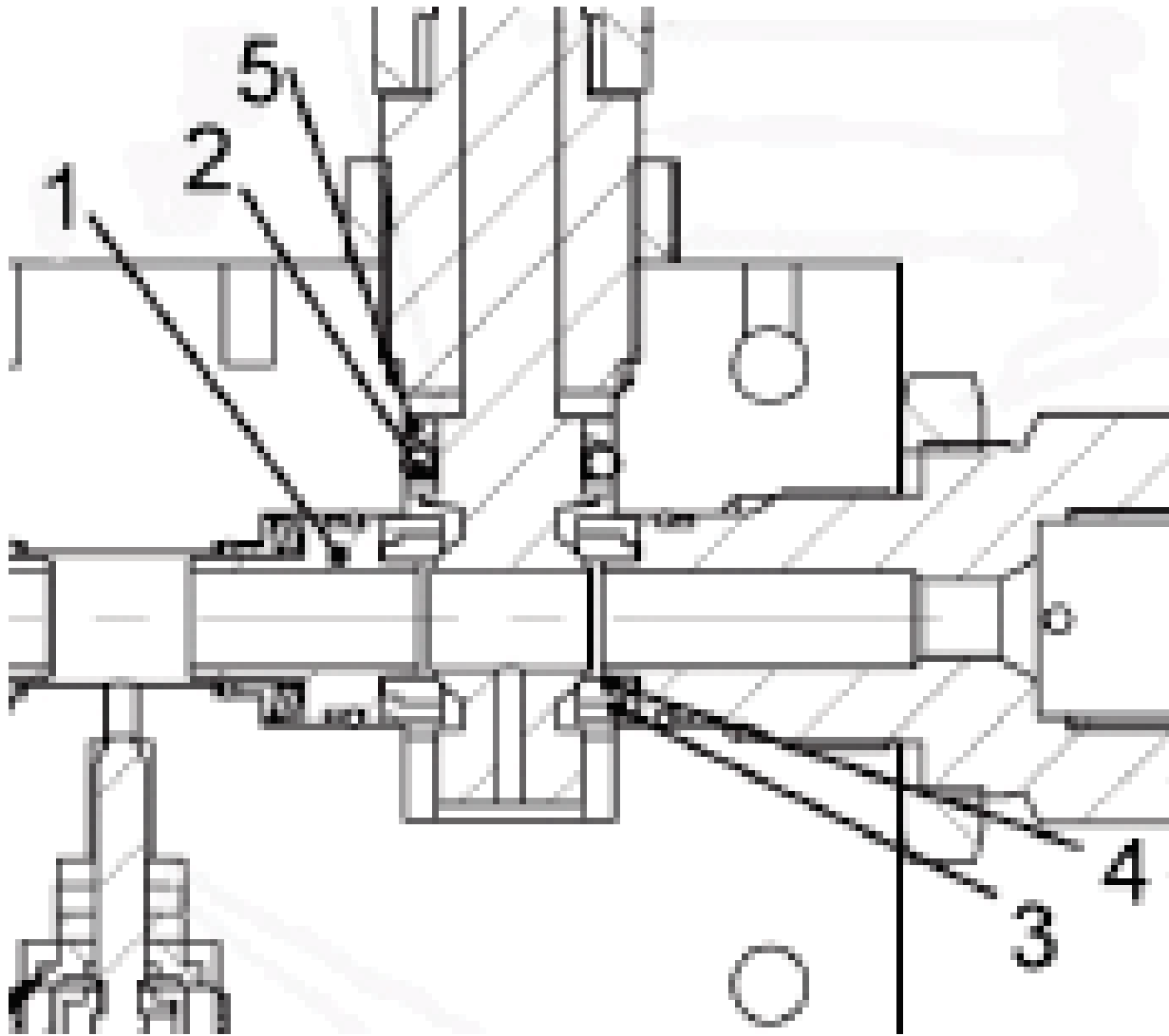


**Model TDBB-08-10**  
 1/2" Tube Connection - 10,000 psig



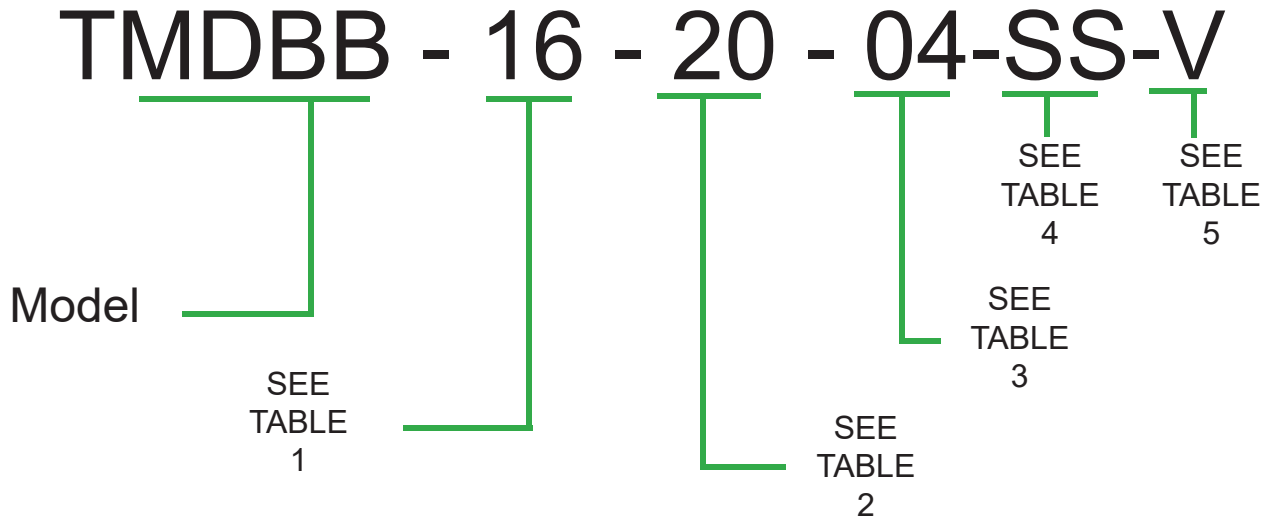
Item #	Part	Material	Qty
1	Body	316SS	1
2	Adaptor	316SS	2
3	Adaptor Collar	316SS	4
4	Adj Collar Seat	PEEK	4
5	Ball Stem	Duplex 2205	2
6	Bonnet	316SS	2
7	Bonnet Head	316SS	2
8	Stem Seat	PEEK	2
9	Adj Seat Gland	316SS	2
10	Gland O-ring	FKM	2
11	Gland Washer	316SS	2
12	Gland Packing	PEEK	2
13	Gland Packing	PTFE	2
14	Gland Packing	PEEK	2
15	O-ring	FKM	8
16	Adj Seat Retainer	PTFE	8
17	Adaptor Nut	316SS	2
18	Bonnet Nut	316SS	2
19	NV-Bonnet	AL-Bronze	1
20	Spindle	316SS	1
21	Riser	316SS	1
22	Packing Washer	316SS	2
23	NV - Handle	316SS	1
24	NV-Lock	Steel	1
25	NV- Stem	17-4PH	1
26	Packing Ring	PTFE	1
27	NV-Spacer	316SS	1
28	Spring Washer	Steel	4
29	Spring Retainer	316SS	2
30	O-Ring	FKM	2
31	Handle	V	2
32	Screw	Steel	4
33	Screw	Steel	1
34	Screw	Steel	1
35	Nut	316SS	2
36	Front Ferrule	316SS	2
37	Back Ferrule	316SS	2

# DBB SEAL DETAILS



Item #	Part	Material
1	Adapter Seat Gland	316 SS
2	Gland O-ring	Viton
3	Adapter Collar	316 SS
4	Gland Packing	PEEK
5	Gland Washer	316 SS

Ordering Tree



End Connections

Table 1

Code	End Connection	MAWP @ 70°F psig (bar)
08	1/2" Tube	10,000 (690)
06	3/8"-SF3750CX20	20,000 (1380)
09	9/16"-SF5620CX20	20,000 (1380)
12	3/4"-SF7500CX20	20,000 (1380)
16	1"-SF1000CX20	20,000 (1380)
4P	1/4"FNPT	20,000 (1380)
6P	3/8" FNPT	20,000 (1380)
8P	1/2" FNPT	20,000 (1380)

Max Design Pressure

Table 2

Code	Pressure Range
10	10,000 psig
20	20,000 psig

Vent Connection

Table 3

Code	Vent Connections
04	SP250CX20
4P	1/4" NPT

Wetted Metal

Table 4

Code	Material
SS	316SS
SD	Super Duplex 2507

Soft Goods

Table 5

Code	Material
V	FKM
E	Ethylene-Propylene