

# Block & Bleed Valves



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## Introduction

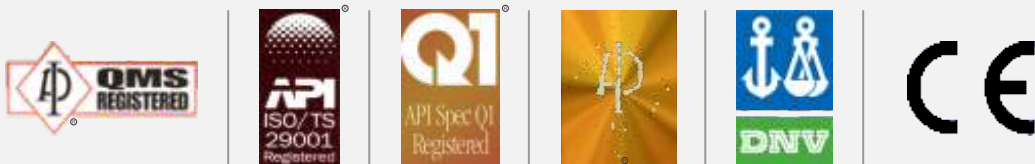
**PANAM** Block & Bleed and Double Block & Bleed Valves have been specifically designed to provide a compact, rigid, lighter, safer and lower cost solution than conventional piping methods used for the installation of gauges, transmitters and other critical equipment. Where Positive Isolation is required to protect personal and equipment, **PANAM** Block & Bleed and Double Block & Bleed Valves are an excellent alternative to multi valve systems that are threaded or welded. Lowest possible install cost as well as the advantage of reduced weight and minimizing potential leak paths provides the highest possible system integrity. The reduced height of the installation reduces the risk of damage through vibration. Zero Leakage Valves in a Block Bleed Block configuration will deliver absolute isolation.

**PANAM** is a leader in the field of Block & Bleed and Double Block & Bleed Valves. A company that has built its reputation on inspired development, precision engineering and high quality all with an emphasis on customer service that exceeds the expectations of industries worldwide.

**PANAM** offers an unrivaled range of standard products from stock, together with the latest in modern manufacturing capability and has the capacity to handle specific requirements and exotic materials.

**PANAM** new manufacturing facility has given added technical ability and resources to rapidly develop custom products for the most demanding or unusual applications.

- API ISO 9001:2008 Certified
- API ISO TS 29001 Certified
- API Spec Q1 Certified
- API 6A Certified
- API 6D Certified
- API 600 Certified
- API 602 Certified
- MFG. Facility Approved by ABS Ind.
- ASTM F1387-99
- Leak Test Approved by TUV
- CE Marking



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## Application & Installation

### Solutions

**PANAM** instrumentation products provide a wide range of solutions for Double Block & Bleed Valves.

**PANAM** Double Block and Bleed Valves are made from one piece forged bodies which provides excellent flexibility including a choice of end connections, body style, ball and globe valve configuration instruments.

#### 1) The Original Double Block and Bleed

3 Valves with a tee in the centre, 7 joints typically welded and x-rayed. This Double Block and Bleed can be welded directly to the process pipe or to a flange in applications where it is anticipated to require replacement due to aggressive process conditions. The assembly can be remade in a welding shop and taken to the field and replaced.

#### 2) Double Block & Bleed made with 2 Valve

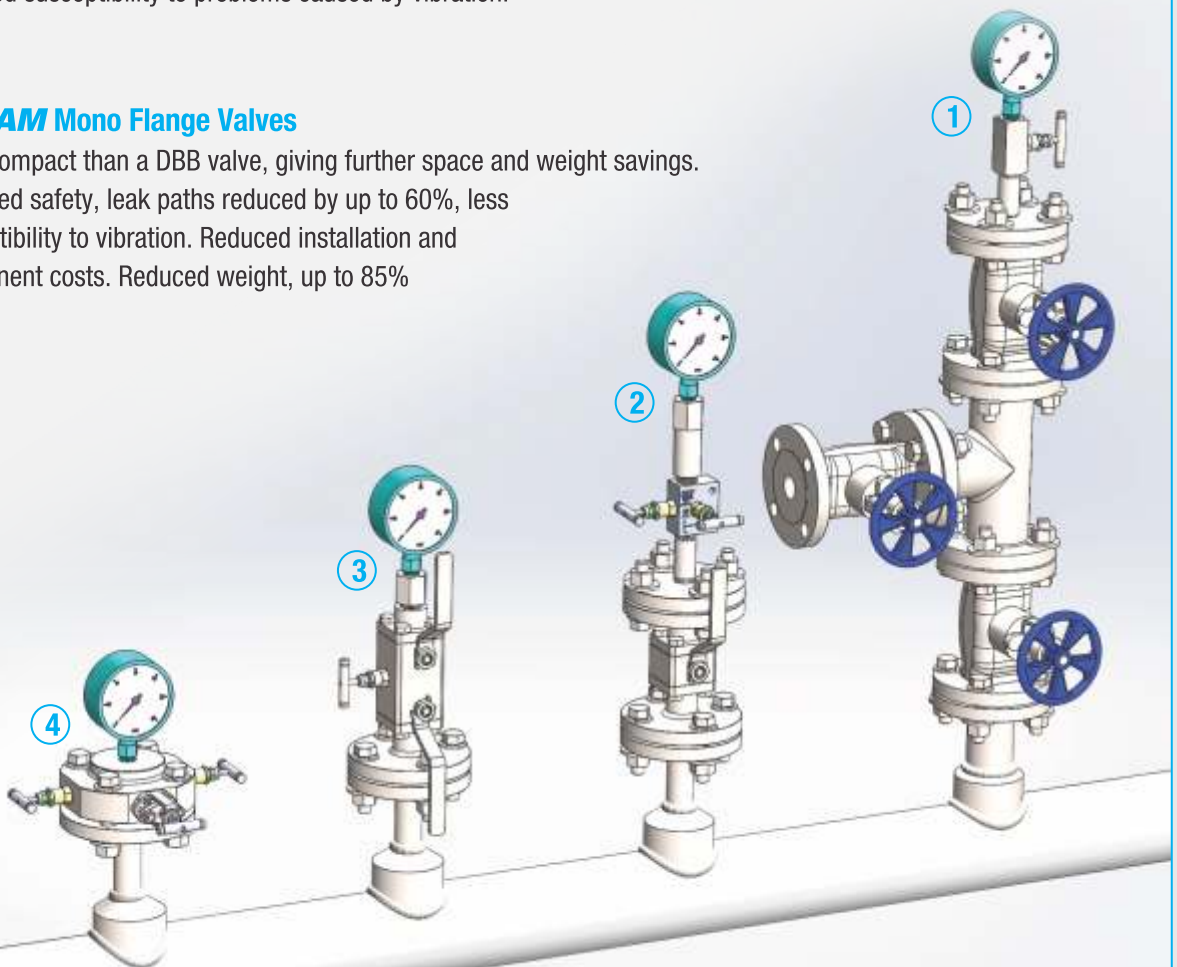
A welded flange, connected to a primary ANSI class isolating valve. The primary valve will be connected to a secondary instrument valve. A pressure gauge or transmitter will then be installed downstream of the instrument valve.

#### 3) PANAM Block & Bleed Valves

A One-piece integral forging incorporating up 3 ball valves or a mixture of ball and needle design. Improved safety, leak paths reduced by up to 60%. Reduced installation and component cost. Reduced weight by up to 80%. Reduced susceptibility to problems caused by vibration.

#### 4) PANAM Mono Flange Valves

More compact than a DBB valve, giving further space and weight savings. Improved safety, leak paths reduced by up to 60%, less susceptibility to vibration. Reduced installation and component costs. Reduced weight, up to 85%



## Features & Benefits

### Fire-Safe Test Approved

Double Block & Bleed valves are designed in accordance with API 607 & API SPEC 6FA.

### Double Body Gasket (Optional)

Double Block & Bleed valves are equipped with two body gaskets. The first body gasket is in soft material and the second in graphite, this combination assures the best seal characteristic in whatever corrosive service as well as giving a fire safe design.

### Anti-Static Device

In order to prevent static electricity from creating a dangerous conditions, static conduction spring is set between the stem and the ball.

### Anti Blow-Out Proof Stem

The stem is designed with internal T-Type shoulder to provide blow-out proof operations. This design assures that the stem can not be blown out of the valve in the case of the packing being removed while the valve is under pressure.

### Controlled Stem & Stuffing Box Finish

Stem and stuffing box finish machining is a key point of control. The stem is furnished to a surface finish of  $Ra=0.4$ , which can reduce friction of stem movement and provides less wear on the stem seal. The stuffing box surface is finished to  $Ra= 1.6$  for better sealing performance.

### Solid Ball

The solid ball used provides straight through flow and real full-port performance characteristics.

### Longevity of life

Special consideration was devoted to enhanced life and operation of our valve throughout design, development, testing and manufacturing stages. Valve designs combined with the selection of advanced materials are such that long periods of inactivity should not affect the operations of the valves.

### Low Torque Opening and Closing

Seat designs, stem bearing system and stem seal arrangements ensure consistent minimal torque values

### Flow Capacity

Valve design allows for high flow capacity in liquid or gas services regardless of whether the media is clean or dirty. Full port valves allow for pigging and ensure maximum flow capacity. The high Cv makes Double Block & Bleeds Ideal for viscous service.

### Field Repairable

Simple user friendly design allows for quick and easy part replacement requiring minimal "Down Time".

### Locking Device (Optional)

Locking device is supplied upon request in order to prevent unauthorized opening / closing. Locking device can lock the valve in either the open or closed position and cannot be breached by removing the lever.

### Inspection and Testing

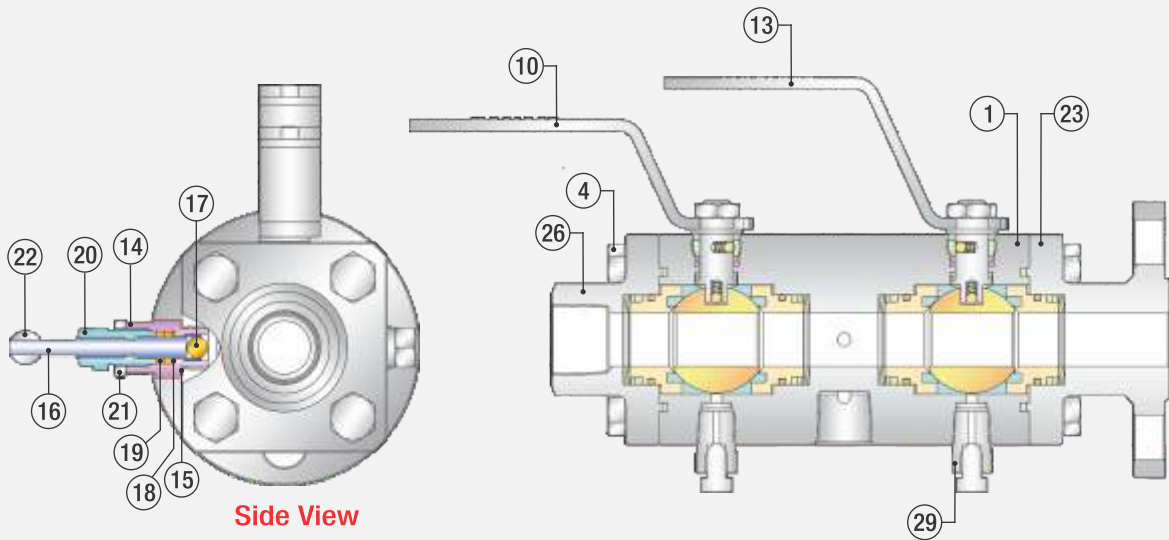
Every valve is subjected to different non-destructive testing, like dye penetrant test on butt weld ends and on all hard faced and cladding areas. Non-destructive test are also carried out on the critical areas as defined by ASME B16.34

Optional examinations like Radiographic, Magnetic Particles, Ultrasonic, Helium Leak Test etc.

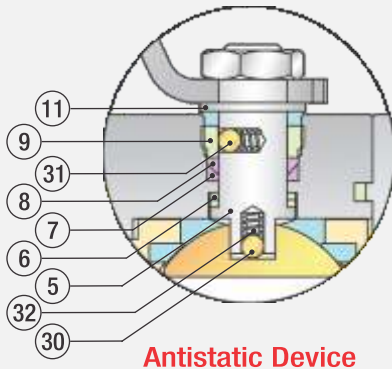
Personnel performing NDT are trained and qualified to EN 473/ASNT-SNT-TC-1A. each valve is subject to a pressure test in accordance with the standard API 598 or BS 6755 Part 1. The rated pressure for the applicable pressure class is in accordance with ASME B16.34 / EN 1251 1/2.



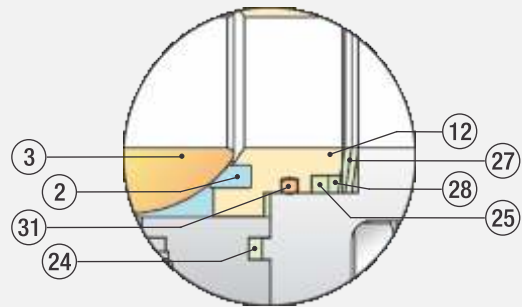
## Material of Construction



Side View



Antistatic Device



Fire Safe

Sr. No.	Part Name	Qty.
1	Body	1
2	Seat	4
3	Ball	2
4	Stud & Nut M10 x 1.5	8
5	Stem	2
6	Trust Washer	4
7	Packing	2
8	Packing	2
9	Lock Nut	2
10	Handle Isolate 2	1
11	Plain Washer	2
12	Seat cover	4
13	Handle Isolate 1	1
14	Gland Body	1
15	Gland Washer	1
16	Spindle	1
17	Ball Isolate Valve	1

Sr. No.	Part Name	Qty.
18	Packing Washer	1
19	Packing	2
20	Retainer	1
21	Lock Nut	1
22	Handle	1
23	Flange	1
24	Body Seat	2
25	Seat Seal	2
26	NPT Adaptor	1
27	Spring Washer	8
28	Seat Backup Ring	4
29	Bleed Plug	2
30	Antistatic Ball	4
31	Seat 'O' ring	4
32	Static Spring	4

## Body & Trim Material

### Carbon Steel

A105N, A216 WCB, A216 WCC

### Low Temperature Carbon Steel

A350 LF2, A352 LCB, A352 LCC

### Low Alloy Steel

ANSI 4140, A694 F65, A694 F52

A694 F60, A350 LF3

API 6A 60K (A694 F60 Mod)

### Martensitic Stainless Steel

A182 F6A, A182 F6NM

A217 CA15, A487 CA6NM

### Austenitic Stainless Steel

A182 F316, A182 F316L

A182 F316LN-Mod., A182 F347

A182 F44 (6% Mo)(UNS S31254), A182 FXM-19 (Nitronic 50)

A351 CF8M, A351 CF3

A351 CF3M

### Precipitation Hardening Stainless Steel

A564 Gr 630 H1150M (UNS S17400)

### Duplex Stainless Steel

A181 F51 (UNS S31803)

A182 F53 (UNS S31750)

A182 F5S (UNS S 31760)

A890-4A (UNS S 31803)

A890-6A (UNS S32760)

### Nickel Alloys

Incoloy 825 (UNS N08825) Incoloy 925 (UNS N09925)

Inconel 625 (UNS N06625) Inconel 718 (UNS N07718)

Inconel 750 (UNS N07750)

Monel 400

Monel K500

## Engineering Data

### Valve Testing

**PANAM** Valves are 100% Tested in accordance of API 6D requirement, prior to shipping

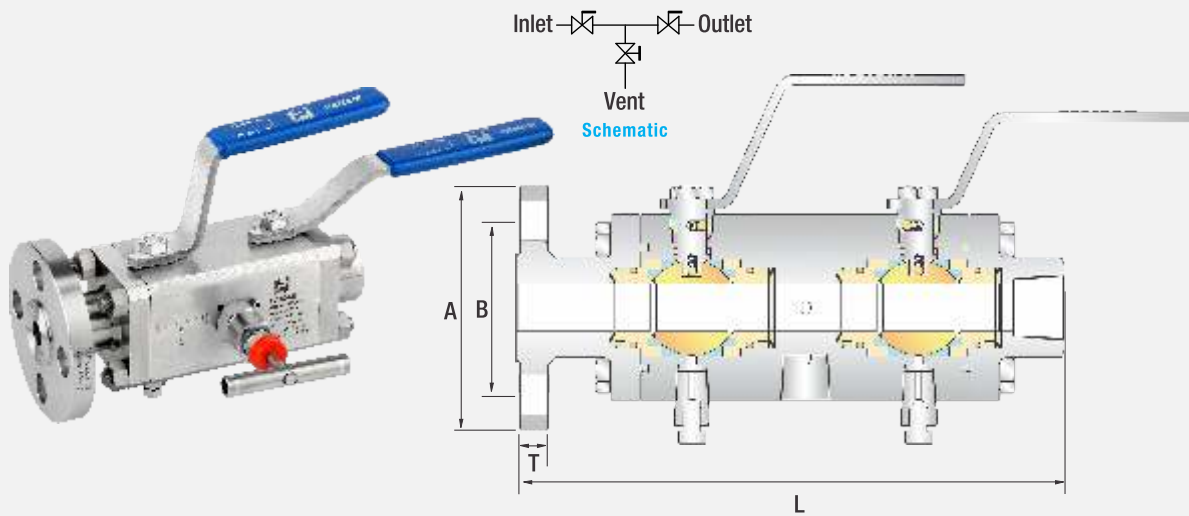
### Standard Performance Tests

- Visual & dimensional checking
- High pressure hydrostatic shell test
- High pressure hydrostatic seats test
- Low pressure air seats test
- Stem torque checking

### Rating & Test Pressure at Ambient Temperature

ASME CLASS	Rating			Hydrostatic Shell Test			Hydrostatic Seat Test			Pneumatic Seat Test		
	Psi	Bar	Kg/cm <sup>2</sup>	Psi	Bar	Kg/cm <sup>2</sup>	Psi	Bar	Kg/cm <sup>2</sup>	Psi	Bar	Kg/cm <sup>2</sup>
150	284.3	19.6	20.0	426.5	29.4	30.0	312.7	21.6	22.0	80.8	5.5	5.6
300	741.1	51.1	52.1	1111.7	76.7	78.2	815.2	56.2	57.3	80.8	5.5	5.6
600	1480.8	102.1	104.1	2221.2	153.2	156.2	1628.9	112.3	114.5	80.8	5.5	5.6
900	2222.0	153.2	156.2	3333.0	229.8	234.3	2444.2	168.5	171.8	80.8	5.5	5.6
1500	3702.8	255.3	260.2	5554.2	383.0	390.3	4073.1	280.8	286.2	80.8	5.5	5.6
2500	6171.4	425.5	433.7	9257.1	638.3	650.6	6788.5	468.1	477.1	80.8	5.5	5.6
API 3000	3000.0	206.8	210.8	4500.0	310.2	316.2	3300.0	227.5	231.9	80.8	5.5	5.6
API 5000	5000.0	344.7	351.4	7500.0	517.1	527.1	5500.0	379.2	386.5	80.8	5.5	5.6
API 10000	10000.0	689.5	702.9	15000.0	1034.3	1054.4	11000.0	758.5	773.2	80.8	5.5	5.6

## Dimensions (Flange x NPT)

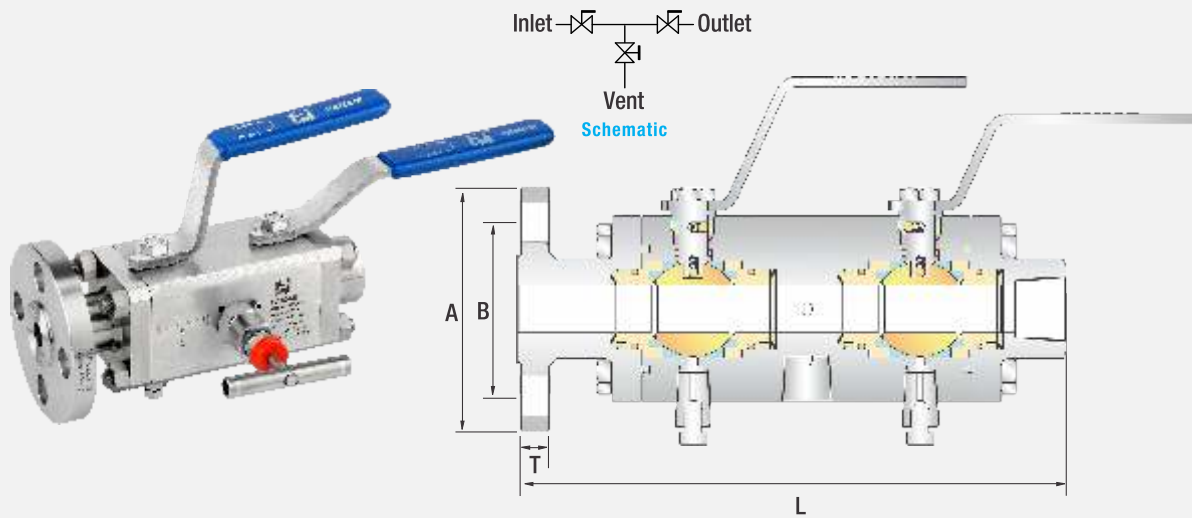


(10mm BORE)

SIZE (inch)	RATING (lb)	DIMENSION (mm)			
		DB-S1 L(RF)	A	B	T
1/2 15 NB	150	170	89	60.3	11.2
	300	170	96	66.7	14.2
	600	179	96	66.7	20.6
	900 / 1500	186	121	82.5	28.8
	2500	186	134	88.9	36.6
3/4 20 NB	150	175	99	69.8	12.7
	300	175	118	82.5	15.7
	600	175	118	82.5	22.1
	900 / 1500	179	130	88.9	31.8
	2500	186	140	95.2	38.2
1 25 NB	150	170	108	79.4	14.2
	300	170	124	88.9	17.5
	600	179	124	88.9	23.9
	900 / 1500	186	150	101.6	34.8
	2500	186	159	108.0	41.5
1-1/2 40 NB	150	170	127	98.4	17.5
	300	179	156	114.3	20.6
	600	179	156	114.3	27.0
	900 / 1500	186	178	124.0	38.2
	2500	200	203	146.1	50.9
2 50 NB	150	279	152	120.6	22.4
	300	279	165	127.0	24.0
	600	186	165	127.0	30.4
	900 / 1500	200	216	165.1	44.5
	2500	208	235	171.5	57.2



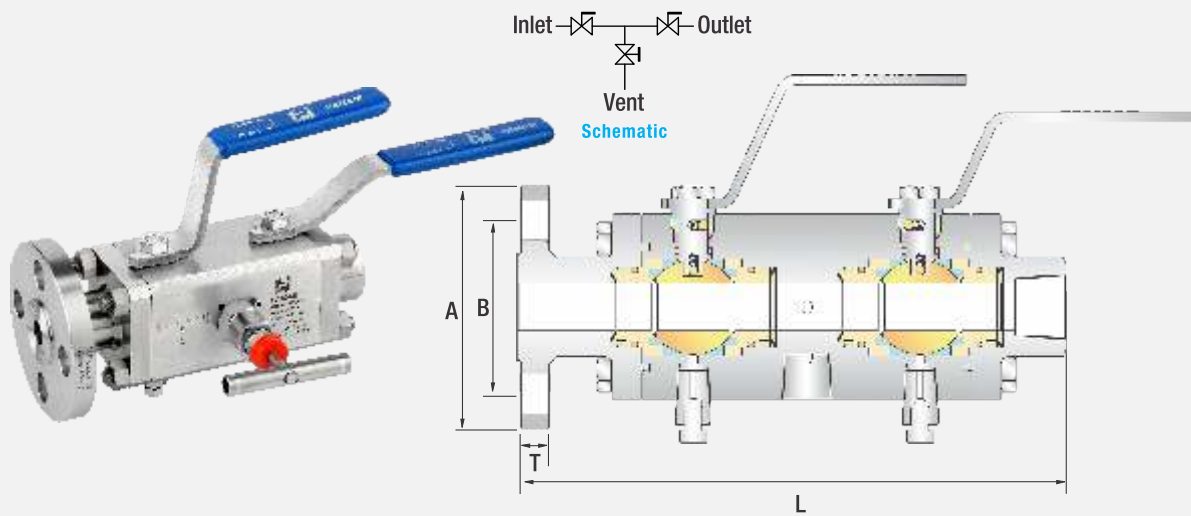
## Dimensions (Flange x NPT)



(14mm BORE)

SIZE (inch)	RATING (lb)	DIMENSION (mm)			
		DB-S1 L(RF)	A	B	T
3/4 20 NB	150	208	99	69.8	12.7
	300	208	118	82.5	15.7
	600	208	118	82.5	22.1
	900 / 1500	218	130	88.9	31.8
	2500	224	140	95.2	38.2
1 25 NB	150	208	108	79.4	14.2
	300	208	124	88.9	17.5
	600	218	124	88.9	23.9
	900 / 1500	224	150	101.6	34.8
	2500	227	159	108.0	41.5
1-1/2 40 NB	150	208	127	98.4	17.5
	300	218	156	114.3	20.6
	600	218	156	114.3	27.0
	900 / 1500	224	178	124.0	38.2
	2500	238	203	146.1	50.9
2 50 NB	150	218	152	120.6	22.4
	300	218	165	127.0	24.0
	600	224	165	127.0	30.4
	900 / 1500	238	216	165.1	44.5
	2500	246	235	171.5	57.2

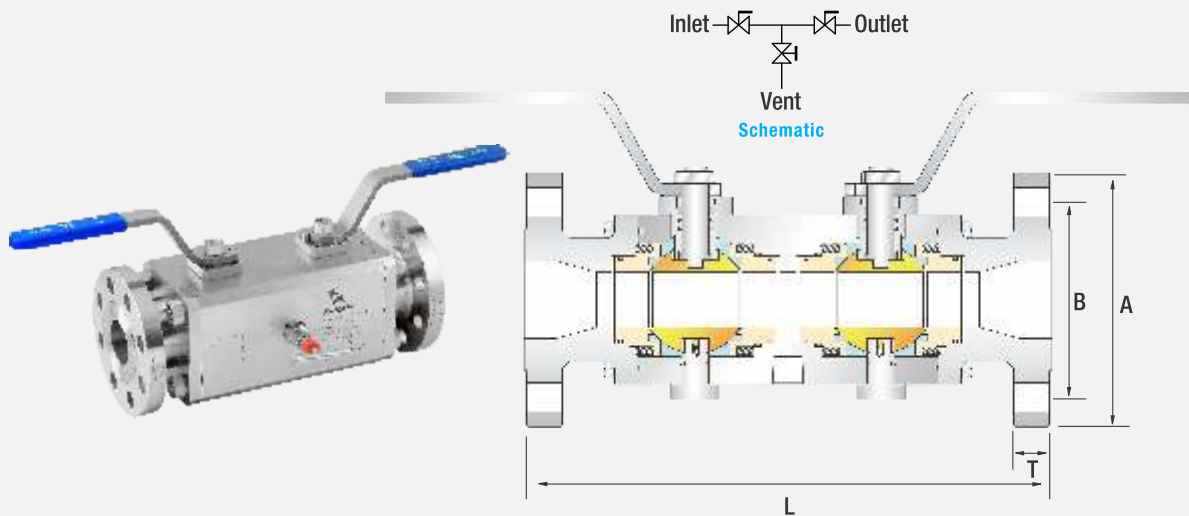
## Dimensions (Flange x NPT)



(20mm BORE)

SIZE (inch)	RATING (lb)	DIMENSION (mm)			
		DB-S1 L(RF)	A	B	T
1 25 NB	150	235	108	79.4	14.2
	300	235	124	88.9	17.5
	600	244	124	88.9	23.9
	900 / 1500	251	150	101.6	34.8
	2500	251	159	108.0	41.5
1-1/2 40 NB	150	235	127	98.4	17.5
	300	244	156	114.3	20.6
	600	244	156	114.3	27.0
	900 / 1500	251	178	124.0	38.2
	2500	265	203	146.1	50.9
2 50 NB	150	244	152	120.6	22.4
	300	244	165	127.0	24.0
	600	251	165	127.0	30.4
	900 / 1500	265	216	165.1	44.5
	2500	273	235	171.5	57.2

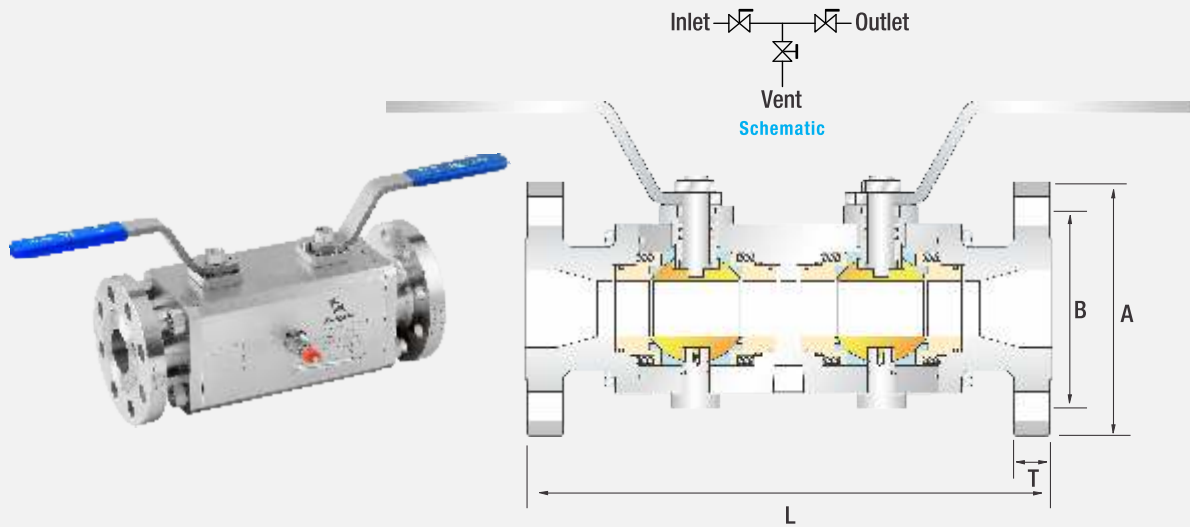
## Dimensions (Flange x Flange)



(10mm BORE)

SIZE (inch)	RATING (lb)	DIMENSION (mm)			
		DB-S1 L(RF)	A	B	T
1/2 15 NB	150	235	89	60.3	11.2
	300	235	96	66.7	14.2
	600	235	96	66.7	20.6
	900 / 1500	254	121	82.5	28.8
	2500	267	134	88.9	36.6
3/4 20 NB	150	235	99	69.8	12.7
	300	235	118	82.5	15.7
	600	235	118	82.5	22.1
	900 / 1500	254	130	88.9	31.8
	2500	267	140	95.2	38.2
1 25 NB	150	235	108	79.4	14.2
	300	235	124	88.9	17.5
	600	254	124	88.9	23.9
	900 / 1500	267	150	101.6	34.8
	2500	267	159	108.0	41.5
1-1/2 40 NB	150	235	127	98.4	17.5
	300	254	156	114.3	20.6
	600	254	156	114.3	27.0
	900 / 1500	267	178	124.0	38.2
	2500	314	203	146.1	50.9
2 50 NB	150	254	152	120.6	22.4
	300	254	165	127.0	24.0
	600	267	165	127.0	30.4
	900 / 1500	314	216	165.1	44.5
	2500	334	235	171.5	57.2

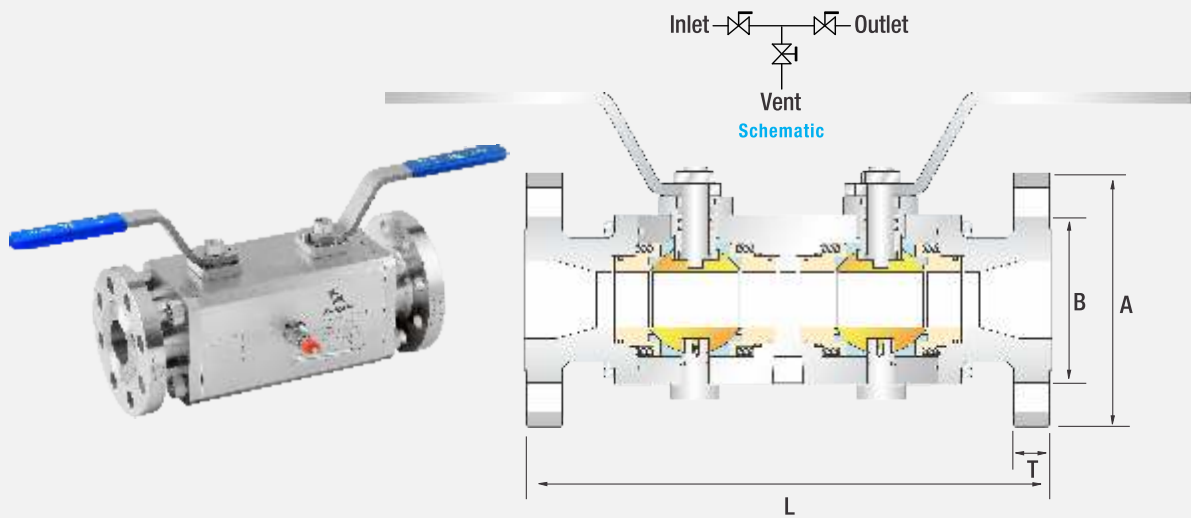
## Dimensions (Flange x Flange)



(14mm BORE)

SIZE (inch)	RATING (lb)	DIMENSION (mm)			
		DB-S1 L(RF)	A	B	T
3/4 20 NB	150	235	99	69.8	12.7
	300	235	118	82.5	15.7
	600	235	118	82.5	22.1
	900 / 1500	254	130	88.9	31.8
	2500	267	140	95.2	38.2
1 25 NB	150	235	108	79.4	14.2
	300	235	124	88.9	17.5
	600	254	124	88.9	23.9
	900 / 1500	267	150	101.6	34.8
	2500	273	159	108.0	41.5
1-1/2 40 NB	150	235	127	98.4	17.5
	300	254	156	114.3	20.6
	600	254	156	114.3	27.0
	900 / 1500	267	178	124.0	38.2
	2500	334	203	146.1	50.9
2 50 NB	150	254	152	120.6	22.4
	300	254	165	127.0	24.0
	600	267	165	127.0	30.4
	900 / 1500	334	216	165.1	44.5
	2500	334	235	171.5	57.2

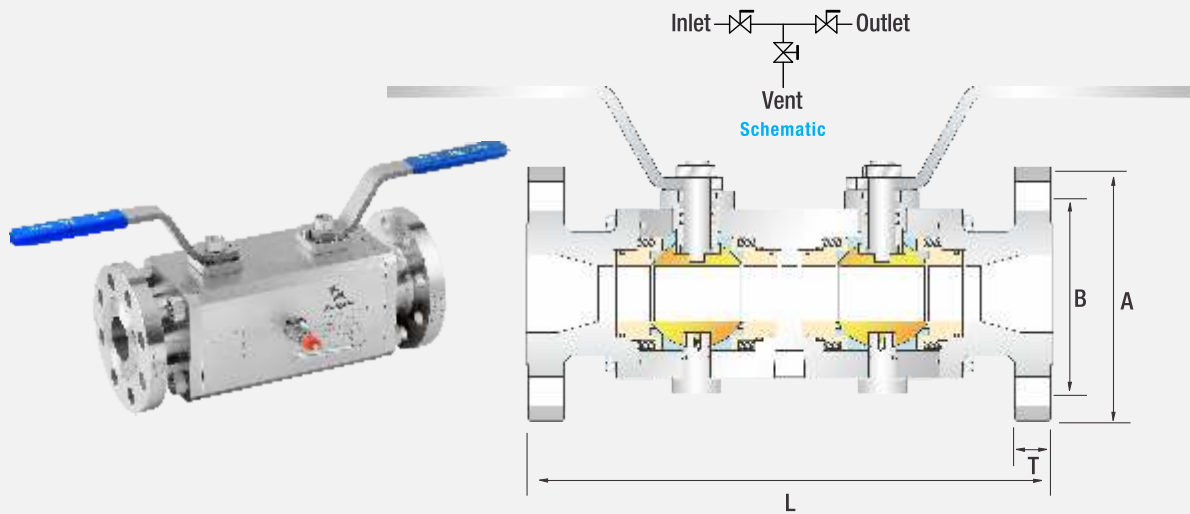
## Dimensions (Flange x Flange)



(20mm BORE)

SIZE (inch)	RATING (lb)	DIMENSION (mm)			
		DB-S1 L(RF)	A	B	T
1 25 NB	150	235	108	79.4	14.2
	300	235	124	88.9	17.5
	600	254	124	88.9	23.9
	900 / 1500	267	150	101.6	34.8
	2500	273	159	108.0	41.5
1-1/2 40 NB	150	235	127	98.4	17.5
	300	254	156	114.3	20.6
	600	254	156	114.3	27.0
	900 / 1500	268	178	124.0	38.2
	2500	334	203	146.1	50.9
2 50 NB	150	254	152	120.6	22.4
	300	254	165	127.0	24.0
	600	318	165	127.0	30.4
	900 / 1500	334	216	165.1	44.5
	2500	334	235	171.5	57.2

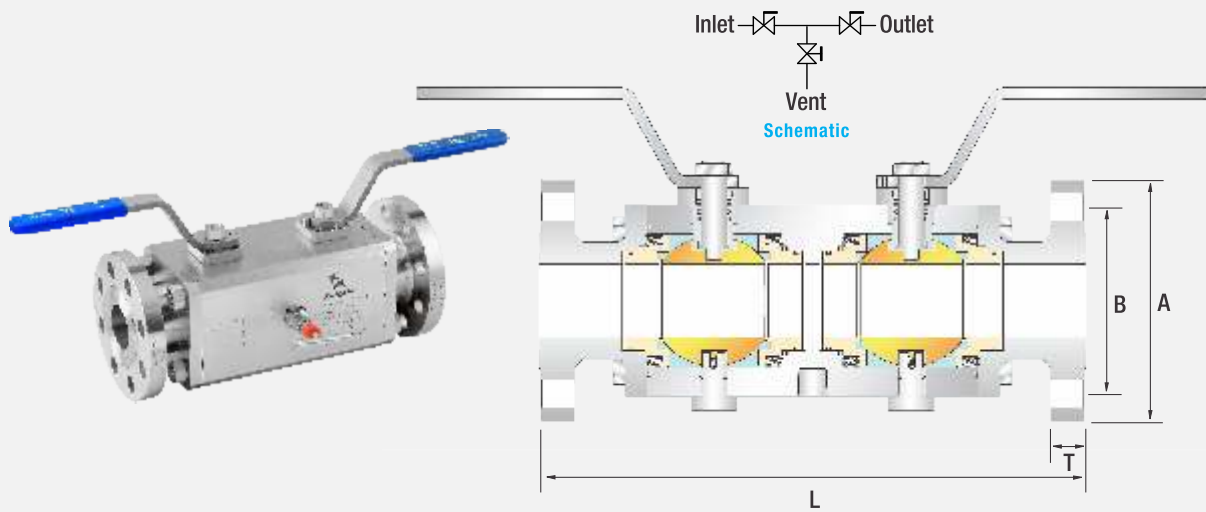
## Dimensions (Flange x Flange)



### Reduce Bore

SIZE (inch)	BORE (mm)	RATING (lb)	DIMENSION (mm)					
			RF FLANGE		RTJ FLANGE		A	T
			L	T	L	T		
1-1/2 40 NB	25.4	150	279	19.5	292	25.9	298	132
		300	285	22.6	292	25.9	298	132
		600	301	30.8	301	30.8	298	132
		900 / 1500	370	40.2	370	40.2	298	132
		2500	396	52.9	399	54.4	298	132
2 50 NB	38.1	150	364	21.1	377	27.5	325	147
		300	372	27.9	377	27.5	325	147
		600	390	33.8	393	35.3	325	147
		900 / 1500	415	46.5	418	48.0	325	147
		2500	475	59.2	478	60.7	325	147
3 75 NB	50.8	150	400	25.9	413	32.3	452	170
		300	410	30.9	413	32.3	452	170
		600	428	40.2	431	41.7	452	170
		900 / 1500	441	46.5	444	48.0	452	170
		2500	500	56.2	503	57.7	452	170

## Dimensions (Flange x Flange)



### Full Bore

SIZE (inch)	BORE (mm)	RATING (lb)	DIMENSION (mm)					
			RF FLANGE		RTJ FLANGE		A	T
			L	T	L	T		
1 25 NB	25.4	150	272	16.2	285	22.6	298	132
		300	279	19.5	285	22.6	298	132
		600	292	25.9	292	25.9	298	132
		900 / 1500	364	36.8	364	36.8	298	132
		2500	377	43.5	377	43.5	298	132
1-1/2 40 NB	38.1	150	361	19.5	374	25.9	325	147
		300	367	22.6	374	25.9	325	147
		600	384	30.8	384	30.8	325	147
		900 / 1500	402	40.2	402	40.2	325	147
		2500	463	52.9	466	54.4	325	147
2 50 NB	50.8	150	390	21.1	403	27.5	452	170
		300	398	24.9	403	27.5	452	170
		600	416	33.8	419	35.3	452	170
		900 / 1500	481	46.5	484	48.0	452	170

## Ordering Information

**PDBB-BBB-10-SS-01-15-150-RF-20-150-RF-8N**

### PANAM Double Block & Bleed

#### Block & Bleed

BBB - (Ball / Ball / Ball)

BNB - (Ball / Needle / Ball)

#### Bore Size

10 - 10mm    14 - 14mm    20 - 20mm    FB - Full Bore

#### Material of Construction

CS - Carbon Steel

SS - Stainless Steel

6Mo - 6Mo UNS S31254

MO - Alloy 400 UNS N04400

DSS - Duplex UNS S31803

SDSS - Super Duplex UNS S32750

INC - Alloy C-276 UNS N10276

LF2 - A350 LF2

HC - Alloy 625 UNS N06625

#### Seals - Standard Valve Design

##### Packing / Body Seals

01 - PTFE

02 - Graphite

03 - PTFE

04 - Graphite

05 - PCTFE

##### Ball Seat

Carbon Filled PTFE

Carbon Filled PTFE

PEEK

PEEK

PCTFE

#### Process Connection

• 15 - 1/2" • 20 - 3/4" • 25 - 1" • 32 - 1 1/4" • 40 - 1 1/2" • 50 - 2"

• 8NM - 1/2 NPTM • 8NF - 1/2 NPTF

• 12NM - 3/4 NPTM • 12NF - 3/4 NPTF

#### ASME Flange Class

150    300    600    900    1500    2500

#### Flange Ends

RF    RTJ

#### Instrument Connection

• 15 - 1/2" • 20 - 3/4" • 25 - 1" • 32 - 1 1/4" • 40 - 1 1/2" • 50 - 2"

• 8NM - 1/2 NPTM • 8NF - 1/2 NPTF

• 12NM - 3/4 NPTM • 12NF - 3/4 NPTF

#### Instrument ASME Flange Class

150    300    600    900    1500    2500

#### Instrument Flange Ends

RF    RTJ

#### Vent Connection

4N - 1/4 NPT Female

8N - 1/2 NPT Female



## Mono Flange Valves

**PANAM** Mono Flange valves are light weight Mono Flange isolation valves that incorporates an Outside Screw and Yoke bolted bonnet design primary isolate together with a heavy duty instrument Needle Valve bonnet assembly for the vent valve. The compact one piece design not only ensures that potential leakage paths are kept to an absolute minimum but offers significant weight and component cost savings when compared to other conventional installation solutions.

Mono Flange valves are designed to meet the requirements of piping class installations in accordance with ASME/ANSI standards that features all metal seating and metal to metal body / bonnet connections. Mono Flanges are manufactured in a full range of materials, flange types and ratings as well as having a choice of flange, screw or kidney flange outlets.

### Construction

Manufactured from a single piece forging or forged bar stock that incorporates the OS&Y valve head and outlet connection.

### Configuration

Block / Double Block / Block & Bleed /  
Double Block & Bleed

### Inlet

The flanged process connection can be made to suit any international size or rating including, but not restricted to :-

- \* ANSI B 16.5 Flanges from 1/2" to 4" in ratings from 150 to 2500 lbs in RF, FF, SRF and RTJ flange face styles.
- \* API Flanges up to 2.1/16", 3000, 5000 & 10,000 lbs
- \* Norsok L-100 Compact flange design

### Outlet

In Flange by Flange variants the outlet flange is identical to the inlet process flange as listed above. Alternatively the output can be:-

- \* Screwed female connections, ( 1/2" NPT standard)
- \* Kidney Flanges for direct connection onto transmitters
- \* Quick release compression fittings

### Bore Sizes

6mm (standard), 8mm can be provided depending upon the flange size and rating

### Fire Safe

Fire safe to BS 6755 Pt 2 / API 607

### NACE

All body & wetted parts materials comply with the requirements of NACE MR 0175 / En15156 or MR 0103 depending upon the environmental or application requirement

### Pressure Rating

Pressure rating up to 10,000 psi (690 barg)

### Temperature Rating

-54° C to 538° C (-65° F to 1000° F) depending upon the stem packing material and pressure rating

### OS&Y and Needle Valve Assemblies

OS&Y and Heavy duty needle valve bonnet assemblies incorporate a full range of features including:-

- \* Anti static, anti blow-out stems

\* Non-rotating stem tips provide a true metal to metal valve seat whereby the material of the stem tip is one grade harder than the body thus resisting over tightening, preventing wear and guaranteeing a 100% bubble tight seat closure, first time, every time.

### No Threads in the Process Stream

All needle valves bonnet assemblies incorporate 'soft' parent metal sealing rings that are located directly below the bonnet threads to ensure that no threads are directly in the process stream.

### Steam Packing

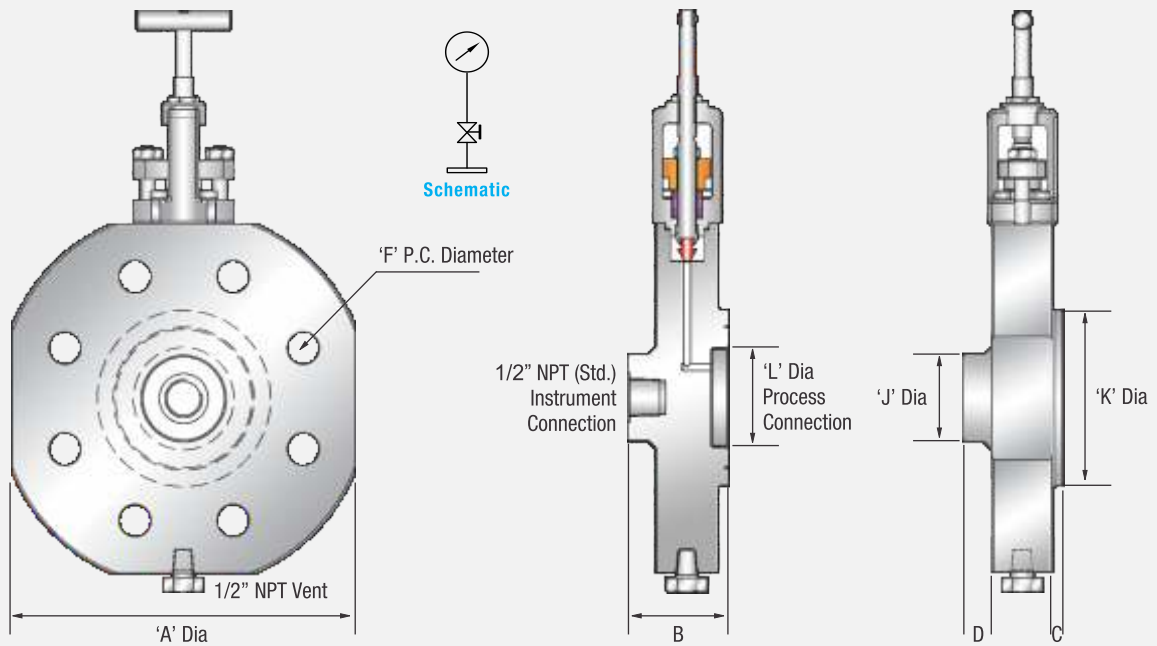
Fully adjustable, dynamically responsive multi ring gland sandwich, in either PTFE or Graphoil, resists all operating pressures and processes. Stem packing are all below the stem threads keeping the process away from the stem threads for longer life.

### Other Features

- \* Hydro static and gas pressure testing to BS 6755 Pt 1 or API 6A
- \* Material thickness as defined in ANSI / ASME B16.34
- \* Flange dimensions as defined in ANSI / ASME B16.5
- \* Heat code traceable material certification to EN 10204 3.1b
- \* Full range of testing, certification and documentation can be supplied including PMI and full range of NDE testing
- \* Pressure boundary designs calculated to ASME VIII Div 1
- \* Designed with 4:1 safety factor
- \* Optional locking and anti tamper bonnet assemblies

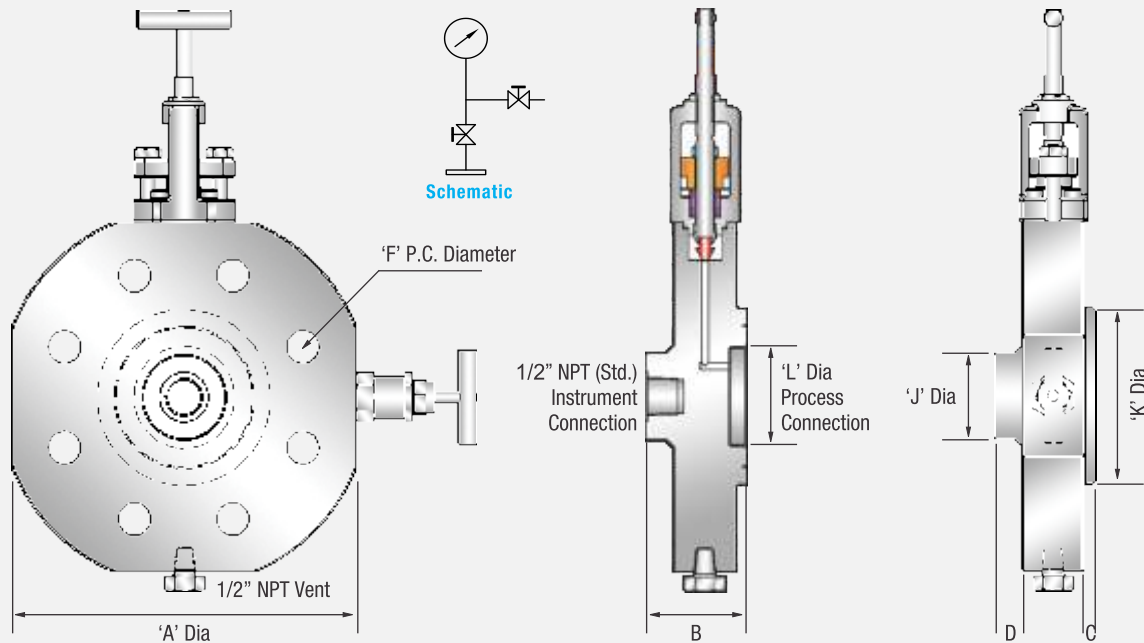


## Mono Flange - Dimensions



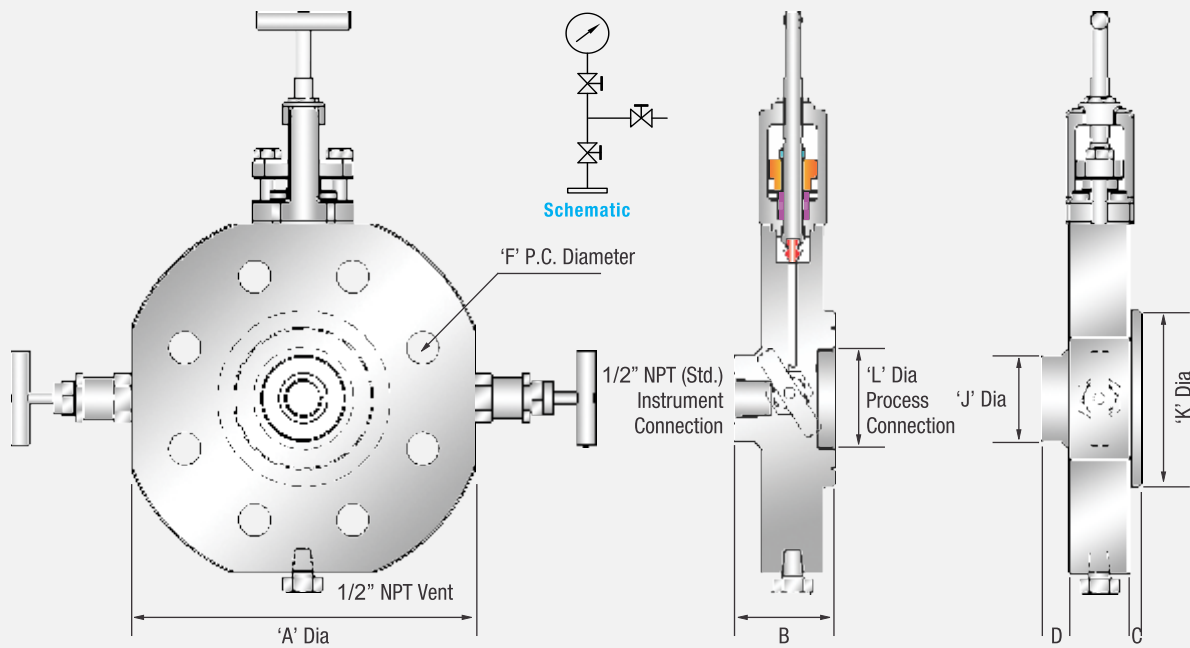
SIZE (inch)	RATING (lb)	DIMENSION (mm)							
		'A' Dia	B	C	D	F	'J' Dia	'K' Dia	'L' Dia
1/2 15 NB	150	98	60	1.6	3.0	4	34.9	-	-
	300	98	60	1.6	3.0	4	34.9	50.8	34.13
	600	98	60	6.4	3.0	4	34.9	50.8	34.13
	900 / 1500	121	60	6.4	15.5	4	34.9	60.3	39.69
	2500	133	60	6.4	8.5	4	34.9	65.1	42.86
3/4 20 NB	150	98	60	1.6	3.0	4	42.9	-	-
	300	117	60	1.6	15.5	4	42.9	63.5	42.86
	600	117	60	6.4	15.5	4	42.9	63.5	42.86
	900 / 1500	130	60	6.4	8.5	4	42.9	66.7	44.45
	2500	140	60	6.4	8.5	4	42.9	65.1	50.80
1 25 NB	150	108	60	1.6	15.5	4	50.8	63.5	47.63
	300	124	60	1.6	15.5	4	50.8	69.8	50.80
	600	124	60	6.4	15.5	4	50.8	69.8	50.80
	900 / 1500	159	60	6.4	8.5	4	50.8	71.4	50.80
	2500	159	60	6.4	6.0	4	50.8	73.0	50.80
1-1/2 40 NB	150	127	60	1.6	15.5	4	73.0	82.4	65.09
	300	156	60	1.6	12.0	4	73.0	90.5	68.26
	600	156	60	6.4	12.0	4	73.0	90.5	68.26
	900 / 1500	178	60	6.4	6.0	4	73.0	92.1	68.26
	2500	203	60	6.4	13.5	4	73.0	114.3	82.55
2 50 NB	150	152	60	1.6	8.5	4	92.1	101.6	82.55
	300	165	60	1.6	12.0	8	92.1	108.0	82.55
	600	165	60	6.4	12.0	8	92.1	108.0	82.55
	900 / 1500	216	80	6.4	19.5	8	92.1	123.8	95.25
	2500	235	80	6.4	7.0	8	92.1	133.4	101.60

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## Ordering Information

**PDBB-OSY-SS-01-50-2500-RTJ-8NF-8N**

### PANAM Block & Bleed

DBB - Double Block & Bleed Valves (MF)  
SBB - Single Block & Bleed Valves (MF)

### Primary Isolation Valve

OSY - Block & Bleed (OS & Y / Needle / Needle)  
NB - Needle Block (Needle / Needle / Needle)

### Material of Construction

CS - Carbon Steel                      SDSS - Super Duplex UNS S32750  
SS - Stainless Steel                    INC - Alloy C-276 UNS N10276  
6Mo - 6Mo UNS S31254                LF2 - A350 LF2  
MO - Alloy 400 UNS N04400        HC - Alloy 625 UNS N06625  
DSS - Duplex UNS S31803

### Packing

01 - PTFE  
02 - Graphite  
03 - Carbon Filled PTFE

### Process Connection

• 15 - 1/2"      • 20 - 3/4"      • 25 - 1"      • 32 - 1 1/4"  
• 40 - 1 1/2"      • 50 - 2"

### ASME Flange Class

150    300    600    900    1500    2500

### Flange Ends

RF    RTJ

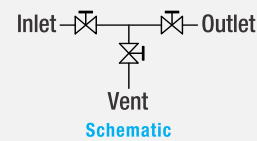
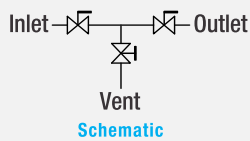
### Instrument Connection

8NF - 1/2 NPTF

### Vent Connection

4N - 1/4 NPT Female      8N - 1/2 NPT Female

## DBB (Ball Valves, Ball Valves with Needle Valve & Needle Valve, Needle Valve with Needle Valve)



- For eliminating the need of tubing and fittings a single valve combines isolating and venting.
- Enabling instruments to be removed without disturbing the permanent piping installation, Block valve isolates the downstream process fluids and the bleed valve exhausts upstream fluids.
- The NPT vent plug is located 90° to the left and may be removed and replaced with exhaust piping to direct the fluids to a safe location.

### Isolating Ball Valves

**A479-316 Construction** - for corrosion resistance.

**Full or Reduced Bore** - for excellent flow.

**Three piece design** - for easy installation and maintenance.

**Anti Blow out internally loaded stem** - for safety.

**Floating ball design** - for positive sealing & seat wear out.

**Low torque 90° actuation with SS Lever / Phenolic handle** - for smooth operation.

### Isolating Needle Valves

**Non Rotating Vee / Ball Tip Design:-** Which forms a bearing joint with the stem eliminates rotation between plug & seat at closure, This prevents scoring and galling up the valve seat and ensure long life in repetitive shut off service.

**Safety Bonnet Lock:-** Prevents accidental disassembly.

**Stem Thread Rolled & Hard Plated:-** Provides additional strength & maximum service life.

**Mirror Finish Stem, Furnished to a 16RMS:-** Extends packing life and smooth stem operation.

**Adjustable Packing Below Stem Threads:-** Prevents stem lubrication washout and isolate threads from process contamination.

**Safety Back Seating:-** Provides secondary stem seal in full open position, prevents stem blow out.

**Stainless Steel Handle:-** For proper actuation.

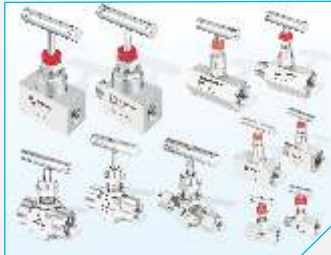
**Body to Bonnet Seal:-** Metal to Metal constant compression, isolate bonnet threads from system fluids and eliminates possible tensile.

**Dust Cap:-** Prevents contaminants and lubricant washout of bonnet assembly.

## Other Products



2, 3, & 5 Valve Manifolds



Needle Valves



Ball Valves



Check Valves



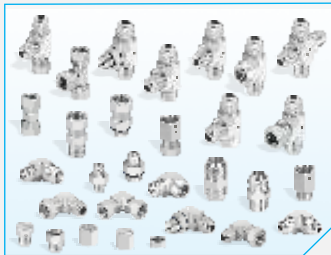
Relief Valves



Tube Fittings



Pipe Fittings



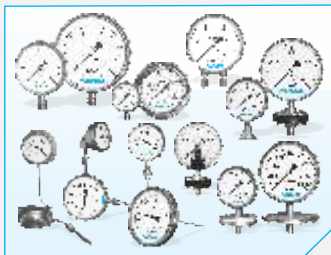
Flare Fittings



Thermowells



Gauge Root Valves



Pressure, Temperature & Diaphragm Gauges



Pressure Transmitters



Pressure Regulators



Air Header



Industrial Valves



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