



Instrumentation  
Valves

ALCO VALVES DELIVER TRUSTED  
SOLUTIONS FOR CRITICAL  
APPLICATIONS.





## ALCO VALVES GROUP LTD

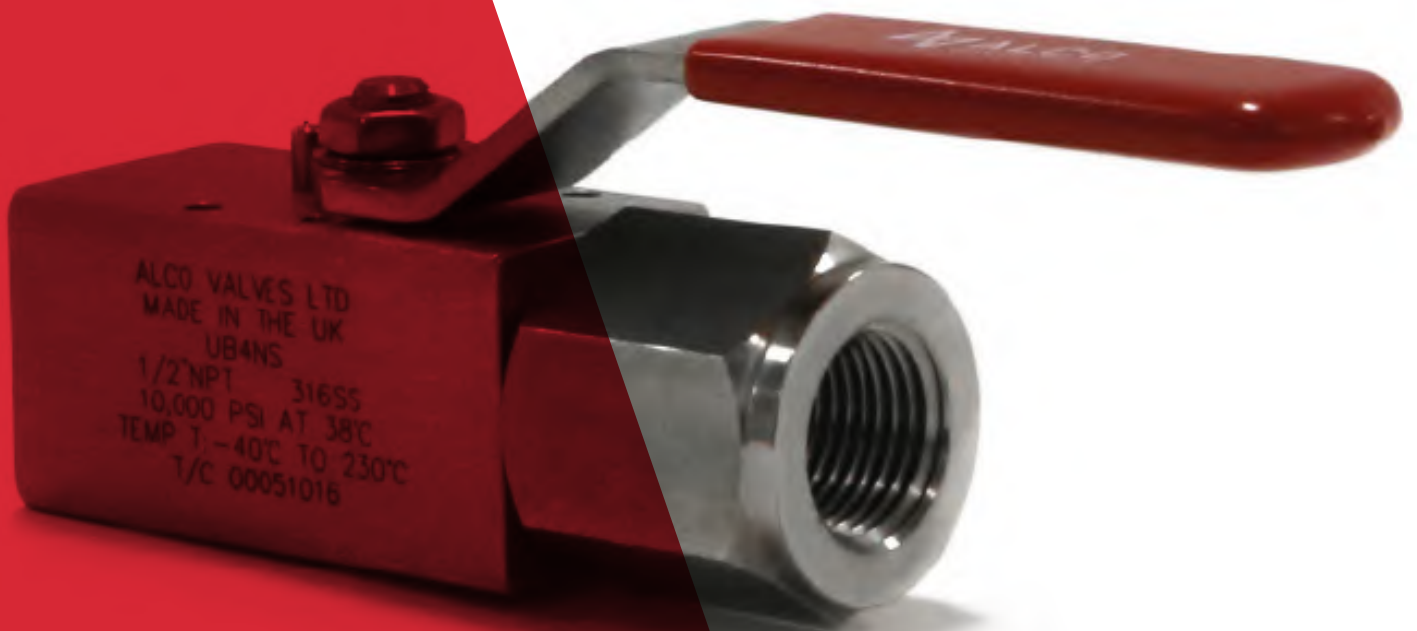
The Alco Valves Group has been delivering quality, precision and excellence for its customers since 1977. In that time the business has evolved into the choice supplier of technically advanced valve products and solutions for critical applications across the globe.

The Alco Valves Group's extensive range of valves and accessories are precision-made to fit the customer's requirements using advanced machinery and manufacturing processes. Quality assurance is of the utmost importance to Alco and the group holds a number of internationally recognised quality standards certifications and management systems.

The Alco Valves Group now operates in over thirty countries worldwide with office locations in the UK, UAE, Malaysia, Australia and USA. In 2016 the group developed its flagship headquarters in Yorkshire, UK, establishing it as a state-of-the-art production and technology centre. This is where innovation comes to life and products are designed, tested and manufactured using the latest industry-led technology.

This dedication to operational excellence runs throughout the business, from customer service right through to the safety and reliability of products. The Alco Valves Group is committed to continual improvement and infrastructure investment as it aspires to be the most technologically advanced valve provider in the world.

**40** YEARS OF  
MANUFACTURING  
EXCELLENCE



ALCO VALVES LTD  
MADE IN THE UK  
UB4NS  
1/2" NPT 316SS  
10,000 PSI AT 38°C  
TEMP T: -40°C TO 230°C  
T/C 00051016

# Ball Valves



# Ball Valve Section Contents

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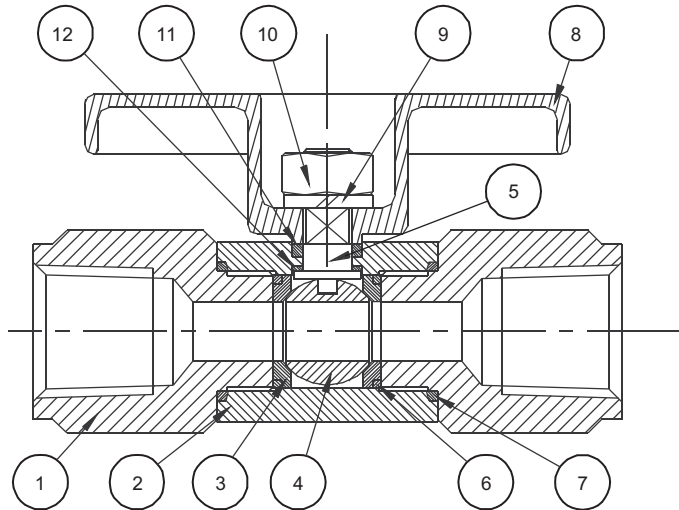
Section

**6**

Check Valves & Non-Return Valves

# Ball Valve Features & Advantages

## Physical Features - Typical 'B' Series for liquids or gases

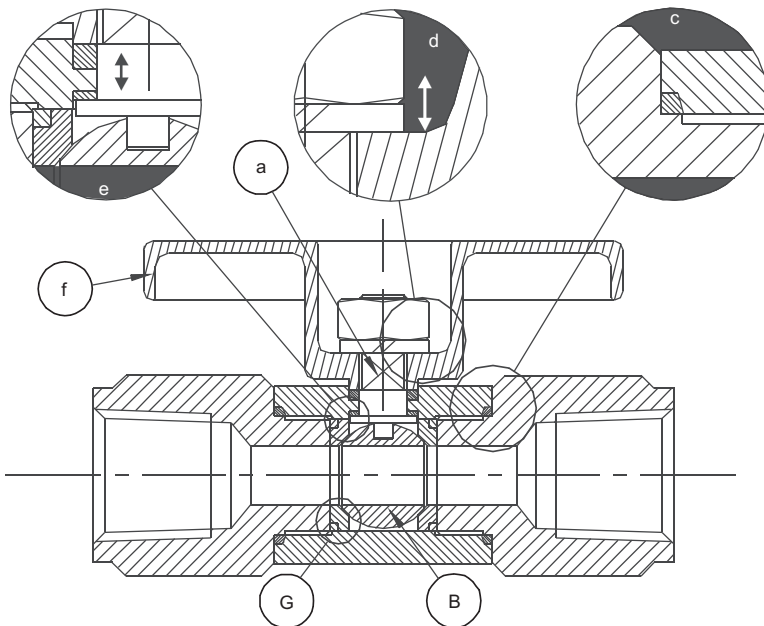


NB: this design is approved and widely used by many internationally recognised bodies.

### Standard Parts

- |     |   |
|-----|---|
| 1)  | Precision made female end connectors                                  |
| 2)  | Valve body  |
| 3)  | Valve seat  |
| 4)  | Floating ball - high quality finish for superior bubble tight sealing |
| 5)  | Pressure active, anti-blow out stem                                   |
| 6)  | Pressure energised backup ring (HP only)                              |
| 7)  | Primary end connector seal  |
| 8)  | Compact "T" bar handle - lever handle also available                  |
| 9)  | Handle / stem spring washer   |
| 10) | Handle retaining nut  |
| 11) | Top stem seal and bearing   |
| 12) | Bottom stem seal and bearing  |

## Design Advantages - Typical 'B' Series



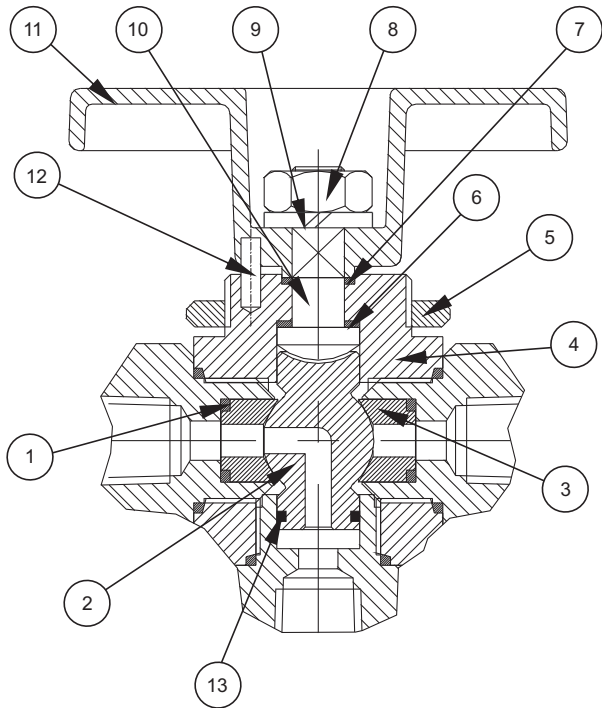
### Standard Advantages

- |    |   |
|----|---|
| a) | Pressure dynamic anti-blow out stem for safety and protection should accidental over pressurisation or upstream component failure occur.  |
| b) | Clear bore, precision made, pressure dynamic floating ball, the higher the pressure becomes, the greater the sealing effect becomes.  |
| c) | Primary soft seal and high integrity secondary metal to metal end connector seal.   |
| d) | Dual action spring washer and retainer keeps stem packing in compression & retaining nut locked.  |
| e) | High pressure, high integrity stem seals / stem packings are under constant compression, line pressure energised bottom stem seal. Top seal is under compression at all times by the action of the spring washer. Dual action |
| f) | Compact "T" bar handle, which does not over extend the valve, helpful in tight panel work. Lever handle available as an option  |
| g) | Valve seat available in several materials to suit your application. The seat also acts as a thread seal. Seats and seals are replaceable should servicing or maintenance be required to extend field life even further.       |

Note: The above details are included in standard valves. Not all features and advantages apply to all variations, sizes, designs, specifications. For instance "B" series valves above 1" are two piece body design for safety. "T" bar handles are only available on valves up to 1".

# Trunnion & S Series Features & Advantages

## Physical Features - Typical Trunnion 3-Way Ball Valve



### High Pressure Trunnion Ball Valves

The high pressure trunnion mounted ball valve from Alco Valves has pressure activated / dynamic seats which the line pressure energises. This system offers low torque, bubble tight, first time line isolation, or in the 3-way format line diversion. Available in two and 3-way designs, see pages 2, 3 & 9.

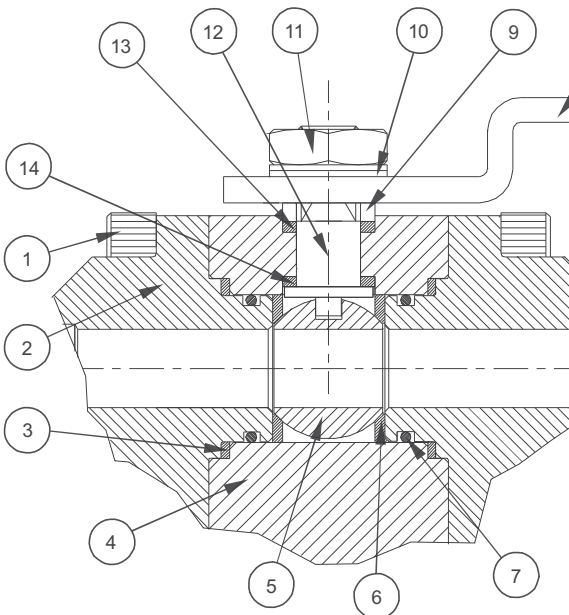
#### Trunnion Ball Valve

- |                        |                       |
|------------------------|-----------------------|
| • (1) Seat Backup Ring | • (7) Top Stem Seal   |
| • (2) Trunnion Ball    | • (8) Handle Nut      |
| • (3) Valve Seat       | • (9) Spring Washer   |
| • (4) Valve Body       | • (10) Stem           |
| • (5) Mounting Nut     | • (11) 'T' bar Handle |
| • (6) Bottom Stem Seal | • (12) Stop Pin       |
|                        | • (13) Trunnion Seal  |

### S Series Ball Valves Fire-safe



The high performance SSB fire-safe design is a 3 piece bolt together or sandwich body and end cap configuration. This utilises the latest in high temperature and fire-proof sealing materials with high integrity primary soft sealing, and metal to metal secondary sealing. Tested and certified to API 6FA , API 607, BS6755 Part 2 or ISO10497.



#### S Series Ball Valves

- |                        |                          |
|------------------------|--------------------------|
| • (1) Cap Screws       | • (9) Spacer             |
| • (2) End Flange       | • (10) Belleville Washer |
| • (3) Flange Seal      | • (11) Nut               |
| • (4) Body             | • (12) Stem              |
| • (5) Ball             | • (13) Top Stem Seal     |
| • (6) Seat             | • (14) Bottom Stem Seal  |
| • (7) Primary End Seal |                          |
| • (8) Handle           |                          |

See technical section for important additional valve data.

# Options for Ball Valves

The following table shows the versatility of the Alco range and the many different types of end connections or options that can be used to build a valve to suit your requirements. Examine at your leisure the different options displayed below, perhaps you will find just what you need if not please feel free to contact us for further details.



Security 'T' handle locking facility



Security lever handle locking facility.



Lever handle for easy use.



Compact 'T' bar handle.



Extension handles  
(Up to 40" inches).



Anti-tamper spanner flat handle  
for safety (British gas approved).



Autoclave.



Panel mounting facility  
(4 holes).



Stand pipe connections for direct  
connection to a compression fitting



Metric and imperial compression end  
connections (single or twin ferrule).



Female end connection reduced  
or full bore.



Eliminate the use of fittings with  
male end connections.



Tacked ends to prevent accidental  
removal of end connectors.



Double acting or spring return  
actuation, Pneumatic,  
electric or Hydraulic.



Compact locking device for large  
bore valves.



Oval hand wheel option that  
helps reduce accidental  
operation (-OVH).



Safety, spring return "dead mans handle".  
Can be set to spring close or open  
automatically.



Degreased valves for special services  
to several standards.



Extended end connections to suit pipe gap or  
to prevent thermal seat distortion when welding.



Site identification tagging.

NOTE: It is always advisable to refer to specific product literature or contact our technical sales department when ordering valves as some of these options are available only on certain styles of valves. Any special end connections such as compression ends or butt / socket weld may limit the rated working pressure of the valve or component supplied in accordance with the relevant specification of design or use of that method of connection. The valve or component will still carry the maximum working pressure markings in accordance with the valve or component design not the connection method as they vary



# Options for Ball Valves

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Compact Pneumatic or Electric Actuators.



Position Indicators on manual valves to signal the orientation and status of remote valving



Manual override features on actuated valves.



Compact marine handle  
Coated to reduce corrosion  
(choice of colours, see chart below).



Colour coded lever handles  
For quick and easy use  
(choice of colours see chart below).



Flow indicating handle  
Manufactured in 316ss for high corrosion resistance  
Pt. No. -SAH.



Blank plug Pt. No.-BP.    Vent plug Pt. No.-VP.    Vent plug with 'T' bar Pt. No.-CVP.



Mini vent valve  
Viton packing 6,000 psi rated  
Pt. No. NVP4NS.    Mini vent valve with directional vent tube 6,000 psi rated  
Pt. No. NVP4NS-P.



'T' bar handle  
Manufactured in 316ss for high corrosion resistance  
Pt. No. -MS.

All handles can be colour coded. The colour of the handle or sleeve offers a good visual indication of the pressure rating of the valves to which they are fitted according to the following:-

Handle Colour	Pressure Ratings	Bar	KPa	Kg/Cm <sup>2</sup>
Black	1,000 psi	69 BAR	6,890	70.3
Blue	2,000 psi	138 BAR	13,800	141
Red	3,000 psi	207 BAR	20,700	211
Yellow	6,000 psi	414 BAR	41,400	422
Black	10,000 psi	690 BAR	69,000	704
Black / Stainless	15,000 psi	1035 BAR	103,500	1050
Black / Stainless	20,000 psi	1380 BAR	138,000	1410

Valve pressure ratings are cold working, non-shock at ambient temperature of 24° Celsius.

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# Options for Ball Valves

The following table shows the versatility of the Alco range and the many different types of end connections or options that can be used to build a valve to suit your requirements. Examine at your leisure the different options displayed below, perhaps you will find just what you need if not please feel free to contact us for further details.



Different end sizes  
(1/4" x 1/2") - flexibility when fitting



Socket & butt weld end  
connections mixed



S Type  
Flanged



E  
Series



Angle style ball valve



3 piece ball valve with rotating flanged  
ends - to solve installation /  
alignment problems



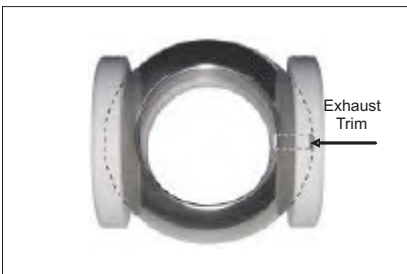
Ball valve with S.A.E ends



3-Way 'T' port ball valve



2 & 3-way highly flexible designs,  
different ends



Cavity to upstream  
exhaust trim  
Option Cav-X



Metal Seated



Upstream to atmosphere exhaust  
trim (100 psi max)  
Option -X

Other options can be supplied

# Options for Ball Valves

The following table shows the versatility of the Alco range and the many different types of end connections or options that can be used to build a valve to suit your requirements. Examine at your leisure the different options displayed below, perhaps you will find just what you need if not please feel free to contact us for further details.



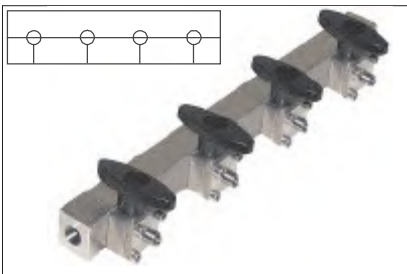
Hand Wheel  
Option - BVHW



Fast and easy assembly or  
removal using face seal. Can be  
remade hundreds of times over



Bolt Together Flanged Ball Valve  
Various Sizes up to 4" Bore



High integrity modular Distribution Manifold  
Note: the valves mount directly to the manifold. Flexible,  
serviceable and compact up to 20 take-offs.  
Single or double sided.



1 & 2 Piece Fire Safe Flanged  
Ball Valve with Oval Handle



Compact Flanged Ball Valve



Ball Valve Low Emission Packing & Outside  
Screw & Yoke - Fire Safe Butt Weld Ends



Ball Valve Wafer Type for Direct  
Connection To / Between Flanges

# How to order valves up to 3,000 psi

Our part number system is made up of alphanumeric / generic code system as explained below.  
An example is :-

**1/2" NPT male x female 316 Stainless Steel bodied 'B' series ball valve, Monel® ball & stem, compact "T" bar handle rated 207 Bar (3,000 psi).**

The part number shown below is made up using the system :-

Bore type	Rated pressure	Valve series	Valve size	End connections	Material of construction/ body parts	Trim material (Ball and stem)	Options		
<b>H</b>	<b>B</b>	<b>4</b>	<b>N</b>	<b>S</b>	<b>-</b>	<b>5</b>	<b>-</b>	<b>1</b>	<b>M</b>
<p><b>Blank</b> = Std Bore <b>F</b> = Full bore</p> <p><b>No letter</b> = Standard rating <b>R</b> = 2,000 psi (138) Bar <b>H</b> = 3,000 psi (207) Bar</p> <p><b>MA</b> = Mini A series one piece <b>A</b> = Series Barstock, one piece <b>B</b> = Series Barstock, three piece <b>S</b> = Sandwich Style Series <b>SB</b> = Square Body (Panel mounting)</p>		<p><b>2</b> = 1/4" <b>3</b> = 3/8" <b>4</b> = 1/2" <b>6</b> = 3/4" <b>8</b> = 1" <b>10</b> = 1 1/4" <b>12</b> = 1 1/2" <b>16</b> = 2" <b>20</b> = 2 1/2" <b>24</b> = 3" <b>32</b> = 4"</p>	<p><b>B</b> = Brass <b>C</b> = C/Steel <b>D</b> = Ali-Bronze <b>H</b> = Hastalloy C <b>I</b> = Incoloy 625 <b>M</b> = Monel 400 <b>N</b> = Cupro-Nickel <b>S</b> = 316 St. St. <b>U</b> = Duplex <b>Note:</b> Other specialist material such as 6MO, Super Duplex, Zirconium are available</p> <p><b>B</b> = Butt weld <b>F</b> = Flanged <b>K</b> = Twin ferrule (compression ends) <b>N</b> = NPT Female threads <b>P</b> = BSPP Female threads <b>Q</b> = Single ferrule (compression ends) <b>S</b> = Socket weld <b>T</b> = BSPT Female threads <b>M16</b> = M16 x 1.5 metric <b>9/16</b> = 9/16 UN x 18 thread</p>	<p><b>-U</b> = Duplex <b>-5</b> = Monel 400 <b>-6</b> = Incoloy <b>-7</b> = Ali-bronze <b>-8</b> = Hastalloy <b>-9</b> = Cupro nickle <b>-S3</b> = 316ss</p> <p><b>-1M</b> = One end male <b>-2M</b> = Double male ends <b>-CAV</b> = Cavity filled seats <b>-DAG</b> = Actuated, double acting <b>-DG</b> = Degreased and cleaned <b>-S</b> = Spanner flat handle <b>-TACK</b> = Tack welded end connectors <b>-TAG</b> = Identification Tagging <b>-LLK</b> = Lever locking device <b>-DMH</b> = Dead mans handle <b>-EL</b> = Electric actuator <b>-SR</b> = Actuated, spring return <b>-X</b> = Down stream exhaust <b>-CAVX</b> = Cavity to down stream exhaust trim to atmosphere <b>-LM</b> = St/St lever handle</p>					

Socket weld and butt weld end connectors may be extended for thermal protection of the valve internals

**NOTE 1:** The pressure ratings quoted within our literature are maximum hydrostatic pressure ratings for the valves. Certain options available are the products / designs of other manufacturers, Alco valves cannot accept any responsibility for these products unsuitability or failure in service.

**NOTE 2:** It is always advisable to refer to specific product literature or contact our technical sales department when ordering valves as some of these options are available only on certain styles of valves. Any special end connections such as compression ends or butt / socket weld may limit the rated working pressure of the valve or component supplied in accordance with the relevant specification of design or use of that method of connection. The valve or component will still carry the maximum working pressure markings in accordance with the valve or component design not the connection method as they vary.



# MA Series

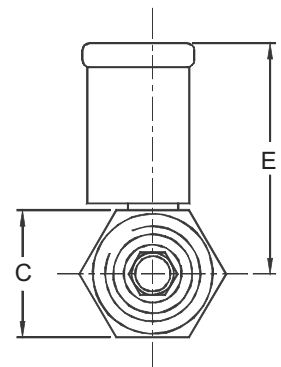
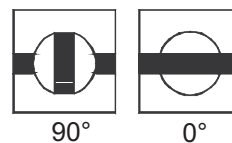
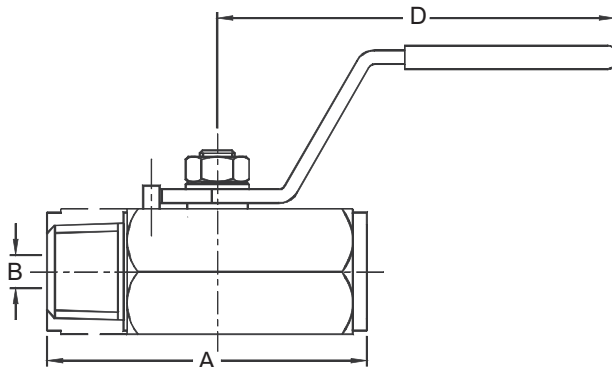
## General Information

### Miniature Ball Valves Rated up to 750 psi

High integrity barstock miniature ball valve, proven to be better than cast type products at this size. The MA series ball valve is a miniature version of the larger "A" series range. The "MA" series has been designed to be lighter and more compact at 1/4" size than the standard "A" series range of valves. The "MA" Series is available in a variety of configurations to suit many applications within the instrumentation, air distribution and general engineering industries. The "MA" series is 750 psi as standard. The valves come with a stainless steel lever handle as standard. Other options such as a base mounting bracket are available.

## Design Features

- One piece design - prevents accidental removal of the internals when fitting or removing the valve from the pipeline.
- Bi-directional floating ball design to ensure leak-proof shut-off on pressure or vacuum.
- Manufactured from high integrity, certified (316ss) barstock material.
- Smooth low torque 90° operation.
- Value for money, compact economical design.
- Compact overall length, reduced weight.
- Choice of trim materials.
- Available NPT, BSPP or BSPT threads.
- Available in female x female and male x female versions.
- Available in 316 stainless steel, other materials available.
- Anti-blow-out internally loaded stem for safety.
- Handle indicates open / closed position at a glance.
- Many options available such as locking devices, mounting brackets, 'C' shaped handle.
- Full material traceability.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.



## Part Numbers

St/St Part No.	Connections Size	A	B (Bore)	C	D	E	Cv	Kv	Weight	
		mm	mm	mm	mm	mm				Kgs
<b>Female / Female</b>										
MA2NS	1/4" NPT	46	5	18	56	32	0.9	0.8	0.1	
MA2PS	1/4" BSPP	46	5	18	56	32	0.9	0.8	0.1	
MA2TS	1/4" BSPT	46	5	18	56	32	0.9	0.8	0.1	
<b>Male / Female</b>										
MA2NS-1M	1/4" NPT	46	5	18	56	32	0.9	0.8	0.1	
MA2PS-1M	1/4" BSPP	46	5	18	56	32	0.9	0.8	0.1	
MA2TS-1M	1/4" BSPT	46	5	18	56	32	0.9	0.8	0.1	

Stainless steel lever handle only.

Seat materials: 750psi = PTFE Seal materials: Stem = PTFE

Dims are in mm (appx)

See technical section for important additional valve data.

# A Series

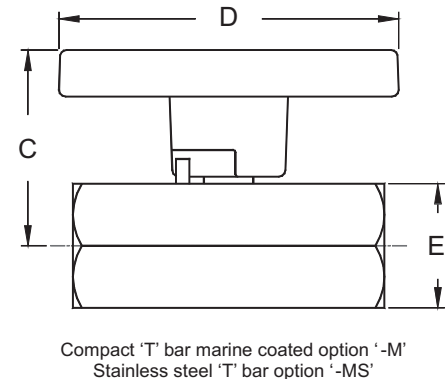
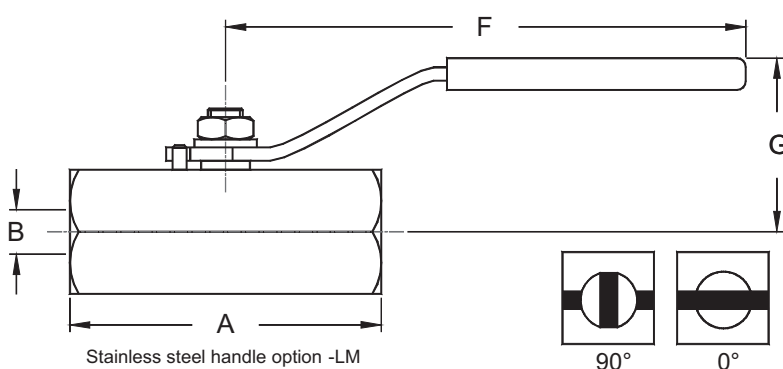
## General Information

### Compact ball valves Rated up to 2,000 psi

High integrity barstock ball valves proven to be better than cast type products. The high quality 'A' series low to medium pressure ball valve range is an economically designed valve with the internals being loaded through the threads. This design offers a safe and inexpensive style of valve suitable for a wide range of applications. It also offers fewer potential leak paths than cast or 3 piece valves and it is a rugged one piece solid body format. This valve is suitable for water, oil or gas applications. It comes with the compact 'T' bar handle as standard with many more options available such as lever handle or locking device etc.

## Design Features

- One piece design - prevents accidental removal of the internals when fitting or removing the valve from the pipeline.
- Bi-directional floating ball design to ensure leak-proof shut-off on pressure or vacuum.
- Manufactured for high integrity, certified (316ss) barstock material.
- Smooth low torque 90° operation.
- Value for money ,compact economical design.
- Compact overall length, reduced weight.
- Anti blow-out internally loaded stem for safety.
- Available NPT, BSPP or BSPT threads.
- Pressure rating 2,000 psi (138 bar) - up to 1"
- Pressure rating 750 psi (52 bar) - between 1 1/2" and 2"
- Choice of body and trim materials. Available in 316ss Monel / Duplex / Titanium / Ali-Bronze.
- Can be supplied male/female to order.
- Handle indicates open / closed positions at a glance.
- Many options available (such as locking devices)
- Full material traceability.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75



## Part Numbers

St/St Part No.	Connections Size	A	B (Bore)	C	D	E	F	G	Cv	Kv	Weight (Kgs)
A2NS	1/4" NPT	70	9.5	43	76	28	115	41	6.3	5.4	0.35
A3NS	3/8" NPT	70	9.5	43	76	28	115	41	8.6	7.4	0.35
A4NS	1/2" NPT	70	9.5	43	76	28	115	41	5.5	4.7	0.3
A6NS	3/4" NPT	76	12.7	45	76	32	115	43	10.2	8.7	0.38
A8NS	1" NPT	89	15.9	48	76	38	115	45	13.5	11.5	0.6
A12NS	1 1/2" NPT	99	25.4	59	102	57	150	50	32.4	27.8	1.3
A16NS	2" NPT	114	31.8	-	-	70	165	83	50.0	42.8	2.2

For BSPP threads change 'N' to 'P' i.e. A4PS

For BSPT threads change 'N' to 'T' i.e. A4TS

Lever handles standard on 2" version, sizes above 1" may be round Dia body

Seat materials: 2000psi = RTFE Seal materials: Stem = RTFE

Dims are in mm (appx)

See technical section for important additional valve data.

# CA Series - Firesafe

## General Information

### One Piece Ball Valves Rated up to 2,000 psi

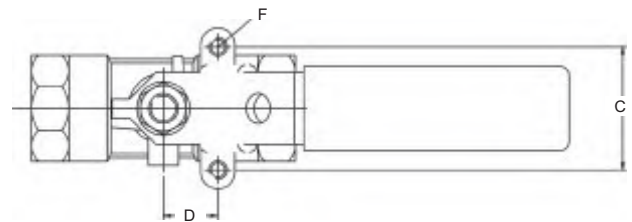
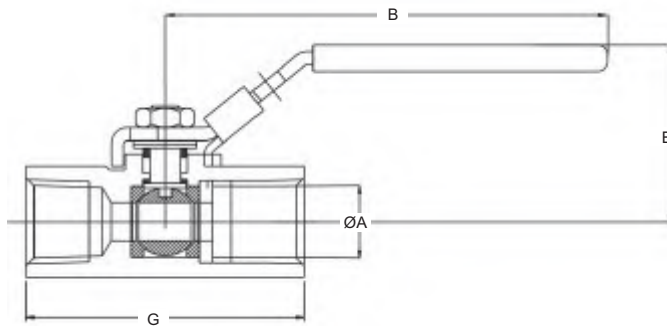
Firesafe to ISO10497/API 607, high integrity one piece construction reduced bore ball valve, stainless steel body and retainer. Fitted RTFE seats, RTFE & Graphite seals, 316 stainless steel ball, and 316 stainless steel internally loaded anti-blowout stem.

Complete with stainless steel lever handle, including slide type locking device, protective handle sleeve, and mounting lugs to enable panel mounting or actuation, (untapped as standard, option PM).



## Design Features

- Generally in accordance with ANSI/ASME B16.34
- Testing and inspected to API 598
- Firesafe tested ISO10497/API 607 (Certified)
- Letter of Conformity (LOC) available
- Pressure test certificates available
- Full material certification available
- Panel mounting option (-PM)
- Low operating torque for actuation
- Lever locking device
- Temperature Range 40°C to 230°C (Pressure may vary)
- 90° Smooth open to close operation
- Bi-directional use
- Floating ball for positive bubble tight seal
- High integrity one piece cast body
- All stainless steel construction
- Anti blowout stem for reliability and safety
- High temperature Graphite seals
- Anti Static by design



## Part Numbers

St/St Part No.	Connections Size	A	B	C	D	E	F	G
CA2NS	1/4" NPT	9.2	121	28.5	12.7	51	M5	59
CA3NS	3/8" NPT	9.2	121	28.5	12.7	51	M5	59
CA4NS	1/2" NPT	9.2	121	28.5	12.7	51	M5	67
CA6NS	3/4" NPT	12.5	121	28.5	12.7	51	M5	71
CA8NS	1" NPT	16	146	34.8	22.1	62.5	M5	83.5
CA10NS	1 1/4" NPT	20	146	34.8	22.1	70	M5	94
CA12NS	1 1/2" NPT	24.5	178	38.1	23.6	79	M6	100
CA16NS	2" NPT	32	178	38.1	23.6	85	M6	118

Panel Mount holes option add PM ie CA2NS-PM  
Padlock for locking device add PAD ie CA8NS-PAD

Dims are in mm (appx)  
See technical section for important additional valve data.

# B Series

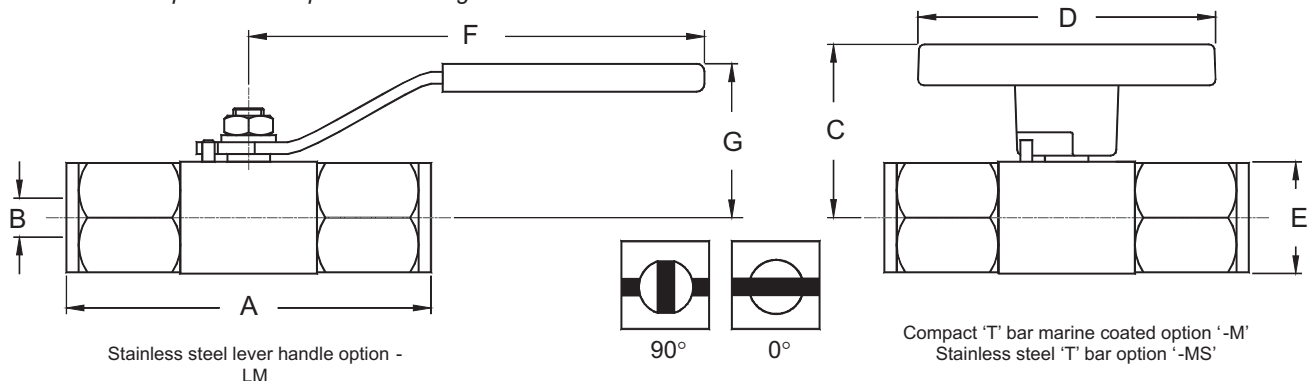
## General Information

### Medium pressure ball valves 1,000 psi to 3,000 psi versions

The B-Series is the original 3-piece screw together barstock range of valve. It is a flexible design with many options of end connection styles available, with a 1,000 psi as standard that can be up-rated to 3,000 psi. Also the benefit of having a three piece construction allows maintainability with service kits which are readily available. The Alco "B" series is a flexible design, with many possible combinations of end connectors available, "the original and still the best".

## Design Features

- Flexible 3 piece design for easy maintenance.
- Full material traceability.
- 90° smooth, light positive action.
- Bi-directional floating ball design to ensure leak-proof shut-off on pressure or vacuum.
- Available in 316 ss / Monel / Duplex / 6Mo / Titanium / Hastalloy / Zirconium / Carbon Steel / Ali-Bronze.
- Anti-blow-out internally loaded stem for extra safety.
- Handle indicates open / closed positions at a glance.
- Repair kits available should the valve need servicing to prolong its life.
- A choice of handles and trim materials.
- Many options available such as locking device.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.



## Part Numbers

St/St Part No.	Connections Size	A		B (Bore)	C	D	E	F	G	Cv	Kv	Weight (kgs)
		BSPP	NPT									
B2NS	1/4"	62	68	9.5	38	76	29	115	38	6.3	4.5	0.3
B3NS	3/8"	74	74	9.5	38	76	29	115	38	8.6	7.4	0.3
B4NS	1/2"	77	93	9.5	38	76	29	115	38	5.5	4.7	0.4
B6NS	3/4"	86	95	12.7	40	76	35	115	40	10.2	8.7	0.7
B8NS	1"	109	115	19.1	54	102	48	150	51	33.0	28.3	1.1
B10NS	1 1/4"	110	110	25.4	60	102	Ø60	150	56	49.0	42.0	2.0
B12NS	1 1/2"	121	121	31.8	-	-	Ø70	165	83	101.0	86.5	2.7
B16NS*	2"	149	149	38.1	-	-	Ø83	165	90	123.8	106.1	4.5
B20NS*	2 1/2"	150	150	50.8	-	-	Ø108	305	110	275.4	236.0	8.8

For BSPP threads change 'N' for 'P' i.e. B4PS.

For BSPT threads change 'N' for 'T' i.e. B4TS.

Sizes above 1" are round bodied, 2-piece design.

Lever handles standard on 1 1/2", 2" & 2 1/2" valves.

For higher pressure 3,000 psi version add prefix 'H' i.e. HB4NS.

Seal materials: 1000psi = PTFE - 2000psi = RTFE - 3000psi = Acetal

\*Dimensions shown are for 2,000psi max rating

Seal materials: Body = PTFE - Stem = RTFE

Dims are in mm (appx)

See technical section for important additional valve data.



# SB Series

## General Information

### Panel Mounting ball valves 1,000 psi to 3,000 psi versions



The Panel Mount range or the 'SB' series is a variation of the standard 'B' series and as such retains its flexibility of end connections with the added advantage of the panel mounting facility onto a flat face. Using this flat face, the valve is easy to mount to a control panel or actuator. The major benefits of using four panel mount holes instead of one single nut type are that this design eliminates the possibility of the valve turning underneath a panel. This would cause undue stressing of a thread joint. Also four small holes can be beneficial for positioning, if access to the panel is reduced only two holes (diagonally opposite) can be used.

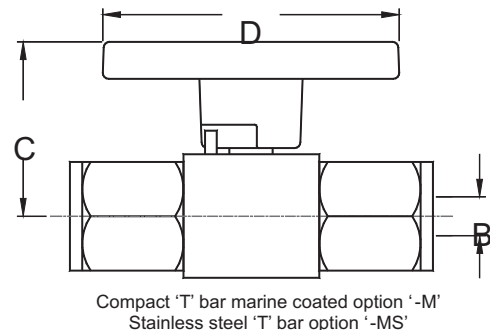
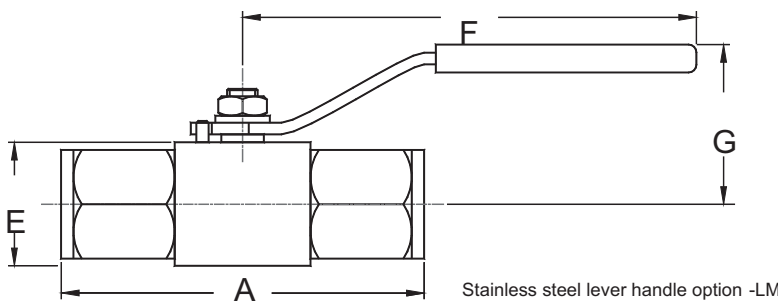
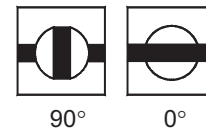
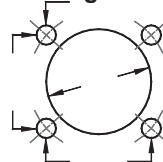
## Design Features

- Bi-directional floating ball design to ensure leak-proof shut off on pressure or vacuum.
- Flexible 3 piece design for easy maintenance.
- Anti-blow-out system for safety.
- 90° quick action, indicates position.
- Choice of end connections.
- Repair kits available should the valve need servicing.
- Choice of handles and trim materials.
- Panel mounting style can be supplied suitable for actuation if specified.
- Full material traceability.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75

VALVE SIZE	H	I	J	K
1/4"-3/4"	27	24	5	27
1"	38	38	5	38

4 – off M4 x 10 Mounting Holes

### Mounting Details



## Part Numbers

St/St Part No.	Connections Size	A		B (Bore)	C	D	E	F	G	Cv	Kv	Weight (Kgs)
		BSPP	NPT									
SB2NS	1/4"	62	68	9.5	44	76	32	115	39	6.3	5.4	0.45
SB3NS	3/8"	74	74	9.5	44	76	32	115	39	8.6	7.4	0.5
SB4NS	1/2"	77	93	9.5	44	76	32	115	39	5.5	4.7	0.5
SB6NS	3/4"	86	95	12.7	48	76	38	115	42	10.2	8.7	0.7
SB8NS	1"	109	115	19.1	56	102	51	150	54	33.0	28.3	1.3

For BSPP version change N for P i.e. SB4PS.

For BSPT version change "N" for "T" i.e. SB4TS

For 3,000 psi version add prefix 'H' i.e. HSB4NS.

Seat materials: 1000psi = PTFE - 2000psi = RTFE - 3000psi = Acetal Seal materials: Body = PTFE - Stem = RTFE

Dims are in mm (appx)

See technical section for important additional valve data.

# B & SB Compression Ended

## General Information

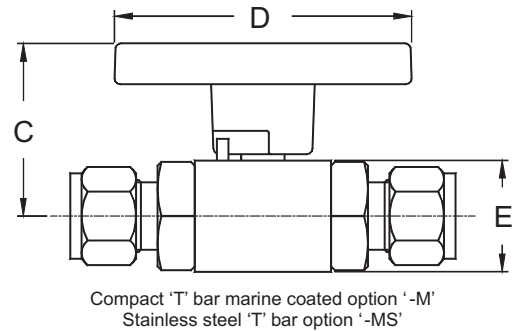
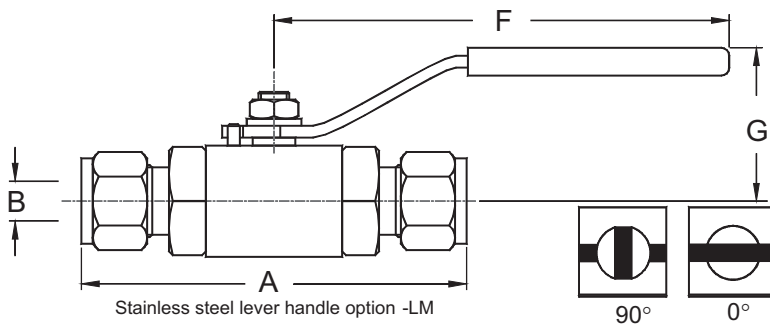
1,000 psi to 3,000 psi

The 'B' & 'SB' are three piece screw together barstock ranges of valve. They are a flexible design with options of single or twin ferrule compression type tube connector ends, with a 1,000 psi pressure rating as standard that can be up rated to 3,000 psi. The "SB" offers the opportunity to mount the valve to a control panel or actuator. The major benefits of using four panel mount holes instead of one single nut type are that this design eliminates the possibility of the valve turning underneath a panel.



## Design Features

- Three piece design for easy maintenance.
- Instant installation into tubing pipework, no pipe thread or sealing problems.
- Bi-directional floating ball design to ensure leak-proof shut-off on pressure or vacuum.
- Choice of single or twin ferrule ends to suit the requirements of most systems.
- Positive 90° action-position indication.
- Panel mount style can be supplied suitable for actuation.
- Repair kits available to extend valve life.
- Anti blow-out internally loaded stem for extra safety.
- Versatile design allows mixture of pipe threads, types and compression ends of different sizes.
- Full material traceability.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.



## Part Numbers

Twin ferrule Part No.	Connections Size O.D.	A (loose)	B (Bore)	C	D	E	F	G	Cv	Kv	Weight (kgs)
<b>Imperial tube connections</b>											
B2KS	1/4" O.D	89	5.0	38	76	29	115	38	2.6	2.2	0.30
B3KS	3/8" O.D	93	7.0	38	76	29	115	38	5.2	4.5	0.30
B4KS	1/2" O.D	98	9.5	38	76	29	115	38	10.9	9.3	0.40
B6KS	3/4" O.D	108	12.7	40	76	35	115	40	19.0	16.3	0.60
B8KS	1" O.D	128	19.1	54	102	42	150	51	43.0	36.8	1.00
<b>Metric tube connections</b>											
BM6KS	6mm O.D	89	5.0	38	76	29	115	38	2.6	2.2	0.30
BM8KS	8mm O.D	91	6.4	38	76	29	115	38	3.7	3.7	0.30
BM10KS	10mm O.D	93	7.0	38	76	29	115	38	5.2	4.5	0.30
BM12KS	12mm O.D	98	9.5	38	76	29	115	38	10.9	9.3	0.40
BM15KS	15mm O.D.	98	9.5	38	76	29	115	38	10.9	9.3	0.40
BM20KS	20mm O.D.	108	12.7	40	76	35	115	38	19.0	16.3	0.60
BM22KS	22mm O.D.	128	19.1	54	102	48	150	60	43.0	36.8	1.00

Other sizes are available

For 3,000 psi version add H i.e. HB4KS

For single ferrule change K to Q i.e. B2QS

Bore is through the ball

Seat materials: 1000psi = PTFE - 2000psi = RTFE - 3000psi = Acetal Seal materials: Body = PTFE - Stem = RTFE

Dims are in mm (appx)

See technical section for important additional valve data

**Note:** Bore may vary dependant on end connection selected

**Note:** for panel mount details see page 5

# Fire Safe S Series

## General Information

### Fire safe ball valves Rated up to 6,000 psi

The rugged Fire Safe S Series range of Ball Valve is manufactured in 316 stainless steel. Available in sizes from 1/8" to 2". The Fire Safe S Series range offers accessibility for welding / positioning / pipe access or maintenance purposes. Fire safe tested to BS 6755 Part 2, API 607 or ISO 10497. Available with lever handle and locking device for a higher level of security. The range can be fitted with pneumatic or electric actuators at our factory.

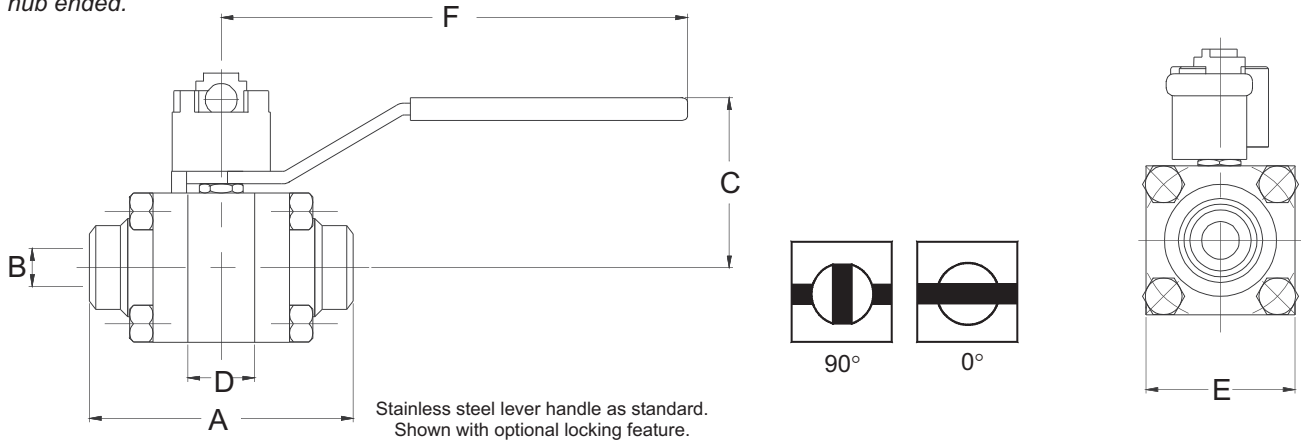


Shown with oval Anti-accidental operation handle. Option -OVH

Shown with St/St Security locking kit. Option -LLK-PAD

## Design Features

- Pressure rated up-to 6,000psi.
- Fire Safe to BS6755 Part-2, API 607 or ISO 10497.
- All metallic sealing in fire conditions, with SLG / PTFE primary soft sealing for bubble tight shut-off.
- Bi-directional floating ball design to ensure leak-proof shut-off on pressure or vacuum.
- 90° smooth action, low torque operation.
- Compact 3 piece design.
- Available in 316ss / Monel / Duplex / Hastalloy / 6MO
- Sizes from 1/8" to 2".
- Available with weld ends, threaded, flanges, compression or hub ended.
- Bore sizes 10mm to 38mm.
- Repair kits sold separately for easy maintenance to extend service life.
- Highly flexible combinations of end connections due to 3 piece design i.e. 1" NPT female x 1/2" socket weld.
- Available with pneumatic, electric or hydraulic actuators.
- Full material traceability.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.
- Designed to ASME B16.34



## Part Numbers

St/St Part No.	Connections Size	A	B (Bore)	C	D	E	F	Cv	Kv	Weight (Kgs)
S2NS-FS	1/4" NPT	80	9.5	41	30	50	115	6.3	5.4	0.8
S3NS-FS	3/8" NPT	80	9.5	41	30	50	115	8.6	7.4	0.8
S4NS-FS	1/2" NPT	98	9.5	41	30	50	115	5.5	4.7	0.9
S6NS-FS	3/4" NPT	108	12.7	42	33	54	115	10.2	8.7	1.1
S8NS-FS	1" NPT	131	19.1	55	44	70	150	33.0	28.3	2.4

For socket weld version change 'N' to 'S' i.e. S4SS-FS

For butt weld version change 'N' to 'B' i.e. S4BS-FS

For locking device and padlock add -LLK-PAD i.e. S4NS-FS-LLK-PAD

Seat Materials: 1,000Psi= RTFE, 3,000Psi and 6,000Psi = PEEK Seal materials: Body = Graphoil - Stem = Graphoil

Dimensions shown are for 1,000psi Rated

Dims are in mm (appx)

See technical section for important additional valve data

# How to order valves 3,000 to 10,000 psi

Our part number system is made up of alphanumeric / generic code system as explained below. An example is :-

**1/2" NPT male x female 316ss 'UB' series ball valve, Monel® trim, lever handle rated 690 BAR (10,000 psi)**

The part number shown below is made up using the following system:-

Bore Type	Valve Series	Valve Size	End Connections	Material of Construction/ Body Parts	Trim Material (Ball & Stem)	Options
<b>U</b>	<b>B</b>	<b>4</b>	<b>N</b>	<b>S</b>	<b>-5</b>	<b>-1M</b>
<b>Blank</b> = Std Bore <b>F</b> = Full bore	<b>PB</b> = Series Barstock, three piece <b>E</b> = Series Barstock, two piece <b>PSB</b> = Square Body (Panel mounting) <b>SN</b> = Panel mounting single nut type <b>UB</b> = Two piece design <b>UE</b> = Two piece design	<b>2</b> = 1/4" <b>3</b> = 3/8" <b>4</b> = 1/2" <b>6</b> = 3/4" <b>8</b> = 1" <b>10</b> = 1 1/4" <b>12</b> = 1 1/2" <b>16</b> = 2" <b>20</b> = 2 1/2"	<b>B</b> = Butt weld <b>F</b> = Flanged <b>K</b> = Twin ferrule (compression ends) <b>N</b> = NPT Female threads <b>P</b> = BSPP Female threads <b>Q</b> = Single ferrule (compression ends) <b>S</b> = Socket weld <b>T</b> = BSPT Female threads	<b>D</b> = Ali-Bronze <b>H</b> = Hastalloy C276 <b>I</b> = Incoloy 625 <b>M</b> = Monel 400 <b>N</b> = Cupro-Nickel <b>S</b> = 316 St. St. <b>U</b> = Duplex <b>T</b> = Titanium <b>Note:</b> Other materials such as 6MO, Super Duplex, Zirconium are available	<b>-U</b> = Duplex <b>-5</b> = Monel 400 <b>-6</b> = Incoloy <b>-7</b> = Ali-bronze <b>-8</b> = Hastalloy <b>-9</b> = Cupro nick <b>-S3</b> = 316ss	<b>-1M</b> = One end male <b>-2M</b> = Double male ends <b>-DA</b> = Actuated, double acting <b>-S</b> = Spanner flat handle <b>-TACK</b> = Tack welded end connectors <b>-TAG</b> = Identification Tagging <b>-CAVX</b> = Cavity to down stream exhaust trim <b>-DMH</b> = Dead mans handle <b>-EL</b> = Electric actuator <b>-SRG</b> = Actuated, spring return <b>-DG</b> = Degreased for special services

Socket weld and butt weld end connectors are extended for thermal protection of the valve internals

NOTE 1: The pressure ratings quoted within our literature are maximum hydrostatic pressure ratings for the valves. Certain options available are the products / designs of other manufacturers, Alco valves cannot accept any responsibility for these products unsuitability or failure in service.

NOTE 2: It is always advisable to refer to specific product literature or contact our technical sales department when ordering valves as some of these options are available only on certain styles of valves. Any special end connections such as compression ends or butt / socket weld may limit the rated working pressure of the valve or component supplied in accordance with the relevant specification of design or use of that method of connection. The valve or component will still carry the maximum working pressure markings in accordance with the valve or component design not the connection method as they vary.



# SN Series

## General Information

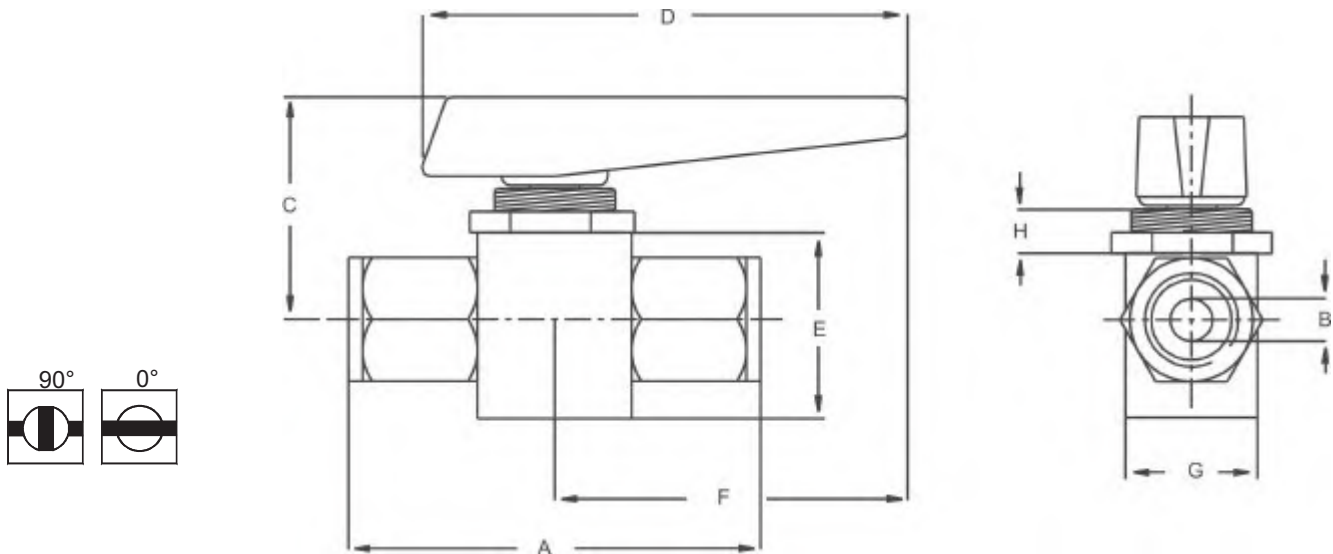
### Single nut panel mounting 6,000 psi

The single nut mounted ball valve is rated from vacuum up to 6,000 psi dependent of seat selection. The single nut allows fast panel mounting. Max panel thickness is 6mm. A heavy duty yet compact design offering easy installation and maintainability. The "SN" is rated to 6,000 psi as standard.



## Design Features

- Flexible 3 piece design for easy maintenance.
- Anti blow out stem.
- Bi-directional floating ball design to ensure leak-proof shut-off on pressure or vacuum.
- 90° low torque operation.
- Single nut panel mounting facility for ease of installation.
- Choice of ball and stem materials such as 316ss, Monel 400.
- Pressure / Temperature rating -20°C to 150°C. (Pressures may vary)
- Full material traceability.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.
- Versatile design allows mixture of pipe threads, types and compression ends of different sizes.
- Repair kits available to prolong the valves life.



## Part Numbers

St/St Part No.	Connections Size	A NPT	B (Bore)	C	D	E	F	G	H	Weight (Kgs)
SN2NS-PPH	1/4"	62	5	39	65	25	46	25	6	0.25
SN3NS-PPH	3/8"	70	6	43	65	29	46	29	6	0.34
SN4NS-PPH	1/2"	95	8	55	110	40	78	40	6	0.80
SN6NS-PPH	3/4"	105	10	70	110	44	78	44	10	1.25
SN8NS-PPH	1"	125	17	75	110	55	78	55	10	2.00

Seat materials: 6,000 psi = PVDF & Viton Seal Materials: Body = PTFE - Stem = PTFE

Dims are in mm (appx)

See technical section for important additional valve data

# PB Series

## General Information

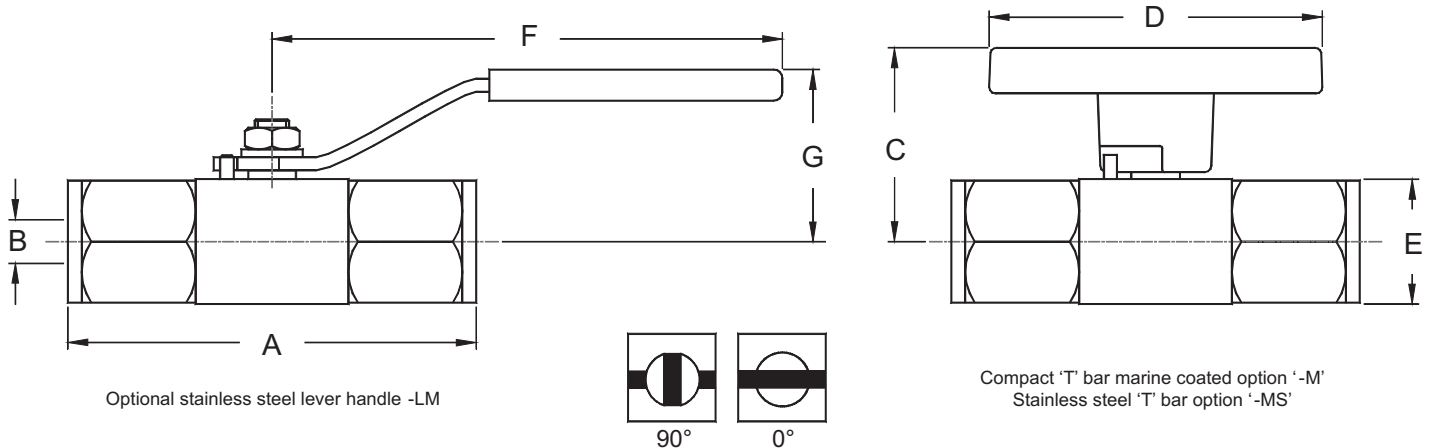
### High pressure ball valves Rated up to 6,000 psi

The 'PB' Series high pressure 3 piece ball valve, like it's lower pressure brother the 'B' Series, it offers flexibility whereby the end connection sizes and types can be mixed i.e. PB4NS-12N offers 1/2" to 1/4" reduction in size across the valve. This design helps eliminate the use of fittings and additional unwanted potential leak paths. Rated at 414 Bar, the 'PB' Series is a reliable compact and flexible isolation ball valve with many options.

Note: Also available with tube type compression ends (twin or single ferrule)

## Design Features

- Bi-directional floating ball design to ensure leak-proof shut-off on pressure or vacuum.
- Flexible 3 piece design for easy maintenance.
- Repair kits available should the valve need servicing to prolong its life.
- Available in 316ss / Monel / Duplex / Titanium / Hastalloy / Zirconium / Ali-Bronze.
- Anti-blow-out internally loaded stem for safety.
- Standard Temperature range -20°C to 150°C (Pressures may vary)
- Extended Temperature range available, please refer to catalogue, page 2 of the Technical Section
- Choice of handles and trim materials.
- Handle indicates OPEN/CLOSED position at a glance.
- Full material traceability
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.



## Part Numbers

St/St Part No.	Rated	Connections Size	A		B (Bore)	C	D	E	F	G	Cv	Kv	Weight (kgs)
			BSPP	NPT									
PB2NS	6,000 psi	1/4"	62	68	9.5	38	76	29	115	38	6.3	5.4	0.3
PB3NS	6,000 psi	3/8"	74	74	9.5	38	76	29	115	38	8.6	7.4	0.3
PB4NS	6,000 psi	1/2"	77	93	9.5	38	76	29	115	38	5.5	4.7	0.4
PB6NS	6,000 psi	3/4"	86	95	12.7	40	76	35	115	40	10.2	8.7	0.7
PB8NS	6,000 psi	1"	109	115	19.1	54	102	48	150	51	33.0	28.3	1.1

For BSPP threads change 'N' to 'P' i.e. PB4PS.

Can be available full bore, contact our sales office for details

Seat materials: 6,000 psi = PVDF Seal Materials: Body = PTFE - Stem = RTFE

Dims are in mm (appx)

See technical section for important additional valve data

# PSB Series

## General Information

### High pressure panel mounting ball valves rated up to 6,000 psi

The Panel Mount range or 'PSB' Series is a variation of the standard 'PB' Series and as such retains its flexibility of end connection variations with the added advantage of the panel mounting facility onto a flat face. The 'PSB' valve is easy to mount to a control panel or actuator. The Major benefits of using four panel mount holes instead of one single nut type are that this design eliminates the possibility of the valve turning underneath a panel. This would cause undue stressing of the thread joint. Also four small holes can be beneficial for positioning, if access to the panel is reduced only two holes (diagonally opposite) can be used. The 'PSB' series has a pressure rating of 6,000 psi.

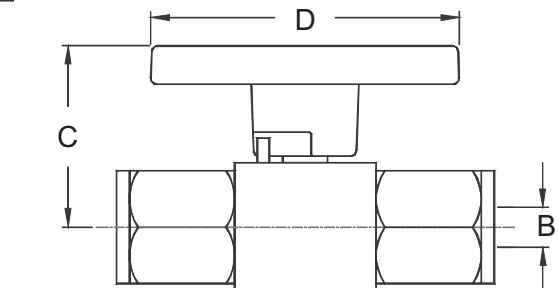
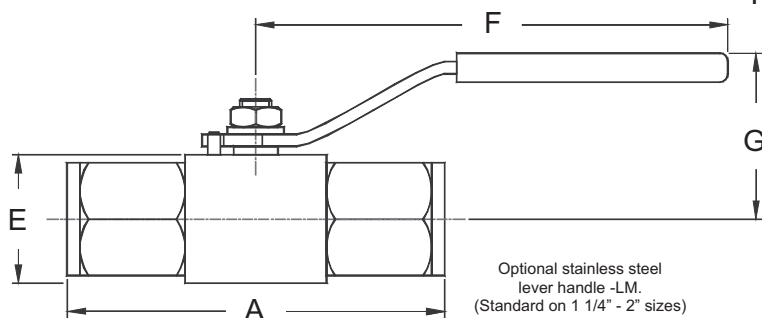
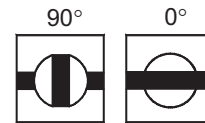
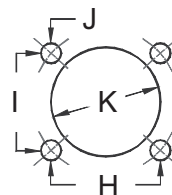


## Design Features

- Flexible 3 piece design for easy maintenance.
- Anti-blow-out internally loaded stem for safety.
- Bi-directional floating ball design to ensure leak-proof shut-off on pressure or vacuum.
- Choice of handles & trim materials.
- 90° quick, light action handle indicates position.
- Repair Kits available should the valve need servicing.
- Pressure range 6,000 psi
- Temperature range -46°C to 230°C (Pressures may vary)
- Choice of end connections.
- Can be supplied bare shaft & suitable for actuation (if specified)
- Full material traceability.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.

VALVE SIZE	H	I	J	K
1/4"-3/4"	27	24	5	27
1"	38	38	5	38
1 1/4"-2"	48	48	6	67

1/4" - 1" = 4 - off M4 Mounting Holes  
1 1/4" - 2" = 4 - off M6 Mounting Holes



Note: sizes above 1" are two piece body format

## Part Numbers

St/St Part No.	Rated	Connections Size	A		B	C	D	E	F	G	Cv	Kv	Weight (kgs)
			BSPP	NPT									
PSB2NS	6,000 psi	1/4"	62	68	9.5	44	76	32	115	39	6.3	5.4	0.45
PSB3NS	6,000 psi	3/8"	74	74	9.5	44	76	32	115	39	8.6	7.4	0.50
PSB4NS	6,000 psi	1/2"	77	93	9.5	44	76	32	115	39	5.5	4.7	0.50
PSB6NS	6,000 psi	3/4"	86	95	12.7	48	76	38	115	42	10.2	8.7	0.70
PSB8NS	6,000 psi	1"	109	116	19.1	56	102	51	150	54	33.0	28.3	1.30

Dims are in mm (appx)

See technical section for important additional valve data

# PB & PSB Tube Ended

## General Information

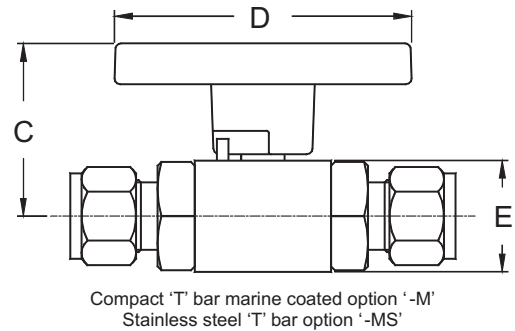
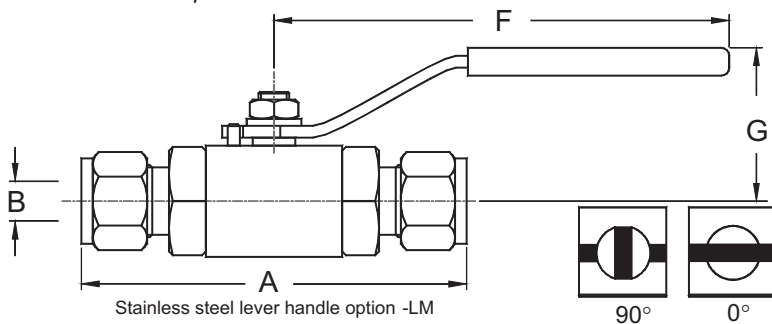
### Ball valves with twin or single ferrule tube type compression ends. Rated up to 6,000 psi

Using the 'B' or 'SB' series centre section, the valve can be supplied in either single or twin ferrule style compression ends using the round body or the panel mount or 3-way body types to provide an economical method of installing the valve into instrumentation tubing systems. The PSB can be used for mounting actuators or fixing to panels.



## Design Features

- Instant installation into tubing pipework, no pipe thread or sealing problems.
- Three piece design for easy maintenance.
- Repair kits available to extend valve life.
- Bi-directional floating ball design to ensure leak-proof shut-off on pressure or vacuum.
- Choice of single or twin ferrule ends to suit the requirements of most systems.
- Rated 6,000 psi as standard.
- Positive 90° action-position indication.
- Temperature range -46°C to 230°C. (Pressures may vary)
- Can be supplied bare shaft & suitable for actuation (if specified on the panel mount version).
- Anti blow-out internally loaded stem for extra safety.
- Versatile design allows mixture of pipe threads, types and compression ends of different sizes.
- Full material traceability.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.



## Part Numbers

Twin ferrule Part No.	Connections Size O.D.	A (loose)	B (Bore)	C	D	E	F	G	Cv	Kv	Weight (kgs)
<b>Imperial tube connections</b>											
PB2KS	1/4" O.D.	89	5.0	38	76	29	115	38	2.6	2.2	0.30
PB3KS	3/8" O.D.	93	7.0	38	76	29	115	38	5.2	4.5	0.30
PB4KS	1/2" O.D.	98	9.5	38	76	29	115	38	10.9	9.3	0.40
PB6KS	3/4" O.D.	108	12.7	40	76	35	115	40	19.0	16.3	0.60
PB8KS	1" O.D.	128	19.1	54	102	42	150	51	43.0	36.8	1.00
<b>Metric tube connections</b>											
PBM6KS	6mm O.D.	89	5.0	38	76	29	115	38	2.6	2.2	0.30
PBM8KS	8mm O.D.	91	6.4	38	76	29	115	38	3.7	3.7	0.30
PBM10KS	10mm O.D.	93	7.0	38	76	29	115	38	5.2	4.5	0.30
PBM12KS	12mm O.D.	98	9.5	38	76	29	115	38	10.9	9.3	0.40
PBM15KS	15mm O.D.	98	9.5	38	76	29	115	38	10.9	9.3	0.40
PBM20KS	20mm O.D.	108	12.7	40	76	35	115	38	19.0	16.3	0.60
PBM22KS	22mm O.D.	128	19.1	54	102	48	150	60	43.0	36.8	1.00

For panel mount version (square body) change PB to PSB i.e. PSB4KS

For single ferrule change K to Q i.e. PB2QS

Bore shown is through the ball

Seat materials: 6,000 psi = PVDF Seal Materials: Body = PTFE - Stem - RTFE

Dims are in mm (appx)

See technical section for important additional valve data

**Note:** Bore may vary dependant on end connection selected

# S Series Flanged Ball Valves

## General Information

### Flanged Ball Valves

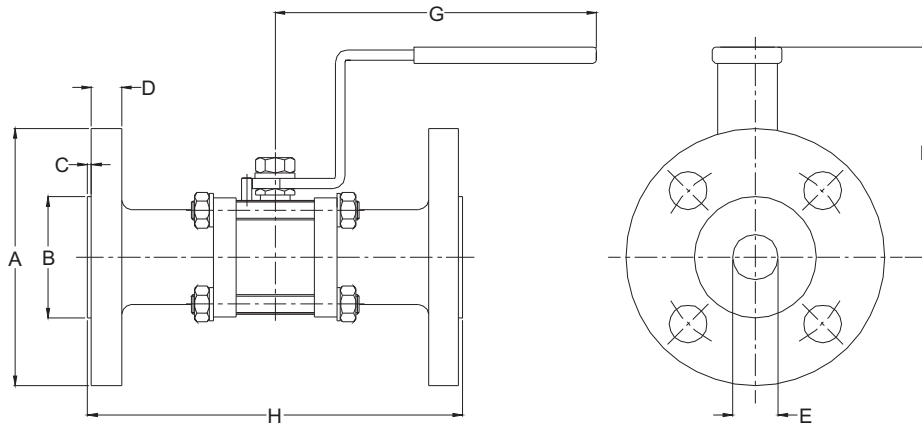


Using the 'S' series centre section, the valve can be supplied with loose Raised Face, Flat Face or Ring Type Joint flanged ends using the round body to provide an economical method of installing the valve into piping systems. The flanged 'S' series can be used for mounting actuators or fixing to panels.

All flanged ball valves will be supplied to ANSI B16.10 face to face dimensions unless otherwise specified.

## Design Features

- Instant installation into tubing pipework, no pipe thread or sealing problems.
- Three piece design for easy maintenance.
- Repair kits available to extend valve life.
- Bi-directional floating ball design to ensure leak-proof shut-off on pressure or vacuum.
- Temperature range -100C to 230C. (Pressures may vary)
- Anti blow-out internally loaded stem for extra safety.
- Full material traceability.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.
- Flanges to ASME B16.5 as standard



## Part Numbers

Part No.	Size	Class Rating	A	B	C	D	E	F	G	H
S4F*-150RF	½"	150	90	34.9	2.0	9.6	9.5	63	90	108
S6F*-150RF	¾"	150	100	42.9	2.0	11.2	12.7	92	90	117
S8F*-150RF	1"	150	110	50.8	2.0	12.7	19.1	88	134	127
S12F*-150RF	1 ½"	150	125	73	2.0	15.9	31.8	136	260	165
S16F*-150RF	2"	150	150	92.1	2.0	17.5	38.1	140	260	178
S4F*-300RF	½"	300	95	34.9	2.0	12.7	9.5	63	90	140
S6F*-300RF	¾"	300	115	42.9	2.0	14.3	12.7	92	90	152
S8F*-300RF	1"	300	125	50.8	2.0	15.9	19.1	88	134	165
S12F*-300RF	1 ½"	300	155	73	2.0	19.1	31.8	136	260	190
S16F*-300RF	2"	300	165	92.1	2.0	20.7	38.1	140	260	216
S4F*-600RF	½"	600	95	34.9	7.0	14.3	9.5	63	90	165
S6F*600RF	¾"	600	115	42.9	7.0	15.9	12.7	92	90	190
S8F*-600RF	1"	600	125	50.8	7.0	17.5	19.1	88	134	216
S12F*-600RF	1 ½"	600	155	73	7.0	22.3	31.8	136	260	241
S16F*-600RF	2"	600	165	92.1	7.0	25.4	38.1	140	260	292

Dims are in mm (appx)  
See technical section for important additional valve data.



# B Series Flanged Ball Valves



## General Information

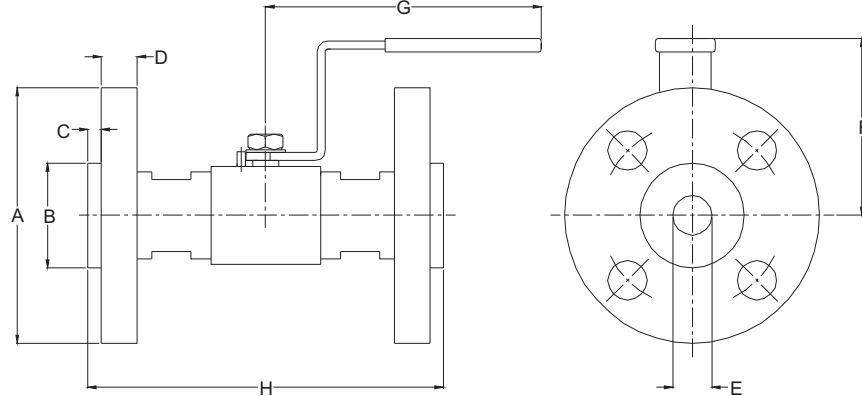
### Flanged Ball Valves

Using the 'B' or 'SB' series centre section, the valve can be supplied with loose Raised Face, Flat Face or Ring Type Joint flanged ends using the round body to provide an economical method of installing the valve into piping systems. The flanged 'SB' series can be used for mounting actuators or fixing to panels.

All flanged ball valves will be supplied to ANSI B16.10 face to face dimensions unless otherwise specified.

## Design Features

- Instant installation into tubing pipework, no pipe thread or sealing problems.
- Repair kits available to extend valve life.
- Bi-directional floating ball design to ensure leak-proof shut-off on pressure or vacuum.
- Positive 90° action-position indication.
- Flanges to ASME B16.5 as standard
- Temperature range -46°C to 230°C. (Pressures may vary) Can be supplied bare shaft & suitable for actuation (if specified on the panel mount version).
- Anti blow-out internally loaded stem for extra safety.
- Full material traceability.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.



## Part Numbers

Part No.	Size	Class Rating	A	B	C	D	E	F	G	H
B4F*-150RF	½"	150	90	34.9	2.0	9.6	9.5	60	90	108
B6F*-150RF	¾"	150	100	42.9	2.0	11.2	12.7	90	90	117
B8F*-150RF	1"	150	110	50.8	2.0	12.7	19.1	86	134	127
B12F*-150RF	1 ½"	150	125	73	2.0	15.9	31.8	133	260	165
B16F*-150RF	2"	150	150	92.1	2.0	17.5	38.1	140	260	178
B4F*-300RF	½"	300	95	34.9	2.0	12.7	9.5	60	90	140
B6F*-300RF	¾"	300	115	42.9	2.0	14.3	12.7	90	90	152
B8F*-300RF	1"	300	125	50.8	2.0	15.9	19.1	86	134	165
B12F*-300RF	1 ½"	300	155	73	2.0	19.1	31.8	133	260	190
B16F*-300RF	2"	300	165	92.1	2.0	20.7	38.1	140	260	216
B4F*-600RF	½"	600	95	34.9	7.0	14.3	9.5	60	90	165
B6F*-600RF	¾"	600	115	42.9	7.0	15.9	12.7	90	90	190
B8F*-600RF	1"	600	125	50.8	7.0	17.5	19.1	86	134	216
B12F*-600RF	1 ½"	600	155	73	7.0	22.3	31.8	133	260	241
B16F*-600RF	2"	600	165	92.1	7.0	25.4	38.1	140	260	292

It is always advisable to request a specific GA drawing for dimensional clarification

Dims are in mm (appx)  
See technical section for important additional valve data.

One  
Million  
Cycle  
Tested



# Centurion™ Valve

## General Information

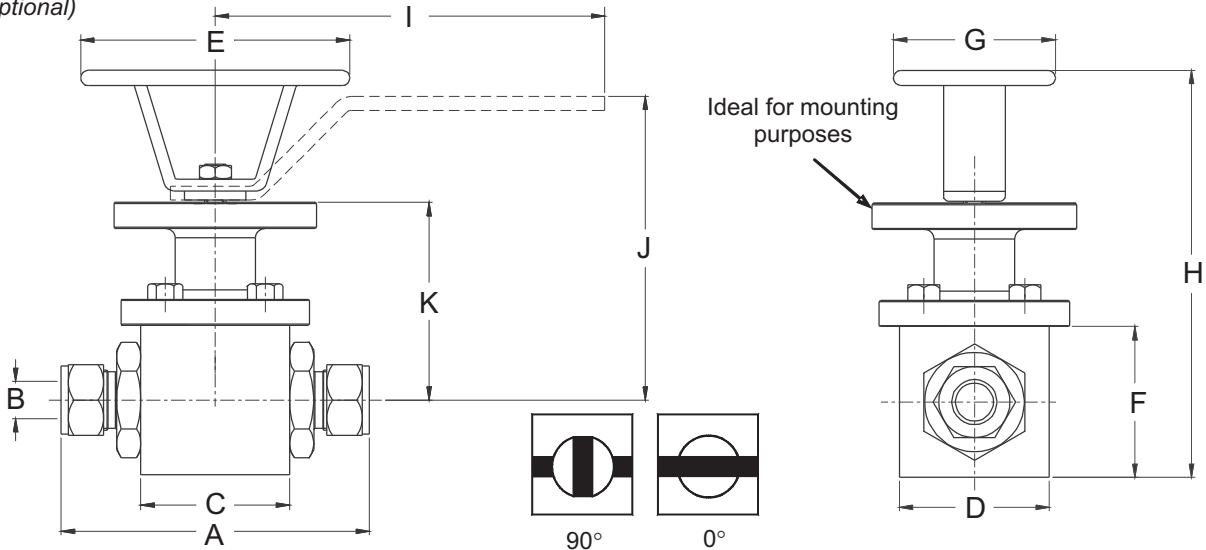
### Heavy Duty, High Cycle Ball valve

The Alco Centurion valve was initially designed and developed as the primary isolation valve for the loading of natural gas powered public service vehicles. A duty where valve reliability and safety are the primary concerns. In order to prove the Centurion valves suitability for continuous repetitive operation it was cycle tested to one million cycles and far beyond, with the pressure integrity being tested with interim high pressure gas tests. The testing was third party witnessed and verified. This ensures that the Centurion is the optimum valve to select where the requirement calls for a long life maintenance free durable valve. The Centurion can also be fitted with "O" seal flat face type tube connectors.

Note: Shown with option -OVH hand wheel

## Design Features

- Rugged robust construction
- Vacuum to 6000 psi rated
- Bi-directional floating ball design
- Stem sealing which ensures leak proof operation under vacuum service
- Bubble tight ball valve shut off
- Certified and documented extended life data available
- Available with various connection options
- Readily adapted to powered actuation (ISO 5211 mounting flange optional)
- Operating temperature ranges of -20C to +70C (Pressures may vary)
- Accepts varying forms of handle and locks to suit customer requirements
- Manufactured in 316 St / St.
- Full traceability of materials for all major components
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.



## Part Numbers

St/St Part No.	Connections Size	A	B (Bore)	C	D	E	F	G	H	I	J	K	Weight (Kgs)
CBV4KS	1/2"	130	10.0	63	64	114	64	68	171	165	130	83	2.1
CBV6KS	3/4"	130	15.9	63	64	114	64	68	171	165	130	83	2.1
CBV8KS	1"	138	19.1	63	64	114	64	68	171	165	130	83	2.1

Dimensions "B" is the bore through the ball

Dim's are in mm (appx)  
See technical section for important additional valve data

# UB Series

## General Information

### Heavy duty high pressure Ball valve 10,000 psi rated

Alco are aware of the ever increasing operating pressures demanded by industry, and for this reason have developed the "UB" range of valves to accommodate these stringent requirements. The UB series high pressure valve has a working pressure of 10,000 psi with a body test at (15,000 psi). The UB Series is a tried and tested rugged design for high pressure applications. It comes with panel mounting holes and stainless steel handle as standard. Service / repair kits are available to prolong service / field life. Many options available such as locking device.

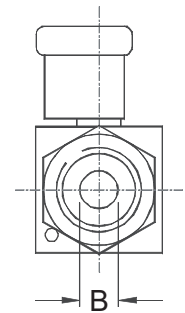
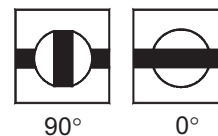
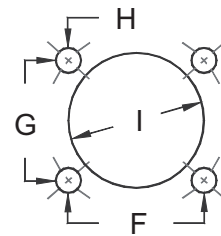
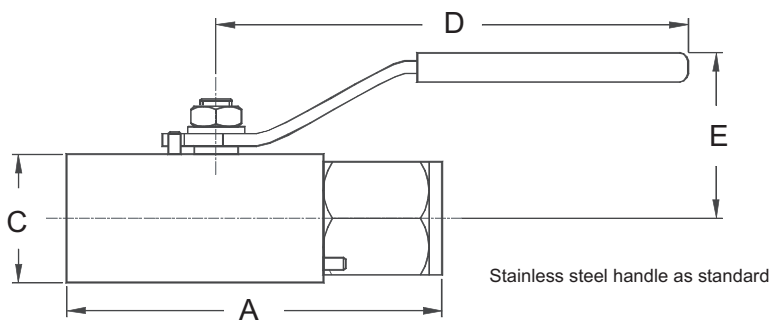


## Design Features

- 2 piece design for safety.
- Quick 90° operation, lever handle standard.
- Bi-directional floating ball design to ensure leak-proof shut-off on pressure or vacuum.
- Anti-blowout stem for safety.
- Available with 4-panel mounting holes M4 x 10 deep, can be actuated (if specified)
- Available in 316ss / Duplex / Monel.
- Temperature range -46°C to 230°C (Pressures may vary)
- Available with socket weld or butt weld ends.
- Renewable seats and seals for long life.
- Repair kits available to prolong valve life.
- Floating ball design for first time seal.
- Available FULL bore or STANDARD bore.
- Full material traceability.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.

VALVE SIZE	F	G	H	I
1/4"-1/2"	27	24	5	27

4 – off M4 x 10 Mounting Holes



## Part Numbers

St/St Part No.	Connections Size	A	B (Bore)	C	D	E	Cv	Kv	Weight (kgs)
UB2NS	1/4" NPT	89	9.5	32	115	39	6.3	5.4	0.7
UB3NS	3/8" NPT	92	9.5	32	115	39	8.6	7.4	0.7
UB4NS	1/2" NPT	95	9.5	32	115	39	5.5	4.7	0.7
UB6NS	3/4" NPT	110	12.7	38	150	46	10.2	8.7	1.0

For BSPT threads change 'N' to 'T' i.e. UB4TS  
For BSPP version change "N" to "P" i.e. UB4PS

Note: check the international standards for pressure limitations of certain threads before you specify a thread form or end connection

Seat materials: 10,000psi = Peek® Seal materials: Body = PTFE - Stem = Peek

Dims are in mm (appx)

See technical section for important additional valve data

# UE Series

## General Information

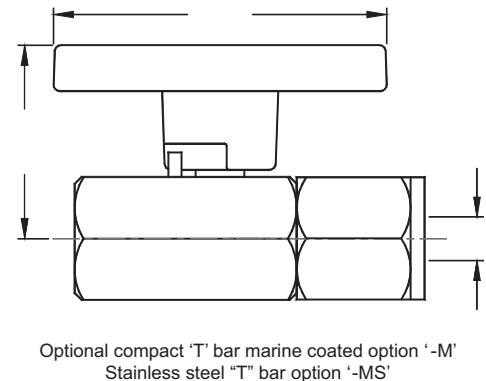
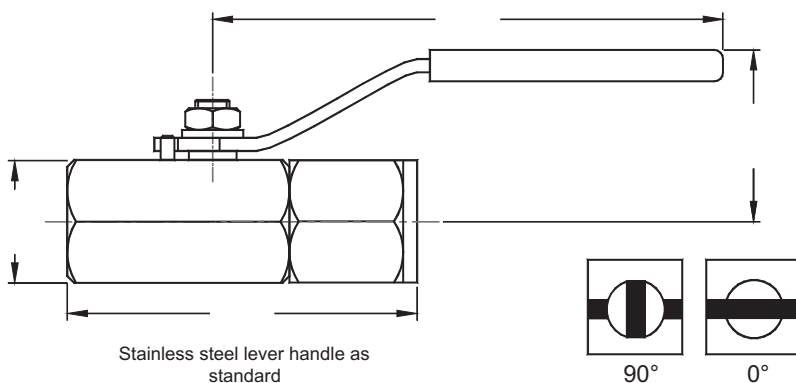
**10,000 psi rated**



The 'UE' series is a compact hybrid of the 'A' and 'B' series ball valve range. The UE series has been designed to be lighter and more compact than the 'UB' series range. It is available in a variety of configurations to suit many applications within the instrumentation and general engineering industries. The UE series comes with a stainless steel lever handle or the optional marine coated compact 'T' bar handle as standard. Fully floating ball for first time seal.

## Design Features

- Smooth low torque 90 operation.
- Two piece design means less leak paths for extra safety.
- Value for money by economical design.
- Compact overall length, reduced weight.
- Choice of trim materials.
- Available in BSPP, BSPT, NPT threads or twin ferrule
- Compression ends (subject to rating).
- Available female x female, male x female or male x male.
- Available in 316ss / Monel / Duplex.
- Anti-blowout internally loaded stem for extra safety.
- Pressure / Temperature rating -20C to 250C (Pressures may vary)
- Bi-directional floating ball design to ensure leak-proof shut-off on pressure or vacuum.
- Many options available such as locking devices,
- Service repair kits available to extend field life.
- Stainless steel lever handle as standard.
- Full material traceability.
- 100 % Hydrostatic testing.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75 latest revision.



## Part Numbers

St/St Part No.	Connections Size	A	B (Bore)	C	D	E	F	G	Cv	Kv	Weight (Kgs)
UE2NS	1/4" NPT	89	10	44	77	32	115	40	2.5	2.2	0.25
UE3NS	3/8" NPT	92	10	44	77	32	115	40	3.0	2.6	0.26
UE4NS	1/2" NPT	95	10	44	77	32	115	40	4.2	3.6	0.30
UE6NS	3/4" NPT	110	13	46	77	38	150	52	7.8	6.7	0.53

Standard valve has lever handle.

For 'T' bar handle add '-M' i.e. E4NS-M.

For BSPP version change 'N' to 'P' i.e. E4PS.

For BSPT version change 'N' to 'T' i.e. E4TS.

Seat materials: 10,000psi = Peek® Seal materials: Body = PTFE - Stem = Peek®

Dims are in mm (appx)

See technical section for important additional valve data

# How to order valves Multi-Way Valves

Our part number system is made up of alphanumeric / generic code system as explained below. An example is :-

**1/2" NPT female x female x female 316ss 'SB' series 3-way "L" ported bottom entry ball valve, Monel® ball & stem, fitted with compact "T" bar handle rated 414 BAR (6,000 psi)**

The part number shown below is made up using the following system:-

Bore Type	Rated Pressure	Valve Series	Valve Size	End Connections	Material of Construction/ Body Parts	Trim Material (Ball & Stem)	Options		
<b>P</b>	<b>SB</b>	<b>4</b>	<b>N</b>	<b>S</b>	<b>-</b>	<b>5</b>	<b>-</b>	<b>3</b>	<b>B</b>

<p><b>Blank</b> = Std Bore <b>F</b> = Full bore</p> <p><b>No letter</b> = standard pressure <b>R</b> = 2,000 psi 138 Bar <b>H</b> = 3,000 psi 207 Bar <b>P</b> = 6,000 psi 414 Bar <b>U</b> = 10,000 psi 690 Bar</p> <p><b>3</b> = Series Multiport <b>SB</b> = Square Body (Panel mounting)</p>	<p>2 = 1/4" 3 = 3/8" 4 = 1/2" 6 = 3/4" 8 = 1"</p> <p><b>B</b> = Butt weld <b>F</b> = Flanged <b>K</b> = Twin ferrule (compression ends) <b>N</b> = NPT Female threads <b>P</b> = BSPP Female threads <b>Q</b> = Single ferrule (compression ends) <b>S</b> = Socket weld <b>T</b> = BSPT Female threads</p>	<p><b>B</b> = Brass <b>C</b> = C/Steel <b>D</b> = Ali-Bronze <b>H</b> = Hastalloy C <b>I</b> = Incoloy 625 <b>M</b> = Monel 400 <b>N</b> = Cupro-Nickel <b>S</b> = 316 St. St. <b>U</b> = Duplex <b>T</b> = Titanium <b>Note:</b> Other specialist material such as 6MO, Super Duplex, Zirconium are available</p>	<p><b>-U</b> = Duplex <b>-5</b> = Monel 400 <b>-6</b> = Incoloy <b>-7</b> = Ali-bronze <b>-8</b> = Hastalloy <b>-9</b> = Cupro Nickel <b>-S3</b> = 316ss</p> <p><b>-1M</b> = One end male <b>-2M</b> = Double male ends <b>-3B</b> = 3 way bottom entry <b>-3L</b> = 3 way side entry <b>-X5</b> = 5-way valve <b>-X4</b> = 4-way valve <b>-DAG</b> = Actuated, double acting <b>-DG</b> = Degreased and cleaned <b>-S</b> = Spanner flat handle <b>-TACK</b> = Tack welded end connectors <b>-TAG</b> = Identification Tagging <b>-DMH</b> = Dead mans handle <b>-X</b> = Down stream exhaust to atmosphere trim <b>-CAVX</b> = Cavity to down stream exhaust trim <b>-EL</b> = Electric actuator <b>-SR</b> = Actuated, spring return</p>
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Socket weld and butt weld end connectors are extended for thermal protection of the valve internals

NOTE 1: The pressure ratings quoted within our literature are maximum hydrostatic pressure ratings for the valves. Certain options available are the products / designs of other manufacturers, Alco valves cannot accept any responsibility for these products unsuitability or failure in service.

NOTE 2: It is always advisable to refer to specific product literature or contact our technical sales department when ordering valves as some of these options are available only on certain styles of valves. Any special end connections such as compression ends or butt / socket weld may limit the rated working pressure of the valve or component supplied in accordance with the relevant specification of design or use of that method of connection. The valve or component will still carry the maximum working pressure markings in accordance with the valve or component design not the connection method as they vary.





# 3 Series

## General Information

### Ball valve multi-port gauge valves 1,000 psi to 6,000 psi

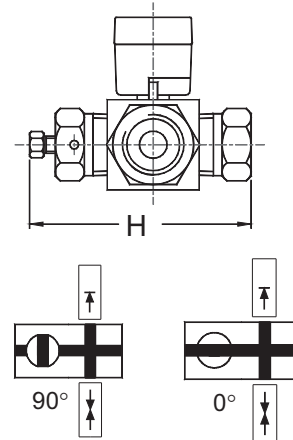
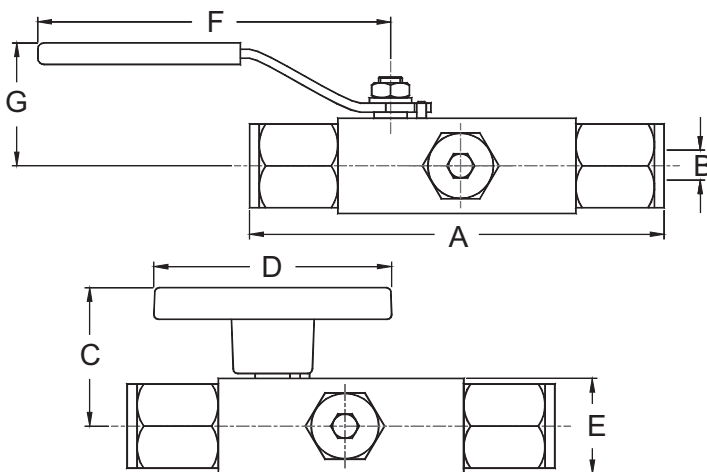
The multiport gauge (ball valve) is designed to provide an economical method for mounting gauges with the facility to test and calibrate gauges and pressure switches. The '3' series, being a ball valve construction / clear bore, offers roddability due to its straight through flow passage. The valve is available with male, female, compression end or standpipe inlet and 3 x outlets. It can also be supplied complete with a swivel gauge adapter for 360 rotation gauge positioning.



Shown with optional vent & blanking plugs

## Design Features

- Bi-directional floating ball design to ensure leak-proof shut-off on pressure or vacuum.
- Anti-blowout internally loaded stem for safety.
- Positive 90° action.
- Replaceable seats and seals for extended life.
- Choice of inlet style i.e. male, female, compression end or standpipe connection.
- Available with vent and blanking plugs (if specified).
- Temperature range -46°C to 230°C temperature differs at 3,000 psi. (Pressures may vary)
- Extended versions are made to allow for pipe lagging of 50mm or 100mm.
- Full material traceability.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.



## Part Numbers

St/St Part No.	Connections Size	A NPT	B (Bore)	C	D	E	F	G	H	Cv *	Kv *	Weight (kgs)
32MNS	1/4" NPT MXF	121	6.4	44	76	32	115	39	82	2.0	1.7	0.7
32FNS	1/4" NPT FXF	112	9.5	44	76	32	115	39	82	6.3	5.4	0.6
34MNS	1/2" NPT MXF	153	9.5	44	76	32	115	39	82	5.5	4.7	0.8
34FNS	1/2" NPT FXF	137	9.5	44	76	32	115	39	82	5.5	4.7	0.7
32KNS	1/4" O.D. X 1/4" F NPT	123	5.0	44	76	32	115	39	82	9.9	8.5	0.6
34KNS	1/2" O.D. X 1/2" F NPT	140	9.5	44	76	32	115	39	82	8.6	7.4	0.7

For 3,000 psi add Prefix 'H' i.e. H34FNS, For 6,000 psi add Prefix 'P' i.e. P34FNS

For vent and blanking plugs add 'VP'-BP' i.e. 34MNS - 'VP' - 'BP'

Seat materials: 1000 psi = PTFE - 2000 psi = RTFE - 3000 psi = Acetal - 6,000 psi = PVDF

Seal Materials: Body = PTFE - Stem = RTFE

\* = Inline through bore connection.

Dims are in mm (appx)

See technical section for important additional valve data  
**Note:** Bore may vary dependant on end connection selected

# 3-Way SB Series

## General Information

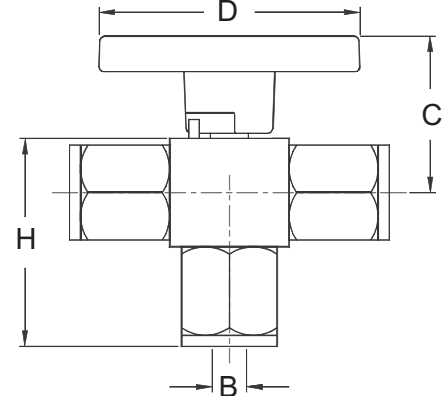
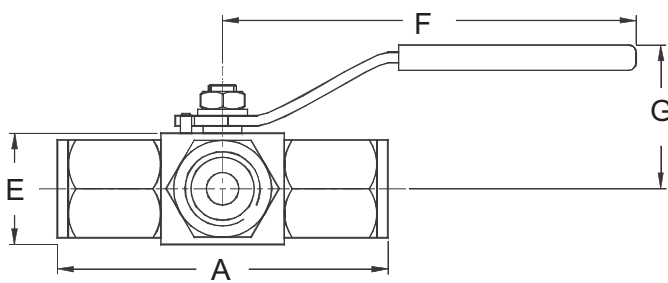
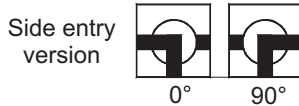
**1,000 psi to 3,000 psi rated**



The 3-way L-Port diverter valves are an economical and safe method of diverting high pressure lines where several high pressure 2-way valves may have been used, ensuring an altogether safe, compact, and easy to install solution to low and high pressure diversion. Available in bottom or side entry body formats. Materials of construction include 316 stainless steel, brass, carbon steel, monel, hastalloy, titanium, duplex and other exotic alloys. Many options apply including locking devices, actuator operation etc.

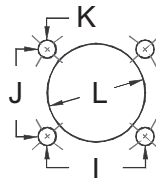
## Design Features

- Rated 1,000 psi (SB) and 3,000 psi (HSB).
- Flexible 4 piece design.
- Solid, strong yet compact body construction.
- Anti blow out stem for safety.
- Suitable for panel mounting (with T bar) or actuation.
- Light, quick and positive 90° action side entry & 180° action on bottom entry version.
- Available in 316ss/Monel / Duplex / Hastalloy / Titanium / Carbon Steel
- Temperature range -46C to 230C (Pressures may vary)
- Repair kits available should the valve require maintenance to prolong its service life.
- Low operating torque under pressure.
- Panel mounting facility as standard, ideal for actuation.
- Full material traceability.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.



VALVE SIZE	I	J	K	L
1/4"-3/4"	27	24	5	27
1"	38	38	5	38

4 Holes M4 x 10 mm deep



Compact 'T' bar marine coated option '-M'  
Stainless steel "T" bar option '-MS'

Note: 1" bottom entry valves come with lever handle only

Note: Should side loading be required consult factory

## Part Numbers

St/St Part No.	Connections Fx Fx F Bottom entry	A BSPP	A NPT	B (Bore)	C	D	E	F	G	H BSPP	H NPT	Cv	Kv	Weight (kgs)
SB2NS-3B	1/4" NPT	62	68	9.5	44	76	38	115	39	52	55	2.5	2.1	0.6
SB3NS-3B	3/8" NPT	74	74	9.5	44	76	38	115	39	58	58	2.5	2.1	0.6
SB4NS-3B	1/2" NPT	77	93	9.5	44	76	38	115	39	59	67	2.5	2.1	0.7
SB6NS-3B	3/4" NPT	86	95	12.7	48	76	38	115	42	61	66	4.6	3.9	0.9
SB8NS-3B	1" NPT	109	115	19.1	56	102	51	150	54	79	82	11.0	9.4	1.5

Add 'H' for 3,000 psi version i.e. HSB4NS-3B, Change '3B' to '3L' for side entry version i.e. SB3NS-3L

Change 'N' to 'P' for BSPP threads i.e. SB4PS-3L, Change "N" to "T" for BSPT threads i.e. SB4TS-3L

Seat materials: 1,000 psi = PTFE - 2000 psi = RTFE - 3000 psi = Acetal Seal Materials: Body = PTFE - Stem = RTFE

Note: temperatures differ on different pressure ratings

Dims are in mm (appx)

See technical section for important additional valve data

# 3-Way PSB Series

## General Information

**6,000 psi rated**



The 3-way L-Port diverter valves are an economical and safe method of diverting high pressure lines, saving the use of several high pressure 2-way valves, ensuring an altogether safe, compact and easy to install solution to high pressure diversion. Available in bottom or side entry body formats. Materials of construction include 316 stainless steel, monel, hastalloy, titanium, duplex and other exotic alloys.

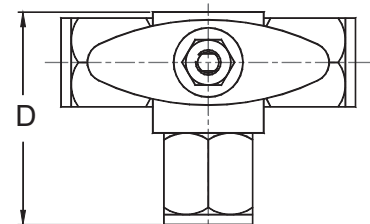
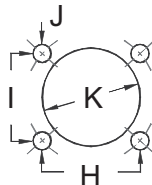
## Design Features

- Low operating torque under pressure.
- Flexible 4 piece design.
- Solid, strong yet compact body construction.
- Anti blow out stem for safety.
- Can be supplied suitable for actuation if specified.
- Light, quick and positive 90° action side entry & 180° action on bottom entry version.
- Repair kits available should the valve require maintenance to prolong its service life.
- Temperature range -46C to 250C (Pressures may vary)
- Choices of 'T' bar or lever handle, connection sizes and material of construction.
- Panel mounting facility as standard (4 off M4 x 10mm, ¼" to ½" only).
- Full material traceability.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.

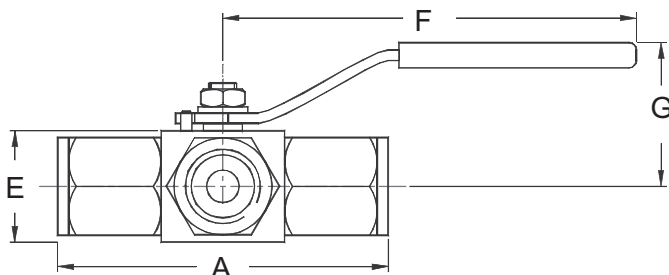
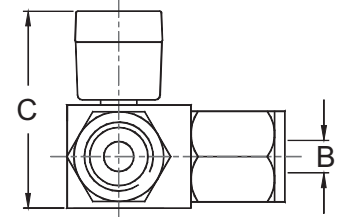
VALVE SIZE	H	I	J	K
1/4"-3/4"	27	24	4	27
1"	38	38	4	38

**4 Holes M4 x 10 mm deep**

Stainless steel handle option -LM



Compact 'T' bar marine coated option '-M'  
Stainless steel 'T' bar option '-MS'



Note: Should side loading be required consult factory

## Part Numbers

St/St Part No.	Connections FxFx side entry	A BSPP	A NPT	B (Bore)	C	D NPT	D BSPP	E	F	G	CV	KV	Weight (Kgs)
PSB2NS-3L	1/4" NPT	64	70	5	60	55	51	32	115	39	0.7	0.6	0.5
PSB3NS-3L	3/8" NPT	70	70	5	60	58	58	32	115	39	0.7	0.6	0.5
PSB4NS-3L	1/2" NPT	93	93	5	60	67	59	32	115	39	0.7	0.6	0.7
PSB6NS-3L	3/4" NPT	93	93	5	60	67	67	32	115	39	0.7	0.6	0.8
PSB8NS-3L	1" NPT	114	114	8.7	81	92	92	51	150	54	2.0	1.7	1.8

Change '3L' to '3B' for bottom entry version i.e. PSB4NS-3B, Change 'N' to 'P' for BSPP threads i.e. PSB4PS-3L

Change 'N' to 'T' for BSPT threads i.e. PSB4TS-3L

Seat materials: 6,000 psi = Peek® Seal Materials: Body = PTFE - Stem = RTFE

Dims are in mm (appx)

See technical section for important additional valve data

# 3-Way USB Series

## General Information

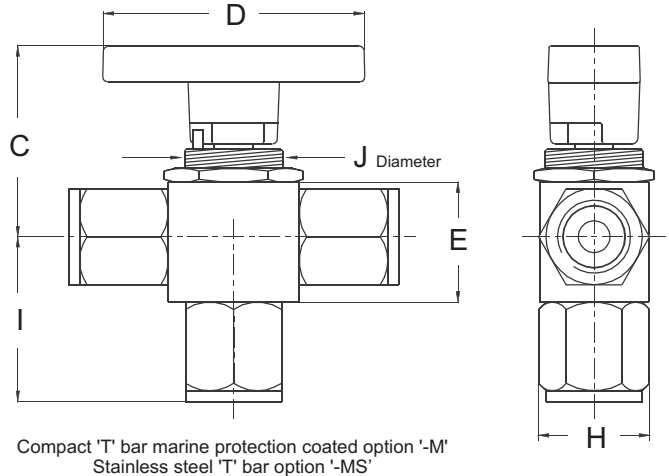
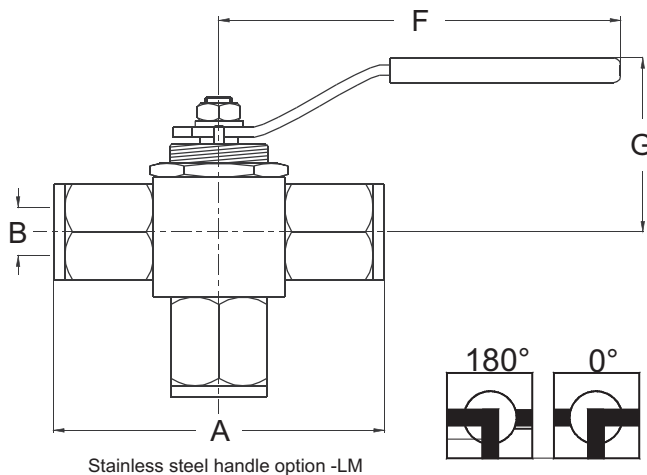
10,000 psi rated



The 10,000 psi 3-way L-Port Diverting ball valve range are bottom entry with 180° & 90° action. The USB offers low torque smooth positive action with floating seat design. 4-piece flexibility, with the added advantage of single nut panel mounting facility. Dynamic seats and Trunnion Mounted Ball design, a compact way to divert high pressure lines safely. Materials of construction include 316 stainless steel, monel, hastalloy, titanium, duplex and other exotic alloys. Many other standard options apply including lever handle, locking devices, actuators etc.

## Design Features

- Rated up to 10,000 psi.
- Flexible 4 piece design.
- 180° operation as standard (90° operation version can be supplied).
- Anti blow out stem for safety.
- Dynamic Seats and Trunnion Mounted Ball.
- Light, quick and positive 180° action.
- Single nut type Panel mounting facility for easy panel installation or actuation
- Temperature range -46°C to 230°C. (Pressures may vary)
- Available in 316ss/Monel/Duplex.
- Repair Kits available to prolong valve life.
- Fitted with compact "T" bar handle as standard.
- A choice of handle, connection sizes and material of construction.
- Full material traceability.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.



Note: This valve is for bottom entry use only

## Part Numbers

St/St Part No.	Connections FxFxF Bottom entry	A BSPP	A NPT	B (Bore)	C	D	E	F	G	H	I BSPP	I NPT	J Clearance	CV	KV	Weight (kgs)
USB2NS-3B	1/4" NPT	67	67	4	55	76	44	115	48	39	34	37	29	0.4	0.3	0.6
USB3NS-3B	3/8" NPT	96	96	4	55	76	44	115	48	39	37	37	29	0.4	0.3	0.6
USB4NS-3B	1/2" NPT	96	96	4	55	76	44	115	48	39	48	48	29	0.4	0.3	0.8

For BSPT change 'N' to 'T' i.e. USB4TS-3B

For BSPP change 'N' to 'P' i.e. USB4PS-3B

For stainless steel lever handle add -LM

Seat materials: 10,000 psi = Peek® Seal Materials: Body = PTFE - Stem = Peek®

Dims are in mm (appx)

See technical section for important additional valve data

# 3T Series

## General Information

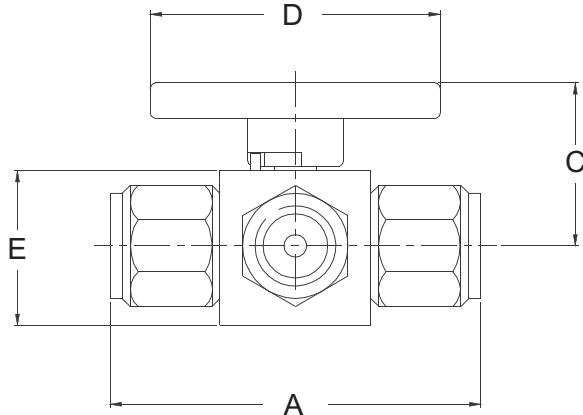
### 3-Way T Ported Ball Valve Up to 6,000 psi rated

The Alco 3T series "T" ported high pressure diverting ball valve range offers a compact and safe way to divert, control, vent, or sample high pressure liquid or gas mediums. Manufactured from high integrity bar-stock material the "3T" is suitable for use in hostile environments. Available in threaded sizes from 1/4" to 1". The "3T" is available in several flow configurations (shown below) offering more flexibility and usefulness to any system design. Various handle orientations can be specified at the time of the order, otherwise 3T1 (configuration 1) is supplied as standard. Lever handle, locking device and actuators can be fitted as options.



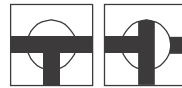
## Design Features

- High pressure up to 6,000 psi.
- "T" ported ball design for various high pressure flow diversions or isolation orientation.
- Low operating torque under pressure.
- Flexible five piece design.
- Solid, strong yet compact body construction.
- Anti blow out stem for safety.
- Light, quick and positive 90 action side entry.
- 3 handle orientations for two flow formats.
- Soft seat for first time bubble tight diversion or isolation.
- Available in sizes from 1/4" to 1" thread connections.
- Temperature range -46C to 230C (Pressures may vary)
- Suitable for actuation (if specified)
- Choices of 'T' bar or lever handle, connection sizes and material of construction.
- Repair kits available should the valve require maintenance to prolong its service life.
- Panel mounting facility as standard.
- Full material traceability.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.

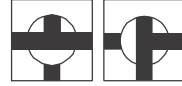


### Handle

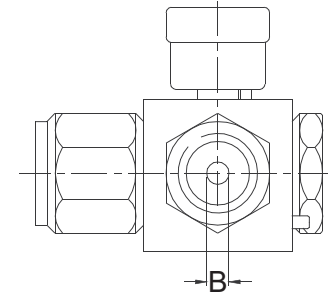
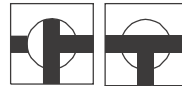
(3T1) Configuration (A)



(3T2) Configuration (B)



(3T3) Configuration (C)



## Part Numbers

St / St Part No.	Flow Configuration Part No.			Connections F x F x F side entry	A	B (Bore)	C	D	E	CV	KV	Weight (Kgs)
	A	B	C									
SB2NS-	3T1	3T2	3T3	1/4"	78	5	48	76	38	0.7	0.6	0.8
SB3NS-	3T1	3T2	3T3	3/8"	78	5	48	76	38	0.7	0.6	0.8
SB4NS-	3T1	3T2	3T3	1/2"	97	5	48	76	38	0.7	0.6	1.0
SB6NS-	3T1	3T2	3T3	3/4"	97	5	48	76	38	0.7	0.6	1.0
SB8NU-	3T1	3T2	3T3	1"	114	10	56	102	51	2.8	2.4	1.8

To change flow configuration to configuration 2 change 1 to 2 i.e. SB4NS-3T2  
Change 'N' to 'P' for BSPP threads i.e. SB4PS-3T2, Seat materials: PEEK Seal Materials: Body = PTFE - Stem = RTFE  
For 3,000Psi Version add 'H' ie. HSB4NS, for 6,000Psi version add 'P' ie PSB4NS.  
Body Material for 316SS valves rated above 3,000Psi to be Duplex as standard

Dims are in mm (appx)  
See technical section for important additional valve data



# X4 Series

## General Information

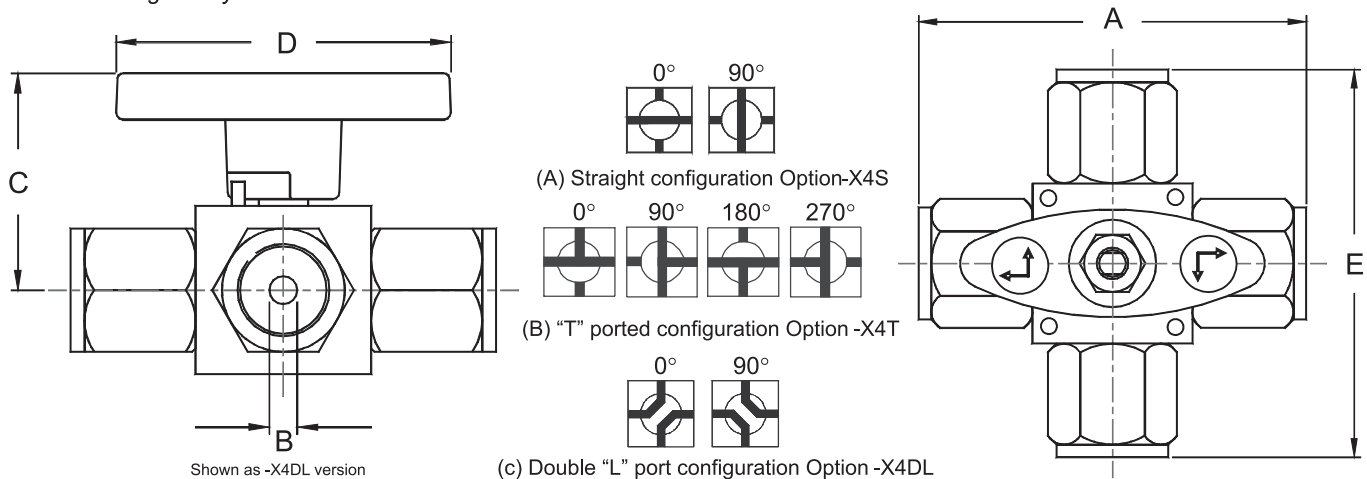
**1,000 to 6,000 psi rated**



The 4-way multi diverter valves are an economical and safe method of diverting high pressure lines, this replaces several high pressure 2-way valves. Ideal for sampling or vent / dumping applications. Ensuring an altogether safe, compact and easy to install solution to high pressure diversion, using the inlet pressure to actuate the floating ball ensuring a tight seal on the seat. Available in bottom or side entry body formats. Materials of construction include 316 stainless steel, brass, carbon steel, monel, hastalloy, titanium, duplex and other exotic alloys.

## Design Features

- Rated up to 6,000 psi.
- Low operating torque under pressure.
- Flexible 4 piece design.
- Solid, strong yet compact body construction.
- Anti blow out stem for safety.
- Suitable for actuation.
- Light, quick and positive 90° action side entry & 180° action on bottom entry version.
- Panel mounting facility as standard.
- Temperature range -46°C to 230°C (Pressures may vary)
- Repair kits available should the valve require maintenance to prolong its service life.
- Choices of 'T' bar or lever handle, connection sizes and material of construction.
- Full material traceability.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.



## Part Numbers

St / St Part No.	Flow Configuration Part No.			Connections (Female x Female x Female)	A	B (Bore)	C	D	E	CV	KV	Weight (Kgs)
	A	B	C									
SB2NU-	X4S	X4T	X4DL	1/4" NPT	78	5	48	76	78	0.7	0.6	0.9
SB3NU-	X4S	X4T	X4DL	3/8" NPT	78	5	48	76	78	0.7	0.6	0.9
SB4NU-	X4S	X4T	X4DL	1/2" NPT	97	5	48	76	97	0.7	0.6	1.1
SB6NU-	X4S	X4T	X4DL	3/4" NPT	97	5	48	76	97	0.7	0.6	1.1
SB8NU-	X4S	X4T	X4DL	1" NPT	114	10	56	102	114	2.8	2.4	1.9

Double 'L' ported version change -X4S to -X4DL i.e. SB4NU-X4DL. Change 'N' to 'P' for BSPP threads i.e. SB4PU-X4.

Seat materials: PEEK Seal Materials: Stem = RTFE.

For 3,000Psi Version add 'H' ie. HSB4NS, for 6,000Psi version add 'P' ie PSB4NS.

Body Material for 316SS valves rated above 3,000Psi to be Duplex as standard

Dims are in mm (appx)

See technical section for important additional valve data

# ADM-PRO™ Ball Valve Type

## General Information

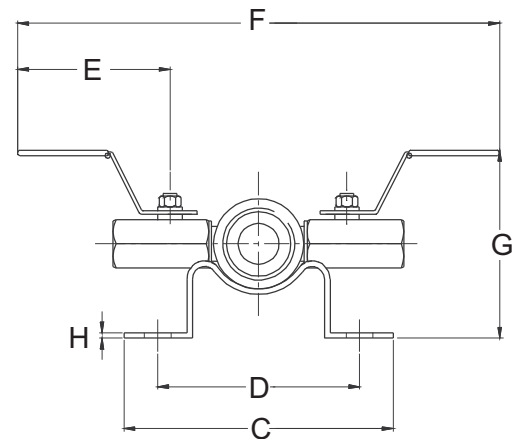
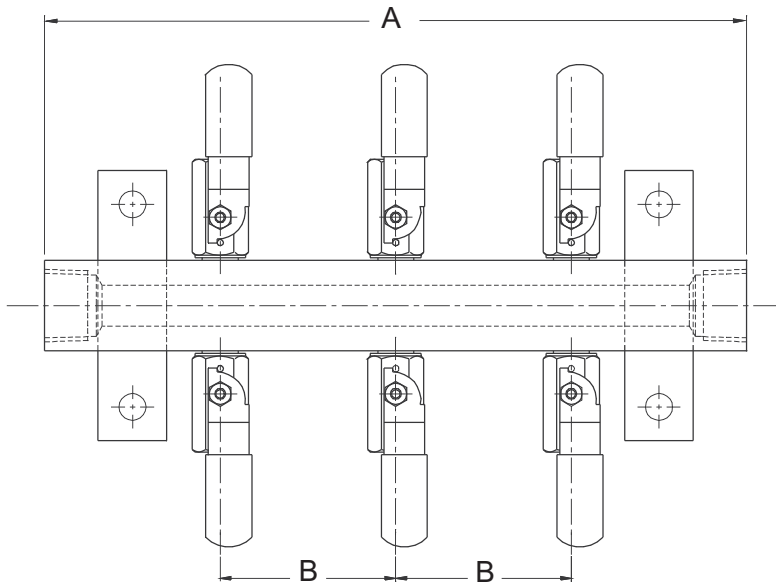
### Air distribution manifolds rated up to 6,000 psi

The Alco ADM-PRO™ range of compact, economical air distribution manifolds come in our standard configuration (shown below) or to client specifications. ADM-PRO™ can be supplied with up to 40 take-off valves, ball or needle valves. Inlet and drain connections can be made to specification, this includes flanges i.e. 150 lbs. Rf. or even socket / butt weld. Mounting legs are supplied as standard to make installation easier. Take off sizes can vary from 1/4" to 1" in size. Working pressures range from 2,000 psi up to 6,000 psi, also see needle valve version in section 9.



## Design Features

- Bi-directional floating ball design to ensure leak-proof shut-off on pressure or vacuum.
- Manufactured from high integrity, certified (316ss) tube.
- Smooth low torque 90 operation.
- Value for money, compact economical design.
- Compact overall length, reduced weight.
- Choice of trim materials.
- Available NPT, BSPP or BSPT threads.
- Base mounting holes to allow fixing to enclosure or mounting boss.
- Temperature range -46C to 230C. (Pressures may vary)
- Available in female x female and male x female versions.
- Available in 316 stainless steel, other materials available.
- Anti-blow-out internally loaded stem for safety.
- Handle indicates open / closed position at a glance.
- Many options available such as locking devices, mounting brackets, 'C' shaped handle.
- Full material traceability.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.



Note: supplied with mounting legs as standard

## Part Numbers

St/St Part No.	Inlet / Outlet	No. of take offs	A	B	C	D	E	F	G	H	Weight (Kgs)
ADM6-MA2NS	3/4" NPT Female Inlet / outlet 1/4" NPT takeoffs	6	276	88	102	75	57	179	70	2/3	2.0

Seat materials: 6,000 psi = PVDF  
Seal Materials: Body = PTFE - Stem = RTFE.

Dims are in mm (appx)  
See technical section for important additional valve data

# How to order Check Valves

Our part number system is made up of alphanumeric / generic code system as explained below.  
An example is :-

## 1/2" NPT male inlet x female outlet 316ss 'EC' series piston check valve, Monel® K400 piston with Viton® seal Rated 690 bar (10,000 psi)

The part number shown below is made up using the following system:-

Rated pressure	Valve Series	Valve Size	End Connections	Material of Construction/ Body Parts	Piston Material	Options
<b>U</b>	<b>EC</b>	<b>4</b>	<b>N</b>	<b>S</b>	<b>4</b>	<b>1 M</b>
Blank = Std U = 10,000 psi X20 = 20,000 psi	EC = Piston Check Non Return Valve Range	1 = 1/8" 2 = 1/4" 3 = 3/8" 4 = 1/2" 6 = 3/4" 8 = 1" 10 = 1 1/4" 12 = 1 1/2" 16 = 2"	B = Butt Weld F = Flanged K = Twin Ferrule (Compression Ends) N = NPT Female Threads P = BSPP Female Threads Q = Single Ferrule (Compression Ends) S = Socket Weld T = BSPT Female Threads	B = Brass C = C/Steel K = Ali Bronze H = Hastalloy C I = Incoloy 625 M = Monel 400 N = Cupro Nickel S = 316 St. St. U = Duplex <b>Note:</b> Other specialist material such as 6MO, Super Duplex, & Zirconium are available	U = Duplex 5 = Monel 400 6 = Incoloy 7 = Ali-Bronze 8 = Hastalloy 9 = Cupro Nickel	1M = One end Male (make sure you specify inlet or outlet otherwise Alco standard applies) 2M = Double male ends TAG = Identification tagging PTFE = PTFE coated in viton seal IS = Inconel Spring PC = PTFE coated spring (for extra protection against corrosion) NC = Nickel coated spring (for extra protection against corrosion) EPDM = EPDM Seal FFKM = FFKM Seal SCH = Pressure rating for Butt Weld

Socket weld and butt weld end connectors are extended for thermal protection of the valve internals  
Note: Pressure ratings may vary dependant upon the material of construction i.e. brass construction limited up to 3,000 psi.

NOTE 1: The pressure ratings quoted within our literature are maximum hydrostatic pressure ratings for the valves. Certain options available are the products / designs of other manufacturers, Alco Valves cannot accept any responsibility for these products unsuitability or failure in service.

NOTE 2: It is always advisable to refer to specific product literature or contact our technical sales department when ordering valves as some of these options are available only on certain styles of valves. Any special end connections such as compression ends or butt / socket weld may limit the rated working pressure of the valve or component supplied in accordance with the relevant specification of design or use of that method of connection. The valve or component will still carry the maximum working pressure markings in accordance with the valve or component design not the connection method as they vary.

# EC Series

## General Information

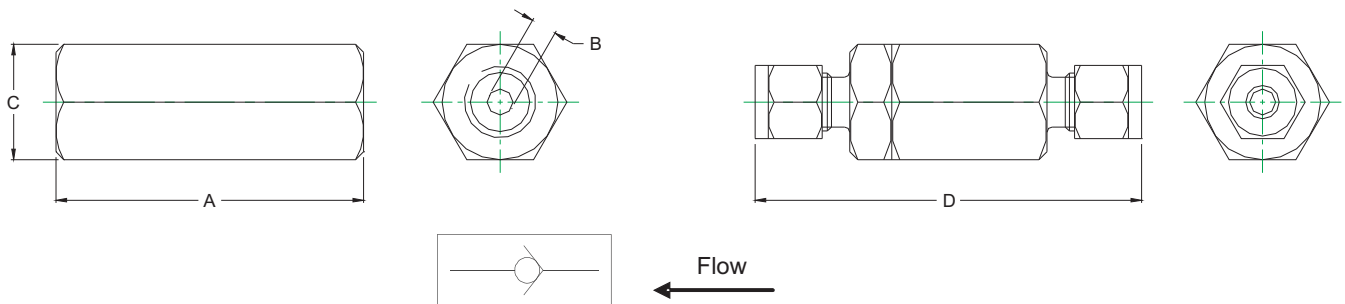
### 10,000 psi rated Piston Check Non-return valves

The Alco Valves Non Return Valve is designed for high flow and low pressure drop in a pressurised medium. The "EC" series valve has a wide range of body and trim materials available, several types of sealing materials can be used to cope with most aggressive mediums. Having a soft primary seat means it is suitable for gases or liquids. Altogether a very compact unit, suitable for many arduous duties.



## Design Features

- Primary soft seal for bubble tight close, with secondary metal-to-metal seal as standard.
- Larger orifice sizes for high flow and low pressure drop across your system.
- Soft seat for bubble tight / shut off seal on pressure or vacuum.
- Heavy-duty corrosion resistant spring for long life.
- Close tolerance guided spring and piston to prevent crabbing or seizure.
- Repair kits available.
- Temperature rating -46°C to +325°C depending on seal materials used. (Pressures may vary)
- Available in 316 / monel/ duplex / hastalloy or titanium.
- Many piston and spring material options available to cope with aggressive mediums.
- Full material traceability.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.



## Part Numbers

St/St Part No.	Connections Size	A	B Bore Size	C	D Compression / Tube Ended	Cv	Kv	Weight (Kgs)
EC2NS	1/4" NPT	59	5	22	74	0.53	0.45	0.18
EC3NS	3/8" NPT	64	8	22	78	0.97	0.83	0.2
EC4NS	1/2" NPT	76	10	28	96	1.78	1.52	0.4
EC6NS	3/4" NPT	85	10	35	107	1.78	1.52	0.7
EC8NS	1" NPT	95	10	45	117	1.78	1.52	1.2

For BSPP change 'N' for 'P' i.e. EC2PS.

For compression type tube ends change N for K i.e. EC2KS

Note: Sizes above 1" are available. These may be two-piece design and normally have a maximum pressure rating of 6,000 psi.

Dims are in mm (appx)

See technical section for important additional valve data

Note: Bore size may vary depending on end connection selected

# XC Series

## General Information

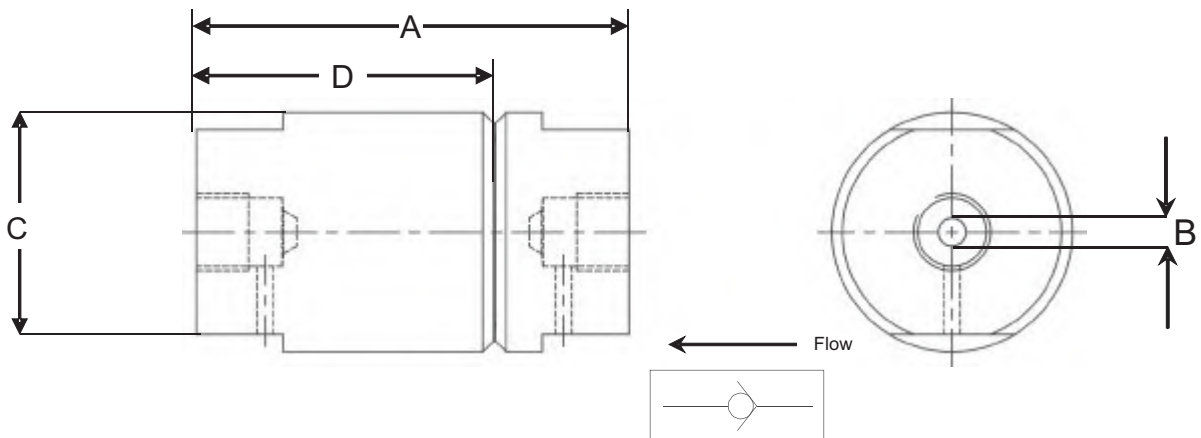
### 20,000 psi rated Piston non-return valves

The Alco "XC" Non Return Valve is designed for very high pressure service. This valve has a wide range of body and trim materials available, several types of sealing materials can be used to cope with most aggressive mediums. Altogether a very compact unit that is suitable for many arduous duties. Ideal for use on high pressure test rigs, pumps, injection skids etc.



## Design Features

- Primary soft seal for bubble tight close, with metal to metal secondary seal.
- Soft seat for bubble tight shut off on pressure or vacuum.
- Heavy duty corrosion resistant spring for long life.
- Close tolerance guided spring and piston to prevent crabbing or seizure.
- High pressure & compact design.
- Many end connection options available including threaded or weld ends.
- Available in duplex or equivalent material.
- Temperature range -46°C to 315°C depending on seal materials used. (Pressures may vary)
- Many piston and spring material options available to cope with aggressive mediums.
- Full material traceability.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.

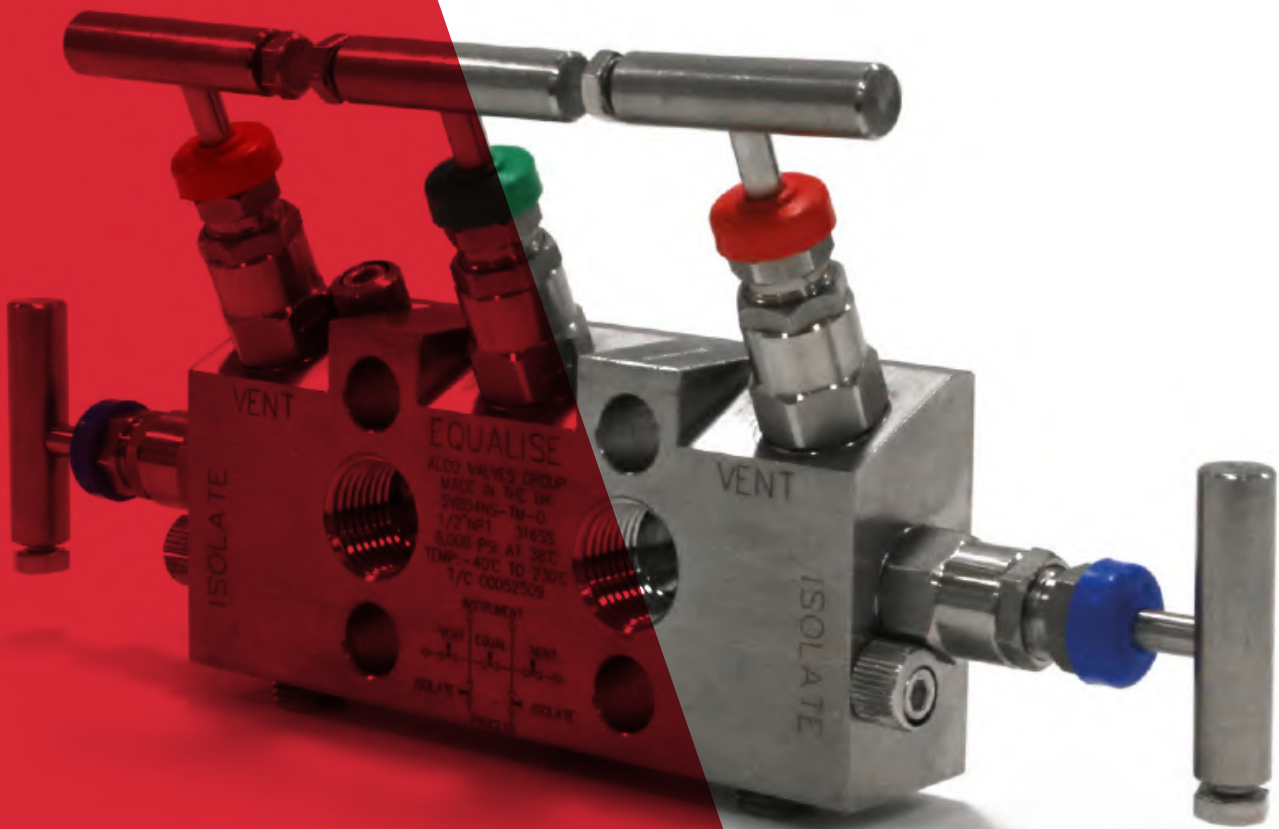


## Part Numbers

St/St Part No.	Connections Size	A	B	C	D	Cracking Pressure	Cv	Kv	Weight (Kgs)
XC20-7/16U	1/4" MP Autoclave (7/16" UNF)	80	2.8	45	55	5	0.53	0.45	0.95
XC20-9/16U	3/8" MP Autoclave (9/16" UNF)	80	5.0	45	55	5	0.53	0.45	0.95
XC20-13/16U	9/16" MP Autoclave (13/16" UNF)	95	5.0	45	65	5	0.53	0.45	1.10

Dims are in mm (appx)  
See technical section for important additional valve data  
**Note:** Bore size may vary depending on end connection selected





# Needle Valves & Manifolds

# Needle Valve Section Contents

Section **7** Benefits & Features of the Alco  
Needle Valve Range

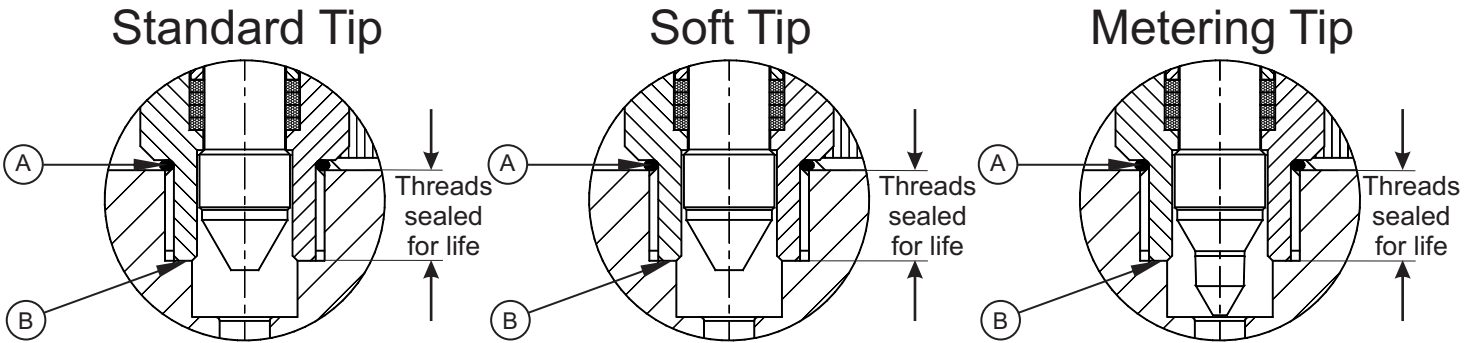
Section **8** Needle Valves/Plug Valves/Angle Pattern &  
Miniature Valves

Section **9** Gauge Valves, Multi-Port Valves &  
Air Distribution Manifolds

Section **10** Instrument & Pressure Equipment Manifolds

# Needle Valve Head Data

## Optional Tip Arrangements



**A** - is an ingress seal to prevent environmental contamination which can cause crevice corrosion at the threads

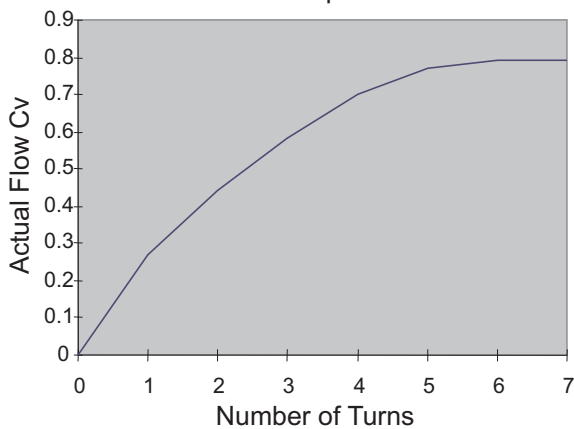
**B** - is our metal to metal pressure seal internal to the body for safety, strength and high integrity at high temperatures.

**Worth Consideration:** when feature A and B are taken into consideration you will realise that the critical thread in any needle valve (bonnet to body) should not be exposed to corrosion. Standard Alco needle valve bonnet threads are sealed from the environment and the process medium, sealed for life. This is a great advantage over other designs.

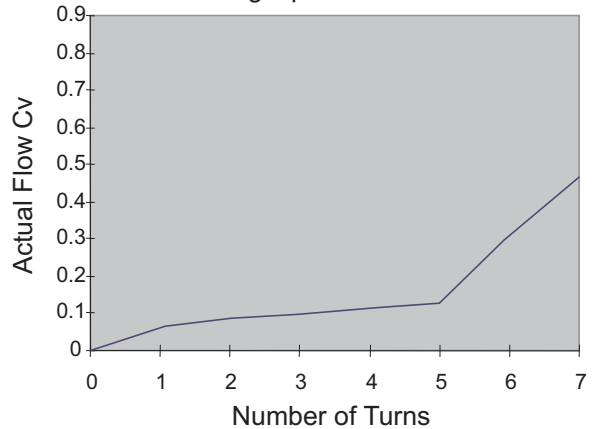
As shown, the optional tip feature allows selection of the most effective flow rate for your application. The standard tip offers excellent control of the process medium, however, the metering tip offers finer control of the high pressure process medium. Other tip materials can be supplied such as Monel®, K500, Duplex, Hastalloy® C276 & B2, Ceramic, Kevlar®, Delrin®, Peek® etc. Please enquire.

## Needle Valve Flow Data

1. Standard or Soft Tip 5mm Flow Orifice



2. Metering Tip 5mm Flow Orifice



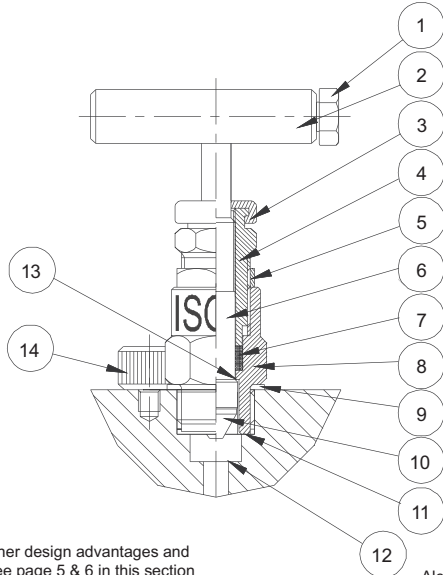
The precision made Alco series N rising stem Needle Valve can be fitted with a number of alternative flow tips which offer different characteristics. Tips can be manufactured in different materials to satisfy individual customer applications i.e. Monel K500. Two basic flow / lift characteristics are available, for these solutions, as shown in table above.

Table 1. shows the flow CV obtainable, for a given number of turns of the tee style handle, when fitted with a standard flow characterised tip. While table 2. shows the flow / lift characteristic obtainable with the metering tip fitted. The metering tip is selected when fine control adjustment at low flows is required. When the metering tip is manufactured to give positive shut off, good control range ability can be obtained. Both styles of flow tip are fitted into needle valve bodies with a maximum drilled orifice size of 5mm diameter, other sizes available.

See technical section for important additional valve data.

# Needle Valve & Mini Valves Head Data

## Standard Head



Note: for further design advantages and information see page 5 & 6 in this section

Alco Valves © 1999

## Needle Valve Units

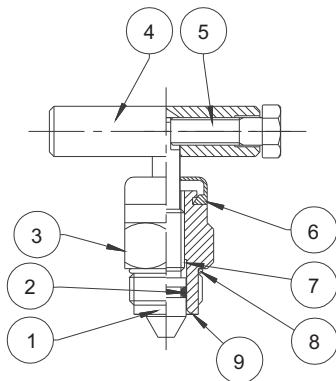
Our needle valve 2-piece non-rotating stem tip arrangement has a 17-4PH tip and back sealing facility. This unit is suitable for 6,000 psi and 10,000 psi use. Different packing materials are available to suit a wide range of applications, process medium requirement or line temperature. RTFE and Graphoil (high temperature use) are just a few of the options available. Also different tip materials are available such as 316SS, PEEK, Monel K500, Hastalloy. Altogether a flexible design with several additional safety features ensuring long, safe field life.

## Design Advantages

### Needle Valve Head

- (1) Handle retainer
- (2) Positive non-slip handle
- (3) Dust cap - colour coded
- (4) Gland adjuster
- (5) Gland adjuster nut
- (6) Valve stem
- (7) Packing
- (8) Bonnet housing
- (9) Environmental ingress seal
- (10) Stem tip
- (11) Metal to metal body to bonnet seal
- (12) Metal to metal high integrity seat
- (13) Metal to metal back seal
- (14) Locking cam(1) Rotating spindle

## Mini Head



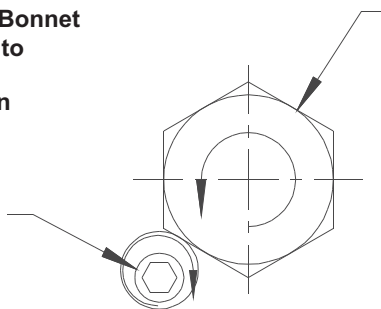
### Mini Valve Head (Max 6,000psi)

- (1) Rotating spindle mini
- (2) Packing seal
- (3) Mini bonnet housing
- (4) Needle valve "T" handle
- (5) M6 bolt
- (6) Dust cap
- (7) Back seal for longer life
- (8) Ingress seal
- (9) Metal to metal body to bonnet seal

## Anti Rotational Bonnet Cam Locking Device - Effective, Simple & Safe

The Alco Valves Unique Bonnet System to combat vibration

Lock Screw



Valve Bonnet

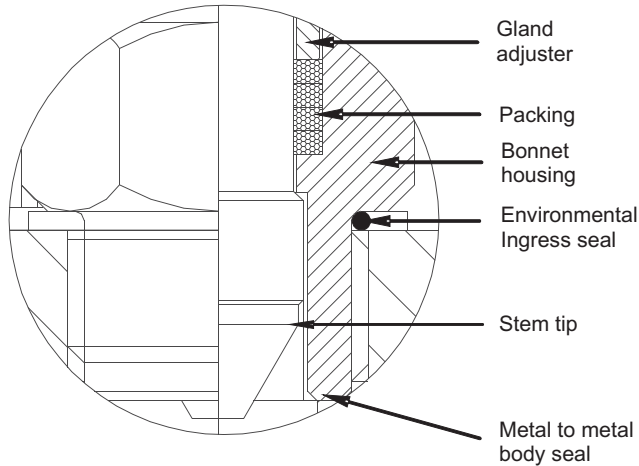
The first Anti-Rotational Locking Cam Device

The original cam locking safety feature, many times stronger than conventional pinning. It is also easy to remove should internal inspection be required. No difficult bent and distorted pins to re-fit. Saves time and ensure a higher level of safety in body to bonnet connections. Any forces that try to unscrew the bonnet are met by a greater resistance by the cam, the more force, the more the locking cam engages. Effective, simple & safe.

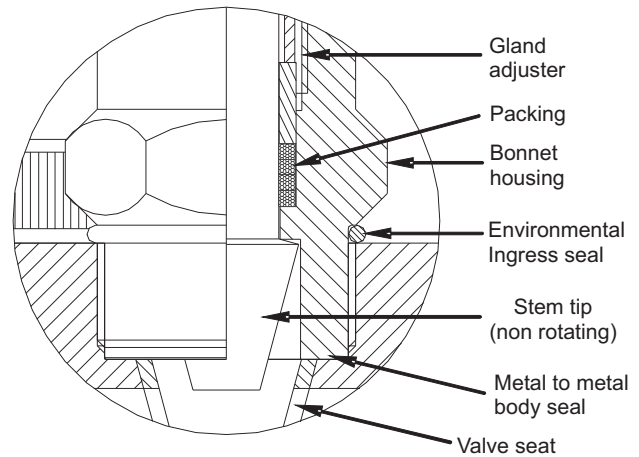
See technical section for important additional valve data.

# Pressure / Temperature Data

## Needle Valve Head



## Plug Valve Head



### Sealing Pressure/Temperature Data

#### Packing Materials

Due to the many diverse applications and operating conditions that the Alco needle valve head unit can be used, this simple yet effective chart (shown below) has been created to aid you, the client, to choose the correct packing choice for your specific application. Should you require any further information, please feel free to contact our technical sales department.

#### Stem Packing Materials - Sealing Pressure/Temperature Data

This table shows the stem sealing performance obtainable with the valves standard operating torque of 5lbs/ft. Improved stem sealing, up to the maximum temperatures given, can be obtained at increased torque load values. Consult factory for details.

Temperatures shown are those of the line fluid, and the maximum which can be used for the application. Temperatures at the stem packings have reduced values, due to the valve bonnet design acting as a heat sink.

Graphoil 98% Graphite

#### Gland Packing Materials - Sealing Pressure/Temperature Data

Material	0°C	100°C	200°C	300°C	400°C	500°C	600°C
DELTRIN®	6,000 PSI	6,000 PSI	110°C				
VITON®	6,000 PSI	6,000 PSI	210°C max				
PTFE	6,000 PSI	6,000 PSI	5,000 PSI	230°C max			
RTFE	10,000 PSI	10,000 PSI	8,600 PSI	230°C max			
Peek®	6,000 PSI	5,800 PSI	4,700 PSI	250°C max			
Graphoil®	10,000 PSI	10,000 PSI	8,900 PSI	8,500 PSI	6,700 PSI	3,500 PSI	570°C max (NOTE 2)

Note 1: Temperatures shown are those of the line fluid, and the maximum which can be used for the application. The temperatures at the stem packings will have reduced values, due to the cooling effect of the valve bonnet design.

Note 2: Temperatures shown are those of the line fluid, and the maximum which can be used for the application. The temperatures at the stem packings will have reduced values, due to the cooling effect of the valve bonnet design - non-oxidising conditions.

See technical section for important additional valve data.



# Options for Needle Valves

The following table shows the versatility of the Alco range and the many different types of end connections or options that can be used to build a valve to suit your requirements. Examine at your leisure the different options displayed below, perhaps you will find just what you need - if not please feel free to contact us for further details.



Hand Wheel  
Option -HW



Internal vent facility  
Option -V



Panel mounting facility  
Option -PM.



Tagging up to 30 characters.



Double or Single ferrule compression end connections for quick and easy installation or removal



Extension stem for easy access



Base Mounting bracket (-BKT)



Butt weld or socket weld end connectors



Variety of tip types & materials including Monel® K500/Hastalloy® B2/ceramic



Metering tip for fine control (-MT) & Ball tip (-BT)



Plug valves seats in various materials to suit your application



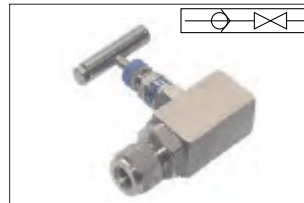
Fire safe option to Bs6755 Pt.2 API 607 (-FS)



Security locking devices Option -NLK Padlock Option -PAD



Additional porting for vents, instruments, purging etc.



(NCV) Check and Needle combination to prevent back flow



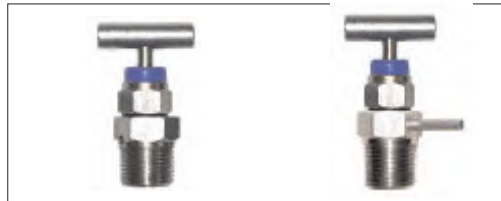
Many types of packing and seals to suit your application



Blank Plug  
Pt. No. -BP

Vent Plug  
Pt. No. -VP

Vent Plug  
With T-Bar  
Pt. No. -CVP



Mini vent valve  
Viton packing 6,000 psi rated  
Pt. No. NVP4NS-P.

Mini vent valve with directional  
vent tube 6,000 psi rated  
Pt. No. NVP4NS-P.



Degreased valves for special gas services to several standards..

NOTE: It is always advisable to refer to specific product literature or contact our technical sales department when ordering valves as some of these options are available only on certain styles of valves. Any special end connections such as compression ends or butt / socket weld may limit the rated working pressure of the valve or component supplied in accordance with the relevant specification of design or use of that method of connection. The valve or component will still carry the maximum working pressure markings in accordance with the valve or component design not the connection method as they vary

# How to order Needle Valves

Our part number system is made up of alphanumeric / generic code system as explained below.  
An example is :-

**1/2" NPT female x female needle valve constructed in 316 stainless steel.  
Fitted RTFE (25% glass fibre filled) packing, complete with Monel K400® tip  
and hand wheel operator, rated 10,000 psi (690 Bar).**

The part number shown below is made up using the system :-

Rated pressure	Valve series	Valve size	End connections	Material of construction/ body parts	Trim material (stem)	Options
<b>U</b>	<b>N</b>	<b>4</b>	<b>N</b>	<b>S</b>	<b>-5-</b>	<b>H W</b>
<p><b>Blank</b> = Std Rating <b>U</b> = 10,000 psi <b>H</b> = 15,000 psi</p>	<p><b>N</b> = Needle Valve <b>PV</b> = Plug Valve <b>OB</b> = Oblique Pattern <b>XN</b> = High Pressure Range <b>AV</b> = Angle Pattern <b>MN</b> = Mini Series</p>	<p><b>2</b> = 1/4" <b>3</b> = 3/8" <b>4</b> = 1/2" <b>6</b> = 3/4" <b>8</b> = 1"</p>	<p><b>B</b> = Butt weld <b>F</b> = Flanged <b>K</b> = Twin ferrule (compression ends) <b>N</b> = NPT Female threads <b>P</b> = BSPP Female threads <b>Q</b> = Single ferrule (compression ends) <b>S</b> = Socket weld <b>T</b> = BSPT Female threads</p>	<p><b>B</b> = Brass <b>C</b> = C/Steel <b>D</b> = Ali-Bronze <b>H</b> = Hastalloy C <b>I</b> = Incoloy 625 <b>M</b> = Monel 400 <b>N</b> = Cupro-Nickel <b>S</b> = 316 St. St. <b>U</b> = Duplex <b>Note:</b> Other specialist material such as 6MO®, Super Duplex, Zirconium® are available</p>	<p><b>-U</b> = Duplex <b>-5</b> = Monel 400 <b>-8</b> = Hastalloy <b>-P</b> = peek® tip <b>-D</b> = Delrin tip <b>-MT</b> = Metering tip <b>-C</b> = Ceramic tip</p>	<p>No digit = T Bar <b>HW</b> = Hand wheel MAZAK <b>NLK</b> = Locking device &amp; key <b>HW-S</b> = Handwheel 316 <b>PM</b> = Panel mount <b>DG</b> = degreased &amp; cleaned <b>PAD</b> = Pad lock &amp; keys <b>FS</b> = Fire safe <b>V</b> = Internal vent facility <b>1M</b> = Male thread - one side <b>2M</b> = Double male thread</p>

Socket weld and butt weld end connectors are extended for thermal protection of the valve internals.  
Note: Pressure ratings may vary dependant upon the material of construction i.e. brass construction limited up to 3,000 psi.

NOTE 1: The pressure ratings quoted within our literature are maximum hydrostatic pressure ratings for the valves. Certain options available are the products / designs of other manufacturers, Alco valves cannot accept any responsibility for these products unsuitability or failure in service.

NOTE 2: It is always advisable to refer to specific product literature or contact our technical sales department when ordering valves as some of these options are available only on certain styles of valves. Any special end connections such as compression ends or butt / socket weld may limit the rated working pressure of the valve or component supplied in accordance with the relevant specification of design or use of that method of connection. The valve or component will still carry the maximum working pressure markings in accordance with the valve or component design not the connection method as they vary.

# N Series

## General Information

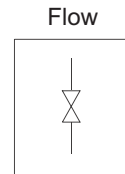
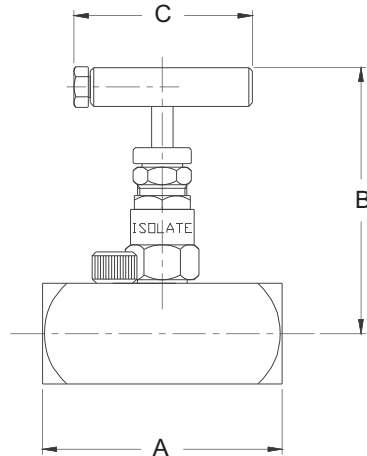
### Needle Valves 6,000 psi & 10,000 psi

The precision made 'N' series, single isolation hand valve utilising metal to metal seat and body to bonnet connection for superior, bubble tight sealing capabilities at both extreme pressures and temperatures. The "N" series also offers non-rotating hardened tip for first time seal and long service life. The unique anti-vibration cam locking device at the body bonnet connection is for extra safety. Working pressures are 6,000 psi and 10,000 psi. Maximum working temperature up to 230°C and up to 427°C with GP option.

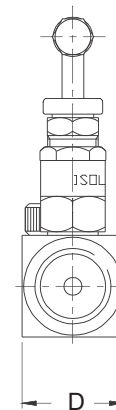


## Design Features

- Bubble tight metal to metal seat for positive shut off.  
2 piece non-rotating hardened (17-4PH) tip for first time seal
- and long service life.
- Pressure responsive multi-ring / piston packing for compression and pressure dynamic sealing.
- Metal to metal body bonnet seal for high pressure and high temperature sealing.
- Unique bonnet locking cam. No accidental removal of head unit, or loosening due to vibration.  
Positive no slack stem action.
- Bi-directional flow, with preferred flow indicated.
- Back sealing stem to extend packing life.
- Temperature range -46°C to 230°C (427°C with GP option).  
(Pressures may vary)
- Repair / service kits available to extend field life further.
- Actuating threads are above the packings to prevent contamination by the process medium.
- Body to bonnet ingress seal fitted as standard to prevent crevice corrosion.
- Full material traceability of major components.
- Available fire safe.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.
- Available NPT, BSPP, BSPT threaded.



The Alco N series needle valve has a preferred flow direction however the unit is bi-directional



## Part Numbers

St / St Part No.	Connections Size	A	B (Open)	Orifice size	C	D	CV	KV	Weight (Kgs)
N2NS	1/4" NPT	61	74	4	51	25	0.6	0.5	0.35
N3NS	3/8" NPT	61	74	4	51	25	0.6	0.5	0.35
N4NS	1/2" NPT	68	75	5	51	29	0.7	0.6	0.38
N6NS	3/4" NPT	76	80	5	51	38	0.8	0.7	0.7
N8NS	1" NPT	85	83	8	51	45	1.8	1.5	1.2

For 10,000 psi version add "U" i.e. UN4NS  
For BSPP threads change "N" to "P" i.e. N2PS  
For BSPT threads change "N" to "T" i.e. N2TS  
Packing materials: RTFE (standard) graphoil high temperature option -GP  
Orifice may vary with rating

Dims are in mm (appx)  
See technical section for important additional valve data.

# Tube Ended N Series

## General Information

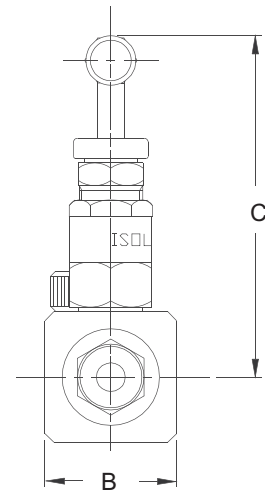
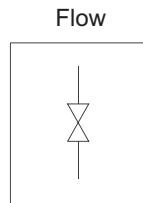
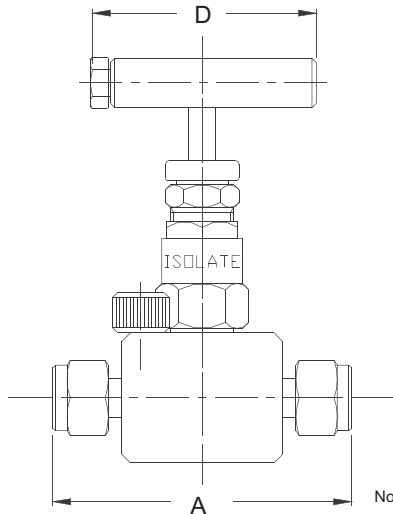
### Compression Ended Needle Valve

The standard 'N' series with compression type tube fitting ends. Single isolation hand valve utilising metal to metal seat and body to bonnet connection for superior, bubble tight sealing capabilities at both extreme pressures and temperatures. The N series also offers non-rotating hardened tip for extended service life. The unique anti-vibration cam locking device at the body bonnet connection is for extra safety. Working pressures are 6,000 psi and 10,000 psi. Maximum working temperature up to 230°C and up to 427°C with GP option.



## Design Features

- Twin or single ferrule, quick & easy to install compression end connectors.
- Bubble tight metal to metal seat for positive shut off.
- 2 piece non-rotating hardened (17-4PH) tip for first time seal and long service life.
- Rated 6,000 psi as standard.
- Pressure responsive multi-ring / piston packing for compression and pressure dynamic sealing.
- Metal to metal body bonnet seal for high pressure and high temperature sealing.
- Positive no slack stem action.
- Bi-directional flow, with preferred flow indicated.
- Back sealing stem to extend packing life.
- Temperature range -46°C to 230°C (427°C with GP option). (Pressures may vary)
- Unique bonnet locking cam. No accidental removal of head unit, or loosening due to vibration.
- Actuating threads are above the packings to prevent contamination by the process medium.
- Body to bonnet ingress seal fitted as standard to prevent crevice corrosion of bonnet threads.
- Available fire safe.
- Full material traceability of major components.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.
- Repair / Service kit available to extend field life further.



Metric O.D. tube sizes available i.e. 6mm / 8mm / 10mm / 15mm etc.  
Note: pressure may be limited by the rating of the tube fitting type specified

## Part Numbers

St / St Part No.	Connections Size	A	B	C	D	CV	KV	Weight (Kgs)
N2KS	1/4" O.D. x 1/4" O.D.	76	25	74	51	0.6	0.5	0.3
N3KS	3/8" O.D. x 3/8" O.D.	76	25	74	51	0.6	0.5	0.3
N4KS	1/2" O.D. x 1/2" O.D.	89	29	75	51	0.7	0.6	0.35
N6KS	3/4" O.D. x 3/4" O.D.	97	38	80	51	0.7	0.6	0.6
N8KS	1" O.D. x 1" O.D.	114	45	83	51	1.8	1.5	1.1

Packing materials: RTFE (standard) graphoil option -GP  
For 10,000 psi version add "U" i.e. UN2KS

Dims are in mm (appx)  
See technical section for important additional valve data.

# UNV Series

## General Information

### Problem solver - unrivalled flexibility of end connections 6000 psi rated

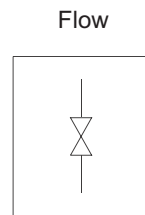
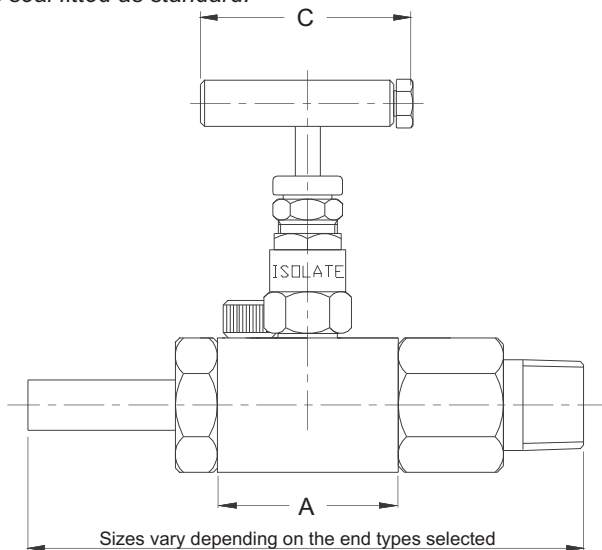
The unique range of universal body needle valves offers the ultimate in instrument valve flexibility, any combination of end types i.e. 1/2" socket weld x 1/8" compression end or 1/2" NPT x 3/8" BSPP male. The combinations from 1/8" to 1/2" are limitless, why use reducers, male studs or adapters when you can now buy custom made valves. Less fittings used at the time of installation means more money is saved and the safer it will be. All joints are pre-tested at our factory. Available in straight or angle pattern body format the UNV is a compact problem solver - and its available in small quantities.



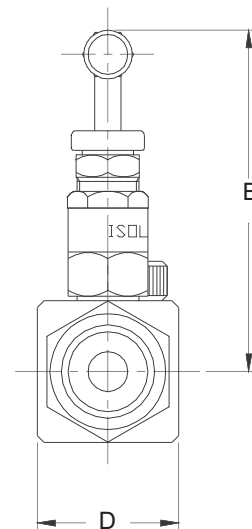
## Design Features

- Absolute flexibility - any end type combination
- 2 piece non-rotating hardened (17-4PH) tip for first time seal and long service life.
- Metal to metal body bonnet seal for high pressure and high temperature sealing.
- Bubble tight shut off.
- Positive no slack stem action.
- Unique bonnet locking cam.
- Ingress seal fitted as standard.

- Temperature range -46°C to 230°C (Pressures may vary)
- Actuating threads are above the packings to prevent contamination by the process medium.
- Available in straight or 90 angle pattern body style.
- Repair / service kit available to extend field life further.
- Full material traceability.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.



**\*VERSATILE\***  
Note: drawing shown with 1/2" standpipe x 1/2" NPT male option



## Part Numbers

St/St Part No.	Connections Size	A	B Open	C	D	CV	KV	Weight (KGs)
UNV4NS-13PS	1/2" NPT (F) X 3/8" BSPP (F)	44	75	51	38	0.7	0.6	0.6
UNV2PS-14S	1/4" BSPP (F) X 1/2" Socket Weld	44	75	51	38	0.7	0.6	0.7
UNV3TS-1M4P	3/8" BSPT (F) X 1/2" BSPP (M)	44	75	51	38	0.7	0.6	0.55

For angle pattern add "A" i.e. UNAV4NS-13P  
Packing materials: RTFE (standard) graphoil option -GP

Dims are in mm (appx)  
See technical section for important additional valve data.



# PV Series

## General Information

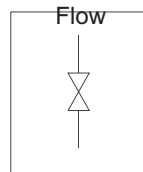
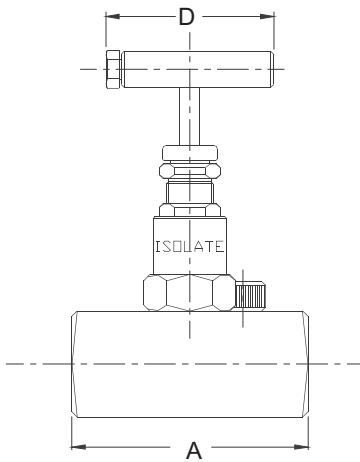
### Soft Seated Plug Valves 6,000 psi

The compact economical mini series needle valve is manufactured to the highest standards. The Mini design is lightweight and easy to operate due to the low torque, dynamic packing seal arrangement, thus reducing cost and installation space required. The mini series is rated up to 3,000 psi (207 bar). The mini series has a high integrity metal to metal body bonnet seal suitable for high pressure use and is fitted with the cam locking device for extra safety.

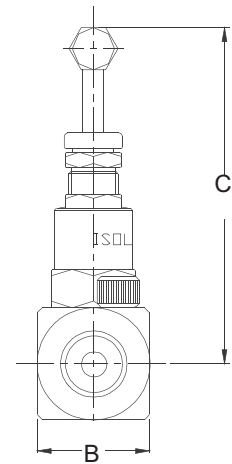


## Design Features

- Isolation valves have 2-piece non-rotating plug.
- Soft seat for bubble tight shut off.
- Unique bonnet locking cam.
- Metal to metal body bonnet seal for high pressure and high temperature use.
- Replaceable seat.
- Ingress seal fitted as standard.
- Full material traceability.
- Large clear 7mm roddable bore.
- Repair / service kit available to extend field life further.
- Temperature range -46°C to 230°C (Pressures may vary)
- Delrin seats as standard & various other seat materials available to suit your application including RTFE®, KEL-F® and PVDF®.
- Actuating threads are above the packings to prevent contamination by the process medium.
- High flow rate with fine control.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.



Viscous fluid no problem with large 7mm bore.  
option -HW For hand wheel



## Part Numbers

St / St Part No.	Connections Size	A	B	C	D	CV	KV	Weight (kgs)
PV2NS	1/4" NPT female x female	71	32	98	56	4.0	3.4	0.7
PV3NS	3/8" NPT female x female	71	32	98	56	1.7	1.4	0.7
PV4NS	1/2" NPT female x female	71	32	98	56	1.4	1.2	0.7
PV6NS	3/4" NPT female x female	76	38	101	56	0.7	0.6	0.9
PV8NS	1" NPT female x female	85	45	104	56	0.4	0.3	1.3

For BSPP threads change "N" to "P" i.e. PV2PS  
Packing materials: PTFE (standard)  
For 10,000 psi version add "U" i.e. UPV2NS

Dims are in mm (appx)  
See technical section for important additional valve data.

# EMN Series

## General Information

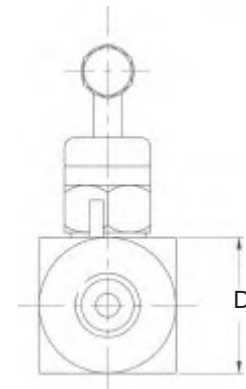
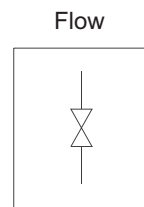
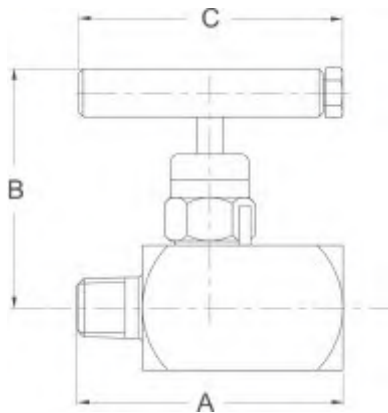
### Economical mini series 3,000 psi



The compact economical mini series needle valve is manufactured to the highest standards. The Mini design is lightweight and easy to operate due to the low torque, dynamic packing seal arrangement, thus reducing cost and installation space required. The mini series is rated up to 3,000 psi (207 bar). The mini series has a high integrity metal to metal body bonnet seal suitable for high pressure use and is fitted with the cam locking device for extra safety.

## Design Features

- Compact and lightweight.
- Solid one-piece hardened 17/4 PH tip to ensure bubble tight shut-off.
- Pressure responsive Viton® packing seal arrangement.
- Metal to metal body bonnet seal for high pressure use up to 3,000 psi.
- Packing seal below actuating threads to prevent thread contamination by the process medium.
- Positive no slack stem action.
- Temperature range -46°C to 210°C (Pressures may vary)
- Unique body locking pin. No accidental removal of head unit, or loosening due to vibration.
- Ingress seal fitted as standard.
- Full material traceability of major components.
- Back sealing stem to extend packing life.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.
- Bi-directional flow, with preferred flow indicated.



Note: M x F & F x F threaded versions are equal in length

## Part Numbers

St/St Part No.	Connections Size	A	B	C	D	Cv	Kv	Weight (kgs)
EMN2NS	1/4" NPT Female x Female	48	52	51	19	0.18	0.15	0.13
EMN2NS-1M	1/4" NPT Male x Female	48	52	51	19	0.18	0.15	0.13
EMN2NS-2M	1/4" NPT Male x Male	48	52	51	19	0.18	0.15	0.13
EMN2KS	1/4" OD x 1/4" OD Compression ended	60	52	51	19	0.18	0.15	0.15

For BSPP change 'N' for 'P' i.e. EMN2PS  
 For BSPT change 'N' for 'T' i.e. EMN2TS  
 Packing materials: Viton® (standard) - PTFE coated option -PV - EPDM option -EPDM

Dims are in mm (appx)  
 See technical section for important additional valve data.

# MN Series

## General Information

### Economical mini series 6,000 psi

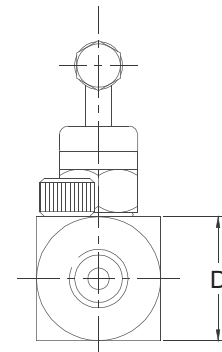
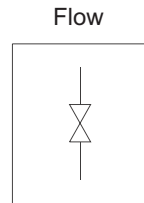
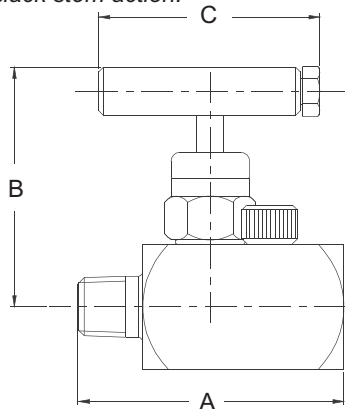


The compact economical mini series needle valve is manufactured to the highest standards. The Mini design is lightweight and easy to operate due to the low torque, dynamic packing seal arrangement, thus reducing cost and installation space required. The mini series is rated up to 6,000 psi (414 bar). The mini series has a high integrity metal to metal body bonnet seal suitable for high pressure use and is fitted with the cam locking device for extra safety.

## Design Features

- Compact and lightweight.  
Solid one-piece hardened 17/4 PH tip to ensure bubble tight shut-off.
- Unique bonnet locking cam for safety.
- Pressure responsive Viton® packing seal arrangement.
- Metal to metal body bonnet seal for high pressure use up to 6,000 psi.  
Packing seal below actuating threads to prevent thread contamination by the process medium.  
Positive no slack stem action.

- Temperature range -20°C to 210°C (Pressures may vary)
- Unique body locking cam. No accidental removal of head unit, or loosening due to vibration.
- Ingress seal fitted as standard.  
Repair / service kit available to extend field life further.  
Full material traceability of major components.  
Back sealing stem to extend packing life.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.  
Bi-directional flow, with preferred flow indicated.



Note: M x F & F x F threaded versions are equal in length

## Part Numbers

St/St Part No.	Connections Size	A	B	C	D	CV	KV	Weight (kgs)
MN2NS	1/4" NPT	61	53	51	25	0.6	0.5	0.3
MN3NS	3/8" NPT	61	53	51	25	0.6	0.5	0.3
MN4NS	1/2" NPT	68	53	51	29	0.7	0.6	0.35
<b>COMPRESSION ENDS (IMPERIAL) APPROX WHEN TIGHTENED</b>								
MN2KS	1/4" OD	76	53	51	25	0.6	0.5	0.25
MN3KS	3/8" OD	76	53	51	25	0.6	0.5	0.25
MN4KS	1/2" OD	89	53	51	29	0.7	0.6	0.3
<b>COMPRESSION ENDS (METRIC)</b>								
MNM6KS	6mm OD	76	53	51	25	0.6	0.5	0.25
MNM10KS	10mm OD	76	53	51	25	0.6	0.5	0.25
MNM12KS	12mm OD	89	53	51	29	0.7	0.6	0.3

For BSPP change 'N' for 'P' i.e. MN4PS  
For BSPT change 'N' for 'T' i.e. MN4TS  
Packing materials: Viton® (standard) - PTFE coated option -PV - EPDM option -EPDM

Dims are in mm (appx)  
See technical section for important additional valve data.

# AV Series

## General Information

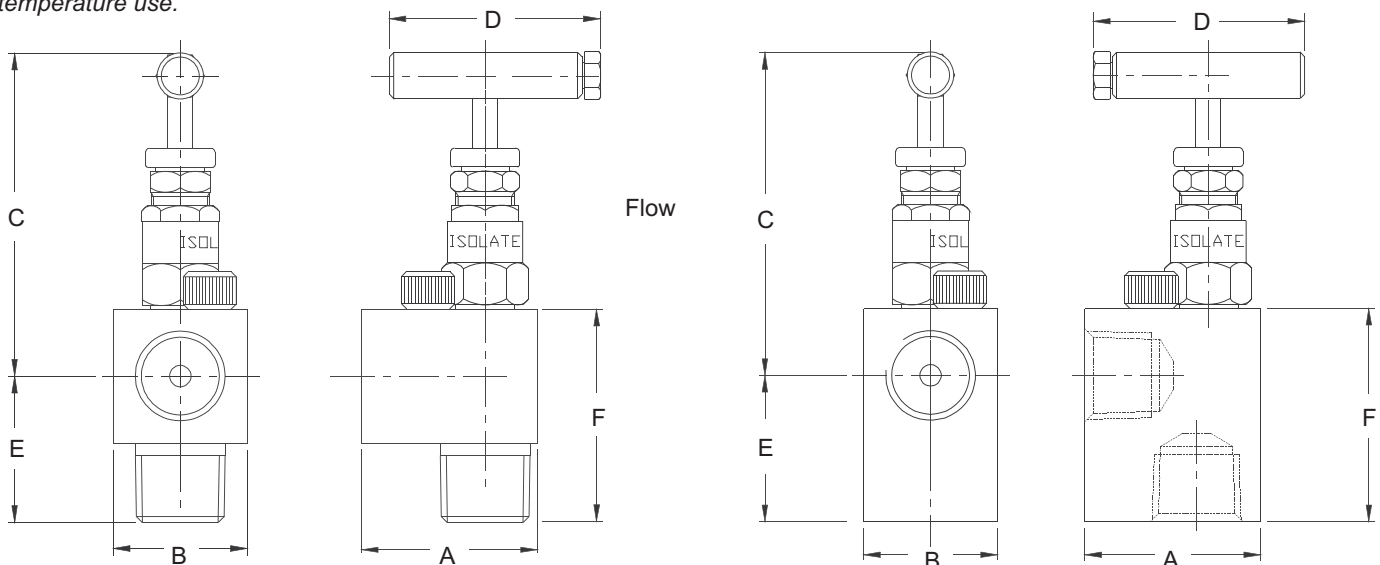
### 6,000 and 10,000 psi Angle Pattern Needle Valve

The 90 degree angle pattern needle valve offers high pressure bubble tight sealing in a compact body allowing pipe work origination to change by 90 at the valve. The "AV" offers many different connections, male x male, male x female, threaded and even compression type tube ends. Pressure ratings 6,000 psi and 10,000 psi. Sizes from 1/4" to 1". Several options such as locking device and hand wheel operator are available. The "AV" series is made in 316 stainless steel as standard and various super alloys.



## Design Features

- 2-piece non-rotating hardened (17-4PH) tip for first time seal and long service life.
- Bubble tight shut off.
- Positive no slack stem action.
- Unique bonnet locking cam.
- Metal to metal body bonnet seal for high pressure and high temperature use.
- Temperature range -46°C to 230°C (427°C with GP option) (Pressures may vary)
- Ingress seal fitted as standard.
- Full material traceability.
- Material of construction can be supplied to meet the requirements of NACE MR-01-75



## Part Numbers

St / St Part No.	Connections Size	A	B	C	D	E	F	CV	KV	Weight Kgs
AV2NS	1/4" NPT female x female	38	25	76	51	29	44	0.7	0.6	0.35
AV3NS	3/8" NPT female x female	38	25	76	51	29	44	0.7	0.6	0.35
AV4NS	1/2" NPT female x female	45	29	77	51	35	51	0.7	0.6	0.50
AV6NS	3/4" NPT female x female	45	38	80	51	38	57	0.7	0.6	0.75
AV8NS	1" NPT female x female	51	45	84	51	47	70	0.7	0.6	1.1

For male inlet add -1M i.e. AV4NS-1M  
Packing materials: RTFE (standard) graphoil option -GP  
For 10,000 psi version add "U" i.e. UAV4NS-1M

Dims are in mm (appx)  
See technical section for important additional valve data.

# OB Series

## General Information

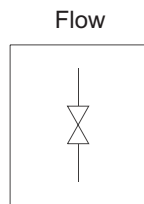
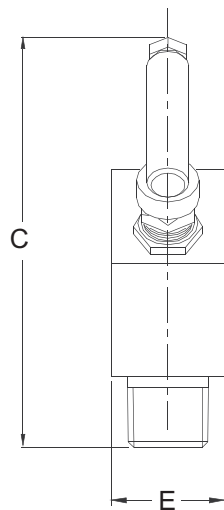
### Oblique Needle Valve 6,000 and 10,000 psi rated

The in-line oblique needle valve, 6,000 psi and 10,000 psi versions. Far less pressure drop and flow restriction than a standard needle valve due to the near-straight bore through the valve. Operator friendly due to the angled head unit and handle. Particularly good for use with heavy or viscous fluids. Available in male x female and female x female versions. Options such as hand wheel and locking device available.

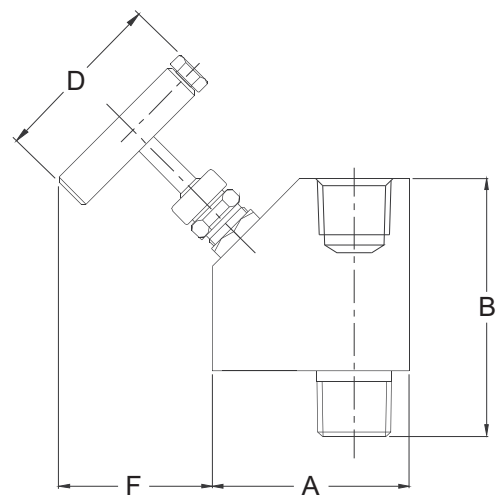


## Design Features

- Bubble tight metal to metal seat for positive shut off.
- 2 piece non-rotating hardened (17-4PH) tip for first time seal and long service life.
- Pressure responsive multi-ring / piston packing for compression and pressure dynamic sealing.
- Positive no slack stem action.
- Bi-directional flow, with preferred flow indicated.
- Oblique style for high flow and ease of operation.
- Repair / service kit available to extend field life further.
- Temperature range -46°C to 230°C (Pressures may vary)
- Can be fitted with graphoil packings for high temperature use (427C).
- Available male x female, female x female formats
- Available NPT, BSPP, BSPT.
- Full material traceability.
- Material of construction can be supplied to meet the requirements of NACE MR-01-75.



Note: male x female and female x female dimensions are equal



## Part Numbers

St/St Part No.	Connections Size	A	B	C	D	E	F	Cv	Kv	Weight (Kgs)
OBN2NS	1/4" NPT female x female	64	80	114	51	29	37	0.9	0.78	0.6
OBN3NS	3/8" NPT female x female	64	80	114	51	29	37	1.3	1.12	0.6
OBN4NS	1/2" NPT female x female	64	80	114	51	29	37	1.6	1.37	0.6
OBN6NS	3/4" NPT female x female	64	80	118	51	38	39	1.6	1.37	1.0
OBN8NS	1" NPT female x female	70	85	123	51	44	40	1.4	1.2	1.4

For male inlet add -1M i.e. OBN4NS-1M.  
Packing materials: RTFE (standard) graphoil option -GP  
For 10,000 psi version add 'U' i.e. UOBN4NS

Dims are in mm (appx)  
See technical section for important additional valve data.



# BBN Series- Needle Valve

## General Information

### 9.5mm - 19mm Bore

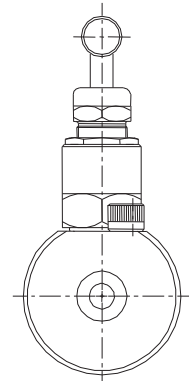
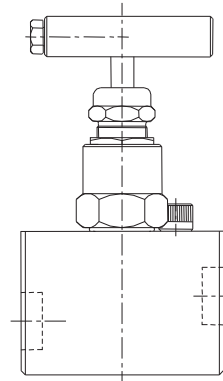
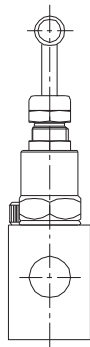
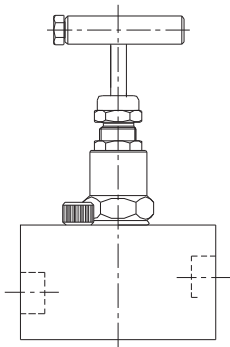


The precision made 'BBN' series, single isolation hand valve utilising metal to metal seat and body to bonnet connection for superior, bubble tight sealing capabilities at both extreme pressures and temperatures. The "BBN" series also offers non-rotating hardened tip for extended service life. The unique anti-vibration cam locking device at the body bonnet connection is for extra safety. Working pressures are 6,000 psi and 10,000 psi. Maximum working temperature up to 230°C and up to 427°C with GP option.

## Design Features

- Soft, bubble tight tip for first time sealing.
- Available straight or angle type body format.
- 2 piece non-rotating tip.
- Pressure responsive multi-ring / piston packing for compression and pressure dynamic sealing.

- Temperature range -46°C to 230°C (Pressures may vary)
- Full material traceability of major components.
- No slip bolted handle arrangement.
- Back sealing stem to extend packing life.
- Repair / service kit available to extend field life further.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.



'BBN' Series Needle Valves  
(9mm - 11mm Bore)

'UBBN' Series Needle Valves  
(12mm - 19mm Bore)

## Configurations



BBN Series  
Bore sizes from  
9.5mm – 11mm



UBBN Series  
Bore Sizes from  
12mm – 16mm



UBBN Series  
OS&Y Configuration  
Bore sizes  
Up to 19mm

# Flanged N Series

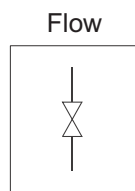
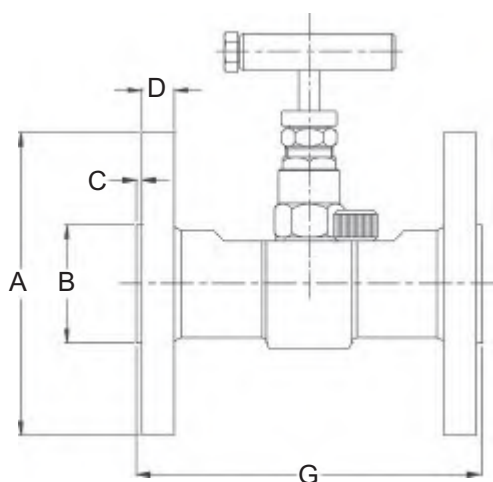
## General Information

### Needle Valves Class 150lbs 2500lbs

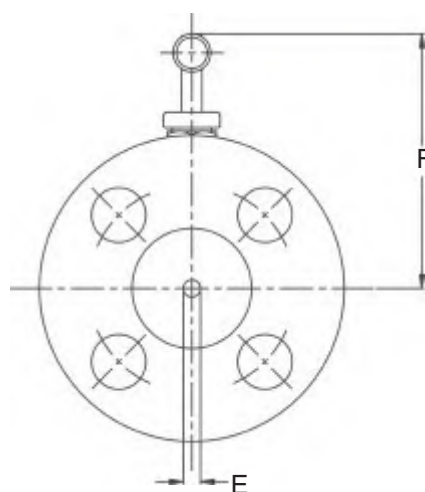
The precision made 'N' series, single isolation hand valve utilising metal to metal seat and body to bonnet connection for superior, bubble tight sealing capabilities at both extreme pressures and temperatures. The "N" series also offers non-rotating hardened tip for extended service life. The unique anti-vibration cam locking device at the body bonnet connection is for extra safety. Maximum working temperature up to 230°C and up to 427°C with GP option. (Pressures may vary)

## Design Features

- For further information please see "N" Series – Section 7, Pages 1 -8 and Section 8, Page 1



The Alco Flanged N series needle valve has a preferred flow direction however the unit is bi-directional



## Part Numbers

Part No.	Connections Size	A	B	C	D	E	F	G
N4F*-150RF	1/2"	90	34.9	2.0	9.6	5	96	102
N6F*-150RF	3/4"	100	42.9	2.0	11.2	5	96	102
N8F*-150RF	1"	110	50.8	2.0	12.7	8	99	110
N4F*-300RF	1/2"	95	34.9	2.0	12.7	5	96	110
N6F*-300RF	3/4"	115	42.9	2.0	14.3	5	96	110
N8F*-300RF	1"	125	50.8	2.0	15.9	8	103	114
N4F*-600RF	1/2"	95	34.9	7.0	14.3	5	96	114
N6F*-600RF	3/4"	115	42.9	7.0	15.9	5	96	114
N8F*-600RF	1"	125	50.8	7.0	17.5	8	103	140
N4F*-900/1500RF	1/2"	120	34.9	7.0	22.3	5	96	140
N6F*-900/1500RF	3/4"	130	42.9	7.0	25.4	5	99	140
N8F*-900/1500RF	1"	150	50.8	7.0	28.6	8	103	160
N4F*-2500RF	1/2"	135	34.9	7.0	30.2	5	96	160
N6F*-2500RF	3/4"	140	42.9	7.0	31.8	5	99	160
N8F*-2500RF	1"	160	50.8	7.0	35.0	8	103	185

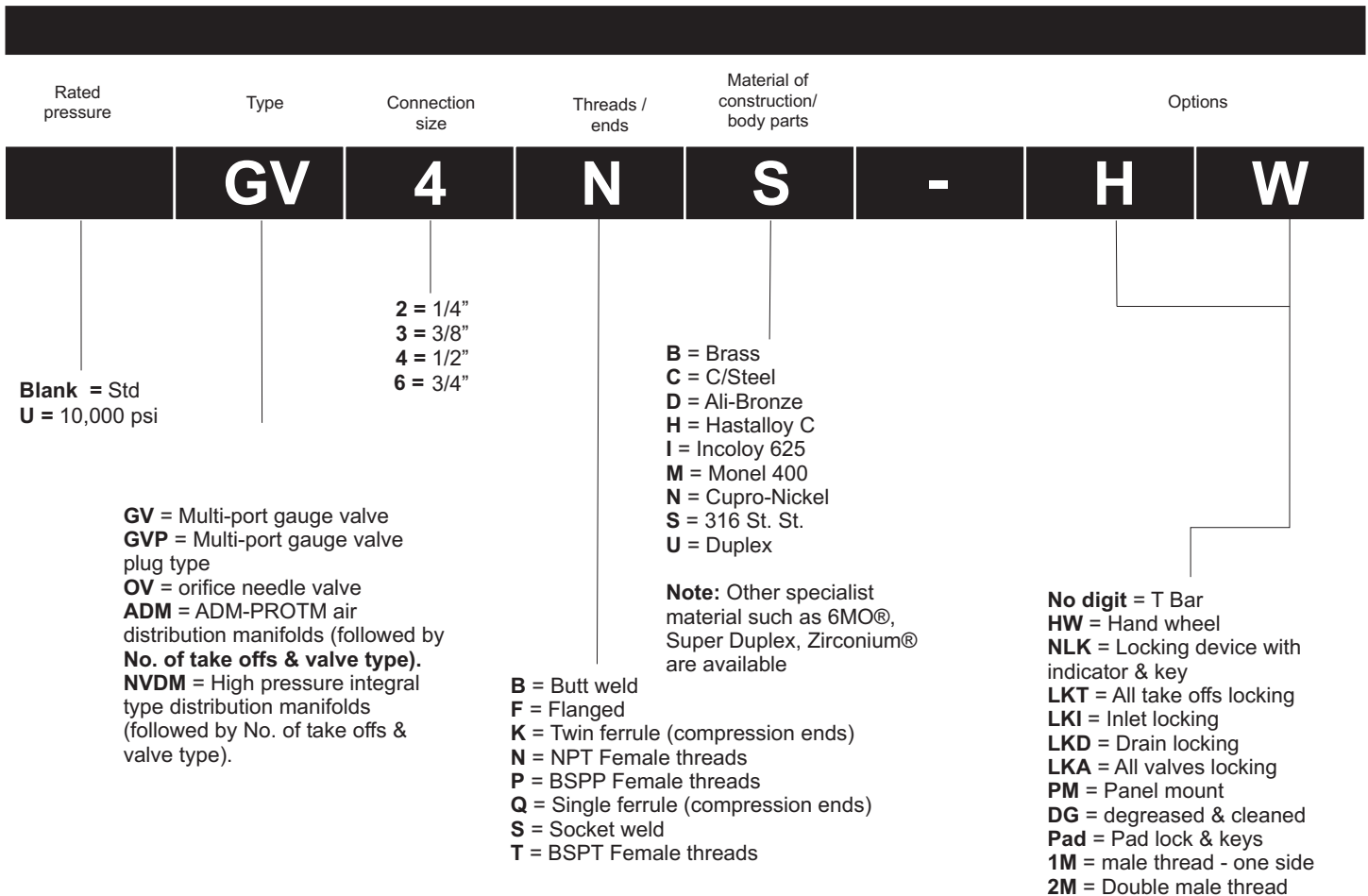
Dims are in mm (appx)  
See technical section for important additional valve data.

# How to order Gauge Valves & Air Distribution Manifolds

Our part number system is made up of alphanumeric / generic code system as explained below.  
An example is :-

**Multi port gauge valves, 1/2" Male inlet x 1/2" NPT Female outlet with 2 x 1/2" NPT Female side ports. Constructed in 316 St/St. RTFE packing rated 6,000 psi complete with hand wheel.**

The part number shown below is made up using the system :-



Socket weld and butt weld end connectors are extended for thermal protection of the valve internals

NOTE 1: The pressure ratings quoted within our literature are maximum hydrostatic pressure ratings for the valves. Certain options available are the products / designs of other manufacturers, Alco Valves cannot accept any responsibility for these products unsuitability or failure in service.

NOTE 2: It is always advisable to refer to specific product literature or contact our technical sales department when ordering valves as some of these options are available only on certain styles of valves. Any special end connections such as compression ends or butt / socket weld may limit the rated working pressure of the valve or component supplied in accordance with the relevant specification of design or use of that method of connection. The valve or component will still carry the maximum working pressure markings in accordance with the valve or component design not the connection method as they vary.

# OV Series

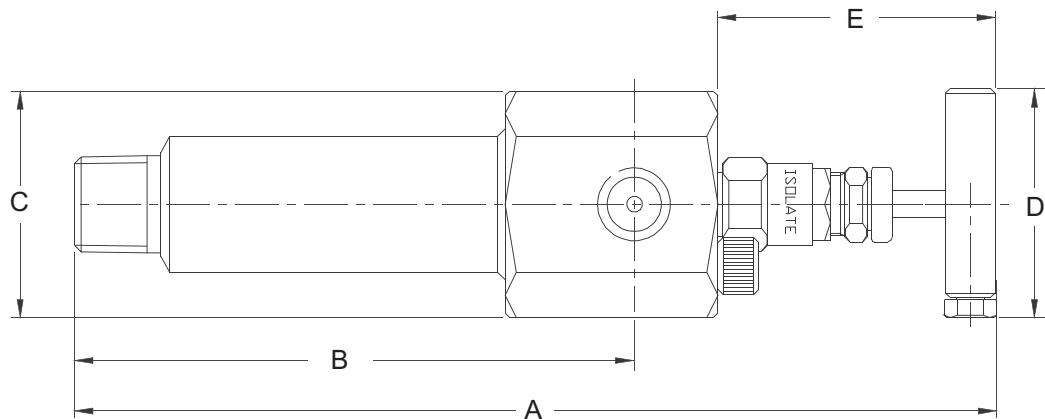
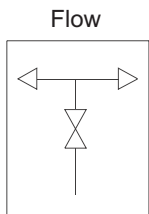
## General Information

### 6,000 psi & 10,000 psi Rated

The OV series is an orifice or root valve used as a single pipeline sample / vent or for mounting in pairs across an orifice plate for extended interface of an instrument in a pipeline. The OV series single isolation valve utilises metal to metal seat and body to bonnet connection for superior, bubble tight sealing capabilities at both extreme pressures and temperatures. The OV series also offers non-rotating hardened tip for extended service life. The unique anti-vibration cam locking safety device at the body bonnet connection is for extra safety. Working pressures are 6,000 psi and 10,000 psi. Maximum working temperature up to 230°C and up to 427°C with GP option at reduced pressure. Can be supplied in welded or threaded connections.

## Design Features

- Temperature range -46°C to 230°C (427°C with GP option). (Pressures may vary)
- Unique bonnet locking cam.
- Ingress seal fitted as standard.
- Absolute flexibility.
- 2 piece non-rotating hardened (17-4PH) tip for first time seal.
- Repair / service kit available to extend field life further.
- Metal to metal body bonnet seal for high pressure and high temperature sealing.
- Bubble tight shut off.
- Positive no slack stem action.
- Full material traceability.
- Materials of construction can be supplied to meet the



## Part Numbers

St/St Part No.	Connections Size	A (Open)	B	C	D	E	CV	KV	Weight (KGs)
OV4NS	1/2" NPT (M) inlet x 2 x 1/2" (F) outlets	201	110	64	51	61	0.18	0.15	1.6
OV6NS	3/4" NPT (M) inlet x 2 x 3/4" (F) outlets	201	110	64	51	61	0.18	0.15	1.6

For high pressure 10,000 psi version add "U" i.e. UOV4NS  
Packing materials: RTFE (standard) graphoil option -GP

Dims are in mm (appx)  
See technical section for important additional valve data.

# GV Series

## General Information

### Multiport Gauge Valves 6,000 & 10,000 psi

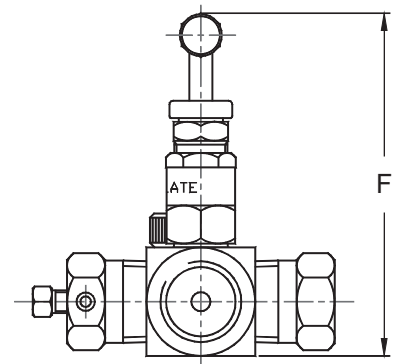
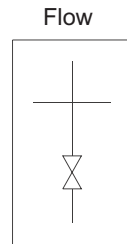
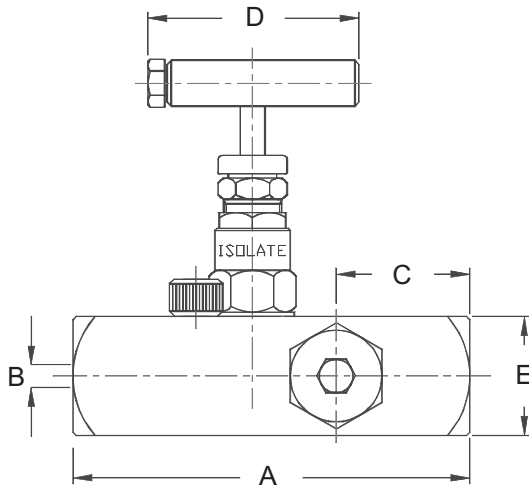
The GV series multiport gauge valve provides an economical method of mounting pressure gauges, manometers, pressure transducers or transmitters and includes vent and blanked port facilities or additional drains in a circuit or system. Both 1/2" and 3/4" have 1/2" side ports. Especially suited as a method of using a manometer and a sample manometer or a transmitter and manometer simultaneously. Compact 1/4" all around version available. Other options such as hand wheels and locking devices are available.



Note: shown with vent & blank plug (optional)

## Design Features

- 2-piece non-rotating hardened (17-4PH) tip for first time seal and long service life.
- Positive no slack stem action.
- Bubble tight, metal to metal seat for positive shut off.
- Unique bonnet locking cam.
- Metal to metal body bonnet seal for high pressure and high temperature sealing.
- Pressure responsive multi-ring / piston packing for compression and pressure dynamic sealing.
- 50mm and 100mm extended versions are available.
- Temperature range -46°C to 230°C. (Pressures may vary)
- Ingress seal fitted as standard to prevent crevice corrosion.
- Repair /service kits available to extend service life further.
- Full material traceability of major components.
- Vent and blanking plugs available. Option VP-BP.
- Weld ends available (butt or socket type).
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.



Add -VP-BP for vent & blank plug, shown with F x F connections & optional vent plug

## Part Numbers

St/St Part No.	Connections Size	A	B	C	D	E sq.	F	CV	KV	Weight (kgs)
GV2NS	1/4" NPT MALE INLET 3 X 1/4" NPT FEMALE OUTLETS	84	5	24	51	25	86	0.7	0.6	0.4
GV4NS	1/2" NPT MALE INLET 3 X 1/2" NPT FEMALE OUTLETS	95	5	32	51	29	90	0.7	0.6	0.5
GV4NS-16MN	3/4" NPT MALE INLET 3 X 1/2" NPT FEMALE OUTLETS	95	5	35	51	32	93	0.7	0.6	0.7
GV6NS	3/4" NPT MALE X 3/4" NPT FEMALE AND 1/2" NPT SIDE PORTS	100	5	35	51	38	99	0.7	0.6	0.85

For 50mm extended male end add EXT50 i.e. GV4NS -EXT50  
For BSPT change 'N' to 'T' GV4TS  
Packing materials: RTFE (standard) graphoil option -GP  
For 10,000psi version add 'U' i.e.UGV4NS

Dims are in mm (appx)  
See technical section for important additional valve data.



# GVP Series

## General Information

6,000 & 10,000 psi

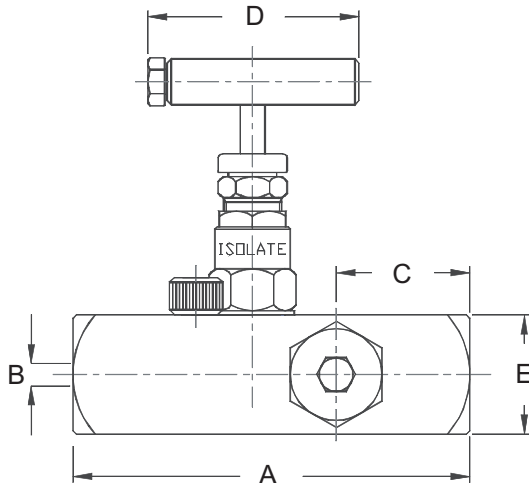


Note: shown with vent & blank plug (optional)

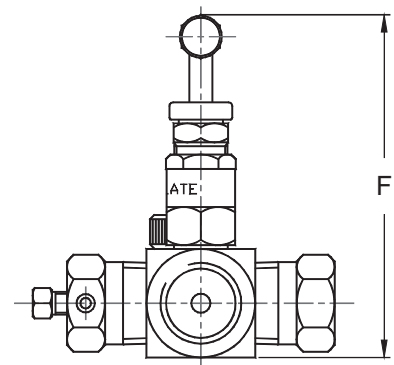
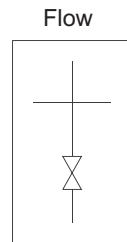
The "GVP" series multiport gauge valve provides an economical method of mounting pressure gauges, manometers, pressure transducers, or transmitters and including vent port facilities or additional drains in a circuit or system. Side ports are 1/2" NPT female as standard. Especially suited as a method of using a manometer and a sample manometer or a transmitter and manometer simultaneously. The "GVP" series rising plug multiport gauge valve offers bubble tight shut off high flow with accurate control, fully roddable clear bore, soft replaceable seat. Excellent for use with viscous materials at high pressure.

## Design Features

- Soft seat for bubble tight shut-off.
- Unique bonnet locking cam.
- Metal to metal body bonnet seal for high pressure and temperature use.
- Replaceable seat.
- Ingress seal fitted as standard.
- High flow rate with fine control.
- Handles viscous fluids easily with a large 7mm clear roddable bore.
- Temperature range -46°C to 230°C (Pressures may vary)
- Repair / service kit available to extend field life further.
- Vent and blanking plugs available. Option VP-BP.
- Full material traceability.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.
- 50mm and 100mm extended versions are available  
i.e. GVP4NS Ext50 = 50mm Extended.  
GVP4NS Ext100 = 100mm Extended.



Add -VP-BP for vent & blank plug, shown with F x F connections & optional vent plug



## Part Numbers

St/St Part No.	Connections Size	A	B	C	D	E	F	CV	KV	Weight (kgs)
GVP4NS	1/2" NPT MALE INLET 3 X 1/2" NPT FEMALE OUTLETS	114	7	38	51	32	114	1.4	1.2	0.8
GVP4NS-F	1/2" NPT FEMALE INLET 3 X 1/2" NPT FEMALE OUTLETS	114	7	38	51	32	114	1.4	1.2	0.9

For 50mm extended male end add EXT50 i.e. GVP4NS-EXT50  
For BSPT change 'N' to 'T' GVP4TS  
Packing materials: RTFE (standard) graphoil option -GP  
For 10,000psi version add 'U' i.e.UGVP4NS

Dims are in mm (appx)  
See technical section for important additional valve data.

# ADM-PRO™

## General Information

### Rated up to 3,000 psi

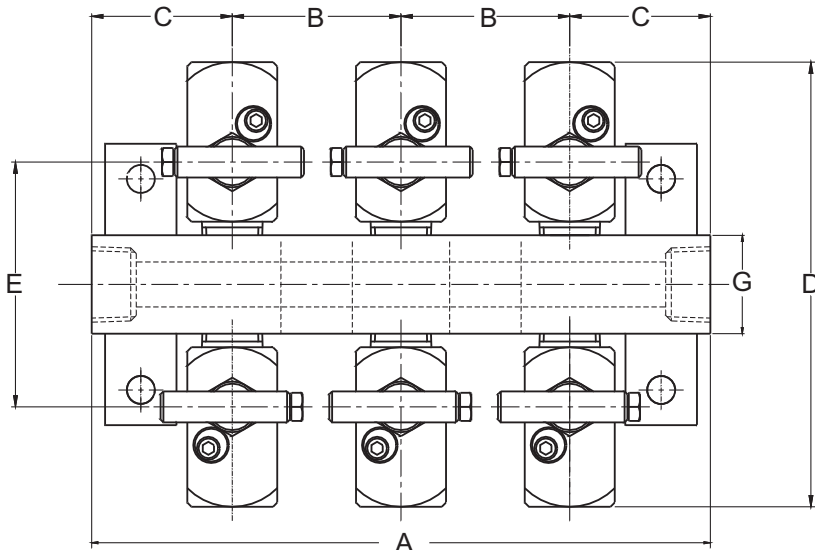


Note: Shown with optional drain valve and plug

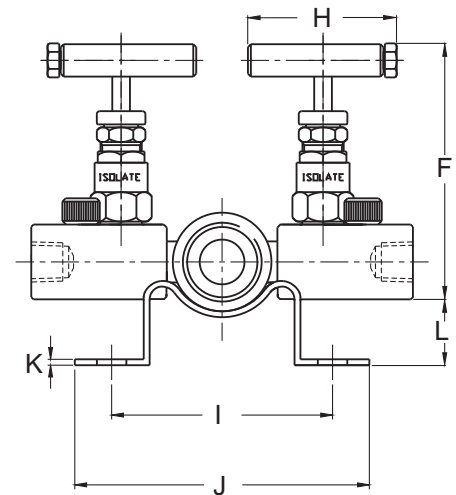
The economical ADM-PRO™ range of compact, air distribution manifolds come in our standard configuration (shown below) or to client specifications. ADM-PRO™ can be supplied with up to 40 take-off valves. Inlet and drain connections are threaded as standard however, can be made to your specification, this includes flanges i.e. 150 lbs. RF. or even socket / butt weld. Mounting legs are supplied as standard to make installation easier. Take off sizes can vary from 1/4" to 1" in size. Working pressures range from 750 psi version up to 3,000 psi. Other options such as hand wheels and locking devices can be supplied.

## Design Features

- 2-piece non-rotating hardened (17-4PH) tip for first time seal and long service life.
- Bubble tight metal to metal seat for positive shut off.
- Positive no slack stem action.
- Unique bonnet locking cam.
- Metal to metal body bonnet seal for high pressure and high temperature use.
- Mounting legs as standard.
- Temperature range -46°C to 230°C (427°C with GP option). (Pressures may vary)
- Ingress seal fitted as standard.
- Repair / service kit available to extend field life further.
- Full material traceability.
- Material of construction can be supplied to meet the requirements of NACE MR-01-75



Note: Inlet and drain is supplied threaded as standard. Please specify separately if valves are required.



Note: Various mounting brackets can be supplied - please specify at the time of ordering.

## Part Numbers

St/St Part No.	Connections Size	A	B	C	D	E	F	G	H	I	J	K	L	Weight (kgs)
ADM6-N4NS	3/4" Inlet / Outlet 6 x 1/2" NPT take offs	220	60	50	158	87	94	35	50	75	100	2	18	3.5

Packing materials: RTFE (standard) graphoil option -GP

Locking device available:

-LKT = All take off valves lockable

-LKI = Inlet valve lockable

-LKD = Drain valve lockable

-LKA = All valves lockable

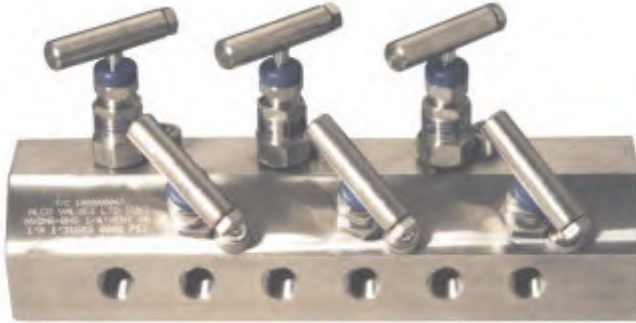
Sizes and dimensions will vary according to format valves used and specification.

Dims are in mm (appx)

See technical section for important additional valve data.

## General Information

### High Pressure Distribution Manifolds 6,000 psi & 10,000 psi Rated



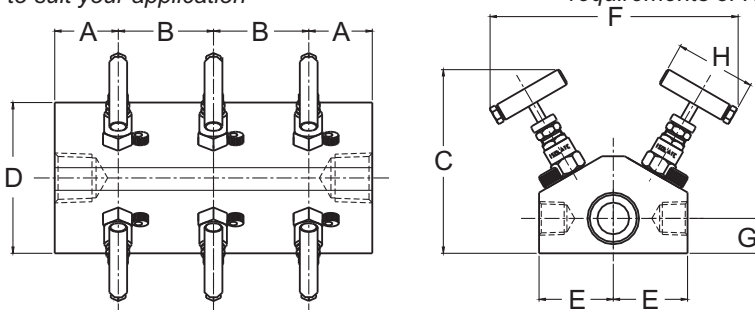
Note: version shown is type B - 6-way with 1/4" take offs

The Alco NVDM compact, integral needle valve type, high integrity distribution manifolds come in our standard configuration (shown below) or to client specifications. NVDM can be supplied with up to 20 take-off valves. Inlet and drain connections can be made to specification, this includes flanges i.e. 150 lbs. RF socket / butt weld, threaded or even compression type tube connectors. M10 base mounting holes are supplied as standard to make installation easier. Take off connections are 1/4" or 1/2" in size. Working pressures range from vacuum up to 6,000 psi & 10,000 psi. Valve orientations come in 3 formats type A, B or C for ease of use and maximise space envelope utilisation and operator access.

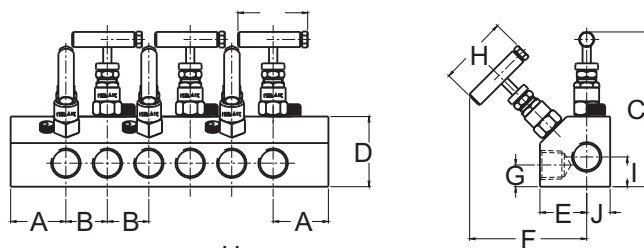
## Design Features

- Isolation valves have 2-piece non-rotating hardened (17-4PH) tips as standard.
- Bubble tight shut off.
- Positive no slack stem action.
- Unique bonnet locking cam on each valve.
- Metal to metal body bonnet seal for high pressure and high temperature use.
- Ingress seals fitted as standard.
- Many formats to suit your application
- Maximum temperature 230°C (427°C with GP option). (Pressures may vary)
- Base mounting holes to allow fixing to enclosure or mounting boss.
- Repair / service kit available to extend field life further.
- Full material traceability.
- High Pressure (up to 10,000 psi).
- Material of construction can be supplied to meet the requirements of NACE MR-01-75.

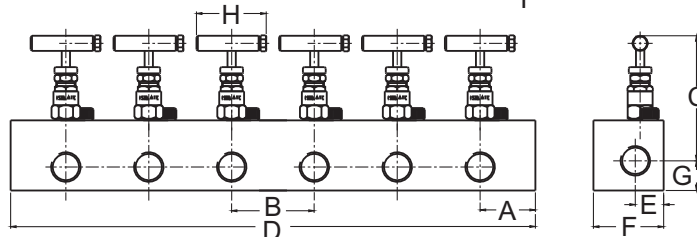
Type A  
(Double)



Type B  
(Angled)



Type C  
(Single)



Type A (Part No. NVDMA6-4NS)		Appx Weight
A	40	
B	60	
C	109	
D	64	
E	32	
F	137	
G	15	
H	51	
Type B (Part No. NVDMB6-4NS)		Appx Weight
A	40	
B	30	
C	112	
D	51	
E	34	
F	83	
G	15	
H	51	
I	21	
J	17	
Type C (Part No. NVDMC6-4NS)		Appx Weight
A	40	
B	60	
C	91	
D	380	
E	21	
F	51	
G	21	
H	51	

Packing materials: RTFE (standard) graphoil (max 427C) option -GP

Dims are in mm (appx)  
See technical section for important additional valve data.

# How to order Instrument Manifolds

Our part number system is made up of alphanumeric / generic code system as explained below.  
An example is :-

**Economy 5 valve instrument manifold compact “BD” block style in 316 Stainless Steel, 1/2” NPT process connections x 54mm direct instrument connection. 2 x isolation valves 2 x vent valves and 1 x equalising valve. Fitted RTFE (25% glass fibre filled) packings rated 6,000 psi. Complete with locking vent valves for safety.**

The part number shown below is made up using the system :-

Rated pressure	Build Type	No. of valves	Manifold Type	Inlet Connection size	Inlet Threads / ends	Material of construction/ body parts	Options
		<b>5V</b>	<b>BD</b>	<b>4</b>	<b>N</b>	<b>S</b>	<b>- LKV</b>
Blank = Std U = 10,000 psi	Blank = Std E = Economy	2V = Two valve format 3V = Three valve format 4V = Four valve format 5V = Five valve format	R = Remote mount threaded process connections & threaded instrument connections. BDD = Direct mounting to transmitter, DIN style mounting available. BD = Direct block threaded inlet to instrument connection. BM = Direct block threaded inlet to instrument connection base mount manifold. D = Direct “T” section instrument mount threaded inlet to instrument connection. H = Direct “H” section threaded inlet to instrument connection.	2 = 1/4” 3 = 3/8” 4 = 1/2”	N = NPT T = BSPT K = Twin Ferrule Tube Fittings P = BSPP S = Socket weld	B = Brass C = C/Steel D = Ali-Bronze H = Hastalloy C I = Incoloy 625 M = Monel 400 N = Cupro-Nickel S = 316 St. St. U = Duplex <b>Note:</b> Other specialist material such as 6MO, Super Duplex, Zirconium are available	GP = Graphoil Packings HW = Hand wheel LKI = Locking isolation valves LKV = Locking vent valves LKE = Locking equalisation valves LKA = All valves locking PAD = Pad lock BDD = DIN type design AP = Additional Porting DG = degreased & cleaned

Socket weld and butt weld end connectors are extended for thermal protection of the valve internals

NOTE 1: The pressure ratings quoted within our literature are maximum hydrostatic pressure ratings for the valves. Certain options available are the products / designs of other manufacturers, Alco Valves cannot accept any responsibility for these products unsuitability or failure in service.

NOTE 2: It is always advisable to refer to specific product literature or contact our technical sales department when ordering valves as some of these options are available only on certain styles of valves. Any special end connections such as compression ends or butt / socket weld may limit the rated working pressure of the valve or component supplied in accordance with the relevant specification of design or use of that method of connection. The valve or component will still carry the maximum working pressure markings in accordance with the valve or component design not the connection method as they vary.

# E2VRB Series

## General Information

### Compact 2 Valve Manifold 6,000 psi and 10,000 psi Rated

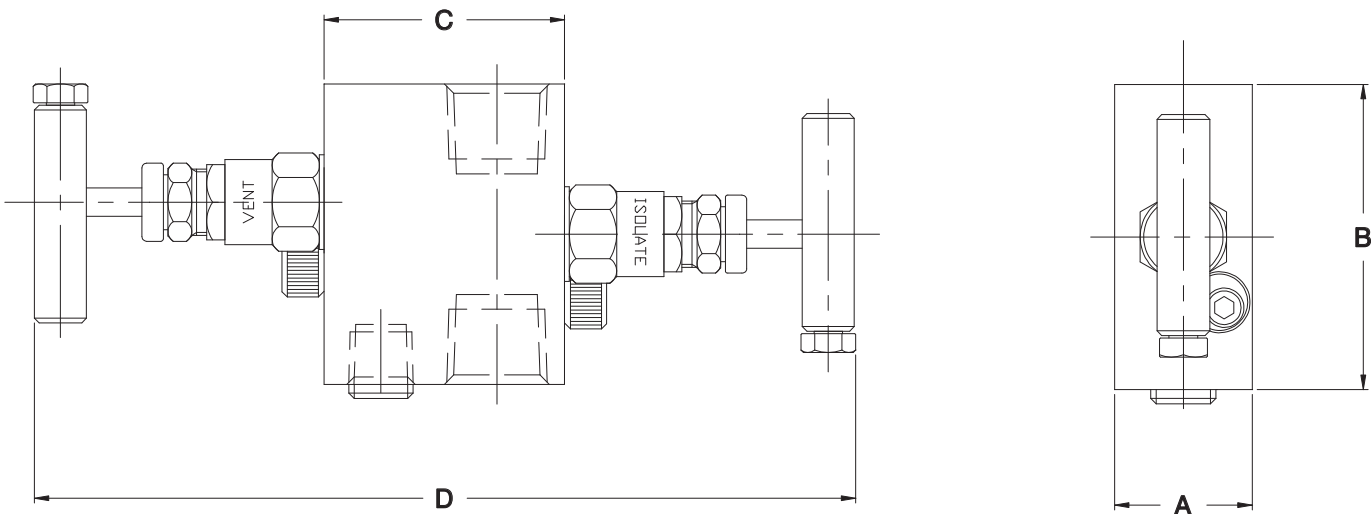
The two-valve isolating and venting manifold used mainly in gauge and static instrument applications such as pressure switches, pressure transmitters and manometers. The manifold will isolate instrumentation from the process and allow venting of the instrument for calibration / removal from the circuit without effecting the process / application and or recovery of a sample etc. Standard 1/2" inlet x 1/2" outlet with a 1/4" vent port. Incorporated are all the standard long service life features of the standard 'N' series needle valve, multi-ring piston style packings, back sealing facility. Safe anti-rotational cam locking device. Most standard options such as locking devices are available.



Note: Valves shown include vent plugs that are supplied as standard

## Design Features

- Offset vent valve for ease of operation.
- Valve flow can be reversed so calibration can be conducted in situ.
- All valves have 2-piece non-rotating hardened (17-4PH) tips as standard, for bubble tight shut off and long service life.
- Metal to metal body bonnet seal for high pressure and temperature sealing.
- Unique bonnet locking cam device.
- Positive no slack stem action.
- Temperature range -46°C to 230°C (427°C with GP option). (Pressures may vary)
- Accurate and fine control of venting.
- Repair / service kit available to extend field life further.
- Ingress seals fitted as standard.
- Full material traceability.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.



## Part Numbers

St / St Part No.	Connections Size	A	B (OPEN)	C	D (OPEN)	Weight (KGs)
E2VRB2NS	1/4" NPT female x female	29	64	51	173	0.75
E2VRB4NS	1/2" NPT female x female	29	64	51	173	0.75

Packing materials: RTFE (standard) graphoil option -GP

Dims are in mm (appx)  
See technical section for important additional valve data.



# 2VR Series

## General Information

### 2 Valve Manifold 6,000 psi and 10,000 psi Rated

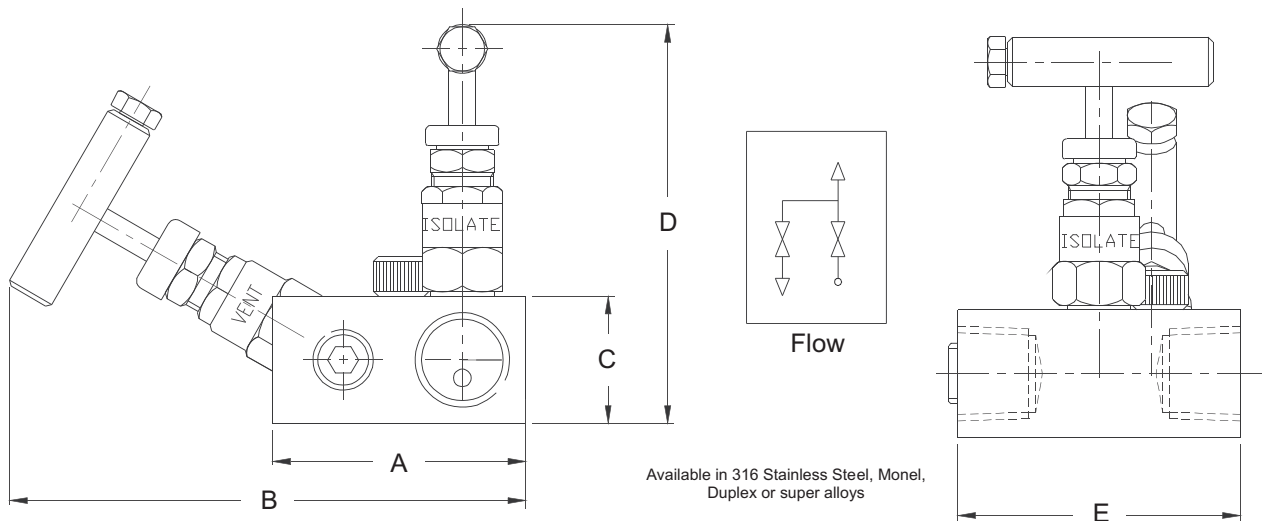
The two-valve isolating and venting manifold used mainly in gauge and static instrument applications such as pressure switches, pressure transmitters and manometers. The manifold will isolate instrumentation from the process and allow venting of the instrument for calibration / removal from the circuit without effecting the process / application and or recovery of a sample etc. Standard 1/2" inlet x 1/2" outlet with a 1/4" vent port. Incorporated are all the standard long service life features of the standard 'N' series needle valve, multi-ring piston style packings, back sealing facility. Safe, anti-rotational cam locking device. Most standard options such as locking devices are available. Mounting holes supplied as standard for pipe or wall mounting to suit quick installation.



Note: Valves shown include vent plugs that are supplied as standard

## Design Features

- Offset vent valve for ease of operation.
- Valve flow can be reversed so calibration can be conducted in situ.
- All valves have 2-piece non-rotating hardened (17-4PH) tips as standard, for bubble tight shut off and long service life.
- Metal to metal body bonnet seal for high pressure and temperature sealing.
- Unique bonnet locking cam device.
- Positive no slack stem action.
- Temperature range -46°C to 230°C (427°C with GP option). (Pressures may vary)
- Accurate and fine control of venting.
- Repair / service kit available to extend field life further.
- Ingress seals fitted as standard.
- Mounting holes as standard to allow for fixing to pipe stands or enclosures.
- Full material traceability.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.



## Part Numbers

St / St Part No.	Connections Size	A	B (OPEN)	C	D (OPEN)	E	Weight (KGs)
2VR2NS	1/4" NPT female x female	57	117	29	90	64	0.9
2VR4NS	1/2" NPT female x female	57	117	29	90	64	0.9

Packing materials: RTFE (standard) graphoil option -GP  
For 10,000 psi version add "U" i.e. U2VR2NS

Dims are in mm (appx)  
See technical section for important additional valve data.

# 2VG Series

## General Information

### In-line 2 Valve Manifold 6,000 psi and 10,000 psi Rated

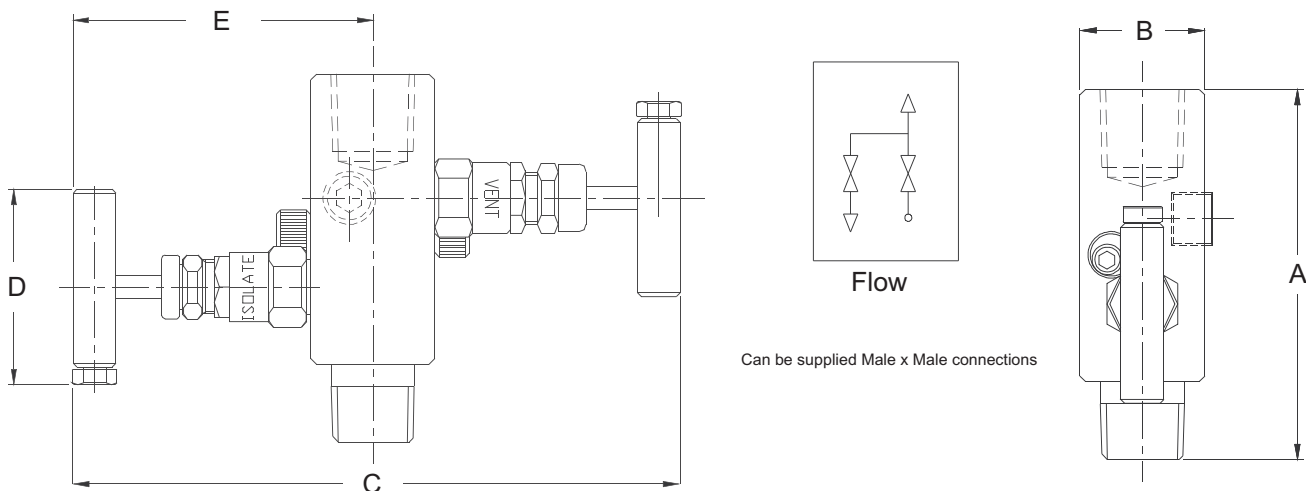


Note: Valves shown include vent plugs that are supplied as standard

The "2VG" series 2 valve gauge manifold offering single process isolation and controlled venting. Unlike the '2VR' series, the '2VG' series can be offered with male inlet and female outlet connections. Available 6,000 psi and 10,000 psi versions, a slim-line and compact 2 valve manifold. The '2VG' series, utilises metal to metal seat and body to bonnet connection for superior, bubble tight sealing capabilities at both extreme pressures and temperatures. The "2VG" series also offers non-rotating hardened tip for extended service life. The unique anti-vibration cam locking safety device at the body bonnet connection is for extra safety. Maximum working temperature up to 230°C and up to 427°C with -GP option at reduced pressure. Many options available including hand wheels and locking devices.

## Design Features

- All valves have 2-piece non-rating hardened (17-4PH) tips as standard for bubble tight shut off and long service life.
- Positive no slack stem action.
- Unique bonnet locking cam device.
- Metal to metal body bonnet seals for high pressure and temperature use.
- Ingress seals fitted as standard.
- Temperature range -46°C to 230°C (427°C with GP option). (Pressures may vary)
- Repair / service kit available to extend field life further.
- 2" and 4" extended versions are available.  
i.e. 2VG4NS Ext. 2" = 2" Extended  
2VG4NS Ext. 4" = 4" Extended.
- Full material traceability.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.



## Part Numbers

St / St Part No.	Connections Size	A	B	C	D	E	Weight (kgs)
2VG2NS	1/4" NPT male inlet x 1/4" NPT female outlet	75	32	154	51	77	0.6
2VG2NS-F	1/4" NPT female inlet x female outlet	75	32	154	51	77	0.8
2VG4NS	1/2" NPT male inlet x 1/2" NPT female outlet	95	32	154	51	77	0.8
2VG4NS-F	1/2" NPT female inlet x 1/2" NPT female outlet	95	32	154	51	77	0.9

Packing materials: RTFE (standard) graphoil option -GP  
For 10,000 psi version add "U" i.e. U2VG4NS

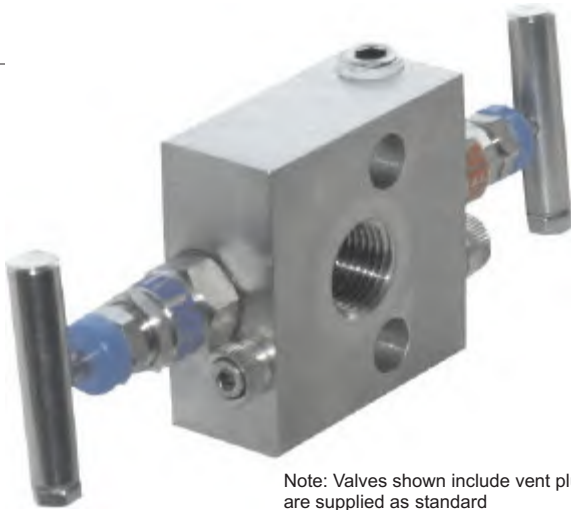
Dims are in mm (appx)  
See technical section for important additional valve data.

# E2VBD Series

## General Information

### Direct Mount 2 Valve Manifold 6,000 psi and 10,000 psi Rated

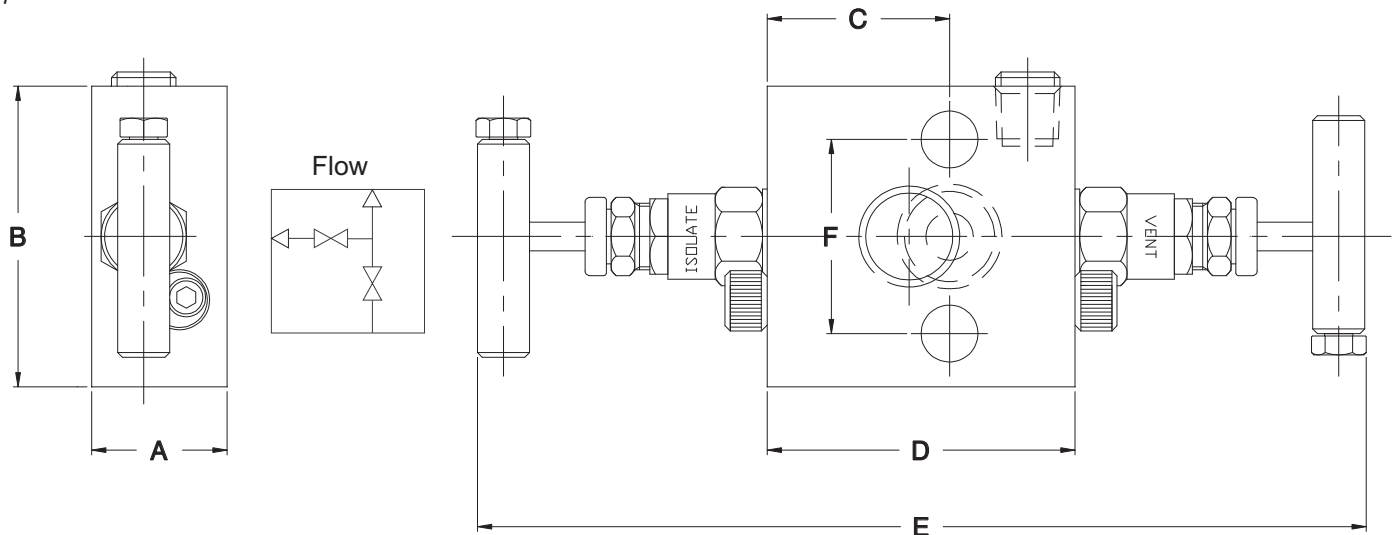
Two valve direct mount manifold, designed for use with pressure transmitters. The manifold will isolate instrumentation from the process and allow venting of the instrument for calibration / removal from the circuit without effecting the process / application and or recovery of a sample etc. This compact unit offers single isolation, and vent / test facility. Vent port 1/4" NPT. Supplied with bolt pack and seal as standard. The E2VBD can be supplied with additional tapped holes in it's base for mounting purposes. Other options apply such as anti-tamper, lockable vent valve.



Note: Valves shown include vent plugs that are supplied as standard

## Design Features

- All valves have 2-piece non-rotating hardened (17-4PH) tips as standard for bubble tight shut off and long service life.
- Positive no slack action.
- Unique bonnet locking cam.
- Metal to metal body bonnet seal for high pressure and high temperature use.
- Pressure responsive multi-ring / piston packing for compressive and pressure dynamic sealing.
- Repair / service kit available to extend field life further.
- Temperature range -46°C to 230°C (427°C with GP option). (Pressures may vary)
- Valve flow can be reversed so as calibration can take place in situ.
- Ingress seals fitted as standard.
- Full material traceability.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.



## Part Numbers

St / St Part No.	Connections Size	A	B	C	D	E	F	Weight (kgs)
E2VBD4NS	1/2" NPT (F)	29	64	38.5	65	187	41	1.0

Packing materials: RTFE (standard) graphoil option -GP  
For 10,000 psi version add \*U\* i.e. UE2VBD4NS

Dims are in mm (appx)  
See technical section for important additional valve data.

# 2VBM Series Base Mounted

## General Information

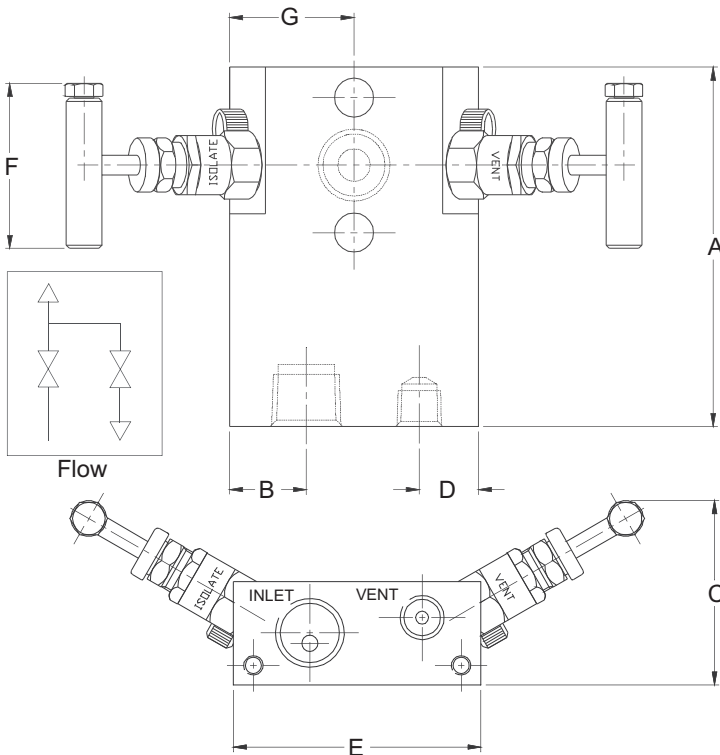
### Direct mount 2 valve manifold 6,000 psi & 10,000psi rated



Note: This product comes with bolt pack, spare seal. Valves shown include vent plugs that are supplied as standard.

Three valve direct mount manifold for base mounting to an enclosure or mounting plate, designed for use with pressure transmitter. The manifold will isolate the instrumentation from the process and allow safe equalisation between the high pressure and low pressure sides of the pipe-work arrangement without effecting the process / application. Being base mounted facilitates quick and easy installation of the instrument. No additional fitting or brackets required, the manifold supports the instrument. Supplied with bolt pack and seals as standard. The 3VBM can be supplied with additional steam trace porting. Other options are available such as locking / anti-tamper equalisation valve.

## Design Features



- Bubble tight metal to metal seat for positive shut off.
- All valves have 2-piece non-rotating hardened (17-4PH) tip for first time seal. Every time.
- Temperature range -46°C to 230°C High temperature version up to 427°C with graphoil option (-GP). (Pressures may vary)
- Pressure responsive multi-ring / piston packing for compression and pressure dynamic sealing. Metal to metal body bonnet seal for high pressure and high temperature sealing.
- Vent port is 1/4"
- Unique bonnet locking cam. No accidental removal of head unit, or loosening due to vibration.
- Positive no slack stem action.
- Body to bonnet ingress seal fitted as standard to prevent crevice corrosion.
- Available fire safe.
- Easy access angled valves and handles.
- Repair / service kit available to extend field life further.
- No additional brackets or fittings required.
- Full material traceability of major components.
- Back sealing stem to extend packing life.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.

## Part Numbers

St / St Part No.	Connections Size	A	B	C	D	E	F	G	Weight (kgs)
2VBM2NS	1/4" NPT female x instrument connection	110	23	56	18	77	50	38	2.6
2VBM4NS	1/2" NPT female x instrument connection	110	23	56	18	77	50	38	2.5

Packing materials: RTFE (standard) graphoil option -GP  
For 10,000 psi version add "U" i.e. U2VBM4NS

Dims are in mm (appx)  
See technical section for important additional valve data.

# 3VR Series

## General Information

### Remote Mount 3 Valve Manifold 6,000 psi and 10,000 psi Rated

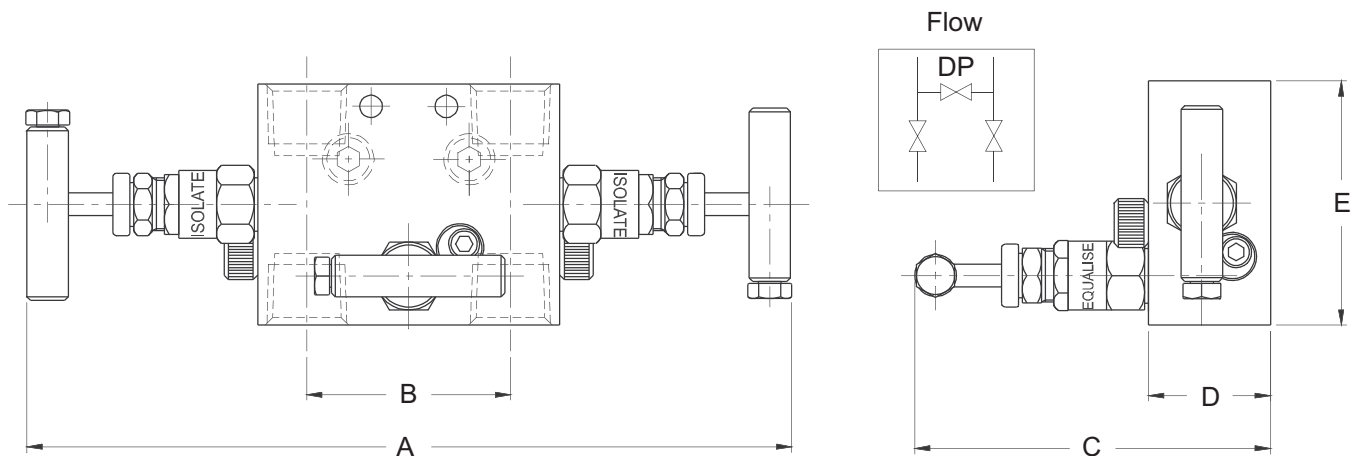


Note: 2 x 6mm diameter mounting holes as standard

The three-valve isolation manifold remote mounted (pipe to pipe). Used mainly in differential pressure transmitters and static instrument applications. The 3VR has two process isolation valves and one equalisation valve to equalise the two sides. Standard 1/2" inlet x 1/2" outlet. Incorporated all the standard long service life features of the standard "N" series needle valve, multi-ring piston style packings, back sealing facility. Safe anti-rotational cam locking device. Most standard options such as locking devices are available. Mounting holes supplied as standard for wall or bracket mounting. Process and instrument sides are both on 54mm centres to correspond with transmitter connections.

## Design Features

- 2 x isolation and 1 x equalising valve for instrument balancing applications.
- Additional purge ports available option -AP.
- All valves have 2-piece non-rotating hardened (17-4PH) tips as standard for bubble tight shut off & long service life.
- Metal to metal body bonnet seal for high pressure and high temperature sealing.
- 2 x 6mm diameter mounting holes as standard.
- Positive no slack stem action.
- Unique Anti-rotational cam locking device for extra safety.
- Repair / service kit available to extend field life further.
- Temperature range -46°C to 230°C (427°C with GP option). (Pressures may vary)
- Ingress seals fitted as standard.
- Available in 316 Stainless Steel, Monel, Duplex & other exotic materials.
- Mounting holes as standard to allow for fixing to pipe stands or enclosures.
- Full material traceability.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.



## Part Numbers

St / St Part No.	Connections Size	A (OPEN)	B	C	D	E	Weight (KGs)
3VR2NS	2 x 1/4" NPT female x female	202	54	93	32	64	1.5
3VR4NS	2 x 1/2" NPT female x female	202	54	93	32	64	1.4

For BSPT version change "N" to "T" i.e. 3VR4TS  
 For 10,000 psi version add "U" i.e. U3VR4NS  
 Purge ports in bottom of manifold option -AP  
 Packing materials: RTFE (standard) graphoil option -GP

Dims are in mm (appx)  
 See technical section for important additional valve data.



# 3VBD Series

## General Information

### Direct Mount 3 Valve Manifold 6,000 psi and 10,000 psi Rated

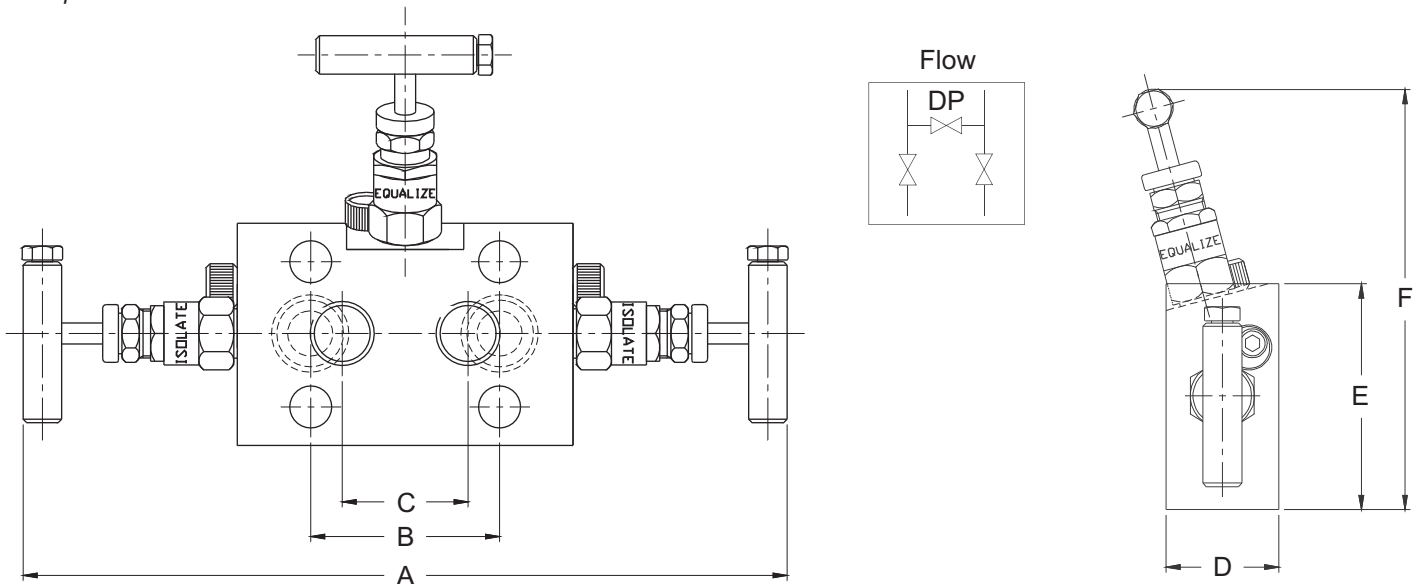
Direct mounted three-valve manifold, instrument mount to pipe connection. Offering two isolation valves, and one equalising valve for differential pressure transmitter or static instrument applications. Supplied with bolt pack and spare seals as standard. This slim, compact 3-valve manifold offers all the features of Alco's high integrity needle valve head design incorporated in one common instrument manifold block that mounts directly to an instrument.



Note: This product comes with bolt pack and seals as standard

## Design Features

- All valves have 2-piece non-rotating hardened (17-4PH) tips as standard.
- Bubble tight shut off.
- Positive no slack stem action.
- Offset equalise valve for ease of operation.
- Metal to metal body bonnet seal for high pressure and high temperature use.
- Ingress seals fitted as standard.
- Repair / service kit available to extend field life further.
- Temperature range -46°C to 230°C (427°C with GP option). (Pressures may vary)
- Unique bonnet locking cam.
- Two valve configurations available.
- Full material traceability.
- 54mm (2 1/8") instrument centres.
- Material of construction can be supplied to meet the requirements of NACE MR-01-75



## Part Numbers

St / St Part No.	Connections Size	A	B	C	D	E	F	G	H	I	Weight (kgs)
3VD4NS	1/2" NPT female x direct mount	85	62	26	60	41	207	54	51	39	1.4
<b>Mini heads</b>											
M3VD4NS	1/2" NPT female x direct mount	85	62	26	60	41	166	54	51	19	1.3

Packing materials: RTFE (standard) graphoil option -GP

Dims are in mm (appx)  
See technical section for important additional valve data.

# 3VD Series

## General Information

### Direct Flange Mounted (T Section) 3 Valve Manifold 6,000 psi rated

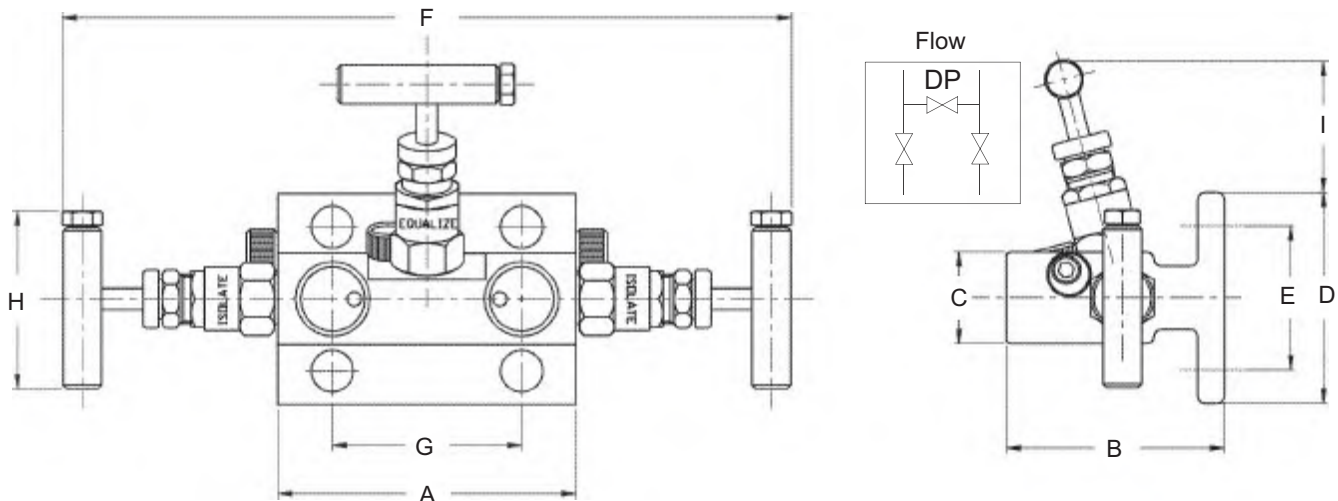
Direct mounted three-valve manifold, instrument mount to pipe connection. Having a "T" section body format allows reasonable space envelope between the instrument and process lines. The 3VD offers two isolation valves, and one equalising valve. Supplied with bolt pack and spare seals as standard. This slim, compact 3 valve manifold offers all the features of Alco's high integrity needle valve head design incorporated in one common instrument manifold block.



Note: This product comes with bolt pack and seals as standard

## Design Features

- All valves have 2-piece non-rotating hardened (17-4PH) tips as standard.
- Bubble tight shut off.
- Positive no slack stem action.
- Offset equalise valve for ease of operation.
- Metal to metal body bonnet seal for high pressure and high temperature use.
- Ingress seals fitted as standard.
- Repair / service kit available to extend field life further.
- Temperature range -46°C to 230°C (427°C with GP option). (Pressures may vary)
- Unique bonnet locking cam.
- Two valve configurations available.
- Full material traceability.
- 54mm (2 1/8") instrument centres.
- Material of construction can be supplied to meet the requirements of NACE MR-01-75



## Part Numbers

St / St Part No.	Connections Size	A	B	C	D	E	F	G	H	I	Weight (kgs)
3VD4NS	1/2" NPT female x direct mount	85	62	26	60	41	207	54	51	39	1.4
<b>Mini heads</b>											
M3VD4NS	1/2" NPT female x direct mount	85	62	26	60	41	166	54	51	19	1.3

Packing materials: RTFE (standard) graphoil option -GP

Dims are in mm (appx)  
See technical section for important additional valve data.

# 3VBM Series Base Mounted

## General Information

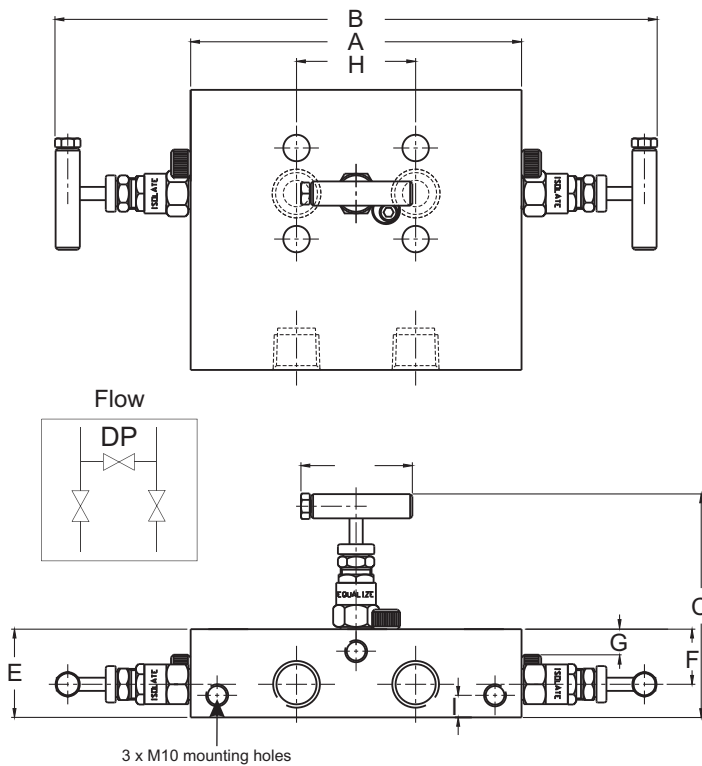
### Direct mount 3 valve manifold 6,000 psi rated



Note: This product comes complete with bolt pack and seals as standard.

Three valve direct mount manifold for base mounting to an enclosure or mounting plate, designed for use with pressure transmitter. The manifold will isolate the instrumentation from the process and allow safe equalisation between the high pressure and low pressure sides of the pipe-work arrangement without effecting the process / application. Being base mounted facilitates quick and easy installation of the instrument. No additional fitting or brackets required, the manifold supports the instrument. Supplied with bolt pack and seals as standard. The 3VBM can be supplied with additional steam trace porting. Other options are available such as locking / anti-tamper equalisation valve.

## Design Features



- Bubble tight metal to metal seat for positive shut off.
- Easy access and use of valve handles due to configuration.
- All valves have 2 piece non-rotating hardened (17-4PH) tip for first time seal. Every time.
- Pressure responsive multi-ring / piston packing for compression and pressure dynamic sealing.
- Metal to metal body bonnet seal for high pressure and high temperature sealing.
- Unique bonnet locking cam. No accidental removal of head unit, or loosening due to vibration.
- Positive no slack stem action.
- Repair / service kit available to extend field life further.
- Temperature range -46°C to 230°C (427°C with GP option). (Pressures may vary)
- Body to bonnet ingress seal fitted as standard to prevent crevice corrosion.
- Easy access angled valves and handles.
- No additional brackets or fittings required.
- Full material traceability of major components.
- Back sealing stem to extend packing life.
- Available fire safe.
- Materials of construction can be supplied to meet the requirements of NACE MR-01-75.

Note: Available with steam tracing

## Part Numbers

St / St Part No.	Connections Size	A	B	C (Std Head)	D	E	F	G	H	I	Weight (kgs)
3VBM4NS	2 x 1/2" NPT female x direct mount	150	272	101	51	40	20	10	54	10	6.0

Packing materials: RTFE (standard) graphoil option -GP

Dims are in mm (appx)  
See technical section for important additional valve data.

# 5VR Series

## General Information

### Remote mount 5 valve manifold 6,000 psi rated

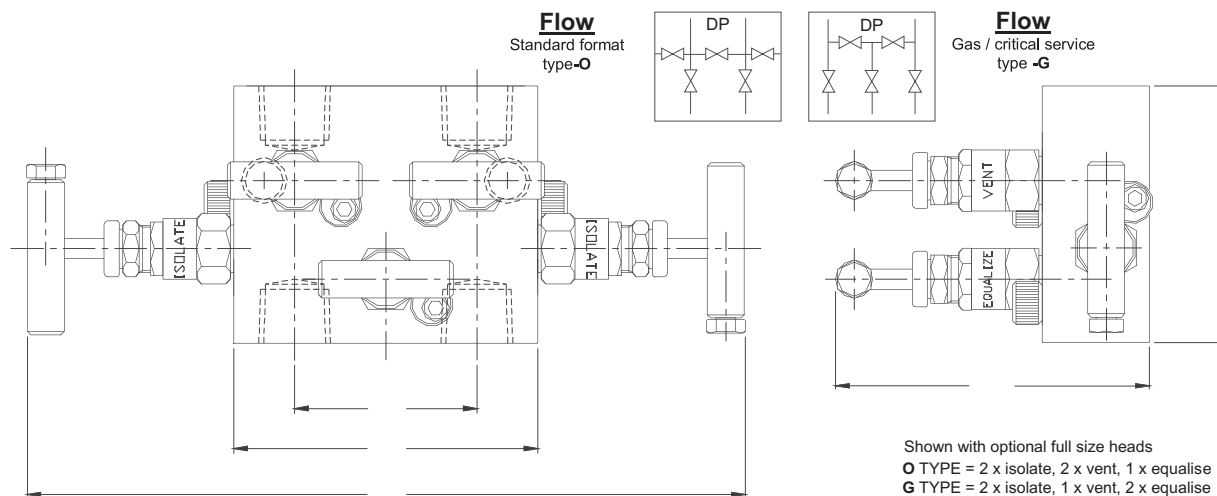


Note: Valve shown includes vent plugs that are supplied as standard

Remote mounted, pipe to pipe configuration five valve manifold. Offering two isolation valves, two vent valves and one equalising valve. Used in differential pressure transmitters and static instrument applications. Standard 2 x 1/2" inlet x 2 x 1/2" outlet all on 54mm instrument centres with 2 x 1/4" vent port. Incorporating all the standard long service life features of the standard N series needle valve, multi-ring piston style packings, back sealing facility. Safe anti-rotational cam locking device. Most standard options such as locking devices are available. Mounting holes supplied as standard for wall or bracket mounting.

## Design Features

- All valves have 2-piece non-rotating hardened (17-4PH) tips as standard.
- Bubble tight shut off.
- Positive no slack stem action.
- Vent porting in base for piping away (Type -O).
- Unique bonnet locking cam.
- Metal to metal body bonnet seal for high pressure and high temperature use.
- Base mounting holes to allow fixing to enclosure or mounting boss.
- Repair / service kit available to extend field life further.
- Temperature range -46°C to 230°C (427°C with GP option). (Pressures may vary)
- Available in 316 Stainless Steel, Monel, Duplex & other exotic materials.
- Two valve configurations available.
- Full material traceability.
- 54mm (2 1/8") instrument centres.
- Material of construction can be supplied to meet the requirements of NACE MR-01-75



## Part Numbers

St/St Part No.	Connections Size	A	B	C	D (Mini Head)	E	Weight (kgs)
5VR4NS-O	1/2" NPT (F)	213	90	54	73	76	2.0

If gas / critical service manifold is required change 'O' for 'G'  
i.e. 5VR4NS-G which offers 2 x isolate, 2 x equalise & 1 x vent  
Packing materials: RTFE (standard) Graphoil (option -GP)

Dims are in mm (appx)  
See technical section for important additional valve data.

# 5VBD Series

## General Information

### Direct mount 5 valve manifold 6,000 psi rated

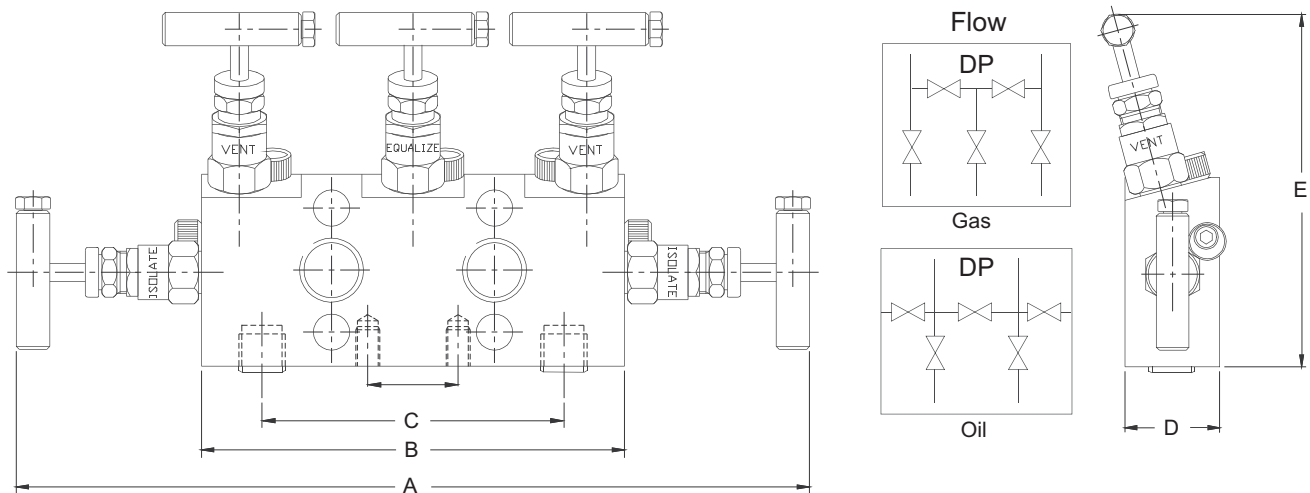


Note: Valves shown include vent plugs that are supplied as standard. Complete with bolt pack and spare seals.

Direct style block mounted five-valve manifold, instrument mount to pipe connection. Offering two isolation valves, two vent valves and one equalising valve. Used in differential pressure transmitters and static instrument applications. Standard 2 x 1/2" inlet x direct mount (54mm centres) with 2 x 1/4" vent port. This slim, compact valve incorporates all the standard long service life features of the standard N series needle valve, multi-ring piston style packings, back sealing facility. Safe anti-rotational cam locking device. Most standard options such as locking devices are available. Mounting holes supplied as standard for wall or bracket mounting.

## Design Features

- All valves have 2-piece non-rotating hardened (17-4PH) tips as standard.
- Bubble tight shut off.
- Positive no slack stem action.
- Unique bonnet locking cam.
- Metal to metal body bonnet seal for high pressure and high temperature use.
- Base mounting holes to allow fixing to enclosure or mounting boss.
- Repair / service kit available to extend field life further.
- Temperature range -46°C to 230°C (427°C with GP option). Temperatures differ for mini head versions. (Pressures may vary)
- Available in 316 Stainless Steel, Monel, Duplex & other exotic materials.
- Ingress seals fitted as standard.
- Full material traceability.
- 54mm (2 1/8") instrument centres.
- Material of construction can be supplied to meet the requirements of NACE MR-01-75



## Part Numbers

St / St Part No.	Connections Size	A (Open)	B	C	D	E (Open)	Weight (kgs)
5VBD4NS-O	2 x 1/2" NPT female x direct mount, 2 x 1/4" NPT vents	262	140	100	32	118	2.5
<b>Mini Heads</b>							
M5VBD4NS-O	2 x 1/2" NPT female x direct mount, 2 x 1/4" NPT vents	222	140	100	32	97	2.3

Packing materials: RTFE (standard) graphoil option -GP  
For BSPT process connections change "N" to "T" ie 5VBD4TS

Dims are in mm (appx)  
See technical section for important additional valve data.



# 5VD Series

## General Information

### Direct Flange Mounted (T Section) 5 Valve Manifold 6,000 psi rated

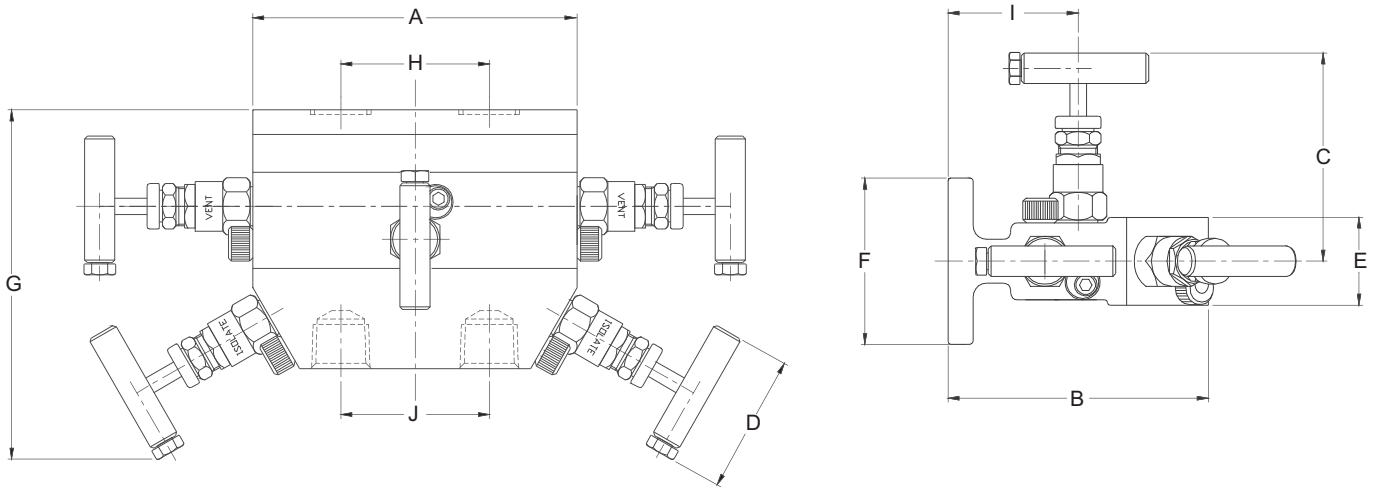


Note: This product comes with bolt pack, spare seals.  
Valve vent plugs are supplied as standard

Direct mounted five-valve manifold, instrument mount to pipe connection. Having a "T" section body format allows a reasonable space envelope between the instrument and process lines. The 5VD offers two isolation valves, two vent valves and one equalising valve. Supplied with bolt pack and spare seals. This elongated 5 valve manifold offers all the features of Alco's high integrity needle valve head design incorporated in one common instrument manifold block. Other options such as lockable vent valves & hand wheel are available.

## Design Features

- All valves have 2-piece non-rotating hardened (17-4PH) tips as standard.
- Bubble tight shut off.
- Positive no slack stem action.
- Unique bonnet locking cam.
- Metal to metal body bonnet seal for high pressure and high temperature use.
- Base mounting holes to allow fixing to enclosure or mounting boss.
- Supplied with bolt pack and extra PTFE seals.
- Repair / service kit available to extend field life further.
- Temperature range  $-46^{\circ}\text{C}$  to  $230^{\circ}\text{C}$  ( $427^{\circ}\text{C}$  with GP option). (Pressures may vary)
- Ingress seals fitted as standard.
- Direct mounting to instruments.
- Available in 316 Stainless Steel, Monel, Duplex & other exotic materials.
- Full material traceability.
- 54mm (2 1/8") instrument centres.
- Material of construction can be supplied to meet the requirements of NACE MR-01-75.



## Part Numbers

St / St Part No.	Connections Size	A	B	C	D	E (OPEN)	F	G	H	I	J	Weight (kgs)
5VD4NS-O	2 x 1/2" NPT female x direct mount, 2 x 1/4" NPT vents	118	94	75	51	32	60	127	54	47	54	2.7

Packing materials: RTFE (standard) graphoil option -GP i.e. 3VBDD4NS-GP  
Additional purge ports located on top face add -PP i.e. 3VBDD4NS-PP

Dims are in mm (appx)  
See technical section for important additional valve data.

# 5VBM Valve Base Mounted

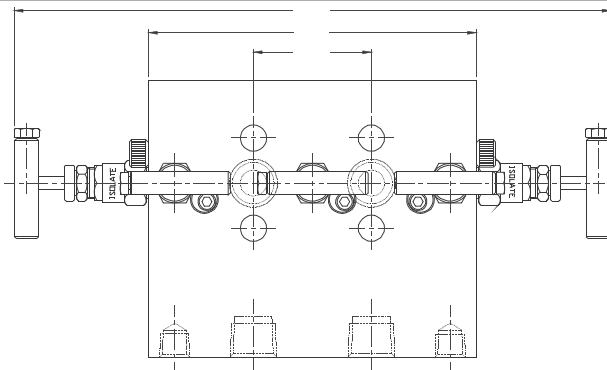
## General Information

### Direct Mount 5 Valve Manifold 6,000 psi rated

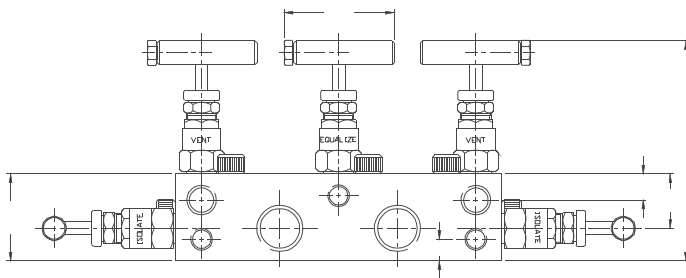


Five valve direct mount manifold for base mounting to an enclosure or mounting plate, designed for use with pressure gauge transmitter. The manifold will isolate the instrumentation from the process and allow safe venting of the instrument for calibration / removal from the circuit without effecting the process / application and or recovery of a sample etc. This compact unit offers single isolation, and vent / test facility. Vent port supplied 1/4" NPT. Being base mounted facilitates quick and easy installation of the instrument. No additional fitting or brackets required, the manifold supports the instrument. Supplied with bolt pack and spare seals as standard. Certain options such as locking devices and hand wheels etc are available.

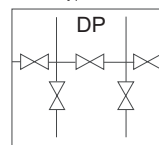
## Design Features



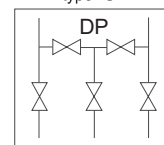
- All valves have 2-piece non-rotating hardened (17-4PH) tips as standard.
- Bubble tight shut off.
- Positive no slack stem action.
- Unique bonnet locking cam.
- Metal to metal body bonnet seal for high pressure and high temperature use.
- Temperature range -46°C to 230°C (427°C with GP option). (Pressures may vary)
- Ingress seals fitted as standard.
- Repair / service kit available to extend field life further.
- Base mounting holes to allow fixing to enclosure or mounting boss
- Full material traceability.
- 54mm (2 1/8") instrument centres.
- Material of construction can be supplied to meet the requirements of NACE MR-01-75



**Flow**  
Standard format  
type-O



**Flow**  
Gas / critical service  
type-G



## Part Numbers

St / St Part No.	Connections Size	A	B	C	D	E	F	G	H	I	Weight (kgs)
5VBM4NS	2 x 1/2" NPT x direct mount 2 x 1/4" NPT vents	150	272	101	51	40	20	12	54	10	6.2

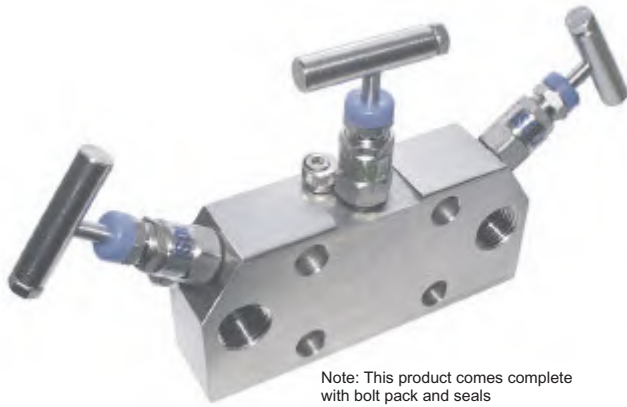
Packing materials: RTFE (standard) graphoil option -GP  
For Optional Hand Wheel add -HW

Dims are in mm (appx)  
See technical section for important additional valve data.

# 3VBDD Manifold Block

## General Information

### Direct mount 3 Valve Manifold 6,000 psi rated

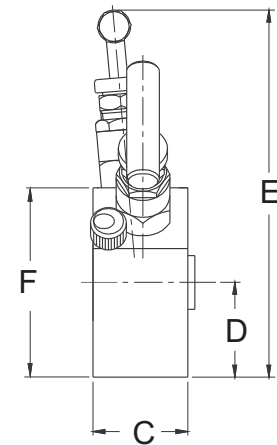
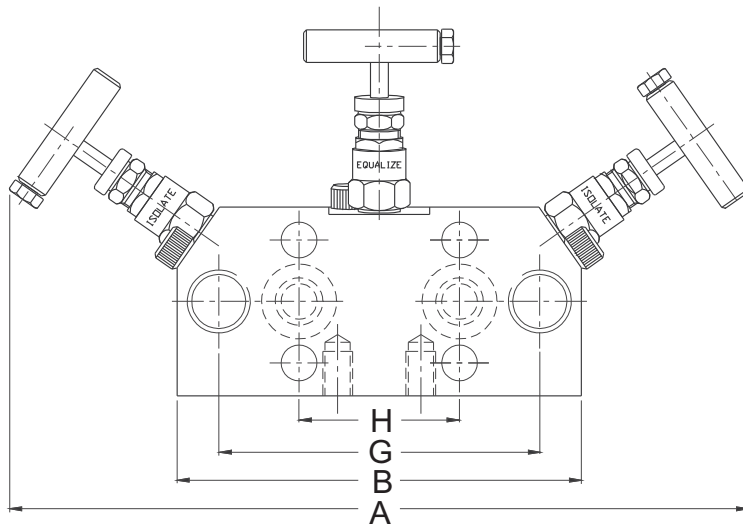


Note: This product comes complete with bolt pack and seals

Direct mounted three-valve manifold, instrument mount to pipe connection. Offering two isolation valves, and one equalising valve. Supplied with bolt pack and spare seals. This slim, compact 3 valve manifold offers all the features of Alco's high integrity needle valve head design incorporated in one common instrument manifold block. Can be supplied to DIN 19 213 mounting specification in the 100 bar (1,500 psi) or 420 bar (6,000 psi).

## Design Features

- Compact overall size manifold body saving weight and space.
- All valves have 2-piece non-rotating hardened (17-4PH) tips as standard.
- Bubble tight shut off.
- Positive no slack stem action.
- Unique bonnet locking cam.
- Metal to metal body bonnet seal for high pressure and temperature use.
- Base mounting holes to allow fixing to enclosure or mounting boss.
- Available in 316 Stainless Steel, Monel, Duplex & other exotic materials.
- Temperature range -46°C to 230°C (427°C with GP option). (Pressures may vary)
- Ingress seals fitted as standard.
- Repair / service kit available to extend field life further.
- Full material traceability.
- 54mm (2 1/8") instrument centres alternative instrument centres available
- Available DIN style mounting:
  - Form B1 = 100 bar (1,450 psi)
  - Form B2 = 420 bar (6,000 psi)
- Material of construction can be supplied to meet the requirements of NACE MR-01-75.



Can be supplied to DIN mounting specifications

## Part Numbers

St / St Part No.	Connections Size	A (OPEN)	B	C	D	E (OPEN)	F	G	H	Weight (kgs)
3VBDD4NS	1/2" inlet x direct mount outlet	246	136	32	32	123	64	108	54	2.2

Packing materials: RTFE (standard) graphoil option -GP i.e. 3VBDD4NS-GP  
Additional purge ports located on top face add -PP i.e. 3VBDD4NS-PP

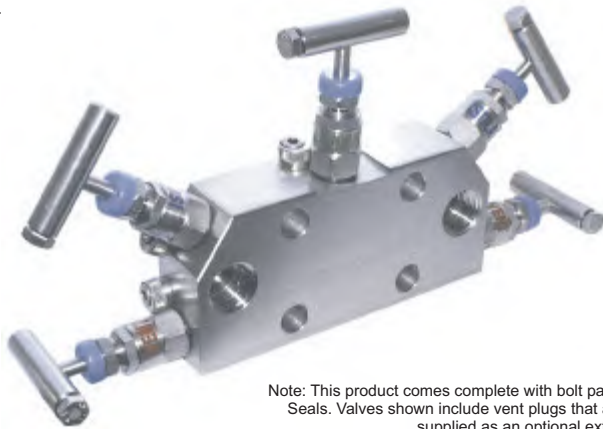
Dims are in mm (appx)  
See technical section for important additional valve data.

# 5VBDD Manifold Block

## General Information

### Direct mount 5 Valve Manifold 6,000 psi rated

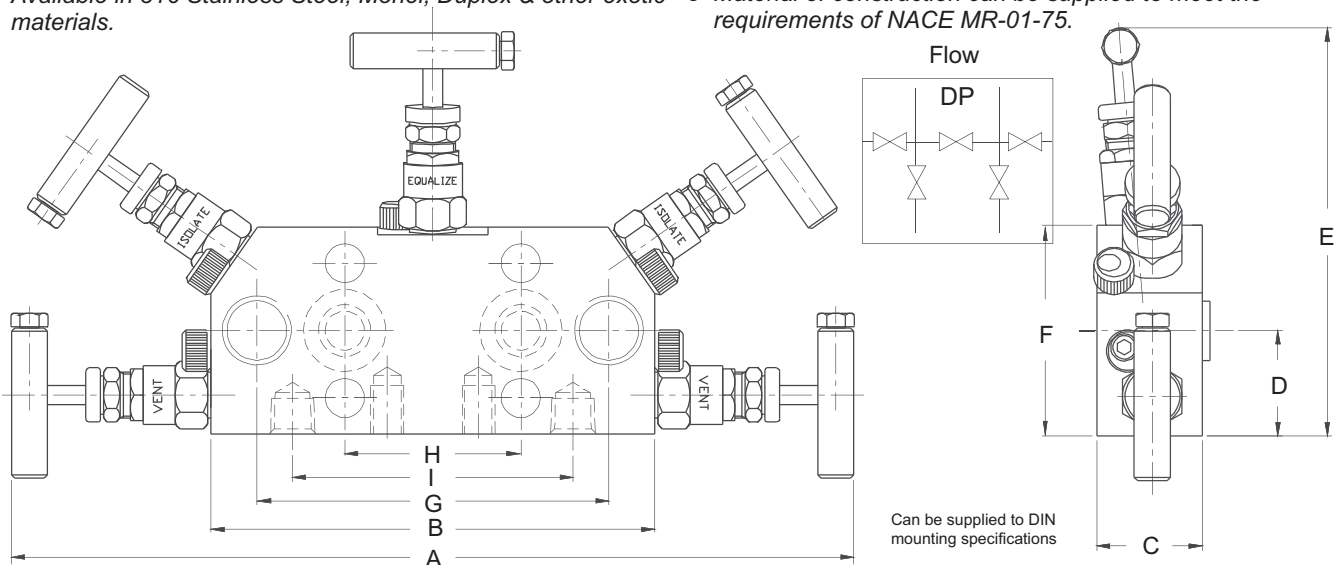
Direct block mounted five-valve manifold, instrument mount to pipe connection. Offering two isolation valves, two vent valves and one equalising valve. Used mainly in differential pressure transmitters and static instrument applications. Standard 2 x 1/2" inlet x 2 x 1/2" outlet with 2 x 1/4" vent port. Incorporating all the standard long service life features of the standard N series needle valve, multi-ring piston style packings, back sealing facility. Safe anti-rotational cam locking device. Most standard options such as locking devices are available. Mounting holes as standard (for wall or bracket mounting). Comes with bolt pack and spare seals. Can be supplied to DIN 19 213 mounting.



Note: This product comes complete with bolt pack, Seals. Valves shown include vent plugs that are supplied as an optional extra.

## Design Features

- Compact overall size manifold body saving weight and space.
- All valves have 2-piece non-rotating hardened (17-4PH) tips as standard.
- Bubble tight shut off.
- Positive no slack stem action.
- Unique bonnet locking cam.
- Metal to metal body bonnet seal for high pressure and temperature use.
- Base mounting holes to allow fixing to enclosure or mounting boss.
- Available in 316 Stainless Steel, Monel, Duplex & other exotic materials.
- Temperature range -46°C to 230°C (427°C with GP option). (Pressures may vary)
- Ingress seals fitted as standard.
- Repair / service kit available to extend field life further.
- Full material traceability.
- 54mm (2 1/8") instrument centres alternative instrument centres available.
- Available DIN style mounting:  
Form B1 = 100 bar (1,450 psi)  
Form B2 = 420 bar (6,000 psi)
- Material of construction can be supplied to meet the requirements of NACE MR-01-75.



## Part Numbers

St / St Part No.	Connections Size	A	B	C	D	E	F	G	H	I	Weight (kgs)
5VBDD4NS	1/2" inlet x direct outlet 2 x 1/4" vent	258	136	32	32	123	64	108	54	86	2.4

Packing materials: RTFE (standard) graphoil option -GP i.e. 5VBDD4NS-GP

Dims are in mm (appx)  
See technical section for important additional valve data.

# Manifold Accesories



Manifold Bracket for 2" stand pipe includes "U" bolts, nuts and washers, designed to support most Alco manifolds and instruments, made from heavy duty plate.  
-BKT-1 Carbon Steel as standard.  
-BKT-3 Stainless Steel version.



Spare bolt and seal packs  
2 - valve kits are supplied with 1 spare seal, 3 & 5 valve kits have 2 spare seals. If spare PTFE seal alone is required order part number MFP10030.



Kidney flanges and various flange adapters threaded or with twin ferrule compression tube fitting / adapters / weld fittings / extenders / converters available in Stainless Steel, Monel 400, Duplex and other super alloys.



Manifold heaters and enclosure temperature control devices to various specifications to suit your application. Manufactured in 316 stainless steel and other alloys.



Manifold adapters to convert threaded / remote manifold valves to direct instrument connection - available in Carbon Steel, 316 Stainless Steel and Duplex



A wide range of GRP instrument and manifold enclosures and sun shades. Manufactured to the highest standards, to clients specifications and to suit the application.