

# Instrument Valve

Needle Valve, Manifold, Check and Proportional Relief Valve



**VEE-LOK**<sup>®</sup>  
valve & fitting

[www.veelok.com](http://www.veelok.com)



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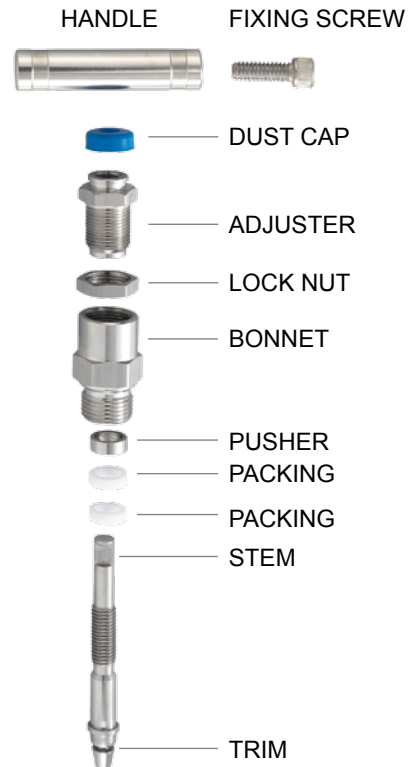
## Hexagonal Bar Stock Needle Valve HBNV Series



### Features

- Maximum working pressure:  
6000 psi (414bar) at 100°F (38°C)  
10000 psi (690bar) at 100°F (38°C)
- Working temperature:  
-65°F (-54°C) to 464°F (240°C)  
-65°F (-54°C) to 842°F (450°C)
- PTFE packings can be adjusted to extend the valve life.
- Non rotating stem design to reduce the galling and provide excellent seal on seat.
- Stem threads are rolled and lubricated to prevent galling and reduce operating torque.
- Sealing area below the threads protects from the contaminant by process and prevents lubricant washout.
- Safety back seating seal in fully open position to perform a secondary stem seal.
- Body to bonnet seal creates metal to metal constant and reliable compression.
- Bonnet lock pin prevents accidental removal while in service.
- Optional sour gas service conforms to NACE MR0175.
- Hydro test performed with pure water at 1.5 times of working pressure
- 100% factory test
- Material traceability

### Material of Construction

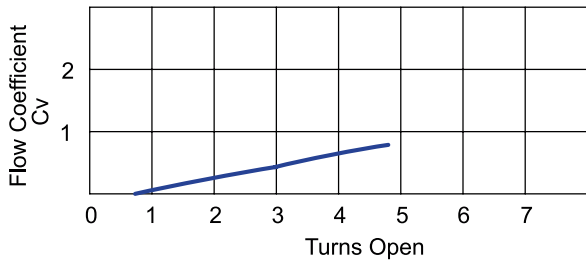


Component	Valve Body Material	
	316L S.S.	Carbon Steel
Body	316L S.S./A479	Carbon Steel /A108
Bonnet	316L S.S./A479	Carbon Steel /A108
Stem	316L S.S./A276	304 S.S./A276
Adjuster	316L S.S./A276	Carbon Steel /A108
Lock Nut	316L S.S./A276	Carbon Steel /A108
Handle	303 S.S./A276	Carbon Steel /A108
Fixing Screw	302 S.S.	Zinc plated steel
Packing	PTFE	PTFE
Pusher	316 S.S./A276	316 S.S./A276
Dust Cap	NBR	NBR
Lock Pin	303 S.S./A276	303 S.S./A276
Bleed Screw <sup>2</sup>	316 S.S./A276	316 S.S./A276

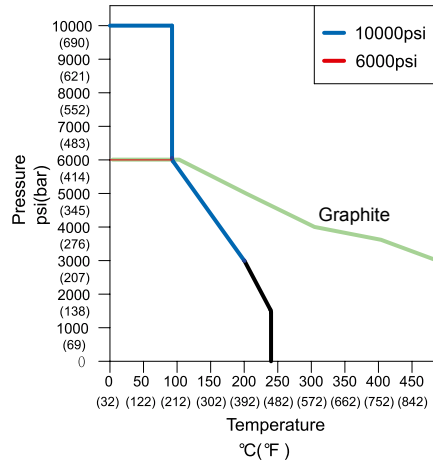
#### Note:

1. Packing is optional with graphite for high temperature to 450°C.
2. Optional with bleed screw

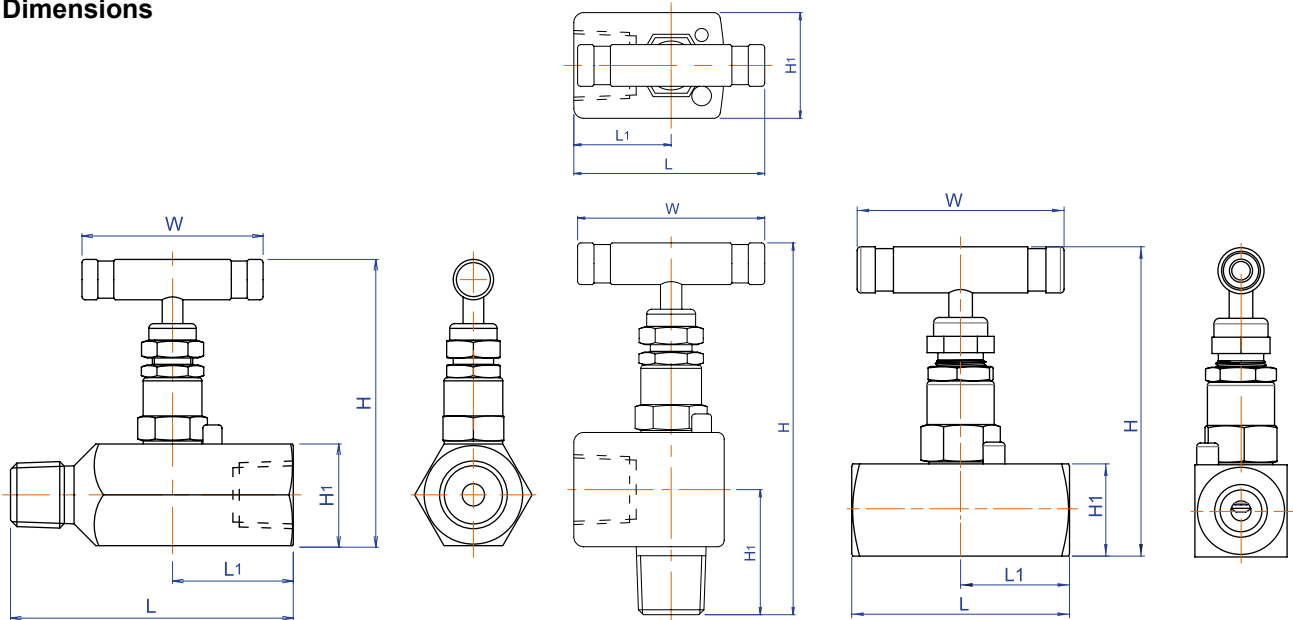
**Flow Characteristics**



**Pressure Vs. Temperature**



**Dimensions**



Ordering No.	End Connection		Orifice (bore)	Dimensions (mm)				
	Inlet	Outlet		L	L1	H	H1	W
HBNV□8MF	1/2"NPT male	1/2"NPT female	5	89	38	90	32	57
HBNV□8FF	1/2"NPT female	1/2"NPT female	5	76	38	90	32	57
HBNV□3412MF	3/4"NPT male	1/2"NPT female	5	89	38	90	32	57
HBNV□12MF	3/4"NPT male	3/4"NPT female	5.5	89	38	93	35	57
HBNV□12FF	3/4"NPT female	3/4"NPT female	5.5	76	38	93	35	57
HBNV□16MF	1"NPT male	1"NPT female	6	94	42.5	99	41	57
HBNV□16FF	1"NPT female	1"NPT female	6	85	42.5	99	41	57
HBNV□8MF90	1/2"NPT male	1/2"NPT female	5	-	-	121.3	37.5	57
HBNV□4MFSQ	1/4"NPT male	1/4"NPT female	4.5	60	30	85.2	25.4	46
HBNV□4FFSQ	1/4"NPT female	1/4"NPT female	4.5	60	30	85.2	25.4	46
HBNV□6MFSQ	3/8"NPT male	3/8"NPT female	4.5	60	30	85.2	25.4	57
HBNV□6FFSQ	3/8"NPT female	3/8"NPT female	4.5	60	30	85.2	25.4	57
HBNV□8MFSQ	1/2"NPT male	1/2"NPT female	4.5	66	33	85.9	29	57
HBNV□8FFSQ	1/2"NPT female	1/2"NPT female	4.5	66	33	85.9	29	57

All dimensions shown are for reference and subject to change without prior notice. Sizes listed are standard. Other sizes and end types are available upon request. Refer to ordering information.

### Standard Material

Valve	Body	Bonnet	Stem	Packing	Trim
316L SS	316-A479	316-A479	316-A276	PTFE	316-A276
Carbon Steel	A108	A108	304-A276	PTFE	304-A276

### Ordering Information

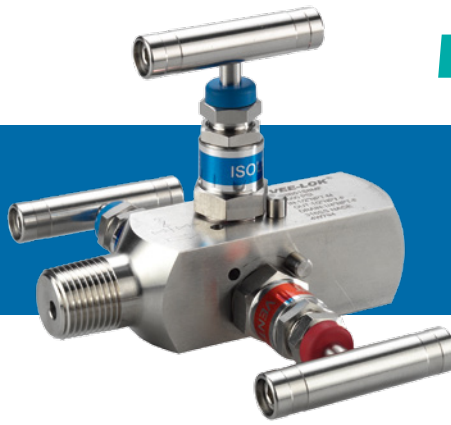
<b>HBNV</b>	<b>S</b>		<b>8</b>		<b>MF</b>		<b>10 B</b>	
Series	Body Material		Size		End Connection		Optional	
HBNV	S	316L S.S.	4	1/4"	M	Male	90	Angle pattern
	C	Carbon Steel	6	3/8"	F	Female	10	10000 psi
			8	1/2"			B	Bleeding screw
			12	3/4"			G	Graphite
			16	1"			BSPT	BSPT thread
							SQ	Square body

**Note:**

1. Refer to chemical resistance guide and choose suitable elastomer for your application.
2. Carbon steel valves are yellow zinc plated to resist corrosion.

## Double Block & Bleed Valve

DBB01 series



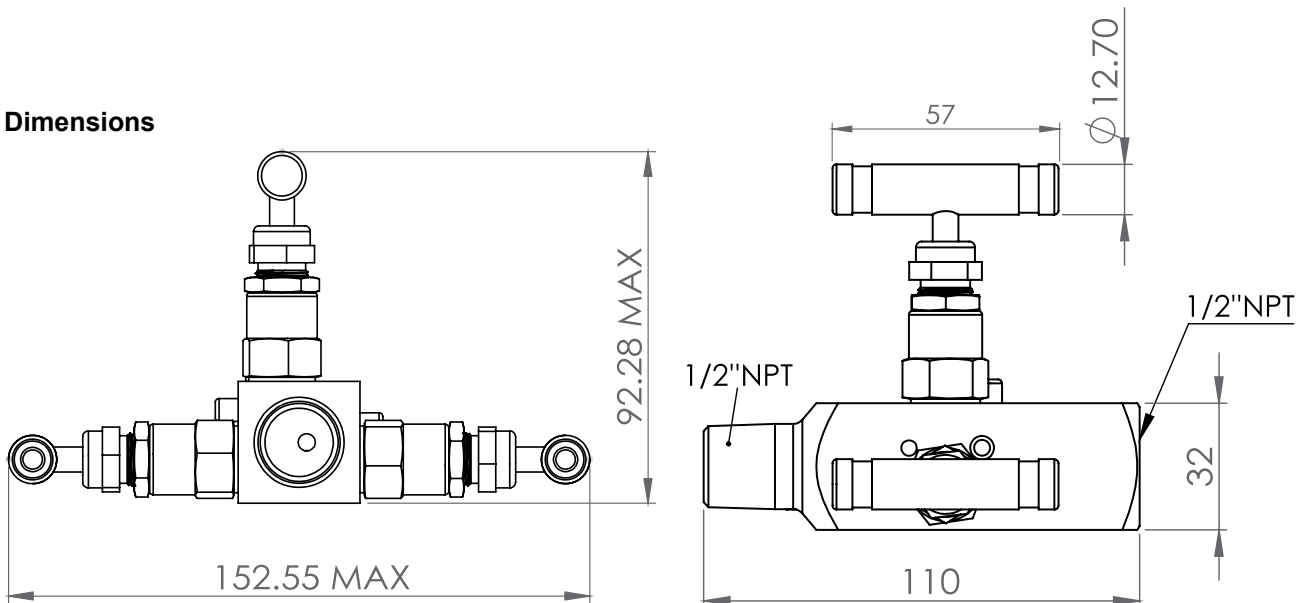
### Features

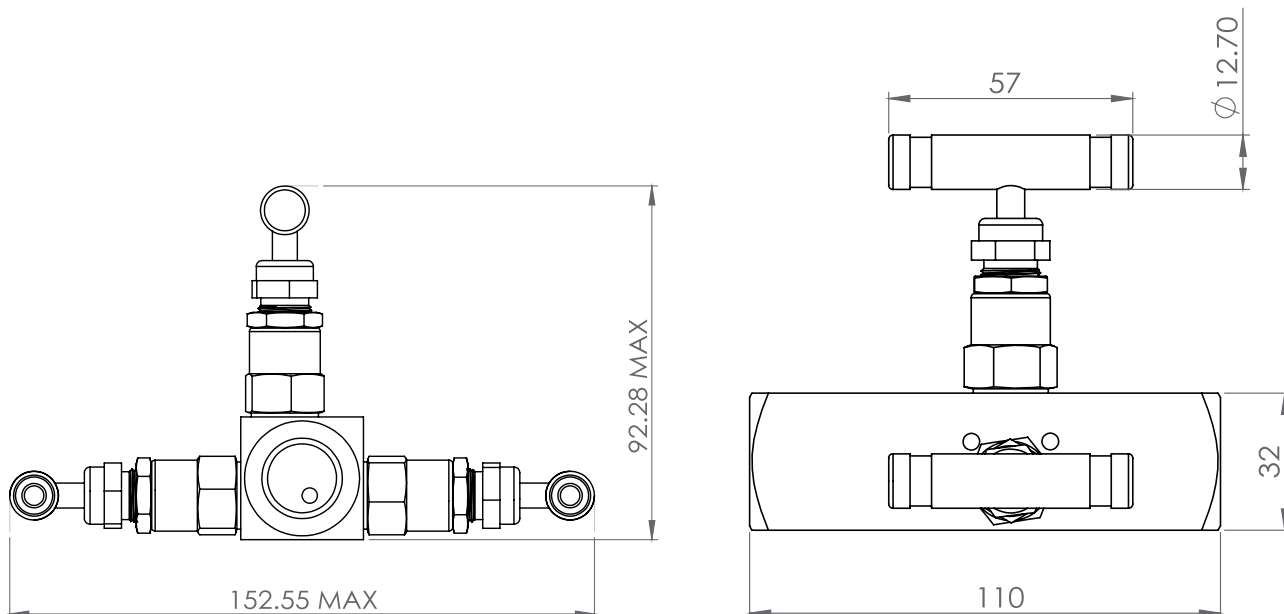
- Maximum working pressure:  
6000 psi (414bar) at 100°F (38°C)  
10000 psi (690bar) at 100°F (38°C)
- Working temperature:  
-65°F (-54°C) to 464°F (240°C)
- Double block & bleed manifolds are designed to mount to pressure gauges, pressure transmitters and pressure switches.
- A compact design is to provide significant savings on space, weight, installation and cost.
- Standard vent port in 1/4"NPT female

### Material of Construction

Component	Valve Body Material	
	316 L S.S.	Carbon Steel
Body	316 L S.S./A479	Carbon Steel/A108
Bonnet	316 L S.S./A479	Carbon Steel/A108
Stem	316 L S.S./A276	304 S.S./A276
Adjuster	316 L S.S./A276	316 S.S. /A276
Lock Nut	316 L S.S./A276	Carbon Steel /A108
Handle	303 S.S./A276	Carbon Steel/A108
Fixing Screw	302 S.S.	Zinc plated steel
Packing	PTFE	PTFE
Washer	316 L S.S./A276	316 S.S./A276
Pusher	316 L S.S./A276	316 S.S./A276
Dust Cap	NBR	NBR
Lock Pin	303 S.S./A276	303 S.S./A276

### Dimensions





Ordering No.	End Connection			Orifice(bore)
	Inlet/Process	Outlet/Instrument	Test/Vent	
DBB01□8MF	1/2"NPT male	1/2"NPT female	1/4"NPT female	5
DBB01□8FF	1/2"NPT female	1/2"NPT female	1/4"NPT female	5

All dimensions shown are for reference and subject to change without prior notice.

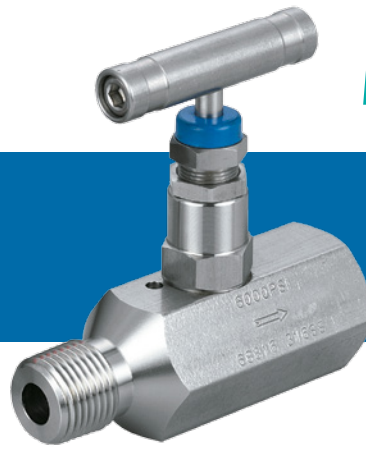
Sizes listed are standard. Other sizes and end types are available upon request. Refer to ordering information.

### Ordering Information

DBB01	S		8		MF		10	
Series	Body Material		Size		End Connection		Optional	
DBB01	S	316 S.S.	4	1/4"	M	Male	10	10000 psi
	C	Carbon Steel	8	1/2"	F	female	G	Graphite



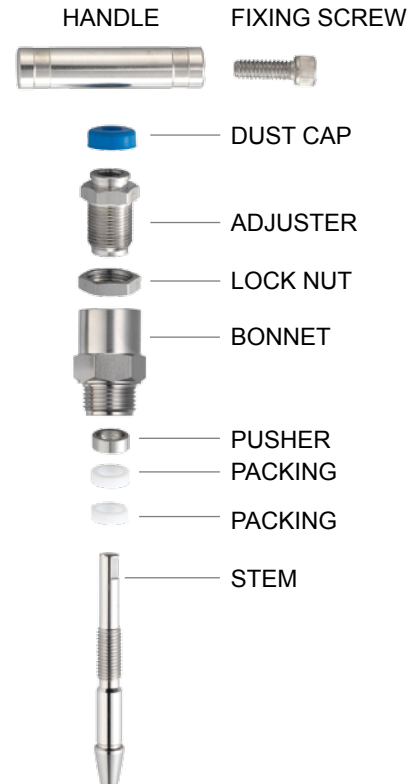
## Hexagonal Bar Stock Needle Valve SNV Series



### Features

- Maximum working pressure:  
6000 psi (414bar) at 100°F (38°C)
- Working temperature:  
POM Seat: -20°F (-28°C) to 200°F (93°C)  
PEEK Seat: -20°F (-28°C) to 400°F (204°C)
- Straight-through design provides high capacity with bi-directional flow and is roddable for easy cleaning.
- PTFE packings can be adjusted to extend the valve life.
- Stem threads are rolled and lubricated to prevent galling and reduce operating torque.
- Sealing area below the threads protects from the contaminant by process and prevents lubricant washout.
- Safety back seating seal in fully open position to perform a secondary stem seal.
- Bonnet lock pin prevents accidental removal while in service.
- Optional sour gas service conforms to NACE MR0175.
- Hydro test performed with pure water at 1.5 times of working pressure
- 100% factory test
- Material traceability

### Material of Construction

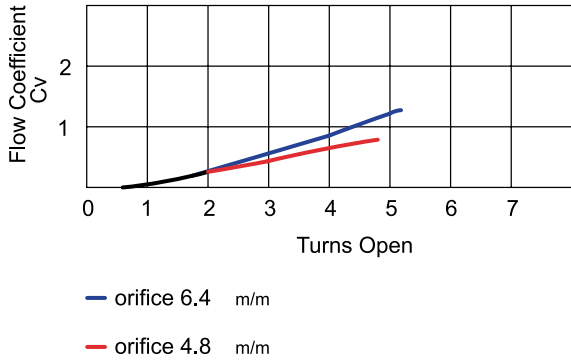


Component	Valve Body Material	
	316L S.S.	Carbon Steel
Body	316L S.S./A479	Carbon Steel/A108
Bonnet	316L S.S./A479	Carbon Steel/A108
Stem	316L S.S./A276	304 S.S./A276
Adjuster	316L S.S./A276	Carbon Steel/A108
Lock Nut	316L S.S./A276	Carbon Steel /A108
Handle	303 S.S./A276	Carbon Steel/A108
Fixing Screw	302 S.S.	Zinc plated steel
Packing	PTFE	PTFE
Pusher	316 S.S./A276	316 S.S./A276
Dust Cap	NBR	NBR
Lock Pin	303 S.S./A276	303 S.S./A276
Seat	POM	POM

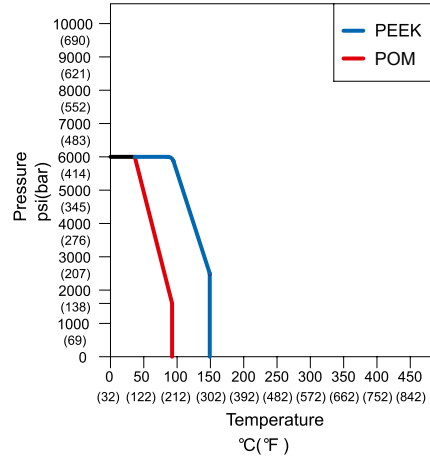
#### Note:

1. Optional PEEK seat is available.

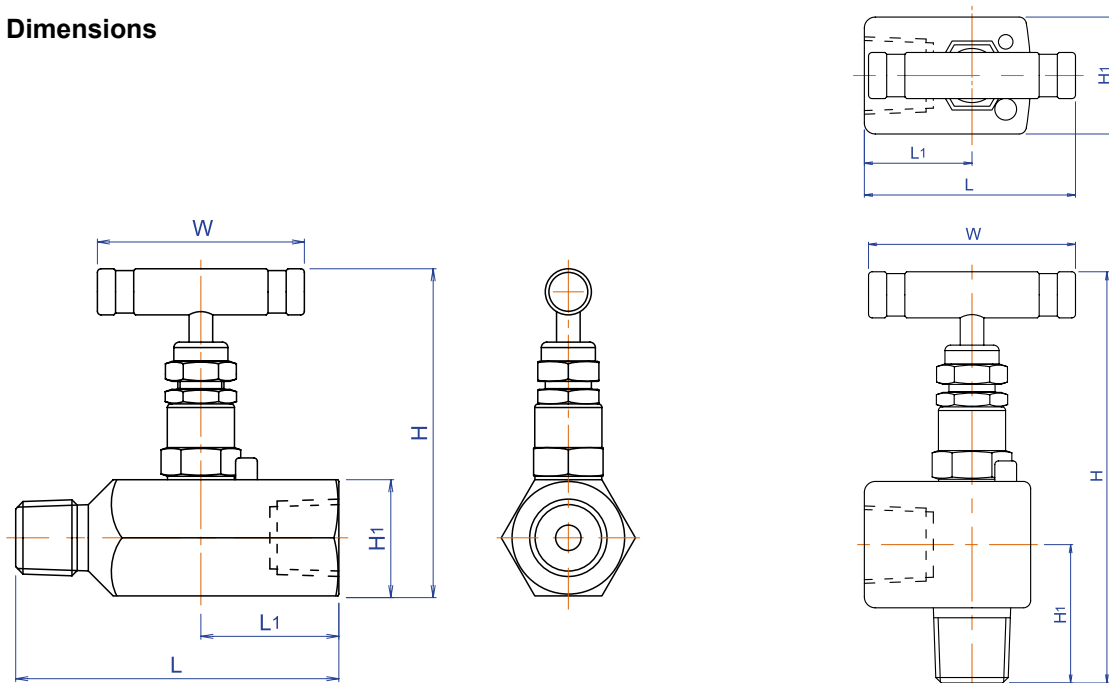
**Flow Characteristics**



**Pressure Vs. Temperature**



**Dimensions**



Ordering No.	End Connection		Orifice (bore)	Dimensions (mm)				
	Inlet	Outlet		L	L1	H	H1	W
SNV□8MF	1/2"NPT male	1/2"NPT female	5	89	38	94	32	57
SNV□8FF	1/2"NPT female	1/2"NPT female	5	76	38	94	32	57
SNV□12MF	3/4"NPT male	3/4"NPT female	6	89	38	96	35	57
SNV□12FF	3/4"NPT female	3/4"NPT female	6	76	38	96	35	57
SNV□16MF	1"NPT male	1"NPT female	7	94	42.5	101	41	57
SNV□16FF	1"NPT female	1"NPT female	7	85	42.5	101	41	57
SNV□8MF90	1/2"NPT male	1/2"NPT female	5	-	-	121.3	37.5	57

All dimensions shown are for reference and subject to change without prior notice.

Sizes listed are standard. Other sizes and end types are available upon request. Refer to ordering information.

### Standard Material

Valve	Body	Bonnet	Stem	Packing	Seat
316L SS	316-A479	316-A479	316-A276	PTFE or Viton Oring with PTFE backup ring	POM
Carbon Steel	A108	A108	304-A276	PTFE or Viton Oring with PTFE backup ring	POM

### Ordering Information

<b>SNV</b>	<b>S</b>		<b>8</b>		<b>MF</b>		<b>90</b>	
Series	Body Material		Size		End Connection		Optional	
SNV	S	316L S.S.	4	1/4"	M	Male	PK	PEEK seat
	C	Carbon Steel	6	3/8"	F	Female	VT	Viton O-ring with PTFE back-up rings
			8	1/2"			90	Angle pattern
			12	3/4"			BSPT	BSPT thread
			16	1"				

**Note:**

1. Valves are standard with POM soft seat and PTFE packings.
2. Refer to chemical resistance guide and choose suitable elastomer for your application.
3. Carbon steel valves are yellow zinc plated to resist corrosion.

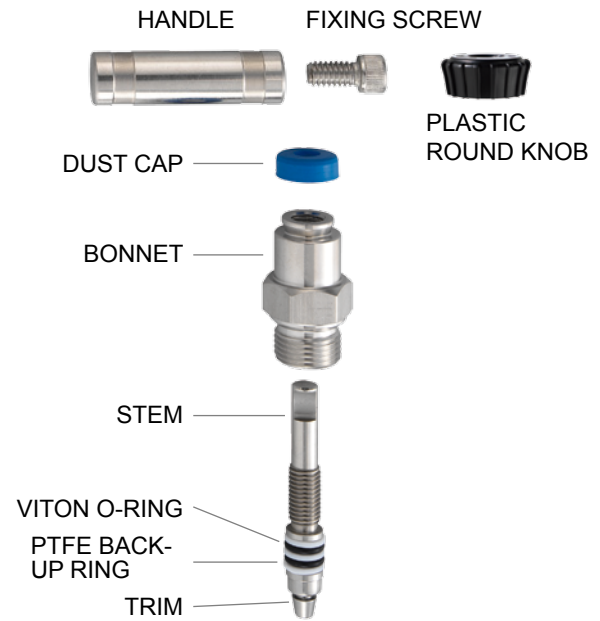
## Square Bar Stock Needle Valve BNV Series



### Features

- Maximum working pressure:  
6000 psi (414bar) at 100°F (38°C)
- Working temperature:  
-22°F (-30°C) to 392°F (200°C)
- Compact design provides economical and long service life.
- Non rotating stem design to reduce the galling and provide excellent seal on seat.
- Stem threads are rolled and lubricated to prevent galling and reduce operating torque.
- Sealing are below the threads protects from the contaminant by process and prevents lubricant washout.
- Safety back seating seal in fully open position to perform a secondary stem seal.
- Body to bonnet seal is metal to metal in constant compression, creating a reliable seal point to eliminate possible tensile breakage of bonnet and isolate bonnet threads from process fluid corrosion.
- Bonnet lock pin prevents accidental removal while in service.
- Hydro test performed with pure water at 1.5 times of working pressure
- 100% factory test
- Material traceability

### Material of Construction



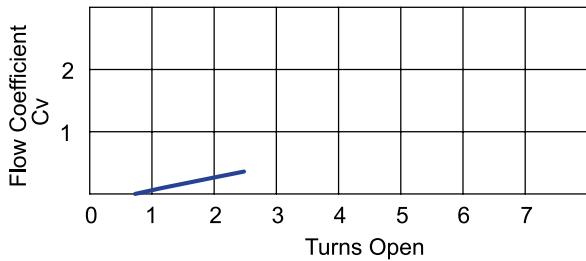
Component	Valve Body Material	
	316L S.S.	Carbon Steel
Body	316L S.S./A479	Carbon Steel/A108
Bonnet	316L S.S./A479	Carbon Steel/A108
Stem	316L S.S./A276	304 S.S./A276
Handle	303 S.S./A276	Carbon Steel/A108
Fixing Screw	302 S.S./A276	Zinc plated steel
Lock Pin	303 S.S./A276	303 S.S./A276
O-Ring	Viton	Viton
Back-Up Ring	PTFE	PTFE
Dust Cap	NBR	NBR

### Note:

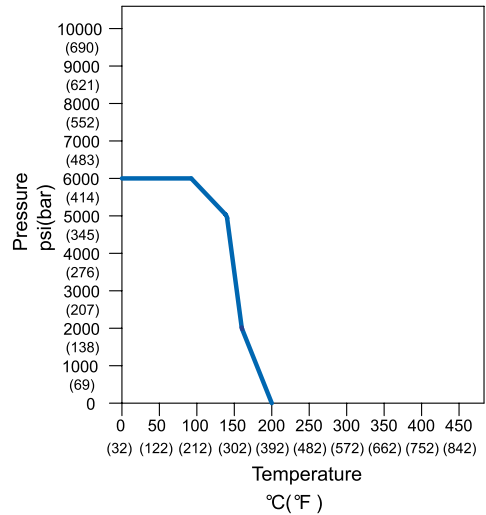
#### Optional with

1. VEE-LOK twin ferrule tube end
2. panel mountable nuts
3. bleeding screw
4. black plastic round knob

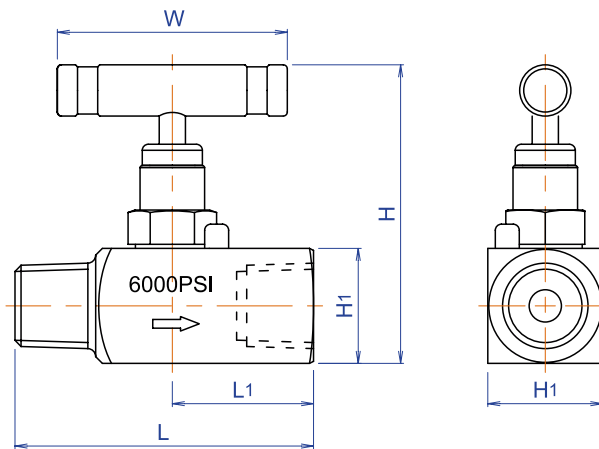
### Flow Characteristics



### Pressure Vs. Temperature



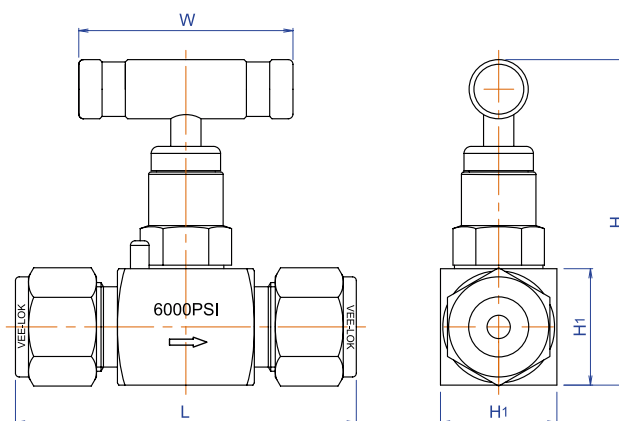
### Dimensions



Ordering No.	End Connection		Orifice (bore)	Dimensions (mm)				
	Inlet	Outlet		L	L1	H	H1	W
BNV□2MF	1/8"NPT male	1/8"NPT female	3	57	27	64	19	46
BNV□2FF	1/8"NPT female	1/8"NPT female	3	57	28.5	64	19	46
BNV□4MF	1/4"NPT male	1/4"NPT female	3.2	57	27	64	19	46
BNV□4FF	1/4"NPT female	1/4"NPT female	3.2	57	28.5	64	19	46
BNV□6MF	3/8"NPT male	3/8"NPT female	4.5	65	31	70.5	25.4	57
BNV□6FF	3/8"NPT female	3/8"NPT female	4.5	62	31	70.5	25.4	57
BNV□8MF	1/2"NPT male	1/2"NPT female	4.5	74	35	74	29	57
BNV□8FF	1/2"NPT female	1/2"NPT female	4.5	70	35	74	29	57

All dimensions shown are for reference and subject to change without prior notice.

Sizes listed are standard. Other sizes and end types are available upon request. Refer to ordering information.



Ordering No.	End Connection		Orifice (bore)	Dimensions (mm)			
	Inlet	Outlet		L	H	H1	W
TBNV□2OD	1/8" O.D.	1/8" O.D.	2.2	63.6	46	19	46
TBNV□4OD	1/4" O.D.	1/4" O.D.	3.2	65	46	19	46
TBNV□6OD	3/8" O.D.	3/8" O.D.	4.5	68	57	25.4	57
TBNV□8OD	1/2" O.D.	1/2" O.D.	4.8	73.2	57	25.4	57
TBNV□M6OD	6mm O.D.	6mm O.D.	3.2	65	46	19	46
TBNV□M12OD	12mm O.D.	12mm O.D.	4.8	73.2	57	25.4	57

Dimensions shown are Vee-Lok twin ferrule tube nuts finger-tightened and subject to change without prior notice. Sizes listed are standard. Other sizes and end types are available upon request. Refer to ordering information.

### Standard Material

Valve	Body	Bonnet	Stem	Packing	Trim
316L SS	316-A479	316-A479	316-A276	Viton	316-A276
Carbon Steel	A108	A108	304-A276	Viton	304-A276

### Ordering Information

BNV		S		4		MF			
Series	Body Material	Size		End Connection		Optional			
BNV	S	316L S.S.	2	1/8"	M	Male	PN	Panel mountable	
TBNV	C	Carbon Steel	4	1/4"	F	Female	B	M6 bleeding screw	
			6	3/8"	OD	VEE-LOK twin ferrule tube fittings	R	Plastic round knob	
			8	1/2"			BSPT	BSP Taper	
			M6	6mm			BSPP	BSP parallel	
			M12	12mm					

#### Note:

1. Refer to chemical resistance guide and choose suitable elastomer for your application.
2. Carbon steel valves are yellow zinc plated to resist corrosion.

## Mini Valves

MNV Series

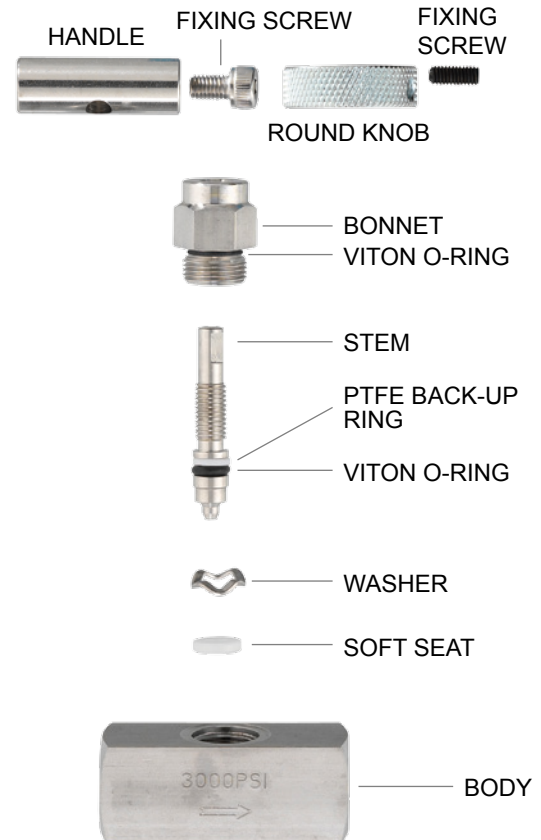
MSNV Series



### Features

- Maximum working pressure:  
3000 psi (207bar) at 100°F (38°C)
- Working temperature:  
-22°F (-30°C) to 392°F (200°C)
- Mini valves facilitate safe, compact and economical installations.
- Valve seating is interchangeable between “Hard” or “Soft” without changing the bonnet assembly. When soft seat becomes damaged, it can be removed and leave a metal seated valve to extend service life.
- Orings below threads prevents lubricant washout, thread corrosion and keep thread from process contamination.
- Chrome plating of 316 SS stem on 316 SS valve to reduce galling or freezing of stem threads when similar metals mate. Carbon steel valves use 316 SS stem.
- Hydro test performed with pure water at 1.5 times of working pressure
- 100% factory test
- Material traceability

### Material of Construction

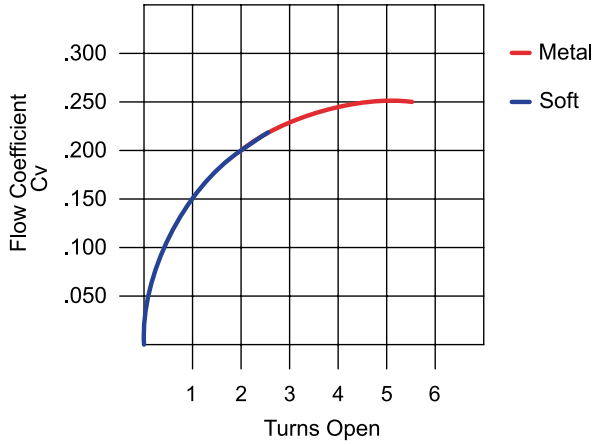


Component	Valve Body Material	
	316L S.S.	Carbon Steel
Body	316L S.S./A479	Carbon Steel/A108
Bonnet	316L S.S./A479	Carbon Steel/A108
Stem	316L S.S./A276	316L S.S./A276
Handle	303 S.S./A276	Carbon Steel/A108
Fixing Screw	302 S.S./A276	Zinc plated steel
O-Ring	Viton	Viton
Back-Up Ring	PTFE	PTFE
Washer	316 S.S./A479	316 S.S./A479
Soft Seat	POM	POM

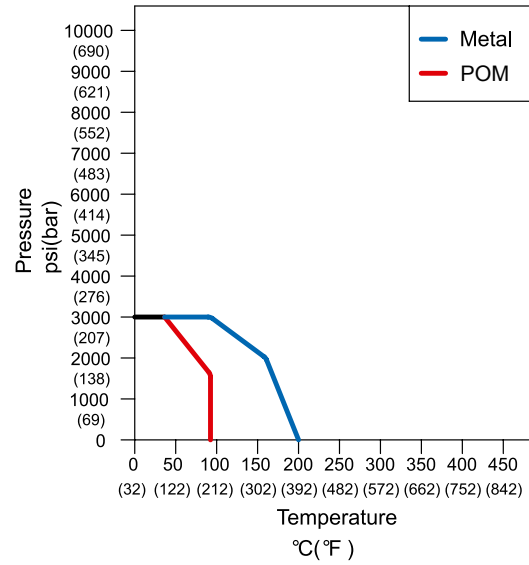
### Note:

1. Hard seat valves installed with 303 SS Tee handles.
2. Soft seat valves with CS round handle.

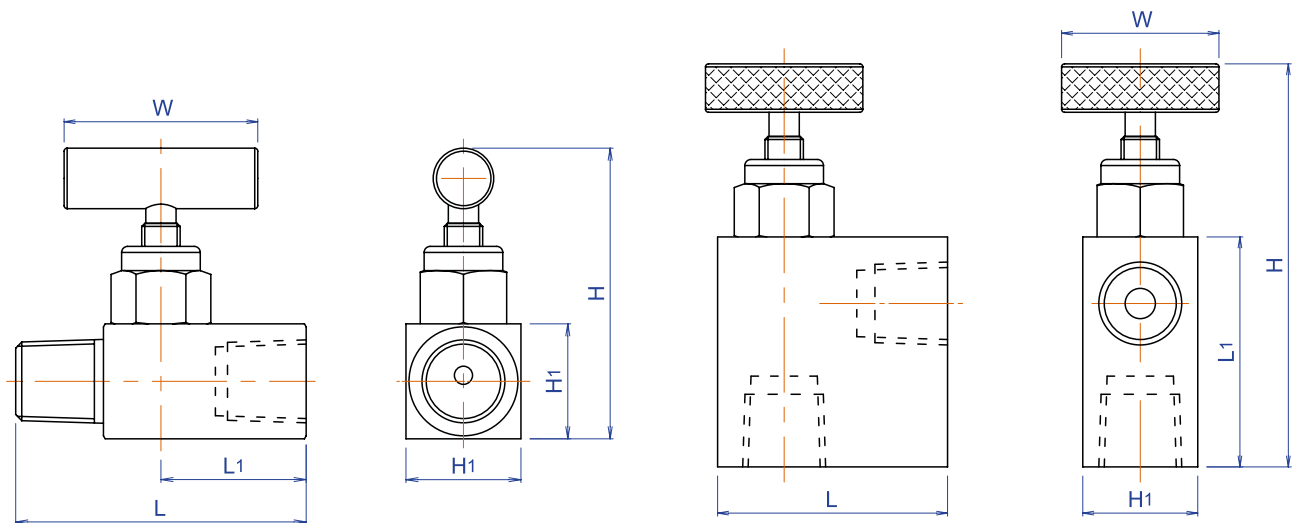
**Flow Characteristics**



**Pressure Vs. Temperature**



**Dimensions**



Ordering No.	End Connection		Orifice (bore)	Dimensions (mm)				
	Inlet	Outlet		L	L1	H	H1	W
MNV□4MF	1/4"NPT male	1/4"NPT female	3	48	24	48.5	19	32
MNV□4FF	1/4"NPT male	1/4"NPT female		48	24	48.5	19	32
MNV□4FF90	1/4"NPT female	1/4"NPT female		38	38	66.5	19	32
MSNV□4MF	1/4"NPT male	1/4"NPT female		48	24	47.5	19	26
MSNV□4FF	1/4"NPT female	1/4"NPT female		48	24	47.5	19	26
MSNV□4FF90	1/4"NPT female	1/4"NPT female		38	38	66.5	19	26

All dimensions shown are for reference and subject to change without prior notice.

Sizes listed are standard. Other sizes and end types are available upon request. Refer to ordering information.



### Standard Material

Valve	Body	Bonnet	Stem	Packing	Seat
316L SS	316-A479	316-A479	Chrome Plating316-A276	Viton	POM
Carbon Steel	A108	A108	316-A276	Viton	POM

### Ordering Information

<b>MNV</b>		<b>S</b>		<b>4</b>		<b>MF</b>			
Series		Body Material		Size		End Connection		Optional	
MNV	Hard Seat	S	316L S.S.	2	1/8"	M	Male	90	Angle pattern
MSNV	Soft Seat	C	Carbon Steel	4	1/4"	F	Female		

**Note:**

1. Refer to chemical resistance guide and choose suitable elastomer for your application.
2. Carbon steel valves are yellow zinc plated to resist corrosion.

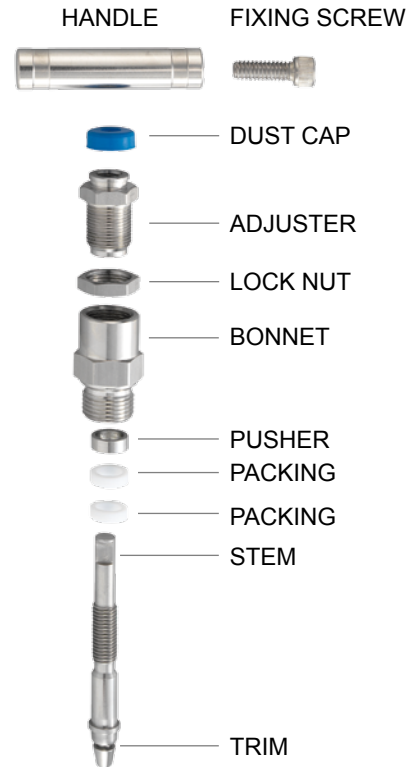
## Multiport Gauge Valve MPGV Series



### Features

- Maximum working pressure:
  - 6000 psi (414bar) at 100°F (38°C)
  - 10000 psi (690bar) at 100°F (38°C)
- Working temperature:
  - Metal Seat: -65°F (-54°C) to 464°F (240°C)
  - POM Seat: -20°F (-28°C) to 200°F (93°C)
- Multiport gauge valves allow the versatile positioning of gauges or pressure switches without requiring additional penetration of the main piping.
- Standard configuration has a male 1/2" NPT or 3/4" male inlet and three 1/2" NPT female outlet ports.
- Available with metal seats or soft seats operating in dirty service with repetitive bubble tight shutoff.
- Compact design requires minimum space for operation and installation and realizes cost savings to reduce the numbers of components and decrease possible leak points.
- PTFE packings can be adjusted to extend the valve life.
- Non rotating stem design to reduce the galling and provide excellent seal on seat
- Stem threads are rolled and lubricated to prevent galling and reduce operating torque.
- Sealing area below the threads protects from the contaminant by process and prevents lubricant washout.
- Safety back seating seal in fully open position to perform a secondary stem seal.
- Body to bonnet seal creates metal to metal constant and reliable compression.
- Bonnet lock pin prevents accidental removal while in service.
- Optional sour gas service conforms to NACE MR0175.
- Hydro test performed with pure water at 1.5 times of working pressure
- 100% factory test
- Material traceability

### Material of Construction

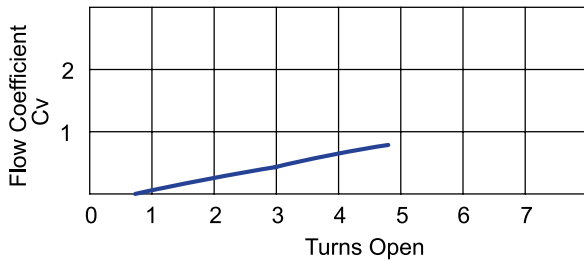


Component	Valve Body Material	
	316L S.S.	Carbon Steel
Body	316L S.S./A479	Carbon Steel/A108
Bonnet	316L S.S./A479	Carbon Steel/A108
Stem	316L S.S./A276	304 S.S./A276
Adjuster	316L S.S./A276	Carbon Steel/A108
Lock Nut	316L S.S./A276	Carbon Steel/A108
Handle	303 S.S./A276	Carbon Steel/A108
Fixing Screw	302 S.S.	Zinc plated steel
Packing	PTFE	PTFE
Pusher	316 S.S./A276	316 S.S./A276
Dust Cap	NBR	NBR
Lock Pin	303 S.S./A276	303 S.S./A276

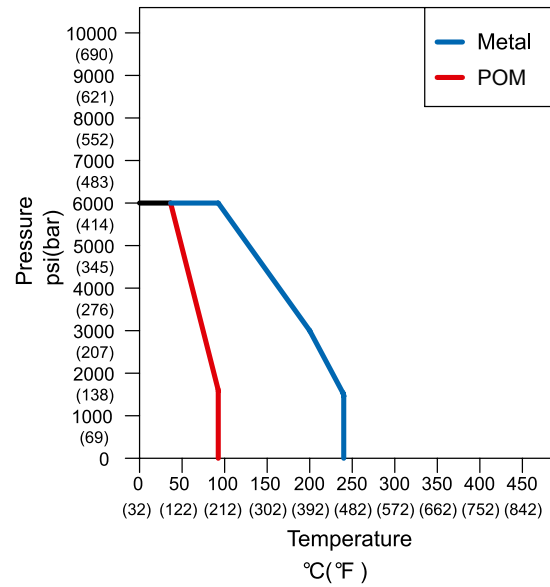
#### Note:

1. Packing is optional with graphite for high temperature to 450°C.
2. POM soft seat limits working temperature to 93°C (200°F) maximum.
3. Optional accessories: plug and bleed valve.

### Flow Characteristics



### Pressure Vs. Temperature



### Optional Accessories

Bleed valves can be used on gauge valves to bleed pressure before the removal of an instrument.

Bleed valves and plugs are purchased separately.

### Bleed Valve



Component	Valve Body Material	
	316L S.S.	Carbon Steel
Body	316L S.S./A479	Carbon Steel/A108
Stem	316L S.S./A276	316L S.S./A276

Ordering No.	Size
BV□4	1/4" NPT male
BV□8	1/2" NPT male

### Plugs



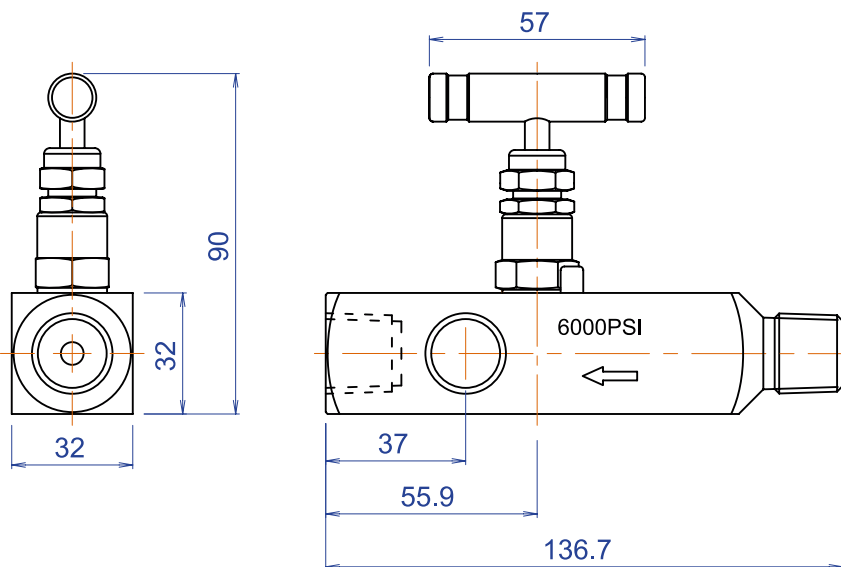
Component	Valve Body Material	
	316L S.S.	Carbon Steel
Body	316L S.S./A276	Carbon Steel/A108

Ordering No.	Size
PP□4	1/4" NPT male
PP□8	1/2" NPT male

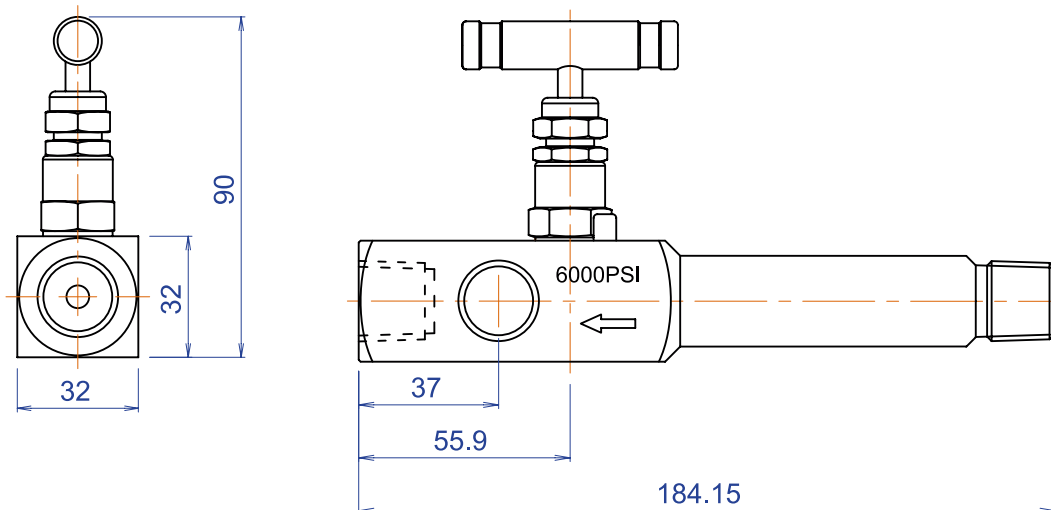


When venting out the pressure, open the valve slowly and direct the vent hole away from the operator for safety.

**Dimensions**



Ordering No.	End Connection			Orifice (bore)
	Inlet/Process	Outlet/Instrument	Test/Vent	
MPGV□8	1/2"NPT male	1/2"NPT female	1/2"NPT female	5
MPGV□128	3/4"NPT male	1/2"NPT female	1/2"NPT female	5



Ordering No.	End Connection			Orifice (bore)
	Inlet/Process	Outlet/Instrument	Test/Vent	
MPGV□8LB	1/2"NPT male	1/2"NPT female	1/2"NPT female	5
MPGV□128LB	3/4"NPT male	1/2"NPT female	1/2"NPT female	5

All dimensions shown are for reference and subject to change without prior notice.

Sizes listed are standard. Other sizes and end types are available upon request. Refer to ordering information.

## Standard Material

### Hard Seat

Valve	Body	Bonnet	Stem	Packing	Trim
316L SS	316-A479	316-A479	316-A276	PTFE	316-A276
Carbon Steel	A108	A108	304-A276	PTFE	304-A276

### Soft Seat

Valve	Body	Bonnet	Stem	Packing	Seat
316L SS	316-A479	316-A479	316-A276	PTFE	POM
Carbon Steel	A108	A108	304-A276	PTFE	POM

## Ordering Information

MPGV		S		12		8		LB	
Series		Body Material		Inlet		Outlet & Vent		Optional	
MPGV	Hard Seat	S	316L S.S.	8	1/2"	8	1/2"	LB	Long body
SMPGV	Soft Seat	C	Carbon Steel	12	3/4"			VT	Viton O-rings with PTFE backup rings
								G	Low Emission Graphite
								BSPT	BSPT thread

### Note:

1. Refer to chemical resistance guide and choose suitable elastomer for your application.
2. Carbon steel valves are yellow zinc plated to resist corrosion.

## Valve Manifolds

### Features

#### Metal Seated Bonnet Assembly

The metal-seated bonnet assembly is designed with a non rotating stem with a conical trim to provide a repetitive shutoff and extend service life. Stem threads are rolled and lubricated to prevent galling and reduce operating torque. Stem seal is standard with PTFE packings that can be adjustable in service. Stem packings below the threads intend to protect from the contaminant by process and prevent lubricant washout. Safety back seating in fully open position provides a secondary stem seal. An NBR dust cover is capped to contain stem lubricant and keep from particles or contaminants. All bonnets are fitted with a locking pin to prevent accidental removal while in service.

**10000 psi bonnet assembly** utilizes a reinforced stem with mirror finish in packing area to enable smooth stem operation and benefit packing life.

**High temperature bonnet assembly** is furnished with similarly designed stem and bonnet and uses low emission graphite packings serving to 450°C maximum. Bonnet is fitted with a larger size T-bar handle for easy operation.

#### Soft Seated Bonnet Assembly

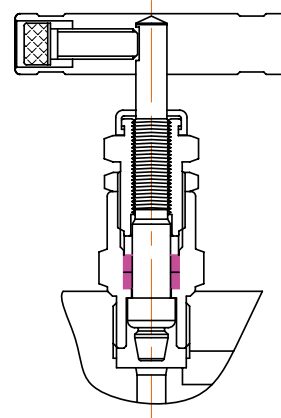
The soft-seated bonnet assembly has a one piece rotating stem and plug. The stem threads are rolled and lubricated to prevent galling and reduce operating torque. Stem seal is standard with PTFE packings that can be adjustable in service. Stem packings below the threads intend to protect from the contaminant by process and prevents lubricant washout. Safety back seating in fully open position provides a secondary stem seal. An NBR dust cover is capped to contain stem lubricant and keep from particles or contaminants. All bonnets are fitted with a locking pin to prevent accidental removal while in service. POM seat is standard.

#### Mini Soft-Seated Bonnet Assembly

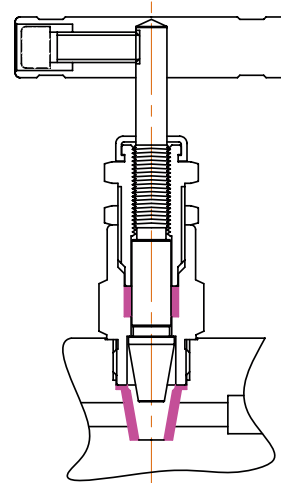
The mini soft-seated bonnet assembly is designed with a one-piece rotating stem having a “Vee” tip with a shoulder to be assembled as a metal or soft seated valve.

### Bonnets on Manifolds

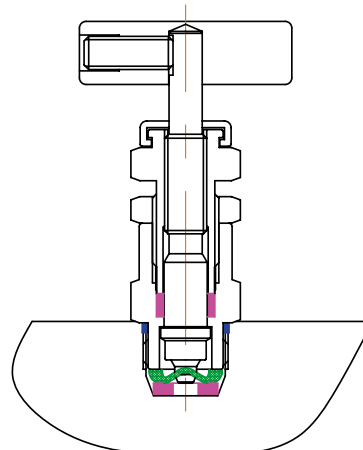
#### Metal Seated Bonnet



#### Soft Seated Bonnet



#### Mini Soft Seated Bonnet



## Features

Valve manifolds are functionally installed to control, measure, isolate, equalize, calibrate, drain or differentiate the pressure of liquids and gases. Bonnets and dust covers are color coded to identify the functions of valves.

- BLUE : ISOLATE
- RED : VENT
- GREEN : EQUALIZE

2,3,5 valves in remote mounting (pipe to pipe) and direct mounting ( pipe to flange & flange to flange) to the instrument on 54mm center.

Standard valve on manifolds has a 4.8mm orifice size, Cv 0.52 max.

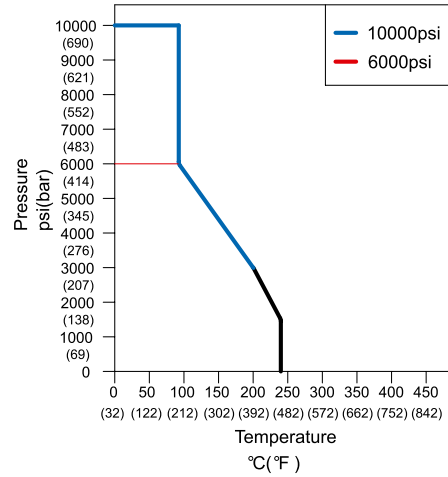
Specifications meet MSS-SP-105. Flange design meets the requirements of MSS SP-99.

Material selection for sour gas service conforming to NACE MR0175 is optional at request. Material of valve body is traceable.

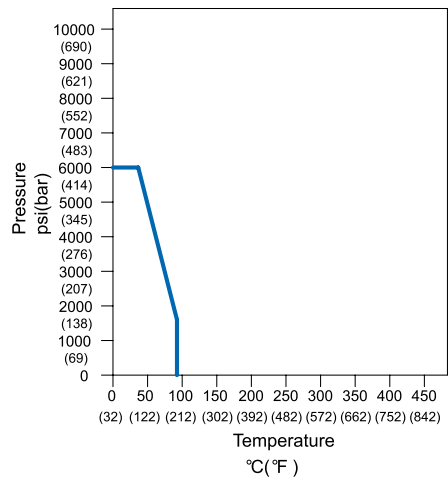
Seat and stem seal are hydro tested with pure water at 1.5 times of working pressure and perform to a requirement of no detectable leakage. Nitrogen test at 1000 psi for seat and stem seal is conducted with a maximum allowable leak rate of 0.1 std cm<sup>3</sup>/min.

## Pressure Vs. Temperature

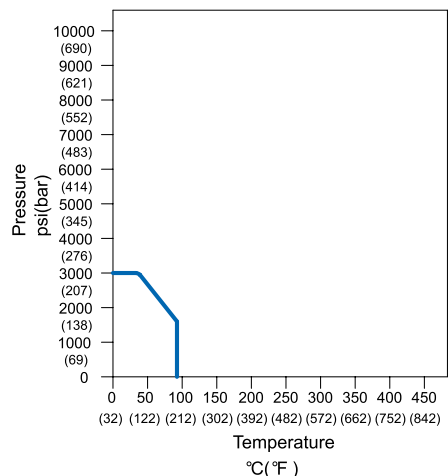
### Metal-seated



### Soft-seated



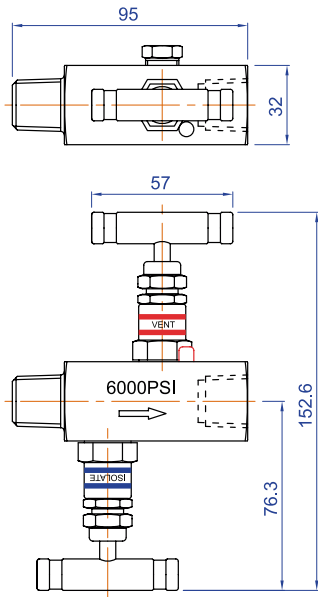
### Mini Soft-seated



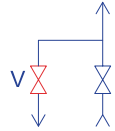
Graphs are based on 316 SS valves with PTFE stem packings.

## 2 Valve Manifolds

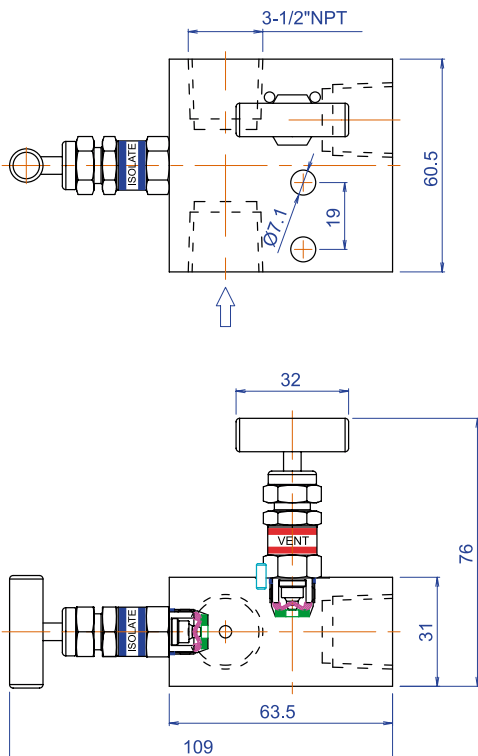
Ordering No.	End Connection			Valve Seat	Max. W.P. at 38°C (100°F)
	Inlet/Process	Outlet/Instrument	Vent/Test		
2VM01S4MF	1/4"NPT male	1/4"NPT female	1/4"NPT female	Metal	6000 psi
2VM01S4FF	1/4"NPT female	1/4"NPT female	1/4"NPT female	Metal	6000 psi
2VM01S8MF	1/2"NPT male	1/2"NPT female	1/4"NPT female	Metal	6000 psi
2VM01S8FF	1/2"NPT female	1/2"NPT female	1/4"NPT female	Metal	6000 psi



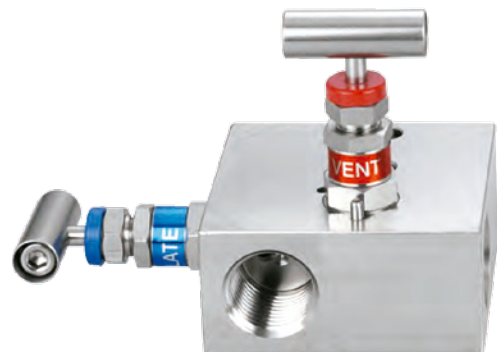
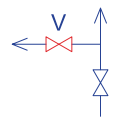
FLOW DIAGRAM



Ordering No.	End Connection			Valve Seat	Max. W.P. at 38°C (100°F)
	Inlet/Process	Outlet/Instrument	Vent/Test		
2VM02S	1/2"NPT female	1/2"NPT female	1/2"NPT female	POM	3000 psi

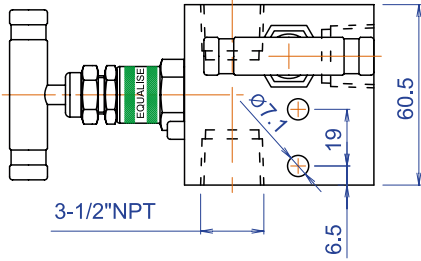


FLOW DIAGRAM

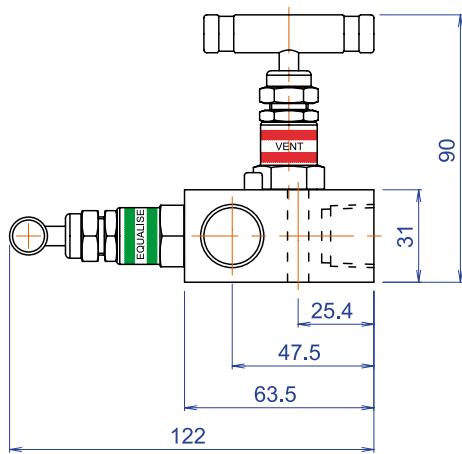
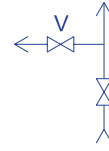




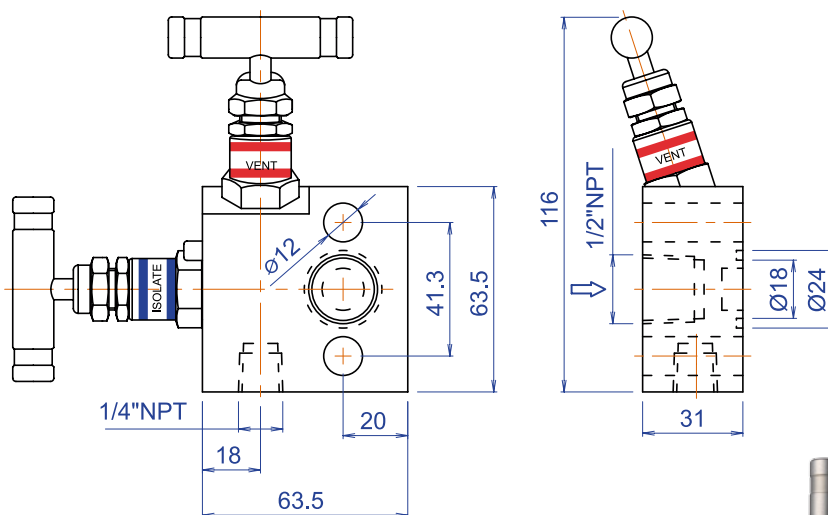
Ordering No.	End Connection			Valve Seat	Max. W.P. at 38°C (100°F)
	Inlet/Process	Outlet/Instrument	Vent/Test		
2VM02SH	1/2"NPT female	1/2"NPT female	1/2"NPT female	Metal	6000 psi



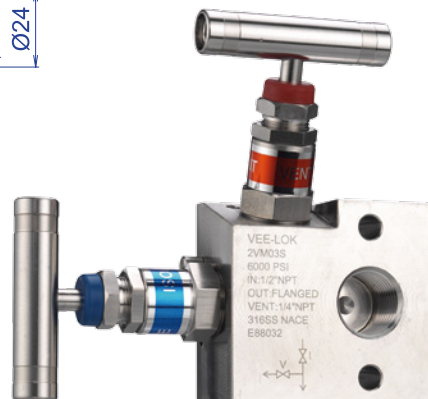
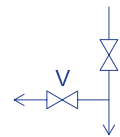
FLOW DIAGRAM



Ordering No.	End Connection			Valve Seat	Max. W.P. at 38°C (100°F)
	Inlet/Process	Outlet/Instrument	Vent/Test		
2VM03S	1/2"NPT female	Flange	1/4"NPT female	Metal	6000 psi

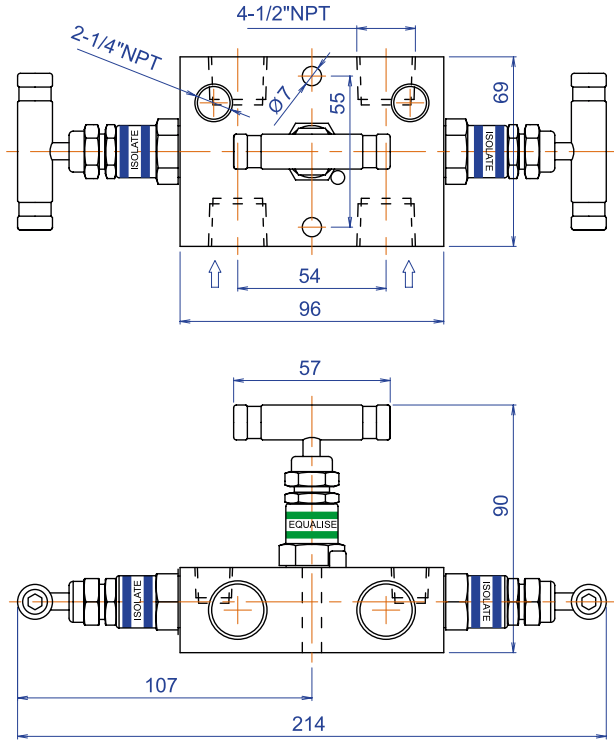


FLOW DIAGRAM

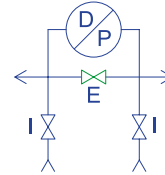


### 3 Valve Manifolds

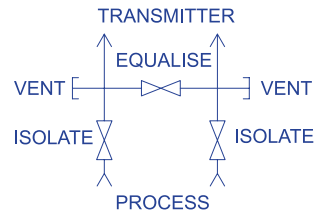
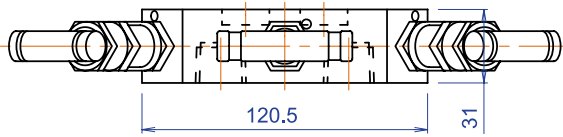
Ordering No.	End Connection			Valve Seat	Max. W.P. at 38°C (100°F)
	Inlet/Process	Outlet/Instrument	Vent/Test		
3VM01S	1/2"NPT female	1/2"NPT female	1/4"NPT female	Metal	6000 psi



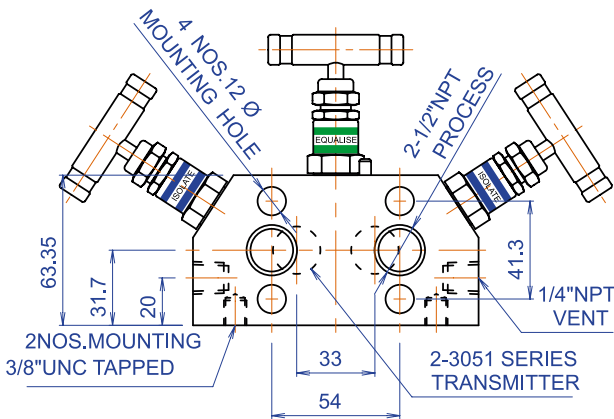
FLOW DIAGRAM



Ordering No.	End Connection			Valve Seat	Max. W.P. at 38°C (100°F)
	Inlet/Process	Outlet/Instrument	Vent/Test		
3VM02S	1/2"NPT female	For pressure transmitter model 3051	1/4"NPT female	Metal	6000 psi

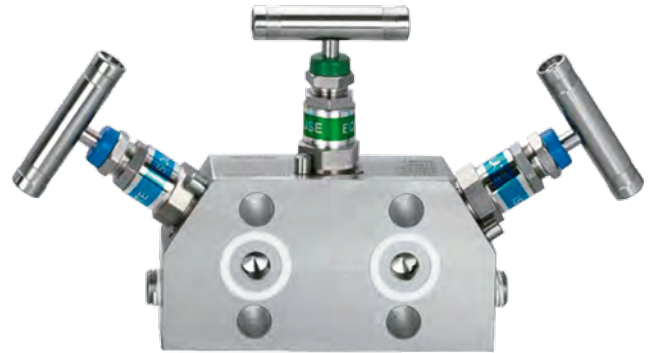
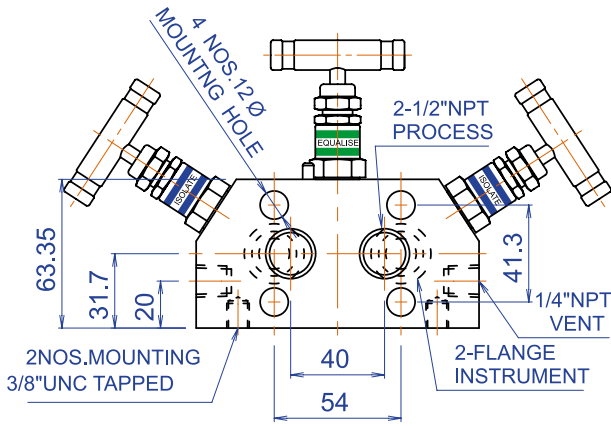
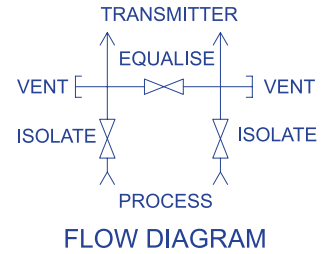
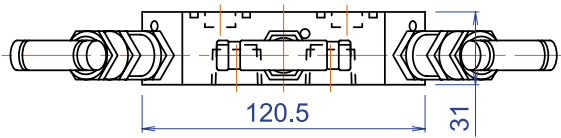


FLOW DIAGRAM



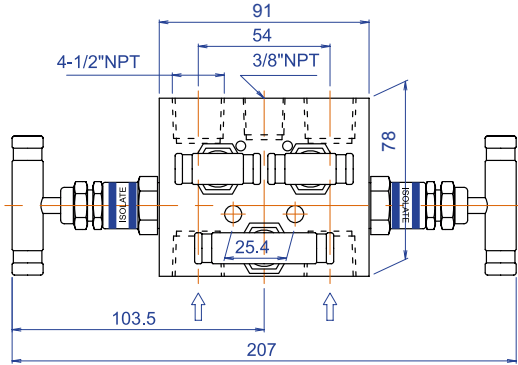
Ordering No.	End Connection			Valve Seat	Max. W.P. at 38°C (100°F)
	Inlet/Process	Outlet/Instrument	Vent/Test		
3VM03S	1/2"NPT female	Flange	1/4"NPT female	Metal	6000 psi

Manifold is supplied with two PTFE sealing rings on instrument ports.

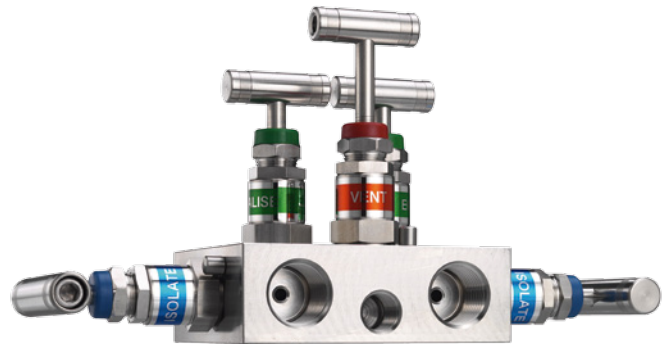
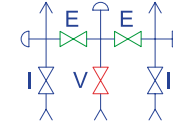


## 5 Valve Manifolds

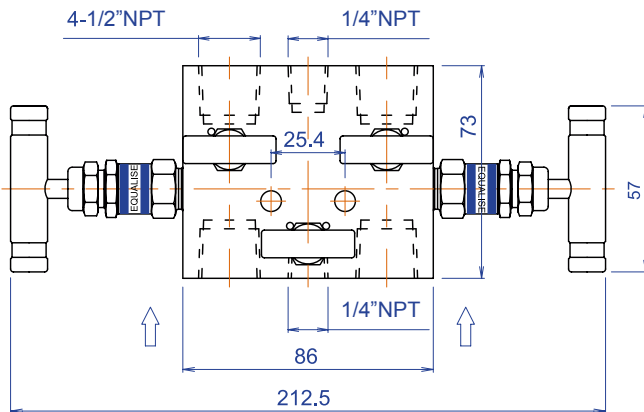
Ordering No.	End Connection			Valve Seat	Max. W.P. at 38°C (100°F)
	Inlet/Process	Outlet/Instrument	Vent/Test		
5VM01S	1/2"NPT female	1/2"NPT female	1/4"NPT female	Metal	6000 psi



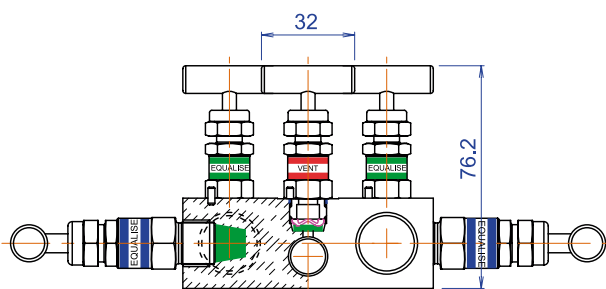
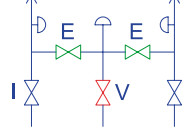
FLOW DIAGRAM



Ordering No.	End Connection			Valve Seat	Max. W.P. at 38°C (100°F)
	Inlet/Process	Outlet/Instrument	Vent/Test		
5VM02S	1/2"NPT female	1/2"NPT female	1/4"NPT female	POM	6000 psi

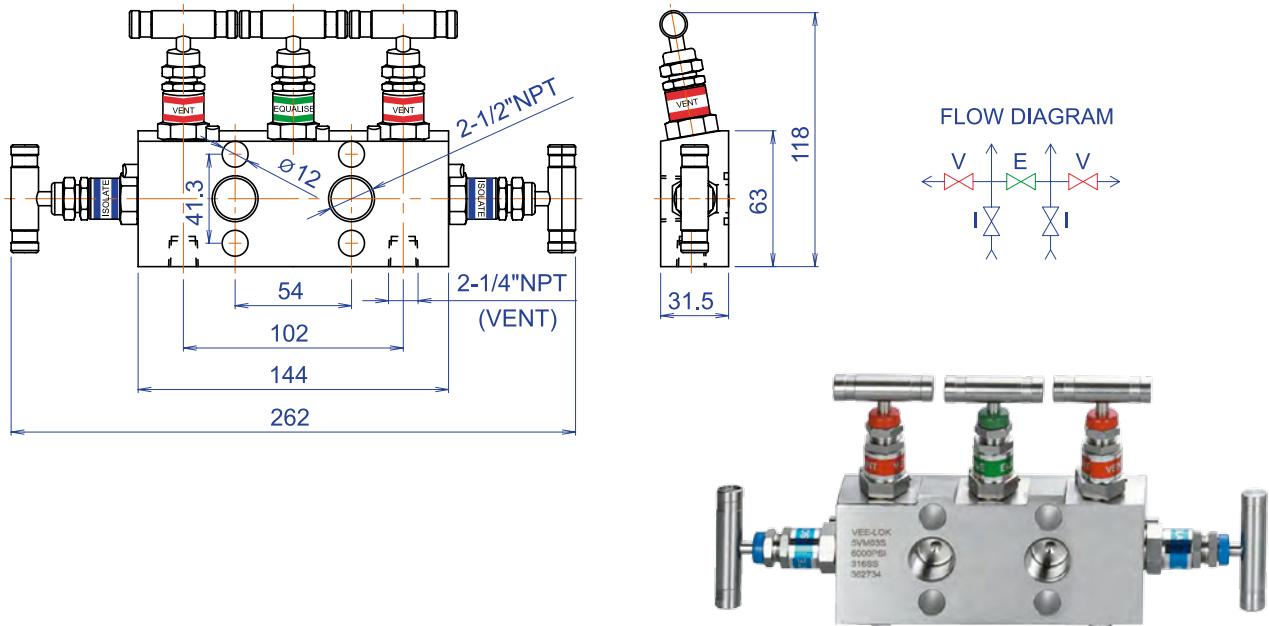


FLOW DIAGRAM

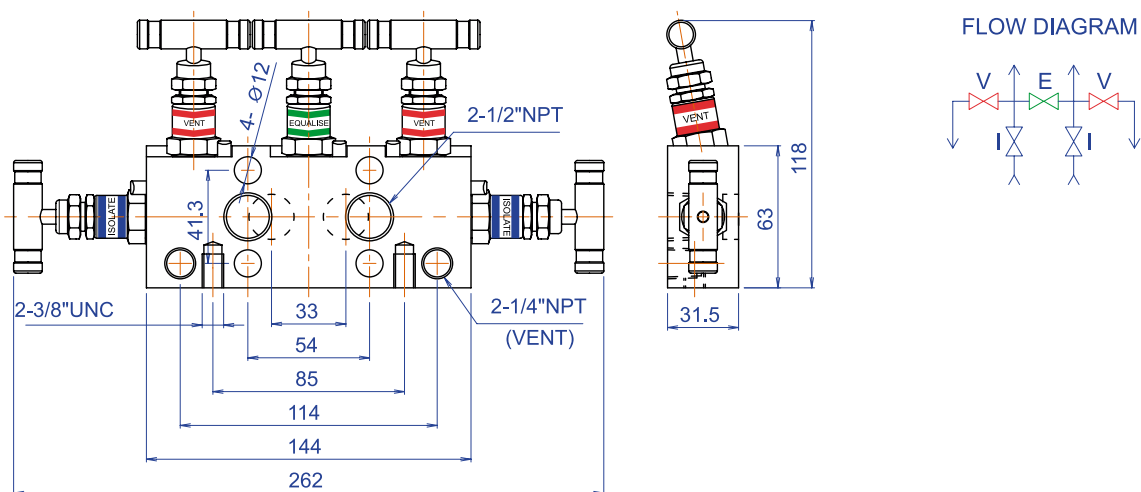


Ordering No.	End Connection			Valve Seat	Max. W.P. at 38°C (100°F)
	Inlet/Process	Outlet/Instrument	Vent/Test		
5VM03S	1/2"NPT female	Flange	1/4"NPT female	Metal	6000 psi

Manifold is supplied with two PTFE sealing rings on instrument ports.



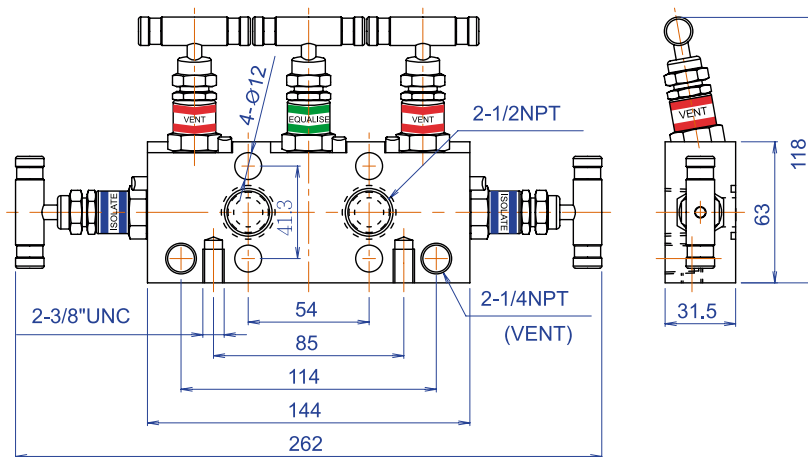
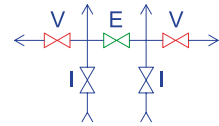
Ordering No.	End Connection			Valve Seat	Max. W.P. at 38°C (100°F)
	Inlet/Process	Outlet/Instrument	Vent/Test		
5VM05S	1/2"NPT female	For pressure transmitter model 3051	1/4"NPT female	Metal	6000 psi



Ordering No.	End Connection			Valve Seat	Max. W.P. at 38°C (100°F)
	Inlet/Process	Outlet/Instrument	Vent/Test		
5VM06S	1/2"NPT female	Flange	1/4"NPT female	Metal	6000 psi

Manifold is supplied with two PTFE sealing rings on instrument ports.

FLOW DIAGRAM



## Proportional Relief Valves

### RV01 Series



#### Overview

Valves OPEN when system pressure reaches the set pressure to release system pressure. Valves CLOSE when the system pressure falls below the set pressure. Proportional relief valves open gradually as the pressure increases. There is no limit for relieving capacity. Therefore, valves should be selected carefully to conform to system requirements.

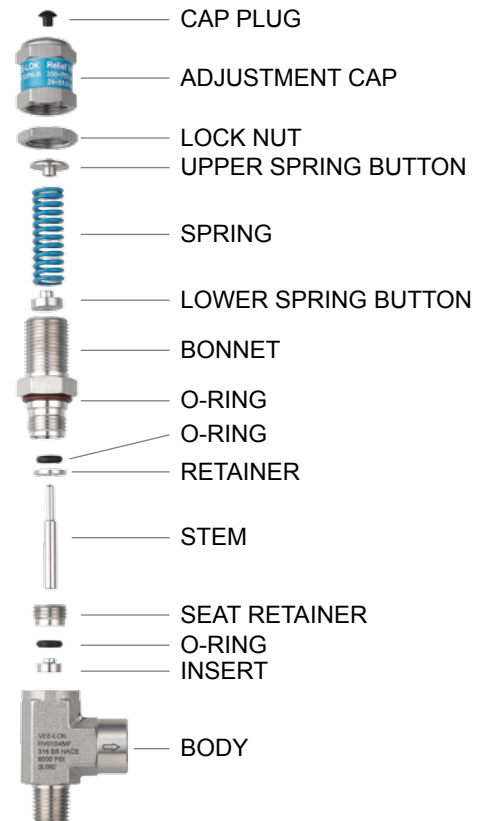
#### Features

- **Set Pressure:**  
RV01 Series: color coded springs available for a wide range of set pressure  
50 to 6000psig @70°F (3.4 to 414 bar @20°C)
- **Orifice Size:**  
3.60mm
- **Back Pressure:**  
The effect of system back pressure is minimized by the design of these high pressure valves.
- **Variety of end connections**
- **Adjustable bonnet cap and adjustable set pressure**
- **Lock wire to secure cap to maintain set pressure adjustment.**
- **Label identifies set pressure range**



For valves not actuated for a period of time, initial relief pressure may be higher than the set pressure.

#### Materials of Construction

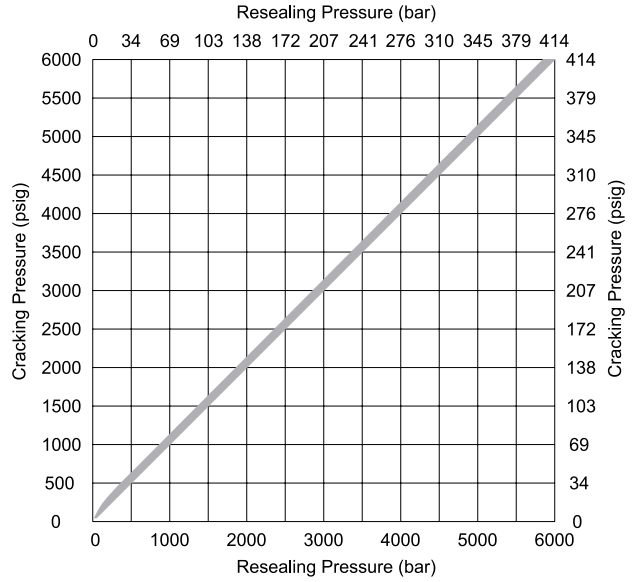


Component	Material Grade/ASTM specification
Cap Plug	Polypropylene
Adjustment Cap	316L SS/A479
Lock Nut	316L SS/A276
Upper Spring Button	316L SS/A276
Spring	17-7 PH SS/AMS 5678
Lower Spring Button	316 L SS/A276
Bonnet	316L SS/A479
O-Ring	Viton
O-Ring	Viton
Retainer	316L SS/A276
Stem	316L SS/A479
Seat Retainer	316L SS/A276
O-Ring	Viton
Insert	316L SS/A276
Body	316L SS/A479

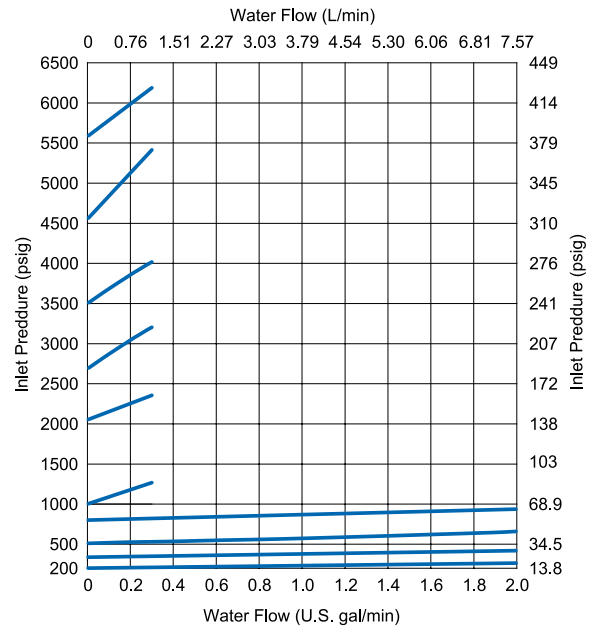
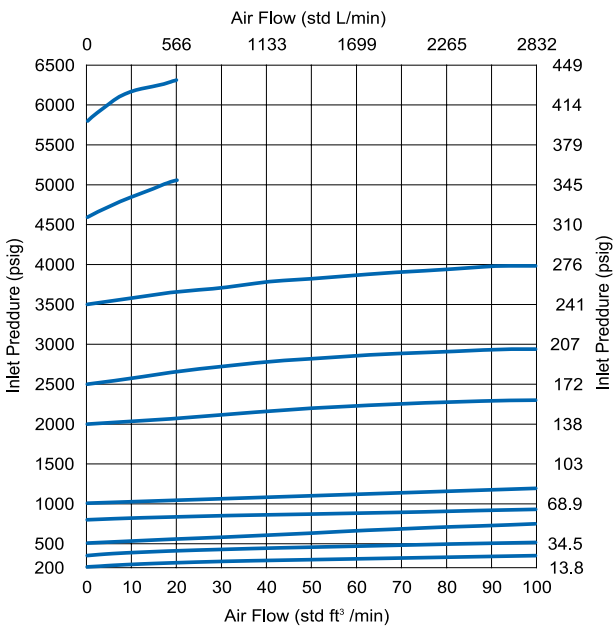
### Set Pressure and Resealing Pressure

- Cracking pressure is the upstream pressure at which the first indication of flow occurs. The repeatability of the cracking pressure of each valve after initial relief is within  $\pm 5\%$  at room temperature.
- Resealing pressure is the upstream pressure at which there is no indication of flow. Resealing pressure is always lower than set pressure.
- Back pressure: The pressure of the outlet of the valve. It increases the set pressure.

### RV01 Series

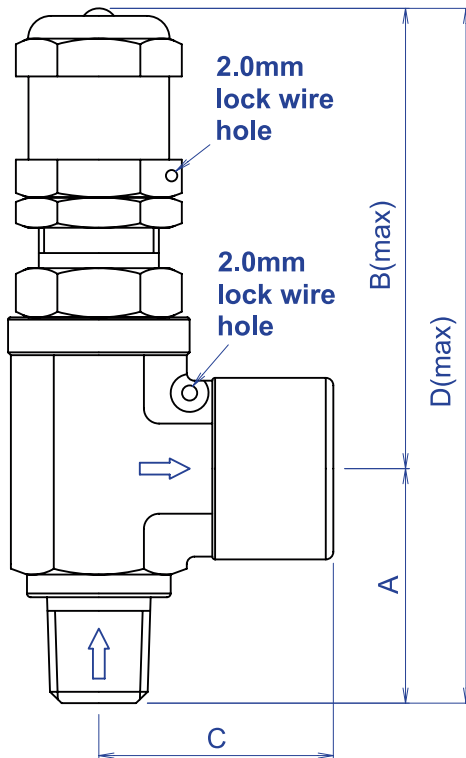


### Flow Characteristics RV01 Series





## Dimensions



Ordering No.	End Connections		Dimensions, in. (mm)			
	Inlet	Outlet	A	B	C	D
RV01S4M4M	1/4"NPT male	1/4"NPT male	28.5	68	28.5	96
RV01S4M4F	1/4"NPT male	1/4"NPT female	28.5	68	27.5	96
RV01S4F4F	1/4"NPT female	1/4"NPT female	27.5	68	27.5	95
RV01S6M6M	3/8"NPT male	3/8"NPT male	28.5	68	28.5	96
RV01S4OD	1/4"O.D.	1/4"O.D.	28.5	68	28.5	96
RV01S6OD	3/8"O.D.	3/8"O.D.	28.5	68	28.5	96
RV01S8OD	1/2"O.D.	1/2"O.D.	28.5	68	28.5	96
RV01SM6OD	6mm O.D.	6mm O.D.	28.5	68	28.5	96
RV01SM8OD	8mm O.D.	8mm O.D.	28.5	68	28.5	96
RV01SM10OD	10mm O.D.	10mm O.D.	28.5	68	28.5	96
RV01SM12OD	12mm O.D.	12mm O.D.	28.5	68	28.5	96

All dimensions are for reference only and are subject to change without prior notice.

## Optional Accessories

### Spring Kits

Spring kits include spring, label, lock wire with seal, spring buttons and installation instructions.

Select a spring kit basic ordering number and add the spring designator for the desired set pressure range.

Example: RV01SPK-A

Ordering No.	Set Pressure Range		Spring Designator	Spring Color
	psig	bar		
RV01SPK-A	50 to 350	3.4 to 24	A	White
RV01SPK-B	350 to 750	24 to 51.6	B	Blue
RV01SPK-C	750 to 1500	51.6 to 103	C	Golden
RV01SPK-D	1500 to 2250	103 to 155	D	Black
RV01SPK-E	2250 to 3000	155 to 206	E	Green
RV01SPK-F	3000 to 4000	206 to 275	F	Yellow
RV01SPK-G	4000 to 5000	275 to 344	G	Brown
RV01SPK-H	5000 to 6000	344 to 413	H	Orange

### Seal Materials

Viton is the standard seal materials and designated as basic ordering number as RV01SS.

Buna N, ethylene propylene and neoprene are available.

Ordering No.	O-ring Material	Temperature Ranges °F (°C)	Seal Designator
RV01SS	Viton (standard)	25 to 250 (-4 to 121)	
RV01SS-BU	Buna N	0 to 250 (-17 to 121)	BU
RV01SS-NE	Neoprene	-10 to 300 (-23 to 148)	NE
RV01SS-EP	Ethylene Propylene	30 to 250 (-1 to 121)	EP

### Factory-Set Valves

Valves are available with springs factory-set to a specified set pressure. Valves are set, tested, locked, and labeled with the set pressure.

To order, add-SET and a spring designator whose range includes the desired set pressure to the valve ordering number.

Example:

RV01S4M4F-SETC

### Valve without spring installed

To order, do not specify spring designator on the ordering number.

Example:

RV01S4M4F

Valves with no spring are supplied without labels.

### Factory Test

Valves are factory tested for cracking and resealing performance.



Proportional relief valves should never be used as code safety relief valves.



### Safe Product Selection

When selecting a product, the total system design must be considered to ensure safe performance. Function, material compatibility, adequate ratings, proper installation, operation and maintenance are the responsibilities of the system designer and user.

### Ordering Information

RV01	S		4		4F		BN		B	
Series	Body Material		Inlet		End Connection		Seal Material		Spring Kit Color	
RV01	S	316L S.S.	4	1/4"	M	Male		Viton	A	White 50~350psig
			6	3/8"	F	Female	Bu	Buna N	B	Blue 350~750psig
			M6	6mm	OD	VEE-LOK twin ferrule tube fittings	NE	Neoprene	C	Golden 750~1500psig
			M10	10mm			EP	Ethylene propylene	D	Black 1500~2250psig
			M12	12mm					E	Green 2250~3000psig
									F	Yellow 3000~4000psig
									G	Brown 4000~5000psig
									H	Orange 5000~6000psig

## CHECK VALVE

### CV01 Series



#### Features

- Maximum working pressure:  
6000 psi (414 bar)
- Working temperature:  
-23°C to 200°C (-10°F to 392°F)
- Cracking pressure:  
1 to 25 psi
- Fixed cracking pressures

#### Pressure Vs. Temperature

Material		316 SS	
Temperature		Working Pressure	
°C	°F	Psi	Bar
38	100	6000	414
93	200	2500	172
121	250	1630	112
150	302	1545	106
200	392	1450	100

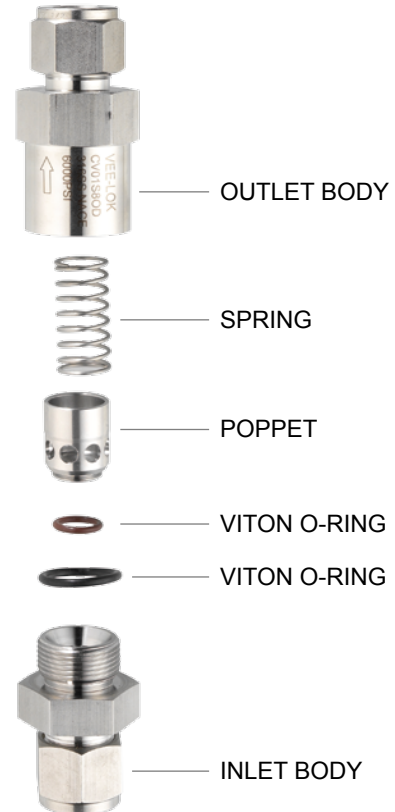
#### Cracking Pressure and Resealing Pressure

- Cracking pressure is the upstream pressure at which the first indication of flow occurs.
- Resealing pressure is the pressure at which there is no indication of flow.

#### CV01 Series

Nominal Cracking Pressure psi (bar)	Cracking Pressure Range psi (bar)	Resealing Pressure Range psi (bar)
1 (0.06)	Up to 4 (0.27)	Up to 6 (0.41) back pressure
5 (0.34)	3 to 9 (0.20 to 0.62)	Up to 2 (0.13) back pressure
10 (0.68)	7 to 15 (0.48 to 1.0)	3 (0.20) or higher upstream pressure
25 (1.7)	20 to 30 (1.3 to 2.0)	17 (1.1) or higher upstream pressure

#### Material of Construction

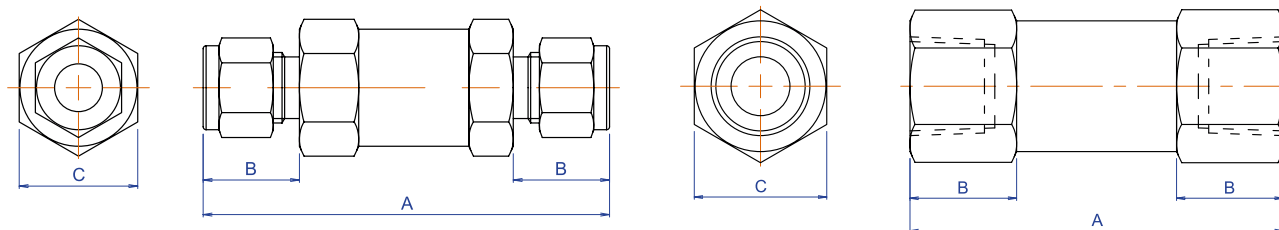


Component	Valve Body Material
	316 S.S.
Inlet Body	316L S.S./A479
O-Ring	VITON
O-Ring	VITON
Poppet	316L S.S./A479
Spring	302 S.S./A313
Outlet Body	316L S.S./A479



For valves not actuated for a period of time, initial cracking pressure may be higher than the set pressure.

## Dimensions



Ordering No.	End Connection		Dimensions (mm)		
	Inlet	Outlet	A	B	C
CV01S2FF	1/8" NPT female	1/8" NPT female	55	14	17
CV01S4FF	1/4" NPT female	1/4" NPT female	62	16	22
CV01S6FF	3/8" NPT female	3/8" NPT female	72	20	24
CV01S8FF	1/2" NPT female	1/2" NPT female	80.5	23	28.58
CV01S12FF	3/4" NPT female	3/4" NPT female	85	22	41
CV01S16FF	1" NPT female	1" NPT female	97	23	47.6
CV01S2OD	1/8" O.D.	1/8" O.D.	65.5	15.5	17
CV01S4OD	1/4" O.D.	1/4" O.D.	73	17.5	20.63
CV01S6OD	3/8" O.D.	3/8" O.D.	80.5	19.5	24
CV01S8OD	1/2" O.D.	1/2" O.D.	90.5	22	28.58
CV01SM6OD	6mm O.D.	6mm O.D.	73	17.5	20.63
CV01SM12OD	12mm O.D.	12mm O.D.	90.5	22	28.58

All dimensions shown are for reference and subject to change without prior notice.

## Ordering Information

CV01	S		4		FF	
Series	Body Material		Size		End Connection	
CV01	S	316L S.S.	2	1/8"	MF	NPT male-female
			4	1/4"	FF	NPT female-female
			6	3/8"	OD	VEE-LOK twin ferrule tube fittings
			8	1/2"		
			12	3/4"		
			16	1"		
			M6	6mm		
			M12	12mm		

## High Pressure Ball Valve

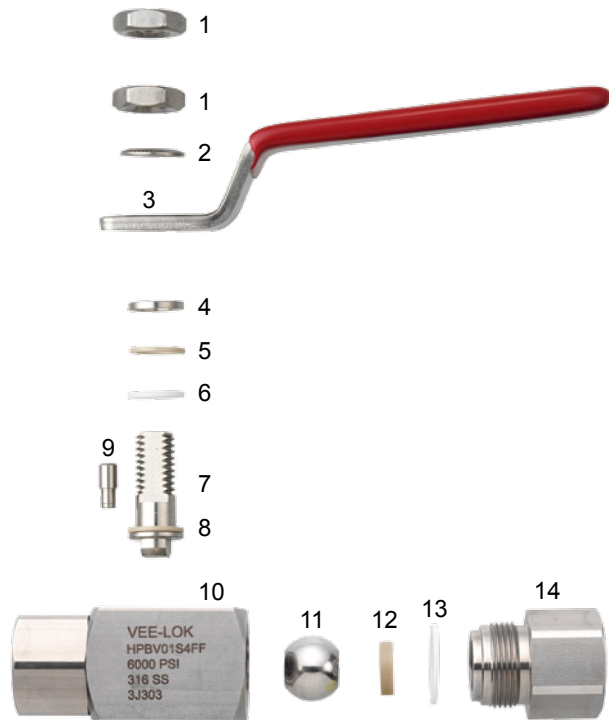
HPBV01 series



### Features

- Maximum working pressure:  
6000 psi (414bar) at 100°F (38°C)
- Working temperature:  
From -65°F (-54°C) to 500°F (260°C) with PEEK seat  
From -22°F (-30°C) to 265°F (130°C) with PVDF seat  
From -315°F (-193°C) to 392°F (200°C) with Devlon V-API seat
- A 316 stainless steel handle covered with vinyl sleeve gives quarter turn rust-free operation.
- Valves with PEEK seats are supplied with red sleeves on handles. PVDF seats are identified with green sleeves while Devlon V-API with blue ones.
- A robust pin is to create a positive stop.
- The stem with shoulder provides blowout proof design to maintain seal integrity at all pressure.
- Optional sour gas service conforms to NACE MR0175.
- Ball valves are hydrostatic tested at the full rated pressure and low pressure pneumatic at 70 psi.
- 100% factory test
- Material traceability

### Material of Construction



No.	Component	Material Grade
		ASTM specification
1	Lock Nut	304 S.S.
2	Fixing Washer	304 S.S.
3	Handle	316 S.S./A276
4	Gland	316 S.S./A276
5	Back-up Ring	PEEK
6	Packing	PTFE
7	Stem	316 S.S./A276
8	Gasket	PEEK
9	Pin	303 S.S.
10	Body	316 S.S./A479
11	Ball	316 S.S./A276
12	Seat	PEEK <sup>Note</sup>
13	Seal	PTFE
14	End Connector	316 S.S./A479

#### Note:

1. Standard PEEK seats use red sleeves on handles.
2. Green sleeves identify PVDF seats. Blue sleeves identify Devlon V-API seats.

### Operation

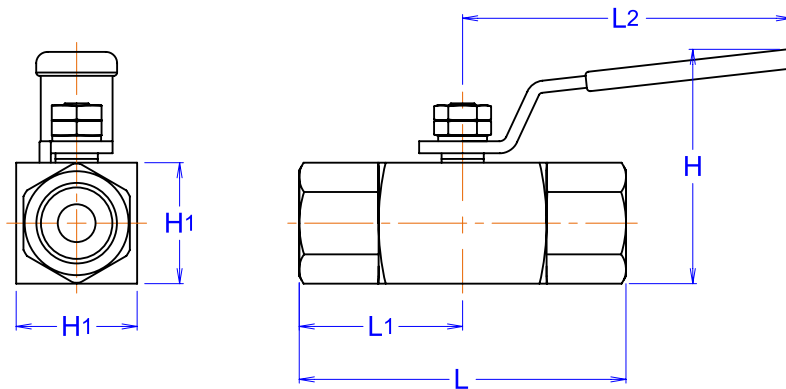
- Valves are designed to control fluids in full open or full closed position.
- Valves that have not been actuated for a period of time may require a higher initial actuation torque.
- Valve must be in open position during system test not to damage the valve seat.



### Safe Product Selection

When selecting a product, the total system design must be considered to ensure safe performance. Function, material compatibility, adequate ratings, proper installation, operation and maintenance are the responsibilities of the system.

### Dimensions



Ordering No.	End Connection		Bore	Dimensions (mm)				
	Inlet	Outlet		L	L1	H	H1	W
HPBV01S4FF	1/4"NPT female	1/4"NPT female	9.52	62.4	31.2	61	32	87
HPBV01S6FF	3/8"NPT female	3/8"NPT female	9.52	62.4	31.2	61	32	87
HPBV01S8FF	1/2"NPT female	1/2"NPT female	9.52	86.5	43.25	61	32	87
HPBV01S4OD	1/4" O.D.	1/4" O.D.	9.52	89.8	44.9	61	32	87
HPBV01S6OD	3/8" O.D.	3/8" O.D.	9.52	93.4	46.7	61	32	87
HPBV01S8OD	1/2" O.D.	1/2" O.D.	9.52	98.4	49.2	61	32	87

All dimensions shown are for reference and subject to change without prior notice.

Sizes listed are standard. Other sizes and end types are available upon request. Refer to ordering information.

### Ordering Information

HPBV	S		4		FF			
Series	Body Material		Size		End Connection		Seat Material	
HPBV01	S	316 S.S.	4	1/4"	FF	Female X Female	PK	PEEK
			6	3/8"	OD	VEE-LOK twin ferrule tube fittings	PV	PVDF
			8	1/2"			DV	Devlon V-API

## High Pressure Ball Valve

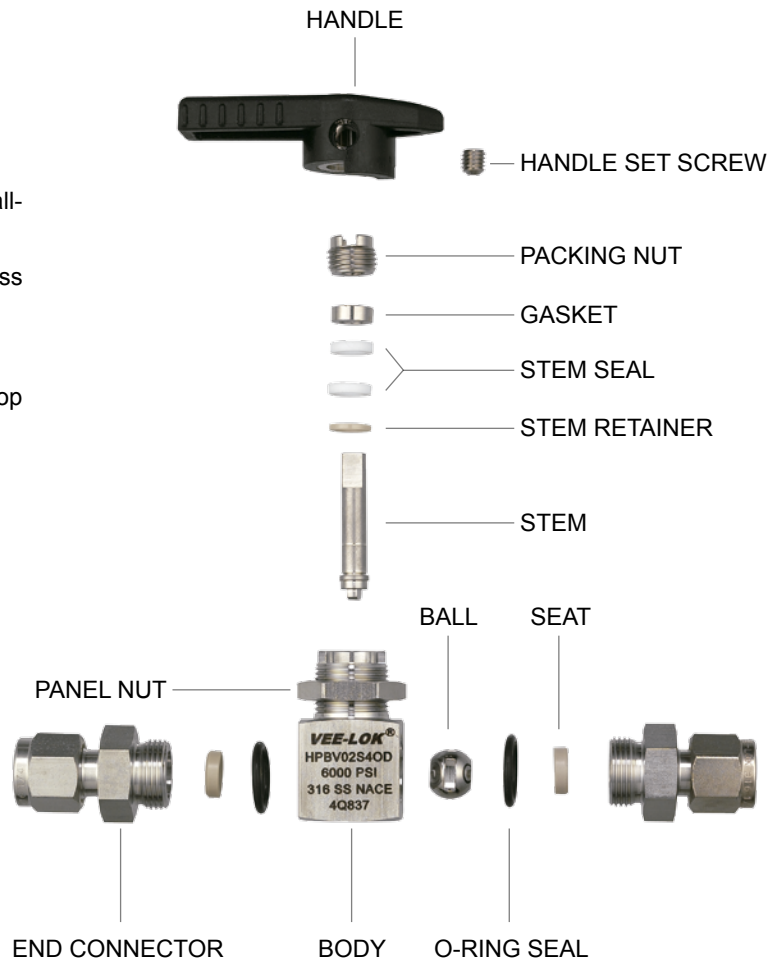
HPBV02 series



### Features

- Maximum working pressure:  
6000 psi (414bar) at 100°F (38°C)
- Working temperature:  
-65°F (-54°C) to 392°F (200°C)
- 316 SS mini ball valve overcomes limitation of installation space.
- A quick 1/4 turn on-off control of fluids used in process and instrumentation applications.
- 90 degree actuation operates with low torques.
- Straight through flow path for minimum pressure drop and bi-directional flow.
- Fine finished ball provides a positive seal.
- PEEK seat withstands high pressure circumstances.
- Panel mountable nut.

### Material of Construction



### Pressure Rating and Tubing Selection

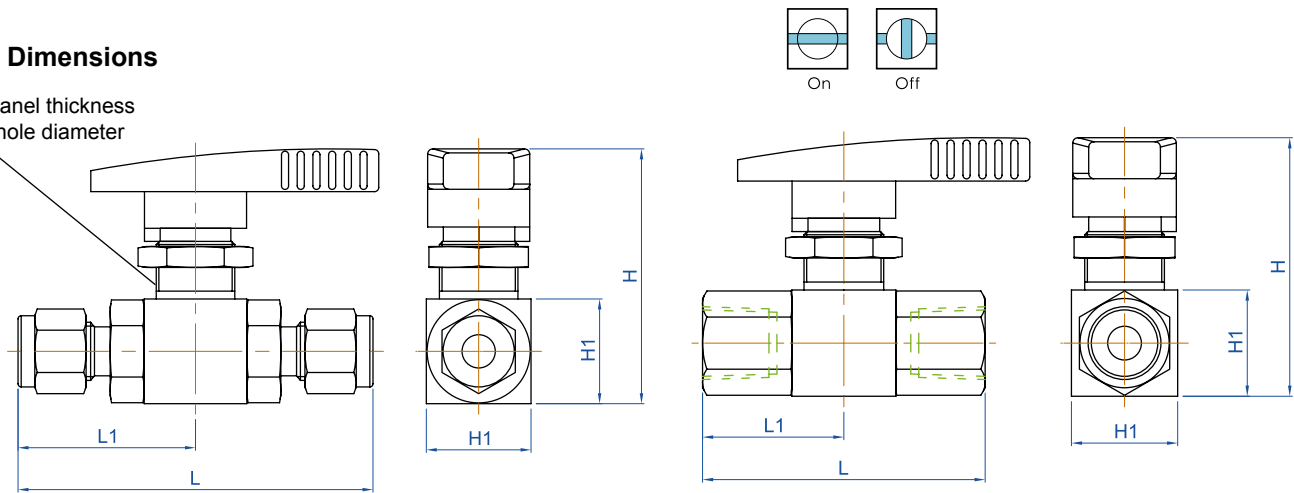
For working pressures of VEE-LOK tube ends, please refer to working pressure table found in tube fitting catalogue.

For working pressures of valves with pipe threads, please see catalogue of instrument pipe fittings.

Component	Valve Body Material
	<b>316 S.S.</b>
Handle	ABS
Packing Nut	316 S.S./A276
Gasket	316 S.S./A276
Seal	PTFE
Retainer	PEEK
Stem	316 S.S./A276
End Connector	316 S.S./A479
Body	316 S.S./A479
Ball	316 S.S./A276
O-Ring Seal	VITON
Seat	PEEK

**Dimensions**

T=max. panel thickness  
P=panel hole diameter



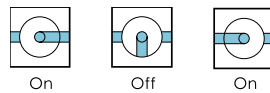
Ordering No.	End Connection		Orifice (bore)	Dimensions (mm)				P	T
	Inlet	Outlet		L	L1	H	H1		
HPBV02S2FF	1/8"NPT female	1/8"NPT female	5	53.2	26.6	47.5	20	15	6.5
HPBV02S4FF	1/4"NPT female	1/4"NPT female	5	53.2	26.6	47.5	20	15	6.5
HPBV02S6FF	3/8"NPT female	3/8"NPT female	7	61.6	30.8	54.2	25	18	8.5
HPBV02S8FF	1/2"NPT female	1/2"NPT female	9.5	96.53	48.27	64.87	32	18	8.5
HPBV02S2OD	1/8" O.D.	1/8" O.D.	5	62.8	31.4	47.5	20	15	6.5
HPBV02S4OD	1/4" O.D.	1/4" O.D.	5	67.8	33.9	47.5	20	15	6.5
HPBV02S6OD	3/8" O.D.	3/8" O.D.	7	76.8	38.4	54.2	25	18	8.5
HPBV02S8OD	1/2" O.D.	1/2" O.D.	9.5	89.53	44.77	64.87	32	18	8.5
HPBV02SM6OD	6mm O.D.	6mm O.D.	5	68.8	34.4	47.5	20	15	6.5
HPBV02SM8OD	8mm O.D.	8mm O.D.	5	70.4	35.2	47.5	20	15	6.5
HPBV02SM10OD	10mm O.D.	10mm O.D.	7	78.6	39.3	54.2	25	18	8.5
HPBV02SM12OD	12mm O.D.	12mm O.D.	9.5	89.53	44.77	64.87	32	18	8.5

All dimensions shown are for reference and subject to change without prior notice.  
Sizes listed are standard. Other sizes and end types are available upon request. Refer to ordering information.

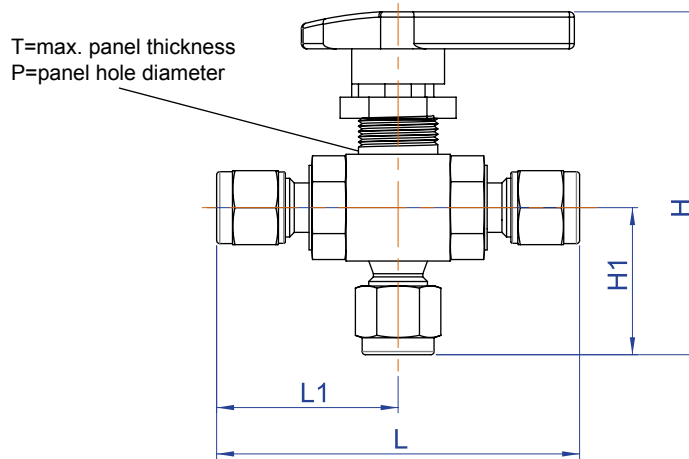
**Ordering Information**

HPBV02	S		4		OD	
Series	Body Material		Size		End Connection	
HPBV02	S	316 S.S.	4	1/4"	F	female
			6	3/8"		NPT female-female
			8	1/2"	OD	VEE-LOK twin ferrule tube fittings
			M6	6mm		
			M8	8mm		
			M10	10mm		
			M12	12mm		





**Dimensions**



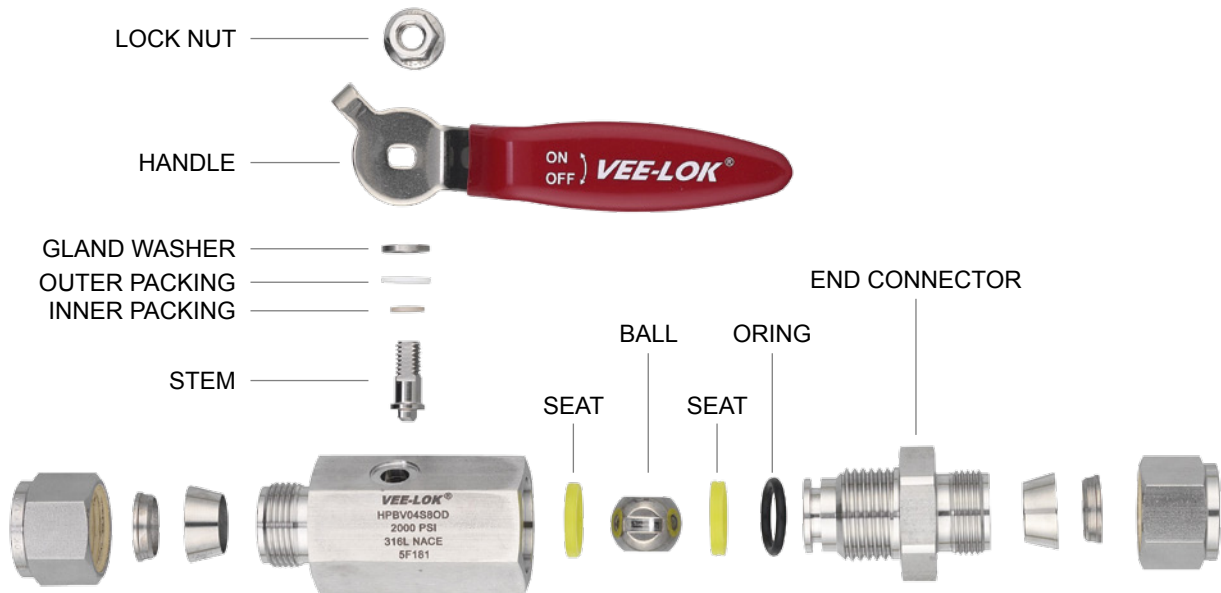
Ordering No.	End Connection		Orifice (bore)	Dimensions (mm)				P	T
	Inlet	Outlet		L	L1	H	H1		
HPBV03S2FF	1/8"NPT female	1/8"NPT female	5	53.2	26.6	65	26	15	6.5
HPBV03S4FF	1/4"NPT female	1/4"NPT female	5	53.2	26.6	65	26	15	6.5
HPBV03S6FF	3/8"NPT female	3/8"NPT female	7	61.6	30.8	73	30.5	18	8.5
HPBV03S2OD	1/8" O.D.	1/8" O.D.	5	62.8	31.4	61.8	24.7	15	6.5
HPBV03S4OD	1/4" O.D.	1/4" O.D.	5	67.8	33.9	64.8	27.7	15	6.5
HPBV03S6OD	3/8" O.D.	3/8" O.D.	7	76.8	38.4	73.45	31.8	18	8.5
HPBV03SM6OD	6mm O.D.	6mm O.D.	5	68.8	34.4	65.3	28.3	15	6.5
HPBV03SM8OD	8mm O.D.	8mm O.D.	5	70.4	35.2	66.1	29	15	6.5
HPBV03SM10OD	10mm O.D.	10mm O.D.	7	78.6	39.3	74.3	32.65	18	8.5

All dimensions shown are for reference and subject to change without prior notice. Sizes listed are standard. Other sizes and end types are available upon request. Refer to ordering information.

**Ordering Information**

HPBV03		S	4		OD	
Series	Body Material		Size		End Connection	
HPBV03	S	316 S.S.	4	1/4"	F	female
			6	3/8"		NPT female-female
			8	1/2"	OD	VEE-LOK twin ferrule tube fittings
			M6	6mm		
			M8	8mm		
			M10	10mm		

**High Pressure Ball Valve**  
HPBV04 series



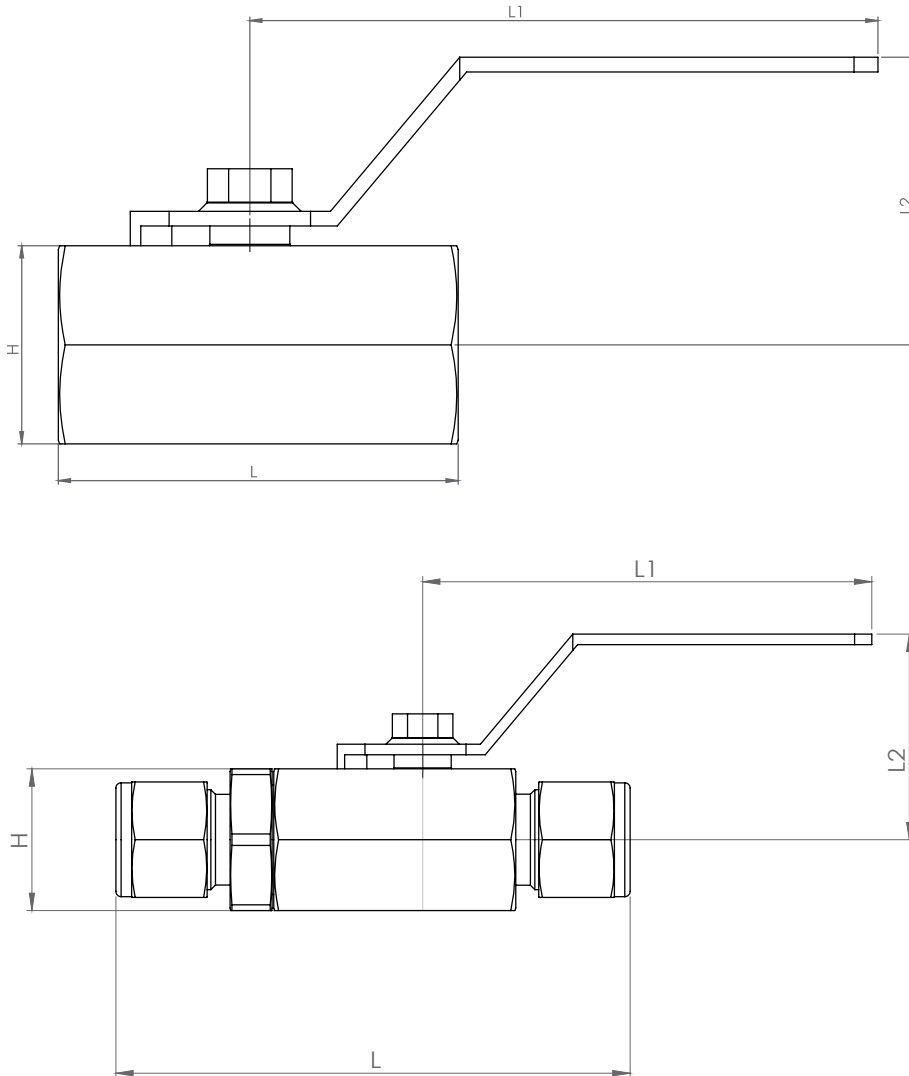
**Features**

- Maximum working pressure:  
2000 psi (138 bar) at 100°F (38°C)
- Working temperature:  
-22°F (-30°C) to 392°F (200°C)
- Compact design with one piece hexagonal body in threaded connections and available in tube ends.
- Low torque for easy operation.

**Material of Construction**

Component	Valve Body Material
	<b>316 L S.S.</b>
Body	316 L S.S./A479
Ball	316 L S.S./A276
O-Ring Seal	VITON
Seat	Devlon V-API
End Connector	316 L S.S./A479
Stem	316 L S.S./A479
Inner Packing	PEEK
Outer Packing	PTFE
Gland Washer	316 L S.S./A276
Handle	316 L S.S./A276
Lock Nut	302 S.S.

## Dimensions



Ordering No.	End Connection		Orifice (bore)	Dimensions (mm)			
	Inlet	Outlet		L	L1	L2	H
HPBV04S8FF	1/2"NPT female	1/2"NPT female	9	54.5	85.6	39.2	27
HPBV04S8OD	1/2"O.D.	1/2"O.D.	9	98	85.6	39.2	27
HPBV04SM12OD	12mm O.D.	12mm O.D.	9	98	85.6	39.2	27

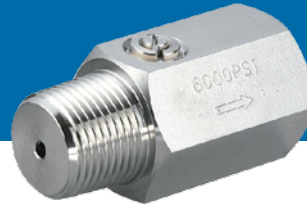
All dimensions shown are for reference and subject to change without prior notice.

Sizes listed are standard. Other sizes and end types are available upon request. Refer to ordering information.

## Ordering Information

HPBV04	S		8		FF	
Series	Body Material		Size		End Connection	
HPBV04	S	316 S.S.	8	1/2"	F	female
			M12	12mm	OD	VEE-LOK twin ferrule tube fittings

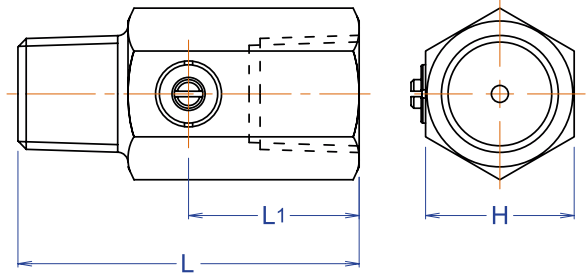
**Pressure Gauge Snubber**  
PGS series



**Features**

- Maximum working pressure:  
6000 psi (414bar) at 100°F (38°C)
- Working temperature:  
25°F (-4°C) to 250°F (121°C)
- Utilized to protect pressure gauges from damage caused by pressure pulses and pressure peaks.
- Provided with an adjustable needle valve that enables the operator to restrict the flow when operating conditions may demand even when the snubber is in service.

**Material of Construction**



Component	Material Grade
	ASTM specification
Body	316 S.S./A479
Bonnet	316 S.S./A276
Stem	316 S.S./A276
O-ring	Viton

Ordering No.	End Connection		Dimensions (mm)		
	Inlet	Outlet	L	L1	H
PGSS4MF	1/4"NPT male	1/4"NPT female	52	25	27
PGSS8MF	1/2"NPT male	1/2"NPT female	62	30	27

## Adjustable Overload Protector

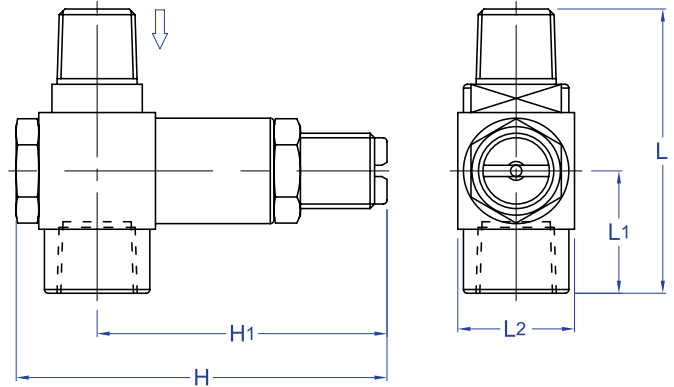
AOP series



### Features

- Maximum working pressure:  
6000 psi (414bar) at 100°F (38°C)
- Working temperature:  
-13°F (-25°C) to 212°F (100°C)
- SETTING RANGE:  
0.5~4 BARS  
2~60 BARS  
60~200 BARS
- Used to protect pressure gauges and pressure switches from overpressure. When pressure exceeds the pre-set pressure, the device automatically shuts off the pressure to the instrument.
- Pressure adjustment can be done by manipulating an external adjusting screw and lock nut.

### Material of Construction



Ordering No.	End Connection		Dimensions (mm)				
	Inlet	Outlet	L	L1	H	H1	L2
AOPS8	1/2"NPT male	1/2"NPT female	75.5	32.5	98.5	77	31

**Filter**

F Series

TF Series

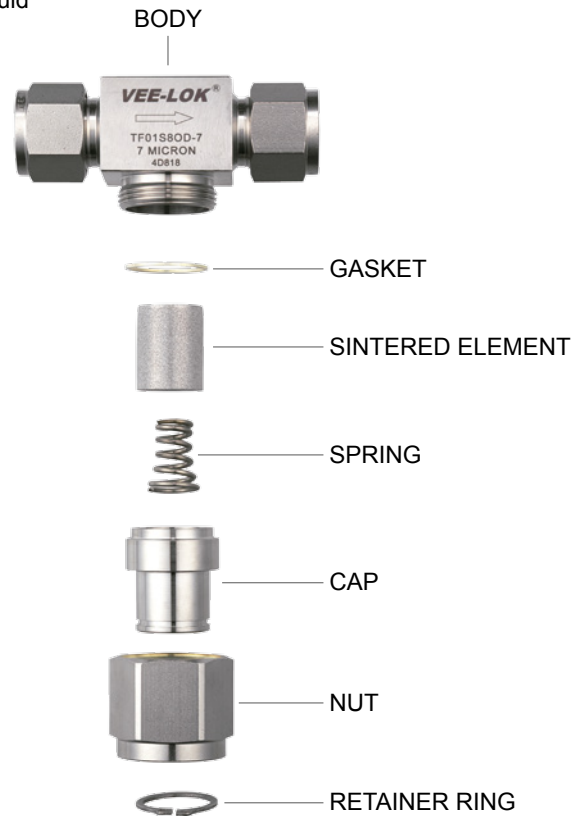
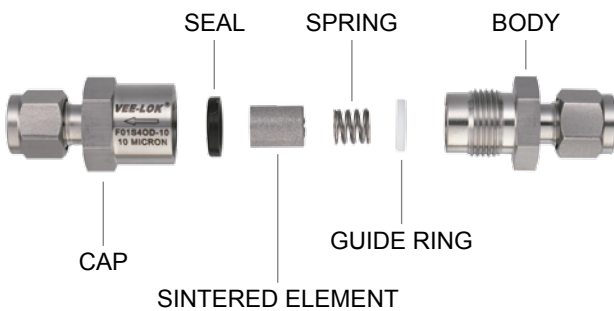


**Features**

- Traps fine particles to maintain system purity
- Compact in-line design for limited space
- Replaceable sintered 316 stainless steel filter element available in 1,5,10 and 50 microns
- Maximum working pressure 3000 psi @100°F (206 bar @38°C)

- Replaceable sintered elements are available in 0.5, 2,7, 15 and 60 microns
- Tee type filter element can be replaced without removing body from system.
- Optional Bypass for sampling or purging of process fluid

**Material of Construction**

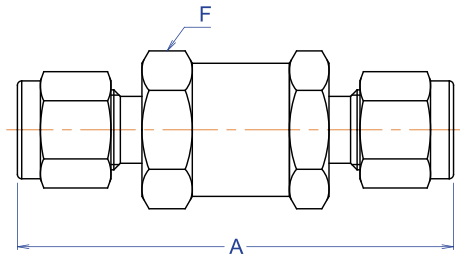


Component	Material
Cap	316 SS/A479
Seal	Viton
Sintered Element	316 SS
Spring	302 SS
Guide Ring	PTFE
Body	316 SS/A479

Component	Material
Body	316 SS/A479
Gasket	316 SS/silver plated
Sintered Element	316 SS
Spring	302 SS
Cap	316 SS/A479
Nut	316 SS/A479
Retainer Ring	Stainless steel

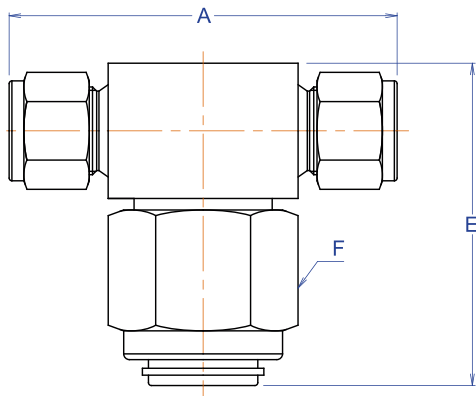
## Dimensions

### F Series



Ordering No.	End Connection		Dimensions (mm)		
	Inlet/Outlet	Size	A	F	
F01S2OD-□	VEE-LOK tube fitting	1/8"	55.7	19	
F01S4OD-□	VEE-LOK tube fitting	1/4"	61.5	19	
F01SM6OD-□	VEE-LOK tube fitting	6mm	61.5	19	
F01S2MM-□	Male NPT	1/8"	46.5	19	
F01S2FF-□	Female NPT	1/8"	51.0	19	
F01S4MM-□	Male NPT	1/4"	55.5	19	
F01S4FF-□	Female NPT	1/4"	61.0	19	

### TF Series



Ordering No.	End Connection		Dimensions (mm)		
	Inlet/Outlet	Size	A	E	F
TF01S2OD-□	VEE-LOK tube fitting	1/8"	62.4	55.9	28.6
TF01S4OD-□	VEE-LOK tube fitting	1/4"	68.2	55.9	28.6
TF01S6OD-□	VEE-LOK tube fitting	3/8"	72.1	55.9	28.6
TF01S8OD-□	VEE-LOK tube fitting	1/2"	77.2	55.9	28.6
TF01SM6OD-□	VEE-LOK tube fitting	6mm	68.2	55.9	28.6
TF01SM8OD-□	VEE-LOK tube fitting	8mm	72.1	55.9	28.6
TF01SM10OD-□	VEE-LOK tube fitting	10mm	72.6	55.9	28.6
TF01SM12OD-□	VEE-LOK tube fitting	12mm	77.2	55.9	28.6
TF01S4MM-□	Male NPT	1/4"	62	55.9	28.6
TF01S4FF-□	Female NPT	1/4"	62	55.9	28.6
TF01S8MM-□	Male NPT	1/2"	69.9	55.9	28.6

## Sintered Elements

■ Add an element designator to the basic ordering number.

Example: TF01S8OD-60

Nominal Pore Size $\mu\text{m}$	Pore Size Range $\mu\text{m}$	Element Designator
0.5	0.5 to 2	05
2	1 to 4	2
7	5 to 10	7
15	11 to 25	15
60	50 to 75	60

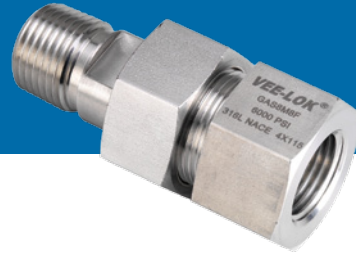
## Ordering Information

F01	S	4	FF	10
TF01				
Series	Body Material	Size	End Connection	Sintered Element
	S 316 S.S.	2 1/8"	OD VEE-LOK tube fitting	0.5 $\mu\text{m}$ 05
		4 1/4"	MM Male-Male NPT	2 $\mu\text{m}$ 2
		6 3/8"	FF Female-Female NPT	7 $\mu\text{m}$ 7
		8 1/2"		15 $\mu\text{m}$ 15
		M6 6mm		60 $\mu\text{m}$ 60
		M12 12mm		



The selection of a filter for any application or system design must be considered to ensure safe performance. Filter function, rating, material compatibility, proper installation, operation and maintenance remain the responsibilities of the system designer and user.

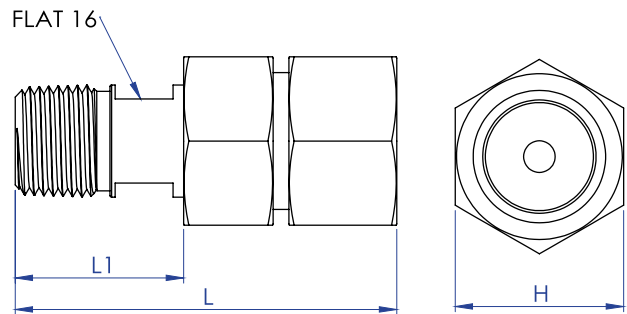
**Gauge Adapter**  
GA series



**Features**

- Maximum working pressure:  
6000 psi (414bar) at 100°F (38°C)
- Working temperature:  
-65°F (-54°C) to 464°F (240°C)
- A fully contained sealing mechanism
- Designed to provide 360° rotational movement to enable maximum positional orientation of installed gauges and measuring instruments.
- Silver plated swivel nuts prevent thread galling and allow repeatable re-assembly.

**Material of Construction**



Component	Material Grade
	ASTM Specification
Body	316 S.S./A479
Nut	316 S.S./A479
Adapter	316 S.S./A479
Seal	PTFE

Ordering No.	Male x Female Connection	Dimensions (mm)		
		L	L1	H
GAS4M4F	1/4"NPT	67.5	27	35
GAS8M8F	1/2"NPT	72.5	32	35





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