Instrument Valve

Needle Valve, Manifold, Check and Proportional Relief Valve



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Index

Needle Valve

Needle valve		
HBNV Series		02
SNV Series		05
BNV Series		08
Mini Valve		11
Instrument Manifolds		
2 Valve Manifold		20
3 Valve Manifold		22
5 Valve Manifold		25
Proportional Relief Valve	Ĩ	
RV01 Series		27
Check Valve		
CV01 Series		31
Ball Valve		
HPBV Series		33
Pressure Gauge Snubber		
PGS Series	1 M	35
Adjustable Overload Protector	æ	
AOP Series		38
Filter	Verson (
F Series / TF Series		39



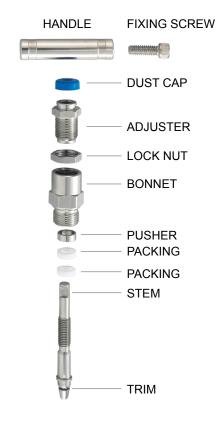
Hexagonal Bar Stock Needle Valve HBNV Series



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)
- Teflon[®] 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



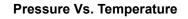
Component	Valve Boo	ly Material
Component	316L S.S.	Carbon Steel
Body	316L S.S./A479	Carbon Steel /A108
Bonnet	316L S.S./A479	Carbon Steel /A108
Stem	316L S.S./A276	304 S.S./A276
Adjuster	316L S.S./A276	Carbon Steel /A108
Lock Nut	316L S.S./A276	Carbon Steel /A108
Handle	303 S.S./A276	Carbon Steel /A108
Fixing Screw	302 S.S.	Zinc plated steel
Packing	Teflon ^{® 1}	Teflon ^{® 1}
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 ²	316 S.S./A276	316 S.S./A276

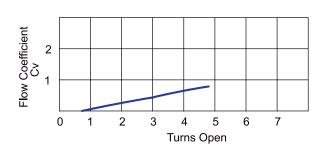
Note:

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

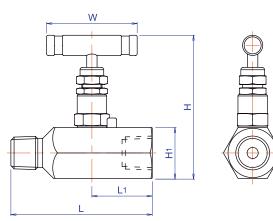


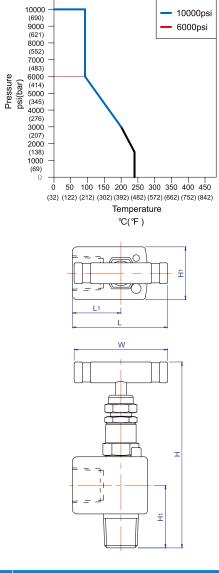
Flow Characteristics





Dimensions





Ordering No.	End Co	Orifice	ice Dimensions (mm)					
Ordering No.	Inlet	Outlet	(bore)	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
HBNVD12MF	3/4"NPT male	3/4"NPT female	5.5	89	38	93	35	57
HBNVD12FF	3/4"NPT female	3/4"NPT female	5.5	76	38	93	35	57
HBNVD16MF	1"NPT male	1"NPT female	6	94	42.5	99	41	57
HBNVD16FF	1"NPT female	1"NPT female	6	85	42.5	99	41	57
HBNVD8MF90	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	Trim
316L SS	316-A479	316-A479	316-A276	Teflon®	316-A276
Carbon Steel	A108	A108	304-A276	Teflon®	304-A276

Ordering Information

HBNV	S		8		MF		10 B	
Series	Body Material		Size		End Connection		Ор	tional
HBNV	S	316L S.S.	4	1/4"	М	Male	90	Angle pattern
	С	Carbon Steel	6	3/8"	F	Female	10	10,000 psi
			8	1/2"			В	Bleeding screw
			12	3/4"			G	Graphite
			16	1"			BSPT	BSPT thread

Note:

1. Viton[®], Teflon[®] and Delrin[®] are all registered trademarks of DuPont. Refer to chemical resistance guide and choose suitable elastomer for your application.

2. Carbon steel valves are yellow zinc plated to resist corrosion.

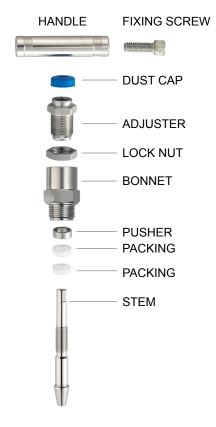
Hexagonal Bar Stock Needle Valve SNV Series



Features

- Maximum working pressure:
 6000 psi (414bar) at 100°F (38°C)
- Working temperature: Delrin[®] 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 bidirectional flow and is roddable for easy cleaning.
- Teflon[®] 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



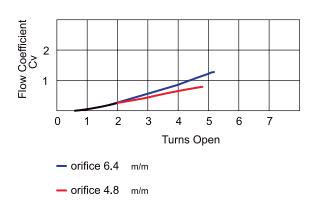
Component	Valve Boo	dy Material
Component	316L S.S.	Carbon Steel
Body	316L S.S./A479	Carbon Steel/A108
Bonnet	316L S.S./A479	Carbon Steel/A108
Stem	316L S.S./A276	304 S.S./A276
Adjuster	316L S.S./A276	Carbon Steel/A108
Lock Nut	316L S.S./A276	Carbon Steel /A108
Handle	303 S.S./A276	Carbon Steel/A108
Fixing Screw	302 S.S.	Zinc plated steel
Packing	Teflon®	Teflon®
Pusher	316 S.S./A276	316 S.S./A276
Dust Cap	NBR	NBR
Lock Pin	303 S.S./A276	303 S.S./A276
Seat	Delrin [®]	Delrin [®]

Note:

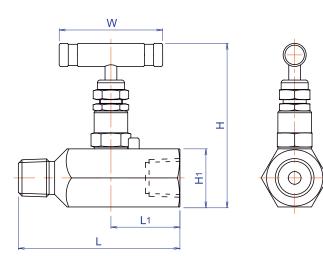
1. Optional PEEK seat is available.



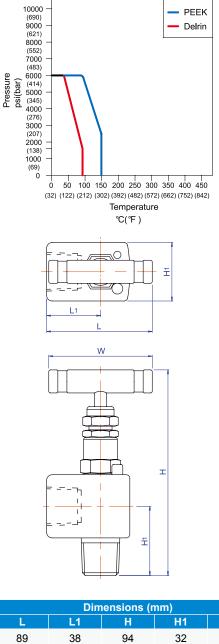
Flow Characteristics



Dimensions



Pressure Vs. Temperature



Ordering No.	End Co	Orifice	Orifice Dimensions (mm)					
Ordening No.	Inlet	Outlet	(bore)	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	Teflon [®] or Viton [®] Oring with Teflon [®] backup ring	Delrin [®]
Carbon Steel	A108	A108	304-A276	Teflon® or Viton® Oring with Teflon® backup ring	Delrin®

Ordering Information

SNV		S		8		/IF	90		
Series	Во	dy Material		Size	End Connection			Optional	
SNV	S	316L S.S.	4	1/4"	М	Male	PK	PEEK seat	
	С	Carbon Steel	6	3/8"	F	Female	VT	Viton [®] O-ring with Teflon [®] back-up rings	
			8	1/2"			90	Angle pattern	
			12	3/4"			BSPT	BSPT thread	
			16	1"					

Note:

1. Valves are standard with Delrin[®] soft seat and Teflon[®] packings.

- 2. Viton[®], Teflon[®] and Delrin[®] are all registered trademarks of DuPont. Refer to chemical resistance guide and choose suitable elastomer for your application.
- 3. Carbon steel valves are yellow zinc plated to resist corrosion.



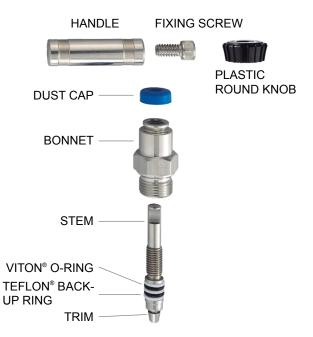
Square Bar Stock Needle Valve BNV Series



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 troque.
- 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 Bo	dy Material
Component	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	Teflon [®]	Teflon [®]
Dust Cap	NBR	NBR

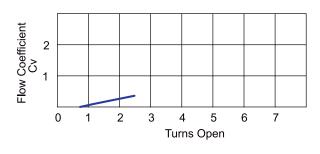
Note:

Optional with

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



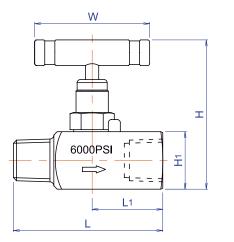
Flow Characteristics



 $\begin{array}{c} 10000 \\ (690) \\ (621) \\ 8000 \\ (621) \\ 8000 \\ (621) \\ 7000 \\ (414) \\ 4000 \\ (276) \\ 3000 \\ (277) \\ 2000 \\ (138) \\ 1000 \\ (277) \\ 2000 \\ (138) \\ 1000 \\ (277) \\ 2000 \\ (277) \\ 2000 \\ (138) \\ 1000 \\ (277) \\ 2000 \\ (277) \\ 2000 \\ (277) \\ 2000 \\ (277) \\ 2000 \\ (330) \\ (122) (212) (302) (322) (422) (572) (662) (752) (842) \\ (32) (122) (212) (302) (392) (482) (572) (662) (752) (842) \\ \textbf{Temperature} \\ \mathbb{C}(\mathbb{F}) \end{array}$

Pressure Vs. Temperature

Dimensions



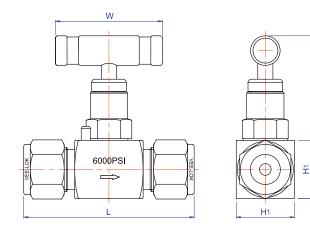
H1

Ordering No.	End Co	Orifice	Orifice Dimensions (mm)					
Ordening No.	Inlet	Outlet	(bore)	L	L1	Н	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
BNVD6MF	3/8"NPT male	3/8"NPT female	4.5	65	31	70.5	25.4	57
BNVD6FF	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
BNVD8FF	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.





Т

	End Cor	nnection	Orifice		ons (mm)		
Ordering No.	Inlet	Outlet	(bore)	L	Н	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
TBNVD6OD	3/8" O.D.	3/8" O.D.	4.5	68	57	25.4	57
TBNVD80D	1/2" O.D.	1/2" O.D.	4.8	73.2	57	25.4	57
TBNV M60D	6mm O.D.	6mm O.D.	3.2	65	46	19	46
TBNVDM12OD	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	Во	dy Material	Size		End Connection		Optional	
BNV	S	316L S.S.	2	1/8"	М	Male	PN	Panel mountable
TBNV	С	Carbon Steel	4	1/4"	F	Female	В	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. Viton[®], Teflon[®] and Delrin[®] are all registered trademarks of DuPont. Refer to chemical resistance guide and choose suitable elastomer for your application.

2. Carbon steel valves are yellow zinc plated to resist corrosion.

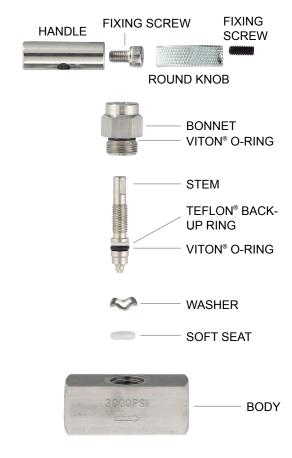
Mini Valves MNV Series MSNV Series



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



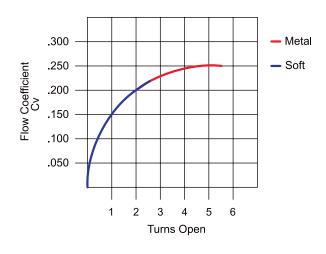
Component	Valve Body Material				
Component	316L S.S.	Carbon Steel			
Body	316L S.S./A479	Carbon Steel/A108			
Bonnet	316L S.S./A479	Carbon Steel/A108			
Stem	316L S.S./A276	316L S.S./A276			
Handle	303 S.S./A276	Carbon Steel/A108			
Fixing Screw	302 S.S./A276	Zinc plated steel			
O-Ring	Viton [®]	Viton®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

Note:

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



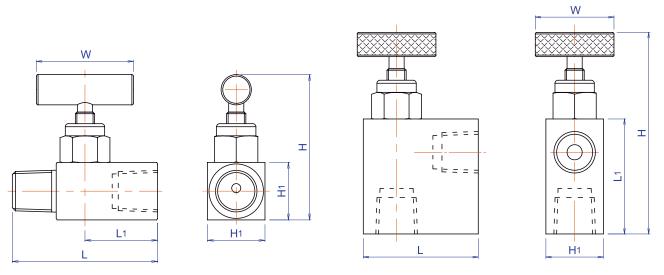
Flow Characteristics



10000 (690) Metal 900Ó Delrin® (621) 8000 (552) 7000 (483) 6000 Pressure psi(bar) (414) 5000 (345) 4000 (276) 3000 (207) 2000 (138) 1000 (69) 50 100 150 200 250 300 350 400 450 ó (32) (122) (212) (302) (392) (482) (572) (662) (752) (842) Temperature ℃(°F)

Pressure Vs. Temperature

Dimensions



Ordering No.	End Co	Orifice	Dimensions (mm)					
Ordening No.	Inlet	Outlet	(bore)	L	L1	Н	H1	W
MNV□4MF	1/4"NPT male	1/4"NPT female		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	3	38	38	66.5	19	32
MSNV□4MF	1/4"NPT male	1/4"NPT female	3	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®	Delrin [®]
Carbon Steel	A108	A108	316-A276	Viton®	Delrin®

Ordering Information

М	NV		S		4	N	ΛF		
Se	ries	Boc	ly Material		Size	End Co	onnection		Optional
MNV	Hard Seat	S	316L S.S.	2	1/8"	М	Male	90	Angle pattern
MSNV	Soft Seat	С	Carbon Steel	4	1/4"	F	Female		

Note:

1. Viton[®], Teflon[®] and Delrin[®] are all registered trademarks of DuPont. Refer to chemical resistance guide and choose suitable elastomer for your application.

2. Carbon steel valves are yellow zinc plated to resist corrosion.



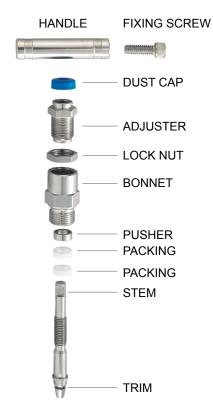
Multiport Gauge Valve MPGV Series



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) Delrin[®] Seat: -20°F (-28°C) to 200F (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.
- TEFLON[®] 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



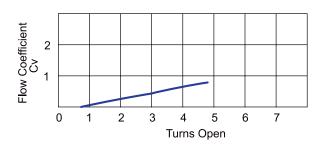
Component	Valve Body Material				
Component	316L S.S.	Carbon Steel			
Body	316L S.S./A479	Carbon Steel/A108			
Bonnet	316L S.S./A479	Carbon Steel/A108			
Stem	316L S.S./A276	304 S.S./A276			
Adjuster	316L S.S./A276	Carbon Steel/A108			
Lock Nut	316L S.S./A276	Carbon Steel/A108			
Handle	303 S.S./A276	Carbon Steel/A108			
Fixing Screw	302 S.S.	Zinc plated steel			
Packing	Teflon ^{®1}	Teflon ^{®1}			
Pusher	316 S.S./A276	316 S.S./A276			
Dust Cap	NBR	NBR			
Lock Pin	303 S.S./A276	303 S.S./A276			

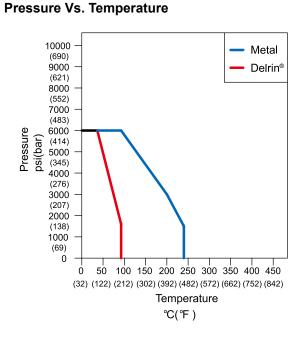
Note:

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



Flow Characteristics





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				
Component	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



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

Plugs

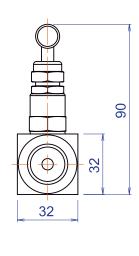


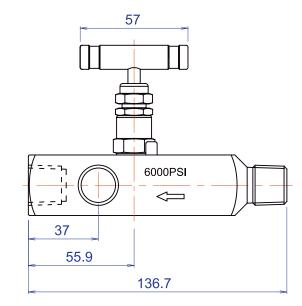
Component	Valve Body Material				
Component	316L S.S.	Carbon Steel			
Body	316L S.S./A276	Carbon Steel/A108			

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

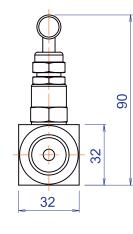


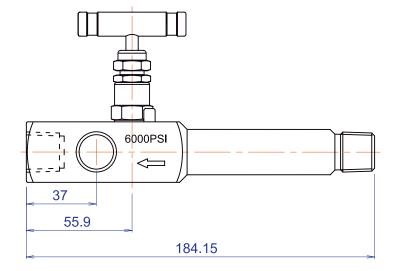
Dimensions





Ordering No.	End Co	nnection		Orifice
Ordering No.	Inlet/Process	Outlet/Instrument	Test/Vent	(bore)
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





Outlaning No.	End Co	nnection		Orifice
Ordering No.	Inlet/Process	Outlet/Instrument	Test/Vent	(bore)
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	Teflon®	316-A276
Carbon Steel	A108	A108	304-A276	Teflon®	304-A276

Soft Seat

Valve	Body	Bonnet	Stem	Packing	Seat
316L SS	316-A479	316-A479	316-A276	Teflon®	Delrin [®]
Carbon Steel	A108	A108	304-A276	Teflon®	Delrin®

Ordering Information

MF	MPGV		S	1	2	8		LB	
Se	ries	Bod	y Material	Ir	ilet	Outlet &	Vent	Optional	
MPGV	Hard Seat	S	316L S.S.	8	1/2"	8	1/2"	LB	Long body
SMPGV	Soft Seat	С	Carbon Steel	12	3/4"			VT	Viton [®] O-rings with Teflon [®] backup rings
								G	Low Emission Graphite
								BSPT	BSPT thread

Note:

- 1. Viton[®], Teflon[®] and Delrin[®] are all registered trademarks of DuPont. Refer to chemical resistance guide and choose suitable elastomer for your application.
- 2. Carbon steel valves are yellow zinc plated to resist corrosion.



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 Teflon[®] 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.

10,000 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

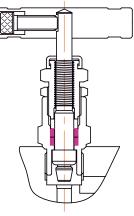
The soft-seated bonnet assembly has a one piece rotating stem and plug. The stem threads are rolled and lubricated to prevent galling and reduce operating torque. Stem seal is standard with Teflon[®] packings that can be adjustable in service. Stem packings below the threads intend to protect from the 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. Delrin[®] seat is standard.

Mini Soft-Seated Bonnet Assembly

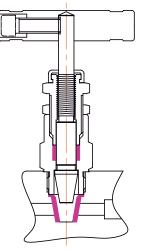
The mini soft-seated bonnet assembly is designed with a one-piece rotating stem having a "Vee" tip with a shoulder to be assembled as a metal or soft seated valve.

Bonnets on Manifolds

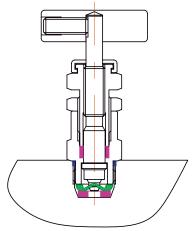
Metal Seated Bonnet



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

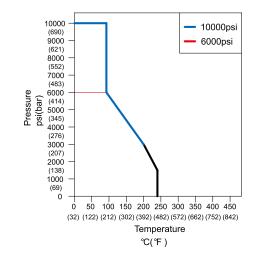
Specifications meet MSS-SP-105. Flange design meets the requirements of MSS SP-99.

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

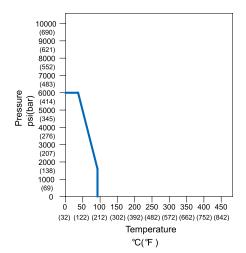
Seat and stem seal are hydro tested with pure water at 1.5 times of working pressure and perform to a requirement of no detectable leakage. Nitrogen test at 1000 psi for seat and stem seal is conducted with a maximum allowable leak rate of 0.1 std cm³/min.

Pressure Vs. Temperature

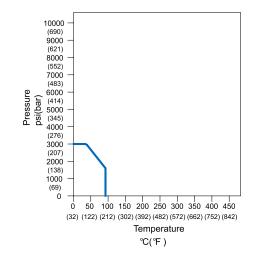
Metal-seated



Soft-seated



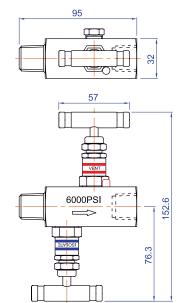
Mini Soft-seated



Graphs are based on 316 SS valves with Teflon[®] stem packings.



Ordering No		End Connection	Valve Seat	Max. W.P. at	
Ordering No.	Inlet/Process	Outlet/Instrument	Vent/Test	Valve Seat	38°C (100°F)
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



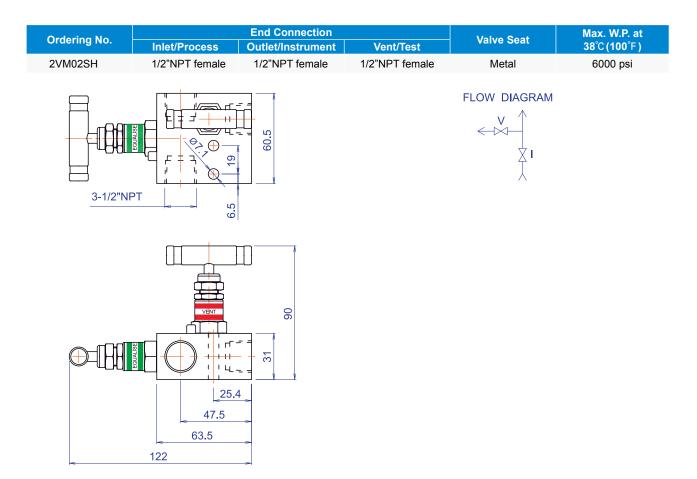


Ordering No.	Inlet/Process	End Connection Outlet/Instrument	Vent/Test	Valve Seat	Max. W.P. at 38°C (100°F)
2VM02S	1/2"NPT female	1/2"NPT female	1/2"NPT female	Delrin®	3000 psi
		60.55 H = 1	FLOW DIAG	RAM	
		31 76			

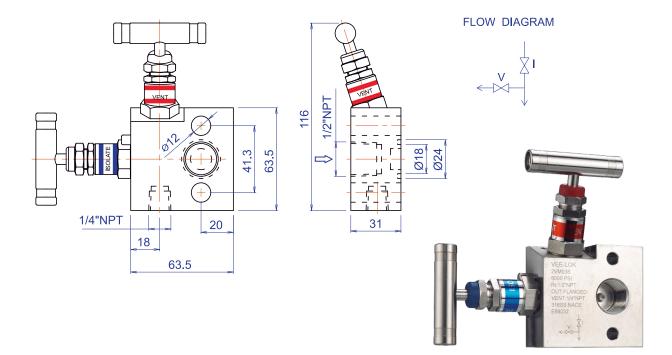
FLOW DIAGRAM

109

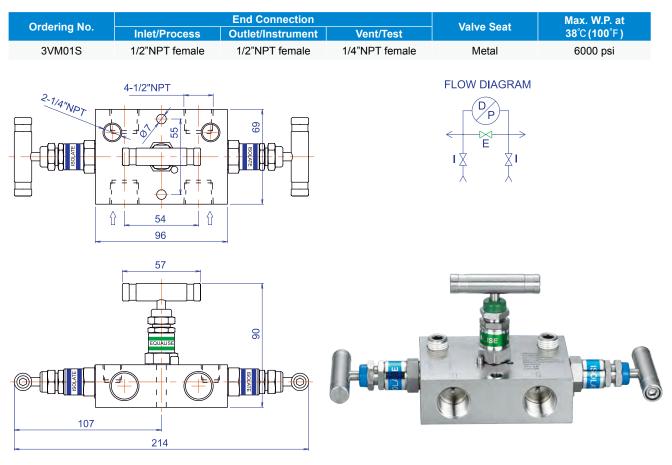




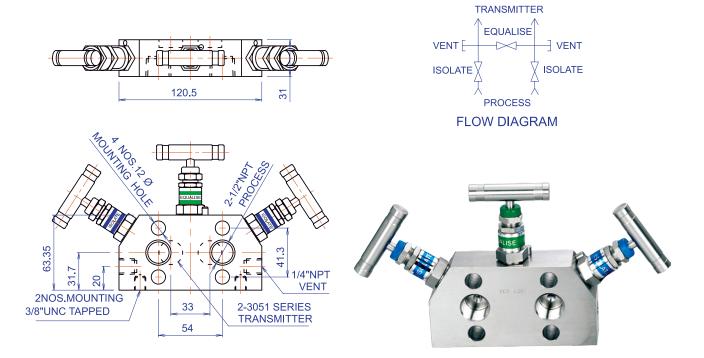
		End Connection		Valve Seat	Max. W.P. at 38℃ (100°F)	
Ordering No.	Inlet/Process	Outlet/Instrument	Vent/Test	valve Seat		
2VM03S	1/2"NPT female	Flange	1/4"NPT female	Metal	6000 psi	



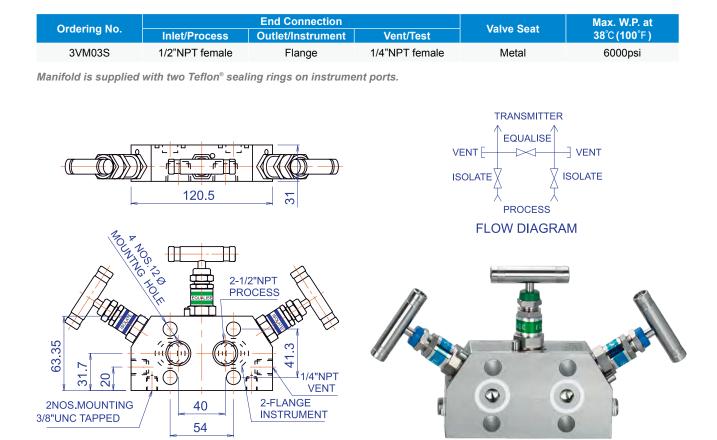




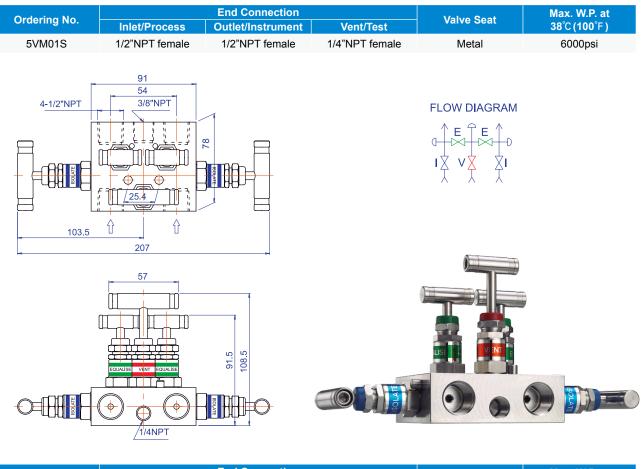
		End Connection		Valve Seat	Max. W.P. at
Ordering No.	Inlet/Process	Outlet/Instrument	Vent/Test	valve Seat	38°C (100°F)
3VM02S	1/2"NPT female	For pressure transmitter model 3051	1/4"NPT female	Metal	6000 psi



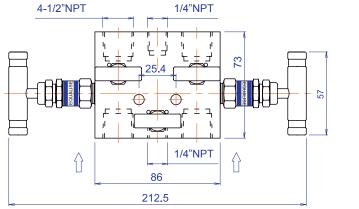






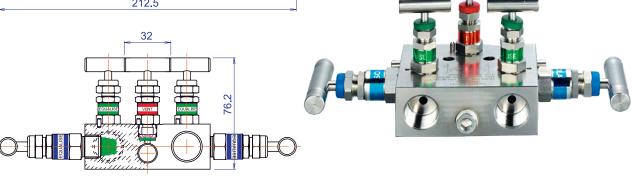


Ordering No.		End Connection		Valve Seat	Max. W.P. at
	Inlet/Process	Outlet/Instrument	Vent/Test	Valve Seat	38°C (100°F)
5VM02S	1/2"NPT female	1/2"NPT female	1/4"NPT female	Delrin [®]	6000psi



FLOW DIAGRAM ↑ ↑

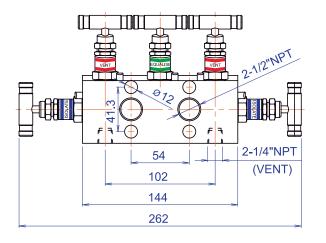


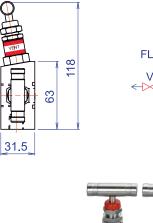




Ordering No.		End Connection		Valve Seat	Max. W.P. at 38℃ (100°F)	
	Inlet/Process	Outlet/Instrument	Vent/Test	valve Seat		
5VM03S	1/2"NPT female	Flange	1/4"NPT female	Metal	6000psi	

Manifold is supplied with two Teflon[®] sealing rings on instrument ports.



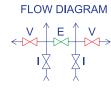


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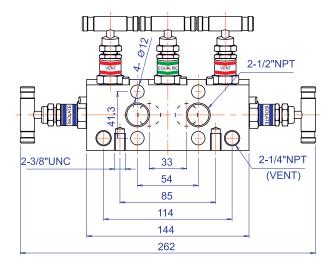
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31.5

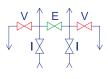




		End Connection		Valve Seat	Max. W.P. at
Ordering No. Inlet/Process Outlet/Instrument		Vent/Test	valve Seat	38°C (100°F)	
5VM05S	1/2"NPT female	For pressure transmitter model 3051	1/4"NPT female	Metal	6000psi



FLOW DIAGRAM



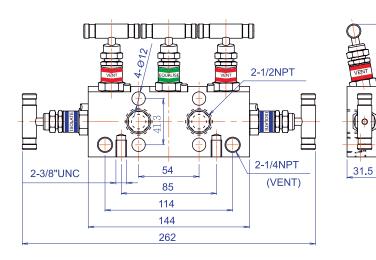


		End Connection	Valve Seat	Max. W.P. at		
Ordering No.	Inlet/Process	Outlet/Instrument	Vent/Test	valve Seat	38°C (100°F)	
5VM06S	1/2"NPT female	Flange	1/4"NPT female	Metal	6000psi	

118

63

Manifold is supplied with two Teflon[®] sealing rings on instrument ports.





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 6000 psig @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

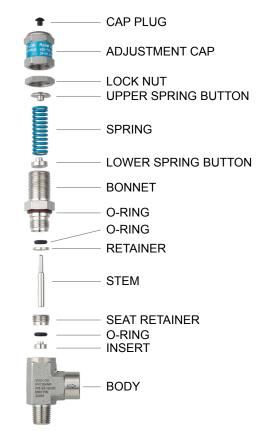
Lock wire to secure cap to maintain set pressure adjustment.

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



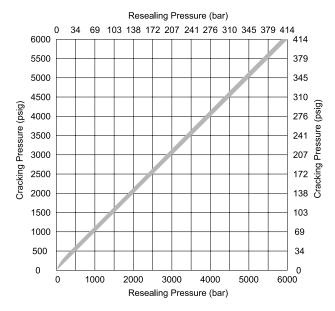
Component	Material Grade/ASTM specification
Cap Plug	Polypropylene
Adjustment Cap	316L SS/A479
Lock Nut	316L SS/A276
Upper Spring Button	316L SS/A276
Spring	17-7 PH SS/AMS 5678
Lower Spring Button	316 L SS/A276
Bonnet	316L SS/A479
O-Ring	Viton®
O-Ring	Viton®
Retainer	316L SS/A276
Stem	316L SS/A479
Seat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



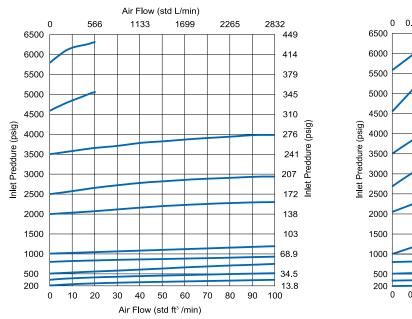
Set Pressure and Resealing Pressure

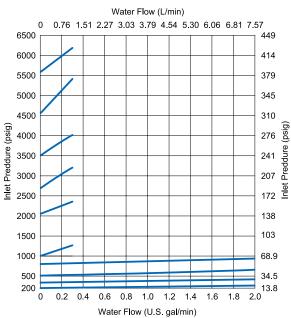
- Cracking pressure is the upstream pressure at which the first indication of flow occurs. The repeatability of the cracking pressure of each valve after initial relief is within ±5% at room temperature.
- Resealing pressure is the upstream pressure at which there is no indication of flow. Reasealing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

RV01 Series



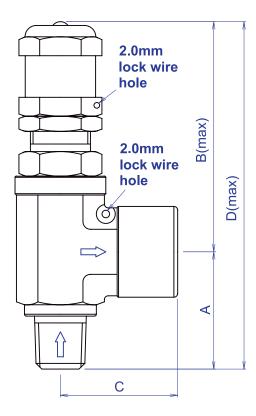
Flow Characteristics RV01 Series







Dimensions



Ordering No.	End Con	nections	Dime	nsion	s, in. (mm)
	Inlet	Outlet	А	В	С	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 Press	ure Range	Spring	Spring Color
Ordening No.	psig	bar	Designator	Spring Color
RV01SPK-A	50 to 350	3.4 to 24	А	White
RV01SPK-B	350 to 750	24 to 51.6	В	Blue
RV01SPK-C	750 to 1500	51.6 to 103	С	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	Н	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 (℃)	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 3 00 (-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	Вс	ody Material		Inlet	End	Connection		Seal Material		Spring Kit Color
RV01	S	316L S.S.	4	1/4"	М	Male		Viton®	А	White 50~350psig
			6	3/8"	F	Female	Bu	Buna N	В	Blue350~750psig
			M6	6mm	OD	VEE-LOK twin ferrule tube fittings	NE	Neoprene	С	Golden 750~1500psig
			M10	10mm			EP	Ethylene propylene	D	Black 1500~2250psig
			M12	12mm					Е	Green 2250~3000psig
									F	Yellow 3000~4000psig
									G	Brown 4000~5000psig
									Н	Orange 5000~6000psig



CHECK VALVE CV01 Series



Features

- Maximum working pressure: 6000psi (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

Mat	erial	316 SS		
Tempe	erature	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

Component	Valve Body Material
Component	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.

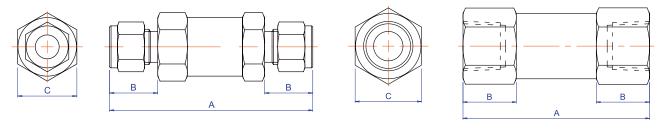
Material of Construction



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



Dimensions



Ordering No.	End Co	nnection	Dimensions (mm)			
Ordening No.	Inlet	Outlet	Α	В	С	
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	Bod	y 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

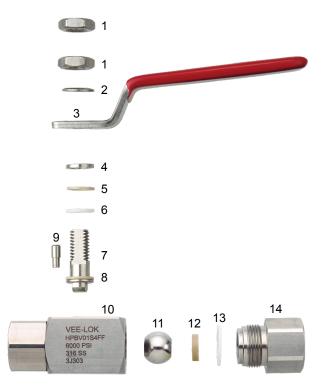
- Maximum working pressure: 6000 psi (414bar) at 100°F (38°C)
- Working temperature:

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



	Commonweat	Material Grade
NO.	No. Component	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	Teflon®
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 ^{Note}
13	Seal	Teflon®
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

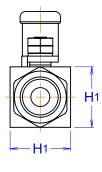
- Valves are designed to control fluids in full open or full closed position.
- Valves that have not been actuated for a period of time may require a higher initial actuation torque.
- Valve must be in open position during system test not to damage the valve seat.

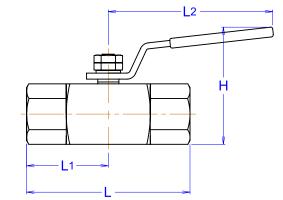
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Safe Product Selection

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)					
Ordering No.	Inlet	Outlet	Bore	L	L1	Н	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	ę	S	4			FF		
Series	Body I	Material	S	ize	Er	nd Connection	Seat N	laterial
HPBV01	S	316 S.S.	4	1/4"	FF	Female X Female	РК	PEEK
			6	3/8""		VEE-LOK twin ferru	Ile PV	PVDF
			8	1/2"	OD	tube fittings	DV	Devlon® V-API

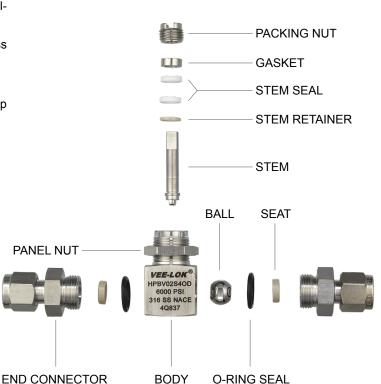


High Pressure Ball Valve HPBV02 series



Features **Material of Construction** HANDLE Maximum working pressure: 6000 psi (414bar) at 100°F (38°C) Working temperature: -65°F (-54°C) to 392°F (200°C) - HANDLE SET SCREW 316 SS mini ball valve overcomes limitation of installment space. PACKING NUT A quick 1/4 turn on-off control of fluids used in process and instrumentation applications. GASKET 90 degree actuation operates with low torques. STEM SEAL Straight through flow path for minimum pressure drop and bi-directional flow. STEM RETAINER

- Fine finished ball provides a positive seal.
- PEEK seat withstands high pressure circumstances.
- Panel mountable nut.



Pressure Rating and Tubing Selection

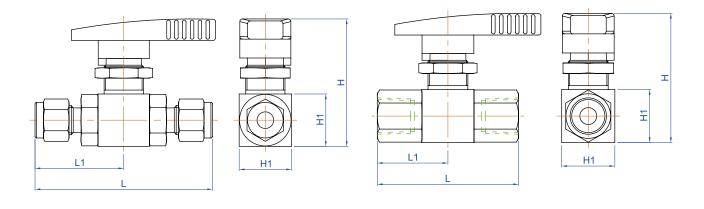
For working pressures of VEE-LOK tube ends, please refer to working pressure table found in tube fitting catalogue.

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

Component	Valve Body Material
Component	316 S.S.
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



	End Co	onnection	Orifice		Dimensio	ons (mm)	
Ordering No.	Inlet	Outlet	(bore)	L	L1	Н	H1
HPBV02S2FF	1/8"NPT female	1/8"NPT female	5	53.2	26.6	49	20
HPBV02S4FF	1/4"NPT female	1/4"NPT female	5	53.2	26.6	49	20
HPBV02S6FF	3/8"NPT female	3/8"NPT female	7	61.6	30.8	55	25
HPBV02S2OD	1/8" O.D.	1/8" O.D.	5	62	31	49	20
HPBV02S4OD	1/4" O.D.	1/4" O.D.	5	67.8	33.9	49	20
HPBV02S6OD	3/8" O.D.	3/8" O.D.	7	75.8	37.9	55	25

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		OD		
Series	Body	y Material		Size			End Connection
HPBV02	S	316 S.S.	4	1/4"	F	=	NPT female-female
			6	3/8""			
			8	1/2"	0	D	VEE-LOK twin ferrule tube fittings

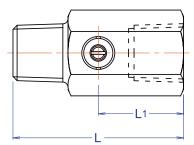


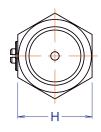
Pressure Gauge Snubber PGS series



- 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 sunbber is in service.

Material	of	Construction





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

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

6000PSJ



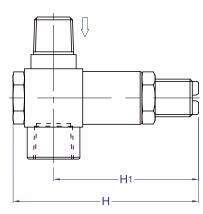
Adjustable Overload Protector AOP series

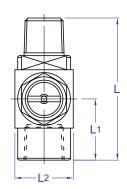


Features

- 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 preset 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





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



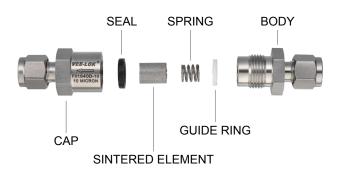


Features

- 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 BODY

VEE-LOK







------ RETAINER RING

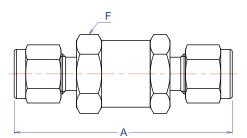
Component	Material
Сар	316 SS/A479
Seal	Viton
Sintered Element	316 SS
Spring	302 SS
Guide Ring	PTFE
Body	316 SS/A479

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



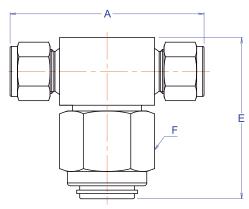
Dimensions

F Series



Ordering No.	End Connection	Dimensions (mm)		
	Inlet/Outlet	Size	А	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	А	Е	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 0 Exa

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ordering	number.				
ample: 1	F01S8O	D- 60			

Nominal Pore Size µm	Pore Size Range µm	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	Bod	y Material	\$	Size		End Connection	Sintered	Element
	S	316 S.S.	2	1/8"	OD	VEE-LOK tube fitting	0.5µm	05
			4	1/4"	MM	Male-Male NPT	2µm	2
			6	3/8"	FF	Female-Female NPT	7µm	7
			8	1/2"			15µm	15
			M6	6mm			60µm	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.

Vertex Co., Ltd.

3F, No.3, Lane 551, Sec. 1, Wanshou Rd., Gueishan Township, Taoyuan County 33351, Taiwan Tel: +886 2 8200 3813 Fax: +886 2 8200 3817 vertex.jo@msa.hinet.net

