Hy-Lok

www.hy-lok.com

Catalog No. H-700T
Mar. 2023

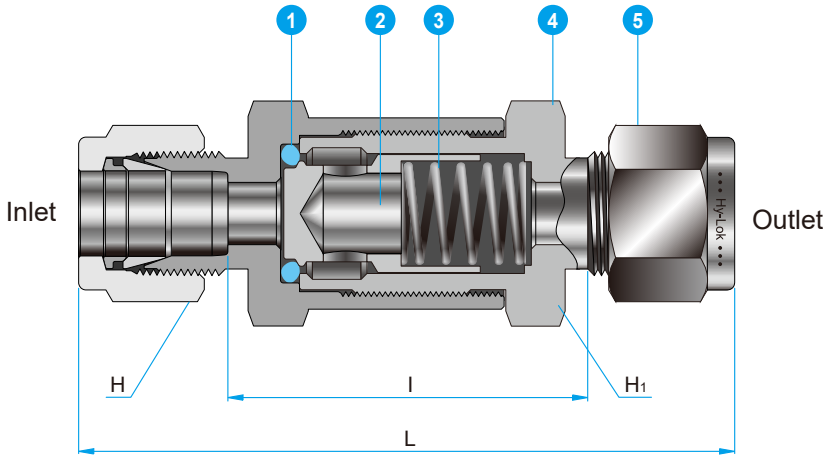
Check Valves

700, 700H, 701, 700A Series

Feature

- Pressure rating up to 6000psig(413bar) @ 70°F(21°C) - 700H
  3000psig(206bar) @ 70°F(21°C) - 700, 701, 700A Series
- Temperature rating up to 375°F(191°C) with FKM seal
- Suitable for gas and liquid
- SS316 body material as standard
- 100% factory tested for cracking and reseal

HY-LOK CORPORATION



1. **O-Ring**
   - provides leak tight shut - off.
2. **Back Stopped Poppet**
   - prevents the spring from being overstressed.
3. **Variety of Springs**
   - are available for the cracking pressure in the range from 1/3 psig to 100psig.
4. **Wide Range of Body Sizes**
   - allow Cv choices from 0.16 to 8.0
5. **Variety of End Connections**
   - include Hy-Lok tube fittings, male/female NPT tapered threads, male/female ISO tapered threads.

Technical Data

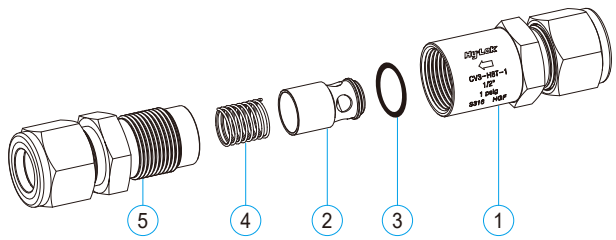
Series	CV1	CV2 CV3 CV4	CV5 CV6
Max. Working Pressure @ 70°F (21°C)	3000 psig (206bar)		2000 psig (137bar)
Operating Temperature Range	FKM : -10°F to 375°F (-23°C to 191°C) NBR : -10°F to 250°F (-23°C to 121°C)		
Nominal Cracking Pressure	1/3, 1, 3, 10, 25, 100 psig		1/3, 1, 3, 10, 25 psig

Table of Dimensions

Basic Part No.		Orifice	Cv	End Connections		Dimensions			
				Inlet	Outlet	L	I	H (Nut Hex)	H1 (Body Hex)
CV1	-H - 2T	4.8	0.16	1/8" Hy - Lok	1/8" Hy - Lok	55.5	30.2	11.1	15.9
	-M- 2N		0.47	1/8" Male NPT	1/8" Male NPT	44.5	-	-	
	-F - 2N			1/8" Female NPT	1/8" Female NPT	46.5			
	-H - 4T			1/4" Hy - Lok	1/4" Hy - Lok	60.0	29.5	14.3	
	-H - 6M			6mm Hy - Lok	6mm Hy - Lok		29.4	14.0	
	-MH-4N4T			1/4" Male NPT	1/4" Hy - Lok	56.5	-	14.3	
	-M - 4N			1/4" Male NPT	1/4" Male NPT	53.5		-	
	-F - 4N			1/4" Female NPT	1/4" Female NPT	54.5			19.1
CV2	-H - 6T	7.1	1.48	3/8" Hy - Lok	3/8" Hy - Lok	75.0	41.3	17.5	22.2
	-H - 10M			10mm Hy - Lok	10mm Hy - Lok		40.4	19.0	
	-M - 6N			3/8" Male NPT	3/8" Male NPT	64.5	-	-	
CV3	-F - 6N	10.0	1.70	3/8" Female NPT	3/8" Female NPT	68.0	-	-	22.2
	-H - 8T			1/2" Hy - Lok	1/2" Hy - Lok	80.5	34.5	22.2	
	-H - 12M			12mm Hy - Lok	12mm Hy - Lok		34.6	22.0	
	-M - 8N			1/2" Male NPT	1/2" Male NPT	74.5	-	-	
CV4	-F - 8N	13.5	2.60	1/2" Female NPT	1/2" Female NPT	85.0	-	-	28.6
	-H - 10T			5/8" Hy - Lok	5/8" Hy - Lok	92.0	48.1	25.4	
CV5	-H - 12T	16.0	5.20	3/4" Hy - Lok	3/4" Hy - Lok	110.5	61.9	28.6	31.8
	-M - 12N			3/4" Male NPT	3/4" Male NPT	105.5	-	-	
	-F - 12N			3/4" Female NPT	3/4" Female NPT	103.5			
CV6	-H - 16T	18.0	8.00	1" Hy - Lok	1" Hy - Lok	120.0	58.7	38.1	34.9
	-M - 16N			1" Male NPT	1" Male NPT	116.5	-	-	
	-F - 16N			1" Female NPT	1" Female NPT	123.0			41.3

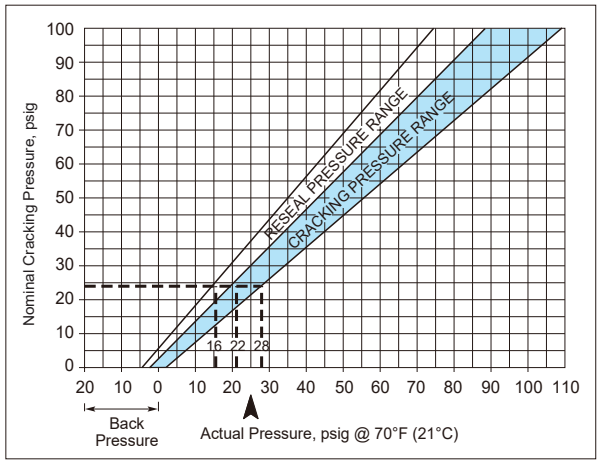
All dimensions in millimeters. Dimensions shown with Hy - Lok nuts in finger - tight position, where applicable.

Materials of Construction



No.	Component	Valve Body Materials	
		Material Grade / ASTM Specification	
1	Inlet Body	316 SS / A479	BRASS
2	Poppet	316 SS / A479	BRASS
3	O-Ring	FKM	
4	Spring	304 SS	
5	Outlet Body	316 SS / A479	BRASS

Molybdenum dry film lubricant is used for outer body made of 316SS
Silicone based lubricant is used for poppet.



Cracking and Reseal Pressure

- From the graph, the actual cracking pressure of nominal 25psi is shown to range between 22psig to 28psig, and the reseal pressure 16psig to 22psig.

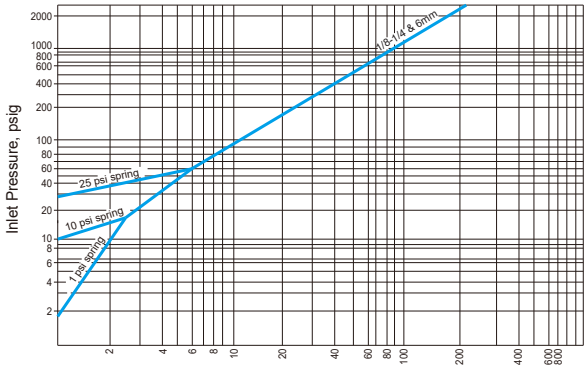
Back pressure may be required to reseal the valves with nominal cracking pressure of 5psig or lower.

1.Cracking pressure : The upstream pressure at which the first indication of flow occurs.

2.Reseal pressure : The upstream pressure at which there is no indication of flow.

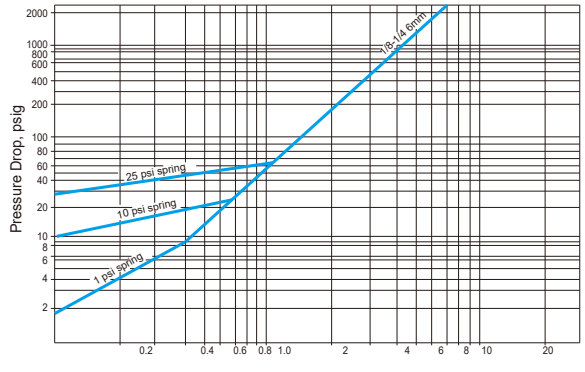
Flow Rate at 70°F (20°C)

Air End Connection Size 1/8 -1/4 & 6mm



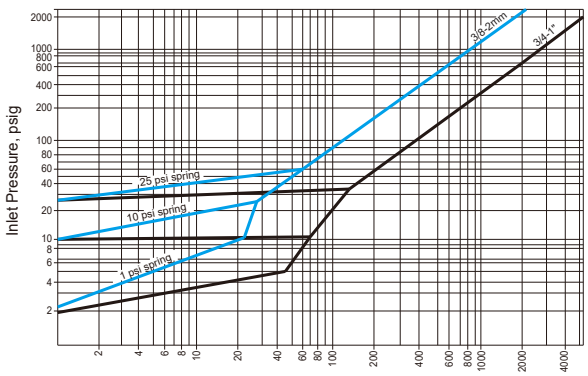
Air Flow S.C.F.M. @ 70°F (21°C) (Discharge to Atmosphere)

Water End Connection Size 1/8 -1/4 & 6mm



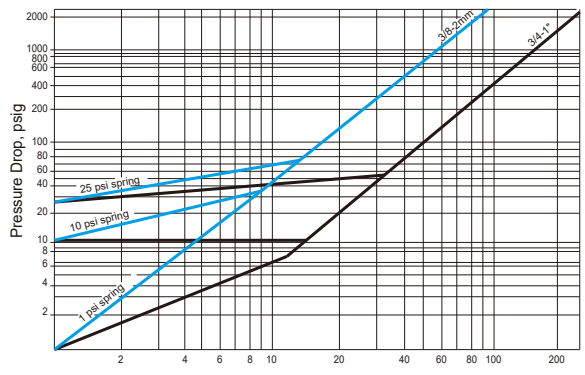
Water Flow G.P.M. @ 70°F(21°C)

Air End Connection Size 3/8 -1" 10 & 12mm

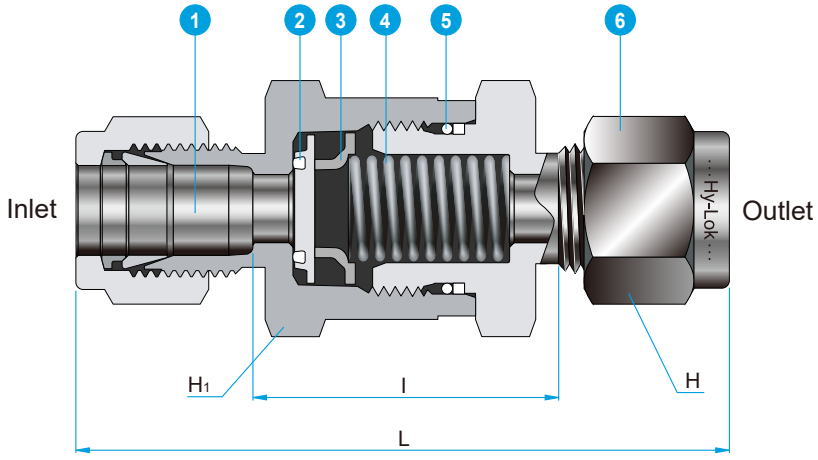


Air Flow S.C.F.M. @ 70°F(21°C) (Discharege to Atmosphere)

Water End Connection Size 3/8 -1" 10 & 12mm



Water Flow G.P.M. @ 70°F(21°C)



1. Orifice
   - is max. flow design for min. pressure drop. include flow dia from 4.8mm to 15.0mm
2. Poppet
   - provides leak tight shut-off with elastomer seal
3. Poppet Stopper
   - provides minimizes spring stress.
4. Springs
   - are available for the cracking pressure in the range from 1/3psig to 25psig
5. O-ring and Back Up Rings
   - are halves for ensures closure to the rated pressure
6. Variety of End Connection
   - include Hy-Lok tube fittings, male and female NPT, ISO tapered threads, ZCO ends and Matal Gasket Seal ends.

Technical Data

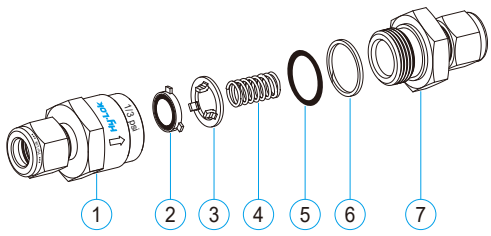
Series	CVH1	CVH2	CVH3
Max. Working Pressure	6000 psig (413bar)		5000 psig (344bar)
Operating Temperature Range	FKM : -10°F to 375°F (-23°C to 191°C) NBR : -10°F to 250°F (-23°C to 121°C)		
Nominal Cracking Pressure	1/3, 1, 5, 10, 25 psig		

Table of Dimensions

Basic Part No.		Flow Dia.	Cv	End Connection		Pressure Rating psig (bar)		Dimensions			
				Inlet	Outlet	SS316	Alloy 400	L	I	H (Nut Hex)	H_1 (Body Hex)
CVH1	- H - 2T	4.8	0.67	1/8" Hy-Lok		6000 (413)	5000 (345)	58.0	32.1	11.1	17.5
	- H - 4T			1/4" Hy-Lok				62.0	31.2	14.2	
	- H - 6M			6mm Male NPT					31.1	14.0	
	- F - 4N			1/4" Female NPT				54.5	-	-	
	- M - 2N			1/8" Male NPT				46.5			
	- M - 4N			1/4" Male NPT				55.0			
	- ZCR - 4			1/4" Metal Gasket Seal			-	58.0			
CVH2	- H - 6T	7.8	1.80	3/8" Hy-Lok		6000 (413)	5000 (345)	70.0	36.1	17.5	25.4
	- H - 8T			1/2" Hy-Lok				75.0	29.5	22.2	
	- H - 8M			8mm Hy-Lok				68.5	36.2	16.0	
	- H - 10M			10mm Hy-Lok				70.0	36.7	19.0	
	- H - 12M			12mm Hy-Lok				75.0	29.6	22.0	
	- F - 6N			3/8" Female NPT		5000 (345)	5000 (345)	65.0	-	-	
	- F - 8N			1/2" Female NPT		4600 (316)	4600 (316)	77.0			26.9
	- M - 6N			3/8" Male NPT		6000 (413)	5000 (345)	60.0			25.4
	- M - 8N			1/2" Male NPT				69.5			
	- ZCR - 8			1/2" Metal Gasket Seal		3500 (241)	-	69.5			
CVH3	- H - 12T	15.0	4.70	3/4" Hy-Lok		5000 (345)	4700 (323)	90.0	40.6	28.6	41.3
	- H - 16T			1" Hy-Lok				98.5	36.1	38.1	
	- H - 22M			22mm Hy-Lok				88.0	36.4	32.0	
	- H - 25M			25mm Hy-Lok				98.5	36.0	40.0	
	- F - 12N			3/4" Female NPT		4300 (296)		90.5	-	-	
	- F - 16N			1" Female NPT		4100 (282)		98.0			
	- M - 12N			3/4" Male NPT		5000 (345)	4700 (323)	84.5			
	- M - 16N			1" Male NPT				94.0			

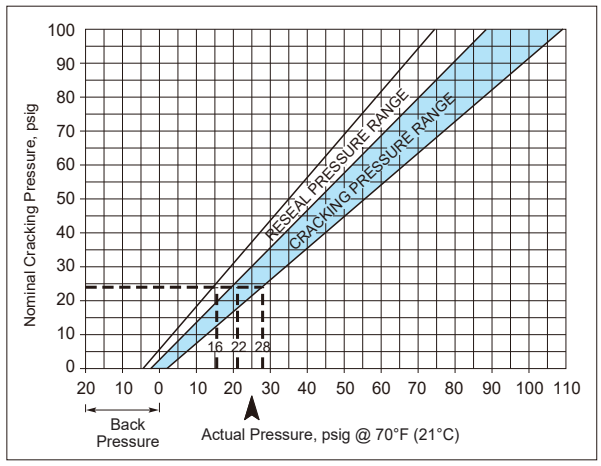
All dimensions in milimeters, reference only subject to change. Dimensions shown with Hy-Lok nuts in finger-tight position, where applicalble.
(-)blank is not applicable

Materials of Construction



No.	Component	Valve Body Materials
		Material Grade / ASTM Specification
1	Inlet Body	316 SS / A479
2	Poppet ①	316 SS / A479
3	Poppet Stopper	FKM - bonded 316 SS / A479
4	Spring	304 SS
5	O-Ring ①	FKM
6	Back Up Ring	PTFE
7	Outlet Body ②	316 SS / A479

① Fluorocarbon-Based.
② Molybdenum dry film lubricaut on thread.



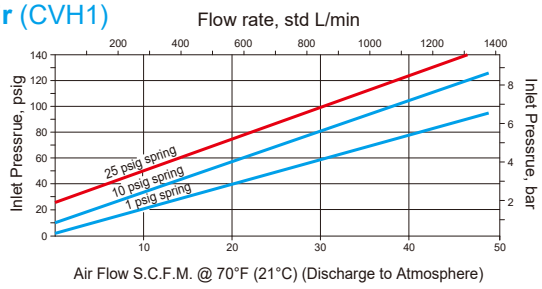
Cracking and Reseal Pressure

- From the graph, the actual cracking pressure of nominal 25psi is shown to range between 22psig to 28psig, and the reseal pressure 16psig to 22psig.

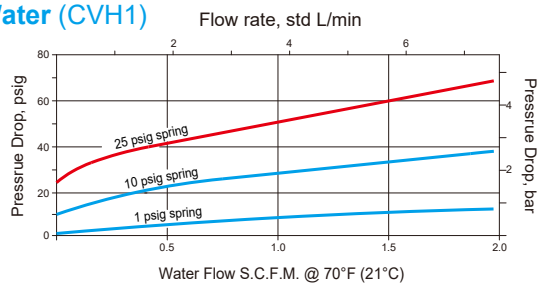
Back pressure may be required to reseal the valves with nominal cracking pressure of 5psig or lower.
1.Cracking pressure : The upstream pressure at which the first indication of flow occurs.
2.Reseal pressure : The upstream pressure at which there is no indication of flow.

Flow Rate at 70°F (20°C)

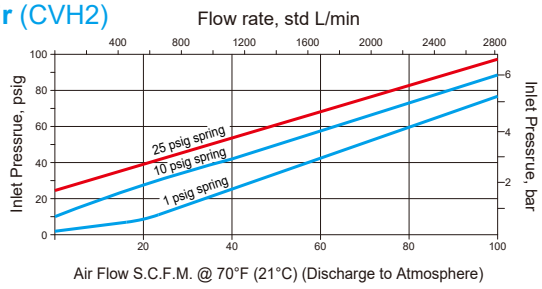
Air (CVH1)



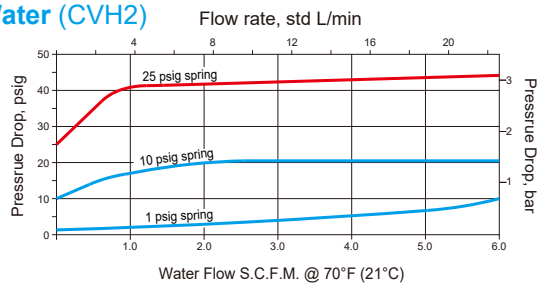
Water (CVH1)



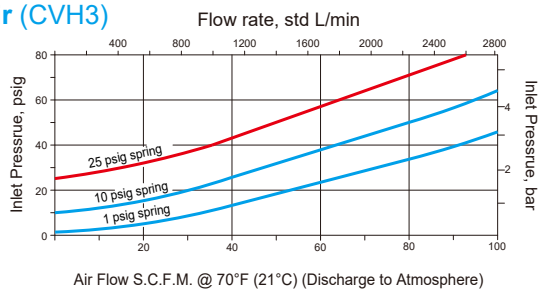
Air (CVH2)



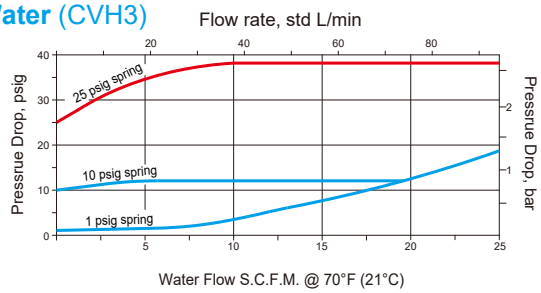
Water (CVH2)

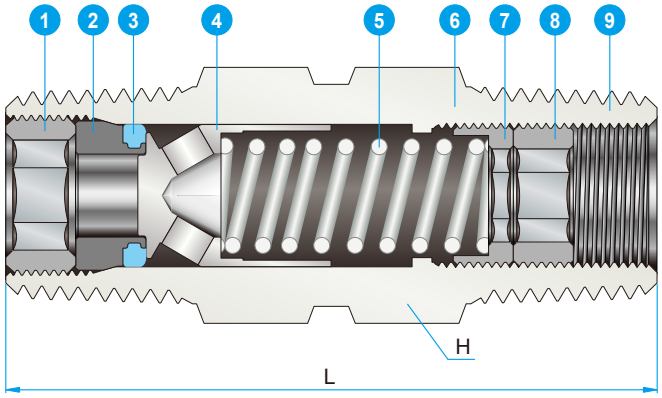


Air (CVH3)

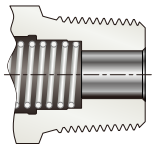


Water (CVH3)





* 701 Series is without Adjusting screw and locking screw



1. Stop nut
   - helps to contain the insert.
2. Insert
   - prevents blow-out of o-ring.
3. O-Ring
   - provides leak tight shut-off
4. Back Stopped Poppet
   - prevents the spring from being over stressed
5. Spring
   - a wide range of adjustable springs are available for the cracking pressure in the range from 3psig to 600psig.
6. One-piece Body
   - made from bar stock
7. Adjusting screw (700A Series Only)
   - sets desired cracking pressure
8. Locking screw (700A Series Only)
   - maintains setting.
9. End Connections
   - Male & Female ISO tapered threads, Male & Female NPT.

Technical Data

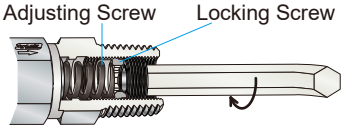
Series	701	700A
Max. Working Pressure	3000 psig (206bar)	
Operating Temperature Range	FKM : -10°F to 375°F (-23°C to 191°C) NBR : -10°F to 250°F (-23°C to 121°C)	
Nominal Cracking Pressure	1/3, 1, 3, 5, 10, 25 psig	3 to 50 psig 50 to 150 psig 150 to 350 psig 350 to 600 psig

Table of Dimensions

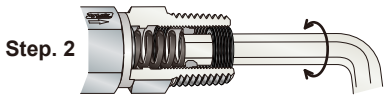
Basic Part No.		Flow Dia.	End Connections		Dimensions			
			Inlet	Outlet	L		H	
					mm	in.	mm	in.
Stationary Cracking Pressure								
CV (701 Series)	-M4N	4.8	1/4" Male NPT	1/4" Male NPT	41.1	1.62	14.2	9/16
	-M8N	10.0	1/2" Male NPT	1/2" Male NPT	57.9	2.28	22.2	7/8
	-F4N	4.8	1/4" Female NPT	1/4" Female NPT	61.2	2.41	19.1	3/4
	-F8N	10.0	1/2" Female NPT	1/2" Female NPT	94.2	3.71	26.9	1 1/16
	-FM4N	4.8	1/4" Female NPT	1/4" Male NPT	58.2	2.29	19.1	3/4
	-MF4N		1/4" Male NPT	1/4" Female NPT	44.4	1.75		
	-MF8N	10.0	1/2" Male NPT	1/2" Female NPT	71.9	2.83	26.9	1 1/16
Adjustable Cracking Pressure								
CVA (700A Series)	-M4N	4.8	1/4" Male NPT	1/4" Male NPT	41.1	1.62	14.2	9/16
	-M4R		1/4" Male ISO Tapered	1/4" Male ISO Tapered				
	-F4N		1/4" Female NPT	1/4" Female NPT	75.7	2.98	19.1	3/4
	-M8N	10.0	1/2" Male NPT	1/2" Male NPT	65.0	2.55	22.2	7/8
	-M8R		1/2" Male ISO Tapered	1/2" Male ISO Tapered				

All dimensions in milimeters. Dimensions are for reference only , subject to change.

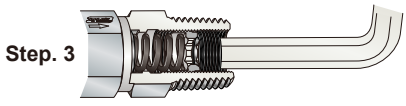
Cracking Pressure Adjustment



Insert the hex wrench into the lock screw.
Loosen the lock screw by rotating the hex wrench 2 to 3 full turns in the counterclockwise direction.



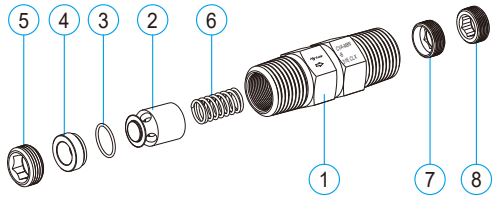
After loosening the lock screw, align the hex wrench os it will enter into the adjustment screw.
To establish the desired cracking pressure, rotate the hex wrench in a clockwise direction to increase the cracking pressure or rotate the hex wrench in a counterclockwise direction to decrease the cracking pressure.



After adjusting the adjustment screw to reach the desired cracking presking pressure, withdraw the hex wrench from the adjustment screw.
Tighten the lock screw against the adjustment screw firmly by rotating the hex wrench in a clockwise direction.

After testing for the desired cracking pressure, if additional adjusting is required, repeat steps 1 through 3.

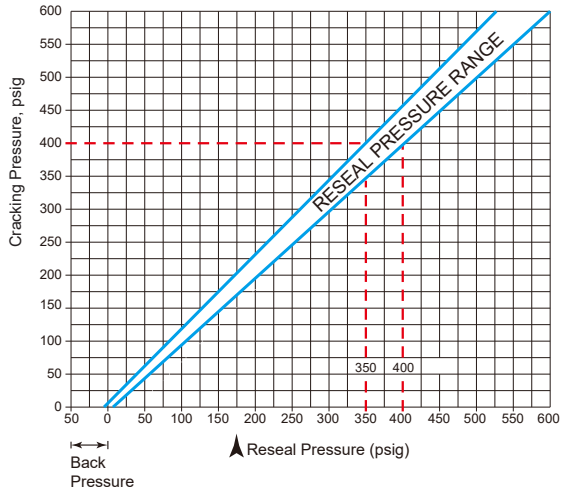
Materials of Construction



No.	Component	Valve Body Materials		
		316 SS	Brass	
			1/4"	1/2"
		Material Grade / ASTM Specification		
1	Body①	316 SS / A479	Brass	
2	Poppet	316 SS / A479	Brass	
3	O-ring①	FKM	NBR	
4	Insert	316 SS / A479	Brass	
5	Stop nut	316 SS / A479	Brass	
6	Spring	304 SS		
7	Adjusting screw②†	316 SS / A479		Brass③
8	Locking screw②†			

① Silicone-based lubricant.
② Molybdenum disulfide-based dry film lubricant.
③ Adjusting screw in brass valve with "C" or "D" (150~600 psig) spring is 316SS.
† 700A Series only.

Cracking and Reseal Presure at 70°F (20°C)



Example : For a valve set to crack at 400psig, the minimum reseal pressure would be 350psig.

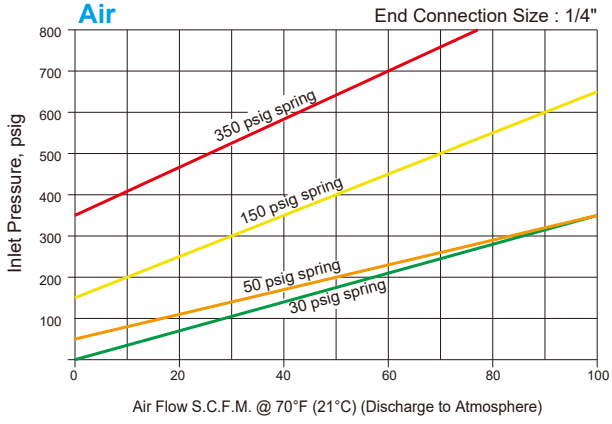
Valves that are not actuated for a period of time may crack initially at higher than subsequent cracking pressure.

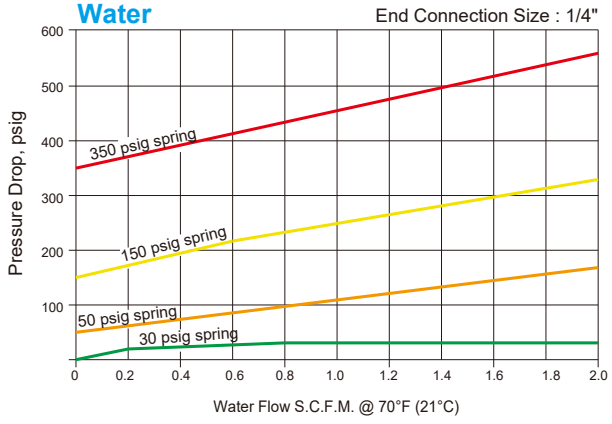
701, 700A series check valves set to crack at 20psig or lower may require back pressure to reseal bubble-tight.

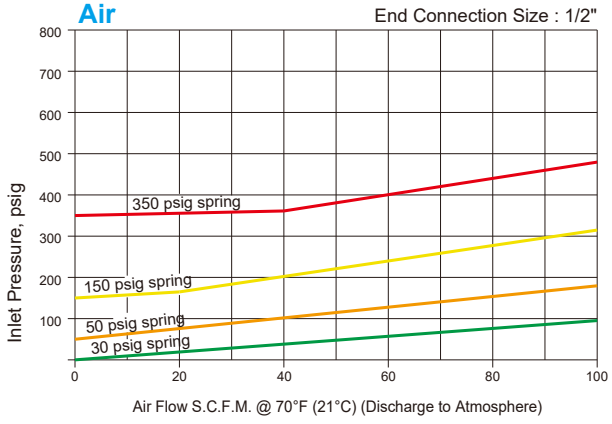
1.Cracking pressure : The upstream pressure at which the first indication of flow occurs.

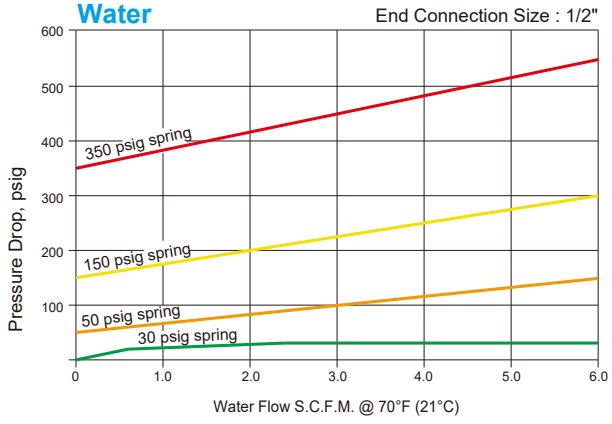
2.Reseal pressure : The upstream pressure at which there is no indication of flow.

Flow Rate at 70°F (20°C)









Cleaning

- Each valve is cleaned and packaged according to the company standard cleaning procedures.

Testing

- Each valve is tested with nitrogen for cracking and reseal performance.
- Optional tests are available upon request.

O - Ring Materials

- Available are various O - ring materials, whose temperature ratings are shown below.

Material	Temperature Rating
FKM	-23°C to 191°C (-10°F to 375°F)
NBR	-23°C to 121°C (-10°F to 250°F)
FFKM	-23°C to 260°C (-10°F to 500°F)
PTFE	-46°C to 232°C (-50°F to 450°F)
Neoprene	-40°C to 121°C (-40°F to 250°F)
Ethylene Propylene	-46°C to 149°C (-50°F to 300°F)

* A minimum back pressure of 10 bar is required for a leak-tight PTFE seal.

Ordering Information

VCV1 – MH – 4N4T – 1/3 – EP* – PS* – SOG* – S316

Series Designator
- V : Valve
- 700 : CV1, CV2, CV3, CV4, CV5, CV6
- 700H : CVH1, CVH2, CVH3
- 701 : CV
- 700A : CVA

End Connection Designator
- H : Both Ends Hy-Lok Tube Fitting
- M : Both Ends Male Pipe Thread
- F : Both Ends Female Pipe Thread
- MH : Male Pipe Thread & Hy-Lok Tube Fitting
- MF : Male Pipe Thread & Female Pipe Thread
- ZCR : Both Male Gasket Face Seal Fitting
- ZCO : O-ring Face Seal Fitting

701, 700A Series only apply to M, F, MF, FM type

Cracking Pressure Designator
- 1/3 : 1/3 psig
- 1 : 1 psig
- 3 : 3 psig
- 5 : 5 psig
- 10 : 10 psig
- 25 : 25 psig

700A Series Only
- A : 3~ 50 psig
- B : 50~150 psig
- C : 150~350 psig
- D : 350~600 psig

O-ring Material Designator
- Nil : FKM (Standard), NBR (Standard for Brass 700A Series Body)
- V : FKM
- F : FFKM
- BU : NBR
- EP : Ethylene Propylene
- PE : PTFE
- NE : Neoprene

700H Series only NBR, EP, FKM, FFKM

700A Series Only
- PS : Presetting for Cracking Pressure

Sour Gas Service
- Nil : Without (Standard)
- SOG : NACE MR-01-75

Material Designator
- S316 : 316 Stainless Steel
- BRAS : Brass

• Pipe Thread NPT (ISO / BSP)

Thread(NPS)	1/8	1/4	3/8	1/2	3/4	1
Designator	2N(R)	4N(R)	6N(R)	8N(R)	12N(R)	16N(R)

• Tube

Fractional Tube	O.D.	1/8"	1/4"	3/8"	1/2"	3/4"	1"
	Designator	2T	4T	6T	8T	12T	16T
Metric Tube	O.D.	3mm	6mm	10mm	12mm	20mm	25mm
	Designator	3M	6M	10M	12M	20M	25M

Note *: No designator is required for standard.
e.g VCVH1 - H4T - 1/3 - S316
701, 700A Series only apply to 1/2" & 1/4"

SAFETY in VALVE SELECTION

Proper installation, materials compatibility, operation and maintenance of these valves are the responsibility of the user. The total system design must be taken into consideration to ensure optimal performance and safety.