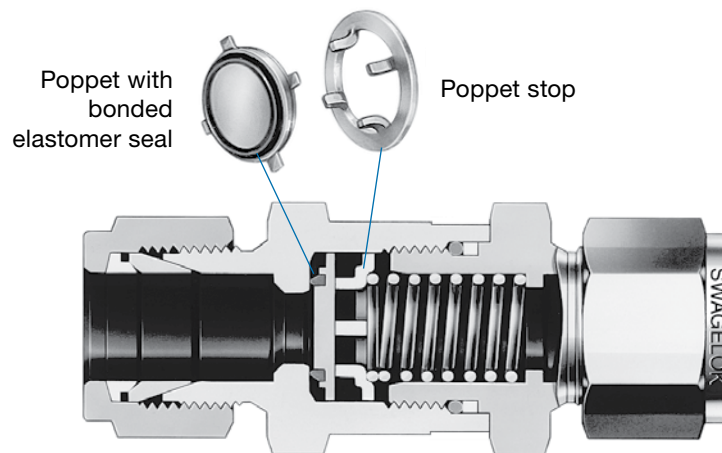


# Check Valves—Alloy 2507, 6-Moly, Alloy 625, and Alloy 825 Materials

## CH Series

- Alloy 625, Alloy 825, and Alloy 2507 super duplex stainless steel materials
  - Available for CH4 and CH8 series check valves
  - 1/4 to 1/2 in. Swagelok® tube fitting or NPT end connections
- 6-Moly materials
  - Available for CH4, CH8 and CH16 series check valves
  - 1/4 to 1 in. Swagelok tube fitting or NPT end connections
- Working pressures up to 6000 psig (413 bar)
- Fixed cracking pressures: 1 to 25 psi (0.07 to 1.8 bar)
- Materials in accordance with NACE MR0175/ISO 15156 as standard



### Pressure-Temperature Ratings

Ratings based on fluorocarbon FKM seals.

Material	Alloy 625	Alloy 825	Alloy 2507
<b>Temperature, °F (°C)</b>	<b>Working Pressure, psig (bar)</b>		
-10 (-23) to 100 (37)	6000 (413)	6000 (413) <sup>①</sup>	6000 (413)
200 (93)	6000 (413)	5510 (379)	5980 (412)
250 (121)	6000 (413)	5370 (369)	5820 (400)
300 (148)	6000 (413)	5225 (360)	5655 (389)
350 (176)	5940 (409)	5110 (352)	5555 (382)
400 (204)	5880 (405)	4995 (344)	5455 (375)

For more information about pressure ratings of valves with tube fitting end connections, refer to Swagelok *Tubing Data* catalog, MS-01-107.

① Pressure ratings for valves with 1/2 in. female NPT end connections limited to 5700 psig (392 bar).

Material	6-Moly CH4, CH16 <sup>①</sup>	6-Moly CH8 <sup>①</sup>
<b>Temperature, °F (°C)</b>	<b>Working Pressure, psig (bar)</b>	
-10 (-23) to 100 (37)	5000 (344)	6000 (413)
200 (93)	4800 (330)	5800 (399)
250 (121)	4600 (316)	5500 (378)
300 (148)	4300 (296)	5200 (358)
350 (176)	4200 (289)	5000 (344)
400 (204)	4000 (275)	4800 (330)

① CH8 and CH16 do not meet NACE MR0175/ISO15156 as standard

Pressure ratings may be limited by the end connection, see Dimensions, page 4.

## Cracking and Reseal Pressures at 70°F (20°C)

Cracking pressure—the inlet pressure at which the first indication of flow occurs (steady stream of bubbles).

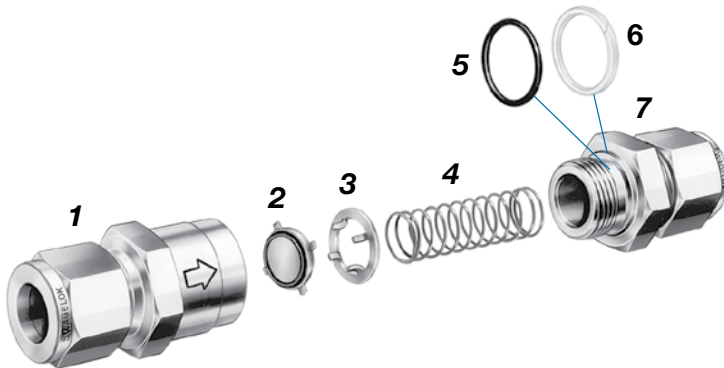
Reseal pressure—the pressure at which there is no indication of flow.

Back pressure—the differential pressure between the inlet and outlet pressures.

Nominal Cracking Pressure psi (bar)	Cracking Pressure Range psi (bar)	Reseal Pressure psi (bar)
1 (0.07)	Up to 4 (0.28)	Up to 5 (0.35) back pressure
5 (0.35)	3 to 9 (0.21 to 0.63)	Up to 2 (0.14) back pressure
10 (0.69)	7 to 15 (0.49 to 1.1)	3 (0.21) or more inlet pressure
25 (1.8)	20 to 30 (1.4 to 2.1)	17 (1.2) or more inlet pressure

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

## Materials of Construction



Component	Material Grade/ ASTM Specification			
	Alloy 625	Alloy 825	Alloy 2507	6-Moly
1 Inlet body	<i>Alloy 625/B446</i>	<i>Alloy 825/B425</i>	<i>Alloy 2507/A479</i>	6-Moly/B691
2 Poppet	<i>Fluorocarbon FKM-bonded<sup>①</sup> alloy C-276/B574</i>			
3 Poppet stop	<i>Alloy C-276/B575</i>			
4 Spring	<i>Alloy X-750 /AMS 5699</i>			
5 O-ring	<i>Fluorocarbon FKM</i>			
6 Backup ring	PTFE/D1710			
7 Outlet body	<i>Alloy 625/B446</i>	<i>Alloy 825/B425</i>	<i>Alloy 2507/A479</i>	6-Moly/B691
Lubricant	PTFE-based			

Wetted components listed in *italics*.

① Material Safety Data Sheet for bonding agent available on request.

## Testing

Every CH series check valve is factory tested for crack and reseal performance with a liquid leak detector.

Check valves are cycled six times prior to testing. Every valve is tested to ensure it seals within 5 s at the appropriate reseal pressure.

## Cleaning and Packaging

All CH series check valves are cleaned in accordance with Swagelok *Standard Cleaning and Packaging (SC-10)*, MS-06-62.

## Sour Gas Service

Swagelok CH series check valves are available for sour gas service. Alloy 2507, 6-Moly, alloy 625, and alloy 825 utilize materials in accordance with NACE MR0175/ISO15156 as standard. No special designator is required.

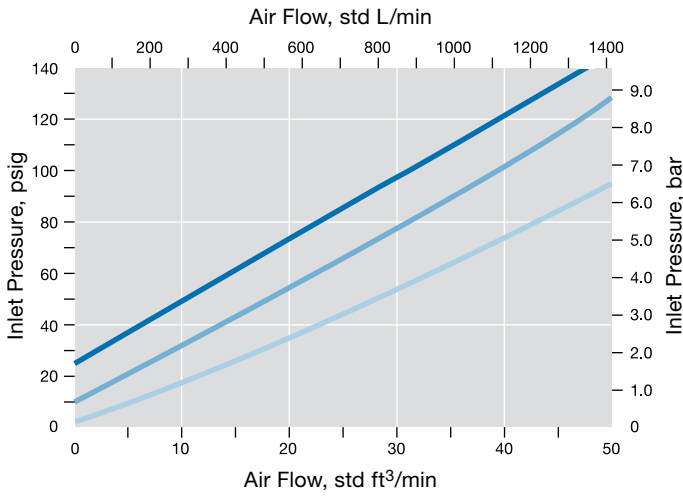
**Flow Data at 70°F (20°C)**

**Nominal Cracking Pressures**

— 1 psi (0.07 bar) — 10 psi (0.69 bar) — 25 psi (1.8 bar)

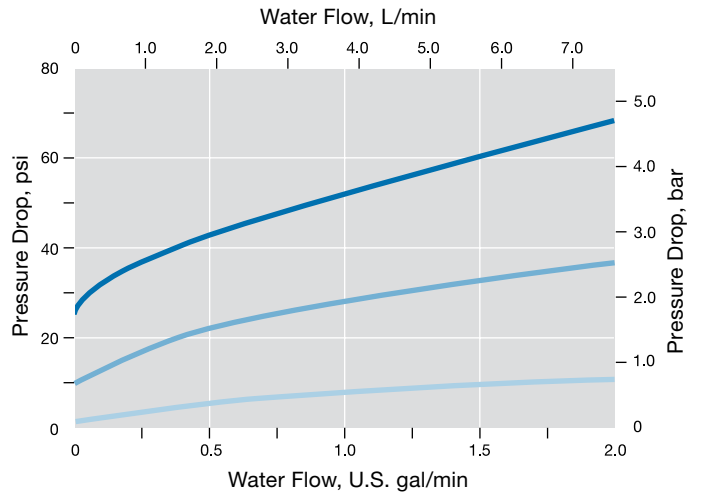
**Air**

**CH4 Series**

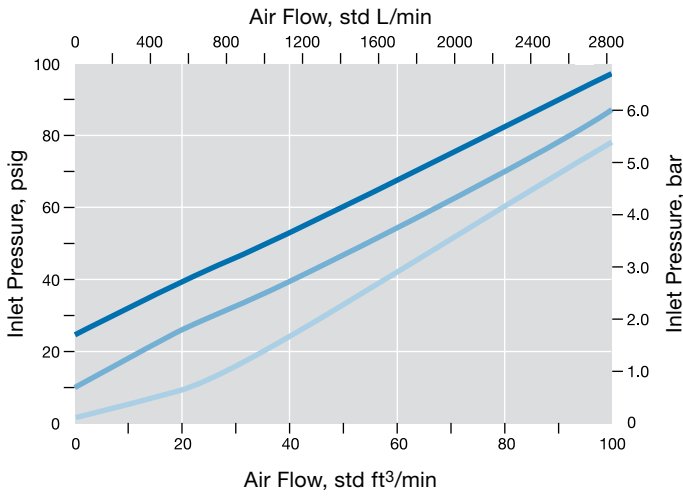


**Water**

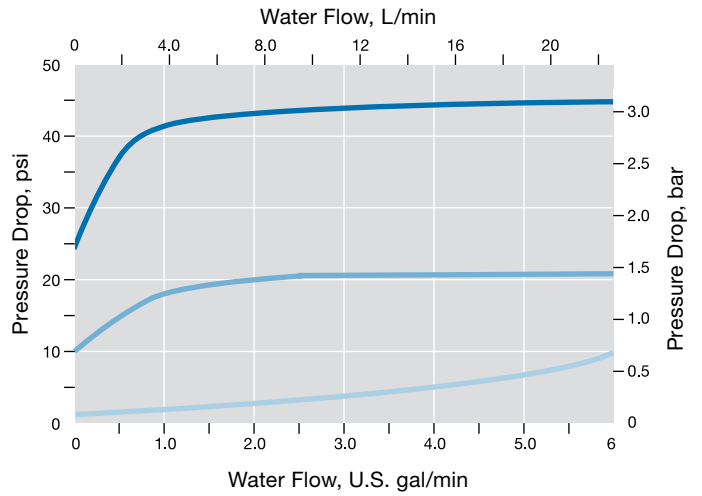
**CH4 Series**



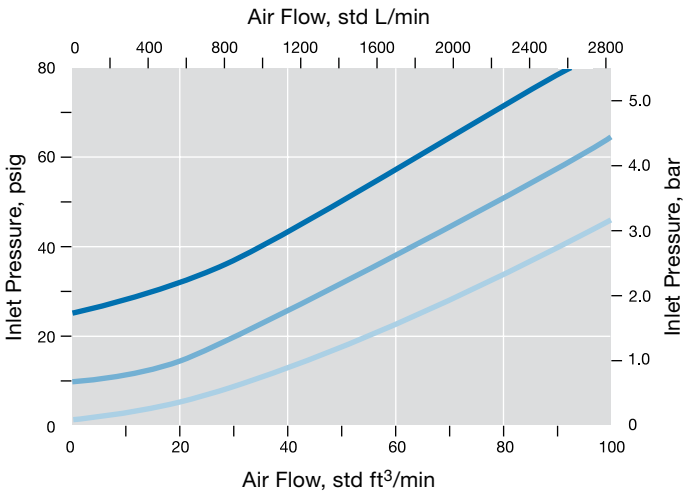
**CH8 Series**



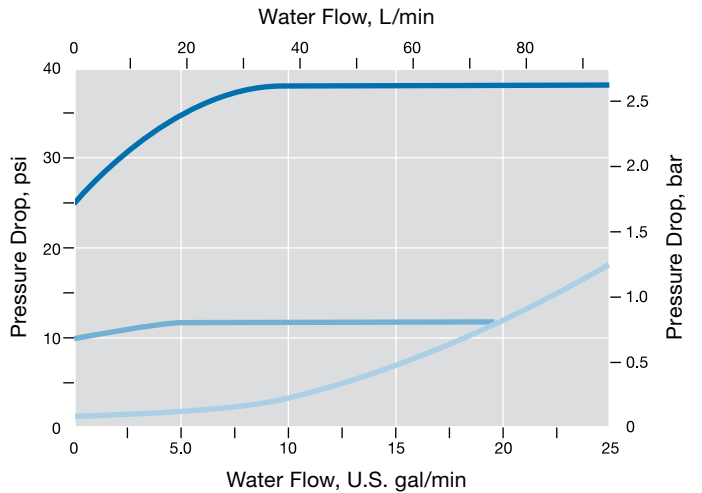
**CH8 Series**



**CH16 Series**

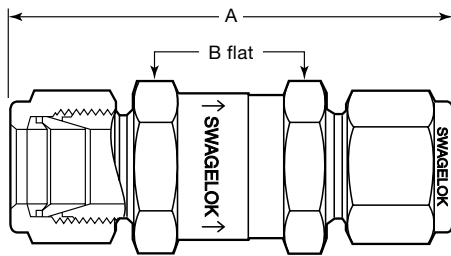


**CH16 Series**



## Dimensions

Dimensions are for reference only and are subject to change.  
Dimensions shown with Swagelok tube fitting nuts finger-tight.



End Connections		Pressure Rating at 100°F (37°C) psig (bar)		C <sub>v</sub>	Basic Ordering Number	Series	Dimensions in. (mm)	
Type	Size in.	625, 825, 2507	6-Moly <sup>③</sup>				A	B
Fractional Swagelok tube fitting	1/4	6000 (413)	5000 (344)	0.67	-CHS4-	CH4	2.43 (61.7)	11/16
	3/8		6000 (413)	1.8	-CHS6-	CH8	2.75 (69.9)	1 1/16
	1/2	6000 (413) <sup>①</sup>	6000 (413)	4.7	-CHS8-	CH16	2.96 (75.2)	
	3/4	—	5000 (344)		3.52 (89.4)		1 5/8	
	1		4500 (310)		3.88 (98.6)			
Female NPT <sup>②</sup>	1/4	6000 (413)	5000 (344)	0.67	-CHF4-	CH4	2.13 (54.1)	11/16
	3/8	5300 (365)	5300 (365)	1.8	-CHF6-	CH8	2.55 (64.8)	1 1/16
	1/2	4900 (337)	4900 (337)		-CHF8-		3.03 (77.0)	
	3/4	—	4600 (316)	4.7	-CHF12-	CH16	3.23 (82.0)	1 5/8
	1		4400 (303)		-CHF16-		3.83 (97.3)	
Male NPT	1/4	6000 (413)	5000 (344)		0.67		-CHM4-	CH4
	3/8		6000 (413)	1.8	-CHM6-	CH8	2.36 (59.9)	1 1/16
	1/2	6000 (413) <sup>①</sup>	6000 (413)	-CHM8-	2.73 (69.3)			
	3/4	—	5000 (344)	4.7	-CHM12-	CH16	3.29 (83.6)	1 5/8
	1				-CHM16-		3.67 (93.2)	

**⚠ Check valves are designed for directional flow control only. Swagelok check valves should never be used as code safety relief devices.**

① Alloy 825 limited to 5900 psig (406 bar). Refer to Swagelok *Tubing Data* catalog, MS-01-107, for additional information.

② Rating limited by end connection and are based on ratings for 316 SS. Refer to *Gaugeable Tube Fittings and Adapter Fittings* catalog, MS-01-140, for additional information.

③ Materials for 6-Moly CH4 series check valves are selected in accordance with NACE MR0175/ISO15156.

## Ordering Information

To order, select a basic ordering number from the **Dimensions** table above.

- Add the valve material designator from the table below.

Example: 625-CHS4-

Material	Designator
Alloy 625	625
Alloy 825	825
Alloy 2507	2507
6-Moly	6MO

- Add a cracking pressure designator to the basic ordering number.

Example: 625-CHS4-1

Cracking Pressure psi (bar)	Designator
1 (0.07)	1
5 (0.35)	5
10 (0.69)	10
25 (1.8)	25

## Options

### Special Cleaning and Packaging (SC-11)

To order CH series valves with optional special cleaning and packaging to ensure compliance with product cleanliness requirements stated in ASTM G93 Level C, add **-SC11** to the valve ordering number.

Example: 625-CHS4-1-**SC11**

### Oxygen Service Hazards

For more information about hazards and risks of oxygen-enriched systems, see the Swagelok *Oxygen System Safety* technical report, MS-06-13.

### Maintenance Kits

For spring kits and seal kits, contact your authorized Swagelok representative for more information.

## Additional Products.

- For Swagelok special alloy BV series bleed valves, refer to the *Bleed Valves—Special Alloy Materials* catalog, MS-02-356.



- For Swagelok special alloy 83 series ball valves, refer to the *Trunnion Ball Valves—Special Alloy Materials* catalog, MS-02-357.



- For Swagelok Alloy 2507 tube fittings products, refer to the *Gaugeable Alloy 2507 Super Duplex Tube Fittings* catalog, MS-01-147.



- For Swagelok special alloy N and HN series needle valves, refer to the *Severe Service Union-Bonnet Needle Valves—Special Alloy Materials* catalog, MS-02-365.



- For Swagelok tube fittings products, refer to the *Gaugeable Tube Fittings and Adapter Fittings* catalog, MS-01-140.



### Safe Product Selection

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

**Warning: Do not mix/interchange Swagelok products or components not governed by industrial design standards, including Swagelok tube fitting end connections, with those of other manufacturers.**

### Warranty Information

Swagelok products are backed by The Swagelok Limited Lifetime Warranty. For a copy, visit [swagelok.com](http://swagelok.com) or contact your authorized Swagelok representative.