KL GROUP

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NanoPure

CHECK VALVE

Lion Hygienic Materials Co., Ltd

Introduction

"NanoPure" is a brand of Gas Delivery Total Solution, belongs to King Lai Group, who was founded 1991 in Taiwan and expanded production facility in Kunshan, Jiangsu Province, China. Supplying tubing/piping and fitting materials service for Semiconductor, FPD, LED and Photovoltaic industries, the core idea of "NanoPure" is providing "High purity materials" with high quality components for gas delivery applications.

Gas supply and delivery is always the topic to study in Semiconductor processing. To ensure the accuracy of the processing, the purity of gas sources is the vital factors. Keeping the purity while the gas has been transferred into processing tools is highly monitored by process engineers.

"NanoPure" is composed of people who are specialist in stainless steels fabrication. By making sure the selection of finest materials, we provide finest products. The key point is how to control the quality of materials which makes big difference of welding quality while installing or welding assembly. There will be the potential impurity or inclusion in welding process. Therefore, electropolish is the solvable process for increasing reliability of stainless steel to against corrosion gases.

"NanoPure" aims to provide the highest quality products, so the quality control and uniformity are essential points to promise customers. In the meantime, we do put emphasis on the details of products such as dimension and tolerance which are important for quality control and therefore remain the high yield rate for assembly. Operational packages can be followed according to the customer's instruction, the ranging from normal standard clean package to Ultra High Purity clean room package.

"NanoPure" In addition to UHP products, we also provide various products needed by various Industries, such as Oil & Gas Industries, Process Instrumentation, Power Generation, Pulp & Paper, Chemical, Analytical Instrumentation, Hydrogen Fuel Cells and Natural Gas.

"NanoPure" considers every single key processing during the fabrication.

Our goal is keeping

continually improvement to reach customers' satisfaction!

- Working pressures: 3000 / 6000 psig (413 bar)
- Cracking pressures: fixed Variety of end connections
- Materials: 316 SST

Technical Data:

Cracking pressure—the upstream pressure at which the first indication of flow occurs.

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

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

Series	Maximum Flow Coefficient (Cv)	Nominal Cracking Pressure psi (bar)	Downstream Pressure at 70° F (20° C) psig (bar)
Fixed Cracking Pressure			
2CH	0.10	1/3, 1, 10 and 25 (0.03, 0.07, 0.69, and 1.8) Cracking pressure of 25psi (1.8bar), downstream pressure is 3000psi (206 bar)	1000 (68.9)
4CH	1.47		
6CH			200 (13.7)
8CH	1.68		
12CH, 16CH	4.48		
2CHL	0.67	1/3, 1, 5, 10 and 25 (0.03, 0.07, 0.35, 0.69, and 1.8) downstream pressure is 6000psi (410 bar)	6000 (413)
4CHL			
6CHL	1.8		
8CHL			
12CHL	4.7		5000 (344)
16CHL			
4CHP	0.35	1/3, 1, 10 and 25 (0.03, 0.07, 0.69,1.8)	3000 (206)
8CHP	1.20		
Adjustable Cracking Adjustable Cracking Pressure			
CHA	0.37	3 to 50 (0 .21 to 3 .5) 50 to 150 (3 .5 to 10 .4) 150 to 350 (10 .4 to 24 .2) 350 to 600 (24 .2 to 41 .4)	3000 (206)
4CHPA	0.35		
8CHPA	1.20		

Pressure-Temperature Ratings

CH Series (2CH, 4CH, 6CH, and 8CH), CHA,CHP and CHPA Series

Ratings based on fluorocarbon FKM O-rings in 316 SST

Material	316 SS
Temperature, °F (°C)	Working Pressure, psig (bar)
–10 (–23) to 100(37)	3000 (206)
200 (93)	2575 (177)
250 (121)	2450 (168)
300 (148)	2325 (160)
375 (190)	2185 (150)

CH Series (12CH and 16CH)

Ratings based on fluorocarbon FKM O-rings in 316 SST

Material	316 SS
Temperature, °F (°C)	Working Pressure, psig (bar)
–10 (–23) to 100 (37)	2000 (137)
200 (93)	1715 (118)
250 (121)	1630 (112)
300 (148)	1545 (106)
375 (190)	1450 (99.9)

CHL Series

Ratings based on fluorocarbon FKM seals

Material	316 SS	
Series	CH4, CH8	CH16
Temperature, °F (°C)	Working Pressure, psig (bar)	
–10 (–23) to 100 (37)	6000 (413)	5000 (344)
200 (93)	5160 (355)	4290 (295)
250 (121)	4910 (338)	4080 (281)
300 (148)	4660 (321)	3875 (266)
400 (204)	4280 (294)	3560 (245)

- 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

CH Series

Nominal Cracking Pressure psi (bar)	Cracking Pressure Range psi (bar)	Reseal Pressure psi (bar)
1/3 (0 .03)	Up to 3 (0 .21)	Up to 6 (0 .42) back pressure
1 (0 .07)	Up to 4 (0 .28)	Up to 6 (0 .42) 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

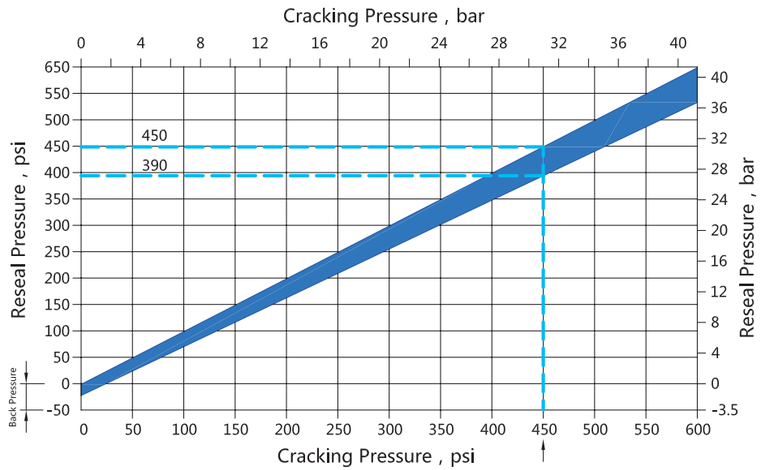
CHL Series

Nominal Cracking Pressure psi (bar)	Cracking Pressure Range psi (bar)	Reseal Pressure psi (bar)
1/3 (0 .03)	Up to 3 (0 .21)	Up to 6 (0 .42) back pressure
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

CHP Series

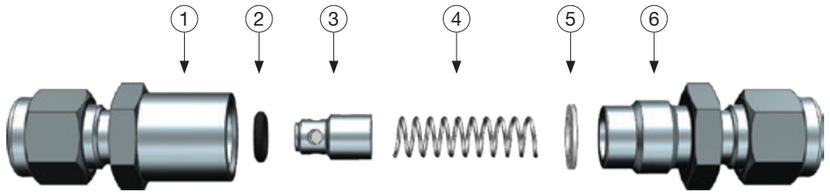
Nominal Cracking Pressure psi (bar)	Cracking Pressure Range psi (bar)	Reseal Pressure psi (bar)
1/3 (0 .03)	Up to 3 (0 .21)	Up to 20 (1 .4) back pressure
1 (0 .07)	Up to 4 (0 .28)	Up to 20 (1 .4) back pressure
10 (0 .69)	7 to 13 (0 .49 to 0 .90)	Up to 10 (0 .69) back pressure
25 (1 .8)	21 to 29 (1 .5 to 2 .0)	5 (0 .35) or more inlet pressure

CHA and CHPA Series



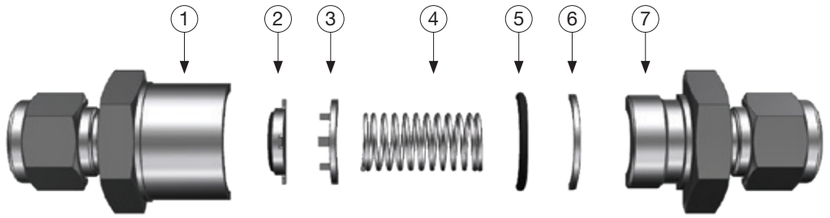
Materials of Construction

CH Series



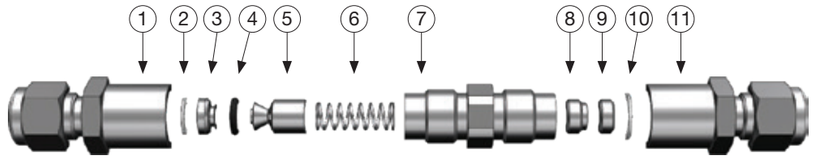
No.	Part	QTY	Material
1	BODY	1	SS 316
2	O-RING	1	VITON
3	POPPET	1	SS 316
4	SPRING	1	SS 302
5	SEAL FOR BODY CAP	1	PTFE
6	BODY CAP	1	SS 316

CHL Series



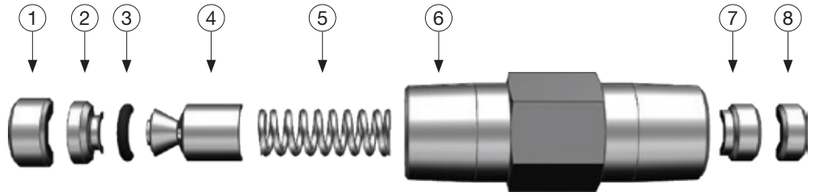
No.	Part	QTY	Material
1	BODY	1	SS 316
2	BACK UP RING	1	PTFE
3	O-RING	1	VITON
4	SPRING	1	SS 302
5	POPPET STOPER	1	SS 316
6	POPPET	1	VITON-BONDED + SS 316
7	BODY CAP	1	SS 316

CHA Series



No.	Part	QTY	Material
1	BODY	1	SS 316
2	GASKET	1	PTFE
3	INSERT	1	SS 316
4	O-RING	1	VITON
5	POPPET	1	SS 316
6	SPRING	1	SS 316
7	CENTER BODY	1	SS 316
8	ADJUSTING SCREW	1	SS 316
9	LOCKING SCREW	1	SS 316
10	GASKET	1	PTFE
11	BODY	1	SS 316

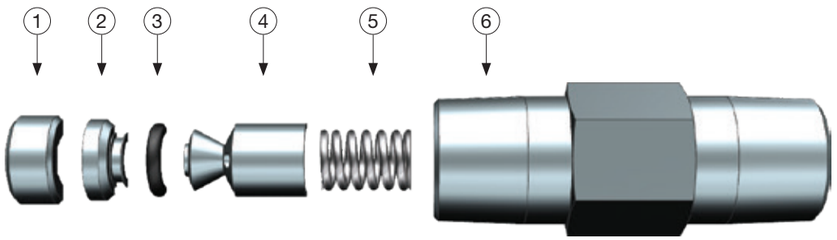
CHPA Series



No.	Part	QTY	Material
1	BODY	1	SS 316
2	INSERT	1	SS 316
3	O-RING	1	VITON
4	POPPET	1	SS 316
5	SPRING	1	VITON
6	BODY	1	SS 316
7	ADJUSTING SCREW	1	SS 316
8	LOCKING SCREW	1	SS 316

Materials of Construction

CHP Series



No.	Part	QTY	Material
1	BODY	1	SS 316
2	INSERT	1	SS 316
3	O-RING	1	VITON
4	POPPET	1	SS 316
5	SPRING	1	VITON
6	BODY	1	SS 316

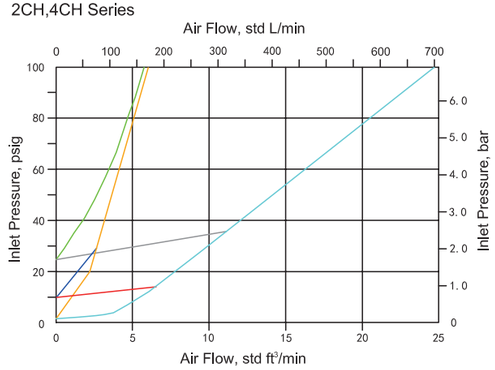
Flow Data at 70°F (20°C)

CH Series

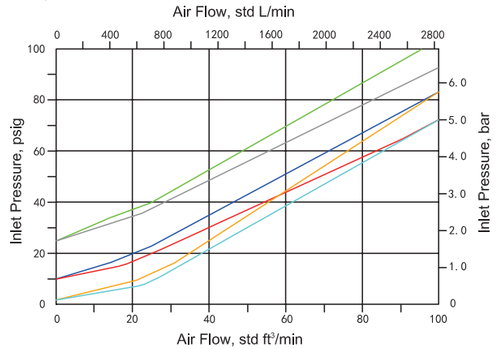
2CH, 6CH, 12CH, 16CH Series — 1 psi (0.07 bar) — 10 psi (0.69 bar) — 25 psi (1.8bar)
4CH, 8CH Series — 1 psi (0.07 bar) — 10 psi (0.69 bar) — 25 psi (1.8bar)

Air

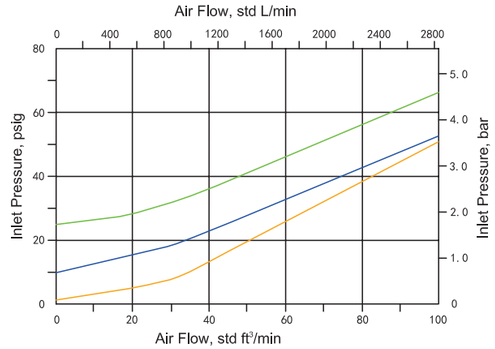
2CH,4CH Series



6CH,8CH Series

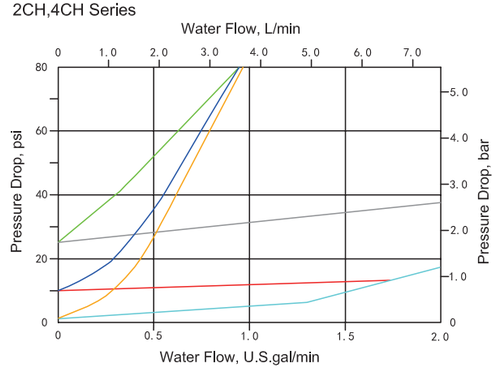


12CH,16CH Series

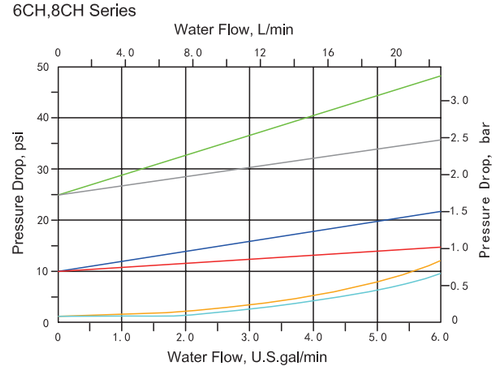


Water

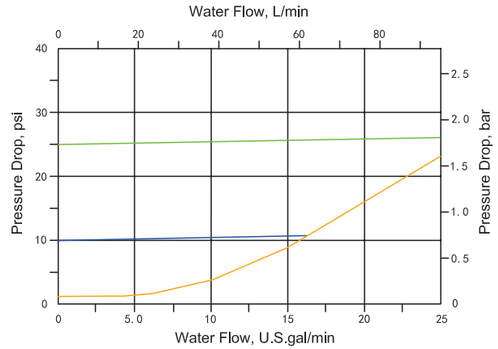
2CH,4CH Series



6CH,8CH Series



12CH, 16CH Series



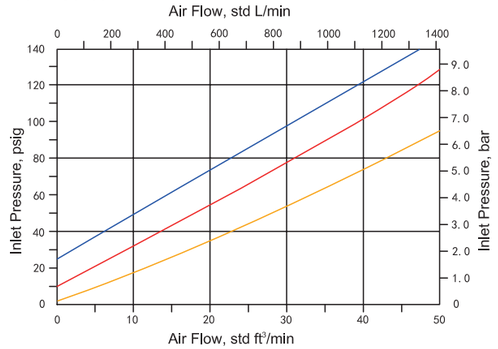
Flow Data at 70°F (20°C)

CHL Series

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

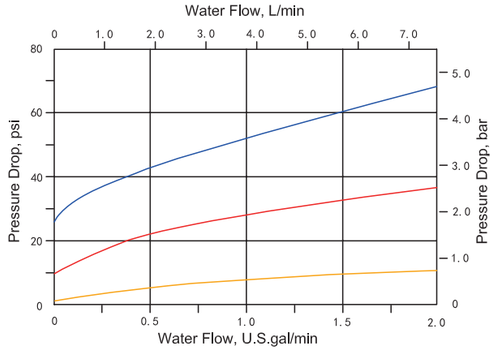
Air

4CHL Series

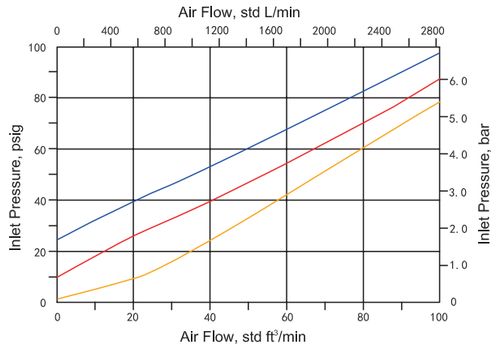


Water

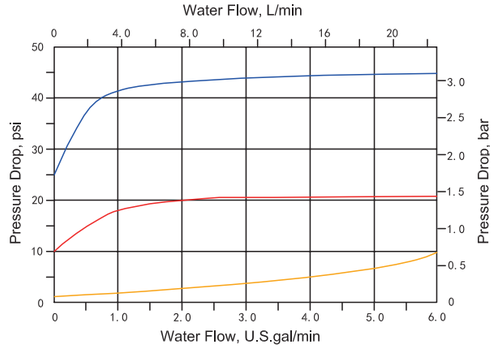
4CHL Series



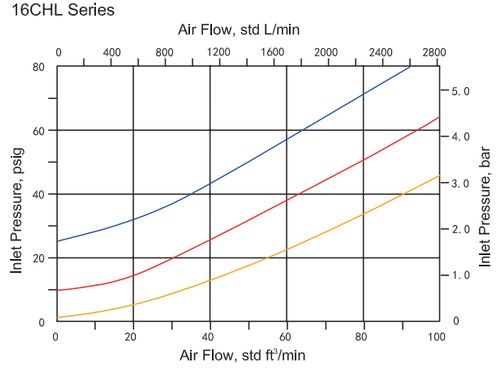
8CHL Series



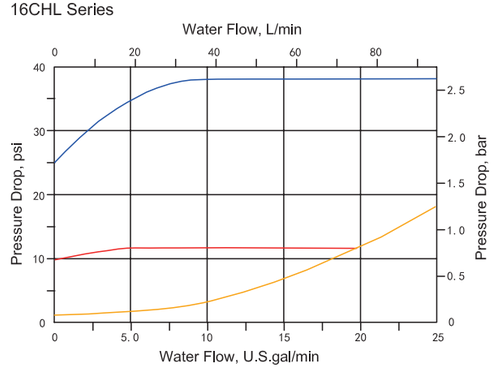
8CHL Series



16CHL Series



16CHL Series



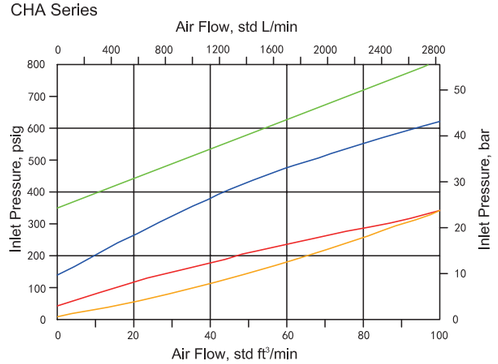
Flow Data at 70°F (20°C)

CHA and CHPA Series

3psi(0.21bar) 50psi(3.5bar) 150psi(10.4bar) 350psi(24.2bar)

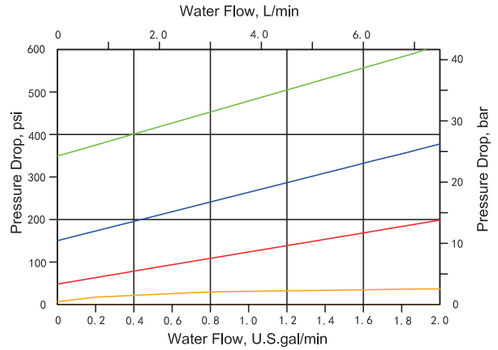
Air

CHA Series

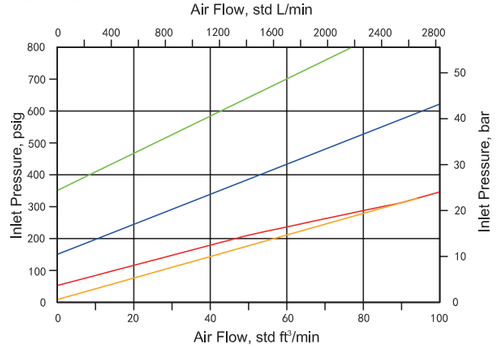


Water

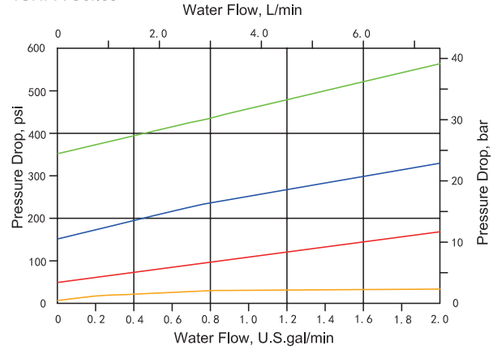
CHA Series



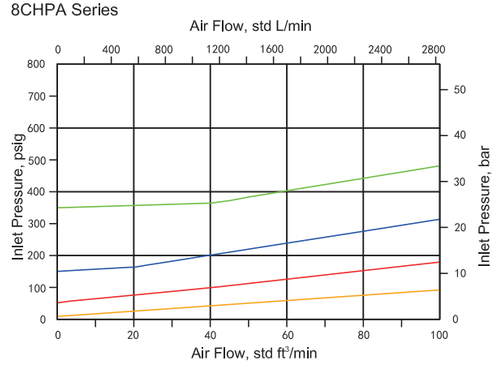
4CHPA Series



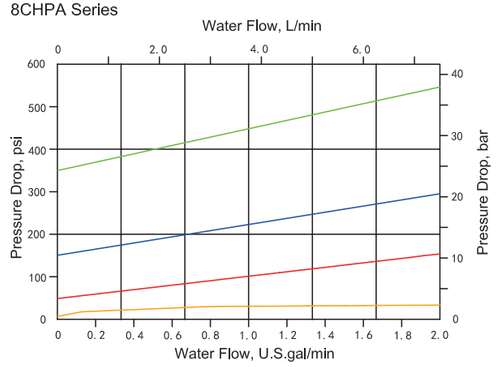
4CHPA Series



8CHPA Series

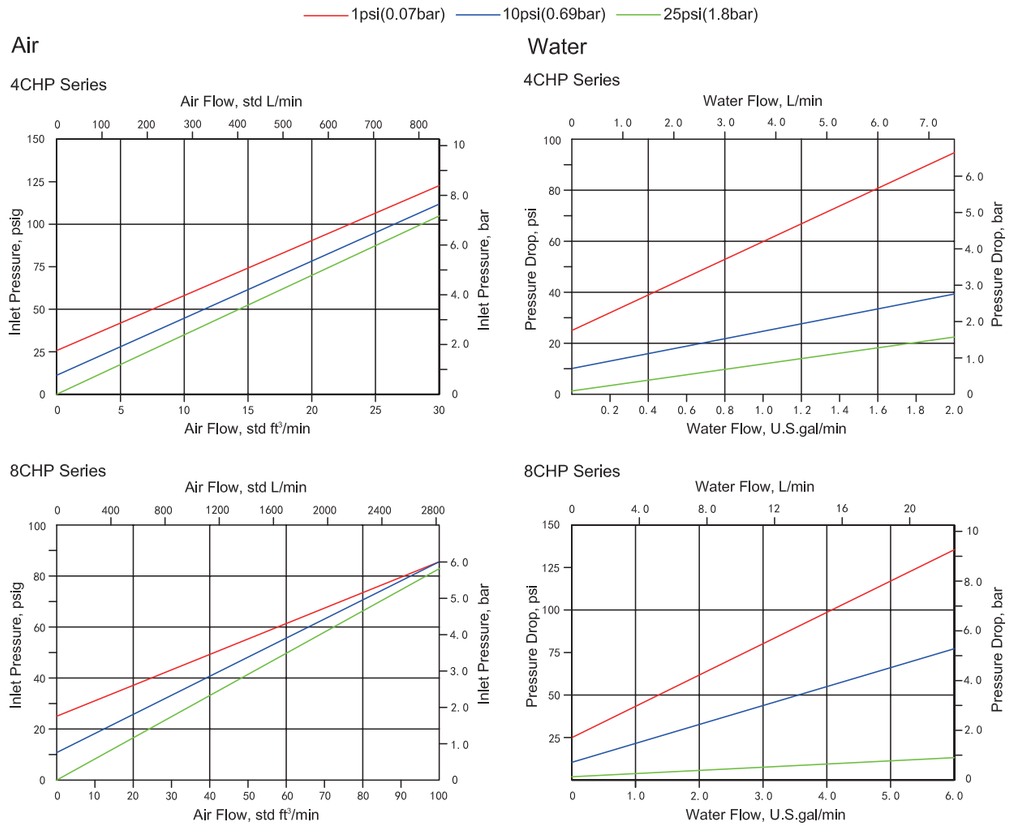


8CHPA Series



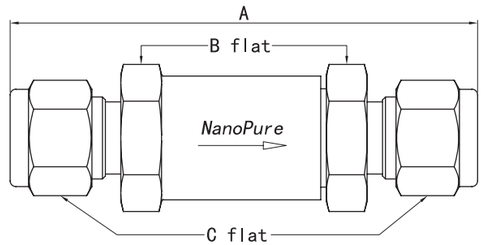
Flow Data at 70°F (20°C)

CHP Series



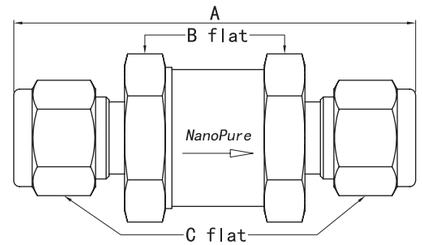
Dimensions

CH Series



End Connections		Dimensions, in. (mm)		
Type	Size	A	B	C
Fractional tube fittings	1/8”	2.14 (54.3)	5/8	7/16
	1/4”	2.35 (59.7)		9/16
	3/8”	3.17 (80.5)	7/8	1 1/6
	1/2”	3.42 (86.9)		7/8
	3/4”	4.32 (110)	1 1/4	1 1/8
	1”	4.74 (120)	1 3/8	1 1/2
Metric tube fittings	6 mm	2.36 (59.9)	5/8	(14)
	10 mm	3.32 (84.3)	7/8	(19)
	12 mm	3.42 (86.9)		(22)
Female NPT	1/8”	1.89 (48.0)	5/8	—
	1/4”	2.15 (54.6)	3/4	
	3/8”	2.98 (75.7)	7/8	
	1/2”	3.58 (90.9)	1 1/16	
	3/4”	4.08 (104)	1 1/4	
	1”	4.84 (123)	1 5/8	
Male NPT	1/8”	1.71 (43.4)	5/8	
	1/4”	2.09 (53.1)		
	3/8”	2.78 (70.6)	7/8	
	1/2”	3.16 (80.3)		
	3/4”	4.08 (104)	1 1/4	
	1”	4.52 (115)	1 5/8	
Male VC	1/4”	2.21(56.1)	5/8	
	1/2”	3.56(90.4)	15/16	
	3/4”	4.64(118)	1 5/8	
	1”	4.76(121)		

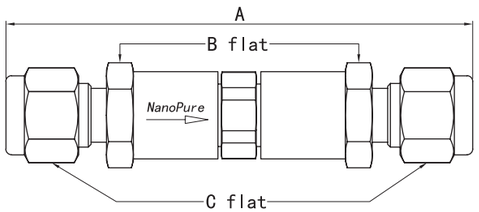
CHL Series



End Connections		Dimensions, in. (mm)	
Type	Size	A	B
Fractional tube fittings	1/8”	2.27 (57.7)	1 1/16
	1/4”	2.43 (61.7)	
	3/8”	2.75 (69.9)	1
	1/2”	2.96 (75.2)	
	3/4”	3.52 (89.4)	1 5/8
	1”	3.88 (98.6)	
Metric tube fitting	6 mm	2.43 (61.7)	1 1/16
	8 mm	2.70 (68.6)	1
	10 mm	2.80 (71.1)	
	12 mm	2.96 (75.2)	
	22 mm	3.48 (88.4)	1 5/8
	25 mm	3.88 (98.6)	
Female NPT	1/4”	2.13 (54.1)	1 1/16
	3/8”	2.55 (64.8)	1
	1/2”	3.03 (77.0)	1 1/16
	3/4”	3.23 (82.0)	1 5/8
	1”	3.83 (97.3)	
Male NPT	1/8”	1.79 (45.5)	1 1/16
	1/4”	2.17 (55.1)	
	3/8”	2.36 (59.9)	1
	1/2”	2.73 (69.3)	
	3/4”	3.29 (83.6)	1 5/8

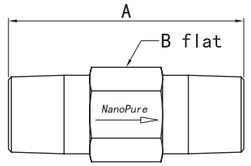
Dimensions

CHA Series



End Connections		Dimensions, in. (mm)		
Type	Size	A	B	C
Tube Fittings	1/4”	3.23 (82)	5/8	9/16
	6 mm	3.23 (82)		14
	8 mm	3.32 (84.3)		14
Male NPT	1/4”	3.12(79.2)		9/16
Male VC	1/4”	3.09(78.5)		-

CHPA and CHP Series



End Connections		Dimensions, in. (mm)	
Type	Size	A	B
CP Series			
Male NPT	1/4”	2.41 (61.2)	3/4
	1/2”	3.71 (94.2)	1 1/16
Female NPT	1/4”	1.62 (41.1)	9/16
	1/2”	2.28 (57.9)	7/8
CHP Series			
Male NPT	1/4”	2.98 (75.7)	3/4
Female NPT	1/4”	1.62 (84.3)	9/16
	1/2”	2.56 (86.9)	7/8

Seal Materials

Seal Material	Designator	Temperature Rating°F (°C)
Buna N	B	–10 to 250 (–23 to 121)
Ethylene propylene	E	–50 to 300 (–45 to 148)
Fluorocarbon FKM	F	–10 to 375 (–23 to 190)
Neoprene	N	–40 to 250 (–40 to 121)

Ordering Information

CH - SS - 04 - 10 - F

Base Series	Body Materials	In Connector	Out Connector	Cracking Pressure psi (bar)	Seal Materials
CH	SS	04		1/3	B
CH CHL CHA CHP CHPA	316 SST	02: 1/8” SWG 04: 1/4” SWG 06: 3/8” SWG 08: 1/2” SWG 12: 3/4” SWG 16: 1” SWG 3MO: 3mm SWG 6MO: 6mm SWG 8MO: 8mm SWG 12MO: 12mm SWG 16MO: 16mm SWG 18MO: 18mm SWG 20MO: 20mm SWG 22MO: 22mm SWG 25MO: 25mm SWG M4: 1/4”MNPT M6: 3/8”MNPT M8: 1/2”MNPT M12: 3/4”MNPT M16: 1”MNPT F4: 1/4”FNPT F6: 3/8”FNPT F8: 1/2”FNPT F12: 3/4”FNPT F16: 1” FNPT 04F: 1/4”Male VC 08F: 1/2”Male VC 12F: 3/4”Male VC 16F: 1”Male VC	02: 1/8” SWG 04: 1/4” SWG 06: 3/8” SWG 08: 1/2” SWG 12: 3/4” SWG 16: 1” SWG 3MO: 3mm SWG 6MO: 6mm SWG 8MO: 8mm SWG 12MO: 12mm SWG 16MO:16mm SWG 18MO:18mm SWG 20MO: 20mm SWG 22MO: 22mm SWG 25MO: 25mm SWG M4: 1/4”MNPT M6: 3/8”MNPT M8: 1/2”MNPT M12: 3/4”MNPT M16: 1”MNPT F4: 1/4”FNPT F6: 3/8”FNPT F8: 1/2”FNPT F12: 3/4”FNPT F16: 1” FNPT 04F: 1/4”Male VC 08F: 1/2”Male VC 12F: 3/4”Male VC 16F: 1”Male VC	**CH /CHL/ CHP Series** A: 1/3 (0.03) B: 1 (0.07) C: 5 (0.35) D: 10 (0.69) E: 25 (1.80) **CHA /CHPA** E: 3 to 50 (0 .21 to 3 .5) F: 50 to 150 (3 .5 to 10 .4) G: 150 to 350 (10 .4 to 24 .2) H: 350 to 600 (24 .2 to 41 .4)	**Generally:** F: FKM **Optional:** B: Buna N E: Ethylene propylene N: Neoprene

Testing

- Every CH, CHL series check valve is factory tested for crack and reseal performance with a liquid leak detector.
- Check valves with fixed cracking pressures, CH, CHL series, 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

Cleaning and Packaging compliance with product cleanliness requirements as stated in ASTM G93 Level C.

Sour Gas Valves (CHL Series)

- CH series valves are available for sour
- gas service.
- Materials are selected in accordance
- with NACE MR0175/ISO 15156.