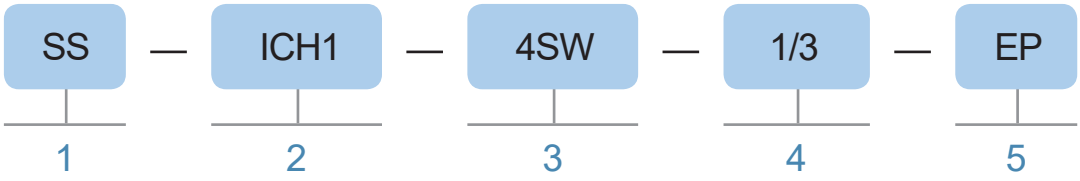
Check Valves

ICH / ICL SERIES

- Maximum Working Pressure
  ICH Series : 6,000 psig (413 bar) @ 100°F (37°C)
  ICL Series : 3,000 psig (206 bar) @ 100°F (37°C)
- Cracking Pressure : 1/3 psig (0.03 bar) to @ 25 psig (1.80 bar)
- Working Temperature Range : -10°F(-23°C) to 375°F(190°C)

TK-FUJIKIN CORPORATION
Fujikin Carp. Group

ICH SERIES ORDERING INFORMATION



1. BODY MATERIAL

Material	Designator
316 SS	SS

2. VALVE SERIES

* Orifice Size	Designator
4.8mm	ICH1
7.9mm	ICH2
15mm	ICH3

* The Orifice Size is determined using valves with TKF tube fitting end connections.
* For more details, See the Dimensions Table.

3. INLET/OUTLET CONNECTION SIZE & TYPE

Inlet/Outlet Connection Size	Designator
1/4"	4
1/8"	2
3/8"	6
1/2"	8
6mm	6M
8mm	8M
10mm	10M
12mm	12M

Inlet/Outlet Connection Type	Designator
Lok	SW
Male NPT	NM
Female NPT	NF
Male ISO① Tapered	PTM
Female ISO① Tapered	PTF
MFS Male	VM

① Refer to specifications ISO 7/1, BS EN 10226-1, DIN-2999, and JIS B0203.

4. CRACKING PRESSURE

Cracking Pressure	Designator
1/3 psi	1/3
1 psi	1
5 psi	5
10 psi	10
25 psi	25

5. O-RING MATERIAL

O-Ring Material	Designator
Fluorocarbon FKM (Standard)	Blank
Buna N	BN
Ethylene Propylene	EP
Neoprene	NE

FEATURES

- Stainless Steel Construction
- Poppet design
- In-line pattern
- Variety of end connection

TECHNICAL DATA

TEMPERATURE - WORKING PRESSURE RATING

Series	ICH1	ICH2	ICH3
Temperature, °F (°C)	Working Pressure, psig (bar)		
-10 (-23) to 100 (37)	6,000 (413)		5,000 (344)
-10 (-23) to 200 (93)	5,160 (355)		4,290 (295)
-10 (-23) to 250 (121)	4,910 (338)		4,080 (281)
-10 (-23) to 300 (148)	4,660 (321)		3,875 (266)
-10 (-23) to 375 (190)	4,280 (294)		3,560 (245)

CRACKING AND RESEAL PRESSURES AT 70°F (20°C)

	Nominal Cracking Pressure psi (bar)	Cracking Pressure Range psi (bar)	Reseal Pressure psi (bar)
Cracking 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 upstream pressure
	25 (1.80)	20 to 30 (1.4 to 2.1)	17 (1.2) or more upstream pressure
Seal Material	Fluorocarbon FKM		

Caution :

- For valves not actuated for a period of time, initial cracking essure may be higher than the set cracking pressure.
- When using a Check Valve under the low pressure, Noise can be generated due to chattering of the spring.

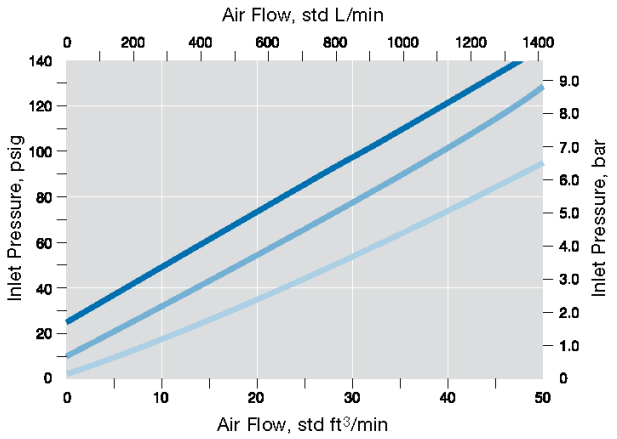
FLOW DATA AT 70°F (20°C)

ICH SERIES

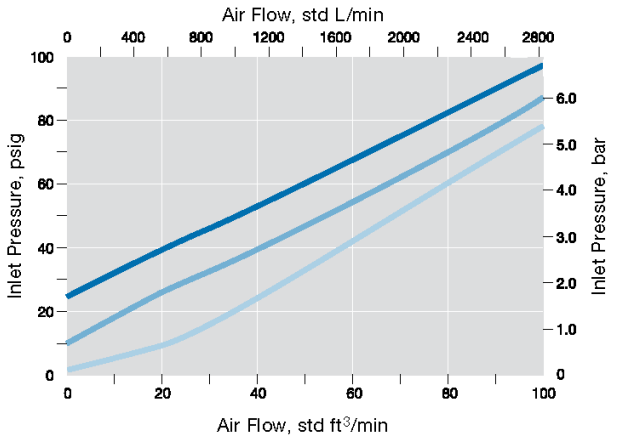
Nominal Cracking Pressures — 1 psi (0.07 bar) — 10 psi (0.69 bar) — 25 psi (1.8 bar)

Air

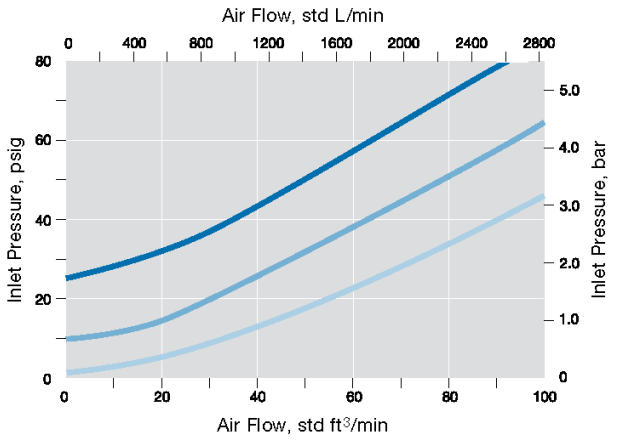
ICH1 Series



ICH2 Series

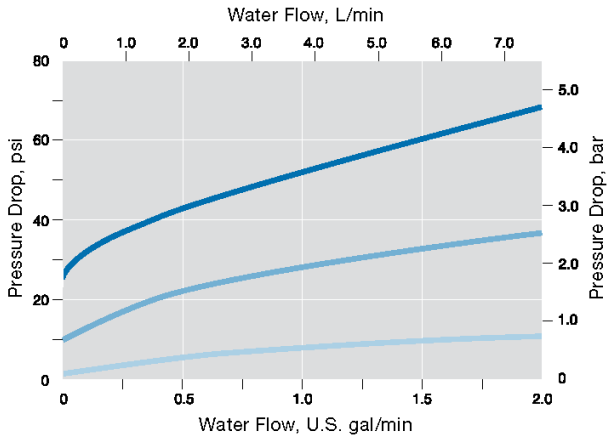


ICH3 Series

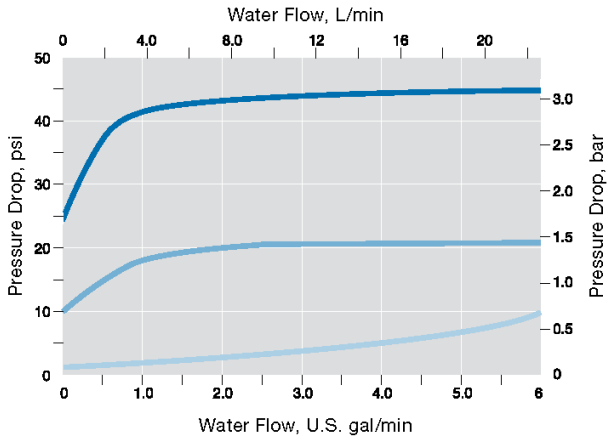


Water

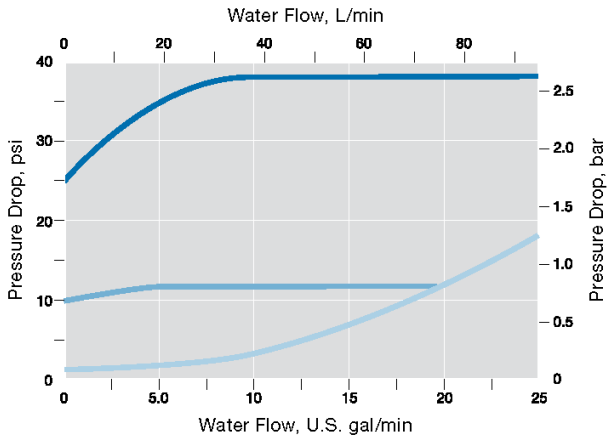
ICH1 Series



ICH2 Series



ICH3 Series



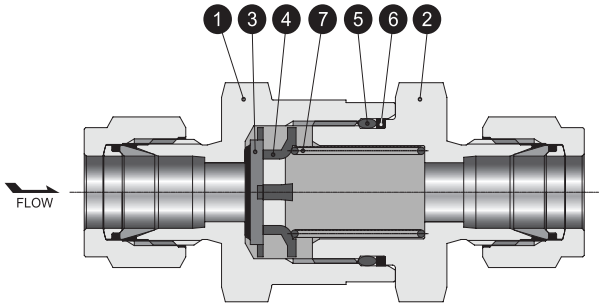
Testing

■ Every valve is factory tested for cracking and reseal performance.

Cleaning and Packaging

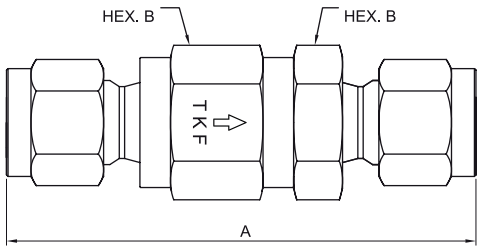
■ Every valve is cleaned and packaged in accordance with the standard specification of cleaning and packaging.

MATERIALS OF CONSTRUCTION

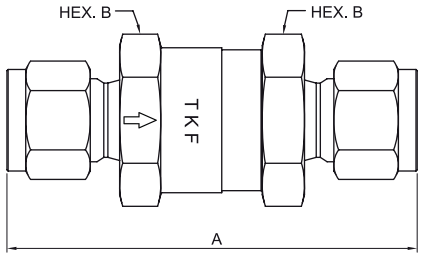


No.	Description	Material
		Material Grade / ASTM Specification
1	Inlet Body	316 SS / A479
2	Outlet Body	316 SS / A479
3	Poppet Assembly	FKM-bonded 316 SS / A479
4	Poppet Stoper	316 SS / A276
5	O-Ring	Fluorocarbon FKM
6	Backup Ring	PTFE
7	Spring	316 SS

DIMENSIONS



ICH1 SERIES

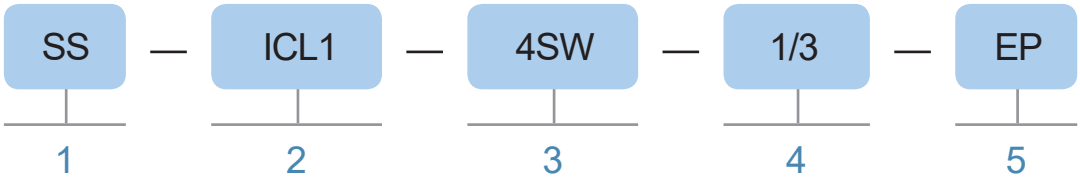


ICH2 / ICH3 SERIES

Order Number		Orifice in. (mm)	Cv	End Connections		Pressure Rating psig (bar)	Dimensions in. (mm)	
Series	Part No.			Inlet	Outlet		A	B
ICH1	2SW	0.189 (4.8)	0.67	1/8" Lok		6,000 (413)	2.27 (57.7)	11/16 (17.5)
	4SW			1/4" Lok			2.43 (61.7)	
	6MSW			6mm Lok			2.43 (61.7)	
	4NF			1/4" Female NPT			2.13 (54.1)	
	2NM			1/8" Male NPT			1.79 (45.5)	
	4NM			1/4" Male NPT			2.17 (55.1)	
	4PTF			1/4" Female ISO① Tapered			2.28 (57.9)	
	4PTM			1/4" Male ISO① Tapered			2.17 (55.1)	
	4VM			1/4" MFS① Male			2.28 (57.9)	
ICH2	6SW	0.307 (7.8)	1.8	3/8" Lok		6,000 (413)	2.75 (69.9)	1 (25.4)
	8SW			1/2" Lok			2.96 (75.2)	
	8MSW			8mm Lok			2.7 (68.6)	
	10MSW			10mm Lok			2.8 (71.1)	
	12MSW			12mm Lok			2.96 (75.2)	
	6NF			3/8" Female NPT			2.55 (64.8)	
	8NF			1/2" Female NPT		4,600 (316)	3.03 (77.0)	1 1/16 (27)
	6NM			3/8" Male NPT		6,000 (413)	2.36 (59.9)	1 (25.4)
	8NM			1/2" Male NPT			2.73 (69.3)	
	8PTF			1/2" Female ISO① Tapered		4,600 (316)	3.29 (83.6)	1 1/16 (27)
	8PTM			1/2" Male ISO① Tapered		6,000 (413)	2.73 (69.3)	1 (25.4)
	8VM			1/2" MFS Male		3,500 (241)	2.73 (69.3)	
ICH3	12SW	0.591 (15.0)	4.7	3/4" Lok		5,000 (344)	3.52 (89.4)	1 5/8 (41.3)
	16SW			1" Lok		4,700 (323)	3.88 (98.6)	
	22MSW			22mm Lok		5,000 (344)	3.48 (88.4)	
	25MSW			25mm Lok			3.88 (98.6)	
	12NF			3/4" Female NPT		4,300 (296)	3.23 (82.0)	
	16NF			1" Female NPT		4,100 (282)	3.83 (97.3)	
	12NM			3/4" Male NPT		5,000 (344)	3.29 (83.6)	
	16NM			1" Male NPT			3.67 (93.2)	
	12PTF			3/4" Female ISO① Tapered		4,300 (296)	3.55 (90.2)	
	16PTF			1" Female ISO① Tapered		4,100 (282)	3.83 (97.3)	
	12PTM			3/4" Male ISO① Tapered		5,000 (344)	3.35 (85.1)	
	16PTM			1" Male ISO① Tapered			3.67 (93.2)	
	12VM			3/4" MFS Male		3,000 (206)	3.78 (96.0)	

① Refer to specifications ISO 7/1, BS EN 10226-1, DIN-2999, and JIS B0203.

ICL SERIES ORDERING INFORMATION



1. BODY MATERIAL

Material	Designator
316 SS	SS

2. VALVE SERIES

* Orifice Size	Designator
4.8mm	ICL1
7.1mm	ICL2
10.0mm	ICL3
13.5mm	ICL4
16.0mm	ICL5
18.0mm	ICL6

* The Orifice Size is determined using valves with TKF tube fitting end connections.
* For more details, See the Dimensions Table.

3. INLET/OUTLET CONNECTION SIZE & TYPE

Inlet/Outlet Connection Size	Designator
1/4"	4
1/8"	2
3/8"	6
1/2"	8
3/4"	12
1"	16
6mm	6M
8mm	8M
10mm	10M
12mm	12M

Inlet/Outlet Connection Type	Designator
Lok	SW
Male NPT	NM
Female NPT	NF
Male ISO① Tapered	PTM
Female ISO① Tapered	PTF
MFS Male	VM

① Refer to specifications ISO 7/1, BS EN 10226-1, DIN-2999, and JIS B0203.

4. CRACKING PRESSURE

Cracking Pressure	Designator
1/3 psi	1/3
1 psi	1
10 psi	10
25 psi	25

5. O-RING MATERIAL

O-Ring Material	Designator
Fluorocarbon FKM (Standard)	Blank
Buna N	BN
Ethylene Propylene	EP
Neoprene	NE

FEATURES

- Stainless Steel Construction
- Poppet design
- In-line pattern
- Variety of end connection

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.

Size	Maximum Flow Coefficient(Cv)	Nominal Cracking Pressure psi(bar)	Downsteam Pressure at 70°F (20°C) psig(bar)
1/8"	0.1	1/3, 1, 10, 25 (0.03, 0.07, 0.69, 1.8)	1,000(68.9)
1/4"	0.47		
3/8"	1.47		200(13.7)
1/2"	1.68		
3/4", 1"	4.48		

TEMPERATURE - WORKING PRESSURE RATING

Series	ICL1	ICL2	ICL3	ICL4	ICL5	ICL6
Temperature, °F (°C)	Working Pressure, psig (bar)					
-10 (-23) to 100 (37)	3,000 (206)				2,000 (137)	
-10 (-23) to 200 (93)	2,575 (177)				1,715 (118)	
-10 (-23) to 250 (121)	2,450 (168)				1,630 (112)	
-10 (-23) to 300 (148)	2,325 (160)				1,545 (106)	
-10 (-23) to 375 (190)	2,185 (150)				1,450 (99.9)	

CRACKING AND RESEAL PRESSURES AT 70°F (20°C)

	Nominal Cracking Pressure psi (bar)	Cracking Pressure Range psi (bar)	Reseal Pressure psi (bar)
Cracking 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
	10 (0.69)	7 to 15 (0.74 to 1.1)	3 (0.21) or more upstream pressure
	25 (1.80)	20 to 30 (1.4 to 2.1)	17 (1.2) or more upstream pressure
Seal Material	Fluorocarbon FKM		

Caution :

- For valves not actuated for a period of time, initial cracking pressure may be higher than set cracking pressire.
- When using a Check Valve under the low pressure, Noise can be generated due to chattering of the spring.

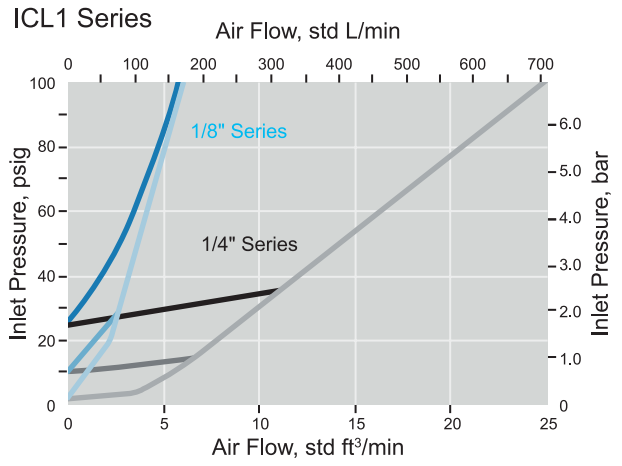
FLOW DATA AT 70°F (20°C)

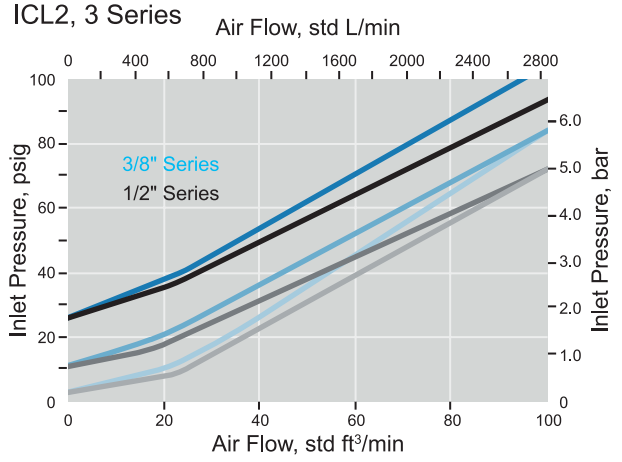
ICL SERIES

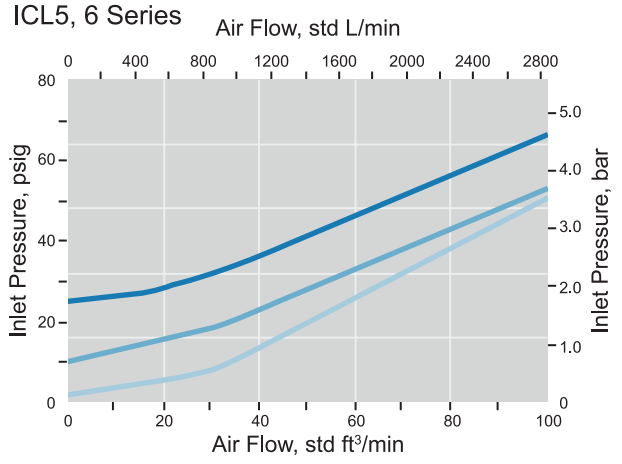
Nominal Cracking Pressures

1/8", 3/8", 3/4", 1" Series — 1 psi (0.007 bar) — 10 psi (0.069 bar) — 25 psi (1.8 bar)
1/4", 1/2", Series — 1 psi (0.007 bar) — 10 psi (0.069 bar) — 25 psi (1.8 bar)

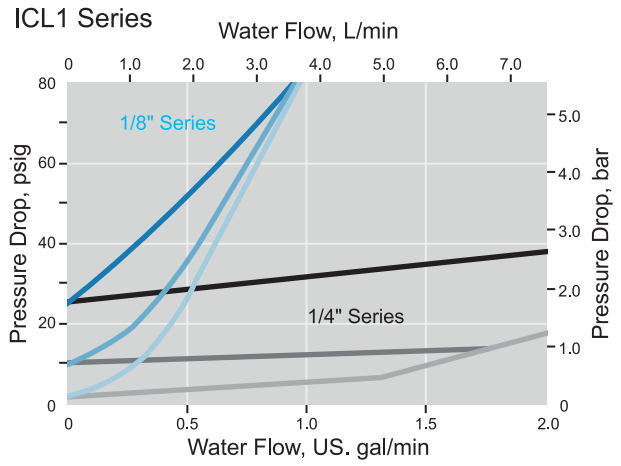
Air

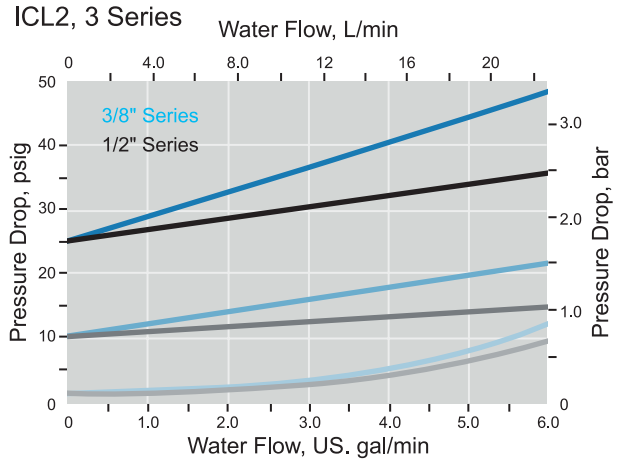


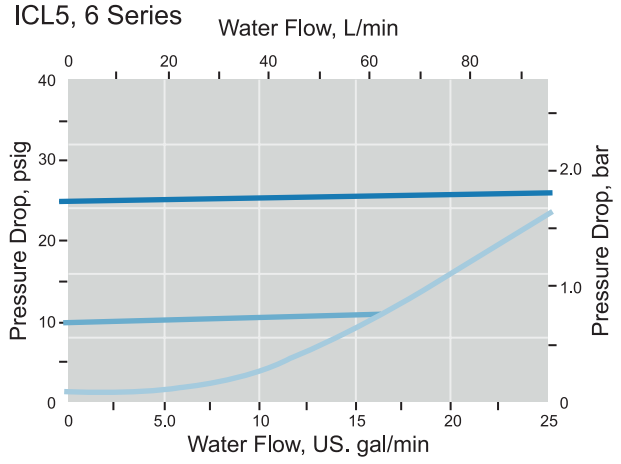




Water







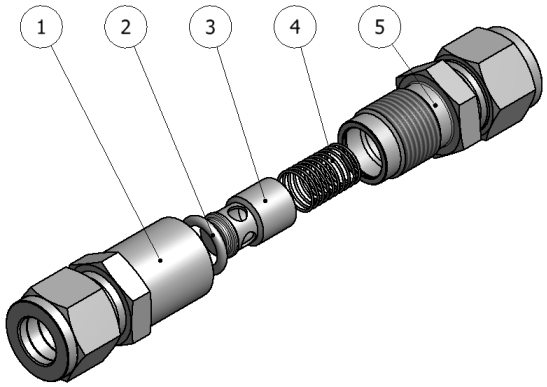
Testing

■ Every valve is factory tested for cracking and reseal performance.

Cleaning and Packaging

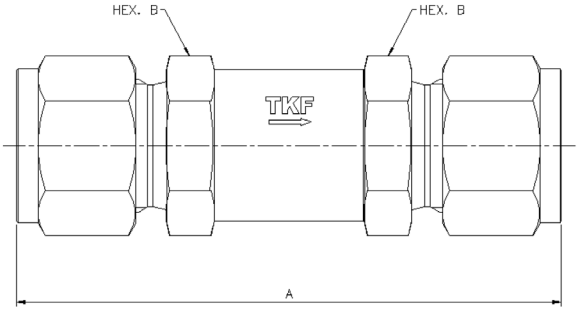
■ Every valve is cleaned and packaged in accordance with the standard specification of cleaning and packaging.

MATERIALS OF CONSTRUCTION



No.	Description	Material
		Material Grade / ASTM Specification
1	Inlet Body	316 SS / A276
2	O-Ring	FKM
3	Poppet	316 SS / A276
4	Spring	304 SS
5	Outlet Body	316 SS / A276

DIMENSIONS



Order Number		Orifice in. (mm)	Cv	End Connections		Pressure Rating psig (bar)	Dimensions in. (mm)	
Series	Part No.			Inlet	Outlet		A	B
ICL1	2SW	0.189 (4.8)	0.16	1/8" Lok		3,000 (206)	2.19 (55.6)	5/8 (15.9)
	2NF		0.47	1/8" Female NPT			1.75 (44.4)	
	2NM			1/8" Male NPT			1.83 (46.6)	
	6MSW			6mm Lok			2.36 (60.0)	
	4SW			1/4" Lok				
	4NM			1/4" male NPT			2.10 (53.4)	
	4NF			1/4" Female NPT			2.15 (54.6)	3/4 (19.1)
ICL2	6SW	0.279 (7.1)	1.48	3/8" Lok			2.94 (74.8)	7/8 (22.2)
	10MSW			10mm Lok				
	6NM			3/8" Male NPT			2.54 (64.6)	
ICL3	6NF	0.393 (10.0)	1.70	3/4" Fmale NPT			2.51 (63.8)	
	8SW			1/2" Lok			3.15 (80.2)	
	12MSW			12mm Lok				
	8NM			1/2" Male NPT			2.92 (74.4)	
ICL4	8NF	0.531 (13.5)	2.60	1/2" Female NPT			3.33 (84.7)	1 1/8 (28.6)
	10SW			5/8" Lok			3.61 (91.8)	
ICL5	12SW	0.630 (16.0)	5.20	3/4" Lok		2,000 (137)	4.36 (110.7)	1 1/4 (31.8)
	12NM			3/4" Male NPT			4.14 (105.3)	
	12NF			3/4" Female NPT			4.05 (103.0)	
ICL6	16SW	0.708 (18.0)	8.00	1" Lok			4.77 (121.2)	1 3/8 (34.9)
	16NM			1" Male NPT			4.57 (116.2)	
	16NF			1" Female NPT			4.38 (111.4)	1 5/8 (41.3)

① Refer to specifications ISO 7/1, BS EN 10226-1, DIN-2999, and JIS B0203.