UCV® SERIES

ULTRA–CLEAN DIAPHRAGM VALVES

HAM-LET®
ADVANCED CONTROL TECHNOLOGY

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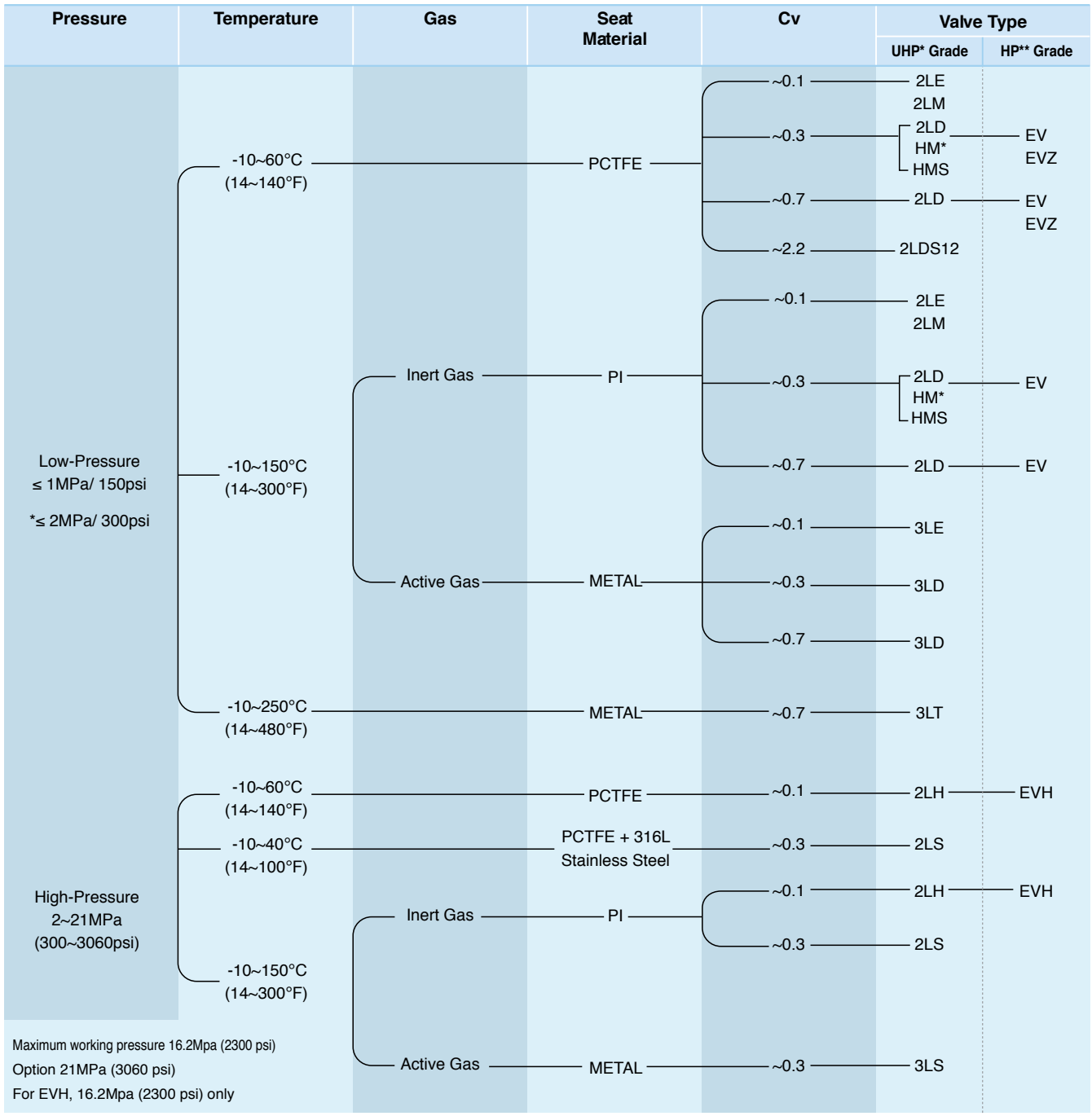
UCV MODEL SELECTION TABLE

Make the initial choice, taking the application parameters into account.



**HP - High Purity
*UHP - Ultra High Purity

BASIC UCV STRUCTURES, GRADES AND SPECIFICATIONS

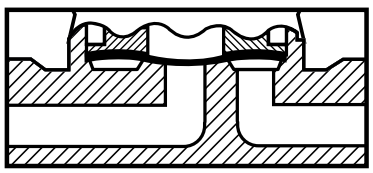
- UCVs are metallic diaphragm-operated valves. The diaphragm is made of a Ni-Co Alloy.
- UCVs are available with the following valve structures to meet ultra-high purity (UHP) and high-purity (HP) grades:

A. All-metallic valves, the highest UHP grade.
These valves are designed to be the ultimate solution, with polymer materials eliminated from their gas contact areas. Ideally suited for use with high-reactivity gases and in applications requiring fast gas replacement. Also best suited for use as supply system valves for high-reactivity

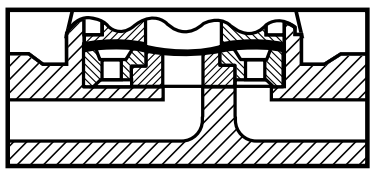
B. Soft-seat valves, standard UHP grade/standard HP grade.
HAM-LET MOTOYAMA Japan's standard line of valves using PCTFE (polymonochlorotrifluoroethyle) in the standard valve seats. The seat holders minimize the dead volume on the seat bottom, designed for enhanced reliability.

C. Caulked-seat valves, general-purpose HP grade.
HP valves using PCFTE (polymonochlorotrifluoroethyle) seats. Minimized seat volumes ease the problems of outgassing and seat creeping in line with the traditional design philosophy of UCV's.

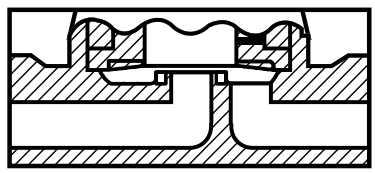
A. All-metallic valve



B. Soft-seat valve



C. Caulked-seat valve



HIGHEST UHP** GRADE, 3L SERIES

Type	Size	Cv	Max. Working Pressure	Working Temp.	Application	Drive	Feature
3LD	1/4 - 1/2	0.25 - 0.7	1MPa/150psi	-10~150°c	On-Off	Manual and Pneumatic	Multiuse
3LS	1/4 - 1/2	0.23 - 0.25	16.2MPa/2300 psi OPTION 21MPa/3060 psi	-10~150°c	On-Off	Manual and Pneumatic	High-Pressure High Flow
3LT	1/2	0.7	1MPa/150 psi	-10~250°c	On-Off	Manual and Pneumatic	High-Temperature Use

STANDARD UHP** GRADE, 2L SERIES Polyimide(PI) seat is optionally selectable: working tmp.=-10 to 150°C

Type	Size	Cv	Max. Working Pressure	Working Temp.	Application	Drive	Feature
2LE	1/4	0.05 - 0.1	1MPa/150 psi	-10~60°c	On-Off	Manual and Pneumatic	Compact
2LM	1/4	0.05 - 0.1	1MPa/150 psi	-10~60°c	Flow Control	Graduated Manual	Compact
2LD	1/4 - 1/2, 3/4	0.3 - 0.7, 2.2	1MPa/150 psi	-10~60°c	On-Off	Manual and Pneumatic	Multiuse
2LH	1/4	0.05 - 0.1	16.2MPa/2300 psi OPTION 21MPa/3060 psi	-10~60°c	On-Off	Manual and Pneumatic	High-Pressure Use
3LS	1/4 - 1/2	0.23 - 0.25	16.2MPa/2300 psi OPTION 21MPa/3060 psi	-10~60°c	On-Off	Manual and Pneumatic	High-Pressure High Flow
HM	1/4	0.3	1MPa/150 psi & 2MPa/300 psi	-10~60°c	On-Off	Manual and Pneumatic	Multiuse
HMC	1/4	0.25	1MPa/150 psi	-10~60°c	On-Off	Manual and Pneumatic	Multiuse
HMS	1/4	0.3	1MPa/150 psi & 2MPa/300 psi	-10~60°c	On-Off	Manual and Pneumatic	Multiuse
HMSC	1/4	0.27	1MPa/150 psi	-10~60°c	On-Off	Pneumatic	Multiuse
2LN HB	1/4	0.3	1MPa/150 psi & 2MPa/300 psi	-10~60°c	On-Off	Manual and Pneumatic	Multiuse
HMB	1/4	0.3	1MPa/150 psi & 2MPa/300 psi	-10~60°c	On-Off	Manual and Pneumatic	Multiuse

STANDARD HP* GRADE, EV & EVZ SERIES Polyimide(PI) seat is optionally selectable: working tmp.=-10 to 150°C

Type	Size	Cv	Max. Working Pressure	Working Temp.	Application	Drive	Feature
EV	1/4 - 1/2	0.3 - 0.7	1MPa/150 psi	-10~60°c	On-Off	Manual and Pneumatic	Multiuse
EVH	1/4	0.1	16.2MPa/2300 psi	-10~60°c	On-Off	Manual and Pneumatic	High-Pressure Use
EVZ	1/4-1/2	0.27-0.65	1MPa/150 psi	-10~80°c	On-Off	Manual	Caulked Seat

NOTE: Choose your valve seat material from the Valve Seat Selection Table (p.280) in this catalog.
***HP** - High Purity
****UHP** - Ultra High Purity

2LE SERIES
COMPACT MODEL

Metal Diaphragm Valves

Compact models from the Ultra Clean Valve series are made to UHP specifications. These models come with connection joints in 1/4", as standard.

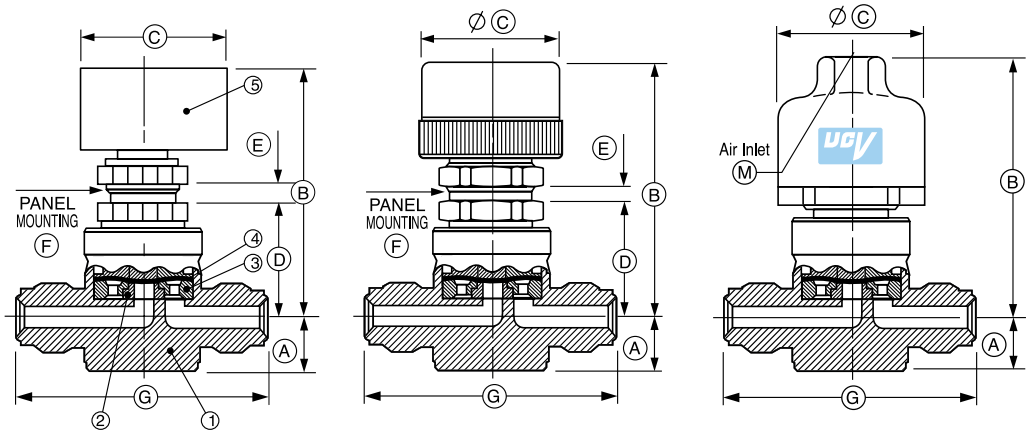
These valves fit into applications to which a minimum footprint is required.

- Compact designs for minimum footprint.
- A large choice of fluid-specific seat materials is available as an option.

For details, please contact one of our field representatives.

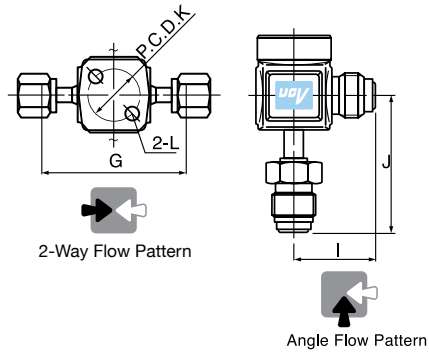
STANDARD CONFIGURATION DIMENSIONS

Part Number/ep	Size	End Connection	A	B	C	D	E	F	G	I	J	K	L	M
2LES4Q-W	1/4	Extended Butt Weld	11	(52)	30	24.5	(4)	17	47			17	M5	
2LEA4R-BV	1/4	Male HTC®	11	(54)	30	24.5	(4)	17		26	45	17	M5	
2LES4C-FV	1/4	Swivel Female HTC®	11	(54)	32				66			17	M5	Rc1/8



SPECIFICATIONS

Size	Pressure	Temp.	Cv	Leak Rates	
				Inboard	Across Seat
1/4	1MPa (150 psi)	-10 to 60°c (PCTFE) -10 to 150°c (PI)	0.1	3X10^{-12} pa•m^3/sec Helium	3X10^{-10} pa•m^3/sec Helium



STRUCTURE

	Parts	Material
1	Body	316L Stainless Steel
2	Seat	PCTFE/PI (Vespel®)
3	Seat Holder	316L Stainless Steel
4	Diaphragm	Elgiloy
5	Handle/Act	Aluminum

ORDERING INFORMATION

For ordering, see page 302

To make a safe choice when selecting your product, review the entire design of your system implementation to ensure safe, trouble-free system operations. Relevant system considerations should cover functionality, suitability of materials to specific applications and numeric data. Correct installation, handling and maintenance of valves is the responsibility of the systems designer and the user.

2LM SERIES
FLOW CONTROL

Metal Diaphragm Valves

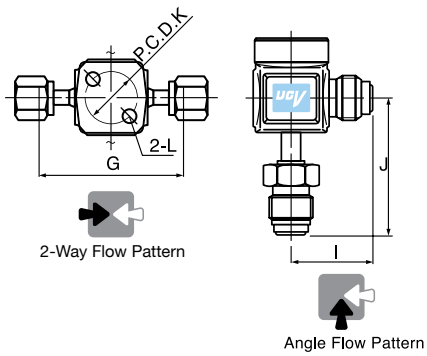
Flow control models from the Ultra-Clean Valve Series are made to UHP specifications. These models come with connection joints in 1/4", as standard. Each valve is furnished with a handle-lock set screw with a vernier scale.

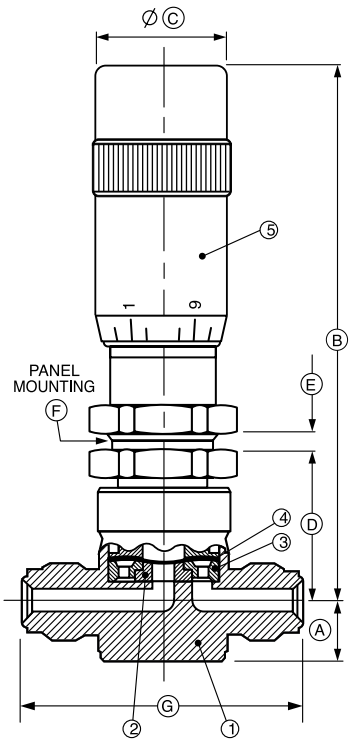
- Broad flow-control range of six and a half turns of the handle.
- A handle-lock set screw on the handle side

As these valves are designed to handle flow control tasks, valve seat is not fully closed even at the position of division 0 on the vernier scale. Do not operate the handle in the direction in which the valve seat is closed past the position of division 0 on the vernier scale.

STANDARD CONFIGURATION DIMENSIONS

Part Number/ep	Size	End Connection	A	B	C	D	E	F	G	I	J	K	L
2LMS4V-W	1/4	Extended Butt Weld	11	(98)	23	26	(2.5)	20	47			17	M5
2LMS4V-BW	1/4	Short Butt Weld	11	(98)	23	26	(2.5)	20	44.4			17	M5
2LMA4V-BV	1/4	Male HTC®	11	(98)	23	26	(2.5)	20		26	45	17	M5
2LMS4V-FV	1/4	Swivel Female HTC®	11	(98)	23	26	(2.5)	20	66			17	M5





SPECIFICATIONS

Size	Pressure	Temp.	Cv	Leak Rates	
				Inboard	Across Seat
1/4	1MPa (150 psi)	-10 to 60°c (PCTFE) -10 to 150°c (PI)	0.1	$3X10^{-12}$ pa•m³/sec Helium	X

STRUCTURE

	Parts	Material
1	Body	316L Stainless Steel
2	Seat	PCTFE/PI (Vespel®)
3	Seat Holder	316L Stainless Steel
4	Diaphragm	Elgiloy
5	Handle/Act	Aluminum

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2LD SERIES
STANDARD MODEL

Metal Diaphragm Valves

Standard models from the Ultra-Clean Valve Series are made to UHP specifications. This model comes with connection joints in three sizes 1/4, 3/8 & 1/2 as standard. This valve comfortably fits into high-flow applications.

- Unique seat structure offers superb leak performance.
- Compact designs for a minimum foot print.

STANDARD CONFIGURATION DIMENSIONS

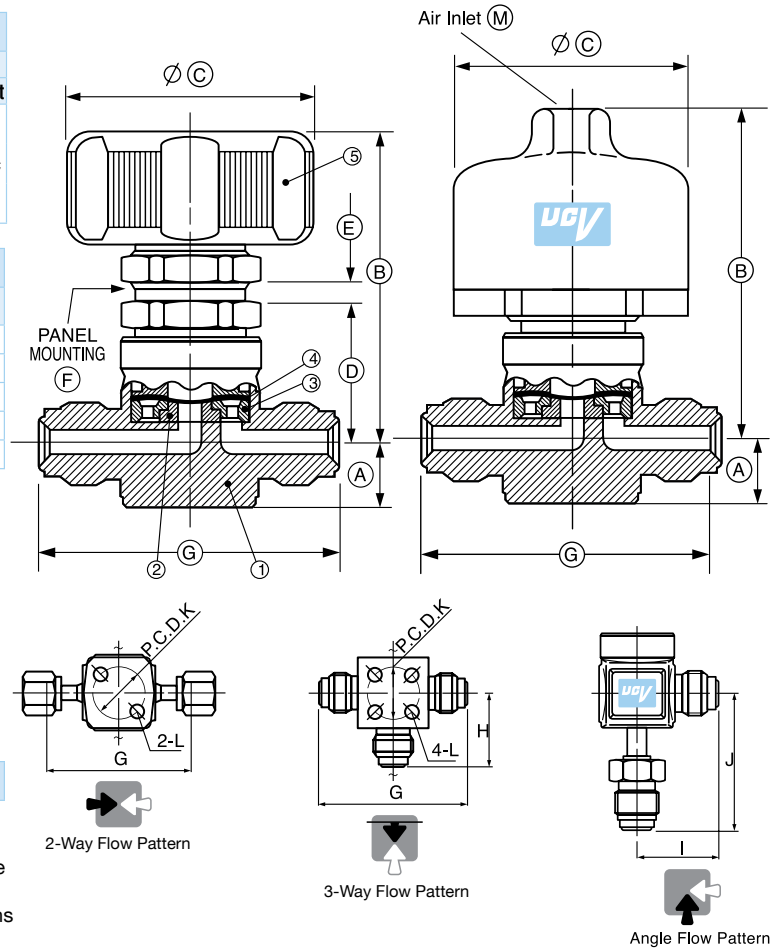
Part Number/ep	Size	End Connection	A	B	C	D	E	F	G	H	I	J	K	M	L
2LDA4R-BV	1/4	Male HTC®	11	(63)	45	29	(4)	23	58	25	29	45	25		M5
2LDT4C-FV	1/4	Female HTC®	11	(65)	46				70.6	35.3			25	Rc1/8	M5
2LDS4C-W	1/4	Extended Butt Weld	11	(65)	46				89				25	Rc1/8	M5
2LDS4C-BW	1/4	Short Butt Weld	11	(65)	46				44.4				25	Rc1/8	M5
2LDS6R-W	3/8	Extended Butt Weld	17.5	(67.5)	45	32.5	(4)	23	105	38			28		M5
2LDT8R-BV	1/2	Male HTC®	17.5	(67.5)	45	32.5	(4)	23	76				28		M5
2LDS8C-FV	1/2	Female HTC®	17.5	(73.5)	56				100				28	Rc1/8	M5
2LDS8C-W	1/2	Extended Butt Weld	17.5	(73.5)	56				105				28	Rc1/8	M5

SPECIFICATIONS

Size	Pressure	Temp.	Cv	Leak Rates	
				Inboard	Across Seat
1/4	1MPa (150 psi)	-10 to 60°c (PCTFE) -10 to 150°c (PI)	0.3	$3X10^{-12}$ pa•m³/sec Helium	$3X10^{-10}$ pa•m³/sec Helium
3/8			0.7		
1/2			0.7		

STRUCTURE

	Parts	Material
1	Body	316L Stainless Steel
2	Seat	PCTFE/PI (Vespel®)
3	Seat Holder	316L Stainless Steel
4	Diaphragm	Elgiloy
5	Handle/Act	Aluminum



ORDERING INFORMATION

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2LDS12 SERIES
3/4" HIGH-FLOW

Metal Diaphragm Valves

Standard models from the Ultra-Clean Valve Series are made to UHP specifications. This model comes with connection joints in 3/4" as standard. This valve comfortably fits into high-flow applications.

- Unique seat structure offers superb leak performance.
- Compact designs for minimum foot print.

STANDARD CONFIGURATION DIMENSIONS

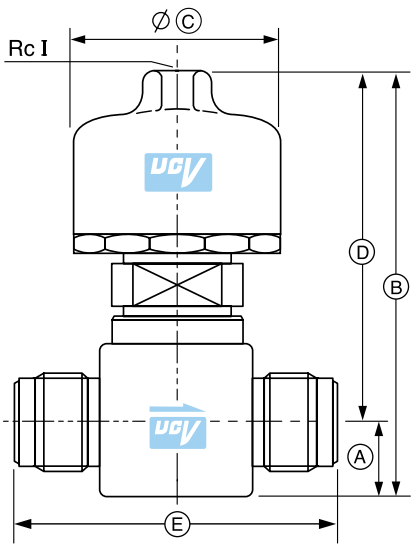
Part Number/ep	Size	End Connection	A	B	C	D	E	F	G	H	I
2LDS12R-BV	3/4	Male HTC®	23	109	45	86	97	46	45	35	
2LDS12R-FV	3/4	Swivel Female HTC®	23	109	45	86	146	46	45	35	
2LDS12R-W	3/4	Extended Butt Weld	23	109	45	86	146	46	45	35	
2LDS12C-BV	3/4	Male HTC®	23	118	56	95	97	46	45	35	Rc 1/8
2LDS12C-FV	3/4	Swivel Female HTC®	23	118	56	95	146	46	45	35	Rc 1/8
2LDS12C-W	3/4	Extended Butt Weld	23	118	56	95	146	46	45	35	Rc 1/8

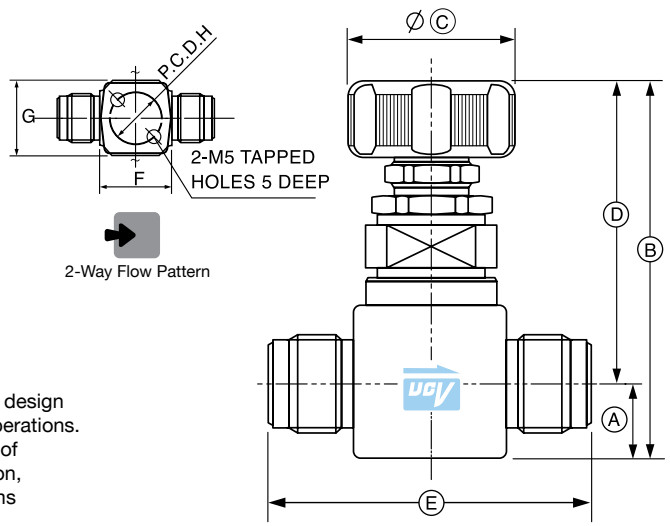
SPECIFICATIONS

Size	Pressure	Temp.	Cv	Leak Rates	
				Inboard	Across Seat
3/4	1MPa (150 psi)	-10 to 60°c	2.2	$3X10^{-12}$ pa•m³/sec Helium	$3X10^{-9}$ pa•m³/sec Helium

STRUCTURE

	Parts	Material
1	Body	316L Stainless Steel
2	Seat	PCTFE/PI (Vespel®)
3	Diaphragm	Elgiloy
4	Handle/Act	Aluminum





ORDERING INFORMATION

For ordering, see page 302

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EV SERIES
LOW-PRESSURE MODEL

Metal Diaphragm Valves

The EV Series is a family of standard models from the Ultra Clean Valve Series, which are made to HP specifications. These models come with connection joints in three sizes, 1/4", 3/8" and 1/2", as standard. These valves implement the traditional UCV 2LD Series design concept of high reliability.

- Surface roughness of the gas contact area held to Ry ≤2.5 micro meter as standard.
- Operable over a wide range of flow rates up to 1 MPa/150 psi.

STANDARD CONFIGURATION DIMENSIONS

Part Number/ep	Size	End Connection	A	B	C	D	E	F	G
EV4-I	1/4	LET-LOK®	11	(63)	45	(63.5)	25	M5	
EV4C-FV	1/4	Swivel Female HTC®	11	(65)	46	70.6	25	M5	Rc1/8
EV4-BV	1/4	Male HTC®	11	(63)	45	58	25	M5	
EV6-I	3/8	LET-LOK®	17.5	(67.5)	45	(79.4)	28	M5	
EV8-I	1/2	LET-LOK®	17.5	(67.5)	45	(86)	28	M5	
EV8C-FV	1/2	Swivel Female HTC®	17.5	(73.5)	56	100	28	M5	Rc1/8
EV8-BV	1/2	Male HTC	17.5	(67.5)	45	76	28	M5	

SPECIFICATIONS

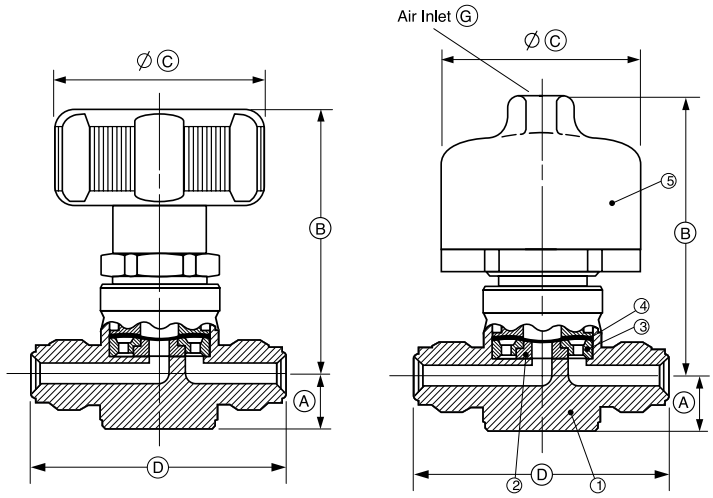
Size	Pressure	Temp.	Cv	Leak Rates	
				Inboard	Across Seat
1/4	1MPa (150 psi)	-10 to 60°c	0.3	3 X 10^{-12} Pa m3/sec Helium	3 X 10^{-10} Pa m3/sec Helium
3/8			0.7		
1/2			0.7		

STRUCTURE

	Parts	Material
1	Body	316L Stainless Steel
2	Seat	PCTFE/PI (Vespel®)
3	Seat Holder	316L Stainless Steel
4	Diaphragm	Elgiloy
5	Handle/Act	Aluminum

ORDERING INFORMATION

For ordering, see page 302



2-Way Flow Pattern

To make a safe choice when selecting your product, review the entire design of your system implementation to ensure safe, trouble-free system operations. Relevant system considerations should cover functionality, suitability of materials to specific applications and numeric data. Correct installation, handling and maintenance of valves is the responsibility of the systems designer and the user.

EVZ SERIES
GENERAL PURPOSE

Metal Diaphragm Valves

Economic implementations of Ultra-Clean Valves follow the traditions of HMJ UCV technologies

- Available in sizes from 1/4" to 1/2" to support a wide range of connections.
- Standard with a 270-degree rotary handle with an open/close indicator.
- Over 20,000 open/close cycles.
- Electropolished item standard (LET-LOK® joint unpolished).
- Aluminum handle for compact, lightweight geometry.

The open/close indicator works on a follow-up basis. When opening or closing the valve, operate the handle until the handle hits the stopper.

PART NUMBER / DIMENSIONS

Part Number/ep	Size	End Connection	A	B	C	D	E	F
EVZS4R-BV	1/4	Male HTC®	11	(53)	45	58	25	M5
EVZS4R-FV	1/4	Swivel Female HTC®	11	(53)	45	70.6	25	M5
EVZS4R-I	1/4	LET-LOK®	11	(53)	45	(63.5)	25	M5
EVZS6R-I	3/8	LET-LOK®	17.5	(58)	45	(79.5)	28	M5
EVZS4R-BV	1/2	Male HTC®	17.5	(58)	45	76	28	M5
EVZS8R-FV	1/2	Swivel Female HTC®	17.5	(58)	45	100	28	M5
EVZS8R-I	1/2	LET-LOK®	17.5	(58)	45	(86)	28	M5

SPECIFICATIONS

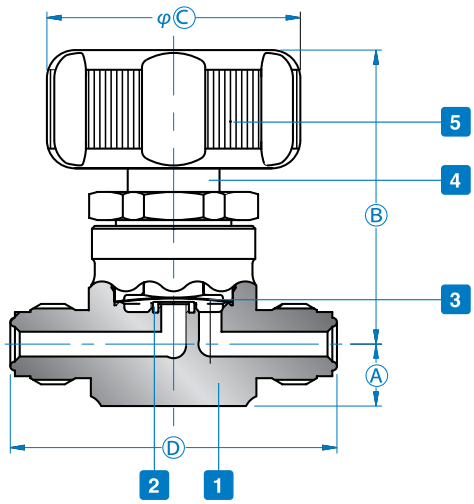
Size	Pressure	Temp.	Cv	Leak Rates	
				Inboard	Across Seat
1/4	1MPa (150 psi)	-10 to 80°c	0.27	$3X10^{-12}$ pa•m³/sec Helium	$3X10^{-10}$ pa•m³/sec Helium
3/8			0.65		
1/2					

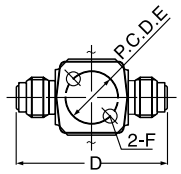
STRUCTURE

	Parts	Material
1	Body	316L Stainless Steel
2	Seat	PCTFE
3	Diaphragm	Elgiloy
4	Bonnet	303 Stainless Steel
5	Handle/Act	Aluminum

ORDERING INFORMATION

For ordering, see page 302





2-Way Flow Pattern

To make a safe choice when selecting your product, review the entire design of your system implementation to ensure safe, trouble-free system operations. Relevant system considerations should cover functionality, suitability of materials to specific applications and numeric data. Correct installation, handling and maintenance of valves is the responsibility of the systems designer and the user.

2LH SERIES
HIGH-PRESSURE

Metal Diaphragm Valves

High-pressure standard models from the Ultra-Clean Valve Series are made to UHP specifications. These models come with connection joints in 1/4", as standard. Features include a compact drive geometry and a highly reliable seat structure.

- Can be used as shutoff valves for high-pressure fluids at up to 16.2 MPa/2300 psi.
- Compact designs for minimum footprint.
- A large choice of fluid-specific seat materials available as options.
- Optionally ready for 21 MPa/3060 psi.

For more information, please contact one of our field representatives.

STANDARD CONFIGURATION DIMENSIONS

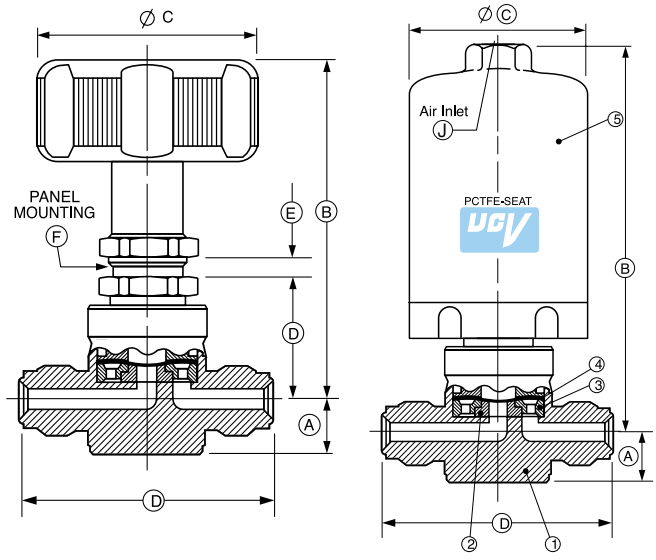
Part Number/ep	Size	End Connection	A	B	C	D	F	G	H	I	J	L
2LHS4R-W	1/4	Extended Butt Weld	11	(68)	45	47			17	M5		(2.5)
2LHS4R-BW	1/4	Short Butt Weld	11	(68)	45	44.4			17	M5		(2.5)
2LHA4R-BV	1/4	Male HTC®	11	(68)	45				17	M5		(2.5)
2LHS4C-FV	1/4	Swivel Female HTC®	11	(85)	40	66	26	45	17	M5	Rc1/8	

SPECIFICATIONS

Size	Pressure	Temp.	Cv	Leak Rates	
				Inboard	Across Seat
1/4	16.2MPa (2300 psi) OPTION: 21MPa/3060 psi	-10 to 60°c (PCTFE) -10 to 150°c (PI)	0.1	$3X10^{-12}$ pa•m³/sec Helium	$3X10^{-10}$ pa•m³/sec Helium

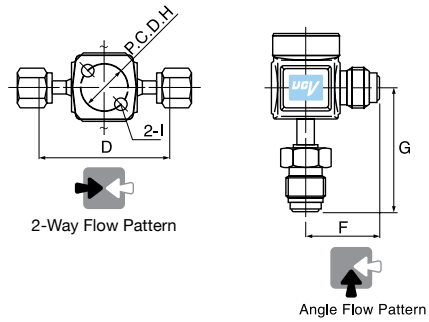
STRUCTURE

	Parts	Material
1	Body	316L Stainless Steel
2	Seat	PCTFE/PI (Vespel®)
3	Seat Holder	316L Stainless Steel
4	Diaphragm	Elgiloy
5	Handle/Act	Aluminum



ORDERING INFORMATION

For ordering, see page 302



To make a safe choice when selecting your product, review the entire design of your system implementation to ensure safe, trouble-free system operations. Relevant system considerations should cover functionality, suitability of materials to specific applications and numeric data. Correct installation, handling and maintenance of valves is the responsibility of the systems designer and the user.

2LS SERIES
HIGH-PRESSURE - HIGH-FLOW

Metal Diaphragm Valves

High-pressure high-flow models from the Ultra-Clean Valve Series are made to UHP specifications. These models come with connection joints in two alternative sizes, 1/4" and 1/2", as standard. With their compact designs, these valves comfortably fit into high-pressure high-flow applications.

- Can be used as shutoff valves for high-pressure fluids at up to 16.2 MPa/2300 psi.
- A large choice of fluid-specific seat materials is available as an option.
- Optionally ready for 21 MPa/3060 psi.

For more information please contact one of our field representatives.

STANDARD CONFIGURATION DIMENSIONS

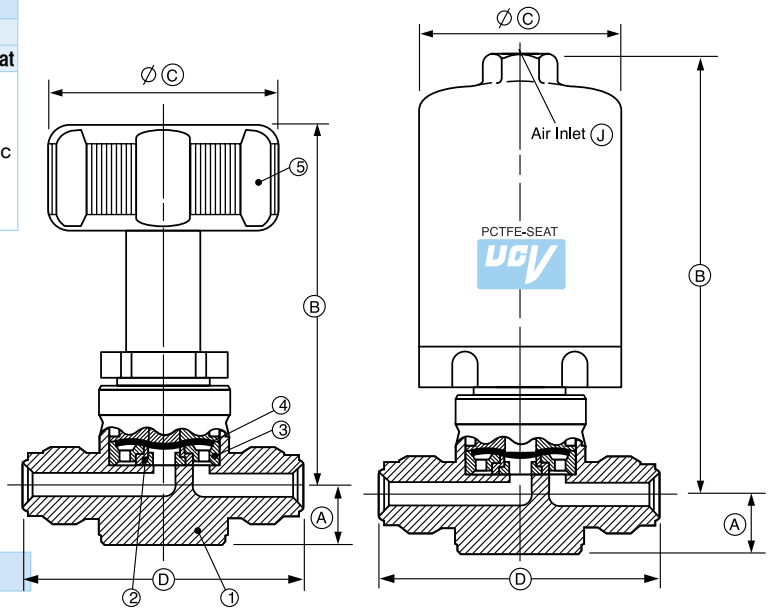
Part Number/ep	Size	End Connection	A	B	C	D	E	H	I	J
2LST4R-W	1/4	Extended Butt Weld	11	(71)	45	89	44.5	25	M5	
2LSS4C-BW	1/4	Short Butt Weld	11	(89)	40	44.4		25	M5	Rc1/8
2LSS4C-FV	1/4	Swivel Female HTC®	11	(89)	40	70.6		25	M5	Rc1/8
2LST8R-BV	1/2	Male HTC®	17.5	(74)	45	76	38	28	M5	
2LSS8C-W	1/2	Extended Butt Weld	17.5	(92.5)	40	105		28	M5	Rc1/8
2LSS8C-BW	1/2	Short Butt Weld	17.5	(92.5)	40	55		28	M5	Rc1/8

SPECIFICATIONS

Size	Pressure	Temp.	Cv	Leak Rates	
				Inboard	Across Seat
1/4	16.2MPa (2300 psi) OPTION: 21MPa/3060 psi	-10 to 40°c	0.25	$3X10^{-12}$ pa•m³/sec Helium	$3X10^{-10}$ pa•m³/sec Helium
1/2			0.27		

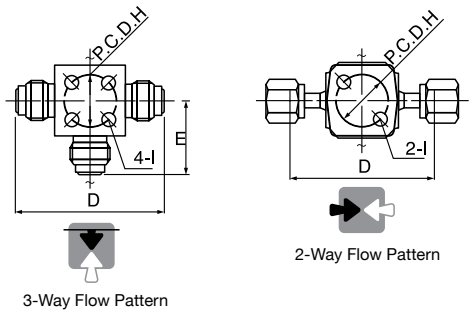
STRUCTURE

	Parts	Material
1	Body	316L Stainless Steel
2	Seat	PCTFE/PI (Vespel®)
3	Seat Holder	316L Stainless Steel
4	Diaphragm	Elgiloy
5	Handle/Act	Aluminum



ORDERING INFORMATION

For ordering, see page 302



3-Way Flow Pattern

2-Way Flow Pattern

To make a safe choice when selecting your product, review the entire design of your system implementation to ensure safe, trouble-free system operations. Relevant system considerations should cover functionality, suitability of materials to specific applications and numeric data. Correct installation, handling and maintenance of valves is the responsibility of the systems designer and the user.

3LD

STANDARD METAL SEAT MODEL

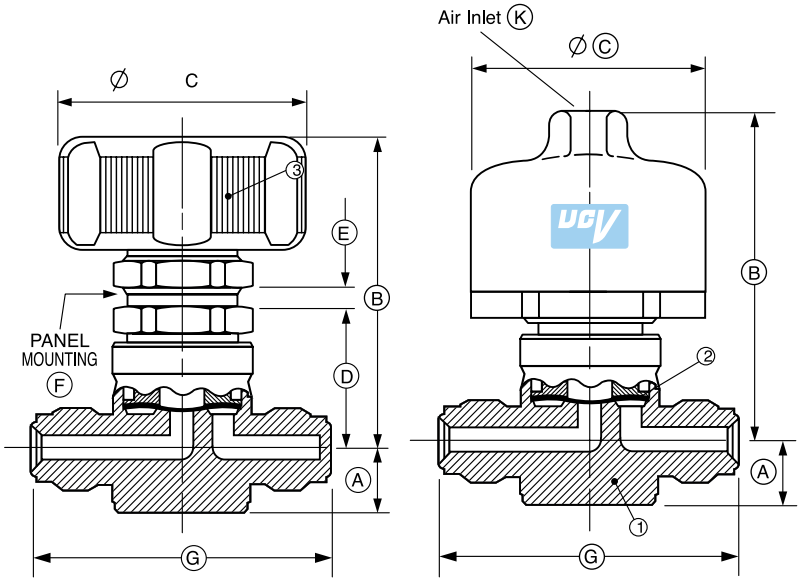
Metal Diaphragm Valves

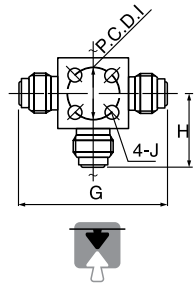
Standard models from the Ultra-Clean Valve Series are made to UHP specifications. The ultimate in metallic diaphragm-operated valves with resins completely removed from their gas contact areas. Available in connection joint sizes of 1/4", 3/8" and 1/2", as standard.

- High-speed replacement of media in a gas or liquid state.
- Extensive records of proven performance on corrosive gases (such as HCl and F2).
- Designs can be customized to meet specific needs.

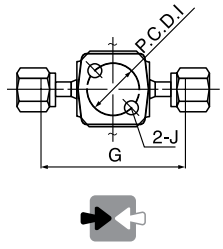
STANDARD CONFIGURATION DIMENSIONS

Part Number/ep	Size	End Connection	A	B	C	D	E	F	G	H	I	J	k
3LDS4R-BV	1/4	Male HTC®	11	(63)	45	29	(4)	23	58	25		M5	
3LDT4C-FV	1/4	Swivel Female HTC®	11	(89)	34				70.6	25	35.3	M5	Rc1/8
3LDS4C-W	1/4	Extended Butt Weld	11	(89)	34				89	25		M5	Rc1/8
3LDS4C-BW	1/4	Short Butt Weld	11	(89)	34				44.4	25		M5	Rc1/8
3LDS6R-W	3/8	Extended Butt Weld	17.5	(67.5)	45	32.5	(4)	23	105	28	38	M5	
3LDT8R-BV	1/2	Male HTC®	17.5	(67.5)	45	32.5	(4)	23	76	28		M5	
3LDS8C-FV	1/2	Swivel Female HTC®	17.5	(92.5)	40				100	28		M5	Rc1/8
3LDS8C-W	1/2	Extended Butt Weld	17.5	(92.5)	40				105	28		M5	Rc1/8





3-Way Flow Pattern



2-Way Flow Pattern

STRUCTURE

	Parts	Material
1	Body	316L Stainless Steel
2	Diaphragm	Elgiloy
3	Handle/Act	Aluminum

SPECIFICATIONS

Size	Pressure	Temp.	Cv	Leak Rates	
				Inboard	Across Seat
1/4	1MPa (150 psi)	-10 to150°c	0.3	$3X10^{-12}$ pa•m³/sec Helium	$2X10^{-8}$ pa•m³/sec Helium
3/8			0.7		
1/2			0.7		

ORDERING INFORMATION

For ordering, see page 302

To make a safe choice when selecting your product, review the entire design of your system implementation to ensure safe, trouble-free system operations. Relevant system considerations should cover functionality, suitability of materials to specific applications and numeric data. Correct installation, handling and maintenance of valves is the responsibility of the systems designer and the user.

3LT SERIES
HIGH-TEMPERATURE METAL SEAT

Metal Diaphragm Valves

The highest-ranking grade of high-temperature models from the Ultra-Clean Valve Series are made to UHP specifications. The ultimate in metallic diaphragm-operated valves with resins completely removed from their gas-contact areas. These valves can be used at temperatures up to 250°C.

- Best suited for use as MOCVD changeover valves.

STANDARD CONFIGURATION DIMENSIONS

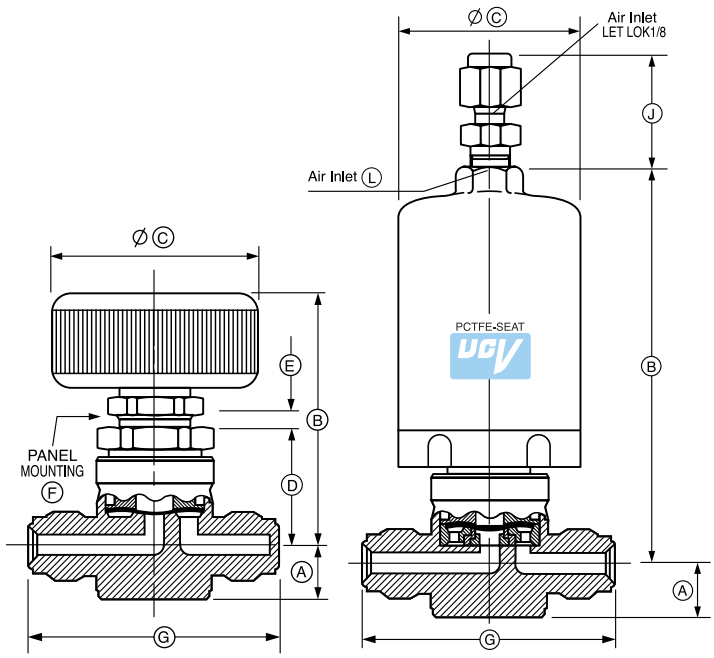
Part Number/ep	Size	End Connection	A	B	C	D	E	F	G	H	I	J	k	L
3LTS8D-BV-1	1/2	Male HTC®	17.5	(67.5)	45	32.5	(4)	23	76		28		M5	LET-LOK® 1/8
3LTT8C-FV-1	1/2	Swivel Female HTC®	17.5	(92.3)	40				100	50	28	29.2	M5	LET-LOK® 1/8
3LTS8C-W-2	1/2	Extended Butt Weld	17.5	(92.3)	40				105		28	29.2	M5	Rc1/8
3LTS8C-BW-2	1/2	Short Butt Weld	17.5	(92.3)	40				55		28	29.2	M5	Rc1/8

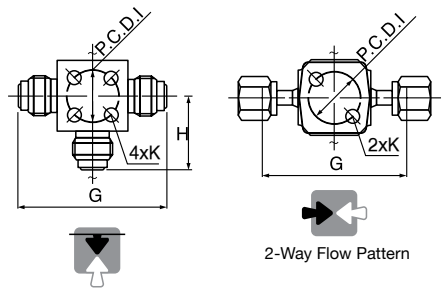
SPECIFICATIONS

Size	Pressure	Temp.	Cv	Leak Rates	
				Inboard	Across Seat
1/2	1MPa (150 psi)	-10 to 250°c	0.7	$3X10^{-12}$ pa•m³/sec Helium	$2X10^{-6}$ pa•m³/sec Helium

STRUCTURE

	Parts	Material
1	Body	316L Stainless Steel
2	Diaphragm	Elgiloy
3	Handle/Act	Aluminum





3-Way Flow Pattern

2-Way Flow Pattern

ORDERING INFORMATION

For ordering, see page 302

To make a safe choice when selecting your product, review the entire design of your system implementation to ensure safe, trouble-free system operations. Relevant system considerations should cover functionality, suitability of materials to specific applications and numeric data. Correct installation, handling and maintenance of valves is the responsibility of the systems designer and the user.

3LS SERIES

HIGH-PRESSURE-HIGH-FLOW METAL SEAT

Metal Diaphragm Valves

The highest-ranking grade of high-pressure-high-flow models from the Ultra-Clean Valve Series are made to UHP specifications. The ultimate in metallic diaphragm-operated valves with resins completely removed from their gas-contact areas. With their compact designs, these valves comfortably fit into high-pressure high-flow applications.

- Can be used as shutoff valves for high-pressure fluids at up to 16.2 MPa/2300 psi.
- Compact designs for minimum footprint.
- Extensive records of proven performance on corrosive gases (such as HCl and F2).
- Optionally ready for 21 MPa/3060 psi.

For more information please contact one of our field representatives.

STANDARD CONFIGURATION DIMENSIONS

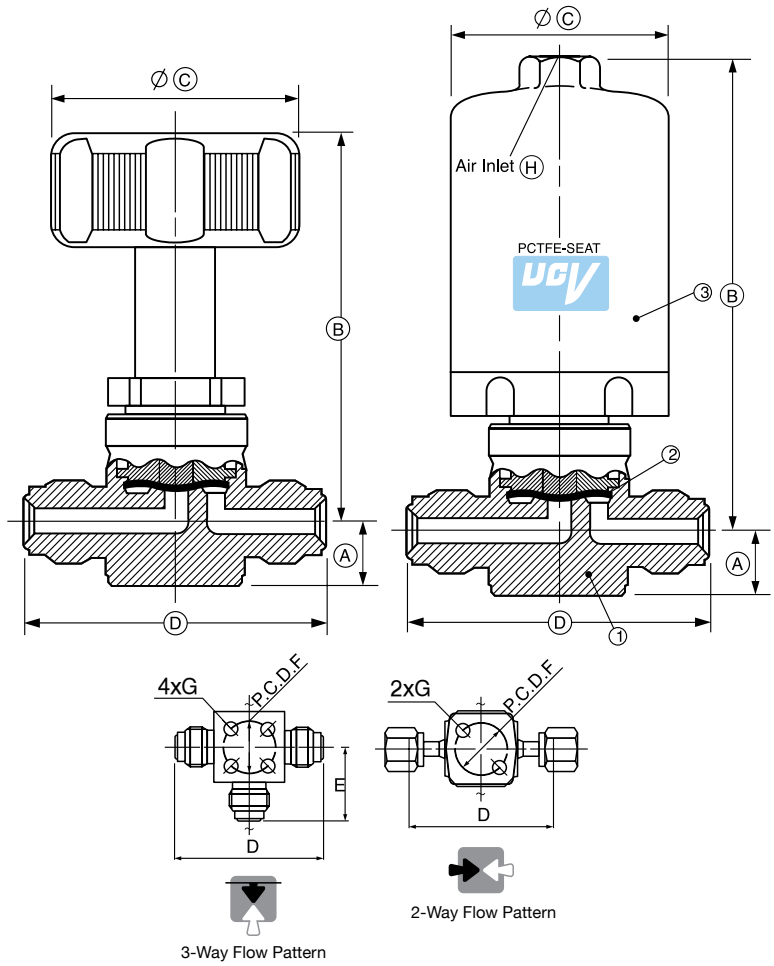
Part Number/ep	Size	End Connection	A	B	C	D	E	F	G	H
3LSS4R-W	1/4	Extended Butt Weld	11	(71)	45	89		25	M5	
3LSS4R-BW	1/4	Butt Weld	11	(71)	45	44.4		25	M5	
3LST4R-BV	1/4	Male HTC®	11	(71)	45	58	29	25	M5	
3LSS4C-FV	1/4	Swivel Female HTC®	11	(89)	40	70.6		25	M5	Rc1/8
3LST8R-BV	1/2	Male HTC®	17.5	(74)	45	76	3	28	M5	
3LSS8C-W	1/2	Extended Butt Weld	17.5	(92.5)	40	105		28	M5	Rc1/8
3LSS8C-BW	1/2	Short Butt Weld	17.5	(92.5)	40	55		28	M5	Rc1/8

SPECIFICATIONS

Size	Pressure	Temp.	Cv	Leak Rates	
				Inboard	Across Seat
1/4	16.2MPa/ 2300 psi OPTION: 21MPa/ 3060 psi	-10 to 150°c	0.25	3 X 10^{-12} Pa m^3/sec Helium	7 X 10^{-10} Pa m^3/sec Helium
1/2			0.27		

STRUCTURE

	Parts	Material
1	Body	316L Stainless Steel
2	Diaphragm	Elgiloy
3	Handle/Act	Aluminum



ORDERING INFORMATION

For ordering, see page 302

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EVH SERIES
HP-GRADE, HIGH-PRESSURE VALVE

Metal Diaphragm Valves

High-pressure standard models from the Ultra-Clean Valve Series are made to HP specifications. Features include a 2LH-like compact drive geometry and a highly reliable seat structure.

- Can be used as shutoff valves for high-pressure fluids at up to 16.2 MPa/2300 psi.
- Compact designs for minimum footprint.

STANDARD CONFIGURATION DIMENSIONS

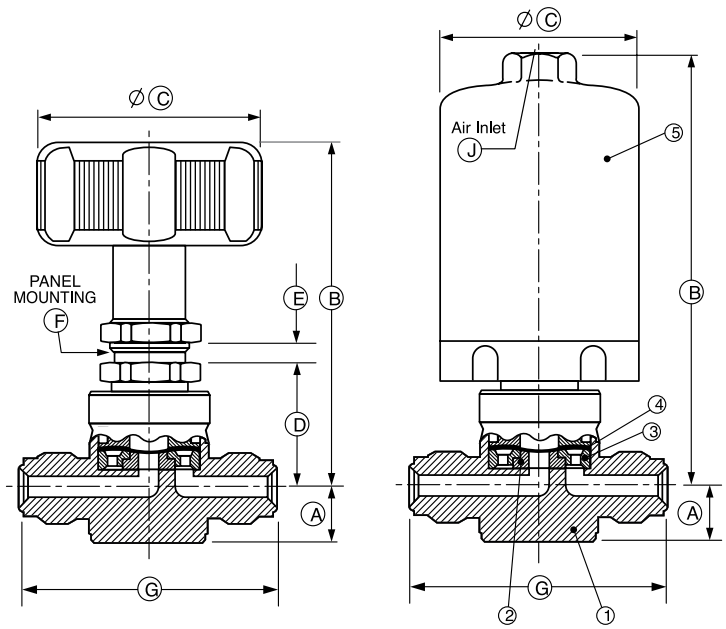
Part Number/ep	Size	End Connection	A	B	C	D	E	F	G	H	I	J
EVH4-I	1/4	LET-LOK®	11	(68)	45	25	(2.5)	17	(63.5)	17	M5	
EVH4-BV	1/4	Male HTC®	11	(68)	45	25	(2.5)	17	52	17	M5	
HVH4C-FV	1/4	Swivel Female HTC®	11	(85)	40				66	17	M5	Rc1/8

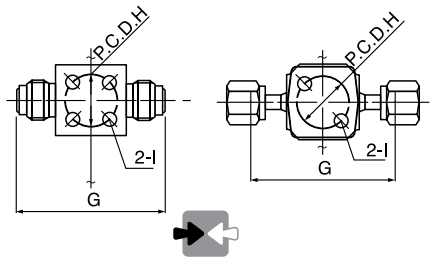
SPECIFICATIONS

Size	Pressure	Temp.	Cv	Leak Rates	
				Inboard	Across Seat
1/4	16.2MPa 2300 (psi)	-10 to 60°c	0.1	3 X 10^{-12} Pa m^3/sec Helium	3 X 10^{-10} Pa m^3/sec Helium

STRUCTURE

	Parts	Material
1	Body	316L Stainless Steel
2	Seat	PCTFE/PI (Vespel®)
3	Seat Holder	316L Stainless Steel
4	Diaphragm	Elgiloy
5	Handle	Aluminum





2-Way Flow Pattern

ORDERING INFORMATION

For ordering, see page 302

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ORDERING INFORMATION

2LD - T - 4 - C - BV - B - PI

Valve Series

2LE	- Compact
2LM	- Flow Control
2LD	- Standard
2LDS12	- 3/4'' High Flow
EV	- Low Pressure
EVZ	- Economy General Purpose
2LH	- High Pressure 2300 psi
2LS	- High Pressure High flow 3060psi
3LD	- Standard Metal Seat
3LT	- High Temp. Metal Seat
3LS	- High Pressure High Flow Metal Seat
EVH	- HP Grade High Pressure Valve

Valve Type

S	- 2-Port Valve (Straight)
A	- 2-Port Valve (Angle)
T	- 3-Port Valve (Straight)

Body Size

4	- 1/4
6	- 3/8
8	- 1/2
12	- 3/4

End Connection

BV	- Male Face Seal
MV	- Swivel Male Face Seal
FV	- Swivel Female Face Seal
W	- Extended Butt Welld
BW	- Short Butt Welld
BI	- LET-LOK®

Actuation Device

C	- Air Operated N.C	**Q**	- Oval Handle 1/4 turn
O	- Air Operated N.O	**T**	- Toggle Handle
R	- Air Operated N.O	**V**	- Vernier Handle

Blue Handle is standard. For other colors contact your local Ham-Let representative.

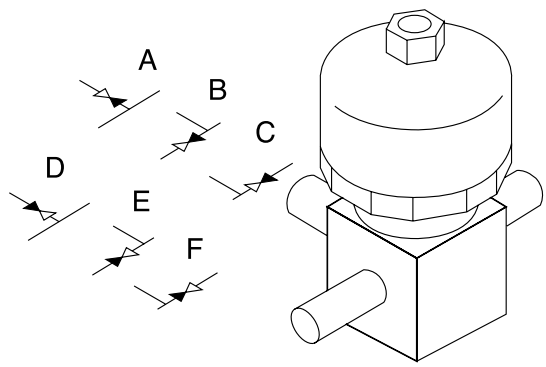
Feature

PI	- Vespel

Port Designator

(A-F) for 3-Way Valve

PORT DESIGNATOR



- All 2L & 3L series are made of forged SS316L.
- Standad seat: PCTFE.
- **For valves that are made of bar stock, see Ordering Information page 311 & 314**

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SEAT MATERIAL SELECTION

Gas	Molecular Formula	State*	Seat Materials** Diaphragm Valve		
			PCTFE	Pi	Metal
AMMONIA	NH_3	L.G	◎	△	◎
ARGON	Ar	G	[◎]	[◎]	[◎]
ARSINE	ASH_3	C.G	[◎]	[◎]	[◎]
BORON TRICHLORIDE	BCl_3	L.G	○	△	◎
BORON TRICHLORIDE	BF_3	C.G	○	△	◎
CHLORINE	Cl_3	L.G	○	X	◎
DIBORANE	B_2H_6	C.G	○	○	◎
DICHLORO SILANE	SiH_2Cl_2	L.G	○	△	◎
DISILANE	Si_2H_6	G	○	○	◎
DI-CHLORO DI-FLUORO METHANE	CCl_2F_2	L.G	[◎]	[△]	[◎]
MONO-CHLORO TRI-FLUORO METHANE	$CClF_3$	L.G	[◎]	[△]	[◎]
TETRA FLUORO METHANE	CF_4	G	[◎]	[◎]	[◎]
TRI FLUORO METHANE	CHF_3	L.G	[◎]	[◎]	[◎]
HEXA-FLUORO METHANE	C_2F_4	L.G	[◎]	[◎]	[◎]
HELIUM	He	G	[◎]	[◎]	[◎]
HYDROGEN	H_2	G	[◎]	[◎]	[◎]
HYDROGEN BROMIDE	HBr	C.G	△	[X]	◎
HYDROGEN CHLORIDE	HCl	L.G	○	X	◎
HYDROGEN SULFIDE	H_2S	L.G	○	X	◎
NITOROGEN	N_2	G	[◎]	[◎]	[◎]
NITOROGEN TRIFLUORIE	NF_3	G	[◎]	[◎]	[◎]
NITOROGEN OXIDE	N_2O	L.G	△	○	◎
OXIGEN	O_2	G	[◎]	[◎]	[◎]
PHOSPHINE	PH_3:PURE PH_3:MIX	G	○	○	◎
SILANE	SiH_4	G	○	○	◎
SILICON TERACHLORID	$SiCl_4$	L.G	○	△	◎
SULFER HEXAFLORIDE	SF_6	L.G	○	○	◎
TUNGSTEN HEXAFLUORIDE	WF_6	L.G	○	△	◎

* STATE-L.G: LIQUEFIED GAS C.G: COMPRESSED GAS G:GAS

** SEAT MATERIALS - ◎: VERY GOOD ○: GOOD △: CAUTION X: POOR

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