

- **DV1 Series**
Low Pressure Low Flow Type
- **DV2 Series**
Low Pressure Medium Flow Type
- **DV4 Series**
High Pressure Low Flow Type
- **DV5 Series**
High Pressure Medium Flow Type

High-Purity & Ultrahigh-Purity Diaphragm Valves

芯阀科技

XINVAL



Contents

DV1 Series - Low Pressure Low Flow Type

B01



Pressure Rating: vacuum to 17.2 bar (250 psig)
Cv: 0.3

DV2 Series - Low Pressure Medium Flow Type

B05



Pressure Rating: vacuum to 17.2 bar (250 psig)
Cv: 0.65

DV4 Series - High Pressure Low Flow Type

B09



Pressure Rating: vacuum to 207 bar (3000 psig)
Cv: 0.26

DV5 Series - High Pressure Medium Flow Type

B13



Pressure Rating: vacuum to 207 bar (3000 psig)
Cv: 0.8

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DV1 Series Low Pressure Low Flow Type

Features

- ◇ Low internal volume, minimal particle generation
- ◇ Fully contained seat design with excellent resistance to swelling and contamination
- ◇ Springless construction makes the flow paths completely cleanable
- ◇ Cobalt-based superalloy diaphragm to provide high strength and corrosion resistance to ensure long cycle life
- ◇ Manual or pneumatic options available
- ◇ Suitable for ultrahigh-purity application



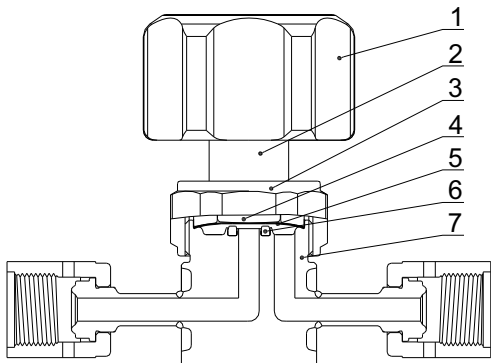
Technical Data

Orifice Size	4.1 mm (0.16 in.)	
Port Size	1/4" to 3/8", 6 mm to 8 mm	
Flow Coefficient (CV)	0.3	
Working Pressure	Vacuum to 17.2 bar (250 psig)	
Pneumatic Actuator Operating Pressure	4.2 ~ 6.0 bar (60 ~ 90 psig)	
Temperature	PCTFE: -23°C ~ 65°C (-10 ~ 150°F)	
	PFA: -23 ~ 150°C (-10 ~ 302°F)	
Leak Rate (Helium)	Inboard	$\leq 5 \times 10^{-10}$ std cm ³ /s
	Outboard	$\leq 5 \times 10^{-10}$ std cm ³ /s
	Seat	$\leq 1 \times 10^{-9}$ std cm ³ /s

Product Technology Grade

Product Grade Technology	GP	HP	UHP
Material Specification	316L Stainless Steel/A479	316L Stainless Steel/A479 316L VAR/SEMI F20	316L VAR/SEMI F20 316L VIM-VAR/SEMI F20
Wetted Surface Roughness	Ra 15 µin (0.4 µm)	Ra 10 µin (0.25 µm)	Ra 5 µin (0.13 µm)
Polishing Process	Mechanical polishing	Electropolished	Electropolished
Cleaning	Standard cleaning	High-purity cleaning	Ultrahigh-purity cleaning
Packaging	Individually bagged	Double bagged	Double bagged

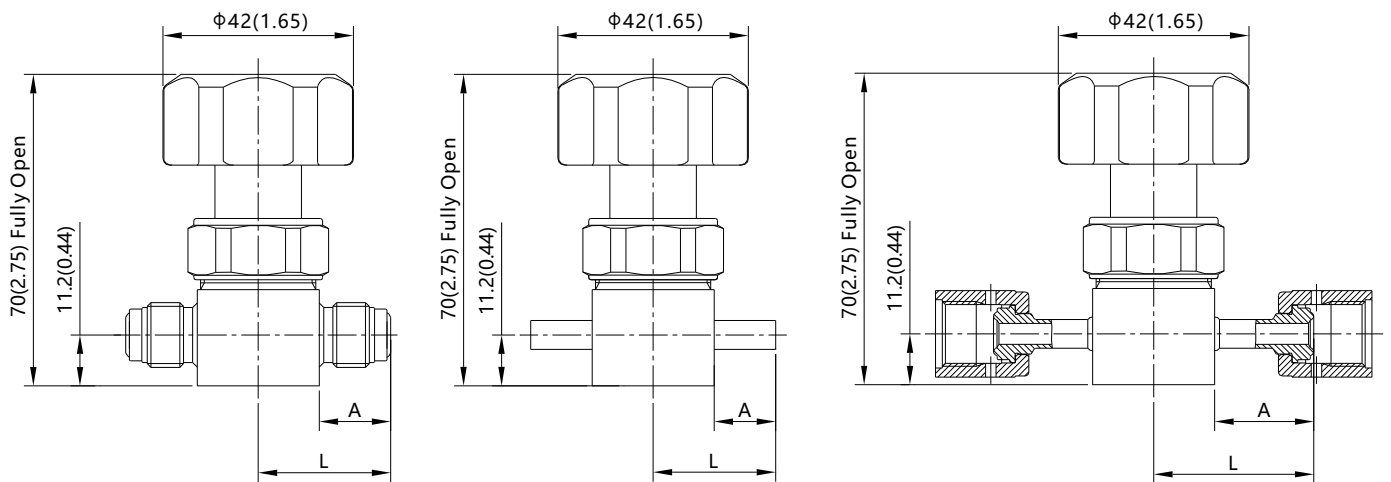
Major Materials of Constructions



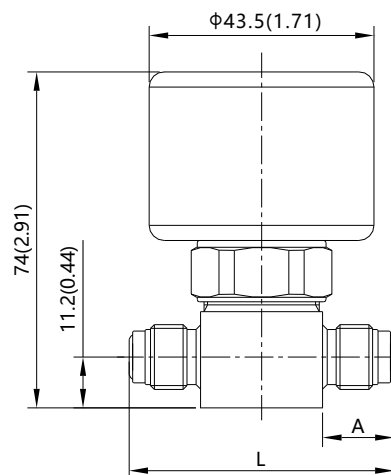
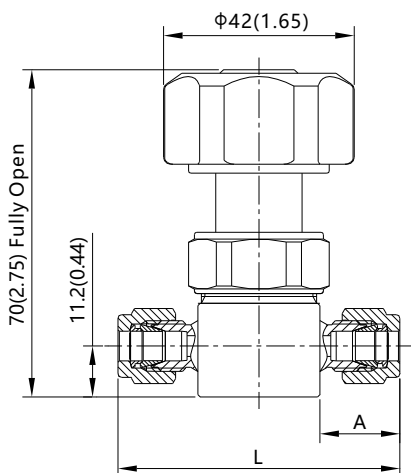
Item	Component	Material/Specification
1	Handle	Aluminum
2	Bonnet	S17400/ASTM A564
3	Bonnet Nut	304 SS/ASTM A479
4	Button	316 SS/ASTM A479
5	Diaphragm	Cobalt-based superalloy/ASTM 5876
6	Seat	PCTFE/ASTM D1430 or PFA/ASTM D3307
7	Body	316L SS/ASTM A479 or 316L VAR/SEMI F20 or 316L VIM-VAR/SEMI F20

Dimensions and Ordering Information

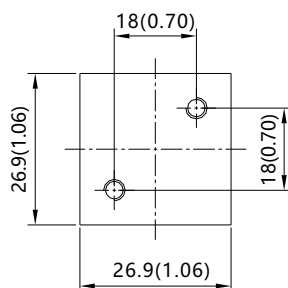
Unit: mm (in)



Pneumatic Type

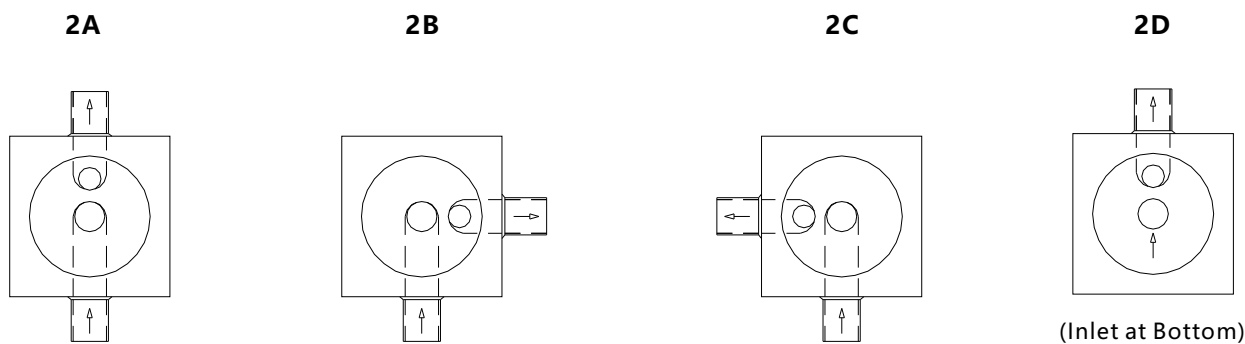


Bottom



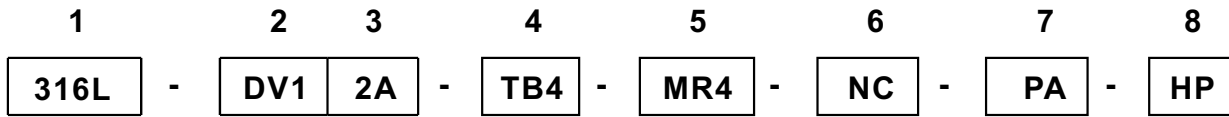
Connection Type	Size	Basic Ordering No.	Dimensions, mm (in)	
			L	A
Male MR	1/4"	-DV12A-MR4-	29.2(1.15)	15.7(0.62)
Tube Butt Weld	1/4"	-DV12A-TB4-	22.1(0.87)	7.6(0.30)
	3/8"	-DV12A-TB6-	22.1(0.87)	7.6(0.30)
	6 mm	-DV12A-TB6M-	22.1(0.87)	7.6(0.30)
	8 mm	-DV12A-TB8M-	22.1(0.87)	7.6(0.30)
Female FMR	1/4"	-DV12A-FMR4-	35.3(1.39)	21.8(0.86)
Fractional Tube	1/4"	-DV12A-F4-	31.1(1.22)	17.6(0.69)
	6 mm	-DV12A-F6M-	31.5(1.24)	18.0(0.71)
	8 mm	-DV12A-F8M-	32.2(1.27)	18.7(0.74)

Flow Paths



*Flow paths as viewed from the top
 *Contact XINVAL for more flow paths options

Ordering Number Description



Example: 316L-DV12A-TB4-MR4-NC-PA-HP

1 - Material

316L: 316L
6V: 316L VAR
6VV: 316L VAR-VIM

2 - Product Series

DV1 Series: Low Pressure Low Flow Type

3 - Flow Paths

2A: Straight
2B/C: Horizontal Angle
2D: Vertical Angle

4 - Inlet Type and Size

MR4: 1/4" Male MR
TB4: 1/4" Tube Butt Weld
TB6M: 6mm Tube Butt Weld
TB8M: 8mm Tube Butt Weld
FMR4: 1/4" Female MR
F4: 1/4" Fractional Tube
F6M: 6mm Fractional Tube
F8M: 8mm Fractional Tube

5 - Outlet Type and Size

None: Same as Inlet
Refer to "Inlet Type and Size" for options

6 - Actuator Type

None: Manual
NO: Pneumatic and Normally Open
NC: Pneumatic and Normally Closed

7 - Seat Material

None: PCTFE
PA: PFA

8 - Products Grade

GP: Standard Cleaning and Packaging
HP: High-Purity Cleaning and Packaging
UHP: Ultrahigh-Purity Cleaning and Packaging

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DV2 Series Low Pressure Medium Flow Type

Features

- ◇ Low internal volume, minimal particle generation
- ◇ Fully contained seat design with excellent resistance to swelling and contamination
- ◇ Springless construction makes the flow paths completely cleanable
- ◇ Cobalt-based superalloy diaphragm to provide high strength and corrosion resistance to ensure long cycle life
- ◇ Manual or pneumatic options available
- ◇ Suitable for ultrahigh-purity application



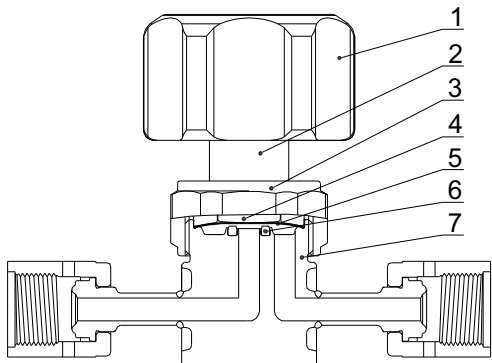
Technical Data

Orifice Size	6 mm (0.24 in.)	
Port Size	3/8" to 1/2", 10 mm to 12 mm	
Flow Coefficient (CV)	0.65	
Working Pressure	Manual	Vacuum to 17.2 bar (250 psig)
	Pneumatic	Vacuum to 10.0 bar (145 psig)
Pneumatic Actuator Operating Pressure	4.2 ~ 6.0 bar (60 ~ 90 psig)	
Temperature	PCTFE: -23°C ~ 65°C (-10 ~ 150°F)	
	PFA: -23 ~ 150°C (-10 ~ 302°F)	
Leak Rate (Helium)	Inboard	$\leq 5 \times 10^{-10}$ std cm ³ /s
	Outboard	$\leq 5 \times 10^{-10}$ std cm ³ /s
	Seat	$\leq 1 \times 10^{-9}$ std cm ³ /s

Product Technology Grade

Product Grade Technology	GP	HP	UHP
Material Specification	316L Stainless Steel/A479	316L Stainless Steel/A479 316L VAR/SEMI F20	316L VAR/SEMI F20 316L VIM-VAR/SEMI F20
Wetted Surface Roughness	Ra 15 μm (0.4 μm)	Ra 10 μm (0.25 μm)	Ra 5 μm (0.13 μm)
Polishing Process	Mechanical polishing	Electropolished	Electropolished
Cleaning	Standard cleaning	High-purity cleaning	Ultrahigh-purity cleaning
Packaging	Individually bagged	Double bagged	Double bagged

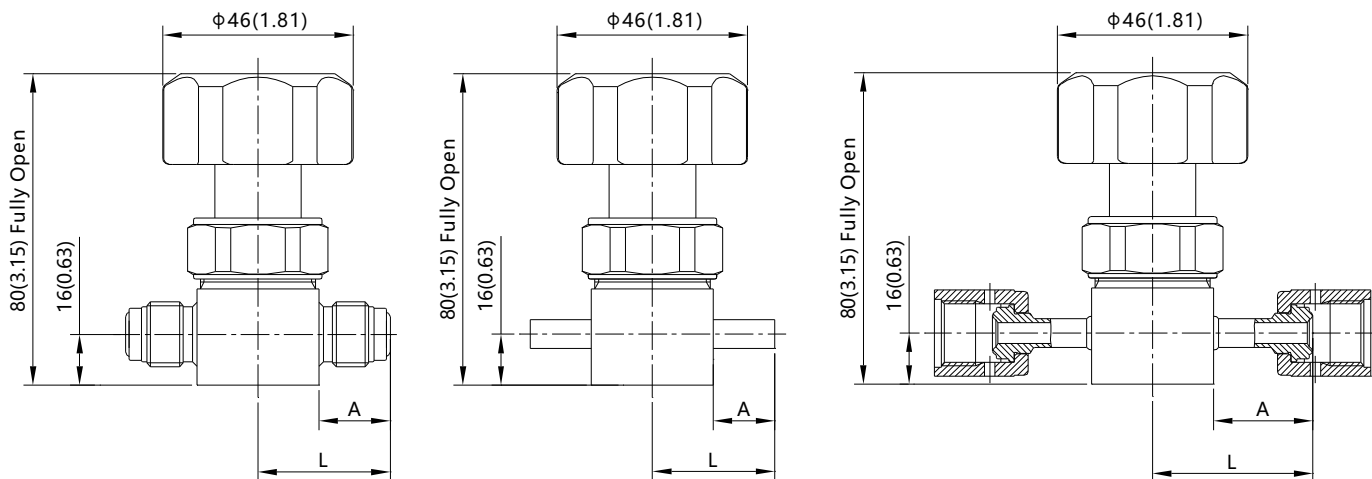
Major Materials of Constructions



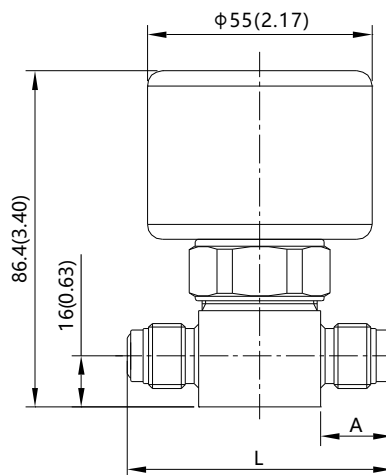
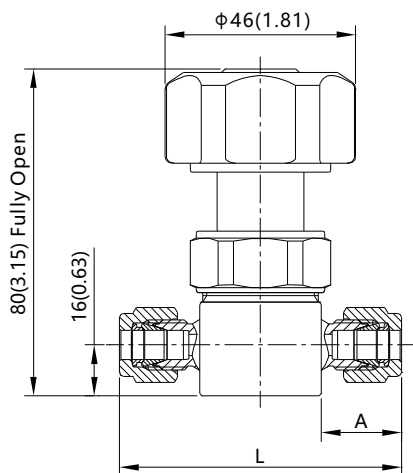
Item	Component	Material/Specification
1	Handle	Aluminum
2	Bonnet	S17400/ASTM A564
3	Bonnet Nut	304 SS/ASTM A479
4	Button	316 SS/ASTM A479
5	Diaphragm	Cobalt-based superalloy/ASTM 5876
6	Seat	PCTFE/ASTM D1430 or PFA/ASTM D3307
7	Body	316L SS/ASTM A479 or 316L VAR/SEMI F20 or 316L VIM-VAR/SEMI F20

Dimensions and Ordering Information

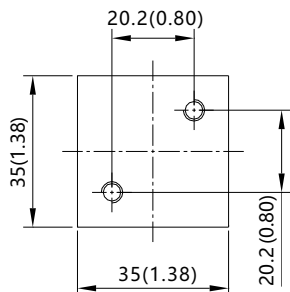
Unit: mm (in)



Pneumatic Type

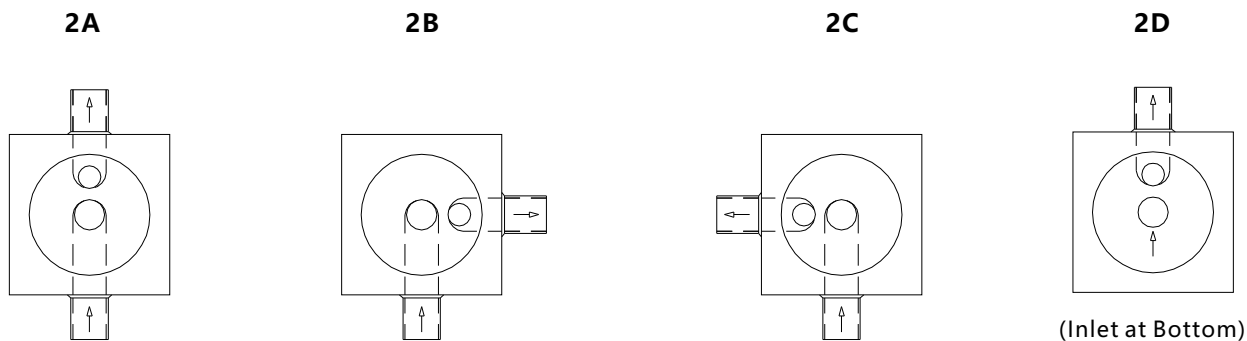


Bottom



Connection Type	Size	Basic Ordering No.	Dimensions, mm (in)	
			L	A
Male MR	1/2"	-DV22A-MR8-	38.5(1.50)	20.5(0.81)
Tube Butt Weld	3/8"	-DV22A-TB6-	34.5(1.36)	16.5(0.65)
	1/2"	-DV22A-TB8-	34.5(1.36)	16.5(0.65)
	10 mm	-DV22A-TB10M-	34.5(1.36)	16.5(0.65)
	12 mm	-DV22A-TB12M-	34.5(1.36)	16.5(0.65)
Female FMR	1/2"	-DV22A-FMR8-	41.5(1.63)	23.5(0.93)
Fractional Tube	3/8"	-DV22A-F6-	36.8(1.45)	19.3(0.76)
	1/2"	-DV22A-F8-	39.4(1.55)	21.9(0.86)
	10 mm	-DV22A-F10M-	37.0(1.46)	19.5(0.77)
	12 mm	-DV22A-F12M-	39.6(1.56)	22.1(0.87)

Flow Paths



*Flow paths as viewed from the top
 *Contact XINVAL for more flow paths options

Ordering Number Description



Example: 316L-DV22A-TB8-MR8-NO-PA-HP

1 - Material

316L: 316L
6V: 316L VAR
6VV: 316L VAR-VIM

2 - Product Series

DV2 Series: Low Pressure Medium Flow Type

3 - Flow Paths

2A: Straight
2B/C: Horizontal Angle
2D: Vertical Angle

4 - Inlet Type and Size

MR8: 1/2" Male MR
TB6: 3/8" Tube Butt Weld
TB8: 1/2" Tube Butt Weld
TB10M: 10mm Tube Butt Weld
TB12M: 12mm Tube Butt Weld
FMR8: 1/2" Female MR
F6: 3/8" Fractional Tube
F8: 1/2" Fractional Tube
F10M: 10mm Fractional Tube
F12M: 12mm Fractional Tube

5 - Outlet Type and Size

None: Same as Inlet
Refer to "Inlet Type and Size" for options

6 - Actuator Type

None: Manual
NO: Pneumatic and Normally Open
NC: Pneumatic and Normally Closed

7 - Seat Material

None: PCTFE
PA: PFA

8 - Products Grade

GP: Standard Cleaning and Packaging
HP: High-Purity Cleaning and Packaging
UHP: Ultrahigh-Purity Cleaning and Packaging

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DV4 Series High Pressure Low Flow Type

Features

- ◇ Low internal volume, minimal particle generation
- ◇ Fully contained seat design with excellent resistance to swelling and contamination
- ◇ Springless construction makes the flow paths completely cleanable
- ◇ Cobalt-based superalloy diaphragm to provide high strength and corrosion resistance to ensure long cycle life
- ◇ Manual or pneumatic options available
- ◇ Suitable for ultrahigh-purity application



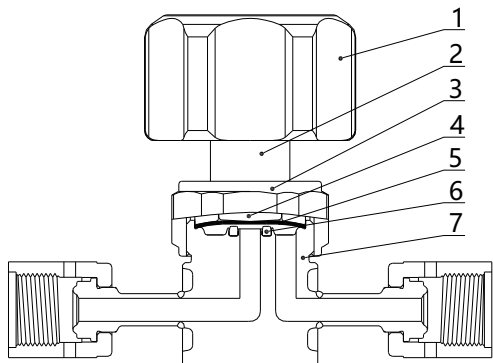
Technical Data

Orifice Size	4.1 mm (0.16 in.)	
Port Size	1/4" to 3/8", 6 mm to 8 mm	
Flow Coefficient (CV)	0.26	
Working Pressure	Vacuum to 207 bar (3000 psig)	
Pneumatic Actuator Operating Pressure	4.8 ~ 6.9 bar (70 ~ 100 psig)	
Temperature	PCTFE: -23°C ~ 65°C (-10 ~ 150°F)	
	Vespel: -10 ~ 150°C (-14 ~ 302°F)	
Leak Rate (Helium)	Inboard	$\leq 5 \times 10^{-10}$ std cm ³ /s
	Outboard	$\leq 5 \times 10^{-10}$ std cm ³ /s
	Seat	$\leq 1 \times 10^{-9}$ std cm ³ /s

Product Technology Grade

Product Grade Technology	GP	HP	UHP
Material Specification	316L Stainless Steel/A479	316L Stainless Steel/A479 316L VAR/SEMI F20	316L VAR/SEMI F20 316L VIM-VAR/SEMI F20
Wetted Surface Roughness	Ra 15 µin (0.4 µm)	Ra 10 µin (0.25 µm)	Ra 5 µin (0.13 µm)
Polishing Process	Mechanical polishing	Electropolished	Electropolished
Cleaning	Standard cleaning	High-purity cleaning	Ultrahigh-purity cleaning
Packaging	Individually bagged	Double bagged	Double bagged

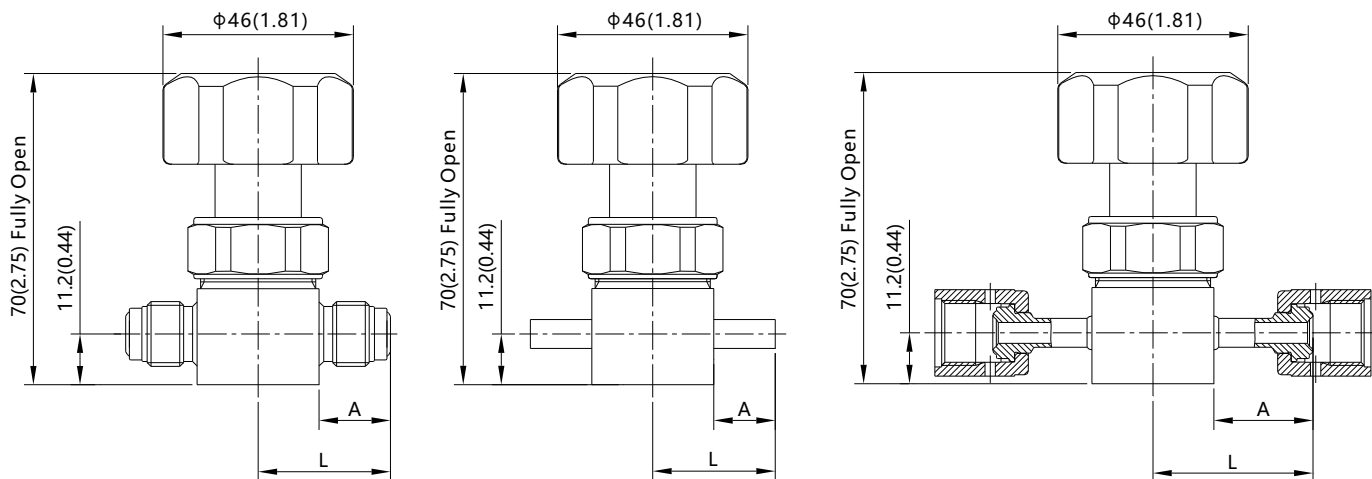
Major Materials of Constructions



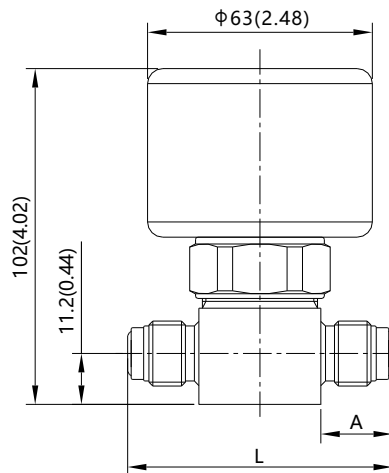
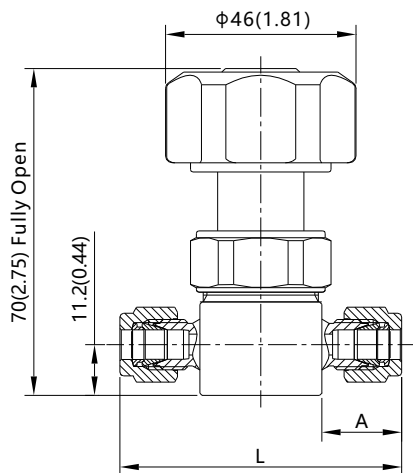
Item	Component	Material/Specification
1	Handle	Aluminum
2	Bonnet	S17400/ASTM A564
3	Bonnet Nut	304 SS/ASTM A479
4	Button	316 SS/ASTM A479
5	Diaphragm	Cobalt-based superalloy/ASTM 5876
6	Seat	PCTFE/ASTM D1430 or Vespel
7	Body	316L SS/ASTM A479 or 316L VAR/SEMI F20 or 316L VIM-VAR/SEMI F20

Dimensions and Ordering Information

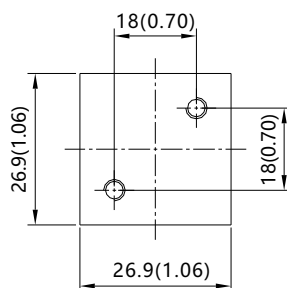
Unit: mm (in)



Pneumatic Type

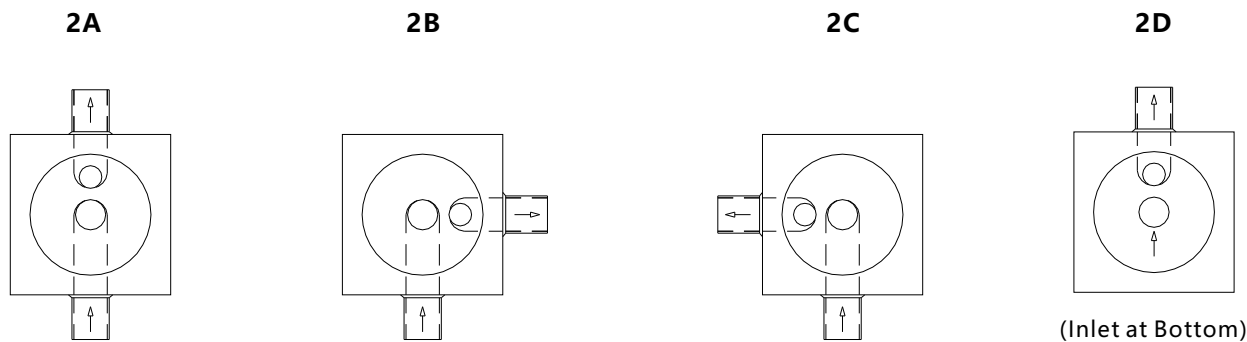


Bottom



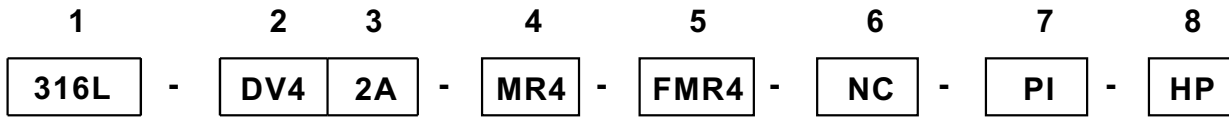
Connection Type	Size	Basic Ordering No.	Dimensions, mm (in)	
			L	A
Male MR	1/4"	-DV42A-MR4-	29.2(1.15)	15.7(0.62)
Tube Butt Weld	1/4"	-DV42A-TB4-	22.1(0.87)	7.6(0.30)
	3/8"	-DV42A-TB6-	22.1(0.87)	7.6(0.30)
	6 mm	-DV42A-TB6M-	22.1(0.87)	7.6(0.30)
	8 mm	-DV42A-TB8M-	22.1(0.87)	7.6(0.30)
Female FMR	1/4"	-DV42A-FMR4-	35.3(1.39)	21.8(0.86)
Fractional Tube	1/4"	-DV42A-F4-	31.1(1.22)	17.6(0.69)
	6 mm	-DV42A-F6M-	31.5(1.24)	18.0(0.71)
	8 mm	-DV42A-F8M-	32.2(1.27)	18.7(0.74)

Flow Paths



*Flow paths as viewed from the top
 *Contact XINVAL for more flow paths options

Ordering Number Description



Example: 316L-DV42A-MR4-FMR4-NC-PI-HP

1 - Material

316L: 316L
6V: 316L VAR
6VV: 316L VAR-VIM

2 - Product Series

DV4 Series: High Pressure Low Flow Type

3 - Flow Paths

2A: Straight
2B/C: Horizontal Angle
2D: Vertical Angle

4 - Inlet Type and Size

MR4: 1/4" Male MR
TB4: 1/4" Tube Butt Weld
TB6M: 6mm Tube Butt Weld
TB8M: 8mm Tube Butt Weld
FMR4: 1/4" Female MR
F4: 1/4" Fractional Tube
F6M: 6mm Fractional Tube
F8M: 8mm Fractional Tube

5 - Outlet Type and Size

None: Same as Inlet
Refer to "Inlet Type and Size" for options

6 - Actuator Type

None: Manual
NO: Pneumatic and Normally Open
NC: Pneumatic and Normally Closed

7 - Seat Material

None: PCTFE
PI: Vespel

8 - Products Grade

GP: Standard Cleaning and Packaging
HP: High-Purity Cleaning and Packaging
UHP: Ultrahigh-Purity Cleaning and Packaging

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DV5 Series High Pressure Medium Flow Type

Features

- ◇ Low internal volume, minimal particle generation
- ◇ Fully contained seat design with excellent resistance to swelling and contamination
- ◇ Springless construction makes the flow paths completely cleanable
- ◇ Cobalt-based superalloy diaphragm to provide high strength and corrosion resistance to ensure long cycle life
- ◇ Manual or pneumatic options available
- ◇ Suitable for ultrahigh-purity application



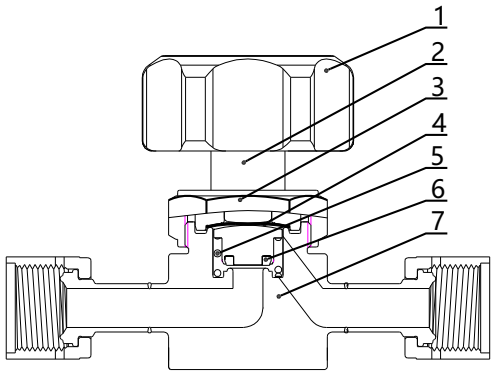
Technical Data

Orifice Size	7.5mm (0.3 in.)	
Port Size	3/8" to 1/2", 10 mm to 12 mm	
Flow Coefficient (CV)	0.8	
Working Pressure	Vacuum to 207 bar (3000 psig)	
Pneumatic Actuator Operating Pressure	4.8 ~ 6.9 bar (70 ~ 100 psig)	
Temperature	PCTFE: -23°C ~ 65°C (-10 ~ 150°F)	
	Vespel: -10 ~ 150°C (-10 ~ 302°F)	
Leak Rate (Helium)	Inboard	$\leq 5 \times 10^{-10}$ std cm ³ /s
	Outboard	$\leq 5 \times 10^{-10}$ std cm ³ /s
	Seat	$\leq 1 \times 10^{-9}$ std cm ³ /s

Product Technology Grade

Product Grade Technology	GP	HP	UHP
Material Specification	316L Stainless Steel/A479	316L Stainless Steel/A479 316L VAR/SEMI F20	316L VAR/SEMI F20 316L VIM-VAR/SEMI F20
Wetted Surface Roughness	Ra 15 µin (0.4 µm)	Ra 10 µin (0.25 µm)	Ra 5 µin (0.13 µm)
Polishing Process	Mechanical polishing	Electropolished	Electropolished
Cleaning	Standard cleaning	High-purity cleaning	Ultrahigh-purity cleaning
Packaging	Individually bagged	Double bagged	Double bagged

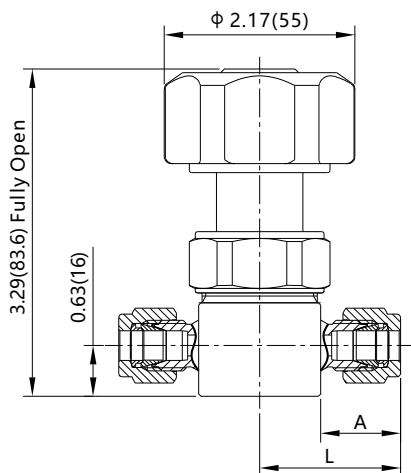
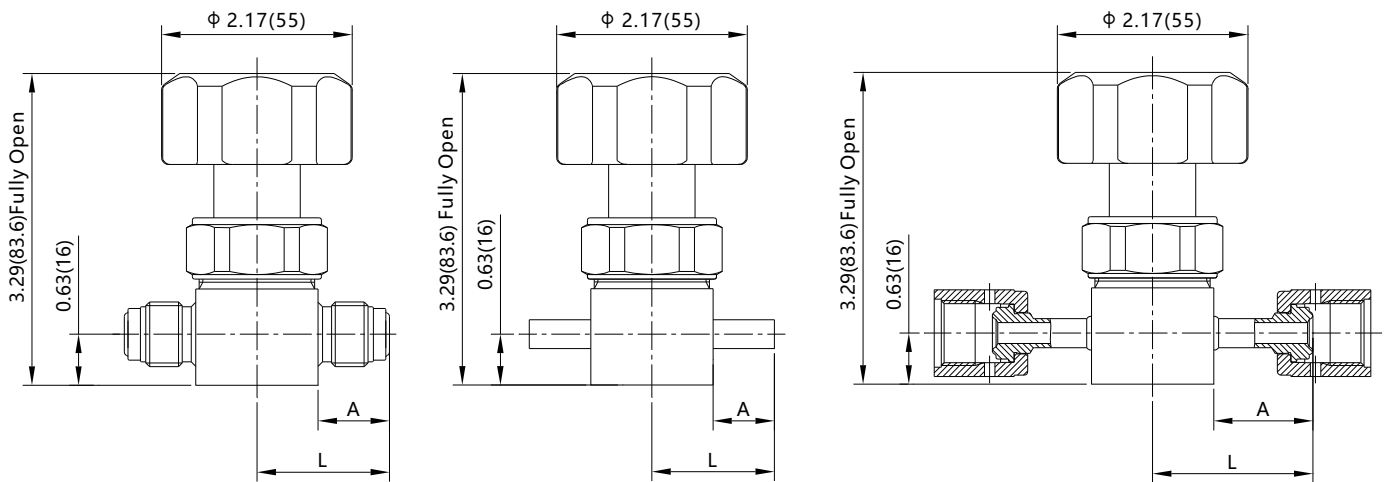
Major Materials of Constructions



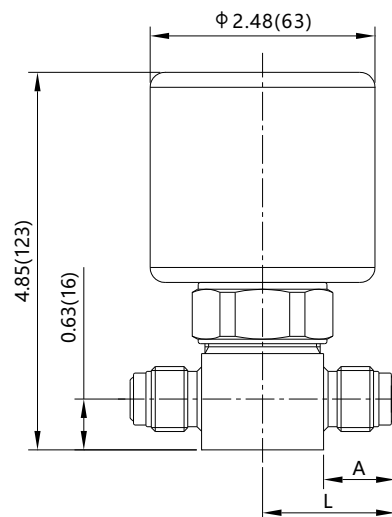
Item	Component	Material/Specification
1	Handle	Aluminum
2	Bonnet	S17400/ASTM A564
3	Bonnet Nut	304 SS/ASTM A479
4	Diaphragm	Cobalt-based superalloy/ASTM 5876
5	Spring	316 SS/ASTM A313
6	Seat	PCTFE/ASTM D1430 or PI
7	Body	316L SS/ASTM A479 or 316L VAR/SEMI F20 or 316L VIM-VAR/SEMI F20

Dimensions and Ordering Information

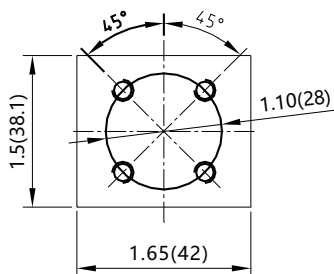
Unit: mm (in)



Pneumatic Type

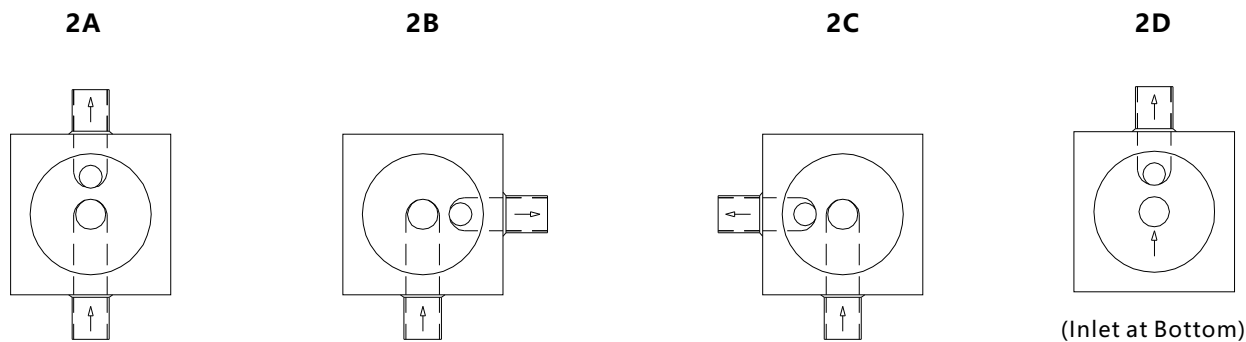


Bottom



Connection Type	Size	Basic Ordering No.	Dimensions, mm (in)	
			L	A
Male MR	1/2"	-DV52A-MR8-	40.1(1.58)	19.1(0.81)
Tube Butt Weld	3/8"	-DV52A-TB6-	37.5(1.36)	16.5(0.65)
	1/2"	-DV52A-TB8-	37.5(1.36)	16.5(0.65)
	10 mm	-DV52A-TB10M-	37.5(1.36)	16.5(0.65)
	12 mm	-DV52A-TB12M-	37.5(1.36)	16.5(0.65)
Female FMR	1/2"	-DV52A-FMR8-	49.5(1.95)	28.5(1.12)
Fractional Tube	3/8"	-DV52A-F6-	40.3(1.59)	19.3(0.76)
	1/2"	-DV52A-F8-	42.9(1.69)	21.9(0.86)
	10 mm	-DV52A-F10M-	40.5(1.59)	19.5(0.77)
	12 mm	-DV52A-F12M-	43.1(1.70)	22.1(0.87)

Flow Paths



*Flow paths as viewed from the top
 *Contact XINVAL for more flow paths options

Ordering Number Description



Example: 316L-DV52A-TB6-MR8-NC-PI-HP

1 - Material

316L: 316L
6V: 316L VAR
6VV: 316L VAR-VIM

2 - Product Series

DV5 Series: High Pressure Medium Flow Type

3 - Flow Paths

2A: Straight
2B/C: Horizontal Angle
2D: Vertical Angle

4 - Inlet Type and Size

MR8: 1/2" Male MR
TB6: 3/8" Tube Butt Weld
TB8: 1/2" Tube Butt Weld
TB10M: 10mm Tube Butt Weld
TB12M: 12mm Tube Butt Weld
FMR8: 1/2" Female MR
F6: 3/8" Fractional Tube
F8: 1/2" Fractional Tube
F10M: 10mm Fractional Tube
F12M: 12mm Fractional Tube

5 - Outlet Type and Size

None: Same as Inlet
Refer to "Inlet Type and Size" for options

6 - Actuator Type

None: Manual
NO: Pneumatic and Normally Open
NC: Pneumatic and Normally Closed

7 - Seat Material

None: PCTFE
PI: Vespel

8 - Products Grade

GP: Standard Cleaning and Packaging
HP: High-Purity Cleaning and Packaging
UHP: Ultrahigh-Purity Cleaning and Packaging