

# FINE series PURE Bellows·Metal Diaphragm series



FUDF-916G-6.35

FUBFL-71-6.35

FPR-71-6.35

*Safety & Clean Technology*

*Fujikin Incorporated*

S a f e t y & C l e a n T e c h n o l o g y

BELLOWS VALVE

SWITCH BELLOWS VALVE

BELLOWS NEEDLE VALVE



METAL DIAPHRAGM VALVE

BELLOWS VALVE

SWITCH BELLOWS VALVE

BELLOWS NEEDLE VALVE

METAL DIAPHRAGM VALVE

BELLOWS VALVE

SWITCH BELLOWS VALVE

Fujikin's Class 1 cleanrooms feature cutting-edge technology throughout, and must exceed the most rigorous standards for cleanliness. Products manufactured in this environment are therefore guaranteed to meet the most stringent requirements and to be of the highest quality worldwide.







# INDEX

## BELLOWS-METAL DIAPHRAGM series

### Bellows

Pneumatically-Actuated Bellows Valve .....	3
Pneumatically-Actuated High-Pressure Bellows Valve ...7 (High-Pressure Applications)	
Switch Bellows® .....	11 (Quarter-Turn Switch Type)
Bellows Valve .....	15 (Round Handle)
Bellows Needle Valve .....	19 (Rough Needle) (Flow Control Needle Valve with Micrometer)

### Metal Diaphragm

Metal Diaphragm Valve .....	21 (Round Handle for High-Pressure Applications)
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### Options

Additional Information .....	25
Comparison Chart .....	26

## Pneumatically-Actuated Bellows Valves

### Stainless Steel 1MPa

The Fujikin pneumatically-actuated bellows valve is a compact valve designed for ultra-pure, flammable, or toxic fluid lines for all types of semiconductor equipment and facilities.

The Fujikin bellows valve is the most successful valve in the semiconductor industry due to its superior sealing performance, remarkable durability, compactness, ease of cleaning, and excellent purge characteristics.

Colored caps differentiate between normally-open (blue) and normally-closed (red) valves, thereby simplifying recognition.

The actuator features a unique rotation mechanism, allowing for actuation pressure to be supplied from any desired direction for both normally open and normally closed valves.

No external leakage due to rugged metal gasket seal.

Uniform bellows shape promotes highly effective purging and cleaning.

Standard disk packing material is PCTFE. High-Temperature / Polyimide / PFA disk packing materials are also available.

UP treatment for wetted surfaces is optionally available.

A wide variety of end-connections are available.



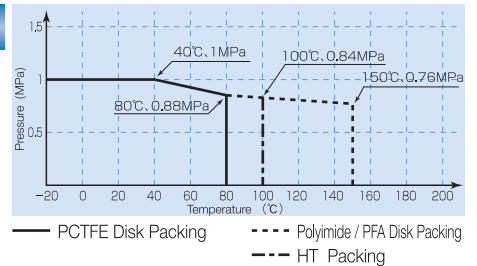
# SPECIFICATIONS

Specification	Nominal Diameter	Maximum Operating Pressure	Fluid Temperature Range	Maximum Cv	Actuation Pressure	Actuator Port	End-Connections	Actuation Type
	6.35 (1/4")	1MPa 145 psi	-10~+80°C 14~176°F	0.3	0.34~0.69MPa 48~70 psi	Rc 1/8"	F900 UJR Tube Stub	Normally Closed (NC) Normally Open (NO)
	9.52 (3/8")			0.8				
	12.7 (1/2")							

- All valves are helium leak tested. Vacuum method/results: External leakage: <math> < 5 \times 10^{-12} \text{ Pa} \cdot \text{m}^3/\text{sec}</math>. Seat leakage: <math> < 5 \times 10^{-12} \text{ Pa} \cdot \text{m}^3/\text{sec}</math>
- Demonstrated superior durability - over 5 million cycles (actual test results).

Materials	Part	Material
	Body	SUS316L
	Bellows	SUS316L
	Disk Packing	PCTFE
	Gasket	NW2201(Nickel)
	Actuator	A5056

### Temperature/Pressure Rating



# PART NUMBER DESIGNATION

Please use the part number designations below when placing an order.

FPR-[ ]-71 [ ]-6.35 [ ]-[ ]-[ ]-[ ]

A	B	C	D	E	F	G	H	I	J
								I	J
								U P : UP treatment*	
								I N : Inconel bellows*	
								P I : Polyimide disk packing*	
								P A : PFA disk packing*	
								H T : High-temperature PCTFE disk packing*	
								B R : Female UJR with Purering*	
							H	Blank : Male UJR on both ends	
								2 : Female UJR on both ends	
								3 : UJR male inlet / Female UJR outlet	
						G		BW : Butt weld*	
					F			End-Connection Sizes	
								6.35 : 1/4" <sup>OD</sup>	
								9.52 : 3/8" <sup>OD</sup>	
								12.7 : 1/2" <sup>OD</sup> (UJR connections have a 9.52 port diameter)	
				E				R S 2 : With proximity sensor*	
								L S : With limit switch*	
			D					1 : 1MPa maximum operating pressure	
		C						7 : UJR end-connection	
								9 : F900 end-connection	
								5 : Tube Stub end-connection*	
	B							T B : Added only for 3-port valves	
A								F P : Normally open	
								F P R : Normally closed	

\* Optional or made to order.

Actual shipped products may have additional designations (such as #A, #B) in the part number. These indicate production history and do not indicate a change in function or dimensions.

## DIMENSIONS

Figure 1

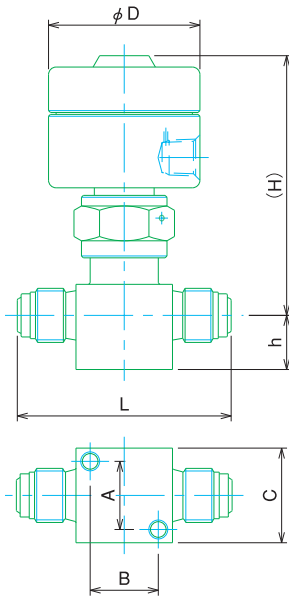


Figure 2

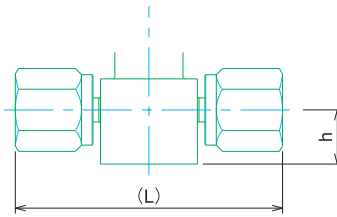


Figure 3

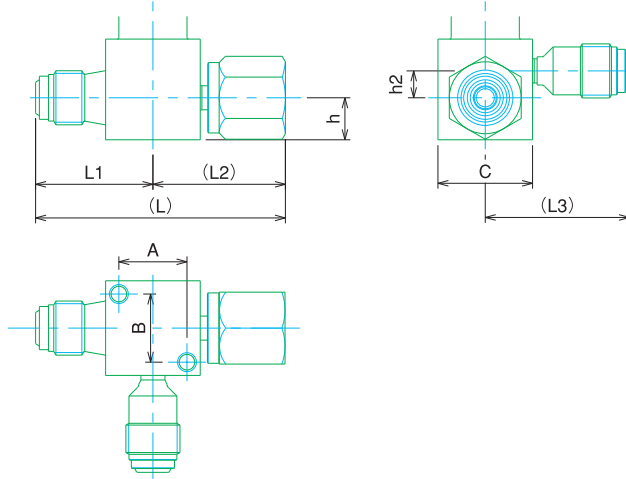


Figure 4

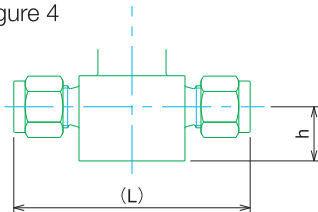
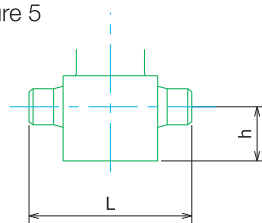


Figure 5



(Unit : mm)

Part Number	Figure	D	L	H	h	A	B	C	L1	L2	L3	h2
FP(R)-71-6.35	1	40	57.1	68.4	14.3	18	18	25				
FP(R)-71-6.35-2	2	40	70.6	68.4	14.3	18	18	25				
FP(R)-71-9.52	1	40	76.2	72.9	11.1	20.2	20.2	28				
FP(R)-71-9.52-2	2	40	83	72.9	12.7	20.2	20.2	28				
FP(R)-TB-71-6.35	3	40	65.7	74.7	11.1	18	18	25	31	34.7	38.1	7.1
FP(R)-TB-71-9.52×6.35	3	40	69.9	74.7	11.1	18	18	25	31.8	38.1	38.1	7.1
FP(R)-51-6.35	5	40	42.9	67.9	14.3	18	18	25				
FP(R)-51-9.52	5	40	57.1	72.9	12.7	20.2	20.2	28				
FP(R)-51-12.7	5	40	57.1	72.9	12.7	20.2	20.2	28				
FP(R)-91-6.35	4	40	62	68.4	14.3	18	18	25				
FP(R)-91-9.52	4	40	80	72.9	12.7	20.2	20.2	28				
FP(R)-91-12.7	4	40	86	72.9	12.7	20.2	20.2	28				

See Figure 1 for dimension keys not shown in other Figures.



## OPTIONS

### Block Valve

FBL-9.52×6.35-2B3

Block valve design allows for

- Compact tubing arrangement
- Dead-space free configuration

In addition to our standard 2-actuator, 3-port block, we also offer custom block valves according to customer's specifications.



FPR-71RS2-6.35

### Proximity Sensor

An electrical signal confirms open or closed position of valve. The non-contact proximity sensor offers unsurpassed safety.

### Limit Switch

FPR-71LS-6.35

An electrical signal confirms open or closed position of valve.



FBT-70-6.35-3B4-BR-EAJ

### Multi-Mini

Smaller size actuator (Ø30 mm) makes it easy to create even more compact block valve configurations.

### Other

Angle-type and 3/4"OD (Ø19.05 mm connection size) size can be made according to customer specifications.



FPR-81-6.35



FPR-91-19.05

Photos are samples of each product type.



## Pneumatically-Actuated High Pressure Bellows Valve

### Stainless Steel 16.2 MPa

The Fujikin pneumatically-actuated high-pressure bellows valve is a compact valve designed for ultra-pure, flammable, or toxic fluid lines for all types of semiconductor equipment and facilities. The Fujikin bellows valve is the most successful valve in the semiconductor industry due to its superior sealing performance, remarkable durability, compactness, ease of cleaning, and excellent purge characteristics.

Colored caps differentiate between normally-open (blue) and normally-closed (red) valves, thereby simplifying recognition.

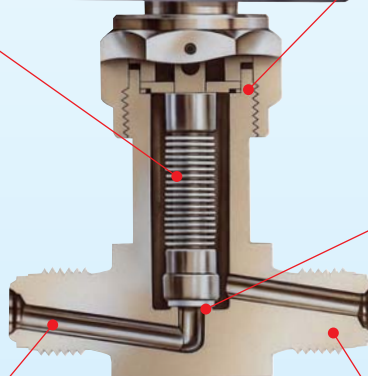


The actuator features a unique rotation mechanism, allowing for actuation pressure to be supplied from any desired direction for both normally open and normally closed valves.



No external leakage due to rugged metal gasket seal.

Uniform bellows shape promotes highly effective purging and cleaning.



Standard disk packing material is PCTFE. Polyimide disk packing material is also available.

UP treatment for wetted surfaces is optionally available.

A wide variety of end-connections are available.





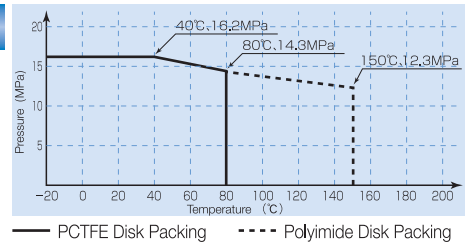
# SPECIFICATIONS

Specification	Nominal Diameter	Maximum Operating Pressure	Fluid Temperature Range	Maximum Cv	Actuation Pressure	Actuator Port	End-Connections	Actuation Type
	6.35 (1/4")	16.2MPa	-10~+80°C	0.3	0.39~0.59MPa	Rc 1/8"	F900 UJR Tube Stub	Normally Closed (NC) Normally Open (NO)
	9.52 (3/8")	2,350 psi	14~176 °F		56~85 psi			

● All valves are helium leak tested. Vacuum method/results: External leakage:  $< 5 \times 10^{-12}$  Pa · m<sup>3</sup>/sec. Seat leakage:  $< 5 \times 10^{-12}$  Pa · m<sup>3</sup>/sec  
 ● Demonstrated superior durability - over 100,000 cycles (actual test results).

Materials	Part	Material
	Body	SUS316L
	Bellows	Inconel 718
	Disk Packing	PCTFE
	Gasket	NW2201(Nickel)
	Actuator	A5056

### Temperature/Pressure Rating



# PART NUMBER DESIGNATION

Please use the part number designations below when placing an order.

FPR-UBF[]-716[]-6.35[]-[]-[]-[]

A	B	C	D	E	F	G	H	I	J	K
FP : Normally open FPR : Normally closed	UBF : Stainless steel bellows valve	T B : Added only for 3-port valves	7 : UJR end-connection 9 : F900 end-connection 5 : Tube Stub end-connection*	1 6 : 16.2 MPa maximum operating pressure	L S : With limit switch*	End-Connection Sizes 6.35 : 1/4" <sup>OD</sup> 9.52 : 3/8" <sup>OD</sup>	BW : Butt weld*	Blank : Male UJR on both ends 2 : Female UJR on both ends	P I : Polyimide disk packing* B R : Female UJR with Purering*	U P : UP treatment*

\* Optional or made to order.

Actual shipped products may have additional designations (such as #A, #B) in the part number. These indicate production history and do not indicate a change in function or dimensions.

## DIMENSIONS

Figure 1

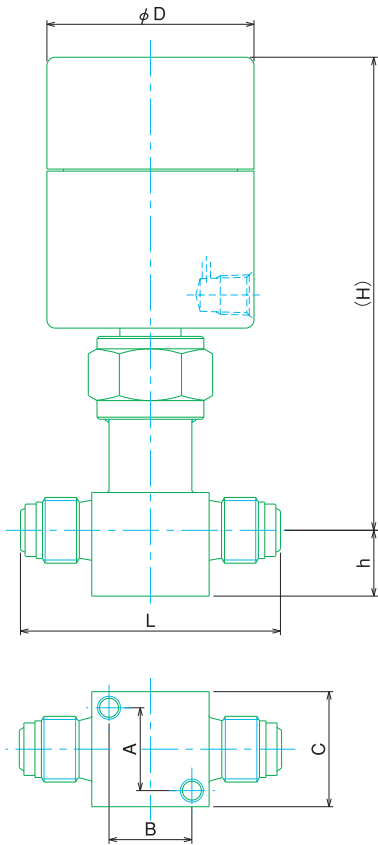


Figure 2

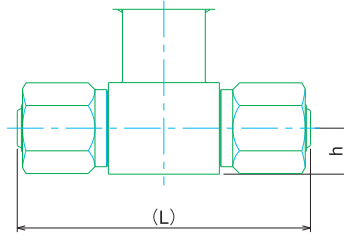


Figure 3

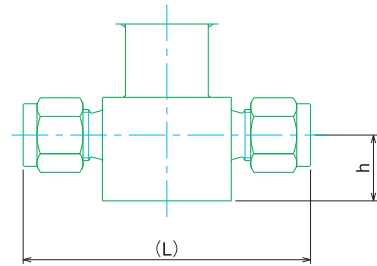


Figure 4

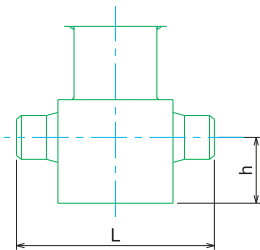
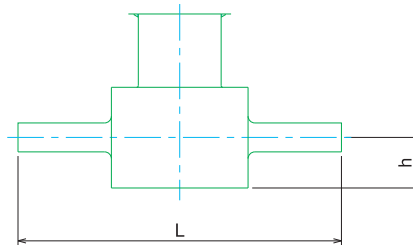


Figure 5



(Unit : mm)

Part Number	Figure	D	L	H	h	A	B	C
FP(R)-UBF-716-6.35	1	50	58.7	115 (122)	11.1	18	18	25
FP(R)-UBF-716-9.52	1	50	76.2	115 (122)	11.1	18	18	25
FP(R)-UBF-716-6.35-2	2	50	70.6	115 (122)	11.1	18	18	25
FP(R)-UBF-716-9.52-2	2	50	83	115 (122)	11.1	18	18	25
FP(R)-UBF-516-6.35	4	50	44.5	115 (122)	11.1	18	18	25
FP(R)-UBF-516-6.35BW	5	50	71	118.5 (125.5)	11.1	18	18	25
FP(R)-UBF-916-6.35	3	50	62	115 (122)	11.1	18	18	25
FP(R)-UBF-916-9.52	3	50	66.5	115 (122)	11.1	18	18	25

( ) Brackets indicate dimensions for normally-closed valves. See Figure 1 for dimension keys not shown in other Figures.



## OPTIONS

### Limit Switch

FPR-UBF-716LS-6.35

An electrical signal confirms open or closed position of valve.



### Third-Party Certifications

Valves may be tested and certified by a third-party testing agency to verify conformance to published standards, such as high-pressure gas service specifications, and so on. Contact Fujikin for further details.

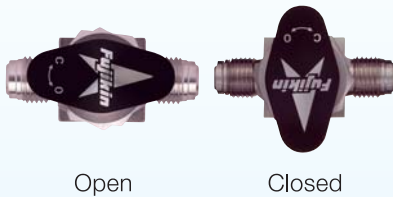
## Switch Bellows (Quarter Turn Switch Type)

### Stainless Steel 1 MPa

The Fujikin Switch Bellows valve is a compact valve designed for ultra-pure, flammable, or toxic fluid lines for all types of semiconductor equipment and facilities.

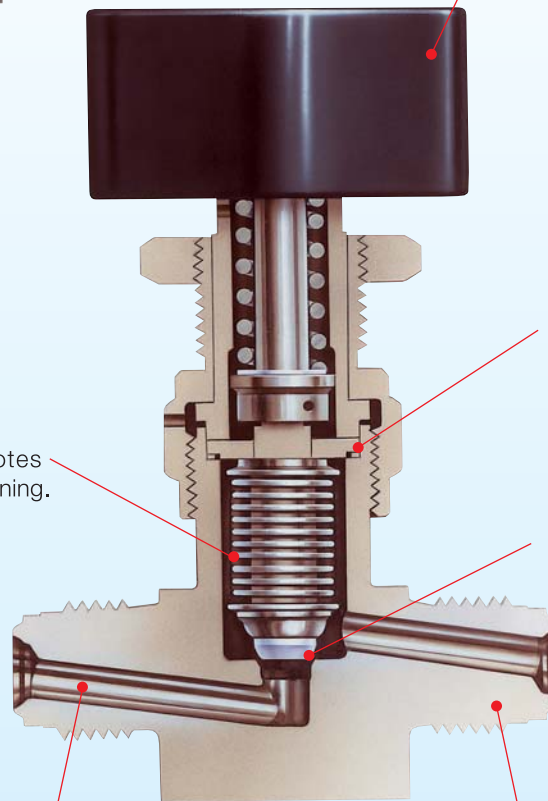
The Fujikin Switch Bellows valve is the most successful valve in the semiconductor industry due to its superior sealing performance, remarkable durability, compactness, ease of cleaning, and excellent purge characteristics.

Valve open or closed position is easily visible at a glance.



One touch, snap type quarter turn operation makes it easy to operate the valve. A spring assures even and consistent seat force to provide positive shutoff, and also extends the seat life dramatically.

Uniform bellows shape promotes highly effective purging and cleaning.



No external leakage due to rugged metal gasket seal.

Standard disk packing material is PCTFE. High-Temperature / Polyimide / PFA disk packing materials are also available.

UP treatment for wetted surfaces is optionally available.

A wide variety of end-connections are available.





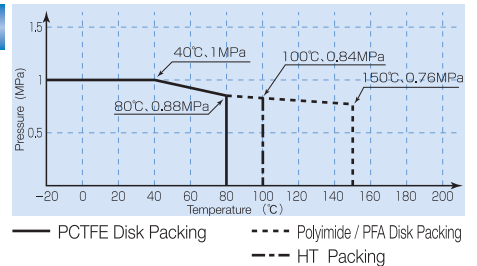
# SPECIFICATIONS

Specification	Nominal Diameter	Maximum Operating Pressure	Fluid Temperature Range	Maximum Cv	End-Connections
	6.35 (1/4")	1MPa 145 psi	-10~+80°C 14~176°F	0.3	F900 UJR Tube Stub
	9.52 (3/8")			0.8	
	12.7 (1/2")			0.8	

● All valves are helium leak tested. Vacuum method/results: External leakage: <math> < 5 \times 10^{-12} \text{ Pa} \cdot \text{m}^3/\text{sec}</math>. Seat leakage: <math> < 5 \times 10^{-12} \text{ Pa} \cdot \text{m}^3/\text{sec}</math>  
 ● Demonstrated superior durability - over 20,000 cycles (actual test results).

Materials	Part	Material
	Body	SUS316L
	Bellows	SUS316L
	Disk Packing	PCTFE
	Gasket	NW2201(Nickel)
	Handle	Nylon 6

### Temperature/Pressure Rating



# PART NUMBER DESIGNATION

Please use the part number designations below when placing an order.

FUBF L [ ] - 71 - 6.35 [ ] - [ ] - [ ] - [ ]

A	B	C	D	E	F	G	H	I	J
Stainless steel bellows valve	L : Quarter turn open/closed handle	T B : Added only for 3-port valves	7 : UJR end-connection 9 : F900 end-connection 5 : Tube Stub end-connection* 0 : F900 end-connection, angle type 8 : UJR end-connections, angle type	1 : 1MPa maximum operating pressure	End-Connection Sizes 6.35 : 1/4" <sup>OD</sup> 9.52 : 3/8" <sup>OD</sup> 12.7 : 1/2" <sup>OD</sup> (UJR connections have a 9.52 port diameter)	BW : Butt weld*	Blank : Male UJR on both ends 2 : Female UJR on both ends 3 : UJR male inlet / Female UJR outlet	P I : Polyimide disk packing* P A : PFA disk packing* H T : High-temperature PCTFE disk packing* B R : Female UJR with Purering*	U P : UP treatment*

\* Optional or made to order.

Actual shipped products may have additional designations (such as #A, #B) in the part number. These indicate production history and do not indicate a change in function or dimensions.

## DIMENSIONS

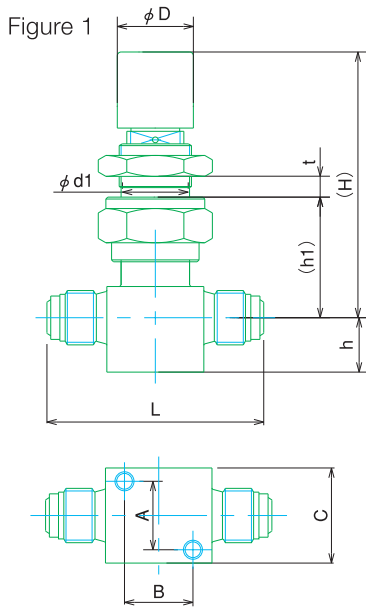


Figure 2

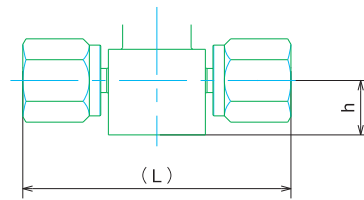


Figure 3

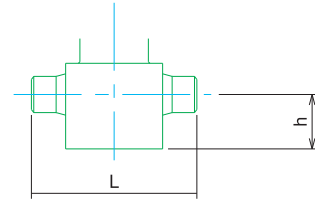


Figure 4

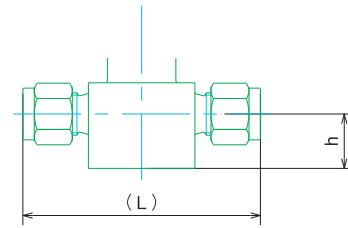
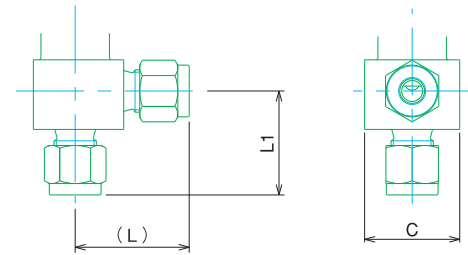


Figure 5



Part Number	Figure	(Unit : mm)										
		D	L	H	h	t	h1	d1	A	B	C	L1
FUBFL-71-6.35	1	20	57.1	71.5	14.3	8.5	31.5	19.5	18	18	25	
FUBFL-71-6.35-2	2	20	70.6	71.5	14.3	8.5	31.5	19.5	18	18	25	
FUBFL-71-9.52	1	20	76.2	76.3	11.1	8.5	36	19.5	20.2	20.2	28	
FUBFL-71-9.52-2	2	20	83	76.3	12.7	8.5	36	19.5	20.2	20.2	28	
FUBFL-51-6.35	3	20	42.9	71.5	14.3	8.5	31.5	19.5	18	18	25	
FUBFL-51-9.52	3	20	57.1	76.3	12.7	8.5	36	19.5	20.2	20.2	28	
FUBFL-51-12.7	3	20	57.1	76.3	12.7	8.5	36	19.5	20.2	20.2	28	
FUBFL-91-6.35	4	20	62	71.5	14.3	8.5	31.5	19.5	18	18	25	
FUBFL-91-9.52	4	20	80	76.3	12.7	8.5	36	19.5	20.2	20.2	28	
FUBFL-91-12.7	4	20	86	76.3	12.7	8.5	36	19.5	20.2	20.2	28	
FUBFL-01-6.35	5	20	31	71.5		8.5	31.5	19.5			25	31
FUBFL-01-9.52	5	20	40	76.3		8.5	36	19.5			28	40
FUBFL-01-12.7	5	20	43	76.3		8.5	36	19.5			28	43

See Figure 1 for dimension keys not shown in other Figures.

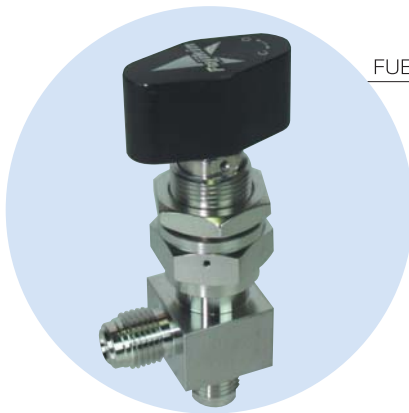


## OPTIONS

### Handle Colors

GT-HL-FUBFL-\*

A letter in place of "\*" indicates handle color :  
Blue=B, Green=G, Yellow=Y, Red=R



FUBFL-81-6.35

### Other

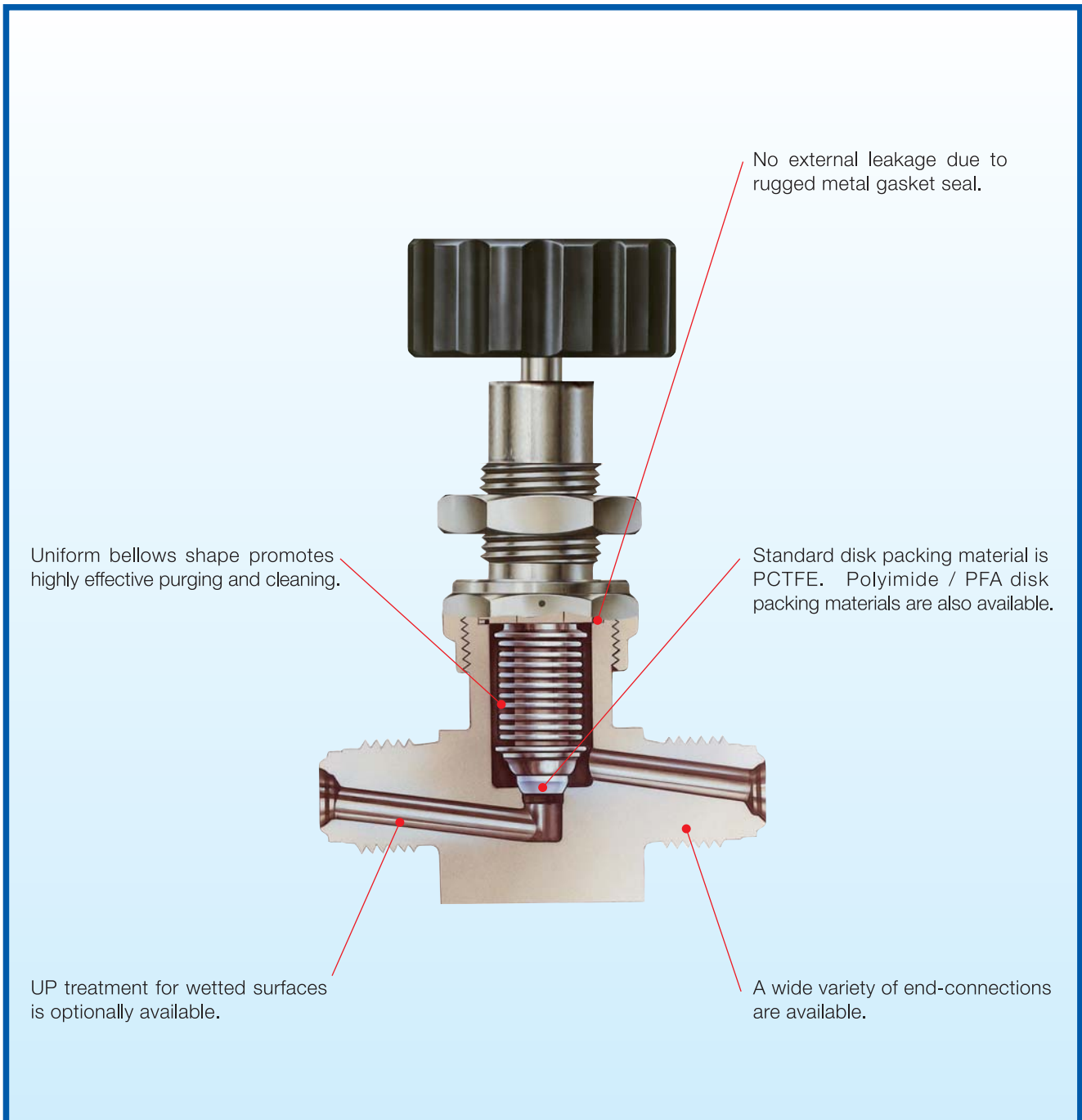
Angle-type can be made according to customer specifications.

## Round Handle Bellows Valve

### Stainless Steel 1 MPa

The Fujikin Round Handle Bellows valve is a compact valve designed for ultra-pure, flammable, or toxic fluid lines for all types of semiconductor equipment and facilities.

The Fujikin Round Handle Bellows valve is the most successful valve in the semiconductor industry due to its superior sealing performance, remarkable durability, compactness, ease of cleaning, and excellent purge characteristics.







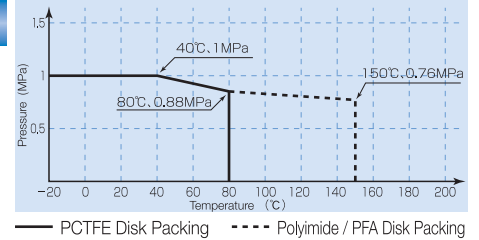
### SPECIFICATIONS

Specification	Nominal Diameter	Maximum Operating Pressure	Fluid Temperature Range	Maximum Cv	End-Connections
	6.35 (1/4")	1MPa 145 psi	-10~+80°C 14~176 °F	0.3	F900 UJR Tube Stub
	9.52 (3/8")			0.8	
	12.7 (1/2")			0.8	

● All valves are helium leak tested. Vacuum method/results: External leakage:  $< 5 \times 10^{-12}$  Pa · m<sup>3</sup>/sec. Seat leakage:  $< 5 \times 10^{-12}$  Pa · m<sup>3</sup>/sec  
 ● Demonstrated superior durability - over 20,000 cycles (actual test results).

Materials	Part	Material
	Body	SUS316L
	Bellows	SUS316L
	Disk Packing	PCTFE
	Gasket	NW2201(Nickel)
	Handle	A5056

#### Temperature/Pressure Rating



### PART NUMBER DESIGNATION

Please use the part number designations below when placing an order.

# FUB-  -71-6.35  -  -  -

<b>A</b>		<b>B</b>		<b>C</b>	<b>D</b>		<b>E</b>		<b>F</b>		<b>G</b>		<b>H</b>		<b>I</b>
<p><b>A</b> Stainless steel bellows valve</p> <p><b>B</b> T B : Added only for 3-port valves</p> <p><b>C</b> 7 : UJR end-connection 9 : F900 end-connection 5 : Tube Stub end-connection* 0 : F900 end-connection, angle type 8 : UJR end-connections, angle type</p> <p><b>D</b> 1 : 1MPa maximum operating pressure</p> <p><b>E</b> End-Connection Sizes 6.35 : 1/4" <sup>OD</sup> 9.52 : 3/8" <sup>OD</sup> 12.7 : 1/2" <sup>OD</sup> (UJR connections have a 9.52 port diameter)</p> <p><b>F</b> B W : Butt weld*</p> <p><b>G</b> Blank : Male UJR on both ends 2 : Female UJR on both ends 3 : UJR male inlet / Female UJR outlet</p> <p><b>H</b> P I : Polyimide disk packing* P A : PFA disk packing* B R : Female UJR with Purering*</p> <p><b>I</b> U P : UP treatment*</p>															

\* Optional or made to order.

Actual shipped products may have additional designations (such as #A, #B) in the part number. These indicate production history and do not indicate a change in function or dimensions.

## DIMENSIONS

Figure 1

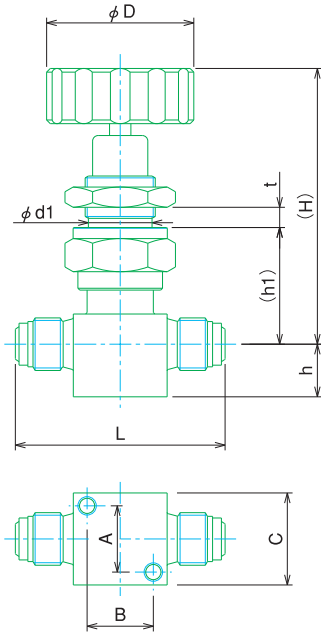


Figure 2

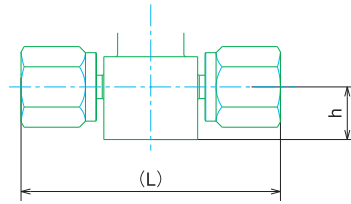


Figure 3

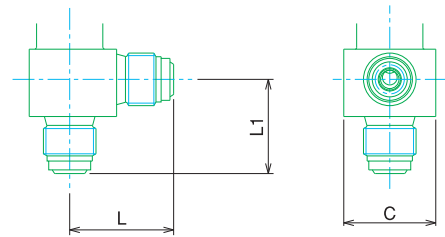


Figure 4

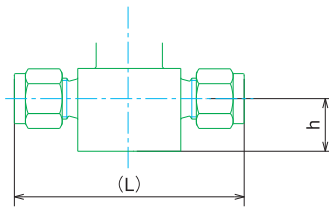
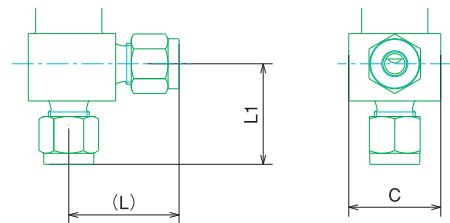


Figure 5



(Unit : mm)

Part Number	Figure	D	L	H	h	t	h1	d1	A	B	C	L1
FUB-71-6.35	1	40	57.1	78.5	14.3	9.5	31.5	19.5	18	18	25	
FUB-71-6.35-2	2	40	70.6	78.5	14.3	9.5	31.5	19.5	18	18	25	
FUB-71-9.52	1	40	76.2	83	11.1	9.5	36	19.5	20.2	20.2	28	
FUB-71-9.52-2	2	40	83	83	12.7	9.5	35	19.5	20.2	20.2	28	
FUB-81-6.35	3	40	28.5	78.5		9.5	31.5	19.5			25	25.8
FUB-81-9.52	3	40	38.1	84		9.5	37	19.5			28	35
FUB-91-6.35	4	40	62	78.5	14.3	9.5	31.5	19.5	18	18	25	
FUB-91-9.52	4	40	80	83	12.7	9.5	36	19.5	20.2	20.2	28	
FUB-91-12.7	4	40	86	83	12.7	9.5	36	19.5	20.2	20.2	28	
FUB-01-6.35	5	40	31	78.5		9.5	31.5	19.5			25	31
FUB-01-9.52	5	40	40	83		9.5	36	19.5			28	40
FUB-01-12.7	5	40	43	83		9.5	36	19.5			28	43

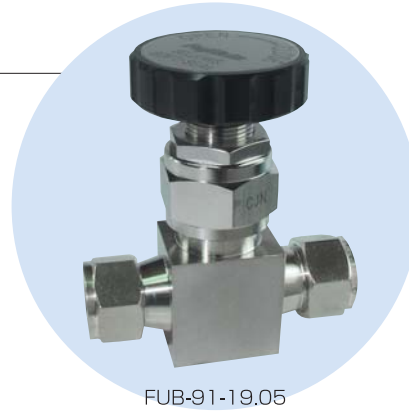
See Figure 1 for dimension keys not shown in other Figures.



## OPTIONS

### Other

Angle-type and 3/4" <sup>OD</sup> (Ø19.05 mm connection size) size can be made according to customer specifications.



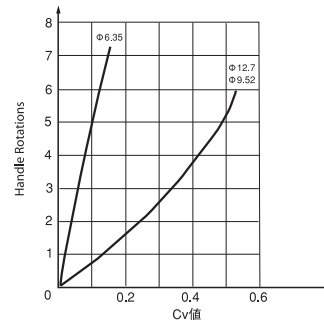
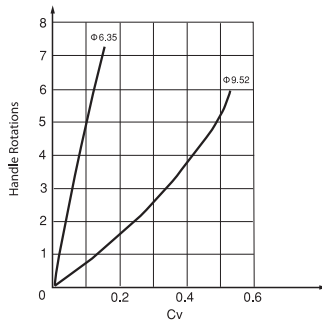
## Needle Bellows Valve

### Stainless Steel 1 MPa

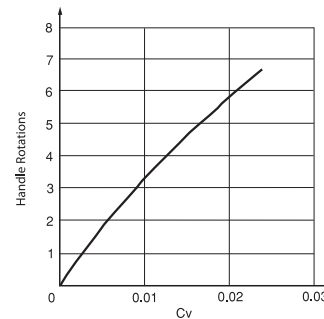
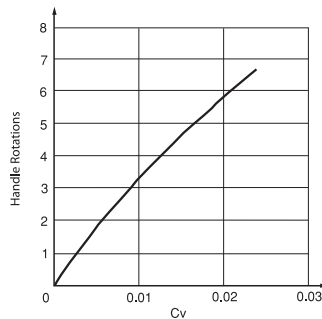
The Fujikin Needle Bellows valve is a compact valve designed for ultra-pure, flammable, or toxic fluid lines for all types of semiconductor equipment and facilities.

The Fujikin Needle Bellows valve is the most successful valve in the semiconductor industry due to its superior sealing performance, remarkable durability, compactness, ease of cleaning, and excellent purge characteristics.

#### Rough Needle Valve



#### Flow Control Needle Valve with Micrometer



UP Treatment is optionally available.

## SPECIFICATIONS

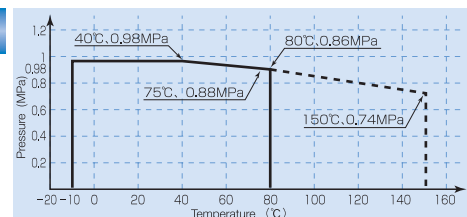
Specification	Nominal Diameter	Maximum Operating Pressure	Fluid Temperature Range	Orifice Diameter	Maximum Cv	End-Connections
	6.35 (1/4")	0.98MPa 142 psi	-10~+80°C 14~176 °F	5	0.132	F900 UJR
	9.52 (3/8")			1.8	0.02	
	12.7 (1/2")			8	0.452	

●All valves are helium leak tested. Vacuum method/results: External leakage: <math>5 \times 10^{-12}</math> Pa · m<sup>3</sup>/sec.

Materials	Part	Material
	Body	SUS316L
	Bellows	SUS316L
	Bonnet Gasket*	PCTFE
	Handle	A5056

\*Metal seal is optionally available.

#### Temperature/Pressure Rating



— PCTFE Bonnet Gasket Material  
- - - Nickel Bonnet Gasket Material



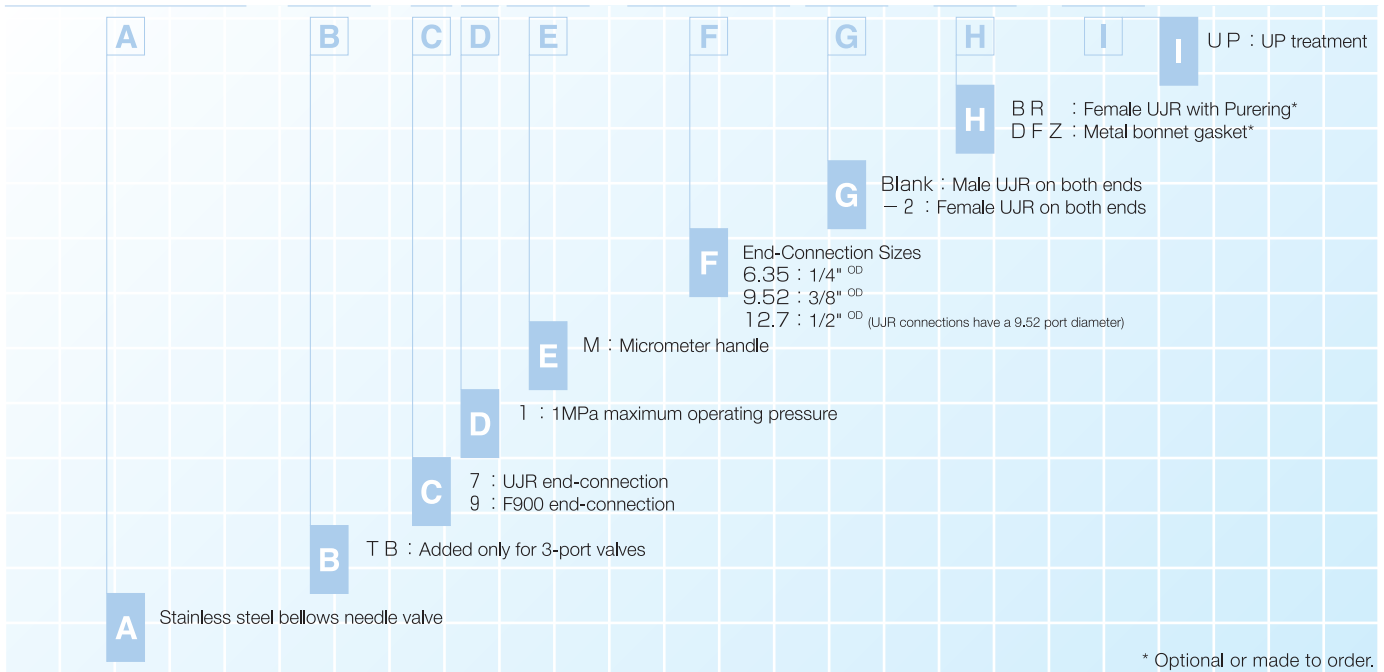


# Needle Bellows Valve

## PART NUMBER DESIGNATION

Please use the part number designations below when placing an order.

FUBFN-  -71  -6.35  -  -  



Actual shipped products may have additional designations (such as #A, #B) in the part number. These indicate production history and do not indicate a change in function or dimensions.

## DIMENSIONS

Figure 1

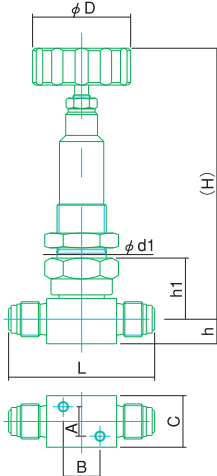


Figure 2

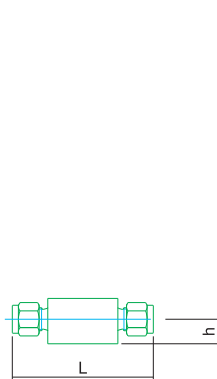


Figure 3

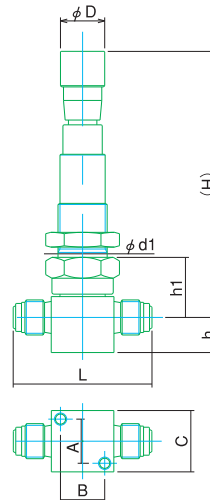
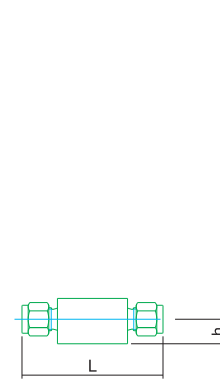


Figure 4



(Unit : mm)

Part Number	Figure	D	L	H	h	h1	d1	A	B	C
FUBFN-71-6.35	1	40	65	112	13	25	20.5	12	15	21
FUBFN-71-9.52	1	50	72	120	17	29.5	20.5	15	20	26
FUBFN-91-6.35	2	40	63	111	10	24	20.5	12	15	21
FUBFN-91-9.52	2	50	71	117.5	12	27	20.5	15	20	26
FUBFN-91-12.7	2	50	81	118.5	14	28	20.5	15	20	26
FUBFN-71 M-6.35	3	18	57	108.5	14.3	24.5	20.5	18	18	25
FUBFN-91 M-6.35	4	18	64	108.5	9.5	24.5	20.5	12	15	21

( ) Brackets indicate dimensions for normally closed valves. See Figure 1 for dimension keys not shown in other Figures.

## Metal Diaphragm Bellows Valve

Stainless Steel 16.2 MPa

The Fujikin metal diaphragm bellows valve is a compact valve designed for ultra-pure, flammable, or toxic fluid lines for all types of semiconductor equipment and facilities.

The Fujikin metal diaphragm bellows valve offers superior sealing performance, remarkable durability, and compactness.

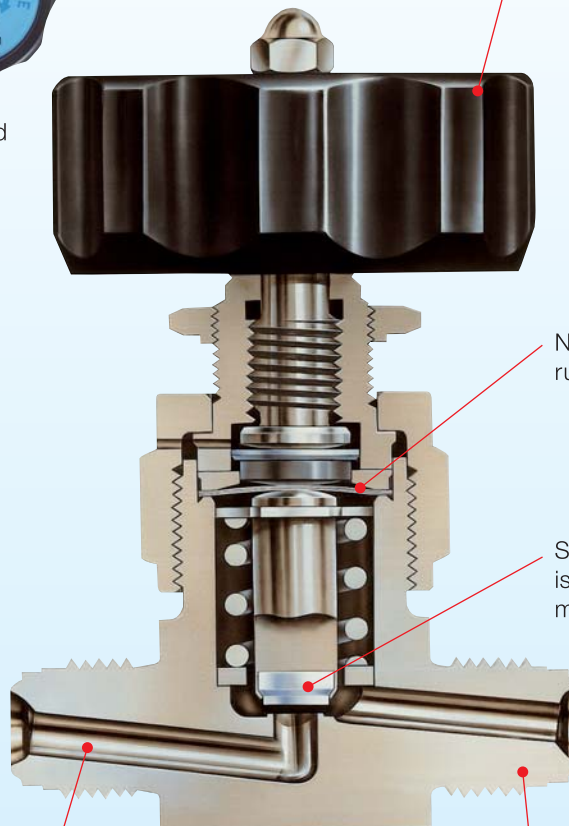
Valve open or closed position is easily visible at a glance.



Open

Closed

Open / closed indicating handle with over-tightening prevention mechanism.



No external leakage due to rugged metal gasket seal.

Standard disk packing material is PCTFE. Polyimide disk packing material is also available.

UP treatment for wetted surfaces is optionally available.

A wide variety of end-connections are available.



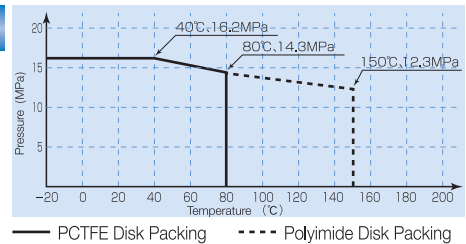
# SPECIFICATIONS

Specification	Nominal Diameter	Maximum Operating Pressure	Fluid Temperature Range	Maximum Cv	End-Connections
	6.35 (1/4")	16.2MPa 2,350 psi	-10~+80°C 14~176 °F	0.3	F900 UJR Tube Stub
	9.52 (3/8")				
	12.7 (1/2")				

● All valves are helium leak tested. Vacuum method/results: External leakage:  $< 5 \times 10^{-12}$  Pa · m<sup>3</sup>/sec. Seat leakage:  $< 5 \times 10^{-12}$  Pa · m<sup>3</sup>/sec  
 ● Demonstrated superior durability - over 9,000 cycles (actual test results).  
 ※ The differential pressure between the inlet and outlet should be less than 10.3 MPA (1,500 psid). If the differential pressure exceeds this value, a valve with a higher rating must be specified.

Materials	Part	Material
	Body	SUS316L
	Diaphragm	NCF 718
	Stem	SUS316L
	Disk Packing	PCTFE
	Spring	Stainless Steel

### Temperature/Pressure Rating



# PART NUMBER DESIGNATION

Please use the part number designations below when placing an order.

FUDF [ ] - 7 1 6 G - 6.35 [ ] - [ ] - [ ] - [ ]

A	B	C	D	E	F	G	H	I	J
Stainless steel metal diaphragm bellows valve	T B : Added only for 3-port valves*	7 : UJR end-connection 9 : F900 end-connection 5 : Tube Stub end-connection*	1 6 : 16.2MPa maximum operating pressure	G : Open / closed indicator	End-Connection Sizes 6.35 : 1/4" <sup>OD</sup> 9.52 : 3/8" <sup>OD</sup> 12.7 : 1/2" <sup>OD</sup> (UJR connections have a 9.52 port diameter)	BW : Butt weld*	Blank : Male UJR on both ends 2 : Female UJR on both ends	P I : Polyimide disk packing*	B P : Back-pressure type* B R : Female UJR with Purering* U P : UP treatment*

\* Optional or made to order.

Actual shipped products may have additional designations (such as #A, #B) in the part number. These indicate production history and do not indicate a change in function or dimensions.

## DIMENSIONS

Figure 1

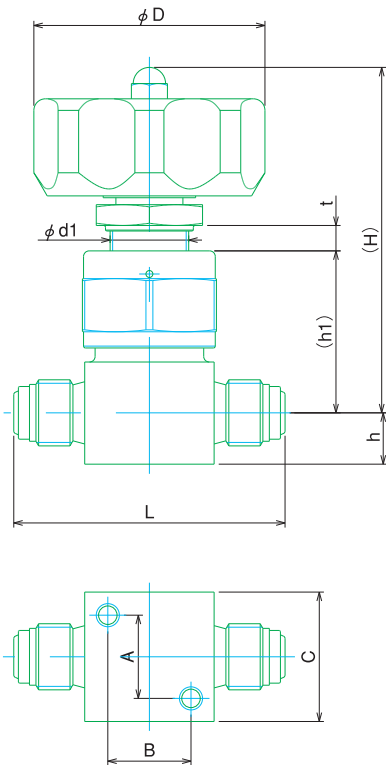


Figure 2

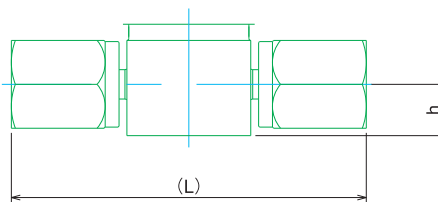


Figure 3

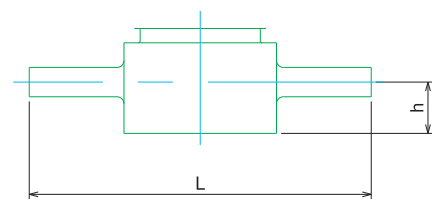


Figure 4

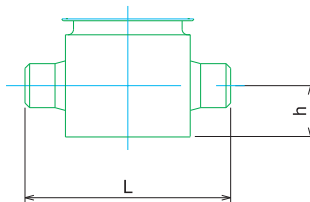
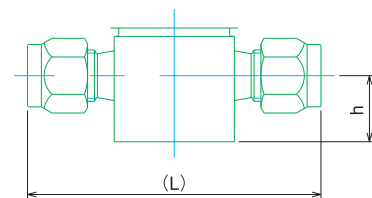


Figure 5



(Unit : mm)

Part Number	Figure	D	L	H	h	t	h1	d1	A	B	C
FUDF-716G-6.35	1	50	58.7	75.3	11.1	5	35	19.5	18	18	28
FUDF-716G-6.35-2	2	50	70.6	78.8	11.1	5	38.5	19.5	18	18	28
FUDF-716G-9.52	1	50	76.2	76.3	11.1	5	36	19.5	18	18	28
FUDF-716G-952-2	2	50	83	78.8	11.1	5	38.5	19.5	18	18	28
FUDF-516G-6.35	4	50	44.5	75.3	11.1	5	35	19.5	18	18	28
FUDF-516G-9.52	4	50	46	75.3	11.1	5	35	19.5	18	18	28
FUDF-516G-6.35BW	3	50	74	78.8	11.1	5	38.5	19.5	18	18	28
FUDF-516G-9.52BW	3	50	74	78.8	11.1	5	38.5	19.5	18	18	28
FUDF-516G-12.7BW	3	50	74	78.8	11.1	5	38.5	19.5	18	18	28
FUDF-916G-6.35	5	50	62	75.3	11.1	5	35	19.5	18	18	28
FUDF-916G-9.52	5	50	66.5	75.3	11.1	5	36	19.5	18	18	28
FUDF-916G-12.7	5	50	73	75.3	11.1	5	36	19.5	18	18	28

See Figure 1 for dimension keys not shown in other Figures.



OPTIONS

**Handle Colors**

GT-HL-FUDF-\*

A letter in place of "\*" indicates handle color :  
Blue=B, Green=G, Yellow=Y, Red=R



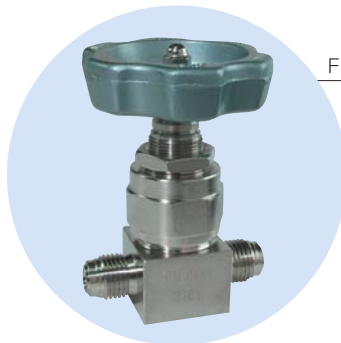
FUDF-716G-6.35-BP

**Back Pressure Type (High Pressure)**

If the back pressure is over 10.3 MPa (1,500 psi), standard valves may not be able to open successfully. Therefore under high back pressure conditions, a stronger internal spring is installed to ensure proper valve operation.

**Third-Party Certifications**

Valves may be tested and certified by a third-party testing agency to verify conformance to published standards, such as high-pressure gas service specifications, and so on. Contact Fujikin for further details.



FUDF-725-6.35-HP(24.5MPa type)

**Ultra-High Pressure**

Valves able to handle even higher pressures (3,500 psi) than our standard series are optionally available by contacting Fujikin.

Photos are samples of each product type.

## ■ ADDITIONAL INFORMATION

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### ● Inner Surface Treatment

#### Products with ULTRA EXTREME PURE (UP) Special Internal Treatment

By utilizing a special polishing technology to first remove work-affected and work-hardened layers from the metal surfaces, UP treated products attain an exceedingly pure metal surface having an extremely uniform passivated film. The surface roughness is kept below 0.7 mm Ry, with an average roughness being 0.1mm or less. Additionally, final cleaning is performed in a Class 1 cleanroom to completely remove particles and impurities, and to assure a thoroughly clean product.

The UP treatment is compatible with Hastelloy® and other corrosion resistant materials.

### ● Disk Packing Materials

#### PCTFE (polytetrafluoroethylene)

Standard seat material on bellows series and metal diaphragm series products.

#### PI (polyimide), PA (PFA)

Recommended option for non-standard temperatures and fluids.

### ● Body and Bellows Materials

#### Hastelloy®

For services that require exceptional corrosion resistance, Hastelloy C-22® bodies and diaphragms may be specified as an optional material.

#### Inconel

Inconel 718 bellows may be specified if high-cycle operation is demanded of a valve.

### ● Proximity Sensors and Limit Switches

When open or closed position verification is required on pneumatically actuated valves, proximity sensors or limit switches that output an electrical signal to an external unit are optionally available. Valves with a limit switch may be substituted for proximity sensor valves.

### ● Handle Colors

Handles may be specified in a wide variety of optional colors.





## COMPARISON CHART

		Bellows					Metal Diaphragm
		Pneumatically Actuated Bellows Valves	Pneumatically Actuated High-Pressure Bellows Valves	Switch Bellows	Round Handle Bellows Halve	Needle Bellows Valve	Metal Diaphragm Valve
Pressure Type	High-Pressure	—	●	—	—	—	●
	High-Pressure Gas Cert.	—	▲	—	—	—	▲
Nominal Diameter	6.35	●	●	●	●	●	●
	9.52	●	●	●	●	●※2	●
	12.7	●※1	—	●※1	●※1	●※1※2	●※1
End-Connection	UJR	●	●	●	●	●	●
	UJR w/Purering	▲	▲	▲	▲	▲	▲
	F900	●	●	●	●	●	●
	Butt Weld	▲	▲	▲	▲	▲	▲
	Socket Weld	▲	▲	▲	▲	▲	▲
Inner Surface Treatment	BA	●	●	●	●	●	●
	UP	▲	▲	▲	▲	▲	▲
Body Material	SUS316L	●	●	●	●	●	●
	Hastelloy®	▲	▲	▲	▲	▲	▲
Bellows Material	SUS316L	●	—	●	●	●	—
	Inconel 718	▲	●	—	—	—	—
Diaphragm Material	Inconel 718	—	—	—	—	—	●
Disk Packing Material	PCTFE	●	●	●	●	—	●
	PI	▲	▲	▲	▲	—	▲
	PA	▲	—	▲	▲	—	—
Other	Proximity Sensor	▲	—	—	—	—	—
	Limit Switch	▲	▲	—	—	—	—
	Handle Color	—	—	▲	—	—	▲

● : Installed as standard ▲ : Installed as option  
 ※1 : Installed only when F900 is selected as end-connection type.  
 ※2 : Standard only on rough needle valve type

**Fujikin®**



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**Fujikin® Carp® Group**

URL <http://www.fujikin.co.jp/> E-mail [info@fujikin.co.jp](mailto:info@fujikin.co.jp)



The Year 2005  
The 1st Monozukuri (manufacturing)  
Nippon Grand Awards  
: Excellence Prize