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MEGA-MINI LA

Compact Low-Pressure Pneumatically-Actuated Valve

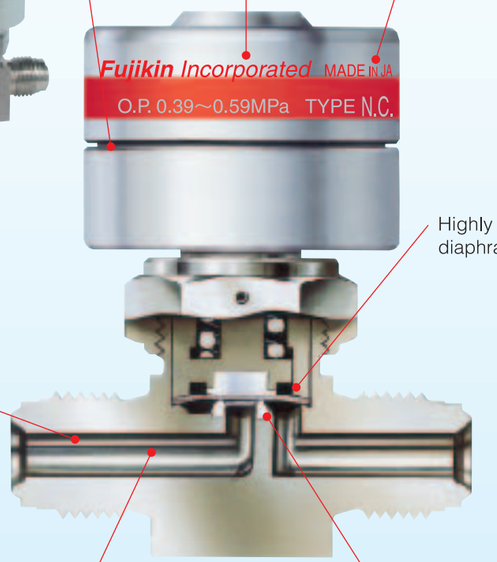
The MEGA-MINI LA offers pneumatic operation for ultra-pure, flammable, or toxic fluid lines in various types of semiconductor manufacturing equipment and facilities.
Direct diaphragm construction makes the MEGA-MINI LA an industry standard valve with superior sealing performance, remarkable durability, compactness, and particle and dead-space free performance.

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



Small ϕ35mm actuator offers space savings without sacrificing performace.

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.



Highly durable nickel-cobalt alloy diaphragm,

Excellent gas displacement characteristics, (0.84cc total volume for male UJR version).

All wetted surfaces undergo an EP treatment as standard. UP treatment is optional.

Standard seat material is PCTFE. Polyimide/PFA seat material is also available.

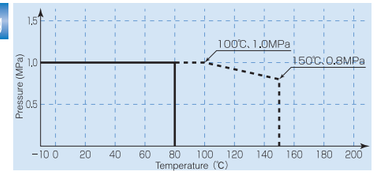
SPECIFICATIONS

Specification	Nominal Diameter	Maximum Operating Pressure	Fluid Temperature Range	Maximum Cv	Actuation Pressure	Connection
	6.35 (1/4")	1MPa 145 psi	−10~80 °C 14~176 °F	0.1	0.39~0.59 MPa 56~86 psi	UJR, UPG, F900, Tube Stub

●All valves are helium leak tested. Vacuum method/results: External leakage: < $5x10^{-12}$ Pa•m^3/sec. Seat leakage: < $5x10^{-12}$ Pa•m^3/sec
●Demonstrated superior durablity - over 4 million cycles (actual test results).

Materials	Part	Material
	Body	SUS316L
	Diaphragm	Nickel-cobalt alloy
	Seat Packing	PCTFE
	Actuator	A5056

Temperature/Pressure Rating



PART NUMBER DESIGNATION

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

FPR-SD□-71□-6.35□-□-□

A
FP : Normally open
FPR : Normally closed

B Stainless steel compact direct diaphragm valve

C
TB : Added only for 3-port valves
CL : 2-way, corner left valve

D
7 : UJR / UPG end-connection,
5 : Tube stub end-connection*

E
1 : 1MPa maximum operating pressure

F
RS2 : With proximity sensor*
LS : With limit switch*

G
End-Connection Size
6.35 : 1/4" OD

H
Blank : Male UJR on both ends
−2 : Female UJR on both ends
−3 : UJR male inlet / Female UJR outlet
UG : UPG end-connection
BW : Butt weld*

I
PI : Polyimide seat*
PA : PFA seat*

J
PS : Cr_2O_3 treatment*
FD : Fluorine passivation*

* 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

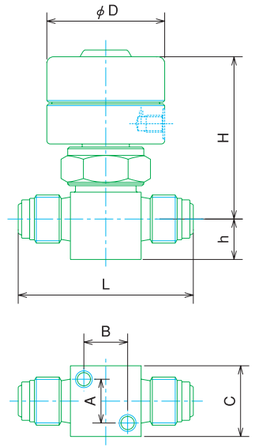


Figure 2

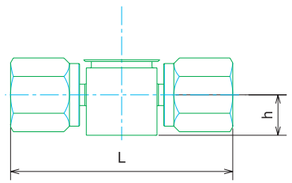


Figure 3

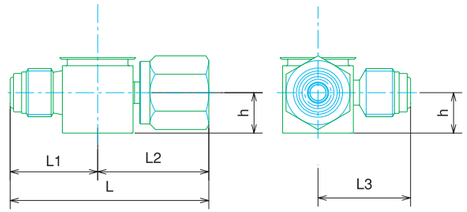


Figure 4

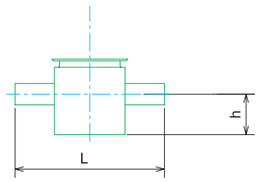


Figure 5

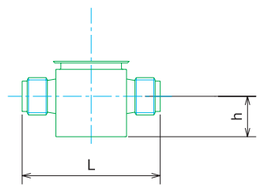
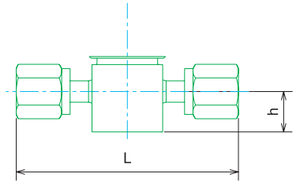


Figure 6



(Unit : mm)

Part Number	Figure	D	L	H	h	A	B	C	L1	L2	L3
FP(R)-SD-71-6.35	1	35	52	50.5	12	13	13	21			
FP(R)-SD-71-6.35-2	2	35	66	50.5	12	13	13	21			
FP(R)-SDTB-71-6.35	3	35	59	50.5	12	13	13	21	26	33	27.5
FP(R)-SD-51-6.35BW-FFL	4	35	44.4	50.5	12	13	13	21			
FP(R)-SD-71-6.35UG	5	35	41	50.5	12	13	13	21			
FP(R)-SD-71-6.35UG-2	6	35	66	50.5	12	13	13	21			

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

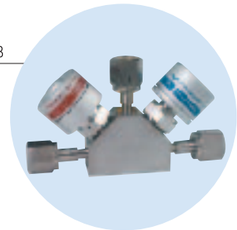
OPTIONS

Block Valve

FBSDV-6.35-2B3-BGB

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-SD-71SS2-6.35

Dual-Flow Valve

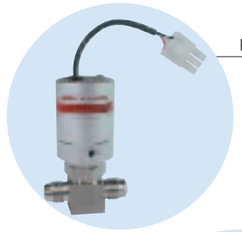
Allows for switching between maximum flow and a user-selectable reduced flow with one valve.

Proximity Sensor

FPR-SD-71RS2-6.35

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





FPR-SD-71LS-6.35

Limit Switch

An electrical signal confirms open or closed position of valve.

Other

A variety of configurations are possible.



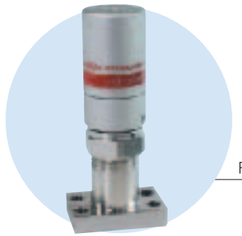
FPR-SD-51-6.35-FFL



FPR-SDOR-71-6.35-ANU



FPR-SDXR-71-6.35-2



FPR-SDA-21-6.35UGF-APD

IGS Valves

MEGA series valves are also available in 1.125" and 1.5" W-Seal for surface-mount Integrated Gas Systems.

Photos are samples of each product type.

SUPPLEMENTARY INFORMATION

●Inner Surface Treatment

1. 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. The UP treatment is standard on the MEGA-MINI and MEGA-M series products, and is optionally available on MEGA-ONE series products.

2. Products with Cr_2O_3 Treatment（CRPS）

100% Cr_2O_3 treated products have a Cr_2O_3 film - passivation layer - formed on the stainless steel surface through a special base layer treatment and heat treatment. This offers:

1. Superior corrosion resistance as compared to halogen-based gases.
2. Less outgassing of moisture, etc.; with the excellent dry-down characteristics of the material, equipment start-up time can be shortened.
3. Non-catalytic behavior is observed with hydrogen compound gases - such as SiH_4 and B_2H_6 - which decompose at low temperatures through surface catalytic effect. This enables stable delivery to the point of use.

3. Products with BK Treatment（CRPX）

A BK treatment involves heat-treating the mirror-finish stainless steel surface under an inert gas environment. Components that undergo a BK treatment are imparted with a high Cr concentration layer on the upper-most surface. Products that undergo a BK treatment are more corrosion resistant, evidence less outgassing, and have excellent dry-down characteristics.

4. Products with Fluorine Passivation（FP）

FP products are given a chemically stable fluorine passivation layer by causing a reaction between the stainless steel surface and F_2 gas when heat treatment is applied. Recent advancements in micro-fabrication technology and the increased use of excimer laser steppers has required an increase in F_2 use as well. Since F_2 gas is extremely reactive - and will react with stainless steel surfaces - it will get consumed and therefore affect the F_2 concenteration. This, in turn, affects the oscillation frequency of the excimer laser.

●SEAT MATERIALS

1. PCTFE（polytetrafluoroethylene）

Standard seat material on MEGA-ONE series and MEGA-MINI series products.

2. PI（polyimide）、PA（PFA）

A recommended option for non-standard temeratures and fluids.

●BODY AND DIAPHRAGM MATERIALS

Hastelloy®

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

●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 substitued for proximity sensor valves.

●HANDLE COLORS

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

Hastelloy® is a registered trademark of Haynes International.

MEGA SERIES COMPARISON TABLE

		MEGA-ONE					MEGA-MINI		MEGA-M		MEGA-ONE
		LA	LS	LM	HQ	HM	LA	HA	LV	LM	LC
PRESSURE TYPE	High-Pressure				●	●		●			
	High-Pressure (Japan Certification)				▲	▲		▲			
NOMINAL DIAMETER	6.35 (1/4")	●	●	●	●	●	●	●	●	●	●
	9.52 (3/8")	●	●	●	●	●	●			●	
	12.7 (1/2")	▲※1	▲※1	▲※1							
CONNECTION	UJR	●	●	●	●	●	●	●	●	●	●
	UPG	●	●	●	●	●	●	●	●	●	●
	F900	●	●	●	▲	▲					
	Tube Stub	▲	▲	▲	▲	▲	▲	▲	▲	▲	
INNER SURFACE TREATMENT	EP	●	●	●	●	●					
	UP	▲	▲	▲	▲	▲	●	●	●	●	●
	CRPX	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
	CRPS	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
	FD	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
BODY MATERIAL	SUS316L	●	●	●	●	●	●		▲	▲	●
	SUS316L (Double-Melt)	▲	▲	▲	▲	▲	▲	●	●	●	
	Hastelloy®	▲	▲	▲	▲	▲	▲	▲	▲	▲	
DIAPHRAGM MATERIAL	Nickel-Cobalt Alloy	●	●	●	●	●	●	●	●	●	●
	Hastelloy®	▲	▲	▲	▲	▲	▲	▲			
SEAT MATERIAL	PCTFE	●	●	●	●	●	●	●			※2
	PI	▲	▲	▲	▲	▲	▲	▲			
	PA	▲	▲	▲			▲				
OTHER	Proximity Sensor	▲					▲				
	Limit Switch	▲					▲	▲			
	Handle Color		▲	▲						▲	

● : Standard Option
▲ : Optional
※1 : Installed only when F900 is selected as the end-connection.
※2 : FPM (fluoro rubber) is standard seat material; chloroprene rubber, silicon rubber, ethylene-propylene rubber and Kalrez® may be optionally specified.

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