Gillain & Co
HYGIENIC EQUIPMENT FOR FOOD & LIFE SCIENCES

Flexible and aseptic

Radial Diaphragm Valve UltraPure



Concept
A highly flexible diaphragm valve built on a radial type system. Perfect for applications with high hygienic demands typically found in pharmaceutical, biotech, cosmetic and aseptic food industries. The radial diaphragm secures full drainability with superior Kv values and CIP functionality. The self draining design makes it functional in any angle offering full flexibility in installation.

Working principle
The valve can be remotely controlled by pneumatic actuator or manually by hand. The diaphragm can be changed in seconds without using any tools lowering maintenance costs significantly.

Standard Design
The Radial Valve UltraPure comes as pneumatic or manually operated in shut-off, pass-through or tank-outlet configurations. The diaphragms are available in Silicone and EPDM. The valve has welding or clamp ends as standard and are available in ø12,7mm and ø25,4 and ø38 dimensions.

TECHNICAL DATA

Pressure
Min. product pressure: . . . . . Full vacuum
Max. product pressure: . . . . . 7 bar

Note: Tank outlet valve not prepared for build in pressure vessels according to PED/ASME.

Actuator function:
SA: . . . . . Pneumatic upward movement, spring return (NC)
AA: . . . . . Pneumatic upward and downward movement
Man: . . . . Manually operated

Operating data: Pneumatic actuator (Spring operated) SA
Control air . . . . . Dry, free from particies and oil (ISO 8573.1 Class 2.2.1)
Supply pressure, recommended . . . . 6 bar
Supply pressure minimum . . . . . 5,5 bar
Supply pressure, maximum . . . . . 7 bar

Operating data - Pneumatic actuator (Air operated) AA
Control air . . . . . Dry, free from particies and oil (ISO 8573.1 Class 2.2.1)
Supply pressure, recommended . . . . 3,5 bar
Supply pressure, minimum . . . . . 3 bar
Supply pressure, maximum . . . . . 4 bar

Air consumption - Pneumatic actuators (AA & SA)
Air consumption RDV-UP 1/2" . . . . . 0.03 Nl/stroke at 4 bar
Air consumption RDV-UP 1" . . . . . 0.12 Nl/stroke at 4 bar
Air consumption RDV-UP 1 1/2" . . . . 0.3 Nl/stroke at 4 bar
Air connection . . . . . M5 thread
Hose, quick connection . . . . . 4mm hose

PHYSICAL DATA

Temperature
Max. working temperature . . . 135°C (max. 1 hour)
Min. working temperature: . . . -10°C

Materials
Housing/valvebody) . . . . . AISI 316L (1.4404)
Valve body/ends . . . . . AISI 316L (1.4435)
Actuator cover . . . . . AISI 304 (1.4301)
Diaphragm - Silicone . . . . . USP Class VI (FDA CFR 21 § 177.2600 and 3A)
Diaphragm - EPDM . . . . . USP Class VI (FDA CFR 21 § 177.2600 and 3A)

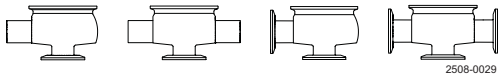
Surface finish
Internally . . . . . Ra ≤ 0,5 µm (SF1)
Externally . . . . . Ra ≤ 1,6 µm

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Options
- Surface finish internally (Ra < 0,4µm - electropolished SF4)
- Clamp with wingnut

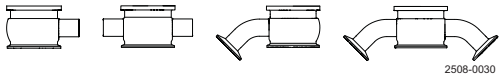
Documentation
All valves are delivered with Alfa Laval Q-doc.

Valve Body Combinations



Shut off valve (Welding ends) Prepared for orbital

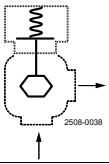
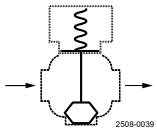
Shut off valve (clamp ends)



Tank outlet valves (welding ends) - prepared orbital

Tank outlet valves (clamp ends)

Pressure drop/capacity diagrams

Size (mm)	Valve open Kv at 1 bar (m^3/h)	Valve closed Kv at 1 bar (m^3/h)
12.7	2.0	2.5
25.4	10.5	14.0
38.1	26.0	36.0
		

$Q = Kv \times \sqrt{\Delta p}$

Where
Q = Flow in m^3/h.
Kv = m^3/h at a pressure drop of 1 bar (see table above).
Δ p = Pressure drop in bar over the valve.

Note!

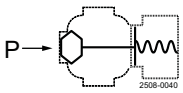
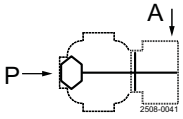
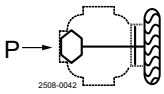
For the diagrams the following applies:

Medium: Water (20°C)

Measurement: In accordance with VDI 2173

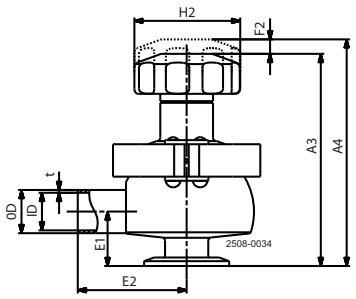
Pressure data for Radial Diaphragm Valve UltraPure

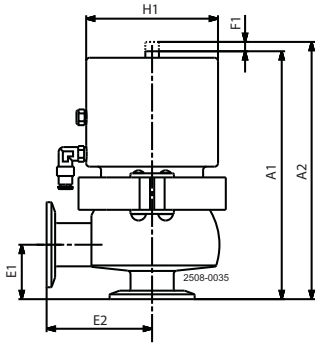
Table 1: Stop valve. The table shows the approx. static pressure (p) in bar without leakage at the valve seat.

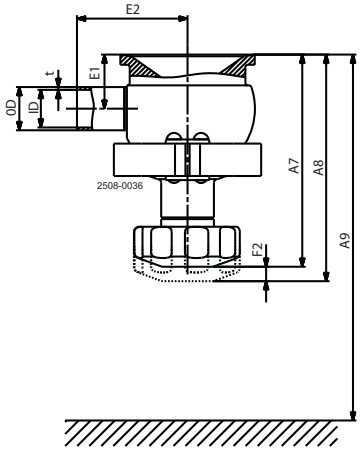
Actuator/valve body combination and direction of pressure			Air pressure (bar)	Plug position	Valve size OD (12.7mm)	OD (25.4mm)	OD (38mm)
(Product pressure)		Spring closed (Air pressure)		NC	Min. 7	Min. 7	Min. 7
(Product pressure)		Air closed	Min. 3 Max. 4	Closed Closed	Min. 7 Min. 7	Min. 7 Min. 7	Min. 7 Min. 7
(Product pressure)		Manual		Closed	Min. 7	Min. 7	Min. 7

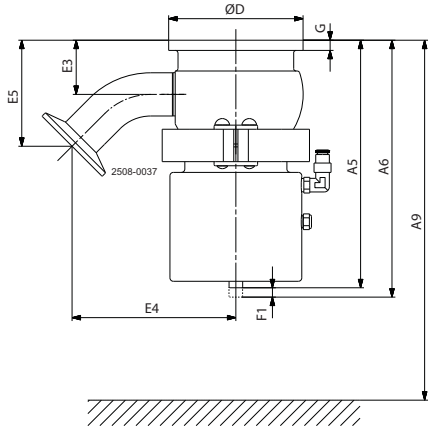
Dimensions (mm)

Nominal size	Shut off valve						Tank Outlet Valve					
	Remote-controlled DN/OD			Manually operated DN/OD			Remote-controlled DN/OD			Manually operated DN/OD		
	1/2" (12.7mm)	1" (25.4mm)	1 1/2" (38.0mm)	1/2" (12.7mm)	1" (25.4mm)	1 1/2" (38.0mm)	1/2" (12.7mm)	1" (25.4mm)	1 1/2" (38.0mm)	1/2" (12.7mm)	1" (25.4mm)	1 1/2" (38.0mm)
A1	103.0	146.0	160.0									
A2	106.5	151.5	172.0									
A3				86.0	122.0	133.0						
A4				89.5	130.5	143.0						
A5							102.0	146.0	161.0			
A6							105.5	151.5	173.0			
A7										84.0	122.0	134.0
A8										87.5	130.5	144.0
A9							150.0	200.0	220.0	110.0	130.0	150.0
OD	12.7	25.4	38.1	12.7	25.4	38.1	12.7	25.4	38.1	12.7	25.4	38.1
ID	9.5	22.2	34.9	9.5	22.2	34.9	9.5	22.2	34.9	9.5	22.2	34.9
t	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65
E1	19.2	32.0	37.5	19.2	32.0	37.5						
E2 (Welding end)	52.0	65.0	65.0	52.0	65.0	65.0	52.0	65.0	65.0	52.0	65.0	65.0
E2 (clamp end)	53.0	64.5	64.5	53.0	64.5	64.5						
E3							17.7	31.8	38.3	17.7	31.8	38.3
E4							47.0	96.0	158.5	47.0	96.0	158.5
E5							20.8	62.0	97.3	20.8	62.0	97.3
F1	3.5	5.5	12.0				3.5	5.5	12.0			
F2				3.5	8.5	10.0				3.5	8.5	10.0
H1	42.0	77.5	94.5				42.0	77.5	94.5			
H2				55.0	63.0	63.0				55.0	63.0	63.0
øD							50.0	79.0	85.0	50.0	79.0	85.0
G							3.0	6.0	8.0	3.0	6.0	8.0
Weight (kg)	0.9	3.0	4.0	1.0	2.2	2.1	1.1	3.4	4.5	1.0	2.6	2.6









Note!
For further details, see also ESE02132

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