

DIAPHRAGM VALVES



Application

Diaphragm valves are designed for shut-off and sampling functions and are particularly suitable for use in pharmaceutical processes.

Features

Diaphragm valves are made in strict conformity with the criteria and tests required by the 3-A standards.

The valve design ensures complete insulation from external pollutants and self-drainage of all internal parts during CIP process.

The valve body is manufactured from Aisi 316L stainless steel and is press-forged, solution heat-treated, machined and polished. The manual and pneumatic controls are manufactured in Aisi 316L stainless steel to allow sterilization at high temperature.

The standard diaphragm material is food-grade EPDM. PTFE and FTM diaphragms are available as an option. Diaphragms are fabric-finished to give high mechanical strength.

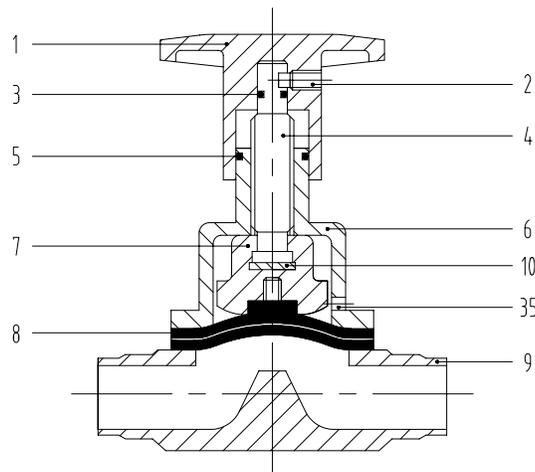
Maintenance is reduced and top-entry with easy access and no need to remove the valve from the system.

Available body configurations are: sampling, two and three-way, tank bottom and modulating valves.

Valves can be operated both manually and pneumatically.

Pneumatic valves can be equipped with control units and a choice of electrical components.

Components



PARTS LIST		
1	Handwheel	Aisi 316L
2	Dowel	Aisi 304L
3	OR seal ring	NBR
4	Spindle	Aisi 316L
5	OR seal ring	NBR
6	Control	Aisi 316L
7	Compressor	Aisi 316L
8	Diaphragm	EPDM/PTFE/FTM
9	Valve casing	Aisi 316L
10	Thrust bearing	Brass
35	Leakage detection hole	

Technical Data

Max. product pressure:

- 1000 kPa (10 bar) for manual valves;
- 700 kPa (7 bar) for pneumatic valves.

Recommended working pressure: 600 kPa (6 bar).

General temperature range: -10°C +95°C (+15°F +205°F).

Diaphragms temperature range:

- EPDM: -30°C +140°C (-20°F +280°F);
- PTFE: -10°C +150°C (+15°F +300°F);
- FTM: -15°C +220°C (+5°F +430°F);

Finish:

- 150 grit (max R_a 0.76–0.89 μm , 30–35 $\mu\text{''}$).
- 240 grit (max R_a 0.38–0.51 μm , 15–20 $\mu\text{''}$).
- 400 grit ($\leq 0.2 \mu\text{m}$, $\leq 8 \mu\text{''}$).

Production range: from DN 10 to DN 50 and ½" to 2".

Connections: welding end, ferrule end.

Steel grade: Aisi 316L.

CV Values

OPENING %	DN 15 ½"	DN 20 ¾"	DN 25 1"	DN 40 1 ½"	DN 50 2"
100	6.7	13.3	20	50	101
90	6.4	12.8	19.2	48	97
80	6.11	12.3	18.4	46	92.9
70	5.85	11.7	17.6	44	88.9
60	5.58	11.2	16.8	42	84.83
50	4.65	9.3	14	35	70.7
40	3.7	7.45	11.2	28	56.5
30	2.8	5.6	8.4	21	42.4
20	1.85	3.7	5.6	14	28.27
10	0.92	1.85	2.8	7	14.13
0	0	0	0	0	0

Cv = US gal/min

KV Values

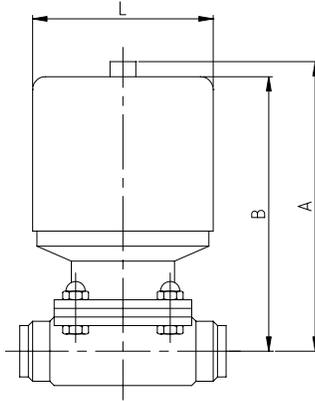
OPENING %	DN 15 ½"	DN 20 ¾"	DN 25 1"	DN 40 1 ½"	DN 50 2"
100	1.6	3.16	4.76	12	24.04
90	1.5	3.04	4.57	11.4	23.1
80	1.45	2.9	4.37	11	22.1
70	1.4	2.8	4.2	10.5	21.15
60	1.32	2.65	4	10	20.2
50	1.1	2.2	3.33	8.4	16.83
40	0.9	1.76	2.66	6.7	13.46
30	0.65	1.3	2	5	10.1
20	0.43	0.9	1.33	3.8	6.73
10	0.21	0.43	0.66	1.66	3.36
0	0	0	0	0	0

Kv = l/s

Ends

DN	BS		SCHEDULE				ISO		DIN						
	O.D.	+16 Th.	18 Th.	5S Th.	10S Th.	40S Th.	O.D.	Th.	Series 1		Series 2		Series 3		
15	12.70	1.63	1.22	21.34	1.65	2.11	2.77	21.3	1.6	18	1	19	1.5	20	2
20	19.05	1.63	1.22	26.67	1.65	2.11	2.87	26.9	1.6	22	1	23	1.5	24	2
25	25.40	1.63	1.22	33.40	1.65	2.77	3.38	33.7	2.0	28	1	29	1.5	30	2
40	38.10	1.63	1.22	48.26	1.65	2.77	3.68	48.3	2.0	40	1	41	1.5	42	2
50	50.80	1.63	1.22	60.33	1.65	2.77	3.91	60.3	2.6	52	1	53	1.5	54	2

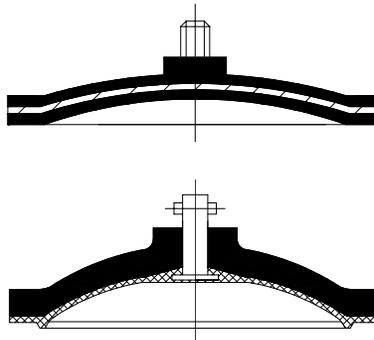
**Dimensions,
air volumes
and operating times**



Valve diam.	A	B	L	Vol. air closes	Vol. air opens	Time
mm	mm	mm	mm	cm ³	cm ³	s
15	125	120	70	50	20	1
20	140	135	89	230	65	1
25	145	140	89	230	65	1
40	208	203	129	1000	250	2
50	220	215	129	1000	350	2

Valve diam.	A	B	L	Vol. air closes	Vol. air opens	Time
in	in	in	in	in ³	in ³	s
1/2"	5"	4 3/4"	2 3/4"	3	1	1
3/4"	5 1/2"	5 3/8"	3 1/2"	13	4	1
1"	5 3/4"	5 1/2"	3 1/2"	13	4	1
1 1/2"	8"	8"	5"	60.5	15	2
2"	9"	8 1/2"	5"	61	20	2

Diaphragms



- EPDM
- FTM

- PTFE