



Type-14 Flanged Diaphragm

Standard Features (Sizes 1/2" - 2")

- Flanged (ANSI) face-to-face dimensions are equivalent to most commonly used metallic valves
- Rugged body and bonnet are of solid thermoplastic for maximum corrosion resistance
- Uniquely designed body and bonnet together with diaphragms of new sealing designs by computer dynamic analysis for superior sealing
- Weir design for excellent throttling
- Bubble-tight sealing, even in applications such as slurries or suspended particles
- Bonnet seals to protect internal from corrosive environments
- Built-in travel stop to prevent overtightening or compressive strain on diaphragm
- Integrally molded bottom stand for simple yet firm panel mounting
- Indicator at the top for indication of valve position and prevention of overtightening
- PVDF gas barrier, which protects EPDM backing from gas permeation, is standard for all valves with PTFE diaphragm
- Low profile
- Bayonet structure to connect compressor and diaphragm - Easy diaphragm replacement

Options

- 2" square nut
- Stem extensions (single and two-piece design)
- Locking device for tamper proofing
- Chainwheel operator

Specifications

Sizes: 1/2" - 4"
Body Materials: PVC, CPVC, PP and PVDF
Bonnet Materials: PVC, PP, PPG and PVDF
Diaphragms: EPDM and 3-Layer EPDM/PVDF/PTFE
 Also available in Nitrile and FKM

End Connection: Flanged
Operator: Handwheel

Parts Type-14 Flanged (Sizes 1/2" - 2")

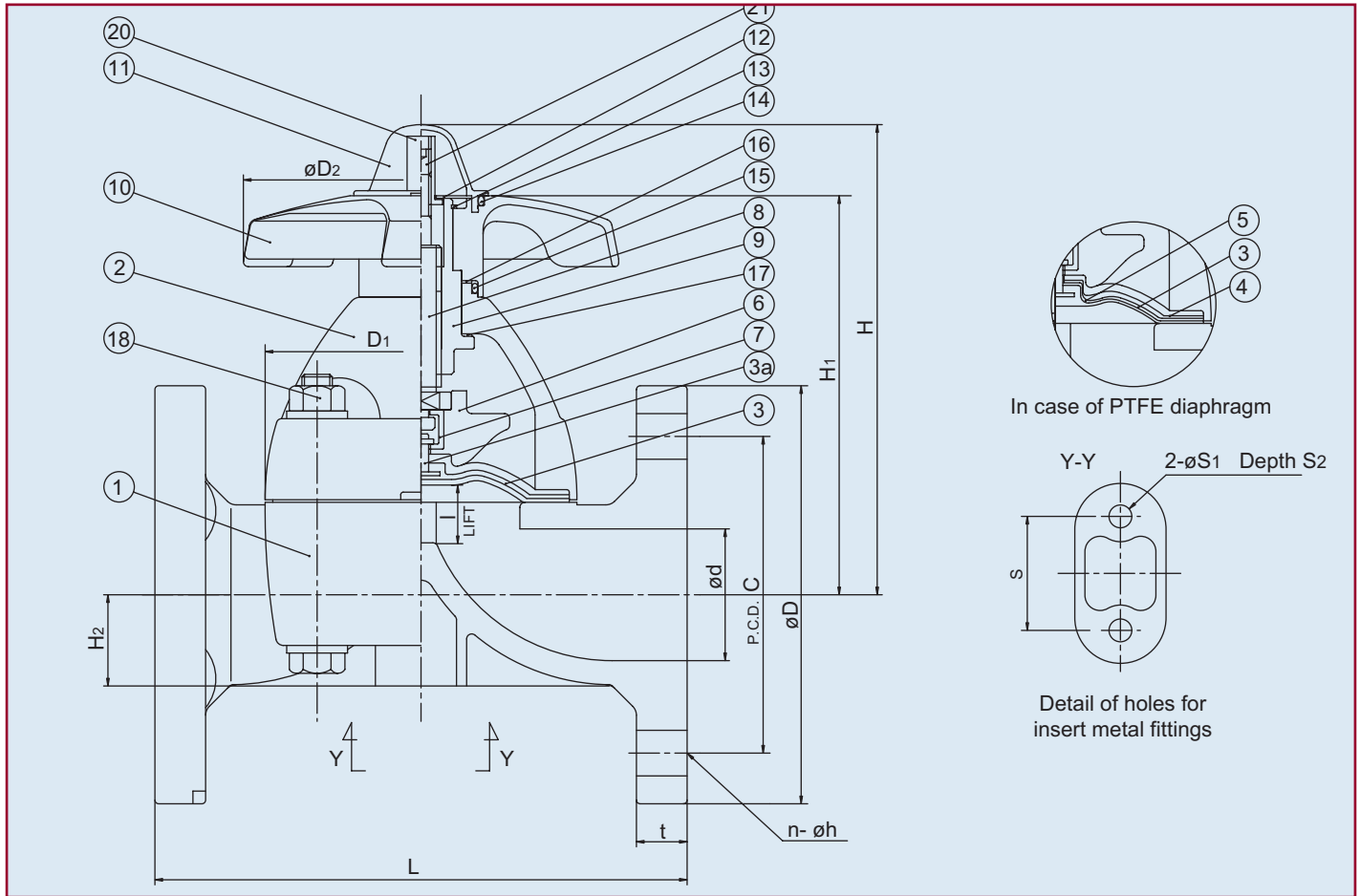
PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC, CPVC, PP, PVDF
2	Bonnet	1	PVC, PPG, PP, PVDF
3	Diaphragm	1	EPDM, PTFE, Others
3a	Diaphragm Metal Insert	1	Stainless Steel 304
4	Cushion*	1	EPDM
5	PVDF Gas Barrier*	1	PVDF
6	Compressor	1	PVDF
7	Joint	1	Stainless Steel 304
8	Stem	1	Copper Alloy
9	Sleeve	1	Copper Alloy
10	Hand Wheel	1	PP
11	Gauge Cover	1	PC
12	Name Plate	1	PVC
13	Retaining Ring C Type	1	Stainless Steel 304
14	O-Ring (A)	1	EPDM
15	O-Ring (B)	1	EPDM
16	Thrust Ring (A)	1	UHMWPE
17	Thrust Ring (B)	1	UHMWPE
18	Bolt, Nut, Washer	4 Sets	Stainless Steel 304
20	Stopper (A)	1	Copper Alloy
21	Screw	1	Stainless Steel 304

* Used on PTFE diaphragm.



Type-14 Flanged

Diaphragm Valves



Dimensions Type-14 Flanged (Sizes 1/2" - 2") (in.)

NOMINAL SIZE		ANSI CLASS 150						D1	D2	l	L	t	H	H1	H2	S	S1	S2
INCHES	mm	d	C	D	n	h												
1/2	15	0.63	2.38	3.50	4	0.62	2.13 × 2.60	3.46	0.39	4.25	0.43	4.09	3.39	0.49	0.98	0.28	0.51	
3/4	20	0.79	2.75	3.88	4	0.62	2.13 × 2.60	3.46	0.39	5.88	0.51	4.17	3.46	0.57	0.98	0.28	0.51	
1	25	0.98	3.12	4.25	4	0.62	2.64 × 3.15	3.46	0.47	5.88	0.59	4.37	3.66	0.73	0.98	0.28	0.51	
1-1/4	32	1.26	3.50	4.62	4	0.62	2.64 × 3.15	3.46	0.47	6.38	0.63	4.57	3.82	0.89	0.98	0.28	0.51	
1-1/2	40	1.57	3.88	5.00	4	0.62	4.25 × 4.25	6.14	0.83	6.94	0.63	6.97	5.67	1.08	1.77	0.35	0.59	
2	50	2.05	4.75	6.00	4	0.75	4.84 × 4.84	6.14	0.98	7.94	0.79	7.52	6.22	1.42	1.77	0.35	0.59	

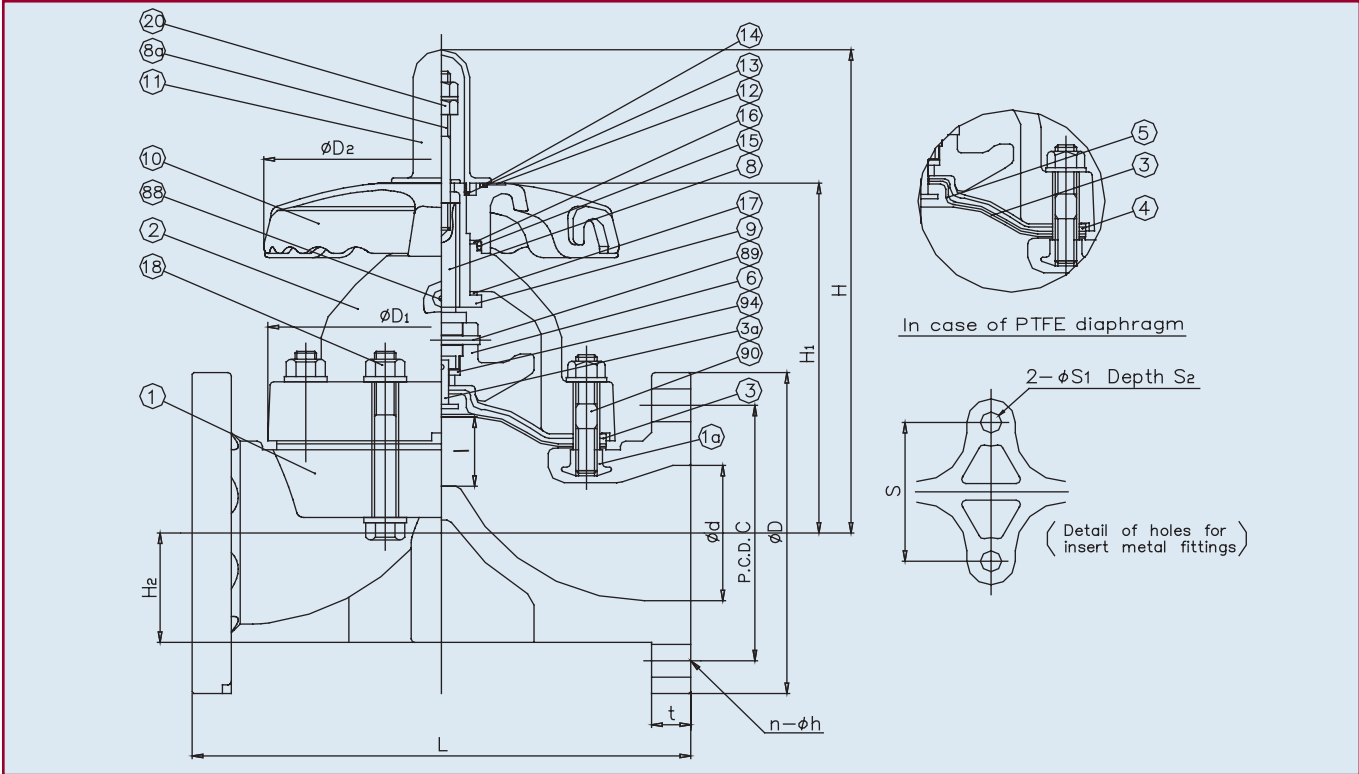
Pressure vs. Temperature psi, water, non-shock

Cv Values/Wt.

NOMINAL SIZE		PVC		CPVC				PP				PVDF				NOMINAL SIZE		Cv	WT. FLG. (lbs)
		ALL DIAPHRAGMS		ALL DIAPHRAGMS				ALL DIAPHRAGMS				PTFE DIAPHRAGM							
		30° F 105° F	106° F 140° F	30° F 105° F	106° F 140° F	141° F 175° F	176° F 195° F	- 5° F 105° F	106° F 140° F	141° F 175° F	176° F 195° F	- 40° F 140° F	141° F 175° F	176° F 210° F	211° F 250° F				
INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm	INCHES	mm		
1/2	15	150	100	150	115	85	40	150	115	85	70	150	120	95	70	1/2	15	4.8	1.50
3/4	20	150	100	150	115	85	40	150	115	85	70	150	120	95	70	3/4	20	5.3	1.80
1	25	150	100	150	115	85	40	150	115	85	70	150	120	95	70	1	25	8.5	2.40
1-1/4	32	150	100	150	115	85	40	150	115	85	70	150	120	95	70	1-1/4	32	11	3.10
1-1/2	40	150	100	150	115	85	40	150	115	85	70	150	120	95	70	1-1/2	40	26	6.20
2	50	150	100	150	115	85	40	150	115	85	70	150	120	95	70	2	50	43	8.00

Type-14 Flanged

Diaphragm Valves



Dimensions Type-14 Flanged (Sizes 2-1/2" - 4") (in.)

NOMINAL SIZE		ANSI CLASS 150							t									
INCHES	mm	d	C	D	n	h	D1	D2	l	L	PVC CPVC	PP PVDF	H	H1	H2	S	S1	S2
2-1/2	65	2.64	5.50	7.00	4	0.75	6.89	8.66	1.34	9.84	0.87	0.91	10.47	7.40	2.40	3.35	0.43	0.79
3	80	3.07	6.00	7.50	4	0.75	7.91	8.66	1.65	10.38	0.87	0.91	11.02	7.95	2.48	3.94	0.59	1.10
4	100	3.94	7.50	9.00	8	0.75	9.49	10.12	1.97	12.94	0.87	0.94	12.95	9.49	3.07	4.72	0.59	1.10

Pressure vs. Temperature psi, water, non-shock

Cv Values/Wt.

NOMINAL SIZE		PVC		CPVC				PP				PVDF				NOMINAL SIZE	Cv	WT. FLG. (lbs)	
		ALL DIAPHRAGMS		ALL DIAPHRAGMS				ALL DIAPHRAGMS				PTFE DIAPHRAGM							
INCHES	mm	30° F 105° F	106° F 140° F	30° F 105° F	106° F 140° F	141° F 175° F	176° F 195° F	- 5° F 105° F	106° F 140° F	141° F 175° F	176° F 195° F	- 40° F 140° F	141° F 175° F	176° F 210° F	211° F 250° F	INCHES	mm		
2-1/2	65	150	115	150	120	95	85	150	120	95	85	150	115	85	70	2-1/2	65	85	14.33
3	80	150	115	150	120	95	85	150	120	95	85	150	115	85	70	3	80	115	17.64
4	100	150	115	150	120	95	85	150	120	95	85	150	115	85	70	4	100	185	25.80

Caution

- After replacing diaphragm, do not tighten bolts for bonnet and body with diaphragm in the closed position. Excessive force could damage bonnet or body.
- Full vacuum rated 1/2" through 2 - 1/2".
- Vacuum Rating

	(1) Rubber Diaphragms	(2) PTFE Diaphragm
3"	-25.59"	-9.84"
4"	-19.69"	-3.94"
- Never remove valve from pipeline under pressure.
- Always wear protective gloves and goggles.

Type 14 Flanged

Diaphragm Valves

Parts Type 14 Flanged (2-1/2" – 4")

PARTS			
NO.	DESCRIPTION	PCS.	MATERIAL
1	Body	1	PVC, CPVC, PP, PVDF
2	Bonnet	1	PVC, PPG, PP, PVDF
3	Diaphragm	1	EPDM, PTFE, Others
3a	Diaphragm Metal Insert	1	Stainless Steel 304
4	Cushion*	1	EPDM
5	PVDF Gas Barrier*	1	PVDF
6	Compressor	1	PVDF
8	Stem	1	Copper Alloy
8a	Indicating Rod	1	Stainless Steel 304
9	Sleeve	1	Copper Alloy
10	Hand Wheel	1	PP
11	Gauge Cover	1	PC
12	Name Plate	1	PVC
13	Retaining Ring C Type	1	Stainless Steel 304
14	O-Ring (A)	1	EPDM
15	O-Ring (B)	1	EPDM
16	Thrust Ring (A)	1	UHMWPE
17	Thrust Ring (B)	1	UHMWPE
18	Bolt, Nut, Washer	4 Sets	Stainless Steel 304
20	Stopper (A)	1	Copper Alloy
88	Grease Nipple	1	Copper Alloy
89	Compressor Pin	1	Stainless Steel 304
90	Stud Bolt, Nut	4 Sets	Stainless Steel 304, Others
94	Metal of Compressor	1	Stainless Steel 304 ¹
1a	Inserted Nut	4	Copper Alloy ²

* Used on PTFE diaphragm

¹ Used for PVDF body

² Used for PVC, CPVC, PP bodies

Troubleshooting

What if fluid leaks when valve is fully closed?

1. Travel stop not set correctly. Adjust it per the Asahi Operation and Maintenance manual.
2. Solids built up inside valve. Clean inside, including weir and diaphragm.
3. Diaphragm and/or weir are worn or damaged. Change the part(s).

What if valve cannot be fully opened?

1. Diaphragm is not properly engaged with compressor. Check engagement per Operation and Maintenance manual.

What if fluid leaks to atmosphere?

1. Bonnet bolts not properly torqued. Re-torque according to Operation and Maintenance manual.
2. Line pressure exceeds maximum recommended line pressure. Check or reduce system line pressure.
3. Diaphragm has ruptured or has been chemically attacked. Replace diaphragm.

Sample Specification

All Type-14 flanged diaphragm valves shall be of solid thermoplastic construction for body and bonnet with molded flanged ends. The valves shall come standard with a position indicator, travel stop (to prevent overtightening) and bonnet O-ring sealing arrangement. The valve shall be weir type with a square bonnet body sealing design and bayonet connection diaphragm (1/2"- 2") or round bonnet body sealing design (2-1/2"- 4"). All PTFE diaphragms shall be supplied with a PVDF gas barrier between the layers of EPDM and PTFE for aggressive chemical service. The face-to-face dimensions shall conform to Type G. PVC conforming to ASTM D1784 Cell Classification 12454-A, CPVC conforming to ASTM D1784 Cell Classification 23567A, PP conforming to ASTM D4101 Cell Classification PPO210B67272, PPG (bonnet only) conforming to ASTM D4101 Cell Classification PPO110M20A21130, and PVDF conforming to ASTM D3222 Cell Classification Type II. PVC, CPVC, PP and PVDF shall be rated to 150psi for elastomeric and PTFE diaphragms at 70° F., as manufactured by Asahi/America, Inc.

Type-14 Flanged Diaphragm Valves

1.0 Scope:

All requirements are for Type-14 Flanged Diaphragm Valves and accessories.

2.0 Materials:

U-PVC – Conforming to ASTM D1784 Cell Classification 12454 A

CPVC – Conforming to ASTM D1784 Cell Classification 23567 A

Polypropylene – Conforming to ASTM D4101 Cell Classification PP0210B67272

PVDF – Conforming to ASTM D3222-91A Cell Classification Type II

FKM – Viton® Fluorocarbon Rubber

EPDM – Ethylene Propylene Diene Terpolymer Rubber

Nitrile – Nitrile Butadiene Rubber

PTFE – Teflon® Polytetrafluoroethylene

3.0 Valves:

Diaphragm valves shall be Type-14 Flat Faced Flanged design. The valves shall come standard with position indicator, travel stop, and bonnet O-ring sealing arrangement. The valve shall be Weir type, either square or round body/bonnet sealing design, and 1/4 turn bayonet style diaphragm/compressor connection. All PTFE diaphragms shall be 3-layer style with PTFE wetted diaphragm, PVDF gas barrier and EPDM Backing cushion. The PVDF Gas Barrier shall be between the EPDM and PTFE layers and prevent against gas migration outside of the valve.

3.1 Operators

Type-14 1/2" – 4" Handwheel standard operator (Red Color)

3.2 Approved Manufacturer

Valves shall be provided by Asahi/America, Inc. of Lawrence, MA with no approved equals. Manufacturer must be ISO-9001 certified.

3.3 Pressure vs. Temperature

Valves shall have a pressure rating of: 150 psi at 70° F sizes 1/2" – 4"

4.0 Accessories:

4.1 Stem Extensions

Stem extensions where required should be designed, built and provided by the Asahi/America, Inc., and be 1 of 2 styles:

Style DV-A Two piece extension with outer housing 100% sealed either free standing or supported design.

Style DV-B Single piece extension either free standing or supported design

4.2 Actuation

Actuation where required should be designed, built and provided by Asahi/America, Inc., and be either pneumatic (Type-AN Asahi or Century Instrument) or electric (Series 92 Multi-Turn) type. All actuation accessories to be provided and installed by Asahi/America, Inc. in accordance with manufacturers requirements.

4.3 Optional Diaphragm Materials

Where required we can offer 3-Layer PTFE/PVDF/EPDM diaphragms, EPDM, FKM or Nitrile diaphragms.

4.4 Operating Nuts

Where required 2" square operating nuts can be installed in place of valve handwheel.

Materials of construction – Anodized Aluminum.

4.5 Chain Operators

Where required for overhead applications, chain operators manufactured by Babbitt Steam may be installed on Type-14 diaphragm valves. Chain must be weldless loop style chain supplied from Babbitt Steam.

Materials of construction: Chain Operator – Cast Iron

Chain – Hot Galvanized steel, others by request.

5.0 Installation Procedures:

All valve joints shall be flanged and shall be prepared in accordance with the requirements put forth in the Type-14 Operation & Maintenance manual. All accessories should be installed in accordance with the manufacturer's requirements as well as any facility requirements.