

Diaphragm Valves



CHEMLINE
Plastics Limited

Your Pipeline To Quality

Chemline Type 14 (1/2" to 4") and Type 15 (5" and 6") Diaphragm Valves are an improved version of the older DV Series. The 8" and 10" DV's are still current design but are now called Type 72. Types 14 and 15 have been redesigned using modern computer design technology. Improvements are higher pressure resistance, lower hand wheel torques to close, better hydraulics (lower pressure losses) and other features. Tests show Type 14 to outperform major competitors in resistance to bonnet leakage on tough applications with thermal cycling.

Chemline diaphragm valves have service histories dating back to 1970 operating in some of the toughest chemical plant applications in Canada. They have proven internal and external corrosion resistance.

This is an excellent throttling valve, and is suited for slurries or viscous liquids. Because of the self-draining design with no dead volume, it is good for sanitary and high purity applications. These diaphragm valves offers higher temperature/pressure ratings and chemical resistance compared to other Chemline valve types.

New Improved Design Superior Performance

Features

Excellent Chemical Resistance

- Large choice of materials including PVDF bodies and Teflon® diaphragms for extremely aggressive services

Externally Corrosion Resistant

- Plastic bonnet, handwheel, covered and sealed indicator
- Bonnet seals protect internal parts from corrosive environments

High Pressure Resistance

- Designed with a high safety factor against leakage
- Tight closing with low hand wheel torque
- Highest pressure vs. temperature ratings of all plastic valve types

Designed for Long Diaphragm Life

- Standard Travel Stop prevents over-tightening and excessive stress on diaphragm.
- Special design of compressor eliminates point loading of diaphragm stud, extending life.

Standard Flange Face-to-Face Lengths

- Same lengths as ITT plastic lined (1/2" to 2", 3" to 4")

PVC, PP, CPVC¹, PVDF

SIZES: Type 14: 1/2" – 4"
Type 15: 5" – 6"
Type 72: 8" – 10"

ENDS: Flanged: 1/2" – 10"¹
True Union Socket,
Threaded or Butt²: 1/2" – 2"
ChemFlare^{TM3}: 1/2" – 1"

DIAPHRAGMS: EPDM, Teflon^{®4}

CRN
REGISTERED
CONSULT CHEMLINE



¹ Up to 4" only in CPVC.

² Butt fusion ends are for connection to Chemline PP and PVDF metric piping systems.

³ For ChemFlareTM end connectors, consult Chemline.

⁴ Other diaphragm materials are available.

Type 14 Diaphragm Valves



New Design for Superior Performance

Position Indicator/Travel Stop
With low profile sealed plastic cover

New Design Hand Wheel
Easy to operate
Low torques are required to open and close

Designed to Eliminate Leakage
Bonnet flange and body under diaphragm are now thicker. The result is tight sealing under higher pressures. "Weepage" on aggressive chemical applications is eliminated. Seating requires low handwheel torque.

One Piece Flanged Body
Strong monobloc construction
Suitable for installation in metal piping systems

Teflon® Diaphragm
Heavy duty two-piece design

Base Mounting Pad
Optional threaded inserts allow valve to be fixed to structures



True Union Bodies

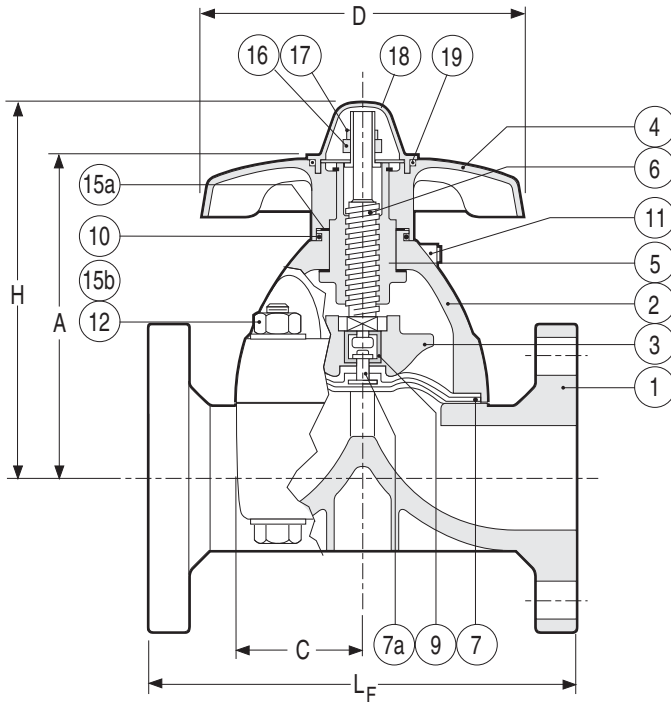
Available 1/2" to 2" with a choice of end connections – Socket, Threaded or Butt*



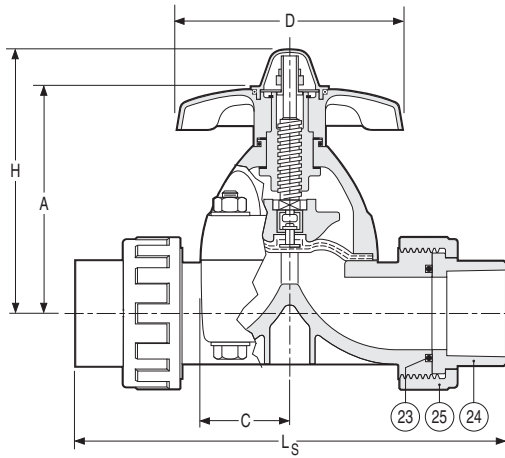
Pneumatically Actuated

Diaphragm type actuators made of PPG[†] are available normally closed, normally open or double acting. 1/2" to 2". All control accessories may be directly mounted. Valve sizes 3" to 10" are available with pneumatic piston actuators.

Type 14 Diaphragm Valves



Solid Flanged Body



True Union Body – Socket = S, Threaded = T, Flanged = F

PARTS

▲ Recommended Spare Parts

No.	Part	Pcs.	Materials	
1	Body	1	Body	Bonnet
2	Bonnet	1	PVC PP CPVC PVDF	PVC PP PP, PPG ¹
3	Compressor	1	PVDF	
4	Handwheel	1	Polypropylene	
5	Sleeve	1	Bronze BC 6	
6	Stem	1	Copper Alloy B5M C3604	
7▲	Diaphragm	1	EPDM, Teflon® PTFE with EPDM cushion	
7a	Diaphragm Insert	1	304 SS	
9	Diaphragm Insert Connection	1	304 SS	
10	Bonnet O-Ring	1	EPDM	
11	Grease Nipple 2-1/2" to 4" only	1	Brass	
12	Stud Bolt, Bolt, Nut & Washer	Set	304 SS	
13	Insert Nut 2-1/2" to 4" only ²	4	Brass, 304 SS for PVDF only	
15a	Thrust Rings 1/2" to 4" only	1	UHMWPE	
15b	Thrust Rings 1/2" to 4" only	1	UHMWPE	
16	Stopper	1	Bronze (BC6)	
17	Lock Nut	1	304 SS	
18▲	Indicator Cover	1	Polycarbonate	
19	Cover O-Ring	1	EPDM	
23	Face O-Ring	2	EPDM, FKM (Viton®)	
24	End Connector	2	PVC, CPVC, PP, PVDF	
25	Union Nut	2	PVC, CPVC, PP, PVDF	

¹ Optional PVDF bonnet is for temperatures 100 to 120°C.

² Part No. 13, Insert Nut, is not shown.

DIMENSIONS INCHES

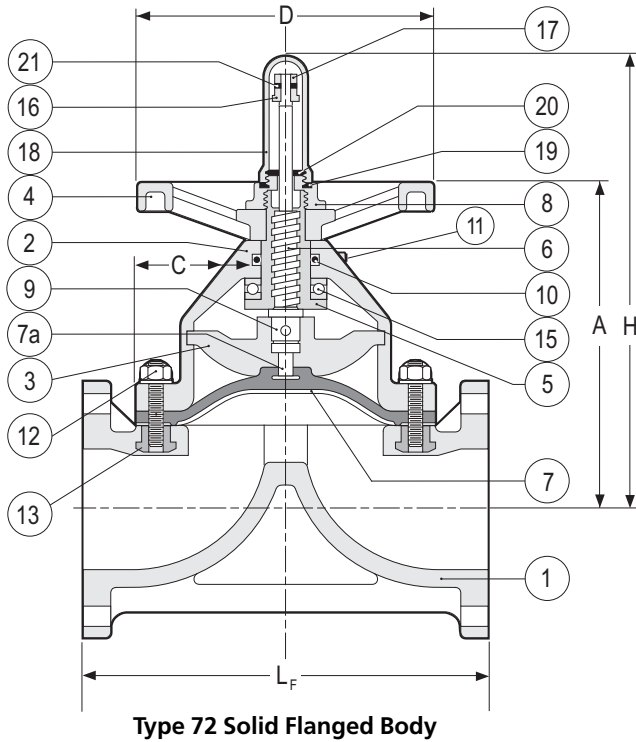
WEIGHTS LB.

Size ³	INCHES					WEIGHTS LB.									
	A	C	D	H	Lf	Flanged ⁴		True Union			PVC TU	PVC Flg	PP Flg	CPVC Flg	PVDF Flg
						Ls	Lt	PVC/CPVC	PP/PVDF	Ls					
1/2"	3.39	2.13 x 2.60	3.46	4.09	4.25	5.47	5.04	5.47	5.04	5.90	1.1	1.5	1.3	1.5	1.8
3/4"	3.46	2.13 x 2.60	3.46	4.17	5.88	6.18	5.83	6.18	5.83	6.78	1.3	1.8	1.3	1.8	2.0
1"	3.66	2.64 x 3.15	3.46	4.37	5.88	7.32	6.77	7.32	6.77	7.67	2.0	2.4	1.8	2.4	2.6
1-1/4"	3.82	2.64 x 3.15	3.46	4.57	6.38	7.95	7.40	7.95	7.40	8.34	2.4	2.9	2.2	3.1	3.3
1-1/2"	5.67	4.24 x 4.25	6.14	6.97	6.94	10.47	9.65	10.47	9.65	10.87	5.7	4.8	4.8	5.9	6.4
2"	6.22	4.84 x 4.84	6.14	7.52	7.94	11.54	11.06	11.54	10.95	12.01	6.4	7.7	6.2	7.7	8.6
2-1/2"	7.40	6.73	8.66	10.47	9.84	–	–	–	–	–	–	12.3	9.2	11.7	13.0
3"	7.95	7.68	8.66	11.02	10.38	–	–	–	–	–	–	15.6	11.9	15.2	16.1
4"	9.49	9.25	10.12	12.95	12.94	–	–	–	–	–	–	23.1	19.1	19.6	22.7

³ Type 15/72 diaphragm valves for 5" to 10" sizes.

⁴ Type 14 flanged dimensions match the previous DV Series "Type G". Older DV Series "Type 72", 1/2" to 4" have different dimensions. These are available special order.

Type 15/72 Diaphragm Valves



PARTS

▲ Recommended Spare Parts

No.	Part	Pcs.	Materials	
			Body	Bonnet
1	Body	1	PVC	PVC
2	Bonnet	1	PP	PP
			PVDF	PPG*
3	Compressor 5" & 6"	1	PVDF	
	Compressor 8" & 10"	1	Cast Iron	
4	Handwheel	1	Polypropylene	
5	Sleeve 5" & 6"	1	Bronze (BC 6)	
	Sleeve 8" & 10"	1	Carbon Steel	
6	Stem 5" & 6"	1	Copper Alloy (BSM C3604)	
	Stem 8" & 10"	1	Cast Iron	
7▲	Diaphragm	1	EPDM, Teflon® with EPDM cushion	
7a	Diaphragm Insert	1	304 SS	
8▲	Cap Nut	1	Polypropylene	
9	Compressor Pin	1	304 SS	
10	Bonnet O-Ring	1	Nitrile	
11	Grease Nipple	1	Brass	
12	Stud Bolt, Bolt, Nut & Washer	Set	304 SS	
13	Insert Nut	4	Brass, 304 SS for PVDF only	
15	Thrust Bearings	1	High Carbon Chromium	
16	Stopper	1	Plated Steel	
17	Lock Nut	1	Plated Steel	
18▲	Indicator Cover	1	Polycarbonate	
19	Cover Gasket	1	EPDM	
20	Washer	1	Plated Steel	
21	Spring Washer	1	Spring Steel	

DIMENSIONS INCHES

WEIGHTS LB.

Size	A	C	D	H	Flg L _f	PVC Flg	PP Flg	PVDF Flg
5"	12.13	12.60	11.81	16.54	16.14	48.4	42.9	80.3
6"	13.15	15.16	16.14	18.74	18.90	76.3	67.1	89.1
8"	16.5	16.93	16.1	24.7	22.44	116.	99.	138.
10"	20.1	21.26	22.0	30.6	26.77	206.	171.	242.

* Optional PVDF bonnet is for temperatures 100 to 120°C

Position Indicator with Sealed Plastic Cover

Valve position clearly shown

Limit Closing Stop

Prevents excessive closing pressure. Prolongs diaphragm life.

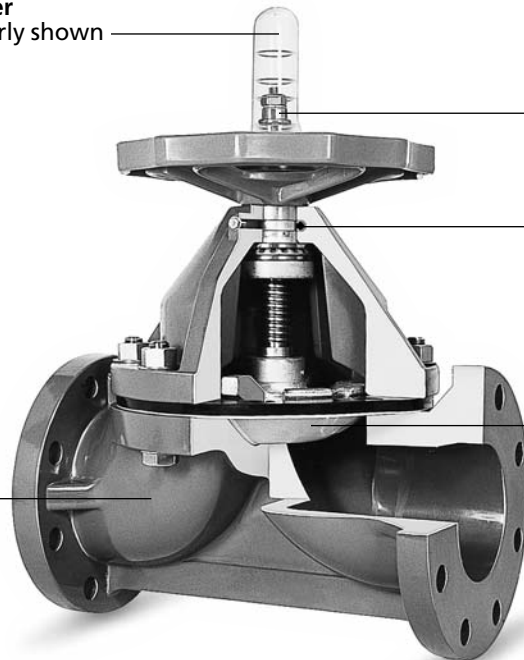
Bonnet O-Ring

Protects internal parts from corrosive atmosphere.

Teflon® Diaphragm

Heavy duty two-piece design

Strong One-Piece Flanged Body



Type 14/15/DV Diaphragm Valves



WORKING PRESSURES PSI

Body Diaphragm	Valve Type	PVC				Polypropylene & CPVC						PVDF			
		EPDM		Teflon®		EPDM			Teflon®			Teflon®			
		0-40°C 32-104°F	60°C 140°F	0-40°C 32-104°F	60°C 140°F	0-40°C 32-104°F	60°C 140°F	90°C 194°F	0-40°C 32-104°F	60°C 140°F	90°C 194°F	-40-60°C -40-140°F	80°C 176°F	100°C 212°F	120°C 248°F
1/2"	14	150	105	150	105	150	120	70/45*	150	120	70/45*	150	125	100	70
3/4"	14	150	105	150	105	150	120	70/45*	150	120	70/45*	150	125	100	70
1"	14	150	105	150	105	150	120	70/45*	150	120	70/45*	150	125	100	70
1-1/4"	14	150	105	150	105	150	120	70/45*	150	120	70/45*	150	125	100	70
1-1/2"	14	150	105	150	105	150	120	70/45*	150	120	70/45*	150	125	100	70
2"	14	150	105	150	105	150	120	70/45*	150	120	70/45*	150	125	100	70
2-1/2"	14	150	120	150	120	150	120	85	150	120	85	150	100	85	70
3"	14	150	120	150	120	150	120	85	150	120	85	150	100	85	70
4"	14	150	120	150	120	150	120	85	150	120	85	150	100	85	70
5"	15	100	85	70	60	70	60	50	60	45	45	60	45	45	40
6"	15	100	70	70	60	65	50	50	60	45	45	60	45	45	40
8"	72	70	60	60	45	70	60	50	60	45	45	60	45	45	40
10"	72	65	50	60	45	65	50	50	60	45	45	60	45	45	40

Temperature Ranges: PVC 0 to 60°C (32 to 140°F); PP -20 to 90°C (-4 to 194°F), CPVC 0 to 95°C (32 to 203°F); PVDF with PPG Bonnet -40 to 100°C (-40 to 212°F); PVDF with PVDF Bonnet -40 to 120°C (-40 to 248°F).

* 70 psi for PP valves / 45 psi for CPVC valves.

C_v VALUES VS. OPENING

Size	VS. OPENING				No. Turns to Open	VACUUM RATING		Maximum Flange Bolt Torque ft-lb
	25%	50%	75%	100%		Inches Mercury EPDM	Teflon®	
1/2"	1.2	2.7	4.1	4.8	5.	29.9	29.9	13
3/4"	1.3	3.0	4.5	5.3	5.	29.9	29.9	13
1"	2.0	4.8	7.	8.5	6.	29.9	29.9	15
1-1/4"	3.	6.	9.	11.	6.	29.9	29.9	15
1-1/2"	6.	15.	22.	26.	5.	29.9	29.9	15
2"	10.	25.	37.	43.	6.	29.9	29.9	17
2-1/2"	40.	68.	80.	85.	9.	15.0	15.0	17
3"	54.	92.	108.	115.	11.	15.0	15.0	22
4"	87.	148.	174.	185.	10.	15.0	15.0	22
5"	141.	246.	285.	300.	9.75	14.2	2.8	29
6"	188.	328.	380.	400.	10.5	9.9	N.R.	33
8"	329.	574.	665.	700.	18.	4.0	N.R.	40
10"	470.	820.	950.	1,000.	20.	2.0	N.R.	40

ORDERING EXAMPLE

Chemline Type 14/15/72 Diaphragm Valves		14	-	A	020	P	F
Bonnet	Blank - Standard	K - PVDF					
Valve Body	A - PVC	B - PP	C - CPVC	K - PVDF			
Size	005 - 1/2"	007 - 3/4"	010 - 1"	012 - 1-1/4"			
	015 - 1-1/2"	020 - 2"	025 - 2-1/2"	030 - 3"			
	040 - 4"	050 - 5"	060 - 6"	080 - 8" 100 - 10"			
Diaphragm	E - EPDM		P - Teflon®				
Ends	F - Flanged	S - Socket Union	T - Threaded Union				
	B - Butt Union ¹	CF - ChemFlare™					

Example: Chemline Type 14 Weir Type Diaphragm Valve, PVC, 2", Teflon® diaphragm, flanged ends. 1PP and PVDF metric butt fusion ends (1/2" to 2") connect to Chemline PP and PVDF piping systems.

OPTIONS & ACCESSORIES

- PVDF Gas Barrier for Teflon® diaphragms on chlorine services
- Vacuum Proof Diaphragms for 29.9" Hg vacuum resistance 3" to 10" sizes
- PVDF Bonnet on PVDF Valves for temperatures 100 to 120°C
- Electrically and Pneumatically Actuated - Consult Chemline
- Chain Wheel Operator
- Municipal Operating Nut
- Handwheel Extension
- Handwheel Lockout



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