

Type 16 Diaphragm Valves



PVC

CPVC

PP

PVDF

CRN
Registered
Consult Chemline

SERIES: Type 16

SIZES: 1/2" to 10"

ENDS: Flanged

DIAPHRAGMS: EPDM, PTFE¹



Chemline Type 16 Diaphragm valves have a history of chemical plant applications. They stand up to internal and external corrosive services, as well as some abrasion. This is a good throttling valve, and is suited for slurries or viscous liquids. The self-draining design with no dead volume makes it suitable for sanitary and high purity applications.

Features

Excellent Chemical Resistance

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

Externally Corrosion Resistant

- All major parts are plastic
- Position indicator is covered and sealed
- Bonnet O-Ring protects internal metal parts from corrosive atmospheres

Light Weight

- Will not strain plastic piping
- Easily installed – 6" valve weighs only 57 lbs.

Outperform Metal Valves on Corrosive and Abrasive Services

- No lining which may peel, crack or abrade away

Easily Replace Corroded Metal Valves

- Standard flange face-to-face dimensions

¹ Other diaphragm materials available special order

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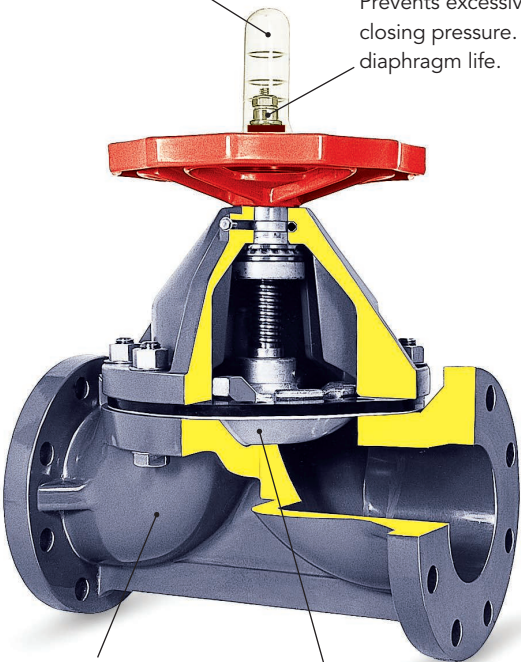
Features

Position Indicator with Sealed Plastic Cover

Valve position clearly shown

Limit Closing Stop

Prevents excessive closing pressure. Prolongs diaphragm life.



Strong One-Piece Flanged Body

PTFE Diaphragm

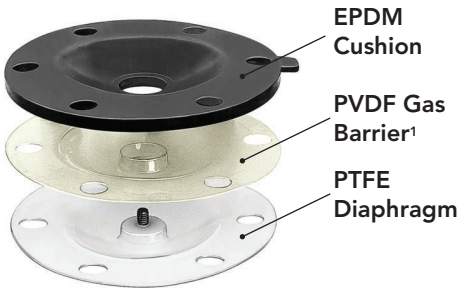
Heavy duty design: PTFE with EPDM cushion



Solid CPVC Body

PVDF Gas Barrier¹

To prevent migration of chlorines through the PTFE layer

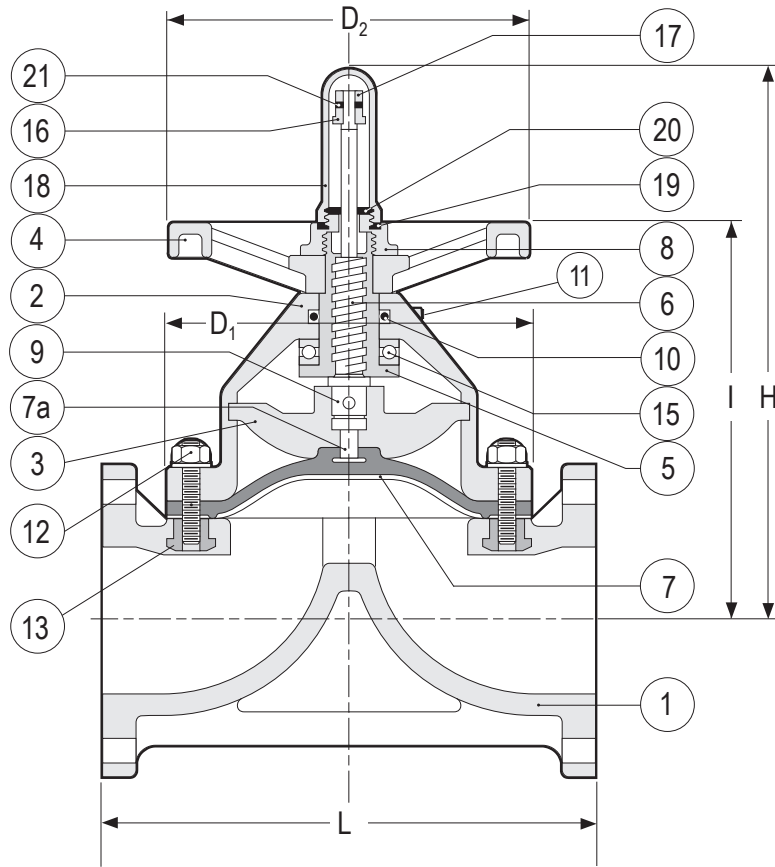


¹ Optional, on request with PVDF valves



Standard Flange Face-to-Face Dimensions The same face-to-face as Type 14

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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 ²	
4	Handwheel	1	Polypropylene	
5	Sleeve	1	Bronze (BC 6)	
6	Stem	1	Copper Alloy (BSM C3604) ³	
7▲	Diaphragm	1	EPDM, PTFE with EPDM cushion ³	
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 2-1/2" 10" only	1	Brass	
12	Stud Bolt, Bolt, Nut & Washer	Set	304 SS ³	
13	Insert Nut 1-1/2" to 10" only	4	Brass, 304 SS for PVDF only	
15	Thrust Bearings 4" to 10" only	1	Standard	
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	

¹ Optional PVDF bonnet is for temperatures 100 to 120°C (212 to 248°F)

² Sizes 1/2" to 3" are PVDF, 4" to 10" are cast iron

³ PVDF valves with 3 layer diaphragm (PTFE diaphragm with EPDM cushion and PVDF gas barrier) and PTFE coated bolts, washers and stem are available on special request

DIMENSIONS INCHES

Size	D ₁	D ₂	H	I	L	PVC	PP	CPVC	PVDF
1/2"	2.28 x 2	3.70	5.51	3.98	4.25	1.6	1.7	1.3	1.8
3/4"	2.76 x 2.36	3.70	5.98	4.17	5.90	2.3	2.3	2.0	2.5
1"	3.11 x 2.56	3.70	6.22	4.45	5.90	3.1	3.0	2.4	3.2
1-1/2"	4.84	5.79	7.60	5.24	6.95	5.6	5.4	4.3	5.8
2"	5.83	5.79	8.27	5.71	7.95	7.0	7.0	5.5	7.6
2-1/2"	7.20	7.95	10.87	7.76	9.85	12.2	12.2	10.1	13.2
3"	7.91	7.95	11.54	8.50	10.40	15.5	18.5	12.7	20.0
4"	9.84	9.49	14.57	10.28	12.95	25.7	28.5	20.4	30.8
5"	12.64	10.79	16.22	12.13	16.14	44.8	46.6	37.7	50.3
6"	15.04	15.55	18.54	13.15	18.90	70.5	69.0	60.8	74.5
8"	19.97	15.55	24.61	16.40	22.44	108.0	111.3	86.8	120.2
10"	20.83	21.85	29.53	20.08	26.77	205.4	—	162.4	242.4

WEIGHTS LBS.

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WORKING PRESSURES

Body	PVC				CPVC							
Diaph.	EPDM/PTFE				EPDM				PTFE			
Size	0 to 20°C 32 to 68°F	21 to 40°C 70 to 104°F	41 to 60°C 106 to 140°F		0 to 20°C 32 to 68°F	21 to 40°C 70 to 104°F	41 to 60°C 106 to 140°F	61 to 90°C 142 to 194°F	0 to 20°C 32 to 68°F	21 to 40°C 70 to 104°F	41 to 60°C 106 to 140°F	61 to 90°C 142 to 194°F
1/2"	150	105	75		150	105	90	75	150	105	90	75
3/4"	150	105	75		150	105	90	75	150	105	90	75
1"	150	105	75		150	105	90	75	150	105	90	75
1-1/2"	150	105	75		150	105	90	75	150	105	90	75
2"	150	105	75		150	105	90	75	150	105	90	75
2-1/2"	150	105	75		150	105	90	75	150	105	90	75
3"	150	105	75		150	105	90	75	150	105	90	75
4"	150	105	75		145	105	90	75	150	105	90	75
5"	120	85	60		120	85	70	60	120	85	70	60
6"	105	75	55		102	75	65	55	105	75	65	55
8"	75	55	40		75	55	45	40	75	55	45	40
10"	–	–	–		–	–	–	–	–	–	–	–

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

WORKING PRESSURES

Body	Polypropylene								PVDF			
Diaph.	EPDM				PTFE				EPDM/PTFE			
Size	0 to 20°C 32 to 68°F	21 to 40°C 70 to 104°F	41 to 60°C 106 to 140°F	61 to 90°C 142 to 194°F	0 to 20°C 32 to 68°F	21 to 40°C 70 to 104°F	41 to 60°C 106 to 140°F	61 to 90°C 142 to 194°F	0 to 20°C 32 to 68°F	21 to 40°C 70 to 104°F	41 to 60°C 106 to 140°F	61 to 90°C 142 to 194°F
1/2"	150	105	90	75	150	105	90	75	150	105	90	75
3/4"	150	105	90	75	150	105	87	75	150	105	90	75
1"	150	105	90	75	150	105	87	75	150	105	90	75
1-1/2"	150	105	90	75	150	105	87	75	150	105	90	75
2"	150	105	90	75	150	105	87	75	150	105	90	75
2-1/2"	150	105	90	75	150	105	87	75	150	105	90	75
3"	150	105	90	75	150	105	87	75	150	105	90	75
4"	150	105	90	75	150	105	87	75	150	105	90	75
5"	116	85	70	75	120	85	70	75	120	85	70	60
6"	80	56	48	40	80	60	50	40	105	75	65	55
8"	75	51	44	40	75	55	45	40	75	55	45	40
10"	–	–	–	–	–	–	–	–	–	–	–	–

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

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Cv VALUES VS. OPENING

Size	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%	Turns to Open
1/2"	0.48	0.96	1.44	2.16	2.88	3.36	4.08	4.32	4.56	4.8	6.0
3/4"	0.53	1.06	1.59	2.39	3.18	3.71	4.51	4.77	5.04	5.3	4.5
1"	0.85	1.7	2.55	3.83	5.10	5.95	7.23	7.65	8.08	8.5	4.5
1-1/2"	2.6	5.2	7.8	11.7	15.6	18.2	22.10	23.4	24.70	26	5.0
2"	4.3	8.6	12.9	19.4	25.8	30.1	36.55	38.7	40.85	43	6.5
2-1/2"	17	34	42.5	59.5	68	72.3	76.5	80.75	82.45	85	8.0
3"	23	46	57.5	80.5	92	97.8	103.5	109.25	111.55	115	7.5
4"	37	74	92.5	129.5	148	157.3	166.5	175.75	179.45	185	10.0
5"	60	105	165	210	240	270	285	292.5	300	300	9.0
6"	80	140	220	280	320	360	380	390	400	400	11.5
8"	140	245	385	490	560	630	665	682.5	700	700	17.5
10"	200	350	550	700	800	900	950	975	1,000	1,000	18.0

BOLT TORQUES

Size	Maximum Flange Bolt Torque ft-lb	Bonnet Bolt Torque ft-lb
1/2"	3.6	5.8
3/4"	3.6	10.2
1"	3.6	10.2
1-1/2"	3.6	14.5
2"	7.3	14.5
2-1/2"	7.3	14.5
3"	13.0	23.9
4"	14.5	43.4
5"	36.2	43.4
6"	43.4	43.4
8"	50.6	43.4
10"	57.9	43.4

ORDERING EXAMPLE

Chemline Type 16 Diaphragm Valves			16	–	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 – PTFE	V – FKM (Vitron®)					
Ends	F – Flanged							

Example: Chemline Type 16 Weir Type Diaphragm Valve, PVC, 2", PTFE diaphragm, flanged ends.

OPTIONS & ACCESSORIES

- **PVDF Gas Barrier** for PTFE diaphragm 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 (212 to 248°F)
- **Chain Wheel Operator**
- **Municipal Operating Nut**
- **Handwheel Extension**
- **Handwheel Lockout**

Type 16.DS.02.10.2026