

Diaphragm Valve Type 14, 15, 72

Electrolytic Model & EL Model



Features

- Near-linear flow characteristics.
- A new type rubber having a high reliability in leakage prevention is used for the diaphragm and cushion.
- The original design achieves high sealing performance with low torque.
- Bayonet structure allowing quick diaphragm replacement.
- Equipped with a bottom stand allowing easy and secure replacement.

Basic specifications

- Valve Type : Diaphragm Valve Type 14, 15, 72 (Electrolytic Model & EL Model)
- Size : 15 mm - 250 mm (1/2 inch – 10 inch)
- Body Material : PVDF (Conforming to ASTM D3222 Cell Classification Type II)
EL-PVDF (Conforming to ASTM D3222 Cell Classification Type II)
- Seal Material / Diaphragm : PTFE, EL-PTFE
- Connection / Flanged end : JIS B2220, DIN PN10, ANSI B16.5 CLASS150

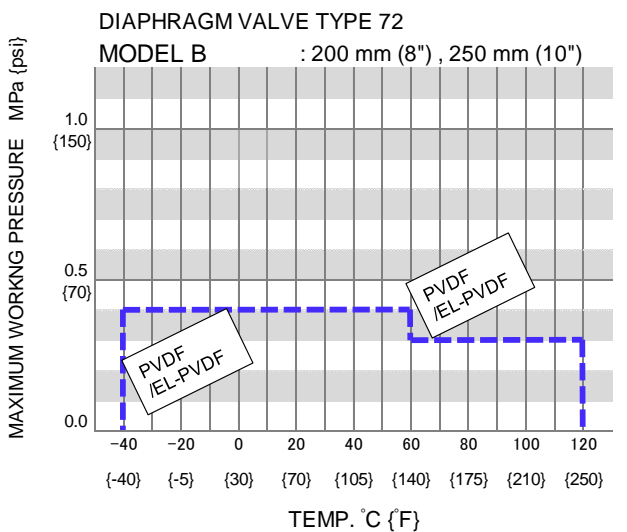
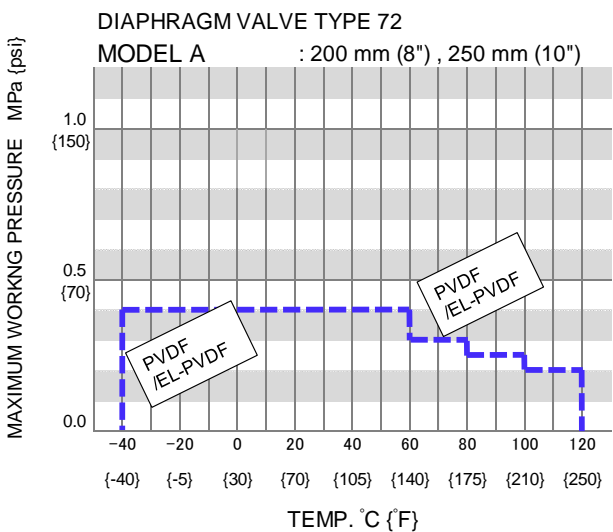
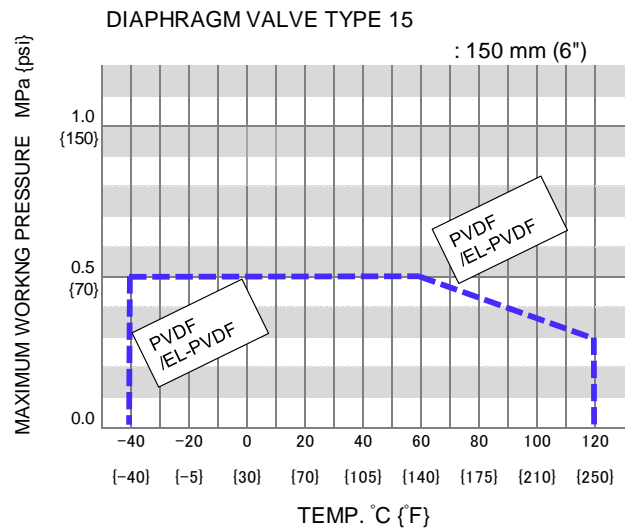
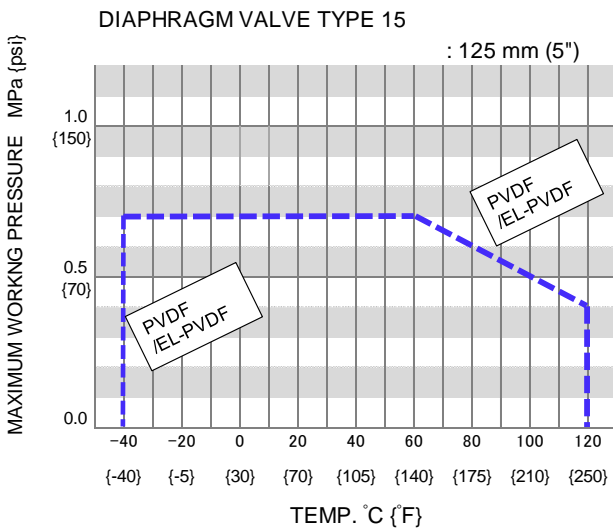
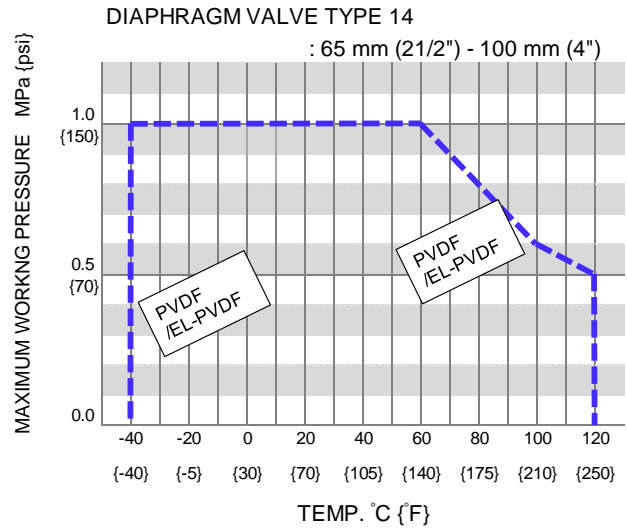
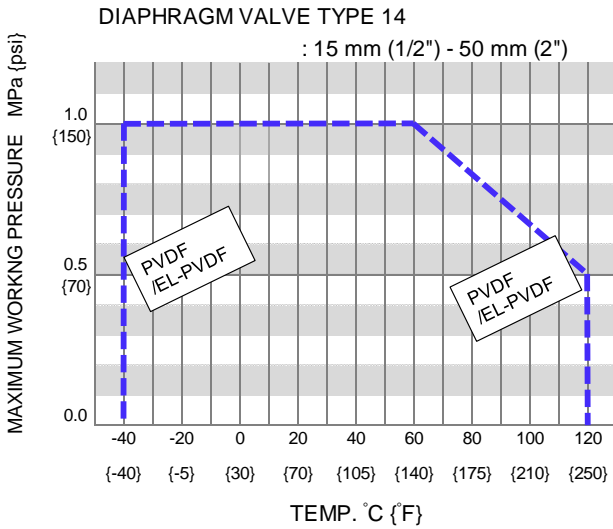
Body Material	Ambient Temperature °C { °F }	Fluid Temperature °C { °F }	Working pressure (Normal temperature) MPa { psi }	Connection method
				Flanged
PVDF /EL-PVDF	-10 ~ 50 { 14 ~ 122 }	-40 ~ 120 { -40~250 }	1.0 { 150 }	○

Note : - The maximum design pressure is the value including the water hammer pressure.

Be careful that maximum design pressure is not exceeded during use.

- The diaphragm may become loose due to temperature changes during long storage, operation stop or while in use. Check the conditions and then retighten the bolts and nuts between the bonnet and the body to the "bonnet tightening torque". (Failure to do so may cause fluid leakage.)

Working pressure vs. Temperature

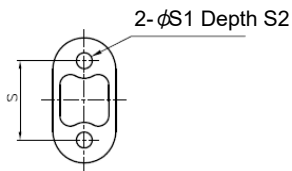
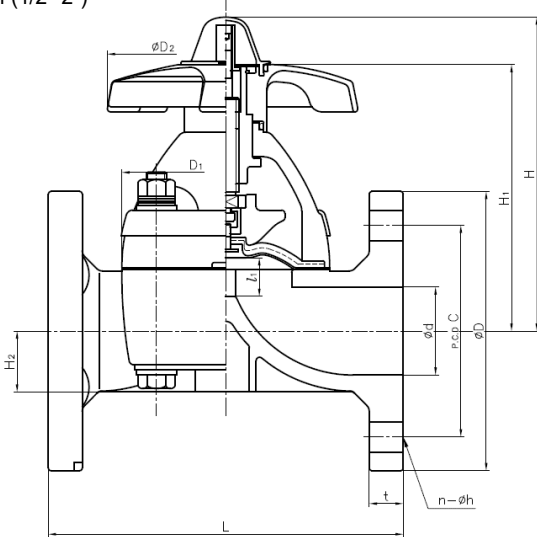


Note : Make sure that the temperature and pressure are within the working range during operation.
(If the tolerance range is exceeded during use, the valve may be damaged.)

Product dimension

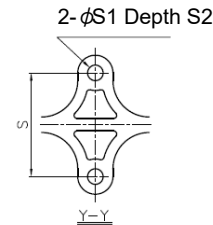
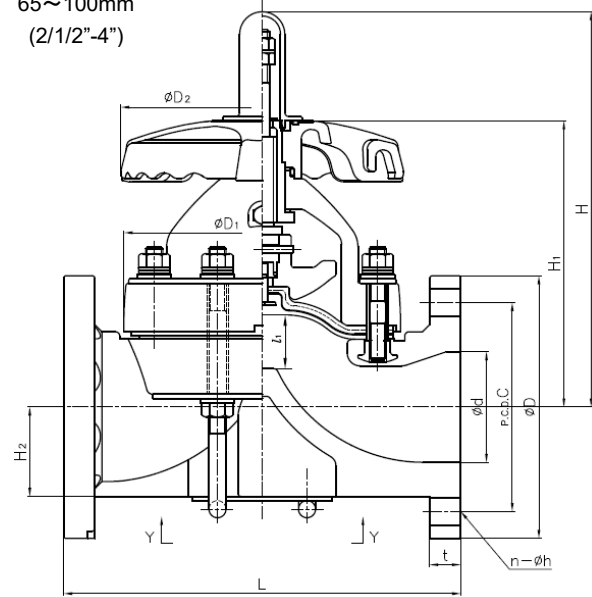
[DIAPHRAGM VALVE TYPE 14]

15~50mm (1/2"-2")



Detail of Holes for Metallic Insert.

65~100mm
(2 1/2"-4")



Detail of Holes for Metallic Insert.

■ JIS10K, DIN PN10 (Unit :mm)

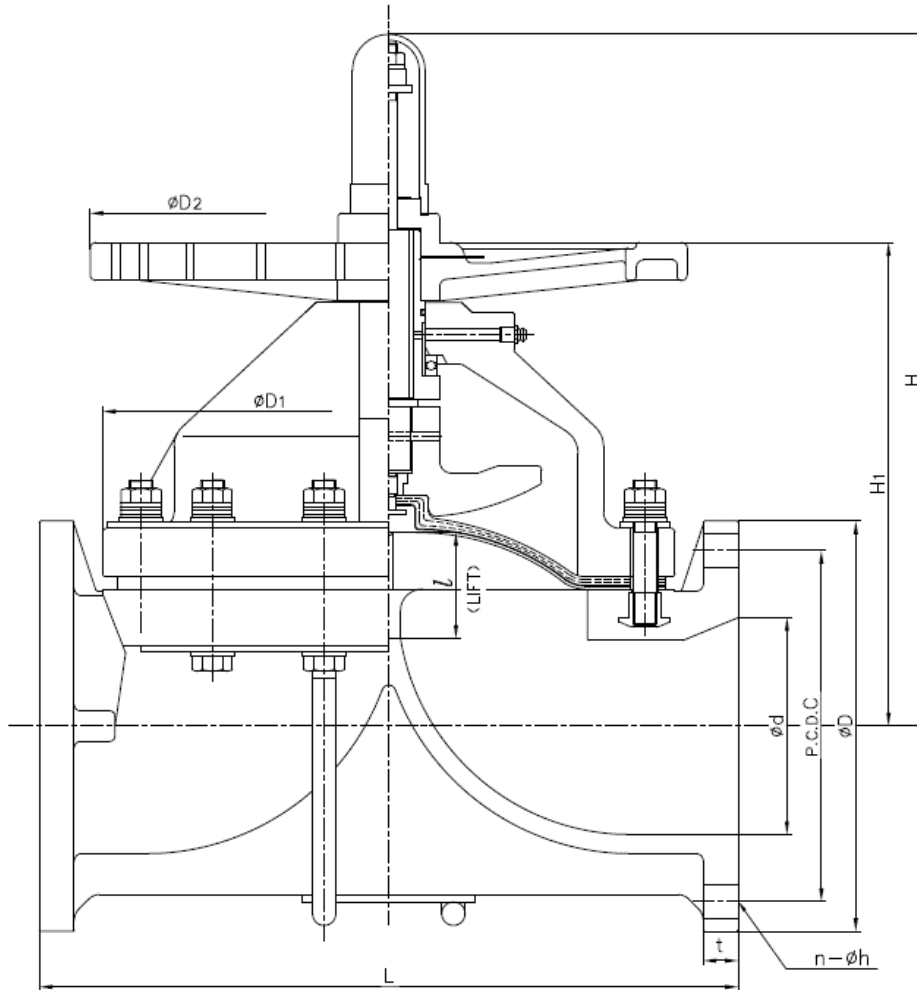
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15	1/2	16	54x66	100	10	104	86	19.5	25	7	13	95	70	4	15	110	12	95	65	4	14	130	12
20	3/4	20	54x66	100	10	106	88	17.5	25	7	13	100	75	4	15	120	13	105	75	4	14	150	13
25	1	25	67x80	100	12	111	93	18.5	25	7	13	125	90	4	19	130	13	115	85	4	14	160	13
32	1 1/4	32	67x80	100	12	116	97	22.5	25	7	13	135	100	4	19	142	16	140	100	4	18	180	16
40	1 1/2	40	108x108	156	21	177	144	27.5	45	9	15	140	105	4	19	180	16	150	110	4	18	200	20
50	2	52	123x123	156	25	191	158	36	45	9	15	155	120	4	19	210	20	165	125	4	18	230	22
65	2 1/2	67	175	220	34	266	188	61	85	11	20	175	140	4	19	250	23	185	145	4	18	290	22
80	3	78	201	220	42	280	202	63	100	15	28	185	150	8	19	280	23	200	160	8	18	310	24
100	4	100	241	257	50	329	241	78	120	15	28	210	175	8	19	340	24	220	180	8	18	350	26

■ ANSICLASS150 (Unit :inch)

														ANSI CLASS150				
inch	mm	d	D ₁	D ₂	ℓ ₁	H	H ₁	H ₂	S	S ₁	S ₂	D	C	n	h	L		t
																Grinnell standard	AV standard	
1/2	15	0.63	2.13x2.60	3.94	0.39	4.09	3.39	0.77	0.98	0.28	0.51	3.50	2.38	4	0.62	4.25	4.33	0.43
3/4	20	0.79	2.13x2.60	3.94	0.39	4.17	3.46	0.69	0.98	0.28	0.51	3.88	2.75	4	0.62	5.88	4.72	0.51
1	25	0.98	2.64x3.15	3.94	0.47	4.37	3.66	0.73	0.98	0.28	0.51	4.25	3.12	4	0.62	5.88	5.12	0.59
1 1/4	32	1.26	2.64x3.15	3.94	0.47	4.57	3.82	0.89	0.98	0.28	0.51	4.62	3.50	4	0.62	6.38	-	0.63
1 1/2	40	1.57	4.25x4.25	6.14	0.83	6.97	5.67	1.08	1.77	0.35	0.59	5.00	3.88	4	0.62	6.94	7.09	0.63
2	50	2.05	4.84x4.84	6.14	0.98	7.52	6.22	1.42	1.77	0.35	0.59	6.00	4.75	4	0.75	7.94	8.27	0.79
2 1/2	65	2.64	6.89	8.66	1.34	10.47	7.40	2.40	3.35	0.43	0.79	7.00	5.50	4	0.75	-	9.84	0.91
3	80	3.07	7.91	8.66	1.65	11.02	7.95	2.48	3.94	0.59	1.10	7.50	6.00	4	0.75	10.37	11.02	0.91
4	100	3.94	9.49	10.12	1.97	12.95	9.49	3.07	4.72	0.59	1.10	9.00	7.50	8	0.75	12.93	13.39	0.94

[DIAPHRAGM VALVE TYPE 15]

125mm (5"), 150mm (6")



■ JIS, DIN (Unit: mm)

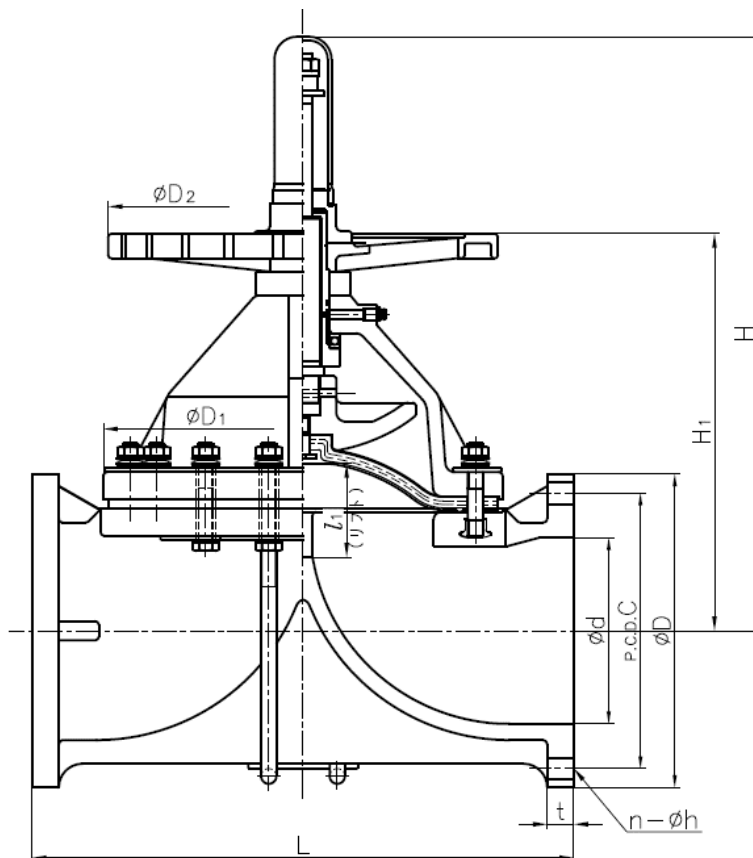
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mm	inch	d	D ₁	D ₂	l	H	H ₁	D	C	n	h	L	t	D	C	n	h	L	t
125	5	125	320	300	60	420	308	250	210	8	23	410	24	250	210	8	18	400	23
150	6	148	385	410	70	476	334	280	240	8	23	480	27	285	240	8	22	480	27

■ ANSI (Unit: inch)

								ANSI CLASS150					
inch	mm	d	D ₁	D ₂	l	H	H	D	C	n	h	L	t
5	125	4.92	12.60	11.81	2.36	16.54	12.13	10.00	8.50	8	0.88	16.14	0.94
6	150	5.83	15.16	16.14	2.76	18.74	13.15	11.00	9.50	8	0.88	18.90	1.06

[DIAPHRAGM VALVE TYPE 72]

200mm (8"), 250mm (10")



■ JIS, DIN (Unit: mm)

								JIS10K						DIN PN10					
mm	inch	d	D ₁	D ₂	ℓ	H ₁	H	D	C	n	h	L	T	D	C	n	h	L	T
200	8	196	430	410	95	419	627	330	290	12	23	570	32	295	340	8	22	600	34
250	10	247	540	560	128	510	778	400	355	12	25	680	37	350	395	12	22	730	36

■ ANSI (Unit: inch)

								ANSI CLASS 150					
inch	mm	d	D ₁	D ₂	ℓ	H	H ₁	D	C	n	h	L	t
8	200	7.72	16.93	16.14	3.74	16.50	24.69	13.50	11.75	8	0.88	22.44	1.26
10	250	9.72	21.26	22.05	5.04	20.08	30.63	16.00	14.25	12	1.00	26.77	1.46

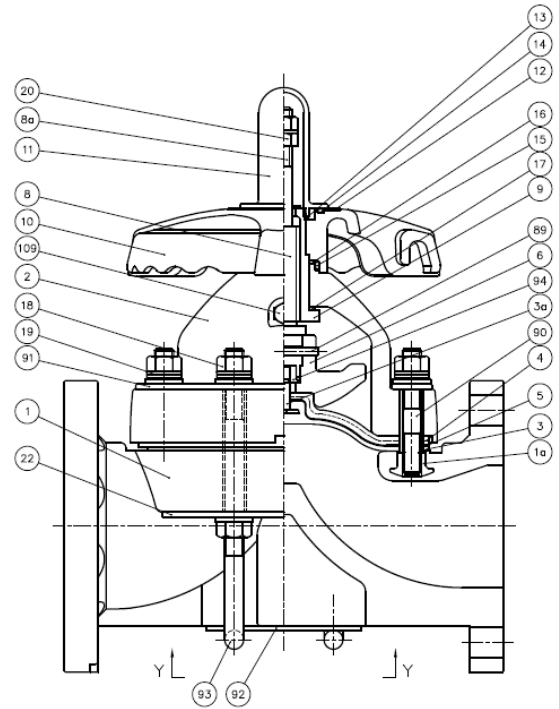
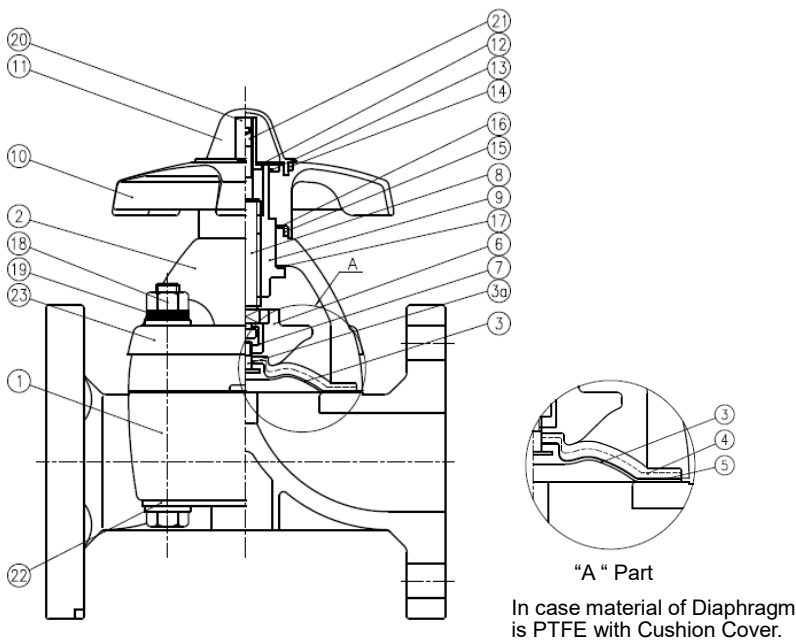
Parts list

[DIAPHRAGM VALVE TYPE 14]

15-100mm (1/2" – 4")

15-50mm (1/2"-2")

65-100mm (2 1/2"-4")



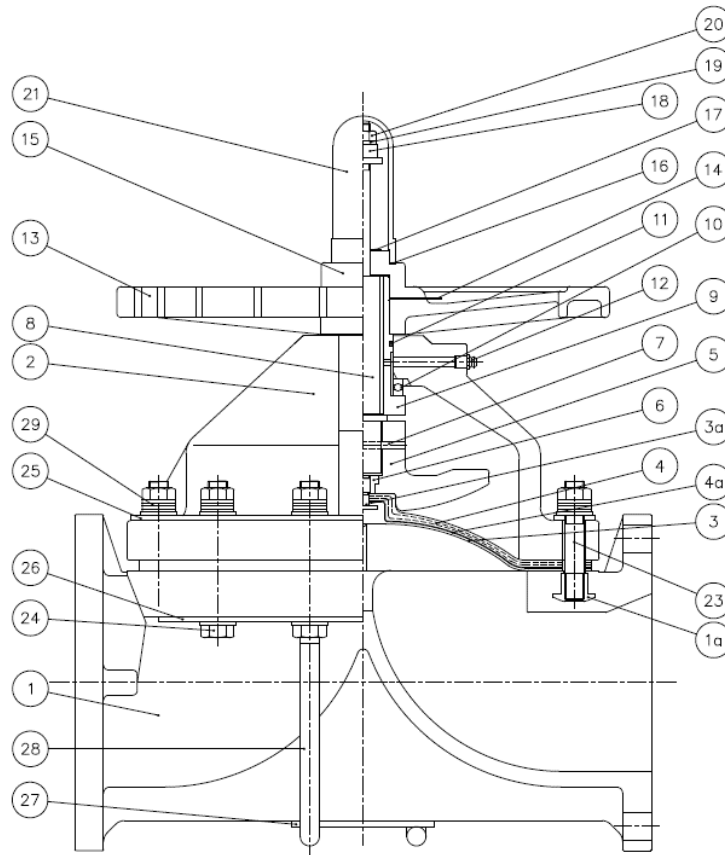
PART NO./NAME	QTY	MATERIAL	PART NO./NAME	QTY	MATERIAL	PART NO./NAME	QTY	MATERIAL
1 BODY	1	PVDF, EL-PVDF	11 GAUGE COVER	1	PC	21 SCREW ⁽¹⁾	1	Cr.Mo.STEEL
2 BONNET	1	PPG, PVDF	12 NAME PLATE	1	PVC	22 BODY LINER	2	STAINLESS STEEL
3 DIAPHRAGM	1	PTFE, EL-PTFE	13 RETAINING RING-C TYPE	1	STAINLESS STEEL	23 LINER ⁽¹⁾⁽³⁾	1	STAINLESS STEEL
3a INSERTED METAL OF DIAPHRAGM	1	Ti (Pd) Threaded Type	14 O-RING (A)	1	EPDM	89 COMPRESSOR PIN ⁽²⁾	1	Ti (Pd)
4 CUSHION	1	EPDM	15 O-RING (B)	1	EPDM	90 STUD BOLT · NUT ⁽²⁾	4	STAINLESS STEEL
5 CUSHION COVER	1	PVDF	16 THRUST RING (A)	1	UHMWPE	91 UPPER BONNET LINER ⁽²⁾	1set	STAINLESS STEEL
6 COMPRESSOR	1	PVDF	17 THRUST RING (B)	1	UHMWPE	92 RIB LINER ⁽²⁾	1	STAINLESS STEEL
7 JOINT ⁽¹⁾	1	STAINLESS STEEL	18 BOLT · NUT (A)	4set	STAINLESS STEEL	93 U-BOLT · NUT ⁽²⁾	2set	STAINLESS STEEL
8 STEM	1	COPPER ALLOY	19 CONICAL SPRING WASHER (A)	4set 8set	STAINLESS STEEL ⁽¹⁾ STAINLESS STEEL ⁽²⁾	94 METAL OF COMPRESSOR ⁽²⁾	1	Ti (Pd)
8a INDICATOR ROD ⁽²⁾	1	STAINLESS STEEL	20 STOPPER	1	COPPER ALLOY ⁽¹⁾ STAINLESS STEEL ⁽²⁾	109 NIPPLE ⁽²⁾	1	STAINLESS STEEL
9 SLEEVE	1	COPPER ALLOY				1a INSERTED NUT ⁽²⁾	4	STAINLESS STEEL
10 HANDLE WHELL	1	PP						

NOTE:

- (1) is used for sizes of 50mm or less.
- (2) is used for sizes of 65mm or more.
- (3) is used for PVDF Bonnet.

[DIAPHRAGM VALVE TYPE 15]

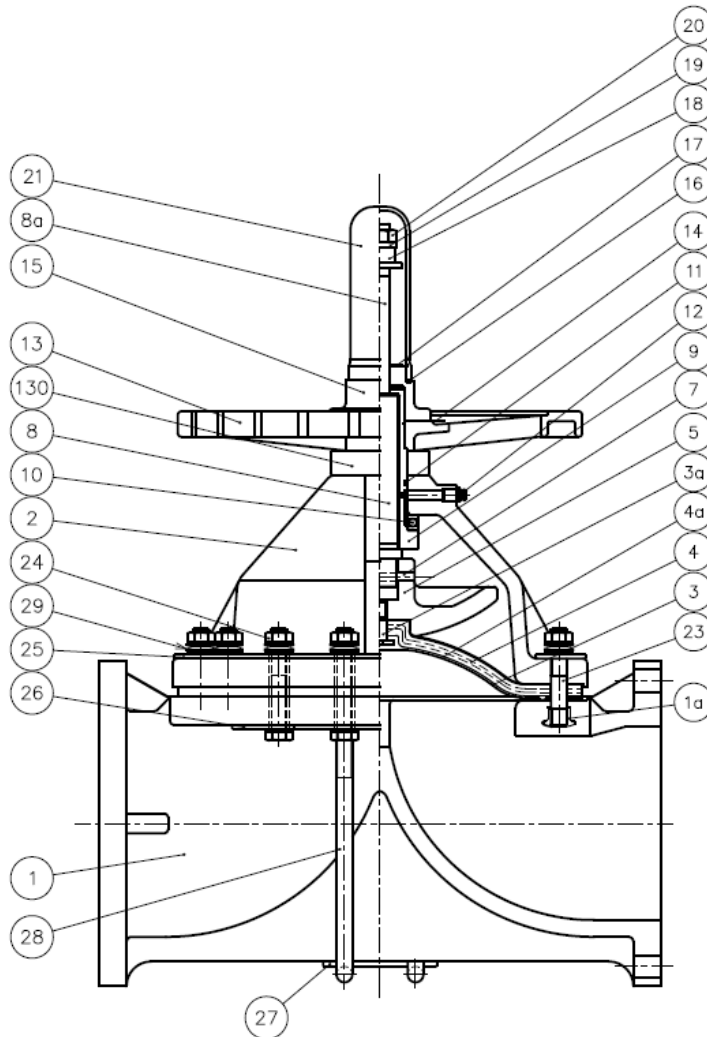
125mm (5"), 150mm (6")



PART NO./NAME	QTY	MATERIAL	PART NO./NAME	QTY	MATERIAL	PART NO./NAME	QTY	MATERIAL
1 BODY	1	PVDF, EL-PVDF	10 THRUST BEARING (A)	1	HIGH CARBON CHROMIUM BEARING	21 GAUGE COVER	1	PC
2 BONNET	1	PPG, PVDF	11 O-RING (A)	1	NBR	23 STUD BOLT-NUT	4Sets	STAINLESS STEEL
3 DIAPHRAGM	1	PTFE, EL-PTFE	12 GREASE NIPPLE	1	COPPER ALLOY	24 BOLT-NUT (A)	-	STAINLESS STEEL
3a INSERTED METAL OF DIAPHRAGM (A)	1	Ti (Pd)	13 HAND WHEEL	1	PP	25 UPPER BONNET LINER	1set	STAINLESS STEEL
4 CUSHION	1	EPDM	14 NAME PLATE	1	PVC	26 BODY LINER	1set	STAINLESS STEEL
4a CUSHION COVER	1	PVDF	15 CAP	1	PP	27 RIB LINER	1	STAINLESS STEEL
5 COMPRESSOR	1	PVDF	16 SHEET GASKET (A)	1	EPDM	28 U-BOLT-NUT	2set	STAINLESS STEEL
6 COMPRESSOR NUT	1	Ti (Pd)	17 SHEET RING	1	STAINLESS STEEL	29 CONICAL SPRING WASHER	-	STAINLESS STEEL
7 COMPRESSOR PIN	1	Ti (Pd)	18 STOPPER	1	chromized STEEL	1a INSERTED NUT	4	STAINLESS STEEL
8 STEM	1	COPPER ALLOY	19 SPRING WASHER	1	STAINLESS STEEL			
9 SLEEVE (A)	1	COPPER ALLOY	20 NUT	1	STAINLESS STEEL			

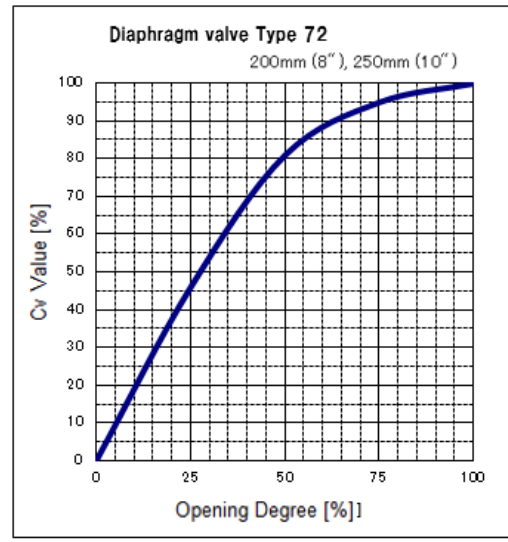
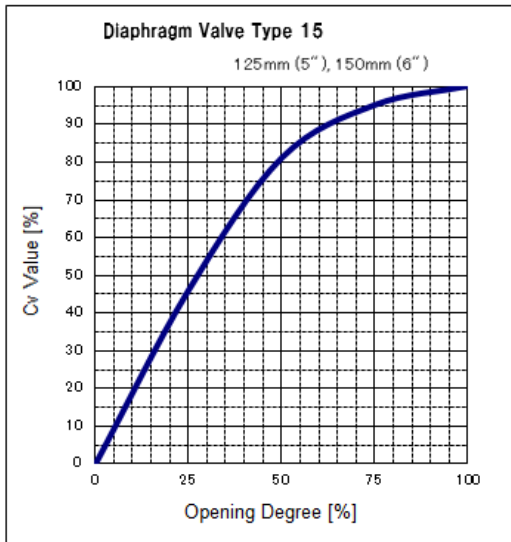
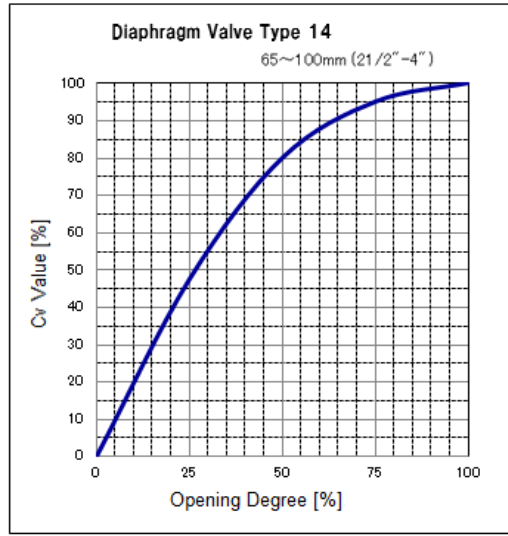
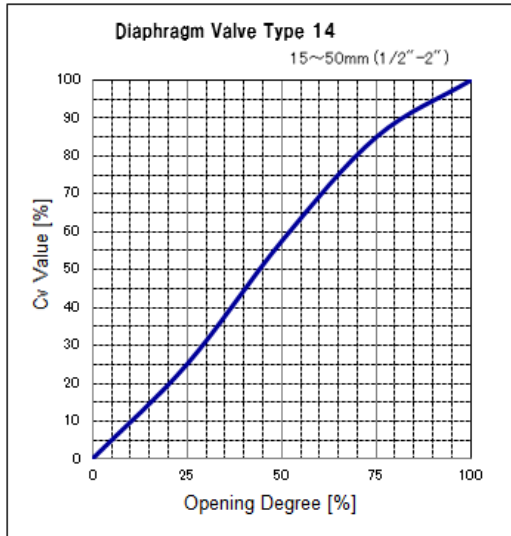
[DIAPHRAGM VALVE TYPE 72]

200mm (8"), 250mm (10")



PART NO./NAME	QTY	MATERIAL	PART NO./NAME	QTY	MATERIAL	PART NO./NAME	QTY	MATERIAL
1 BODY	1	PVDF, EL-PVDF	10 THRUST BEARING (A)	1	HIGH CARBON CHROMIUM BEARING	21 GAUGE COVER	1	PC
2 BONNET	1	PPG, PVDF	11 O-RING (A)	1	NBR	23 STUD BOLT·NUT	-	STAINLESS STEEL
3 DIAPHRAGM	1	PTFE, EL-PTFE	12 GREASE NIPPLE	1	COPPER ALLOY	24 BOLT·NUT (A)	4Sets	STAINLESS STEEL
3a INSERTED METAL OF DIAPHRAGM (A)	1	Ti (Pd)	13 HAND WHEEL	1	PP	25 UPPER BONNET LINER	1set	STAINLESS STEEL
4 CUSHION	1	EPDM	14 NAME PLATE	1	PVC	26 BODY LINER	1set	STAINLESS STEEL
4a CUSHION COVER	1	PVDF	15 CAP	1	PP	27 RIB LINER	1	STAINLESS STEEL
5 COMPRESSOR	1	Chromized CAST IRON	16 SHEET GASKET (A)	1	EPDM	28 U-BOLT·NUT	2set	STAINLESS STEEL
7 COMPRESSOR PIN	1	Ti (Pd)	17 SHEET RING	1	STAINLESS STEEL	29 CONICAL SPRING WASHER	-	STAINLESS STEEL
8 STEM	1	COPPER ALLOY	18 STOPPER	1	chromized STEEL	130 THRUST RING (B)	1	PP
8a INDICATOR ROD	1	STAINLESS STEEL	19 SPRING WASHER	1	STAINLESS STEEL	1a INSERTED NUT	-	STAINLESS STEEL
9 SLEEVE (A)	1	COPPER ALLOY	20 NUT	1	STAINLESS STEEL			

Cv value for each opening degree



FULL-OPEN Cv VALUE

mm	15	20	25	32	40	50	65	80	100	125	150	200	250
inch	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10
FULL-OPEN Cv VALUE	4.8	5.3	8.5	11	26	43	85	115	185	300	400	700	1000

The values shown are reference values, not guaranteed values.

Handle rotation [Full open (rotation/lift) Full close]

mm	15	20	25	32	40	50	65	80	100	125	150	200	250
inch	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10
ROTATION	3.3	3.3	4.0	4.0	5.0	6.0	9.0	10.0	10.0	10.0	11.0	19.0	25.0

Operating torque at maximum working pressure

Unit:N-m { ib-inch }

mm	15	20	25	32	40	50	65	80	100	125	150	200	250
inch	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10
Operating torque(O→S)	3.0 { 26.5 }	3.0 { 26.5 }	4.0 { 35.5 }	4.0 { 35.5 }	10 { 88.5 }	10 { 88.5 }	19 { 168 }	26 { 230 }	32 { 283 }	90 { 797 }	120 { 1062 }	130 { 1151 }	230 { 2036 }

Bonnet tightening torque

Unit:N-m { ib-inch }

mm	15	20	25	32	40	50	65	80	100	125	150	200	250
inch	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	5	6	8	10
PTFE/EL-PTFE DIAPHRAGM	5.0 { 44.5 }	5.0 { 44.5 }	8.0 { 71 }	8.0 { 71 }	15.0 { 133 }	20.0 { 177 }	15.0 { 133 }	20.0 { 177 }	40.0 { 354 }	45.0 { 400 }	45.0 { 400 }	30.0 { 266 }	30.0 { 266 }

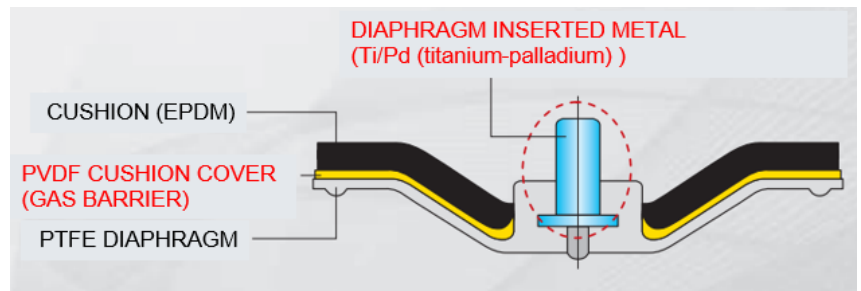
Product weight

Unit : kg

mm	inch	Body material		TYPE
		PVDF/EL-PVDF		
		Bonnet material		
		PPG	PVDF	
15	1/2	0.8	0.8	14
20	3/4	0.9	0.9	
25	1	1.2	1.3	
32	1 1/4	1.5	1.6	
40	1 1/2	2.9	3.1	
50	2	3.9	4.1	
65	2 1/2	6.0	6.5	
80	3	7.4	8.4	
100	4	12.5	13.1	
125	5	23.5	26.3	15
150	6	35.5	40.7	
200	8	57.3	62.3	72
250	10	97.6	110.2	

[Electrolytic Model]

For chlorine gas lines in electrolysis plants, we offer electrolytic options using highly corrosion resistant special metal to prevent corrosion of embedded diaphragm fittings.



[EL Model]

For lines in harsher conditions, we offer EL-Model comprising a main body (EL-PVDF) made of special materials and a PTFE diaphragm (EL-PTFE).

< Size >

15-100mm (1/2"-4") Standard model applicable

125-150mm (5"-6") Made-to-order

*For details, contact our sales office in your area.

< Field test result >

- Soda electrolysis plant / returned brine
- 88°C, 0.3 MPa, used for 5 years

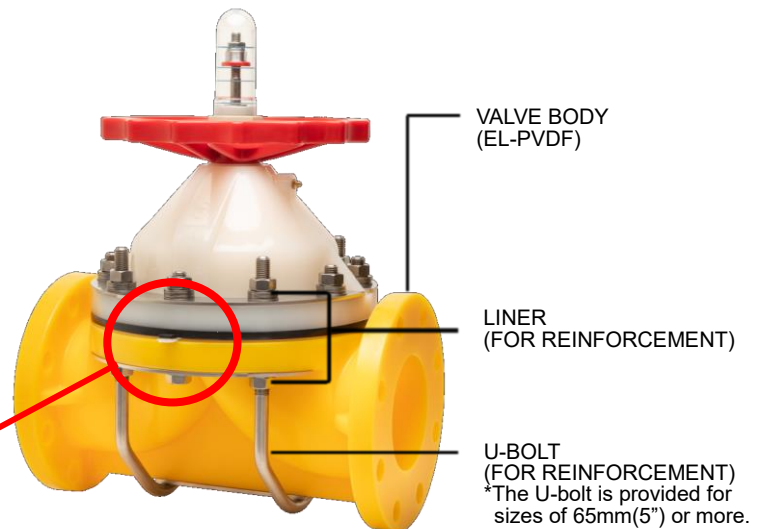
[EL-PVDF]

Without blister

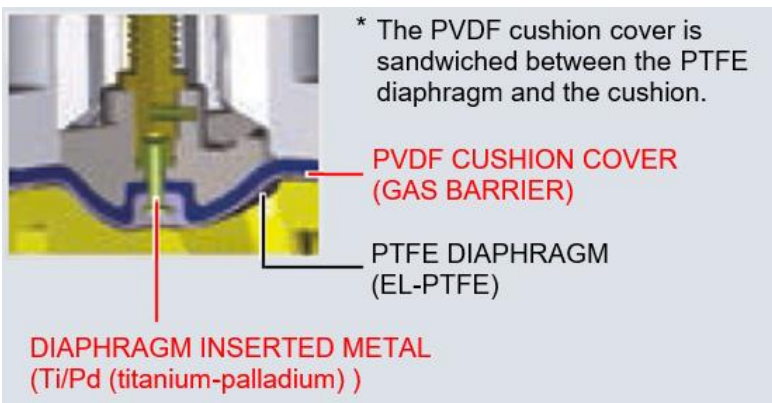


[PVDF]

With blister



EL TYPE OUTLINE DIAPHRAGM



Product model code list

Diaphragm Valve Type 14, 15, 72

ACTUATION	TYPE	OPERATING SYSTEM	BODY MATERIAL	SEAL MATERIAL	CONNECTION	STANDARD	SIZE
V	* *	MH	*	*	F	*	***
V MANUAL VALVE	14 TYPE 14 15 TYPE 15 72 TYPE 72	MH ROUND HANDLE	F PVDF G PVDF+PPG X PVDF+EL+PPG Y PVDF+EL	D ELECTROLYTIC L EL	F FLANGED	J JIS D DIN A ANSI	015 15mm : 250 250mm

Note: * A handle set with a lock mechanism (for malfunction prevention) is available as an option.
(Used for 15mm (1/2") - 50mm (2") only.)

Installation, Operation and Maintenance Manual

For details of Installation, Operation and Maintenance , please contact our nearest distribution agent or sales office.