

# Diaphragm Valve Type 14

## 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
- Size : DN15, 20, 25, 32, 40, 50, 65, 80, 100
- Body Material : U-PVC (Conforming to ASTM D1784 Cell Classification 12454A)  
C-PVC (Conforming to ASTM D1784 Cell Classification 23567-A)  
PP (Conforming to ASTM D4101 Cell Classification PP0210B67272)  
PVDF (Conforming to ASTM D3222 Cell Classification Type II)
- Seal Material / Diaphragm : EPDM, PTFE, FKM, Viflon<sup>®</sup> etc.
- Connection / Flanged end : JIS B2220 10K, DIN/EN1092-1 PN10, ANSI B16.5 CLASS150

Body Material	Ambient Temperature °C { °F }	Fluid Temperature °C { °F }	Working Pressure (Normal temperature) MPa { psi }	Design Pressure (Normal temperature) MPa { psi }	Connection method
					Flanged
U-PVC	-10 ~ 50 { 14 ~ 122 }	0 ~ 60 { 30~140 }	1.0 { 150 }	1.6 { 230 }	○
C-PVC	-10 ~ 50 { 14 ~ 122 }	0 ~ 90 { 30~195 }	1.0 { 150 }	1.6 { 230 }	○
PP	-10 ~ 50 { 14 ~ 122 }	-20 ~ 90 { -5~195 }	1.0 { 150 }	1.6 { 230 }	○
PVDF	-10 ~ 50 { 14 ~ 122 }	-40 ~ 120 { -40~250 }	1.0 { 150 }	1.6 { 230 }	○

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

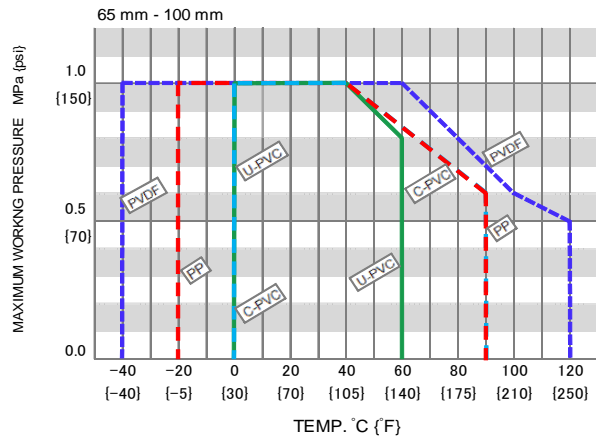
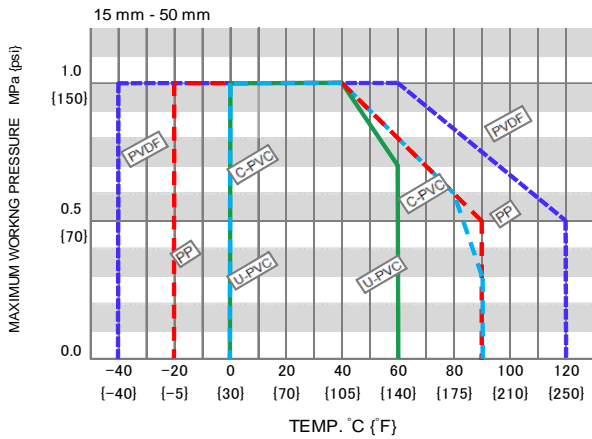
Be careful that maximum design pressure is not exceeded during use.

- 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.)

## Certificate / Approval

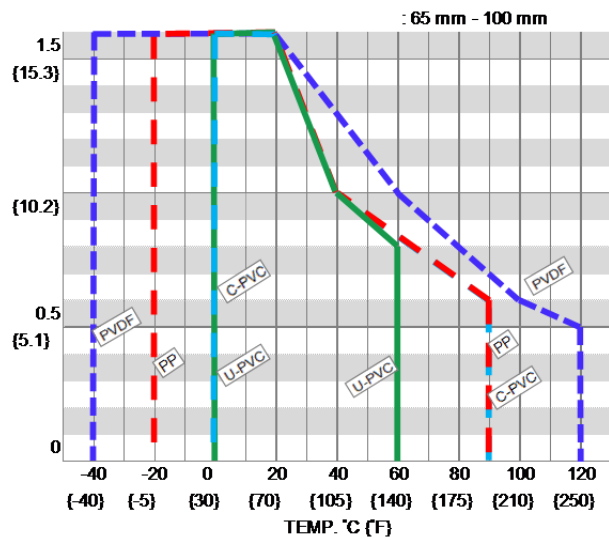
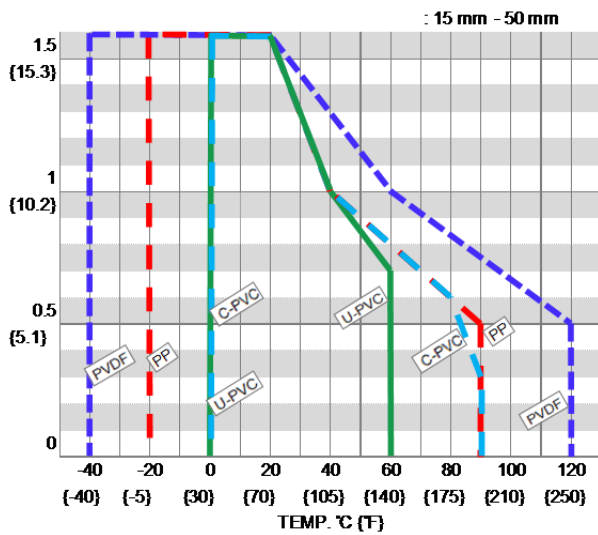
**PED** "For details of applicable products, please consult us."

## Working pressure vs. Temperature



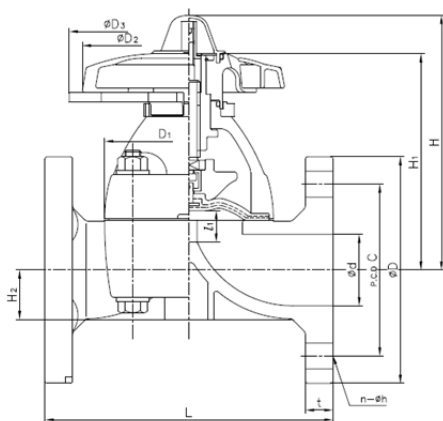
Note : Make sure that the temperature and pressure are within the working range during operation.  
(If the tolerance range is exceeded during use, the valve may be damaged.)

## Design pressure vs. Temperature



## Product dimension

15~50mm



With HANDLE LOCK

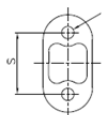


The lock is not attached.

<Size of Lock>

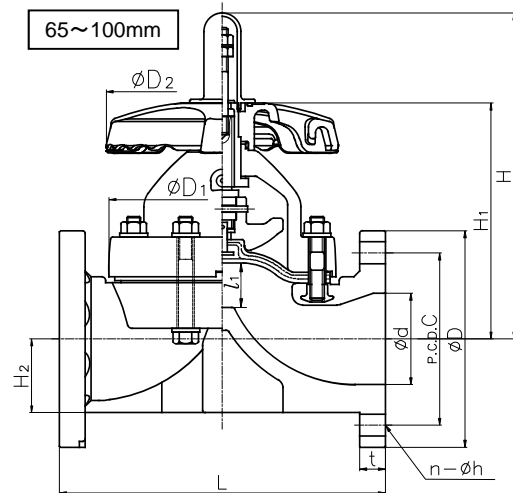
Nominal Size mm (inch)	A mm (inch)
15 ~ 32 (1/2" - 1 1/4")	5 (0.20")
40 ~ 50 (1 1/2" - 2")	6 (0.24")

2- $\phi$ S1  
Depth

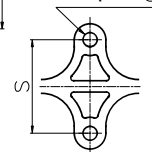


Details of ENSAT  
Fitting mounting hole

65~100mm



2- $\phi$ S1  
Depth  
S2



Details of ENSAT  
Fitting mounting hole

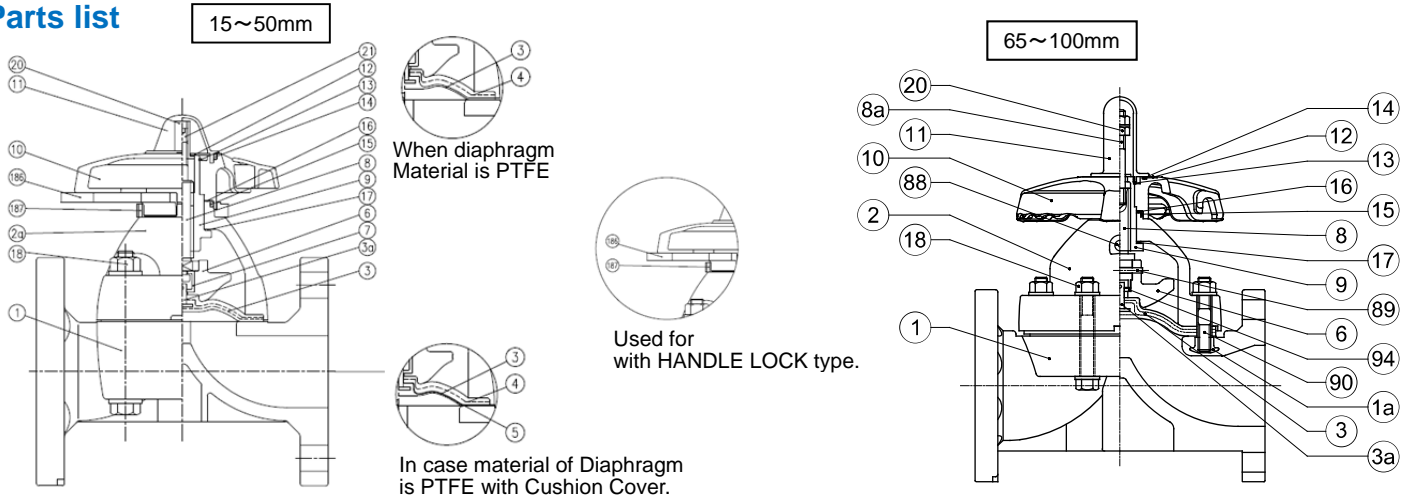
■ JIS10K, DIN PN10 (Unit :mm)

													JIS10K					DIN PN10								
mm	inch	d	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	ℓ <sub>1</sub>	H	H <sub>1</sub>	H <sub>2</sub>	S	S <sub>1</sub>	S <sub>2</sub>	D	C	n	h	L	t		D	C	n	h	L	t	
																		U-PVC C-PVC	PP PVDF						U-PVC C-PVC	PP PVDF
15	1/2	16	54×66	100	120	10	104	86	19.5	25	7	13	95	70	4	15	110	12	12	95	65	4	14	130	12	12
20	3/4	20	54×66	100	120	10	106	88	17.5	25	7	13	100	75	4	15	120	13	13	105	75	4	14	150	13	13
25	1	25	67×80	100	120	12	111	93	18.5	25	7	13	125	90	4	19	130	13	13	115	85	4	14	160	13	13
32	1 1/4	32	67×80	100	120	12	116	97	22.5	25	7	13	135	100	4	19	142	16	16	140	100	4	18	180	16	16
40	1 1/2	40	108×108	156	187	21	177	144	27.5	45	9	15	140	105	4	19	180	16	16	150	110	4	18	200	20	20
50	2	52	123×123	156	187	25	191	158	36	45	9	15	155	120	4	19	210	20	20	165	125	4	18	230	22	22
65	2 1/2	67	175	220	-	34	266	188	61	85	11	20	175	140	4	19	250	22	23	185	145	4	18	290	22	22
80	3	78	201	220	-	42	280	202	63	100	15	28	185	150	8	19	280	22	23	200	160	8	18	310	24	24
100	4	100	241	257	-	50	329	241	78	120	15	28	210	175	8	19	340	22	24	220	180	8	18	350	24	26

■ ANSI CLASS150 (Unit :inch)

													ANSI CLASS150							
inch	mm	d	D <sub>1</sub>	D <sub>2</sub>	D <sub>3</sub>	ℓ <sub>1</sub>	H	H <sub>1</sub>	H <sub>2</sub>	S	S <sub>1</sub>	S <sub>2</sub>	D	C	n	h	L		t	
																	Grinnell standard	AV standard	PVC C-PVC	PP PVDF
1/2	15	0.63	2.13×2.60	3.94	4.72	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	0.43
3/4	20	0.79	2.13×2.60	3.94	4.72	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	0.51
1	25	0.98	2.64×3.15	3.94	4.72	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	0.59
1 1/4	32	1.26	2.64×3.15	3.94	4.72	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	0.63
1 1/2	40	1.57	4.25×4.25	6.14	7.36	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	0.63
2	50	2.05	4.84×4.84	6.14	7.36	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	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	0.87	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	0.87	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	0.87	0.94

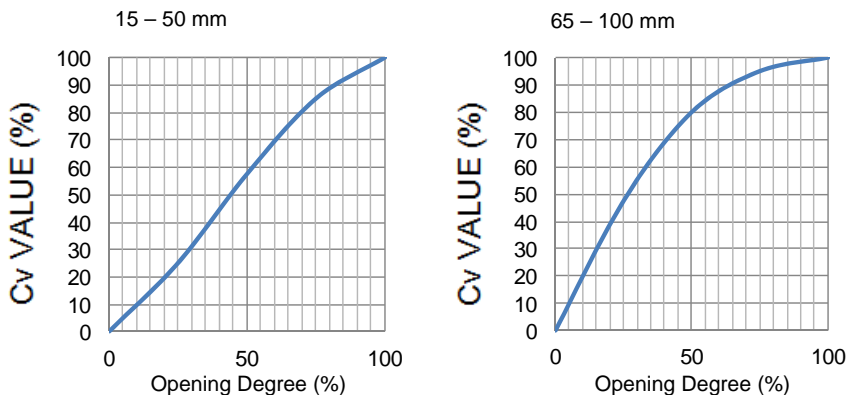
Parts list



PART NO./NAME	QTY	MATERIAL	PART NO./NAME	QTY	MATERIAL	PART NO./NAME	QTY	MATERIAL
1 BODY	1	BODY / BONNET	7 JOINT FITTING <sup>(3)</sup>	1	STAINLESS STEEL	20 STOPPER ( A )	1	COPPER ALLOY
		U-PVC / U-PVC	8 STEM	1	COPPER ALLOY	21 SCREW <sup>(3)</sup>	1	Cr.Mo.STEEL
		C-PVC / PP	8a DISPLAY LOT <sup>(4)</sup>	1	COPPER ALLOY	88 GREASE NIPPLE <sup>(4)</sup>	1	COPPER ALLOY
2 BONNET	1	PP / PP	9 SLEEVE	1	COPPER ALLOY	89 COMPRESSOR PIN <sup>(4)</sup>	1	STAINLESS STEEL
		PVDF / PPG <sup>(1)</sup>	10 HAND	1	PP	90 STUD BOLT / NUT <sup>(4)</sup>	4	STAINLESS STEEL
		PVDF / PVDF	11 GAUGE COVER	1	PC	94 METAL OF COMPRESSOR	1	STAINLESS STEEL
3 DIAPHRAGM	1	EPDM, PTFE, FKM, VIFLON®, etc.	12 NAME PLATE	1	PVC	186 LOCKING LEVER	1	ABS
3a INSERTED METAL OF DIAPHRAGM	1	STAINLESS STEEL	13 C-SHAPED STOP RING	1	STAINLESS STEEL			Used for with handle lock
4 CUSHION	1	EPDM	14 O-RING ( A )	1	EPDM	187 LOCKING PLATE	1	ABS
5 CUSHION COVER <sup>(2)</sup>	1	PVDF	15 O-RING ( B )	1	EPDM			Used for with handle lock
6 COMPRESSOR	1	PVDF	16 THRUST RING ( A )	1	UHMWPE	1a STUD NUT <sup>(4)</sup>	4	COPPER ALLOY <sup>(5)</sup>
			17 THRUST RING ( B )	1	UHMWPE			STAINLESS STEEL <sup>(6)</sup>
			18 BOLT-NUT ( A )	4Sets	STAINLESS STEEL			

Note : - (1) Bonnet PPG 15-100mm. (2) is used when the diaphragm material is PTFE.  
 (3) is used for sizes of 50mm or less. (4) is used for sizes of 65mm or more.  
 (5) is used when the body material is U-PVC, C-PVC or PP. (6) is used when the body material is PVDF.

Cv value for each opening degree



mm	15	20	25	32	40	50	65	80	100
inch	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
FULL-OPEN Cv VALUE	4.8	5.3	8.5	11	26	43	85	115	185

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

SIZE		ROTATION	SIZE		ROTATION
mm	inch		mm	inch	
15	1/2	3.3	50	2	6.0
20	3/4	3.3	65	2 1/2	9.0
25	1	4.0	80	3	10.0
32	1 1/4	4.0	100	4	10.0
40	1 1/2	5.0			

## Operating torque at maximum working pressure

Unit:Nm { ib-inch }

mm	15	20	25	32	40	50	65	80	100
inch	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
Operating torque(O→S)	3.0	3.0	4.0	4.0	10	10	19	26	32
	{ 26.5 }	{ 26.5 }	{ 35.5 }	{ 35.5 }	{ 88.5 }	{ 88.5 }	{ 168 }	{ 230 }	{ 283 }

## Bonnet tightening torque

Unit:Nm { ib-inch }

mm	15	20	25	32	40	50	65	80	100
inch	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
RUBBER	3.0	3.0	5.0	5.0	12.0	15.0	13.0	18.0	35.0
DIAPHRAGM	{ 26.5 }	{ 26.5 }	{ 44.5 }	{ 44.5 }	{ 106 }	{ 133 }	{ 115 }	{ 159 }	{ 310 }
PTFE	5.0	5.0	8.0	8.0	15.0	20.0	15.0	20.0	40.0
DIAPHRAGM	{ 44.5 }	{ 44.5 }	{ 71 }	{ 71 }	{ 133 }	{ 177 }	{ 133 }	{ 177 }	{ 354 }

## Product weight

Unit : kg

mm	inch	Body material				
		U-PVC	C-PVC	PP	PVDF	PVDF
		Bonnet material				
		U-PVC	PP	PP	PPG	PVDF
15	1/2	0.7	0.7	0.6	0.8	0.8
20	3/4	0.8	0.8	0.6	0.9	0.9
25	1	1.1	1.1	0.8	1.2	1.3
32	1 1/4	1.4	1.4	1.0	1.5	1.6
40	1 1/2	2.8	2.7	2.2	2.9	3.1
50	2	3.6	3.5	2.8	3.9	4.1
65	2 1/2	5.6	5.3	4.2	6.0	6.5
80	3	7.4	7.2	5.4	7.4	8.4
100	4	11.5	12.6	8.3	12.5	13.1

### Options

In addition to the standard product, the following options are also available according to your requirements.

Option name	Parts name	15	20	25	30	40	50	65	80	100
		1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
① With cushion cover	PVDF cushion cover	○	○	○	○	○	○	○	○	○
② Spec "B" model	Upper & lower liner	○	○	○	○	○	○	○	○	○
	Conical spring washer									
③ Electrolytic model (PVDF body type only)	Upper & lower liner									
	Conical spring washer	○	○	○	○	○	○		○	○
	Ti-Pd diaphragm insert							○	○	○
	U-bolt	-	-	-	-	-	-			
④ EL Model	EL-PVDF body									
	EL-PTFE diaphragm									
	Upper & lower liner	○	○	○	○	○	○		○	○
	Conical spring washer									
	Ti-Pd diaphragm insert									
	U-bolt	-	-	-	-	-	-			
⑤ With corrosion-resistant bolt	Titanium bolt & nut	○	○	○	○	○	○	○	○	○
⑥ Locking Device	Handle lock	○	○	○	○	○	○	-	-	-

### Locking Device

#### Operating Procedure

- Do not exert excessive force in turning the handle.(It can be deformed, or destroyed.)
- Please lock using a padlock for miss operation prevention.
- The valve is simple locked at the time of shipment.
- Please operate valve after release simple lock.
- Do not disassemble the LOCKING DEVICE. (Injury may occur.)

- 1- Push the release lever with the locking hole to release the simple lock.
- 2- Operate the valve to the desired valve lift.
- 3- Push the lock lever without the locking hole to lock the simple lock.
- 4- The location hole for the lock is already installed in the handle.  
Please lock using padlock as necessary. (Refer to Table 1 for the size of lock.)

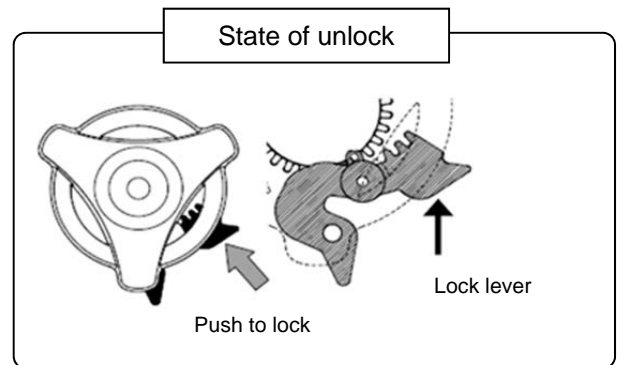
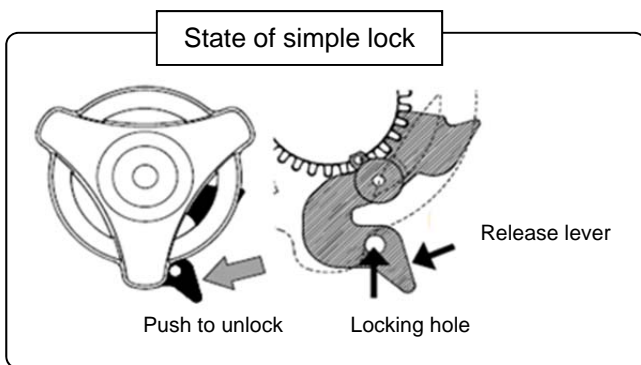
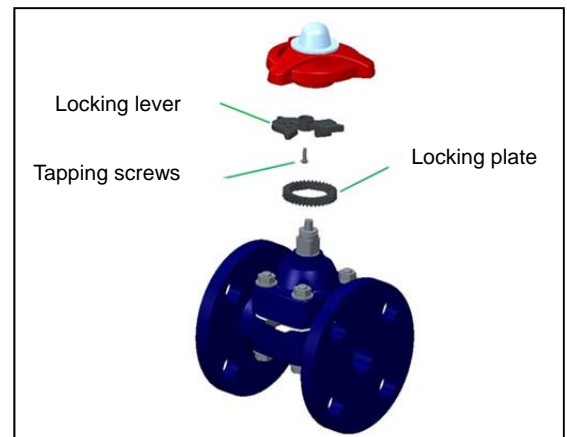


Table 1 <Size of Lock>

Nominal Size mm (inch)	A mm (inch)
15 ~ 32 ( 1/2" - 1 1/4" )	5 ( 0.20" )
40 ~ 50 ( 1 1/2" - 2" )	6 ( 0.24" )

Note: The lock is not attached.

## Product model code list

### Diaphragm Valve Type 14

ACTUATION	TYPE	OPERATING SYSTEM	BODY MATERIAL	SEAL MATERIAL	CONNECTION	STANDARD	SIZE
V	14	* *	*	*	F	*	***
V MANUAL VALVE	14 TYPE 14	MH ROUND HANDLE HL WITH HANDLE LOCK *	U U-PVC C C-PVC P PP F PVDF G PVDF+PPG	E EPDM T PTFE	F FLANGED	J JIS D DIN A ANSI	015 15mm 5 100 100mm

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.