

ASAHI 

HIGH PURITY SERIES



JIS SERIES

**ASAHI ORGANIC CHEMICALS INDUSTRY CO.,LTD.**

ASAHI **AV** VALVE AND PIPING SYSTEMS

ASAHI **AV** HIGH PURITY SERIES (HP-PVC)

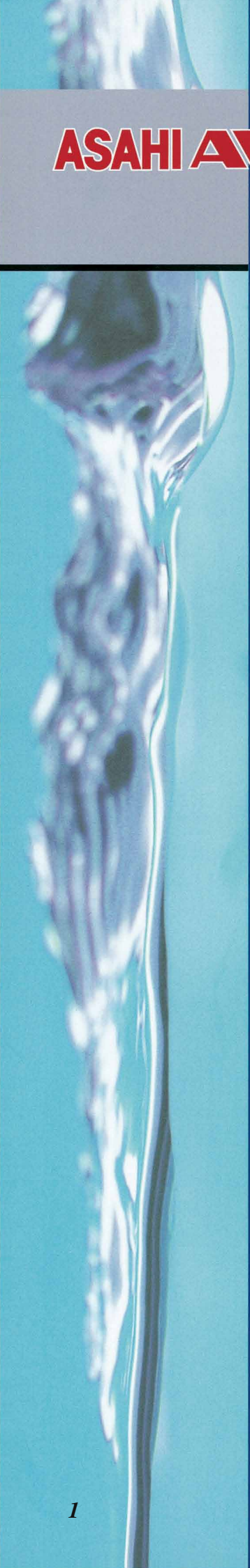
Asahi AV HIGH PURITY SERIES

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* LF: Lubricant Free 禁油

* WPLF: Wetted Part Lubricant Free (接觸流體部份禁油)

注意：本公司不建議將熱塑性管材用於運輸或儲存壓縮空氣或氣體的管道系統，也不建議使用壓縮空氣或氣體對安裝在地表或地下的熱塑性管道系統進行試壓。
警告：不可使用壓縮空氣或氣體測試任何PVC或CPVC熱塑性管材或管道系統；不可使用由壓縮空氣或氣體驅動的設備來清理系統。這些行為可能導致系統中的
管材爆裂，對人身造成嚴重甚至致命的傷害。



ASAHI **AV** *High Purity Series*

Ultrapure Water

Recently along with the increasingly high integration of semiconductors, stricter cleanliness is required of wafer surfaces from the viewpoint of product yield. Consequently, the role of cleaning processes is becoming more and more important.

Since the final washing of wafers of waters uses ultrapure water the cleanliness of wafers depends heavily on the quality of the ultrapure water. There fore, it is essential to improve the process lines used for the production of ultrapure water. We have an assortment of plastic piping materials that elute fewer metal ions and TOC and have finer inner surfaces. They fully accommodate the requirements of semiconductor manufacture, such as for 1MD-RAM, 4MD-RAM, and 16MD-RAM.

FEATURES

- Minimized Leachable.
- Mirror-smooth inner surfaces.
- Dead space minimized to prevent residence of liquid.
- Purified articles controlled under strict rules: degreasing and washing, forced drying with nitrogen, assembly, and packaging are carried out in a clean room.
- Easy, dependable installation and removal. Easy to maintain and clean.
- Unrivalled mechanical strength and reliability.

Range of Nominal Size and Materials

●AV Valves

Type		TRUE UNION DIAPHRAGM VALVE TYPE 14								
Body Materials		PVC		C-PVC		PP		PVDF		
End Connectors		Threaded	Socket	Threaded	Socket [※] (welded)	Threaded	Socket	Threaded	Socket [※] (welded)	Spigot
Nominal Size	mm	inch								
	15	1/2	○	○	○	○	○	○	○	○
	20	3/4	○	○	○	○	○	○	○	○
	25	1	○	○	○	○	○	○	○	○
	32	1 1/4	○	○	○	○	※○	○	○	○
	40	1 1/2	○	○	○	○	○	○	○	○
	50	2	○	○	○	○	○	○	○	○
Page		3 - 6								

Type		BALL VALVE TYPE 21												
Body Materials		PVC			C-PVC			PP			PVDF			
End Connectors		Flanged	Threaded	Socket	Flanged	Threaded	Socket [※] (welded)	Flanged	Threaded	Socket	Flanged	Threaded	Socket [※] (welded)	Spigot [※]
Nominal Size	mm	inch												
	15	1/2	○	○	○	○	○	○	○	○	○	○	○	○
	20	3/4	○	○	○	○	○	○	○	○	○	○	○	○
	25	1	○	○	○	○	○	○	○	○	○	○	○	○
	32	1 1/4	○	○	○	○	○	○	○	○ [※]	○	○	○	○
	40	1 1/2	○	○	○	○	○	○	○	○	○	○	○	○
	50	2	○	○	○	○	○	○	○	○	○	○	○	○
	65	2 1/2	○	○	○	○	○	○	○	○	○	○	○	○
	80	3	○	○	○	○	○	○	○	○	○	○	○	○
	100	4	○	○	○	○	○	○	○	○	○	○	○	○
Page		7 - 9												

Type	LAB COCK
Body Materials	PVC
End Connectors	Male Thread, Female Thread, Hose
Nominal Size	Male Thread 1/4 1/2
	Female Thread 1/4 3/8
Page	13 - 14

●Pipe & Fittings

Nominal Size	mm	inch	Pipe	Elbow (L)	90° AV Bend	45° Elbow (45L)	45° AV Bend	Socket (S)	Tee(T)	Faucet Elbow(FL)	Valve Socket(VS)	Faucet Socket(FS)	Cap (C)
	13	1/2	○	○	○	—	—	—	—	○	○	○	—
	16	2	○	○	○	—	—	—	—	○	○	○	○
	20	2 1/2	○	○	○	—	—	—	—	○	○	○	—
	25	3	○	○	○	—	—	—	—	○	○	○	○
	30	4	○	○	○	—	—	—	—	○	○	○	○
	40	5	○	○	○	—	—	—	—	○	○	○	○
	50	6	○	○	○	—	—	—	—	○	○	○	○
	65	8	○	○	○	—	—	—	—	○	○	○	○
	75	10	○	○	○	—	—	—	—	○	○	○	○
	100	12	○	○	○	—	—	—	—	○	○	○	—
	125	14	○	○	○	—	—	—	—	○	○	○	—
	150	16	—	—	—	○	○	—	—	—	○	○	—
	200	18	—	—	—	—	—	○	○	—	○	○	—
	250	20	—	—	—	—	—	○	○	—	○	○	—
Page			15		16		17 - 18			19			

※Except for JIS standard.

Nominal Size	mm	Reducing Socket(RS)	Reducing Tee(RT)
	16×13		○
	20×13	○	○
	20×16	○	○
	25×13	○	○
	25×16	○	○
	25×20	○	○
	30×16		○
	30×25		○
	40×13		○
	40×20	○	○
	40×25	○	○
	40×30	○	○
	50×13		○
	50×20	○	○
	50×25	○	○
	50×40	○	○
	65×40		○
	65×50	○	○
	75×25		○
	75×40		○
	75×50	○	○
	75×65		○
	100×75	○	○
	125×75		○
	125×100	○	○
	150×75		○
	150×100		○
	150×125	○	○
	200×75		○
	200×100		○
	200×150	○	○
	250×75		○
	250×100		○
	250×100	○	○
Page		17	18

DIAPHRAGM VALVE
BALL VALVE
BUTTERFLY VALVE
SWING CHECK VALVE
BALL CHECK BALL FOOT VALVE
STOP VALVE
GAUGE VALVE
GATE VALVE
AUTOMATIC WATER FEEDING VALVE
ROTARY ANGLE VALVE
ALFALFA VALVE
CONSTANT FLOW VALVE
NEEDLE VALVE
Y-SEDIMENT STRAINER
AIR RELEASE VALVE

TRUE UNION DIAPHRAGM VALVE TYPE 14 15mm - 50mm(1/2inch - 2inch)



FEATURES

Easy Maintenance

The valve body can be removed from the pipe line by loosening the union nuts at both ends.

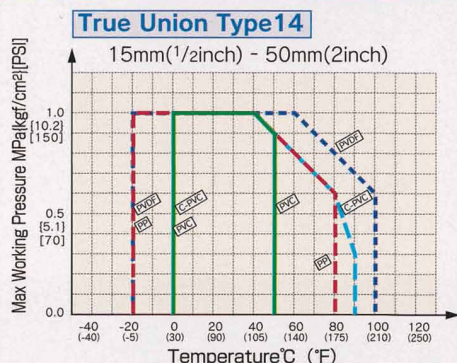
Bottom Stand for Easy Support

Having a new bottom stand with an insert hole, DIAPHRAGM VALVE TYPE 14 helps support the piping. The valve is also provided with a flange stand to increase installation safety.

MATERIAL AND WORKING TEMPERATURE

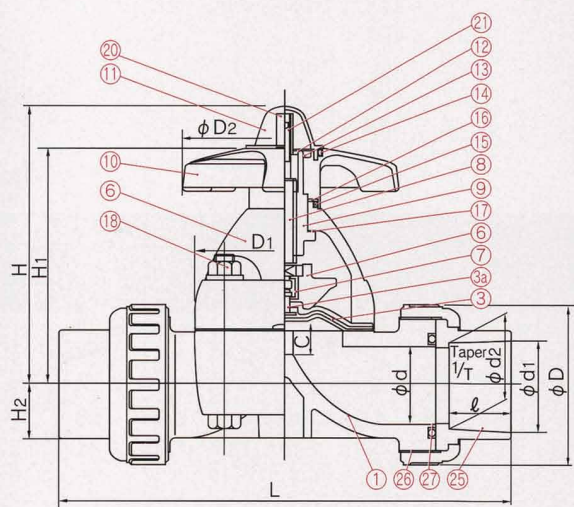
Body Material	Nominal Size mm(inch)	Working Temperature °C (°F)	Max. Working Pressure at 20°C (70°F) MPa{kgf/cm²} [PSI]	End Connectors
Unplasticized Polyvinyl Chloride(PVC)	15 - 50(1/2 - 2)	0 - 50(30 - 120)	1.0{10.2} [150]	Socket End. Threaded End
Chlorinated Polyvinyl Chloride(C-PVC)	15 - 50(1/2 - 2)	0 - 90(30 - 195)	1.0{10.2} [150]	Socket End. Threaded End
Polypropylene(PP)	15 - 50(1/2 - 2)	-20 - 80(-5 - 175)	1.0{10.2} [150]	Socket End. Threaded End
Polyvinylidene Fluoride(PVDF)	15 - 50(1/2 - 2)	-20 - 100(-5 - 210)	1.0{10.2} [150]	Socket End. Threaded End. Spigot End

WORKING PRESSURE VS. TEMPERATURE



DIMENSION

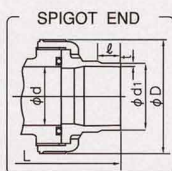
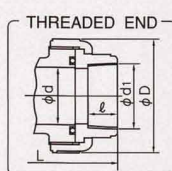
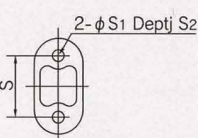
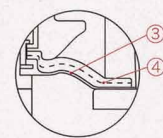
SOCKET END



PARTS & MATERIALS

No.	DESCRIPTION	Pcs.	MATERIAL	No.	DESCRIPTION	Pcs.	MATERIAL
①	BODY	1	BODY/BONNET PVC/PVC C-PVC/PP PP/PP	⑪	GAUGE COVER	1	PC
②	BONNET		PVDF/PPG PVDF/PVDF	⑫	NAME PLATE	1	PVC
③	DIAPHRAGM	1	EPDM IIR NBR, CSM CPE, FKM VIFLON C (FKM-C) VIFLON F (FKM-F) PTFE	⑬	RETAINING RING-C TYPE	1	STAINLESS STEEL304
				⑭	O-RING(A)	1	EPDM
				⑮	O-RING(B)	1	EPDM
				⑯	THRUST RING(A)	1	UHMWPE
				⑰	THRUST RING(B)	1	UHMWPE
③a	INSERTED METAL OF DIAPHRAGM	1	STAINLESS STEEL304	⑱	BOLT·NUT	4	STAINLESS STEEL304
				⑲	STOPPER	1	COPPER ALLOY(C3604)
④	CUSHION	1	EPDM*	⑳	SCREW	1	STAINLESS STEEL304
⑥	COMPRESSOR	1	PVDF	㉑	ENDCONNECTOR	2	PVC C-PVC PP
⑦	JOINT	1	STAINLESS STEEL304	㉒	UNION NUT	2	PVDF
⑧	STEM	1	COPPER ALLOY(C3604)	㉓	O-RING(C)	2	EPDM FKM Others
⑨	SLEEVE	1	COPPER ALLOY(C3604)				
⑩	HAND WHEEL	1	PP				

*With PTFE Diaphragm



DIMENSIONS TABLE

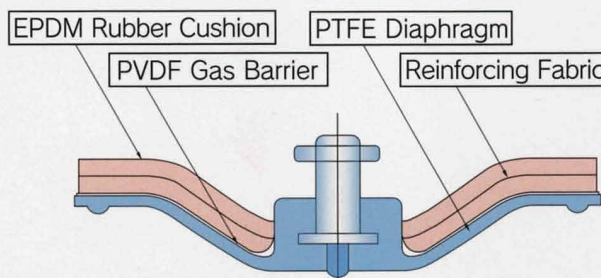
JIS		Unit:mm																						
Nominal Size	d	Socket End								Threaded End				D	D ₁	D ₂	C (LIFT)	H	H ₁	H ₂	S	S ₁	S ₂	
		PVC, C-PVC				PP				JIS B 0203		L												
		d ₁	ℓ	1/T	L	d ₁	d ₂	ℓ	L	d ₁	ℓ	PVC, C-PVC	PP, PVDF											
15	1/2	16	22.11	20	1/34	134	21.2	20.2	20	134	Rc 1/2	15	128	128	48	54×66	100	10	104	86	19.5	25	7	13
20	3/4	20	26.13	24	1/34	156	26.2	25.2	23	154	Rc 3/4	17	148	148	60	54×66	100	10	106	88	17.5	25	7	13
25	1	25	32.16	27	1/34	186	33.0	32.0	25	182	Rc 1	20	172	172	70	67×80	100	12	111	93	18.5	25	7	13
32	1 1/4	32	38.19	30	1/34	200	—	—	—	—	Rc 1 1/4	22	188	188	82	67×80	100	12	116	97	22.5	25	7	13
40	1 1/2	40	48.21	37	1/37	271	47.0	46.0	28	253	Rc 1 1/2	25	245	245	100	108×108	156	21	177	144	27.5	45	9	15
50	2	52	60.25	42	1/37	303	59.0	58.0	28	275	Rc 2	28	281	278	106	123×123	156	25	191	158	36	45	9	15

DIN																												Unit:mm			
Nominal Size	d	Socket End								Threaded End				Spigot End								D	D ₁	D ₂	C (LIFT)	H	H ₁	H ₂	S	S ₁	S ₂
		PVC, C-PVC				PP, PVDF				DIN 2999		L		PVC		PP, PVDF															
		DIN 8063	L		DIN 16962(PP)		DIN 3441	L	DIN 3442					PP	PVDF																
mm	inch	d ₁			ℓ	d ₁	d ₂		ℓ	L	d ₁	ℓ	PVC, C-PVC	PP, PVDF	d ₁	ℓ	L	d ₁	ℓ	t	t	L									
15	1/2	16	20	16	128	19.5	19.3	14.5	125	Rp 1/2	15	128	128	20	18.5	150	20	18.5	2.5	1.9	150	48	54×66	100	10	104	86	19.5	25	7	13
20	3/4	20	25	19	147	24.5	24.3	16	141	Rp 3/4	17	148	148	25	24	172	25	22	2.7	1.9	172	60	54×66	100	10	106	88	17.5	25	7	13
25	1	25	32	22	172	31.5	31.3	18	164	Rp 1	20	172	172	32	24.5	195	32	22.5	3.0	2.4	195	70	67×80	100	12	111	93	18.5	25	7	13
32	1 1/4	32	40	26	188	39.45	39.2	20.5	177	Rp 1 1/4	22	188	188	40	28	212	40	26	3.7	2.4	212	82	67×80	100	12	116	97	22.5	25	7	13
40	1 1/2	40	50	31	246	49.45	49.2	23.5	231	Rp 1 1/2	25	245	245	50	34	276	50	32	4.6	3.0	276	100	108×108	156	21	177	144	27.5	45	9	15
50	2	52	63	38	294	62.5	62.1	27.5	274	Rp 2	28	281	278	63	38.5	308	63	36	5.8	3.0	307	106	123×123	156	25	191	158	36	45	9	15

ANSI																							Unit:inch				
Nominal Size	d	Socket End								Threaded End				D	D ₁	D ₂	C (LIFT)	H	H ₁	H ₂	S	S ₁	S ₂				
		PVC, C-PVC				PP, PVDF(IPS)				ANSI/ASME B1·20·1		L															
		ASTM SCH80			L	d ₁	ℓ	L																			
		inch mm	d ₁	d ₂					ℓ	d ₁	ℓ	PVC, C-PVC	PP, PVDF														
1/2	15	0.63	0.848	0.836	0.875	5.47	0.83	0.87	5.43	1/2-14NPT	0.59	5.04	5.04	1.89	2.13×2.60	3.94	0.39	4.09	3.39	0.77	0.98	0.28	0.51				
3/4	20	0.79	1.058	1.046	1.000	6.18	1.03	1.00	6.09	3/4-14NPT	0.67	5.83	5.83	2.36	2.13×2.60	3.94	0.39	4.17	3.46	0.69	0.98	0.28	0.51				
1	25	0.98	1.325	1.310	1.125	7.32	1.30	1.13	7.24	1-11 1/2NPT	0.79	6.77	6.77	2.76	2.64×3.15	3.94	0.47	4.37	3.66	0.73	0.98	0.28	0.51				
1 1/4	32	1.26	1.670	1.655	1.250	7.95	1.65	1.25	7.80	1 1/4-11 1/2NPT	0.87	7.40	7.40	3.23	2.64×3.15	3.94	0.47	4.57	3.82	0.89	0.98	0.28	0.51				
1 1/2	40	1.57	1.912	1.894	1.375	10.47	1.89	1.37	10.28	1 1/2-11 1/2NPT	0.98	9.65	9.65	3.94	4.25×4.25	6.14	0.83	6.97	5.67	1.08	1.77	0.35	0.59				
2	50	2.05	2.387	2.369	1.500	11.54	2.36	1.50	11.54	2-11 1/2NPT	1.10	11.06	10.95	4.17	4.84×4.84	6.14	0.98	7.52	6.22	1.42	1.77	0.35	0.59				

DIAPHRAGM VALVE TYPE 14

- We recommend that a PVDF Gas Barrier should be installed with PTFE DIAPHRAGM VALVE if it is used in an application that has corrosive gas.
- Temperature variations during operation or long periods of storage may cause the diaphragm to settle. In this case, it is recommended to check bonnet bolt torque, prior to installation(See the table below).



Diaphragm with PVDF Gas Barrier

▼ Tightening Torque for Diaphragm Valve Bonnet for TYPE 14

Unit:N·m[kgf·cm]

Nominal Size mm(inch)	15 (1/2)	20 (3/4)	25 (1)	32 (1 1/4)	40 (1 1/2)	50 (2)	65 (2 1/2)	80 (3)	100 (4)
Rubber Diaphragm	3.0 {31}	3.0 {31}	5.0 {51}	5.0 {51}	12.0 {122}	15.0 {153}	13.0 {133}	18.0 {184}	35.0 {357}
PTFE Diaphragm	5.0 {51}	5.0 {51}	8.0 {82}	8.0 {82}	15.0 {153}	20.0 {204}	15.0 {153}	20.0 {204}	40.0 {408}

DIAPHRAGM VALVE TYPE 14 15mm - 100mm(1/2inch - 4inch)

- 15mm(1/2inch) - 50mm(2inch)
- 65mm(2 1/2inch) - 100mm(4inch)



FEATURES

Excellent Sealing Property

The DIAPHRAGM VALVE TYPE 14 uses a high quality rubber material, exhibiting lower compressive strain, for its diaphragm and cushion, resulting in optimum sealing performance.

Tight Seal at Low Torque

Using dynamic analysis by CAE, DIAPHRAGM VALVE TYPE 14 is designed so that pressure is distributed evenly.

This design allows the hand wheel torque be reduced and maintain shut off at low torque.

Easier Maintenance

A bayonet mechanism, provided between the diaphragm and compressor, allows the diaphragm to be replaced easily.

Bottom Stand for Easy Support

Having a new bottom stand with an insert hole, DIAPHRAGM VALVE TYPE 14 helps support the piping. The valve is also provided with a flange stand to increase installation safety.

Built-in Travel Stop

DIAPHRAGM VALVE TYPE 14 contains a revolutionary travel stop mechanism protecting the diaphragm.

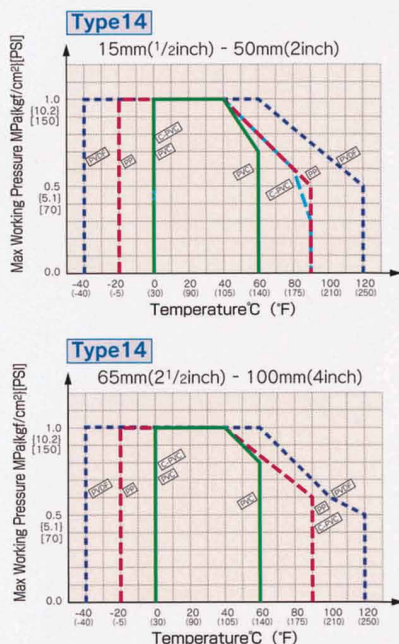
Visual Indicator

A color indicator clearly shows whether the valve is fully-opened, half-opened, or fully-closed. Because the indicator enters the handle, going out of view when the valve is fully-closed, the operator would know at glance of valve position valve is fully-opened, half-opened.

MATERIAL AND WORKING TEMPERATURE

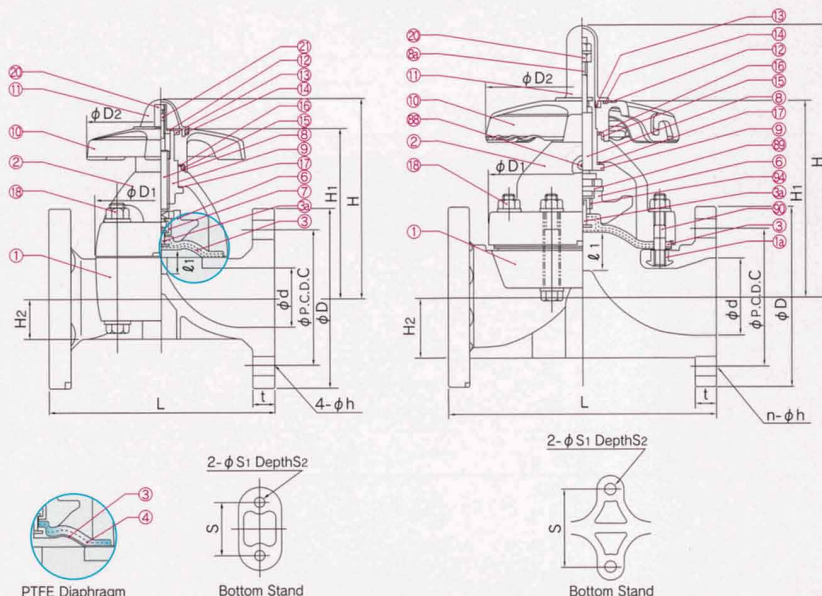
Body Material	Nominal Size mm(inch)	Working Temperature °C (°F)	Max. Working Pressure at 20°C(70°F) MPa[kgf/cm²] [PSI]	End Connectors
			15mm - 100mm(1/2inch - 4inch)	
PVC	15 - 100(1/2 - 4)	0 - 60(30 - 140)	1.0{10.2}[150]	Flanged End
C-PVC	15 - 100(1/2 - 4)	0 - 90(30 - 195)	1.0{10.2}[150]	Flanged End
PP	15 - 100(1/2 - 4)	-20 - 90(-5 - 195)	1.0{10.2}[150]	Flanged End
PVDF	15 - 100(1/2 - 4)	-40 - 120(-40 - 250)	1.0{10.2}[150]	Flanged End

WORKING PRESSURE VS. TEMPERATURE



DIMENSION

- 15mm(1/2inch) - 50mm(2inch)
- 65mm(2 1/2inch) - 100mm(4inch)



PARTS & MATERIALS

No.	DESCRIPTION	Pcs.	MATERIAL	No.	DESCRIPTION	Pcs.	MATERIAL
①	BODY	1	BODY/BONNET, PVC/PVC, C-PVC/PP/PP, PVDF/PPG, PVDF/PVDF	⑬	RETAINING RING-C TYPE	1	STAINLESS STEEL304
②	BONNET	1		⑭	O-RING(A)	1	EPDM
③	DIAPHRAGM	1	EPDM, IIR, NBR, CSM, CPE, FKM VIFLON C (FKM-C), VIFLON F (FKM-F), PTFE	⑮	O-RING(B)	1	EPDM
③a	INSERTED METAL OF DIAPHRAGM	1	STAINLESS STEEL304	⑯	THRUST RING(A)	1	UHMWPE
④	CUSHION	1	EPDM ¹⁾	⑰	THRUST RING(B)	1	UHMWPE
⑤	PVDF GAS BARRIER(OPTION)	1	PVDF	⑱	BOLT·NUT	4	STAINLESS STEEL304
⑥	COMPRESSOR	1	PVDF	⑳	STOPPER	1	COPPER ALLOY ²⁾ , STAINLESS STEEL ³⁾ 304
⑦	JOINT ²⁾	1	STAINLESS STEEL304	㉑	SCREW ²⁾	1	STAINLESS STEEL304
⑧	STEM	1	COPPER ALLOY	㉒	GREASE NIPPLE ³⁾	1	COPPER ALLOY(C3604)
⑧a	INDICATOR ROD ²⁾	1	STAINLESS STEEL304	㉓	COMPRESSOR PIN ³⁾	1	STAINLESS STEEL304
⑨	SLEEVE	1	COPPER ALLOY(C3604)	㉔	STUD BOLT·NUT ³⁾	4	STAINLESS STEEL304
⑩	HAND WHEEL	1	PP	㉕	METAL OF COMPRESSOR	1	STAINLESS STEEL304
⑪	GAUGE COVER	1	POLYCARBONATE	㉖	INSERTED NUT ³⁾	4	COPPER ALLOY(C3604) STAINLESS STEEL304
⑫	NAME PLATE	1	PVC				

Note. 1) Used for PTFE diaphragm

2) Used for 15mm(1/2inch)-50mm(2inch)

3) Used for size 65mm(2 1/2inch)-100mm(4inch)

DIMENSIONS TABLE

JIS																		Unit:mm
Nominal Size		d	JIS 10K				D ₁	D ₂	ℓ ₁ (LIFT)	L	t		H	H ₁	H ₂	S	S ₁	S ₂
mm	inch		D	C	n	h					PVC C-PVC	PP PVDF						
15	1/2	16	95	70	4	15	54×66	100	10	110	12	12	104	86	19.5	25	7	13
20	3/4	20	100	75	4	15	54×66	100	10	120	13	13	106	88	17.5	25	7	13
25	1	25	125	90	4	19	67×80	100	12	130	13	13	111	93	18.5	25	7	13
32	1 1/4	32	135	100	4	19	67×80	100	12	142	16	16	116	97	22.5	25	7	13
40	1 1/2	40	140	105	4	19	108×108	156	21	180	16	16	177	144	27.5	45	9	15
50	2	52	155	120	4	19	123×123	156	25	210	20	20	191	158	36	45	9	15
65	2 1/2	67	175	140	4	19	175	220	34	250	22	23	266	188	61	85	11	20
80	3	78	185	150	8	19	201	220	42	280	22	23	280	202	63	100	15	28
100	4	100	210	175	8	19	241	257	50	340	22	24	329	241	78	120	15	28

DIN																		Unit:mm
Nominal Size		d	DIN 2501 PN10				D ₁	D ₂	ℓ ₁ (LIFT)	L	t		H	H ₁	H ₂	S	S ₁	S ₂
mm	inch		D	C	n	h					PVC C-PVC	PP PVDF						
15	1/2	16	95	65	4	14	54×66	100	10	130	12	12	104	86	19.5	25	7	13
20	3/4	20	105	75	4	14	54×66	100	10	150	13	13	106	88	17.5	25	7	13
25	1	25	115	85	4	14	67×80	100	12	160	13	13	111	93	18.5	25	7	13
32	1 1/4	32	140	100	4	18	67×80	100	12	180	16	16	116	97	22.5	25	7	13
40	1 1/2	40	150	110	4	18	108×108	156	21	200	20	20	177	144	27.5	45	9	15
50	2	52	165	125	4	18	123×123	156	25	230	22	22	191	158	36	45	9	15
65	2 1/2	67	185	145	4	18	175	220	34	290	22	22	266	188	61	85	11	20
80	3	78	200	160	8	18	201	220	42	310	24	24	280	202	63	100	15	28
100	4	100	220	180	8	18	241	257	50	350	24	26	329	241	78	120	15	28

ANSI																			Unit:inch
Nominal Size		d	ANSI CLASS 150				D ₁	D ₂	ℓ ₁ (LIFT)	L		t		H	H ₁	H ₂	S	S ₁	S ₂
inch	mm		D	C	n	h				G-STANDARD	A-STANDARD	PVC C-PVC	PP PVDF						
1/2	15	0.63	3.50	2.38	4	0.62	2.13×2.60	3.94	0.39	4.25	4.33	0.43	0.43	4.09	3.39	0.77	0.98	0.28	0.51
3/4	20	0.79	3.88	2.75	4	0.62	2.13×2.60	3.94	0.39	5.88	4.72	0.51	0.51	4.17	3.46	0.69	0.98	0.28	0.51
1	25	0.98	4.25	3.12	4	0.62	2.64×3.15	3.94	0.47	5.88	5.12	0.59	0.59	4.37	3.66	0.73	0.98	0.28	0.51
1 1/4	32	1.26	4.62	3.50	4	0.62	2.64×3.15	3.94	0.47	6.38	—	0.63	0.63	4.57	3.82	0.89	0.98	0.28	0.51
1 1/2	40	1.57	5.00	3.88	4	0.62	4.25×4.25	6.14	0.83	6.94	7.09	0.63	0.63	6.97	5.67	1.08	1.77	0.35	0.59
2	50	2.05	6.00	4.75	4	0.75	4.84×4.84	6.14	0.98	7.94	8.27	0.79	0.79	7.52	6.22	1.42	1.77	0.35	0.59
2 1/2	65	2.64	7.00	5.50	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	7.50	6.00	4	0.75	7.91	8.66	1.65	10.37	11.02	0.87	0.91	11.02	7.95	2.48	3.94	0.59	1.10
4	100	3.94	9.00	7.50	8	0.75	9.49	10.12	1.97	12.93	13.39	0.87	0.94	12.95	9.49	3.07	4.72	0.59	1.10

BALL VALVE TYPE 21 · 21α 15mm - 100mm(1/2inch - 4inch)

FEATURES

Easy to Be Automated (No Modification Required)

Featuring a new integral molded top flange. The BALL VALVE TYPE 21 can easily be converted from the manual to automatic without replacing the body.

Simple Installation on Panel Piping

New bottom stand with an insert hole allows the valve to be secured on bench or panel only by inserting a metallic insert.

Double-O-ring

The stem uses a double-O-ring, sealing arrangement improving durability sealing performance. The upper O-ring groove is deeper than the lower O-ring groove. Because of this design, the stem would break first at the upper O-ring groove, acting as a back up seal.

Multi Functional Handle

Removing the handle and placing the raised lugs into the carrier allow for easy disassembly of the valve.

*The handle has other colors.
(blue, white, yellow)(Option)

Locking Device (Option)

The handle lock can be done by full-open (close)



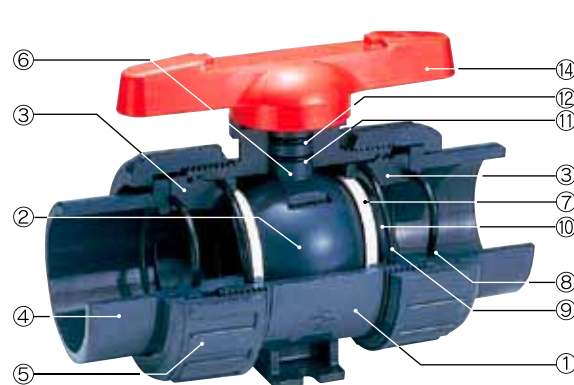
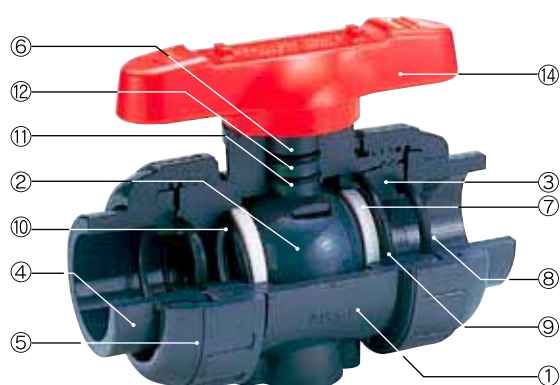
MATERIAL AND WORKING TEMPERATURE

Body material	Working Temperature °C (°F)	Max. Working Pressure(at R.T.) MPa{kgf/cm²}[PSI]	End Connectors			
			Socket End	Threaded End	Flanged End	Spigot End
Unplasticized Polyvinyl Chloride(PVC)	0 - 50(30 - 120)	1.6{16.3}[230]	○	○	○	—
Chlorinated Polyvinyl Chloride(C-PVC)	0 - 90(30 - 195)	1.6{16.3}[230]	○	○	○	—
Polypropylene(PP)	-20 - 80(-5 - 175)	1.0{10.2}[150]	○	○	○	○
Polyvinylidene Fluoride(PVDF)	-20 - 100(-5 - 210)	1.6{16.3}[230]	○	○	○	○

※ PP and PVDF ball valves of the Socket End type and PVDF ball valves of the Spigot End type are welded valves.

Notes : There is a dead space in a ball valve. Volatile liquids, such as a hydrogen peroxide(H₂O₂)and Sodium hypochlorite (NaClO) may vaporize in the dead space, thus causing an abnormal pressure increase in the valve.

(Important: Gas is compressible. Thus if pressure rises abnormally, the valve can burst ejecting dangerous fragments.)



PARTS & MATERIALS

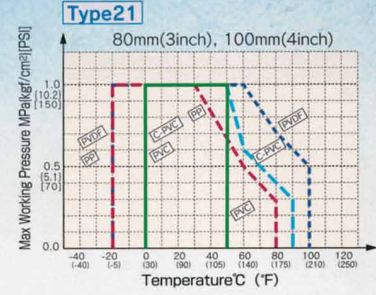
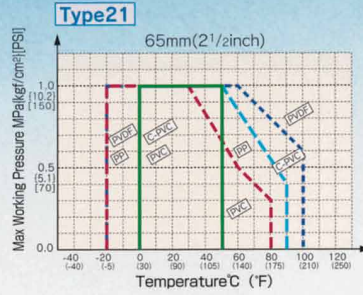
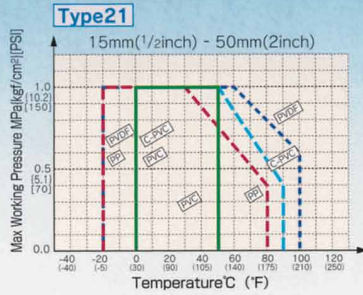
● 15mm(1/2inch) - 50mm(2inch)

No.	DESCRIPTION	Pcs.	MATERIAL	No.	DESCRIPTION	Pcs.	MATERIAL
①	BODY	1	PVC, C-PVC, PP, PVDF	⑨	O-RING(B)	1	EPDM, FKM, etc
②	BALL	1	PVC, C-PVC, PP, PVDF	⑩	O-RING(C)	2	EPDM, FKM, etc
③	CARRIER	1	PVC, C-PVC, PP, PVDF	⑪	O-RING(D)	1	EPDM, FKM, etc
④	END CONNECTOR	2	PVC, C-PVC, PP, PVDF	⑫	O-RING(E)	1	EPDM, FKM, etc
⑤	UNION NUT	2	PVC, C-PVC, PP, PVDF	⑬*	STOP RING	2	PVDF(used for flanged End)
⑥	STEM	1	PVC, C-PVC, PP, PVDF	⑭	HANDLE	1	ABS
⑦	SEAT	2	PTFE				
⑧	O-RING(A)	2	EPDM, FKM, etc				

● 65mm(2 1/2inch) - 100mm(4inch)

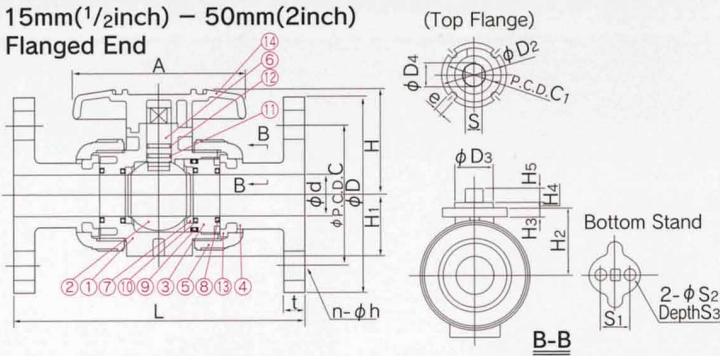
No.	DESCRIPTION	Pcs.	MATERIAL	No.	DESCRIPTION	Pcs.	MATERIAL
①	BODY	1	PVC, C-PVC, PP, PVDF	⑨	O-RING(B)	2	EPDM, FKM, etc
②	BALL	1	PVC, C-PVC, PP, PVDF	⑩	CUSHION	2	EPDM, FKM, etc
③	CARRIER	2	PVC, C-PVC, PP, PVDF	⑪	O-RING(D)	1	EPDM, FKM, etc
④	END CONNECTOR	2	PVC, C-PVC, PP, PVDF	⑫	O-RING(E)	1	EPDM, FKM, etc
⑤	UNION NUT	2	PVC, C-PVC, PP, PVDF	⑬*	STOP RING	2	PVDF(used for flanged End)
⑥	STEM	1	PVC, C-PVC, PP, PVDF	⑭	HANDLE	1	ABS
⑦	SEAT	2	PTFE	⑮	SCREW	1	STAINLESS STEEL(304)
⑧	O-RING(A)	2	EPDM, FKM, etc				

WORKING PRESSURE VS. TEMPERATURE

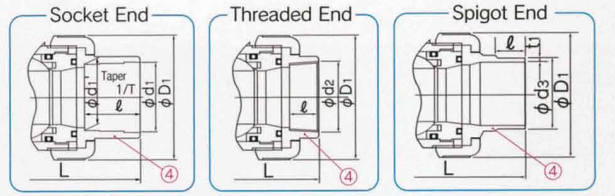
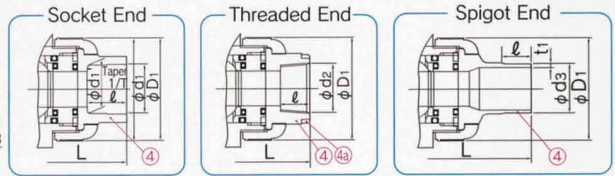
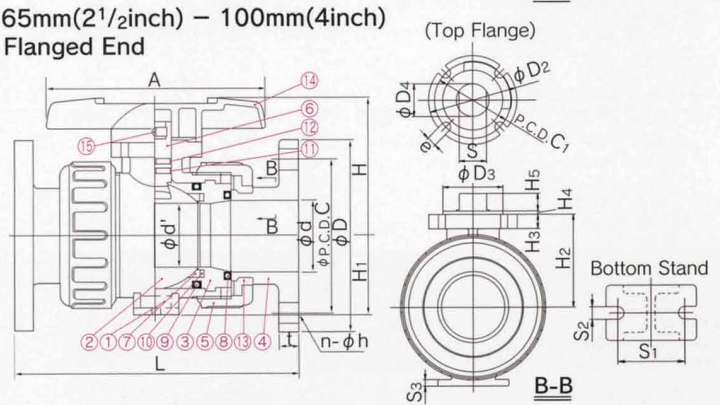


DIMENSION

● 15mm(1/2inch) - 50mm(2inch) Flanged End



● 65mm(2 1/2inch) - 100mm(4inch) Flanged End



DIMENSIONS TABLE

JIS																			Unit:mm
Nominal Size	d	d'	D ₁	D ₂	D ₃	D ₄	C ₁	H	H ₁	H ₂	H ₃	H ₄	H ₅	A	S	S ₁	S ₂	S ₃	e
mm inch																			
15 1/2	15	—	48	42	25	13.5	36	51.5	29	30	6	3	8	92	10.5	19	7.3	11	5.5
20 3/4	20	—	60	42	25	15	36	59.5	35	36.5	6	3	10	100	11	19	7.3	11	5.5
25 1	25	—	70	42	25	15	36	68	39	43.5	6	3	10	110	11	19	7.3	11	5.5
32 1 1/4	32	—	82	48	30	19	42	80.5	47	52.5	8	3	10	121	15	30	9	15	5.5
40 1 1/2	40	—	100	57	35	23	50	89	55	61	10	3	12	131	18	30	9	15	6.5
50 2	51	—	126	57	35	23	50	102.5	66	72.5	10	3	12	159	18	30	9	15	6.5
65 2 1/2	65	58	133	81	55	30	70	126	72	85	13	3	16	200	24	48	9	6	9
80 3	78	68.5	152	81	55	30	70	140	85	94	13	3	19	240	24	55	11	7	9
100 4	100	90	210	116	70	40	102	178	110	126	16	3	23	300	34	65	11	8	11

Nominal Size	Flanged End													Socket End												Threaded End				
	JIS 5K				JIS 10K				L			t	PVC, C-PVC				PP				PVDF				d ₂	ℓ	L			
	D	C	n	h	D	C	n	h	PVC C-PVC	PP	PVDF		d ₁	ℓ	1/T	L	d ₁	d ₁ '	ℓ	L	d ₁	d ₁ '	ℓ	L			PVC C-PVC	PP	PVDF	
mm	inch																													
15	1/2	80	60	4	12	95	70	4	15	143	143	143	12	22.11	20	1/34	108	21.2	20.2	20	108	21.50	21.30	20	108	Rc1/2	15	102	100	100
20	3/4	85	65	4	12	100	75	4	15	172	172	172	14	26.13	24	1/34	128	26.2	25.2	23	126	25.50	25.30	22	124	Rc3/4	17	120	119	119
25	1	95	75	4	12	125	90	4	19	187	187	187	14	32.16	27	1/34	145	33.0	32.0	25	141	31.50	31.30	24	139	Rc1	20	131	130	130
32	1 1/4	115	90	4	15	135	100	4	19	190	190	190	16	38.19	30	1/34	162	—	—	—	—	37.45	37.20	25	152	Rc1 1/4	22	150	146	146
40	1 1/2	120	95	4	15	140	105	4	19	212	212	212	16	48.21	37	1/37	189	47.0	46.0	28	171	47.45	47.20	28	171	Rc1 1/2	25	163	160	160
50	2	130	105	4	15	155	120	4	19	234	234	234	16	60.25	42	1/37	220	59.0	58.0	28	192	59.45	59.10	30	196	Rc2	28	197	194	194
65	2 1/2	155	130	4	15	175	140	4	19	261	257	256	18	76.60	61	1/48	273	75.0	73.0	35	219	75.25	74.95	33	214	Rc2 1/2	32	215	213	212
80	3	180	145	4	19	185	150	8	19	306	305	302	18	89.60	64	1/49	316	88.0	86.0	35	257	88.00	87.65	36	256	Rc3	35	265	264	261
100	4	200	165	8	19	210	175	8	19	374	374	369	18	114.70	84	1/56	419	113.0	111.0	45	341	113.05	112.65	41	328	Rc4	45	362	362	357

DIN																			Unit:mm
Nominal Size	d	d'	D ₁	D ₂	D ₃	D ₄	C ₁	H	H ₁	H ₂	H ₃	H ₄	H ₅	A	S	S ₁	S ₂	S ₃	e
mm inch																			
10 3/8	13	—	46	—	—	—	—	43.5	—	—	—	—	—	80	—	—	—	—	—
15 1/2	15	—	48	42	25	13.5	36	51.5	29	30	6	3	8	92	10.5	19	7.3	11	5.5
20 3/4	20	—	60	42	25	15	36	59.5	35	36.5	6	3	10	100	11	19	7.3	11	5.5
25 1	25	—	70	42	25	15	36	68	39	43.5	6	3	10	110	11	19	7.3	11	5.5
32 1 1/4	32	—	82	48	30	19	42	80.5	47	52.5	8	3	10	121	15	30	9	15	5.5
40 1 1/2	40	—	100	57	35	23	50	89	55	61	10	3	12	131	18	30	9	15	6.5
50 2	51	—	126	57	35	23	50	102.5	66	72.5	10	3	12	159	18	30	9	15	6.5
65 2 1/2	65	58	133	81	55	30	70	126	72	85	13	3	16	200	24	48	9	6	9
80 3	78	68.5	152	81	55	30	70	140	85	94	13	3	19	240	24	55	11	7	9
100 4	100	90	210	116	70	40	102	178	110	126	16	3	23	300	34	65	11	8	11

Nominal Size	Flanged End								Socket End								Threaded End								Spigot End							
	DIN PN10							t	PVC, C-PVC			PP, PVDF				d ₂	ℓ	L			PVC			PP, PVDF				L				
	D	C	n	h	PVC C-PVC	PP	PVDF		d ₁	ℓ	L	d ₁	d ₁ '	ℓ	PP			PVDF	PVC C-PVC	PP	PVDF	d ₃	d ₃ '	ℓ	d ₃	ℓ	PP			PVDF	PP	PVDF
mm	inch																															
10	3/8	90	60	4	14	120	119	119	12	16	14	99	15.5	15.4	13	96	96	Rp3/8	15	99	98	98	16	13	16	—	—	—	—	114	114	
15	1/2	95	65	4	14	130	130	130	12	20	16	102	19.5	19.3	14.5	99	99	Rp1/2	15	102	100	100	20	15	18.5	20	18.5	2.5	1.9	124	124	
20	3/4	105	75	4	14	150	150	150	14	25	19	120	24.5	24.3	16	113	113	Rp3/4	17	120	119	119	25	20	24	25	22	2.7	1.9	144	144	
25	1	115	85	4	14	160	160	160	14	32	22	131	31.5	31.3	18	123	123	Rp1	20	131	130	130	32	25	24.5	32	22.5	3.0	2.4	154	154	
32	1 1/4	140	100	4	18	180	180	180	16	40	26	150	39.45	39.2	20.5	139	139	Rp1 1/4	22	150	146	146	40	31	28	40	26	3.7	2.4	174	174	
40	1 1/2	150	110	4	18	200	200	200	16	50	31	163	49.45	49.2	23.5	149	149	Rp1 1/2	25	163	160	160	50	40	34	50	32	4.6	3.0	194	194	
50	2	165	125	4	18	230	230	230	16	63	38	197	62.5	62.1	27.5	176	176	Rp2	28	197	194	194	63	51	38	63	36	5.8	3.0	224	224	
65	2 1/2	185	145	4	18	290	288	287	18	75	44	233	74.25	73.95	31	205	204	Rp2 1/2	32	215	213	212	75	65	44	75	38	6.9	3.6	245	244	
80	3	200	160	8	18	312	311	308	21	90	51	284	89.2	88.85	35.5	252	249	Rp3	35	265	264	261	90	80	51	90	38	8.2	4.3	296	293	
100	4	220	180	8	18	352	352	347	18	110	61	351	109.05	108.65	41.5	312	307	Rp4	45	340	340	335	110	93.6	46	110	44.5	10.0	5.3	355	350	

ANSI																			Unit:inch
Nominal Size	d	d'	D ₁	D ₂	D ₃	D ₄	C ₁	H	H ₁	H ₂	H ₃	H ₄	H ₅	A	S	S ₁	S ₂	S ₃	e
inch mm																			
1/2 15	0.59	—	1.89	1.65	0.98	0.53	1.42	2.03	1.14	1.18	0.24	0.12	0.31	3.62	0.41	0.75	0.29	0.43	0.22
3/4 20	0.79	—	2.36	1.65	0.98	0.59	1.42	2.34	1.38	1.44	0.24	0.12	0.39	3.94	0.43	0.75	0.29	0.43	0.22
1 25	0.98	—	2.76	1.65	0.98	0.59	1.42	2.68	1.54	1.71	0.24	0.12	0.39	4.33	0.43	0.75	0.29	0.43	0.22
1 1/4 32	1.26	—	3.23	1.89	1.18	0.75	1.65	3.17	1.85	2.07	0.31	0.12	0.39	4.76	0.59	1.18	0.35	0.59	0.22
1 1/2 40	1.57	—	3.94	2.24	1.38	0.91	1.97	3.50	2.17	2.40	0.39	0.12	0.47	5.16	0.71	1.18	0.35	0.59	0.26
2 50	2.01	—	4.96	2.24	1.38	0.91	1.97	4.04	2.60	2.85	0.39	0.12	0.47	6.26	0.71	1.18	0.35	0.59	0.26
2 1/2 65	2.56	2.28	5.24	3.19	2.17	1.18	2.76	4.96	2.83	3.35	0.51	0.12	0.63	7.87	0.94	1.89	0.35	0.24	0.35
3 80	3.07	2.70	5.98	3.19	2.17	1.18	2.76	5.51	3.35	3.70	0.51	0.12	0.75	9.45	0.94	2.17	0.43	0.28	0.35
4 100	3.94	3.54	8.27	4.57	2.76	1.57	4.02	7.01	4.33	4.96	0.63	0.12	0.91	11.81	1.34	2.56	0.43	0.31	0.43

Nominal Size	Flanged End								Socket End (IPS)												Threaded End					
	ANSI CLASS 150				L			t	PVC, C-PVC						PP, PVDF						d ₂	ℓ	L			
	D	C	n	h	PVC, C-PVC	PP	PVDF		ASTM SCH40			L	ASTM SCH80			L	d ₁	ℓ	L							
									d ₁	d ₁ '	ℓ		d ₁	d ₁ '	ℓ				PP	PVDF						
inch mm	D	C	n	h	PVC, C-PVC	PP	PVDF	t	d ₁	d ₁ '	ℓ	L	d ₁	d ₁ '	ℓ	L	d ₁	ℓ	PP	PVDF	d ₂	ℓ	PVC, C-PVC	PP	PVDF	
1/2 15	3.50	2.38	4	0.62	5.63	5.63	5.63	0.47	—	—	—	—	0.848	0.836	0.875	4.45	0.83	0.87	4.45	4.45	1/2-14 NPT	0.59	4.02	4.02	4.02	
3/4 20	3.88	2.75	4	0.62	6.77	6.77	6.77	0.55	—	—	—	—	1.058	1.046	1.000	5.08	1.03	1.00	5.08	5.08	3/4-14 NPT	0.67	4.72	4.72	4.72	
1 25	4.25	3.12	4	0.62	7.36	7.36	7.36	0.55	—	—	—	—	1.325	1.310	1.125	5.75	1.30	1.13	5.75	5.75	1-11/2NPT	0.79	5.16	5.16	5.16	
1 1/4 32	4.62	3.50	4	0.62	7.48	7.48	7.48	0.63	—	—	—	—	1.670	1.655	1.250	6.46	1.65	1.25	6.46	6.46	1 1/4-11 1/2NPT	0.87	5.91	5.91	5.91	
1 1/2 40	5.00	3.88	4	0.62	8.35	8.35	8.35	0.63	—	—	—	—	1.912	1.894	1.375	7.24	1.89	1.37	7.24	7.24	1 1/2-11 1/2NPT	0.98	6.42	6.42	6.42	
2 50	6.00	4.75	4	0.75	9.21	9.21	9.21	0.63	—	—	—	—	2.387	2.369	1.500	8.23	2.36	1.50	8.23	8.23	2-11 1/2NPT	1.10	7.76	7.76	7.76	
2 1/2 65	7.00	5.50	4	0.75	10.20	10.12	10.08	0.71	—	—	—	—	2.889	2.868	1.750	9.45	2.880	1.752	9.37	9.33	1/2-8 NPT	1.26	8.46	8.39	8.35	
3 80	7.50	6.00	4	0.75	12.05	12.01	11.89	0.71	—	—	—	—	3.516	3.492	1.875	11.14	3.480	1.874	11.10	10.98	3-8 NPT	1.38	10.43	10.39	10.28	
4 100	9.00	7.50	8	0.75	14.72	14.72	14.53	0.71	4.518	4.491	2.000	13.86	—	—	—	—	4.480	2.252	14.37	14.13	4-8 NPT	1.77	14.25	14.25	14.06	

Note : Pay attention that the following chemicals such as Hydrogen Peroxide (H₂O₂) and Sodium hypochlorite (NaClO) are adapted to be occurred the abnormal pressure rising due to their vaporization nature.

Panel Mounting

●Diaphragm Valve Type14

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

●Ball Valve Type21

15mm - 100mm(1/2inch - 4inch)

■Procedure

Refer to the User's Manual for Metal Insert (Ensaf) by the Maker.

■Bottom Stand Dimension

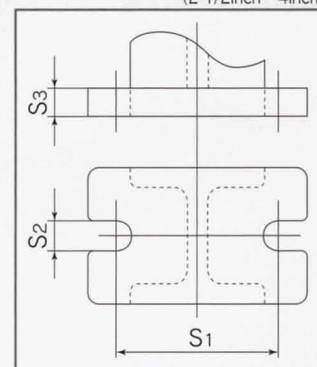
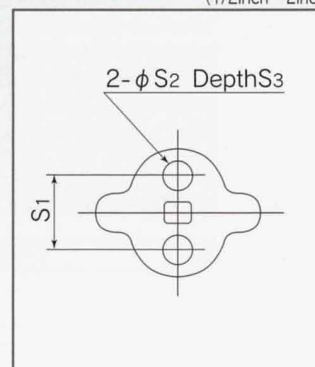
Diaphragm Valve Type14

Unit:mm(inch)

Nominal Size mm (inch)	S1	S2	S3
15mm - 32mm (1/2 - 1 1/4)	25 (0.98)	7 (0.28)	13 (0.51)
40mm, 50mm (1 1/2, 2)	45 (1.8)	9 (0.35)	15 (0.59)

Diaphragm Valve Type14: 15mm - 50mm
(1/2inch - 2inch)
Ball Valve Type21: 15mm - 50mm
(1/2inch - 2inch)

Ball Valve Type21: 65mm - 100mm
(2 1/2inch - 4inch)



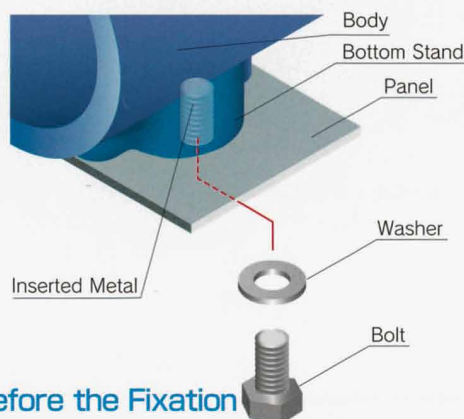
Ball Valve Type21

Unit:mm(inch)

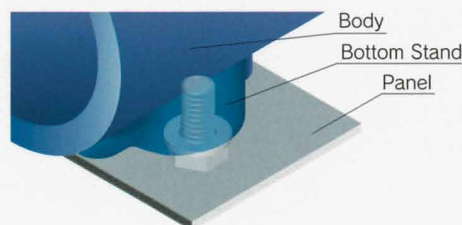
Nominal Size mm (inch)	S1	S2	S3
15mm - 25mm (1/2 - 1)	19 (0.75)	7.3 (0.29)	11 (0.43)
32mm - 50mm (1 1/4 - 2)	30 (1.18)	9 (0.35)	15 (0.59)
65mm (2 1/2)	48 (1.89)	9 (0.35)	6 (0.24)
80mm (3)	55 (2.17)	11 (0.43)	7 (0.28)
100mm (4)	65 (2.56)	11 (0.43)	8 (0.31)

■Fixation of Bottom Stand with Panel

Nominal size 15 - 50mm(1/2inch - 2inch)

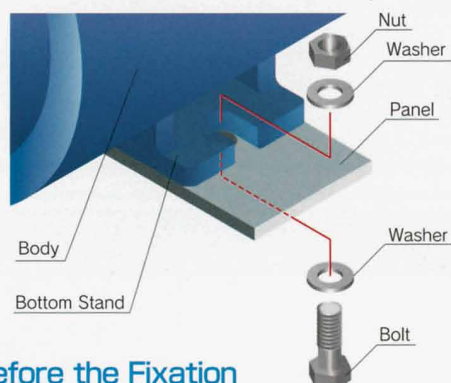


Before the Fixation

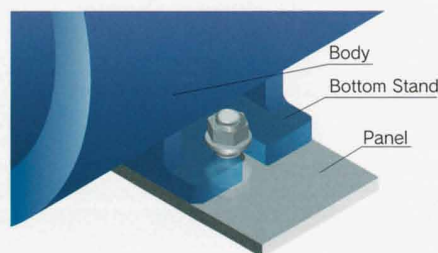


After the Fixation

Nominal size 65 - 100mm(2 1/2inch - 4inch)



Before the Fixation



After the Fixation

BUTTERFLY VALVE TYPE 57 40mm - 350mm(1½inch - 14inch)

FEATURES

■ Excellent Sealing Performance

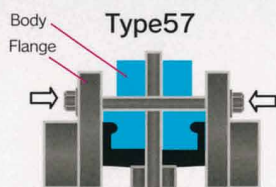
Sealing performance has been improved due to its specially designed seat "PAT pending".

■ Lowered Operating Torque

Required operating torque has been reduced by applying specially designed seat.

■ Protection for Over Tightening of Mating Flange

The valve body acts as a protector against over tightening to avoid breakage or deformation of the seat. (Please refer to sketch of below)



Body contacts flanges to protect the seat from deformation and to avoid increased operating torque.

Stem Retainer



● Plastic Gear Box Housing

Superior corrosion resistance allows applications such as severe chemicals and sea waters.

● NAMUR Mounting Dimension

NAMUR standard is applied on the gear box housing.

● Highly Visible Position Indicator

Highly visible from a distance.

● Stainless Steel Trim and Hardware

● Plastic Hand Wheel

Corrosion resistance gripping design allows easy operation.

■ Spherical Design Disc

Spherical design disc provides superior durability and improved Cv value.

■ Stem Retainer

Stem retainer allows field automation or accessories preventing the stem from being removed.

■ Plastic Gear Box

Corrosion resistant plastic gear box provides a broader range of applications.

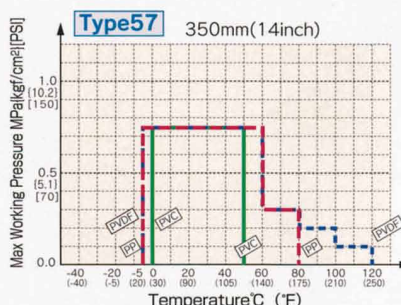
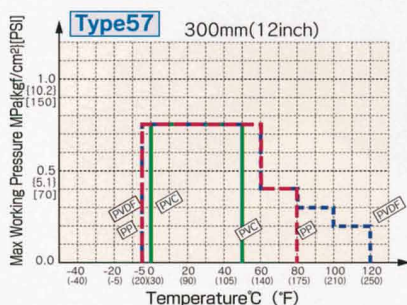
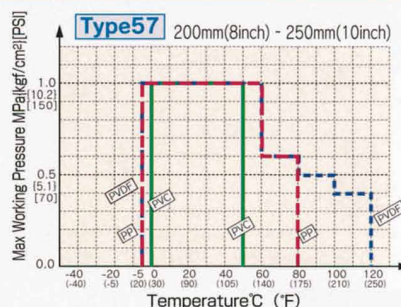
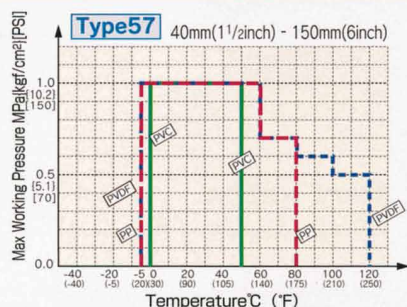
■ Wetted Part Lubricants Free (SPECIAL)

Note: Long stem type and chain drive type are available on special request.

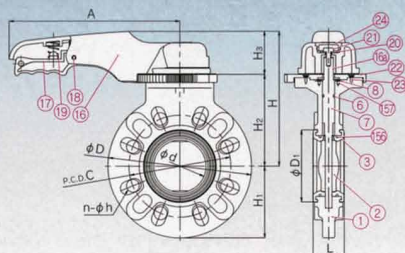
SPECIFICATIONS

Body material	Working Temperature °C (°F)	Max. Working Pressure MPa[kgf/cm²][PSI]	
		40mm-250mm(1½inch~10inch)	300mm·350mm(12inch·14inch)
Polyvinyl Chloride(PVC)	0 - 50(30 - 120)	1.0{10.2}[150]	0.75{7.7}[110]
Polypropylene(PP)	-5 - 80(20 - 175)	1.0{10.2}[150]	0.75{7.7}[110]
Polyvinylidene Fluoride(PVDF)	-5 - 120(20 - 250)	1.0{10.2}[150]	0.75{7.7}[110]

WORKING PRESSURE VS. TEMPERATURE



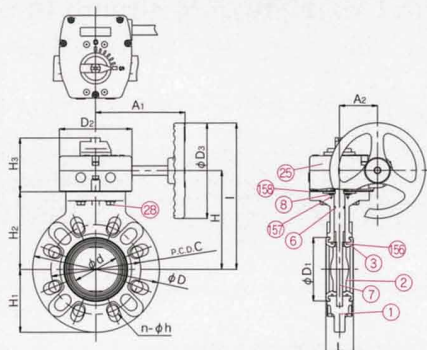
Lever Type ● 40mm(1½inch) – 200mm(8inch)



PARTS & MATERIALS

No.	DESCRIPTION	Pcs.	MATERIAL	No.	DESCRIPTION	Pcs.	MATERIAL
①	BODY	1	BODY/DISC PVC/PP PP/PP PVDF/PVDF PVC/PVC	⑮	PIN	1	PPG
②	DISC	1		⑯	SPRING	1	STAINLESS STEEL304
③	SEAT	1	EPDM FKM Others	⑰	WASHER (A)	1	STAINLESS STEEL304
⑥	O-RING(C)	1		⑱	BOLT (B)	1	STAINLESS STEEL304
⑦	STEM	1	STAINLESS STEEL403 Others	⑳	LOCKING PLATE	1	PPG
⑧	STEM RETAINER(A)	1	PP	㉑	SCREW (B)	4	STAINLESS STEEL304
⑫	HANDLE(A)	1	PP	㉒	CAP(A)	1	PP
⑬	HANDLE INSERTED METAL	1	STAINLESS STEEL316L	㉓	RETAINING RING	2	STAINLESS STEEL304
⑭	HANDLE LEVER	1	PPG	㉔	SCREW (F)	4	STAINLESS STEEL304

Gear Type ● 40mm(1½inch) – 350mm(14inch)



PARTS & MATERIALS

No.	DESCRIPTION	Pcs.	MATERIAL	No.	DESCRIPTION	Pcs.	MATERIAL
①	BODY	1	BODY/DISC PVC/PP PP/PP PVDF/PVDF	㉕	GEAR BOX	1	PLASTIC STAINLESS STEEL
②	DISC	1		㉖	BOLT (C)	4	STAINLESS STEEL304
③	SEAT	1	EPDM FKM Others	㉗	RETAINING RING	2	STAINLESS STEEL (SCS13)
⑥	O-RING(C)	1		㉘	SCREW (F)	4	STAINLESS STEEL304
⑦	STEM	1	STAINLESS STEEL403 Others	㉙	GASKET (L)	1	EPDM
⑧	STEM RETAINER (A)	1	PP				

DIMENSIONS TABLE

JIS																									Unit:mm
Nominal Size		d	JIS 5K			JIS 10K			D	D ₁	D ₂	D ₃	L	H		H ₁	H ₂		H ₃		I	A	A ₁	A ₂	Number of handle wheel rotation
mm	inch		C	n	h	C	n	h						LEVER GEAR			LEVER GEAR		LEVER GEAR						
40	1 1/2	45	95	4	15	105	4	19	150	71	122	160	39	156	130	75	100	95	56	92	210	220	167	64	9.5
50	2	56	105	4	15	120	4	19	165	81	122	160	42	166	140	83	110	105	56	92	220	220	167	64	
65	2 1/2	69	130	4	15	140	4	19	185	95	122	160	46	176	150	93	120	115	56	92	230	220	167	64	
80	3	77	145	4	19	150	8	19	211	105	122	160	46	191	165	106	135	130	56	92	245	250	167	64	
100	4	102	165	8	19	175	8	19	238	134	122	160	56	206	180	119	150	145	56	92	260	250	167	64	
125	5	129	200	8	19	210	8	23	263	169	122	160	66	237	195	132	168	160	69	92	275	320	167	64	
150	6	150	230	8	19	240	8	23	285	190	122	160	71	252	210	143	183	175	69	92	290	320	167	64	
200	8	195	280	8	23	290	12	23	340	242	122	160	87	283	241	170	214	206	69	92	321	400	167	64	
250	10	250	345	12	23	355	12	25	421	302	122	160	112	—	276	211	—	241	—	92	356	—	167	64	
300	12	303	390	12	23	400	16	25	488	360	188	300	129	—	340	244	—	298	—	108	490	—	242	99	
350	14	351	435	12	23	445	16	25	539	393	188	300	129	—	367	270	—	325	—	108	517	—	242	99	

DIN																						Unit:mm
Nominal Size		d	DIN PN 10			D	D ₁	D ₂	D ₃	L	H		H ₁	H ₂		H ₃		I	A	A ₁	A ₂	Number of handle wheel rotation
mm	inch		C	n	h						LEVER GEAR			LEVER GEAR		LEVER GEAR						
40	1 1/2	45	110	4	18	150	71	122	160	39	156	130	75	100	95	56	92	210	220	167	64	9.5
50	2	56	125	4	18	165	81	122	160	42	166	140	83	110	105	56	92	220	220	167	64	
65	2 1/2	69	145	4	18	185	95	122	160	46	176	150	93	120	115	56	92	230	220	167	64	
80	3	77	160	8	18	211	105	122	160	46	191	165	106	135	130	56	92	245	250	167	64	
100	4	102	180	8	18	238	134	122	160	56	206	180	119	150	145	56	92	260	250	167	64	
125	5	129	210	8	18	263	169	122	160	66	237	195	132	168	160	69	92	275	320	167	64	
150	6	150	240	8	22	285	190	122	160	71	252	210	143	183	175	69	92	290	320	167	64	
200	8	195	295	8	22	340	242	122	160	87	283	241	170	214	206	69	92	321	400	167	64	
250	10	250	350	12	22	421	302	122	160	112	—	276	211	—	241	—	92	356	—	167	64	
300	12	303	400	12	22	488	360	188	300	129	—	340	244	—	298	—	108	490	—	242	99	
350	14	351	460	16	22	539	393	188	300	129	—	367	270	—	325	—	108	517	—	242	99	

ANSI																					Unit:inch	
Nominal Size		d	ANSI CLASS 150			D	D ₁	D ₂	D ₃	L	H		H ₁	H ₂		H ₃		I	A	A ₁	A ₂	Number of handle wheel rotation
inch	mm		C	n	h						LEVER	GEAR		LEVER	GEAR	LEVER	GEAR					
1½	40	1.77	3.88	4	0.62	5.91	2.80	4.80	6.30	1.54	6.14	5.12	2.95	3.94	3.74	2.20	3.62	8.27	8.66	6.57	2.52	9.5
2	50	2.20	4.75	4	0.75	6.50	3.19	4.80	6.30	1.65	6.54	5.51	3.25	4.33	4.13	2.20	3.62	8.66	8.66	6.57	2.52	
2½	65	2.72	5.50	4	0.75	7.28	3.74	4.80	6.30	1.81	6.93	5.91	3.64	4.72	4.53	2.20	3.62	9.06	8.66	6.57	2.52	
3	80	3.03	6.00	4	0.75	8.31	4.13	4.80	6.30	1.81	7.52	6.50	4.15	5.31	5.12	2.20	3.62	9.65	9.84	6.57	2.52	
4	100	4.02	7.50	8	0.75	9.37	5.28	4.80	6.30	2.20	8.11	7.09	4.69	5.91	5.71	2.20	3.62	10.24	9.84	6.57	2.52	
5	125	5.08	8.50	8	0.88	10.35	6.65	4.80	6.30	2.60	9.33	7.68	5.20	6.61	6.30	2.72	3.62	10.83	12.60	6.57	2.52	
6	150	5.91	9.50	8	0.88	11.22	7.48	4.80	6.30	2.80	9.92	8.27	5.61	7.20	6.89	2.72	3.62	11.42	12.60	6.57	2.52	
8	200	7.68	11.75	8	0.88	13.39	9.53	4.80	6.30	3.43	11.14	9.49	6.69	8.43	8.11	2.72	3.62	12.64	15.75	6.57	2.52	
10	250	9.84	14.25	12	1.00	16.57	11.89	4.80	6.30	4.41	—	10.87	8.31	—	9.49	—	3.62	14.02	—	6.57	2.52	
12	300	11.93	17.00	12	1.00	19.21	14.17	7.40	11.81	5.08	—	13.39	9.61	—	11.73	—	4.25	19.29	—	9.53	3.90	
14	350	13.82	18.75	12	1.12	21.22	15.47	7.40	11.81	5.08	—	14.45	10.63	—	12.80	—	4.25	20.35	—	9.53	3.90	

Note. The shape and appearance of the actual assembly may differ slightly in nominal size as compared with this drawing.

LAB COCK

FEATURES

- The LAB COCK is a compact, light weight plastic valve which is highly corrosion-resistant, in durable.

NSF Product

NSF("NSF/ANSI STANDARD 61" Drinking Water System Components-Health Effects)Product.

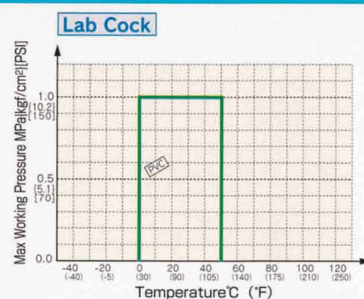
:LAB COCK(Material:PVC+EPDM)

*Certified products bear an NSF Certification Mark.

MATERIAL AND WORKING TEMPERATURE

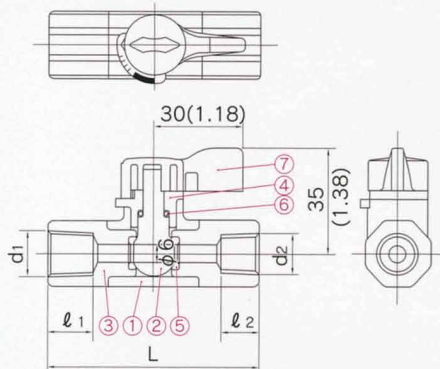
Body material	Unplasticized Polyvinyl Chloride(PVC)
Working Temperature	0°C - 50°C (30° F - 120° F)
Max. Working Pressure	1.0MPa{10.2kgf/cm ² } [150PSI]
End Connectors	Hose, Male thread, Female thread
Nominal Size	●Hose: 12 to 15mm(standard hose inner diameter) ●Male thread: 1/4, 1/2 ●Female thread: 1/4, 3/8

WORKING PRESSURE VS. TEMPERATURE

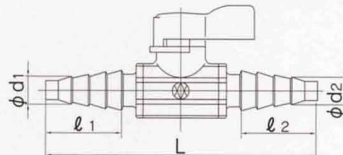


DIMENSION

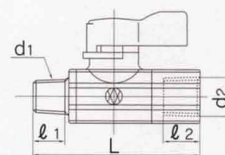
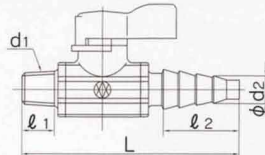
FEMALE THREAD × FEMALE THREAD



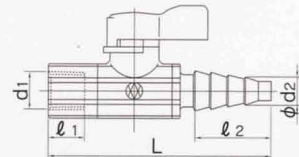
HOSE × HOSE



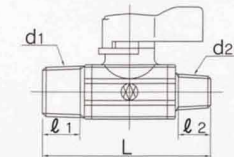
MALE THREAD × HOSE



FEMALE THREAD × HOSE



MALE THREAD × MALE THREAD



PARTS & MATERIALS

No.	DESCRIPTION	Pcs.	MATERIAL
①	BODY	1	PVC
②	BALL & STEM	1	PVC
③	END CONNECTOR	2	PVC
④	GLAND	1	PVC
⑤	SEAT	2	EPDM, PTFE, others
⑥	O-RING	1	EPDM, others
⑦	HANDLE	1	ABS

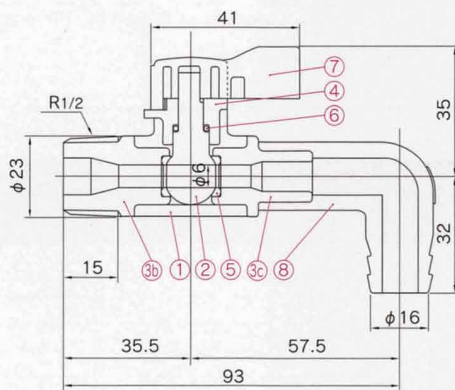
DIMENSIONS TABLE

JIS	d ₁	d ₂	ℓ ₁	ℓ ₂	L	Unit:mm
FEMALE THREAD × FEMALE THREAD	Rc 1/4	Rc 1/4	15	15	71	
	Rc 3/8	Rc 1/4	15	15	71	
	Rc 3/8	Rc 3/8	15	15	71	
HOSE × HOSE	10	10	30.5	30.5	111	
FEMALE THREAD × HOSE	Rc 1/4	10	15	30.5	91	
	Rc 3/8	10	15	30.5	91	
MALE THREAD × HOSE	R 1/4	10	13	30.5	88.5	
	R 1/2	10	15	30.5	91	
	R 1/4	R 1/4	13	13	66	
MALE THREAD × MALE THREAD	R 1/2	R 1/4	15	13	68.5	
	R 1/2	R 1/2	15	15	71	
	R 1/4	Rc 1/4	13	15	68.5	
	R 1/4	Rc 3/8	13	15	68.5	
	R 1/2	Rc 1/4	15	15	71	
	R 1/2	Rc 3/8	15	15	71	

DIN														Unit:mm
		d ₁	d ₂	ℓ ₁	ℓ ₂	L			d ₁	d ₂	ℓ ₁	ℓ ₂	L	
①	FEMALE THREAD × FEMALE THREAD	Rp 1/4	Rp 1/4	15	15	71	④	MALE THREAD × HOSE	R 1/4	10	13	30.5	88.5	
		Rp 3/8	Rp 1/4	15	15	71			R 1/2	10	15	30.5	91	
		Rp 3/8	Rp 3/8	15	15	71			R 1/4	R 1/4	13	13	66	
②	HOSE×HOSE	10	10	30.5	30.5	111	⑤	MALE THREAD × MALE THREAD	R 1/2	R 1/4	15	13	68.5	
③	FEMALE THREAD × HOSE	Rp 1/4	10	15	30.5	91			R 1/2	R 1/2	15	15	71	
		Rp 3/8	10	15	30.5	91			R 1/4	Rp 1/4	13	15	68.5	
							⑥	MALE THREAD × FEMALE THREAD	R 1/4	Rp 3/8	13	15	68.5	
									R 1/2	Rp 1/4	15	15	71	
									R 1/2	Rp 3/8	15	15	71	

ANSI							Unit:inch						
		d ₁	d ₂	ℓ ₁	ℓ ₂	L			d ₁	d ₂	ℓ ₁	ℓ ₂	L
①	FEMALE THREAD × FEMALE THREAD	1/4-18NPT	1/4-18NPT	0.51	0.51	2.80	④	MALE THREAD × HOSE	1/4-18NPT	0.39	0.51	1.20	3.48
		3/8-18NPT	1/4-18NPT	0.59	0.51	2.80			1/2-14NPT	0.39	0.59	1.20	3.58
		3/8-18NPT	3/8-18NPT	0.59	0.59	2.80			1/4-18NPT	1/4-18NPT	0.51	0.51	2.60
②	HOSE×HOSE	0.39	0.39	1.20	1.20	4.37	⑤	MALE THREAD × MALE THREAD	1/2-14NPT	1/4-18NPT	0.59	0.51	2.70
③	FEMALE THREAD × HOSE	1/4-18NPT	0.39	0.51	1.20	3.58			1/2-14NPT	1/2-14NPT	0.59	0.59	2.80
		3/8-18NPT	0.39	0.59	1.20	3.58			1/4-18NPT	1/4-18NPT	0.51	0.51	2.70
							⑥	MALE THREAD × FEMALE THREAD	1/4-18NPT	3/8-18NPT	0.51	0.59	2.70
									1/2-14NPT	1/4-18NPT	0.59	0.51	2.80
									1/2-14NPT	3/8-18NPT	0.59	0.59	2.80
							⑦	MALE THREAD × ELBOW	1/2-14NPT	0.63	0.59	1.26	3.66

LAB COCK 1/2inch MALE THREAD × ELBOW16mm



MATERIAL AND WORKING TEMPERATURE

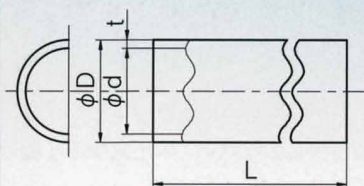
Body material	Unplasticized Polyvinyl Chloride(PVC)
Working Temperature	0°C - 50°C (30° F - 120° F)
Max. Working Pressure	1.0MPa{10.2kgf/cm ² } [150PSI]
End Connectors	R1/2inch Male thread × Elbow16mm

PARTS & MATERIALS

No.	DESCRIPTION	Pcs.	MATERIAL
①	BODY	1	PVC
②	BALL & STEM	1	PVC
③a	END CONNECTOR	1	PVC
③c	END CONNECTOR	1	PVC
④	GLAND	1	PVC
⑤	SEAT	2	PTFE
⑥	O-RING	1	EPDM, Others
⑦	HANDLE	1	ABS
⑧	ELBOW	1	PVC

HP-PVC PIPE & FITTINGS

HP-PVC Pipe <CLASS VP:JIS K6741>



Working Pressure with Temperature

MPa {kgf/cm²}

Nom. Size	Temp.	20℃	30℃	40℃	50℃
13mm - 250mm		1.0{10.2}	0.9{9.2}	0.7{7.1}	0.3{3.1}

Note: This data is applicable for ultrapure water.

●HP-PVC Pipe <CLASS VP:JIS K6741>

Unit:mm

Nominal Size (mm)	D			t		d	L
	Outer diameter			Wall Thickness		Approximate I.D. (for reference)	Length
	Basic Dimension (mm)	Maximum and Minimum tolerances	Average tolerances	Minimum	Tolerance		
13	18	±0.2	±0.2	2.2	+0.6	13	4,000±10
16	22	±0.2	±0.2	2.7	+0.6	16	4,000±10
20	26	±0.2	±0.2	2.7	+0.6	20	4,000±10
25	32	±0.2	±0.2	3.1	+0.8	25	4,000±10
30	38	±0.3	±0.2	3.1	+0.8	31	4,000±10
40	48	±0.3	±0.2	3.5	+0.8	40	4,000±10
50	60	±0.4	±0.2	4.1	+0.8	51	4,000±10
65	76	±0.5	±0.3	4.1	+0.8	67	4,000±10
75	89	±0.5	±0.3	5.5	+0.8	77	4,000±10
100	114	±0.6	±0.4	6.6	+1.0	100	4,000±10
125	140	±0.8	±0.5	7.0	+1.0	125	4,000±10
150	165	±1.0	±0.5	8.9	+1.4	146	4,000±10
200	216	±1.3	±0.7	10.3	+1.4	194	4,000±10
250	267	±1.6	±0.9	12.7	+1.8	240	4,000±10

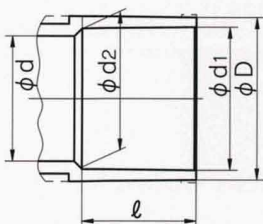
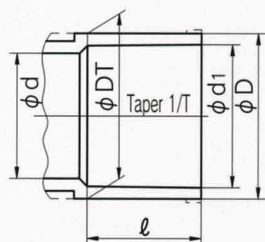
(Note)

- The tolerances of lengths are ± 10mm.
- The maximum and minimum tolerances on outside diameters are the tolerances on O.D. measurements taken at randomly selected spots.
- The average tolerances on outside diameters are the tolerances on the arithmetical mean of O.D. measurements taken at randomly selected spots in two directions at a right angle to each other.

Dimensions Common All of AV TS Socket. JIS K6743

▼13mm - 150mm

▼200mm - 250mm



Working Pressure with Temperature

MPa {kgf/cm²}

Nom. Size	Temp.	20℃	30℃	40℃	50℃
13mm - 150mm		1.0{10.2}	0.9{9.2}	0.7{7.1}	0.3{3.1}
200mm		0.75{7.7}	0.6{6.1}	0.5{5.1}	0.25{2.6}
250mm		0.6{6.1}	0.5{5.1}	0.4{4.1}	0.2{2.0}

Note: This data is applicable for ultrapure water.

●Dimensions Common All of AV TS Socket. JIS K6743

Unit:mm

Nominal Size (mm)	d ₁	Tolerance on d ₁	d ₂	ℓ	1/T	D	DT	Tolerance on D&DT	d (minimum value)	Pipe O.D.
13	18.40	±0.20	—	26	1/30	24	24.0	-0.6	13	18
16	22.40	±0.20	—	30	1/34	29	29.0	-0.7	16	22
20	26.45	±0.20	—	35	1/34	33	33.0	-0.8	20	26
25	32.55	±0.25	—	40	1/34	40	40.0	-1.0	25	32
30	38.60	±0.25	—	44	1/34	46	46.0	-1.0	31	38
40	48.70	±0.30	—	55	1/37	57	57.0	-1.2	40	48
50	60.80	±0.30	—	63	1/37	70	70.0	-1.5	51	60
※65	76.60	±0.30	—	61	1/48	87	88.5	-1.5	67	76
75	89.60	±0.30	—	64	1/49	102	104.5	-1.5	77	89
100	114.70	±0.30	—	84	1/56	130	133.5	-1.8	100	114
※125	140.85	±0.35	—	104	1/58	157	161.0	-1.8	125	140
150	166.00	±0.40	—	132	1/63	186	190.0	-2.0	146	165
※200	217.00	—	214.10	145	—	240	—	—	194	216
※250	268.20	—	265.00	155	—	295	—	—	247	267

(Note)

- The tolerances on ℓ are +4/-0.5mm.
- The Nominal Size marked with ※ conform to the AV standard and the JPPFA standard.

Fittings in size 200, 250mm are available on request by FRP reinforcement.

Max working pressure

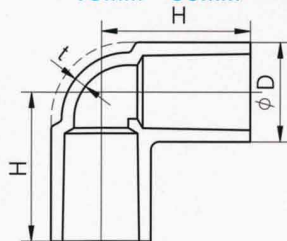
200mm : 1.0MPa{10.2kgf/cm²} at 20℃

250mm : 0.75MPa{7.7kgf/cm²} at 20℃

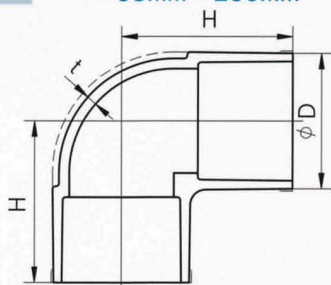
Elbow(L)



▼13mm - 50mm



▼65mm - 250mm



●Elbow(L)

Unit:mm

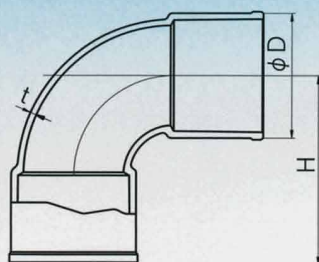
Nominal Size (mm)	D	t	H
13	24	3.0	36
16	29	3.5	43
20	33	3.5	50
25	40	4.0	58
30	46	4.0	65
40	57	4.5	82
50	70	5.0	96
※ 65	87	6.6	110
※ 75	102	8.0	120
※ 100	130	10.0	153
※ 125	157	11.0	188
※ 150	186	13.0	230
□ 200	240	15	265
□ 250	295	16	310

(Note)

- The tolerances on H are +5/-1mm.
- The Nominal Size marked with ※ conform to the JPPFA standard.
- The Nominal Size marked with □ conform to the AV standard.

HP-PVC PIPE & FITTINGS

90° AV Bend



●90° AV Bend

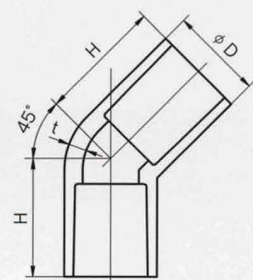
Unit:mm

Nominal Size(mm)	D	t	H
□200	240	15	341
□250	293	16	402

(Note)

1.The Nominal Size marked with □ conform to the AV standard.

45° Elbow(45L)

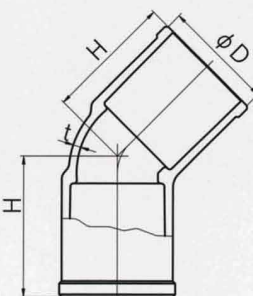


●45° Elbow(45L)

Unit:mm

Nominal Size(mm)	D	t	H
20	33	3.5	44
25	40	4.0	51

45° AV Bend



●45° AV Bend

Unit:mm

Nominal Size(mm)	D	t	H
40	57	4.5	69
50	70	5.0	80
65	87	6.0	81
□ 75	101	6.6	97
□ 100	129	7.3	122
□ 125	156	7.7	149
□ 150	185	10.0	184
□ 200	240	15	193
□ 250	293	16	213

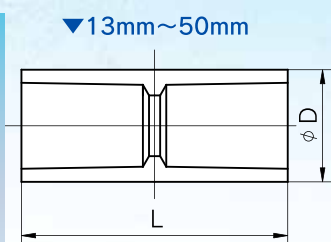
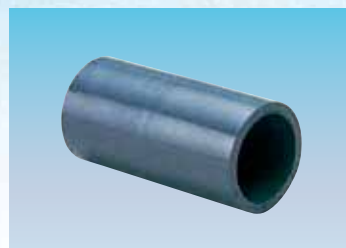
(Note)

1.The Nominal Size marked with □ conform to the AV standard.

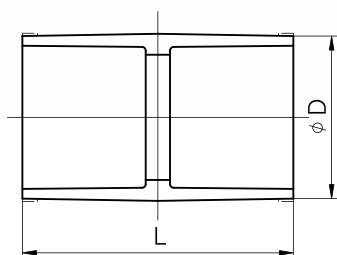
TRUE UNION DIAPHRAGM VALVE TYPE14
BALL VALVE TYPE21
PANEL MOUNTING
LAB COCK
HP-PVC PIPES & FITTINGS
HP-PVC FITTINGS
AV PREFAB JOINT
AV FLANGE
MULTI-JOINT
AV GASKET
TECHNICAL DATA
CONVERSION TABLE FOR PRESSURE UNITS
PRODUCT WARRANTY

HP-PVC FITTINGS

Socket(S)



▼65mm~250mm



●Socket(S)

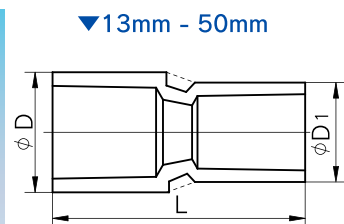
Unit:mm

Nominal Size (mm)	D	L
13	24	57
16	29	67
20	33	77
25	40	87
30	46	95
40	57	117
50	70	133
※ 65	87	145
75	102	155
100	130	200
※ 125	157	240
150	186	300
□ 200	235	300
□ 250	295	353

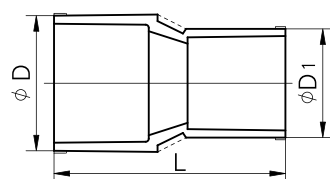
(Note)

- 1.The tolerances on L are ± 4 mm.
- 2.The Nominal Size marked with ※ conform to the JPPFA standard.
- 3.The Nominal Size marked with □ conform to the AV standard.

Reducing Socket(RS)



▼65mm - 250mm



●Reducing Socket(RS)

Unit:mm

Nominal Size (mm)	D	D1	L
20×13	33	24	68
20×16	33	29	71
25×13	40	24	86
25×16	40	29	85
25×20	40	33	84
○ 30×13	48.2	28.2	73.2
○ 30×20	48.2	36.2	83
30×25	46	40	93
※ 40×20	57	33	113
40×25	57	40	114
40×30	57	46	114
※ 50×20	70	33	116
※ 50×25	70	40	140
50×40	70	57	136
※ 65×50	87	70	149
75×50	102	70	165
※ 75×65	102	87	159
100×75	130	102	190
※ 125×100	157	130	229
※ 150×125	186	157	272
□ 200×150	240	186	356
□ 250×200	293	240	383

(Note)

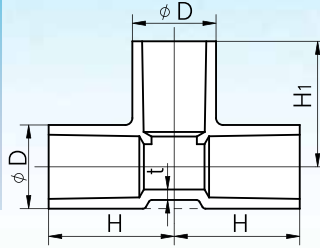
- 1.The tolerances on L are ± 4.0 mm.
- 2.The Nominal Size marked with ※ conform to the JPPFA standard.
- 3.The Nominal Size marked with □ conform to the AV standard.
- 4.○ There sizes are not in accordance with JISK 6743 and therefore welding arrangement is not available.

HP-PVC FITTINGS

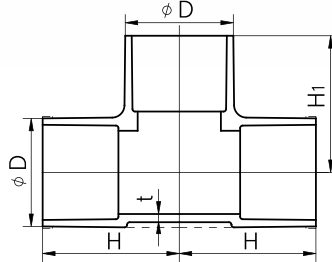
Tee(T)



▼13mm - 50mm



▼65mm - 250mm



●Tee(T)

Unit:mm

Nominal Size (mm)	D	t	H	H ₁
13	24	3.0	36	36
16	29	3.5	43	43
20	33	3.5	50	50
25	40	4.0	58	58
30	46	4.0	65	65
40	57	4.5	82	82
50	70	5.0	96	96
※ 65	87	6.6	110	110
75	102	8.0	120	120
100	130	10.0	152	152
※ 125	157	11.0	187	187
150	186	13.0	230	230
□ 200	240	15	266	266
□ 250	295	16	331	331

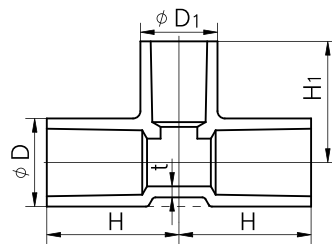
(Note)

- 1.The tolerances on H are +5/-1mm.
- 2.The Nominal Size marked with ※ conform to the JPPFA standard.
- 3.The Nominal Size marked with □ conform to the AV standard.

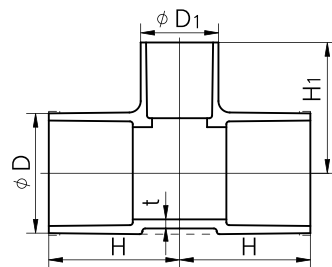
Reducing Tee(RT)



▼13mm - 50mm



▼65mm - 250mm



●Reducing Tee(RT)

Unit:mm

Nominal Size (mm)	D	t	H	D ₁	H ₁
16× 13	29	3.5	41	24	38
20× 13	33	3.5	46	24	40
20× 16	33	3.5	48	29	45
25× 13	40	4.0	51	24	43
25× 16	40	4.0	53	29	48
25× 20	40	4.0	55	33	53
○30× 13	48.2	6.5	54.7	28.2	44
30× 16	46	4.0	57	29	51
30× 20	46	4.0	59	33	56
30× 25	46	4.0	62	40	61
40× 13	57	4.5	66	24	52
○40× 16	58.4	5.2	62.4	30.9	52.5
40× 20	57	4.5	70	33	62
40× 25	57	4.5	73	40	67
40× 30	57	4.5	76	46	71
50× 13	70	5.0	74	24	58
50× 16	70	5.0	76	29	63
50× 20	70	5.0	78	33	68
50× 25	70	5.0	81	40	73
50× 30	70	5.0	84	46	77
50× 40	70	5.0	90	57	88
※ 65× 40	87	6.6	100	57	95
※ 65× 50	87	6.6	101	70	104
75× 25	102	8.0	93	40	88
75× 40	102	8.0	100	57	102
75× 50	102	8.0	105	70	110
100× 50	130	10.0	125	70	122
100× 75	130	10.0	140	102	132
※ 125× 75	157	11.0	160	102	147
※ 125× 100	157	11.0	173	130	167
150× 75	186	13.0	195	102	158
150× 100	186	13.0	208	130	182
※ 150× 125	186	13.0	217	157	201
□ 200× 75	240	15	201	102	180
□ 200× 100	240	15	215	130	200
□ 200× 150	240	15	238	188	253
□ 250× 75	295	16	226	108	210
□ 250× 100	295	16	246	136	225
□ 250× 200	295	16	304	245	310

(Note)

- 1.The tolerances on H are +5/-1mm.
- 2.The Nominal Size marked with ※ conform to the JPPFA standard.
- 3.The Nominal Size marked with □ conform to the AV standard.
- 4.○ There sizes are not in accordance with JISK 6743 and therefore welding arrangement is not available.

TRUE UNION DIAPHRAGM VALVE TYPE14

BALL VALVE TYPE21

PANEL MOUNTING

LAB COCK

HP-PVC PIPES & FITTINGS

HP-PVC FITTINGS

AV PREFAB JOINT

AV FLANGE

MULTI-JOINT

AV GASKET

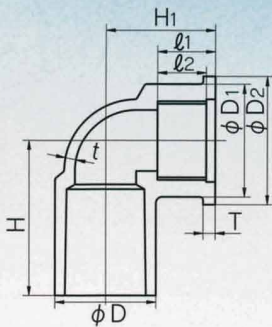
TECHNICAL DATA

CONVERSION TABLE FOR PRESSURE UNITS

PRODUCT WARRANTY

HP-PVC FITTINGS

Faucet Elbow(FL)



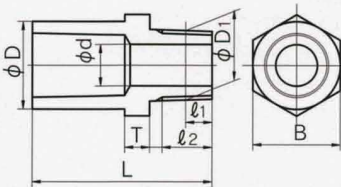
●Faucet Elbow(FL)										Unit:mm
Nominal Size (mm)	D	t	D ₁	D ₂	ℓ ₁	ℓ ₂	T	H	H ₁ S形	Nominal size of female threads
□ 13	24	3.0	30	34	17	14	4	38	29	Rp ¹ / ₂
□ 16	29	3.5	30	34	17	14	4	43	32	Rp ¹ / ₂
□ 20	33	3.5	37	42	19	16	4	51	36	Rp ³ / ₄
□ 25	40	4.0	46	52	21	18	5	59	40	Rp1

- (Note)
- 1.The threaded portions employ parallel female threads specified in JIS B 0203(Taper Pipe Threads).
 - 2.The tolerances on H are +5/-2mm.
 - 3.The tolerances on H₁ are +5/-2mm.
 - 4.The Nominal Size marked with □ conform to the AV standard.
 - 5.The tolerances on ℓ₂ are ±1mm.

Precautions in use

- when connecting threaded portions, use both sealing tape and gaskets jointly.
- Do not use HP-PVC Faucet Elbows to connect steel pipes and PVC pipes.
- Secure the elbows with fixtures.

Valve Socket(VS)



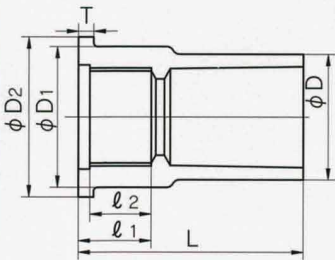
●Valve Socket(VS)										Unit:mm
Nominal Size (mm)	D	d	O.D. of basic form D ₁	Number of threads per inch	Location of basic diameter ℓ ₁	ℓ ₂ (Minimum)	T	L	B	
13×1/2	24	13	20.955	14	8.16	13.16	6	50	24	
16×1/2	29	13	20.955	14	8.20	15	6	54	29	
20×3/4	33	18	26.441	14	9.53	14.53	8	64	33	
25×1	40	23	33.249	11	10.39	16.79	8	71	40	
30×1 1/4	46	31	41.910	11	12.70	19.10	10	80	46	
40×1 1/2	57	37	47.803	11	12.70	19.10	10	92	57	
50×2	70	48	59.614	11	15.88	23.38	12	106	70	
□ 65×2 1/2	87	62	75.184	11	17.46	26	14	118	87	
□ 75×3	102	72	87.884	11	20.64	30	16	128	102	
□ 100×4	130	96	113.030	11	25.40	36	18	157	130	

- (Note)
- 1.The threaded portions employ parallel female threads specified in JIS B 0203(Taper Pipe Threads).
 - 2.The tolerances on L are +5/-2mm.
 - 3.The Nominal Size marked with ※ conform to the JPPFA standard.
 - 4.The Nominal Size marked with □ conform to the AV standard.

Precautions in use

- Do not repeat screw-in and removal.
- when connecting threaded portions, use sealing tape.

Faucet Socket(FS)



●Faucet Socket(FS)									Unit:mm
Nominal Size (mm)	D	D ₁	D ₂	ℓ ₁	ℓ ₂	T	L	Nominal size of female threads	
□ 13	24	30	34	17	14	4	47	Rp ¹ / ₂	
□ 16	29	30	34	17	24	4	52	Rp ¹ / ₂	
□ 20	33	37	42	19	16	4	59	Rp ³ / ₄	
□ 25	40	46	52	21	18	5	68	Rp1	

- (Note)
- 1.The threaded portions employ parallel female threads specified in JIS B 0203(Taper Pipe Threads).
 - 2.The tolerances on L are +5/-1mm.
 - 3.The tolerances on ℓ₂ are ±1mm.
 - 4.The Nominal Size marked with □ conform to the AV standard.

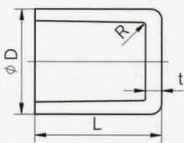
Precautions in use

- when connecting threaded portions, use both sealing tape and gaskets jointly.
- Do not use HP-PVC Faucet Elbows to connect steel pipes and PVC pipes.
- Secure the elbows with fixtures.

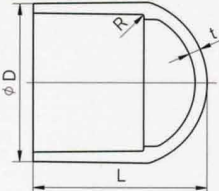
Cap(C)



▼13mm - 50mm



▼65mm - 100mm



●Cap(C)				Unit:mm
Nominal Size (mm)	D	t	L	
13	24	3.0	29.0	
16	29	3.5	33.5	
20	33	3.5	38.5	
25	40	4.0	44.0	
40	57	4.5	59.5	
50	70	5.0	68.0	
※ 65	87	6.6	96.0	
75	102	8.0	105.0	
100	130	10.0	138.0	

- (Note)
- 1.The tolerances on L are +5/-20mm.
 - 2.The Nominal Size marked with ※ conform to the JPPFA standard.
 - 3.R is 1 to 5mm

AV PREFAB JOINT <UNION>

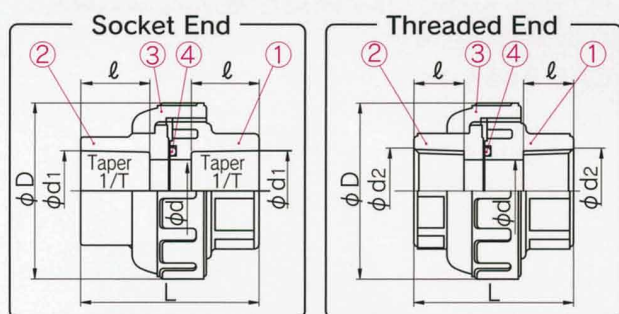


SPECIFICATIONS

Material	Working temperature	Working pressure MPa{kgf/cm ² }	Nominal Size (mm)	Connection
Unplasticized Polyvinyl Chloride (U-PVC)	0°C~50°C	1.0{10.2}	13~100	Socket End
			13~50	Threaded End
Chlorinated Polyvinyl Chloride (C-PVC)	0°C~90°C	1.0{10.2}	13~100	Socket End

(Note)

For pressure limits by working temperature ranges and materials, see "WORKING PRESSURE VS. TEMPERATURE" in this catalog.



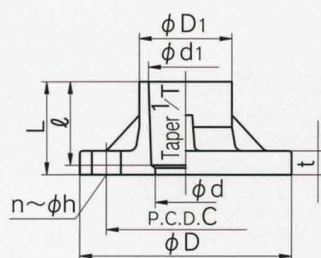
PARTS & MATERIALS

No.	DESCRIPTION	Pcs.	MATERIAL
①	BODY	1	U-PVC, C-PVC
②	END CONNECTOR	1	U-PVC, C-PVC
③	UNION NUT	1	U-PVC, C-PVC
④	O-RING	1	EPDM, FKM, others

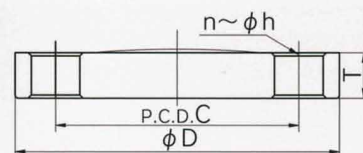
Unit:mm										
Nominal Size		d	Socket End U-PVC, C-PVC				Threaded End U-PVC			D
mm	inch		d ₁	ℓ	1/T	L	d ₁	ℓ	L	
13	3/8	13	18.13	18	1/34	46.0	RC3/8	15	43	48
16	1/2	15	22.11	20	1/34	46.0	Rc1/2	15	43	48
20	3/4	20	26.13	24	1/34	61.0	RC3/4	17	57	60
25	1	25	32.16	27	1/34	70.0	Rc1	20	63	70
30	1 1/4	31	38.19	30	1/34	77.0	Rc1 1/4	22	71	82
40	1 1/2	40	48.21	37	1/37	95.0	Rc1 1/2	25	82	100
50	2	51	60.25	42	1/37	107.0	Rc2	28	96	106
65	2 1/2	65	76.60	61	1/48	164.0	—	—	—	133
75	3	77	89.60	64	1/49	189.5	—	—	—	152
100	4	100	114.70	84	1/56	245.0	—	—	—	210

AV FLANGE <HP-PVC>

AV TS FLANGE(JIS 10K 13mm - 200mm)



AV Q FLANGE(JIS 10K 15mm - 150mm)



※The figure described by broken (dashed) line shows shape of Q-flange applied for dead end service of piping.

													Unit:mm
Nominal Size		d	JIS 10K				d ₁	Taper 1/T	D ₁	t	T	ℓ ^{+4.0 -0.5}	L
mm	inch		D	C	n	h							
13	3/8	15	90	65	4	15	18.40±0.20	1/30	25.5	14	—	26	30.0
15	1/2	18	95	70	4	15	22.40±0.20	1/34	31.0	14	12	30	35.0
20	3/4	22	100	75	4	15	26.45±0.20	1/34	35.0	15	14	35	40.0
25	1	25	125	90	4	19	32.55±0.25	1/34	42.5	15	14	40	46.0
32	1 1/4	30	135	100	4	19	38.60±0.25	1/34	48.5	16	16	44	50.5
40	1 1/2	41	140	105	4	19	48.70±0.30	1/37	60.5	16	16	55	61.5
50	2	52	155	120	4	19	60.80±0.30	1/37	73.0	20	16	63	71.0
65	2 1/2	67	175	140	4	19	76.60±0.30	1/48	90.0	22	18	61	70.0
80(75)	3	78	185	150	8	19	89.60±0.30	1/49	105.0	22	18	64	73.0
100	4	100	210	175	8	19	114.70±0.30	1/56	131.0	22	18	84	93.0
125	5	125	250	210	8	23	140.85±0.35	1/58	158.0	24	20	104	114.0
150	6	146	280	240	8	23	166.00±0.40	1/63	185.0	26	22	132	142.0
200	8	196	330	290	12	23	217.00±1.00	1/50	238.0	28	—	145	156.0
250	10	247	400	355	12	25	268.00±1.50	1/55	289.0	30	—	155	167.0

(Note)

1. For details of AV Flanges, refer to the individual catalogs of appropriate AV Flanges.
2. Products compliant with the clean water standard or ANSI standard are also available.

MULTI-JOINT



FEATURES

High Safety Factor By A Molding

(Multi-Joint Type "L" with Female connection 40mm - 150mm) They are produced by "Injection molding" which provides customers with complete reliability and durability.

Specifications

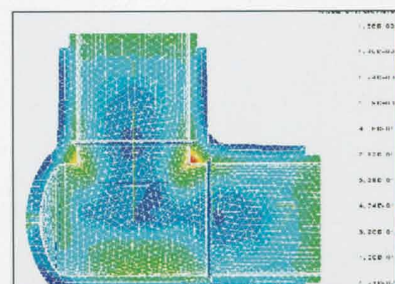
Types : Type "L", Type "T"

Sizes : 20mm - 200mm (JIS standard)

Connection: Both types are classified by female and socket connection respectively, which enable users to have multiple selections in connection with sensors, sampling valves, etc.

Designed By CAE Analysis

Multi-Joint is designed in a way to optimize many factors relating to piping stress by "CAE Hydromechanical Analysis".



High Performance

Such unique design as above gives customers not only high pressure resistance in short term but also resistance against periodic pressure change in long term.

And the Multi-Joint made by machining are all passed through tough tests in our factory and then delivered to our customers.

Chemical Resistance & High Purity

Since the material is "High Purity PVC", the "Joint" has excellent chemical resistance and extremely low leaching performance. And almost all the processes are controlled in our clean room to keep their performance as perfect as possible.



THREADED TYPE L



THREADED TYPE T



SOCKET TYPE L



SOCKET TYPE T

THREADED Type L

Nominal Size (mm)	Rc				NPT			
	1/4	3/8	1/2	3/4	1/4	3/8	1/2	3/4
20 × 20	○	○	—	—	○	○	—	—
25 × 25	○	○	—	—	○	○	—	—
30 × 30	○	○	—	—	○	○	—	—
40 × 40	○	○	○	○	○	○	○	○
50 × 50	○	○	○	○	○	○	○	○
65 × 65	○	○	○	○	○	○	○	○
75 × 75	○	○	○	○	○	○	○	○
100 × 100	○	○	○	○	○	○	○	○
125 × 125	○	○	○	○	○	○	○	○
150 × 150	○	○	○	○	○	○	○	○
200 × 200	○	○	○	○	○	○	○	○

THREADED Type T

Nominal Size (mm)	Rc				NPT			
	1/4	3/8	1/2	3/4	1/4	3/8	1/2	3/4
20 × 20	○	○	—	—	○	○	—	—
25 × 25	○	○	—	—	○	○	—	—
30 × 30	○	○	—	—	○	○	—	—
40 × 40	○	○	○	○	○	○	○	○
50 × 40	○	○	○	○	○	○	○	○
65 × 40	○	○	○	○	○	○	○	○
75 × 40	○	○	○	○	○	○	○	○
100 × 75	○	○	○	○	○	○	○	○
125 × 75	○	○	○	○	○	○	○	○
150 × 75	○	○	○	○	○	○	○	○
200 × 75	○	○	○	○	○	○	○	○

SPECIFICATIONS

Body material	High purity polyvinyl chloride
End Connectors	Threaded, Socket
Nominal Size	20mm - 200mm
Working Temperature	50°C
Max. Working Pressure	1.0MPa

SOCKET Type L · T

Nominal Size (mm)	Type	16	20	25	40	50	65	75	100	125
40	L	○	○	○						
	T	○	●	●						
50	L	○	○	○						
	T	●	●	●						
65	L	○	○	○	○					
	T	○	○	○	●					
75	L	○	○	○	○	○				
	T	○	○	●	●	●				
100	L	○	○	○	○	○	○			
	T	○	○	○	○	●	○			
125	L	○	○	○	○	○	○	○		
	T	○	○	○	○	○	○	●		
150	L	○	○	○	○	○	○	○	○	
	T	○	○	○	○	○	○	●	●	
200	L	○	○	○	○	○	○	○	○	○
	T	○	○	○	○	○	○	●	●	○

※ ● This product can correspond with ASAHI AV TS FITTINGS.

BALL VALVE TYPE21



LAB COCK



HP-PVC FITTINGS



AV FLANGE

- ## MULTI-JOINT

AV GASKET

- ## SPECIFICATIONS

*1 Except for 1 1/4 inch and 2 1/2 inch

Voflon-C has superior resistance to chlorine containing media such as Chlorine Water, NaCl and ClO₂.

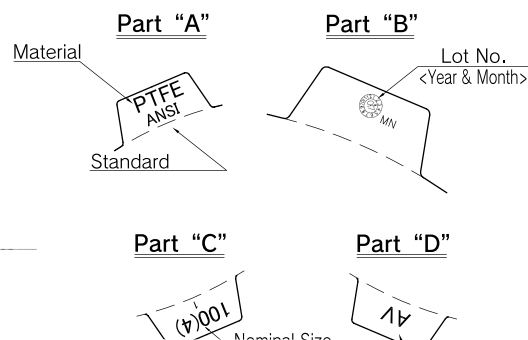
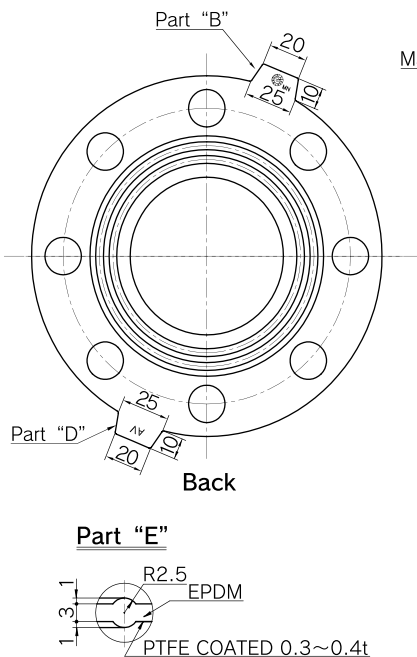
Technical drawing of a flange assembly, showing a front view and a side view.

Front View:

- The flange is circular with a central bore.
- There are six bolt holes arranged in a circle.
- Labels: "Part 'A'" points to the flange body, "Product Name" points to the central bore area, and "Part 'C'" points to a label on the bolt holes.
- Dimensions:
 - 20 (outer diameter of the flange)
 - 25 (inner diameter of the flange)
 - 25 (outer diameter of the bolt holes)
 - 20 (inner diameter of the bolt holes)
 - 10 (thickness of the flange)
- Text: "PIPE AND AV. PACKING GASKET" is written on the flange.
- Text: "n-φe" is written near the bolt holes.

Side View:

- The side view shows the flange profile with a central bore.
- Labels: "Part 'E'" points to the central bore.
- Dimensions:
 - ϕD_1 (outer diameter of the flange)
 - ϕd_1 (inner diameter of the flange)
 - ϕd_2 (outer diameter of the bolt holes)
 - ϕd_3 (inner diameter of the bolt holes)
 - P.C.D. D_2 (Pitch Circle Diameter of the bolt holes)
 - ϕD_3 (inner diameter of the central bore)

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DIMENSIONS TABLE
Full-Face Type (JIS 10K)

Unit:mm

Nominal Size		D ₁	D ₂	D ₃	n	e	d ₁	d ₂
mm	inch							
13	3/8	15	65	88	4	15	22	37
15	1/2	18	70	93	4	15	26	41
20	3/4	22	75	98	4	15	32	47
25	1	30	90	123	4	19	38	53
32	1 1/4	37	100	133	4	19	50	65
40	1 1/2	43	105	138	4	19	54	69
50	2	54	120	153	4	19	68	83
65	2 1/2	69	140	173	4	19	86	101
80(75)	3	80	150	183	8	19	98	112
100	4	102	175	208	8	19	120	138
125	5	127	210	248	8	23	145	166
150	6	150	240	278	8	23	168	190
200	8	198	290	328	12	23	216	247
250	10	249	355	398	12	25	270	306
300	12	300	400	443	16	25	324	352
350	14	350	445	488	16	25	370	390

Full-Face Type (DIN 2501)

Unit:mm

Nominal Size		D ₁	D ₂	D ₃	n	e	d ₁	d ₂
mm	inch							
15	1/2	18	65	93	4	14	26	41
20	3/4	22	75	103	4	14	32	47
25	1	30	85	113	4	14	38	53
32	1 1/4	37	100	138	8	18	50	65
40	1 1/2	43	110	148	4	18	54	69
50	2	54	125	163	4	18	68	83
65	2 1/2	69	145	183	4	18	86	101
80(75)	3	80	160	198	8	18	98	112
100	4	102	180	218	8	18	120	138
125	5	127	210	248	8	18	145	166
150	6	150	240	283	8	23	168	190
200	8	198	295	338	8	23	216	247
250	10	249	350	393	12	23	270	306
300	12	300	400	443	12	23	324	352
350	14	350	460	503	16	25	370	390

Full-Face Type (ANSI CLASS150)

Unit:inch

Nominal Size		D ₁	D ₂	D ₃	n	e	d ₁	d ₂
inch	mm							
1/2	15	0.7	2.4	3.4	4	0.6	1.0	1.6
3/4	20	0.9	2.8	3.8	4	0.6	1.3	1.9
1	25	1.2	3.1	4.2	4	0.6	1.5	2.1
1 1/4	32	1.5	3.5	4.5	4	0.6	2.0	2.6
1 1/2	40	1.7	3.9	4.9	4	0.6	2.1	2.7
2	50	2.1	4.7	5.9	4	0.8	2.7	3.3
2 1/2	65	2.7	5.5	6.9	4	0.8	3.4	4.0
3	80(75)	3.2	6.0	7.4	4	0.8	3.9	4.4
4	100	4.0	7.5	8.9	8	0.8	4.7	5.4
5	125	5.0	8.5	9.9	8	0.9	5.7	6.5
6	150	5.9	9.5	10.9	8	0.9	6.6	7.5
8	200	7.8	11.8	13.4	8	0.9	8.5	9.7
10	250	9.8	14.3	15.9	12	1.0	10.6	12.1
12	300	11.8	17.0	18.9	12	1.0	12.8	13.9
14	350	13.9	18.7	20.9	12	1.14	14.6	15.4
16	400	15.6	21.2	23.4	16	1.14	17.3	18.5

* 1 1/4inch, 16inch:FLAT FULL FACE

RECOMMENDED TIGHTENING TORQUE <ALL MATERIALS / FULL FACE TYPE>

mm(inch)	N·m	FT-LB	mm(inch)	N·m	FT-LB	mm(inch)	N·m	FT-LB
15 (1/2)	17.5	13	65 (2 1/2)	22.5	16	200 (8)	55	40
20 (3/4)	17.5	13	80 (3)	30	22	250(10)	55	40
25 (1)	20	14	100(4)	30	22	300(12)	60	43
40 (1 1/2)	20	14	125(5)	40	29	350(14)	60	43
50 (2)	22.5	16	150(6)	45	32	400(16)	80	58

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