Accessories

Outline

There are many methods of attachment when using a pressure gauge, and many types of accessories required depending on objective. We manufacture all kinds of accessories for long-lasting pressure gauge high performance.

* Please contact us regarding items compatible with various laws and regulations such as the High Pressure Gas Safety Act, nuclear facility technical standards, thermal power plant standards, and boiler design standards.
* If you need a strength estimate, please designate stainless materials.


P.9

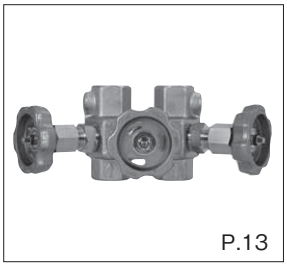
Gauge Cock FC

Used to temporarily block measurement fluid during maintenance, inspection, repairs, and similar.


P.11

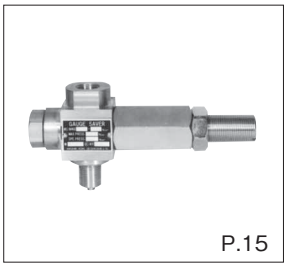
Gauge Valve FV

Used to temporarily block high-pressure measurement fluid during maintenance, inspection, repairs, and similar.


P.13

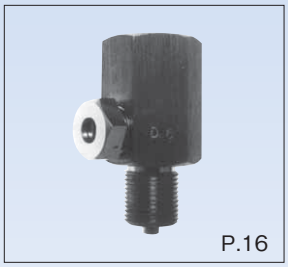
Manifold Valve FV4

Used to temporarily block measurement pressures when attaching or removing pressure gauge.
Used in differential measurements.


P.15

Gauge Saver FG

Used when pressure changes violently and a temporary overpressure may occur.


P.16

Dampener FD

To moderate pulsation pressure with pressure amplitude adjuster.


P.19

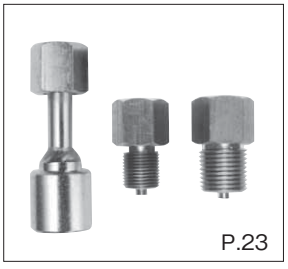
Pipe Siphon FP

For steam pressure management or when measurement fluid is hot.


P.22

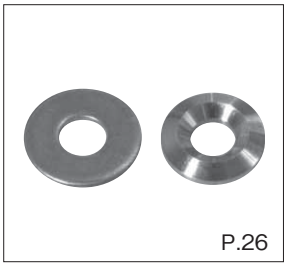
Tank Siphon FT

For measurement fluid replacement and use no oil process.


P.23

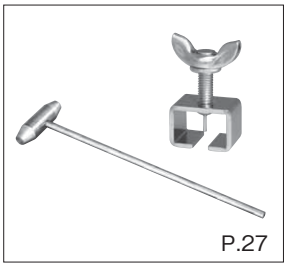
Joint FJ

For connecting pipes and screws with different diameters and threads.


P.26

Packing FJ80

For straight screw seats.

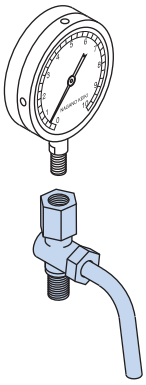

P.27

Pointer puller FS20
Hammer FS21

Used when adjusting pressure gauge needle.

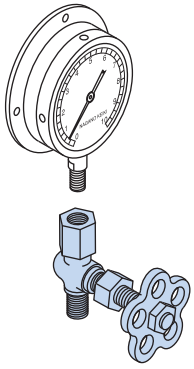
Mounting Applications

Gauge Cock FC



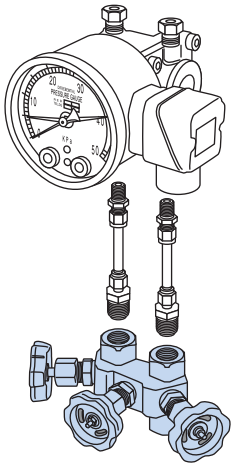
Used to temporarily block measurement fluid during maintenance, inspection, repairs, and similar.

Gauge Valve FV



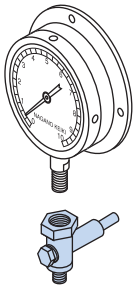
Used to temporarily block high-pressure measurement fluid during maintenance, inspection, repairs, and similar.

Manifold Valve FV4□



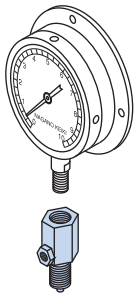
Used to temporarily block measurement pressures when attaching or removing pressure gauge.
Used in differential measurements.

Gauge Saver FG



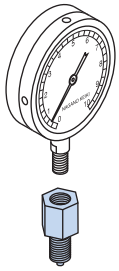
Used when pressure changes violently and a temporary overpressure may occur.

Dampener FD



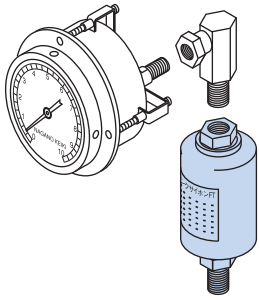
To moderate pulsation pressure with pressure amplitude adjuster.

Joint FJ



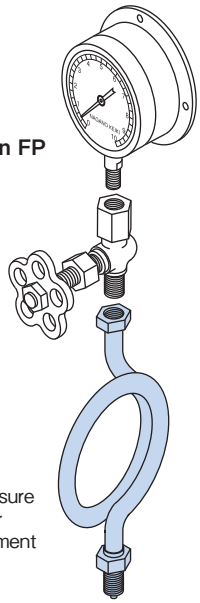
For connecting pipes and screws with different diameters and threads.

Tank Siphon FT



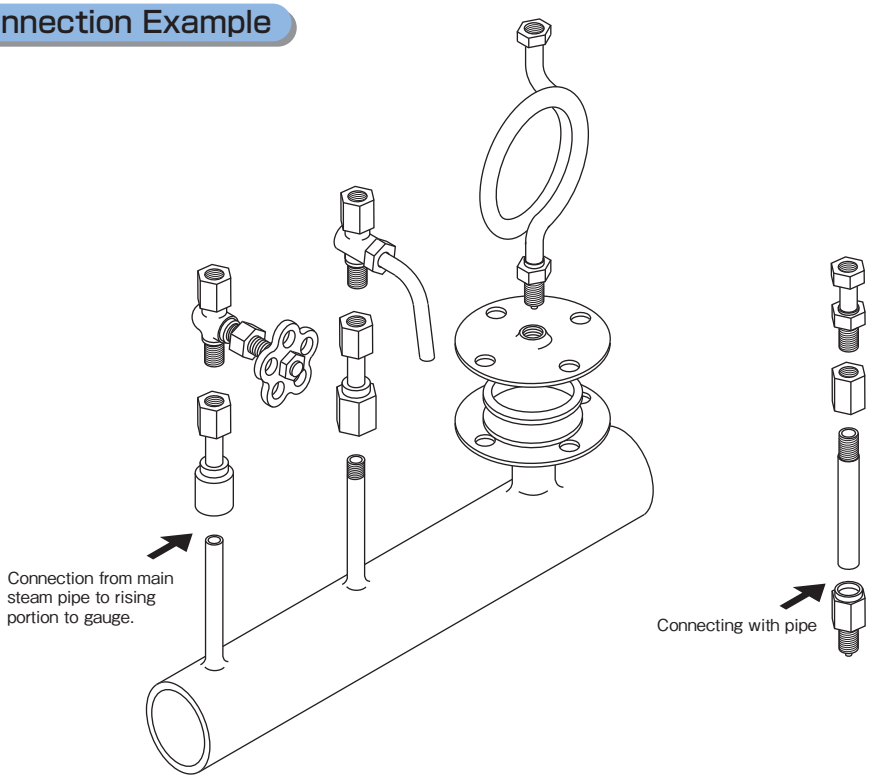
For measurement fluid replacement and use no oil process.

Pipe Siphon FP



For steam pressure management or when measurement fluid is hot.

Piping Connection Example



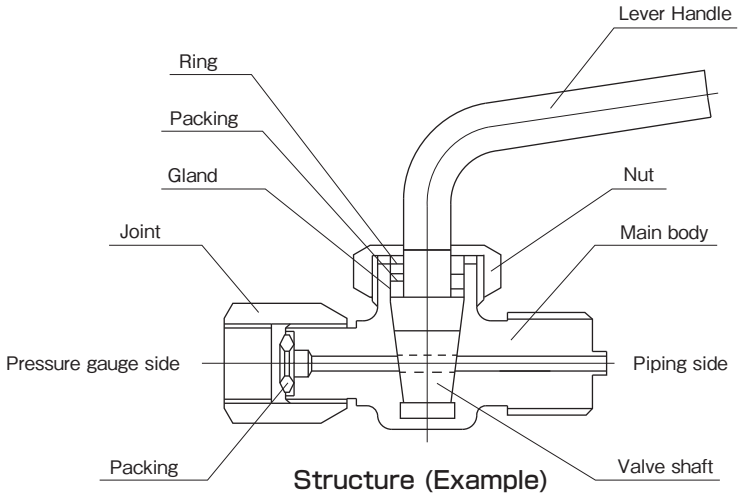
Description of Accessories

• Gauge Cock (FC□□)

The gauge cock is attached between pressure gauge and source, and is used to send measurement fluid to or block it from the pressure gauge.

By setting the gauge cock to “closed”, even if the device the pressure gauge is attached to is operating, measurement fluid will be blocked and the pressure gauge will not be operating. Also, if using a cock with vent holes (three-way cock), simple removal while in “closed” state to release residual gauge pressure into atmosphere is possible.

Designed to allow manipulation of valve shaft fluid channels by rotating lever handle 90 degrees.

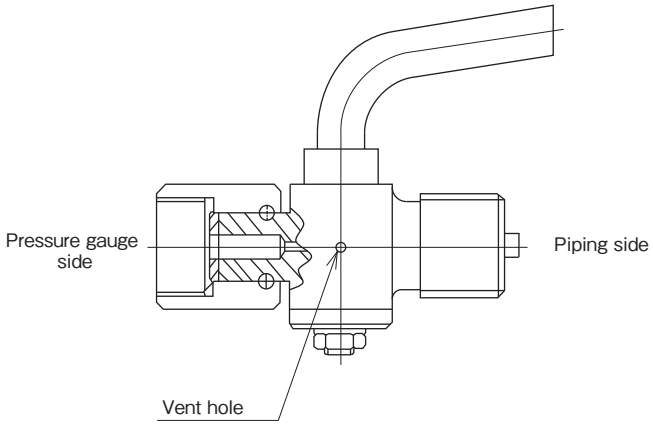


Structure (Example)

Gas cocks (FC20) and fluid cocks (FC11) have atmospheric release vent holes.

During maintenance, measurement fluid can be stopped, and the pressure gauge side released into atmosphere.

Please see the instruction manual for each model regarding methods of operation.



⚠ Warning

Please use caution when working with dangerous measurement fluid. Release of measurement fluid due to operating mistakes can lead to injury and damage to the surrounding area.

Maintenance and Management

(1) When leakage occurs from connector, please tighten further.

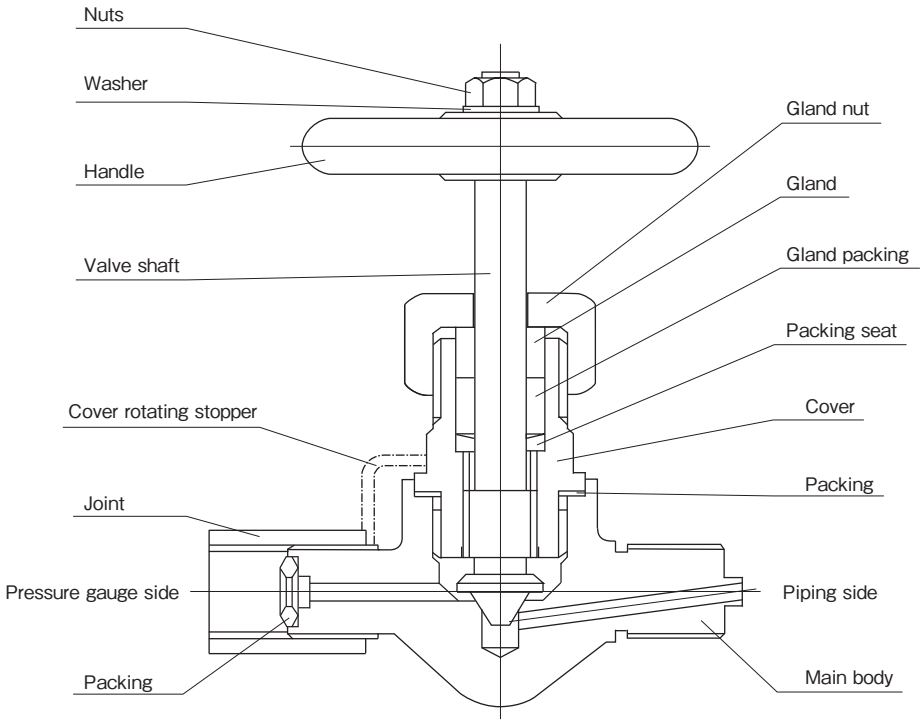
(2) Please tighten nuts when measurement fluid cannot be stopped despite handle in the <closed> position or when leakage occurs from the valve shaft packing.

(3) Please contact us in the event of device failure or when leakage from connector and valve shaft does not stop.

Description of Accessories

• Gauge Valve (FV□□)

The gauge valve is attached between pressure gauge and source, and is used to send measurement fluid to or block it from the pressure gauge.
By setting the gauge valve to “closed”, even if the device the pressure gauge is attached to is operating, measurement fluid will be blocked, the pressure gauge will not be operating, and may be removed.
As the design uses a needle, can stop higher pressures compared to a gauge cock.



Structure (Example)

⚠ Warning

Please use caution when working with dangerous measurement fluid. Release of measurement fluid due to operating mistakes can lead to injury and damage to the surrounding area.

Maintenance and Management

(1) Please tighten gland nut before use. (For items with long maintenance periods, gland nut loosening due to gland packing compression can occur.)
(2) Please tighten if leakage occurs from connector.
(3) Please tighten gland nut if leakage occurs from valve shaft gland packing.
(4) Please contact us when leakage occurs from the connection parts, valve shaft seat, or packing and does not stop, or when you have concerns about product failure.

Description of Accessories

• Manifold Valve (FV4□)

Manifold valves (3-way valves) are used to prevent gauge destruction due to overpressure to one side only when applying DP to differential pressure gauges or when removing differential pressure gauges from pipes.

[To start measurement]

Operation procedure

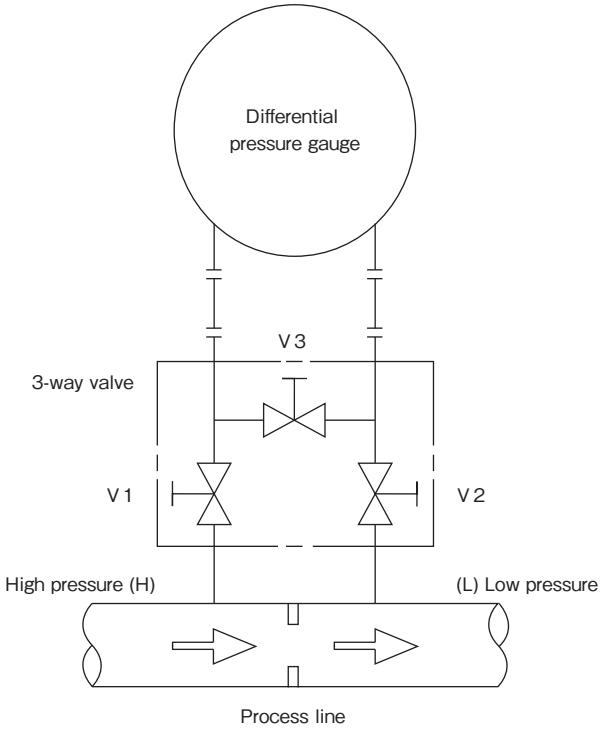
Check that V1 (Valve on high pressure side) and V2 (Valve on low pressure side) in the right figure are closed.

1. After opening valve V3 (Equalizing valve), open V2 gradually.
2. Close V3 when the pressure in the instrument is stable and the differential pressure reach to zero (0).
3. When opening V1 gradually, the differential pressure is applied to the differential pressure gauge, and then the measurement is started.

[To stop measurement]

Operation procedure

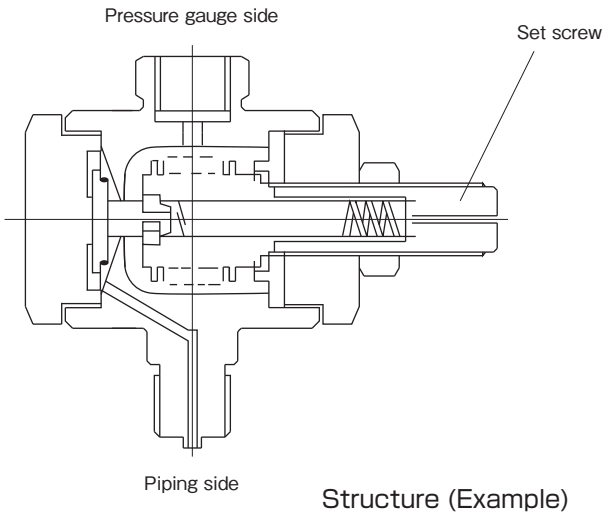
1. Close valve 1 (Valve on high pressure side).
2. Open valve 3 gradually (Equalizing valve).
3. Close valve 2 gradually (Valve on low pressure side).



• Gauge Saver (FG□□)

Gauge savers are used to stop pressure from piping side to protect pressure gauges from temporary overpressures (pressure that exceeds pressure gauge range) on device activation, valve opening or closing, or similar, and in the event of extreme changes in pressure. The desired stop pressure can be set within the limits of adjustable range by rotating the setting screw.

Note: Not compatible with surge pressure and water hammers or other instantaneous pressure fluctuations.
Not usable with negative pressure.



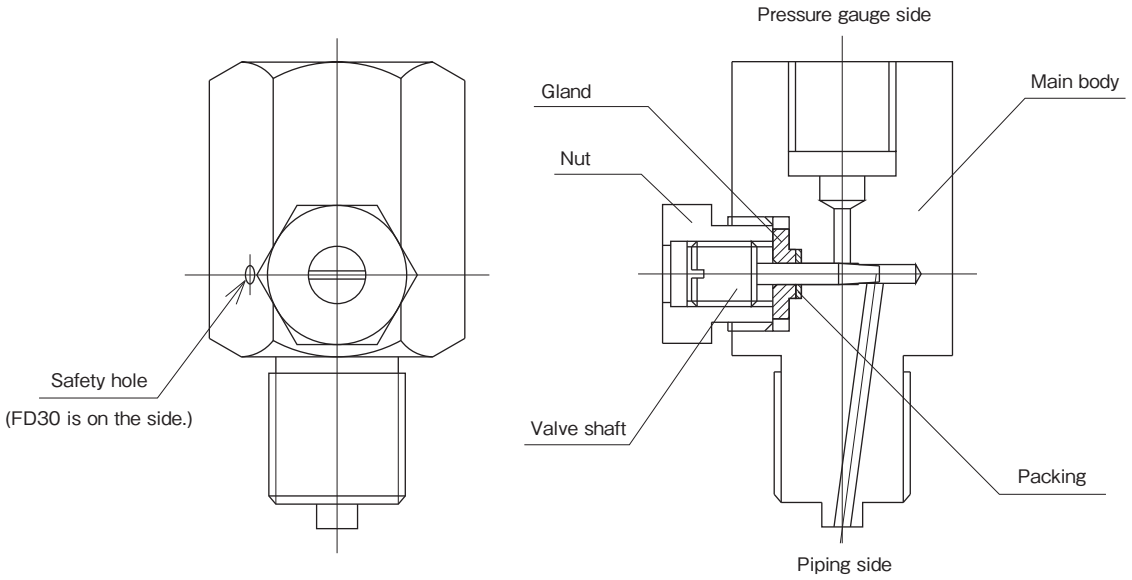
Structure (Example)

Description of Accessories

• Dampener (FD□□)

Dampeners are "variable-type reducing joints" that prevent harmful pulsation (pressure fluctuation) to pressure gauges, and are attached between the pressure gauge and pressure source (generally directly before the pressure gauge).
To adjust reduction, screw the valve shaft while observing pressure gauge indicator to reach optimum.

Note: If you reduce until the indicator ceases moving completely, appropriate pressure measurements will no longer be possible. Dampeners have reduction functions, and are not meant to completely stop measurement fluid like valves.
There is a safety hole in the main body to prevent nut destruction due to packing seal pressure leakage.

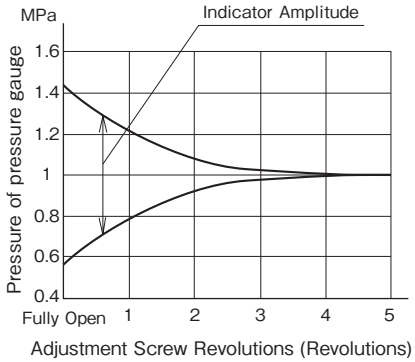


Structure (Example)

Reducing effect of dampener

Dampener reducing effects vary according to pulsation pressure frequency, amplitude, and fluid viscosity.
For example, we will show dampener reducing effects under the following conditions.

Source pressure: 1MPa±0.44MPa
Pulsation frequency: 4Hz
Pressure medium: Machine oil
Pressure gauge: "φ100: Range of 0-2MPa"



Maintenance and Management

(1) Please tighten if leakage occurs from connector.
(2) Please tighten nuts if leakage occurs from valve shaft packing. In this situation, please re-check reduction level.
(3) Debris may be caught in the reducer, causing pressure gauges not to work. In this event, rotate valve shaft left and dislodge debris, then re-adjust reduction level.
(4) Please contact us in the event of product failure or leakage from the connection parts or valve shaft that does not stop.

Description of Accessories

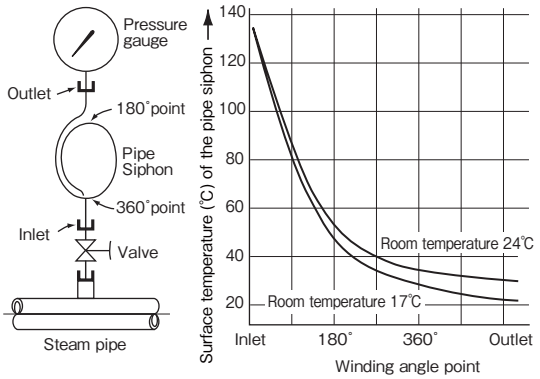
• Pipe Siphon (FP□□)

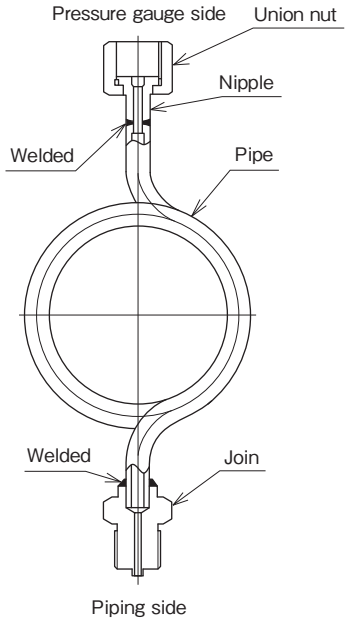
Pipe siphons are inserted between pressure gauge and source, and used to cool measurement fluids for pressure gauge preservation when dealing with high-temperature measurement fluids.

Note: Please select a product with pipe radius of over 15A for steam boilers and contact us.

Cooling effect of pipe siphon

Pipe siphon cooling effects vary based on pipe radius, wall thickness, length, room temperature and airflow; however, pipe siphon cooling effects for common uses in steam pressure measurement is shown in the figure below.



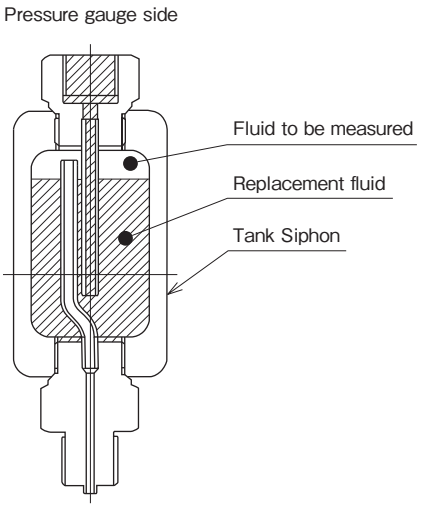


Structure (Example)

• Tank Siphon (FT□□)

Tank siphons are attached between pressure gauge and source for replacement when there is a need to ensure that measurement substance does not directly enter pressure gauge element. Designed such that measurement substance flows in via piping-side connector, pushing up tank siphon fluid surface and communicating pressure to pressure gauge side from replacement fluid.

Note: For replacement fluid, please select a fluid with a higher specific gravity than measurement fluid that will not mix.



Structure (Example)

Description of Accessories

- **Treatment of wetted parts (Option)**

By request, we can process/manufacture wetted parts not to retain oils and water.

Use no oil

Manufacture/process wetted parts not to retain oils.

Use no water

Manufacture/process wetted parts not to retain water.

Use no oil & water

Manufacture/process wetted parts not to retain oils and water.

⚠ Caution

* When using for oxygen, please specify no oils.
* When using for acetylene, please specify corrosion-proof type and no oils.

Gauge Cock (For liquids)

Maintenance attachment required, used to temporarily block measurement pressure when attaching or detaching pressure gauge.

Operating fluid:
Liquid

Connection type:
Turnbuckle x male screw

Max. allowable pressure:
2MPa

Operating fluid temperature:
-5 to 80℃ (no freezing)

Wetted parts materials:
Brass C3771, C3602, C1100, SUS316, PTFE
Stainless steel SUS316, PTFE

Outer:
Brass Brass (material) or Brass (material) + Nickel plating
Stainless steel Stainless steel (material)

Packing:
Brass C1100 with lens packing (For female screw)
Stainless steel SUS316 with lens packing (For female screw)

Weight:
Approx. 0.3 kg

Model number configuration

For ordering, please specify the model number and each specs.

Model

F C	1		—				—	X	×	×	×		×	×	×	×	×	×	×	
Gauge Cock				①	②	③		④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	

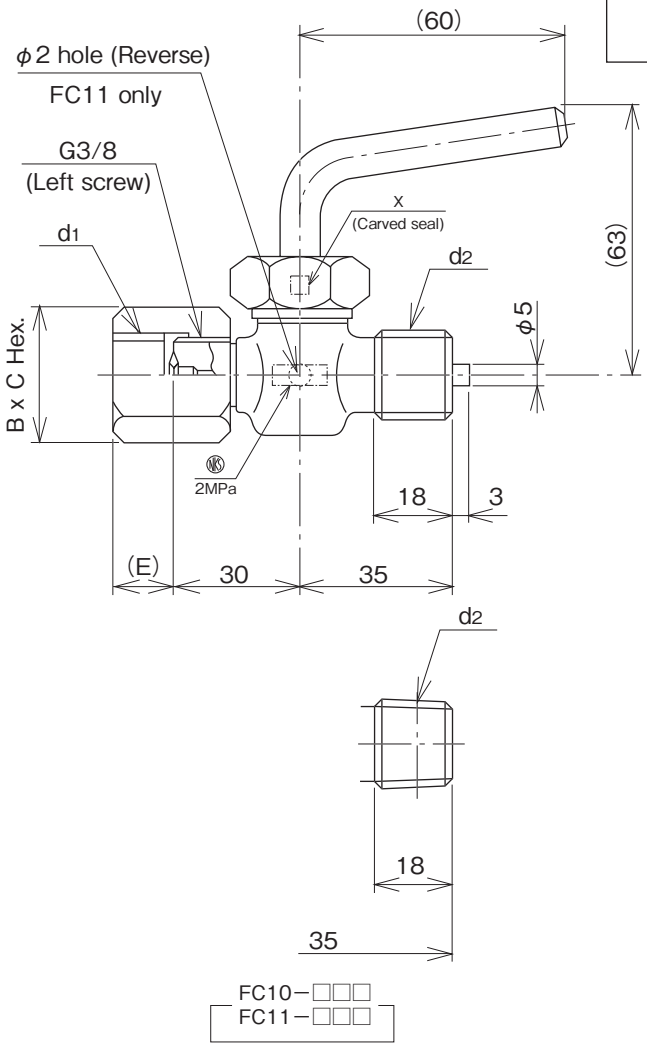
Model number				Selective spec.	Additional spec. (Option)
Model	1	0	Female screw (Turnbuckle) x male screw	For liquids	
	1	1	Female screw (Turnbuckle) x male screw	For liquids (Vent hole)	

④ Gland packing	X	Standard PTFE

⑧ Treatment	0	Nil
	1	Use no oil
	2	Use no water
	3	Use no oil & water

⑮ Documents	0	Nil
	1	Required (Please specify the desired documents separately.) Submission drawings,instruction manual, mill sheet

*Specify "X" if there is no specification item.



Model number			d1 x d2 (Female) (Male)	(E)	B x C Hex.
Brass (Nickel plating)	Brass	Stainless steel			
FC1□−330	FC1□−331	FC1□−333	G3/8×G3/8B	13	22×25.4
FC1□−340	FC1□−341	FC1□−343	G3/8×G1/2B		
FC1□−380	FC1□−381	FC1□−383	G3/8×R3/8		
FC1□−390	FC1□−391	FC1□−393	G3/8×R1/2		
FC1□−3C0	FC1□−3C1	FC1□−3C3	G3/8×3/8NPT		
FC1□−430	FC1□−431	FC1□−433	G1/2×G3/8B	15	27×31.2
FC1□−440	FC1□−441	FC1□−443	G1/2×G1/2B		
FC1□−480	FC1□−481	FC1□−483	G1/2×R3/8		
FC1□−490	FC1□−491	FC1□−493	G1/2×R1/2		
FC1□−4D0	FC1□−4D1	FC1□−4D3	G1/2×1/2NPT		

Gauge Cock (For gases)

Maintenance attachment required, used to temporarily block measurement pressure when attaching or detaching pressure gauge. Gauge cock FC20 for gases can discharge gauge to atmosphere via handle controls.

Operating fluid:
Gas
Connection type:
Female screw (Union) x male screw
Max. allowable pressure:
1MPa
Operating fluid temperature:
-5 to 80℃ (no freezing)
Wetted parts materials:

Brass	C3771, C3604, PTFE
Stainless steel	SUS316, PTFE

Outer:

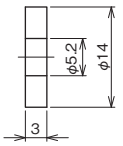
Brass	Brass (material)
Stainless steel	Stainless steel (material)

Packing:
PTFE with flat packing (For female screw)*
Weight:
Approx. 0.3 kg

*FC20 specialty packing. Please see below concerning exchanges.

Packing only for FC20:
Figure no. 1290-5141-00

Note:
Max. allowable pressure: 1MPa
Operating fluid temperature: 80℃ or less



Model number configuration

For ordering, please specify the model number and each specs.

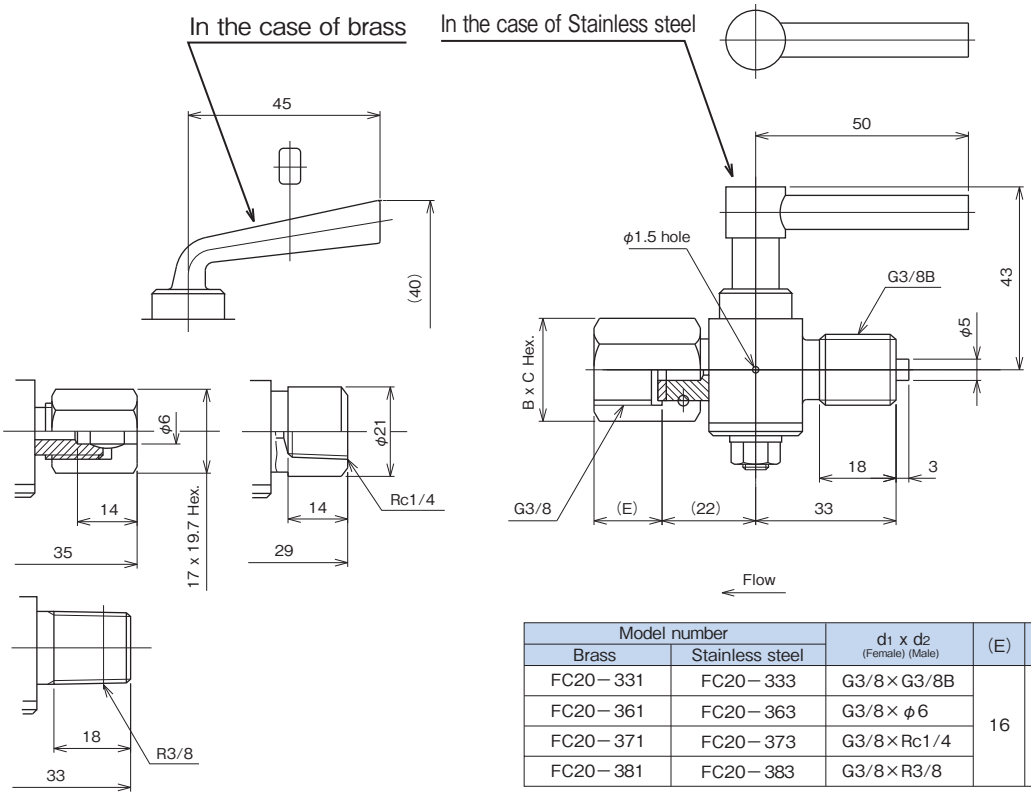
Model

F C	2	0	—	①	②	③	—	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮
Gauge Cock																			
Model number								Selective spec.				Additional spec. (Option)							

Model	2	0	Female screw (Union) x male screw	For gases

⑧ Treatment	0	Nil
	1	Use no oil
	2	Use no water
	3	Use no oil & water
⑮ Documents	0	Nil
	1	Required (Please specify the desired documents separately.) Submission drawings,instruction manual, mill sheet

*Specify "X" if there is no specification item.



Model number		d_1 x d_2 (Female) (Male)	(E)	B x C Hex.
Brass	Stainless steel			
FC20－331	FC20－333	G3/8×G3/8B	16	21×24.2
FC20－361	FC20－363	G3/8×ϕ6		
FC20－371	FC20－373	G3/8×Rc1/4		
FC20－381	FC20－383	G3/8×R3/8		

Gauge Valve (For liquids)

Requires maintenance attachment used to temporarily stop measurement pressure when attaching or detaching a pressure gauge, like a gauge cock. Suited to higher pressure when compared to gauge cocks.

Operating fluid:
Liquid

Connection type:
Turnbuckle x male screw

Max. allowable pressure:
FV10 20MPa
FV30 100MPa (High pressure type)

Operating fluid temperature:
-5 to 80℃ (no freezing)

Wetted parts materials:

FV10	Iron	SF440A, S45C, SGD, PTFE, SUS304, C1100
	Stainless steel	SUS304, SUS316, PTFE
FV30	Iron	SGD, S45C, C1100, S35C, SUS304, PTFE
	Stainless steel	SUS304, SUS316, PTFE

Outer:

Iron	Nickel plating
Stainless steel	Stainless steel (materials)

Packing:

Iron	C1100 with lens packing (For female screw)
Stainless steel	SUS316 with lens packing (For female screw)

Weight:

FV10	Approx. 0.6 kg
FV30	Approx. 1.5 kg

Model number configuration

For ordering, please specify the model number and each specs.

Model

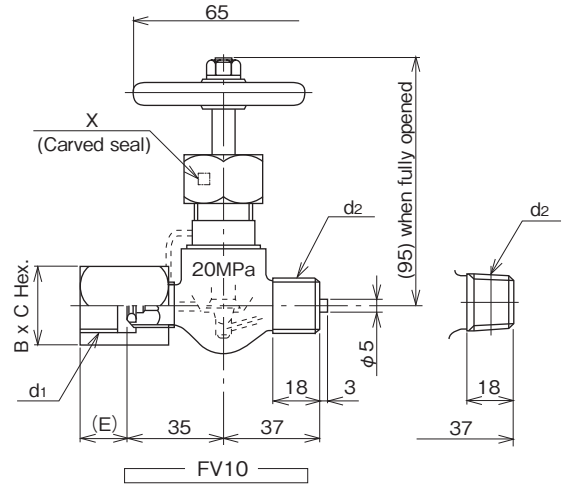
F	V		0	—				—	X	×	×	×		×	×	×	×	×	×	
Gauge Valve					①	②	③		④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮

Model number				Selective spec.	Additional spec. (Option)
Model	1	0	Female screw (Turnbuckle) x male screw	For liquids (Standard)	
	3	0	Female screw (Turnbuckle) x male screw	For liquids (High pressure type)	

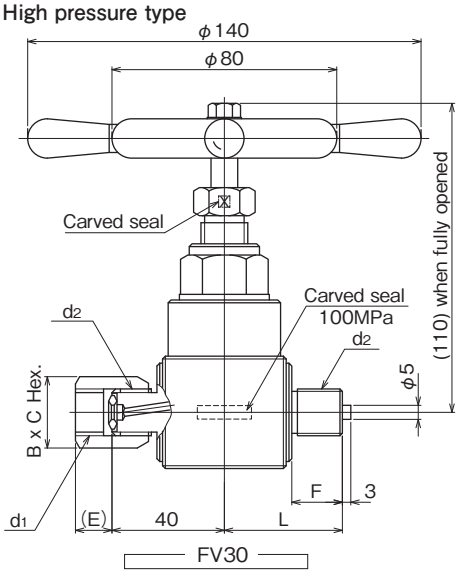
④ Gland packing	X	Standard PTFR	
⑧ Treatment	0	Nil	
	1	Use no oil	
	2	Use no water	
	3	Use no oil & water	
⑮ Documents	0	Nil	
	1	Required (Please specify the desired documents separately.) Submission drawings, instruction manual, mill sheet	

*Specify "X" if there is no specification item.

Standard Type



High pressure type



Standard Type

Model number		d1 x d2 (Female) (Male)	(E)	B x C Hex.
Iron	Stainless steel			
FV10-332	FV10-333	G3/8×G3/8B	13	22×25.4
FV10-342	FV10-343	G3/8×G1/2B		
FV10-382	FV10-383	G3/8×R3/8		
FV10-3C2	FV10-3C3	G3/8×3/8NPT		
FV10-432	FV10-433	G1/2×G3/8B	15	27×31.2
FV10-442	FV10-443	G1/2×G1/2B		
FV10-492	FV10-493	G1/2×R1/2		
FV10-4D2	FV10-4D3	G1/2×1/2NPT		

High pressure type

Model number		d1 x d2 (Female) (Male)	(E)	B x C Hex.	F	L
Iron	Stainless steel					
FV30-332	FV30-333	G3/8×G3/8B	13	22×25.4	18	42
FV30-442	FV30-443	G1/2×G1/2B	15	27×31.2	20	44

*When using valves, rotate handle fully to the left and allow back seat effect. (Can prevent leakage from valve shaft packing)

Gauge Valve (For gases)

Requires maintenance attachment used to temporarily stop measurement pressure when attaching or detaching a pressure gauge, like a gauge cock. Suited to higher pressure when compared to gauge cocks.

Operating fluid:
Gas

Connection type:
Turnbuckle x male screw

Max. allowable pressure:
20MPa

Operating fluid temperature:
-45 to 80℃

Wetted parts materials:
SUS316, PTFE, NBR

Outer:
Stainless steel (materials)

Packing:
SUS316 with lens packing (For female screw)

Weight:
Approx. 0.6 kg

Model number configuration

For ordering, please specify the model number and each specs.

Model

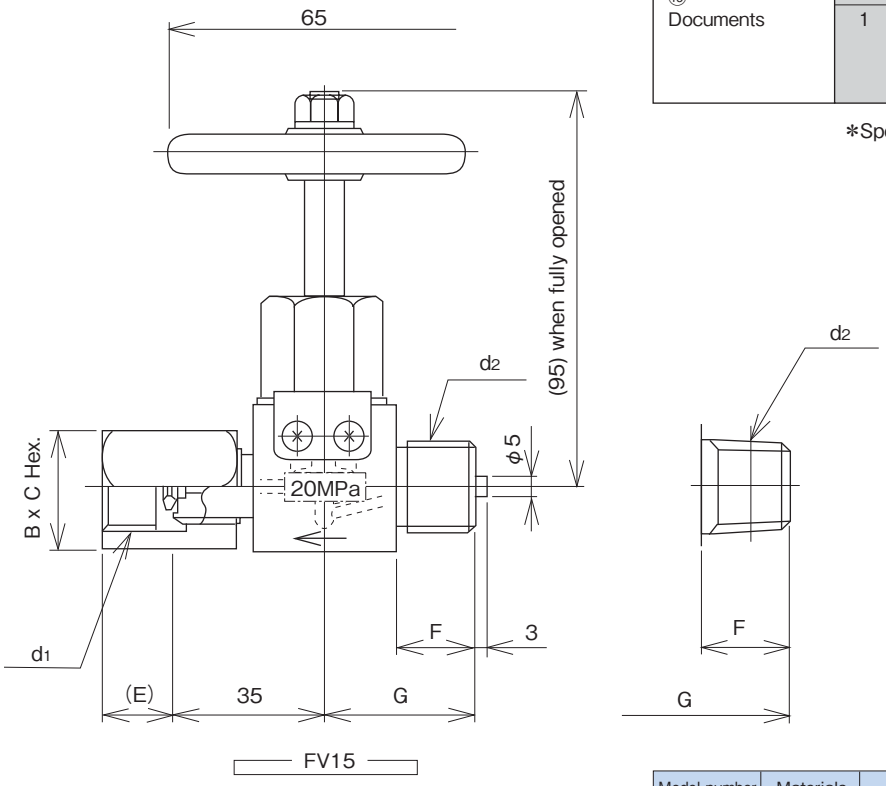
F	V	1	5	—			3	—	×	×	×	×		×	×	×	×	×	×	×	
Gauge Valve					①	②	③		④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	
Model number									Selective spec.				Additional spec. (Option)								

Model	1	5	Female screw (Turnbuckle) x male screw For gases

⑧ Treatment	0	Nil
	1	Use no oil
	2	Use no water
	3	Use no oil & water

⑮ Documents	0	Nil
	1	Required (Please specify the desired documents separately.) Submission drawings, instruction manual, mill sheet

*Specify "X" if there is no specification item.



Model number	Materials	d1 x d2 (Female) (Male)	E	F	G	B x C Hex.
FV15-333	Stainless steel	G3/8×G3/8B	13	18	35	22×25.4
FV15-383		G3/8×R3/8				
FV15-343		G3/8×G1/2B		20	37	
FV15-443		G1/2×G1/2B	15			27×31.2
FV15-493		G1/2×R1/2				

Manifold Valve (For gases and liquids)

Requires maintenance attachment used to temporarily stop measurement pressure when attaching or detaching a pressure gauge, like a gauge cock. Manifold valve is used for differential pressure gauge.

Operating fluid:
Gas or liquid

Connection type:
Female screw x female screw

Max. allowable pressure:
14.7MPa (-20 to 40℃)
11.4MPa (150℃)

Operating fluid temperature:
150℃ or less

Wetted parts materials:
Stainless steel SUSF316, SUS316, PTFE+PFA
Use no oil & water (No indication, standard)

Outer:
Stainless steel (materials)

Weight:
Approx. 2.3 kg

Model number configuration

For ordering, please specify the model number and each specs.

Model

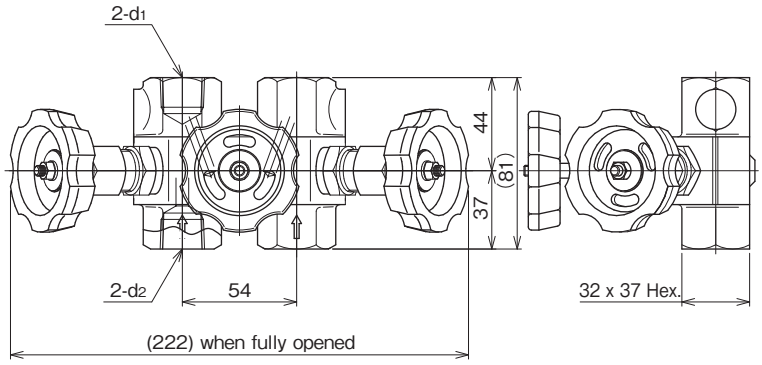
F V 4 2	—	① ② ③	—	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮
Manifold Valve				Selective spec.				Additional spec. (Option)							

Model number				
Model	4	2	Female x female	For gases and liquids

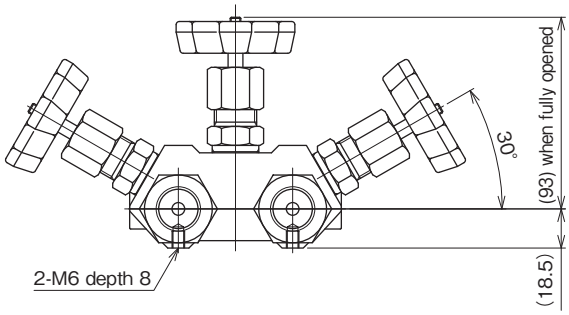
④ Gland packing		
	X	Standard PTFE+PFA

⑮ Documents		
	0	Nil
	1	Required (Please specify the desired documents separately.) Submission drawings, instruction manual, mill sheet

*Specify "X" if there is no specification item.



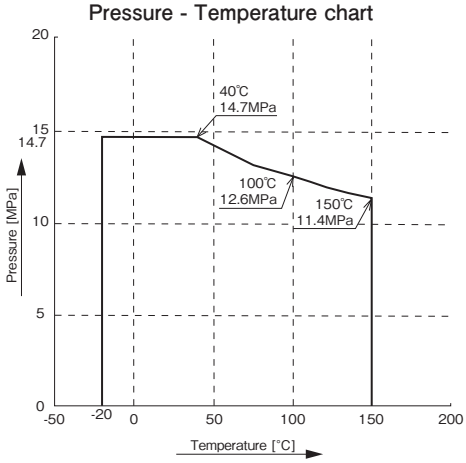
Model number	d1 x d2 (Female) (Female)
FV42-993	Rc1/2×Rc1/2
FV42-995	Rc1/2×Rc1/2 (High Pressure Gas Ministry Approval)
FV42-DD3	1/2NPT×1/2NPT



FV42

*When using valves, rotate handle fully to the left and allow back seat effect.
(Can prevent leakage from valve shaft packing)

Pressure - Temperature chart



Manifold Valve (For liquids)

Requires maintenance attachment used to temporarily stop measurement pressure when attaching or detaching a pressure gauge, like a gauge cock. Manifold valve is used for differential pressure gauge.

Operating fluid:
Liquid

Connection type:
Female screw (Union) x male screw

Max. allowable pressure:
20MPa

Operating fluid temperature:
80℃ or less

Wetted parts materials:
Stainless steel SUS316, PTFE

Outer:
Stainless steel (materials)

Weight:
FV45 Approx. 3.4 kg
FV47 Approx. 3.4 kg

Model number configuration

For ordering, please specify the model number and each specs.

Model

F	V	4		—				—	X	×	×	×		×	×	×	×	×	×	
Manifold Valve					①	②	③		④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮

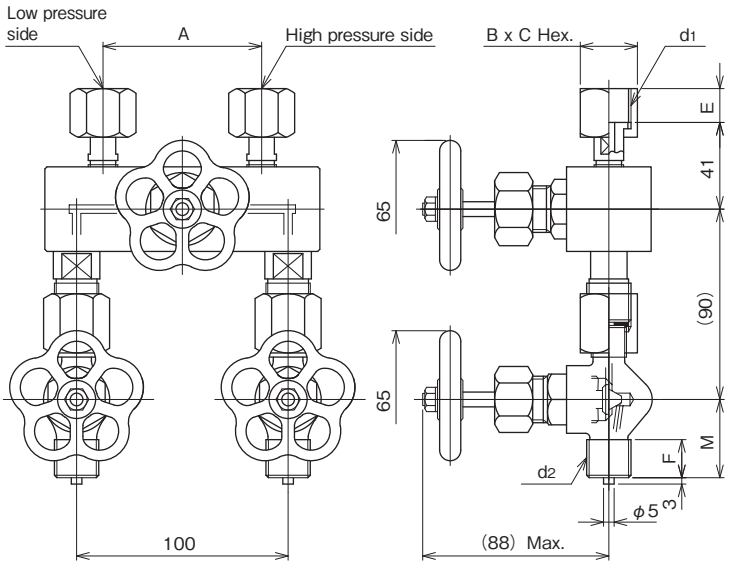
Model number				Selective spec.	Additional spec. (Option)
Model	4	5	Female screw (Union) x male screw	For liquids	A dimensions: 75 mm
	4	7	Female screw (Union) x male screw	For liquids	A dimensions: 45 mm

④ Gland packing	X	Standard PTFE

⑧ Treatment	0	Nil
	1	Use no oil
	2	Use no water
	3	Use no oil & water

⑮ Documents	0	Nil
	1	Required (Please specify the desired documents separately.) Submission drawings, instruction manual, mill sheet

*Specify "X" if there is no specification item.



FV45 (A dimensions: 75 mm)
FV47 (A dimensions: 45 mm)

Model number	d1 x d2 (Female) (Male)	B x C Hex.	E	F	M
FV45-443	G1/2×G1/2B	27×31.2	16	18	37
FV45-493	G1/2×R1/2				
FV45-4D3	G1/2×1/2NPT				

Model number	d1 x d2 (Female) (Male)	B x C Hex.	E	F	M
FV47-333	G3/8×G3/8B	22×25.4	14	16	35
FV47-443	G1/2×G1/2B	27×31.2	16	18	37
FV47-493	G1/2×R1/2				
FV47-4D3	G1/2×1/2NPT				

*When using valves, rotate handle fully to the left and allow back seat effect.
(Can prevent leakage from valve shaft packing)

Gauge Saver

Overpressure (pressure exceeding pressure range) not only shortens pressure gauge lives, it can also destroy gauges and cause unexpected disasters. Used when pressure changes suddenly and temporary overpressure seems likely, to preserve pressure gauges.

Elements:
FG10 Piston type
FG20, FG30 Bellows type
Operating fluid :
FG10, FG20 Gas or liquid
FG30 Gas only
However, it cannot be used for vacuum.
Max. allowable pressure:
FG10 30MPa
FG20 1.5MPa
FG30 1MPa
Repeatability:
FG10, FG20 Within 5% max. P.
FG30 Within 10% max. P.
Dead band:
20% max. P.

Operating fluid temperature:
-5 to 80℃ (no freezing)
Wetted parts materials:

FG10	Brass	C3604, SUS316, Fluorine rubber, PTFE
	Stainless steel	SUS316, Fluorine rubber, PTFE
FG20	Brass	C3604, C521 ("＊" in the adjustable range of set pressure is SUS316L), SUS316, Fluorine rubber, PTFE
	Stainless steel	SUS316, SUS316L, Fluorine rubber, PTFE
FG30	Brass	C3604, C521, SUS316, Fluorine rubber, PTFE
	Stainless steel	SUS316, SUS316L, Fluorine rubber, PTFE

Weight:
FG10 Approx. 1 kg
FG20 Approx. 1.8 kg
FG30 Approx. 2.5 kg

Caution
-Not compatible with surge pressure and water hammers and/or other instantaneous pressure fluctuations.
-Not usable with negative pressure.
-Packing not included, please request separately.

Adjustable range of set pressure

FG10 (For high pressure)				FG20 (For medium pressure)				FG30 (For gases)	
0.6MPa or more to 2MPa		5MPa or more to 10MPa		25kPa or more to 40kPa		0.08MPa or more to 0.2MPa		5kPa or more 10kPa or less	
1MPa	3MPa	7MPa	15MPa	0.03MPa	0.06MPa	0.15MPa	0.3MPa	10kPa	25kPa
2MPa	5MPa	10MPa	20MPa	0.04MPa	0.08MPa	＊0.2MPa	0.6MPa		
3MPa	6MPa			0.06MPa	0.15MPa	＊0.3MPa	1MPa		

Model number configuration

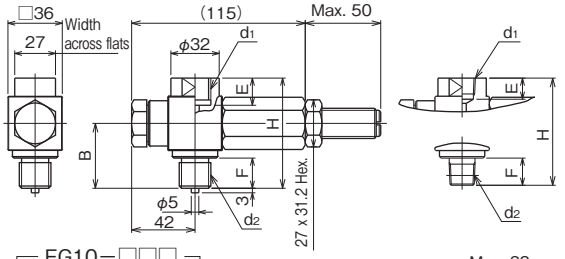
For ordering, please specify the model number and each specs.

Model

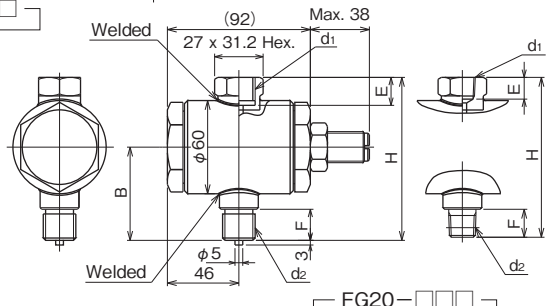
F G			—				—	×	×	×	×		×	×	×	×	×	×	
Gauge Saver				①	②	③		④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮
Model number				Selective spec.				Additional spec. (Option)											

⑧ Treatment	0	Nil
	1	Use no oil
	2	Use no water
	3	Use no oil & water
⑮ Documents	0	Nil
	1	Required (Please specify the desired documents separately.) Submission drawings, instruction manual, mill sheet

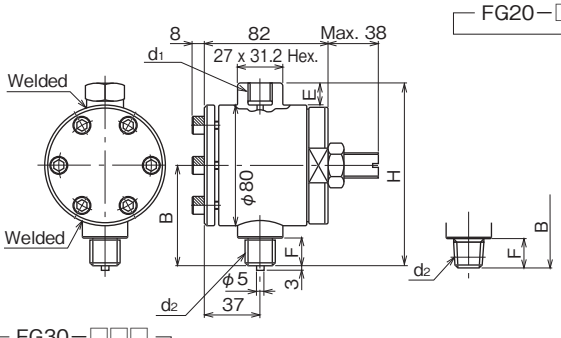
＊Specify "X" if there is no specification item.



FG10−□□□



FG20−□□□



FG30−□□□

Model number		d_1 x d_2 (Female) (Male)	B	E	F	H
Brass	Stainless steel					
FG10−331	FG10−333	G3/8×G3/8B	41	16	18	71
FG10−441	FG10−443	G1/2×G1/2B	43	18	20	73
FG10−381	FG10−383	G3/8×R3/8	41	16	18	71
FG10−491	FG10−493	G1/2×R1/2	43	18	20	73
FG10−DD1	FG10−DD3	1/2NPT×1/2NPT		17		

Model number		d_1 x d_2 (Female) (Male)	B	E	F	H
Brass	Stainless steel					
FG20−331	FG20−333	G3/8×G3/8B	58	16	18	103
FG20−441	FG20−443	G1/2×G1/2B	60	18	20	105
FG20−381	FG20−383	G3/8×R3/8	58	16	18	103
FG20−491	FG20−493	G1/2×R1/2	60	18	20	105
FG20−DD1	FG20−DD3	1/2NPT×1/2NPT		17		

Model number		d_1 x d_2 (Female) (Male)	B	E	F	H
Brass	Stainless steel					
FG30−331	FG30−333	G3/8×G3/8B	68	16	18	123
FG30−441	FG30−443	G1/2×G1/2B	70	18	20	125
FG30−381	FG30−383	G3/8×R3/8	68	16	18	123
FG30−491	FG30−493	G1/2×R1/2	70	18	20	125

Dampener

Variable-type reducing device used where pulsation pressure is used, can extend pressure gauge lifespans by dampening pressure amplitude through adjustments.

Operating fluid:
Liquid

Connection type:
FD10 Female screw x male screw
FD12 Female screw x female screw

Max. allowable pressure:
20MPa

Operating fluid temperature:
-5 to 80℃ (no freezing)

Wetted parts materials:
Brass C3604, SUS316, PTFE
Stainless steel SUS316, PTFE

Outer:
Stainless steel (materials)

Weight:
Approx. 0.23 kg

Caution
Packing not included, please request separately.
Please do not use it as a valve.

Model number configuration

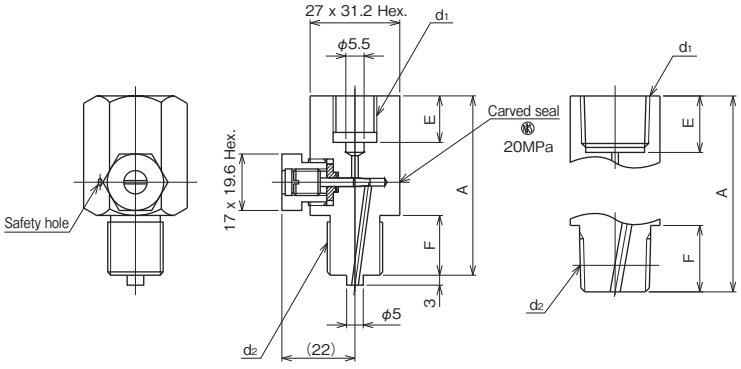
For ordering, please specify the model number and each specs.

Model	F D			—				—	×	×	×	×		×	×	×	×	×	×	×	
	Dampener				①	②	③		④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮
	Model number				Selective spec.				Additional spec. (Option)											

⑧ Treatment	0	Nil
	1	Use no oil
	2	Use no water
	3	Use no oil & water

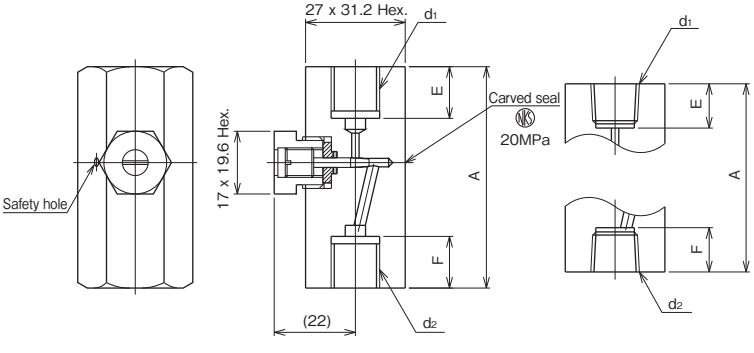
⑮ Documents	0	Nil
	1	Required (Please specify the desired documents separately.) Submission drawings, instruction manual, mill sheet

*Specify "X" if there is no specification item.



FD10−□□□

Model number		d1 x d2 (Female) (Male)	A	E	F
Brass	Stainless steel				
FD10−221	FD10−223	G1/4×G1/4B	57	14	16
FD10−271	FD10−273	G1/4×R1/4	52		
FD10−331	FD10−333	G3/8×G3/8B	56	16	18
FD10−381	FD10−383	G3/8×R3/8			
FD10−441	FD10−443	G1/2×G1/2B	60	18	20
FD10−491	FD10−493	G1/2×R1/2			
FD10−771	FD10−773	Rc1/4×R1/4	50	12	16
FD10−881	FD10−883	Rc3/8×R3/8	54	14	18
FD10−991	FD10−993	Rc1/2×R1/2	59	17	20
FD10−BB1	FD10−BB3	1/4NPT×1/4NPT	50	12	16
FD10−CC1	FD10−CC3	3/8NPT×3/8NPT	54	14	18
FD10−DD1	FD10−DD3	1/2NPT×1/2NPT	59	17	20



FD12−□□□

Model number		d1 x d2 (Female) (Female)	A	E	F
Brass	Stainless steel				
FD12−221	FD12−223	G1/4×G1/4	60	14	14
FD12−321	FD12−323	G3/8×G1/4	62	16	
FD12−331	FD12−333	G3/8×G3/8	61		16
FD12−421	FD12−423	G1/2×G1/4	64	18	14
FD12−441	FD12−443	G1/2×G1/2	65		18
FD12−771	FD12−773	Rc1/4×Rc1/4	51	12	12
FD12−881	FD12−883	Rc3/8×Rc3/8	55	14	14
FD12−991	FD12−993	Rc1/2×Rc1/2	60	17	17

Dampener (High pressure type)

Variable-type reducing device used where pulsation pressure is used, can extend pressure gauge lifespans by dampening pressure amplitude through adjustments.

Operating fluid:
Liquid

Connection type:
FD11 Female screw x male screw
FD13 Female screw x female screw

Max. allowable pressure:
35MPa
*Dampener of 100MPa high pressure type can be manufactured. (FD30)

Operating fluid temperature:
-5 to 80℃ (no freezing)

Wetted parts materials:
Brass C3604, SUS316, PTFE
Stainless steel SUS316, PTFE

Outer:
Stainless steel (materials)

Weight:
Approx. 0.23 kg

Caution
Packing not included, please request separately.
Please do not use it as a valve.

Model number configuration

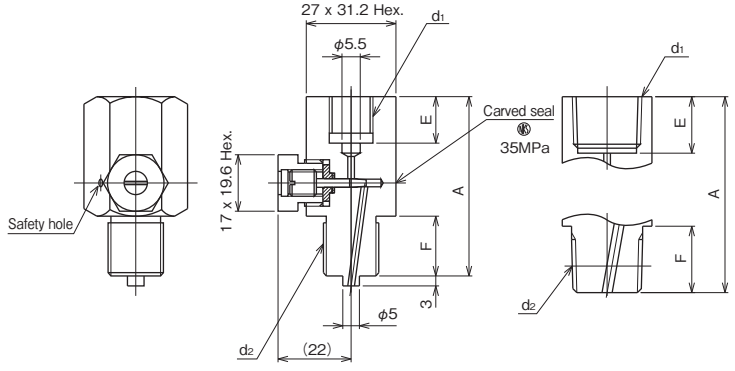
For ordering, please specify the model number and each specs.

Model

F D			—				—	×	×	×	×		×	×	×	×	×	×	
Dampener				①	②	③		④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮
Model number								Selective spec.				Additional spec. (Option)							

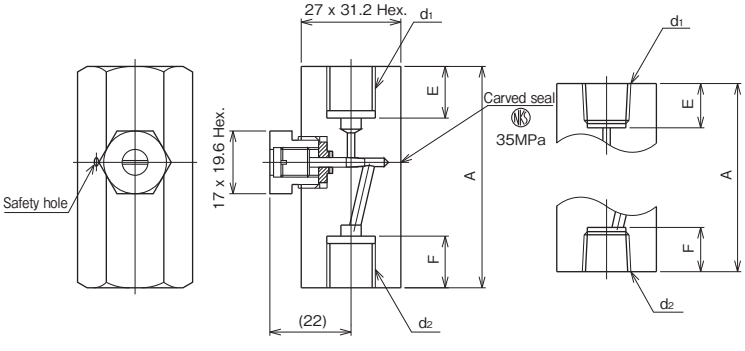
⑧ Treatment	0	Nil
	1	Use no oil
	2	Use no water
	3	Use no oil & water
⑮ Documents	0	Nil
	1	Required (Please specify the desired documents separately.) Submission drawings, instruction manual, mill sheet

*Specify "X" if there is no specification item.



FD11−□□□

Model number		d1 x d2 (Female) (Male)	A	E	F
Brass	Stainless steel				
FD11−221	FD11−223	G1/4×G1/4B	57	14	16
FD11−271	FD11−273	G1/4×R1/4	52		
FD11−331	FD11−333	G3/8×G3/8B	56	16	18
FD11−381	FD11−383	G3/8×R3/8			
FD11−441	FD11−443	G1/2×G1/2B	60	18	20
FD11−491	FD11−493	G1/2×R1/2			
FD11−771	FD11−773	Rc1/4×R1/4	50	12	16
FD11−881	FD11−883	Rc3/8×R3/8	54	14	18
FD11−991	FD11−993	Rc1/2×R1/2	59	17	20
FD11−BB1	FD11−BB3	1/4NPT×1/4NPT	50	12	16
FD11−CC1	FD11−CC3	3/8NPT×3/8NPT	54	14	18
FD11−DD1	FD11−DD3	1/2NPT×1/2NPT	59	17	20



FD13−□□□

Model number		d1 x d2 (Female) (Female)	A	E	F
Brass	Stainless steel				
FD13−221	FD13−223	G1/4×G1/4	60	14	14
FD13−321	FD13−323	G3/8×G1/4	62	16	
FD13−331	FD13−333	G3/8×G3/8	61		16
FD13−421	FD13−423	G1/2×G1/4	64	18	14
FD13−441	FD13−443	G1/2×G1/2	65		18
FD13−771	FD13−773	Rc1/4×Rc1/4	51	12	12
FD13−881	FD13−883	Rc3/8×Rc3/8	55	14	14
FD13−991	FD13−993	Rc1/2×Rc1/2	60	17	17

Dampener (High pressure type)

**Variable-type reducing device used where pulsation pressure is used,
can extend pressure gauge lifespans by dampening pressure amplitude through adjustments.**

Operating fluid:
Liquid

Connection type:
Female screw x male screw

Max. allowable pressure:
100MPa

Operating fluid temperature:
-5 to 80℃ (no freezing)

Wetted parts materials:
Stainless steel SUS316, NBR

Outer:
Stainless steel (materials)

Weight:
Approx. 1.1 kg

Caution
Packing not included, please request separately.
Please do not use it as a valve.

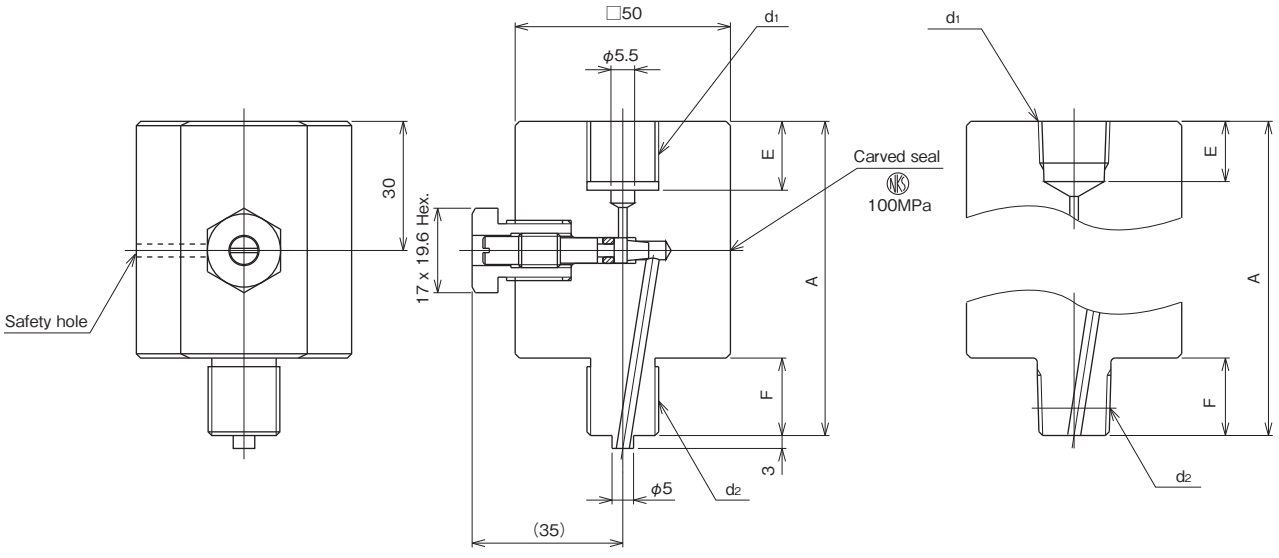
Model number configuration

For ordering, please specify the model number and each specs.

Model	F D	3	0	—			3	—	×	×	×	×		×	×	×	×	×	×	×	
	Dampener				①	②	③		④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	
	Model number								Selective spec.				Additional spec. (Option)								

⑧ Treatment	0	Nil
	1	Use no oil
	2	Use no water
	3	Use no oil & water
⑮ Documents	0	Nil
	1	Required (Please specify the desired documents separately.) Submission drawings, instruction manual, mill sheet

*Specify "X" if there is no specification item.



FD30−□□3

Model number Stainless steel	d1 x d2 (Female) (Male)	A	E	F
FD30−333	G3/8×G3/8B	73	16	18
FD30−443	G1/2×G1/2B	75	18	20
FD30−493	G1/2×R1/2			
FD30−883	Rc3/8×R3/8	73	14	18

Pipe Siphon 1

When the temperature of measurement fluid is higher, the pipe siphon is used to prevent pressure gauge from being exposed to high temperatures, and heat is dissipated by a pipe siphon.

Operating fluid:
Gas or liquid
Connection type:
Female screw x male screw
Max. allowable pressure:
20MPa
Operating fluid temperature:
350℃ or less
Wetted parts materials:

Iron	SGD, STPG370
Stainless steel	SUS316

Outer:

Iron	Nickel plating
Stainless steel	Stainless steel (materials)

Winding:

FP10	Single winding
FP20	Double winding

Weight:

FP10	Approx. 0.4 kg
FP20	Approx. 0.6 kg

Caution
Packing not included, please request separately.

Model number configuration

For ordering, please specify the model number and each specs.

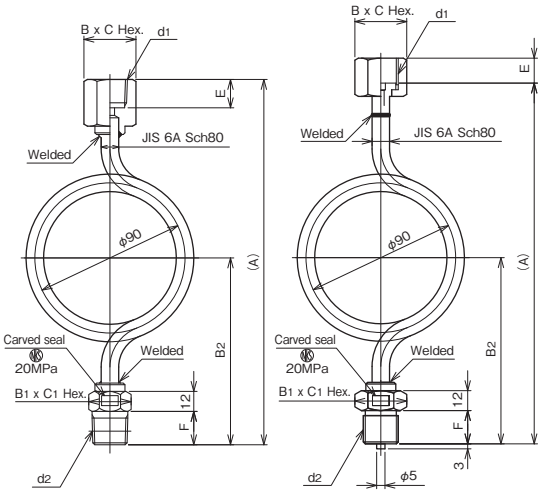
Model

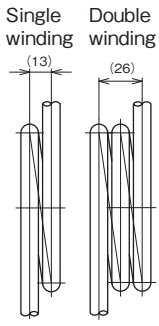
F P			—				—	×	×	×	×			×	×	×	×	×	
Pipe Siphon				①	②	③		④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮

Model number				Selective spec.	Additional spec. (Option)
Model	1	0	Female screw x male screw	Single winding	
	2	0	Female screw x male screw	Double winding	

⑧ Treatment	0	Nil
	1	Use no oil
	2	Use no water
	3	Use no oil & water
⑨ Other additional specifications	0	Nil
	1	Required (Please specify the desired documents separately.) Connection thread specified
⑮ Documents	0	Nil
	1	Required (Please specify the desired documents separately.) Submission drawings, instruction manual, mill sheet

*Specify "X" if there is no specification item.





Single winding

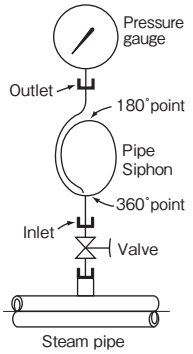
Model number		$d_1 \times d_2$ (Female) (Male)	A	B_2	E	F	B x C Hex.	$B_1 \times C_1$ Hex.
Iron	Stainless steel							
FP10-222	FP10-223	G1/4×G1/4B	212	108	10	16	19×21.4	19×21.9
FP10-332	FP10-333	G3/8×G3/8B	215	110	13	18	22×25.4	
FP10-382	FP10-383	G3/8×R3/8						
FP10-442	FP10-443	G1/2×G1/2B	217	112	15	20	27×31.2	22×25.4
FP10-492	FP10-493	G1/2×R1/2						
FP10-882	FP10-883	Rc3/8×R3/8	215	110	14	18	22×25.4	19×21.9
FP10-992	FP10-993	Rc1/2×R1/2	219	112	17	20	27×31.2	22×25.4
FP10-CC2	FP10-CC3	3/8NPT×3/8NPT	220	110	14	18	22×25.4	19×21.9
FP10-DD2	FP10-DD3	1/2NPT×1/2NPT	222	112	17	20	27×31.2	22×25.4

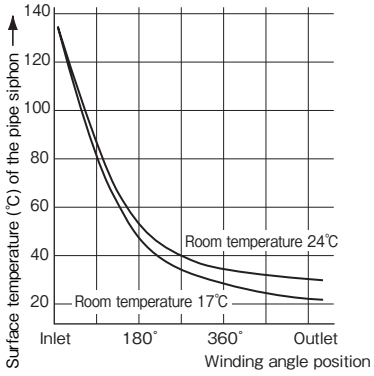
Double winding

Model number		$d_1 \times d_2$ (Female) (Male)	A	B_2	F	E	B x C Hex.	$B_1 \times C_1$ Hex.
Iron	Stainless steel							
FP20-332	FP20-333	G3/8×G3/8B	215	110	13	18	22×25.4	19×21.9
FP20-382	FP20-383	G3/8×R3/8						
FP20-442	FP20-443	G1/2×G1/2B	217	112	15	20	27×31.2	22×25.4
FP20-492	FP20-493	G1/2×R1/2						
FP20-BB2	FP20-BB3	1/4NPT×1/4NPT	211	108	12	16	19×21.9	19×21.9

Cooling effect of pipe siphon

Pipe siphon cooling effects vary based on pipe radius, wall thickness, length, room temperature and airflow; however, pipe siphon cooling effects for common uses in steam pressure measurement is shown in the figure below.





Pipe Siphon 2 (High pressure type)

When the temperature of measurement fluid is higher, the pipe siphon is used to prevent pressure gauge from being exposed to high temperatures, and heat is dissipated by a pipe siphon.

Operating fluid:
Gas or liquid
Connection type:
Female screw x male screw
Max. allowable pressure:
35MPa
Operating fluid temperature:
350℃ or less
Wetted parts materials:

Iron	SGD, STPG370
Stainless steel	SUS316

Outer:

Iron	Nickel plating
Stainless steel	Stainless steel (materials)

Winding:

FP11	Single winding
FP21	Double winding

Weight:

FP11	Approx. 0.4 kg
FP21	Approx. 0.6 kg

Caution
Packing not included, please request separately.

Model number configuration

For ordering, please specify the model number and each specs.

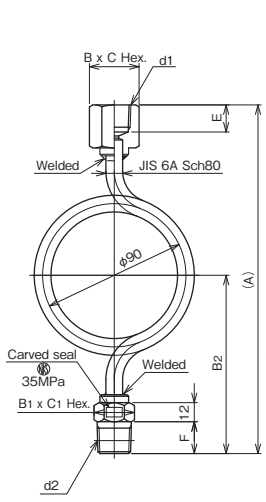
Model

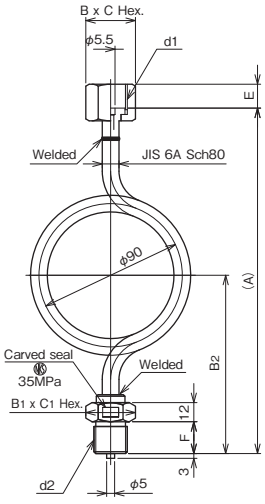
F P			—				—	×	×	×	×			×	×	×	×	×	
Pipe Siphon				①	②	③		④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮

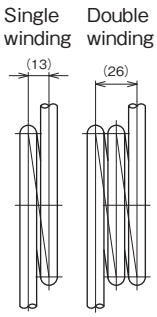
Model number			Selective spec.	Additional spec. (Option)
Model	1	1	Female screw x male screw	Single winding
	2	1	Female screw x male screw	Double winding

⑧ Treatment	0	Nil
	1	Use no oil
	2	Use no water
	3	Use no oil & water
⑨ Other additional specifications	0	Nil
	1	Required (Please specify the desired documents separately.) Connection thread specified
⑮ Documents	0	Nil
	1	Required (Please specify the desired documents separately.) Submission drawings, instruction manual, mill sheet

*Specify "X" if there is no specification item.







Single winding

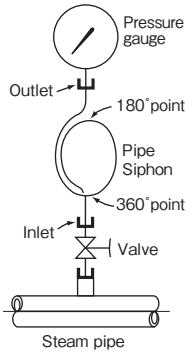
Model number		$d_1 \times d_2$ (Female) (Male)	A	B_2	E	F	B x C Hex.	$B_1 \times C_1$ Hex.
Iron	Stainless steel							
FP11-222	FP11-223	G1/4×G1/4B	212	108	10	16	19×21.4	19×21.9
FP11-332	FP11-333	G3/8×G3/8B	215	110	13	18	22×25.4	
FP11-382	FP11-383	G3/8×R3/8						
FP11-442	FP11-443	G1/2×G1/2B	217	112	15	20	27×31.2	22×25.4
FP11-492	FP11-493	G1/2×R1/2						
FP11-882	FP11-883	Rc3/8×R3/8	215	110	14	18	22×25.4	19×21.9
FP11-992	FP11-993	Rc1/2×R1/2	219	112	17	20	27×31.2	22×25.4
FP11-CC2	FP11-CC3	3/8NPT×3/8NPT	220	110	14	18	22×25.4	19×21.9
FP11-DD2	FP11-DD3	1/2NPT×1/2NPT	222	112	17	20	27×31.2	22×25.4

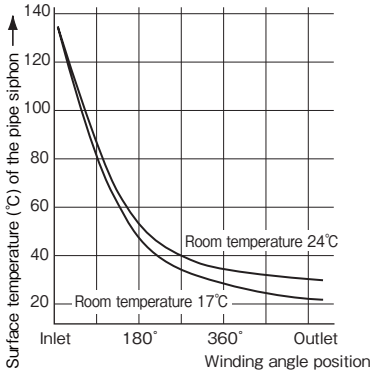
Double winding

Model number		$d_1 \times d_2$ (Female) (Male)	A	B_2	F	E	B x C Hex.	$B_1 \times C_1$ Hex.
Iron	Stainless steel							
FP21-332	FP21-333	G3/8×G3/8B	215	110	13	18	22×25.4	19×21.9
FP21-382	FP21-383	G3/8×R3/8						
FP21-442	FP21-443	G1/2×G1/2B	217	112	15	20	27×31.2	22×25.4
FP21-492	FP21-493	G1/2×R1/2						
FP21-BB2	FP21-BB3	1/4NPT×1/4NPT	211	108	12	16	19×21.9	19×21.9

Cooling effect of pipe siphon

Pipe siphon cooling effects vary based on pipe radius, wall thickness, length, room temperature and airflow; however, pipe siphon cooling effects for common uses in steam pressure measurement is shown in the figure below.





Pipe Siphon 3 (Flange connection)

When the temperature of measurement fluid is higher, the pipe siphon is used to prevent pressure gauge from being exposed to high temperatures, and heat is dissipated by a pipe siphon.

Operating fluid:
Gas or liquid
Connection type:
Female screw (Union) x JIS flange
Max. allowable pressure:
Depends on flange
Operating fluid temperature:
350℃ or less

Wetted parts materials:
Iron SGD, S25C, STPG370
Stainless steel SUS316
Outer:
Iron Nickel plating
Stainless steel Stainless steel (materials)
Winding:
Single winding

Caution
Packing not included, please request separately.

Model number configuration

For ordering, please specify the model number and each specs.

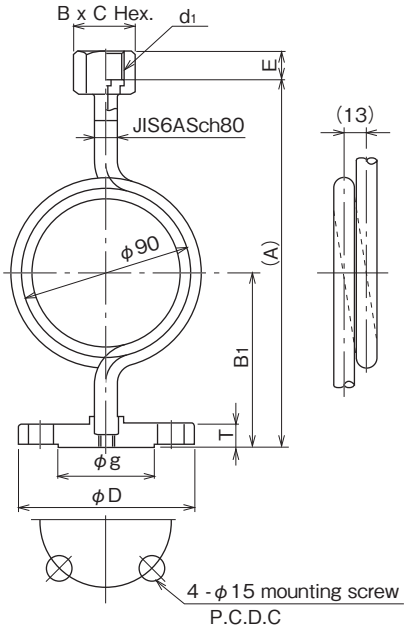
Model

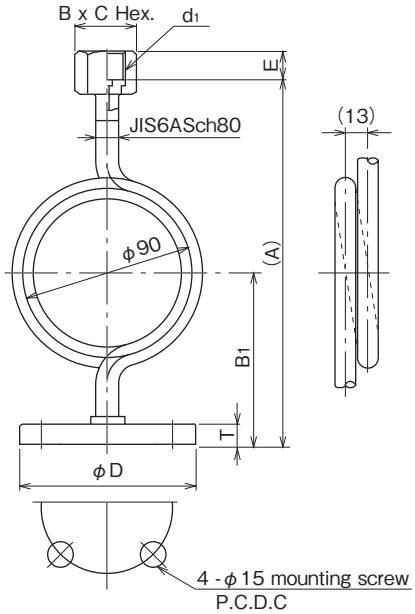
F	P	5		—				—	×	×	×	×			×	×	×	×	×		
Pipe Siphon					①	②	③		④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	

Model number			Selective spec.	Additional spec. (Option)
Model	0	Female screw (Union) x JIS flange (RF)		
	1	Female screw (Union) x JIS flange (FF)		

⑧ Treatment	0	Nil
	1	Use no oil
	2	Use no water
	3	Use no oil & water
⑨ Other additional specifications	0	Nil
	1	Required (Please specify the desired documents separately.) Connection thread specified
⑮ Documents	0	Nil
	1	Required (Please specify the desired documents separately.) Submission drawings, instruction manual, mill sheet

*Specify "X" if there is no specification item.





Female screw (Union) x JIS flange (RF)

Model number		d1 x Flange	A	B1	D	T	g	C	E	B x C Hex.
Iron	Stainless steel									
FP50-332	FP50-333	G3/8×10K10A	195	90	90	12	46	65	13	22×25.4
FP50-342	FP50-343	G3/8×10K15A			95		51	70		
FP50-362	FP50-363	G3/8×10K20A			100	14	56	75		
FP50-432	FP50-433	G1/2×10K10A			90	12	46	65	15	27×31.2
FP50-442	FP50-443	G1/2×10K15A			95		51	70		
FP50-462	FP50-463	G1/2×10K20A			100	14	56	75		
FP50-832	FP50-833	G3/8×20K10A			90		46	65	13	22×25.4
FP50-842	FP50-843	G3/8×20K15A			95		51	70		
FP50-862	FP50-863	G3/8×20K20A	200	95	100	16	56	75		
FP50-932	FP50-933	G1/2×20K10A	195	90	90	14	46	65	15	27×31.2
FP50-942	FP50-943	G1/2×20K15A			95		51	70		
FP50-962	FP50-963	G1/2×20K20A	200	95	100	16	56	75		

Female screw (Union) x JIS flange (FF)

Model number		d1 x Flange	A	B1	D	T	C	E	B x C Hex.
Iron	Stainless steel								
FP51-332	FP51-333	G3/8×10K10A	195	90	90	12	65	13	22×25.4
FP51-342	FP51-343	G3/8×10K15A			95		70		
FP51-362	FP51-363	G3/8×10K20A			100	14	75		
FP51-432	FP51-433	G1/2×10K10A			90	12	65	15	27×31.2
FP51-442	FP51-443	G1/2×10K15A			95		70		
FP51-462	FP51-463	G1/2×10K20A			100	14	75		
FP51-832	FP51-833	G3/8×20K10A			90		65	13	22×25.4
FP51-842	FP51-843	G3/8×20K15A			95		70		
FP51-862	FP51-863	G3/8×20K20A	200	95	100	16	75		
FP51-932	FP51-933	G1/2×20K10A	195	90	90	14	65	15	27×31.2
FP51-942	FP51-943	G1/2×20K15A			95		70		
FP51-962	FP51-963	G1/2×20K20A	200	95	100	16	75		

Tank Siphon

Used for inspection of no oil specification pressure gauges for food, oxygen, and similar uses. Communicates pressure to gauge using in-tank replacement fluid in order to prevent measurement fluid (oil, etc.) flow into pressure element.

Operating fluid: Liquid
Liquid
Connection type:
Female screw x male screw
Max. allowable pressure:
FT10 15MPa
FT11 35MPa (High pressure type)
Tank capacity:
80ml
Operating fluid temperature:
350℃ or less

Wetted parts materials:
Iron SGD, SUS316
Stainless steel SUS316
Outer:
Iron Nickel plating
Stainless steel Stainless steel (materials)
Weight:
Approx. 1.6 kg

Caution
Packing not included, please request separately.

Model number configuration

For ordering, please specify the model number and each specs.

Model

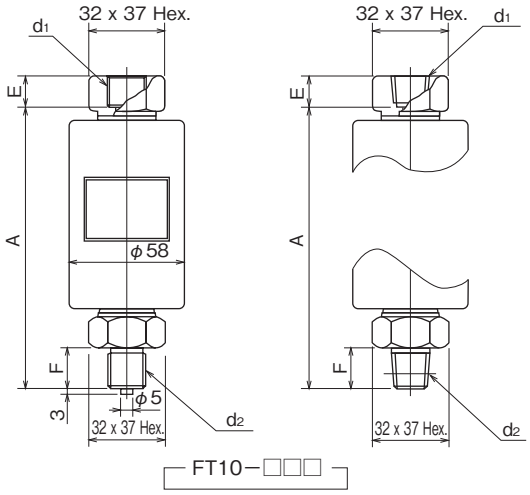
F T 1		—				—	×	×	×	×		×	×	×	×	×	×	
Tank Siphon			①	②	③		④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮

Model number			Selective spec.	Additional spec. (Option)
Model	0	Standard		
	1	High pressure type		

⑧ Treatment	0	Nil	
	1	Use no oil	
	2	Use no water	
	3	Use no oil & water	
⑮ Documents	0	Nil	
	1	Required (Please specify the desired documents separately.) Submission drawings, instruction manual, mill sheet	

*Specify "X" if there is no specification item.

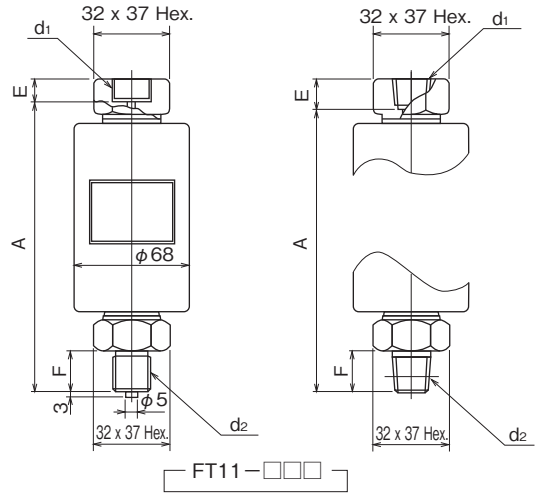
Standard Type



Standard Type

Model number Iron	Model number Stainless steel	d1 x d2 (Female) (Male)	A	E	F
FT10−332	FT10−333	G3/8×G3/8B	145	16	18
FT10−382	FT10−383	G3/8×R3/8			
FT10−442	FT10−443	G1/2×G1/2B		18	20
FT10−492	FT10−493	G1/2×R1/2			
FT10−882	FT10−883	Rc3/8×R3/8	147	14	18
FT10−992	FT10−993	Rc1/2×R1/2	146	17	20

High pressure type



High pressure type

Model number Iron	Model number Stainless steel	d1 x d2 (Female) (Male)	A	E	F
FT11−332	FT11−333	G3/8×G3/8B	175	16	18
FT11−382	FT11−383	G3/8×R3/8			
FT11−442	FT11−443	G1/2×G1/2B		18	20
FT11−492	FT11−493	G1/2×R1/2			
FT11−882	FT11−883	Rc3/8×R3/8	177	14	18
FT11−992	FT11−993	Rc1/2×R1/2	176	17	20

Joint 1

Pressure piping joints, paired and used according to size and usage.

Connection type:
FJ10 Female x male joint
FJ11 Female x female joint

Max. allowable pressure: (MPa)

	Brass	Iron	Stainless steel
FJ1□	50	100	100

Operating fluid temperature:
-5 to 80℃ (no freezing)

Wetted parts materials:

Brass	C3604
Iron	SGD
Stainless steel	SUS316

Outer:

Brass	Brass (materials)
Iron	Nickel plating
Stainless steel	Stainless steel (materials)

Weight:
Approx. 0.1 kg

Caution
Packing not included, please request separately.

Model number configuration

For ordering, please specify the model number and each specs.

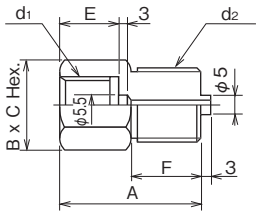
Model

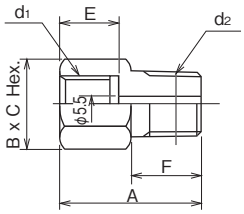
F	J	1		—				—	×	×	×	×		×	×	×	×	×	×	
		Joint			①	②	③		④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮

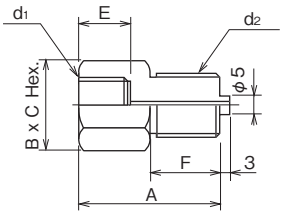
Model number			Selective spec.	Additional spec. (Option)
Model	0	Female screw x male screw		
	1	Female screw x female screw		

*Please contact us for R1/8 and Rc1/8.
*Specify "X" if there is no specification item.

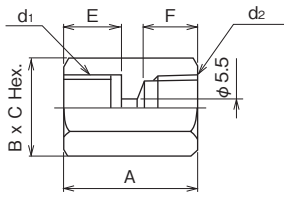
⑧ Treatment	0	Nil
	1	Use no oil
	2	Use no water
	3	Use no oil & water
⑮ Documents	0	Nil
	1	Required (Please specify the desired documents separately.) Submission drawings, mill sheet

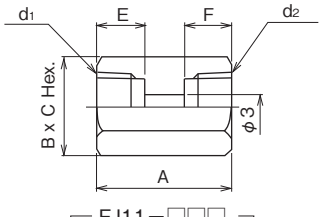






FJ10−□□□





FJ11−□□□

Female – male joint

Model number			d1 x d2 (Female) (Male)	A	E	F	B x C Hex.
Brass	Iron	Stainless steel					
FJ10-231	FJ10-232	FJ10-233	G1/4×G3/8B	36	14	18	19×21.9
FJ10-241	FJ10-242	FJ10-243	G1/4×G1/2B	38		20	
FJ10-321	FJ10-322	FJ10-323	G3/8×G1/4B	36	16	16	22×25.4
FJ10-341	FJ10-342	FJ10-343	G3/8×G1/2B	40		20	
FJ10-421	FJ10-422	FJ10-423	G1/2×G1/4B	38	18	16	27×31.2
FJ10-431	FJ10-432	FJ10-433	G1/2×G3/8B	40		18	
FJ10-261	FJ10-262	FJ10-263	G1/4×R1/8	32	14	14	19×21.9
FJ10-271	FJ10-272	FJ10-273	G1/4×R1/4	34		16	
FJ10-281	FJ10-282	FJ10-283	G1/4×R3/8	36		18	
FJ10-291	FJ10-292	FJ10-293	G1/4×R1/2	38		20	22×25.4
FJ10-361	FJ10-362	FJ10-363	G3/8×R1/8	34	16	14	
FJ10-371	FJ10-372	FJ10-373	G3/8×R1/4	36		16	
FJ10-381	FJ10-382	FJ10-383	G3/8×R3/8	38		18	
FJ10-391	FJ10-392	FJ10-393	G3/8×R1/2	40		20	
FJ10-471	FJ10-472	FJ10-473	G1/2×R1/4	38	18	16	27×31.2
FJ10-481	FJ10-482	FJ10-483	G1/2×R3/8	40		18	
FJ10-491	FJ10-492	FJ10-493	G1/2×R1/2	42		20	
FJ10-2B1	FJ10-2B2	FJ10-2B3	G1/4×1/4NPT	34	14	16	19×21.9
FJ10-2C1	FJ10-2C2	FJ10-2C3	G1/4×3/8NPT	36		18	
FJ10-2D1	FJ10-2D2	FJ10-2D3	G1/4×1/2NPT	38		20	22×25.4
FJ10-3B1	FJ10-3B2	FJ10-3B3	G3/8×1/4NPT	36	16	16	
FJ10-3C1	FJ10-3C2	FJ10-3C3	G3/8×3/8NPT	38		18	
FJ10-3D1	FJ10-3D2	FJ10-3D3	G3/8×1/2NPT	40		20	
FJ10-4B1	FJ10-4B2	FJ10-4B3	G1/2×1/4NPT	38	18	16	27×31.2
FJ10-4C1	FJ10-4C2	FJ10-4C3	G1/2×3/8NPT	40		18	
FJ10-4D1	FJ10-4D2	FJ10-4D3	G1/2×1/2NPT	42		20	
FJ10-731	FJ10-732	FJ10-733	Rc1/4×G3/8B	36	12	18	19×21.9
FJ10-741	FJ10-742	FJ10-743	Rc1/4×G1/2B	38		20	
FJ10-831	FJ10-832	FJ10-833	Rc3/8×G3/8B		14	18	22×25.4
FJ10-841	FJ10-842	FJ10-843	Rc3/8×G1/2B	40		20	
FJ10-931	FJ10-932	FJ10-933	Rc1/2×G3/8B		17	18	27×31.2
FJ10-941	FJ10-942	FJ10-943	Rc1/2×G1/2B	42		20	

Female – female joint

Model number			d1 x d2 (Female) (Female)	A	E	F	B x C Hex.
Brass	Iron	Stainless steel					
FJ11-2B1	FJ11-2B2	FJ11-2B3	G1/4×1/4NPT	33	14	12	19×21.9
FJ11-2C1	FJ11-2C2	FJ11-2C3	G1/4×3/8NPT	38		14	22×25.4
FJ11-2D1	FJ11-2D2	FJ11-2D3	G1/4×1/2NPT	42		17	27×31.2
FJ11-3B1	FJ11-3B2	FJ11-3B3	G3/8×1/4NPT	38	16	12	22×25.4
FJ11-3C1	FJ11-3C2	FJ11-3C3	G3/8×3/8NPT			14	
FJ11-3D1	FJ11-3D2	FJ11-3D3	G3/8×1/2NPT	42	18	17	27×31.2
FJ11-4B1	FJ11-4B2	FJ11-4B3	G1/2×1/4NPT			12	
FJ11-4C1	FJ11-4C2	FJ11-4C3	G1/2×3/8NPT			14	
FJ11-4D1	FJ11-4D2	FJ11-4D3	G1/2×1/2NPT			17	
FJ11-771	FJ11-772	FJ11-773	Rc1/4×Rc1/4	32	12	12	19×21.9
FJ11-781	FJ11-782	FJ11-783	Rc1/4×Rc3/8	34		14	22×25.4
FJ11-791	FJ11-792	FJ11-793	Rc1/4×Rc1/2	37		17	27×31.2
FJ11-881	FJ11-882	FJ11-883	Rc3/8×Rc3/8	36	14	14	22×25.4
FJ11-891	FJ11-892	FJ11-893	Rc3/8×Rc1/2	39		17	27×31.2
FJ11-991	FJ11-992	FJ11-993	Rc1/2×Rc1/2	42	17		

Joint 2 (Union type)

Pressure piping joints, paired and used according to size and usage.

Connection type:
FJ20, FJ21 Union female joint x pipe
FJ22 Union female joint x socket
FJ30 Union female joint x male joint

Max. allowable pressure: (MPa)

	Brass	Iron	Stainless steel
FJ20, FJ21	15	25	25
FJ22	—	35	35
FJ30	20	50	50

Operating fluid temperature:
-5 to 80℃ (no freezing)

Wetted parts materials:
Brass C3604
Iron SGD
Stainless steel SUS316

Outer:
Brass Brass (materials)
Iron Nickel plating (Anti-rust treatment)
Stainless steel Stainless steel (materials)

Weight:
Approx. 0.1 kg - Approx. 0.25 kg

Caution
Packing not included, please request separately.

Model number configuration

For ordering, please specify the model number and each specs.

Model

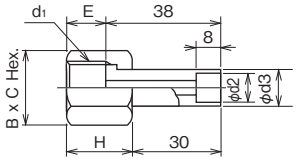
F J			—				—	×	×	×	×		×	×	×	×	×	×	
Joint				①	②	③		④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮

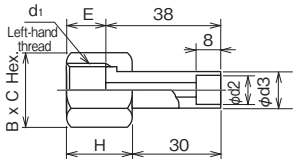
Model number			Selective spec.	Additional spec. (Option)
Model	2	0	Union female joint x pipe	
	2	1	Union female joint x pipe	
	2	2	Union female joint x socket	
	3	0	Union female joint x male joint	

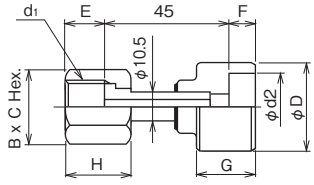
⑧ Treatment	0	Nil
	1	Use no oil
	2	Use no water
	3	Use no oil & water
⑮ Documents	0	Nil
	1	Required (Please specify the desired documents separately.) Submission drawings, mill sheet

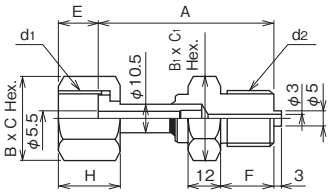
*Specify "X" if there is no specification item.

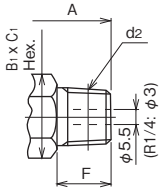
Caution
As the welds on this product are extremely fine, please avoid heavy attachments and placement near vibration sources.











Union type pipe joint

Model number			d1 x d2 (Female) (Pipe)	E	H	d3	B x C Hex.
Brass	Iron	Stainless steel					
FJ20-361	FJ20-362	FJ20-363	G3/8× φ6	13	21	10.5	22×25.4
FJ20-381	FJ20-382	FJ20-383	G3/8× φ8			13	
FJ20-301	FJ20-302	FJ20-303	G3/8× φ10				
FJ20-311	FJ20-312	FJ20-313	G3/8×1/8B				
FJ20-461	FJ20-462	FJ20-463	G1/2× φ6	15	23	10.5	27×31.2
FJ20-481	FJ20-482	FJ20-483	G1/2× φ8			13	
FJ20-401	FJ20-402	FJ20-403	G1/2× φ10				
FJ20-411	FJ20-412	FJ20-413	G1/2×1/8B				
FJ21-361	FJ21-362	FJ21-363	G3/8Left-hand thread× φ6	13	21	10.5	22×25.4
FJ21-381	FJ21-382	FJ21-383	G1/2Left-hand thread× φ8			13	
FJ21-301	FJ21-302	FJ21-303	G3/8Left-hand thread× φ10				
FJ21-311	FJ21-312	FJ21-313	G3/8Left-hand thread×1/8B				

Union type socket joint

Model number			d1 x d2 (Female) (Socket)	D	E	F	G	H	B x C Hex.
Brass	Iron	Stainless steel							
—	FJ22-332	FJ22-333	G3/8×17.8	26	13	10	22	21	22×25.4
	FJ22-342	FJ22-343	G3/8×22.2	32					
	FJ22-362	FJ22-363	G3/8×27.7	40		13	25		
	FJ22-422	FJ22-423	G1/2×14.3	23	15	10	22	23	27×31.2
	FJ22-432	FJ22-433	G1/2×17.8	26					
	FJ22-442	FJ22-443	G1/2×22.2	32					
	FJ22-462	FJ22-463	G1/2×27.7	40		13	25		

Union type joint

Model number			d1 x d2 (Female) (Male)	A	E	F	H	B x C Hex.	B1 x C1 Hex.
Brass	Iron	Stainless steel							
FJ30-321	FJ30-322	FJ30-323	G3/8×G1/4B	61	13	16	21	22×25.4	19×21.9
FJ30-331	FJ30-332	FJ30-333	G3/8×G3/8B	63		18			
FJ30-341	FJ30-342	FJ30-343	G3/8×G1/2B	65		20			22×25.4
FJ30-421	FJ30-422	FJ30-423	G1/2×G1/4B	61	15	16	23	27×31.2	19×21.9
FJ30-431	FJ30-432	FJ30-433	G1/2×G3/8B	63		18			
FJ30-441	FJ30-442	FJ30-443	G1/2×G1/2B	65		20			22×25.4
FJ30-371	FJ30-372	FJ30-373	G3/8×R1/4	61	13	16	21	22×25.4	19×21.9
FJ30-381	FJ30-382	FJ30-383	G3/8×R3/8	63		18			
FJ30-391	FJ30-392	FJ30-393	G3/8×R1/2	65		20			22×25.4
FJ30-471	FJ30-472	FJ30-473	G1/2×R1/4	61	15	16	23	27×31.2	19×21.9
FJ30-481	FJ30-482	FJ30-483	G1/2×R3/8	63		18			
FJ30-491	FJ30-492	FJ30-493	G1/2×R1/2	65		20			22×25.4

Joint 3 (Flange connection and others)

Pressure piping joints, paired and used according to size and usage.

Connection type:
FJ47 Union female joint x JIS flange
FJ34 3-way joint

Max. allowable pressure: (MPa)

	Iron	Stainless steel
FJ47	Depends on flange	
FJ34	50	50

Operating fluid temperature:
-5 to 80℃ (no freezing)

Wetted parts materials:
Iron FJ47 SGD, S25C
FJ34 SGD, SF440A, C1100
Stainless steel SUS316

Outer:
Iron Nickel plating
Stainless steel Stainless steel (materials)

Weight:
FJ34 Approx. 0.5 kg

Caution
Packing not included, please request separately.

Model number configuration

For ordering, please specify the model number and each specs.

Model

F J			—				—	×	×	×	×		×	×	×	×	×	×	
Joint				①	②	③		④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮
Model number								Selective spec.				Additional spec. (Option)							

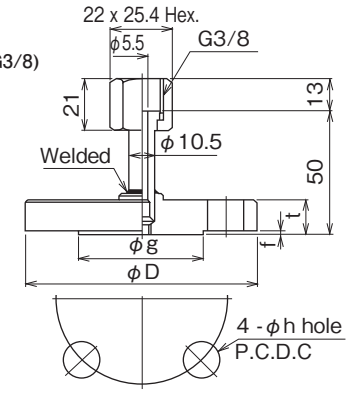
Model	4	7	Union female joint x JIS flange
	3	4	3-way joint

⑧ Treatment	0	Nil
	1	Use no oil
	2	Use no water
	3	Use no oil & water
⑮ Documents	0	Nil
	1	Required (Please specify the desired documents separately.) Submission drawings, mill sheet

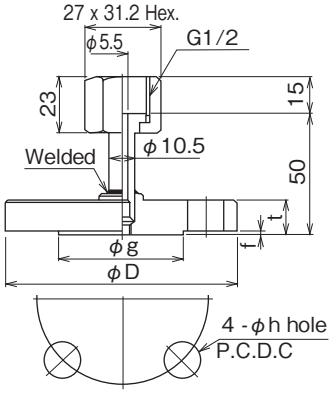
Caution
As the welds on FJ47 are extremely fine, please avoid heavy attachments and placement near vibration sources.

*Specify "X" if there is no specification item.

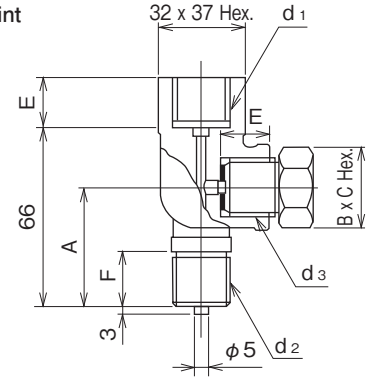
Union type flange joint (Female screw G3/8)



(Female G1/2)



3-way joint



Union type flange joint (Female screw G3/8)

Model number		Flange orifice	D	t	f	g	C	h
Iron	Stainless steel							
FJ47-332	FJ47-333	JIS 10K 16K 10A RF	90	12	1	46	65	15
FJ47-342	FJ47-343	JIS 10K 16K 15A RF	95			51	70	
FJ47-362	FJ47-363	JIS 10K 16K 20A RF	100	14		56	75	
FJ47-832	FJ47-833	JIS 20K 10A RF	90			46	65	
FJ47-842	FJ47-843	JIS 20K 15A RF	95			51	70	
FJ47-862	FJ47-863	JIS 20K 20A RF	100	16		56	75	

Union type flange joint (Female screw G1/2)

Model number		Flange orifice	D	t	f	g	C	h
Iron	Stainless steel							
FJ47-432	FJ47-433	JIS 10K 16K 10A RF	90	12	1	46	65	15
FJ47-442	FJ47-443	JIS 10K 16K 15A RF	95			51	70	
FJ47-462	FJ47-463	JIS 10K 16K 20A RF	100	14		56	75	
FJ47-932	FJ47-933	JIS 20K 10A RF	90			46	65	
FJ47-942	FJ47-943	JIS 20K 15A RF	95			51	70	
FJ47-962	FJ47-963	JIS 20K 20A RF	100	16		56	75	

3-way joint (Female screw x male screw x closing plug)

Model number		d1 x d2 x d3	A	E	F	B x C Hex.
Iron	Stainless steel					
FJ34-332	FJ34-333	G3/8×G3/8B×G3/8	42	16	18	19×21.9
FJ34-442	FJ34-443	G1/2×G1/2B×G1/2	44	18	20	22×25.4

Packing (Lens packing, flat packing)

Used in pressure gauge storage seats. Selectable to match all types and sizes of piping materials.

Connection type:
Lens packing, flat packing

Material:
Lens packing ··· Copper (C1100), stainless steel (SUS316)
Flat packing ··· Copper (C1100), resin (PTFE), leather
Sheet gasket* (Black super)

Screw radius:
Lens Packing ··· G3/8, G1/2 (Common use)
Flat Packing ··· G1/4, G3/8, G1/2

*Non-asbestos compatible product

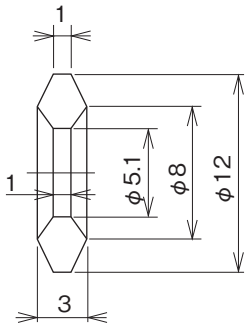
Model number configuration

For ordering, please specify the model number and each specs.

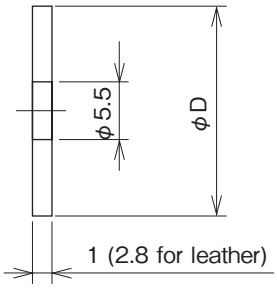
Model	F J	8	0	—	①	②	③	—	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮
Packing																				
	Model number								Selective spec.				Additional spec. (Option)							
	Model	8	0	Lens packing, flat packing																

⑮ Documents	0	Nil
	1	Required (Please specify the desired documents separately.) Submission drawings, mill sheet

*Specify "X" if there is no specification item.



Lens packing



Flat packing

Lens packing

Material	Model number	Screw diameter	Weight (Approx.g)
Copper (C1100)	FJ80−001	G3/8 G1/2 (Common use)	1.7
Stainless steel (SUS316)	FJ80−003		1.4

*G1/4 can be manufactured.

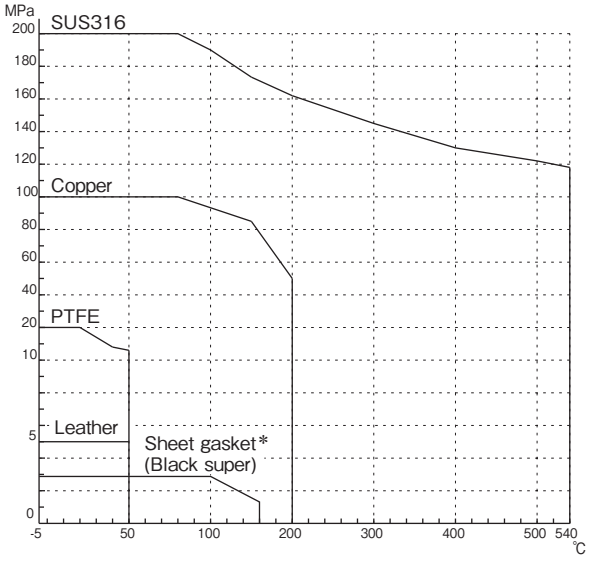
Flat packing

Material	Model number	D	Screw diameter	Weight (Approx.g)
Copper (C1100)	FJ80−201	11	G1/4	0.6
	FJ80−301	14	G3/8	1.1
	FJ80−401	18	G1/2	2.0
Resin (PTFE)	FJ80−204	11	G1/4	0.2
	FJ80−304	14	G3/8	0.3
	FJ80−404	18	G1/2	0.5
Leather	FJ80−206	11	G1/4	0.2
	FJ80−306	14	G3/8	0.3
	FJ80−406	18	G1/2	0.5
Sheet gasket* (Black super)	FJ80−207	11	G1/4	0.1
	FJ80−307	14	G3/8	0.3
	FJ80−407	18	G1/2	0.4

*Non-asbestos compatible product

Packing usage range

Packing temperature and maximum usable pressure relationship



*Non-asbestos compatible product

Pointer puller and Hammer

●Specialty tool used in adjusting pressure gauges.

Caution

Please be aware that the inspection-sealed gauges and the gauges with verification standard inspection mark cannot be adjusted by customers.

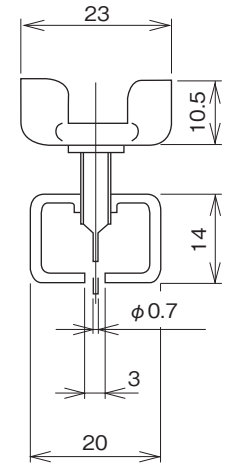
Model number configuration

For ordering, please specify the model number and each specs.

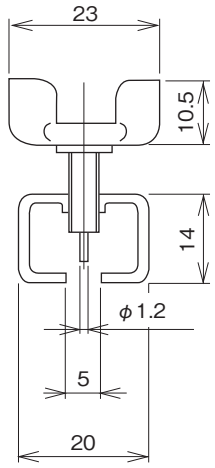
Model

F S 2 0	—	0	0		—	×	×	×	×	×	×	×	×	×	×	×	
Pointer puller		①	②	③		④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮
Model number						Selective spec.				Additional spec. (Option)							

③ Pointer diameter	1	ϕ0.7 (Thin)
	2	ϕ1.2 (Standard)



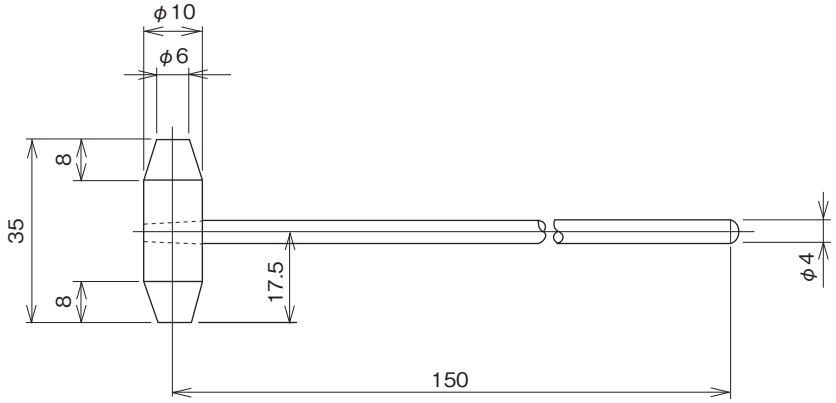
FS20−001



FS20−002

Model

F S 2 1	—	0	0	1	—	×	×	×	×	×	×	×	×	×	×	×	
Hammer		①	②	③		④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮
Model number						Selective spec.				Additional spec. (Option)							



FS21−001

*Specify "X" if there is no specification item.