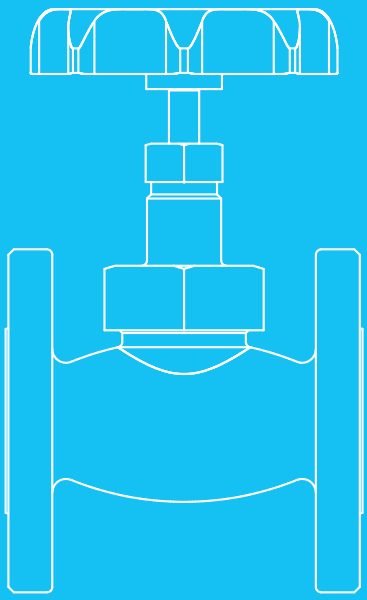
Manual Valve
Drain Separator

2



Step 0 Type/Structure/Features

Please refer to this for structure and features of manual valve and separator.

Step 1 Selection

Details are on the product page.

Step 2 Sizing

Please use Drain Separator of same size with pipe.

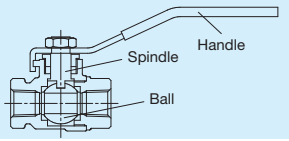
Step 3 Attention for usage

Please check some guidelines for optimal usage of Drain Separator such as installation.

Kinds and structure of manual valve

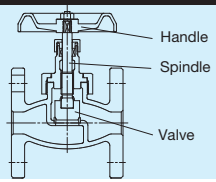
Step 0

Ball Valve



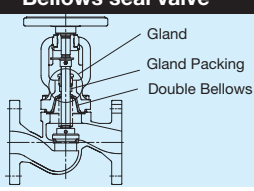
● The valve that control the fluid by turning the handle to roll the ball which connected to the spindle. Suitable to use under the condition of fully open or fully close by turning the handle 90 degree such as on-off movement.

Globe Valve



● The valve that control the fluid by moving the valve up and down by turning the handle. Suitable to use under the condition of flow control because it has excellent closing ability and can be used at intermediate opening.

Bellows seal valve



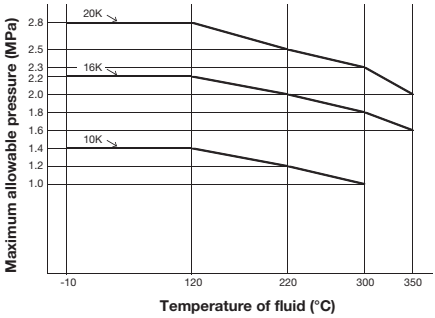
● The valve that meet the saving energy due to no leakage to the outside by double seal. (Bellows and Gland Packing). No need to replace or retighten gland packing. Hand wheel can be turned with small torque without interference from the spindle.

JIS B 2051 Pressure-temperature standard (Metal Seat)

Unit: Mpa

Nominal Pressure	Maximum allowable pressure			
	Temperature of fluid			
	-10~120	220	300	350
10K	1.4	1.2	1.0	
16K	2.2	2.0	1.8	1.6
20K	2.8	2.5	2.3	2.0

The maximum allowable pressure at intermediate temperature shown in the table is determined by proportional interpolation.



Step 1

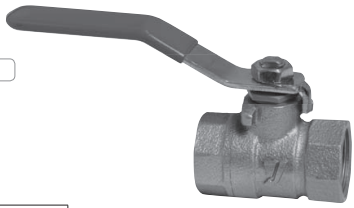
Manual valve ID-Charts

	Model	Type	Fluid	Material (Body)	Press. (MPa)	Max. Temp. (˚C)	Connection	Nominal Size	Page
	**BLV-1**	Ball valve	Steam, air, cold and hot water, oil	Bronze	Saturated Steam: 1.0Mpa Normal temperature: (Below 40°C) of water, oil, Air: 4.12MPa		JIS Rc	8~50A	2-5
	**GLV-1**	Globe valve	Steam, Air, cold and hot water, oil	Bronze	1.0 MPa	185°C	JIS Rc	15~50A	2-5
	**GLV-10**	Globe valve	Steam, Air, cold and hot water, oil	FCD450	1.4 MPa *1	220°C *1	JIS Rc	8~50A	2-6
	**GLV-16**	Globe valve	Steam, Air, cold and hot water, oil	FCD450	2.2 MPa *1	220°C *1	JIS Rc	15~50A	2-6
	**GLV-10F**	Globe valve	Steam, air, cold and hot water, oil	FCD450	1.4 MPa *1	300°C *1	JI10K FF	15~50A	2-7
	GLV-20F	Globe valve	Steam Air, cold and hot water, oil	FCD450	2.8 MPa *1	300°C *1	JIS20K RF	15~50A	
	**BSV-2EN**	Bellows seal valve	Steam, Air, cold and hot water, oil	FCD450 (Up to 100A) FC (Above 100A)	1.6MPa (PN16)*2 2.5MPa (PN25) *2	300°C *2 350°C *2	PN16 PN25	15~250A	2-8
	BSV-10F	Bellows seal valve	Steam, Air, cold and hot water, oil	FCD450 (Up to 100A) FC (Above 100A)	1.4 MPa *1	300°C *1	JI10K FF	15~150A	2-10
	BSV-20F	Bellows seal valve	Steam, Air, cold and hot water, oil	FCD450 (Up to 100A) FC (Above 100A)	2.8 MPa *1	350°C *1	JIS20K RF	15~150A	

*1 The relation between pressure and temperature depend on P.2-3 JIS B 2051, pressure-temperature standard.
*2 Please refer to P.2-9 for PT-rating.

BLV-1

10K | 16K | 20K | Bronze | Ductile



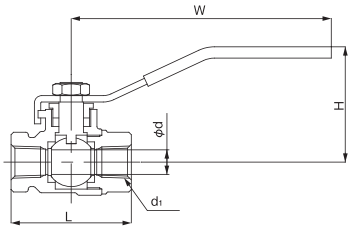
Body of BLV-1 is made of bronze and ball is made of chrome-plated or stainless steel.
Widely applicable for steam, air, water or oil application

■Specifications

Application		Steam, Air, Cold and hot water, Oil, Other non dangerous fluid
Maximum pressure		Saturated steam: 1.0 MPa Water, oil, air or other non-dangerous fluid at 40°C or lower: 4.12 MPa
Material	Body	Bronze
	Ball	Cr plated brass or stainless steel
	Stem	Brass
Connection		JIS Rc screwed

* Valve (ball) is closed at the time of shipment from factory.
* There is no restriction on flow direction.

■Dimensions (mm) and Weight (kg)



Nominal size	d1	d	L	H	W	Weight
8A	Rc 1/4	10	49	47	106	0.2
10A	Rc 3/8	10	49	47	106	0.2
15A	Rc 1/2	12.7	53	47	106	0.3
20A	Rc 3/4	15	56	52	106	0.3
25A	Rc 1	20	68	55	106	0.5
32A	Rc 1-1/4	25	86	66	136	0.8
40A	Rc 1-1/2	31.8	96	72	136	1.2
50A	Rc 2	38	108	77	136	1.8

GLV-1

10K | 16K | 20K | Bronze | Ductile

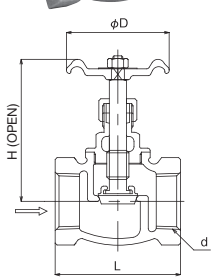
Wetted parts of GLV-1 are made of bronze or dezincification resistant brass.
Widely applicable for steam, air, water or oil application.

■Specifications

Application		Steam, Air, Cold and hot water, Oil, Other non dangerous fluids
Maximum pressure		1.0 MPa
Maximum temperature		185°C
Material	Body	Bronze
	Bonnet	Brass or bronze
	Disc	Brass or bronze
Connection		JIS Rc screwed

* Valve is closed at the time of shipment from factory.

■Dimensions (mm) and Weight (kg)



Nominal size	d	L	H	D	Weight
15A	Rc 1/2	50	76	54	0.3
20A	Rc 3/4	57	86	61	0.4
25A	Rc 1	65	100	68	0.6
32A	Rc 1-1/4	75	123	77	0.9
40A	Rc1-1/2	85	135	77	1.1
50A	Rc 2	100	159	83	1.7

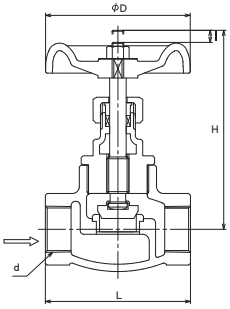
GLV-10

10K | 16K | 20K | Bronze | **Ductile**

■Specifications

Application		Steam, Air, Cold and hot water, oil, other non-dangerous fluids
Maximum pressure		1.4 MPa *1
Maximum temperature		220°C *1
Material	Body	Ductile cast iron
	Bonnnet	Ductile cast iron
	Disc	SUS410 equivalent
Connection		JIS Rc

*1 The relation between pressure and temperature depend on P.2-3 JIS B 2051, pressure-temperature standard.
· Valve is closed at the time of shipment from the factory.



■Dimensions (mm) and weights(kg)

Nominal Size	d	D	L	H	I	Weights (kg)
8A	Rc 1/4	63	65	100	6	0.5
10A	Rc 3/8	63	65	100	6	0.5
15A	Rc 1/2	63	65	100	6	0.5
20A	Rc 3/4	70	80	110	7	0.7
25A	Rc 1	80	90	126	8	1.0
32A	Rc 1 1/4	100	105	148	10	1.7
40A	Rc 1 1/2	100	120	160	11	2.3
50A	Rc 2	125	140	192	15	3.6

GLV-16

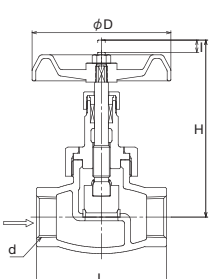
10K | **16K** | 20K | Bronze | **Ductile**

Wetted parts of GLV-16 are made of ductile cast iron.
Widely applicable for steam, air, water or oil application.

■Specifications

Application		Steam, Air, Cold and hot water, Oil, Other non dangerous fluids
Maximum pressure		2.2 MPa *1
Maximum temperature		220°C *1
Material	Body	Ductile cast iron
	Bonnet	Ductile cast iron
	Disc	Stainless steel
Connection		JIS Rc screwed

* The relation between pressure and temperature depend on P.2-3 JIS B 2051, pressure-temperature standard.
* Valve is closed at the time of shipment from the factory.



■Dimensions (mm) and Weights (kg)

Nominal size	d	L	H	D	Weight
15A	Rc 1/2	75	126	83	0.9
20A	Rc 3/4	90	135	105	1.1
25A	Rc 1	105	150	112	1.7
32A	Rc 1-1/4	120	162	132	2.7
40A	Rc1-1/2	135	183	132	3.8
50A	Rc 2	160	186	132	5.6

GLV-10F,20F

10K | 16K | 20K | Bronze | Ductile

■Specification

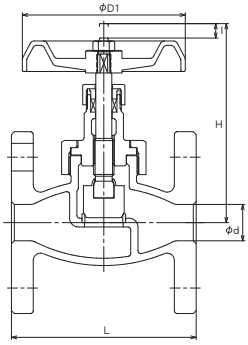
Model		GLV-10F	GLV-20F
Application		Steam, Air, cold and hot water, oil, other non-dangerous fluid	
Nominal Size		15A-50A	
Maximum pressure		1.4 MPa *1	2.8 MPa *1
Maximum temperature		300°C *1	300°C *1
Material	Body	Ductile cast iron	
	Bonnet	Ductile cast iron	
	Valve	SUS403	SUS304+Stellite
Connection		JIS 10KFF	JIS 20KRF

* The relation between pressure and temperature depend on P.2-3 JIS B 2051, pressure-temperature standard.
* Valve is closed at the time of shipment from the factory.

■Dimensions (mm) and weights(kg)

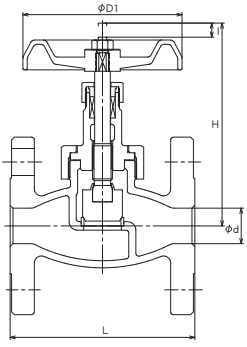
· GLV-10F

Nominal Size	d	D1	L	H	I	Weights (kg)
15A	15	83	108	126	6	2.1
20A	20	105	117	135	7	2.6
25A	25	112	127	150	8	4.1
32A	32	132	140	162	9	5.6
40A	40	132	165	183	11	6.8
50A	50	132	203	186	13	9.1



· GLV-20F

Nominal Size	d	D1	L	H	I	Weights (kg)
15A	15	83	110	126	6	2.2
20A	20	105	120	135	7	2.8
25A	25	112	130	150	8	4.2
32A	32	132	160	162	9	5.8
40A	40	132	180	183	11	6.9
50A	50	180	230	186	13	9.8



BSV-2EN

■Features

1. Non-rising handwheel: Free from foreign substance trouble because most threaded surface is covered.
2. No leakage by two-stage sealing of double bellows and gland packing.
3. Gland packing does not need retightening nor applying pressure on spindle, thus handwheel can be turned with small torque without interference from the spindle.
4. Maintenance-free: No need to replace or retighten gland packing.

■Specifications

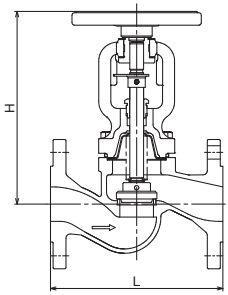
Model		BSV-2EN	
Application		Steam, Air, Cold and hot water, Oil, Other non-dangerous fluids	
Nominal size		15A-200A *1	
Max. pressure		1.6 MPa *2	2.5 MPa *2
Max. temperature		300°C *2	350°C *2
Material	Body	Ductile Cast Iron *3	
	Bonnet	Ductile Cast Iron	
	Valve	Stainless steel	
	Valve seat	Stainless steel	
	Bellows	Stainless steel (SUS316Ti)	
Connection		EN 1092-2 PN16	EN 1092-2 PN25

*1 If 250A is needed, please contact us (for cast iron body only).
*2 According to PT rating.
*3 For the size above 100A, the material will be cast iron body only.

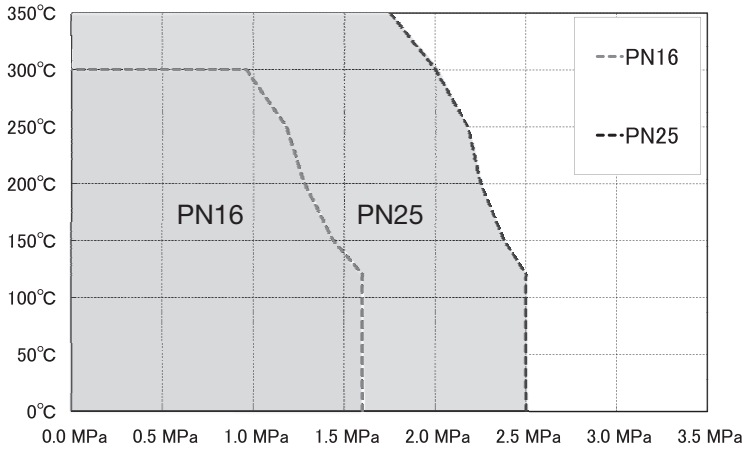
■Dimensions (mm) and Weights (kg)

Nominal size	L	H	Weight
15A	130 (130)	184 (184)	3.2 (4.0)
20A	150 (150)	184 (184)	3.9 (4.5)
25A	160 (160)	188.5 (188.5)	4.6 (5.5)
32A	180 (180)	193 (193)	6.5 (8.0)
40A	200 (200)	235.5 (235.5)	9.0 (11.5)
50A	230 (230)	235.5 (235.5)	11.0 (14.0)
65A	290 (290)	252.5 (252.5)	15.8 (18.0)
80A	310 (310)	272.5 (272.5)	20.5 (22.0)
100A	350 (350)	348 (348)	35.0 (35.0)
125A	400	388	49.0
150A	480	448	76.0
200A	600	575	130.5

· Face-to-face dimension: EN 558-1 series 1.
· The number in parenthesis are for PN25.



■Pressure and Temperature Rating



- This chart shows PT rating of PN16 for cast iron flanges and of PN25 for ductile cast iron flanges according to EN 1092-2.
- BSV-2EN PN16 flanged can be used in orange region. BSV-2EN PN25 flanged can be used in orange and green regions.
- If detailed values of maximum fluid temperature and maximum pressure are needed, please see the following table:

Acc to EN 1092-2		Temperature [°C]					
Material	PN	-10 up to 120	150	200	250	300	350
Cast iron	16	1.60 MPa	1.44 MPa	1.28 MPa	1.12 MPa	0.96 MPa	-
Ductile cast iron	25	2.50 MPa	2.43 MPa	2.30 MPa	2.18 MPa	2.00 MPa	1.75 MPa

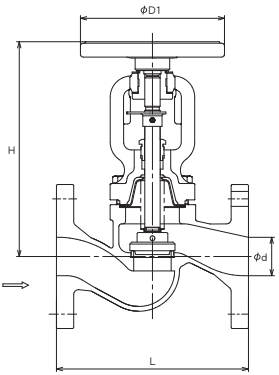
BSV-10F,20F

10K | 16K | 20K | Bronze | Ductile

■Specifications

Model		BSV-10F	BSV-20F
Application		Steam, Air, cold and hot water, oil, other non-dangerous fluid	
Maximum pressure		1.4 MPa *1	2.8 MPa *1
Maximum temperature		300°C *1	350°C *1
Material	Body	Ductile cast iron	
	Bonnet	Ductile cast iron	
	valve	Stainless steel	
	Bellows	Stainless steel (SUS316Ti)	
Connection		JIS 10KFF	JIS 20KRF

* The relation between pressure and temperature depend on P.2-3 JIS B 2051, pressure-temperature standard.
* Valve is closed at the time of shipment from the factory.
* For the size above 100A, the body material will be cast iron body only.



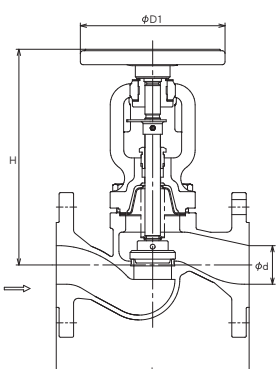
■Dimensions (mm) and weights(kg)

· BSV-10F

Nominal Size	d	H	D1	L	Weights (kg)
15A	15	184	125	108	3.5
20A	20	184	125	117	4.0
25A	25	188.5	125	127	5.5
32A	32	193	125	140	6.5
40A	40	235.5	180	165	9.5
50A	50	235.5	180	203	11.5
65A	65	252.5	200	216	15.0
80A	80	272.5	200	241	18.5
100A	100	348	250	292	30.0
125A	125	380	300	356	43.0
150A	150	427	400	406	57.0

· BSV-20F

Nominal Size	d	H	D1	L	Weights (kg)
15A	15	184	125	110	4.0
20A	20	184	125	120	4.5
25A	25	188.5	125	130	5.5
32A	32	193	125	160	7.5
40A	40	235.5	180	180	10.5
50A	50	235.5	180	230	12.5
65A	65	252.5	200	292	17.5
80A	80	272.5	200	318	22.0
100A	100	348	250	356	36.5
125A	125	380	300	400	51.0
150A	150	427	400	444	68.0



⚠ CAUTION | Please refer to the manual attached to the product for procedures for installation and operation.

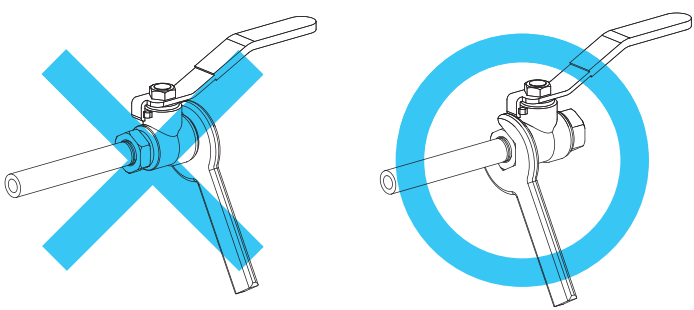
GLV-1 Globe valve/BLV-1 Ball valve

Precautions for installation

GLV-1 Globe Valve/BLV-1 Ball Valve

- Store the product indoors in a dust free, low humidity, dry and ventilated environment.
- Installation should be conducted by suitably trained personnel, wearing protective head, eye, hand and foot protection.
- The product can be used for “complete opening” and “complete closing”. If the product is used at intermediate opening, ball and ball seat may be damaged.
- Be careful that the threaded connection between the mating pipe and the internal threaded connections of the valves are in line to avoid piping stresses in the valves.
- During transportation or storage of the product leakage may occur from the washer of packing due to decreasing of tightening pressure by stress relaxation of the packing. Be sure to retighten the washer of packing before use.
- When connecting the product and the piping, apply seal agent (such as seal tape) to the screw part of the piping. Use seal agent appropriate for temperature, fluid, etc.
- In case that the product is expected to be frozen, be sure to conduct freezing prevention measures or water draining treatment (after use).
- For Globe valve, sliding of stem may lead to mix the chipping of packing with the inside of fluid at the stage of valve open and close operation by turnning the handle. To avoid mixing of packing chipping with the inside of fluid , place the filter under the globe valve.
- Globe valve can be used (fully opened)/(fully closed) operation. It can be damaged to the valve body and valve seat area by erosion when uisng partially open and close condition.
- Please be sure to open and close operation of globe valve by manual. Do not apply the turning of handle. If doing so, it may cause damage.
- To connect the product to piping, use appropriate tool such as spanner with spanner apply part near the piping. In addition, do not make piping work with applying a pipe wrench to the product. If doing so, it leads to malfunction of the product. (see fig. 1)

Fig.1



WRONG O.K.