

# TWIN PACK VALVES

CLASS 150/300/600  
GATE, and GLOBE



**CRAFT**

A general engineering group dealing with valves for petroleum refining, petrochemical, thermal power plants, and other process industries

**Ishida Valve Mfg. Co., Ltd.**  
**Ishida Valve Engineering Co., Ltd.**

# TWIN PACK VALVES

The life of a valve is mainly determined by packing leaks to the exterior thru failure of grand. The design of the TWIN PACK VALVE prevents these possible problems extending the valve life. This is especially important today' s concern with pollution and product quality control.

## INDEX

CLASS	TYPE	END CONNECTION	PAGE
150 300	FORGED STEEL GATE	RF FLANGED ENDS	6
150 300	FORGED STEEL GLOBE	RF FLANGED ENDS	7
300 600	FORGED STEEL GATE	SOCKET WELDING ENDS SCREWED ENDS	8
300 600	FORGED STEEL GLOBE	SOCKET WELDING ENDS SCREWED ENDS	9
150	CAST STEEL GATE	RF FLANGED ENDS	10
300	CAST STEEL GATE	RF FLANGED ENDS	11
600	CAST STEEL GATE	RF FLANGED ENDS	12
150	CAST STEEL GLOBE	RF FLANGED ENDS	13
300	CAST STEEL GLOBE	RF FLANGED ENDS	14
600	CAST STEEL GLOBE	RF FLANGED ENDS	15
300	FORGED STEEL YELLOW	RF FLANGED ENDS	18
300	CAST STEEL YELLOW	RF FLANGED ENDS	19

### INSTALATION OF ISHIDA TWIN PACK VALVES

Twin Pack Valves are installed on poisonous gas line in a plant in Saudi Arabia. This project required the use of 1,200 Twin Pack Valves



# FEATURES OF TWIN PACK VALVES

## 1. IMPROVED STUFFING BOX DESIGN

### About the conventional stuffing box type valve.

In a conventional stuffing box design (Fig.1) when the gland bolt is tightened, the packing is not tightened as a concentric force and, a portion of the force is diverted at a right angle to the stem. The actual tightening force is reduced (see Fig.2, "Distribution of Clamping force.") The result is the sealing pressure is effective in only the first 2 or 3 rings where the clamping force is sufficient. However, even those upper rings, if the sealant of binder etc. disappears, will cause leakage. It is difficult under these conditions, no matter how tighten the gland packing is tightened, to obtain a permanent leak-proof condition.

New stuffing box type valves which Ishida Valve Mfg. Co. Ltd proposes, are "Twin Pack Valves". The design of the Ishida Twin Pack stuffing box eliminates these problems. The design accomplishes this with the use of a two stage sealing system. Fig.2 shows the design of an upper and lower stuffing box gland.

The features of Stuffing box of Twin Pack Valve,

#### (1) Complete Sealing (Perfect Leak-Free)

The TWIN PACK design provide perfect leak-proof sealing design by clamping the primary packing box from the fluid side... By use of a clutch ⑤ and gearing ④, the primary is compressed as the stem is turned to provide a leak proof scale...The upper secondary Packing is tightened the conventional way and will prevent a stem leak under an abnormal condition where a leak occurs at the primary packing... (see Fig.2 and Fig.3)

#### (2) Long-term Durability

Upper secondary stuffing box is same construction as conventional type, and there is hardly any penetration of liquid into secondary stuffing box. By above reason, long-term durability is possible, because of the difficulty to be deteriorated.

#### (3) Easy Maintenance

The back-seat of conventional valve tends to be prone to damage and to be unstable. To replace packing can be difficult. In the Twin Pack design, the gland packing substitutes for the back-seat, and, if necessary, the secondary packing can be easily replaced even though the valve is at an intermediate open/closed position.

#### (4) Smooth Operation

In operation, gland packing is clamped by the leading of a screw, so the valve can be operated more easily than the conventional design because it prevents eccentric positioning of the stem that could occur when clamped on one side.

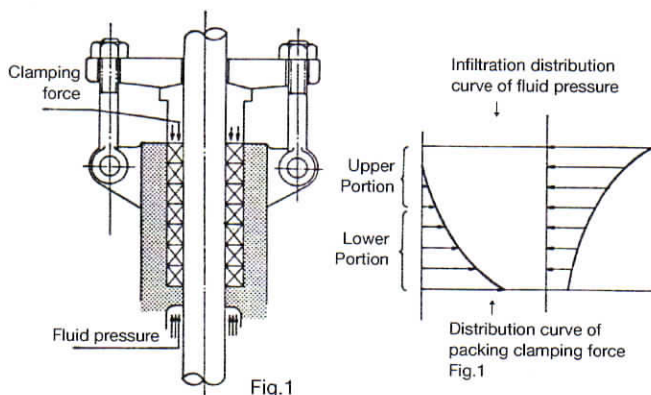


Fig.1 Shows the distribution of clamping force, and infiltration curve of fluid pressure for a conventional stuffing box.

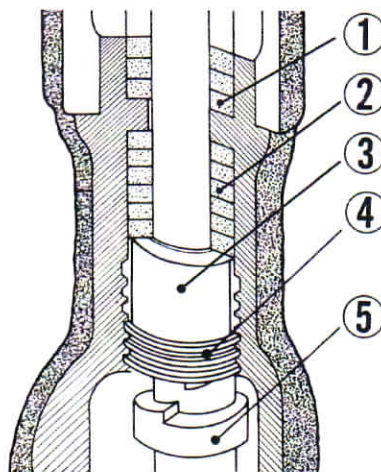


Fig.2  
①Secondary packing chamber  
②Primary Packing chamber  
③Packing Washer  
④Clamping device  
⑤Clutch

### CONSTRUCTION AND CHARACTERISTICS OF PERFECT GLAND LEAK PREVENTION SYSTEM

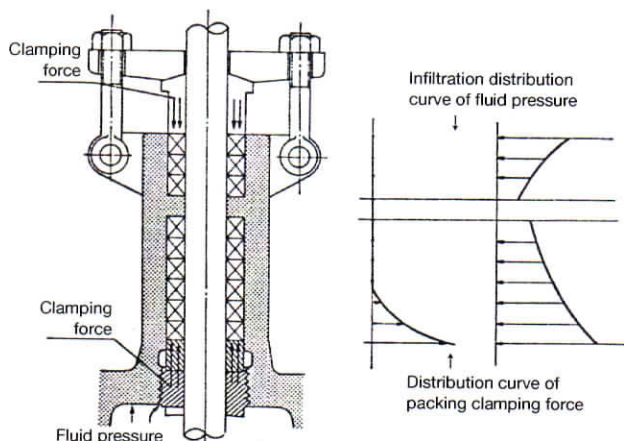


Fig.3  
STUFFING BOX OF INTERIOR-CLAMPED-GLAND TYPE VALVE

# Twin Pack Valves

## 2. Operation of Twin Pack Valves

(1) The primary packing of the Twin Pack valve should be tightened under these conditions:

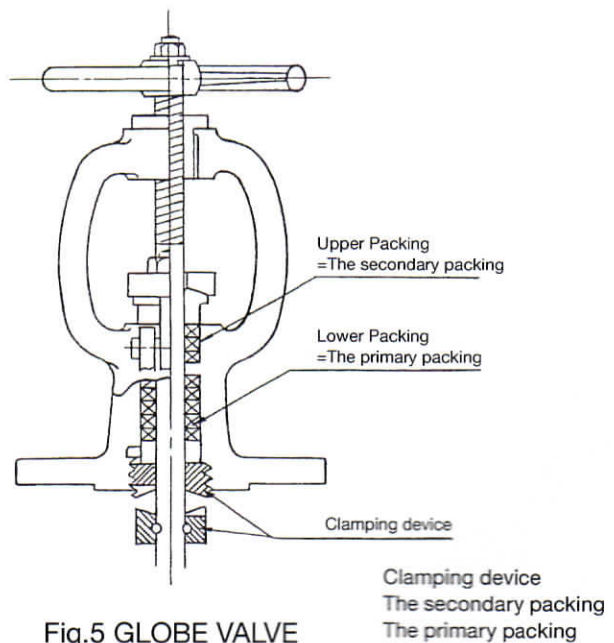
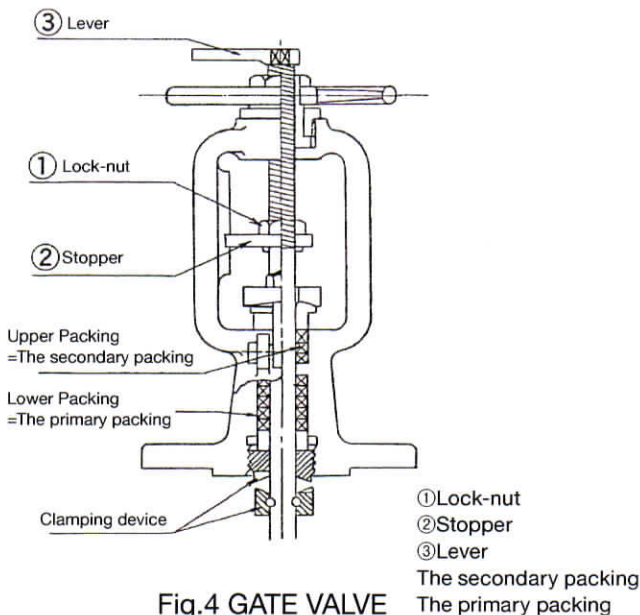
- 1) Before fluid runs in the lines after the construction pressure test, the primary packing should be tightened.
- 2) At any sign of a small leak during plant operation, tighten the packing.
- 3) At the annual plant maintenance shut down, the packing should be tightened.

(2) Procedure to apply pressure to the primary packing

- 1) For a gate valve (Fig.4)
  - a. Open valve wide open by turning counter clockwise.
  - b. Discontinue turning when the wheel stops.
  - c. Release the lock nut to free the stopper
  - d. Turn the step top lever clockwise 30 to 45 degrees and the packing is clamped.
- e. Tighten the lock nut and place the stopper in the original positions. It is important to return to the initial state.
- 2) For a globe valve (Fig.5) and a forged valve (1 1/2" and smaller)
  - a. Open valve wide open by turning counter clockwise.
  - b. Discontinue turning when the wheel stops.
  - c. Turn further in the same direction (counter clockwise) 30 to 45 degrees and the packing has been clamped.

(3) Maintenance instructions should call attention to the following:

- 1) In case of these valves for control valves, isolation valves, or drain valves, the valves are not normally opened to the full open position which would have tightened the packing...So, during maintenance Shut-down, the valve should be opened to the full open position to tighten the primary packing.
- 2) It is good practice include the above maintenance information on the name plate of each valve.
- 3) Any small leak is important and should not be ignored...Tighten the primary packing and also tighten the secondary packing to insure a sure seal.
- 4) For the gate valve, do not turn the lever to the left after the primary packing has been clamped. The screw of the clutch returns to the original position and, if the lever is turned to the left, the clamped packing can become loose.
- 5) For the globe valve and forged valve (1 1/2" and smaller), do not use a hacker (a wheel key), If the valve is opened with the wheel key, the primary packing may be closed too much.
- 6) To replace the primary packing with new packing, disassemble the clutch from the bonnet with the tools.



### 3. Twin Pack valves can be used on special fluids and special

---

- |   |   |
|---|---|
| <p>(1) For heating media<br/>Dowtherm A, Therm S, S-K Oil, Marlotherm, Essotherm, HTS, Hygrotherm, Fused Lead, Fused Sodium, Fused Potassium, etc</p>     | <p>(4) For prevention of pollution by preventing leaks of sulfurous acid gas, acetic acid, carbon dioxide</p>           |
| <p>(2) For high pressure, high temperature steam</p>  | <p>(5) For use for vacuum to a maximum <math>10^{-2}</math>mm Hg</p>  |
| <p>(3) For hazardous gas and liquids such as hydrogen<br/>chloride (refer to the Yellow Twin Pack), hydrogen sulfide, phosgene, carbon monoxide, etc.</p> | <p>(6) For low molecular weight gases<br/>Hydrogen, Oxygen, Freon, Gas, LPG etc.</p> <p>(7) For nuclear power plant</p> |

### 4. Specifications

---

Twin Pack Valves are designed, the same as common valves, to conform to API 600, and ANSI B16.5 and the same pressure/temperature ratings apply. Please refer to attached tables for 150#, 300#, 10K, and 20k, standard valves.

- (1) Nominal pressure class  
150#, 300#, 600#, 900#, 1500#,  
10K, 20K, 40K, 63K
- (2) Nominal bore size  
1/2" to 36"
- (3) Available as gate valves or globe valves

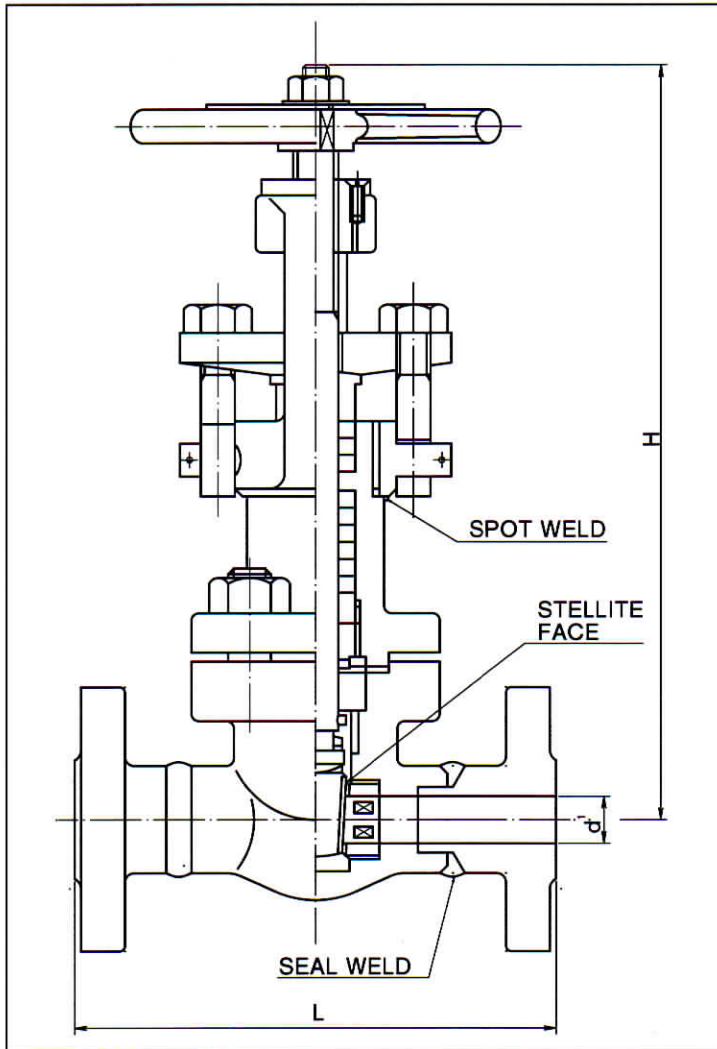
### 5. Materials

---

- |  |  |
|--|--|
| <p>(1) Body material for Twin Pack valves is in accordance with API 600. Common materials are carbon steel, alloy steel, and stainless steel. Other materials like monel can be supplied as required by the customer. Standard trim materials are 13 Cr and 18-8 stainless steel. Monel and other materials are available.</p> | <p>(2) Material for trim<br/>13Cr and 18-8 stainless steels, etc are used in conformity with API STD 600. Special material, such as Monel metal, may be used when so requested by customer, as well.</p> |
|--|--|

# Twin-Pack FORGED STEEL FLANGED ENDS GATE VALVES

■ 150LB, 300LB (10K, 20K)



## MATERIAL

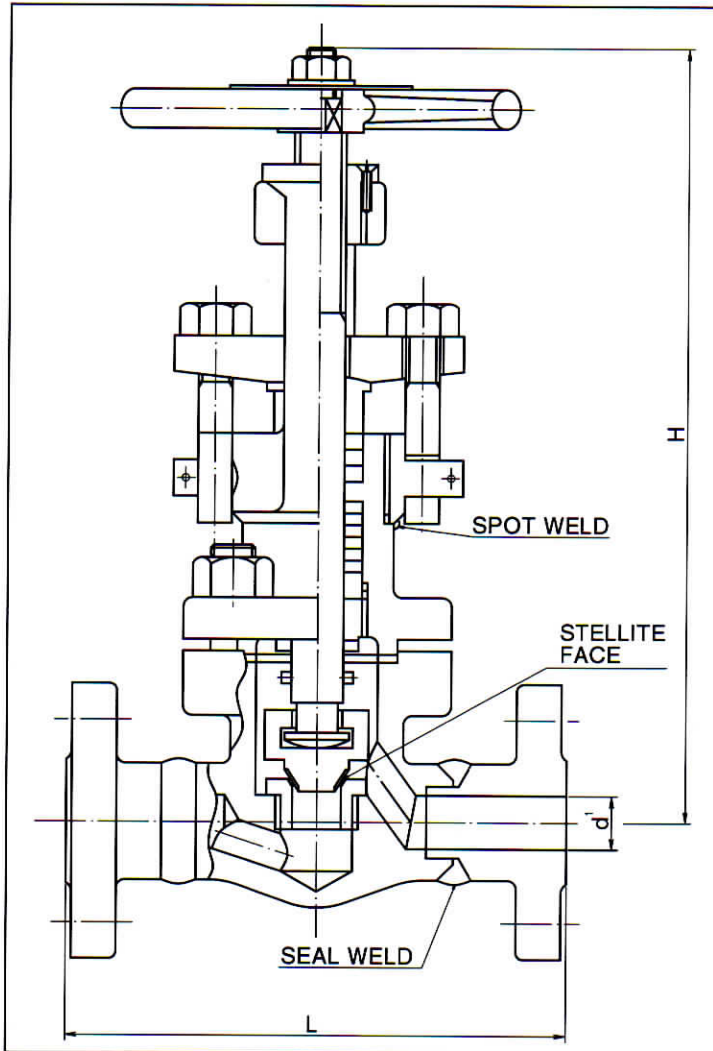
No.	NAME OF PART	MATERIALS	
		JIS	ASTM
1	BODY	S25C	A105
2	BODY SEAT	S25C	CARBON STEEL
3	DISC	S25C	CARBON STEEL
4	STEM	SUS403	13%Cr S.S
5	GASKET		
6	BONNET	S25C	A105
7	STUD BOLT	SNB7	A193-B7
8	NUT	S45C	A194-2H
9	GLAND PACKING		
10	GLAND	SUS420J2	13%Cr S.S
11	GLAND FLANGE	SCPH2	CARBON STEEL
12	GLAND EYE BOLT	SNB7	A193-B7
13	NUT	S45C	A194-2H
14	SPLIT PIN	SWRM3	CARBON STEEL
15	YOKE	SCPH2	CARBON STEEL
16	YOKE BUSH	NIBC	NI-Cu ALLOY
17	SET SCREW	SUS304	304 S.S
18	HAND WHEEL	FCD45	DUCTILE IRON
19	NAME PLATE	AL. P	ALUMINIUM
20	WASHER	SS41	CARBON STEEL
21	LOCK NUT	SS41	CARBON STEEL
22	PACKING WASHER	SUS420J2	13%Cr S.S
23	CLAMPING DEVICE	SUS420J2	13%Cr S.S
24	KNOCK PIN	SUS304	304 S.S

## WEIGHT AND DIMENSIONS

SIZE	150Lb (10K)					300Lb (20K)				
	DIMENSIONS mm			NET WEIGHTS kg		DIMENSIONS mm			NET WEIGHTS kg	
	b	L	H	150Lb	10K	b	L	H	300Lb	20K
1/2"	16	140	280	7.4	7.6	16	140	280	7.8	7.8
3/4"	21	152	280	7.6	7.8	21	152	280	8.0	8.0
1"	26	178	308	9.1	9.3	26	165	308	9.5	9.1
1 1/2"	38	190	374	18.0	18.1	38	190	374	18.5	18.2

# Twin-Pack FORGED STEEL FLANGED ENDS GLOBE VALVES

■ 150LB, 300LB (10K, 20K)



## MATERIAL

No.	NAME OF PART	MATERIALS	
		JIS	ASTM
1	BODY	S25C	A105
2	BODY SEAT	S25C	CARBON STEEL
3	DISC	S25C	CARBON STEEL
4	STEM	SUS403	13%Cr S.S
5	GASKET		
6	BONNET	S25C	A105
7	STUD BOLT	SNB7	A193-B7
8	NUT	S45C	A194-2H
9	GLAND PACKING		
10	GLAND	SUS420J2	13%Cr S.S
11	GLAND FLANGE	SCPH2	CARBON STEEL
12	GLAND EYE BOLT	SNB7	A193-B7
13	NUT	S45C	A194-2H
14	SPLIT PIN	SWRM3	CARBON STEEL
15	YOKE	SCPH2	CARBON STEEL
16	YOKE BUSH	NI8C	NI-Cu ALLOY
17	SET SCREW	SUS304	304 S.S
18	HAND WHEEL	FCD45	DUCTILE IRON
19	NAME PLATE	AL. P	ALUMINIUM
20	WASHER	SS41	CARBON STEEL
21	LOCK NUT	SS41	CARBON STEEL
22	PACKING WASHER	SUS420J2	13%Cr S.S
23	CLAMPING DEVICE	SUS420J2	13%Cr S.S
24	KNOCK PIN	SUS304	304 S.S

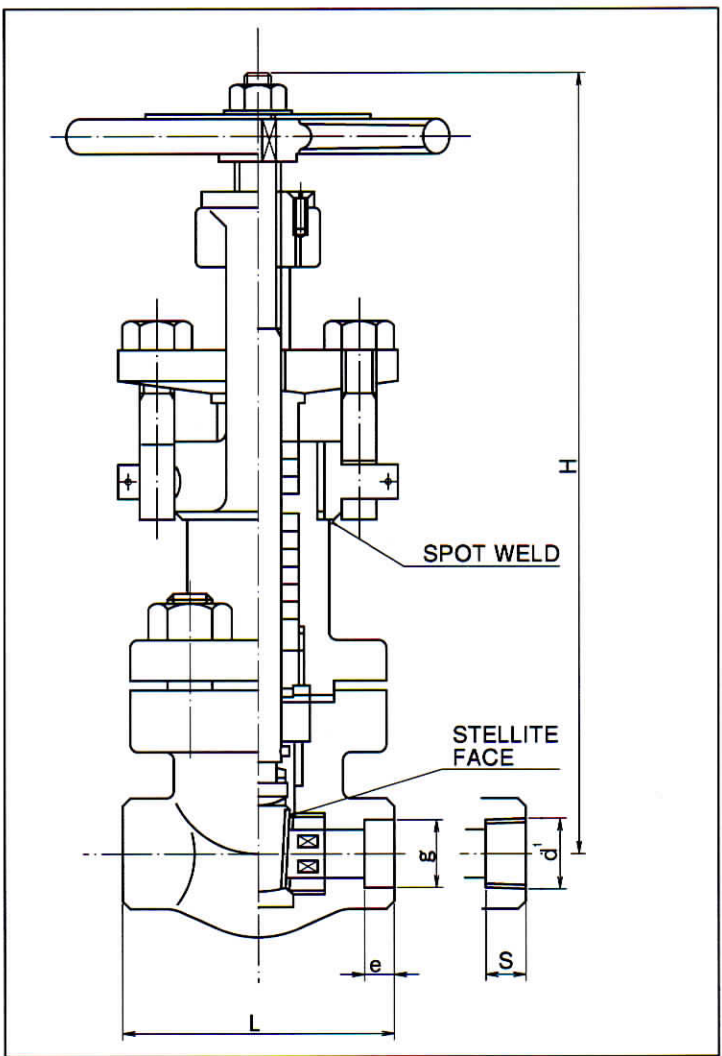
## WEIGHT AND DIMENSIONS

SIZE	150Lb (10K)					300Lb (20K)				
	DIMENSIONS mm			NET WEIGHTS kg		DIMENSIONS mm			NET WEIGHTS kg	
	b	L	H	150Lb	10K	b	L	H	300Lb	20K
1/2"	16	140	270	7.4	7.6	16	152	270	7.8	7.8
3/4"	21	152	270	7.6	7.8	21	178	270	8.0	8.0
1"	26	178	294	8.7	8.8	26	203	294	9.0	9.0
1 1/2"	38	190	323	17.6	18.0	38	229	323	18.0	18.0

# Twin-Pack FORGED STEEL SOCKET WELDING ENDS GATE VALVES

SCREWED ENDS

■ 300LB, 600LB (20K, 40K)



## MATERIAL

No.	NAME OF PART	MATERIALS	
		JIS	ASTM
1	BODY	S25C	A105
2	BODY SEAT	S25C	CARBON STEEL
3	DISC	S25C	CARBON STEEL
4	STEM	SUS403	13%Cr S.S
5	GASKET		
6	BONNET	S25C	A105
7	STUD BOLT	SNB7	A193-B7
8	NUT	S45C	A194-2H
9	GLAND PACKING		
10	GLAND	SUS420J2	13%Cr S.S
11	GLAND FLANGE	SCPH2	CARBON STEEL
12	GLAND EYE BOLT	SNB7	A193-B7
13	NUT	S45C	A194-2H
14	SPLIT PIN	SWRM3	CARBON STEEL
15	YOKE	SCPH2	CARBON STEEL
16	YOKE BUSH	NIBC	Ni-Cu ALLOY
17	SET SCREW	SUS304	304 S.S
18	HAND WHEEL	FCD45	DUCTILE IRON
19	NAME PLATE	AL. P	ALUMINIUM
20	WASHER	SS41	CARBON STEEL
21	LOCK NUT	SS41	CARBON STEEL
22	PACKING WASHER	SUS420J2	13%Cr S.S
23	CLAMPING DEVICE	SUS420J2	13%Cr S.S
24	KNOCK PIN	SUS304	304 S.S

## WEIGHT AND DIMENSIONS

SOCKET WELDING ENDS (SW)										
SIZE	300Lb (20K)				NET WEIGHT kg	600Lb (40K)				NET WEIGHT kg
	DIMENSIONS mm					DIMENSIONS mm				
	L	g	e	H		L	g	e	H	
1/2"	79	22.2	9.6	280	5.3	92	22.2	9.6	280	5.5
3/4"	92	27.7	12.7	280	5.5	111	27.7	12.7	308	7.2
1"	111	34.5	12.7	308	7.2	127	34.5	12.7	340	10.4
1 1/2"	152	49.1	12.7	374	13.0	171	49.1	12.7	395	16.9

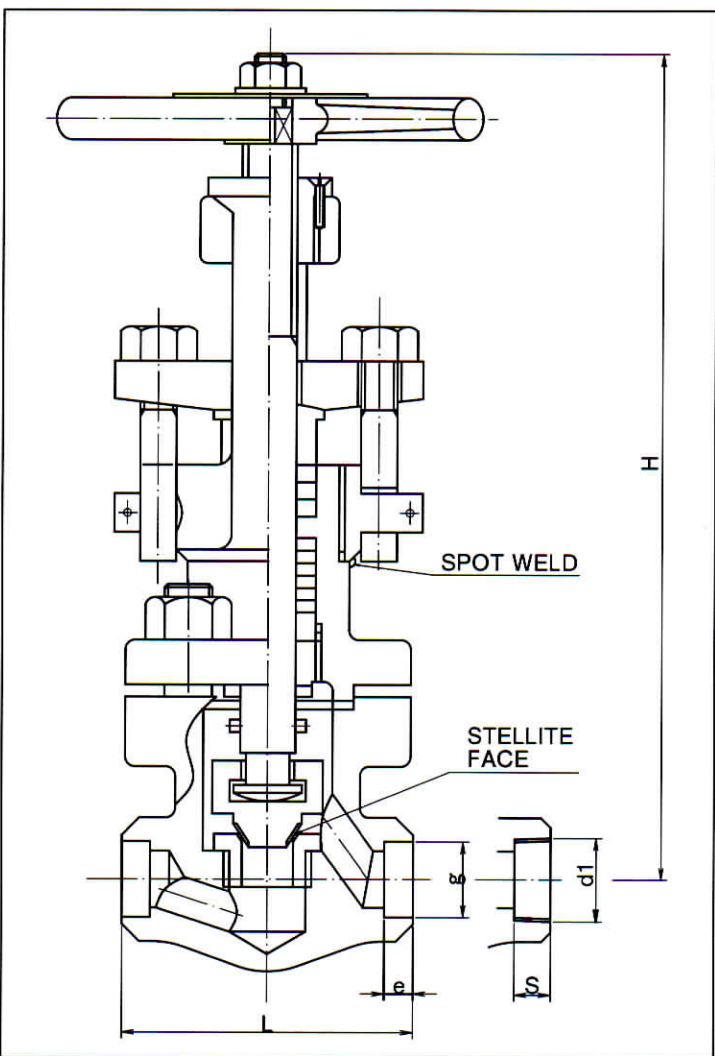
SCREWED ENDS (S)										
SIZE	300Lb (20K)				NET WEIGHT kg	600Lb (40K)				NET WEIGHT kg
	DIMENSIONS mm					DIMENSIONS mm				
	L	d1	S	H		L	d1	S	H	
1/2"	79	PT1/2	12	280	5.3	92	PT1/2	12	280	5.5
3/4"	92	PT3/4	14	280	5.5	111	PT3/4	14	308	7.2
1"	111	PT1	16	308	7.2	127	PT1	16	340	10.4
1 1/2"	152	PT1 1/2	18	374	13.0	171	PT1 1/2	18	395	16.9



# Twin-Pack FORGED STEEL SOCKET WELDING ENDS GLOBE VALVES

## SCREWED ENDS

■ 300LB, 600LB (20K, 40K)



### MATERIAL

No.	NAME OF PART	MATERIALS	
		JIS	ASTM
1	BODY	S25C	A105
2	BODY SEAT	S25C	CARBON STEEL
3	DISC	S25C	CARBON STEEL
4	STEM	SUS403	13%Cr S.S
5	GASKET		
6	BONNET	S25C	A105
7	STUD BOLT	SNB7	A193-B7
8	NUT	S45C	A194-2H
9	GLAND PACKING		
10	GLAND	SUS420J2	13%Cr S.S
11	GLAND FLANGE	SCPH2	CARBON STEEL
12	GLAND EYE BOLT	SNB7	A193-B7
13	NUT	S45C	A194-2H
14	SPLIT PIN	SWRM3	CARBON STEEL
15	YOKE	SCPH2	CARBON STEEL
16	YOKE BUSH	NIBC	Ni-Cu ALLOY
17	SET SCREW	SUS304	304 S.S
18	HAND WHEEL	FCD45	DUCTILE IRON
19	NAME PLATE	AL. P	ALUMINIUM
20	WASHER	SS41	CARBON STEEL
21	LOCK NUT	SS41	CARBON STEEL
22	PACKING WASHER	SUS420J2	13%Cr S.S
23	CLAMPING DEVICE	SUS420J2	13%Cr S.S
24	KNOCK PIN	SUS304	304 S.S

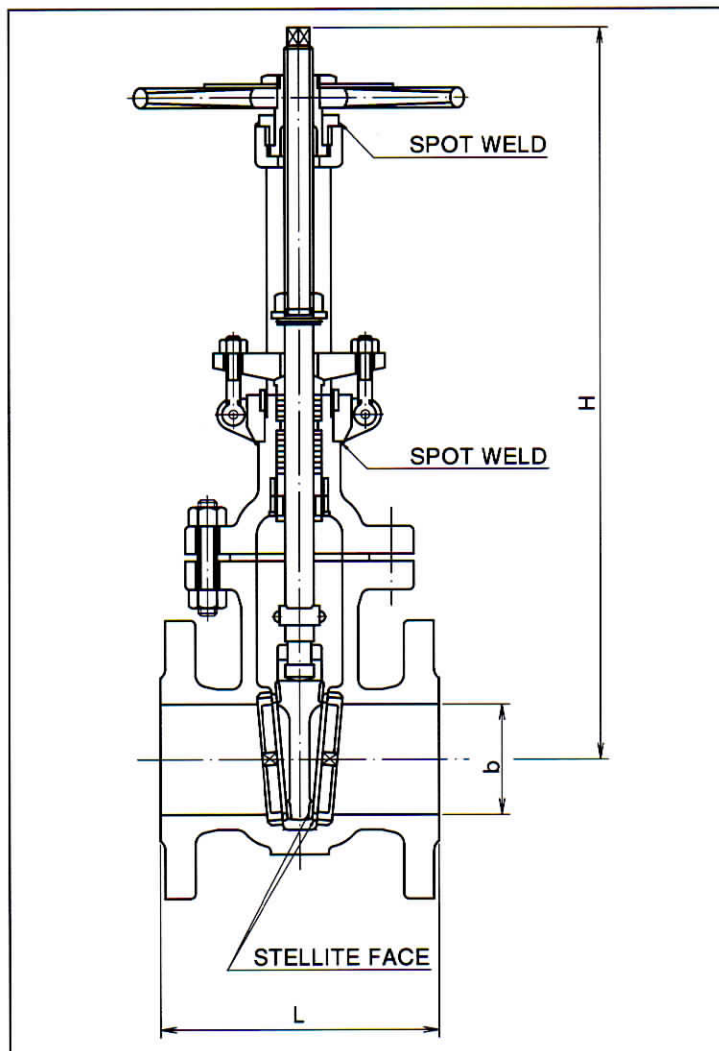
### WEIGHT AND DIMENSIONS

SOCKET WELDING ENDS (SW)										
SIZE	300Lb (20K)				NET WEIGHT kg	600Lb (40K)				NET WEIGHT kg
	DIMENSIONS mm					DIMENSIONS mm				
	L	g	e	H		L	g	e	H	
1/2"	92	22.2	9.6	270	5.0	92	22.2	9.6	270	5.0
3/4"	92	27.7	12.7	270	5.5	111	27.7	12.7	270	7.0
1"	111	34.5	12.7	294	7.2	127	34.5	12.7	294	10.0
1 1/2"	152	49.1	12.7	323	13.0	171	49.1	12.7	323	16.0

SCREWED ENDS (S)										
SIZE	300Lb (20K)				NET WEIGHT kg	600Lb (40K)				NET WEIGHT kg
	DIMENSIONS mm					DIMENSIONS mm				
	L	d1	S	H		L	d1	S	H	
1/2"	92	PT1/2	12	270	5.0	92	PT1/2	12	270	5.0
3/4"	92	PT3/4	14	270	5.5	111	PT3/4	14	270	7.0
1"	111	PT1	16	294	7.2	127	PT1	16	294	10.0
1 1/2"	152	PT1 1/2	18	323	13.0	171	PT1 1/2	18	323	16.0

# Twin-Pack CAST STEEL FLANGED ENDS GATE VALVES

■ 150LB (10K)



## MATERIAL

No.	NAME OF PART	MATERIALS	
		JIS	ASTM
1	BODY	SCPH2	A216-WCB
2	BODY SEAT RING	S25C	CARBON STEEL
3	DISC	S25C	CARBON STEEL
4	STEM	SUS403	13%Cr S.S
5	GASKET		
6	BONNET	SCPH2	A216-WCB
7	BONNET BOLT	SNB7	A193-B7
8	NUT	S45C	A194-2H
9	BONNET BUSH	SUS420J2	13%Cr S.S
10	GLAND PACKING		
11	GLAND	SUS420J2	13%Cr S.S
12	GLAND FLANGE	S25C	CARBON STEEL
13	GLAND EYE BOLT	S25C	CARBON STEEL
14	NUT	S20C	CARBON STEEL
15	YOKE SLEEVE	NIBC	NI-Cu ALLOY
16	SLEEVE RETAINING NUT	S25C	CARBON STEEL
17	HAND WHEEL	FCD45	DUCTILE IRON
18	LOCK NUT	SS41	CARBON STEEL
19	NAME PLATE	AL. P	ALUMINIUM
20	SET SCREW	SUS304	304 S.S
21	YOKE	SCPH2	A216-WCB
22	YOKE RETAINING NUT	S25C	CARBON STEEL
23	PACKING WASHER	SUS420J2	13%Cr S.S
24	PACKING WASHER	SUS420J2	13%Cr S.S
25	CLUTCH	SUS420J2	13%Cr S.S
26	KNOCK PIN	SUS304	304 S.S
27	STOPPER	SS41	CARBON STEEL
28	KNOCK PIN	SUS304	304 S.S
29	LOCK NUT	SS41	CARBON STEEL
30	BALL-BEARING		

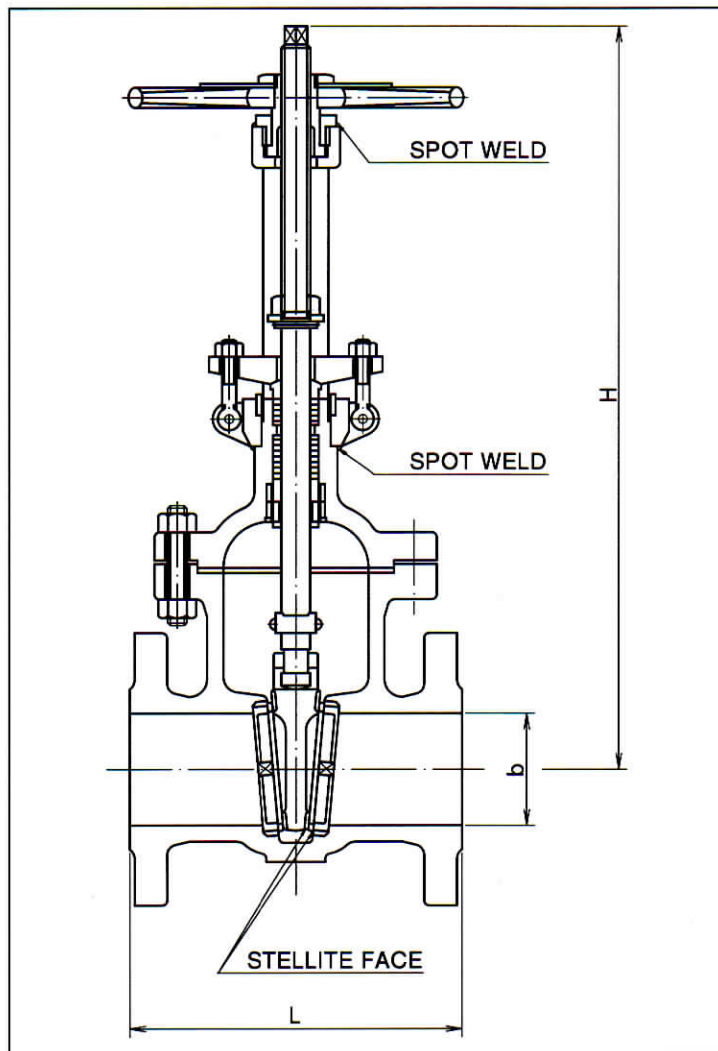
## WEIGHT AND DIMENSIONS

SIZE	DIMENSIONS mm			NET WEIGHTS kg		SIZE	DIMENSIONS mm			NET WEIGHTS kg	
	b	L	H	150lb	10K		b	L	H	150lb	10K
2"	51	178	552	23.5	23.7	8"	203	292	1280	135.0	132.0
2 1/2"	64	190	630	27.0	26.8	10"	254	330	1538	208.0	206.0
3"	76	203	673	33.0	32.5	12"	305	356	1755	285.0	271.0
4"	102	229	777	49.0	46.5	14"	337	381	1876	385.0	366.0
6"	152	267	1049	90.0	90.2	16"	387	406	2091	505.0	486.0

**ISHIDA VALVE MFG. CO.,LTD.**

# Twin-Pack CAST STEEL FLANGED ENDS GATE VALVES

■300LB (20K)



## MATERIAL

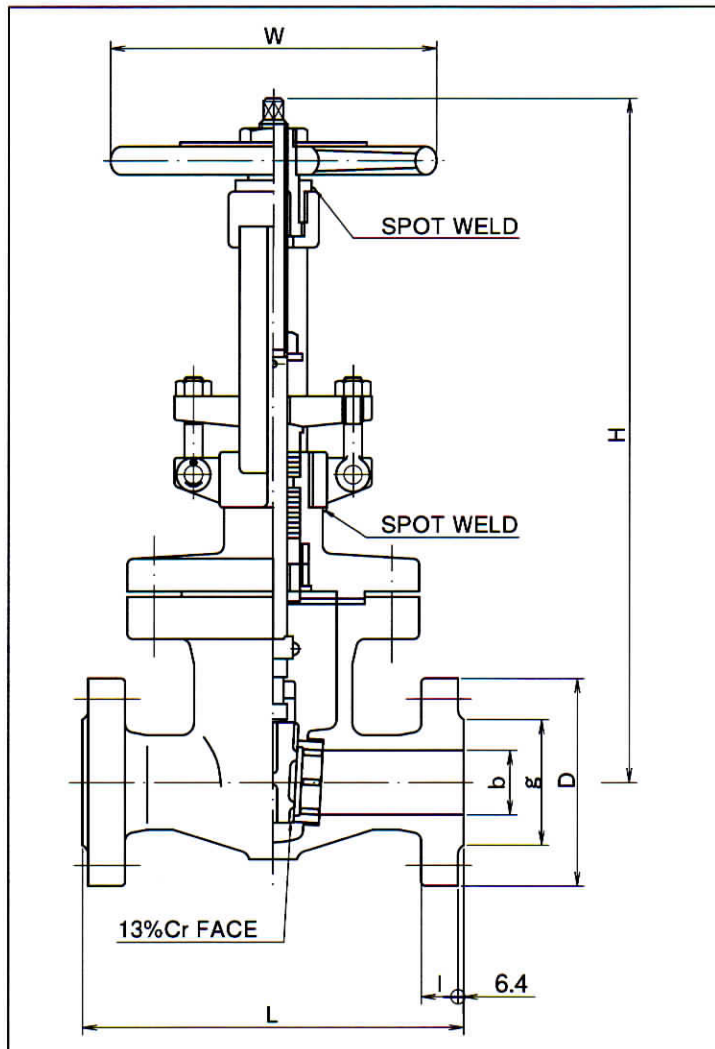
No.	NAME OF PART	MATERIALS	
		JIS	ASTM
1	BODY	SCPH2	A216-WCB
2	BODY SEAT RING	S25C	CARBON STEEL
3	DISC	S25C	CARBON STEEL
4	STEM	SUS403	13%Cr S.S
5	GASKET		
6	BONNET	SCPH2	A216-WCB
7	BONNET BOLT	SNB7	A193-B7
8	NUT	S45C	A194-2H
9	BONNET BUSH	SUS420J2	13%Cr S.S
10	GLAND PACKING		
11	GLAND	SUS420J2	13%Cr S.S
12	GLAND FLANGE	S25C	CARBON STEEL
13	GLAND EYE BOLT	S25C	CARBON STEEL
14	NUT	S20C	CARBON STEEL
15	YOKE SLEEVE	NIBC	NI-Cu ALLOY
16	SLEEVE RETAINING NUT	S25C	CARBON STEEL
17	HAND WHEEL	FCD45	DUCTILE IRON
18	LOCK NUT	SS41	CARBON STEEL
19	NAME PLATE	AL. P	ALUMINIUM
20	SET SCREW	SUS304	304 S.S
21	YOKE	SCPH2	A216-WCB
22	YOKE RETAINING NUT	S25C	CARBON STEEL
23	PACKING WASHER	SUS420J2	13%Cr S.S
24	PACKING WASHER	SUS420J2	13%Cr S.S
25	CLUTCH	SUS420J2	13%Cr S.S
26	KNOCK PIN	SUS304	304 S.S
27	STOPPER	SS41	CARBON STEEL
28	KNOCK PIN	SUS304	304 S.S
29	LOCK NUT	SS41	CARBON STEEL
30	BALL-BEARING		

## WEIGHT AND DIMENSIONS

SIZE	DIMENSIONS mm			NET WEIGHT kg		SIZE	DIMENSIONS mm			NET WEIGHT kg	
	b	L	H	300lb	20K		b	L	H	300lb	20K
2"	51	216	548	30.0	29.0	6"	152	403	1054	160.0	156.0
2 1/2"	64	241	588	46.0	44.5	8"	203	419	1331	240.0	229.0
3"	76	283	668	56.0	54.5	10"	254	457	1505	350.0	343.0
4"	102	305	777	84.0	79.0	12"	305	502	1798	540.0	515.0
6"	152	267	1049	90.0	90.2	16"	387	406	2091	505.0	486.0

# Twin-Pack CAST STEEL FLANGED ENDS GATE VALVES

600LB (30K)



## MATERIAL

No.	NAME OF PART	MATERIALS	REMARK	
1	BODY	A216-WCB		
2	BODY SEAT RING			
3	DISC	4" & UNDER 5" & UNDER	A182-F6a A216-WCB	13Cr FACE
4	DISC STEM RING	A182-F6a		
4	STEM	A182-F6a	HARD-Cr PLATED	
5	BONNET BUSH	A182-F6a		
6	BONNET	A216-WCB		
7	BONNET GASKET	SPIRAL-WOUND STAINLESS GRAFOIL FILLED(V#6592)		
8	BONNET BOLT	A193-B7		
9	BONNET BOLT NUT	A194-2H		
10	YOKE	A216-WCB		
11	GLAND	A182-F6a		
12	GLAND PACKING	GRAPHITE & CARBON FIBER PACKING(P#6527+P#6610)		
13	GLAND FLANGE	A105		
14	GRAND EYE BOLT	A193-B7		
15	GRAND EYE BOLT NUT	A194-2H		
16	EYE BOLT PIN	13%Cr STEEL		
17	EYE BOLT PIN WASHER	CARBON STEEL		
18	COTTER PIN	MILD STEEL		
19	YOKE SLEEVE	AL-BRONZE		
20	SLEEVE NUT	CARBON STEEL		
21	HAND WHEEL	DUCTILE IRON		
22	LOCK NUT	CARBON STEEL		
23	SET SCREW	TYPE 304		
24	NAME PLATE	ALUMINUM		
25	CLUTCH	A182-F6a		
26	PACKING WASHER	A182-F6a		
27	PACKING WASHER	A182-F6a		
28	GLAND PACKING	CARBON FIBER PACKING(P#6527)		
29	KNOCK PIN	TYPE 304		
30	STOPPER	CARBON STEEL		
31	LOCK NUT	CARBON STEEL		
32	KNOCK PIN	TYPE 304		
33	GREASE NIPPLE	BRASS	6" & OVER	
34	STOPPER	CARBON STEEL	6" & OVER	
35	SET PIN	MILD STEEL	6" & OVER	
36	THRUST BEARING	STEEL		

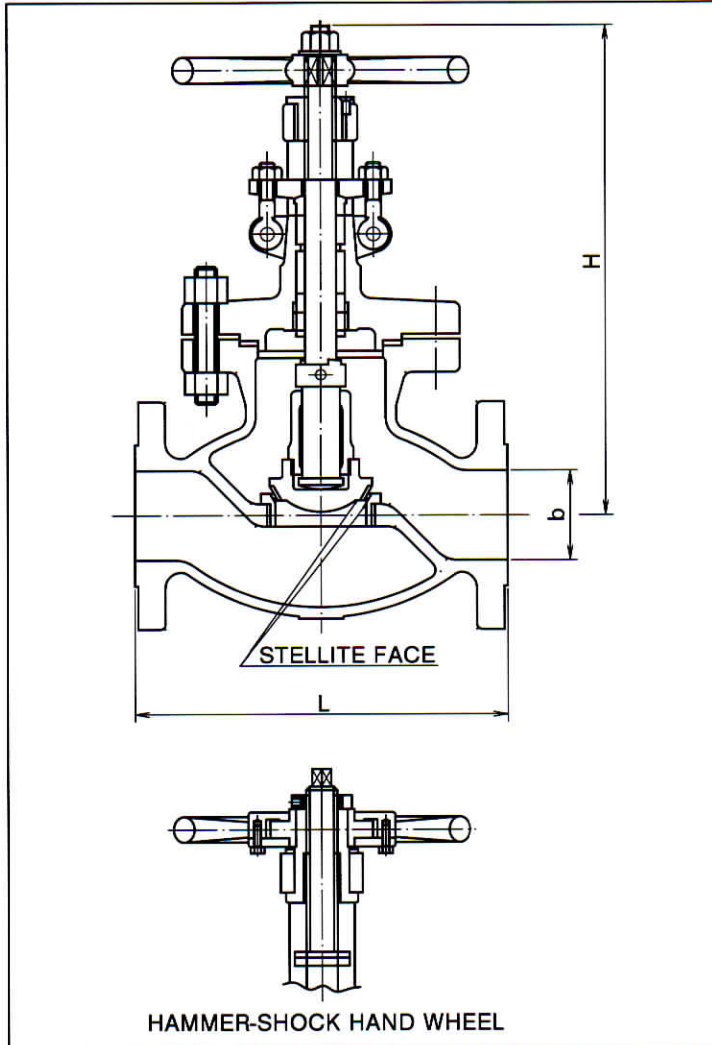
## WEIGHT AND DIMENSIONS

DIMENSIONS: mm

SIZE	L	b	t	D	g	C	N - d	H		W	Q'TY
								SHUT	OPEN		
4"	432	102	38.1	273	157	216	8-25	780	897	355	
6"	559	152	47.8	356	216	292	12-29	1067	1230	500	
8"	660	200	55.7	419	270	349	12-32				

# Twin-Pack CAST STEEL FLANGED ENDS GLOBE VALVES

■ 150LB (10K)



## MATERIAL

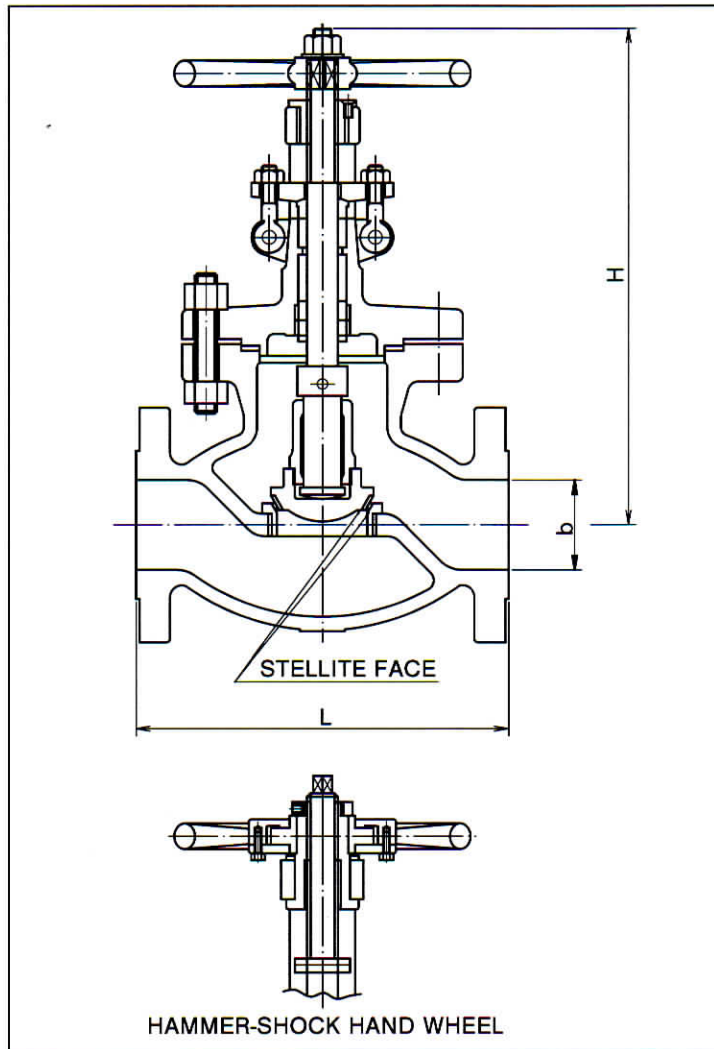
No.	NAME OF PART	MATERIALS	
		JIS	ASTM
1	BODY	SCPH2	A216-WCB
2	BODY SEAT RING	S25C	CARBON STEEL
3	DISC	S25C	CARBON STEEL
4	DISC NUT	SUS403	13%Cr S.S
5	STEM	SUS403	13%Cr S.S
6	BONNET	SCPH2	A216-WCB
7	BONNET BOLT	SNB7	A193-B7
8	NUT	S45C	A194-2H
9	GASKET		
10	BONNET BUSH	SUS420J2	13%Cr S.S
11	PACKING WASHER	SUS420J2	13%Cr S.S
12	PACKING WASHER	SUS420J2	13%Cr S.S
13	GLAND PACKING		
14	GLAND	SUS420J2	13%Cr S.S
15	GLAND FLANGE	S25C	CARBON STEEL
16	EYE BOLT	S25C	CARBON STEEL
17	NUT	S20C	CARBON STEEL
18	PIN	SUS403	13%Cr S.S
19	WASHER	SS41	CARBON STEEL
20	SPLIT PIN	SWRM3	CARBON STEEL
21	YOKE BUSH	NIBC	Ni-Cu ALLOY
22	SET SCREW	SUS304	304 S.S
23	HAND WHEEL	FCD45	DUCTILE IRON
24	WASHER	SS41	CARBON STEEL
25	LOCK NUT	SS41	CARBON STEEL
26	NAME PLATE	AL P	ALUMINIUM
27	CLUTCH	SUS420J2	13%Cr S.S
28	KNOCK PIN	SUS304	304 S.S

## WEIGHT AND DIMENSIONS

SIZE	DIMENSIONS mm			NET WEIGHTS kg		SIZE	DIMENSIONS mm			NET WEIGHTS kg	
	b	L	H	150Lb	10K		b	L	H	150Lb	10K
2"	51	203	400	27.0	27.2	6"	152	406	598	115.0	115.2
2 1/2"	64	216	425	36.0	35.8	8"	203	495	719	200.0	197.0
3"	76	241	455	41.0	40.5	10"	254	622	1040	315.0	313.0
4"	102	292	509	65.0	62.5	12"	305	698	1201	495.0	481.0

# Twin-Pack CAST STEEL FLANGED ENDS GLOBE VALVES

■ 300LB (20K)



## MATERIAL

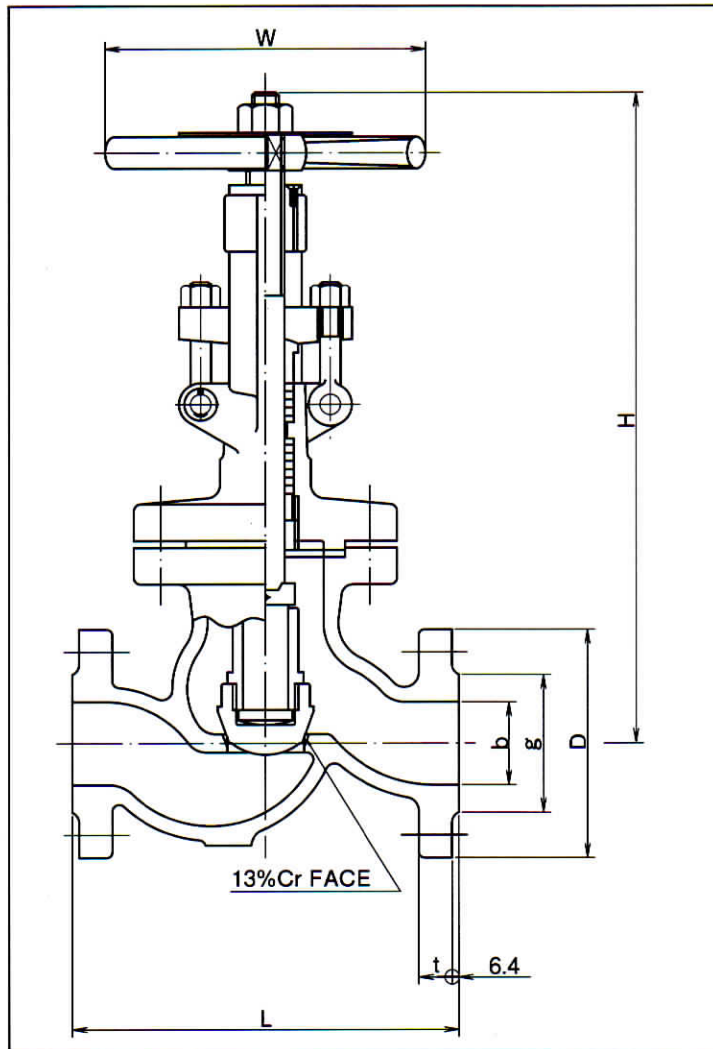
No.	NAME OF PART	MATERIALS	
		JIS	ASTM
1	BODY	SCPH2	A216-WCB
2	BODY SEAT RING	S25C	CARBON STEEL
3	DISC	S25C	CARBON STEEL
4	DISC NUT	SUS403	13%Cr S.S
5	STEM	SUS403	13%Cr S.S
6	BONNET	SCPH2	A216-WCB
7	BONNET BOLT	SNB7	A193-B7
8	NUT	S45C	A194-2H
9	GASKET		
10	BONNET BUSH	SUS420J2	13%Cr S.S
11	PACKING WASHER	SUS420J2	13%Cr S.S
12	PACKING WASHER	SUS420J2	13%Cr S.S
13	GLAND PACKING		
14	GLAND	SUS420J2	13%Cr S.S
15	GLAND FLANGE	S25C	CARBON STEEL
16	EYE BOLT	S25C	CARBON STEEL
17	NUT	S20C	CARBON STEEL
18	PIN	SUS403	13%Cr S.S
19	WASHER	SS41	CARBON STEEL
20	SPLIN PIN	SWRM3	CARBON STEEL
21	YOKE BUSH	NIBC	NI-CU ALLOY
22	SET SCREW	SUS304	304S.S
23	HAND WHEEL	FCD45	DUCTILE IRON
24	WASHER	SS41	CARBON STEEL
25	LOCK NUT	SS41	CARBON STEEL
26	NAME PLATE	AL P	ALUMINIUM
27	CLUTCH	SUS420J2	13%Cr S.S
28	KNOCK PIN	SUS304	304S.S

## WEIGHT AND DIMENSIONS

SIZE	DIMENSIONS mm			NET WEIGHTS kg		SIZE	DIMENSIONS mm			NET WEIGHTS kg	
	b	L	H	300Lb	20K		b	L	H	300Lb	20K
1 1/2"	38	229	376	29.0	28.5	6"	152	444	717	208.0	205.0
2"	51	267	397	36.0	35.0	8"	203	559	812	330.0	319.0
2 1/2"	64	292	438	59.0	58.0	10"	254	622	1015	495.0	488.0
3"	76	318	464	70.0	69.0	12"	305	711	1100	710.0	685.0
4"	102	356	565	103.0	98.0						

# Twin-Pack CAST STEEL FLANGED ENDS GLOBE VALVES

■ 600LB (30K)



## MATERIAL

No.	NAME OF PART	MATERIALS	REMARK
1	BODY	A216-WCB	13Cr FACE
2			
3	DISC	A182-F6a	
4	DISC STEM RING	A182-F6a	
5	STEM	A182-F6a	HARD-Cr PLATED
6	BONNET	A216-WCB	
7	BONNET BOLT	A193-B7	
8	BONNET BOLT NUT	A194-2H	
9	BONNET GASKET	SPIRAL-WOUND STAINLESS GRAFOIL FILLED(V#6590)	
10	GLAND PACKING	GRAPHITE & CARBON FIBER PACKING(P#6527+P#6610)	
11	PACKING WASHER	A182-F6a	
12	GLAND	A182-F6a	
13	GLAND FLANGE	A105	
14	GRAND EYE BOLT	A193-B7	
15	GRAND EYE BOLT NUT	A194-2H	
16	EYE BOLT PIN	13%Cr STEEL	
17	EYE BOLT PIN WASHER	CARBON STEEL	
18	COTTER PIN	MILD STEEL	
19			
20	SET SCREW	TYPE 304	
21	BUSHING	AL-BRONZE	
22	HAND WHEEL	DUCTILE IRON	
23	WASHER	CARBON STEEL	
24	LOCK NUT	CARBON STEEL	
25			
26			
27	BONNET BUSH	A182-F6a	
28	PACKING WASHER	A182-F6a	
29	GLAND PACKING	CARBON FIBER PACKING(P#6527)	
30	STOPPER	CARBON STEEL	
31	KNOCK PIN	TYPE 304	
32	NAME PLATE	ALUMINUM	

## WEIGHT AND DIMENSIONS

DIMENSIONS: mm

SIZE	L	b	t	D	g	C	N - d	H		W	Q'TY
								SHUT	OPEN		
1 1/2"	241	38	22.4	15	73	114.5	4-22	420	439	250	
2"	292	51	25.4	165	92	127.0	8-19	433	461	280	
2 1/2"	330	64	28.5	190	105	149.0	8-22	437	471	280	
3"	356	76	31.8	210	127	168.0	8-22	596	637	355	

# Yellow Twin Pack Valves

## 1. GENERAL

---

- (1) The use of valves on chlorine gas or liquid can cause many problems. Chlorine gas and liquid are, for the most part, non-corrosive when contained in a vessel. But, if there is leakage at the gland packing, water or moisture in the air can form hypochlorous and hydrochloric acid. The upper portion of the gland packing, contacting surface of stem and gland packing, threaded portion of the stem, gland bolt and nut can be corroded. The purpose of the Ishida Yellow Twin Pack valve is to prevent the leakage and resultant corrosion.
- (2) Attached chloride on the stem and other valve parts can cause seat leakage, damage of the gland packing and defective operation of the valve.
- (3) As we know, chlorine gas is toxic and used by the military and causes environmental pollution. Ishida designed the YELLOW TWIN PACK VALVE using long experience in the production, application, and service of valves applied to chlorine applications. Data from our Repair and Service factories in Chiba, Kashima and Tokuyama was especially useful. The valve uses materials specific for chlorine and the body is painted yellow for easy identification.

## 2. CONSTRUCTION AND MATERIALS

---

- (1) The Yellow Twin Pack utilized a unique stuffing box design that results in a valve that can be used successfully in chlorine application. (For detail of construction, refer to page 4-5).
- (2) The special type of lip-packing is used for gland packing.
- (3) The design of both the gate and the globe valve are of the non-rising stem type.
- (4) Seat surface and body seat surface contacting the sliding surface of the stem are specially treated to prevent corrosion.
- (5) Body materials used for low temperature chlorine service are;  
Forged Steel Valves (1 1/2" and smaller):  
ASTM A350-LF1  
Cast Steel Valves, (2" and larger):  
ASTM A352-LCB  
or JIS G5152 SCPL1



### 3. FEATURES

- (1) The Yellow Twin Pack Valve prevents leakage thru the gland packing and is most suitable where prevention of environmental pollution is important.
- (2) The life of the gland packing is several times longer because of the Twin Pack mechanism to valve repair cost is reduced greatly.
- (3) Both gate and globe valve in the Twin Pack are designed with a non-rising stem so the possibility of gland packing damage is minimal. The valve will remain maintenance free for a longer period.
- (4) Ishida has cooperated with the manufacturer of packing to develop a suitable chlorine resistant packing for the Yellow Twin Pack valve.
- (5) Areas of critical parts of the valve have special surface treatment to prevent attachment of chlorine. This provides smooth opening/closing of the valve and helps prevent seat leakage.
- (6) Ishida has many years of manufacturing and repair of general purposes valves. We believe we are competent to select suitable materials for low temperature service.

**Comparison Table between Yellow Twin Pack Valves & Conventional valves**

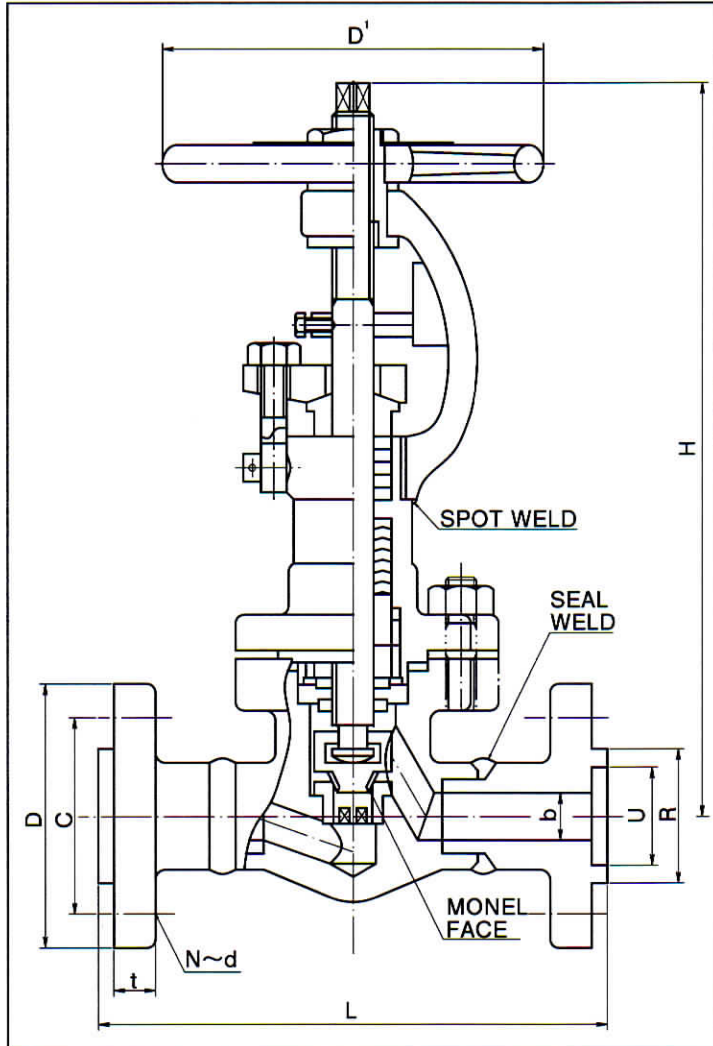
Service, Specification etc.	Yellow Twin Pack Valves	General Valves	Bellows Valves
1) Prevention for Toxic / bad smell pollution.	○	×	○
2) Grade of maintenance-free of a gland-portion	○	×	○
3) Facility of manufacturing of large-size valve	○	○	×
4) Safety for corrosive fluid	○	×	×
5) Safety for abnormal pressure-raise	○	○	×
6) Superiority for fluid-resistance	○	○	×
7) Economy of a price	○	○	×

### 4. SPECIFICATIONS

- (1) Nominal Pressure Class  
JIS 10K and JIS 20K
- (2) Nominal Bore Size  
3/8" thru 1 1/2" .....Forged Steel  
2" thru 12" ..... Cast Steel
- (3) Standard types of valve are 3 types of gate, globe  
(incl. Needle valves) and angle valves
- (4) Dimension
  - ①Standard face-to-face dimensions are shown in the dimension table of Twin Pack Valve.
  - ②Standard flange types are JIS 10K, JIS 20K, And ANSI Class150# & 300#.
  - ③Special valves...In addition to the specifications shown, Ishida can design and manufacture valves to meet your requirements...  
Please contact our Sales Department with the details of your application.

# Yellow Twin-Pack Valves FORGED STEEL FLANGED ENDS

■300LB (20K)



## MATERIAL

No.	NAME OF PART	MATERIALS	
		JIS	ASTM
1	BODY	S25C	CARBON STEEL
2	BODY SEAT RING	R-MONEL	CARBON STEEL
3	DISC	SUS316	316 S.S
4	STEM *	SUS304	304 S.S
5	BONNET BUSH *	SUS304	304 S.S
6	BONNET *	S25C	CARBON STEEL
7	YOKE	SCPH2	CARBON STEEL
8	BONNET GASKET	PILLER #4400	
9	BONNET BOLT	SUS304	304 S.S
10	BONNET BOLT NUT	SUS304	304 S.S
11	GLAND PACKING	PILLER #4260	
12	GLAND PACKING	PILLER #4533+#4513	
13	PACKING WASHER	SUS304	304 S.S
14	GLAND *	SUS304	304 S.S
15	GLAND FLANGE	SUS403	13%Cr S.S.
16	GLAND EYE BOLT	SUS304	304 S.S
17	GLAND EYE BOLT NUT	SUS304	304 S.S
18	COTTER PIN	SUS304	304 S.S
19	YOKE SLEEVE	Ni-RESIST	A439-D2
20	SLEEVE WASHER	SUS304	304 S.S
21	HAND WHEEL	FCD45	DUCTILE IRON
22	LOCK NUT	S25C	CARBON STEEL
23	SET SCREW	SUS304	304 S.S
24	NAME PLATE	SUS304	304 S.S
25	SET BOLT	SUS304	304 S.S
26	FLANG	S25C	CARBON STEEL
27	KNOCK PIN	SUS304	304 S.S
28	STOPPER	SUS304	CARBON STEEL

\*SURFACE TREATMENT

## WEIGHT AND DIMENSIONS

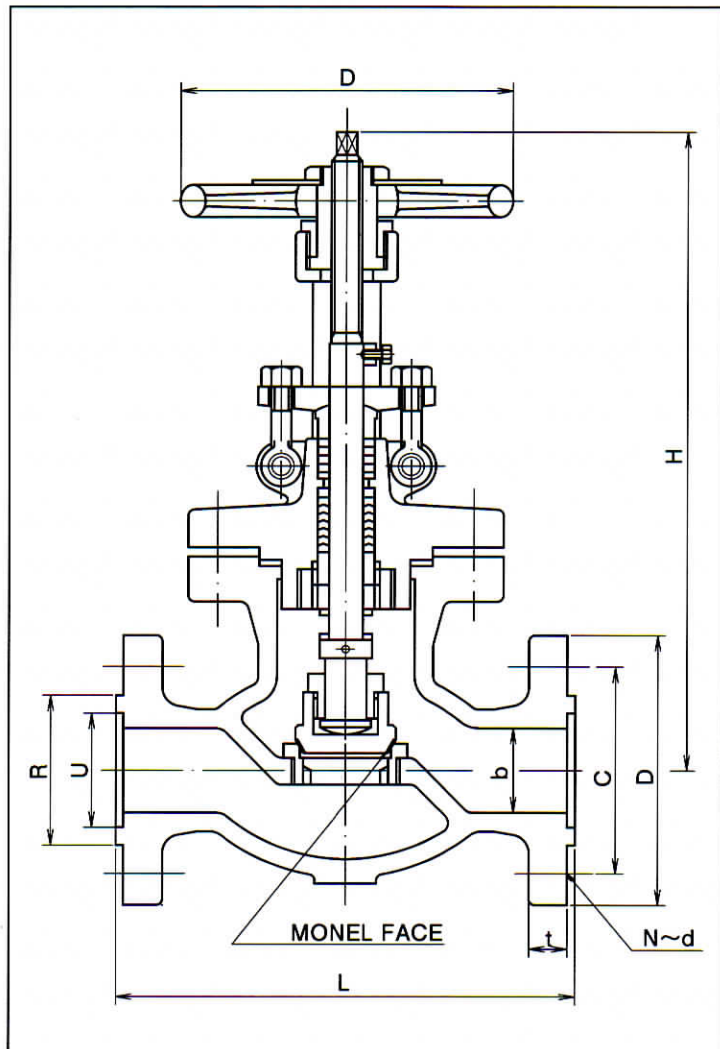
DIMENSIONS mm

SIZE	L	b	t	D	C	N~d	U	R	H	OPEN SHUT (APROX)	D1
1/2"	140	15	14	95	70	4~15	32	42	294 / 283		140
3/4"	160	20	16	100	75	4~15	38	50	294 / 283		140
1"	180	25	16	125	90	4~19	45	60	324 / 314		160
1 1/2"	240	40	18	140	105	4~19	60	75	359 / 340		180

ISHIDA VALVE MFG. CO.,LTD.

# Yellow Twin-Pack Valves CAST STEEL FLANGED ENDS

■ 300LB (20K)



## MATERIAL

No.	NAME OF PART	MATERIALS	
		JIS	ASTM
1	BODY	SCPH2	A216-WCB
2	BODY SEAT RING	R-MONEL	R-MONEL
3	DISC	SUS316	316 S.S.
4	DISC STEM RING	SUS304	304 S.S.
5	STEM *	SUS304	304 S.S.
6	CLUTCH	SUS304	304 S.S.
7	BONNET BUSH *	SUS304	304 S.S.
8	BONNET	SCPH2	A216-WCB
9	BONNET GASKET	PILLER #4400	
10	BONNET BOLT	SUS304	304 S.S.
11	BONNET BOLT NUT	SUS304	304 S.S.
12	PACKING WASHER	SUS304	304 S.S.
13	GLAND PACKING	PILLER #4260	
14	PACKING WASHER	SUS304	304 S.S.
15	GLAND PACKING	PILLER #4533+#4513	
16	GLAND #	SUS304	304 S.S.
17	GLAND FLANGE	SUS403	13%Cr S.S.
18	EYE BOLT	SUS304	304 S.S.
19	EYE BOLT NUT	SUS304	304 S.S.
20	EYE BOLT PIN	SUS304	304 S.S.
21	YOKE SLEEVE	NI-RESIST	A439-D2
22	SLEEVE NUT	S25C	CARBON STEEL
23	HAND WHEEL	FCD45	DUCTILE IRON
24	NAME PLATE	SUS304	304 S.S.
25	LOCK NUT	SS41	CARBON STEEL
26	SET SCREW	SUS304	304 S.S.
27	KNOCK PIN *	SUS304	304 S.S.
28	BONNET COLLAR	SUS304	304 S.S.
29	SET BOLT	SUS304	304 S.S.
30	STOPPER	SS41	CARBON STEEL

\*SURFACE TREATMENT

## WEIGHT AND DIMENSIONS

SIZE	L	b	t	D	C	N~d	U	R	H	DIMENSIONS mm	
										OPEN	SHUT (APROX)
2"	300	51	18	155	120	8~19	70	90	404	385	200
3"	310	76	22	200	160	8~23	100	120	487	462	300
4"	350	102	24	225	185	8~23	125	145	595	560	355
5"	400	127	26	270	225	8~25	150	175	695	655	400
6"	440	152	28	305	260	8~25	190	215	750	700	500

**ISHIDA VALVE MFG. CO.,LTD.**

## Main Products

**Gate valves / Globe valves / Check valves / Soft seat valves / Twin Pack valves / Jacketed valves / Plug valves / Electrically operated valves / Air-motor operated valves / Air-cylinder operated valves / High pressure and high temperature service valves / Low temperature service valves**



Ishida Valve Group

**Ishida Valve Mfg. Co., Ltd.**

**Ishida Valve Engineering Co., Ltd.**

Head Office : Fujishima Bldg. 8F. 4-13-4 Shiba, Minato-ku, Tokyo 108-0014. Japan  
TEL : 03 (3455) 5271 FAX : 03 (3455) 8690

WARRANTY..Ishida Valve Mfg.Co., Ltd.warrants its products to the original purchaser for a period of one year from and after the date of shipment against defects in material and workmanship under proper and normal use and service and not caused or resulting from improper application or usage, improper installation, improper maintenance and repairs, modifications or alteration.

Purchaser shall give notice to Ishida upon finding any defect, or assumed defect, and Ishida has privilege to check the facts and defect.

Ishida sole obligation under this warranty shall be limited to the following,

- (1) repair of the material or,
- (2) replacement of the materials or,
- (3) refund the purchase price on receipt of the defective product.

Ishida is not responsible to any kind of claims for consequential damage, loss or expense arising out of the defect.