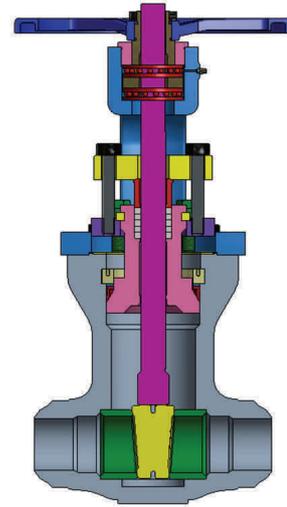


HIGH PRESSURE FORGED STEEL VALVE

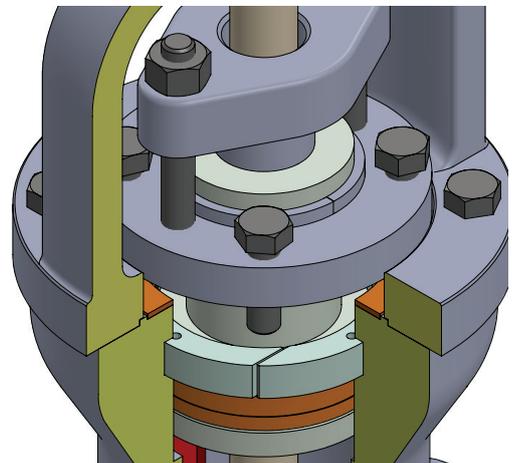
HIGHER INTEGRITY

By selecting valve with a forged body the user automatically increases the safety and integrity of their plant and process equipment. It has long been known that forged valve are tougher, more resistant to impact, withstand higher induced pipe stresses and are more structurally superior to equivalent castings.



MAINTAINABILITY

Most all small-bore pressure seals bonnets are equipped with large diameter threaded mechanisms to engage the bonnet and pressure seal gasket. It is very well known in industry that large diameter threads are extremely troublesome during maintenance especially in high temperature applications where over time oxides develop in the threads rendering them almost impossible to separate. The new SB design of forged pressure seal is the "small-bore valve with big bore advantages". This innovation incorporates features normally reserved for large bore pressure seals into this neat yet accessible package. Its accessible and very maintenance friendly. PK have adapted the conventional large diameter valve bonnet draw bolt mechanism into this small-bore design. The innovation made possible by reversing the conventional draw bolts mechanism into a jacking bolt design.

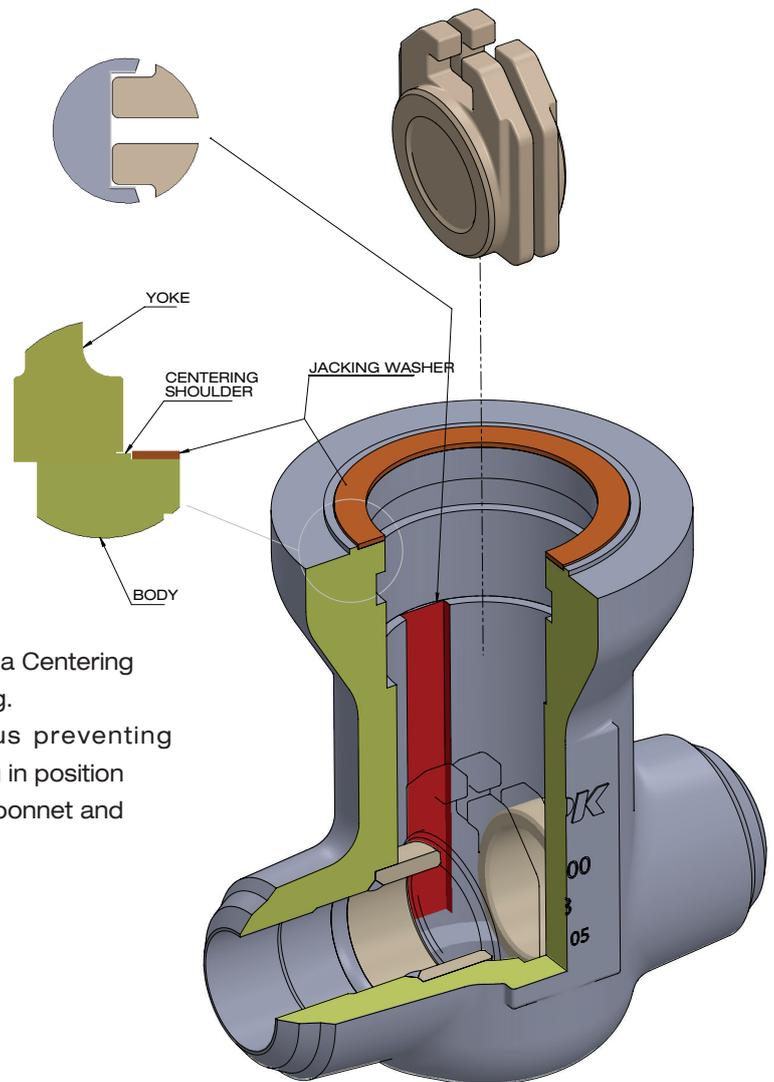


INTERNALLY MACHINED BODY GUIDES

The SB Series Body has internally machined Obturator guides that are more accurate and less problematic than the conventional welded guides.

Welded guides can break due to stress and vibration or even corrosion and could result in parts ending up in the process. Guide failure can also result in the valve jamming.

Precision machined guides result in less obturator vibration. Poor Quality guiding causes damage to the seating surfaces. SB Series innovation is in accurate machining, resulting in the obturator being held steady and in the desired position.



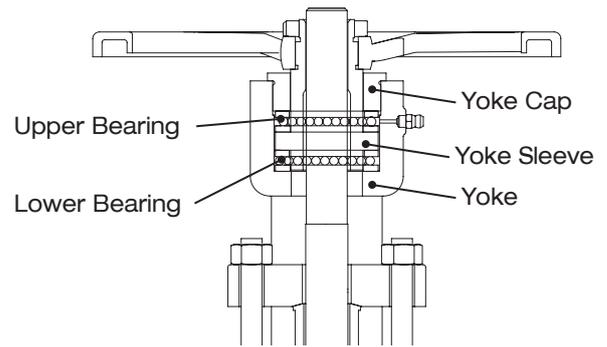
SELF-CENTERING ASSEMBLY

The Body to Yoke mating surface is equipped with a Centering Shoulder that serves as a guide to the Jacking Ring.

The shoulder captures the Jacking Ring thus preventing misalignment during assembly and retains the Ring in position while the jacking bolts apply the initial force to the bonnet and pressure seal gasket

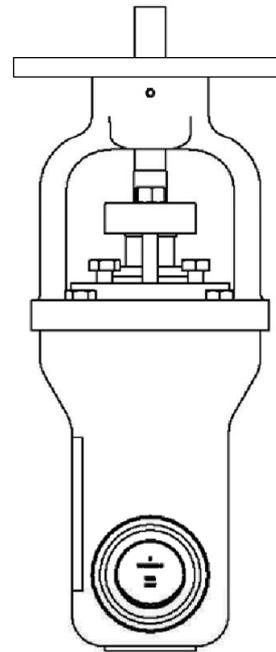
ACTUATOR

Dual thrust bearings reduce friction and minimize actuation hysteresis. The use of Ball Bearing reduces friction and makes for smooth handwheel operation. The Yoke Cap is tack welded to prevent accidental loosening.



ACTUATOR MOUNTING

Because Yoke is robust cast steel it can accommodate actuation. When ordered the valve yoke can be supplied complete with actuator mounting flange. The flange can be pre-drilled to match the customers drawings to facilitate actuator ease of actuator installation.



THE PRESSURE-SEAL GASKET

The SB series is offered with two styles of pressure seal gasket. For most applications and unless specified by the purchaser the SB series will be provided with an Inconel Graphite composite gasket. Alternately and for the more severe applications a silver plated soft iron gasket can be provided.

The pressure seal jacking mechanism will be fully engaged during factory Hydro test and the seal integrity proven. Should it become necessary during the installation to disassemble the valve, then the pressure seal gasket should be replaced. Pressure seal gaskets are not reusable.

Symbol	Shape
A	

Remark : A. Utilize the symbols shown about to indicate the section shape of pressure seal ring gaskets

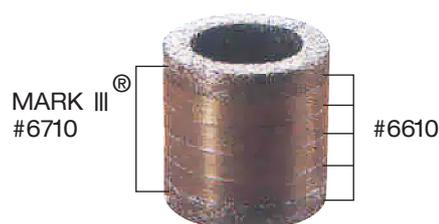
PACKING

THE SB SERIES COMES STANDARD WITH SET OF DIE-FORMED GRAPHITE V-RINGS RMED GRAPHITE V-RINGS

PILLAR FLEXIBLE GRAPHITE PACKINGS

Pillar style No. 6710+6610

Pure graphite preformed, one cut type packing. It is superior for heat, chemical and radiation resistance. The combination use with Style 6710 is recommended Recommendation for nuclear power station : style 6610N



PERFORMANCE

PH	0 to 14
Temp	-270 to 600°C
Press	43.1 MPa {440 kgf/ cm ² } (ANSI class 2500)

APPLICATION

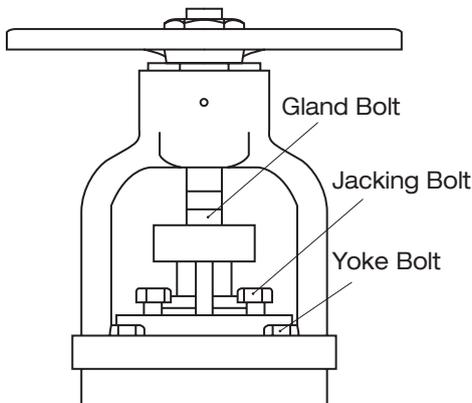
Water, steam, oil, heat transfer oil, solvent, gas, LNG, strong acid, strong alkali, high pressure & high temperature valves, cryogenic valves, high pressure gas valves

BACKSEAT

The Backseat is accomplished by a hard-face weld overlay in Stellite #6 directly onto the bonnet which is then machined into a reciprocal cone to match the stem. Backseats should not be used for packing replacement while under pressure. This practice is dangerous and can result in serious injury.

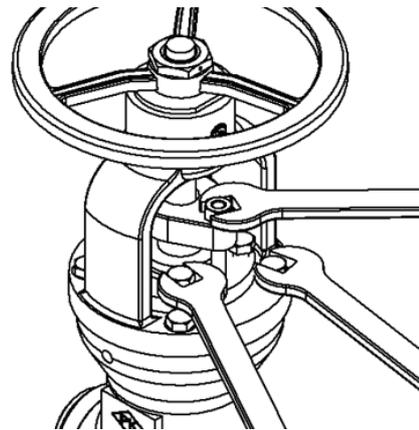
It is also recommended that valve are not left in the backseat position permanently as the packing may dryout and deteriorate. It is better practice to open the valve fully to the backseat then rotate the hand-wheel one turn towards the closed position.

EASE OF MAINTENANCE



The Jacking Bolts intentionally protrude above the Bonnet Clamp in order to provide access, this also mitigates any interference with the yoke flange bolting.

" The SB SERIES IS EASY AND VERY MAINTENANCE FRIENDLY "



FORGINGS ARE STRONGER

Forgings surpass casting in predictable strength properties, producing superior strength that is assured, and repeatable from part to part. The grain in castings is random and cannot obtain the strengthening effects of hot and cold working. In the forging process, controlled deformation (usually at elevated temperatures) results in greater metallurgical soundness and improved mechanical properties of the material.



FRONT



SIDE

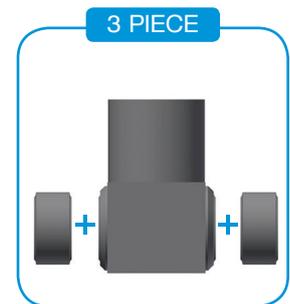
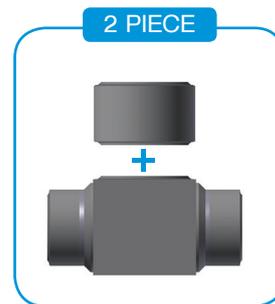
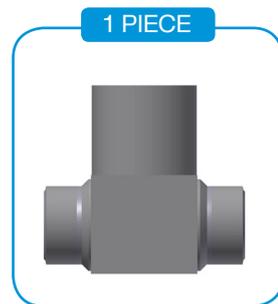
In most cases, forging stock has been pre-worked to remove porosity resulting from the solidification process. This produces directional alignment (or "grain flow") for important directional properties in strength, ductility, and resistance to impact and fatigue.

These properties are deliberately oriented in directions requiring maximum strength. Working the material achieves recrystallization and grain refinement that yields the maximum strength potential of the material with the minimum property variation, piece to piece. Properly developed grain flow in forgings closely follows the outline of the component. In contrast, bar stock and plate have unidirectional grain flow; any

FREE FORGING GATE VALVE

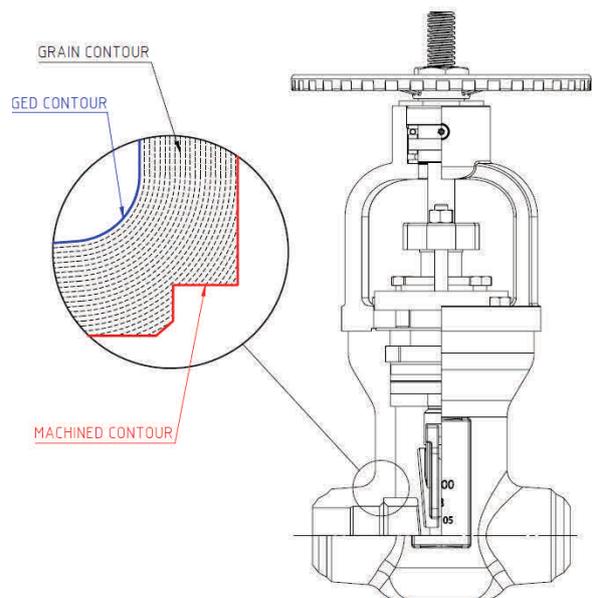
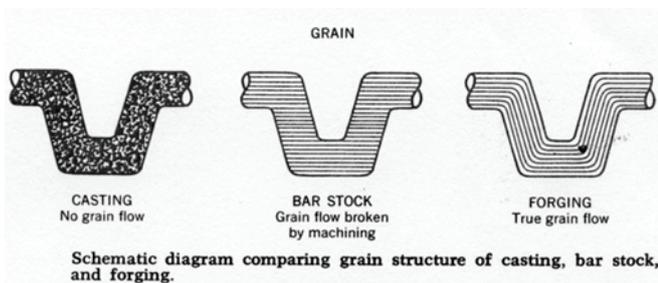


- Large size gate valves are manufactured with free forging (Above 8")
- There are 3 kinds of manufacturing method

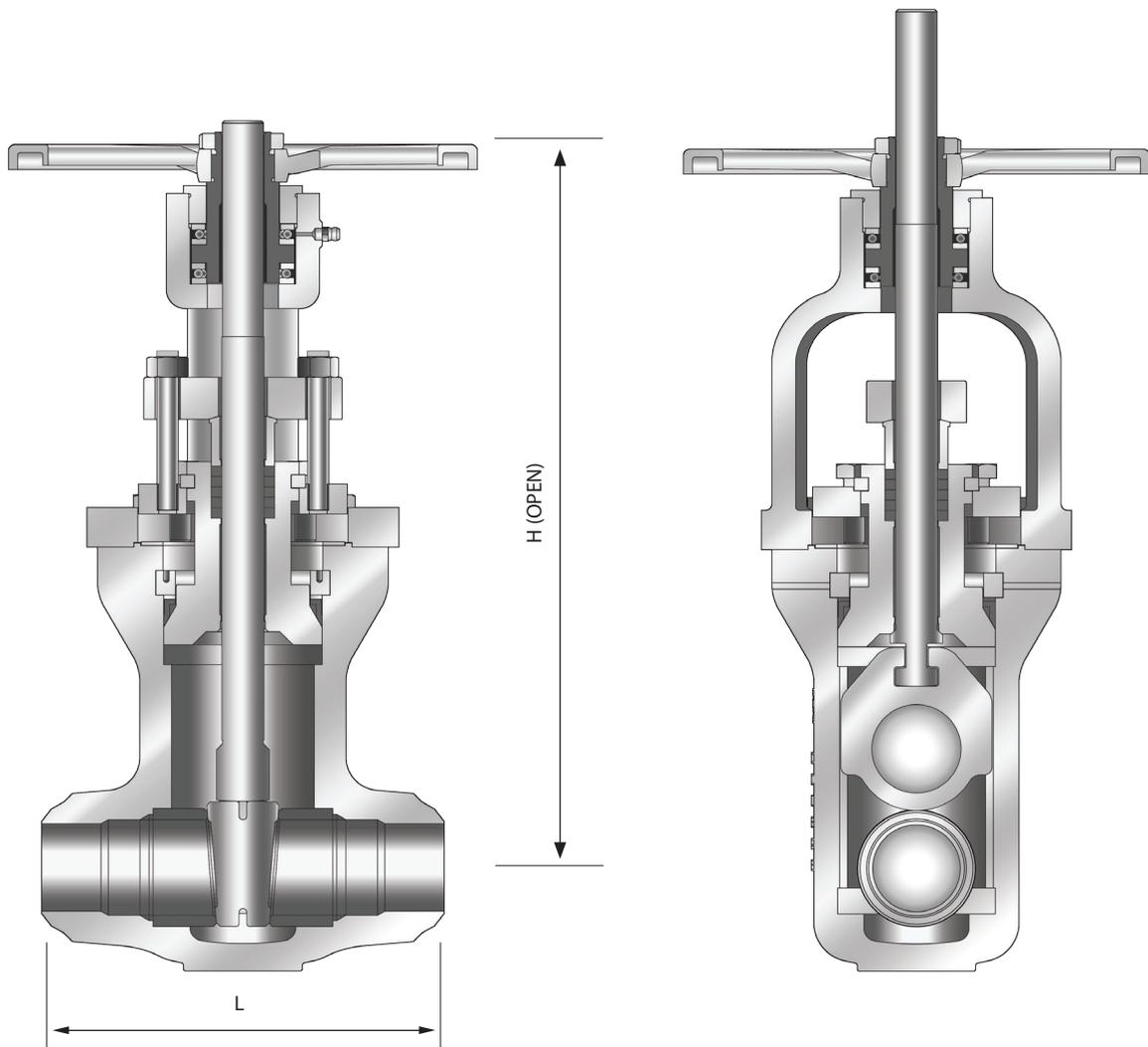


FORGING REFINES DEFECTS FROM CAST INGOTS OR CONTINUOUS CAST BAR.

A casting has neither grain flow nor directional strength nor can the process prevent formation of certain metallurgical defects. Pre-working forge stock produces a grain flow oriented in directions requiring maximum strength. Dendritic structures, alloy segregation's and like imperfections are refined in forging.



FORGED STEEL GATE VALVE



900

UNIT : mm

SIZE	2	3	4
L	215.9	304.8	355.6
DIA D1	315	355	400
H	531	660	813
WEIGHT(Kgf)	41	80	129

1500

UNIT : mm

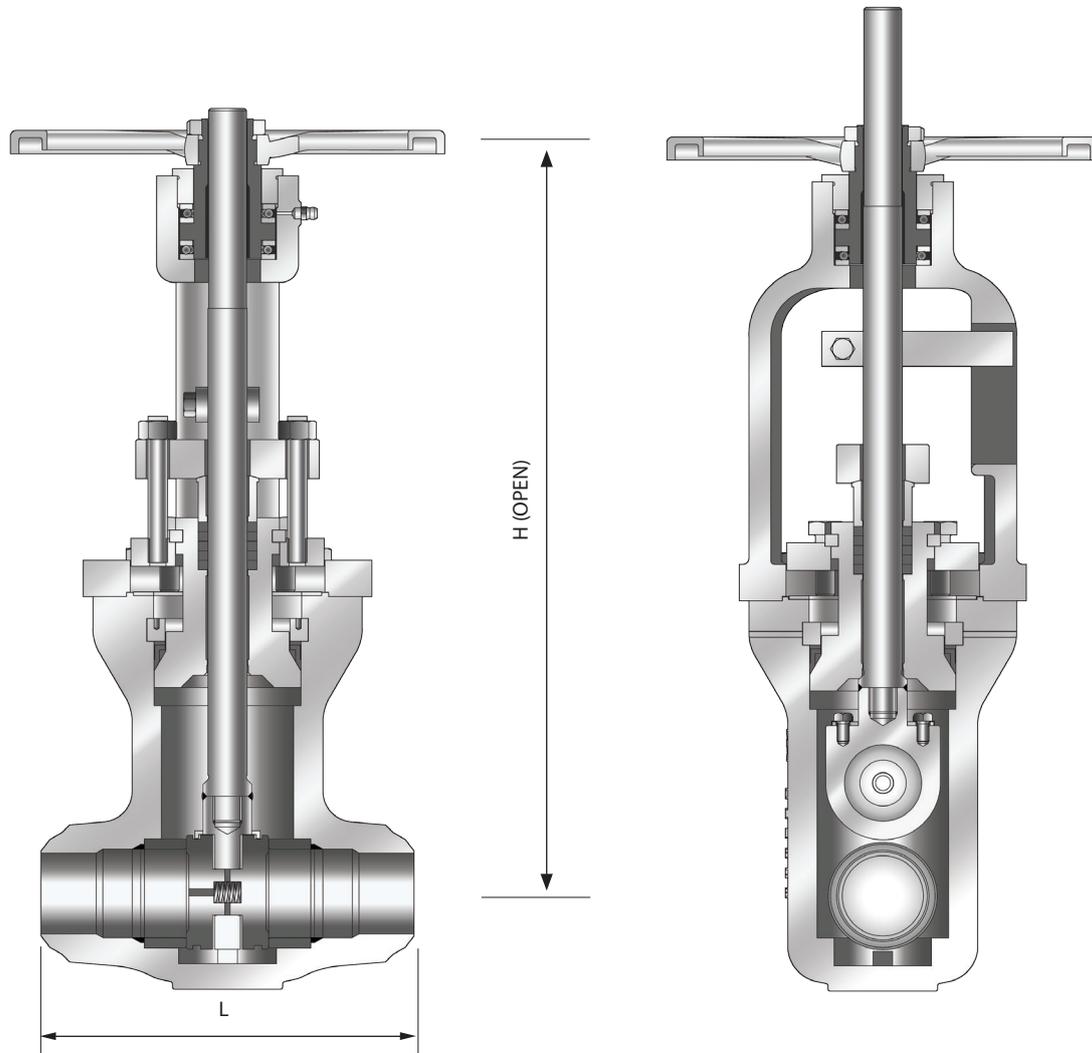
SIZE	2	3	4
L	215.9	304.8	406.4
DIA D1	315	355	400
H	531	660	813
WEIGHT(Kgf)	41	80	143

STANDARD MATERIAL SPECIFICATIONS

FORGED STEEL GATE VALVE					
NO.	PART NAME	MATERIAL			
1	BODY	A105	A182-F11	A182-F22	A182-F91
2	BONNET	A105	A182-F11	A182-F22	A182-F91
3	DISC	A216-WCB+STL	A217-WC6+STL	A217-WC9+STL	A217-C12A+STL
4	STEM	A479-410	A479-410	A479-410	A479-410
5	YOKE	A216-WCB	A216-WCB	A216-WCB	A216-WCB
6	BODY SEAT RING	A576-1020+STL	A182-F11+STL	A182-F22+STL	A182-F91+STL
7	BACK SEAT	A105+STL	A182-F11+STL	A182-F22+STL	A182-F91+STL
8	PACKING	GRAPHITE+GRAPHITE WITH INCONEL WIRE, FOR LFE			
9	GASKET	SOFT STEEL	304 STAINLESS STEEL	304 STAINLESS STEEL	304 STAINLESS STEEL
10	BONNET RETAINER	A576-1045	A576-1045	A576-1045	A576-1045
11	BONNET FLANGE	A576-1045	A576-1045	A576-1045	A576-1045
12	JACKING WASHER	A240-410	A240-410	A240-410	A240-410
13	RETAINER	A576-1045+Cr	A240-304	A240-304	A240-304
14	ADAPTOR RING	A240-410	A240-410	A240-410	A240-410
15	PACKING GLAND	A576-1020+Cr	A479-410	A479-410	A479-410
16	JACKING BOLT	A193-B7	A193-B7	A193-B7	A193-B7
17	GLAND FLANGE	A283-D	A283-D	A283-D	A283-D
18	GLAND BOLT	A193-B7	A193-B7	A193-B7	A193-B7
19	GLAND NUT	A194-2H	A194-2H	A194-2H	A194-2H
20	YOKE BOLT	A193-B7	A193-B7	A193-B7	A193-B7
21	YOKE SLEEVE	A439-D2C	A439-D2C	A439-D2C	A439-D2C
22	YOKE CAP	A576-1020	A576-1020	A576-1020	A576-1020
23	BEARING	STEEL	STEEL	STEEL	STEEL
24	GREASE NIPPLE	STEEL+Cr	STEEL+Cr	STEEL+Cr	STEEL+Cr
25	HANDWHEEL	A197	A197	A197	A197
26	HANDWHEEL NUT	A47-32510+Zn	A47-32510+Zn	A47-32510+Zn	A47-32510+Zn

1. SHELL WALL THICKNESS : ASME B16.34
2. END TO END DIMENSIONS : ASME B16.10
3. BUTT WELDING END : ASME B16.25

FORGED STEEL PS GATE VALVE



900

UNIT : mm

SIZE	2	3	4
L	215.9	304.8	355.6
DIA D1	315	355	400
H	581	730	913
WEIGHT(Kgf)	45	90	140

1500

UNIT : mm

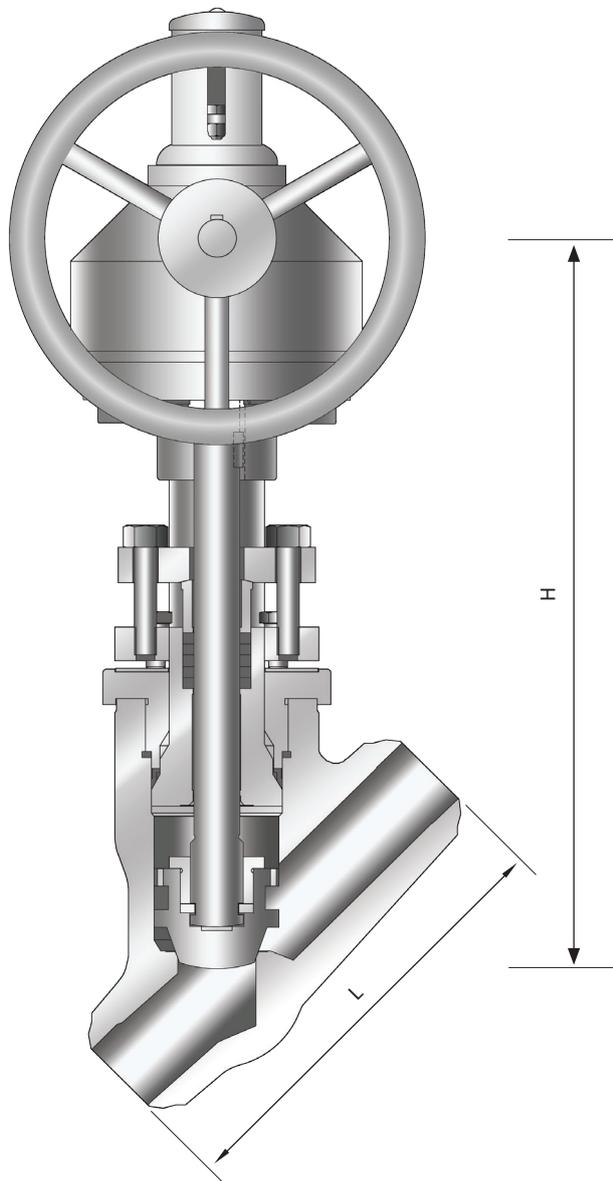
SIZE	2	3	4
L	215.9	304.8	406.4
DIA D1	315	355	400
H	581	660	913
WEIGHT(Kgf)	45	90	150

STANDARD MATERIAL SPECIFICATIONS

FORGED STEEL PS GATE VALVE		
NO.	PART NAME	MATERIAL
1	BODY	A105
2	BONNET	A105
3	DISC	A105+STL
4	STEM	A479-410
5	YOKE	A216-WCB
6	BODY SEAT RING	A576-1020+STL
7	BACK SEAT	A105+STL
8	PACKING	GRAPHITE+GRAPHITE WITH INCONEL WIRE, FOR LFE
9	GASKET	SOFT STEEL
10	BONNET RETAINER	A240-410
11	BONNET FLANGE	A576-1045
12	JACKING WASHER	A240-410
13	RETAINER	A576-1045+Cr
14	ADAPTOR RING	A240-410
15	PACKING GLAND	A576-1020+Cr
16	JACKING BOLT	A193-B7
17	GLAND FLANGE	A283-D
18	GLAND BOLT	A193-B7
19	GLAND NUT	A194-2H
20	YOKE BOLT	A193-B7
21	YOKE SLEEVE	A439-D2C
22	YOKE CAP	A576-1020
23	BEARING	STEEL
24	GREASE NIPPLE	STEEL+Cr
25	HANDWHEEL	A197
26	HANDWHEEL NUT	A47-32510+Zn
27	DISC GUIDE	A576-1020
28	KEY PLATE	A240-304
29	KEY PLATE BOLT	A193-B8
30	SET WASHER	A240-304
31	COIL SPRING	SWOSC-V
32	YOKE STOPPER	STEEL
33	STOPPER BOLT	STEEL

1. SHELL WALL THICKNESS : ASME B16.34
2. END TO END DIMENSIONS : ASME B16.10
3. BUTT WELDING END : ASME B16.25

FORGED STEEL Y-GLOBE VALVE



900

UNIT : mm

SIZE	2	3	4
L	279.4	368.3	457.2
DIA D1	350	350	400
H	536	631	724
WEIGHT(Kgf)	78	142	209

1500

UNIT : mm

SIZE	2	3	4
L	279.4	368.3	457.2
DIA D1	350	350	400
H	536	631	724
WEIGHT(Kgf)	78	142	209

2500

UNIT : mm

SIZE	2	3	4
L	279.4	368.3	457.2
DIA D1	350	400	450
H	588	662	763
WEIGHT(Kgf)	100	177	283

STANDARD MATERIAL SPECIFICATIONS

FORGED STEEL Y-GLOBE VALVE		
NO.	PART NAME	MATERIAL
1	BODY	A105
2	BONNET	A105
3	DISC	A216-WCB+STL
4	STEM	A479-410
5	YOKE	A216-WCB
6	BODY SEAT RING	A105+STL
7	BACK SEAT	A105+STL
8	PACKING	GRAPHITE+GRAPHITE WITH INCONEL WIRE, FOR LFE
9	GASKET	SOFT STEEL
10	BONNET FLANGE	A576-1045
11	JACKING WASHER	A240-410
12	PACKING GLAND	A576-1020+Cr
13	JACKING BOLT	A193-B7
14	GLAND FLANGE	A283-D
15	GLAND BOLT	A193-B7
16	GLAND NUT	A194-2H
17	LOCK NUT	A479-410
18	CONNECTION WASHER	A240-304
19	THRUST PAD	479-410
20	STOPPER BOLT	A193-B7
21	STOPPER NUT	A194-2H
22	KEY	A576-1045
23	GEAR BOX	DUCTILE IRON
24	INDICATOR	PLASTIC
25	STEM COVER	A53
26	WASHER	A576-1045+Zn
27	BOLT	A193-B7
28	HAND WHEEL	A576-1020

1. SHELL WALL THICKNESS : ASME B16.34, AP1600
2. END TO END DIMENSIONS : ASME B16.10
3. BUTT WELDING END : ASME B16.25