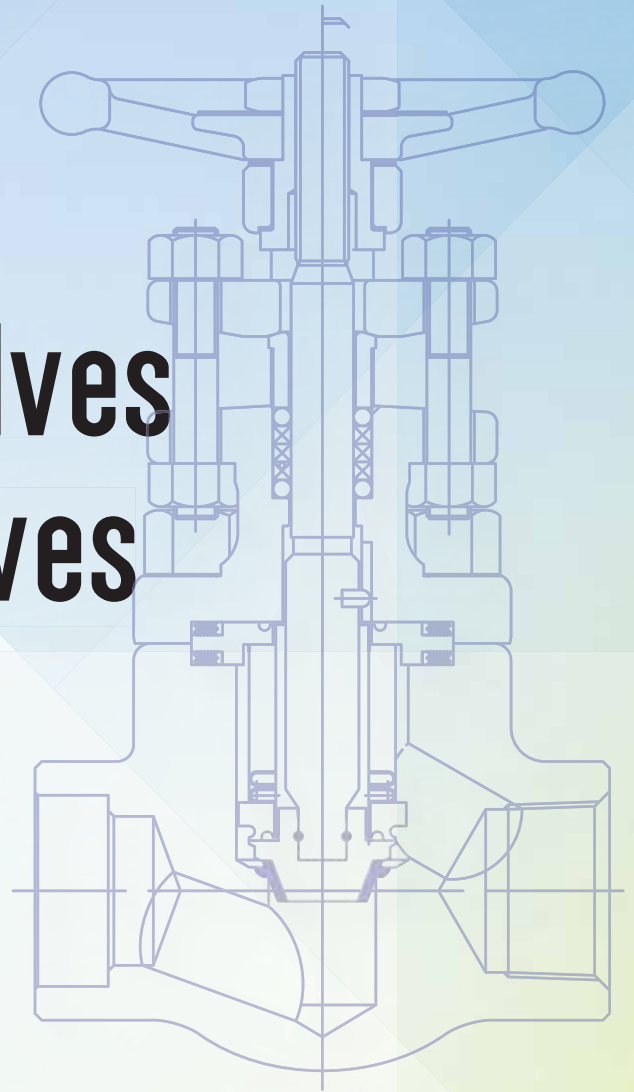


# OSV Bellows-Seal Valves & Cryogenic Valves

<http://www.oscompany.co.kr>



# Principles Of Company · General Introduction · Company History

## About the company

OS Valves (OSV) is a subsidiary of OS Company. OSV has been inspiring our employees to think from outside of the box and to come up with innovative ideas.

When we first started this new business, we promised ourselves that we would create and produce products that all customers can trust. To continue this, we constantly need to be on the edge of ourselves and create high quality products that we can be proud of.

## Technology

The goal for OS Valves is to put a quality product in every field. We produce our Valves only with the highest quality materials, so that we can guarantee that all of our products will have a long sustainability.

We can offer a good competitive price to the market using our efficient technology and relationship with other collaborators.

## Manufacturing

OS valves are manufactured on modern machine tools and efficient production lines in order to offer high volume capacity. Besides, we also put a genuine effort to assure the highest possible quality of the valves. In every step of the manufacturing processes, all our products are put through strict inspections according to ASME and ANSI so that we can meet the very demanding requirements of our clients.





## Product list

**API 602, ANSI B16.34**

**BS 5352**

### Gate Valves

SIZE	1/4" - 2"
CLASS	#150 - #4500
MATERIAL	Carbon Steel, Low Alloys, Stainless Steel, High Alloys
BODY TO BONNET	BB, WB, PSB
BORE	Standard & Full bore
END CONNECTION	NPT, SW, BW, RF, FF, RTJ

### Globe Valves & Needle Globe valve

SIZE	1/4" - 2"
CLASS	#150 - #4500
MATERIAL	Carbon Steel, Low Alloys, Stainless Steel, High Alloys
BODY TO BONNET	BB, WB, PSB
BORE	Standard & Full bore
END CONNECTION	NPT, SW, BW, RF, FF, RTJ

### Check Valves

SIZE	1/4" - 2"
CLASS	#150 - #4500
MATERIAL	Carbon steel, Low Alloys, Stainless Steel, High Alloys
BODY TO BONNET	BB, WB, PSC
BORE	Standard & Full bore
END CONNECTION	NPT, SW, BW, RF, FF, RTJ

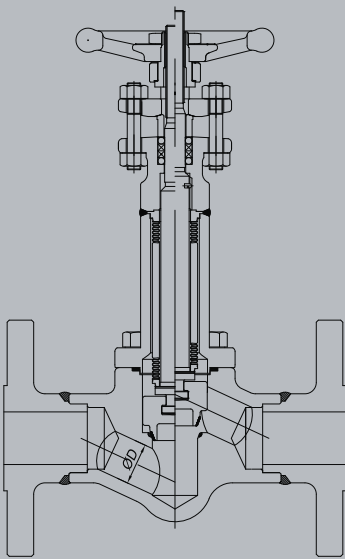
### Bellows Seal Valves

SIZE	1/4" - 2"
CLASS	#150 - #2500
MATERIAL	Carbon Steel, Low Alloys, Stainless Steel, High Alloys
BODY TO BONNET	BB, WB
BORE	Standard & Full bore
END CONNECTION	NPT, SW, BW, RF, FF, RTJ

### Cryogenic Valves

SIZE	1/4" - 2"
CLASS	#150 - #1500
MATERIAL	Stainless Steel
BODY TO BONNET	BB, WB
BORE	Standard & Full bore
END CONNECTION	NPT, SW, BW, RF, FF, RTJ

# Bellows-Seal Valves



## \* 완벽한 밸브 스템 실링의 가장 효과적인 대책!

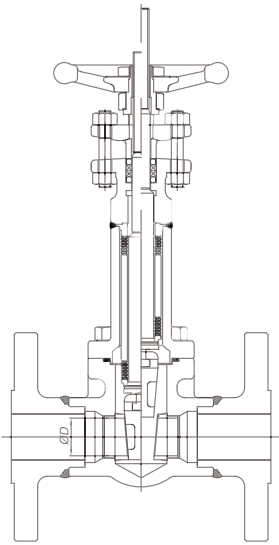
금속관의 주름관인 벨로우즈는 축방향의 신축량을 조정할 수 있고, 주름굽을 늘려 더 높은 압력에도 견딜 수 있는 완전 무누설 밸브이다. 벨로우즈 밸브는 독성유체 (toxic), 방사선 물질 (radioactive), 휘발성 유기 화합물질(voc)과 같은 매우 고가의 유체 계통에 쓰이는 제품이다.

## \* 오에스 벨로우즈의 특성

1. NR 스템으로 인하여 높은 수명을 보장해 주고 벨로우즈의 손상을 방지한다.
2. 인증되어진 고질의 벨로우즈를 사용하여 완벽한 밀봉을 실행한다.
3. 고온 고압에서 적합하도록 설계되고 시험되었다.
4. 벨로우즈의 내부 손상을 방지하기 위해 낮은 토크 값으로 설계하였다.
5. 벨로우즈의 교체가 쉽다.

## \* 벨로우즈 밸브의 APPLICATION

1. 유독성물질 과 같은 인체에 매우 해로운 유체를 취급하는 배관 라인에서 완전한 실링을 제공한다.
2. 가스켓과 팩킹에서의 누설로부터 환경을 안전하게 보호한다.
3. 에너지 손실에 효과적이다.



Cycle test till class 800 and below with Forged steel valves

Min. 5,000 Cycle for Globe valves

Min. 2,000 Cycle for Gate valves

Cycle test for class 1500 with Forged steel valves

Min. 2,000 Cycle for Globe valves

Min. 2,000 Cycle for Gate valves

Cycle Life Test is executed under Max Pressure.

Superior cycle life Bellows designed and tested for severe service condition

Two Secondary Stem Seal for perfect sealing (stem packing, Backseat)

Salient Seat Hard-face with STL 6 material

Low torque

Possibility of Inline repair

## THE BEST SOLUTION FOR A SAFE AND IMPECCABLE VALVE STEM SEALING!

Bellows form a deformable container and its expansion length is adjustable. Bellows-seal valves can tolerate high pressure by extending their bellows. They are perfectly sealed and free from leakages. Bellows-seal valves can be used in controlling dangerous fluids such as toxic fluids, radioactive fluids, and VOC.

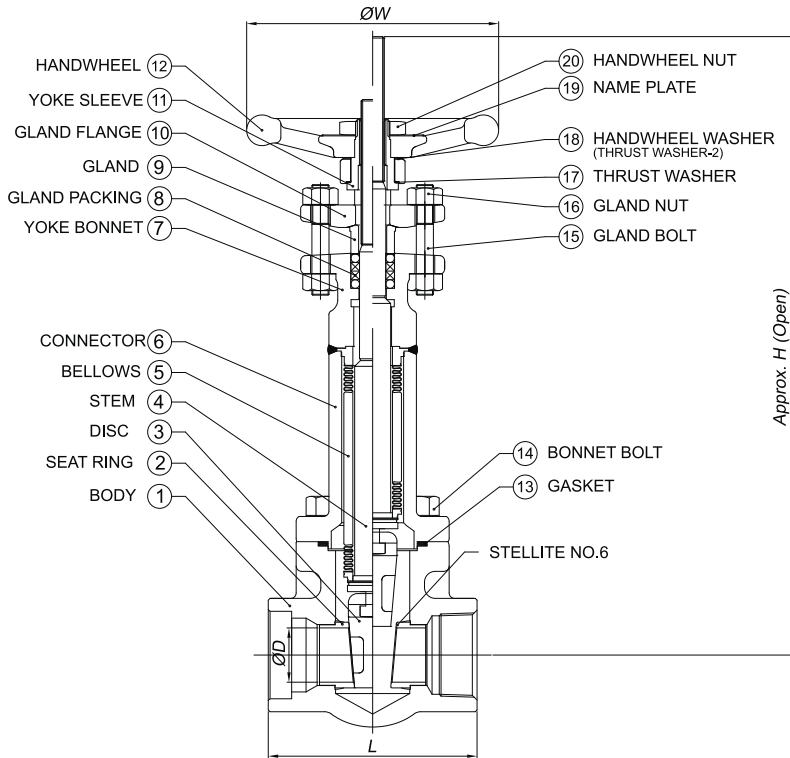
### \* Features

1. All OS bellows-seal valves are equipped with a NR stem, which provides a long lifetime and prevents damages on the bellows.
2. Standard high quality bellows are used, and therefore a safe and impeccable sealing is obtained.
3. The valves are specially designed to operate in high temperature and high-pressure conditions.
4. The valves are operable with low torque in order to prevent damages inside the bellows.
5. The bellows are easily replaceable.

### \* Applications

1. The valves provide a safe sealing in the pipeline that is even dealt with very toxic fluids.
2. The valves prevent the environment from the gasket and packing leakages.
3. The valves are efficient to manage energy loss.

**CLASS 800/1500 Standard Bore & Full Bore.**  
**SW/NPT/BW Ends.**



Basic Material List	
Body	A105
Wedge	A217-CA15
Stem	A276-410
Gasket	Graphite+316L
Seat Ring	A276-410
Bonnet	A105
Bonnet Bolt	A193-B7
Gland Packing	Graphite
Gland	304 Stainless
Gland Bolt	A193-B7
Gland Nut	A194-2H
Yoke Sleeve	A582-416
Bellows	316L or 321

**Class 800**    ■ Bolted Bonnet Type.

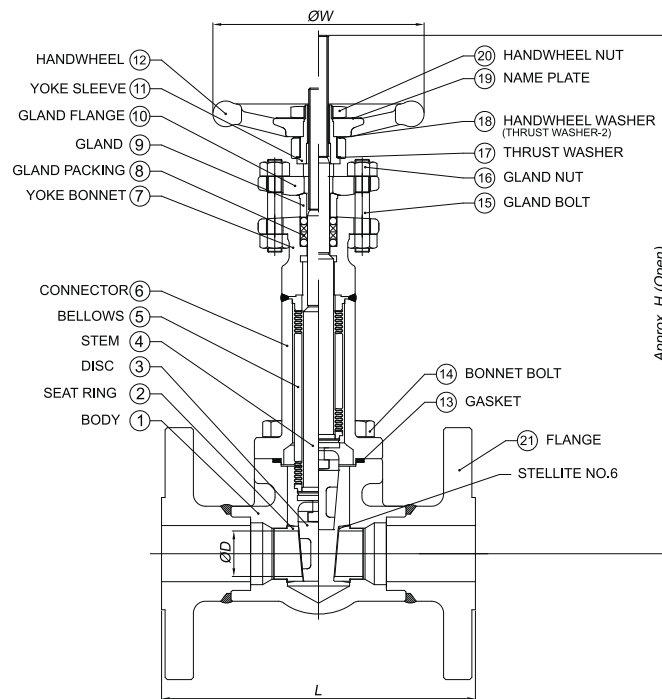
Full Bore.	-	1/4		3/8		1/2		3/4		1		1-1/4, 1-1/2		2	
Standard Bore.	-	3/8		1/2		3/4		1		1-1/4, 1-1/2		2		-	
L(mm/in)		74	2.9	74	2.9	86	3.4	102	4.0	116	4.6	140	5.5	220	8.66
H(mm/in)		305	12	305	12	305	12	370	15	530	21	680	10	750	29.53
Ø D(mm/in)		9.5	0.4	9.5	0.4	12.5	0.5	19	0.7	30.0	1.2	38.0	1.5	48.0	1.9
Ø W(mm/in)		100	3.9	100	3.9	100	3.9	100	3.9	140	5.5	160	6.3	200	7.9
Wt.(kg)		3.8		3.8		3.5		5.0		9.0		15.0		25.5	

**Class 1500**    ■ Bolted Bonnet Type.

Full Bore.	-	1/4		3/8		1/2		3/4		1		1-1/4, 1-1/2		2	
Standard Bore.	-	3/8		1/2		3/4		1		1-1/4, 1-1/2		2		-	
L(mm/in)		86	3.4	86	3.4	102	4.0	116	4.6	140	5.5	220	8.66	220	8.66
H(mm/in)		400	16	400	16	410	16	470	19	650	26	750	29.53	750	29.53
Ø D(mm/in)		9.5	0.4	9.5	0.4	12.5	0.5	19	0.7	30.0	1.2	38.0	1.5	48.0	1.9
Ø W(mm/in)		100	3.9	100	3.9	100	3.9	140	5.5	160	6.3	200	7.9	200	7.9
Wt.(kg)		5.5		5.5		6.5		10.0		17.0		25.5		25.5	

# CLASS 150/300/600/900/1500 Standard Bore.

Bellows-Gate Valve



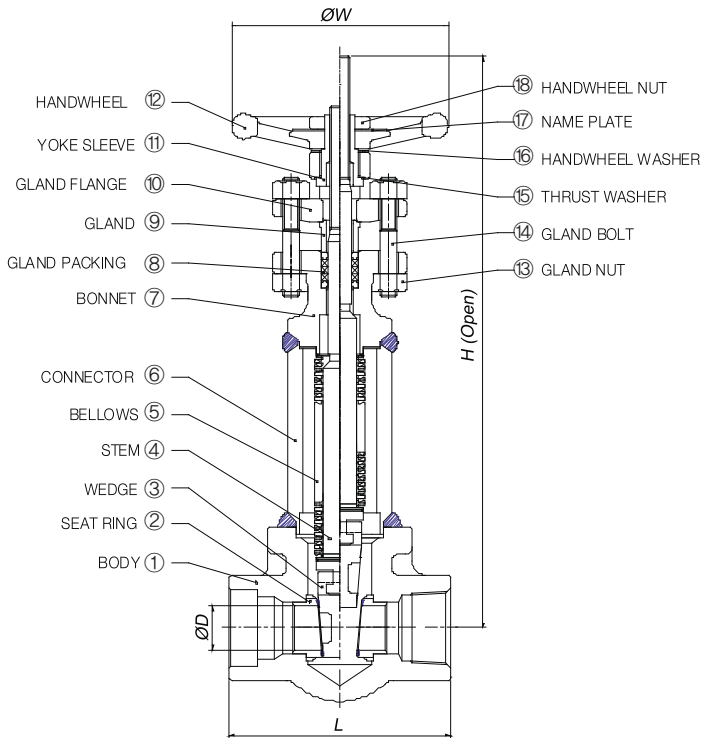
## Class 150 / 300 / 600 ■ Bolted Bonnet Type.

Standard Bore.		-	1/2		3/4		1		1-1/4		1-1/2		2	
L(mm/in)	150		108	4.3	117	4.6	127	5	165	6.5	165	6.5	178	7
	300		140	5.5	152	6	165	6.5	178	7.0	190	7.5	216	8.5
	600		165	6.5	19.	7.5	216	8.5	229	9.0	241	9.5	292	11
H(mm/in)			230	9.1	250	9.8	310	12	450	18	450	18	500	20
Ø D(mm/in)			9.5	0.4	12.5	0.5	19.0	0.7	30.0	1.2	30.0	1.2	38.0	1.5
Ø W(mm/in)			82	3.2	100	3.9	100	3.9	140	5.5	140	5.5	160	6.3
Wt.(kg)	150		3.5		4.5		6.0		12.0		12.5		17.0	
	300		4.0		5.5		7.5		13.5		14.5		19.0	
	600		4.4		6.0		8.0		15.5		16.5		22.0	

## Class 900 / 1500 ■ Bolted Bonnet Type.

Standard Bore.		-	1/2		3/4		1		1-1/4		1-1/2		2	
L(mm/in)			216	8.5	229	9	254	10	279	11.0	305	12	368	14
H(mm/in)			320	13	350	14	420	17	560	22	560	22	620	24
Ø D(mm/in)			9.5	0.4	12.5	0.5	19.0	0.7	30.0	1.2	30.0	1.2	38.0	1.5
Ø W(mm/in)			100	3.9	100	3.9	140	5.5	160	6.3	160	6.3	200	7.9
Wt.(kg)			9.0		11.0		17.0		30.0		31.0		42.0	

**CLASS 800/1500 Standard Bore & Full Bore.  
SW/NPT/BW Ends.**



Basic Material List	
Body	A105
Wedge	A217-CA15
Stem	A276-410
Seat Ring	A276-410
Bonnet	A105
Gland Packing	Graphite
Gland	304 Stainless
Gland Bolt	A193-B7
Gland Nut	A194-2H
Yoke Sleeve	A582-416
Bellows	316L or 321

**Class 800**    ■ Welded Bonnet Type.

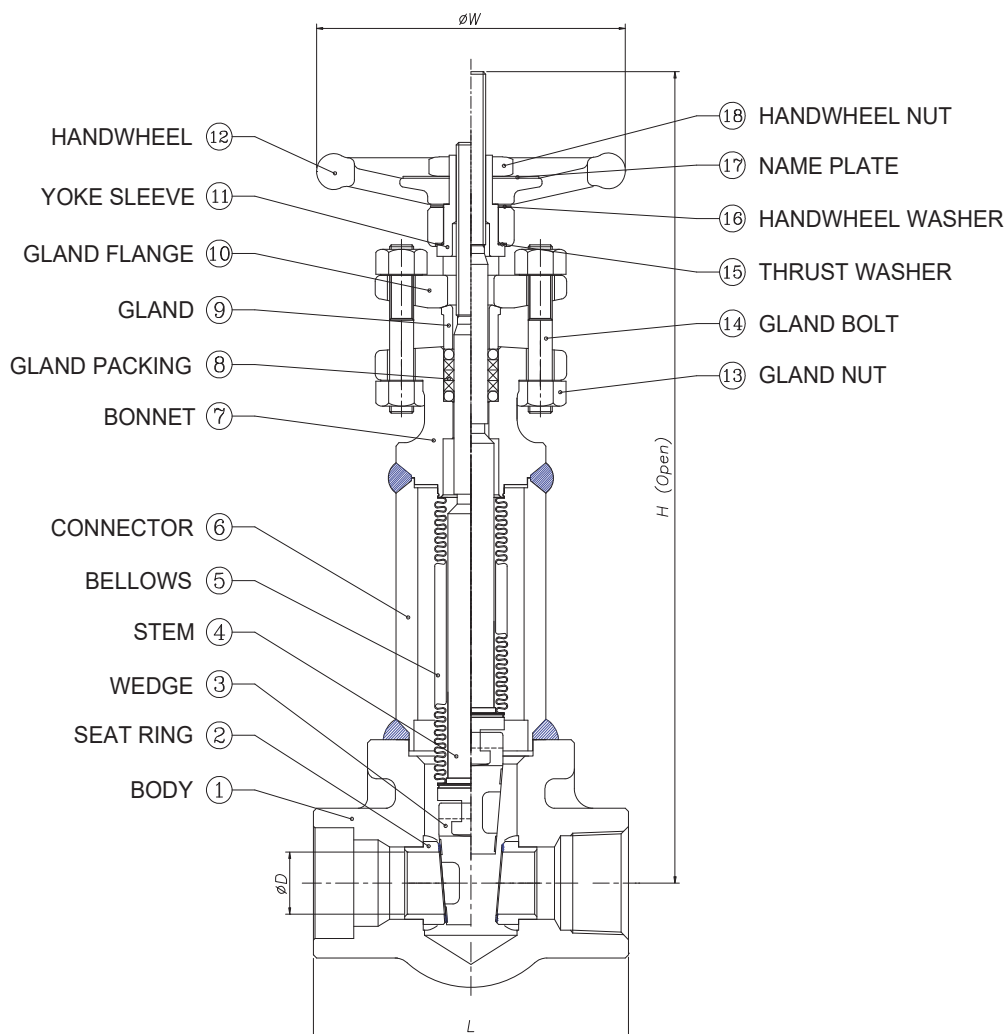
Full Bore.	-	1/4		3/8		1/2		3/4		1		1-1/4, 1-1/2		2	
Standard Bore.	-	3/8		1/2		3/4		1		1-1/4, 1-1/2		2		-	
L(mm/in)		74	2.9	74	2.9	86	3.4	102	4.0	116	4.6	140	5.5	220	8.66
H(mm/in)		305	12	305	12	305	12	370	15	530	21	680	10	750	29.33
Ø D(mm/in)		9.5	0.4	9.5	0.4	12.5	0.5	19	0.7	30.0	1.2	38.0	1.5	48.0	1.9
Ø W(mm/in)		100	3.9	100	3.9	100	3.9	100	3.9	140	5.5	160	6.3	200	7.9
Wt.(kg)		3.8		3.8		3.5		5.0		9.0		15.0		25	

**Class 1500**    ■ Welded Bonnet Type.

Full Bore.	-	1/4		3/8		1/2		3/4		1		1-1/4, 1-1/2		2	
Standard Bore.	-	3/8		1/2		3/4		1		1-1/4, 1-1/2		2		-	
L(mm/in)		86	3.4	86	3.4	102	4.0	116	4.6	140	5.5	220	8.66	220	8.66
H(mm/in)		400	16	400	16	410	16	470	19	650	26	750	29.33	750	29.33
Ø D(mm/in)		9.5	0.4	9.5	0.4	12.5	0.5	19	0.7	30.0	1.2	38.0	1.5	48	11.9
Ø W(mm/in)		100	3.9	100	3.9	100	3.9	140	5.5	160	6.3	200	7.9	200	7.9
Wt.(kg)		5.5		5.5		6.5		10.0		17.0		25		25	



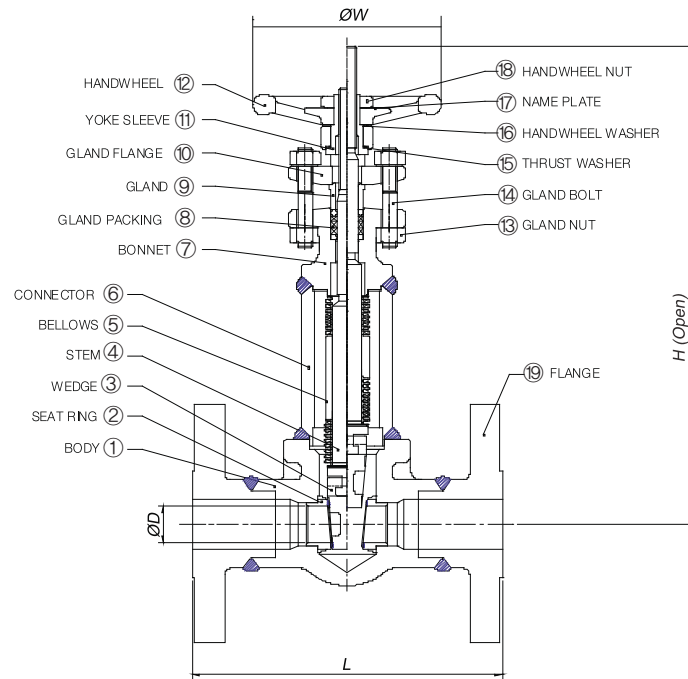
## CLASS 2500 Full Bore. SW/NPT/BW Ends.



### Class 2500 ■ Welded Bonnet Type.

Full Bore.	-	1/4		3/8		1/2		3/4		1		1-1/4, 1-1/2		2	
L(mm/in)		140	5.51	140	5.51	140	5.51	140	5.5	165	6.5	210	8.3	245	9.6
H(mm/in)		490	19.3	490	19.3	490	19.3	495	19.5	515	20.3	598	23.5	615	24.2
$\phi D$ (mm/in)		6.5	0.26	8.5	0.33	11.6	0.46	14.6	0.57	19.6	0.77	28.6	1.13	38.1	1.5
$\phi W$ (mm/in)		200	7.87	200	7.87	200	7.87	200	7.87	250	9.84	310	12.2	310	12.2
Wt.(kg)		10.5		10.5		10.2		10.3		16.8		33.5		40.5	

**CLASS 150/300/600/900/1500 Standard Bore.**



**Class 150 / 300 / 600      ■ Welded Bonnet Type.**

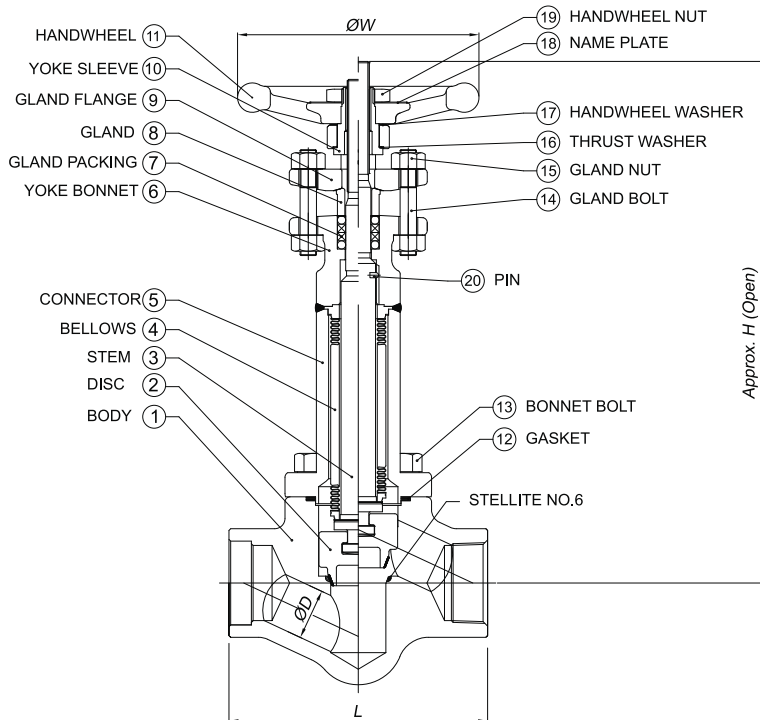
Standard Bore.		-	1/2		3/4		1		1-1/4		1-1/2		2			
L(mm/in)	150		108	4.3	117	4.6	127	5	165	6.5	165	6.5	178	7		
	300		140	5.5	152	6	165	6.5	178	7.0	190	7.5	216	8.5		
	600		165	6.5	19.	7.5	216	8.5	229	9.0	241	9.5	292	11		
H(mm/in)			230	9.1	250	9.8	310	12	450	18	450	18	500	20		
Ø D(mm/in)			9.5	0.4	12.5	0.5	19.0	0.7	30.0	1.2	30.0	1.2	38.0	1.5		
Ø W(mm/in)			82	3.2	100	3.9	100	3.9	140	5.5	140	5.5	160	6.3		
Wt.(kg)	150		3.5		4.5		6.0		12.0		12.5		17.0			
	300		4.0		5.5		7.5		13.5		14.5		19.0			
	600		4.4		6.0		8.0		15.5		16.5		22.0			

**Class 900 / 1500      ■ Welded Bonnet Type.**

Standard Bore.		-	1/2		3/4		1		1-1/4		1-1/2		2		-
L(mm/in)			216	8.5	229	9	254	10	279	11.0	305	12	368	14	
H(mm/in)			320	13	350	14	420	17	560	22	560	22	620	24	
Ø D(mm/in)			9.5	0.4	12.5	0.5	19.0	0.7	30.0	1.2	30.0	1.2	38.0	1.5	
Ø W(mm/in)			100	3.9	100	3.9	140	5.5	160	6.3	160	6.3	200	7.9	
Wt.(kg)			9.0		11.0		17.0		30.0		31.0		42.0		

## CLASS 800/1500 Standard Bore & Full Bore. SW/NPT/BW Ends.

Bellows-Globe Valve



Basic Material List	
Body	A105
DISC	A217-CA15
Stem	A276-410
Gasket	Graphite+316L
Bonnet	A105
Bonnet Bolt	A193-B7
Gland Packing	Graphite
Gland	304SS
Gland Flunge	A105
Gland Nut	A194-2H
Gland Bolt	A193-B7
Yoke Bush	A582-416
Bellows	F316L or F321

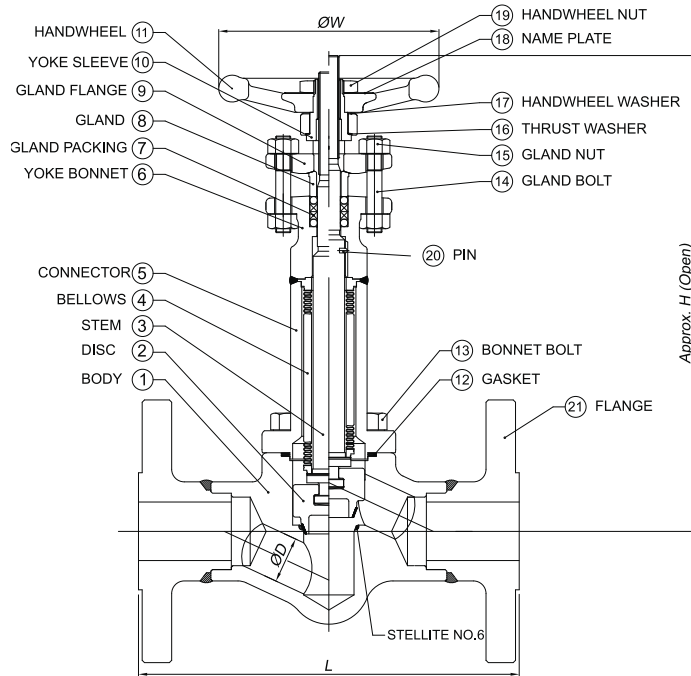
### Class 800 ■ Bolted Bonnet Type.

Full Bore.	-		1/4		3/8		1/2		3/4		1		1-1/4, 1-1/2		2	
	-		3/8		1/2		3/4		1		1-1/4, 1-1/2		2		-	
L(mm/in)			74	2.9	74	2.9	86	3.4	102	4.0	150	5.9	178	7.0	220	8.66
H(mm/in)			200	7.9	200	7.9	200	7.9	240	9.4	270	11	320	13	750	29.33
Ø D(mm/in)			9.5	0.4	9.5	0.4	12.5	0.5	17.5	0.7	28.5	1.1	36.5	1.4	46	1.8
Ø W(mm/in)			100	3.9	100	3.9	100	3.9	100	3.9	140	5.5	160	6.3	200	7.9
Wt.(kg)			3		3		3.6		5.1		8.5		15		25	

### Class 1500 ■ Bolted Bonnet Type.

Full Bore.	-		1/4		3/8		1/2		3/4		1		1-1/4, 1-1/2		2	
	1/4		3/8		1/2		3/4		1		1-1/4, 1-1/2		2		-	
L(mm/in)			86	3.4	86	3.4	102	4.0	150	5.9	178	7.0	220	8.66	220	8.66
H(mm/in)			280	11	280	11	300	12	330	13	330	13	750	29.33	750	29.33
Ø D(mm/in)			8.5	0.3	8.5	0.3	9.5	0.4	14.5	0.6	25.5	1.0	36.5	1.4	46	1.8
Ø W(mm/in)			100	3.9	100	3.9	100	3.9	140	5.5	160	6.3	200	7.9	200	7.9
Wt.(kg)			3.5		3.5		5.0		8.0		14.0		25		25	

**CLASS 150/300/600/900/1500 Standard Bore.**



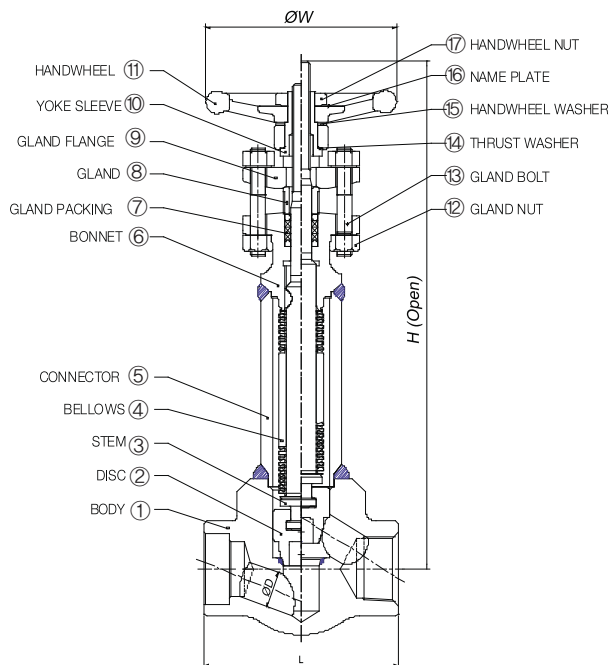
**Class 150 / 300 / 600 ■ Bolted Bonnet Type.**

Standard Bore.		-	1/2		3/4		1		1-1/4		1-1/2		2			
L(mm/in)	150		108	4.3	117	4.6	127	5	165	6.5	165	6.5	203	8		
	300		152	6	178	7	203	8	216	8.5	229	9	267	11		
	600		165	6.5	190	7.5	216	8.5	229	9.0	241	9.5	292	11		
H(mm/in)			200	7.9	200	7.9	230	9.1	270	11	270	11	350	14		
Ø D(mm/in)			9.5	0.4	12.5	0.5	17.5	0.7	28.5	1.1	28.5	1.1	36.5	1.4		
Ø W(mm/in)			100	3.9	100	3.9	100	3.9	140	5.5	140	5.5	160	6.3		
Wt.(kg)	150		3.0		3.8		5.5		10.8		11.0		16.0			
	300		3.5		4.5		6.8		11.8		12.0		17.5			
	600		3.8		4.8		7.2		12.0		13.0		18.2			

**Class 900 / 1500 ■ Bolted Bonnet Type.**

Standard Bore.			1/2		3/4		1		1-1/4		1-1/2		2		-
L(mm/in)			216	8.5	229	9	254	10	279	11.0	305	12	368	14	
H(mm/in)			290	11	290	11	305	12	340	13	340	13	420	17	
Ø D(mm/in)			9.5	0.4	12.5	0.5	19.0	0.7	30.0	1.2	30.0	1.2	38.0	1.5	
Ø W(mm/in)			100	3.9	100	3.9	140	5.5	160	6.3	160	6.3	200	7.9	
Wt.(kg)			7.5		11.0		15.7		27.0		27.5		37.0		

# CLASS 800/1500 Standard Bore & Full Bore. SW/NPT/BW Ends.



Basic Material List	
Body	A105
DISC	A217-CA15
Stem	A276-410
Bonnet	A105
Gland Packing	Graphite
Gland	304SS
Gland Flunge	A105
Gland Nut	A194-2H
Gland Bolt	A193-B7
Yoke Bush	A582-416
Bellows	F316L or F321

Bellows-Globe Valve

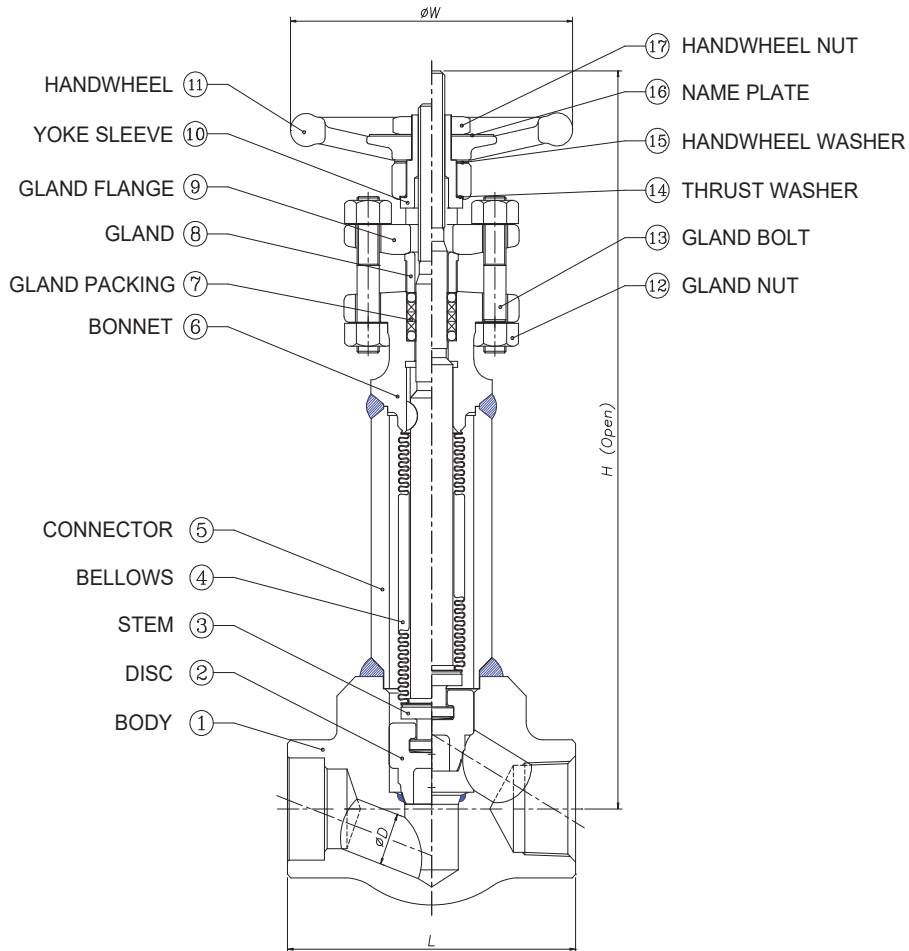
## Class 800 ■ Welded Bonnet Type.

Full Bore.	-		1/4		3/8		1/2		3/4		1		1-1/4, 1-1/2		2	
	-		3/8		1/2		3/4		1		1-1/4, 1-1/2		2		-	
L(mm/in)			74	2.9	74	2.9	86	3.4	102	4.0	150	5.9	178	7.0	220	8.66
H(mm/in)			200	7.9	200	7.9	200	7.9	240	9.4	270	11	320	13	750	29.33
$\phi D$ (mm/in)			9.5	0.4	9.5	0.4	12.5	0.5	17.5	0.7	28.5	1.1	36.5	1.4	46	1.8
$\phi W$ (mm/in)			100	3.9	100	3.9	100	3.9	100	3.9	140	5.5	160	6.3	200	7.9
Wt.(kg)			2.0		2.0		2.5		3.5		7.0		12.0		25	

## Class 1500 ■ Welded Bonnet Type.

Full Bore.	-		1/4		3/8		1/2		3/4		1		1-1/4, 1-1/2		2	
	1/4		3/8		1/2		3/4		1		1-1/4, 1-1/2		2		-	
L(mm/in)			86	3.4	86	3.4	102	4.0	150	5.9	178	7.0	220	8.66	200	8.66
H(mm/in)			280	11	280	11	300	12	330	13	330	13	750	29.33	750	29.33
$\phi D$ (mm/in)			8.5	0.3	8.5	0.3	9.5	0.4	14.5	0.6	25.5	1.0	36.5	1.4	46	1.8
$\phi W$ (mm/in)			100	3.9	100	3.9	100	3.9	140	5.5	160	6.3	200	7.9	200	7.9
Wt.(kg)			3.5		3.5		5.0		8.0		14.0		25.5		25	

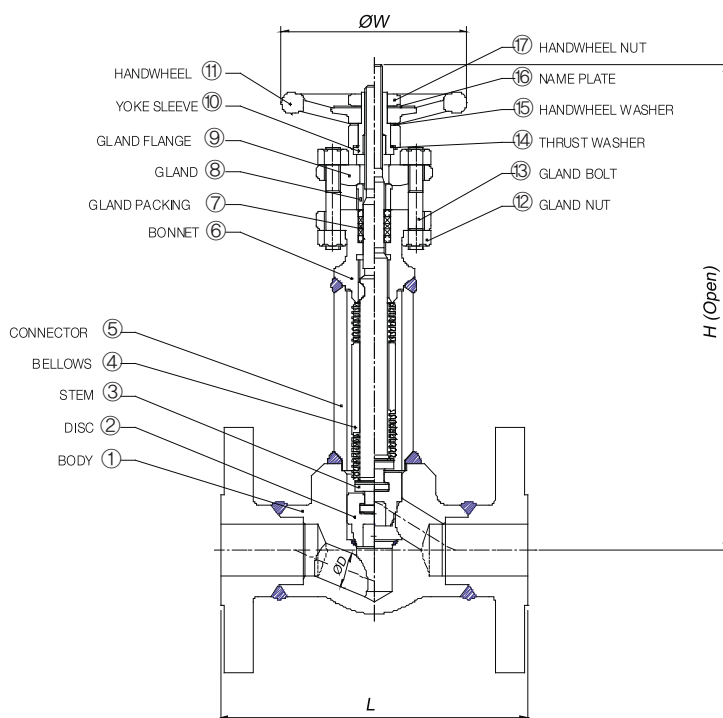
**CLASS 2500 Full Bore.**  
SW/NPT/BW Ends.



**Class 2500**    ■ Welded Bonnet Type.

Full Bore.	-	1/4		3/8		1/2		3/4		1		1-1/4, 1-1/2		2	
L(mm/in)		140	5.51	140	5.51	140	5.51	140	5.5	165	6.5	210	8.3	245	9.6
H(mm/in)		490	19.3	490	19.3	490	19.3	495	19.5	515	20.3	595	23.4	610	24
$\phi D$ (mm/in)		6.5	0.26	8.5	0.33	11.5	0.45	15	0.59	20	0.79	29	1.14	38	1.5
$\phi W$ (mm/in)		200	7.87	200	7.87	200	7.87	200	7.87	250	9.84	310	12.2	310	12.2
Wt.(kg)		10.5		10.5		10.2		10.3		16.8		33.5		40.5	

## CLASS 150/300/600/900/1500 Standard Bore.



Bellows-Globe Valve

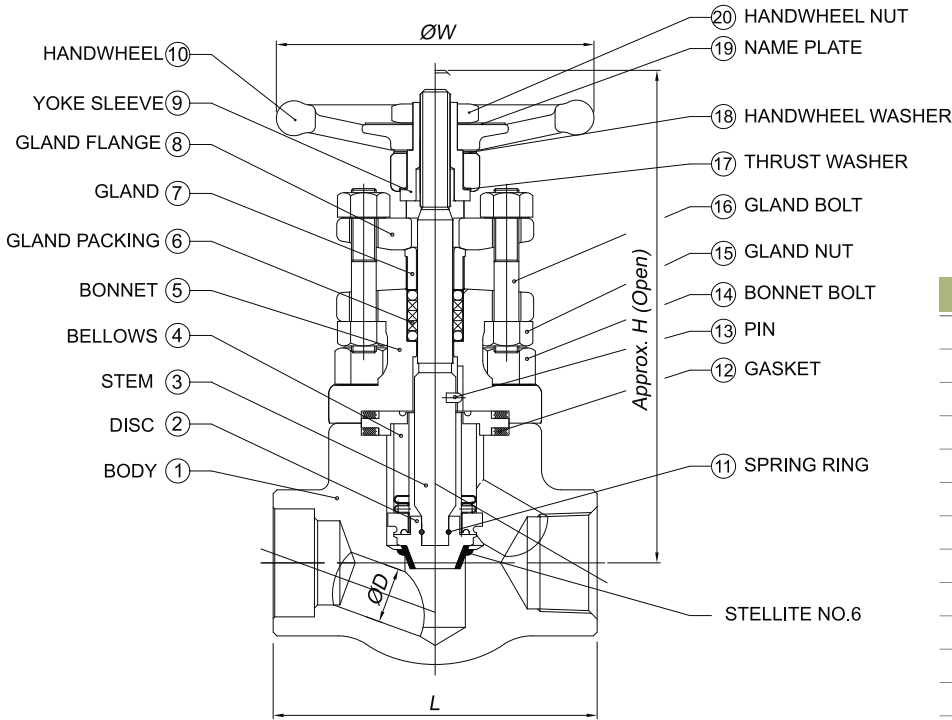
### Class 150 / 300 / 600 ■ Welded Bonnet Type.

Standard Bore.		-	1/2		3/4		1		1-1/4		1-1/2		2			
L(mm/in)	150		108	4.3	117	4.6	127	5	165	6.5	165	6.5	203	8		
	300		152	6	178	7	203	8	216	8.5	229	9	267	11		
	600		165	6.5	190	7.5	216	8.5	229	9.0	241	9.5	292	11		
H(mm/in)			200	7.9	200	7.9	230	9.1	270	11	270	11	350	14		
Ø D(mm/in)			9.5	0.4	12.5	0.5	17.5	0.7	28.5	1.1	28.5	1.1	36.5	1.4		
Ø W(mm/in)			100	3.9	100	3.9	100	3.9	140	5.5	140	5.5	160	6.3		
Wt.(kg)	150		3.0		3.8		5.5		10.8		11.0		16.0			
	300		3.5		4.5		6.8		11.8		12.0		17.5			
	600		3.8		4.8		7.2		12.0		13.0		18.2			

### Class 900 / 1500 ■ Welded Bonnet Type.

Standard Bore.			1/2		3/4		1		1-1/4		1-1/2		2		-
L(mm/in)			216	8.5	229	9	254	10	279	11.0	305	12	368	14	
H(mm/in)			290	11	290	11	305	12	340	13	340	13	420	17	
Ø D(mm/in)			9.5	0.4	12.5	0.5	19.0	0.7	30.0	1.2	30.0	1.2	38.0	1.5	
Ø W(mm/in)			100	3.9	100	3.9	140	5.5	160	6.3	160	6.3	200	7.9	
Wt.(kg)			7.5		11.0		15.7		27.0		27.5		37.0		

**CLASS 800 Standard Bore & Full Bore.**  
**SW/NPT/BW Ends.**



Basic Material List

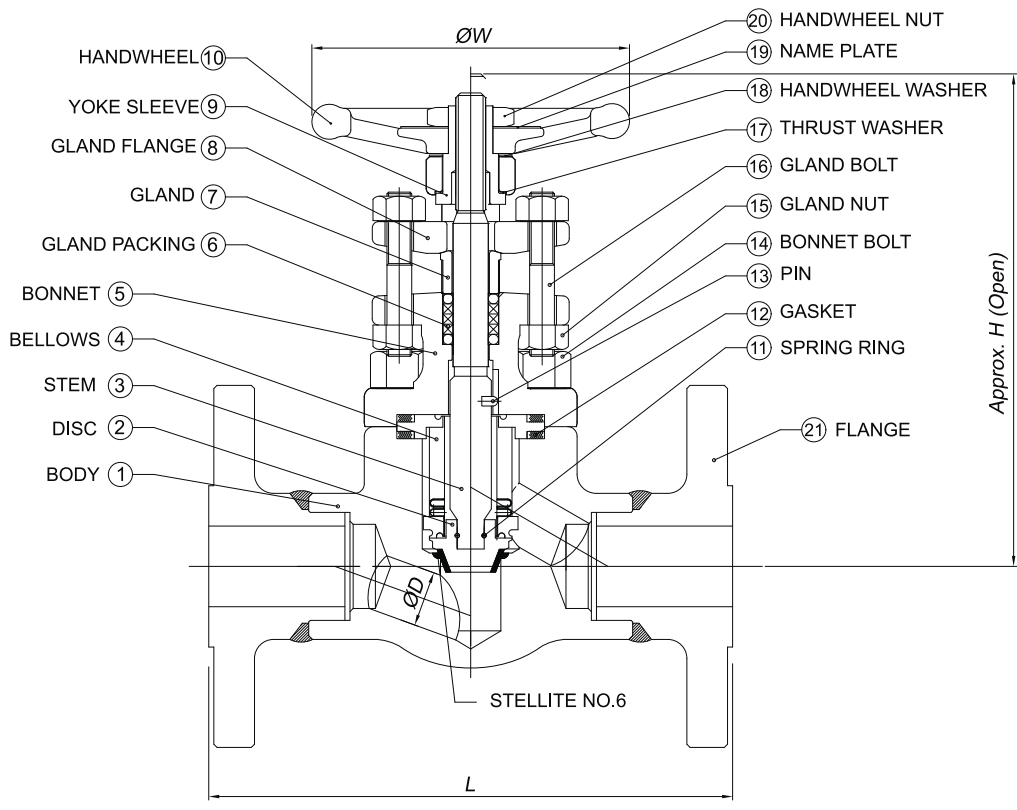
Body	A105
DISC	A276-410
Stem	A276-410
Gasket	Graphite+316L
Bonnet	A105
Bonnet Bolt	A193-B7
Gland Packing	Graphite
Gland	304
Gland Flunge	A105
Gland Nut	A194-2H
Gland Bolt	A193-B7
Yoke Bush	A582-416
Bellows	F316L or F321

**Class 800**    ■ Compact Bolted Bonnet Type.

Full Bore.	-	1/4		3/8		1/2		3/4		1		1-1/4, 1-1/2		2	
Standard Bore.	-	3/8		1/2		3/4		1		1-1/4, 1-1/2		2		-	
L(mm/in)		74	2.9	74	2.9	86	3.4	102	4.0	150	5.9	178	7.0		
H(mm/in)		200	7.9	200	7.9	200	7.9	240	9.4	270	11	320	13		
Ø D(mm/in)		9.5	0.4	9.5	0.4	12.5	0.5	17.5	0.7	28.5	1.1	36.5	1.4		
Ø W(mm/in)		82	3.2	82	3.2	100	3.9	100	3.9	140	5.5	160	6.3		
Wt.(kg)		2.0		2.0		2.5		3.5		7.0		12.0			



# CLASS 150 / 300 / 600 Standard Bore.

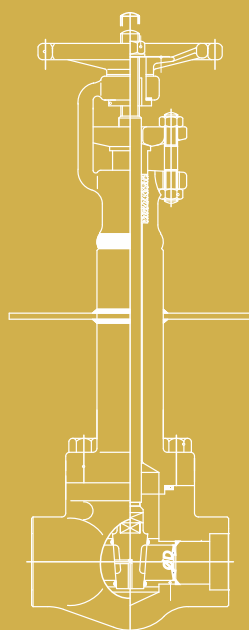


Bellows-Globe Valve

## Class 150 / 300 / 600 ■ Compact Bolted Bonnet Type.

Standard Bore.		-	1/2		3/4		1		1-1/4		1-1/2		2	
L(mm/in)	150		108	4.3	117	4.6	127	5	165	6.5	165	6.5	203	8
	300		152	6	178	7	203	8	216	8.5	229	9	267	11
	600		165	6.5	190	7.5	216	8.5	229	9.0	241	9.5	292	11
H(mm/in)			200	7.9	200	7.9	230	9.1	270	11	270	11	350	14
$\varnothing D$ (mm/in)			9.5	0.4	12.5	0.5	17.5	0.7	28.5	1.1	28.5	1.1	36.5	1.4
$\varnothing W$ (mm/in)			100	3.9	100	3.9	100	3.9	140	5.5	140	5.5	160	6.3
Wt.(kg)	150		3.0		3.8		5.5		10.8		11.0		16.0	
	300		3.5		4.5		6.8		11.8		12.0		17.5	
	600		3.8		4.8		7.2		12.0		13.0		18.2	

# Cryogenic Valves



## APPLICATION

Liquefied gases (such as hydrogen, helium, oxygen, nitrogen, natural gas, etc.) are extremely cold and therefore present technical problems for their production, transport and handling. OS cryogenic valves are specially designed to overcome these problems and provide safe and efficient service.

Basically, Cryogenic valves are supplied as extended bonnet type with enough length to secure stem packing .

### Temperatures of liquefied gases:

Type	Boiling point	
	°C	°F
Argon (A)	-186	-303
Carbon Dioxide (CO <sub>2</sub> )	-57	-70
Helium (He)	-267	-452
Hydrogen (H <sub>2</sub> )	-253	-423
Methane (CH <sub>4</sub> )	-162	-259
Natural Gas (LNG)	-168	-270
Nitrogen (N <sub>2</sub> )	-196	-320
Oxygen (O <sub>2</sub> )	-183	-297

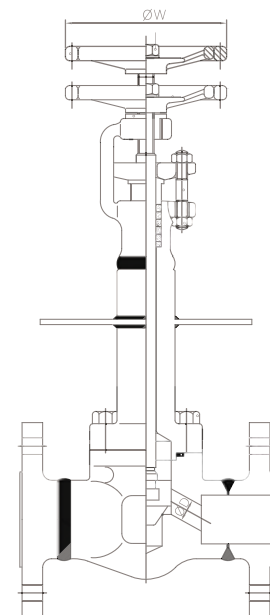
## DESIGN FEATURES

OS Valve designs according to international standards. For cryogenic valves, the following standards are used:

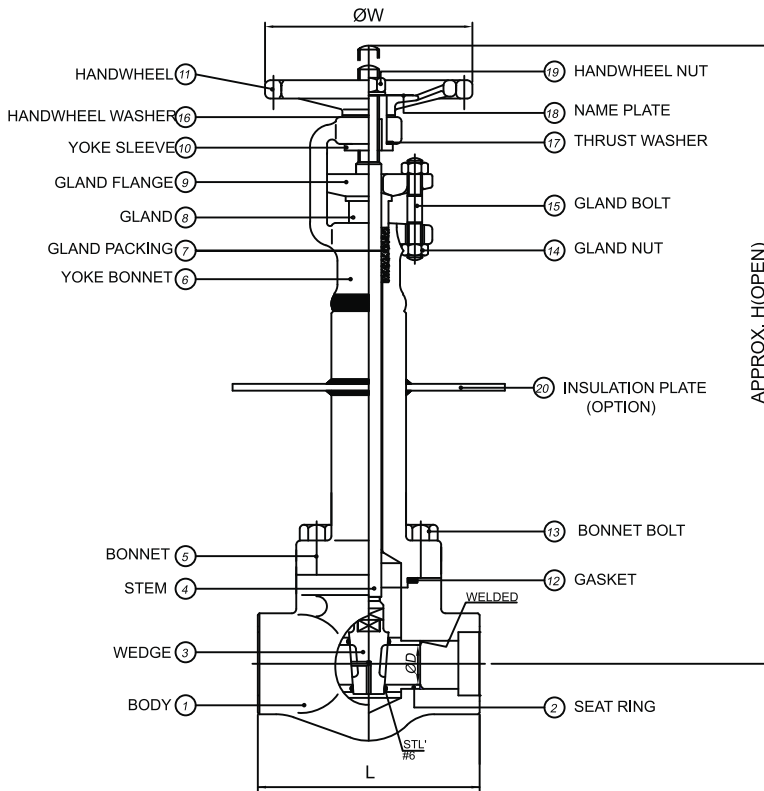
- \* General design:
  - API 602 (gate valves)
  - ASME B16.34/BS 5352 (globe and check valves)
- \* End flange dimension: ASME B16.5
- \* Butt weld end dimension: ASME B16.25
- \* Face to face & end to end: ASME B16.10
- \* Inspection: BS 6364

### Some special features used in the design:

- \* Both the seat and the wedge/disc are faced with Stellite 6 to prevent seizing and excessive wear.
- \* Prevent frost and ice formation around the packing box area end, minimize energy loss due to heat transfer from the operating fluid to the environment and to offer extra safety. The extended bonnet is designed to have a sufficient gas column length to prevent the stem packing from being exposed to the cold liquid.
- \* Austenitic stainless steel is used because of its poor thermal conductivity. It also offers excellent properties in the areas of corrosion resistance and impact strength
- \* Shell and trim parts are sub-zero treated with liquefied nitrogen



## CLASS 800/1500 Standard Bore & Full Bore. SW Ends.



API 602 / ASME B16.34		
ASTM Designation	A182	
Parts	F304/L	F316/L
Body	F304/L	F316/L
Seat Ring	A276-304L+STL	
Wedge	A351-CF3+*STL	
Stem	A276 - 316	
Gasket	304Spiral Wound Graphite	
Bonnet	F304/L	F316/L
Bonnet Bolt	A193 - B8	
Gland Packing	Graphoil	
Gland	316 Stainless Steel	
Gland Flange	A182 - F304	
Gland Nut	A194 - 8	
Gland Bolt	A193 - B8	
Yoke Sleeve	A582 - 416	
Handwheel	Carbon Steel	
Name Plate	304 Stainless Steel	
Handwheel Nut	Carbon Steel	
Yoke Bonnet	F304/L	F316/L

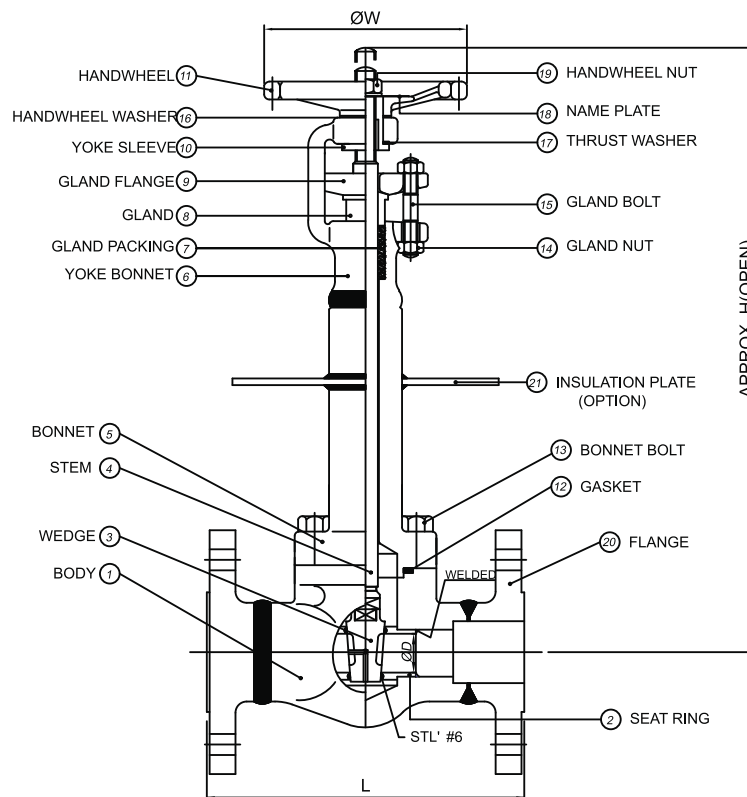
### Class 800

Full Bore.	-	1/4		3/8		1/2		3/4		1		1-1/4, 1-1/2		2	
Standard Bore.	-	3/8		1/2		3/4		1		1-1/4, 1-1/2		2		-	
L(mm/in)		74	2.91	74	2.91	86	3.39	102	4.0	116	4.57	140	5.5	220	8.66
H(mm/in)		357	14.1	357	14.1	361	14.2	426	16.8	491	19.3	552	21.7	562	22.1
Ø D(mm/in)		9.5	0.37	9.5	0.37	12.5	0.49	17.5	0.69	28.5	1.12	36.5	1.44	48	1.89
Ø W(mm/in)		100	3.94	100	3.94	100	3.94	100	3.94	140	5.51	160	6.3	200	7.9
Wt.(kg)		3.6		3.5		4.8		7.8		9.8		14.9		22	

### Class 1500

Full Bore.	-	1/4		3/8		1/2		3/4		1		1-1/4, 1-1/2		2	
Standard Bore.	-	3/8		1/2		3/4		1		1-1/4, 1-1/2		2		-	
L(mm/in)		86	3.39	86	3.39	102	4.0	116	4.57	140	5.5	220	8.66	220	8.66
H(mm/in)		361	14.2	361	14.2	426	16.8	491	19.3	552	21.7	562	22.1	56.2	22.1
Ø D(mm/in)		8.5	0.33	8.5	0.33	9.5	0.37	14.5	0.57	25.5	1.0	36.5	1.44	48	1.89
Ø W(mm/in)		100	3.94	100	3.94	100	3.94	140	5.51	160	6.3	200	7.87	200	7.9
Wt.(kg)		5.1		4.9		8.0		10.1		15.4		21.3		22	

## CLASS 150/300/600/900/1500 Standard Bore.



### Class 150 / 300 / 600

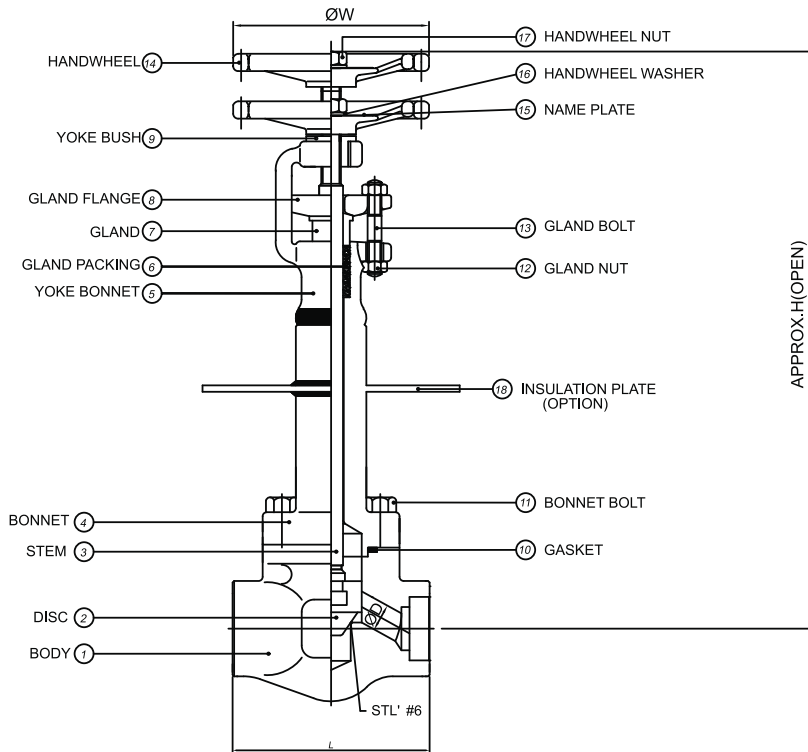
Standard Bore.		-	1/2		3/4		1		1-1/4		1-1/2		2		
L(mm/in)	150			108	4.3	117	4.6	127	5	165	6.5	165	6.5	178	7
	300			140	5.5	152	6	165	6.5	178	7.0	190	7.5	216	8.5
	600			165	6.5	190	7.5	216	8.5	229	9.0	241	9.5	292	11
H(mm/in)				357	14	361	14	426	17	491	19	491	19	552	22
Ø D(mm/in)				9.5	0.4	12.5	0.5	19.0	0.7	30.0	1.2	30.0	1.2	38.0	1.5
Ø W(mm/in)				100	3.9	100	3.9	100	3.9	140	5.5	140	5.5	160	6.3
Wt.(kg)	150			3.5		4.5		6.0		12.0		12.5		17.0	
	300			4.0		5.5		7.5		13.5		14.5		19.0	
	600			4.4		6.0		8.0		15.5		16.5		22.0	

### Class 900 / 1500

Standard Bore.		-	1/2		3/4		1		1-1/4		1-1/2		2		-
L(mm/in)				216	8.5	229	9	254	10	279	11.0	305	12	368	14
H(mm/in)				361	14	426	17	491	19	552	22	552	22	562	22
Ø D(mm/in)				9.5	0.4	12.5	0.5	19.0	0.7	30.0	1.2	30.0	1.2	38.0	1.5
Ø W(mm/in)				100	3.9	100	3.9	140	5.5	160	6.3	160	6.3	200	7.9
Wt.(kg)				9.0		11.0		17.0		30.0		31.0		42.0	

Cryogenic Valve

## CLASS 800/1500 Standard Bore & Full Bore. SW Ends.



ASME B16.34 / BS 5352		
ASTM Designation	A182	
Parts	F304/L	F316/L
Body	F304/L	F316/L
Seat Ring	Integral Hardfaced Stellite 6	
Wedge	A351-CF8M+*STL	
Stem	A276 - 316	
Gasket	316 Spiral Wound Graphite	
Bonnet	F304/L	F316/L
Bonnet Bolt	A193 - B8	
Gland Packing	Graphoil	
Gland	316 Stainless Steel	
Gland Flange	A182 - F304	
Gland Nut	A194 - 8	
Gland Bolt	A193 - B8	
Yoke Sleeve	A582 - 416	
Handwheel	Carbon Steel	
Name Plate	304 Stainless Steel	
Handwheel Nut	Carbon Steel	
Yoke Bonnet	F304/L	F316/L

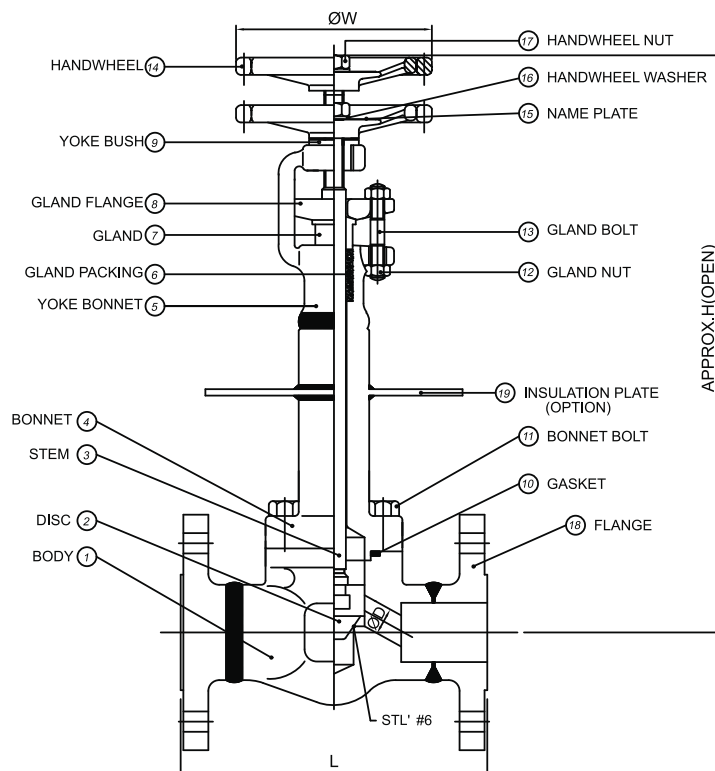
### Class 800

Full Bore.	-	1/4		3/8		1/2		3/4		1		1-1/4, 1-1/2		2	
Standard Bore.	-	3/8		1/2		3/4		1		1-1/4, 1-1/2		2		-	
L(mm/in)		74	2.9	74	2.9	86	3.4	102	4.0	150	5.9	178	7.0	220	8.66
H(mm/in)		360	14	360	14	364	14	427	17	479	19	540	21	560	22
Ø D(mm/in)		9.5	0.4	9.5	0.4	12.5	0.5	17.5	0.7	28.5	1.1	36.5	1.4	46	18.1
Ø W(mm/in)		100	3.9	100	3.9	100	3.9	100	3.9	140	5.5	160	3.3	200	7.9
Wt.(kg)		3.6		3.5		4.7		7.8		10.9		16.5		22	

### Class 1500

Full Bore.	-	1/4		3/8		1/2		3/4		1		1-1/4, 1-1/2		2	
Standard Bore.	-	3/8		1/2		3/4		1		1-1/4, 1-1/2		2		-	
L(mm/in)		86	3.4	86	3.4	102	4.0	150	5.9	178	7.0	220	8.66	220	8.66
H(mm/in)		364	14	364	14	427	17	479	19	540	21	560	22	560	22
Ø D(mm/in)		8.5	0.3	8.5	0.3	9.5	0.4	14.5	0.6	25.5	1.0	36.5	1.4	46	18.1
Ø W(mm/in)		100	3.9	100	3.9	100	3.9	140	5.5	160	6.3	200	7.9	200	7.9
Wt.(kg)		4.8		4.7		7.9		11.2		16.9		22.2		22	

## CLASS 150/300/600/900/1500 Standard Bore.



### Class 150 / 300 / 600

Standard Bore.		-	1/2	3/4	1	1-1/4	1-1/2	2		
L(mm/in)	150		108 4.25	117 4.61	127 5	165 6.5	165 6.5	203 7.99		
	300		152 5.98	178 7.01	203 7.99	216 8.5	229 9.02	267 10.5		
	600		165 6.5	190 7.48	216 8.5	229 9.0	241 9.49	292 11.5		
H(mm/in)			360 14.2	360 14.2	420 16.5	482 19	520 20.5	550 21.7		
Ø D(mm/in)			9.5 0.37	12.5 0.49	17.5 0.69	28.5 1.12	28.5 1.12	36.5 1.44		
Ø W(mm/in)			82 3.23	100 3.94	100 3.94	140 5.51	140 5.51	160 6.3		
Wt.(kg)	150		3.0	3.8	5.5	10.8	11.0	16.0		
	300		3.5	4.5	6.8	11.8	12.0	17.5		
	600		3.8	4.8	7.2	12.0	13.0	18.2		

### Class 900 / 1500

Standard Bore.			1/2	3/4	1	1-1/4	1-1/2	2	-
L(mm/in)			216 8.5	229 9.02	254 10	279 11.0	305 12	368 14.5	
H(mm/in)			365 14.4	365 14.4	425 16.7	475 18.7	535 21.1	560 22	
Ø D(mm/in)			9.5 0.37	12.5 0.49	19.0 0.75	30.0 1.18	30.0 1.18	38.0 1.5	
Ø W(mm/in)			100 3.94	100 3.94	140 5.51	160 6.3	160 6.3	200 7.87	
Wt.(kg)			7.5	11.0	15.7	27.0	27.5	37.0	

## FORGED STEEL BELLOWS SEAL GATE VALVE - API 602 / ASME B16.34

No.	ASTM Designation	A105N	A350		A182					A182				
	Parts		LF2	LF3	F304/L	F316/L	F321	F347	F51	F5	F9	F11	F22	F91
1	Body	A105	LF2	LF3	F304/L	F316/L	F321	F347	F51	F5	F9	F11	F22	F91
2	Seat Ring	A276-316+STL					A276-321+STL	A276-347+STL	UNS S31803+STL	A276-316+STL				
3	Wedge	A351-CF8M+STL					A276-321+STL	A276-347+STL	UNS S31803+STL	A351-CF8M+STL				
4	Stem	A276-316					A276-321	A276-347	UNS S31803	A276-316				
5	Gasket	304 Spiral Wound Graphite			316 SWG	321 SWG	347 SWG	Duplex SWG	304 Spiral Wound Graphite					
6	Bonnet	A105N	LF2	LF3	F304/L	F316/L	F321	F347	F51	F5	F9	F11	F22	F91
7	Bonnet Bolt	A193-B7	A320-L7		A193-B8 or B8M					A193 - B16				
8	Gland Packing	Graphoil												
10	Gland	304 Stainless Steel												
11	Gland Flange	A105		A182-F304					A105					
12	Gland Nut	A194-2H		A194-8					A194-2H					
13	Gland Bolt	A193-B7		A193-B8					A193-B7					
14	Yoke Sleeve	A582-416												
15	Handwheel	Carbon Steel												
16	Name Plate	Aluminium			Aluminium					Aluminium				
17	Handwheel Nut	Carbon Steel												
27	Grease Nipple	Option												
64	Bellows	321 Stainless Steel or Inconel 625 or 316L												

## FORGED STEEL BELLOWS SEAL GLOBE VALVE - ASME B16.34 / BS 5352

No.	ASTM Designation	A105N	A350		A182					A182				
	Parts		LF2	LF3	F304/L	F316/L	F321	F347	F51	F5	F9	F11	F22	F91
1	Body	A105	LF2	LF3	F304/L	F316/L	F321	F347	F51	F5	F9	F11	F22	F91
2	Seat Ring	Integral Hardfaced Stellite												
3	Disc	A351-CF8M+STL					A276-321+STL	A276-347+STL	UNS S31803+STL	A351-CF8M+STL				
4	Stem	A276-316					A276-321	A276-347	UNS S31803	A276-316				
5	Gasket	304 Spiral Wound Graphite			316 SWG	321 SWG	347 SWG	Duplex SWG	304 Spiral Wound Graphite					
6	Bonnet	A105N	LF2	LF3	F304/L	F316/L	F321	F347	F51	F5	F9	F11	F22	F91
7	Bonnet Bolt	A193-B7	A320-L7		A193-B8A					A193 - B16				
8	Gland Packing	Graphoil												
10	Gland	304 Stainless Steel												
11	Gland Flange	A105		A182-F304					A105					
12	Gland Nut	A194-2H		A194-8					A194-2H					
13	Gland Bolt	A193-B7		A193-B8					A193-B7					
14	Yoke Sleeve	A582-416												
15	Handwheel	Carbon Steel												
16	Name Plate	Aluminium			Aluminium					Aluminium				
17	Handwheel Nut	Carbon Steel												
27	Grease Nipple	Option												
64	Bellows	321 Stainless Steel or Inconel 625 or 316L												







# How To Order



Fig	Type	Fig	Bonnet Type	Fig	Bore Type	Fig	Class	Fig	End	Fig	Size	Fig	Shell Material	Fig	Trim			Fig	Jacket	Fig	Remarks
															Stem	Disc, Wedge, Ball	Seat				
GA	Gate	A	Conventional Bolted	14	Standard	14	125	A	SW	10	1/4"	A5	A105 / WCB	A1	13CR	13CR / STL6	13CR / STL6	O	Non Jacket	1	NACE
GL	Globe	B	Welded	15	Full	20	150	B	NPT	20	3/8"	L2	LF2 / LCB	A2	13CR	13CR / STL6	13CR / STL6	P	Semi Jacket	2	Position Indicator
NG	Needle Globe	C	Seal Welded	30	Special	30	300	C	SW * NPT	30	1/2"	F5	F5 / C5	B1	304	304, CF	304, CF8 / STL6	Q	Full Jacket	3	Locking device
SC	Swing Check	D	Pressure Seal	60		40	600	D	NPT * SW	40	3/4"	F1	F11 / WC6	B2	304	304, CF8 / STL6	304, CF8 / STL6			4	Special Paint
PC	Piston Check	E	Compact Bellows	80		50	800	E	SW * PE	50	1"	F2	F22 / WC9	C1	316	316, CF8M	316, CF8M / STL6			5	Actuator Opt
BC	Ball Check	F	BB Bellows	90		60	900	F	PE * SW	60	1 1/4"	F9	F9 / C12	C2	316	316, CF8M / STL6	316, CF8M / STL6			6	Insulation disc (for Cryogenic)
SP	Spring Piston	G	WB Bellows	50		70	1500	G	NPT * PE	70	1 1/2"	M8	316 / CF8M	D1	321	321	321 / STL6			7	Trunnion type
SB	Spring Ball	H	BB Bellows	20		80	2500	H	PE * NPT	80	2"	M3	316L / CF3M	D2	321	321 / STL6	321 / STL6			8	Mountain Flange
BA	Ball	I	WB Cryogenic	40		90	4500	I	RF	90	2 1/2"	M0	316H / CH10M	E1	347	347, CF8C	347, CF8C / STL6			9	Mountain Flange / Bracket
X0	Special	J	BB Extended	16		11	1690	J	FF	11	3"	MC	316DC / CF8M	E2	347	347, CF8C / STL6	347, CF8C / STL6				
		K	WB Extended	26		12	2690	K	RTJ	12	3 1/2"	F8	304 / CF8	F1	F51	F51	F51				
		X	Special	K1		13	10K	L	SW (JIS)	13	4"	F3	304L / CF3	F2	F53	F53	F53 / STL6				
				K2		X	20K	M	BW	X	Special	F0	304H / CH10	G1	ALLOY20	ALLOY20	ALLOY 20				
				K3			30K	X	Special			FC	347 / CF8C	H1	Inconel*	Inconel*	Inconel*				
				K4			40K					T2	321	H2	Incoloy*	Incoloy*	Incoloy*				
				K6			63K					G8	317 / CG8M	I1	Hastelloy*	Hastelloy*	Hastelloy*				
				X0			Special					G3	317L / CG3M	J1	Monel*	Monel*	Monel*				
												H2	309 / CH20	K1	Titanium	Titanium	Titanium				
												K2	310 / CK20	L1	F304	F304	PTFE				
												FC	F51 / CD3MN	L2	F304L	F304L	PTFE				
												FD	F53 / CD3MMCuN	M1	F316	F316	PTFE				
												FK	F44 / CK3MCuN	M2	F316L	F316L	PTFE				
												AN	Alloy20 / CN3MCu	N1	F304	F304	Metal seat				
												IC	Inconel*	N2	F304L	F304L	Metal seat				
												HA	Hastelloy*	O1	F316	F316	Metal seat				
												MO	Monel*	O2	F316L	F316L	Metal seat				
												TI	Titanium	P1	F304	F304	RTFE				
												AB	Al-Bronze	P2	F304L	F304L	RTFE				
												C9	F91 / C12A	Q1	F316	F316	RTFE				
												IY	Incoloy*	Q2	F316L	F316L	RTFE				
												X0	Special	X0	Special	Special	Special				

\* need to designate Grade



## PRODUCT SYSTEM

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