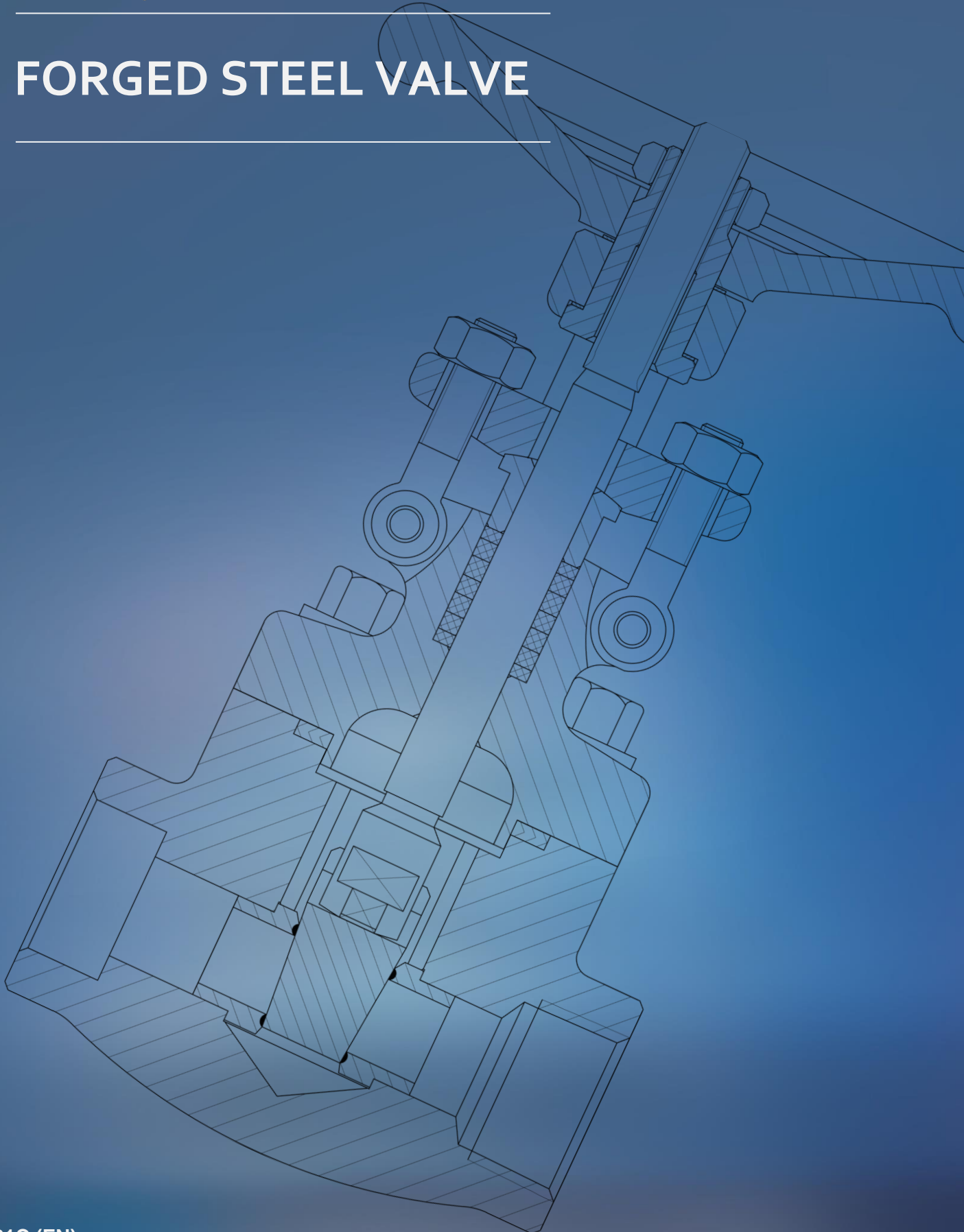


FORGED STEEL VALVE



ABOUT US

FBV Inc. is an ISO 9001 certified company specializing in manufacturing industrial valves including ball valves, gate valves, globe valves, check valves, plug valves and butterfly valves in carbon steel, stainless steel, duplex stainless and alloy materials. Our products conform to the latest industry standards in accordance to ANSI, ASME and API.

FBV today has over 600,000 square feet of manufacturing facilities. Through its conviction to provide only the finest quality products and services to match the need of our customers, FBV has now established itself as a serious player in the valve business.

FBV INC has sold worldwide in North America, Europe, South America, South Asia, Africa and the Middle East. We consider product quality and customer satisfaction as our highest priority. We look forward to new customer relationships by providing value, quality, customer service, honesty, integrity and the commitment to maintain product consistency with each and every order.

MISSION STATEMENT

We at FBV, Inc. commit to taking ACTION:

- Adopt the latest technology to take the product quality to the next level;
- Consistently provide on-time services to our customers;
- Train and develop talented people with strong work ethics to deliver effective performance;
- Improve and enhance engineering designs to ensure product performance;
- Optimize management systems and increase productivity;
- Never forget our customer and employee needs.



FORGED STEEL VALVE

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INTRODUCTION

FBV forged steel valve has the advantages of small volume and compact type. Bolted bonnet, welded bonnet, pressure bonnet, bellow seal bonnet, high/low temperature extended bonnet and ISO 15848 fugitive emission designed valves are available upon different request of services.

Forged Steel Gate Valve

FBV forged steel gate valves adopt solid gate, renewable seat, rising stem and non-ring hand wheel. It plays the role of pipe opening and closing ultimately through the rotation of the hand wheel to drive the lifting of gate.



Forged Steel Globe Valve

FBV forged globe valve offers non-renewable seat by default with rising stem and hand wheel. It blocks the flow of pipeline through the rotation and lifting of hand wheel as well as stem to drive the lift of disc. There is no relative friction between disc and body sealing surface. The globe valve has the feature of long service life for opening and closing, it can be used as a shut-off valve for small size pipeline.

Forged Steel Check Valve

FBV forged check valve is provided with a single disc. With the force of medium, the disc will automatically open or close around the fixed pin shaft. When the media stops the flow, the disc will be closed under its own force. No manual intervention is involved in the whole process;

Check valve is mainly to prevent the media reverse flow and ensure one-way flow of media channels only. It prevents accidents while a sudden loss of power in the pipeline medium such as the power equipment like pump damages, and the medium reverse flow against power source.



FORGED STEEL VALVE

SCOPE OF PRODUCTS

Forged Steel Valve (Gate, Globe, Check)

Legends: A – Available in Bolted Bonnet
B – Available in Welded Bonnet

C – Available in Pressure Seal Bonnet

Size in/mm	Class 150 PN 20	Class 300 PN 50	Class 600 PN 100	Class 800 PN 136	Class 900 PN 150	Class 1500 PN 250	Class 2500 PN 420
3/8 10	AB	AB	AB	ABC	ABC	ABC	BC
1/2 15	AB	AB	AB	ABC	ABC	ABC	BC
3/4 20	AB	AB	AB	ABC	ABC	ABC	BC
1 25	AB	AB	AB	ABC	ABC	ABC	BC
1-1/4 32	AB	AB	AB	ABC	ABC	ABC	BC
1-1/2 40	AB	AB	AB	ABC	ABC	ABC	BC
2 50	AB	AB	AB	ABC	ABC	ABC	BC
2-1/2 65	AB	AB	AB	A	C		
3 65							

1. The sizes listed above are normal diameters. Contact our sales representative if any other dimensions are requested;

FLOW COEFFICIENT (Cv)

Nominal Size in/mm	Gate Valve		Globe Valve / Piston Check valve			Swing Check Valve	
			T-Type		Y-Type		
	Regular Port	Full Port	Regular Port	Full Port	Full Port	Regular Port	Full Port
3/8 10	-	3.9	-	2.2	3	-	4.8
1/2 15	3.7	6.7	2	3.8	5.4	4.6	7.7
3/4 20	6.4	11.7	3.6	6	11.4	7.4	14.5
1 25	11.4	22.5	5.7	9.4	18	14.1	25.5
1-1/4 32	22	35.4	8.8	14.7	29.2	25.1	37
1-1/2 40	35	54.5	14.3	21.5	45.6	36.7	60.2
2 50	53.9	-	21.1	-	72	59.7	-

The above data remains the same based on different pressure rating;

CALCULATION OF FLOW COEFFICIENT

Flow coefficient Cv is the rate of flow in gallon per minute with the pressure drop of 1 psi across the valve. The flow coefficients shown in the above table are determined with equations as follows:

For liquids:

$$Q_l = C_v (\Delta P / SG)^{1/2}$$

Where:

Q_l = Flow of liquid (gallon/minute)
ΔP = Pressure drop in psi (P₁-P₂)
SG = Specific gravity (1 for liquid)

For gases (non-critical):

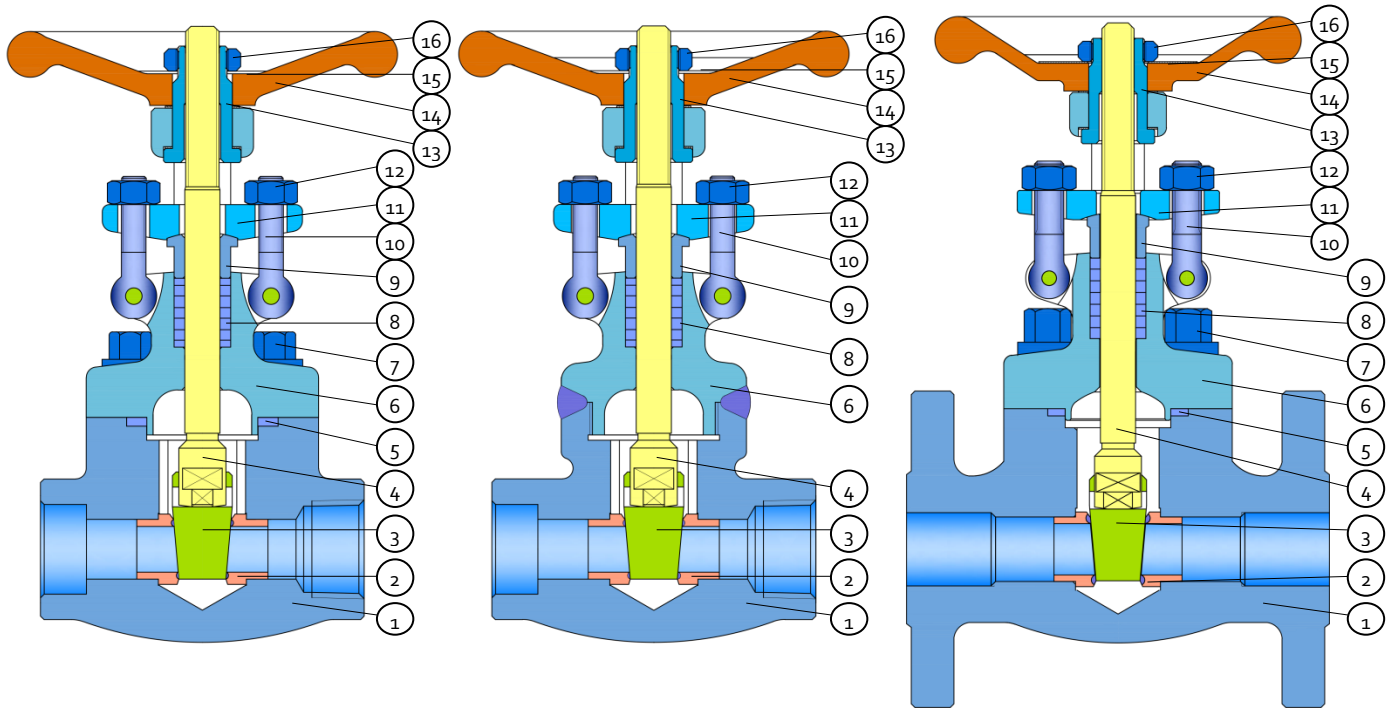
$$Q_g = 61 \cdot C_v (P_2 \cdot P_1 / SG)^{1/2}$$

Where:

Q_g = Flow of gases (SFH at STP)
P₂ = Outlet pressure (psi)
P₁ = Inlet pressure (psi)
SG = Specific gravity (1 for gas)

FORGED STEEL VALVE

OVERVIEW(Gate Valve)



Part List

① Body	⑤ Gasket	⑨ Gland	⑬ Stem Nut
② Seat Ring	⑥ Bonnet	⑩ Eyes Bolt	⑭ Handwheel
③ Disc	⑦ Bolt	⑪ Gland Flange	⑮ Nameplate
④ Stem	⑧ Packing	⑫ Nut	⑯ Nut

Standards

Design & Manufacture	API 602, ISO 15761, ASME B16.34	
Face-to-face	FBV'STD, ASME B16.10	
End Dimension	ASME B1.20.1 (NPT) ASME B16.11 (SW) ASME B16.25 (BW) ASME B16.5 (RF, RTJ),	
Test & Inspection	API 598	
Typical Materials	Body, Bonnet,Disc	A105,A350 LF2, LF3, LF5, A182 F304, F304L, F316, F316L, F51, F53, F5,F11,F22,F91, Monel, Inconel, Hastelloy
	Stem	A276 410, F304, F304L, F316, F316L, F51, F53, Monel, Inconel, Hastelloy

FORGED STEEL VALVE

DIMENSIONS AND WEIGHTS (Gate Valve)

	CL800	<i>Bolt Bonnet (BB)/Welding Bonnet (WB), Reduce Port (RP)/Full Port (FP), Outside Screw and Yoke (OS&Y), Thread (NPT), Socket Weld (SW), Butt Weld (BW)</i>							
	Size (NPS)	R.P	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2
		F.P	3/8	1/2	3/4	1	1-1/4	1-1/2	2
	Face To Face	L	79	92	111	120	120	140	178
	Handwheel Diameter	W	100	100	125	160	160	180	200
	Height	H	165	169	207	230	249	283	333
	Flow Port Diameter	d	10.3	13.5	18	23	29	36	45
	Weight (Kg)	B.B	2.2	2.4	4.1	5.5	7.5	10	19
		W.B	2.1	2.3	4	5.5	7.3	9.5	18.5

	CL900~CL1500	<i>Bolt Bonnet (BB)/Welding Bonnet (WB), Reduce Port (RP)/ Full Port (FP), Outside Screw and Yoke (OS&Y), Thread (NPT), Socket Weld (SW), Butt Weld (BW)</i>							
	Size (NPS)	R.P	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2
		F.P	3/8	1/2	3/4	1	1-1/4	1-1/2	2
	Face To Face	L	92	111	120	120	140	178	
	Handwheel Diameter	W	100	125	160	160	180	200	
	Height	H	169	207	230	249	283	333	
	Flow Port Diameter	d	10.3	13.5	18	23	29	36	
	Weight (Kg)	B.B	2.4	4.1	6.2	6.2	8.7	12.5	
		W.B	2.2	4	6	6	8.5	12	

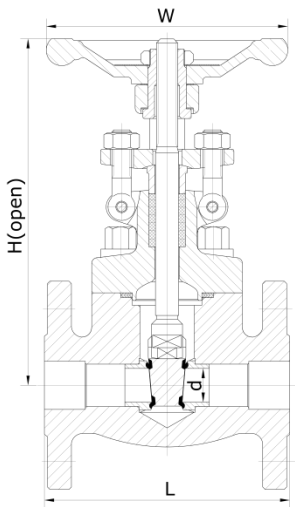
	CL2500	<i>Welding Bonnet (WB), Reduce Port (RP)/Full Port (FP), Outside Screw and Yoke (OS&Y), Thread (NPT), Socket Weld (SW), Butt Weld (BW)</i>							
	Size (NPS)	R.P	3/8	1/2	3/4	1	1-1/4	1-1/2	2
	Face To Face	L		120	120	120	140	178	178
	Handwheel Diameter	W		160	160	160	180	200	200
	Height	H		230	235	249	283	333	333
	Flow Port Diameter	d		10.3	13.5	18	23	29	36
	Weight (Kg)	W.B		6.5	6.5	6.5	9	13	13

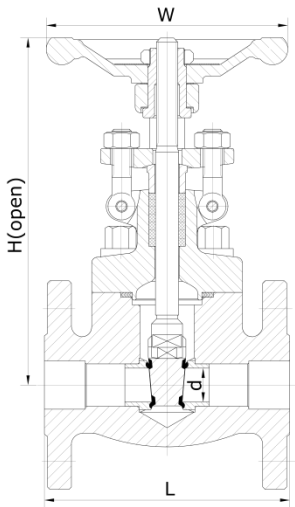
The dimension and weights are for reference only and subject to change without notice.

- For more size or dimensional information, please contact our sales representative.
- CL800 covers CL150, CL300, CL600, CL1500 covers CL900, CL1500.

FORGED STEEL VALVE

DIMENSIONS AND WEIGHTS (Gate Valve)

	CL150~CL600		<i>Bolt Bonnet (BB). Reduce Port (RP), Outside Screw and Yoke (OS&Y), Flanged (RF/RTJ)</i>							
	Size (NPS)	R.P	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	
	Face To Face	CL150	L (RF)	108	117	127	140	165	178	
		CL300		140	152	165	178	190	216	
		CL600		165	190	216	229	241	292	
	Handwheel Diameter	W	100	100	125	160	160	180		
	Height	H	165	169	207	230	249	283		
	Flow Port Diameter	d	10.3	13.5	18	23	29	36		
	Weight (Kg)	CL150	B.B	4.1	4.8	7.1	10	11.6	20	
		CL300		4.8	6.7	10	13.6	17.2	24	
CL600		5.4		7.4	10.6	15	19.2	28.8		

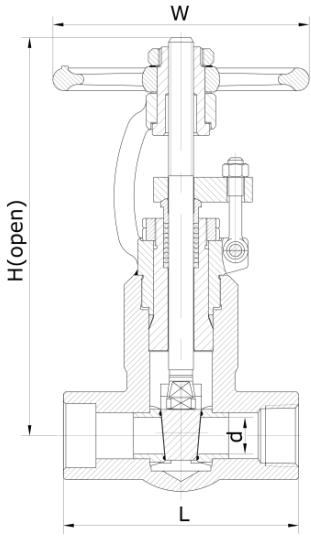
	CL900~CL1500		<i>Bolt Bonnet (BB). Reduce Port (RP), Outside Screw and Yoke (OS&Y), Flanged (RF/RTJ)</i>							
	Size (NPS)	R.P	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2	
	Face To Face	CL90	L (RF)	216	229	254	279	305	368	
		CL1500								
	Handwheel Diameter	W	125	125	160	160	180	180		
	Height	H	169	207	230	249	283	333		
	Flow Port Diameter	d	10.3	13.5	18	23	29	36		
	Weight (Kg)	CL900	B.B	10.1	13	18.3	26	32.8	54	
		CL1500								

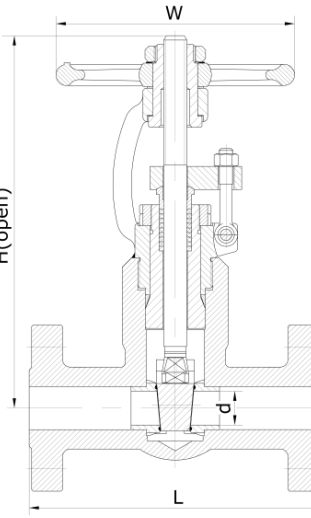
The dimension and weights are for reference only and subject to change without notice.

1. The flanged valve are defaulted by integral flange;
2. For more size or dimensional information, please contact our sales representative.

FORGED STEEL VALVE

DIMENSIONS AND WEIGHTS (Gate Valve - Pressure Seal Bonnet)

	CL900~CL2500		<i>Pressure Seal Bonnet (PSB), Full Port (FP), Outside Screw and Yoke (OS&Y), Thread(NPT), Socket Weld(SW), Butt Weld (BW)</i>							
	Size (NPS)		F.P	3/8	1/2	3/4	1	1-1/4	1-1/2	2
	Face To Face	CL900	L	140	140	140	140	178	178	216
		CL1500		182	182	182	182	232	232	272
	Handwheel Diameter	CL900	W	200	200	200	200	280	280	300
		CL1500		200	200	200	200	280	280	300
		CL2500		200	200	200	200	280	280	300
	Height	CL900	H	308	308	315	315	446	446	540
CL1500		325		325	325	325	460	460	550	
CL2500		325		325	325	325	460	460	550	
Flow Port Diameter		d	8	10.3	13.5	18	23	29	36	
Weight (Kg)	CL900	PSB	9	9	9	9	26	26	36	
	CL1500		11.9	11.9	11.8	11.7	30	28	42	
	CL2500		11.9	11.9	11.8	11.7	30	28	42	

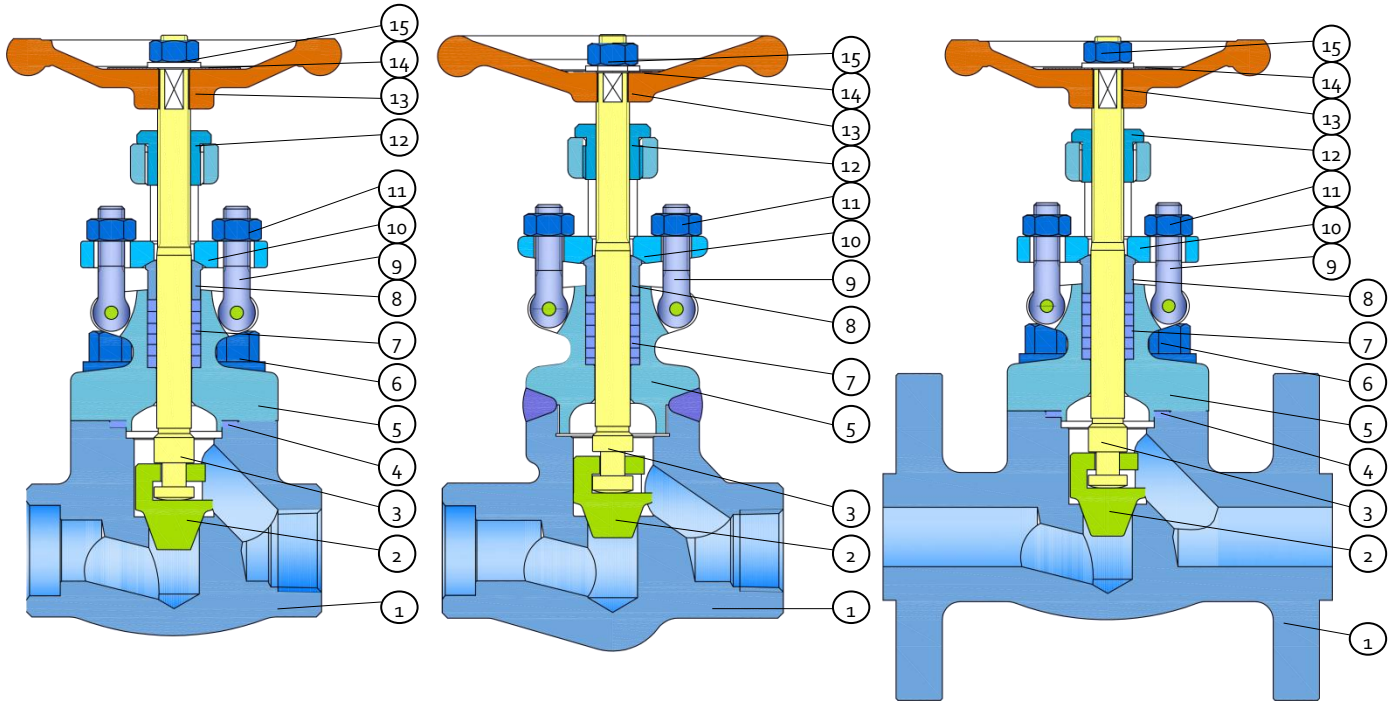
	CL900~CL2500		<i>Pressure Seal Bonnet (PSB), Full Port (FP), Outside Screw and Yoke (OS&Y), Flanged (RF/RTJ)</i>							
	Size (NPS)		F.P	3/8	1/2	3/4	1	1-1/4	1-1/2	2
	Face To Face	CL900	L (RF)		216	229	254	279	305	368
		CL1500			264	273	308	349	384	451
	Handwheel Diameter	CL900	W		200	200	200	280	280	300
		CL1500			200	200	200	280	280	300
		CL2500			200	200	200	280	280	300
	Height	CL900	H		308	315	315	446	446	540
CL1500				325	325	325	460	460	550	
CL2500				325	325	325	460	460	550	
Flow Port Diameter		d		10.3	13.5	18	23	29	36	
Weight (Kg)	CL900	PSB		11.9	13.7	18	36.8	37	45	
	CL1500			13	17	22	30	42	58	
	CL2500			13	17	22	30	42	58	

The dimension and weights are for reference only and subject to change without notice.

- 1.The flanged valve are defaulted by integral flange;
- 2.For more size or dimensional information, please contact our sales representative.

FORGED STEEL VALVE

OVERVIEW (Globe Valve)



Part List

① Body	⑤ Bonnet	⑨ Eyes Bolt	⑬ Handwheel
② Disc	⑥ Bolt	⑩ Gland Flange	⑭ Nameplate
③ Stem	⑦ Packing	⑪ Nut	⑮ Nut
④ Gasket	⑧ Gland	⑫ Stem Nut	

Standards

Design & Manufacture API 602, ISO 15761, ASME B16.34

Face-to-face FBV'STD, ASME B16.10

End Dimension
 ASME B1.20.1 (NPT)
 ASME B16.11 (SW)
 ASME B16.25 (BW)
 ASME B16.5 (RF, RTJ),

Test & Inspection API 598

Typical Materials
 Body, Bonnet, Disc A105, A350 LF2, LF3, LF5, A182 F304, F304L, F316, F316L, F51, F53, F5, F11, F22, F91, Monel, Inconel, Hastelloy
 Stem A276 410, F304, F304L, F316, F316L, F51, F53, Monel, Inconel, Hastelloy

FORGED STEEL VALVE

DIMENSIONS AND WEIGHTS (Globe Valve)

	CL800	Bolt Bonnet (BB)/ Welding Bonnet (WB), Reduce Port (RP)/Full Port (FP), Outside Screw and Yoke (OS&Y), Thread (NPT), Socket Weld (SW), Butt Weld (BW)							
	Size (NPS)	R.P	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2
		F.P	3/8	1/2	3/4	1	1-1/4	1-1/2	2
	Face To Face	L	79	92	111	120	152	172	220
	Handwheel Diameter	W	100	100	125	160	160	180	200
	Height	H	170	172	207	228	270	320	356
	Flow Port Diameter	d	10.5	13.5	17	22	28	34	44
	Weight (Kg)	B.B	2.2	2.4	4.1	5.7	7.6	12.2	21
W.B		1.9	2.1	3.9	5.5	7.4	11.6	19.7	

	CL900~CL1500	Bolt Bonnet (BB)/ Welding Bonnet (WB), Reduce Port (RP)/Full Port (FP), Outside Screw and Yoke (OS&Y), Thread (NPT), Socket Weld (SW), Butt Weld (BW)							
	Size (NPS)	R.P	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2
		F.P	3/8	1/2	3/4	1	1-1/4	1-1/2	2
	Face To Face	L	92	111	120	152	172	220	
	Handwheel Diameter	W	100	125	160	160	180	200	
	Height	H	172	207	228	270	320	387	
	Flow Port Diameter	d	10.5	13.5	17	22	28	34	
	Weight (Kg)	B.B	4.1	5.6	6.7	7.6	12.2	21	
W.B		3.8	5.4	6.5	7.4	12	20.2		

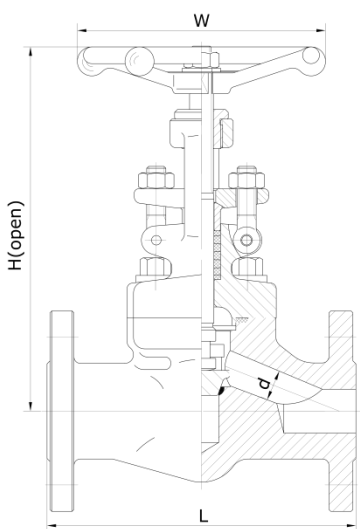
	CL2500	Welding Bonnet (WB), Reduce Port (RP)/Full Port (FP), Outside Screw and Yoke (OS&Y), Thread (NPT), Socket Weld (SW), Butt Weld (BW)							
	Size (NPS)	R.P	3/8	1/2	3/4	1	1-1/4	1-1/2	2
		F.P							
	Face To Face	L		120	120	152	172	220	220
	Handwheel Diameter	W		160	160	160	180	200	200
	Height	H		228	228	270	320	387	396
	Flow Port Diameter	d		10.5	13.5	17	22	28	34
	Weight (Kg)	W.B		6.7	6.5	7.6	12.2	21	20.7

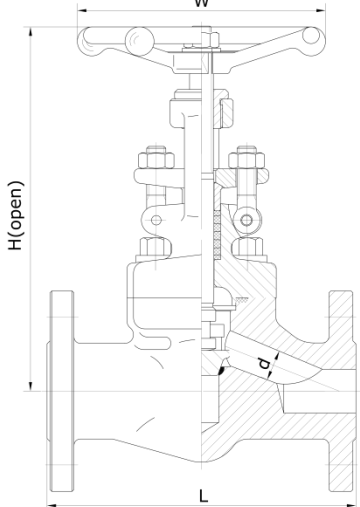
The dimension and weights are for reference only and subject to change without notice.

1. For more size or dimensional information, please contact our sales representative.

FORGED STEEL VALVE

DIMENSIONS AND WEIGHTS (Globe Valve)

	CL150~CL600		<i>Bolt Bonnet (BB), Reduce Port (RP), Outside Screw and Yoke (OS&Y), Flanged (RF/RTJ)</i>							
	Size (NPS)		R.P	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2
	Face To Face	CL150	L (RF)	108	117	127	140	165	203	
		CL300		152	178	203	216	229	267	
		CL600		165	190	216	229	241	292	
	Handwheel Diameter		W	100	100	125	160	160	180	
	Height		H	170	172	207	228	270	320	
	Flow Port Diameter		d	10.5	13.5	17	22	28	34	
	Weight (Kg)	CL150	B.B	4.1	4.8	7.1	10	12.7	21	
		CL300		4.8	6.7	10	14.5	18.3	25.2	
CL600		5.4		7.4	11	16	19.2	28.8		

	CL900~CL1500		<i>Bolt Bonnet (BB), Reduce Port (RP), Outside Screw and Yoke (OS&Y), Flanged (RF/RTJ)</i>							
	Size (NPS)		R.P	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2
	Face To Face	CL900	L (RF)	216	229	254	279	305	368	
		CL1500								
	Handwheel Diameter		W	100	100	125	160	160	180	
	Height		H	170	172	207	228	270	320	
	Flow Port Diameter		d	10.5	13.5	17	22	28	34	
	Weight (Kg)	CL900	B.B	10.1	13	18.3	26	32.8	54	
		CL1500								

The dimension and weights are for reference only and subject to change without notice.

1. The flanged valve are defaulted by integral flange;
2. For more size or dimensional information, please contact our sales representative.

FORGED STEEL VALVE

DIMENSIONS AND WEIGHTS (Globe Valve-Pressure Seal Bonnet)

	CL900~CL2500		<i>Pressure Seal Bonnet (PSB), Full Port (FP), Outside Screw and Yoke (OS&Y), Thread (NPT), Socket Weld (SW), Butt Weld (BW)</i>							
	<i>Size (NPS)</i>	<i>F.P</i>	<i>3/8</i>	<i>1/2</i>	<i>3/4</i>	<i>1</i>	<i>1-1/4</i>	<i>1-1/2</i>	<i>2</i>	
	<i>Face To Face</i>	<i>CL900</i>	<i>L</i>	<i>140</i>	<i>140</i>	<i>140</i>	<i>140</i>	<i>178</i>	<i>178</i>	<i>216</i>
		<i>CL1500</i>		<i>182</i>	<i>182</i>	<i>182</i>	<i>182</i>	<i>232</i>	<i>232</i>	<i>272</i>
	<i>Handwheel Diameter</i>	<i>CL900</i>	<i>W</i>	<i>160</i>	<i>160</i>	<i>160</i>	<i>160</i>	<i>180</i>	<i>180</i>	<i>200</i>
		<i>CL1500</i> <i>CL2500</i>		<i>160</i>	<i>160</i>	<i>160</i>	<i>160</i>	<i>180</i>	<i>180</i>	<i>200</i>
	<i>Height</i>	<i>CL900</i>	<i>H</i>	<i>325</i>	<i>325</i>	<i>325</i>	<i>325</i>	<i>430</i>	<i>430</i>	<i>495</i>
<i>CL1500</i> <i>CL2500</i>		<i>330</i>		<i>330</i>	<i>330</i>	<i>330</i>	<i>480</i>	<i>480</i>	<i>530</i>	
<i>Flow Port Diameter</i>		<i>d</i>	<i>8</i>	<i>13.5</i>	<i>17</i>	<i>22</i>	<i>28</i>	<i>34</i>	<i>42</i>	
<i>Weight (Kg)</i>	<i>CL900</i>	<i>PSB</i>	<i>9</i>	<i>9</i>	<i>8.9</i>	<i>8.8</i>	<i>26</i>	<i>25.6</i>	<i>45</i>	
	<i>CL1500</i> <i>CL2500</i>		<i>12.3</i>	<i>12.3</i>	<i>11.6</i>	<i>11</i>	<i>26</i>	<i>28.4</i>	<i>60</i>	

	CL900~CL2500		<i>Pressure Seal Bonnet (PSB), Full Port (FP), Outside Screw and Yoke (OS&Y), Flanged (RF/RTJ)</i>							
	<i>Size (NPS)</i>	<i>F.P</i>	<i>3/8</i>	<i>1/2</i>	<i>3/4</i>	<i>1</i>	<i>1-1/4</i>	<i>1-1/2</i>	<i>2</i>	
	<i>Face To Face</i>	<i>CL900</i>	<i>L (RF)</i>		<i>216</i>	<i>229</i>	<i>254</i>	<i>279</i>	<i>305</i>	<i>368</i>
		<i>CL1500</i>			<i>264</i>	<i>273</i>	<i>308</i>	<i>349</i>	<i>384</i>	<i>451</i>
	<i>Handwheel Diameter</i>	<i>CL900</i>	<i>W</i>		<i>160</i>	<i>160</i>	<i>160</i>	<i>180</i>	<i>180</i>	<i>200</i>
		<i>CL1500</i> <i>CL2500</i>			<i>160</i>	<i>160</i>	<i>160</i>	<i>180</i>	<i>180</i>	<i>200</i>
	<i>Height</i>	<i>CL900</i>	<i>H</i>		<i>325</i>	<i>325</i>	<i>325</i>	<i>430</i>	<i>430</i>	<i>495</i>
<i>CL1500</i> <i>CL2500</i>				<i>330</i>	<i>330</i>	<i>330</i>	<i>480</i>	<i>480</i>	<i>530</i>	
<i>Flow Port Diameter</i>		<i>d</i>		<i>13.5</i>	<i>17</i>	<i>22</i>	<i>28</i>	<i>34</i>	<i>42</i>	
<i>Weight (Kg)</i>	<i>CL900</i>	<i>PSB</i>		<i>11.9</i>	<i>13.7</i>	<i>18</i>	<i>36.8</i>	<i>37</i>	<i>45</i>	
	<i>CL1500</i> <i>CL2500</i>			<i>13</i>	<i>17</i>	<i>22</i>	<i>30</i>	<i>42</i>	<i>58</i>	

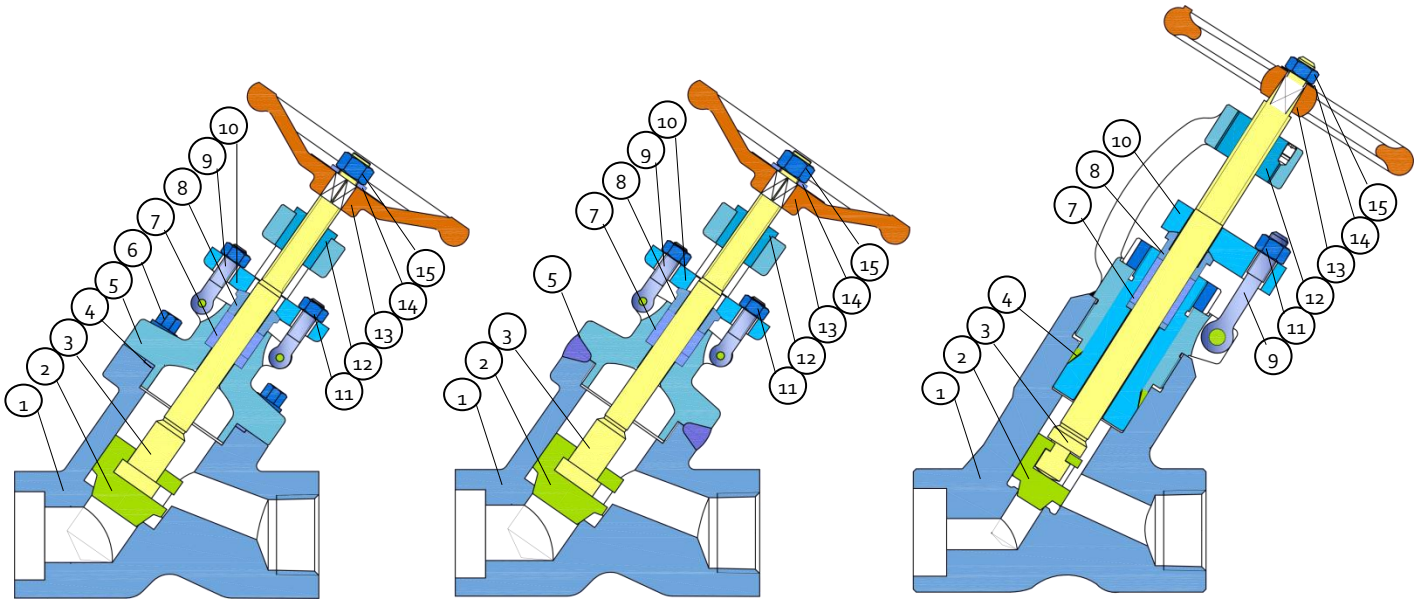
The dimension and weights are for reference only and subject to change without notice.

3. The flanged valve are defaulted by integral flange;

4. For more size or dimensional information, please contact our sales representative.

FORGED STEEL VALVE

DIMENSIONS AND WEIGHTS (Globe Valve-Y-Type)



Part List

① Body	⑤ Bonnet	⑨ Eyes Bolt	⑬ Handwheel
② Disc	⑥ Bolt	⑩ Gland Flange	⑭ Nameplate
③ Stem	⑦ Packing	⑪ Nut	⑮ Nut
④ Gasket	⑧ Gland	⑫ Stem Nut	

Standards

Design & Manufacture ASME B16.34

Face-to-face FBV'STD

End Dimension ASME B1.20.1 (NPT)
ASME B16.11 (SW)
ASME B16.25 (BW)
ASME B16.5 (RF, RTJ),

Test & Inspection API 598

Typical Materials
 Body, Bonnet, Disc A105, A350 LF2, LF3, LF5, A182 F304, F304L, F316, F316L, F51, F53, F5, F11, F22, F91, Monel, Inconel, Hastelloy
 Stem A276 410, F304, F304L, F316, F316L, F51, F53, Monel, Inconel, Hastelloy

FORGED STEEL VALVE

DIMENSIONS AND WEIGHTS (Globe Valve-Y-Type)

	CL800	<i>Bolt Bonnet (BB)/ Welding Bonnet (WB), Full Port (FP), Outside Screw and Yoke (OS&Y), Thread (NPT), Socket Weld (SW), Butt Weld (BW)</i>							
	Size (NPS)	F.P	3/8	1/2	3/4	1	1-1/4	1-1/2	2
	Face To Face	L	100	100	100	120	140	140	172
	Handwheel Diameter	W	100	125	160	160	160	180	200
	Height	H	180	180	188	280	280	295	350
	Flow Port Diameter	d	10	13.5	17	22	28	34	42
	Weight (Kg)	B.B	3.8	4.6	4.6	9.3	14	14	19.6
	W.B	3.7	4.5	4.5	9	13.5	13.5	19.1	

	CL900~CL1500	<i>Bolt Bonnet (BB)/ Welding Bonnet (WB), Full Port (FP), Outside Screw and Yoke (OS&Y), Thread (NPT), Socket Weld (SW), Butt Weld (BW)</i>							
	Size (NPS)	F.P	3/8	1/2	3/4	1	1-1/4	1-1/2	2
	Face To Face	L	100	100	120	140	140	172	220
	Handwheel Diameter	W	125	160	160	160	180	200	200
	Height	H	180	188	280	280	295	350	365
	Flow Port Diameter	d	10	13.5	17	22	28	34	42
	Weight (Kg)	B.B	4.6	4.6	9.3	14	14	19.6	38.6
	W.B	4.5	4.5	9	13.5	13.5	19.1	38	

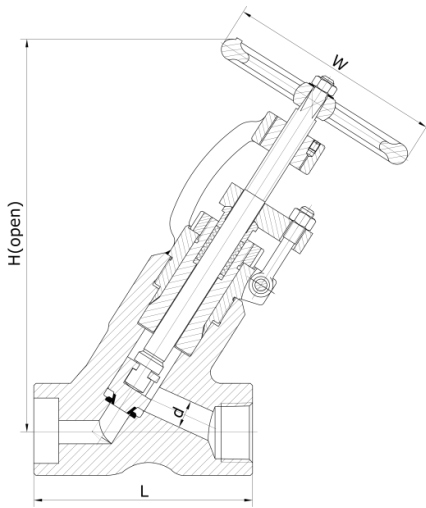
	CL2500	<i>Welding Bonnet (WB), Full Port (FP), Outside Screw and Yoke (OS&Y), Thread (NPT), Socket Weld (SW), Butt Weld (BW)</i>							
	Size (NPS)	F.P	3/8	1/2	3/4	1	1-1/4	1-1/2	2
	Face To Face	L		120	140	140	172	220	232
	Handwheel Diameter	W		160	160	180	200	200	250
	Height	H		280	280	295	350	365	400
	Flow Port Diameter	d		17	22	28	34	42	55
	Weight (Kg)	W.B		9.3	14	14	19.6	38.6	53.5

The dimension and weights are for reference only and subject to change without notice.

1. For more size or dimensional information, please contact our sales representative.

FORGED STEEL VALVE

DIMENSIONS AND WEIGHTS (Globe Valve-Pressure Seal Bonnet)

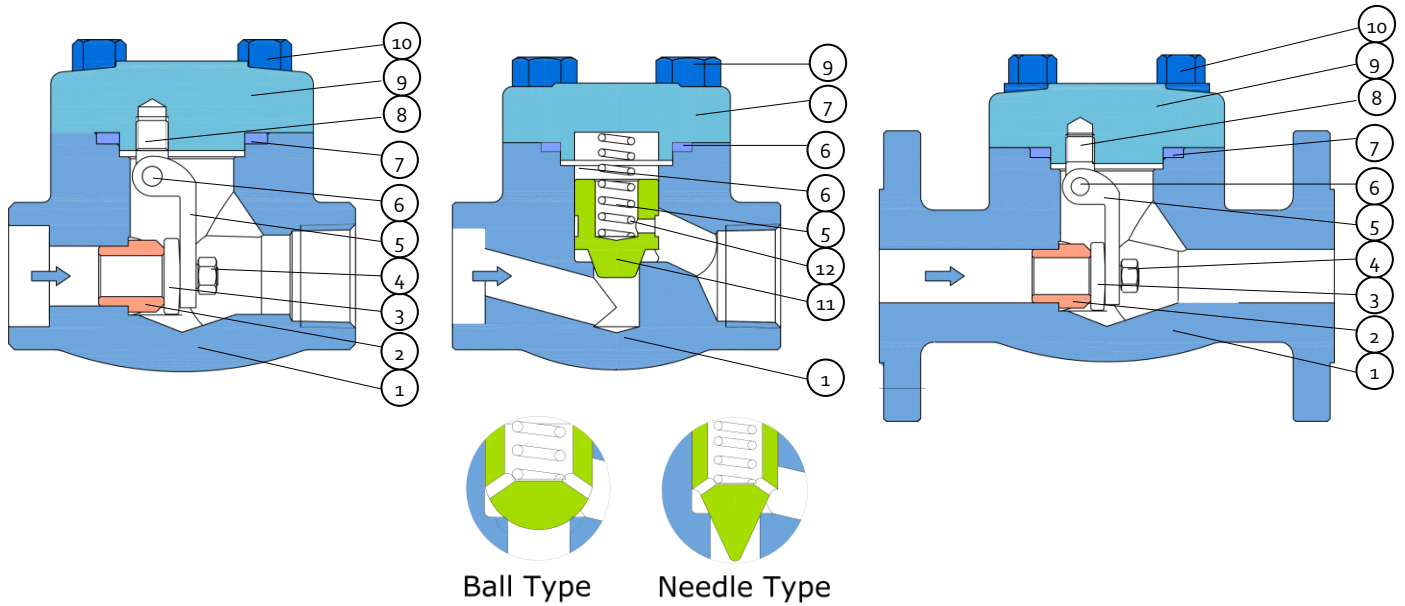
	CL900~CL2500		<i>Pressure Seal Bonnet (PSB), Full Port (FP), OutSide Screw and Yoke (OS&Y), Thread (NPT), Socket Weld (SW), Butt Weld (BW)</i>							
	Size (NPS)		F.P	3/8	1/2	3/4	1	1-1/4	1-1/2	2
	Face To Face	CL900 CL1500	L	140	140	140	140	232	232	232
		CL2500		140	140	140	140	232	232	272
	Handwheel Diameter	CL900 CL1500	W	160	160	160	180	200	200	250
		CL2500		160	160	160	180	200	200	250
	Height	CL900 CL1500	H	280	280	280	295	350	365	400
		CL2500		280	280	280	295	350	365	420
	Flow Port Diameter		d	13	17	22	28	34	42	55
	Weight (Kg)	CL900 CL1500	PSB	12.5	12.5	12.5	12.5	28	26.5	36
CL2500		12.5		12.5	12.5	12.5	28	26.5	42	

The dimension and weights are for reference only and subject to change without notice.

1. For more size or dimensional information, please contact our sales representative.

FORGED STEEL VALVE

OVERVIEW (Check Valve)



Part List

① Body	⑤ Hinge	⑨ Cover
② Seat	⑥ Pin	⑩ Bolt
③ Disc	⑦ Gasket	⑪ Plug
④ Nut	⑧ Bolt	⑫ Spring

Standards

Design & Manufacture API 602, ISO 15761, ASME B16.34

Face-to-face FBV'STD, ASME B16.10

End Dimension
 ASME B1.20.1 (NPT)
 ASME B16.11 (SW)
 ASME B16.25 (BW)
 ASME B16.5 (RF, RTJ),

Test & Inspection API 598

Typical Materials
 Body, Cover, Disc
 A105, A350 LF2, LF3, LF5, A182 F304, F304L, F316, F316L, F51, F53, F5, F11, F22, F91, Monel, Inconel, Hastelloy

Hinge
 A351 CF8M, Monel, Inconel, Hastelloy

FORGED STEEL VALVE

DIMENSIONS AND WEIGHTS (Check Valve - Swing Type)

	CL800	Bolt Cover (BC)/ Welding Cover (WC) Reduce Port (RP)/Full Port (FP) Thread (NPT), Socket Weld (SW), Butt Weld (BW)							
	Size (NPS)	R.P	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2
		F.P	3/8	1/2	3/4	1	1-1/4	1-1/2	2
	Face To Face	L	79	92	111	120	120	140	
	Height	H	55	60	80	90	100	105	
	Flow Port Diameter	d	10.5	13.5	17	22	28	34	
	Weight (Kg)	B.B	1.8	2	3.8	4.5	5.5	9	
W.B		1.7	1.9	3.6	4.3	5.3	8.7		

	CL900 CL1500	Bolt Cover (BC)/ Welding Cover (WC) Reduce Port (RP)/Full Port (FP) Thread (NPT), Socket Weld (SW), Butt Weld (BW)							
	Size (NPS)	R.P	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2
		F.P	3/8	1/2	3/4	1	1-1/4	1-1/2	2
	Face To Face	L	92	111	120	120	140	178	
	Height	H	60	80	90	100	105	115	
	Flow Port Diameter	d	10.5	13.5	17	22	28	34	
	Weight (Kg)	B.B	2	3.9	4.5	5.5	9	16	
W.B		1.9	3.6	4.3	5.3	8.7	15.5		

	CL2500	Welding Cover (WC), Reduce Port (RP)/Full Port (FP) Thread (NPT), Socket Weld (SW), Butt Weld (BW)							
	Size (NPS)	R.P	3/8	1/2	3/4	1	1-1/4	1-1/2	2
	Face To Face	L		120	120	120	140	178	178
	Height	H		90	100	105	115	115	115
	Flow Port Diameter	d		10.5	13.5	17	22	28	34
	Weight (Kg)	W.B		4.5	5.5	9	16	23	23

The dimension and weights are for reference only and subject to change without notice.

1. For more size or dimensional information, please contact our sales representative.

FORGED STEEL VALVE

DIMENSIONS AND WEIGHTS (Check Valve - Lift Type)

	CL800	<i>Bolt Cover (BC)/ Welding Cover (WC) Reduce Port (RP)/ Full Port (FP) Thread (NPT), Socket Weld (SW), Butt Weld (BW)</i>							
	Size (NPS)	R.P	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2
		F.P	3/8	1/2	3/4	1	1-1/4	1-1/2	2
	Face To Face	L	79	92	111	120	152	172	
	Height	H	55	55	65	80	85	105	
	Flow Port Diameter	d	10.5	13.5	17	22	28	34	
Weight (Kg)	B.B	1.2	1.5	2.1	3.5	4.8	7.6		
	W.B	1.1	1.3	2	3.3	4.6	7.4		

	CL900 CL1500	<i>Bolt Cover (BC)/ Welding Cover (WC) Reduce Port (RP)/ Full Port (FP) Thread (NPT), Socket Weld (SW), Butt Weld (BW)</i>							
	Size (NPS)	R.P	1/2	3/4	1	1-1/4	1-1/2	2	2-1/2
		F.P	3/8	1/2	3/4	1	1-1/4	1-1/2	2
	Face To Face	L	92	111	120	152	172	220	
	Height	H	55	65	80	85	105	115	
	Flow Port Diameter	d	10.5	13.5	17	22	28	34	
Weight (Kg)	B.B	1.5	2.1	3.5	4.8	7.6	12.5		
	W.B	1.3	2	3.3	4.6	7.4	12.1		

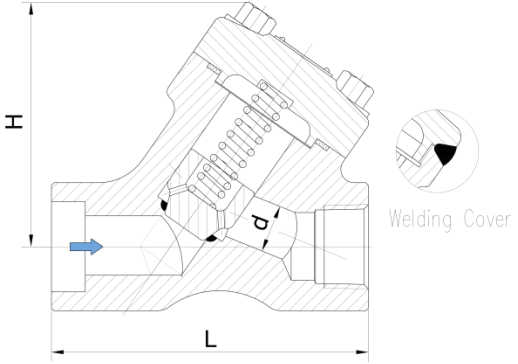
	CL2500	<i>Welding Cover (WC), Reduce Port (RP)/Full Port (FP) Thread (NPT), Socket Weld (SW), Butt Weld (BW)</i>							
	Size (NPS)	R.P	3/8	1/2	3/4	1	1-1/4	1-1/2	2
	Face To Face	L		120	120	152	172	220	220
	Height	H		80	80	85	105	115	115
	Flow Port Diameter	d		10.5	13.5	17	22	28	34
	Weight (Kg)	W.B		3.5	3.5	4.8	7.6	12.5	12.5

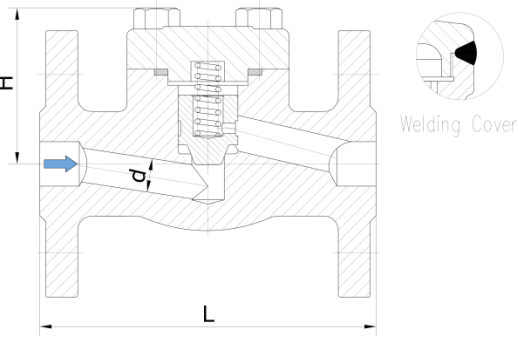
The dimension and weights are for reference only and subject to change without notice.

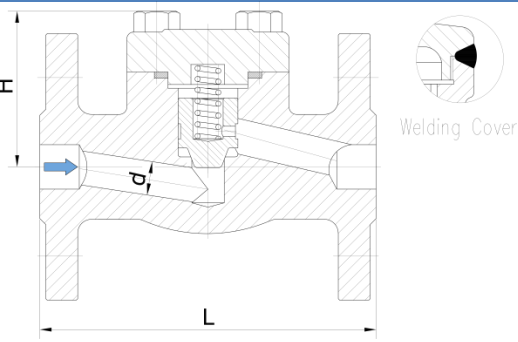
1. For more size or dimensional information, please contact our sales representative.

FORGED STEEL VALVE

DIMENSIONS AND WEIGHTS (Check Valve)

	CL800		<i>Bolt Cover (BC)/ Welding Cover (WC)</i>						
	CL900~CL1500		<i>Full Port (FP)</i>						
			<i>Thread (NPT), Socket Weld (SW), Butt Weld (BW)</i>						
	Size (NPS)		F.P	1/2	3/4	1	1-1/4	1-1/2	2
	Face To Face	CL800	L	100	100	120	140	140	172
		CL900		100	120	140	140	172	220
	CL1500								
Height	H		70	70	70	100	110	120	
Flow Port Diameter	d		13.5	17	22	28	34	44	
Weight (Kg)	CL800	B.B	2.2	2.2	2.2	4.2	9	9	
			W.B	2.1	2.1	2.1	4	8.8	8.8
	CL900	B.B	4.2	9	9	10	18.6	20	
			W.B	4	8.8	8.8	9.7	18.2	19.5

	CL150~CL600		<i>Bolt Cover (BC)/ Welding Cover (WC)</i>						
			<i>Reduce Port (RP),</i>						
			<i>Flanged (RF/RTJ)</i>						
	Size (NPS)		R.P	1/2	3/4	1	1-1/4	1-1/2	2
	Face To Face	CL150	L (RF)	108	117	127	140	165	203
		CL300		152	178	203	216	229	267
		CL600		165	190	216	229	241	292
Height	H		55	55	65	80	85	105	
Flow Port Diameter	d		10.5	13.5	17	22	28	34	
Weight (Kg)	CL150	B.B	3.5	3.5	4.7	8.5	11.5	13	
	CL300		3.5	3.5	5.6	8.6	12	14	
	CL600		3.5	3.5	6.5	10.5	16	22	

	CL900		<i>Bolt Cover (BC)/ Welding Cover (WC)</i>						
	CL1500		<i>Reduce Port (RP),</i>						
			<i>Flanged (RF/RTJ)</i>						
	Size (NPS)		R.P	1/2	3/4	1	1-1/4	1-1/2	2
	Face To Face	CL900	L (RF)	216	229	254	279	305	368
		CL1500							
	Height	H		55	55	65	80	85	105
Flow Port Diameter	d		10.5	13.5	17	22	28	34	
Weight (Kg)	CL150	B.B	4.5	5.8	8.7	14.5	22	32	
	CL300								

The dimension and weights are for reference only and subject to change without notice.

1. The flanged valve are defaulted by integral flange.
2. For more size or dimensional information, please contact our sales representative.

FORGED STEEL VALVE

DIMENSIONS AND WEIGHTS (Check Valve - Pressure Seal Cover)

	CL900~CL2500		Pressure Seal Bonnet (PSB), Reduce Port (RP), Thread (NPT), Socket Weld (SW), Butt Weld (BW)							
	Size (NPS)	R.P	3/8	1/2	3/4	1	1-1/4	1-1/2	2	
	Face To Face	CL900	L	140	140	140	140	178	178	216
		CL1500		182	182	182	182	232	232	272
	CL2500	182		182	182	182	232	232	272	
	Height	H	115	115	115	115	150	150	195	
	Flow Port Diameter	d	8	10.3	13.5	18	23	29	36	
Weight (Kg)	CL900	PSB	7.5	7.5	7.5	7.5	10.5	10.3	22	
	CL1500		11.8	11.8	11	11	23	26.5	39	
	CL2500									

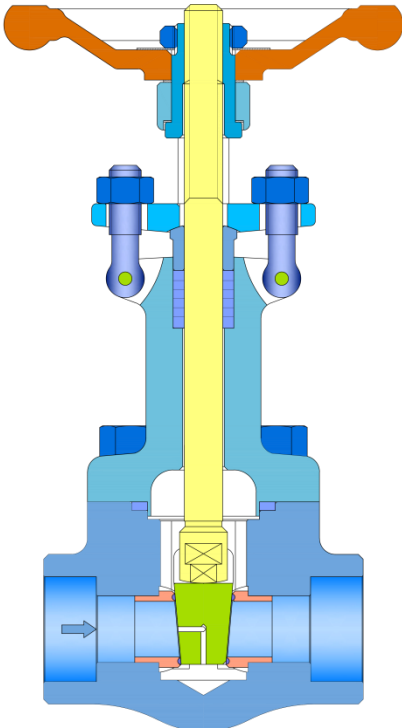
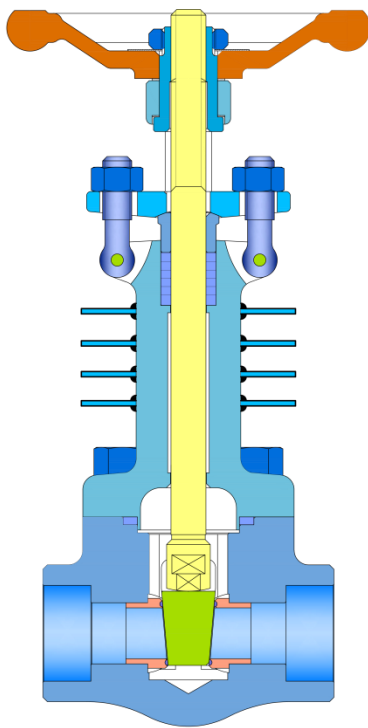
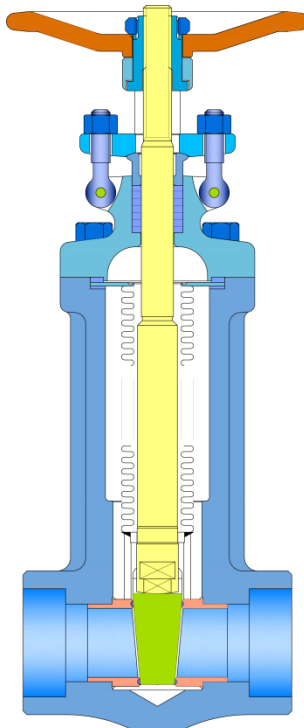
	CL900~CL2500		Pressure Seal Bonnet (PSB), Full Port (FP), Outside Screw and Yoke (OS&Y), Thread (NPT), Socket Weld (SW), Butt Weld (BW)							
	Size (NPS)	R.P	3/8	1/2	3/4	1	1-1/4	1-1/2	2	
	Face To Face	CL900	L	140	140	140	140	178	178	216
		CL1500		182	182	182	182	232	232	272
	CL2500	182		182	182	182	232	232	272	
	Height	H	115	115	115	115	150	150	195	
	Flow Port Diameter	d	8	13.5	17	22	28	34	42	
Weight (Kg)	CL900	PSB	7.5	7.5	7.5	7.5	10.5	10.3	22	
	CL1500		11.8	11.8	11	11	23	26.5	39	
	CL2500									

	CL900~CL2500		Pressure Seal Bonnet (PSB), Reduce Port (RP), Flanged (RF/RTJ)							
	Size (NPS)	R.P	3/8	1/2	3/4	1	1-1/4	1-1/2	2	
	Face To Face	CL900	L (RF)		216	229	254	279	305	368
		CL1500			264	273	308	349	384	451
	CL2500			264	273	308	349	384	451	
	Height	H		115	115	115	150	150	195	
	Flow Port Diameter	d		13.5	17	22	28	34	42	
Weight (Kg)	CL900	PSB		10.5	12	14	20	27	33	
	CL1500			13	15	17	25	30	35	
	CL2500									

1. The flanged valve are defaulted by integral flange.
2. The dimension and weights are for reference only and subject to change without notice.
3. For more dimensional information, please contact our sales representative.

FORGED STEEL VALVE

OVERVIEW (Special Type Forge Steel Valve)

		
<p>Low Temperature Extension</p>	<p>High Temperature Extension</p>	<p>Bellow Seal Extension</p>
<p>Structure characteristics:</p> <ol style="list-style-type: none"> 1. The bonnet are extended for low temperature service, the packing position are raised to avoid the freeze of packing which will affect packing sealing performance; 2. The gate valve shall have relief hole on upstream direction while the pressure may remain in the cavity; 3. Low temperature cold isolation can be an option to prevent cold heat exchange 	<p>Structure characteristics:</p> <ol style="list-style-type: none"> 1. The high temperature extended structure is mainly to prevent scald operator during operation. 2. The cooling fin can be selected to help heat radiation. 	<p>Structure characteristics:</p> <ol style="list-style-type: none"> 1. Bellow seal extension has the bellow inside of the cavity, the effective compression of the bellows must be greater than the opening stroke of the valve; 2. Bellow seal structure can effectively reduce the leakage of valve stem, the primary seal is for bellows and secondary seal as a filler.
<ol style="list-style-type: none"> 1. The above schematics for extension are based on gate valves , it can apply to both forged gate and globe valve; 2. Welded bonnet is available other than the above mentioned bolted bonnet. 		

FORGED STEEL VALVE

VALVE FIGURE NUMBER

HOW TO ORDER

Nominal Size	Valve Type	Pressure Rating	End Conn.	Construction	Body Material	Trim Material	Seat	O-ring	Operation Mode
A	B	C	D	E	F	G	H	I	J
e.g. R 1	C H	8	S	1	C 1	0 1	R	o	X

is a NPS 1x3/4 Class 800, Check Valve, Swing Type, Socket Welding, A105 body, 13Cr Trim, Renewable Seat, No O-ring, No operation.

A Nominal Size

oo Modified	Ro 3/4 RB	F5 1 1/2 (DN 40)	3R 2 1/2 RB
F1 3/8 (DN 10)	o1 1 (DN 25)	2R 1 1/2 RB	o3 3 (DN 80)
F2 1/2 (DN 15)	R1 1 RB	o2 2 (DN 50)	R3 3 RB
oR 1/2 RB	F4 1 1/4 (DN 32)	R2 2 RB	o4 4 (DN 100)
F3 3/4 (DN 20)	1R 1 1/4 RB	F6 2 1/2 (DN 65)	R4 4 RB

B Valve Type

GA Gate Valve
GL Globe Valve
CH Check Valve

C Pressure Rating

o Modified	7 Class 2500
1 Class 150	9 Class 900
3 Class 300	8 Class 800
5 Class 1500	2 Class 125(PN16)
6 Class 600	4 Class 400(PN64)

D End Connection

X Other	B Butt-Weld (BW)
R RF Flanged	S Socket-Weld (SW)
J RTJ Flanged	
F FF Flanged	
T Threaded	

E Construction

GA

1 Flexible wedge, Bolted Bonnet, OS&Y
2 Flexible wedge, Welded Bonnet, OS&Y
3 Flexible wedge, Pressure Seal, OS&Y
4 Flexible wedge, Bellow Seal, OS&Y
5 Solid wedge, Bolted Bonnet, OS&Y
6 Solid wedge, Welded Bonnet, OS&Y
7 Solid wedge, Pressure Seal, OS&Y
8 Solid wedge, Bellow Seal, OS&Y
9 Knife gate valve

CH

1 Swing, Bolt Cover
2 Swing, welded Cover
3 Swing, Pressure Seal
4 Lift Type, Bolted Cover
5 Lift Type, Welded Cover
6 Single Plate, Wafer
7 Dual Plate
8 Lift Type, Pressure Seal
9 Axial flow disc

GL

1 Straight pattern, Bolted Bonnet, OS&Y
2 Straight pattern, Welded Bonnet, OS&Y
3 Straight pattern, Pressure Seal, OS&Y
4 Y- pattern, Bolted Bonnet, OS&Y
5 Y- pattern, Welded Bonnet, OS&Y
6 Y- pattern, Pressure Seal, OS&Y
7 Straight pattern, bellow seal, OS&Y

F Body Material

Xo Other	L1 A350 LF1	S9 A182 F347	A1 B564 No4400(Monel 400)
C1 A105	L3 A350 LF2 CL1	SA A182 F317	A3 B865 No5500(Monel K500)
M1 A182 F1	L5 A350 LF3	SB A182 F321	A7 B462 N10276 (Hastelloy C276)
M3 A182 F2	L7 A350 LF5	SC A182 F304H	B1 B564 No6625 (Alloy Inconel 625)
M5 A182 F12 CL 2	L9 A350 LF6	SE A182 F316H	B3 B564 No8825 (Alloy Inconel 825)
M7 A182 F11 CL 2	LA A350 LF9	SG A182 F304(L) Dual	H4 B150 C63000 Al-Bronze Rod, Bar
M9 A182 F22 CL 3	S1 A182 F304	SH A182 F316(L) Dual	H5 B150 C63200 Al-Bronze Rod, Bar
E1 A182 F5	S3 A182 F304L	D1 A182 F51	
E5 A182 F9	S5 A182 F316	D3 A182 F53	
E7 A182 F91	S7 A182 F316L	D5 A182 F55	

FORGED STEEL VALVE

VALVE FIGURE NUMBER

HOW TO ORDER

Nominal Size	Valve Type	Pressure Rating	End Conn.	Construction	Body Material	Trim Material	Seat	O-ring	Operation Mode
A	B	C	D	E	F	G	H	I	J
R 1	C H	8	S	1	C 1	0 1	R	o	X

e.g.

is a NPS 1x3/4 Class 800, Check Valve, Swing Type, Socket Welding, A105 body, 13Cr Trim, Renewable Seat, No O-ring, No operation.

G Trim Material

00 Other	09 Monel/Monel/Monel	18 Stellite 6/Stellite 6/Alloy 20	43 304/Stellite 6/304
01 13Cr/13Cr/410	10 316/316/316	20 304L /304L /304L	44 Inconel 625/Inconel 625/Inconel 625
02 304/304/304	0A Stellite 6/13Cr/410	21 316L /316L /316L	45 317/317/317
03 310/310/310	0B Stellite 6/316/316	22 UNS 32100/UNS 32100/F321	46 321/321/321
04 Hard 13Cr/Hard 13Cr/410	11 Monel/Stellite 6/Monel	23 UNS S32760/UNS S32760/F55	47 347/347/347
05 Stellite 6/Stellite 6/410	12 316/Stellite 6/316	24 UNS S31803/UNS S31803/F51	48 304H/304H/304H (ASTM A479)
5A Ni-Cr/Ni-Cr/410	13 Alloy 20/Alloy 20 /Alloy 20	25 UNS S32750/UNS S32750/F53	49 316H/316H/316H (ASTM A479)
06 13Cr/Cu-Ni/410	14 Alloy 20/Stellite 6/Alloy 20	32 316L /Stellite 6/316L	50 304(L) Dual/304(L) Dual/304(L) Dual
07 13Cr/Hard 13Cr /410	15 Stellite 6/Stellite 6/304	33 Stellite 6/Stellite 6/316L	51 316(L) Dual/316(L) Dual/316(L) Dual
08 13Cr/Stellite 6/410	16 Stellite 6/Stellite 6/316	34 304L /Stellite 6/304L	
8A 13Cr/Ni-Cr/410	17 Stellite 6/Stellite 6/347	35 Stellite 6/Stellite 6/304L	

H Seat

- R Renewable Metal
- N Non Renewable Metal

I O-Ring

- o No o-ring

J Operation

- | | |
|-------------------------------|-----------------------|
| H Handwheel | B Bare stem |
| V Handwheel w/ locking device | P Pneumatic |
| G Gearbox | N Pneumatic-Hydraulic |
| F Gearbox w/ locking device | E Electric |
| C Gear w/chain | X No operation |
| | Q Other |

HOW THE FIGURE NUMBER SYSTEM WORKS

Introduction. Figure number system uses a code consisting 14 digits of letters and numbers to represent the specification of a valve of certain specification. Among 14 digits, they are separated into 10 groups identified by letters from A to J. Each group represents a parameter of a valve, together they contain almost all the essential parameters of the valve.

Uses. Using the figure number system to generate a code is easy. Under each group, the code is shown on the left while on the right is the meaning of the code. Start by selecting a code from group A, through group J. If the specification of the valve is not listed, select the code for "Other". The total length of the figure number shall be exactly 14 digits.

Cautions. It is advised that you have as detailed the specification as possible to generate a figure number, which means eliminating "Other". If you don't have enough specification or information about the valve you are ordering, or you're not sure how to use the system to generate a figure number, contact one of our sales representatives for help.

Note: FBV reserves the right to make any modifications without notice.z





Offshore



Onshore

Pipeline



Refinery



IMPORTANT NOTICE

- All dimensions in inches not listed in standards are converted from millimeters. Weights in lbs (pounds) are converted from kilograms.
- Data listed in the catalog, including dimensions, weights, specifications and other valve related data are intended to provide general information and guidance only.
- FBV Inc. assumes no responsibility for errors or inadequacy relevant to any information provided in this catalog. Any information provided in this catalog is subject to change without notice.



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