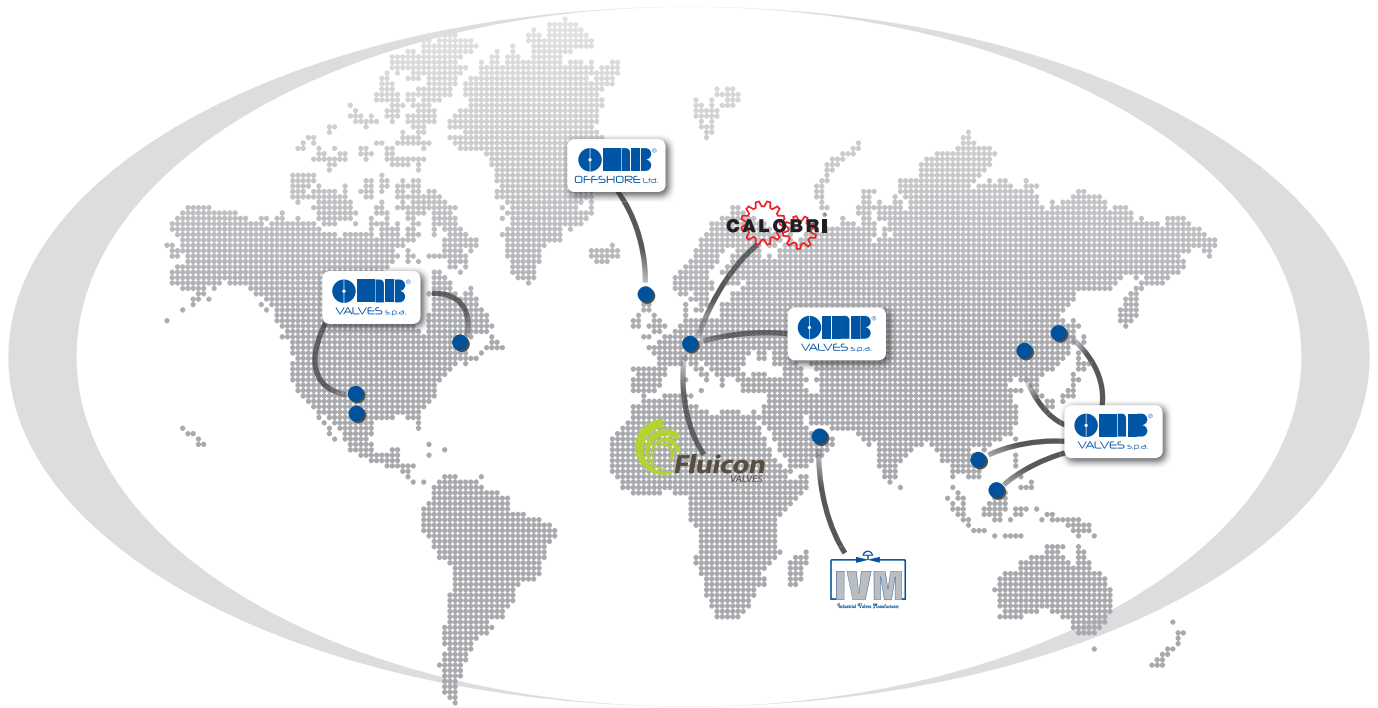


C-BS2

Bellows Seal Valves



OMB is a family owned and managed business founded by Mr. Roberto Brevi in 1973. His goal was to build a company that would specialize in the manufacturing of forged steel valves. Since its founding, OMB's capabilities have grown to cover small diameter gate/globe/check valves, small and large diameter floaters and trunnion mounted ball valves, through conduit gate valves, and triple offset butterfly valves. Today OMB operates 5 plants in 3 countries with a worldwide network of agents, distributors, and sales offices.



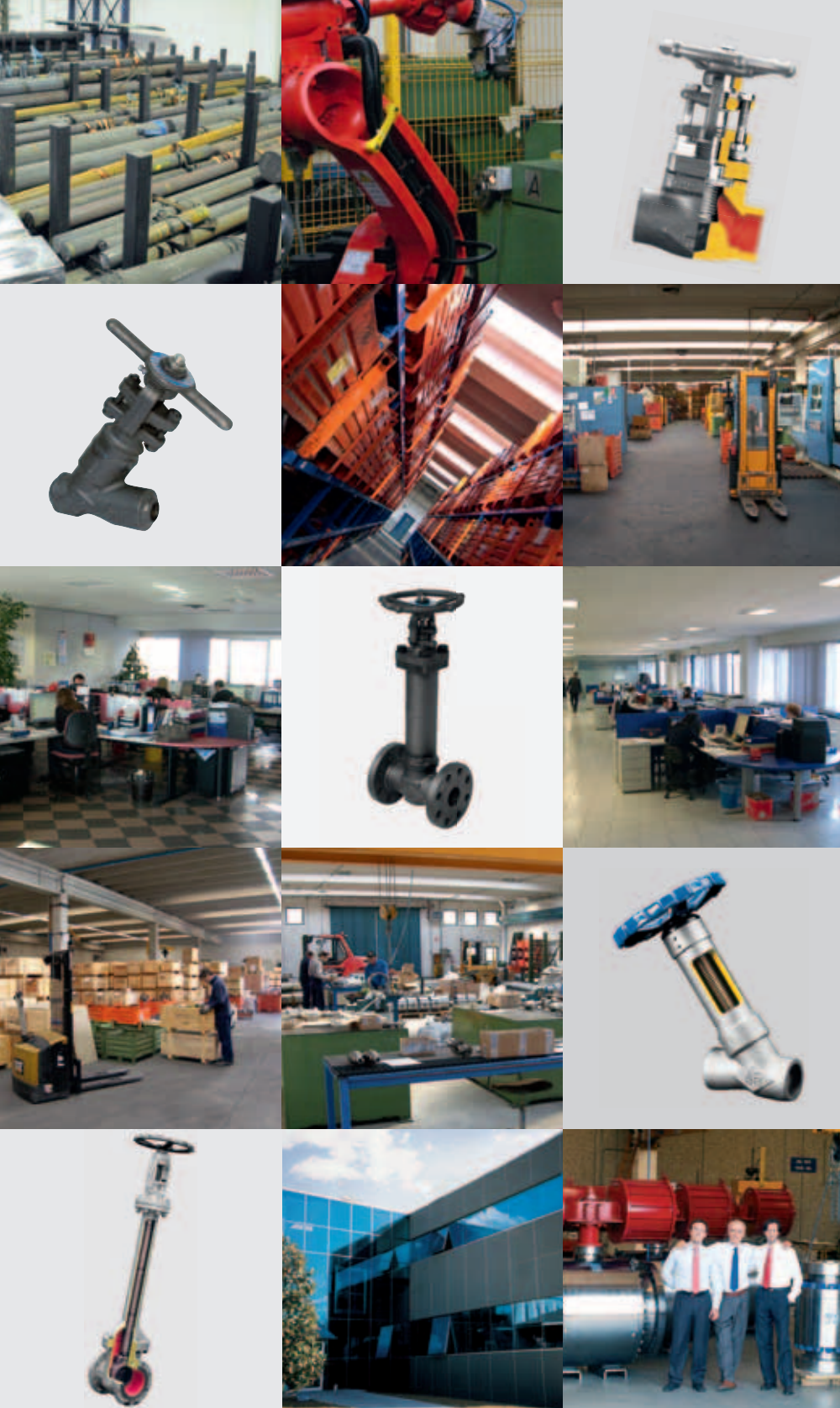
NEW in this version

This catalogue is a complete revision of C-BS-11.02. We added API600 (cast) Bellows Seal Valves and Eco-L-Valve®. We revised dimensional tables and material standards.

C-BS-11.02 the previous version

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The Group

At OMB we have developed a comprehensive range of engineered valve products installed globally across a wide range of industries:

- Offshore
- Subsea
- Refining
- Petrochemical
- Chemical
- Desalination

In these past 40 years OMB has supplied millions of valves to major oil and gas companies worldwide. During this time OMB's name has become synonymous with absolute reliability, superior quality, and competitive pricing.

In the early 80's OMB was the first to introduce robotics in the valve manufacturing process. This included specialized equipment designed to reduce machining time, and increase the quality of the machined components.

Today OMB's commitment to innovation and continuous improvement is higher than ever. With this in mind, OMB is focused on expanding our capacity at home, opening new plants abroad, and extending our distribution network to better serve our customers.

We invite you to visit any of our facilities to meet our experienced workers and see the state of the art equipment they are using to produce the best valve money can buy.

This is our promise!

Roberto, Simone and Fabio Brevi

The Brevi family is active in the management of the operations.

Roberto Brevi, founder and chairman with Simone and Fabio managing directors.



OMB is based in Bergamo, a town 45 Km from Milan with easy access to airports, highways and seaport. Bergamo is the world center for the forged steel valves production with a large valve parts subcontracting base.





TRADITION AND INNOVATION

Since OMB's founding in 1973, it has grown into one of the largest forged steel valve manufacturers in Europe.

As a member of OMB-Eli.Fin Group, the company's strategic objective is to supply a complete range of products to the oil & gas industry.

Bellows Seal Valves are a specialty item developed by OMB to meet the growing environmental and safety requirements in the industry.

State-of-the-art technologies are used in the design, production and inspection of a broad range of carbon, stainless, exotic and low alloy forged steel valves. A comprehensive R&D program, recognized by the Italian government for its innovation, evaluates bellows stem seal designs, new valve designs, materials, production and in-process test equipment.

FLEXIBILITY AND AUTOMATION

OMB has been developing its valve products to deliver superior operational performance. Multi-tool machines linked to a fully operational CIM system have brought flexibility to the manufacturing process.

Customization of computer software for order processing and stock management provided the tools to optimize the production process.



Beginning with statistical checks on incoming raw materials and vendor produced components, we control each phase of production from machining through assembly and final inspection.

Robotics and specially designed machining centers enable OMB to consistently produce high quality valves at cost effective selling prices.

QUALITY AND SAVINGS

The Quality Assurance Program implemented by OMB ensures that all stages of design and manufacturing are conducted in accordance with international standards. OMB is certified to ISO 9001 since July 1990.

The QA system is being continuously monitored to maintain the high level of quality in product performance, valve manufacturing and customer service that our customers demand.

Bodies, bonnets and other components utilized in Bellows Seal Valves are designed and manufactured to meet the requirements of ISO 15761, API, ASME, MSS SP-61, MSS SP-117 and BS 5352. It is OMB's objective to supply products of genuine quality at competitive pricing. OMB's aggressive pricing structure for Bellows Seal Valves has resulted in the increased usage of this product where environmental, health, safety or maintenance costs are an issue.



	GATE - GLOBE						GLOBE Y PATTERN				GATE - GLOBE			ECO-L-VALVE®				ECO-L-VALVE® Y PATTERN	
	FORGED						FORGED				CAST			FORGED				FORGED	
	RF - BW - SW						SW - BW				SW - BW			RF		SW		SW - BW	
	#150	#300	#600	#800	#1500	#2500	#600	#800	#1500	#2500	#150	#300	#600	#150	#300	#600	#800	#600	#800
1/2"																			
3/4"																			
1"																			
1.1/2"																			
2"																			
3"																			
4"																			
6"																			
8"																			
10"																			

	GATE & GLOBE	GATE & GLOBE	GLOBE Y PATTERN	GATE & GLOBE	ECO-L-VALVE®	ECO-L-VALVE® Y PATTERN
Specification Reference	ISO 15761	ASME B16.34	ISO 15761	API600 - ISO 10434 BS1414 - BS1873	ISO 15761	ISO 15761
Valves design	3 pieces, body/ext/bonnet	3 pieces, body/ext/bonnet	3 pieces, body/ext/bonnet	3 pieces, body/ext/bonnet	2 pieces, body/bonnet	2 pieces, body/bonnet
Size range	size 1/2" to 2"	size 1/2" to 2"	size 1/2" to 4"	size 2" to 24"	size 1/2" to 2"	size 1/2" to 2"
Body construction	Closed Dye Forging	Closed Dye Forging	Closed Dye Forging	Castings	Closed Dye Forging	Closed Dye Forging
Bore construction	Full and Standard Bore	Full Bore	Full Bore	Full Bore	Standard Bore	Full Bore
ASME Class	150, 300, 600, 800, 1500	2500	150, 300, 600, 800, 1500, 2500	150, 300, 600, 800, 1500	150, 300, 600, 800	150, 300, 600, 800



GATE & GLOBE

- ASME class: 150, 300, 600, 800, 1500
- Closed dye forging
- Valve construction: 3 pieces, body/ext/bonnet
- Body/bonnet construction: full pen. welding or bolted
- Bellows unit: design with transition pieces
- Globe valves disc design: separated from bellows

GATE & GLOBE

- ASME class: 2500
- Closed dye forging
- Valve construction: 3 pieces, body/ext/bonnet
- Body/bonnet construction: full pen. welding or bolted
- Bellows unit: design with transition pieces
- Globe valves disc design: separated from bellows





GLOBE Y PATTERN

- ASME class: 150, 300, 600, 800, 1500, 2500
- Closed dye forging
- Valve construction: 3 pieces, body/ext/bonnet
- Body/bonnet construction: full pen. welding or bolted
- Bellows unit: design with transition pieces
- Globe valves disc design: separated from bellows



GATE & GLOBE

- ASME class: 150, 300, 600, 1500
- Castings
- Valve construction: 3 pieces, body/ext/bonnet
- Body/bonnet construction: full pen. welding or bolted
- Bellows unit: design with transition pieces
- Globe valves disc design: separated from bellows



ECO-L-VALVE®

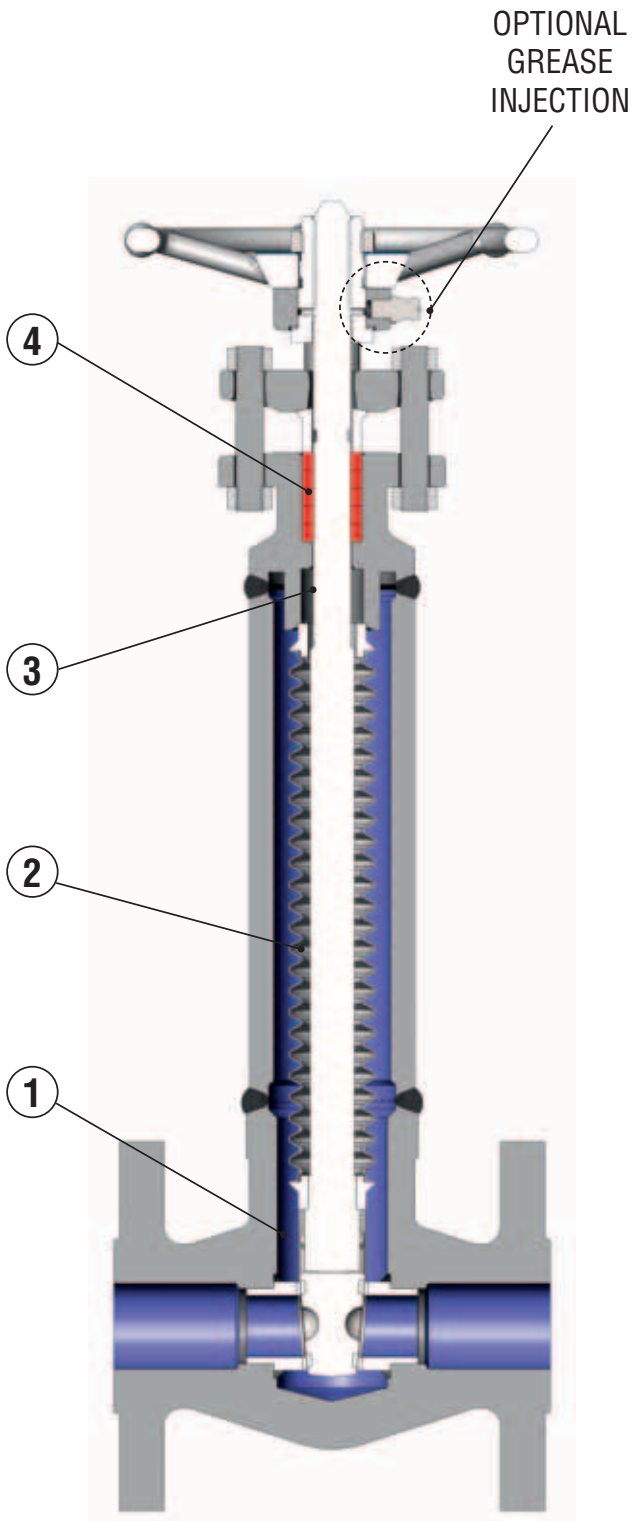
- ASME class: 150, 300, 600, 800, 1500
- Closed Dye Forging
- Valve construction: 2 pieces, body/bonnet
- Body/bonnet construction: full pen. welding or bolted
- Bellows unit: design with transition pieces
- Disc integral with bellows



ECO-L-VALVE® Y PATTERN

- ASME class: 150, 300, 600, 800
- Closed Dye Forging
- Valve construction: 2 pieces, body/bonnet
- Body/bonnet construction: full pen. welding or bolted
- Bellows unit: design with transition pieces
- Disc integral with bellows





Any OMB valve can be equipped with a bellows seal as a primary method to prevent valve stem leaks. OMB valves incorporate a specially designed hydroformed bellows seal with a secondary low emission packing seal.

BELLOWS SEAL PRINCIPLE

- 1) **Fluid** is contained within the valve body
- 2) **Bellows** follows the stem stroke when operating the valve
- 3) **In case of rupture the Backseat** allows emergency sealing
- 4) **A Low Emission Packing** operate in case of emergency

100% CONTAINMENT

- Zero fugitive emissions - protection from hazardous fluids
- Cut costs: 55% to 85% of conventional valve maintenance is on the stem seal
- Minimise leak detection, repair and record keeping costs - bellows are exempt from leak surveys in some states or only require annual monitoring
- Lifetime costs minimised

FEATURES

- Helium tested bellows
- Guaranteed fatigue life
- 300 series stainless steels, Alloy 625, Alloy C276, Nickel, Monel® and titanium bellows materials
- Fully hardfaced trim - Stellite (API No 5) as standard
- Optional bellows test connection nipple
- Low emission safety backup gland packing

OMB BELLOWS SEAL EXPERIENCE

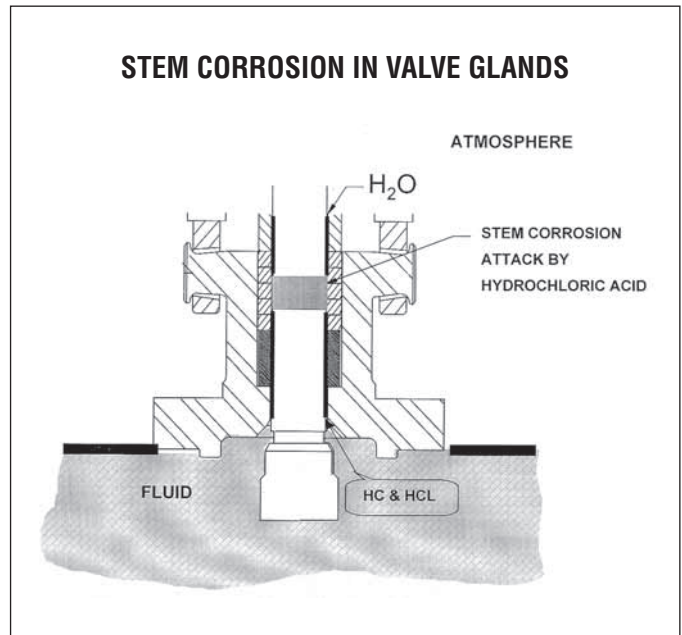
- More than 25 year track record
- Applications in power, oil, petrochemical & chemical industries.
- ISO 9001 Quality System and PED (CE Mark) approvals

QUALIFIED BELLOWS DESIGN FOR FATIGUE

- Bellows samples are extended and compressed at maximum working conditions until required cycle life is achieved
- With hydraulic testing at 1.5x max cold working pressure prior to cycling
- 3 bellows samples are tested per design/material/source
- 1 cycle = OPEN - CLOSED - OPEN, or CLOSED – OPEN - CLOSED

Minimum Fatigue Lives at Maximum Conditions		
	Gate - up To 2"	Globe - up To 2"
ISO 15761	2,000	5,000 ($\leq \#800$) 2,000 ($\geq \#1,500$)
API 602	2,000	5,000 ($\leq \#800$) 2,000 ($\geq \#1,500$)
MMS SP-117	2,000	5,000 ($\leq \#800$) 2,000 ($\geq \#1,500$)
BS 5352	2,000	10,000
OMB std	2,000	10,000

BELLOWS LIMIT STEM CORROSION



Bellows Limit Stem Corrosion

- Stem Corrosion can occur where fluid meets the atmosphere in glanded valves
- Complete segregation of pipeline fluid and atmosphere reduces corrosion in bellows valves stems and glands

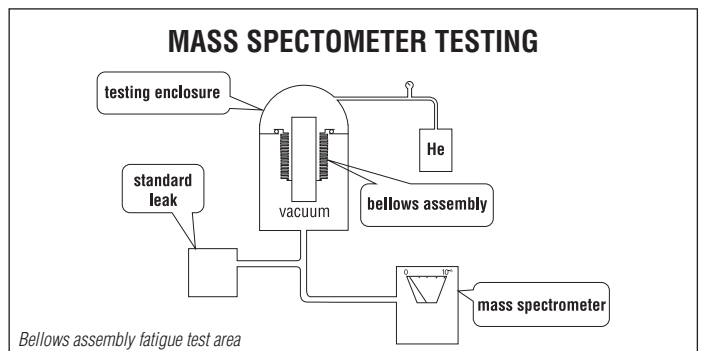
SENSITIVE FACTORY LEAK TESTING ENSURES ZERO EMISSION



Bellows assembly test scheme

OMB commitment to excellence is particularly true in the R&D's activity related to bellows seal:

- All Bellows are helium leak tested with a mass spectrometer
- Test sensitivity 10^{-6} cc/s.



Bellows assembly fatigue test area

OMB Valves laboratory has developed a complete set of equipment to test the bellows and the complete valves under different environmental conditions.

The results of this continuous effort are fed to OMB Engineering department to improve durability and quality of the products.



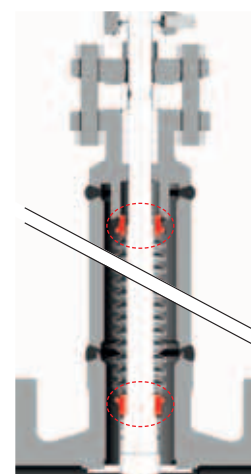
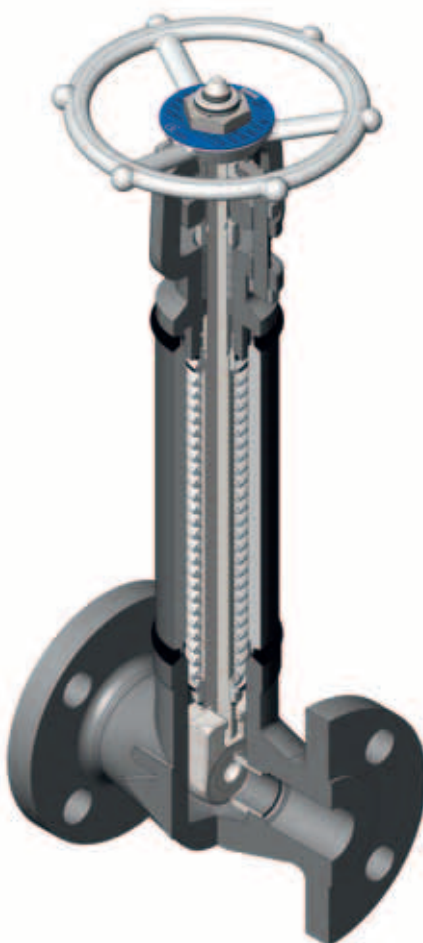


BELLOWS SEALED GATE VALVES TO ISO 15761, API 602 AND ASME B16.34

- Zero emissions, zero seal maintenance, firesafe construction
- Helium testing
- Guaranteed long bellows life with qualification test, cycle life 2000 to 10000 cycles depending on working conditions
- Low emissions secondary sealing
 - Graphite gland packing
 - Backseat in open position
- Seat and wedge faces stellite faced
- Full thickness connector weld
- Seal welded body seats (to order)
 - Superior sealing performance particularly with hot gases such as steam, hydrogen
- Sealing check connection (to order) to the space above the bellows
- Welded or bolted bonnet

FIGURE NUMBER

Class and connection	welded bonnet	bolted bonnet
800 SW	SF-W-810-SW	SF-810-SW
800 Thd	SF-W-810	SF-810
150 RF	SF-F1-W-810	SF-F1-810
300 RF	SF-F3-W-810	SF-F3-810
600 RF	SF-F6-W-810	SF-F6-810
1500 SW	SF-W-R-910-SW	SF-R910-SW
1500 Thd	SF-W-R-910	SF-R-910-SW
1500 RF	SF-F9-W-910	SF-F9-930



SPECIAL FEATURE

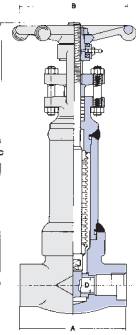
Transition rings are used to connect by welding bellows to stem and body in all OMB models to ensure perfect sealing and long life of the connection

COMPONENT	A105N/F6	A105N/F6HFS	A105N/F6HF	F316L/316HFS
WHEELNUT	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
NAMEPLATE	Aluminium	Aluminium	Aluminium	Aluminium
HANDWHEEL	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
YOKE NUT	416	416	416	303
GLAND NUT	2H	2H	2H	Gr. 8
GLAND FLANGE	A105	A105	A105	F316
GLAND STUD	410	410	410	B8
GLAND	316L	316L	316L	316L
PACKING	Graphite	Graphite	Graphite	Graphite
BOLTS	B7	B7	B7	B8
STEM	410	410	410	316
BONNET	A105N	A105N	A105N	F316L*
SEAT	410	410HF	410HF	316
DISC	F6	F6	F6HF	F316HF
BODY	A105N	A105N	A105N	F316L*
BELLOWS RING	321	321	321	321
BELLOWS	321	321	321	321
EXTENSION	A105N	A105N	A105N	F316L*

(*) F316L: Dual certified F316L/F316



SF-W810/SF-W610



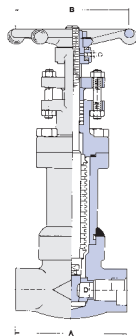
RATINGS: Carbon Steel 1975 p.s.i. @ 100°F

CLASS 800 WELDED BONNET - REGULAR AND FULL PORT - ISO 15761/API602

Outside Screw & Yoke - Threaded and Socket Weld Ends

REGULAR PORT	SF-W810	-	1/2"		3/4"		1"		1 1/4"		1 1/2"		2"		-		
FULL PORT	SF-W610	1/4"		3/8"		1/2"		3/4"		1"		1 1/2"		2"			
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.		
End to End	A	80	3.14	80	3.14	90	3.54	110	4.33	127	5.00	127	5.00	127	5.00	210	8.26
Handwheel	B	80	3.14	80	3.14	80	3.14	110	4.33	130	5.11	130	5.11	180	7.08	180	7.08
Center to Top Open	C	262	10.3	262	10.3	296	11.6	353	13.9	412	16.2	470	18.5	531	20.9	650	25.6
Port Diameter	D	8	0.31	9.6	0.38	14	0.55	18	0.70	24	0.94	30	1.18	37	1.45	48	1.89

SF-810/SF-610



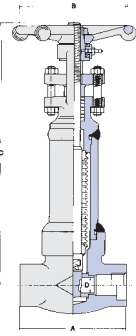
RATINGS: Carbon Steel 1975 p.s.i. @ 100°F

CLASS 800 BOLTED BONNET - REGULAR AND FULL PORT - ISO 15761/API602

Outside Screw & Yoke - Threaded and Socket Weld Ends

REGULAR PORT	SF-810	-	1/2"		3/4"		1"		1 1/4"		1 1/2"		2"		-		
FULL PORT	SF-610	1/4"		3/8"		1/2"		3/4"		1"		1 1/2"		2"			
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.		
End to End	A	80	3.14	80	3.14	90	3.54	110	4.33	127	5.00	127	5.00	127	5.00	210	8.26
Handwheel	B	80	3.14	80	3.14	80	3.14	110	4.33	130	5.11	130	5.11	180	7.08	180	7.08
Center to Top Open	C	262	10.3	262	10.3	296	11.6	353	13.9	412	16.2	470	18.5	531	20.9	650	25.6
Port Diameter	D	8	0.31	9.6	0.38	14	0.55	18	0.70	24	0.94	30	1.18	37	1.45	48	1.89

SF-WR910/SF-W910



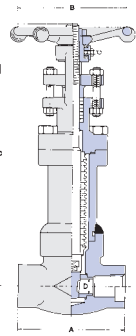
RATINGS: Carbon Steel 3705 p.s.i. @ 100°F

CLASS 1500 WELDED BONNET - REGULAR AND FULL PORT - ISO 15761/API602

Outside Screw & Yoke - Threaded and Socket Weld Ends

REGULAR PORT	SF-WR910	-	1/2"		3/4"		1"		1 1/4"		1 1/2"		2"		-		
FULL PORT	SF-W910	1/4"		3/8"		1/2"		3/4"		1"		1 1/2"		2"			
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.		
End to End	A	90	3.54	90	3.54	110	4.33	127	5.00	127	5.00	127	5.00	210	8.26	210	8.26
Handwheel	B	130	5.11	130	5.11	130	5.11	180	7.08	250	7.08	250	9.84	250	9.84	250	9.84
Center to Top Open	C	262	12.9	262	12.9	372	14.6	475	18.7	510	20.1	586	23.0	650	25.6	815	32.0
Port Diameter	D	8	0.31	9.6	0.38	14	0.55	18	0.70	24	0.94	30	1.18	37	1.45	40	1.57

SF-R910/SF-910



RATINGS: Carbon Steel 3705 p.s.i. @ 100°F

CLASS 1500 WELDED BONNET - REGULAR AND FULL PORT - ISO 15761/API602

Outside Screw & Yoke - Threaded and Socket Weld Ends

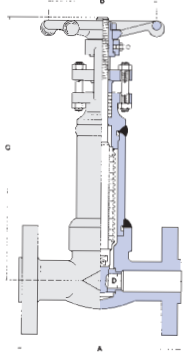
REGULAR PORT	SF-R910	-	1/2"		3/4"		1"		1 1/4"		1 1/2"		2"		-		
FULL PORT	SF-910	1/4"		3/8"		1/2"		3/4"		1"		1 1/2"		2"			
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.		
End to End	A	90	3.54	90	3.54	110	4.33	127	5.00	127	5.00	127	5.00	210	8.26	210	8.26
Handwheel	B	130	5.11	130	5.11	130	5.11	180	7.08	250	7.08	250	9.84	250	9.84	250	9.84
Center to Top Open	C	328	12.9	331	13.0	372	14.6	475	18.7	510	20.1	586	23.0	650	25.6	815	32.0
Port Diameter	D	8	0.31	9.6	0.38	14	0.55	18	0.70	24	0.94	30	1.18	37	1.45	40	1.57



BELLOWS SEAL GATE VALVES



SF-F1-W810/SF-F3-W810/ SF-F6-W810



RATINGS: Carbon Steel Class 150 - 285 p.s.i. @ 100°F
Class 300 - 740 p.s.i. @ 100°F Class 600 - 1480 p.s.i. @ 100°F

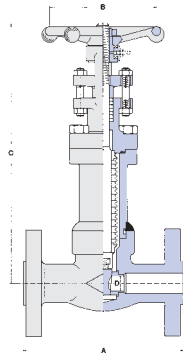
CLASS 150-300-600

WELDED BONNET - REGULAR PORT - ISO 15761/API602
OS & Y - Integral Flanged or BW ends according to ANSI B16.5

REGULAR PORT		1/4"		3/8"		1/2"		3/4"		1"		1 1/4"		1 1/2"		2"	
Class	Model	A	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
			Class 150	SF-F1-W810	-	-	-	-	108	4.25	118	4.64	127	5.00	-	-	165
Class 300	SF-F3-W810	-	-	-	-	140	5.51	153	6.02	165	6.49	-	-	191	7.51	216	8.50
Class 600	SF-F6-W810	-	-	-	-	165	6.49	191	7.51	216	8.50	-	-	241	9.48	292	11.5
Handwheel		B	-	-	-	80	3.14	80	3.14	110	4.33	-	-	130	5.11	180	7.08
Center to Top Open	Class 150/300	C	-	-	-	227	10.9	295	11.6	348	13.7	-	-	470	18.5	525	20.6
	Class 600	C	-	-	-	263	10.3	295	11.6	353	19.9	-	-	470	18.5	525	20.6
Port Diameter		D	-	-	-	9.6	0.38	14	0.55	18	0.70	-	-	30	1.18	37	1.45

End to End dimensions according to ANSI B16.10

SF-F1-810/SF-F3-810/ SF-F6-810



RATINGS: Carbon Steel Class 150 - 285 p.s.i. @ 100°F
Class 300 - 740 p.s.i. @ 100°F Class 600 - 1480 p.s.i. @ 100°F

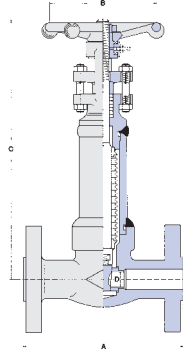
CLASS 150-300-600

BOLTED BONNET - REGULAR PORT - ISO 15761/API602
OS & Y - Integral Flanged or BW ends according to ANSI B16.5

REGULAR PORT		1/4"		3/8"		1/2"		3/4"		1"		1 1/4"		1 1/2"		2"	
Class	Model	A	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
			Class 150	SF-F1-810	-	-	-	-	108	4.25	118	4.64	127	5.00	-	-	165
Class 300	SF-F3-810	-	-	-	-	140	5.51	153	6.02	165	6.49	-	-	191	7.51	216	8.50
Class 600	SF-F6-810	-	-	-	-	165	6.49	191	7.51	216	8.50	-	-	241	9.48	292	11.5
Handwheel		B	-	-	-	80	3.14	80	3.14	110	4.33	-	-	130	5.11	180	7.08
Center to Top Open	Class 150/300	C	-	-	-	227	10.9	295	11.6	348	13.7	-	-	470	18.5	525	20.6
	Class 600	C	-	-	-	263	10.3	295	11.6	353	19.9	-	-	470	18.5	525	20.6
Port Diameter		D	-	-	-	9.6	0.38	14	0.55	18	0.70	-	-	30	1.18	37	1.45

End to End dimensions according to ANSI B16.10

SF-F9-W910



RATINGS: Carbon Steel 3705 p.s.i. @ 100°F

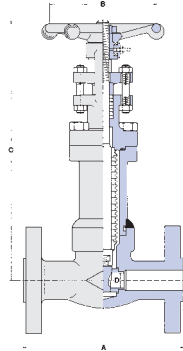
CLASS 1500

WELDED BONNET - FULL PORT - ISO 15761/API602
Outside Screw & Yoke - Threaded and Socket Weld Ends

FULL PORT	SF-F9-W910	1/4"		3/8"		1/2"		3/4"		1"		1 1/4"		1 1/2"		2"	
	A	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
End to End	A	-	-	-	-	216	8.50	229	9.01	254	10.0	-	-	305	12.0	368	14.5
Handwheel	B	-	-	-	-	110	4.33	130	5.11	180	7.08	-	-	300	11.8	300	11.8
Center to Top Open	C	-	-	-	-	327	14.6	445	17.5	479	0.94	-	-	650	25.6	815	32.0
Port Diameter	D	-	-	-	-	14	0.55	18	0.70	24	0.94	-	-	37	1.45	48	1.89

End to End dimensions according to ANSI B16.10

SF-F9-910



RATINGS: Carbon Steel 3705 p.s.i. @ 100°F

CLASS 1500

BOLTED BONNET - FULL PORT - ISO 15761/API602
OS & Y - Integral Flanged or BW ends according to ANSI B16.5

FULL PORT	SF-F9-910	1/4"		3/8"		1/2"		3/4"		1"		1 1/4"		1 1/2"		2"	
	A	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
End to End	A	-	-	-	-	216	8.50	229	9.01	254	10.0	-	-	305	12.0	368	14.5
Handwheel	B	-	-	-	-	110	4.33	130	5.11	180	7.08	-	-	300	11.8	300	11.8
Center to Top Open	C	-	-	-	-	327	14.6	445	17.5	479	0.94	-	-	650	25.6	815	32.0
Port Diameter	D	-	-	-	-	14	0.55	18	0.70	24	0.94	-	-	37	1.45	48	1.89

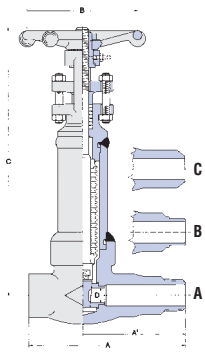
End to End dimensions according to ANSI B16.10

Dimensions and weights are subject to change without notice.



OMB BELLOWS SEAL EXTENDED BODY GATE VALVES

SF-MLA-810/ SF-MLB-810/ SF-MLC-810



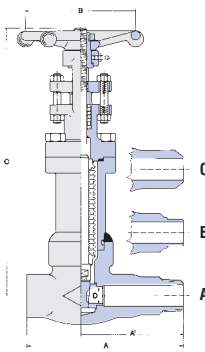
RATINGS: Carbon Steel 1975 p.s.i. @ 100°F

CLASS 800 TAKE-OFF VALVE - WELDED BONNET - REGULAR PORT - ISO 15761/API602

Outside Screw & Yoke - Threaded, Socket Weld and BW Ends

REGULAR PORT	SF-MLA-810 SF-MLB-810 SF-MLC-810	1/2"		3/4"		1"		1 1/2"		2"	
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
End to End	A	148	5.82	153	6.02	182	7.16	216	8.50	264	10.4
Center to Male End	A'	108	4.25	108	4.25	127	5.00	152	6.00	200	7.87
Handwheel	B	80	3.14	80	3.14	110	4.33	130	5.11	130	5.11
Center to Top Open	C	262	10.3	296	11.6	353	13.9	470	1.18	531	20.9
Port Diameter	D	9.6	0.38	14	0.55	18	0.70	30	23.6	37	1.45

SF-MA-810/ SF-MB-810/ SF-MC-810



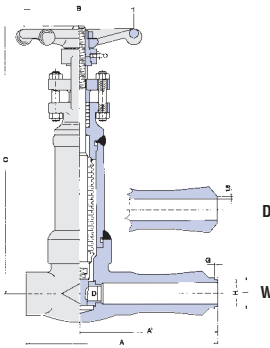
RATINGS: Carbon Steel 1975 p.s.i. @ 100°F

CLASS 800 TAKE-OFF VALVE - BOLTED BONNET - REGULAR PORT - ISO 15761/API602

Outside Screw & Yoke - Threaded, Socket Weld and BW Ends

REGULAR PORT	SF-MA-810 SF-MB-810 SF-MC-810	1/2"		3/4"		1"		1 1/2"		2"	
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
End to End	A	148	5.82	153	6.02	182	7.16	216	8.50	264	10.4
Center to Male End	A'	108	4.25	108	4.25	127	5.00	152	6.00	200	7.87
Handwheel	B	80	3.14	80	3.14	110	4.33	130	5.11	130	5.11
Center to Top Open	C	262	10.3	296	11.6	353	13.9	470	1.18	531	20.9
Port Diameter	D	9.6	0.38	14	0.55	18	0.70	30	23.6	37	1.45

SF-MLD-810/ SF-MLW-810



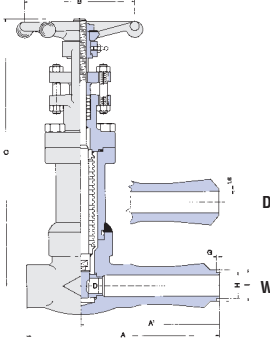
RATINGS: Carbon Steel 1975 p.s.i. @ 100°F

CLASS 800 TAKE-OFF VALVE - WELDED BONNET - REGULAR PORT - ISO 15761/API602

Outside Screw & Yoke - Threaded, Socket Weld and BW Ends

REGULAR PORT	SF-MLD-810 SF-MLW-810	1/2"		3/4"		1"		1 1/2"		2"	
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
End to End	A	196	7.71	220	8.66	244	9.60	265	10.4	270	10.6
Center to Male End	A'	156	6.14	175	6.88	189	7.44	201	7.91	206	8.11
Handwheel	B	80	3.14	80	3.14	110	4.33	130	5.11	130	5.11
Center to Top Open	C	262	10.3	292	11.6	353	13.9	470	18.5	531	20.9
Port Diameter	D	9.6	0.38	14	0.55	18	0.70	30	1.18	37	1.45

SF-MD-810/ SF-MW-810



RATINGS: Carbon Steel 1975 p.s.i. @ 100°F

CLASS 800 TAKE-OFF VALVE - WELDED BONNET - REGULAR PORT - ISO 15761/API602

Outside Screw & Yoke - Threaded, Socket Weld and BW Ends

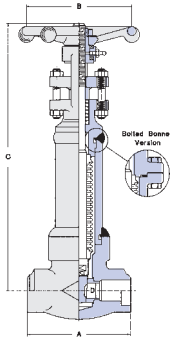
REGULAR PORT	SF-MD-810 SF-MW-810	1/2"		3/4"		1"		1 1/2"		2"	
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
End to End	A	196	7.71	220	8.66	244	9.60	265	10.4	270	10.6
Center to Male End	A'	156	6.14	175	6.88	189	7.44	201	7.91	206	8.11
Handwheel	B	80	3.14	80	3.14	110	4.33	130	5.11	130	5.11
Center to Top Open	C	262	10.3	296	11.6	353	13.9	470	18.5	531	20.9
Port Diameter	D	9.6	0.38	14	0.55	18	0.70	30	1.18	37	1.45

	SIZE	1/2"		3/4"		1"		1 1/2"		2"	
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
REINFORCED - LIP Class 800 & 1500	H	18	0.70	23	0.91	28	1.10	44	1.73	50	1.97
	I	20.5	0.80	25.5	1.00	30.5	1.20	47	1.85	53	2.08
	G	4	0.15	4.5	0.17	5	0.19	7	0.25	8	0.31
Run Size	Min.	1		1 1/2		2		3		4	

Dimensions and weights are subject to change without notice.



SF-W2510



RATINGS: Carbon Steel 6170 p.s.i. @ 100°F

CLASS 2500

GATE WELDED BONNET - FULL PORT - ASME B16.34

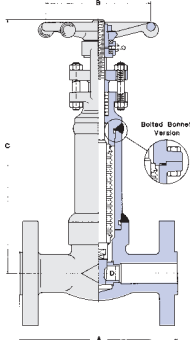
Outside Screw & Yoke - Socket and Butt Weld Ends

FULL PORT	SF-W2510	1/4"		3/8"		1/2"		3/4"		1"		1 1/4"		1 1/2"		2"	
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
End to End	A	-	-	-	-	127	5.00	127	5.00	127	5.00	-	-	-	-	-	-
Handwheel	B	-	-	-	-	180	7.08	180	7.08	250	9.84	-	-	-	-	-	-
Center to Top Open	C	-	-	-	-	440	17.3	470	18.5	580	22.8	-	-	-	-	-	-
Port Diameter	D	-	-	-	-	14	0.55	18	0.70	24	0.94	-	-	-	-	-	-

* Bolted Bonnet vers. on request

ON REQUEST

SF-F25-W2510



RATINGS: Carbon Steel 6170 p.s.i. @ 100°F

CLASS 2500

GATE WELDED BONNET - FULL PORT - ASME B16.34

Outside Screw & Yoke - Integral Flanged Ends according to ANSI B16.5

FULL PORT	SF-F25-W2510	1/4"		3/8"		1/2"		3/4"		1"		1 1/4"		1 1/2"		2"	
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
End to End	A	-	-	-	-	264	10.4	273	10.7	308	12.1	-	-	-	-	-	-
Handwheel	B	-	-	-	-	180	7.08	180	7.08	250	9.84	-	-	-	-	-	-
Center to Top Open	C	-	-	-	-	440	17.3	470	18.5	580	22.8	-	-	-	-	-	-
Port Diameter	D	-	-	-	-	14	0.55	18	0.70	24	0.94	-	-	-	-	-	-

End to End dimensions according to ANSI B16.10

* Bolted Bonnet vers. on request

ON REQUEST





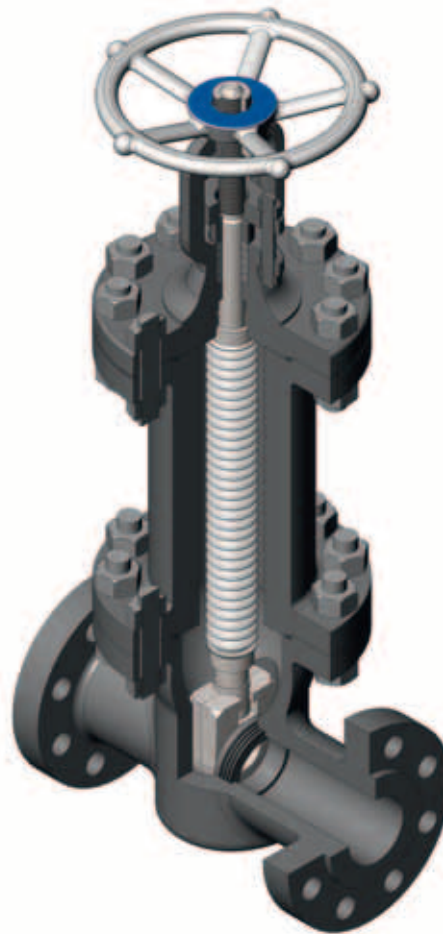
BELLOWS GATE VALVES TO API 600, BS1414, ISO 10434, ASME B 16.34 AND MSS SP 117

- Long life bellows in 321 s/s, Inconel 625 or Hastelloy C - 276 for chemical service
- Zero emissions 100% Helium tested bellows assembly
- Low emissions secondary stem seals
 - Qualified graphite gland packing system
 - Backseat
- Maintainable design
 - Bolted bonnet - optional seal welding on class 300-600
 - Renewable bellows sealed bonnet assembly
- Longevity by design
 - Welded in seats hardfaced with stellite 6
 - Wedge hardface with stellite 6
- Bellows test connection (optional), a plugged point to the space above the bellows can be provided

FIGURE NUMBER

Class and connection	Carbon Steel (ASTM A216)
Class 150RF	SF-F1-610 WCB/F6-HF
Class 300RF	SF-F3-610 WCB/F6-HF
Class 600RF	SF-F6-610 WCB/F6-HF
*Class 150BW	SF-BW1-610 WCB/F6-HF
Class 300BW	SF-BW3-610 WCB/F6-HF
Class 600BW	SF-BW6-610 WCB/F6-HF

Class and connection	Stainless Steel (ASTM A351 CF8M)
Class 150RF	SF-F1-610 CF8M-316-HF
Class 300RF	SF-F3-610 CF8M-316-HF
Class 600RF	SF-F6-610 CF8M-316-HF
*Class 150BW	SF-BW1-610 CF8M-316-HF
Class 300BW	SF-BW3-610 CF8M-316-HF
Class 600BW	SF-BW6-610 CF8M-316-HF



CLASS 150-300-600 BOLTED BONNET - FULL PORT

Outside Screw & Yoke - Integral Flanged Ends According to ANSI B16.34

FULL PORT		2"		2.5"		3"		4"		6"		8"		10"		12"		14"		16"	
CLASS	CONNECTION	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
		CLASS 150	A (RF)	178	7.00	191	7.5	203	8.0	229	9.0	267	10.5	292	11.5	330	13.0	356	14.0	381	15.0
A (BW)	216		8.5	241	9.5	282	11.12	305	12.0	403	15.88	419	16.5	457	18.0	502	19.75	572	22.5	610	24.0
B	180		7.0	180	7.0	250	9.84	250	9.84	400	15.74	400	15.74	600	23.62	600	23.62	600	23.62	600	23.62
C (OPEN)	650		25.6	800	31.5	875	34.4	1100	43.3	1270	50.0	1600	63.0	2200	86.6	2500	98.4	2800	110.2	3150	124.0
CLASS 300	A (RF - BW)	216	8.5	241	9.5	282	11.12	305	12.0	403	15.88	419	16.5	457	18.0	502	19.75	762	30.0	838	33.0
	B	180	7.08	250	9.84	300	11.81	300	11.81	400	15.74	600	23.62	600	23.62	600	23.62	600	23.62	600	23.62
	C (OPEN)	630	24.8	800	31.5	875	34.4	1070	42.1	1350	53.1	1700	66.9	2200	86.6	2500	98.4	2800	110.2	3150	124.0
CLASS 600	A (RF - BW)	292	11.5	330	13.00	356	14.0	432	17.0	559	22.0	660	26.0	787	31.0	838	33.0	889	35.0	991	39.0
	A (RJ)	295	11.62	333	13.12	359	14.12	435	17.2	562	22.12	663	26.12	790	31.12	841	33.12	889	35.0	991	39.0
	B	250	9.84	250	9.84	300	11.81	400	15.74	400	15.74	600	23.62	600	23.62	600	23.62	800	31.50	800	31.50
	C (open)	700	27.5	980	38.5	1060	41.7	1250	42.9	1980	77.9	2100	82.6	2500	98.4	2600	102.3	2950	116.1	3150	124.0

Dimension and are approximate 8"



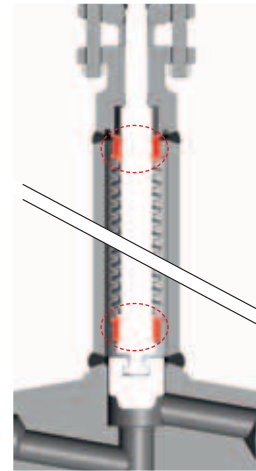
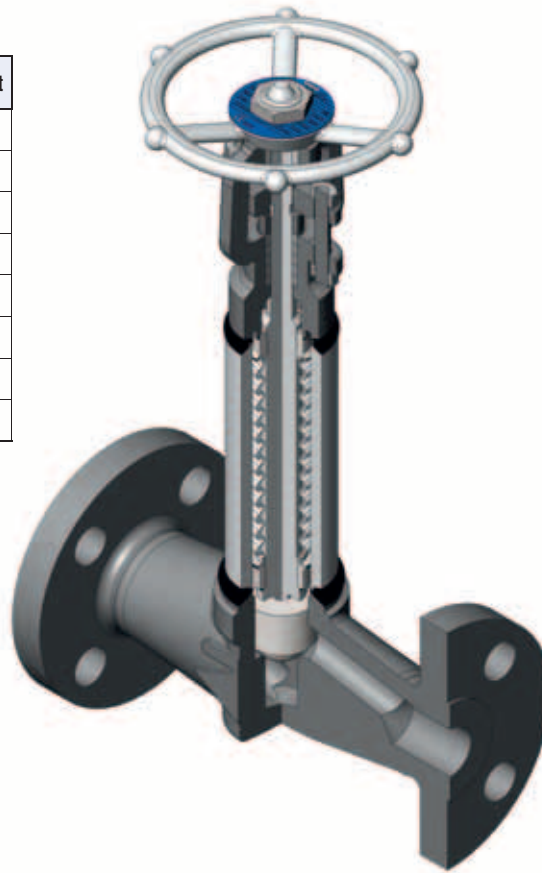


BELLOWS SEALED GLOBE VALVES ACCORDING TO ISO 15761, API 602, MSS-SP-117 AND ASME B16.34

- Zero emissions, zero seal maintenance, firesafe construction
- Helium testing
- Guaranteed long bellows life with qualification test, cycle life 2000 to 10000 cycles depending on working conditions
- Low emissions secondary sealing
 - Graphite packing qualified through long term tests
 - Backseat in open position
- Longevity by design
 - Integral seat and disc hardfaced with Stellite
 - Full thickness connector weld
- Sealing check connection (to order) a plugged connection to the space above the bellows can be provided
- Welded or bolted bonnet

FIGURE NUMBER

Class and connection	welded bonnet	bolted bonnet
800 SW	SF-W-830-SW	SF-830-SW
800 Thd	SF-W-830	SF-830
150 RF	SF-F1-W-830	SF-F1-830
300 RF	SF-F3-W-830	SF-F3-830
600 RF	SF-F6-W-830	SF-F6-830
1500 SW	SF-W-R930-SW	SF-R930-SW
1500 Thd	SF-W-R930	SF-R930
1500 RF	SF-F9-W-930	SF-F9-T-930



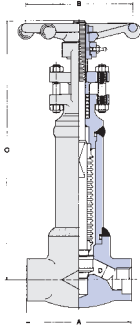
SPECIAL FEATURE

Transition rings are used to weld bellows to stem and body in all OMB models to ensure perfect sealing and long life of the connection

COMPONENT	A105N/F6	A105N/F6HFS	A105N/F6HF	F316L/316HFS
WHEELNUT	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
NAMEPLATE	Aluminium	Aluminium	Aluminium	Aluminium
HANDWHEEL	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
YOKE NUT	416	416	416	303
GLAND NUT	2H	2H	2H	Gr. 8
GLAND FLANGE	A105	A105	A105	F316
GLAND STUD	410	410	410	B8
GLAND	316L	316L	316L	316L
PACKING	Graphite	Graphite	Graphite	Graphite
BOLTS	B7	B7	B7	B8
STEM	410	410	410	316
BONNET	A105	A105	A105	F316L*
GASKET	Sp. Wound	Sp. Wound	Sp. Wound	Sp. Wound
SEAT	410	410HF	410HF	316HF
DISC	F6	F6	F6HF	F316
BODY	A105	A105	A105	F316L*
BELLOWS RING	321	321	321	321
BELLOWS	321	321	321	321
EXTENSION	A105	A105	A105	F316L*

(*) F316L: Dual certified F316L/F316



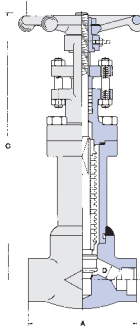
SF-W-830/ SF-W-630


RATINGS: Carbon Steel 1975 p.s.i. @ 100°F

CLASS 800

WELDED BONNET - REGULAR AND FULL PORT - ISO 15761/API602
 Outside Screw & Yoke - Threaded and Socket Weld Ends

REGULAR PORT	SF-W-830	-	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	-								
FULL PORT	SF-W-630	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"								
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.				
End to End	A	80	3.14	80	3.14	90	3.54	110	4.33	127	5.00	155	6.10	170	6.69	210	8.26
Handwheel	B	80	3.14	80	3.14	80	3.14	110	4.33	130	5.11	130	5.11	180	7.08	180	7.08
Center to Top Open	C	244	9.60	244	9.60	276	10.9	311	12.2	366	14.1	428	16.8	462	18.2	590	23.2
Port Diameter	D	7	0.28	9	0.35	13	0.51	17.5	0.69	22.5	0.88	29.5	1.16	35	1.37	45.5	1.79

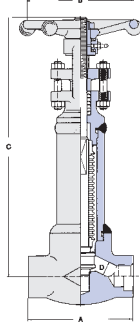
SF-830/ SF-630


RATINGS: Carbon Steel 1975 p.s.i. @ 100°F

CLASS 800

BOLTED BONNET - REGULAR AND FULL PORT - ISO 15761/API602
 Outside Screw & Yoke - Threaded and Socket Weld Ends

REGULAR PORT	SF-830	-	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	-								
FULL PORT	SF-630	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"								
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.				
End to End	A	80	3.14	80	3.14	90	3.54	110	4.33	127	5.00	155	6.10	170	6.69	210	8.26
Handwheel	B	80	3.14	80	3.14	80	3.14	110	4.33	130	5.11	130	5.11	180	7.08	180	7.08
Center to Top Open	C	244	9.60	244	9.60	276	10.9	311	12.2	366	14.1	428	16.8	462	18.2	590	23.2
Port Diameter	D	7	0.28	9	0.35	13	0.51	17.5	0.69	22.5	0.88	29.5	1.16	35	1.37	45.5	1.79

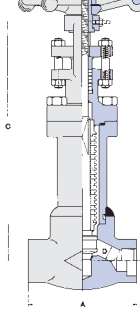
SF-WR930/ SF-W930


RATINGS: Carbon Steel 3705 p.s.i. @ 100°F

CLASS 1500

WELDED BONNET - REGULAR AND FULL PORT - ISO 15761/API602
 Outside Screw & Yoke - Threaded and Socket Weld Ends

REGULAR PORT	SF-WR930	-	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	-								
FULL PORT	SF-W930	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"								
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.				
End to End	A	90	3.54	90	3.54	110	4.33	127	5.00	155	6.10	170	6.69	210	8.26	210	8.26
Handwheel	B	80	3.14	130	5.11	130	5.11	130	5.11	180	7.08	180	7.08	250	9.84	250	9.84
Center to Top Open	C	298	11.7	301	11.8	332	13.0	425	16.7	450	17.7	506	19.9	545	21.4	705	27.7
Port Diameter	D	7	0.28	9	0.35	13	0.51	17	0.67	21	0.83	28	1.10	33	1.30	37.5	1.48

SF-R930/ SF-930


RATINGS: Carbon Steel 3705 p.s.i. @ 100°F

CLASS 1500

BOLTED BONNET - REGULAR AND FULL PORT - ISO 15761/API602
 Outside Screw & Yoke - Threaded and Socket Weld Ends

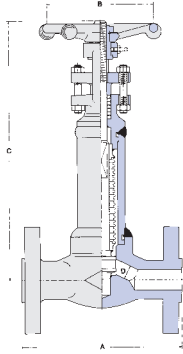
REGULAR PORT	SF-R930	-	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	-								
FULL PORT	SF-930	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"								
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.				
End to End	A	90	3.54	90	3.54	110	4.33	127	5.00	155	6.10	170	6.69	210	8.26	210	8.26
Handwheel	B	80	3.14	130	5.11	130	5.11	130	5.11	180	7.08	180	7.08	250	9.84	250	9.84
Center to Top Open	C	298	11.7	301	11.8	332	13.0	425	16.7	450	17.7	506	19.9	545	21.4	705	27.7
Port Diameter	D	7	0.28	9	0.35	13	0.51	17	0.67	21	0.83	28	1.10	33	1.30	37.5	1.48



BELLOWS SEAL GLOBE VALVES



SF-F1-W830/ SF-F3-W830/ SF-F6-W830



RATINGS: Carbon Steel Class 150 - 285 p.s.i. @ 100°F
Class 300 - 740 p.s.i. @ 100°F Class 600 - 1480 p.s.i. @ 100°F

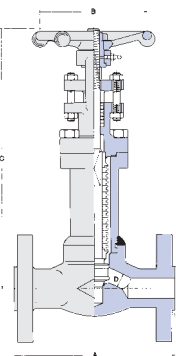
CLASS 150-300-600

WELDED BONNET - REGULAR PORT - ISO 15761/API602
OS & Y - Integral Flanged according to ANSI B16.5

REGULAR PORT		1/4"		3/8"		1/2"		3/4"		1"		1 1/4"		1 1/2"		2"		
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
Class 150	SF-F1-W830	A	-	-	-	-	108	4.25	118	4.64	127	5.00	-	-	165	6.49	203	7.99
Class 300	SF-F3-W830	A	-	-	-	-	153	6.02	178	7.00	203	7.99	-	-	229	9.01	267	10.5
Class 600	SF-F6-W830	A	-	-	-	-	165	6.64	191	7.51	216	8.50	-	-	241	9.48	292	11.5
Handwheel		B	-	-	-	-	80	3.14	80	3.14	110	4.33	-	-	130	5.11	180	7.08
Center to Top Open	Class 300/600	C	-	-	-	-	244	9.60	276	10.8	311	12.2	-	-	428	16.8	462	8.2
	Class 150	C	-	-	-	-	274	10.8	306	12.0	334	13.1	-	-	428	16.8	462	8.2
Port Diameter		D	-	-	-	-	9	0.35	13	0.51	17.5	0.69	-	-	29.5	1.16	35	1.37

End to End dimensions according to ANSI B16.10

SF-F1-830/ SF-F3-830/ SF-F6-830



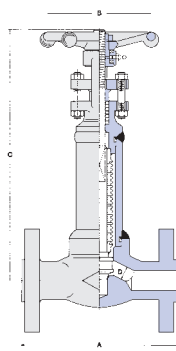
RATINGS: Carbon Steel Class 150 - 285 p.s.i. @ 100°F
Class 300 - 740 p.s.i. @ 100°F Class 600 - 1480 p.s.i. @ 100°F

CLASS 150-300-600

BOLTED BONNET - REGULAR PORT - ISO 15761/API602
OS & Y - Integral Flanged according to ANSI B16.5

REGULAR PORT		1/4"		3/8"		1/2"		3/4"		1"		1 1/4"		1 1/2"		2"		
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
Class 150	SF-F1-830	A	-	-	-	-	108	4.25	118	4.64	127	5.00	-	-	165	6.49	203	7.99
Class 300	SF-F3-830	A	-	-	-	-	153	6.02	178	7.00	203	7.99	-	-	299	9.01	267	10.5
Class 600	SF-F6-830	A	-	-	-	-	165	6.49	191	7.51	216	8.50	-	-	241	9.48	292	11.5
Handwheel		B	-	-	-	-	80	3.14	80	3.14	110	4.33	-	-	130	5.11	180	7.08
Center to Top Open	Class 300/600	C	-	-	-	-	244	9.60	276	10.8	311	12.2	-	-	428	16.8	462	18.2
	Class 150	C	-	-	-	-	274	10.8	306	12.0	334	13.1	-	-	428	16.8	462	18.2
Port Diameter		D	-	-	-	-	9	0.35	13	0.51	17.5	0.69	-	-	29.5	1.16	35	1.37

SF-F9-W930



RATINGS: Carbon Steel 3705 p.s.i. @ 100°F

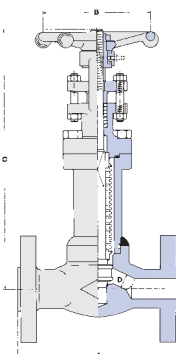
CLASS 1500

WELDED BONNET - FULL PORT - ISO 15761/API602
OS & Y - Integral Flanged according to ANSI B16.5

FULL PORT	SF-F9-W930	1/4"		3/8"		1/2"		3/4"		1"		1 1/4"		1 1/2"		2"	
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
End to End	A	-	-	-	-	216	8.50	229	9.01	254	10.0	-	-	305	12.0	368	14.5
Handwheel	B	-	-	-	-	110	4.33	130	5.11	180	7.08	-	-	300	11.8	300	11.8
Center to Top Open	C	-	-	-	-	332	13.0	395	15.5	419	16.5	-	-	545	21.4	705	27.7
Port Diameter	D	-	-	-	-	13	0.51	17	0.67	21	0.83	-	-	33	1.30	37.5	1.48

End to End dimensions according to ANSI B16.10

SF-F9-930



RATINGS: Carbon Steel 3705 p.s.i. @ 100°F

CLASS 1500

BOLTED BONNET - FULL PORT - ISO 15761/API602
OS & Y - Integral Flanged according to ANSI B16.5

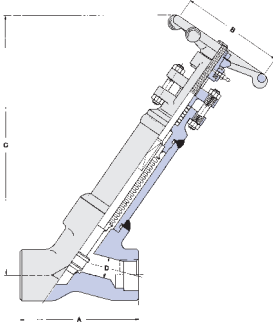
FULL PORT	SF-F9-930	1/4"		3/8"		1/2"		3/4"		1"		1 1/4"		1 1/2"		2"	
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
End to End	A	-	-	-	-	216	8.50	229	9.01	254	10.0	-	-	305	12.0	368	14.5
Handwheel	B	-	-	-	-	110	4.33	130	5.11	180	7.08	-	-	300	11.8	300	11.8
Center to Top Open	C	-	-	-	-	332	13.0	395	15.5	419	16.5	-	-	545	21.4	705	27.7
Port Diameter	D	-	-	-	-	13	0.51	17	0.67	21	0.83	-	-	33	1.30	37.5	1.48

End to End dimensions according to ANSI B16.10

Dimensions and weights are subject to change without notice.



SF-WY630



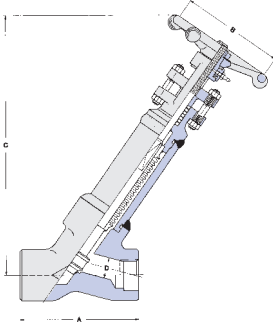
RATINGS: Carbon Steel 1975 p.s.i. @ 100°F

CLASS 800

WELDED BONNET - FULL PORT - ISO 15761/API602
Outside Screw & Yoke - Threaded and Socket Weld Ends

FULL PORT	SF-WY630	1/4"		3/8"		1/2"		3/4"		1"		1 1/4"		1 1/2"		2"	
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
End to End	A	90	3.54	90	3.54	90	3.54	90	3.54	127	5.00	127	5.00	155	6.10	180	7.08
Handwheel	B	80	3.14	80	3.14	80	3.14	110	4.33	130	5.11	130	5.11	180	7.08	180	7.08
Center to Top Open	C	232	9.13	232	9.13	245	9.64	282	11.1	345	13.5	388	15.2	440	17.3	522	20.5
Port Diameter	D	7	0.27	9	0.35	13	0.51	17.5	0.68	22.5	0.88	29.5	1.16	35	1.37	45.5	1.79

SF-WY930



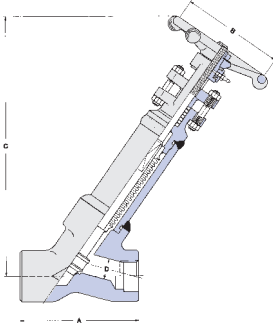
RATINGS: Carbon Steel 3705 p.s.i. @ 100°F

CLASS 1500-1700

WELDED BONNET - FULL PORT - ISO 15761/API602
Outside Screw & Yoke - Threaded and Socket Weld Ends

FULL PORT	SF-WY930	1/4"		3/8"		1/2"		3/4"		1"		1 1/4"		1 1/2"		2"	
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
End to End	A	90	3.54	90	3.54	90	3.54	127	5.00	127	5.00	155	6.10	155	6.10	180	7.08
Handwheel	B	130	5.11	130	5.11	130	5.11	130	5.11	180	7.08	180	7.08	250	9.84	250	9.84
Center to Top Open	C	300	11.8	300	11.8	295	11.6	388	15.2	393	15.4	475	18.7	556	21.8	720	28.3
Port Diameter	D	7	0.27	9	0.35	11	0.43	15	0.59	19.5	0.76	27.5	1.08	31.5	1.24	39	1.53

SF-WY2530



RATINGS: Carbon Steel 6170 p.s.i. @ 100°F

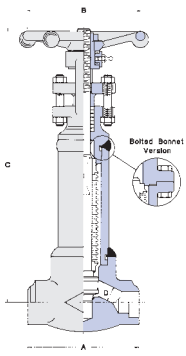
CLASS 2500-2700

WELDED BONNET - FULL PORT - ASME B16.34
Outside Screw & Yoke - Threaded and Socket Weld Ends

FULL PORT	SF-WY2530	1/4"		3/8"		1/2"		3/4"		1"		1 1/4"		1 1/2"		2"	
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
End to End	A	-	-	-	-	155	6.10	155	6.10	155	6.10	-	-	-	-	-	-
Handwheel	B	-	-	-	-	180	7.08	180	7.08	180	7.08	-	-	-	-	-	-
Center to Top Open	C	-	-	-	-	445	17.5	449	17.6	558	23.1	-	-	-	-	-	-
Port Diameter	D	-	-	-	-	11	0.43	11	0.43	15	0.59	-	-	-	-	-	-



SF-W2530



RATINGS: Carbon Steel 6170 p.s.i. @ 100°F

CLASS 2500

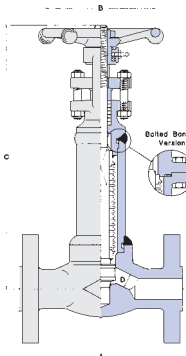
GLOBE WELDED BONNET - FULL PORT - ASME B16.34
Outside Screw & Yoke - Socket and Butt Weld Ends

FULL PORT	SF-W2530	1/4"		3/8"		1/2"		3/4"		1"		1 1/4"		1 1/2"		2"	
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
End to End	A	-	-	-	-	127	5.00	155	6.10	170	6.69	-	-	-	-	-	-
Handwheel	B	-	-	-	-	180	7.08	180	7.08	250	9.84	-	-	-	-	-	-
Center to Top Open	C	-	-	-	-	420	16.5	450	17.7	550	21.6	-	-	-	-	-	-
Port Diameter	D	-	-	-	-	13	0.51	17	0.67	21	0.83	-	-	-	-	-	-

* Bolted Bonnet vers. on request

ON REQUEST

SF-F25-W2530



RATINGS: Carbon Steel 6170 p.s.i. @ 100°F

CLASS 2500

GLOBE WELDED BONNET - FULL PORT - ASME BS16.34
Outside Screw & Yoke - Integral Flanged Ends according to ANSI B16.5

FULL PORT	SF-F25-W2530	1/4"		3/8"		1/2"		3/4"		1"		1 1/4"		1 1/2"		2"	
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
End to End	A	-	-	-	-	264	10.4	273	10.7	308	12.1	-	-	-	-	-	-
Handwheel	B	-	-	-	-	180	7.08	180	7.08	250	9.84	-	-	-	-	-	-
Center to Top Open	C	-	-	-	-	420	16.5	450	17.7	550	21.6	-	-	-	-	-	-
Port Diameter	D	-	-	-	-	11	0.43	17	0.67	21	0.83	-	-	-	-	-	-

End to End dimensions according to ANSI B16.10

* Bolted Bonnet vers. on request

ON REQUEST





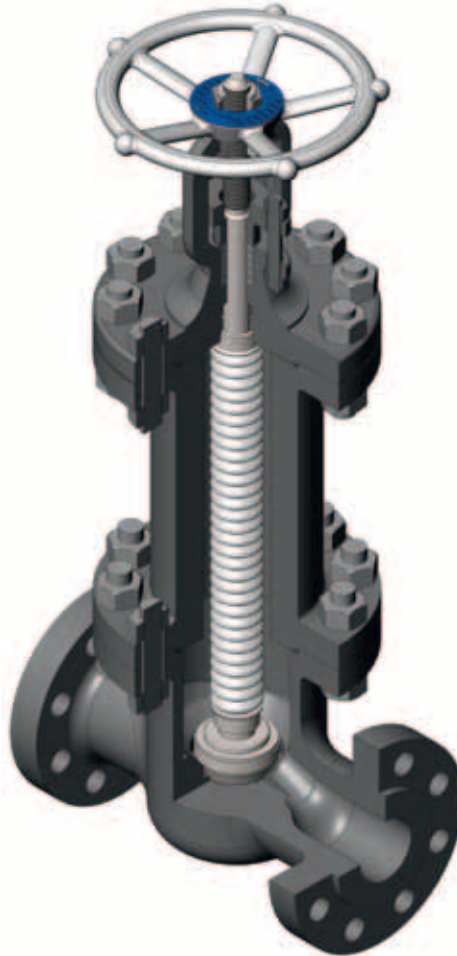
BELLOWS GLOBE VALVE TO ISO BS1873 ASME B16.34, AND MSS SP 117

- Zero emissions 100% Helium tested bellows
- Low emissions secondary sealing
 - Graphite packing
 - Back seat in open position
- Long life bellow (5000 cycles)
Hastelloy C - 276 for chemical service (10,000 cycles)
- Open bellows design for chemical service, large clearances for polymerising fluid and corrosion product
- Maintainable design
 - Bolted bonnet - optional seal welding
 - Renewable bellows sealed bonnet assembly
 - Bellows test connection (to order):
a plugged port the space above the bellows can be provided
- Longevity by design
 - Welded in seats
 - Stellite faced seat and disc
 - Optional stellite 21 for chemical service
- Low closure effort with pressure balances disc 10" and larger size

FIGURE NUMBER

Class and connection	Carbon Steel (ASTM A216 WCB)
Class 150RF	SF-F1-630 WCB/F6-HF
Class 300RF	SF-F3-630 WCB/F6-HF
Class 600RF	SF-F6-630 WCB/F6-HF
*Class 150BW	SF-BW1-630 WCB/F6-HF
Class 300BW	SF-BW3-630 WCB/F6-HF
Class 600BW	SF-BW6-630 WCB/F6-HF

Class and connection	Stainless Steel (ASTM A351 CF8M)
Class 150RF	SF-F1-630 CF8M-316-HF
Class 300RF	SF-F3-630 CF8M-316-HF
Class 600RF	SF-F6-630 CF8M-316-HF
*Class 150BW	SF-BW1-630 CF8M-316-HF
Class 300BW	SF-BW3-630 CF8M-316-HF
Class 600BW	SF-BW6-630 CF8M-316-HF

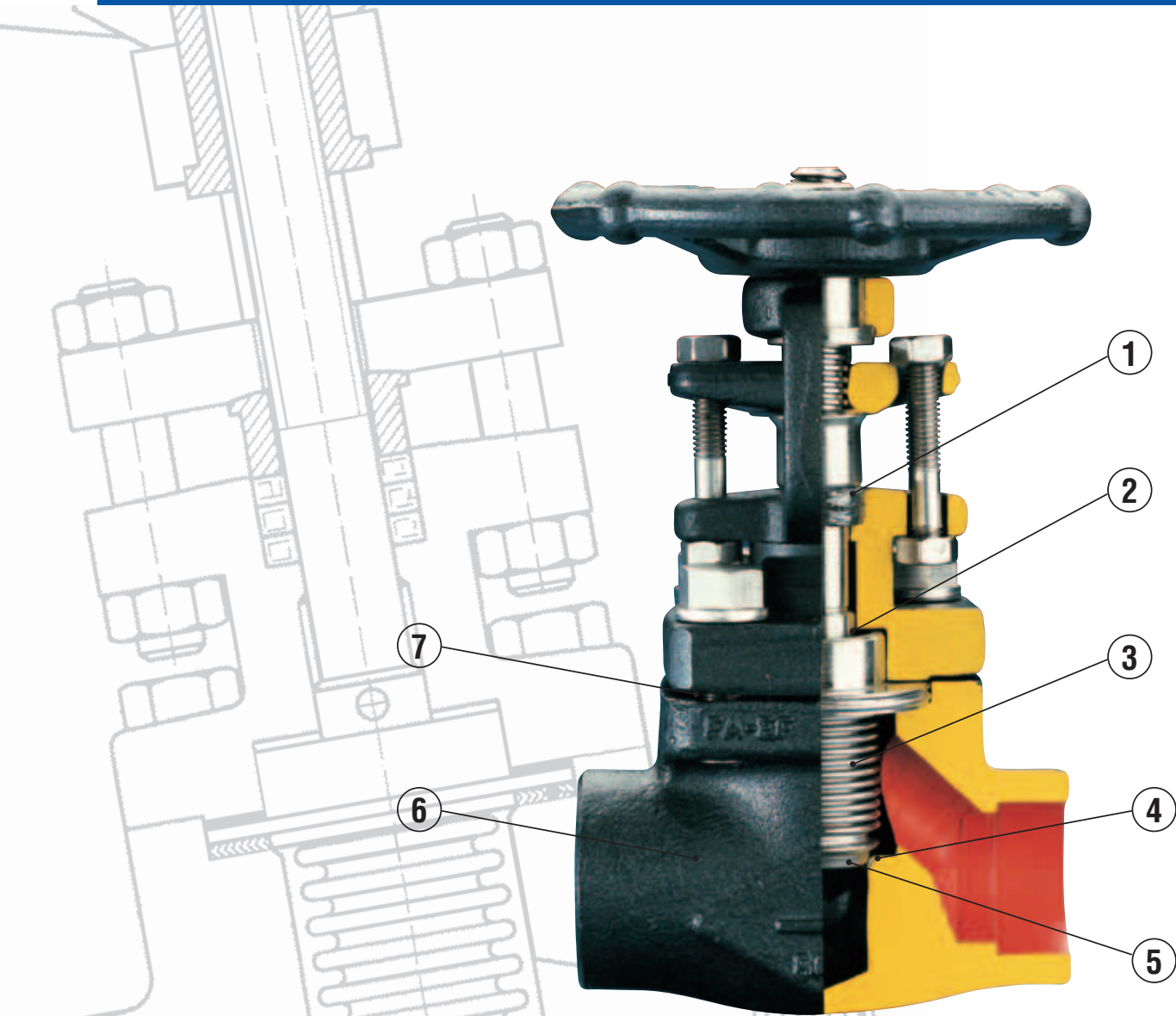


CLASS 150-300-600 BOLTED BONNET - FULL PORT

Outside Screw & Yoke - Integral Flanged Ends According to ANSI B16.34

FULL PORT		2"		2.5"		3"		4"		6"		8"		10"		12"		14"		16"	
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
CLASS 150	A (RF - BW)	203	8.0	216	8.5	241	9.5	292	11.5	406	16.0	495	19.5	622	24.5	699	27.5	787	31.0	914	36.0
	B	180	7.08	250	9.84	250	9.84	300	11.81	400	15.74	600	23.62	600	23.62	600	23.62	600	23.62	600	23.62
	C (OPEN)	470	18.5	560	22.0	560	22.0	660	26.0	750	29.5	900	35.4	1300	51.2	1600	63.0	1800	70.8	1950	76.7
CLASS 300	A (RF - BW)	267	10.5	292	11.5	318	12.5	356	14.0	445	17.5	559	22.0	622	24.5	711	28.0	838	33.0	864	34.0
	B	250	9.84	250	9.84	300	11.81	400	15.74	400	15.74	600	23.62	600	23.62	600	23.62	600	23.62	600	23.62
	C (OPEN)	510	20.0	560	22.0	560	22.0	660	26.0	850	33.4	1080	42.5	1300	51.2	1600	63.0	1900	74.8	1950	76.7
CLASS 600	A (RF - BW)	292	11.5	330	13.0	356	14.0	432	17.0	559	22.0	660	26.0	787	31.0	838	33.0	889	35.0	991	39.0
	A (RJ)	295	11.62	333	13.12	359	14.12	435	17.12	562	22.12	663	26.12	790	31.12	841	33.12	892	35.12	994	39.12
	B	250	9.84	300	11.81	400	15.74	600	23.62	600	23.62	600	23.62	800	31.50	800	31.50	800	31.50	800	31.50
	C (OPEN)	510	20.0	650	25.6	650	25.6	720	28.3	960	37.8	1200	47.2	1450	57.0	1700	66.9	2000	78.7	2150	84.6





1) GRAPHITE PACKING

Eco-L-Valve® provides a secondary sealing by means of a gland packing.

2) BACKSEAT

In case of an accidental failure of the bellows, any possible leakage toward the outside is immediately stopped by operating the valve to the backseat position.

3) BELLOWS

A wide bellows material choice to suit variable service conditions.

4) STELLITED SEAT

The stellite seat provides the life long durability of seating.

5) LOOSE DISC

A technical choice to give continuous contact with the seat.

6) FORGED STEEL BODY AND BONNET

Suitably heat treated to meet various specifications and service conditions. Available in a wide selection of materials.

7) FIRE SAFE

Its unique design and metal to metal joint and seatings enable the valve to remain pressurized tight even at high temperatures.



REPLACEABLE BELLOWS

In the Eco-L-Valve® the bellows is a unique component that is not welded to the bonnet and therefore replaceable.

The lower end of the bellows assembly is welded to the disc which is attached to the stem by threaded connection. The bellows upper end is welded to a transition piece that is clamped between the body and bonnet.

Standard gaskets are used to seal this joint. The gasket on the media side of the valve is generally a spiral wound gasket and assures a higher sealing level than the packing. The top gasket on the bonnet side of the bellows assembly, comes into operation only if the bellows fails.

Together with the packing, it maintains the sealing integrity of the system until the bellows is replaced. The important feature of this design is that the bellows can be replaced. With the system shut down, the bonnet can be removed, the bellows unscrewed from the stem and replaced by a new component. The entire procedure does not require more than 15 minutes of maintenance time. By utilizing this arrangement, preventative maintenance can be a meaningful strategy to help optimize the service life of these valves, especially when very high levels of cycles are needed.

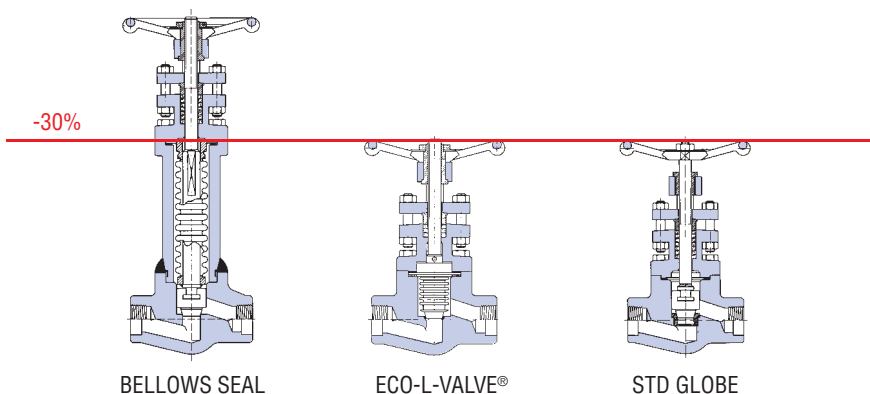
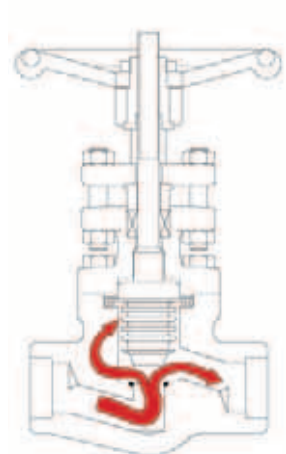
COMPACT DESIGN

Another significant feature of the Eco-L-Valve® is its compact height. The cyclic efficiency of the bellows stem seal, makes it possible to supply a valve with a height comparable to a packed valve thereby allowing direct replacement in existing piping systems.

PACKED VALVE



ECO-L-VALVE® VALVE



COMPETITIVE COST

OMB introduced the Eco-L-Valve® to the marketplace to offer a reasonably priced bellows seal product with easily replaced parts.

These characteristics justified usage in a myriad of applications within process plants where leak-tight performance and competitive pricing are a necessity.

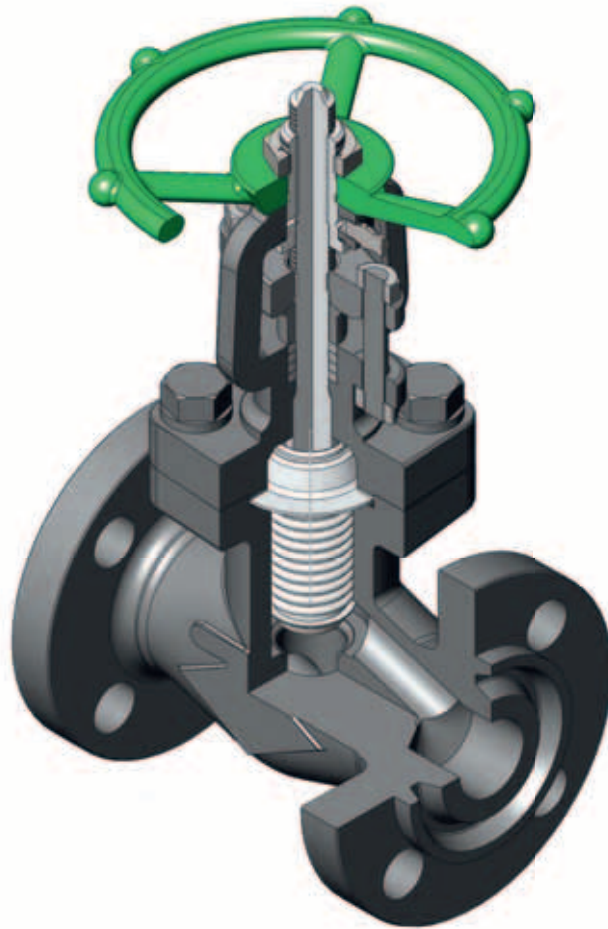




COMPACT BELLOWS SEALED GLOBE VALVES ACCORDING TO ISO 15761, API 602, MSS-SP-117

- Zero emissions, zero seal maintenance, firesafe construction
- Helium testing
- Guaranteed long bellows life with qualification test, cycle life 2000 to 10000 cycles depending on working conditions
- Low emissions secondary sealing
 - Graphite packing qualified through long term tests
 - Backseat in open position
- Longevity by design
 - Integral seat and disc hardfaced with Stellite
- Sealing check connection (to order) a plugged connection to the space above the bellows can be provided
- Welded or bolted bonnet





COMPONENT	A105N/F6HF	F316L/316HF	F11/F6HFS
WHEELNUT	Carbon Steel	Carbon Steel	Carbon Steel
NAMEPLATE	Aluminium	Aluminium	Aluminium
HANDWHEEL	Carbon Steel	Carbon Steel	Carbon Steel
YOKE NUT	416	416	416
GLAND NUT	2H	Gr.8	Gr.8
GLAND FLANGE	A105	F316	FG
GLAND STUD	410	B8	B8
GLAND	316L	316L	316L
PACKING	Graphite	Graphite	Graphite
BOLTS	B7	B8	B16
STEM	410	316	F11
BONNET	A105N	F316L*	A105N
GASKET	Sp. Wound	Sp. Wound	Sp. Wound
SEAT	Integral- CoCr Alloy	Integral- CoCr Alloy	Integral- CoCr Alloy
DISC	F6 HARDFACING	316 HARDFACING	F6 HARDFACING
BODY	A105N	F316L*	F11
BELLOWS	321	321	321

*F316L: Dual certificated F316/F316



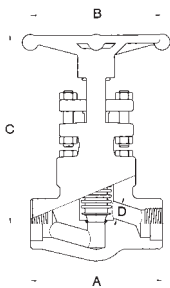
CLASS 800 - EG-830

Globe Eco-L-Valve®
 NW & NPT
 Bolted Bonnet
 Regular Port
 Rating #800

CLASS 800 - EG-630

Globe Eco-L-Valve®
 NW & NPT
 Bolted Bonnet
 Full Port
 Rating #800

EG-830



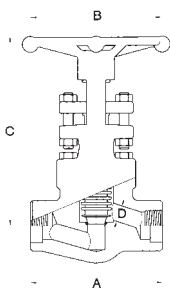
RATINGS: Bellows 1480 p.s.i. @ 100°F

CLASS 800 BOLTED BONNET - REGULAR PORT

Outside Screw & Yoke - Threaded and Socket Weld Ends

REGULAR PORT	EG-830	-		1/2"		3/4"		1"		1 1/4"		1 1/2"		2"		-	
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
End to End	A	-	-	80	3.14	90	3.54	110	4.33	127	5.00	155	6.10	170	6.69	-	-
Handwheel	B	-	-	80	3.14	80	3.14	110	4.33	110	4.33	130	5.11	180	7.08	-	-
Center to Top	C	-	-	138	5.43	144	5.66	168	6.61	200	7.87	200	7.87	230	9.05	-	-
Port Diameter	D	-	-	9	0.35	13	0.51	17.5	0.68	22.5	0.88	29.5	1.16	35	1.37	-	-

EG-630



RATINGS: Bellows 1480 p.s.i. @ 100°F

CLASS 800 BOLTED BONNET - FULL PORT

Outside Screw & Yoke - Threaded and Socket Weld Ends

FULL PORT	EG-630	1/4"		3/8"		1/2"		3/4"		1"		1 1/4"		1 1/2"		2"	
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
End to End	A	80	3.14	80	3.14	90	3.54	110	4.33	127	5.00	155	6.10	170	6.69	210	8.26
Handwheel	B	80	3.14	80	3.14	80	3.14	110	4.33	110	4.33	140	5.51	180	7.08	180	7.08
Center to Top	C	136	5.35	136	5.35	144	5.66	167	6.57	194	7.63	220	8.64	230	9.05	260	10.2
Port Diameter	D	7	0.28	9	0.35	13	0.51	17.5	0.69	23	0.90	29.5	1.16	36	1.41	45.5	1.79

Dimensions and weights are subject to change without notice.





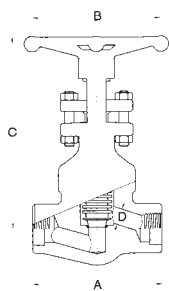
CLASS 800 - EW-830

Globe Eco-L-Valve®
 NW & NPT
 Welded Bonnet
 Regular Port
 Rating #800

CLASS 800 - EW-630

Globe Eco-L-Valve®
 NW & NPT
 Welded Bonnet
 Full Port
 Rating #800

EW-830



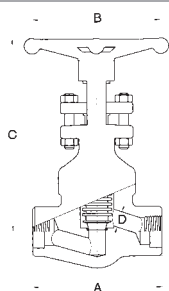
RATINGS: Bellows 1480 p.s.i. @ 100°F

CLASS 800 WELDED BONNET - REGULAR PORT

Outside Screw & Yoke - Threaded and Socket Weld Ends

REGULAR PORT	EW-830	-		1/2"		3/4"		1"		1 1/4"		1 1/2"		2"		-	
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
End to End	A	-	-	80	3.14	90	3.54	110	4.33	127	5.00	155	6.10	170	6.69	-	-
Handwheel	B	-	-	80	3.14	80	3.14	110	4.33	110	4.33	130	5.11	180	7.08	-	-
Center to Top	C	-	-	136	5.35	144	5.66	167	6.57	194	7.63	220	8.66	230	9.05	-	-
Port Diameter	D	-	-	9	0.35	13	0.51	17.5	0.69	22.5	0.88	29.5	1.16	35	1.37	-	-

EW-630



RATINGS: Bellows 1480 p.s.i. @ 100°F

CLASS 800 WELDED BONNET - FULL PORT

Outside Screw & Yoke - Threaded and Socket Weld Ends

FULL PORT	EW-630	1/4"		3/8"		1/2"		3/4"		1"		1 1/4"		1 1/2"		2"	
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
End to End	A	80	3.14	80	3.14	90	3.54	110	4.33	127	5.00	155	6.10	170	6.69	210	8.26
Handwheel	B	70	2.75	70	2.75	90	3.54	110	4.33	110	4.33	180	7.08	180	7.08	180	7.08
Center to Top	C	136	5.35	136	5.35	144	5.66	167	6.57	194	7.63	220	8.66	230	9.05	260	10.23
Port Diameter	D	7	0.27	9	0.35	13	0.51	17.5	0.69	23	0.90	29.5	1.16	36	1.41	45.5	1.79

Dimensions and weights are subject to change without notice.





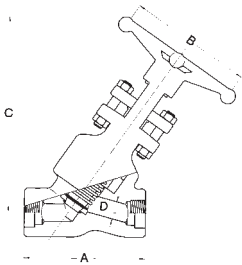
GLOBE Y PATTERN ECO-L-VALVE®

CLASS 800 - E-Y630

Globe Y Pattern Eco-L-Valve®
 SW - NPT - BW
 Welded Bonnet
 Full Port
 Rating #800



E-Y630



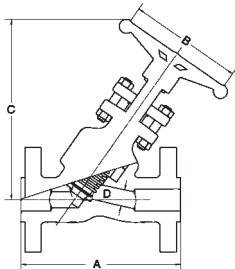
RATINGS: Bellows 1480 p.s.i. @ 100°F

CLASS 800 WELDED BONNET - FULL PORT

Outside Screw & Yoke - Threaded and Socket Weld Ends

FULL PORT	E-Y630	1/2"		3/4"		1"		1 1/4"		1 1/2"		2"	
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
End to End	A	110	4.33	110	4.33	142	5.59	142	5.59	170	6.69	-	-
Handwheel	B	80	3.14	110	4.33	140	5.51	140	5.51	180	7.08	-	-
Center to Top	C	155	6.10	175	6.89	220	8.66	240	9.44	280	11.02	-	-
Port Diameter	D	13	0.51	17.5	0.69	22.5	0.88	29.5	1.16	35	1.37	-	-

1-E-Y630 / 3-E-Y630 / 6-E-Y630



RATINGS: Bellows 1480 p.s.i. @ 100°F

CLASS 150-300-600 WELDED BONNET - FULL PORT

Outside Screw & Yoke - Flanged Ends according to ANSI B16.5

FULL PORT		1/2"		3/4"		1"		1 1/4"		1 1/2"		2"		
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
Class 150	1-E-Y630	A	153	6.02	178	7.00	203	7.99	-	-	229	9.01	267	10.51
Class 300	3-E-Y630	A	153	6.02	178	7.00	203	7.99	-	-	229	9.01	267	10.51
Class 600	6-E-Y630	A	165	6.49	191	7.51	216	8.50	-	-	241	9.48	296	11.65
Handwheel	B	90	3.54	110	4.33	130	5.11	-	-	180	7.08	180	7.08	
Center to Top	C	155	6.10	175	6.89	220	8.66	-	-	280	11.02	320	12.60	
Port Diameter	D	13	0.51	17.5	0.69	23	0.90	-	-	36	1.41	45.5	1.79	

Class 150: end to End according Class 300

Dimensions and weights are subject to change without notice.

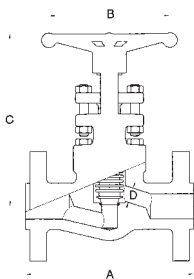


CLASS PN 25/40 - F4U-E830

Globe Eco-L-Valve®
 Flanged to DIN Standards
 Bolted Bonnet
 Full Port
 PN 25/40



F4U-E830



RATINGS: Carbon Steel
 DIN Pn 25-40 40 bar @ 29°C

CLASS PN 25/40

BOLTED BONNET* - REGULAR PORT

Outside Screw & Yoke - Integral Flanged Ends according to DIN 2544

FULL PORT	F4U-E830	DN15		DN20		DN25		DN32		DN40		DN50		DN65		DN80	
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
End to End	A	130	5.11	150	5.90	160	6.29	-	-	200	7.87	230	9.05	290	11.41	310	12.20
Handwheel	B	80	3.14	110	4.33	110	4.33	-	-	130	5.11	160	6.29	250	9.84	300	11.81
Center to Top	C	165	6.49	180	7.08	213	8.38	-	-	262	10.31	327	12.87	457	18.00	550	21.65
Port Diameter	D	15	0.60	20	0.78	25	0.98	-	-	40	1.57	50	1.97	65	2.56	80	3.15

End to End dimensions according to DIN 3202
 *Welded Bonnet option available



CLASS 150 - F1-E830

Globe Eco-L-Valve®
 Flanged
 Bolted Bonnet
 Regular Port
 Rating #150

CLASS 300 - F3-E830

Globe Eco-L-Valve®
 Flanged
 Bolted Bonnet
 Regular Port
 Rating #300

CLASS 600 - F6-E830

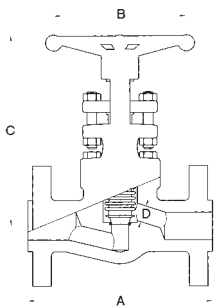
Globe Eco-L-Valve®
 Flanged
 Bolted Bonnet
 Regular Port
 Rating #600

F1-E380 / F3-E380 / F6-E830

CLASS 150-300-600

BOLTED BONNET - REGULAR PORT

Outside Screw & Yoke - Integral Flanged Ends according to ANSI B16.5



RATINGS: Bellows 1480 p.s.i. @ 100°F

REGULAR PORT		1/2"		3/4"		1"		1 1/4"		1 1/2"		2"		
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
Class 150	F1-E830	A	108	4.25	118	4.64	127	5.00	-	-	165	6.49	203	7.99
Class 300	F3-E830	A	153	6.02	178	7.00	203	7.99	-	-	229	9.01	267	10.51
Class 600	F6-E830	A	165	6.49	191	7.51	216	8.50	-	-	241	9.48	296	11.65
Handwheel		B	70	2.75	90	3.54	110	4.33	-	-	130	5.11	180	7.08
Center to Top	Class 150	C	158	6.22	176	6.92	192	7.56	-	-	220	8.66	230	9.05
	Class 350/600	C	136	5.35	144	5.67	167	6.57	-	-	220	8.66	230	9.05
Port Diameter		D	9	0.35	13	0.51	17.5	0.68	-	-	29.5	1.16	36	1.41





CLASS 150 - F1-EW830

Globe Eco-L-Valve®
Flanged
Welded Bonnet
Regular Port
Rating #150

CLASS 300 - F3-EW830

Globe Eco-L-Valve®
Flanged
Welded Bonnet
Regular Port
Rating #300

CLASS 600 - F6-EW830

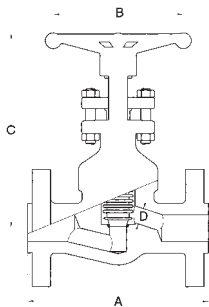
Globe Eco-L-Valve®
Flanged
Welded Bonnet
Regular Port
Rating #600

F1-EW830 / F3-EW830 / F6-EW830

CLASS 150-300-600

WELDED BONNET - FULL PORT

Outside Screw & Yoke - Integral Flanged Ends according to ANSI B16.5



RATINGS: Bellows 1480 p.s.i. @ 100°F

REGULAR PORT		1/2"		3/4"		1"		1 1/4"		1 1/2"		2"		
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	
Class 150	F1-EW830	A	108	4.25	118	4.64	127	5.00	-	-	165	6.49	203	7.99
Class 300	F3-EW830	A	153	6.02	178	7.00	203	7.99	-	-	229	9.01	267	10.31
Class 600	F6-EW830	A	165	6.49	191	7.51	216	8.50	-	-	241	9.48	296	11.65
Handwheel		B	70	2.75	90	3.54	110	4.33	-	-	130	5.11	180	7.08
Center to Top	Class 150	C	158	6.22	176	6.92	192	7.56	-	-	220	8.66	230	9.05
	Class 350/600	C	136	5.35	144	5.67	167	6.57	-	-	220	8.66	230	9.05
Port Diameter		D	9	0.35	13	0.51	17.5	0.68	-	-	29.5	1.16	35	1.37



OMB valves are manufactured in a wide range of materials, supplied by the best available steel mills, forged by well known forgery with outstanding equipment and experience. All the material can be certified in the chemical composition and the mechanical characteristic.

Material Group	Common Name	OMB code	Nominal Type	UNS	Forging Spec. (ASTM)	Casting Spec. Equivalent	DIN	DIN W.No	Application Notes
Carbon Steel	CS	A105N	C-Mn-Fe	K03504	A105N	A216-WCB	C22.8	1.0460	General non-corrosive service from -20F(-29C) to 800F(427C)
Low Temperature Carbon Steel	LTCS	LF1			A350-LF1				
	LTCS	LF2	C-Mn Si	K03011	A350-LF2	A352-LCA A352-LCB A352-LCC	TSTE 355	1.0566	General non-corrosive service from -50F(-46C) to 650F(340C), LF2 to 800F(427C).
	LTCS	LF3	3.1/2Ni	K32025	A350-LF3	A352-LC3	10Ni14	1.5637	-150F(-101C) to 650F(340C)
	LTCS	LF6	C-Mn-Si-V		A350-LF6				higher impact test value at low temp than LF2
Low Alloy Steel	Moly Steel	F1	C-1/2Mo	K12822	A182-F1	A217-WC1	15M03	1.5415	Up to 875F(468C)
	Alloy Steel, Chrome Moly	F11 c12	1.1/4Cr-1/2Mo	K11572	A182-F11	A217-WC6	13CRMO44	1.7335	Up to 1100F(593C)
F22 c13		2.1/4Cr-1Mo	K21590	A182-F22	A217-WC9	10CRMO910	1.7380	Up to 1100F(593C), HP steam	
F5		5Cr-1/2Mo	K41545	A182-F5	A217-C5	12CRMO195	1.7362	High temp refinery service	
F9		9Cr-1Mo	K90941	A182-F9	A217-C12	X 12 CrMo 9 1	1.7386	High temp erosive refinery service	
F91		9Cr-1Mo-V	K90901	A182-F91	A217-C12A	X 10 CrMoVNb 9 1	1.4903	High pressure steam	
High Alloy Steel	Austenitic S.Steel 300 series S.Steel	F304	18Cr-8Ni	S30400	A182-F304	A351-CF8	DIN X5CrNi 18 9	1.4301	0.04% min. carbon for temp.>1000F(538C)
		F304L	18Cr-8Ni (C 0.03)	S30403	A182-F304L	A351-CF3	X 2 CrNi 19 11	1.4306	Up to 800F(427C)
		F304H	18Cr-8Ni	S30409	A182-F304H	A351-CF8	n/a	n/a	
		F310	25 Cr-20 Ni		A182-F310	A351-CK20			
		F316	16Cr-12Ni-2Mo (C 0.08)	S31600	A182-F316	A351-CF8M	DIN X5CrNiMo 18 10	1.4401	0.04% min. carbon for temp.>1000F(538C)
		F316L	16Cr-12Ni-2Mo (C 0.03)	S31603	A182-F316L	A351-CF3M	X 5 CrNiMo 17 12 2	1.4404	Up to 800F(427C)
		F316H	16Cr-12Ni-2Mo	S31609	A182-F316H	A351-CF8M	n/a	n/a	
		F316Ti		S31635	A182-F316Ti		X 6 CrNiMoTi 17 12 2	1.4571	
		F321	18Cr-10Ni-Ti	S32100	A182-F321		X 6 CrNiTi 18 10	1.4541	0.04% min. carbon (grade F321H) and heat treat at 2000F(1100C) for service temps.>1000F(538C)
		F321H	18Cr-10Ni-Ti	S32109	A182-F321H		n/a	n/a	
		F347	18Cr-10Ni-Cb(Nb)	S34700	A182-F347	A351-CF8C	DIN 8556	1.4550	0.04% min. carbon (grade F347H) and heat treat at 2000F(1100C) for service temps.>1000F(538C)
		F347H	18Cr-10Ni-Cb(Nb)	S34709	A182-F347H	A351-CF8C	n/a	n/a	
		F317L		S31703	A182-F317L	A351-CG3M	X 2 CrNiMo 18 16 4	1.4438	
Martensitic stainless steel	F6a-13Cr - 410	F6	13Cr	S41000	A182 F6	A351-CA15			13% Cr steel (trim material)
	F6NM	F6NM		S41500	A182 F6NM	A351-CA6NM	X 3 CrNiMo 13-4	1.4313	13% Cr steel with excellent low temperature impact properties and corrosion resistance
	17-4-PH	17-4-PH		S17400	A564 UNS S17400	ASTM A494 CU5MCuC	X 5 CrNiCuNb 16-4	1.4542	
Super Austenitic Steel	Super Austenitic 6Mo	F44	20Cr-18Ni-6Mo	S31254	A182-F44	A351-CK3MCuN	X 1 CrNiMoCuN 20 18 7	1.4547	service to 600F(316C)
	Super Austenitic 6Mo	904L	44Fe-25Ni-21Cr-Mo	N08904	B649-N08904		Z2 NCDU 25-20	1.4539	
	Super Austenitic 6Mo	926		N08926			X1NiCrMoCuN 25-20-7	1.4529	virtual immunity under practical conditions to chloride-ion stress-corrosion cracking
NiCrMo S.Steel	Alloy 20	ALLOY 20	28Ni-19Cr-Cu-Mo	N08020	A182-F20	A351-CN7M	DIN 1.4500	2.4660	service to 600F(316C)
	Alloy 28	ALLOY 28		N08028				1.4563	nickel based alloy (Ni/Fe/Cr) with good corrosion resistance and a high range of mechanical strength. The alloy was originally developed for use in the manufacture of phosphoric acid.
Duplex Steel	Duplex 2205	F51	22Cr-5Ni-3Mo-N	S31803 S32205	A182-F51	A890-Grade 4A (UNS J92205) - A995 CD3MN	X2CrNiMON22 5 3	1.4462	service to 600F(316C) -The original S31803 UNS designation has been supplemented by S32205 which has higher minimum N, Cr, and Mo.
Super Duplex Steel	Super Duplex 2507	F53	25Cr-7Ni-4Mo-N	S32750	A182-F53	A351-CD4MCu A890 5A	X2CrNiMoN25 7 4	1.4410	service to 600F(316C)
	Super Duplex	F55	25Cr-7Ni-3.5Mo-N-Cu-V	S32760	A182-F55	A351 GR CD3MWCuN	X2CrNiMoCuWN25.7.4	1.4501	
	Ferrallium 255	255		S32550		ASTM A487 gr 4C	n/a	n/a	
Nickel	Nickel 200	NICKEL	99/95Ni	N02200	B564-N02200	A494-CZ-100	NW2200	1.7740	service to 600F(316C)
Nickel-Iron Alloy	Incoloy 800	ALLOY 800	33Ni-42Fe-21Cr	N08800	B564-N08800	A351-CT15C	X 10 NiCrAlTi 32 20	1.4876	
	Incoloy 800H	ALLOY 800H		N08810	B564-N08810			1.4876	
	Incoloy 800HT	ALLOY 800HT		N08811	B564-N08811			1.4876	
	Incoloy 825	ALLOY 825	42Ni-21.5Cr-3Mo-2.3Cu	N08825	B425-N08825	A494-CU5MCuC	NiCr 21 Mo	2.4858	service to 1000F(538C)
Nickel Superalloys	Inconel 600	ALLOY 600	72Ni-15Cr-8Fe	N06600	B564-N06600	A494-CY40	NiCr 15 Fe	2.4816	
	Inconel 625	ALLOY 625	60Ni-22Cr-9Mo-3.5Cb	N06625	B564-N06625*	A494-CW-6MC	DIN 17744	2.4856	*Difficult to forge in close dye
	Inconel 718	ALLOY 718	52.5Ni-19Cr-3Mo	N07718	B637-N07718			2.4668	Alloy 718 is a precipitation hardenable nickel-based alloy designed to display exceptionally high yield, tensile and creep-rupture properties at temperatures up to 1300°F (704°C).
	Hastelloy B2	ALLOY B2	65Ni-28Mo-2Fe	N10665	B564-N10665*			n/a	solid solution strengthened, nickel-molybdenum alloy, with significant resistance to reducing environments like hydrogen chloride gas, and sulfuric, acetic and phosphoric acids
	Hastelloy C-276	ALLOY C276	54Ni-15Cr-16Mo	N10276	B564-N10276*	A494-CW-2M	NiMo 16 Cr 15 W	2.4819	*Difficult to forge in close dye
	Hastelloy C-22	ALLOY C-22		N06022	B462-N06022			2.4602	austenitic nickel-chromium-molybdenum-tungsten alloy with enhanced resistance to pitting, crevice corrosion and stress corrosion cracking
Nickel-Copper	Monel 400	MONEL	67Ni-30Cu	N04400	B564-N04400	A494-M35-1	DIN 17730	2.4365	
	Monel K500	MONEL500		N05500	B865-N05500			n/a	Available as well in 500 grade
Titanium	Titanium	TITANIUM	98Ti	R50400	B381-F2	B367-C2	Ti 2	3.7035	



TRIM MATERIALS



The following tables suggest standard combination of trim (stem, disc or wedge, seat) composition. Different combinations are available upon request.

OMB STANDARD TRIM DEFINITIONS						
API TRIM NO	NOMINAL TRIM	OMB DESCR.	STEAM	DISC/WEDGE	SEAT	MIN HARDNESS (BRINELL)
1	F6	F6	410 (13Cr)	F6 (13Cr)	410 (13Cr)	250
2	304	304	304 (18Cr-8Ni)	304 (18Cr-8Ni)	304 (18Cr-8Ni)	not specified
3	-	-	(25Cr-20Ni)	310 (25Cr-20Ni)	310 (25Cr-20Ni)	not specified
4	-	-	410 (13Cr)	F6 (13Cr)	F6 (13Cr)	750
5	Hardfaced	F6HF	410 (13Cr)	F6 + St Gr6 (CoCr Alloy)	410 + St Gr6 (CoCr Alloy)	350
5A	-	-	410 (13Cr)	F6+Hardf. NiCr Alloy	410+Hardf. NiCr Alloy	350
6	-	-	410 (13Cr)	F6 (13CR)	Monel® (NiCu Alloy)	250/175
7	-	-	410 (13Cr)	F6 (13CR)	F6 (13Cr)	250/750
8	F6 and Hardfaced	F6HFS	410 (13Cr)	F6 (13CR)	410 + St Gr6 (CoCr Alloy)	250/350
8A	-	-	410 (13Cr)	F6 (13CR)	410 Hardf. Nicr Alloy	250/350
9	Monel	Monel	Monel®(NiCu Alloy)	Monel®(NiCu Alloy)	Monel®(NiCu Alloy)	not specified
10	316	316	316 (18Cr-8Ni-Mo)	316 (18Cr-8Ni-Mo)	316 (18Cr-8Ni-Mo)	not specified
11	Monel and Hardfaced	MonelHFS	Monel®(NiCu Alloy)	Monel®(NiCu Alloy)	Monel®St Gr6	350
11A	-	-	Monel®(NiCu Alloy)	Monel®(NiCu Alloy)	Monel®Hardf. NiCrA	3350
12	316 and Hardfaced	316HFS	316 (18Cr-8Ni-Mo)	316 (18Cr-8Ni-Mo)	316 + St. Gr6	350
12A	-	-	316 (18Cr-8Ni-Mo)	316 (18Cr-8Ni-Mo)	316 Hardf. NiCr Alloy	350
13	Alloy 20	Alloy 20	Alloy 20 (19Cr-29Ni)	Alloy 20 (19Cr-29Ni)	Alloy 20 (19Cr-29Ni)	not specified
14	Alloy 20 and Hardfaced	Alloy 20HFS	Alloy 20 (19Cr-29Ni)	Alloy 20 (19Cr-29Ni)	Alloy 20 St Gr6	350
14A	-	-	Alloy 20 (19Cr-29Ni)	Alloy 20 (19Cr-29Ni)	Alloy 20 Hardf. NiCr Alloy	350
15	Hardfaced (304)	304-HF	304 (18Cr-8Ni)	304 + St Gr6	304 + St Gr6	350
16	Hardfaced (316)	316-HF	-	316 + St Gr6	316 + St Gr6	350
17	Hardfaced (347)	347-HF	-	347 + St Gr6	347 + St Gr6	350
18	Hardfaced Alloy 20 HF	Alloy 20 HF	Alloy 20 (19Cr-29Ni)	Alloy 20 + St Gr6	Alloy 20 + St Gr6	350
n/a	Alloy 625	Alloy 625	Alloy 625	Alloy 625	Alloy 625	-

OMB TRIM MATERIAL GRADES						
OMB	UNS	TYPE	Grade (forged)	ASTM wrought	DIN	DIN W No
F6	UNS S41000	13Cr	ASTM A182 F6a	A276-410	DIN X12Cr13	1.4006
304	UNS S30400	18-8 Cr-Ni	ASTM A182 F304	A276-304	DIN X5CrNi 18 10	1.4301
316	UNS S31600	18-8 Cr-Ni (18-10-2)	ASTM A182 F316	A276-316	DIN X5CrNiMo 18 10	1.4401
321	UNS S32100	18 Cr-10 Ni-Ti	ASTM A182 F321	A276-321	DIN X6CrNiTi 18 10	1.4541
347	UNS S34700	18 Cr-10 Ni-Cb	ASTM A182 F347	A276-347	DIN X6CrNiNb18 10	1.4550
MONEL®	UNS N04400	67Ni-30Cu	ASTM B564-N04400	B164-N04400	DIN 17743	2.4360
ALLOY 20	UNS N08020	28Ni-19Cr-Cu-Mo	ASTM A182-F20	ASTM B473	DIN 14500	2.4660
ALLOY 625	UNS N06625	60Ni-22Cr-9Mo-3.5Cb	ASTM B564-N06625	ASTM B564-N06625	DIN 17361	2.4865
C276	UNS N10276	54Ni-15Cr-16Mo	ASTM B564-N10276	ASTM B574-N10276	DIN NiMo 16 Cr 15 W	2.4819
17/4PH	UNS S17400	0Cr17Ni4Cu4Nb	ASTM A705 UNS S17400	ASTM A564 UNS S17400	X5CrNiCuNb17-4-4	1.4548
St. Gr6	UNS R30006	Co Cr-A	AMS 5894	CoCr Stellite® Gr6 or Eq.		



BELLOWS STANDARD MATERIALS

OMB Bellows Seal valves are supplied as standard with Bellows in 321 stainless steel (ASTM240/ASTM A312). Other available materials, on request, are included in the following table (ref API602, Appendix B, table B.1)

API600 Trim	OMB	Stem	Obturator	Seat (*)	Bellows	Bellows Fittings
1	F6/321	410	F6	410	ASTM A240 321	321
5	F6HF/321	410	F6	410+ CoCr	ASTM A240 321	321
8	F6HFS/321	410	F6+CoCr	410+ CoCr	ASTM A240 321	321
10	316/321	316	F316	316	ASTM A240 321	321
12	316HFS/321	316	F316	316L+CoCr	ASTM A240 321	321
16	316HF/321	316	F316L+CoCr	316L+CoCr	ASTM A240 321	321
9	A400/A400 (Monel®)	A400	A400	A400	ASTM B165	A400
	F6/A625	410	F6	410	ASTM 443 665	A625
	A625/A625	A625	A625	A625	ASTM 443 665	A625

TECHINICAL DATA BELLOWS

INSPECTION AND TEST FOR BELLOWS VALVES

Eco-L-Valve® components, due to their characteristics of environment protection, undergo a severe program of inspection and tests. The most delicate component is the bellows.

The process used to manufacture Eco-L-Valve® bellows is by hydraulically forming a tube to give the bellows the shape required by the design. This process also gives an inherent pressure test to the tube used for the forming of bellows. After welding the disc and to the transition plate, bellows are 100% tested with helium to verify the presence of any microcrack. This test is followed by a fatigue cycle test, in accordance with API602, performed on a testing machine designed by OMB R&D staff. Cycle tests are effected on a statistical base and at the same expansion/compression stroke required in each valve for the closing/opening operation.

Bellows are tested at the pressure, required by BS 5352, of 99 bar. During testing the pressure undergoes cyclic variations, from

94 to 104 bar, so that bellows are tested also in cyclic pressure conditions. This test is performed by mounting the bellows/disc assembly on its stem and assembling on a cylinder containing water as the pressure medium.

The transition disc of the bellows is clamped between one gasket and a steel ring which simulates the closing pressure of the bonnet reproducing the same conditions of the assembled valve. The stem is then connected to a device which effects the required stroke at a number of cycles.

After the completion of minimum number of cycles, bellows are tested with a mass spectrometer to a minimum leakage rate in the range of 1×10^{-6} SCC/sec.

The bellows are then subject to NDT examination. Cycle tests are always performed on a number of pieces which depends on the total lot and which is taken from the tables in use at OMB (UNI 4842-75 Specifications for Statistical Control).

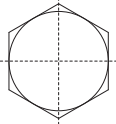


SUBSTITUTE BODY-TO-BONNET BOLTING MATERIALS			
ASTM Bolting Material	EN 10269 Bolting Material Grade	ASTM Bolting Material	EN 10269 Bolting Material Grade
A193 B7 A 193 B16	42CrMo4 (1.7225) QT 40CrMoV4-6 (1.7711) - QT	A 193 B8M2, CL 2B A 193 B8M3, CL 2C	X5CrNiMo 17-12-2 (1.4401) - C700 X5CrNiMo 17-12-2 (1.4401) - C700
A 193 B8M, CL 2 A 194 2H	X5CrNiMo 17-12-2 (1.4401) C45E (1.1191) - QT	A 193 B8M, CL 1 A 193 B8MA, CL 1A	X5CrNiMo 17-12-2 (1.4401) - AT X5CrNiMo 17-12-2 (1.4401) - AT
A194 8M	X5CrNiMo 17-12-2 (1.4401) - AT	A 193 B8, CL 1 A193 B8A, CL 1A	X5CrNiMo 18-10 (1.4301) - AT X5CrNiMo 18-10 (1.4301) - AT
-	-	A 193, B8 CL 2 A 320, L7	X5CrNi 18-10 (1.4301) - C700 42CrMo4 (1.7225) - QT
-	-	A 194 GR 8 A194 GR 4	X5CrNi 18-10 (1.4301) - AT 42CrMo4 (1.7225) - QT
-	-	A 194 GR 7	42CrMo4 (1.7225) - QT

Thermal Expansion Of Bolts On Forged Steel Valves

Thermal Expansion of bolting in B7 and B8 material used in Forged steel valves made according to ISO 15761/API 602.

The following table gives the mechanical properties of the most common bolt materials used in the Forged Steel valves.

Identification Grnde Mark 	Specification	Material	Nominal Size Range (in.)	Linear Thermal Expansion Coefficient (°C-1)	Mechanical Properties		
					Proof Load (psi)	Yield Strength Min (psi)	Tensile Strength Min (psi)
B7	ASTM A193 type - Grade B7	4140, 4142, OR 4105	1/4 thru 2-1/2 Over 2-1/2 thru 4 Over 4 thru	$12 * 10^{-6}$	-- -- --	105,000 95,000 75,00	125,000 115,000 100,000
B16	ASTM A193 type - Grade B16	CrMoVa Alloy Steel	1/4 and larger	$11 * 10^{-6}$	--	105,000 95,000 85,000	125,000 115,000 100,000
B8	ASTM A193 Grade B8	AISI 304	1/4 thru 3/4 Over 3/4 to 1-1/2	$11 * 10^{-6}$	55,000 33,000	30,000	75,000
B8M	ASTM A193 Grade B8M	AISI 316	1/4 thru 2-1/2 Over 2-1/2 thru 4 Over 4 thru 7	$11 * 10^{-6}$	-- -- --	105,000 95,000 75,000	125,000 115,000 100,000

The Cv's a valve property and is defined as follows: "The Flow Coefficient Cv states the flow capacity of a valve in U.S. gallons per minute of water at a standard temperature of 60°F (15,6° C) that will flow through the valve with a pressure loss of one pound per square inch at a specific opening position".

For the metric system the analog value is Kv where measure unit are Bar, Kg and meters. The Cv show the quality and accuracy of a valve in terms of pressure loss, the highest values of Cv indicate the highest quality of a valve.

CV TABLE							
VALVE SIZE	GATE		GLOBE			ECO-L-VALVE®	
	Regular Port	Full Port	Regular Port	Full Port	Y-Pattern	Regular Port	Y-Pattern
1/4	-	2.5	-	1.1	-	-	2.9
1/8	-	4.3	-	1.4	-	-	3.8
1/2	5.5	11.6	1.5	3.6	1	1.5	4.5
3/4	12	26.6	3.8	6.6	2.8	3.8	10.1
1	27	54.6	6.8	10.9	6	6.3	16.0
1 1/4	55	79.8	11	14	9.5	11	23.1
1 1/2	80	87	14.3	24.3	11	14.3	47.1
2	105	108	25	39.7	18	25	18

FLOW-RATE

$$Q = C_v \sqrt{\frac{\Delta p}{S}}$$

PRESSURE DROP

$$\Delta p = S \left(\frac{Q}{C_v} \right)^2$$

CONVERSION TABLE TO METRIC Kv

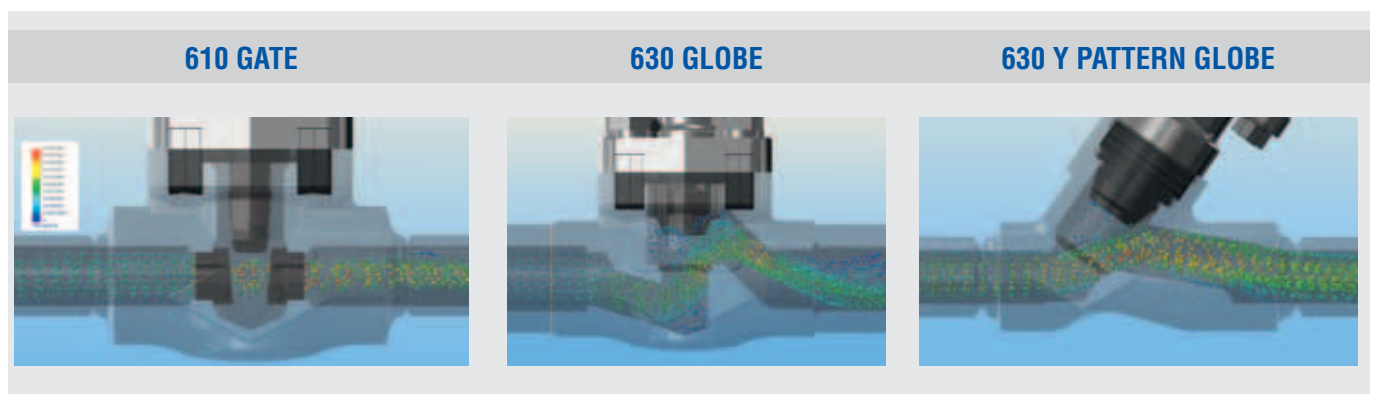
Flow Coefficient	Cv	Kv
Cv	1	0.865
Kv	1.156	1

For liquids other than water
p = Pressure drop (p.s.i.).
Q = Liquid flow in gallons per minute (GPM).
S = Specific gravity of liquid relative to water (60°F).
Cv = Valves flow coefficient.



FLOW SIMULATION

OMB engineering team employs the latest flow dynamic simulation softwares to calculate cv tables. The data is the verified performing actual tests on a purpose built test facility.



MINIMUM FLOW PASSAGE WAY



Class 150-300-600-800

BS 5352 - API 602 ^{8TH} / ISO 15761					
	DN	NPS	BS 5352 (OBSOLETE)		API 602 ^{8TH} /ISO 1561
			STANDARD BORE	REDUCE BORE	MINIMUM DIAMETER
GATE	8	1/4	6	-	6
	10	3/8	9	6	6
	15	1/2	12	9	9
	20	3/4	18	12	12
	25	1	23	18	17
	32	1 ^{1/4}	30	23	23
	40	1 ^{1/2}	36	30	28
	50	2	46,5	26	36
GLOBE	8	1/4	6	-	6
	10	3/8	9	6	6
	15	1/2	12	9	9
	20	3/4	17,5	12	12
	25	1	22,5	17,5	17
	32	1 ^{1/4}	29,5	22,5	23
	40	1 ^{1/2}	35	29,5	28
	50	2	45,5	35	36
CHECK	8	1/4	6	-	6
	10	3/8	9	6	6
	15	1/2	12	9	9
	20	3/4	17,5	12	12
	25	1	22,5	17,5	17
	32	1 ^{1/4}	29,5	22,5	23
	40	1 ^{1/2}	35	29,5	28
	50	2	45,5	35	36

OMB MINIMUM PASSAGE WAY					
	DN	NPS	STANDARD PORT	FULL PORT	
			API 602 8 th	BS 5352	
			SW, NPT, FLANGED END, BUTT WELD END		
GATE	8	1/4	6	6	
	10	3/8	6	9	
	15	1/2	9	12	
	20	3/4	12	18	
	25	1	17	23	
	32	1 ^{1/4}	23	30	
	40	1 ^{1/2}	28	36	
	50	2	36	46,5	
GLOBE	8	1/4	6	N/A	
	10	3/8	6	N/A	
	15	1/2	9	N/A	
	20	3/4	12	N/A	
	25	1	17	N/A	
	32	1 ^{1/4}	23	N/A	
	40	1 ^{1/2}	28	N/A	
	50	2	36	N/A	
CHECK	8	1/4	6	N/A	
	10	3/8	6	N/A	
	15	1/2	9	N/A	
	20	3/4	12	N/A	
	25	1	17	N/A	
	32	1 ^{1/4}	23	N/A	
	40	1 ^{1/2}	28	N/A	
	50	2	36	N/A	

Class 900-1500

BS 5352 - API 602 ^{8TH} / ISO 15761					
	DN	NPS	BS 5352 (OBSOLETE)		API 602 ^{8TH} /ISO 1561
			STANDARD BORE	REDUCE BORE	MINIMUM DIAMETER
GATE	8	1/4	-	N/A	6
	10	3/8	-	N/A	6
	15	1/2	11,5	N/A	9
	20	3/4	15	N/A	12
	25	1	19,5	N/A	15
	32	1 ^{1/4}	28	N/A	22
	40	1 ^{1/2}	32	N/A	27
	50	2	40	N/A	34
GLOBE	8	1/4	-	N/A	5
	10	3/8	-	N/A	5
	15	1/2	11	N/A	8
	20	3/4	14,5	N/A	9
	25	1	19	N/A	14
	32	1 ^{1/4}	27	N/A	20
	40	1 ^{1/2}	31	N/A	25
	50	2	37,5	N/A	27
CHECK	8	1/4	-	N/A	5
	10	3/8	-	N/A	5
	15	1/2	11	N/A	8
	20	3/4	14,5	N/A	9
	25	1	19	N/A	14
	32	1 ^{1/4}	27	N/A	20
	40	1 ^{1/2}	31	N/A	25
	50	2	37,5	N/A	27

OMB MINIMUM PASSAGE WAY					
	DN	NPS	STANDARD PORT	FULL PORT	
			API 602 8 th	BS 5352	
			SW, NPT, FLANGED END (End to End OMB dimension)	FLANGED END, BUTTWELDED END (End to End OMB dimension as per ASME b16.10)	
GATE	8	1/4	6	-	
	10	3/8	6	-	
	15	1/2	9	11,5	
	20	3/4	12	15	
	25	1	15	19,5	
	32	1 ^{1/4}	22	28	
	40	1 ^{1/2}	27	32	
	50	2	34	40	
GLOBE	8	1/4	5	-	
	10	3/8	5	-	
	15	1/2	8	11	
	20	3/4	9	14,5	
	25	1	14	19	
	32	1 ^{1/4}	20	27	
	40	1 ^{1/2}	25	31	
	50	2	27	37,5	
CHECK	8	1/4	5	-	
	10	3/8	5	-	
	15	1/2	8	11	
	20	3/4	9	14,5	
	25	1	14	19	
	32	1 ^{1/4}	20	27	
	40	1 ^{1/2}	25	31	
	50	2	27	37,5	



According to API 608 9th/ ISO 15761 - Class 800

SERVICE TEMP.	A105 ⁽¹⁾ A350-LF2 ⁽²⁾	A182 ⁽³⁾ F11	A182 ⁽³⁾ F22	A182 F5	A182 F9	A182 F304	A182 F316	A182 F304L	A182 F347H
F°	psi	psi	psi	psi	psi	psi	psi	psi	psi
-20 to 100	1975	2000	2000	2000	2000	1920	1920	1600	1920
200	1800	1900	1910	2000	2000	1600	1655	1350	1695
300	1750	1795	1805	1940	1940	1410	1495	1210	1570
400	1690	1755	1730	1880	1880	1255	1370	1100	1480
500	1595	1710	1705	1775	1775	1165	1275	1020	1380
600	1460	1615	1615	1615	1615	1105	1205	960	1310
650	1430	1570	1570	1570	1570	1090	1185	935	1280
700	1420	1515	1515	1515	1515	1075	1150	915	1250
750	1345	1420	1420	1420	1420	1060	1130	895	1230
800	1100	1355	1355	1325	1355	1050	1105	875	1215
850	715	1300	1300	1170	1300	1035	1080	860	1185
900	460	1200	1200	940	1200	1025	1050		1150
950	275	1005	1005	695	985	1000	1030		1030
1000	140	595	715	510	780	860	970		970
1050		365	530	375	505	825	960		960
1100		255	300	275	300	865	860		860
1150		140	275	185	200	520	735		735
1200		95	145	120	140	415	550		460
1250						295	485		330
1300						218	365		250
1350						165	275		180
1400						130	200		140
1450						95	155		110
1500						65	110		95

SERVICE TEMP.	A105 ⁽¹⁾ A350-LF2 ⁽²⁾	A182 ⁽³⁾ F11	A182 ⁽³⁾ F22	A182 F5	A182 F9	A182 F304	A182 F316
C°	bar	bar	bar	bar	bar	bar	bar
-29 to 38	136.2	137.9	137.9	137.9	137.9	132.4	132.4
93.5	124.1	131.0	131.7	137.9	137.9	110.3	114.1
149	120.7	123.8	124.5	133.8	133.8	97.2	103.1
204.5	116.6	121.0	119.3	129.7	129.7	96.5	94.5
260	110.0	117.9	117.6	122.4	122.4	80.3	87.9
315.5	100.7	113.4	113.4	113.4	113.4	76.2	83.1
343.5	98.6	108.3	108.3	108.3	108.3	75.2	81.7
371	97.9	104.5	104.5	104.5	104.5	74.1	79.3
399	92.7	97.9	97.9	97.9	97.9	73.1	77.9
426.5	75.9	93.4	93.4	91.4	93.4	72.4	76.2
454.5	49.3	89.7	89.7	80.7	89.7	71.4	74.5
482	31.7	82.8	82.8	64.8	82.8	70.7	72.4
510	19	69.3	69.3	47.9	67.9	69.0	71.0
538	9.7	41.0	49.3	35.2	53.8	59.3	66.9
565.5		25.2	36.6	25.9	34.8	56.9	66.2
593.5		17.6	20.7	19.0	20.7	47.2	59.3
621		9.7	19.0	12.8	13.8	35.9	50.7
649		6.6	10.0	8.3	9.6	28.6	37.9
676.5						20.3	33.4
704.5						15.0	25.2
732						11.4	19.0
5						9.0	13.8
760.5						6.6	10.7
788.5						4.5	7.6

NOTE: (1) Permissible, but not recommended for prolonged use above 800°F

(2) Not to be used over 650°

(3) Permissible, but not recommended for prolonged use above 1050°F

According to ASME B16.34 - Carbon Steel A105⁽¹⁾ & A350 LF2⁽²⁾

SERVICE TEMP.	150	300	600	1500	2500
F°	psi	psi	psi	psi	psi
-20 to 100	285	740	1480	3705	6170
200	260	675	1350	3375	5625
300	230	655	1315	3280	5470
400	200	635	1270	3170	5280
500	170	600	1200	2995	4990
600	140	550	1095	2735	4560
650	125	535	1075	2685	4475
700	110	535	1065	2665	4440
750	95	505	1010	2520	4200
800	80	410	825	2060	3430
850	65	270	535	1340	2230
900	50	170	345	860	1430
950	35	105	205	515	860
1000	20	50	105	260	430
1050					
1100					

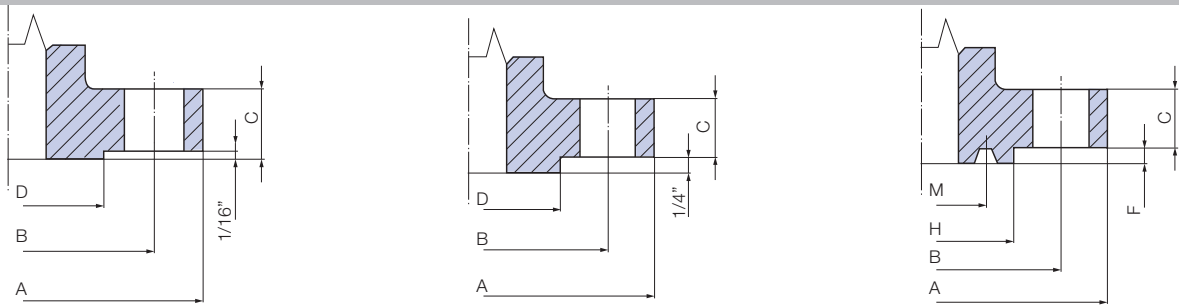
SERVICE TEMP.	PN 20	PN 50	PN 100	PN 250
C°	bar	bar	bar	bar
38	19.6	51.5	102.1	255.3
50	19.2	50.1	100.2	250.4
100	17.7	46.4	92.8	231.9
150	15.8	45.2	90.5	226.1
200	14.0	43.8	87.6	219.1
250	12.1	41.7	83.4	208.6
300	10.2	38.7	77.5	193.7
350	8.4	37.0	73.9	184.8
375	7.4	36.5	72.9	182.3
400	6.5	34.5	69.0	172.5
425	5.6	28.8	57.5	143.8
450	4.7	20.0	40.1	100.2
475	3.7	13.5	27.1	67.7
500	2.8	8.8	17.6	44.0
525	1.9	5.2	10.4	25.9
540	1.3	3.3	6.5	16.3

NOTE: (1) Permissible, but not recommended for prolonged use above 800°F

(2) Not to be used over 650°



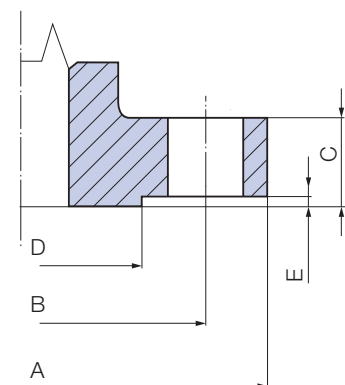
FLANGED ASME - B16.5



CLASS	SIZE	A		C		D		B		BOLT HOLED		RING JOINT FACING				RING N.		
								N	SIZE	H	M	F						
150	1/2	3.50	89.0	0.44	11.5	1.38	34.9	2.38	60.5	4	0.62	16.0	-	-	-	-	-	-
	3/4	3.88	98.5	0.50	13.0	1.69	42.9	2.75	70.0	4	0.62	16.0	-	-	-	-	-	-
	1	4.25	108.0	0.56	14.5	2.00	50.8	3.12	79.5	4	0.62	16.0	2.50	63.5	1.875	47.62	0.250	6.4
	1.1/4	4.62	117.5	0.62	16.0	2.50	63.5	3.50	89.0	4	0.62	16.0	2.88	73.0	2.250	57.15	0.250	6.4
	1.1/2	5.00	127.0	0.69	18.0	2.88	73.0	3.88	98.5	4	0.62	16.0	3.25	82.5	2.562	65.07	0.250	6.4
	2	6.00	152.5	0.75	19.5	3.62	92.1	4.75	120.5	4	0.75	19.0	4.00	101.5	3.250	82.55	0.250	6.4
300	1/2	3.75	95.5	0.56	14.5	1.38	34.9	2.62	66.5	4	0.62	16.0	2.00	50.8	1.344	34.14	0.219	5.6
	3/4	4.62	117.5	0.62	16.0	1.69	42.9	3.25	82.5	4	0.75	19.0	2.50	63.5	1.688	42.88	0.250	6.4
	1	4.88	124.0	0.69	18.0	2.00	50.8	3.50	89.0	4	0.75	19.0	2.75	69.9	2.000	50.80	0.250	6.4
	1.1/4	5.25	133.5	0.75	19.5	2.50	63.5	3.88	98.5	4	0.75	19.0	3.12	79.2	2.375	60.32	0.250	6.4
	1.1/2	6.12	156	0.81	21.0	2.88	73.0	4.50	114.5	4	0.88	22.0	3.56	90.44	2.688	68.28	0.250	6.4
	2	6.50	165.5	0.88	22.5	3.62	92.1	5.00	127.0	8	0.75	19.0	4.25	108.0	3.250	82.55	0.312	7.9
600	1/2	3.75	95.5	0.56	14.5	1.38	34.9	2.62	66.5	4	0.62	16.0	2.00	50.5	1.344	34.14	0.219	5.6
	3/4	4.62	117.5	0.62	16.0	1.69	42.9	3.25	82.5	4	0.75	9.0	2.50	63.5	1.688	42.88	0.250	6.4
	1	4.88	124.0	0.69	18.0	2.00	50.8	3.50	89.0	4	0.75	19.0	2.75	69.9	2.000	50.80	0.250	6.4
	1.1/4	5.25	133.5	0.81	21.0	2.50	63.5	3.88	98.5	4	0.75	19.0	3.12	79.4	2.375	60.32	0.250	6.4
	1.1/2	6.12	156.0	0.88	22.5	2.88	73.0	4.50	114.5	4	0.88	22.0	3.56	90.5	2.688	68.25	0.250	6.4
	2	6.50	165.5	1.00	25.5	3.62	92.1	5.00	127.0	8	0.75	19.0	4.25	108.0	3.250	82.55	0.312	7.9
1500	1/2	4.75	121.0	0.88	22.5	1.38	34.9	3.25	82.5	4	0.88	22.0	2.38	60.3	1.562	39.67	0.250	6.4
	3/4	5.12	130.5	1.00	25.5	1.69	42.9	3.50	89.0	4	0.88	22.0	2.62	66.7	1.750	44.45	0.250	6.4
	1	5.88	149.5	1.12	29.0	2.00	50.8	4.00	101.5	4	1.00	25.5	2.81	71.4	2.000	50.80	0.250	6.4
	1.1/4	6.25	159.0	1.12	29.0	2.50	63.5	4.38	111.0	4	1.00	25.5	3.19	81.0	2.375	60.32	0.250	6.4
	1.1/2	7.00	178.0	1.25	32.0	2.88	73.0	4.88	124.0	4	1.12	28.5	3.62	92.1	2.688	68.28	0.250	6.4
	2	8.50	216.0	1.50	38.5	3.62	92.1	6.50	165.0	8	1.00	25.5	4.88	123.8	3.750	95.25	0.312	7.9
2500	1/2	5.23	133.5	1.20	30.5	1.38	34.9	3.50	89.0	4	0.88	22.0	2.55	65.1	1.688	42.88	0.250	6.4
	3/4	5.51	140.0	1.25	32.0	1.69	42.9	3.74	95.0	4	0.88	22.0	2.87	73.0	2.000	50.80	0.250	6.4
	1	6.25	159.0	1.37	35.0	2.00	50.8	4.24	108.0	4	1.00	25.5	3.24	82.5	2.375	60.32	0.250	6.4
	1.1/4	7.24	184.5	1.51	38.5	2.50	63.5	5.12	130.0	4	1.12	28.5	3.99	101.5	2.844	72.24	0.312	7.9
	1.1/2	7.99	203.5	1.75	44.5	2.88	73.0	5.74	146.0	4	1.25	31.5	4.50	114.3	3.250	82.55	0.312	7.9
	2	9.25	235.0	2.00	51.0	3.62	92.1	6.74	171.5	8	1.12	28.5	5.25	133.3	4.000	101.60	0.312	7.9

FLANGED DIN 2544-45-56

DN	PN	SIZE	A	B	C	D	E	BOLT HOLED	
								N	Ø
15	25/40	1/2	95	65	16	45	2	4	14
20		3/4	105	75	18	58	2	4	14
25		1	115	85	18	68	2	4	14
32		1.1/4	140	100	18	78	2	4	18
40		1.1/2	150	110	18	88	3	4	18
50		2	165	125	20	102	3	4	18
15	64	1/2	105	75	20	45	2	4	14
20		3/4	130	90	22	58	2	4	18
25		1	140	100	24	65	2	4	18
32		1.1/4	155	110	24	75	2	4	22
40		1.1/2	170	125	26	88	3	4	22
50		2	180	135	26	95	3	4	22



BUTT WELD - ASME B16.25

SIZE	SCHEDULE 40		SCHEDULE 80		SCHEDULE 160		SCHEDULE XXS	
	ØA	T	ØA	T	ØA	T	ØA	T
	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)	mm (in)
1/2"	21.3	2.77	21.3	3.73	21.3	4.78	21.3	7.47
	(0.840)	(0.190)	(0.840)	(0.147)	(0.840)	(0.188)	(0.840)	(0.294)
3/4"	26.7	2.87	26.7	3.91	26.7	5.56	26.7	7.82
	(1.050)	(0.113)	(1.050)	(0.154)	(1.050)	(0.219)	(1.050)	(0.308)
1"	33.4	3.38	33.4	4.55	33.4	6.35	33.4	9.09
	(1.315)	(0.133)	(1.315)	(0.179)	(1.315)	(0.250)	(1.315)	(0.358)
1.1/4"	42.2	3.55	42.2	4.85	42.2	6.35	42.2	9.70
	(1.660)	(0.140)	(1.660)	(0.19)	(1.660)	(0.250)	(1.660)	(0.382)
1.1/2"	48.3	3.68	48.3	5.08	48.3	7.14	48.3	10.15
	(1.900)	(0.145)	(1.900)	(0.200)	(1.900)	(0.281)	(1.900)	(0.400)
2"	60.3	3.91	60.3	5.54	60.3	8.74	60.3	11.07
	(2.375)	(0.154)	(2.375)	(0.217)	(2.375)	(0.344)	(2.375)	(0.436)
2.1/2"	73.0	5.15	73.0	7.01	73.0	9.53	73.0	14.02
	(2.875)	(0.203)	(2.875)	(0.276)	(2.875)	(0.375)	(2.875)	(0.552)
3"	88.9	5.48	88.9	7.62	88.9	11.13	88.9	15.24
	(3.500)	(0.216)	(3.500)	(0.300)	(3.500)	(0.438)	(3.500)	(0.600)
4"	114.3	6.02	114.3	8.56	114.3	13.49	114.3	17.12
	(4.500)	(0.237)	(4.500)	(0.337)	(4.500)	(0.531)	(4.500)	(0.674)

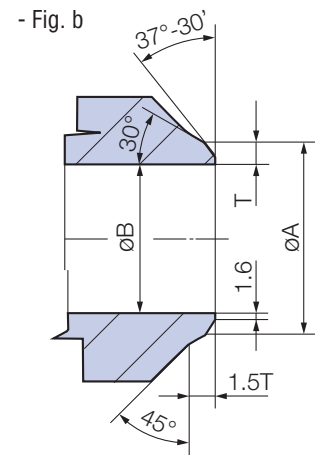
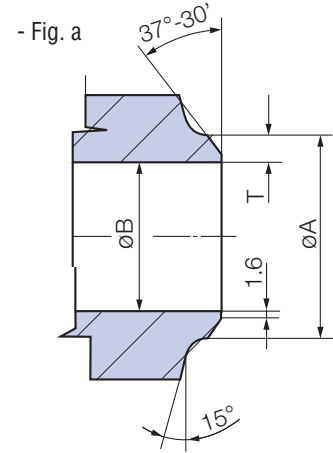
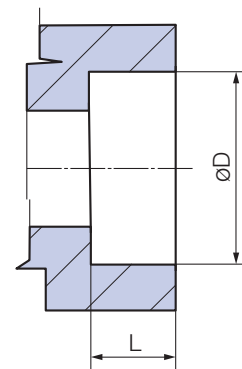


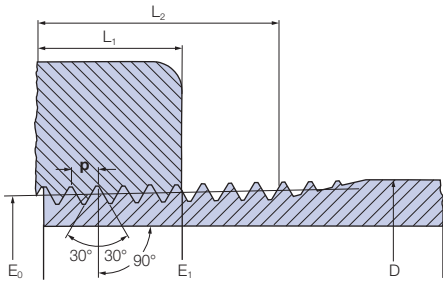
Fig. a ≤ 2" | Fig. b > 2" | A = B - 2T

SOCKET WELD API 602/ISO 1576

SIZE	ØD		L (min)	
	mm	inch	mm	inch
1/4"	14.20	0.557	9.53	0.38
3/8"	17.60	0.690	9.53	0.38
1/2"	21.80	0.855	9.53	0.38
3/4"	27.20	1.065	12.70	0.5
1"	33.90	1.330	12.70	0.5
1.1/4"	42.70	1.675	12.70	0.5
1.1/2"	48.80	1.915	12.70	0.5
2"	61.20	2.406	15.88	0.62

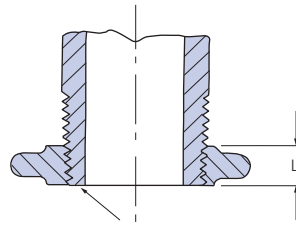
L (OMB)	
mm	inch
11.1	0.44
11.1	0.44
12.7	0.5
4.5	0.57
16.0	0.63
17.5	0.69
19.0	0.75
22.0	0.86



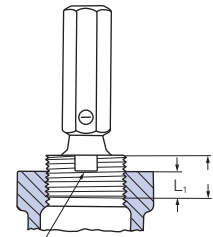


$E_0 = D - (0.050D + 1.1)p$
 $E_1 = E_0 + 0.0625 L_1$
 $L_2 = (0.80D + 6.8)p$

p = Pitch
 Depth of thread = 0.80p
 Total Taper 3/4 -inch per Foot



Flush by Hand
Tolerance on Product
 One turn large or small from notch on plug gauge or face of ring gauge.

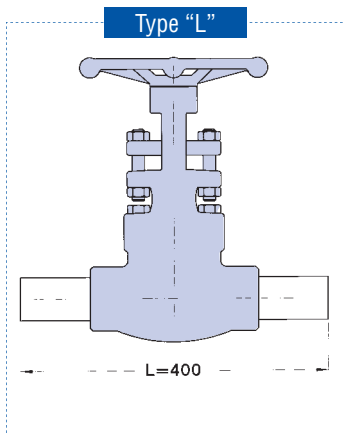
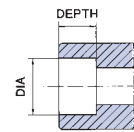


Notch flush with face of fitting.
 If chamfered, notch flush with bottom of chamfer.

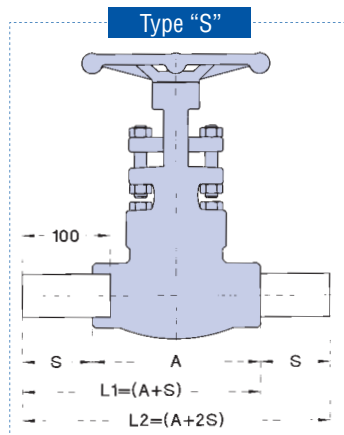
THREADS - ASME B1.20.1

NOMINAL PIPE SIZE	D Outside diameter of pipe	Number of threads per inch	p Pitch of thread	E ₀ Pitch diameter at end of external thread	E ₁ ■ Pitch diameter at end of external	E ₁ ● Normal engagement by and between external and internal threads	E ₁ ◆ Length of effective external thread	Height of thread
1/16	0.3125	27	0.03704	0.27118	0.8118	0.160	0.2611	0,02963
1/8	0.405	27	0.3704	0.36351	0.37360	0.1615	0.2639	0,02963
1/4	0.540	18	0.05556	0.47739	0.49163	0.2278	0.4018	0,04444
3/8	0.675	18	0.05556	0.61201	0.62701	0.240	0.4078	0,04444
1/2	0.840	14	0.07143	0.75843	0.77843	0.320	0.5337	0,05714
3/4	1.050	14	0.07143	0.96768	0.98887	0.339	0.5457	0,05714
1	1.315	11.5	0.08696	1.23863	1.23863	0.400	0.6828	0,06957
1.1/4"	1.660	11.5	0.08696	1.55713	1.58338	0.420	0.7068	0,06957
1.1/2"	1.900	11.5	0.08696	1.79609	.82234	0.420	0.7235	0,06957
2	2.375	11.5	0.08696	2.2692	2.29627	0.436	0.7565	0,06957

- Also pitch diameter at gauging notch.
- ◆ Also length of plug gauge.
- Also length of ring gauge, and length from gauging notch to small end of plug gauge.
- * For the 1/8-27 and 1/4-18 sizes... E1 approx. = $D - (0.05D + 0.827)p$.



Long Pattern Total length 400 mm.



A = See relevant Product/Size/Class table within this catalog
 S = See table Socket Weld

VALVES WITH NIPPLES LENGTHS

NOMINAL PIPE SIZE		SOCKET BORE DIA.		SOCKET DEPTH		S	
NPT	DN	mm	in	mm	in	mm	in
1/4	8	14.2	0.557	11.1	0.437	89	3.503
3/8	10	17.6	0.690	11.1	0.437	89	3.503
1/2	15	21.8	0.855	12.7	0.500	88	3.464
3/4	20	27.2	1.065	14.5	0.570	86	3.385
1	25	33.9	1.330	16	0.629	85	3.346
1 1/4	32	42.57	1.675	17.5	0.688	83	3.267
1 1/2	40	48.8	1.915	19	0.748	82	3.228
2	50	61.2	2.406	22	0.866	79	3.110



NAMEPLATE

Each valve is identified by proper marking on the name plate according to MSS SP25 and ISO15761 specifications.

Nameplate contains information regarding valve type, body-bonnet material, seat-wedge and stem composition, class and diameter. On the nameplate the relevant mark is incorporated.

Each valve when tested is stamped on the nameplate with the QC operator code for reference.



BODY MARKING

Material designation and heat codes are forged on both body and bonnet.

Bodies are marked with the OMB logo, pressure class designation, nominal size (using NPS number) and an arrow on check and globe valves (unidirectional).

Upon customer request further marking can be applied.



ADDITIONAL TAGS

On request valve can be supplied with tags made on customer specification to provide easier identification of products.



PHOSPHATIZING OF CS VALVES

All OMB carbon and alloy steel bodies and bonnets undergo a photosphatization process according to the table.



PHOSPHATIZING SPECIFICATION (ZINC BASE) FOR CARBON STEEL PROTECTION			
Bath	Type of operation Product used	Min. time	Temp. °C
1	Alkaline degreasing - Italbonder 011	8"	95°
2	Cold washing - Water air (current)	1"-3"	20°
3	Bonderizing - Bonder A2 - PS	8"-10"	80°
4	Cold washing - Water air (current)	1"-3"	20°
5	Oiling - Emulsifiable protoil RE	3"	50°
6	Drying	5"	20°

Phosphatization is carried out on all forged bodies and bonnets in carbon and alloy steel.

PICKLING OF SS VALVES

All OMB stainless steel valves undergo a pickling process in a concentrated acid solution which cleans perfectly the surface of the components and allows a visual inspection of each piece.

RUST PREVENTION AND SHIPPING

All valves are shipped in wooden crates seaworthy with end protection cups in plastic and a rust prevention fluid applied in the valves internal parts. In case of special applications valves can be prepared for transportation in accordance to customer specifications.



SPARE PARTS

OMB supply on request spare parts in the form of kits inclusive of packing and gaskets. Valves need to be identified with the data provided on the Nameplate (model type, material and size as a minimum).

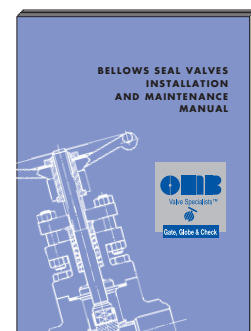
OMB policy is to maintain for at least 10 years parts in stock for every design even discontinued. In case of special applications valves can be prepared for transportation in accordance to customer specifications

INSTALLATION, OPERATION AND MAINTENANCE MANUALS

MANUAL REQUEST

(send a copy of this page with your request to +39.035.942638)

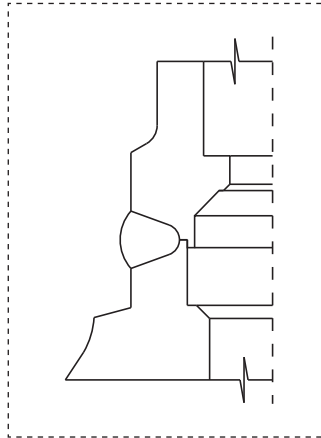
- OMB GGC**
Install and Maintenance
- OMB BELLOWS**
Seal Valve Install and Maintenance



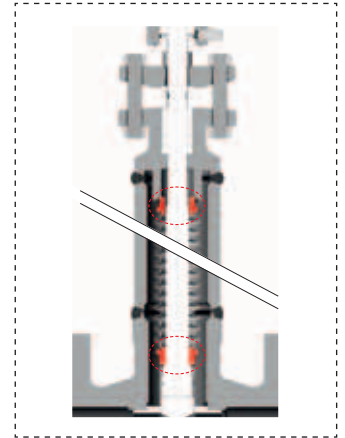
BODY-BONNET CONNECTIONS: WELDED BONNET

OMB Bellows seal standard body-extension and extension-bonnet connections are welded bonnet with full penetration welding.

All OMB welding procedures are performed by operators qualified according to ASME IX.



*Full Penetration Weld "WP"
(standard)*

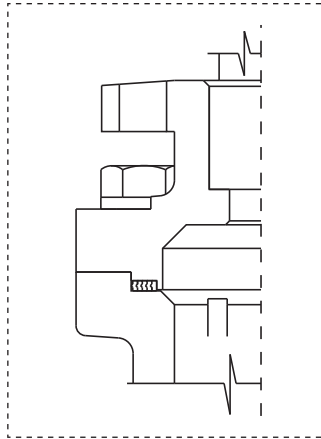


BODY-BONNET CONNECTIONS: BOLTED BONNET

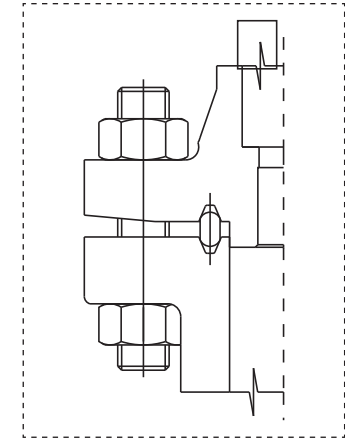
OMB offers as well a bolted bonnet connection for bellows seal valves, with a spiral wound gasket to seal the connection.

On request we offer Ring Joint connection for classes 600, 1500 & 2500.

Ring Joint is standard feature on class 2500 bolted bonnet, on request on all other pressure class.



Gasket Joint



Ring Joint

INTEGRAL FLANGED ENDS

All OMB valves flanges are provided with flanges integral with the body forgings.

We do not weld on flanges in any class or materials so you can have a complete guarantee of integrity, mechanical strength and material compatibility.

All our flanged (and butt weld) valves have dimension in accordance to ASME B16.5 (ends) and ASME B16.10 (end to end).

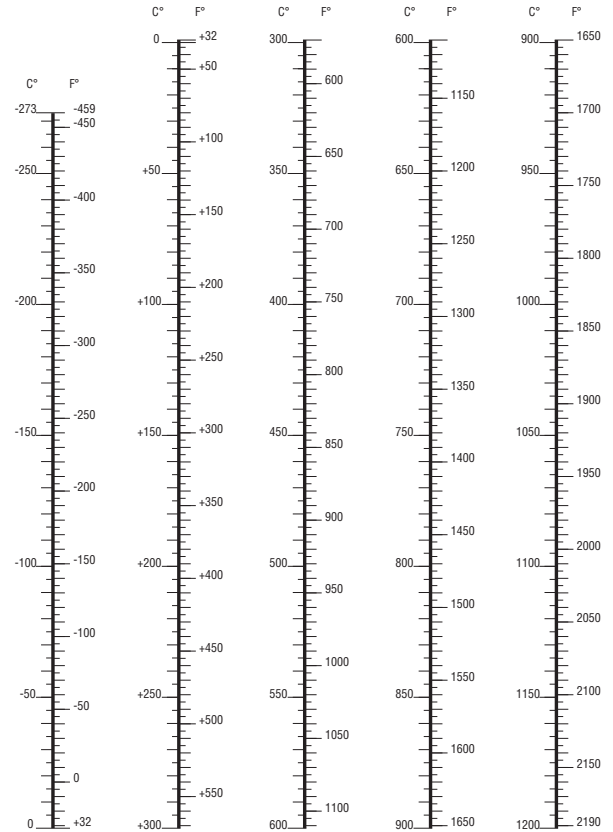
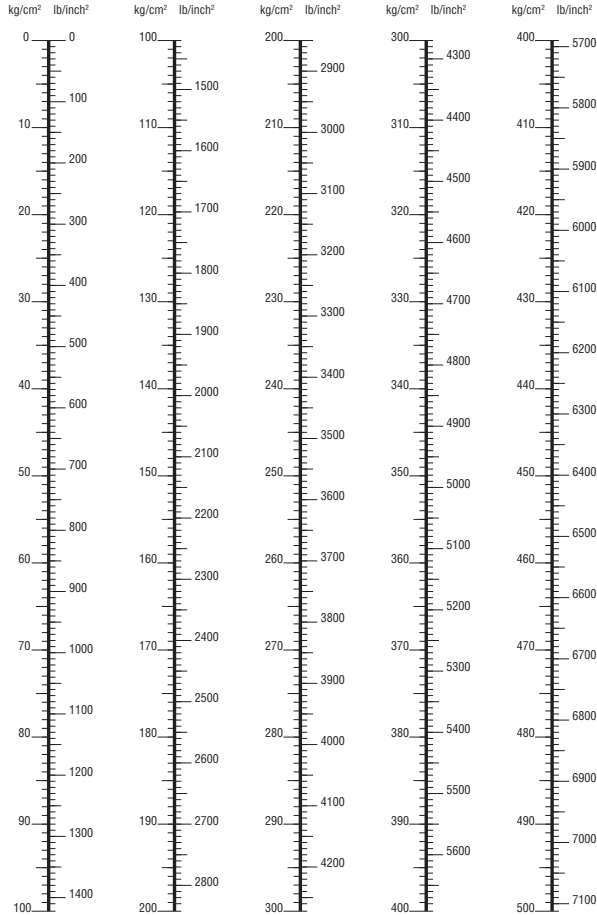


CONVERSION CHART



PRESSURE 1 Kg/cm² = 142233 lb/inch²
1 lb/inch² = 0,07037 Kg/cm²

TEMPERATURE °F = 9/5 °C + 32
°C = 5/9 (°F -- 32)



Fraction of 1 inch into decimal and millimeters

FRACTION	INCH.	MILLIM.
1/64	0.016	0.397
1/32	0.031	0.794
3/64	0.047	1.191
1/16	0.062	1.587
5/64	0.078	1.984
3/32	0.094	2.381
7/64	0.109	2.778
1/8	0.125	3.175
9/64	0.141	3.572
5/32	0.156	3.969
11/64	0.172	4.365
3/16	0.187	4.762
13/64	0.203	5.159
7/32	0.219	5.556
15/64	0.234	5.953
1/4	0.250	6.350

FRACTION	INCH.	MILLIM.
17/64	0.266	6.747
9/32	0.281	7.141
19/64	0.297	7.541
5/16	0.312	7.937
21/64	0.328	8.334
11/32	0.344	8.731
23/64	0.359	9.128
3/8	0.375	9.525
25/64	0.391	9.922
13/32	0.406	10.319
27/64	0.422	10.716
7/16	0.437	11.112
29/64	0.453	11.509
15/32	0.469	11.906
31/64	0.484	12.303
1/2	0.500	12.700

FRACTION	INCH.	MILLIM.
33/64	0.516	13.097
17/32	0.531	13.494
35/64	0.547	13.891
5/8	0.562	14.287
37/64	0.578	14.684
19/32	0.594	15.081
39/64	0.609	15.478
5/8	0.625	15.875
41/64	0.641	16.272
21/32	0.656	16.669
43/64	0.672	17.066
11/16	0.687	17.462
45/64	0.703	17.859
23/32	0.719	18.256
47/64	0.734	18.653
3/4	0.750	19.050

FRACTION	INCH.	MILLIM.
49/64	0.766	19.447
25/32	0.781	19.844
51/64	0.797	20.241
13/16	0.812	20.637
53/64	0.828	21.034
27/32	0.844	21.431
55/64	0.859	21.828
7/8	0.875	22.225
57/64	0.891	22.622
29/32	0.906	23.019
59/64	0.922	23.406
15/16	0.937	23.812
61/64	0.953	24.209
31/32	0.969	24.606
63/64	0.984	25.003
1	1.000	25.400



