Conval INC.

High Performance Valves for the World's Most Demanding Applications

- *High Pressure*
- *High Temperature*
- *Ball*
- *Bellows*
- *Check*
- *Gate*
- *Globe*
- *Throttling*
- *Urea Service*



WELCOME TO Conval INC.

Conval has designed and manufactured high-pressure, high-temperature forged steel valves for the world's most *demanding* applications for over 50 years. One of Conval's guiding principles is selecting, cultivating, and serving the needs of our markets with innovative and technologically-advanced products. In order to achieve this high degree of excellence, we have set up a Quality System that ensures compliance to requirements. Conval was ISO 9001 Certified on Sept. 11, 1992. We also comply to Appendix B of 10 CFR 50, the Crosby Quality program, N-stamp certifications, the European PED, IBR and many other standards.

Conval valves and accessories are in service with customers around the world. That's why Conval has stocking representatives on every continent. For your convenience, there is a complete, up-to-date list of representatives and regional managers on our website, Conval.com. We look forward to being of service to you soon.



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Why CLAMPSEAL® Valves are Top Performers in Their Class



Intelligent Patented Design

The basic design of the Clampseal Globe Valve has not changed since it was invented over 50 years ago. The axial design ensures tight concentricity, which eliminates side loading of the packing and minimizes wear forces on trim components. The high-performance packing system ensures a tight seal between packing material and sealing surfaces, and features a unique packing gland incorporating a 360-degree, consistent load on the packing rings, virtually eliminating packing leaks. The Integral Gland Wrench makes packing adjustments simple, with no tools required. The bonnet's pressure-activated seal provides leak-tight integrity, while allowing rapid access to valve trim for inspection and maintenance. The pressure-actuated backseat makes for a positive internal stop while extending packing life. All other valve benefits begin with this outstanding and innovative design

Enormous Versatility

Clampseal Globe Valves can be supplied in over 12,000 configurations, in 1/2" to 4" sizes with three body styles, in pressure classes to 4500# including a wide variety of ends and materials, and for applications as extreme as cryogenic to fire-safe. Parts may be easily interchanged across installations. The result? An entire plant can be supported with a small parts inventory, which reduces stocking costs, procurement expenses and plant maintenance training time.

Excellence in Quality and Manufacturing

Clampseal Globe Valves are made to exacting specifications in our Advanced Manufacturing Center in Enfield, Connecticut USA. Our valves are backed by a two-year warranty and a global customer service team consisting of top-notch factory and field engineering personnel. Component and finish quality are exceptional, with traceability of all wetted parts and the yoke. Certifications can vary by application, but include ISO 9001, EU/PED, Canadian, N/NPT and others. The result? Peace of mind and reduced risk that come from reliable performance over many years.

Proven Performance

Clampseal Globe Valves have proven to be top performers in thousands of real-life, long-term severe service applications around the world. They handle the job well with little attention, saving significant time and money in downtime, inspection, repair and replacement.

Rapid In-line Serviceability

No other severe service globe valve offers the exceptional in-line serviceability provided by our patented, modular Clampseal Globe Valves. The result? Enormous savings in downtime and maintenance labor, plus reduced man-REM exposure in nuclear environments.

Total Life Cycle Value

Most OEM valves fail to provide long-term performance in highly demanding applications, because they are selected to reduce first cost without proper consideration for long-term consequences. In our 50+ years of experience with customers around the world, inferior valves typically only last 4-5 years or less. By contrast, where Clampseal Globe Valves are originally specified and installed, valve life is a whopping 5-10x longer. That's incredible ROI, which confirms that, from a total life cycle perspective, Clampseal Globe Valves are your smartest choice.

A Wide Conval Product Line

Standard Sizes

1/2” through 3” (4” reduced port)

Valves may also be supplied to metric dimensions.

Pressure Ratings(ASME)

Nominal: 900/1500/2500/4500

Intermediate: 1195/2155/3045

Blowdown / Letdown Valves

Five styles include single orifice continuous blowdown, unit tandem blowdown, Whisperjet blowdown, dual range valve for greater turndown and variable trim for fine control. Valves suitable for steam drains or any high pressure letdown service.

Gate Valves

Unique Swivldisc flex wedge gate for positive seat tightness. Anti-galling gate guiding, pressure seal bonnet, one piece gland with integral gland wrench.

Strainers

Simple and rugged with wide range of strainer element hole sizes. Socket blowoff connection or integral blowoff valve option available on all sizes.

Optional Valves

Adaptable to many on-line serviceable variations, including 3-way service, cryogenic service, bellows stem seal or leakoff features.

Standard Accessories

Actuators - electric, pneumatic or hydraulic
Locking Device - open, closed, or both
Limit Switch - single or dual
Stem Shroud
Position Indicator

Globe, Piston Check and Stop Check valves, Y, Angle and T pattern body styles all feature forged body and yoke; pressure seal bonnets with integral backseat and cartridge packing chambers; one piece packing gland with integral gland wrench; solid Stellite™ seat and disc/piston; and Electroless Nickel plate finish on Carbon Steel and Low Alloy valves.

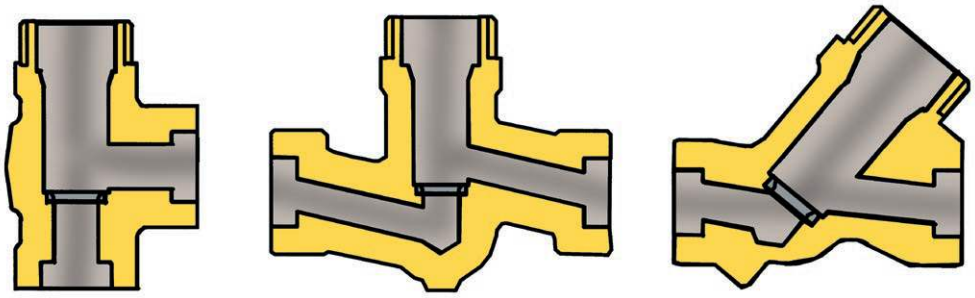
End Prep

Type	Standard	Special
Sockets Weld	1/2” - 2”	2 1/2”
Butt Weld	2 1/2” - 4”	1/2” - 2”
Threaded	1/2” - 1”	1 1/2” - 2”
Clamp	1/2” - 3”	4”
Flanges		All Sizes

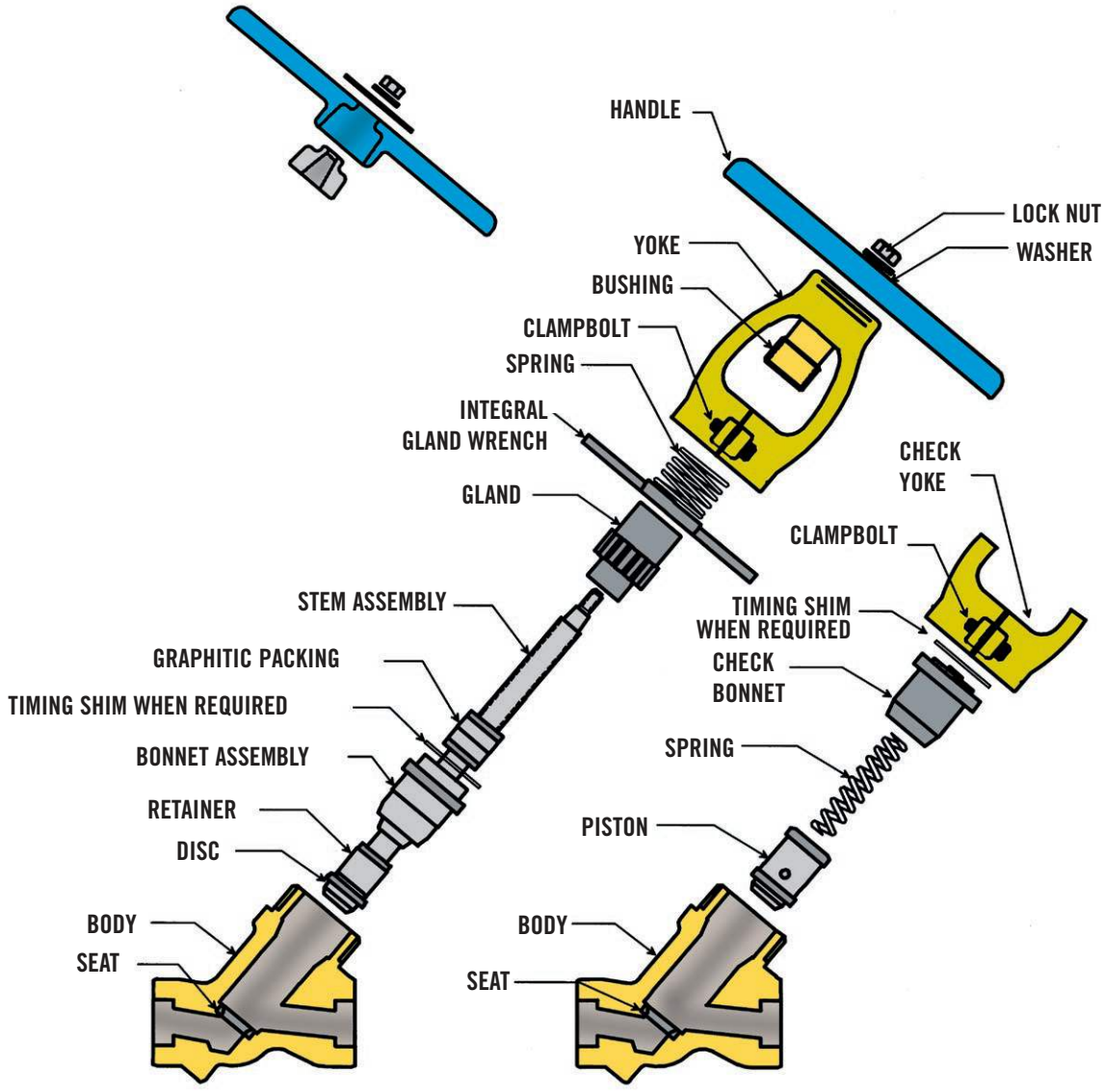
Materials (Body and Yoke)

Type	Standard	Special
Carbon Steel	SA 105 WCB (Gate Valve)	A350-LF2
Low Alloy	S182-F22 WC9 (Gate Valve) SA182-F91 C12A (Gate Valve)	SA182-F5 SA182-F11
Stainless	SA182-F316 SA182-F316L CF8M (Gate Valve)	SA182-F347
Other		Monel™ 400 Inconel™ 600

Exploded View of CLAMPSEAL® Valve



VALVES WITH SIZE CODE 8, 9 or 10
HAVE HANDWHEEL & ADAPTOR (IMPACT HANDWHEEL)



The Most Advanced Forged Steel Valve Available



Axial Design

The axial design of CLAMPSEAL® valves ensures tight concentricity. This feature is critical for superior valve performance. Concentricity eliminates side loading of the packing and minimizes wear forces on the trim components.

High Performance Packing System

The CLAMPSEAL® packing system incorporates corrosion-inhibited, high density graphitic packing. An optional LIVE LOADED GLAND system maintains packing loads for long periods without routine maintenance adjustments. Uniform loading from the axial one-piece gland and the highly polished stainless steel stem and stuffing box ensure a tight seal between packing material and sealing surfaces.

Integral Gland Wrench – I.G.W.

The Integral Gland Wrench makes packing adjustments simple, no tools required.

Clampseal® Bonnet/Chamber

A secure, leak proof bonnet allows rapid access to valve trim for inspection and maintenance. The pressure boundary is sealed at the smallest diameter possible to ensure maximum strength, low stress and minimum weight.

Pressure Actuated Backseat

The pressure actuated backseat provides maximum valve integrity by ensuring a positive internal stop for the valve stem and disc assembly while extending packing life by securely isolating the packing from line pressure when the valve is fully open.

Modular Body Styles

Three interchangeable body styles, Y, ANGLE and T-PATTERN use identical replacement trim parts to lessen your tool and inventory costs. Solid cobalt alloy seats provide high erosion resistance and repeatable in-line resurfacing (Cobalt free alloys are also available).

Rapid In-line Serviceability

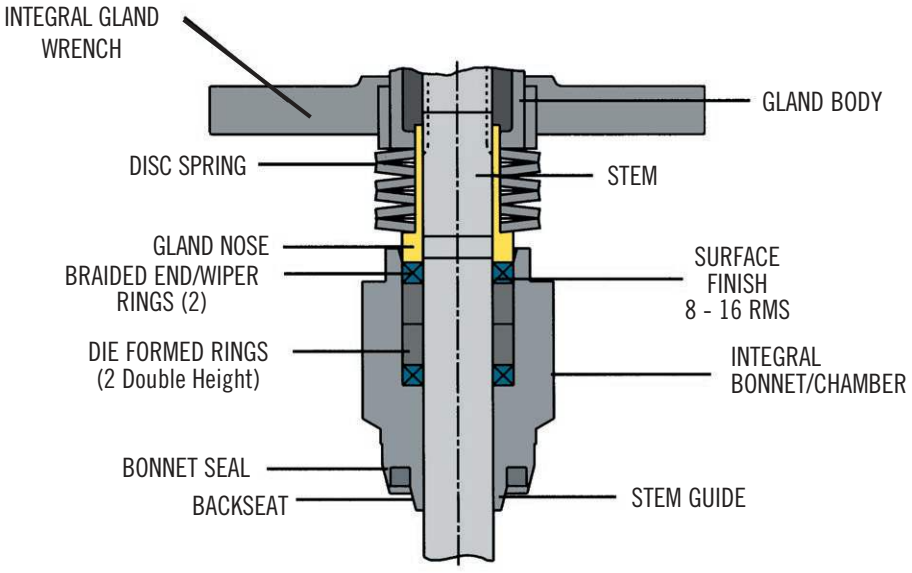
No other severe service globe valve offers the exceptional in-line serviceability provided by our patented, modular Clampseal Globe Valves. The result? Enormous savings in downtime and maintenance labor, plus reduced man-REM exposure in nuclear environments.

Conval Packing System

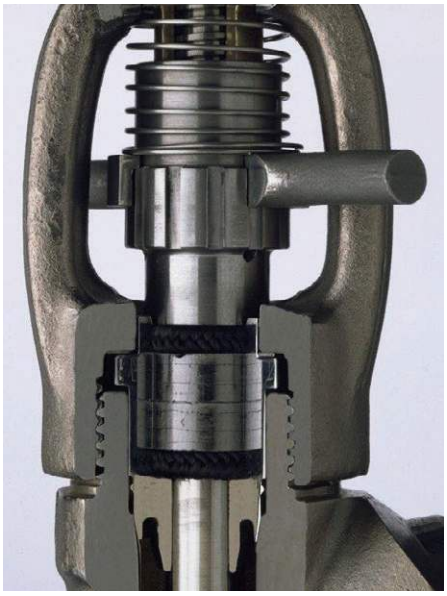
The CLAMPSEAL® packing system utilizes proven, corrosion-inhibited, graphite packing. The packing is uniformly loaded with a one-piece gland. The stuffing box and stem are burnished stainless steel to ensure a tight seal between the system fluids and sealing surfaces.

The packing seal in any valve is inherently vulnerable. Normal packing shrinkage, frictional and pressure forces, and improper or neglected adjustment all contribute to packing deterioration. In an effort to maximize packing life, several innovative features have been incorporated in the CLAMPSEAL® design.

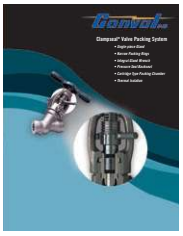
- **Single Piece Gland** insures uniform packing compression and eliminates the potential for stem damage from gland cocking.
- **Surface Finishes and Close Tolerances** of stem and chamber provide optimal sealing surfaces and minimize wear.
- **Narrow Packing Rings** reduce the effect of packing shrinkage, thereby reducing the frequency of packing gland adjustment. Since force = pressure x area (F = P x A), by keeping the packing area to a minimum, there is less force being exerted by the system fluid, making it easier to contain.
- **Integral Gland Wrench,** standard on all CLAMPSEAL® globe and gate valves, provides immediate gland/packing adjustment capability.
- **Pressure Seal Backseat** increases packing life and provides maximum valve integrity by ensuring a positive internal stop for the valve stem and disc assembly, securely isolating packing from line pressure when valve is fully open.
- **Cartridge Type Packing Chamber** with secure, leak-proof bonnet allows rapid access to valve trim for inspection and maintenance. Pressure boundary is sealed at the smallest diameter possible to ensure maximum strength and low stress.
- **Thermal Isolation** of the packing chamber increases packing life. The Stainless Steel packing chamber is a separate unit from the body and therefore, eliminates the need to remove or change packing after stress relieving.



Optional Live Loaded Gland feature shown with the CLAMPSEAL® valve.



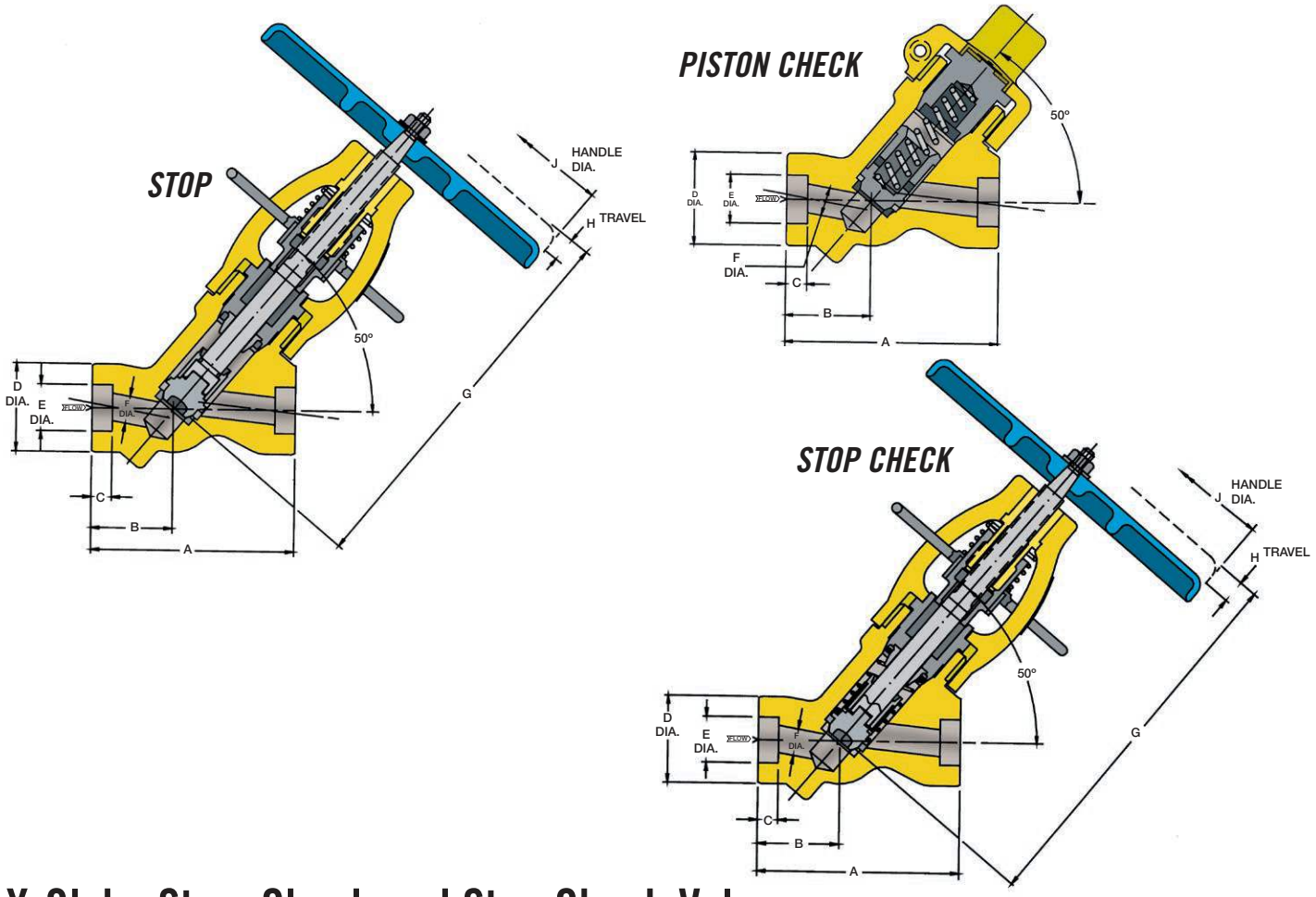
NOTE: TO ENSURE PROPER PACKING INTEGRITY, REFER TO CONVAL SERVICING INSTRUCTIONS FOR APPROPRIATE GLAND TORQUES BEFORE INSTALLING A REPAIRED VALVE IN-LINE.



See product brochure for more details.

Y-Globe Stop, Check and Stop Check Valves

Y-pattern globe valves provide the maximum Cv possible in a globe valve. All Y-pattern valves are rodable. Available in 1/2" to 4"; ASME pressure classes through 4500; A105, F22, F91, F316, F347, Inconel™, Monel™ and other materials.



Y-Globe Stop, Check and Stop Check Valves

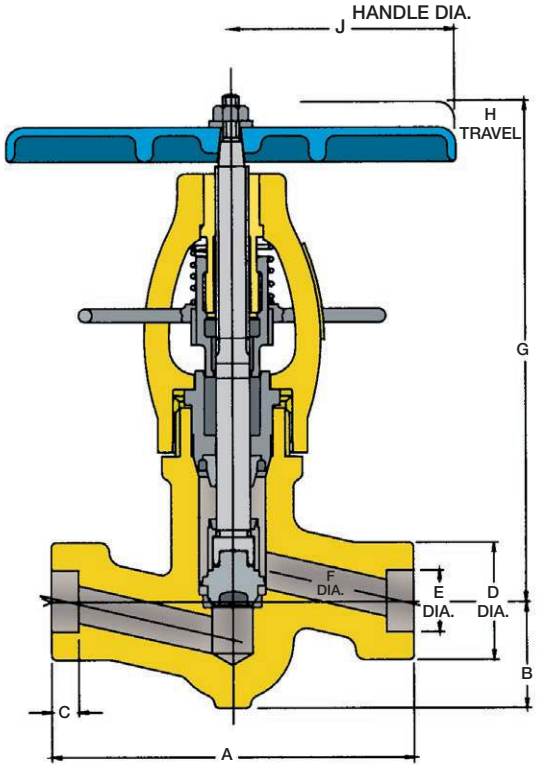
PRESSURE CLASS	Size Code	Pipe Size	A SW	A BW	B SW	B BW	C*	D	E*	F	G	H	J	Stop Cv/Kv	Check & Stop Chk Cv/Kv	Stop & Stop Chk Wgt	Check Wgt
	3D	1/2	3 3/4	3 3/4	1 1/2	1 1/2	3/8	1 5/8	0.860	1/2	7 3/8	9/16	6 1/2	6	5	5	4
		15	95	95	38	38	10	41	21.8	13	190	14	165	5	4	2	2
	5E	3/4	4 1/2	4 3/4	1 3/4	1 3/4	1/2	2 5/16	1.070	5/8	8 13/16	11/16	8	9	8	11	8
		20	114	121	44	44	13	59	27.2	16	224	17	203	8	7	5	4
NOMINAL	5F	1	4 1/2	4 3/4	1 3/4	1 3/4	1/2	2 5/16	1.335	13/16	8 15/16	3/4	8	15	13	10	8
		25	114	121	44	44	13	59	33.9	21	227	19	203	13	11	5	4
900	5G	1 1/4	4 1/2	4 3/4	1 3/4	1 3/4	1/2	2 5/16	1.680	1	9 7/16	1 1/4	8	24	21	9	6
		32	114	121	44	44	13	59	42.7	25	240	32	203	21	18	4	3
	6H	1 1/2	5 1/2	6 1/8	2 1/8	2 7/16	1/2	2 11/16	1.920	1 1/4	9 13/16	1 3/16	8	36	31	14	11
		40	140	156	54	62	13	68	48.8	32	249	30	203	31	27	6	5
INTER-	7J	2	6 1/4	6 1/2	2 9/16	2 9/16	5/8	3 1/4	2.411	1 1/2	12 7/8	1 1/4	12	61	53	21	21
MEDIATE		50	158	165	65	65	16	83	61.2	38	327	32	305	53	46	10	10
	8K	2 1/2	7 1/4	7 1/4	2 11/16	2 11/16	5/8	3 15/16	2.914	1 7/8	14 11/16	1 3/4	12	86	75	43	26
1195		65	184	184	68	68	16	100	74.0	48	373	44	305	74	65	20	12
	9L	3	-	9 5/8	-	3 5/8	-	4 3/8	-	2 1/4	16 13/16	2 7/32	14	122	106	71	37
		80	-	244	-	92	-	111	-	57	427	56	356	106	92	32	17
	10M	4	-	12	-	5 5/16	-	4 7/8	-	2 5/8	19 1/16	2 1/2	18	170	157	110	77
		100	-	305	-	135	-	124	-	67	484	64	457	147	136	50	35

* Socket Weld dimensions shown; Consult factory for Butt Weld dimensions.
Numbers shown in Black indicate dimensions in inches, weightin pounds. Numbers shown in blue indicate dimensions in mm, weights in kilograms.
Threaded end valves are nominal ASME B16.34 rated. Consult factory for other ratings.
NOTE: All weights are approximate for shipping purposes only. Information on Figure Number Variations can be found on page 33.

PRESSURE CLASS	Size Code	Pipe Size	A SW	A BW	B SW	B BW	C*	D	E*	F	G	H	J	Stop Cv/Kv	Check & Stop Chk Cv/Kv	Stop & Stop Chk Wgt	Check Wgt
	3D	1/2 15	3 3/4 95	3 3/4 95	1 1/2 38	1 1/2 38	3/8 10	1 5/8 41	0.860 21.8	1/2 13	7 1/2 190	9/16 14	6 1/2 165	6 5	5 4	5 2	3 1
	5E	3/4 20	4 1/2 114	4 3/4 121	1 3/4 44	1 3/4 44	1/2 13	2 5/16 59	1.070 27.2	5/8 16	8 13/16 224	11/16 17	8 203	9 8	8 7	11 5	8 4
NOMINAL	5F	1 25	4 1/2 114	4 3/4 121	1 3/4 44	1 3/4 44	1/2 13	2 5/16 59	1.335 33.9	13/16 21	9 229	3/4 19	8 203	15 13	13 11	10 5	7 3
1500	6G	1 1/4 32	5 1/2 140	6 1/8 156	2 1/8 54	2 7/16 62	1/2 13	2 11/16 68	1.680 42.7	1 25	9 13/16 249	1 3/16 30	8 203	24 21	21 18	15 7	11 5
	7H	1 1/2 40	6 1/4 159	6 1/2 165	2 9/16 65	2 9/16 65	1/2 13	3 1/4 83	1.920 48.8	1 1/4 32	12 3/4 324	1 3/16 30	12 305	38 33	33 29	22 10	16 7
INTER-MEDIATE	8J	2 50	7 1/4 184	7 1/4 184	2 11/16 68	2 11/16 68	5/8 16	3 15/16 100	2.411 61.2	1 1/2 38	14 11/16 373	1 5/8 41	12 305	62 54	54 47	45 20	32 15
	9K	2 1/2 65	9 229	9 5/8 244	3 5/16 84	3 5/8 92	5/8 16	4 3/8 111	2.914 74.0	1 7/8 48	16 3/4 425	2 3/16 56	14 356	86 74	75 65	71 32	39 18
2155	10L	3 80	- -	12 305	- -	5 5/16 135	- -	4 7/8 124	- -	2 1/4 57	18 1/2 470	2 3/16 56	18 457	122 106	106 92	110 50	80 36
	10L	4 100	- -	12 305	- -	5 5/16 135	- -	4 7/8 124	- -	2 1/4 57	18 1/2 470	2 3/16 56	18 457	122 106	106 92	110 50	80 36
	3C	1/2 15	3 3/4 95	3 3/4 95	1 1/2 38	1 1/2 38	3/8 10	1 5/8 41	0.860 21.8	7/16 11	7 5/16 186	1/2 13	6 1/2 165	4 4	3 3	5 2	3 1
	5E	3/4 20	4 1/2 114	4 3/4 121	1 3/4 44	1 3/4 44	1/2 13	2 5/16 59	1.070 27.2	5/8 16	8 13/16 224	11/16 17	8 203	9 8	8 7	11 5	8 4
NOMINAL	5E	1 25	4 1/2 114	4 3/4 121	1 3/4 44	1 3/4 44	1/2 13	2 5/16 59	1.335 33.9	5/8 16	8 13/16 224	11/16 17	8 203	9 8	8 7	11 5	8 4
2500	7G	1 1/4 32	6 1/4 159	6 1/2 165	2 9/16 65	2 9/16 65	1/2 13	3 1/4 83	1.680 42.7	1 25	12 3/4 324	1 3/16 30	12 305	24 21	21 18	23 10	17 8
	7G	1 1/2 40	6 1/4 159	6 1/2 165	2 9/16 65	2 9/16 65	1/2 13	3 1/4 83	1.920 48.8	1 25	12 3/4 324	1 3/16 30	12 305	24 21	21 18	23 10	17 8
INTER-MEDIATE	8H	2 50	7 1/4 184	7 1/4 184	2 11/16 68	2 11/16 68	5/8 16	3 15/16 100	2.411 61.2	1 1/4 32	14 1/4 362	1 5/16 33	12 305	38 33	33 29	47 21	27 12
	9J	2 1/2 65	- -	9 5/8 244	- -	3 5/8 92	- -	4 3/8 111	- -	1 1/2 38	16 3/8 416	1 5/8 41	14 356	62 54	54 47	74 34	42 19
3045	10K	2 1/2 65	12 305	12 305	5 5/16 135	5 5/16 135	5/8 16	4 7/8 124	2.914 74.0	1 7/8 48	18 15/16 469	2 1/8 54	18 457	88 76	77 67	114 52	82 37
	10K	3 80	- -	12 305	- -	5 5/16 135	- -	4 7/8 124	-	1 7/8 48	18 15/16 469	2 1/8 54	18 457	88 76	77 67	114 52	82 37
	10K	4 100	- -	12 305	- -	5 5/16 135	- -	4 7/8 124	- -	1 7/8 48	18 15/16 469	2 1/8 54	18 457	88 76	77 67	114 52	82 37
	5D	1/2 15	4 1/2 114	4 3/4 121	1 3/4 44	1 3/4 44	3/8 10	2 5/16 59	0.860 21.8	1/2 13	8 11/16 221	5/8 16	6 1/2 165	6 5	5 4	10 5	10 4
	5D	3/4 20	4 1/2 114	4 3/4 121	1 3/4 44	1 3/4 44	1/2 13	2 5/16 59	1.070 27.2	1/2 13	8 11/16 221	5/8 16	6 1/2 165	6 5	5 4	10 5	10 4
NOMINAL	6E	1 25	5 1/2 140	6 1/8 156	2 1/8 54	2 7/16 62	1/2 13	2 11/16 68	1.335 33.9	5/8 16	9 5/8 244	11/16 17	8 203	10 9	9 8	16 7	12 5
3500	7F	1 1/4 32	6 1/4 159	6 1/2 165	2 9/16 65	2 9/16 65	1/2 13	3 1/4 83	1.680 42.7	13/16 21	12 15/32 317	7/8 22	12 305	16 14	14 12	24 11	18 8
	8G	1 1/2 40	7 1/4 184	7 1/4 184	2 11/16 68	2 11/16 68	1/2 13	3 15/16 100	1.920 48.8	1 25	14 1/4 362	1 3/16 30	12 305	24 21	21 18	50 23	29 13
INTER-MEDIATE	8G	2 50	- -	7 1/4 184	- -	2 11/16 68	- -	3 15/16 100	- -	1 25	14 1/4 362	1 3/16 30	12 305	24 21	21 18	50 23	29 13
	9H	2 50	9 229	- -	3 5/16 84	- -	5/8 16	4 3/8 111	2.411 61.2	1 1/4 32	15 15/16 405	1 7/16 37	12 305	39 34	34 29	68 31	43 20
4095	9H	2 1/2 65	- -	9 5/8 244	- -	3 5/8 92	- -	4 3/8 111	- -	1 1/4 32	15 15/16 405	1 7/16 37	12 305	39 34	34 29	68 31	43 20
	10J	3 80	- -	12 305	- -	5 5/16 135	- -	4 7/8 124	- -	1 1/2 38	18 3/16 462	1 13/16 46	14 356	62 54	54 47	112 51	85 39
	10J	4 100	- -	12 305	- -	5 5/16 135	- -	4 7/8 124	- -	1 1/2 38	18 3/16 462	1 15/16 49	14 356	62 54	54 47	112 51	85 39
	5C	1/2 15	4 1/2 114	4 3/4 121	1 3/4 44	1 3/4 44	3/8 10	2 5/16 59	0.860 21.8	7/16 11	8 3/4 222	11/16 17	6 1/2 165	4 4	3 3	12 5	11 5
	6E	3/4 20	5 1/2 140	6 1/8 156	2 1/8 54	2 7/16 62	1/2 13	2 11/16 68	1.070 27.2	5/8 16	9 9/16 243	11/16 17	8 203	10 9	9 8	16 7	12 5
	6E	1 25	- -	6 1/8 156	- -	2 7/16 62	-	2 11/16 68	- -	5/8 16	9 9/16 243	11/16 17	8 203	10 9	9 8	16 7	12 5
NOMINAL	7E	1 25	6 1/4 159	6 1/2 165	2 9/16 -	- -	1/2 13	3 1/4 83	1.335 33.9	5/8 16	12 1/8 308	7/8 22	12 305	10 9	9 8	25 11	19 9
4500	7E	1 1/2 40	- -	6 1/2 165	- -	2 9/16 65	- -	3 1/4 83	- -	5/8 16	12 1/8 308	7/8 22	12 305	10 9	9 8	25 11	19 9
	8F	1 1/2 40	7 1/4 184	- -	2 11/16 68	- -	1/2 13	3 15/16 100	1.920 48.8	13/16 21	13 9/16 344	1 25	12 305	16 14	14 12	38 17	31 14
	8F	2 50	- -	7 1/4 184	- -	2 11/16 68	- -	3 15/16 100	- -	13/16 21	13 9/16 344	1 25	12 305	16 14	14 12	38 17	31 14
	9G	2 1/2 65	- -	9 5/8 244	- -	3 5/8 92	- -	4 3/8 111	- -	1 25	15 13/16 402	1 3/8 35	12 305	24 21	21 18	67 30	53 24
	10H	3 80	- -	12 305	- -	5 5/16 135	- -	4 7/8 124	- -	1 1/4 32	17 3/4 451	1 7/16 37	12 305	39 34	34 29	110 50	89 40
	10H	4 100	- -	12 305	- -	5 5/16 135	- -	4 7/8 124	- -	1 1/4 32	17 3/4 451	1 7/16 37	12 305	39 34	34 29	110 50	89 40

T-Pattern Stop Valves, also available in Check and Stop Check Valves

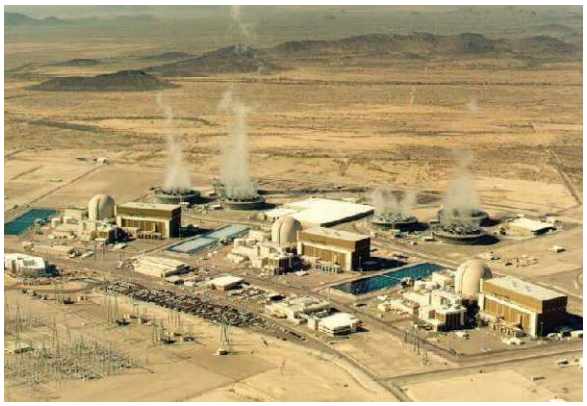
T-pattern, vertical stem globe valves provide easily accessible stems and extentions for remote manual operation. Available in 1/2” to 3”; ASME pressure classes through 4500; A105, F22, F91, F316, F347, Inconel™, Monel™ and other materials.



PRESSURE CLASS	Size Code	Pipe Size	A SW	A BW	B	C*	D	E*	F	G	H	J	Cv Kv	Wgt
	3D	1/2	5	5	1 1/2	3/8	1 5/8	0.860	1/2	7 11/32	9/16	6 1/2	4	6
		15	127	127	38	10	41	21.8	13	187	14	165	4	3
	5E	3/4	6 1/2	6 1/2	1 7/8	1/2	2 3/8	1.070	5/8	8 13/16	11/16	8	6	13
NOMINAL		20	165	165	48	13	60	27.2	16	224	17	203	5	6
	5F	1	6 1/2	6 1/2	1 7/8	1/2	2 3/8	1.335	13/16	9	3/4	8	9	12
900		25	165	165	48	13	60	33.9	21	229	19	203	8	5
	7G	1 1/4	8 1/2	8 1/2	3 1/8	1/2	3 1/4	1.680	1	12 11/16	1 3/16	12	14	25
		32	216	216	79	13	83	42.7	25	322	30	305	12	11
	7H	1 1/2	8 1/2	8 1/2	3 1/8	1/2	3 1/4	1.920	1 1/4	12 11/16	1 3/16	12	22	24
INTERMEDIATE		40	216	216	79	13	83	48.8	32	322	30	305	19	11
	8J	2	10	10	3 3/4	5/8	3 7/8	2.411	1 1/2	15	1 9/16	12	32	55
1195		50	254	254	95	16	98	61.2	38	381	40	305	28	25
	8J	2 1/2	10	10	3 3/4	5/8	3 7/8	1.420	1 1/2	15	1 9/16	12	32	55
		65	254	254	95	16	98	48.8	38	381	40	305	28	25
	8J	3	-	10	3 3/4	-	3 7/8	-	1 1/2	15	1 9/16	12	32	55
		80	-	254	95	-	98	-	38	381	40	305	28	25
	3D	1/2	5	5	1 1/2	3/8	1 5/8	0.860	1/2	7 7/16	9/16	6 1/2	4	6
		15	127	127	38	10	41	21.8	13	189	14	165	4	3
	5E	3/4	6 1/2	6 1/2	1 7/8	1/2	2 3/8	1.070	5/8	8 13/16	11/16	8	6	13
		20	165	165	48	13	60	27.2	16	224	17	203	5	6
NOMINAL	5F	1	6 1/2	6 1/2	1 7/8	1/2	2 3/8	1.335	13/16	9	3/4	8	9	12
		25	165	165	48	13	60	33.9	21	229	19	203	8	5
1500	7G	1 1/4	8 1/2	8 1/2	3 1/8	1/2	3 1/4	1.680	1	12 11/16	1 3/16	12	14	25
		32	216	216	79	13	83	42.7	25	322	30	305	12	11
	7H	1 1/2	8 1/2	8 1/2	3 1/8	1/2	3 1/4	1.920	1 1/4	12 11/16	1 3/16	12	22	24
		40	216	216	79	13	83	48.8	32	322	30	305	19	11
INTERMEDIATE	8J	2	10	10	3 3/4	5/8	3 7/8	2.411	1 1/2	15	1 9/16	12	32	55
		50	254	254	95	16	98	61.2	38	381	40	305	28	25
2155	8J	2 1/2	-	10	3 3/4	-	3 7/8	-	1 1/2	15	1 9/16	12	32	55
		65	-	254	95	-	98	-	38	381	40	305	28	25
	8J	3	-	10	3 3/4	-	3 7/8	-	1 1/2	15	1 9/16	12	32	55
		80	-	254	95	-	98	-	38	381	40	305	28	25

* Socket Weld dimensions shown; Consult factory for Butt Weld dimensions.
Numbers shown in Black indicate dimensions in inches, weightin pounds. Numbers shown in blue indicate dimensions in mm, weights in kilograms.
Threaded end valves are nominal ASME B16.34 rated. Consult factory for other ratings.
NOTE: All weights are approximate for shipping purposes only. Information on Figure Number Variations can be found on page 33.





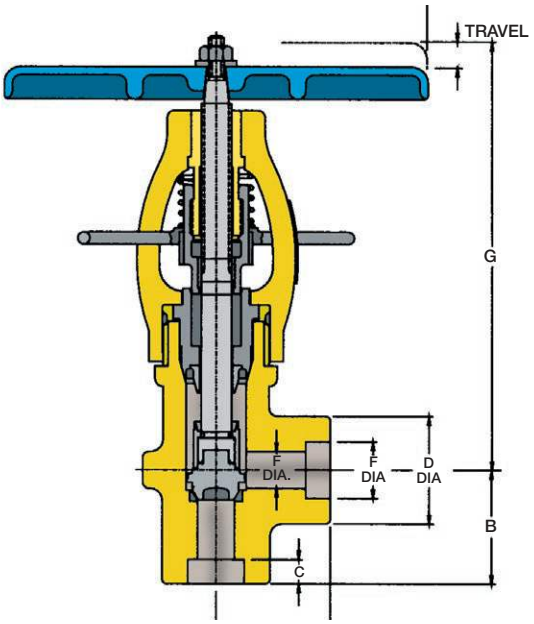
Conval valves are being specified and installed for vents, drains, shut-off and blowdown service all over the world on power plants ranging from clean coal, combined cycle, solar to nuclear.

PRESSURE CLASS	Size Code	Pipe Size	A SW	A BW	B	C*	D	E*	F	G	H	J	Cv Kv	Wgt
	3C	1/2 15	5 127	5 127	1 1/2 38	3/8 10	1 5/8 41	0.860 21.8	7/16 11	7 3/16 183	1/2 13	6 1/2 165	3 3	7 3
	5E	3/4 20	6 1/2 165	6 1/2 165	1 7/8 48	1/2 13	2 3/8 60	1.070 27.2	5/8 16	8 13/16 224	11/16 17	8 203	6 5	13 6
NOMINAL	5E	1 25	6 1/2 165	6 1/2 165	1 7/8 48	1/2 13	2 3/8 60	1.335 33.9	5/8 16	8 13/16 224	11/16 17	8 203	6 5	13 6
2500	7G	1 1/4 32	8 1/2 216	8 1/2 216	3 1/8 79	1/2 13	3 1/4 83	1.680 42.7	1 25	12 11/16 322	1 3/16 30	12 305	14 12	25 11
	7G	1 1/2 40	8 1/2 216	8 1/2 216	3 1/8 79	1/2 13	3 1/4 83	1.920 48.8	1 25	12 11/16 322	1 3/16 30	12 305	14 12	25 11
INTERMEDIATE	8H	2 50	10 254	10 254	3 3/4 95	5/8 16	3 7/8 98	2.411 61.2	1 1/4 32	14 5/8 371	1 1/4 32	12 305	22 19	55 25
3045	8H	2 1/2 65	- -	10 254	3 3/4 95	- -	3 7/8 98	- -	1 1/4 32	14 5/8 371	1 1/4 32	12 305	22 19	55 25
	8H	3 80	- -	10 254	3 3/4 95	- -	3 7/8 98	- -	1 1/4 32	14 5/8 371	1 1/4 32	12 305	22 19	55 25
	5D	1/2 15	6 1/2 165	6 1/2 165	1 7/8 48	3/8 10	2 3/8 60	0.860 21.8	1/2 13	8 3/4 220	5/8 16	6 1/2 165	4 4	14 6
	5D	3/4 20	6 1/2 165	6 1/2 165	1 7/8 48	1/2 13	2 3/8 60	1.070 27.2	1/2 13	8 3/4 220	5/8 16	6 1/2 165	4 4	14 6
NOMINAL	7F	1 25	8 1/2 216	8 1/2 216	3 1/8 79	1/2 13	3 1/4 83	1.335 33.9	13/16 21	12 3/8 314	7/8 22	12 305	9 8	26 12
3500	7F	1 1/4 32	- -	8 1/2 216	3 1/8 79	- -	3 1/4 83	- -	13/16 21	12 3/8 314	7/8 22	12 305	9 8	26 12
	7F	1 1/2 40	- -	8 1/2 216	3 1/8 79	- -	3 1/4 83	- -	13/16 21	12 3/8 314	7/8 22	12 305	9 8	26 12
INTERMEDIATE	8G	1 1/4 32	10 254	- -	3 3/4 95	1/2 13	3 7/8 98	1.680 42.7	1 25	14 5/8 371	1 3/16 30	12 305	14 12	49 22
4095	8G	1 1/2 40	10 254	- -	3 3/4 95	1/2 13	3 7/8 98	1.920 48.8	1 25	14 5/8 371	1 3/16 30	12 305	14 12	49 22
	8G	2 50	- -	10 254	3 3/4 95	- -	3 7/8 98	- -	1 25	14 5/8 371	1 3/16 30	12 305	14 12	49 22
	8G	2 1/2 65	- -	10 254	3 3/4 95	- -	3 7/8 98	- -	1 25	14 5/8 371	1 3/16 30	12 305	14 12	49 22
	8G	3 80	- -	10 254	3 3/4 95	- -	3 7/8 98	- -	1 25	14 5/8 371	1 3/16 30	12 305	14 12	49 22
	5C	1/2 15	6 1/2 165	6 1/2 165	1 7/8 48	3/8 10	2 3/8 60	0.860 21.8	7/16 11	8 3/16 208	11/16 17	6 1/2 165	5 4	11 5
NOMINAL	7E	1 25	8 1/2 216	8 1/2 216	3 1/8 79	1/2 13	3 1/4 83	1.335 33.9	5/8 16	11 7/8 302	7/8 22	8 203	9 8	24 11
4500	7E	1 1/2 40	- -	8 1/2 216	3 1/8 79	- -	3 1/4 83	- -	5/8 16	11 7/8 302	7/8 22	8 203	9 8	24 11
	8F	1 1/2 40	10 254	- -	3 3/4 95	1/2 13	3 7/8 98	1.920 48.8	13/16 21	13 5/8 346	1 25	12 305	16 14	48 22
	8F	2 50	- -	10 254	3 3/4 95	- -	3 7/8 98	- -	13/16 21	13 5/8 346	1 25	12 305	16 14	48 22

* Socket Weld dimensions shown; Consult factory for Butt Weld dimensions.
Numbers shown in Black indicate dimensions in inches, weightin pounds. Numbers shown in blue indicate dimensions in mm, weights in kilograms.
Threaded end valves are nominal ASME B16.34 rated. Consult factory for other ratings.
NOTE: All weights are approximate for shipping purposes only. Information on Figure Number Variations can be found on page 33.

Angle Stop Valves, also available in Check and Stop Check Valves

Angle pattern globe valves economically eliminate the need for separate valves and 90° joints. They also reduce the number of installation welds. Available in 1/2" to 4"; ASME pressure classes through 4500; A105, F22, F91, F316, F347, Inconel™, Monel™ and other materials.



PRESSURE CLASS	Size Code	Pipe Size	A SW	A BW	B	C*	D	E*	F	G	H	J	Cv Kv	Wgt
	3D	1/2 15	1 3/4 44	1 3/4 44	1 3/4 44	3/8 10	1 11/16 43	0.860 21.8	9/16 14	6 7/8 175	9/16 14	6 1/2 165	7 6	5 2
	5E**	3/4 20	2 5/16 59	2 5/16 59	2 5/16 59	1/2 13	2 5/16 59	1.070 27.2	11/16 17	8 3/16 208	11/16 17	8 203	9 8	11 5
NOMINAL	5F**	1 25	2 5/16 59	2 5/16 59	2 5/16 59	1/2 13	2 5/16 59	1.335 33.9	27/32 21	8 1/4 210	3/4 19	8 203	16 14	10 5
900	5G**	1 1/4 32	2 5/16 59	2 5/16 59	2 5/16 59	1/2 13	2 5/16 59	1.680 42.7	1 1/16 27	8 1/4 210	3/4 19	8 203	23 20	9 4
	7H	1 1/2 40	2 3/4 70	2 3/4 70	4 1/4 108	1/2 13	3 1/4 83	1.920 48.8	1 9/32 33	11 7/8 302	1 3/16 30	12 305	38 33	21 10
INTERMEDIATE	7J	2 50	- -	2 3/4 70	4 1/4 108	- -	3 1/4 83	- -	1 9/16 40	12 1/8 308	1 1/4 32	12 305	54 47	20 9
1195	7J	2 1/2 65	- -	2 3/4 70	4 1/4 108	- -	3 1/4 83	- -	1 9/16 40	12 1/8 308	1 1/4 32	12 305	54 47	20 9
	8J	2 50	3 76	- -	4 1/2 114	5/8 16	3 15/16 100	2.411 61.2	1 9/16 40	14 356	1 9/16 40	12 305	57 49	42 19
	8K	2 1/2 65	3 76	3 76	4 1/2 114	5/8 16	3 15/16 100	2.914 74.0	1 7/8 48	13 11/16 348	1 3/4 44	12 305	74 64	39 18
	10M	2 1/2 65	5 127	- -	6 152	5/8 16	4 7/8 124	2.914 74.0	2 5/8 67	15 1/4 387	2 1/2 64	18 457	165 143	106 48
	10M	3 80	- -	5 127	6 152	- -	4 7/8 124	- -	2 5/8 67	15 1/4 387	2 1/2 64	18 457	165 143	106 48
	10M	4 100	- -	5 127	6 152	- -	4 7/8 124	- -	2 5/8 67	15 1/4 387	2 1/2 64	18 457	165 143	106 48
	3D	1/2 15	1 3/4 44	1 3/4 44	1 3/4 44	3/8 10	1 11/16 43	0.860 21.8	9/16 14	6 7/8 175	9/16 14	6 1/2 165	7 6	5 2
	5E	3/4 20	2 5/16 59	2 5/16 59	2 5/16 59	1/2 13	2 5/16 59	1.070 27.2	11/16 17	8 3/16 208	11/16 17	8 203	9 8	11 5
NOMINAL	5F	1 25	2 5/16 59	2 5/16 59	2 5/16 59	1/2 13	2 5/16 59	1.335 33.9	27/32 21	8 1/4 210	3/4 19	8 203	16 14	10 5
1500	7G	1 1/4 32	2 3/4 70	2 3/4 70	4 1/4 108	1/2 13	3 1/4 83	1.680 42.7	1 1/16 27	11 7/8 302	1 3/16 30	12 305	23 20	23 10
	7H	1 1/2 40	2 3/4 70	2 3/4 70	4 1/4 108	1/2 13	3 1/4 83	1.920 48.8	1 9/32 33	11 7/8 302	1 3/16 30	12 305	38 33	21 10
INTERMEDIATE	8J	2 50	3 76	3 76	4 1/2 114	5/8 16	3 15/16 100	2.411 61.2	1 9/16 40	14 356	1 9/16 40	12 305	57 49	42 19
2155	8J	2 1/2 65	- -	3 76	4 1/2 114	- -	3 15/16 100	- -	1 9/16 40	14 356	1 9/16 40	12 305	57 49	42 19
	10L	2 1/2 65	5 127	- -	6 152	5/8 16	4 7/8 124	2.914 74.0	2 1/4 57	15 1/4 387	2 1/8 54	18 457	124 107	107 49
	10L	3 80	- -	5 127	6 152	- -	4 7/8 124	- -	2 1/4 57	15 1/4 387	2 1/8 54	18 457	124 107	107 49
	10L	4 100	- -	5 127	6 152	- -	4 7/8 124	- -	2 1/4 57	15 1/4 387	2 1/8 54	18 457	124 107	107 49

* Socket Weld dimensions shown; Consult factory for Butt Weld dimensions.
** End to end may vary.
Numbers shown in Black indicate dimensions in inches, weightin pounds. Numbers shown in blue indicate dimensions in mm, weights in kilograms.
Threaded end valves are nominal ASME B16.34 rated. Consult factory for other ratings.
NOTE: All weights are approximate for shipping purposes only. Information on Figure Number Variations can be found on page 33.

PRESSURE CLASS	Size Code	Pipe Size	A SW	A BW	B	C*	D	E*	F	G	H	J	Cv Kv	Wgt
	3C	1/2	1 3/4	1 3/4	1 3/4	3/8	1 11/16	0.860	7/16	6 3/4	1/2	6 1/2	5	6
		15	44	44	44	10	43	21.8	11	171	13	165	4	3
	5E**	3/4	2 5/16	2 5/16	2 5/16	1/2	2 5/16	1.070	11/16	8 3/16	11/16	8	9	11
		20	59	59	59	13	59	27.2	17	208	17	203	8	5
NOMINAL	5E**	1	2 5/16	2 5/16	2 5/16	1/2	2 5/16	1.335	11/16	8 3/16	11/16	8	9	11
		25	59	59	59	13	59	33.9	17	208	17	203	8	5
2500	7G**	1 1/4	2 3/4	2 3/4	4 1/4	1/2	3 1/4	1.680	1 1/16	11 7/8	1 3/16	12	23	23
		32	70	70	108	13	83	42.7	27	302	30	305	20	10
	7G**	1 1/2	-	2 3/4	4 1/4	-	3 1/4	-	1 1/16	11 7/8	1 3/16	12	23	23
		40	-	70	108	-	83	-	27	302	30	305	20	10
INTERMEDIATE	8H	1 1/2	3	-	4 1/2	1/2	3 15/16	1.920	1 9/32	13 5/8	1 1/4	12	38	42
		40	76	-	114	13	100	48.8	33	346	32	305	33	19
3045	8H	2	3	3	4 1/2	5/8	3 15/16	2.411	1 9/32	13 5/8	1 1/4	12	38	42
		50	76	76	114	16	100	61.2	33	346	32	305	33	19
	8H	2 1/2	-	3	4 1/2	-	3 15/16	-	1 9/32	13 5/8	1 1/4	12	38	42
		65	-	76	114	-	100	-	33	346	32	305	33	19
	10K	2 1/2	5	-	6	5/8	4 7/8	2.914	1 7/8	15 1/4	1 13/16	18	74	108
		65	127	-	152	16	124	74.0	48	387	46	457	64	49
	10K	3	-	5	6	-	4 7/8	-	1 7/8	15 1/4	1 13/16	18	74	108
		80	-	127	152	-	124	-	48	387	46	457	64	49
	10K	4	-	5	6	-	4 7/8	-	1 7/8	15 1/4	1 13/16	18	74	108
		100	-	127	152	-	124	-	48	387	46	457	64	49
	5D**	1/2	2 5/16	2 5/16	2 5/16	3/8	2 5/16	0.860	9/16	8 1/8	5/8	6 1/2	7	11
		15	59	59	59	10	59	21.8	14	206	16	165	6	5
	5D**	3/4	2 5/16	2 5/16	2 5/16	1/2	2 5/16	1.070	9/16	8 1/8	5/8	6 1/2	7	11
		20	59	59	59	13	59	27.2	14	206	16	165	6	5
NOMINAL	7F**	1	2 3/4	2 3/4	4 1/4	1/2	3 1/4	1.335	27/32	11 3/8	7/8	12	16	24
		25	70	70	108	13	83	33.9	21	289	22	305	14	11
3500	7F**	1 1/4	-	2 3/4	4 1/4	-	3 1/4	-	27/32	11 3/8	7/8	12	16	24
		32	-	70	108	-	83	-	21	289	22	305	14	11
	8G	1 1/4	3	-	4 1/2	1/2	3 15/16	1.680	1 1/16	13 1/4	1 3/16	12	27	45
		32	76	-	114	13	100	42.7	27	337	30	305	23	20
	8G	1 1/2	3	3	4 1/2	1/2	3 15/16	1.920	1 1/16	13 1/4	1 3/16	12	27	45
		40	76	76	114	13	100	48.8	27	337	30	305	23	20
INTERMEDIATE	8G	2	-	3	4 1/2	-	3 15/16	-	1 1/16	13 1/4	1 3/16	12	27	45
		50	-	76	114	-	100	-	27	337	30	305	23	20
4095	8G	2 1/2	-	3	4 1/2	-	3 15/16	-	1 1/16	13 1/4	1 3/16	12	27	45
		65	-	76	114	-	100	-	27	337	30	305	23	20
	10J	2 1/2	5	-	6	5/8	4 7/8	2.914	1 1/2	15 1/4	1 13/16	14	52	103
		65	127	-	152	16	124	74.0	38	387	46	356	45	47
	10J	3	-	5	6	-	4 7/8	-	1 1/2	15 1/4	1 13/16	14	52	103
		80	-	127	152	-	124	-	38	387	46	356	45	47
	10J	4	-	5	6	-	4 7/8	-	1 1/2	15 1/4	1 13/16	14	52	103
		100	-	127	152	-	124	-	38	387	46	356	45	47
	5C**	1/2	2 5/16	2 5/16	2 5/16	3/8	2 5/16	0.860	7/16	8 3/16	11/16	6 1/2	5	11
		15	59	59	59	10	59	21.8	11	208	17	165	4	5
	7E**	1	2 3/4	2 3/4	4 1/4	1/2	3 1/4	1.335	11/16	11 7/8	7/8	8	9	24
		25	70	70	108	13	83	33.9	17	302	22	203	8	11
	7E**	1 1/2	-	2 3/4	4 1/4	-	3 1/4	-	11/16	11 7/8	7/8	8	9	24
		40	-	70	108	-	83	-	17	302	22	203	8	11
NOMINAL 4500	8F	1 1/2	3	-	4 1/2	1/2	3 15/16	1.920	27/32	13 5/8	1	12	16	48
		40	76	-	114	13	100	48.8	21	346	25	305	14	22
	8F	2	-	3	4 1/2	-	3 15/16	-	27/32	13 5/8	1	12	16	48
		50	-	76	114	-	100	-	21	346	25	305	14	22
	10H	2 1/2	5	5	6	5/8	4 7/8	2.914	1 9/32	17 3/4	1 7/16	12	39	100
		65	127	127	152	16	124	74.0	33	450	37	305	34	45
	10H	3	-	5	6	-	4 7/8	-	1 9/32	17 3/4	1 7/16	12	39	100
		80	-	127	152	-	124	-	33	450	37	305	34	45
	10H	4	-	5	6	-	4 7/8	-	1 9/32	17 3/4	1 7/16	12	39	100
		100	-	127	152	-	124	-	33	450	37	305	34	45

* Socket Weld dimensions shown; Consult factory for Butt Weld dimensions.
** Center to end may vary.
Numbers shown in Black indicate dimensions in inches, weightin pounds. Numbers shown in blue indicate dimensions in mm, weights in kilograms.
Threaded end valves are nominal ASME B16.34 rated. Consult factory for other ratings.
NOTE: All weights are approximate for shipping purposes only. Information on Figure Number Variations can be found on page 33.

Throttling Valves

Pressure Class

Full ASME rated through 3045. Higher intermediate and limited class ratings are available. Consult factory.

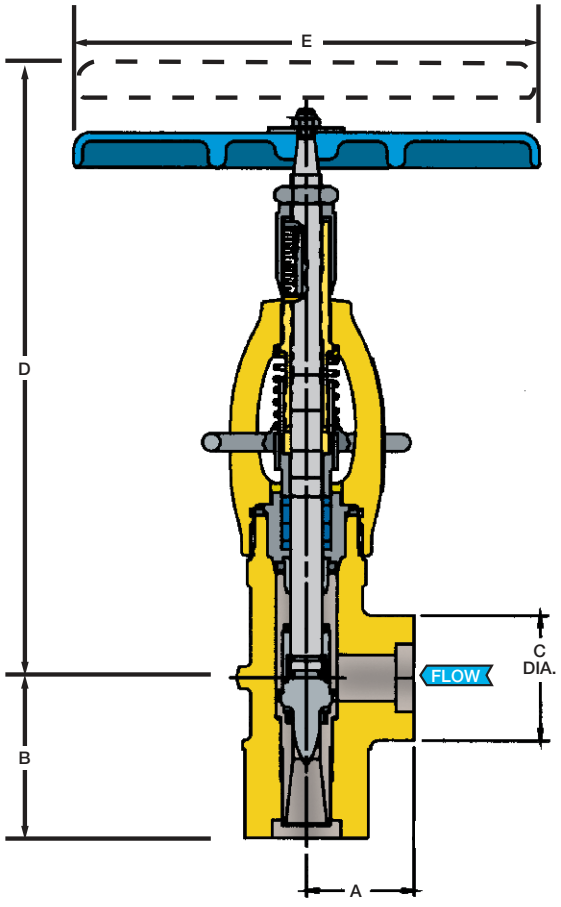
Features

- Replaceable 440C SS Seat/Venturi
- Low Velocity Across the Main Seat
- Precise Flow Control
- Position Indicator
- Pressure Seal Bonnet
- Superior Control Micrometer Dial
- Ease of Actuation:
  Air Motor Hydraulic

To Specify

1.) Use "U" as the valve design modifier in the figure number. (e.g. 1.50-13U2J-F22)

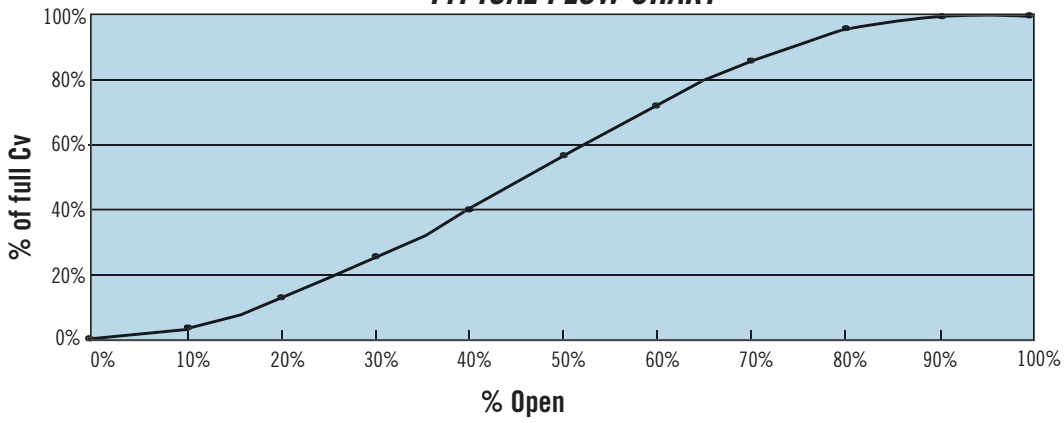
2.) Indicate orifice size or inlet pressure and temperature and required maximum flow.



PRESSURE CLASS	Size Code	Pipe Size	A	B	C	D	E	Wgt
	5E	1/2 15	2 5/16 59	4 102	2 5/16 59	10 1/4 260	8 203	13 6
	5E	3/4 20	2 5/16 59	4 102	2 5/16 59	10 1/4 260	8 203	13 6
NOMINAL	5E	1 25	2 5/16 59	4 102	2 5/16 59	10 1/4 260	8 203	13 6
900	7G	1 25	2 3/4 70	4 1/4 108	3 1/4 83	14 9/16 370	12 305	26 12
	7G	1 1/4 32	2 3/4 70	4 1/4 108	3 1/4 83	14 9/16 370	12 305	26 12
INTERMEDIATE	7G	1 1/2 40	2 3/4 70	4 1/4 108	3 1/4 83	14 9/16 370	12 305	26 12
1195	7G	2 50	2 3/4 70	4 1/4 108	3 1/4 83	14 9/16 370	12 305	26 12
	8H	2 50	3 76	4 1/2 114	3 15/16 100	16 1/2 419	12 305	42 19
	8H	2 1/2 65	3 76	4 1/2 114	3 15/16 100	16 1/2 419	12 305	42 19
	10K	3 80	5 127	6 152	4 7/8 124	20 1/16 510	18 457	86 39
	10K	4 100	5 127	6 152	4 7/8 124	20 1/16 510	18 457	86 39
	5E	1/2 15	2 5/16 59	4 102	2 5/16 59	10 1/4 260	8 203	13 6
	5E	3/4 20	2 5/16 59	4 102	2 5/16 59	10 1/4 260	8 203	13 6
	5E	1 25	2 5/16 59	4 102	2 5/16 59	10 1/4 260	8 203	13 6
NOMINAL	7G	1 25	2 3/4 70	4 1/4 108	3 1/4 83	14 9/16 370	12 305	26 12
1500	7G	1 1/4 32	2 3/4 70	4 1/4 108	3 1/4 83	14 9/16 370	12 305	26 12
INTERMEDIATE	7G	1 1/2 40	2 3/4 70	4 1/4 108	3 1/4 83	14 9/16 370	12 305	26 12
2155	8H	1 1/4 32	3 76	4 1/2 114	3 15/16 100	16 1/2 419	12 305	42 19
	8H	1 1/2 40	3 76	4 1/2 114	4 7/8 124	16 1/2 419	12 305	42 19
	8H	2 50	3 76	4 1/2 114	4 7/8 124	16 1/2 419	12 305	42 19
	10K	2 1/2 65	5 127	6 152	4 7/8 124	20 1/16 510	18 457	86 39
	10K	3 80	5 127	6 152	4 7/8 124	20 1/16 510	18 457	86 39
	10K	4 100	5 127	6 152	4 7/8 124	20 1/16 510	18 457	86 39
	5E	1/2 15	2 5/16 59	4 102	2 5/16 59	10 1/4 260	8 203	13 6
	5E	3/4 20	2 5/16 59	4 102	2 5/16 59	10 1/4 260	8 203	13 6
NOMINAL	5E	1 25	2 5/16 59	4 102	2 5/16 59	10 1/4 260	8 203	13 6
2500	7G	1 1/4 32	2 3/4 70	4 1/4 108	3 1/4 83	14 9/16 370	12 305	26 12
INTERMEDIATE	7G	1 1/2 40	2 3/4 70	4 1/4 108	3 1/4 83	14 9/16 370	12 305	26 12
3045	8H	1 1/4 32	3 76	4 1/2 114	3 15/16 100	16 1/2 419	12 305	42 19
	8H	1 1/2 40	3 76	4 1/2 114	3 15/16 100	16 1/2 419	12 305	42 19
	8H	2 50	3 76	4 1/2 114	3 15/16 100	16 1/2 419	12 305	42 19
	10K	2 50	5 127	6 152	4 7/8 124	20 1/16 510	18 457	86 39
	10K	2 1/2 65	5 127	6 152	4 7/8 124	20 1/16 510	18 457	86 39
	10K	3 80	5 127	6 152	4 7/8 124	20 1/16 510	18 457	86 39

* Socket Weld dimensions shown; Consult factory for Butt Weld dimensions.
Numbers shown in Black indicate dimensions in inches, weightin pounds. Numbers shown in blue indicate dimensions in mm, weights in kilograms.
Butt Weld dimensions determined by pipe schedule.
NOTE: All weights are approximate for shipping purposes only. Information on Figure Number Variations can be found on page 33.

TYPICAL FLOW CHART



SPECIFICATIONS

Size Code	Pipe Size		Cv/Kv Standard Orifice Size 1/8 3.2	3/16 4.8	1/4 6.4	5/16 7.9	3/8 9.5	7/16 11.1	1/2 12.7	9/16 14.3	5/8 15.9	11/16 17.5	3/4 19.1	13/16 20.6	7/8 22.2	15/16 23.8	1 25.4	1 1/16 27.0	1 1/8 28.6	1 3/16 30.2	1 1/4 31.6	1 3/8 34.9	1 1/2 38.1
5E	1/2	15																					
	3/4	20	0.42	1.1	2.4																		
	1	25	0.36	1.0	2.0																		
7G	1	25																					
	1 1/4	32	0.5	1.1	2.1	3	5	7	9	11													
	1 1/2	40	0.4	1.0	1.8	3	4	6	8	10													
	2	50																					
8H	1 1/4	32																					
	1 1/2	40					5	6	8	10	13	15	18										
	2	50					4	5	7	9	11	13	16										
10K	2	50																					
	2 1/2	65								13	16	19	22	25	28	31	35	38	42	46	49	59	64
	3	80								11	14	16	19	22	24	27	30	33	36	40	42	51	55
	4	100																					

Numbers shown in black indicate dimensions in inches/Cv. Numbers shown in blue indicate dimensions in mm/Kv.

NOTE: Other materials available upon request.



See product brochure for more details.

Camseal® Metal-Seated, Cartridge-Style, Top Entry, Zero Leakage Ball Valves save significant time and money on installation, maintenance, replacement and downtime.

STANDARD SIZES
1/2" through 4" Top Entry
SW, BW, FNPT and a variety of ends TDP-1-2013 compliant and full port valves available

PRESSURE RATING
ASME Class up to 4500

STANDARD MATERIALS
Carbon Steel SA-105
Stainless Steel SA-182-F316/F316L
Alloy SA-182-F22 Cl.3, SA-182-F91
Other materials available upon request

STANDARD ACCESSORIES
ISO-5211 Integral Mounting Pad Actuators - Electric, Pneumatic or Hydraulic, Gear Operator





Canadian Registration Numbers for all provinces



See product brochure for more details.

DESIGN FEATURES

Conval Camseal Ball Valve Provides Zero Leakage

Zero Body Leakage: The body/bonnet bolting for the top entry design is not susceptible to pipeline stresses – precluding the potential for leakage.

Zero Seat Leakage: Conval's Camseal has been type-tested using high pressure Nitrogen gas, achieving zero bubbles in four minutes. The result is industry leading performance with every valve and the longest in-service life compared to competitive brands.

Zero Stem Seal Leakage: Conval's exclusive Integral Gland Wrench concentrically loads the stem packing without tools, eliminating stem leaks and extending packing life. Live loading is available as an option.

Cartridge-style Top Entry

With top entry access, maintenance and replacement of the cartridge internals are very convenient, with no effect on existing piping and welds.

Robust Stem-Ball Engagement

Reliable, accurate ball alignment is achieved due to the robust engagement between the one-piece stem and the ball.

Superior Bearing Support

Superior bearing support of the blowout-proof stem ensures proper axial alignment and Zero Seat Leakage even on actuated valves.

Stem-Ball Alignment

The easy to read Position Indicator Disc (patent pending) increases the visibility and accuracy of stem and ball alignment into the valve seat. This is especially important when adding an actuator to a valve or resetting valve actuation. It is also critical in severe applications such as steam where positive, sustainable shutoff is critical and even slight misalignments will compromise the ball/seat sealing band. This indicator eliminates the need for costly and multiple manufacturing features that have traditionally been used with less accuracy. The indicator is self-securing to the stem; no set screws are required.

In-line Servicing

In-line renewability can be accomplished in 30 minutes and restores Zero Leakage performance.

Integral Mounting Pad

An ISO-5211 integral mounting pad facilitates error-free, air, motor and gear operator actuation due to superior rigidity, precise alignment and a fully-guided stem bearing system. Lockout capability is standard.

Two-Year Warranty

Conval is committed to unsurpassed quality. We are so confident of the quality of our product, that we offer a two-year warranty.

Camseal® is a registered trademark of Conval, Inc.
United States Patent No. 7,267,323

LIST OF MATERIALS FOR 1700# AND 3100# VALVES

NO.	NAME	QTY	MATERIAL			
1	BODY	1	ASME SA-105	ASME SA-182 F22	ASME SA-182 F91	ASME SA-182 F316
2	BONNET ASSEMBLY	1	SEE MATERIALS BELOW			
2A	BONNET	1	ASME SA-216 Gr WCB	ASME SA-217 Gr WC9	ASME SA-217 Gr C12A	ASME SA-351 Gr CF3M
2B	BONNET STEM BUSHING****	1	ASME SA-479 TYPE 410	ASME SA-479 TYPE 410	ASME SA-479 TYPE 410	AMS 5387 STELLITE #6
3	HANDLE*	1	ASME SA-216 Gr WCB			
4	STEM**	1	ASTM A582 TYPE 416	ASME SB637 UNS N07718	ASME SB637 UNS N07718	ASME SB637 UNS N07718
5	BUSHING	1	ASME SB150 ALUMINUM BRONZE			
6	IGW SPRING	1	MFR STANDARD STAINLESS			
7	GLAND	1	ASTM A582 TYPE 416	ASTM A582 TYPE 416	ASTM A582 TYPE 416	ASME SA-479 TYPE 316
8	INTEGRAL GLAND WRENCH (IGW)	1	MFR STANDARD STAINLESS			
9	BODY STUD*	SD	ASME SA193 Gr B16	ASME SA193 Gr B16	ASME SA193 Gr B16	ASME SA193 Gr B8M
10	BODY FLANGE NUT*	SD	ASME SA194 Gr 4	ASME SA194 Gr 4	ASME SA194 Gr 4	ASME SA194 Gr 8M
11	PACKING SET	1	BRAIDED & DIE-MOLDED FLEXIBLE GRAPHITE			
12	PACKING SPACER	1	ASME SA-479 UNS S21800 (NITRONIC 60)			
13	BODY/BONNET SEAL***	1	316 SST/FLEXIBLE GRAPHITE LAMINATE			
14	CARTRIDGE ASSEMBLY	1	SEE MATERIALS BELOW			
14A	CARTRIDGE	1	ASME SA-479 TYPE 410	ASME SA-479 TYPE 410	ASME SA-479 TYPE 410	ASME SA-479 TYPE 316
14B	COATED SEAT	1	ASME SB637 UNS N07718/CHROME CARBIDE			
14C	COATED BALL	1	ASME SB637 UNS N07718/CHROME CARBIDE			
14D	UPSTREAM SEAT	1	ASME SA-479 TYPE 410	ASME SA-479 TYPE 410	ASME SA-479 TYPE 410	AMS 5387 STELLITE #6
14E	UPSTREAM SEAT BELLEVILLE	1	ASME SB637 UNS N07718			
15	SEAT/BODY SEAL (C-RING)	1	ASTM B670 PLATED			
16	CAM	1	ASME SA-479 TYPE 410	ASME SA-479 TYPE 410	ASME SA-479 TYPE 410	ASME SA-479 UNS S20910
17	SPACER	1	ASME SB637 UNS N07718			
18	CAM BELLEVILLE	1	ASME SB637 UNS N07718			
19	STOP BOLT*	1	MFR STANDARD STAINLESS			
20	STOP NUT*	1	MFR STANDARD STAINLESS			
21	STOP LOCK WASHER*	1	MFR STANDARD STAINLESS			
22	HANDLE NUT*	1	MFR STANDARD CARBON STEEL			
23	HANDLE BOLT*	1	MFR STANDARD ALLOY STEEL			
24	SNAP RING STEM RETAINER*	1	MFR STANDARD			
25	POSITION INDICATOR DISC	1	ANODIZED ALUMINUM ALLOY T6061			

* SD = SIZE DEPENDENT

** FOR 4500#, STEM IS ASME SB637 UNS N07718 (INCONEL 718)

*** FOR 4500#, BODY/BONNET SEAL IS ASTM B670 PLATED

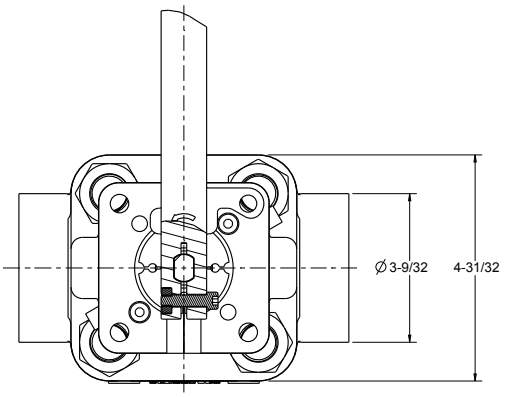
**** FOR 4500#, STEM BUSHING IS AMS 5387 STELLITE #6

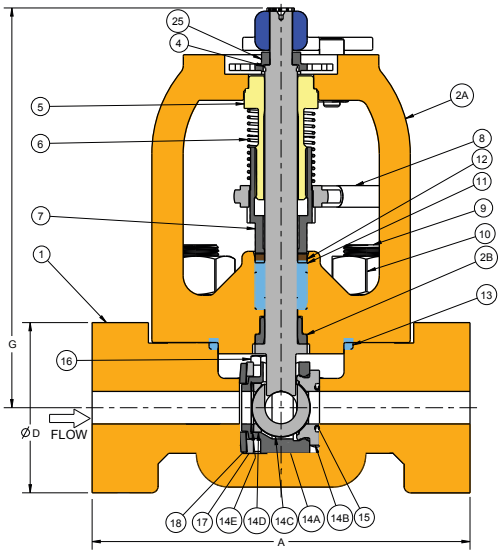
PIPE SIZE(S)	CODE	ASME CLASS	INCHES A	B	D	F	G	J	LBS WEIGHT
1/2 THRU 1-1/2	5E	1700# 3100#	7 1/4	1 5/8	3 1/4	5/8	7 3/8	15 3/16	30 1/4
1/2 THRU 1-1/4	7E	4500#	9 1/4	2	4	5/8	10 5/32	24 3/16	62
1/2 THRU 1-1/2	5F	2700#	7 1/4	1 5/8	3 1/4	3/4	10 5/16	24 3/16	30
2 THRU 2-1/2	7H	1700# 3100#	9 1/4	2	4	1 1/16	10 5/32	31 5/8	62
1-1/2 THRU 4	9H	4500#	11	2 11/32	4 11/16	1 1/16	11 1/2	32	100
3 THRU 4 (BW ONLY)	9J	1700# 3100#	11	2 11/32	4 11/16	1 1/2	11 1/2	32	112
3 THRU 4 (BW ONLY)	9K	1700#	11	2 11/32	4 11/16	1 15/16	11 1/2	32	180
2-1/2 & 3 THRU 4" (BW ONLY)	10K	3100#	17 3/4	3 1/8	4 3/4	1 15/16	13 1/2	(2)	233
2-1/2 & 3 THRU 4" (BW ONLY)	10L	1700#	17 3/4	3 1/8	4 3/4	2 1/4	13 1/2	(2)	250
2-1/2 & 3 THRU 4" (BW ONLY)	10N	600#	14	4	4 3/4	2 29/32	20 3/8	(2)	261

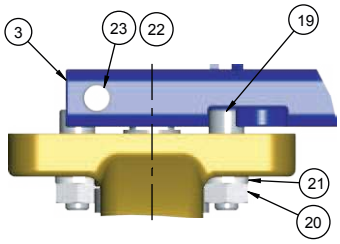
PIPE SIZE(S)	CODE	ASME CLASS	MILLIMETERS A	B	D	F	G	J	KG WEIGHT
DN15 THRU DN40	5E	1700# 3100#	184	42	83	16	187	386	13.7
DN15 THRU DN32	7E	4500#	235	51	102	16	258	614	28.1
DN15 THRU DN40	5F	2700#	184	42	83	19	262	614	13.6
DN50 THRU DN65	7H	1700# 3100#	235	51	102	27	258	803	28.1
DN40 THRU DN100	9H	4500#	279	60	119	27	292	813	45.4
DN80 THRU DN100 (BW ONLY)	9J	1700# 3100#	279	60	119	38	292	813	50.8
DN80 THRU DN100 (BW ONLY)	9K	1700#	279	60	119	49	292	813	81.6
DN65 & DN80 THRU DN100 (BW ONLY)	10K	3100#	451	79	121	49	342	(2)	105.7
DN65 & DN80 THRU DN100 (BW ONLY)	10L	1700#	451	79	121	59	342	(2)	113.4
DN65 & DN80 THRU DN100 (BW ONLY)	10N	600#	356	102	121	74	517	(2)	118.4

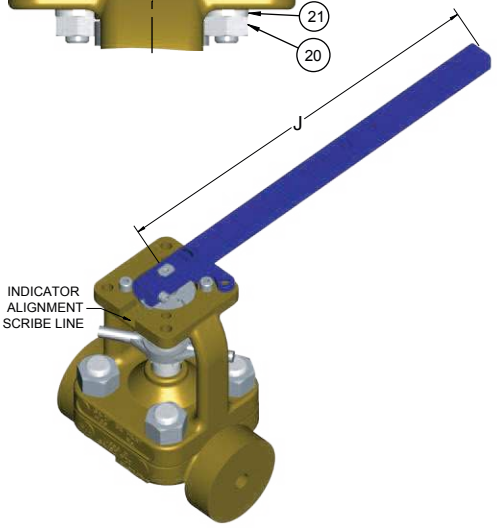
(1) 9J and 9K standard offering has a gear box with a handwheel, and as an option can be ordered with the handle and its associated hardware.

(2) 10K, 10L and 10N must be supplied with a gear box with handwheel to operate.









Swivldisc® Gate Valves

- Integral Gland Wrench
- In Line Repairable
- Adaptable for Air or Motor Actuators

The Conval CLAMPSEAL® Swivldisc Gate Valve delivers performance at the standard set by the legendary CLAMPSEAL® Globe Valve.

The Swivldisc wedge gate design employs a flexible disc face which permits the seating surfaces to achieve perfect alignment, establishing a leak tight seal not possible with standard wedge gates.

The simple and effective CLAMPSEAL® pressure seal bonnet provides ready access for servicing with no welds to cut or seal rings or gaskets to replace. The body-to-bonnet joint integrity is maintained through countless thermal cycles.

The Conval packing system delivers the best performance available. The one-piece gland with integral gland wrench is readily adjustable at anytime. Repacking can be accomplished by swapping the bonnet-chamber with the fresh pre-packed unit. The fine finish of the stem and chamber combines with high performance graphite packing to ensure long packing service life.

Selection of the CLAMPSEAL® Swivldisc is a commitment to quality and best value.

Conval's Swivldisc is the gate valve of choice when performance must be assured in the most demanding services.

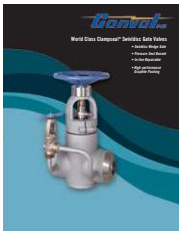
Swivldisc Gate Valve with bypass



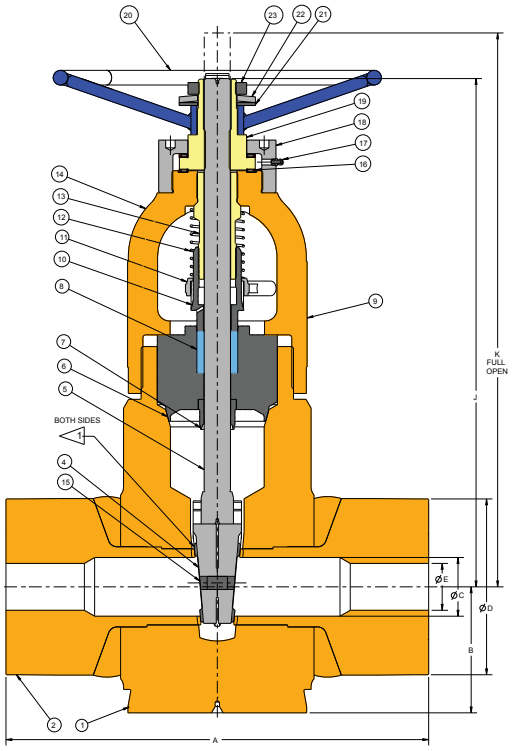
- ***Swivldisc gate***
- ***Pressure Seal Bonnet***
- ***High Performance Graphite Packing***
- ***One Piece Gland***
- ***Unobstructed, Full Port Flow***



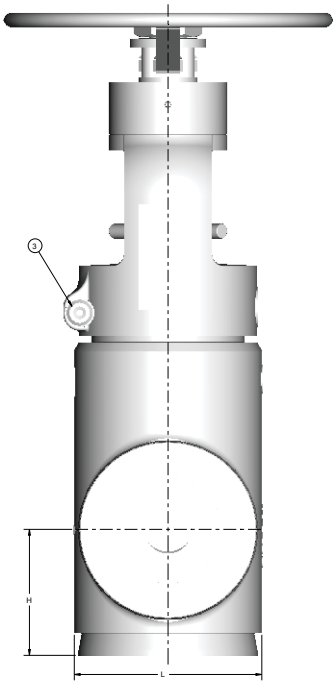
Based on real-life experience, more HRSG maintenance supervisors and planners are choosing to replace original lower-quality, foreign-made valves with new Conval valves, including Swivldisc gate valves. If the original valves are actuated, Conval can match the footprint of the actuator for easy replacement.



See product brochure for more details.



NO.	NAME	QTY	MATERIALS			
1	BODY	1	ASME SA-216 Gr. WCB	ASME SA-217 Gr. WC9	ASTM A217 Gr. C12A	ASME SA-351 Gr. CF8M
2	HUB	2	ASME SA-696 Gr. C	ASME SA-182 Gr. F22 Class 3	ASME SA-182 Gr. F91	ASME SA-479 Type 316
			SEAT OVERLAY ON ALL HUBS: COBALT ALLOY #6			
3	DISC	1	UNS R31233	UNS R31233	UNS R31233	ASME SA-479 Type 316
4	GATE	1	UNS R31233	UNS R31233	UNS R31233	ASME SA-351 Gr. CF8M
5	STEM	1	ASME SA-479 Type XM-19H			
6	BONNET BACKSEAT	1	UNS S21800			
7	BONNET CHAMBER	1	ASME SA-479 Type 410	ASME SA-479 Type 410	ASME SA-479 Type 410	ASME SA-479 Type XM-19H
8	PACKING SET	1	HIGH DENSITY GRAPHITE			
9	NAME PLATE	1	ASME SA-240 Type 304			
10	GLAND	1	ASTM A582 Type 416	ASTM A582 Type 416	ASTM A582 Type 416	ASME SA-479 Type 316
11	GLAND WRENCH	1	ASME 5360			
12	SPRING	1	MFG. STANDARD			
13	YOKE BUSHING	1	ASME SB-150			
14	YOKE	1	ASME SA-216 Gr. WCB Or ASME SA-105	ASME SA-217 Gr. WC9 Or ASME SA-182 Gr. F22 Class 3	ASME SA-217 Gr. WC9 Or ASME SA-182 Gr. F22 Class 3	ASME SA-351 Gr. CF8M Or ASME SA-182 Gr. F316
15	CLAMP BOLT	1	ASME SA-193 Gr. B8M			
16	GREASE FITTING	1	Commercial			
17	BEARING SET	2	Commercial			
18	BEARING CAP	1	MFG. STANDARD	MFG. STANDARD	MFG. STANDARD	ASME SA-479 Type 316
19	STEM NUT	1	ASME SB-150			
20	PAINTED HANDWHEEL	1	MFG. STANDARD			
21	FLAT WASHER	1	MFG. STANDARD			
22	SPRING WASHER	1	Commercial			
23	JAM NUT	1	MFG. STANDARD	MFG. STANDARD	MFG. STANDARD	ASME SA-479 Type 316

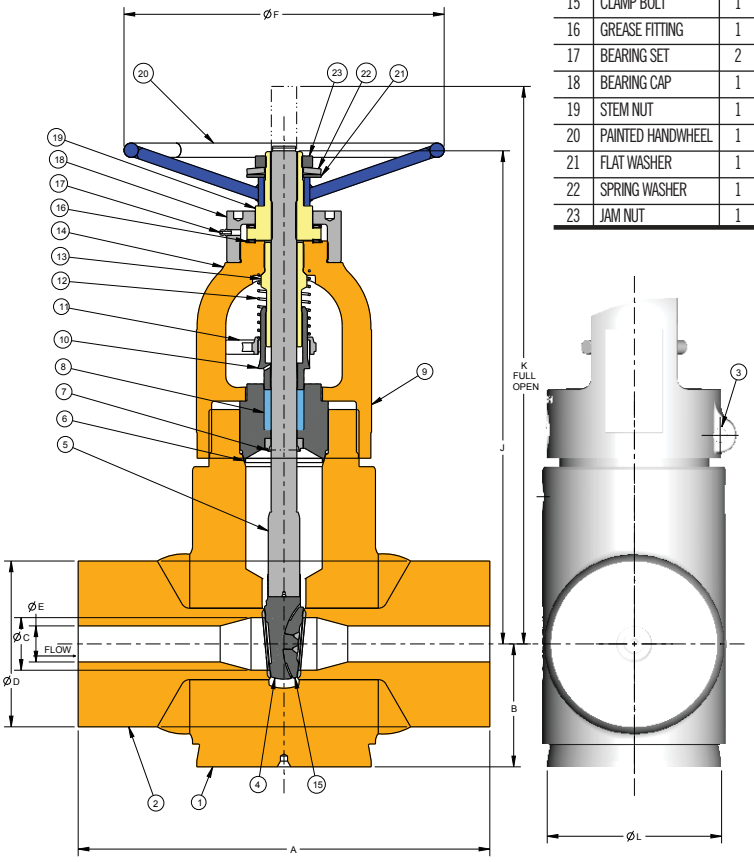


Pressure Class	Size Code	Pipe Size	Valve Outline Dimensions A	B	C	D	E	F	J	K	L	Cv Kv	WT
1500	2E	1/2 15	5 1/2 140	1 3/4 44	0.815 21	2 1/16 52	0.466 12	6 152	10 1/16 44	11 256	2 7/8 274	15 13	15 6.8
	2E	3/4 20	5 1/2 140	1 3/4 44	0.815 21	2 1/16 52	0.612 16	6 152	10 1/16 256	11 274	2 7/8 73	25 22	15 6.8
	2E	1 25	5 1/2 140	1 3/4 44	0.815 21	2 1/16 52	0.815 21	6 152	10 1/16 256	11 274	2 7/8 73	45 39	15 6.8
	3G	1 1/2 40	7 178	2 1/8 54	1.338 34	3 76	1.338 34	8 203	13 5/8 397	15 3/16 386	3 1/2 95	124 107	48 21.8
	4J	2 50	8 1/2 216	2 7/8 73	1.689 43	3 3/4 95	1.689 43	10 254	16 5/8 422	18 3/8 467	4 3/4 120	200 173	62 28.1
	6N	3 80	12 305	4 102	2.624 67	5 1/4 133	2.624 67	14 356	19 5/8 498	22 3/4 578	7 178	535 463	150 68
2500	2D	1/2 15	7 5/16 186	1 3/4 44	0.599 15	2 5/32 55	0.252 6	6 152	7 15/16 202	10 13/16 275	2 7/8 73	4 4	18 8.2
	2D	3/4 20	7 5/16 186	1 3/4 44	0.599 15	2 5/32 55	0.434 11	6 152	7 15/16 202	10 13/16 275	2 7/8 73	12 10	18 8.2
	2D	1 25	7 5/16 186	1 3/4 44	0.599 15	2 5/32 55	0.599 15	6 152	7 15/16 202	10 13/16 275	2 7/8 73	23 20	18 8.2
	3F	1 1/2 40	9 1/8 232	2 1/8 54	1.100 28	3 76	1.100 28	8 203	11 5/16 287	14 13/16 376	3 1/2 89	81 70	38 17.2
	4H	2 50	11 279	2 7/8 73	1.503 38	3 3/4 95	1.503 38	10 254	16 1/4 413	18 1/8 460	4 3/4 121	157 136	65 29.5
	5K	2 1/2 65	13 330	4 102	2.300 58	5 1/8 130	1.771 45	14 356	19 3/16 487	22 7/16 570	7 178	225 195	120 54.4
	6M	3 80	14 1/2 368	4 102	2.300 58	5 1/8 130	2.300 58	14 356	19 3/16 487	22 7/16 570	7 178	405 350	170 77.1
4095	8M	4 100	18 457	5 3/8 137	2.302 58	7 1/4 184	1.580 40	14 356	22 9/16 573	25 3/8 645	8 203	400 346	400 181

Numbers shown in Black indicate dimensions in inches, weight in pounds. Numbers shown in blue indicate dimensions in mm.

OTHER MATERIALS AVAILABLE UPON REQUEST

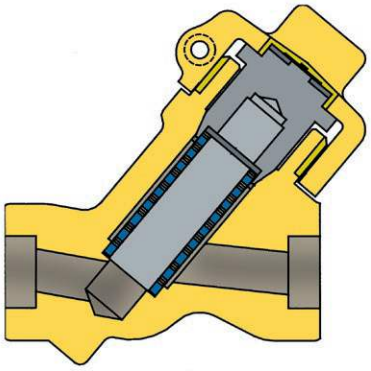
NO.	NAME	QTY	MATERIALS			
1	BODY	1	ASME SA-216 Gr. WCB	ASME SA-217 Gr. WC9	ASTM A217 Gr. C12A	ASME SA-351 Gr. CF8M
2	HUB	2	ASME SA-696 Gr. C	ASME SA-182 Gr. F22 Class 3	ASME SA-182 Gr. F91	ASME SA-479 Type 316
			SEAT OVERLAY ON ALL HUBS: COBALT ALLOY #6			
3	PIN	1	ASME SA-696 Gr. C	ASME SA-182 Gr. F22 Class 3	ASME SA-182 Gr. F91	ASME SA-479 Type 316
4	GATE HALF	2	ASME SA-216 Gr. WCB	ASME SA-217 Gr. WC9	ASME SA-217 Gr. WC9	ASME SA-240 Type 316
			OVERLAY ON EACH GATE HALF: COBALT ALLOY #6			
5	STEM	1	ASME SA-479 Type XM-19H			
6	BONNET BACKSEAT	1	UNS S21800			
7	BONNET CHAMBER	1	ASME SA-479 Type 410	ASME SA-479 Type 410	ASME SA-479 Type 410	ASME SA-479 Type XM-19H
8	PACKING SET	1	HIGH DENSITY GRAPHITE			
9	NAME PLATE	1	ASME SA-240 Type 304			
10	GLAND	1	ASTM A582 Type 416	ASTM A582 Type 416	ASTM A582 Type 416	ASME SA-479 Type 316
11	GLAND WRENCH	1	ASME 5360			
12	SPRING	1	MFG. STANDARD			
13	YOKE BUSHING	1	ASME SB-150			
14	YOKE	1	ASME SA-216 Gr. WCB Or ASME SA-105	ASME SA-217 Gr. WC9 Or ASME SA-182 Gr. F22 Class 3	ASME SA-217 Gr. WC9 Or ASME SA-182 Gr. F22 Class 3	ASME SA-351 Gr. CF8M Or ASME SA-182 Gr. F316
15	CLAMP BOLT	1	ASME SA-193 Gr. B8M			
16	GREASE FITTING	1	Commercial			
17	BEARING SET	2	Commercial			
18	BEARING CAP	1	MFG. STANDARD	MFG. STANDARD	MFG. STANDARD	ASME SA-479 Type 316
19	STEM NUT	1	ASME SB-150			
20	PAINTED HANDWHEEL	1	MFG. STANDARD			
21	FLAT WASHER	1	MFG. STANDARD			
22	SPRING WASHER	1	Commercial			
23	JAM NUT	1	MFG. STANDARD	MFG. STANDARD	MFG. STANDARD	ASME SA-479 Type 316



Pressure Class	Size Code	Pipe Size	Valve Outline Dimensions A	B	C	D	E	F	J	K	L	Cv Kv	WT
1500	8R	4 100	16 406	5 3/8 137	3.438 87	6 3/4 171	3.438 87	14 356	21 9/16 548	26 660	7 1/2 191	958 829	220 100
3500	8N	4 100	16 406	5 3/8 137	2.875 73	7 1/2 190	1.500 38	14 356	21 11/16 551	24 9/16 624	8 203	530 459	540 245

Strainers

The CLAMPSEAL® design is available in a variety of in-line strainer configurations. Supplied as either a simple strainer with blowoff socket connection or strainer with integral blowoff valve, the CLAMPSEAL® is easily disassembled for element cleaning or changeout. The CLAMPSEAL® offers a versatile economical alternative for strainer requirements.

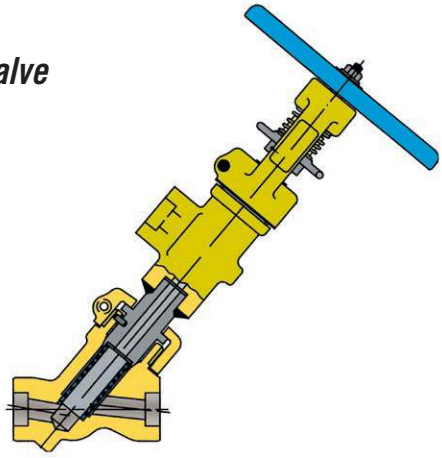


CLAMPSEAL® Strainer

Specifications:

Size:	1/2" - 4"	
Class:	600 - 4500	
Material:	SA	105
	SA	182-F22
	SA	182-F91
	SA	182-F316

Standard Strainer
Element Hole Sizes: 1/32, 3/64, 1/16, 3/32, 1/8
Options: Mesh Lined Strainer Elements
Example: 0.75-11Y4-F22

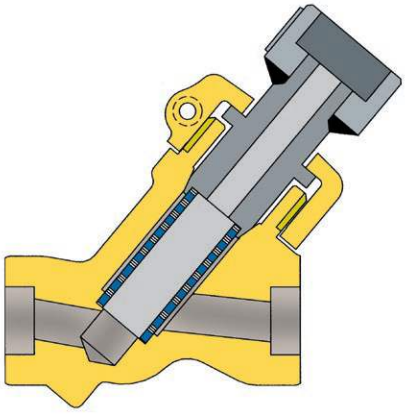


CLAMPSEAL® Strainer W/Blowoff Valve

Specifications:

Size:	1/2" - 4"	
Class:	600 - 4500	
Material:	SA	105
	SA	182-F22
	SA	182-F91
	SA	182-F316

Standard Strainer
Element Hole Sizes: 1/32, 3/64, 1/16, 3/32, 1/8
Options: Mesh Lined Strainer Elements
Example: 0.50-13W2J-316



CLAMPSEAL® Strainer w/Blowoff Fitting

Specifications:

Size:	1/2" - 4"	
Class:	600 - 4500	
Material:	SA	105
	SA	182-F22
	SA	182-F91
	SA	182-F316

Standard Strainer
Element Hole Sizes: 1/32, 3/64, 1/16, 3/32, 1/8
Options: Mesh Lined Strainer Elements
Example: 0.50-13X2-316

Blowoff bonnet enables use of any CLAMPSEAL® Valve as a flush point.

Whisperjets

High pressure drops can introduce severe erosion and wear. The Conval Whisperjet receives the high pressure inlet stream and discharges it through a series of multi pressure reduction stages called Whisperjets. Each Whisperjet section has four or six orifices around its perimeter. The orifices discharge inwardly, allowing the flow streams to impinge on each other rather than on the valve or sections themselves. These Whisperjets are designed to prevent sonic flow and critical pressure drops from occurring. By reducing the pressure in stages, cavitation, erosion, fluid velocity and sound level are minimized.

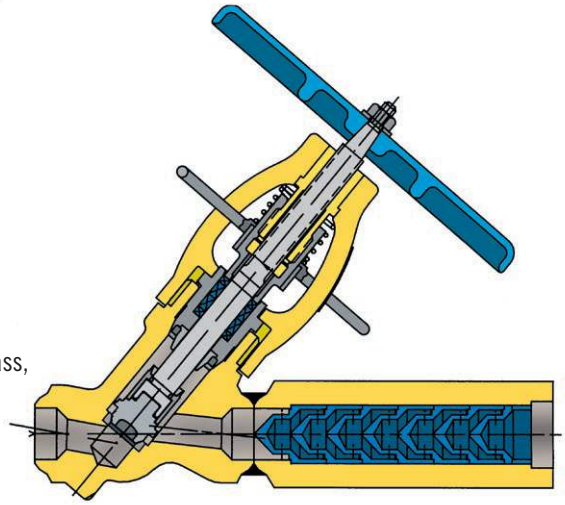


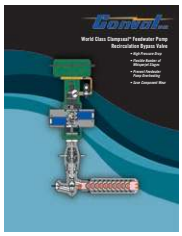
Many power plants have replaced competitors' pump recirculation control valves with Conval valves equipped with custom-engineered Whisperjets. Why? Because the competitor valves' control velocity type trim limited mass flow and was causing the feed pumps to overheat. Today, the Clampseal/Whisperjet valves are still operating flawlessly and are regarded as excellent, reliable products in what all agree is a difficult situation.

Water

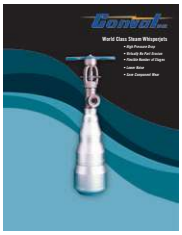
Specifications:

Type:	Angle, Y or T-pattern
Size:	1/2" thru 12"
Class:	ASME to 4500
End:	Socket Weld, Butt Weld
Material:	SA 182-F22, SA 182-F91, SA 105
Actuation:	Air, Motor, Manual
Applications:	Feedwater Pump Recirculation Bypass, Steel Mill Descaling Processes
Example:	1.00-22G2J-105

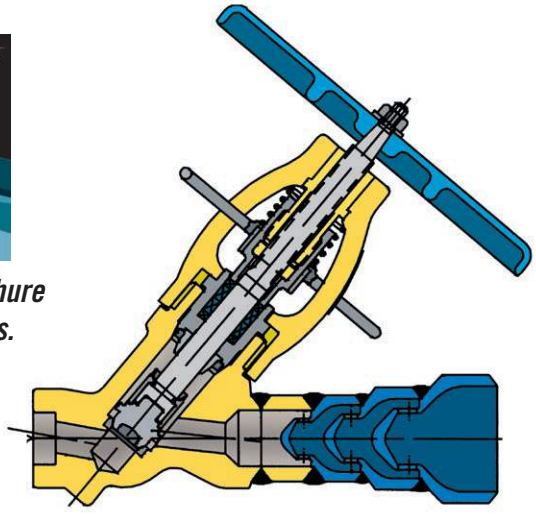




See product brochure for more details.



See product brochure for more details.



Steam

Specifications:

Type:	Angle, Y or T-pattern
Size:	1/2" thru 12"
Class:	ASME to 4500
End:	Socket Weld, Butt Weld
Material:	SA 182-F22, SA 182-F91, SA 105
Actuation:	Air, Motor, Manual
Applications:	Blowdown, Flash Tank Protection,Vents
Example:	1.50-23G2J-F22

Whisperjets provide for the progressive increase in specific volume as pressure drops.

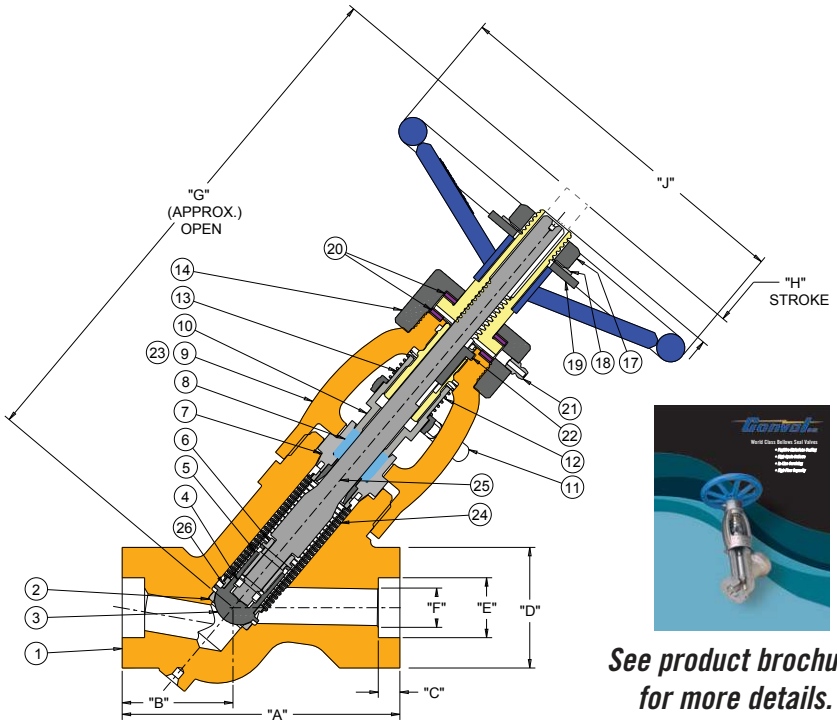
Bellows Seal Valves

Packed valves require two different seals: a 360° seal on the stem and a 360° seal on the stuffing box. The Conval Bellows Seal Valve removes these two leak paths.

Conval Bellows Seal Valves are used when packed valves may not reliably contain light gases or hazardous system fluids. The multi-ply Inconel™ static bellows stem seal is more reliable in most applications than sliding stem seals.

Conval Bellows Seal Valves have two back-up stem seals, a graphite packing and a pressure actuated backseat to contain system fluids in the unlikely event of a Bellows rupture.

Meets all the requirements of MSS-SP117.



See product brochure for more details.

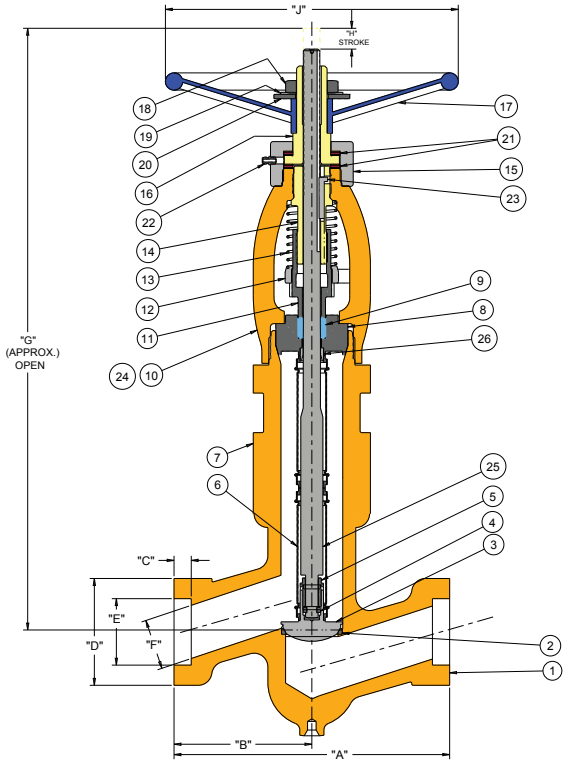
SINGLE

PRESSURE CLASS	Size CODE	Pipe Size	A	B	C	D	E	F	G	H	J	Cv Kv	Wgt. (LBs.)/(kgs)
	6E	1/2	6 1/8	2 7/16	3/8	2 11/16	0.860	5/8	11 7/8	0.563	8	7	23
		15	156	62	10	68	21.8	16	302	14.3	203	6	10
	6E	3/4	6 1/8	2 7/16	1/2	2 11/16	1.070	5/8	11 7/8	0.563	8	7	23
		20	156	62	13	68	27.2	16	302	14.3	203	6	10
	6G	1	6 1/8	2 7/16	1/2	2 11/16	1.335	1	11 7/8	0.563	8	14	21
		25	156	62	13	68	33.9	25	302	14.3	203	12	10
	6G	1 1/4	6 1/8	2 7/16	1/2	2 11/16	1.680	1	11 7/8	0.563	8	14	21
		32	156	62	13	68	42.7	25	302	14.3	203	12	10
1500	8J	1 1/2	7 1/4	2 11/16	1/2	3 15/16	1.920	1 1/2	16 5/16	0.774	10	31	40
		40	184	68	13	100	48.8	38	414	19.7	254	27	18
	8J	2	7 1/4	2 11/16	5/8	3 15/16	2.411	1 1/2	16 5/16	0.774	10	31	40
		50	184	68	16	100	61.2	38	414	19.7	254	27	18
	10L	2 1/2	12	5 5/16	5/8	4 7/8	2.914	2 1/4	20 3/16	0.911	14	55	96
		65	305	135	16	124	74.0	57	513	23.1	356	48	44
	10L	3	12	5 5/16	*	4 7/8	*	2 1/4	20 3/16	0.911	14	55	96
		80	305	135		124		57	513	23.1	356	48	44
	10L	4	12	5 5/16	*	4 7/8	*	2 1/4	20 3/16	0.911	14	55	96
		100	305	135		124		57	513	23.1	356	48	44
	6E	1/2	6 1/8	2-7/16	3/8	2 11/16	0.860	5/8	11 5/8	0.350	8	5	23
		15	156	62	10	68	21.8	16	295	8.9	203	4	10
	6E	3/4	6 1/8	2 7/16	1/2	2 11/16	1.070	5/8	11 5/8	0.350	8	5	23
		20	156	62	13	68	27.2	16	295	8.9	203	4	10
	6F	1	6 1/8	2 7/16	1/2	2 11/16	1.335	13/16	11 5/8	0.350	8	7	22
		25	156	62	13	68	33.9	21	295	8.9	203	6	10
2500	6F	1 1/4	6 1/8	2 7/16	1/2	2 11/16	1.680	13/16	11 5/8	0.350	8	7	22
		32	156	62	13	68	42.7	21	295	8.9	203	6	10
	8H	1 1/2	7 1/4	2 11/16	1/2	3 15/16	1.920	1 1/4	16	0.481	10	19	42
		40	184	68	13	100	48.8	32	406	12.2	254	16	19
	8H	2	7 1/4	2 11/16	5/8	3 15/16	2.411	1 1/4	16	0.481	10	19	42
		50	184	68	16	100	61.2	32	406	12.2	254	16	19
	10K	2 1/2	12	5 5/16	5/8	4 7/8	2.914	1 7/8	19 13/16	0.583	14	30	105
		65	305	135	16	124	74.0	48	503	14.8	356	26	48
	10K	3	12	5 5/16	*	4 7/8	*	1 7/8	19 13/16	0.583	14	30	105
		80	305	135		124		48	503	14.8	356	26	48
	10K	4	12	5 5/16	*	4 7/8	*	1 7/8	19 13/16	0.583	14	30	105
		100	305	135		124		48	503	14.8	356	26	48

BW dimensions supplied per customer requests. * All weights are approximate for shipping purposes only.
Numbers shown in Black indicate dimensions in inches, weight in pounds. Numbers shown in blue indicate dimensions in mm, weights in kilograms.

Double Bellows Seal Valves

Meets all the requirements of MSS-SP117.





See product brochure for more details.

DOUBLE

PRESSURE CLASS	Size CODE	Pipe Size	A	B	C	D	E	F	G	H	J	Cv Kv	Wgt. (LBs.)/(kgs)
	6E	1/2	6 1/8	2 7/16	3/8	2 11/16	0.860	5/8	15 7/8	1.126	8	8	28
		15	156	62	10	68	21.8	16	403	28.6	203	7	13
	6E	3/4	6 1/8	2 7/16	1/2	2 11/16	1.070	5/8	15 7/8	1.126	8	8	28
		20	156	62	13	68	27.2	16	403	28.6	203	7	13
	6G	1	6 1/8	2 7/16	1/2	2 11/16	1.335	1	15 7/8	1.126	8	18	26
		25	156	62	13	68	33.9	25	403	28.6	203	16	12
	6G	1 1/4	6 1/8	2 7/16	1/2	2 11/16	1.680	1	15 7/8	1.126	8	18	26
		32	156	62	13	68	42.7	25	403	28.6	203	16	12
1500	8J	1 1/2	7 1/4	2 11/16	1/2	3 15/16	1.920	1 1/2	20 13/16	1.548	10	39	54
		40	184	68	13	100	48.8	38	529	39.3	254	34	24
	8J	2	7 1/4	2 11/16	5/8	3 15/16	2.411	1 1/2	20 13/16	1.548	10	39	54
		50	184	68	16	100	61.2	38	529	39.3	254	34	24
	10L	2 1/2	12	5 5/16	5/8	4 7/8	2.914	2 1/4	27 9/16	1.822	14	110	125
		65	305	135	16	124	74.0	57	700	46.3	356	95	57
	10L	3	12	5 5/16	*	4 7/8	*	2 1/4	27 9/16	1.822	14	110	125
		80	305	135		124		57	700	46.3	356	95	57
	10L	4	12	5 5/16	*	4 7/8	*	2 1/4	27 9/16	1.822	14	110	125
		100	305	135		124		57	700	46.3	356	95	57
	6E	1/2	6 1/8	2-7/16	3/8	2 11/16	0.860	5/8	15 5/8	0.700	8	7	28
		15	156	62	10	68	21.8	16	397	17.8	203	6	13
	6E	3/4	6 1/8	2 7/16	1/2	2 11/16	1.070	5/8	15 5/8	0.700	8	7	28
		20	156	62	13	68	27.2	16	397	17.8	203	6	13
	6F	1	6 1/8	2 7/16	1/2	2 11/16	1.335	13/16	15 5/8	0.700	8	12	27
		25	156	62	13	68	33.9	21	397	17.8	203	10	12
2500	6F	1 1/4	6 1/8	2 7/16	1/2	2 11/16	1.680	13/16	15 5/8	0.700	8	12	27
		32	156	62	13	68	42.7	21	397	17.8	203	10	12
	8H	1 1/2	7 1/4	2 11/16	1/2	3 15/16	1.920	1 1/4	20 13/16	0.962	10	30	57
		40	184	68	13	100	48.8	32	529	24.4	254	26	26
	8H	2	7 1/4	2 11/16	5/8	3 15/16	2.411	1 1/4	20 13/16	0.962	10	30	57
		50	184	68	16	100	61.2	32	529	24.4	254	26	26
	10K	2 1/2	12	5 5/16	5/8	4 7/8	2.914	1 7/8	27 1/4	1.166	14	59	138
		65	305	135	16	124	74.0	48	692	29.6	356	51	63
	10K	3	12	5 5/16	*	4 7/8	*	1 7/8	27 1/4	1.166	14	59	138
		80	305	135		124		48	692	29.6	356	51	63
	10K	4	12	5 5/16	*	4 7/8	*	1 7/8	27 1/4	1.166	14	59	138
		100	305	135		124		48	692	29.6	356	51	63

BW dimensions supplied per customer requests. * All weights are approximate for shipping purposes only.

Numbers shown in Black indicate dimensions in inches, weight in pounds. Numbers shown in blue indicate dimensions in mm, weights in kilograms.

Lower Pressure (ASME Class 150#-900#) Bellows Seal Valves: Engineered for the demanding environments and regulations of severe service process control



Canadian Registration Numbers for all provinces

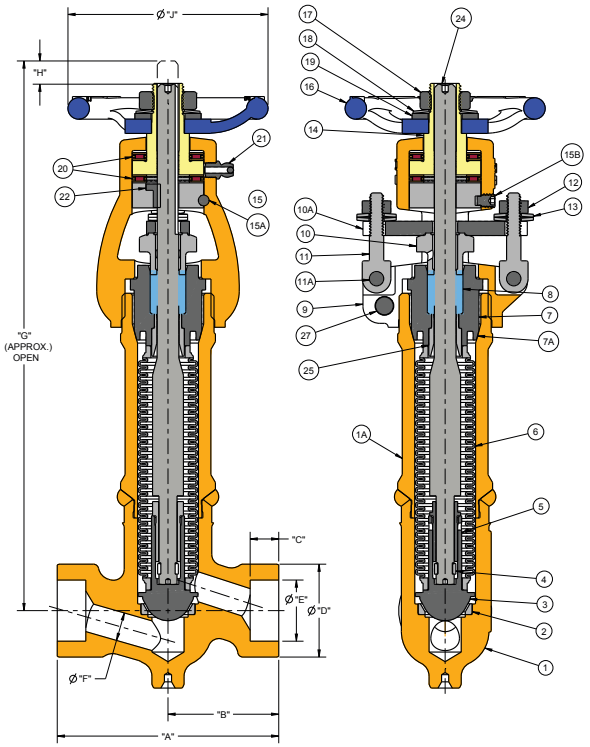


APPLICATION

When leakage to the environment is not an option, the ingenious design and rugged construction of the Conval Bellows Seal Valve provides continuous, problem-free service. Whether your application media is toxic, corrosive, caustic or just plain expensive, Conval Bellows Seal Valves provide the optimal solution.

FEATURES

- **General Design and Wall Thickness:** ASME B16.34/API 602
- **Leak Proof Integrity:** Triple Redundancy via Bellows, Live Loaded Packing and Backseat
- **Low Weight and Seismic Profile:** Ideal for Nuclear Applications
- **Bellows Inspection and Test:** MSS SP-117/API 602
- **Cycle Life (900# Class):** Greater than 10,000 (1/2"-2"), 3,000 (2-1/2"-4")
- **Helium Leak Test:** Mass Spectrometer with less than 1x10-6 cc/sec leakage
- **Bellows Material:** Hydroformed, Multi-Ply Inconel 625 (other materials available)
- **Size Range:** ½" – 4" NPS
- **Pressure Range:** ASME Class 150#-900#*
- **End Connection:** Socket Weld, Butt Weld, Flange and Threaded
- **Configuration:** Y, T and Angle Pattern
- **In-Line Renewable:** Can be serviced in-line, resulting in shortened downtime and industry-leading, low life cycle costs



NO.	NAME	QTY	CARBON STEEL BODY	ALLOY STEEL BODY	STAINLESS STEEL BODY
1	BODY	1	ASME SA-105	ASME SA182-F22 class 3	ASME SA182-F316/316L
1A	BODY EXTENSION	1	ASME SA-106 Gr B ASME SA696 Gr C	ASME SA335 Gr P22 ASME SA182-F22 class 3	ASME SA312 Gr Type 316 ASME SA479 Type 316
2	SEAT	1	ASTM A5387 GR. 6		ASTM A732 GR. 21
3	DISC	1	ASTM B 815		
4	SPLIT RING	2	ASME SA479 TYPE XM-19H		
5	RETAINER	1	ASME SA479 Type 316		
6	BELLOWS ASSY	1	ASTM B443, UNS N06625		
7	BONNET	1	ASME SA479 TYPE 410		ASME SA479 TYPE 316
7A	BONNET SEAL RING				ASTM A732 GR. 21
8	PACKING SET	1	BRAIDED CARBON/GRAPHITE DIE FORMED FLEXIBLE GRAPHITE		
9	YOKE	1	ASME SA-105	ASME SA182-F22 class 3	ASME SA182-F316/316L
10	GLAND	1	ASTM A479 TYPE 316		
10A	GLAND PLATE	1	ASTM A240 TYPE 316		
11	SWING BOLT	2	ASTM A320 TYPE 303		
11A	GROOVED PIN	2	18-8 STAINLESS STEEL		
12	GLAND PLATE NUT	2	18-8 STAINLESS STEEL		
13	BELLEVILLE WASHER	4	301 STAINLESS STEEL		
14	STEM NUT	1	ASME SB-150,UNS C64200		
15	BEARING RETAINER	1	ASME SB-150,UNS C64200		
15A	GROOVED PIN	1	18-8 STAINLESS STEEL		
16	HANDWHEEL	1	ASTM A536		
17	JAM NUT	1	18-8 STAINLESS STEEL		
18	BELLEVILLE WASHER	1	301 STAINLESS STEEL		
19	FLAT WASHER	1	ASME B18.21.1 18-8 STAINLESS		
20	BEARING SET	2	BEARING STEEL		
21	GREASE FITTING	1	303 STAINLESS STEEL		
22	KEY	1	AMS 5596 718		
23	ID. TAG (NOT SHOWN)	1	304 STAINLESS STEEL		
24	STEM	1	ASTM SB637, UNS N07718 ASME SA479 TYPE XM-19H		
25	STEM GUIDE	1	ASTM A732 GR. 21		
26	WASHER	1	18-8 STAINLESS STEEL		
27	CLAMP BOLT	1	18-8 STAINLESS STEEL		

SIZE NPS DN	PRESSURE CLASS	A	B	C	D	E	F	G	H	J	CV	WEIGHT LB KG	SIZE CODE
1/2	900	3.88	1.94	.38	1.63	.86	.38	9.63	0.38	3.50	3.0	6.2	3C
15		98	49	10	41	22	10	245	10	89		2.8	
3/4	900	3.88	1.94	.50	1.63	1.07	.50	9.63	0.38	3.50	3.7	6.2	3D
20		98	49	13	41	27	13	245	10	89		2.8	
1	900	4.94	2.47	.50	2.25	1.34	.75	9.94	0.45	5.00	4.7	10.5	5F
25		125	63	13	57	34	19	253	11	127		4.7	
1 1/4	900	4.94	2.47	.50	2.25	1.68	1.00	10.50	0.45	5.00	5.0	10.5	5G
32		125	63	13	57	43	25	267	11	127		4.7	
1 1/2	900	8.50	4.25	.63	3.25	1.92	1.25	10.88	0.46	8.00	10.5	20.5	7H
40		216	108	16	83	49	32	276	16	203		9.3	
2	900	8.50	4.25	.63	3.25	2.41	1.50	10.88	0.46	8.00	15.5	20.5	7J
50		216	108	16	83	61	38	276	16	203		9.3	
2 1/2	900	10.25	5.13	.63	4.25	2.91	1.88	20.18	0.75	10.00	22.0	45	8K
65		260	130	16	108	74	48	512	19	254		20.4	
3	900	10.25	5.13	*	4.25	*	2.25	20.18	0.75	10.00	35.0	45	8L
80		260	130		108		58	512	19	254		20.4	
4	900	12	6.00	*	4.25	*	2.63	20.18	0.75	10.00	48.0	45	8M
100		305	152		108		67	512	19	254		20.4	

Special Application Valves

The CLAMPSEAL® design is uniquely suited to a number of special applications where service demands require rugged construction while retaining easy in-line serviceability. No other forged valve offers this variety of applications.



Tandem Blowdown

Traditional bottom blowdown service requires a tandem valve. Unlike older massive designs with limited serviceability, the CLAMPSEAL® unit tandem valve offers compactness, lighter weight and easy maintainability as well as longevity of service.

Specifications:

Size/Style:	1" - 2 1/2"	Material:	SA 105
Class:	ASME to 4500		SA 182-F22
End:	Socket Weld, Butt Weld, Clamp Connector	Example:	1.00-12B8HJ-105



Cryogenic Service

High pressure cryogenic service demands special attention to design and quality of material and fabrication. The CLAMPSEAL® delivers tight shutoff and operability through a wide temperature range and meets ANSI B 31.3 requirements.

Specifications:

Size:	1/2" - 4"	Temperature:	To -320ºF
Class:	ASME 1500 and 2500	Material:	SA 182-316
		Example:	1.00-12J2J-316



Fire-Safe Service

Fire-safe service is ideal for refining and chemical plants where fire safety is a major concern. CLAMPSEAL® globe valves may be retrofitted with this fire-safe capability, which meets API Standard 6FA.

Specifications:

Size:	1/2" - 4"	Material:	A105
Class:	ASME/ANSI Class 900-2500	Example:	1.50-13C8J-A105
Temp.	To 1800°F		



Three-Way Service

Conval has responded to the need for a high pressure, high temperature 3-way valve with easy serviceability for both seats. Excellent service history and versatility make the CLAMPSEAL® valve the choice for 3-way service.

Specifications:

Size:	1 1/2" - 3"	Material:	Carbon Steel: (WCB)
Class:	ASME to 2500		Low Alloy: (WC9)
End:	Socket Weld, Butt Weld,Flanged, Clamp Connector		Stainless: (CF8M)
		Example:	1.50-13Z4J-316

Special Application Valves

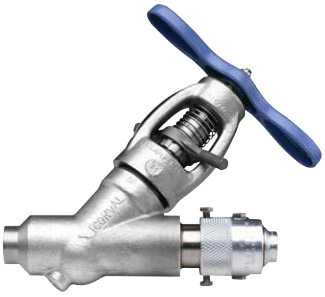


Naval Boiler Blowdown

The CLAMPSEAL® Naval Boiler Blowdown valve meets the requirements of MIL-V-17737 and other applicable specifications.

Specifications:

Size:	1 1/2”
Type:	I (Handwheel) or II (T-handle)
Class:	1 (600 lb) or 2 (1500 lb)
Style:	Straightaway (Y) or Angle
Material:	Carbon Steel or Alloy Steel
Example:	1.50-12G8CJ-N05
NSN:	4820-01-124-3694, 4820-01-140-4834 4820-01-018-3780, 4820-01-018-3781



SaVD Series Safe Vent Drain

Now you can add a simple, single-weld, dual sealing system to Clampseal Y-pattern valves to enhance leak-free performance and allow for fast, safe, environmentally-friendly venting and draining of piping systems.

Specifications:

Size:	1/2” - 2”
Type:	Y-Pattern; NPT, BW, SW Ends
Class:	Thru ASME 2500#
Material:	Stainless Steel A479-F316, A105, F22 and other materials upon request.
Options:	Securing Chain, Rodable Cap



Urea Service

Urea Service is designed for high-pressure piping of urea reactors, strippers and condensers. Ideal for use with ammonium carbonate, nitric acid, and urea process fluids.

Specifications:

Size:	1/2” - 4”
Type:	Y-Pattern; NPT, BW, SW Ends
Class:	ASME Class 900-2500
Material:	Forged Stainless Steel
Example:	2.00-12A0Z-252

Actuators

Conval CLAMPSEAL® valves are easily adapted to electric motor or pneumatic actuation. Valves ordered with actuators are assembled, functionally tested at Conval and shipped ready for installation, using your preferred brand of actuator. Where customers have existing actuators, the CLAMPSEAL® valve is provided with appropriate yoke flange and stem adaptor. All actuated valves are furnished with an integral gland wrench.



Electric Motor Actuated

Specifications:

Size:	1/2” - 4”
Class:	thru 4500
Material:	SA 105 SA 182-F22 SA 182-F91 SA 182-F316
Options:	Local Position Indicator



Pneumatic Actuated

Specifications:

Size:	1/2” - 4”
Class:	thru 4500
Material:	SA 105 SA 182-F22 SA 182-F91 SA 182-F316
Options:	Fail Open/Fail Closed Manual Override Limit Switches AC or DC Solenoid

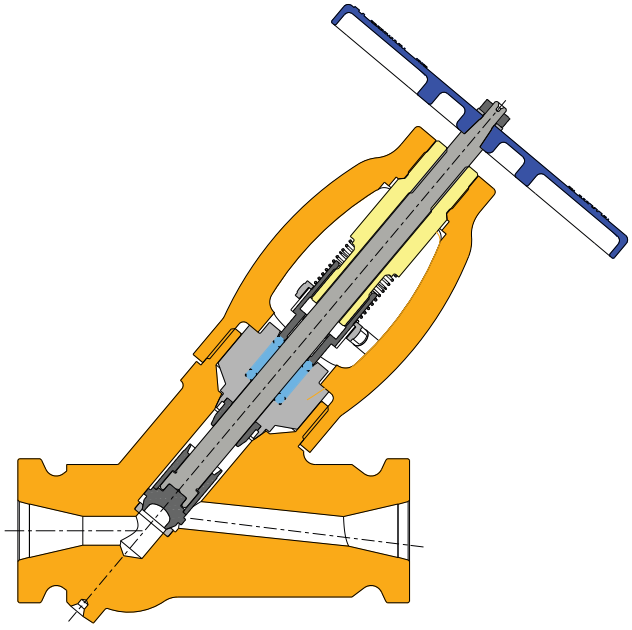
See Page 37 for Figure Number OPTION selection

Clampseal® Custom End Connections

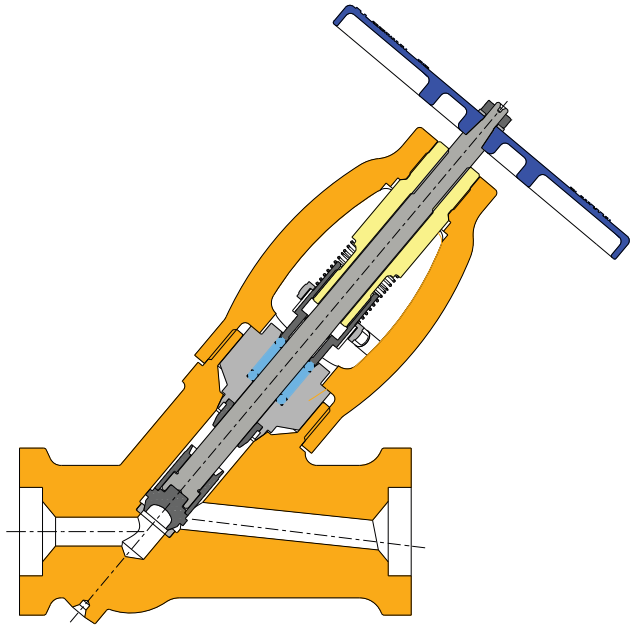
Custom, extended end connections can simplify the retrofitting of Clampseal valves to replace other manufacturer's Y-pattern valves.

For applications with F91 material, extended end connections enable welders to cut back to "virgin" pipe as required.

For applications with Post Weld Heat Treat (PWHT), extended end connections allow for welds further away from the seat.



Clamp Connector End



Extended Y-Pattern Body Valve

Socket Weld shown, Butt Weld also available

Pressure Class K	Size Code	Pipe Size	Conval Extended Y-Pattern Body Valve	Conval Extended Y Pattern Body Valve with Pipe Extensions	Competitor A	Competitor B	Competitor C
1500#		3/4 - 1 20 - 25	7.50 190	10.50 267	6.00 152	4.375 - 5.00 111 - 127	4.375 - 5.00 111 - 127
2500#	5	3/4 - 1 20 - 25	7.50 190	10.50 267	6.00 152	5.00 127	4.375 - 5.00 111 - 127
4500#		1/2 13	7.50 190	10.50 267	8.20 208	7.25 184	5.75 146
1500#		1 1/2 40	9.50 241	12.00 305	6.70 170	6.25 159	7.25 184
2500#	7	1 1/4 - 1 1/2 32 - 40	9.50 241	12.00 305	6.70 170	7.25 184	7.25 184
4500#		1 - 1 1/2 25 - 40	9.50 241	12.00 305	8.20 208	7.25 - 9.625 184 - 244	12.00 305
1500#		2 50	11.00 279	13.50 343	8.20 208	7.25 184	10.13 257
2500#	8	2 50	11.00 279	13.50 343	10.70 272	9.63 244	10.13 257
4500#		2 50	11.00 279	13.50 343	12.80 325	9.63 244	12.00 305

Numbers shown in Black indicate dimensions in inches, weight in pounds. Numbers shown in blue indicate dimensions in mm.

Conval Clampseal® API-602 Globe Valves are designed and built for the demanding environments (e.g. pressure and temperature extremes) of onshore and offshore drilling and production, refining, heavy oil and sour gas applications



CE

N

NPT

ISO 9001

Canadian Registration Numbers for all provinces







APPLICATION

Conval Clampseal API-602 Globe Valves are designed and built for the demanding environments (e.g. pressure and temperature extremes) of onshore and offshore drilling and production, refining, heavy oil and sour gas applications.

FEATURES

General Design and Wall Thickness: ASME B16.34/API 602.

API 624 Certified: Assures low fugitive emission performance. Third Party reports available on request.

Integral Gland Wrench (IGW): The IGW allows for easy packing adjustments and for locking the packing in place. System vibration cannot loosen the packing gland (concentric 360 degree packing load).

NACE: ISO 15156 / MR0103 Compliance Available.

High Performance Packing System: The Clampseal packing system incorporates corrosion-inhibiting, high density graphitic packing, certified to API 622. Live loading on request.

Rapid In-Line Repairability: The Clampseal valve line provides a modular solution to rising maintenance expense. Rapid, reliable in-line servicing makes for less down time.

Quality Certifications: ISO 9001, European Pressure Equipment Directive (PED), Nuclear N Stamp, Canadian Registration Number, and many more. Conval complies with all applicable API standards.

Configuration: Y, T and Angle Patterns.

Size Range: ½" – 2-1/2" NPS*.

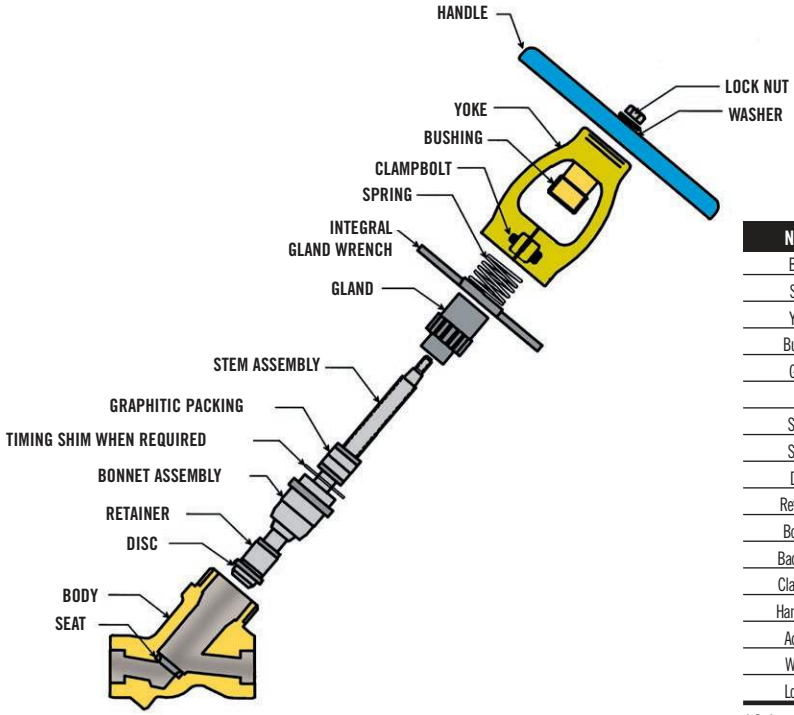
Pressure Range: ASME Class 150# – 1500#.**

End Connection: Socket Weld, Butt Weld, Flanged, Hub and Threaded.

Electroless Nickel Plated Finish: Contributes to extended service life.

*Valves through 4" available. Please consult the factory.
* Valves rated to Class 4500# are available. Please consult the factory.

CLAMPSEAL® API-602 GLOBE VALVE STANDARD TRIM & VALVE MATERIALS



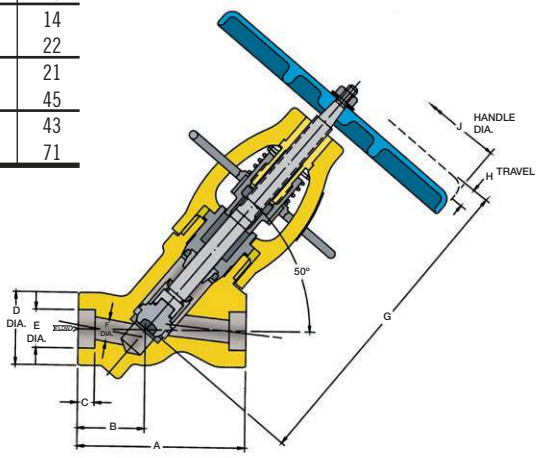
Name	Carbon Steel	Low Alloy Steel	Stainless
Body*	SA-105	SA-182 F22 or SA-182 F91	SA-182 F316
Seat*	Cobalt Alloy-AMS 5387		
Yoke*	SA-105	SA-182 F22	SA-182 F316
Bushing	ASME SB-150, UNS C64200		
Gland	SA-582 Type 416		SA-479 Type 316
IGW	AMS 5370		
Spring	Stainless		
Stem*	SA-582 Type 416 or SA-479 Type 410		SA-479 Type XM-19H
Disc*	Cobalt Alloy AMS 5387		
Retainer*	SA-479 Type 316 or SA-582 Type 416		SA-479 Type 316
Bonnet*	SA-479 Type 410		SA-479 Type316
Backseat*	SA-479, UNS 521800		
Clampbolt	Mfg. Standard Stainless		
Handwheel	Malleable Iron		
Adaptor	Malleable Iron		
Washer	Mfg. Standard Stainless		
Locknut	Mfg. Standard Stainless		

*Other Alloys Available on Request

CLAMPSEAL® API-602 Y-PATTERN GLOBE VALVE DIMENSIONS

Size Code	NPS	Class	A SW	A BW	B	C	D	E	F	G	H	J	Cv	Weight (lbs)
3D	0.50	800	3.75	3.75	1.50	0.38	1.63	0.86	0.50	7.53	0.56	6.50	6	5
3D		1500	3.75	3.75	1.50	0.38	1.63	0.86	0.50	7.53	0.56	6.50	6	5
5E	0.75	800	4.50	4.75	1.75	0.50	2.33	1.07	0.63	9.47	0.69	8.00	9	11
5E		1500	4.50	4.75	1.75	0.50	2.33	1.07	0.63	9.47	0.69	8.00	9	11
5F	1.00	800	4.50	4.75	1.75	0.50	2.33	1.34	0.82	9.57	0.75	8.00	15	10
5F		1500	4.50	4.75	1.75	0.50	2.33	1.34	0.82	9.57	0.75	8.00	15	10
5G	1.25	800	4.50	4.75	1.75	0.50	2.33	1.68	1.01	10.01	1.19	8.00	24	9
7G		1500	6.25	6.50	2.56	0.50	3.25	1.68	1.01	12.72	1.19	12.00	24	15
6H	1.50	800	5.50	6.13	2.13	0.50	2.69	1.92	1.26	10.64	1.19	8.00	36	14
7H		1500	6.25	6.50	2.56	0.50	3.25	1.92	1.26	12.73	1.19	12.00	38	22
7J	2.00	800	6.25	6.50	2.56	0.63	3.25	2.41	1.51	12.88	1.25	12.00	61	21
8J		1500	7.25	7.25	2.69	0.63	3.94	2.41	1.51	14.67	1.56	12.00	62	45
8K	2.50	800	7.25	7.25	2.69	0.63	3.94	2.92	1.88	14.72	1.75	12.00	86	43
9K		1500	9.00	9.63	3.63	0.63	4.38	2.92	1.88	16.56	2.00	24.00	86	71

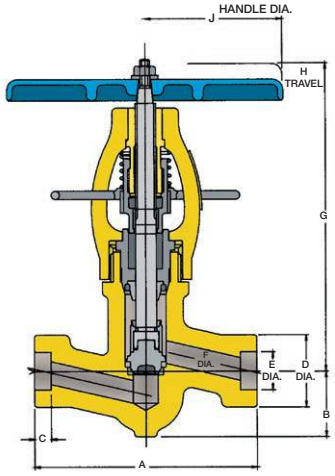
Dimensions are in inches.



CLAMPSEAL® API-602 T-PATTERN GLOBE VALVE DIMENSIONS

Size Code	NPS	Class	A	B	C	D	E	F	G	H	J	Cv	Weight (lbs)
3D	0.50	800	5.00	1.48	0.38	1.63	0.86	0.50	7.48	0.56	6.50	4	6
3D		1500	5.00	1.48	0.38	1.63	0.86	0.50	7.53	0.56	6.50	4	6
5E	0.75	800	6.50	1.85	0.50	2.33	1.07	0.63	9.47	0.69	8.00	6	13
5E		1500	6.50	1.85	0.50	2.33	1.07	0.63	9.47	0.69	8.00	6	13
5F	1.00	800	6.50	1.88	0.50	2.33	1.34	0.82	9.57	0.75	8.00	9	12
5F		1500	6.50	1.88	0.50	2.33	1.34	0.82	9.57	0.75	8.00	9	12
7G	1.25	800	8.50	3.07	0.50	3.25	1.68	1.00	12.66	1.19	12.00	14	25
7G		1500	8.50	3.07	0.50	3.25	1.68	1.00	12.66	1.19	12.00	14	25
7H	1.50	800	8.50	3.07	0.50	3.25	1.92	1.25	12.66	1.19	12.00	22	24
7H		1500	8.50	3.07	0.50	3.25	1.92	1.25	12.66	1.19	12.00	22	24
8J	2.00	800	10.00	3.79	0.63	4.00	2.41	1.50	14.37	1.56	12.00	32	55
8J		1500	10.00	3.79	0.63	4.00	2.41	1.50	14.67	1.56	12.00	32	55
8J	2.50	1500	10.00	3.79	0.63	4.00	2.92	1.50	14.83	1.56	12.00	32	55

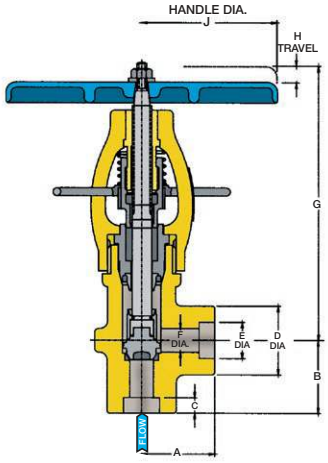
Dimensions are in inches.



CLAMPSEAL® API-602 A-PATTERN GLOBE VALVE DIMENSIONS

Size Code	NPS	Class	A	B	C	D	E	F	G	H	J	Cv	Weight (lbs)
3D	0.50	800	1.75	1.75	0.38	1.63	0.86	0.50	7.09	0.56	6.50	7	5
3D		1500	1.75	1.75	0.38	1.63	0.86	0.50	7.09	0.56	6.50	7	5
5E	0.75	800	2.31	2.31	0.50	2.33	1.07	0.63	8.85	0.69	8.00	9	11
5E		1500	2.31	2.31	0.50	2.33	1.07	0.63	8.85	0.69	8.00	9	11
5F	1.00	800	2.31	2.31	0.50	2.33	1.34	0.81	8.95	0.75	8.00	16	10
5F		1500	2.31	2.31	0.50	2.33	1.34	0.82	8.95	0.75	8.00	16	10
7G	1.25	800	4.25	2.75	0.50	3.25	1.68	1.01	11.85	1.19	12.00	23	23
7G		1500	4.25	2.75	0.50	3.25	1.68	1.01	11.85	1.19	12.00	23	23
7H	1.50	800	4.25	2.75	0.50	3.25	1.92	1.26	11.85	1.19	12.00	38	21
7H		1500	4.25	2.75	0.50	3.25	1.92	1.26	11.85	1.19	12.00	38	21
7J	2.00	800	4.25	2.75	0.63	3.25	2.41	1.51	11.80	1.25	12.00	54	20
8J		1500	4.50	3.00	0.63	3.94	2.41	1.51	13.67	1.56	12.00	54	42
8K	2.50	800	4.50	3.00	0.63	3.94	2.92	1.88	13.53	1.75	12.00	74	39
10L		1500	6.00	5.00	0.63	4.88	2.92	2.25	16.94	2.13	24.00	124	107

Dimensions are in inches.



Clampseal® and Camseal® Automated Valves

- *Automate for Precise Closure*
- *Eliminate Excessive Steam Dumping*
- *Reduce Treated Water Replacement*
- *Monitor and Control Remotely*
- *Extend Product Life*
- *Reduce Labor Costs*



DESIGN FEATURES

Automates Closure

Significant savings in labor costs are realized by fully automating the operation of the valves. Automated closure also assures consistent, precise closure. Actuators will apply the proper force to close valves every time, for tight shut-off and long valve life.

Saves Steam

Any number of valves can be opened or closed at one time, to eliminate excessive steam dumping.

Reduces Treated Water Replacement

With automated vents and drains, there is less of a need to replace treated water, as less steam or water is evacuated from the system.

Evacuates Condensate

Steam trap condensate evacuation is accomplished by programming the open/close cycle on regular intervals to suit the application. Fully automated sensing and draining of condensate can be offered if required.

Signals Open/Closed Position in Control Room

Automated valves can be easily instrumented for control room indication.

Integrates with Computerized Plant Operations

The process can be fully automated and integrated with plant hardware/software.

Actuated Clampseal® Globe Valves





Automated globe valves are available in angle, Y, and T-pattern configurations. Valves are repairable in-line, with no welds to remove and replace. A complete line of tools for repair are available. Seats may be cut, ground and lapped. Disc can be turned or replaced, and lapped to the seat. Valves can be programmed to close, partially open, then close for seat cleansing, assuring tight shut-off. Thermal growth is accommodated by the air actuator and by an optional spring pack with the electric actuator.

Actuated Camseal® Ball Valves





Top entry ball valves feature in-line replaceable cartridge. The cartridge with new seat and ball is fully factory-tested to assure tight shut-off. Valve has indicator window and marked stem, to assure proper in-line ball alignment in open and closed positions. Integral ISO mounting flange supplied as standard.

Globe and ball valves are available with all types of actuators. Conval also offers air actuators with direct mount for solenoids.

Service Tool Cross Reference

Size Code	Tool Kit	Stop	Lapping Tools Check	Lapping Tools Bonnet	Repack Tool	Yoke Wrench*	Gland Torque Wrench	Refacing Tool
3C	TK3C-C-S-1	T3C-L	T3C-LC	T3C-LB-1	T3-RP-1	T3/6-YW-1	T3-GTW-1	T3C-R
3D	TK3D-C-S-1	T3D-L	T3D-LC	T3D-LB-1	T3-RP-1	T3/6-YW-1	T3-GTW-1	T3D-R
5C	TK5C-C-S-1	T5C-L	T5C-LC	T5C-LB-1	T3-RP-1	T3/6-YW-1	T3-GTW-1	T5C-R
5D	TK5D-C-S-1	T5D-L	T5D-LC	T5C-LB-1	T3-RP-1	T3/6-YW-1	T3-GTW-1	T5D-R
5E	TK5E-C-S-1	T5EF-L	T5EF-LC	T5EF-LB-1	T5-RP-1	T3/6-YW-1	T5-GTW-1	T5E-R
5F	TK5F-C-S-1	T5EF-L	T5EF-LC	T5EF-LB-1	T5-RP-1	T3/6-YW-1	T5-GTW-1	T5F-R
5G	TK5G-C-S-1	T5G-L	T5G-LC	T5G-LB-1	T5-RP-1	T3/6-YW-1	T5-GTW-1	T5G-R
6E	TK6E-C-S-1	T6E-L	T6E-LC	T6E-LB-1	T5-RP-1	T3/6-YW-1	T5-GTW-1	T6E-R
6G	TK6G-C-S-1	T6GH-L	T6GH-LC	T6GH-LB-1	T5-RP-1	T3/6-YW-1	T5-GTW-1	T6G-R
6H	TK6H-C-S-1	T6GH-L	T6GH-LC	T6GH-LB-1	T5-RP-1	T3/6-YW-1	T5-GTW-1	T6H-R
7E	TK7E-C-S-1	T7E-L	T7E-LC	T7E-LB-1	T5-RP-1	T7/10-YW-1	T5-GTW-1	T7E-R
7F	TK7F-C-S-1	T7F-L	T7F-LC	T7F-LB-1	T7-RP-1	T7/10-YW-1	T7-GTW-1	T7F-R
7G	TK7G-C-S-1	T7GH-L	T7GH-LC	T7GH-LB-1	T7-RP-1	T7/10-YW-1	T7-GTW-1	T7G-R
7H	TK7H-C-S-1	T7GH-L	T7GH-LC	T7GH-LB-1	T7-RP-1	T7/10-YW-1	T7-GTW-1	T7H-R
7J	TK7J-C-S-1	T7J-L	T7J-LC	T7J-LB-1	T7-RP-1	T7/10-YW-1	T7-GTW-1	T7J-R
8F	TK8F-C-S-1	T8F-L	T8F-LC	T8F-LB-1	T7-RP-1	T7/10-YW-1	T7-GTW-1	T8F-R
8G	TK8G-C-S-1	T8G-L	T8G-LC	T8G-LB-1	T8-RP-1	T7/10-YW-1	T8-GTW-1	T8G-R
8H	TK8H-C-S-1	T8HJ-L	T8HJ-LC	T8HJ-LB-1	T8-RP-1	T7/10-YW-1	T8-GTW-1	T8H-R
8J	TK8J-C-S-1	T8HJ-L	T8HJ-LC	T8HJ-LB-1	T8-RP-1	T7/10-YW-1	T8-GTW-1	T8J-R
8K	TK8K-C-S-1	T8K-L	T8K-LC	T8K-LB-1	T8-RP-1	T7/10-YW-1	T8-GTW-1	T8K-R
9G	TK9G-C-S-1	T9G-L	T9G-LC	T9G-LB-1	T8-RP-1	T7/10-YW-1	T8-GTW-1	T9G-R
9H	TK9H-C-S-1	T9H-L	T9H-LC	T9H-LB-1	T8-RP-1	T7/10-YW-1	T8-GTW-1	T9H-R
9J	TK9J-C-S-1	T9JK-L	T9JK-LC	T9JK-LB-1	T9-RP-1	T7/10-YW-1	T9-GTW-1	T9J-R
9K	TK9K-C-S-1	T9JK-L	T9JK-LC	T9JK-LB-1	T9-RP-1	T7/10-YW-1	T9-GTW-1	T9K-R
9L	TK9L-C-S-1	T9L-L	T9L-LC	T9L-LB-1	T9-RP-1	T7/10-YW-1	T9-GTW-1	T9L-R
10H	TK10H-C-S-1	T10H-L	T10H-LC	T10H-LB-1	T8-RP-1	T7/10-YW-1	T8-GTW-1	T10H-R
10J	TK10J-C-S-1	T10J-L	T10J-LC	T10J-LB-1	T9-RP-1	T7/10-YW-1	T9-GTW-1	T10J-R
10K	TK10K-C-S-1	T10KL-L	T10KL-LC	T10KL-LB-1	T10-RP-1	T7/10-YW-1	T10-GTW-1	T10K-R
10L	TK10L-C-S-1	T10KL-L	T10KL-LC	T10KL-LB-1	T10-RP-1	T7/10-YW-1	T10-GTW-1	T10L-R
10M	TK10M-C-S-1	T10M-L	T10M-LC	T10M-LB-1	T10-RP-1	T7/10-YW-1	T10-GTW-1	T10M-R



* Optional snap-on torque handle available through SNAP-ON™.

Conval Tool Kits

CLAMPSEAL® valves are designed to provide years of dependable service and to allow rapid in-line repair. Quick disconnect yoke and bonnet design provide fast access to valve trim for inspection and repair.

Conval's seat refacing tools cut through all types of seat damage leaving a smooth seat finish in minutes. Solid seats allow for repeated resurfacing.

Typical repair operations can be completed in under one hour making repair much more economical than replacement.

Conval's Tool Kits consist of:

1 Disk to Seat Mate Lapping Tool
2 Bonnet Lapping Tool
3 (2) Allen Wrenches
4 Seat Refacing Tool
5 Lapping Compound
6 High Spot Blue No. 107
7 Gland Wrench
8 Repacking Tool
9 Yoke Wrench
10 Servicing Instructions

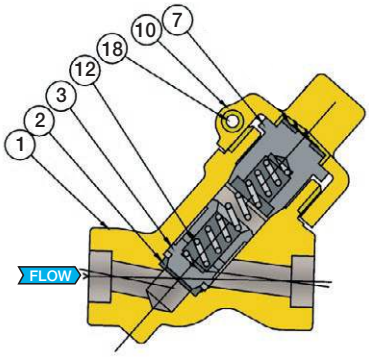


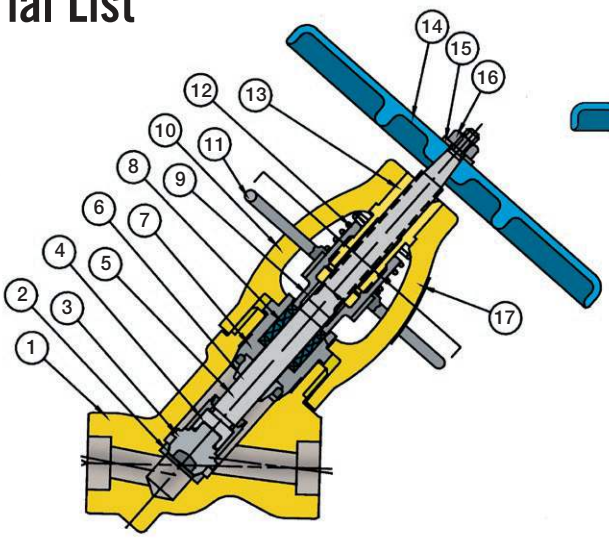
Servicing Instruction videos are available on CD or DVD and online at Conval.com.

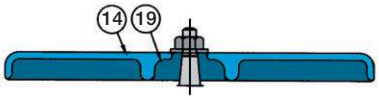


A Typical Conval Tool Kit

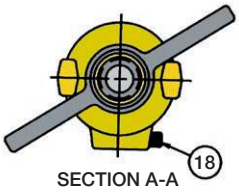
Standard Parts & Material List







Impact Handle/Handwheel
used on size codes 8G to 10M



Globe Valve

NO.	NAME	Carbon Steel	Low Alloy	Stainless
1	Body	SA-105	SA-182 F22 or SA-182 F91	SA-182 F316
2	Seat	Cobalt Alloy-AMS 5387	Cobalt Alloy-AMS 5387	ASTM A732 GR21
3	Disc	Cobalt Alloy-AMS 5387	Cobalt Alloy-AMS 5387	Cobalt Alloy-AMS 538
4	Retainer	ASTM A 582 416	ASTM A 582 416	SA-479 316
5	Stem	ASTM A 582 416	ASTM A 582 416	SA479-UNS S20910
6	Stem Guide	ASTM A 732 GR21	ASTM- A732-GR21	ASTM A732 GR21
7	Bonnet/Chamber	SA479-410	SA479-410	SA479-TYPE 316
8	Packing Set	Flexible Graphite	Flexible Graphite	Flexible Graphite
		Die Formed Packing Rings	Die Formed Packing Rings	Die Formed Packing Rings
		Braided Carbon Yarn Wiper Rings	Braided Carbon Yarn Wiper Rings	Braided Carbon Yarn Wiper Rings
9	Gland	ASTM A 582 416	ASTM A 582 416	ASME SA-479 316
10	Yoke	SA-105	SA-182 F22	SA-182 F316
11	I.G.W.1	AMS 5370	AMS 5370	AMS 5370
12	Spring	Stainless	Stainless	Stainless
13	Bushing	ASME SB-150-C64200	ASME SB-150-C64200	ASME SB-150-C64200
14	Handle/Handwheel	Malleable Iron	Malleable Iron	Malleable Iron
15	Washer2	Steel	Steel	Stainless
16	Locknut	Steel	Steel	Steel
17	ID Plate	Stainless Steel	Stainless Steel	Stainless Steel
18	Clampbolt	Stainless	Stainless	Stainless
19	Impact Adaptor	Malleable Iron	Malleable Iron	Malleable Iron
20	Retainer Washer	Steel	Steel	Steel

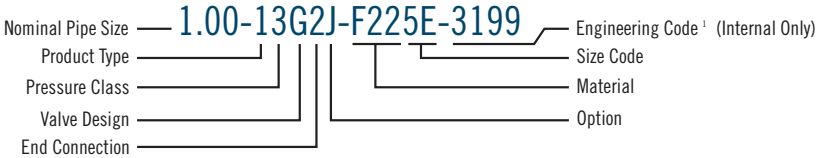
[1] Integral Gland Wrench

[2] Retainer Washer required with sizes 8, 9 and 10

Check Valve

NO.	NAME	Carbon Steel	Low Alloy	Stainless
1 1	Body	SA-105	SA-182 F22, SA-182 F91	SA-182 F316
2	Seat	Cobalt Alloy-AMS 5387	Cobalt Alloy-AMS 5387	ASTM A732 GR21
3	Piston	Cobalt Alloy-AMS 5387	Cobalt Alloy-AMS 5387	Cobalt Alloy-AMS 538
4	Spring	Inconel X No. 1 Temper	Inconel X No. 1 Temper	Inconel X No. 1 Temper
5	Clampbolt	Stainless	Stainless	Stainless
6	Yoke	SA-105	SA-182 F22	SA-182 F316
7	Bonnet	SA479-UNS S20910	SA479-UNS S20910	SA479-316/ASTM A732 GR21
8	ID Plate	Stainless Steel	Stainless Steel	Stainless Steel

Clampseal Figure Number Description



[1] Engineering Code assigned by Conval is a key to Engineering Bill of Material and will appear on all packing lists and invoices. This code need not be supplied when ordering unless a specific configuration is being reordered.

PRODUCT TYPE

1	Globe Valve
2	Whisperjet
3	Y-Body - Extended Body
4	Desuperheater
5	Gate

ASME PRESSURE CLASS

	Nominal	Intermediate
0	Under 900	
1	900	1195
2	1500	2155
3	2500	3045
4	3500	4095
8	4500	

VALVE DESIGN

A	Angle Pattern Stop
B	Tandem Blowdown: 2 Angle Bodies
C	Y-Pattern Check
D	Angle Pattern Check
E	T-Pattern Check
F	Gate
G	Y-Pattern Stop
H	Bellows Seal
J	Cryogenic
K	Tandem Blowdown: 1 Angle Body, 1 Y-Pattern
L	Leak Off
N	Continuous Blowdown
P	T-Pattern Stop
R	Y-Pattern Stop Check
S	Angle Pattern Stop Check
T	T-Pattern Stop Check
U	Throttling
V	Tandem Blowdown: 2 Y-Pattern Bodies
W	Strainer W/Blowoff Valve
X	Strainer W/Blowoff Fitting
Y	Strainer
Z	3-Way
2	Tandem Blowdown: 1- Ball Valve 1-Throttling Valve

END CONNECTIONS

1	Threaded
2	Socket Weld Full Port
3	Socket Weld Reduced Port
4	Butt Weld Full Port
5	Butt Weld Reduced Port
6	But Weld Double Reduced Port
7	Clamp Connector
8	Flanged - Standard
9	Flanged - Special
0	Other

OPTIONS

A	AUMA Actuator	J	I.G.W.	S	Single Limitswitch
B	EIM Actuator	K	Drain Connection	T	Ball Check
C	Handwheel	L	Locking Handle	U	Double Limitswitch
D	Fisher Actuator	M	Stem Shroud	V	Valtek Actuator
E	Orifice Port	N	Copes Actuator	W	Needle Disc
F	Micrometer Dial	P	Limitorque Actuator	X	Chain Wheel
G	Bendix Actuator	Q	L.L.G. W/I.G.W.	Y	Conval Actuator
H	Spinner Handle	R	Rotork Actuator	Z	Other

MATERIAL

Carbon

105 Standard
A05 Stainless Steel Internals
B05 Ductile Iron Bushing
C05 17-4 PH Stem
E05 Monel Trim
N05 Navy Special
S05 Cobalt Free
P05 Polymer Trim
R05 N60 Bushing

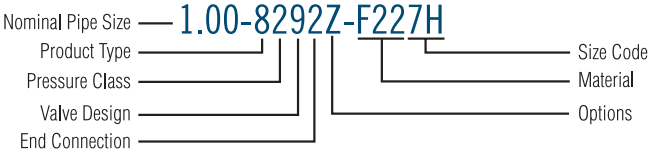
Alloy

F22 Standard
F91 Standard
A22 Stainless Steel Internals
B22 Ductile Iron Bushing
C22 F22 Body /A105 Yoke
E22 Monel Trim
N22 Navy Special
S22 Cobalt Free
P22 Polymer Trim
R22 N60 Bushing

Stainless

316 Standard
B16 Ductile Iron Bushing
D16 316 Body Only
E16 Monel Trim
L16 316L Body
N16 Navy Special
S16 Cobalt Free
P16 Polymer Trim
R16 N60 Bushing
D73 316L Urea Grade
D81 25-22-2
D5R Ferralium Trim

Camseal Figure Number System



PRODUCT TYPE

8	Ball

ASME PRESSURE CLASS

2	1700
3	3100
4	4500

VALVE DESIGN

9	Camseal

END CONNECTIONS

1	Threaded	6	Butt Weld Double Reduced Port
2	Socket Weld Full Port	7	Clamp Connector
3	Socket Weld Reduced Port	8	Flanged - Standard
4	Butt Weld Full Port	9	Flanged - Special
5	Butt Weld Reduced Port	0	Other

OPTIONS

A	AUMA Actuator
B	EIM Actuator
P	Limitorque Actuator
R	Rotork Actuator
Z	Other

MATERIAL

Carbon
SA-105

Alloy
SA-182-F22 Cl.3
SA-182-F91

Stainless
SA-182-F316/F316L

Working Pressure by Class, PSIG

SA-105 FORGINGS, AND SA-216 WCB CASTINGS*

STANDARD CLASS

1/2" - 4" Socket Weld, Butt Weld

TEMP °F	900	1195	1500	2155	2500	3045	3500	4095	4500
-20 TO 100	2220	2950	3705	5320	6170	7516	8640	10110	11110
200	2035	2704	3395	4875	5655	6889	7920	9268	10185
300	1965	2607	3270	4698	5450	6639	7633	8931	9815
400	1900	2524	3170	4552	5280	6431	7393	8649	9505
500	1810	2402	3015	4332	5025	6119	7033	8227	9040
600	1705	2263	2840	4078	4730	5761	6623	7749	8515
650	1650	2188	2745	3944	4575	5574	6408	7498	8240
700	1590	2119	2665	3818	4425	5388	6193	7244	7960
750	1520	2019	2535	3645	4230	5151	5920	6926	7610
800	1235	1638	2055	2956	3430	4177	4800	5615	6170

SPECIAL CLASS

1/2" - 4" Socket Weld, Butt Weld

TEMP °F	900	1195	1500	2155	2500	3045	3500	4095	4500
-20 TO 100	2250	2988	3750	5388	6250	7613	8750	10238	11250
200	2250	2988	3750	5388	6250	7613	8750	10238	11250
300	2220	2948	3700	5318	6170	7515	8638	10106	11105
400	2200	2920	3665	5263	6105	7438	8550	10005	10995
500	2200	2920	3665	5263	6105	7438	8550	10005	10995
600	2200	2920	3665	5263	6105	7438	8550	10005	10995
650	2145	2848	3575	5137	5960	7260	8345	9764	10730
700	2075	2754	3455	4965	5760	7015	8063	9432	10365
750	1905	2527	3170	4555	5285	6438	7400	8658	9515
800	1545	2049	2570	3693	4285	5220	6000	7020	7715

LIMITED CLASS

1/2" - 2 1/2" Socket Weld, Butt Weld

TEMP °F	900	1195	1500	2155	2500	3045	3500	4095	4500
-20 TO 100	2250	2988	3750	5388	6250	7613	8750	10238	11250
200	2250	2988	3750	5388	6250	7613	8750	10238	11250
300	2220	2948	3700	5318	6170	7515	8638	10106	11105
400	2200	2920	3665	5263	6105	7438	8550	10005	10995
500	2200	2920	3665	5263	6105	7438	8550	10005	10995
600	2200	2920	3665	5263	6105	7438	8550	10005	10995
650	2145	2848	3575	5137	5960	7260	8345	9764	10730
700	2075	2754	3455	4965	5760	7015	8063	9432	10365
750	1905	2527	3170	4555	5285	6438	7400	8658	9515
800	1545	2049	2570	3693	4285	5220	6000	7020	7715

*NOT RECOMMENDED FOR PROLONGED USE ABOVE 800°F.

1 REFER TO CLASS DESCRIPTIONS FOR OTHER APPLICATIONS.

2 SOCKET WELD SIZES DO NOT GO OVER 2 1/2".

3 NDE IS REQUIRED FOR SPECIAL CLASS RATINGS.

4 FLANGED, THREADED, AND GATE VALVES ARE NOMINALLY RATED.

5 FLANGED END VALVES MAY ONLY BE STANDARD CLASS.

6 THREADED END VALVES TERMINATE AT 1000°F AND 2500 CLASS.

7 BASED ON ASME B16.34-2020 APPENDIX VII TABLES, AND WHERE APPLICABLE V-2.1.3 OF APPENDIX V.

Working Pressure by Class, BARS

SA-105 FORGINGS, AND SA-216 WCB CASTINGS*

STANDARD CLASS

1/2" - 4" Socket Weld, Butt Weld

TEMP °C	900	1195	1500	2155	2500	3045	3500	4095	4500
-29 TO 38	153	203	255	366	425	518	595	697	766
93	140	186	234	336	389	475	546	638	702
149	135	179	225	323	375	457	526	615	676
204	131	174	218	313	364	443	509	596	655
260	124	165	207	298	346	421	484	567	623
316	117	156	195	281	326	397	456	534	587
343	113	150	189	271	315	384	441	516	568
371	109	146	183	263	305	371	426	499	548
399	104	139	174	251	291	355	408	477	524
427	85	112	141	203	236	287	330	387	425

SPECIAL CLASS

1/2" - 4" Socket Weld, Butt Weld

TEMP °C	900	1195	1500	2155	2500	3045	3500	4095	4500
-29 TO 38	155	205	258	371	430	524	603	705	775
93	155	205	258	371	430	524	603	705	775
149	153	203	255	366	425	518	595	696	765
204	151	201	252	362	420	512	589	689	758
260	151	201	252	362	420	512	589	689	758
316	151	201	252	362	420	512	589	689	758
343	147	196	246	354	410	500	575	673	739
371	143	189	238	342	397	483	555	650	714
399	131	174	218	314	364	443	510	596	656
427	106	141	177	254	295	359	413	484	531

LIMITED CLASS

1/2" - 2 1/2" Socket Weld, Butt Weld

TEMP °C	900	1195	1500	2155	2500	3045	3500	4095	4500
-29 TO 38	155	205	258	371	430	524	603	705	775
93	155	205	258	371	430	524	603	705	775
149	153	203	255	366	425	518	595	696	765
204	151	201	252	362	420	512	589	689	758
260	151	201	252	362	420	512	589	689	758
316	151	201	252	362	420	512	589	689	758
343	147	196	246	354	410	500	575	673	739
371	143	189	238	342	397	483	555	650	714
399	131	174	218	314	364	443	510	596	656
427	106	141	177	254	295	359	413	484	531

*NOT RECOMMENDED FOR PROLONGED USE ABOVE 427°C.

1 REFER TO CLASS DESCRIPTIONS FOR OTHER APPLICATIONS.

2 SOCKET WELD SIZES DO NOT GO OVER 2 1/2".

3 NDE IS REQUIRED FOR SPECIAL CLASS RATINGS.

4 FLANGED, THREADED, AND GATE VALVES ARE NOMINALLY RATED.

5 FLANGED END VALVES MAY ONLY BE STANDARD CLASS

6 THREADED END VALVES TERMINATE AT 538°C AND 2500 CLASS.

7 BASED ON ASME B16.34-2020 APPENDIX VII TABLES, AND WHERE APPLICABLE V-2.1.3 OF APPENDIX V

Working Pressure by Class, PSIG

SA-182 F22 FORGINGS, AND SA-217 WC9 CASTINGS*

STANDARD CLASS

1/2" - 4" Socket Weld, Butt Weld

TEMP °F	900	1195	1500	2155	2500	3045	3500	4095	4500
-20 TO 100	2250	2988	3750	5388	6250	7613	8750	10238	11250
200	2250	2988	3750	5388	6250	7613	8750	10238	11250
300	2185	2900	3640	5232	6070	7393	8498	9942	10925
400	2115	2811	3530	5069	5880	7162	8233	9632	10585
500	1995	2649	3325	4776	5540	6746	7753	9069	9965
600	1815	2410	3025	4345	5040	6138	7055	8254	9070
650	1765	2343	2940	4227	4905	5973	6865	8031	8825
700	1705	2263	2840	4078	4730	5761	6623	7749	8515
750	1595	2119	2660	3819	4430	5395	6200	7253	7970
800	1525	2024	2540	3647	4230	5151	5920	6926	7610
850	1460	1939	2435	3499	4060	4944	5683	6648	7305
900	1350	1790	2245	3228	3745	4561	5243	6134	6740
950	1160	1539	1930	2775	3220	3922	4508	5274	5795
1000	800	1063	1335	1921	2230	2715	3120	3650	4010
1050	525	697	875	1255	1455	1774	2040	2388	2625
1100	330	438	550	789	915	1114	1280	1497	1645
1150	205	274	345	492	570	695	800	937	1030
1200	125	164	205	297	345	419	480	560	615

SPECIAL CLASS

1/2" - 4" Socket Weld, Butt Weld

TEMP °F	900	1195	1500	2155	2500	3045	3500	4095	4500
-20 TO 100	2250	2988	3750	5388	6250	7613	8750	10238	11250
200	2250	2988	3750	5388	6250	7613	8750	10238	11250
300	2220	2945	3695	5310	6160	7503	8625	10092	11090
400	2185	2900	3640	5228	6065	7387	8490	9933	10915
500	2175	2885	3620	5202	6035	7351	8450	9887	10865
600	2165	2873	3605	5180	6010	7319	8413	9842	10815
650	2145	2851	3580	5142	5965	7265	8350	9769	10735
700	2120	2816	3535	5081	5895	7178	8250	9651	10605
750	2120	2816	3535	5081	5895	7178	8250	9651	10605
800	2120	2816	3535	5081	5895	7178	8250	9651	10605
850	2030	2696	3385	4865	5645	6875	7903	9246	10160
900	1800	2390	3000	4310	5000	6090	7000	8190	9000
950	1415	1880	2360	3388	3930	4786	5500	6434	7070
1000	1005	1332	1670	2400	2785	3393	3900	4563	5015
1050	655	871	1095	1570	1820	2218	2550	2984	3280
1100	410	545	685	986	1145	1393	1600	1871	2055
1150	255	341	430	617	715	870	1000	1170	1285
1200	155	204	255	370	430	523	600	701	770

LIMITED CLASS

1/2" - 2 1/2" Socket Weld, Butt Weld

TEMP °F	900	1195	1500	2155	2500	3045	3500	4095	4500
-20 TO 100	2250	2988	3750	5388	6250	7613	8750	10238	11250
200	2250	2988	3750	5388	6250	7613	8750	10238	11250
300	2220	2945	3695	5310	6160	7503	8625	10092	11090
400	2185	2900	3640	5228	6065	7387	8490	9933	10915
500	2175	2885	3620	5202	6035	7351	8450	9887	10865
600	2165	2873	3605	5180	6010	7319	8413	9842	10815
650	2145	2851	3580	5142	5965	7265	8350	9769	10735
700	2120	2816	3535	5081	5895	7178	8250	9651	10605
750	2120	2816	3535	5081	5895	7178	8250	9651	10605
800	2120	2816	3535	5081	5895	7178	8250	9651	10605
850	2030	2696	3385	4865	5645	6875	7903	9246	10160
900	1800	2390	3000	4310	5000	6090	7000	8190	9000
950	1433	1914	2412	3502	4076	5024	5816	6851	7556
1000	1045	1409	1785	2659	3119	3962	4666	5587	6213
1050	681	922	1170	1739	2038	2590	3051	3654	4064
1100	426	577	732	1093	1282	1627	1914	2290	2546
1150	265	361	460	683	801	1016	1196	1432	1592
1200	161	216	273	409	482	610	718	858	954

*F22 NOT RECOMMENDED FOR PROLONGED USE ABOVE 1100°F.
*WC9, NORMALIZED AND TEMPERED MATERIAL ONLY, NOT TO BE USED OVER 1100°F.
1 REFER TO CLASS DESCRIPTIONS FOR OTHER APPLICATIONS.
2 SOCKET WELD SIZES DO NOT GO OVER 2 1/2".
3 NDE IS REQUIRED FOR SPECIAL CLASS RATINGS.
4 FLANGED, THREADED, AND GATE VALVES ARE NOMINALLY RATED.
5 FLANGED END VALVES MAY ONLY BE STANDARD CLASS
6 THREADED END VALVES TERMINATE AT 1000°F AND 2500 CLASS.
7 BASED ON ASME B16.34-2020 APPENDIX VII TABLES, AND WHERE APPLICABLE V-2.1.3 OF APPENDIX V

Working Pressure by Class, BARS

SA-182 F22 FORGINGS, AND SA-217 WC9 CASTINGS*

STANDARD CLASS

1/2" - 4" Socket Weld, Butt Weld

TEMP °C	900	1195	1500	2155	2500	3045	3500	4095	4500
-29 TO 38	155	205	258	371	430	524	603	705	775
93	155	205	258	371	430	524	603	705	775
149	150	199	250	360	418	509	585	685	753
204	145	193	243	349	405	493	567	664	729
260	137	182	229	329	381	465	534	625	687
316	125	166	208	299	347	423	486	569	625
343	121	161	202	291	338	411	473	553	608
371	117	156	195	281	326	397	456	534	587
399	109	146	183	263	305	371	427	500	549
427	105	139	175	251	291	355	408	477	524
454	100	133	167	241	279	340	391	458	503
482	93	123	154	222	258	314	361	422	464
510	79	106	133	191	222	270	310	363	399
538	55	73	92	132	153	187	215	251	276
566	36	48	60	86	100	122	140	164	180
593	22	30	37	54	63	76	88	103	113
621	14	18	23	33	39	47	55	64	71
649	8	11	14	20	23	28	33	38	42

SPECIAL CLASS

1/2" - 4" Socket Weld, Butt Weld

TEMP °C	900	1195	1500	2155	2500	3045	3500	4095	4500
-29 TO 38	155	205	258	371	430	524	603	705	775
93	155	205	258	371	430	524	603	705	775
149	153	203	254	366	424	517	594	695	764
204	150	199	250	360	418	509	585	684	752
260	149	198	249	358	416	506	582	681	749
316	149	198	248	357	414	504	580	678	745
343	147	196	246	354	411	500	575	673	740
371	146	194	243	350	406	494	568	665	731
399	146	194	243	350	406	494	568	665	731
427	146	194	243	350	406	494	568	665	731
454	139	185	233	335	389	474	544	637	700
482	124	164	206	297	344	419	482	564	620
510	97	129	162	233	270	329	379	443	487
538	69	91	115	165	192	233	268	314	345
566	45	60	75	108	125	152	175	205	226
593	28	37	47	68	78	96	110	128	141
621	17	23	29	42	49	60	68	80	88
649	10	14	17	25	29	36	41	48	53

LIMITED CLASS

1/2" - 2 1/2" Socket Weld, Butt Weld

TEMP °C	900	1195	1500	2155	2500	3045	3500	4095	4500
-29 TO 38	155	205	258	371	430	524	603	705	775
93	155	205	258	371	430	524	603	705	775
149	153	203	254	366	424	517	594	695	764
204	150	199	250	360	418	509	585	684	752
260	149	198	249	358	416	506	582	681	749
316	149	198	248	357	414	504	580	678	745
343	147	196	246	354	411	500	575	673	740
371	146	194	243	350	406	494	568	665	731
399	146	194	243	350	406	494	568	665	731
427	146	194	243	350	406	494	568	665	731
454	139	185	233	335	389	474	544	637	700
482	124	164	206	297	344	419	482	564	620
510	98	131	166	241	280	346	400	472	520
538	72	97	123	183	215	273	321	385	428
566	46	63	80	119	140	178	210	251	280
593	29	39	50	75	88	112	131	157	175
621	18	24	31	47	55	70	82	98	109
649	11	14	18	28	33	42	49	59	65

*F22 NOT RECOMMENDED FOR PROLONGED USE ABOVE 593°C.
*WC9, NORMALIZED AND TEMPERED MATERIAL ONLY, NOT TO BE USED OVER 593°C.
1 REFER TO CLASS DESCRIPTIONS FOR OTHER APPLICATIONS.
2 SOCKET WELD SIZES DO NOT GO OVER 2 1/2".
3 NDE IS REQUIRED FOR SPECIAL CLASS RATINGS.
4 FLANGED, THREADED, AND GATE VALVES ARE NOMINALLY RATED.
5 FLANGED END VALVES MAY ONLY BE STANDARD CLASS
6 THREADED END VALVES TERMINATE AT 538°C AND 2500 CLASS.
7 BASED ON ASME B16.34-2020 APPENDIX VII TABLES, AND WHERE APPLICABLE V-2.1.3 OF APPENDIX V

Working Pressure by Class, PSIG

SA-182 F91 FORGINGS, AND SA-217 C12A CASTINGS

STANDARD CLASS

1/2" - 4" Socket Weld, Butt Weld

TEMP °F	900	1195	1500	2155	2500	3045	3500	4095	4500
-20 TO 100	2250	2988	3750	5388	6250	7613	8750	10238	11250
200	2250	2988	3750	5388	6250	7613	8750	10238	11250
300	2185	2900	3640	5232	6070	7393	8498	9942	10925
400	2115	2811	3530	5069	5880	7162	8233	9632	10585
500	1995	2649	3325	4776	5540	6746	7753	9069	9965
600	1815	2410	3025	4345	5040	6138	7055	8254	9070
650	1765	2343	2940	4227	4905	5973	6865	8031	8825
700	1705	2263	2840	4078	4730	5761	6623	7749	8515
750	1595	2119	2660	3819	4430	5395	6200	7253	7970
800	1525	2024	2540	3647	4230	5151	5920	6926	7610
850	1460	1939	2435	3499	4060	4944	5683	6648	7305
900	1350	1790	2245	3228	3745	4561	5243	6134	6740
950	1160	1539	1930	2775	3220	3922	4508	5274	5795
1000	1090	1449	1820	2613	3030	3689	4240	4960	5450
1050	1080	1434	1800	2586	3000	3654	4200	4914	5400
1100	895	1188	1490	2142	2485	3027	3480	4072	4475
1150	585	777	975	1404	1630	1984	2280	2667	2930
1200	360	478	600	862	1000	1218	1400	1638	1800

SPECIAL CLASS

1/2" - 4" Socket Weld, Butt Weld

TEMP °F	900	1195	1500	2155	2500	3045	3500	4095	4500
-20 TO 100	2250	2988	3750	5388	6250	7613	8750	10238	11250
200	2250	2988	3750	5388	6250	7613	8750	10238	11250
300	2250	2988	3750	5388	6250	7613	8750	10238	11250
400	2250	2988	3750	5388	6250	7613	8750	10238	11250
500	2250	2988	3750	5388	6250	7613	8750	10238	11250
600	2250	2988	3750	5388	6250	7613	8750	10238	11250
650	2250	2988	3750	5388	6250	7613	8750	10238	11250
700	2200	2920	3665	5266	6110	7441	8553	10006	10995
750	2185	2903	3645	5233	6070	7394	8500	9946	10930
800	2160	2868	3600	5172	6000	7308	8400	9828	10800
850	2030	2696	3385	4865	5645	6875	7903	9246	10160
900	1800	2390	3000	4310	5000	6090	7000	8190	9000
950	1415	1880	2360	3388	3930	4786	5500	6434	7070
1000	1260	1675	2105	3022	3505	4269	4908	5742	6310
1050	1260	1675	2105	3022	3505	4269	4908	5742	6310
1100	1120	1486	1865	2677	3105	3784	4350	5091	5595
1150	735	973	1220	1754	2035	2479	2850	3335	3665
1200	450	598	750	1078	1250	1523	1750	2048	2250

LIMITED CLASS

1/2" - 2 1/2" Socket Weld, Butt Weld

TEMP °F	900	1195	1500	2155	2500	3045	3500	4095	4500
-20 TO 100	2250	2988	3750	5388	6250	7613	8750	10238	11250
200	2250	2988	3750	5388	6250	7613	8750	10238	11250
300	2250	2988	3750	5388	6250	7613	8750	10238	11250
400	2250	2988	3750	5388	6250	7613	8750	10238	11250
500	2250	2988	3750	5388	6250	7613	8750	10238	11250
600	2250	2988	3750	5388	6250	7613	8750	10238	11250
650	2250	2988	3750	5388	6250	7613	8750	10238	11250
700	2200	2920	3665	5266	6110	7441	8553	10006	10995
750	2185	2903	3645	5233	6070	7394	8500	9946	10930
800	2160	2868	3600	5172	6000	7308	8400	9828	10800
850	2030	2696	3385	4865	5645	6875	7903	9246	10160
900	1800	2390	3000	4310	5000	6090	7000	8190	9000
950	1433	1914	2412	3502	4076	5024	5816	6851	7556
1000	1311	1772	2250	3347	3926	4915	5741	6821	7556
1050	1311	1772	2250	3347	3926	4915	5741	6821	7556
1100	1165	1572	1993	2965	3478	4419	5205	6232	6932
1150	764	1030	1304	1943	2279	2895	3410	4083	4541
1200	468	632	802	1194	1400	1778	2094	2507	2788

1 REFER TO CLASS DESCRIPTIONS FOR OTHER APPLICATIONS.
2 SOCKET WELD SIZES DO NOT GO OVER 2 1/2".
3 NDE IS REQUIRED FOR SPECIAL CLASS RATINGS.
4 FLANGED, THREADED, AND GATE VALVES ARE NOMINALLY RATED.
5 FLANGED END VALVES MAY ONLY BE STANDARD CLASS.
6 THREADED END VALVES TERMINATE AT 1000°F AND 2500 CLASS.
7 BASED ON ASME B16.34-2020 APPENDIX VII TABLES, AND WHERE APPLICABLE V-2.1.3 OF APPENDIX V

Working Pressure by Class, BARS

SA-182 F91 FORGINGS, AND SA-217 C12A CASTINGS

STANDARD CLASS

1/2" - 4" Socket Weld, Butt Weld

TEMP °C	900	1195	1500	2155	2500	3045	3500	4095	4500
-29 TO 38	155	205	258	371	430	524	603	705	775
93	155	205	258	371	430	524	603	705	775
149	150	199	250	360	418	509	585	685	753
204	145	193	243	349	405	493	567	664	729
260	137	182	229	329	381	465	534	625	687
316	125	166	208	299	347	423	486	569	625
343	121	161	202	291	338	411	473	553	608
371	117	156	195	281	326	397	456	534	587
399	109	146	183	263	305	371	427	500	549
427	105	139	175	251	291	355	408	477	524
454	100	133	167	241	279	340	391	458	503
482	93	123	154	222	258	314	361	422	464
510	79	106	133	191	222	270	310	363	399
538	75	99	125	180	208	254	292	341	375
566	74	98	124	178	206	251	289	338	372
593	61	81	102	147	171	208	239	280	308
621	40	53	67	96	112	136	157	183	202
649	24	32	41	59	68	83	96	112	124

SPECIAL CLASS

1/2" - 4" Socket Weld, Butt Weld

TEMP °C	900	1195	1500	2155	2500	3045	3500	4095	4500
-29 TO 38	155	205	258	371	430	524	603	705	775
93	155	205	258	371	430	524	603	705	775
149	155	205	258	371	430	524	603	705	775
204	155	205	258	371	430	524	603	705	775
260	155	205	258	371	430	524	603	705	775
316	155	205	258	371	430	524	603	705	775
343	155	205	258	371	430	524	603	705	775
371	151	201	252	363	421	513	589	689	758
399	150	200	251	360	418	509	586	685	753
427	148	197	248	356	413	503	579	677	744
454	139	185	233	335	389	474	544	637	700
482	124	164	206	297	344	419	482	564	620
510	97	129	162	233	270	329	379	443	487
538	86	115	145	208	241	294	338	395	435
566	86	115	145	208	241	294	338	395	435
593	77	102	128	184	214	260	299	350	385
621	50	67	84	120	140	170	196	229	252
649	31	41	51	74	86	104	120	141	155

LIMITED CLASS

1/2" - 2 1/2" Socket Weld, Butt Weld

TEMP °C	900	1195	1500	2155	2500	3045	3500	4095	4500
-29 TO 38	155	205	258	371	430	524	603	705	775
93	155	205	258	371	430	524	603	705	775
149	155	205	258	371	430	524	603	705	775
204	155	205	258	371	430	524	603	705	775
260	155	205	258	371	430	524	603	705	775
316	155	205	258	371	430	524	603	705	775
343	155	205	258	371	430	524	603	705	775
371	151	201	252	363	421	513	589	689	758
399	150	200	251	360	418	509	586	685	753
427	148	197	248	356	413	503	579	677	744
454	139	185	233	335	389	474	544	637	700
482	124	164	206	297	344	419	482	564	620
510	98	131	166	241	280	346	400	472	520
538	90	122	155	230	270	338	395	470	520
566	90	122	155	230	270	338	395	470	520
593	80	108	137	204	239	304	358	429	477
621	52	70	89	133	157	199	235	281	313
649	32	43	55	82	96	122	144	172	192

1 REFER TO CLASS DESCRIPTIONS FOR OTHER APPLICATIONS.
2 SOCKET WELD SIZES DO NOT GO OVER 2 1/2".
3 NDE IS REQUIRED FOR SPECIAL CLASS RATINGS.
4 FLANGED, THREADED, AND GATE VALVES ARE NOMINALLY RATED.
5 FLANGED END VALVES MAY ONLY BE STANDARD CLASS
6 THREADED END VALVES TERMINATE AT 538°C AND 2500 CLASS.
7 BASED ON ASME B16.34-2020 APPENDIX VII TABLES, AND WHERE APPLICABLE V-2.1.3 OF APPENDIX V

Working Pressure by Class, PSIG

SA-182 F316 FORGINGS, AND SA-351 CF8M CASTINGS*

STANDARD CLASS

1/2" - 4" Socket Weld, Butt Weld

TEMP °F	900	1195	1500	2155	2500	3045	3500	4095	4500
-20 TO 100	2160	2868	3600	5172	6000	7308	8400	9828	10800
200	1860	2467	3095	4448	5160	6285	7225	8454	9290
300	1680	2228	2795	4017	4660	5676	6525	7635	8390
400	1540	2046	2570	3690	4280	5213	5993	7011	7705
500	1435	1905	2390	3431	3980	4848	5573	6520	7165
600	1355	1798	2255	3241	3760	4580	5265	6160	6770
650	1325	1760	2210	3173	3680	4483	5153	6029	6625
700	1305	1730	2170	3120	3620	4409	5068	5929	6515
750	1280	1700	2135	3068	3560	4337	4985	5833	6410
800	1265	1680	2110	3034	3520	4287	4928	5765	6335
850	1255	1666	2090	3000	3480	4239	4873	5701	6265
900	1245	1653	2075	2982	3460	4215	4845	5669	6230
950	1160	1539	1930	2775	3220	3922	4508	5274	5795
1000	1090	1449	1820	2613	3030	3689	4240	4960	5450
1050	1080	1434	1800	2586	3000	3654	4200	4914	5400
1100	915	1215	1525	2193	2545	3098	3560	4164	4575
1150	710	944	1185	1699	1970	2401	2760	3230	3550
1200	555	737	925	1331	1545	1880	2160	2526	2775

SPECIAL CLASS

1/2" - 4" Socket Weld, Butt Weld

TEMP °F	900	1195	1500	2155	2500	3045	3500	4095	4500
-20 TO 100	2250	2988	3750	5388	6250	7613	8750	10238	11250
200	2075	2754	3455	4965	5760	7015	8063	9432	10365
300	1870	2485	3120	4482	5200	6334	7280	8518	9360
400	1720	2283	2865	4116	4775	5817	6688	7825	8600
500	1600	2124	2665	3828	4440	5409	6218	7275	7995
600	1510	2007	2520	3617	4195	5111	5875	6875	7555
650	1480	1964	2465	3539	4105	5002	5750	6729	7395
700	1455	1932	2425	3483	4040	4920	5655	6616	7270
750	1430	1900	2385	3426	3975	4840	5563	6507	7150
800	1415	1877	2355	3387	3930	4786	5500	6434	7070
850	1400	1857	2330	3349	3885	4731	5438	6361	6990
900	1390	1845	2315	3327	3860	4702	5405	6324	6950
950	1375	1825	2290	3289	3815	4647	5343	6251	6870
1000	1260	1675	2105	3022	3505	4269	4908	5742	6310
1050	1260	1675	2105	3022	3505	4269	4908	5742	6310
1100	1145	1519	1905	2740	3180	3872	4450	5206	5720
1150	885	1178	1480	2125	2465	3002	3450	4036	4435
1200	695	921	1155	1663	1930	2350	2700	3158	3470

LIMITED CLASS

1/2" - 2 1/2" Socket Weld, Butt Weld

TEMP °F	900	1195	1500	2155	2500	3045	3500	4095	4500
-20 TO 100	2250	2988	3750	5388	6250	7613	8750	10238	11250
200	2075	2754	3455	4965	5760	7015	8063	9432	10365
300	1870	2485	3120	4482	5200	6334	7280	8518	9360
400	1720	2283	2865	4116	4775	5817	6688	7825	8600
500	1600	2124	2665	3828	4440	5409	6218	7275	7995
600	1510	2007	2520	3617	4195	5111	5875	6875	7555
650	1480	1964	2465	3539	4105	5002	5750	6729	7395
700	1455	1932	2425	3483	4040	4920	5655	6616	7270
750	1430	1900	2385	3426	3975	4840	5563	6507	7150
800	1415	1877	2355	3387	3930	4786	5500	6434	7070
850	1400	1857	2330	3349	3885	4731	5438	6361	6990
900	1390	1845	2315	3327	3860	4702	5405	6324	6950
950	1375	1825	2290	3289	3815	4647	5343	6251	6870
1000	1260	1675	2105	3022	3505	4269	4908	5742	6310
1050	1260	1675	2105	3022	3505	4269	4908	5742	6310
1100	1160	1547	1947	2832	3298	4065	4705	5543	6113
1150	921	1246	1582	2354	2761	3506	4128	4941	5495
1200	723	974	1234	1842	2162	2744	3230	3866	4299

*FOR SERVICES OVER 1000°F, 316H IS REQUIRED (MINIMUM CARBON CONTENT 0.4%).
*ABOVE 1000°F, CONSULT FACTORY.

1 REFER TO CLASS DESCRIPTIONS FOR OTHER APPLICATIONS.
2 SOCKET WELD SIZES DO NOT GO OVER 2 1/2".
3 NDE IS REQUIRED FOR SPECIAL CLASS RATINGS.
4 FLANGED, THREADED, AND GATE VALVES ARE NOMINALLY RATED.
5 FLANGED END VALVES MAY ONLY BE STANDARD CLASS
6 THREADED END VALVES TERMINATE AT 1000°F AND 2500 CLASS.
7 BASED ON ASME B16.34-2020 APPENDIX VII TABLES, AND WHERE APPLICABLE V-2.1.3 OF APPENDIX V

Working Pressure by Class, BARS

SA-182 F316 FORGINGS, AND SA-351 CF8M CASTINGS*

STANDARD CLASS

1/2" - 4" Socket Weld, Butt Weld

TEMP °C	900	1195	1500	2155	2500	3045	3500	4095	4500
-29 TO 38	148	197	248	356	413	503	579	677	744
93	128	170	213	306	355	433	498	582	640
149	115	153	192	276	321	391	449	526	578
204	106	141	177	254	295	359	413	483	531
260	98	131	164	236	274	334	384	449	494
316	93	123	155	223	259	315	363	424	466
343	91	121	152	218	253	309	355	415	456
371	89	119	149	215	249	303	349	408	449
399	88	117	147	211	245	298	343	402	441
427	87	115	145	209	242	295	339	397	436
454	86	114	144	206	239	292	335	393	431
482	85	113	143	205	238	290	334	390	429
510	79	106	133	191	222	270	310	363	399
538	75	99	125	180	208	254	292	341	375
566	74	98	124	178	206	251	289	338	372
593	63	83	105	151	175	213	245	287	315
621	48	65	81	117	135	165	190	222	244
649	38	50	63	91	106	129	148	174	191

SPECIAL CLASS

1/2" - 4" Socket Weld, Butt Weld

TEMP °C	900	1195	1500	2155	2500	3045	3500	4095	4500
-29 TO 38	155	205	258	371	430	524	603	705	775
93	143	189	238	342	397	483	555	650	714
149	128	171	215	309	358	436	501	587	645
204	118	157	197	283	329	401	461	539	592
260	110	146	183	263	306	372	428	501	551
316	104	138	173	249	289	352	405	473	520
343	102	135	169	244	283	344	396	463	509
371	100	133	167	240	278	339	389	456	501
399	98	130	164	236	274	333	383	448	492
427	97	129	162	233	270	329	379	443	487
454	96	128	160	230	267	326	374	438	481
482	95	127	159	229	266	324	372	436	479
510	94	125	157	226	263	320	368	431	473
538	86	115	145	208	241	294	338	395	435
566	86	115	145	208	241	294	338	395	435
593	78	104	131	188	219	266	306	358	394
621	61	81	102	146	169	206	237	278	305
649	47	63	79	114	133	162	186	217	239

LIMITED CLASS

1/2" - 2 1/2" Socket Weld, Butt Weld

TEMP °C	900	1195	1500	2155	2500	3045	3500	4095	4500
-29 TO 38	155	205	258	371	430	524	603	705	775
93	143	189	238	342	397	483	555	650	714
149	128	171	215	309	358	436	501	587	645
204	118	157	197	283	329	401	461	539	592
260	110	146	183	263	306	372	428	501	551
316	104	138	173	249	289	352	405	473	520
343	102	135	169	244	283	344	396	463	509
371	100	133	167	240	278	339	389	456	501
399	98	130	164	236	274	333	383	448	492
427	97	129	162	233	270	329	379	443	487
454	96	128	160	230	267	326	374	438	481
482	95	127	159	229	266	324	372	436	479
510	94	125	157	226	263	320	368	431	473
538	86	115	145	208	241	294	338	395	435
566	86	115	145	208	241	294	338	395	435
593	79	106	134	195	227	280	324	382	421
621	63	85	109	162	190	241	284	340	378
649	49	67	85	126	149	189	222	266	296

*FOR SERVICES OVER 538°C, 316H IS REQUIRED (MINIMUM CARBON CONTENT 0.4%).
*ABOVE 538°C, CONSULT FACTORY.

1 REFER TO CLASS DESCRIPTIONS FOR OTHER APPLICATIONS.
2 SOCKET WELD SIZES DO NOT GO OVER 2 1/2".
3 NDE IS REQUIRED FOR SPECIAL CLASS RATINGS.
4 FLANGED, THREADED, AND GATE VALVES ARE NOMINALLY RATED.
5 FLANGED END VALVES MAY ONLY BE STANDARD CLASS
6 THREADED END VALVES TERMINATE AT 538°C AND 2500 CLASS.
7 BASED ON ASME B16.34-2020 APPENDIX VII TABLES, AND WHERE APPLICABLE V-2.1.3 OF APPENDIX V

ASME Class and Ratings

ASME B16.34 incorporates socket weld end valves and butt weld end valves with Limited Class ratings. Conval offers the industry's finest forged steel globe valve with the highest ratings available. ASME Limited Class Rating applies to 2 1/2" and smaller valves only and allows use of ASME Special Class Tables without NDE.

Standard Class

Standard class is a general use classification which uses the ASME Standard Class pressure temperature tables from B16.34. No NDE or special analysis is required. Standard Class provides the lowest (most conservative) ratings.

- Application: Socket Weld, Butt Weld, Threaded End & Flanged valves (Flanged and Threaded End ratings terminate at 1000°F).
  - NPS 1/2 to 4"
  - No NDE Required
- Valve Marking: B16.34 STD

Limited Class

Limited class is a rating which allows small (NPS 2 1/2" or smaller) socket weld valves to be rated to the higher ASME Special Class pressure-temperature tables as well as Annex G from B16.34.

No NDE is required but special engineering analysis must be completed prior to assigning this rating (This has been completed for all CLAMPSEAL® valves). Limited Class provides ratings which are much higher than Standard Class, and in some cases above 900ºF are slightly higher than Special Class ratings.

- Application: Socket Weld and Butt Weld End Valves
  - NPS 1/2 to 2 1/2"
  - No NDE Required
- Valve Marking: B16.34 LTD

Special Class

Special class ratings using the tables from ASME B16.34 can be applied to any forged steel valve.

- Application: Socket Weld, Butt Weld, and Threaded End valves
  - NPS 1/2 to 4"
- NDE Requirements Body and Bonnet:
  - Volumetric Exam: Radiographic or Ultrasonic Testing
  - Surface Exam: Liquid Penetrant or Magnetic Particle
- Valve Marking: B16.34 SPL

Nominal Ratings

The ASME B16.34 tables list nominal ratings, i.e., 1500, 2500, 4500. The actual class number (1500) leads to a table or graph of pressure-temperature rating pairs.

To meet nominal rating requirements, valves must satisfy certain wall and hub thickness requirements which are derived from the maximum stress allowed in a given material. These requirements have been met for all CLAMPSEAL® valves.

CLAMPSEAL® valves which exceed the wall thickness requirements may use the excess wall thickness to increase their service rating. These enhanced ratings are called intermediate ratings. Interpolating between the wall required for a class 1500 and a class 2500 valve allows Conval to intermediate rate its 1500 nominal valves to 2155.

Example: an F22 ASME 2155 LTD valve is rated for 1086 PSIG at 1100ºF but only 550 PSIG for 1500 Standard class.

Standard, Limited, or Special Class valves may be rated to either Nominal or Intermediate Ratings.

Ball valves, Gate Valves and Threaded End Valves are nominal ASME B16.34 rated. Consult factory for other ratings.

Note: Flanged valves may not be intermediate rated. Maximum flanged and threaded valve rating is 2500.

Applications

- The modular design of the Clampseal valve family allows for easy customization to provide a wide range of special materials, design options and accessories to match your service requirements.
- Valve configurations are available for many plants and applications including those listed here:
  - Fossil power
  - Nuclear power
  - Refineries
  - Petro chemical plants
  - Chemical plants
  - Gas separation
  - Pulp and paper plants
  - Recovery boilers
  - Marine boilers
  - Cryogenic systems
  - Oil patch steam injection
  - Thin gas service
  - Water treatment
  - Hydraulic systems
- Conval's QA program ensures that every component receives the same control as our ASME III nuclear equipment.
- Each order is reviewed by sales engineers to ensure compatibility with your application.

Ask for our real-life application case studies.

- Main Steam Lines
- Instrumentation
- Vents
- Drains
- Boiler Drums
- Superheaters–Steam Header
- Desuperheaters
- Turbine Generators
- Compressors
- Steam Condensers
- Chemical Fuel Lines
- Economizer
- Gauge Shut-off
- Blow-down (Continuous)
- Reheater – Inlet Header Drain
- Reheater – Outlet Header Drain
- Auxiliary Steam Main
- Water Column Shut-off
- Water Sampling
- Steam Sampling
- Steam Gauge Test
- Test Loop



Our 900-page Engineering Binder is a specifier's dream! Available at your fingertips, in print or online at Conval.com.



The Conval Story

In 1962, Mr. Chester Siver completed designs for a revolutionary line of high-pressure, forged steel valves. Hamilton Standard (now UTC Aerospace Systems), a division of United Technologies Corporation, was asked to use their then-new Electron Beam Welding technology for joining of parts into valves for subassemblies. Hamilton Standard became intrigued with the valve as an ideal application of the Electron Beam Welding technique, and negotiated a contract for the rights to manufacture and sell the valve. Mr. Siver served as manager of the valve project.

The first CLAMPSEAL® valves were introduced to the market by Hamilton Standard in 1964. However, in the mid-1960's, growing demand for the firm's popular aerospace products forced Hamilton Standard to make the decision to abandon its industrial products. The rights to the CLAMPSEAL valve reverted back to Mr. Siver. Since CLAMPSEAL valves were born in Connecticut, Mr. Siver founded "Conval" (short for Connecticut Valve) in 1967. Today, the valves are still manufactured in Connecticut, a state with a longstanding reputation for technological innovation and manufacturing excellence.

Conval is a leader in valves for the world's most demanding applications. Our global team of experts can help to meet your most challenging needs. We invite you to contact us today.

High-pressure, high-temperature ball, bellows seal, check, gate, globe, throttling, and urea service valves for the world's most demanding applications.



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