Conval INC.

World Class Bellows Seal Valves

- Fugitive Emissions Sealing
- High Cycle Bellows
- In-Line Servicing
- High Flow Capacity



Conval Bellows Seal Valves meet all of the rigorous requirements of MSS SP-117, ensuring bellows longevity



STANDARD SIZES
1/2" through 4" (4" Reduced Port)

PRESSURE RATING
Through ASME Class 2500

STANDARD MATERIALS
Carbon Steel SA105
Chrome-Moly SA182-F22, F91
Stainless Steel SA182-F316, F316L, F347
Optional materials available upon request.

STANDARD ACCESSORIES
Actuators – Electric, Pneumatic or Hydraulic
Locking Devices – Open, Closed or Both
Limit Switches – Single or Dual
Stem Shroud
Position Indicator
Leak-Off Port

DESIGN FEATURES

Conval Bellows Seal Valve vs. Packed Valves
Packed valves require two seal boundaries: a 360° seal on the stem surface and a 360° seal on the stuffing box wall. 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. In almost all applications, the 6-ply Inconel®, welded bellows stem seal is more reliable than sliding stem seals.

Long Cycle Life
Conval's standard 6-ply Inconel bellows has been tested to MSS SP-117, and provides the longest cycle life in the industry.

Zero Fugitive Emissions
Every Conval bellows stem assembly is tested for zero leakage using a helium gas mass spectrometer before undergoing further shell and seat leakage testing. Conval's bellows seal emits no detectable leakage as measured by the Method 21 Fugitive Emissions Test Protocol.

No Torsion of the Bellows
A robust rising, non-rotating stem system prevents destructive torsion, providing extremely long service life from the advanced bellows design.

Three Body Styles
Conval bellows seal valves are available in Y-pattern, Angle-pattern, and T-pattern body styles.

Low Operating Torque
The manual bellows seal valve is provided with a rugged bearing system and grease fitting to minimize operating torque over the life of the valve.

In-Line Servicing
Conval's bellows seal valve is the world's most serviceable valve of its type. Utilizing the Clampseal© pressure seal bonnet, the topworks assembly can be replaced in minutes. Seal welded versions are also in-line renewable.

Double Back-up Seating
In the full open position, Conval bellows seal valves are equipped with a superior backseat, isolating a secondary stem seal from the process fluid. The graphitic stem seal is precisely loaded by Conval's balanced axial gland and Integral Gland Wrench (IGW), providing superb sealing to back up the bellows.

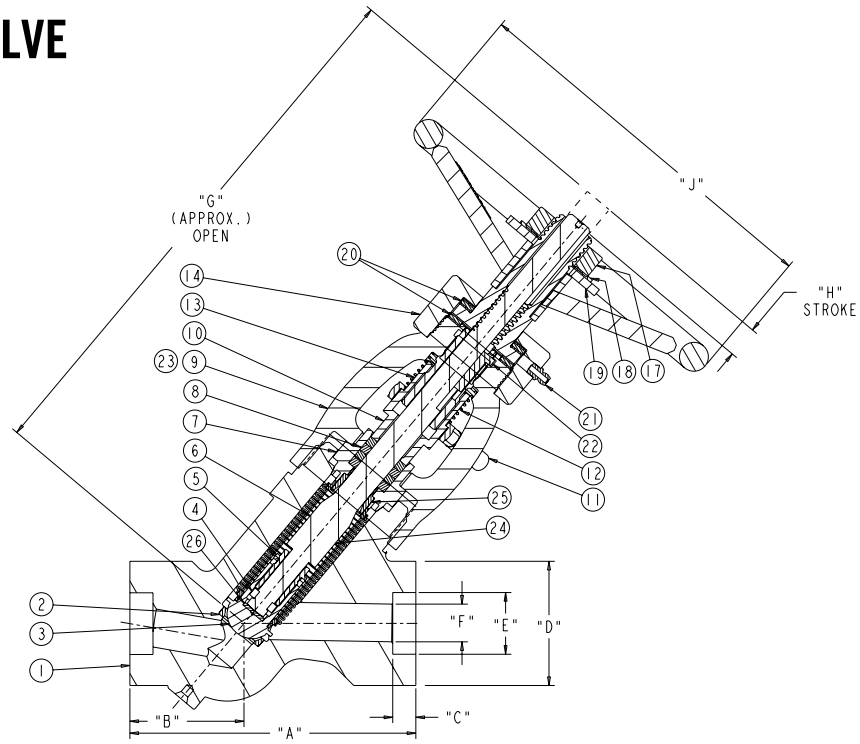
Extended Seat Life
Positive shut-off is achieved over a very long operational life due to the solid cobalt-chrome seats and discs, even in high cycle and high fluid velocity services. A cobalt-free option is available for nuclear and chemical applications.

Flexibility of Design
Conval offers a double height bellows which provides the highest bellows valve flow capacity (Cv) available per pipe size. Test ports (with lantern gland) may also be specified.

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.

Inconel® is a registered trademark of Inco Alloys International, Inc ./ Ultimet® is a registered trademark of Haynes International / Nitronic® is a registered trademark of Armco, Inc.
Clampseal® is a registered trademark of Conval, Inc.

SINGLE BELLOWS SEAL VALVE LIST OF MATERIALS



PART NO.	NAME	QTY	CARBON STEEL SINGLE BELLOWS MATERIAL	CARBON STEEL SINGLE BELLOWS SPECIFICATION	ALLOY STEEL SINGLE BELLOWS MATERIAL	ALLOY STEEL SINGLE BELLOWS SPECIFICATION	STAINLESS STEEL SINGLE BELLOWS MATERIAL	STAINLESS STEEL SINGLE BELLOWS SPECIFICATION
1	BODY	1	FORGED CARBON STEEL	ASME SA-105	FORGED ALLOY STEEL	ASME SA182-F22 class 3	FORGED STAINLESS STEEL	ASME SA182-F316
2	SEAT	1	COBALT ALLOY NO. 6	ASTM A5387 GR. 6	COBALT ALLOY NO. 6	ASTM A5387 GR. 6	COBALT ALLOY NO. 21	ASTM A732 GR. 21
3	DISC	1	ULTIMATE ALLOY	ASTM B 815	ULTIMATE ALLOY	ASTM B 815	ULTIMATE ALLOY	ASTM B 815
4	SPLIT RING	2	NITRONIC 50	ASME SA479 TYPE XM-19H	NITRONIC 50	ASME SA479 TYPE XM-19H	NITRONIC 50	ASME SA479 TYPE XM-19H
5	RETAINER	1	NITRONIC 60	ASME SA479, UNS S21800	NITRONIC 60	ASME SA479, UNS S21800	NITRONIC 60	ASME SA479, UNS S21800
6	BELLOWS ASSY	1	INCONEL 718	ASTM B670, UNS N07718	INCONEL 718	ASTM B670, UNS N07718	INCONEL 718	ASTM B670, UNS N07718
7	BONNET	1	STAINLESS STEEL	ASME SA479 TYPE 410	STAINLESS STEEL BAR	ASME SA479 TYPE 410	STAINLESS STEEL BAR	ASME SA479 TYPE 316
7A	BONNET SEAL RING						COBALT ALLOY NO. 21	ASTM A732 GR. 21
8	PACKING SET	1	WIPER RINGS	BRAIDED CARBON/GRAPHITE	WIPER RINGS	BRAIDED CARBON/GRAPHITE	WIPER RINGS	BRAIDED CARBON/GRAPHITE
			PACKING RINGS	DIE FORMED FLEXIBLE GRAPHITE	PACKING RINGS	DIE FORMED FLEXIBLE GRAPHITE	PACKING RINGS	DIE FORMED FLEXIBLE GRAPHITE
9	YOKE	1	FORGED CARBON STEEL	ASME SA-105	FORGED ALLOY STEEL	ASME SA182-F22 class 3	FORGED STAINLESS STEEL	ASME SA182-F316
10	GLAND	1	STAINLESS STEEL BAR	ASTM A582 TYPE 416	STAINLESS	ASTM A582 TYPE 416	STAINLESS STEEL BAR	ASME SA479 TYPE 316
11	INTEGRAL GLAND WRENCH	1	CAST STAINLESS	MFR. STD.	CAST STAINLESS	MFR. STD.	CAST STAINLESS	MFR. STD.
12	SPRING	1	STAINLESS	MFR. STD.	STAINLESS	MFR. STD.	STAINLESS	MFR. STD.
13	YOKE BUSHING	1	ALUMINUM BRONZE	ASME SB-150,UNS C64200	ALUMINUM BRONZE	ASME SB-150,UNS C64200	ALUMINUM BRONZE	ASME SB-150,UNS C64200
14	BEARING CAP	1	PLATED STEEL	MFR. STD.	PLATED STEEL	MFR. STD.	STAINLESS STEEL BAR	ASME SA479 Type 316
15	STEM NUT	1	ALUMINUM BRONZE	ASME SB-150,UNS C64200	ALUMINUM BRONZE	ASME SB-150,UNS C64200	ALUMINUM BRONZE	ASME SB-150,UNS C64200
16	HANDWHEEL	1	PAINTED DUCTILE IRON	MFR. STD.	PAINTED DUCTILE IRON	MFR. STD.	PAINTED DUCTILE IRON	MFR. STD.
17	JAM NUT	1	STAINLESS	MFR. STD.	STAINLESS	MFR. STD.	STAINLESS	MFR. STD.
18	BELLEVILLE WASHER	1	STAINLESS	MFR. STD.	STAINLESS	MFR. STD.	STAINLESS	MFR. STD.
19	FLAT WASHER	1	STAINLESS	MFR. STD.	STAINLESS	MFR. STD.	STAINLESS	MFR. STD.
20	BEARING SET	2	COMMERCIAL	MFR. STD.	COMMERCIAL	MFR. STD.	COMMERCIAL	MFR. STD.
21	GREASE FITTING	1	STEEL	MFR. STD.	STEEL	MFR. STD.	STEEL	MFR. STD.
22	KEY	1	NITRONIC 50	ASME SA479 TYPE XM-19H	NITRONIC 50	ASME SA479 TYPE XM-19H	NITRONIC 50	ASME SA479 TYPE XM-19H
23	ID. TAG	1	STAINLESS	MFR. STD.	STAINLESS	MFR. STD.	STAINLESS	MFR. STD.
24	STEM	1	INCONEL 718	ASTM SB637, UNS N07718	INCONEL 718	ASTM SB637, UNS N07718	INCONEL 718	ASTM SB637, UNS N07718
			NITRONIC 50	ASME SA479 TYPE XM-19H	NITRONIC 50	ASME SA479 TYPE XM-19H	NITRONIC 50	ASME SA479 TYPE XM-19H
25	STEM GUIDE	1	COBALT ALLOY NO. 21	ASTM A732 GR. 21	STAINLESS	ASME SA479 TYPE 316	COBALT ALLOY NO. 21	ASTM A732 GR. 21
26	WASHER	1	STAINLESS	ASME SA479 TYPE 316	COBALT ALLOY NO. 21	ASTM A732 GR. 21	STAINLESS	ASME SA479 TYPE 316
27	CLAMP BOLT	1	STAINLESS	MFR. STD.	STAINLESS	MFR. STD.	STAINLESS	MFR. STD.

Note: Stainless Steel Item 22 – key material shown (Nitronic 50) supplied for Inconel 718 stems. Key material not shown (Nitronic 60) supplied for Nitronic 50 stems.

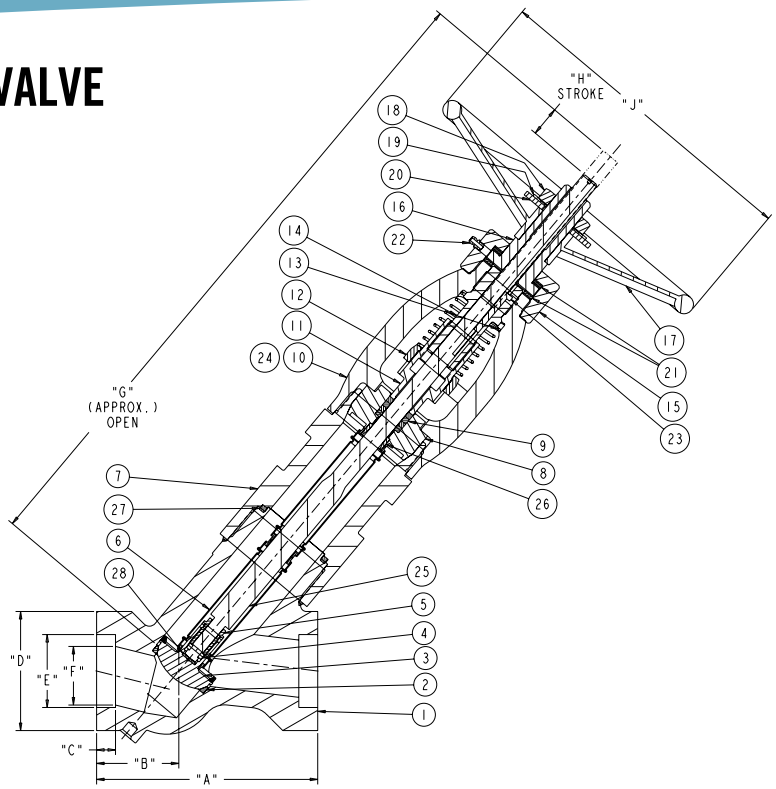
SINGLE BELLOWS SEAL VALVE PRESSURE SPECIFICATIONS

PRESSURE CLASS	Pipe Size	A	B	C	D	E	F	G	H	J	Flow CV	Wt. (LBs.)/(kgs)	Size CODE
	1/2	6-1/8	2-7/16	1/2	2-11/16	0.860	5/8	11-7/8	0.563	8	6.7	22.5	6E
	15	156	62	15	68	22	16	302	14	200		10.2	
	3/4	6-1/8	2-7/16	1/2	2-11/16	0.860	5/8	11-7/8	0.563	8	6.7	22.5	6E
	20	156	62	15	68	22	16	302	14	200		10.2	
	1	6-1/8	2-7/16	1/2	2-11/16	1.335	1	11-7/8	0.563	8	13.8	21	6G
	25	156	62	15	68	22	25	302	14	200		9.5	
	1-1/4	6-1/8	2-7/16	1/2	2-11/16	1.680	1	11-7/8	0.563	8	13.8	21	6G
	32	156	62	15	68	43	25	302	14	200		9.5	
1500	1-1/2	7-1/4	2-11/16	5/8	3-15/16	1.920	1-1/2	16-5/16	0.774	10	31.0	40	8J
	40	184	68	16	100	49	40	414	20	250		18.1	
	2	7-1/4	2-11/16	5/8	3-15/16	2.411	1-1/2	16-5/16	0.774	10	31.0	40	8J
	50	184	68	16	100	61	40	414	20	250		18.1	
	2-1/2	12	5-9/32	5/8	4-7/8	2.913	2-1/4	20-3/16	0.911	14	55.0	96	10L
	65	300	134	16	124	74	58	512	23	350		43.5	
	3	12	5-9/32	*	4-7/8	*	2-1/4	20-3/16	0.911	14	55.0	96	10L
	80	300	134		124		58	512	23	350		43.5	
	4	12	5-9/32	*	4-7/8	*	2-1/4	20-3/16	0.911	14	55.0	96	10L
	100	300	134		124		58	512	23	350		43.5	
	1/2	6-1/8	2-7/16	1/2	2-11/16	0.860	5/8	11-5/8	0.350	8	4.8	22.5	6E
	15	156	62	15	68	22	16	295	9	200		10.2	
	3/4	6-1/8	2-7/16	1/2	2-11/16	0.860	5/8	11-5/8	0.350	8	4.8	22.5	6E
	20	156	62	15	68	22	16	295	9	200		10.2	
	1	6-1/8	2-7/16	1/2	2-11/16	1.335	13/16	11-5/8	0.350	8	6.8	22	6F
	25	156	62	15	68	34	21	295	9	200		10	
2500	1-1/4	6-1/8	2-7/16	1/2	2-11/16	1.680	13/16	11-5/8	0.350	8	6.8	22	6F
	32	156	62	15	68	43	21	295	9	200		10	
	1-1/2	7-1/4	2-11/16	5/8	15/16	1.920	1-1/4	16	0.481	10	19.0	42 19	8H
	40	184	68	16	100	49	33	400	12	250			
	2	7-1/4	2-11/16	5/8	3-15/16	2.411	1-1/4	16	0.481	10	19.0	42 19	8H
	50	184	68	16	100	61	33	400	12	250			
	2-1/2	12	5-9/32	5/8	4-7/8	2.913	1-7/8	19-13/16	0.583	14	30.0	105	10K
	65	300	134	16	124	74	48	504	15	350		47.6	
	3	12	5-9/32	*	4-7/8	*	1-7/8	19-13/16	0.583	14	30.0	105	10K
	80	300	134		124		48	504	15	350		47.6	
	4	12	5-9/32	*	4-7/8	*	1-7/8	19-13/16	0.583	14	30.0	105	10K
	100	300	134		124		48	504	15	350		47.6	

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.

For questions, application assistance, or further details, please call Conval today at (860) 749-0761 or visit us at www.Conval.com.

DOUBLE BELLOWS SEAL VALVE
LIST OF MATERIALS



NO.	NAME	QTY	CARBON STEEL DOUBLE BELLOWS MATERIAL	CARBON STEEL DOUBLE BELLOWS SPECIFICATION	ALLOY STEEL DOUBLE BELLOWS MATERIAL	ALLOY STEEL DOUBLE BELLOWS SPECIFICATION	STAINLESS STEEL DOUBLE BELLOWS MATERIAL	STAINLESS STEEL DOUBLE BELLOWS SPECIFICATION
1	BODY	1	FORGED CARBON STEEL	ASME SA-105	FORGED ALLOY STEEL	ASME SA182-F22 class 3	FORGED STAINLESS STEEL	ASME SA182-F316
2	SEAT	1	COBALT ALLOY NO. 21	ASTM A732 GR. 21	COBALT ALLOY NO. 21	ASTM A732 GR. 21	COBALT ALLOY NO. 21	ASTM A732 GR. 21
3	DISC	1	ULTIMATE ALLOY	ASTM B 815	ULTIMATE ALLOY	ASTM B 815	ULTIMATE ALLOY	ASTM B 815
4	SPLIT RING	2	NITRONIC 50	ASME SA479 TYPE XM-19H	NITRONIC 50	ASME SA479 TYPE XM-19H	NITRONIC 50	ASME SA479 TYPE XM-19H
5	RETAINER	1	NITRONIC 60	ASME SA479, UNS S21800	NITRONIC 60	ASME SA479, UNS S21800	NITRONIC 60	ASME SA479, UNS S21800
6	BELLOWS ASSY	1	INCONEL 718	ASTM B670, UNS N07718	INCONEL 718	ASTM B670, UNS N07718	INCONEL 718	ASTM B670, UNS N07718
7	BODY EXTENSION	1	CARBON STEEL BAR	ASME SA-105	ALLOY STEEL BAR	ASME SA182-F22 class 3	STAINLESS STEEL BAR	ASME SA479 TYPE 316
8	BONNET	1	STAINLESS STEEL BAR	ASME SA479 TYPE 410	STAINLESS STEEL BAR	ASME SA479 TYPE 410	STAINLESS STEEL BAR	ASME SA479 TYPE 316
8A	BONNET SEAL RING	1					COBALT ALLOY NO. 21	ASTM A732 GR. 21
9	PACKING SET	1	WIPER RINGS PACKING RINGS	BRAIDED CARBON/GRAPHITE DIE FORMED FLEXIBLE GRAPHITE	WIPER RINGS PACKING RINGS	BRAIDED CARBON/GRAPHITE DIE FORMED FLEXIBLE GRAPHITE	WIPER RINGS PACKING RINGS	BRAIDED CARBON/GRAPHITE DIE FORMED FLEXIBLE GRAPHITE
10	YOKE	1	FORGED CARBON STEEL	ASME SA-105	FORGED ALLOY STEEL	ASME SA182-F22 class 3	FORGED STAINLESS STEEL	ASME SA182-F316
11	GLAND	1	STAINLESS STEEL BAR	ASTM A582 TYPE 416	STAINLESS STEEL BAR	ASTM A582 TYPE 416	STAINLESS STEEL BAR	ASME SA479 TYPE 316
12	INTEGRAL GLAND WRENCH	1	CAST STAINLESS	MFR. STD.	CAST STAINLESS	MFR. STD.	CAST STAINLESS	MFR. STD.
13	SPRING	1	STAINLESS	MFR. STD.	STAINLESS	MFR. STD.	STAINLESS	MFR. STD.
14	YOKE BUSHING	1	ALUMINUM BRONZE	ASME SB-150,UNS C64200	ALUMINUM BRONZE	ASME SB-150,UNS C64200	ALUMINUM BRONZE	ASME SB-150,UNS C64200
15	BEARING CAP	1	PLATED STEEL	MFR. STD.	PLATED STEEL	MFR. STD.	STAINLESS STEEL BAR	ASME SA479 Type 316
16	STEM NUT	1	ALUMINUM BRONZE	ASME SB-150,UNS C64200	ALUMINUM BRONZE	ASME SB-150,UNS C64200	ALUMINUM BRONZE	ASME SB-150,UNS C64200
17	HANDWHEEL	1	PAINTED DUCTILE IRON	MFR. STD.	PAINTED DUCTILE IRON	MFR. STD.	PAINTED DUCTILE IRON	MFR. STD.
18	JAM NUT	1	STAINLESS	MFR. STD.	STAINLESS	MFR. STD.	STAINLESS	MFR. STD.
19	BELLEVILLE WASHER	1	STAINLESS	MFR. STD.	STAINLESS	MFR. STD.	STAINLESS	MFR. STD.
20	FLAT WASHER	1	STAINLESS	MFR. STD.	STAINLESS	MFR. STD.	STAINLESS	MFR. STD.
21	BEARING SET	2	COMMERCIAL	MFR. STD.	COMMERCIAL	MFR. STD.	COMMERCIAL	MFR. STD.
22	GREASE FITTING	1	STEEL	MFR. STD.	STEEL	MFR. STD.	STEEL	MFR. STD.
23	KEY	1	NITRONIC 50	ASME SA479 TYPE XM-19H	NITRONIC 50	ASME SA479 TYPE XM-19H	NITRONIC 50	ASME SA479 TYPE XM-19H
24	ID. TAG	1	STAINLESS	MFR. STD.	STAINLESS	MFR. STD.	STAINLESS	MFR. STD.
25	STEM	1	INCONEL 718 NITRONIC 50	ASTM SB637, UNS N07718 ASME SA479 TYPE XM-19H	INCONEL 718 NITRNIC 50	ASTM SB637, UNS N07718 ASME SA479 TTYPE XM-19H	INCONEL 718 NITRONIC 50	ASTM SB637, UNS N07718 ASME SA479 TYPE XM-19H
26	STEM GUIDE	1	COBALT ALLOY NO. 21	ASTM A732 GR. 21	COBALT ALLOY NO. 21	ASTM A732 GR. 21	COBALT ALLOY NO. 21	ASTM A732 GR. 21
27	GASKET	1	DIE FORMED RING	DIE FORMED FLEXIBLE GRAPHITE	DIE FORMED RING	DIE FORMED FLEXIBLE GRAPHITE	DIE FORMED RING	DIE FORMED FLEXIBLE GRAPHITE
28	WASHER	1	STAINLESS	ASME SA479 TYPE 316	STAINLESS	ASME SA479 TYPE 316	STAINLESS	ASME SA479 TYPE 316
29	CLAMP BOLT	1	STAINLESS	MFR. STD.	STAINLESS	MFR. STD.	STAINLESS	MFR. STD.

Note: Stainless Steel Item 23 – key material shown (Nitronic 50) supplied for Inconel 718 stems. Key material not shown (Nitronic 60) supplied for Nitronic 50 stems.

DOUBLE BELLOWS SEAL VALVE PRESSURE SPECIFICATIONS

PRESSURE CLASS	Pipe Size	A	B	C	D	E	F	G	H	J	Flow CV	Wt. (LBs.)/(kgs)	Size CODE
	1/2	6-1/8	2-7/16	1/2	2-11/16	0.860	5/8	15-7/8	1.126	8	8.4	28	6E
	15	156	62	15	68	22	16	403	29	200		12.7	
	3/4	6-1/8	2-7/16	1/2	2-11/16	0.860	5/8	15-7/8	1.126	8	8.4	28	6E
	20	156	62	15	68	22	16	403	29	200		12.7	
	1	6-1/8	2-7/16	1/2	2-11/16	1.335	1	15-7/8	1.126	8	18.0	26	6G
	25	156	62	15	68	34	25	403	29	200		11.8	
	1-1/4	6-1/8	2-7/16	1/2	11/16	1.680	1	15-7/8	1.126	8	18.0	26 11.8	6G
	32	156	62	15	68	43	25	403	29	200			
1500	1-1/2	7-1/4	2-11/16	5/8	3-15/16	1.920	1-1/2	20-13/16	1.548	10	39.0	54	8J
	40	184	68	16	100	49	40	513	39	250		24.5	
	2	7-1/4	2-11/1	5/8	3-15/16	2.411	1-1/2	20-13/16	1.548	10	39.0	54	8J
	50	184	68	16	100	61	40	513	39	250		24.5	
	2-1/2	12	5-9/32	5/8	4-7/8	2.913	2-1/4	27-9/16	1.822	14	110.0	125	10L
	65	300	134	16	124	74	58	700	46	350		56.7	
	3	12	5-9/32	*	4-7/8	*	2-1/4	27-9/16	1.822	14	110.0	125	10L
	65	300	134		124		58	700	46	350		56.7	
	4	12	5-9/32	*	4-7/8	*	2-1/4	27-9/16	1.822	14	110.0	125	10L
	100	300	134		124		58	700	46	350		56.7	
	1/2	6-1/8	2-7/16	1/2	2-11/16	0.860	5/8	15-5/8	0.700	8	7.3	28	6E
	15	156	62	15	68	22	16	397	18	200		12.7	
	3/4	6-1/8	2-7/16	1/2	2-11/16	0.860	5/8	15-5/8	0.700	8	7.3	28	6E
	20	156	62	15	68	22	16	397	18	200		12.7	
	1	6-1/8	2-7/16	1/2	2-11/16	1.335	13/16	15-5/8	0.700	8	12.5	27	6F
	25	156	62	15	68	34	21	397	18	200		12.2	
	1-1/4	6-1/8	2-7/16	1/2	2-11/16	1.680	13/16	15-5/8	0.700	8	12.5	27	6F
	32	156	62	15	68	43	21	397	18	200		12.2	
2500	1-1/2	7-1/4	2-11/16	5/8	3-15/16	1.920	1-1/4	20-13/16	0.962	10	30.0	57	8H
	40	184	68	16	100	49	33	513	24	250		25.8	
	2	7-1/4	2-11/1	5/8	3-15/16	2.411	1-1/4	20-13/16	0.962	10	30.0	57	8H
	50	184	68	16	100	61	33	513	24	250		25.8	
	2-1/2	12	5-9/32	5/8	4-7/8	2.913	1-7/8	27-1/4	1.166	14	59.0	138	10K
	65	300	134	16	124	74	48	692	30	350		62.6	
	3	12	5-9/32	*	4-7/8	*	1-7/8	27-1/4	1.166	14	59.0	138	10K
	80	300	134		124		48	692	30	350		62.6	
	4	12	5-9/32	*	4-7/8	*	1-7/8	27-1/4	1.166	14	59.0	138	10K
	80	300	134		124		48	692	30	350		62.6	

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.

NPT

ISO 9001 certified since 1992

MADE IN U. S. A

Conval INC.

ARMOUR VALVE

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Conval's policy is one of continuous development and improvement. Every effort is made to produce up-to-date literature but this catalog should not be regarded as an infallible guide to current specifications and does not form part of any contract. Conval reserves the right to make product improvements and changes without prior notice.

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