



1500/2500 SERIES Safety Relief Valves



*The
Original
Self-Aligning
Technology®*

Precise.

Quality.

Reliable.



SINCE 1958



Taylor Valve's line of high quality 1500/2500 Series safety relief valves are manufactured in accordance with stringent quality control procedures mandated by the American Society of Mechanical Engineers (ASME) and its inspection arm, the National Board of Boiler and Pressure Vessel Inspectors of Columbus, Ohio. Many of Taylor Valve's safety relief valves have carried the ASME UV (Unfired Vessel) Code Stamp since 1958.

A variety of materials and designs are available to meet the most exacting requirements of severe and critical applications.

High Performance Safety Relief Valves

Series 1500 Threaded & Flanged Safety Relief Valves

General Design Features

- Suitable for Air, Gas, & Liquid Service Applications
- Both Flat Lapped Metal-To-Metal Seat & Bubble Tight Soft Seat Designs Available
- Manufactured in Accordance with ASME Code Section XIII, NBBI Capacity Certified
- Pressure Ranges from 15 PSI to 6173 PSI
- Temperature Ranges from -320 °F to +800 °F
- Canadian Registration Number (CRN)

Series 2500 Flanged High Capacity Safety Relief Valves

General Design Features

- Available with NACE & Bellows Options
- Self Aligning Disc & Guided One-Piece Disc Holder Assembly
- Interchangeable Discs for Metal-To-Metal & Soft Seat Seals
- Same Internals for Air, Gas, & Liquid Service Applications
- Meets API 526 & 527 with Available Orifices "D" through "T"
- Manufactured in Accordance with ASME Code Section XIII, NBBI Capacity Certified
- Canadian Registration Number (CRN)

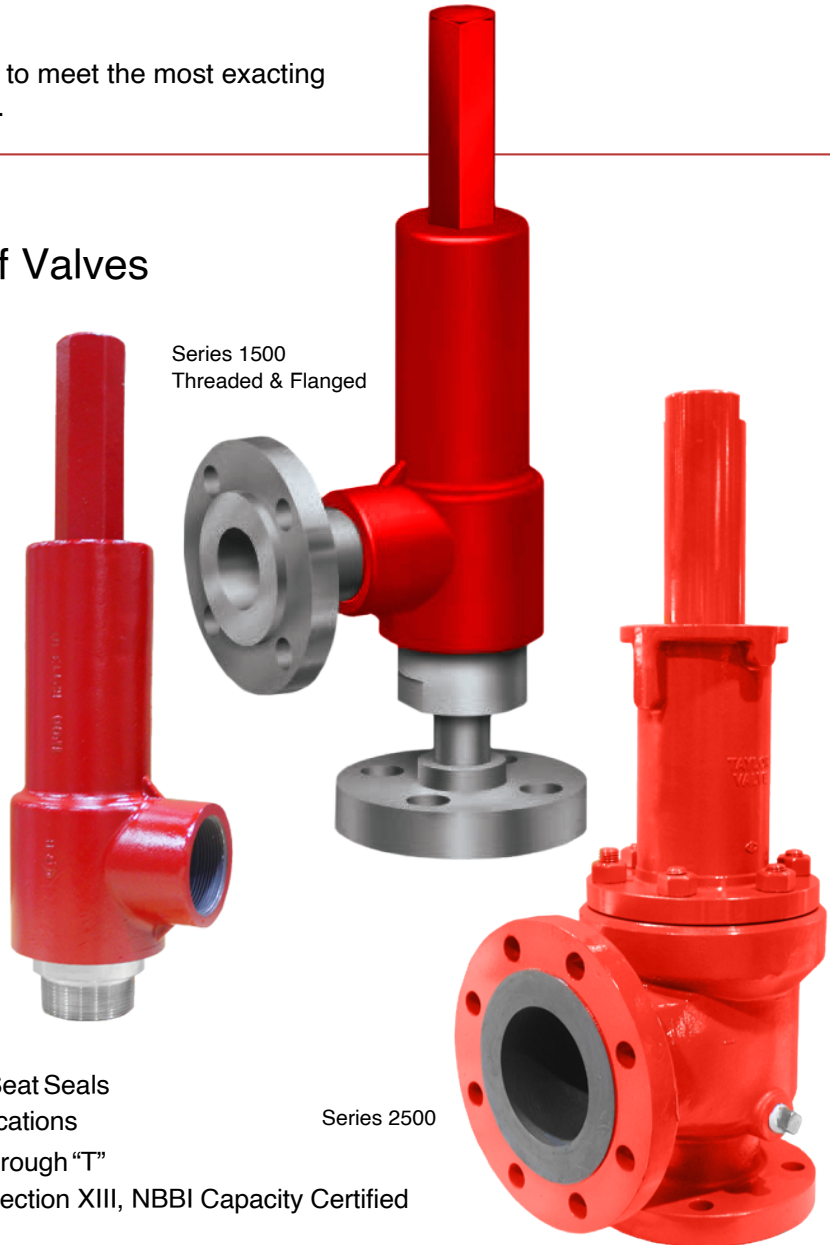


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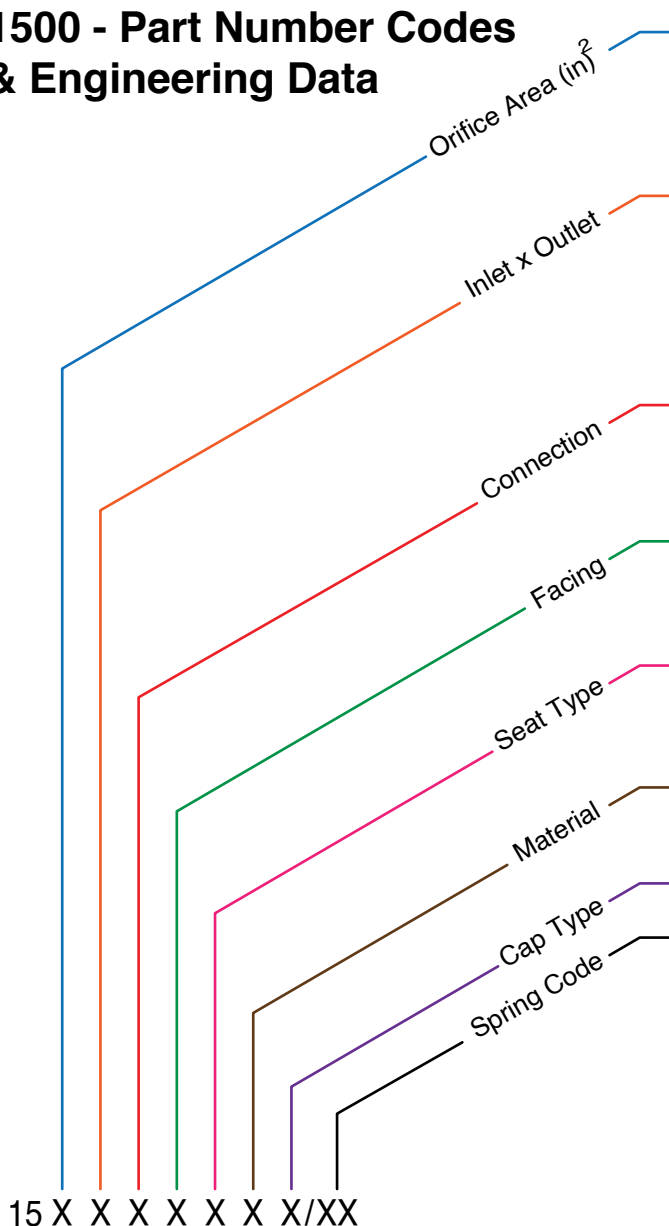
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1500 - Part Number Codes & Engineering Data



C • 0.058	E • 0.230	G • 0.590
D • 0.129	F • 0.366	
Size /Available Orifice (Connection)		
E • 1/2" x 3/4" (C Orifice Only)		
F • 3/4" x 3/4" (C, D Orifice Only)		
J • 1" x 2" (E, F Orifice Only)		
1 • 1/2" x 1" (C Orifice Only)		
2 • 3/4" x 1" (C, D Orifice Only)		
3 • 1" x 1" (C, D Orifice Only)		
4 • 3/4" x 1-1/2" (D Orifice Only)		
5 • 1" x 1-1/2" (D, E, F Orifice Only)		
6 • 1-1/2" x 1-1/2" (D, E, F Orifice Only)		
7 • 1-1/2" x 2" (E, F, G Orifice Only)		
8 • 2" x 2" (E, F, G Orifice Only)		
Gender		
M • M x F		
F • F x F		
Flanged		
A • 150 x 150		
C • 600 x 150		
E • 1500 x 300		
B • 300 x 150		
D • 600 x 300		
G • 2500 x 300		
Flange x Thread		
0 • NPT		
1 • RF x RF		
2 • RTJ x RF		
M • METAL		
T • Teflon®		
E • EPDM		
V • Fluorocarbon		
K • Kalrez®		
N • Nitrile		
Body/ Spring/ Trim		
0 • WCB/CS/316SS		
3 • CF8M/316SS/316SS		
1 • WCB/316SS/316SS		
4 • CF8M (NACE)/Inconel®/316SS		
2 • WCB (NACE)/ Inconel®/ 316SS		
0 • Closed Cap		
L • Open Lever		
P • Packed Lever		
G • Closed w/Gag		
M • Lever w/Gag		
S • Packed w/Gag		
Consult Factory for Spring Chart.		
C Orifice is available in soft seat only. PTFE for high pressure only.		
Lift lever is required for ASME code service for air or water over 140°F.		
Call for market price on Kalrez® seat material.		

Temperature Limits

Temperature	Seat Material					
	Nitrile	EPDM	Viton®	Neoprene	Kalrez®	Teflon®
Lower °F	-65	-70	-15	-45	30	-300
Upper °F	225	300	400	300	550	400

Sizing Equations

US Units

Air/Gas

$$W = CK_d A P_1 \sqrt{\frac{M}{TZ}}$$

Liquid

$$Q = 38 K_d K_v A \sqrt{\frac{P_1 - P_d}{G}}$$

Where

$P_1 = 1.1 P_{set} + 14.7$ over 30 psi or

$P_1 = P_{set} + 17.7$ under 30 psi

$$C = 520 \sqrt{k \left(\frac{2}{k+1} \right)^{\frac{k+1}{k-1}}}$$

W = Capacity in lbm/hr

P_{set} = Set Pressure in psig

P_d = Discharge Pressure

A = Orifice Area

K_d = .863 for Air/Gas/Steam

K_d = .659 for Liquid

K_v = Viscosity Correction Factor

Q = Capacity in GPM

Z = Compressibility Factor

T = Temperature in °R

k = Ratio of Specific Heats

M = Molecular Weight

G = Specific Gravity

SI Units

Air/Gas

$$W = 1.316 CK_d A P_1 \sqrt{\frac{M}{TZ}}$$

Liquid

$$Q = \frac{K_d K_v A}{11.78} \sqrt{\frac{P_1 - P_d}{G}}$$

Where

$P_1 = 1.1 P_{set} + 101.3$ over 207 kPa or

$P_1 = P_{set} + 122$ under 207 kPa

$$C = 520 \sqrt{k \left(\frac{2}{k+1} \right)^{\frac{k+1}{k-1}}}$$

W = Capacity in kg/hr

P_{set} = Set Pressure in kPag

P_d = Discharge Pressure

A = Orifice Area

K_d = .863 for Air/Gas/Steam

K_d = .659 for Liquid

K_v = Viscosity Correction Factor

Q = Capacity in liter/min

Z = Compressibility Factor

T = Temperature in °K

k = Ratio of Specific Heats

M = Molecular Weight

G = Specific Gravity

Air & Water Flow Capacity Charts

AIR FLOW CAPACITY VS. PRESSURE (FOR CONDITIONS SHOWN BELOW)					
ORIFICE	C	D	E	F	G
ORIFICE DIA. (IN.)	0.272	0.405	0.541	0.683	0.867
ORIFICE AREA (SQ.IN.)	0.058	0.129	0.230	0.366	0.590
SLOPE	0.918	2.041	3.639	5.790	9.334
Kd FACTOR	0.863	0.863	0.863	0.863	0.863
SET PRESSURE (PSIG)	CAPACITY IN SCFM, OVERPRESSURE = 110% OR 3 PSI, WHICHEVER IS GREATER				
15	30	66	118	189	305
20	34	76	137	218	351
25	39	87	155	247	398
30	43	97	173	276	445
50	63	142	253	403	650
100	114	254	453	722	1163
150	164	366	653	1040	1677
200	215	478	853	1358	2190
250	265	591	1054	1677	2703
300	316	703	1254	1995	3217
400	417	927	1654	2632	4243
500	518	1152	2054	3269	5270
600	619	1376	2454	3906	6297
700	719	1601	2855	4543	7324
900	921	2050	3655	5817	9377
1000	1022	2274	4055	6454	10404
1250	1275	2836	5056	8046	12970
1500	1527	3397	6057	9638	15537
1750	1779	3958	7057		
2000	2032	4519	8058		
2500	2536	5642	10059		
3000	3041	6764	12060		
3500	3546	7886	14061		
4000	4050	9009	16062		
4500	4555				
5000	5059				
5500	5564				
6000	6069				
Conditions					
Temp (°F)	Baro. (psi)	Cp/Cv	Comp. Factor	MW	Density
60	14.7	1.4	1	28.97	0.0764

WATER FLOW CAPACITY VS. PRESSURE (FOR CONDITIONS SHOWN BELOW)					
ORIFICE	C	D	E	F	G
ORIFICE DIA. (IN.)	0.272	0.405	0.541	0.683	0.867
ORIFICE AREA (SQ.IN.)	0.058	0.129	0.230	0.366	0.590
FLOW FACTOR	1.452	3.230	5.759	9.165	14.774
Kd FACTOR	0.659	0.659	0.659	0.659	0.659
SET PRESSURE (PSIG)	CAPACITY IN GPM, OVERPRESSURE = 110% OR 3 PSI, WHICHEVER IS GREATER				
15	6.1	13.7	24	38	62
20	6.9	15.4	27	43	70
25	7.6	17.0	30	48	78
30	8.3	18.5	33	52	84
50	10.7	23.9	42	67	109
100	15.2	33	60	96	154
150	18.6	41	73	117	189
200	21.5	47	85	135	219
250	24.0	53	95	151	245
300	26.3	58	104	166	268
400	30	67	120	192	309
500	34	75	135	214	346
600	37	82	147	235	379
700	40	89	159	254	409
900	45	101	181	288	464
1000	48	107	191	303	490
1250	53	119	213	339	547
1500	58	131	233	372	600
1750	63	141	252		
2000	68	151	270		
2500	76	169	302		
3000	83	185	330		
3500	90	200	357		
4000	96	214	382		
4500	102				
5000	107				
5500	112				
6000	117				

Conditions					
Temp (°F)	Baro. (psi)	SG	Back Press.	Kv	Specific Weight
70	14.7	1	0	1	62.3058

Parts List & Material Selection

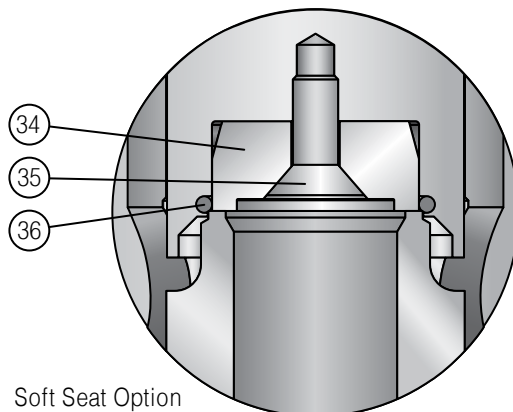
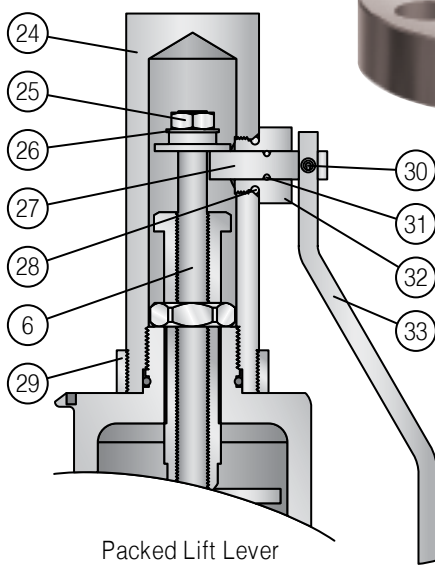
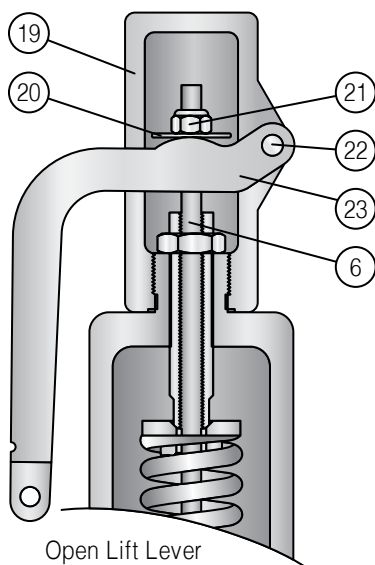
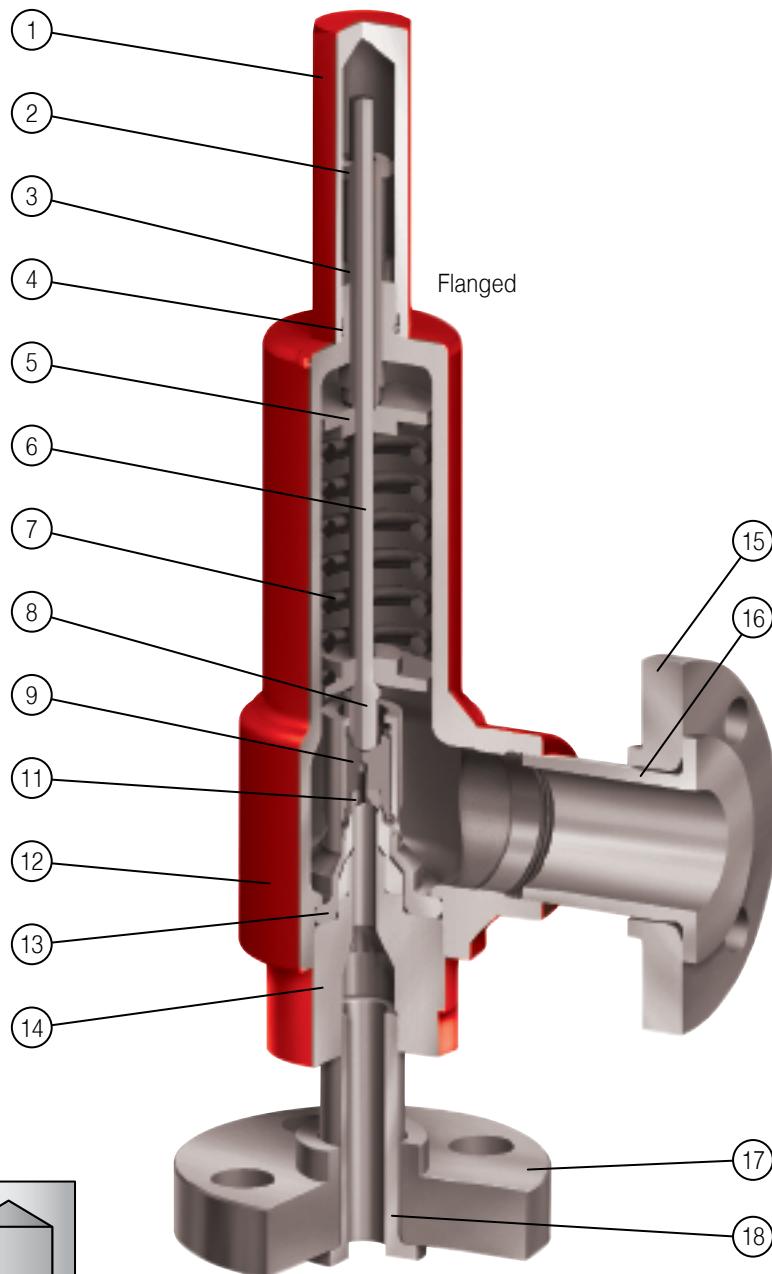
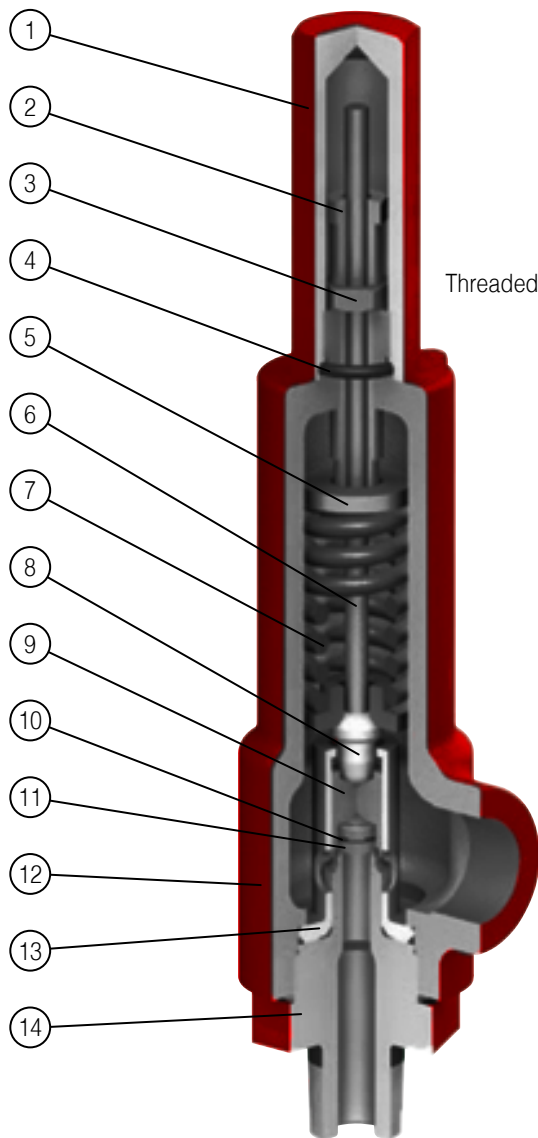
Index	Description	Materials, Codes & Temperature Ranges				
		-20°F to +450°F (-29°C to +232°C) 0	-20°F to +650°F (-29°C to +343°C) 1	NACE MR0175 -20°F to +750°F (-29°C to +399°C) 2	-300°F to +800°F (-149°C to +426°C) 3	NACE MR0175 -300°F to +800°F (-149°C to +426°C) 4
1	Cap	Carbon Steel	Carbon Steel	Carbon Steel	316 Stainless Steel	316 Stainless Steel
2	Adjusting Screw	Carbon Steel	Carbon Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
3	Adjusting Nut	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
4	O-Ring	Specify	Specify	Specify	Specify	Specify
5	Spring Plate	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
6	Stem	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
7	Spring	316 Stainless Steel ⁽²⁾	316 Stainless Steel ⁽²⁾	Inconel®X750	316 Stainless Steel ⁽²⁾	Inconel®X750
8	Stem Head	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
9	Disc Holder	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
10	Disc Retainer	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
11	Disc	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
12	Body	WCB	WCB	WCB	CF8M	CF8M
13	Guide	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
14	Nozzle	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
15	Lap Joint Flange (Outlet)	Carbon Steel	Carbon Steel	Carbon Steel	316 Stainless Steel	316 Stainless Steel
16	Lap Joint Stub End (Outlet)	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
17	Lap Joint Flange (Inlet)	Carbon Steel	Carbon Steel	Carbon Steel	316 Stainless Steel	316 Stainless Steel
18	Lap Joint Stub End (Inlet)	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
Open Lift Lever						
19	Cap	WCB	WCB	WCB	CF8M	CF8M
20	Release Washer	Carbon Steel	Carbon Steel	Carbon Steel	316 Stainless Steel	316 Stainless Steel
21	Release Nut	Carbon Steel	Carbon Steel	Carbon Steel	316 Stainless Steel	316 Stainless Steel
22	Lever Pin	Carbon Steel	Carbon Steel	Carbon Steel	316 Stainless Steel	316 Stainless Steel
23	Lever	Carbon Steel	Carbon Steel	Carbon Steel	316 Stainless Steel	316 Stainless Steel
Packed Lift Lever						
24	Cap	WCB	WCB	WCB	CF8M	CF8M
25	Release Nut	Carbon Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
26	Release Washer	Carbon Steel	Carbon Steel	Carbon Steel	316 Stainless Steel	316 Stainless Steel
27	Lever Shaft	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
28	Gland O-Ring	Same as Item 4	Same as Item 4	Same as Item 4	Same as Item 4	Same as Item 4
29	Lock Nut	Carbon Steel	Carbon Steel	Carbon Steel	316 Stainless Steel	316 Stainless Steel
30	Lever Pin	Carbon Steel	Carbon Steel	Carbon Steel	302 Stainless Steel	302 Stainless Steel
31	Shaft O-Ring	Same as Item 4	Same as Item 4	Same as Item 4	Same as Item 4	Same as Item 4
32	Gland Nut	Carbon Steel	316 Stainless Steel	Carbon Steel	316 Stainless Steel	316 Stainless Steel
33	Lever	Carbon Steel	Carbon Steel	Carbon Steel	316 Stainless Steel	316 Stainless Steel
Soft Seat Option						
34	Disc	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
35	Disc Retainer Screw	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
36	O-Ring ⁽¹⁾	Specify	Specify	Specify	Specify	Specify

(1) Soft Seat Valve Only

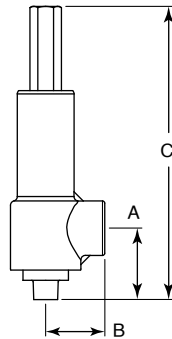
(2) Taylor Valve reserves the right to substitute Inconel® X750 in lieu of 316SS for higher pressure springs.

Materials: WCB-ASME SA216, CF8M-ASME SA351

1500 Component Parts



Threaded & Flanged, Dim. Data & Weights



Series 1500 Threaded

Orifice	Inlet x Outlet	FNPT x FNPT MNPT x FNPT	MaxSet (psig)	Dimension (in.)			Wt. (lbs.)
				A	B	C	
C API Area .058 in. ² Actual Area .129 in. ²	1/2 x 3/4	MNPT x FNPT	3000	3-1/4	1-3/4	12-1/4	8
		FNPT x FNPT	6150	3-1/4	1-3/4	12-1/4	8
	3/4 x 3/4	MNPT x FNPT	6150	3-1/4	1-3/4	12-1/4	8
		FNPT x FNPT	6150	3-1/4	1-3/4	12-1/4	8
	1/2 x 1	MNPT x FNPT	3000	3-1/4	1-3/4	12-1/4	8
		FNPT x FNPT	6150	3-1/4	1-3/4	12-1/4	8
	3/4 x 1	MNPT x FNPT	6150	3-1/4	1-3/4	12-1/4	8
		FNPT x FNPT	6150	3-1/4	1-3/4	12-1/4	8
	1 x 1	MNPT x FNPT	6150	3-1/4	1-3/4	12-1/4	8
		FNPT x FNPT	6000	3-1/4	1-3/4	12-1/4	8
D API Area .110 in. ² Actual Area .129 in. ²	3/4 x 3/4	MNPT x FNPT	2600	3-1/4	1-3/4	12-1/4	8
		FNPT x FNPT	3150	3-1/4	1-3/4	12-1/4	8
	3/4 x 1	MNPT x FNPT	2600	3-1/4	1-3/4	12-1/4	8
		FNPT x FNPT	3150	3-1/4	1-3/4	12-1/4	8
	1 x 1	MNPT x FNPT	3150	3-1/4	1-3/4	12-1/4	8
		FNPT x FNPT	3150	3-1/4	1-3/4	12-1/4	8

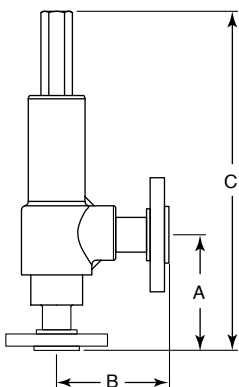
Note: Weights are approximate.

Overall height with lever: Add 1" to outlet C & D valves.

Add 1-1/2" to outlet E, F & G valves.

Orifice	Inlet x Outlet	FNPT x FNPT MNPT x FNPT	MaxSet (psig)	Dimension (in.)			Wt. (lbs.)
				A	B	C	
D API Area .110 in. ² Actual Area .129 in. ²	1 x 1-1/2	MNPT x FNPT	3950	3-11/16	2-9/16	13-5/8	12
		FNPT x FNPT	3950	3-11/16	2-9/16	13-5/8	12
	1-1/2 x 1-1/2	MNPT x FNPT	3950	3-11/16	2-9/16	13-5/8	12
		FNPT x FNPT	3950	3-11/16	2-9/16	13-5/8	12
E API Area .196 in. ² Actual Area .230 in. ²	1 x 1-1/2	MNPT x FNPT	2400	3-11/16	2-9/16	13-5/8	31
		FNPT x FNPT	2500	3-11/16	2-9/16	13-5/8	31
	1-1/2 x 1-1/2	MNPT x FNPT	2500	3-11/16	2-9/16	13-5/8	31
		FNPT x FNPT	2500	3-11/16	2-9/16	13-5/8	31
	1 x 2	MNPT x FNPT	2400	4	3-1/4	16-1/2	31
		FNPT x FNPT	2500	4	3-1/4	16-1/2	31
	1-1/2 x 2	MNPT x FNPT	3850	4	3-1/4	16-1/2	31
		FNPT x FNPT	3850	4	3-1/4	16-1/2	31
F API Area .307 in. ² Actual Area .366 in. ²	1 x 1-1/2	MNPT x FNPT	900	4	3-1/4	16-1/2	31
		FNPT x FNPT	1550	4	3-1/4	16-1/2	31
	1-1/2 x 1-1/2	MNPT x FNPT	1550	4	3-1/4	16-1/2	31
		FNPT x FNPT	1550	4	3-1/4	16-1/2	31
	1 x 2	MNPT x FNPT	900	4	3-1/4	16-1/2	31
		FNPT x FNPT	1550	4	3-1/4	16-1/2	31
	1-1/2 x 2	MNPT x FNPT	1550	4	3-1/4	16-1/2	31
		FNPT x FNPT	1550	4	3-1/4	16-1/2	31
	2 x 2	MNPT x FNPT	1550	4	3-1/4	16-1/2	31
		FNPT x FNPT	1550	4	3-1/4	16-1/2	31
G API Area .503 in. ² Actual Area .590 in. ²	1-1/2 x 2	MNPT x FNPT	1650	4-3/8	3-3/4	19-3/8	34
		FNPT x FNPT	1650	4-3/8	3-3/4	19-3/8	34
	2 x 2	MNPT x FNPT	1650	4-3/8	3-3/4	19-3/8	34
		FNPT x FNPT	1650	4-3/8	3-3/4	19-3/8	34

Series 1500 Flanged



Orifice Area (API / Actual)	Inlet x Outlet	Flange Ratings	Max PSIG (SS)* -20 to 100F	Outlet BP Limit (SS)*	Dimension (in.)			Wt. (lbs.)
					A	B	C	
C Actual 0.058 in. ²	1/2 x 3/4	150 x 150	285 (275)	285 (275)	6	4	14-13/16	11
		300 x 150	740 (720)		6	4	14-13/17	12
		600 x 150	1480 (1440)		6	4	14-13/18	12
		600 x 300	1480 (1440)	740 (720)	6	4	14-13/19	13
		1500 x 300	3400		7-1/2	5	16-5/16	16
	1/2 x 1	150 x 150	285 (275)	285 (275)	6	4	14-13/16	11
		300 x 150	740 (720)		6	4	14-13/17	12
		600 x 150	1480 (1440)		6	4	14-13/18	12
		600 x 300	1480 (1440)	740 (720)	6	4	14-13/19	13
		1500 x 300	3400		7-1/2	5	16-5/16	16
	3/4 x 3/4	150 x 150	285 (275)	285 (275)	6-1/4	4	15-1/16	13
		300 x 150	740 (720)		6-1/4	4	15-1/16	14
		600 x 150	1480 (1440)		6-1/4	4	15-1/16	14
		600 x 300	1480 (1440)	740 (720)	6-1/4	5	15-1/16	15
		1500 x 300	3705 (3600)		6-1/4	5	15-1/16	18

Note: Weights are approximate

*(SS) = Stainless Steel pressure limit, if different from Carbon Steel

Series 1500 Flanged, Continued

Orifice Area (API / Actual)	Inlet x Outlet	Flange Ratings	Max PSIG (SS)* -20 to 100F	Outlet BP Limit (SS)*	Dimension (in.)			Wt. (lbs.)
					A	B	C	
C Actual 0.058 in ²	3/4 x 1	150 x 150	285 (275)	285 (275)	6-1/4	4	15-1/16	13
		300 x 150	740 (720)		6-1/4	4	15-1/16	14
		600 x 150	1480 (1440)		6-1/4	4	15-1/16	14
		600 x 300	1480 (1440)	740 (720)	6-1/4	5	15-1/16	15
		1500 x 300	3705 (3600)		6-3/16	5	15-1/16	18
	1 x 1	150 x 150	285 (275)	285 (275)	6-1/2	4-1/4	15-5/16	14
		300 x 150	740 (720)		6-1/2	4-1/4	15-5/16	15
		600 x 150	1480 (1440)		6-1/2	4-1/4	15-5/16	15
		600 x 300	1480 (1440)	740 (720)	7-1/2	5	16-1/4	16
		1500 x 300	3705 (3600)		7-1/2	5	16-1/4	21
		2500 x 300	6170 (6000)		7-1/2	5	16-1/4	24
D 0.11 in ² / 0.129 in ²	3/4 x 1	150 x 150	285 (275)	285 (275)	6-1/4	4	14	13
		300 x 150	740 (720)		6-1/4	4	14	14
		600 x 150	1480 (1440)		6-1/4	4	14	14
		600 x 300	1480 (1440)	740 (720)	6-1/4	5	14	15
		1500 x 300	1750		6-3/16	5	14	18
	1 x 1	150 x 150	285 (275)	285 (275)	6-1/2	4-1/4	14-1/4	14
		300 x 150	740 (720)		6-1/2	4-1/4	14-1/4	15
		600 x 150	1480 (1440)		6-1/2	4-1/4	14-1/4	15
		600 x 300	1480 (1440)	740 (720)	7-1/2	5	15-3/8	16
		1500 x 300	2000		7-1/2	5	15-3/8	21
	1 x 1-1/2	150 x 150	285 (275)	285 (275)	6-1/4	5	15-1/8	15
		300 x 150	740 (720)		6-1/4	5	15-1/8	16
		600 x 150	1480 (1440)		6-1/4	5	15-1/8	17
		600 x 300	1480 (1440)	740 (720)	6-1/4	5-3/4	15-1/8	20
		1500 x 300	3500		6-1/4	5-3/4	15-1/8	24
E 0.196 in ² / 0.230 in ²	1-1/2 x 1-1/2	150 x 150	285 (275)	285 (275)	7-1/8	5	16	17
		300 x 150	740 (720)		7-1/8	5	16	20
		600 x 150	1480 (1440)		7-1/8	5	16	20
		600 x 300	1480 (1440)	740 (720)	7-1/8	5-3/4	16	23
		1500 x 300	3500		7-1/4	5-3/4	16-1/8	42
	1 x 1-1/2	150 x 150	285 (275)	285 (275)	6-1/4	5	15-1/8	19
		300 x 150	740 (720)		6-1/4	5	15-1/8	20
		600 x 150	1480 (1440)		6-1/4	5	15-1/8	20
		600 x 300	1480 (1440)	740 (720)	6-1/4	5-3/4	15-1/8	24
		1500 x 300	1750		7-1/4	5-3/4	15-1/8	28
	1-1/2 x 1-1/2	150 x 150	285 (275)	285 (275)	6-1/4	5	15-1/8	24
		300 x 150	740 (720)		6-1/4	5	15-1/8	24
		600 x 150	1480 (1440)		6-1/4	5	15-1/8	24
		600 x 300	1480 (1440)	740 (720)	6-1/4	5-3/4	15-1/8	23
		1500 x 300	2000		7-1/4	5-3/4	16-1/8	36
	2500 x 300	2500 x 300	2000	740 (720)	7-1/4	5-3/4	16-1/8	46

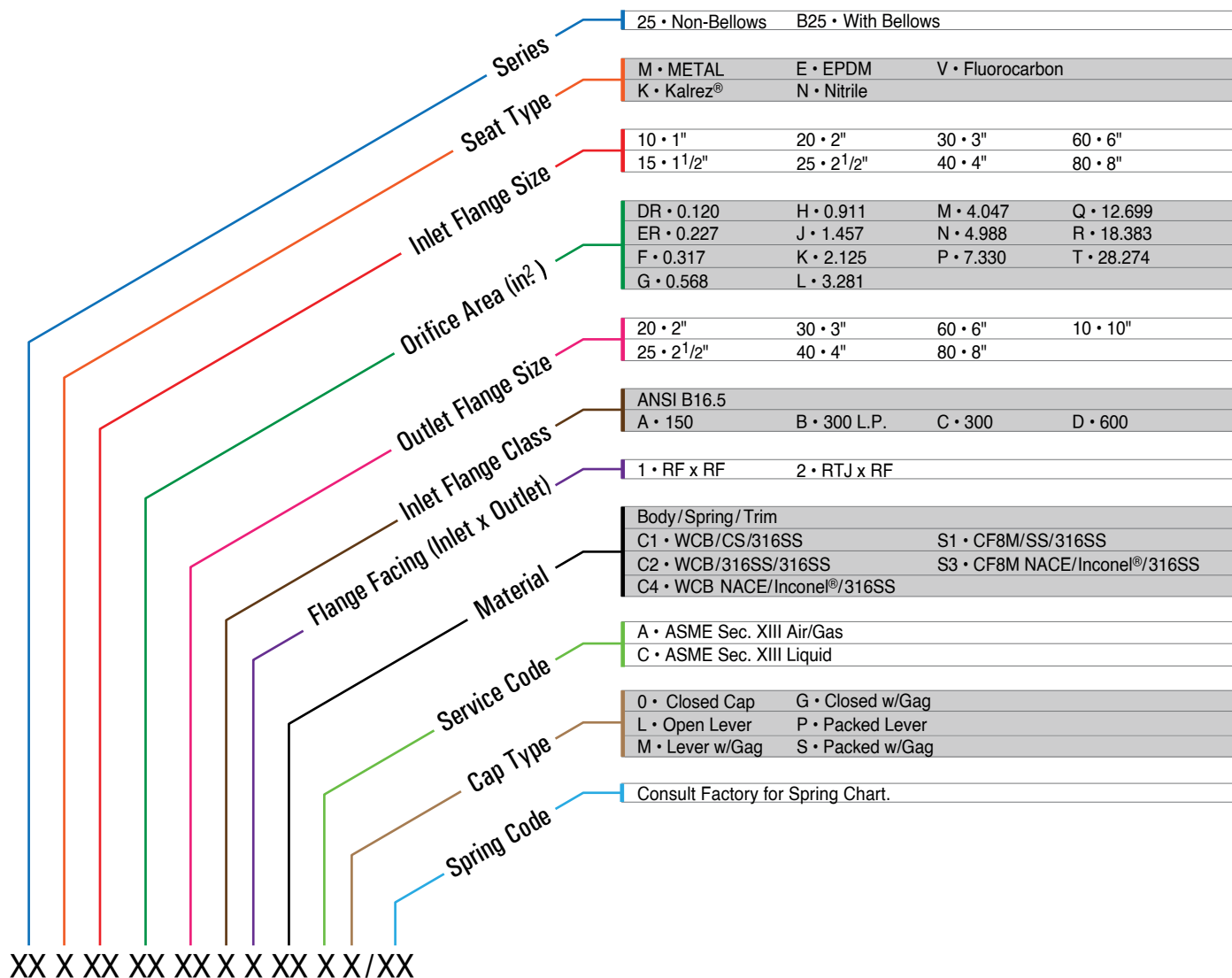
Orifice Area (API / Actual)	Inlet x Outlet	Flange Ratings	Max PSIG (SS)* -20 to 100F	Outlet BP Limit (SS)*	Dimension (in.)			Wt. (lbs.)
					A	B	C	
E 0.196 in ² / 0.230 in ²	1 x 2	150 x 150	285 (275)	285 (275)	6-1/2	6	18-13/16	29
		300 x 150	740 (720)		6-1/2	6	18-13/16	31
		600 x 150	1480 (1440)		6-1/2	6	18-13/16	31
		600 x 300	1480 (1440)	740 (720)	6-1/2	6	18-13/16	33
	1-1/2 x 2	150 x 150	285 (275)	285 (275)	6-1/2	6	18-1/8	23
		300 x 150	740 (720)		6-1/2	6	18-1/8	26
		600 x 150	1480 (1440)		6-1/2	6	18-1/8	26
		600 x 300	1480 (1440)	740 (720)	6-1/2	6	18-1/8	27
		1500 x 300	2000		8-1/4	6	19-7/8	37
		2500 x 300	2000		8-1/4	6	19-7/8	47
F 0.307 in ² / 0.366 in ²	1 x 1-1/2	150 x 150	285 (275)	285 (275)	6-1/4	5	18	38
		300 x 150	740 (720)		6-1/4	5	18	39
		600 x 150	740		6-1/4	5	17	37
		600 x 300	740	740 (720)	6-1/4	5-3/4	17	40
	1-1/2 x 1-1/2	150 x 150	285 (275)	285 (275)	6-1/4	5	18-1/8	39
		300 x 150	740 (720)		6-1/4	5	18-3/4	43
		600 x 150	1480 (1440)		6-1/4	5	18-3/4	43
	1 x 2	150 x 150	285 (275)	285 (275)	6-1/2	6	18-13/16	30
		300 x 150	740 (720)		6-1/2	6	18-13/16	32
		600 x 150	1200		6-1/2	6	18-13/16	32
		600 x 300	1200	740 (720)	6-1/2	6	18-13/16	34
G 0.503 in ² / 0.590 in ²	1-1/2 x 2	150 x 150	285 (275)	285 (275)	7-1/8	6-1/2	21	45
		300 x 150	740 (720)		7-1/8	6-1/2	21	48
		600 x 150	1480 (1440)		7-1/8	6-1/2	21	50
		600 x 300	1480 (1440)	740 (720)	7-1/8	6-1/2	21	51
	2 x 2	150 x 150	285 (275)	285 (275)	7-1/8	6-1/2	21	48
		300 x 150	740 (720)		7-1/8	6-1/2	21	51
		600 x 150	1480 (1440)		7-1/8	6-1/2	21	51
		600 x 300	1480 (1440)	740 (720)	7-1/8	6-1/2	21	54

Note: Weights are approximate.

*(SS) = Stainless Steel pressure limit, if different from Carbon Steel

Overall height with lever: Add 1" to outlet C, D & E valves. Add 1-1/2" to outlet F & G valves.

2500 - Part Number Codes & Engineering Data



Sizing Equations

Air/Gas

$$W = CK_d AP_1 \sqrt{\frac{M}{TZ}}$$

Liquid

$$Q = 38K_d K_v A \sqrt{\frac{P_1 - P_d}{G}}$$

Where

$$P_1 = 1.1 P_{set} + 14.7 \text{ over } 30 \text{ psi or}$$

$$P_1 = P_{set} + 17.7 \text{ under } 30 \text{ psi}$$

$$C = 520 \sqrt{k \left(\frac{2}{k+1} \right)^{\frac{k+1}{k-1}}}$$

US Units

W = Capacity in lbm/hr

P_{set} = Set Pressure in psig

P_d = Discharge Pressure

A = Orifice Area

K_d = .868 for Air/Gas/Steam

K_d = .664 for Liquid

K_v = Viscosity Correction Factor

Q = Capacity in GPM

Z = Compressibility Factor

T = Temperature in °R

k = Ratio of Specific Heats

M = Molecular Weight

G = Specific Gravity

Air/Gas

$$W = 13160 CK_d AP_1 \sqrt{\frac{M}{TZ}}$$

Liquid

$$Q = \frac{K_d K_v A}{11.78} \sqrt{\frac{P_1 - P_d}{G}}$$

Where

$$P_1 = 1.1 P_{set} + 101.3 \text{ over } 207 \text{ kPa or}$$

$$P_1 = P_{set} + 122 \text{ under } 207 \text{ kPa}$$

$$C = 520 \sqrt{k \left(\frac{2}{k+1} \right)^{\frac{k+1}{k-1}}}$$

SI Units

W = Capacity in kg/hr

P_{set} = Set Pressure in kPag

P_d = Discharge Pressure

A = Orifice Area

K_d = .868 for Air/Gas/Steam

K_d = .664 for Liquid

K_v = Viscosity Correction Factor

Q = Capacity in liter/min

Z = Compressibility Factor

T = Temperature in °K

k = Ratio of Specific Heats

M = Molecular Weight

G = Specific Gravity

Air Flow Capacity Chart

AIR FLOW CAPACITY VS. PRESSURE (FOR CONDITIONS SHOWN BELOW)														
ORIFICE	DR	ER	F	G	H	J	K	L	M	N	P	Q	R	T
ORIFICE DIA. (IN.)	0.635	0.635	0.635	0.850	1.077	1.362	1.645	2.044	2.270	2.520	3.055	4.021	4.838	6.000
ORIFICE AREA (SQ.IN.)	0.160	0.219	0.317	0.568	0.911	1.457	2.125	3.281	4.047	4.988	7.330	12.699	18.383	28.274
SLOPE	2.58	3.52	5.044	9.038	14.495	23.183	33.812	52.205	64.393	79.366	116.63	202.06	292.50	449.88
Kd FACTOR	0.878	0.878	0.868	0.868	0.868	0.868	0.868	0.868	0.868	0.868	0.868	0.868	0.868	0.868
SET PRESSURE (PSIG)	CAPACITY IN SCFM. OVERPRESSURE = 110% OR 3 PSI, WHICHEVER IS GREATER													
15	84	115	164	295	473	758	1105	1707	2105	2595	3813	6607	9564	14710
20	97	132	190	340	546	873	1274	1968	2427	2992	4396	7617	11027	16960
25	110	150	215	385	618	989	1443	2229	2749	3388	4980	8627	12489	19209
30	123	167	240	431	691	1105	1612	2490	3071	3785	5563	9638	13952	21459
50	179	245	351	629	1010	1615	2356	3638	4488	5531	8129	14083	20387	31356
100	321	438	628	1126	1807	2890	4216	6509	8029	9896	14543	25196	36474	56099
150	463	632	906	1624	2604	4165	6075	9381	11571	14261	20958	36309	52561	
200	605	826	1183	2121	3402	5440	7935	12252	15113	18627	27373	47422	68649	
250	747	1019	1461	2618	4199	6716	9795	15123	18654	22992	33787	58536	84736	
300	889	1213	1738	3115	4996	7991	11654	17995	22196	27357	40202	69649	100823	
400	1173	1600	2293	4109	6590	10541	15374	23737	29279	36087	53031	91875		
500	1456	1987	2848	5103	8185	13091	19093	29480	36362	44817	65860	114101		
600	1740	2374	3403	6097	9779	15641	22812	35222	43445	53547	78690	136328		
700	2024	2762	3957	7091	11374	18191	26531	40965	50529	62278	91519			
800	2308	3149	4512	8085	12968	20741	30251	46707	57612	71008	104348			
900	2592	3536	5067	9080	14563	23291	33970	52450	64695	79738	117178			
1000	2875	3923	5622	10074	16157	25841	37689	58192	71778	88468	130007			
1100	3159	4310	6177	11068	17752	28391	41408							
1200	3443	4698	6732	12062	19346	30942	45128							
1300	3727	5085	7286	13056	20941	33492	48847							
1400	4011	5472	7841	14050	22535	36042	52566							
1480	4238	5782	8285	14846	23811	38082	55542							

Conditions					
Temp (°F)	Baro. (psi)	Cp/Cv	Comp. Fact.	MW	Density
60	14.7	1.4	1	28.97	0.0764

Water Flow Capacity Chart

WATER FLOW CAPACITY VS. PRESSURE (FOR CONDITIONS SHOWN BELOW)														
ORIFICE	DR	ER	F	G	H	J	K	L	M	N	P	Q	R	T
ORIFICE DIA. (IN.)	0.635	0.635	0.635	0.850	1.077	1.362	1.645	2.044	2.270	2.520	3.055	4.021	4.838	6.000
ORIFICE AREA (SQ.IN.)	0.160	0.219	0.317	0.568	0.911	1.457	2.125	3.281	4.047	4.988	7.330	12.699	18.383	28.274
SLOPE	4.59	5.91	7.998	14.331	22.986	36.762	53.616	82.784	102.11	125.85	184.94	320.41	463.83	713.39
Kd FACTOR	0.755	0.710	0.664	0.664	0.664	0.664	0.664	0.664	0.664	0.664	0.664	0.664	0.664	0.664
SET PRESSURE (PSIG)	CAPACITY IN SCFM. OVERPRESSURE = 110% OR 3 PSI, WHICHEVER IS GREATER													
15	19	25	33	60	97	155	227	351	433	533	784	1359	1967	3026
20	22	28	38	68	110	176	257	397	489	603	886	1536	2224	3421
25	24	31	42	75	121	194	283	438	540	665	978	1695	2454	3774
30	26	33	45	82	132	211	308	475	586	722	1062	1840	2664	4098
50	34	43	59	106	170	272	397	613	757	933	1371	2376	3439	5290
100	48	61	83	150	241	385	562	868	1070	1319	1939	3360	4864	7482
150	58	75	102	184	295	472	688	1063	1311	1616	2375	4115	5957	
200	68	87	118	212	340	545	795	1227	1514	1866	2743	4752	6879	
250	76	98	132	237	381	609	889	1372	1693	2087	3066	5313	7691	
300	83	107	145	260	417	667	973	1503	1854	2286	3359	5820	8425	
400	96	123	167	300	482	771	1124	1736	2141	2639	3879	6721		
500	107	138	187	336	539	862	1257	1941	2394	2951	4337	7514		
600	117	151	205	368	590	944	1377	2126	2623	3233	4751	8231		
700	127	163	221	397	637	1020	1487	2297	2833	3492	5132			
800	136	175	237	425	681	1090	1590	2455	3029	3733	5486			
900	144	185	251	450	723	1156	1686	2604	3212	3959	5819			
1000	152	196	265	475	762	1219	1778	2745	3386	4174	6133			
1100	159	205	278	498	799	1278	1865							
1200	166	214	290	520	835	1335	1947							
1300	173	223	302	541	869	1390	2027							
1400	180	231	313	562	902	1442	2104							
1480	185	238	322	578	927	1483	2163							

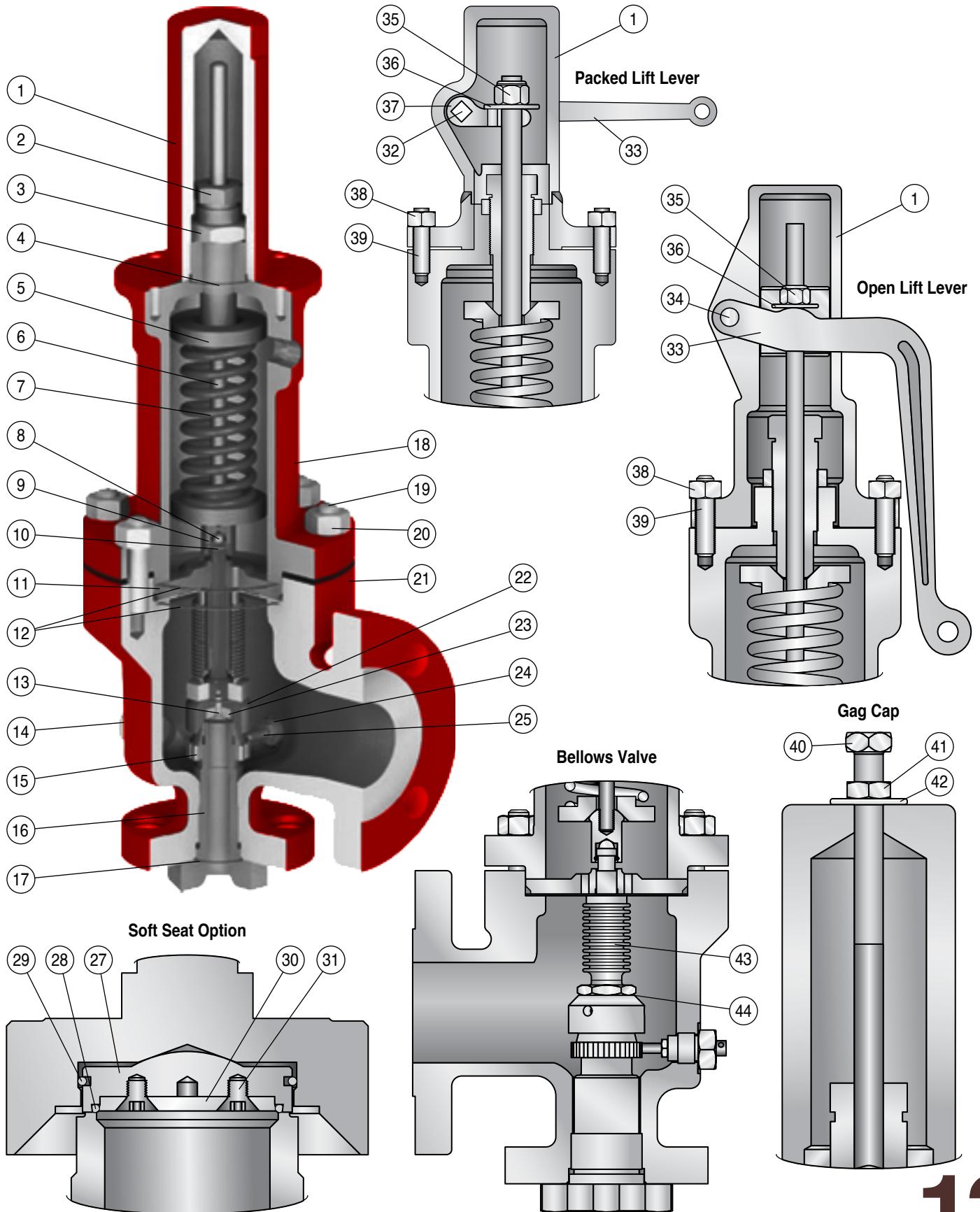
Conditions					
Temp (°F)	Baro. (psi)	SG	BP	Kv	Sp. Wt.
70	14.7	1	0	1	62.3058

Parts List & Material Selection

Index	Description	Materials, Codes & Temperature Ranges				
		-20°F to +450°F (-29°C to +232°C) C1	-20°F to +450°F (-29°C to +232°C) C2	-20°F to +800°F (-29°C to +426°C) C4	-300°F to +450°F (-149°C to +232°C) S1	-300°F to +800°F (-149°C to +427°C) S3
1	Cap	ASTM A108	ASTM A108	ASTM A108	316 Stainless Steel	316 Stainless Steel
2	Adjusting Screw	Carbon Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
3	Adjusting Lock Nut	Carbon Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
4	Cap Gasket	SA240 316SS	SA240 316SS	SA240 316SS	SA240 316SS	SA240 316SS
5	Spring Plate	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
6	Stem	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
7	Spring	Carbon Steel	T316	Inconel®X750	T316	Inconel®X750
8	Stem Joint Ball	440C	440C	Cobalt	440C	440C
9	Stem Joint	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
10	Stem Joint Retainer	Inconel®X750	Inconel®X750	Inconel®X750	Inconel®X750	Inconel®X750
11	Guide	316SS or CF8M	316SS or CF8M	316SS or CF8M	316SS or CF8M	316SS or CF8M
12	Guide Gasket	SA240 316SS	SA240 316SS	SA240 316SS	SA240 316SS	SA240 316SS
13	Disc	316SS or CF8M	316SS or CF8M	316SS or CF8M	316SS or CF8M	316SS or CF8M
14	Drain Plug	SA182 F316	SA182 F316	SA182 F316	SA182 F316	SA182 F316
15	Warn Ring	316SS or CF8M	316SS or CF8M	316SS or CF8M	316SS or CF8M	316SS or CF8M
16	Nozzle	316SS or CF8M	316SS or CF8M	316SS or CF8M	316SS or CF8M	316SS or CF8M
17	Gasket, Body/Nozzle	SA240 316SS	SA240 316SS	SA240 316SS	SA240 316SS	SA240 316SS
18	Bonnet	WCB	WCB	WCB	CF8M	CF8M
19	Bonnet Stud	SA193 Gr. B7	SA193 Gr. B7	320 L7M or Gr. 8	SA193 Gr. B8	SA193 Gr. B8
20	Bonnet Stud Nuts	SA194 Gr. 2H	SA194 Gr. 2H	SA194 Gr. 2H	A194 Gr. 8	A194 Gr. 8
21	Body	WCB	WCB	WCB	CF8M	CF8M
22	Disc Holder	316SS or CF8M	316SS or CF8M	316SS or CF8M	316SS or CF8M	316SS or CF8M
23	Disc Retaining Ring	Inconel®X750	Inconel®X750	Inconel®X750	Inconel®X750	Inconel®X750
24	Lock Pin Gasket	SA240 316SS	SA240 316SS	SA240 316SS	SA240 316SS	SA240 316SS
25	Lock Pin	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
26	Name Plate (Not Shown)	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
Soft Seat Option						
27	Disc Holder	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
28	Seat O-Ring	Specify	Specify	Specify	Specify	Specify
29	Retaining Ring	Inconel®	Inconel®	Inconel®	Inconel®	Inconel®
30	O-Ring Retainer	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
31	Retaining Screw	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
Packed & Open Lift Lever						
32	Shaft	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
33	Lever	Carbon Steel	Carbon Steel	Carbon Steel	Stainless Steel	Stainless Steel
34	Lever Pin	Carbon Steel	Carbon Steel	Carbon Steel	Stainless Steel	Stainless Steel
35	Lock Nut	Carbon Steel	Carbon Steel	Carbon Steel	Stainless Steel	Stainless Steel
36	Washer	Carbon Steel	Carbon Steel	Carbon Steel	Stainless Steel	Stainless Steel
37	Lift Dog	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel
38	Nut	SA194 Gr. 2H	SA194 Gr. 2H	SA194 Gr. 2H	SA194 Gr. 8	SA194 Gr. 8
39	Stud	SA193 Gr. B7	SA193 Gr. B7	SA193 Gr. B7	SA193 Gr. B8	SA193 Gr. B8
Gag Cap						
40	Gag Bolt	Carbon Steel	Carbon Steel	Carbon Steel	Stainless Steel	Stainless Steel
41	Gag Nut	Carbon Steel	Carbon Steel	Carbon Steel	Stainless Steel	Stainless Steel
42	Washer	Carbon Steel	Carbon Steel	Carbon Steel	Stainless Steel	Stainless Steel
Bellows Valve						
43	Bellows Assembly	Inconel®625	Inconel®625	Inconel®625	Inconel®625	Inconel®625
44	Disc Holder Gasket	SA240 316SS	SA240 316SS	SA240 316SS	SA240 316SS	SA240 316SS

Taylor Valve reserves the right to substitute Inconel® or 17/7SS in lieu of 316SS for higher pressure springs.
Materials: WCB/WCC-ASME SA216, CF8M-ASME SA351

2500 Component Parts



Flanged, Dimensional Data & Weights

Orifice Area (API / Actual)	Inlet x Outlet	Flange Ratings	Inlet Flange Code	Min PSIG Set*	Max PSIG (SS)* -20 to 100F	Outlet BP Limit (SS)*	Bellows BP Limit	Dimension (in.)				Wt. (lbs.)	
								A	B	C	F		
DR .110 in² / .160 in²	1 x 2	150 x 150	A	15	285 (275)	285 (275)	230	4-1/8	4-1/2	21-1/2	1-1/4	49	
		300 x 150	B		4-1/8			4-1/2	21-1/2	1-3/8	50		
		300 x 150	C		4-1/8			4-1/2	21-1/2	1-3/8	50		
		600 x 150	D		4-1/8			4-1/2	21-1/2	1-3/8	50		
ER .196 in² / .219 in²	1 x 2	150 x 150	A		285 (275)			4-1/8	4-1/2	21-1/2	1-1/4	49	
		300 x 150	B		4-1/8			4-1/2	21-1/2	1-3/8	50		
		300 x 150	C		4-1/8			4-1/2	21-1/2	1-3/8	50		
		600 x 150	D		4-1/8			4-1/2	21-1/2	1-3/8	50		
F .307 in² / .317 in²	1-1/2x2	150 x 150	A		285 (275)			4-7/8	4-3/4	21-1/2	1-5/16	54	
		300 x 150	B		4-7/8			4-3/4	21-1/2	1-7/16	56		
		300 x 150	C		4-7/8			6	21-1/2	1-7/16	64		
		600 x 150	D		4-7/8			6	21-1/2	1-1/2	64		
G .507 in² / .568 in²	1-1/2x3	150 x 150	A		285 (275)			4-7/8	4-3/4	21-1/2	1-5/16	60	
		300 x 150	B		4-7/8			4-3/4	21-1/2	1-7/16	63		
		300 x 150	C		4-7/8			6	21-1/2	1-7/16	70		
		600 x 150	D		4-7/8			6	21-1/2	1-1/2	73		
H .785 in² / .911 in²	1-1/2x3	150 x 150	A		285 (275)			5-1/8	4-7/8	24-1/2	1-1/2	60	
		300 x 150	B		5-1/8			4-7/8	24-1/2	1-1/2	60		
	2 x 3	300 x 150	C		740 (720)			5-1/8	4-7/8	24-1/2	1-1/2	65	
		600 x 150	D		741			1480 (1440)	6-1/16	6-3/8	29	1-1/2	85
J 1.287 in² / 1.457 in²	2 x 3	150 x 150	A	15	285 (275)	5-3/8	4-7/8	25-1/8	1-1/2	75			
	3 x 4	300 x 150	C	740 (720)	7-1/4	7-1/8	30-3/8	1-15/16	110				
		600 x 150	D	741	1480 (1440)	7-1/4	7-1/8	25-7/8	1-1/2	112			
K 1.838 in² / 2.125 in²	3 x 4	150 x 150	A	15	285 (275)	285 (275)	150	6-1/8	6-3/8	26-3/8	1-3/4	126	
		300 x 150	B		6-1/8			6-3/8	26-3/8	1-3/4	126		
		300 x 150	C		6-1/8			6-3/8	30-3/8	1-15/16	136		
		600 x 150	D		1480 (1440)			200	7-1/4	7-1/8	29-3/4	1-1/2	138
L 2.853 in² / 3.281 in²	3 x 4	150 x 150	A	15	285 (275)		285 (275)	100	6-1/8	6-1/2	29-3/4	1-3/4	140
		300 x 150	B	6-1/8	6-1/2				29-3/4	1-7/8	190		
	4 x 6	300 x 150	C	286	740 (720)			170	7-1/16	7-1/8	32-3/4	2-3/16	220
		600 x 150	D	1000	170			7-1/16	8	32-3/4	1-1/2	230	
M 3.600 in² / 4.047 in²	4 x 6	150 x 150	A	15	285 (275)	285 (275)		80	7	7-1/4	29-3/4	1-7/8	185
		300 x 150	B		7				7-1/4	29-3/4	1-7/8	190	
		300 x 150	C	286	740 (720)			160	7	7-1/4	32-3/4	2-3/16	230
		600 x 150	D	741	1000				7	8	33-3/4	2	300

Note: Weights are approximate.

*(SS) = Stainless Steel pressure limit, if different from Carbon Steel

Overall height with lever: Add 1" to outlet C, D & E valves. Add 1-1/2" to outlet F & G valves.

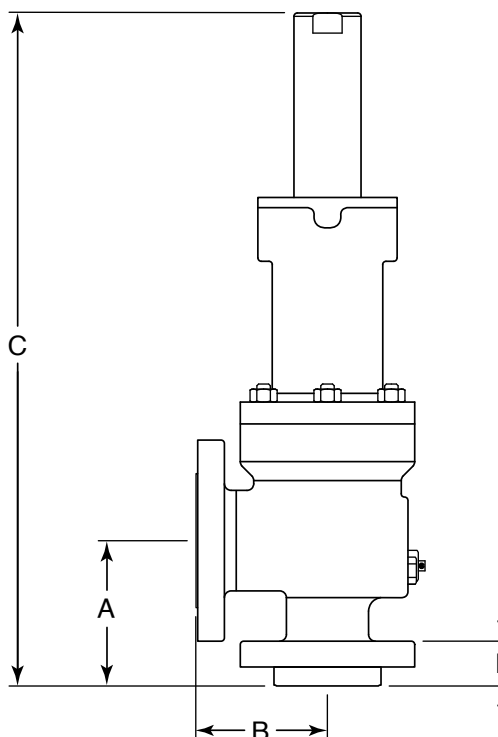
Flanged, Dimensional Data & Weights *continued*

Orifice Area (API / Actual)	Inlet x Outlet	Flange Ratings	Inlet Flange Code	Min PSIG Set*	Max PSIG (SS)* -20 to 100F	Oultet BP Limit (SS)*	Bellows BP Limit	Dimension (in.)				Wt. (lbs.)
								A	B	C	F	
N 4.340 in ² / 4.988 in ²	4 x 6	150 x 150	A	15	285 (275)	285 (275)	80	7-3/4	8-1/4	33-1/2	1-1/2	220
		300 x 150	B					7-3/4	8-1/4	33-1/2	1-7/8	225
		300 x 150	C	286	740 (720)		160	7-3/4	8-1/4	34-3/4	1-7/8	260
		600 x 150	D	741	1000			7-3/4	8-3/4	37-7/8	2-3/16	300
P 6.380 in ² / 7.330 in ²	4 x 6	150 x 150	A	15	285 (275)		80	7-1/8	9	34-3/8	1-1/2	260
		300 x 150	B					7-1/8	9	34-3/8	1-7/8	270
		300 x 150	C	286	525		150	8-7/8	10	40-1/2	1-7/8	350
		600 x 150	D	526	1000			8-7/8	10	40-7/8	2-3/16	530
Q 11.050 in ² / 12.699 in ²	6 x 8	150 x 150	A	15	165	115	70	9-7/16	9-1/2	40-1/2	1-13/16	430
		300 x 150	B					9-7/16	9-1/2	40-1/2	2-3/16	445
		300 x 150	C	166	300		115	9-7/16	9-1/2	43-3/8	2-3/16	530
		600 x 150	D	301	600			9-7/16	9-1/2	45-7/8	2-1/2	645
R 16.000 in ² / 18.383 in ²	6 x 8	150 x 150	A	15	100	60	60	9-7/16	9-1/2	42	1-13/16	495
		300 x 150	B					9-7/16	9-1/2	42	2-3/16	510
	6 x 10	300 x 150	C	101	230	100	100	9-7/16	10-1/2	44-7/8	2-3/16	550
		600 x 150	D	231	300			9-7/16	10-1/2	46-3/4	2-1/2	675
T 26.000 in ² / 28.274 in ²	8 x 10	150 x 150	A	15	65	30	30	10-7/8	11	45-3/4	2-1/16	620
		300 x 150	B					10-7/8	11	45-3/4	2-1/2	640
		300 x 150	C	66	120			10-7/8	11	48-1/2	3	840

Note: Weights are approximate.

*(SS) = Stainless Steel pressure limit, if different from Carbon Steel

Overall height with lever: Add 1" to outlet C, D & E valves. Add 1-1/2" to outlet F & G valves.





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