

# Series 4200

Safety Valves for ASME Section I and VIII  
Boiler Applications





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# Introduction

Farris Engineering, a business unit of Curtiss-Wright Flow Control Company, a leader in pressure relief valves, offers the 4200 Series, an ASME Code Section I and VIII certified safety valve. The 4200 Series was designed to meet your requirements for a dependable, cost effective, high capacity boiler safety valve. This product is manufactured in our Brecksville, Ohio, ISO 9001 certified facility. In addition, the 4200 Series safety valve is available at many of our FAST (Farris Authorized Service Team) Centers which are certified by the National Board of Boiler and Pressure Vessel Inspectors to assemble, set and test steam valves. Please visit our website, <http://farris.cwfc.com>, for a list of Farris representatives and FAST Centers in your region.

## Warranty

All products manufactured by Farris Engineering are warranted free of defects in material and workmanship when used within the range recommended for a period of one year after installation or eighteen months from delivery. When authorized, any defective product may be returned to the factory and if found defective will be repaired or replaced free of charge, solely at the discretion of Farris Engineering, ex-works our factory. No charge for labor or other expense incurred will be allowed, as the liability of Farris Engineering is measured by the refund price of the defective product only. All warranties are based on the product being used within the range recommended and does not cover damages or defects due to normal wear and tear, misuse, alteration or neglect. The purchaser shall determine the suitability of the product for use and assumes all risks and liabilities in connection therewith.

This warranty does not cover the performance of valves tested at site on test equipment that is not to the same technical standard as that used by the manufacturer.

## Type Numbering System

42				F	A				1	2-		1	7	0		
Series Number	Orifice Area			Seat Construction	Temp. & Materials				Inlet Class <sup>1</sup>	Inlet Facing		Cap Construction	Test Gag			
42	Orifice Letter	Actual Area Sq. In.	Actual Area m <sup>2</sup>	A Metal Seat	Designation	Inlet Temperature	Material		0 150'	1 Raised Face	7 Open Lever	0 No Gag				
	F	0.316	204				Body & Bonnet	Spring					2 300	9 Ring Joint	1 Test Gag	
	G	0.518	334				1 up to 800 °F (427 °C)	Carbon Steel								Chrome Alloy
	H	0.809	522													
	J	1.325	855				3 801 to 1000 °F (427 to 538 °C)	Chrome Moly Steel <sup>2</sup>								Chrome Alloy
	K	1.897	1224													
	L	2.938	1895													
	M	3.822	2466													
	N	4.471	2885													
	P	6.573	4241													
Q	11.39	7348														

## Ordering Information

In order to assist you in the proper processing of your order, please specify the following information so that we may process your order as quickly and accurately as possible.

1. Quantity
2. Inlet and outlet sizes\*
3. Farris type number\*
4. Inlet and outlet flange class\*
5. Set pressure\*
6. Operating temperature\*
7. Relieving temperature\*
8. Allowable overpressure\*
9. Fluid and state\*
10. Required capacity\*
11. Materials of construction if other than standard
12. Accessories, such as test gag
13. Code requirements
14. Any special testing or documentation requirements

\*As a customer service, we verify your sizing and selection. To do this, we must have this information.

### Parts Replacement

**Valves** – If an exact replacement valve is required, then the valve type, size and serial number must be specified to ensure proper dimensions and material being supplied. If a specific valve is obsolete, a recommendation of the current equivalent will be made if possible.

**Spare Parts** – When ordering parts, use part names as listed in the bills of materials. Specify valve type, size and serial number. If the serial number is not available, the original Farris factory order number will help us supply the proper part and material.

**Springs** – Order as an assembly to include spring with upper and lower spring buttons. Specify valve type, size, serial number, set pressure and backpressure, if any.

Note: If valve modification or set pressure changes are required, consideration must be given to correct the nameplate and other data.

### General Notes:

1. Valves with 150# inlet flanges available on application. Consult the factory.
2. The 4200 Series uses a carbon steel open bonnet for all temperature ranges.

## Features and Benefits

**Open bonnet design:** Ensures proper spring cooling for stability and alignment.

**One piece guide:** Ensures precise alignment of valve components.

**Low stem bearing point:** Ensures accurate transmission of spring forces to the disc for greater seat tightness.

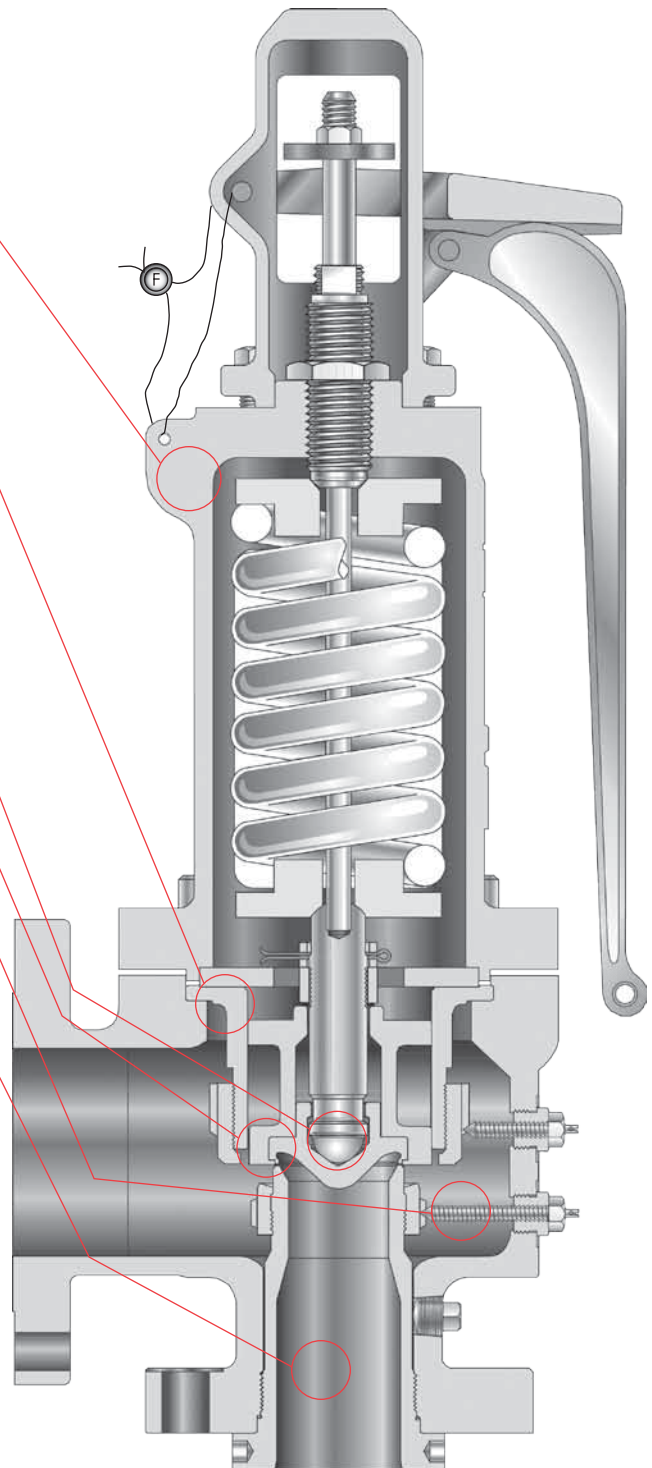
**Temperature equalizing disc:** Quickly conforms to any nozzle distortions experienced during a relief cycle and also assists in maintaining positive sealing.

**Heavy stainless steel lock screw studs:** For positive retention of adjusting ring positions.

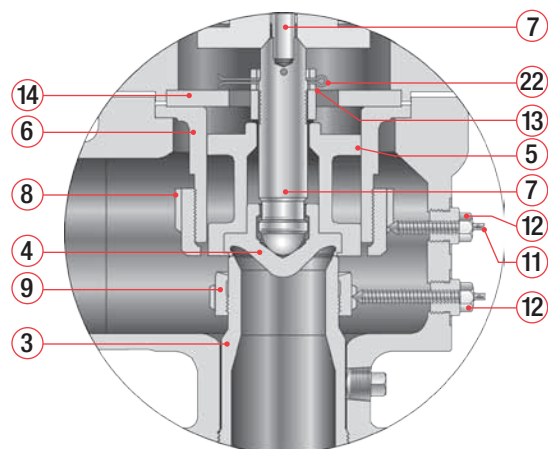
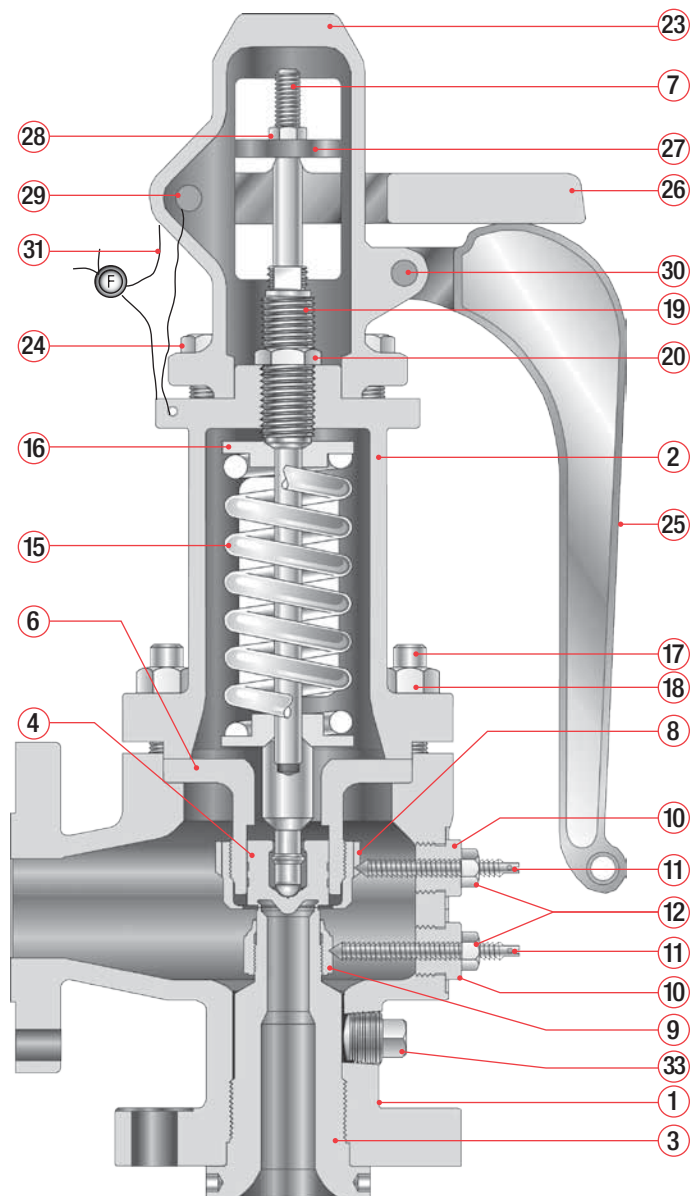
**Full nozzle design:** For longer life and ease of maintenance. Nozzle easier to remove and service than designs using semi-nozzle construction.

### FAST Centers

Look for the FAST tag on every 4200 series safety valve. This tag is your assurance that every valve has been assembled and tested to the highest quality standards. Farris FAST Centers also provide ready access to replacement parts and valves as well as factory trained personnel who can assist you with all of your pressure relief valve requirements.



# 4200 Series Bill of Materials



“L” to “Q” Orifice Detail

## Bill of Materials

Item	Part Name	Material
1	Body (up to 800 °F)	SA-216 GR. WCB Carbon Steel
	Body (801 °F to 1000 °F)	SA-217 GR.WC6 Alloy St. (1 1/4 CR – 1/2 Moly)
2	Bonnet (Open)	SA-216 GR. WCB Carbon Steel
3	Nozzle	316 St. St.
4	Disc	Precipitation Hardened St. St.
5	Disc Holder (L to Q Orifice Only) (up to 800 °F)	Stainless Steel
	(801 °F to 1000 °F)	Monel
6	Guide (Up to 800 °F)	Stainless Steel
	(801 °F to 1000 °F)	Monel
7	Stem	Stainless Steel
8	Adjusting Ring-Upper	Stainless Steel
9	Adjusting Ring-Lower	Stainless Steel
10	Lock Screw (Adj. Ring) (2)	Stainless Steel
11	Lock Screw Stud (Adj. Ring) (2)	Stainless Steel
12	Jam Nut, Lock Screw (2)	Stainless Steel
13	Stem Collar	Stainless Steel
14	Lift Stop (L-Q only)	Stainless Steel
15	Spring (Up to 1000 °F)	Chrome Alloy
16	Spring Buttons (2)	Steel, Pltd.
17	Body Stud	ASME A193 Gr. B7 Alloy St.
18	Hex Nut, Body	ASME A194 Gr. 2H Alloy St.
19	Spring Adjusting Screw	Stainless Steel
20	Jam Nut, Spring Adj. Screw	Stainless Steel
21	Spring Pin (Not Shown)	Steel
22	Cotter Pin	Steel, Pltd.
23	Cap	Iron
24	Cap Screw	Steel
25	Test Lever	Iron
26	Test Lever Fork	Iron
27	Stem Test Nut	Stainless Steel
28	Jam Nut, Stem	Stainless Steel
29	Round Head Rivet (Fork)	Steel
30	Round Head Rivet (Lever)	Steel
31	Wire Seal	St. St. Wire / Lead Seal
32	Nameplate (Not Shown)	Stainless Steel
33	Pipe Plug, Body	Steel
34	Cotter Pin (2) Fork & Lever (Not Shown)	Steel, Pltd.

Built in conformance to ASME Code Section I & Section VIII. Capacity certified by National Board (steam service).





# Selection Table – 4200 Series

US Customary System Units															
Orifice		Valve Size Inlet x Outlet	ANSI Flange Class		Type Number	Maximum Set Pressure, psig								Material	
Letter	Area sq. in.		Inlet RF	Outlet RF		300°F	400°F	500°F	600°F	700°F	800°F	900°F	1000°F	Body & Bonnet <sup>2</sup>	Spring
F	0.316	1 1/4 x 1 1/2	300#	150#	42FA12-170	655	635	605	570	530	410	–	–	Carbon Steel	Chrome Alloy Steel
		1 1/4 x 1 1/2	600#	150#	42FA13-170	1000	1000	1000	1000	1000	825	–	–	Carbon Steel	
		1 1/4 x 1 1/2	300#	150#	42FA32-170	–	–	–	–	–	510	450	215	Chrome Moly Steel	
		1 1/4 x 1 1/2	600#	150#	42FA33-170	–	–	–	–	–	1000	900	430	Chrome Moly Steel	
G	0.518	1 1/4 x 1 1/2	300#	150#	42GA12-170	655	635	605	570	530	410	–	–	Carbon Steel	Chrome Alloy Steel
		1 1/4 x 1 1/2	600#	150#	42GA13-170	1000	1000	1000	1000	1000	825	–	–	Carbon Steel	
		1 1/4 x 1 1/2	300#	150#	42GA32-170	–	–	–	–	–	510	450	215	Chrome Moly Steel	
		1 1/4 x 1 1/2	600#	150#	42GA33-170	–	–	–	–	–	1000	900	430	Chrome Moly Steel	
H	0.809	1 1/2 x 2 1/2	300#	150#	42HA12-170	655	635	605	570	530	410	–	–	Carbon Steel	Chrome Alloy Steel
		1 1/2 x 2 1/2	600#	150#	42HA13-170	1000	1000	1000	1000	1000	825	–	–	Carbon Steel	
		1 1/2 x 2 1/2	300#	150#	42HA32-170	–	–	–	–	–	510	450	215	Chrome Moly Steel	
		1 1/2 x 2 1/2	600#	150#	42HA33-170	–	–	–	–	–	1000	900	430	Chrome Moly Steel	
J	1.325	1 1/2 x 2 1/2	300#	150#	42JA12-170	655	635	605	570	530	410	–	–	Carbon Steel	Chrome Alloy Steel
		1 1/2 x 2 1/2	600#	150#	42JA13-170	1000	1000	1000	1000	1000	825	–	–	Carbon Steel	
		1 1/2 x 2 1/2	300#	150#	42JA32-170	–	–	–	–	–	510	450	215	Chrome Moly Steel	
		1 1/2 x 2 1/2	600#	150#	42JA33-170	–	–	–	–	–	1000	900	430	Chrome Moly Steel	
K	1.897	2 x 3	300#	150#	42KA12-170	655	635	605	570	530	410	–	–	Carbon Steel	Chrome Alloy Steel
		2 x 3	600#	150#	42KA13-170	1000	1000	1000	1000	1000	825	–	–	Carbon Steel	
		2 x 3	300#	150#	42KA32-170	–	–	–	–	–	510	450	215	Chrome Moly Steel	
		2 x 3	600#	150#	42KA33-170	–	–	–	–	–	1000	900	430	Chrome Moly Steel	
L	2.938	2 1/2 x 4	300#	150#	42LA12-170	655	635	605	570	530	410	–	–	Carbon Steel	Chrome Alloy Steel
		2 1/2 x 4	600#	150#	42LA13-170	1000	1000	1000	1000	1000	825	–	–	Carbon Steel	
		2 1/2 x 4	300#	150#	42LA32-170	–	–	–	–	–	510	450	215	Chrome Moly Steel	
		2 1/2 x 4	600#	150#	42LA33-170	–	–	–	–	–	1000	900	430	Chrome Moly Steel	
M	3.822	3 x 4	300#	150#	42MA12-170	655	635	605	570	530	410	–	–	Carbon Steel	Chrome Alloy Steel
		3 x 4	600#	150#	42MA13-170	1000	1000	1000	1000	1000	825	–	–	Carbon Steel	
		3 x 4	300#	150#	42MA32-170	–	–	–	–	–	510	450	215	Chrome Moly Steel	
		3 x 4	600#	150#	42MA33-170	–	–	–	–	–	1000	900	430	Chrome Moly Steel	
N	4.471	4 x 6	300#	150#	42NA12-170	655	635	605	570	530	410	–	–	Carbon Steel	Chrome Alloy Steel
		4 x 6	600#	150#	42NA13-170	1000	1000	1000	1000	1000	825	–	–	Carbon Steel	
		4 x 6	300#	150#	42NA32-170	–	–	–	–	–	510	450	215	Chrome Moly Steel	
		4 x 6	600#	150#	42NA33-170	–	–	–	–	–	1000	900	430	Chrome Moly Steel	
P	6.573	4 x 6	300#	150#	42PA12-170	655	635	605	570	530	410	–	–	Carbon Steel	Chrome Alloy Steel
		4 x 6	600#	150#	42PA13-170	1000	1000	1000	1000	1000	825	–	–	Carbon Steel	
		4 x 6	300#	150#	42PA32-170	–	–	–	–	–	510	450	215	Chrome Moly Steel	
		4 x 6	600#	150#	42PA33-170	–	–	–	–	–	1000	900	430	Chrome Moly Steel	
Q	11.39	6 x 8	300#	150#	42QA12-170	655	635	605	570	530	410	–	–	Carbon Steel	Chrome Alloy Steel
		6 x 8	600#	150#	42QA13-170	1000	1000	1000	1000	1000	825	–	–	Carbon Steel	
		6 x 8	300#	150#	42QA32-170	–	–	–	–	–	510	450	215	Chrome Moly Steel	
		6 x 8	600#	150#	42QA33-170	–	–	–	–	–	1000	900	430	Chrome Moly Steel	

General Notes:

1. Class 150# inlet flanges available on application. Consult the factory.
2. The 4200 Series uses a carbon steel open bonnet for all temperature ranges.

# Selection Table – 4200 Series

Metric System Units															
Orifice		Valve Size Inlet x Outlet	ANSI Flange Class		Type Number	Maximum Set Pressure, barg								Material	
Letter	Area sq. mm.		Inlet RF	Outlet RF		149°C	204°C	260°C	316°C	371°C	427°C	482°C	538°C	Body & Bonnet <sup>2</sup>	Spring
F	204	1 1/4 x 1 1/2	300#	150#	42FA12-170	45.1	43.8	41.7	39.3	36.5	28.3	–	–	Carbon Steel	Chrome Alloy Steel
		1 1/4 x 1 1/2	600#	150#	42FA13-170	68.9	68.9	68.9	68.9	68.9	56.9	–	–	Carbon Steel	
		1 1/4 x 1 1/2	300#	150#	42FA32-170	–	–	–	–	–	35.2	31.0	14.8	Chrome Moly Steel	
		1 1/4 x 1 1/2	600#	150#	42FA33-170	–	–	–	–	–	68.9	62.0	29.6	Chrome Moly Steel	
G	334	1 1/4 x 1 1/2	300#	150#	42GA12-170	45.1	43.8	41.7	39.3	36.5	28.3	–	–	Carbon Steel	Chrome Alloy Steel
		1 1/4 x 1 1/2	600#	150#	42GA13-170	68.9	68.9	68.9	68.9	68.9	56.9	–	–	Carbon Steel	
		1 1/4 x 1 1/2	300#	150#	42GA32-170	–	–	–	–	–	35.2	31.0	14.8	Chrome Moly Steel	
		1 1/4 x 1 1/2	600#	150#	42GA33-170	–	–	–	–	–	68.9	62.0	29.6	Chrome Moly Steel	
H	522	1 1/2 x 2 1/2	300#	150#	42HA12-170	45.1	43.8	41.7	39.3	36.5	28.3	–	–	Carbon Steel	Chrome Alloy Steel
		1 1/2 x 2 1/2	600#	150#	42HA13-170	68.9	68.9	68.9	68.9	68.9	56.9	–	–	Carbon Steel	
		1 1/2 x 2 1/2	300#	150#	42HA32-170	–	–	–	–	–	35.2	31.0	14.8	Chrome Moly Steel	
		1 1/2 x 2 1/2	600#	150#	42HA33-170	–	–	–	–	–	68.9	62.0	29.6	Chrome Moly Steel	
J	855	1 1/2 x 2 1/2	300#	150#	42JA12-170	45.1	43.8	41.7	39.3	36.5	28.3	–	–	Carbon Steel	Chrome Alloy Steel
		1 1/2 x 2 1/2	600#	150#	42JA13-170	68.9	68.9	68.9	68.9	68.9	56.9	–	–	Carbon Steel	
		1 1/2 x 2 1/2	300#	150#	42JA32-170	–	–	–	–	–	35.2	31.0	14.8	Chrome Moly Steel	
		1 1/2 x 2 1/2	600#	150#	42JA33-170	–	–	–	–	–	68.9	62.0	29.6	Chrome Moly Steel	
K	1224	2 x 3	300#	150#	42KA12-170	45.1	43.8	41.7	39.3	36.5	28.3	–	–	Carbon Steel	Chrome Alloy Steel
		2 x 3	600#	150#	42KA13-170	68.9	68.9	68.9	68.9	68.9	56.9	–	–	Carbon Steel	
		2 x 3	300#	150#	42KA32-170	–	–	–	–	–	35.2	31.0	14.8	Chrome Moly Steel	
		2 x 3	600#	150#	42KA33-170	–	–	–	–	–	68.9	62.0	29.6	Chrome Moly Steel	
L	1895	2 1/2 x 4	300#	150#	42LA12-170	45.1	43.8	41.7	39.3	36.5	28.3	–	–	Carbon Steel	Chrome Alloy Steel
		2 1/2 x 4	600#	150#	42LA13-170	68.9	68.9	68.9	68.9	68.9	56.9	–	–	Carbon Steel	
		2 1/2 x 4	300#	150#	42LA32-170	–	–	–	–	–	35.2	31.0	14.8	Chrome Moly Steel	
		2 1/2 x 4	600#	150#	42LA33-170	–	–	–	–	–	68.9	62.0	29.6	Chrome Moly Steel	
M	2466	3 x 4	300#	150#	42MA12-170	45.1	43.8	41.7	39.3	36.5	28.3	–	–	Carbon Steel	Chrome Alloy Steel
		3 x 4	600#	150#	42MA13-170	68.9	68.9	68.9	68.9	68.9	56.9	–	–	Carbon Steel	
		3 x 4	300#	150#	42MA32-170	–	–	–	–	–	35.2	31.0	14.8	Chrome Moly Steel	
		3 x 4	600#	150#	42MA33-170	–	–	–	–	–	68.9	62.0	29.6	Chrome Moly Steel	
N	2885	4 x 6	300#	150#	42NA12-170	45.1	43.8	41.7	39.3	36.5	28.3	–	–	Carbon Steel	Chrome Alloy Steel
		4 x 6	600#	150#	42NA13-170	68.9	68.9	68.9	68.9	68.9	56.9	–	–	Carbon Steel	
		4 x 6	300#	150#	42NA32-170	–	–	–	–	–	35.2	31.0	14.8	Chrome Moly Steel	
		4 x 6	600#	150#	42NA33-170	–	–	–	–	–	68.9	62.0	29.6	Chrome Moly Steel	
P	4241	4 x 6	300#	150#	42PA12-170	45.1	43.8	41.7	39.3	36.5	28.3	–	–	Carbon Steel	Chrome Alloy Steel
		4 x 6	600#	150#	42PA13-170	68.9	68.9	68.9	68.9	68.9	56.9	–	–	Carbon Steel	
		4 x 6	300#	150#	42PA32-170	–	–	–	–	–	35.2	31.0	14.8	Chrome Moly Steel	
		4 x 6	600#	150#	42PA33-170	–	–	–	–	–	68.9	62.0	29.6	Chrome Moly Steel	
Q	7348	6 x 8	300#	150#	42QA12-170	45.1	43.8	41.7	39.3	36.5	28.3	–	–	Carbon Steel	Chrome Alloy Steel
		6 x 8	600#	150#	42QA13-170	68.9	68.9	68.9	68.9	68.9	56.9	–	–	Carbon Steel	
		6 x 8	300#	150#	42QA32-170	–	–	–	–	–	35.2	31.0	14.8	Chrome Moly Steel	
		6 x 8	600#	150#	42QA33-170	–	–	–	–	–	68.9	62.0	29.6	Chrome Moly Steel	

General Notes:

1. Class 150# inlet flanges available on application. Consult the factory.
2. The 4200 Series uses a carbon steel open bonnet for all temperature ranges.



# Steam Capacities – 4200 Series: 3% Overpressure

US Customary Units

ASME Pressure Vessel Code Section I, (V) Stamp: Capacities in Pounds per Hour at Saturation Temperature										
Set Pressure (psig)	Orifice Letter Designations & Areas, Square Inches									
	F	G	H	J	K	L	M	N	P	Q
	0.316	0.518	0.809	1.325	1.897	2.938	3.822	4.471	6.573	11.39
15	450	737	1151	1886	2700	4182	5440	6364	9357	16214
20	521	853	1333	2183	3126	4842	6299	7368	10833	18772
40	805	1318	2059	3373	4830	7480	9731	11384	16736	29002
60	1088	1784	2786	4563	6534	10119	13164	15400	22640	39232
80	1378	2258	3527	5777	8271	12811	16666	19496	28662	49666
100	1670	2737	4276	7003	10026	15529	20201	23632	34742	60203
120	1962	3217	5024	8229	11781	18247	23737	27768	40823	70740
140	2254	3696	5772	9455	13536	20965	27273	31904	46904	81277
160	2547	4175	6521	10680	15291	23683	30809	36040	52984	91814
180	2839	4654	7269	11906	17046	26401	34344	40176	59065	102351
200	3131	5133	8018	13132	18801	29119	37880	44312	65146	112888
220	3424	5613	8766	14358	20556	31837	41416	48449	71227	123425
240	3716	6092	9514	15583	22311	34555	44952	52585	77307	133962
260	4008	6571	10263	16809	24066	37272	48487	56721	83388	144499
280	4301	7050	11011	18035	25821	39990	52023	60857	89469	155036
300	4593	7530	11760	19261	27576	42708	55559	64993	95549	165573
320	4885	8009	12508	20486	29331	45426	59095	69129	101630	176110
340	5178	8488	13257	21712	31086	48144	62630	73265	107711	186647
360	5470	8967	14005	22938	32840	50862	66166	77402	113791	197184
380	5762	9446	14753	24164	34596	53580	69702	81538	119872	207721
400	6055	9926	15502	25389	36350	56298	73238	85674	125953	218257
420	6347	10405	16250	26615	38105	59016	76773	89810	132034	228794
440	6639	10884	16999	27841	39860	61734	80309	93946	138114	239331
460	6932	11363	17747	29067	41615	64452	83845	98082	144195	249868
480	7224	11842	18495	30293	43370	67170	87381	102218	150276	260405
500	7516	12322	19244	31518	45125	69888	90916	106355	156356	270942
520	7809	12801	19992	32744	46880	72606	94452	110491	162437	281479
540	8101	13280	20741	33970	48635	75324	97988	114627	168518	292016
560	8393	13759	21489	35196	50390	78042	101524	118763	174599	302553
580	8686	14238	22237	36421	52145	80760	105059	122899	180679	313090
600	8978	14718	22986	37647	53900	83478	108595	127035	186760	323627
620	9270	15197	23734	38873	55654	86196	112131	131171	192841	334164
640	9563	15676	24483	40099	57409	88914	115667	135308	198921	344701
660	9855	16155	25231	41324	59164	91632	119202	139444	205002	355238
680	10147	16634	25979	42550	60919	94350	122738	143580	211083	365775
700	10440	17114	26728	43776	62674	97068	126274	147716	217164	376312
720	10732	17593	27476	45002	64429	99785	129810	151852	223244	386849
740	11024	18072	28225	46227	66184	102503	133345	155988	229325	397385
760	11317	18551	28973	47453	67939	105221	136881	160124	235406	407922
780	11609	19030	29722	48679	69694	107939	140417	164261	241486	418459
800	11901	19510	30470	49905	71449	110657	143953	168397	247567	428996
820	12194	19989	31218	51131	73204	113375	147488	172533	253648	439533
840	12486	20468	31967	52356	74959	116093	151024	176669	259729	450070
860	12778	20947	32715	53582	76714	118811	154560	180805	265809	460607
880	13071	21426	33464	54808	78468	121529	158096	184941	271890	471144
900	13363	21906	34212	56034	80223	124247	161631	189077	277971	481681
920	13655	22385	34960	57259	81978	126965	165167	193214	284051	492218
940	13948	22865	35709	58486	83734	129684	168703	197350	290133	502755
960	14240	23343	36457	59711	85488	132401	172239	201486	296213	513292
980	14532	23822	37206	60937	87243	135119	175774	205622	302294	523829
1000	14825	24302	37954	62162	88998	137837	179310	209758	308374	534366



# Steam Capacities – 4200 Series: 3% Overpressure

Metric Units

ASME Pressure Vessel Code Section I, (V) Stamp: Capacities in Kilograms per Hour at Saturation Temperature										
Set Pressure (barg)	Orifice Letter Designations & Areas, sq. mm									
	F	G	H	J	K	L	M	N	P	Q
	204	334	522	855	1224	1895	2466	2885	4241	7348
1	200	329	514	842	1206	1868	2430	2843	4179	7242
2	294	482	753	1234	1767	2737	3560	4165	6122	10609
3	387	635	992	1626	2327	3605	4690	5486	8066	13977
4	481	788	1232	2018	2889	4474	5820	6808	10009	17344
5	576	943	1474	2414	3456	5353	6964	8146	11976	20753
6	672	1101	1720	2817	4034	6247	8128	9507	13978	24221
7	768	1259	1966	3221	4612	7142	9292	10869	15979	27690
8	864	1417	2213	3624	5189	8037	10455	12230	17981	31158
9	960	1574	2459	4028	5767	8932	11619	13592	19982	34627
10	1057	1732	2706	4431	6345	9826	12783	14954	21984	38095
11	1153	1890	2952	4835	6922	10721	13947	16315	23985	41564
12	1249	2048	3198	5238	7500	11616	15111	17677	25987	45032
13	1345	2205	3445	5642	8078	12510	16275	19038	27989	48501
14	1442	2363	3691	6046	8655	13405	17439	20400	29991	51969
15	1538	2521	3937	6449	9233	14300	18602	21761	31992	55438
16	1634	2679	4184	6853	9810	15194	19766	23123	33994	58906
17	1730	2836	4430	7256	10388	16089	20930	24484	35995	62375
18	1827	2994	4677	7659	10966	16984	22094	25846	37997	65843
19	1923	3152	4923	8063	11544	17878	23258	27207	39998	69311
20	2019	3310	5169	8466	12121	18773	24422	28569	42000	72780
21	2115	3467	5416	8870	12699	19668	25586	29930	44002	76248
22	2211	3625	5662	9273	13276	20563	26749	31292	46003	79717
23	2307	3783	5908	9677	13854	21457	27913	32653	48005	83185
24	2404	3941	6154	10080	14432	22352	29077	34015	50007	86654
25	2500	4098	6401	10484	15010	23247	30241	35376	52008	90122
26	2596	4256	6647	10887	15588	24141	31405	36738	54010	93591
27	2693	4414	6894	11291	16165	25036	32569	38099	56011	97059
28	2789	4572	7140	11694	16743	25930	33733	39461	58013	100528
29	2885	4729	7386	12098	17320	26825	34896	40822	60014	103996
30	2981	4887	7633	12501	17898	27720	36060	42184	62016	107364
31	3078	5045	7879	12904	18476	28614	37224	43545	64018	110933
32	3174	5203	8125	13308	19053	29509	38388	44907	66019	114402
33	3270	5360	8372	13711	19631	30404	39552	46268	68021	117870
34	3366	5518	8618	14115	20209	31298	40716	47630	70023	121338
35	3462	5676	8865	14519	20786	32193	41880	48991	72024	124807
36	3558	5834	9111	14922	21364	33088	43043	50353	74026	128275
37	3655	5991	9357	15326	21942	33983	44207	51714	76027	131744
38	3751	6149	9604	15729	22519	34877	45371	53076	78029	135212
39	3847	6307	9850	16133	23097	35772	46535	54437	80030	138681
40	3944	6465	10096	16536	23675	36667	47699	55799	82032	142150
41	4040	6622	10343	16940	24253	37561	48863	57160	84034	145618
42	4136	6780	10589	17343	24830	38456	50027	58522	86035	149087
43	4232	6938	10835	17747	25408	39351	51191	59883	88037	152555
44	4328	7096	11082	18150	25985	40245	52355	61245	90039	156023
45	4425	7253	11328	18554	26563	41140	53518	62606	92040	159492
46	4521	7411	11575	18957	27141	42035	54682	63968	94042	162960
47	4617	7569	11821	19361	27719	42929	55846	65329	96043	166429
48	4713	7727	12067	19764	28296	43824	57010	66691	98045	169897
49	4810	7884	12313	20168	28874	44719	58174	68052	100046	173365
50	4906	8042	12560	20571	29451	45614	59338	69414	102048	176834
51	5002	8200	12806	20974	30029	46508	60502	70775	104050	180303
52	5098	8358	13052	21378	30607	47403	61666	72137	106052	183771
53	5195	8515	13299	21781	31185	48298	62829	73498	108053	187240
54	5291	8673	13545	22185	31762	49192	63993	74860	110055	190708
55	5387	8831	13792	22588	32340	50087	65157	76222	112056	194177
56	5483	8989	14038	22992	32917	50981	66321	77583	114058	197645
57	5579	9146	14284	23395	33495	51876	67485	78945	116059	201114
58	5675	9304	14531	23799	34073	52771	68649	80306	118061	204582
59	5772	9462	14777	24202	34651	53665	69813	81668	120063	208050
60	5868	9619	15023	24606	35228	54560	70977	83029	122064	211519
61	5964	9777	15270	25009	35806	55455	72141	84390	124066	214987
62	6061	9935	15516	25413	36384	56349	73304	85752	126068	218456
63	6157	10093	15763	25816	36961	57244	74468	87113	128069	221924
64	6253	10250	16009	26220	37539	58139	75632	88475	130071	225393
65	6349	10408	16255	26623	38116	59034	76796	89836	132072	228861
66	6446	10566	16502	27027	38694	59928	77960	91198	134074	232330
67	6542	10724	16748	27430	39272	60823	79124	92559	136075	235798
68	6638	10881	16994	27834	39850	61718	80288	93920	138077	239267
69	6734	11039	17240	28237	40427	62517	81398	95281	139988	242735



# Steam Capacities – 4200 Series: 10% Overpressure

US Customary Units

ASME Pressure Vessel Code Section VIII, (UV) Stamp: Capacities in Pounds per Hour at Saturation Temperature										
Set Pressure (psig)	Orifice Letter Designations & Areas, Square Inches									
	F	G	H	J	K	L	M	N	P	Q
	0.316	0.518	0.809	1.325	1.897	2.938	3.822	4.471	6.573	11.39
15	464	760	1188	1945	2785	4314	5612	6565	9652	16726
20	534	876	1369	2243	3211	4974	6470	7569	11128	19283
40	833	1365	2132	3492	5000	7744	10075	11786	17327	30025
60	1145	1877	2931	4801	6874	10647	13851	16203	23821	41278
80	1457	2389	3731	6110	8749	13550	17627	20620	30315	52531
100	1769	2900	4530	7420	10623	16452	21403	25037	36808	63784
120	2081	3412	5329	8729	12497	19355	25179	29454	43302	75037
140	2394	3924	6128	10038	14371	22258	28955	33872	49796	86290
160	2706	4436	6928	11347	16245	25160	32731	38289	56290	97543
180	3018	4947	7727	12656	18120	28063	36507	42706	62784	108796
200	3330	5459	8526	13965	19994	30966	40283	47123	69278	120049
220	3642	5971	9326	15274	21868	33868	44059	51541	75772	131302
240	3955	6483	10125	16583	23742	36771	47835	55958	82266	142555
260	4267	6994	10924	17892	25616	39674	51611	60375	88760	153808
280	4579	7506	11723	19201	27490	42576	55387	64792	95254	165061
300	4891	8018	12523	20510	29365	45479	59163	69210	101748	176314
320	5203	8530	13322	21819	31239	48382	62939	73627	108242	187567
340	5516	9042	14121	23128	33113	51284	66715	78044	114736	198820
360	5828	9553	14920	24437	34987	54187	70491	82461	121230	210073
380	6140	10065	15720	25746	36861	57090	74267	86879	127724	221326
400	6452	10577	16519	27056	38736	59992	78043	91296	134218	232580
420	6764	11089	17318	28365	40610	62895	81820	95713	140712	243833
440	7077	11600	18118	29674	42484	65798	85596	100130	147206	255086
460	7389	12112	18917	30983	44358	68701	89372	104548	153700	266339
480	7701	12624	19716	32292	46232	71603	93148	108965	160194	277592
500	8013	13136	20515	33601	48107	74506	96924	113382	166688	288845
520	8325	13648	21315	34910	49981	77409	100700	117799	173182	300098
540	8638	14159	22114	36219	51855	80311	104476	122217	179676	311351
560	8950	14671	22913	37528	53729	83214	108252	126634	186170	322604
580	9262	15183	23712	38837	55603	86117	112028	131051	192664	333857
600	9574	15695	24512	40146	57478	89019	115804	135468	199158	345110
620	9886	16206	25311	41455	59352	91922	119580	139885	205652	356363
640	10199	16718	26110	42764	61226	94825	123356	144303	212146	367616
660	10511	17230	26910	44073	63100	97727	127132	148720	218640	378869
680	10823	17742	27709	45383	64974	100630	130908	153137	225134	390122
700	11135	18253	28508	46692	66848	103533	134684	157554	231627	401375
720	10426	18765	29307	48001	68723	106435	138460	161972	238121	412628
740	11760	19277	30107	49310	70597	109338	142236	166389	244615	423881
760	12072	19789	30906	50619	72471	112241	146012	170806	251109	435134
780	12384	20301	31705	51928	74345	115143	149788	175223	257603	446387
800	12696	20812	32504	53237	76219	118046	153564	179641	264097	457640
820	13008	21324	33304	54546	78094	120949	157340	184058	270591	468893
840	13321	21836	34103	55855	79968	123851	161116	188475	277085	480147
860	13633	22348	34902	57164	81842	126754	164892	192892	283579	491400
880	13945	22859	35702	58473	83716	129657	168669	197310	290073	502653
900	14257	23371	36501	59782	85590	132559	172445	201727	296567	513906
920	14569	23883	37300	61091	87465	135462	176221	206144	303061	525159
940	14882	24395	38099	62400	89339	138365	179997	210561	309555	536412
960	15194	24906	38899	63709	91213	141267	183773	214979	316049	547665
980	15506	25418	39698	65019	93087	144170	187549	219396	322543	558918
1000	15818	25930	40497	66328	94961	147073	191325	223813	329037	570171

# Steam Capacities – 4200 Series: 10% Overpressure

Metric Units

ASME Pressure Vessel Code Section VIII, (UV) Stamp: Capacities in Kilograms per Hour at Saturation Temperature										
Set Pressure (barg)	Orifice Letter Designations & Areas, sq mm									
	F	G	H	J	K	L	M	N	P	Q
	204	334	522	855	1224	1895	2466	2885	4241	7348
1	207	340	531	869	1245	1928	2508	2934	4313	7474
2	301	493	770	1261	1805	2796	3638	4256	6257	10841
3	403	660	1031	1689	2419	3746	4873	5701	8381	14523
4	505	829	1295	2120	3035	4702	6116	7155	10519	18227
5	608	997	1558	2551	3652	5657	7359	8609	12656	21932
6	711	1166	1821	2982	4269	6613	8602	10063	14794	25636
7	814	1334	2084	3413	4886	7568	9845	11517	16932	29340
8	917	1503	2347	3844	5503	8524	11088	12971	19069	33044
9	1019	1671	2610	4275	6120	9479	12331	14425	21207	36748
10	1122	1839	2873	4706	6737	10434	13574	15879	23345	40453
11	1225	2008	3136	5137	7354	11390	14817	17333	25482	44157
12	1328	2176	3399	5567	7971	12345	16060	18787	27620	47861
13	1430	2345	3662	5998	8588	13301	17303	20241	29757	51565
14	1533	2513	3925	6429	9205	14256	18546	21695	31895	55269
15	1636	2682	4189	6860	9822	15212	19789	23149	34033	58973
16	1739	2850	4452	7291	10439	16167	21032	24603	36170	62678
17	1842	3019	4715	7722	11056	17122	22275	26057	38308	66382
18	1944	3187	4978	8153	11672	18078	23518	27511	40445	70086
19	2047	3356	5241	8584	12289	19034	24761	28965	42583	73790
20	2150	3524	5504	9015	12906	19989	26004	30419	44721	77494
21	2253	3693	5767	9446	13523	20945	27247	31873	46858	81198
22	2355	3861	6030	9877	14141	21900	28490	33327	48996	84903
23	2458	4029	6293	10308	14757	22856	29733	34782	51134	88607
24	2561	4198	6556	10739	15374	23811	30975	36235	53271	92311
25	2664	4366	6819	11169	15991	24767	32218	37690	55409	96015
26	2767	4535	7083	11600	16608	25722	33462	39143	57546	99719
27	2869	4703	7346	12031	17225	26678	34704	40598	59684	103424
28	2972	4872	7609	12462	17842	27633	35947	42051	61822	107128
29	3075	5040	7872	12893	18459	28589	37190	43506	63959	110832
30	3177	5209	8135	13324	19076	29544	38434	44959	66097	114536
31	3280	5377	8398	13755	19693	30500	39676	46414	68235	118240
32	3383	5546	8661	14185	20309	31455	40919	47868	70372	121945
33	3486	5714	8924	14616	20926	32411	42162	49322	72510	125649
34	3588	5883	9187	15047	21544	33366	43405	50776	74648	129353
35	3691	6051	9450	15478	22161	34321	44648	52230	76785	133057
36	3794	6219	9713	15909	22778	35277	45891	53684	78923	136761
37	3897	6388	9976	16340	23394	36232	47134	55138	81061	140466
38	3999	6556	10240	16771	24011	37188	48377	56592	83198	144170
39	4102	6725	10503	17202	24628	38143	49620	58046	85336	147874
40	4205	6893	10766	17633	25245	39099	50863	59500	87474	151578
41	4308	7062	11029	18064	25862	40054	52106	60954	89611	155282
42	4411	7230	11292	18495	26479	41010	53349	62408	91749	158987
43	4513	7399	11555	18926	27096	41965	54592	63862	93887	162691
44	4616	7567	11819	19356	27713	42921	55835	65316	96024	166395
45	4719	7736	12082	19787	28330	43876	57078	66770	98162	170099
46	4822	7904	12345	20218	28946	44832	58321	68224	100299	173804
47	4924	8073	12608	20649	29564	45787	59564	69678	102437	177508
48	5027	8241	12871	21080	30181	46743	60807	71132	104575	181212
49	5130	8409	13134	21511	30798	47698	62050	72586	106712	184916
50	5233	8578	13397	21942	31415	48654	63293	74040	108850	188620
51	5336	8746	13660	22373	32031	49609	64536	75494	110987	192325
52	5438	8915	13923	22804	32648	50565	65779	76948	113125	196029
53	5541	9083	14186	23235	33265	51520	67022	78402	115263	199733
54	5644	9252	14449	23666	33882	52476	68265	79856	117400	203437
55	5747	9420	14713	24097	34499	53431	69508	81311	119538	207141
56	5849	9589	14976	24528	35116	54387	70751	82765	121675	210846
57	5952	9757	15239	24958	35733	55342	71994	84219	123813	214550
58	6055	9926	15502	25389	36350	56297	73236	85673	125951	218254
59	6158	10094	15765	25820	36967	57253	74479	87127	128088	221958
60	6261	10263	16028	26251	37584	58208	75723	88581	130226	225662
61	6363	10431	16291	26682	38201	59164	76965	90035	132364	229366
62	6466	10599	16554	27113	38818	60119	78208	91489	134501	233070
63	6569	10768	16817	27544	39435	61075	79451	92943	136639	236775
64	6672	10936	17080	27975	40052	62030	80695	94397	138777	240479
65	6775	11105	17343	28406	40668	62986	81937	95851	140914	244183
66	6877	11273	17606	28837	41285	63941	83180	97305	143052	247887
67	6980	11442	17870	29268	41902	64897	84423	98759	145190	251592
68	7083	11610	18133	29699	42519	65852	85666	100213	147327	255296
69	7200	11803	18433	30191	43224	66944	87086	101874	149769	259526



# Sizing Information

The 4200 Series valves are built in conformance to Section I of the ASME Boiler and Pressure Vessel Code. They are primarily intended for use on steam boilers where ASME Code Section I stamped valves are required.

Sizing is per equation listed below. The orifice areas listed in this catalog are actual areas and should not be confused with API effective orifice areas shown in most process valve catalogs.

## For Steam Service

$$A = \frac{W_s}{51.5P K_d K_{sh}}$$

## Where:

A = Required orifice area in square inches.

P = Relieving pressure in pounds per square inch absolute = set pressure + overpressure + 14.7 psig.

**ASME Code Section I:** Overpressure is 3% of set pressure or 2 psig, whichever is greater

P = 1.03 x set pressure + 14.7 psig **OR** P = set pressure + 2 psig + 14.7 psig.

**ASME Code Section VIII:** Overpressure is 10% of set pressure or 3 psi, whichever is greater

P = 1.10 x set pressure + 14.7 psig **OR** P = set pressure + 3 psig + 14.7 psig.

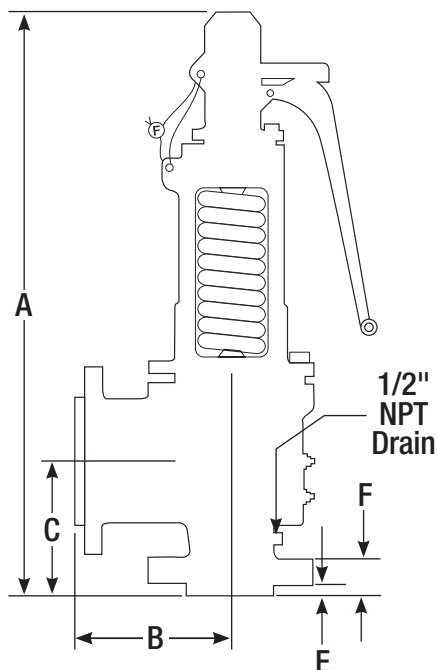
W<sub>s</sub> = Required steam capacity in pounds per hour

K<sub>d</sub> = Coefficient of discharge, 0.872 for all services.

K<sub>sh</sub> = Steam superheat correction factor. See table below.

K <sub>sh</sub> Superheat Correction Factor		Total Temperature in Degrees Fahrenheit																																																									
Set Press psig	Saturated Steam Temp. °F	280	300	320	340	360	380	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	720	740	760	780	800	820	840	860	880	900	920	940	960	980	1000																					
15	250	1.00	1.00	1.00	.99	.99	.98	.98	.97	.96	.95	.94	.93	.92	.91	.90	.89	.88	.87	.86	.86	.85	.84	.83	.83	.82	.81	.81	.80	.79	.79	.78	.78	.77	.76	.76	.75	.75																					
20	259	1.00	1.00	1.00	.99	.99	.98	.98	.97	.96	.95	.94	.93	.92	.91	.90	.89	.88	.87	.86	.86	.85	.84	.83	.83	.82	.81	.81	.80	.79	.79	.78	.78	.77	.76	.76	.75	.75																					
40	287	-	1.00	1.00	1.00	.99	.99	.98	.98	.97	.96	.95	.94	.93	.92	.91	.90	.89	.88	.87	.87	.86	.85	.84	.84	.83	.82	.82	.81	.80	.79	.79	.78	.78	.77	.76	.76	.75	.75																				
60	308	-	-	1.00	1.00	.99	.99	.98	.98	.97	.96	.95	.94	.93	.92	.91	.90	.89	.88	.87	.87	.86	.85	.84	.84	.83	.82	.82	.81	.80	.80	.79	.78	.78	.77	.76	.76	.75	.75																				
80	324	-	-	-	1.00	1.00	.99	.99	.98	.98	.97	.96	.94	.93	.92	.91	.90	.89	.89	.88	.87	.86	.85	.84	.84	.83	.82	.82	.81	.80	.80	.79	.78	.78	.77	.76	.76	.75	.75																				
100	338	-	-	-	-	1.00	1.00	.99	.98	.97	.96	.95	.94	.93	.92	.91	.90	.89	.88	.87	.86	.85	.85	.84	.83	.82	.82	.81	.80	.80	.79	.78	.78	.77	.76	.76	.75	.75																					
120	350	-	-	-	-	1.00	1.00	.99	.98	.97	.96	.95	.94	.93	.92	.91	.90	.89	.88	.87	.86	.85	.85	.84	.83	.82	.82	.81	.80	.80	.79	.78	.78	.77	.76	.76	.75	.75																					
140	361	-	-	-	-	-	1.00	1.00	.99	.98	.96	.95	.94	.93	.92	.91	.90	.89	.88	.87	.86	.85	.85	.84	.83	.82	.82	.81	.80	.80	.79	.78	.78	.77	.76	.76	.75	.75																					
160	371	-	-	-	-	-	-	1.00	1.00	.99	.98	.97	.95	.94	.93	.92	.91	.90	.89	.88	.87	.86	.86	.85	.84	.83	.82	.82	.81	.80	.80	.79	.79	.78	.77	.76	.76	.75	.75																				
180	380	-	-	-	-	-	-	-	1.00	.99	.98	.97	.96	.95	.93	.92	.91	.90	.89	.88	.87	.86	.86	.85	.84	.83	.82	.82	.81	.80	.80	.79	.79	.78	.77	.76	.76	.75	.75																				
200	388	-	-	-	-	-	-	-	-	1.00	.99	.99	.97	.96	.95	.93	.92	.91	.90	.89	.88	.87	.86	.86	.85	.84	.83	.83	.82	.81	.81	.80	.79	.79	.78	.77	.76	.76	.75	.75																			
220	395	-	-	-	-	-	-	-	-	1.00	1.00	.99	.98	.96	.95	.94	.93	.92	.91	.90	.89	.88	.87	.86	.85	.84	.84	.83	.82	.81	.81	.80	.79	.79	.78	.78	.77	.76	.76	.75																			
240	403	-	-	-	-	-	-	-	-	-	1.00	.99	.98	.97	.95	.94	.93	.92	.91	.90	.89	.88	.87	.86	.85	.84	.84	.83	.82	.81	.81	.80	.79	.79	.78	.78	.77	.76	.76	.75																			
260	409	-	-	-	-	-	-	-	-	-	-	1.00	.99	.98	.97	.96	.94	.93	.92	.91	.90	.89	.88	.87	.86	.85	.85	.84	.83	.82	.81	.81	.80	.79	.79	.78	.78	.77	.76	.76	.75																		
280	416	-	-	-	-	-	-	-	-	-	-	-	1.00	1.00	.99	.97	.96	.95	.93	.92	.91	.90	.89	.88	.87	.86	.85	.85	.84	.83	.82	.82	.81	.80	.80	.79	.79	.78	.78	.77	.76	.76																	
300	422	-	-	-	-	-	-	-	-	-	-	-	-	1.00	.99	.98	.96	.95	.93	.92	.91	.90	.89	.88	.87	.86	.85	.85	.84	.83	.82	.82	.81	.80	.80	.79	.78	.78	.77	.76	.76	.75																	
350	436	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	.99	.97	.96	.94	.93	.92	.91	.90	.89	.88	.87	.86	.85	.84	.84	.83	.82	.82	.81	.81	.80	.79	.78	.78	.77	.76	.76	.75																
400	448	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	.99	.98	.96	.95	.93	.92	.91	.90	.89	.88	.87	.86	.85	.84	.84	.83	.82	.82	.81	.81	.80	.79	.79	.78	.78	.77	.76	.76															
450	460	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	.99	.97	.96	.94	.93	.92	.91	.90	.89	.88	.87	.86	.85	.84	.84	.83	.82	.82	.81	.81	.80	.79	.79	.78	.78	.77	.76	.76														
500	470	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	.99	.97	.96	.94	.93	.92	.91	.90	.89	.88	.87	.86	.85	.84	.84	.83	.82	.82	.81	.81	.80	.79	.79	.78	.78	.77	.76	.76													
550	480	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	.99	.97	.95	.94	.92	.91	.90	.89	.88	.87	.86	.85	.84	.84	.83	.82	.82	.81	.81	.80	.79	.78	.78	.77	.76	.76														
600	489	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	.99	.97	.95	.94	.92	.91	.90	.89	.88	.87	.86	.85	.84	.84	.83	.82	.82	.81	.81	.80	.79	.78	.78	.77	.76	.76													
650	497	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	.99	.97	.95	.94	.92	.91	.90	.89	.88	.87	.86	.85	.84	.84	.83	.82	.82	.81	.81	.80	.79	.78	.78	.77	.76	.76												
700	506	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	.99	.97	.95	.94	.92	.91	.90	.89	.88	.87	.86	.85	.84	.84	.83	.82	.82	.81	.81	.80	.79	.78	.78	.77	.76	.76											
750	513	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	1.00	.98	.96	.95	.93	.92	.90	.89	.88	.87	.86	.85	.84	.84	.83	.82	.82	.81	.81	.80	.79	.79	.78	.77	.76	.76										
800	520	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	.99	.97	.95	.94	.92	.91	.90	.88	.87	.86	.85	.84	.84	.83	.82	.82	.81	.81	.80	.79	.78	.78	.77	.76	.76										
850	527	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	.99	.98	.96	.94	.93	.92	.90	.89	.88	.87	.86	.85	.84	.84	.83	.82	.82	.81	.81	.80	.79	.78	.78	.77	.76	.76								
900	533	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	1.00	.99	.97	.95	.93	.92	.90	.89	.88	.87	.86	.85	.84	.84	.83	.82	.82	.81	.81	.80	.79	.78	.78	.77	.76	.76							
950	540	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	.99	.97	.95	.93	.92	.91	.89	.88	.87	.86	.85	.84	.84	.83	.82	.82	.81	.81	.80	.79	.78	.78	.77	.76	.76							
1000	546	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	.99	.97	.95	.93	.92	.91	.89	.88	.87	.86	.85	.84	.84	.83	.82	.82	.81	.81	.80	.79	.79	.78	.77	.76	.76						
1050	552	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	.99	.97	.95	.93	.92	.91	.89	.88	.87	.86	.85	.84	.84	.83	.82	.82	.81	.81	.80	.79	.78	.78	.77	.76	.76					
1100	558	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	.99	.98	.95	.94	.92	.91	.89	.88	.87	.86	.85	.84	.84	.83	.82	.82	.81	.81	.80	.79	.78	.78	.77	.76	.76				
1150	563	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	.99	.98	.96	.94	.92	.91	.89	.88	.87	.86	.85	.84	.84	.83	.82	.82	.81	.81	.80	.79	.78	.78	.77	.76	.76			
1200	569	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	.99	.98	.97	.95	.93	.92	.91	.89	.88	.87	.86	.85	.84	.84	.83	.82	.82	.81	.81	.80	.79	.78	.78	.77	.76	.76	
1250	574	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	.99	.97	.95	.93	.92	.91	.89	.88	.87	.86	.85	.84	.84	.83	.82	.82	.81	.81	.80	.79	.78	.78	.77	.76	.76	
1300	579	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.00	.99	.98	.96	.94	.92	.91	.89	.88	.87	.86	.85	.84	.84	.83	.82	.82	.81	.81	.80	.79	.78	.78	.77	.76	.76
1350	584	-	-																																																								

## Dimensions & Weights



Valve Size Inlet x Outlet	Type Number	ANSI Flange Class		U.S. Standard Dimensions (Inches)					Approx. Weight Lbs.	Metric Dimensions (millimeters)					Approx. Weight kg
		Inlet RF	Outlet RF	A	B	C	E	F		A	B	C	E	F	
1 1/4 x 1 1/2	42FA12-170	300#	150#	17 7/8	4 3/16	4 13/32	11/16	1 9/16	40	455	107	112	18	40	18
	42FA13-170	600#	150#	17 7/8	4 3/16	4 13/32	11/16	1 9/16	40	455	107	112	18	40	18
1 1/4 x 1 1/2	42GA12-170	300#	150#	17 7/8	4 3/16	4 13/32	11/16	1 9/16	40	455	107	112	18	40	18
	42GA13-170	600#	150#	17 7/8	4 3/16	4 13/32	11/16	1 9/16	40	455	107	112	18	40	18
1 1/2 x 2 1/2	42HA12-170	300#	150#	21 1/2	4 7/8	4 3/4	11/16	1 5/8	69	547	124	121	18	42	31
	42HA13-170	600#	150#	21 1/2	4 7/8	4 3/4	11/16	1 5/8	69	547	124	121	18	42	31
1 1/2 x 2 1/2	42JA12-170	300#	150#	21 1/2	4 7/8	4 3/4	11/16	1 5/8	71	547	124	121	18	42	32
	42JA13-170	600#	150#	21 1/2	4 7/8	4 3/4	11/16	1 5/8	71	547	124	121	18	42	32
2 x 3	42KA12-170	300#	150#	21 3/4	5 9/16	5 1/4	11/16	1 3/4	83	553	142	134	18	45	38
	42KA13-170	600#	150#	21 3/4	5 9/16	5 1/4	11/16	1 3/4	83	553	142	134	18	45	38
2 1/2 x 4	42LA12-170	300#	150#	28 1/4	6 5/16	6 1/8	11/16	1 15/16	138	718	161	156	18	50	63
	42LA13-170	600#	150#	28 1/4	6 5/16	6 1/8	11/16	1 15/16	138	718	161	156	18	50	63
3 x 4	42MA12-170	300#	150#	29 1/4	6 7/16	6 1/2	11/16	2	164	743	164	166	18	51	74
	42MA13-170	600#	150#	29 1/4	6 7/16	6 1/2	11/16	2	164	743	164	166	18	51	74
4 x 6	42NA12-170	300#	150#	33 1/4	7 7/16	7 11/16	11/16	2 1/4	250	845	189	196	18	58	113
	42NA13-170	600#	150#	33 1/4	7 7/16	7 11/16	11/16	2 1/4	250	845	189	196	18	58	113
4 x 6	42PA12-170	300#	150#	33 1/4	8 3/16	7 11/16	11/16	2 1/4	260	845	208	196	18	58	118
	42PA13-170	600#	150#	33 1/4	8 3/16	7 11/16	11/16	2 1/4	260	845	208	196	18	58	118
6 x 8	42QA12-170	300#	150#	41 1/8	9 3/8	10 5/16	11/16	2 5/8	438	1045	239	262	18	67	199
	42QA13-170	600#	150#	41 1/8	9 3/8	10 5/16	11/16	2 5/8	438	1045	239	262	18	67	199

# Conversion Factors

Area		
To Convert From	To	Multiply By
Square Inches	Square Centimeters	6.452
	Square Millimeters	645.2
	Square Feet	0.006944

Density		
To Convert From	To	Multiply By
Pounds Per Cubic Feet	Pounds/US Gallon	0.1337
	Pounds/Cubic Inch	0.0005787
	Grams/Cubic Centimeter	0.01602
	Kilograms/Cubic Meter	16.018

Flow Rate (Mass)		
To Convert From	To	Multiply By
Pounds Per Hour	Kilograms Per Hour	0.4536
	Tons Per Hour (Short)	0.0005

Flow Rate (Volume)		
To Convert From	To	Multiply By
Gallons Per Minute	Cubic Feet Per Second	0.02228
	Liters Per Minute	3.785
	Liters Per Second	0.06308
	Meters Cubed Per Hour	0.2271

Length		
To Convert From	To	Multiply By
Feet	Centimeters	30.48
	Inches	12
	Millimeters	304.8
	Meters	0.3048
	Miles	0.000189
Meters	Yards	0.3333
	Centimeters	100.0
	Feet	3.281
	Inches	39.37
	Millimeters	1000.0
	Yards	1.094

Mass (Weight)		
To Convert From	To	Multiply By
Pounds	Cubic Feet of Water	0.01603
	Gallons of Water	0.11995
	Grams	453.6
	Kilograms	0.4536
	Ounces	16
	Tons (Short)	0.0005
	Tons (Long)	0.0004464
	Tons (Metric)	0.0004536

Pressure		
To Convert From	To	Multiply By
Atmospheres	Bars	1.013
	Feet of Water	33.96
	Inches of Mercury	29.92
	Inches of Water	407.50
	Kilograms per cm <sup>2</sup>	1.033
	Millimeters of Mercury	760.00
	Pounds per square inch	14.70
Pounds Per Sq. In.	Bars	0.06895
	Feet of Water	2.31
	Inches of Mercury	2.036
	Inches of Water	27.73
	Millimeters of Mercury	51.71
	Kilograms per square cm	0.07031
	Kilopascals	6.895

Temperature Conversion Equations	
Celsius (C) =	5/9 x (Fahrenheit - 32)
Fahrenheit (F) =	(9/5 x Celsius) + 32
Kelvin (K) =	Celsius + 273.15
Rankin (R) =	Fahrenheit + 459.67

Viscosity (Absolute or Dynamic)		
To Convert From	To	Multiply By
Centipoise	lbf-sec/ft. <sup>2</sup>	0.000208854
Centipoise	kg-sec/meter <sup>2</sup>	0.000102
Lbf-sec/sq. ft.	Pascal-sec	47.8803
Pascal sec.	Centipoise	1000
Poise (gm/cm-sec)	Centipoise	100

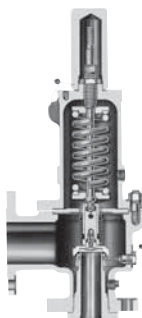
Viscosity (Kinematic)		
To Convert From	To	Multiply By
Centistokes	Stokes	0.01
Centistokes	sq. meters/sec	0.000001
Square Feet/Sec.	Centistokes	92903.04
Square Feet/Sec.	Square meters/sec	0.092903
Viscosity (Absolute to Kinematic)		
Centipoise	Centistokes	1/density (g/cm3)

Volume		
To Convert From	To	Multiply By
Gallons (US)	Barrels	0.02381
	Cubic Inches	231.0
	Cubic Feet	0.1337
	Cubic Centimeters (or ml)	3785
	Imperial Gallons	0.8327
	Liters	3.785

Miscellaneous		
To Convert From	To	Multiply By
Specific Gravity-Gas, Water (Cubic Feet @ 60°F)	Molecular Weight-Gas	28.970
	Pounds per Cubic Feet @ 60°F	62.37
	Imperial Gallons	0.8327
	Liters	3.785

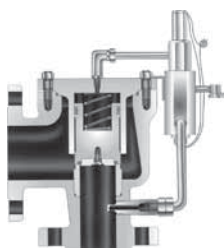
# Farris Engineering Products

## Process Pressure Relief Valves



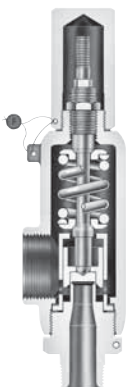
### SERIES 2600/2600L

- ASME NB Certified: Air, Steam & Water
- Sizes: 1" x 2" to 20" x 24"
- Pressure Range: 15 psig to 6000 psig
- Temperature Range: -450°F to +1500°F
- Materials: Carbon Steel, Stainless Steel, Monel & Hastelloy C
- Options: Balanced Bellows, O-Ring Seat, Open Bonnet
- CE Approved



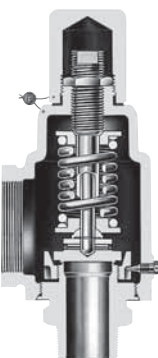
### SERIES 3800 Pilot Operated

- ASME NB Certified: Air, Steam & Water
- Sizes: 1" x 2" to 12" x 16"
- Pressure Range: 15 psig to 6170 psig
- Temperature Range: -450°F to +500°F
- Materials: Carbon Steel, Stainless Steel, Monel & Hastelloy C
- Actuation: Snap and Modulating Controls
- Options: Field Test Connections, Reverse Flow Preventer, Remote Depressurizing & Auxiliary Filters
- CE Approved



### SERIES 2700

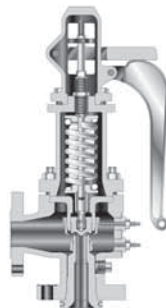
- ASME NB Certified: Air, Steam & Water
- Sizes: ½" x 1" to 1½" x 2½"
- Pressure Range: 15 psig to 6500 psig
- Temperature Range: -450°F to +750°F
- Materials: Carbon Steel, Stainless Steel, Monel & Hastelloy C
- Options: Balanced Design, O-Ring Seats, Flanged, Socket Weld, Welding Nipple, & Sanitary Connections
- CE Approved



### SERIES 2850/2856

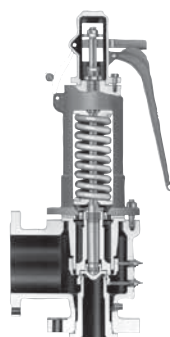
- ASME NB Certified: Air & Steam
- Sizes: ¾" x 1" to 1½" x 2" (2850)  
¾" x 1¼" to 2" x 3" (2856)
- Pressure Range: 15 psig to 300 psig
- Temperature Range: -20° F to +750°F (2850)  
-450° F to +400°F (2856)
- Materials: Stainless Steel Body & Trim  
Steel Bonnet (2850) Brass Body & Trim,  
Bronze Bonnet (2856)

## Steam Safety Valves



### SERIES 4200

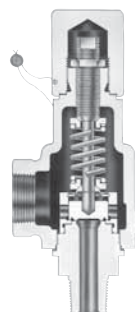
- ASME NB Section I & VIII Certified: Steam & Air
- Sizes 1¼" x 1½" to 6" x 8"
- Pressure Range: 15 psig to 1000 psig
- Temperature Range: -20°F to +1000°F
- Materials: Carbon Steel, Stainless Steel, Chrome-Moly
- Options: Test Gag
- CE Approved



### SERIES 6400/6600

- ASME NB Section I & VIII Certified: Steam & Air
- Sizes: 1" x 2" to 4" x 6"
- Pressure Range: 15 psig to 1500 psig
- Temperature Range: -20°F to +1000°F
- Materials: Carbon Steel, Stainless Steel, Chrome-Moly
- Options: Closed Bonnet (6600) & Test Gag

## Special Purpose Pressure Relief Valves



### SERIES 1890/1896M

- ASME NB Certified: Air, Steam & Water
- Sizes: ½" x 1" & ¾" x 1" (1890)  
½" x ¾" & ¾" x ¾" (1896M)
- Pressure Range: 15 psig to 800 psig (1890) 15 psig to 300 psig (1896M)
- Temperature Range: -20°F to +750°F (1890) -450°F to +400°F (1896M)
- Materials: Stainless Steel Body & Trim (1890) Brass Body & Trim, Bronze Bonnet (1896M)

\*Other materials available upon request. Please consult the factory.

# Farris Engineering Products and Services

## Process Pressure Relief Valves

Series 2600	ASME NB Certified for Air, Steam and Water
Series 2600L	ASME NB Dual Certified for Air and Water
Series 3800	ASME NB Certified for Air, Steam and Water
Series 2700	ASME NB Certified for Air, Steam and Water
Series 1890/1896M	ASME NB Certified for Air, Steam and Water
Series 2850/2856	ASME NB Certified for Air and Steam

## Steam Safety Valves

Series 4200	ASME NB Certified for Steam – Section I & VIII
Series 6400/6600	ASME NB Certified for Steam – Section I & VIII
Series 560	ASME NB Certified for Steam – Section I

## Nuclear Pressure Relief Valves

Series 4700/4700L	ASME NB Section III, Division 1 Class I, II & III
Series 2700/3700	ASME NB Section III, Division 1 Class I, II & III
Series 2600/2600L	ASME NB Section III, Division 1 Class I, II & III
Series 3800	ASME NB Section III, Division 1 Class I, II & III

## The following is a list of Farris approvals currently on record:

- ASME “V”, “UV”, “NV”, and “NPT”
- National Board “NB” approval
- ISO 9001-2008
- US Coast Guard
- PED 97/23/EC (European Pressure Equipment Directive)
- ATEX 94/9/EC (European Potentially Explosive Atmospheres)
- CSA B51 (Canadian Registration)
- CSQL (China Safety Quality License)
- Russian GOST-R Certification and RTN Permit
- First Point Assessment Limited
- Nuclear – 10 CFR 50 Appendix B, NCA-4000, NQA-1, N285.0



## SizeMaster™ Mark IV

Pressure Relief Valve Engineering Software for Sizing and Selection

## FAST Centers (Farris Authorized Service Team)

- Worldwide Network of Service Centers with Factory Trained Technicians
- Local Inventory and Support, 24 Hours a Day, 7 Days a Week
- Access to Worldwide Farris Inventory through the Web
- ASME/National Board Approved Assembly, Repair & Test Facilities
- Application, Sizing & Selection Support

## PSM Engineering Services

- Pressure Relief System Design Services
- Pressure Relief System Audit Services
- iPRSM Pressure Relief System Management Software



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**Facilities:** Brecksville, Ohio, USA; Brantford, Ontario, Edmonton, Alberta, Canada; Bridport, Dorset, UK; Delhi, India; Tianjin, Beijing, China; Dubai, U.A.E.

**Offices Worldwide:** For a listing of our global sales network, visit our website at <http://farris.cwfc.com>.

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