

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 ¹		Inlet Facing		Cap Construction	Test Gag	
42	Orifice Letter	Actual Area Sq. In.	Actual Area mm ²	A	Metal Seat	Designation	Inlet Temperature	Material		0 150'	1 Raised Face 9 Ring Joint	7 Open Lever	0 No Gag 1 Test Gag
								Body & Bonnet	Spring				
	F	0.316	204			1	up to 800 °F (427 °C)	Carbon Steel	Chrome Alloy				
	G	0.518	334										
	H	0.809	522			3	801 to 1000 °F (427 to 538 °C)	Chrome Moly Steel ²	Chrome Alloy				
	J	1.325	855										
	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.

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.

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.

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.

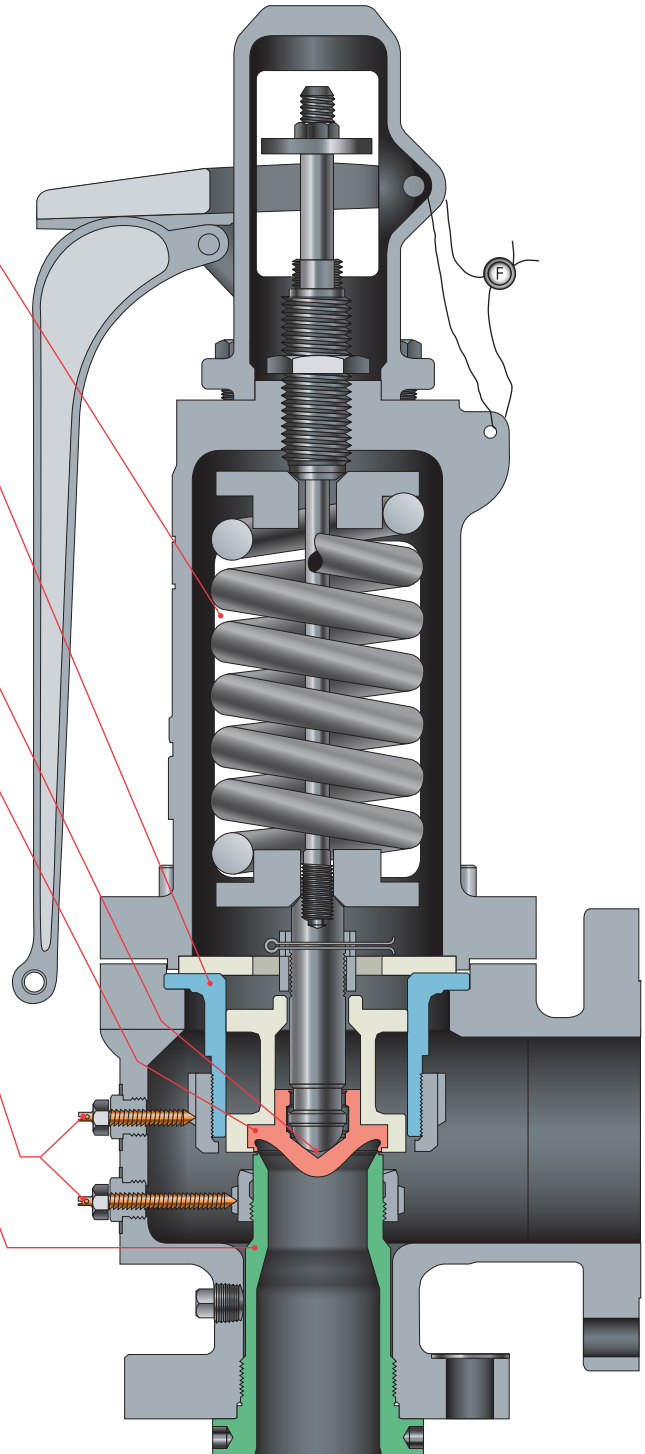
Temperature equalizing disc: Quickly conforms to any nozzle distortions experienced during a relief cycle and also assists in maintaining positive sealing.

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

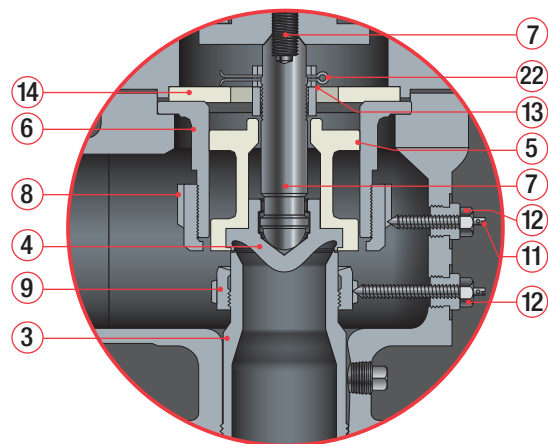
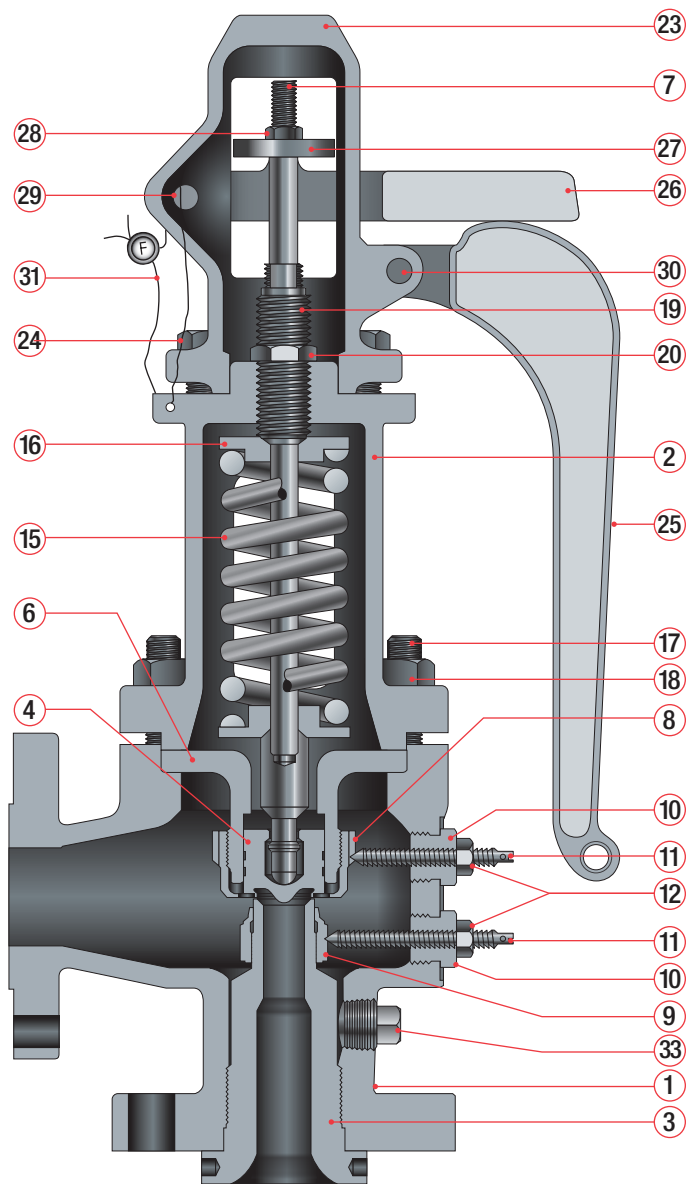
Full nozzle design: For longer life and ease of maintenance. Nozzle easier to remove and service than designs using semi-nozzle construction.

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 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 to 1000 °F)	Monel
6	Guide (Up to 800 °F)	Stainless Steel
	(801 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, Plt'd.
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, Plt'd.
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, Plt'd.

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 ²	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	–	–		
		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		
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	–	–		
		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		
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	–	–		
		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		
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	–	–		
		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		
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	–	–		
		2 x 3	300#	150#	42KA32-170	–	–	–	–	–	510	450	215	Chrome Moly Steel	
		2 x 3	600#	150#	42KA33-170	–	–	–	–	–	1000	900	430		
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	–	–		
		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		
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	–	–		
		3 x 4	300#	150#	42MA32-170	–	–	–	–	–	510	450	215	Chrome Moly Steel	
		3 x 4	600#	150#	42MA33-170	–	–	–	–	–	1000	900	430		
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	–	–		
		4 x 6	300#	150#	42NA32-170	–	–	–	–	–	510	450	215	Chrome Moly Steel	
		4 x 6	600#	150#	42NA33-170	–	–	–	–	–	1000	900	430		
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	–	–		
		4 x 6	300#	150#	42PA32-170	–	–	–	–	–	510	450	215	Chrome Moly Steel	
		4 x 6	600#	150#	42PA33-170	–	–	–	–	–	1000	900	430		
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	–	–		
		6 x 8	300#	150#	42QA32-170	–	–	–	–	–	510	450	215	Chrome Moly Steel	
		6 x 8	600#	150#	42QA33-170	–	–	–	–	–	1000	900	430		

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 ²	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	1867	2429	2842	4178	7239
2	294	482	753	1233	1766	2735	3558	4163	6120	10605
3	387	635	992	1625	2327	3603	4688	5484	8062	13970
4	481	788	1231	2016	2887	4472	5817	6804	10004	17335
5	575	943	1473	2413	3454	5350	6960	8142	11969	20741
6	671	1101	1719	2816	4032	6244	8123	9502	13970	24207
7	767	1258	1965	3219	4609	7138	9286	10863	15970	27673
8	864	1416	2212	3622	5186	8032	10449	12223	17970	31140
9	960	1574	2458	4026	5763	8926	11612	13584	19970	34606
10	1056	1731	2704	4428	6341	9820	12775	14944	21971	38072
11	1152	1889	2950	4832	6918	10714	13938	16305	23971	41538
12	1248	2047	3197	5235	7495	11609	15101	17665	25971	45004
13	1344	2204	3442	5638	8073	12503	16264	19026	27971	48470
14	1441	2362	3689	6041	8650	13397	17427	20387	29972	51936
15	1537	2519	3935	6445	9227	14291	18590	21747	31972	55402
16	1633	2677	4181	6848	9805	15185	19754	23108	33972	58869
17	1729	2835	4427	7251	10382	16079	20917	24469	35972	62335
18	1825	2992	4673	7655	10959	16973	22080	25829	37973	65801
19	1921	3150	4920	8058	11536	17867	23243	27190	39973	69267
20	2018	3308	5166	8461	12113	18761	24406	28550	41973	72733
21	2114	3465	5412	8864	12691	19655	25569	29911	43973	76199
22	2210	3623	5658	9268	13268	20549	26732	31272	45974	79665
23	2306	3780	5905	9670	13845	21443	27895	32632	47974	83132
24	2402	3938	6150	10074	14423	22338	29059	33993	49974	86598
25	2498	4096	6397	10477	15000	23232	30222	35353	51974	90064
26	2595	4253	6643	10880	15577	24126	31385	36714	53975	93530
27	2691	4411	6889	11283	16155	25020	32548	38074	55975	96996
28	2787	4569	7135	11687	16732	25914	33711	39435	57975	100462
29	2883	4727	7381	12090	17309	26808	34874	40795	59975	103928
30	2979	4884	7628	12493	17886	27702	36037	42156	61976	107394
31	3075	5042	7874	12896	18464	28596	37200	43517	63976	110861
32	3172	5199	8120	13300	19041	29490	38363	44877	65976	114327
33	3268	5357	8366	13703	19618	30384	39526	46238	67976	117793
34	3364	5514	8613	14106	20196	31278	40689	47599	69977	121259
35	3460	5672	8859	14509	20773	32172	41852	48959	71977	124725
36	3556	5830	9105	14912	21350	33066	43015	50320	73977	128191
37	3652	5988	9351	15315	21927	33960	44178	51680	75978	131657
38	3749	6145	9597	15719	22504	34854	45341	53041	77978	135123
39	3845	6303	9844	16122	23082	35748	46505	54402	79978	138590
40	3941	6460	10089	16525	23659	36643	47668	55762	81978	142056
41	4037	6618	10336	16928	24236	37537	48831	57123	83979	145522
42	4133	6775	10582	17332	24814	38431	49994	58483	85979	148988
43	4229	6933	10828	17735	25391	39325	51157	59844	87979	152454
44	4326	7091	11074	18138	25968	40219	52320	61204	89979	155920
45	4422	7249	11320	18541	26546	41113	53483	62565	91980	159386
46	4518	7406	11567	18945	27123	42007	54646	63925	93980	162853
47	4614	7564	11813	19348	27700	42901	55810	65286	95980	166319
48	4710	7721	12059	19751	28277	43795	56973	66647	97980	169785
49	4806	7879	12305	20154	28855	44689	58136	68007	99981	173251
50	4903	8036	12552	20557	29432	45583	59299	69368	101981	176717
51	4999	8194	12798	20960	30009	46477	60462	70728	103981	180184
52	5095	8352	13044	21364	30587	47371	61625	72089	105981	183649
53	5191	8510	13290	21767	31164	48265	62788	73450	107982	187115
54	5287	8667	13536	22170	31741	49159	63951	74810	109982	190582
55	5383	8825	13783	22573	32319	50053	65114	76171	111982	194048
56	5479	8983	14028	22977	32896	50948	66277	77532	113982	197514
57	5576	9140	14275	23380	33473	51842	67440	78892	115982	200980
58	5672	9298	14521	23783	34050	52736	68603	80253	117983	204446
59	5768	9455	14767	24186	34627	53630	69766	81613	119983	207913
60	5864	9613	15013	24590	35205	54524	70929	82974	121983	211379
61	5960	9771	15260	24993	35782	55418	72092	84334	123983	214844
62	6056	9928	15506	25396	36359	56312	73255	85695	125984	218311
63	6153	10086	15752	25799	36937	57206	74419	87055	127984	221777
64	6249	10244	15998	26202	37514	58100	75582	88416	129985	225243
65	6345	10401	16244	26605	38091	58994	76745	89777	131984	228709
66	6441	10559	16491	27009	38668	59888	77908	91137	133985	232175
67	6537	10716	16737	27412	39246	60782	79071	92498	135985	235642
68	6633	10874	16983	27815	39823	61676	80234	18305	137986	239108
69	6730	11032	17229	28218	40400	62570	81397	95219	139985	242574



Steam Capacities – 4200 Series: 10% Overpressure

US Customary Units

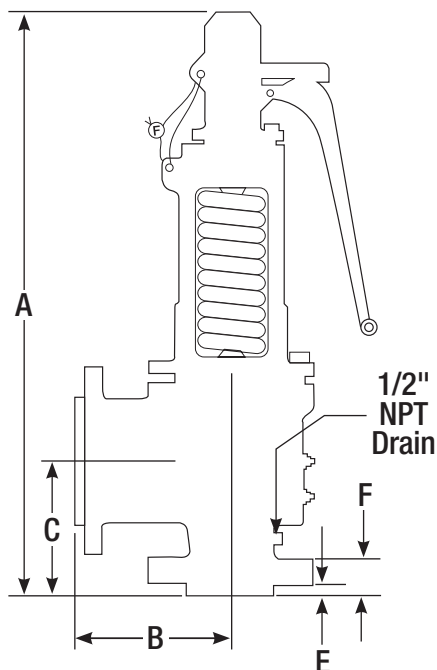
ASME Pressure Vessel Code Section VIII, (UV) Stamp: Capacities in Pounds per Hour at Saturation Temperature										
Set Pressure (psig)	Orifice Letter Designations & Areas, Square Inches									
	F	G	H	J	K	L	M	N	P	Q
	0.316	0.518	0.809	1.325	1.897	2.938	3.822	4.471	6.573	11.39
15	464	760	1188	1945	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	530	869	1244	1927	2507	2933	4311	7472
2	300	493	769	1261	1805	2795	3636	4254	6254	10837
3	402	660	1031	1688	2417	3744	4871	5698	8377	14516
4	505	828	1294	2119	3034	4699	6113	7151	10513	18217
5	608	997	1557	2550	3651	5654	7355	8604	12649	21919
6	711	1165	1819	2980	4267	6608	8597	10057	14785	25621
7	813	1333	2082	3411	4883	7563	9839	11510	16922	29323
8	916	1502	2346	3842	5500	8518	11081	12963	19058	33024
9	1019	1670	2608	4272	6116	9473	12323	14416	21194	36726
10	1121	1838	2871	4703	6733	10428	13565	15869	23330	40428
11	1224	2007	3134	5133	7350	11383	14808	17322	25466	44129
12	1327	2175	3397	5564	7966	12337	16050	18775	27602	47831
13	1429	2343	3660	5995	8583	13292	17292	20228	29730	51533
14	1532	2512	3923	6425	9199	14247	18534	21681	31875	55234
15	1635	2680	4186	6856	9815	15202	19776	23135	34011	58936
16	1738	2849	4449	7287	10432	16157	21018	24587	36147	62638
17	1840	3017	4712	7717	11049	17112	22260	26041	38283	66339
18	1943	3185	4975	8148	11665	18066	23503	27494	40419	70041
19	2046	3353	5238	8578	12282	19021	24745	28946	42556	73743
20	2148	3522	5500	9009	12898	19976	25987	30400	44692	77444
21	2251	3690	5763	9439	13515	20931	27229	31853	46828	81146
22	2354	3858	6026	9870	14131	21886	28471	33306	48964	84848
23	2456	4027	6289	10301	14748	22841	29713	34759	51100	88550
24	2559	4195	6552	10731	15364	23795	30955	36212	53237	92251
25	2662	4364	6815	11162	15981	24750	32197	37665	55373	95953
26	2765	4532	7078	11593	16597	25706	33440	39118	57509	99655
27	2867	4700	7341	12023	17214	26660	34682	40571	59645	103356
28	2970	4868	7604	12454	17830	27615	35924	42024	61782	107058
29	3073	5037	7867	12885	18447	28570	37166	43477	63918	110760
30	3175	5206	8130	13315	19063	29525	38408	44930	66054	114461
31	3278	5374	8393	13746	19680	30480	39651	46383	68190	118163
32	3381	5542	8656	14176	20296	31434	40892	47836	70326	121865
33	3484	5710	8918	14607	20913	32389	42134	49290	72463	125566
34	3586	5879	9181	15038	21529	33344	43377	50742	74599	129268
35	3689	6047	9444	15468	22146	34299	44619	52195	76735	132970
36	3792	6215	9707	15899	22763	35254	45861	53649	78871	136671
37	3894	6384	9970	16330	23379	36209	47103	55102	81007	140373
38	3997	6552	10233	16760	23995	37163	48345	56555	83144	144075
39	4100	6721	10496	17191	24612	38118	49588	58008	85280	147777
40	4202	6889	10759	17621	25228	39073	50830	59461	87416	151478
41	4305	7057	11022	18052	25845	40028	52071	60914	89552	155180
42	4408	7225	11285	18482	26462	40983	53314	62367	91688	158882
43	4511	7394	11548	18913	27078	41938	54556	63820	93824	162583
44	4613	7562	11810	19344	27695	42892	55798	65273	95960	166285
45	4716	7731	12073	19774	28311	43847	57040	66726	98097	169987
46	4819	7899	12337	20205	28927	44802	58282	68179	100233	173688
47	4921	8067	12599	20636	29544	45757	59525	69632	102369	177390
48	5024	8236	12862	21066	30161	46712	60767	71085	104505	181092
49	5127	8404	13125	21497	30777	47667	62009	72538	106641	184793
50	5229	8572	13388	21927	31394	48621	63251	73991	108778	188495
51	5332	8740	13651	22358	32010	49576	64493	75445	110914	192197
52	5435	8909	13914	22789	32627	50531	65735	76897	113050	195899
53	5538	9077	14177	23219	33243	51486	66977	78350	115186	199600
54	5640	9246	14440	23650	33860	52441	68219	79804	117323	203302
55	5743	9414	14703	24081	34476	53396	69462	81257	119459	207004
56	5846	9582	14966	24511	35093	54350	70704	82709	121595	210705
57	5948	9751	15229	24942	35709	55305	71946	84163	123731	214407
58	6051	9919	15491	25373	36326	56260	73188	85616	125867	218109
59	6154	10088	15754	25803	36942	57215	74430	87069	128004	221810
60	6257	10256	16018	26234	37559	58170	75672	88522	130140	225512
61	6359	10424	16280	26664	38175	59124	76914	89975	132276	229214
62	6462	10592	16543	27095	38792	60079	78157	91428	134412	232916
63	6564	10761	16806	27525	39408	61034	79399	92881	136548	236617
64	6667	10929	17069	27956	40025	61989	80641	94334	138685	240319
65	6770	11097	17332	28387	40641	62944	81883	95787	140821	244021
66	6872	11266	17595	28817	41258	63899	83125	97240	142957	247722
67	6975	11434	17858	29248	41875	64853	84367	98693	145093	251424
68	7078	11603	18121	29679	42491	65808	85609	100146	147229	255126
69	7180	11771	18384	30109	43107	66763	86851	101599	149365	258828

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 ¹	C ¹	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

General Notes

1. Tolerances for the B and C center-to-face dimensions are $\pm 1/16$ inch for valve inlet sizes up to and including 4 inch and $\pm 1/8$ inch for valve inlet sizes larger than 4 inch.

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 ²	1.033
	Millimeters of Mercury	760.00
Pounds Per Sq. In.	Pounds per square inch	14.70
	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. ²	0.000208854
Centipoise	kg-sec/meter ²	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

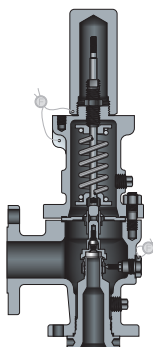
Viscosity – Absolute to Kinematic		
To Convert From	To	Multiply By
Centipoise	Centistokes	1/density (g/cm ³)

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

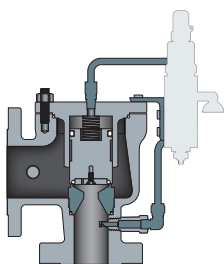
Farris Engineering Products

Process Pressure Relief Valves



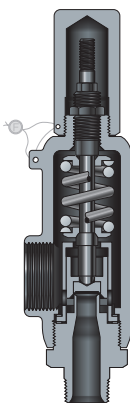
SERIES 2600/2600L

- 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

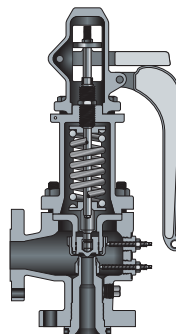
- ASME NB Certified: Air, Steam & Water
- Sizes: 1" x 2" to 12" x 16"
- Pressure Range: 15 psig to 6170 psig
- Temperature Range: -450°F to +500°F
- Materials: Carbon Steel, Stainless Steel, Monel & Hastelloy C
- Actuation: Snap and Modulating Controls
- Options: Field Test Connections, Reverse Flow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



SERIES 2700

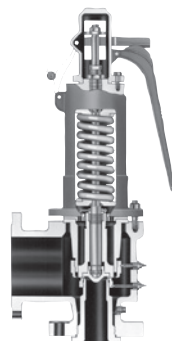
- ASME NB Certified: Air, Steam & Water
- Sizes: 1/2" x 1" to 1 1/2" x 2 1/2"
- Pressure Range: 15 psig to 6500 psig
- Temperature Range: -450°F to +750°F
- Materials: Carbon Steel, Stainless Steel, Monel & Hastelloy C
- Options: Balanced Design, O-Ring Seats, Flanged, Socket Weld, Welding Nipple, & Sanitary Connections
- CE Approved

Steam Safety Valves



SERIES 4200

- ASME NB Section I & VIII Certified: Steam & Air
- Sizes 1 1/4" x 1 1/2" 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

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

Farris Engineering Products and Services

Process Pressure Relief Valves – ASME Code Section VIII

Series 2600	ASME NB Certified for Air, Steam and Water
Series 2600S	ASME NB Certified for Air and Steam
Series 2600L	ASME NB Certified for Air, Steam and Water
Series 3800	ASME NB Certified for Air, Steam and Water
Series 2700	ASME NB Certified for Air, Steam and Water
Series 570	ASME NB Certified for Air, Steam and Water

Steam Safety Valves – ASME Code Section I & VIII

Series 4200	ASME NB Certified for Steam
Series 6400/6600	ASME NB Certified for Steam
Series 560	ASME NB Certified for Steam

Specialty Pressure Relief Valves

Series 1890 / 1896M	ASME NB Certified for Air, Steam, & Water
Series 2850 / 2856	ASME NB Certified for Air and Steam
Series 88 / 89	ASME NB Certified for Air and Steam
Series 69	Liquid Service
Series 140	Air Service

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

Certifications and Approvals:

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



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



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