

For ASME Section VIII Service on Air, Gas, Vapors

Job Name _____

Contractor _____

Job Location _____

Approval _____

Engineer _____

Contractor's P.O. No. _____

Approval _____

Representative _____

Series Figure 41A

Bronze and Cast Iron Safety Relief Valves

For Air, Gas, and Vapors

Sizes: Bronze - 1/2" – 2 1/2" (15 – 65mm)

Cast iron - 1 1/2" – 6" (40 – 150mm)

Figure 41A is a safety relief valve for air, gas and vapors. It is used on compressors, receivers, burners and other piping systems. Figure 41A safety relief valves are rated up to 250psi (17.2 bar) and 406° F (208° C) and meet ASME Code, Section VIII.

Features

- 2 piece body design
- Enclosed springs
- 2-ring control provides precise pop action and seat tightness
- Single unit cap and lifting lever

Approvals

Rated in accordance with ASME Section VIII

Pressure – Temperature

Maximum Working Pressure: 250psi (17.2 bar)

Maximum Working Temperature: 406°F (208°C)



Fig. 41A
Bronze safety valves



Fig. 41A
Flanged cast iron safety valves

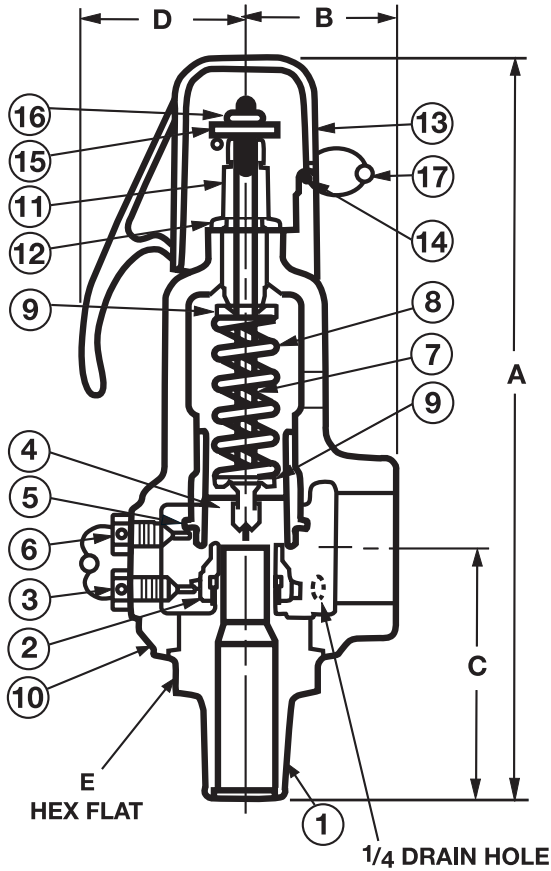
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Dimensions – Weights

Watts Bronze Safety Relief Valves

Figure 41A



Materials

REF. NO.	PART NAME	MATERIAL
1	Base	Bronze
2	Base Ring	Bronze
3	Base Ring Set Screw	Brass
4	Disc	Bronze
5	Guide and Ring	Bronze
6	Guide Ring Set Screw	Brass
7	Spindle	Steel
8	Spring	Plated Steel
9	Spring Washer	Steel
10	Bonnet	Bronze
11	Adjusting Bolt	Brass
12	Adjusting Bolt Locknut	Plated Steel
13	Lifting Cap Zinc	Alloy/Steel
14	Lifting Cap Pin	Plated Steel
15	Spindle Nut	Plated Steel
16	Spindle Nut Locknut	Plated Steel
17	Seal and Wire	Stainless Steel

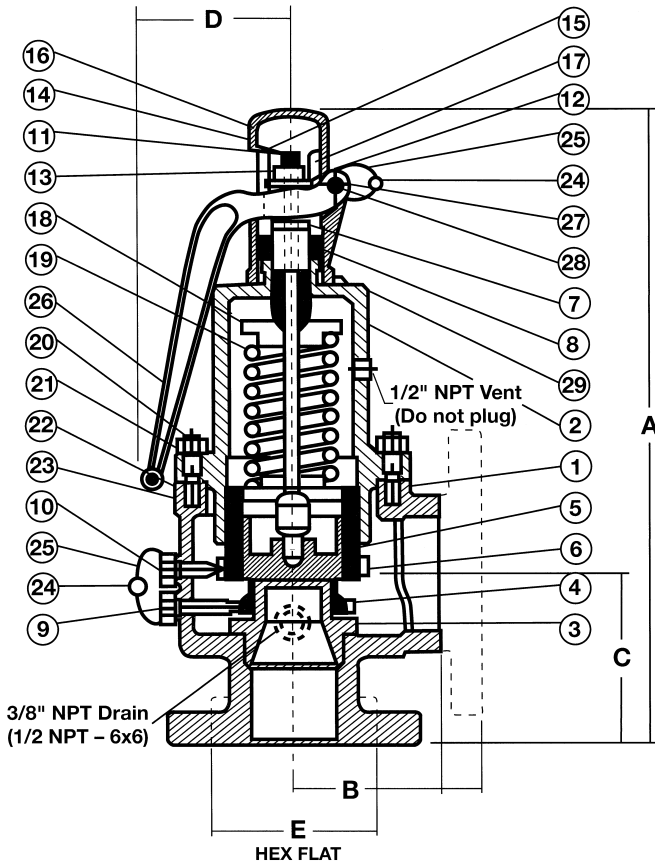
VALVE SIZE		ORIFICE SIZE	DIMENSIONS						WEIGHT					
Inlet x Outlet			A		B		C		D*		E		lbs.	kgs.
in.	mm		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm		
1/2 x 3/4	15 x 20	D	6 ⁹ / ₁₆	167	1 ³ / ₈	35	2 ¹ / ₄	57	1 ³ / ₈	35	1 ¹ / ₈	29	2	0.9
3/4 x 3/4	20 x 20	D	6 ⁹ / ₁₆	167	1 ³ / ₈	35	2 ¹ / ₄	57	1 ³ / ₈	35	1 ¹ / ₄	32	2.25	1.0
3/4 x 1	20 x 25	E	7 ¹ / ₈	181	1 ⁵ / ₈	41	2 ⁵ / ₁₆	59	1 ³ / ₈	35	1 ¹ / ₄	32	2.5	1.1
1 x 1	25 x 25	E	7 ¹ / ₈	181	1 ⁵ / ₈	41	2 ⁵ / ₁₆	59	1 ³ / ₈	35	1 ¹ / ₂	38	2.75	1.2
1 x 1 1/4	25 x 32	F	9	229	1 ⁷ / ₈	48	2 ¹³ / ₁₆	71	1 ¹³ / ₁₆	46	1 ¹ / ₂	38	4	1.8
1 1/4 x 1 1/4	32 x 32	F	9	229	1 ⁷ / ₈	48	2 ¹³ / ₁₆	71	1 ¹³ / ₁₆	46	1 ³ / ₄	44	4.25	1.9
1 1/4 x 1 1/2	32 x 40	G	9 ¹¹ / ₁₆	246	2 ¹ / ₈	54	3	76	1 ¹³ / ₁₆	46	1 ⁷ / ₈	48	7	3.2
1 1/2 x 1 1/2	40 x 40	G	9 ¹¹ / ₁₆	246	2 ¹ / ₈	54	3	76	1 ¹³ / ₁₆	46	2 ¹ / ₁₆	52	7.25	3.3
1 1/2 x 2	40 x 50	H	12 ¹ / ₈	308	2 ⁹ / ₁₆	65	3 ¹ / ₂	89	2 ³ / ₄	70	2 ¹ / ₄	57	13.5	6.1
2 x 2	50 x 50	H	12 ¹ / ₈	308	2 ⁹ / ₁₆	65	3 ¹ / ₂	89	2 ³ / ₄	70	2 ⁹ / ₁₆	65	13.75	6.2
2 x 2 1/2	50 x 65	J	13 ³ / ₁₆	338	3 ¹ / ₈	79	3 ³ / ₄	95	2 ³ / ₄	70	2 ³ / ₄	70	17.5	7.9
2 1/2 x 2 1/2	65 x 65	J	13 ³ / ₁₆	338	3 ¹ / ₈	79	3 ³ / ₄	95	2 ³ / ₄	70	3	76	17.75	8.0

*Add 1/2" to D dimension when lever is pulled out to manually operate the valve.

Dimensions – Weights

Watts Cast Iron Safety Relief Valves

Figure 41A



Materials

REF. NO.	PART NAME	MATERIAL
1	Body	ASTM A126-B (Grey Iron)
2	Bonnet	ASTM A126-B (Grey Iron)
3	Nozzle	ASTM B26 (Bronze)
4	Nozzle Ring	ASTM B584-844 (Bronze)
5	Disc	ASTM B62 (Bronze)
6	Guide Ring	ASTM B584-844 (Bronze)
7	Adjusting Bolt	ASTM B16 (Brass)
8	Adjusting Bolt Locknut	Steel (Zn Plate)
9	Nozzle Ring Set Screw	Brass
10	Guide Ring Set Screw	Brass
11	Spindle	ASTM A108 Grade 1212
12	Spindle Nut	ASTM A108 Grade 1212
13	Spindle Nut Lock nut	Steel AISI (Zn Plate)
14	Lifting Cap	A126-B Cast Iron
15	Lifting Cap Pins	Steel 1020 (Zn Plate)
16	Pivot Post	Steel AISI
17	Post Pin	Steel AISI 1070 (Zn Plate)
18	Spring Washer	Steel AISI 1212
19	Spring	Steel (Zn Plate)
20	Stud	Steel ASTM A193 B7
21	Stud Nut	Steel ASTM A194 2H
22	Name Plate	SST AISI 304
23	Name Plate Screws	SST 18-8
24	Lead Seal	Lead Commercial
25	Seal Wire	SST AISI 304
26	Lifting Lever	A126-B Cast Iron
27	Clevis Pin	Steel (Zn)
28	Cotter Pin	Steel
29	Liftcap Lockscrew	Steel

VALVE SIZE		ORIFICE SIZE	DIMENSIONS								WEIGHT			
Inlet & Outlet (in.)			A		B		C		D		E		lbs.	kgs.
in.	mm		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm		
1½-250# x 2½ NPT	40 x 65	J	15	381	¾	83	¼	108	3	76	-	-	24	11
1½ NPT x 2½ NPT	40 x 65	J	14½	368	¾	83	¼	108	3	76	¾	70	20	9
2-250# x 3 NPT	50 x 80	J,K	15¾	400	4	102	⅝	117	¾	89	-	-	42	19
2 NPT x 3 NPT	50 x 80	K	15¾	400	4	102	⅝	117	¾	89	⅝	92	36	16
2½-250# x 3 NPT	65 x 80	K	15¾	400	4	102	¾	121	¾	89	-	-	45	20
2½-250# x 4 NPT	65 x 100	L	23	584	⅝	130	⅝	140	6	152	-	-	105	48
2½ NPT x 4 NPT	65 x 100	L	23	584	⅝	130	⅝	140	6	152	½	114	97	44
3-250# x 3 NPT	80 x 80	K	15¾	400	4	102	5	127	¾	89	-	-	48	22
3-250# x 4 NPT	80 x 100	L,M	23	584	⅝	130	⅝	140	6	152	-	-	107	49
3-NPT# x 4 NPT	80 x 100	M	23⅝	587	⅝	130	⅝	143	6	152	½	114	99	45
4-250# x 6-125#	100 x 150	N,P	28½	724	¾	184	¾	171	6	152	-	-	212	96
6-250# x 8-125#	150 x 200	Q,R	45⅞	1151	10	254	¾	235	10½	267	-	-	675	306

Capacities

WATTS Fig. 41A ASME Section VIII Series Valves Saturated Steam Capacities (SCFM @ 90% rating and 10% overpressure)													
Orifice Area (in ²)	D 0.1188	E 0.2116	F 0.3318	G 0.5424	H 0.8479	J 1.391	K 1.892	L 2.935	M 3.715	N 4.468	P 6.564	Q 11.365	R 16.475
Set Press. psi													
15	63	111	175	285	446	732	996	1545	1956	2351	3455	5981	8671
20	72	128	201	329	514	844	1148	1781	2255	2711	3983	6896	9996
25	82	145	228	373	583	956	1300	2017	2554	3071	4511	7810	11322
30	91	162	255	416	651	1068	1453	2253	2853	3430	5039	8725	12648
35	102	181	284	464	726	1191	1620	2513	3182	3826	5620	9731	14106
40	112	200	313	512	801	1314	1787	2773	3511	4221	6201	10737	15565
45	123	219	343	560	876	1437	1955	3033	3840	4617	6782	11743	17023
50	133	237	372	608	951	1560	2122	3292	4169	5012	7363	12749	18482
55	144	256	402	656	1026	1684	2290	3552	4498	5408	7945	13755	19940
60	154	275	431	704	1101	1807	2457	3812	4826	5803	8526	14761	21398
65	165	294	460	753	1176	1930	2625	4072	5155	6199	9107	15767	22857
70	175	312	490	801	1251	2053	2792	4332	5484	6594	9688	16773	24315
75	186	331	519	849	1326	2176	2960	4592	5813	6990	10269	17779	25773
80	196	350	548	897	1402	2299	3127	4851	6142	7385	10850	18785	27232
85	207	368	578	945	1477	2422	3295	5111	6471	7781	11431	19791	28690
90	217	387	607	993	1552	2545	3462	5371	6800	8176	12012	20797	30149
95	228	406	637	1041	1627	2669	3630	5631	7129	8572	12593	21804	31607
100	238	425	666	1089	1702	2792	3797	5891	7458	8967	13174	22810	33065
105	249	443	695	1137	1777	2915	3965	6150	7787	9363	13755	23816	34524
110	259	462	725	1185	1852	3038	4132	6410	8116	9758	14336	24822	35982
115	270	481	754	1233	1927	3161	4300	6670	8445	10154	14917	25828	37440
120	280	500	783	1281	2002	3284	4467	6930	8774	10549	15498	26834	38899
125	291	518	813	1329	2077	3407	4635	7190	9103	10945	16079	27840	40357
130	302	537	842	1377	2152	3531	4802	7449	9432	11340	16660	28846	41816
135	312	556	872	1425	2227	3654	4970	7709	9761	11736	17241	29852	43274
140	323	575	901	1473	2302	3777	5137	7969	10090	12131	17822	30858	44732
145	333	593	930	1521	2377	3900	5305	8229	10418	12527	18403	31864	46191
150	344	612	960	1569	2452	4023	5472	8489	10747	12922	18984	32870	47649
155	354	631	989	1617	2527	4146	5640	8748	11076	13318	19565	33876	49107
160	365	649	1018	1665	2602	4269	5807	9008	11405	13713	20147	34882	50566
165	375	668	1048	1713	2677	4392	5974	9268	11734	14109	20728	35888	52024
170	386	687	1077	1761	2753	4516	6142	9528	12063	14504	21309	36894	53483
175	396	706	1106	1809	2828	4639	6309	9788	12392	14900	21890	37900	54941
180	407	724	1136	1857	2903	4762	6477	10047	12721	15295	22471	38906	56399
185	417	743	1165	1905	2978	4885	6644	10307	13050	15691	23052	39912	57858
190	428	762	1195	1953	3053	5008	6812	10567	13379	16086	23633	40918	59316
195	438	781	1224	2001	3128	5131	6979	10827	13708	16482	24214	41924	60774
200	449	799	1253	2049	3203	5254	7147	11087	14037	16877	24795	42930	62233
205	459	818	1283	2097	3278	5378	7314	11346	14366	17273	25376	43936	63691
210	470	837	1312	2145	3353	5501	7482	11606	14695	17668	25957	44942	65150
215	480	855	1341	2193	3428	5624	7649	11866	15024	18064	26538	45948	66608
220	491	874	1371	2241	3503	5747	7817	12126	15353	18459	27119	46954	68066
225	501	893	1400	2289	3578	5870	7984	12386	15682	18855	27700	47960	69525
230	512	912	1430	2337	3653	5993	8152	12646	16010	19251	28281	48966	70983
235	522	930	1459	2385	3728	6116	8319	12905	16339	19646	28862	49972	72441
240	533	949	1488	2433	3803	6239	8487	13165	16668	20042	29443	50979	73900
245	543	968	1518	2481	3878	6363	8654	13425	16997	20437	30024	51985	75358
250	554	987	1547	2529	3953	6486	8822	13685	17326	20833	30605	52991	76817



Water Safety & Flow Control Products

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