

KUNKLE

ASME Section I Steam, and ASME Section VIII Air/Gas/Steam

Features

- Heavy duty construction of high quality cast steel with Stainless Steel (SS) full-nozzle trim for optimum performance.
- Bolted yoke design for easy maintenance.
- Steel yoke incorporates a cover-shield for guiding surfaces and provides for fully exposed spring.
- Seats lapped to optical flatness for tight shutoff.
- Dual control rings offer easy adjustability for precision opening with minimum pre-open or simmer and exact blowdown control.
- All adjustments are factory sealed to help prevent tampering or disassembly.
- Each Kunkle valve is tested and inspected for pressure setting and leakage.

Model Descriptions

Model 300: Cast steel, exposed spring, full nozzle with SS trim. ANSI 300# inlet flange and 150# outlet flange.

Model 600: Cast steel, exposed spring, full nozzle with SS trim. ANSI 600# inlet flange and 150# outlet flange.

Applications

- Steam Boilers and Generators.
- Pressure Reducing Stations.
- Air/Gas Compressors - reciprocating or rotary.
- Pressure Vessels - including tanks, receivers, intercoolers, oil/gas separators, lines.



Pressure and Temperature Limits		
Temperature °F	Maximum Set Pressure	
	300 Series	600 Series
-20 to 100	740 psig	1000 psig
200	680 psig	1000 psig
300	655 psig	1000 psig
400	635 psig	1000 psig
500	605 psig	1000 psig
600	570 psig	1000 psig
650	550 psig	1000 psig
700	530 psig	1000 psig
750	505 psig	1000 psig
800	410 psig	825 psig

Notes

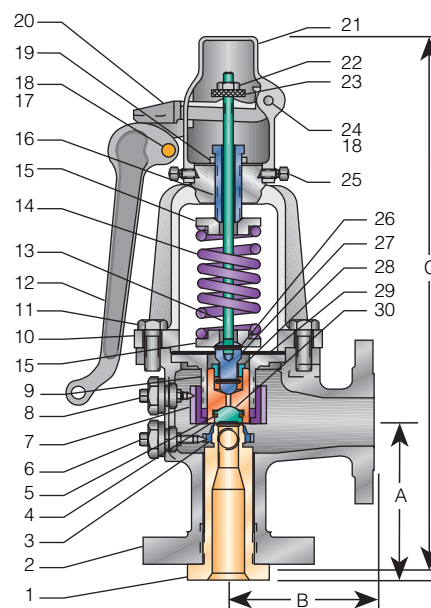
1. Model 300, Q orifice
Max set pressure 600 psig.
2. Model 600, N orifice
Max set pressure 750 psig @ 800°F.
3. Model 600, P orifice
Max set pressure 750 psig @ 800°F.
4. Model 600, Q orifice
Max set pressure 600 psig @ 800°F.
5. Max pressure subject to temperature/pressure limits.

Kunkle Safety and Relief Products

Models 300 and 600

Parts and Materials

No.	Part Name	Materials
1	Nozzle ¹	SS
2	Body	Steel, SA216 Gr. WCB
3	Warn Ring	SS, A743 Gr. CF8
4	Disc Holder ²	SS
5	Disc Retainer	SS, A313-316
6	Control Ring Pin Assembly	SS, A582-416
7	Control Ring	SS, A743 Gr. CF8
8	Warn Ring Pin Assembly	SS, A582-416
9	Guide	SS, A743 Gr. CF8
10	Yoke	Steel, SA216 Gr. WCB
11	Bolt ³	Steel, SAE Gr. 5
12	Lever	Ductile Iron, A536
13	Stem	SS, A582-416
14	Spring	⁴
15	Spring Step	Steel, Commercial Grade with coating
16	Compression Screw	SS, A582-416
17	Lever Pin	CS, Commercial
18	Cotter Pin	Steel, Commercial
19	Locknut	SS, A582-416 or Steel A108-1215 Zinc Plated
20	Lift Cam	Ductile Iron, A536
21	Cap	Ductile Iron, A536
22	Lift Nut	CS, Commercial
23	Lift Disc Nut	SS, A582-303
24	Lift Pin	CS, Commercial
25	Cap Screw	CS, Commercial
26	Spring Pin	SS, Commercial
27	Stem Retainer	SS, A582-416
28	Retainer Locknut	SS, A582-416
29	Shield	SS, A167-316 Sheet
30	Disc	SS, A479-304



Models 300 and 600

Notes

1. Specified materials: SA479 TY 304 on "F" through "M" orifices and SA351 Gr. CF8 on "N" through "Q" orifices.
2. Specified materials: A564-630 condition A1100 on "F" through "K" orifices and A479-304 on "L" through "Q" orifices.
3. 4 bolts required for "F" through "P" orifices and 6 bolts required for "Q" orifices.
4. Specified materials: CS with anti-corrosion coating for standard service. Alloy steel for high-temperature service.

Specifications

Model Number	Orifice ¹	Connections ANSI Standard		Orifice Area in ²	Valve Dimensions			Approximate Weight (lb)
		Inlet ²	Outlet ³		A	B	C	
300LFF / 600NFF	F	1 1/4"	1 1/2"	0.307	4 7/8	4 1/2	16 1/2	37
300LGF / 600NGF	G	1 1/4"	1 1/2"	0.503	4 7/8	4 1/2	16 1/2	39
300LHG / 600NHG	H	1 1/2"	2 1/2"	0.785	5 3/8	5 1/2	18 1/4	60
300LJG / 600NJG	J	1 1/2"	2 1/2"	1.287	5 3/8	5 1/2	20 7/8	75
300LKH / 600NKH	K	2"	3"	1.839	5 3/4	6	21 1/2	95
300LLJ / 600NLJ	L	2 1/2"	4"	2.853	6 5/8	6 5/8	26 1/2	133
300LMK / 600NMK	M	3"	4"	3.597	6 3/4	6 5/8	27 1/8	159
300LNM / 600NNM	N	4"	6"	4.340	8	7 1/4	33 5/8	230
300LPM / 600NPM	P	4"	6"	6.380	8	7 1/4	33 5/8	226
300LQP / 600NQP	Q	6"	8"	11.045	9 3/4	9 1/4	39 3/4	400

Dimensions are for reference only.

Notes

1. Maximum set pressure:
F to M orifice steam or air service - 1000 psig
N and P orifice - 750 psig
Q orifice - 600 psig
2. Inlet flanges are ANSI B16.5 300# (Model 300 only), 600# (Model 600 only).
3. Outlet flanges are ANSI B16.5-150#.

ASME Section I Steam - Capacities (U.S., lb/hr) - Flow Coefficient = 0.878

Set Pressure (psig)	Orifice Area, in ²									
	F (0.307)	G (0.503)	H (0.785)	J (1.287)	K (1.839)	L (2.853)	M (3.597)	N (4.340)	P (6.380)	Q (11.045)
15	440	720	1124	1843	2633	4085	5151	6215	9136	15816
20	509	834	1301	2134	3049	4730	5963	7195	10577	18311
25	578	948	1479	2424	3464	5374	6776	8175	12018	20806
30	648	1061	1656	2715	3880	6019	7588	9156	13459	23300
35	717	1175	1833	3006	4295	6663	8401	10136	14900	25795
40	786	1288	2011	3296	4710	7307	9213	11116	16341	28290
45	856	1402	2188	3587	5126	7952	10025	12096	17782	30784
50	925	1516	2365	3878	5541	8596	10838	13077	19223	33279
55	994	1629	2543	4168	5956	9241	11650	14057	20664	35774
60	1064	1743	2720	4459	6372	9885	12463	15037	22105	38268
65	1133	1856	2897	4750	6787	10529	13275	16017	23546	40763
70	1204	1972	3078	5046	7211	11187	14104	17017	25016	43308
75	1275	2089	3261	5346	7639	11850	14941	18027	26500	45877
80	1347	2206	3443	5645	8066	12514	15778	19037	27985	48447
85	1418	2323	3626	5945	8494	13178	16614	20046	29469	51016
90	1489	2440	3808	6244	8922	13842	17451	21056	30953	53586
95	1561	2557	3991	6543	9350	14505	18288	22066	32437	56155
100	1632	2674	4174	6843	9778	15169	19125	23075	33922	58725
125	1989	3259	5087	8340	11917	18488	23309	28124	41343	71572
150	2346	3845	6000	9837	14056	21806	27493	33172	48764	84420
175	2704	4430	6913	11334	16195	25125	31677	38220	56185	97268
200	3061	5015	7826	12831	18334	28444	35861	43269	63607	110115
225	3418	5600	8739	14328	20473	31762	40045	48317	71028	122963
250	3775	6185	9652	15825	22613	35081	44229	53365	78449	135811
275	4132	6770	10566	17322	24752	38399	48413	58413	85870	148658
300	4489	7355	11479	18819	26891	41718	52597	63462	93292	161506
325	4846	7940	12392	20316	29030	45037	56781	68510	100713	174353
350	5203	8525	13305	21813	31169	48355	60965	73558	108134	187201
375	5560	9110	14218	23310	33308	51674	65149	78607	115556	200049
400	5918	9696	15131	24807	35447	54993	69333	83655	122977	212896
425	6275	10281	16044	26304	37587	58311	73518	88703	130398	225744
450	6632	10866	16957	27801	39726	61630	77702	93752	137819	238592
475	6989	11451	17871	29299	41865	64948	81886	98800	145241	251439
500	7346	12036	18784	30796	44004	68267	86070	103848	152662	264287
525	7703	12621	19697	32293	46143	71586	90254	108897	160083	277134
550	8060	13206	20610	33790	48282	74904	94438	113945	167504	289982
575	8417	13791	21523	35287	50421	78223	98622	118993	174926	302830
600	8774	14376	22436	36784	52560	81542	102806	124042	182347	315677
625	9131	14961	23349	38281	54700	84860	106990	129090	189768	—
650	9489	15546	24262	39778	56839	88179	111174	134138	197189	—
675	9846	16132	25175	41275	58978	91498	115358	139187	204611	—
700	10203	16717	26089	42772	61117	94816	119542	144235	212032	—
725	10560	17302	27002	44269	63256	98135	123726	149283	219453	—
750	10917	17887	27915	45766	65395	101453	127910	154332	226874	—
775	11274	18472	28828	47263	67534	104772	132094	—	—	—
800	11631	19057	29741	48760	69674	108091	136278	—	—	—
825	11988	19642	30654	50257	71813	111409	140462	—	—	—
850	12345	20227	31567	51754	73952	114728	144646	—	—	—
875	12703	20812	32480	53251	76091	118047	148831	—	—	—
900	13060	21397	33394	54748	78230	121365	153015	—	—	—
925	13417	21982	34307	56245	80369	124684	157199	—	—	—
950	13774	22568	35220	57742	82508	128002	161383	—	—	—
975	14131	23153	36133	59239	84648	131321	165567	—	—	—
1000	14488	23738	37046	60737	86787	134640	169751	—	—	—

ASME Section VIII Steam - Capacities (U.S., lb/hr) - Flow Coefficient = 0.878

Set Pressure (psig)	Orifice Area, in ²									
	F (0.307)	G (0.503)	H (0.785)	J (1.287)	K (1.839)	L (2.853)	M (3.597)	N (4.340)	P (6.380)	Q (11.045)
15	454	744	1161	1903	2719	4218	5319	6417	9433	16331
20	523	857	1338	2194	3135	4863	6132	7398	10876	18828
25	593	971	1516	2485	3551	5508	6945	8380	12318	21325
30	662	1085	1693	2776	3966	6153	7758	9361	13761	23822
35	739	1210	1888	3096	4424	6863	8653	10440	15347	26569
40	815	1335	2084	3416	4881	7573	9547	11519	16934	29316
45	891	1460	2279	3736	5338	8282	10442	12599	18521	32063
50	968	1585	2474	4056	5796	8992	11336	13678	20107	34810
55	1044	1710	2669	4376	6253	9701	12231	14757	21694	37557
60	1120	1835	2864	4696	6711	10411	13125	15837	23281	40303
65	1197	1961	3060	5016	7168	11120	14020	16916	24867	43050
70	1273	2086	3255	5336	7625	11830	14915	17995	26454	45797
75	1349	2211	3450	5656	8083	12539	15809	19075	28041	48544
80	1426	2336	3645	5977	8540	13249	16704	20154	29627	51291
85	1502	2461	3841	6297	8997	13958	17598	21233	31214	54037
90	1578	2586	4036	6617	9455	14668	18493	22313	32801	56784
95	1655	2711	4231	6937	9912	15377	19387	23392	34387	59531
100	1731	2836	4426	7257	10369	16087	20282	24471	35974	62278
125	2113	3462	5402	8857	12656	19634	24755	29868	43907	76012
150	2495	4087	6379	10458	14943	23182	29227	35265	51841	89746
175	2876	4713	7355	12058	17230	26730	33700	40661	59774	103480
200	3258	5338	8331	13658	19516	30277	38173	46058	67707	117214
225	3640	5964	9307	15259	21803	33825	42646	51455	75641	130948
250	4022	6589	10283	16859	24090	37372	47118	56851	83574	144682
275	4403	7214	11259	18459	26376	40920	51591	62248	91507	158417
300	4785	7840	12235	20060	28663	44468	56064	67645	99441	172151
325	5167	8465	13211	21660	30950	48015	60537	73041	107374	185885
350	5548	9091	14187	23260	33237	51563	65009	78438	115307	199619
375	5930	9716	15164	24861	35523	55111	69482	83834	123241	213353
400	6312	10342	16140	26461	37810	58658	73955	89231	131174	227087
425	6694	10967	17116	28061	40097	62206	78428	94628	139107	240821
450	7075	11593	18092	29662	42384	65753	82900	100024	147041	254555
475	7457	12218	19068	31262	44670	69301	87373	105421	154974	268289
500	7839	12844	20044	32862	46957	72849	91846	110818	162907	282023
525	8221	13469	21020	34463	49244	76396	96319	116214	170840	295758
550	8602	14095	21996	36063	51531	79944	100791	121611	178774	309492
575	8984	14720	22973	37663	53817	83491	105264	127008	186707	323226
600	9366	15345	23949	39264	56104	87039	109737	132404	194640	336960
625	9748	15971	24925	40864	58391	90587	114210	137801	202574	—
650	10129	16596	25901	42464	60678	94134	118682	143198	210507	—
675	10511	17222	26877	44065	62964	97682	123155	148594	218440	—
700	10893	17847	27853	45665	65251	101230	127628	153991	226374	—
725	11275	18473	28829	47265	67538	104777	132101	159388	234307	—
750	11656	19098	29805	48866	69824	108325	136573	164784	242240	—
775	12038	19724	30782	50466	72111	111872	141046	—	—	—
800	12420	20349	31758	52066	74398	115420	145519	—	—	—
825	12802	20975	32734	53667	76685	118968	149992	—	—	—
850	13183	21600	33710	55267	78971	122515	154464	—	—	—
875	13565	22226	34686	56867	81258	126063	158937	—	—	—
900	13947	22851	35662	58468	83545	129610	163410	—	—	—
925	14329	23477	36638	60068	85832	133158	167883	—	—	—
950	14710	24102	37614	61668	88118	136706	172355	—	—	—
975	15092	24727	38591	63269	90405	140253	176828	—	—	—
1000	15474	25353	39567	64869	92692	143801	181301	—	—	—

ASME Section VIII Air/Gas - Capacities (U.S., SCFM) - Flow Coefficient = 0.878

Set Pressure (psig)	Orifice Area, in ²									
	F (0.307)	G (0.503)	H (0.785)	J (1.287)	K (1.839)	L (2.853)	M (3.597)	N (4.34)	P (6.38)	Q (11.045)
15	162	265	413	677	968	1502	1893	2284	3358	5813
20	186	305	476	781	1116	1731	2183	2633	3871	6702
25	211	346	540	885	1264	1961	2472	2983	4385	7591
30	236	386	603	988	1412	2190	2762	3332	4898	8480
35	263	431	672	1102	1575	2443	3080	3716	5463	9457
40	290	475	742	1216	1737	2695	3398	4100	6028	10435
45	317	520	811	1330	1900	2948	3717	4485	6592	11413
50	344	564	881	1444	2063	3201	4035	4869	7157	12390
55	372	609	950	1558	2226	3453	4354	5253	7722	13368
60	399	653	1020	1672	2389	3706	4672	5637	8287	14346
65	426	698	1089	1786	2551	3958	4990	6021	8851	15324
70	453	742	1159	1900	2714	4211	5309	6405	9416	16301
75	480	787	1228	2013	2877	4463	5627	6790	9981	17279
80	508	831	1298	2127	3040	4716	5946	7174	10546	18257
85	535	876	1367	2241	3203	4968	6264	7558	11111	19234
90	562	921	1437	2355	3365	5221	6582	7942	11675	20212
95	589	965	1506	2469	3528	5474	6901	8326	12240	21190
100	616	1010	1576	2583	3691	5726	7219	8711	12805	22168
125	752	1232	1923	3153	4505	6989	8811	10631	15629	27056
150	888	1455	2270	3722	5319	8252	10403	12552	18453	31945
175	1024	1677	2618	4292	6133	9514	11995	14473	21276	36833
200	1160	1900	2965	4862	6947	10777	13588	16394	24100	41722
225	1296	2123	3313	5431	7761	12040	15180	18315	26924	46611
250	1431	2345	3660	6001	8575	13303	16772	20236	29748	51499
275	1567	2568	4008	6571	9389	14565	18364	22157	32572	56388
300	1703	2791	4355	7140	10203	15828	19956	24078	35396	61276
325	1839	3013	4703	7710	11017	17091	21548	25999	38219	66165
350	1975	3236	5050	8279	11831	18354	23140	27920	41043	71054
375	2111	3459	5397	8849	12644	19616	24732	29841	43867	75942
400	2247	3681	5745	9419	13458	20879	26324	31762	46691	80831
425	2383	3904	6092	9988	14272	22142	27916	33682	49515	85719
450	2519	4126	6440	10558	15086	23405	29508	35603	52339	90608
475	2654	4349	6787	11128	15900	24667	31100	37524	55162	95497
500	2790	4572	7135	11697	16714	25930	32692	39445	57986	100385
525	2926	4794	7482	12267	17528	27193	34284	41366	60810	105274
550	3062	5017	7830	12837	18342	28456	35876	43287	63634	110162
575	3198	5240	8177	13406	19156	29718	37468	45208	66458	115051
600	3334	5462	8524	13976	19970	30981	39060	47129	69282	119940
625	3470	5685	8872	14545	20784	32244	40653	49050	72105	—
650	3606	5907	9219	15115	21598	33507	42245	50971	74929	—
675	3741	6130	9567	15685	22412	34770	43837	52892	77753	—
700	3877	6353	9914	16254	23226	36032	45429	54812	80577	—
725	4013	6575	10262	16824	24040	37295	47021	56733	83401	—
750	4149	6798	10609	17394	24854	38558	48613	58654	86225	—
775	4285	7021	10957	17963	25668	39821	50205	—	—	—
800	4421	7243	11304	18533	26482	41083	51797	—	—	—
825	4557	7466	11652	19103	27296	42346	53389	—	—	—
850	4693	7689	11999	19672	28110	43609	54981	—	—	—
875	4828	7911	12346	20242	28924	44872	56573	—	—	—
900	4964	8134	12694	20811	29738	46134	58165	—	—	—
925	5100	8356	13041	21381	30551	47397	59757	—	—	—
950	5236	8579	13389	21951	31365	48660	61349	—	—	—
975	5372	8802	13736	22520	32179	49923	62941	—	—	—
1000	5508	9024	14084	23090	32993	51185	64533	—	—	—

Kunkle Safety and Relief Products

Models 300 and 600

Model Number/Order Guide

Model Number Position

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
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Example

3	0	0	L	L	J	0	1	—	A	S	0	0	2	0
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Model

300
600

Connection Model

L - 300# Flange x 150# Flange
(Model 300)
N - 600# Flange x 150# Flange
(Model 600)

Orifice

F	L
G	M
H	N
J	P
K	Q

Inlet Size

F - 1¹/₄"
G - 1¹/₂"
H - 2"
J - 2¹/₂"
K - 3"
M - 4"
P - 6"

Variation (01 to 99)

01 - Catalog Standard

Design Revision

Indicates non-interchangeable revision. Dash (-) if original design.

Valve Service

A - Steam ASME Section I
K - Air ASME Section VIII
L - Steam ASME Section VIII

Spring Material

S - Steel (to 750°F)
F - High-temperature Alloy Steel (751°F to 800°F)

Set Pressure

15 psig (0015) to 740 psig (0740) - Model 300
15 psig (0015) to 1000 psig (1000) - Model 600

KUNKLE

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