



KUNKLE MODELS 19/19M/20/20M/20P/20MP/200A/200H LIQUID RELIEF VALVES

SAFETY AND RELIEF PRODUCTS

Extra-heavy rugged construction non-code bronze liquid relief valves with a variety of model options to meet specific applications



FEATURES

- Inlet and outlet connections cast integral with body for easy inspection and servicing without disconnecting piping.
- Available with optional female NPT inlet or flanged inlet and outlet connections.
- Beveled seats lapped for optimum performance.
- Stainless steel spring for optimum corrosion resistance.
- Spherical pivot between disc and spring corrects misalignment and compensates for spring side thrust.
- Tested and inspected for pressure setting and leakage.

GENERAL APPLICATION

A range of valves suitable for overpressure relief and protection of pumps, tanks, lines and hydraulic systems; pressure regulation and continuous by-pass relief.

TECHNICAL DATA

Connections: Threaded NPT or flanged
Temperature range: -60° to 406°F
(-51° to 208°C)
Pressure range⁽¹⁾: 1 to 500 psig
(.07 to 20.7 barg)

NOTE

1. See page 5 for specifications table.

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MODELS OVERVIEW

Model 19: all bronze, equipped with handwheel for easy adjustment within spring ranges.

Model 19M: as model 19 except SS trim (seat and disc). Available in 2½" and 3" only. For higher pressure settings or severe applications.

Model 20: all bronze, with pressure-tight cap. Suitable for maximum back pressure of 50 psig (3.45 barg).^[1]

Model 20M: as model 20 except SS trim (seat and disc). Available in 2½" and 3" only. For higher pressure settings or severe applications. Maximum back pressure of 50 psig (3.45 barg).^[1]

Model 20P: as model 20 except with packed lift lever. Suitable for maximum back pressure of 50 psig (3.45 barg).^[1]

Model 20MP: as model 20M except with packed lift lever. Maximum back pressure of 50 psig (3.45 barg).^[1]

Model 200A: special non-chattering design. Recommended for light oils and continuous by-pass or pressure regulation. UL842 listed for light oil service. Available in ¾" to 1½" sizes. Female NPT connections only.

Model 200H: as model 20. UL842 listed for use with fuel oils. Available in ¾" to 2" sizes.

OPTIONS

- Available with optional female NPT inlet or flanged inlet and outlet connections.

- **Model 19**

Variation 10: 5 to 75 psig (.34 to 5.17 barg) adjustable spring range.

Variation 11: 75 to 150 psig (5.17 to 10.34 barg) adjustable spring range.

Variation 12: 150 to 300 psig (10.34 to 20.7 barg) adjustable spring range.

- **Models 19-D and 20-D**

Variation 05: 50 to 150 psig (3.45 to 10.34 barg) spring range.

Variation 06: 100 to 300 psig (6.9 to 20.7 barg) spring range.

NOTE

1. Back pressure increases set pressure on a one to one basis and reduces capacity. Back pressure in excess of 10% of set pressure is not recommended.

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SAFETY AND RELIEF PRODUCTS

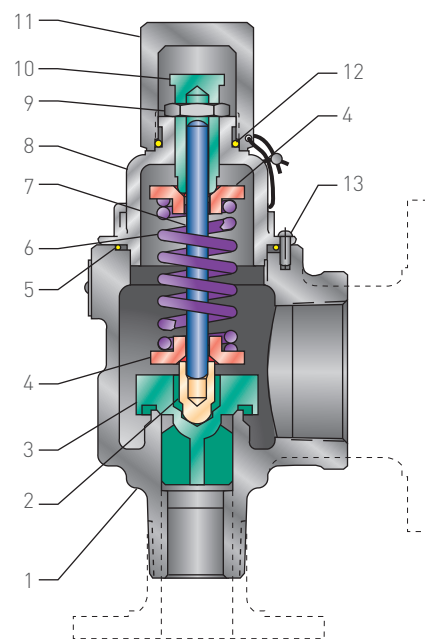
PARTS AND MATERIALS

No.	Part name	19, 19M	20, 20M, 20P, 20MP, 200A, 200H
1	Body ⁽¹⁾	Bronze B62	Bronze B62
2	Stem retainer	Brass B16	Brass B16
3	Disc	Bronze B584 Alloy 84400 ^(2,3)	Bronze B584 Alloy 84400 ^(2,3)
4	Spring step	Brass B16	Brass B16
5	O-ring	PTFE	PTFE
6	Spring	SS 316 or 17-7	SS 316 or 17-7
7	Stem	Brass B16	Brass B16
8	Bonnet	Bronze B584 Alloy 84400	Bronze B584 Alloy 84400
9	Jam nut	Steel A108 zinc plated	Brass B16
10	Compression screw	Brass B16	Brass B16
11	Cap	N/A	Brass B16
12	O-ring	N/A	NBR
13	Drive screw ⁽⁴⁾	SS commercial	SS commercial
14	Handwheel	Iron A126 zinc plated ⁽⁵⁾	N/A

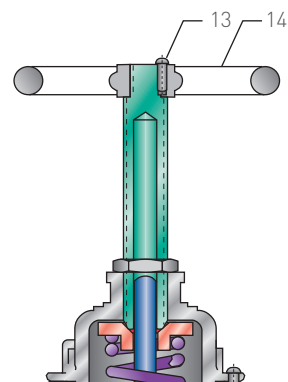
NOTES

1. Flanged connections optional.
2. Models 19, 20, 20P, 200H are brass, B283, Alloy 485, for 1/2", 3/4", and 1".
3. Models 19M, 20M, and 20MP are SS A743-CF8.
4. Model 200A is brass B16.
5. Bronze B584 Alloy 84400 for 1/2", 3/4", 1 1/4".
6. Not used on bonnet for 2 1/2" and 3".

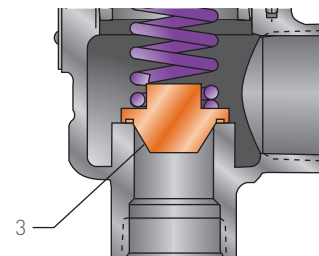
MODELS 20, 200H WITH PRESSURE TIGHT CAP



MODEL 19, 19M



MODEL 200A



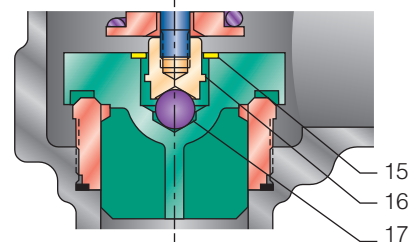
KUNKLE MODELS 19/19M/20/20M/20P/20MP/200A/200H LIQUID RELIEF VALVES

SAFETY AND RELIEF PRODUCTS

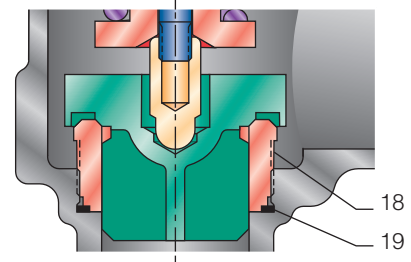
PARTS AND MATERIALS

No.	Part name	Material
15	Retainer washer	SS PH15-7M0
16	Stem end	SS A582-303
17	Ball	SS A756-440
18	Insert	SS A743 GR CF8
19	O-ring	PTFE
20	Lift cam	SS A743-316
21	Cotter pin	Steel
22	Lever	Steel A108 zinc plated
23	Drive screw	SS Commercial
24	Retainer cam	Brass B16
25	O-ring	NBR
26	Cap	Bronze B584 Alloy 84400
27	Lift nut	Steel A108

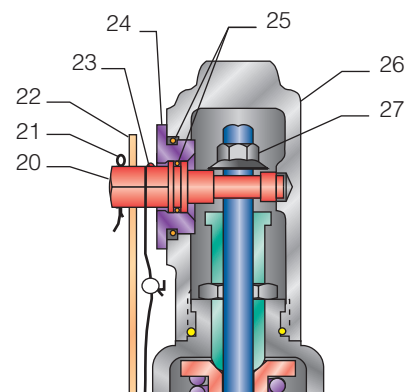
MODELS 19M, 20M AND 20MP
2½" SEAT CONFIGURATION



MODELS 19M, 20M AND 20MP
3" SEAT CONFIGURATION



MODELS 20MP AND 20P WITH LEVER



KUNKLE MODELS 19/19M/20/20M/20P/20MP/200A/200H LIQUID RELIEF VALVES

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SPECIFICATIONS

Size inlet/outlet NPT, (in)	Min/max set pressure, (psig) ^[1]			Min/max temperature [°F]	Approximate weight (lb)
	19, 20, 20P	200A, 200H	19M, 20M, 20MP		
1/2 ^[2]	1/300	—	—	-60/406	2¼
¾	1/300	1/200	—	-60/406	2¼
1	1/300	1/200	—	-60/406	3½
1¼	1/300	1/200	—	-60/406	5
1½	1/300	1/200	—	-60/406	6¼
2	1/300	1/200	—	-60/406	11
2½	1/300	—	1/500	-60/406	16
3	1/300	—	1/500	-60/406	25

DIMENSIONS (inches)

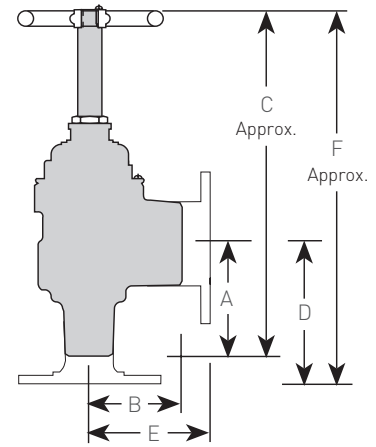
Valve model	Threaded			150/300 flange		
	A	B	C	D	E	F
½" Size						
19	2	1⅝	6⅞	3⅝ ₁₆	3⅝ ₁₆	7¾
20	2	1⅝	5⅞	3⅝ ₁₆	3⅝ ₁₆	7¼
20P	2	1⅝	7¾	—	—	—
¾" Size						
19	2	1⅝	6⅞	3⅝ ₁₆	3⅝ ₁₆	7¾
20	2	1⅝	5⅞	3⅝ ₁₆	3⅝ ₁₆	7¼
20P	2	1⅝	7¾	3⅝ ₁₆	3⅝ ₁₆	8¾
200A	2	1⅝	5⅞	—	—	—
200H	1 ¹⁵ / ₁₆	1⅝	5⅞	3⅝ ₁₆	3⅝ ₁₆	7¾
1" Size						
19	2¼	1⅞	7⅞	3 ⁷ / ₁₆	3 ⁷ / ₁₆	8¼
20	2¼	1⅞	6¾	3 ⁷ / ₁₆	3 ⁷ / ₁₆	7⅞
20P	2¼	1⅞	8¾	3 ⁷ / ₁₆	3 ⁷ / ₁₆	9½
200A	2¼	1⅞	6¾	—	—	—
200H	2¼	1⅞	6 ¹¹ / ₁₆	3 ⁷ / ₁₆	3 ⁷ / ₁₆	8

Dimensions are for reference only

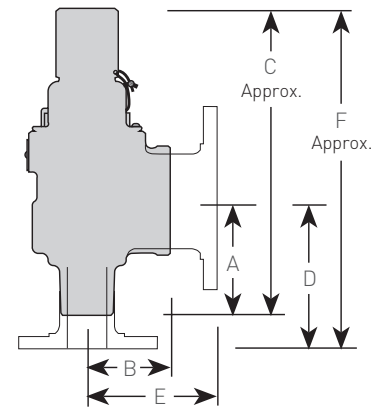
NOTES

- All flanges rated per ANSI B16.24.
- Standard with ¾" outlet - ½" outlet optional.

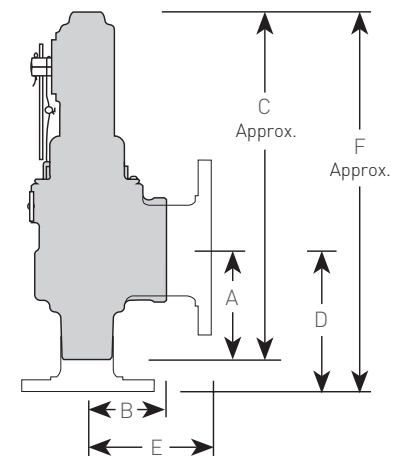
MODELS 19, 19M



MODELS 20, 20M, 200A, 200H



MODELS 20P, 20MP



KUNKLE MODELS 19/19M/20/20M/20P/20MP/200A/200H LIQUID RELIEF VALVES

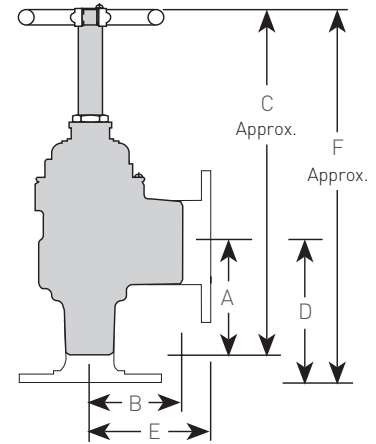
SAFETY AND RELIEF PRODUCTS

DIMENSIONS (inches)

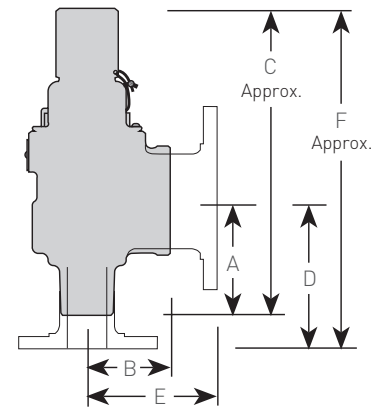
Valve model	Threaded			150/300 flange		
	A	B	C	D	E	F
1 1/4" Size						
19	2 5/8	2 1/16	8 1/8	3 11/16	3 11/16	9 1/8
20	2 5/8	2 1/16	8 1/8	3 11/16	3 11/16	8 3/8
20P	2 5/8	2 1/16	9	3 11/16	3 11/16	10
200A	2 5/8	2 1/16	7 3/8	—	—	—
200H	2 5/8	2 1/16	7 3/8	3 11/16	3 11/16	8 5/8
1 1/2" Size						
19	2 11/16	2 1/8	8 5/8	4 1/8	4 1/8	10 1/8
20	2 11/16	2 1/8	8 5/8	4 1/8	4 1/8	9 1/4
20P	2 11/16	2 1/8	9 1/4	4 1/8	4 1/8	10 3/4
200A	2 11/16	2 1/8	7 7/8	—	—	—
200H	2 11/16	2 1/8	7 7/8	4 1/8	4 1/8	9 1/2
2" Size						
19	3 1/2	2 11/16	10 5/8	4 1/4	4 1/4	11 1/4
20	3 1/2	2 11/16	10 5/8	4 1/4	4 1/4	10 5/8
20P	3 1/2	2 11/16	12 1/2	4 1/4	4 1/4	13 1/8
200H	3 1/2	2 11/16	9 15/16	4 1/2	4 1/4	10 15/16
2 1/2" Size						
19	3 7/8	3	11 1/8	4 3/4	4 3/4	12
19M	3 7/8	3	11 1/8	4 3/4	4 3/4	12 1/4
20	3 7/8	3	10	4 3/4	4 3/4	13 5/16
20M	3 7/8	3	10	4 3/4	4 3/4	13 7/16
20P	3 7/8	3	12 1/2	4 3/4	4 3/4	15 3/4
20MP	3 7/8	3	12 1/2	5 4 3/4	4 3/4	16 1/16
3" Size						
19	4 5/8	3 7/8	12 1/4	5	5	12 5/8
19M	4 5/8	3 7/8	12 1/4	5	5	13 1/8
20	4 5/8	3 7/8	12 1/4	5	5	14 3/4
20M	4 5/8	3 7/8	12 1/4	5	5	15 1/8
20P	4 5/8	3 7/8	14 3/8	5	5	16 7/8
20MP	4 5/8	3 7/8	14 3/8	5	5	17 1/4

Dimensions are for reference only

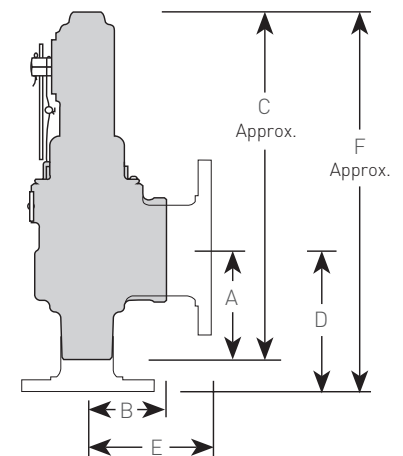
MODELS 19, 19M



MODELS 20, 20M, 200A, 200H



MODELS 20P, 20MP



KUNKLE MODELS 19/19M/20/20M/20P/20MP/200A/200H LIQUID RELIEF VALVES
SAFETY AND RELIEF PRODUCTS

NON-CODE LIQUID CAPACITY - 25% ACCUMULATION (GPM)

Set pressure (psig)	Valve inlet and outlet size							
	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"
1	1	2	4	6	10	19	31	45
5	2	5	8	14	22	42	68	100
10	3	7	11	20	31	59	97	141
20	4	9	16	28	43	84	137	200
30	5	11	20	34	53	102	168	244
40	6	13	23	39	61	118	193	282
50	7	15	25	44	68	132	216	315
60	7	16	28	48	75	145	237	346
70	8	17	30	52	81	156	256	373
80	8	19	32	55	87	167	274	399
90	9	20	34	59	92	177	290	423
100	9	21	36	62	97	187	306	446
110	10	22	37	65	102	196	321	468
120	10	23	39	68	106	205	335	489
130	11	24	41	71	110	213	349	509
140	11	25	42	73	115	221	362	528
150	11	25	44	76	119	229	375	546
160	12	26	45	78	123	236	387	564
170	12	27	47	81	126	244	399	582
180	13	28	48	83	130	251	410	599
190	13	29	49	86	134	258	422	615
200	13	29	50	88	137	264	433	631
210	14	30	52	90	140	271	443	646
220	14	31	53	92	144	277	454	662
230	14	32	54	94	147	284	464	677
240	14	32	55	96	150	290	474	691

NOTE

1. Liquid overpressure factors

To determine capacities at other than 25% overpressure/accumulation, multiply capacity shown by:

10% acc. = 0.6

15% acc. = 0.8

20% acc. = 0.9

KUNKLE MODELS 19/19M/20/20M/20P/20MP/200A/200H LIQUID RELIEF VALVES
SAFETY AND RELIEF PRODUCTS

NON-CODE LIQUID CAPACITY - 25% ACCUMULATION (GPM)

Set pressure (psig)	Valve inlet and outlet size							
	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"
250	15	33	56	98	153	296	484	705
260	15	34	58	100	156	301	493	719
270	15	34	59	102	159	307	503	733
280	16	35	60	104	162	313	512	746
290	16	35	61	106	165	318	521	760
300	16	36	62	107	168	323	530	773
310	—	—	—	—	—	—	539	785
320	—	—	—	—	—	—	547	798
330	—	—	—	—	—	—	556	810
340	—	—	—	—	—	—	564	823
350	—	—	—	—	—	—	572	835
360	—	—	—	—	—	—	580	846
370	—	—	—	—	—	—	588	858
380	—	—	—	—	—	—	596	870
390	—	—	—	—	—	—	604	881
400	—	—	—	—	—	—	612	892
410	—	—	—	—	—	—	619	903
420	—	—	—	—	—	—	627	914
430	—	—	—	—	—	—	634	925
440	—	—	—	—	—	—	642	936
450	—	—	—	—	—	—	649	946
460	—	—	—	—	—	—	656	957
470	—	—	—	—	—	—	663	967
480	—	—	—	—	—	—	670	977
490	—	—	—	—	—	—	677	987
500	—	—	—	—	—	—	684	998

NOTE

1. Liquid overpressure factors

To determine capacities at other than 25% overpressure/accumulation, multiply capacity shown by:

10% acc. = 0.6

15% acc. = 0.8

20% acc. = 0.9

KUNKLE MODELS 19/19M/20/20M/20P/20MP/200A/200H LIQUID RELIEF VALVES
SAFETY AND RELIEF PRODUCTS

MODEL 200A 'D' - 3/4"

psi	Overpressure			
	25%	50%	75%	100%
5	1.2	1.9	2.7	3.7
10	1.2	2.0	2.8	4.4
15	1.3	2.0	2.9	4.7
20	1.5	2.2	3.0	5.2
25	1.5	2.2	3.0	6.0
30	1.5	2.2	3.1	6.5
35	1.5	2.5	3.3	7.4
40	1.7	2.6	3.5	8.5
45	1.9	2.8	3.6	9.6
50	2.0	3.0	3.8	11.0
55	2.2	3.2	4.0	12.2
60	2.3	3.4	4.2	13.5
65	2.4	3.5	4.4	14.8
70	2.5	3.7	4.5	16.0
75	2.6	4.0	4.7	17.1
80	2.8	4.2	5.0	18.2
85	2.9	4.4	5.1	19.3
90	3.0	4.6	5.4	20.2
95	3.1	4.7	5.5	21.0
100	3.1	4.8	5.7	21.4
105	3.3	5.0	6.0	21.5
110	3.4	5.1	6.1	21.4
115	3.4	5.3	6.2	21.0
120	3.5	5.5	6.4	20.5
125	3.5	5.6	6.5	20.2
130	3.5	5.8	6.7	19.8
135	3.7	6.0	6.9	20.0
140	3.7	6.1	7.0	20.2
145	3.8	6.2	7.0	20.8
150	3.8	6.3	7.2	21.5
155	4.0	6.5	7.4	22.0
160	4.0	6.5	7.5	22.9
165	4.0	6.5	7.6	23.7
170	4.0	6.6	7.8	24.6
175	4.1	6.8	8.2	25.5
180	4.2	6.9	8.5	26.8
185	4.3	6.9	9.0	28.5
190	4.4	7.0	10.0	30.5
195	4.4	7.0	11.5	33.5
200	4.5	7.0	12.9	36.2

MODEL 200A 'E' - 1"

psi	Overpressure			
	25%	50%	75%	100%
5	0.7	1.0	1.3	2.5
10	1.1	1.5	2.0	4.2
15	1.5	2.0	2.7	5.9
20	1.7	2.5	3.5	7.5
25	2.0	2.9	4.1	9.5
30	2.2	3.2	4.6	11.0
35	2.5	3.6	5.0	12.9
40	2.6	4.0	5.5	14.5
45	2.8	4.2	5.8	16.5
50	2.9	4.5	6.0	18.4
55	3.0	4.8	6.4	20.1
60	3.2	5.0	6.6	22.0
65	3.4	5.2	6.8	24.0
70	3.5	5.5	7.1	26.0
75	3.5	5.7	7.3	27.8
80	3.6	6.1	7.5	29.5
85	3.8	6.4	7.7	31.0
90	3.9	6.7	8.1	32.7
95	4.0	6.9	8.2	34.2
100	4.1	7.0	8.5	35.5
105	4.3	7.2	8.7	37.0
110	4.4	7.4	9.0	38.0
115	4.5	7.5	9.1	39.0
120	4.5	7.6	9.2	39.8
125	4.7	7.7	9.5	40.2
130	4.8	7.8	9.6	40.5
135	4.8	8.0	9.7	40.5
140	4.9	8.0	9.8	40.1
145	5.0	8.4	10.0	39.5
150	5.0	8.5	10.0	38.3
155	5.0	8.5	10.2	37.2
160	5.1	8.7	10.4	36.0
165	5.2	9.0	10.5	34.8
170	5.4	9.2	10.8	33.7
175	5.5	9.4	10.9	33.0
180	5.5	9.5	11.0	33.0
185	5.5	9.5	11.2	34.2
190	5.4	9.5	11.3	37.5
195	5.2	9.5	11.5	43.5
200	5.0	9.5	11.6	48.8

KUNKLE MODELS 19/19M/20/20M/20P/20MP/200A/200H LIQUID RELIEF VALVES
SAFETY AND RELIEF PRODUCTS

MODEL 200A 'F' - 1½"

psi	Overpressure			
	25%	50%	75%	100%
5	1.0	4.0	5.0	7.0
10	2.5	7.0	7.0	13.5
15	4.0	10.0	12.5	20.0
20	5.0	14.0	16.5	27.5
25	7.5	18.0	21.5	35.0
30	8.0	20.2	25.0	41.5
35	9.5	25.5	29.5	48.5
40	10.0	27.0	33.5	54.5
45	11.0	28.2	38.0	60.0
50	11.8	30.0	42.5	66.5
55	12.5	31.5	47.5	73.0
60	13.0	33.0	52.0	79.0
65	14.0	34.5	56.5	85.5
70	14.8	36.0	61.0	92.0
75	15.5	37.7	65.5	97.5
80	16.2	39.0	69.5	102.7
85	17.0	40.0	73.0	108.0
90	18.0	41.0	76.0	112.0
95	18.5	42.0	78.0	115.5
100	17.5	42.0	78.5	116.7
105	16.5	41.0	77.5	115.7
110	15.5	39.5	74.5	113.0
115	14.5	37.5	70.5	108.5
120	13.5	35.0	66.0	103.5
125	12.5	33.7	62.7	99.8
130	11.5	33.0	60.0	98.0
135	10.5	33.5	60.5	99.0
140	11.8	35.0	63.0	103.0
145	13.0	37.5	66.5	109.0
150	14.5	40.0	71.0	116.0
155	16.0	43.5	76.0	123.7
160	17.2	47.0	81.5	132.0
165	18.8	50.5	87.0	140.0
170	20.0	54.0	92.5	148.0
175	21.5	57.8	97.5	155.5
180	23.0	61.0	102.0	160.5
185	24.0	63.5	105.0	163.0
190	25.0	65.5	106.0	160.0
195	26.2	67.5	106.5	153.5
200	27.5	69.0	106.8	147.5

MODEL 200A 'G' - 1½"

psi	Overpressure			
	25%	50%	75%	100%
5	1.5	2.2	4.5	8.5
10	2.0	3.2	8.7	18.0
15	2.8	4.3	13.0	27.9
20	3.4	5.3	17.0	37.0
25	3.8	6.2	20.8	44.5
30	4.0	6.8	24.0	51.8
35	4.5	7.5	27.0	57.7
40	5.0	8.0	30.0	62.5
45	5.0	8.3	32.5	67.5
50	5.5	8.5	35.0	72.0
55	5.7	8.9	37.7	76.5
60	6.0	9.5	40.0	80.5
65	6.5	9.5	42.5	84.5
70	6.5	9.7	45.0	88.3
75	6.7	9.8	47.0	91.7
80	6.7	10.0	49.0	94.7
85	6.8	10.0	51.0	97.5
90	7.0	10.3	53.0	99.5
95	7.2	10.5	54.0	100.6
100	7.2	11.0	55.0	100.3
105	7.5	11.0	54.0	97.5
110	7.5	11.3	53.0	93.0
115	7.5	11.7	51.0	87.0
120	7.5	11.8	49.0	80.5
125	7.7	12.0	47.5	75.5
130	7.9	12.0	46.8	73.0
135	8.0	12.2	47.2	73.5
140	8.0	12.2	48.7	77.0
145	8.0	12.4	50.7	83.0
150	8.0	12.4	53.0	90.0
155	8.0	12.4	56.0	98.0
160	8.0	12.4	59.0	106.5
165	8.0	12.5	62.3	115.7
170	8.0	12.7	65.5	124.5
175	8.0	13.0	69.0	133.5
180	8.5	14.0	73.0	140.5
185	9.0	15.8	77.0	146.0
190	10.0	19.0	82.5	150.0
195	11.8	23.5	89.0	152.2
200	13.5	27.7	95.5	154.7

KUNKLE MODELS 19/19M/20/20M/20P/20MP/200A/200H LIQUID RELIEF VALVES

SAFETY AND RELIEF PRODUCTS

SELECTION GUIDE

Example:		0019	-	F	01	-	G	0075
Model								
0019	019M							
0020	020M							
020P	20MP							
200A	200H							
Inlet size								
C	1/2"	G						
D	3/4"	H						
E	1"	J						
F	1 1/4"	K						
Variation								
See chart page 12								
Design revision								
Indicates non-interchangeable revision. Dash (-) if original design.								
Spring material								
G	316 SS							
H	304 SS (only for Model 19M-K 300 psig or greater)							
Set pressure								
0005	5 psig							
0025	25 psig							
0400	400 psig							

KUNKLE MODELS 19/19M/20/20M/20P/20MP/200A/200H LIQUID RELIEF VALVES

SAFETY AND RELIEF PRODUCTS

Model - inlet size	Inlet x outlet	Variation																
		01	02	03	03	04	05	06 ⁽¹⁾	01	01	02	03	03	04	04	05	05	06
19-C, 20-C, 20P-C	1/2" x 1/2" [3/4"]	X	X	X		X	X	X										
19-D, 20-D	3/4" x 3/4"								X		X	X		X			X	X
200A-D	3/4" x 3/4"									X								
200H-D	3/4" x 3/4"								X		X		X		X			
19-E, 20-E, 20P-E2	1" x 1"								X		X	X		X				
200A-E	1" x 1"									X	X							
200H-E	1" x 1"								X		X		X		X			
19-F, 20-F, 20P-F2	1 1/4" x 1 1/4"								X		X	X		X				
200A-F	1 1/4" x 1 1/4"									X								
200H-F	1 1/4" x 1 1/4"								X		X		X		X			
19-G, 20-G, 20P-G2	1 1/2" x 1 1/2"								X		X	X		X				
200A-G	1 1/2" x 1 1/2"									X								
200H-G	1 1/2" x 1 1/2"								X		X		X		X			
19-H, 20-H, 20P-H2	2" x 2"								X		X	X		X				
200H-H	2" x 2"								X		X		X		X			
19-J, 19M-J, 20J, 20P-J, 20M-J, 20MP-J	2 1/2" x 2 1/2"								X		X	X		X				
19-K, 19M-K, 20-K, 20P-K, 20M-K, 20MP-K	3" x 3"								X		X	X		X				
20P-D	3/4" x 3/4"				X				X		X			X	X			

NOTES

1. Not available for 20P-C.
2. Variation 04 not available for 20P-E, 20P-F, 20P-G, and 20P-H.