KUNKLE MODELS 264/265/266/267 SAFETY AND RELIEF VALVES

SAFETY AND RELIEF PRODUCTS

Safety and relief valves for non-code liquid relief that meet ASME Section VIII and XIII for air/gas and steam and are National Board certified

MODEL 264

FEATURES

- Extra heavy rugged construction.
- Top guided design offers high capacity with 0.110 in^2 (0.710 cm^2) orifice area.
- Seats lapped to optical flatness.
- Ball pivot between disc and spring corrects misalignment and compensates for spring side thrust.
- Standard outlet with 1" female NPT.
- O-ring soft seat available.
- Each valve tested and inspected for pressure setting and leakage.
- Maximum back pressure 400 psig (27.6 barg)[4].

NOTES

1. ASME standard valves for air or steam service must have a lift lever.
2. Due to the capacity of these valves, thrust calculations should be reviewed and valve supported accordingly.
3. Pressures are for female NPT inlets only. For male NPT inlets see page 5.
4. 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.

GENERAL APPLICATION

These valves are suitable for the protection of pumps, compressors, pressure vessels or systems handling corrosive fluids or vapors at high pressure and/or temperature. Also for sentinel (warning) services on steam equipment.

CALIFORNIA PROPOSITION 65 WARNING

This product can expose you to chemicals including nickel, which is known to the State of California to cause cancer, birth defects or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

TECHNICAL DATA

Connections:	Threaded NPT or BSPT
Temperature range	
Model 264:	-20 to 550°F (-29 to 288°C)
Model 266:	-320 to 550°F (-195 to 288°C)
Model 265:	-20 to 750°F (-29 to 399°C)
Model 267:	-320 to 750°F (-195 to 399°C)
Pressure ranges[3]	
Air, gas and liquid:	4 to 3300 psig (0.28 to 227 barg)
Steam:	To 2000 psig (137.9 barg)
Code:	ASME section VIII and section XIII (UV Designator)

UV

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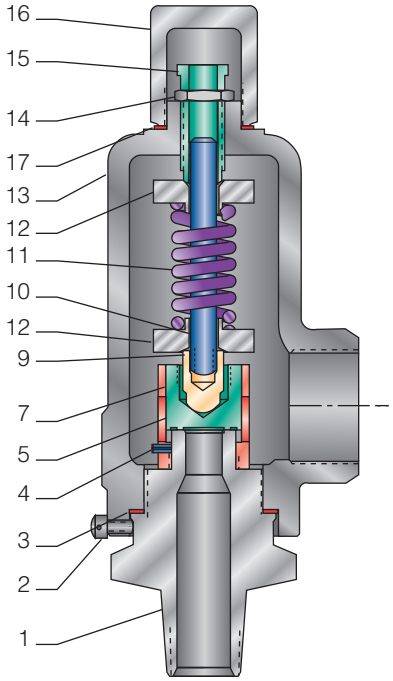
Parts and materials

MODELS 264, 265, 266 AND 267 - THREADED CAP

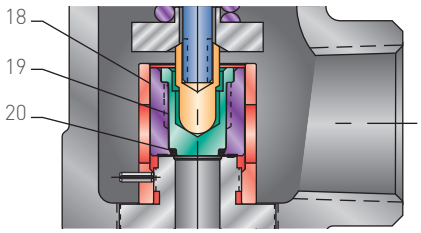
No.	Part name	264, 265	266, 267
1	Nozzle[1]	SS SA351-CF8M	SS SA351-CF8M
2	Lock screw	SS commercial 18-8	SS commercial 18-8
3	Gasket	PTFE	PTFE
4	Spring pin	SS commercial	SS commercial
5	Guide	SS A743-CF8M	SS A743-CF8M
7	Disc	SS A479-316	SS A479-316
9	Stem retainer	SS A479-316	SS A479-316
10	Stem	SS A479-316	SS A479-316
11	Spring[2]	A313-316 or 6312[2]	SS A313-316 or 6312[2]
12	Spring step	SS A479-316	SS A479-316
13	Bonnet	Steel SA216-WCB	SS A351-CF8M
14	Jam nut	SS A479-316	SS A479-316
15	Compression screw	SS A479-316	SS A479-316
16	Cap	Steel A108	SS A479-316
17	Cap gasket	PTFE	PTFE
18	Soft seat disc	SS A479-316	SS A479-316
19	Disc insert	SS A479-316	SS A479-316
20	O-ring[3]		

NOTES

1. SA479-316 for female inlet.
2. Tungsten alloy steel (X750 B637 or ASM5699) for models 265, 267
3. Material letter designation
   Buna-N (NBR) - B
   Ethylene propylene (EPR/EPDM) - E
   Neoprene - N
   Silicone - S
   Viton®* (FKM) - V



MODELS 264, 265, 266 AND 267
Metal seat



ALL MODELS SOFT SEAT

SPECIFICATIONS

Size		Dimensions, in inch (mm)			
Inlet	Outlet	A	B	C	Weight lb (kg)
½", ¾", 1"	¾", 1"	3 1/16 (77.8)	1¾ (44.5)	7½ (190.5)	4½ (2.3)

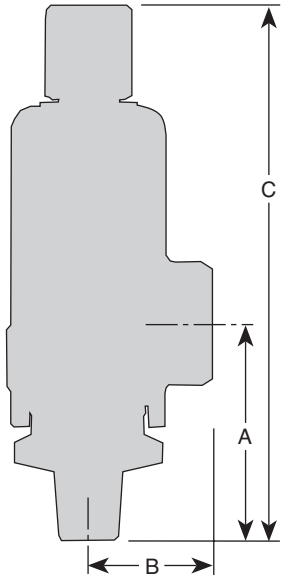
Dimensions are for reference only

MODELS OVERVIEW

Model 264: Carbon steel (CS) housing with 316 stainless steel (SS) trim (nozzle and disc), SS spring. Pressure-tight cap. For temperatures -20 to 550°F (-29 to 288°C).
Model 264P: With pressure-tight packed lift lever.
Model 265: As model 264 except high-temperature alloy spring. For temperatures -20 to 750°F (-29 to 399°C).
Model 265P: With pressure-tight packed lift lever.
Model 266: As model 264 except all 316 SS materials. For temperatures -320 to 550°F (-195 to 288°C)
Model 266P: With pressure-tight packed lift lever.
Model 267: As model 266 except high-temperature alloy spring. For temperatures -320 to 750°F (-195 to 399°C).
Model 267P: With pressure-tight packed lift lever.

NOTE

* Viton® is a mark owned by E.I. du Pont de Nemours and Co.



MODELS 264, 265, 266 AND 267

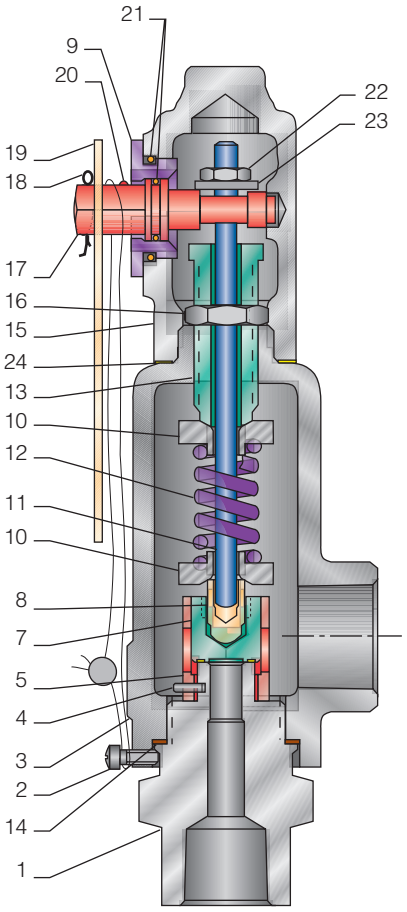
Parts and materials

MODELS 264P, 265P, 266P AND 267P - PACKED LEVER

No.	Part name	264P/265P	266P/267P
1	Nozzle[1]	SS SA479-316	SS SA479-316
2	Lock screw	SS commercial	SS commercial
3	Bonnet	Steel SA216-WCB	SS A351-CF8M
4	Spring pin	SS commercial	SS commercial
5	Guide	SS A743-CF8M	SS A743-CF8M
7	Disc	SS A479-316	SS A479-316
8	Stem retainer	SS A479-316	SS A479-316
9	Retainer nut	SS A479-316	SS A479-316
10	Spring step	SS A479-316	SS A479-316
11	Stem	SS A479-316	SS A479-316
12	Spring[2]	SS A313-316, optional 6312	SS A313-316, optional 6312
13	Compression screw	SS A479-316	SS A479-316
14	Gasket - body	PTFE	PTFE
15	Cap	SS A743-CF8M	SSA743-CF8M
16	Jam nut	SS A479-316	SS A479-316
17	Lift cam	SS A743-CF8M	SS A743-CF8M
18	Cotter pin	Steel commercial	Steel commercial
19	Lever	Steel A108 zinc plated	Steel A108 zinc plated
20	Drive screw	SS commercial	SS commercial
21	O-ring	NBR	NBR
22	Lift nut	SS A479-316	SS A479-316
23	Lift washer	SS A756-440C	SS A756-440C
24	Cap gasket	PTFE	PTFE

NOTES

1. SA351-CF8M for male inlet.
2. Tungsten alloy steel for models 265, 267.

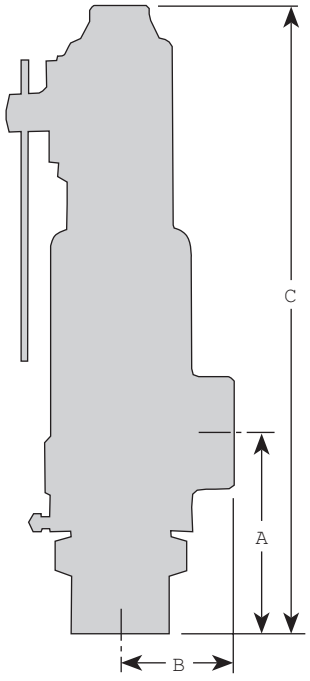


MODELS 264P, 265P, 266P AND 267P

SPECIFICATIONS

Size		Dimensions, in inch (mm)			
Inlet	Outlet	A	B	C	Weight (lb) (kg)
½", ¾", 1"	¾", 1"	3 1/16 (77.8)	1¾ (44.5)	9 (228.6)	4½ (2.3)

Dimensions are for reference only



MODELS 264P, 265P, 266P AND 267P

Capacities

ASME SECTION VIII AND XIII, AIR/GAS AND STEAM, NON-CODE LIQUID

Set pressure psig (barg)	Water non-code GPM (m^3/h)	Air SCFM (Nm^3/h)	Steam lb/h (kg/h)
4 (0.3)	5 (1)	25 (44)	79 (37)
6 (0.4)	5 (1)	31 (50)	96 (42)
8 (0.6)	6 (1)	36 (61)	109 (51)
10 (0.7)	6 (1)	40 (66)	120 (55)
20 (1.4)	8 (2)	58 (97)	164 (75)
30 (2.1)	10 (2)	74 (123)	207 (95)
40 (2.8)	11 (3)	91 (152)	255 (117)
50 (3.5)	13 (3)	108 (180)	302 (139)
75 (5.2)	15 (4)	150 (249)	422 (192)
100 (6.9)	18 (4)	193 (319)	541 (246)
125 (8.6)	20 (5)	235 (388)	660 (299)
150 (10.3)	22 (5)	278 (457)	780 (353)
200 (13.8)	25 (6)	363 (600)	1018 (463)
250 (17.2)	28 (6)	447 (738)	1257 (570)
300 (20.7)	31 (7)	532 (881)	1496 (680)
350 (24.1)	33 (8)	617 (1020)	1734 (787)
400 (27.6)	36 (8)	702 (1162)	1973 (897)
500 (34.5)	40 (9)	872 (1444)	2450 (1113)
600 (41.4)	44 (10)	1042 (1725)	2928 (1330)
700 (48.3)	47 (11)	1212 (2006)	3405 (1547)
800 (55.2)	51 (11)	1382 (2287)	3882 (1764)
900 (62.1)	54 (12)	1552 (2569)	4360 (1981)
1000 (69.0)	57 (13)	1722 (2850)	4837 (2198)
1200 (83.0)	62 (14)	2062 (3421)	5792 (2638)
1400 (96.5)	67 (15)	2401 (3971)	6746 (3063)
1600 (111)	72 (16)	2741 (4562)	7789 (3561)
1800 (124)	76 (17)	3081 (5092)	8885 (4031)
2000 (138)	80 (18)	3421 (5662)	10036 (4541)
2250 (155)	85 (19)	3846 (6355)	-
2500 (173)	89 (20)	4270 (7089)	-
2750 (190)	94 (21)	4695 (7782)	-
3000 (207)	98 (22)	5120 (8475)	-
3300 (227)	103 (23)	5630 (9290)	-

NOTES

1. 10% or 3 psig (0.2 barg) accumulation, whichever is greater.
2. Below 15 psig is non-code.
3. Orifice area = 0.110 sq. in.

MAXIMUM PRESSURE AND TEMPERATURE LIMITS - Male inlet connections

Temperature	Air, steam, water - psig (barg)		Air - psig (barg)	Steam, water - psig (barg)
°F (°C)	½" (15)	¾" (18)	1" (25)	1" (25)
100 (38)	1950 (134.4)	3299 (227.5)	3300 (227.5)	3300 (227.5)
200 (93)	1675 (115.5)	2836 (195.5)	3300 (227.5)	2933 (202.2)
300 (149)	1508 (104)	2554 (176.1)	3300 (227.5)	2643 (182.2)
350 (177)	1435 (98.9)	2432 (167.7)	3300 (227.5)	2539 (175.1)
400 (204)	1334 (92)	2269 (156.4)	3300 (227.5)	2421 (166.9)
450 (232)	1257 (86.7)	2146 (148)	3300 (227.5)	2335 (161)
500 (260)	1186 (81.8)	2030 (140)	3300 (227.5)	2268 (156.4)
550 (288)	1127 (77.7)	1935 (133.4)	3300 (227.5)	2186 (150.7)
600 (316)	1108 (76.4)	1844 (127)	3300 (227.5)	2148 (148.1)
650 (343)	1095 (75.5)	1805 (124.5)	3300 (227.5)	2090 (144.1)
700 (371)	1084 (74.7)	1779 (122.7)	3211 (221.4)	2063 (142.2)
750 (399)	1055 (72.7)	1770 (122)	3157 (217.7)	2029 (139.9)

NOTE

1. Female inlet is rated to 3300 psi at 550°F for 264/266 and 750°F for 265/267.

SERVICE RECOMMENDATIONS FOR RESILIENT SEAT/SEAL MATERIALS

Seat/seal materials	Service recommendation
Buna-N (NBR) (-30 to 250°F) (-34 to 121°C)	Air, anhydrous ammonia, butane, carbon dioxide, diesel oil, ethyl chloride, ethyl ether, freons #11 and 12, fuel oil, gasoline, helium, hydrogen sulphide, kerosene, lube oil, natural gas, nitrogen, oxygen (gas), propane, propylene, sulphur dioxide, vinyl chloride
Viton®(1) (FKM) (-10 to 406°F) (-23 to 208°C)	Acetone, air, amyl alcohol, aniline, benzine, butane, carbon disulphide, carbon tetrachloride Dowtherm 'A' and 'J,' ethyl chloride, ethylene, ethylene glycol, ethyl alcohol, gasoline, hexane, hydrogen sulphide, isobutyl alcohol, JP - 4 fuel, JP - 5 fuel, kerosene, lube oil, natural gas, naphtha, nitrogen, propane, propylene, propyl alcohol, sulphur dioxide, toluene, trichloroethylene, turpentine, water, xylene
Silicone (-100 to 406°F) (-73 to 208°C)	Air, helium, nitrogen, oxygen (gas)
Ethylene propylene (-70 to 400°F) (-57 to 205°C)	Steam, hot water
Neoprene (-45 to 300°F) (-43 to 149°C)	Air, anhydrous ammonia, butane, butyl alcohol, castor oil, denatured alcohol, ethanol, ethyl alcohol, freons (12, 13, 14 and 22), glycols, natural gas and silicate esters

NOTE

1. Viton® is a mark owned by E.I. du Pont de Nemours and Co.

SELECTION GUIDE

Example:	0264	-	D	01	-	K	G	1000

Model

0264	264P
0265	265P
0266	266P
0267	267P

Seat material

M	Metal
B	Buna-N (NBR)[1,2]
E	EPR[1,2]
S	Silicone[1,2]
V	Viton® (FKM)[1,2,6]
N	Neoprene[1],[2]

Inlet size

C	½" (12.7 mm)
D	¾" (19.0 mm)
E	1" (25.4 mm)

Variation

01	MNPT x 1" FNPT
02	MNPT x ¾" FNPT
03	FNPT x 1" FNPT
04	FNPT x ¾" FNPT
60	MBSPT x 1" FBSPT

Design revision

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

Valve service

K	Air/gas ASME section VIII and XIII models 264P, 265P, 266P, 267P required for air code service
L	Steam ASME section VIII and XIII models 264P, 265P, 266P, 267P required for steam code service
M	Non-code liquid, all models
N	Non-code air/gas, all models
P	Non-code steam, all models

Spring material

F[3]	High-temperature (tungsten alloy steel), (temperatures above 550°F)
G[4]	SS (ASTM A313-316 or T631, 17-7)
M[5]	SS (ASTM A313-316 or T631, 17-7)

Set pressure

4 psig (0.3 barg) (0004) to 3300 psig (227 barg) (3300)

NOTES

1. Soft seat not available below 150 psi.
2. Not available for Section VIII and XIII steam service.
3. Required for steam service ≥1030 psig.
4. For air service ≤ 2700 psig.
   For steam service ≤ 1029 psig.
   For liquid service ≤ 2699 psig.
5. For air service ≥ 2701 psig.
   For liquid service ≥ 2700 psig.
6. Viton® is a mark owned by E.I. du Pont de Nemours and Co.

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