

## KUNKLE SAFETY AND RELIEF PRODUCTS

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

Non-Code Liquid Relief, ASME Section VIII, Air/Gas and Steam, National Board Certified, Safety and Relief Valves



Model 264

### Model descriptions

**Model 264:** Carbon Steel (CS) housing with 316 Stainless Steel (SS) trim (nozzle and disc), SS spring. Pressure-tight cap.

**Model 265:** Same as model 264 except high-temperature alloy spring (temperatures to 750°F [400°C]).

**Model 266:** Same as model 264 except all 316 SS materials.

**Model 267:** Same as model 266 except high-temperature alloy spring (temperatures to 750°F [399°C]).

**Model 264P:** Same as model 264 with pressure-tight packed lift lever.

**Model 265P:** Same as model 265 with pressure-tight packed lift lever.

**Model 266P:** Same as model 266 with pressure-tight packed lift lever.

**Model 267P:** Same as model 267 with pressure-tight packed lift lever.

### Features

- Top guided design offers high capacity with 0.110 in<sup>2</sup> [0.710 cm<sup>2</sup>] orifice area.
- Ball pivot between disc and spring corrects misalignment and compensates for spring side thrust.
- Standard outlet with 1" Female NPT.
- Each Kunkle valve is tested and inspected for pressure setting and leakage.
- Maximum back pressure 400 psig [27.6 barg]<sup>4</sup>

### Technical data

#### Pressure and Temperature Limits<sup>1</sup>

##### Air, Gas, and Liquid Service

##### Model 264:

4 to 3300 psig [0.28 to 227 barg]  
-20° to 550°F [-29° to 288°C]

##### Model 266:

4 to 3300 psig [0.28 to 227 barg]  
-320° to 550°F [-195° to 288°C]

##### Model 265:

4 to 3300 psig [0.28 to 227 barg]  
-20° to 750°F [-29° to 399°C]

##### Model 267:

4 to 3300 psig [0.28 to 227 barg]  
-320° to 750°F [-195° to 316°C]

#### Steam Service (all Models):

2000 psig [137.9 barg]

#### Code:



#### Notes:

1. Pressures are female NPT inlets only. For maximum pressures for male NPT inlets see chart on page 5.
2. ASME standard valves for air or steam service must have lift lever.

### Applications

- Protection of pumps, compressors, pressure vessels or systems handling corrosive fluids or vapors at high pressure and/or temperature.
  - Sentinel (warning) on steam equipment.
3. Due to the capacity of this valve, thrust calculations should be reviewed and valve supported accordingly.
  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.

# KUNKLE SAFETY AND RELIEF PRODUCTS

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

## Parts and Materials

### Models 264, 265, 266 and 267 - Threaded Cap

| No. | Part Name           | 264, 265                      | 266, 267                         |
|-----|---------------------|-------------------------------|----------------------------------|
| 1   | Nozzle <sup>1</sup> | SS SA351-CF8M                 | SS SA351-CF8M                    |
| 2   | Lock Screw          | SS Commercial 18-8            | SS Commercial 18-8               |
| 3   | Gasket              | Teflon®                       | Teflon®                          |
| 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 <sup>2</sup> | A313-316 or 6312 <sup>2</sup> | SS A313-316 or 6312 <sup>2</sup> |
| 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          | Teflon®                       | Teflon®                          |
| 18  | Soft Seat Disc      | SS A479-316                   | SS A479-316                      |
| 19  | Disc Insert         | SS A479-316                   | SS A479-316                      |
| 20  | O-Ring <sup>3</sup> |                               |                                  |

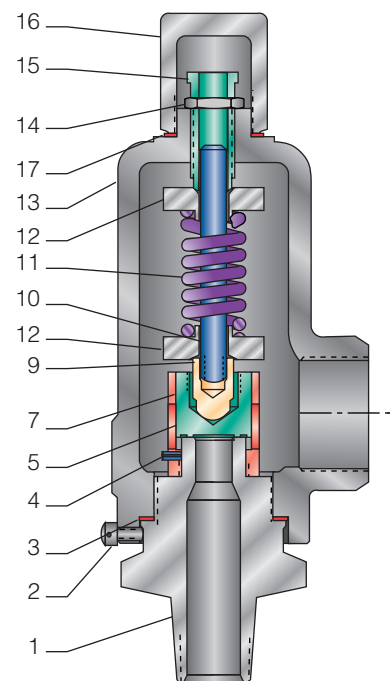
#### Notes:

- SA479-316 for female inlet.
- Tungsten alloy steel (X750 B637 or ASM5699) for Models 265, 267.
- Material Letter Designation
  - BUNA-N - B
  - Ethylene Propylene (EPR/EPDM) - E
  - Neoprene - N
  - Silicone - S
  - Viton® - V

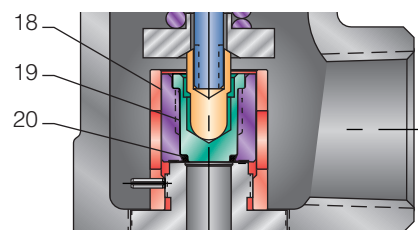
### Specifications

| Size           |          | Dimensions, in [mm] |              |               | Weight<br>(lb) [kg] |
|----------------|----------|---------------------|--------------|---------------|---------------------|
| Inlet          | Outlet   | A                   | B            | C             |                     |
| 1/2", 3/4", 1" | 3/4", 1" | 3 1/16 [77.8]       | 1 3/4 [44.5] | 7 1/2 [190.5] | 4 1/2 [2.3]         |

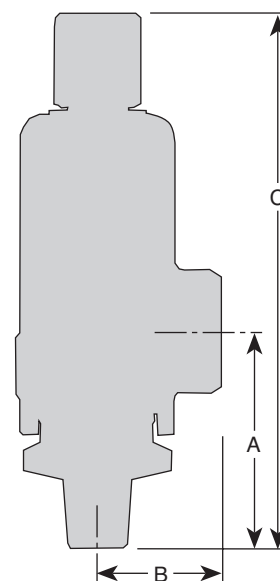
Dimensions are for reference only.



Models 264, 265, 266 and 267  
Metal Seat



All Models Soft Seat

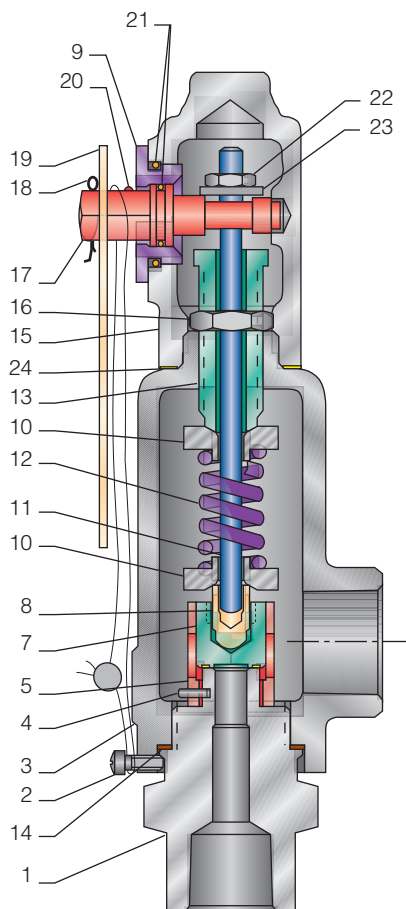


Models 264, 265, 266 and 267

# KUNKLE SAFETY AND RELIEF PRODUCTS

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

## Parts and Materials



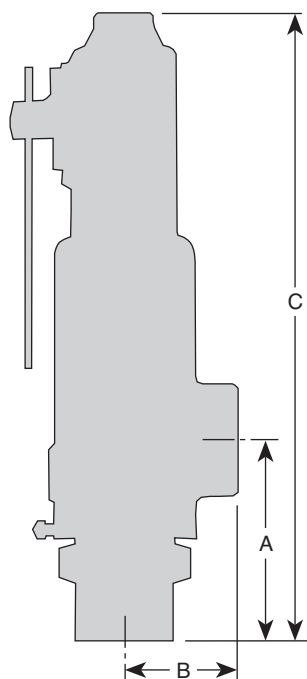
Models 264P, 265P, 266P and 267P

### Models 264P, 265P, 266P and 267P - Packed Lever

| No. | Part Name           | 264P/265P                  | 266P/267P                  |
|-----|---------------------|----------------------------|----------------------------|
| 1   | Nozzle <sup>1</sup> | 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 <sup>2</sup> | SS A313-316, Optional 6312 | SS A313-316, Optional 6312 |
| 13  | Compression Screw   | SS A479-316                | SS A479-316                |
| 14  | Gasket - Body       | Teflon®                    | Teflon®                    |
| 15  | Cap                 | SS A743-CF8M               | SS A473-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              | BUNA-N                     | BUNA-N                     |
| 22  | Lift Nut            | SS A479-316                | SS A479-316                |
| 23  | Lift Washer         | SS A756-440C               | SS A756-440C               |
| 24  | Cap Gasket          | Teflon®                    | Teflon®                    |

#### Notes:

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



Models 264P, 265P, 266P and 267P

### Specifications

| Inlet          | Size | Outlet   | Dimensions, in [mm] |              |           | Weight<br>(lb) [kg] |
|----------------|------|----------|---------------------|--------------|-----------|---------------------|
|                |      |          | A                   | B            | C         |                     |
| 1/2", 3/4", 1" |      | 3/4", 1" | 3 1/16 [77.8]       | 1 3/4 [44.5] | 9 [228.6] | 4 1/2 [2.3]         |

Dimensions are for reference only.

# KUNKLE SAFETY AND RELIEF PRODUCTS

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

## Capacities

### ASME Section VIII, Air/Gas, and Steam, Non-Code Liquid

| Set Pressure<br>psig [barg] | Water Non-code<br>GPM [m³/h] | Air<br>SCFM [Nm³/h] | Steam<br>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 square inch

# KUNKLE SAFETY AND RELIEF PRODUCTS

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

## Maximum Pressure and Temperature Limits - Male Inlet Connections

| Temperature<br>°F [°C] | Air, Steam, Water<br>psig [barg] |              | Air<br>psig [barg]<br>1" | Steam, Water<br>psig [barg]<br>1" |
|------------------------|----------------------------------|--------------|--------------------------|-----------------------------------|
|                        | 1/2"                             | 3/4"         |                          |                                   |
| 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 (-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® A (-10° to 406°F) [-23° to 208°C]           | Acetone, Air, Amyl Alcohol, Aniline, Benzene, 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   |

# KUNKLE SAFETY AND RELIEF PRODUCTS

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

## Model Number/Order Guide

### Model Number Position

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

### Example

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 2 | 6 | 4 | — | D | 0 | 1 | — | K | G | 1 | 0 | 0 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

### Model

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

### Seat Material

M - Metal  
B - Buna<sup>1,2</sup>  
E - EPD<sup>1,2</sup>  
S - Silicone<sup>1,2</sup>  
V - Viton<sup>1,2</sup>  
N - Neoprene<sup>1,2</sup>

### Inlet Size

C - 1/2" [12.7 mm]  
D - 3/4" [19.0 mm]  
E - 1" [25.4 mm]

### Variation

01 - MNPT x 1" FNPT  
02 - MNPT x 3/4" FNPT  
03 - FNPT x 1" FNPT  
04 - FNPT x 3/4" FNPT  
60 - MBSPT x 1" FBSPT

### Design Revision

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

### Valve Service

K - Air/Gas ASME Section VIII Models 264P, 265P, 266P, 267P  
required for air code service  
L - Steam ASME Section VIII 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<sup>3</sup> - High-temperature (tungsten alloy steel), (temperatures above 550°F)  
G<sup>4</sup> - SS (ASTM A313-316 or T631, 17-7)  
M<sup>5</sup> - 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 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.



VALVES & CONTROLS

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