



## 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<sup>2</sup> (0.710 cm<sup>2</sup>) 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)<sup>4</sup>.

#### 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](http://www.P65Warnings.ca.gov).*

#### TECHNICAL DATA

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



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

## SAFETY AND RELIEF PRODUCTS

### 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                | 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 <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            | PTFE                            | PTFE                               |
| 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 (NBR) - B  
Ethylene propylene (EPR/EPDM) - E  
Neoprene - N  
Silicone - S  
Viton®\* (FKM) - V

#### SPECIFICATIONS

| Size           |          | Dimensions, in inch (mm) |              |               |                |
|----------------|----------|--------------------------|--------------|---------------|----------------|
| Inlet          | Outlet   | A                        | B            | C             | Weight lb (kg) |
| 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)    |

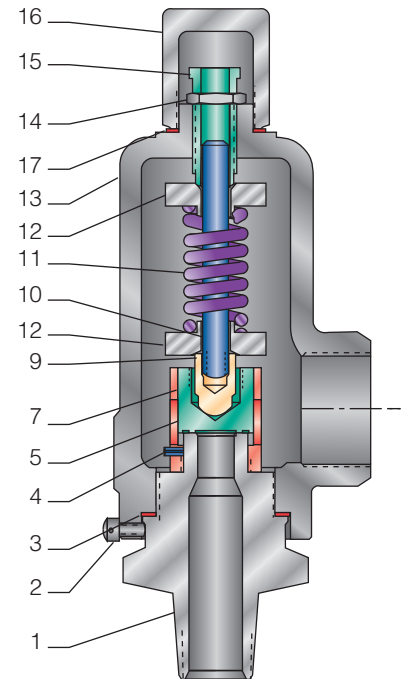
Dimensions are for reference only

#### MODELS OVERVIEW

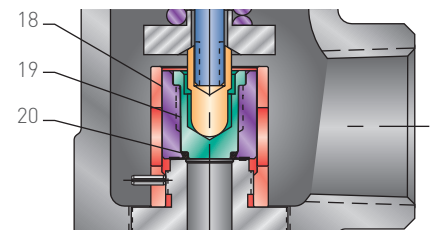
- Model 264: Carbon steel (CS) housing with 316 stainless steel (SS) trim (nozzle and disc), SS spring. Pressure-tight cap. For temperatures -20 to 550°F (-29 to 288°C).
- Model 264P: With pressure-tight packed lift lever.
- Model 265: As model 264 except high-temperature alloy spring. For temperatures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

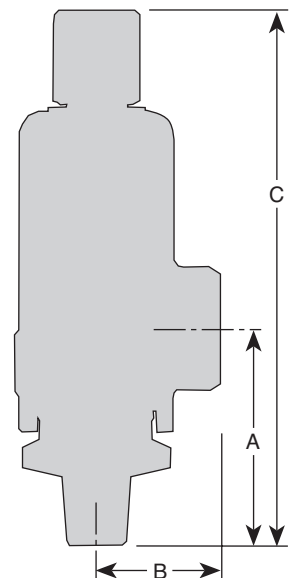
\*Viton® is a mark owned by E.I. du Pont de Nemours and Co.



MODELS 264, 265, 266 AND 267  
Metal seat



ALL MODELS SOFT SEAT



MODELS 264, 265, 266 AND 267

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

## SAFETY AND RELIEF PRODUCTS

### Parts and materials

#### 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         | 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                       |

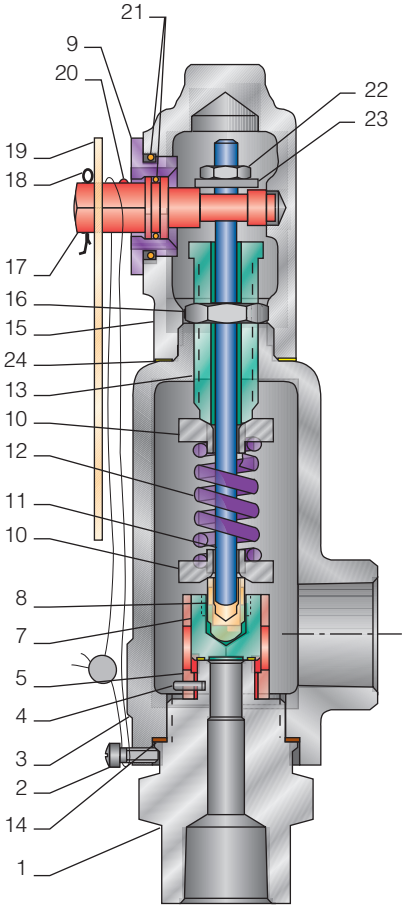
### NOTES

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

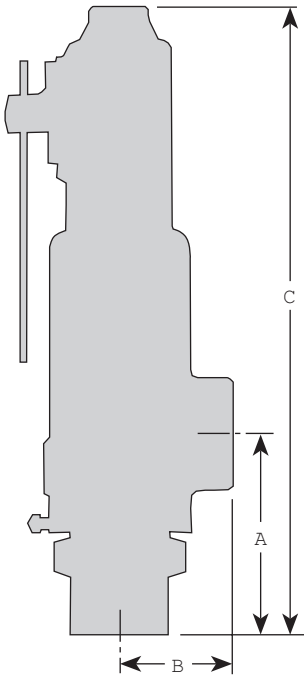
### SPECIFICATIONS

| Size           |          | Dimensions, in inch (mm) |              |           | Weight (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) | 9 (228.6) | 4 1/2 (2.3)      |

Dimensions are for reference only



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



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

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

## SAFETY AND RELIEF PRODUCTS

### Capacities

#### ASME SECTION VIII AND XIII, 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 sq. in.

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

## SAFETY AND RELIEF PRODUCTS

### MAXIMUM PRESSURE AND TEMPERATURE LIMITS -

#### Male inlet connections

| Temperature<br>°F (°C) | Air, steam, water - psig (barg) |              | Air - psig (barg) | Steam, water - psig (barg) |
|------------------------|---------------------------------|--------------|-------------------|----------------------------|
|                        | 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

- 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)<br>(-30 to 250°F)<br>(-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)<br>(-10 to 406°F)<br>(-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<br>(-100 to 406°F)<br>(-73 to 208°C)          | Air, helium, nitrogen, oxygen (gas)                                                                                                                                                                                                                                                                                                                                                                                           |
| Ethylene propylene<br>(-70 to 400°F)<br>(-57 to 205°C) | Steam, hot water                                                                                                                                                                                                                                                                                                                                                                                                              |
| Neoprene<br>(-45 to 300°F)<br>(-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

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

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

## SAFETY AND RELIEF PRODUCTS

### 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) <sup>[1,2]</sup>                                                                  |   |   |    |   |   |   |      |
| E                                                       | EPR <sup>[1,2]</sup>                                                                           |   |   |    |   |   |   |      |
| S                                                       | Silicone <sup>[1,2]</sup>                                                                      |   |   |    |   |   |   |      |
| V                                                       | Viton® (FKM) <sup>[1,2,6]</sup>                                                                |   |   |    |   |   |   |      |
| N                                                       | Neoprene <sup>[1], [2]</sup>                                                                   |   |   |    |   |   |   |      |
| 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 <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 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.



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

### SAFETY AND RELIEF PRODUCTS

---

VCTDS-00385 © 2016, 2023 Emerson Electric Co. All rights reserved 08/23. Kunkle™ is a mark owned by one of the companies in the Emerson Automation Solutions business unit of Emerson Electric Co. The Emerson logo is a trademark and service mark of Emerson Electric Co. All other marks are the property of their prospective owners.

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available upon request. We reserve the right to modify or improve the designs or specifications of such products at any time without notice.

Emerson Electric Co. does not assume responsibility for the selection, use or maintenance of any product. Responsibility for proper selection, use and maintenance of any Emerson Electric Co. product remains solely with the purchaser.

Emerson.com