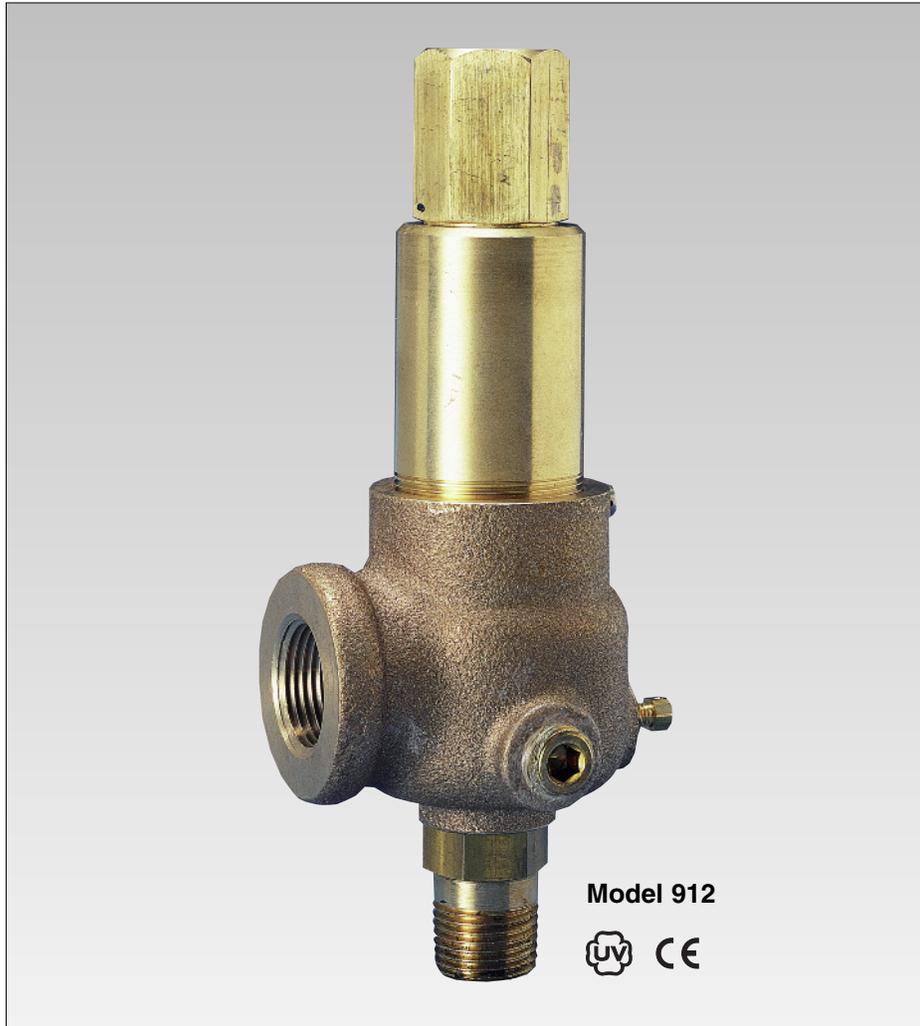


**Models 912, 913, 918 and 919 ASME Section VIII,
Air/Steam/Gas/Liquid, “UV” National Board Certified.
Also available for Vacuum Service.
PED Certified for Non-Hazardous Gas.**



Features

- Available with soft seat.
- Threaded cap is standard (back pressure tight).
- Hex on valve nozzle provides for easy installation.
- Warn ring offers easy adjustability.
- Pivoting disc design corrects misalignment and offers exceptional performance.
- Guide to nozzle ratio reduces friction.
- Full nozzle design for optimum flow performance.
- Threaded side outlet for piped off discharge to eliminate fugitive emissions.

Model Descriptions

Model 912: Full nozzle design. Stainless Steel (SS) warn ring and disc with brass/bronze base. Bronze/brass body and bonnet.

Model 913: Full nozzle design. Bronze/brass body and bonnet. 316 SS trim (base, disc and disc holder).

Model 918: Same as model 912 except resilient seat/seal. Superior “leak-free” performance. FM approved with 316 SS base for fire pump installations in “BDD” and “BDE” sizes².

Model 919: Same as model 913 except resilient seat/seal. Superior “leak-free” performance. Bronze body and bonnet. 316 SS trim (base, disc and disc holder).

Applications

- Air/gas compressors - intercoolers - aftercoolers.
- Liquid filled pressure vessels/systems - ASME Section VIII (UV).
- Pressure vessels - containing gas, air, liquid or steam. Including tanks and receivers.
- Vacuum systems including pumps, tanks and equipment.
- Optional materials for low temperature - cryogenic applications.
- Oil/gas separators.
- Overpressure relief and protection of pumps, tanks, lines and hydraulic systems.
- By-pass relief or pressure regulation.

Options

- Threaded cap. (variation 01)
- Threaded cap with gag. (variation 02)
- Plain lever. (variation 03)
- Plain lever with gag. (variation 04)
- Plain lever with vibration dampener. (variation 05)
- Packed lever. (variation 06)
- Packed lever with gag. (variation 07)

Pressure and Temperature Limits

Models 912, 918: – Steam
3 to 250 psig [0.2 to 17.2 barg]¹
-320° to 406°F [-195° to 208°C]

Models 913, 919: – Steam
3 to 300 psig [0.2 to 20.7 barg]¹
-320° to 425°F [-195° to 219°C]

Models 912, 918: – Air/Gas/Liquid
3 to 300 psig [0.2 to 20.7 barg]
-320° to 406°F [-195° to 208°C]

Models 913, 919: – Air/Gas/Liquid
3 to 1400 psig [0.2 to 96.5 barg]
-320° to 425°F [-195° to 219°C]

Vacuum – 6” to 29” HG
[200 to 1000 mbar] – 300°F [149°C]

Maximum back pressure 50 psig [3 barg]
- threaded cap and packed lever³

Notes

1. ASME standard valves for air or steam service must have lift lever. For steam boilers and generators.
2. Requires Variation 08 for specific set pressure or variations listed below for adjustable relief pressure settings:
Variation 10: 60 - 125 psig [4.1 - 8.6 barg],
Variation 11: 125 - 175 psig [8.7 - 12 barg],
or
Variation 12: 176 - 250 psig [12.1 - 17.2 barg]
3. 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.

Specifications - Models 912, 913, 918, and 919

Models 912, 913, 918, 919 ASME Section VIII, Steam/Air/Gas/ Liquid, "UV" National Board Certified.
Also available for Vacuum Service

Service Recommendations for Resilient Seat/Seal Materials

Seat/Seal Materials ¹	Service Recommendation
BUNA-N (-40° to 275°F) [-40° to 135°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 (-15° to 406°F) [-26° to 208°C]	Acetone, Air, Amyl Alcohol, Aniline, Benzene, Butane, Carbon Disulphide, Carbon Tetrachloride Dowtherm "A" and "E," 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

- These recommendations are a guide only. For the final selection of the proper material, your experience with available elastomers of various lading fluids should be considered.

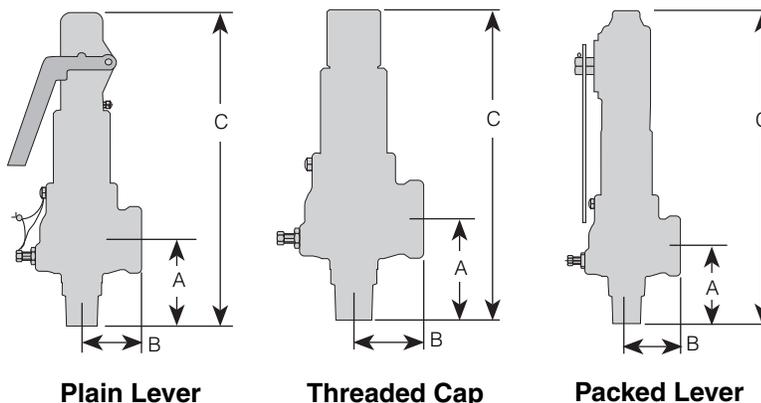
Specifications

Model ² Number	Orifice	Connections		Maximum Set Pressure		Dimensions, in [mm]						Approx. Weight lb [kg]
		ANSI Standard Inlet	ANSI Standard Outlet	912-918 ⁴	913-919 ⁵	A	B	C Plain Lever	C Threaded Cap	C Packed Lever		
9*BDC	D	1/2" [12.7]	3/4" [19.0]	300 [20.7]	1400 [96.5]	2 3/8 [60]	1 5/8 [41]	8 3/8 [213]	7 1/4 [184]	9 [229]	3 [1.4]	
9*BDC ⁷	D	1/2" [12.7]	1" [25.4]	300 [20.7]	1400 [96.5]	2 3/8 [60]	1 5/8 [41]	8 3/8 [213]	7 1/4 [184]	9 [229]	3 [1.4]	
9*BDD ³	D	3/4" [19.0]	3/4" [19.0]	—	1400 [96.5]	2 3/8 [60]	1 5/8 [41]	8 3/8 [213]	7 1/4 [184]	9 [229]	3 [1.4]	
9*BDD ^{3,8}	D	3/4" [19.0]	1" [25.4]	—	1400 [96.5]	2 3/8 [60]	1 5/8 [41]	8 3/8 [213]	7 1/4 [184]	9 [229]	3 [1.4]	
9*BDE ³	D	1" [25.4]	1" [25.4]	—	1400 [96.5]	2 5/8 [67]	1 5/8 [41]	8 5/8 [219]	7 1/2 [191]	9 1/8 [232]	3 [1.4]	
9*BED ⁹	E	3/4" [19.0]	1 1/4" [31.8]	300 [20.7]	1000 [68.9] ⁹	2 5/8 [67]	2 [51]	8 3/4 [222]	7 5/8 [194]	9 3/8 [238]	4 [1.8]	
9*BEF ³	E	1 1/4" [31.8]	1 1/4" [31.8]	—	1000 [68.9] ⁹	3 [76]	2 [51]	9 1/8 [232]	8 [203]	9 3/4 [248]	4 [1.8]	
9*BFE	F	1" [25.4]	1 1/2" [38.1]	300 [20.7]	700 [48.3] ¹⁰	2 7/8 [73]	2 3/8 [60]	9 7/8 [251]	8 3/4 [222]	10 1/2 [267]	6 [2.7]	
9*BFG ³	F	1 1/2" [38.1]	1 1/2" [38.1]	—	700 [48.3] ¹⁰	3 [76]	2 3/8 [60]	10 [254]	8 7/8 [225]	10 5/8 [270]	6 [2.7]	
9*BGF	G	1 1/4" [31.8]	2" [50.8]	300 [20.7]	600 [41.4]	3 1/4 [83]	2 5/8 [67]	11 1/4 [286]	10 1/8 [257]	11 3/4 [298]	8 [3.6]	
9*BGH ³	G	2" [50.8]	2" [50.8]	—	600 [41.4]	3 1/4 [83]	2 5/8 [67]	11 1/4 [286]	10 1/8 [257]	11 3/4 [298]	8 [3.6]	
9*BHG	H	1 1/2" [38.1]	2 1/2" [63.5]	300 [20.7]	500 [34.5]	3 1/2 [89]	2 3/4 [70]	13 [330]	11 1/8 [283]	12 1/2 [318]	11 [5.0]	
9*BJH	J ⁶	2" [50.8]	3" [76.2]	300 [20.7]	500 [34.5] ¹¹	4 [102]	3 1/4 [83]	14 1/2 [368]	12 1/2 [318]	15 1/8 [384]	15 [6.8]	

Dimensions are for reference only.

Notes

- Maximum temperature controlled by resilient seat/seal material.
- Replace asterisk with desired Model Number. Data applicable to all models.
- Available with SS trim (models 913 and 919) only.
- Maximum pressure on steam is 250 psig.
- Maximum pressure on steam is 300 psig.
- For C dimensions: pressures above 200 psig [14 barg] add 1.25" [31.8 mm] to the overall height.
- Special variation required (12 - Threaded Cap, 14 - Plain Lever, 17 - Packed Lever).
- Special variation required (13 - Threaded Cap, 14 - Plain Lever, 17 - Packed Lever).
- 900 psig for liquid service or high temp alloy spring.
- 600 psig for liquid service or high temp alloy spring.
- 367 [25.3] for plain lever with gag.



Specifications - Models 912, 913, 918, and 919

Models 912, 913, 918, 919 ASME Section VIII, Steam/Air/Gas/ Liquid, "UV" National Board Certified. Also available for Vacuum Service

Parts and Materials - Models 912, 913, 918, 919 Threaded Cap

No.	Part Name	Materials
1	Nozzle ²	Brass, B21 or B283 Alloy 485, (SS, SA351-CF8M ⁵ Models 913, 919 only)
2	O-ring Body ⁶	Teflon [®]
3	Body	Bronze, B584 Alloy 84400
4	Warn Ring	SS, A743-CF8M
5	Disc ¹	SS, A479-316
6	Set Screw Nut	SS 18-8
7	Set Screw	Brass, B16
8	Seal	Teflon [®]
9	Retainer Ring	SS, A313-316
10	Disc Holder	Brass, B16, (SS A351-CF8M Models 913, 919 only)
11	Guide ³ Guide Lock Nut ⁷ Shield ⁷	Brass, B16 Brass, B16 SS, A167-316
12	Bonnet O-ring ⁶	Teflon [®]
13	Screw	SS, Commercial 18-8
14	Coiled Spring Pin	SS, A313-302
15	Spring	SS: A313-316 or A313-T631/Alloy steel: A681-H12 or B637-X750
16	Bonnet ⁴	Brass, B16-H02
17	Spring Step	Brass, B16
18	Stem	Brass, B16
19	Wire and Seal	SS wire and lead seal, Commercial
20	Cap	Brass, B16
21	Compression Screw	Brass, B16
22	Jam Nut	SS 18-8 or Brass, B16
23	Cap O-ring	BUNA-N
24	Body Plug	Brass, B16 [1/4" - 18 NPT]
25 ⁹	Gag Screw	Steel A108-1018/Zinc Plated
26 ⁹	Gag Screw Plug	SS 18-8
27 ⁹	Gag Screw Gasket	Teflon [®]

Parts and Materials - Models 918 and 919 Soft Seat, F to J Orifice

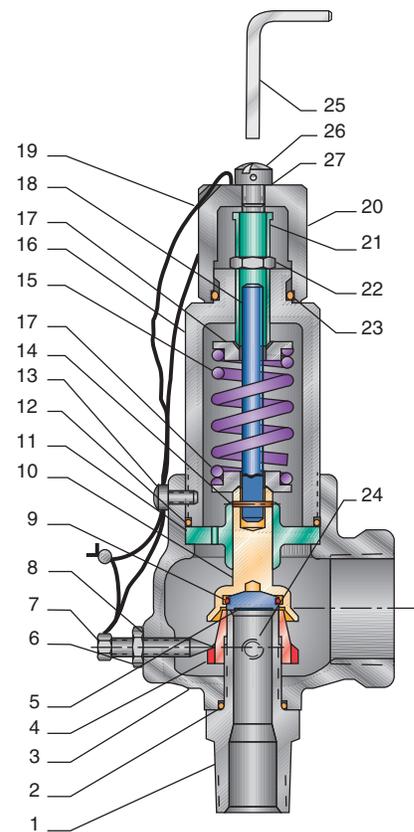
No.	Part Name	918	919
8	Disc	SS A479-316	SS A479-316
9	Ring, Retainer	SS A313-316	SS A313-316
10	Disc Holder	Brass, B16	SS A351-CF8M
33	Molded Seat ¹		

Parts and Materials - Models 918 and 919 Soft Seat, D and E Orifice

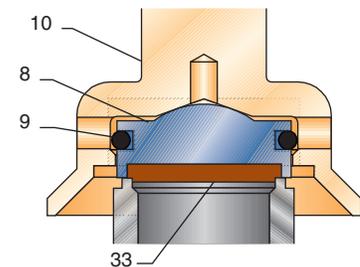
No.	Part Name	918	919
34	Spindle	Brass, B16	SS A479-316
35	Disc Holder	Brass, B16	SS A479-316
36	Retainer	Brass, B16	SS A479-316
37	O-ring Seat ¹		
38	Seat Retainer Screw	SS 18-8	SS 18-8

Notes

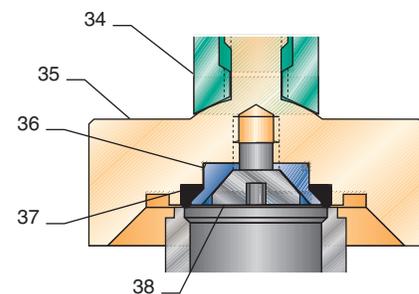
- Material Letter Designation
BUNA-N - B
Ethylene Propylene (EPR/EPDM) - E
Neoprene - N
Silicone - S
Viton[®] - V
- F through J orifice nozzle material is Bronze, B62.
- G through J orifice guide material is Bronze, B584, Alloy 84400.
- F through J orifice bonnet material is Bronze, B584, Alloy 84400.
- "D" and "E" orifice, 9"BFG, and 9"BGH nozzle material is SS, SA479-316.
- For threaded cap and packed lever only.
- For "J" orifice only (not shown).
- Gag screw ships with valve, not installed.
- For threaded cap and packed lever gag option only.



**Threaded Cap
(shown with Gag Option)**



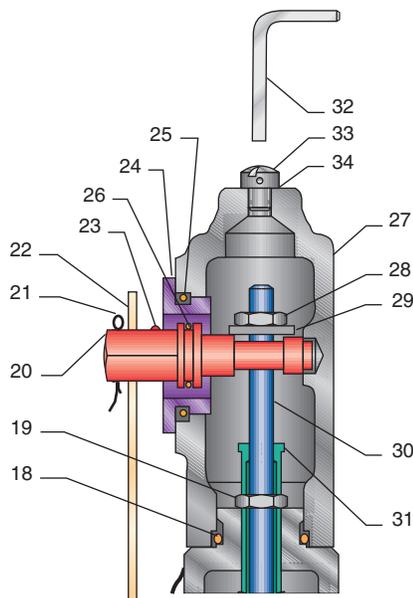
Soft Seat F to J Orifice



Soft Seat D and E Orifice

Specifications - Models 912, 913, 918, and 919

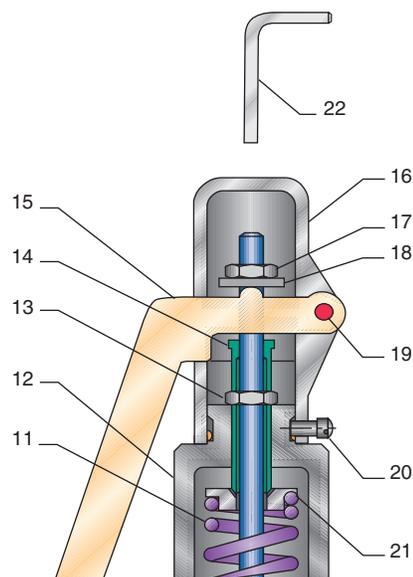
Models 912, 913, 918, 919 ASME Section VIII, Steam/Air/Gas/Liquid, "UV" National Board Certified. Also available for Vacuum Service



**Packed Lever
(shown with Gag Option)**

Parts and Materials - Model 912 Packed Lever

No.	Part Name	Materials
18	Cap O-ring	BUNA-N 70 Duro, Commercial
19	Jam Nut	Brass, B16
20	Lift Cam	SS, A743 CF8M
21	Cotter Pin	Steel, Commercial
22	Lever	Zinc Plated Steel, A108
23	Drive Screw	SS, Commercial
24	Retainer Nut	Brass, B16
25	Retainer O-ring	BUNA-N 70 Duro, Commercial
26	Lift Cam O-ring	BUNA-N 70 Duro, Commercial
27	Cap	Bronze, B584 Alloy 84400
28	Lift Nut	SS, A479 316
29	Lift Washer	SS, A479 316
30	Stem	Brass, B16
31	Compression Screw	Brass, B16
32 ²	Gag Screw	Steel A108-1018/Zinc Plated
33 ³	Gag Screw Plug	SS 18-8
34 ³	Gag Screw Gasket	Teflon®



**Plain Lever
(shown with Gag Option)**

Parts and Materials - Model 912 Plain Lever

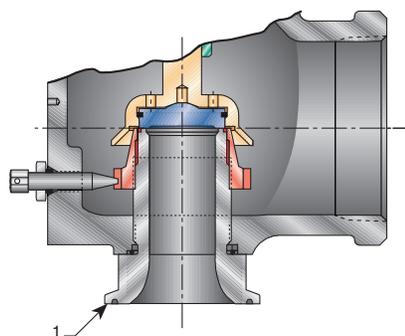
No.	Part Name	Materials
11	Spring	Steel: A231/A231M w/coating ¹ SS: A313-302 SS: A313-316 Alloy steel: A681-H12
12	Bonnet	Brass, B16
13	Jam Nut	Brass, B16
14	Compression Screw	Brass, B16
15	Lever	Steel, A109 w/coating ¹
16	Cap	Aluminum, Anodized
17	Lift Nut	SS, A479-316
18	Lift Washer	SS, A479-316
19	Rivet	Steel, Commercial
20	Screw	SS, Commercial Gr. 18-8
21	Spring Step	Brass, B16
22 ²	Gag Screw	Steel A108-1018/Zinc Plated

Notes

1. Corrosion preventative coating.
2. Gag screw ships with valve, not installed.
3. For threaded cap and packed lever gag option only.

Model 911 - Available with Tri-Clover Adapter Inlet

Model	Inlet	Orifice	Outlet
911 ZDE	1"	D	1"
911 ZEE	1"	E	1 1/4"
911 ZFG	1 1/2"	F	1 1/2"
911 ZGG	1 1/2"	G	2"
911 ZGH	2"	G	2"
911 ZHH	2"	H	2 1/2"
911 ZJJ	2 1/2"	J	3"



Tri-Clover (Inlet only)

Models 912, 913, 918, 919 ASME Section VIII, Steam/Air/Gas/ Liquid, “UV” National Board Certified. Also available for Vacuum Service

Model Number Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Example	9	1	2	B	J	H	M	0	1	—	K	E	0	3	0	0

Model
912, 913, 918, 919

Connection Model
B - Male x Female Threaded or NPT

Orifice
D, E, F, G, H, J

Inlet Size
 C - 1/2" [15 mm] F - 1 1/4" [32 mm]
 D - 3/4" [18 mm] G - 1 1/2" [40 mm]
 E - 1" [25 mm] H - 2" [50 mm]

Seat/Seal Material
 M - Metal-to-metal S - Silicone
 B - BUNA-N V - Viton®
 E - EPR N - Neoprene

Variation (01 to 99)
 Number provided only by manufacturer to cover specific feature or option.
 01 - Threaded cap
 02 - Threaded cap with gag
 03 - Plain lever
 04 - Plain lever with gag
 05 - Plain lever with vibration dampener
 06 - Packed lever
 07 - Packed lever with gag
 12 - Threaded cap (9*BDC with 1" outlet)
 13 - Threaded cap (9*BDD with 1" outlet)
 14 - Plain lever - D orifice with 1" outlet
 17 - Packed lever - D orifice with 1" outlet
 60 - BSP threads with threaded cap

Design Revision

Models	Orifice Size					
	D	E	F	G	H	J
912	—	—	—	—	—	—
913	—	—	—	—	—	—
918	B	B	—	—	—	—
919	B	B	—	—	—	—

Valve Service
 J - Liquid ASME Section VIII (Standard Cap/Packed Lever only)
 K - Air/Gas ASME Section VIII (Plain Lever/Packed Lever required for air)
 L - Steam ASME Section VIII (Plain Lever/Packed Lever required)
 M - Non-Code Liquid (Standard Cap/Packed Lever only)
 N - Non-Code Air Gas
 P - Non-Code Steam
 Q - Vacuum (Standard Cap/Packed Lever only)

Spring Material
 E - SS
 F - Alloy Steel (high temperature)

Set Pressure
 3 psig [0.2 barg] (0003) to 900 psig [62 barg] (0900)
 Vacuum 6" HG [200 mbarg] (0006) to 29" HG [1000 mbarg] (0029)