



## Series 3 Liquid Level Switches ASME B31.1, ASME B31.3 and NACE Construction

### DESCRIPTION

Series 3 float-actuated level switches meet ASME B31.1 or ASME B31.3 requirements. They are designed to provide critical alarm set points in clean liquid applications.

### FEATURES

- NACE MR0175/MR0103 construction available for flanged cage models
- 14-inch (356 mm) side/side process connections available as standard
- Choice of sealed or flanged float chamber design
- Service pressures up to 1680 psig (115.8 bar) for ASME B31.1 and 2240 psig (154.4 bar) for ASME B31.3 & NACE
- Process temperatures up to +1000° F (+538° C)
- Specific gravity ratings as low as 0.33
- Choice of TYPE 4X/7/9, Group B, C & D or EEx d IIC T6 housings
- Agency approvals include FM, CSA, ATEX and SAA
- ASME B31.1, B31.3 or NACE Certificate of Conformance supplied
- ASME B31.1 model with Cr-Mo chamber
- Choice of available switch styles, including dry contact, hermetically sealed, pneumatic bleed and non-bleed
- Choice of single or multiple switches for single or staged applications
- 1", 1½" or 2" tank connections available in either NPT, socket weld, flanged side/side or flanged side/bottom configuration
- Special materials of construction available upon request
- Available with special coatings including Epoxy, Carbo Zinc® 11 Primer and Carboline Top Coat, Dimetcote® and Amercoat®
- Optional high or low temperature insulation available



### APPLICATIONS

ASME B31.1 construction for use on boilers and in power plants.

- Feedwater heaters
- Condensate drip pots
- Deaerators
- Steam drums
- Flash tanks
- Hot wells

ASME B31.3 construction for use in refineries and petrochemical plants.

- Gas/oil separators
- Knockout drums
- Crude/salt water separators
- Receivers
- Flare pots
- Accumulators

## OPTIONS

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Many options are available for Series 3 level switches. Should you require an option not listed, consult the factory for further information.

### TANK CONNECTIONS AND INSTALLATION DIMENSIONS

In addition to the standard slip-on or weld neck R.F. flanges, many other process, vent and drain connections are available, including:

- Socketweld
- RTJ
- DIN
- JIS

Special flange gasket surface finishes are also available, and cages may be manufactured to allow special process connections.

### MATERIALS OF CONSTRUCTION

Chambers and internal components on some models available in other metal alloys.

- 304 SS
- Hastelloy® C
- Carpenter 20®
- 316 SS
- Monel
- Duplex Stainless Steel

### WELDING

Stress relieving of chamber welds is available for flanged cage models and the model B35-7.

### ACTUATING LEVELS

- Special switch set points and/or differentials
- Tandem floats—where the switch actuating levels are 8 inches (203 mm) or more apart.
- Multiple switches

### ENCLOSING TUBE

Integrally welded (socket type weld) enclosing tube design available for flanged cage models.

### INTERFACE CALIBRATION

Units with interface calibration are custom designed for each application. Specific gravity differences as small as 0.10 may be addressed. Consult the factory for all interface calibrations.

### EXAMINATIONS/TESTS

Magnetrol is equipped to provide a full range of special quality control testing, including:

- Dye penetration
- Charpy
- Extended hydrostatic
- Hardness testing
- Radiography
- Magnetic particle
- Ultrasonic

### CHROME-MOLY CONSTRUCTION

The model B35 is available with a P22/F22 chrome-moly chamber and 321 SS float for high pressure applications at high temperatures.

## STANDARD ASME B31.1 CONSTRUCTION

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### PRODUCT DESIGN

Pressure vessels are designed within code specified stress limits. Design calculations, design prints and weld qualifications are available for audit. All chamber branch and circumferential weld joints are designed to achieve FULL penetration.

### WELDING

All welding is performed by qualified welders and per procedures required by the ASME Boiler Pressure Vessel Code Sec. IX. Welds are visually inspected for FULL penetration. All other nondestructive examination is performed per ASME B31.1.

### MATERIALS OF CONSTRUCTION

All pressure-retaining materials are procured with Certificates of Conformance to assure compliance of components with required standards. Chrome-Moly models are post-weld heat-treated.

### HYDROSTATIC TEST

All chambers are hydrostatically tested at 1.5 times the design pressure.

## STANDARD NACE CONSTRUCTION

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### WELDING

All welding is performed by qualified welders and per procedures required by the ASME Boiler Pressure Vessel Code Sec. IX. Carbon steel pressure boundary parts are post weld stress relieved. All welds and heat affected zones are hardness tested to ensure compliance with NACE maximum hardness requirements.

## STANDARD ASME B31.3 CONSTRUCTION

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### PRODUCT DESIGN

Pressure vessels are designed within code specified stress limits. Design calculations, design prints and weld qualifications are available for audit. All chamber branch and circumferential weld joints are designed to achieve FULL penetration.

### WELDING

All welding is performed by qualified welders and per procedures required by the ASME Boiler Pressure Vessel Code Sec. IX. Welds are visually inspected for FULL penetration; and 5% radiographic inspection of weld is performed per ASME B31.3.

### MATERIALS OF CONSTRUCTION

All pressure-retaining materials are procured with Certificates of Conformance to assure compliance of components with required standards.

### HYDROSTATIC TEST

All chambers are hydrostatically tested at 1.5 times the design pressure.

### MATERIALS OF CONSTRUCTION

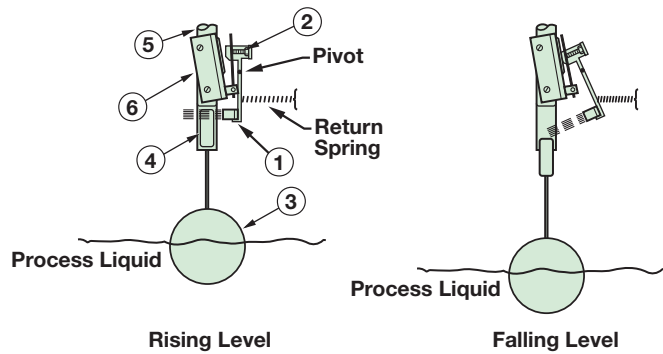
Only NACE listed materials are used for pressure retaining parts. Certificates of Conformance assure compliance of components to required material standards.

### HYDROSTATIC TEST




All chambers are hydrostatically tested at 1.5 times the design pressure.

# TECHNOLOGY

A permanent magnet ① is attached to a pivoted switch actuator ②. As the float or displacer ③ rises with the liquid level, it raises the attraction sleeve ④ into the field of the magnet, which then snaps against the non-magnetic enclosing tube ⑤, actuating the switch ⑥. The enclosing tube provides a static pressure boundary between the switch mechanism and the process. On a falling level, an inconel spring retracts the magnet, deactuating the switch.



# AGENCY APPROVALS

| AGENCY  | MODEL APPROVED  | APPROVAL CLASSES   |
|---|---|--|
| <b>FM</b><br>                | All with an electric switch mechanism and a housing listed as TYPE 4X/7/9                         | Class I, Div 1, Groups C & D<br>Class II, Div 1, Groups E, F & G   |
|   | All with an electric switch mechanism and a housing listed as TYPE 4X/7/9 Class I, Div 1, Group B | Class I, Div 1, Groups B, C & D<br>Class II, Div 1, Groups E, F & G  |
| <b>CSA</b><br>               | All with a Series HS, H1, F, 8 or 9 electric switch mechanism and a housing listed as CSA TYPE 4X | Class I, Div 2, Groups B, C & D  |
|   | All with an electric switch mechanism and a housing listed as TYPE 4X/7/9                         | Class I, Div 1, Groups C & D<br>Class II, Div 1, Groups E, F & G   |
| <b>ATEX / IEC Ex ②</b><br> | All with an electric switch mechanism and an ATEX housing ①                                       | ATEX II 2 G EEx d IIC T6<br>94/9/EC<br>IEC Ex Ex d IIC T6<br>IP 66   |
|   | All models  | Installation Category II<br>Pollution Degree 2<br><br>Low Voltage Directives<br>2006/95/EC<br>per Harmonized Standard<br>EN 61010-1/1993 & Amendment No. 1 |

① Controls with two or more HS or H1 switches are not ATEX approved.

② IEC Installation Instructions:

The cable entry and closing devices shall be Ex d certified suitable for the conditions of use and correctly installed.

For ambient temperatures above +55° C or for process temperatures above +150° C, suitable heat resistant cables shall be used.

Heat extensions (between process connection and housing) shall never be insulated.

**Special conditions for safe use:**

When the equipment is installed in process temperatures higher than +85° C the temperature classification must be reduced according to the following table as per IEC60079-0.

| Maximum Process Temperature | Temperature Classification |
|-----------------------------|----------------------------|
| < 85° C                     | T6                         |
| < 100° C                    | T5                         |
| < 135° C                    | T4                         |
| < 200° C                    | T3                         |
| < 300° C                    | T2                         |
| < 450° C                    | T1                         |

These units are in conformity with IECEx KEM 05.0020X  
Classification Ex d IIC T6  
T<sub>ambient</sub> -40° C to +70° C

# SPECIFICATIONS

## SWITCH MECHANISMS AND ENCLOSURES



### SERIES B, C, D & R DRY CONTACT SWITCHES

- Designs for AC and DC current applications
- Process temperatures to +1000° F (+538° C)



### SERIES F, HS, H1, 8 & 9 HERMETICALLY SEALED SWITCHES

- Ideal for use in salt and other corrosive atmospheres
- Entire switch mechanism and contacts are contained within a positively pressurized capsule with Series “HS” and “H1”
- Process temperatures to +1000° F (+538° C)



### SERIES J & K PNEUMATIC SWITCHES

- Suited for applications where electrical power is not available
- Bleed and non-bleed designs
- Process temperatures to +400° F (+204° C)



### SWITCH ENCLOSURES

- TYPE 4X/7/9 aluminum enclosures
- Designed to meet Class I, Div. 1, Groups C & D and Class I, Div. 1 Group B
- Cast iron TYPE 4X/7/9 enclosures for hazardous areas greater than +750° F (+399° C)
- Optional housing heaters and drains available for some enclosures
- Pneumatic switch mechanisms available with a NEMA 1 enclosure

### BASIC ELECTRICAL RATINGS

| Voltage | Switch Series and Non-Inductive Ampere Rating |       |       |      |      |      |      |      |      |
|---------|---|-------|-------|------|------|------|------|------|------|
|         | B   | C     | D     | F    | HS   | H1   | R    | 8    | 9    |
| 120 VAC | 15.00   | 15.00 | 10.00 | 2.50 | 5.00 | 1.00 | 1.00 | 1.00 | —    |
| 240 VAC | 15.00   | 15.00 | —     | —    | 5.00 | 1.00 | 1.00 | —    | —    |
| 24 VDC  | 6.00  | 10.00 | 10.00 | 4.00 | 5.00 | 1.00 | 1.00 | 3.00 | 0.50 |
| 120 VDC | 0.50  | 1.00  | 10.00 | 0.30 | 0.50 | 0.40 | 0.40 | —    | —    |
| 240 VDC | 0.25  | 0.50  | 3.00  | —    | 0.25 | —    | —    | —    | —    |

# ASME B31.1 ACTUATING LEVELS

For float operated units, levels are dependent upon the specific gravity of the process media.

**NOTE:** Actuation levels for saturate steam service ratings are shown for single switch units with 1" process connections only. Consult factory for units with two and three set point and 1½" or 2" process connections.

## SATURATED STEAM SERVICE RATINGS (See model selection charts for maximum ratings)

### ASME B31.1 SEALED CAGE MODELS WITH 1" PROCESS CONNECTIONS INCHES

| Sealed Cage Models | Pressure (psig) | Temperature (° F) | Specific Gravity | Actuation Levels |      |
|--------------------|-----------------|-------------------|------------------|------------------|------|
|                    |                 |                   |                  | HL               | LL   |
| B35                | 812             | 520               | 0.76             | 3.33             | 3.91 |
| C35                | 379             | 443               | 0.83             | 4.05             | 4.57 |
| G35                | 546             | 476               | 0.80             | 4.33             | 4.77 |
| V35                | 1044            | 550               | 0.74             | 3.19             | 3.81 |
| Z35                | 1113            | 558               | 0.73             | 3.39             | 3.97 |

Levels ±0.25" (6 mm)

### MILLIMETERS

| Sealed Cage Models | Pressure (bar) | Temperature (° C) | Specific Gravity | Actuation Levels |     |
|--------------------|----------------|-------------------|------------------|------------------|-----|
|                    |                |                   |                  | HL               | LL  |
| B35                | 56             | 271               | 0.76             | 85               | 99  |
| C35                | 26             | 227               | 0.83             | 103              | 116 |
| G35                | 38             | 247               | 0.80             | 110              | 121 |
| V35                | 72             | 288               | 0.74             | 81               | 97  |
| Z35                | 77             | 292               | 0.73             | 86               | 101 |

Levels ±0.25" (6 mm)

### ASME B31.1 FLANGED CAGE MODELS W/1" PROCESS CONNECTIONS - INCHES

| Flanged Cage Models | Head Flange Lbs. | Pressure (psig) | Temperature (° F) | Specific Gravity | Actuation Levels |      |
|---------------------|------------------|-----------------|-------------------|------------------|------------------|------|
|                     |                  |                 |                   |                  | HL               | LL   |
| B3F                 | 150              | 201             | 388               | 0.87             | 3.32             | 4.13 |
|                     | 300              | 601             | 489               | 0.79             | 2.82             | 3.53 |
|                     | 600              | 819             | 523               | 0.76             | 2.67             | 3.57 |
| G3F                 | 150              | 201             | 388               | 0.87             | 5.32             | 5.75 |
|                     | 300              | 601             | 481               | 0.79             | 4.62             | 5.06 |
|                     | 600              | 819             | 523               | 0.76             | 4.29             | 5.00 |
| K3F                 | 600              | 1123            | 559               | 0.73             | 4.21             | 4.65 |
| Z3F                 | 600              | 1132            | 560               | 0.73             | 3.50             | 4.09 |
|                     | 900              | 1564            | 602               | 0.68             | 3.18             | 3.84 |

Levels ±0.25" (6 mm)

### ASME B31.1 FLANGED CAGE MODELS W/1" PROCESS CONNECTIONS - MILLIMETERS

| Flanged Cage Models | Head Flange Lbs. | Pressure (bar) | Temperature (° C) | Specific Gravity | Actuation Levels |     |
|---------------------|------------------|----------------|-------------------|------------------|------------------|-----|
|                     |                  |                |                   |                  | HL               | LL  |
| B3F                 | 150              | 14             | 199               | 0.87             | 84               | 105 |
|                     | 300              | 41             | 254               | 0.79             | 72               | 90  |
|                     | 600              | 56             | 271               | 0.76             | 68               | 91  |
| G3F                 | 150              | 14             | 199               | 0.87             | 135              | 146 |
|                     | 300              | 41             | 249               | 0.79             | 117              | 129 |
|                     | 600              | 56             | 271               | 0.76             | 109              | 127 |
| K3F                 | 600              | 77             | 293               | 0.73             | 107              | 118 |
| Z3F                 | 600              | 78             | 293               | 0.73             | 89               | 104 |
|                     | 900              | 108            | 317               | 0.68             | 81               | 98  |

Levels ±0.25" (6 mm)

# ASME B31.3 DISPLACER MODELS

## DISPLACER MODELS WITH 1" PROCESS CONNECTIONS - INCHES

| Model Code | Process Temp. ° F | Liquid Specific Gravity |      |      |      |      |      |      |      |      |      |      |      |      |      |
|------------|-------------------|-------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
|            |                   | 0.40                    |      | 0.50 |      | 0.60 |      | 0.70 |      | 0.80 |      | 0.90 |      | 1.00 |      |
|            |                   | HL                      | LL   | HL   | LL   | HL   | LL   | HL   | LL   | HL   | LL   | HL   | LL   | HL   | LL   |
| B34        | 100               | 1.30                    | 4.77 | 2.17 | 5.00 | 2.73 | 5.16 | 3.13 | 5.28 | 3.44 | 5.37 | 3.67 | 5.45 | 3.86 | 5.51 |
|            | 200               | 1.24                    | 4.70 | 2.13 | 4.95 | 2.70 | 5.11 | 3.11 | 5.24 | 3.42 | 5.34 | 3.66 | 5.41 | 3.85 | 5.48 |
|            | 300               | 1.18                    | 4.62 | 2.09 | 4.88 | 2.67 | 5.06 | 3.09 | 5.19 | 3.40 | 5.30 | 3.64 | 5.38 | 3.84 | 5.45 |
| C34        | 100               | 4.56                    | 8.44 | 5.75 | 8.94 | 6.56 | 9.25 | 7.13 | 9.50 | 7.50 | 9.69 | 7.88 | 9.81 | 8.13 | 9.94 |
|            | 200               | 4.19                    | 8.06 | 5.50 | 8.63 | 6.31 | 9.00 | 6.94 | 9.25 | 7.38 | 9.50 | 7.69 | 9.63 | 8.00 | 9.75 |
|            | 300               | 3.81                    | 7.63 | 5.19 | 8.25 | 6.06 | 8.69 | 6.69 | 9.00 | 7.19 | 9.25 | 7.50 | 9.44 | 7.81 | 9.56 |
|            | 400               | n/a                     | n/a  | 4.81 | 7.88 | 5.75 | 8.38 | 6.44 | 8.75 | 6.94 | 9.00 | 7.31 | 9.25 | 7.63 | 9.38 |
|            | 500               | n/a                     | n/a  | 4.44 | 7.44 | 5.44 | 8.00 | 6.19 | 8.44 | 6.69 | 8.75 | 7.13 | 9.25 | 7.44 | 9.19 |

Levels ±0.25" (6 mm)

# ASME B31.3 ACTUATING LEVELS

For float operated units, minimum specific gravity and actuating levels vary depending upon the material of construction code used with the unit.

For displacer operated units, minimum specific gravity and actuating levels vary depending upon the temperature at which the unit is operated.

**NOTE:** The minimum specific gravity and actuating levels shown are for single switch units with 1" process connections only.

Minimum specific gravity and levels will change for multistage units and levels will change for units with 1½" or 2" process connections. Consult factory for these changes.

The level decals on the control identify the actuation levels at the corresponding minimum specific gravity.

## ASME B31.3 SEALED CAGE MODELS WITH 1" PROCESS CONNECTIONS

INCHES

| Model Code | Models w/Mat. of Const. Code 1 |                                |      | Models w/Mat. of Const. Code 2 |                                |      |
|------------|--------------------------------|--------------------------------|------|--------------------------------|--------------------------------|------|
|            | Min. Sp. Gr.                   | Actuating Level @ Min. Sp. Gr. |      | Min. Sp. Gr.                   | Actuating Level @ Min. Sp. Gr. |      |
|            |                                | HL                             | LL   |                                | HL                             | LL   |
| B35        | 0.69                           | 3.06                           | 3.62 | 0.72                           | 3.06                           | 3.79 |
| C35        | 0.57                           | 3.15                           | 3.86 | 0.59                           | 3.09                           | 3.96 |
| G35        | 0.55                           | 3.25                           | 3.83 | 0.56                           | 3.20                           | 3.90 |
| K35        | 0.40                           | 3.56                           | 4.06 | 0.40                           | 3.40                           | 4.02 |
| L35        | 0.41                           | 3.31                           | 3.98 | 0.43                           | 3.34                           | 4.14 |
| V35        | 0.71                           | 3.06                           | 3.81 | 0.75                           | 3.00                           | 3.64 |
| Z35        | 0.66                           | 2.94                           | 3.63 | 0.68                           | 2.90                           | 3.47 |

Levels ±0.25" (6 mm)

## MILLIMETERS

| Model Code | Models w/Mat. of Const. Code 1 |                                |     | Models w/Mat. of Const. Code 2 |                                |     |
|------------|--------------------------------|--------------------------------|-----|--------------------------------|--------------------------------|-----|
|            | Min. Sp. Gr.                   | Actuating Level @ Min. Sp. Gr. |     | Min. Sp. Gr.                   | Actuating Level @ Min. Sp. Gr. |     |
|            |                                | HL                             | LL  |                                | HL                             | LL  |
| B35        | 0.69                           | 78                             | 92  | 0.72                           | 78                             | 96  |
| C35        | 0.57                           | 80                             | 98  | 0.59                           | 78                             | 101 |
| G35        | 0.55                           | 82                             | 97  | 0.56                           | 81                             | 99  |
| K35        | 0.40                           | 90                             | 103 | 0.40                           | 86                             | 102 |
| L35        | 0.41                           | 84                             | 101 | 0.43                           | 85                             | 105 |
| V35        | 0.71                           | 78                             | 97  | 0.75                           | 76                             | 92  |
| Z35        | 0.66                           | 75                             | 92  | 0.68                           | 74                             | 88  |

Levels ±0.25" (6 mm)

## ASME B31.3 FLANGED CAGE MODELS WITH 1" PROCESS CONNECTIONS

INCHES

| Model Code | Head Flg. Lbs. | Models w/Mat. of Const. Code 1 |                                |      | Models w/Mat. of Const. Code 2 |                                |      |
|------------|----------------|--------------------------------|--------------------------------|------|--------------------------------|--------------------------------|------|
|            |                | Min. Sp. Gr.                   | Actuating Level @ Min. Sp. Gr. |      | Min. Sp. Gr.                   | Actuating Level @ Min. Sp. Gr. |      |
|            |                |                                | HL                             | LL   |                                | HL                             | LL   |
| B3F        | 150            | 0.78                           | 3.00                           | 3.87 | 0.83                           | 2.97                           | 4.05 |
|            | 300            | 0.66                           | 2.17                           | 2.97 | 0.68                           | 2.10                           | 3.10 |
|            | 600            | 0.66                           | 2.06                           | 3.12 | 0.71                           | 2.19                           | 2.94 |
| G3F        | 150            | 0.41                           | 3.58                           | 4.26 | 0.43                           | 3.61                           | 4.42 |
|            | 300            | 0.55                           | 3.52                           | 4.10 | 0.56                           | 3.47                           | 4.18 |
|            | 600            | 0.70                           | 4.00                           | 4.81 | 0.76                           | 4.13                           | 4.75 |
| K3F        | 150            | 0.33                           | 3.08                           | 3.64 | 0.33                           | 2.97                           | 3.65 |
|            | 300            | 0.40                           | 3.05                           | 3.56 | 0.40                           | 2.96                           | 3.57 |
|            | 600            | 0.60                           | 3.30                           | 3.85 | 0.62                           | 3.44                           | 3.88 |
| Z3F        | 600            | 0.67                           | 3.10                           | 3.80 | 0.70                           | 3.12                           | 3.68 |
|            | 900            | 0.67                           | 3.10                           | 3.80 | 0.70                           | 3.12                           | 3.68 |

Levels ±0.25" (6 mm)

## MILLIMETERS

| Model Code | Head Flg. Lbs. | Models w/Mat. of Const. Code 1 |                                |     | Models w/Mat. of Const. Code 2 |                                |     |
|------------|----------------|--------------------------------|--------------------------------|-----|--------------------------------|--------------------------------|-----|
|            |                | Min. Sp. Gr.                   | Actuating Level @ Min. Sp. Gr. |     | Min. Sp. Gr.                   | Actuating Level @ Min. Sp. Gr. |     |
|            |                |                                | HL                             | LL  |                                | HL                             | LL  |
| B3F        | 150            | 0.78                           | 76                             | 98  | 0.83                           | 75                             | 103 |
|            | 300            | 0.66                           | 55                             | 75  | 0.68                           | 53                             | 79  |
|            | 600            | 0.66                           | 52                             | 79  | 0.71                           | 56                             | 75  |
| G3F        | 150            | 0.41                           | 91                             | 108 | 0.43                           | 92                             | 112 |
|            | 300            | 0.55                           | 89                             | 104 | 0.56                           | 88                             | 106 |
|            | 600            | 0.70                           | 102                            | 122 | 0.76                           | 105                            | 121 |
| K3F        | 150            | 0.33                           | 78                             | 92  | 0.33                           | 75                             | 93  |
|            | 300            | 0.40                           | 77                             | 90  | 0.40                           | 75                             | 91  |
|            | 600            | 0.60                           | 84                             | 98  | 0.62                           | 87                             | 99  |
| Z3F        | 600            | 0.67                           | 79                             | 97  | 0.70                           | 79                             | 93  |
|            | 900            | 0.67                           | 79                             | 97  | 0.70                           | 79                             | 93  |

Levels ±0.25" (6 mm)

# ASME B31.3 DISPLACER MODELS

(Displacer Models cont. from page 6)

## DISPLACER MODELS WITH 1" PROCESS CONNECTIONS - MILLIMETERS

| Model Code | Process Temp. ° C | Liquid Specific Gravity |     |      |     |      |     |      |     |      |     |      |     |      |     |
|------------|-------------------|-------------------------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|------|-----|
|            |                   | 0.40                    |     | 0.50 |     | 0.60 |     | 0.70 |     | 0.80 |     | 0.90 |     | 1.00 |     |
|            |                   | HL                      | LL  | HL   | LL  | HL   | LL  | HL   | LL  | HL   | LL  | HL   | LL  | HL   | LL  |
| B34        | 38                | 33                      | 121 | 55   | 127 | 69   | 131 | 80   | 134 | 87   | 136 | 93   | 138 | 98   | 140 |
|            | 93                | 31                      | 119 | 54   | 126 | 69   | 130 | 79   | 133 | 87   | 136 | 93   | 137 | 98   | 139 |
|            | 149               | 30                      | 117 | 53   | 124 | 68   | 129 | 78   | 132 | 86   | 135 | 92   | 137 | 98   | 138 |
| C34        | 38                | 116                     | 214 | 146  | 227 | 167  | 235 | 181  | 241 | 191  | 246 | 200  | 249 | 207  | 252 |
|            | 93                | 106                     | 205 | 140  | 219 | 160  | 229 | 176  | 235 | 187  | 241 | 195  | 245 | 203  | 248 |
|            | 149               | 97                      | 194 | 132  | 210 | 154  | 221 | 170  | 229 | 183  | 235 | 191  | 240 | 198  | 243 |
|            | 205               | n/a                     | n/a | 122  | 200 | 146  | 213 | 164  | 222 | 176  | 229 | 186  | 235 | 194  | 238 |
|            | 260               | n/a                     | n/a | 113  | 189 | 138  | 203 | 157  | 214 | 170  | 222 | 181  | 229 | 189  | 233 |

Levels ±0.25" (6 mm)





# DIMENSIONAL SPECIFICATIONS

## SEALED CAGE MODELS — ASME B31.1 150# & 300# ANSI PRESSURE RATINGS ASME B31.3 ALL PRESSURE RATINGS

### CHAMBERS WITH 1-INCH CONNECTIONS INCHES

### MILLIMETERS

| Model Code | 1" NPT Threaded & Socket Weld |      |       | 1" Flanged Upper Side/Bottom |       |      |       |       | 1" Flanged Side/Side |       |      |       |       | 1" NPT Thread & Socket Weld |     |     | 1" Flanged Upper Side/Bottom |     |     |      |     | 1" Flanged Side/Side |     |     |      |     |
|------------|-------------------------------|------|-------|------------------------------|-------|------|-------|-------|----------------------|-------|------|-------|-------|-----------------------------|-----|-----|------------------------------|-----|-----|------|-----|----------------------|-----|-----|------|-----|
|            | A                             | B    | C     | D                            |       | E    | F     |       | G                    |       | H    | J     |       | A                           | B   | C   | D                            |     | E   | F    |     | G                    |     | H   | J    |     |
|            |                               |      |       | Std.                         | 14"   |      | Std.  | 14"   | Std.                 | 14"   |      | Std.  | 14"   |                             |     |     | Std.                         | 14" |     | Std. | 14" | Std.                 | 14" |     | Std. | 14" |
| B34        | 8.76                          | 3.63 | 13.84 | 12.87                        | —     | 6.38 | 17.95 | —     | 13.62                | —     | 6.38 | 18.70 | —     | 223                         | 92  | 352 | 327                          | —   | 162 | 459  | —   | 346                  | —   | 162 | 478  | —   |
| B35        | 8.92                          | 4.15 | 15.12 | 11.56                        | 14.00 | 6.69 | 17.76 | 20.20 | 12.21                | 14.00 | 6.69 | 18.41 | 20.20 | 227                         | 105 | 384 | 294                          | 356 | 170 | 451  | 513 | 310                  | 356 | 170 | 468  | 513 |
| C35        | 8.92                          | 4.15 | 15.12 | 11.56                        | 14.00 | 6.69 | 17.76 | 20.20 | 12.21                | 14.00 | 6.69 | 18.41 | 20.20 | 227                         | 105 | 384 | 294                          | 356 | 170 | 451  | 513 | 310                  | 356 | 170 | 468  | 513 |
| G35        | 9.80                          | 4.69 | 16.17 | 12.31                        | 14.00 | 7.19 | 18.68 | 20.36 | 12.96                | 14.00 | 7.19 | 19.33 | 20.36 | 249                         | 119 | 410 | 313                          | 356 | 183 | 474  | 517 | 329                  | 356 | 183 | 490  | 517 |
| L35        | 9.80                          | 4.69 | 16.17 | 12.31                        | 14.00 | 7.19 | 18.68 | 20.36 | 12.96                | 14.00 | 7.19 | 19.33 | 20.36 | 249                         | 119 | 410 | 313                          | 356 | 183 | 474  | 517 | 329                  | 356 | 183 | 490  | 517 |
| V35        | 8.92                          | 4.15 | 15.12 | 11.56                        | 14.00 | 6.68 | 17.76 | 20.20 | 12.21                | 14.00 | 6.68 | 18.41 | 20.20 | 227                         | 105 | 384 | 294                          | 356 | 170 | 451  | 513 | 310                  | 356 | 170 | 468  | 513 |
| Z35        | 9.80                          | 4.69 | 16.17 | 12.31                        | 14.00 | 7.19 | 18.68 | 20.36 | 12.96                | 14.00 | 7.19 | 19.33 | 20.36 | 249                         | 119 | 411 | 313                          | 356 | 183 | 475  | 517 | 329                  | 356 | 183 | 491  | 517 |
|            | A                             | B    | C     | D                            |       | E    | F     |       | G                    |       | H    | J     |       | A                           | B   | C   | D                            |     | E   | F    |     | G                    |     | H   | J    |     |
|            |                               |      |       | Std.                         | 16"   |      | Std.  | 16"   | Std.                 | 16"   |      | Std.  | 16"   | Std.                        | 16" |     |                              |     |     | Std. | 16" | Std.                 | 16" |     | Std. | 16" |
| K35        | 12.04                         | 5.68 | 18.92 | 14.56                        | 16.00 | 8.19 | 21.45 | 22.89 | 15.21                | 16.00 | 8.19 | 22.10 | 22.89 | 306                         | 144 | 481 | 370                          | 406 | 208 | 545  | 581 | 386                  | 406 | 208 | 561  | 581 |

### CHAMBERS WITH 1½-INCH CONNECTIONS INCHES

### MILLIMETERS

| Model Code | 1½" NPT Threaded & Socket Weld |      |       | 1½" Flanged Upper Side/Bottom |       |      |       |       | 1½" Flanged Side/Side |       |      |       |       | 1½" NPT Thread & Socket Weld |     |     | 1½" Flanged Upper Side/Bottom |     |     |      |     | 1½" Flanged Side/Side |     |     |      |     |      |
|------------|--------------------------------|------|-------|-------------------------------|-------|------|-------|-------|-----------------------|-------|------|-------|-------|------------------------------|-----|-----|-------------------------------|-----|-----|------|-----|-----------------------|-----|-----|------|-----|------|
|            | A                              | B    | C     | D                             |       | E    | F     |       | G                     |       | H    | J     |       | A                            | B   | C   | D                             |     | E   | F    |     | G                     |     | H   | J    |     |      |
|            |                                |      |       | Std.                          | 14"   |      | Std.  | 14"   | Std.                  | 14"   |      | Std.  | 14"   |                              |     |     | Std.                          | 14" |     | Std. | 14" | Std.                  | 14" |     | Std. | 14" | Std. |
| B34        | Not Available                  |      |       |                               |       |      |       |       |                       |       |      |       |       |                              |     |     |                               |     |     |      |     |                       |     |     |      |     |      |
| B35        | 8.92                           | 4.22 | 15.12 | 12.56                         | 14.00 | 7.69 | 18.76 | 20.20 | 13.21                 | 14.00 | 7.69 | 19.41 | 20.20 | 227                          | 107 | 384 | 319                           | 356 | 195 | 477  | 513 | 336                   | 356 | 195 | 493  | 513 |      |
| C35        | 8.92                           | 4.22 | 15.12 | 12.56                         | 14.00 | 7.69 | 18.76 | 20.20 | 13.21                 | 14.00 | 7.69 | 19.41 | 20.20 | 227                          | 107 | 384 | 319                           | 356 | 195 | 477  | 513 | 336                   | 356 | 195 | 493  | 513 |      |
| G35        | 9.80                           | 4.75 | 16.17 | 13.31                         | 14.00 | 8.19 | 19.68 | 20.36 | 13.96                 | 14.00 | 8.19 | 20.33 | 20.36 | 249                          | 121 | 411 | 338                           | 356 | 208 | 500  | 517 | 355                   | 356 | 208 | 516  | 517 |      |
| L35        | 9.80                           | 4.75 | 16.17 | 13.31                         | 14.00 | 8.19 | 19.68 | 20.36 | 13.96                 | 14.00 | 8.19 | 20.33 | 20.36 | 249                          | 121 | 411 | 338                           | 356 | 208 | 500  | 517 | 355                   | 356 | 208 | 516  | 517 |      |
| V35        | 8.92                           | 4.22 | 15.12 | 12.56                         | 14.00 | 7.69 | 18.76 | 20.20 | 13.21                 | 14.00 | 7.69 | 19.41 | 20.20 | 227                          | 107 | 384 | 319                           | 356 | 195 | 477  | 513 | 336                   | 356 | 195 | 493  | 513 |      |
| Z35        | 9.80                           | 4.75 | 16.17 | 13.31                         | 14.00 | 8.19 | 19.68 | 20.36 | 13.96                 | 14.00 | 8.19 | 20.33 | 20.36 | 249                          | 121 | 411 | 338                           | 356 | 208 | 500  | 513 | 355                   | 356 | 208 | 517  | 517 |      |
|            | A                              | B    | C     | D                             |       | E    | F     |       | G                     |       | H    | J     |       | A                            | B   | C   | D                             |     | E   | F    |     | G                     |     | H   | J    |     |      |
|            |                                |      |       | Std.                          | 16"   |      | Std.  | 16"   | Std.                  | 16"   |      | Std.  | 16"   | Std.                         | 16" |     |                               |     |     | Std. | 16" | Std.                  | 16" |     | Std. | 16" | Std. |
| K35        | 12.04                          | 5.75 | 18.92 | 15.56                         | 16.00 | 9.19 | 22.45 | 22.89 | 16.21                 | 16.00 | 9.19 | 23.10 | 22.89 | 306                          | 146 | 481 | 395                           | 406 | 233 | 570  | 581 | 412                   | 406 | 233 | 587  | 581 |      |

### CHAMBERS WITH 2-INCH CONNECTIONS INCHES

### MILLIMETERS

| Model Code | 2" NPT Threaded & Socket Weld |      |       | 2" Flanged Upper Side/Bottom |       |      |       |       | 2" Flanged Side/Side |       |      |       |       | 2" NPT Thread & Socket Weld |     |     | 2" Flanged Upper Side/Bottom |     |     |      |     | 2" Flanged Side/Side |     |     |      |     |      |
|------------|-------------------------------|------|-------|------------------------------|-------|------|-------|-------|----------------------|-------|------|-------|-------|-----------------------------|-----|-----|------------------------------|-----|-----|------|-----|----------------------|-----|-----|------|-----|------|
|            | A                             | B    | C     | D                            |       | E    | F     |       | G                    |       | H    | J     |       | A                           | B   | C   | D                            |     | E   | F    |     | G                    |     | H   | J    |     |      |
|            |                               |      |       | Std.                         | 14"   |      | Std.  | 14"   | Std.                 | 14"   |      | Std.  | 14"   |                             |     |     | Std.                         | 14" |     | Std. | 14" | Std.                 | 14" |     | Std. | 14" |      |
| B34        | Not Available                 |      |       |                              |       |      |       |       |                      |       |      |       |       |                             |     |     |                              |     |     |      |     |                      |     |     |      |     |      |
| B35        | 8.92                          | 4.34 | 15.12 | 12.56                        | 14.00 | 7.69 | 18.76 | 20.20 | 13.21                | 14.00 | 7.69 | 19.41 | 20.20 | 227                         | 110 | 384 | 319                          | 356 | 195 | 477  | 513 | 336                  | 356 | 195 | 493  | 513 |      |
| C35        | 8.92                          | 4.34 | 15.12 | 12.56                        | 14.00 | 7.69 | 18.76 | 20.20 | 13.21                | 14.00 | 7.69 | 19.41 | 20.20 | 227                         | 110 | 384 | 319                          | 356 | 195 | 477  | 513 | 336                  | 356 | 195 | 493  | 513 |      |
| G35        | 9.80                          | 4.88 | 16.17 | 13.31                        | 14.00 | 8.19 | 19.68 | 20.36 | 13.96                | 14.00 | 8.19 | 20.33 | 20.36 | 249                         | 124 | 411 | 338                          | 356 | 208 | 500  | 517 | 355                  | 356 | 208 | 516  | 517 |      |
| L35        | 9.80                          | 4.88 | 16.17 | 13.31                        | 14.00 | 8.19 | 19.68 | 20.36 | 13.96                | 14.00 | 8.19 | 20.33 | 20.36 | 249                         | 124 | 411 | 338                          | 356 | 208 | 500  | 517 | 355                  | 356 | 208 | 516  | 517 |      |
| V35        | 8.92                          | 4.34 | 15.12 | 12.56                        | 14.00 | 7.69 | 18.76 | 20.20 | 13.21                | 14.00 | 7.69 | 19.41 | 20.20 | 227                         | 110 | 384 | 319                          | 356 | 195 | 477  | 513 | 336                  | 356 | 195 | 493  | 513 |      |
| Z35        | 9.80                          | 4.88 | 16.17 | 13.31                        | 14.00 | 8.19 | 19.68 | 20.36 | 13.96                | 14.00 | 8.19 | 20.33 | 20.36 | 249                         | 124 | 411 | 338                          | 356 | 208 | 500  | 513 | 355                  | 356 | 208 | 517  | 517 |      |
|            | A                             | B    | C     | D                            |       | E    | F     |       | G                    |       | H    | J     |       | A                           | B   | C   | D                            |     | E   | F    |     | G                    |     | H   | J    |     |      |
|            |                               |      |       | Std.                         | 16"   |      | Std.  | 16"   | Std.                 | 16"   |      | Std.  | 16"   | Std.                        | 16" |     |                              |     |     | Std. | 16" | Std.                 | 16" |     | Std. | 16" | Std. |
| K35        | 12.04                         | 5.88 | 18.92 | 15.56                        | 16.00 | 9.19 | 22.45 | 22.89 | 16.21                | 16.00 | 9.19 | 23.10 | 22.89 | 306                         | 149 | 481 | 395                          | 406 | 233 | 570  | 581 | 412                  | 406 | 233 | 587  | 581 |      |

# DIMENSIONAL SPECIFICATIONS

INCHES ( mm )

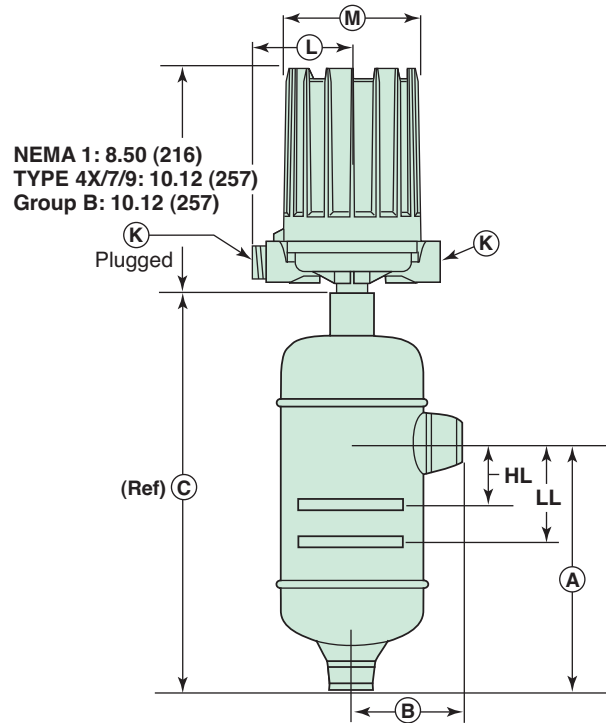
## ASME B31.1 & B31.3 SEALED CAGE MODELS

All housings rotatable 360°.

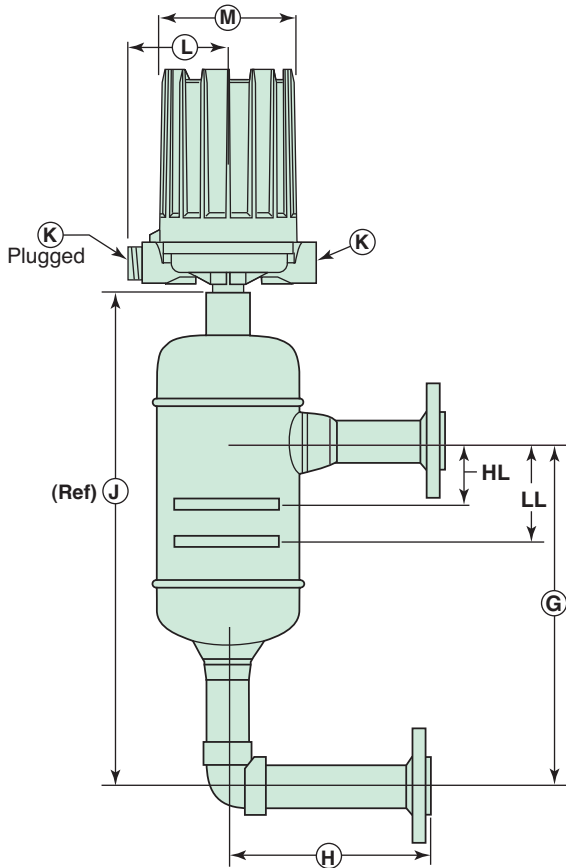
Allow 8 inches (203 mm) overhead clearance for cover removal.

| Conduit Connections K |        |
|-----------------------|--------|
| Electrical Switches   |        |
| TYPE 4X/7/9:          | 1" NPT |
| Group B:              | 1" NPT |
| Pneumatic Switches    |        |
| NEMA 1:               | ¼" NPT |

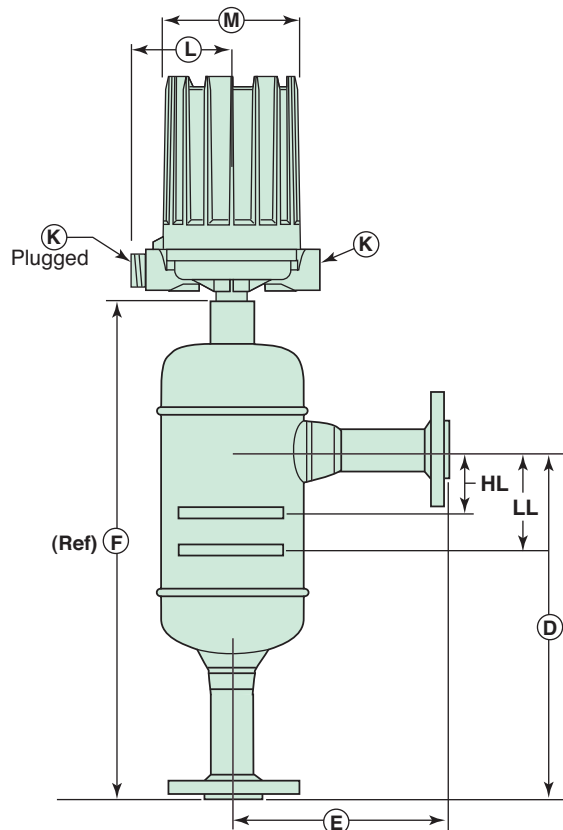
| Outline Dimensions     | L     | M     |
|------------------------|-------|-------|
| TYPE 4X/7/9            | 4.29  | 5.93  |
| TYPE 4X/7/9<br>Group B | (108) | (151) |
| NEMA 1                 | 5.00  | 4.62  |
|                        | (127) | (117) |



Threaded and Socket Weld  
Upper Side/Bottom



Flanged  
Side/Side



Flanged  
Upper Side/Bottom

# DIMENSIONAL SPECIFICATIONS

## ASME B31.1 SEALED CAGE MODELS — 600# & 900# ANSI PRESSURE RATINGS

### CHAMBERS WITH 1-INCH CONNECTIONS — 600 & 900 LB. ANSI CLASS INCHES

### MILLIMETERS

| Model Code | 1" NPT Threaded & Socket Weld |      |       | 1" Flanged Upper Side/Bottom |       |       |       |       | 1" Flanged Side/Side |       |       |       |       | 1" NPT Thread & Socket Weld |     |     | 1" Flanged Upper Side/Bottom |     |     |     |     | 1" Flanged Side/Side |     |     |     |     |
|------------|-------------------------------|------|-------|------------------------------|-------|-------|-------|-------|----------------------|-------|-------|-------|-------|-----------------------------|-----|-----|------------------------------|-----|-----|-----|-----|----------------------|-----|-----|-----|-----|
|            | A                             | B    | C     | D                            |       | E     | F     |       | G                    |       | H     | J     |       | A                           | B   | C   | D                            |     | E   | F   |     | G                    |     | H   | J   |     |
|            |                               |      |       | 14"                          | 16"   |       | 14"   | 16"   | 14"                  | 16"   |       | 14"   | 16"   |                             |     |     | 14"                          | 16" |     | 14" | 16" | 14"                  | 16" |     | 14" | 16" |
|            | MILLIMETERS                   |      |       |                              |       |       |       |       |                      |       |       |       |       |                             |     |     |                              |     |     |     |     |                      |     |     |     |     |
| B35        | 8.92                          | 4.15 | 15.12 | 14.00                        | —     | 9.00  | 20.20 | —     | 14.00                | —     | 9.00  | 20.20 | —     | 227                         | 105 | 384 | 356                          | —   | 229 | 513 | —   | 356                  | —   | 229 | 513 | —   |
| C35        | 8.92                          | 4.15 | 15.12 | 14.00                        | —     | 9.00  | 20.20 | —     | 14.00                | —     | 9.00  | 20.20 | —     | 227                         | 105 | 384 | 356                          | —   | 229 | 513 | —   | 356                  | —   | 229 | 513 | —   |
| G35        | 9.80                          | 4.69 | 16.17 | —                            | 16.00 | 10.00 | —     | 22.36 | —                    | 16.00 | 10.00 | —     | 22.36 | 249                         | 119 | 410 | —                            | 406 | 254 | —   | 568 | —                    | 406 | 254 | —   | 568 |
| V35        | 8.92                          | 4.15 | 15.12 | 14.00                        | —     | 9.00  | 20.20 | —     | 14.00                | —     | 9.00  | 20.20 | —     | 227                         | 105 | 384 | 356                          | —   | 229 | 513 | —   | 356                  | —   | 229 | 513 | —   |
| Z35        | 9.80                          | 4.69 | 16.17 | —                            | 16.00 | 10.00 | —     | 22.36 | —                    | 16.00 | 10.00 | —     | 22.36 | 249                         | 119 | 410 | —                            | 406 | 254 | —   | 568 | —                    | 406 | 254 | —   | 568 |

### CHAMBERS WITH 1½-INCH CONNECTIONS — 600 & 900 LB. ANSI CLASS INCHES

### MILLIMETERS

| Model Code | 1½" NPT Threaded & Socket Weld |      |       | 1½" Flanged Upper Side/Bottom |       |       |       |       | 1½" Flanged Side/Side |       |       |       |       | 1½" NPT Thread & Socket Weld |     |     | 1½" Flanged Upper Side/Bottom |     |     |     |     | 1½" Flanged Side/Side |     |     |     |     |
|------------|--------------------------------|------|-------|-------------------------------|-------|-------|-------|-------|-----------------------|-------|-------|-------|-------|------------------------------|-----|-----|-------------------------------|-----|-----|-----|-----|-----------------------|-----|-----|-----|-----|
|            | A                              | B    | C     | D                             |       | E     | F     |       | G                     |       | H     | J     |       | A                            | B   | C   | D                             |     | E   | F   |     | G                     |     | H   | J   |     |
|            |                                |      |       | 14"                           | 16"   |       | 14"   | 16"   | 14"                   | 16"   |       | 14"   | 16"   |                              |     |     | 14"                           | 16" |     | 14" | 16" | 14"                   | 16" |     |     |     |
|            | MILLIMETERS                    |      |       |                               |       |       |       |       |                       |       |       |       |       |                              |     |     |                               |     |     |     |     |                       |     |     |     |     |
| B35        | 8.92                           | 4.22 | 15.12 | 14.00                         | —     | 9.00  | 20.20 | —     | 14.00                 | —     | 9.00  | 20.20 | —     | 227                          | 107 | 384 | 356                           | —   | 229 | 513 | —   | 356                   | —   | 229 | 513 | —   |
| C35        | 8.92                           | 4.22 | 15.12 | 14.00                         | —     | 9.00  | 20.20 | —     | 14.00                 | —     | 9.00  | 20.20 | —     | 227                          | 107 | 384 | 356                           | —   | 229 | 513 | —   | 356                   | —   | 229 | 513 | —   |
| G35        | 9.80                           | 4.75 | 16.17 | —                             | 16.00 | 10.00 | —     | 22.36 | —                     | 16.00 | 10.00 | —     | 22.36 | 249                          | 121 | 410 | —                             | 406 | 254 | —   | 568 | —                     | 406 | 254 | —   | 568 |
| V35        | 8.92                           | 4.22 | 15.12 | 14.00                         | —     | 9.00  | 20.20 | —     | 14.00                 | —     | 9.00  | 20.20 | —     | 227                          | 107 | 384 | 356                           | —   | 229 | 513 | —   | 356                   | —   | 229 | 513 | —   |
| Z35        | 9.80                           | 4.75 | 16.17 | —                             | 16.00 | 10.00 | —     | 22.36 | —                     | 16.00 | 10.00 | —     | 22.36 | 249                          | 121 | 410 | —                             | 406 | 254 | —   | 568 | —                     | 406 | 254 | —   | 568 |

### CHAMBERS WITH 2-INCH CONNECTIONS — 600 & 900 LB. ANSI CLASS INCHES

### MILLIMETERS

| Model Code | 2" NPT Threaded & Socket Weld |      |       | 2" Flanged Upper Side/Bottom |       |       |       |       | 2" Flanged Side/Side |       |       |       |       | 2" NPT Thread & Socket Weld |     |     | 2" Flanged Upper Side/Bottom |     |     |     |     | 2" Flanged Side/Side |     |     |     |     |
|------------|-------------------------------|------|-------|------------------------------|-------|-------|-------|-------|----------------------|-------|-------|-------|-------|-----------------------------|-----|-----|------------------------------|-----|-----|-----|-----|----------------------|-----|-----|-----|-----|
|            | A                             | B    | C     | D                            |       | E     | F     |       | G                    |       | H     | J     |       | A                           | B   | C   | D                            |     | E   | F   |     | G                    |     | H   | J   |     |
|            |                               |      |       | 14"                          | 16"   |       | 14"   | 16"   | 14"                  | 16"   |       | 14"   | 16"   |                             |     |     | 14"                          | 16" |     | 14" | 16" |                      |     |     |     |     |
|            | MILLIMETERS                   |      |       |                              |       |       |       |       |                      |       |       |       |       |                             |     |     |                              |     |     |     |     |                      |     |     |     |     |
| B35        | 8.92                          | 4.34 | 15.12 | 14.00                        | —     | 9.00  | 20.20 | —     | 14.00                | —     | 9.00  | 20.20 | —     | 227                         | 110 | 384 | 356                          | —   | 229 | 513 | —   | 356                  | —   | 229 | 513 | —   |
| C35        | 8.92                          | 4.34 | 15.12 | 14.00                        | —     | 9.00  | 20.20 | —     | 14.00                | —     | 9.00  | 20.20 | —     | 227                         | 110 | 384 | 356                          | —   | 229 | 513 | —   | 356                  | —   | 229 | 513 | —   |
| G35        | 9.80                          | 4.88 | 16.17 | —                            | 16.00 | 10.00 | —     | 22.36 | —                    | 16.00 | 10.00 | —     | 22.36 | 249                         | 124 | 410 | —                            | 406 | 254 | —   | 568 | —                    | 406 | 254 | —   | 568 |
| V35        | 8.92                          | 4.34 | 15.12 | 14.00                        | —     | 10.00 | 20.20 | —     | 14.00                | —     | 10.00 | 20.20 | —     | 227                         | 110 | 384 | 356                          | —   | 254 | 513 | —   | 356                  | —   | 254 | 513 | —   |
| Z35        | 9.80                          | 4.88 | 16.17 | —                            | 16.00 | 10.00 | —     | 22.36 | —                    | 16.00 | 10.00 | —     | 22.36 | 249                         | 124 | 410 | —                            | 406 | 254 | —   | 568 | —                    | 406 | 254 | —   | 568 |

# DIMENSIONAL SPECIFICATIONS

INCHES (mm)

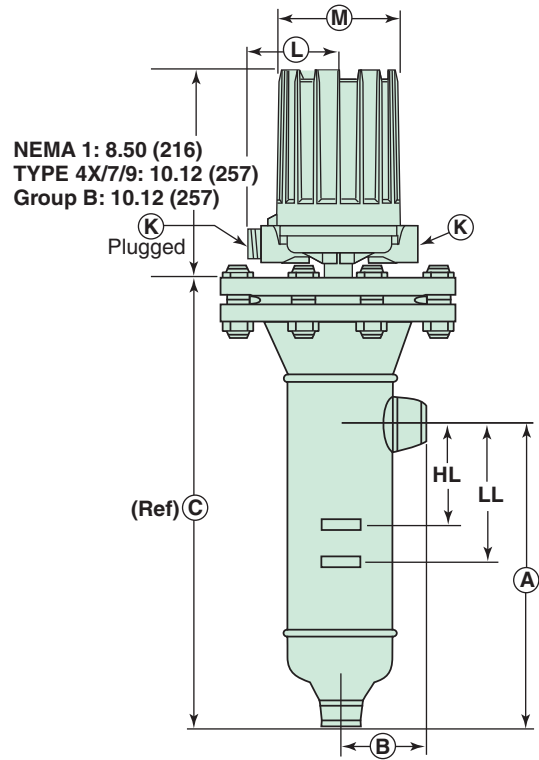
## ASME B31.1 & B31.3 FLANGED CAGE MODELS

All housings rotatable 360°.

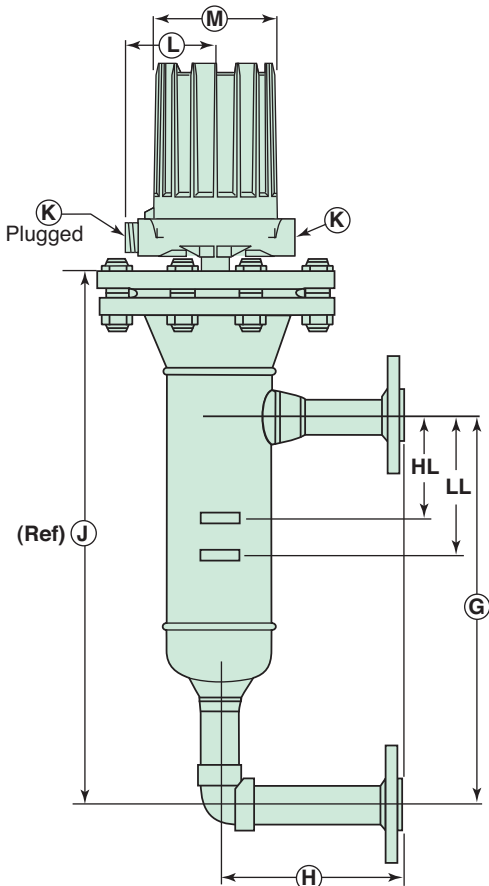
Allow 8 inches (203 mm) overhead clearance for cover removal.

| Conduit Connections K |        |
|-----------------------|--------|
| Electrical Switches   |        |
| TYPE 4X/7/9:          | 1" NPT |
| Group B:              | 1" NPT |
| Pneumatic Switches    |        |
| NEMA 1:               | ¼" NPT |

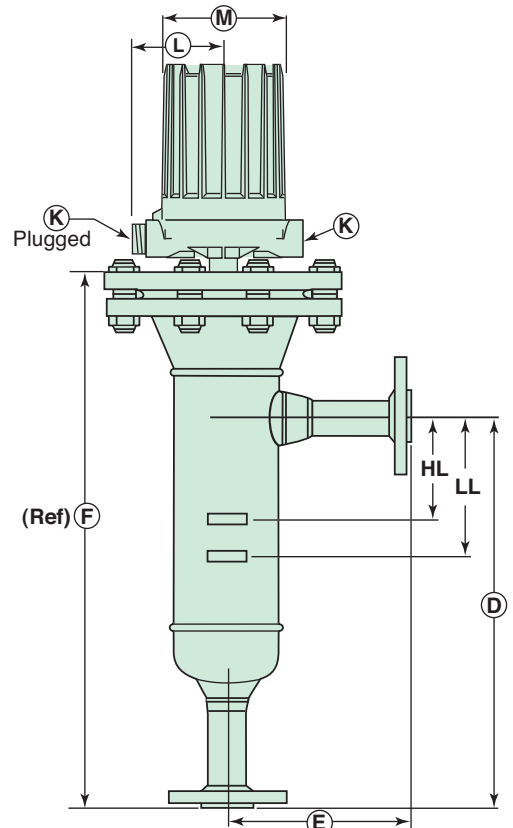
| Outline Dimensions     | L     | M     |
|------------------------|-------|-------|
| TYPE 4X/7/9            | 3.87  | 5.93  |
| TYPE 4X/7/9<br>Group B | (98)  | (151) |
| NEMA 1                 | 5.00  | 4.62  |
|                        | (127) | (117) |



Threaded and Socket Weld  
Upper Side/Bottom



Flanged  
Side/Side



Flanged  
Upper Side/Bottom

# DIMENSIONAL SPECIFICATIONS

## FLANGED CAGE MODELS — ASME B31.1 150# & 300# ANSI PRESSURE RATINGS ASME B31.3 ALL PRESSURE RATINGS

### CHAMBERS WITH 1-INCH CONNECTIONS INCHES

### MILLIMETERS

| Model Code | Head Fig. rating (lbs.) | 1" NPT Threaded & Socket Weld |      |       | 1" Flanged Upper Side/Bottom |       |      |       |       | 1" Flanged Side/Side |       |      |       |       | 1" NPT Thread & Socket Weld |     |     | 1" Flanged Upper Side/Bottom |     |     |      |     | 1" Flanged Side/Side |     |     |      |     |
|------------|-------------------------|-------------------------------|------|-------|------------------------------|-------|------|-------|-------|----------------------|-------|------|-------|-------|-----------------------------|-----|-----|------------------------------|-----|-----|------|-----|----------------------|-----|-----|------|-----|
|            |                         | A                             | B    | C     | D                            |       | E    | F     |       | G                    |       | H    | J     |       | A                           | B   | C   | D                            |     | E   | F    |     | G                    |     | H   | J    |     |
|            |                         |                               |      |       | Std.                         | 14"   |      | Std.  | 14"   | Std.                 | 14"   |      | Std.  | 14"   |                             |     |     | Std.                         | 14" |     | Std. | 14" | Std.                 | 14" |     | Std. | 14" |
| C34        | 300                     | 15.63                         | 3.13 | 22.59 | 18.33                        | —     | 5.45 | 25.29 | —     | 18.97                | —     | 5.45 | 25.93 | —     | 397                         | 80  | 574 | 466                          | —   | 138 | 642  | —   | 482                  | —   | 138 | 659  | —   |
|            | 600                     | 15.63                         | 3.13 | 22.72 | 18.33                        | —     | 5.45 | 25.42 | —     | 18.97                | —     | 5.45 | 26.06 | —     | 397                         | 80  | 577 | 466                          | —   | 138 | 646  | —   | 482                  | —   | 138 | 662  | —   |
| B3F        | 150                     | 9.12                          | 3.63 | 16.64 | 12.06                        | 14.00 | 6.13 | 19.58 | 21.51 | 12.71                | 14.00 | 6.13 | 20.23 | 21.51 | 232                         | 92  | 423 | 306                          | 356 | 156 | 497  | 546 | 323                  | 356 | 156 | 514  | 546 |
|            | 300                     | 9.12                          | 3.63 | 17.32 | 12.06                        | 14.00 | 6.13 | 20.26 | 22.19 | 12.71                | 14.00 | 6.13 | 20.91 | 22.19 | 232                         | 92  | 440 | 306                          | 356 | 156 | 515  | 564 | 323                  | 356 | 156 | 531  | 564 |
| G3F        | 150                     | 10.12                         | 4.69 | 18.30 | 13.06                        | 14.00 | 7.19 | 21.25 | 23.32 | 12.71                | 14.00 | 7.19 | 21.89 | 22.19 | 257                         | 119 | 465 | 332                          | 356 | 183 | 540  | 564 | 348                  | 356 | 183 | 556  | 564 |
|            | 300                     | 10.12                         | 4.69 | 19.12 | 13.06                        | 14.00 | 7.19 | 22.06 | 23.00 | 13.71                | 14.00 | 7.19 | 22.71 | 23.00 | 257                         | 119 | 486 | 332                          | 356 | 183 | 560  | 584 | 348                  | 356 | 183 | 577  | 584 |
| Z3F        | 600                     | 10.11                         | 4.68 | 20.19 | 13.06                        | 14.00 | 7.19 | 23.14 | 24.08 | 13.71                | 14.00 | 7.19 | 23.79 | 24.08 | 257                         | 119 | 513 | 332                          | 356 | 183 | 588  | 612 | 348                  | 356 | 183 | 604  | 612 |
|            | 900                     | 10.11                         | 4.68 | 21.13 | 13.06                        | 14.00 | 7.19 | 23.14 | 25.37 | 13.71                | 14.00 | 7.19 | 23.79 | 24.08 | 257                         | 119 | 537 | 332                          | 356 | 183 | 588  | 612 | 348                  | 356 | 183 | 604  | 612 |
| K3F        | 150                     | 11.62                         | 5.69 | 20.38 | 14.56                        | 16.00 | 8.19 | 23.33 | 24.77 | 15.21                | 16.00 | 8.19 | 23.98 | 24.77 | 295                         | 145 | 518 | 370                          | 406 | 208 | 593  | 629 | 386                  | 406 | 208 | 609  | 629 |
|            | 300                     | 11.62                         | 5.69 | 21.25 | 14.56                        | 16.00 | 8.19 | 24.20 | 25.64 | 15.21                | 16.00 | 8.19 | 24.85 | 25.64 | 295                         | 145 | 540 | 370                          | 406 | 208 | 615  | 651 | 386                  | 406 | 208 | 631  | 651 |
|            | 600                     | 11.62                         | 5.69 | 22.93 | 14.56                        | 16.00 | 8.19 | 25.88 | 27.32 | 15.21                | 16.00 | 8.19 | 26.53 | 27.32 | 295                         | 145 | 582 | 370                          | 406 | 208 | 657  | 694 | 386                  | 406 | 208 | 674  | 694 |

\*See page 15 for ASME B31.1 600# dimensional information.

### CHAMBERS WITH 1½-INCH CONNECTIONS INCHES

### MILLIMETERS

| Model Code | Head Fig. rating (lbs.) | 1½" NPT Threaded & Socket Weld |      |       | 1½" Flanged Upper Side/Bottom |       |      |       |       | 1½" Flanged Side/Side |       |      |       |       | 1½" NPT Thread & Socket Weld |     |     | 1½" Flanged Upper Side/Bottom |     |     |      |     | 1½" Flanged Side/Side |     |     |      |     |
|------------|-------------------------|--------------------------------|------|-------|-------------------------------|-------|------|-------|-------|-----------------------|-------|------|-------|-------|------------------------------|-----|-----|-------------------------------|-----|-----|------|-----|-----------------------|-----|-----|------|-----|
|            |                         | A                              | B    | C     | D                             |       | E    | F     |       | G                     |       | H    | J     |       | A                            | B   | C   | D                             |     | E   | F    |     | G                     |     | H   | J    |     |
|            |                         |                                |      |       | Std.                          | 14"   |      | Std.  | 14"   | Std.                  | 14"   |      | Std.  | 14"   |                              |     |     | Std.                          | 14" |     | Std. | 14" | Std.                  | 14" |     | Std. | 14" |
| C34        | 300                     | 15.63                          | 3.19 | 22.59 | 18.33                         | —     | 6.19 | 25.29 | —     | 18.97                 | —     | 6.19 | 25.93 | —     | 397                          | 81  | 574 | 466                           | —   | 157 | 642  | —   | 482                   | —   | 157 | 659  | —   |
|            | 600                     | 15.63                          | 3.19 | 22.72 | 18.33                         | —     | 6.19 | 25.42 | —     | 18.97                 | —     | 6.19 | 26.06 | —     | 397                          | 81  | 577 | 466                           | —   | 157 | 646  | —   | 482                   | —   | 157 | 662  | —   |
| B3F        | 150                     | 9.12                           | 3.69 | 16.64 | 13.06                         | 14.00 | 7.13 | 20.58 | 21.51 | 13.71                 | 14.00 | 7.13 | 21.23 | 21.51 | 232                          | 94  | 423 | 332                           | 356 | 181 | 523  | 546 | 348                   | 356 | 181 | 539  | 546 |
|            | 300                     | 9.12                           | 3.69 | 17.32 | 13.06                         | 14.00 | 7.13 | 21.26 | 22.19 | 13.71                 | 14.00 | 7.13 | 21.91 | 22.19 | 232                          | 94  | 440 | 332                           | 356 | 181 | 540  | 564 | 348                   | 356 | 181 | 556  | 564 |
| G3F        | 150                     | 10.12                          | 4.75 | 18.30 | 14.06                         | 14.00 | 8.19 | 22.25 | 22.19 | 14.71                 | 14.00 | 8.19 | 22.89 | 22.19 | 257                          | 121 | 465 | 357                           | 356 | 208 | 564  | 563 | 374                   | 356 | 208 | 581  | 564 |
|            | 300                     | 10.12                          | 4.75 | 19.12 | 14.06                         | 14.00 | 8.19 | 23.06 | 23.00 | 14.71                 | 14.00 | 8.19 | 23.71 | 23.00 | 257                          | 121 | 486 | 357                           | 356 | 208 | 586  | 584 | 374                   | 356 | 208 | 602  | 584 |
| Z3F        | 600                     | 10.11                          | 4.75 | 20.19 | 14.06                         | 14.00 | 8.18 | 24.14 | 24.08 | 14.71                 | 14.00 | 8.18 | 24.79 | 24.08 | 257                          | 121 | 513 | 357                           | 356 | 208 | 613  | 612 | 374                   | 356 | 208 | 630  | 612 |
|            | 900                     | 10.11                          | 4.75 | 21.13 | 14.06                         | 14.00 | 8.18 | 24.14 | 24.08 | 14.71                 | 14.00 | 8.18 | 24.79 | 24.08 | 257                          | 121 | 537 | 357                           | 356 | 208 | 613  | 612 | 374                   | 356 | 208 | 630  | 612 |
| K3F        | 150                     | 11.62                          | 5.75 | 20.38 | 15.56                         | 16.00 | 9.19 | 24.33 | 24.77 | 16.21                 | 16.00 | 9.19 | 24.98 | 24.77 | 295                          | 146 | 518 | 395                           | 406 | 233 | 618  | 629 | 412                   | 406 | 233 | 634  | 629 |
|            | 300                     | 11.62                          | 5.75 | 21.25 | 15.56                         | 16.00 | 9.19 | 25.50 | 25.64 | 16.21                 | 16.00 | 9.19 | 25.85 | 25.64 | 295                          | 146 | 540 | 395                           | 406 | 233 | 648  | 651 | 412                   | 406 | 233 | 657  | 651 |
|            | 600                     | 11.62                          | 5.75 | 22.93 | 15.56                         | 16.00 | 9.19 | 26.88 | 27.32 | 16.21                 | 16.00 | 9.19 | 27.53 | 27.32 | 295                          | 146 | 582 | 395                           | 406 | 233 | 683  | 694 | 412                   | 406 | 233 | 699  | 694 |

\*See page 15 for ASME B31.1 600# dimensional information.

### CHAMBERS WITH 2-INCH CONNECTIONS INCHES

### MILLIMETERS

| Model Code | Head Fig. rating (lbs.) | 2" NPT Threaded & Socket Weld |      |       | 2" Flanged Upper Side/Bottom |       |      |       |       | 2" Flanged Side/Side |       |      |       |       | 2" NPT Thread & Socket Weld |     |     | 2" Flanged Upper Side/Bottom |     |     |      |     | 2" Flanged Side/Side |     |     |      |     |
|------------|-------------------------|-------------------------------|------|-------|------------------------------|-------|------|-------|-------|----------------------|-------|------|-------|-------|-----------------------------|-----|-----|------------------------------|-----|-----|------|-----|----------------------|-----|-----|------|-----|
|            |                         | A                             | B    | C     | D                            |       | E    | F     |       | G                    |       | H    | J     |       | A                           | B   | C   | D                            |     | E   | F    |     | G                    |     | H   | J    |     |
|            |                         |                               |      |       | Std.                         | 14"   |      | Std.  | 14"   | Std.                 | 14"   |      | Std.  | 14"   |                             |     |     | Std.                         | 14" |     | Std. | 14" | Std.                 | 14" |     | Std. | 14" |
| C34        | 300                     | 15.63                         | 3.31 | 22.59 | 18.33                        | —     | 6.25 | 25.29 | —     | 18.97                | —     | 6.25 | 25.93 | —     | 397                         | 84  | 574 | 466                          | —   | 159 | 642  | —   | 482                  | —   | 159 | 659  | —   |
|            | 600                     | 15.63                         | 3.31 | 22.72 | 18.33                        | —     | 6.25 | 25.42 | —     | 18.97                | —     | 6.25 | 26.06 | —     | 397                         | 84  | 577 | 466                          | —   | 159 | 646  | —   | 482                  | —   | 159 | 662  | —   |
| B3F        | 150                     | 9.12                          | 3.81 | 16.64 | 13.06                        | 14.00 | 7.13 | 20.58 | 21.51 | 13.71                | 14.00 | 7.13 | 21.23 | 21.51 | 232                         | 97  | 423 | 332                          | 356 | 181 | 523  | 546 | 348                  | 356 | 181 | 539  | 546 |
|            | 300                     | 9.12                          | 3.81 | 17.32 | 13.06                        | 14.00 | 7.13 | 21.26 | 22.19 | 13.71                | 14.00 | 7.13 | 21.91 | 22.19 | 232                         | 97  | 440 | 332                          | 356 | 181 | 540  | 564 | 348                  | 356 | 181 | 556  | 564 |
| G3F        | 150                     | 10.12                         | 4.88 | 18.30 | 14.06                        | 14.00 | 8.19 | 22.25 | 22.19 | 14.71                | 14.00 | 8.19 | 22.89 | 22.19 | 257                         | 124 | 465 | 357                          | 356 | 208 | 565  | 564 | 374                  | 356 | 208 | 581  | 564 |
|            | 300                     | 10.12                         | 4.88 | 19.12 | 14.06                        | 14.00 | 8.19 | 23.06 | 23.00 | 14.71                | 14.00 | 8.19 | 23.71 | 23.00 | 257                         | 124 | 486 | 357                          | 356 | 208 | 586  | 584 | 374                  | 356 | 208 | 602  | 584 |
| Z3F        | 600                     | 10.11                         | 4.87 | 20.19 | 14.06                        | 14.00 | 8.18 | 24.14 | 24.08 | 14.71                | 14.00 | 8.18 | 24.79 | 24.08 | 257                         | 124 | 513 | 357                          | 356 | 208 | 613  | 612 | 374                  | 356 | 208 | 630  | 612 |
|            | 900                     | 10.11                         | 4.87 | 21.13 | 14.06                        | 14.00 | 8.18 | 24.14 | 24.08 | 14.71                | 14.00 | 8.18 | 24.79 | 24.08 | 257                         | 124 | 537 | 357                          | 356 | 208 | 613  | 612 | 374                  | 356 | 208 | 630  | 612 |
| K3F        | 150                     | 11.62                         | 5.88 | 20.38 | 15.56                        | 16.00 | 9.19 | 24.33 | 24.77 | 16.21                | 16.00 | 9.19 | 24.98 | 24.77 | 295                         | 149 | 518 | 395                          | 406 | 233 | 618  | 629 | 412                  | 406 | 233 | 634  | 629 |
|            | 300                     | 11.62                         | 5.88 | 21.25 | 15.56                        | 16.00 | 9.19 | 25.50 | 25.64 | 16.21                | 16.00 | 9.19 | 25.85 | 25.64 | 295                         | 149 | 540 | 395                          | 406 | 233 | 648  | 651 | 412                  | 406 | 233 | 657  | 651 |
|            | 600                     | 11.62                         | 5.88 | 22.93 | 15.56                        | 16.00 | 9.19 | 26.88 | 27.32 | 16.21                | 16.00 | 9.19 | 27.53 | 27.32 | 295                         | 149 | 582 | 395                          | 406 | 233 | 683  | 694 | 412                  | 406 | 233 | 699  | 694 |

\*See page 15 for ASME B31.1 600# dimensional information.

# DIMENSIONAL SPECIFICATIONS

INCHES (mm)

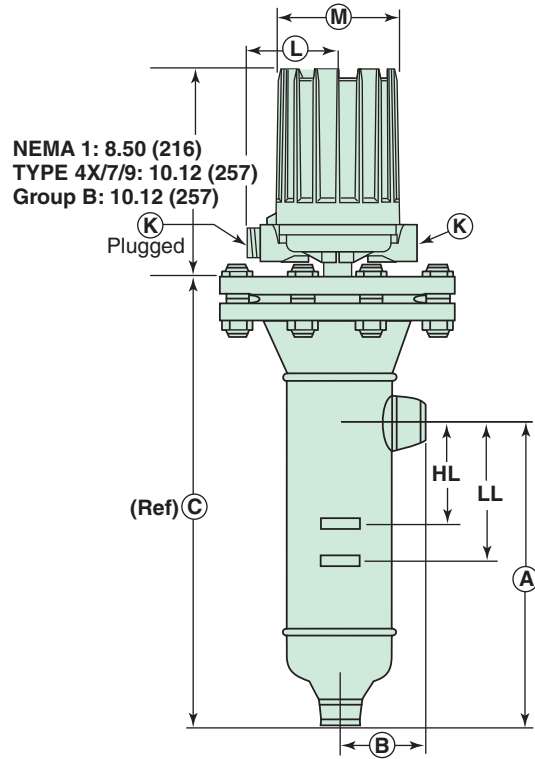
## ASME B31.1 & B31.3 FLANGED CAGE MODELS

All housings rotatable 360°.

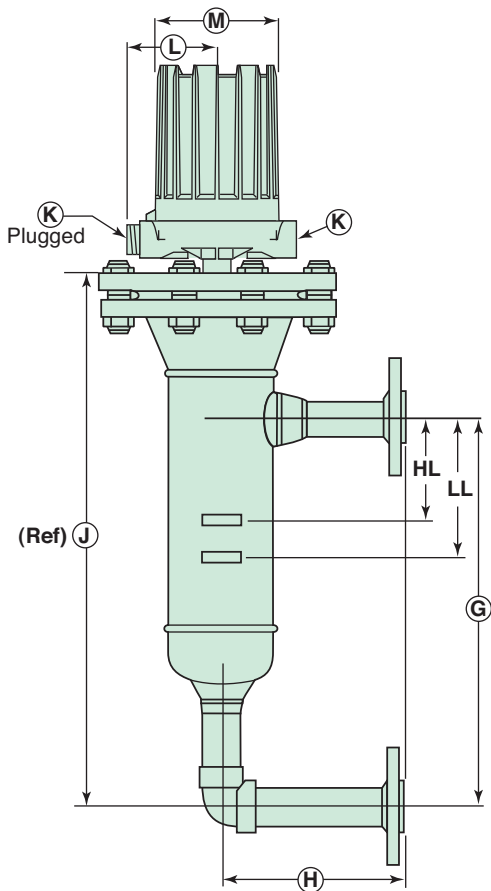
Allow 8 inches (203 mm) overhead clearance for cover removal.

| Conduit Connections K |        |
|-----------------------|--------|
| Electrical Switches   |        |
| TYPE 4X/7/9:          | 1" NPT |
| Group B:              | 1" NPT |
| Pneumatic Switches    |        |
| NEMA 1:               | ¼" NPT |

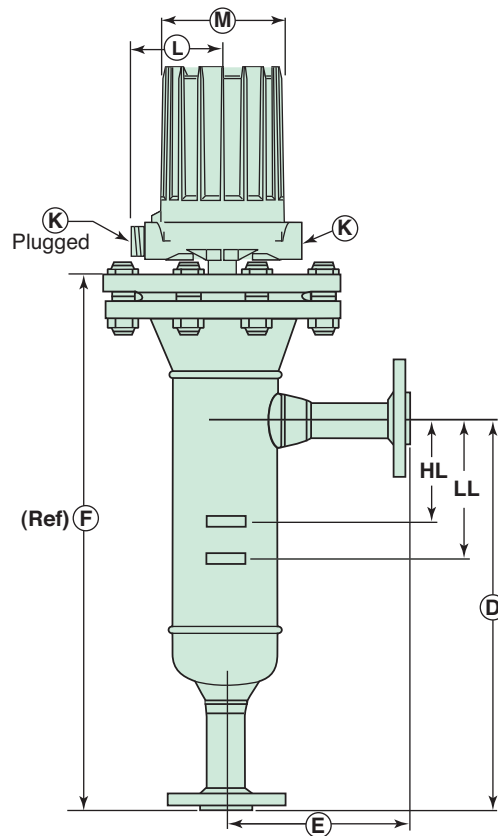
| Outline Dimensions    | L     | M     |
|-----------------------|-------|-------|
| TYPE4X/7/9            | 3.87  | 5.93  |
| TYPE4X/7/9<br>Group B | (98)  | (151) |
| NEMA 1                | 5.00  | 4.62  |
|                       | (127) | (117) |



Threaded and Socket Weld  
Upper Side/Bottom



Flanged  
Side/Side



Flanged  
Upper Side/Bottom

# DIMENSIONAL SPECIFICATIONS

## FLANGED CAGE MODELS — ASME B31.1 600# & 900# ANSI PRESSURE RATING

### CHAMBERS WITH 1-INCH CONNECTIONS INCHES

### MILLIMETERS

| Model Code | Flg. Size (lbs.) | 1" NPT Threaded & Socket Weld |      |       | 1" Flanged Upper Side/Bottom |       |       | 1" Flanged Side/Side |       |     |       | 1" NPT Thread & Socket Weld |     |       | 1" Flanged Upper Side/Bottom |     |      | 1" Flanged Side/Side |     |      |     |     |     |      |     |   |     |
|------------|------------------|-------------------------------|------|-------|------------------------------|-------|-------|----------------------|-------|-----|-------|-----------------------------|-----|-------|------------------------------|-----|------|----------------------|-----|------|-----|-----|-----|------|-----|---|-----|
|            |                  | A                             | B    | C     | D                            |       | E     | F                    |       | G   | H     | J                           |     | A     | B                            | C   | D    |                      | E   | F    |     | G   | H   | J    |     |   |     |
|            |                  | Std.                          | 14"  | 14"   | Std.                         | 14"   | 14"   | Std.                 | 14"   | 14" | 14"   | Std.                        | 14" | 14"   | 14"                          | 14" | Std. | 14"                  | 14" | Std. | 14" | 14" | 14" | Std. | 14" |   |     |
| B3F        | 600              | 9.12                          | 3.63 | 18.39 | —                            | 14.00 | 9.00  | —                    | 23.32 | —   | 14.00 | 9.00                        | —   | 23.32 | 232                          | 92  | 467  | —                    | 356 | 229  | —   | 592 | —   | 356  | 229 | — | 592 |
|            |                  | A                             | B    | C     | D                            |       | E     | F                    |       | G   | H     | J                           |     | A     | B                            | C   | D    |                      | E   | F    |     | G   | H   | J    |     |   |     |
|            |                  | Std.                          | 16"  | 16"   | Std.                         | 16"   | 16"   | Std.                 | 16"   | 16" | 16"   | Std.                        | 16" | 16"   | 16"                          | 16" | Std. | 16"                  | 16" | Std. | 16" | 16" | 16" | Std. | 16" |   |     |
| G3F        | 600              | 10.12                         | 4.69 | 20.51 | —                            | 16.00 | 10.00 | —                    | 26.44 | —   | 16.00 | 10.00                       | —   | 26.43 | 257                          | 119 | 521  | —                    | 406 | 254  | —   | 672 | —   | 406  | 254 | — | 671 |
| Z3F        | 600              | 10.11                         | 4.68 | 20.19 | —                            | 16.00 | 10.00 | —                    | 26.08 | —   | 16.00 | 10.00                       | —   | 26.08 | 257                          | 119 | 513  | —                    | 406 | 254  | —   | 662 | —   | 406  | 254 | — | 662 |
|            | 900              | 10.11                         | 4.68 | 21.13 | —                            | 16.00 | 10.00 | —                    | 26.08 | —   | 16.00 | 10.00                       | —   | 26.08 | 257                          | 119 | 537  | —                    | 406 | 254  | —   | 662 | —   | 406  | 254 | — | 662 |
|            |                  | A                             | B    | C     | D                            |       | E     | F                    |       | G   | H     | J                           |     | A     | B                            | C   | D    |                      | E   | F    |     | G   | H   | J    |     |   |     |
|            |                  | Std.                          | 18"  | 18"   | Std.                         | 18"   | 18"   | Std.                 | 18"   | 18" | 18"   | Std.                        | 18" | 18"   | 18"                          | 18" | Std. | 18"                  | 18" | Std. | 18" | 18" | 18" | Std. | 18" |   |     |
| K3F        | 600              | 11.62                         | 5.69 | 22.89 | —                            | 18.00 | 11.00 | —                    | 29.32 | —   | 18.00 | 11.00                       | —   | 29.32 | 295                          | 145 | 581  | —                    | 457 | 279  | —   | 745 | —   | 457  | 279 | — | 745 |

### CHAMBERS WITH 1½-INCH CONNECTIONS INCHES

### MILLIMETERS

| Model Code | Flg. Size (lbs.) | 1½" NPT Threaded & Socket Weld |      |       | 1½" Flanged Upper Side/Bottom |       |       | 1½" Flanged Side/Side |       |     |       | 1½" NPT Thread & Socket Weld |     |       | 1½" Flanged Upper Side/Bottom |     |      | 1½" Flanged Side/Side |     |      |     |     |     |      |     |   |     |
|------------|------------------|--------------------------------|------|-------|-------------------------------|-------|-------|-----------------------|-------|-----|-------|------------------------------|-----|-------|-------------------------------|-----|------|-----------------------|-----|------|-----|-----|-----|------|-----|---|-----|
|            |                  | A                              | B    | C     | D                             |       | E     | F                     |       | G   | H     | J                            |     | A     | B                             | C   | D    |                       | E   | F    |     | G   | H   | J    |     |   |     |
|            |                  | Std.                           | 14"  | 14"   | Std.                          | 14"   | 14"   | Std.                  | 14"   | 14" | 14"   | Std.                         | 14" | 14"   | 14"                           | 14" | Std. | 14"                   | 14" | Std. | 14" | 14" | 14" | Std. | 14" |   |     |
| B3F        | 600              | 9.12                           | 3.69 | 18.39 | —                             | 14.00 | 9.00  | —                     | 23.32 | —   | 14.00 | 9.00                         | —   | 23.32 | 232                           | 94  | 467  | —                     | 356 | 229  | —   | 592 | —   | 356  | 229 | — | 592 |
|            |                  | A                              | B    | C     | D                             |       | E     | F                     |       | G   | H     | J                            |     | A     | B                             | C   | D    |                       | E   | F    |     | G   | H   | J    |     |   |     |
|            |                  | Std.                           | 16"  | 16"   | Std.                          | 16"   | 16"   | Std.                  | 16"   | 16" | 16"   | Std.                         | 16" | 16"   | 16"                           | 16" | Std. | 16"                   | 16" | Std. | 16" | 16" | 16" | Std. | 16" |   |     |
| G3F        | 600              | 10.12                          | 4.75 | 20.51 | —                             | 16.00 | 10.00 | —                     | 26.44 | —   | 16.00 | 10.00                        | —   | 26.43 | 257                           | 121 | 521  | —                     | 406 | 254  | —   | 672 | —   | 406  | 254 | — | 671 |
| Z3F        | 600              | 10.11                          | 4.75 | 20.19 | —                             | 16.00 | 10.00 | —                     | 26.08 | —   | 16.00 | 10.00                        | —   | 26.08 | 257                           | 121 | 513  | —                     | 406 | 254  | —   | 662 | —   | 406  | 254 | — | 662 |
|            | 900              | 10.11                          | 4.75 | 21.13 | —                             | 16.00 | 10.00 | —                     | 26.08 | —   | 16.00 | 10.00                        | —   | 26.08 | 257                           | 121 | 537  | —                     | 406 | 254  | —   | 662 | —   | 406  | 254 | — | 662 |
|            |                  | A                              | B    | C     | D                             |       | E     | F                     |       | G   | H     | J                            |     | A     | B                             | C   | D    |                       | E   | F    |     | G   | H   | J    |     |   |     |
|            |                  | Std.                           | 18"  | 18"   | Std.                          | 18"   | 18"   | Std.                  | 18"   | 18" | 18"   | Std.                         | 18" | 18"   | 18"                           | 18" | Std. | 18"                   | 18" | Std. | 18" | 18" | 18" | Std. | 18" |   |     |
| K3F        | 600              | 11.62                          | 5.75 | 22.89 | —                             | 18.00 | 11.00 | —                     | 29.32 | —   | 18.00 | 11.00                        | —   | 29.32 | 295                           | 146 | 581  | —                     | 457 | 279  | —   | 745 | —   | 457  | 279 | — | 745 |

### CHAMBERS WITH 2-INCH CONNECTIONS INCHES

### MILLIMETERS

| Model Code | Flg. Size (lbs.) | 2" NPT Threaded & Socket Weld |      |       | 2" Flanged Upper Side/Bottom |       |       | 2" Flanged Side/Side |       |     |       | 2" NPT Thread & Socket Weld |     |       | 2" Flanged Upper Side/Bottom |     |      | 2" Flanged Side/Side |     |      |     |     |     |      |     |   |     |
|------------|------------------|-------------------------------|------|-------|------------------------------|-------|-------|----------------------|-------|-----|-------|-----------------------------|-----|-------|------------------------------|-----|------|----------------------|-----|------|-----|-----|-----|------|-----|---|-----|
|            |                  | A                             | B    | C     | D                            |       | E     | F                    |       | G   | H     | J                           |     | A     | B                            | C   | D    |                      | E   | F    |     | G   | H   | J    |     |   |     |
|            |                  | Std.                          | 14"  | 14"   | Std.                         | 14"   | 14"   | Std.                 | 14"   | 14" | 14"   | Std.                        | 14" | 14"   | 14"                          | 14" | Std. | 14"                  | 14" | Std. | 14" | 14" | 14" | Std. | 14" |   |     |
| B3F        | 600              | 9.12                          | 3.81 | 18.39 | —                            | 14.00 | 9.00  | —                    | 23.32 | —   | 14.00 | 9.00                        | —   | 23.32 | 232                          | 97  | 467  | —                    | 356 | 229  | —   | 592 | —   | 356  | 229 | — | 592 |
|            |                  | A                             | B    | C     | D                            |       | E     | F                    |       | G   | H     | J                           |     | A     | B                            | C   | D    |                      | E   | F    |     | G   | H   | J    |     |   |     |
|            |                  | Std.                          | 16"  | 16"   | Std.                         | 16"   | 16"   | Std.                 | 16"   | 16" | 16"   | Std.                        | 16" | 16"   | 16"                          | 16" | Std. | 16"                  | 16" | Std. | 16" | 16" | 16" | Std. | 16" |   |     |
| G3F        | 600              | 10.12                         | 4.88 | 20.51 | —                            | 16.00 | 10.00 | —                    | 26.44 | —   | 16.00 | 10.00                       | —   | 26.43 | 257                          | 124 | 521  | —                    | 406 | 254  | —   | 672 | —   | 406  | 254 | — | 671 |
| Z3F        | 600              | 10.11                         | 4.87 | 20.19 | —                            | 16.00 | 10.00 | —                    | 26.08 | —   | 16.00 | 10.00                       | —   | 26.08 | 257                          | 124 | 513  | —                    | 406 | 254  | —   | 662 | —   | 406  | 254 | — | 662 |
|            | 900              | 10.11                         | 4.87 | 21.13 | —                            | 16.00 | 10.00 | —                    | 26.08 | —   | 16.00 | 10.00                       | —   | 26.08 | 257                          | 124 | 537  | —                    | 406 | 254  | —   | 662 | —   | 406  | 254 | — | 662 |
|            |                  | A                             | B    | C     | D                            |       | E     | F                    |       | G   | H     | J                           |     | A     | B                            | C   | D    |                      | E   | F    |     | G   | H   | J    |     |   |     |
|            |                  | Std.                          | 18"  | 18"   | Std.                         | 18"   | 18"   | Std.                 | 18"   | 18" | 18"   | Std.                        | 18" | 18"   | 18"                          | 18" | Std. | 18"                  | 18" | Std. | 18" | 18" | 18" | Std. | 18" |   |     |
| K3F        | 600              | 11.62                         | 5.88 | 22.89 | —                            | 18.00 | 11.00 | —                    | 29.32 | —   | 18.00 | 11.00                       | —   | 29.32 | 295                          | 149 | 581  | —                    | 457 | 279  | —   | 745 | —   | 457  | 279 | — | 745 |

# ASME B31.1 MODEL NUMBERS

## SEALED CAGE MODELS

Models available for quick shipment, usually within one week after factory receipt of a complete purchase order, through the Expedite Ship Plan (ESP)

### MODEL NUMBER CODE

| Model Code       | Minimum Specific Gravity <sup>②</sup> | Pressure Rating <sup>①</sup> |      |      |                  |           |       |       |                  |
|------------------|---------------------------------------|------------------------------|------|------|------------------|-----------|-------|-------|------------------|
|                  |                                       | psig @ ° F                   |      |      |                  | bar @ ° C |       |       |                  |
|                  |                                       | 100                          | 550  | 750  | 800 <sup>⑥</sup> | 38        | 288   | 399   | 427 <sup>⑥</sup> |
| B35              | 0.69                                  | 830                          | 830  | 716  | 594              | 57.2      | 57.2  | 49.6  | 41.0             |
| C35              | 0.57                                  | 500                          | 435  | 400  | 395              | 34.5      | 30.0  | 27.6  | 27.2             |
| G35              | 0.54                                  | 750                          | 653  | 600  | 593              | 51.7      | 45.0  | 41.4  | 40.9             |
| V35 <sup>③</sup> | 0.71                                  | 1680                         | 1680 | 1455 | 1210             | 115.8     | 115.8 | 100.3 | 83.4             |
| Z35 <sup>③</sup> | 0.66                                  | 1645                         | 1645 | 1425 | 1185             | 113.4     | 113.4 | 98.3  | 81.7             |

### MATERIALS OF CONSTRUCTION

|   |  |
|---|--|
| P | Carbon steel chamber, 316L stainless steel float, 400 series stainless steel sleeve, ASME B31.1 Construction |
| 7 | P22/F22 Chrome-Moly chamber, 347 SS float, 400 series SS sleeve, ASME B31.1 Construction, model B35 only     |

### SEALED CAGE SIZE AND TANK CONNECTION TYPE

| Type                      | C/C              | Connection Size                         |     |     |     |     |     |     |     |     |     |     |     |
|---------------------------|------------------|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                           |                  | 1"                                      |     |     |     | 1½" |     |     |     | 2"  |     |     |     |
| Threaded                  | Std.             | B20                                     |     |     |     | C20 |     |     |     | D20 |     |     |     |
| Socket Weld               | Std.             | B30                                     |     |     |     | C30 |     |     |     | D30 |     |     |     |
|                           |                  | Cage Mounting ANSI Flange Rating (lbs.) |     |     |     |     |     |     |     |     |     |     |     |
|                           |                  | 150                                     | 300 | 600 | 900 | 150 | 300 | 600 | 900 | 150 | 300 | 600 | 900 |
| Flanged Upper Side/Bottom | Std.             | N30                                     | N40 | —   | —   | P30 | P40 | —   | —   | Q30 | Q40 | —   | —   |
|                           | 14"              | N34                                     | N44 | N54 | N64 | P34 | P44 | P54 | P64 | Q34 | Q44 | Q54 | Q64 |
|                           | 16" <sup>④</sup> | —                                       | —   | N56 | N66 | —   | —   | P56 | P66 | —   | —   | Q56 | Q66 |
| Flanged Side/Side         | Std.             | S30                                     | S40 | —   | —   | T30 | T40 | —   | —   | V30 | V40 | —   | —   |
|                           | 14"              | S34                                     | S44 | S54 | S64 | T34 | T44 | T54 | T64 | V34 | V44 | V54 | V64 |
|                           | 16" <sup>④</sup> | —                                       | —   | S56 | S66 | —   | —   | T56 | T66 | —   | —   | V56 | V66 |

### PNEUMATIC SWITCH MECHANISM AND ENCLOSURE

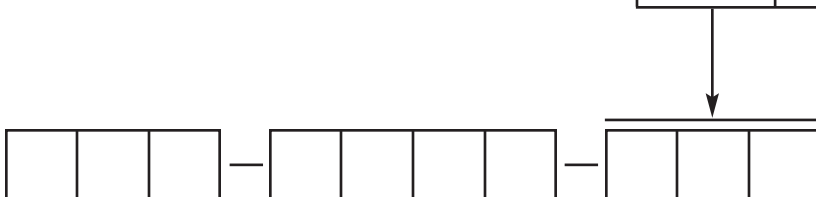
| Switch Description  | Maximum Supply Pressure |     | Maximum Process Temperature |     | Bleed Orifice Diameter |     | Models B35, C35, & G35 | Models V35 & Z35 |
|---------------------|-------------------------|-----|-----------------------------|-----|------------------------|-----|------------------------|------------------|
|                     | psig                    | bar | ° F                         | ° C | inches                 | mm  | NEMA 1                 | NEMA 1           |
| Series J Bleed Type | 100                     | 7   | 400                         | 204 | .063                   | 1.6 | JGH                    | JGF              |
|                     | 60                      | 4   | 400                         | 204 | .094                   | 2.3 | JHH                    | JHF              |
|                     | 60                      | 4   | 700                         | 371 | .055                   | 1.3 | JJH                    | JJF              |
| Series K Non-Bleed  | 100                     | 7   | 400                         | 204 | —                      | —   | —                      | KOF              |
|                     | 40                      | 3   | 400                         | 204 | —                      | —   | KOH                    | —                |

- ① Models are limited to maximum temperature rating of selected switch mechanism.
- ② Minimum specific gravity ratings apply to single stage units only. Consult factory for two or three stage units.
- ③ Models V35 and Z35 contain 17-7 ph stainless steel floats.
- ④ Codes for a 16-inch center to center dimension are applicable to Models G35 with 600# flanges and Z35 with 600 & 900# flanges only.
- ⑤ Process temperature based on +100° F (+38° C) ambient.
- ⑥ For models built to ASME B31.1 in applications over +750° F (+399°C), 100% radiographic examination is required. Consult factory for pricing.
- ⑦ HS & H1 switches can be used with only materials of construction code 1 on models V35 & Z35



**ELECTRIC SWITCH MECHANISM AND ENCLOSURE**

| Switch Description  | Process ⑤ Temperature Range °F (°C) | Contacts | Set Points | Models B35, C35 & G35          |                           |                             | Models V35 & Z35          |                           |                             |
|---|-------------------------------------|----------|------------|--------------------------------|---------------------------|-----------------------------|---------------------------|---------------------------|-----------------------------|
|   |                                     |          |            | TYPE 4X/7/9 Aluminum Enclosure |                           |                             |                           |                           |                             |
|   |                                     |          |            | Class I, Div 1 Groups C&D      | Class I, Div 1 Group B    | ATEX Ex II 2 G EEx d IIC T6 | Class I, Div 1 Groups C&D | Class I, Div 1 Group B    | ATEX Ex II 2 G EEx d IIC T6 |
| Series B Snap Switch  | -40 to +250 (-40 to +121)           | SPDT     | 1          | BKA                            | BKJ                       | BCC                         | BKB                       | BKK                       | BC9                         |
|   |                                     |          | 2          | BLA                            | BLJ                       | BDC                         | BLB                       | BLK                       | BD9                         |
|   |                                     |          | 3          | BMA                            | BMJ                       | BEC                         | BMB                       | BMK                       | BE9                         |
|   |                                     | DPDT     | 1          | BNA                            | BNJ                       | BFC                         | BNB                       | BNK                       | BF9                         |
| 2   | BOA                                 |          | BOJ        | BGC                            | BOB                       | BOK                         | BG9                       |                           |                             |
| Series C Snap Switch  | -40 to +450 (-40 to +232)           | SPDT     | 1          | CKA                            | CKJ                       | CCC                         | CKB                       | CKK                       | CC9                         |
|   |                                     |          | 2          | CLA                            | CLJ                       | CDC                         | CLB                       | CLK                       | CD9                         |
|   |                                     |          | 3          | CMA                            | CMJ                       | CEC                         | CMB                       | CMK                       | CE9                         |
|   |                                     | DPDT     | 1          | CNA                            | CNJ                       | CFC                         | CNB                       | CNK                       | CF9                         |
|   |                                     |          | 2          | COA                            | COJ                       | CGC                         | COB                       | COK                       | CG9                         |
| Series D DC Current Snap Switch                                       | -40 to +250 (-40 to +121)           | SPDT     | 1          | DKB                            | DKK                       | DC9                         | DKB                       | DKK                       | DC9                         |
|   |                                     |          | 2          | DLB                            | DLK                       | DD9                         | DLB                       | DLK                       | DD9                         |
|   |                                     |          | 3          | DMB                            | DMK                       | DE9                         | DMB                       | DMK                       | DE9                         |
|   |                                     | DPDT     | 1          | DNB                            | DNK                       | DF9                         | DNB                       | DNK                       | DF9                         |
|   |                                     |          | 2          | DOB                            | DOK                       | DG9                         | DOB                       | DOK                       | DG9                         |
| Series F Hermetically Sealed Snap Switch                              | -50 to +750 (-46 to +399)           | SPDT     | 1          | FKA                            | FKJ                       | FCC                         | FKB                       | FKK                       | FC9                         |
|   |                                     |          | 2          | FLA                            | FLJ                       | FDC                         | FLB                       | FLK                       | FD9                         |
|   |                                     | DPDT     | 1          | FNA                            | FNJ                       | FFC                         | FNB                       | FNK                       | FF9                         |
|   |                                     |          | 2          | FOA                            | FOJ                       | FGC                         | FOB                       | FOK                       | FG9                         |
| Series HS ⑦ Hermetically Sealed 5-amp Snap Switch with Wiring Leads   | -50 to +400 (-46 to +204)           | SPDT     | 1          | HMJ                            | HMK                       | N/A                         | HMJ                       | HMK                       | N/A                         |
|   |                                     |          | 2          | HMN                            | HMP                       |                             | HMN                       | HMP                       |                             |
|   |                                     | DPDT     | 1          | HMS                            | HMT                       |                             | HMS                       | HMT                       |                             |
|   |                                     |          | 2          | HMY                            | HMZ                       |                             | HMY                       | HMZ                       |                             |
| Series HS ⑦ Hermetically Sealed 5-amp Snap Switch with Terminal Block | -50 to +400 (-46 to +204)           | SPDT     | 1          | HM3                            | HM4                       | HA9                         | HM3                       | HM4                       | HA9                         |
|   |                                     | DPDT     | 1          | HM7                            | HM8                       | HB9                         | HM7                       | HM8                       | HB9                         |
| Series H1 ⑦ Hermetically Sealed 1-amp Snap Switch with Wiring Leads   | -50 to +750 (-46 to +399)           | SPDT     | 1          | HKJ                            | HKK                       | N/A                         | HKJ                       | HKK                       | N/A                         |
|   |                                     | DPDT     | 2          | HKN                            | HKP                       |                             | HKN                       | HKP                       |                             |
| Series R High Temperature Snap Switch                                 | -40 to +750 (-40 to +399)           | SPDT     | 1          | RKB                            | RKK                       | RC9                         | RKB                       | RKK                       | RC9                         |
|   |                                     |          | 2          | RLB                            | RLK                       | RD9                         | RLB                       | RLK                       | RD9                         |
|   |                                     | DPDT     | 1          | RNB                            | RNK                       | RF9                         | RNB                       | RNK                       | RF9                         |
|   |                                     |          | 2          | ROB                            | ROK                       | RG9                         | ROB                       | ROK                       | RG9                         |
| Series 8 Hermetically Sealed Snap Switch                              | -50 to +750 (-46 to +399)           | SPDT     | 1          | 8KA                            | 8KJ                       | 8CC                         | 8KB                       | 8KK                       | 8C9                         |
|   |                                     |          | 2          | 8LA                            | 8LJ                       | 8DC                         | 8LB                       | 8LK                       | 8D9                         |
|   |                                     |          | 3          | 8MA                            | 8MJ                       | 8EC                         | 8MB                       | 8MK                       | 8E9                         |
|   |                                     | DPDT     | 1          | 8NA                            | 8NJ                       | 8FC                         | 8NB                       | 8NK                       | 8F9                         |
|   |                                     |          | 2          | 8OA                            | 8OJ                       | 8GC                         | 8OB                       | 8OK                       | 8G9                         |
| Series 9 High Temperature Hermetically Sealed Snap Switch             | -50 to +750 (-46 to +399)           | SPDT     | 1          | 9KA                            | 9KJ                       | 9CC                         | 9KB                       | 9KK                       | 9C9                         |
|   |                                     |          | 2          | 9LA                            | 9LJ                       | 9DC                         | 9LB                       | 9LK                       | 9D9                         |
|   |                                     |          | 3          | 9MA                            | 9MJ                       | 9EC                         | 9MB                       | 9MK                       | 9E9                         |
|   |                                     | DPDT     | 1          | 9NA                            | 9NJ                       | 9FC                         | 9NB                       | 9NK                       | 9F9                         |
|   |                                     |          | 2          | 9OA                            | 9OJ                       | 9GC                         | 9OB                       | 9OK                       | 9G9                         |
| Switch Description  | Process ⑤ Temp. Range °F (°C)       | Contacts | Set Points | CS/Aluminum                    | Cast Iron                 |                             | CS/Aluminum               | Cast Iron                 |                             |
|   |                                     |          |            | NEMA 4X                        | Class I, Div 1 Groups C&D | Class I, Div 1 Group B      | NEMA 4X                   | Class I, Div 1 Groups C&D | Class I, Div 1 Group B      |
| Series R High Temperature Snap Switch                                 | -40 to +1000 (-40 to +538)          | SPDT     | 1          | R1M                            | RKM                       | RKW                         | R1M                       | RKM                       | RKW                         |
|   |                                     |          | 2          | R3M                            | RLM                       | RLW                         | R3M                       | RLM                       | RLW                         |
|   |                                     | DPDT     | 1          | RDM                            | RNM                       | RNW                         | RDM                       | RNM                       | RNW                         |
|   |                                     |          | 2          | REM                            | ROM                       | ROW                         | REM                       | ROM                       | ROW                         |
| Series 9 High Temperature Hermetically Sealed Snap Switch             | -50 to +1000 (-46 to +538)          | SPDT     | 1          | 9AD                            | 9KD                       | 9KV                         | 9AM                       | 9KM                       | 9KW                         |
|   |                                     |          | 2          | 9BD                            | 9LD                       | 9LV                         | 9BM                       | 9LM                       | 9LW                         |
|   |                                     |          | 3          | 9CD                            | 9MD                       | 9MV                         | 9CM                       | 9MM                       | 9MW                         |
|   |                                     | DPDT     | 1          | 9DD                            | 9ND                       | 9NV                         | 9DM                       | 9NM                       | 9NW                         |
|   |                                     |          | 2          | 9ED                            | 9OD                       | 9OV                         | 9EM                       | 9OM                       | 9OW                         |



# ASME B31.1 MODEL NUMBERS

## FLANGED CAGE MODELS

Models available for quick shipment, usually within one week after factory receipt of a purchase order, through the Expedite Ship Plan (ESP)

### MODEL NUMBER CODE

| Model Code | Head Flange ANSI Class | Minimum S.G. ① | Pressure Rating ② |      |      |      |           |       |      |      |
|------------|------------------------|----------------|-------------------|------|------|------|-----------|-------|------|------|
|            |                        |                | psig @ ° F        |      |      |      | bar @ ° C |       |      |      |
|            |                        |                | 1                 | 100  | 550  | 750  | 800 ⑦     | 38    | 288  | 399  |
| B3F        | 150#                   | 0.78           | 285               | 155  | 95   | 80   | 19.6      | 10.7  | 6.5  | 5.5  |
|            | 300#                   | 0.66           | 740               | 588  | 505  | 410  | 51.0      | 39.6  | 34.8 | 28.3 |
|            | 600#                   | 0.66           | 960               | 870  | 800  | 790  | 66.1      | 60.1  | 55.6 | 54.5 |
| G3F        | 150#                   | 0.41           | 285               | 155  | 95   | 80   | 19.6      | 10.7  | 6.5  | 5.5  |
|            | 300#                   | 0.55           | 740               | 588  | 505  | 410  | 51.0      | 45.0  | 41.4 | 28.3 |
|            | 600#                   | 0.70           | 1000              | 870  | 800  | 790  | 68.9      | 60.0  | 55.6 | 54.5 |
| K3F ③      | 600#                   | 0.60           | 1410              | 1147 | 1010 | 825  | 97.2      | 79.1  | 69.6 | 56.9 |
| Z3F ③      | 600#                   | 0.67           | 1480              | 1147 | 1010 | 825  | 102.0     | 79.1  | 69.6 | 56.9 |
|            | 900#                   |                | 1645              | 1645 | 1425 | 1185 | 151.2     | 113.4 | 98.3 | 81.7 |

### MATERIALS OF CONSTRUCTION

|   |   |
|---|---|
| P | Carbon steel chamber, 316L stainless steel float, 400 stainless steel sleeve, ASME B31.1 Construction |
|---|---|

### CAGE SIZE AND TANK CONNECTION TYPE

| Connection Type           | C/C   | Connection Size                |     |     |     |     |     |     |     |     |     |     |     |
|---------------------------|-------|--------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                           |       | 1"                             |     |     |     | 1½" |     |     |     | 2"  |     |     |     |
|                           |       | ANSI Head Flange Rating (lbs.) |     |     |     |     |     |     |     |     |     |     |     |
|                           |       | 150                            | 300 | 600 | 900 | 150 | 300 | 600 | 900 | 150 | 300 | 600 | 900 |
| Threaded                  | Std.  | B20                            | B60 | B80 | B40 | C20 | C60 | C80 | C40 | D20 | D60 | D80 | D40 |
| Socket Weld               | Std.  | B30                            | B70 | B90 | B50 | C30 | C70 | C90 | C50 | D30 | D70 | D90 | D50 |
| Flanged Upper Side/Bottom | Std.  | N30                            | N40 | —   | —   | P30 | P40 | —   | —   | Q30 | Q40 | —   | —   |
|                           | 14" ④ | N34                            | N44 | N54 | N64 | P34 | P44 | P54 | P64 | Q34 | Q44 | Q54 | Q64 |
|                           | 16" ④ | —                              | —   | N56 | N66 | —   | —   | P56 | P66 | —   | —   | Q56 | Q66 |
| Flanged Side/Side         | 18" ⑤ | —                              | —   | N58 | —   | —   | —   | P58 | —   | —   | —   | Q58 | —   |
|                           | Std.  | S30                            | S40 | —   | —   | T30 | T40 | —   | —   | V30 | V40 | —   | —   |
|                           | 14"   | S34                            | S44 | S54 | S64 | T34 | T44 | T54 | T64 | V34 | V44 | V54 | V64 |
|                           | 16" ④ | —                              | —   | S56 | S66 | —   | —   | T56 | T66 | —   | —   | V56 | V66 |
|                           |       | 18" ⑤                          | —   | —   | S58 | —   | —   | T56 | —   | —   | —   | Q58 | —   |

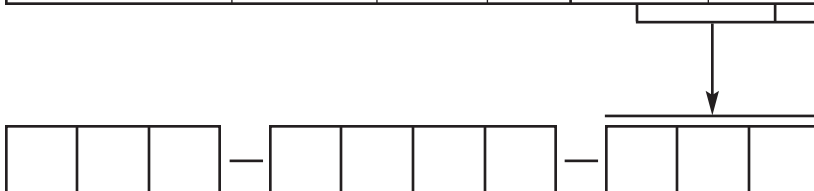
### PNEUMATIC SWITCH MECHANISM AND ENCLOSURE

| Switch Description  | Maximum Supply Pressure |     | Maximum Process Temperature |     | Bleed Orifice Diameter |     | All Models except: B3F, G3F, K3F & Z3F with 600 lb. Head Flanges | Models B3F, G3F, K3F & Z3F with 600 & 900 lb. Head Flanges |
|---------------------|-------------------------|-----|-----------------------------|-----|------------------------|-----|--|--|
|                     | psig                    | bar | ° F                         | ° C | inches                 | mm  | NEMA 1   | NEMA 1   |
| Series J Bleed Type | 100                     | 7   | 400                         | 204 | .063                   | 1.6 | JGH  | JGF  |
|                     | 50                      | 4   | 400                         | 204 | .094                   | 2.3 | JHH  | JHF  |
|                     | 60                      | 4   | 700                         | 371 | .055                   | 1.3 | JJH  | JJF  |
| Series K Non-Bleed  | 100                     | 7   | 400                         | 204 | —                      | —   | —  | KOF  |
|                     | 40                      | 3   | 400                         | 204 | —                      | —   | KOH  | —  |

- ① Minimum specific gravity ratings apply to single stage units only. Consult factory for two or three stage units.
- ② Models are limited to maximum temperature rating of selected switch mechanism.
- ③ Models Z3F & K3F contain 7–17 ph stainless steel floats.
- ④ Codes for a 16 inch center to center dimension are applicable to models G3F and Z3F with 600# flanges only.
- ⑤ Codes for an 18-inch center to center dimension are applicable to K3F model only.
- ⑥ Process temperature based on +100° F (+38° C) ambient.
- ⑦ For models built to ASME B31.1 in applications over +750° F (+399° C), 100% radiographic examination is required. Consult factory for pricing.
- ⑧ HS & H1 switches can be used with only materials of construction code 1 on all models with 600# or 900# ANSI rating.

**ELECTRIC SWITCH MECHANISM AND ENCLOSURE**

| Switch Description   | Process ®<br>Temperature Range<br>°F (°C) | Contacts | Set Points | All models except B3F, G3F, K3F & Z3F<br>with 600# or 900# ANSI ratings |                              |                                   | Models B3F, G3F, K3F & Z3F<br>with 600# or 900# ANSI ratings |                              |                                   |           |  |
|--|---|----------|------------|---|------------------------------|-----------------------------------|--|------------------------------|-----------------------------------|-----------|--|
|  |   |          |            | TYPE 4X/7/9 Aluminum Enclosure  |                              |                                   |  |                              |                                   |           |  |
|  |   |          |            | Class I, Div 1<br>Groups C&D  | Class I, Div 1<br>Group B    | ATEX<br>Ex II 2 G EEx<br>d IIC T6 | Class I, Div 1<br>Groups C&D                                 | Class I, Div 1<br>Group B    | ATEX<br>Ex II 2 G EEx<br>d IIC T6 |           |  |
| Series B<br>Snap Switch  | -40 to +250<br>(-40 to +121)              | SPDT     | 1          | BLA   | BKJ                          | BCC                               | BKB  | BKK                          | BC9                               |           |  |
|  |   |          | 2          | BLB   | BLJ                          | BDC                               | BLB  | BLK                          | BD9                               |           |  |
|  |   |          | 3          | BMA   | BMJ                          | BEC                               | BMB  | BMK                          | BE9                               |           |  |
|  |   | DPDT     | 1          | BNA   | BNJ                          | BFC                               | BNB  | BNK                          | BF9                               |           |  |
| 2  | BOA                                       |          | BOJ        | BGC   | BOB                          | BOK                               | BG9  |                              |                                   |           |  |
| Series C<br>Snap Switch  | -40 to +450<br>(-40 to +232)              | SPDT     | 1          | CKA   | CKJ                          | CCC                               | CKB  | CKK                          | CC9                               |           |  |
|  |   |          | 2          | CLA   | CLJ                          | CDC                               | CLB  | CLK                          | CD9                               |           |  |
|  |   |          | 3          | CMA   | CMJ                          | CEC                               | CMB  | CMK                          | CE9                               |           |  |
|  |   | DPDT     | 1          | CNA   | CNJ                          | CFC                               | CNB  | CNK                          | CF9                               |           |  |
| 2  | COA                                       |          | COJ        | CGC   | COB                          | COK                               | CG9  |                              |                                   |           |  |
| Series D DC Current<br>Snap Switch   | -40 to +250<br>(-40 to +121)              | SPDT     | 1          | DKB   | DKK                          | DC9                               | DKB  | DKK                          | DC9                               |           |  |
|  |   |          | 2          | DLB   | DLK                          | DD9                               | DLB  | DLK                          | DD9                               |           |  |
|  |   |          | 3          | DMB   | DMK                          | DE9                               | DMB  | DMK                          | DE9                               |           |  |
|  |   | DPDT     | 1          | DNB   | DNK                          | DF9                               | DNB  | DNK                          | DF9                               |           |  |
| 2  | DOB                                       |          | DOK        | DG9   | DOB                          | DOK                               | DG9  |                              |                                   |           |  |
| Series F<br>Hermetically Sealed<br>Snap Switch                                 | -50 to +750<br>(-46 to +399)              | SPDT     | 1          | FKA   | FKJ                          | FCC                               | FKB  | FKK                          | FC9                               |           |  |
|  |   |          | 2          | FLA   | FLJ                          | FDC                               | FLB  | FLK                          | FD9                               |           |  |
|  |   | DPDT     | 1          | FNA   | FNJ                          | FFC                               | FNB  | FNK                          | FF9                               |           |  |
|  |   |          | 2          | FOA   | FOJ                          | FGC                               | FOB  | FOK                          | FG9                               |           |  |
| Series HS ®<br>Hermetically Sealed<br>5-amp Snap Switch<br>with Wiring Leads   | -50 to +400<br>(-46 to +204)              | SPDT     | 1          | HMJ   | HMK                          | N/A                               | HMJ  | HMK                          | N/A                               |           |  |
|  |   |          | 2          | HMN   | HMP                          |                                   | HMN  | HMP                          |                                   |           |  |
|  |   | DPDT     | 1          | HMS   | HMT                          |                                   | HMS  | HMT                          |                                   |           |  |
|  |   |          | 2          | HMY   | HMZ                          |                                   | HMY  | HMZ                          |                                   |           |  |
| Series HS ®<br>Hermetically Sealed<br>5-amp Snap Switch<br>with Terminal Block | -50 to +400<br>(-46 to +204)              | SPDT     | 1          | HM3   | HM4                          | HA9                               | HM3  | HM4                          | HA9                               |           |  |
|  |   | DPDT     | 1          | HM7   | HM8                          | HB9                               | HM7  | HM8                          | HB9                               |           |  |
| Series H1 ®<br>Hermetically Sealed<br>1-amp Snap Switch<br>with Wiring Leads   | -50 to +750<br>(-46 to +399)              | SPDT     | 1          | HKJ   | HKK                          | N/A                               | HKJ  | HKK                          | N/A                               |           |  |
|  |   | DPDT     | 2          | HKN   | HKP                          |                                   | HKN  | HKP                          |                                   |           |  |
| Series R<br>High Temperature<br>Snap Switch                                    | -40 to +750<br>(-40 to +399)              | SPDT     | 1          | RKB   | RKK                          | RC9                               | RKB  | RKK                          | RC9                               |           |  |
|  |   |          | 2          | RLB   | RLK                          | RD9                               | RLB  | RLK                          | RD9                               |           |  |
|  |   | DPDT     | 1          | RNB   | RNK                          | RF9                               | RNB  | RNK                          | RF9                               |           |  |
|  |   |          | 2          | ROB   | ROK                          | RG9                               | ROB  | ROK                          | RG9                               |           |  |
| Series 8<br>Hermetically Sealed<br>Snap Switch                                 | -50 to +750<br>(-46 to +399)              | SPDT     | 1          | 8KA   | 8KJ                          | 8CC                               | 8KB  | 8KK                          | 8C9                               |           |  |
|  |   |          | 2          | 8LA   | 8LJ                          | 8DC                               | 8LB  | 8LK                          | 8D9                               |           |  |
|  |   |          | 3          | 8MA   | 8MJ                          | 8EC                               | 8MB  | 8MK                          | 8E9                               |           |  |
|  |   | DPDT     | 1          | 8NA   | 8NJ                          | 8FC                               | 8NB  | 8NK                          | 8F9                               |           |  |
| 2  | 8OA                                       |          | 8OJ        | 8GC   | 8OB                          | 8OK                               | 8G9  |                              |                                   |           |  |
| Series 9<br>High Temperature<br>Hermetically Sealed<br>Snap Switch             | -50 to +750<br>(-46 to +399)              | SPDT     | 1          | 9KA   | 9KJ                          | 9CC                               | 9KB  | 9KK                          | 9C9                               |           |  |
|  |   |          | 2          | 9LA   | 9LJ                          | 9DC                               | 9LB  | 9LK                          | 9D9                               |           |  |
|  |   |          | 3          | 9MA   | 9MJ                          | 9EC                               | 9MB  | 9MK                          | 9E9                               |           |  |
|  |   | DPDT     | 1          | 9NA   | 9NJ                          | 9FC                               | 9NB  | 9NK                          | 9F9                               |           |  |
| 2  | 9OA                                       |          | 9OJ        | 9GC   | 9OB                          | 9OK                               | 9G9  |                              |                                   |           |  |
| Switch Description   | Process ®<br>Temp. Range<br>°F (°C)       | Contacts | Set Points | CS/Aluminum   |                              | Cast Iron                         |  | CS/Aluminum                  |                                   | Cast Iron |  |
|  |   |          |            | NEMA 4X   | Class I, Div 1<br>Groups C&D | Class I, Div 1<br>Group B         | NEMA 4X  | Class I, Div 1<br>Groups C&D | Class I, Div 1<br>Group B         |           |  |
| Series R<br>High Temperature<br>Snap Switch                                    | -40 to +1000<br>(-40 to +538)             | SPDT     | 1          | R1M   | RKM                          | RKW                               | R1M  | RKM                          | RKW                               |           |  |
|  |   |          | 2          | R3M   | RLM                          | RLW                               | R3M  | RLM                          | RLW                               |           |  |
|  |   | DPDT     | 1          | RDM   | RNM                          | RNW                               | RDM  | RNM                          | RNW                               |           |  |
|  |   |          | 2          | REM   | ROM                          | ROW                               | REM  | ROM                          | ROW                               |           |  |
| Series 9<br>High Temperature<br>Hermetically Sealed<br>Snap Switch             | -50 to +1000<br>(-46 to +538)             | SPDT     | 1          | 9AD   | 9KD                          | 9KV                               | 9AM  | 9KM                          | 9KW                               |           |  |
|  |   |          | 2          | 9BD   | 9LD                          | 9LV                               | 9BM  | 9LM                          | 9LW                               |           |  |
|  |   |          | 3          | 9CD   | 9MD                          | 9MV                               | 9CM  | 9MM                          | 9MW                               |           |  |
|  |   | DPDT     | 1          | 9DD   | 9ND                          | 9NV                               | 9DM  | 9NM                          | 9NW                               |           |  |
| 2  | 9ED                                       |          | 9OD        | 9OV   | 9EM                          | 9OM                               | 9OW  |                              |                                   |           |  |



# ASME B31.3 MODEL NUMBERS

## SEALED CAGE MODELS

### MODEL NUMBER CODE

| Model Code             | Min. S.G. for Models with Material of Construction Code ① |      | Pressure Rating ② |            |            |      |     |     |           |           |            |      |      |     |     |
|------------------------|---|------|-------------------|------------|------------|------|-----|-----|-----------|-----------|------------|------|------|-----|-----|
|                        |   |      | psig @ ° F        |            |            |      |     |     | bar @ ° C |           |            |      |      |     |     |
|                        |   |      | 1                 | 2          | 100        | 550  | 750 | 800 | 900       | 1000      | 38         | 288  | 399  | 427 | 482 |
| <b>FLOAT MODELS</b>    |   |      |                   |            |            |      |     |     |           |           |            |      |      |     |     |
| B35                    | 0.69  | 0.72 | 1000              | 870        | 716        | 594  | —   | 138 | 68.9      | 60.0      | 49.6       | 41.0 | —    | 9.5 |     |
| C35                    | 0.57  | 0.59 | 500               | 435        | 400        | 395  | —   | 138 | 34.5      | 30.0      | 27.6       | 27.2 | —    | 9.5 |     |
| G35                    | 0.54  | 0.56 | 750               | 653        | 600        | 593  | —   | 134 | 51.7      | 45.0      | 41.4       | 40.9 | —    | 9.2 |     |
| K35 ③                  | 0.40  | 0.40 | 600               | 522        | 480        | 474  | —   | 121 | 41.4      | 36.0      | 33.1       | 32.7 | —    | 8.3 |     |
| L35                    | 0.41  | 0.43 | 300               | 261        | 240        | 237  | —   | 134 | 20.7      | 18.0      | 16.5       | 16.3 | —    | 9.2 |     |
| V35 ④                  | 0.71  | 0.81 | 2240              | 1913       | 1455       | 1210 | 728 | n/a | 154.4     | 131.9     | 100.3      | 83.4 | 50.2 | n/a |     |
| Z35 ④                  | 0.66  | 0.71 | 2193              | 1913       | 1425       | 1185 | 713 | n/a | 151.2     | 131.9     | 98.3       | 81.7 | 49.2 | n/a |     |
| <b>DISPLACER MODEL</b> |   |      | <b>100</b>        | <b>200</b> | <b>300</b> | n/a  |     |     | <b>38</b> | <b>93</b> | <b>149</b> | n/a  |      |     |     |
| B34 ③⑤⑥                | 0.40  | 0.40 | 1300              | 1225       | 1145       | n/a  |     |     | 89.6      | 84.4      | 78.9       | n/a  |      |     |     |

### MATERIALS OF CONSTRUCTION

|   |   |
|---|---|
| 1 | Carbon steel chamber, 316L stainless steel float, 400 stainless steel sleeve, ASME B31.3 construction |
| 2 | Carbon steel chamber, 316L stainless steel float, 316 stainless steel sleeve, ASME B31.3 construction |

### TANK CONNECTION TYPE AND SIZE

| Type                      | C/C   | Size                                    |     |     |     |       |     |     |     |      |     |     |     |     |
|---------------------------|-------|---|-----|-----|-----|-------|-----|-----|-----|------|-----|-----|-----|-----|
|                           |       | 1"                                      |     |     |     | 1½" ⑥ |     |     |     | 2" ⑥ |     |     |     |     |
| Threaded                  | Std.  | B20                                     |     |     |     | C20   |     |     |     | D20  |     |     |     |     |
| Socket Weld               | Std.  | B30                                     |     |     |     | C30   |     |     |     | D30  |     |     |     |     |
|                           |       | Cage Mounting ANSI Flange Rating (lbs.) |     |     |     |       |     |     |     |      |     |     |     |     |
|                           |       |   | 150 | 300 | 600 | 900   | 150 | 300 | 600 | 900  | 150 | 300 | 600 | 900 |
| Flanged Upper Side/Bottom | Std.  | N30                                     | N40 | N50 | N60 | P30   | P40 | P50 | P60 | Q30  | Q40 | Q50 | Q60 |     |
|                           | 14" ③ | N34                                     | N44 | N54 | N64 | P34   | P44 | P54 | P64 | Q34  | Q44 | Q54 | Q64 |     |
|                           | 16" ⑦ | N36                                     | N46 | N56 | N66 | P36   | P46 | P56 | P66 | Q36  | Q46 | Q56 | Q66 |     |
| Flanged Side/Side         | Std.  | S30                                     | S40 | S50 | S60 | T30   | T40 | T50 | S60 | V30  | V40 | V50 | V60 |     |
|                           | 14" ③ | S34                                     | S44 | S54 | S64 | T34   | T44 | T54 | S64 | V34  | V44 | V54 | V64 |     |
|                           | 16" ⑦ | S36                                     | S46 | S56 | S66 | T36   | T46 | T56 | S66 | V36  | V46 | V56 | V66 |     |

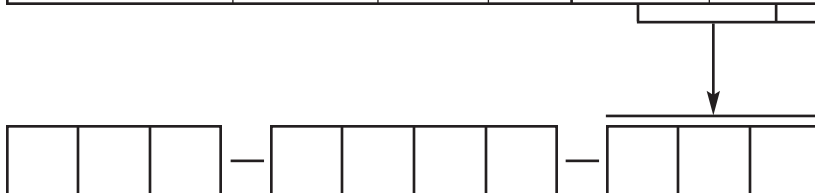
### PNEUMATIC SWITCH MECHANISM AND ENCLOSURE

| Switch Description  | Maximum Supply Pressure |     | Maximum Process Temperature |     | Bleed Orifice Diameter |     | Models B35, C35, G35, K35 & L35 with Material of Constr. Code 1 | Models B34, V35, Z35 & All Models with Material of Constr. Code 2 |
|---------------------|-------------------------|-----|-----------------------------|-----|------------------------|-----|---|---|
|                     | psig                    | bar | ° F                         | ° C | inches                 | mm  | NEMA 1  | NEMA 1  |
| Series J Bleed Type | 100                     | 7   | 400                         | 204 | .063                   | 1.6 | JGH   | JGF   |
|                     | 60                      | 4   | 400                         | 204 | .094                   | 2.3 | JHH   | JHF   |
|                     | 60                      | 4   | 700                         | 371 | .055                   | 1.3 | JJH   | JJF   |
| Series K Non-Bleed  | 100                     | 7   | 400                         | 204 | —                      | —   | —   | KOF   |
|                     | 40                      | 3   | 400                         | 204 | —                      | —   | KOH   | —   |

- ① Minimum SG ratings apply to single stage units. Consult factory for two and three stage units.
- ② Models are limited to maximum temperature rating of selected switch mechanism.
- ③ Consult factory for 14" center-to-center dimensions on models K35 & B34.
- ④ Models V35 and Z35 contain 17-7 ph stainless steel floats.
- ⑤ Consult factory for Model B34 above +300° F (+149° C). Available with single switch only.
- ⑥ Codes 1½" and 2" NPT tank connections are not applicable to the B34 displacer model.
- ⑦ Codes for a 16" center-to-center dimension are applicable to the K35 model only.
- ⑧ Process temperature based on +100° F (+38° C) ambient.
- ⑨ On condensing applications, temperature down-rated to +400° F (+204° C) process at +100° F (+38° C) ambient.
- ⑩ HS & H1 switches can be used with only materials of construction code 1 on models V35 & Z35

**ELECTRIC SWITCH MECHANISM AND ENCLOSURE**

| Switch Description   | Process ®<br>Temperature Range<br>°F (°C) | Contacts | Set Points | Models B35, C35, K35 & L35<br>with Material of Construction Code 1 |                              |                                   | Models B34, V35, Z35 & all models<br>with Material of Construction Code 2 |                              |                                   |           |  |
|--|---|----------|------------|--|------------------------------|-----------------------------------|---|------------------------------|-----------------------------------|-----------|--|
|  |   |          |            | TYPE 4X/7/9 Aluminum Enclosure                                     |                              |                                   |   |                              |                                   |           |  |
|  |   |          |            | Class I, Div 1<br>Groups C&D                                       | Class I, Div 1<br>Group B    | ATEX<br>Ex II 2 G EEx<br>d IIC T6 | Class I, Div 1<br>Groups C&D  | Class I, Div 1<br>Group B    | ATEX<br>Ex II 2 G EEx<br>d IIC T6 |           |  |
| Series B<br>Snap Switch  | -40 to +250<br>(-40 to +121)              | SPDT     | 1          | BJA  | BKJ                          | BCC                               | BKB   | BKK                          | BC9                               |           |  |
|  |   |          | 2          | BLA  | BLJ                          | BDC                               | BLB   | BLK                          | BD9                               |           |  |
|  |   |          | 3          | BMA  | BMJ                          | BEC                               | BMB   | BMK                          | BE9                               |           |  |
|  |   | DPDT     | 1          | BNA  | BNJ                          | BFC                               | BNB   | BNK                          | BF9                               |           |  |
| 2  | BOA                                       |          | BOJ        | BGC  | BOB                          | BOK                               | BG9   |                              |                                   |           |  |
| Series C<br>Snap Switch  | -40 to +450<br>(-40 to +232)              | SPDT     | 1          | CKA  | CKJ                          | CCC                               | CKB   | CKK                          | CC9                               |           |  |
|  |   |          | 2          | CLA  | CLJ                          | CDC                               | CLB   | CLK                          | CD9                               |           |  |
|  |   |          | 3          | CMA  | CMJ                          | CEC                               | CMB   | CMK                          | CE9                               |           |  |
|  |   | DPDT     | 1          | CNA  | CNJ                          | CFC                               | CNB   | CNK                          | CF9                               |           |  |
| 2  | COA                                       |          | COJ        | CGC  | COB                          | COK                               | CG9   |                              |                                   |           |  |
| Series D DC Current<br>Snap Switch   | -40 to +250<br>(-40 to +121)              | SPDT     | 1          | DKB  | DKK                          | DC9                               | DKB   | DKK                          | DC9                               |           |  |
|  |   |          | 2          | DLB  | DLK                          | DD9                               | DLB   | DLK                          | DD9                               |           |  |
|  |   |          | 3          | DMB  | DMK                          | DE9                               | DMB   | DMK                          | DE9                               |           |  |
|  |   | DPDT     | 1          | DNB  | DNK                          | DF9                               | DNB   | DNK                          | DF9                               |           |  |
| 2  | DOB                                       |          | DOK        | DG9  | DOB                          | DOK                               | DG9   |                              |                                   |           |  |
| Series F<br>Hermetically Sealed<br>Snap Switch                                 | -50 to +750<br>(-46 to +399)              | SPDT     | 1          | FKA  | FKJ                          | FCC                               | FKB   | FKK                          | FC9                               |           |  |
|  |   |          | 2          | FLA  | FLJ                          | FDC                               | FLB   | FLK                          | FD9                               |           |  |
|  |   | DPDT     | 1          | FNA  | FNJ                          | FFC                               | FNB   | FNK                          | FF9                               |           |  |
|  |   |          | 2          | FOA  | FOJ                          | FGC                               | FOB   | FOK                          | FG9                               |           |  |
| Series HS ⑩<br>Hermetically Sealed<br>5-amp Snap Switch<br>with Wiring Leads   | -50 to +550 ⑩<br>(-46 to +288)            | SPDT     | 1          | HMJ  | HMK                          | N/A                               | HMJ   | HMK                          | N/A                               |           |  |
|  |   |          | 2          | HMN  | HMP                          |                                   | HMN   | HMP                          |                                   |           |  |
|  |   | DPDT     | 1          | HMS  | HMT                          |                                   | HMS   | HMT                          |                                   |           |  |
|  |   |          | 2          | HMY  | HMZ                          |                                   | HMY   | HMZ                          |                                   |           |  |
| Series HS ⑩<br>Hermetically Sealed<br>5-amp Snap Switch<br>with Terminal Block | -50 to +550 ⑩<br>(-46 to +288)            | SPDT     | 1          | HM3  | HM4                          | HA9                               | HM3   | HM4                          | HA9                               |           |  |
|  |   | DPDT     | 1          | HM7  | HM8                          | HB9                               | HM7   | HM8                          | HB9                               |           |  |
| Series H1 ⑩<br>Hermetically Sealed<br>1-amp Snap Switch<br>with Wiring Leads   | -50 to +750<br>(-46 to +399)              | SPDT     | 1          | HKJ  | HKK                          | N/A                               | HKJ   | HKK                          | N/A                               |           |  |
|  |   | DPDT     | 2          | HKN  | HKP                          |                                   | HKN   | HKP                          |                                   |           |  |
| Series R<br>High Temperature<br>Snap Switch                                    | -40 to +750<br>(-40 to +399)              | SPDT     | 1          | RKB  | RKK                          | RC9                               | RKB   | RKK                          | RC9                               |           |  |
|  |   |          | 2          | RLB  | RLK                          | RD9                               | RLB   | RLK                          | RD9                               |           |  |
|  |   | DPDT     | 1          | RNB  | RNK                          | RF9                               | RNB   | RNK                          | RF9                               |           |  |
|  |   |          | 2          | ROB  | ROK                          | RG9                               | ROB   | ROK                          | RG9                               |           |  |
| Series 8<br>Hermetically Sealed<br>Snap Switch                                 | -50 to +750<br>(-46 to +399)              | SPDT     | 1          | 8KA  | 8KJ                          | 8CC                               | 8KB   | 8KK                          | 8C9                               |           |  |
|  |   |          | 2          | 8LA  | 8LJ                          | 8DC                               | 8LB   | 8LK                          | 8D9                               |           |  |
|  |   |          | 3          | 8MA  | 8MJ                          | 8EC                               | 8MB   | 8MK                          | 8E9                               |           |  |
|  |   | DPDT     | 1          | 8NA  | 8NJ                          | 8FC                               | 8NB   | 8NK                          | 8F9                               |           |  |
| 2  | 8OA                                       |          | 8OJ        | 8GC  | 8OB                          | 8OK                               | 8G9   |                              |                                   |           |  |
| Series 9<br>High Temperature<br>Hermetically Sealed<br>Snap Switch             | -50 to +750<br>(-46 to +399)              | SPDT     | 1          | 9KA  | 9KJ                          | 9CC                               | 9KB   | 9KK                          | 9C9                               |           |  |
|  |   |          | 2          | 9LA  | 9LJ                          | 9DC                               | 9LB   | 9LK                          | 9D9                               |           |  |
|  |   |          | 3          | 9MA  | 9MJ                          | 9EC                               | 9MB   | 9MK                          | 9E9                               |           |  |
|  |   | DPDT     | 1          | 9NA  | 9NJ                          | 9FC                               | 9NB   | 9NK                          | 9F9                               |           |  |
| 2  | 9OA                                       |          | 9OJ        | 9GC  | 9OB                          | 9OK                               | 9G9   |                              |                                   |           |  |
| Switch Description   | Process ®<br>Temp. Range<br>°F (°C)       | Contacts | Set Points | CS/Aluminum  |                              | Cast Iron                         |   | CS/Aluminum                  |                                   | Cast Iron |  |
|  |   |          |            | NEMA 4X  | Class I, Div 1<br>Groups C&D | Class I, Div 1<br>Group B         | NEMA 4X   | Class I, Div 1<br>Groups C&D | Class I, Div 1<br>Group B         |           |  |
| Series R<br>High Temperature<br>Snap Switch                                    | -40 to +1000<br>(-40 to +538)             | SPDT     | 1          | R1M  | RKM                          | RKW                               | R1M   | RKM                          | RKW                               |           |  |
|  |   |          | 2          | R3M  | RLM                          | RLW                               | R3M   | RLM                          | RLW                               |           |  |
|  |   | DPDT     | 1          | RDM  | RNM                          | RNW                               | RDM   | RNM                          | RNW                               |           |  |
|  |   |          | 2          | REM  | ROM                          | ROW                               | REM   | ROM                          | ROW                               |           |  |
| Series 9<br>High Temperature<br>Hermetically Sealed<br>Snap Switch             | -50 to +1000<br>(-46 to +538)             | SPDT     | 1          | 9AD  | 9KD                          | 9KV                               | 9AM   | 9KM                          | 9KW                               |           |  |
|  |   |          | 2          | 9BD  | 9LD                          | 9LV                               | 9BM   | 9LM                          | 9LW                               |           |  |
|  |   |          | 3          | 9CD  | 9MD                          | 9MV                               | 9CM   | 9MM                          | 9MW                               |           |  |
|  |   | DPDT     | 1          | 9DD  | 9ND                          | 9NV                               | 9DM   | 9NM                          | 9NW                               |           |  |
| 2  | 9ED                                       |          | 9OD        | 9OV  | 9EM                          | 9OM                               | 9OW   |                              |                                   |           |  |



# ASME B31.3 and NACE MODEL NUMBERS

## FLANGED CAGE MODELS

### MODEL NUMBER CODE

| Model Code              | Head Flange ANSI Class | Min. S.G. for Models with Material of Construction Code <sup>①</sup> |        | Pressure Rating <sup>②</sup> |            |            |      |     |      |            |            |            |      |      |     |
|-------------------------|------------------------|--|--------|------------------------------|------------|------------|------|-----|------|------------|------------|------------|------|------|-----|
|                         |                        |  |        | psig @ ° F                   |            |            |      |     |      | bar @ ° C  |            |            |      |      |     |
|                         |                        | 1  | 2 or N | 100                          | 550        | 750        | 800  | 900 | 1000 | 38         | 288        | 399        | 427  | 482  | 538 |
| <b>FLOAT MODELS</b>     |                        |  |        |                              |            |            |      |     |      |            |            |            |      |      |     |
| B3F                     | 150#                   | 0.78   | 0.83   | 285                          | 155        | 95         | 80   | —   | 20   | 19.6       | 10.7       | 6.5        | 5.5  | —    | 1.4 |
|                         | 300#                   | 0.66   | 0.68   | 740                          | 588        | 505        | 410  | —   | 50   | 51.0       | 39.6       | 34.8       | 28.3 | —    | 3.4 |
|                         | 600# <sup>③④</sup>     | 0.66   | 0.71   | 1000                         | 870        | 800        | 790  | —   | 105  | 68.9       | 60.0       | 55.6       | 54.5 | —    | 7.2 |
| G3F                     | 150#                   | 0.41   | 0.43   | 285                          | 155        | 95         | 80   | —   | 20   | 19.6       | 10.7       | 6.5        | 5.5  | —    | 1.4 |
|                         | 300#                   | 0.55   | 0.56   | 740                          | 588        | 505        | 410  | —   | 50   | 51.0       | 45.0       | 41.1       | 28.3 | —    | 3.4 |
|                         | 600# <sup>③④</sup>     | 0.70   | 0.76   | 1000                         | 870        | 800        | 790  | —   | 105  | 68.9       | 60.0       | 55.6       | 54.5 | —    | 7.2 |
| K3F <sup>⑤</sup>        | 150#                   | 0.33   | 0.33   | 285                          | 155        | 95         | 80   | —   | 20   | 19.6       | 10.7       | 6.5        | 5.5  | —    | 1.4 |
|                         | 300#                   | 0.40   | 0.40   | 600                          | 522        | 480        | 474  | —   | 50   | 41.4       | 36.0       | 33.1       | 32.7 | —    | 3.4 |
|                         | 600# <sup>③④⑥</sup>    | 0.60   | 0.62   | 1480                         | 1147       | 1010       | 825  | 345 | n/a  | 102.0      | 79.1       | 69.6       | 56.9 | 92.7 | n/a |
| Z3F                     | 600# <sup>③④⑥</sup>    | 0.67   | 0.74   | 1480                         | 1147       | 1010       | 825  | 345 | n/a  | 102.0      | 79.1       | 69.6       | 56.9 | 92.7 | n/a |
|                         | 900# <sup>③④⑥</sup>    | 0.67   | 0.73   | 2193                         | 1718       | 1425       | 1185 | 515 | n/a  | 151.2      | 118.5      | 98.3       | 81.7 | 35.5 | n/a |
| <b>DISPLACER MODELS</b> |                        |  |        | <b>100</b>                   | <b>300</b> | <b>500</b> |      |     |      | <b>100</b> | <b>300</b> | <b>500</b> |      |      |     |
| C34 <sup>⑤⑦⑧</sup>      | 300#                   | n/a  |        | 740                          | 655        | 600        | n/a  |     |      | 51.0       | 45.2       | 41.1       | n/a  |      |     |
|                         | 600# <sup>④</sup>      |  |        | 1480                         | 1310       | 1200       |      |     |      | 102.0      | 90.7       | 82.7       |      |      |     |
|                         | Minimum SG             |  |        | 0.40                         | 0.40       | 0.44       |      |     |      | 0.40       | 0.40       | 0.44       |      |      |     |

### MATERIALS OF CONSTRUCTION

|   |  |
|---|--|
| 1 | Carbon steel chamber, 316L stainless steel float, 400 stainless steel sleeve, ASME B31.3 Construction          |
| 2 | Carbon steel chamber, 316L stainless steel float, 316 stainless steel sleeve, ASME B31.3 Construction          |
| N | Carbon steel chamber, 316L stainless steel float, 316 stainless steel sleeve, NACE and ASME B31.3 Construction |

NACE construction: float cage is thermally stress relieved after welding, then hardness tested to assure compliance. Complies with NACE MR0175 & MR0103 latest revisions.

### TANK CONNECTION TYPE AND SIZE

| Connection Type           | C/C              | Size <sup>⑧</sup>              |     |     |     |     |     |     |     |     |     |     |     |
|---------------------------|------------------|--------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                           |                  | 1"                             |     |     |     | 1½" |     |     |     | 2"  |     |     |     |
|                           |                  | ANSI Head Flange Rating (lbs.) |     |     |     |     |     |     |     |     |     |     |     |
|                           |                  | 150                            | 300 | 600 | 900 | 150 | 300 | 600 | 900 | 150 | 300 | 600 | 900 |
| Threaded s/b              | Std.             | B20                            | B60 | B80 | B40 | C20 | C60 | C80 | C40 | D20 | D60 | D80 | D40 |
| Socket Weld s/b           | Std.             | B30                            | B70 | B90 | B50 | C30 | C70 | C90 | C50 | D30 | D70 | D90 | D50 |
| Flanged Upper Side/Bottom | Std.             | N30                            | N40 | N50 | N60 | P30 | P40 | P50 | P60 | Q30 | Q40 | Q50 | Q60 |
|                           | 14" <sup>⑤</sup> | N34                            | N44 | N54 | N64 | P34 | P44 | P54 | P64 | Q34 | Q44 | Q54 | Q64 |
|                           | 16" <sup>⑥</sup> | N36                            | N46 | N56 | N66 | P36 | P46 | P56 | P66 | Q36 | Q46 | Q56 | Q66 |
| Flanged Side/Side         | Std.             | S30                            | S40 | S50 | S60 | T30 | T40 | T50 | T60 | V30 | V40 | V50 | V60 |
|                           | 14" <sup>⑤</sup> | S34                            | S44 | S54 | S64 | T34 | T44 | T54 | T64 | V34 | V44 | V54 | V64 |
|                           | 16" <sup>⑥</sup> | S36                            | S46 | S56 | S66 | T36 | T46 | T56 | T66 | V36 | V46 | V56 | V66 |

### PNEUMATIC SWITCH MECHANISM AND ENCLOSURE

| Switch Description  | Maximum Supply Pressure |     | Maximum Process Temperature |     | Bleed Orifice Diameter |     | All Models with Material of Construction Code 1 except B3F, C34, K34, G3F & Z3F with 600# or 900# ANSI rating | Model C34 and All Models with Material of Construction Code 2 or N and B3F, G3F, K3F & Z3F with 600# or 900# ANSI rating |
|---------------------|-------------------------|-----|-----------------------------|-----|------------------------|-----|---|--|
|                     | psig                    | bar | ° F                         | ° C | inches                 | mm  |   |  |
| Series J Bleed Type | 100                     | 7   | 400                         | 204 | .063                   | 1.6 | JGH   | JGF  |
|                     | 50                      | 4   | 400                         | 204 | .094                   | 2.3 | JHH   | JHF  |
|                     | 60                      | 4   | 700                         | 371 | .055                   | 1.3 | JJH   | JJF  |
| Series K Non-Bleed  | 100                     | 7   | 400                         | 204 | —                      | —   | —   | KOF  |
|                     | 40                      | 3   | 400                         | 204 | —                      | —   | KOH   | —  |

- ① Minimum SG ratings apply to single stage units. Consult factory for two and three stage units.
- ② Models are limited to maximum temperature rating of selected switch mechanism.
- ③ 600# and 900# flanged cage models must use switch codes listed under heading "Model C34 & All Models w/ Materials of Construction Codes 2 or N and B3F, G3F, K3F & Z3F with 600# or 900# ANSI rating".
- ④ HS switches can be used with Materials of Construction Code 1 only. Example: B3F-1B80-HSG.
- ⑤ Consult factory for 14" center-to-center dimensions on models K3F and C34.
- ⑥ Construction Code N is not applicable to this unit due to 17-7 ph stainless steel float material.
- ⑦ Consult factory for Model C34 up to +750° F (+399° C).
- ⑧ Codes for 150 lb. flanges are not applicable to the C34 displacer model.
- ⑨ Codes for a 16" center-to-center dimension are applicable to the K3F model only.
- ⑩ Process temperature based on +100° F (+38° C) ambient.
- ⑪ On condensing applications, temperature down-rated to +400° F (+204° C) process at +100° F (+38° C) ambient.
- ⑫ On condensing applications, temperature down-rated to +400° F (+204° C) process at +100° F (+38° C) ambient.

**ELECTRIC SWITCH MECHANISM AND ENCLOSURE**

| Switch Description  | Process <sup>®</sup> Temperature Range °F (°C) | Contacts | Set Points | All models C34 and all models with Material of Construction Code 1 except B3F, G3F, K3F & Z3F with 600# or 900# ANSI ratings |                        |                             | All models C34 and all models with Material of Construction Codes 2 & N and B3F, G3F, K3F & Z3F with 600# or 900# ANSI ratings |                        |                             |
|---|--|----------|------------|--|------------------------|-----------------------------|--|------------------------|-----------------------------|
|   |  |          |            | TYPE 4X/7/9 Aluminum Enclosure   |                        |                             |  |                        |                             |
|   |  |          |            | Class I, Div 1 Groups C&D  | Class I, Div 1 Group B | ATEX Ex II 2 G EEx d IIC T6 | Class I, Div 1 Groups C&D  | Class I, Div 1 Group B | ATEX Ex II 2 G EEx d IIC T6 |
| Series B Snap Switch  | -40 to +250 (-40 to +121)                      | SPDT     | 1          | BKA  | BKJ                    | BCC                         | BKB  | BKK                    | BC9                         |
|   |  |          | 2          | BLA  | BLJ                    | BDC                         | BLB  | BLK                    | BD9                         |
|   |  |          | 3          | BMA  | BMJ                    | BEC                         | BMB  | BMK                    | BE9                         |
|   |  | DPDT     | 1          | BNA  | BNJ                    | BFC                         | BNB  | BNK                    | BF9                         |
|   |  |          | 2          | BOA  | BOJ                    | BGC                         | BOB  | BOK                    | BG9                         |
| Series C Snap Switch  | -40 to +450 (-40 to +232)                      | SPDT     | 1          | CKA  | CKJ                    | CCC                         | CKB  | CKK                    | CC9                         |
|   |  |          | 2          | CLA  | CLJ                    | CDC                         | CLB  | CLK                    | CD9                         |
|   |  |          | 3          | CMA  | CMJ                    | CEC                         | CMB  | CMK                    | CE9                         |
|   |  | DPDT     | 1          | CNA  | CNJ                    | CFC                         | CNB  | CNK                    | CF9                         |
|   |  |          | 2          | COA  | COJ                    | CGC                         | COB  | COK                    | CG9                         |
| Series D DC Current Snap Switch                                     | -40 to +250 (-40 to +121)                      | SPDT     | 1          | DKB  | DKK                    | DC9                         | DKB  | DKK                    | DC9                         |
|   |  |          | 2          | DLB  | DLK                    | DD9                         | DLB  | DLK                    | DD9                         |
|   |  |          | 3          | DMB  | DMK                    | DE9                         | DMB  | DMK                    | DE9                         |
|   |  | DPDT     | 1          | DNB  | DNK                    | DF9                         | DNB  | DNK                    | DF9                         |
|   |  |          | 2          | DOB  | DOK                    | DG9                         | DOB  | DOK                    | DG9                         |
| Series F Hermetically Sealed Snap Switch                            | -50 to +750 (-46 to +399)                      | SPDT     | 1          | FKA  | FKJ                    | FCC                         | FKB  | FKK                    | FC9                         |
|   |  |          | 2          | FLA  | FLJ                    | FDC                         | FLB  | FLK                    | FD9                         |
|   |  | DPDT     | 1          | FNA  | FNJ                    | FFC                         | FNB  | FNK                    | FF9                         |
|   |  |          | 2          | FOA  | FOJ                    | FGC                         | FOB  | FOK                    | FG9                         |
| Series HS Hermetically Sealed 5-amp Snap Switch with Wiring Leads   | -50 to +550 <sup>®</sup> (-46 to +288)         | SPDT     | 1          | HMJ  | HMK                    | N/A                         | HMJ  | HMK                    | N/A                         |
|   |  |          | 2          | HMN  | HMP                    |                             | HMN  | HMP                    |                             |
|   |  | DPDT     | 1          | HMS  | HMT                    |                             | HMS  | HMT                    |                             |
|   |  |          | 2          | HMY  | HMZ                    |                             | HMY  | HMZ                    |                             |
| Series HS Hermetically Sealed 5-amp Snap Switch with Terminal Block | -50 to +550 <sup>®</sup> (-46 to +288)         | SPDT     | 1          | HM3  | HM4                    | HA9                         | HM3  | HM4                    | HA9                         |
|   |  | DPDT     | 1          | HM7  | HM8                    | HB9                         | HM7  | HM8                    | HB9                         |
| Series H1 Hermetically Sealed 1-amp Snap Switch with Wiring Leads   | -50 to +750 (-46 to +399)                      | SPDT     | 1          | HKJ  | HKK                    | N/A                         | HKJ  | HKK                    | N/A                         |
|   |  | DPDT     | 2          | HKN  | HKP                    |                             | HKN  | HKP                    |                             |
| Series R High Temperature Snap Switch                               | -40 to +750 (-40 to +399)                      | SPDT     | 1          | RKB  | RKK                    | RC9                         | RKB  | RKK                    | RC9                         |
|   |  |          | 2          | RLB  | RLK                    | RD9                         | RLB  | RLK                    | RD9                         |
|   |  | DPDT     | 1          | RNB  | RNK                    | RF9                         | RNB  | RNK                    | RF9                         |
|   |  |          | 2          | ROB  | ROK                    | RG9                         | ROB  | ROK                    | RG9                         |
| Series 8 Hermetically Sealed Snap Switch                            | -50 to +750 (-46 to +399)                      | SPDT     | 1          | 8KA  | 8KJ                    | 8CC                         | 8KB  | 8KK                    | 8C9                         |
|   |  |          | 2          | 8LA  | 8LJ                    | 8DC                         | 8LB  | 8LK                    | 8D9                         |
|   |  |          | 3          | 8MA  | 8MJ                    | 8EC                         | 8MB  | 8MK                    | 8E9                         |
|   |  | DPDT     | 1          | 8NA  | 8NJ                    | 8FC                         | 8NB  | 8NK                    | 8F9                         |
|   |  |          | 2          | 8OA  | 8OJ                    | 8GC                         | 8OB  | 8OK                    | 8G9                         |
| Series 9 High Temperature Hermetically Sealed Snap Switch           | -50 to +750 (-46 to +399)                      | SPDT     | 1          | 9KA  | 9KJ                    | 9CC                         | 9KB  | 9KK                    | 9C9                         |
|   |  |          | 2          | 9LA  | 9LJ                    | 9DC                         | 9LB  | 9LK                    | 9D9                         |
|   |  |          | 3          | 9MA  | 9MJ                    | 9EC                         | 9MB  | 9MK                    | 9E9                         |
|   |  | DPDT     | 1          | 9NA  | 9NJ                    | 9FC                         | 9NB  | 9NK                    | 9F9                         |
|   |  |          | 2          | 9OA  | 9OJ                    | 9GC                         | 9OB  | 9OK                    | 9G9                         |
| Switch Description  | Process <sup>®</sup> Temp. Range °F (°C)       | Contacts | Set Points | All models C34 and all models with Material of Construction Code 1 except B3F, G3F, K3F & Z3F with 600# or 900# ANSI ratings |                        |                             | All models C34 and all models with Material of Construction Codes 2 & N and B3F, G3F, K3F & Z3F with 600# or 900# ANSI ratings |                        |                             |
|   |  |          |            | CS/Aluminum NEMA 4X  | Cast Iron              |                             | CS/Aluminum NEMA 4X  | Cast Iron              |                             |
|   |  |          |            | Class I, Div 1 Groups C&D  | Class I, Div 1 Group B |                             | Class I, Div 1 Groups C&D  | Class I, Div 1 Group B |                             |
| Series R High Temperature Snap Switch                               | -40 to +1000 (-40 to +538)                     | SPDT     | 1          | R1M  | RKM                    | RKW                         | R1M  | RKM                    | RKW                         |
|   |  |          | 2          | R3M  | RLM                    | RLW                         | R3M  | RLM                    | RLW                         |
|   |  | DPDT     | 1          | RDM  | RNM                    | RNW                         | RDM  | RNM                    | RNW                         |
|   |  |          | 2          | REM  | ROM                    | ROW                         | REM  | ROM                    | ROW                         |
| Series 9 High Temperature Hermetically Sealed Snap Switch           | -50 to +1000 (-46 to +538)                     | SPDT     | 1          | 9AD  | 9KD                    | 9KV                         | 9AM  | 9KM                    | 9KW                         |
|   |  |          | 2          | 9BD  | 9LD                    | 9LV                         | 9BM  | 9LM                    | 9LW                         |
|   |  |          | 3          | 9CD  | 9MD                    | 9MV                         | 9CM  | 9MM                    | 9MW                         |
|   |  | DPDT     | 1          | 9DD  | 9ND                    | 9NV                         | 9DM  | 9NM                    | 9NW                         |
|   |  |          | 2          | 9ED  | 9OD                    | 9OV                         | 9EM  | 9OM                    | 9OW                         |



## QUALITY

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MAGNETROL  
REGISTERED TO  
**ISO 9001**  
Your Assurance of  
Quality and Service

The quality assurance system in place at Magnetrol guarantees the highest level of quality throughout the company. Magnetrol is committed to providing full customer satisfaction both in quality products and quality service.

Magnetrol's quality assurance system is registered to ISO 9001 affirming its commitment to known international quality standards providing the strongest assurance of product/service quality available.

## ESP

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**E**xpedite  
**S**hip  
**P**lan

Several Series 3 level switches are available for quick shipment, usually within one week after factory receipt of a purchase order, through the Expedite Ship Plan (ESP).

To take advantage of ESP, match the color coded model number codes in the selection charts (standard dimensions apply).

ESP service may not apply to orders of ten units or more. Contact your local representative for lead times on larger volume orders, as well as other products and options.

## WARRANTY

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All Magnetrol mechanical level and flow controls are warranted free of defects in materials or workmanship for five full years from the date of original factory shipment.

If returned within the warranty period; and, upon factory inspection of the control, the cause of the claim is determined to be covered under the warranty; then, Magnetrol will

repair or replace the control at no cost to the purchaser (or owner) other than transportation.

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