



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 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 2193 psig (151.2 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 NEMA 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
- Choice of available switch styles, including mercury, dry contact, vibration resistant, 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®

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**B35 Sealed Cage
Level Switch**



**B3F Flanged Cage
Level Switch**

APPLICATIONS

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

- Feed water 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

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.

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

STANDARD ASME B31.1 CONSTRUCTION

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 ANSI B31.1.

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.

STANDARD NACE CONSTRUCTION

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

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

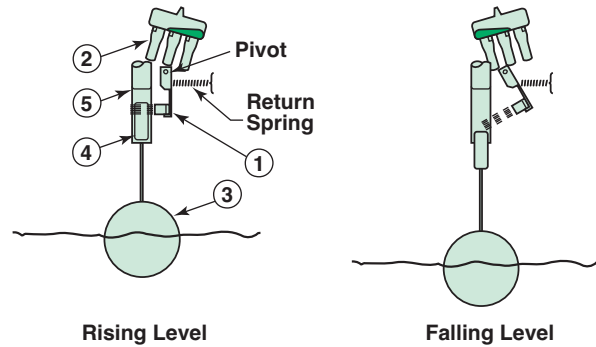
Only NACE listed materials are used for pressure retaining parts. Certificates of Conformance assure compliance of components to required material standards.

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. The enclosing tube provides a static pressure boundary between the switch mechanism and the process. On a falling level, an iniconel spring retracts the magnet, deactuating the switch.



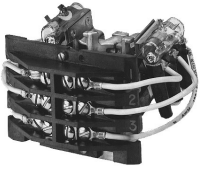
AGENCY APPROVALS

AGENCY	MODEL APPROVED	APPROVAL CLASSES
FM 	All with an electric switch mechanism and a housing listed as NEMA 4X/7/9	Class I, Div 1, Groups C & D Class II, Div 1, Groups E, F & G
	All with an electric switch mechanism and a housing listed as NEMA 4X/7/9 Class I, Div 1, Group B	Class I, Div 1, Groups B, C & D Class II, Div 1, Groups E, F & G
CSA 	All with a Series A, E, F, HS, HS, 2 or 3 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 NEMA 4X/7/9	Class I, Div 1, Groups C & D Class II, Div 1, Groups E, F & G
ATEX 	All with an electric switch mechanism and a housing listed as NEMA 4X/7/9 Class I, Div 1, Group B	Class I, Div 1, Groups B, C & D Class II, Div 1, Groups E, F & G
	All with an electric switch mechanism and an ATEX housing ①	 Ex II 2 G EEx D IIC T6
SAA	All with an electric switch mechanism and a housing listed as NEMA 4X/7/9 Class I, Div 1, Group B	Ex d IIC T6 IP65
CE 	All models	Installation Category II Pollution Degree 2
		Low Voltage Directives 73/23/EEC & 93/68/EEC per Harmonized Standard EN 61010-1/1993 & Amendment No. 1

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

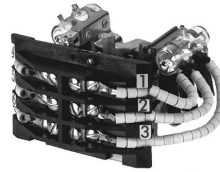
SPECIFICATIONS

SWITCH MECHANISMS AND ENCLOSURES



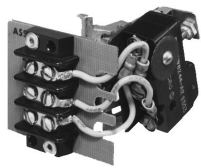
SERIES A & E MERCURY SWITCHES

- Quick visual inspection of contact conditions
- Series “A” are heavy duty units with high load carrying capability
- Series “E” are designed to provide greater vibration resistance
- Process temperatures to +550° F (+288° C)



SERIES 2 & 3 HIGH TEMPERATURE MERCURY SWITCHES

- Quick visual inspection of contact conditions
- Series “3” are heavy duty units with high load carrying capability
- Series “2” are designed to provide greater vibration resistance
- Process temperatures to +750° F (+399° C)



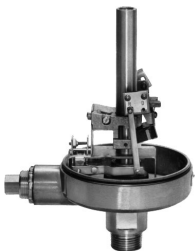
SERIES B, C, D & R DRY CONTACT SWITCHES

- Dry contact for applications where mercury must be avoided
- Designs for AC and DC current applications
- Process temperatures to +1000° F (+538° C)



SERIES F, HS & H1 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 +750° F (+399° 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

- NEMA 4X/7/9 aluminum enclosures
- Designed to meet Class I, Div. 1, Groups C & D and Class I, Div. 1 Group B
- Cast iron NEMA 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										
	A	B	C	D	E	F	R	HS	H1	2	3
120 VAC	13.00	15.00	15.00	10.00	4.00	2.50	1.00	5.00	1.00	4.00	13.00
240 VAC	6.50	15.00	15.00	—	2.00	—	1.00	5.00	1.00	2.00	6.50
24 VDC	10.00	6.00	10.00	10.00	—	4.00	1.00	5.00	1.00	—	10.00
120 VDC	10.00	0.50	1.00	10.00	4.00	0.30	0.40	0.50	0.40	4.00	10.00
240 VDC	5.00	0.25	0.50	3.00	2.00	—	—	0.25	—	2.00	5.00

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

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

ASME B31.1 FLANGED CAGE MODELS WITH 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

ASME B31.1 FLANGED CAGE MODELS WITH 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

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	4.65	8.53	5.82	9.01	6.60	9.33	7.15	9.55	7.57	9.72	7.89	9.85	8.15	9.96
	200	4.04	7.84	5.33	8.46	6.19	8.86	6.80	9.16	7.26	9.38	7.62	9.55	7.91	9.68
	300	3.79	7.56	5.13	8.23	6.02	8.68	6.66	9.00	7.14	9.24	7.51	9.42	7.81	9.57
	400	3.42	7.15	4.84	7.90	5.78	8.40	6.45	8.76	6.95	9.03	7.35	9.24	7.66	9.41
	500	2.81	6.46	4.34	7.35	5.37	7.94	6.10	8.37	6.65	8.69	7.07	8.93	7.41	9.13

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

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

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

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

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

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

ASME B31.3 DISPLACER MODELS

(Displacer Models cont. from page 6)

DISPLACER MODELS WITH 1" PROCESS CONNECTIONS

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	118	217	148	229	168	237	182	243	192	247	200	250	207	253
	93	103	199	135	215	157	225	173	233	184	238	194	243	201	246
	149	96	192	130	209	153	220	169	229	181	235	191	239	198	243
	205	87	182	123	201	147	213	164	223	177	229	187	235	195	239
	260	71	164	110	187	136	202	155	213	169	221	180	227	188	232

DIMENSIONAL SPECIFICATIONS

INCHES (mm)

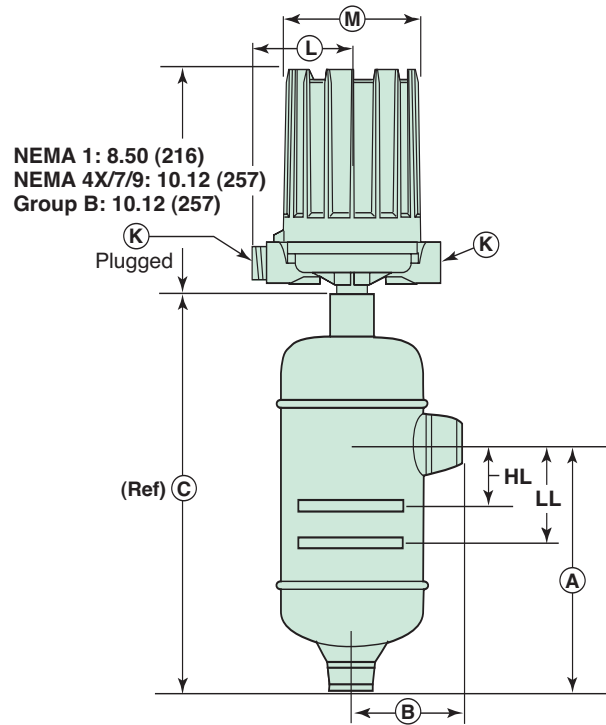
ASME B31.1 & B31.3 SEALED CAGE MODELS

All housings rotatable 360°.

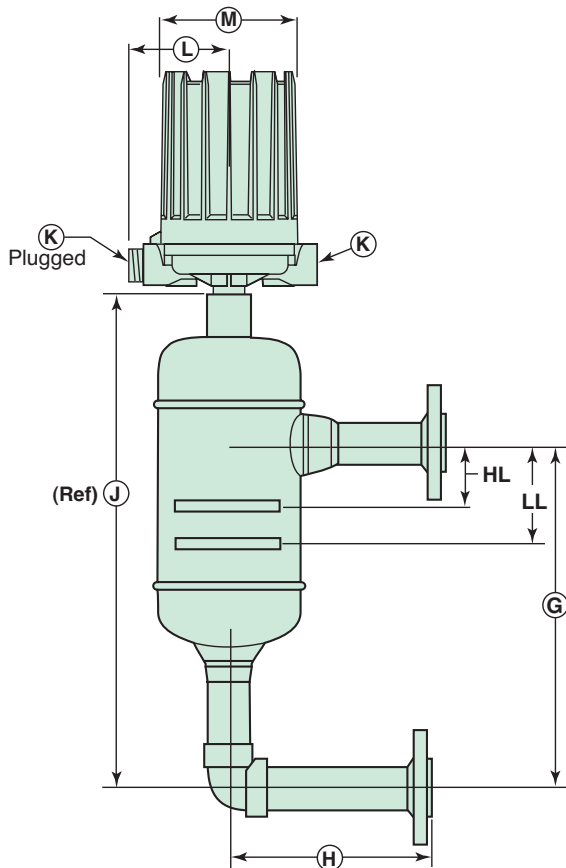
Allow 8 inches (203 mm) overhead clearance for cover removal.

Conduit Connections K	
Electrical Switches	
NEMA 4X/7/9:	1" NPT
Group B:	1" NPT
Pneumatic Switches	
NEMA 1:	½" NPT

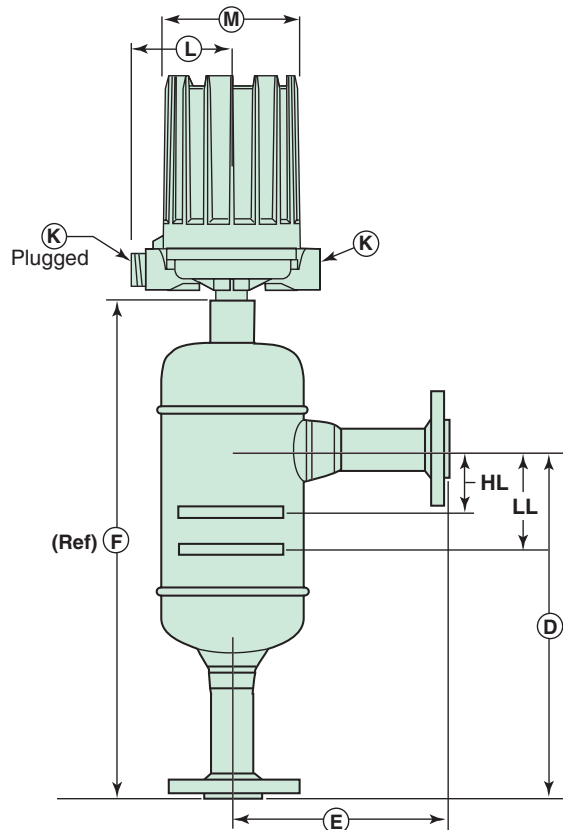
Outline Dimensions	L	M
NEMA 4X/7/9	4.29	5.93
NEMA 4X/7/9 Group B	(108)	(151)
NEMA 1	5.00	4.62
	(127)	(117)



Threaded and Socket Weld
Upper Side/Bottom



Flanged
Side/Side



Flanged
Upper Side/Bottom

DIMENSIONAL SPECIFICATIONS

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"	Std.
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)

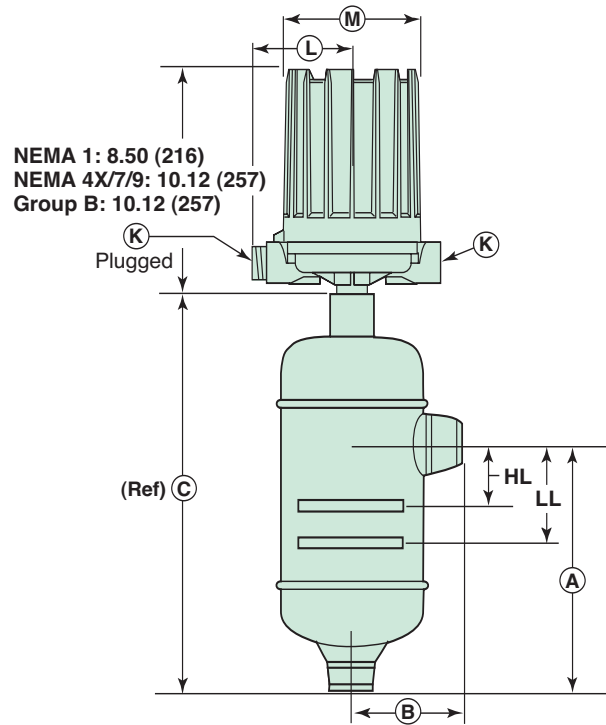
ASME B31.1 & B31.3 SEALED CAGE MODELS

All housings rotatable 360°.

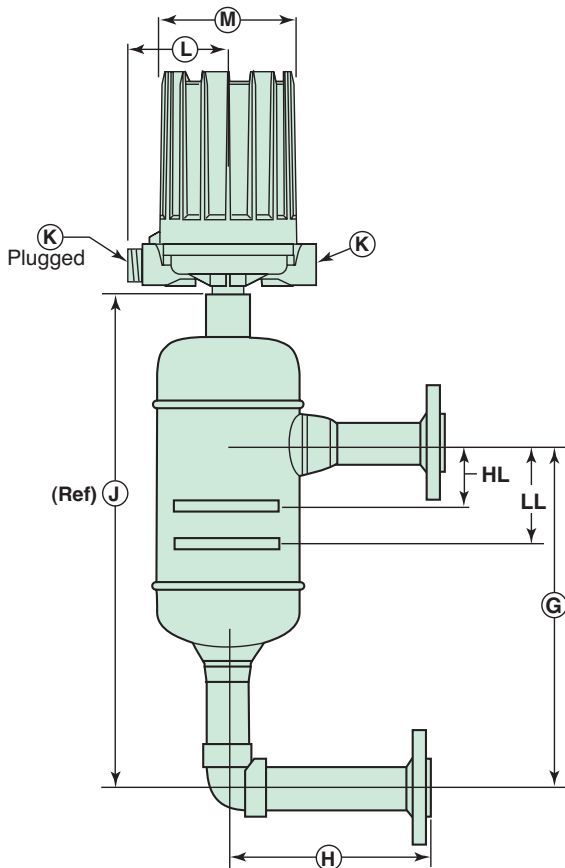
Allow 8 inches (203 mm) overhead clearance for cover removal.

Conduit Connections K	
Electrical Switches	
NEMA 4X/7/9:	1" NPT
Group B:	1" NPT
Pneumatic Switches	
NEMA 1:	½" NPT

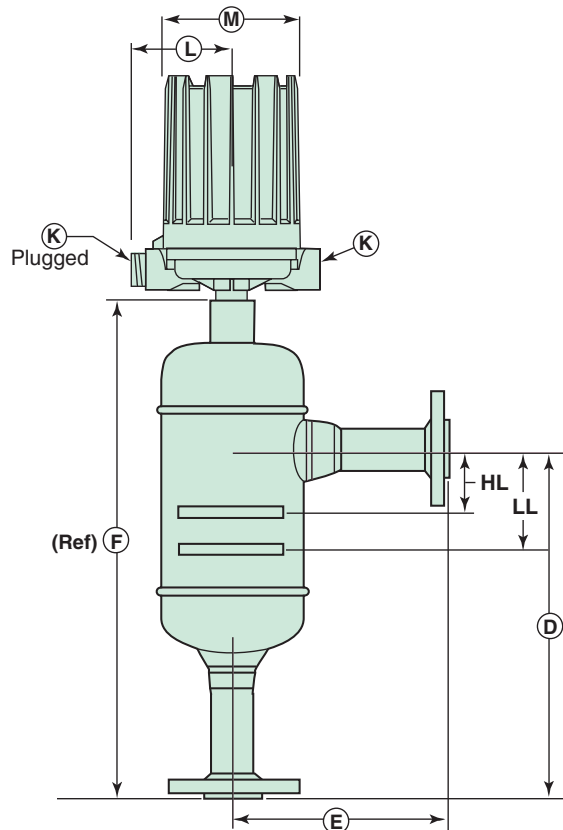
Outline Dimensions	L	M
NEMA 4X/7/9	4.29	5.93
NEMA 4X/7/9 Group B	(108)	(151)
NEMA 1	5.00	4.62
	(127)	(117)



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"
	14"	16"	14"	16"	14"	16"	14"	16"	14"	16"	14"	16"	14"	16"	14"	16"	14"	16"	14"	16"	14"	16"	14"	16"	14"	16"
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"		14"	16"
	14"	16"	14"	16"	14"	16"	14"	16"	14"	16"	14"	16"	14"	16"	14"	16"	14"	16"	14"	16"	14"	16"	14"	16"	14"	16"
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"	14"	16"		14"	16"
	14"	16"	14"	16"	14"	16"	14"	16"	14"	16"	14"	16"	14"	16"	14"	16"	14"	16"	14"	16"	14"	16"	14"	16"	14"	16"
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)

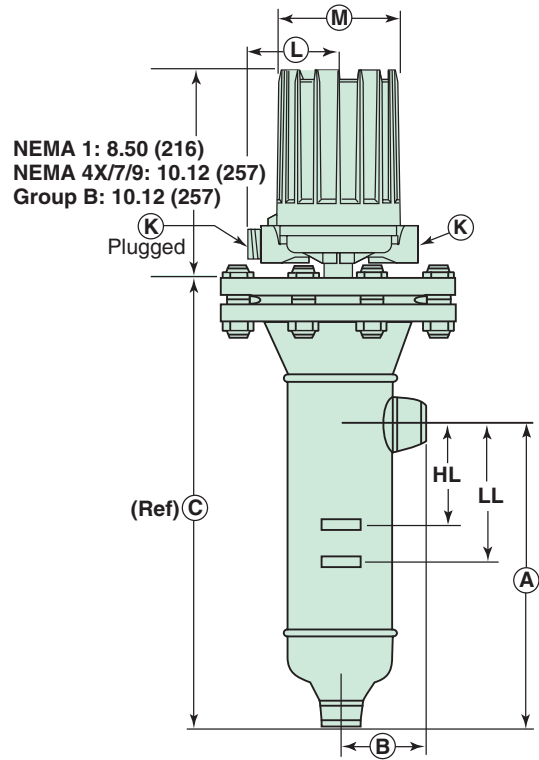
ASME B31.1 & B31.3 FLANGED CAGE MODELS

All housings rotatable 360°.

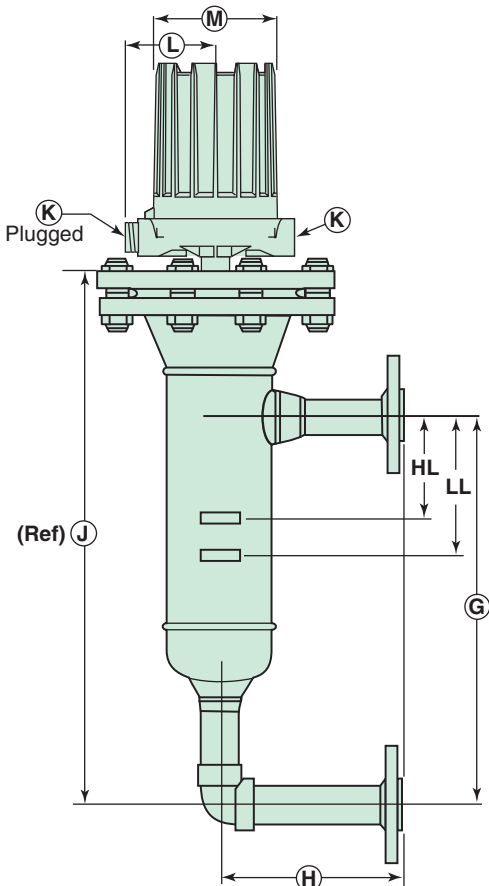
Allow 8 inches (203 mm) overhead clearance for cover removal.

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

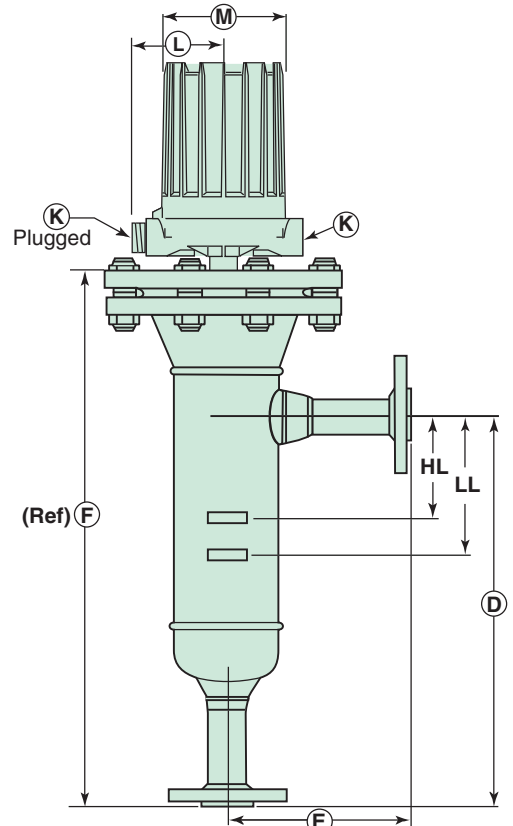
Outline Dimensions	L	M
NEMA 4X/7/9	3.87	5.93
NEMA 4X/7/9 Group B	(98)	(151)
NEMA 1	5.00	4.62
	(127)	(117)



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				
					D		E	F		G		H	J					D		E	F		G		H	J	
		Std.	14"	Std.	14"	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	24.08	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 1 1/2 INCH CONNECTIONS INCHES

MILLIMETERS

Model Code	Head Fig. rating (lbs.)	1 1/2" NPT Threaded & Socket Weld			1 1/2" Flanged Upper Side/Bottom					1 1/2" Flanged Side/Side					1 1/2" NPT Thread & Socket Weld			1 1/2" Flanged Upper Side/Bottom					1 1/2" Flanged Side/Side				
					D		E	F		G		H	J					D		E	F		G		H	J	
		Std.	14"	Std.	14"	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				
					D		E	F		G		H	J					D		E	F		G		H	J	
		Std.	14"	Std.	14"	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)

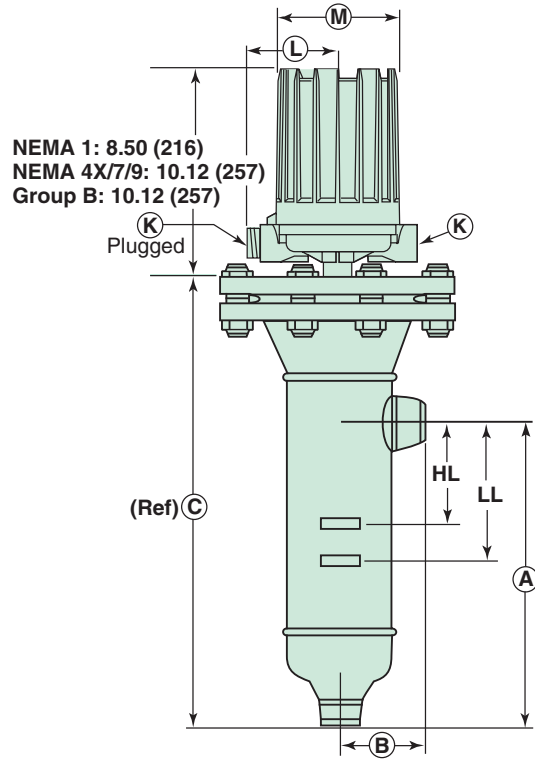
ASME B31.1 & B31.3 FLANGED CAGE MODELS

All housings rotatable 360°.

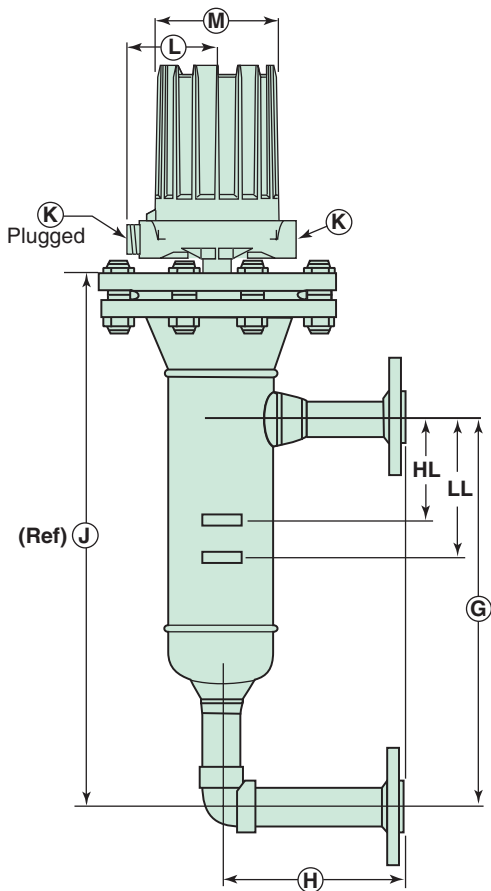
Allow 8 inches (203 mm) overhead clearance for cover removal.

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

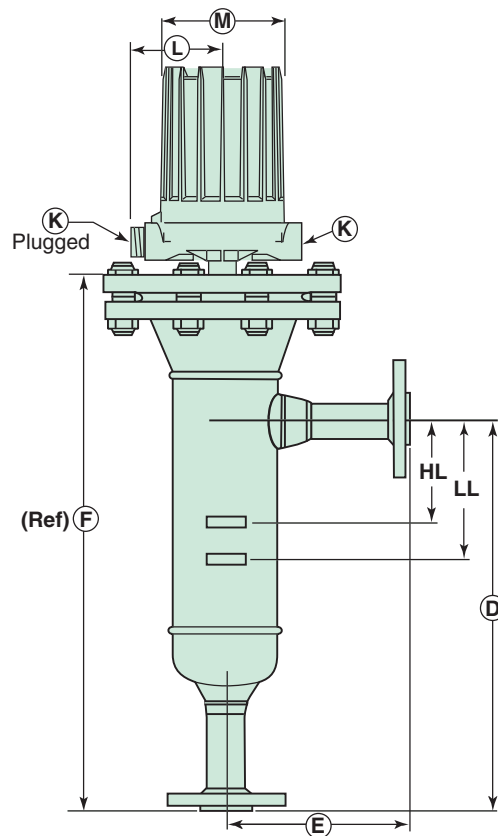
Outline Dimensions	L	M
NEMA 4X/7/9	3.87	5.93
NEMA 4X/7/9 Group B	(98)	(151)
NEMA 1	5.00	4.62
	(127)	(117)



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"	Std.	14"	14"	Std.	14"	14"	Std.	14"	14"	Std.	14"	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"	Std.	16"	16"	Std.	16"	16"	Std.	16"	16"	Std.	16"	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"	Std.	18"	18"	Std.	18"	18"	Std.	18"	18"	Std.	18"	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"	Std.	14"	14"	Std.	14"	14"	Std.	14"	14"	Std.	14"	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"	Std.	16"	16"	Std.	16"	16"	Std.	16"	16"	Std.	16"	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"	Std.	18"	18"	Std.	18"	18"	Std.	18"	18"	Std.	18"	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"	Std.	14"	14"	Std.	14"	14"	Std.	14"	14"	Std.	14"	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"	Std.	16"	16"	Std.	16"	16"	Std.	16"	16"	Std.	16"	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"	Std.	18"	18"	Std.	18"	18"	Std.	18"	18"	Std.	18"	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 purchase order, through the Expedite Ship Plan (ESP)

MODEL NUMBER CODE

Model Code	Minimum Specific Gravity ^②	Pressure Rating ^①							
		psig @ ° F				bar @ ° C			
		100	550	750	800	38	288	399	427
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 ^③	0.71	1680	1680	1455	1210	115.8	115.8	100.3	83.4
Z35 ^③	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 stainless steel sleeve, ASME B31.1 Construction
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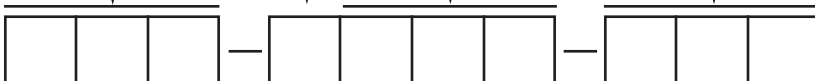
SEALED CAGE SIZE AND TANK CONNECTION TYPE

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" ^④	—	—	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" ^④	—	—	S56	S66	—	—	T56	T66	—	—	V56	V66

PNEUMATIC SWITCH MECHANISM AND ENCLOSURE

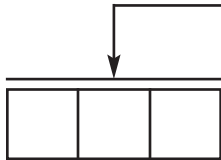
Switch Description	Maximum Supply Pressure		Maximum Process Temperature		Bleed Orifice Diameter		Models B35, C35, & G35	Models V35 & Z35
	psig	bar	° F	° C	inches	mm	NEMA 1	NEMA 1
Series J Bleed Type	100	7	400	204	.063	1.6	JGH	JGF
	60	4	400	204	.094	2.3	JHH	JHF
	60	4	700	371	.055	1.3	JJH	JJF
Series K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



ELECTRIC SWITCH MECHANISM AND ENCLOSURE ⑤

Switch Description	Process ⑥ Temperature Range ° F (° C)	Contacts	Set Points	Models B35, C35 & G35			Models V35 & Z35		
				NEMA 4X/7/9 Aluminum Enclosure ⑦⑧					
				Class I, Div 1 Groups C & D	Class I, Div 1 Groups B, C & D	ATEX Ex II 2 G EE x d IIC T6	Class I, Div 1 Groups C & D	Class I, Div 1 Groups B, C & D	ATEX Ex II 2 G EE x d IIC T6
Series B Snap Switch	-40 to +250 (-40 to +121)	SPDT	1 2 3	BKA BLA BMA	BKJ BLJ BMJ	BCC BDC BEC	BKB BLB BMB	BKK BLK BMK	BC9 BD9 BE9
		DPDT	1 2	BNA BOA	BNJ BOJ	BFC BGC	BNB BOB	BNK BOK	BF9 BG9
Series C Snap Switch	-40 to +450 (-40 to +232)	SPDT	1 2 3	CKA CLA CMA	CKJ CLJ CMJ	CCC CDC CEC	CKB CLB CMB	CKK CLK CMK	CC9 CD9 CE9
		DPDT	1 2	CNA COA	CNJ COJ	CFC CGC	CNB COB	CNK COK	CF9 CG9
Series D Snap Switch	-40 to +250 (-40 to +121)	SPDT	1 2 3	DKB DLB n/a	DKK DLK n/a	DC9 DD9 n/a	DKB DLB DMB	DKK DLK DMK	DC9 DD9 DE9
		DPDT	1 2	DNB DOB	DNK DOK	DF9 DG9	DNB DOB	DNK DOK	DF9 DG9
Series F Hermetically Sealed Snap Switch	-50 to +750 (-46 to +399)	SPDT	1 2	FKA FLA	FKJ FLJ	FCC FDC	FKB FLB	FKK FLK	FC9 FD9
		DPDT	1 2	FNA FOA	FNJ FOJ	FFC FGC	FNB FOB	FNK FOK	FF9 FG9
Series HS Hermetically Sealed 5 amp Snap Switch with wiring leads	-50 to +400 (-46 to +204)	SPDT	1 2	HMJ HMN	HMK HMP	n/a	HMJ HMN	HMK HMP	n/a
		DPDT	1 2	HMS HMY	HMT HMZ		HMS HMY	HMT HMZ	
Series HS 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 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 ⑧ High Temperature Snap Switch	-40 to +1000 (-40 to +538)	SPDT	1 2	RKM RLM	RKW RLW	RU5 RV5	RKM RLM 3MB	RKW RLW 3MK	RU5 RV5
Series 3 Mercury Switch	-20 to +750 (-29 to +399)	SPDT	1 2 3	3KA 3LE 3ME	3KJ 3LG 3MG	3CC 3DE 3EE	3KB 3LB 3MB	3KK 3LK 3MK	3C9 3D9 3E9
		DPDT	1 2	3NA 3OA	3NJ 3OJ	3FC 3GC	3NB 3OB	3NK 3OK	3F9 3G9
Series 2 Vibration Resistant Mercury Switch	-20 to +750 (-29 to +399)	SPDT	1 2 3	2KA 2LE 2ME	2KJ 2LG 2MG	2CC 2DE 2EE	2KB 2LB 2MB	2KK 2LK 2MK	2C9 2D9 2E9
		DPDT	1 2	2NA 2OA	2NJ 2OJ	2FC 2GC	2NB 2OB	2NK 2OK	2F9 2G9



- ⑤ Uncontrolled housing heater or drain available in NEMA 4X/7/9. Consult factory for standard part numbers.
- ⑥ Consult factory for NEMA 4X/7/9 cast iron housings.
- ⑦ Process temperature based on +100° F (+38° C) ambient.
- ⑧ Cast iron switch enclosures are used with the Series "R" switch.

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	38	288	399
B3F	150#	0.78	285	155	95	80	19.6	10.7	6.5	5.5
	300#	0.66	740	575	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	653	600	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#		2193	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
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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"	N34	N44	N54	N64	P34	P44	P54	P64	Q34	Q44	Q54	Q64
	16" ^④	—	—	N56	N66	—	—	P56	P66	—	—	Q56	Q66
	18" ^⑤	—	—	N58	—	—	—	P58	—	—	—	Q58	—
Flanged Side/Side	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	—

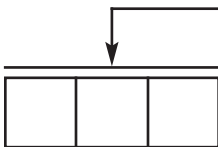
PNEUMATIC SWITCH MECHANISM AND ENCLOSURE

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	—



ELECTRIC SWITCH MECHANISM AND ENCLOSURE ®

Switch Description	Process Temperature Range ° F (° C)	Contacts	Set Points	All Models except B3F, G3F, K3F & Z3F with 600# or 900# ANSI rating			Models B3F, G3F, K3F & Z3F with 600# or 900# ANSI rating		
				NEMA 4X/7/9 Aluminum Enclosure ® ⑨					
				Class I, Div 1 Groups C & D	Class I, Div 1 Group B	ATEX Ex II 2 G EE x d IIC	Class I, Div 1 Groups C & D	Class I, Div 1 Group B	ATEX Ex II 2 G EE x d IIC
Series B Snap Switch	-40 to +250 (-40 to +121)	SPDT	1 2 3	BKA BLA BMA	BKJ BLJ BMJ	BCC BDC BEC	BKB BLB BMB	BKK BLK BMK	BC9 BD9 BE9
		DPDT	1 2	BNA BOA	BNJ BOJ	BFC BGC	BNB BOB	BNK BOK	BF9 BG9
Series C Snap Switch	-40 to +450 (-40 to +232)	SPDT	1 2 3	CKA CLA CMA	CKJ CLJ CMJ	CCC CDC CEC	CKB CLB CMB	CKK CLK CMK	CC9 CD9 CE9
		DPDT	1 2	CNA COA	CNJ COJ	CFC CGC	CNB COB	CNK COK	CF9 CG9
Series D Snap Switch	-40 to +250 (-40 to +121)	SPDT	1 2 3	DKA DLB n/a	DKJ DLK n/a	DC9 DD9 n/a	DKB DLB DMB	DKK DLK DMK	DC9 DD9 DE9
		DPDT	1 2	DNB DOB	DNK DOK	DF9 DG9	DNB DOB	DNK DOK	DF9 DG9
Series F Hermetically Sealed Snap Switch	-50 to +750 (-46 to +399)	SPDT	1 2	FKA FLA	FKJ FLJ	FCC FDC	FKB FLB	FKK FLK	FC9 FD9
		DPDT	1 2	FNA FOA	FNJ FOJ	FFC FGC	FNB FOB	FNK FOK	FF9 FG9
Series HS Hermetically Sealed 5 amp Snap Switch with wiring leads	-50 to +400 (-46 to +204)	SPDT	1 2	HMJ HMN	HMK HMP	n/a	HMJ HMN	HMK HMP	n/a
		DPDT	1 2	HMS HMY	HMT HMZ		HMS HMY	HMT HMZ	
Series HS 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 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 +1000 (-40 to +538)	SPDT	1 2	RKM RLM	RKW RLW	RU5 RV5	RKM RLM 3MB	RKW RLW 3MK	RU5 RV5
Series 3 Mercury Switch	-20 to +750 (-29 to +399)	SPDT	1 2 3	3KA 3LE 3ME	3KJ 3LG 3MG	3CC 3DE 3EE	3KB 3LB 3MB	3KK 3LK 3MK	3C9 3D9 3E9
		DPDT	1 2	3NA 3OA	3NJ 3OJ	3FC 3GC	3NB 3OB	3NK 3OK	3F9 3G9
Series 2 Vibration Resistant Mercury Switch	-20 to +750 (-29 to +399)	SPDT	1 2 3	2KA 2LE 2ME	2KJ 2LG 2MG	2CC 2DE 2EE	2KB 2LB 2MB	2KK 2LK 2MK	2C9 2D9 2E9
		DPDT	1 2	2NA 2OA	2NJ 2OJ	2FC 2GC	2NB 2OB	2NK 2OK	2F9 2G9



- 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 G3F and G35 models with 600# flanges only.
- ⑤ Codes for an 18 inch center to center dimension are applicable to K3F model only.
- ⑥ Consult factory for NEMA 4X/7/9 cast iron housings.
- ⑦ Process temperature based on +100° F (+38° C) ambient.
- ⑧ Uncontrolled housing heater or drain available in NEMA 4X/7/9. Consult factory for standard part numbers.
- ⑨ Cast iron switch enclosures are used with the Series "R" switch.

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
FLOAT MODELS															
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	
DISPLACER MODEL			100	200	300	n/a			38	93	149	n/a			
B34 ③⑤⑥⑦	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" ⑧	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" ⑧	S36	S46	S56	S66	T36	T46	T56	S66	V36	V46	V56	V66

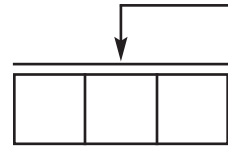
PNEUMATIC SWITCH MECHANISM AND ENCLOSURE

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	—



ELECTRIC SWITCH MECHANISM AND ENCLOSURE

Switch Description	Process [®] Temperature Range ° F (° C)	Contacts	Set Points	Models B35, C35, G35, K35 and L35 with Material of Construction Code 1			Models B34, V35, Z35 and all models with Material of Construction Code 2		
				NEMA 4X/7/9 Aluminum Enclosure [®] [®] [®]					
				Class I, Div 1 Groups C & D	Class I, Div 1 Group B	ATEX Ex II 2 G EE xd IIC	Class I, Div 1 Groups C & D	Class I, Div 1 Group B	ATEX Ex II 2 G EE xd IIC
Series A Mercury Switch	-20 to +550 [®] (-29 to +288)	SPDT	1 2 3	AKA ALA ⑬	AKJ ALJ ⑬	ACC ADC n/a	AKB ALB AMB	AKK ALK AMK	AC9 AD9 AE9
		DPDT	1 2	ANA AOA	ANJ AOJ	AFC AGC	ANB AOB	ANK AOK	AF9 AG9
Series B Snap Switch	-40 to +250 (-40 to +121)	SPDT	1 2 3	BKA BLA BMA	BKJ BLJ BMJ	BCC BDC BEC	BKB BLB BMB	BKK BLK BMK	BC9 BD9 BE9
		DPDT	1 2	BNA BOA	BNJ BOJ	BFC BGC	BNB BOB	BNB BOB	BF9 BG9
Series C Snap Switch	-40 to +450 (-40 to +232)	SPDT	1 2 3	CKA CLA CMA	CKJ CLJ CMJ	CCC CDC CEC	CKB CLB CMB	CKK CLK CMK	CC9 CD9 CE9
		DPDT	1 2	CNA COA	CNJ COJ	CFC CGC	CNB COB	CNK COK	CF9 CG9
Series D Snap Switch	-40 to +250 (-40 to +121)	SPDT	1 2 3	DKB DLB n/a	DKK DLK n/a	DC9 DD9 n/a	DKB DLB DMB	DKK DLK DMK	DC9 DD9 DE9
		DPDT	1 2	DNB DOB	DNK DOK	DF9 DG9	DNB DOB	DNK DOK	DF9 DG9
Series E Vibration Resistant Mercury Switch	-20 to +550 [®] (-29 to +288)	SPDT	1 2 3	EKA ELA ⑮	EKJ ELJ ⑮	ECC EDC n/a	EKB ELB EMB	EKK ELK EMK	EC9 ED9 EE9
		DPDT	1 2	ENA EOA	ENJ EOJ	EFC EGC	ENB EOB	ENK EOK	EF9 EG9
Series F Hermetically Sealed Snap Switch	-50 to +750 (-46 to +399)	SPDT	1 2	FKA FLA	FKJ FLJ	FCC FDC	FKB FLB	FKK FLK	FC9 FD9
		DPDT	1 2	FNA FOA	FNJ FOJ	FFC FGC	FNB FOB	FNK FOK	FF9 FG9
Series HS Hermetically Sealed 5 amp Snap Switch with wiring leads	-50 to +400 [®] (-46 to +204)	SPDT	1 2	HMJ HMN	HMK HMP	n/a	HMJ HMN	HMK HMP	n/a
		DPDT	1 2	HMS HMY	HMT HMZ		HMS HMY	HMT HMZ	
Series HS 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 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 +1000 (-40 to +538)	SPDT	1 2	RKM RLM	RKW RLW	RU5 RV5	RKM RLM 3MB	RKW RLW 3MK	RU5 RV5
Series 3 Mercury Switch	-20 to +750 (-29 to +399)	SPDT	1 2 3	3KA 3LE 3ME	3KJ 3LG 3MG	3CC 3DE 3EE	3KB 3LB 3MB	3KK 3LK 3MK	3C9 3D9 3E9
		DPDT	1 2	3NA 3OA	3NJ 3OJ	3FC 3GC	3NB 3OB	3NK 3OK	3F9 3G9
Series 2 Vibration Resistant Mercury Switch	-20 to +750 (-29 to +399)	SPDT	1 2 3	2KA 2LE 2ME	2KJ 2LG 2MG	2CC 2DE 2EE	2KB 2LB 2MB	2KK 2LK 2MK	2C9 2D9 2E9
		DPDT	1 2	2NA 2OA	2NJ 2OJ	2FC 2GC	2NB 2OB	2NK 2OK	2F9 2G9



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 and 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 Model B34 not available as standard with 14" and 16" center-to-center dimension codes.

⑧ Codes for a 16" center-to-center dimension are applicable to the K35, V35 and Z35 models only.
 ⑨ Process temperature based on +100° F (+38° C) ambient.
 ⑩ Uncontrolled housing heater or drain available in NEMA 4X/7/9 enclosures. Consult factory for standard part number.
 ⑪ Cast iron switch enclosures are used with the Series "R" switch.
 ⑫ On steam applications, use Series 3 mercury switches with beaded leads.
 ⑬ Three stage controls must use Series "3" switches.
 ⑭ On steam applications, use Series 2 vibration resistant mercury switches with beaded leads.
 ⑮ Three stage controls must use Series "2" switches.
 ⑯ On condensing applications, temperature down-rated to +400° F (+204° C) process at +100° F (+38° C) ambient.

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		Pressure Rating												
				psig @ ° F						bar @ ° C						
				1	2 or N	100	550	750	800	900	1000	38	288	399	427	482
FLOAT MODELS																
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	575	505	410	—	50	51.0	39.6	34.8	28.3	—	3.4	
	600# ^{③④}	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	653	600	410	—	50	51.0	45.0	41.1	28.3	—	3.4	
	600# ^{③④}	0.70	0.78	1000	870	800	790	—	105	68.9	60.0	55.6	54.5	—	7.2	
K3F ^⑤	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# ^{③④⑥}	0.80	0.63	1480	1147	1010	825	345	n/a	102.0	79.1	69.6	56.9	92.7	n/a	
Z3F	600# ^{③④⑥}	0.67	0.74	1480	1147	1010	825	345	n/a	102.0	79.1	69.6	56.9	92.7	n/a	
	900# ^{③④⑥}	0.67	0.73	2193	1718	1425	1185	515	n/a	151.2	118.5	98.3	81.7	35.5	n/a	
DISPLACER MODELS				100	300	500				100	300	500				
C34 ^{⑤⑦⑧}	300#	0.40	0.40	740	655	600	n/a			51.0	45.2	41.1	n/a			
	600# ^④	0.40	0.40	1480	1315	1200				102.0	90.7	82.7				

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.

TANK CONNECTION TYPE AND SIZE

Connection Type	C/C	Size ^⑧											
		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" ^⑤	N34	N44	N54	N64	P34	P44	P54	P64	Q34	Q44	Q54	Q64
	16" ^⑤	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" ^⑤	S34	S44	S54	S64	T34	T44	T54	T64	V34	V44	V54	V64
	16" ^⑤	S36	S46	S56	S66	T36	T46	T56	T66	V36	V46	V56	V66

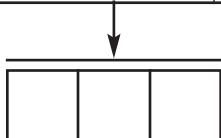
PNEUMATIC SWITCH MECHANISM AND ENCLOSURE

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		
	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	—



ELECTRIC SWITCH MECHANISM AND ENCLOSURE

Switch Description	Process [®] Temperature Range ° F (° C)	Contacts	Set Points	All Models with Material of Construction Code 1 except B3F, C34, G3F, K3F & Z3F with 600# or 900# ANSI rating			Model C34 & All Models with Material of Construction Codes 2 or N and B3F, G3F, K3F & Z3F with 600# or 900# ANSI rating		
				NEMA 4X/7/9 Aluminum Enclosure ^{① ②}					
				Class I, Div 1 Groups C & D	Class I, Div 1 Group B	ATEX Ex II 2 G EE xd IIC	Class I, Div 1 Groups C & D	Class I, Div 1 Group B	ATEX Ex II 2 G EE xd IIC
Series A Mercury Switch	-20 to +550 [®] (-29 to +288)	SPDT	1 2 3	AKA ALA ^⑭	AKJ ALJ ^⑭	ACC ADC n/a	AKB ALB AMB	AKK ALK AMK	AC9 AD9 AE9
		DPDT	1 2	ANA AOA	ANJ AOJ	AFC AGC	ANB AOB	ANK AOK	AF9 AG9
Series B Snap Switch	-40 to +250 (-40 to +121)	SPDT	1 2 3	BKA BLA BMA	BKJ BLJ BMJ	BCC BDC BEC	BKB BLB BMB	BKK BLK BMK	BC9 BD9 BE9
		DPDT	1 2	BNA BOA	BNJ BOJ	BFC BGC	BNB BOB	BNB BOB	BF9 BG9
Series C Snap Switch	-40 to +450 (-40 to +232)	SPDT	1 2 3	CKA CLA CMA	CKJ CLJ CMJ	CCC CDC CEC	CKB CLB CMB	CKK CLK CMK	CC9 CD9 CE9
		DPDT	1 2	CNA COA	CNJ COJ	CFC CGC	CNB COB	CNK COK	CF9 CG9
Series D Snap Switch	-40 to +250 (-40 to +121)	SPDT	1 2 3	DKB DLB n/a	DKK DLK n/a	DC9 DD9 n/a	DKB DLB DMB	DKK DLK DMK	DC9 DD9 DE9
		DPDT	1 2	DNB DOB	DNK DOK	DF9 DG9	DNB DOB	DNK DOK	DF9 DG9
Series E Vibration Resistant Mercury Switch	-20 to +550 ^⑮ (-29 to +288)	SPDT	1 2 3	EKA ELA ^⑮	EKJ ELJ ^⑮	ECC EDC n/a	EKB ELB EMB	EKK ELK EMK	EC9 ED9 EE9
		DPDT	1 2	ENA EOA	ENJ EOJ	EFC EGC	ENB EOB	ENK EOK	EF9 EG9
Series F Hermetically Sealed Snap Switch	-50 to +750 (-46 to +399)	SPDT	1 2	FKA FLA	FKJ FLJ	FCC FDC	FKB FLB	FKK FLK	FC9 FD9
		DPDT	1 2	FNA FOA	FNJ FOJ	FFC FGC	FNB FOB	FNK FOK	FF9 FG9
Series HS Hermetically Sealed 5 amp Snap Switch with wiring leads	-50 to +400 (-46 to +204)	SPDT	1 2	HMJ HMN	HMK HMP	n/a	HMJ HMN	HMK HMP	n/a
		DPDT	1 2	HMS HMY	HMT HMZ		HMS HMY	HMT HMZ	
Series HS Hermetically Sealed 5 amp Snap Switch with terminal block	-50 to +400 ^⑰ (-46 to +204)	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 ^⑰ (-46 to +399)	SPDT	1	HKJ	HKK	n/a	HKJ	HKK	n/a
		DPDT	2	HKN	HKP		HKN	HKP	
Series R ^⑫ High Temperature Snap Switch	-40 to +1000 (-40 to +538)	SPDT	1 2	RKM RLM	RKW RLW	RU5 RV5	RKM RLM 3MB	RKW RLW 3MK	RU5 RV5
Series 2 Vibration Resistant Mercury Switch	-20 to +750 (-29 to +399)	SPDT	1 2 3	2KA 2LE 2ME	2KJ 2LG 2MG	2CC 2DE 2EE	2KB 2LB 2MB	2KK 2LK 2MK	2C9 2D9 2E9
		DPDT	1 2	2NA 2OA	2NJ 2OJ	2FC 2GC	2NB 2OB	2NK 2OK	2F9 2G9
Series 3 Mercury Switch	-20 to +750 (-29 to +399)	SPDT	1 2 3	3KA 3LE 3ME	3KJ 3LG 3MG	3CC 3DE 3EE	3KB 3LB 3MB	3KK 3LK 3MK	3C9 3D9 3E9
		DPDT	1 2	3NA 3OA	3NJ 3OJ	3FC 3GC	3NB 3OB	3NK 3OK	3F9 3G9



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 Codes for 150 lb. flanges are not applicable to the C34 displacer model.
 ④ Codes for a 16" center-to-center dimension are applicable to the K35 model only.
 ⑤ Process temperature based on +100° F (+38° C) ambient.
 ⑥ Uncontrolled housing heater or drain available in NEMA 4X/7/9 enclosures. Consult factory for standard part number.
 ⑦ Cast iron switch enclosures are used with the Series "R" switch.
 ⑧ On steam applications, use Series 3 mercury switches with beaded leads.
 ⑨ Three stage controls must use Series "3" switches.
 ⑩ On steam applications, use Series 2 vibration resistant mercury switches with beaded leads.
 ⑪ Three stage controls must use Series "2" switches.
 ⑫ On condensing applications, temperature down-rated to +400° F (+204° C) process at +100° F (+38° C) ambient.

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 above +500° F (+260° C). Available with single switch only.

QUALITY



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

Expedite **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



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.

Magnetrol shall not be liable for misapplication, labor claims, direct or consequential damage or expense arising from the installation or use of equipment. There are no other warranties expressed or implied, except special written warranties covering some Magnetrol products.



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