EJB custom-built control panels

Globally certified, individually customized

Cl. I, Div. 1 & 2, Groups B[A], C, D
Cl. I, Zones 1 & 2
Cl. II, Div. 1, Groups E, F, G
Cl. II, Div. 2, Groups F, G
Cl. III

Ex d IIB + H_2 T6
Certified to ATEX directive[B]
NEMA 3, 7B[A]CD, 9EFG
IP66

The following pages will assist you in choosing the combination of features suited to your needs and requirements. The easy, five-step process will take you through the specification of cover openings, specifying devices, drilled and tapped conduit openings, device locations and legend and name plate selection.

After filling out your separate order form for each panel, fax it to your local Eaton's Crouse-Hinds distributor. Please consult factory for alternatives not detailed in these pages, such as other conduit arrangements, terminal blocks or circuit breaker operating handles.

Applications:

- Manufactured for hazardous environments, the EJB custom-built control panel is an explosionproof enclosure built to customer-specific requirements
- Available in a variety of sizes with an unlimited combination of devices, windows and markings, these panels are designed to maximize the efficiency of each unique process

Features:

- The foundation of the custom-built control panel is our tried and tested copper-free aluminum EJB enclosure; this corrosion-resistant, heavy duty enclosure features bolted construction, stainless steel hinges and flexible tap-in mounting feet

Certifications and compliances:

NEC/CEC:

- Class I, Divisions 1 & 2, Groups B[A], C, D
- Class I, Zones 1 & 2
- Class II, Division 1, Groups E, F, G
- Class II, Division 2, Groups F, G
- Class III

IEC:

- Ex d IIB + H_2 T6

UL standard:

- UL1203

CSA standard:

- cUL to CSA standard C22.2 No. 30; C22.2 No. 25 Cl. II (E, F, G)

Environmental ratings:

- NEMA 3, 7B[A]CD, 9EFG
- IP66

Additional certifications:

- Certified to the ATEX directive when ordered with ATEX suffix
- Custom control panel is component certified only; for assembly certification, please contact factory

ATEX certifications:

EJB enclosure with conduit entries and device holes:

- Ⓔx II 2 G Ex d IIB + H_2; Certificate #: ITS08ATEX15797U

EMP devices:

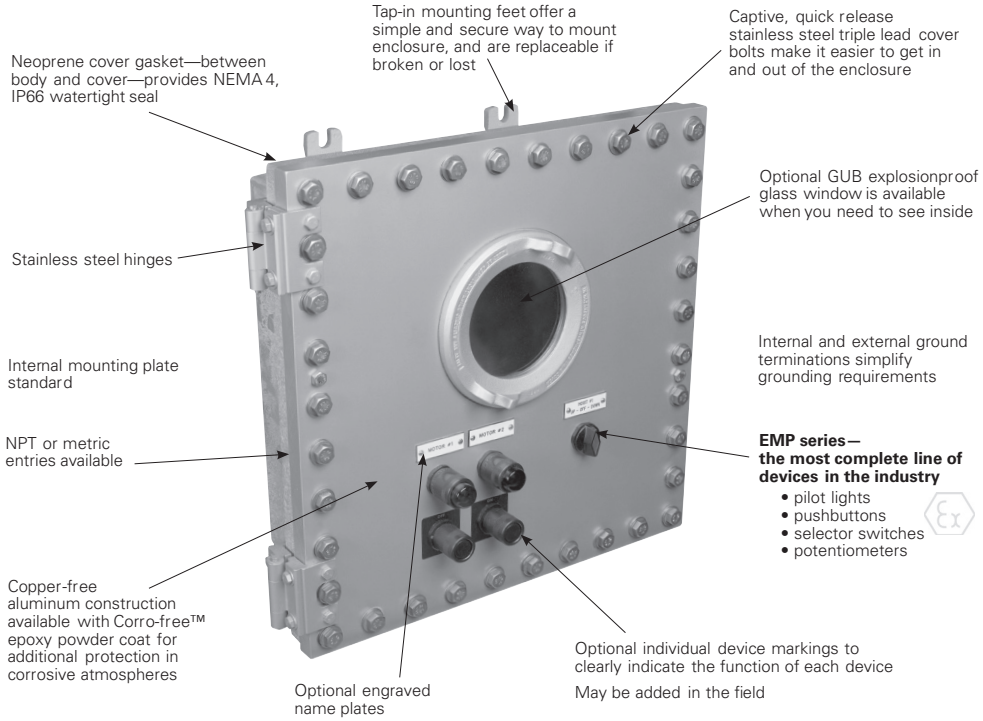
- Ⓔx II 2 G Ex d IIB + H_2; Certificate #: ITS07ATEX15652U

GUB0108 ATEX window:

- Ⓔx II 2 G Ex d IIB + H_2; Certificate #: ITS07ATEX15638U

ECD breather/drain:

- Ⓔx II 2 G Ex d IIB + H_2; Certificate #: ITS07ATEX15639U



[A] Groups C and D only when ordered with GUB window.

[B] Certified to the ATEX directive when ordered with ATEX suffix.

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Ordering and receiving Eaton's Crouse-Hinds EJB Custom-Built Control Panels is now easier and faster than ever. Follow the steps below, fill out a separate order form for each panel, and fax it to your local Eaton's Crouse-Hinds Distributor. It's as simple as that!

Easy Five Step Ordering Process:

1. Specify cover openings and devices.
2. Specify conduit openings.
3. Determine device arrangement.
4. Specify device location.
5. Specify legend and nameplates.

Step 1

Specify the openings required for the cover of the enclosure.

Indicate in Section 1 of the order form the combination of devices, openings without devices, and windows required.

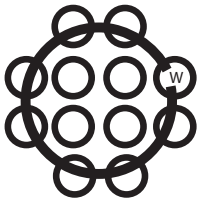
Total the number of device openings required based on the devices, openings and windows specified in Section 1.

Using Table 1, you can determine the smallest size enclosure required based upon the total number of devices/openings and the number of devices a window requires. (NOTE: The actual size of your custom panel enclosure may change based on the number and size of your entry requirements.)

TABLE 1 DEVICE AND WINDOW INFORMATION

Total # of Device Openings Available		Device Layout			EJB Enclosure Catalog Number
9	=	3	X	3	EJB100806
16	=	4	X	4	EJB121204
16	=	4	X	4	EJB121206
16	=	4	X	4	EJB121208
36	=	6	X	6	EJB161606
36	=	6	X	6	EJB161608
24	=	6	X	4	EJB181206
24	=	6	X	4	EJB181208
36	=	9	X	4	EJB241208
36	=	9	X	4	EJB241210
54	=	9	X	6	EJB241808
54	=	9	X	6	EJB241810
81	=	9	X	9	EJB242408
81	=	9	X	9	EJB242410
52	=	13	X	4	EJB361208
78	=	13	X	6	EJB361808
78	=	13	X	6	EJB361810
117	=	13	X	9	EJB362408

Requires same area as 12 devices.



GUB0108—Symbol W
4-3/4" dia. viewing area

SIZE REQUIREMENTS

EJB Size	Max. No. Windows
121204 to 181208	1
241208 to 362408	2

Step 2

Specify the number, size and location of conduit openings required on the sides, top and bottom of the enclosure body using the information in Tables 2, 3, and 4.

Refer to Table 2 to determine if the enclosure selected in Step 1 will accommodate the required conduit openings. From Table 3, determine the symbol(s) that correspond with the required conduit openings.

Place these symbols in the desired positions using the conduit arrangement diagrams in Table 4.

Any combination of the four arrangement diagrams may be used per side and all positions on a side with openings must have a symbol. The side number (1, 2, 3 or 4) must precede the conduit opening(s) symbols for the respective side. When a side of the enclosure does not require any conduit openings, the side number is omitted from the catalog number.

Enter the complete catalog number, including conduit opening designations, in Section 2 of the order form. Indicate on which side the hinges should be mounted. Check boxes in Section 2 for options desired.

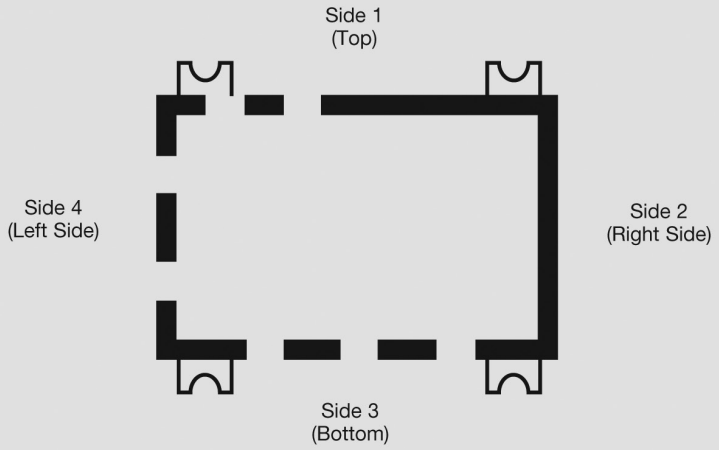
Example:

In Step 1, customer selects an EJB161606 based on the number of devices/openings specified (See Section 1 of sample order form). The following conduit openings are required: (2) 1" on the left side of the top; no openings on the right side; (3) 2" on the bottom; and (2) 3/4" on the left side.

Table 2 indicates the maximum size allowed for three conduit openings in an EJB161606 is 2-1/2". Therefore, an EJB161606 would be suitable.

Table 3 indicates a 3/4" opening is symbol B, a 1" opening is symbol C, a 2" opening is symbol G and no opening is a 0.

Using the conduit arrangement diagrams in Table 4, place the symbols for the desired openings in the appropriate positions. Remember, any combination of the four arrangement diagrams may be used and all positions on a side with openings must have a symbol even if no opening is required in a particular position.



Side 1:	**(2) 1" on the left side of the top**	**= 1CC00**
Side 2:	**No Openings**	**= No Symbols Required**
Side 3:	**(3) 2" on the bottom**	**= 3GGG**
Side 4:	**(2) 3/4" on the left side**	**= 4BB**

Complete catalog number is: **EJB161606- 1CC003GGG4BB.** Enter the completed catalog number, including conduit opening designations, in Section 2 of the order form. Indicate on which side the hinges should be mounted.

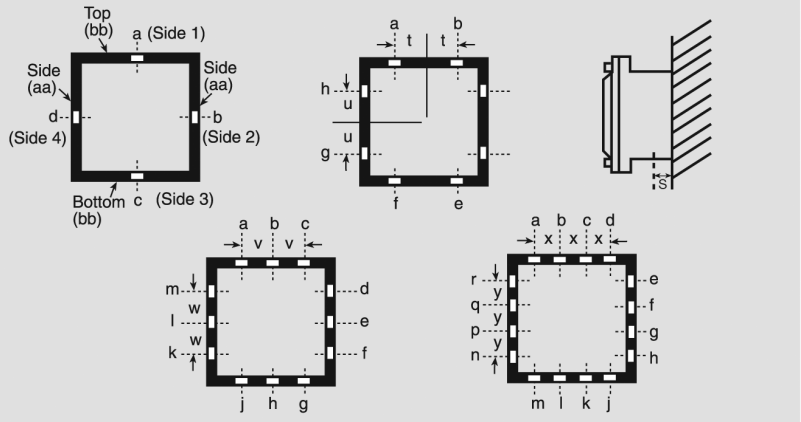
TABLE 2 CONDUIT ARRANGEMENTS

	Maximum Trade Size and Number of Openings								Spacing Dimensions						
	Top and Bottom (bb)				Sides (aa)										
CAT #	1	2	3	4	1	2	3	4	S	T	U	V	W	X	Y
Drilled and Tapped Openings															
EJB100806	3-1/2	3	1-1/2	1-1/4	3-1/2	2-1/2	1-1/4	3/4	3-3/4	2-5/16	1-15/16	2-3/4	2-1/2	2-1/2	1-3/4
EJB121204	1-1/2	1-1/2	1-1/2	1-1/4	1-1/2	1-1/2	1-1/2	1-1/4	3	2-1/4	2-1/4	3-5/8	3-5/8	3-1/16	3-1/16
EJB121206	3-1/2	3-1/2	1-1/2	1-1/4	3-1/2	3-1/2	1-1/2	1-1/4	3-3/4	3	3	3-5/8	3-5/8	3-1/16	3-1/16
EJB121208	5	3-1/2	1-1/2	1-1/4	5	3-1/2	1-1/2	1-1/4	4-3/4	3	3	3-5/8	3-5/8	3-1/16	3-1/16
EJB161606	3-1/2	3-1/2	2-1/2	2	3-1/2	3-1/2	2-1/2	2	3-3/4	3	3	4-5/8	4-5/8	4-3/16	4-3/16
EJB161608	5	5	3	2	5	5	3	2	4-3/4	3-1/4	3-1/4	6	4-5/8	4-3/16	4-316
EJB181206	3-1/2	3-1/2	3-1/2	2-1/2	3-1/2	3-1/2	1-1/2	1-1/4	3-3/4	3	3	6	3-5/8	4-5/8	3-1/16
EJB181208	5	5	3-1/2	2-1/2	5	3-1/2	1-1/2	1-1/4	4-3/4	4-3/16	3	6	3-5/8	4-5/8	3-1/16
EJB241208	5	5	5	3-1/2	5	3-1/2	1-1/2	1-1/4	5-1/8	4-3/16	3	8-7/16	3-5/8	6	3-1/16
EJB241210	6	6	5	3-1/2	6	3-1/2	1-1/2	1-1/4	6-1/8	4-3/4	3	8-7/16	3-5/8	6	3-1/16
EJB241808	5	5	5	3-1/2	5	5	3-1/2	2-1/2	5-1/4	4-3/16	4-3/16	8-7/16	6	6	4-5/8
EJB241810	6	6	5	3-1/2	6	6	3-1/2	2-1/2	6-1/4	4-3/4	4-3/4	8-7/16	6	6	4-5/8
EJB242408	5	5	5	3-1/2	5	5	5	3-1/2	5-3/8	4-3/16	4-3/16	8-7/16	8-7/16	6	6
EJB242410	6	6	5	3-1/2	6	6	5	3-1/2	6-3/8	4-3/4	4-3/4	8-7/16	8-7/16	6	6
EJB361208	5	5	5	5	5	3-1/2	1-1/2	1-1/4	4-3/4	4-7/16	3	8-7/16	3-5/8	8-7/16	3-1/16
EJB361808	5	5	5	5	5	5	3-1/2	2-1/2	5-1/2	4-7/16	4-7/16	8-7/16	6	8-7/16	4-5/8
EJB361810	6	6	5	5	6	6	3-1/2	2-1/2	6-1/2	4-3/4	4-3/4	8-7/16	6	8-7/16	4-5/8
EJB362408	5	5	5	5	5	5	5	3-1/2	6	4-3/16	4-3/16	8-7/16	8-7/16	8-7/16	6

TABLE 3 SYMBOLS FOR OPENINGS

NPT Conduit Size	Drilled & Tapped Hole Symbol	Metric Openings	Drilled & Tapped Hole Symbol
1/2	A	M16	AM
3/4	B	M20	BM
1	C	M25	CM
1-1/4	E	M32	EM
1-1/2	F	M40	FM
2	G	M50	GM
2-1/2	H	M63	HM
3	J		
3-1/2	K		
4	L		
5	M		
6	N		

TABLE 4 CONDUIT ARRANGEMENT DIAGRAMS



Step 3

Based upon the EJB selected, use Section 3 of the order form and outline the maximum number of columns and rows available (from Table 1) beginning in the upper left corner. Fill in the length of each side in the space provided.

Note that the left side will be hinged unless otherwise specified in Section 2. In our example, an EJB161606 was selected and according to Table 1, a total of 36 device spaces are available (6 columns and 6 rows). See sample order form.

Step 4

Place the appropriate letter symbol from Section 1 of the order form in the position you desire the devices or openings to be located. If a window is required, outline the position and number of spaces the window will occupy and place the symbol of the window (w) in the center.

Note that 2 windows per enclosure can be used. If more windows are required contact factory.
(See appropriate window information in the sample order form)

Step 5

Indicate the desired device marking (DSL legend plate) or engraved plate for each device or window in Section 4 of the order form.

Engraved plates will be located above the device or window and are white letters on a black background. If an engraved plate is desired, fill in desired wording on engraved plate (up to 2 lines) on Section 4 of order form. If a device marking is required on EMP device, insert the DSL catalog number from those listed below (Table 5) on Section 4 of order form under column labeled "Device Marking." Be sure to specify the row and column location of the EMP device being marked. See sample order form.

That's it. *It's that simple*. Now fax the order form to your local Eaton's Crouse-Hinds Distributor.

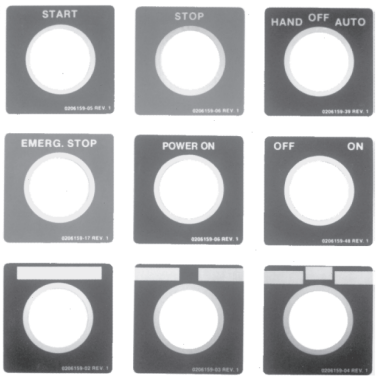
TABLE 5 LEGEND PLATE SELECTOR CHART

Use the charts below to select the appropriate legend plate(s) for your application. Markings shown in **bold print** are etched; all others are stamped.

Single Function Legend Plates		Double Function Legend Plates		Triple Function Legend Plates	
Marking	**Cat #.**	**Marking**	**Cat #.**	**Marking**	**Cat #.**
Automatic	DSL16	Blank with 2 fields	DSL03	Auto-Off-Hand	DSL49
Blank	DSL01	**For-Rev**	DSL30	Blank with 3 fields	DSL04
Blank with single field	DSL02	Hand-Auto	DSL29	Fast-Off-Slow	DSL41
Close	DSL21	In-Out	DSL35	**For-Off-Rev**	DSL40
Down	DSL23	**Off-On**	DSL48	**Hand-Off-Auto**	**DSL39**
Emerg. Stop	DSL17	**Open-Close**	DSL32	**Run-Off-Jog**	**DSL38**
Fast	DSL46	Raise-Lower	DSL36	**Open-Off-Close**	DSL43
Forward	DSL18	**Run-Jog**	DSL28	Raise-Off-Lower	DSL87
Hand	DSL15	Safe-Run	DSL86	Slow-Off-Fast	DSL88
In	DSL24	Start-Stop	DSL37	Up-Off-Down	DSL44
Jog	DSL10	Slow-Fast	DSL65	1-Off-2	DSL42
Lower	DSL27	**Up-Down**	DSL33		
On	DSL07				
Off	DSL08				
Open	DSL20				
Out	DSL25				
Power On	DSL14				
Raise	DSL26				
Reset	DSL12				
Reverse	DSL19				
Run	DSL09				
Safe	DSL85				
Slow	DSL47				
Start	DSL05				
Stop	DSL06				
Test	DSL13				
Trip	DSL11				
Up	DSL22				

Note: Background color for all legend plates is black with the following exceptions:

Marking	Plate Color
Start	Green
Stop	Red
Emerg. Stop	Red



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Please photocopy and fax all pages of order form (Sections 1-4) to your local Eaton's Crouse-Hinds Distributor.

Section 1: EMP Style Operators—UL, cULus and ATEX

Number of Devices: Indicate the Number of Devices, Openings Without Devices and Window(s) Required.

Pilot Lights

	Diagram	Symbol	Quantity
EMP009-J1 (Red)		A	
EMP009-J1-LED		A1	
EMP0090-J1		A2	
EMP0098-J1		A4	
EMP009-J3 (Green)		B	
EMP009-J3-LED		B1	
EMP0090-J3		B2	
EMP0098-J3		B4	
EMP009-J6 (Amber)	(120V)	C	
EMP009-J6-LED		C1	
EMP0090-J6		C2	
EMP0098-J6		C4	
EMP009-J10 (Clear)		E	
EMP0090-J10		E2	
EMP0098-J10		E4	
EMP009-J11 (Blue)		F	
EMP0090-J11		F2	
EMP0098-J11		F4	

Pushbuttons – Single Pushbutton

	Diagram	Symbol	Quantity
EMP019 (Black)		G	
EMP019 (Red)		H	
EMP019 (Green)		J	
EMP098 (Red)	Up / Down	K	

Pushbuttons – Double Pushbutton, Single Operator

	Diagram	Symbol	Quantity
EMP029 (Black)		L	
EMP029 (Red)		M	
EMP029 (Green)		N	

Pushbuttons – Double Pushbutton, Double Operator

	Diagram	Symbol	Quantity
EMP039		P	

Selector Switches – Two position

	Diagram	Symbol	Quantity
EMP049	Position 1 / Position 2	Q	
EMP059	Position 1 / Position 2	R	

Selector Switches – Three position

	Diagram	Symbol	Quantity
EMP069	Position 1 / Position 2 / Position 3	S	
EMP069-S634		S4	
EMP069-S635		S5	
EMP079	Position 1 / Position 2 / Position 3	T	
EMP079-S634		T4	
EMP079-S635		T5	
EMP089	Position 1 / Position 2 / Position 3	U	
EMP089-S634		U4	
EMP089-S635		U5	

Selector Switches – Keyed Selector Switches

	Diagram	Symbol	Qty
EMP0491	Position 1 / Position 2	Q6	
EMP0492		Q7	
EMP0493		Q8	
EMP0591		R6	
EMP0592		R7	
EMP0593		R8	
EMP0691	Position 1 / Position 2 / Position 3	S6	
EMP0692		S7	
EMP0693		S8	
EMP0694		S9	
EMP0791		T6	
EMP0792		T7	
EMP0793		T8	
EMP0794		T9	
EMP0891		U6	
EMP0892		U7	
EMP0893		U8	
EMP0894		U9	

Total Number of all Devices on this page _____

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Section 1: EMP Style Operators Continued

Number of Devices: Indicate the Number of Devices, Openings Without Devices and Window(s) Required.

Openings Without Devices (For Future Expansion)		
	Symbol	Quantity
3/4" - 14 NPSM Opening (plugged)	V	_____

Windows			
	Symbol	Quantity	# of Openings
GUB0108	W	_____	_____

Total Number of all Device Openings from previous page _____

Total Number of all Devices / Openings from Section 1 _____

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Distributor:	Contact:
Customer:	Phone Number:

EATON'S CROUSE-HINDS FACTORY USE ONLY

Catalog Number Entered:	
Reference #:	B#

Section 2

Completed Catalog Number:
Specify the complete catalog number including conduit designations.

EJB_____

All Eaton's Crouse-Hinds Custom-Built Control Panels are provided with a mounting plate and hinges. Hinges are on left side of enclosure. If you desire hinges on one of the other sides, circle choice here: TOP RIGHT BOTTOM

OPTIONS

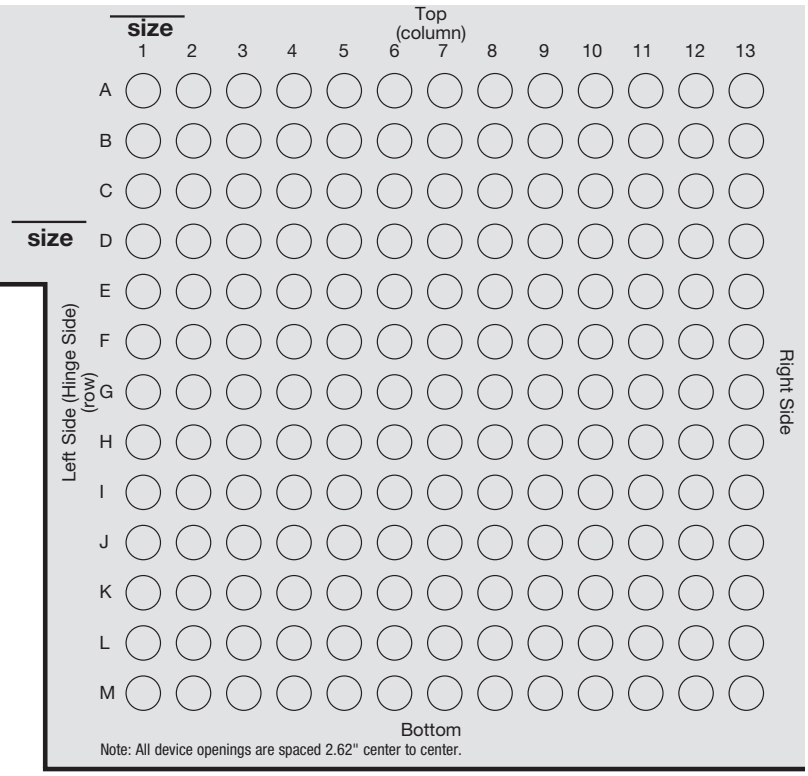
For any of the following options, check here:

____ ATEX Certified (ATEX)
____ Breather and Drain (S756V)
____ Epoxy finish, external (S752)
____ Epoxy finish, internal and external (S753)

Section 3—Exterior Front View

Location of Devices and Windows in Cover:

Outline the cover space available, beginning in the upper left corner of the grid, based upon the EJB selected. See Table 1 for device layout.



Note: All device openings are spaced 2.62" center to center.

Section 4

Device Markings:
Indicate by row and column position markings/legends for each device.

Engraved Plate:
Specify markings for each nameplate based upon the following:

Maximum Number of Characters/Line

Marking Size	1/8"	3/16"	1/4"	1/2"
Number of Characters	36	24	18	9

Specify

Row	Column	Device Marking (DSL) or Engraved Plate Line 1	Engraved Plate Line 2	Marking Size

