



**KILLARK®**

HUBBELL INCORPORATED (Delaware)  
2112 Fenton Logistics Park Blvd  
Fenton, Missouri 63026 USA

## INSTALLATION, OPERATION & MAINTENANCE DATA SHEET

### B7E SERIES *PRISM* ENCLOSURES

For use in Class I, Groups B, C & D, Type 3 & 4, and Class II, Groups E, F & G,  
and Class III Hazardous Locations, as defined by the Canadian  
Electrical Code and the National Electrical Code.

#### INSTALLATION INSTRUCTIONS

This enclosure must be installed by trained, qualified and competent personnel.  
Installation must comply with local, state and national regulations, as well as safety practices for this type of  
equipment.

**WARNING:** Electrical power must be **OFF** during installation.  
Disconnect primary power source and lock out.

The mounting location must be flat and provide proper clearance, rigidity and strength to support the enclosure  
and all contained devices (See Figure 1 & Table 1).

Enclosures are equipped with factory installed hinges; with the exception of the B7EP & B7EQ enclosures.  
Enclosure should be mounted with hinges on the left. Do not mount the enclosure with hinges on the top or  
bottom side (See Figure 2).

Securely fasten the enclosure to the mounting location, using 1/2" diameter steel mounting bolts and washers, or  
washer head bolts (3/8" diameter bolts for B7EP & B7EQ enclosures). Install sealing fittings and conduit, using  
an approved electrical conducting type lubricant on the threads. The conduit thread connections must be tapered  
pipe thread conforming to ANSI/ASME B1.20.1. A minimum of (5) full threads engagement is required for all  
conduit connections. Conduit sealing fittings must be installed within 18 inches of the enclosure. Sealing fittings  
must be approved for the specific hazardous location where the enclosure is used. All unused conduit openings  
must be plugged using Killark "CUP" close-up plugs. Plugs must be tightly installed with a minimum engagement  
of (5) full threads.

**IMPORTANT:** Install only U.L. listed auxiliary control devices for hazardous locations (long style only). Refer to  
individual operator installation sheet for installation details. The minimum thickness at counterbore (where  
required) and operator spacing are to be determined from the dimensional chart on Page 7.

**NOTE:** If installing a breather and/or a drain, make certain they are suitable for the specific hazardous location  
where they are to be used. Some drains/breathers may not comply with Nema 3 & 4 standards. Also, provide a  
protective covering to shield the breather and drain during hosedown operations.

▲ Inspect and clean the machined flange flame joint surfaces of both the cover and the box. Surfaces must be  
smooth, free of nicks, scratches, dirt or any foreign particle build-up that would prevent a proper seal. Surfaces  
must seat fully against each other to provide a proper explosion-proof joint. Clean surfaces by wiping with a  
clean, lint-free cloth.

Apply a light coating of Killark "LUBG" lubricant to flange surfaces and close the cover. Install and tighten all  
cover bolts. Make certain no cover bolts are omitted. Use only those bolts supplied with the enclosure. Check  
the bolted joint with a .0015" thick feeler gauge. The gauge must not enter the joint more than 1/8" at any point.

**CAUTION:** Loose or missing bolts or an improper joint can result in an explosion, creating a potential for physical  
injury and property damage.

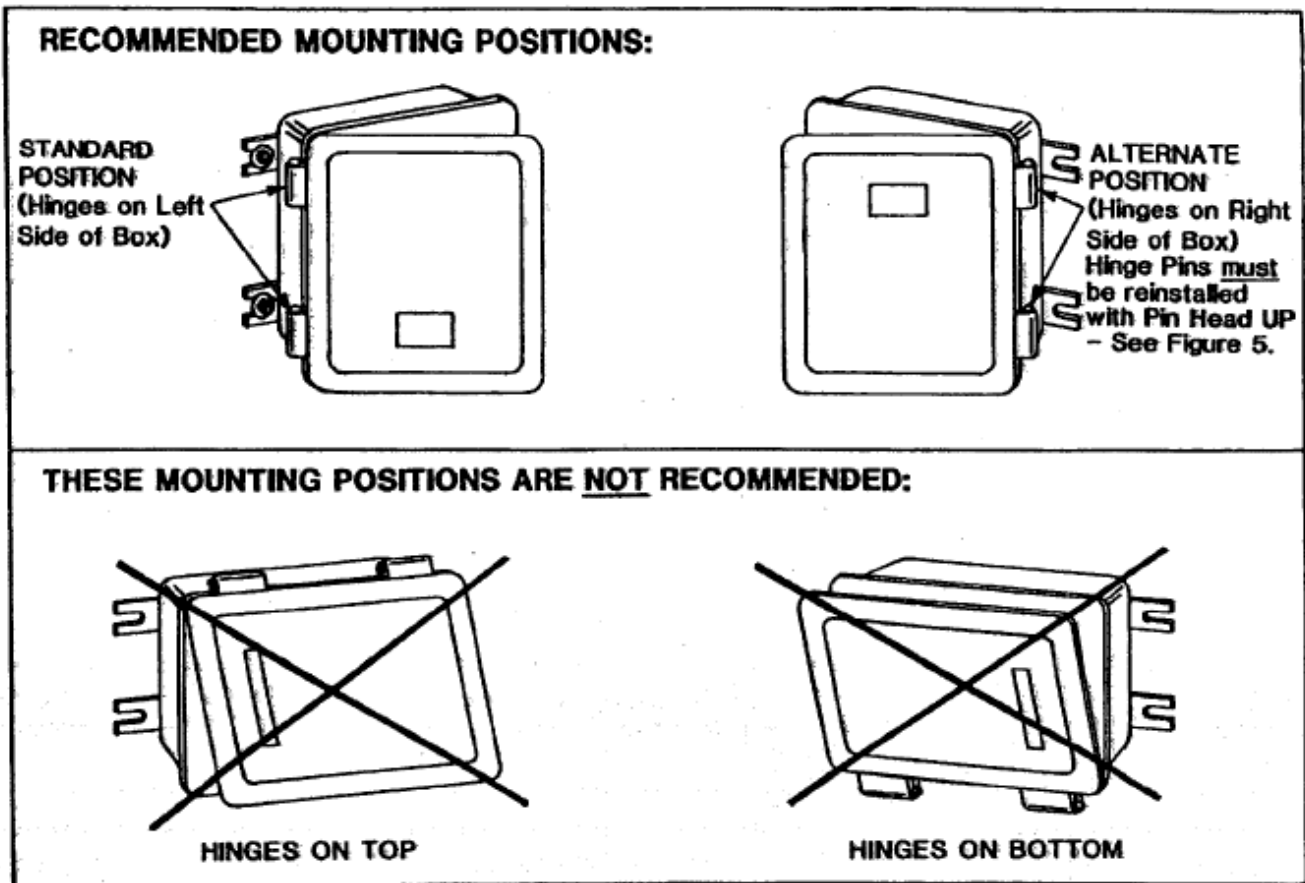


Figure 2: Mounting Recommendations

### MAINTENANCE INSTRUCTIONS

After installation, this enclosure should be inspected at regular intervals. A visual inspection should ascertain that all cover bolts are installed and still tight; that all conduit connections are intact and free of corrosion, and that the enclosure mounting bolts are tight and in good condition.

If the enclosure must be opened for servicing, to check or replace internal devices and apparatus, the following procedures should be followed:

**WARNING:** Before servicing the enclosure, be sure the electrical power is **OFF**.  
**Disconnect** the enclosure from the primary power source and **lock out**.

Loosen cover bolts. For enclosures provided with captivated cover bolts, loosen approximately 3-1/2 turns & do **not** remove bolts from cover. Replace any corroded, bent or otherwise damaged bolts with new, factory authorized bolts obtained from an authorized Killark distributor. In this case, the old bolts may be threaded out of the cover, and the new bolts threaded in.

Open enclosure. **Do not** use hammer, screwdriver or any prying tool to open cover, **except** as shown in Figure 3. The cover notches (shown in Figure 3) are provided on enclosures with the exception of the B7EP & B7EQ enclosures.

Inspect cover hinges (where provided). If hinges are damaged or do not function properly, contact a factory authorized service representative for hinge replacement.

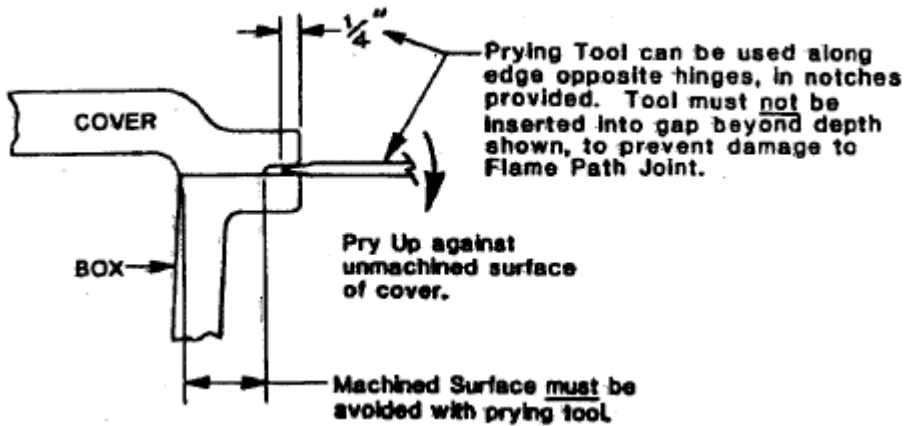


Figure 3

Inspect machined, flame joint flange surfaces. Surfaces must be smooth, free of nicks, scratches, dirt or any foreign particle build-up that would prevent a proper seal. Should surface be damaged, contact factory. **Never** attempt to rework surfaces by sanding, grinding, etc. Surfaces must seat fully against each other to provide a proper explosion-proof joint.

Inspect water exclusion gasket. If gasket is damaged, **do not** attempt field replacement or repair. Contact a factory authorized representative for a replacement cover. When removing gasket cover for replacement, **do not** detach hinge body from cover. Remove cover and hinge body from enclosure by removing the cotter pin in the top hinge pin and lifting the cover off of the box. The damaged gasket can be removed from the cover, and the cover without gasket can be used until a replacement is obtained. The cover without gasket can be safely used in Class I & II hazardous (classified) locations, however, the enclosure may **not** be raintight or hosesdown tight. Follow installation instructions at ▲ on Page 1.

Technical information, advice and recommendations contained in these documents is based on information that Killark believes to be reliable. All the information and advice contained in these documents is intended for use by persons having been trained and possessing the requisite skill and know-how and to be used by such persons only at their own discretion and risk. The nature of these instructions is informative only and does not cover all of the details, variations or combinations in which this equipment may be used, its storage, delivery, installation, check out, safe operation and maintenance.

There are no warranties, expressed or implied, except that all goods shall conform to their description, subject however to commercial tolerances and variations.

All sales are made on the express understanding that there are no express warranties other than those contained in a specific agreement between Seller and Buyer and that there are no implied warranties that the goods shall be merchantable, nor are there any warranties which extend beyond the description on the face hereof. In the event of the breach of any warranty or alleged breach of any warranty by Killark, the Buyer shall not be entitled to consequential or incidental damages. The obligation of Killark under its warranty shall be limited to repairing or replacing FOB Killark's plant or allowing credit at Killark's option, any part or parts which may prove to be thus defective, provided the Buyer(s) gives Killark prompt notice of the defect or defects. It is expressly agreed and understood that this remedy of repair or replacement or credit at Killark's option is the exclusive remedy of the Buyer of this product.

Since conditions of use of the product are outside of the care, custody and control of Killark, the purchaser should determine the suitability of the product for his intended use, and assumes all risk and liability whatsoever in connection therewith.

**MAINTENANCE MANAGER: Please record the following information for your records:**

**COMPLETE CATALOG NO.** \_\_\_\_\_  
(As shown on nameplate)

**INSTALLED BY** \_\_\_\_\_

**DATE OF INSTALLATION** \_\_\_\_\_



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## INSTRUCTIONAL DATA SHEET FOR DRILLING & TAPPING OF CONDUIT OPENINGS IN U.L. CLASSIFIED B7E SERIES ENCLOSURES FOR HAZARDOUS LOCATIONS

### GENERAL INSTRUCTIONS & REQUIREMENTS FOR DRILLING & TAPPING IN FIELD.

**NOTE:** The following requirements must be met in order to comply with U.L. #886 standards and / or the National Electrical Code:

- ① Standard NPT threads (with a 3/4" per foot taper) must be used for all conduit openings.
- ② Field drilling and tapping of the side and back walls of blank boxes may be done, provided the location of conduit openings meets the specifications of Chart 1, and minimum wall thickness meets the dimensions shown on Charts 2 & 3. Use Chart 1 to determine the maximum quantity and size of conduit openings permitted.  
**NOTE:** 1/2" trade size is the minimum allowable size for any conduit opening. Refer to Chart 5 for maximum allowable conduit sizes.
- ③ **CLASS I, DIVISION 1 & CLASS II LOCATIONS** require boxes with a wall thickness sufficient to provide a minimum of five (5) full threads. (See Chart 2)  
**NOTE:** Conduit opening gaging requirement "+1/2 to +3-1/2 turns deeper than nominal" in lieu of the  $\pm 1$  turn of nominal described in ANSI / ASME B1.20.1.
- ④ **CLASS II LOCATIONS, WHEN THE BOX IS NOT SUPPORTED BY THE CONDUITS** require a wall thickness sufficient to provide a minimum of 3-1/2 full threads. (See Chart 3)

- ⑤ After the size of conduit openings has been determined for specific enclosures, measure the wall thickness and refer to the specific chart per the following steps:
  - A) 5 Full Thread Reference Chart 2.
  - B) 3-1/2 Full Thread Reference Chart 3.
- ⑥ If insufficient wall thickness is encountered, consult the factory.

### INSTALLATION PRECAUTIONS

- ① **Never** use hammers, screwdrivers, or any type of prying device to open the cover, as these tools can damage the surface of the machined flanges and prevent the joint from sealing properly.
- ② Before closing the enclosure, be sure to wipe the ground flange surfaces with a clean cloth to remove any dirt or foreign particles. Any dirt on the flanges can prevent a tight seal of the enclosure. The flanges should then be given a light coating of Killark "LUBG" lubricant.
- ③ **Always** install **all cover bolts** to secure the enclosure. Missing bolts can result in explosions in hazardous areas.

**REMEMBER TO SAVE ONE OF THESE  
SHEETS FOR MAINTENANCE  
PERSONNEL.**

Chart 1: Minimum Centers for Drilled & Tapped Openings for Conduits.  
(Allows for locknut, bushing & union clearance)

| SIZE                   | FORM    | ½  | ¾  | 1  | 1¼ | 1½ | 2  | 2½ | 3  | 3½ | 4  | 5  | 6  |
|------------------------|---------|----|----|----|----|----|----|----|----|----|----|----|----|
| ½                      | (1) MIN | 1¾ |    |    |    |    |    |    |    |    |    |    |    |
|                        | (2) PRE | 1¾ |    |    |    |    |    |    |    |    |    |    |    |
|                        | (3) GU  | 1¾ |    |    |    |    |    |    |    |    |    |    |    |
| ¾                      | (1) MIN | 1¾ | 1½ |    |    |    |    |    |    |    |    |    |    |
|                        | (2) PRE | 1½ | 1¾ |    |    |    |    |    |    |    |    |    |    |
|                        | (3) GU  | 1¾ | 1¾ |    |    |    |    |    |    |    |    |    |    |
| 1                      | (1) MIN | 1½ | 1¾ | 1¾ |    |    |    |    |    |    |    |    |    |
|                        | (2) PRE | 1¾ | 1¾ | 2  |    |    |    |    |    |    |    |    |    |
|                        | (3) GU  | 1¾ | 2  | 2¾ |    |    |    |    |    |    |    |    |    |
| 1¼                     | (1) MIN | 1¾ | 2¼ | 2¼ | 2¼ |    |    |    |    |    |    |    |    |
|                        | (2) PRE | 1¾ | 2¼ | 2¼ | 2½ |    |    |    |    |    |    |    |    |
|                        | (3) GU  | 2¼ | 2¼ | 2¼ | 2½ |    |    |    |    |    |    |    |    |
| 1½                     | (1) MIN | 1¾ | 2¼ | 2¼ | 2½ | 2½ |    |    |    |    |    |    |    |
|                        | (2) PRE | 2¼ | 2¼ | 2¼ | 2½ | 2½ |    |    |    |    |    |    |    |
|                        | (3) GU  | 2¼ | 2½ | 2¼ | 2½ | 2½ |    |    |    |    |    |    |    |
| 2                      | (1) MIN | 2¼ | 2¼ | 2¼ | 2¾ | 2¾ | 3¾ |    |    |    |    |    |    |
|                        | (2) PRE | 2¼ | 2½ | 2¼ | 3  | 3¾ | 3¾ |    |    |    |    |    |    |
|                        | (3) GU  | 2½ | 2¾ | 2¼ | 3  | 3¾ | 3¾ |    |    |    |    |    |    |
| 2½                     | (1) MIN | 2¼ | 2¼ | 2¼ | 3  | 3¾ | 3¾ | 3¾ |    |    |    |    |    |
|                        | (2) PRE | 2¼ | 2¼ | 3  | 3¾ | 3¾ | 3¾ | 4  |    |    |    |    |    |
|                        | (3) GU  | 3¼ | 3¾ | 3¾ | 3¾ | 3¾ | 4  | 4¾ |    |    |    |    |    |
| 3                      | (1) MIN | 2¾ | 2¾ | 3¼ | 3¾ | 3¾ | 3¾ | 4  | 4¾ |    |    |    |    |
|                        | (2) PRE | 3  | 3¾ | 3¾ | 3¾ | 3¾ | 4  | 4¾ | 4¾ |    |    |    |    |
|                        | (3) GU  | 3¾ | 3¾ | 3¾ | 4  | 4¾ | 4¾ | 5¾ | 5¾ |    |    |    |    |
| 3½                     | (1) MIN | 3¾ | 3¾ | 3¾ | 3¾ | 3¾ | 4¾ | 4¾ | 4¾ | 4¾ |    |    |    |
|                        | (2) PRE | 3¾ | 3¾ | 3¾ | 3¾ | 4  | 4¾ | 4¾ | 5  | 5¾ |    |    |    |
| 4                      | (1) MIN | 3¾ | 3¾ | 3¾ | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 5¾ | 5¾ |    |    |
|                        | (2) PRE | 3¾ | 3¾ | 4  | 4¾ | 4¾ | 4¾ | 5  | 5¾ | 5¾ | 6  |    |    |
| 5                      | (1) MIN | 4¾ | 4¾ | 4¾ | 4¾ | 4¾ | 5  | 5¾ | 5¾ | 5¾ | 6¾ | 6¾ |    |
|                        | (2) PRE | 4¾ | 4¾ | 4¾ | 4¾ | 5  | 5¾ | 5¾ | 6  | 6¾ | 6¾ | 7¾ |    |
| 6                      | (1) MIN | 4¾ | 4¾ | 5  | 5¾ | 5¾ | 5¾ | 5¾ | 6¾ | 6¾ | 6¾ | 7¾ | 8¾ |
|                        | (2) PRE | 5  | 5¾ | 5¾ | 5¾ | 5¾ | 6  | 6¾ | 6¾ | 7  | 7¾ | 8  | 8¾ |
| Approx.<br>O.D.<br>of: | LOCKNUT | 1¼ | 1¾ | 1¾ | 2¾ | 2¾ | 3  | 3¾ | 4¾ | 4¾ | 5¾ | 6¾ | 7¾ |
|                        | BUSHING | 1  | 1¼ | 1½ | 1¾ | 2¾ | 2¾ | 3¾ | 3¾ | 4¾ | 5  | 6¾ | 7¾ |
|                        | CONDUIT | ¾  | 1¾ | 1¾ | 1¾ | 1¾ | 2¾ | 2¾ | 3¾ | 4  | 4¾ | 5¾ | 6¾ |

- (1) Minimum spacing required to provide clearance over locknuts and bushings.
- (2) Preferred - More liberal spacings between centers of conduits to be used whenever possible.
- (3) GU - When Listed "GU" series unions (½" thru 3") are used, additional spacing between conduits will be required, as specified above.

| Conduit Size | ½ | ¾ | 1  | 1¼ | 1½ | 2  | 2½ | 3  | 3½ | 4  | 5  | 6  |
|--------------|---|---|----|----|----|----|----|----|----|----|----|----|
| Dim. "A" *   | 1 | 1 | 1¼ | 1¾ | 1¾ | 1¾ | 2¾ | 2¾ | 2¾ | 3¾ | 3¾ | 4¾ |

\*Note: If Listed "GU" series unions are being used (½" thru 3"), additional space for clearance may be required. Check dimensions of fittings being used.

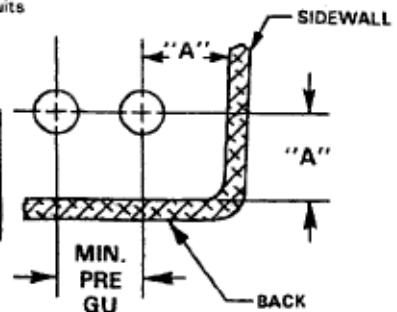


Chart 2: Required wall thickness for five (5) full threads engagement per U.L. 886 Standards.

Class I, Division I  
Class II Supported by Conduit

| CONDUIT SIZE                      | MINIMUM NUMBER OF FULL THREADS | MINIMUM WALL THICKNESS |
|-----------------------------------|--------------------------------|------------------------|
| 1/2" & 3/4"-14                    | 5 (1)                          | 3/8"                   |
| 1", 1 1/4", 1 1/2" & 2"-11 1/2    | 5 (1)                          | 7/16"                  |
| 2 1/2", 3", 3 1/2", 4", 5" & 6"-8 | 5 (1)                          | 1/2"                   |

(1) A box used may have thicker walls than required. For thicker walled boxes, the inner end of each conduit opening shall be smooth and well-rounded, as shown below.

Chart 3: Required wall thickness for 3-1/2 full threads engagement.

Class II Locations Not Supported by Conduit

| CONDUIT SIZE                      | MINIMUM NUMBER OF FULL THREADS | MINIMUM WALL THICKNESS |
|-----------------------------------|--------------------------------|------------------------|
| 1/2" & 3/4"-14                    | 3 1/2 (1)                      | 1/4"                   |
| 1", 1 1/4", 1 1/2" & 2"-11 1/2    | 3 1/2 (1)                      | 5/16"                  |
| 2 1/2", 3", 3 1/2", 4", 5" & 6"-8 | 3 1/2 (1)                      | 3/8"                   |

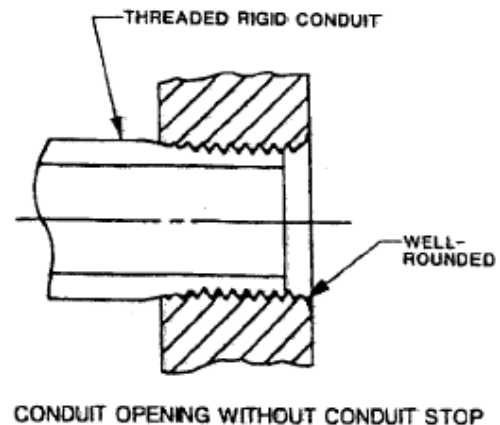
(1) Same as shown for Chart 2.

**NOTE:**

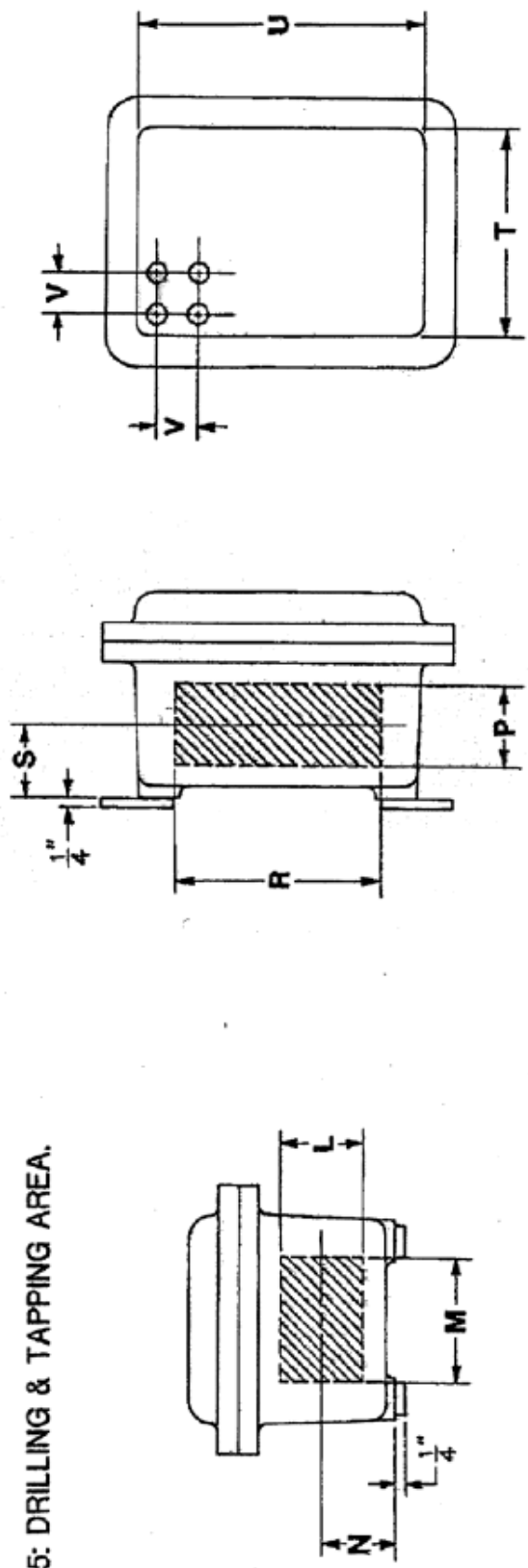
- 1) Conduit openings must be tapped to a depth which allows the conduit to be fully engaged.
- 2) Do not over-tap conduit openings; the conduit must tighten fully without bottoming-out on the unthreaded area of the conduit.
- 3) Conduit opening gaging requirement: "+1/2 to +3-1/2 turns deeper than nominal".

**RECOMMENDED TAP DRILL**

| TAPPED HOLE SIZE - NPT   | TAP DRILL SIZE (DIA.)                                       |
|--|---|
| 1/2" - 14<br>3/4" - 14   | 23/32"<br>59/64"  |
| 1" - 11-1/2<br>1-1/4" - 11-1/2<br>1-1/2" - 11-1/2<br>2" - 11-1/2 | 1-5/32"<br>1-1/2"<br>1-47/64"<br>2-7/32"                    |
| 2-1/2" - 8<br>3" - 8<br>3-1/2" - 8<br>4" - 8<br>5" - 8<br>6" - 8 | 2-5/8"<br>3-1/4"<br>3-3/4"<br>4-1/4"<br>5-5/16"<br>6-23/64" |



**Chart 5: DRILLING & TAPPING AREA.**



| CATALOG NUMBER | L<br>TOP &<br>BOTTOM | M<br>TOP &<br>BOTTOM | N<br>TOP &<br>BOTTOM | P<br>LEFT &<br>RIGHT | R<br>LEFT &<br>RIGHT | S<br>LEFT &<br>RIGHT | MAX. CONDUIT<br>SIZE<br>TOP & BOTTOM | MAX. CONDUIT<br>SIZE<br>LEFT & RIGHT | T<br>COVER<br>SPACE | U<br>COVER<br>SPACE | MAX. NUMBER<br>AUX. DEVICE<br>OPENINGS | V<br>MIN.<br>SPACING |
|----------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|--------------------------------------|--------------------------------------|---------------------|---------------------|--|----------------------|
| B7EA           | 2.19                 | 4.88                 | 2.84                 | 1.59                 | 11.88                | 2.48                 | 1 1/2 NPT                            | 1" NPT                               | 5.19                | 12.19               | 8                                      | 2.5"                 |
| B7EB           | 2.19                 | 8.5                  | 2.84                 | 1.59                 | 17                   | 2.48                 | 1 1/2 NPT                            | 1" NPT                               | 8.88                | 17.38               | 21                                     | 2.5"                 |
| B7EC           | 2.19                 | 6.5                  | 2.84                 | 1.59                 | 14                   | 2.48                 | 1 1/2 NPT                            | 1" NPT                               | 6.75                | 14.25               | 10                                     | 2.5"                 |
| B7ED           | 2.19                 | 8.5                  | 2.84                 | 1.59                 | 19.5                 | 2.48                 | 1 1/2 NPT                            | 1" NPT                               | 8.5                 | 19.5                | 24                                     | 2.5"                 |
| B7EE           | 5.25                 | 6.5                  | 4.31                 | 4.59                 | 20.25                | 3.98                 | 2" NPT                               | 2" NPT                               | 6.81                | 20.56               | 16                                     | 2.5"                 |
| B7EF           | 5.25                 | 11.88                | 4.31                 | 4.59                 | 21.25                | 3.98                 | 4" NPT                               | 4" NPT                               | 12.19               | 21.56               | 32                                     | 2.5"                 |
| B7EG           | 5.75                 | 10.5                 | 4.56                 | 5.09                 | 28.25                | 4.23                 | 5" NPT                               | 4" NPT                               | 11                  | 28.75               | 24                                     | 3"                   |
| B7EH           | 5.75                 | 15.5                 | 4.56                 | 5.09                 | 28.25                | 4.23                 | 5" NPT                               | 4" NPT                               | 16                  | 28.75               | 45                                     | 3"                   |
| B7EJ           | 6                    | 12.97                | 5.18                 | 6                    | 54.97                | 5.18                 | 5" NPT                               | 5" NPT                               | 13.62               | 55.62               | 72                                     | 2.5"                 |
| B7EK           | 2.06                 | 10.7                 | 3.07                 | 2.06                 | 17.7                 | 3.07                 | 3" NPT                               | 1 1/2 NPT                            | 9.5                 | 16.5                | 24                                     | 2.5"                 |
| B7EL           | 2.06                 | 10.7                 | 3.07                 | 2.06                 | 26.7                 | 3.07                 | 3" NPT                               | 1 1/2 NPT                            | 9.5                 | 25.5                | 36                                     | 2.5"                 |
| B7EM           | 2.06                 | 10.7                 | 3.07                 | 2.06                 | 38.7                 | 3.07                 | 3" NPT                               | 1 1/2 NPT                            | 9.5                 | 37.5                | 56                                     | 2.5"                 |
| B7EN           | 2.06                 | 10.7                 | 3.07                 | 2.06                 | 47.7                 | 3.07                 | 3" NPT                               | 1 1/2 NPT                            | 9.5                 | 46.5                | 68                                     | 2.5"                 |
| B7EP           | 1.82                 | 2.1                  | 1.75                 | 1.82                 | 4.31                 | 1.75                 | 1" NPT                               | 1" NPT                               | 1.58                | 5.29                | 2                                      | 2"                   |
| B7EQ           | 1.5                  | 3.13                 | 2                    | 1.5                  | 7.25                 | 2                    | 1 1/2 NPT                            | 1 1/2 NPT                            | 1.91                | 8.13                | 4                                      | 2"                   |