



INSTRUCTIONAL DATA SHEET “EXB” & “EXBLT” (QUANTUM®) SERIES

FOR DRILLING & TAPPING OF CONDUIT OPENINGS IN U.L. LISTED, CSA CERTIFIED, CAST ALUMINUM BOXES FOR HAZARDOUS LOCATIONS

GENERAL INSTRUCTIONS & REQUIREMENTS FOR DRILLING & TAPPING IN FIELD.

- 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 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.
- 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.

NOTE: 1/2”(M16) trade size is the minimum allowable size for any conduit opening. Refer to Chart 4 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 “+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)

INSTALLATION PRECAUTIONS

- 1.) **For proper procedure to be used for opening box/cover joint, refer to the general installation sheet, Form K0983.**
- 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		METRIC	STD. NPT/NPS M	FORM	M16, M20	M25	M32	M40, M42	M48, M50	M63	M80	M100				
					1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6
METRIC	STD. NPT/NPS M															
M16, M20	1/2	(1) MIN (2) PRE (3) GU			1 3/16 1 3/8 1 5/8											
M25	3/4	(1) MIN (2) PRE (3) GU			1 3/8 1 1/2 1 3/4	1 1/2 1 5/8 1 13/16										
M32	1	(1) MIN (2) PRE (3) GU			1 1/2 1 3/4 1 7/8	1 3/4 1 7/8 2	1 13/16 2 2 1/8									
M40, M42	1 1/4	(1) MIN (2) PRE (3) GU			1 11/16 1 15/16 2 1/16	1 15/16 2 1/4 2 1/4	2 1/16 2 1/4 2 5/16	2 5/16 2 1/2 2 1/2								
M48, M50	1 1/2	(1) MIN (2) PRE (3) GU			1 15/16 2 1/8 2 3/16	2 1/16 2 1/4 2 9/32	2 3/16 2 3/8 2 7/16	2 1/2 2 5/8 2 5/8	2 5/8 2 3/4 2 3/4							
	2	(1) MIN (2) PRE (3) GU			2 1/4 2 3/8 2 1/2	2 3/8 2 1/2 2 19/32	2 9/16 2 3/4 2 3/4	2 13/16 3 3	2 15/16 3 1/8 3 1/8	3 3/16 3 3/8 3 3/8						
M63	2 1/2	(1) MIN (2) PRE (3) GU			2 7/16 2 5/8 3 1/8	2 9/16 2 3/4 3 7/32	2 3/4 3 1/4 3 3/8	3 3 1/4 3 9/16	3 1/8 3 3/8 3 11/16	3 3/8 3 5/8 4	3 5/8 4 4 5/8					
	3	(1) MIN (2) PRE (3) GU			2 13/16 3 3 9/16	2 15/16 3 1/8 3 21/32	3 1/16 3 3/8 3 13/16	3 5/16 3 5/8 4	3 7/16 3 3/4 4 1/8	3 3/4 4 4 7/16	4 4 3/8 5 1/16	4 5/16 4 3/4 5 1/2				
M80	3 1/2	(1) MIN (2) PRE			3 1/8 3 3/8	3 1/4 3 1/2	3 3/8 3 5/8	3 5/8 3 7/8	3 3/4 4	4 1/16 4 3/8	4 5/16 4 5/8	4 5/8 5	4 15/16 5 3/8			
M100	4	(1) MIN (2) PRE			3 7/16 3 3/4	3 9/16 3 7/8	3 11/16 4	3 15/16 4 1/4	4 1/16 4 3/8	4 3/8 4 3/4	4 5/8 5	4 15/16 5 3/4	5 1/4 5 5/8	5 9/16 6		
	5	(1) MIN (2) PRE			4 1/8 4 3/8	4 1/4 4 1/2	4 3/8 4 5/8	4 5/8 4 7/8	4 3/4 5	5 5 3/8	5 1/4 5 5/8	5 9/16 6	5 7/8 6 1/4	6 3/16 6 5/8	6 13/16 7 1/4	
	6	(1) MIN (2) PRE			4 3/4 5	4 7/8 5 1/8	5 5 1/4	5 1/4 5 1/2	5 3/8 5 5/8	5 5/8 6	5 7/8 6 1/4	6 3/16 6 5/8	6 1/2 7	6 13/16 7 1/4	7 7/16 8	8 1/8 8 5/8
	Approx. O.D. Of:	LOCKNUT			1 1/4	1 1/8	1 11/16	2 3/16	2 7/16	3	3 7/16	4 3/16	4 13/16	5 3/8	6 11/16	7 15/16
		BUSHING			1	1 1/4	1 1/2	1 15/16	2 13/64	2 5/8	3 7/32	3 7/8	4 7/16	5	6 1/4	7 3/8
		CONDUIT				7/8	1 1/16	1 3/8	1 11/16	1 15/16	2 3/8	2 7/8	3 1/2	4	4 1/2	5 9/16

- (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 (1/2" thru 3") are used, additional spacing between conduits will be required, as specified above.

MINIMUM SPACING OF CONDUIT FROM SIDES & BACK												
Conduit Size	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6
Dim. "A" *	1 1/2	1 5/8	1 3/4	1 7/8	2	2 1/4	2 1/2	2 3/4	3	3 1/4	3 7/8	4 3/8

*Note: If Listed "GU" series unions are being used (1/2" thru 3"), additional space for clearance may be required. Check dimensions of fittings being used.

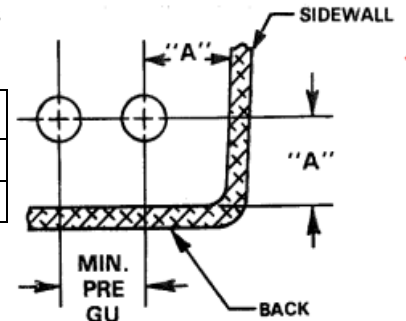


Chart 2: Required wall thickness for five (5) full threads engagement per U.L. 886 Standards.

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	3/8"
1" , 1 1/4" , 1 1/2" & 2"-11 1/2	5	7/16"
2 1/2" , 3" , 3 1/2" , 4" , 5" & 6" -8	5	5/8"

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	1/4"
1" , 1 1/4" , 1 1/2" & 2"-11 1/2	3 1/2	5/16"
2 1/2" , 3" , 3 1/2" , 4" , 5" & 6" -8	3 1/2	7/16"

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 gauging 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	23/32"
3/4" - 14	59/64"
1"-11-1/2	1-5/32"
1-1/4" - 11-1/2	1-1/2"
1-1/2" -11-1/2	1-47/64"
2"-11-1/2	2-7/32"
2-1/2"- 8	2-5/8"
3"- 8	3-1/4"
3-1/2" - 8	3-3/4"
4" - 8	4-1/4"
5" - 8	5-5/16"
6" - 8	6-23/64"

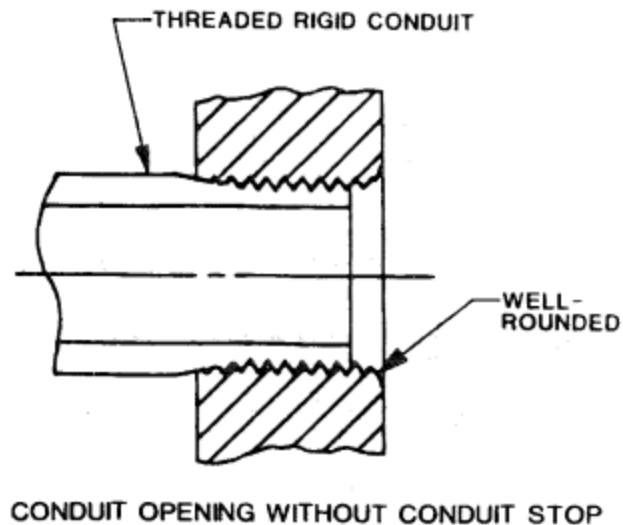


CHART 4: MAXIMUM CONDUIT SIZE

U.L. LISTED EXB SERIES	MIN / MAX CONDUIT SIZES				
	MIN	MAX			
	M16	M63	M63	M100	M100
CAT NO.	1/2"	2"	3"	5"	6"
EXB-684 N34	X	X			
EXB-664 N34	X	X			
EXB-6124 N34	X	X			
EXB-8104 N34	X	X			
EXB-886 N34	X	X			
EXB-8106 N34	X	X			
EXB-8126 N34	X	-	X		
EXB-10106 N34	X	-	X		
EXB-10146 N34	X	-	X		
EXB-12126 N34	X	-	X		
EXB-12186 N34	X	-	X		
EXB-12246 N34	X	-	X		
EXB-14146 N34	X	-	X		
EXB-16166 N34	X	-	X		
EXB-18186 N34	X	-	X		
EXB-8128 N34	X	-	-	X	
EXB-10108 N34	X	-	-	X	
EXB-10148 N34	X	-	-	X	
EXB-12128 N34	X	-	-	X	
EXB-12188 N34	X	-	-	X	
EXB-12248 N34	X	-	-	X	
EXB-12368 N34	X	-	-	X	
EXB-14148 N34	X	-	-	X	
EXB-16168 N34	X	-	-	X	
EXB-16248 N34	X	-	-	X	
EXB-18188 N34	X	-	-	X	
EXB-18248 N34	X	-	-	X	
EXB-18308 N34	X	-	-	X	
EXB-18368 N34	X	-	-	X	
EXB-24248 N34	X	-	-	X	
EXB-24308 N34	X	-	-	X	
EXB-24368 N34	X	-	-	X	
EXB-123610 N34	X	-	-	-	X
EXB-162410 N34	X	-	-	-	X
EXB-182410 N34	X	-	-	-	X
EXB-183610 N34	X	-	-	-	X
EXB-203611 N34	X	-	-	-	X
EXB-242410 N34	X	-	-	-	X
EXB- 243610 N34	X	-	-	-	X
EXB-122412 N34	X	-	-	X	
EXBLT - ALL SIZES	X	X			

*X equals Min & Max, Hyphen includes size