

EYSX and EYDX expanded sealing fittings

Conduit sealing in Class I and Class II hazardous (classified) locations use only Crouse-Hinds

Chico® X fiber for dams and Chico® A or Chico® SpeedSeal™ sealing compound for sealing

Installation & maintenance information



IF 288

SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE

The National Electrical Code® (NEC) in Article 501, Section 501.15, Class I, Divisions 1 and 2, requires that seals be installed in specific places. This is to minimize the passage of gases and vapors and prevent the passage of flames through the conduit from one portion of the electrical installation to another portion.

While not a Code requirement, it is considered good practice to sectionalize long conduit runs by inserting seals not more than 50 to 100 feet apart, depending on the conduit size, to minimize the effects of "pressure piling."

The Code in Section 502.15 requires seals in Class II locations under certain conditions. Crouse-Hinds sealing fittings can be used to meet this requirement.

Conduit seals are not intended to prevent the passage of liquids, gases, or vapors at a continuous pressure differential across the seal. Even at differences in pressure across the seal equivalent to a few inches of water, there may be a slow passage of gas or vapor through a seal and through the conductors passing through the seal.

Accumulation of water in conduit systems is apt to cause trouble and shorten the life of insulation on conductors. In ordinary locations, accumulation of water usually can be prevented by drain openings located at low points.

However, in hazardous locations this procedure can be followed only if the drain openings are explosionproof. The National Electrical Code requires that conduit systems in Class I hazardous locations be provided with means by which the systems can be drained of water, if there is likelihood of water accumulation.

EYDX Drain Seal Fittings, for use in vertical conduit runs, prevent accumulation of water above seals in conduit systems. Continuous draining guards against insulation failure and other defects caused by the presence of water in the conduit system.

In humid atmospheres or wet locations where it is likely that water can gain entrance in the interiors of enclosures or runs, the runs should be inclined so that water will not collect in enclosures or in seals but will be led to low points where it may pass out through ECD explosionproof drains.

Frequently, the arrangement of runs makes this method impractical, if not impossible. In such instances, type EYZ drain seal fittings should be used. These fittings prevent harmful accumulations of water above the seal. See NEC 501.15(F).

In locations which usually are considered dry, surprising amounts of water frequently collect in conduit systems. No conduit system is airtight; therefore, it may "breathe." Alternate increases and decreases in temperature and/or barometric pressure due to weather changes or due to the nature of the process carried on in the location where conduit is installed will cause "breathing."

Outside air is drawn into the conduit system when it "breathes in." If this air carries sufficient moisture it will be condensed within the system when the temperature decreases and chills this air. The internal conditions being unfavorable to evaporation, the resultant water accumulation will remain and be added to by repetitions of the breathing cycle.

In view of this likelihood we recommend that you insure against such water accumulation and probable subsequent insulation failures by installing EYZ drain seals or EYZ inspection seals even though conditions prevailing at the time of planning or installing do not indicate their need.

Crouse-Hinds sealing fittings are listed by Underwriter's Laboratories, Inc. for use in Class I and Class II hazardous locations with Chico A or Chico SpeedSeal sealing compound and Chico X fiber only. Chico A sealing compound, when

properly mixed and poured, hardens into a dense, strong mass. Both Chico A and Chico SpeedSeal are insoluble in water, are not attacked by petroleum products, and are not softened by heat. They will withstand, with ample safety factor, pressure of the exploding trapped gases or vapor.

Conductors sealed in the compound should be approved thermoplastic or rubber insulated type.



CAUTION

Refer to table to determine the maximum number and size of conductors allowed in a seal.

Only experienced, careful installers should be entrusted with making the dam, mixing, and pouring the compound. Improperly made seals are worthless. Mixing vessel must be cleaned thoroughly before mixing new compound.

SEALING INSTRUCTIONS FOR EYSX SERIES

EYSX11 and EYS1 series (1/2" to 4"), for horizontal or vertical sealing, have separate filling and damming openings.

Selection of Sealing Compound

Chico A sealing compound may be used with all sizes of EYSX. Chico SpeedSeal may be used with 1/2" to 1 1/2" EYSX seals installed in Class I, Groups C & D.

Vertical Seals

When sealing vertical conduits, compound is poured through the pipe plug opening above the cover. Remove the large lower plug and pack a dam in the bottom hub in accordance with IF 281 provided with Chico X fiber. Reinstall the large lower plug and tighten securely.

Prepare the sealing compound in accordance with instructions provided. Pour the seal through the upper opening until the sealing compound reaches the bottom of the fill opening. Replace plug in fill opening and tighten securely.

Horizontal Seals

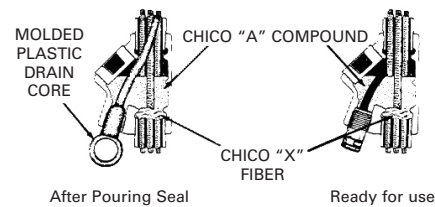
Remove both threaded plugs from EYSX. Orient seal so the openings face up.

Chico A installations: construct dams in accordance with IF281 at both end of the EYSX. Prepare the Chico A sealing compound in accordance with IF 1470. Pour the compound through the large opening. Fill the seal so that the sealing compound reaches the bottom of the fill opening. Replace plugs and tighten securely.

Chico SpeedSeal installations: dams are not required with Chico SpeedSeal unless it is desired to have compound expand in one direction, or to keep compound out of adjacent enclosures. Install Chico SpeedSeal according to IF 1457.

SEALING INSTRUCTIONS FOR EYDX SERIES

Accumulation of water in conduit systems are apt to cause trouble and shorten the life of insulation on conductors. In ordinary locations, accumulation of water usually can be prevented by drain openings located at low points. However, in hazardous locations, this procedure can be followed only if the drain openings are explosionproof. The National Electrical Code requires that conduit systems in Class I hazardous locations be provided with means by which the systems can be drained of water, if there is likelihood of water accumulation.



1/2" to 3/4" Sizes

EYDX Drain Seal Fittings, for use in vertical conduit runs, prevent accumulation of water above seals in conduit systems. Continuous draining guards against insulation failure and other defects caused by the presence of water in the conduit system.



CAUTION

Type EYDX fittings are suitable for sealing vertical conduit runs between hazardous and non-hazardous areas, but must be so located that hazardous gases or vapors will not vent into the non-hazardous area. Conduits leaving the hazardous area from the top should have the fitting located in the non-hazardous area. Conduits leaving the hazardous area from the bottom should have the fitting located in the hazardous area.

Install EYDX and pull conductors through conduit and fitting. Remove pipe plug and dam the lower hub opening. For 1" to 3" EYDX sealing fittings, remove the large cover and pipe plug and dam the lower hub opening. Replace large cover, threading in as far as possible into body, with arrow pointing directly down. If using Chico SpeedSeal, the top hub opening may also be dammed to prevent Chico SpeedSeal from expanding up into the conduit. To leave drain path, install molded plastic drain core or drain tube and rubber grommet as described below (one method is provided with every EYDX; for Chico SpeedSeal installations the drain tube and rubber grommet method must be used).



CAUTION

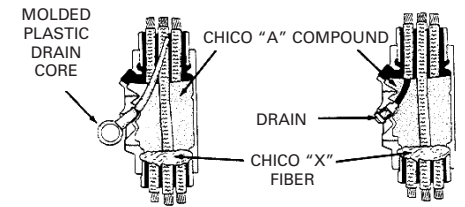
Avoid contact between the plastic drain core and the conductors inside the poured sealing fitting. The sealing compound must completely surround the conductors and comply with the thickness requirements in the National Electrical Code. Gaps between the conductors and the drain core in a poured seal can be leakage paths for gases, vapors, or flames.

Option 1 - PLASTIC DRAIN CORE METHOD NOTE: FOR CHICO A SEALING COMPOUND ONLY

The molded plastic drain core has a flexible stem that can be easily formed. Bend the stem into an arc before installing it into the sealing fitting. Bending the stem will permit the drain core to enter the sealing fitting in a vertical position. Insert the drain core as far as possible into the drain opening so the end of the stem is above the sealing compound in a completely poured seal.

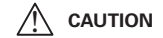
Pour sealing compound so that the sealing compound reaches the bottom of the fill opening and replace pipe plug immediately. After about two hours remove the molded plastic drain core. Thread ECD drain fitting into the opening and tighten securely.

If any batch of Chico A sealing compound starts to set before pouring **DO NOT** try to thin by adding water or stirring. This will spoil seals. Discard the batch and make a new one.



1" to 3" Sizes

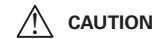
FOR APPLICATIONS INVOLVING GROUP B



CAUTION

Chico A sealing compound to be mixed **ONLY** at temperatures above 40°F/4°C and **ONLY** poured into fittings that have been brought to a temperature above 40°F/4°C. Seals must **NOT** be exposed to temperatures below 40°F/4°C for at least 72 hours. Compound **MUST** be allowed 72 hours to cure to full strength before energizing system.

FOR APPLICATIONS INVOLVING GROUPS C AND D



CAUTION

Chico A sealing compound to be mixed **ONLY** at temperatures above 35°F/2°C and **ONLY** poured into fittings that have been brought to a temperature above 35°F/2°C. Seals must **NOT** be exposed to temperatures below 35°F/2°C for at least 8 hours. Compound **MUST** be allowed 8 hours to cure to full strength before energizing system.

FOR ALL APPLICATIONS

Keep Chico A sealing compound dry by tightly closing container cover when not in use.

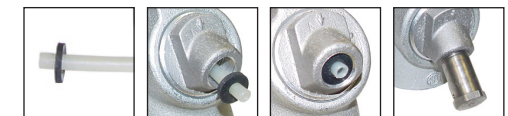
Option 2 - DRAIN TUBE AND RUBBER GROMMET METHOD FOR INSTALLATIONS USING CHICO A SEALING COMPOUND: NOTE: FOR USE WITH EYDX1/1SA/2/2SA/3/3SA/4/4SA/5/5SA/ 6/6SA/7/7SA/8/8SA SEALS UTILIZING ECD385 ONLY

Catalog Number	Tube Length	Catalog Number	Tube Length
EYDX11/1 SA	3"	EYDX51/5 SA	5"
EYDX21/2 SA	4 1/2"	EYDX61/6 SA	5 1/4"
EYDX31/3 SA	3 1/4"	EYDX71/7 SA	5"
EYDX41/4 SA	5"	EYDX81/8 SA	5 1/2"

Table 1

Cut tube to length so that when installed flush to ECD opening the tube is a 1/4" above height of pour opening. See Table 1.

After cutting tube, place rubber grommet 1/4" from one end. Bend the tube into an arc before installing it into the sealing fitting. Bending the tube will permit the drain tube to enter the sealing fitting in a vertical position. Insert the tube until the rubber grommet is held in place by the first threads of the ECD opening.



Thread the ECD385 drain fitting into the opening and tighten securely. The ECD385 will push the grommet up to the top of the ECD opening. Pour sealing compound so that the sealing compound reaches the bottom of the fill opening and replace pipe plug immediately.

Option 3 - DRAIN TUBE AND RUBBER GROMMET METHOD

FOR APPLICATIONS USING CHICO® SPEEDSEAL™ SEALING COMPOUND KIT

NOTE: FOR USE WITH EYDX1/1SA/2/2SA/3/3SA/4/4SA/5/5SA SEALS UTILIZING ECD385 ONLY

CAUTION

CHICO SpeedSeal compound is to be used only with Crouse-Hinds EYDX type sealing fittings in 1/2" to 1 1/2" trade sizes. SpeedSeal compound is suitable for Class I, Division 1 and 2, Groups C & D and Class II, Division 1 and 2, Groups E, F & G hazardous areas only, even when used in a fitting rated for Group B.

dam in top hub of EYDX to prevent expansion into conduit. You must also follow instructions provided with Chico SpeedSeal for proper amount of material to be injected into each size fitting. The tube may be left uncut if expansion into conduit is not a concern. Some standing water on Chico SpeedSeal in conduit will not harm installation. If seal is installed below an enclosure, tube may be cut to insure water buildup will not be in the enclosure.



After preparing tube, place rubber grommet 1/4" from one end. Bend the tube into an arc before installing it into the sealing fitting. Bending the tube will permit the drain tube to enter the sealing fitting in a vertical position. Insert the tube until the rubber grommet is held in place by the first threads of the ECD opening. Thread in the ECD drain fitting into the opening and tighten securely. The ECD will push the grommet up to the top of the ECD opening.

Inject Chico SpeedSeal sealing compound and replace pipe plug immediately. Follow instructions provided with Chico SpeedSeal carefully.

Refer to Instruction Sheet IF1457 for detailed installation procedures.

Depending on the application, Chico SpeedSeal will expand up into the conduit above the fitting. The drain tube provided is long enough to account for the total expansion of a 2 ounce cartridge in a 1/2" fitting (this application is the worst case scenario for expansion into the conduit). If desired, you may pack fiber

Maximum number of conductors that can be sealed in a Crouse-Hinds EYSX and EYDX sealing fitting

Size AWG or Kcmil	EYSX & EYDX																EYSX ONLY			
	1/2" CONDUIT		3/4" CONDUIT		1" CONDUIT		1-1/4" CONDUIT		1-1/2" CONDUIT		2" CONDUIT		2-1/2" Seal		3" Seal		3-1/2" Seal		4" Seal	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
18	8 (3/4")	21 (3/4")	15 (1")	38 (1")	24 (1-1/4")	61 (1-1/4")	42 (2")	105 (1-1/2")	143 (2")	94 (3")	235 (3")	134 (3-1/2")	335 (3-1/2")	207 (4")	517 (4")	276 (5")	690 (5")	355 (5")	888 (5")	
16	7 (3/4")	16 (3/4")	12 (1")	29 (1")	20 (1-1/4")	47 (1-1/4")	35 (2")	81 (1-1/2")	48 (2")	110 (2")	79 (3")	181 (3")	113 (3-1/2")	259 (3-1/2")	174 (4")	400 (4")	232 (5")	534 (5")	299 (5")	687 (5")
14	4 (3/4")	13 (3/4")	7 (1")	22 (1")	12 (1-1/4")	36 (1-1/4")	21 (2")	63 (1-1/2")	28 (2")	85 (2")	46 (3")	96 (3")	66 (3-1/2")	200 (3-1/2")	102 (4")	309 (4")	136 (5")	412 (5")	176 (5")	531 (5")
12	3 (1/2")*	9 (3/4")	6 (1")	16 (1")	10 (1-1/4")	26 (1-1/4")	17 (2")	46 (1-1/2")	23 (2")	62 (2")	38 (3")	102 (3")	55 (3-1/2")	146 (3-1/2")	50(85/4")	225 (4")	113 (5")	301 (5")	146 (5")	387 (5")
10	3 (1/2")*	6 (3/4")	5 (1")	10 (1")	8 (1-1/4")	17 (1-1/4")	14 (2")	29 (1-1/2")	19 (2")	39 (2")	31 (3")	64 (3")	4 (3-1/2")	92 (3-1/2")	41(68/4")	142 (4")	9 (5")	189 (5")	118 (5")	244 (5")
8	1 (1/2")*	3 (3/4")	3 (1")	6 (1")	4 (1")	9 (1-1/4")	7 (1-1/4")*	16 (1-1/2")	10 (2")	22 (2")	16 (3")	37 (3")	23 (3-1/2")	53 (3-1/2")	36 (4")	82 (4")	48 (5")	109 (5")	61 (5")	140 (5")
6	1 (1/2")*	2 (3/4")	1 (3/4")*	4 (1")	3 (1-1/4")	7 (1-1/4")	6 (2")	12 (1-1/2")	8 (2")	16 (2")	13 (3")	27 (3")	15(18/3-1/2")	23(38/4")	29 (4")	59 (4")	38 (5")	79 (5")	49 (5")	101 (5")
4	1 (1/2")*	1 (1/2")*	1 (3/4")*	2 (1")	2 (1-1/4")	4 (1-1/4")	4 (2")	7 (1-1/2")	6 (2")	10 (2")	10 (3")	16 (3")	12(14/3")	23 (3-1/2")	22 (4")	36 (4")	30 (5")	48 (5")	38 (5")	62 (5")
3		1 (3/4")*	1 (3/4")*	1 (3/4")*	2 (1-1/4")	3 (1-1/4")	4 (2")	6 (1-1/2")	5 (2")	8 (2")	9 (3")	14 (3")	10(12/3")	20 (3-1/2")	19 (4")	31 (4")	26 (5")	41 (5")	34 (5")	53 (5")
2		1 (3/4")*	1 (3/4")*	1 (1")*	3 (1-1/4")	3 (1-1/4")*	5 (1-1/2")	4 (2")	7 (2")	7 (3")	11 (3")	9(11/3")	17 (3-1/2")	17 (4")	26 (4")	23 (5")	34 (5")	29 (5")	44 (5")	
1		1 (3/4")*	1 (3/4")*	1 (1")*	1 (1")*	1 (1-1/4")*	4 (1-1/2")	3 (1-1/2")*	5 (2")	5 (3")	8 (3")	7 (2-1/2")*	12 (3-1/2")	11 (4")	19 (4")	15 (5")	25 (5")	19 (5")	33 (5")	
1/0		1 (1")*	1 (1")*	1 (1")*	1 (1-1/4")*	3 (1-1/2")*	2 (1-1/2")*	4 (2")	4 (2")	4 (2")*	7 (3")	6 (2-1/2")*	10 (3-1/2")	10 (4")	16 (4")	13 (5")	21 (5")	17 (5")	27 (5")	
2/0		1 (1")*	1 (1")*	1 (1")*	1 (1-1/4")*	2 (1-1/2")	2 (2")	3 (2")	4 (3")	6 (3")	5 (2-1/2")*	8 (3-1/2")	8 (3")*	13 (4")	11 (3-1/2")*	18 (5")	14 (4")*	23 (5")		
3/0		1 (1")*	1 (1")*	1 (1")*	1 (1-1/4")*	1 (1-1/4")*	1 (1-1/2")*	3 (2")	3 (2")*	5 (3")	4 (2-1/2")*	7 (3-1/2")	7 (3")*	11 (4")	10 (5")	15 (5")	12 (4")*	19 (5")		
4/0					1 (1-1/4")*	1 (1-1/4")*	1 (1-1/2")*	2 (2")	3 (3")	4 (3")	4 (3-1/2")	6 (3-1/2")	6 (3")*	9 (4")	8 (3-1/2")*	12 (5")	11 (5")	16 (5")		
250					1 (1-1/4")*	1 (1-1/4")*	1 (1-1/2")*	1 (1-1/2")*	1 (2")	3 (3")	3 (2-1/2")*	5 (3-1/2")	5 (3")*	7 (4")	6 (3-1/2")*	10 (5")	8 (4")*	13 (5")		
300					1 (1-1/4")*	1 (1-1/4")*	1 (1-1/2")*	1 (1-1/2")*	1 (2")*	3 (3")	3 (2-1/2")*	4 (3-1/2")	4 (3")*	6 (4")	5 (3-1/2")*	8 (5")	7 (4")*	11 (5")		
350					1 (1-1/4")*	1 (1-1/4")*	1 (1-1/2")*	1 (1-1/2")*	1 (2")*	2 (3")	2 (3-1/2")	4 (4")	5 (4")	5 (3-1/2")*	7 (5")	6 (4")*	10 (5")			
400								1 (1-1/2")*	1 (1-1/2")*	1 (2")*	2 (3")	1 (2-1/2")*	3 (3-1/2")	3 (3")*	5 (4")	4 (3-1/2")*	7 (5")	6 (4")*	8 (5")	
500								1 (1-1/2")*	1 (1-1/2")*	1 (2")*	1 (2")*	1 (2-1/2")*	2 (3-1/2")	3 (3")*	4 (4")	4 (3-1/2")*	5 (5")	5 (4")*	7 (5")	
600										1 (2")*	1 (2")*	1 (2-1/2")*	1 (2-1/2")*	2 (4")	3 (4")	3	4 (4")	4 (4")*	6 (5")	
700										1 (2")*	1 (2")*	1 (2-1/2")*	1 (2-1/2")*	1 (3")*	3 (4")	3 (3-1/2")*	4 (5")	3 (4")*	5 (5")	
750										1 (2")*	1 (2")*	1 (2-1/2")*	1 (2-1/2")*	1 (3")*	3 (4")	3 (3-1/2")*	4 (5")	3 (4")*	5 (5")	
800										1 (2")*	1 (2")*	1 (2-1/2")*	1 (2-1/2")*	1 (3")*	2 (4")	2 (3-1/2")*	3 (5")	3 (4")*	4 (5")	
900										1 (2")*	1 (2")*	1 (2-1/2")*	1 (2-1/2")*	1 (3")*	2 (4")	1(2/4")	3 (5")	3 (4")*	4 (5")	
1000										1 (2")*	1 (2")*	1 (2-1/2")*	1 (2-1/2")*	1 (3")*	1 (3")*	1 (3-1/2")*	3 (5")	3 (4")*	4 (5")	
1250												1 (2-1/2")*	1 (2-1/2")*	1 (3")*	1 (3")*	1 (3-1/2")*	1 (3-1/2")*	1 (4")*	2 (4")*	
1500														1 (3")*	1 (3")*	1 (3-1/2")*	1 (3-1/2")*	1 (4")*	1 (4")*	
1750														1 (3")*	1 (3")*	1 (3-1/2")*	1 (3-1/2")*	1 (4")*	1 (4")*	
2000														1 (3")*	1 (3")*	1 (3-1/2")*	1 (3-1/2")*	1 (4")*	1 (4")*	

Column A = Types RFH-2, FFH-2, RFHH-2 (AWG 18-16) RHH, RHW, RHW-2 (AWG 14-2000 Kcmil)
 Column B =THHN, THWN, THWN-2 (AWG 14-100 Kcmil) PF, PFF (AWG18-16)

NOTE: Number in parenthesis is the actual trade size of the sealing fitting, used to determine the dimensions and turning radius for the expanded sealing fitting.
 * Use standard EYS or EYD sealing fitting; expanded wire fill sealing fitting is not required

All statements, technical information and recommendations contained herein are based on information and tests we believe to be reliable. The accuracy or completeness thereof are not guaranteed. In accordance with Eaton's Crouse-Hinds Division's "Terms and Conditions of Sale", and since conditions of use are outside our control, the purchaser should determine the suitability of the product for his intended use and assumes all risk and liability whatsoever in connection therewith.



Eaton's Crouse-Hinds Division
 1201 Wolf Street, Syracuse, New York 13208 • USA
 Copyright © 2019

IF 288
 Revision 2
 Revised 08/19
 Supersedes 03/96