EGS Electrical Group
O-Z/GEDNEY

INSTRUCTION SHEET 502884-1

INSTRUCTION FOR UL LISTED EYAX AND EYDX SERIES EXPANDED FILL SEALING FITTINGS APPROVED FOR USE WITH: APPLETON "Kwiko® A" AND CROUSE-HINDS "Chico® A" SEALING CEMENT

• The National Electrical Code in Article 501 Section 501.15 Class I, Division 1 and 2, requires that seals be installed in specific locations. This is to prevent the passage of gases, vapors or flames through the conduit from one portion of the electrical installation to another portion.

• O-Z/Gedney sealing fittings are UL listed for use in hazardous locations with Appleton Kwiko A or Crouse-Hinds Chico A compound only. These compounds, when properly mixed and poured, harden into a dense and strong mass which is insoluble in water, is not attacked by petroleum products and is not softened by heat.

WARNING:
Failure to follow safety instructions may cause ignition of hazardous atmosphere resulting in serious personal injury and / or property damage.

Mineral Fiber Filler
"Asbestos Free"

"Asbestos Free" Sealing Cement. Be sure to read the mixing instructions on Sealing cement can.

STEP 1.
Install sealing fitting and pull conductors through.
• Remove plug(s) from sealing fitting and use fiber filler to make dam (s) in hub(s).

STEP 2.
DAMMING: Separate each conductor and pack fiber filler tightly into hub(s) behind conductors and around each conductor.
• These conductors **must not touch each other** nor the sealing fitting wall.
• Clean fiber shreds away from walls or conductors to prevent them from causing flame and / or leakage of gases. Finished dam must be flush with conduit hub bushing.

STEP 3.
Mixing: Prepare sealing compound using a completely clean mixing vessel in each batch. Shake the sealing cement thoroughly in all directions. Mix sealing cement with correct proportion of clean water as noted below.
APPLETON Kwiko A and CROUSE-HINDS Chico A CEMENT. Add one (1) part water to two (2) parts cement by volume. Use cold water, warm water increases setting speed. Add water and stir immediately and thoroughly.
• **DO NOT** mix more than can be poured in 15 minutes after adding water.
• These cements are **NOT INSULATING COMPOUNDS** and **MUST NOT** be used for such purposes.

STEP 4.
VERTICAL CONDUIT RUN. Pour sealing cement mixture into the small pipe opening until the cement is level with the last thread of the opening. Replace and tighten small pipe plug.
HORIZONTAL CONDUIT RUN. Pour sealing cement mixture into the sealing fitting through the large opening until two (2) to three (3) threads are covered with the cement.
• Replace and tighten in sequence the large pipe plug or cover the small pipe plug into the sealing fitting and the small pipe plug into the cover.

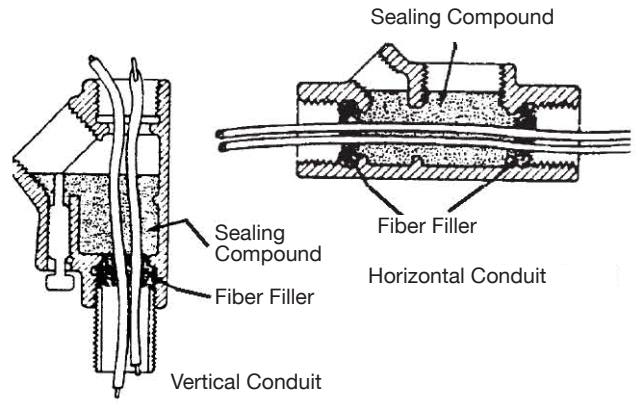
CAUTION: TEMPERATURE/CURE TIME

APPLETON Kwiko A and CROUSE-HINDS Chico A CEMENT

FOR GROUPS C AND D APPLICATIONS: Sealing compound to be mixed ONLY at temperatures above 35° F (1.7° C) and ONLY poured into fittings that have been brought to a temperature above 35° F (1.7° C). Seals must NOT be exposed to temperatures below 35° F (1.7° C) for a least 8 hours. Compound must be allowed 8 hours to cure to full strength before energizing system.

FOR GROUPS A AND B APPLICATIONS: Sealing compound to be mixed ONLY at temperatures above 40° F (4.4° C) and ONLY poured into fittings that have been brought to a temperature above 40° F (4.4° C). Seals must NOT be exposed to temperatures below 40° F (4.4° C) for a least 72 hours. Compound must be allowed 72 hours to cure to full strength before energizing system.

Damming and Pouring:

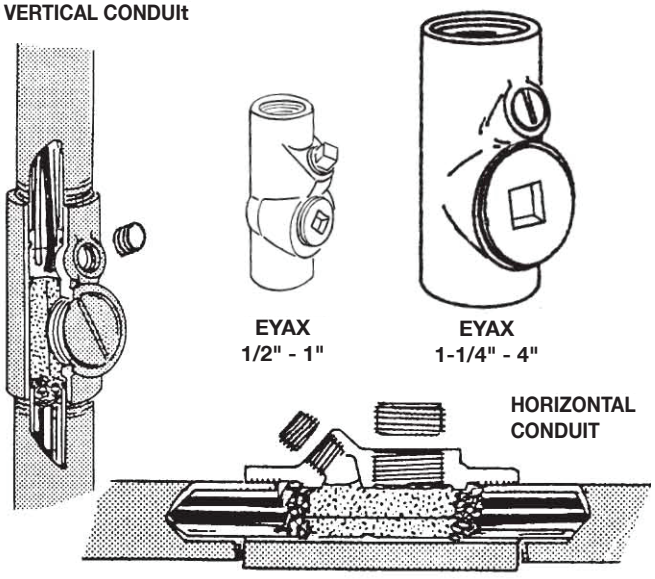


CAUTION

Remove any cement from threads in order to allow a minimum of 5 threads engagement of fitting threads, close plug and drain / breather.

EYAX SEALING SEALING FITTINGS 1/2" TO 4"

EXPLOSION PROOF, DUST-IGNITION-PROOF FOR USE IN: IN VERTICAL AND / OR HORIZONTAL CONDUIT RUNS



NOTE: On sizes 3", 3-1/2" and 4" the cover should be tightened down with the small pipe plug removed from it. This will allow excess cement or air to escape out rather than seeping through or pushing the dam into the conduit. When the large cover has been tightened fully, replace pipe plug.

Vertical conduit

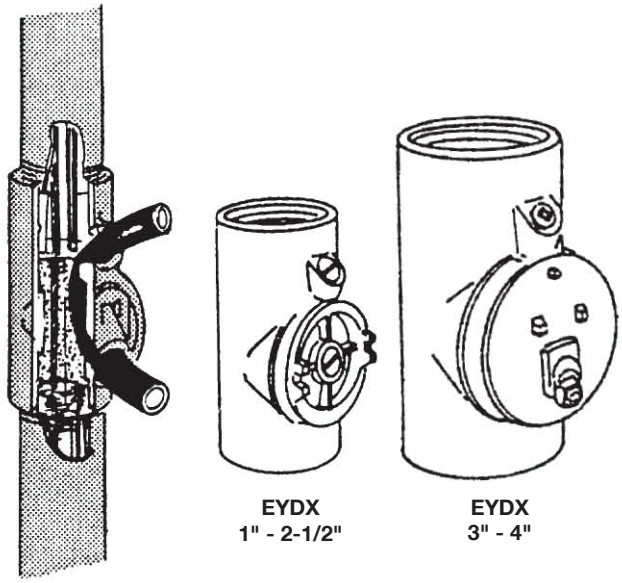
1. Install sealing fitting and pull conductors through.
2. Remove the pipe plug where the cement will be poured through and the large pipe plug or cover with the small pipe plug for size 3", 3-1/2" and 4" at the center of the sealing fitting.
3. Dam the lower hub with fiber filler. (Page 1, Steps 1 & 2.)
4. Replace the large pipe plug or cover with the small pipe plug for 3", 3-1/2" and 4" sealing fitting, tighten all threaded joints securely.
5. Mix Sealing Cement with the correct proportion of water per instructions provided with the cement. (Page 1, Step 3).
6. Pour Sealing Cement mixture into the small pipe plug opening until the cement is level with the last thread of the opening.
7. Replace and tighten small pipe plug.

Horizontal conduit

1. Install sealing fitting and pull conductors through.
2. Remove all pipe plugs and / or cover from the sealing fitting.
3. Dam both hubs with fiber filler. (Page 1, Steps 1 & 2)
4. Mix Sealing Cement with the correct proportion of water per instructions provided with the cement. (Page 1, Step 3.)
5. Pour Sealing Cement mixture into the sealing fitting through the large opening until 2-3 threads are covered with the cement. Fill hole must be oriented in the upright position.
6. Replace and tighten in sequence the large pipe plug or cover, the small pipe plug into the sealing fitting and the small pipe plug into the cover.

EYDX DRAIN AND SEALING SEALING FITTINGS

CLOSE TURNING RADIUS DRAIN AND SEALING SEALING FITTINGS, EXPLOSIONPROOF, DUST-IGNITIONPROOF, FOR USE IN VERTICAL CONDUIT RUNS



EYDX Series 1" TO 4"

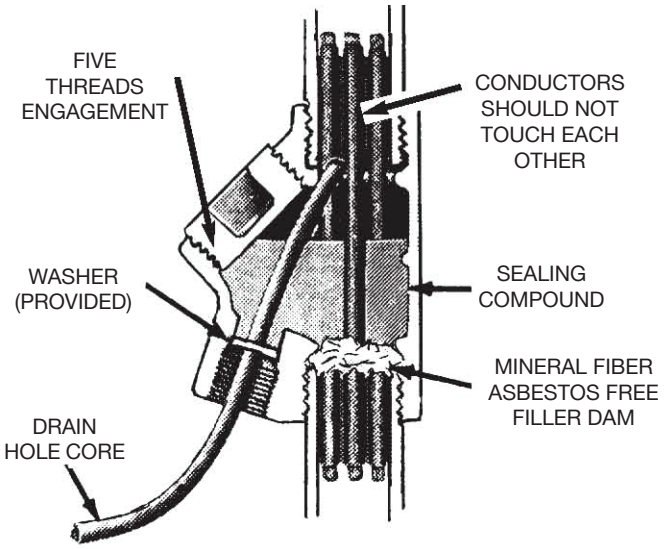
1. Install sealing fitting and pull conductors through.
2. Remove the large threaded cover from the sealing fitting.
3. Dam the lower hub opening with fiber filler. (Page 1, Step 2).
4. Replace the large threaded cover so that the threaded hole is facing downward.
5. Insert the tube and wire drain core into the opening of the large threaded cover so that the end being inserted will be above the compound in a completed seal. (See illustration on this page).
6. Be sure that the tube and wire drain core do not touch any of the conductors, Otherwise, this will expose the conductors in the completed and hardened seal. (See illustration on this page).
7. Mix Sealing Cement with the correct proportion of water per instructions provided with the cement. (Page 1, Step 3).
8. Pour Sealing Cement mixture into the sealing fitting through the opening located above the large cover until the last thread is covered with cement.
9. After cement has cured, (see page 1, "**Caution:** For temperature/ cure time") pull out the old tube and wire drain core and discard.
10. Thread the small pipe plug into this opening and tighten .
11. Thread ECDB drain-breather fitting into large cover threaded hole and tighten securely.

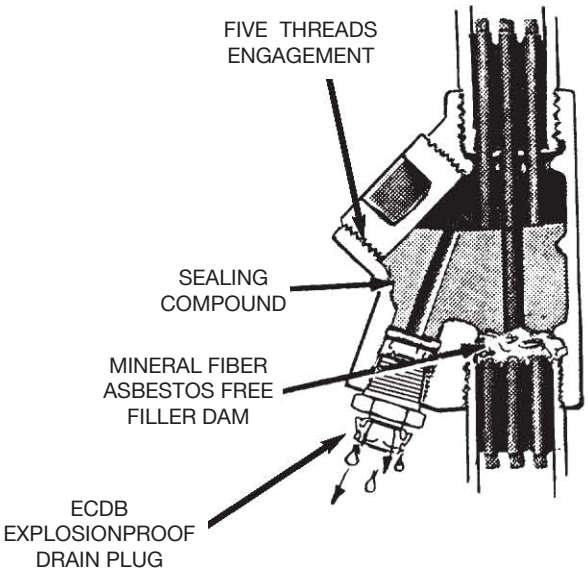
CAUTION

Remove any cement from threads in order to allow a minimum of 5 threads engagement of fitting threads, close plug and drain / breather.

EYDX DRAIN AND SEALING SEALING FITTINGS

EXPLOSION PROOF, DUST IGNITION PROOF FOR USE IN VERTICAL CONDUIT RUNS





EYDX Fitting with a ECDB
Explosion-Proof Drain application

ECDB Explosion-Proof Drain\Breather Application
Drain/breather installed in bottom of housing to drain water formed by condensation within system.Drain must be vertical and pointing down when installed.

EYDX Series 1/2" and 3/4"

1. Install sealing fitting and pull conductors through.
2. Remove the pipe plug.
3. Dam the lower hub opening with fiber filler. (See page 1, steps 1 and 2)
4. Insert rubber drain-hole core through drain opening and washer (provided) high enough so inner end of core will be above sealing compound in completed seal.

Note: Washer (provided) must be inserted to last thread to form dam for sealing compound. (See illustration above).

5. Be sure that the rubber drain - hole - core does not touch any of the conductors.
6. Mix Sealing Cement with the correct proportion of water per instructions provided with the cement (Page 1, Step 3.).
7. Pour Sealing Cement mixture into the sealing fitting opening until the cement is level with the last thread of the opening.
8. Replace and tighten pipe plug.
9. When cement has cured (see page 1, Caution: Temperature / cure time") remove drain - hole - core.
10. Thread ECDB drain - breather fitting into threaded hole and tighten securely.

TABLE 1: MAXIMUM NUMBER OF CONDUCTORS THAT CAN BE SEALED IN A SEALING FITTING, O–Z/GEDNEY CATALOG NUMBER SERIES EYAX AND EYDX

Steps to determine size of sealing fitting to use based on 40% fill ruling:

1. Determine cross sectional areas of conductors. (Refer. Chapter 9, Table 5 of the NEC Dimensions of insulated Conductors and Fixture Wires)
2. Determine total area occupied by conductors.
3. Determine required conduit size sealing fittings based upon a value equal to or greater than calculated total area occupied by conductors versus total maximum percentage fill area allowed by each corresponding size sealing fitting. (See table below for values)

Illustration No. 1 (Wires or conductors of the same sizes and types). ‡
Determine required conduit size sealing fitting based on this maximum 40% fill ruling for: 16 No. 12 THHN conductors.

Solution:

No. 12 THHN cross sectional area = 0.0117
Total conductor area = 16 x 0.0117 = 0.1872

Hence 40% maximum conductor fill for 3/4" size sealing fitting = 0.21 sq. inches (meets this requirement).

Illustration No. 1 (Wires or conductors of different sizes and types). ‡
Determine required conduit size sealing fitting based on this maximum 40% fill ruling for: 3 No. 10 THWN, 5 No. 12 THW and 5 No. 250 kcmil XHHW conductors.

Solution:

3 No. 10 THWN cross sectional area = 3.0 x 0.0184 = 0.0552
5 No. 12 THW cross sectional area = 5.0 x 0.0172 = 0.0860
5 No. 250 kcmil XHHW cross sectional area = 5.0 x 0.4026 = 2.0130
Total area occupied by conductors = 2.1542

Hence 40% maximum conductor fill for 3" size sealing fitting = 2.95 sq. inches (meets this requirement).

		Class I, Groups B, C & D ‡																		Class I, Groups C & D	
Wire Types (Column A Only)	Size AWG or Kcmil	1/2" Seal Max. % Fill = 40% X–Sect. Area = .12 †		3/4" Seal Max. % Fill = 40% X–Sect. Area = .21 †		1" Seal Max. % Fill = 40% X–Sect. Area = .34 †		1–1/4" Seal Max. % Fill = 40% X–Sect. Area = .60 †		1–1/2" Seal Max. % Fill = 40% X–Sect. Area = .82 †		2" Seal Max. % Fill = 40% X–Sect. Area = 1.34 †		2–1/2" Seal Max. % Fill = 40% X–Sect. Area = 1.92 †		3" Seal Max. % Fill = 40% X–Sect. Area = 2.95 †		3–1/2" Seal Max. % Fill = 40% X–Sect. Area = 3.96 †		4" Seal Max. % Fill = 40% X–Sect. Area = 5.00 †	
		A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
TW, THW, RHW, RHH	18	13	19	24	34	39	55	68	97	92	131	152	217	217	309						
	16	11	15	19	27	31	43	55	76	75	103	123	170	176	242						
RHW and RHH (without outer covering), THW	14	6	14	10	24	16	39	29	69	39	94	65	154	93	220	143		192			
	12	5	10	8	18	13	29	24	51	32	69	53	115	76	164	117		157			
	10	4	6	7	11	11	18	19	32	26	44	43	73	61	104	95	160	127		163	
	8	2	3	3	5	6	9	10	16	13	22	22	36	32	51	49	79	66	106	85	136
TW, XHHW (AWG 14–6)	14	9	14	15	24	25	39	44	69	60	94	99	154	142	220						
	12	7	10	12	18	20	29	35	51	47	69	78	115	111	164	171					
	10	5	6	9	11	15	18	27	32	37	44	60	73	86	104	133	160	178			
	8	2	3	4	5	7	9	12	16	17	22	28	36	40	51	62	79	84	106	108	136
TW, THW, FEPB (6 thru 2), RHW and RHH (without outer covering)	6	1	2	2	4	4	6	7	11	10	15	16	26	23	37	36	57	48	76	62	98
	4	1	1	2	2	3	4	5	7	7	9	12	16	17	22	27	35	36	47	47	60
	3	1	1	1	2	2	3	5	6	6	8	10	13	15	19	23	29	31	40	40	51
	2	1	1	1	2	2	3	4	5	5	7	9	11	13	16	20	25	27	33	34	43
	1		1	1	1	1	2	3	4	4	5	6	8	9	12	14	18	19	25	25	32
	1/0			1	1	1	2	2	3	3	4	5	7	8	10	12	15	16	21	21	27
	2/0			1	1	1	1	2	2	3	3	5	6	7	8	10	13	14	17	18	22
	3/0				1	1	1	2	2	2	3	4	5	6	7	9	11	12	14	15	18
	4/0					1	1	1	2	2	2	3	4	5	6	7	9	10	12	13	15
	250						1	1	1	1	2	3	3	4	5	6	7	8	10	10	12
	300							1	1	1	1	2	3	3	4	5	6	7	8	9	10
	350							1	1	1	1	2	2	3	3	4	5	6	7	8	9
	400								1	1	1	2	2	2	3	4	5	5	6	7	8
	500									1	1	1	2	2	2	3	4	5	5	6	7
	600									1	1	1	1	2	2	3	3	4	4	5	5
	700										1	1	1	1	2	2	3	3	4	4	5
	750										1	1	1	1	2	2	3	3	3	4	4
	800											1	1	1	1	2	2	3	3	4	4
	900											1	1	1	1	2	2	3	3	3	4
	1000											1	1	1	1	2	2	2	3	3	3
	1250													1		1		2		2	
	1500															1		1		2	
	1750															1		1		2	
	2000															1		1		1	

Column B = FEP, THHN, THWN, TFN, PF, PGF, XHHW (AWG4–2000 MCM), FEPB (AWG 14–9)

† Maximum usable conduit cross section area as specified. (Example: For 3 conduit seal 100%) cross sectional area = 7.38 sq. inches. therefor from above maximum fill, i.e., 40% x 7.38 = 2.95 sq inches).

‡ Aluminum EYAX–AL and EYDX–AL Sizes 1–1/2" thru 3–1/2" are UL Listed for Class I, Groups C,D; CSA Certified for Class I, Groups B,C,D