

## **Instructions Specific to NEC BlackGuard Seal Fittings**

1. Care must be used not to cut or damage the PVC coated surfaces. Use manufacturer approved touch up methods and products to repair any damage.
2. In order to retain full corrosion protection of the conduit system, refrain from cutting off the protective sleeves at conduit entry hubs.
3. It is important to make certain that the pipe plug has been engaged a minimum of five full threads.
4. If using a heat gun in cold conditions, use extra caution to not damage or deform the PVC coating.
5. Follow specific Crouse Hinds or Appleton instructions for use of the various Chico type sealing compounds (purchased separately).
6. NEC BlackGuard PVC Coated fittings have unique part numbers depending on the manufacturer of the underlying fitting. The chart on page 2 indicates the unique part numbers for respective Appleton part numbers.
7. NEC PVC Coated fittings follow the same installation procedures as the uncoated fittings listed in the above instructions.
8. A digital version of this information is available electronically by scanning the QR code.



This worksheet serves as a reference for the Appleton Part Numbers and the corresponding NEC Part Numbers for Ferrous and Aluminum Sealing Fittings.

**Cross Reference: NEC to Appleton - Ferrous Seal Fittings**

NEC F/F	Appleton
PFZ-EYS-0501	EYS-1, EYSF-50
PFZ-EYS-0752	EYS-2, EYSF-75
PFZ-EYS-1003	EYS-3, EYSF-100
PFZ-EYS-1254	EYS-4
PFZ-EYS-1505	EYS-5
PFZ-EYS-2006	EYS-6
PFZ-EYS-2507	EYS-7
PFZ-EYS-3008	EYS-8
PFZ-EYS-3509	EYS-9
PFZ-EYS-40010	EYS-10
PFZ-EYS-500012	EYS-012
PFZ-EYS-600014	EYS-014
PFZ-EYS-05011	EYS11,EYF-50
PFZ-EYS-07521	EYS21,EYF-75
PFZ-EYS-10031	EYS31,EYF-100
PFZ-EYS-12541	EYF125
PFZ-EYS-15051	EYF150
PFZ-EYS-20061	EYF200
PFZ-EYS-25071	EYF250
PFZ-EYS-30081	EYF300
PFZ-EYS-35091	EYF350
PFZ-EYS-400101	EYF400

NEC M/F	Appleton
PFZ-EYS-05016	EYS-16
PFZ-EYS-07526	EYS-26
PFZ-EYS-10036	EYS-36
PFZ-EYS-12546	EYS-46
PFZ-EYS-15056	EYS-56
PFZ-EYS-20066	EYS-66
PFZ-EYS-25076	EYS-76
PFZ-EYS-30086	EYS-86
PFZ-EYS-35096	EYS-96
PFZ-EYS-400106	EYS106
PFZ-EYS-5000126	EYS-0126
PFZ-EYS-6000146	EYS-0146
PFZ-EYS-050116	EYM-50,EYS-116
PFZ-EYS-075216	EYM75, EYS-216
PFZ-EYS-100316	EYM-100
PFZ-EYS-125416	EYM-125
PFZ-EYS-150516	EYM-150
PFZ-EYS-200616	EYM-200
PFZ-EYS-250716	EYM-250
PFZ-EYS-300816	EYM-300
PFZ-EYS-350916	EYM-350
PFZ-EYS-4001016	EYM-400

NEC F/F	Appleton
PFZ-EYD-0501	EYD1
PFZ-EYD-0752	EYD2
PFZ-EYD-1003	EYD3
PFZ-EYD-1254	EYD4
PFZ-EYD-1505	EYD5
PFZ-EYD-2006	EYD6
PFZ-EYD-2507	EYD7
PFZ-EYD-3008	EYD8
PFZ-EYD-3509	EYD9
PFZ-EYD-40010	EYD10
PFZ-EYD-05011	EYDM50
PFZ-EYD-07521	EYDM75
PFZ-EYD-10031	EYDM100
PFZ-EYD-12541	EYDM125
PFZ-EYD-15051	EYDM150
PFZ-EYD-20061	EYDM200
PFZ-EYD-25071	EYDM250
PFZ-EYD-30081	EYDM300
PFZ-EYD-35091	EYDM350
PFZ-EYD-400101	EYDM400

NEC M/F	Appleton
PFZ-EYD-05016	EYD16
PFZ-EYD-07526	EYD26
PFZ-EYD-10036	EYD36
PFZ-EYD-12546	EYD46
PFZ-EYD-15056	EYD56
PFZ-EYD-20066	EYD66
PFZ-EYD-25076	EYD76
PFZ-EYD-30086	EYD86
PFZ-EYD-35096	EYD96
PFZ-EYD-400106	EYD106
PFZ-EYD-050116	EYDM50
PFZ-EYD-075216	EYDM75
PFZ-EYD-100316	EYDM100
PFZ-EYD-125416	EYDM125
PFZ-EYD-150516	EYDM150
PFZ-EYD-200616	EYDM200
PFZ-EYD-250716	EYDM250
PFZ-EYD-300816	EYDM300
PFZ-EYD-350916	EYDM350
PFZ-EYD-4001016	EYDM400

PFZ-EZS-0501	ESUF50
PFZ-EZS-0752	ESUF75
PFZ-EZS-1003	ESUF100

PFZ-EZS-05016	ESUM50
PFZ-EZS-07526	ESUM75
PFZ-EZS-10036	ESUM100

**Cross Reference: NEC to Appleton - Aluminum Seal Fittings**

NEC F/F	Appleton
PFZA-EYS-0501	EYSF50AL
PFZA-EYS-0752	EYSF75AL
PFZA-EYS-1003	EYSF100AL
PFZA-EYS-1254	EYF125AL
PFZA-EYS-1505	EYF150AL
PFZA-EYS-2006	EYF200AL
PFZA-EYS-2507	EYF250AL
PFZA-EYS-3008	EYF300AL
PFZA-EYS-3509	EYF350AL
PFZA-EYS-40010	EYF400AL
PFZA-EYS-05011	EYF50AL
PFZA-EYS-07521	EYF75AL
PFZA-EYS-10031	EYF100AL

NEC M/F	Appleton
PFZA-EYS-05016	EYSM50AL
PFZA-EYS-07526	EYSM75AL
PFZA-EYS-10036	EYSM100AL
PFZA-EYS-12546	EYM125AL
PFZA-EYS-15056	EYM150AL
PFZA-EYS-20066	EYM200AL
PFZA-EYS-25076	EYM250AL
PFZA-EYS-30086	EYM300AL
PFZA-EYS-35096	EYM350AL
PFZA-EYS-400106	EYM400AL
PFZA-EYS-050116	EYM50AL
PFZA-EYS-075216	EYM75AL
PFZA-EYS-100316	EYM100AL

NEC F/F	Appleton
PFZA-EYD-0501	EYDM50AL
PFZA-EYD-0752	EYDM75AL
PFZA-EYD-1003	EYDM100AL
PFZA-EYD-1254	EYDM125AL
PFZA-EYD-1505	EYDM150AL
PFZA-EYD-2006	EYDM200AL
PFZA-EYD-2507	EYDM250AL
PFZA-EYD-3008	EYDM300AL
PFZA-EYD-3509	EYDM350AL
PFZA-EYD-40010	EYDM400AL

NEC M/F	Appleton
PFZA-EYD-05016	EYDM50AL
PFZA-EYD-07526	EYDM75AL
PFZA-EYD-10036	EYDM100AL
PFZA-EYD-12546	EYDM125AL
PFZA-EYD-15056	EYDM150AL
PFZA-EYD-20066	EYDM200AL
PFZA-EYD-25076	EYDM250AL
PFZA-EYD-30086	EYDM300AL
PFZA-EYD-35096	EYDM350AL
PFZA-EYD-400106	EYDM400AL

## INSTRUCTION FOR UNILET 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.
- Appleton sealing unilets are UL listed for use in hazardous locations with Appleton Kwiko A compound or Crouse Hinds Chico A compound only. These compounds, when properly mixed and poured, hardens into a dense and strong mass which is insoluble in water, is not attacked by petroleum products and is not softened by heat.
- The following sealing fitting series are UL listed for use with Appleton Kwiko A or Chico A sealing compounds:  
EYF, EYF-AL, EYM, EYM-AL, EYDM, EYDM-AL, EYD, EYS, EYSF, EYSF-AL, EYSM, EYSM-AL, ESUF, ESUM

### 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 unilet 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.

### CAUTION

**Refer to Table 1 to determine the maximum number and size of conductors allowed in a seal. (Page 4)**

### 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.

### 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.

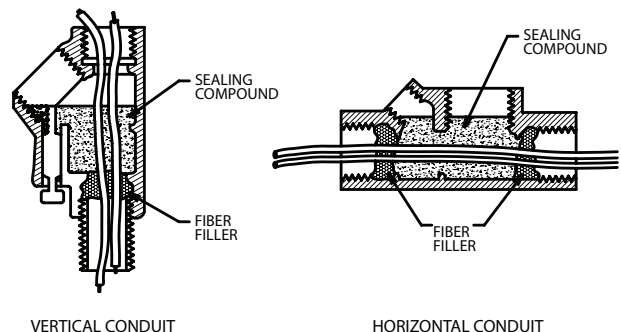
### STEP 4

**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 unilet 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 unilet and the small pipe plug into the cover.

#### Damming and Pouring:

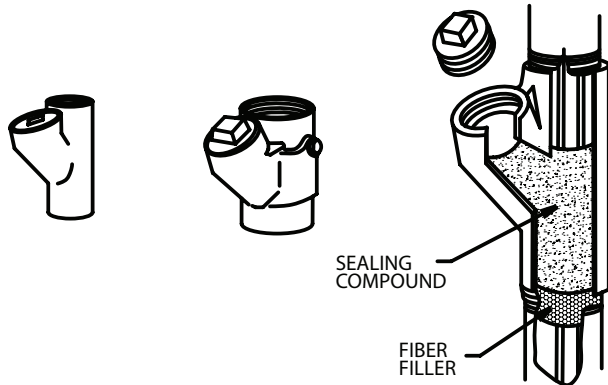


VERTICAL CONDUIT

HORIZONTAL CONDUIT

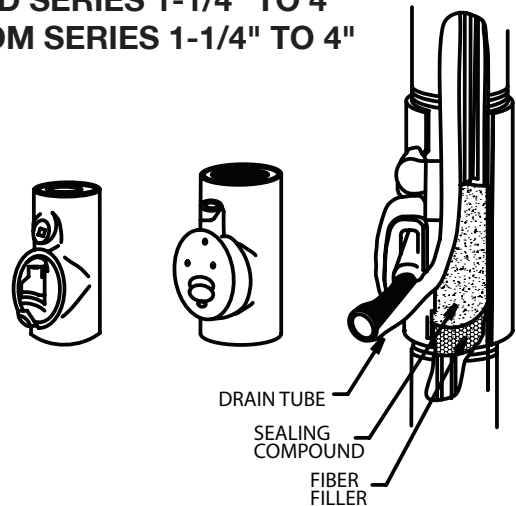
## SEALING UNILETS, EXPLOSION-PROOF, DUST-IGNITION-PROOF FOR USE IN VERTICAL CONDUIT RUNS.

### EYSF AND EYSM SERIES 1/2" TO 4" EYS 1/2" TO 1"



1. Install Unilet and pull conductors through.
2. Remove the large pipe plug. Tighten the small pipe plug on side of 3" and 4" Unilet sizes.
3. Dam the lower hub opening 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 Unilet opening until the cement is level with the last thread.
6. Replace and tighten pipe plug.

### EYD SERIES 1-1/4" TO 4" EYDM SERIES 1-1/4" TO 4"

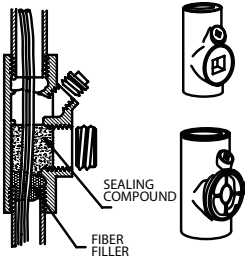


1. Install Unilet and pull conductors through.
2. Remove the large threaded cover from the Unilet.
3. Dam the lower hub opening with fiber filler. (Page 1, Step 2).
4. Replace the large threaded cover so that the threaded hole is facing downward.
5. Insert the tube and wire drain core into the opening of the large threaded cover so that the end being inserted will be above the compound in a completed seal. (See illustration above).
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 above).
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 Unilet 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: 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 secure.

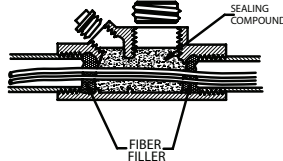
# SEALING UNILETS EXPLOSION PROOF, DUST IGNITION PROOF FOR USE IN VERTICAL AND/OR HORIZONTAL CONDUIT RUNS

## EYS, EYF AND EYM SERIES 1/2" TO 6"

VERTICAL CONDUIT



HORIZONTAL CONDUIT



**NOTE:** On sizes 3-1/2" and 6" 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

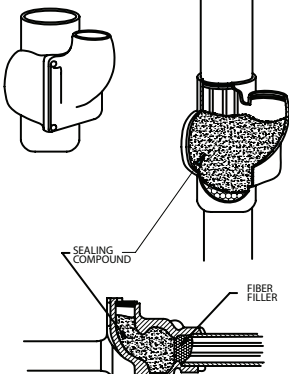
1. Install Unilet and pull conductors through.
2. Remove the pipe plug where the cement will be poured through and the large pipe plug or cover with the small pipe plug for size 3-1/2"-6" at the center of the Unilet.
3. Dam the lower hub with fiber filler. (Page 1, Steps 1 & 2.)
4. Replace the large pipe plug or cover with the small pipe plug for 3-1/2" thru 6" and 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 Unilet and pull conductors through.
2. Remove all pipe plugs and / or cover from the Unilet.
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 Unilet 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 Unilet and the small pipe plug into the cover.

## ESUF AND ESUM SERIES 1/2" TO 1"

VERTICAL CONDUIT



### Vertical Conduit

1. Install Unilet and pull conductors through.
2. Remove flanged cover and the pipe plug from the Unilet.
3. Dam the lower hub opening with fiber filler (Page 1, Steps 1 & 2).
4. Replace the flanged cover.
5. Mix Sealing Cement with the correct proportion of water per instructions provided with the cement (Page 1, Step 3).

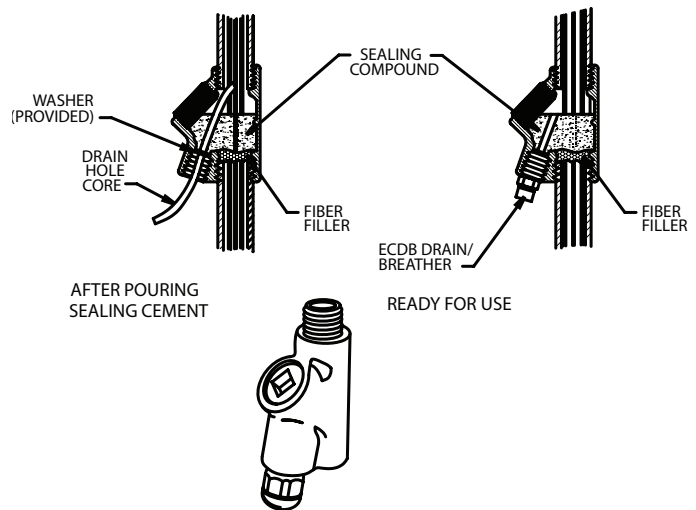
HORIZONTAL CONDUIT

6. Pour Sealing Cement mixture into the flanged cover opening until the cement level is equal to the last thread of the opening
7. Replace and tighten the small pipe plug.

### Horizontal Conduit

1. Install Unilet and pull conductors through.
2. Remove the flanged cover.
3. Dam both hub openings 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 Unilet opening until the cement level is equal to the bottom of the cover mounting flange. Fill hole must be oriented in the upright position.
6. Replace the flanged cover, tighten the small pipe plug.

## EYD AND EYDM SERIES 1/2" TO 1" DRAIN AND SEALING UNILETS EXPLOSION-PROOF, DUST-IGNITION-PROOF FOR USE IN VERTICAL CONDUIT RUNS



1. Install Unilet 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.

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 Unilet 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

## THE MAXIMUM NUMBER OF CONDUCTORS THAT CAN BE SEALED IN A SEALING FITTING

- The maximum number of No. 4 Type THHN Conductors (Column B) in a 1-1/2" size sealing fitting is 6.
- The six (6) No. 4 THHN conductors represent the maximum wire fill of 25% or less for sealing fittings.
- Increasing the sealing fitting to a 2" trade size will provide space for the 40% wire fill, or nine (9) No. 4 conductors.

Example On How To Use Table 1

Trade Size	Conductor Size	Type	Max. No. Permitted For 25% Fill	Max. No. Permitted For 40% Fill/Trade Size Sealing Fitting Needed
1-1/2"	No.4	THHN (Coll.B)	6	(9/2")

The Maximum number of wires that can be sealed in a fitting are as follows:

In our example, use an EYM / EYF200 for 2" size EYSF / ESUM, EYD, EYDM,

Size AWG or Kcmil	1/2" Seal (O/N/PT Size)		3/4" Seal (O/N/PT Size)		1" Seal (O/N/PT Size)		1-1/4" Seal (O/N/PT Size)		1-1/2" Seal (O/N/PT Size)		2" Seal (O/N/PT Size)		2-1/2" Seal (O/N/PT Size)		3" Seal (O/N/PT Size)		3-1/2" Seal (O/N/PT Size)		4" Seal (O/N/PT Size)		5" Seal (O/N/PT Size)		6" Seal (O/N/PT Size)		
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	
18	7	11	12	20	33	58	49	80	131	115	187	176													
16	6	9	10	16	27	30	47	64	88	98	151	150													
14	3	8(13/4)	6	15(24/1)	24	18	43(69/2)	25	58(94/2)	58	137	90													
12	3	6(10/4)	5	11(18/1)	18	15	32(51/2)	21	43(70/2)	50	102	76													
10	1(2-3/4)	4(6/4)	4	7(11/1)	7	11	20(32/2)	17(28/2)	27(44/2)	41	65	64													
8	1	2(3/4)	2	4(6/1)	4	6(9/1/4)	7	11(18/1/2)	16	22	37(57/3)	35													
6	1	1	1	2(4/1)	2	4(6/1/4)	3	4(7/2)	8	15	23	23													
4	1	1	1	1(2/1)	1	2(4/1/4)	3	4(7/2)	8	12	14	18													
3	1	1	1	1	1	2(3/1-1/4)	3	3(6/2)	7	10	12	16													
2	1	1	1	1	1	1(3/1/4)	3	3(5/2)	6	9	10	14													
1	1	1	1	1	1	1	2(3/1/2)	3	4(5/2)	7	10	14													
1/0			1	1	1	1	2(3/2)	2	2(4/2)	6	6(10/3/2)	9													
2/0			1	1	1	1	1(2/1/2)	1	2(3/2)	5	5(8/3)	8													
3/0			1	1	1	1	1(3/2)	1	1(7/2)	4	4(7/3)	7													
4/0			1	1	1	1	1(2/2)	1	1(2/2)	3	3(4/3)	6													
250			1	1	1	1	1	1	1	3	3(4/3)	5													
300			1	1	1	1	1	1	1	3	3(4/3)	4													
350			1	1	1	1	1	1	1	3	3(4/3-1/2)	3													
400			1	1	1	1	1	1	1	3	3(5/4)	4													
500			1	1	1	1	1	1	1	3	3(4/3/2)	4													
600			1	1	1	1	1	1	1	3	3(4/3/2)	3													
700			1	1	1	1	1	1	1	3	3(4/3/2)	3													
750			1	1	1	1	1	1	1	3	3(4/3/2)	3													
800			1	1	1	1	1	1	1	3	3(4/3/2)	3													
900			1	1	1	1	1	1	1	3	3(4/3/2)	3													
1000			1	1	1	1	1	1	1	3	3(4/3/2)	3													
1250			1	1	1	1	1	1	1	3	3(4/3/2)	3													
1500			1	1	1	1	1	1	1	3	3(4/3/2)	3													
1750			1	1	1	1	1	1	1	3	3(4/3/2)	3													
2000			1	1	1	1	1	1	1	3	3(4/3/2)	3													

\* COL. A = Wire Types: RFH-2, RH, RHH, THW, TH, XHHW (AWG 14-6).

NOTE: For all other conductor sizes and types, wire fill is based on maximum 40% fill or less depending on conduit size and conductor type per the NEC Code.

COL. B = FEP, THHN, THWN, TFN, PF, PGFF, XHHW (AWG4-2000 MCM), FEPBV (AWG 14-8).

• For all other conductor sizes and types, wire fill is based on maximum 25% fill or less.