Prepared by: EOB1

CONNECTORS FOR INSULATED CABLES UNDERGROUND DISTRIBUTION SYSTEMS

015251

Department: Asset Investment Planning **Section:** Standards and Compatible Units

Approved by: C. C. Damianakes (CCD3) **Date:** 04−27−06

Rev. #03: This document replaces PG&E Document 015251, Rev. #02. For a description of the changes, see Page 44.

Purpose and Scope

This document provides application and ordering information for cable connectors and terminals for use in underground distribution systems.

General

This document applies to connectors for copper-to-copper, copper-to-aluminum, and aluminum-to-aluminum conductors. The use of aluminum conductors and the necessity of splicing aluminum-to-copper presents some specific problems as follows.

1. All connectors shall meet the requirements of ANSI C119 Class A.
2. Oxide Film

   Unlike copper, aluminum is normally covered with a thin, hard film of invisible aluminum oxide. This film is a good insulator and forms immediately whenever aluminum is exposed to air. Therefore, aluminum connectors must meet the following requirements.

   A. They should exert sufficient pressure on the cable to break through the oxide film.

   B. They should exert approximately equal pressures on all strands.
3. Thermal Expansion and Plastic Flow

   The difference in the thermal expansion of copper and aluminum must be addressed. Aluminum expands and contracts approximately 38% more than copper with the same temperature change. Copper connectors and copper cables expand together as do aluminum connectors and aluminum cables.

   If copper connectors are used on aluminum cables, the aluminum cable expands more than the copper connector. As the temperature rises this causes the aluminum to extrude out of the connector. When the joint cools, the copper connector cannot shrink to fit the reduced diameter of the aluminum conductor. This cycle, repeated over time, results in loose connections and high resistance joints. Therefore, it is important to use connectors that have the same coefficient of expansion as the cable. For example, copper connectors with copper cable and aluminum connectors with aluminum cable.

   Aluminum-to-copper connections must be made with special aluminum connectors. These connectors have a larger mass than standard aluminum connectors, allowing the connector to run cooler than the copper conductor and compensates for the difference in the coefficient of expansion.
4. Corrosion

   A. Electrolytic**:** The third characteristic of aluminum that affects connectors is not peculiar to aluminum alone but is common to all metals. Aluminum in contact with another metal in the presence of moisture will have an electrolytic action.

      This problem exists in the connection of aluminum-to-copper, and the electrolytic action causes corrosion of the anode material (aluminum), leaving the cathodic material (copper) undamaged.

   B. Chemical: Moisture in the absence of air reacts with aluminum forming aluminum hydroxide, which, in a very short time, will seriously corrode the aluminum material.

      It is of extreme importance that aluminum conductors and connectors installed underground be free of moisture. Special care must be used to prevent moisture from entering into underground splices by using an inhibitor, and carefully and correctly taping or sealing splices.

Hyperlinks Are Inactive

Connectors for Insulated Cables
Underground Distribution Systems

Application

1. There are three general types of connectors: solder sweated, bolted, and compression. The advantages, disadvantages, and normal application of these three types of connectors are described in Table 1.

Table 1 UG Connector Comparison

Connector Type	Application	Advantages	Disadvantages
Solder Sweated Split Tinned Copper	For Copper-to-Copper Straight Connections (Page 17)	• Inexpensive • No Special Tools Required • Excellent Electrical Connection	• Must Be Sweated on (increasing time and labor) • Heat Could Damage Some Insulations • Limited to Copper Cables
Bolted	Terminals and Tap Connections Rated Less Than 600 V (Pages 18, 31, 34, 37, and 41-42)	• Fast and Easy Install • Wide Range of Sizes • No Special Tools Required • Low Cost	• Copper Split Bolts Limited to Network Systems in Oakland and San Francisco • More Difficult to Seal
Compression	Straight and Tap Connections for Copper and Aluminum Cables (Pages 9 − 16, 20 − 30, 38 - 40, and 43)	• Preferred Electrical Connection • Ease of Installation	• Requires Special Tools and Dies

2. Compression tap connectors, Pages 19 through 24, are the preferred connectors for residential and light commercial installations.

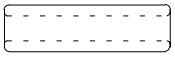
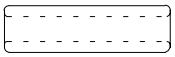
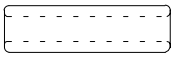
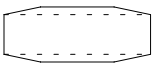
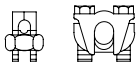
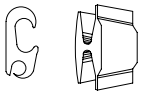
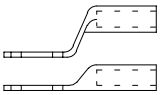
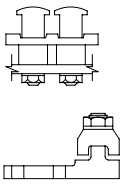
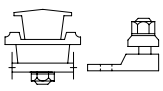
Connectors for Insulated Cables
Underground Distribution Systems

References **Document**

Hyperlinks Are Inactive

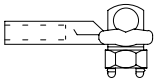
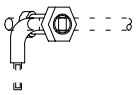
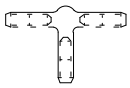
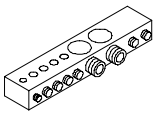
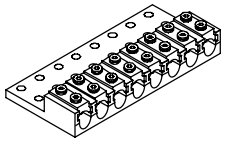
Connectors for Insulated Cables
Underground Distribution Systems

Table 2 Connectors − Pictorial Index

Connector	Type		Page	Application	
				Cable	Document [1]
	Straight Connectors	Compression	9 to 13	Copper-to-Aluminum	022824 022827 022830
			14 & 19	Aluminum-to-Aluminum	041583 043901 051034
			15 to 17	Copper-to-Copper	022709 022824 022827 022830 022832 033585 041583 043901 051034
		Solder	17	Copper-to-Copper	
	Tap Connectors	Bolted	18	Copper-to-Copper (San Francisco and Oakland Network only)	051034
		Compression	19 to 22	Aluminum-to-Aluminum or Aluminum-to-Copper (for secondary conductors)	
			23 to 25	Copper-to-Copper (for secondary conductors)	
	Terminal Connectors		26 to 30	Aluminum-to-Copper (for transformer spade terminals)	032768 034978 042762 042765 043817 045291
		Bolted	31 to 36	Copper (for transformer spade terminals, non-preferred)	028114 030362 033701
			37	Copper (transformer terminals)	
	Ground Terminal	Bolted	18	Copper (equipment tank grounds)	035313 035380 039954 050859

[1] For a description of the application document, see “References” on Page 3.

Table 2 Connectors − Pictorial Index (continued)

Connector	Type		Page	Application	
				Cable	Document [1]
	Tap Connectors	Bolted	32	Copper-to-Copper	022828A 022829A 022831A
			31	Copper-to-Aluminum	042762 042765
		Compression	38	Aluminum-to-Aluminum Copper-to-Aluminum Copper-to-Copper	041583 043901
	Slip-Fit Connectors	Bolted	41	Aluminum or Copper	064308
	Multiple Transformer Terminal	Bolted	42	Aluminum or Copper	043817 045291
	Pin Terminals	Compression	43 − 44	Aluminum or Copper	027742 036640 041584 043902
Tool and Die Information		Compression	5 6-7	Copper Cables Aluminum Cables	–

[1] For a description of the application document, see “References” on Page 3**.**

Tools and Dies for Compression Connectors

Table 3 Installation Information for Copper Cables

Tool Index No.	Hypress & Circular or Indentor Die [1]								
	Connector Nominal OD	Burndy Index No.	MD-6	Y35: Alcoa 12A	Homac UT 15/W [2] 15 Cap Adaptor	Y46	Y48B		
			Circular Die	Circular Die	Circular Die [3]	Circular Die [4]	Circular Die	Nest Die	Indentor
4C	0.34	8	W4CRT	U4CRT	U4CRT	U4CRT	C4CR	–	–
2C	0.42	10	W2CRT	U2CRT	U2CRT	U2CRT	C2CR	–	–
2CS	0.50	163	W163	U163	–	U163	–	–	–
1C	0.46	11	W1CRT	U1CRT	U1CRT	U1CRT	C1CR	–	–
1/0 C	0.51	12	W25RT	U25RT	U25RT	U25RT	C25R	–	–
2/0 C	0.56	13	W26RT	U26RT	U26RT	U26RT	C26R	–	–
3/0 C	0.62	14	W27RT	U27RT	U27RT	U27RT	C27R	–	–
4/0 C	0.69	15	W28RT	U28RT	U28RT	U28RT	C28R	C28D	Y48PR
250 C	0.75	16	–	U29RT	U29RT	U29RT	C29R	C29D	
300 C	0.81	17	–	U30RT	U30RT	U30RT	C30R	C30D	
350 C	0.88	18	–	U31RT	U31RT	U31RT	C31R	C31D	
400 C	0.95	19	–	U32RT	U32RT	U32RT	C32R	C32D	
500 C	1.10	20	–	U34RT	U34RT	U34RT	C34R	C34D	
600 C	1.19	22	–	U36RT	U36RT	U36RT	C36R	C36D	
750 C	1.30	24	–	U39RT	112H	P39RT	C39R	C39D	
1000 C	1.50	27	–	–	125H	P44RT	C44R	C44D	
1500 C	1.84	31	–	–	–	P46RT	C46R	C46D	

1 For reference purposes, all available dies are shown. It is not intended that all dies indicated be provided with every tool.
2 T & B equivalent: TBM15, 15500 Adapter.
3 Use UT15 tool with 15 CAP adapter on Burndy dies for #4 through 600 kcmil only.
4 Use PUADP-1 adaptor die in Y46 to utilize all Y35 dies (i.e., U-RT or U-ART).

Tools and Dies for Compression Connectors (continued)

Table 4 Installation Information for Aluminum Cables

Tool Index No.	Hypress & Circular or Indentor Die [1]									
	Conn. Nom. OD	Burndy Index No.	MD-6	Burndy Y35: Alcoa 12A	Homac UT 15/W 15 Cap Adaptor [2]	Y46	Y48B			Burndy Y60
			Circular Die	Circular Die	Circular Die [3]	Circular Die [4]	Circular Die	Nest Die	Indentor	Circular Die
4A	0.43	375	W4CART	U4CABT	U4CABT	U4CABT	C4CAB	–	–	–
2A	0.53	348	W2CART	U2CABT	U2CABT	U2CABT	C2CAB	–	–	–
1A	0.54	471	W1CART	U1CART	U1CABT	U1CART	C1CAR	–	–	–
1/0 A	0.60	296		U25ART	U25ART	U25ART	C25AR	–	–	–
1/0AS	0.65	BG	W-BG [5]	U-BG	U-BG	U-BG	–	–	–	–
2/0 A	0.67	297	W26ART	U26ART	U26ART	U26ART	C26AR	–	–	–
3/0 A	0.76	467	W27ART	U27ART	U27ART	U27ART	C27AR	–	–	–
4/0 A	0.85	298	W28ART	U28ART	U28ART	U28ART	C28AR	–	–	–
4/0 AS	0.90	249	W249	U249	U249	U249	–	–	–	–
250 A	0.92	324	–	U29ART	U29ART	U29ART	C29AR		–	–
300 A	1.01	470	–	U30ART	U30ART	U30ART	C30AR	C34D	Y48PR1	–
350 A	1.11	299	–	U31ART	U31ART	U31ART	C31AR	C35D		–
400 A	1.19	472	–	U32ART	U32ART	U32ART	C32AR			–
500 A	1.32	300	–	U34ART	U34ART[6]	U34ART	C34AR	C39D		–
600 A	1.44	473	–	U36ART	140H	U36ART	C36AR	C44D		–
700/ 750 A	1.60	301	–	U39ART	140H	P39ART	C39AR	C45D		–
800 A	1.65	474	–	–	140H	P40ART	C40AR			–
1000 A	1.84	302	–	–	150H /161R [7]	P44ART	C44AR	C46D		–
1250 A	2.25	478	–	–	–	–	–	–	–	L44ART
1500 A	2.26	478	–	–	–	–	–	–	–	L46ART
1750 A	2.46	587	–	–	–	–	–	–	–	L47ART
2000 A	2.60	479	–	–	–	–	–	–	–	L48ART

1 For reference purposes, all available dies are shown. It is not intended that all dies indicated be provided with every tool.
2 T & B equivalent: TBM15, 15500 Adapter.
3 Use UT15 tool with 15 CAP adapter on Burndy dies for #4 through 500 kcmil only.
4 Use PUADP-1 adaptor die in Y46 to utilize all Y35 dies (i.e., U-RT or U-ART).
5 The OH-25 handtool may be used on insulated service sleeves only.
6 Homac equivalent of this die is 106A.
7 150H no longer available, either die is acceptable.

Applications of Straight Connectors Compression-Type (copper-to-aluminum)

Note

1. Indent dies should be used on all primary splices except for #2 and #4 copper and #2 aluminum. In these small sizes, the indent-type dies seriously distort the connector. If only crimp-type dies are available, they may be used on the primary, but the connector must be filed smooth. On circuits of 600 V or lower, indent- or crimp-type dies work equally well. Indent normally requires fewer operations.
2. Tool index numbers may be applied to in-line cable-to-cable limiters.
3. For number of crimps or indents, see the manufacturer's instructions on the package, or where the information is not available, make as many non-overlapping crimps as possible without going over the outer end.
4. Pages 9 through 17 and 21 through 25 show non-tension compression-type connectors used to connect copper conductors to aluminum conductors. These connectors may also be used to connect aluminum-to-aluminum conductors.
5. Table 5 on Page 9 and Table 6 on Page 10 show compression splice connectors which accommodate specific conductor sizes. Table 9 on Page 13 shows connectors which can be drilled to fit any size within a specified range. It may be necessary to occasionally use the connectors shown in Table 9 on Page 13 where connectors in Table 5 on Page 9 and Table 7 on Page 11 are not readily available.
6. Use a clean wire brush to remove oxides from the conductors.
7. After the connector has been pressed on, insulating of pressed connections is accomplished in the same manner as shown in Document 051034. Special attention must be given to the following:
   A. Both ends of the aluminum connector should contain oxide inhibitor. (Connectors shown in Table 5 on Page 9 and Table 6 on Page 10 are prefilled with inhibitor. Connectors shown in Table 9 on Page 13 must be filled with inhibitor after drilling.) See Document 028852 for approved oxide inhibitors.
   B. After the connector has been pressed on the cable, excess oxide inhibitor must be wiped from the connector and conductor surface.
   C. Use special care to ensure a moisture-proof splice.
8. Solder-type connectors must not be used on aluminum conductors.
9. If several insulated aluminum conductors are to be connected to one insulated copper conductor, each aluminum conductor must first be spliced to a short length of copper conductor so that the multiple connection can be made with all copper conductors. This multiple connection may be a tee tap (or several tee taps) as shown in Document 051034.
10. Special care must be used to prevent moisture from entering through the copper strands when connecting a bare stranded copper conductor to an insulated aluminum conductor (e.g., copper-to-aluminum neutral connection). See Document 051034 for the method of making these connections.

Straight Connectors Compression-Type (predrilled) Copper-to-Aluminum

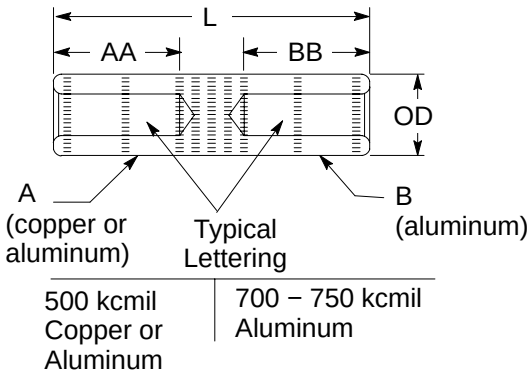


Figure 1

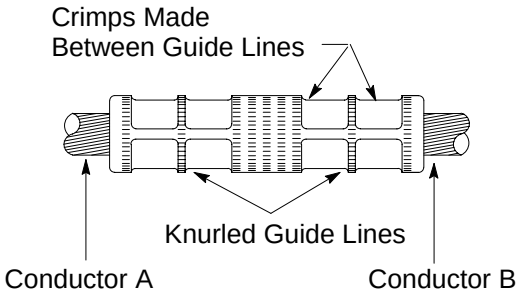


Figure 2
View After Installation
(for Figure 1)
Material: Aluminum
Finish: Unplated

Table 5 Compression-Type Connectors − Predrilled 4/0 − 2/0 (Figure 1)

Conductor Size − AWG or kcmil		Dimensions (inches)				Manufacturer and Catalog Numbers			Tool Index No. [3]	Code
A [1] (Cu or Al)	B (Al)	AA	BB	L [2]	OD	Burndy	Richards	Homac		
4	2	1.03	1.03	2.75	0.65	See Document 028852			1/0AS	305558 [4]
2	2									305559 [4]
2	1					YR1CA2CCAG1	ALCR 8-7	SAC1R2		305569
2	1/0					See Document 028852				305562 [4]
2	2/0	1.56	1.56	4.00	0.91	YR26A2CCAG1	ALCR 10-7	SAC2/0 R2	4/0AS	305571
2/0	2/0					YS26UG2	ALC 10	SAC2/0		305581
2/0	3/0					YR27A26CAG1	ALCR 11-10	SAC3/0 R2/0		305582
2/0	4/0					YR28A26CAG1	ALCR 12-10	SAC4/0 R2/0		305585

1 Maximum copper conductor size.
2 These dimensions may vary slightly among the various suppliers.
3 See Table 3 on Page 6 and Table 4 on Page 7 for installation information.
4 These connectors are overhead-type insulated service sleeves. The insulation on these sleeves does not provide an adequate seal for underground application. These sleeves must be insulated and sealed as shown in Document 051034 as if they were bare.

Straight Connectors Compression-Type (predrilled) Copper-to-Aluminum (continued)

Table 6 Compression-Type Connectors − Predrilled 250 − 1,000

Conductor Size − AWG or kcmil		Dimensions (inches)				Manufacturer and Catalog Numbers			Tool Index No. [3]	Code
A [1] (Cu or Al)	B (Al)	AA	BB	L [2]	OD	Burndy	Richards	Homac		
250	250	1.86	1.86	4.62	1.12	YS29UG1	ALC 13	SACB250	350A	305586
250	300					YR30A29CAG1	ALCR 14-13	SAC300R250		305602
250	350					YR31A29CA	ALCR 15-13	SAC350R250		305127
250	400	2.55	2.55	6.19	1.62	YR32A29CAG1	ALCR 16−13	SACL400R250	700/ 750A	305604
500/600	500					YS34APGE	ALC 18	SACL500		305108
500	600					YR36A34CA	ALCR 20-18	SAC600R500		305129
500	700, 750					YR39A34CA	ALCR 25-18	SAC750R500		305107
500	800	2.91	2.91	7.16	1.84	YR40A34CAG1	ALCR 24-18	SACF800R500	1000A	305606
750	1,000					YR44AG3	ALCR 28-23	SAC1000R750		305023
4	2	1.50	1.50	3.57	0.65	YR2CA4CCATG1	OATCR7-5	SAC2R4	1/0AS	305607
2	2					YS2CUTG1	OATC 7	SAC2		305608
2	1/0					YR25A2CCATG3	OATCR9-7	SAC1/0R2		305609
2/0	4/0	2.08	2.08	4.82	0.91	YR28A26CATG2	OATC 12-10	SAC4/0R2/0	4/0AS	305610
250	350	2.61	2.96	6.66	1.12	YR31A29CAT	OATC15-13	SAC350R250	350A	305143
500/600	700, 750	3.75	4.19	9.41	1.62	YR39A34CAT	OATC23-18	SAC750R500	700/ 750A	305403
750	1,000	4.10	4.10	9.09	1.84	YR44ATG1	OATC28-13	SAC1000R750	1000A	305611

1 Maximum copper conductor size.
2 These dimensions may vary slightly among the various suppliers.
3 See Table 4 on Page 7 for installation information.

Note

1. Connectors shall be pre-filled with an approved oxide inhibitor.
2. All connectors shall have an oil stop.

Straight Connectors Compression-Type (multi-range) Copper-to-Aluminum

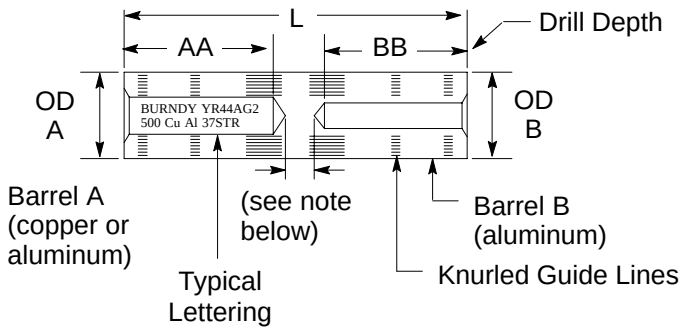


Figure 3

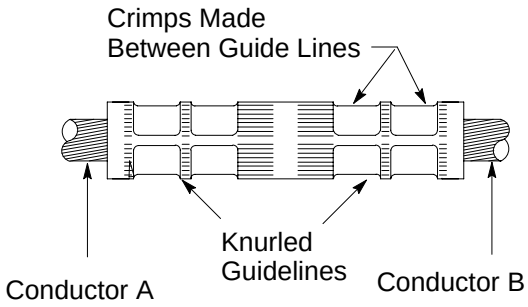


Figure 4
View After Installation

Table 7 Dimensional Information for Compression-Type Connectors − to be Drilled in the Field (Figure 3)

Conductor Size AWG or kcmil			Refer to	Dimensions (inches)					Tool [1] Index No.	Code
Barrel (A) (Cu or Al) Cond. OD	Barrel B (Al)			AA	BB	L	OD			
	Min. Cond. OD	Max. Cond. OD					A	B		
2-7 Str. (0.292")	6 Sol. (0.162")	1/0 (0.372")	Figure 3	1-13/32	1-13/32	3-5/32	39/64	39/64	1/0A	305157[2]
3/0-19 Str. (0.470")	4 Sol. (0.204")	250 (0.575")		1-7/8	1-7/8	4-7/32	59/64	59/64	250A	305159
2/0-19 Str. (0.419")	6 Sol. (0.162")	500 (0.813")			2-3/4	5-5/64	1-21/64	1-21/64	500A	305160
250-37 Str. (0.575")	1/0 (0.373")	750 (0.998")		2-2/64	3-1/32	6-15/64	1-39/64	1-39/64	750A	305788
500-37 Str. (0.813")	300 (0.629")	1,000 (1.152")		3-3/8	3-3/8	7-21/32	1-27/32	1-27/32	1000A	305789
600-37 Str. (0.893")	400 (0.728")	1,000 (1.152")								305161
750-61 Str. (0.998")	500 (0.813")	1,250 (1.289")		4	4	9	2-17/64	2-17/64	1250A	305163

1 See Table 4 on Page 7 for installation information.
2 Overhead service drop connectors shown in Document 028852 may be substituted for this size. The proper compression tool shown in Document 028852 must be used with service drop connectors.

Straight Connectors Compression-Type (multi-range) Copper-to-Aluminum (continued)

Table 8 Ordering Information for Compression-Type Connectors (to be drilled in the field)

Conductor Size AWG or kcmil			Manufacturer and Catalog Number		Code
Barrel (A) (Cu or Al) Conductor OD	Barrel B (Al)		Burndy	Homac	
	Min. Cond. OD	Max. Cond. OD			
2-7 Str. (0.292”)	6 Sol. (0.162”)	1/0 (0.372”)	YR25AG1	2051-1	305157 [1]
3/0-19 Str. (0.470”)	4 Sol. (0.204”)	250 (0.575”)	YR29AG1	2051-2	305159
2/0-19 Str. (0.419”)	6 Sol. (0.162”)	500 (0.813”)	YR34AG1	2051-3	305160
250-37 Str. (0.575”)	1/0 (0.373”)	750 (0.998”)	YR39AG1	2051-4	305788
500-37 Str. (0.813”)	300 (0.629”)	1,000 (1.152”)	YR44AG2	2051-5	305789
600-37 Str. (0.893”)	400 (0.728”)	1,000 (1.152”)	YR44AG1	2051-6	305161
750-61 Str. (0.998”)	500 (0.813”)	1,250 (1.289”)	YR45AG1	2051-7	305163

[1] Overhead service drop connectors shown in Document 028852 may be substituted for this size. The proper compression tool shown in Document 028852 must be used with service drop connectors.

Straight Connectors Compression-Type (multi-range) Copper-to-Aluminum (continued)

Table 9 Cable and Drill Information

Cable (aluminum) AWG or kcmil		Drill Information	
Size	Diameter (inches)	Diameter (inches)	Drill Size
6 Sol.	0.162	0.172	11/64”
6 Str.	0.184	0.194	10”
4 Sol.	0.204	0.250	1/4”
4 Str.	0.232	0.250	1/4”
3 Str.	0.260	0.290	L
2 Str.	0.292	0.312	5/16”
1 Str.	0.332	0.359	23/64”
1/0 Str.	0.373	0.391	25/64”
2/0 Str.	0.419	0.438	7/16”
3/0 Str.	0.470	0.500	1/2”
4/0 Str.	0.528	0.562	9/16”
250	0.575	0.594	19/32”
300	0.629	0.656	21/32”
350	0.681	0.719	23/32”
400	0.728	0.766	49/64”
500	0.813	0.859	55/64”
600	0.893	0.922	59/64”
750	0.998	1.062	1-1/16”
1,000	1.152	1.172	1-11/64”
1,200	1.263	1.312	1-5/16”
1,250	1.289	1.312	1-5/16”

Material

Aluminum, coated with an oxide inhibitor

Notes

1. Barrel “A” is predrilled to accommodate only one conductor size as shown in Table 7 on Page 11. These sizes are standard PG&E sizes for 6,000 V insulated copper cable. Barrel “B” is predrilled to minimum conductor OD as shown in Table 7 on Page 11. The hole may be enlarged in the field to accommodate other cable sizes within the range shown in Table 7 on Page 11. Enlarge holes with a drill press or other similar precision tool and chamfer hole ends.
2. Allow 0.1” minimum space between drill points.
3. After drilling, both barrels shall be filled 1/4 to 1/2 full with approved oxide inhibitor. Oxide inhibitor is not included in the connector catalog number and must be ordered separately. Burndy Co. Penetrox A, 1-pint container, Code 495214.

   Example: Connect 400 kcmil aluminum to 250 kcmil copper conductor.

   From Table 7 on Page 11, the required connector for 250 kcmil copper (Barrel “A”) is Catalog No. YR39AG1. Barrel “B” is to be enlarged to 0.766” diameter using a 49/64” drill. The drill size is from Table 9. The depth of the barrel is 3.03” (Dimension BB, Figure 3 on Page 11).

   Fill both barrels 1/4 to 1/2 full of oxide inhibitor. Insert the conductors in the appropriate barrels of the connector and press them on using a Y48B Hypress and C32AR dies on copper end, and C39AR dies on the aluminum end. From this point on, the splice can be treated in the same manner as an all copper conductor splice as described in Note 7 on Page 8.

   If the connection is bare copper to insulated aluminum, follow the instructions in Note 10 on Page 8.

Straight Connectors Compression-Type (aluminum-to-aluminum)

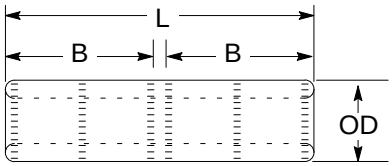


Figure 5

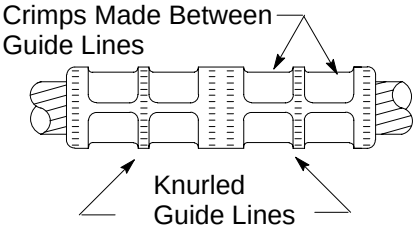


Figure 6
View After Installation

Table 10 Dimensions and Ordering Information − Aluminum-to-Aluminum (Figure 5)

Conductor Size AWG or kcmil	Refer to	Dimensions (inches)			Manufacturer and Catalog Number			Tool [1] Index No.	Code
		L	B	OD	Burndy	Richards	Homac		
2	Figure 5 Above	2.75	1.18	0.65	See Document 028852			1/0AS	305559 [2]
1/0		2.75	1.18	0.65				1/0AS	305563 [2]
4/0		3.30[3]	1.54[3]	0.91	YS28AG9	ALC12	AC4/0	4/0AS	305616
350		6.97	3.38	1.12	YS31AY	ALC15	AC350	350A	305148
700/750		8.28	4.00	1.62	YS39AY	ALC23	AC750	700/ 750A	305150
1,000		10.81	5.25	1.84	YS44AY	ALC28	AC1000	1000A	305618

1 See Table 4 on Page 7 for installation information.
2 These connectors are overhead-type insulated service sleeves (see Document 028852). The insulation on these sleeves will not provide an adequate seal for underground application. These sleeves must be insulated and sealed as shown in Document 051034 as if they were bare.
3 For Burndy & Richards, Dimension L = 2.34”, B = 1.09”.

Material

Aluminum

Finish

Unplated

Notes

1. Connectors shall be pre-filled with an oxide inhibitor.
2. Connectors shown in Table 10 above are not suitable substitutes for the compression connectors supplied in the 3M pre-molded splice kits. The connector ODs supplied in the splice kits are larger than normal to provide a heat sink and facilitate sliding the pre-molded housing back and forth.

Straight Connectors Compression-Type (copper-to-copper)

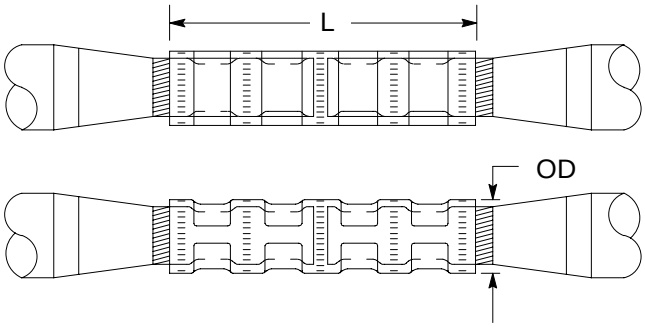


Figure 7

Table 11 Straight Connectors − Compression-Type − Copper-to-Copper (Figure 7)

Conductor Size AWG or kcmil	Dimensions (inches)		Manufacturer and Catalog Number				Tool Index No. [1]	Code
	Length (L)	OD	Burndy	Richards	Homac	Dossert		
4	2.38	0.34	YSP4CT	OCC5	PC-4	DPCP 4	4C	305164 [3]
2	3.18	0.29	YS2CT [2]	OTEC7	–	–	X(Nicopress)	305236
2	2.62	0.42	YSP2CT	OCC7	PC-2	DPCP 6	2C [4]	305165 [3]
2/0	2.21	0.56	YS26T	CC10	TC-2/0	DPC 13-T	2/0C	305283
2/0	3.13	0.56	YSP26T	OCC10	PC-2/0	DPCP 13	2/0C	305167 [3]
4/0	2.39	0.69	YS28T	CC12	C-4/0	DPC 21-T	4/0C	305285
250	3.38	0.75	YSP29T	OCC13	PC-250	DPCP 25	250C	305429 [3]
250	3.38	0.75	YS29	CC13	C-250	DPC 25	250C	305202
500	4.62	1.06	YSP34T	OCC18	PC-500	DPCP 50	500C	305428 [3]
500	4.63	1.06	YS34	CC18	C-500	DPC 50	500C	305203
750	4.23	1.3	Y39T	CC23	TC-750	DPC 75-T	750C	305488
1,000	6.13	1.50	YS44	CC28	C-1000	DPC 100	1000C	305480
1,500	6.5	1.84	YS46	CC30	C-1500	DPC 150	1500C	305511

1 See Table 3 on Page 6 for installation instructions.
2 Nicopress part number for #4: 1−209/7M, for #2: 1−258/7X.
3 These connectors have oil stops. These are more costly connectors and should only be used for splicing P&L cable to rubber or polyethylene insulated cables.
4 For #2 Solid, use Nicopress “M” Groove or Burndy 162 die index.

Straight Connectors Compression-Type (copper-to-copper)(continued)

Material and Finish

"Specifications for Straight Compression-Type Connectors for Insulated Copper Conductors."

Note

1. Connectors shown in Figure 7 on Page 15 are to be used to connect cables of up to 35 kV rating or lower, and can be used on bare cables where such cables will not be subjected to tension.
2. These connectors have oil stops. These more costly connectors should only be used for splicing P&L cable-to-rubber or polyethylene insulated cables.
3. Smaller connectors appear as in Figure 7 on Page 15, except only one indent is required for each cable socket.
4. When connecting conductors of different size, use the connector for the larger size and shim up the smaller size with sheet copper (Code 156172) to form tight fit.
5. An indentor-type compression die should not be used on #4 or #2 AWG size connectors because it excessively distorts the connector. Use circular crimp dies as shown in Table 3 on Page 6.
6. Round the sector cable with a rounder tool.

Straight Connectors Solder-Type (copper-to-copper)

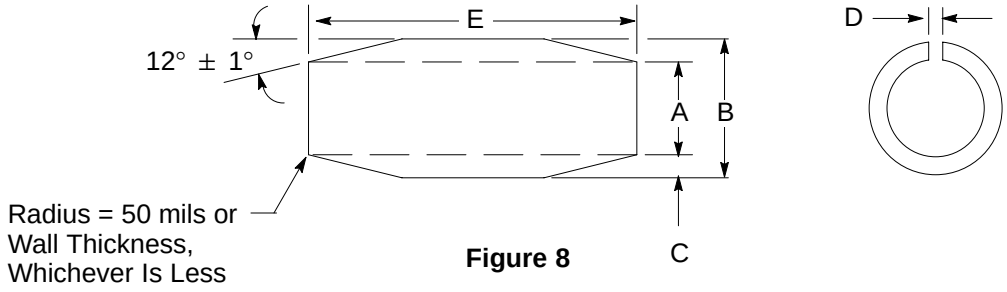


Figure 8

Table 12 Straight Connectors − Split Tinned-Type − Copper-to-Copper, All Voltages (Figure 8)

Cable Size AWG or Kcmil (round or compact sector)	Nominal Dimensions − Inches					Standard Package	Burndy Part Number	Richards	Code
	A ID	B OD	C (wall thickness)	D (slot width)	E (length)				
8	5/32	3/16	1/32	1/32	1-1/2	200	SS8C8C	RSS2	305041
6	3/16	1/4	1/32	1/32	1-1/2	200	SS6C6C	RSS3	305042
4	7/32	5/16	1/32	1/32	2	100	SS4C4C	RSS5	305043
2	9/32	3/8	1/32	1/32	2	100	SS2C2C	RSS7	305044
1/0	3/8	1/2	1/16	1/16	2	100	SS2525	RSS9	305045
2/0	13/32	9/16	1/16	1/16	2	100	SS2626	RSS10	305046
3/0	15/32	5/8	1/16	1/16	2	100	SS2727	RSS11	305059
4/0	17/32	23/32	1/16	1/16	2-1/2	50	SS2828	RSS12	305047
250	9/16	25/32	3/32	1/8	2-1/2	50	SS2929	RSS13	305048
350	11/16	29/32	3/32	1/8	2-1/2	20	SS3131	RSS15	305324
400	23/32	31/32	1/8	1/8	3	10	SS3232	RSS16	305049
500	13/16	1-3/32	1/8	1/8	3	10	SS3434	RSS18	305050
600	29/32	1-3/16	1/8	5/32	3-1/2	10	SS3636	RSS20	305051
750	1-1/32	1-11/32	5/32	5/32	3-1/2	10	SS3939	RSS23	305052
1,000	1-5/32	1-9/16	3/16	7/32	4-1/2	1	SS4444	RSS28	305053
1,500	1-7/16	1-29/32	7/32	9/32	5	1	SS4646	RSS30	305054
2,000	1-21/32	2-7/32	1/4	9/32	6	1	SS4848	RSS32	305055

Material and Finish

Edison Electric Institute Specification TD 160 “Specifications for Solder-Sweated Split Tinned Copper Connectors.”

Note

1. When splicing cables of different sizes, cut a sector from one half of the connector.
2. When tinning and sweating the connector onto the conductors:
   A. Protect the insulation.
   B. Wipe smooth, removing all sharp solder points.
3. Round the sector cable with a rounder tool.
4. The connectors described on this page can be used on bare cables where such cables will not be subjected to tension.

Application

Normal use should be limited to tap splices 5,000 V and above on copper cable in sizes larger than #2 AWG.

Bolted Connectors for Underground Network Systems

A. These connectors are for making copper-to-copper current carrying connections on underground network secondary systems in San Francisco and Oakland.

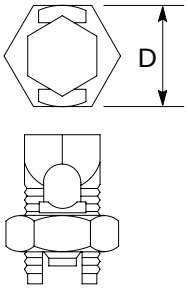


Figure 9

Table 13 Split Bolt Connectors For Copper-to-Copper Connections (Figure 9)

Conductor Size AWG or kcmil		Nut Size D	Torque Inch-lbs. (ft./ lbs)	Code	Manufacturer and Catalog Number			
Solid	Stranded				Blackburn	Burndy	Penn-Union	Homac
10	10	7/16”	80 (7)	305026	9H	KS90	S-10-S	–
8	8	1/2”	80 (7)	305027	8H	KS15	S-8-S	E-8
6	8	11/16”	–	305028	6H	KS17	S-6-PGE	E-6
4	6	3/4”	–	305029	4H	KS20	S-4-PGE	E-4
2	4	7/8”	–	305030	2H	KS22	S-3-PGE	E-2
1	2	7/8”	–	305031	1H	KS23	S-2-S	–
2/0	1/0	1”	–	305032	10H	KS25	S-1/0-S	E-1/0
3/0	2/0	1-1/18”	385 (32)	305033	20H	KS26	S-2/0-S	E-2/0
4/0	3/0, 4/0, 250	1-5/16”	650 (54)	305034	40H	KS29	S-250-PGE	E-250

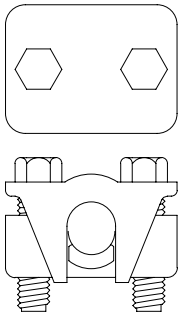


Figure 10

Table 14 Two Bolt Connectors for Copper-to-Copper Connections (Figure 10)

Conductor Size AWG or kcmil		Code	Manufacturer and Catalog Number					
Main Run	Min. Tap		Anderson	Blackburn	Burndy	Penn-Union	Dossert	Homac
4/0	6	305431	K-3	2B40	KVS28	VT-2	DSU21	–
250 to 350	1/0	305432	K-4	2B350	KVS31	VT-3	DSU35	TBC 350
400 to 500	2/0	305433	K-5	2B500	KVS34	VT-4	DSU50	TBC 500
600 to 750	4/0	305434	K-6	2B800	KVS40	VT-5	DSU80	TBC 800
800 to 1,000	4/0	305435	K-7	2B1000	KVS44	VT-6	DSU100	TBC 1,800

Material and Finish

Copper Alloy

Note

1. Connectors shown in Table 13 and Table 14 are for use on unshielded insulated cables rated 600 V or lower.
2. Connectors shown in Table 13 may also be used to connect unshielded streetlighting cable.
3. If necessary, double back on small size tap wires to obtain a tight fit.
4. The connectors described on this page can be used on bare cables where such cables will not be subjected to tension.
5. These connectors shall not be used in overhead applications.

Ground Terminal

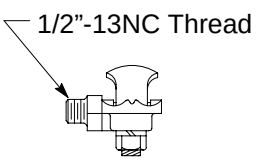


Figure 11

Table 15 Ground Terminal (Figure 11)

Conductor Size – AWG	Manufacturer and Catalog Number				Code
	Anderson Elect.	Fargo	Burndy	Dossert	
#10 Sol. - #1 Str.	GTCS-21	GC207	EQC632C-1	TGC 8-50	303214

Tap Connectors Compression-Type (#6 through 400 kcmil aluminum-to-aluminum or aluminum-to-copper)

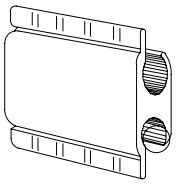


Figure 12
H-Type Connector

Table 16 Tap Connectors − Compression-Type − Aluminum-to-Aluminum or Aluminum-to-Copper (Figure 12)

<table>
<tr><td colspan="2" rowspan="2">Conductor Size AWG or kcmil</td><td colspan="15">Tap</td></tr>
<tr><td>#6 Sol.</td><td>#4 Sol.</td><td>#4 Str.</td><td>#2 Sol.</td><td>#1 Sol.</td><td>#2 Str.</td><td>1/0 Sol.</td><td>1/0 Str.</td><td>2/0 Str.</td><td>3/0 Str.</td><td>4/0 Str.</td><td>250</td><td>266.8 Str.</td><td>336.4 Str.</td><td>350</td><td>397.5</td><td>400</td></tr>
<tr><td rowspan="15">Run</td><td>#6 Sol.</td><td colspan="5" rowspan="4">Code 305507</td><td colspan="2" rowspan="4">–</td><td colspan="2" rowspan="8">–</td><td colspan="2" rowspan="8">–</td><td colspan="7" rowspan="8">–</td></tr>
<tr><td>#4 Sol.</td></tr>
<tr><td>#4 Str.</td></tr>
<tr><td>#2 Sol.</td></tr>
<tr><td>#1 Sol.</td><td colspan="6" rowspan="5">Code 305509</td></tr>
<tr><td>#2 Str.</td></tr>
<tr><td>1/0 Sol.</td></tr>
<tr><td>1/0 Str.</td><td colspan="2" rowspan="3">Code 305519</td></tr>
<tr><td>2/0 Str.</td><td colspan="6" rowspan="2">Code 305510</td></tr>
<tr><td>3/0 Str.</td><td colspan="2" rowspan="2">Code 305831</td></tr>
<tr><td>4/0 Str.</td><td colspan="6">Code 305520</td><td colspan="2">Code 305830</td></tr>
<tr><td>250</td><td colspan="8" rowspan="2">–</td><td colspan="2" rowspan="7">Code 305833</td><td colspan="7" rowspan="7">Code 305834</td></tr>
<tr><td>266.8 Str.</td></tr>
<tr><td>336.4 Str.</td><td colspan="8" rowspan="5">Code 305832</td></tr>
<tr><td>350</td></tr>
<tr><td>397.5</td></tr>
<tr><td>400</td></tr>
</table>

Table 17 Aluminum Compression Connectors for Secondary Connections to Streetlight Conductors

<table>
<tr><td colspan="2" rowspan="2">Conductor Size (AWG)</td><td colspan="2">Tap</td></tr>
<tr><td>#10 Sol.</td><td>#8 Sol.</td></tr>
<tr><td rowspan="5">Run</td><td>#2 Str.</td><td colspan="2" rowspan="3">Code 305842</td></tr>
<tr><td>1/0 Str.</td></tr>
<tr><td>2/0 Str.</td></tr>
<tr><td>3/0 Str.</td><td colspan="2" rowspan="2">Code 305843</td></tr>
<tr><td>4/0 Str.</td></tr>
</table>

Material

Aluminum Alloy

Application

Straight splice or tap, residential and light commercial.

Tap Connectors Compression-Type (#6 through 400 kcmil aluminum-to-aluminum or aluminum-to-copper)(continued)

Table 18 Aluminum H-Type Compression Connectors

Tool and Die Data			Code	Remarks
Number of Compressions				
Die	Hydraulic Tools	Mechanical Tools		
	Burndy Y35, Y46 [1], Alcoa 12A, Homac UT-15 or T&B TBM15 [2]	Burndy MD-6		
O	2	4	305507	Same as Tap Connectors Shown in Document 041010
		5	305509	
D	2	5	305510	
			305519	
			305520	
	3	7	305830	
			305831	
N	2	–	305832	
			305833	
	3		305834	
Connectors for Connections to Street Light Conductors on Secondary Underground				
O	2	4	305842	Same as Tap Connectors Shown in Document 041010
D	–	4	305843	

[1] With Burndy Y-46 tool, use adapter PUADP-1 for Y-35 style dies.
[2] Use Homac UT-15 tool with 15 CAP adapter or T&B TBM15 tool with 15500 adapter on Burndy dies for #4 through 1/0 only.

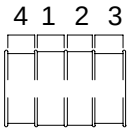
Note

Do not use the N Die with UT-15 or TBM15 tools.

Tap Connectors Compression-Type for Secondary Conductors (2/0 through 1033 kcmil aluminum-to-aluminum or aluminum-to-copper)

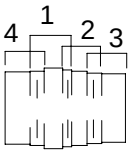
Table 19 Tap Connectors − Compression-Type for Secondary Conductors

Conductor Size AWG or kcmil		Tap																								
		2/0	3/0	4/0	250	266.8	300	336.4	350	397.5	400	450	477	500	550	556.5	600	636	700	715.5	750	795	800	874.5	900	1000	1033.5
Run	336.4	See Table 16 Page 19										Code 305522						–								
	350																									
	397.5																									
	400																									
	450	Code 305521																								
	477																									
	500																									
	550																									
	556.5																									
	600																									
	636	Code 305524										Code 305526						Code 305537								
	700																									
	715.5																									
	750																									
	795																									
	800																									
	874.5																									
	900																									
	1,000	Code 305804			Code 305875					Code 305976											Code 305538					
	1,033.5																									



Marking on Connector for Compression with R Die

Figure 13



Position of Z Die on R Die Compression Markings

Figure 14
Installation Instructions for Z Die

Table 20 Ordering Data for Z Die for Use in UT-15 Hydraulic Tool

Die Designation	Code	Manufacturer and Catalog Number
Z	216248	Homac 15 CZ [1]

[1] T&B equivalent 15620.

Tap Connectors Compression-Type for Secondary Conductors (2/0 through 1033 kcmil aluminum-to-aluminum or aluminum-to-copper)(continued)

Material

Aluminum Alloy

Application

Straight splice or tap, residential and light commercial.

Notes

1. Two dies can be used for compressing the aluminum H-Type connectors listed in Table 18 on Page 20. These are the R and Z dies. Some manufacturers refer to both dies while others designate only the R die on their connectors.
2. When using the Z die on connectors which require three compressions, make the first compression in the center. The Z die will overlap the crimp location markings on the connector since these markings are based on the narrower R die. Then make a compression on each side of the center compression, keeping the die even with the outside edge of the connector and overlapping the previously made center compression.

   When using the Z die on connectors which require four compressions, make the first two compressions in the center portion of the connector, overlapping the centerline of the connector on each compression as shown in Figure 14 on Page 21. Then complete a compression on each end, overlapping the previously completed center compression sufficiently to maintain the outer edge of the die flush with the end of the conductor.

Tap Connectors Compression-Type for Secondary Conductors (copper-to-copper)

Figure 15
Figure-6 Type

Table 21 Figure-6 Type Copper Connectors (Figure 15)

Conductor Size AWG or kcmil		Tap										
		#6 Sol.	#4 Sol.	#4 Str.	#2 Sol.	#1 Sol.	#2 Str.	1/0 Sol.	1/0 Str.	2/0 Str.	3/0 Str.	4/0 Str.
Run	#6 Sol.	Code 305844						–			Code 012086	
	#4 Sol.											
	#4 Str.											
	#2 Sol.											
	#1 Sol.											
	#2 Str.											
	1/0 Sol.	–	Code 305845									
	1/0 Str.											
	2/0 Str.											
	3/0 Str.											
	4/0 Str.											
	250											–

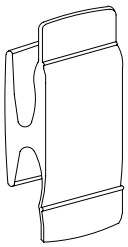


Figure 16
Blackburn, Kearney, Homac, Penn-Union H-Tap Type

Table 22 Blackburn, Homac, Kearney and Penn-Union H-Tap Copper Connectors (Figure 16)

Conductor Size AWG or kcmil		Tap										
		#6 Sol.	#4 Sol.	#4 Str.	#2 Sol.	#1 Sol.	#2 Str.	1/0 Sol.	1/0 Str.	2/0 Str.	3/0 Str.	4/0 Str.
Run	#6 Sol.	Code [1] 305243										
	#4 Sol.							–				
	#4 Str.	Code [1] 305244										
	#2 Sol.											
	#1 Sol.	Code 305245				Code 305246						
	#2 Str.											
	1/0 Sol.											
	1/0 Str.											
	2/0 Str.	–	Code 305247			Code 305249				Code 305846		
	3/0 Str.											
	4/0 Str.											

[1] The MD-6 hand tool may be used on these connectors.

Tap Connectors Compression-Type for Secondary Conductors (copper-to-copper)(continued)

Material

Copper Alloy

Application

Straight splice or tap

Table 23 Figure-6 Type Connectors (Figure 15 on Page 23)

Burndy	Dossert	Tool and Die		Code	Number of Compressions
		Die	Tool		
YP2C2	DC6	O	Alcoa 12A or Burndy Y35	305844	1
YP29C26	DC25−13	D		305845	1
YP28C28	−	D		012086	1

Table 24 Blackburn, Kearney, and Penn-Union Connectors (Figure 16 on Page 23)

Blackburn	Homac	Kearney Catalog No.	Penn-Union Catalog No.	Code	Number of Compressions			
					Hydraulic Tool		Mechanical Tool [1]	
CF-44	H-301-82	301-82	CDT-399-8	305243	Die	1	DIE B	3
CFS-22	H-CST-302	302-82	CDT-302	305244	BKT		DIE K	
CF-102	H-CDT-304	304-82	CDT-304-8	305245	O		−	
CF-1010	H-CDT-303-8	303-82	CDT-303-8	305246				
CF-402	H-309-82	309-82	CDT-309-8	305247	D		−	
CF-4010	H-CDT-308-8	308-82	CDT-308-8	305249				
CF-4040	H-307-82	307-82	CDT-307-8	305846				

[1] Hydraulic tool, Burndy Y35 or Alcoa 12A (seeTable 18 on Page 20) mechanical tool, Burndy MD6.

Table 25 Splicing and Tapping of XLP-Conc-PVC Cable Concentric Neutrals

Primary Cable Size (XLP-Conc-PVC) Document 039955 [1]		2/0 Cu 1/0 Al 4/0 Al	350 Al	#2 Al	#4 Cu 250 Cu	#2 Cu	700 Al	500 Cu	1,000 Al
	Conc. Size	8 − #14	9 − #14	10 − #14	11 − #14	17 − #14	18 − #14	13 − #12	16 − #12
2/0 Cu 1/0 Al 4/0 Al	8 − #14	Code 305244			Code 305245	Code 305246			Code 305247
350 Al	9 − #14								
#2 Al	10 − #14								
#4 Cu 250 Cu	11 − #14	Code 305245							
#2 Cu	17 − #14								
700 Al	18 − #14								
500 Cu	13 − #12								
1,000 Al	16 − #12	Code 305247							
−	#2 Str. Cu	Code 305245				Code 305246			Code 305249
	#2 Solid Cu	Code 305244							Code 305247

[1] For extension or splicing out of concentric neutral wires, see Document 053732 or Document 051071.

Tap Connectors Compression-Type for Secondary Conductors (copper-to-copper)(continued)

Table 26 Ordering Data for Dies for Use in Alcoa 12A or Burndy Y35 Hydraulic Tool [1]

Die	Kearney Catalog Number	Alcoa Catalog Number	Burndy Catalog Number	Code [2]
O	–	B11AH	U-O	216083
D	–	B-D	U-D3	216084
N	–	B-N	UN-C	216085
BKT	36832	–	U-KBKTT	216133

1 Die sets listed in Table 23 on Page 24 may be used interchangeably in either the Alcoa 12A or Burndy Y35 hydraulic press.

2 Code includes one complete set of dies consisting of two half-sections.

Table 27 Equivalent Conductor Size for Concentric Neutrals [1]

Equivalent Size	Concentric Size
#4 Approximate	8 – #14
	9 – #14
	10 – #14
#2 Approximate	11 – #14
	17 – #14
1/0 Approximate	18 – #14
	13 – #12
	16 – #12

1 To connect these concentric conductors to conductors other than #2, use the equivalent conductor size and select a connector from Table 25 on Page 24**.**

Terminal Connectors Compression-Type (aluminum cable for flat bar or transformer spade terminals)

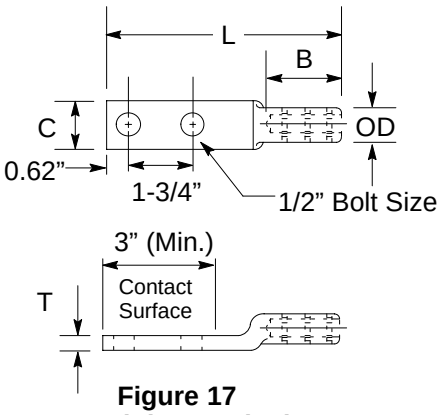


Figure 17
Straight Terminal

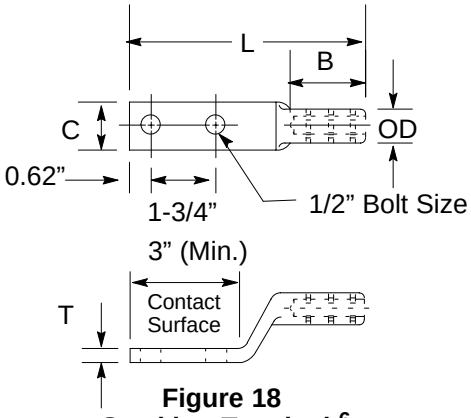


Figure 18
Stacking Terminal [6]

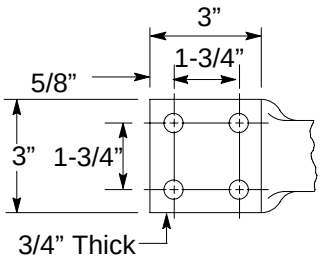


Figure 19
4-Hole Pad [4]

Table 28 Specifications for Terminal Connectors − Aluminum Cable-to-Flat Bar (Figure 17 and Figure 18)

Cable Size AWG or kcmil	Refer to	Approved for Purchase						Tool [2] Index Number
		Approximate Dimensions (inches)					Code	
		B	C [1]	L [1]	T [1]	OD		
4	Figure 17	1.24	1.25	4.92	0.25	0.65	303829	1/0AS
2		1.10	0.91	5.62	0.25	0.65	303761	1/0AS
1/0		1.10	0.91	5.62	0.25	0.65	303760	1/0AS
2/0		1.60	1.25	5.43	0.25	0.91	303830	4/0AS
4/0		1.60	1.25	5.75	0.30	0.91	303759	4/0AS
250		1.96	1.25	5.88	0.25	1.12	303831	350A
350		1.91	1.62	6.84	0.38	1.12	303758	350A
500/600		2.62	1.62	6.78	0.38	1.62	303832	700/750A
700/750 [3]		2.65	1.62	8.22	0.62	1.62	303833	700/750A
1,000 [3]		2.97	1.62	8.88	0.62	1.84	303834	1000A
1,250 [4]		2.58	2.60	7.53	0.51	1.84	303835	1000A
1,500 [4]		3.19	3.09	8.59	0.81	2.26	303836	1500A
1,750 [4]		3.69	3.33	8.38	0.86	2.46	303837	1750A
2,000 [4]		3.69	3.57	8.50	0.94	2.60	303838	2000A
6 [6]	Figure 18 [6] (stacking terminals)	1.50	0.87	5.25	0.21	0.62	303732	–
2 [6]		1.10	0.91	5.62	0.25	0.65	303731	1/0AS
1/0 [6]		1.10	0.91	5.62	0.25	0.65	303730	1/0AS
4/0 [6]		1.52	1.17	6.20	0.30	0.91	303729	4/0AS
250		1.90	1.62	6.6	0.38	1.0	301283	–
350 [6]	Figure 18 [6] (stacking terminals)	2.25	1.62	6.84	0.38	1.12	303728	350A
700/750 [3, 6]		2.65	1.62	8.22	0.62	1.62	303839	700/750A
1,000 [3, 6]		2.97	1.62	8.88	0.62	1.84	303840	1000A

1 These dimensions may vary slightly among the various suppliers.
2 See Table 4 on Page 7 for installation information.
3 These connectors shall be designed to fit side by side on a standard NEMA spade terminal (see Page 31).
4 To order 4-hole terminals larger than 1,000 kcmil, select the Burndy or Homac terminal for the proper cable size and substitute 4 for 2 in the catalog number. Example: YA45A-4NTN or Homac AL-750-4NTN.
5 If it is necessary to stack copper conductors, use aluminum stacking connectors.
6 These connectors shall be capable of being stacked on any straight terminal of equal or larger size (up to and including 1,000 kcmil).

Terminal Connectors Compression-Type (aluminum cable-to-flat bar for transformer spade terminals)(continued)

Table 28 Terminal Connectors (aluminum cable-to-flat bar)(continued)

Cable Size AWG or kcmil	Approved for Purchase			
	Manufacturer and Catalog Number			Code
	Mac Prod. Co.	Homac	Burndy	
4	MLBS 4-8N	SA4NTN	YAR4U2NTN	303829
2	MLBS 2-8N	SA2NTN	YAR2U2NTN	303761
1/0	MLBS 1/0-8N	SA-386-N	YAR1/0U2NTN	303760
2/0	MLBS 2/0-8N	SA2/0-NTN	YAR2/0U2NTN	303830
4/0	MLB 4/0-8N	AL4/0-NTN	YA4/0A2NTN	303759
250	MLBS 250-8N	SAB4/0-NTN	YA250A2NTN	303831
350	MLB 350-8N	AL350-NTN	YA350A2NTN	303758
500	MLBS 500-8N	SAL500-NTN	YA500A2NTN	303832
700/750 [1]	MLB 750-8N	AL750-NTN	YA750A2NTN	303833
1,000 [1]	MLB 1000-8N	AL1000-NMS	YA1000A2NTN	303834
1,250 [2]	MLB 1250-8N	AL1250-NTN	YA1250A2NTN	303835
1,500 [2]	MLBS 1500-8N	AL1500-NTN	YA1500A2NTN	303836
1,750 [2]	MLBS 1750-8N	AL1750-NTN	YA1750A2NTN	303837
2,000 [2]	MLBS 2000-8N	AL2000-NTN	YA2000A2NTN	303838
6 [3, 4]	MDLS 6-8N	ASL 6-NTN	YARSO6U2NTN	303732
2 [3, 4]	MDLS 2 - 8N	ASL 386-N	YARSO2U2NTN	303731
1/0 [3, 4]	MDLS 1/0-8N	ASL1/0-NTN	YARSO1/0U2NTN	303730
4/0 [3, 4]	MDLS 4/0-8N	ASL4/0-NTN	YASO4/0A2NTN	303729
250	–	ASL250-NTN	YASO250A2NTN	301283
350 [3, 4]	MDLS 350-8N	ASL350-NTN	YASO350A2NTN	303728
700/750 [1, 3, 4]	MDLS 750-8N	ASL750-NTN	YASO750A2NTN	303839
1,000 [1, 3, 4]	MDLS 1000-8N	ASL1000-SSNTN	YASO1000A2NTN	303840

[1] These connectors shall be designed to fit side by side on a standard NEMA spade terminal (see Page 34).
[2] To order 4-hole terminals larger than 1,000 kcmil, select the Burndy or Homac terminal for the proper cable size and substitute 4 for 2 in the catalog number. Example: YA45A-4NTN or Homac AL-750-4NTN.
[3] If it is necessary to stack copper conductors, use aluminum stacking connectors.
[4] These connectors shall be capable of being stacked on any straight terminal of equal or larger size (up to and including 1,000 kcmil).

Material

Aluminum Alloy, tubular

Tinned

Note

1. Attach using Everdur bolts and washers shown on Page 36.
2. Partially filled with oxide inhibitor and sealed.
3. Connections of copper-to-copper, tinned aluminum-to-copper, and tinned aluminum-to-tinned aluminum require no special precautions other than a clean surface. Any combination involving an untinned aluminum surface requires the application of oxide inhibitor to the surface. Wire brush the surface through the compound thoroughly. Brushing through this inhibitor prevents the oxide from reforming. If in doubt as to the materials or tinning, applying inhibitor will do no harm.
4. Connectors may be ordered undrilled when hole spacing other than shown is necessary.

Terminal Connectors Compression-Type (copper cable-to-flat bar for transformer spade terminals)

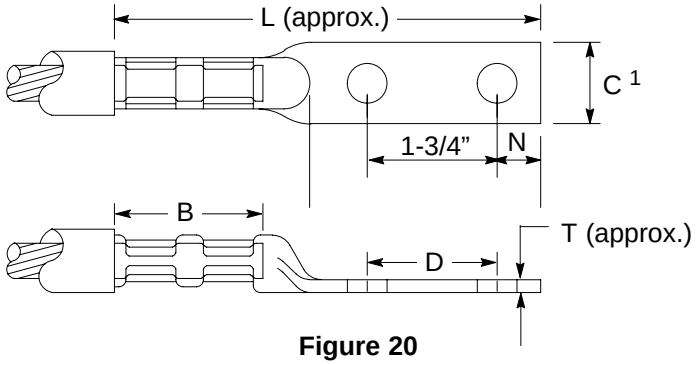


Figure 20

Table 29 Specifications for Terminal Connectors − Copper Cable-to-Flat Bar (Figure 20)

Cable Size AWG or kcmil	Refer to	Approved for Purchase								Tool [1] Index Number
		Dimensions (inches)						Bolt Size	Code	
		B	C	D	L	N	T			
4	Figure 20	1-1/8	13/16	3	4-1/2	5/8	1/8	1/2	303916	4C
2		1-1/4	13/16	3	4-23/32	5/8	1/8	1/2	303221	2C [2]
1		1-3/8	13/16	3	4-7/8	5/8	1/8	1/2	303804	1C
1/0		1-3/8	13/16	3	4-29/32	5/8	1/8	1/2	303209	1/0C
2/0		1-1/2	13/16	3	4-29/32	5/8	1/8	1/2	303220	2/0C
3/0		1-1/2	29/32	3	4-15/16	5/8	1/8	1/2	303219	3/0C
4/0		1-5/8	1	3	5-1/16	5/8	9/64	1/2	303917	4/0C
250		1-5/8	1-3/32	3	5-5/32	5/8	5/32	1/2	303092	250C
300		2	1-11/16	3	5-3/4	5/8	5/32	1/2	303451	300C
350		2	1-25/32	3	5-11/16	5/8	3/16	1/2	303452	350C
400		2-1/8	1-3/8	3	5-7/8	5/8	3/16	1/2	303453	400C
500		2-1/4	1-17/32	3	5-15/16	5/8	15/64	1/2	303093	500C
600		2-11/16	1-1/2	3	6-5/8	5/8	17/64	1/2	303454	600C
750 [3]		2-7/8	1-3/4	3	6-3/4	5/8	17/64	1/2	303296	750C
1,000 [3]		3	1-3/4	3	6-15/16	5/8	21/64	1/2	303461	1000C

1 See Table 4 on Page 7 for installation information.
2 For #2 Solid, use Nicopress “M” Groove.
3 Dimension C shall not exceed 1-3/4”.

Note

1. Attach using Everdur bolts and washers as shown on Table 30 on Page 31.
2. Connections of copper-to-copper, tinned aluminum-to-copper, and tinned aluminum-to-tinned aluminum pads require no special precautions other than a clean surface. Any combination involving an untinned aluminum surface requires the application of oxide inhibitor to the surface. Wire brush the surface through the compound thoroughly. Brushing through this inhibitor prevents the oxide from reforming. If in doubt as to the materials or tinning, application of the inhibitor will do no harm.
3. Connectors may be ordered undrilled when hole spacing other than shown is desired.

Terminal Connectors Compression-Type (copper cable-to-flat bar for transformer spade terminals)(continued)

Table 29 Specifications for Terminal Connectors (copper cable-to-flat bar)(continued)

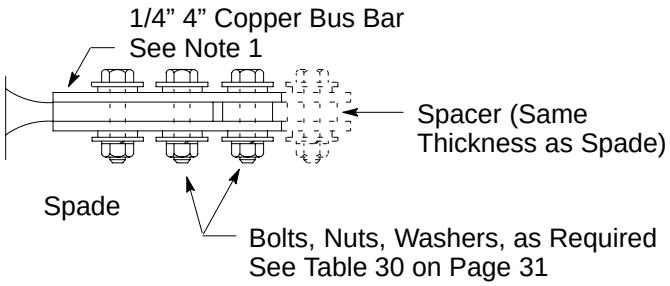
Cable Size Awg or kcmil	Approved for Purchase				Code
	Manufacturer and Catalog Number				
	Dossert	Mac Prod. Co.	Homac [1]	Burndy	
4	DPL4-2N	MRB4-8N-HD	L4N	YA4C-2N	303916
2	DPL6-2N	MRB2-8N-HD	L2N	YA2C-2N	303221
1	DPL8-2N	MRB1-8N-HD	L1N	YA1C-2N	303804
1/0	DPL10-2N	MRB1/0-8N	L1/0N	YA25-2N	303209
2/0	DPL13-2N	MRB2/0-8N	L2/0N	YA26-2N	303220
3/0	DPL17-2N	MRB3/0-8N	L3/0N	YA27-2N	303219
4/0	DPL21-2N	MRB4/0-8N	L4/0N	YA28-2N	303917
250	DPL25-2N	MRB250-8N	L250-N	YA29-2N	303092
300	DPL30-2N	MRB300-8N	L300-N	YA30-2N	303451
350	DPL35-2N	MRB350-8N	L350-N	YA31-2N	303452
400	DPL40-2N	MRB400-8N	L400-N	YA32-2N	303453
500	DPL50-2N	MRB500-8N	L500-N	YA34-2N	303093
600	DPL60-2N	MRB600-8N	L600-N	YA36-2N	303454
750 [2, 3]	DPL75-2NN	MRB750-8N-1.75	L750-N	YA39-2NNT	303296
1,000 [2, 3]	DPL100-2NN	MRB1000-8N-1.75	L1000-N	YA44-2NG10	303461

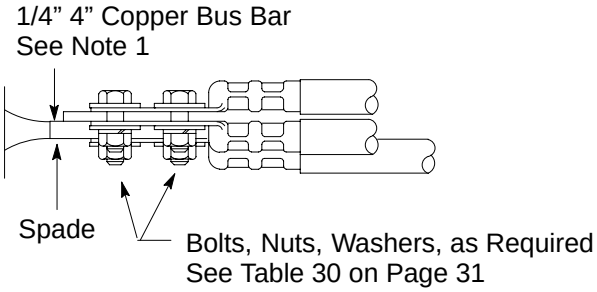
1 Homac lugs for 750 and 1,000 kcmil can be furnished with 1-3/4” wide pad.

2 Dimension C shall not exceed 1-3/4”.

3 To order 4-hole terminals, select the Homac or Burndy terminal for the proper cable size and substitute 4 for 2 in the catalog number. For example: YA39-4NNT, for Burndy L750-4N for Homac.

Applications of Compression-Type Terminal Connectors





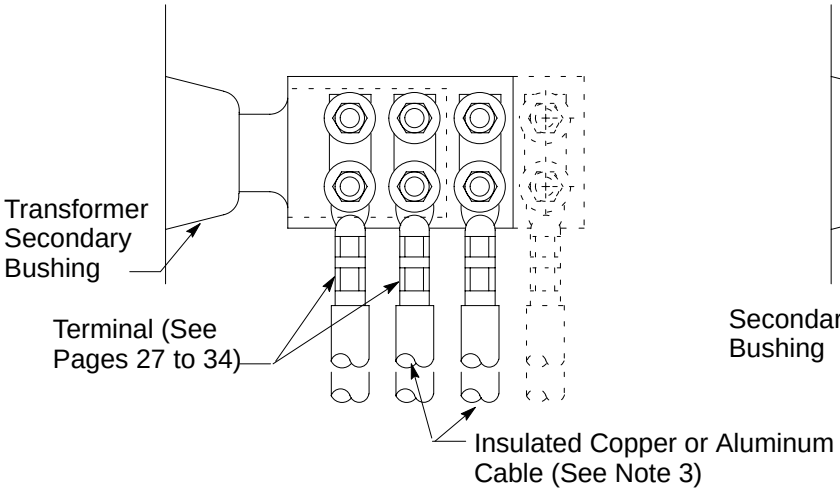


Figure 21

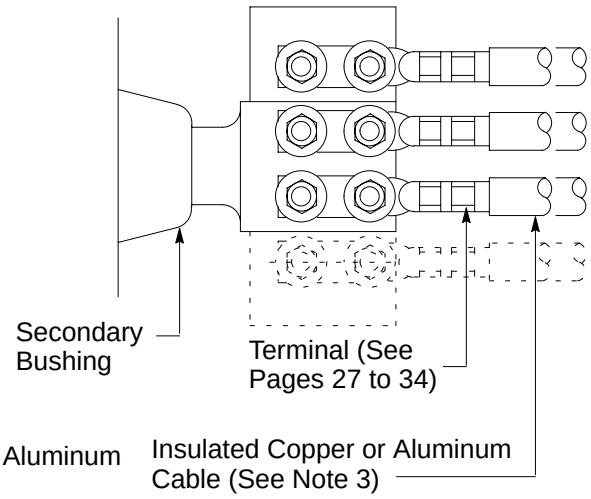


Figure 22

Note

1. Where the transformer spade does not provide sufficient space for cables to be connected, it may be extended with a short length of 1/4” x 4” copper bus bar, 3.86 pounds per foot, Code 156024. The current carrying capacity of the bus bar, when insulated with tape is as follows:

   1,200 amps for one 1/4” x 4” bus bar.

   2,200 amps for two 1/4” x 4” bus bars (one on each side of the spade).

   The spade itself has capacity sufficient for the rating of the transformer.

2. Where large size or a large number of cables are attached to secondary spade, they should be supported to prevent excessive strain on the secondary bushings.

3. Installations shown in this document **cannot** be used for aluminum cables 1,250 kcmil and larger, or copper cables 750 kcmil and larger, as the flat portion of the connector is wider than the hole spacing provided on the transformer spade (see Footnote 1 of Table 29 on Page 29).

Terminal Connectors Bolted-Type (copper cable-to-flat bar for transformer spade terminals)(non-preferred)

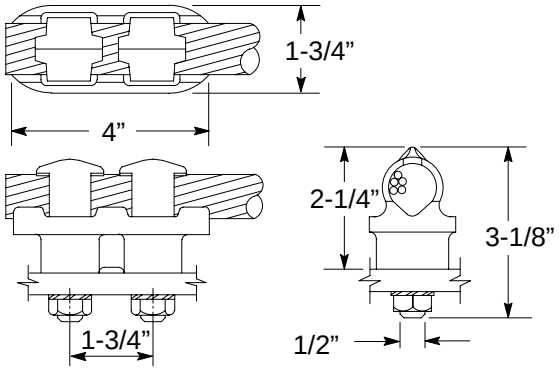


Figure 23

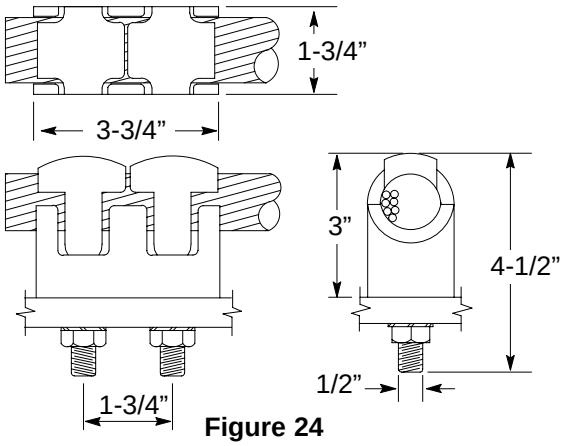


Figure 24

Table 30 Bolts, Nuts, and Washers (Figure 23 above, Figure 28 on Page 34, Figure 38 on Page 42)

Item	Description	Code
1	Screw, Cap (bolt) Everdur, Hex. Head 1/2” x 1-1/2” [1, 2]	193023
2	Screw, Cap (bolt) Everdur, Hex. Head 1/2” x 2” [1, 2]	193025
3	Screw, Cap (bolt) Everdur, Hex. Head 1/2” x 2-1/2” [1, 2]	193177
4	Nut, Bolt, Everdur, Hex. 1/2” [1]	195013
5	Washer, Round, Everdur, 1/2”	195252
6	Washer, Lock, Everdur, 1/2”	195193
7	Screw, Cap (bolt), Steel, CDPL, Hex. HD 1/2” x 1-1/2”	193271
8	Screw, Cap (bolt), Steel, CDPL, Hex. HD. 1/2” x 2”	193272
9	Screw, Cap (bolt), Steel, CDPL, Hex. HD. 1/2” x 2-1/2”	193273
10	Screw, Cap (bolt), Steel, CDPL, Hex. HD. 1/2” x 3”	193274
11	Nut, Bolt, Steel, CDPL, Hex. 1/2”	195449
12	Washer, Round, Steel, CDPL 1/2”	195450
13	Washer, Lock, Steel, CDPL 1/2”	195451

1 The recommended tightening force for a 1/2” Everdur bolt is 40 foot-pounds. Normally, the use of an 8” wrench will give this range of torque.

2 Everdur cap screws are low silicon bronze, Spec 651 per ASTM F468 with Class 2A threads.

Terminal Connectors Bolted-Type (copper cable-to-flat bar for transformer spade terminals)(non-preferred) (continued)

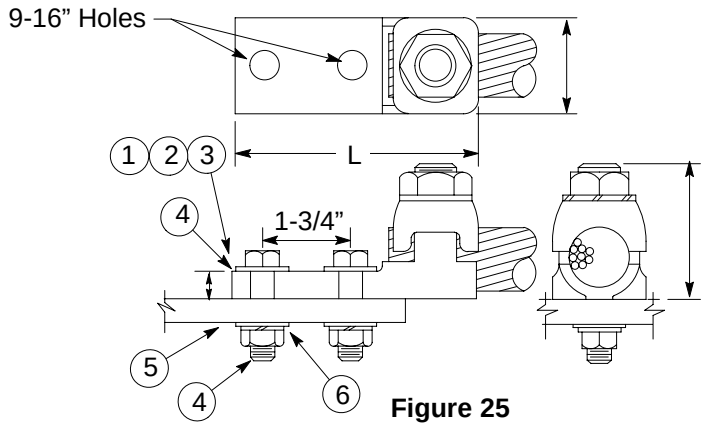


Figure 25

Table 31 Connectors (copper cable eye bolt-to-flat bar type) [1]

Use for Cable Range (AWG-kcmil)	Refer to	Manufacturer and Catalog Number					Code
		A.E. Corp. [2]	Burndy	So. States	Royal	Dossert	
2/0-500	Figure 23 on Page 31	TLD-62	QQGF34-G6	UNNS-4656T	12222	T2L-50E	303169
600-1,000	Figure 24 on Page 31	TLDN-86	QQGFL44-G4	UNNS-5666T	19599	T2L-50E	303286

1 Connectors shown in Figure 23 and Figure 24 have two cable clamping elements and require a minimum of space and taping. The recommended tightening force for the 1/2” eye bolt on these connectors is 25−40 foot-pounds.

2 Formerly Anderson Brass Works.

Note

1. See Pages 26 to 34 for preferred compression connectors for this application.

Terminal Connectors Bolted-Type (copper cable-to-flat bar for transformer spade terminals)(non-preferred)(continued)

Table 32 Connectors − Bolted Tongue-to-Copper Cable Type [1] (Figure 26)

Use for Cable Range (kcmil)	Refer to	Manufacturer and Catalog Number			Dimensions (inches) [2]				Code
		Burndy	Royal	Dossert	L	W	H	T	
400-500	Figure 25	QA34-2N	18726	HL 50-2N	4-11/16	1-3/8	1-15/16	5/16	303188
600-800		QA40-2N	18727	HL 80-2N	4-13/16	1-5/8	2-5/16	3/8	303298
850-1,000		QA44-2N	18728	HL 100-2N	4-15/16	1-7/8	2-1/2	1/2	303189

1 The connectors shown in Figure 23 and Figure 24 on Page 31 have two cable clamping elements and require a minimum of space and taping. The recommended tightening force for the 1/2” eye bolt on these connectors is 40 foot-pounds of applied torque.

2 Dimensions shown are for Burndy connectors; others may vary slightly.

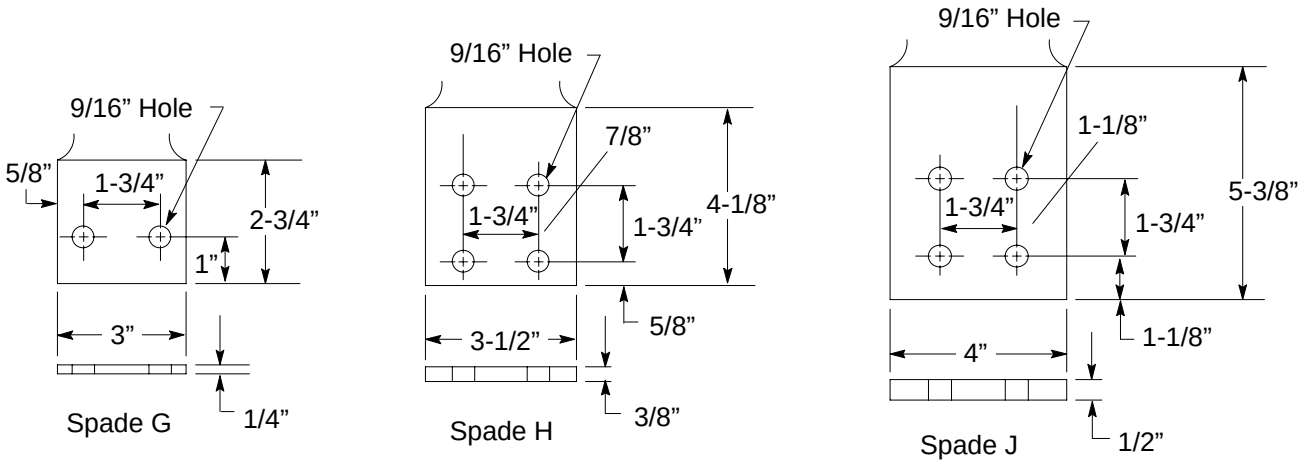


Figure 26
Standard Transformer Spade Terminals (EEI-NEMA)

Terminal Connectors Bolted-Type
(copper cable-to-flat bar for transformer spade terminals)(non-preferred)(continued)

Table 33 Connectors − Copper Cable Eyebolt-to-Flat Bar Type (Figure 27 and Figure 28)

Cable Range (AWG or kcmil) Min − Max	Manufacturer and Catalog Number			Approximate Dimensions (inches) [1]				Code
	Figure 28	Figure 28	Figure 27					
	Burndy	Royal	Dossert	H	J	L	W	
2 − 350	QGFL-31B1	12208	QL35	2-3/4	1/2	1-3/4	1-7/16	303165
1/0 − 500	QGFL-34B1	12209	QL50	3-3/16	1/2	2-1/4	1-13/16	303233
750 − 1,000	QGFL-44B1	12212	QL100	3-1/2	1/2	2-1/4	2-3/16	303179

[1] Dimensions shown are for Burndy connectors; others may vary slightly.

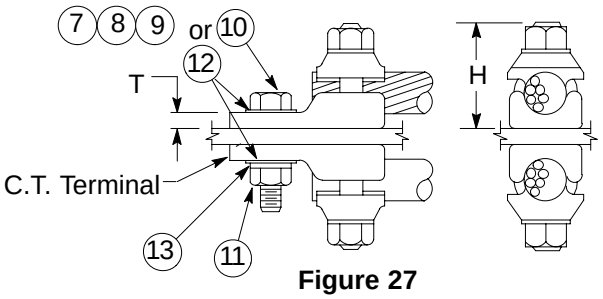


Figure 27

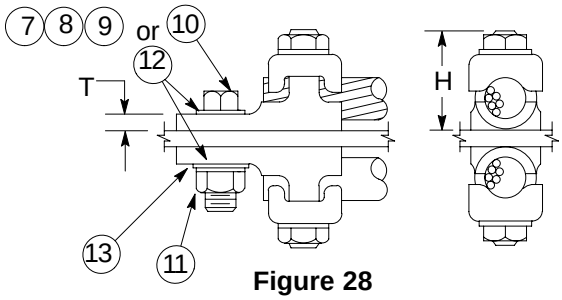


Figure 28

Terminal Connectors Bolted-Type (copper cable-to-flat bar for current transformer terminals only)

Table 34 Connectors − Tongue-to-Copper Cable Type (Figure 27 and Figure 28)

Cable Range (AWG or kcmil) Min − Max	Manufacturer and Catalog Number				Approximate Dimensions (inches) [1]					Code
	Figure 27	Figure 28	Figure 27	Figure 28						
	A.E. Corp.	Burndy	Royal	Dossert	C	H	K (min.)	L	W	
3/0 − 4/0	ITE024-A	QA28-B3	18723	HL 21-1-50	1	1-7/16	9/16	2-1/4	1/4	303297
250 − 350	ITE035-A	QA31-B	18724	HL 35-1	1-3/16	1-11/16	17/32	2-11/16	5/16	303182
400 − 500	ITE050-A	QA34-B	18725	HL 50-1	1-3/8	2	17/32	3-3/16	5/16	303112
600 − 800	ITE080-A	QA40-B	19600	HL 75-1	1-5/8	2-3/8	11/16	3-11/16	3/8	303122
850 − 1,000	ITE100-A	QA44-B	19601	HL 100-1	1-7/8	2-1/2	11/16	3-15/16	1/2	303121

[1] Dimensions shown are for Burndy connectors; others may vary slightly.

Notes

1. Connectors shown in Table 33 on Page 34 are less costly than those shown in Table 34 and should be used when connecting one cable to bar-type primary terminal.
2. Use connectors shown in Table 33 on Page 34 to connect two cables to bar-type primary terminal by placing them back-to-back as shown in Figure 27 and Figure 28 on Page 34.

   Where severe corrosive conditions exist, use Everdur cap screws, nuts, and washers shown in Table 30 on Page 31.
3. For conductor sizes smaller than shown, shim up the connector with short lengths of conductor strands.

Tap Connectors for Cable Termination (copper or aluminum cable) Pad-Mounted Transformers

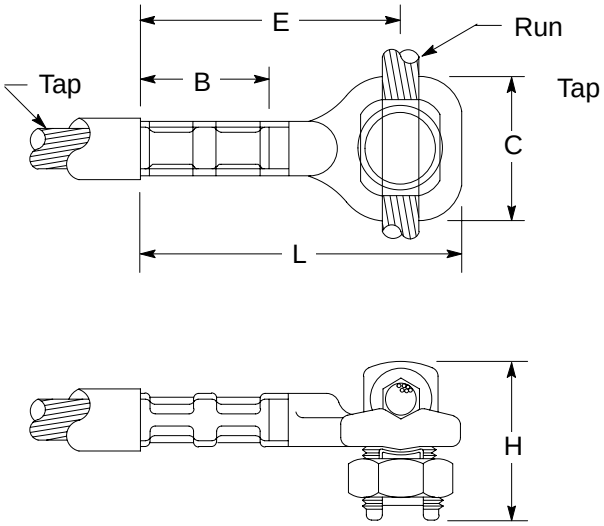


Figure 29

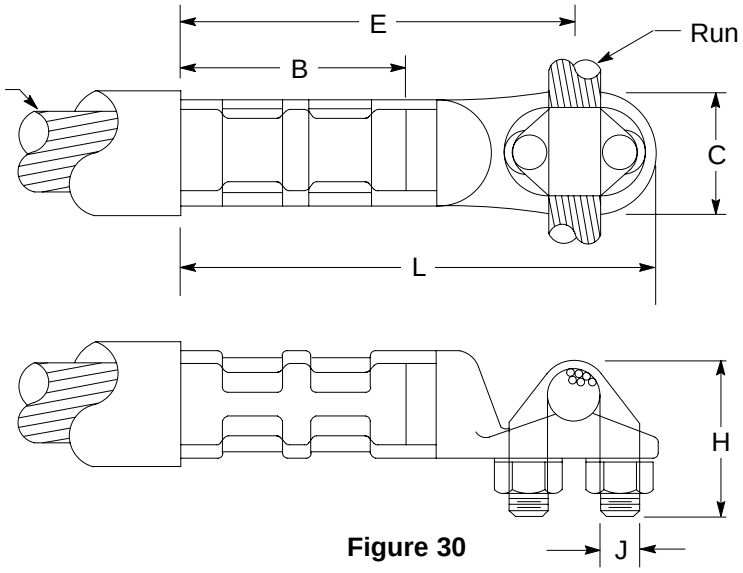


Figure 30

Table 35 Tap Connectors − Tee-Type (copper-to-copper, for circuits 5,000 V or lower) (Figure 29 and Figure 30)

Cable Size AWG or kcmil		Approved for Purchase										Tool Index Number[1]
Run	Tap	Refer to	Dimensions (inches)						Burndy Catalog Number	Dossert Catalog Number	Code	
			B	C	E	H	J	L				
6 to 2/0	2	Figure 29	1-11/32	1-5/8	2 -17/32	1-13/16	−	3-7/32	VYT262CG1	UTDK 13-6	305638	2C
6 to 2/0	2/0		1-17/32	1-5/8	2 -23/32	1-13/16	−	3-13/32	VYT2626G1	UTDK 13-13	305639	2/0 C
1/0 to 300	2	Figure 30	1-11/32	1-3/8	2 -3/4	1-27/32	7/16	3-23/32	VYT302C	UTSK 30-6	305640	2 C
1/0 to 300	2/0		1-17/32	1-3/8	3-1/16	1-27/32	7/16	4	VYT3026	UTSK 30-13	305641	2/0 C
1/0 to 300	250		1-21/32	1-3/8	3-1/4	1-27/32	7/16	4-7/32	VYT3029	UTSK 30-25	305642	250 C
1/0 to 300	500		2-9/32	1-3/8	3-1/16	1-27/32	7/16	5	VYT3034	UTSK 30-50	305643	500 C

[1] See Table 3 on Page 6 and Table 4 on Pages 7 and 8 for installation information.

Note

1. If Tee Connectors, shown in Figure 29 and Figure 30 are to be attached to an aluminum overhead conductor run, use a short length of bare copper conductor between the connector and the aluminum conductor, and attach it with a fired wedge per Document 066194.
2. If the desired connector size is not shown, special sizes may be acquired by ordering a connector similar to the connector shown.

Tap Connectors for Cable Termination (copper or aluminum cable) Pad-Mounted Transformers (continued)

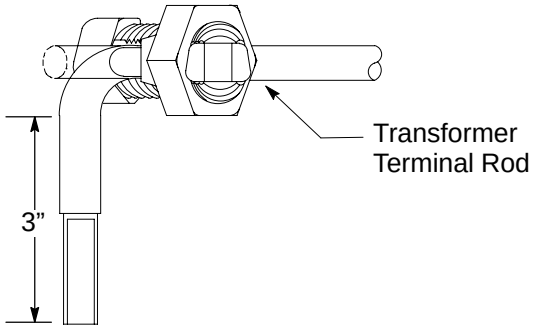


Figure 31

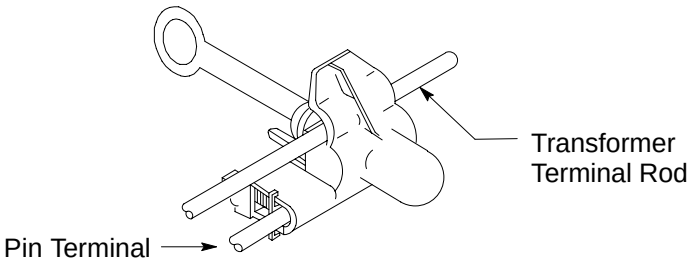


Figure 32
Blackburn Catalog Number PGH3, Code 305997

Application: Tap clamp for live-front loop-style, 3-phase pad-mounted transformer. Document 045291 and Document 057521 conductor range #2 AWG to 2/0.

Application

See “Low Profile” Single-Phase 6.9 and 12 kV pad-mounted transformer, Document 042762 and Document 042765.

Table 36 Tap Connectors for Cable Termination in “Low-Profile” Pad-Mounted Transformers (Figure 31)

Connector Size AWG or kcmil	Refer to	Manufacturer and Catalog Number	Tool Index Number [1]	Code
		Southwest Power/Inertia		
4 Cu	Figure 31	PMT-401	4C	305057
2 Cu		PMT-201	2C	305058
2 Al		PMTA-201	2C	305153
1/0 Al		PMTA-1001	1/0A	305264

[1] See Table 3 on Page 6 and Table 4 on Pages 7 and 8 for installation information (crimp instruction/orientation).

Primary T-Connectors, Compression-Type, Aluminum-to-Aluminum, Copper-to-Aluminum, or Copper-to-Copper

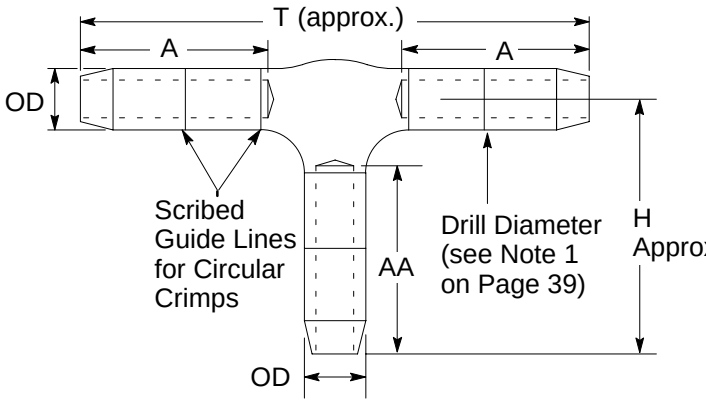


Figure 33
(for circuits above 5,000 V)

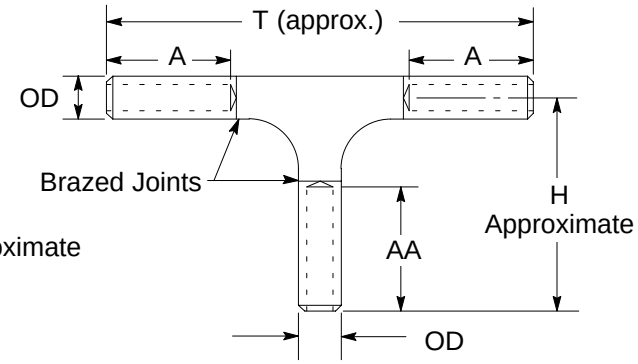


Figure 34

Table 37 Primary T-Connectors, Compression-Type - Aluminum-to-Aluminum or Copper-to-Aluminum (for circuits above 5 kV) (Figure 33)

Conductor Size AWG or kcmil		Refer to	Approved for Purchase					Tool [1] Index No.
			Dimension (inches)		Manufacturer and Catalog Number		Code	
			A		Burndy	Dossert		
Run	Tap		Burndy	Mac				
2	2	Figure 33	1-21/32	1-7/8	YST2CU2CUT	CVT6-6-S-AA	305266	See Table 40 on Page 40
4	2		1-21/32	1-7/8	YST4CU2CUT	CVT4-6-S-AA	305268	
1/0	1/0		1-3/4	1-7/8	YST25U25UT	CVT10-10-S-AA	305270	
1/0	2		1-3/4	1-7/8	YST25U2CUT	CVT10-6-S-AA	305271	
#2-4/0	#2-4/0		3-3/32	–	YST28TG1	CVT6-6-S-AA	305380	
4/0-250	#2-250		3-5/8	–	YST29TG1	CVT21-6-S-AA	305384	
350-500	#2-500		4-9/32	–	YST34TG1	CVT35-6-S-AA	305386	
700-1,000 [2]	#2-700 [2]		4-25/32	–	YST39TG1	CVT70-6-S-AA	305398	

[1] See Table 3 on Page 6 and Table 4 on Pages 7 and 8 for installation information.
[2] Maximum conductor size for aluminum only. Maximum copper size is 750 kcmil for run and 500 kcmil for tap.

Primary T-Connectors, Compression-Type, Aluminum-to-Aluminum, Copper-to-Aluminum, or Copper-to-Copper (continued)

Table 38 Cable/Drill Information

Cable (aluminum) AWG or kcmil		Drill Information	
Size	Diameter (inches)	Diameter (inches)	Drill Size
2 Str.	0.292	0.312	5/16”
1 Str.	0.332	0.359	23/64”
1/0 Str.	0.373	0.391	25/64”
2/0 Str.	0.419	0.438	7/16”
3/0 Str.	0.470	0.500	1/2”
4/0 Str.	0.528	0.562	9/16”
250	0.575	0.594	19/32”
300	0.629	0.656	21/32”
350	0.681	0.719	23/32”
400	0.728	0.766	49/64”
500	0.813	0.859	55/64”
600	0.893	0.922	59/64”
700/750	0.998	1.062	1-1/16”
1,000	1.152	1.172	1-11/64”

Material

Aluminum

Application

Tap splices for above 5,000 V, see Document 041583 and Document 043901

Notes

1. Barrels are factory drilled to accommodate the minimum conductor OD. Holes may be enlarged in the field to accommodate other cable sizes within the range shown in Table 37 on Page 38**.** Enlarge holes with a drill press or other similar precision tool and chamfer the hole ends.
2. Connectors shall be filled with oxide inhibitor and sealed.

Table 39 Primary T-Connectors, Compression-Type - Copper-to-Copper (Figure 34 on Page 38)

Conductor Size AWG or kcmil		Refer to	Dimensions (inches)						Manufacturer and Catalog Number			Tool Index Number [1]	Code
			A	AA	H	T	OD		Burndy	Homac	Dossert		
Run	Tap						Run	Tap					
2	2	Figure 34 on Page 38	1.23	1.23	2.16	4.31	0.42	0.42	YSTP2C2CT	2T2	CVT6-6	2C	305808
2	4		1.23	1.09	2.04	4.31	0.42	0.34	YSTP2C4CT	2T4	CVT6-4	2C	305809
4	4		1.09	1.09	1.84	3.88	0.34	0.34	YSTP4C4CT	4T4	CVT4-4	4C	305810

[1] See Table 3 on Page 6 and Table 4 on Pages 7 and 8 for installation information.

Primary T-Connectors, Compression-Type, Aluminum-to-Aluminum, Copper-to-Aluminum or Copper-to-Copper (continued)

Table 40 Tooling from Table 37 on Page 38

Connector	Tool Index Number	
	Burndy	
Code	Run	Tap
305266	1/0A	1/0A
305268	2A	1/0A
305270	3/0A	3/0A
305271	3/0A	1/0A
305380	350A	350A
305384	400A	400A
305386	750A	750A
305398	1000A	750A

Material

Copper

Finish

Tin Plated

Application

Tap splices for above 5,000 V, see Document 041583 and Document 043901.

Slip-Fit Connector Installation, Aluminum or Copper Cable

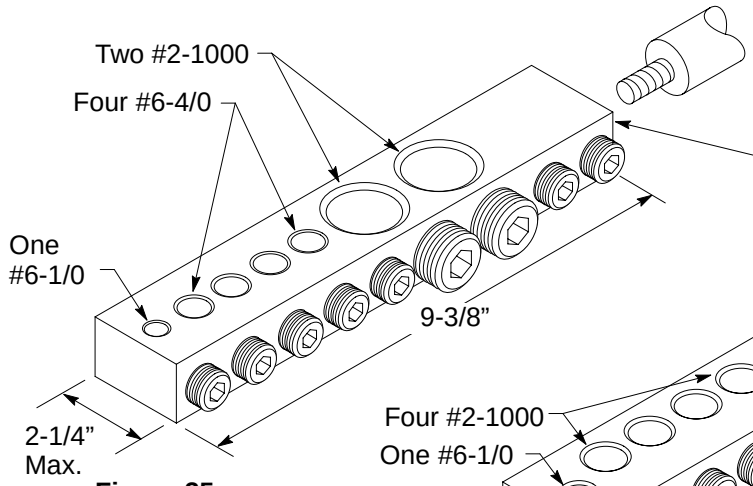


Figure 35
Code 031604
Homac ABW 6486
Utilco PTF-6-10004/0JSL

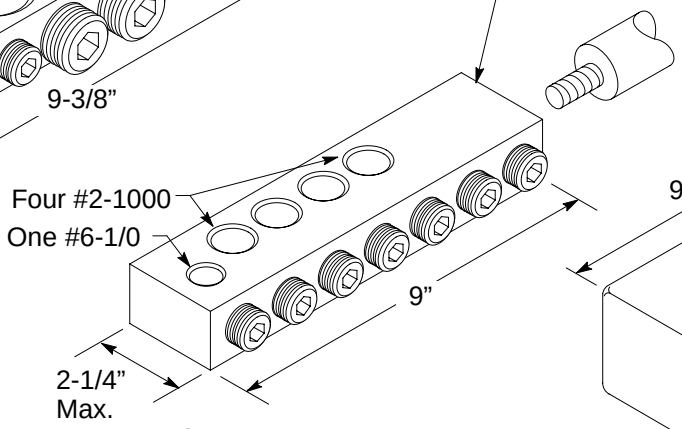


Figure 36
Code 300010
Homac ABW 4100SL
Utilco PTL4-1000JSL

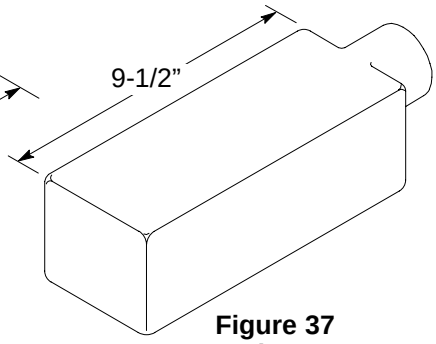


Figure 37
Secondary Cover
Code 031605
Homac SB6486

Scope

This page shows slip-fit connectors for single-phase, dead-front transformer, low voltage, secondary installations (see Document 064308).

Notes

1. All set screws to be 5/16” Allen head drive.
2. The bar is rated in excess of 1,600 amps, which exceeds the maximum allowable transformer load.
3. Connectors may be used for aluminum or copper conductors.
4. Never combine conductors in one port.
5. Connector is designed to slip onto the stud even though the terminal is threaded.
6. Secondary cover, see Figure 37, is a tool to be used when required to insulate the energized secondary slip-fit connectors.

Instructions

1. Remove any jam nuts from transformer studs.
2. Slide the connector onto the transformer stud, position the connector to allow a straight, smooth cable entry, mesh the threads together, and tighten the setscrews to lock the connector in place.
3. To prepare the cable, remove the insulation, wire brush the conductor, and apply inhibitor.
4. Insert the conductor in the port and tighten the setscrew.
5. After completing work on the secondary connectors, make sure all connections are tightened as indicated in Table 41.

Table 41 Conductor/Torque

Conductor	Torque (ft/lbs)
#6 − 350 and Transformer Stud	25
500 − 1,000	40

Multiple Transformer Terminal Aluminum or Copper Cable

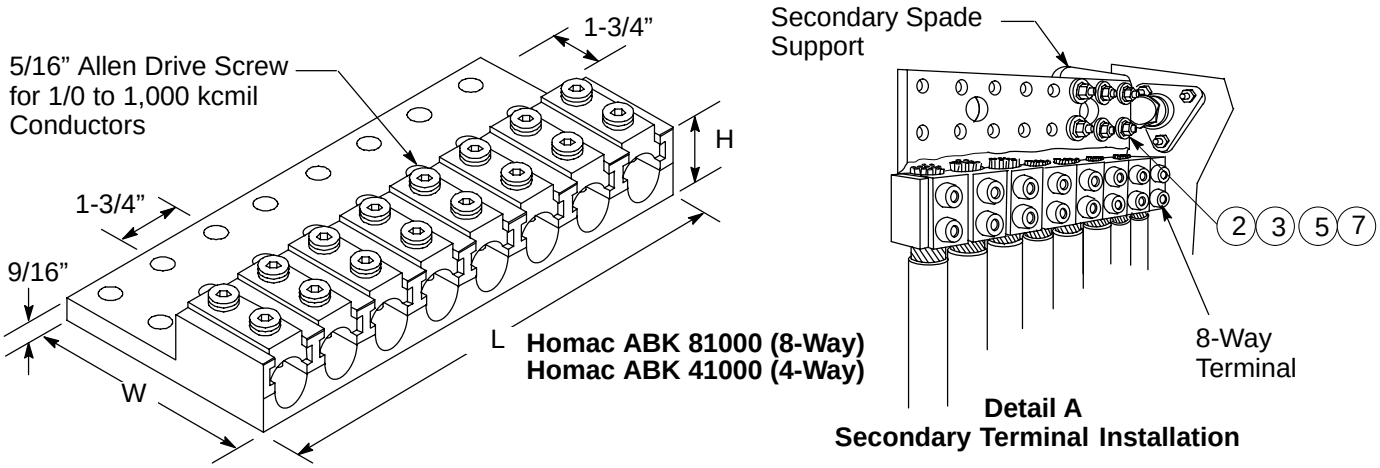


Figure 38
8-Way Terminal Illustrated (1,000 kcmil)

Table 42 EZ Keeper Lay-In Terminals for Copper or Aluminum Conductors (600 V or lower) (Figure 38)

Conductor Range	Ampacity (minimum)	Number of Conductors	Refer to	Dimensions − Approximate (inches)			Mounting Hole Diameter	Code
				L	W	H		
1/0 − 1,000	3100	4	Figure 38	7.0	6.25	1-7/8	9/16”	301281
	5100	8		13.75	6.25			301282

Scope

These connectors are for use in connecting service cables from 1/0 to 1,000 kcmil to the spade of three-phase, pad-mounted transformers (Document 043817 and Document 045291). Cable-to-flat bars are replaced in this design by set screws and a removable lay-in connection. If needed to terminate a #2 neutral onto one of these bars, it is necessary to splice a piece of 1/0 tail for insertion into the lay-in port.

Notes

1. Connectors may be used for copper or aluminum conductors.
2. Never put more than one cable in a port.
3. Install the lower (X_0 and $X_{2)}$ connectors first, then the higher (X_1 and X_3). Use as many bolts as there are holes in the spade.
4. If transformer spades are not supported, install a secondary cable support kit (see Document 045291).
5. To prepare the cable, remove the insulation, wire brush the conductor, and apply inhibitor.
6. Make sure all set screws are tightened as indicated in Table 41 on Page 41. (Torque them to the specified value, wait 5 minutes, and make the final torque).
7. See Table 30 on Page 31 for bolts, nuts, and washers.

Pin Terminals

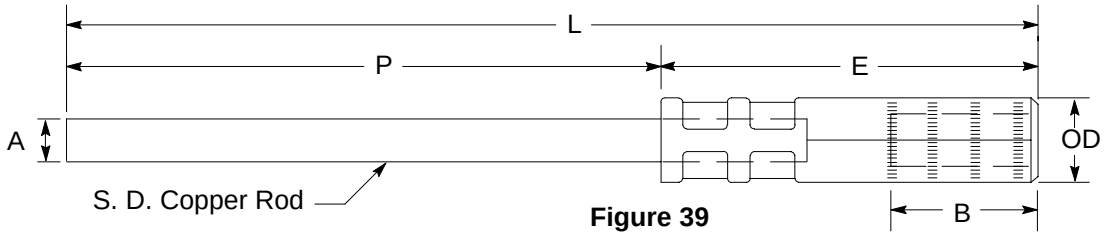


Figure 39

Table 43 Specifications for Aluminum Pin Terminal [1]

Copper/ Aluminum Cable Size	Copper Stud Equivalent	Approved for Purchase							Tool Index Number [2]
		Dimension (inches)						Code	
		A	B	OD	E Approximate	L Approximate	P		
6	8	0.250	1.75	0.65	3.25	9.25	6.00	303843	1/0AS
2	4	0.250	1.75	0.65	3.25	9.25	6.00	303844	1/0AS
1/0	2	0.250	1.75	0.65	3.25	9.25	6.00	303845	1/0AS
4/0	2/0	0.375	1.54	0.91	3.50	10.9	6.00	303846	4/0AS
350	4/0	0.460	2.25	1.12	4.70	10.7	6.00	303554	350A
500/600	500	0.750	2.56	1.57	6.30	12.3	6.00	300013	500A
700	500	0.750	2.56	1.60	6.30	12.3	6.00	303555	700/750A
1,000	700	0.750	2.56	1.60	6.30	12.3	6.00	033757	1000A

1 See Table 3 on Pages 7 and 8 for installation information.
2 See Table 51.

Table 43 Ordering Information for Aluminum Pin Terminal [1] (continued)

Copper/ Aluminum Cable Size	Copper Stud Equivalent	Approved for Purchase				Tool Index Number [2]
		Manufacturer and Catalog Number			Code	
		Mac Prod. Co.	Homac	Burndy		
6	8	AAS68-5	SAPT-6-26	YE6R-40	303843	1/0AS
2	4	AAS2-45	SAPT-2-26	YE2R-40	303844	1/0AS
1/0	2	AAS1/0-25	SAPT-1/0-26	YE25R-60	303845	1/0AS
4/0	2/0	AAS4/0-2/0S	SAPT-4/0-206	YE28R-60	303846	4/0AS
350	4/0	AAS350-4/0S	PTB-350-6	YE31AG3	303554	350A
500/600	500	–	PTM-500-346	YE34APGE	300013	500A
700	500	AAS750-500S	PTL-750	YE39AGB	303555	700/750A
1,000	700	–	PTF-1000-346	YE44AG7	033757	1000A

1 See Table 3 on Pages 7 and 8 for installation information.
2 See Table 44 on Page 44.

Material

Copper Rod-Soft Drawn, Tinned

Aluminum Connector EC Grade, Untinned

Note

1. Connector is supplied pre-filled with inhibitor and sealed.
2. Pin terminals connected to copper secondary conductors use a copper connector. Pin terminals connected to aluminum secondary conductors use a fired wedge or n-tap.
3. Rod up to 1/0 may be bent for installation convenience. It is recommended that bending occur at least 1” beyond the compression sleeve.

Application

1. To make straight connections of insulated aluminum secondary neutral to bare copper neutral, see Page 8.
2. To connect aluminum primary stress cone termination to terminal tap connector or cutout.

Pin Terminals (continued)

Table 44 Color Coding

Color Coding Requirements for Plastic End Plugs in Pin Terminals	
Conductor Size	Plug Color
#6	Blue
#2	Red
1/0	Yellow
4/0	Pink
350	Brown
700	Purple

Table 45 Specifications and Ordering Information for Copper Pin Terminal

Copper Cable Size	Copper Stud Size	Dimensions (inches)						Tool Index Number [1]	Code
		A	B	OD	E	L	P		
2	2	0.25	1.25	0.415	2.25	9.00	6.00	2C	303847
2	2/0	0.365	1.25	0.500	1.500	8.070	6.500	2CS	303848

[1] See Table 3 on Page 6 and Table 4 on Pages 7 and 8 for installation information.

Table 45 Ordering Information for Copper Pin Terminal [1] (continued)

Copper Cable Size	Copper Stud Size	Manufacturer and Catalog Number			Tool Index Number [1]	Code
		Dossert	Mac Prod. Co.	Burndy		
2	2	SDP 6-PG	CAS2-2	YE2CLH128	2C	303847
2	2/0	SDP 6-S-PG	CAS2/0-2	YCE2CG3	2CS	303848

[1] See Table 3 on Page 6 and Table 4 on Pages 7 and 8 for installation information.

Material

Copper Rod-Soft Drawn, Tinned

Note

1. Rod may be bent for installation convenience. It is recommended that bending take place 1/2” beyond the copper sleeve.

Application

1. To make straight connections of insulated aluminum secondary neutral to bare copper neutral, see Page 8.
2. To connect bare copper secondary neutral to aluminum bar connector using Thermofit boot, see Document 036640.

Revision Notes

Revision 03 has the following changes:

1. Added a new row for straight connectors with 750 kcmil in Table 11 on Page 15.