

3M™ 3-Conductor In-line Splice Kits, 5750 Series

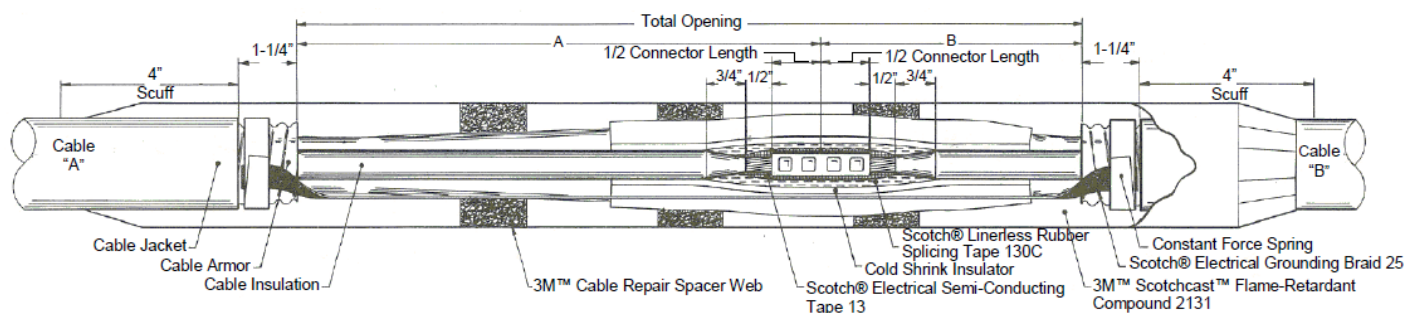
For Non-shielded, Armored or Non-Armored Cables 5 kV Rated

Installation Instructions

Kit Contents:

5751	5752	5753		5751	5752	5753	
2	3	4	3M™ Cable Repair Spacer Webs	3	3	3	Cold Shrink Insulator Assemblies
2	7*	16	Size C Bags 3M™ Scotchcast™ Flame-Retardant Compound 2131	1	1	2	Roll(s) Scotch® Electrical Semi-conducting Tape 13
				1	1	2	Roll(s) Scotch® Linerless Rubber Splicing Tape 130C
1	1	1	Strip 3M™ Three-M-Ite™ Elek-Tro-Cut™ Abrasive Cloth 80J Grit	1	1	1	Strip Scotch® Electrical Shielding Tape 24
				1	1	1	Roll Scotch® Super 33+™ Vinyl Electrical Tape
1	1	1	Wrap-around Mold	1	1	1	3M™ Cable Cleaning Preparation Kit CC-2
2	2	3	Mold Straps	1	1	1	Coil of Scotch® Electrical Grounding Braid 25
2	2	3	Funnels	2	2	2	Constant Force Springs
2	2	3	Funnel Supports	1	1	1	Instruction Sheet

*6 Size C and 1 Size B



MAIN ILLUSTRATION (*Larger Image on Page 2*)

DANGER: BEFORE ATTEMPTING ANY CABLE REPAIRS, MAKE SURE THAT THE PROPER CABLE IS DISCONNECTED, LOCKED OUT AND SUITABLY TAGGED.

CAUTION

Working around energized high-voltage systems may cause serious injury or death. Installation should be performed by personnel familiar with good safety practice in handling high-voltage electrical equipment. De-energize and ground all electrical systems before installing product.

Technical Information:

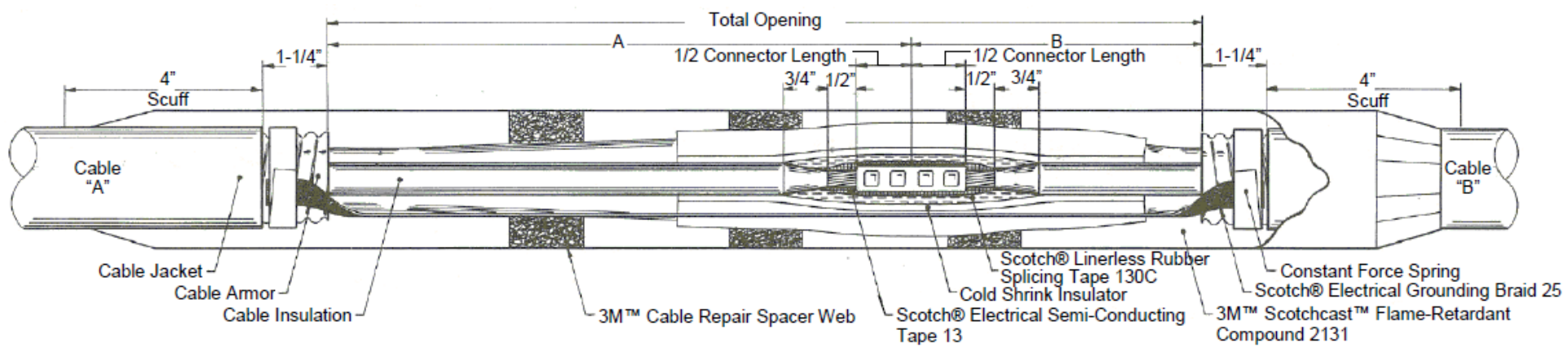
For use on non-shielded, armored or non-armored 3-conductor cables:

5 kV Rated (non-shielded): Copper or Aluminum
6 AWG-750 kcmil (14-400 mm²)

Mine Safety and Health Administration Acceptance: 07-KA060007-MSHA

September, 2011
78-8141-4866-0 A

Main Illustration



**Table 1 –
3M™ 3-Conductor In-line
Splice Kit Selection Table (5kV)**

Kit No.	Insulation O.D. Range	5 kV Conductor Sizes Copper or Aluminum
5751	0.50 – 0.95 in. (13 – 24 mm)	6 – 1 AWG (14 – 50 mm ²)
5752	0.66 – 1.25 in. (17 – 31 mm)	1/0 AWG – 350 kcmil (60 – 185 mm ²)
5753	0.95 – 1.80 in. (24 – 46 mm)	350 – 750 kcmil (185 – 400 mm ²)

A. Prepare Cables

1. Position cables and cut so conductor ends butt squarely.
2. Remove armor (or jacket if non-armored cable) from cable “A” and “B” for distances A and B. (Table 2 and main illustration)

NOTE: IF ARMOR IS JACKETED, REMOVE JACKET 1-1/4” (31,8 mm) BEYOND DIMENSIONS A AND B. IF CABLE DOES NOT HAVE ARMOR, PROCEED TO STEP A.4.

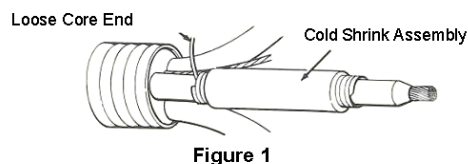
**Table 2
Dimensions**

Kit No.	A	B	Total Opening
5751	9”	4”	13”
5752	13”	7”	20”
5753	18”	12”	30”

3. File rough edges of armor smooth.
4. Scuff jacket ends for 4” (101,6 mm) with coarse #80 abrasive provided. Clean dust from scuffed area.
5. Remove cable fillers back to ends of armor or jacket.
6. Remove any color-coding material from conductors, back to ends of armor or jacket.
7. Select 3M™ Scotchlok™ Connectors, or their dimensional equivalent, for conductor joining. (Refer to table at the end of this instruction for 3M™ Scotchlok™ connector crimping information).
8. Remove conductor insulations for 1/2 connector length plus 1/2” (12,7 mm). (Main Illustration)
9. Pencil insulations for 3/4” (19,1 mm), buff smooth and even with abrasive from 3M™ Cable Cleaning Preparation Kit CC-2. (Main Illustration)
10. Clean exposed conductor insulations with Kit CC-2 solvent pads.

B. Connecting Conductors

1. Slide cold shrink insulator assemblies onto Cable “A” power conductors, placing loose core end on first. (Figure 1)



2. Phase match conductors to appropriate color codes.

- Join power conductors with proper connectors and appropriate crimping tool and die. For 3M™ Scotchlok™ Connectors, refer to table at the end of these instructions for crimping information.

NOTE: GROUND WIRES (if any) WILL BE JOINED LATER.

- Fill connector indents with Scotch® Electrical Semi-conducting Tape 13. Smoothly apply 2 half-lapped layers, highly stretched, over exposed conductor/connector area, overlapping 1/16" (1,6 mm) onto insulation pencils. (Figure 2)

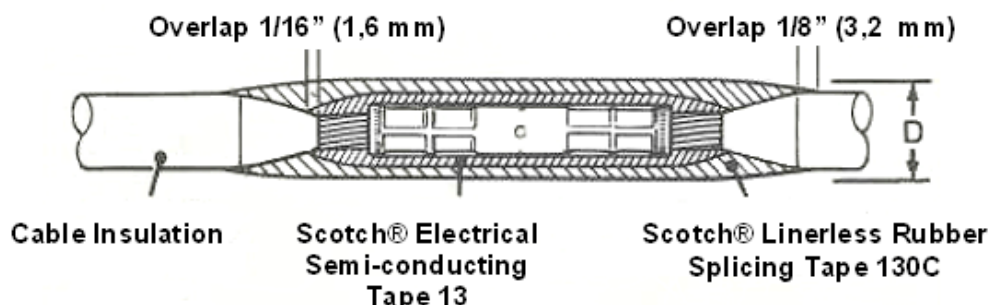


Figure 2

**Table 3
Dimensions**

Kit No.	D
5751	0.80" (20,3 mm)
5752	1.30" (33,0 mm)
5753	1.80" (45,7 mm)

C. Apply Primary Insulation

- Apply Scotch® Linerless Rubber Splicing Tape 130C over connector/pencil area: Smoothly apply in highly stretched half-lapped layers to a thickness of 1/8" (3,2 mm) or to Dimension "D", whichever is less, over the connector and Scotch® Tape 13. Overlap tape onto cable insulations for 1/8" (3,2 mm) beyond pencils. (Table 3 and Figure 2)
- Slide cold shrink insulator assembly over connector area. As the core is removed, the rubber tube will elongate 1/4" (6,4 mm). Position assembly so tube is centered over connection when core is removed. (Figure 3)
- Remove cores by UNWINDING COUNTERCLOCKWISE. (Figure 3)

NOTE: AN OCCASIONAL TUG OF THE STRAND WHILE UNWINDING WILL AID IN REMOVAL OF CORE.

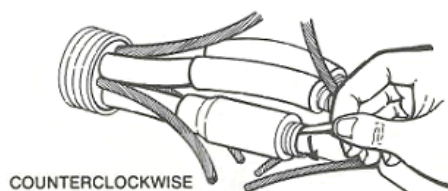


Figure 3

D. Connect Ground Wires

- If there are ground wires, join ground wires with proper connectors and appropriate crimping tool and die. If 3M™ Scotchlok™ Connectors are used, see table at end of these instructions for crimping information.

E. Connect Armor Continuity Jumper (Armored cable only)

1. Cut the coil of Scotch® Electrical Grounding Braid 25 into 3 equal lengths.
2. Position the 3 braids across splice opening and hold in place with Scotch® Super 33+™ Vinyl Electrical Tape at 3" (76 mm) beyond ends of cable armor. (Figure 4)

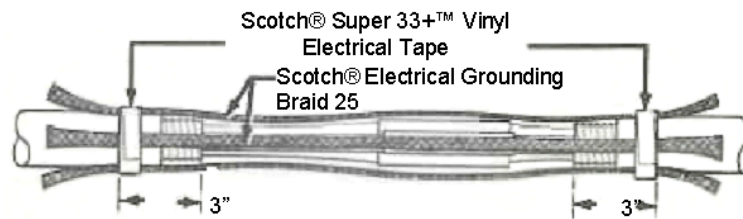


Figure 4

3. At ends of exposed armor, wrap several layers of Scotch® Electrical Shielding Tape 24 over the Scotch® Electrical Grounding Braid 25 filling a valley in the corrugated armor. Tie off end of Scotch® Tape 24. (Figure 5)

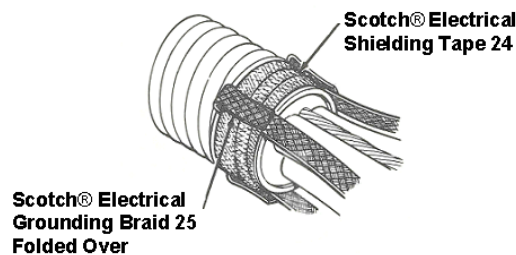


Figure 5

4. Remove Scotch® Super 33+ Tape holding the braids in position.
5. Fold ends of braids back over the Scotch® Tape 24. (Figure 5)
6. Unwrap about 2" (5 mm) of constant force spring.
7. With thumb, hold the end of the spring in place over the Scotch® Tape 24 and folded back Scotch® Braid 25. The rolled up extended spring should be facing downward (away from you). Pull the spring around the cable allowing it to unwrap and rewrap around the cable and itself. (Figure 6)

NOTE: SYNCH (TIGHTEN) THE APPLIED SPRING AFTER FINAL WRAP.



Figure 6

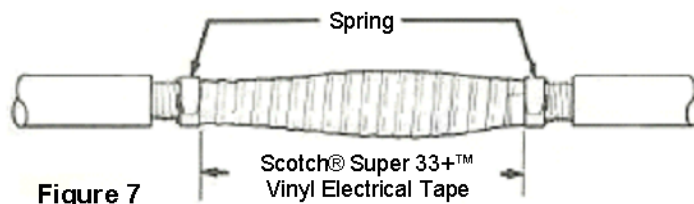
NOTE: ON INTERLOCKED ARMOR, WRAP THE SPRING IN THE SAME DIRECTION AS THE SPIRALED ARMOR.

8. Wrapping in the same direction as the applied spring, wrap two layers of Scotch® Super 33+™ Vinyl Electrical Tape over the spring.

NOTE: CUT OFF EXCESS BRAID AT EACH END, 1/2" (12,7 mm) FROM SPRING.

F. Install 3M™ Cable Repair Spacer Web

1. Overwrap the entire splice opening with 1 half-lapped layer of Scotch® Super 33+™ Tape, starting and ending at springs on cable armor (or at ends of cable jackets on non-armored cable). (Figure 7)



2. Wrap on 3M™ Spacer Web to form collars around splice at locations shown: Build all of them to an equal diameter slightly greater than the diameter of the springs previously wrapped with Scotch® Super 33+™ Tape. Wrap collars to desired diameter plus 1/4 wrap. Cut off excess. DO NOT STRETCH WHEN APPLYING. (Figure 8)

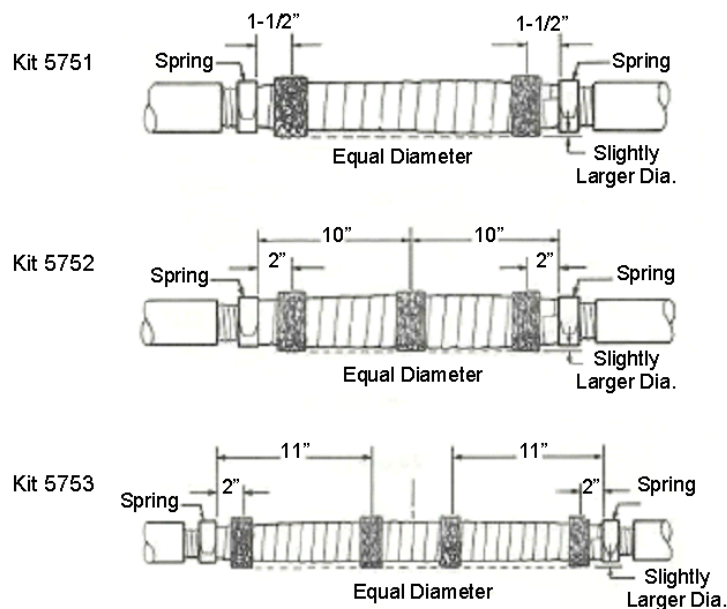


Figure 8

3. Split the overlapping 1/4 layer of Spacer Web and press into sides of the collar. (Figure 9)

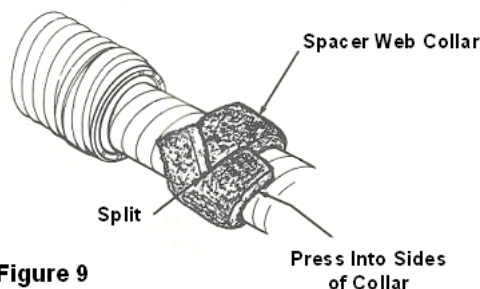


Figure 9

G. Install Mold

1. With cable straight, center mold over repair area with vent slits on top (printing on mold should be readable). Wrap snugly around, tucking one edge under. (Figure 10)

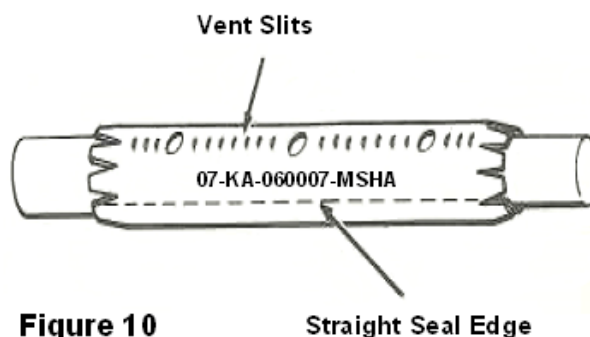


Figure 10

2. On small cables, where mold overlaps mold fill-holes, reduce mold width by folding, then cutting on appropriate score marks. (Figure 11)

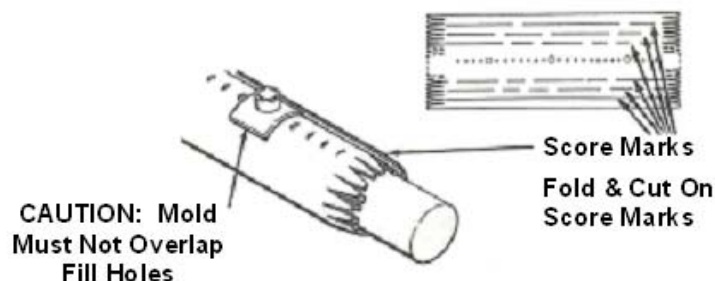


Figure 11

3. Place funnel support into hole of mold strap.
4. Position funnel supports over mold holes and secure with mold straps. (Figure 12)

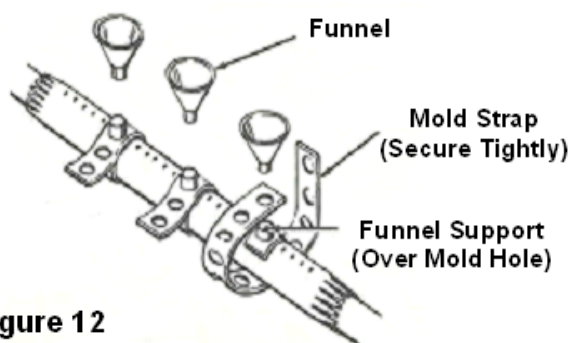


Figure 12

MOLD, FUNNEL SUPPORTS AND MOLD STRAPS MAY BE MOVED AROUND AT THIS TIME TO ADJUST FOR FINAL POSITION.

NOTE: SPACER WEB COLLARS MUST NOT BLOCK MOLD FILL HOLES.

NOTE: SEAL EDGE MUST BE STRAIGHT TO OBTAIN SEAL.

5. Bundle mold's notched ends evenly around cable, maintaining cable centering. Starting 1/2" (12,7 mm) on cable jacket, apply 1 half-lapped layer of Scotch® Super 33+™ Vinyl Electrical Tape or Scotch® Linerless Rubber Splicing Tape 130C over notches. (Figure 13)

NOTE: TENSION TAPE ONLY ENOUGH TO CONFORM TO MOLD.

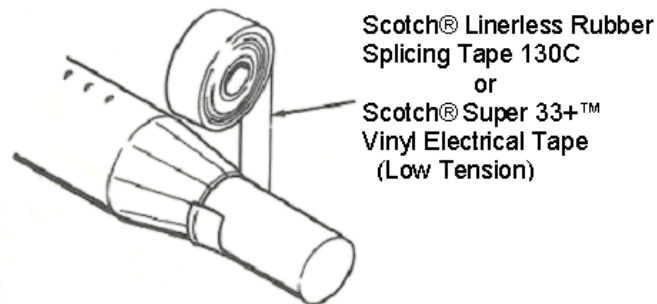


Figure 13

6. Install funnels into funnel support holes. (Figure 12)

H. Pour Compound

1. Premix BLACK side of 3M™ Scotchcast™ Flame-Retardant Compound 2131 pouch by squeezing to a smooth consistency and uniform color.
2. Firmly grasp each flat side of the closed mixing pouch near the center barrier; at the same time, pull sides of barrier apart and roll sides of thumbs through barrier. Break the barrier all the way across to the side seals. (Figure 14)



Figure 14

3. Alternately squeeze ends of pouch forcing compound rapidly back and forth, strip compound from corners of pouch between fingers. Mix until color is completely uniform – 30 to 40 VIGOROUS SQUEEZES. *DO NOT EXCEED 1 MINUTE.* (Figure 15)



Figure 15

4. Clip off a corner of pouch and immediately pour into funnels, alternating back and forth between them.
5. Fill mold until compound fills funnels to half full.

6. Allow compound to cure.
7. Check compound in funnels for curing.

NOTE: REPAIR MAY BE DE-MOLDED WHEN COMPOUND IS NO LONGER TACKY.

Typical Cure Time: 16 – 24 hrs. @ 70°F (21°C)
24 – 30 hrs. @ 50°F (10°C)
36 hrs. @ 32°F (0°C)

Typical De-mold Time: 1.5 hrs. @ 70°F (21°C)
4 hrs. @ 50°F (10°C)
6 – 8 hrs. @ 32°F (0°C)

NOTE: VALUES ARE TYPICAL, NOT TO BE CONSIDERED MINIMUM OR MAXIMUM. ALWAYS CONFIRM BASED ON TACK AND HARDNESS OF COMPOUND.

I. De-mold

1. Remove funnel by twisting and lifting, breaking off from compound. (Figure 16)
2. Remove mold straps and funnel supports. (Figure 16)
3. Carefully cut off spout compound protrusions from repair, using a knife. (Figure 16)

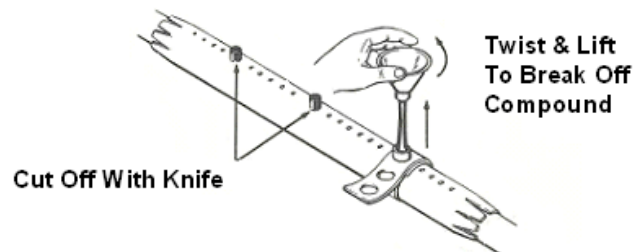


Figure 16

4. Remove Scotch® Super 33+™ Vinyl Electrical Tape or Scotch® Linerless Rubber Splicing Tape 130C from mold ends.
5. Remove mold from cable repair, working from ends towards center.

Tooling Index for 3M™ 3-Conductor In-line Splice Kits, 5750 Series, Non-Shielded, Armored or Non-Armored Cables 5 kV Rated

Copper/Aluminum Connectors

Cable Size	3M™ Scotchlok™ Aluminum Connector Number	Connector dimensions in Inches and (millimeters)		CRIMPING TOOL/DIE SETS (NO. OF CRIMPS/END)										
				Burdny Corporation					Thomas & Betts Corporation			Square D Co. Anderson Div.	ITT Blackburn Co.	Kearney-Nat'l Inc.
		Length	Outside Dis.	MD6	MY29	Y34A	Y35, Y39, Y45*, Y46*	Y1000**	TBM5	TBM 8	TBM15	VC6-3, VC6-FT**	OD58	Type 0
6	20001	1.620 (41,2)	.344 (8,8)	W161 (1)	6 AWG (1)	A6CAB (1)	U6CABT (1)	Universal (1)	Grey (1)	Grey (1)	29 (1)	Universal (1)	BY19 (3)	J (3)
4	20002	1.880 (47,8)	.468 (11,9)	W162 (3)	4 AWG (1)	A4CAB (1)	U4CABT (1)	Universal (1)	Green (2)	Green (2)	37 (1)	Universal (1)	BY53 (3)	P (3)
2	20003	2.000 (50,8)	.531 (13,5)	W163 (3)	2 AWG (1)	A2CAB (1)	U2CABT (1)	Universal (1)	Pink (2)	Pink (2)	42H (2)	Universal (1)	BY23 (3)	1/2 (3)
1	20004	2.000 (50,8)	.531 (13,5)	W163 (3)	1 AWG (1)	A1CAR (1)	U1CART (1)	Universal (1)	Gold (2)	Gold (2)	45 (1)	Universal (1)	BY23 (3)	1/2 (3)
1/0	20005	2.120 (53,9)	.640 (16,3)	W241 (2)	1/0 (1)	A25AR (1)	U25ART (1)	Universal (1)	Tan (2)	Tan (2)	50 (1)	Universal (1)	BY25 (3)	5/8-1 (3)
2/0	20006	2.310 (58,7)	.687 (17,5)	BG (4)	2/0 (1)	A26AR (2)	U26ART (2)	Universal (1)	Olive (2)	Olive (2)	54H (2)	Universal (2)	BY31C (3)	5/8-1 (3)
3/0	20007	2.620 (66,6)	.760 (19,3)	W166 (4)	3/0 (1)	A27AR (2)	U27ART (2)	Universal (1)	Ruby (2)	Ruby (2)	60 (2)	Universal (2)	----	737 (3)
4/0	20008	2.750 (69,9)	.875 (22,2)	W660 (4)	4/0 (2)	A28AR (2)	U28ART (2)	Universal (1)	---	White (4)	66 (4)	Universal (2)	BY35C (4)	840 (4)
250	20009	2.940 (74,7)	.906 (23,0)	W249 (3)	---	A29AR (2)	U29ART (2)	Universal (1)	---	Red (3)	71H (2)	Universal (2)	---	---
300	20010	3.120 (79,3)	1.010 (25,7)	---	---	A30AR (2)	U30ART (2)	---	---	Blue (4)	76 (1)	---	---	---
350	20011	3.380 (85,9)	1.105 (28,1)	---	---	---	U31AR (2)	---	---	Brown (4)	87H (2)	---	---	---
400	20012	3.750 (95,3)	1.187 (30,2)	---	---	---	U32ART (4)	---	---	---	94H (1)	---	---	---
500	20014	3.880 (98,6)	1.320 (33,5)	---	---	---	U34ART (4)	---	---	---	106H (3)	---	---	---
600	20016	4.120 (104,7)	1.438 (36,5)	---	---	---	U36ART (4)	---	---	---	115H (2)	---	---	---
750	20019	4.620 (117,4)	1.510 (39,3)	---	---	---	Y39, Y45, Y46: U39RT - 2 (4)	---	---	---	125H (3)	---	---	---

Copper Connectors

Cable Size	3M™ Scotchlok™ Copper Connector No.	Connector dimensions in Inches and (millimeters)		Burdny Corporation				Thomas & Betts Corporation			Square D Co. Anderson Div.
		Length	Outside Dis.	MD6	MY29	Y34A	Y35, Y39, Y45*, Y46*	TBM5	TBM 8	TBM15	VC6-3, VC6-FT**
6	10001	1.75 (44,4)	.290 (7,3)	---	6 AWG (1)	---	U5CRT (1)	Blue (1)	Blue (1)	---	Universal (1)
4	10002	1.75 (44,4)	.340 (8,6)	W161(1)	4 AWG (1)	A4CR (1)	U4CRT (1)	Grey (1)	Grey (1)	---	Universal (1)
2	10003	1.88 (47,7)	.416 (10,6)	W162 (2)	2 AWG (1)	A2CR (1)	U2CRT (2)	Brown (1)	Brown (1)	33 (1)	Universal (2)
1	10004	1.88 (47,7)	.462 (11,7)	---	1 AWG (1)	A1CR (1)	U1CRT (2)	Green (1)	Green (1)	37 (1)	Universal (2)
1/0	10005	1.88 (47,7)	.512 (13,0)	W163 (2)	1/0 (1)	A25R (1)	U25RT (1)	Pink (2)	Pink (2)	42 (2)	Universal (2)
2/0	10006 11006	2.00 (50,8) 3.13 (79,4)	.560 (14,2) .560 (14,2)	W241 (2) W241 (3)	2/0 (1) 2/0 (2)	A26R (1) A26R (2)	U26RT (2) U26RT (3)	Black (2) Black (3)	Black (2) Black (3)	45 (1) 45 (2)	Universal (1) Universal (2)
3/0	10007 11007	2.13 (54,0) 3.38 (85,8)	.617 (15,7) .617 (15,7)	W243 (2) W243 (3)	3/0 (1) 3/0 (2)	A27R (1) A27R (2)	U27RT (2) U27RT (3)	Orange (2) Orange (3)	Orange (2) Orange (3)	50 (1) 50 (2)	Universal (1) Universal (2)
4/0	10008 11008	2.13 (54,0) 3.38 (85,8)	.687 (17,4) .687 (17,4)	BG (3) BG (4)	4/0 (1) 4/0 (2)	A28R (2) A28R (3)	U28RT (2) U28RT (3)	Purple (2) Purple (3)	Purple (2) Purple (3)	54H (2) 54H (3)	Universal (2) Universal (3)
250	10009 11009	2.25 (57,2) 4.13 (104,8)	.750 (19,0) .750 (19,0)	W166 (3) W166 (4)	250 (1) 250 (2)	A29R (2) A29R (3)	U29RT (2) U29RT (3)	Yellow (2) Yellow (3)	Yellow (2) Yellow (3)	62 (2) 62 (3)	Universal (2) Universal (3)
300	10010 11010	2.25 (57,2) 4.13 (104,8)	.813 (20,7) .813 (20,7)	---	---	A30R (2) A30R (3)	U30RT (2) U30RT (3)	---	White (2) White (3)	66 (2) 66 (3)	Universal (2) Universal (3)
350	10011 11011	2.38 (60,4) 4.13 (104,8)	.875 (22,2) .875 (22,2)	---	---	A31R (2) A31R (3)	U31RT (2) U31RT (3)	---	Red (3) Red (4)	71H (3) 71H (4)	---
500	10014 11014	2.77 (73,1) 4.63 (117,5)	1.060 (27,0) 1.060 (27,0)	---	---	A34R (2) A34R (4)	U34RT (2) U34RT (4)	---	Brown (3) Brown (4)	87H (3) 87H (4)	---
750	10019 11019	3.88 (98,6) 5.88 (149,3)	1.299 (33,0) 1.299 (33,0)	---	---	---	Y39, Y45, Y46: U39RT (5) Y45: S44RT(4) Y46: P44RT(4)	----	---	106H (3) 106H (4)	---

*Y45 and Y46 accept all Y35 dies ("U" Series). For Y45 use PT515 adapter. For Y46 use PUADP adapter.

**Anderson VC6-3 and VC6-FT require no die set.

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