

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

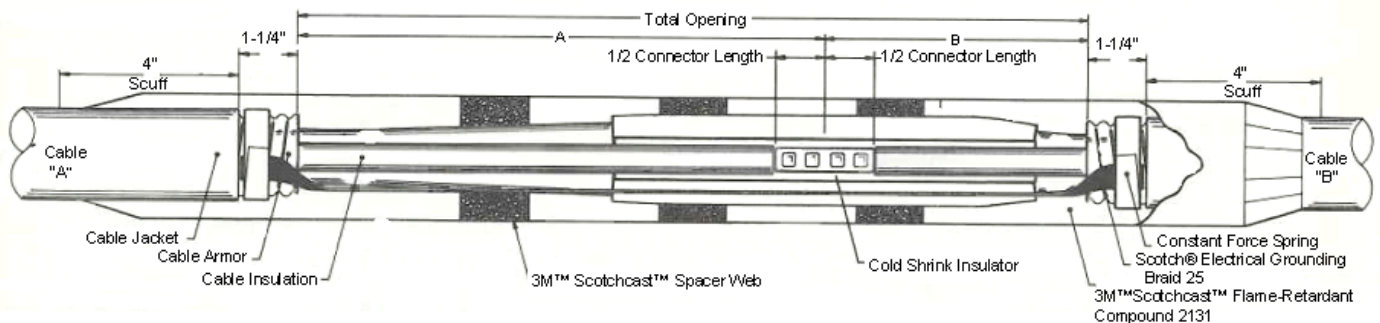
For Armored or Non-armored Cables 1000 Volts or Less

Installation Instructions

Kit Contents:

5751	5752	5753		5751	5752	5753	
2	3	4	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	1	Strip 3M™ Three-M-ite™ Elek-Tro-Cut™ Abrasive Cloth 80J Grit	1	1	2	Roll(s) Scotch® Linerless Rubber Splicing Tape 130C
				2	2	2	Strips Scotch® Electrical Shielding Tape 24
1	1	1	Wrap-around Mold	1	1	1	Roll Scotch® Super 33+™ Vinyl Electrical Tape
2	2	3	Mold Straps	1	1	1	3M™ Cable Cleaning Preparation Kit CC-2
2	2	3	Funnels	1	1	1	Coil of Scotch® Electrical Grounding Braid 25
2	2	3	Funnel Supports	2	2	2	Constant Force Springs

*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 armored or non-armored 3-conductor cables:

1000 Volts or Less: Copper 6 AWG-750 kcmil
Aluminum 6 AWG-750 kcmil

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

August, 2011

78-8126-9795-7 A



Main Illustration

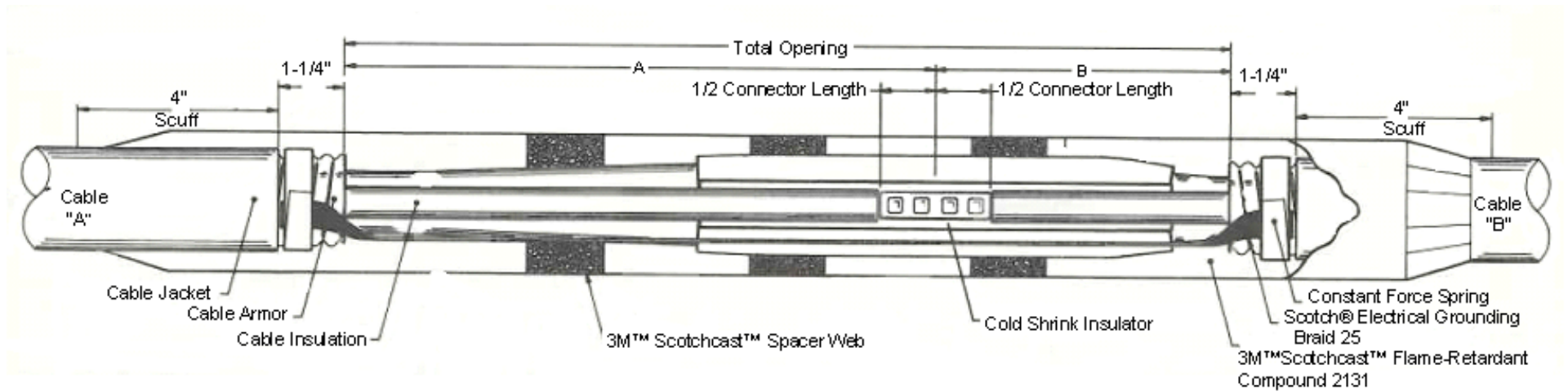


Table 1

3M™ 3-Conductor In-line Splice Kit Selection Table

Kit No.	Insulation O.D. Range	1 kV Conductor Sizes Copper or Aluminum
5751	0.50 – 0.95 in. (13 – 24 mm)	1 – 3/0 AWG (50 – 95 mm ²)
5752	0.66 – 1.25 in. (17 – 31 mm)	4/0 AWG – 350 kcmil (120 -185 mm ²)
5753	0.95 – 1.80 in. (24 -46 mm)	350 – 750 kcmil (185 – 400 mm ²)

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 for conductor joining or their dimensional equivalent. (Refer to table at the end of this instruction for 3M™ Scotchlok™ Connector crimping information).
8. Remove insulation from conductor ends according to connector type:
 Copper Connectors: Remove insulation for 1/2 connector length.
 Aluminum Connectors: Remove insulation for 1/2 connector length plus 1/4” (6,4 mm).

B. Connecting Conductors

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

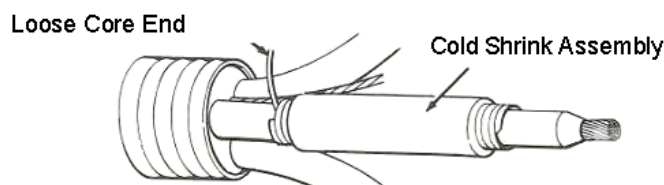


Figure 1

2. Phase match conductors to appropriate color codes.
3. Join power conductors with proper connectors and appropriate crimping tool and die. For 3M™ Scotchlok™ Connectors, refer to table at the end of this instruction.

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

C. Apply Cold Shrink Insulators

1. Slide insulator assembly over connector area. As the core is removed, the rubber tube will elongate 1/4" (6,4 mm). Position assembly so insulator tube is centered over connection when core is removed. (Figure 2)
2. Remove cores by UNWINDING COUNTERCLOCKWISE. (Figure 2)

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

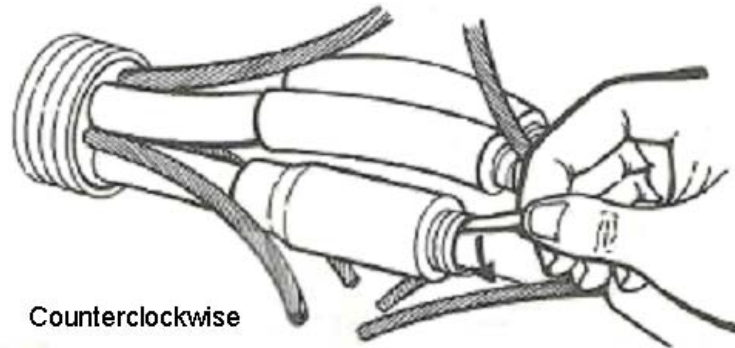


Figure 2

D. Connect Ground Wires

1. 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 3)

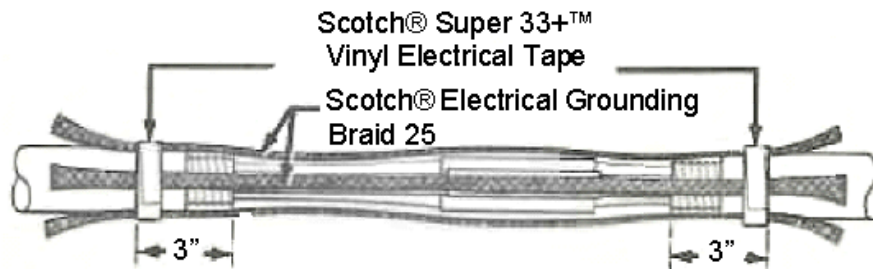


Figure 3

- 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 4)

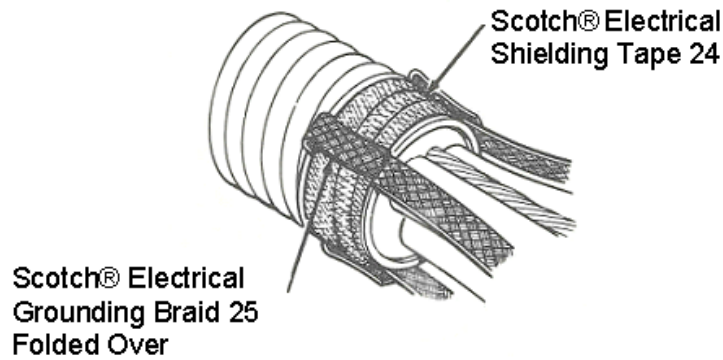


Figure 4

- Remove Scotch® Super 33+™ Vinyl Electrical Tape holding the braids in position.
- Fold ends of braids back over the Scotch® Tape 24. (Figure 4)
- Unwrap about 2" (5 mm) of constant force spring.
- With thumb, hold the end of the constant force 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 5)

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



Figure 5

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

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

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

F. Install Spacer Web

1. Overwrap the entire splice opening with 1 half-lapped layer of Scotch® Super 33+™ Vinyl Electrical Tape, starting and ending at springs on cable armor (or at ends of cable jackets on non-armored cable). (Figure 6)

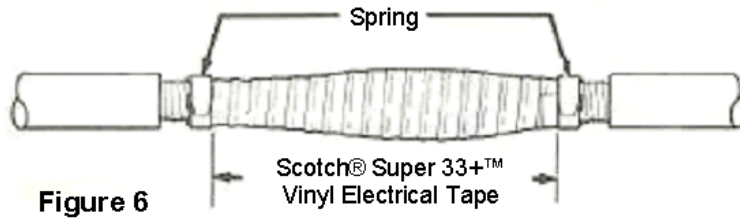


Figure 6

2. Wrap spacer web 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 7)

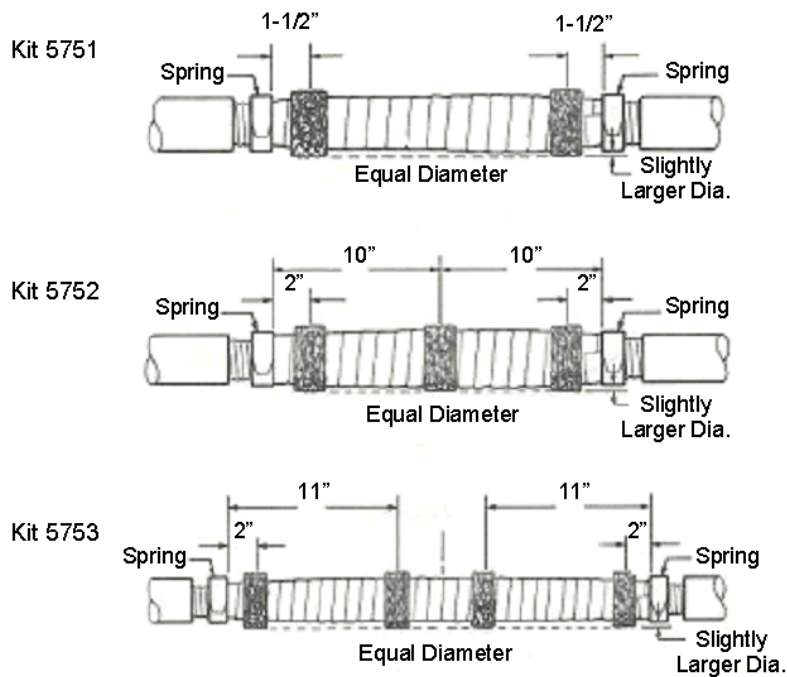


Figure 7

3. Split the overlapping 1/4 layer of 3M™ Scotchcast™ Spacer Web and press into sides of the collar. (Figure 8)

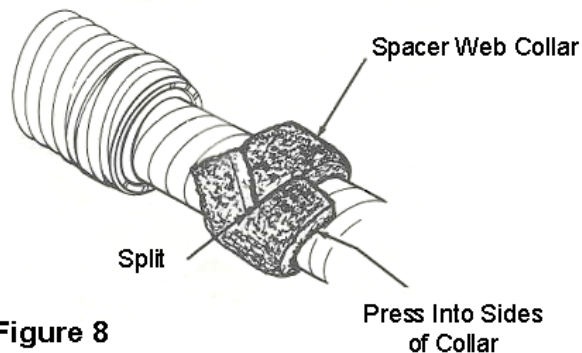


Figure 8

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 9)

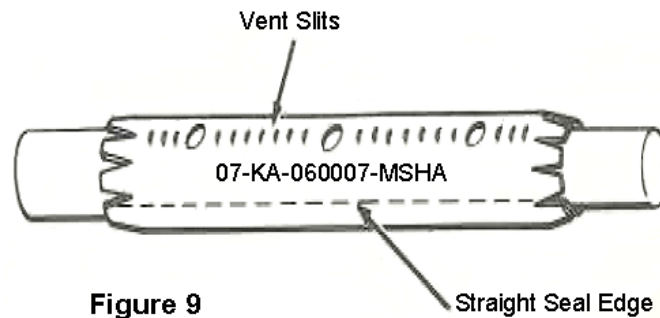


Figure 9

2. On small cables, where mold overlaps mold fill-holes, reduce mold width by folding, then cutting on appropriate score marks. (Figure 10)

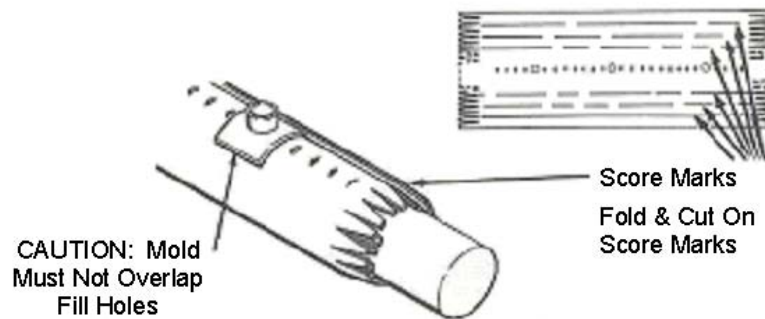


Figure 10

3. Place funnel support into hole of mold strap.
4. Position funnel supports over mold holes and secure with mold straps. (Figure 11)

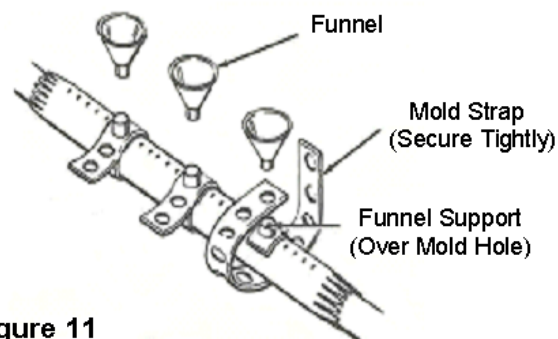


Figure 11

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

NOTE: 3M™ SCOTCHCAST™ SPACER WEB COLLARS MUST NOT BLOCK MOLD FILL HOLES.

NOTE: SEAL EDGE MUST BE STRAIGHT TO OBTAIN SEAL.

- 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 12)

NOTE: TENSION TAPE ONLY ENOUGH TO CONFORM TO MOLD.

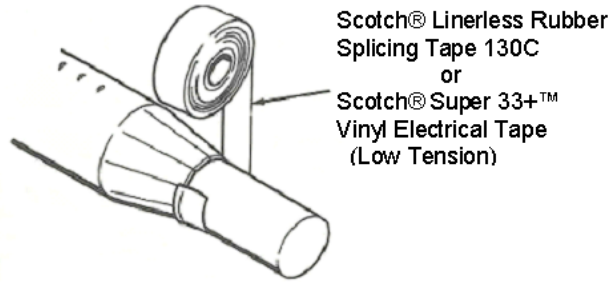


Figure 12

- Install funnels into funnel support holes. (Figure 11)

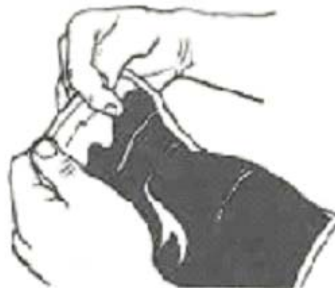
H. Pour Compound

- Premix BLACK side of 3M™ Scotchcast™ Flame-Retardant Compound 2131 pouch by squeezing to a smooth consistency and uniform color.
- 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 13)



Figure 13

- 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 14)



- Clip off a corner of pouch and immediately pour into funnels, alternating back and forth between them.
- 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 15)
2. Remove mold straps and funnel supports. (Figure 15)
3. Carefully cut off spout compound protrusions from repair, using a knife. (Figure 15)

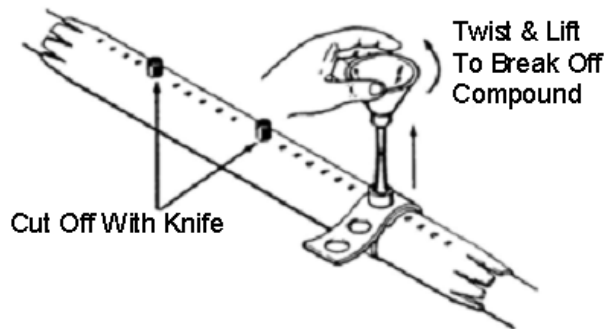


Figure 15

4. Remove Scotch® Super 33+™ Vinyl Electrical Tape 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, for Armored or Non-Armored Cables 1000 Volts or Less

Copper/Aluminum Connectors

Cable Size	3M™ Scotchlok™ Aluminum Connector Number	Connector dimensions in Inches and (millimeters)		CRIMPING TOOL/DIE SETS (NO. OF CRIMPS/END)										
				Burdndy Corporation					Thomas & Betts Corporation			Square D Co. Anderson Div.	ITT Blackburn Co.	Kearney-Nat'I Inc.
				Length	Outside Dis.	MD6	MY29	Y34A	Y35, Y39, Y45*, Y46*	Y1000**	TBM5	TBM 8	TBM15	VC6-3, VC6-FT**
6	20001	1.620 (41,2)	.344 (8,8)	W161 (1)	6AWG (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)	4AWG (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)	2AWG (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 (86,6)	.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 (86,9)	.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)	---	---	---

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

**Anderson VC6-3 and VC6-FT and Burndy Y1000 require no die set.

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

Copper 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.
				Length	Outside Dis.	MD6	MY29	Y34A	Y35, Y39, Y45*, Y46*	TBM5	TBM8
6	10001	1.75 (44,4)	.290 (7,3)	---	6AWG (1)	---	U5CRT (1)	Blue (1)	Blue (1)	---	Universal (1)
4	10002	1.75 (44,4)	.340 (8,6)	W161 (1)	4AWG (1)	A4CR (1)	U4CRT (1)	Grey (1)	Grey (1)	---	Universal (1)
2	10003	1.88 (47,7)	.416 (10,6)	W162 (2)	2AWG (1)	A2CR (1)	U2CRT (2)	Brown (1)	Brown (1)	33 (1)	Universal (2)
1	10004	1.88 (47,7)	.462 (11,7)	---	1AWG (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 (1)
2/0	10006	2.00 (50,8)	.560 (14,2)	W241 (2)	2/0 (1)	A26R (1)	U26RT (2)	Black (2)	Black (2)	45 (1)	Universal (1)
	11006	3.13 (79,4)	.560 (14,2)	W241 (3)	2/0 (2)	A26R (2)	U26RT (3)	Black (3)	Black (3)	45 (2)	Universal (2)
3/0	10007	2.13 (54,0)	.617 (15,7)	W243 (2)	3/0 (1)	A27R (1)	U27RT (2)	Orange (2)	Orange (2)	50 (1)	Universal (1)
	11007	3.38 (79,4)	.617 (15,7)	W243 (3)	3/0 (2)	A27R (2)	U27RT (3)	Orange (3)	Orange (3)	50 (2)	Universal (2)
4/0	10008	2.13 (54,0)	.687 (17,4)	BG (3)	4/0 (1)	A28R (2)	U28RT (2)	Purple (2)	Purple (2)	54H (2)	Universal (2)
	11008	3.38 (85,8)	.687 (17,4)	BG (4)	4/0 (2)	A28R (3)	U28RT (3)	Purple (3)	Purple (3)	54H (3)	Universal (3)
250	10009	2.25 (57,2)	.750 (19,0)	W166 (3)	250 (1)	A29R (2)	U29RT (2)	Yellow (2)	Yellow (2)	62 (2)	Universal (2)
	11009	3.38 (85,8)	.750 (19,0)	W166 (4)	250 (2)	A29R (3)	U29RT (3)	Yellow (3)	Yellow (3)	62 (3)	Universal (3)
300	10010	2.25 (57,2)	.813 (20,7)	---	---	A30R (2)	U30RT (2)	---	White (2)	66 (2)	Universal (2)
	11010	4.13 (104,8)	.813 (20,7)	---	---	A30R (3)	U30RT (3)	---	White (3)	66 (3)	Universal (3)
350	10011	2.38 (60,4)	.875 (22,2)	---	---	A31R (2)	U31RT (2)	---	Red (3)	71H (3)	---
	11011	4.13 (104,8)	.875 (22,2)	---	---	A31R (3)	U31RT (3)	---	Red (4)	71H (4)	---
500	10014	2.88 (73,1)	1.060 (27,0)	---	---	A34R (2)	U34RT (2)	---	Brown (3)	87H (3)	---
	11014	4.63 (117,5)	1.060 (27,0)	---	---	A34R (4)	U34RT (3)	---	Brown (4)	87H (4)	---
750	10019	3.88 (98,8)	1.299 (33,0)	---	---	---	Y39, Y45, Y46: U39RT (3)	---	---	106H (3)	---
	11019	5.88 (149,3)	1.299 (33,0)	---	---	---	Y39, Y45, Y46: U39RT (5)	---	---	106H (4)	---

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

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

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