

# E - ELECTRICAL HARDWARE



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# PERMATITE "DOUBLE CRIMP" NYLON TERMINALS

E10

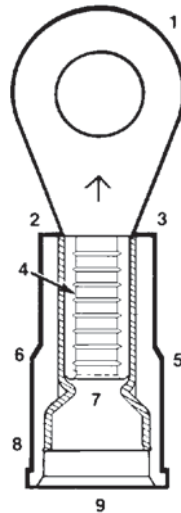
## PREMIUM QUALITY, NYLON INSULATED with INSULATION GRIP

### 1st Crimp Grips Wire

- One-piece, burr free construction for maximum electrical conductivity. Electro-tin plating for maximum corrosion resistance. Annealed to relieve stress points and assure maximum installed strength.
  - Barrel-to-pad transition designed to minimize flexing and bending.
  - Open-end design permits visual inspection of wire location before and after crimping.
  - Multiple "V" grooves for maximum holding power and current flow.
  - Injection molded insulation provide the highest quality terminals in the industry.
- 1050C rated, tough, resistant electrical grade materials.
  - Molding insures consistent wall thickness for maximum reliability after crimping.
  - Molding affords Funnel Barrel construction for easier installation.
  - Molding offers the crimp ridge and non-slip ridge.

### 2nd Crimp Grips Insulation

- Crimp ridge designed for positive location of tool on terminal barrel which means fewer miscrimps.
  - Funnel Barrel construction provides excellent electrical and mechanical connections.
- Positive and easy wire insertion.
  - Eliminates strand hangups.
  - No wire twisting necessary.
  - Insures good crimp contact and electrical conductivity.
  - Nylon-insulated terminals feature a brass sleeve for optimum grip on insulation, strain relief and vibration protection. Sleeve is recessed for excellent flash-over protection.
- Non-slip ridge so tool slides to end of terminal for proper crimp and better workmanship.
  - Beveled leading edge for easy insulation entry.



U.L. Listing and CSA Certification.

U.L. file number 36507 and 76317  
CSA file number 22190

\*U.L. test-U.L. 486 or U.L. 10  
\*CSA test-CSA C22.2 No. 65,  
No. 153 or No. 188  
\*Based upon stranded copper wire.

### "DOUBLE-CRIMP"

PERMATITE "DOUBLE-CRIMP" Terminals are engineered to prevent these common failures.

<p><b>Prevents PULL-OUT</b></p>	<p><b>Prevents FRAYED WIRES</b></p>
<p><b>Prevents EXPOSED WIRES</b></p>	<p><b>Prevents BROKEN CONNECTIONS</b></p>

210378 1  .187 Tab Fully Insulated Male Disconnect LIST	210257 2  .250 Tab Fully Insulated Male Quick Disconnect LIST	210242 3  .156 Male Bullet LIST	210244 4  .180 Male Bullet LIST	5 OPEN LIST	6 OPEN LIST
210377 7  .187 Blade Fully Insulated Female Disconnect LIST	210256 8  .250 Blade Fully Insulated Female Quick Disconnect LIST	210241 9  .156 Female Bullet Receptacle LIST	210243 10  .180 Female Bullet Receptacle LIST	210293 11  .250 Piggyback Disconnect LIST	210294 12  .250 Female 90° Flag Disconnect LIST
210288 13  4-6 Oversized Width Ring Tongue LIST	210201 14  4-6 Ring Tongue LIST	210202 15  8-10 Ring Tongue LIST	210203 16  12-1/4 Ring Tongue LIST	210289 17  5/16 Ring Tongue LIST	210290 18  3/8 Ring Tongue LIST
210284 19  4 Spring Spade Tongue LIST	210213 20  6 Spring Spade Tongue LIST	210214 21  8 Spring Spade Tongue LIST	210215 22  10 Spring Spade Tongue LIST	210234 23  8 Hook Tongue LIST	210222 24  Butt Connector LIST



**22-18 GA. PERMATITE "DOUBLE CRIMP" NYLON TERMINAL ASSORTMENT**  
**Part No. 501586**  
**220 pieces • 22 items • 12017 steel tray**

210201	210214	210241	210256	210289	210377
210202	210215	210242	210257	210290	210378
210203	210222	210243	210284	210293	
210213	210234	210244	210288	210294	

**Numbers in assortment**

# PERMATITE TERMINAL ASSORTMENTS

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210380 1  187 Tab Fully Insulated Male Disconnect LIST	210259 2  .250 Tab Fully Insulated Male Quick Disconnect LIST	210231 3  .156 Male Bullet LIST	210247 4  .180 Male Bullet LIST	5 OPEN LIST	6 OPEN LIST
210379 7  187 Blade Fully Insulated Female Disconnect LIST	210258 8  250 Blade Fully Insulated Female Quick Disconnect LIST	210245 9  156 Female Bullet Receptacle LIST	210246 10  180 Female Bullet Receptacle LIST	210388 11  .250 PiggyBack Disconnect LIST	210590 12  250 Female 90° Flag Disconnect LIST
210204 13  4-6 Ring Tongue LIST	210386 14  4-6 Oversized Width Ring Tongue LIST	210205 15  8-10 Ring Tongue LIST	210206 16  12-1/4 Ring Tongue LIST	210387 17  5/16 Ring Tongue LIST	210207 18  3/8 Ring Tongue LIST
210381 19  4 Spring Spade Tongue LIST	210385 20  1/4 Spring Spade Tongue LIST	210216 21  6 Spring Spade Tongue LIST	210217 22  8 Spring Spade Tongue LIST	210218 23  10 Spring Spade Tongue LIST	210223 24  Butt Connector LIST
210211 1  3/8 Ring Tongue LIST	210212 2  1/2 Ring Tongue LIST	210399 3  1/4 Spring Spade Tongue LIST	4 OPEN LIST	210394 5  7/16 Heavy Duty Ring Tongue LIST	210395 6  1/2 Heavy Duty Ring Tongue LIST
210358 7  1/4 Oversize Width Ring Tongue LIST	210359 8  5/16 Ring Tongue LIST	210221 9  10 Spring Spade Tongue LIST	10 OPEN LIST	210392 11  1/4 Heavy Duty Ring Tongue LIST	210393 12  3/8 Heavy Duty Ring Tongue LIST
210209 13  8-10 Ring Tongue LIST	210210 14  12-1/4 Ring Tongue LIST	210220 15  8 Spring Spade Tongue LIST	16 OPEN LIST	210390 17  8 Heavy Duty Ring Tongue LIST	210391 18  10 Heavy Duty Ring Tongue LIST
210357 19  4-6 Oversize Width Ring Tongue LIST	210208 20  4-6 Ring Tongue LIST	210219 21  6 Spring Spade Tongue LIST	210261 22  250 Tab Fully Insulated Male Quick Disconnect LIST	210260 23  .250 Blade Fully Insulated Female Quick Disconnect LIST	210224 24  Butt Connector LIST
210222 1  22-18 GA Butt Connector Nylon Insulated LIST	210223 2  16-14 GA Butt Connector Nylon Insulated LIST	210224 3  12-10 GA Butt Connector Nylon Insulated LIST	210201 4  22-18 GA / 4-6 Ring Tongue Nylon Insulated LIST	210202 5  22-18 GA / 8-10 Ring Tongue Nylon Insulated LIST	210203 6  22-18 GA / 12-1/4 Ring Tongue Nylon Insulated LIST
210204 7  16-14 GA / 4-6 Ring Tongue Nylon Insulated LIST	210205 8  16-14 GA / 8-10 Ring Tongue Nylon Insulated LIST	210206 9  16-14 GA / 12-1/4 Ring Tongue Nylon Insulated LIST	210209 10  12-10 GA / 8-10 Ring Tongue Nylon Insulated LIST	210284 11  22-18 GA / 4 Spring Spade Tongue Nylon Insulated LIST	210216 12  16-14 GA / 6 Spring Spade Tongue Nylon Insulated LIST
210217 13  16-14 GA / 8 Spring Spade Tongue Nylon Insulated LIST	210221 14  12-10 GA / 10 Spring Spade Tongue Nylon Insulated LIST	210225 15  16-14 GA / .250 Blade Female Quick Disconnect Nylon Insulated LIST	210227 16  16-14 GA / .250 Tab Male Quick Disconnect Nylon Insulated LIST	31961 17  22-18 GA Pigtail Connector Nylon Insulated LIST	31963 18  12-10 GA Pigtail Connector Nylon Insulated LIST
210256 19  22-18 GA / .250 Blade Female Quick Disconnect Fully Insulated LIST	210257 20  22-18 GA / .250 Tab Male Quick Disconnect Fully Insulated LIST	210258 21  16-14 GA / .250 Blade Female Quick Disconnect Fully Insulated LIST	210259 22  16-14 GA / .250 Tab Male Quick Disconnect Fully Insulated LIST	210260 23  12-10 GA / .250 Blade Female Quick Disconnect Fully Insulated LIST	210261 24  12-10 GA / .250 Tab Male Quick Disconnect Fully Insulated LIST

**16-14 GA. PERMATITE  
"DOUBLE CRIMP"  
NYLON TERMINAL  
ASSORTMENT  
Part No. 501587  
220 pieces • 22 items  
12017 steel tray**

210204	210218	210258	210386
210205	210223	210259	210387
210206	210231	210379	210388
210207	210245	210380	210590
210216	210246	210381	
210217	210247	210385	

Numbers in assortment

**12-10 GA. PERMATITE  
"DOUBLE CRIMP"  
NYLON TERMINAL  
ASSORTMENT  
Part No. 501588  
210 pieces • 21 items  
12017 steel tray**

210208	210220	210358	210394
210209	210221	210359	210395
210210	210224	210390	210399
210211	210260	210391	
210212	210261	210392	
210219	210357	210393	

Numbers in assortment

**INDUSTRIAL PERMATITE  
"DOUBLE CRIMP"  
NYLON TERMINAL  
ASSORTMENT  
Part No. 501589  
350 pieces • 24 items  
12017 steel tray**

31961	210205	210222	210257
31963	210206	210223	210258
210201	210209	210224	210259
210202	210216	210225	210260
210203	210217	210227	210261
210204	210221	210256	210284

Numbers in assortment

**PERMATITE TERMINAL ASSORTMENTS**

**E10**

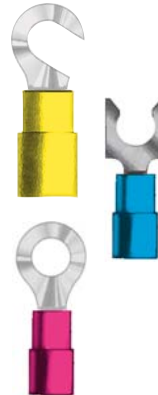
**PERMATITE "DOUBLE-CRIMP" NYLON TERMINALS**

**MASTER ASSORTMENT  
Part No. 501674**

**630 pieces • 42 items • 12020 steel cabinet**

210201	210211	210223	210235	210290
210202	210212	210224	210236	210293
210203	210214	210225	210256	210359
210204	210215	210226	210257	210387
210205	210217	210227	210258	210388
210206	210218	210230	210259	210399
210207	210220	210232	210260	
210209	210221	210233	210261	
210210	210222	210234	210289	

**Numbers in assortment**



- Exceptionally broad coverage.
- 42 sizes and styles included.
- Convenient 18 drawer, 54 compartment cabinet.

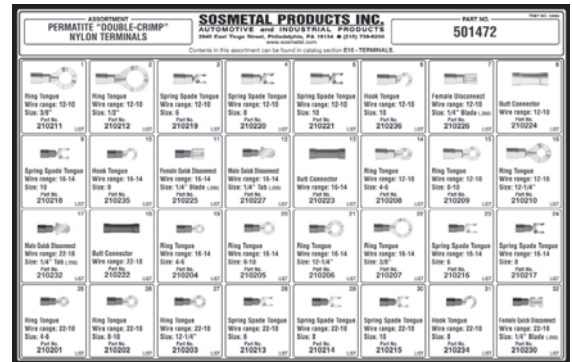


- Expanded shop coverage.
- 32 different sizes and styles of butt connectors, rings, spades, hooks, and disconnects.

**Part No. 501472  
274 pieces • 32 items  
12062 steel tray**

210201	210209	210217	210225
210202	210210	210218	210226
210203	210211	210219	210227
210204	210212	210220	210230
210205	210213	210221	210232
210206	210214	210222	210234
210207	210215	210223	210235
210208	210216	210224	210236

**Numbers in assortment**

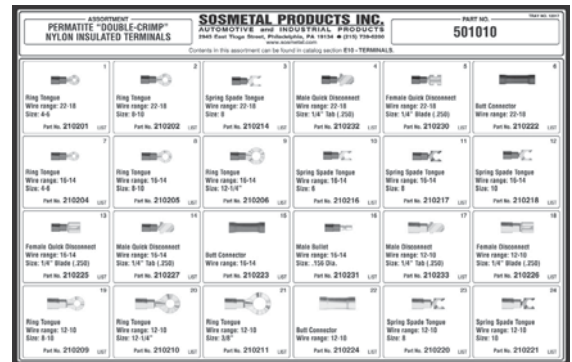


- Basic shop coverage.
- 24 different sizes and styles, including butt connectors, rings, spades and disconnects.

**Part No. 501010  
273 pieces • 24 items  
12017 steel tray**

210201	210210	210220	210226
210202	210211	210221	210227
210204	210214	210222	210230
210205	210216	210223	210231
210206	210217	210224	210232
210209	210218	210225	210233

**Numbers in assortment**

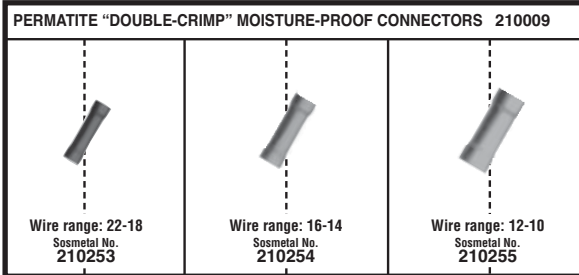


# PERMATITE TERMINAL ASSORTMENTS

**E10**

## PERMATITE MOISTURE RESISTANT, SEALANT FILLED, BUTT CONNECTORS

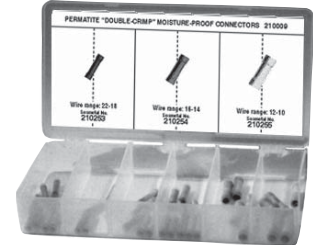
- Butt connectors filled with silicone sealant.
- 22-18, 16-14 and 12-10 wire sizes.
- Packed in a sturdy plastic tray with size selector lid chart.



**Part No. 210009**  
**40 pieces • 3 items**  
**12028 plastic tray**

210253	210254	210255
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**Numbers in assortment**



## PERMATITE LIFT TRUCK NYLON TERMINALS

- A selection of sizes and styles especially suited for forklift truck repair and maintenance including sizes in 6 and 4 gauge connectors.



**Part No. 501592**  
**310 pieces • 24 items**  
**12017 steel tray**

31961	209339	210210	210223
31963	209341	210211	210224
209332	210204	210212	210258
209334	210205	210216	210259
209336	210206	210221	210260
209338	210209	210222	210261

**Numbers in assortment**



## LARGE DIAMETER SOLDERLESS TERMINALS

- For 8, 6, and 4 ga. wire.
- Includes Butt Connectors and Ring Tongue Connectors.



**Part No. 501469**  
**108 pieces • 18 items**  
**12071 steel tray**

209325	209331	209337
209326	209332	209338
209327	209333	209339
209328	209334	209340
209329	209335	209341
209330	209336	209342

**Numbers in assortment**



# PERMATITE "DOUBLE CRIMP" NYLON TERMINALS

E10

**PREMIUM QUALITY, NYLON INSULATION WITH INSULATION GRIP**

**26-20 WIRE RANGE**

Color Code: **YELLOW**

Part Number	210240	210285
Size	.110 Blade	.110 Blade
Type	Female Quick Disconnect	Fully Ins. Female Disconnect

**22-18 WIRE RANGE Color Code: RED**

Part Number	210201	210288	210202	210203	210289	210290	210266
Size	4-6	4-6	8-10	12-1/4	5/16	3/8	2-4-6
Type	Ring Tongue	Oversized Width Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Multi-Stud Ring Tongue

**22-18 WIRE RANGE**

Color Code: **RED**

Part Number	210267	210284	210213	210214	210215	210234	210376	210286	210287
Size	6-8-10	4	6	8	10	8	.110 Tab	.187 Blade	.187 Tab
Type	Multi-Stud Ring Tongue	Spring Spade Tongue	Spring Spade Tongue	Spring Spade Tongue	Spring Spade Tongue	Hook Tongue	Male Disconnect	Female Disconnect	Male Disconnect

**22-18 WIRE RANGE**

Color Code: **RED**

Part Number	210377	210378	210230	210232	210256	210257	210293	210294
Size	.187 Blade	.187 Tab	.250 Blade	.250 Tab	.250 Blade	.250 Tab	.250 Blade	.250
Type	Fully Ins. Female Disconnect	Fully Ins. Male Disconnect	Female Quick Disconnect	Male Quick Disconnect	Fully Ins. Female Quick Disconnect	Fully Ins. Male Quick Disconnect	Piggyback Disconnect	Female 90° Flag Disconnect

**22-18 WIRE RANGE**

Color Code: **RED**

Part Number	210368	210241	210242	210243	210244	210222	210253
Size		.156	.156	.180	.180		
Type	Pin Connector	Female Bullet Receptacle	Male Bullet	Female Bullet Receptacle	Male Bullet	Butt Connector	Silicone Filled Moisture Resistant Butt Connector

# PERMATITE "DOUBLE-CRIMP" NYLON TERMINALS

E10

## PREMIUM QUALITY, NYLON INSULATION WITH INSULATION GRIP

### 16-14 WIRE RANGE

Color Code: BLUE

Part Number	210204	210386	210205	210206	210387	210207	210268	210269
Size	4-6	4-6	8-10	12-1/4	5/16	3/8	2-4-6	6-8-10
Type	Ring Tongue	Oversized Width Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Multi-Stud Ring Tongue	Multi-Stud Ring Tongue

### 16-14 WIRE RANGE

Color Code: BLUE

Part Number	210381	210216	210217	210218	210385	210235	210367
Size	4	6	8	10	1/4	8	.110 Blade
Type	Spring Spade Tongue	Spring Spade Tongue	Spring Spade Tongue	Spring Spade Tongue	Spring Spade Tongue	Hook Tongue	Female Disconnect

### 16-14 WIRE RANGE

Color Code: BLUE

Part Number	210291	210292	210495 Set		210225	210227	210298 Set	
Size	.187 Blade	.187 Tab	.187 Blade	.187 Tab	.250 Blade	.250 Tab	.250 Blade	.250 Tab
Type	Female Disconnect	Male Disconnect	Fully Ins. Female Disconnect	Fully Ins. Male Disconnect	Female Quick Disconnect	Male Quick Disconnect	Fully Ins. Female Quick Disconnect	Fully Ins. Male Quick Disconnect

### 16-14 WIRE RANGE

Color Code: BLUE

Part Number	210388	210590	210369	210245	210231	210246	210247	210223	210254
Size	.250 Blade	.250		.156	.156	.180	.180		
Type	Piggyback Disconnect	Female 90° Flag Disconnect	Pin Connector	Female Bullet Receptacle	Male Bullet	Female Bullet Receptacle	Male Bullet	Butt Connector	Moisture Resist. Silicone Filled Butt Connector

# PERMATITE "DOUBLE CRIMP" NYLON TERMINALS









E10

PREMIUM QUALITY, NYLON INSULATION WITH INSULATION GRIP








**12-10 WIRE RANGE**  
Color Code: **YELLOW**

								
<b>Part Number</b>	210208	210357	210209	210210	210358	210359	210211	210212
<b>Size</b>	4-6	4-6	8-10	12-1/4	1/4	5/16	3/8	1/2
<b>Type</b>	Ring Tongue	Oversized Width Ring Tongue	Ring Tongue	Ring Tongue	Oversized Width Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue





**12-10 WIRE RANGE**  
Color Code: **YELLOW**

								
<b>Part Number</b>	210390	210391	210392	210393	210394	210395	210270	210219
<b>Size</b>	8	10	1/4	3/8	7/16	1/2	6-8-10	6
<b>Type</b>	Heavy Duty Ring Tongue	Heavy Duty Ring Tongue	Heavy Duty Ring Tongue	Heavy Duty Ring Tongue	Heavy Duty Ring Tongue	Heavy Duty Ring Tongue	Multi-Stud Ring Tongue	Spring Spade Tongue

**12-10 WIRE RANGE**  
Color Code: **YELLOW**

								
<b>Part Number</b>	210220	210221	210399	210236	210226	210233	210260	210261
<b>Size</b>	8	10	1/4	10	.250 Blade	.250 Tab	.250 Blade	.250 Tab
<b>Type</b>	Spring Spade Tongue	Spring Spade Tongue	Spring Spade Tongue	Hook Tongue	Female Disconnect	Male Disconnect	Fully Ins. Female Quick Disconnect	Fully Ins. Male Quick Disconnect

**12-10 WIRE RANGE**  
Color Code: **YELLOW**

				
<b>Part Number</b>	210370	210248	210224	210255
<b>Size</b>		.156		
<b>Type</b>	Pin Connector	Male Bullet	Butt Connector	Silicone Filled Moisture Resistant Butt Connector

# LARGE DIAMETER NYLON SOLDERLESS TERMINALS

E10

## SOLDERLESS TERMINALS - FLARED NYLON INSULATION \*

**8 GA.  
WIRE  
RANGE**

Color Code:  
**RED**

.050 stock



Part Number	209326	209327	209328	209329	209330	209331	209325
Size	10	1/4	5/16	3/8	7/16	1/2	
Type	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Butt Connector

**6 GA.  
WIRE  
RANGE**

Color Code:  
**BLUE**

.050 stock



Part Number	209333	209334	209335	209336	209337	209332
Size	10	1/4	5/16	3/8	1/2	
Type	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Butt Connector

**4 GA.  
WIRE  
RANGE**

Color Code:  
**YELLOW**

.075 stock



Part Number	209339	209340	209341	209342	209338
Size	1/4	5/16	3/8	1/2	
Type	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Butt Connector

\*Butt connectors flared vinyl insulation.

**NOTE: THESE CONNECTORS ARE NOT PART OF THE PERMATITE DOUBLE CRIMP LINE.**

# SOLDER 'N SEAL TERMINALS

E10

## SOLDER 'N SEAL TERMINALS

24 to 10 AWG Wire sizes

Revolutionary connector that creates a moistureproof, sealed solder connection.

**Pull-out strength comparison:**

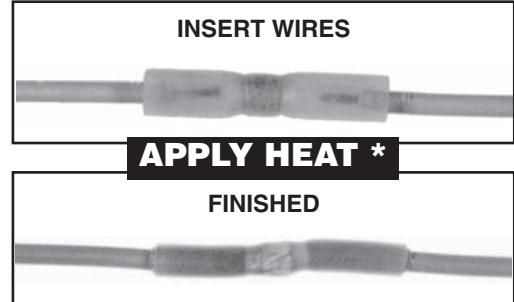
Standard nylon butt connector .....40 lbs.  
 Heat shrinkable tubing w/o adhesive .....65 lbs.  
 Heat shrinkable tubing w/ adhesive .....110 lbs.  
 Solder 'n Seal connector.....150 lbs.

**UL RECOGNIZED PARTS**

Butt Connectors .....File# E121594 (R)  
 Ring and Spades .....File# E141071 (R)

**CSA CERTIFIED PARTS**

Butt Connectors .....File# 100774  
 Rings and Spades.....File# 100774



Unlike standard crimp connectors, Solder 'n Seal connectors eliminate failure due to corrosion, vibration, mis-connection (over or under crimping) and wire pull-out.

### SOLDER 'N SEAL INSTRUCTIONS

- Strip wire 3/8"
  - Place connector on wire
  - Intermingle wires if using butt connector
  - Place connector with solder over wire(s)
  - Heat tubing until solder flows into wire(s)
- Each Solder 'N Seal terminal contains a pre-measured amount of solder.

GM no longer recommends crimped connections when performing repairs to computer, sensor or related harness wires or pigtail replacements. Due to very low currents, it is important to solder all wire splice joints to ensure good electrical conductivity, and to properly seal the repair to prevent moisture or corrosion from future occurrence.

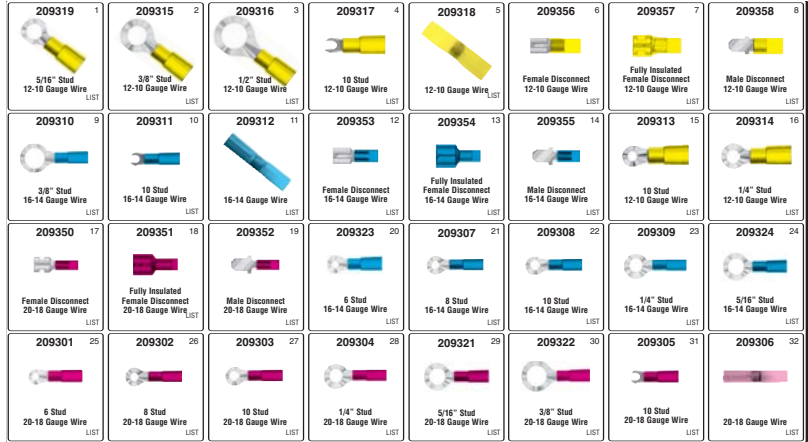
\* Heating with an open flame may result in unsatisfactory connections. Use of a heat gun is strongly recommended. See page D11-14 for #814127 Hot Air Gun.

**SOLDER 'N SEAL TERMINAL ASSORTMENT w/o Heat Gun**  
**Part No. 501471**  
 160 pieces • 32 items • 12062 steel tray

**SOLDER 'N SEAL TERMINAL ASSORTMENT w/Mini Heat Gun**  
**Part No. 501477L**  
 116 pieces • 23 items • 12056 steel tray

209301	209308	209315	209323	209355
209302	209309	209316	209324	209356
209303	209310	209317	209350	
209304	209311	209318	209351	
209305	209312	209319	209352	
209306	209313	209321	209353	
209307	209314	209322	209354	

**Numbers in assortment**



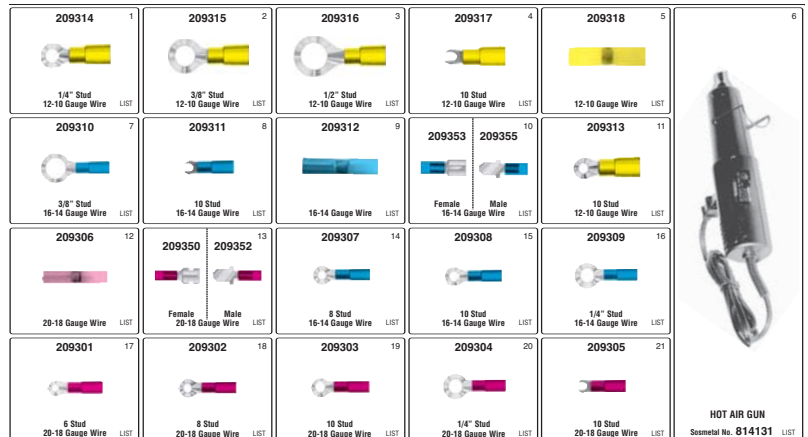
- Contains connectors, ring and spade tongues, and quick disconnect terminals in 20-10 AWG sizes.
- Steel tray fits our slide rack system.

**SOLDER 'N SEAL TERMINAL ASSORTMENT w/Mini Heat Gun**  
**Part No. 501477**  
 116 pieces • 23 items • 12056 steel tray

**SOLDER 'N SEAL TERMINAL ASSORTMENT w/Mini Heat Gun**  
**Part No. 501477L**  
 232 pieces • 23 items • 12056 steel tray

209301	209306	209311	209316	209353
209302	209307	209312	209317	209355
209303	209308	209313	209318	814131
209304	209309	209314	209350	
209305	209310	209315	209352	

**Numbers in assortment**



# SOLDER 'N SEAL ASSORTMENTS / TERMINALS

E10

## SOLDER 'N SEAL TERMINALS 20-10 AWG

- Contains connectors, ring and spade tongue terminals in all three wire ranges.

SOLDER 'N SEAL TERMINALS 209299					
209319 5/16" Stud 12-18 Gauge Wire	209315 3/8" Stud 12-18 Gauge Wire	209316 1/2" Stud 12-18 Gauge Wire	209317 18 Stud 12-18 Gauge Wire	209318 12-18 Gauge Wire	
209324 5/16" Stud 16-14 Gauge Wire	209310 3/8" Stud 16-14 Gauge Wire	209311 18 Stud 16-14 Gauge Wire	209312 18 Stud 16-14 Gauge Wire	209313 18 Stud 12-18 Gauge Wire	209314 1/4" Stud 12-18 Gauge Wire
209305 18 Stud 20-18 Gauge Wire	209306 20-18 Gauge Wire	209323 8 Stud 16-14 Gauge Wire	209307 8 Stud 16-14 Gauge Wire	209308 18 Stud 16-14 Gauge Wire	209309 1/4" Stud 16-14 Gauge Wire
209301 8 Stud 20-18 Gauge Wire	209302 8 Stud 20-18 Gauge Wire	209303 18 Stud 20-18 Gauge Wire	209304 1/4" Stud 20-18 Gauge Wire	209321 5/16" Stud 20-18 Gauge Wire	209322 3/8" Stud 20-18 Gauge Wire



**Part No. 209299**  
115 pieces • 23 items  
12045 plastic tray

209301	209309	209317
209302	209310	209318
209303	209311	209319
209304	209312	209321
209305	209313	209322
209306	209314	209323
209307	209315	209324
209308	209316	

Numbers in assortment

## SOLDER 'N SEAL TERMINALS 24-22 AWG

- For electronic, computer, and other small wire applications.
- Contains connectors, ring and spade tongue terminals.

SOLDER 'N SEAL TERMINALS 24-22 AWG 209297				
209362 Ring #6 Stud		209320 Parallel Connector	209365 Spade #6 Stud	
209360 Ring #2 Stud	209361 Ring #4 Stud		209363 Spade #2 Stud	209364 Spade #4 Stud

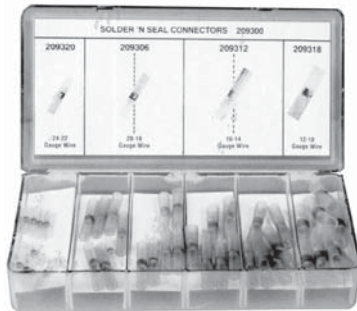
**Part No. 209297**  
58 pieces • 7 items  
12031 plastic tray

209320	209361	209363	209365
209360	209362	209364	

Numbers in assortment

## SOLDER 'N SEAL PARALLEL CONNECTORS

- Contains four sizes of parallel connectors, 24-22, 20-18, 16-14 and 12-10 ga.



**Part No. 209300**  
42 pieces  
4 items  
12028 plastic tray

209306	209318
209312	209320

Numbers in assortment

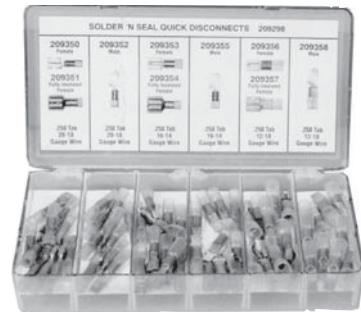
## SOLDER 'N SEAL QUICK DISCONNECTS

- Contains male, female and fully insulated female disconnects in 20-18, 16-14 and 12-10 wire gauges.

**Part No. 209298**  
60 pieces • 9 items  
12028 plastic tray

209350	209355
209351	209356
209352	209357
209353	209358
209354	

Numbers in assortment



## SOLDER 'N SEAL TERMINALS

### 24-22 WIRE RANGE

Color Code: CLEAR

209360	209361	209362	209363	209364	209365	209320
Size	2	4	6	2	4	6
Type	Ring Tongue	Ring Tongue	Ring Tongue	Spade Tongue	Spade Tongue	Spade Tongue
						Parallel Connector

# SOLDER 'N SEAL TERMINALS

E10

## SOLDER 'N SEAL TERMINALS










**20-18 WIRE RANGE**

Color Code: **RED**

									
<b>Part Number</b>	209301	209302	209303	209304	209321	209322	209305	209306	209350
<b>Size</b>	6	8	10	1/4	5/16	3/8	10		.250 Blade
<b>Type</b>	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Spade Tongue	Parallel Connector	Female Disconnect

**20-18 WIRE RANGE**










Color Code: **RED**

									
<b>Part Number</b>	209351	209352	209323	209307	209308	209309	209324	209310	209311
<b>Size</b>	.250 Blade	.250 Tab	6	8	10	1/4	5/16	3/8	10
<b>Type</b>	Fully Insulated Female Disconnect	Male Disconnect	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Spade Tongue

**16-14 WIRE RANGE** Color Code: **BLUE**

**16-14 WIRE RANGE**






Color Code: **BLUE**

									
<b>Part Number</b>	209312	209353	209354	209355	209313	209314	209319	209315	209316
<b>Size</b>		.250 Blade	.250 Blade	.250 Tab	10	1/4	5/16	3/8	1/2
<b>Type</b>	Parallel Connector	Female Disconnect	Fully Ins. Female	Male Disconnect	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue

**12-10 WIRE RANGE** Color Code: **YELLOW**

**12-10 WIRE RANGE**

Color Code: **YELLOW**

					
<b>Part Number</b>	209317	209318	209356	209357	209358
<b>Size</b>	10		.250 Blade	.250 Blade	.250 Tab
<b>Type</b>	Spade Tongue	Parallel Connector	Female Disconnect	Fully Insulated Female Disconnect	Male Disconnect

# MULTILINK TERMINALS

E10

## THE COMPONENTS

### The Crimp Connector:



- Zippered brazed seam for superior crimp performance.
- Window for visual inspection.
- Wire stop to prevent over-insertion.
- Serrated inner barrel for extra crimp strength.

### The Solder:



- Flux coating to clean metal surfaces.
- Pre-measured solder to deliver the right amount.
- Low-temp solder alloy for ease of installation.

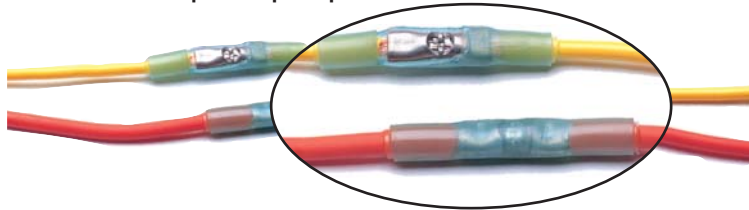
### The Heat Shrink Tubing:



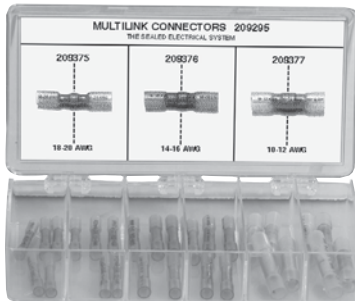
- Adhesive-lined polyolefin to seal the connection.
- Color-coded with wire gauge imprint for easy size identification.
- Translucent tubing to allow for visual inspection.

## THE ULTIMATE CONNECTION

Since 1994, General Motors has mandated all electrical connection repairs be crimped, soldered and properly sealed against moisture and corrosion. In 1997, Freightliner Trucks issued a similar requirement. Only MultiLink satisfies this OE requirement in a convenient one-piece repair splice.



- ### FEATURES / BENEFITS of Using MultiLink
- **High quality, brazed seam crimp connector:** Provides a secure mechanical connection.
  - **Pre-fluxed, low temperature solder:** Delivers superior current flow and tensile strength.
  - **Translucent, adhesive-lined heat shrink tubing:** Allows for visual inspection and provides a seal against corrosion.
  - **Crimped, soldered, and sealed connection:** Meets or exceeds the most stringent OEM standards.



**Part No. 209295**  
28 pieces • 3 items  
12032 plastic tray



Easy to install

PART NUMBER	WIRE SIZE	COLOR	QTY
209375	20-18	Red	25
209376	16-14	Blue	25
209377	12-10	Yellow	25



## MULTILINK TERMINAL ASSORTMENTS

- Includes ring, spade, butt and quick disconnects in wire sizes 20 through 10 AWG ●
- Available in both steel and plastic trays ● Assortment #501683 includes #814131 heat gun ●

### Shop Assortment



### Part No. 501683 155 pieces • 21 items 12056 steel tray (w/mini heat gun)

209375	209390	209423
209376	209391	209427
209377	209410	209428
209378	209411	209430
209379	209412	209438
209380	209417	209439
209385	209422	814131

Numbers in assortment

### Part No. 501684 192 pieces • 32 items 12062 steel tray (w/o heat gun)

209375	209385	209415	209428
209376	209390	209416	209430
209377	209391	209417	209431
209378	209392	209422	209433
209379	209410	209423	209434
209380	209411	209424	209438
209381	209412	209426	209439
209384	209413	209427	209440

Numbers in assortment

# MULTILINK TERMINALS

E10

## MULTILINK TERMINAL ASSORTMENT

- Includes ring, spade, butt and quick disconnects in wire sizes 20 through 10 AWG ●

**Part No. 209400**  
**136 pieces • 21 items**  
**12045 plastic tray**

209375	209390	209423
209376	209391	209426
209377	209410	209427
209378	209411	209428
209379	209412	209430
209380	209413	209438
209381	209422	209439

**Numbers in assortment**

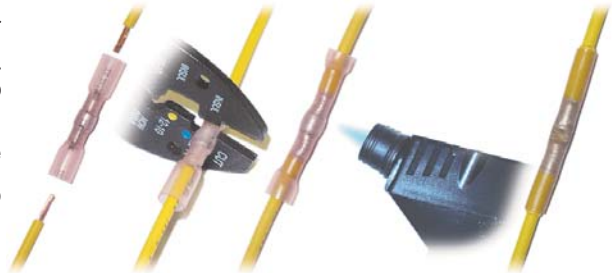
### Mechanics Assortment



MULTILINK TERMINALS 209400					
 Wire Range: 20-18 Size: 7/8" Type: Ring Tongue 209381	 Wire Range: 10-14 Size: 1/2" Type: Ring Tongue 209413	 Wire Range: 12-10 Size: 1/2" Type: Ring Tongue 209430	 Wire Range: 20-18 Size: 7/8" Type: Ring Tongue 209380	 Wire Range: 20-18 Size: 20-18 Type: Quick Disconnect 209391	 Wire Range: 10-14 Size: 1/2" Type: Ring Tongue 209412
 Wire Range: 20-18 Size: 7/8" Type: Ring Tongue 209423	 Wire Range: 10-14 Size: 1/2" Type: Quick Disconnect 209426	 Wire Range: 10-14 Size: 1/2" Type: Ring Tongue 209427	 Wire Range: 12-10 Size: 1/2" Type: Ring Tongue 209428	 Wire Range: 12-10 Size: 1/2" Type: Ring Tongue 209429	 Wire Range: 12-10 Size: 20-18 Type: Quick Disconnect 209438
 Wire Range: 20-18 Size: 7/8" Type: Ring Tongue 209378	 Wire Range: 20-18 Size: 20-18 Type: Quick Disconnect 209390	 Wire Range: 10-14 Size: 1/2" Type: Ring Tongue 209411	 Wire Range: 10-14 Size: 20-18 Type: Quick Disconnect 209422	 Wire Range: 12-10 Size: 1/2" Type: Ring Tongue 209427	 Wire Range: 12-10 Size: 20-18 Type: Quick Disconnect 209438
 Wire Range: 20-18 Size: 7/8" Type: Ring Tongue 209379	 Wire Range: 20-18 Size: 20-18 Type: Quick Disconnect 209391	 Wire Range: 10-14 Size: 1/2" Type: Ring Tongue 209410	 Wire Range: 10-14 Size: 20-18 Type: Quick Disconnect 209426	 Wire Range: 12-10 Size: 1/2" Type: Ring Tongue 209426	 Wire Range: 12-10 Size: 20-18 Type: Quick Disconnect 209377

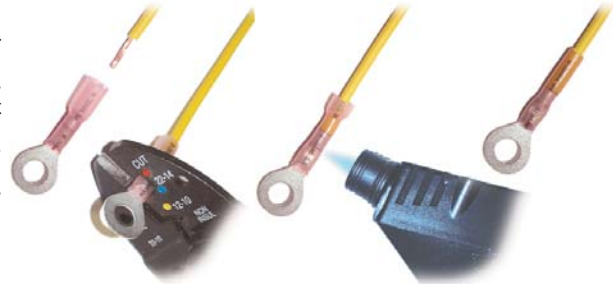
## BUTT CONNECTOR INSTALLATION

1. Strip the wire 3/8".
2. Select a connector that matches the wire gauge and insert the wire into the connector barrel.
3. Make sure the wire is properly seated and crimp the connector using an **insulated** connector crimping tool nest that matches the color gauge of the connector. **Do not crimp the solder sleeve.**
4. Repeat steps 1 thru 3 for the other side.
5. Apply heat evenly around the length of the tubing (including the crimp area) from the center out to the ends until the tubing fully recovers and the adhesive flows.
6. Continue distributing the heat over the entire connector barrel until the solder flows into the opening.
7. Remove from the heat and let cool for the ULTIMATE connection.



## RING, SPADE, SLIP-ON TERMINAL INSTALLATION

1. Strip the wire 1/2".
2. Select a connector that matches the wire gauge and insert the wire into the connector barrel.
3. Make sure the wire is properly seated and crimp the terminal barrel (the 1/4" of the barrel closet to the terminal end) using an **insulated** connector crimping tool nest that matches the color gauge of the connector.
4. Apply heat evenly around the length of the tubing (including the crimp area) until the tubing fully recovers and the adhesive flows.
5. Continue distributing the heat over the solder sleeve until the solder flows into the terminal barrel.
6. Remove from the heat and let cool for the ULTIMATE connection.



## MULTILINK TERMINALS

**20-18 WIRE RANGE**

**Color Code: RED**

<b>Part Number</b>	<b>209378</b>	<b>209379</b>	<b>209380</b>	<b>209381</b>	<b>209382</b>	<b>209383</b>	<b>209384</b>	<b>209385</b>
<b>Size</b>	<b>6</b>	<b>8</b>	<b>10</b>	<b>1/4</b>	<b>5/16</b>	<b>3/8</b>	<b>6</b>	<b>8</b>
<b>Type</b>	<b>Ring Tongue</b>	<b>Ring Tongue</b>	<b>Ring Tongue</b>	<b>Ring Tongue</b>	<b>Ring Tongue</b>	<b>Ring Tongue</b>	<b>Spade Tongue</b>	<b>Spade Tongue</b>

# MULTILINK TERMINALS

E10

## MULTILINK TERMINALS

**20-18 WIRE RANGE**  
Color Code: **RED**



Part Number	209386	209390	209391	209392	209375
Size	10	.250 Tab	.250 Blade	.250 Blade	
Type	Spade Tongue	Male Disconnect	Female Disconnect	Fully Ins. Female Disconnect	Butt Connector

**16-14 WIRE RANGE**  
Color Code: **BLUE**



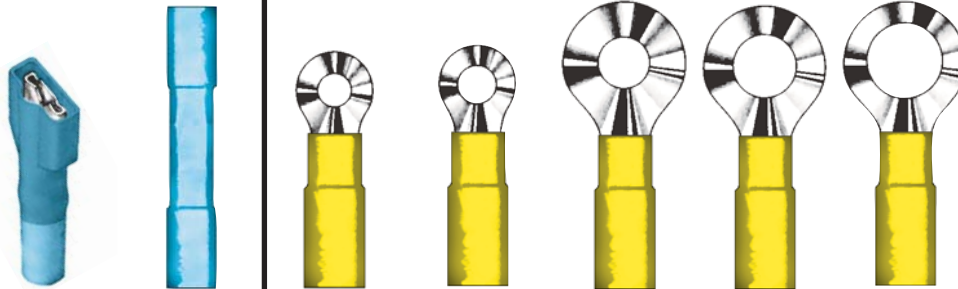
Part Number	209410	209411	209412
Size	6	8	10
Type	Ring Tongue	Ring Tongue	Ring Tongue

**16-14 WIRE RANGE**  
Color Code: **BLUE**



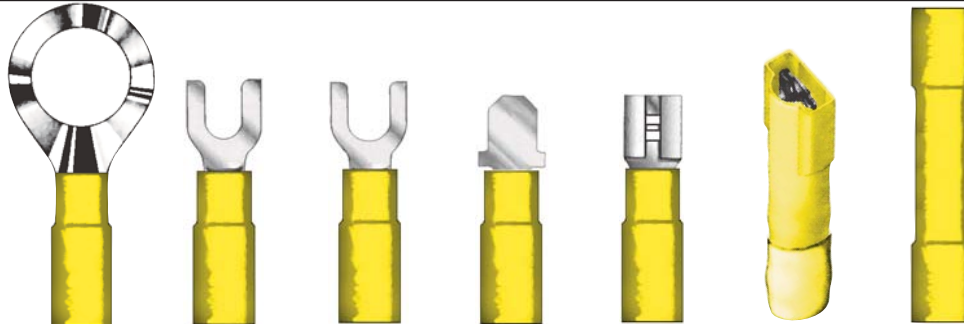
Part Number	209413	209414	209415	209416	209417	209418	209422	209423
Size	1/4	5/16	3/8	6	8	10	.250 Tab	.250 Blade
Type	Ring Tongue	Ring Tongue	Ring Tongue	Spade Tongue	Spade Tongue	Spade Tongue	Male Disconnect	Female Disconnect

**16-14 WIRE RANGE**  
Color Code: **BLUE**



Part Number	209424	209376	209426	209427	209428	209429	209430
Size	.250 Blade		8	10	1/4	5/16	3/8
Type	Fully Ins. Female Disconnect	Butt Connector	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue

**12-10 WIRE RANGE**  
Color Code: **YELLOW**



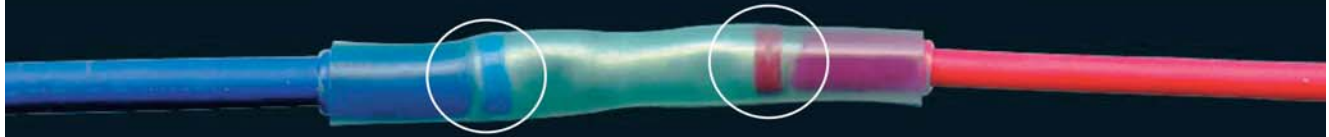
Part Number	209431	209433	209434	209438	209439	209440	209377
Size	1/2	8	10	.250 Tab	.250 Blade	.250 Blade	
Type	Ring Tongue	Spade Tongue	Spade Tongue	Male Disconnect	Female Disconnect	Fully Ins. Female Disconnect	Butt Connector

# MULTILINK TERMINALS

E10

## STEP-DOWN BUTT CONNECTORS

FOR CONNECTING A LARGER WIRE TO A SMALLER WIRE



Has two stripes - one on each end - to indicate which wire size to insert, and which crimp die to use

AVAILABLE IN THE FOLLOWING STYLES:



**Uninsulated**



**Shrink N' Seal**

SEALED CRIMP CONNECTOR



**Multilink**

SEALED CRIMP & SOLDER CONNECTOR

### WHY IS OURS SO MUCH BETTER?

**THEIRS:**



The outside diameter of the butt connector is the same on both ends and only the inside diameter is adjusted for the different wire gauge. This means that the side for the smaller wire has a much thicker wall than normal and is extremely difficult to crimp. **POTENTIAL FOR WIRE PULL-OUT!**

**OURS!**



We vary the inside AND the outside diameter of the connector which means that both sides will make a positive crimp.

**STRONG MECHANICAL TERMINATION!**

**THEIRS:**



Has a color stripe to indicate where the smaller size of wire is inserted. However, it must be crimped in the larger crimp die. For example, on their connector for 14-16 to 10-12 AWG, the BLUE stripe indicates the side where a 14-16 AWG wire is to be inserted. However, it must be crimped in the YELLOW crimp die. **CONFUSING!**

**OURS!**



Has two stripes - one on each end - to indicate which wire size to insert. Plus, the stripe matches the crimp die that needs to be used. For example, the blue stripe indicates the side where a 14 or 16 AWG wire is to be inserted, and it will be crimped in the blue crimp die. **MAKES SENSE!**

**MAKES SENSE!**

See back for part number & ordering info

Sealed Electrical System • It's a Question of Integrity®

# MULTILINK TERMINALS

E10

## MultiLink STEP-DOWN CONNECTORS

Sealed Crimp &amp; Solder Connectors

Sealed Electrical System • *It's a Question of Integrity®*

209460



209461



209462

NUMBER	QTY	Heat Shrink		Side #1			Side #2		
		Tubing Color	Color Stripe	Wire	Crimp Die (Insulated)	Color Stripe	Wires	Crimp Die (Insulated)	
209460	25	Red	White	24-22 AWG	White (24-22 AWG)	Red	20-18 AWG	Red (20-18 AWG)	
209461	25	Blue	Red	20-18 AWG	Red (20-18 AWG)	Blue	16-14 AWG	Blue (16-14 AWG)	
209462	25	Yellow	Blue	16-14 AWG	Blue (16-14 AWG)	Yellow	12-10 AWG	Yellow (12-10 AWG)	

## Uninsulated STEP-DOWN CONNECTORS

Unsealed - No Heat Shrink Tubing



209450



209451



209452



209453

NUMBER	QTY	Side #1			Side #2		
		Color Stripe	Wire	Crimp Die (Insulated)	Color Stripe	Wires	Crimp Die (Insulated)
209450	50	White	24-22 AWG	White (24-22 AWG)	Red	20-18 AWG	Red (20-18 AWG)
209451	50	Red	20-18 AWG	Red (20-18 AWG)	Blue	16-14 AWG	Blue (16-14 AWG)
209452	50	Blue	16-14 AWG	Blue (16-14 AWG)	Yellow	12-10 AWG	Yellow (12-10 AWG)
209453	50	Yellow	12-10 AWG	Yellow (12-10 AWG)	Red	8 AWG	Red (8 AWG)

## Shrink N' Seal STEP-DOWN CONNECTORS

Sealed Crimp Connectors

Sealed Electrical System • *It's a Question of Integrity®*

210538



210539



210540



210541

NUMBER	QTY	Heat Shrink		Side #1			Side #2		
		Tubing Color	Color Stripe	Wire	Crimp Die (Insulated)	Color Stripe	Wires	Crimp Die (Insulated)	
210538	25	Red	White	24-22 AWG	White (24-22 AWG)	Red	20-18 AWG	Red (20-18 AWG)	
210539	25	Blue	Red	20-18 AWG	Red (20-18 AWG)	Blue	16-14 AWG	Blue (16-14 AWG)	
210540	25	Yellow	Blue	16-14 AWG	Blue (16-14 AWG)	Yellow	12-10 AWG	Yellow (12-10 AWG)	
210541	25	Pink	Yellow	12-10 AWG	Yellow (12-10 AWG)	Red	8 AWG	Red (8 AWG)	

Sealed Electrical System • *It's a Question of Integrity®*

MULTILINK TERMINALS

E10

# Sealed Electrical System

It's a Question of Integrity

Want to **CRIMP** it, **SOLDER** it, **SEAL** it? We've **GOT** it!



**Crimped**

- Mechanically Sound
- Seamless Butt Connectors
- Brazed Seam—Rings and Spades

**Sealed**

- Durable Insulation
- Watertight Connection
- Color-Coded with Wire Gauge Imprint



**Soldered**

- Superior Strength
- Better Conductivity

**Sealed**

- Durable Insulation
- Watertight Connection
- Transparent Tubing for Visual Inspection



**Crimped**

- Mechanical Reliability
- Easy Installation

**Soldered**

- Additional Strength
- Better Conductivity



The Ultimate Connection

**Sealed**

- Durable Insulation
- Watertight Connection



# MULTILINK TERMINALS

E10

## Why Use Heat Shrink Terminals?

### Corrosion



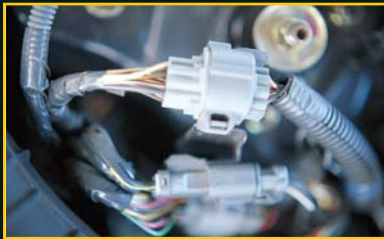
When using a standard crimp terminal, the wire is exposed to moisture and other contaminants. Over time, the wire starts to **corrode** which reduces the current carrying capacity of the electrical system.

### Pull-Out



In most cases, electrical connectors must operate in adverse conditions: heat, cold, vibration, strain, etc. These conditions can cause the wire or wires to **pull-out** of the connector.

### Technology



Advanced **technology** and computerization have resulted in OEMs designing sealed and molded components in all types of equipment.

Most OEMs now require sealed connections for repair and warranty work. The integrity of the electrical system is breached when repairs are made with inferior, unsealed electrical connections.

### Downtime



Lighting and electrical problems are the most frequent causes of **downtime** when maintaining a fleet. Usually these problems stem from faulty electrical connections. Equipment downtime often results in hundreds to thousands of dollars in lost opportunities and repair costs.

MULTILINK TERMINALS

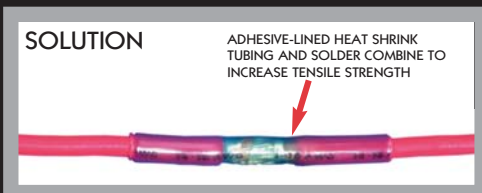
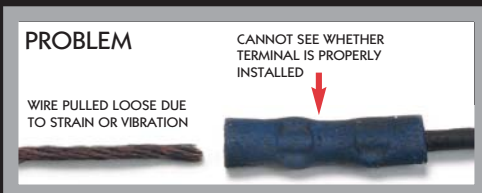
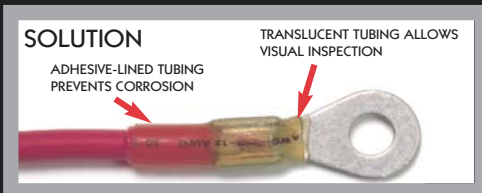
E10

# Sealed Electrical System

## It's a Question of Integrity

The past few years have seen the advent of sweeping technological advances in the automotive, fleet, and marine industries. Many of these advances involve improved electrical systems, controlled by miniature onboard computers. Consequently, small variations in voltage can significantly affect vehicle performance.

The heat shrink connector is the innovative solution that allows the aftermarket to keep pace with changing technology. Each repair made with a heat shrink connector is individually protected from corrosion, contaminants, and current leakage. This insures that the original integrity of the wiring harness is maintained.



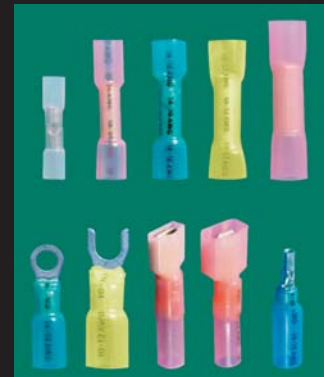
## Shrink 'N Seal®

SEALED FOR QUALITY

### AVAILABLE STYLES

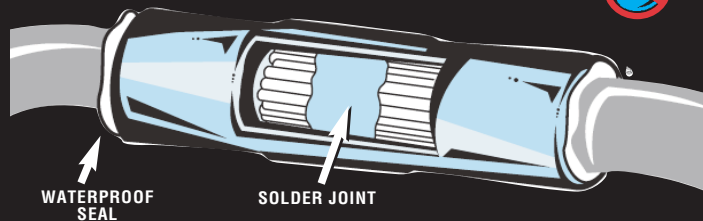
- Rings
- Quick Slides
- Spades
- Couplers
- Butt Connectors
- Bullet Plugs

Crimp Terminals with Adhesive-Lined Heat Shrink Tubing



## Solder 'N Seal®

SEALED FOR SUPERIORITY



### AVAILABLE STYLES

- Rings
- Spades
- Quick Slides
- Butt Connectors
- Fully Insulated
- Females

Solder Terminals with Adhesive-Lined Heat Shrink Tubing



## MULTILINK TERMINALS

E10

# Wire Terminal Selection Guide

When selecting the appropriate wire connector:

- Match wire gauge to connector gauge
- Know the environment in which the connector will operate
- Use the appropriate installation tools

The majority of electrical failures result from:

- Corrosion build-up on the wire and/or connector
- Wires pulling loose from connectors due to strain or vibration
- Improper installation of connectors

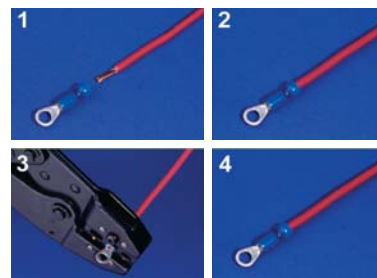
## AVERAGE

### VINYL CONNECTORS

Crimp Terminals with PVC Insulation

FEATURES:

- Least expensive



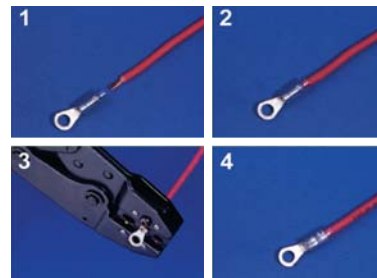
## GOOD

### PERMATITE® NYLON CONNECTORS

Crimp Terminals with Nylon Insulation

FEATURES:

- Additional brass support sleeve
- More durable than vinyl



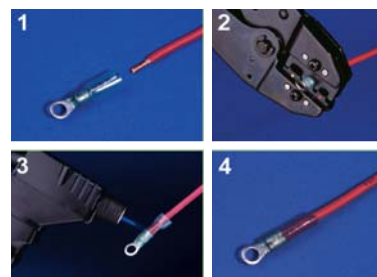
## BETTER

### SHRINK 'N SEAL®

Crimp Terminals with Adhesive-Lined Heat Shrink Tubing

FEATURES:

- Waterproof
- Tough, durable insulation
- Greater pull-out strength than nylon or vinyl
- Protects against corrosion
- Resists vibration damage



## BEST

### SOLDER 'N SEAL®

Solder Terminals with Adhesive-Lined Heat Shrink Tubing

FEATURES:

- NO CRIMPING
- Waterproof
- Tough, durable insulation
- Maximum current flow
- Protects against corrosion
- Wires WILL NOT pull loose
- Allows visual inspection



**MISCELLANEOUS ELECTRICAL ITEMS**

**E10**

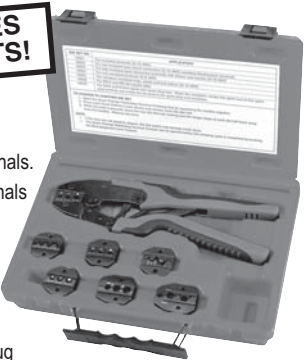
**QUICK CHANGE RATCHETING TERMINAL CRIMPING KIT**

- Versatile kit includes 7 dies for virtually all uses.
- Die sets quickly interchange for a wide range of applications.
- Crimping tool has a steel frame with contoured grips.
- Supplied in a double, plastic molded storage case with carrying handles.

**INCLUDES 7 DIE SETS!**

**Application:**

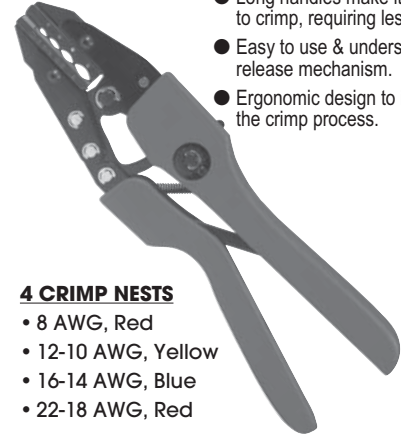
- For insulated terminals 22-10 AWG.
- For non insulated open barrel connectors 22-10 AWG including Weatherpack terminals.
- For fully insulated quick disconnect terminals with thinner wire barrels 22-10 AWG.
- For non insulated terminals 22-8 AWG.
- For miniature insulated rings, spade and butt splices 26-16 AWG.
- For RG-6 and RG-59 coaxial cable.
- For 8mm and 8.5mm spiral core spark plug wire. Strips the insulation, crimps the spiral core to the spark plug terminal and crimps the terminal to the spark plug wire insulation.



**Part No. 213386**

**PROFESSIONAL RATCHET CRIMPING TOOL**

**For Heat Shrink Terminals**



- Mating mechanism prevents slipping or mis-alignment.
- Long handles make it easier to crimp, requiring less force.
- Easy to use & understand release mechanism.
- Ergonomic design to initiate the crimp process.

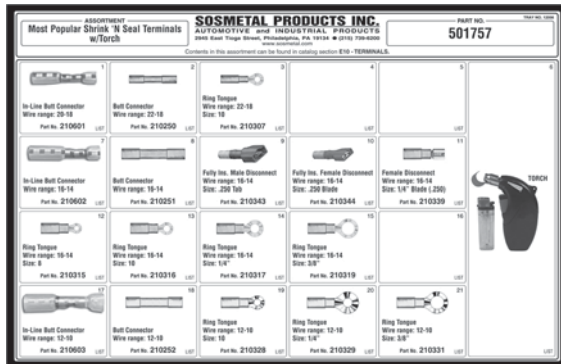
**4 CRIMP NESTS**

- 8 AWG, Red
- 12-10 AWG, Yellow
- 16-14 AWG, Blue
- 22-18 AWG, Red

**Part No. 213550**

**MOST POPULAR SHRINK 'N SEAL ASSORTMENT**

With mini torch that includes heat reflector especially designed for heat shrink terminals.



**Part No. 501757**  
103 pieces • 18 items  
1 Mini Mini Torch  
12056 steel tray

210250	210317	210343
210251	210319	210344
210252	210328	210601
210307	210329	210602
210315	210331	210603
210316	210339	

**Numbers in assortment**



- Includes our most popular Ring, Butt and Quick Disconnects.
- Packed in a sturdy metal tray with size selector lid chart.
- Special compartment holds Mini Torch with heat reflector (412228).



**MINI TORCH**

Use for: General heating and drying, activating adhesive, bending and forming plastics, preheating flux, heat shrink applications, stretching vinyl and repairing, thawing frozen locks.



- Includes heat reflector especially designed for heat shrink terminals.
- Flameless heat.
- Temperatures up to 650°C (1300°F)

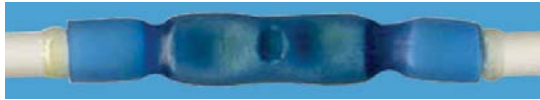
**Part No. 412228**

# HEAT SHRINK CONNECTORS & TUBING

E10

## E-Z VIEW COLOR-CODED WINDOW BUTT CONNECTORS

### YOUR PROBLEM



Standard connectors do not allow the installer to see the wire which can result in the following problems:

- Wire stripped too short, which can result in crimping the end of the wire.
- Wire is not fully seated to connector, which can result in a poor termination.
- Color-coded stripes identify wire gauge size to be used with connector.
- Color-coded stripes also indicate/guide the installer to the proper crimp position on the center.

### OUR SOLUTION



E-Z View Color-Coded Window Butt Connectors:

- Ensures the wire is crimped to connector
- Ensures the center of crimp barrel is properly crimped
- E-Z View waterproof insulation allows for indisputable inspection of the wire's inspection
- Wire-stop in butt connectors prevents over-insertion of wire.
- Window in center of connector assures that wire is seated properly and that the wire is being crimped to the connector.



PART NUMBER	QTY	COLOR-CODED STRIPES	WIRE GAUGE
210160	100	Red	22-18
210161	100	Blue	16-14
210162	100	Yellow	12-10

### Assortments Available



**Part No. 501768**  
78 pieces • 6 items  
12051 steel tray

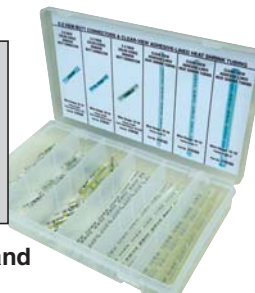
210160	210162	210164
210161	210163	210165

Numbers in assortment

**Part No. 201169**  
54 pieces • 6 items  
12047 plastic tray

210160	210162	210164
210161	210163	210165

Numbers in assortment



Both assortments contain E-Z VIEW Butt Connectors and CLEAR-VIEW Heat Shrink Tubing

## CLEAR-VIEW ADHESIVE-LINED HEAT SHRINK TUBING

### The Competitor's Clear Heat Shrink Tubing



Vs.

### Our CLEAR-VIEW Heat Shrink Tubing



### What's special about this heat shrink tubing?

- Constructed of a cross-linked ionic polymer material for superior strength.
- Wire AWG is printed on the side for easy size ID.
- Lightweight material is easy to work with and can be cut using simple shears or scissors.
- Exceeds 2.5-to-1 shrink ratio, to contain connectors up to 2 and a half times larger than your cable



Absolutely clear tubing provides ultimate clarity for visual inspection at any time.

### Specifications:

**Material:** Cross-linked ionic polymer  
**Shrink Ratio:** Exceeds 2.5 to 1  
**Shrink/Recovery Temperature:** 90°C (194°F)  
**Continuous Operating Temp:** -55°C to 125°C (-67°F to 257°F)  
**Flammability:** Passed (FMVSS 302 test)  
**Tensile Strength:** 4,000 psi  
**Longitudinal Change:** + 1/-10% Max  
**Dielectric Strength:** 750 V/Mil (30KV/MM)

PART NUMBER	QTY	WIRE GAUGE	TUBING COLOR	LENGTH	MINIMUM EXPANDED I.D.	MAXIMUM RECOVERED I.D.
210163	10	22-18	Clear	6"	0.176"	0.045"
210164	10	16-14	Clear	6"	0.250"	0.080"
210165	10	12-10	Clear	6"	0.365"	0.100"

# Sosmetal's Professional Quality **MINI TORCH**

## PRODUCES 1300°F FLAMELESS HEAT!

### FEATURES:

- Piezo electronic ignition system with safety locking switch.
- Powered by refillable butane fuel cell or or similar lighter – inexpensive and readily available.
- Heat temperature up to 650°C (1300°F).
- Windproof catalytic heating element and waterproof ignition.

### BENEFITS:

- General heating and drying applications.
- Activate adhesives and potting compounds.
- Bend and form plastics and plastic laminates
- Remove windshield caulking
- PVC bending
- Preheat flux
- Shrink and terminate heat-shrinkable insulated solder preforms
- Shrink heat-shrinkable anti-static tubes, molded parts light gauge shrink package, light wall and adhesive lined tubings.
- Stretch vinyls
- Vinyl repair
- Thawing frozen locks



ORDER Part No.  
**412228**

COMPACT SIZE:  
4-1/2" H x 3" W



**Includes  
Refillable  
Butane Fuel Cell**

**REMOVABLE  
HEAT REFLECTOR IS  
PERFECT FOR  
HEAT SHRINK JOBS!**



**For More Information Contact Us At:  
SOSMETAL PRODUCTS INC.**

2945 East Tioga Street, Philadelphia, PA 19134 • (215) 739-6200

[www.EngineeringBooksPdf.com](http://www.EngineeringBooksPdf.com)

# Sosmetal's MOST POPULAR SHRINK 'N SEAL TERMINALS

Includes all popular butt connectors, in-line butt connectors, ring tongues, female disconnects and fully insulated male and female disconnects. All of these products are for use in multiple wire situations.

They can be used by every customer that we call on like:

- Building Maintenance
- Fleets
- Heavy Duty Equipment
- Automotive Shops and others.



















Each repair is protected from leakage, corrosion and contaminants.

ORDER Part No.  
**501757**



includes **MINI TORCH**  
*WITH HEAT REFLECTOR  
ESPECIALLY  
DESIGNED FOR  
HEAT SHRINK TERMINALS*



ASSORTMENT Most Popular Shrink 'N Seal Terminals w/Torch					SOSMETAL PRODUCTS INC. AUTOMOTIVE and INDUSTRIAL PRODUCTS 2945 East Tioga Street, Philadelphia, PA 19134 • (215) 739-6200 www.sosmetal.com		PART NO. <b>501757</b>	TRAY NO. 12056													
Contents in this assortment can be found in catalog section E10 - TERMINALS.																					
1  In-Line Butt Connector Wire range: 20-18 Part No. 210601 LIST	2  Butt Connector Wire range: 22-18 Part No. 210250 LIST	3  Ring Tongue Wire range: 22-18 Size: 10 Part No. 210307 LIST	4	5	6  TORCH	7  In-Line Butt Connector Wire range: 16-14 Part No. 210602 LIST	8  Butt Connector Wire range: 16-14 Part No. 210251 LIST	9  Fully Ins. Male Disconnect Wire range: 16-14 Size: .250 Tab Part No. 210343 LIST	10  Fully Ins. Female Disconnect Wire range: 16-14 Size: .250 Blade Part No. 210344 LIST	11  Female Disconnect Wire range: 16-14 Size: 1/4" Blade (.250) Part No. 210339 LIST	12  Ring Tongue Wire range: 16-14 Size: 8 Part No. 210315 LIST	13  Ring Tongue Wire range: 16-14 Size: 10 Part No. 210316 LIST	14  Ring Tongue Wire range: 16-14 Size: 1/4" Part No. 210317 LIST	15  Ring Tongue Wire range: 16-14 Size: 3/8" Part No. 210319 LIST	16	17  In-Line Butt Connector Wire range: 12-10 Part No. 210603 LIST	18  Butt Connector Wire range: 12-10 Part No. 210252 LIST	19  Ring Tongue Wire range: 12-10 Size: 10 Part No. 210328 LIST	20  Ring Tongue Wire range: 12-10 Size: 1/4" Part No. 210329 LIST	21  Ring Tongue Wire range: 12-10 Size: 3/8" Part No. 210331 LIST	22

For More Information Contact Us At:  
**SOSMETAL PRODUCTS INC.**

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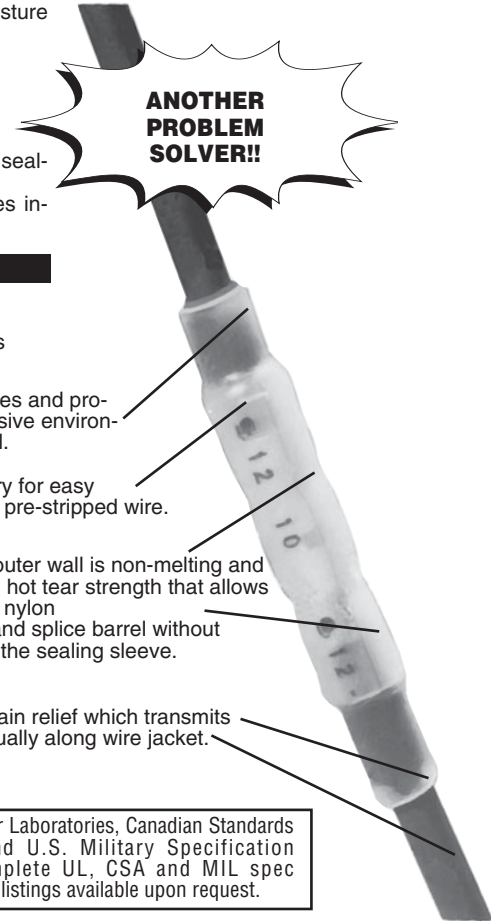
# SHRINK 'N SEAL™ TERMINALS

E10

## SHRINK 'N SEAL™ CONNECTORS

WITH HEAT SHRINK TUBING. WEATHERPROOFS, SEALS AND CONNECTS QUICKLY & EASILY.

- Special dual walled, adhesive sealed splice is specially designed to seal out moisture and corrosion.
- The adhesive is a polyimide, uniquely formulated for high dielectric strength.
- Special encapsulation and flexible strain relief.
- The radiation cross-linked polyolefin sleeve meets the demanding requirements of mil-1-23053/4.
- Non melting. Thermally stabilized.
- Special hot tear strength that allows crimping of wire barrel without damage to the sealing sleeve.
- See-through, clear heat-shrinkable tubing eliminates errors in crimping and makes in-line splicing quick, simple and sure.



### THE BEST CHOICE FOR:

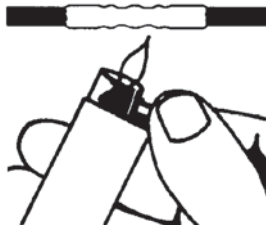
- Automobile and truck wiring
- Trailers and RV's
- Marine applications
- Mining operations
- Industrial machinery
- Construction equip.
- Outdoor lighting
- Air conditioners
- Sprinkler systems
- Telecommunications

### SIMPLE INSTALLATION



Select the correct splice size for the wire gauge. Strip the wires 0.3" (7.6mm) from the end and insert into the crimp barrel.

Making sure the wire end is properly seated, make the crimp connection using a tool designed for insulated splices.



Apply heat directly to the splice, working from the center out to the edges, using a hot air gun or other heat source, until the tubing recovers and the adhesive flows. Allow to cool before inspecting splice and checking integrity.

## SHRINK 'N SEAL TERMINAL ASSORTMENT

With Optional Heat Gun

- Includes: Ring, Spade, Butt and Quick Disconnects
- Packed in a sturdy metal tray with size selector lid chart.
- Special compartment holds Mini Heat Gun (814131).

**Part No. 501475**  
101 pieces • 21 items  
1 Mini Heat Gun  
12056 steel tray

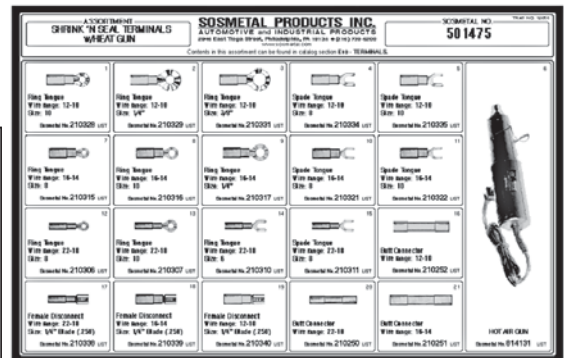
210250	210315	210331
210251	210316	210334
210252	210317	210335
210306	210321	210338
210307	210322	210339
210310	210328	210340
210311	210329	814131

Numbers in assortment

**Part No. 501476**  
105 pieces • 21 items  
(without Heat Gun)  
12017 steel tray

210250	210312	210329
210251	210315	210331
210252	210316	210334
210306	210317	210335
210307	210321	210338
210310	210322	210339
210311	210328	210340

Numbers in assortment

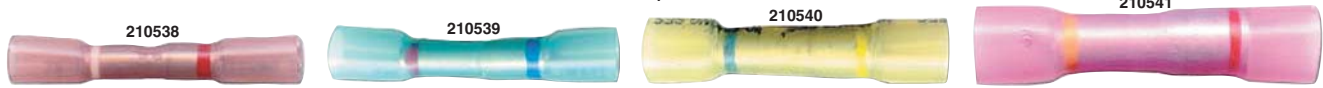


# SHRINK 'N SEAL™ TERMINALS

E10

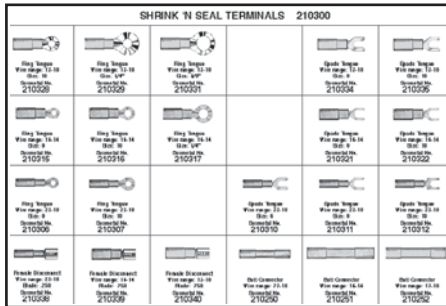
## SHRINK N' SEAL STEP-DOWN CONNECTORS

Sealed Crimp Connectors.



PART NUMBER	QTY	SIDE #1			SIDE #2		
		COLOR STRIPE	WIRE	CRIMP DIE (INSULATED)	COLOR STRIPE	WIRES	CRIMP DIE (INSULATED)
210538	25	White	24-22 AWG	White (24-22 AWG)	Red	20-18 AWG	Red (20-18 AWG)
210539	25	Red	20-18 AWG	Red (20-18 AWG)	Blue	16-14 AWG	Blue (16-14 AWG)
210540	25	Blue	16-14 AWG	Blue (16-14 AWG)	Yellow	12-10 AWG	Yellow (12-10 AWG)
210541	25	Yellow	12-10 AWG	Yellow (12-10 AWG)	Red	8 AWG	Red (8 AWG)

## SHRINK 'N SEAL TERMINAL ASSORTMENT



- Includes: Ring, Spade, Butt and Quick Disconnects
- 22-18, 16-14, and 12-18 wire sizes.

**Part No. 210300**  
84 pieces • 21 items • 12045 plastic tray

210250	210310	210317	210331	210340
210251	210311	210321	210334	
210252	210312	210322	210335	
210306	210315	210328	210338	
210307	210316	210329	210339	

Numbers in assortment



## FULLY INSULATED SHRINK 'N SEAL QUICK DISCONNECT ASSORTMENT



- The most popular quick-disconnects you'll need.
- 22-18, 16-14, and 12-10 wire sizes.

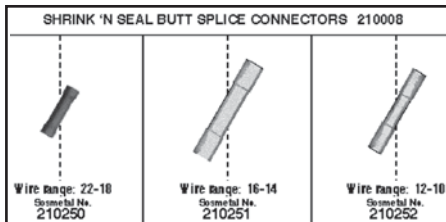
**Part No. 210301**  
40 pieces • 6 items • 12028 plastic tray

210341	210343	210345
210342	210344	210346

Numbers in assortment



## SHRINK 'N SEAL BUTT CONNECTOR ASSORTMENT



- Butt connectors with heat shrink tubing.
- 22-18, 16-14, and 12-10 wire sizes.

**Part No. 210008**  
32 pieces • 3 items • 12028 plastic tray

210250	210251	210252
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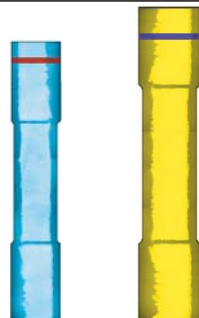
Numbers in assortment



## THE ALL-WEATHER, HEAT SEALABLE NYLON CONNECTOR

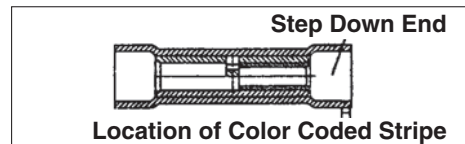
### STEP DOWN BUTT CONNECTORS

For complete water tight seal.



The perfect solution when two wires need to be spliced to a single wire or from a larger to smaller gauge wire.

Cutaway View



Part Number	210483	210484
Wire Size	22-18 to 16-14	16-14 to 12-10
Color Code	Blue with Red Stripe	Yellow with Blue Stripe

# SHRINK 'N SEAL™ TERMINALS

E10

**THE ALL-WEATHER, HEAT SEALABLE NYLON CONNECTOR**

**24-22  
WIRE  
RANGE**  
Color Code:  
**CLEAR**

Part Number	210347	210348	210382	210383	210384
Size	4	6	4	6	
Type	Ring Tongue	Ring Tongue	Spade Tongue	Spade Tongue	Butt Connector

**22-18  
WIRE  
RANGE**  
Color Code:  
**RED**

Part Number	210305	210306	210307	210308	210352	210309	210310	210311
Size	6	8	10	1/4	5/16	3/8	6	8
Type	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Spade Tongue	Spade Tongue

**22-18  
WIRE  
RANGE**  
Color Code:  
**RED**

Part Number	210312	210250	210302	210303	210313	210341	210342	210338	210396
Size	10		.157	.157		.250 Tab	.250 Blade	.250 Blade	.250 Tab
Type	Spade Tongue	Butt Connector	Bullet Receptacle Female	Bullet Receptacle Male	Y Connector	Fully Ins. Male Disconnect	Fully Ins. Female Disconnect	Female Disconnect	Male Disconnect

**16-14  
WIRE  
RANGE**  
Color Code:  
**BLUE**

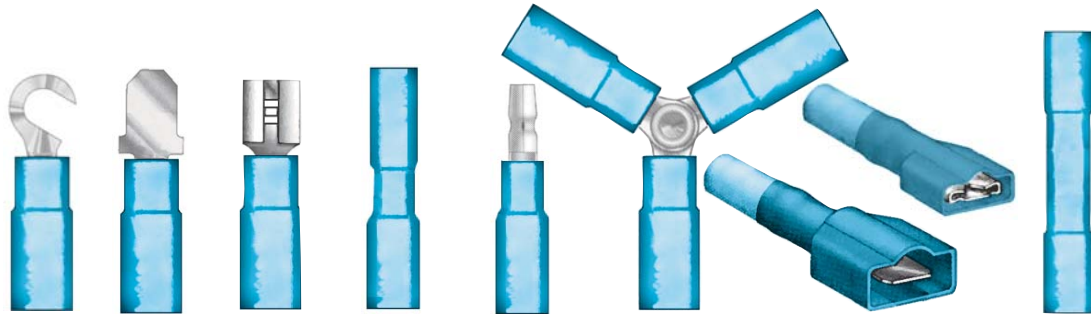
Part Number	210314	210315	210316	210317	210318	210319	210320	210321	210322
Size	6	8	10	1/4	5/16	3/8	6	8	10
Type	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Spade Tongue	Spade Tongue	Spade Tongue

# SHRINK 'N SEAL™ TERMINALS

E10

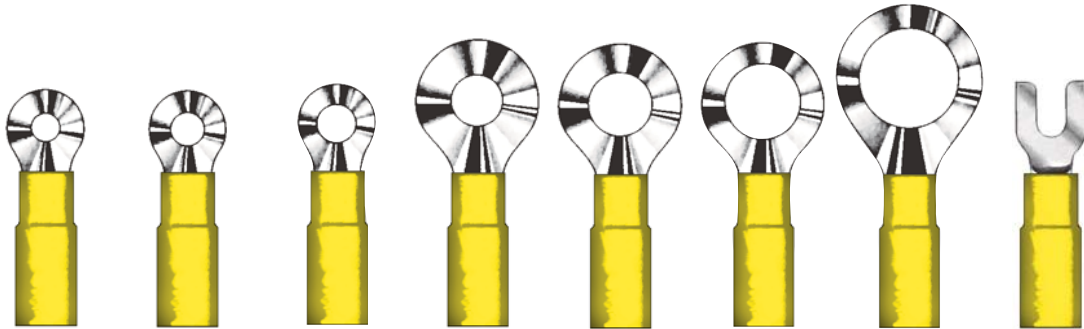
## THE ALL-WEATHER, HEAT SEALABLE NYLON CONNECTOR

**16-14 WIRE RANGE**  
Color Code: **BLUE**



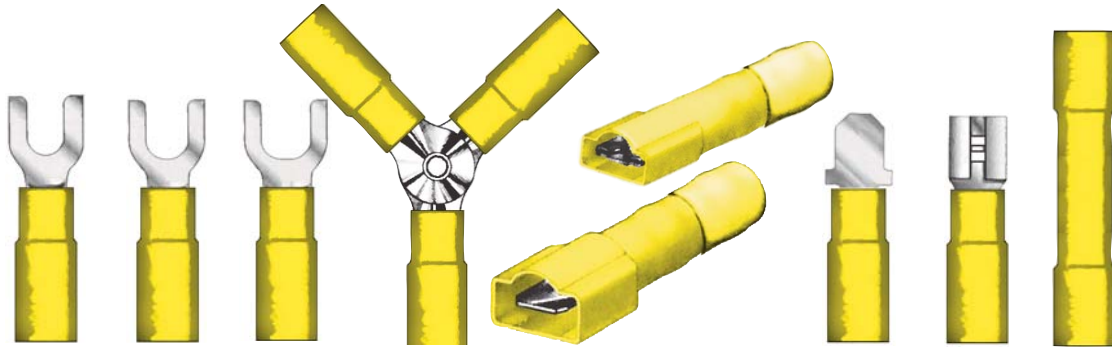
Part Number	210323	210397	210339	210304	210325	210324	210343	210344	210251
Size	10	.250 Tab	.250 Blade	.157	.157		.250 Tab	.250 Blade	
Type	Hook Tongue	Male Disconnect	Female Disconnect	Bullet Receptacle Female	Bullet Receptacle Male	Y Connector	Fully Ins. Male Disconnect	Fully Ins. Female Disconnect	Butt Connector

**12-10 WIRE RANGE**  
Color Code: **YELLOW**



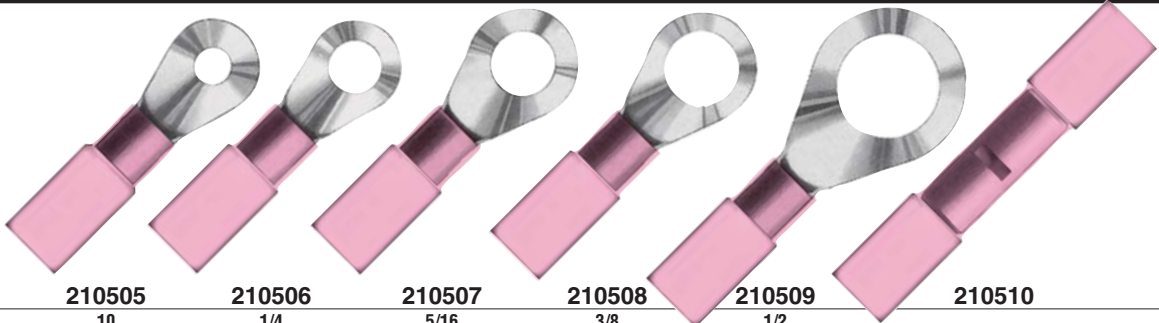
Part Number	210326	210327	210328	210329	210330	210331	210332	210333
Size	6	8	10	1/4	5/16	3/8	1/2	6
Type	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Spade Tongue

**12-10 WIRE RANGE**  
Color Code: **YELLOW**



Part Number	210334	210335	210336	210337	210345	210346	210398	210340	210252
Size	8	10	1/4		.250 Tab	.250 Blade	.250 Tab	.250 Blade	
Type	Spade Tongue	Spade Tongue	Spade Tongue	Y Connector	Fully Ins. Male Disconnect	Fully Ins. Female Disconnect	Male Disconnect	Female Disconnect	Butt Connector

**8 WIRE RANGE**  
Color Code: **RED**



Part Number	210505	210506	210507	210508	210509	210510
Size	10	1/4	5/16	3/8	1/2	
Type	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Butt Connector

# VINYL INSULATED TERMINALS

**E10**

## VINYL INSULATED SOLDERLESS TERMINAL ASSORTMENTS

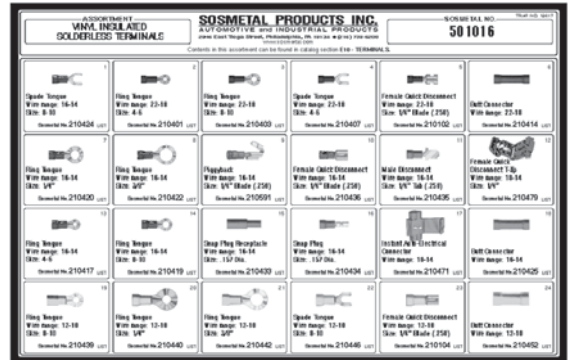
**Part No. 501016M**  
400 pieces • 24 items  
12017 steel tray

**Part No. 501016L**  
800 pieces • 24 items  
12017 steel tray

210102	210417	210433	210442
210104	210419	210434	210446
210401	210420	210435	210452
210403	210422	210436	210471
210407	210424	210439	210479
210414	210425	210440	210591

**Numbers in assortment**

- The most popular terminals, including Ring, Spade, Hook, Butt and Quick Connect styles.
- Packed in metal drawer with size selector chart.



QUICK DISCONNECT SOLDERLESS TERMINALS 210007					
 Female Wire range: 22-18 Blade: .250 Sosmetal No. 210102	 Female Wire range: 18-14 Blade: .250 Sosmetal No. 210436	 Female Wire range: 12-10 Blade: .250 Sosmetal No. 210104	 Fully Ins. Female Wire range: 22-18 Blade: .250 Sosmetal No. 210277	 Fully Ins. Female Wire range: 18-14 Blade: .250 Sosmetal No. 210278	 Split Female Wire range: 18-14 Blade: .250 Sosmetal No. 210464
 Male Wire range: 22-18 Tab: .250 Sosmetal No. 210475	 Male Wire range: 18-14 Tab: .250 Sosmetal No. 210435	 Male Wire range: 12-10 Tab: .250 Sosmetal No. 210476	 Fully Ins. Male Wire range: 22-18 Tab: .250 Sosmetal No. 210275	 Fully Ins. Male Wire range: 18-14 Tab: .250 Sosmetal No. 210276	 Split Male Wire range: 18-14 Tab: .250 Sosmetal No. 210477

- All the most popular terminals you're likely to need.
- Non-insulated, insulated, and fully insulated.
- 22-18, 16-14, and 12-10 wire size:

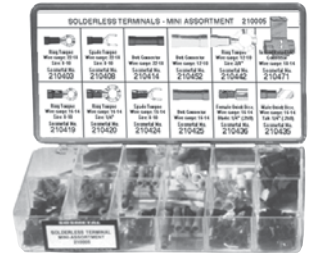
**Part No. 210007**  
160 pieces  
12 items  
12030 plastic tray



SOLDERLESS TERMINALS - MINI ASSORTMENT 210005					
 Ring Tongue Wire range: 22-18 Size: 8-10 Sosmetal No. 210403	 Spade Tongue Wire range: 22-18 Size: 8-10 Sosmetal No. 210408	 Butt Connector Wire range: 22-18 Sosmetal No. 210414	 Butt Connector Wire range: 12-10 Sosmetal No. 210452	 Ring Tongue Wire range: 12-10 Size: 3/16" Sosmetal No. 210442	 Instant Auto-Elec. Connector Wire range: 18-14 Sosmetal No. 210471
 Ring Tongue Wire range: 18-14 Size: 8-10 Sosmetal No. 210419	 Ring Tongue Wire range: 18-14 Size: 1/16" Sosmetal No. 210420	 Spade Tongue Wire range: 18-14 Size: 8-10 Sosmetal No. 210424	 Butt Connector Wire range: 18-14 Sosmetal No. 210425	 Female Quick Disc. Wire range: 18-14 Blade: 1/4" (.250) Sosmetal No. 210436	 Male Quick Disc. Wire range: 18-14 Blade: 1/4" (.250) Sosmetal No. 210435

- Contains Ring and Spade Tongue, Instant Connector, Snap, Butt and Quick Connect types.

**Part No. 210005**  
102 pieces  
12 items  
12030 plastic tray



GENERAL PURPOSE SOLDERLESS TERMINALS					
 Ring Tongue Wire range: 22-18 Size: 8-10 Sosmetal No. 210403	 Ring Tongue Wire range: 22-18 Size: 1/4" Sosmetal No. 210404	 Ring Tongue Wire range: 18-14 Size: 8-10 Sosmetal No. 210419	 Ring Tongue Wire range: 18-14 Size: 1/4" Sosmetal No. 210420	 Ring Tongue Wire range: 18-14 Size: 3/8" Sosmetal No. 210422	 Ring Tongue Wire range: 12-10 Size: 1/4" Sosmetal No. 210440
 Ring Tongue Wire range: 12-10 Size: 3/8" Sosmetal No. 210442	 Spade Tongue Wire range: 16-14 Size: 8-10 Sosmetal No. 210424	 Spade Tongue Wire range: 22-18 Size: 4-6 Sosmetal No. 210407	 Hook Tongue Wire range: 16-14 Size: 8-10 Sosmetal No. 210429	 Male Quick Disconnect Wire range: 16-14 Tab: .250 Sosmetal No. 210435	 Female Quick Disconnect Wire range: 16-14 Blade: .250 Sosmetal No. 210436
 Butt Connector Wire range: 22-18 Sosmetal No. 210414	 Butt Connector Wire range: 16-14 Sosmetal No. 210425	 Butt Connector Wire range: 12-10 Sosmetal No. 210452	 Universal Snap Plug Wire range: 16-14 Sosmetal No. 210434	 Snap Plug Receptacle Wire range: 16-14 Size: 157 Dia. Sosmetal No. 210433	 Instant Auto Electric Connector Wire range: 18-14 Sosmetal No. 210471

**Part No. 210003**  
282 pieces  
19 items  
12040 plastic tray with hand crimper

**Part No. 210004**  
282 pieces  
18 items  
12040 plastic tray



# VINYL INSULATED TERMINALS

E10

## PREMIUM QUALITY, FLARED VINYL INSULATION (.032" COPPER)










**22-18 WIRE RANGE**

Color Code: **RED**

									
Part Number	210401	210402	210403	210404	210405	210406	210407	210408	210409
Size	4-6	6-8	8-10	1/4	5/16	3/8	4-6	8-10	4-6
Type	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Spade Tongue	Spade Tongue	Flanged Spade







**22-18 WIRE RANGE**

Color Code: **RED**

									
Part Number	210410	210411	210412	210102	210475	210579	210580	210581	210582
Size	8-10	4-6	8-10	.250 Blade	.250 Tab	.110 Blade	.187 Blade	.187 Tab	.250 Blade
Type	Flanged Spade	Hook Tongue	Hook Tongue	Female Quick Disconnect	Male Quick Disconnect	Female Quick Disconnect	Female Quick Disconnect	Male Quick Disconnect	Piggyback









**22-18 WIRE RANGE**

Color Code: **RED**

							
Part Number	210280	210281	210413	210414	210275	210277	210415
Size	.157 Dia.	.157 Dia.			.250 Tab	.250 Blade	
Type	Snap Plug	Snap Plug Receptacle	Parallel Connector	Butt Connector	Fully Ins. Male Quick Disconnect	Fully Ins. Female Quick Disconnect	"Y" Connector









**16-14 WIRE RANGE**

Color Code: **BLUE**

								
Part Number	210417	210418	210419	210420	210421	210422	210423	210424
Size	4-6	6-8	8-10	1/4	5/16	3/8	4-6	8-10
Type	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Spade Tongue	Spade Tongue

**16-14 WIRE RANGE**

Color Code: **BLUE**

								
Part Number	210426	210427	210428	210429	210434	210433	210592	210593
Size	4-6	8-10	4-6	8-10	.157 Dia.	.157 Dia.	.180	.180
Type	Flanged Spade	Flanged Spade	Hook Tongue	Hook Tongue	Snap Plug	Snap Plug Receptacle	Snap Plug	Snap Plug Receptacle

# VINYL INSULATED TERMINALS

E10

## PREMIUM QUALITY, FLARED VINYL INSULATION (.032" COPPER)

**16-14 WIRE RANGE**  
Color Code: **BLUE**

Part Number	210574	210588	210589	210435	210436	210591	210278	210276
Size	.110 Blade	.187 Blade	.187 Tab	.250 Tab	.250 Blade	.250 Blade	.250 Blade	.250 Tab
Type	Female Quick Disconnect	Female Quick Disconnect	Male Quick Disconnect	Male Disconnect	Female Quick Disconnect	Piggyback	Fully Ins. Female Quick Disconnect	Fully Ins. Male Quick Disconnect

**16-14 WIRE RANGE**  
Color Code: **BLUE**

Part Number	210425	210101	210590	210271	210272	210430	210431
Size		.250 Blade	.250				
Type	Butt Connector	Fully Ins. Female Quick Disconnect	Female 90° Flag Disconnect	"T" Tap Clip and Insulator	Insulated Male Plug	3-way "Y" Connector	4-way "X" Connector

Easy Fold-Over Installation

## PREMIUM QUALITY, FLARED VINYL INSULATION (.040" COPPER)

**12-10 WIRE RANGE**  
Color Code: **YELLOW**

Part Number	210437	210438	210439	210440	210441	210442	210443	210444
Size	4-6	6-8	8-10	1/4	5/16	3/8	7/16	1/2
Type	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue

**12-10 WIRE RANGE**  
Color Code: **YELLOW**

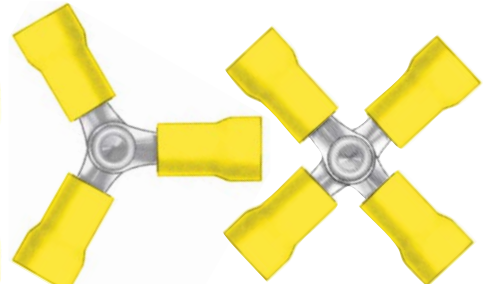
Part Number	210445	210446	210447	210448	210449	210450	210104	210476
Size	4-6	8-10	4-6	8-10	4-6	8-10	.250 Blade	.250 Tab
Type	Spade Tongue	Spade Tongue	Flanged Spade	Flanged Spade	Hook Tongue	Hook Tongue	Female Quick Disconnect	Male Quick Disconnect

# VINYL INSULATED TERMINALS

E10

## PREMIUM QUALITY, FLARED VINYL INSULATION (.040" COPPER)

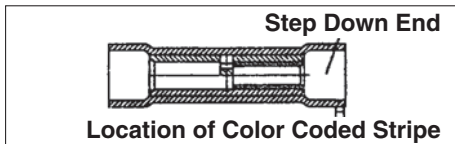
**12-10 WIRE RANGE**  
Color Code: **YELLOW**



Part Number	210478	210274	210273	210451	210452	210453	210454
Size	3/8 Blade	.250 Blade	.250 Tab				
Type	Female Quick Disconnect VW Alts. & Reg.	Fully Ins. Female Disconnect	Fully Ins. Male Disconnect	Parallel Connector	Butt Connector	3-way "Y" Connector	4-way "X" Connector

## INSULATED STEP DOWN BUTT CONNECTORS

Cutaway View



The step down butt splice is the perfect solution when two wires need to be inserted in one end of a splice and a single wire in the other end.

- Connects wires of different gauges.
- The "step down" end is distinctly color coded for easy identification.
- Flared vinyl insulation.

STEP DOWN BUTT CONNECTORS 210011	
<p>Wire Size: 8 to 12-10 Red w/Yellow Stripe</p> <p>Sosmetal No. 210355</p>	<p>Wire Size: 6 to 8 Blue w/Red Stripe</p> <p>Sosmetal No. 210356</p>
<p>Wire Size: 16-14 to 22-18 Blue w/Red Stripe</p> <p>Sosmetal No. 210353</p>	<p>Wire Size: 12-10 to 12-10 Yellow w/Blue Stripe</p> <p>Sosmetal No. 210354</p>

PART NUMBER	WIRE SIZE	COLOR	QTY
210353	16 - 14 to 22 - 18	Blue w/ Red Stripe	25
210354	12 - 10 to 16 - 14	Yellow w/ Blue Stripe	25
210355	8 to 12 - 10	Red w/ Yellow Stripe	25
210356	6 to 8	Blue w/ Red Stripe	25

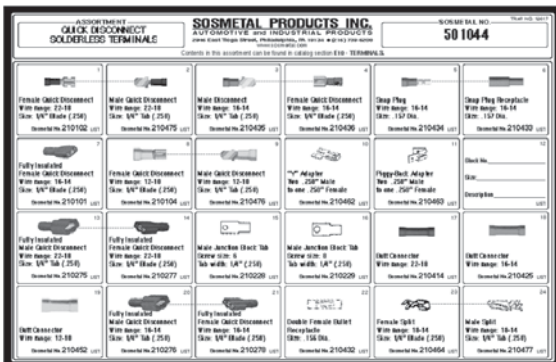


See page E10-20 for Shrink 'N Seal Step Down Butt Connectors.

**Part No. 210011**

52 pieces  
4 items  
12024 plastic tray

## QUICK DISCONNECT ASSORTMENT



- 21 Different Styles: Male, Female, Butt, Snap Plug, Split Tab.
- Packed in large 24 bin metal tray with size selector lid chart.

**Part No. 501044**  
330 pieces • 23 items  
12017 steel tray

210101	210276	210433	210463
210102	210277	210434	210464
210104	210278	210435	210475
210228	210414	210436	210476
210229	210425	210452	210477
210275	210432	210462	

Numbers in assortment



# NON-INSULATED HIGH TEMPERATURE TERMINALS

E10

## 1200° HIGH TEMPERATURE BUTTED SEAM TERMINALS

- Structural features are identical to all non-insulated terminals except for the base material, which is high quality, nickel plated alloy steel.
- Designed for use in specific applications where high temperatures are encountered.
- Material: Alloy steel.
- Plating: Nickel.
- Temperature rating: 900° continuous 1200° intermittent

### 22-18 WIRE RANGE

<b>Part Number</b>	209201	209203	209204	209213	209224	209220
<b>Size</b>	6	10	1/4	10	6	
<b>Type</b>	Ring Tongue	Ring Tongue	Ring Tongue	Spade Tongue	Block Spade	Butt Connector

### 16-14 WIRE RANGE

<b>Part Number</b>	209205	209207	209208	209214	209225
<b>Size</b>	6	10	1/4	10	6
<b>Type</b>	Ring Tongue	Ring Tongue	Ring Tongue	Spade Tongue	Block Spade

### 16-14 WIRE RANGE

<b>Part Number</b>	209221	209217	209218	209226	209227
<b>Size</b>		.187 Blade	.250 Blade	.250 Blade	.250 Tab
<b>Type</b>	Butt Connector	Female Disconnect	Female Disconnect	Flag Disconnect	Male Disconnect

### 12-10 WIRE RANGE

<b>Part Number</b>	209223	209210	209211	209212	209215	209222
<b>Size</b>	6	10	1/4	3/8	10	
<b>Type</b>	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Spade Tongue	Butt Connector

## 1200° HIGH TEMPERATURE NON-INSULATED TERMINALS

### SHOP ASSORTMENT

Part No. 209102

294 pieces • 22 items • 12045 plastic tray

209201	209207	209212	209217	209222	209226
209203	209208	209213	209218	209223	209227
209204	209210	209214	209220	209224	
209205	209211	209215	209221	209225	

Numbers in assortment



## GENERAL PURPOSE NON-INSULATED SOLDERLESS TERMINALS

**SHOP ASSORTMENT**  
Part No. 209101  
304 pieces • 18 items • 12040 plastic tray

209111	209130	209137	209152	209157	209167
209113	209132	209141	209154	209161	209176
209118	209135	209150	209156	209163	209177

Numbers in assortment

**MASTER ASSORTMENT**  
Part No. 501333  
492 pieces • 24 items • 12017 steel tray

209128	209138	209154	209161	209167	209181
209132	209150	209156	209162	209176	209184
209135	209152	209157	209163	209177	209185
209136	209153	209160	209164	209180	209186

Numbers in assortment

NOTE: Splice Clips, Automotive Open Barrel Terminals and Ford Terminated Leads can be found in Section G11.

## NON-INSULATED TERMINALS

E10

## SOLDERLESS TERMINALS NON-INSULATED

22-18  
WIRE  
RANGEMade of pure electrolytic copper, annealed and electro-tin  
plated for corrosion resistance

Part No.	209110	209111	209112	209113	209114	209115	209116	209117
Size	4	6	8	10	1/4	5/16	3/8	6
Type	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Spade Tongue

22-18  
WIRE  
RANGE

Part No.	209118	209119	209120	209121	209122	209123	209124	209125
Size	8	10	6	8	10	6	8	10
Type	Spade Tongue	Spade Tongue	Flanged Spade	Flanged Spade	Flanged Spade	Hook Tongue	Hook Tongue	Hook Tongue

22-18  
WIRE  
RANGE

Part No.	209126	209127	209128	209129	209130	209131	209132
Size	.187 Tab	.250 Tab	.110 Blade	.187 Blade	.250 Blade	.157 Dia.	
Type	Male Disconnect	Male Disconnect	Female Disconnect	Female Disconnect	Female Disconnect	Bullet	Butt Connector

16-14  
WIRE  
RANGE

Part No.	209133	209134	209135	209136	209137	209138	209139	209140
Size	4	6	8	10	1/4	5/16	3/8	6
Type	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Spade Tongue

16-14  
WIRE  
RANGE

Part No.	209141	209142	209143	209144	209145	209146	209147	209148
Size	8	10	6	8	10	6	8	10
Type	Spade Tongue	Spade Tongue	Flanged Spade	Flanged Spade	Flanged Spade	Hook Tongue	Hook Tongue	Hook Tongue

16-14  
WIRE  
RANGE

Part No.	209149	209150	209151	209152	209153	209154	209155	209156	209157
Size	.187 Tab	.250 Tab	.187 Blade	.250 Blade	.187 Blade	.250 Blade	.250 Blade	.157 Dia.	
Type	Male Disconnect	Male Disconnect	Female Disconnect	Female Disconnect	Female Flag	Female Flag	Female Open Barrel	Bullet	Butt Connector

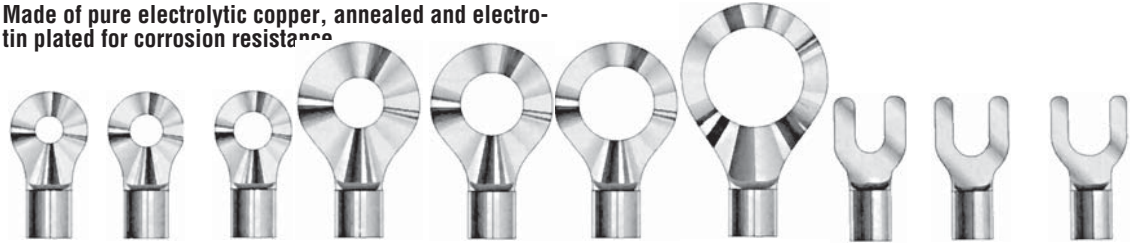
# NON-INSULATED TERMINALS

E10

## SOLDERLESS TERMINALS NON-INSULATED

### 12-10 WIRE RANGE

Made of pure electrolytic copper, annealed and electro-tin plated for corrosion resistance.



Part No.	209158	209159	209160	209161	209162	209163	209164	209165	209166	209167
Size	6	8	10	1/4	5/16	3/8	1/2	6	8	10
Type	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Spade Tongue	Spade Tongue	Spade Tongue

### 12-10 WIRE RANGE



Part No.	209168	209169	209170	209171	209172	209173	209174	209176	209175	209177
Size	6	8	10	6	8	10	.250 Tab	.250 Blade	.375 Blade	
Type	Flanged Spade	Flanged Spade	Flanged Spade	Hook Tongue	Hook Tongue	Hook Tongue	Male Disconnect	Female Disconnect	Female Disconnect	Butt Connector

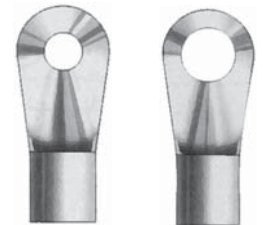
### #8 WIRE RANGE

Barrel seam brazed with high grade silver alloy to assure maximum strength in heavy duty applications.



Part No.	209178	209179	209180	209181	209182	209196
Size	10	1/4	5/16	3/8	1/2	
Type	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Butt Connector

### #6 WIRE RANGE



Part No.	209183	209184
Size	10	1/4
Type	Ring Tongue	Ring Tongue

### #6 WIRE RANGE



Part No.	209185	209186	209187	209197
Size	5/16	3/8	1/2	
Type	Ring Tongue	Ring Tongue	Ring Tongue	Butt Connector

### #4 WIRE RANGE



Part No.	209188	209189	209190	209191	209198
Size	1/4	5/16	3/8	1/2	
Type	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Butt Connector

# NON-INSULATED TERMINALS

E10

#2 WIRE RANGE



Part No.	209192	209193	209194	209195	209199
Size	1/4	5/16	3/8	1/2	
Type	Ring Tongue	Ring Tongue	Ring Tongue	Ring Tongue	Butt Connector

## UNINSULATED STEP-DOWN CONNECTORS

Unsealed - No Heat Shrink Tubing.

PART NUMBER	QTY	SIDE #1			SIDE #2		
		COLOR STRIPE	WIRE	CRIMP DIE (INSULATED)	COLOR STRIPE	WIRES	CRIMP DIE (INSULATED)
209450	50	White	24-22 AWG	White (24-22 AWG)	Red	20-18 AWG	Red (20-18 AWG)
209451	50	Red	20-18 AWG	Red (20-18 AWG)	Blue	16-14 AWG	Blue (16-14 AWG)
209452	50	Blue	16-14 AWG	Blue (16-14 AWG)	Yellow	12-10 AWG	Yellow (12-10 AWG)
209453	50	Yellow	12-10 AWG	Yellow (12-10 AWG)	Red	8 AWG	Red (8 AWG)

## QUICK DISCONNECT TERMINALS

Convert stud terminals to quick disconnects.

<p><b>Male Junction Block Tabs</b> Screw Size: 6 Tab width: .250 (1/4) <b>Part No. 210228</b> 100</p>	<p><b>Male Junction Block Tabs</b> Screw Size: 8 Tab width: .250 (1/4) <b>Part No. 210229</b> 100</p>	<p><b>Double Male Connector</b> Tab width: .250 (1/4) vinyl insulated <b>Part No. 210550</b> 100</p>	<p><b>Double Female Bullet Receptacle</b> .156 Dia. <b>Part No. 210432</b> 100</p>	<p><b>"Y" Adapter</b> Two .250" Male to one .250" Female <b>Part No. 210462</b> 100</p>
<p><b>Piggy-Back Adapter</b> Two .250" Male to one .250" Female <b>Part No. 210463</b> 100</p>	<p><b>Parallel Adapter</b> Two .250" Male to one .250" Female <b>Part No. 210360</b> 25</p>	<p><b>Female Tab</b> 26-20 ga. wire Tab width: .110 Non-Insulated <b>Part No. 210361</b> 50</p>	<p><b>Female Tab</b> 16-14 ga. wire Tab width: .110 Non-Insulated <b>Part No. 210362</b> 50</p>	<p><b>Female Bullet Receptacle</b> 18-14 ga. wire .156 Dia. Non-Insulated <b>Part No. 210363</b> 25</p>

## WIRE PIN TERMINALS

Used in truck/trailer junctions and plugs, and in European terminal blocks.

<p>22-18 ga. wire Pin Length: .37 Non-Insulated <b>Part No. 210364</b> 50</p>	<p>16-14 ga. wire Pin Length: .37 Non-Insulated <b>Part No. 210365</b> 50</p>	<p>12-10 ga. wire Pin Length: .46 Non-Insulated <b>Part No. 210366</b> 50</p>
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## FUSE TAP

For Blade Fuses

Tab width: .250 (1/4)  
**Part No. 210283** 100

## MINIFUSE TAP ADAPTER

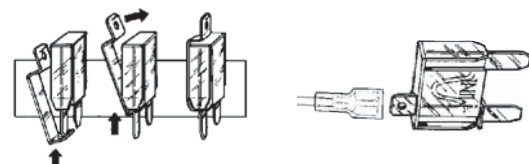


**Part No. 615233** 50

E10-30  
REVISED OCTOBER, 2012

### Directions for installation:

Tap the hot side of the MINIFUSE to power car stereos, alarms, CB's and add-on accessories.  
Slip the leg of a MINIFUSE through the contact slot of the tap, fold the tap over the top into the vehicles MINIFUSE block.  
To tap current slip a crimped .187 fully insulated female quick connect over the tab of the MINIFUSE and plug.



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# NON-INSULATED TERMINALS / DEUTSCH CONNECTORS

E10

## MATE-N-LOK™ TERMINALS

Commonly used in cellular phone and communication equipment installations, office machines and machine controls.

**Male Terminal**  
 20-14 ga. wire  
 .084 dia. pin  
 Single barb mates with 210171  
**Part No. 210170** <sup>25</sup>



**Female Terminal**  
 20-14 ga. wire  
 .084 dia. pin  
 Single barb mates with 210170  
**Part No. 210171** <sup>25</sup>



**Male Terminal**  
 20-14 ga. wire  
 .084 dia. pin  
 Dual barb mates with 210173  
**Part No. 210172** <sup>25</sup>



## DEUTSCH DT SERIES CONNECTORS

Environmentally sealed connectors for cable connections on engines, transmissions, chassis, brake systems, lights and cabs in the fleet, agricultural and equipment industries.

- Thermoplastic housings and silicone seals rated -55°C to 125°C.
- Withstands submersion in three feet of water.
- Current rating (maximum) 13 amps.
- **ALL TERMINALS REQUIRE A LOCKING WEDGE.**
- Material specifications:

Housings (plug and receptacle): Thermoplastic.  
 Seals: Silicone elastomer.  
 Locking wedge: Thermoplastic.  
 Contacts: Copper alloy, nickel plated.

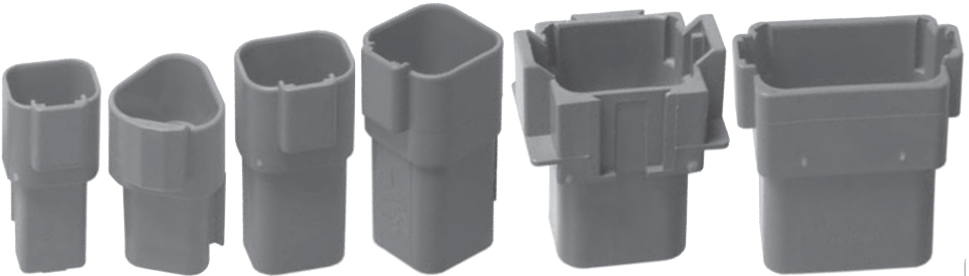
PART PLUG NUMBER	CAVITIES	LOCKING WEDGE	QTY
206923	2	206929	5
206924	3	206930	5
206925	4	206931	5
206926	6	206932	5
206927	8	206933	2
206928	12	206934	2

### PLUGS



PART RECEPTACLE NUMBER	CAVITIES	LOCKING WEDGE	QTY
206910	2	206916	5
206911	3	206917	5
206912	4	206918	5
206913	6	206919	5
206914	8	206920	2
206915	12	206921	2

### RECEPTACLES



### FEMALE SOCKET TERMINAL



- Use with DT series plugs.
  - Wire range: 16-14 ga.
- Part No. 206935** <sup>10</sup>

### SEALING PLUG



**Part No. 206936** <sup>10</sup>

### MALE PIN TERMINAL



- Use with DT series receptacles.
  - Wire range: 16-14 ga.
- Part No. 206922** <sup>10</sup>

### DEUTSCH REMOVAL TOOL



**Part No. 206937**

### DEUTSCH CRIMPING TOOL

- Universal hand crimp tool, eight indent, solid contacts.



**Part No. 206938**

# DEUTSCH / INDUSTRIAL CONNECTORS

E10

## DEUTSCH DT SERIES CONNECTOR ASSORTMENTS



- Contains 2, 3 and 4 socket plugs and locking wedges, 2, 3 and 4 pin receptacles and locking wedges, female socket terminals, male pin terminals and sealing plugs.
- Assortment No. 501681 includes removal tool and crimper.



**Part No. 501680**  
**110 pieces • 15 items • 12050 steel tray**

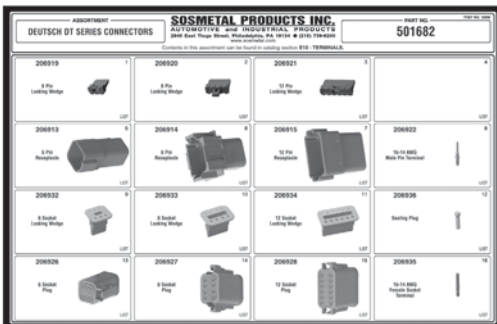
206910	206916	206922	206925	206931
206911	206917	206923	206929	206935
206912	206918	206924	206930	206936

**Numbers in assortment**

**Part No. 501681**  
**Includes HD Crimper and Removal Tool**  
**112 pieces • 17 items • 12056 steel tray**

206910	206916	206922	206925	206931	206937
206911	206917	206923	206929	206935	206938
206912	206918	206924	206930	206936	

**Numbers in assortment**



- Contains 6, 8 and 12 socket plugs and locking wedges, 6, 8 and 12 pin receptacles and locking wedges, female socket terminals, male pin terminals and sealing plugs.

**Part No. 501682**  
**74 pieces • 15 items • 12050 steel tray**

206913	206919	206922	206928	206934
206914	206920	206926	206932	206935
206915	206921	206927	206933	206936

**Numbers in assortment**



# INDUSTRIAL CONNECTORS

**E10**

## SPLIT BOLT CONNECTORS



Listed



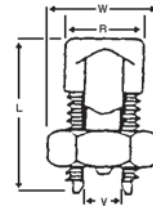
Registered

Used by Utility Co's, plant maintenance, building construction.  
Anywhere for joining conductor cable in industrial applications.  
Universal - uses both stranded and solid cable.

## COPPER BOLTS, FOR COPPER CONDUCTORS ONLY

- High strength copper alloy - allows maximum pressure to be placed on the conductors.
- Extremely resistant to seasonal cracking and corrosion.
- Precision tooled threads - allows maximum torque to be applied.
- Assures a cool and safe connection.

PART NUMBER	QTY	WIRE RANGE (CU)		DIMENSIONS IN INCHES			
		EQUAL MAIN & TAP (MIN. - MAX.)	MIN.TAP WITH MAX MAIN	L	R	V	W
210850	2	12 str - 10 str	16 str	.72	.29	.117	.49
210851	2	10 str - 8 str	14 str	.72	.37	.142	.57
210852	2	8 str - 6 sol	14 str	.98	.44	.165	.70
210853	2	8 str - 4 sol	14 str	1.04	.50	.216	.78
210854	2	6 str - 2 sol	14 str	1.08	.58	.264	.84
210855	2	6 str - 2 str	14 str	1.51	.62	.323	.92
210856	2	4 str - 1/0 str	14 str	1.64	.72	.385	1.06
210857	1	2 str - 2/0 str	14 str	1.79	.81	.436	1.18
210858	1	1 str - 3/0 str	8 sol	1.80	1.17	.553	1.56
210859	1	1 str - 250MCM	8 str	2.00	1.17	.605	1.56
210860	1	1/0 str - 350MCM	1/0 str	2.63	1.25	.696	1.91
210861	1	2/0 str - 500MCM	2/0 str	2.91	1.50	.850	2.10



## ALUMINUM BOLTS, FOR ALUMINUM CONDUCTORS ONLY

- Use with any combination of copper or aluminum conductors.
- Manufactured from a special heat treated high strength aluminum alloy.
- Patented design insures cool operation and long term reliability.
- Specifically designed to meet the stringent U.L. 486 B. testing standards.
- Triangle edge of the pressure bar bites into the cable to break through surface oxides.

PART NUMBER	QTY	WIRE RANGE (CU)		DIMENSIONS IN INCHES			
		EQUAL MAIN & TAP (MIN. - MAX.)	MIN.TAP WITH MAX MAIN	L	R	V	W
210862	2	10 str - 6 str	10 sol	1.37	.55	.210	.84
210863	2	8 str - 4 sol	10 sol	1.51	.62	.264	.91
210864	2	6 str - 2 sol	8 str	1.69	.68	.325	1.05
210865	2	2 str - 1/0 str	8 sol	2.00	.74	.390	1.11
210866	1	2 str - 2/0 str	8 str	2.08	.87	.440	1.26
210867	1	2 str - 4/0 str	6 str	2.75	1.17	.550	1.73
210868	1	1/0 str - 350MCM	4 str	3.28	1.50	.696	1.93
210869	1	400MCM - 500MCM	2 str	3.58	1.71	.850	2.30



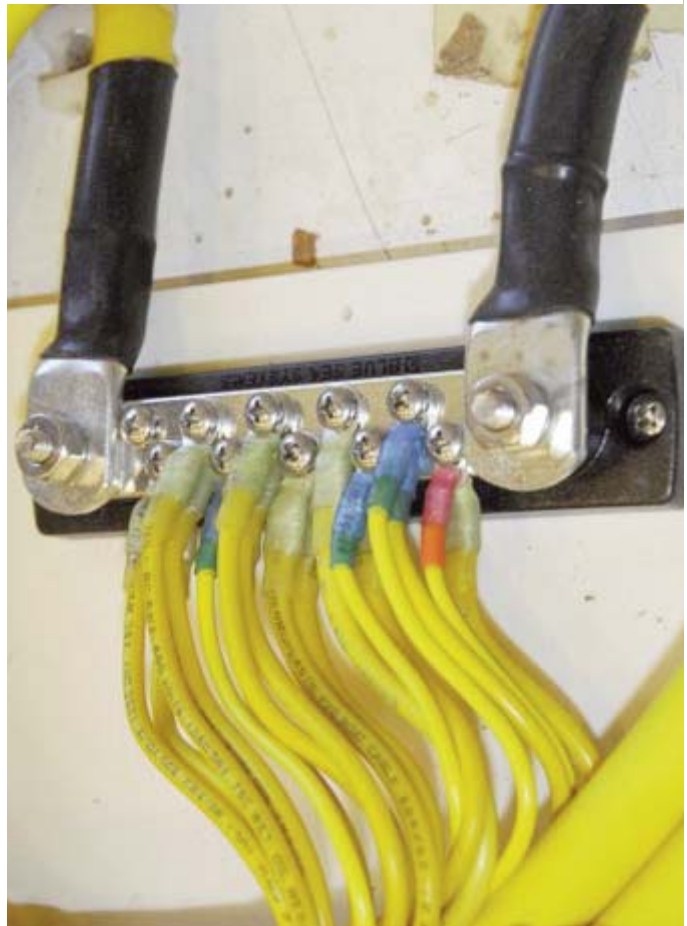
Assortment available.

**Part No. 501542**  
33 pieces • 11 items  
12050 steel tray  
Includes both copper & aluminum 12-10 thru 2-4/0

210850	210855	210863
210851	210856	210864
210852	210857	210867
210853	210862	

Numbers in assortment

# E SECTION ELECTRICAL HARDWARE



E10-33 PIX

PICTURE ILLUSTRATIONS OF SOSMETAL PRODUCTS BEING USED.

# WIRE GAUGE CHART

## WIRE GAUGE CHART

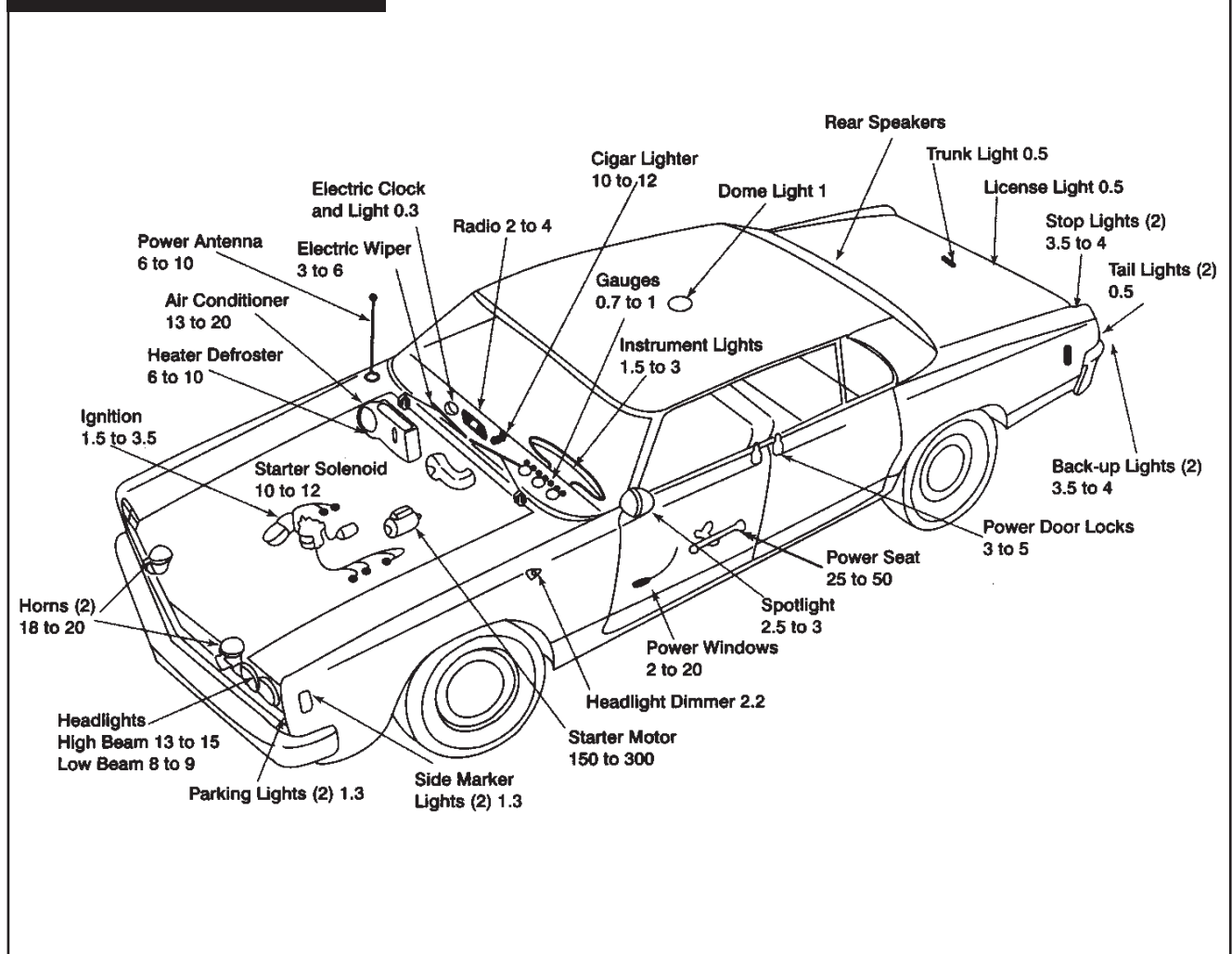
12 VOLT SYSTEM AMPS (APPROX.)	CANDLE POWER	TOTAL LENGTH OF CABLE IN CIRCUIT FROM BATTERY TO MOST DISTANT LAMP									
		2.5-FT GAUGE	5-FT GAUGE	10-FT GAUGE	20-FT GAUGE	30-FT GAUGE	40-FT GAUGE	50-FT GAUGE	60-FT GAUGE	80-FT GAUGE	100-FT GAUGE
1.0	6	20	20	20	20	20	20	20	20	20	18
1.5	10	20	20	20	20	20	20	20	20	18	18
2	16	20	20	20	20	20	20	18	18	16	16
3	24	20	20	20	20	20	18	18	16	16	14
4	30	20	20	20	20	18	18	16	16	14	12
5	40	20	20	20	18	18	16	14	14	12	12
6	50	20	20	20	18	16	16	14	14	12	12
7	60	20	20	20	18	16	14	14	12	12	10
8	70	20	20	20	16	16	14	12	12	10	10
10	80	20	20	18	16	14	12	12	10	10	10
11	90	20	20	18	16	14	12	12	10	10	8
12	100	20	20	18	16	14	12	12	10	10	8
15	120	20	20	18	14	12	12	10	10	8	8
18	140	20	20	16	14	12	10	10	8	8	8
20	160	20	18	16	12	12	10	10	8	8	6
22	180	20	18	16	12	10	10	8	8	8	6
24	200	20	18	16	12	10	10	8	8	6	6
36		20	16	14	10	8	8	8	6	6	4
50		18	16	12	10	8	6	6	4	4	2
100		14	12	10	6	4	4	2	2	1	0
150		14	10	8	4	2	2	1	0	00	000
200		12	8	6	4	2	1	0	00	000	0000

Note: This chart is based on a 10% maximum voltage drop. For 5% voltage drop, use double the measured wire length. When mechanical strength is a factor, use next larger wire gauge.

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### Primary Wiring Amperage Guide

Amperage based on typical 12 volt system.

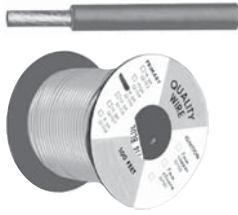


# WIRE

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## PVC GENERAL PURPOSE PRIMARY WIRE

Multi-use wire for original equipment and replacement on automotive, truck, trailer and marine applications.



- Thermoplastic PVC insulation.
- Stranded copper conductor wire.
- Temperature rated from -30° to +165°F.
- Resistant to grease, oil and acids.

**MEETS OR EXCEEDS:**  
**S.A.E. Spec. J1128**  
**Ford M1L56-A and M1L58-A**  
**Chrysler MS 3450**

PART NUMBER		GAUGE	
100 ft. (Add suffix for color)	250 ft. (Add suffix for color)	1000 ft. (Add suffix for color)	
---	<b>32111</b>	---	22
---	<b>32112</b>	---	20
<b>32103</b>	---	---	18
<b>32104</b>	---	<b>32104M</b>	16
<b>32105</b>	---	<b>32105M</b>	14
<b>32106</b>	---	---	12
<b>32107</b>	---	---	10
<b>32108</b>	---	---	8

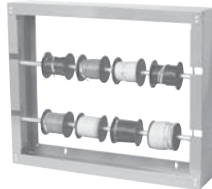
**COLORS AVAILABLE:** Add suffix to part number when ordering. All wire sizes except 22 ga., 20 ga. and 8 ga. available in Black (use no suffix), Blue (BL), Brown (BR), Green (G), Gray (GY), Orange (RNG), Purple (P), Red (R), White (W), Yellow (Y). 22 ga., 20 ga. and 8 ga. available in Black, Red (R), and White (W) only.

## GENERAL PURPOSE PRIMARY WIRE STARTER ASSORTMENT

**Part No. 32110**

8 spools containing 100' each.  
 Steel rack  
 Part No. 12002 included.

18 GAUGE	16 GAUGE	14 GAUGE	12 GAUGE
Black	Black	Black	Red
Blue	Blue		
Red	Red		



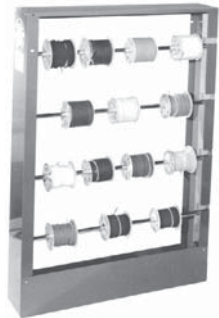
## GENERAL PURPOSE PRIMARY WIRE MASTER ASSORTMENT

**Part No. 32100**

14 spools containing 100' each of the most popular colors and gauges.  
 Steel rack  
 Part No. 12057 included.

16 GAUGE	14 GAUGE
Black	Black*
Red*	Red*
Blue	Blue
Green	Green
Yellow	Yellow
White	

\* Assortment contains 2 rolls



## SXL CROSS-LINK PRIMARY WIRE

Special purpose automotive wire for use in extreme temperature areas, such as engine compartments.



- Cross-linked polyethylene insulation.
- Stranded copper conductor wire.
- Withstands temperature extremes of -50° to +350°F without melting or fusing.
- Resistant to moisture, most solvents and acids.

**MEETS OR EXCEEDS:**  
**S.A.E. Spec. J1128**  
**Ford M1L 85-A, Chrysler MS-5919 and Packard M-3023**

PART NUMBER		GAUGE	
100 ft. (Add suffix for color)			
<b>310201</b>			18
<b>310202</b>			16
<b>310203</b>			14
<b>310204</b>			12
<b>310205</b>			10

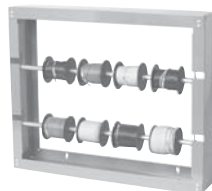
**COLORS AVAILABLE:** Add suffix to part number when ordering. All gauges except 10 ga. available in Black (use no suffix), Blue (BL), Brown (BR), Green (G), Red (R), White (W), Yellow (Y). 10 ga. available in Black (no suffix), Red (R) and White (W) only.

## SXL CROSS-LINK PRIMARY WIRE STARTER ASSORTMENT

**Part No. 310210**

8 spools containing 100' each.  
 Steel rack  
 Part No. 12002 included.

18 GAUGE	16 GAUGE	14 GAUGE	12 GAUGE
Black	Black	Black	Red
Blue	Blue		
Red	Red		

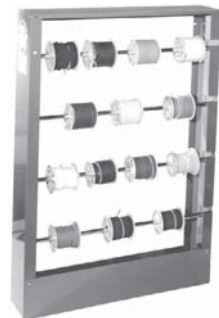


## SXL CROSS-LINK PRIMARY WIRE MASTER ASSORTMENT

**Part No. 310200**

14 spools containing 100' each of the most popular colors and gauges.  
 Steel rack  
 Part No. 12057 included.  
 1 roll each of the following:

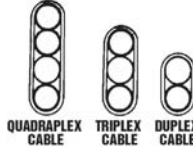
18 GAUGE	16 GAUGE	14 GAUGE
Black	Black	Black
Red	Red	Red
Blue	Blue	
Green	Green	
Yellow	Yellow	
White	White	



**JACKETED PLASTIC PRIMARY WIRE**

Recommended for automotive, truck, and trailer applications. Sizes 12 and 10 gauge recommended for electric brake wire.

- PVC insulated primary wires laid parallel and covered with gray vinyl jacket.
- Available in two, three and four conductor.
- Resistant to grease, oil, acids, and gasoline.
- For low voltage 12 and 24 volt systems only.
- 100 ft. spools.



PART NUMBER	GAUGE/CONDUCTORS	CONDUCTOR COLORS
310310	16/2	Black, White
310311	16/3	Black, White, Green
310313	14/2	Black, White
310314	14/3	Black, White, Green
310315	14/4	Black, White, Green, Red
310316	12/2	Black, White
310317	12/3	Black, White, Green
310319	10/2	Black, White
310320	10/3	Black, White, Green

**BONDED PARALLEL PRIMARY WIRE**

Used extensively for RV's, boat and utility trailers.

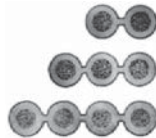
- Copper stranded wire with PVC insulation.
- Clear all-weather outer coating on top of insulation.
- Available in two, three, and four conductors.
- Withstands temperatures up to 160°F.
- 100 ft. spools.



Two Conductor

Three Conductor

Four Conductor



PART NUMBER	GAUGE/CONDUCTORS	CONDUCTOR COLORS
310216	16/2	Brown, Red*
310211	16/3	Brown, Green, Yellow
310212	16/4	Brown, Green, White, Yellow
310215	14/2	Brown, Red*
310213	14/3	Brown, Green, Yellow
310214	14/4	Brown, Green, White, Yellow

\* May be Black, Red - Depending on manufacturer.

**LAMP WIRE**

Used for alarms, lamps, and light duty wiring.

- Type SPT-1, 300 volt rated.
- Insulation coded for identification.
- Parallel style, also called "Ripcord".
- Available in 250 ft. spools.



PART NUMBER	GAUGE	COLORS AVAILABLE:
250 ft. (Add suffix for color)		Add suffix to part number when ordering
310221	18/2	Black No suffix
310222	16/2	Brown (Br)
		White (W)

**SPEAKER WIRE**

Used for general audio applications in homes, offices, boats, motor homes, and cars.

- Top grade insulated copper wire.
- Clear jacket (except 310355), coded for polarity identification.
- Available in 100 ft. spools (except 310355, 250 ft. spool).

PART NUMBER	GAUGE/CONDUCTORS
250 ft. (Add suffix for color)	
310355	22/2*
310357	18/2
310358	16/2
310359	14/2
310360	12/2



\* Gray jacket, 250 ft. spool

**UL LISTED PRIMARY WIRE**

For use in DOT, Coast Guard and RVI electrical systems, and for internal wiring of appliances and electronic systems when exposed to temperatures not exceeding 221°F.

- Underwriters Lab. listed UL1015 rated at 600 volts.
- Meets Department of Transportation and Coast Guard specification for electrical systems.
- Rated for temperatures up to 221°F (105°C) dry and 167°F wet.
- 100 ft. per spool.

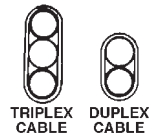


PART NUMBER	GAUGE	COLORS AVAILABLE:
100 ft. (Add suffix for color)		Add suffix to part number when ordering
310325	18	Black No suffix
310326	16	Green (G)
310327	14	Red (R)
310328	12	White (W)
310329	10	

**UL LISTED MULTI-CONDUCTOR MARINE CABLE**

Used primarily as marine cable for boat and associated equipment wiring.

- Underwriters Lab. listed BG5W2 rated at 600 volts.
- Meets Coast Guard requirements for boat cable.
- Rated for temperatures up to 221°F (105°C) dry and 167°F (75°C) wet.
- Available in two or three conductor.
- White outer jacket.
- 100 ft. per spool.



PART NUMBER	GAUGE/CONDUCTORS	CONDUCTOR COLORS
310343	16/3	Black, Green, White
310344	14/2	Black, White
310345	14/3	Black, Green, White
310346	12/2	Black, White
310347	12/3	Black, Green, White

**SERVICE CORD, 300 VOLT, TYPE SJ**

Designed for stationary, light duty service.

- UL listed (E7362), OSHA acceptable.
- Black rubber jacket and rubber insulated conductors.
- Temperature rated -35°F (-37°C) to 140°F (60°C).
- Available in 250 ft. spool or 100 ft. cut length.



PART NUMBER	GAUGE/CONDUCTORS	CONDUCTOR COLORS
310365	18/3	Black, Green, White
310366	16/3	Black, Green, White
310367	14/3	Black, Green, White
310368	12/3	Black, Green, White

**SERVICE CORD, 300 VOLT, TYPE SJO**

Designed for heavy duty service, portable tools, small motor, and power extensions.

- UL listed (E7362), OSHA acceptable. Passes MSHA flame test (P136-MSHA).
- Oil resistant black neoprene jacket, rubber insulated conductors.
- Temperature rated -35°F (-37°C) to 194°F (90°C).
- Available in 250 ft. spool or 100 ft. cut length.



PART NUMBER	GAUGE/CONDUCTORS	CONDUCTOR COLORS
310376	16/3	Black, Green, White
310377	14/3	Black, Green, White

# WIRE and CABLE

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## SERVICE CORD, 600 VOLT, TYPE SO

Designed for heavy duty service and heavy loads required by industrial equipment, heavy tools, battery chargers, portable lights and power extensions.

- UL listed (E7362), OSHA acceptable. Passes MSHA flame test (P136-MSHA).
- Temperature rated -35°F (-37°C) to 194°F (90°C).
- Resistant to oil, acid, impact, abrasion, sunlight and flame.
- Available in 250 ft. spool or 100 ft. cut length.



PART NUMBER	GAUGE/CONDUCTORS	CONDUCTOR COLORS
310385	16/3	Black, Green, White
310386	14/3	Black, Green, White
310387	12/3	Black, Green, White
310388	10/3	Black, Green, White

Four conductor available on special order

## BATTERY CABLE

- Stranded copper conductor.
- Polyvinyl thermoplastic insulation.
- Use Black for ground (-), Red for positive (+).
- Outer coating resists moisture, weather, acids, and oil.
- Available in 25 ft. rolls.



Welding cable makes excellent H.D. battery cables. See Section D13 Welding

PART NUMBER		GAUGE	STRANDING	OD
BLACK	RED			
33112	222161	6	44 x .023	.375
33113	222162	4	49 x .021	.375
33105	222163	2	84 x .021	.450
33107	222164	1	133 x .022	.500
33114	222165	1/0	133 x .021	.530
33106	222166	2/0	133 x 0.20	.590
33117	222167	3/0	259 x .022	.650
33118	222168	4/0	418 x .024	.740

## WELD-FLEX SUPER FLEXIBLE WELDING CABLE

THE FINEST WELDING CABLE AVAILABLE  
Excellent for Heavy Duty Battery and Jumper Cables

- Rope stranded ultra-thin No. 32 AWG annealed copper wire.
- Conforms to all international specifications.
- High flexibility of conductor and jacket makes handling extremely easy.
- Double cover jacket of PVC inner core, NBR (acrylonitrile rubber) outer jacket exceptionally tough and durable, very resistant to abrasion, oil, heat, ozone, and most solvents.

Actual Dia.

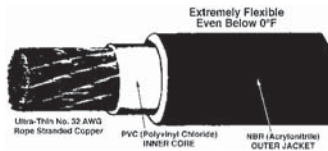
6

4

2

1/0

2/0



Sold by the foot. Custom cut lengths to meet your requirements. Minimum order: 10 feet

PART NUMBER	GAUGE	APPROX. # OF WIRES	CURRENT RATING (AMPS)
310225	6	415	124
310226	4	660	162
310227	2	1050	279
310228	1/0	1670	390
310229	2/0	2107	416

## TRAILER LIGHT CABLE

- All weather, heavy-duty cable for truck or trailer lighting.
  - Heavy black vinyl insulation.
  - Tinned copper color-coded conductors meet ATA spec E1-1950 & most SAE standards.
  - Sold in either 50 or 100 foot lengths.
- \*SPECIFY LENGTH WHEN ORDERING.



PART NUMBER	GAUGE	CONDUCTORS	STRANDING	OD
32201	14	4	19 x 27	.410
32202	14	6	19 x 27	.500
32204	14	7	19 x 27	.496
32203	12	6	19 x 25	.600
	10	1	19 x 23	.600

### COLOR CODE:

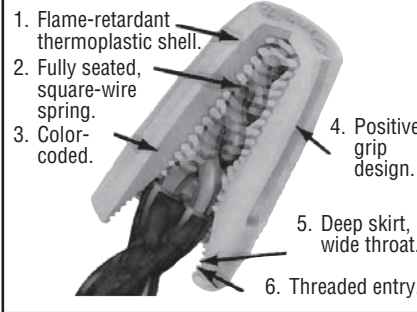
4 conductor, Black, White, Brown, Red  
6 conductor, Black, White, Brown, Red, Green, Yellow  
7 conductor, 10 ga. White; 12 ga., Black, Brown, Red, Green, Yellow, Blue #32203  
7 conductor, 14 ga. Red, White, Black, Brown, Yellow, green, Blue #32204



# WIRE CONNECTORS

## WIRE NUT CONNECTORS

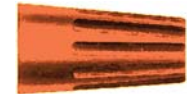
- Flame retardant thermoplastic shell.
- Fully-seated, square wire spring draws the connector completely onto the wires.
- Color coding to industry standards.
- Positive grip design tightens all the way. They back-off easily for repeat usage.
- Wire nuts comply with federal inspection W-S610C, are UL listed (#E5238), and CSA certified (#LR 9706).



210996



210986



210987



210988



210989

PART NUMBER	COMBINATION WIRE RANGE	COLOR	300 VOLT	600 VOLT	QTY
			PRESSURE-TYPE WIRE CONNECTOR	PRESSURE-TYPE WIRE CONNECTOR	
210996	No. 22 thru 16 AWG Min. 1 No. 20 & 1 No. 22/Max. 2 No. 16	Gray	✓		25
210986	No. 22 thru 14 AWG Min. 3 No. 20/Max. 3 No. 16	Blue	✓		25
210987	No. 22 thru 14 AWG Min. 3 No. 20/Max. 3 No. 16 & 1 No. 18	Orange	✓	✓	25
210988	No. 18 thru 12 AWG/Min. 1 No. 14 & 1 No. 18 Max. 4 No. 14 & 1 No. 18	Yellow	✓	✓	25
210989	No. 18 thru 10 AWG Min. 2 No. 14/Max. 2 No. 10 & 2 No. 12	Red	✓	✓	25

## WIRE NUT CONNECTOR ASSORTMENT

- A complete selection of wire nut connectors used by maintenance repair facilities.
- Includes standard square spring connectors, Scotchlok Y, R, G and B connectors, Tru-Lock winged connectors, and the special, winged, through-the-nut, ground connector.



Assortment photo for illustration purposes only. Actual contents may vary.

**Part No. 501590**  
**390 pieces • 12 items • 12050 steel tray**

210597	210295	210903	210988
210598	210901	210986	210989
210599	210902	210987	210996

**Numbers in assortment**

## DIRECT BURIAL SPLICE KITS

Use to seal out moisture for remote control circuits in low voltage irrigation and landscape lighting systems.

- For two or more conductors.
- Both sizes rated for up to 30 volts.
- Each kit contains two gel filled insulator tubes and two spring connectors.



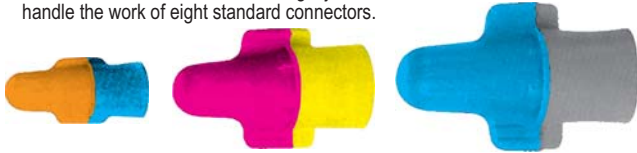
PART NUMBER	TYPE	CONNECTOR COLOR	WIRE COMBINATION SOLID OR STRANDED COPPER ONLY
210898	DBY	Yellow	Two #18, up to Two #12
210899	DBR	Red	Seven #18, four #12 or three #10

# WIRE CONNECTORS

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## O/B, R/Y and B/G SCOTCHLOK™ 2 WIRE CONNECTORS

- Meets UL max-fill requirements • UL listed for 600V.
- This new type of electrical spring connector combines both the wide range and torque of wing-style connectors with a new flexible skirt that provides over-strip protection without taking additional space in the electrical box.
- Due to the innovative design, 3 connectors can be used for connecting wires from 22 gauge to 6 gauge.
- Because of their increased wire range, just three Scotchlok 2 Connectors handle the work of eight standard connectors.



PART NUMBER	CONNECTOR COLOR	JOINS WIRE COMBINATION
210597	Orange & Blue	Two #22 up to Two #12
210598	Red & Yellow	Two #18 up to Two #8
210599	Blue & Gray	Four #14 up to Five #10

### 3M Scotchlok™ 2 Full Connector Line

2 #20 2 #16 2 #12 3 #12 4 #12 5 #12 6 #12 5 #10  
2 #22 2 #18 2 #14 4 #14 6 #14 3 #10 2 #8 4 #10

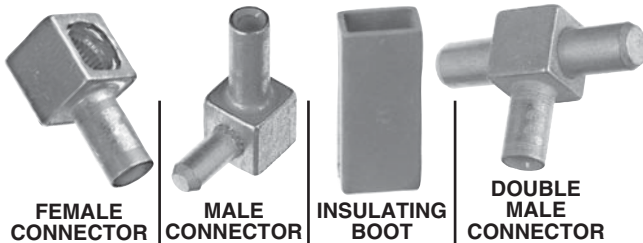
O/B  
R/Y  
B/G

O/B replaces Gray, Blue and Orange wingless connectors.  
R/Y replaces Red and Yellow wing style connectors.  
B/G replaces Blue or Gray wing style connectors.



## MOTOR PIGTAIL CONNECTORS

Allows quick, reliable change-out of electric motors & transformers.



- Quick connections - eliminates bolting, tapping & loose connections.
- Preshaped, molded insulator boots provide protection - keeps total assembly small enough to fit tight housings.
- Wire range 16-4/0 AWG, 600V capacity, temp. range 90°C.
- Color coded for error free installation.
- Highly conductive copper, tin plated.



### 2 WIRE HOOK UPS - ONE LINE TO ONE LOAD



WIRE RANGE AWG.	MALE CONNECTOR PART NO.	FEMALE CONNECTOR PART NO.	BODY SIZE*	COLOR CODE	INSULATING BOOT PART NO.	QTY
16 and 14	MD1614M1	MD1614F1	1	Blue	MDBOOT1	5
12 and 10	MD1210M1	MD1210F1	1	Yellow	MDBOOT1	5
12 and 10	MD1210M2	MD1210F2	2	Yellow	MDBOOT2	3
8	MD8M1	MD8F1	1	Red	MDBOOT1	5
8	MD8M2	MD8F2	2	Red	MDBOOT2	3
6	MD6M1	MD6F1	1	Blue	MDBOOT1	5
6	MD6M2	MD6F2	2	Blue	MDBOOT2	3
4	MD4M2	MD4F2	2	Grey	MDBOOT2	3
2	MD2M2	MD2F2	2	Brown	MDBOOT2	3
2	MD2M3	MD2F3	3	Brown	MDBOOT3	3
1	MD1M2	MD1F2	2	Green	MDBOOT2	3
1	MD1M3	MD1F3	3	Green	MDBOOT3	3
1/0	MD10M3	MD10F3	3	Pink	MDBOOT3	3
2/0	MD20M3	MD20F3	3	Black	MDBOOT3	3
3/0	MD30M3	MD30F3	3	Orange	MDBOOT3	3
4/0	MD40M3	MD40F3	3	Purple	MDBOOT3	3

### 3 WIRE HOOK UPS - ONE LINE TO TWO LOAD



WIRE RANGE AWG.	DOUBLE MALE CONNECTOR PART NO.	FEMALE CONNECTOR PART NO.	BODY SIZE*	COLOR CODE	INSULATING BOOT PART NO.	QTY
12 and 10	M2D1210M1	MD1210F1	1	Yellow	M2DBOOT1	5
8	M2D8M1	MD8F1	1	Red	M2DBOOT1	5
6	M2D6M1	MD6F1	1	Blue	M2DBOOT1	5
12 and 10	M2D1210M2	MD1210F2	2	Yellow	M2DBOOT2	3
8	M2D8M2	MD8F2	2	Red	M2DBOOT2	3
6	M2D6M2	MD6F2	2	Blue	M2DBOOT2	3
4	M2D4M2	MD4F2	2	Grey	M2DBOOT2	3
2	M2D2M2	MD2F2	2	Brown	M2DBOOT2	3
2	M2D2M3	MD2F3	3	Brown	M2DBOOT2	3
1	M2D1M3	MD1F3	3	Green	M2DBOOT2	3
1	M2D1M2	MD1F2	2	Green	M2DBOOT2	3
1/0	M2D10M3	MD10F3	3	Pink	M2DBOOT3	3
2/0	M2D20M3	MD20F3	3	Black	M2DBOOT3	3
3/0	M2D30M3	MD30F3	3	Orange	M2DBOOT3	3
4/0	M2D40M3	MD40F3	3	Purple	M2DBOOT3	3

\*Always use the same body size when selecting male and female disconnects. For example, to connect an 8 AWG male to a 2 AWG female, select Cat. numbers MD8M2 AND MD2F2. Note both have a No. 2 body size.

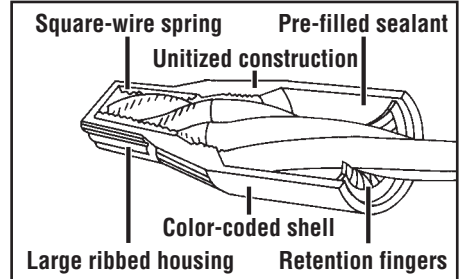
\*\*Always match boot Cat. no. to disconnect body size. For example, the boot for two-wire connector, MD6F2 is Cat. no. MDBOOT2, and the boot for the three-wire connector M2D6M2 is Cat. no. M2DBOOT2.

# CONNECTORS

## DRYCONN™ WATERPROOF CONNECTORS

**SPARK-PROOF • CORROSION-PROOF • FLASH-PROOF**  
 Twist-on, silicone filled, safety connectors provide superior protection wherever moisture and humidity could lead to corrosion-caused failure.

- Custom Silicone sealant never sets up. Doesn't freeze or melt. Splices can be tested or modified without cutting them away.
- Simple Fast, safe – No pre-twisting or crimping OE wire necessary. Just insert wires through the moisture-blocking sealant and twist them into the connector.
- Eliminate corrosion before it can start (from dust, water, gas, atmosphere, etc.)
- Lifetime warranty against corrosion caused failure.
- Connectors have a Temperature Rating of 167°F (75°C), and a Sealing Temperature of -45°F to 400°F.
- C.S.A. approved. Includes direct burial as well as pressure-type\* applications.



**Telecommunications systems; sound systems, thermostats.**

COLOR: Grey  
 MAX. VOLTAGE: 300V  
 SIZE: 15/16 x 1/2  
 WIRE COMB.: Cu/Cu  
 MINIMUM: 3 #22  
 MAXIMUM: 2 # 16



**Part No. 210979\* 10**

**Light switches and outlets; outside receptacles and light posts; exhaust fans baseboard heaters; HVAC; floodlights; irrigation.**

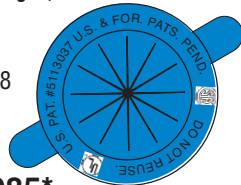
COLOR: Yellow  
 MAX. VOLTAGE: 600V†  
 SIZE: 1-9/16 x 11/16  
 WIRE COMB.: Cu/Cu  
 MINIMUM: 4 #18  
 MAXIMUM: 2 # 12



**Part No. 210982\* 10**

**Utilities, including power lines, traffic signals, water treatment plants, waste treatment facilities; refineries; electric signs, billboards.**

COLOR: Drk Blue  
 MAX. VOLTAGE: 600V†  
 SIZE: 2-7/16 x 1-3/8  
 WIRE COMB.: Cu/Cu  
 MINIMUM: 2 #10 Sol  
 MAXIMUM: 2 #6



**Part No. 210985\* 10**

\* For all models, C.S.A. – Approval includes direct burial as well as pressure-type applications.  
 C.S.A. rating: 194°F (90°C).  
 † 1,000V in fixtures and signs.

Silicone Filled Waterproof Safety Connectors have had acceptance by contractors, municipalities, OEMs, utilities, and the industrial sector worldwide. Some locations already benefiting from these connectors include *United Telephone, St. Louis Metropolitan Sewer District, Disneyworld, Miller Brewing, and the city of New York.*

**Low-voltage lighting; security systems; doorbells; auto and trailer lighting.**

COLOR: Drk Blue  
 MAX. VOLTAGE: 300V  
 SIZE: 1-1/8 x 9/16  
 WIRE COMB.: Cu/Cu  
 MINIMUM: 3 #20  
 MAXIMUM: 3 # 16



**Part No. 210980\* 10**

**Furnace and refrigerator motors; dishwashers; clothes washers and dryers; washdown areas; junction boxes.**

COLOR: Red  
 MAX. VOLTAGE: 600V†  
 SIZE: 1-3/4 x 13/16  
 WIRE COMB.: Cu/Cu  
 MINIMUM: 2 #14  
 MAXIMUM: 4 #12



**Part No. 210983\* 10**

**Lamp posts; wells, pumps, fountains; site lighting; UF cable in waterproof boxes.**

**UL® DIRECT BURIAL APPROVED.**

COLOR: Lt. Blue  
 MAX. VOLTAGE: 600V†  
 SIZE: 2 x 13/16  
 WIRE COMB.: Cu/Cu  
 MINIMUM: 3 #22  
 MAXIMUM: 4 #12 or 3 #10



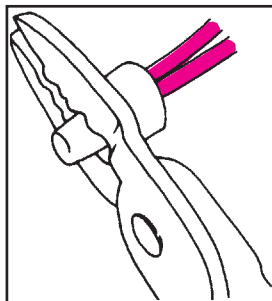
**Part No. 210984\* 10**

## WATERPROOF/SPARKPROOF CONNECTOR ASSORTMENT

6 items  
 135 pieces  
 12061 steel tray  
**Part No. 501558**



## CLOSED END CONNECTORS



**Eliminate guesswork when splicing wires. Match connector to wire size and crimp.**

- Fast, easy application.
- Use on solid or stranded wire.
- Just four connectors cover all your splicing needs for No. 22 thru 8 AWG wire.
- No exposed metal to cause shorts.
- Cannot vibrate loose or fall off.
- Natural nylon color.



PART NUMBER	WIRE SIZE	QTY
31961	22-18	100
31962	16-14	100
31963	12-10	50
31964	8	25

E12

# CONNECTORS

## POSI-LOCK™ CONNECTORS

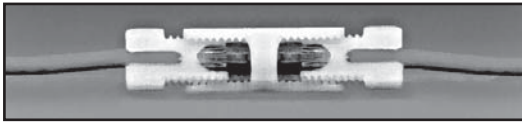
Posi-Lock™ Connectors can splice two or more wires together anywhere without any special tools. You simply strip the wire ends, insert the wire into the Posi-Lock connector, and hand tighten. The wires are locked in place, providing a positive connection every time!



- Quick, easy, reliable connections every time with no special tools.
- Posi-Lock Connector can be easily **disconnected** and **reconnected** over and over.
- **Makes field repairs simple.**
- Temperature rating: 250°C.
- Material: Nylon 6/6 with plated brass insert.

PART NUMBER	WIRE RANGE	MAX. CABLE DIAMETER	MAX. CURRENT RATING	QTY
210149*	18 - 24 AWG	.128	30 amps	10

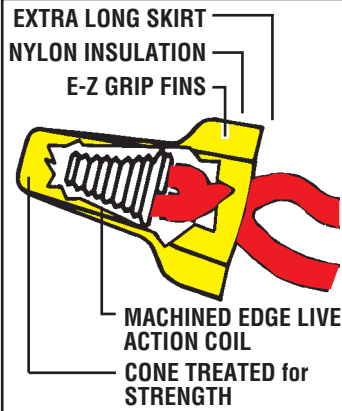
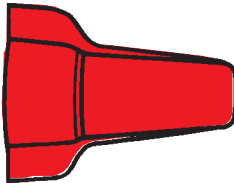
\* To be discontinued when stock is depleted.



E12

## TRU-LOCK WIRE CONNECTORS

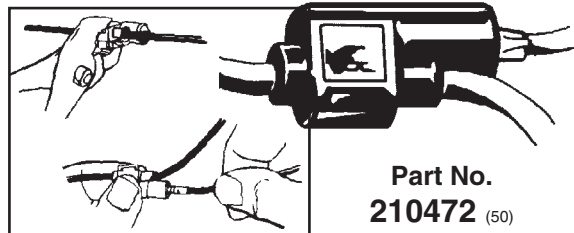
- Faster and easier to install than wire nuts – even with greasy hands.
- Safe – Won't pull or vibrate loose.
- Use on stranded or solid wire or combination.
- UL approved.
- 600V voltage rating.



PART NUMBER	WIRE SIZE	COLOR	QTY
210901	22-18	Yellow	100
210902	16-14	Red	100
210903	12-6	Blue	50

## BULLET RECEPTACLE CONNECTORS

- Self-stripping.
- 14, 16, 18 gauge wire range.
- Installs with pliers.

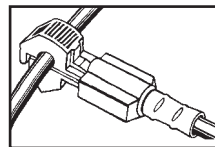


Part No. 210472 (50)

**INSULATED MALE SNAP PLUG**  
Part No. 210434 (100)  
ORDER SEPARATELY

## 1/4" FEMALE QUICK DISCONNECT T-TAP

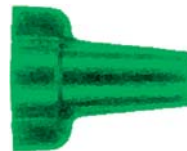
- Self-stripping - make mid-wire connections without stripping insulation - FAST.
- Mates with standard 1/4" male blade (Part No.'s. 210227, 210275, 210276, 210345, or 210475.)
- No special tools required for installation - common pliers do the job.
- Reduces possible conductor damage - eliminates time consuming splicing.
- Fully insulated - eliminates second step insulating.



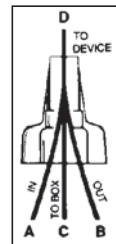
PART NUMBER	WIRE SIZE	COLOR	QTY
210461	22-18	Red	100
210479	18-14	Blue	100
210467	12-10	Yellow	100

## GROUNDING CONNECTOR

For making grounding connections and bonding non-metallic sheathed cable.



**Typical Example:**  
A - System grounding wire.  
B - System grounding wire.  
C - "Through" wire box ground.  
D - "Through" wire to device.



Part No. 210295 (100)



- Live-action, square wire spring for easy, strong connections.
- Built-in contoured wings and an extra-tough flame-retardant thermoplastic shell.
- Fully meet intent of N.E.C. and specifically aid in compliance with the following:  
Article 250: Grounding  
250-74 Connecting receptacle grounding terminal to box.  
250-113 To conductors and equipment.  
250-114 Continuity and attachment of branch-circuit equipment grounding conductors to boxes. (b) Non-metallic boxes.  
Article 550: Outlet, switch and junction boxes and fittings  
370-4 Metal boxes.  
Article 550: Mobile homes and parks  
550-9 Grounding (b) (2) Equipment grounding means.

# CONNECTORS

## IN-LINE BUTT CONNECTORS JOIN TWO WIRES TO ONE WIRE...

PROBLEMS:		SOLUTION:	
<b>EXISTING METHODS:</b> 		<b>SEALED MULTIPLE WIRE CONNECTORS:</b> 	
		Color stripes on the connector indicate which crimp die to use	Color dash on tubing indicates the wire gauge for the connector Tubing has an active adhesive that seals between multiple wires

E12



BUTT CONNECTORS		ONE WIRE TO TWO WIRES				
Part Number	Qty	Wire Gauge	Color Stripe Tubing Color	On Connector	Wire	Crimp Die (Insulated)
210600	(25)	24-22 AWG	Clear / White Dashes Side 2: Red	Side 1: White Two 24-22 AWG	One 24-22 AWG Red (20-18 AWG)	White (24-22 AWG)
210601	(25)	20-18 AWG	Clear / Red Dashes Side 2: Blue	Side 1: Red Two 20-18 AWG	One 20-18 AWG Blue (16-14 AWG)	Red (20-18 AWG)
210602	(25)	16-14 AWG	Clear / Blue Dashes Side 2: Yellow	Side 1: Blue Two 16-14 AWG	One 16-14 AWG Yellow (12-10 AWG)	Blue (16-14 AWG)
210603	(25)	12-10 AWG	Clear / Yellow Dashes Side 2: Red	Side 1: Yellow Two 12-10 AWG	One 12-10 AWG Red (8 AWG)	Yellow (12-10 AWG)

### EASY TO INSTALL

<p>1 STRIP WIRES &amp; INSERT</p>	<p>2 CRIMP IT</p>	<p>3 HEAT IT</p>	<p>4 SEAL IT</p>
-----------------------------------	-------------------	------------------	------------------

#### IN-LINE BUTT CONNECTOR INSTRUCTIONS:

- For side of connector where two wires will be inserted, strip wires 5/8".
- Select a connector that matches the wire gauge (see chart above) and insert the two wires into the larger side of the connector.
- Make sure that both wires are properly seated and crimp the connector using an insulated connector crimping tool nest that matches the color stripe on the larger side of the connector barrel.
- For the side of the connector where one wire will be inserted, strip wire 5/16".
- Insert the wire into the smaller side of the connector, make sure the wire is properly seated and crimp the connector using an insulated connector crimping tool nest that matches the color stripe on the smaller side of the connector barrel.
- Apply heat evenly around the length of the tubing (including the crimp area) from the center out to the ends until the tubing fully recovers and the adhesive flows. During the heating process, separate the two wires in the larger end of the connector to allow the adhesive to flow in between the wires.
- Remove from the heat and let cool.



# CONNECTORS

## COOL SEAL BUTT CONNECTORS

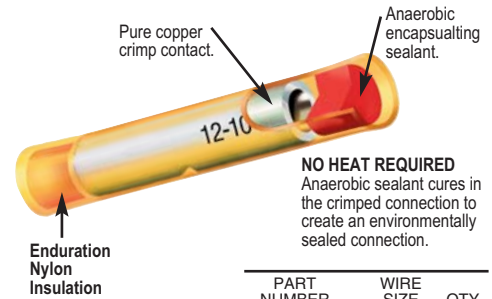
A heat-less, solderless connector, it utilizes revolutionary anaerobic sealant technology that installs in a fraction of the time of comparable connectors.

- **Strip & Crimp - It Seals Itself**  
Just strip the wire, insert it into the connector & crimp. This activates the anaerobic sealant to create an environmentally sealed connection.
- **Unique Anaerobic Encapsulation**  
Anaerobic sealant cures in the absence of oxygen. When the connection is crimped, oxygen is removed from the connector creating a moisture proof connection.
- **No Heat Required**  
Eliminates the need for heat guns or torches.
- **Fast Installation**  
Installs in a fraction of the time of comparable heat shrink terminals.
- **Superior Sealed Connections**  
Innovative new sealant prevents entry of air and contaminants, while the nylon insulations provide maximum abrasion and puncture resistance.
- **Superior Conductivity**  
With corrosion effectively sealed out, the seamless 99.9% copper connector offers optimal electrical conductivity.

### RELATED PRODUCT

Installs with any of these crimpers

PART NUMBER
11363
11384
11386
18900



**NO HEAT REQUIRED**  
Anaerobic sealant cures in the crimped connection to create an environmentally sealed connection.

PART NUMBER	WIRE SIZE	QTY
210111	22-18	50
210112	16-14	50
210113	12-10	50

### ASSORTMENT AVAILABLE

- Contains all three sizes of our Cool Seal Butt Connectors along with three different sizes of popular cable ties.

**Part No. 210100**  
375 pieces • 6 items  
12042 plastic tray

210111	210113	210951
210112	210941	210957

Numbers in assortment



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# SEAL YOUR CONNECTIONS WITH MULTI-WIRE CONNECTORS

## NEW ASSORTMENT AVAILABLE!



### CONTENTS

Part #	Description	Qty
812988	Heat Shrink Tubing 6" 22-10	4
812989	Heat Shrink Tubing 6" 16-8	4
812990	Heat Shrink Tubing 6" 14-4	4
812991	Heat Shrink Tubing 6" 8-2/0	4
210675	Closed End Connector 22-14	10
210676	Closed End Connector 18-10	10
210600	In-Line Butt Connector 24-22	10
210601	In-Line Butt Connector 20-18	10
210602	In-Line Butt Connector 16-14	10
210603	In-Line Butt Connector 12-10	10

**ORDER Part No. 501750**

## LIMITED TIME ONLY!

# FREE SUPER BLASTER TORCH



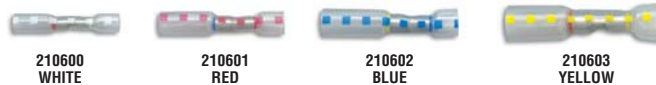
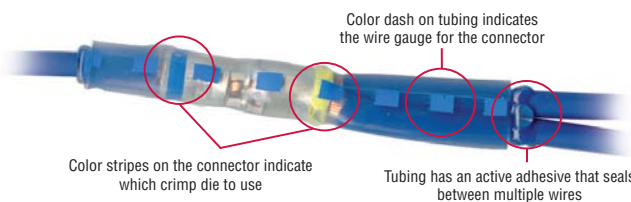
With the purchase of 501750 Multi-Wire Shrink Connect Assortment

- Self Igniting • Refillable
- Hand held or table top

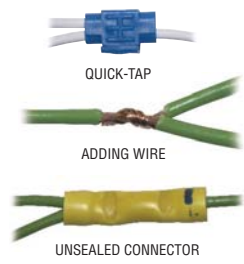
**A \$40.00 VALUE!**

## Protect your wires from Corrosion, Contaminants and Current Leakage

### IN-LINE BUTT CONNECTORS JOIN TWO WIRES TO ONE WIRE ...



### REPLACES EXISTING METHODS:



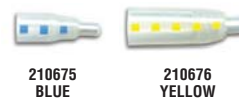
### CLOSED-END CONNECTORS JOIN TWO TO FOUR WIRES ...

Closed-end connectors are crimped here.

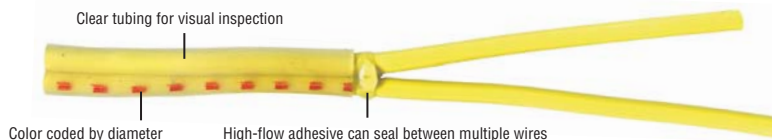
In environments where corrosion and/or vibration are a problem, the closed-end connector can be used to replace wire nuts and other similar connectors.



Tubing has an active adhesive that seals multiple wires and eliminates wire pull-out



### HIGH ADHESIVE FLOW TUBING - The Most Versatile Heat Shrink Tubing on the Market!



## SOSMETAL PRODUCTS, INC.

2945 E. TIOGA ST., PHILA., PA 19134 • 215-739-6200

[www.sosmetal.com](http://www.sosmetal.com)

[www.EngineeringBooksPdf.com](http://www.EngineeringBooksPdf.com)

# Single Wire Sealed Electrical Terminals



## MULTILINK TERMINALS – 80% STRONGER THAN PVC

CATALOG PG  
E10-12-14

CUT-AWAY VIEW



CRIMP      SOLDER

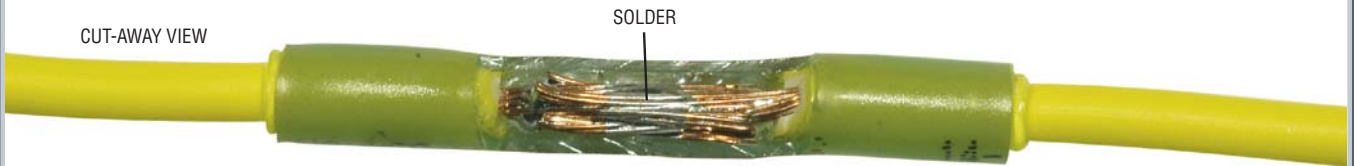
### FEATURES & BENEFITS

Stops wire corrosion • Maximum Current Flow - Idea for LED's • Crimping holds wire in place and provides mechanical reliability • Ultimate Strength

## SOLDER 'N SEAL TERMINALS – 75% STRONGER THAN PVC

CATALOG PG  
E10-9-11

CUT-AWAY VIEW



SOLDER

### FEATURES AND BENEFITS

Stops wire corrosion • Maximum current flow - Ideal for LED's • Superior conductivity

## SHRINK 'N SEAL TERMINALS – 50% STRONGER THAN PVC

CATALOG PG  
E10-19-22



CRIMP      CRIMP

### FEATURES & BENEFITS

Stops wire Corrosion • Seamless butt connectors • Brazed seam - rings & spades • Watertight connection



**SOSMETAL PRODUCTS, INC.**

2945 E. TIOGA ST., PHILA., PA 19134 • 215-739-6200  
www.sosmetal.com

[www.EngineeringBooksPdf.com](http://www.EngineeringBooksPdf.com)

# SOSMETAL MULTI-WIRE IN-LINE BUTT CONNECTORS

## PROBLEM



## SOLUTION



### Quick-Taps



The In-line butt connector is the solution for problems that can result from the use of quick-taps.

- Inferior Termination
- Unsealed Connection
- Temporary Repair

### Sealed Multiple Wire Connector

#### IN-LINE BUTT CONNECTOR



- Joins 2 Wires to 1 Wire
- Add Accessory to Existing Circuit (Join Existing Wire to a New Wire)
- Seals Termination & Provides Permanent Repair

**TRAILER WIRING & HITCHES • AUTOMOTIVE • STEREO ...**

Part No. **210600** – 24-22 AWG

Part No. **210601** – 20-18 AWG

Part No. **210602** – 16-14 AWG

Part No. **210603** – 12-10 AWG

**SOSMETAL PRODUCTS, INC.**

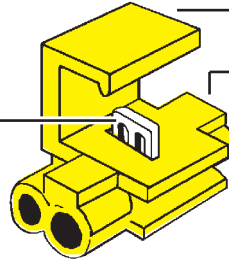
2945 E. TIOGA ST., PHILA., PA 19134 • 215-739-6200  
www.sosmetal.com

# CONNECTORS

## INSTANT AUTO-ELECTRICAL CONNECTORS

NO STRIP, NO TWIST, JUST SQUEEZE • MAKES TAP, IN-LINE AND PIGTAIL SPLICES FAST AND EASY.

- SELF-STRIPPING**  
"U" element does the work of stripping and soldering – assures electrical conductivity.
- RESILIENT ACTION**  
Provides firm holding power.
- UNIFORM CONDUCTOR**  
Contact area provides dependable service.



- INTEGRAL FLIP TOP**  
Snap-over cover for full insulation.
- PRE-INSULATED**  
Won't chip, dry out or crack.



PART NUMBER	WIRE SIZE	COLOR	QTY
210468	22-18	Red	100
210471	18-14	Blue	100
210481*	18-14	White	100
210474	12-10	Yellow	100
210480†	18-14	Brown	100

\* 210481 Does not have internal stop allows for double taps (2 add-on circuits).

† 210480, 18-14 Tapline from 12-10 feed line.

### SCOTCHLOK WIRE CONNECTOR ASSORTMENT

Part No. 501591  
236 pieces • 14 items • 12050 steel tray

210461	210471	210479	210482	210599
210467	210472	210480	210597	615245
210468	210474	210481	210598	

Numbers in assortment



Assortment photo for illustration purposes only. Actual contents may vary.

E12

## ELECTRICAL QUICK CONNECT ASSORTMENT

### INSTANT CONNECTORS • T-TAPS • QUICK DISCONNECTS

- A complete variety of Quick Connectors in one kit.
- Small enough to carry with you anywhere you need a quick connection.
- Complete coverage for wire sizes 10 thru 22.
- UL listed for 300 volts on tap splices.
- No special tools required, pliers do the job.
- Color coded for easy identification.

Part No. 210016  
71 pieces • 11 items  
12030 plastic tray

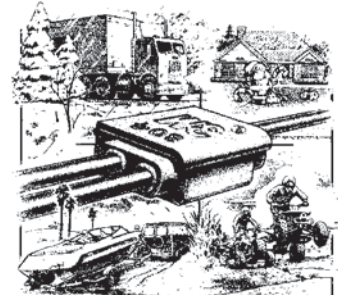
210275	210468	210479
210276	210471	210480
210461	210474	210481
210467	210476	

Numbers in assortment



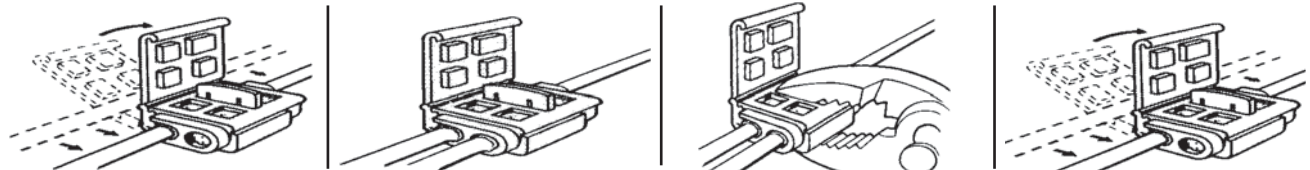
## SCOTCHLOK™ 804 MOISTURE-RESISTANT TAP CONNECTOR

- **Easier, Faster**  
The Scotchlok 804 connector from 3M makes connections easier and faster. No cutting or stripping is required. Just insert the run wire, insert the tap wire, crimp the element and close the cap. Taping is not necessary to protect the connection.
- **Longer Lasting**  
The patented application system forces protective gel around the wire and element, providing a moisture-resistant barrier to destructive substances such as salt water and other corrosive environments.
- **Stronger, More Reliable**  
The Scotchlok 804 withstands continuous operating temperatures of -40°C to 75°C (-40°F to 167°F). It can be installed in temperatures as low as -18°C (0°F). And the special locking feature of the cap insures a protected connection over time.
- **Wire Sizes**  
18-16 stranded, solid / 14 stranded



Part No. 210482 (50)

**Applications:** The 804 connector can be used in making tap connections for trucks, cars, recreational vehicles, snowmobiles, motorcycles, boats, trailers and off-road equipment. The same benefits can also be achieved for outdoor lighting and landscaping.



1. Open hinged side wall. Place unstripped run wire inside run channel and close hinged side wall.
2. Insert unstripped tap wire completely into tap port.
3. Hold tool perpendicular to the wire and make the connection by crimping the u-contact down flush with the top of the insulator.
4. Close cover until securely latched.

## CONNECTORS / TAPE

## NYLON LIQUID TIGHT STRAIN RELIEF CORD CONNECTORS



Standard Type

Flex Type

PART NUMBER	DIAMETER RANGE	MOUNTING HOLE CLEARANCE	MAXIMUM OVERALL LENGTH	SIZE (INCHES)	QTY
<b>STANDARD TYPE</b>					
210891	.157 - .314	.561	1.692	3/8	2
210892	.236 - .472	.825	1.734	1/2	2
210893	.511 - .708	1.050	1.969	3/4	1
210894	.709 - 1.024	1.303	2.283	1	1
<b>FLEX TYPE</b>					
210895	.157 - .314	.561	3.282	3/8	2
210896	.236 - .472	.825	4.135	1/2	1
210897	.511 - .708	1.050	5.333	3/4	1

The standard type is used primarily for stationary equipment, appliances and machinery. The flex type provides extended support for tools, moving machinery and similar equipment.

- Optimum seal.
- Unique design.
- Vibration proof protection.
- **internationally approved:** UL #E79903, CSA #LR50370-10, VDE #57986, SEV #100989. Protection up to 70 PSI.
- **Working temperature:** -22°F (-30°C) to 212°F (80°C) for short periods of time.
- **Seal:** IP68 comparable to NEMA. 6 classification. Dust protection.
- **Resistant to:** salt water, weak acids, weak alkalis, alcohol, ester, ketones, ether, benzene, gas, mineral oil, animal and vegetable oils, gasoline, oil, grease, and common solvents.

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## SELF-STRIPPING ELECTRICAL PIGTAIL CONNECTORS

Self-stripping connectors for making 2 or 3 wire pigtail connections with a wire range of 22 – 14 gauge.



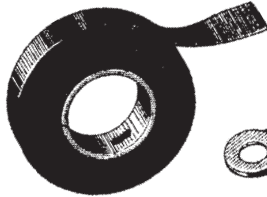
- Insert 2 or 3 unstripped wires completely into the connector.
- Hold a crimping tool perpendicular to the wires and make the connection by driving the cap down.
- UL & CSA listed for use to 600V maximum.
- Available with or without non-corrosive sealant for moisture protection.

PART NO.	DESCRIPTION	QTY
210490	Without Sealant	12
210491	With Sealant	12

## LINERLESS SPLICING TAPE

Self-bonding — Fuses into a solid insulation within 24 hrs of application.

- Replaces heat shrink tubing.
- No heat guns or open flames needed.
- Retains seal in temperature ranging from -50°F to +300°F.
- Unaffected by salt spray and common automotive fluids.



DIMENSION	PART NUMBER	3M NUMBER
3/4 x 15 ft	812210	2242
1-1/2 x 15 ft	812211	2242



## 3M SCOTCHLOK COMMUNICATIONS CONNECTORS

For Telephone, Intercom, Computer Link and Communications Systems.

- No stripping of insulation.
- Insert wires and press with pliers. Installation complete.
- Moisture and corrosion proof.
- For solid 19-26 AWG Copper Wire.



**Part No. 210492** (50)  
"UR" Style (RED) 2 or 3 wire Butt Connector handles 19 – 26 AWG solid copper wire. Use to cut into service in ready-access cases, pedestal mounts and for pigtail joints on cable splices. Three-port construction makes them a perfect connector for general splicing and tapping. Maximum insulation size, O.D. of .066".



**Part No. 210493** (50)  
"UY" Style (YELLOW) 2 wire Butt Connector Accepts two 22 – 26 AWG solid copper conductor wires. UY connectors are small and compact, with two ports designed for straight splicing. Maximum insulation size, O.D. of .060".

## SELF-FUSING SILICONE TAPE

STRETCH AND SEAL self-fusing silicone tape protects critical connections.

- Waterproof seal insulates against corrosion, shock and vibration.
- Conforms to any size to protect, insulate or mask.
- No adhesives, self-vulcanizing; fuses to itself.
- No heat needed; inseparable after 24 hrs. at room temperature.
- Paper liner separates layers in roll.



**Part No. 812204**  
1" x .020" x 36' roll  
Color: Red

Operating temperature -50°F to +392°F continuous, -85°F to +500°F intermittent. Dielectric strength: 400 volts.

## E-Z SEAL DIELECTRIC COMPOUND TAPE

Specially formulated compound that seals, insulates, weatherproofs and protects any surface.



- Seals tightly from -30° below zero to +150°F.
- Tough vinyl backing stops sagging on vertical applications.
- Unaffected by UV rays, sunlight, water, salt, oil, grease, or battery acid. (ASTM D-543)
- Self adhesive, sticks to any surface.
- Paintable.
- Dielectric strength exceeds 16KV (ASTM D-10000).
- Will not shrink or crack, stays permanently flexible.

**Part No. 812218**

1 roll • 2-1/2" x 10ft.



E12-6

REVISED OCTOBER, 2012

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# WIRE MARKERS / SHRINK TUBING

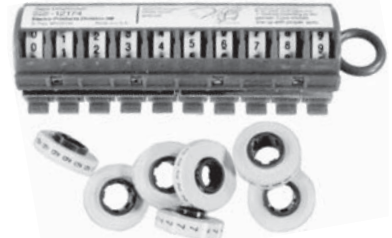
## WIRE MARKERS

Compact, convenient and refillable tape dispenser.

- Fast, convenient dispenser for marking wire, cable, tubing, vacuum hose, etc.
- Easy to carry in pocket or tool box.
- Refillable compartments let you choose the exact number combinations needed.

### - REPLACEMENT WIRE MARKER TAPE -

PART NUMBER	NUMBER PRINTED ON ROLL	PART NUMBER	NUMBER PRINTED ON ROLL
300100	0	300105	5
300101	1	300106	6
300102	2	300107	7
300103	3	300108	8
300104	4	300109	9



Part No. 300110

Dispenser filled with No.'s 0 - 9

## COLD SHRINK TUBING

3M Cold Shrink technology uses Cold Shrink connector insulators - a series of open-faced tubular EPDM rubber sleeves which are factory expanded and assembled onto a removable core. They're supplied for field installation in the pre-stretched condition. Once positioned, the core is simply removed, allowing the tube to shrink and form a safe, uniform water-resistant seal without torches or special tools. Provides superior electrical and temperature stability.

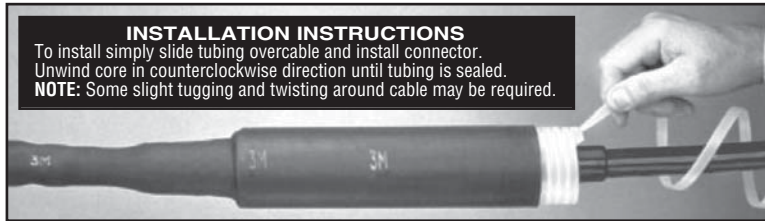
Used in auto, fleet, marine, and industrial applications.

- Primary insulation for all solid copper and aluminum wire.
- Direct bury or submersible applications.
- Meets the water seal requirements of ANSI C119.1
- Protection and sealing for spacer cable and connections to bus bar.
- For use up to 1000 volts.
- Simple installation - **no torches or heat required.**
- Seals tight, retains its pressure even after years of exposure.
- Resists fungus, ozone, acids, and ultraviolet light.
- Made of tough durable EPDM rubber; able to withstand rugged abrasive applications.



### INSTALLATION INSTRUCTIONS

To install simply slide tubing over cable and install connector. Unwind core in counterclockwise direction until tubing is sealed.  
**NOTE:** Some slight tugging and twisting around cable may be required.



PART NUMBER	CABLE SIZE	CABLE RANGE	LENGTH RELAXED
812168	10-4	.10" - .39"	8"
812169	2-1/0	.39" - .70"	8"
812170	2/0-250	.51" - 1.00"	9"
812171	2/0-250	.51" - 1.00"	11"



# HEAT SHRINK TUBING

## HEAT SHRINK SPECIFICATIONS

A variety of types of heat shrink tubing and related accessories are available. Tubing types available include Heavy wall, Dual wall, Multiple wall and Thin wall. We have provided the following specifications to assist in determining which tubing is best for your application.

	HEAVY WALL	DUAL WALL	MULTIPLE WALL	THIN WALL
UL	UL 486 B& D	—	FILE E-157227	UL recognized
MIL Spec	MIL-1-23053/15	MIL-1-23053/4	MIL-1-23053/4, Class 1	MIL-1-23053/15
CSA	Meets C22.2 No. 198.1	—	N/A	Meets C22.2 No. 198.2
Continuous Operating Temp.	-55°C to 125°C	-55°C to 110°C	-55°C to 110°C	-55°C to 135°C
Minimum Shrink Temp.	120°C	120°C	135°C	100°C
Tensile Strength	1542 psi	2600 psi	2200 psi	1500 psi
Heat Shock	24 hrs. @ 225°C	168 hrs. @ 250°C	4 hrs. @ 250°C	4 hrs. @ 250°C
Elongation	425%	450%	400%	200%
Low Temperature Flexibility	4 hrs. @ -55°C	4 hrs. @ -55°C	4 hrs. @ -55°C	4 hrs. @ -55°C
Longitudinal Change	10% Max, <5% Typical	<10%	<5%	<5%
Secant Modules	18,000 psi	16,000 psi	(2%) 27,000 psi	12,000 psi
Flame Retarded	Yes	Jacket Only	No	Yes
Dielectric Strength	700 Volts/MIL	1000 Volts/MIL	900 Volts/MIL	500 Volts/MIL
Volume Resistivity	6 x 10 <sup>15</sup> OHM/CM	10 <sup>16</sup> OHM/CM	10 <sup>15</sup> OHM/CM	10 <sup>14</sup> OHM/CM
Corrosion Resistance	Non-Corrosive	Non-Corrosive	Non-Corrosive	Non-Corrosive
Fungus Resistance	Non-Nutrient	Non-Nutrient	Non-Nutrient	Non-Nutrient
Fluid Resistance	Excellent	Excellent	<0.1%	Excellent

**E12**

### FR GRADE HEAVY WALL, HEAT SHRINK TUBING WITH SEALER

- Flame retardant (FR) grade meets requirements in many areas of transportation industry.
- 3 to 1 shrink ratio. One tube diameter can cover several wire diameters.
- White adhesive liner melts to form total contact with underlying surfaces and voids creating a watertight seal suitable for above and underground applications.



PART NO.	WIRE RANGE	EXPANDED I.D. (INCHES)	SHRUNK I.D. (INCHES)	COLOR	LENGTH (INCHES)	QTY
322142*	18-14	.300	.100	Black	6	2
322143*	18-14	.300	.100	Red	6	2
322144*	14-6	.400	.150	Black	6	2
322145*	14-6	.400	.150	Red	6	2
322146*	8-1	.750	.220	Black	6	2
322147*	8-1	.750	.220	Red	6	2
322150	8-1	.750	.220	Black	2	6
322151	8-1	.750	.220	Red	2	6
322148*	2-4/0	1.100	.375	Black	6	2
322149*	2-4/0	1.100	.375	Red	6	2
322152	2-4/0	1.100	.375	Black	2	6
322153	2-4/0	1.100	.375	Red	2	6

\* Contained in Assortment

**FOR HEAT GUNS SEE SECTION D11, HAND TOOLS**

#### STEEL TRAY ASSORTMENT Part No. 501648

28 pieces  
8 sizes  
12090 steel tray



### UNI-SEAL, DUAL WALL, HEAT SHRINK TUBING WITH SEALER

- 2 to 1 shrink ratio.
- Crosslinked polyolefin, dual wall.
- Inner wall melts when heated to create moisture-proof seal.
- Outer wall shrinks to form a tough, rigid covering.
- Available in 6" precut pieces, or 48" standard lengths in red and black.

6 INCH PIECES 2 PER PACK PART NO.	4 FOOT LENGTHS 2 PER PACK PART NO.	WIRE RANGE	EXPANDED I.D. (INCHES)	SHRUNK I.D. (INCHES)	COLOR
812140P	812140L	30-18	1/8 (.125)	.063	Black
812140RP	812140RL	30-18	1/8 (.125)	.063	Red
812141P	812141L	20-14	3/16 (.187)	.094	Black
812141RP	812141RL	20-14	3/16 (.187)	.094	Red
812142P	812142L	18-10	1/4 (.250)	.125	Black
812142RP	812142RL	18-10	1/4 (.250)	.125	Red
812144P	812144L	12-6	3/8 (.375)	.188	Black
812144RP	812144RL	12-6	3/8 (.375)	.188	Red
812143P	812143L	8-4	1/2 (.500)	.250	Black
812143RP	812143RL	8-4	1/2 (.500)	.250	Red
812145P	812145L	4-2/0	3/4 (.750)	.375	Black
812145RP	812145RL	4-2/0	3/4 (.750)	.375	Red
812146P	812146L	2/0-4/0	1 (1.00)	.500	Black
812146RP	812146RL	2/0-4/0	1 (1.00)	.500	Red

6 inch lengths of all sizes contained in both assortments, 501511 and 812010 (Black only).

**NOW AVAILABLE IN RED**

#### STEEL TRAY ASSORTMENT Part No. 501511

46 pieces (Black)  
7 sizes  
12090 steel tray



#### PLASTIC TRAY ASSORTMENT Part No. 812010

26 pieces (Black)  
7 sizes  
12047 plastic tray

# HEAT SHRINK TUBING

## ASSORTMENT FOR MOISTURE PROOFING MULTI-WIRE CONNECTIONS

Protect your multiple wire connections from Corrosion, Contaminants & Current Leakage with our new assortment.

- This assortment contains **In-Line Butt Connectors** (cat. pg. E12-4A), **Closed -End Connectors** (cat. Pg. E12-4B) and **Multiple Wire High Adhesive Heat Shrink Tubing** (cat. Pg. E12-8A). All three products are for use in multiple wire situations.
- Multi-wire heat shrink tubing is different than the regular heat shrink tubing. This has a high-flow sealant that allows it to get in the spaces between the multiple wires and completely seal the connection. Regular tubing will only seal the outer perimeter of multiple wires, allowing moisture and other contaminants to work their way into the connection through the small spaces between the wires.
- Includes torch with butane for a handy heat source.

**Part No. 501750**  
**85 pieces • 11 items**  
**12051 steel tray**

210600	210603	412227	812990
210601	210675	812988	812991
210602	210676	812989	

**Numbers in assortment**



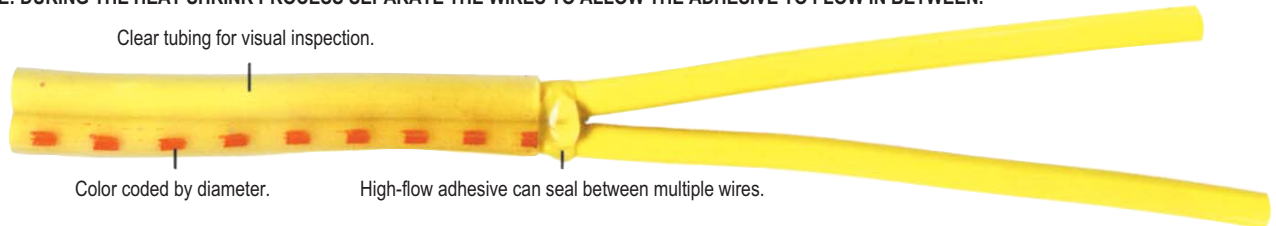
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## MULTIPLE WIRE HIGH ADHESIVE - HEAT SHRINK TUBING

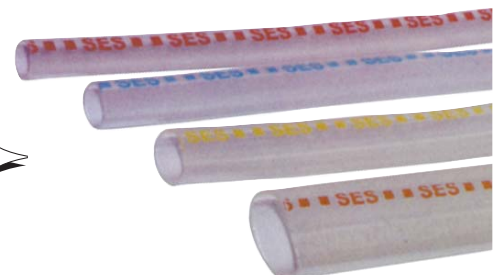
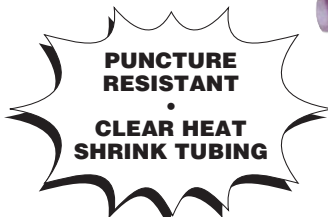
Adhesive-lined heat shrink tubing provides the best protection for electrical terminations for primary wire and battery cables that are subjected to extreme conditions. Provides an adhesive barrier which protects electrical components from calcium chlorides, sodium chlorides, magnesium chlorides, abrasion, vibration, and other environmental contaminants.

- 4 to 1 heat shrink ratio.
- Polyolefin tubing.
- Specially designed for sealing multiple wires.
- Provides superior strain relief.
- Chrysler specs MS-DB56 CAN 3686.
- Ford specs ESB-M97D56A1.

NOTE: DURING THE HEAT SHRINK PROCESS SEPARATE THE WIRES TO ALLOW THE ADHESIVE TO FLOW IN BETWEEN.



SPECIFICATIONS	HIGH ADHESIVE
UL	-
MIL Spec	-
CSA	-
Continuous Operating Temp.	-55°C to 110°C
Minimum Shrink Temp.	121°C
Tensile Strength	2450 psi
Heat Shock	-
Elongation	475%
Low Temperature Flexibility	4 hrs. @ -30°C
Longitudinal Change	<10%
Secant Modules	(2%) 16,500 psi
Flame Retarded	No
Dielectric Strength	500 Volts/MIL
Volume Resistivity	10 <sup>14</sup> OHM/CM
Corrosion Resistance	Non-Corrosive
Fungus Resistance	Non-Nutrient
Fluid Resistance	Good



PART NO.	PRE-SHRINK I.D. (INCHES)	REC I.D. (INCHES)	WIRE RANGE	COLOR/ COLOR DASH	LENGTH	QTY
812987	0.220	0.045	24-12 AWG	(C)/(W)	6	2
812988	0.300	0.060	22-10 AWG	(C)/(R)	6	2
812989	0.350	0.080	16-8 AWG	(C)/(B)	6	2
812990	0.450	0.105	14-4 AWG	(C)/(Y)	6	2
812991	0.700	0.175	8-2/0 AWG	(C)/(O)	6	2

(C)/(W) Clear Tubing/White Dash (C)/(R) Clear Tubing/Red Dash (C)/(B) Clear Tubing/Blue Dash (C)/(Y) Clear Tubing/Yellow Dash (C)/(O) Clear Tubing/Orange Dash



# HEAT SHRINK TUBING

## CLEAR-VIEW ADHESIVE-LINED HEAT SHRINK TUBING

### The Competitor's Clear Heat Shrink Tubing



Vs.

### Our CLEAR-VIEW Heat Shrink Tubing



### What's special about this heat shrink tubing?

- Constructed of a cross-linked ionic polymer material for superior strength.
- Wire AWG is printed on the side for easy size ID.
- Lightweight material is easy to work with and can be cut using simple shears or scissors.
- Exceeds 2.5-to-1 shrink ratio, to contain connectors up to 2 and a half times larger than your cable



Absolutely clear tubing provides ultimate clarity for visual inspection at any time.

### Specifications:

**Material:** Cross-linked ionic polymer  
**Shrink Ratio:** Exceeds 2.5 to 1  
**Shrink/Recovery Temperature:** 90°C (194°F)  
**Continuous Operating Temp:** -55°C to 125°C (-67°F to 257°F)  
**Flammability:** Passed (FMVSS 302 test)  
**Tensile Strength:** 4,000 psi  
**Longitudinal Change:** + 1/-10% Max  
**Dielectric Strength:** 750 V/Mil (30KV/MM)

PART NUMBER	QTY	WIRE GAUGE	TUBING COLOR	LENGTH	MINIMUM EXPANDED I.D.	MAXIMUM RECOVERED I.D.
210163	10	22-18	Clear	6"	0.176"	0.045"
210164	10	16-14	Clear	6"	0.250"	0.080"
210165	10	12-10	Clear	6"	0.365"	0.100"

## SEMI-RIGID, MULTIPLE WALL, HEAT SHRINK TUBING WITH SEALER



- Semi-rigid multiple wall. Excellent vibration resistance and strain relief. Identical to tubing used on Shrink 'N Seal, and Solder 'N Seal terminals.
- 2.5 to 1 shrink ratio.
- Crosslinked polyolefin tubing withstands high operating temperatures.
- Adhesive liner melts to create environmental seal. Completely waterproof.
- Impervious to mechanical abuse, abrasion, salt and other corrosive materials.

### STEEL TRAY ASSORTMENT Part No. 501663

48 pieces  
8 sizes  
12090 steel tray

PART NUMBER	WIRE RANGE	EXPANDED I.D. (INCHES)	SHRUNK I.D. (INCHES)	COLOR	LENGTH (INCHES)	QTY
322134	20-24	1/8 (.125)	.050	Clear	6	6
322135	22-18	3/16 (.187)	.075	Red	6	6
322136	16-14	1/4 (.250)	.100	Blue	6	6
322137	12-10	5/16 (.3125)	.125	Yellow	6	6
322138	8-6	3/8 (.375)	.150	Black	6	6
322139	4-2	1/2 (.500)	.200	Black	6	4
322140	2-1/0	3/4 (.750)	.300	Black	6	2
322141	2/0-4/0	1 (1.00)	.400	Black	6	2

### PLASTIC TRAY ASSORTMENT Part No. 322100

28 pieces  
6 sizes (1/8" thru 1/2")  
12047 plastic tray

## BULK FLEXI-SEAL, THIN WALL, HEAT SHRINK TUBING DISPENSER

- 50' workbench/shelf dispenser.
- Eliminates waste from precut lengths.
- Dispenser size 7-1/2" x 7" x 2".



### Assortment 812013

Includes all six dispenser packs in black, part numbers 812960, 812961, 812962, 812963, 812964, 812965

### Assortment 812014

Includes all three dispensers packs in colors, part numbers 812960-R, 812962-BL, 812963-Y

PART NUMBER	WIRE SIZE	I.D. BEFORE SHRINKAGE	COLOR	PART NUMBER	WIRE SIZE	I.D. BEFORE SHRINKAGE	COLOR
812960	24-18	1/8"	Black	812960-R	24-18	1/8"	Red
812961	20-16	3/16"	Black	812962-BL	16-14	1/4"	Blue
812962	16-14	1/4"	Black	812963-Y	12-10	5/16"	Yellow
812963	12-10	5/16"	Black				
812964	10-2	3/8"	Black				
812965	8-1	1/2"	Black				

Red, blue and yellow colors and diameters fit over standard color coded terminals for 20-18, 16-14, and 12-10 wire sizes.

### SHelf DISPENSERS (50' LENGTHS)

# CABLE TIES

## CABLE TIE RACK ASSORTMENT

An assortment of popular wire ties in a sturdy steel rack. Wall mountable with pre-drilled holes on 3 sides for ease of hanging.



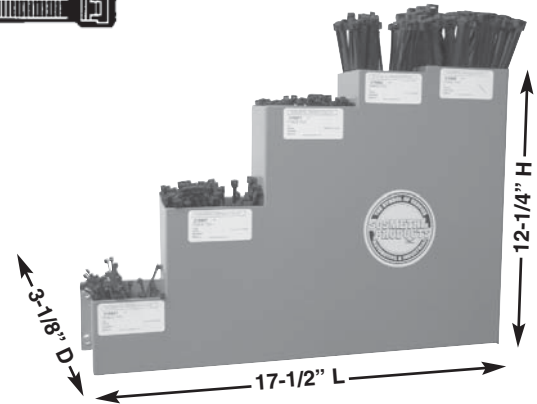
- A wide assortment of the fastest moving wire ties - no waste or inventory space.
- Inventory can be taken at a quick glance, with the 5 compartment rack.
- Includes standard duty sizes: 4", 8", 11", 14" and heavy duty in a 14" length, in black.
- Use for bundling, fastening and general purpose usage.

**Part No. 501766**  
**400 pieces • 5 items**  
**12180 steel rack - wall mount**

210942	210957	210977
210951	210958	

**Numbers in assortment**

**(Rack may hold up to 1000 cable ties)**



**E12**



# CABLE TIES

## STANDARD CABLE TIES

PART NUMBER	COLOR	GOVERNMENT DESIGNATION	MINIMUM TENSILE UNLOCKING STRENGTH MIL-S-2310D (Type 1 Class 1)	MAXIMUM BUNDLE DIAMETER	APPROX. LENGTH	APPROX. WIDTH	QTY
210925	Natural	MS3367-4	18lbs.	3/4	4	1/8	300
210951	Black	MS3367-4	18lbs.	3/4	4	1/8	300
210912	Natural	MS3367-5	30lbs.	1-1/4	6	9/64	300
210941	Black	MS3367-5	30lbs.	1-1/4	6	9/64	300
210952	Natural	MS3367-4	18lbs.	2	8	1/8	300
210953	Black	MS3367-4	18lbs.	2	8	1/8	300
210956	Natural	MS3367-1	50lbs.	1-3/4	8	3/16	300
210957	Black	MS3367-1	50lbs.	1-3/4	8	3/16	300
210954	Natural	MS3367-1	40lbs.	2	8-1/2	5/32	300
210955	Black	MS3367-1	40lbs.	2	8-1/2	5/32	300
210976	Natural	MS3367-1	40lbs.	3	11	5/32	300
210977	Black	MS3367-1	40lbs.	3	11	5/32	300
210978	Natural	MS3367-7	50lbs.	3	11	3/16	300
210945	Black	MS3367-7	50lbs.	3	11	3/16	300
210913	Natural	MS3367-2	50lbs.	4	14	3/16	300
210942	Black	MS3367-2	50lbs.	4	14	3/16	300



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## COLORED CABLE TIES

PART NUMBER	COLOR	MINIMUM TENSILE UNLOCKING STRENGTH MIL-S-2310D (Type 1 Class 1)	MAX. BUNDLE DIAMETER (INCHES)	APPROX. LENGTH (INCHES)	APPROX. WIDTH (INCHES)	QTY
210653	Brown	18lbs.	3/4	4	7/64	100
210654	Red	18lbs.	3/4	4	7/64	100
210655	Orange	18lbs.	3/4	4	7/64	100
210656	Yellow	18lbs.	3/4	4	7/64	100
210657	Green	18lbs.	3/4	4	7/64	100
210658	Blue	18lbs.	3/4	4	7/64	100
210659	Purple	18lbs.	3/4	4	7/64	100
210660	Gray	18lbs.	3/4	4	7/64	100
210661	Brown	40lbs.	1-3/4	7-1/2	3/16	100
210662	Red	40lbs.	1-3/4	7-1/2	3/16	100
210663	Orange	40lbs.	1-3/4	7-1/2	3/16	100
210664	Yellow	40lbs.	1-3/4	7-1/2	3/16	100
210665	Green	40lbs.	1-3/4	7-1/2	3/16	100
210666	Blue	40lbs.	1-3/4	7-1/2	3/16	100
210667	Purple	40lbs.	1-3/4	7-1/2	3/16	100
210668	Gray	40lbs.	1-3/4	7-1/2	3/16	100



## HEAVY DUTY CABLE TIES

PART NUMBER	COLOR	GOVERNMENT DESIGNATION	MINIMUM TENSILE UNLOCKING STRENGTH MIL-S-2310D (Type 1 Class 1)	MAXIMUM BUNDLE DIAMETER	APPROX. LENGTH	APPROX. WIDTH	QTY
210671	Natural	N/A	120lbs.	2	9	5/16	100
210672	Black	N/A	120lbs.	2	9	5/16	100
210939	Natural	MS3367-3	120lbs.	4	14	5/16	100
210958	Black	MS3367-3	120lbs.	4	14	5/16	100
210801	Natural	MS3367-6	120lbs.	9	28	5/16	50
210802	Black	MS3367-6	120lbs.	9	28	5/16	50
210803	Natural	N/A	175lbs.	7	24	11/32	50
210804	Black	N/A	175lbs.	7	24	11/32	50
210805	Natural	N/A	175lbs.	10	34	11/32	50
210806	Black	N/A	175lbs.	10	34	11/32	50
210807	Gray	N/A	175lbs.	15	48	11/32	50
210808	Black	N/A	175lbs.	15	48	11/32	25



# CABLE TIES

## FLUORESCENT CABLE TIES

PART NUMBER	FLUORESCENT COLOR	GOVERNMENT DESIGNATION	MINIMUM TENSILE UNLOCKING STRENGTH MIL-S-2310D (Type 1 Class 1)	MAXIMUM BUNDLE DIAMETER	APPROX. LENGTH	APPROX. WIDTH	QTY
210969	Pink	MS3367-1	40lbs.	2	8-1/2	5/32	250
210970	Orange	MS3367-1	40lbs.	2	8-1/2	5/32	250
210971	Yellow	MS3367-1	40lbs.	2	8-1/2	5/32	250
210972	Green	MS3367-1	40lbs.	2	8-1/2	5/32	250
210973	Blue	MS3367-1	40lbs.	2	8-1/2	5/32	250



**COMBO-PACK**  
100 pieces  
20 of each color  
**210950**

## RELEASABLE CABLE TIES

PART NUMBER	COLOR	MINIMUM TENSILE UNLOCKING STRENGTH MIL-S-2310D (Type 1 Class 1)	MAX. BUNDLE DIAMETER (INCHES)	APPROX. LENGTH (INCHES)	APPROX. WIDTH (INCHES)	QTY
210926	Natural	50lbs.	1-1/4	5-1/2	19/64	100
210964	Black	50lbs.	1-1/4	5-1/2	19/64	100
210924	Natural	50lbs.	2	7-3/4	19/64	100
210927	Black	50lbs.	2	7-3/4	19/64	100
210928	Natural	50lbs.	3	11-3/4	19/64	100
210965	Black	50lbs.	3	11-3/4	19/64	100

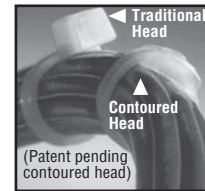
Perfect for construction and service requiring the release and reuse of cable ties on existing harnesses.



## LOW PROFILE CABLE TIES

Low profile design is ideal for use where clearance is a necessity. Unique saddle back curves to fit snug around the wire bundle, and allows for easy pull-through in bulk heads and other tight places.

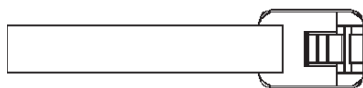
PART NUMBER	COLOR	MINIMUM TENSILE UNLOCKING STRENGTH MIL-S-2310D (Type 1 Class 1)	MAX. BUNDLE DIAMETER (INCHES)	APPROX. LENGTH (INCHES)	APPROX. WIDTH (INCHES)	QTY
210831	Natural	18lbs.	1	4-1/2	.095	100
210832	Black	18lbs.	1	4-1/2	.095	100
210833	Natural	50lbs.	1-3/4	7-1/2	.187	100
210834	Black	50lbs.	1-3/4	7-1/2	.187	100
210835	Natural	50lbs.	3	11-1/4	.187	100
210836	Black	50lbs.	3	11-1/4	.187	100
210837	Natural	50lbs.	4	14-1/2	.187	100
210838	Black	50lbs.	4	14-1/2	.187	100
210686	Natural	120lbs.	4	14-1/2	.300	50
210687	Black	120lbs.	4	14-1/2	.300	50
210688	Natural	120lbs.	6	21-0	.300	50
210689	Black	120lbs.	6	21-0	.300	50



**Part No. 501670**  
**750 pieces • 8 items • 12116 steel tray**

210831	210833	210835	210837
210832	210834	210836	210838

Numbers in assortment



- Contoured head eliminates snagging and sharp edges.
- Durable high quality nylon 66.
- The saddle back fits snug against the contour of the wiring harness.

## CABLE TIE ASSORTMENT

An assortment of fast moving wire ties conveniently stored in a portable tray. These UV resistant black, all nylon cable ties will satisfy all your bundling requirements. Includes standard duty in 4", 6" 8" & 11" lengths and heavy duty in 14" length.

**Part No. 501743**  
**500 pieces • 5 items • 12116 steel tray**

210941	210957	210977
210951	210958	

Numbers in assortment



# CABLE TIES

## MOUNTING CABLE TIES



One piece, all plastic ties for quick, simple cable mounting. Bundling and mounting are done with one unit.

PART NUMBER	COLOR	SCREW HOLE SIZE	MINIMUM TENSILE UNLOCKING STRENGTH MIL-S-2310D (Type 1 Class 1)	MAXIMUM BUNDLE DIAMETER	APPROX. LENGTH	APPROX. WIDTH	QTY
210959	Natural	no. 8	30lbs.	1-1/4	6-1/4	9/64	100
210960	Black	no. 8	30lbs.	1-1/4	6-1/4	9/64	100
210910	Natural	no. 10	50lbs.	1-3/4	8	3/16	100
210961	Black	no. 10	50lbs.	1-3/4	8	3/16	100
210911	Natural	no. 10	50lbs.	4	15-1/2	3/16	100
210962	Black	no. 10	50lbs.	4	15-1/2	3/16	100
210940	Natural	1/4	120lbs.	4	15-1/2	5/16	50
210963	Black	1/4	120lbs.	4	15-1/2	5/16	50

## IDENTIFICATION CABLE TIES

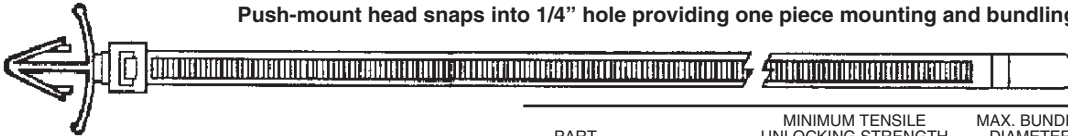


Identify bundles of cable in one operation. Large flat area for imprinting or writing the required information.

PART NUMBER	COLOR	GOVERNMENT DESIGNATION	MINIMUM TENSILE UNLOCKING STRENGTH MIL-S-2310D (Type 1 Class 1)	MAX. BUNDLE DIAMETER (INCHES)	APPROX. LENGTH (INCHES)	MARKING PAD SIZE (INCHES)	QTY
210967	Natural	MS3368-5-E	18lbs.	3/4	4	1 x 19/64	100
210968	Natural	MS3368-1-A	50lbs.	1-3/4	8	1 x 7/16	100

## PUSH-MOUNT CABLE TIES

Push-mount head snaps into 1/4" hole providing one piece mounting and bundling.



PART NUMBER	COLOR	MINIMUM TENSILE UNLOCKING STRENGTH MIL-S-2310D (Type 1 Class 1)	MAX. BUNDLE DIAMETER (INCHES)	APPROX. LENGTH (INCHES)	APPROX. WIDTH (INCHES)	QTY
210904	Natural	50lbs.	1-3/4	8	13/64	50
210916	Black	50lbs.	1-3/4	8	13/64	50

## STAINLESS STEEL TIES



- Ball bearing design allows hand tightening of these clamps.
- This design feature is ideal for use in the marine environment as well as environments where chemicals, salts, acids and high temperatures may affect the clamping application.
- Made of material formulated to be highly resistant to corrosion.
- Temperature range: -112°F (-80°C) to +1000°F (+538°C).

PART NUMBER	MATERIAL	MINIMUM TENSILE UNLOCKING STRENGTH (UNLOCKING)	MAX. BUNDLE DIAMETER (INCHES)	APPROX. LENGTH (INCHES)	APPROX. WIDTH (INCHES)	QTY
210708	316	100lbs.	2	7.9	.18	10
210709	316	100lbs.	4	14.2	.18	10
210710	316	100lbs.	6	20.4	.18	10
210711	316	100lbs.	8	26.8	.18	10
210712	316	250lbs.	2	7.9	.31	10
210713	316	250lbs.	4	14.2	.31	10

## CABLE TIES INDUSTRIAL JAR

For wire bundling, fastening and general use.



- Available in natural nylon for indoor applications or UV-resistant black for outdoor applications.
- Made by Thomas and Betts.
- UL recognized and MIL-SPEC approved.
- Reusable jar.



Each Jar Contains 650 Ties

PART NUMBER	LENGTH (INCHES)	WIDTH	MAX BUNDLE (INCHES)	TENSILE STRENGTH	QTY
Natural Nylon	4	.100	5/8	18 lb	300
210845	7.5	.187	1-3/4	50 lb	300
UV Black	11.1	.187	3	50 lb	50
210846					

# CABLE TIES

## PUSH-MOUNT CABLE TIE BASE

To attach wire ties securely. Installs in any 1/4" hole.

- Centering ears & locking barb design holds base securely in place.
- Type 6/6 nylon.
- Can be used on all standard ties up to 14-1/2" and 50 lb. tensile strength.
- Base dimension 5/16" x 9/16".

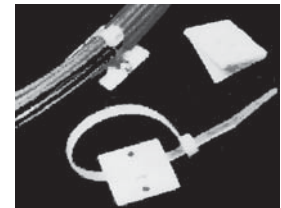
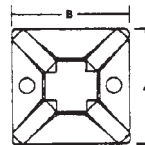
PART NUMBER	COLOR	QTY
210847	Natural	25
210848	Black	25



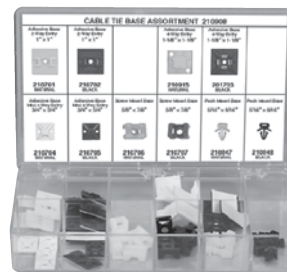
## ADHESIVE BACK CABLE TIE BASE

To attach wire tie to specific place, such as securing to a fire wall.

- Adhesive back with screw holes for fast installation.
- Apply to smooth clean, dry and oil free surface.
- Holds from -50°F to + 180°F.
- Counter-sunk hole for the screw or rivet will not interfere with the cable ties.
- Can be used on self-locking ties up to 14" and 75lb. tensile strength.



PART NUMBER	ENTRY TYPE	COLOR	DIMENSION (INCHES)		QTY
			A	B	
210701	2-way	Natural	1	1	50
210702	2-way	Black	1	1	50
210915	4-way	Natural	1-1/8	1-1/8	50
210703	4-way	Black	1-1/8	1-1/8	50
210704	Mini 4-way	Natural	3/4	3/4	50
210705	Mini 4-way	Black	3/4	3/4	50



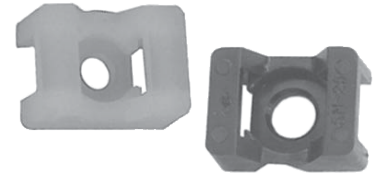
**Part No. 210908**  
66 pieces • 10 items  
12038 plastic tray

210701	210704	210707	210915
210702	210705	210847	
210703	210706	210848	

Numbers in assortment

## SCREW MOUNT BASES

- Narrow and higher design for crowded surface areas.
- Deep cradle design provides extra support for large bundles and many components.
- For use at temperatures not exceeding 85°C (185°F).
- Can be used on all standard and heavy-duty ties up to 48" and 175lbs. tensile strength.
- Screw hole size: 1/4". Base dimensions: 5/8" x 7/8".
- Made in USA.



PART NUMBER	COLOR	QTY
210706	Natural	50
210707	Black	50

## WIRE TIE ASSORTMENT with INSTALLATION TOOL

- A wide assortment of the fastest moving wire ties - no waste of money or inventory space.
- Packed in a sturdy metal tray with 3 horizontal and 3 vertical dividers for fully adjustable compartments.
- Includes wire tie installation tool 210905 - FREE!



**Part No. 210909**  
149 pieces • 11 items • 12090 steel tray

210905	210911	210913	210939	210941	210955
210910	210912	210925	210940	210942	

Numbers in assortment

Contents raised for illustration purposes.



## WIRE TIE INSTALLATION TOOL

CAN'T GET TWO HANDS IN A TIGHT SPOT? TRY THIS....



**Part No. 210905**

- Lightweight and durable plastic body.
- Used with all 18-50 lb. tensile rated ties.



**Part No. 210906**

- All metal, lightweight, adjustable.
- Installs all 18, 30, and 50 lb. ties.



**Part No. 210907**

- Heavy duty, all metal tool.
- Used with 120 & 175 lb. ties.

# CABLE WRAPS / GROMMETS

## VELCRO CABLE WRAPS



For quick cable mounting or bundling.

- Easy installation - Only requires a screw for mounting.
- One piece construction, no back-to-back loop & hook.
- Reusable and adjustable, can be reused up to 200 times.
- Roll dispenser - No lost cables, just cut off number of cable wraps needed.

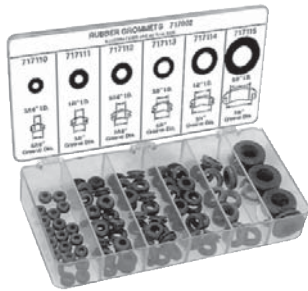
PART NUMBER	COLOR	APPROX. BUNDLE DIAMETER-INCHES	OVERALL LENGTH INCHES	WIDTH INCHES	QTY
210997	Black	2	8	1/2	25

E12

## RUBBER GROMMETS

Use for copper tubing, carburetor linkage, brake lines, choke and throttle controls, brake cables and electric wiring.

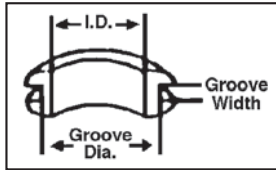
- Used to feed wire through sheet metal.
- Prevents wear and noise due to vibration.



RUBBER GROMMETS 717002					
ILLUSTRATIONS ARE ACTUAL SIZE					
717110	717111	717112	717113	717114	717115
3/16" I.D.	1/4" I.D.	5/16" I.D.	3/8" I.D.	1/2" I.D.	5/8" I.D.
5/16" Groove Dia.	3/8" Groove Dia.	7/16" Groove Dia.	5/8" Groove Dia.	3/4" Groove Dia.	7/8" Groove Dia.

Groove Width = Panel Thickness  
Groove Dia. = Panel Hole Size

PART NUMBER	GROOVE WIDTH	INSIDE DIAMETER	GROOVE DIAMETER	QTY
717110	1/16	3/16	5/16	10
717111	1/16	1/4	3/8	10
716825	1/16	1/4	7/16	10
716826	1/16	1/4	1	10
717112	1/16	5/16	7/16	10
716827	1/16	5/16	9/16	10
716828	1/16	5/16	3/4	10
716829	1/16	3/8	1/2	10
717113	1/16	3/8	5/8	10
716830	1/16	3/8	1	10
716831	1/16	7/16	9/16	10
716832	1/16	5/8	7/8	10
716833	1/16	3/4	15/16	10
716834	1/16	3/4	1-1/16	10
716876	1/16	3/4	1-1/4	10
716877	3/32	5/32	1/4	10
716878	3/32	3/16	9/32	10
716879	3/32	1/2	3/4	10
716880	3/32	1/2	25/32	10
716990	1/8	3/16	5/16	10
716991	1/8	1/4	3/8	10
716992	1/8	5/16	9/16	10
717114	1/8	1/2	3/4	10
717115	1/8	5/8	7/8	10
716995	1/8	11/16	1	10
716881	1/4	3/16	5/16	10
716882	1/4	5/16	9/16	10
716993	1/4	3/8	5/8	10
716883	1/4	1/2	13/16	10
716994	1/4	5/8	7/8	10
716996	1/4	11/16	1	10
716997	1/4	3/4	1-1/4	10



**Part No. 717002**  
76 pieces • 6 sizes • 12028 plastic tray

717110	717112	717114
717111	717113	717115

Numbers in assortment



**SHOP ASSORTMENT**  
**Part No. 501561**  
151 pieces • 14 sizes • 12050 steel tray

716990	716993	716996	717111	717114
716991	716994	716997	717112	717115
716992	717995	717110	717113	

Numbers in assortment

**MASTER ASSORTMENT**  
**Part No. 501698**  
360 pieces • 32 sizes • 12062 steel tray

716825	716832	716880	716993	717112
716826	716833	716990	716883	717113
716827	716834	716991	716994	717114
716828	716876	716992	716996	717115
716829	716877	716995	716997	
716830	716878	716881	717110	
716831	716879	716882	717111	

Numbers in assortment



# GROMMETS / LOOM

## OPENED / CLOSED NYLON GROMMETS

PART NUMBER	MOUNTING HOLE DIA.	INSIDE DIA.	HEAD DIA.	OVERALL HEIGHT	QTY
717764	0.562	0.391	0.641	0.406	25
717771	0.625	0.453	0.688	0.406	25
717772	0.750	0.547	0.797	0.406	25
717773	0.875	0.672	0.922	0.406	25
717774	1.00	0.797	1.063	0.406	25

Used where cables or tubes are already installed.

- Squeeze grommet together to snap into hole.
- Allows for connections or other parts of harnesses too large to fit through inside dia. of grommet.
- Snaps securely in panels.



## STANDARD NYLON GROMMETS

PART NUMBER	MOUNTING HOLE DIA.	INSIDE DIA.	HEAD DIA.	OVERALL HEIGHT	QTY
717781	0.250	1/8	0.312	0.312	25
717782	0.312	3/16	0.375	0.3125	25
717783	0.375	1/4	0.468	0.406	25
717784	0.500	3/8	0.578	0.406	25
717785	0.625	1/2	0.718	0.406	25
717786	0.750	5/8	0.843	0.406	25
717787	0.875*	11/16	0.953	0.453	25
717788	1.000	3/4	1.125	0.453	10
717789	1.093	7/8	1.219	0.453	10
717790	1.375	1.000	1.468	0.453	10

Used to eliminate sharp edges and protect wires and harnesses passing through holes.

- Easily snap into place.
- Resists up to 35 pounds pull.



**Part No. 717780**  
185 pieces  
10 items  
12039 plastic tray



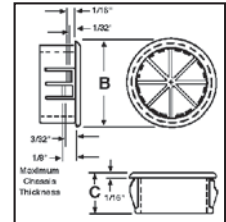
\*Fits standard 1/2" electrical knockout.

## UNIVERSAL NYLON GROMMETS

Used to absorb vibration - cushion and position single or groups of cable, tubing, hose or shafts.

- Flexible shutters automatically adjust to support and protect - even at angle entry.
- Easy snap-lock into panel up to 1/8" thick.
- Type 66 black nylon resists oil and grease. Temperature rated to 220°F/105°C.

PART NUMBER	MOUNTING HOLE DIA.	HEAD DIA. B	OVERALL HEIGHT C	I.D. MIN. - MAX.	QTY
717776	5/8	23/32	13/32	1/8-7/16	25
717778	7/8	15/16	29/64	3/16-9/16	25



## WOVEN COTTON FABRIC LOOM

Underhood wiring, brake and fluid lines.

- Flexible, non-metallic, asphalt impregnated.
- Water & acid proof covering.
- Protects from hot exhaust manifolds and pipes.
- Protects wires & cables from abrasion.
- SAE spec: J-562 for Fire Resistant Loom.
- Meets Ford, GM, and Chrysler OEM specs.

PART NUMBER	I.D. (INCHES)	LENGTH (FEET)
210917	3/16	50
210918	1/4	50
210919	5/16	50
210920	3/8	50
210921	1/2	50
210922	3/4	50

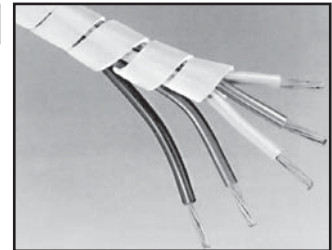
Available in 50 foot rolls



## SPIRAL CUT LOOM

The quick and easy way to bundle, protect, and insulate wires, cables or hose

- Clear or black Polyethylene.
- Flexible and reusable.
- Resists abrasion, solvents, acid and alkalis.
- Wraps like tape.
- Packed in handy dispenser box.



PART NUMBER CLEAR	PART NUMBER BLACK	O.D. (INCHES)	MAX. BUNDLE RANGE (INCHES)	LENGTH (FEET)
210946	210840	1/4	3/16-1	100
210947	210841	1/2	3/8-2	50
210948	210842	3/4	3/4-3	50

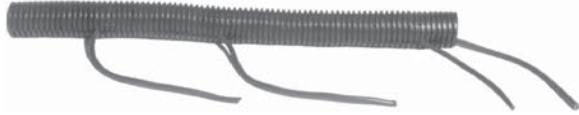


# LOOM / LOOM & CABLE CLIPS

## SPLIT CONVOLUTED LOOM

Protects wire, cable, tubing and hoses from pinching and abrasion.

- Slit entire length for easy installation.
- Slit remains closed, even when twisted or bent.
- Polyethylene-temperature rated to 200°F.
- Nylon-temperature rated to 300°F.  
(Recommended for all engine compartment applications.)



BLACK POLYETHYLENE PART NUMBER	I.D. SIZE (INCHES)	LENGTH (FEET)	HI-TEMP BLACK/GRAY STRIPE NYLON PART NUMBER	I.D. SIZE (INCHES)	LENGTH (FEET)
210930	1/4	25/100	210870	1/4	25/100
210931	3/8	25/100	210871	3/8	25/100
210932	1/2	25/100	210872	1/2	25/100
210933	5/8	25/100	210873	5/8	25/50
210974	3/4	25/50	210874	3/4	25/50
210975	1	25/50	210889	1	25/50
210994	1-1/4	25			
210995	1-1/2	25			
210999	2	25			

## CONVOLUTED LOOM CLIPS

For routing & fastening wires, tubes, hoses, etc.



- Exact replacement for GM late model cars and trucks.
- Strong heat resistant black plastic holds loom harness neatly and securely.
- Universal applications for all car makes *SAVES YOU MONEY!*



PART NUMBER	FITS LOOM SIZE I.D.	REPLACES O.E.M. #	QTY
210935	1/4	8911473	12
210936	3/8	8911497	12
210937	1/2	8911472	12
210938	5/8	8917320	12
210929	3/4 - 1	12015983	12

**Part No. 210934**  
41 pieces • 5 items • 12047 plastic tray

## LOOM & CABLE CLIPS - SHOP ASSORTMENTS



Contents raised for illustration purposes.

**Part No. 717016**  
199 pieces  
23 items  
12017 steel tray

INSULATED MOUNTING CLIP	CONVOLUTED LOOM CLIP	NYLON CABLE CLIP	UNIVERSAL LOOM & CABLE CLIPS
30604	30611	210935	717356
		210936	717357
30607	30612	210937	717358
30608	30615	210937	717358
30609	30617	210938	717359
30610	30625		717360
			717361



Contents raised for illustration purposes.

**Part No. 501706**  
241 pieces  
13 items  
12050 steel tray

CONVOLUTED LOOM CLIP	NYLON CABLE CLIP	UNIVERSAL LOOM & CABLE CLIPS
210935	717356	717185
210936	717357	717186
210937	717358	717187
210938	717359	
	717360	
	717361	

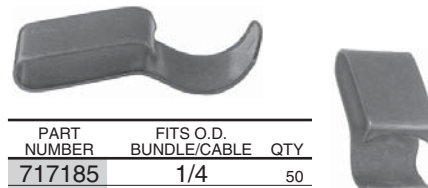
## LOOM & CABLE CLIPS

For cars, trucks, trailers & RV's.



- Made from spring steel.
- Holds wire or cable securely.

**Part No. 717017**  
38 pieces  
3 items  
12034 plastic tray



PART NUMBER	FITS O.D. BUNDLE/CABLE	QTY
717185	1/4	50
717186	3/8	50
717187	1/2	25

# LOOM & CABLE CLIPS

## STEEL INSULATED MOUNTING CLIPS

Used for holding tubing, hoses, cable and other typical assemblies.



- Black vinyl plastisol coated - chemical resistant.
- Zinc plated to resist corrosion.
- Available in 1/2" width with 1/4" mounting hole, or heavy duty 3/4" width with 3/8" mounting hole.



TUBING SIZE	1/2" WIDTH 1/4" MOUNTING HOLE	3/4" WIDTH 3/8" MOUNTING HOLE	QTY
3/16	30603	---	25
1/4	30606	30618*	24
5/16	30604	30619*	24
3/8	30607	30620*	24
1/2	30608	30621*	24
5/8	30609	30622*	24
3/4	30610	30623*	24
7/8	30611	30624*	24
1	30612	30625*	24
1-1/4	---	30615*	12
1-1/2	---	30617	12
1-3/4	---	30627	10
2	---	30628	10

\* Contained in Assortment 30601.

### Part No. 30601

Heavy duty 3/4" wide insulated mounting clip assortment.  
37 pieces • 9 items  
12043 plastic tray

### Part No. 30602

1/2" wide insulated mounting clip assortment.  
45 pieces • 9 items  
12039 plastic tray



### SHOP ASSORTMENT

Part No. 501707  
111 pieces • 14 items  
12050 steel tray

30603	30607	30610	30615	30623
30604	30608	30611	30617	30625
30606	30609	30612	30621	

Numbers in assortment



**INDUSTRIAL MAINTENANCE/FLEET SHOP** Includes all standard 1/2" width sizes, plus large sizes 1-1/4" to 2" in 3/4" width.

### Part No. 501606

140 pieces • 13 items • 12058 steel bin

30603	30607	30610	30615	30628
30604	30608	30611	30617	
30606	30609	30612	30627	

Numbers in assortment



## ALUMINUM TUBING & CABLE MOUNTING CLIPS

Indoor or outdoor use



- Mounts with 1/4" screw or bolt.
- Recommended for use where aging and weathering is a problem.
- 1/2" wide.
- Removable neoprene cover protects tubing or cable from abrasion.

### Part No. 720100

38 pieces • 12 items  
12043 plastic tray

720101	720104	720107	720110
720102	720105	720108	720111
720103	720106	720109	720112

Numbers in assortment



### NEOPRENE CUSHION COVER

PART NUMBER	QTY	DIA.	PART NUMBER	QTY	DIA.
720101	10	1/4	720108	10	1
720102	10	5/16	720109	5	1-1/8
720103	10	3/8	720110	5	1-1/4
720104	10	1/2	720111	5	1-3/8
720105	10	5/8	720112	5	1-1/2
720106	10	3/4	720114	5	1-3/4
720107	10	7/8	720113	5	2



### Part No. 501708

87 pieces • 14 items  
12050 steel tray

720101	720106	720111
720102	720107	720112
720103	720108	720113
720104	720109	720114
720105	720110	

Numbers in assortment



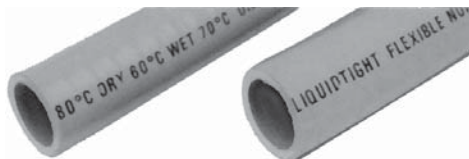


# WIRE COVERINGS & FITTINGS

## LIQUID TIGHT ELECTRICAL CONDUIT and FITTINGS

### - CONDUIT -

- Liquid tight conduit is non-metallic, gray PVC construction, and meets UL Type B.
- The smooth inner surface allows for quick feeding of wires with no sharp edges to damage conductors.
- Lightweight and resistant to crushing, easily cut to length with a knife.
- Suitable for either indoor or outdoor use.
- Use with fittings at right for a liquid-tight connection.
- UL rated for 80° C dry, 60° C wet, 70° C oil resistant. CSA rating for -18° C to 75° C.



SIZE IN.	PART NUMBER	TYPICAL O.D.	TYPICAL I.D.	STANDARD PACK FT.
3/8	210610	0.70	0.49	50
1/2	210611	0.83	0.63	50
3/4	210612	1.04	0.83	50
1	210613	1.30	1.05	50

### - FITTINGS -

- Nylon construction is suitable for indoor and outdoor use.
- The conduit can be pushed into the fitting and the sealing nut is tightened, the tubing does not have to be threaded onto the nut.
- The connector is supplied with an O-ring and steel locking nut.
- For larger tubing sizes, standard metallic trade fittings can be used. Gray color.



STRAIGHT-IN FITTING

RIGHT ANGLE FITTING



SIZE IN.	PART NUMBER CONNECTOR		THREAD SIZE
	STRAIGHT-IN TYPE	RIGHT ANGLE TYPE	
3/8	210620	210624	1/2 NPT
1/2	210621	210625	1/2 NPT
3/4	210622	210626	3/4 NPT
1	210623	210627	1 NPT

E12

## FLEXIBLE ELECTRICAL TUBING and FITTINGS

### - TUBING -

- Highly flexible black PVC tubing for a non-metallic covering over wires, or fiber optic cables.
- Available from 1/4" to 1" I.D.
- Resistant to oil, water and corrosion, excellent in high vibration areas or where flexing occurs.
- Cut to length with a knife.
- UL recognized under the component program.
- CSA certified for 3/8" and larger sizes.



SIZE IN.	PART NUMBER	TYPICAL O.D.	TYPICAL I.D.	STANDARD PACK FT.
1/4	210630	0.57	0.40	50
3/8	210631	0.70	0.49	50
1/2	210632	0.83	0.63	50
3/4	210633	1.04	0.83	50
1	210634	1.30	1.05	50

### - FITTINGS -

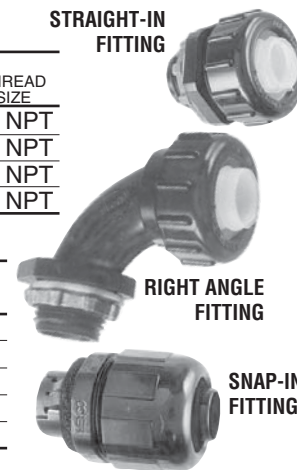
- Nylon construction is suitable for indoor and outdoor use.
- Both threaded-in, straight-in and right angle, and snap-in straight-in type only. Fittings can only be used with flexible electrical tubing, shown at left.
- The fitting does not have to be disassembled for use, simply push tubing in and tighten the lock nut and snap or screw into place.
- For larger tubing sizes, standard metallic trade fittings can be used.

SIZE IN.	- THREADED FITTINGS -		THREAD SIZE
	STRAIGHT-IN TYPE	RIGHT ANGLE TYPE	
3/8	210640	210644	1/2 NPT
1/2	210641	210645	1/2 NPT
3/4	210642	210646	3/4 NPT
1	210643	210647	1 NPT

STRAIGHT-IN FITTING

RIGHT ANGLE FITTING

SNAP-IN FITTING



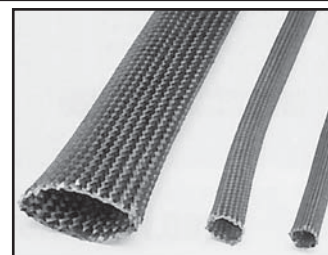
SIZE IN.	- SNAP-IN FITTINGS -	
	STRAIGHT SNAP IN	MOUNTING HOLE DIA.
1/4	210648	0.500
3/8	210649	0.875
1/2	210650	0.875
3/4	210651	1.093
1	210652	1.375

## EXPANDABLE MESH SLEEVING

PART NUMBER	NOMINAL SIZE	LENGTH (FEET)
210690	1/4	25
210691	3/8	25
210692	1/2	25
210693	3/4	25

**Ideal covering to protect wire, cable, hoses, shafts, marine hoses & cables, hydraulics, trailer chains and harness assemblies.**

- Expands up to three times for easy installation, then tightens.
- Sleevings has high resistance to abrasion and chemicals.
- Temperature range -94°F to +257°F.
- UL recognized black polyethylene terephthalate (PET).



# ELECTRIC TEST CLIPS & INSULATORS

## ALLIGATOR CLIPS



PART NUMBER	QTY	AMP	PLATING	CONNECTION	LENGTH	JAW OPENING
113200	12	10	Cadmium plated steel	Screw	2	5/16
113201	12	10	Cadmium plated steel	Screw	1-11/16	5/16

## GENERAL PURPOSE CLIPS



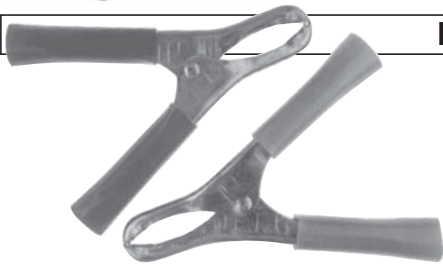
PART NUMBER	QTY	AMP	PLATING	CONNECTION	LENGTH	JAW OPENING
113204	12	20	Cadmium plated steel	Screw	2	1/2

## HEAVY DUTY CLIPS



PART NUMBER	QTY	AMP	PLATING	CONNECTION	LENGTH	JAW OPENING
113210	12	25	Lead plated steel	Screw	2-7/8	3/4

## BATTERY CHARGER CLIPS



- For low voltage and trickle chargers, timing lights and test equipment.
- 50 amp capacity.
- 3" long, 1-1/8" jaw spaced.
- Copper plated with insulated handles.

\* One of each with red & black handles

**Part No. 113261** 1 pair of clips\*

## INSULATORS

Both red & black vinyl packed in each box.



PART NUMBER	QTY	FITS NUMBERS
113214	12	113200
113215	12	113201
113216	12	113204
113218	12	113210

## TEST LEADS

Quickly shows hidden trouble in electrical system.



- Two 30" leads, 18ga.
- Color coded red and black wire.
- Packed pair in a box.

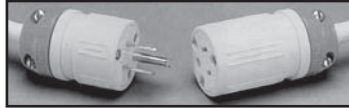
**Part No. 113226**



**CORD CONNECTORS/ELECTRICAL DEVICES/GFCI RECEPTACLES**

**HEAVY DUTY / INDUSTRIAL TYPE PLUGS AND CONNECTORS**

**PERMA-LINK®** U.S. Patent No. 4021092 Dead-Front, Back-Wired



Meets OSHA requirements 1926.405 (J)  
Meets National Electrical code requirements 400-10, 410-56 (f) & (h), 410-58 (a) (b) & (d)

**Rugged Construction:** Rugged polybutylene terephthalate (PBT) and a high-tech thermo-plastic elastomer (TPE) are combined to produce safer wiring devices that are engineered for long-life under conditions that would destroy ordinary devices. Perma-Link plugs and connectors provide double-insulated reliability while withstanding high impact, crushing, corrosion, chemicals, greases, oils, solvents, ozone, temperature extremes (-20°C - 100°C), moisture, and high-voltage arcing and carbon tracking.

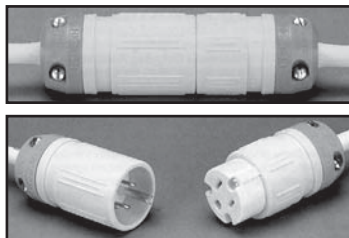
**High Visibility For Added Safety:** Brilliant orange and radiant yellow dual Color Safety System™.

- Non-slip finger grips.
- Solid brass blades.
- Keyed body for alignment.
- Transparent back plate.
- Individual wiring chambers.
- Color-coded terminal clamping screws.
- Captive assembly screws.
- Internal cord seal.
- New self-centering safety cord clamps.
- Double lead screws for faster assembly.

**VERSATILE WEATHER-RESISTANT FIELD CONVERSION**

**BONUS FEATURE**  
at NO extra cost!

Our Perma-Link plugs and connectors (straight blade only) are designed so they can easily be converted to create weather-resistant connections by interchanging the internal assemblies. Insert the plug body into the connector cover, and the connector body into the plug cover. There are no extra boots to purchase and inventory.



**INDUSTRIAL AUTO-GRIP™ PLUGS & CONNECTORS**

- Auto-Grip™ design clamps the cord during assembly, reducing time.
- NEMA/IEC Configuration: 5-15

Part No. 310266



Part No. 310269

PART NUMBER	AMPS	VOLTAGE	CABLE/WIRE SIZE
310266	15 A	125 VAC	1/4 in - 0.656 in
310269	15 A	125 VAC	1/4 in - 0.656 in

**ERICSON® HEAVY DUTY / INDUSTRIAL TYPE PLUGS AND CONNECTORS**

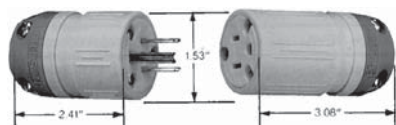
3W 15A 125V



NEMA Configuration #5-15 Straight Blade

2-Pole, 3 Wire, Grounding  
Accommodates wire sizes #18 thru #12

**PERMA-LINK® HEAVY DUTY INDUSTRIAL TYPE**



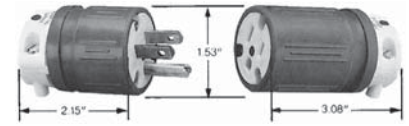
Part No. 310150

Part No. 310152

**PERMA-LINK® HOSPITAL GRADE**



- Softt grey finish.



Part No. 310151

Part No. 310153

**PART TO ERICSON INTERCHANGE**

PART NUMBER	ERICSON NUMBER	DESCRIPTION	PART NUMBER	ERICSON NUMBER	DESCRIPTION
310150	1510-P	Perma-Link	310151	1530-PH	Perma-Link HG
310152	1610-C	Perma-Link	310153	1630-CH	Perma-Link HG

**MULTIPLE OUTLET STRIP**

Applications include offices, work stations, laboratories, computer equipment, store displays and work benches.



- 6 grounding outlets.
- Rated 15A, 120V, 60Hz, up to 1875 watts continuous.
- 4' heavy duty cord.
- Resettable circuit breaker protects against overloads.
- Beige colored plastic housing.
- ON/OFF switch controls all outlets.



Part No. 310180

**IN-LINE PORTABLE GFCI**

Ground fault circuit interrupter (GFCI) detects power leaks and cuts off electricity in less than a second to prevent electrical shock. For all industrial and construction applications.

- Meets OSHA requirements.
- Weather resistant "Test" and "Reset" buttons.
- 3 outlets permit multiple tool use.
- Heavy duty, 12 ga. cord, 2' length, 125V, 15 amps, 1875 watt rated.



Part No. 310198

Prevents serious injury at temporary work sites.

**SURGE AND NOISE SUPPRESSORS**

Total protection from voltage surges and suppression of EMI/RFI noise caused by motors, equipment, transmitters, ignition, and other electronic sources causing visible or audible interference. 70% of electrical problems are surge related, while 30% are caused by electromagnetic interference.

- Available in beige plastic housing or heavy duty metal housing for workbench and shop use.
- \*6 grounded outlets, full 3 line protection.
- Surge protection...6,500A, 400V (500V on 310189).
- Visual surge indicator, ON/OFF switch.
- Noise rejection up to 15DB; 150KHz to 100MHz.
- Rated 15A, 120V, 60Hz, up to 1875 watts continuous.
- Clamping response time... 1 nanosecond.
- 14/3 SJT cord set.



Part No. 310187



Part No. 310189

PART NUMBER	DESCRIPTION
310187	plastic housing, 4' cord, no circuit breaker
310189	H-D metal housing, 6' cord, with circuit breaker

**CAUTION** A surge suppressor is not a lightning arrestor and may not protect against direct lightning strikes.

\* Most surge suppressors offer 1 line protection for the AC feed line. This leaves the neutral line and ground line unprotected. Should a reverse surge or transient spike caused by electrical storms occur on either of these lines, equipment will be unprotected.

# Color Keyed® – Battery Cable/Connector System

## UNIVERSAL BATTERY CONNECTORS

Battery cable connections can be the weakest link in your fleet's electrical system. Vibration and harsh environments can mean loose, corroded connections. Connections that can stop a truck in its tracks. And, a truck that's off the road, is a truck that's costing you money.

The COLOR-KEYED® Cable/Connector system can solve your downtime problems and save you plenty on installation time and inventory. The heart of our totally engineered system is a patented copper universal battery connector. Now, your mechanics can use one connector for both positive and negative posts—there's no lost time looking for positive or negative connectors. Install one connector every time without compromising the quality of the connection...just think of the labor and inventory savings.

Our system is a true, heavy-duty system consisting of cable, cable cutters, strippers, copper connectors, installing tools, insulators and corrosion inhibitors. The system is totally color-coded—each cable size is color-matched to the proper connector and installing tool dies so you'll always have the right connector, cable and die combination.

Our unique cable stripper easily removes the cable insulation without damaging the cable strands, and our compression tool and closed barrel connector assure a solid homogeneous mass that provides an optimum electrical bond between connector and cable. Heavy wall heat shrink insulators assure watertight connections, and by applying Kopr-Shield® compound to the connection, you get the ultimate protection against corrosion.

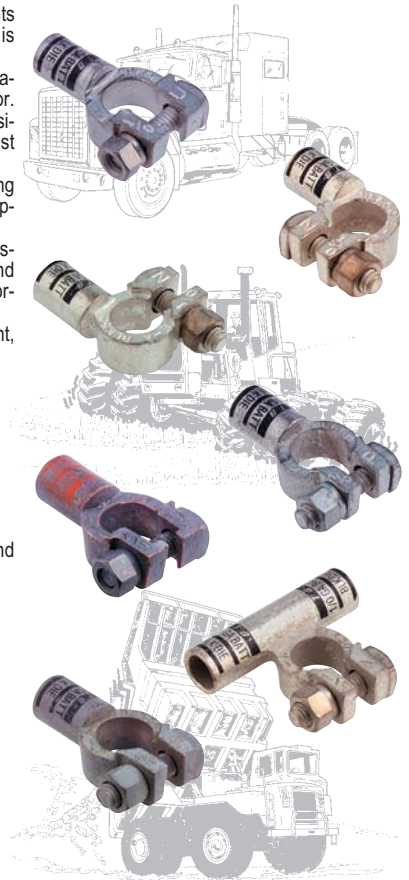
Our system is backed by over 90 years of electrical experience. It saves time, money, inventory and most important, it's a system that keeps your vehicles on the road...where they belong.

### Easy installation—The complete system

1. Match the COLOR-KEYED® cable and universal connector.
2. Cut and strip cable with proper Thomas & Betts tools.
3. Select the COLOR-KEYED® die that matches cable and connector. Insert die in tool.
4. Insert cable into barrel of connector and crimp connector between colored bands on barrel of connector, beginning with the band farthest from insulation. Make two crimps.
5. To protect connection, use two-inch length of heavy wall shrink tubing.
6. To enhance conductivity and inhibit corrosion, apply KOPR-SHIELD® compound to installed battery posts and connector.

\*Trademark of Jet-Lube, Inc.

BAC	4	S	U	B	T
Battery Connector	Wire Size	Direction Connector	Style Connection Post	Material	Coating
(4-4/0)	S = Straight F = Fray ER = Elbow Right EL = Elbow Left	U = Universal P = Positive N = Negative	B = Sand Cast D = Die Cast	T = Tin	



E14

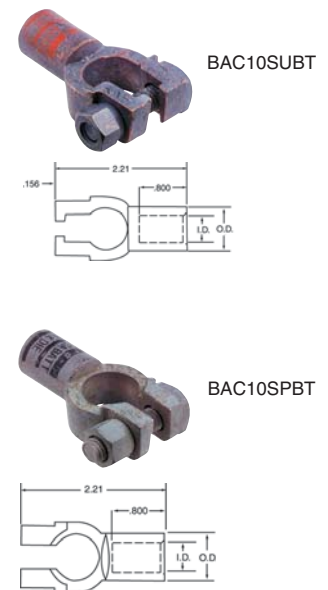
## SAND CAST TIN PLATED STRAIGHT BATTERY CONNECTORS

Cat. No.	SAE Cable Size and Color	Description	I.D.	O.D.	Pkg. Qty.
BAC4SUBT	4 Gauge	Straight Universal	.261	.430	5
BAC2SUBT	2 Gauge	Straight Universal	.340	.550	5
BAC1SUBT	1 Gauge	Straight Universal	.340	.550	5
BAC10SUBT	1/0 Gauge	Straight Universal	.455	.625	5
BAC20SUBT	2/0 Gauge	Straight Universal	.502	.676	5
BAC30SUBT	3/0 Gauge	Straight Universal	.530	.730	5
BAC40SUBT	4/0 Gauge	Straight Universal	.600	.844	5
BAC4SPBT	4 Gauge	Straight Positive	.261	.430	5
BAC4SNBT	4 Gauge	Straight Negative	.261	.430	5
BAC2SPBT	2 Gauge	Straight Positive	.340	.550	5
BAC2SNBT	2 Gauge	Straight Negative	.340	.550	5
BAC1SPBT	1 Gauge	Straight Positive	.340	.550	5
BAC1SNBT	1 Gauge	Straight Negative	.340	.550	5
BAC10SPBT	1/0 Gauge	Straight Positive	.455	.625	5
BAC10SNBT	1/0 Gauge	Straight Negative	.455	.625	5
BAC20SPBT	2/0 Gauge	Straight Positive	.502	.676	5
BAC20SNBT	2/0 Gauge	Straight Negative	.502	.676	5
BAC30SPBT	3/0 Gauge	Straight Positive	.530	.730	5
BAC30SNBT	3/0 Gauge	Straight Negative	.530	.730	5
BAC40SPBT	4/0 Gauge	Straight Positive	.600	.844	5
BAC40SNBT	4/0 Gauge	Straight Negative	.600	.844	5

Material: High conductivity copper.

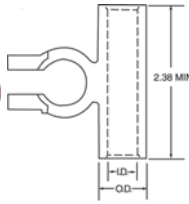
Finish: Tin plated.

Installing Tools: TBM5-SV, TBM5V, BCT840, BCT840S



# Color Keyed® – Battery Cable/Connector System

## SAND CAST TIN PLATED FLAG BATTERY CONNECTORS



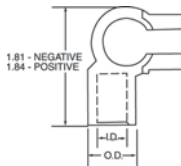
Cat. No.	SAE Cable Size and Color	Description	I.D.	O.D.	Pkg. Qty.
BAC10FPBT	1/0 Gauge	Flag Positive	.455	.625	5
BAC10FNBT	1/0 Gauge	Flag Negative	.455	.625	5
BAC20FPBT	2/0 Gauge	Flag Positive	.502	.676	5
BAC20FNBT	2/0 Gauge	Flag Negative	.502	.676	5
BAC30FPBT	3/0 Gauge	Flag Positive	.530	.730	5
BAC30FNBT	3/0 Gauge	Flag Negative	.530	.730	5
BAC40FPBT	4/0 Gauge	Flag Positive	.600	.844	5
BAC40FNBT	4/0 Gauge	Flag Negative	.600	.844	5

Material: High conductivity copper.

Finish: Tin plated.

Installing Tools: TBM5-SV, TBM5V, BCT840, BCT840S

## SAND CAST TIN PLATED ELBOW BATTERY CONNECTORS



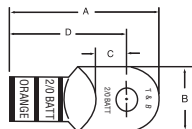
Cat. No.	SAE Cable Size and Color	Description	I.D.	O.D.	Pkg. Qty.
BAC10ERNBT	1/0 Gauge	Right Elbow – Negative	.455	.625	5
BAC10ERPBT	1/0 Gauge	Right Elbow – Positive	.455	.625	5
BAC20ERNBT	2/0 Gauge	Right Elbow – Negative	.502	.676	5
BAC20ERPBT	2/0 Gauge	Right Elbow – Positive	.502	.676	5
BAC30ERNBT	3/0 Gauge	Right Elbow – Negative	.530	.730	5
BAC30ERPBT	3/0 Gauge	Right Elbow – Positive	.530	.730	5
BAC40ERNBT	4/0 Gauge	Right Elbow – Negative	.600	.844	5
BAC40ERPBT	4/0 Gauge	Right Elbow – Positive	.600	.844	5
BAC10ELNBT	1/0 Gauge	Left Elbow – Negative	.455	.625	5
BAC10ELPBT	1/0 Gauge	Left Elbow – Positive	.455	.625	5
BAC20ELNBT	2/0 Gauge	Left Elbow – Negative	.502	.676	5
BAC20ELPBT	2/0 Gauge	Left Elbow – Positive	.502	.676	5
BAC30ELNBT	3/0 Gauge	Left Elbow – Negative	.530	.730	5
BAC30ELPBT	3/0 Gauge	Left Elbow – Positive	.530	.730	5
BAC40ELNBT	4/0 Gauge	Left Elbow – Negative	.600	.844	5
BAC40ELPBT	4/0 Gauge	Left Elbow – Positive	.600	.844	5

Material: High conductivity copper.

Finish: Tin plated.

Installing Tools: TBM5-SV, TBM5V, BCT840, BCT840S

## COLOR-KEYED STARTER LUGS – TIN PLATED



Cat. No.	SAE Cable Size and Color	Stud Size	A ±04	B ±02	C ±02	D ±02	Pkg. Qty.
BAL414	4 Gauge	1/4	140	52	40	115	5
BAL4516	4 Gauge	5/16	145	61	36	114	5
BAL438	4 Gauge	3/8	145	61	36	114	5
BAL2516	2 Gauge	5/16	159	69	40	125	5
BAL238	2 Gauge	3/8	178	67	55	140	5
BAL212	2 Gauge	1/2	177	76	54	140	5
BAL1516	1 Gauge	5/16	183	76	49	150	5
BAL138	1 Gauge	3/8	185	75	55	150	5
BAL112	1 Gauge	1/2	220	75	75	170	5
BAL10516	1/0 Gauge	5/16	192	83	50	150	5
BAL1038	1/0 Gauge	3/8	193	83	55	155	5
BAL1012	1/0 Gauge	1/2	197	88	53	153	5
BAL20516	2/0 Gauge	5/16	206	93	50	160	5
BAL2038	2/0 Gauge	3/8	211	93	55	165	5
BAL2012	2/0 Gauge	1/2	211	93	55	165	5
BAL30516	3/0 Gauge	5/16	216	103	55	165	5
BAL3038	3/0 Gauge	3/8	203	103	55	165	5
BAL3012	3/0 Gauge	1/2	235	103	75	185	5
BAL40516	4/0 Gauge	5/16	240	113	59	184	5
BAL4038	4/0 Gauge	3/8	228	112	55	190	5
BAL4012	4/0 Gauge	1/2	260	112	75	210	5

Material: High conductivity copper.

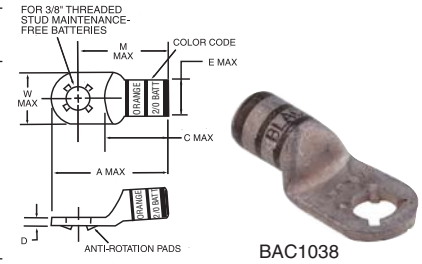
Finish: Electro-tin plated.

Installing Tools: TBM5-SV, TBM5V, BCT840, BCT840S

# Color Keyed® – Battery Cable/Connector System

## STACKABLE BATTERY CONNECTOR – LEAD PLATED

Cat. No.	SAE Cable Size and Color	A ±.040	M ±.020	W ±0.20	C ±.020	E ±.010	Stud Size	Pkg. Qty.
BAC438	4 Gauge	1.455	1.143	.615	.750	.365	3/8	5
BAC238	2 Gauge	1.775	1.400	.675	.850	.467	3/8	5
BAC138	1 Gauge	1.875	1.500	.750	.950	.521	3/8	5
BAC1038	1/0 Gauge	1.925	1.550	.825	1.000	.571	3/8	5
BAC2038	2/0 Gauge	2.110	1.645	.930	1.100	.632	3/8	5
BAC3038	3/0 Gauge	2.025	1.650	1.025	1.100	.701	3/8	5
BAC4038	4/0 Gauge	2.275	1.900	1.125	1.350	.766	3/8	5



**Material:** High conductivity copper. **Finish:** Lead plated.  
**Installing Tools:** TBM5-SV, TBM5V, BCT840, BCT840S

## SPLICES (2 WAY CONNECTORS) – TIN PLATED

Cat. No.	SAE Cable Size and Color	Pkg. Qty.
BAS4	4 Gauge	5
BAS2	2 Gauge	5
BAS1	1 Gauge	5
BAS10	1/0 Gauge	5
BAS20	2/0 Gauge	5
BAS30	3/0 Gauge	5
BAS40	4/0 Gauge	5



**Material:** High conductivity copper. **Finish:** Electro-tin plated.  
**Installing Tools:** TBM5-SV, TBM5V, BCT840, BCT840S.

## COLOR-KEYED BATTERY/STARTER CABLE

Thomas & Betts Color-Keyed™ battery cable is engineered for optimum performance at both high and low temperatures. The abrasion resistant cable incorporates insulation and fine stranding that provides a safe and reliable connection.

- Made of fine flexible copper rope stranding
- PVC jacket that conforms to SAE J1127 specifications
- Layer of paper separates insulation from copper providing easy stripping with no stranding damage
- Temperature rated for 80°C
- Flexibility ideal for tight spaces and cold environments
- Color-Keyed™ for fast and accurate identification
- Marked in 1ft. increments for easy measurements

Cat. No.	SAE Cable Size and Color	Cable Length	Cable Color
BC4-25	4 Gauge	25 Ft. Coil	Black
BC2-25	2 Gauge	25 Ft. Coil	Black
BC1-25	1 Gauge	25 Ft. Coil	Black
BC10-25	1/0 Gauge	25 Ft. Coil	Black
BC20-25	2/0 Gauge	25 Ft. Coil	Black
BC30-25	3/0 Gauge	25 Ft. Coil	Black
BC40-25	4/0 Gauge	25 Ft. Coil	Black
BC4-25R	4 Gauge	25 Ft. Coil	Red
BC2-25R	2 Gauge	25 Ft. Coil	Red
BC1-25R	1 Gauge	25 Ft. Coil	Red
BC10-25R	1/0 Gauge	25 Ft. Coil	Red
BC20-25R	2/0 Gauge	25 Ft. Coil	Red
BC30-25R	3/0 Gauge	25 Ft. Coil	Red
BC40-25R	4/0 Gauge	25 Ft. Coil	Red
BC4-100	4 Gauge	100 Ft. Coil	Black
BC2-100	2 Gauge	100 Ft. Coil	Black
BC1-100	1 Gauge	100 Ft. Coil	Black
BC10-100	1/0 Gauge	100 Ft. Coil	Black
BC20-100	2/0 Gauge	100 Ft. Coil	Black
BC30-100	3/0 Gauge	100 Ft. Coil	Black
BC40-100	4/0 Gauge	100 Ft. Coil	Black



# Color Keyed® – Battery Cable/Connector System

## KOPR-SHIELD® CONDUCTIVE ANTI-CORROSION SURFACE COMPOUND

### The Copper Colloidal Surface Treatment That Protects, Lubricates and Enhances Conductivity Between All Electrical Connections

Good connections are one of the most important aspects of electrical work. Mechanics know how much down-time is caused when fluids or oils leak into the raceway system or looking for a weak link in a ground system caused by a high resistance connection. Mechanics also know how much time is spent keeping contacts, switches, lugs and other connectors clean or replacing parts because of "green scourge" build-up. Thomas & Betts has the solution to improve connections made in thousands of electrical and raceway installations made each day by electricians everywhere.

Kopr-Shield compound is a unique homogenized blend of pure, polished colloidal copper, rust and corrosion inhibitors that simultaneously protects, lubricates and enhances the conductivity of the mating surfaces to which it is applied. Extremely adhesive, Kopr-Shield compound flows smoothly into uneven contours and voids, making application easy, protection and lubrication complete and positive. A stable compound, it will not settle-out, thin, thicken, harden, or dry out under the most severe environmental conditions.

Kopr-Shield Compound has excellent temperature characteristics – brushed on at –50F to 250F (other compounds either turn solid or run like water at these extremes). Even at 1800F, Kopr-Shield remains intact for short terms.

Kopr-Shield Compound may be used to advantage in all electrical installations. When the environment is hostile to good electrical and mechanical connections, Kopr-Shield Compound is a must!



#### Use Kopr-Shield Compound for Battery Lugs and Cables

- Prevention of "Green Scourge" corrosion
- Reduction of resistance
- Ease of terminal installation and removal

#### Use Kopr-Shield Compound for Raceways

- Lubrication – Ease of assembly and disassembly
- Grounding Continuity Improved – Exceeds code requirements

#### Use Kopr-Shield Compound for Fuse Clips

- Even Heat Distribution – Elimination of hot spots
- Oxidation Prevention – Prevents carbon path formation
- Lubrication – Easy installation and removal of fuses

#### Use Kopr-Shield Compound for Wiping Contacts, Drum Switches and Slip Rings

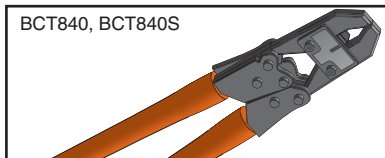
- Prevention of galling, burning, pitting and discoloration
- Suppression of arcing and dissipation of coronas
- Lubrication for ease of operation

Cat. No.	Description
201-31879	1 1/2 oz. Container with brush
201-31879-1	4 oz. Container with brush
CP8	8 oz. Container with brush
CP16	16 oz. Container with brush

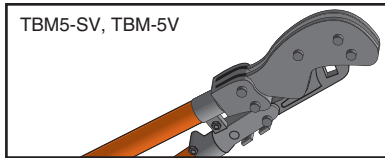
\*Kopr-Shield Product of Jet-Lube, Inc.

## CRIMPING TOOLS

BCT840, BCT840S



TBM5-SV, TBM-5V



Cat. No.

Description

BCT840  
BCT840S

- Adjustable die crimping tool for Color-Keyed® cast and tubular connectors.
- The single die is an integral part of the tool; no dies to lose or misplace.
- Available with Sure-Stake™ mechanism to insure a complete crimp every time. (BCT840S)
- Crimps casting and tubular connectors ranging from 4 AWG to 4/0.

TBM5V

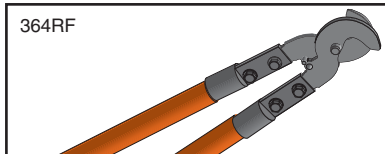
- Heavy Duty crimping tool including dies for 8AWG-4/0 battery connectors, lugs, and splices.

TBM5-SV

- Available with Sure-Stake™ mechanism to insure a complete crimp every time. (TBM5-SV)

## CABLE CUTTER

364RF



Cat. No.

Description

364RF

- Cuts cable up to 350 MCM
- Fiberglass handles and carbon steel blades
- For copper and aluminum cable only

# Shrink-Kon® – Heat Shrinkable Insulators

## HS SERIES

- Heavy wall heat shrinkable tubing provides maximum reliability for insulating and protecting battery connectors and terminations.
- Withstands severe mechanical requirements; submersible installations.
- High impact, abrasion, corrosion and chemical resistance.
- Rated for 600V, 90°C continuous use.
- Thermoplastic adhesive liner provides complete environmental protection and insulation.
- Meets: UL 486D, CSA C22.2 No. 198.2, ANSI C119.1, Western Underground Guide Numbers 2.4, 2.5, ICEA and NEMA insulation thickness requirements.
- Continuous operating temperature: -55°C to 110°C. Shrink temperature 120°C. Shrink ratio 3:1.

### Black



Cat. No.	Min. Expanded I.D. (in.)	Max. Recovered I.D. (in.)	Nom. Recovered Wall (in.)	Std. Lgth.	Fits Any Listed or Certified Al or Cu Splice with Dim No Larger Than O.D. Lgth.		Cable Range	Pkg. Qty.
HS16-12				3 in.				5
HS16-12L	.350"	.120"	.070"	6 in.	1 7/64"	1"	#14 to #10 AWG	5
HS16-12-4				4 ft.				5
HS12-6				3 in.				5
HS12-6L	.510"	.160"	.090"	6 in.	3/8"	1 3/4"	#8 to #6 AWG	5
HS12-6-4				4 ft.				5
HS6-1				4 in.				5
HS6-1L	.750"	.240"	.090"	8 in.	5/8"	2 1/2"	#6 to #2 AWG	5
HS6-1-4				4 ft.				5
HS4-30				5 in.				5
HS4-30L	1.100"	.350"	.120"	9 in.	3/4"	3 1/4"	#1 to 3/0 AWG	10
HS4-30-4				4 ft.				5
HS40-400				8 in.				5
HS40-400L	1.500"	.470"	.160"	12 in.			2/0 to 350 MCM	5
HS40-400-4				4 ft.				5
HS500-1000				9 in.			250 MCM	5
HS500-1000L	2.00"	.630"	.160"	15 in.			to 600 MCM	5
HS500-1000-4				4 ft.				5



T&B's heat shrinkable tubing is made of thermally stabilized cross-linked polyolefin. This provides a recovered wall thickness greater than that of the cable jacket replaced. The insulating covers which have an internally applied sealant offer protection against moisture, may be used over lead, steel, aluminum, copper, standard plastic and elastomeric insulating materials.

E14

### Red

Cat. No.	Min. Expanded I.D. (in.)	Max. Recovered I.D. (in.)	Lgth. (in.)	For 2-Way Connector Cable Sizes	Pkg. Qty.
HS16-12LR	.350"	.120"	6"	14-10 AWG	5
HS12-6LR	.510"	.160"	6"	8-6 AWG	5
HS6-1LR	.750"	.240"	8"	6-2 AWG	5
HS4-30LR	1.100"	.350"	9"	1-3/0 AWG	10
HS40-400LR	1.500"	.470"	12"	2/0-350 MCM	5
HS500-1000LR	2.000"	.630"	15"	250-600 MCM	5

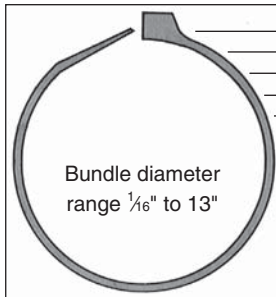


All lengths have factory applied sealant.  
 For other sizes and lengths including flame retardant grades consult factory.  
 U.L. File No. 9809, U.L. 486D  
 \*\* Not U.L. Listed

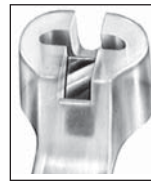


# Ty-Rap® – Cable Tying System

## TY-RAP® CABLE TIES



- Low-profile head. Good looks—won't snag.
- Stainless steel lock. Maintains right tension.
- Easy to install, won't slip. Mechanic's grip.
- Infinitely adjustable design. Always the "right" size.
- Smooth molded body. Won't cut into insulation.
- Ribbed and stippled back. Won't slip on bundle.
- Registered as Standard 1565
- Qualified under OPC 23190



- **Smooth body design** with smooth rounded edges and uniform cross sections. They have **no notches**, thereby reducing stress areas that can weaken the tie, causing brittle breakage especially in cold temperature conditions. The smooth design also avoids damage to cable insulation.
- **Stainless steel locking device** in the head. This means they are infinitely adjustable within their bundle range. You get the right bundle tightness every time. Corrosion resistant type 316 stainless steel.

Always ask for TY-RAP® brand cable ties by name.  
TY-RAP cable ties give you these important features and benefits.

## DELTEC® CABLE TIES



The DELTEC cable ties were designed for outdoor applications that require strength, durability and ease of installation. This was accomplished by the use of innovative materials and creative design. Superior performance can be attributed to both the materials, used, weatherable acetal, and the traditional "smooth body" design, which has proven to be less stress-sensitive than notched cable ties.

### Weathering

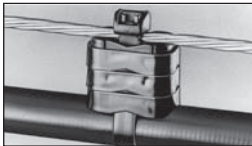
DELTEC cable ties offer excellent resistance to ultraviolet light. They maintain good tensile properties in applications that require much greater life than standard weatherable ties.

### Moisture

DELTEC cable ties, exposed to 100% RH, will absorb .8% compared to nylon 6/6 which will absorb as much as 8.5%. Weatherable acetal is a low moisture-absorbing material, and the effect of water is minimal.

### Chemicals

Weatherable acetal compositions have excellent resistance to a variety of solvents, oil greases, gasoline and other petroleum hydrocarbons. However, DELTEC cable ties are not recommended for use with strong acids.



## CABLE TIE WITH DOUBLE-LOCKING HEAD

Cat. No.	Body Width	Length (in.)	Maximum Wire Bundle Diameter (in.)	Tensile Strength (lbs.)	Pkg. Qty.
TYD5135M	.500	13.5	3.5	250	5
TYD5270M	.500	27.0	8.0	250	5

The recommended maximum continuous static loading for the DELTEC straps is 20 lbs. per strap. For best results suggested spacing is 15 inches. It is the responsibility of the user to determine whether or not their application meets our recommendation.

Note: Use WT3D Tool for tonsing and cutoff.



## DELTEC® STRAP ON A REEL

Cat. No.	Description	Tensile Strength (lbs.)	Body Width	Pkg. Qty.
TYD-50R	50 foot reel of strap	250	.500	1



## LOCKING HEADS

Cat. No.	Description	Pkg. Qty.
TYD-LH	Heads only for DELTEC strap	25



## DELTEC® BASE AND HANGER

Cat. No.	Description	Pkg. Qty.
CSS-B	Base for Deltec strap	50
CSS-H	Hanger for Deltec strap	50



CSS-B



CSS-H

- Made of zinc-plated steel
- Secures cables to all types of surfaces

E14-6  
REVISED OCTOBER, 2012

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# Ty-Rap® – Cable Tying System

## UNIVERSAL CLAMP

- One-piece design, fast and convenient to use
- Lowers your installed cost
- Clamping range of 1/16 to 2-3/8 inches reduces your inventory—one clamp replaces many
- Visually attractive—head resembles rivet
- Locking grooves maintain tight grip

Std. Pkg. Cat. No.	Body Width (in.)	Length (in.)	Maximum Wire Bundle Diameter (in.)	Hole Size	Tensile Strength	Pkg Qty.
TY541M	.225	9.60	2.37	.32-.68	65	50

Note: Loop tie through hole in frame, around electrical, hydraulic, or air hoses to be clamped, and through head. Tighten and cut off with WT2, WT197 tool. Visually looks like a rivet.



## STAINLESS STEEL CABLE TIES

Stainless steel cable ties have been designed for high-temperature applications as in boiler rooms, and for use in areas of harsh, corrosive environments such as shipyards and off-shore oil platforms. They are made of type 316 stainless steel, and rated at 200 pound tensile strength. Smooth edges protect both the cable insulation and the installer.

Cat. No.	Body Width (in.)	Length (in.)	Maximum Wire Bundle Diameter (in.)	Tensile Strength (lbs.)	Pkg Qty.
TYS8	.310	10.65	2	200	50
TYS14	.310	14.65	4	200	25
TYS22	.310	22.65	6	200	25
TYS28	.310	28.65	8	200	25



## WEATHER-RESISTANT NYLON 12 HANGER STRAP (RELEASABLE)

Cat. No.	Body Width (in.)	Length (in.)	Maximum Wire Bundle Diameter (in.)	Hook Material	Tensile Strength (lbs.)	Pkg Qty.
TY54407X	.500	6.36	2	Steel	200	50
TY54413X	.500	13.75	4	Steel	200	25

The recommended, maximum continuous static loading for the nylon 12 straps is 25 lbs. per strap. For best results suggested spacing is 15 inches. It is the responsibility of the user to determine whether or not their application meets our recommendation.



Nylon 12 provides very good resistance to ultraviolet light and chemical exposure. Nylon 12 is a lower, moisture-absorbing material than 6/6 nylon and the effect of water on properties is much less.

## WEATHER-RESISTANT NYLON 12 MESSENGER HANGER STRAP (RELEASABLE)

Cat. No.	Body Width (in.)	Length (in.)	Maximum Wire Bundle Diameter (in.)	Hook Material	Tensile Strength (lbs.)	Pkg Qty.
TYM5412X	.500	12	3	Bronze	200	50
TYM5418X	.500	18	5	Bronze	200	25
TYM5423X	.500	24	7	Bronze	200	25
TYM5412X-S	.500	12	3	Stainless steel	200	50
TYM5418X-S	.500	18	5	Stainless steel	200	25
TYM5423X-S	.500	24	7	Stainless steel	200	25

The recommended, maximum continuous static loading for the nylon 12 straps is 25 lbs. per strap. For best results suggested spacing is 15 inches. It is the responsibility of the user to determine whether or not their application meets our recommendation.

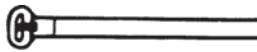


Nylon 12 provides very good resistance to ultraviolet light and chemical exposure. Nylon 12 is a lower, moisture-absorbing material than 6/6 nylon and the effect of water on properties is much less.



# Ty-Rap® – Cable Tying System

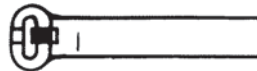
## STANDARD NYLON 6/6 CABLE TIES



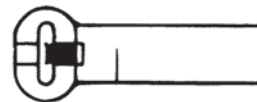
TY523M  
Tie body width .091"



TY524  
Tie body width .140"



TY525M  
Tie body width .184"



TY5272M  
Actual size body width .270"

Cat. No.	Body Width (in.)	Length (in.)	Maximum Wire Bundle Dia. (in.)	Military Standard Part No.	Tensile Strength (lbs.)	Pkg. Qty.
TY523M	.091	3.62	.625	MS3367-4	18	100
TY52315M	.091	7.00	1.500	—	18	50
TY5232M	.091	8.00	2.000	—	18	50
TY5234M	.091	14.00	4.000	—	18	50
TY524M	.140	5.50	1.125	MS3367-5	40	50
TY5242M	.140	8.19	2.000	—	40	50
TY526M	.140	11.10	3.000	—	40	50
TY5244M	.140	14.50	4.000	—	40	50
TY525M	.184	7.31	1.750	MS3367-1	50	50
TY5253M	.184	11.40	3.000	MS3367-7	50	50
TY528M	.184	14.20	4.000	MS3367-2	50	50
TY5272M	.270	8.00	2.000	—	120	25
TY527M	.270	13.40	3.500	MS3367-3	120	25
TY5275M	.270	18.00	5.000	—	120	25
TY5277M	.270	24.30	7.000	—	120	25
TY529M	.301	30.00	9.000	MS3367-6	120	25
TY53510M	.320	35.00	10.000	—	175	25
TY54513M	.320	45.00	13.000	—	175	25

Cable ties made from natural nylon 6/6 are excellent performers in most applications. Nylon 6/6 is recommended for use in temperatures ranging from 185°F to -40°F.

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## NYLON 6/6 WEATHER RESISTANT CABLE TIES

The MX series cable ties are recommended for outdoor use. The addition of carbon black provides good ultraviolet resistance and prolongs the useful life of the cable tie.



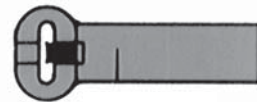
TY523MX  
Tie body width .091"



TY524MX  
Tie body width .140"



TY525MX  
Tie body width .184"



TY5272MX  
Actual size body width .270"

Cat. No.	Body Width (in.)	Length (in.)	Maximum Wire Bundle Dia. (in.)	Military Standard Part No.	Tensile Strength (lbs.)	Pkg. Qty.
TY523MX	.091	3.62	.625	MS3367-4	18	50
TY52315MX	.091	7.00	1.500	—	18	50
TY5232MX	.091	8.00	2.000	—	18	50
TY5234MX	.091	14.00	4.000	—	18	50
TY524MX	.140	5.50	1.125	MS3367-5	40	50
TY5242MX	.140	8.19	2.000	—	40	50
TY526MX	.140	11.10	3.000	—	40	50
TY5244MX	.140	14.50	4.000	—	40	50
TY525MX	.184	7.31	1.750	MS3367-1	50	50
TY5253MX	.184	11.40	3.000	MS3367-7	50	50
TY528MX	.184	14.20	4.000	MS3367-2	50	50
TY5272MX	.270	8.00	2.000	—	120	25
TY527MX	.270	13.40	3.500	MS3367-3	120	25
TY5275MX	.270	18.00	5.000	—	120	25
TY5277MX	.270	24.30	7.000	—	120	25
TY529MX	.301	30.00	9.000	MS3367-6	120	25
TY53510MX	.320	35.00	10.000	—	175	25
TY54513MX	.320	45.00	13.000	—	175	25

\* For military compliance of weather resistant black 120 lbs. ties, replace suffix X with O (ie. TY27M-0).



ULTRAVIOLET RESISTANT



TY533MX



TY534MX



TY535MX  
TY5354MX



TY537MX

## NYLON 6/6 WEATHER RESISTANT

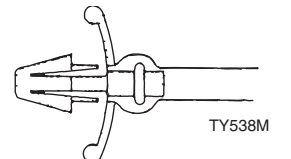
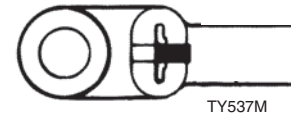
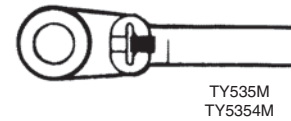
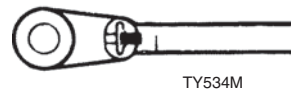
Std. Pkg. Cat. No.	Body Width (in.)	Length (in.)	Maximum Wire Bundle Diameter (in.)	Mounting Hole	Tensile Strength (lbs.)	Pkg. Qty.
TY533MX	.091	4.00	.625	#4	18	50
TY534MX	.140	6.00	1.125	#8	40	50
TY535MX	.184	7.80	1.750	#10	50	50
TY5354MX	.184	14.60	4.000	#10	50	50
TY537MX	.301	13.90	3.500	¼	120	50

# Ty-Rap® – Cable Tying System

## TY-RAP® CABLE STRAPS AND CLAMPS

Std. Pkg. Cat. No.	Body Width (in.)	Length (in.)	Maximum Wire Bundle Diameter (in.)	Mounting Hole	Tensile Strength (lbs.)	Pkg. Qty.
TY533M	.091	4.00	.625	#4	18	50
TY534M	.140	6.00	1.125	#8	40	50
TY535M	.184	7.80	1.750	#10	50	50
TY5354M	.184	14.60	4.000	#10	50	50
TY537M	.301	13.90	3.500	¼	120	50
TY554M	.140	5.96	1.125	⅜	40	50
TY538M	.184	7.80	1.750	¼	50	50

Cable ties made from natural nylon 6/6 are excellent performers in most applications. Nylon 6/6 is recommended for use in temperatures ranging from 185°F to -40°F.



## NYLON 12 TIES



Pkg. Cat. No.	Body Width (in.)	Length (in.)	Maximum Wire Bundle Diameter (in.)	Tensile Strength (lbs.)	Pkg. Qty.
TYC25MX	.184	7.31	1.75	35	50
TYC28MX	.184	14.20	4.00	35	50
TYC272MX	.270	8.00	2.00	85	50
TYC27MX	.270	13.20	3.50	85	50

This material provides very good resistance to ultraviolet light and chemical exposure. Nylon 12 is a lower, moisture-absorbing material than 6/6 nylon and the effect of water on properties is much less.



## HEAT-STABILIZED TIES

Pkg. Cat. No.	Body Width (in.)	Length (in.)	Maximum Wire Bundle Diameter (in.)	Tensile Strength (lbs.)	Pkg. Qty.
TYH24M	.140	5.50	1.125	30	50
TYH25M	.184	7.31	1.75	50	50
TYH28M	.184	14.20	4.00	50	50
TYH27M	.270	13.20	3.50	120	50

Heat-stabilized ties are recommended for higher continuous temperature use (221°F/105°C).

Material meets ASTM D4066 PA121.

The MX series cable ties are recommended for outdoor use. The addition of carbon black provides good ultraviolet resistance and prolongs the useful life of the cable tie.



WEATHER RESISTANT



HIGH TEMPERATURE



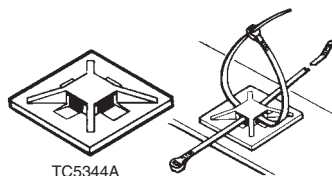
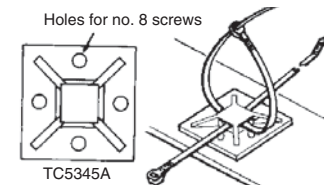
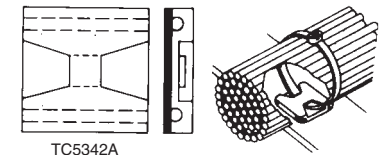
ULTRAVIOLET RESISTANT

## TY-RAP® CABLE TIE MOUNTING BASES

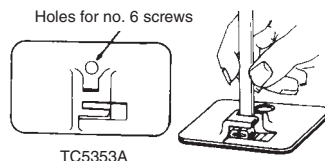
(adhesive backed, epoxy or screws)

Cat. No.	Mounting Method	Max. Tie Width Accom.	Length (in.)	Width (in.)	Material	Pkg. Qty.
TC5342A	Adhesive	.190	1.125	1.125	Nylon 6/6	25
TC5345A	Adhesive	.190	1.125	1.125	Nylon 6/6	25
TC5344A	Adhesive	.140	.750	.750	Nylon 6/6	25
TC5353A	Adhesive	.190	2.000	1.000	Nylon 6/6	5
TC5347A	Adhesive	.301	1.125	1.125	Nylon 6/6	25

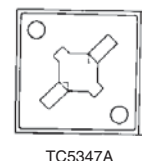
Note: For adhesive back bases temperature rating is -0°F to +120°F



TC5344A



TC5353A



TC5347A

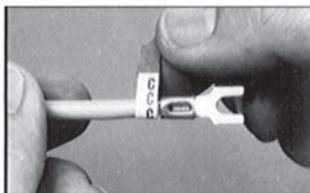
**Marrette® – Wire Connectors / E-Z-Code® – Identification Products****MARRETTE® XTP® WIRE CONNECTORS (non-winged)**

Cat. No.	Shipping Description	Pkg. Qty.	U.P.C. 067396-
329-P	XTP-GRAY-100 pc/box	100	067396-00866
330-P	XTP-BLUE-100 pc/box	100	067396-00869
331-P	XTP-ORANGE-100 pc/bulk box	100	067396-00331
333-P	XTP-YELLOW-100 pc/box	100	067396-00333
335-P	XTP-RED-100 pc/box	100	067396-00335

**MARRETTE® TYPE II® WIRE CONNECTORS (winged)**

Cat. No.	Shipping Description	Package (PC)	U.P.C. 067396-
733-P	TYPE II YELLOW-100 pc/box	100	067396-00750
735-P	TYPE II RED-100 pc/box	100	067396-00818
739-P	TYPE II BLUE-50 pc/box	50	067396-00819

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**E-Z-CODE® WBC VINYL CLOTH, STANDARD BOOKS**

Cat. No.	Number of Markers and Legends
WM-0 thru 9	40 Markers each: 0 thru 9; 10 Markers each: T1, T2, T3, L1, L2, L3
WM-0-9M	46 Markers each page; full page of 1, full page of 2, etc.
WM-0-45	10 Markers each: 0 thru 45
WM-A-Z	10 Markers each: A thru Z, +, -, and 0 thru 15
WM-A-33	10 Markers each: 1 thru 33, A, B, C, +, -, T1, T2, T3, L1, L2, L3
	6 Markers each: 0 thru 15;

Order by book. Price per book.



# T&B Conduit Fittings® – XTRAFLEX® System

## PLASTIC BULLET® LIQUIDTIGHT FITTINGS

Plastic Bullet® Liquidtight Fittings for T&B LTC Nonmetallic Liquidtight Conduit Type B and T&B EFC Flexible Tubing

Cat. No.	Fig.	Trade Size	A ±.015 (.040) (in.) (mm)	*B ±.035 (0.90) (in.) (mm)	C ±.015 (0.40) Across Corners (in.) (mm)	Min. Throat Dia. D (in.) (mm)	E Thread NPT	F* (in.) (mm) Approx.	Pkg. Qty.
LT38P	1		.570	1.595 (40.51)	1.354	.417		—	5
LT438P	2	¾	(14.48)	2.012 (51.10)	(34.39)	(10.59)	½-14	1.534 (38.95)	5
LT938P	3			1.380 (35.05)				1.880 (47.75)	5
LT50P	1		.570	1.636 (41.55)	1.448	.550		—	5
LT450P	2	½	(14.48)	2.092 (53.14)	(36.78)	(13.97)	½-14	1.590 (40.39)	5
LT950P	3			1.489 (37.82)				1.986 (50.44)	5
LT75P	1		.582	1.757 (44.63)	1.740	.740		—	5
LT475P	2	¾	(14.78)	2.452 (62.28)	(44.20)	(18.80)	¾-14	1.821 (46.25)	5
LT975P	3			1.790 (45.47)				2.212 (56. )	5
LT100P	1		.726	1.923 (48.84)	2.068	.940		—	5
LT4100P	2	1	(18.44)	2.684 (68.17)	(52.53)	(23.88)	1-11½	2.034 (51.66)	5
LT9100P	3			2.104 (53.44)				2.508 (63.70)	5
LT125P	1		.750	2.164 (54.97)	2.494	1.257		—	5
LT4125P	2	1¼	(19.05)	3.264 (82.91)	(63.35)	(31.93)	1¼-11½	2.385 (60.58)	5
LT9125P	3			2.564 (65.13)				2.856 (72.54)	5
LT150P	1		.767	2.353 (59.77)	2.784	1.453		—	2
LT4150P	2	1½	(19.48)	3.605 (91.57)	(70.71)	(36.91)	1½-11½	2.604 (66.14)	2
LT9150P	3			2.854 (72.49)				3.144 (79.86)	2
LT200P	1		.794	2.605 (66.17)	3.362	1.883		—	1
LT4200P	2	2	(20.17)	4.210 (106.93)	(85.39)	(47.83)	2-8	3.050 (77.47)	1
LT9200P	3			3.432 (87.17)				3.675 (93.34)	1

\* After Assembly  
U.L. File No. E-23018  
CSA File No. 52391

### Suggested Specification:

Where liquidtight flexible nonmetallic conduit (U.L. Type B) or liquidtight flexible nonmetallic tubing is terminated to a box or enclosure, the nonmetallic connectors used shall be able to be installed without disassembly and provide a positive installation criteria. In the installed condition, the connector must provide a seal meeting watertight requirements of NEMA Type 4 and Type 6 enclosures. The performance of connectors shall be unaffected by exposure to detergents, sanitizers, cutting fluids, wire pulling compounds and oil base industrial paints. The connector must also be capable of withstanding Marine environment and cold impact simulating a hammer blow. Installed connectors shall be of the elongated gland type as manufactured by Thomas & Betts LT38P series.

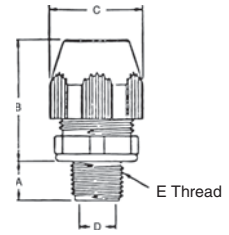


Figure 1

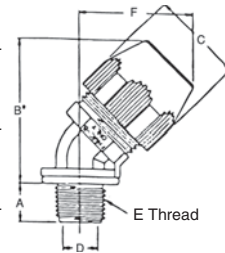


Figure 2

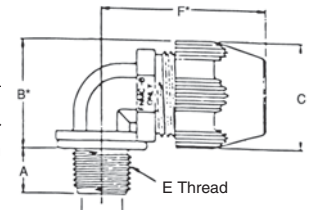


Figure 3

E14

## SMOOTH LIQUIDTIGHT NONMETALLIC CONDUIT Type B

### Industrial Grade U.L./CSA Listed

- Liquidtight nonmetallic conduit Type B
- Black color standard
- Fast installation—even in tight, cramped spaces
- Smooth inner diameter allows easy wire pulling
- Smooth outer jacket—uses material approved for outdoor use, is sunlight resistant and oil resistant
- Tested to CSA and U.L. requirements
- Lightweight
- Liquidtight
- Temperature range of -18°C to +105°C (-2°F to +221°F)
- Marked at one-foot intervals for fast, easy measuring and cutting



Cat. No.	Conduit Size	I.D. (in.)		O.D. (in.)		Feet per Roll
		min.	max.	min.	max.	
LTC038	¾"	.484	.504	.690	.710	100
LTC050	½"	.622	.642	.820	.840	100
LTC075	¾"	.820	.840	1.030	1.050	100
LTC100	1"	1.041	1.066	1.290	1.315	100
LTC125	1¼"	1.380	1.410	1.630	1.660	100
LTC150	1¾"	1.575	1.600	1.865	1.900	50
LTC200	2"	2.020	2.045	2.340	2.375	50

U.L. Listed, U.L. File No. E95745  
CSA Certified, CSA File No. LL80349  
See technical data next page.  
Use with Bullet® Liquidtight Fittings



### Recommended Industrial Applications

- Machine tools
- Motor hookups
- Food processing equipment
- Extensions from wireways
- Sensor and microswitch wiring found in control consoles

### Available Colors

Cat. No. LTC—	Color of Conduit	Color of Marking
w/o suffix	Black	Orange
-1	Orange	Black
-2	Blue	Black

# T&B Conduit Fittings® – XTRAFLEX® System

## CORRUGATED FLEXIBLE NONMETALLIC TUBING

### OEM Grade U.L. Recognized



- Black color standard
- Maximum flexibility in tight applications
- Extremely fast installation
- Liquidtight with specified fittings
- Good tensile strength provides excellent pullout protection

- Smooth inner diameter allows easy wire pulling
- Broad operating temperature range—  
-18°C to +60°C (-2°F to +140°F)



### Recommended Industrial Applications

- Protection of fiber optic cable
- Installation of instrumentation and control cable
- Indoor/outdoor lighting
- Packaging equipment
- Marine and shipboard wiring
- Flexing—component wiring protection on robots, graphic arts equipment, etc.

Cat. No.	Conduit Size	I.D. (in.)		O.D. (in.)		Feet per Roll
		min.	max.	min.	max.	
*EFC025	¼"	.390	.405	.560	.575	100
EFC038	⅜"	.484	.504	.690	.710	100
EFC050	½"	.622	.642	.820	.840	100
EFC075	¾"	.820	.840	1.030	1.050	100
EFC100	1"	1.041	1.066	1.290	1.315	100
EFC125	1¼"	1.380	1.410	1.630	1.660	100
EFC150	1½"	1.575	1.600	1.865	1.900	50
EFC200	2"	2.020	2.045	2.340	2.375	50

\* Not CSA Certified.  
Underwriters Recognized  
U.L. File No. 96548  
CSA File No. 067241  
See technical data next page.  
Use with Bullet® Liquidtight Fittings.

### Available Colors

Cat. No. LTC—	Color of Conduit
w/o suffix	Black
-1	Orange
-2	Blue



# BATTERY PROTECTION / CABLE

## BATTERY TERMINAL PROTECTORS

- Prevent power robbing corrosion buildup.
- Extend life of batteries, terminals and holddowns.
- Easy installation with no special tools.
- Will not dry out, crack or evaporate.

**Terminal Protectors Prevent:**

- Loss of cranking power.
- Loss of charge due to electrical leakage.
- Increased water consumption from overcharging.
- Increased fuel consumption from energy required for overcharging.



Top Post Protectors  
Part No. 33020

Each Can  
Contains  
100  
Protectors



Side Terminal Protectors  
Part No. 33021

## BRUSH-ON BATTERY CORROSION PREVENTATIVE

- Use on terminals, cables, holddowns and trays.
- Thick jelly-like consistency; will not drip or sag.
- Color: Red.



Part No. 33019  
4 fl. oz. (113 g.)  
Brush Top Can

## AEROSOL BATTERY CLEANER & PROTECTOR

2 Products In 1

- Spray once to clean. Foaming action penetrates and cleans acid and corrosion.
- Wipe clean.
- Spray again to have a long lasting, neutral protective coating.
- Color: Red.



Part No. 13139  
14 oz. Net wt. (397 g.)  
(20 fl. oz. vol.)

## KOPR-SHIELD®, CONDUCTIVE COPPER COMPOUND

The copper colloidal surface treatment that protects, lubricates and enhances conductivity between all electrical connections.

**FOR USE ON:** battery posts and connectors, light bulb bases and lamps sockets, lens gaskets, fuse clips, ground connections, electrical contacts and starter-alternator studs.

- Virtually eliminates corrosion, prevents "The green scourge".
- Improves electrical conductivity.
- Provides easy terminal installation and removal when stud mounted.
- Improves and maintains most types of electrical connections.
- Virtually eliminates water, corrosive fluids and damaging gases from entering the connection.
- -50°F to 250°F temperature range.
- Even at 1800°F, Kopr-Shield remains intact for short term.
- Extremely adhesive, stays where it is applied.

PART NUMBER	DESCRIPTION
20131879	1-1/2 oz. container w/brush
201318791	4 oz. container w/brush
CP8	8 oz. container w/brush
CP16	16 oz. container w/brush



## POST STYLE BATTERY CABLES

For cars, light trucks and marine use.

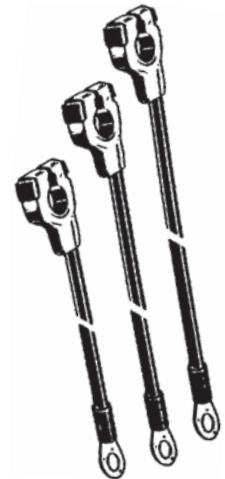
- High quality cables have 49 strands of heavy duty copper wire.
- Black PVC insulation\*.
- Insulation resists oil, grease, moisture, temperature extremes.

2 Gauge

LENGTH INCHES	PART NUMBER	LENGTH INCHES	PART NUMBER
14	32901	32	32907
20	32903	38	32909
27	32905	43	32910

6 Gauge

LENGTH INCHES	PART NUMBER	LENGTH INCHES	PART NUMBER
10	32935	27	32906
12	32902	30	32908
15	32936	38	32938
20	32904	42	32911
24	32937	56	32912



**ASSORTMENT AVAILABLE**  
Assortment contains two each of the following sizes: 10", 12", 15", 20", 24", and one each of 30" and 38" cables.

Part No. 32900\*

\*6 gauge also available with Red PCV insulation.  
Add "R" suffix to part number.

# BATTERY / CABLE

## POST STYLE with REGULATOR WIRE



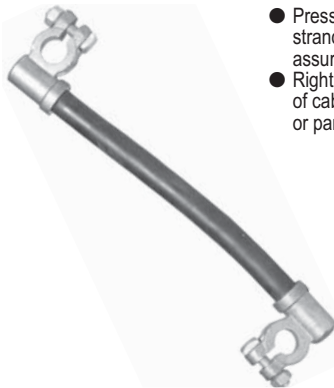
- Black PVC insulation\*.

### 6 Gauge

LENGTH INCHES	PART NUMBER	LENGTH INCHES	PART NUMBER
25	32913	42	32916
32	32914	51	32917
38	32915		

\*Also available with Red PCV insulation. Add "R" suffix to part number.

## POST STYLE - CROSSOVER



- Pressure cast construction forms the cable strands and lead terminals into a solid mass, assuring a perfect electrical connection.
- Right angle post style terminal on both ends of cable for ease in joining batteries in series or parallel.

LENGTH INCHES	PART NUMBER	CABLE SIZE
8	322175	2/0
12	322176	2/0

## POST STYLE - CHRYSLER POSITIVE

### Multi-Lead 6 Gauge



- 1976-on

LENGTH INCHES	PART NUMBER
38	32945
48	32946
56	32947

## BATTERY CABLE

- Stranded copper conductor.
- Polyvinyl insulation.
- 25 ft. per roll.
- Thick jacket is easy to strip, resists moisture, weather, oil, and acids.



GAUGE	PART NUMBER		STRANDING	O.D.
	BLACK	RED		
6	33112	222161	44 x .023	.375
4	33113	222162	49 x .021	.375
2	33105	222163	84 x .021	.450
1	33107	222164	133 x .022	.500
1/0	33114	222165	133 x .021	.530
2/0	33106	222166	133 x .020	.590
3/0	33117	222167	259 x .022	.650
4/0	33118	222168	418 x .024	.740

## ENGINE GROUND STRAP

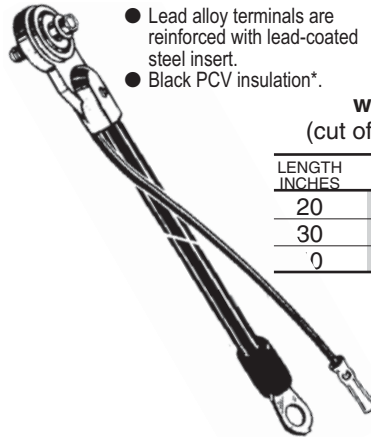
Used to ground engine to chassis.



Part No. 328206 6

- Prevents electrolytic etching of wheel bearings, transmission bearings and linkage bushings.
- 13" length, 100% copper braid.
- Most vehicles require 3 or more.
- GM 6287165.

## SIDE TERMINAL BATTERY CABLES



- Lead alloy terminals are reinforced with lead-coated steel insert.
- Black PCV insulation\*.
- 6 gauge.
- Serrated for positive, non-slip control.

with regulator wire  
(cut off or tape if not needed)

LENGTH INCHES	PART NUMBER	LENGTH INCHES	PART NUMBER
20	32925	50	32929
30	32927	65	32931
0	32928		

### ASSORTMENT AVAILABLE

Contains seven cables, in the quantities listed:  
(1) 20", (2) 30", (2) 40", (1) 50", (1) 65"

Part No. 32924

\*Also available with Red PVC insulation. Add "R" suffix to part number.

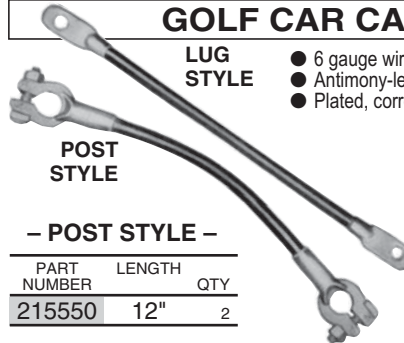
## SWITCH TO STARTER CABLES



- Corrosion resistant, plated lugs.
- Black PVC insulation.
- 4 gauge.

LENGTH INCHES	PART NUMBER	LENGTH INCHES	PART NUMBER
32	32941	49	32942

## GOLF CAR CABLES



### LUG STYLE

- 6 gauge wire, black PVC insulation.
- Antimony-lead post terminals.
- Plated, corrosion-resistant, lug terminals.

### POST STYLE

### - LUG STYLE -

### - POST STYLE -

PART NUMBER	LENGTH	QTY
215550	12"	2

PART NUMBER	LENGTH	QTY
215529	8"	2
215530	12"	2
215531	16"	2
215532	20"	2

## CABLE EXTENDERS

Use to replace corroded terminals, internal wire corrosion, or to lengthen existing cables.

- 6" overall length.
- Fits 2, 4 and 6 gauge cable.
- Includes regulator wire.
- Junction cover insulates connection.

Part No.

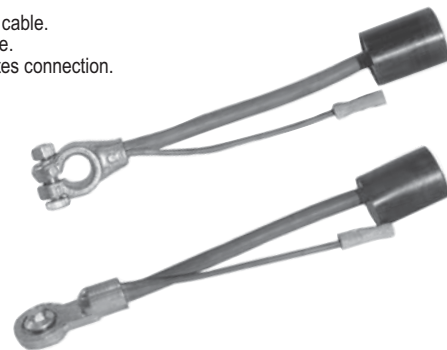
32933 6

Post terminal batteries

Part No.

32934 6

Side terminal batteries



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# BATTERY HARNESSSES / BATTERY

## MULTIPLE BATTERY HARNESSSES

Group 31 and most other size batteries.

- Antimony-lead terminals with steel reinforcing ring cast inside clamp. All fasteners included.
- PVC insulated and factory sealed between cable and clamp to reduce corrosion.
- PTO (Power Take Off) stud or post makes retro-fit simple and fast.

- Tinned prior to casting to assure bond between copper and lead.
- 2/0 gauge copper wire, continuous length for maximum power, no splices. Meets or exceeds OEM quality.
- Save time and money by using pre-assembled harnesses.

### 2 BATTERY HARNESS



#### TOP POST WITH PTO POST

OVERALL LENGTH CENTER TO CENTER	PART NUMBER	POLARITY	COLOR
6-13/16	222301	Negative	Black
6-13/16	222302	Positive	Red



#### STUD TYPE WITH PTO POST

OVERALL LENGTH CENTER TO CENTER	PART NUMBER	POLARITY	COLOR
6-13/16	222303	Negative	Black
6-13/16	222304	Positive	Red



#### STUD TYPE WITH PTO STUD

OVERALL LENGTH CENTER TO CENTER	PART NUMBER	POLARITY	COLOR
6-13/16	222305	Negative	Black
6-13/16	222306	Positive	Red

### 3 BATTERY HARNESS



#### TOP POST WITH PTO POST

OVERALL LENGTH CENTER TO CENTER	PART NUMBER	POLARITY	COLOR
13-5/8	222307	Negative	Black
13-5/8	222308	Positive	Red



#### STUD TYPE WITH PTO POST

OVERALL LENGTH CENTER TO CENTER	PART NUMBER	POLARITY	COLOR
13-5/8	222309	Negative	Black
13-5/8	222310	Positive	Red



#### STUD TYPE WITH PTO STUD

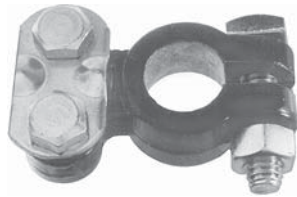
OVERALL LENGTH CENTER TO CENTER	PART NUMBER	POLARITY	COLOR
14-3/4	222311	Negative	Black
14-3/4	222312	Positive	Red

### VINYL COATED UNIVERSAL POST TERMINALS

- Vinyl coating eliminates surface corrosion - seals surface, prevent oxidation.
- Color coded - available in red (positive) or black (negative).
- Keeps terminals neat and clean. Insures safe installation.



Red Vinyl Coating  
Part No. 322185 10



Black Vinyl Coating  
Part No. 322186 10

### TERMINAL PROTECTOR BOOTS



Red Boot  
Part No. 322192 5

#### For Post Battery Cables

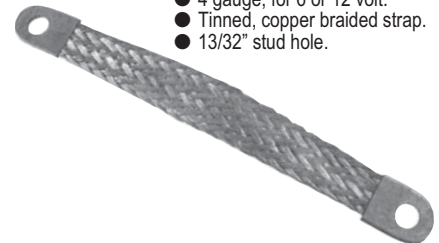
- Protects against accidental contact with exposed terminals.
- Color coded for positive and negative posts.
- Fits 4 and 6 gauge cables.

Black Boot  
Part No. 322193 5

### BATTERY STRAPS

#### BONDING STRAPS

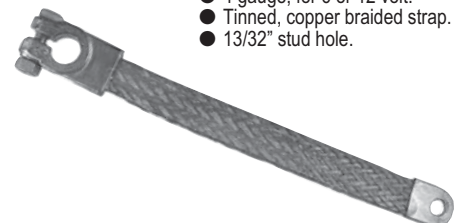
- 4 gauge, for 6 or 12 volt.
- Tinned, copper braided strap.
- 13/32" stud hole.



LENGTH INCHES	PART NUMBER
8	322187
12	322188
25	322189

#### GROUND STRAPS

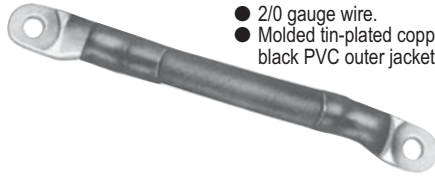
- 4 gauge, for 6 or 12 volt.
- Tinned, copper braided strap.
- 13/32" stud hole.



LENGTH INCHES	PART NUMBER
9	32918
14	32919
19	32920
27	32921

# BATTERY / BATTERY TERMINALS

## STUD TOP BATTERY CABLE



- 2/0 gauge wire.
- Molded tin-plated copper lugs and black PVC outer jacket.

LENGTH INCHES	PART NUMBER
8	322174
12	322179

## UNIVERSAL POST TERMINALS

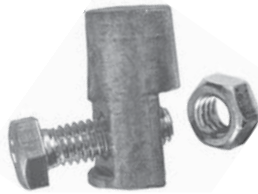


- 2-bolt clamp for tight, strong connection.
- Solid lead terminals.
- Corrosion-resistant, highest conductivity.
- Fits 6 gauge to 00 gauge cable.
- Available bulk boxed or mounted on display card.

**Part No. 33001**  
25 bulk boxed

**Part No. 33002**  
10 terminals/card

## FLAG to POST TERMINAL ADAPTERS



**Converts Group U-1 flag terminal batteries to post terminals.**

- Permits use of standard post style battery cables on utility, garden, lawn and landscape tractors and equipment.
- Eliminates corrosion problem that is common on flag connections.
- Post connection permits much higher conductivity to post terminal.

**Part No. 222191**  
10

## UNIVERSAL SIDE TERMINALS



- 2-bolt clamp for tight, strong connection.
- Repairs damaged side-terminal cables.
- Fits 6 gauge to 00 gauge cable.
- Made of antimony-lead.
- Available bulk boxed or mounted on display card.

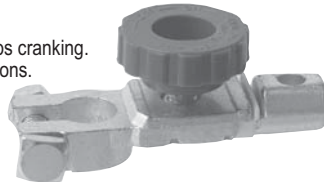
**Part No. 33008**  
25 bulk boxed

**Part No. 33007**  
8 terminals/card

## BATTERY MASTER SWITCH

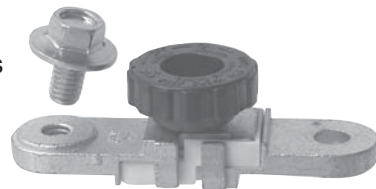
**Anti-Theft Battery Saver**

- Available for top post and side post terminals.
- A quarter turn of the knob disconnects battery while cable stays connected.
- Removal of knob prevents theft.
- For 6, 12 or 24 volt batteries.
- Rated 100 amps continuous, 600 amps cranking.
- Not for us on marine and RV applications.



Top Post Terminals  
**Part No. 222192**

Side Post Terminals  
**Part No. 222193**



## E-Z GRIP TERMINALS

- Single set screw for OEM appearance.
- Fits 6 gauge to 00 gauge cable.

- For 6 or 12 volt batteries.
- Made of antimony-lead.



**Part No. 222155** 25  
for Post terminal batteries

**Part No. 222156** 25  
for Side terminal batteries

## TOP POST IMPORT CAR TERMINALS



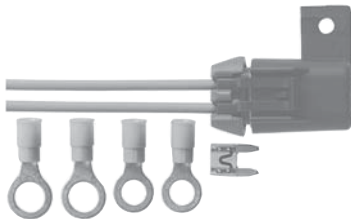
- Sizes cover Asian and European imports.
- Brass construction.
- Crimp style closed barrel end.
- 300% more conductive than lead.
- Stainless steel bolt and nut.
- Sold in sets - terminals plus plastic covers (equal quantities of black and red).

SAE CABLE	PART NUMBER	QTY
6	222149	6
4	222150	6
1	222148	6

**Part No. 222151** - Black 3  
**Part No. 222152** - Red 3  
Insulator Cover

## OPTIONAL FUSE BYPASS KIT

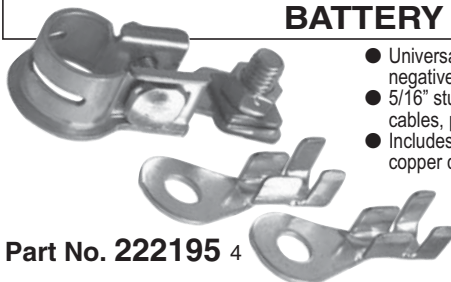
**Includes: Fuse holder, 20 amp MINI fuse, ring terminals**



- Use with #222192 and #222193 Battery Master Switches.
- Optional fuse bypass mounts between post bolt and cable bolt to allow current flow when switch is disconnected. This provides power to computers, radios, locks, clocks, etc. If an attempt is made to start the vehicle the fuse will blow.

**Part No. 222194**

## UNIVERSAL LEAD-FREE BATTERY TERMINAL



- Universal style fits positive or negative posts
- 5/16" stud mount for lug type cables, popular on many imports.
- Includes two 4-6 ga. plated copper cable lugs.

**Part No. 222195** 4



# BATTERY TERMINALS

## CONVERSION BATTERY TERMINALS

- Converts top post batteries to side terminal cables.
- No cutting or stripping - just screw side terminal cables into conversion battery terminals.
- High quality, corrosion resistant alloy cast.



Part No. **33005** 6

## MARINE BRASS TERMINALS

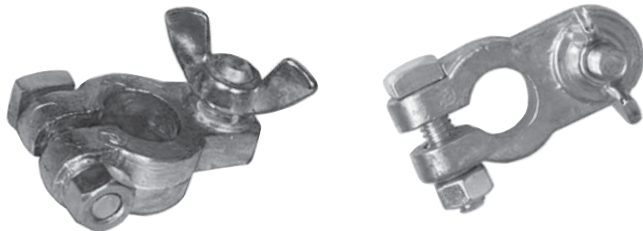
- Quick disconnect for starting circuit.
- Converts post battery to stud cables.
- Meets Coast Guard regulations.
- All fasteners included.



PART NUMBER	FITS POST	STUD SIZE	QTY
222182	Positive	3/8	2
222183	Negative	5/16	2

## MARINE TERMINALS

- Solid lead.
- Quick disconnect wing nuts for fast, easy battery removal or storage.
- Terminals marked positive and negative.



Positive - Part No. **33003** (12)

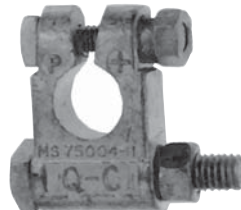
Negative - Part No. **33004** (12)

## MILITARY TERMINALS

- Solid lead with steel reinforcing ring cast inside clamp for extra strength.
- Extra long bolt permits multiple connections and only 3/4" high.
- MIL-SPEC No.75004-1 Pos. 75004-2 Neg.

Positive  
Part No. **222186** 2

Negative  
Part No. **222187** 2



## 3-WAY FLEET TERMINAL

- Solid lead construction.
- #4 to 3/0 gauge cable.
- Fits both positive and negative posts.

Universal  
Part No. **222184** 4



## QUICK ACTION TRUCK TERMINALS

- Just 1/2 turn opens or closes both ears.
- Permits quick, time saving attachment for hard to reach installations.
- Eliminates the need for terminal spreaders or pullers.



Straight - Part No. **222190** 2

90° Elbow - Part No. **222189** 2

## QUICK ACTION TRUCK TERMINAL ADAPTER

Truck, marine, off highway, or industrial.

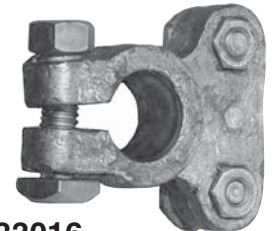
- Permits use of post-type batteries with top stud battery cable assemblies.
- Adapts top stud systems to readily available top post batteries. Eliminates roadside down-time.
- Use wherever an SAE type 3/8-16 stud battery is used.
- Stainless steel stud long enough to allow for multiple battery cables.



Universal Part No. **222188** 2

## HEAVY DUTY TRUCK EMERGENCY BATTERY TERMINAL

- Heavy duty, corrosion resistant clamping bolts and recessed nuts, for stronger, more positive connection. Corrosion resistant clamping plate.
- Beveled edge for easier installation.
- Heavy duty alloy casting.
- Fits all sizes up to and including 2/0 cable. Fits both positive and negative posts.



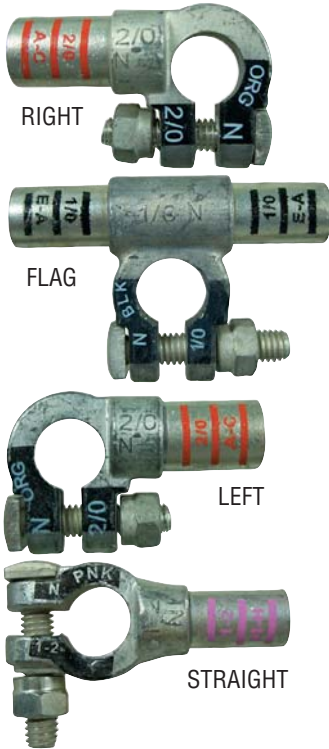
Universal Part No. **33016** (12)



# BATTERY TERMINALS

## HEAVY DUTY COPPER BATTERY TERMINALS

- Rased characters to ensure legibility.
- Bright tin plated finish provides protection against corrosion.
- Constructed of 131 contact copper to provide high conductivity.



### LEFT ELBOWS

PART NUMBER	CABLE SIZE	POLARITY	T & B COLOR DIE CODE	DIE CODE	QTY
322122	1/0	Negative	Black	EA	5
322123	1/0	Positive	Black	EA	5
322124	2/0	Negative	Orange	AC	5
322125	2/0	Positive	Orange	AC	5
322126	3/0	Negative	Purple	AB	5
322127	3/0	Positive	Purple	AB	5
322094	4/0	Negative	Yellow	AA	5
322095	4/0	Positive	Yellow	AA	5

### RIGHT ELBOWS

PART NUMBER	CABLE SIZE	POLARITY	T & B COLOR DIE CODE	DIE CODE	QTY
322116	1/0	Negative	Black	EA	5
322117	1/0	Positive	Black	EA	5
322118	2/0	Negative	Orange	AC	5
322119	2/0	Positive	Orange	AC	5
322120	3/0	Negative	Purple	AB	5
322121	3/0	Positive	Purple	AB	5
322096	4/0	Negative	Yellow	AA	5
322097	4/0	Positive	Yellow	AA	5

### STRAIGHTS

PART NUMBER	CABLE SIZE	POLARITY	T & B COLOR DIE CODE	DIE CODE	QTY
322105	4	Universal	Gray	JH	5
322106	1-2	Negative	Pink	HH	5
322107	1-2	Positive	Pink	HH	5
322108	1/0	Negative	Black	EA	5
322109	1/0	Positive	Black	EA	5
322110	2/0	Negative	Orange	AC	5
322111	2/0	Positive	Orange	AC	5
322112	3/0	Negative	Purple	AB	5
322113	3/0	Positive	Purple	AB	5
322114	4/0	Negative	Yellow	AA	5
322115	4/0	Positive	Yellow	AA	5

### FLAGS

PART NUMBER	CABLE SIZE	POLARITY	T & B COLOR DIE CODE	DIE CODE	QTY
322132	1/0	Negative	Black	EA	5
322133	1/0	Positive	Black	EA	5
322128	2/0	Negative	Orange	AC	5
322129	2/0	Positive	Orange	AC	5
322130	3/0	Negative	Purple	AB	5
322131	3/0	Positive	Purple	AB	5
322098	4/0	Negative	Yellow	AA	5
322099	4/0	Positive	Yellow	AA	5

E15

## TERMINAL LUGS & BUTT CONNECTORS

- Heavy duty.
- Marked with T&B color tool die codes.
- Solid copper.



8 Gauge		6 Gauge		4 Gauge		1-2 Gauge	
STUD SIZE	PART NUMBER QTY	PART NUMBER QTY	PART NUMBER QTY	PART NUMBER QTY	PART NUMBER QTY	PART NUMBER QTY	PART NUMBER QTY
1/4	210117 25	210131 30	210120 25	210122 15			
5/16	210118 25	210132 30	210133 25	210134 15			
3/8	210119 25	210145 30	210121 25	210123 15			
1/2	---	-	---	-	---	-	210146 15

1/0 Gauge		2/0 Gauge		3/0 Gauge		4/0 Gauge	
STUD SIZE	PART NUMBER QTY	PART NUMBER QTY	PART NUMBER QTY	PART NUMBER QTY	PART NUMBER QTY	PART NUMBER QTY	PART NUMBER QTY
3/8	210125 15	210127 10	210147 5	210148 5			
1/2	210126 15	210128 10	210129 5	210130 5			



### BUTT CONNECTORS

WIRE GAUGE	PART NUMBER	QTY
6	210137	25
4	210138	20
1-2	210139	15
1/0	210141	10
2/0	210142	10
3/0	210143	5
4/0	210144	5

### INDUSTRIAL MAINTENANCE TERMINALS

Part No. 501314

- 50 pieces
- 18 items
- Heavy duty
- Ring tongues - 4 to 4/0
- Butt connectors - 6 to 4/0
- Heat shrink tubing



### GENERAL PURPOSE BATTERY TERMINALS

Part No. 501011

- 42 pieces
- 20 items
- E-Z grip, crimpable battery terminals and ring tongues
- Wire gauges 1 to 4/0.
- Heat shrink tubing



# BATTERY TERMINALS

## BATTERY TERMINAL AND ACCESSORY ASSORTMENT

- Includes popular automotive replacement battery terminals for domestics and imports, post and side terminal styles.
- Wide array of accessory replacements including adapters, bolts, nuts, extenders and covers.



**Part No. 501668**  
74 pieces • 17 items • 12071 steel tray

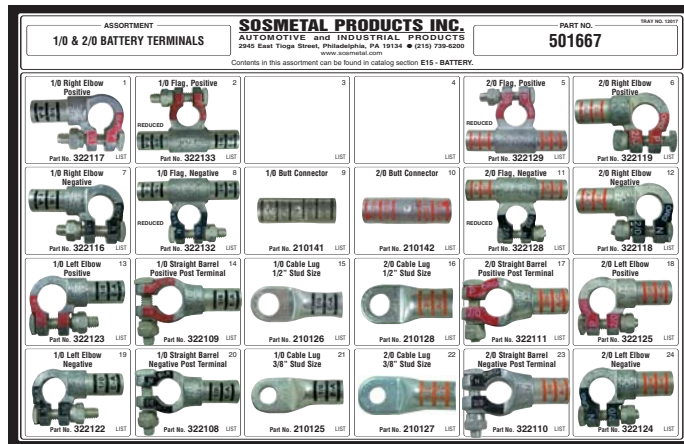
11210	33008	33022	222152	222156	322190
33001	33011	222150	222154	222158	322191
33006	33016	222151	222155	322184	

Numbers in assortment



## 1/0 & 2/0 FLEET BATTERY TERMINAL ASSORTMENT

- Specially designed for fleet maintenance shops.
- Complete selection of 1/0 and 2/0 post terminals, polarity coded, including straights, flags and elbows.
- Also includes butt splice connectors and lugs.



**Part No. 501667**  
50 pieces • 22 items • 12017 steel tray

210125	210141	322110	322118	322124	322132
210126	210142	322111	322119	322125	322133
210127	322108	322116	322122	322128	
210128	322109	322117	322123	322129	

Numbers in assortment



## INDUSTRIAL BATTERY CONNECTORS

Heavy duty power connectors for battery powered vehicles and equipment.

- Known as "S Connectors", "Anderson Connectors", and "SB Connectors".
- Self-mating connectors.
- 600 VDC rated.
- Lexan housing.
- Silver plated copper contacts.
- Complete unit with two contacts.

AWG. GAUGE	AMP	PART NUMBER	QTY
6	50	210155	1
1/0	175	210156	1
2/0	350	210157	1



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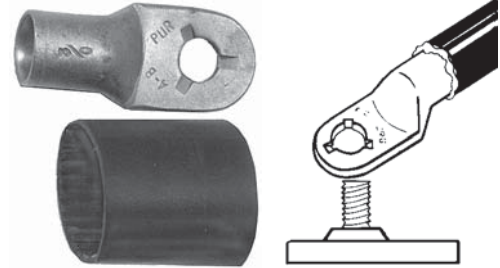
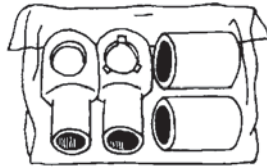
**E15-7**  
REVISED OCTOBER, 2012

# BATTERY TERMINALS

## STUD TOP BATTERY TERMINAL KIT

- Lead plating - these highly conductive ETP copper terminals are lead plated to prevent corrosion in hostile battery environments.
- Closed barrel - manufactured with a closed end which prevents toxic fumes or liquids from penetrating cable.
- Crimp style - reliable crimps can be made with existing tools. Terminals are stamped with die code and letter codes to simplify installation.
- Anti-rotational tongue - this special design breaks through oxide film on battery posts assuring a quality electrical connection and resists loosening from vibration.
- Unique packaging - each terminal has a 3/8" size stud hole and comes individually packed with a color coded 1-1/2" length of thick wall heat shrinkable tubing with meltable inner lining for protection against moisture and corrosion.

Each stud top kit comes with two terminals and two 1-1/2" pieces of heat shrink tubing.



PART NUMBER	CABLE SIZE	POLARITY	H.S. TUBING COLOR	T & B DIE CODE	DIE CODE COLOR	AMP STYLE AND COLOR
322160	2/0	Positive	Red	A - C	Orange	Pos/Red
322161	2/0	Negative	Black	A - C	Orange	Neg/Black
322162	3/0	Positive	Red	A - B	Purple	Pos/Red
322163	3/0	Negative	Black	A - B	Purple	Neg/Black

## COMPRESSION BATTERY TERMINALS

Ideal for roadside or field repair for maintenance trucks, construction sites, industrial shops, farms, mines, tow trucks, etc.

- Easy installation with common hand tools, without torches or crimping tools.
- Copper alloy, tin plated to resist corrosion.
- Tin plated twice as thick as industry standards for superior corrosion resistance.
- Make or repair any length and style cable.
- All clamps include battery bolt and shoulder nut.
- Color coded to match color-coded cable for easy identification.

## COMPRESSION POST STYLE BATTERY TERMINALS



CABLE GAUGE	STRAIGHT CLAMP		RIGHT ELBOW		LEFT ELBOW		FLAG CLAMP		COLOR CODE	QTY
	PART NUMBER	POS.	PART NUMBER	POS.	PART NUMBER	POS.	PART NUMBER	POS.		
6	208900	208901	---	---	---	---	---	---	Grey	2
4	208902	208903	208914	208915	208924	208925	208934	208935	Grey	2
1-2	208904	208905	208916	208917	208926	208927	208936	208937	Green	2
1/0	208906	208907	208918	208919	208928	208929	208938	208939	Black	2
2/0	208908	208909	208920	208921	208930	208931	208940	208941	Orange	2
3/0	208910	208911	208922	208923	208932	208933	208942	208943	Purple	2
4/0	208912	208913	---	---	---	---	208944	208945	Yellow	2

## COMPRESSION BATTERY LUGS & NUTS

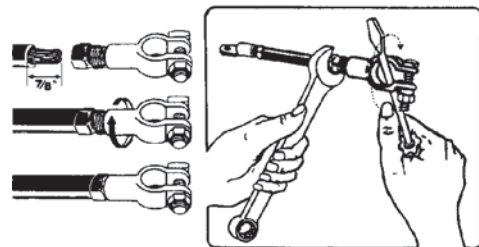


### E-Z INSTALLATION - 3 STEPS

1. Strip 7/8" of insulation from the end of the cable.
2. Thread terminal on compression nut.
3. Grip compression nut with wrench and turn the terminal until the compression nut seats. With larger gauges, you may want to hold the terminal in a vise.

Complete step-by-step illustrated instructions, plus other installation and safety tips are included in every box of terminals.

CABLE GAUGE	HEAVY WALL COPPER LUGS PART NUMBER	STUD/SIDE TERMINAL LOCKING PART NUMBER	COMPRESSION NUTS (EXTRA) PART NUMBER	COLOR CODE	QTY
6	208946	208953	208960	Grey	2
4	208947	208954	208961	Grey	2
4 (9/16)	---	---	208962	Grey	2
1-2	208948	208955	208963	Green	2
1/0	208949	208956	208964	Black	2
2/0	208950	208957	208965	Orange	2
3/0	208951	208958	208966	Purple	2
4/0	208952	208959	208967	Yellow	2



# BATTERY TERMINALS

## HEAVY DUTY STUD TOP/SIDE MOUNT TERMINALS

- Pure copper, tin plated, may be crimped or soldered.
- Cable size, tool die codes stamped on each terminal.
- Available in straight or double (splice).
- Universal polarity.
- Non-stackable.



**STRAIGHT**



**DOUBLE**

STRAIGHT PART NUMBER	DOUBLE PART NUMBER	CABLE SIZE	COLOR DIE	LETTER DIE	QTY
322154	---	4	Green	J-H	5
322155	---	1	Pink	H-H	5
322156	322166	1/0	Black	E-A	5

STRAIGHT PART NUMBER	DOUBLE PART NUMBER	CABLE SIZE	COLOR DIE	LETTER DIE	QTY
322157	322167	2/0	Orange	A-C	5
322158	322168	3/0	Purple	A-B	5
322159	322169	4/0	Yellow	A-A	5

## STUD TOP/SIDE MOUNT STACKABLE LUGS

- Pure copper, tin plated, may be crimped or soldered.
- Cable size, tool die codes stamped on each lug.
- Available in lug style only.
- Smooth terminal face allows mounting in any position.



PART NUMBER	WIRE SIZE	COLOR DIE	LETTER DIE	QTY
210105*	4	Green	J-H	10
210106*	2	Pink	H-H	10
210107	1	Pink	H-H	10
210108	1/0	Black	E-A	10
210109	2/0	Orange	A-C	10

**Part No. 501345**  
**86 pieces • 8 items • 12050 steel tray**

33022	210106	210108	322171
210105	210107	210109	322172

**Numbers in assortment**

\*Side mount.

## STUD TOP BATTERY NUTS

- Tough synthetic material specially formulated for strength.
- Non-corrosive.
- Lightweight.



PART NUMBER	STYLE	POLARITY	QTY
322171	Black Synthetic	Negative	5
322172	Red Synthetic	Positive	5
322173	Stainless Steel	Universal	5

## H-D STUD TOP ANTI-ROTATIONAL STACKABLE TERMINALS

- Pure copper, tin plated, may be crimped or soldered.
- Cable size, tool die codes stamped on each lug.
- Available in straight or double (splice), 2/0 cable size only.
- Anti-rotational indents grip securely when stacking;
- Universal polarity.

**STRAIGHT**



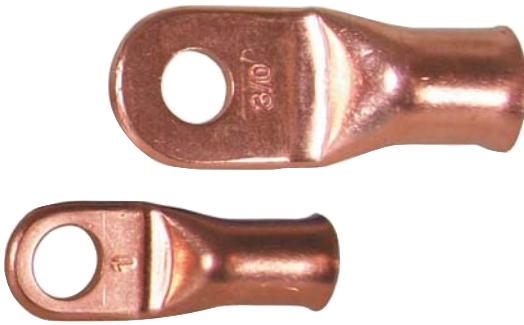
**DOUBLE**

STRAIGHT PART NUMBER	DOUBLE PART NUMBER	CABLE SIZE	COLOR DIE	LETTER DIE	QTY
322164	322165	2/0	Orange	A-C	5



# BATTERY TERMINALS

## **CORRECTCONNECT™ UN-PLATED SEAMLESS COPPER STARTER LUGS**



- Pure un-plated copper 99.9% conductive.
- Seamless pad for added strength and improved conductivity.
- Wire size stamped into the copper not painted on.
- Flared barrel for easy wire insertion.

PART NUMBER	WIRE SIZE	STUD HOLE	QTY
210750	8	#10	20
210751	8	1/4"	20
210752	8	5/16"	20
210753	8	3/8"	20
210754	8	1/2"	20
210755	6	#10	20
210756	6	1/4"	20
210757	6	5/16"	20
210758	6	3/8"	20
210759	6	1/2"	20
210760	4	#10	10
210761	4	1/4"	10
210762	4	5/16"	10
210763	4	3/8"	10
210764	4	1/2"	10
210765	2	1/4"	10
210766	2	5/16"	10
210767	2	3/8"	10
210768	2	1/2"	10

PART NUMBER	WIRE SIZE	STUD HOLE	QTY
210769	1	1/4"	10
210770	1	5/16"	10
210771	1	3/8"	10
210772	1	1/2"	10
210773	1/0	1/4"	10
210774	1/0	5/16"	10
210775	1/0	3/8"	10
210776	1/0	1/2"	10
210777	2/0	1/4"	10
210778	2/0	5/16"	10
210779	2/0	3/8"	10
210780	2/0	1/2"	10
210781	3/0	1/4"	5
210782	3/0	5/16"	5
210783	3/0	3/8"	5
210784	3/0	1/2"	5
210785	4/0	1/4"	5
210786	4/0	5/16"	5
210787	4/0	3/8"	5
210788	4/0	1/2"	5

E15



**Part No. 210748**  
102 pieces • 23 items • 12017 steel tray

210750	210755	210760	210765	210770
210751	210756	210761	210766	210771
210752	210757	210762	210767	210772
210753	210758	210763	210768	
210754	210759	210764	210769	

Numbers in assortment



**Part No. 210749**  
56 pieces • 16 items • 12050 steel tray

210773	210778	210783	210788
210774	210779	210784	
210775	210780	210785	
210776	210781	210786	
210777	210782	210787	

Numbers in assortment

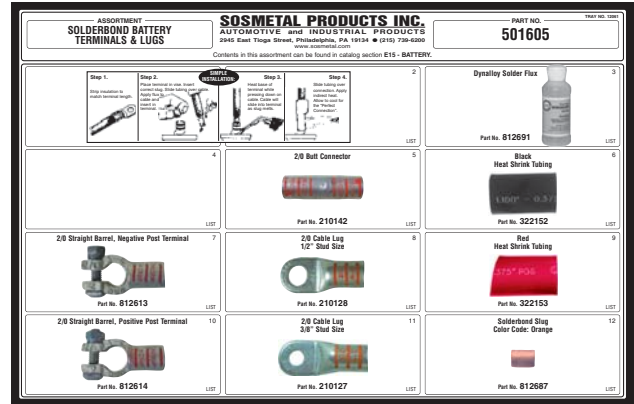


# BATTERY TERMINALS

## SOLDERBOND BATTERY TERMINAL & LUG ASSORTMENTS

Create professional OEM sealed, soldered battery cable connections in minutes.

- Create permanent, moisture-proof, corrosion-proof, environmentally sealed cable and battery terminal connections.
- Premeasured solder slugs are sized to fit the correct connectors.
- Slugs are color coded to match industry terminal color codes.
- **Shop assortment** includes all necessary components to create 1/0 and 2/0 cable connections - sizes found on small and large vehicles.
- **Fleet assortment** includes components for 2/0 cable connections - the standard gauge for fleet vehicles.



**SHOP ASSORTMENT**  
Part No. **501604**  
77 pieces • 15 items  
12056 steel tray

210125	210142	812613
210126	322152	812614
210127	322153	812686
210128	812611	812687
210141	812612	812691

Numbers in assortment



**FLEET ASSORTMENT**  
Part No. **501605**  
45 pieces • 9 items  
12061 steel tray

210127	322152	812614
210128	322153	812687
210142	812613	812691

Numbers in assortment



E15

**SIMPLE INSTALLATION:**

**Step 1.**

Strip insulation to match terminal length.

**Step 2.**

Place terminal in vise. Insert correct slug. Slide tubing over cable. Apply flux to cable and insert in terminal.

**Step 3.**

Heat base of terminal while pressing down on cable. Cable will slide into terminal as slug melts.

**Step 4.**

Slide tubing over connection. Apply indirect heat. Allow to cool for the "Perfect Connection".

## STRAIGHT SANDCAST COPPER SOLDERBOND BATTERY TERMINALS

PART NUMBER	CABLE SIZE	POLARITY	T & B COLOR DIE CODE	DIE CODE	QTY
812611	1/0	Negative	Black	EA	5
812612	1/0	Positive	Black	EA	5
812613	2/0	Negative	Orange	AC	5
812614	2/0	Positive	Orange	AC	5

PART NUMBER	CABLE SIZE	POLARITY	T & B COLOR DIE CODE	DIE CODE	QTY
812615	3/0	Negative	Purple	AB	5
812616	3/0	Positive	Purple	AB	5
812617	4/0	Negative	Yellow	AA	5
812618	4/0	Positive	Yellow	AA	5



# BATTERY ACCESSORIES

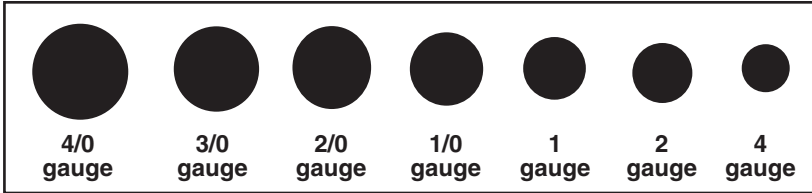
## SOLDERBOND BATTERY SLUGS



Create professional OE sealed, soldered battery cable connections in minutes. Solderbond provides fast, easy and environmentally sealed connections without high costs or special tools.



- Premeasured pieces of solder sized to fit the correct cable connectors.
- Each slug is color coded to comply with industry battery terminal coding.
- Available in seven sizes from 4 gauge to 4/0 gauge.
- The only simple and cost efficient way to achieve the perfect termination.
- Use of Heavy Wall Heat Shrink Tubing, shown below, results in moisture-proof, corrosion proof, environmentally sealed connections that meet transportation industry requirements.



– ASSORTMENT AVAILABLE –

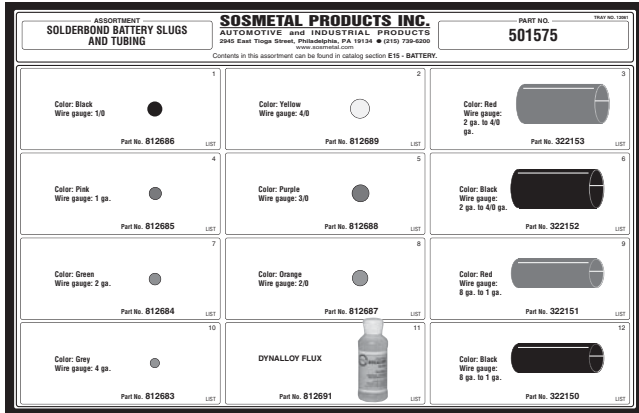
**RECOMMENDED FOR USE WITH COPPER TERMINALS ONLY.**

PART NUMBER	WIRE GAUGE	COLOR CODE	QTY
812683	4	Grey	20
812684	2	Green	20
812685	1	Pink	20
812686	1/0	Black	10
812687	2/0	Orange	10
812688	3/0	Purple	10
812689	4/0	Yellow	10

**Part No. 501575**  
125 pieces  
12 items  
12061 steel tray

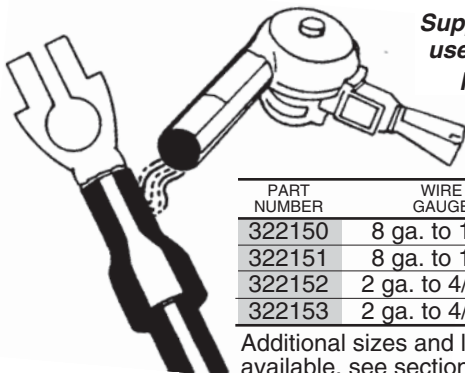
*Includes All Sizes of Slugs, Tubing & Flux!*

E15



**Solderbond Dynalloy Flux**  
Part No. 812691  
4 oz. bottle

## HEAVY WALL HEAT SHRINK TUBING



Supplied in ready to use 2" lengths, six per package.

PART NUMBER	WIRE GAUGE	COLOR CODE	QTY
322150	8 ga. to 1 ga.	Black	6
322151	8 ga. to 1 ga.	Red	6
322152	2 ga. to 4/0 ga.	Black	6
322153	2 ga. to 4/0 ga.	Red	6

Additional sizes and lengths available, see section E12.

### SIMPLE INSTALLATION:

Step 1.

Strip insulation to match terminal length.



Step 3.

Heat base of terminal while pressing down on cable. Cable will slide into terminal as slug melts.



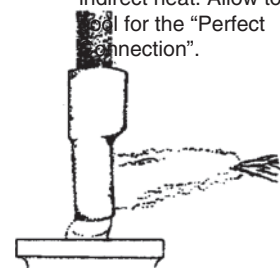
Step 2.

Place terminal in vise. Insert correct slug. Slide tubing over cable. Apply flux to cable and insert in terminal.



Step 4.

Slide tubing over connection. Apply indirect heat. Allow to cool for the "Perfect Connection".



# BATTERY ACCESSORIES

## BATTERY BOLTS with STANDARD NUTS

- For closing post-type battery terminals.
- Lusterplated to resist rust and corrosion.
- Hex nuts included.

PART NUMBER	QTY	SIZE
33010	50	5/16 x 1-1/4 Universal
33011	50	1/4 x 1-1/4 Ford Type



## BATTERY BOLTS with SHOULDER NUTS

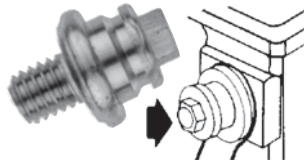
- Shoulder nuts are easier to grip.
- Less wrench slippage, saves time and prevents injury.
- Lusterplated to prevent rust and corrosion.

PART NUMBER	QTY	SIZE
222154	50	5/16-18 x 1-1/4
222147	50	5/16-18 x 1-1/2
222153	50	5/16 shoulder nut only
222159	25	1/4-20 x 1-1/2
222160	25	1/4 shoulder nut only



## OEM SIDE TERMINAL BOLTS

- Standard 5/16" hex head.
- Extra long head allows use of booster cables without additional attachments.



Part No. 33022 (25)

## SIDE TERMINAL LARGE HEX BOLT

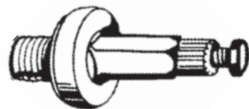
- 9/16" oversize hex head.
- Twice the wrench surface of the standard O.E. 5/16" hex head.
- Lusterplated to resist corrosion.



Part No. 322191 10

## EXTENDED SIDE TERMINAL BATTERY BOLTS with "POWER-TAP"

- Fits all side terminal batteries.
- Extended stud provides best booster cable clamping area.
- "Power-Tap" allows fast, easy accessory connection.
- Lusterplated to prevent corrosion.



Part No. 33006 10

## BATTERY JUMPER CABLE

Make a safe & convenient battery hook up from any location, inside or outside of vehicle.

- Brass stud and nut.
- Mounts in any flat panel.
- Mounting bushing solid brass.
- Grooved to prevent slippage.
- 13/16" dia. x 1-1/8".
- Durable plastic cap.



Part No. 11215

## STUD POST CONVERTER

Universal - Fits positive or negative posts.

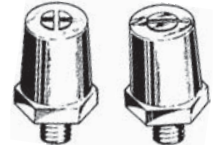
- Converts 3/8" stud to post type.
- Used as an adapter for group hook-up batteries or to convert stud type for use with post type battery cables.



Part No. 322177 5

## SIDE TERMINAL CHARGING POST

- Includes 1 positive and 1 negative post.
- No need to remove battery from car - just remove battery cables and screw-in charging posts.
- Converts side terminal battery for use with post-type cables.



Part No. 11210

## SIDE TERMINAL ACCESSORY BOLT

- Solid brass construction.
- Connects power to communication equipment and accessories.



Part No. 222158 2

## SIDE TERMINAL LONG BOLT with ACCESSORY TAP

- For GM trucks with dual batteries.
- Solid brass bolt with plated steel nuts.
- Use for direct connection of accessories to battery.
- 3/8" tap size.
- Spacer, Part No. 322184, may be required.



Part No. 322198 2

## SIDE TERMINAL LONG BOLT

- For dual battery cable connections.
- 1" stud length from underside of head.
- 5/16" hex size.
- Lusterplated to resist corrosion.



Part No. 322190 5

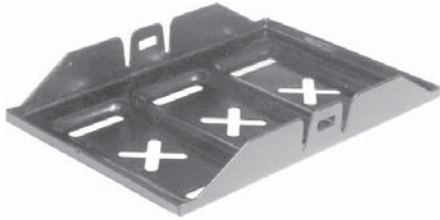
**WARNING: Must be installed using battery cable spacer.**

Order spacer separately - 322184 10



# BATTERY ACCESSORIES

## REPLACEMENT BATTERY TRAY



- Two sizes fit most vehicles.
- Heavy 16 gauge steel-vinyl coated.

PART NUMBER	QTY	SIZE	FITS BATTERY GROUP SIZES				
12725	3	Small	1	17	22FC	24F	55
			2	17HF	22NF	24T	56
		7-1/4 wide 10-3/4 long	2L	17L	23	42	72
			2N	22F	24C	54	74
12726	3	Large	4	27C	29HR	31	60
			7-1/4 wide 13 long	27	27F	29NF	53

## BATTERY HOLDDOWN BOLTS



Type 1



Type 2



Type 3



Type 4

- Nuts included.
- Replacement is quick and easy.

PART NUMBER	TYPE	MAKE/MODEL	DIA. (INCHES)	LENGTH (INCHES)	QTY
12717	3	Chrysler	1/4	5	6
12718	3	Chrysler	1/4	9	12
12714	3	Chrysler Ford • GM	5/16	8	12
12715	4	AMC • Chrysler Ford • GM	5/16	10	6
12711	1	Universal	5/16	11	6
12719	3	Lg. Truck	5/16	12	5
12712	2	AMC • Chrysler Ford • GM	3/8	10	6

E15

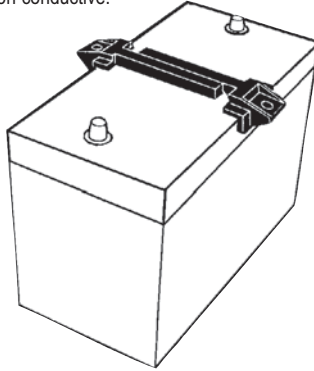


# BATTERY ACCESSORIES

## QUICKHOLD™ BATTERY HOLDDOWNS

For use on cars, trucks, boats, farm, commercial and recreational vehicles

- Easy to adjust - no complicated bolts, nuts or brackets.
- Three sizes fit 99% of all automotive and commercial batteries.
- Made of fiberglass reinforced polypropylene same material used in battery cases.
- Will not rust or corrode. Non-conductive.
- Prevents electrical drain.
- Made in USA.



### How QuickHold Works

1. Holddown arms adjust to fit different size batteries.

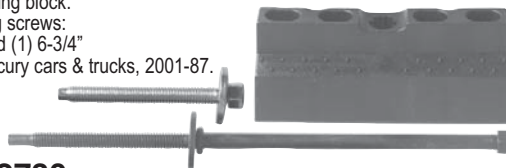
2. They lock in 1/8" increments and can be used in end-to-end or side-to-side applications.

3. Once installed use conventional J-bolts to secure the battery.

PART NUMBER	QTY	APPLICATION	MIN. LENGTH (INCHES)	MAX. LENGTH (INCHES)	FITS BATTERY TYPE	HOLDDOWN PROFILE
222144	6	Commercial and automotive	4	6-1/2	Flush top	
222145	6	Primarily commercial	8-5/8	14-3/4	Flush top	
222146	6	Primarily automotive	5-1/2	9	Raised caps	

## FORD HOLDDOWN KIT

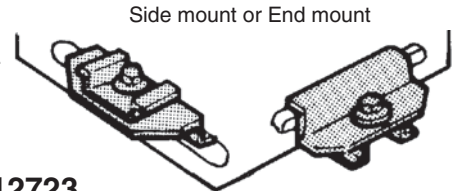
- Plastic mounting block.
- Two mounting screws:  
(1) 2-1/2" and (1) 6-3/4"
- Fits Ford/Mercury cars & trucks, 2001-87.



Part No. 12730

## 3-IN-1 BASE CLAMP

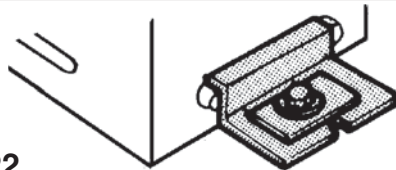
- Fits GM-style base mount battery groups: 22C, 22F, 24.
- Fits side or end.



Part No. 12723

## DUAL PURPOSE BASE CLAMP

- Fits Ford-style base mount battery groups: 22F, 29NF.



Part No. 12722

## GM BASE MOUNT

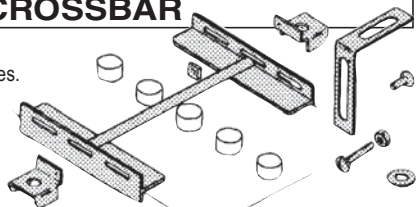
- GM base clamp.
- Fits most GM products.



Part No. 12729 3

## UNIVERSAL CROSSBAR

- Replaces 5 OEM designs.
- Fits 22F, 24, 27, 60 batteries.
- No height limitation.



Part No. 12721 4

# FLEET MAINTENANCE SPECIALTY ASSORTMENTS

## FLEET "1" & "2" MAINTENANCE SPECIALTY ASSORTMENTS

Our most popular fleet maintenance specialty assortments - all in one handy package.

- Products you need are on-hand, in stock & easy to find.
- Customized assortments give you the products you use most so you can focus on maintenance, repair & operation.
- Less down time means higher profitability for your company.
- Gives you complete coverage on electrical problems - the #1 maintenance problem.
- Add to our standard fastener assortments to cover all your shop needs.



**FLEET KIT "1" - Part No. 501760**  
Includes: 4 assortments,  
slide rack & stand



### FLEET KIT "1" CONTAINS:

**SHRINK N' SEAL TERMINALS**  
Terminals with heat shrink tubing,  
weatherproof seal every time

Part No. 501476



**HEAVY WALL HEAT SHRINK TUBING**  
The best tubing for the transportation industry

Part No. 501648



**FLEET BATTERY TERMINALS**  
Specially designed for fleet maintenance shops



Part No. 501667

**BLACK WIRE TIES**  
All popular sizes including a heavy duty 14" tie



Part No. 501743



**FLEET KIT "2" - Part No. 501761**  
Includes: 4 assortments,  
slide rack & stand



**E-Z, (ATC, ATO), MINI® & MAXI™ MASTER FUSES**  
All popular ATC, ATO, Mini® & Maxi™ fuses

Part No. 501679



**AIR BRAKE BRASS FITTINGS**  
DOT approved quick connections

Part No. 508006



**SEAMLESS COPPER STARTER LUGS**  
Popular sizes for 8 ga. thru 1 ga.

Part No. 210748



**SEAMLESS COPPER STARTER LUGS**  
Popular sizes for 1/0 through 4/0 cable

Part No. 210749

E15