

22 – 8 AWG

22 – 18 AWG

Part Number	Stud Size	Part Number	Stud Size
SA-221-06	6	SA-226-38	3/8
SA-221-08	8	SA-235-06	6
SA-221-10	10	SA-235-08	8
SA-222-14	1/4	SA-235-10	10

16 – 14 AWG

Part Number	Stud Size	Part Number	Stud Size
SB-237-06	6	SB-218-38	3/8
SB-237-08	8	SB-227-06	6
SB-239-10	10	SB-227-08	8
SB-225-14	1/4	SB-227-10	10
SB-225-56	5/16	SB-219-10	10

12 – 10 AWG

Part Number	Stud Size	Part Number	Stud Size
SC-228-06	6	SC-240-38	3/8
SC-228-08	8	SC-201-12	1/2
SC-228-10	10	SC-241-06	6
SC-230-14	1/4	SC-241-08	8
SC-230-56	5/16	SC-241-10	10

Splices

Part Number	Wire Range
SAA-22-18	22 – 18
SBB-16-14	16 – 14
SC-12-10	12 – 10

Quick Disconnects

Part Number	Wire Range
SAA-2140	22 – 18
SBB-2141	16 – 14
SC-2143	12 – 10

Male Fully Insulated

Part Number	Wire Range
SAA-9260	22 – 18
SBB-9262	16 – 14
SC-9280	12 – 10

Female Fully Insulated

Part Number	Wire Range
SAA-9261	22 – 18
SBB-9263	16 – 14
SC-9281	12 – 10

Step Down Butts

Part Number	Step Size
SBA-631	16 – 14 to 22 – 18
SCB-646	12 – 10 to 16 – 14

Snap Plugs

Part Number	Stud Size	Wire Range
SA-259	.176	22 – 18
SA-269	.157	22 – 18
SB-279	.176	16 – 14
SB-289	.157	16 – 14

Snap Plug Receptacles

Part Number	Stud Size	Wire Range
SBRA-8156N	.157	22 – 18
SBRA-8180N	.176	22 – 18
SBRB-8156N	.157	16 – 14
SBRB-8180N	.176	16 – 14

22-10 AWG terminals and splices sold in packages of 100

10 piece bubble packs also available. To order, append -10 to the part number. Example: SA-259-10

Call for bulk quantities

Perma-Seal® NiAc Heat-Seal Terminals and Splices

Perma-Seal NiAc Terminals and Splices provide a rugged, environmentally-sealed connection for wire sizes 8 to 22 AWG.

Insulates, seals, and protects electrical connections from abuse, abrasion, water, salt, and corrosive compounds.



8 AWG

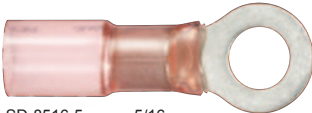
Part Number Stud Size



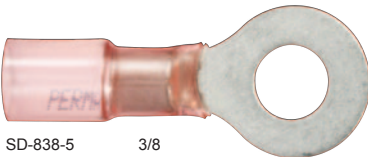
SD-810-5 10



SD-814-5 1/4



SD-8516-5 5/16



SD-838-5 3/8

8 AWG Splice



Part Number SD-8-5

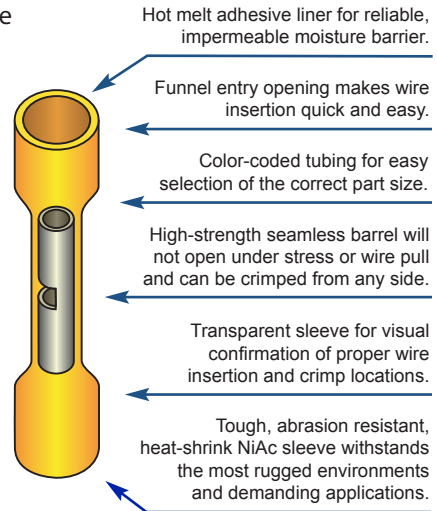
8 AWG terminals and splices sold in packages of 5

Packages of 100 available

Parts shown approximately actual size

Features

- Heat shrinkable at low temperature
- Shrinks 40% faster than nylon or polyolefin tubing
- Long-lasting, moisture-proof connections
- Withstands water, salt, corrosion, condensation, and heat
- Heat stable. Splices remain supple and impact resistant
- Tough and durable. Resists vibration cuts and abrasions
- Smaller and lighter than most comparable wire splices
- Provides a reliable, impermeable seal on 1:1, 2:1, or 2:2 splices
- Easy to install using standard tools



Product Characteristics

Properly installed, Perma-Seal splices and terminals exceed all pertinent UL, CSA, and MIL Specification requirements. Typical properties of the installed splice and for the NiAc insulation alone are shown below.

Typical Properties of Installed Connectors

Temperature rating	-55°C to 125°C
Dielectric strength	7.5kv
Voltage drop	Less than equal length of wire
Insulation resistance	106 Megohms
Shrink temperature	90°C
Tensile (pull test) value	Greater than Mil-T-7928 and UL No. 486

Typical Properties of NiAc Tubing

Tensile strength	6000 psi minimum
Ultimate elongation	175%
Longitudinal change	+0-10%
Specific gravity	1.1 maximum
Heat shock (4 hours at 225°C)	No dripping, flowing, or cracking

After Heat Aging 168 Hours at 150°C

Tensile strength	70% of original
Ultimate elongation	100% minimum
Dielectric strength	500volts/mil minimum
Low temperature flexibility (4 hours at -40°C)	No cracking

Applications

- Automotive
- Transportation
- Commercial vehicles
- Marine equipment
- Fountains, pools, spas
- Aerospace
- Defense
- Industrial
- Construction
- Renewable energy



Perma-Seal Service Kits available — See page 87

Closed End and Butt Connectors

Perma-Seal® Heat Seal Butt Connectors

Perma-Seal Butt Splices insulate, seal, and protect.

- Shrinks fast
- Long-lasting, moisture-proof connections

Standard

Part Number	AWG	Color
SAA-22-18	22 - 18	Red
SBB-16-14	6 - 14	Blue



SAA-22-18 22 - 18 Red

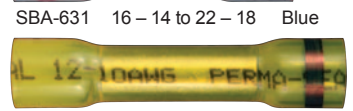
Part Number	AWG	Color
SC-12-10	12 - 10	Yellow



SC-12-10 12 - 10 Yellow

Stepdown

Part Number	AWG	Color
SBA-631	16 - 14 to 22 - 18	Blue
SCB-646	12 - 10 to 16 - 14	Yellow



SBA-631 16 - 14 to 22 - 18 Blue

SCB-646 12 - 10 to 16 - 14 Yellow

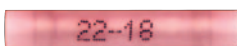
Nylon Insulated Butt Connectors

Standard

Part Number	AWG	Color
NB-18	22 - 18	Red
NB-18-4	22 - 18	Red



NB-18 22 - 18 Red



NB-18-4 22 - 18 Red

Part Number	AWG	Color
NB-14	16 - 14	Blue
NB-14-4	16 - 14	Blue

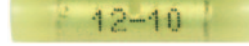


NB-14 16 - 14 Blue

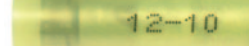


NB-14-4 16 - 14 Blue

Part Number	AWG	Color
NB-10	12 - 10	Yellow
NB-10-4	12 - 10	Yellow



NB-10 12 - 10 Yellow



NB-10-4 12 - 10 Yellow

Window

Part Number	AWG	Color
NBW-18	22 - 18	Red
NBW-14	16 - 14	Blue
NBW-10	12 - 10	Yellow



NBW-18 22 - 18 Red



NBW-14 16 - 14 Blue



NBW-10 12 - 10 Yellow

Crimp and Solder Heat Seal Butts

The **Multilink™ Heat Shrink Connector** is pre-loaded with a low temperature solder alloy ring that delivers a precise amount of flux and solder to the connection during the heat-shrink process. Each repair made with a heat shrink connector is individually protected from corrosion, contaminants, and current leakage.

Crimp Connector

- Seamless connector with inspection window
- Indicators for crimp and window location
- Wire-stop prevents over insertion

Solder Ring

- Flux coating to clean metal surfaces
- Pre-measured low-temp solder alloy

Heat Shrink Tubing

- Translucent adhesive-lined polyolefin
- Color-coded with wire gauge imprint



Connector Solder

Tubing

Standard

Part Number	AWG	Color
HS-CS-22	24 - 22	Clear
HS-CS-18	20 - 18	Red
HS-CS-14	16 - 14	Blue
HS-CS-10	12 - 10	Yellow



HS-CS-22 24 - 22 Clear



HS-CS-18 20 - 18 Red



HS-CS-14 16 - 14 Blue



HS-CS-10 12 - 10 Yellow

Stepdown

Part Number	AWG	Color
HS-SS-20	24 - 18	Red
HS-SS-16	20 - 14	Blue
HS-SS-14	16 - 10	Yellow
HS-SS-10	12 - 8	Red



HS-SS-20 24 - 18 Red



HS-SS-16 20 - 14 Blue



HS-SS-14 16 - 10 Yellow



HS-SS-10 12 - 8 Red

Connectors sold in packages of 100. Heat seal connectors also available in 10 piece bubble packs.
Nylon connectors also available in 25 piece bubble packs.

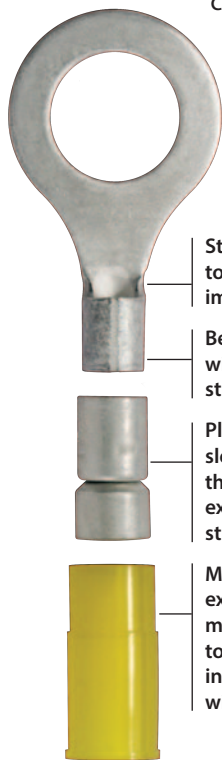
Nylon Insulated Terminals

With tin plated brass support sleeve

SOLDERLESS CRIMP CONNECTORS

Nylon Insulated Rings and Snap Spades

Made from pure electrolytic copper, **Nylon Insulated Terminals** are typically thicker and stronger than competitive heavy-duty terminals. Open end design for fast inspection. Annealed and tin plated for best conductivity and protection from corrosion.



Sturdy gussets reinforce tongue, deep V-notches improve wire grip

Beveled chamfer eases wire entry, eliminates strand turnback

Plated brass support sleeve extends beyond the inner barrel for extra strength and strain relief

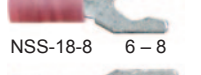
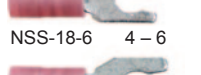
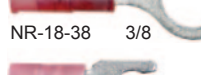
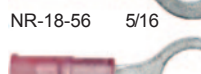
Molded nylon sleeve extends beyond the metal support sleeve to ensure complete insulation between wire and terminal

Standards

- Exceeds MIL-T-7928 corrosion standards (Method 101 of MIL-STD-202 for 100 hours)
- Withstands and exceeds required millivolt-drop readings after vibration testing per MIL-T-7928
- Exceeds tensile performance specifications compared to UL and Military standards and maximum wire strength data (ASTM designation B-58)

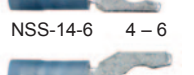
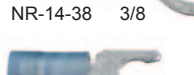
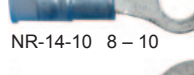
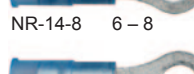
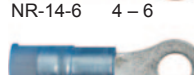
22 – 18 AWG

Part Number Stud Size



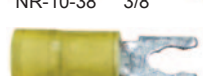
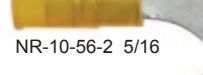
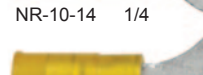
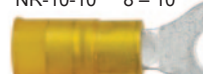
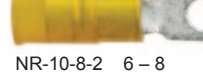
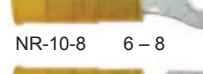
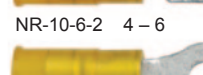
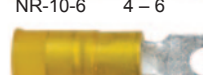
16 – 14 AWG

Part Number Stud Size



12 – 10 AWG

Part Number Stud Size



Sold in packages of 100

25 piece bubble packs and bulk quantities also available

Nylon Insulated Terminal Service Kits available on page 86



Nylon Insulated Butt Connectors shown on page 104

Parts shown approximately actual size



Nylon Insulated Quick Disconnects, Flags, Snap Plugs

Female 22 – 18 AWG

Part Number	Tab Size
NQSF-18-110	.110 x .020
NQSF-18-187	.187 x .020
NQSF-18-250	.250 x .032
NQSF-FI-18-110	.110 x .020
NQSF-FI-18-187	.187 x .020
NQSF-FI-18-250	.250 x .032

Female 16 – 14 AWG

Part Number	Tab Size
NQSF-14-110	.110 x .020
NQSF-14-187	.187 x .020
NQSF-14-250	.250 x .032
NQSF-FI-14-110	.110 x .020
NQSF-FI-14-187	.187 x .020
NQSF-FI-14-250	.250 x .032

Our complete line of Male, Female, and Piggy-Back **Quick Disconnects, Flag Disconnects, and Snap Plugs** are fully insulated and precision engineered. The female terminal precisely fits into the corresponding male housing, resulting in a fully insulated in-line splice that may be connected and disconnected without damage.

Female 12 – 10 AWG

Part Number	Tab Size
NQSF-10-250	.250 x .032
NQSF-10-375	.375 x .032
NQSF-FI-10-250	.250 x .032

Male 12 – 10 AWG

Part Number	Tab Size
NQSM-10-250	.250 x .032

Piggyback 12 – 10 AWG

Part Number	Tab Size
NST-FI-10-250	.250 x .032

Male 22 – 18 AWG

Part Number	Tab Size
NQSM-18-187	.187 x .020
NQSM-18-250	.250 x .032
NQSM-FI-18-187	.187 x .020
NQSM-FI-18-250	.250 x .032

Male 16 – 14 AWG

Part Number	Tab Size
NQSM-14-187	.187 x .020
NQSM-14-250	.250 x .032
NQSM-FI-14-187	.187 x .020
NQSM-FI-14-250	.250 x .032

Snap Plugs and Receptacles

Part Number	Diameter	Wire Range	Part Number	Diameter	Wire Range
NM-18-157	.157	22 – 18	NM-14-157	.157	16 – 14
NM-18-176	.176	22 – 18	NM-14-176	.176	16 – 14
Part Number	Diameter	Wire Range	Part Number	Diameter	Wire Range
NF-18-157	.157	22 – 18	NF-14-157	.157	16 – 14
NF-18-176	.176	22 – 18	NF-14-176	.176	16 – 14

Piggyback 22 – 18 AWG

Part Number	Tab Size
NST-18-250	.250 x .032
NST-FI-18-250	.250 x .032

Piggyback 16 – 14 AWG

Part Number	Tab Size
NST-14-250	.250 x .032
NST-FI-14-250	.250 x .032

Flag Disconnects

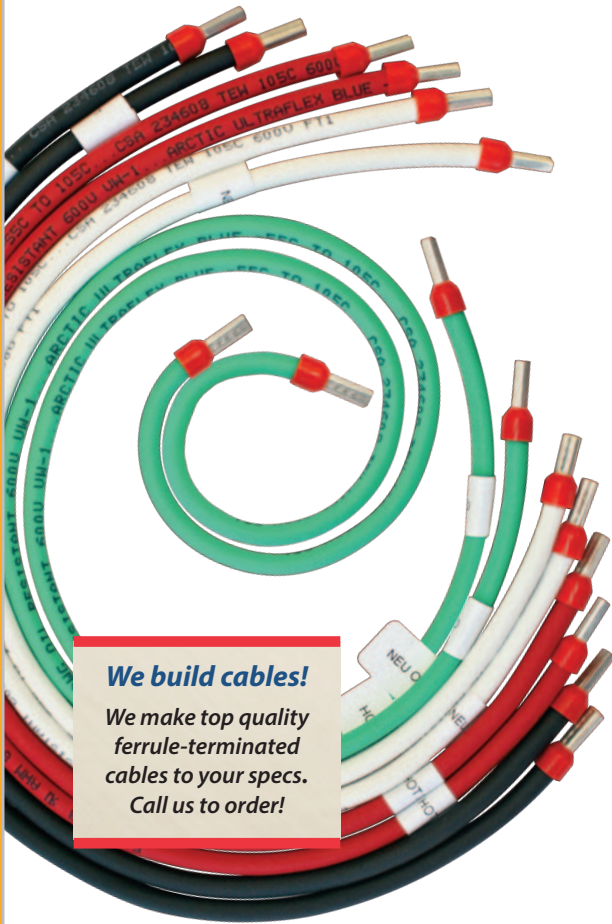
Part Number	FLAG-18-N	Part Number	FLAG-14-N	Part Number	FLAG-10-N
Tab Size	.250 x .032	Tab Size	.250 x .032	Tab Size	.250 x .032
Wire Range	22 – 18	Wire Range	16 – 14	Wire Range	12 – 10

Plated Copper Ferrules Weather Pack Locking Connectors

SOLDERLESS CRIMP CONNECTORS

Tin Plated Copper Ferrules

Ferrules stabilize stripped conductor ends, allowing wires to be repeatedly connected and disconnected without damage to the individual stranding. Insulated ferrules are color coded for wire and size identification.



We build cables!
We make top quality ferrule-terminated cables to your specs.
Call us to order!

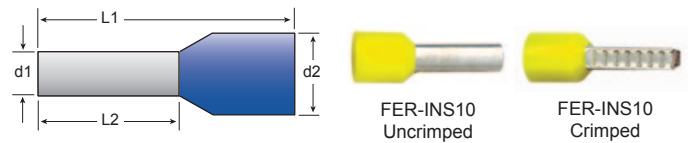
Ferrule Crimp Tools



Insulated Wire Ferrules

Sold in bags of 100

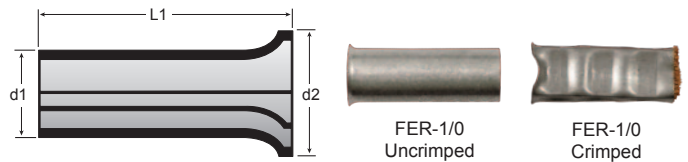
Part Number	AWG	mm2	Color	d1	d2	L1	L2
FER-20INS	20	0.75	white	1.2	2.8	14	8
FER-18INS	18	1.0	red	1.4	3.0	14	8
FER-16INS	16	1.5	black	1.7	3.5	14	8
FER-14INS	14	2.5	blue	2.2	4.2	15	8
FER-12INS	12	4.0	gray	2.8	4.8	18	10
FER-10INS	10	6.0	yellow	3.5	6.3	20	12
FER-8INS	8	10.0	red	4.5	7.6	22	12
FER-6INS	6	16.0	blue	5.8	8.8	22	12
FER-2INS	2	35.0	beige	8.3	12.4	30	16



Uninsulated Wire Ferrules

Sold individually

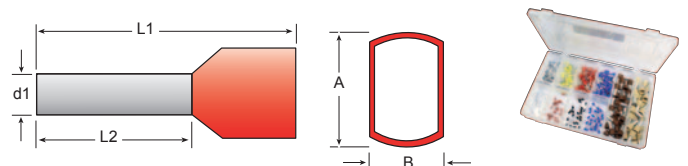
Part Number	AWG	mm2	d1	d2	L1
FER-8	8	10.0	4.5	5.8	12
FER-6	6	16.0	5.8	7.5	12
FER-4	4	25.0	7.3	9.5	15
FER-2	2	35.0	8.3	11.0	18
FER-1/0	1/0	50.0	10.3	13.0	32
FER-2/0	2/0	70.0	12.5	15.0	32
FER-3/0	3/0	95.0	14.5	17.0	32
FER-4/0	4/0	120.0	17.2	19.0	32
FER-250	250 MCM	150.0	19.5	21.0	32
FER-500	500 MCM	240.0	23.0	25.0	40



Twin Wire Ferrules

Sold in bags of 100

Part Number	AWG	mm2	Color	d1	A/B	L1	L2
FER-22TWIN	2x22	0.5	white	1.4	5.0/3.0	15	8
FER-20TWIN	2x20	0.75	gray	1.7	5.5/3.0	15	8
FER-18TWIN	2x18	1.0	red	2.0	5.8/3.2	15	8
FER-16TWIN	2x16	1.5	black	2.2	6.5-3.6	16	8
FER-14TWIN	2x14	2.5	blue	2.8	8.0/4.5	19	10
FER-12TWIN	2x12	4.0	gray	3.5	9.0/5.2	22	12
FER-10TWIN	2x10	6.0	yellow	4.5	11.4/6.2	23	12
FER-6TWIN	2x6	16.0	blue	8.3	17.2/9.5	29	16

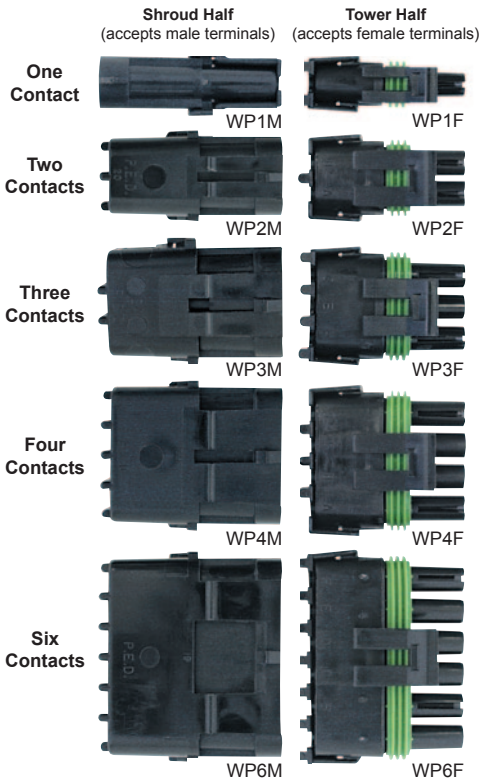


Call for more ferrule sizes and styles

Ferrules Service Kit available — page 88



Weather Pack Locking Connectors



Weather Pack Locking Connectors seal out moisture and dirt. These one- to six-contact nylon connectors are rated -40°F to 257°F, up to 16 volts DC and 20 amps. Hinge lock assembly. Self-lubricating silicone body seal reduces engagement force. Silicone cable seals must be used with the tin plated brass terminals. The cavity plug fills unused pin locations. Terminals and seals sold in quantities of 100.

Cable Seals and Plugs

	Part Number	AWG
	WP2224S	22-24
	WP2018S	20-18
	WP1614S	16-14
	WP12S	12
	WP-PLUG	

Male Terminals

Use with Shroud Half	
Part Number	AWG
WP2224M	22-24
WP2018M	20-18
WP1614M	16-14
WP12M	12

Female Terminals

Use with Tower Half	
Part Number	AWG
WP2224F	22-24
WP2018F	20-18
WP1614F	16-14
WP12F	12



Weather Pack Service Kit
available — page 88



-40°F TO 257°F

Wired Weather Pack Pigtails

Save labor, time and tool costs with **Arctic Ultraflex Blue®** wired **Weather Pack Pigtails**. Quality Weather Pack connectors are securely crimped and sealed in ready-to-use male-to-female configurations of one to six contacts. 18, 16, 14, and 12 wire gauge. 12" overall length.

Custom lengths available

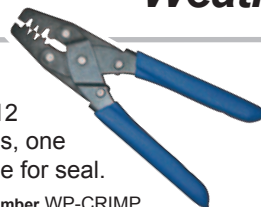
One Contact		Two Contacts		Three Contacts		Four Contacts		Six Contacts	
Part Number	AWG	Part Number	AWG	Part Number	AWG	Part Number	AWG	Part Number	AWG
WP18-1	18	WP18-2	18	WP18-3	18	WP18-4	18	WP18-6	18
WP16-1	16	WP16-2	16	WP16-3	16	WP16-4	16	WP16-6	16
WP14-1	14	WP14-2	14	WP14-3	14	WP14-4	14	WP14-6	14
WP12-1	12	WP12-2	12	WP12-3	12	WP12-4	12	WP12-6	12

Weather Pack Tools

Crimp Tool crimps and seals 20 to 14 gauge terminals in one operation. Ratchet assembly assures a perfect crimp. **Part Number WP402**



Economy Crimp Tool crimps 20 to 12 gauges in two steps, one for terminal and one for seal. **Part Number WP-CRIMP**



Pin Extraction Tool removes male or female terminals. **Part Number WP-EXTRACT**

