

Electrical enterprise

Specialty Electrical Supplies and Tools

Connectors



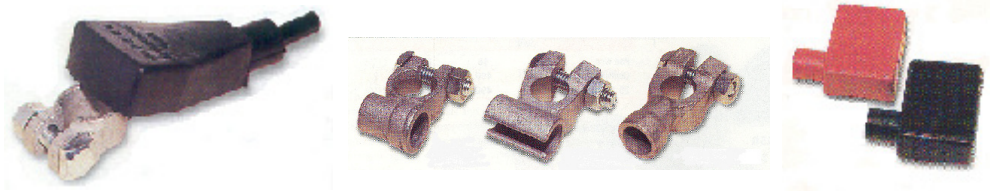
Terminals



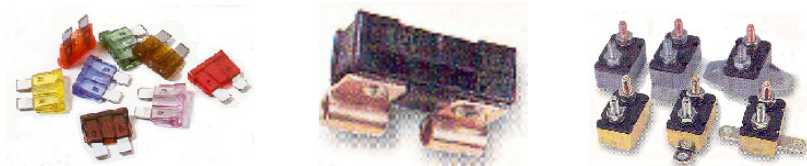
Tools



*Battery
Accessories*



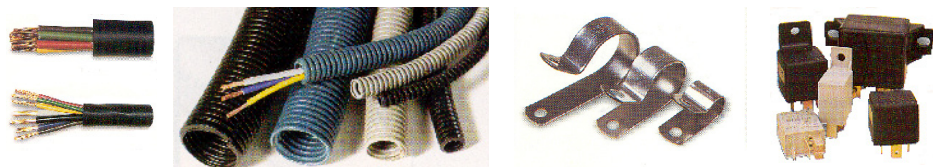
*Circuit
Protection*



Cable Ties



*Wire &
Accessories*



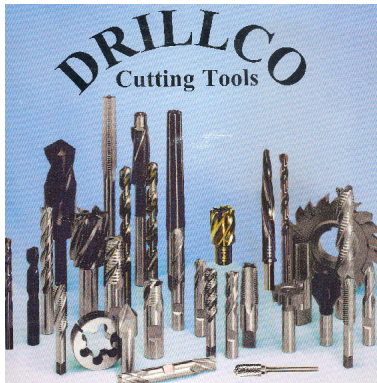
San Diego, California

*Office Phone 619.278.1302 * Fax: 619.542.9994*

Electrical Enterprise

San Diego, California

Electrical Enterprise proudly offers products from the following manufacturers:



DEUTSCH



AMP



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Connectors and Terminals

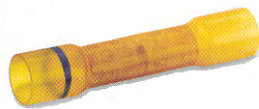
Sealed Crimp & Solder Connectors

*Sealed Crimp & Solder Connectors are crimped for mechanical reliability, soldered for superior conductivity and strength and are sealed for maximum durability. Choose **Sealed Crimp & Solder Connectors** when there is no margin for error.*

Butt Connectors

	Part No.	Gauge	Color	Description	Type	Seam
	ML-24B	24-22 awg	Clear	Standard	Standard	Butted
	ML-22B	22-18 awg	Red	Standard	Standard	Seamless
	ML-16B	16-14 awg	Blue	Standard	Standard	Seamless
	ML-12B	12-10 awg	Yellow	Standard	Standard	Seamless

Step Down Connectors



Part No.	Gauge	Color	Type	Seam
ML-2418SD	24-22 awg to 22-18 awg	Red	Step Down	Butted
ML-2214SD	22-18 awg to 16-14 awg	Blue	Step Down	Seamless
ML-1610SD	16-14 awg to 12-10 awg	Yellow	Step Down	Seamless
ML-1208SD	12-10 awg to 8 awg	Pink	Step Down	Seamless

Ring Connectors



Part No.	Gauge	Color	Description	Type	Seam
ML-2206R	22-18 awg	Red	#6 stud	Standard	Brazened
ML-2208R	22-18 awg	Red	#8 stud	Standard	Brazened
ML-2210R	22-18 awg	Red	#10 stud	Standard	Brazened
ML-2214R	22-18 awg	Red	1/4" stud	Standard	Brazened
ML-22516R	22-18 awg	Red	5/16" stud	Standard	Brazened
ML-2238R	22-18 awg	Red	3/8" stud	Standard	Brazened
ML-1606R	16-14 awg	Blue	#6 stud	Standard	Brazened
ML-1608R	16-14 awg	Blue	#8 stud	Standard	Brazened
ML-1610R	16-14 awg	Blue	#10 stud	Standard	Brazened
ML-1614R	16-14 awg	Blue	1/4" stud	Standard	Brazened
ML-16516R	16-14 awg	Blue	5/16" stud	Standard	Brazened
ML-1638R	16-14 awg	Blue	3/8" stud	Standard	Brazened
ML-1206R	12-10 awg	Yellow	#6 stud	Standard	Brazened
ML-1208R	12-10 awg	Yellow	#8 stud	Standard	Brazened
ML-1210R	12-10 awg	Yellow	#10 stud	Standard	Brazened
ML-1214R	12-10 awg	Yellow	1/4" stud	Standard	Brazened
ML-12516R	12-10 awg	Yellow	5/16" stud	Standard	Brazened
ML-1238R	12-10 awg	Yellow	3/8" stud	Standard	Brazened
ML-1212R	12-10 awg	Yellow	1/2" stud	Standard	Brazened

Connectors and Terminals

Sealed Crimp & Solder Connectors

Sealed Crimp & Solder Connectors Features and Benefits:

Crimped for mechanical reliability

Sealed for maximum durability

Sealed Crimp & Solder Connections meet or exceed the most stringent OEM standards

Spade Terminals



Standard Spade



Spring Spade

Part No.	Gauge	Color	Description	Type	Seam
ML-2206S	22-18 awg	Red	#6 stud	Standard	Brazened
ML-2208S	22-18 awg	Red	#8 stud	Standard	Brazened
ML-2210S	22-18 awg	Red	#10 stud	Standard	Brazened
ML-1606S	16-14 awg	Blue	#6 stud	Standard	Brazened
ML-1608S	16-14 awg	Blue	#8 stud	Standard	Brazened
ML-1610S	16-14 awg	Blue	#10 stud	Standard	Brazened
ML-1206S	12-10 awg	Yellow	#6 stud	Standard	Brazened
ML-1208S	12-10 awg	Yellow	#8 stud	Standard	Brazened
ML-1210S	12-10 awg	Yellow	#10 stud	Standard	Brazened
ML-2206SS	22-18 awg	Red	#6 stud	Spring Spade	Butted
ML-2208SS	22-18 awg	Red	#8 stud	Spring Spade	Butted
ML-2210SS	22-18 awg	Red	#10 stud	Spring Spade	Butted
ML-1606SS	16-14 awg	Blue	#6 stud	Spring Spade	Butted
ML-1608SS	16-14 awg	Blue	#8 stud	Spring Spade	Butted
ML-1610SS	16-14 awg	Blue	#10 stud	Spring Spade	Butted
ML-1206SS	12-10 awg	Yellow	#6 stud	Spring Spade	Butted
ML-1208SS	12-10 awg	Yellow	#8 stud	Spring Spade	Butted
ML-1210SS	12-10 awg	Yellow	#10 stud	Spring Spade	Butted

Slip-on Connectors



Part No.	Gauge	Color	Description	Type	Seam
ML-22250QF	22-18 awg	Red	Female .250" tab	Standard	Butted
ML-22250QFF	22-18 awg	Red	Female .250" tab	Fully Insulated	Butted
ML-22250QM	22-18 awg	Red	Male .250" tab	Standard	Butted
ML-16250QF	16-14 awg	Blue	Female .250" tab	Standard	Butted
ML-16250QFF	16-14 awg	Blue	Female .250" tab	Fully Insulated	Butted
ML-16250QM	16-14 awg	Blue	Male .250" tab	Standard	Butted
ML-12250QF	12-10 awg	Yellow	Female .250" tab	Standard	Butted
ML-12250QFF	12-10 awg	Yellow	Female .250" tab	Fully Insulated	Butted
ML-12250QM	12-10 awg	Yellow	Male .250" tab	Standard	Butted

Connectors and Terminals

Sealed Crimp Connectors

The Sealed Crimp Connector is the finest line of “crimp & seal” connectors on the market today. New design features, finest components and a product selection that has been expanded are what place the Sealed Crimp Connectors at the top!

Butt Connectors



Part No.	Gauge	Color	Description	Type	Seam
HS-24B	24-22 awg	Clear	Standard	Standard	Butted
HS-22B	22-18 awg	Red	Standard	Standard	Seamless
HS-16B	16-14 awg	Blue	Standard	Standard	Seamless
HS-12B	12-10 awg	Yellow	Standard	Standard	Seamless
HS-08B	8 awg	Pink	Standard	Standard	Brazened

Window Butt Connectors



Part No.	Gauge	Color	Type	Seam
HS-22WB	22-18 awg	Red	Window	Seamless
HS-16WB	16-14 awg	Blue	Window	Seamless
HS-12WB	12-10 awg	Yellow	Window	Seamless

Step Down Butt Connectors



Part No.	Gauge	Color	Description	Type	Seam
HS-2418SD	24-22 awg to 22-18 awg	Clear	Tapered	Step Down	Seamless
HS-2214SD	22-18 awg to 16-14 awg	Blue	Tapered	Step Down	Seamless
HS-1610SD	16-14 awg to 12-10 awg	Yellow	Tapered	Step Down	Seamless
HS-1208SD	12-10 awg to 8 awg	Pink	Tapered	Step Down	Seamless

Ring Terminals



Part No.	Gauge	Color	Description	Type	Seam
HS-2404R	24-22 awg	Clear	#4 stud	Standard	Butted
HS-2406R	24-22 awg	Clear	#6 stud	Standard	Butted
HS-2206R	22-18 awg	Red	#6 stud	Standard	Brazed
HS-2208R	22-18 awg	Red	#8 stud	Standard	Brazed
HS-2210R	22-18 awg	Red	#10 stud	Standard	Brazed
HS-2214R	22-18 awg	Red	1/4" stud	Standard	Brazed
HS-22516R	22-18 awg	Red	5/16" stud	Standard	Brazed
HS-2238R	22-18 awg	Red	3/8" stud	Standard	Brazed
HS-1606R	16-14awg	Blue	#6 stud	Standard	Brazed
HS-1608R	16-14 awg	Blue	#8 stud	Standard	Brazed
HS-1610R	16-14 awg	Blue	#10 stud	Standard	Brazed
HS-1614R	16-14 awg	Blue	1/4" stud	Standard	Brazed
HS-16516R	16-14 awg	Blue	5/16" stud	Standard	Brazed
HS-1638R	16-14 awg	Blue	3/8" stud	Standard	Brazed
HS-1206R	12-10 awg	Yellow	#6 stud	Standard	Brazed
HS-1208R	12-10 awg	Yellow	#8 stud	Standard	Brazed
HS-1210R	12-10 awg	Yellow	#10 stud	Standard	Brazed
HS-1214R	12-10 awg	Yellow	1/4" stud	Standard	Brazed
HS-12516R	12-10 awg	Yellow	5/16" stud	Standard	Brazed
HS-1238R	12-10 awg	Yellow	3/8" stud	Standard	Brazed
HS-1212R	12-10 awg	Yellow	1/2" stud	Standard	Brazed
HS-0810R	8 awg	Pink	#10 stud	Standard	Brazed
HS-0814R	8 awg	Pink	1/4" stud	Standard	Brazed
HS-08516R	8 awg	Pink	5/16" stud	Standard	Brazed
HS-0838R	8 awg	Pink	3/8" stud	Standard	Brazed
HS-0812R	8 awg	Pink	1/2" stud	Standard	Brazed

Connectors and Terminals

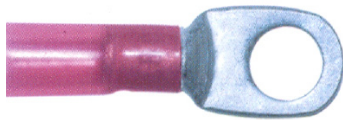
Sealed Crimp Connectors

Brazed Seam & Seamless Connector Advantages

- Better Wire Contact
- Less Voltage Drop
- Increases Current Flow
- Prevents Wiring Failures
- Superior Tensile Strength
- Reduces Equipment Downtime

Ring Terminals

Lug Style



Part No.	Gauge	Color	Description	Type	Seam
HS-0810LG	8 awg	Pink	#10 stud	Lug Style	Seamless
HS-0814LG	8 awg	Pink	1/4" stud	Lug Style	Seamless
HS-08516LG	8 awg	Pink	5/16" stud	Lug Style	Seamless
HS-0838LG	8 awg	Pink	3/8" stud	Lug Style	Seamless
HS-0812LG	8 awg	Pink	1/2" stud	Lug Style	Seamless

Differences between Brazed, Seamless and Butted Connectors

Brazed Seam Connectors

Seam of barrel is brazed together with solder. Use with solid and stranded wire. Crimp on any side of the barrel without opening the seam.

Seamless Connectors

Barrel created from one seamless piece of metal eliminating barrel opening. Use with solid or stranded wire

Butted Seam Connectors

Metal is stamped, rolled and butted to create the connector barrel. Use only with stranded wire. Crimp properly to avoid opening the seam

Spade Terminals



Standard Spade



Flanged Spade



Spring Spade

Part No.	Gauge	Color	Description	Type	Seam
HS-2404S	24-22 awg	Clear	#4 stud	Standard	Butted
HS-2406S	24-22 awg	Clear	#6 stud	Standard	Butted
HS-2206S	22-18 awg	Red	#6 stud	Standard	Brazed
HS-2208S	22-18 awg	Red	#8 stud	Standard	Brazed
HS-2210S	22-18 awg	Red	#10 stud	Standard	Brazed
HS-1606S	16-14 awg	Blue	#6 stud	Standard	Brazed
HS-1608S	16-14 awg	Blue	#8 stud	Standard	Brazed
HS-1610S	16-14 awg	Blue	#10 stud	Standard	Brazed
HS-1206S	12-10 awg	Yellow	#6 stud	Standard	Brazed
HS-1208S	12-10 awg	Yellow	#8 stud	Standard	Brazed
HS-1210S	12-10 awg	Yellow	#10 stud	Standard	Brazed
HS-1214S	12-10 awg	Yellow	1/4" stud	Standard	Brazed
HS-2206FS	22-18 awg	Red	#6 stud	Flanged Spade	Brazed
HS-2208FS	22-18 awg	Red	#8 stud	Flanged Spade	Brazed
HS-2210FS	22-18 awg	Red	#10 stud	Flanged Spade	Brazed
HS-1606FS	16-14 awg	Blue	#6 stud	Flanged Spade	Brazed
HS-1608FS	16-14 awg	Blue	#8 stud	Flanged Spade	Brazed
HS-1610FS	16-14 awg	Blue	#10 stud	Flanged Spade	Brazed
HS-1206FS	12-10 awg	Yellow	#6 stud	Flanged Spade	Brazed
HS-1208FS	12-10 awg	Yellow	#8 stud	Flanged Spade	Brazed
HS-1210FS	12-10 awg	Yellow	#10 stud	Flanged Spade	Brazed
HS-2206SS	22-18 awg	Red	#6 stud	Spring Spade	Butted
HS-2208SS	22-18 awg	Red	#8 stud	Spring Spade	Butted
HS-2210SS	22-18 awg	Red	#10 stud	Spring Spade	Butted
HS-2206SS	16-14 awg	Blue	#6 stud	Spring Spade	Butted
HS-1608SS	16-14 awg	Blue	#8 stud	Spring Spade	Butted
HS-1610SS	16-14 awg	Blue	#10 stud	Spring Spade	Butted
HS-1206SS	12-10 awg	Yellow	#6 stud	Spring Spade	Butted
HS-1208SS	12-10 awg	Yellow	#8 stud	Spring Spade	Butted
HS-1210SS	12-10 awg	Yellow	#10 stud	Spring Spade	Butted

Connectors and Terminals

Sealed Crimp Connectors

Slip-On Connectors



Part No.	Gauge	Color	Description	Type	Seam
HSP-22110QF	22-18 awg	Red	Female .110" tab	Standard	Butted
HSP-22110QM	22-18 awg	Red	Male .110" tab	Standard	Butted
HSP-22187QF	22-18 awg	Red	Female .187" tab	Standard	Butted
HSP-22187QM	22-18 awg	Red	Male .187" tab	Standard	Butted
HSP-22250QF	22-18 awg	Red	Female .250" tab	Standard	Butted
HSP-22250QM	22-18 awg	Red	Male .250" tab	Standard	Butted
HSP-16110QF	16-14 awg	Blue	Female .110" tab	Standard	Butted
HSP-16110QM	16-14 awg	Blue	Male .110" tab	Standard	Butted
HSP-16187QF	16-14 awg	Blue	Female .187" tab	Standard	Butted
HSP-16187QM	16-14 awg	Blue	Male .187" tab	Standard	Butted
HSP-16250QF	16-14 awg	Blue	Female .250" tab	Standard	Butted
HSP-16250QM	16-14 awg	Blue	Male .250" tab	Standard	Butted
HSP-12250QF	12-10 awg	Yellow	Female .250" tab	Standard	Butted
HSP-12250QM	12-10 awg	Yellow	Male .250" tab	Standard	Butted

3M Fully Insulated Slip-On Connectors



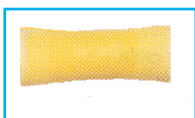
Part No.	Gauge	Color	Description	Seam
HS-22250QF	22-18 awg	Red	Female .250" tab	Butted
HS-22250QM	22-18 awg	Red	Male .250" tab	Butted
HS-16250QF	16-14 awg	Blue	Female .250" tab	Butted
HS-16250QM	16-14 awg	Blue	Male .250" tab	Butted
HS-12250QF	12-10 awg	Yellow	Female .250" tab	Butted
HS-12250QM	12-10 awg	Yellow	Male .250" tab	Butted

Parallel Connectors

Parallel connectors are a convenient way to splice wire together with only one crimp.



Non-insulated



Vinyl insulated

Gauge	Non-Insulated	Vinyl Insulated
22-18	PC-30070	PC-30570
16-14	PC-31070	PC-31570
12-10	PC-32070	PC-32570
8	PC-33070	PC-33570
6	PC-34070	PC-34570



Connectors and Terminals

Quick Slide Connectors

Male and Female Quick Slides

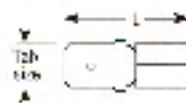
Quick slide terminals are available in non-insulated, insulated and fully insulated versions.
Several wire gauge sizes and tab widths.



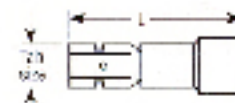
Female insulated



Male insulated



Male Non-insulated



Female Non-insulated

Style	Gauge	Tab Size	Insulated
Female	26-10	.100	N-26110QF
	22-18	.187	N-22187QF
	22-18	.250	N-22250QF
	16-14	.110	N-16110QF
	16-14	.187	N-16187QF
	16-14	.250	N-16250QF
	12-10	.250	N-12250QF
	12-10	.375	N-12375QF
Male	22-18	.187	N-22187QM
	22-18	.250	N-22250QM
	16-14	.187	N-16187QM
	16-14	.250	N-16250QM
	12-10	.250	N-12250QM

Style	Gauge	Tab Size	Non Insulated
Female	26-10	.100	NI-26100QF
	22-18	.187	NI-22187QF
	22-18	.250	NI-22250QF
	16-14	.110	NI-16110QF
	16-14	.187	NI-16187QF
	16-14	.250	NI-16250QF
	12-10	.250	NI-12250QF
	12-10	.375	NI-12375QF
Male	22-18	.187	NI-22187QM
	22-18	.250	NI-22250QM
	16-14	.187	NI-16187QM
	16-14	.250	NI-16250QM
	12-10	.250	NI-12250QM

Fully Insulated Quick Slides



These fully insulated quick slides are used where more protection is required against short circuits.

Gauge	Tab Size	Male	Female
22-18	.187	FI-22187QM	FI-22187QF
22-18	.250	FI-22250QM	FI-22250QF
16-14	.187	FI-16187QM	FI-16187QF
16-14	.250	FI-16250QM	FI-16250QF
12-10	.250	FI-12250QM	FI-12250QF

Connectors and Terminals

Butt Connectors

Standard Butt Connectors 22 to 4/0 Gauge



Wire Gauge	Non-insulated Butted Seam	Nylon Insulated	Wire Gauge	Non-insulated Brazened Seam
22-18	NI-22B	N-22B	8	NI-22BR
16-14	NI-16B	N-16B	6	NI-16BR
12-10	NI-12B	N-12B	4	NI-12BR

Moisture Resistant Butt



The moisture resistant butt connector is nylon insulated with an extra sleeve, filled with silicone material to help keep moisture, dust and other contamination out of the connection.

Gauge	Color	No.
22-18	red	30771
16-14	blue	31771
12-10	yellow	32771

Window Butt Splice



Window butt splices are nylon insulated with an extra support sleeve and an inspection window for viewing correct wire insertion.

Gauge	Color	No.
22-18	red	30781
16-14	blue	31781
12-10	yellow	32781

Step Down Butt Connectors



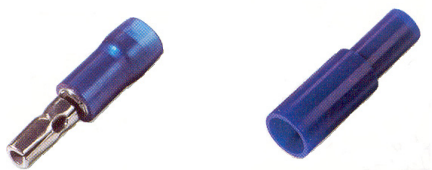
This vinyl step down butt connector is used when two different size wires are to be connected, or when one wire is to be joined through the butt connector to two wires. The step down (smaller) end is colored coded.

Gauge	No.
22-18 to 16-14	V-2214SD
16-14 to 12-10	V-1610SD
12-10 to 8	V-1208SD

Connectors and Terminals

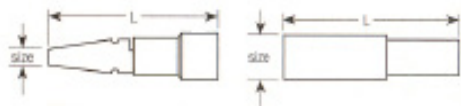
Bullets (Snap Plugs)

Bullets are available in two sizes, .156 or .180 in diameter. The bullet connectors allow for a quick trouble free connection.



Syle	Gauge	Size	Non-Ins.	Nylon Ins.
Male	22-18	.156	NI-22156SPM	N-22156SPM
	22-18	.180	NI-22180SPM	N-22180SPM
	16-14	.156	NI-16156SPM	N-16156SPM
	16-14	.180	NI-16180SPM	N-16180SPM
	12-10	.156	NI-12156SPM	N-12156SPM
Female	22-18	.156	NI-22156SPF	N-22156SPF
	22-18	.180	NI-22180SPF	N-22180SPF
	16-14	.156	NI-16156SPF	N-16156SPF
	16-14	.180	NI-16180SPF	N-16180SPF

Double Bullet Connector



Double bullet connectors will attach two of the same bullets together. Order either .156 or .180 diameter size.



Size	No.	Color
.156	38020	clear
.180	38018	green



.250 Push-ons

16-14 Ga.
Insulated
Male-
Female



31717

Double
Male-
Female



31051

16-14 Ga.
Flag



31017

Double
Male-
Female



31052

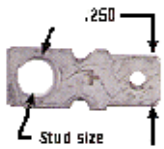
Double
Male
Clear Ins.



38021

Miscellaneous

Male Tab .250 Connector



Stud size	No.
6	37050
8	37051
10	37052

Fully Insulated .250 Flag Push-on

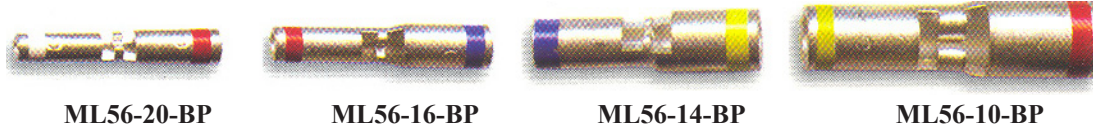


Gauge	No.
22-18	30535
16-14	31535

Connectors and Terminals

Uninsulated Step-Down Connectors

Use an uninsulated step-down connector 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. Unsealed, no heat-shrink tubing. Available in four sizes for your application needs.



No.	Side #1 Color Stripe	Wire	Crimp die Insulated	Side #2 Color Stripe	Wire	Crimp die Insulated
NI-2418SD	White	24-22 awg	White (24-22 awg)	Red	22-18 awg	Red (22-18 awg)
NI-2214SD	Red	22-18 awg	Red (22-18 awg)	Blue	16-14 awg	Blue (16-14 awg)
NI-1610SD	Blue	16-14 awg	Blue (16-14 awg)	Yellow	12-10 awg	Yellow (12-10 awg)
NI-1208SD	Yellow	12-10 awg	Yellow (12-10 awg)	Red	8 awg	Red (8 awg)

Krimpa-Seal Step-Down Connectors

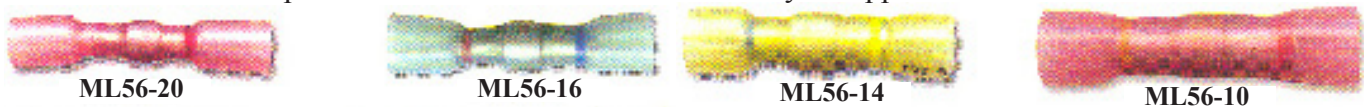
Sealed crimp connector. Has a stripe on each end to indicate which wire size to insert and which crimp die to use. Available in four sizes for your application needs.



No.	Heat Shrink Tubing Color	Side #1 Color Stripe	Wire	Crimp die Insulated	Side #2 Color Stripe	Wire	Crimp die Insulated
HS-2418SD	Red	White	24-22 awg	White (24-22 awg)	Red	22-18 awg	Red (22-18 awg)
HS-2214SD	Blue	Red	22-18 awg	Red (22-18 awg)	Blue	16-14 awg	Blue (16-14 awg)
HS-1610SD	Yellow	Blue	16-14 awg	Blue (16-14 awg)	Yellow	12-10 awg	Yellow (12-10 awg)
HS-1208SD	Pink	Yellow	12-10 awg	Yellow (12-10 awg)	Red	8 awg	Red (8 awg)

MultiLink Step-Down Connectors

Sealed crimp and solder connector. The inside and the outside diameter of the connector is varied which means that both sides will make a positive crimp. Has a stripe on each end to indicate which wire size to insert and which crimp die to use. Available in four sizes for your application needs.

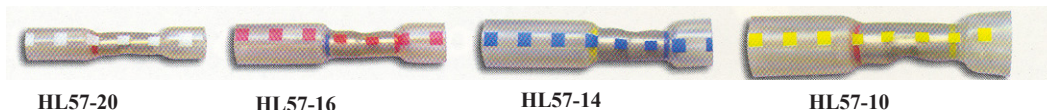


No.	Heat Shrink Tubing Color	Side #1 Color Stripe	Wire	Crimp die Insulated	Side #2 Color Stripe	Wire	Crimp die Insulated
ML-2418SD	Red	White	24-22 awg	White (24-22 awg)	Red	22-18 awg	White (22-18 awg)
ML-2214SD	Blue	Red	20-18 awg	Red (22-18 awg)	Blue	16-14 awg	Red (16-14 awg)
ML-1610SD	Yellow	Blue	16-14 awg	Blue (16-14 awg)	Yellow	12-10 awg	Blue (12-10 awg)
ML-1208SD	Pink	Yellow	12-10 awg	Yellow (12-10 awg)	Red	8 awg	Yellow (8 awg)

Connectors and Terminals

HydraLink In-Line Butt Connectors

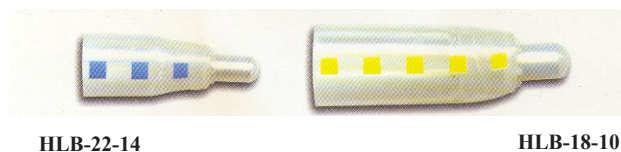
These sealed connectors connect one wire to two wires. Replaces temporary, unsealed quick-taps. Tubing has an active adhesive that seals between multiple wires. Color dash on tubing indicates the wire gauge for the connector and color stripes to indicate which crimp die to use. Makes permanent connections. Available in four sizes.



No.	Tubing Color	Side #1	Wire	Crimp die Insulated	Side #2	Wire	Crimp die Insulated
		Color Stripe			Color Stripe		
HL-2418SD	Clear/White dashes	White	24-22 awg	White (24-22 awg)	Red	24-22 awg	Red (20-18 awg)
HL-2214SD	Clear/Red dashes	Red	22-18 awg	Red (22-18 awg)	Blue	22-18 awg	Blue (16-14 awg)
HL-1610SD	Clear/Blue dashes	Blue	16-14 awg	Blue (16-14 awg)	Yellow	16-14 awg	Yellow (12-10 awg)
HL-1208SD	Clear/Yellow dashes	Yellow	12-10 awg	Yellow (12-10 awg)	Red	8 awg	Red (8 awg)

HydraLink Closed-end Connectors

These closed-end connectors hold up to four wires in two sizes. Tubing has an active adhesive that seals between multiple wires and eliminates wire pull-out. HydraLink closed-end connectors can replace wire nuts in environments where corrosion is a problem.



No.	Connector Wire Range	Tubing Color
HL-22C	22-14	Clear/Blue dashes
HL-18C	18-10	Clear/Yellow dashes



Ordering & Customer Service

1-619.278.1302

Connectors and Terminals

Scotchlok™ Communication Connectors



UR Type No. 37044

These connectors handle 19 thru 26 gauge solid copper wire. Use them to cut into service lines in ready-access cases, for pedestal mounts, and pigtail joints on cable splices. Their three-port construction makes them a perfect connector for general splicing or tapping in load coils, such as toll cable splicing. Contains moisture resistant sealant.



UY Type No. 37045

UY connectors are small and compact with two ports designed for straight splicing. They accept two solid copper conductor combinations of 22 thru 26 gauge copper wire. Contains moisture resistant sealant.

Scotchlok™ Pigtail



Scotchlok self-stripping electrical pigtail connectors are available with or without sealant filling. Use where a positive connection is required.

The sealant helps to protect against corrosion due to moisture. No wire stripping is required. Simply insert wires and press top down with pliers. Accepts three wires, 22 thru 14 gauge.

Without sealant	37040
Sealant filled	37041

Standard Spring (Wire Nut) Connectors

Standard spring connectors twist on for a secure connection. Available in a knurled knob grip or wing nut grip. Both types meet UL requirements and are CSA approved.

Knurled knob grip



Wire Range	No.	Color
22-16	37071	gray
22-14	37072	blue
22-14	37073	orange
18-10	37074	yellow
18-10	37075	red

Wing nut grip



Wire Range	No.	Color
18-12	37034	yellow
16-10	37035	red
14-8	37036	gray
12-6	37037	blue

Closed End Connectors

Connect wires easily with these closed end connectors. Four sizes are available for most applications. To use, simply crimp like any insulated connector.



Wire Range	No.
22-16 / 22-20	37024
16-14 / 18-16	37021
12-10 / 16-14	37020
8AWG / 12-10	37025

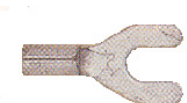
Connectors and Terminals

High Temperature Terminals

High temperature terminals are nickel-plated steel terminals for continuous duty to 900°F.



Type	Part Number	Stud Size	Wire Range
Ring	HT-2246R	4-6	22-18
	HT-2210R	10	22-18
	HT-2214R	1/4	22-18
	HT-1646R	4-6	16-14
	HT-1610R	10	16-14
	HT-1614R	1/4	16-14
	HT-1246R	4-6	12-10
	HT-1210R	10	12-10
	HT-1214R	1/4	12-10
	HT-1238R	3/8	12-10



Spade	HT-2210S	10	22-18
	HT-1610S	10	16-14
	HT-1210S	10	12-10



Block	HT-2246BS	4-6	22-18
Spade	HT-1646BS	4-6	16-14



Type	Part Number	Stud Size	Wire Range
Female Push-On	HT-16187QF	.187	16-14
	HT-16250QF	.250	16-14



Male Push-On	HT-16187QM	.187	16-14
	HT-16250QM	.250	16-14



Flag	HT-16250QFF	.250	16-14
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Type	Part Number	Wire Range
Butt Connector	HT-22B	22-18
	HT-16B	16-14
	HT-12B	12-10

Connectors and Terminals

Ring Terminals

Non-Insulated & Nylon Insulated

Size	Stud Size	Non-Insulated	Nylon Insulated
22-18 Gauge	4	NI-2204R	N-2204R
.030 Stock	6	NI-2206R	N-2206R
Red Insulation	8	NI-2208R	N-2208R
Max Diameter .145	10	NI-2210R	N-2210R
	1/4	NI-2214R	N-2214R
	5/16	NI-22516R	N-22516R
16-14 Gauge	4	NI-1604R	N-1604R
.030 Stock	6	NI-1606R	N-1606R
Blue Insulation	8	NI-1608R	N-1608R
Max Diameter .170	10	NI-1610R	N-1610R
	1/4	NI-1614R	N-1614R
	5/16	NI-16516R	N-16516R
	3/8	NI-1638R	N-1638R
12-10 Gauge	6	NI-1206R	N-1206R
.40 Stock	8	NI-1208R	N-1208R
Yellow Insulation	10	NI-1210R	N-1210R
Max Diameter .250	1/4	NI-1214R	N-1214R
	5/16	NI-12516R	N-12516R
	3/8	NI-1238R	N-1238R
	1/2	NI-1212R	N-1212R
8 Gauge	8	NI-0808R	N-0808R
.050 Stock	10	NI-0810R	N-0810R
Red Insulation	1/4	NI-0814R	N-0814R
Max Diameter .340	5/16	NI-08516R	N-08516R
	3/8	NI-0838R	N-0838R
	1/2	NI-0812R	N-0812R
6 Gauge	#10	NI-0610R	N-0610R
.060 Stock	1/4	NI-1614R	N-0614R
Blue Insulation	5/16	NI-06516R	N-06516R
Max Diameter .440	3/8	NI-0638R	N-0638R
	1/2	NI-0612R	N-0612R
4 Gauge	#10	NI-0410R	N-0410R
.072 Stock	1/4	NI-0414R	N-0414R
Yellow Insulation	5/16	NI-04516R	N-04516R
Max Diameter .515	3/8	NI-0438R	N-0438R
	1/2	NI-0412R	N-0412R
2 Gauge	1/4	NI-0214R	N-0214R
.072 Stock	5/16	NI-02516R	N-02516R
Red Insulation	3/8	NI-0238R	N-0238R
Max Diameter .650	1/2	NI-0212R	N-0212R



Typical Nylon Insulated

Typical Nylon Non-Insulated

Miniature Ring Terminals



Stud Size	Non-Insulated	Nylon Insulated
0	MNI-30100	M-30600
2	MNI-30101	M-30601
4	MNI-30102	M-30602
6	MNI-30103	M-30603
8	MNI-30104	M-30604
10	MNI-30105	M-30605

Connectors and Terminals

Spade Terminals

Several styles of spade terminals are available to choose from including the standard spade, block spade, flanged block spade and snap spade. The block and flanged spade are popular for use with terminal blocks as they are the narrowest styles and fit most terminal blocks. The snap spade will snap and hold in place to give a more secure connection.



Style	Gauge	Stud Size	Non Ins.	Nylon Ins.
Spade	22-18	6	NI-2206S	N-2206S
	22-18	8	NI-2208S	N-2208S
	22-18	10	NI-2210S	N-2210S
	16-14	6	NI-1606S	N-1606S
	16-14	8	NI-1608S	N-1608S
	16-14	10	NI-1610S	N-1610S
	12-10	6	NI-1206S	N-1206S
	12-10	8	NI-1208S	N-1208S
	12-10	10	NI-1210S	N-1210S
Block Spade	22-18	6	NI-2206BS	N-2206BS
	22-18	8	NI-2208BS	N-2208BS
	22-18	10	NI-2210BS	N-2210BS
	16-14	6	NI-1606BS	N-1606BS
	16-14	8	NI-1608BS	N-1608BS
	16-14	10	NI-1610BS	N-1610BS
	12-10	6	NI-1206BS	N-1206BS
	12-10	8	NI-1208BS	N-1208BS
	12-10	10	NI-1210BS	N-1210BS
Flanged Block Spade	22-18	6	NI-2206FBS	N-2206FBS
	22-18	8	NI-2208FBS	N-2208FBS
	22-18	10	NI-2210FBS	N-2210FBS
	16-14	6	NI-1606FBS	N-1606FBS
	16-14	8	NI-1608FBS	N-1608FBS
	16-14	10	NI-1610FBS	N-1610FBS
	12-10	6	NI-1206FBS	N-1206FBS
	12-10	8	NI-1208FBS	N-1208FBS
	12-10	10	NI-1210FBS	N-1210FBS
Snap Spade	22-18	6	NI-2206SS	N-2206SS
	22-18	8	NI-2208SS	N-2208SS
	22-18	10	NI-2210SS	N-2210SS
	16-14	6	NI-1606SS	N-1606SS
	16-14	8	NI-1608SS	N-1608SS
	16-14	10	NI-1610SS	N-1610SS
	12-10	6	NI-1206SS	N-1206SS
	12-10	8	NI-1208SS	N-1208SS
	12-10	10	NI-1210SS	N-1210SS

Connectors and Terminals

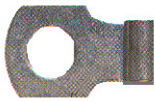
Hook Terminals



Hook terminals are available in three wire ranges, non-insulated and insulated. Nylon insulation in red, blue, and yellow correspond to stud sizes 6, 8, and 10.

Wire Range	Stud Size	Non-Insulated	Nylon Insulated
22-18	6	NI-2206H	N-2206H
22-18	8	NI-2208H	N-2208H
22-18	10	NI-2210H	N-2210H
16-14	6	NI-1606H	N-1606H
16-14	8	NI-1608H	N-1608H
16-14	10	NI-1610H	N-1610H
12-10	6	NI-1206H	N-1206H
12-10	8	NI-1208H	N-1208H
12-10	10	NI-1210H	N-1210H

Ring Flags



Ring flags are available in non-insulated butted seam only. Use where space is at a premium or when wires must come in at an angle.

Wire Range	Stud Size	Ring Flag
22-18	6	30043
22-18	8	30044
22-18	10	30045
16-14	6	31043
16-14	8	31044
16-14	10	31045
12-10	6	32043
12-10	8	32044
12-10	10	32045

Pin Terminals



Wire Range	Nylon Insulated
22-18	N-22PIN
16-14	N-16PIN
12-10	N-12PIN

Pin terminals are used to connect wires to a variety of terminal blocks and trailer connectors. The pin can be securely attached under a screw in these applications.

Dielectric Grease



29050

Helps prevent corrosion and keep moisture out of sensitive electrical connections. Use on spark plugs wires, trailer hitch connections and other corrosive-sensitive areas. Rated for -40°F to 400°F. 5 oz. tube.

Ultra-Seal Corrosion Preventive Sealant

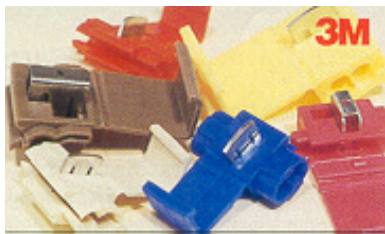


29056

Cost-effective corrosion preventive sealant prevents rust and corrosion to electrical connections. Added tackifiers improve adhesion and resistance to washout. Operating range -40°F to 302° F. 4 oz. tube.

Connectors and Terminals

Splice Taps



Scotchloks™ are used for quick connections with no wire stripping. Simply insert both wires, squeeze down the metal insert with pliers and snap the cover in place. Some are UL listed as shown in the table.

No.	Wire Range	Color	UL
30563	22-18	red	yes
30562	22-18 to 18-14	red	no
31562	18-14	blue	yes
31574	18-14	white	no
31573	18-14 to 12-10	brown	yes
32562	12-10	yellow	yes

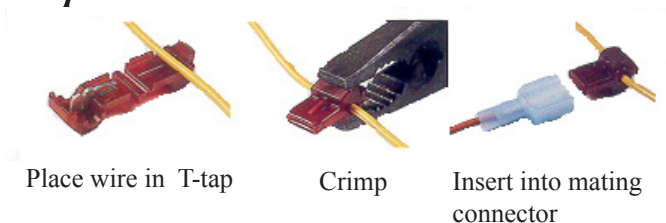
Moisture Resistant Splice



This moisture resistant, UL listed, tap connector makes connections easier and faster and provides an economically sealed contact. The patented application system forces protective gel around the wire and elements.

No.	Wire Range	Color	UL
31762	16-14	blue	yes

T-Taps



No.	Range	Color	Mating No.
TT-22	22-18	red	30712
TT-16	16-14	blue	31712
TT-12	12	yellow	32714

Make a quick mid-span connection with T-Taps. Simply insert the wire and crimp down with a pliers. The mating connector is then snapped into place on the T-Tap.

Reducing Bushings



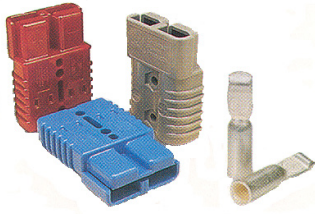
Optional reducing bushings for **Anderson SB Series** connectors assure proper fit when crimping contacts to smaller cable sizes.

Wire Range	No.
From 6 to 8	37791
From 6 to 12-10	37792
From 6 to 16-14	37793
From 1/0 to 1	37794
From 1/0 to 6	37795
From 1/0 to 10	37796
From 2/0 to 1/0	37797

Connectors and Terminals

Anderson Connectors

The standard of the industry for many years, the **Anderson SB Series** connector provides a quick disconnect for power distribution systems. Housings mate together with same color connector for plug and receptacle. These connectors are often used on battery and charger applications. Three sizes for amperage ratings of 50, 175, and 350 in a two pole design, 600V maximum. Protective connector covers for all sizes are available, as shown below. Available in kits or assemble your own connector by purchasing two contacts and one housing.



Series	Gauge	Kit	Housing	Contact
SB 50 Series				
Gray (36V)	6	37708	37808	37742
SB 175 Series				
Red (36V)	4	37702	37802	37749
	2	37732	37802	37747
	1/0	37712	37802	37745
Gray (36V)	4	37707	37807	37749
	2	37738	37807	37747
	1/0	37718	37807	37745
Blue (48V)	4	37706	37806	37749
	2	37736	37806	37747
	1/0	37716	37806	37745
SB 350 Series				
Red (24V)	2/0	37722	37842	37822
Gray (36V)	2/0	37728	37848	37822
Blue (48V)	2/0	37726	37846	37822

Connector Covers

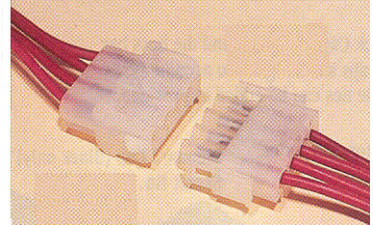
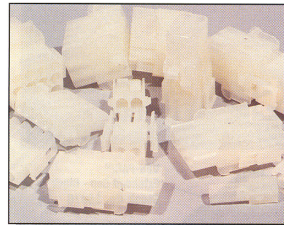


SB 50 Series	37701
SB 175 Series	37711
SB 350 Series	37721

Amp Connectors

Universal Mate-N-Lok®

A recognized industry standard, these connectors are universal because the pin and socket terminals may be intermixed in the same housing. The plug and cap lock together positively and completely enclose the terminals. The housings are nylon and the terminals are pre-tinned brass, UL recognized, CSA, with a 600V AC or DC, 15 amp maximum rating.



# of Pins	Plug	Amp No.	Cap	Amp No.
1	38101	1-350867-0	38151	1-350868-0
2	38102	1-480698-0	38152	1-480699-0
3	38103	1-480700-0	38153	1-480701-0
4	38104	1-480702-0	38154	1-480703-0
5	38105	1-480763-0	38155	1-480764-0
6	38106	1-480704-0	38156	1-480705-0
9	38109	1-480706-0	38159	1-480707-0
12	38112	1-480708-0	38162	1-480709-0
15	38115	1-480710-0	38165	1-480711-0



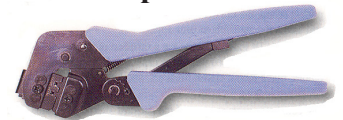
Pin
Amp #350705-1
20-14 ga.



Socket
Amp #350550-1
20-14 ga.



100-428 Crimp Tool



100-427 Amp Crimp Tool



100-425 Contact Insertion Tool

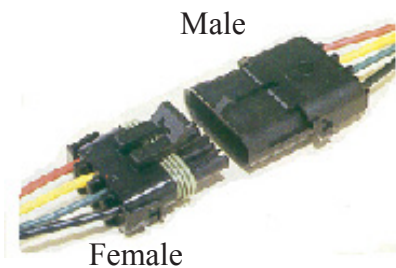


100-426 Contact Extraction Tool

Connectors and Terminals

Packard Weather-Pack

Delphi Packard Weather-Pack locking connectors are sealed against moisture, dust and dirt. Available in one to six contact configurations. The terminals and seals are secured in the connector body with a hinge lock assembly. Silicone seals must be used with the tin plated brass terminals. Use the cavity plug for all pin locations not filled with terminals. Rated to 16 Vdc and 20 amps maximum. The female half of the connector body comes with a self-lubricating silicone seal to reduce the engagement assembly force.

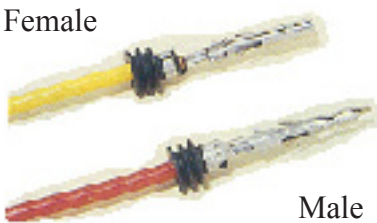


Contacts	Female	Male
1	12015791	12010996
2	12015792	12010973
3	12015793	12010717
4	12015797	12010974
6	12015799	12010975



Cavity Plug
No. 12010300

Terminals



Gauge	Female	Male
18-20	12089188	12089040
16-14	12124580	12124582
12-10	12124581	12124587

Cable Seals

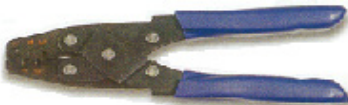


Gauge	No.	Color
18-20	12015323	green
14-16	12010293	gray
12-10	12015193	blue

Weather-Pack Crimping Tools



100-12014254
Crimps terminal and seal in one operation.



100-HT-11
Hand Tool



100-12014012
Weather-Pack Removal Tool

Typical Assembly Instructions for Sealed Connectors

These assembly instructions apply to both the Weather-Pack and Metric-Pack connector series.



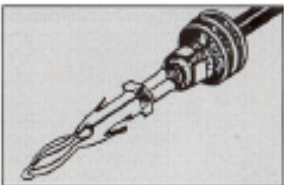
1. Apply seal to cable before stripping insulation.



2. Align seal with cable insulation.



3. Put terminal in crimping tool, then position wire and seal in place.



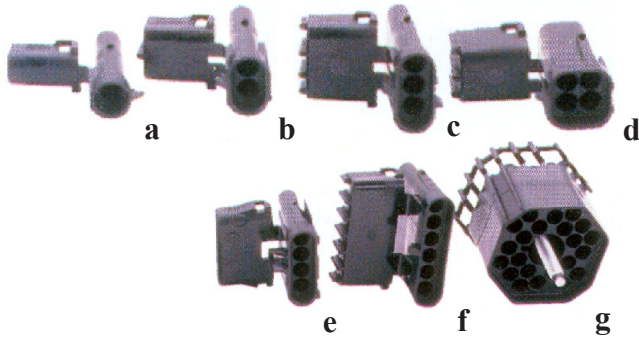
4. Crimp and visually inspect for a good crimp before installing.

Connectors and Terminals

Weather Pack Series Sealed

Sealed Connectors

Male Connectors



Identifier	Number of Contacts	Part No.	Body Color
a	1	12010996	Black
b	2	12010973	Black
c	3	12010717	Black
d	4	12015024	Black
e	4	12010974	Black
f	6	12010975	Brown
g	22	15492521	Black

Female Terminals



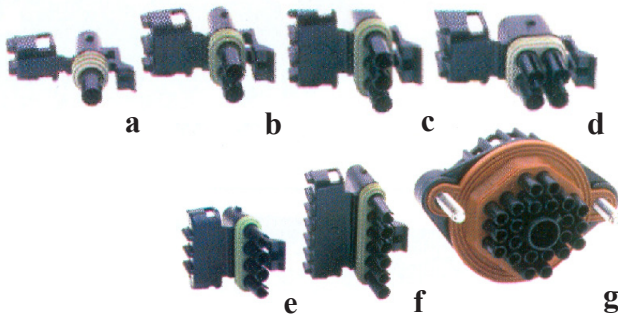
Part No.	Wire Range
12020801	22
12089188	20 - 18
12124580	16 - 14
12124581	12

Male Terminals



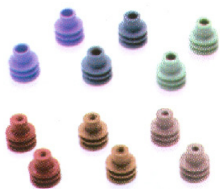
Part No.	Wire Range
12089307	22
12089040	20 - 18
12124582	16 - 14
12124587	12

Female Connectors



Identifier	Number of Contacts	Part No.	Body Color
a	1	12015791	Black
b	2	12015792	Black
c	3	12015793	Black
d	4	12015798	Black
e	4	12015797	Black
f	6	12015799	Brown
g	22	15492531	Black

Cable Seals



Part No.	Wire Range	Color
12015899	22	Dark Red
12089679	20	Purple
12041351	18	Tan
12015323	16 - 14	Green
12010293	14	Gray
12015193	12	Blue

Seals are used in both male and female terminals.

Cavity Plug



Part No.	Color
12010300	Light Green

Cavity plugs are necessary in all unused terminal locations.

Assembly guides for Weather Pack Series Sealed:

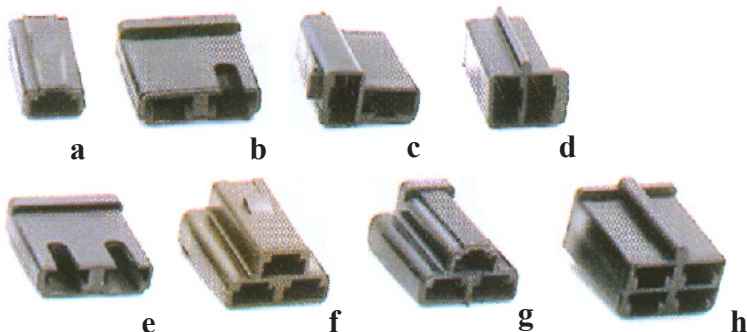
- Select connector body style from chart along with one terminal per contact location.
- Determine cable seal by wire gauge. One per contact.
- A cavity plug is required for each unused pin location
- The Weather Pack crimping tool must be used to ensure a proper seal.

Connectors and Terminals

Packard Metri-Pack

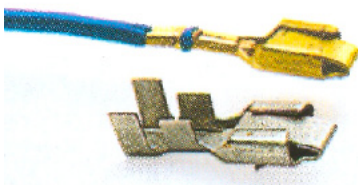
56 Series Unsealed Connectors

Female Connectors



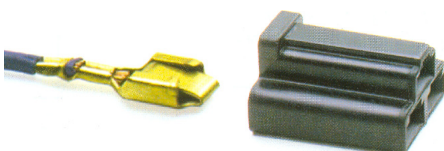
Identifier	Number of Contacts		Part No.	Body Color
	Contacts	Part No.		
a	1	2977253	Black	
b	2	2977647	Black	
c	2	2973781	Black	
d	2	2973872	Black	
e	2	2973407	Black	
f	3	8905116	Brown	
g	3	2962510	Black	
h	4	2977048	Black	

Female Terminals

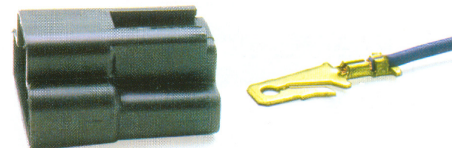


Terminals are made from tin plated brass.
*Indicates non-plated brass part numbers.

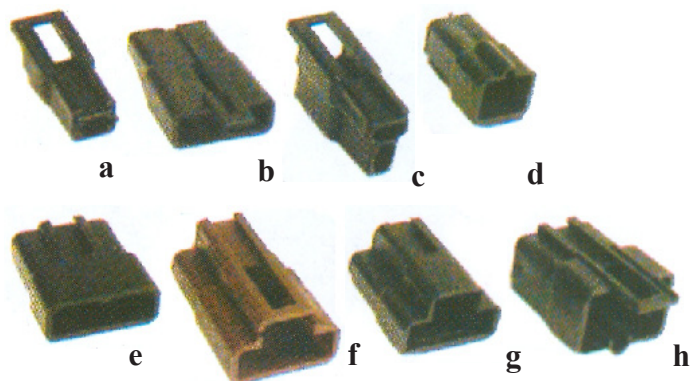
Part No.	Wire Range
* 2962508	20 - 18
2965141	20 - 18
* 2962447	16 - 14
2965142	16 - 14
* 2962544	12
2965143	12
6288913	10



The 56 Series Unsealed has a current capability of **0 to 20** amps. See following page for the correct crimping tool to use with this Series

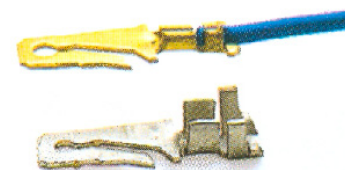


Male Connectors



Identifier	Number of Contacts		Part No.	Body Color
	Contacts	Part No.		
a	1	2984528	Black	
b	2	8900826	Black	
c	2	2984883	Black	
d	2	2977763	Black	
e	2	2973431	Black	
f	3	8905117	Brown	
g	3	2973172	Black	
h	4	6294544	Black	

Male Terminals



Terminals are made from tin plated brass.
*Indicates non-plated brass part numbers.

Part No.	Wire Range
* 2962508	20 - 18
2965141	20 - 18
* 2962447	16 - 14
2965142	16 - 14
* 2962544	12
2965143	12
6288913	10

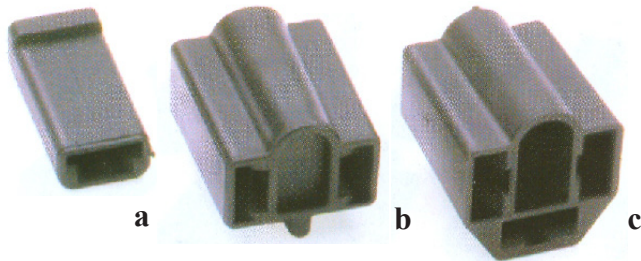
Connectors and Terminals

Packard Metri-Pack

59 Series Unsealed Connectors

The 59 Series Unsealed has a current capability of 0 to 20 amps. See below for the correct crimping tool to use with this Series

Female Connectors



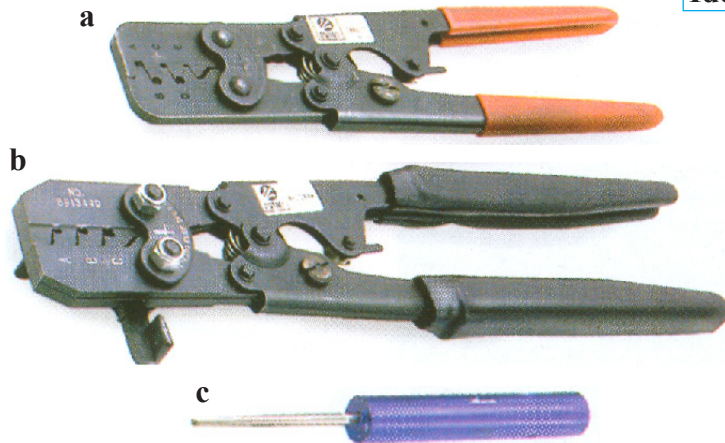
Identifier	Number of Contacts	Part No.	Body Color
a	1	2977878	Black
b	2	2965809	Black
c	3	2965810	Black

Female Terminals



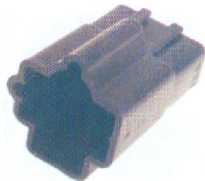
Part No.	Wire Range
12033978	22 - 18
2973216	16 - 14
6294063	12 - 10

Series 56 & 59 Tools



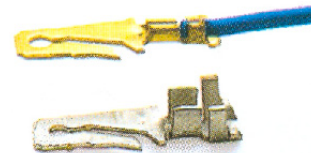
Identifier	Part No.	Description
a	100-12085271	A two step procedure crimping the core first and then the insulation.
b	100-8913440	A one step procedure crimping the core and insulation simultaneously.
c	100-12094430	Removal Tool.

Male Connector



Identifier	Number of Contacts	Part No.	Body Color
a	3	8917857	Black

Male Terminals



Part No.	Wire Range
8905807	16 - 14
8917322	12 - 10

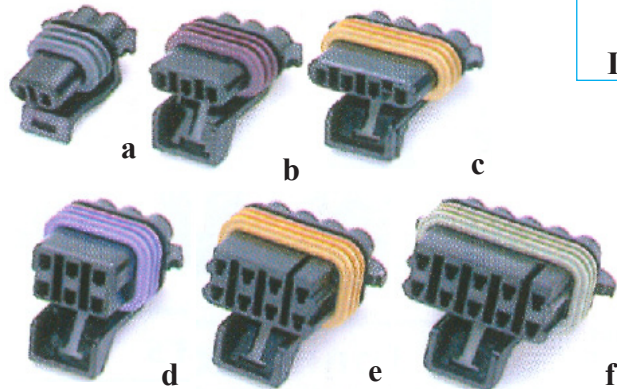
Connectors and Terminals

Packard Metri-Pack

150 Series Sealed Connectors

The 150 Series Sealed has a current capability of **0** to **14** amps. See page 24 for the correct crimping tool to use with this Series

Female Connectors



Identifier	Number of		Part No.	Body Color	TPA Secondary Lock
	Contacts				
a	2		12052641	Black	12052634
b	3		12110293	Black	12052845
c	4		12162114	Black	12047948
d	6		12052848	Black	12052850
e	8		12047937	Black	12066304
f	10		12065425	Black	12124264

Female Terminals

Part No.	Wire Range
12084200	22 - 20
12048074	18 - 16



Assembly guides for 150 Series Sealed:

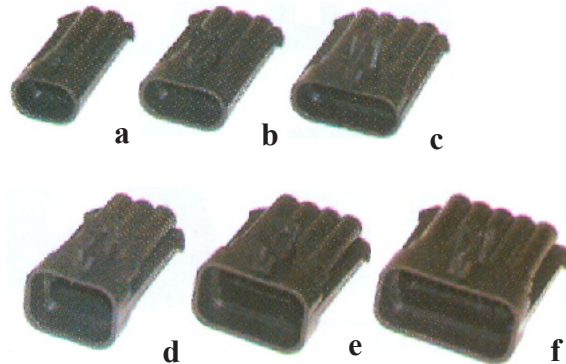
- Select connector body style from chart along with one terminal per contact location.
- Determine cable seal by wire gauge. One per contact.
- A cavity plug is required for each unused pin location
- Use correct Metri Pack crimping tool to ensure a proper seal.

Male Terminals

Part No.	Wire Range
12077628	22 - 20
12045773	18 - 16



Male Connectors



Identifier	Number of		Part No.	Body Color	TPA Secondary Lock
	Contacts				
a	2		12052641	Black	12052634
b	3		12110293	Black	12052845
c	4		12162114	Black	12047948
d	6		12052848	Black	12052850
e	8		12047937	Black	12047936
f	10		12065425	Black	12124264

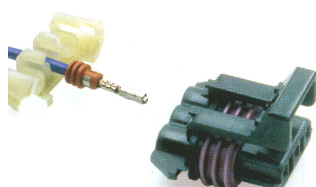
Cable Seals

Part No.	Wire Range	Color
12084193	22	Tan
12048087	20	Blue
12048086	18	Dark Red
12089678	16	White



Cavity Plug

Part No.	Color
12059168	Dark Red



Connector Position Assurance (CPA)

For use with all Series 150 Sealed Connections



12020833



Secondary Lock (TPA)

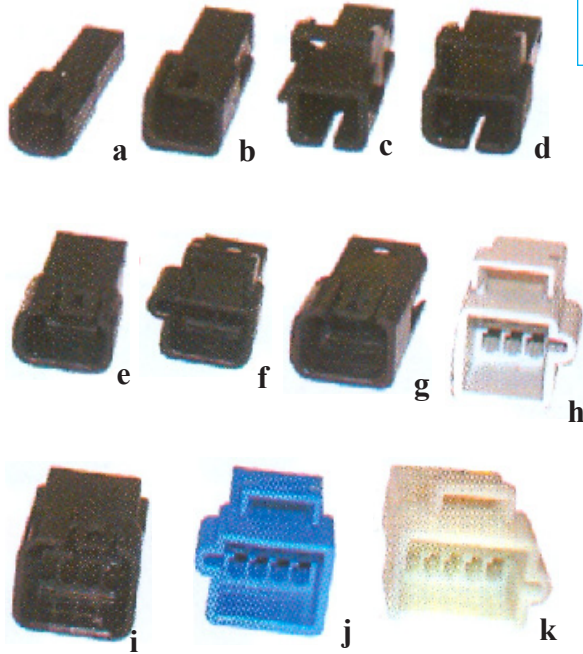


Connectors and Terminals

Packard Metri-Pack

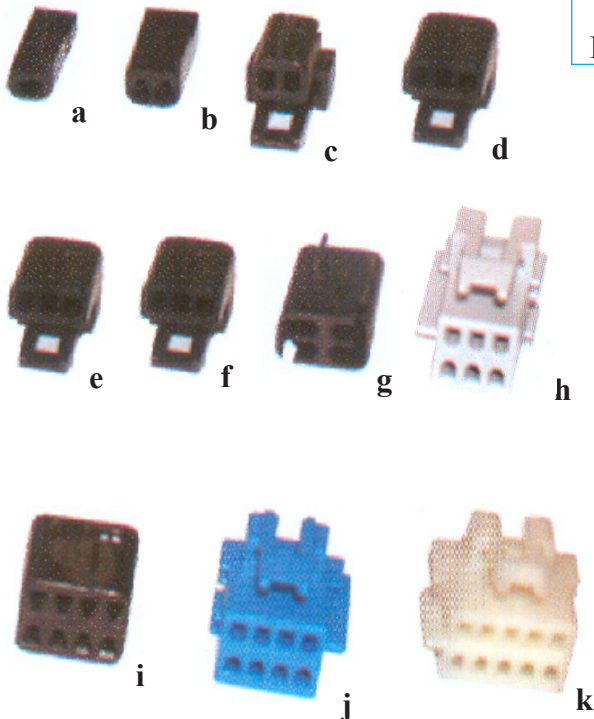
150 Series Unsealed Connectors

Female Connectors



Identifier	Number of Contacts	Part No.	Body Color	TPA Secondary Lock
a	1	12047682	Black	not available
b	2	12047662	Black	12047664
c	2	12052832	Black	12047664
d	3	12064758	Black	12047783
e	3	12047781	Black	12047783
f	4	12064760	Black	12047664
g	4	12047785	Black	12047664
h	6	12064762	Gray	12064764
i	8	12047886	Black	12045689
j	8	12064766	Blue	12064768
k	10	12064769	Natural	12064771

Male Connectors



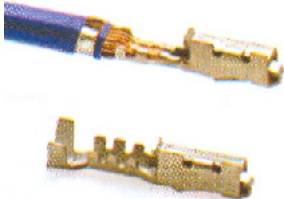
Identifier	Number of Contacts	Part No.	Body Color	TPA Secondary Lock
a	1	12047683	Black	not available
b	2	12047663	Black	12047665
c	2	12052833	Black	12047665
d	3	12064759	Black	12047784
e	3	12047782	Black	12047784
f	4	12064761	Black	12047787
g	4	12047786	Black	12047787
h	6	12064763	Gray	12064765
i	8	12047688	Black	12045690
j	8	12064767	Blue	12064690
k	10	12064770	Natural	12064772

Connectors and Terminals

Packard Metri-Pack

150 Series Unsealed Connectors

Female Terminals



Part No.	Wire Range
8905807	16 - 14
8917322	12 - 10

Male Terminals



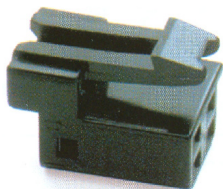
Part No.	Wire Range
8905807	16 - 14
8917322	12 - 10

Assembly Guidelines for 150 Series Unsealed

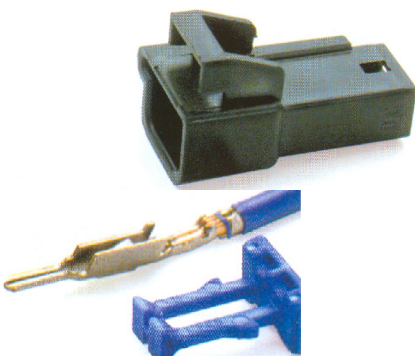
Select connector body from chart.
Choose one terminal per contact location needed.
Use the correct crimper to ensure a proper crimp



TPA
Secondary Lock for
Female Connectors



The 150 Series Unsealed
has a current capability of
0 - 14 amps.



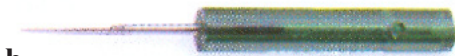
TPA
Secondary Lock for
Male Connectors

Series 150 Sealed & Unsealed Tools

Identifier	Part No.	Description
a	100-12039500	A two step procedure crimping the core first and then the insulation.
b	100-12094429	Removal Tool.
c	100-12085270	A two step procedure crimping the core first and then the insulation, For use with 16 - 12 gauge wire sizes..



a



b

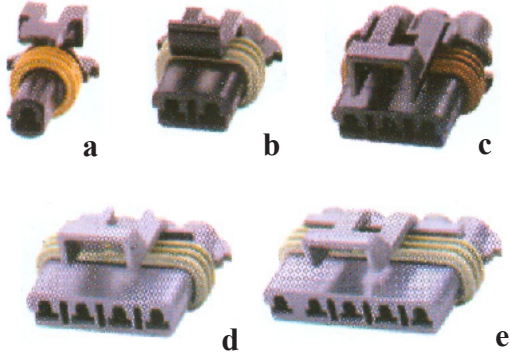


c

Connectors and Terminals

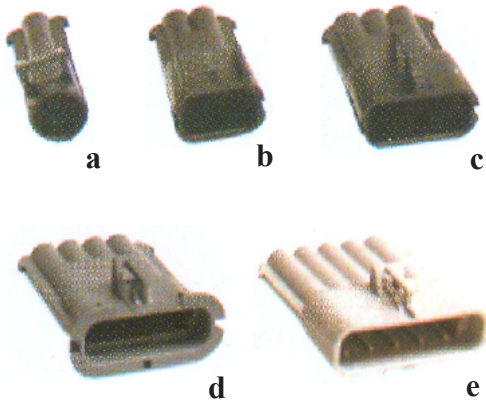
Packard Metri-Pack 280 Series Sealed Connectors

Female Connectors



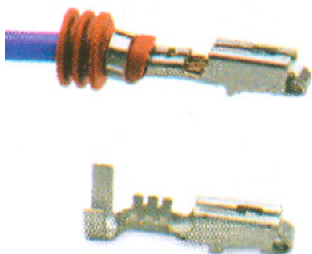
Identifier	Number of Contacts	Part No.	Body Color	TPA Secondary Lock
a	1	12065172	Black	12065249
b	2	15300027	Black	15300014
c	3	12040977	Black	12034145
d	4	12129565	Gray	15300016
e	5	12084891	Gray	15324857

Male Connectors



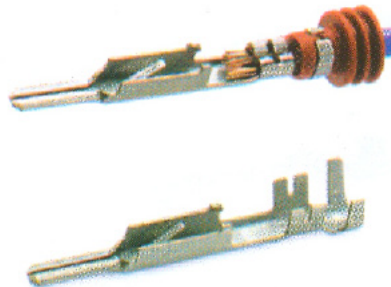
Identifier	Number of Contacts	Part No.	Body Color	TPA Secondary Lock
a	1	12065171	Black	12065249
b	2	15300002	Black	15300014
c	3	15300003	Black	15300015
d	4	12129600	Gray	15324063
e	5	12186400	Gray	12084673

Female Terminals



Part No.	Wire Range
12084201	22 - 20
12077411	18 - 16
12077413	12
12129493	14 - 12

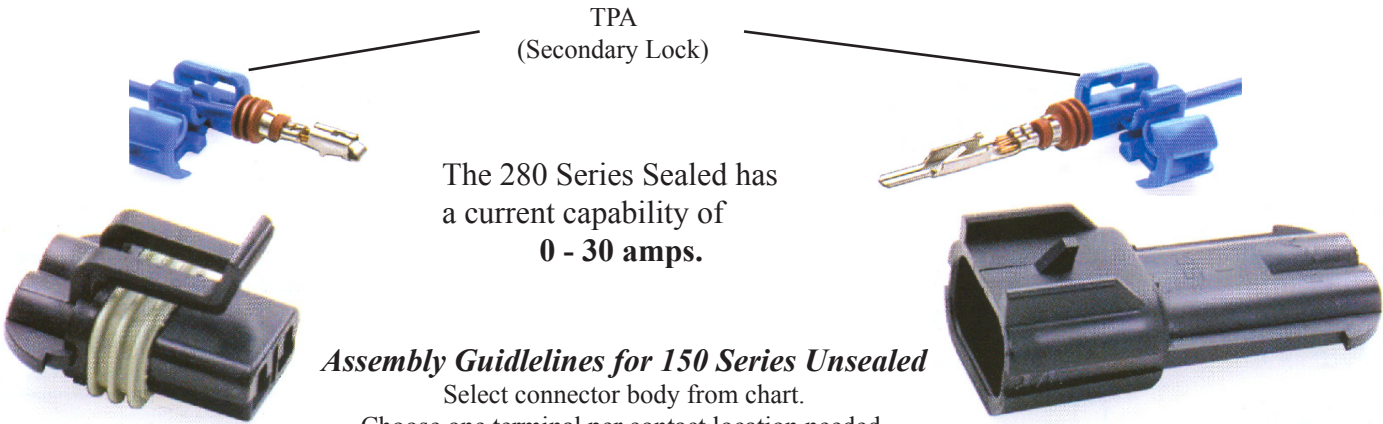
Male Terminals



Part No.	Wire Range
12124977	22 - 20
12048159	18 - 16
12048254	12
12129497	14 - 12

Connectors and Terminals

Packard Metri-Pack 280 Series Sealed Connectors



TPA
(Secondary Lock)

The 280 Series Sealed has
a current capability of
0 - 30 amps.

Assembly Guidelines for 150 Series Unsealed

- Select connector body from chart.
- Choose one terminal per contact location needed.
- Choose cable seal according to wire gauge. One is required for each contact location.
- Use a cavity plug for each unused terminal location.
- Use the correct crimper to ensure a proper crimp

Cable Seals



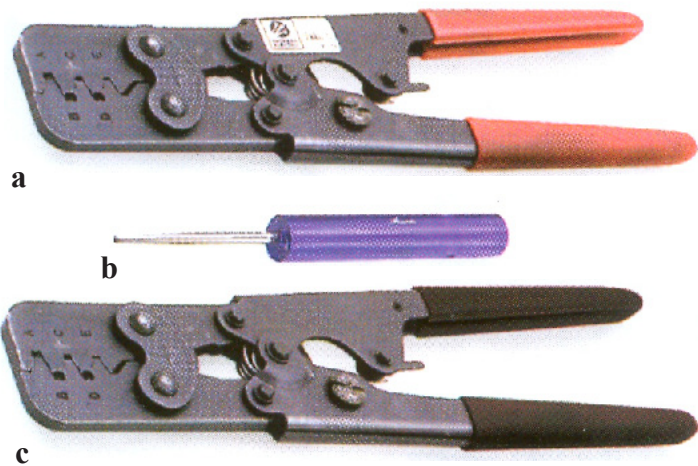
Part No.	Wire Range	Color
12015899	22	Blue
12089679	20	Light Gray
12041351	18	Green
12015323	16 - 14	Tan
12010293	16 - 14	Purple
12015193	12	Dark Red

Cavity Plug



Part No.	Color
12010300	Green

Series 280 Sealed & Unsealed Tools



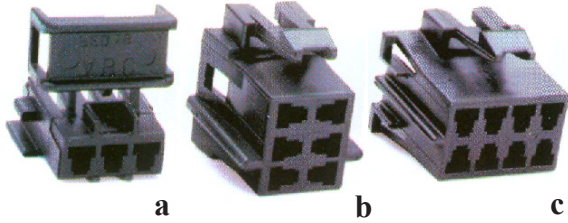
Identifier	Part No.	Description
a	100-12085271	A two step procedure crimping the core first and then the insulation. For 280 Series Unsealed
b	100-12094430	Removal Tool
c	100-12155975	A two step procedure crimping the core first and then the insulation. For 280 Series Sealed

Connectors and Terminals

Packard Metri-Pack

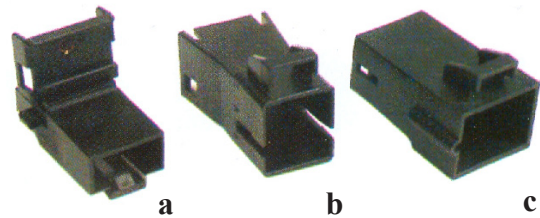
280 Series Unsealed Connectors

Female Connectors



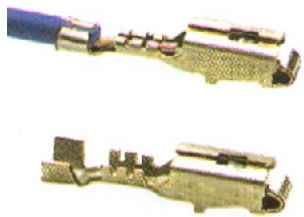
Identifier	Number of Contacts	Part No.	Body Color	TPA Secondary Lock
a	1	12065172	Black	12065249
b	2	15300027	Black	15300014
c	3	12040977	Black	12034145

Male Connectors



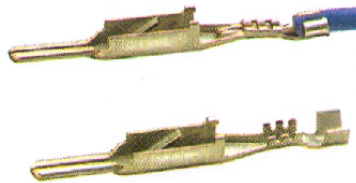
Identifier	Number of Contacts	Part No.	Body Color	TPA Secondary Lock
a	1	12065171	Black	12065249
b	2	15300002	Black	15300014
c	3	15300003	Black	15300015

Female Terminals



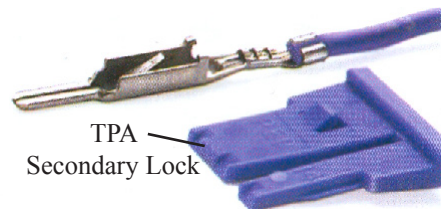
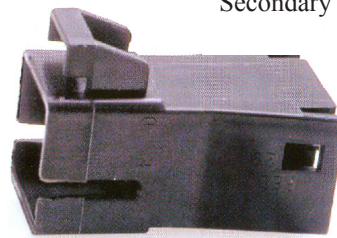
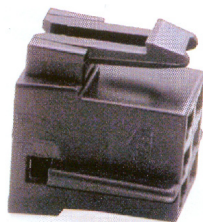
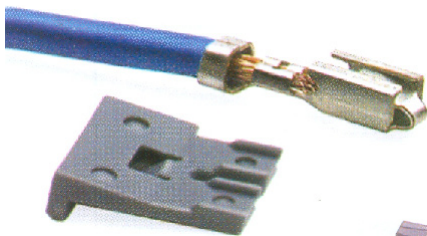
Part No.	Wire Range
12084201	22 - 20
12077411	18 - 16
12077413	12
12129493	14 - 12

Male Terminals



Part No.	Wire Range
12124977	22 - 20
12048159	18 - 16
12048254	12
12129497	14 - 12

The 280 Series Unsealed
has a current capability of
0 - 30 amps.



Connectors and Terminals

Packard Metri-Pack

480 Series Sealed Connectors

Female Connector



The 480 Series Sealed
has a current
capability of 0 - 42
amps.

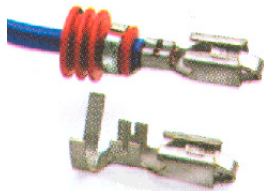
Male Connector



Number of Contacts	Part No.	Body Color	TPA Secondary Lock
2	12052613	Black	12059897

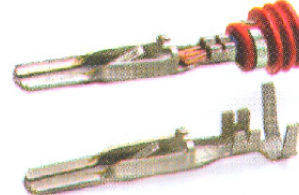
Number of Contacts	Part No.	Body Color	TPA Secondary Lock
2	12065863	Black	12059897

Female Terminals



Part No.	Wire Range
12048450	20 - 18
12048451	16 - 14
12052139	12 - 10

Male Terminals



Part No.	Wire Range
12065196	16 - 14
12065197	12
12052172	10

Cable Seals



Cable Seals are
used in both
female & male
terminals

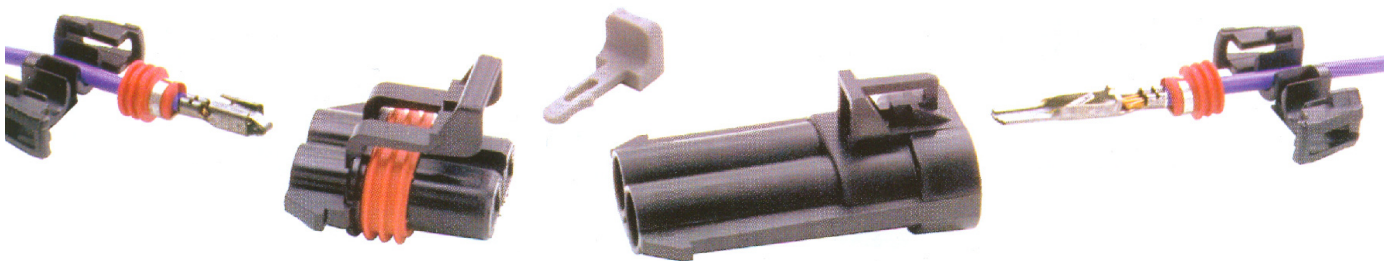
Part No.	Wire Range	Color
12162067	22	Pink
12052930	20	Yellow
12048441	16	White
12048442	14	Red
12048443	12	Purple
12034170	10	Orange

Cavity Plug



Cavity Plugs are necessary
for terminal locations that
are not used.

Part No.	Color
12066082	Light Green



Assembly guides for 480 Series Sealed:

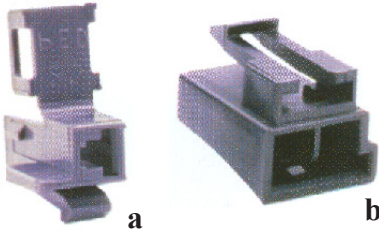
- Select connector body style from chart along with one terminal per contact location.
- Determine cable seal by wire gauge. One per contact.
- A cavity plug is required for each unused pin location
- Use correct Metri Pack crimping tool to ensure a proper seal.

Connectors and Terminals

Packard Metri-Pack

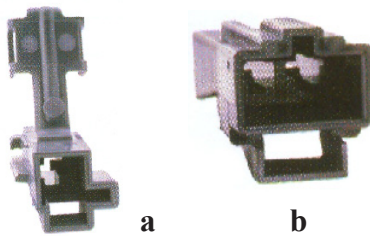
480 Series Unsealed Connectors

Female Connectors



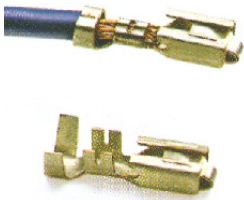
Identifier	Number of Contacts	Part No.	Body Color	TPA Secondary Lock
a	1	12015952	Gray	Hinged
b	2	12064749	Black	12059860

Male Connectors



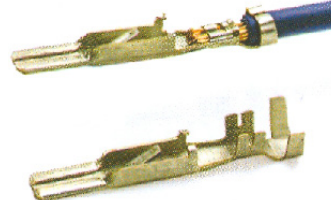
	Number of Contacts		Body Color	TPA Secondary Lock
a	1	12015987	Gray	Hinged
b	2	12064750	Black	12064751

Female Terminals



Part No.	Wire Range
12052219	22 - 20
12015860	20 - 18
12124304	16 - 14
12052221	12
12084595	12 - 10

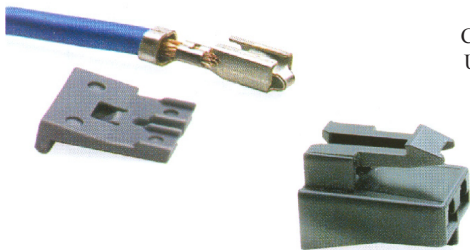
Male Terminals



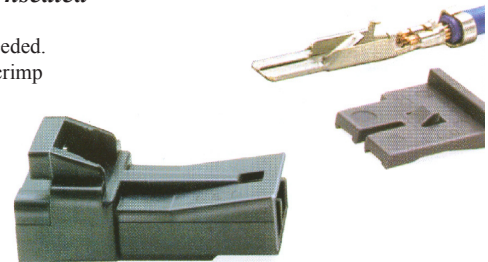
Part No.	Wire Range
12066269	22 - 20
12020119	20 - 18
12020120	16 - 14
12052827	12
12033820	12 - 10

Assembly Guidelines for 150 Series Unsealed

Select connector body from chart.
Choose one terminal per contact location needed.
Use the correct crimper to ensure a proper crimp



The 480 Series Unsealed has a current capability of 0 - 42 amps.



Series 480 Sealed & Unsealed Tools



a



b



c

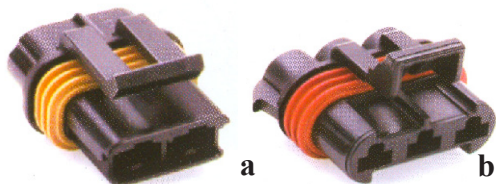
Identifier	Part No.	Description
a	100-12085271	A two step procedure crimping the core first and then the insulation. For 480 Series Unsealed
b	100-12094430	Removal Tool
c	100-12071687	A two step procedure crimping the core first and then the insulation. Works with 10 - 12 gauge wire. For 480 Series Sealed

Connectors and Terminals

Packard Metri-Pack

630 Series Sealed Connectors

Female Connectors

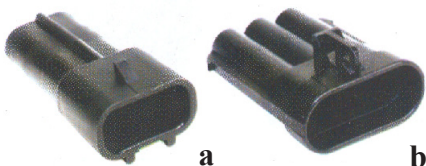


The 630 Series Unsealed has a current capability of 0 - 46 amps.

Identifier	Number of Contacts	Part No.	Body Color	TPA Secondary Lock
a	2	*12033769	Black	Not Available
b	3	12124685	Black	12045699

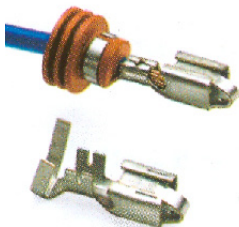
**Part No. 12033769 uses female pull-to-seat terminals.*

Male Connectors



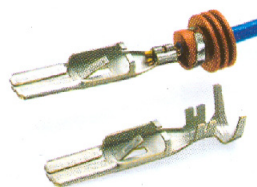
Identifier	Number of Contacts	Part No.	Body Color	TPA Secondary Lock
a	2	12034269	Black	12034363
b	3	12124686	Black	12045699

Female Terminals



Part No.	Wire Range
12052457	20 - 18
12052455	16 - 14
12052456	12 - 10

Male Terminals



Part No.	Wire Range
12064734	20 - 18
12064735	16 - 14
12064737	12
12064736	10

Cable Seals



Part No.	Wire Range	Color
12077759	20 - 18	Tan
12052388	16 - 14	Dark Red
12052387	14	Light Gray
12052668	12	Blue
12052386	10	Green

Cavity Plug



Part No.	Color
12059255	Light Green

Female Pull-to-Seat Terminals

Part No.	Wire Range
12020156	20 - 18
12066614	16 - 14
12033997	12 - 10

Assembly guides for 630 Series Sealed:

- Select connector body style from chart along with one terminal per contact location.
- Determine cable seal by wire gauge. One per contact.
- A cavity plug is required for each unused pin location
- Use correct Metri Pack crimping tool to ensure a proper seal.

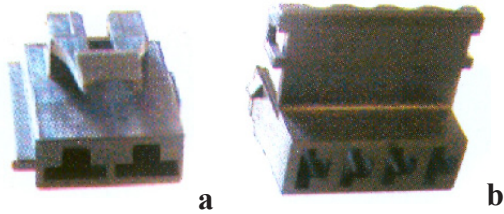


Connectors and Terminals

Packard Metri-Pack

630 Series Unsealed Connectors

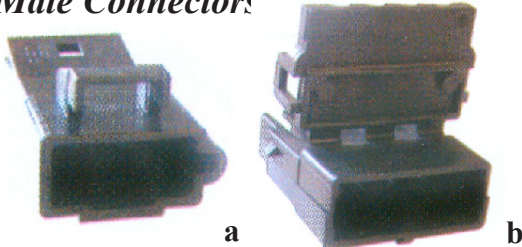
Female Connectors



The 630 Series Unsealed has a current capability of **0 - 46 amps**.

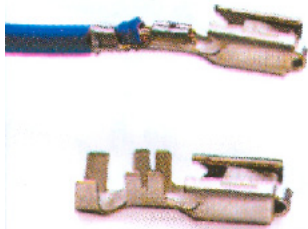
Identifier	Number of Contacts	Part No.	Body Color	TPA Secondary Lock
a	1	12129939	Black	12129940
b	2	12015664	Black	Hinged

Male Connectors



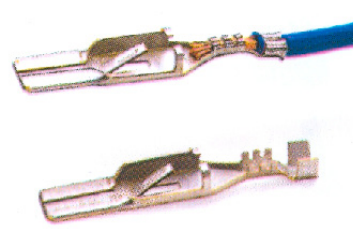
Identifier	Number of Contacts	Part No.	Body Color	TPA Secondary Lock
a	1	12129938	Black	12129940
b	2	12052623	Black	Hinged

Female Terminals

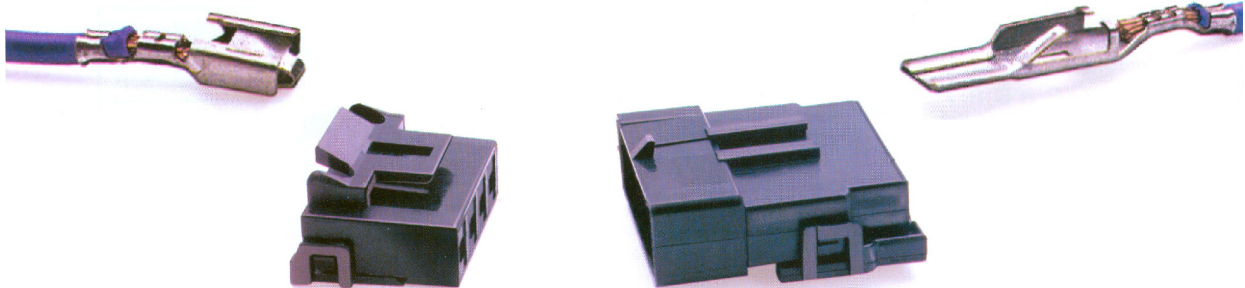


Part No.	Wire Range
12052222	22 - 20
12015869	18 - 16
12015870	16 - 14
12052224	12
12084590	10

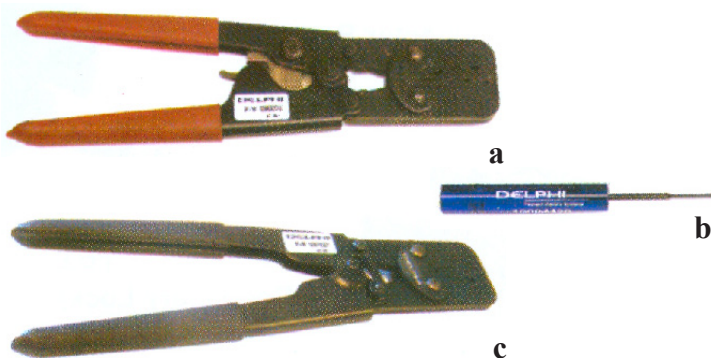
Male Terminals



Part No.	Wire Range
12066454	22 - 20
12020125	18 - 16
12020126	16 - 14
12052826	12
12066493	10



Series 630 Sealed & Unsealed Tools

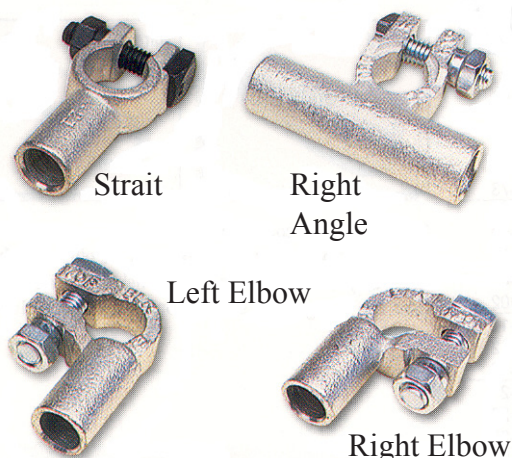


Identifier	Part No.	Description
a	100-12039500	A two step procedure crimping the core first and then the insulation. For 630 Series Unsealed
b	100-12094430	Removal Tool
c	100-12071687	A two step procedure crimping the core first and then the insulation. Works with 10 - 12 gauge wire. For 630 Series Sealed

Battery Accessories

Crimpable Battery Terminals

Crimpable battery terminals are manufactured from 100% electrolytic copper and are electro-tin plated for corrosion resistance. Lugs are offered in four styles and are easily crimped with the tooling shown below.



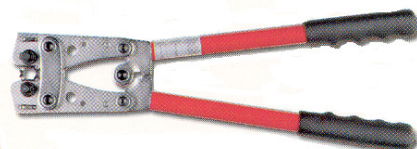
Gauge	Post Type	Straight	Right Angle	Left Elbow	Right Elbow
6	universal	BAT-36300	-----	-----	-----
4	universal	BAT-36301	-----	-----	-----
1&2	positive	BAT-36304	-----	-----	-----
1&2	negative	BAT-36305	-----	-----	-----
1/0	positive	BAT-36306	BAT-36320	BAT-36332	BAT-36342
1/0	negative	BAT-36307	BAT-36321	BAT-36333	BAT-36343
2/0	positive	BAT-36308	BAT-36322	BAT-36334	BAT-36344
2/0	negative	BAT-36309	BAT-36323	BAT-36335	BAT-36345
3/0	positive	BAT-36310	BAT-36324	BAT-36336	BAT-36346
3/0	negative	BAT-36311	BAT-36325	BAT-36337	BAT-36347
4/0	positive	BAT-36312	BAT-36326	BAT-36338	BAT-36348
4/0	negative	BAT-36313	BAT-36327	BAT-36339	BAT-36349

Crimping Tools for Crimpable Battery Lugs



100-4255-01

Heavy duty crimping tool will crimp terminals and lugs from 8 gauge through 4/0 gauge.

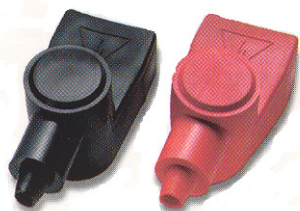


100-4245-01

Light duty, crimps battery cable terminals and lugs from 8 gauge through 1 gauge.

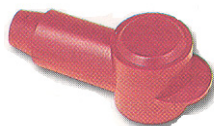
Battery Boots

Battery boots are for the battery and alternator end of cables. These boots protect connections from corrosion and shorting, and improve product appearance.



Marine Type

For 8 thru 2 gauge
Red **23513**
Black **23514**



Alternator Type

For 18 to 10 gauge

Red **23509**

Black **23508**

For 8 to 2 gauge

Red **23507**

Black **23506**

For 2 to 2/0 gauge

Red **23517**

Black **23516**



Flag Type

For up to 2 gauge

Red **23523**

Black **23524**

For up to 2/0 gauge

Red **23525**

Black **23526**

Flag Type

For up to 2 gauge

Red **23527**

Black **23528**

For up to 2/0 gauge

Red **23529**

Black **23530**

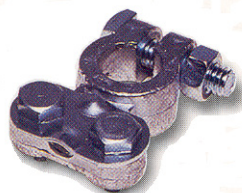


Straight-in Type

No.	Gauge	Color
23500	6-4	black
23501	6-4	red
23502	2-1	black
23503	2-1	red
23504	1/0-2/0	black
23505	1/0-2/0	red

Battery Accessories

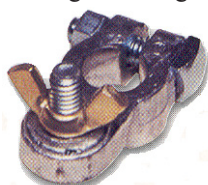
Lead Battery Lugs



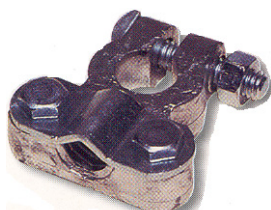
BAT-36220
Emergency Type
For 6 ga. to 2/0 ga.



BAT-36222
Emergency Side Post Type
For 6 ga. to 2/0 ga.



BAT-36224
Marine Type
For positive post 3/8"
BAT-36221
For negative post 5/16"



BAT-36223
Heavy Duty
Emergency Type
For 1 ga. to 4/0 ga.

Battery Safety Markers



BAT-23550

Adhesive-backed plastic markers offer an added measure of safety to your application. These markers stick to clean surfaces and are highly visible.

Battery Corrosion Guard

BCG

Simply apply to corroded parts and corrosion will disappear. Compound hardens in a few days to form a thin, transparent film that carries its own acid neutralizer.



Battery Connector

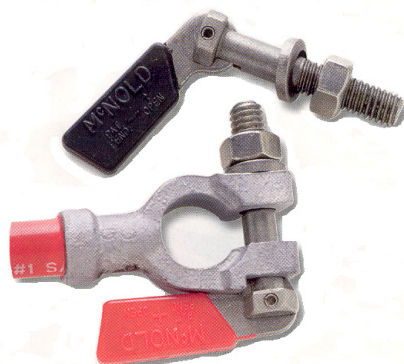


BAT-44099
Green Knob

This connector helps discourage theft. Top post mount designed for a quick disconnect with a simple turn and removal of the knob. Rated for 24 volts and 124 amps.

Battery Bolts

BAT-36249
Stainless steel battery bolts with color coded ends replaces standard 5/16" battery terminal bolts. Easy to use since no tools are required. (Lug not included)



Battery Bolt Extenders

The solid brass bolt extender and plated steel nut are used for direct-connection power hook-ups of accessories to the battery. Both top and side post units are available for a variety of applications.



BAT-36241
Top post mount



BAT-36242
GM side post mount



BAT-36243
Side post mount,
long bolt.



BAT-36244
Side post mount,
short bolt.

Battery Accessories



Extra heavy-duty, solid electrolytic copper eyelets feature heavier material thickness, larger pads and longer length barrels. All are electro-tin plated to prevent oxidation and corrosion.

Extra Heavy Duty Eyelets

Wire Gauge	Stud Size	No.	Wire Gauge	Stud Size	No.
4	1/4	BAT-414	1/0	5/16	BAT-10516
4	5/16	BAT-4516	1/0	3/8	BAT-1038
4	3/8	BAT-438	1/0	1/2	BAT-1012
1 - 2	1/4	BAT-1214	2/0	3/8	BAT-2038
1 - 2	5/16	BAT-12516	2/0	1/2	BAT-2012
1 - 2	3/8	BAT-1238	3/0	3/8	BAT-3038
1 - 2	1/2	BAT-1212	3/0	1/2	BAT-3012
			4/0	3/8	BAT-4038
			4/0	1/2	BAT-4012

Battery Terminal Solder Pellets

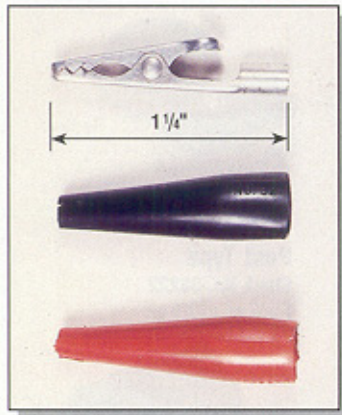


No.	Wire Gauge	Color
36260	6	Gray
36261	4	Gray
36262	2	Green
36263	1	Pink
36264	1/0	Black
36245	2/0	Orange
36266	3/0	Purple

Battery terminal solder pellets are a fast method for attaching a battery lug to a cable. This cost efficient method eliminates the need for crimping. Flux core prevents dirt and contaminants from hindering the soldering process. Pellets are color-coded to industry standards.

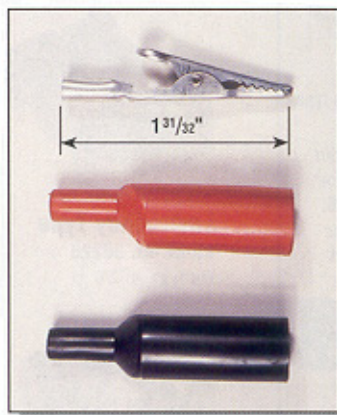
Clips

Mini-gator Clip



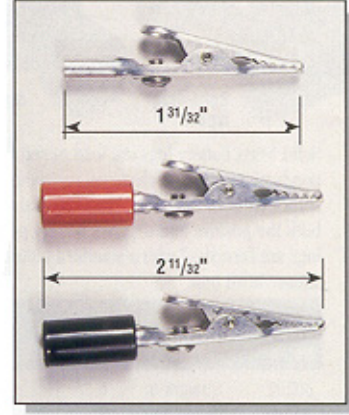
Clip 30BL
Insulator
Red 32R
Black 32B

Alligator Clip



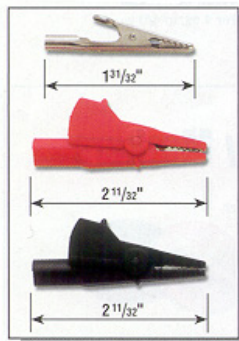
Clip 60
Insulator
Red 62R
Black 62B

Alligator Clip with handle



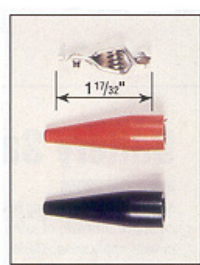
Clip 60S
With insulator handles
Red 60HSR
Black 60HSB

Alligator with Cover



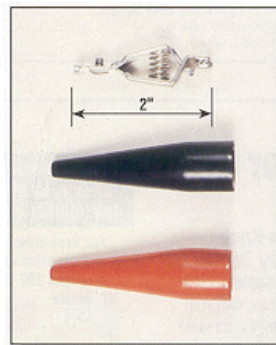
Clip 60
Insulator
Red 65R
Black 65B

Pee Wee Clip



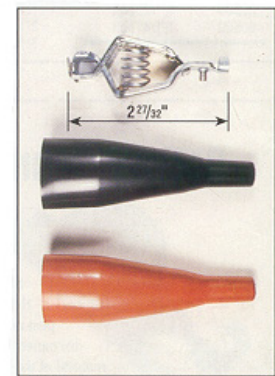
Clip 45
Insulator
Red 47R
Black 47B

General Purpose Clip



Clip 48
Insulator
Red 49R
Black 49B

25 Amp Clip



Clip 24
Insulator
Red 26R
Black 26B

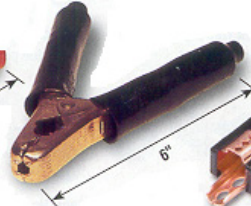
Battery Clamps

Miniature
Rated 50 Amps



Red 46R
Black 46B

Standard
Rated 200 Amps



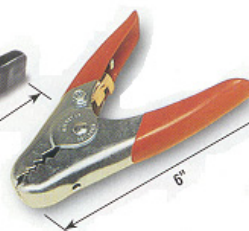
Red 41R
Black 41B

Heavy Duty
Rated 450 Amps



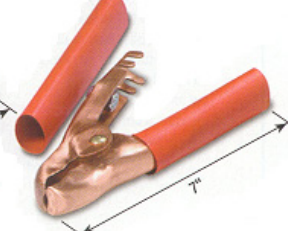
Red 45R
Black 45B

Extra Heavy Duty
Rated 600 Amps



Red 50
Black 51

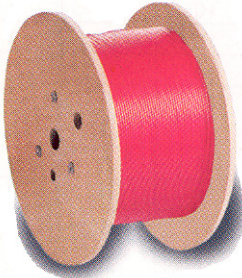
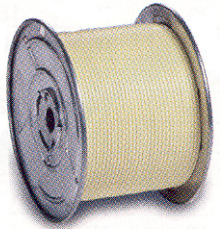
Extra Heavy Duty
Rated 800 Amps



Red 52
Black 53

Wire & Cable

Primary Wire



This single-stranded, copper conductor wire with a PVC jacket is standard for original and/or replacement automotive equipment applications. The smooth jacket surface makes it ideal for pulling through loom or conduit. The insulation is rated for 12V, and operates optimally between the temperatures of -30°F to 165°F (-34°C to +74°C). Highly resistant to grease, oil and acids. Meets and exceeds S.A.E. specifications.

Gauge	No.	Colors	Spool Sizes (feet)
20	PW-20	0 thru 9, 11, 12	100, 500, 1000
18	PW-18	0 thru 9, 11, 12, 15, 16	100, 500, 1000
16	PW-16	0 thru 9, 11, 12, 15, 16	100, 500, 1000
14	PW-14	0 thru 9, 11, 12, 15, 16	100, 500, 1000
12	PW-12	0 thru 9, 12	100, 500, 1000
10	PW-10	0 thru 9, 12	100, 500, 1000
8	PW-8	0, 2, 3, 5, 9	100, 500, 1000

Colors:

0	Black	4	Yellow	8	Gray	12	Light Green
1	Brown	5	Green	9	White	13	Light Blue
2	Red	6	Blue	10	Tan		
3	Orange	7	Violet	11	Pink		

All wire available in THHN, TFFN, GXL and TXL jacketing

Cross-link Wire

Type SXL. This thick wall, special purpose automotive wire is insulated with chemically cross-linked polyethylene. Withstands prolonged temperatures of up to 350°F without melting or fusing. Operates optimally between the extreme temperatures of -50°F to 350°F (-45°C to 177°C) at 12V. Resistant to moisture and most solvents. Meets and exceeds S.A.E. specifications.

Gauge	No.	Colors	Spool Sizes (feet)
18	SXL18	0 thru 9, 11, 12, 15, 16	100, 500
16	SXL16	0 thru 9, 11, 12, 15, 16	100, 500
14	SXL14	0 thru 9, 11, 12	100, 500
12	SXL12	0, 1, 2, 3, 4, 5, 6, 9	100, 500
10	SXL10	0, 1, 2, 3, 4, 5, 6, 9	100, 500



Custom Striping

For circuit identification, custom striping with a spiral stripe around the wire is available. Minimum quantity requirements and color combination details (one to three stripes per wire) may be obtained. Typically 20 gauge through 10 gauge can be striped.

Wire & Cable

Battery Cable



This battery cable has a smooth, tough PVC jacket and is manufactured to SAE specifications J1127-SGT. This multistranded bare-copper conductor cable is designed for general industrial, automotive or marine use.

Gauge	No.	O.D.	Color
6	BC-6	0.358	Blk, Red
4	BC-4	0.382	Blk, Red
2	BC-2	0.450	Blk, Red
1	BC-1	0.483	Blk, Red
1/0	BC-0	0.540	Blk, Red
2/0	BC-00	0.590	Blk, Red
3/0	BC-000	0.675	Blk, Red
4/0	BC0000	0.755	Blk, Red

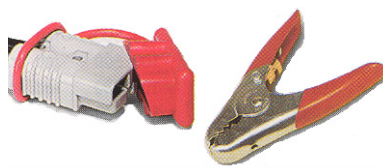
Colors: Black & Red

Parallel Battery Cable



This flexible, heavy-duty duplex battery cable can be used for a variety of applications such as lift gates, spreaders, and any application requiring power to a remote area. Also ideal for booster cable construction.

See page 17 for Anderson Connectors and page 33 for Battery Lugs



Gauge	No.	O.D.	Colors
6	PC6-2	.320 x .650	Blk w/ Red Stripe
4	PC4-2	.400 x .815	Blk w/ Red Stripe
2	PC2-2	.520 x 1.14	Black

Welding Cable



This class K welding cable is made for flexibility with multiple, fine copper strands and a neoprene outer jacket. It is rated at 600V with a -40°F to +221°F temperature range.

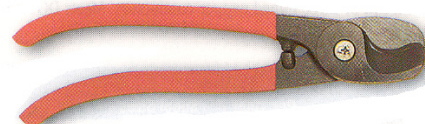
Gauge	No.	O.D.	Color
6	WC6	0.365	Blk, Red
4	WC4	0.380	Blk, Red
2	WC2	0.450	Blk, Red
1	WC1	0.520	Blk, Red
1/0	WC0	0.565	Blk, Red
2/0	WC00	0.625	Blk, Red
3/0	WC000	0.655	Blk, Red
4/0	WC0000	0.740	Blk, Red

Colors: Black & Red

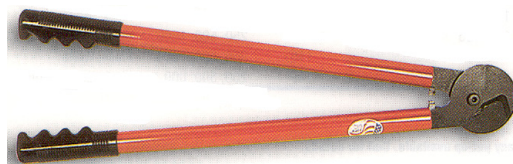
Cable Tools



100-436 Cable Stripper
Strips cable to 4/0 gauge. Easy to use, simply line up blade and spin stripper around the cable.



100-437 Heavy Duty Cutter
Designed for battery cable to 2/0 gauge, 9" long, forged with steel insulated grips.



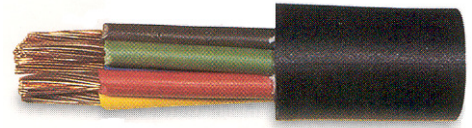
100-438 Heavy Duty Cutter
Heavy duty battery cable cutter cuts to 250cm copper cable. 22" long with removable blades.

Wire & Cable

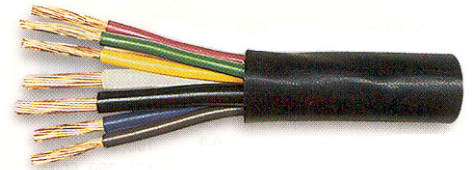
General purpose trailer cable is used for wiring trailers, etc. This cable has a black vinyl jacket and SAE GPT primary wire conductors, with WT703 having an outer green jacket. Color coding of the conductors is per the table below.

Gauge	No.	OD.	Conductor Colors
16/4	TC16-4	.360	red, brown, yellow, green
16/6	TC16-6	.420	red, brown, yellow, green, blue, black
14/4	TC14-4	.400	red, brown, yellow, green
14/6	TC14-6	.493	red, brown, yellow, green, blue, black
14/7	TC14-7	.496	red, white, black, brown, yellow, green, blue
12/4	TC12-4	.453	red, white, black, brown
12/6 & 10/1	TC701	.560	12 Ga red, brown, yellow, blue, black, green 10 Ga blue
14/4 & 10/2	TC702	.580	14 Ga red, brown, yellow, green 12 Ga - blue
12/1 &			10 Ga - white
Green Outer Jacket			
12/4 & 10/2 & 8/1	WT703	.680	12 Ga brown, yellow, green, black 10 Ga blue, red 8 Ga white

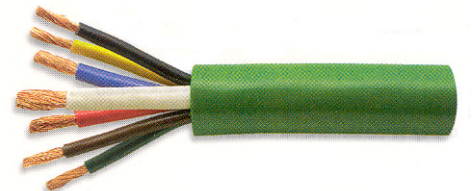
Trailer Cable



4 to 7 conductors



WT702 RV Trailer Cable

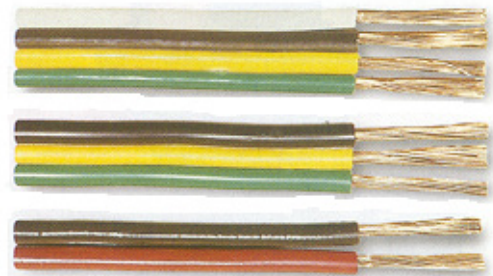


WT703 (green jacket)

Parallel Bonded Wire

Parallel bonded cable is used for the wiring of trailer lights and many other applications. Available in two, three and four conductor leads with color coding as shown in the table below. Manufactured from GPT automotive primary wire. The individual wires can be split apart, and is rated to 176°F.

Gauge	No.	Conductor Colors
18/2	PB18-2	red, brown
16/2	PB16-2	red, brown
16/3	PB16-3	brown, yellow, green
16/4	PB16-4	white, brown, yellow, green
14/2	PB14-2	red, brown
14/3	PB14-3	brown, yellow, green
14-4	PB14-4	white, brown, yellow, green



2, 3, or 4 conductor

Available in 100, 250, 500 & 1000 foot spools

Speaker Wire



Clear jacket

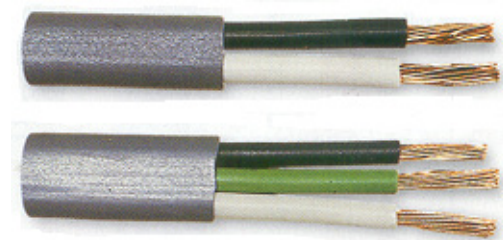


Gray jacket - 22/2 size

Type	Gauge	No.
Clear Jacket	22/2	SW22-2
	20/2	SW20-2
	18/2	SW18-2
	16/2	SW16-2
	14/2	SW14-2
Gray Jacket	22/2	SWG22-2

Wire & Cable

Multi-Conductor Flat Jacketed Primary Wire



Available in 2, 3 or 4 conductors

This flat jacketed primary wire is SAE GPT primary wire covered with a tough gray vinyl jacket. This is also known as brake cable, and used for many automotive, truck or trailer applications. Resistant to oil, grease, acids and gasoline. For use in low voltage 12 or 24 volt systems only.

Gauge	No.	Size	Conductor Color
18/2	DW18-2	.160 x .255	white, black
16/2	DW16-2	.168 x .255	white, black
16/3	DW16-3	.168 x .380	white, black, green
16/4	DW16-4	.168 x .485	white, black, green, red
14/2	DW14-2	.185 x .310	white, black
14/3	DW14-3	.185 x .425	white, black, green
14/4	DW14-4	.185 x .545	white, black, green, red
12/2	DW12-2	.210 x .360	white, black
12/3	DW12-3	.210 x .500	white, black, green
12/4	DW12-4	.210 x .645	white, black, green, red
10/2	DW10-2	.246 x .432	white, black
10/3	DW10-3	.246 x .605	white, black, green
10/4	DW10-4	.246 x .776	white, black, green, red
8/2	DW8-2	.297 x .530	white, black

Available in 100, 500, or 1000 foot spools

Specialty Jacketed Wire

Gray Jacketed with Red and Black Conductors

This is a popular variation of the DW14-2 shown above, but with red and black 14 gauge GPT conductors. The gray PVC jacket is resistant to standard automotive oils, grease and chemicals. Designed for 12 and 24 volt systems only.



DWRB14-2



Phone 1-619.278.1302

Fax Number 1-619.542.9994

Available in 100, 500 or 1000 foot spools

Wire & Cable

Service Cord



Type SJ



Type SOW-A

Available in 250 foot spools, larger sizes are coiled in a box.

Type SJ has a black rubber jacket and rubber insulated conductors. It is for light duty service to a maximum temperature of 140°F and is suitable for use in applications up to 300V.

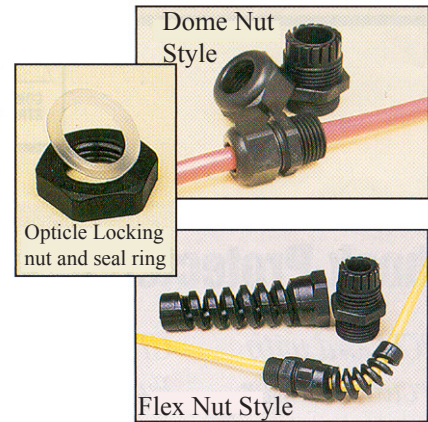
Type SOW-A has a black neoprene jacket and rubber insulated conductors. It offers a longer life if the cable is exposed to oil. This cord is ideal in heavy duty service with a maximum temperature of 140°F wet and 194°F dry. Suitable for up to 600V.

Both types have the outer jacket printed with cable identification wire gauge and number of conductors. The maximum current for each is shown in the table below.

Type	No.	O.D.	Amps	Conductor Colors
SJ 300 Volts	SJ18-2	.306	10	Black, White
	SJ18-3	.324	10	Black, White, Green
	SJ16-3	.340	13	Black, White, Green
	SJ16-4	.379	8	Black, White, Green, Red
	SJ14-2	.350	18	Black, White
	SJ14-3	.375	18	Black, White, Green
	SJ14-4	.420	12	Black, White, Green, Red
	SJ12-3	.439	20	Black, White, Green
	SJ12-4	.487	16	Black, White, Green, Red

Type	No.	O.D.	Amps	Conductor Colors
SOW-A 600 Volts	SO18/3	.380	7	Black, White, Green
	SO18/4	.404	5.6	Black, White, Green, Red
	SO16/3	.390	13	Black, White, Green
	SO16/4	.415	10	Black, White, Green, Red
	SO14/3	.530	18	Black, White, Green
	SO14/4	.570	15	Black, White, Green, Red
	SO12/3	.600	25	Black, White, Green
	SO12/4	.650	20	Black, White, Green, Red
	SO10/3	.660	30	Black, White, Green

Liquid Tight Nylon Strain Reliefs



Simply push the cable through the liquid tight nylon strain relief and tighten the dome nut for a quick installation. No disassembly is required. Available in many sizes and styles. The nylon body material is resistant to most common chemicals and solvents. UL listed, and exceeds NEMA 6 specifications if seal ring is used when installation is a clearance hole.

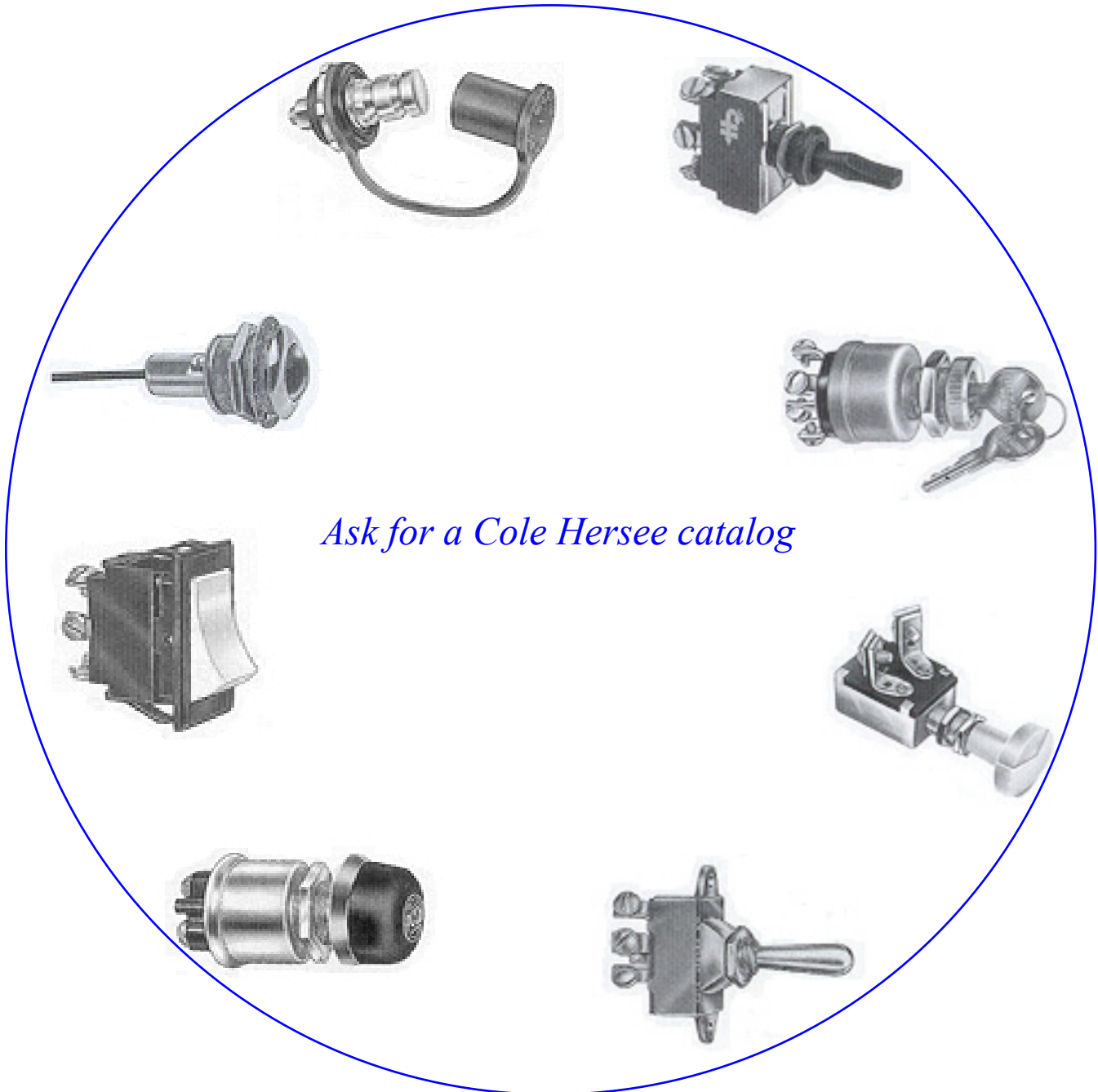
Standard dome nut style can be used, or to help prevent cable kinking, a flex nut is available. Straight-in style available in NPT sizes. Thread into your panel or for applications with clearance holes, order the locking nut and seal ring separately. For best results, use the minimum size that fits your cable.

Mounting Hole	Dome Nut	Flex Nut	Lock Nut	Seal Ring
.49	24608	24621	24644	24653
.49	24609	24622	24644	24653
.68	24600	24615	24640	64650
.68	24601	24616	24640	24650
.83	24602	24617	24641	24651
.83	24603	24618	24641	24651
1.05	24604	24619	24642	24652
1.05	24605	24620	24642	24652
1.35	24606		24643	
1.35	24607		24643	

Wiring Accessories



*Cole Hersee heavy duty electrical products....
On the road, Off the road, On the job.*



Wiring Accessories



Toggle and Rocker Switches

Cole Hersee toggle and rocker switches are manufactured in many different configurations to handle all vehicle and equipment applications.

Toggle switches are available with ball, short or long handles, paddle and illuminated actuators. Housings are plastic, plastic/metal combination or die cast.

Rocker switches can be either snap-in or bracket mounted. Actuators can be illuminated or imprinted, contain pilot lights or have both pilot lights and imprinting. Housings are usually plastic and can also be plastic with a metal bezel or mounting bracket.



Plasticized Toggle Switches. A PVC coating is applied to the switch body for effective sealing and protection from moisture, dirt, etc. These switches and toggle switches with O ring seals are available. Boot seals are sold as accessories. Plasticized switches are usually furnished with wire leads which permits complete covering and insulation of the terminals.

O Rings. Neoprene seals within the mounting stem protect against moisture and dirt from entering around the base of the actuator handle.

Silicone Boot Seals. Durable silicone rubber boots fit over toggle handles and fasten securely to the mounting stem. Makes any standard toggle switch adaptable for use in applications where moisture, dirt and similar elements are present.

Available in two styles, one covers the entire toggle handle, the other allows the handle to protrude.

Signaling Switches. Designed to momentarily turn lights on or off. They are used in trucks to control marker lights. Toggle switch **No. 55071** provides day and night signaling capabilities in a single switch.

ON-MOMENTARY OFF SWITCH: Select this switch for night use.

OFF-MOMENTARY ON SWITCH: Select this switch for day use.

Reversing Switches. Used to reverse the polarity on an electric motor to provide a change in rotation.

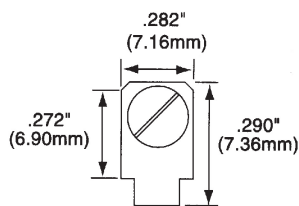
MOMENTARY ON-OFF-MOMENTARY ON: Select this switch for applications such as raising and lowering a talgate, platform or radio antenna.

Headlamp Switches. Control battery power, parking, tail and head lights. Various types are available.

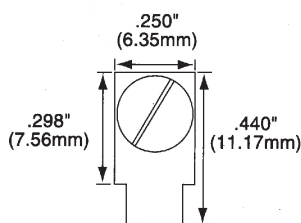
Cole Hersee toggle and rocker switches are generally furnished with either screw terminals, male blade terminals or wire leads. Upon special order, other terminal variations are available, including solder lugs, male bullet, wide or narrow male blades, wire leads with insulated terminals attached, male blades arranged to accept multipole connectors, etc.

Standard screw terminals

for bare wire or terminal connections.



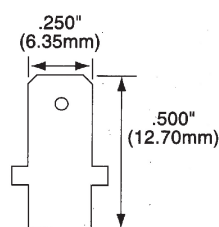
Brass screw and terminal, 6-32 thread. Used on switches with plastic housings.



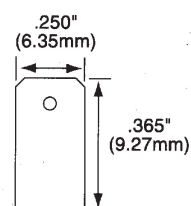
Plated steel screw, lockwasher and terminal. Used on switches with die cast housing.

Standard male blade terminals

Mate with standard female blade connectors.



Brass terminal. Used on all switches except dual wide body and single narrow body switches and pilot lights.



Copper terminal. Used on dual wide body and single narrow body switches and pilot lights.

SP Single Pole

A switch device that opens, closes or changes connection in a single conductor of an electrical circuit.

DP Double Pole

A switch device that opens, closes or changes connection two conductors of an electrical circuit.

ST Single Throw

A switch that opens, closes or completes a circuit at only one of the extreme positions of its actuator.

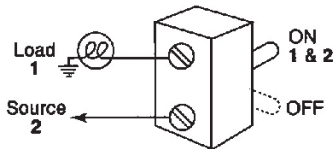
DT Double Throw

A switch that opens, closes or completes a circuit at both extreme positions of its actuator.

Toggle and rocker switches are usually classified by the number of poles and throws to identify their basic operation.

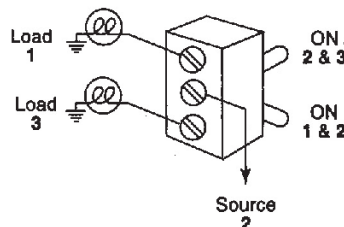
Schematics

Single pole, single throw switches control a single wire circuit.

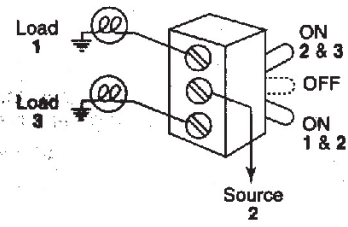


S.P.S.T. - Two positions: OFF-ON

Single pole, double throw switches control two single wire circuits permitting only one circuit to be energized at a time.

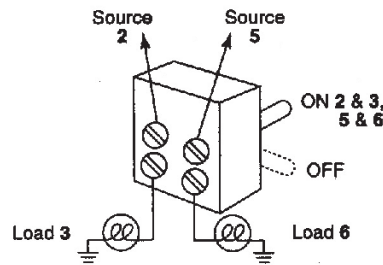


S.P.D.T.
Two positions: ON-ON



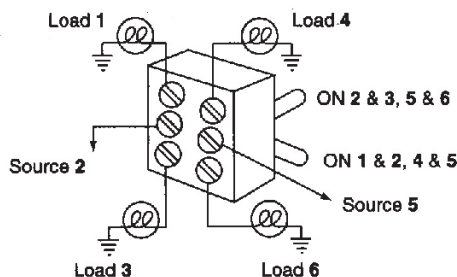
S.P.D.T.
Three positions: ON-OFF-ON

Double pole, single throw switches control two circuits simultaneously. Circuits are ON at the same time, OFF at the same time and may be of different voltages from separate sources.

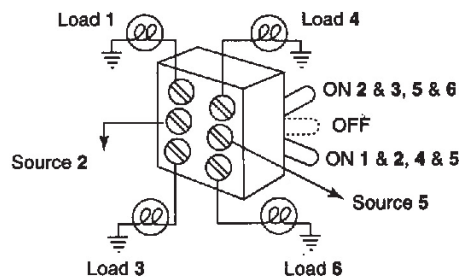


D.P.S.T. - Two positions: OFF-ON

Double pole, double throw switches control four circuits, permitting only two circuits to be energized at a time.



D.P.D.T. - Two positions: ON-ON



D.P.D.T. - Three positions: ON-OFF-ON

Wiring Accessories



High Capacity & Standard 40A Relays

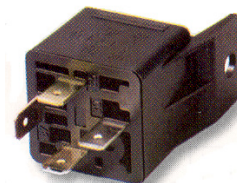
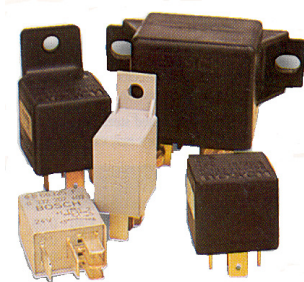
High quality automotive relays manufactured by Bosch are available with current carrying capacity of 5 to 75 amps. Offered in SPST and SPDT configurations with 12 and 24Vdc input.

High Capacity Bosch Relays (All units have a resistor in parallel to the coil to limit EM)

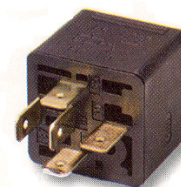
No.	Bosch P/N	Volts	Action	Amps	Notes
75001	0 332 019 103	12	SPST	50	4 terminals
75002	0 332 019 110	12	SPST	50	4 terminals, bracket mount
75011	0 332 209 137	12	SPDT	50	5 terminals
75012	0 332 209 138	12	SPDT	50	5 terminals, bracket mount
75025	0 332 209 211	24	SPDT	20	5 terminals
75206	0 332 209 203	24	SPDT	20	5 terminals, bracket mount
75207	0 332 209 204	24	SPDT	20	5 terminals, diode

Standard Bosch Relays

75101	0 332 019 150	12	SPST	40	5 terminals, bracket mount
75102	0 332 019 151	12	SPST	40	5 terminals
75103	0 332 019 155	12	SPST	40	5 terminals, bracket mount, diode
75111	0 332 209 150	12	SPDT	40	5 terminals, bracket mount
75113	0 332 209 151	12	SPDT	40	5 terminals
75114	0 332 209 159	12	SPDT	40	5 terminals, resistor
75115	0 332 209 161	12	SPDT	40	5 terminals, bracket mount, resistor



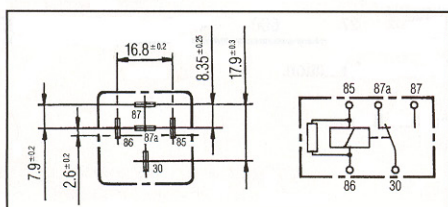
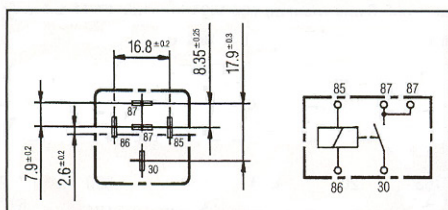
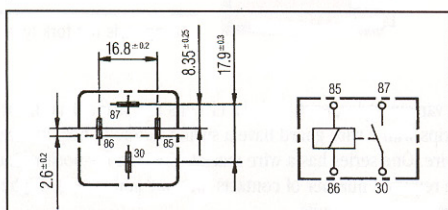
With bracket



Without bracket

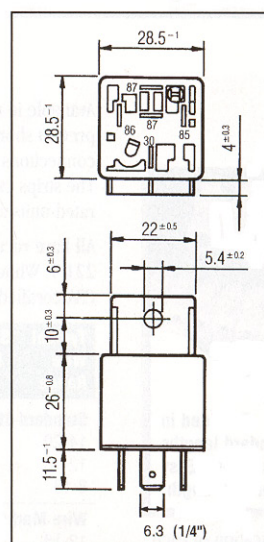
Circuitry

SPST Four Terminal

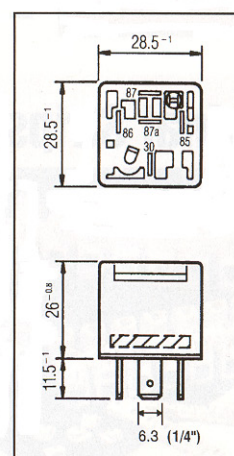


Dimensions

With Bracket



Without Bracket

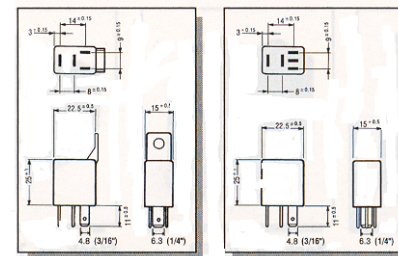


Wiring Accessories

Dimensions

With Bracket

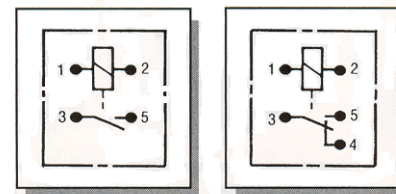
Without Bracket



Circuitry

SPST Four Terminal

SPDT Five Terminal



Micro Relays

Micro Bosch Relays

No.	Bosch PN	Volts	Action	Amps	Notes
-----	----------	-------	--------	------	-------

75202	0 332 017 302	12	SPST	20	bracket mount resistor
75213	0 332 207 307	12	SPST	20	resistor

M3--Micro Relays

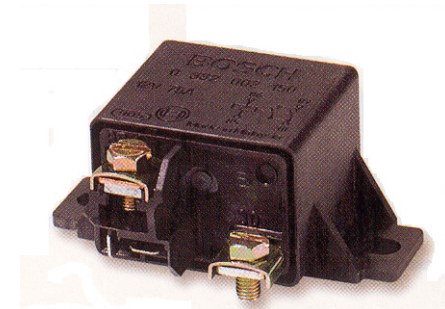
75230	0 332 011 007	12	SPST	30	resistor
75231	0 332 002 256	12	SPST	22	resistor

Power Relays

Power Bosch Relays

No.	Bosch PN	Volts	Action	Amps	Notes
-----	----------	-------	--------	------	-------

75251	0 332 002 150	12	SPST	75	4 terms, dual contact
75222	0 332 002 156	12	SPST	75	4 terms, with parallel and series diodes
75261	0 332 002 250	24	SPST	50	4 terms, pre-contact
75262	0 332 002 256	24	SPST	50	4 terms, with parallel and series diodes

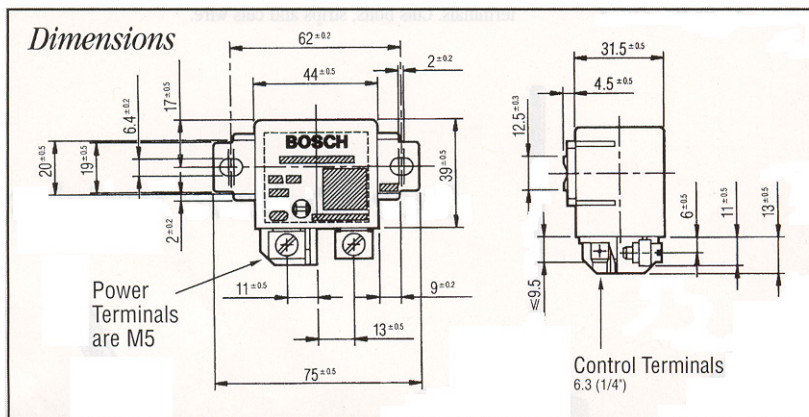
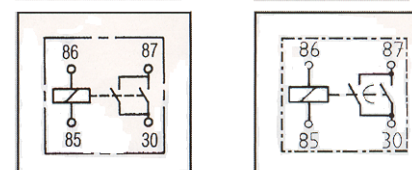


Typical Power Relay

Circuitry

SPST Dual Contact

SPST Pre-Contact



Recommended Wire Sizes For All Relays

SAE Wire Size	Amps at 77°F	Amps at 122°F
20	12	8
18	16	10.6
16	20	13.8
14	30	19.6
12	34	22.6
10	51	34.0
8	68	45.0
6	91	60.5
4	121	80.0

See Relay Connector Bodies and Terminals on following pages.

Wiring Accessories

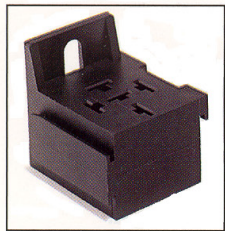


Relay Connectors

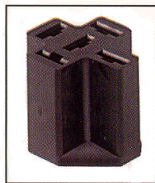
These heat-stabilized, thermoplastic connectors for relays have a continuous operating temperature rating of 266°F. Terminals (when supplied with the connector) are brass, and have bright tin plating. Connectors for panel mounting can be stacked together.

No.	Custom #	Bosch #	Description	Mounting	Terminals
75280	BRO5-FW	3 334 485 008	5 Pin High Capacity / Std.	Panel	4 of 5 of 31073
75281	BRO5-WH	3 334 485 007	5 Pin High Capacity / Std.	Harness	4 of 5 of 31073
75282	BRO5-PCB	3 334 485 010	5 Pin High Capacity / Std.	PC Board	Included
75290	VRO5-LF	3 334 485 045	5 Pin Micro Relay	Panel	3 of 30073 & 2 of 31073
75292	VRO5-PCB	3 334 485 049	5 Pin Micro Relay	PC Board	Included

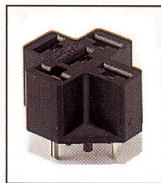
Typical Relay Connectors



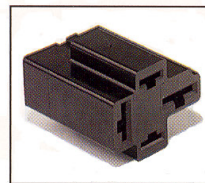
No. 75280



No. 75281



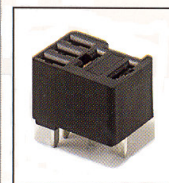
No. 75282



No. 75283



No. 75290



No. 75292

Terminals for Relay Connectors



Terminals for all three sizes of relay connectors are offered. The 1/4" and 3/16" sizes are supplied loose piece; while the 3/8" is in strip form only, and cut apart easily. All may be crimped with the 428 tool shown below.

Size	Type	Wire Ga	Part No.
3/16"	push-on,	20-16	30073
1/4"	push-on,	16-14	31073
3/8"	push-on,	12-10	32073

Assembly Tool

This universal crimping and service tool will crimp all relay connector terminals. Also cuts bolts, strips and cuts wire.



100-428

Assembly Tool



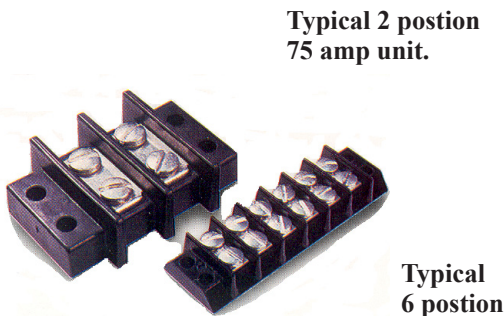
Ordering & Customer Service

1-619.278.1302

Wiring Accessories

Double Row Terminal Blocks

Used for general purpose and electrical work. Terminal blocks are popular to help eliminate splicing. High density circuitry can be attained to conserve panel space.



Type	Positions	Part Number
20 amp rating 150 volt max #6-32 screws	2	TB-47102
	3	TB-47103
	4	TB-47104
	5	TB-47105
	6	TB-47106
	8	TB-47108
20 amp rating 300 volt max #6-32 screws	2	TB-47302
	3	TB-47303
	4	TB-47304
	5	TB-47305
	6	TB-47306
	8	TB-47308
30 amp rating 600 volt max #8-32 screws	2	TB-47352
	3	TB-47353
	4	TB-47354
	5	TB-47355
	6	TB-47356
	8	TB-47358
75 amp UL	2	TB-47382
60 amp CSA 600 volt max #10-32 screws	3	TB-47383
	4	TB-47384
	5	TB-47385
	6	TB-47386
	8	TB-47388

Terminal Strips

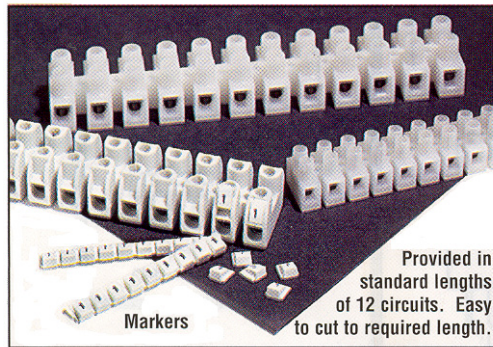
Available in three sizes and various styles, each with 12 circuits per strip. Dead front design to prevent shorts. Terminal strips with a wire guard have a saddle to help assure good connections for stranded wire. One series has a wire marker position for positive identification. The strips can be cut to the required number of contacts for your application.

Standard Style

Wire Range	No Guard	With Guard	Current	Length	Width	Height
14-20	47160	47163	20	3.720	.630	.622
12-18	47161	47164	27	4.606	.787	.677
8-18	47162	47165	45	5.472	.906	.787

Wire Marker Style

12-18	47166	47167	27	4.606	.882	.685
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Wire markers snap into place for positive ID of each block position. Available plain or printed.

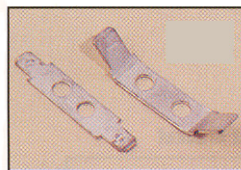
No. 47171 Plain markers

No. 47170 Pre-printed markers

Available in 1 thru 12, L1, L2, L3 or N

Terminal Block Hardware

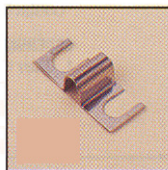
Push-on Tabs



Push-on tabs convert from screw connections for quick hookups.

Strip Series	Flat Tab	45° Tab
47102's	37220	37221
47302's	37250	37251
47352's	37240	37241

Jumpers



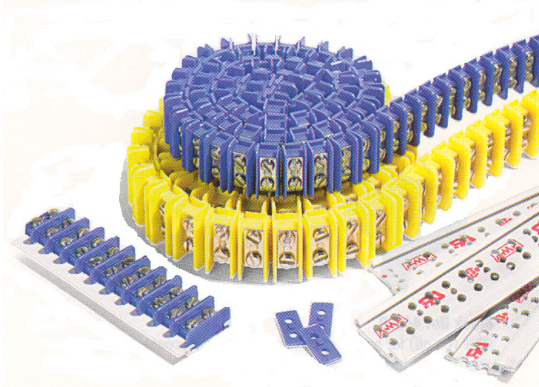
Jumper strips allow for adjacent connections to be bridged.

Strip Series	No.
47102's	37211
47302's	37212
47352	37214

Wiring Accessories

Flexi-Block Terminal Block System

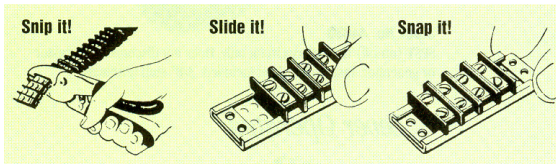
Amp



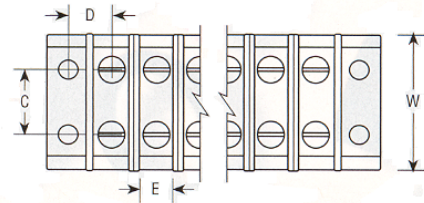
AMP FLEXI-BLOCK terminal block assemblies can be custom made in seconds. Both blocks and track can be cut with common hand tools. Since the blocks are assembled on tape, the right amount can be pulled from a convenient, stackable, dispenser carton and inserted into the track. The track can conform to curved surfaces and has predrilled mounting holes. Nickel-plated screws are #6 size on the 15 amp units and #8 size on the 30 amp units.

To assemble, cut track to the length of the number of terminal blocks required plus two extra spaces to accommodate end stops. Then slide the strip of terminal blocks onto the track and insert an end stop on each end to finish the assembly.

Two color sizes are available: blue-15 amp-300V, or yellow-30 amp-600V. UL recognized and CSA certified. Available in kits or individual parts.



Dimensions



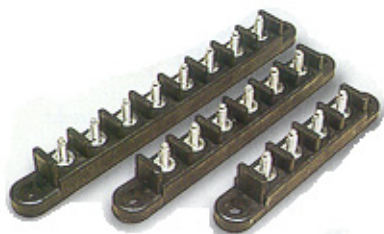
Series	Dimensions (in inches)				
	C	D	E	W	Height
15 amp standard	.422	.438	.343	1.125	.563
15 amp flanged	.422	.438	.343	1.390	.563
30 amp standard	.500	.563	.437	1.312	.656

No.	Description	
Terminal Blocks	TBF-47560	15 amp series - 100 block strip
	TBF-47561	30 amp series - 100 block strip
Track	TBF-47562	15 amp standard - 36" long
	TBF-47563	15 amp flanged - 36" long
	TBF-47564	30 amp standard - 36" long
End Stops	TBF-47565	15 amp series - 100 each
	TBF-47566	30 amp series - 100 each

Flexi-Block Kits

Kit	Description	Kit Includes
TBF-47570	15 amp with flanged track	100 terminal blocks, 50 end stops, 7-7.25" long flanged tracks
TBF-47571	15 amp with standard track	100 terminal blocks, 25 end stops, 2-36" long tracks
TBF-47572	30 amp with flanged track	100 terminal blocks, 50 end stops, 8-9.5" long flanged tracks

Stud-Type Junction Blocks

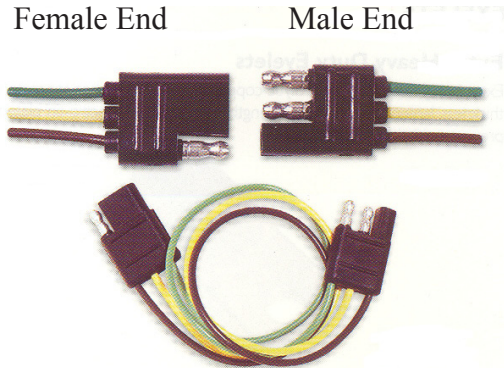


Stud type junction blocks are rated for 30 amps and 600V. #10 studs are spaced 3/4" apart, with barriers to prevent shorting. Nuts not included. Offered with four, six or eight studs.

No.	Studs	Length	Spacing
JB-47214	4	4-1/2	3-3/4
JB-47216	6	6	5-1/4
JB-47218	8	7-1/2	6-3/4

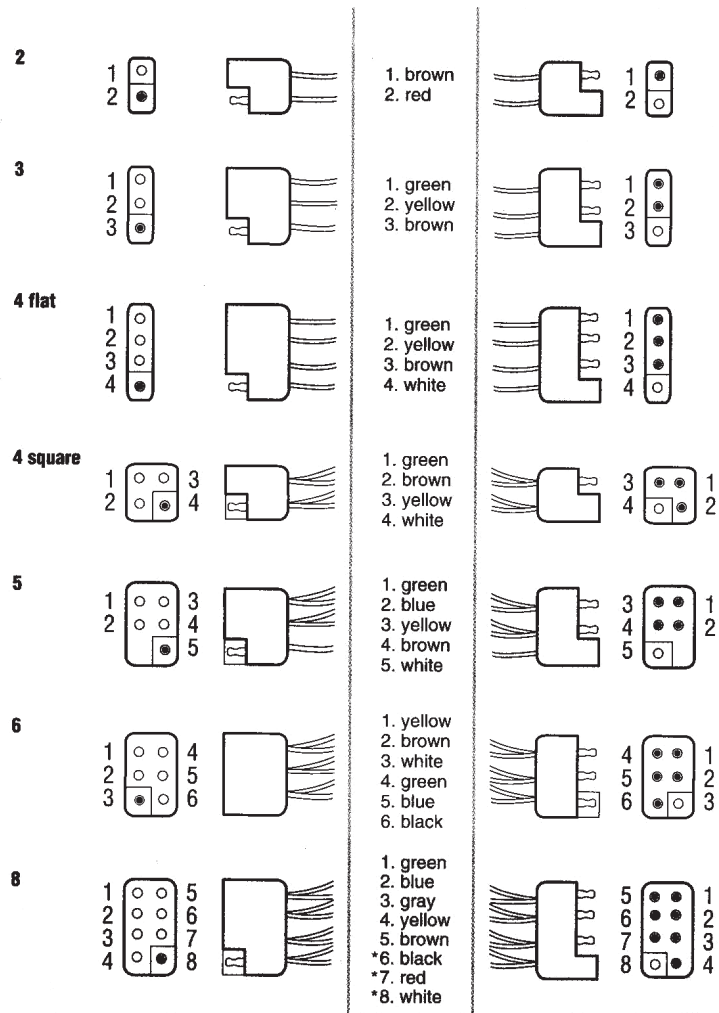
Wiring Accessories

Molded Connectors



12" Loop With Both End

Molded connectors with color-coded wires are available in two configurations. One configuration comes with a molded connector on one end only, the other style with the male connector on one end and the female connector on the other end. These molded connectors come with 16 gauge wire on all but the eight contact which has 3 - 12 gauge wires and 5 - 16 gauge wires. Designed for 12 and 24 volt applications only.



Contacts	Male End GPT 8" wires	Female End GPT 8" wires	Female End GPT 46" wires	Loop GPT 12" wires	Loop GXL 12" wires
1	MC-37119	37129	37109	37009	37209
2	MC-37120	37130	37110	37000	37200
3	MC-37121	37131	37111	37001	37201
4 Flat	MC-37122	37132	37112	37002	37202
4 Square	MC-37123	37133	37113	37003	----
5	MC-37124	37134	37114	37004	----
6	MC-37125	37135	37115	37005	----
8	MC-37126	37136	37116	37006	----

Wiring Accessories

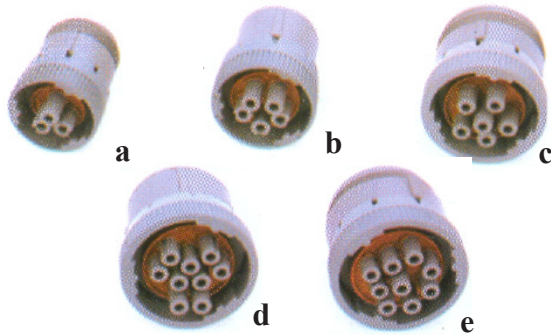
HD10 Series



DEUTSCH

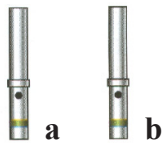
The Deutsch HD10 Series is designed to provide a solution to today's interconnection problems found in heavy duty industry. The HD10 is a thermoplastic cylindrical connector (temperature rated 67° to +257°F) utilizing crimp type contacts that are quickly and easily inserted and removed. The HD10 Series eliminates problems associated with assembly and maintenance time and is designed for a long service life.

Deutsch HD10 Plugs



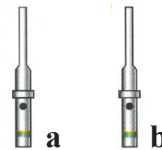
Identifier	Number of Cavities	Part No.	Shell Configuration
a	3	HD16-3-96S	Threaded Rear
b	5	HD16-5-16S	Non-Threaded Rear
c	6	HD16-6-96S	Threaded Rear
d	9	HS16-9-16S	Non-Threaded Rear
e	9	HD16-9-96S	Threaded Rear

Socket Terminals



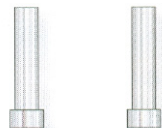
Part No.	Wire Range
0462-201-16141	18 - 16
0462-209-16141	16 - 14

Pin Terminals



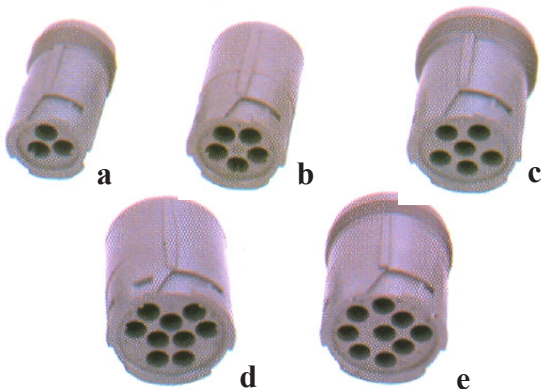
Part No.	Wire Range
0460-201-16141	18 - 16
0460-215-16141	16 - 14

Sealing Plug for DT & HD10 Series



Part No.	Wire Range
114017	16 - 12

Deutsch HD10 Sockets



Identifier	Number of Cavities	Part No.	Shell Configuration
a	3	HD14-3-96P	Threaded Rear
b	5	HD14-5-16P	Non-Threaded Rear
c	6	HD14-6-96P	Threaded Rear
d	9	HD14-9-16P	Non-Threaded Rear
e	9	HD14-9-96P	Threaded Rear



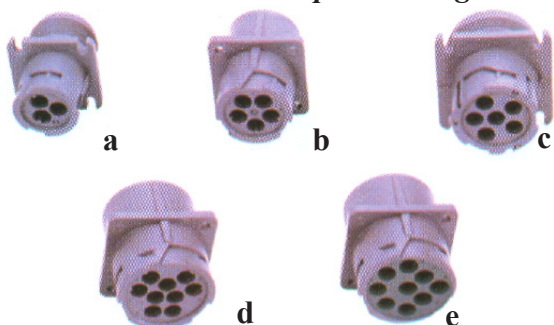
Material Specifications:

- **Housing:** Thermoplastic with thermoplastic grommet silicone rubber
- **Sealing Plugs:** Silicone Rubber
- **Contacts:** Copper Alloy, Nickel Plated

Max Current Rating:

- **#4 contact:** 100A ;
- **#12 contact:** 25A ;
- **#16 contact:** 13A

Deutsch HD10 Series Square Flange Receptacle



Identifier	Number of Cavities	Part No.	Shell Configuration
a	3	HD16-3-96S	Threaded Rear
b	5	HD16-5-16S	Non-Threaded Rear
c	6	HD16-6-96S	Threaded Rear
d	9	HS16-9-16S	Non-Threaded Rear
e	9	HD16-9-96S	Threaded Rear

HDC14 Protective Cap Plugs



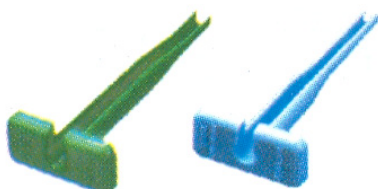
Part No.	Shell Configuration
HDC - 14 - 3	For 3 Cavity Plugs
HDC - 14 - 6	For 6 Cavity Plugs
HDC - 14 - 9	For 9 Cavity Plugs

HDC16 Protective Receptacle Caps



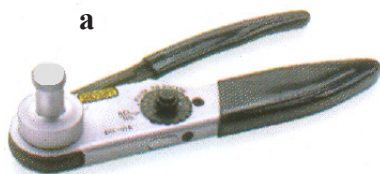
Part No.	Shell Configuration
HDC - 16 - 3	For 3 Cavity Plugs
HDC - 16 - 5	For 5 Cavity Plugs
HDC - 16 - 6	For 6 Cavity Plugs
HDC - 16 - 9	For 9 Cavity Plugs

Deutsch HD Series Removal Tools



Color	Part No.	Wire Range
Blue	0411-291-1405	16 - 14
Green	0411-310-1605	18 - 16

Deutsch DT & HD Tools



Identifier	Part No.	Description
a	100 - HDT - 48 - 00	Universal hand crimp tool eight - indent, solid contacts
b	100 - PA - 1441	Universal hand crimp tool four - indent, solid contacts

Wiring Accessories

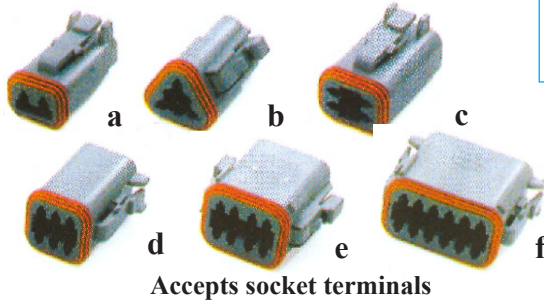
DT Series



DEUTSCH

Deutsch DT Series of environmentally-sealed connectors are designed specifically for cable to cable applications on the engine or transmission, on the chassis, under the hood or in the cab. These connectors are designed to withstand extreme temperature and moisture conditions by using thermoplastic (67° to +257°F rated) housings and silicone seals.

Deutsch DT Plugs



Accepts socket terminals

Identifier	Number of Cavities	Part No.	Secondary Lock
a	2	DT06-2S	W2S
b	3	DT06-3S	W3S
c	4	DT06-4S	W4S
d	6	DT06-6S	W6S
e	8	DT06-8S	W8S
f	12	DT06-12S	W12S

Socket Terminals



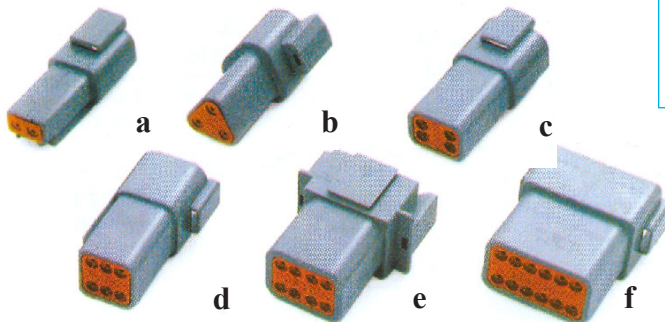
Part No.	Wire Range
0462-201-16141	18 - 16
0462-209-16141	16 - 14

Pin Terminals



Part No.	Wire Range
0460-202-16141	18 - 16
0460-215-16141	16 - 14

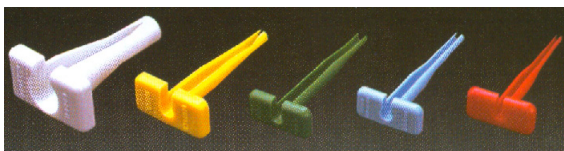
Deutsch DT Sockets (Receptacle)



Accepts pin terminals

Identifier	Number of Cavities	Part No.	Secondary Lock
a	2	DT04-2P	W2P
b	3	DT04-3P	W3P
c	4	DT04-4P	W4P
d	6	DT04-6P	W6P
e	8	DT04-8P	W8P
f	12	DT04-12P	W12P

Deutsch DT Series Removal Tools



Color	Part No.	Wire Range
Red	0411-240-2005	24 - 20
Blue	0411-310-1605	18 - 16
Yellow	114010	14 - 12
Green	114008	10 - 8
White	114009	6

- Material Specifications:**
- **Housing (plug & receptacle):** Thermoplastic
 - **Seals:** Silicone Elastomer
 - **Contacts:** Copper Alloy, Nickel Plated, Gold Optional
 - **Secondary Locks:** Thermoplastic

Max Current Rating for #16 contact: • 13A

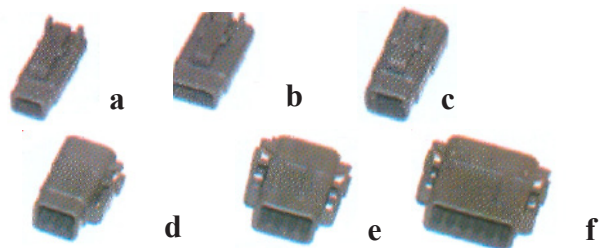
DEUTSCH



Wiring Accessories DTM Series

Deutsch DT Series of environmentally-sealed connectors are designed specifically for cable to cable applications on the engine or transmission, on the chassis, under the hood or in the cab. These connectors are designed to withstand extreme temperature and moisture conditions by using thermoplastic (67° to +257°F rated) housings and silicone seals.

Deutsch DTM Plugs



Accepts socket terminals

Identifier	Number of Cavities		Part No.	Secondary Lock
	Identifier	Cavities		
a		2	DTM06-2P	WM-2S
b		3	DTM06-3S	WM-3S
c		4	DTM06-4S	WM-4S
d		6	DTM06-6S	WM-6S
e		8	DTM06-8S	WM-8S
f		12	DTM06-12S	WM-12S

Socket Terminals



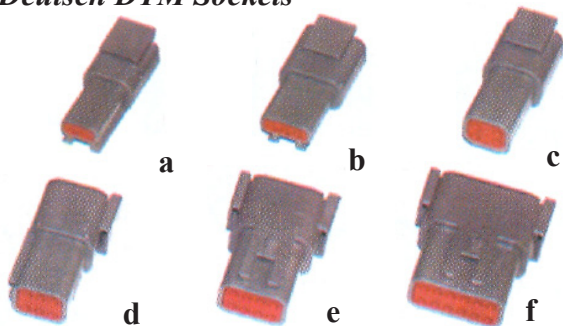
Part No.	Wire Range
0462-201-20141	20 - 24

Pin Terminals



Part No.	Wire Range
0460-202-20141	20 - 24

Deutsch DTM Sockets

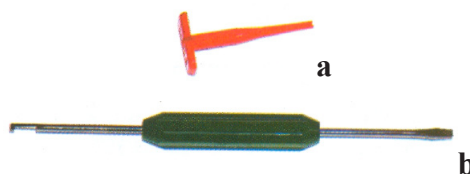


Accepts pin terminals

Identifier	Number of Cavities		Part No.	Secondary Lock
	Identifier	Cavities		
a		2	DTM04-2P	WM-2P
b		3	DTM04-3P	WM-3P
c		4	DTM04-4P	WM-4P
d		6	DTM04-6P	WM-6P
e		8	DTM04-8P	WM-8P
f		12	DTM04-12P	WM-12P

Deutsch DTM Series Removal Tools

Identifier	Color	Part No.	Wire Range
a	Red	0411-240-2005	24 - 20
b	Green	DT/RT1	N/A



- Material Specifications:**
- **Housing (plug & socket):** Thermoplastic
 - **Seals:** Silicone Elastomer
 - **Contacts:** Copper Alloy, Nickel Plated, Gold Optional
 - **Secondary Locks:** Thermoplastic

Max Current Rating for 20ga.: • 7.5A Continuous

Wiring Accessories

Flashers

Flashers are offered in both mechanical and electronic styles, each in two and three pin configurations. The electronic flasher is solid state with no moving parts and will outlast the mechanical flasher many times over. For 12Vdc. LED flasher is also available.



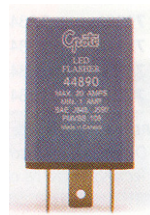
42011
2 pin electronic.
For up to 10, 27 watt, 12 volt lamps.



42022
2 pin mechanical, replaces both short and long units (536/552) styles.
For 4, 27 watt, 12 volt lamps.

42012
3 pin electronic.
For up to 10, 27 watt, 12 volt lamps.

42023
3 pin mechanical, (550 style).
For 4, 27 watt, 12 volt lamps



47972
LED Flasher
Automatically adjusts to LED current.
Rated from 1.0 to 20 amps.
Comes with grounding wire.

Miniature Bulbs and Lamps

Miniature Bulbs



An assortment of the most popular incandescent miniature bulbs and halogen lamps are available.

Halogen Lamps



Miniature Bulbs 10/pack

No.	Industry Part No.	Primary Application	Base Type
-----	-------------------	---------------------	-----------

G-4 1/2 Bulb 9/16" (14mm) diameter

47800	57	Auto & Instrument	Miniature Bayonet
47801	1895	Auto	Miniature Bayonet

G-6 Bulb 3/4" (19mm) diameter

47810	67	Auto	Single contact bayonet
47811	89	Auto	Single contact bayonet

S-8 Bulb 1" (25mm) diameter

47820	1157	Auto/Truck	Double contact index
47821	1157NA	Auto/Truck Natural Amber	Double contact index
47822	2057	Auto/Heavy Duty	Double contact index
47823	3057	Auto/Heavy Duty	Double contact wedge
47824	3157	Auto/Heavy Duty	Double contact wedge
47825	1156	Auto/Truck	Single contact wedge

T-3 1/4 Bulb 13/32" (10mm) diameter

47830	194	Auto & Instrument	Wedge
47831	1893	Auto	Miniature Bayonet

Halogen Lamps

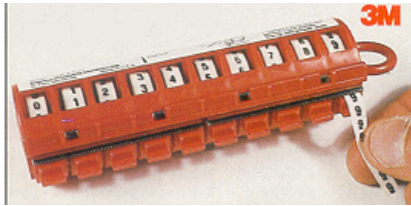
No.	Industry Part No.	Primary Application	Base Type
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47850	9004	Halogen auto head lamp	Axial prefocus
47851	9005	Halogen auto head lamp	Right angle prefocus
47852	9006	Halogen auto head lamp	Right angle prefocus
47853	9007	Halogen auto head lamp	Axial prefocus

Wiring Accessories

Wire Markers

Marker Rolls



Wire marker dispensers provide a fast, convenient way to mark wire or cables. Ten compartments are easily refilled with the replacement rolls. Approximately 500 legends per roll.

STD- 0-9

Dispenser filled with 10 rolls of numbered tape. One roll each of numbers 0 through 9.

STD-C

Dispenser filled with 10 rolls of colored tape. One roll each of black, blue, brown, green, gray, orange, red, violet, white and yellow.

STD

Dispenser only. Holds ten rolls

Replacement Rolls

Legend	No.	Legend*	No.
0	SDR-0	Black	SDR-BK
1	SDR-1	Blue	SDR-BL
2	SDR-2	Brown	SDR-BR
3	SDR-3	Green	SDR-GN
4	SDR-4	Gray	SDR-GY
5	SDR-5	Orange	SDR-OR
6	SDR-6	Red	SDR-RD
7	SDR-7	Violet	SDR-VL
8	SDR-8	White	SDR-WH
9	SDR-9	Yellow	SDR-YL

Alphabet replacement rolls

Legend	No.
A	SDR-A
through	through
Z	SDR-Z

* Colored rolls are solid color only, no marking.

Marker Books



450 markers per book.

Compact, easy to carry and use marker books will fit in your pocket. Each book has a total of 450 markers in four different assortments. High strength adhesive is rated for -40°F to 300°F. Black legend on a white background.

Legend	Number of Markers	No.
1 - 45	10 markers each	SPB-03
46 - 90	10 markers each	SPB-14
0 - 9	10 markers each	SPB-1
A - Z, 0 - 15, +, - and /	10 markers each	SPB-02

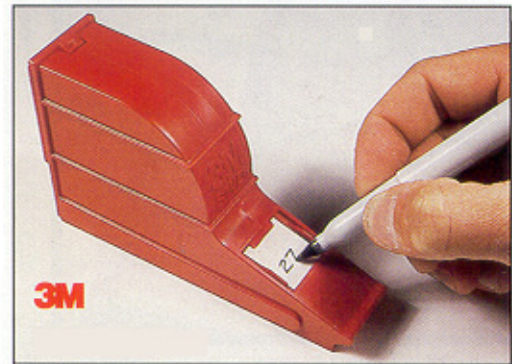
Wiring Accessories

Write-On Wire Marker Dispensers

Scotch code write-on wire marker dispenser is a convenient way to mark cable and wires. Wrap the transparent tape over the written portion for a protective cover. Includes a special marking pen.

No.	Markers Per Roll	Marker Size	Write-on Area
SLW	70	1x5	1x3/4
SWD	250	3/4x1-3/8	3/4x5/16
SWD-R*	250	3/4x1-3/8	3/4x5/16

*Replacement roll only for SWD.



Self Laminating



STD-TAG

The 3M patented write-on tag dispenser simplifies the wire marking process with two size tags built-in. Print on the tag with the permanent marking pen provided and then the blade cuts off the tag. Tag sizes are 0.375" x 2.40" or 0.250" x 1.60" mounting holes on each end, refill rolls available. Compact design can be carried in a shirt pocket or hooked to a belt.

Refill Rolls

STD-101

Tag size 0.375" x 2.40"

STD-102

Tag size 0.250" x 1.60"



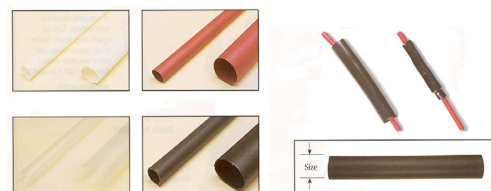
Wiring Accessories

Heat Shrink

Polyolefin Heat Shrink

Size	Black	Red	Clear	White
1/16	HST1-116B	HST1-116R	HST1-116C	HST1-116W
1/8	HST1-18B	HST1-18R	HST1-18C	HST1-18W
3/16	HST1-316B	HST1-316R	HST1-316C	HST1-316W
1/4	HST1-14B	HST1-316R	HST1-14C	HST1-14W
3/8	HST1-38B	HST1-38R	HST1-38C	HST1-38W
1/2	HST1-12B	HST1-12R	HST1-12C	HST1-12W
3/4	HST1-34B	HST1-34R	HST1-34C	HST1-34W
1	HST1-1B	HST1-1R	HST1-1C	HST1-1W
1 -1/2	HST1-112B	HST1-112R	HST1-112C	HST1-112W
2	HST1-2B	HST1-2R	HST1-2C	HST1-2W

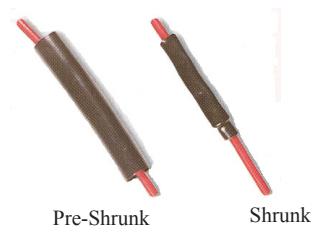
A high quality material which shrinks to one-half the expanded size. Available in black, red, white and clear. This material is very stable and can be stored for extended periods without shrinkage.



Polyolefin Dual Wall

Black	Red	Size	Expanded I.D.	Shrunk I.D.
HST2-18B	HST2-18R	1/8	.125	.042
HST2-316B	HST2-316R	3/16	.187	.062
HST2-14B	HST2-14R	1/4	.250	.083
HST2-38B	HST2-38R	3/8	.375	.125
HST2-12B	HST2-12R	1/2	.500	.167
HST2-34B	HST2-34R	3/4	.750	.250
HST2-1B	HST2-1R	1	1.000	.333
HST2-112B	HST2-112R	1-1/2	1.500	.500

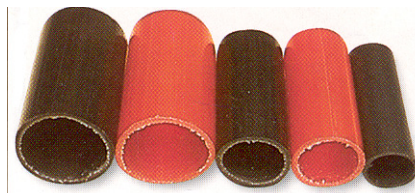
Polyolefin heat shrink tubing with an internal meltable sealant shrinks up to one-third the expanded size. With shrink range, large to small shapes and contours can be accommodated with one size tubing. The sealant flows and physically encapsulates the connection as the tubing shrinks.



Extra Heavy Duty Heat Shrink

Black	Red	Size	Expanded I.D.	Recovered I.D.
HST3-38B	HST3-38R	3/8	0.30	0.10
HST3-12B	HST3-12R	1/2	0.50	0.23
HST3-34B	HST3-34R	3/4	0.75	0.31
HST3-11B	HST3-11R	1.1	1.10	0.39
HST3-112B	HST3-112R	1-1/2	1.50	0.47

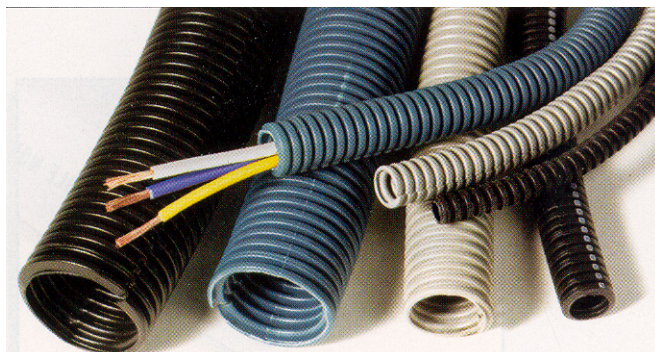
This extra heavy duty heat shrink tubing features a thick adhesive inner wall which melts as the tubing is shrunk and completely seals the connection from moisture and contamination. Available in both black and red. The crosslinked polyolefin tubing shrinks to less than half its original size.



Wiring Accessories

Wire Coverings

Corrugated Loom



Easy to use corrugated loom offers excellent protection for wire, cable, tubing and hoses. It is light in weight, but the convoluted surface provides heavy duty protection from abrasion and pinching. You can enhance your product with the corrugated loom's uniform appearance. With many sizes and styles offered, almost any bundle of wires and hoses can be protected.



Polyethylene
Black
Slit - Type LCP
Temperature 200°F



Nylon
Black / gray stripe
Slit - Type LCP
Temperature 300°F



Flame retardant polyethene
Gray
Slit - Type LGF
Temperature 200°F



Flame retardant polyethene
Green
Slit - Type LFR
Temperature 275°F

Size I.D. (mm)	Size I.D. (in)	Typical O.D. (in)	Black Polyethylene	Gray Polyethylene	Black/Gray Nylon	Green Polyethylene
3	.125	.280	LCP-125	----	----	----
6	.250	.400	LCP-250	LGF-250	LCN-250	LFR-250
9	.350	.510	LCP-350	LGF-350	LCN-350	LFR-350
10	.413	.594	LCP-413	LGF-413	LCN-413	LFR-413
13	.500	.695	LCP-500	LGF-500	LCN-500	LFR-500
16	.625	.830	LCP-625	LGR-625	LCN-625	LFR-625
19	.750	.980	LCP-750	LGR-750	LCN-750	LFR-750
22	.875	1.129	LCP-875	----	LCN-875	LFR-875
25	1.000	1.270	LCP-1000	LGF-1000	LCN-1000	LFR-1000
32	1.250	1.480	LCP-1250	LGF-1250	LCN-1250	----
38	1.500	1.920	LCP-1500	----	LCN-1500	----
41	1.625	1.940	LCP-1625	----	LCN-1625	----
50	2.000	2.375	LCP-2000	----	LCN-2000	----

Wiring Accessories

Wire Coverings

Spiral Wrap Tubing

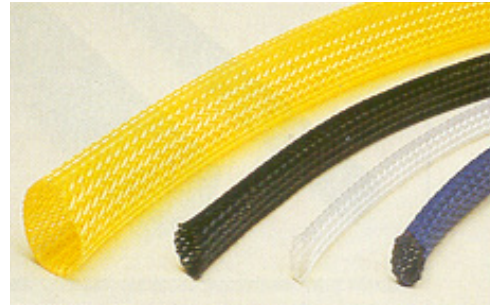


Abrasion resistant spiral wrap tubing is used as a wire harness covering. Just wrap around your harness and any wires which break out can easily exit through the spiral split. Since the tubing will accommodate a wide variety of wires, only a few sizes of spiral wrap are needed for many applications. Available in clear or ultraviolet resistant black.

Clear	Black	Outside Diameter	Wall Thickness	Bundle Diameter
SW-20023	SW-20033	1/8	0.032	1/2
SW-20020	SW-20030	1/4	0.045	3/4
SW-20024	SW-20034	3/8	0.052	1
SW-20021	SW-20031	1/2	0.062	1-1/4
SW-20022	SW-20032	3/4	0.065	2
SW-20025	SW-20035	1	0.095	4

Expandable Sleeving

Braided polyester yarn is easily slipped over your wire harness or tubing by bunching it together and then stretching it to bring it back down to size. Expandable sleeving is used to bundle wires, protect hoses, etc. It is available in five sizes and various colors to work with many applications.

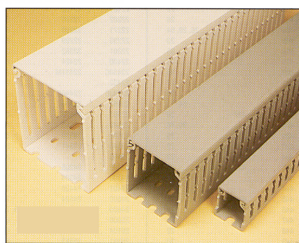


Natural	Blue	Yellow	Black	Spool Size	Outside Diameter	Size Range
ES-20311C ES-20311M	ES-20321C ES-20321M	ES-20331C ES-20331M	ES-20301C ES-20301M	100' 1000'	1/4"	1/8 to 7/16
ES-20312C ES-20312H	ES-20322C ES-20322H	ES-20332C ES-20332H	ES-20302C ES-20302H	100' 500'	1/2	1/4 to 3/4
ES-20313K ES-20313F	ES-20323K ES-20323F	ES-20333K ES-20333F	ES-20303K ES-20303F	50' 250'	3/4	1/2 to 1-1/4
ES-20314K ES-20314F	ES-20324K ES-20324F	ES-20334K ES-20334F	ES-20304K ES-20304F	50' 250'	1-1/4	3/4 to 1-3/4
ES-20315K ES-20315L	ES-20325K ES-20325L	ES-20335K ES-20335L	ES-20305K ES-20305L	50' 200'	1-3/4	1-1/4 to 2-3/4

Wiring Accessories

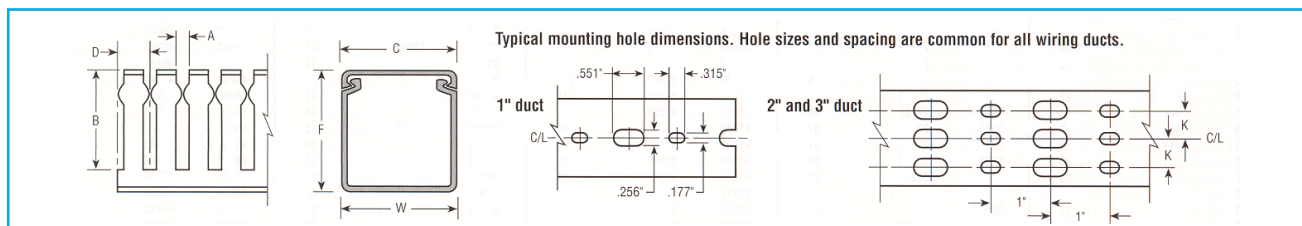
Wire Coverings

High Density Wiring Duct



High density wiring duct has a 2 to 1 finger ratio (slots to the fingers) allowing closer and finer wire spacing in the assembly. It also makes terminal block wiring easier and quicker. Holes on one inch spacing adds flexibility to mounting and speeds installation. Manufactured from 94V-0 PVC in either white or gray. Available in 6 foot lengths.

Duct Size	White Duct	Cover	Gray Duct	Cover	A	B	C	D	F	K	W
1 x 1	27311	27001	27361	27051	0.16	0.75	1.01	0.40	1.04	----	1.00
1 x 2	27312	27001	27362	27051	0.16	1.60	1.01	0.40	2.04	----	1.00
2 x 2	27322	27002	27372	27052	0.16	1.60	2.01	0.40	2.06	0.50	2.00
2 x 3	27323	27002	27373	27052	0.16	2.60	2.01	0.40	3.06	0.50	2.00
2 x 4	27324	27002	----	----	0.16	3.60	2.01	0.40	4.06	0.50	2.00
3 x 2	27332	27003	----	----	0.16	1.60	3.01	0.40	2.06	1.00	3.00
3 x 3	27333	27003	27383	27053	0.16	2.60	3.01	0.40	3.06	1.00	3.00
3 x 4	27334	27003	----	----	0.16	3.60	3.01	0.40	4.06	1.00	3.00



Liquid Tight Conduit



Liquid tight conduit

Liquid tight conduit is non-metallic, gray PVC construction, and meets UL type B ratings. The smooth inner surface allows for quick feeding of wires with no sharp edges to damage conductors. It is lightweight, resistant to crushing, and can be easily cut to length with a knife.

Conduit Size	No.	Outside Diameter	Inside Diameter	Standard Pack (ft)
3/8	27200	0.700	0.490	100
1/2	27201	0.830	0.630	100
3/4	27202	1.040	0.830	100
1	27203	1.300	1.050	100

Fittings

Nylon fittings are suitable for indoor or outdoor use. Simply push the conduit into the fitting and tighten the sealing nut.

Size (in)	Straight In	Right Angle	Thread Size
3/8	27240	27247	1/2 NPT
1/2	27241	27248	1/2 NPT
3/4	27242	27249	3/4 NPT
1	27243	27250	1 NPT



Straight-in fitting



Right angle fitting



San Diego, California

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Circuit Protection

Glass Fuses - Standard and Time Delay

Type AGC



No.	Amps	Volts
AGC 1/10	1/10	250
AGC 1/14	1/4	250
AGC 1/2	1/2	250
AGC 3/4	3/5	250
AGC 1	1	250
AGC 2	2	250
AGC 3	3	250

Type AGC



No.	Amps	Volts
AGC 4	4	250
AGC 5	5	250
AGC 7-1/2	7-1/2	250
AGC 8	8	250
AGC 10	10	250
AGC 15	15	32
AGC 20	20	32
AGC 25	25	32
AGC 30	30	32
AGC 40	40	32

Type MDA

Time Delay



No.	Amps	Volts
MDA 1	1	250
MDA 2	2	250
MDA 3	3	250
MDA 5	5	250
MDA 10	10	250
MDA 15	15	250

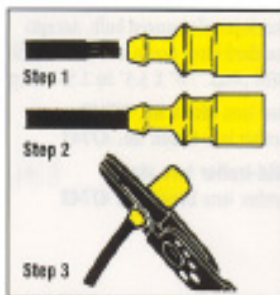
**GMA Type Fuses Available
1 thru 15 Amps**

In-Line Fuse Holders



46003

32V, 30 amps maximum. Accepts 18 through 12 gauge wire. Snap together nylon housings will fit 1/4" diameter round glass tube type by 7/8", 1" or 1-1/4" long.



Installation

1. Strip insulation from wire, (approx. 3/8")
2. Insert wire in holder.
3. Crimp terminal through body.
4. Repeat steps 1-3 for other half of holder.
5. Insert fuse.
6. Snap housings together.



46000

32V style fuses only, rated up to 20 amps, 8" 14 gauge red GPT wire loop.

Order parts for separate assembly.
Two bodies, one spring and two rivets
required for a complete assembly.



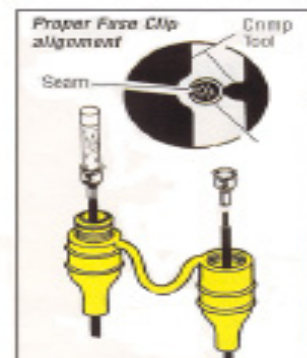
Body **46014**
Spring **46015**
Rivet **46009**

Waterproof In-Line Holders



46004

Ideal for damp, moist or dusty environments. 32V, 30 amps maximum. Accepts 18 through 12 gauge wire. One piece molded construction rated for -40° to 302°F with two fuse clips. Wire leads not included.



ATO / ATC Blade Fuses



Standard 1/4" blade type automotive fuses and holders are extensively used in automotive, marine and other mobile equipment

No.	Amps	Volts	Color
ATO-1	1	32	black
ATO-2	2	32	gray
ATO-3	3	32	violet
ATO-4	4	32	pink
ATO-5	5	32	tan
ATO-7-1/2	7-1/2	32	brown
ATO-10	10	32	red
ATO-15	15	32	blue
ATO-20	20	32	yellow
ATO-25	25	32	natural
ATO-30	30	32	green
ATO-40	40	32	amber

ATM Mini Blade Fuses



ATM mini automotive fuses are popular in automotive, marine and other low voltage applications. Smaller than the standard automotive blade fuses, permitting more fuses in the same space. Colored coded for amperage.

No.	Amps	Volts	Color
ATM-2	2	32	gray
ATM-3	3	32	violet
ATM-4	4	32	pink
ATM-5	5	32	tan
ATM-7-1/2	7-1/2	32	brown
ATM-10	10	32	red
ATM-15	15	32	blue
ATM-20	20	32	yellow
ATM-25	25	32	natural
ATM-30	30	32	green

Maxi Blade Fuses



Where a high amperage circuit is required, Maxi Blade Fuses can handle from 20 through 80 amps. Color coded. Replaces fusible link wire in many automotive applications.

No.	Amps	Volts	Color
Maxi-20	20	32	yellow
Maxi-30	30	32	green
Maxi-40	40	32	orange
Maxi-50	50	32	red
Maxi-60	60	32	blue
Maxi-70	70	32	tan
Maxi-80	80	32	violet

Circuit Protection

JCase™ High Amp Fuses



Littelfuse® patented high-current fuse technology provides both increased time delay and low voltage drop. ANSI standard OCR-A font for visual inspection systems, double spring-beam box terminal and unique secondary locking feature holds terminal firmly in place.
32V AC/DC Slo-Blo®.

Color	Code	Boxed No.	Carded No.
Blue	20A	JCAS20	JCAS20BP
Pink	30A	JCAS30	JCAS30BP
Green	40A	JCSA40	JCSA40BP
Red	50A	JCAS50	JCAS50BP
Yellow	60A	JCAS60	JCAS60BP

Fuse Pullers

A variety of pullers to allow for easy fuse removal and replacement.

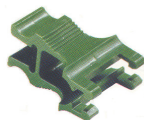
097023



097023

Tri-Puller™ for glass fuses, ceramic type, ATO® and MINI® blade fuses.

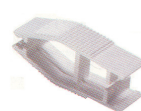
097026



097026

For MAXI™ blade fuses.

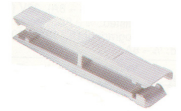
097053



097053

For JCASE™ fuses.

097038



097038

For ATO® and MINI® blade fuses.

Fuse Tester and Puller



097019

Conveniently and easily tests ATO® and MINI® blade fuses either in or out of the fuse block, with or without vehicle battery power. Indicator light on the tester glows bright green when the fuse is good. Fuse puller end allows for easy fuse removal and replacement. 24V maximum.

ANL Fuses

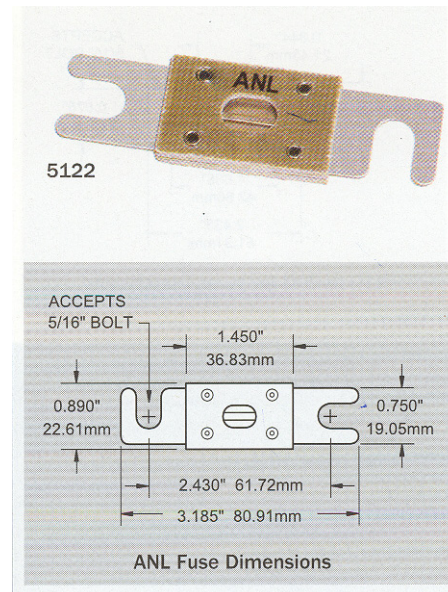
ANL Fuses are ignition protected and conform to SAE J11711. These fuses are safe for installation aboard gasoline powered boats (35-500 amps only). The tin-plated connector blades are corrosion resistant and there is a visible indication when a blown condition occurs. 6000 Ampere Interrupt Capacity (AIC) satisfies ABYC requirements for main DC circuit protection on large battery banks.

Specifications

Interrupt Capacity 6,000 amps DC
Maximum Voltage 32 Vdc delay

Agency Specifications

35-500 Amp fuses meet the requirements of ISO 8846, SAE J1171, ABYC, USCG Title 33 CFR 183.410(a) and UL 1500.



Amperage	No.	*I.P.	Weight (lb)
35	ANL-35	yes	0.05
40	ANL-40	yes	0.05
50	ANL-50	yes	0.05
60	ANL-60	yes	0.05
80	ANL-80	yes	0.05
100	ANL-100	yes	0.05
130	ANL-130	yes	0.05
150	ANL-150	yes	0.06
175	ANL-175	yes	0.06
200	ANL-200	yes	0.06
225	ANL-225	yes	0.06
250	ANL-250	yes	0.07
275	ANL-275	yes	0.07
300	ANL-300	yes	0.07
325	ANL-325	yes	0.07
350	ANL-350	yes	0.07
400	ANL-400	yes	0.08
500	ANL-500	yes	0.08
600	ANL-600	no	0.08
675	ANL-675	no	0.08
750	ANL-750	no	0.08

***Ignition Protected**

Circuit Protection

ATO/ATC & ATM In-Line Fuse Holders

FHM1

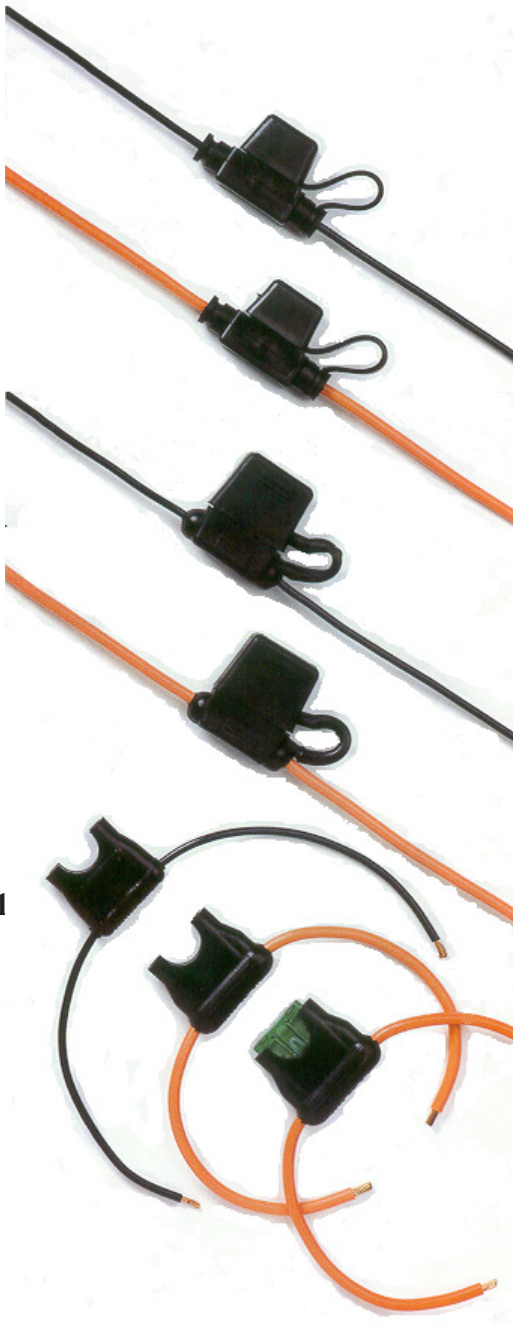
FHM2

FHAC1

FHAC2

FHA1

FHA2



FHM1

MINI Fuse In-Line with Cap

Use with MINI Fuse 2 to 20 amps.
Supplied with two 4" wire leads of
14 gauge black wire.

FHM2

MINI Fuse Heavy Duty In-Line with Cap

Use with MINI Fuse 25 and 30 amps.
Supplied with two 4" wire leads of
12 gauge orange wire.

FHAC1

ATO Fuse In-Line with Cap

Use with ATO Fuse 1 to 20 amps.
Supplied with 4" wire lead of
16 gauge black wire.

FHAC2

ATO Fuse Heavy Duty In-Line with Cap

Use with ATO 25 and 30 amp fuses
for air conditioner or other heavy duty
applications. Supplied with two 4"
wire leads of 12 gauge orange wire.

FHA1

ATO Fuse In-Line

Use with ATO Fuse 1 to 20 amps.
Supplied with two 4" wire leads of
16 gauge black wire.

FHA2

ATO Fuse Heavy Duty In-Line

Use with ATO 25 and 30 amp fuses
for air conditioner or other heavy duty
applications. Supplied with two 4"
wire leads of 12 gauge orange wire

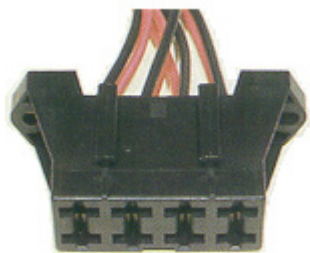


Ordering & Customer Service

1-619.278.1302

Circuit Protection

ATO/ATC & ATM Blade Type Accessories



47070

This is a complete assembly for mini automotive fuses. Units can be snapped together to gang for multiple combinations. Includes 8" leads of 12 gauge wire. Individual components available.

Individual Components

47080	Body
32036	12 ga. terminal
31037	16-14 ga. terminal
30038	20-18 ga. terminal



46041

This is a complete assembly for mini automotive fuses. Includes 10" leads of 12 gauge wire. Rated to 30 amps. Individual components available. Two terminals are necessary per assembly to make a complete holder.

Individual Components

38063	Body
46058	Cap
31075	12 ga.
39002	Cable Seal
31075R	12 ga. term. on reel
38035	TPA clip



46033

Complete kit with body and cap. Rated at 30 amp, 32 volts. Weather resistant and sealed, it has the mounting tab on the cap. Includes 8" 12 ga. GPT wires. Individual components available.

Individual Components

46035	Body
46034	Cap
39005	Seal for Body
32037	12 ga. Terminal
39003	Cable Seal



FHA 200

ATO/ATC Tapa Circuit™ rated to 10 amps adds an additional circuit to any existing circuit. Just plug into ATO /ATC fuse slot. Maintains new car warranty.

FHM 200

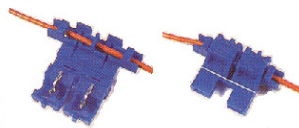
ATM Add-A-Circuit for use with MINI Fuses up to 10 amps.

Circuit Protection

ATO/ATC & ATM Blade Type Accessories



46019
Cover for FHA1 or
FHA2 fuse holders.



46031
3M brand self strip-
ping fuse holder. 20
amp, 32V, for 14, 16
and 18 ga. wire.



46880
Diode mounts
in any mini fuse
holder. Rated to
1 amp.



37061
ATO/ATC Fuse
Clip .250 push-on.



37062
ATM Fuse Clip
.187 push-on.

High Amp Fuses and Fuse Holders

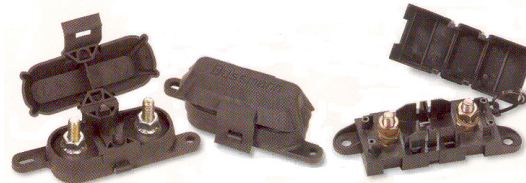


High Amp Fuses

100 to 250 amp 32Vdc rating. Ideal for battery and alternator cables or other heavy gauge cables requiring ultra-high current protection. Bolt-down design with color coded plastic body.

Amps	No.
100	MEG 100
125	MEG 125
150	MEG 150
175	MEG 175
200	MEG 200
225	MEG 225
250	MEG 250

46039 High-amp mount-
able fuse holder. Comes
with black rubber cover for
protection. Cables can be
attached from the front, side
or the back.



46039

298900

298900 Convenient mount-
ing for high-amp fuse.
Black glass filled thermo-
plastic construction with
back cover for protection.

Circuit Protection

Blue Sea Systems Products



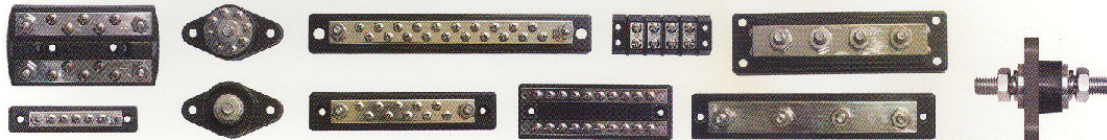
Battery Management



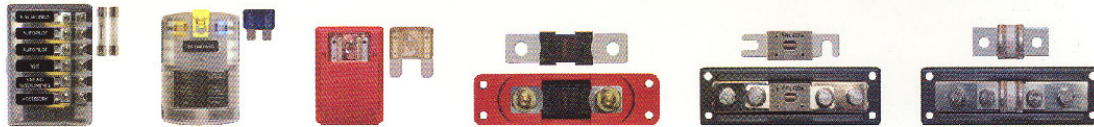
Circuit Breakers



Connectors



Fuse Blocks and Fuses



Insulation and Safety



Meters



Panels



Ask for a Blue Sea Systems Catalogue

Circuit Protection

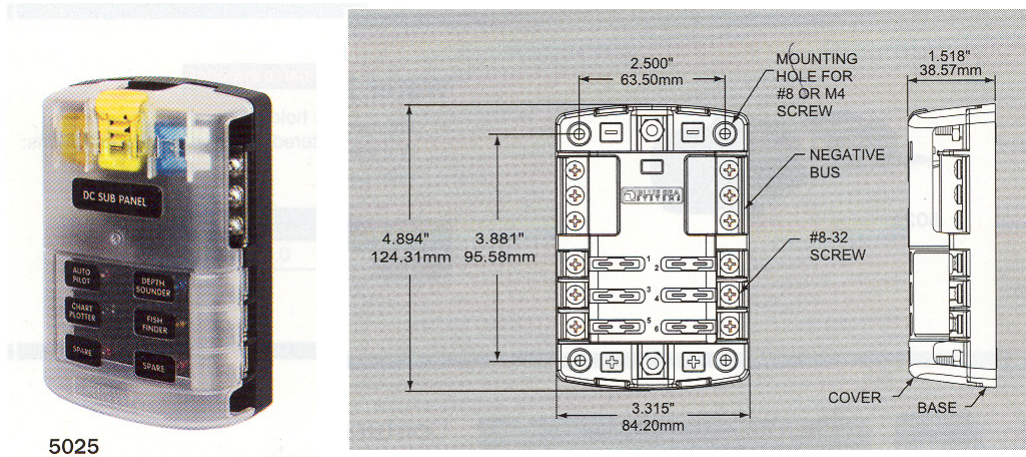
Blue Sea Systems Products

Screw Terminal Fuse Blocks



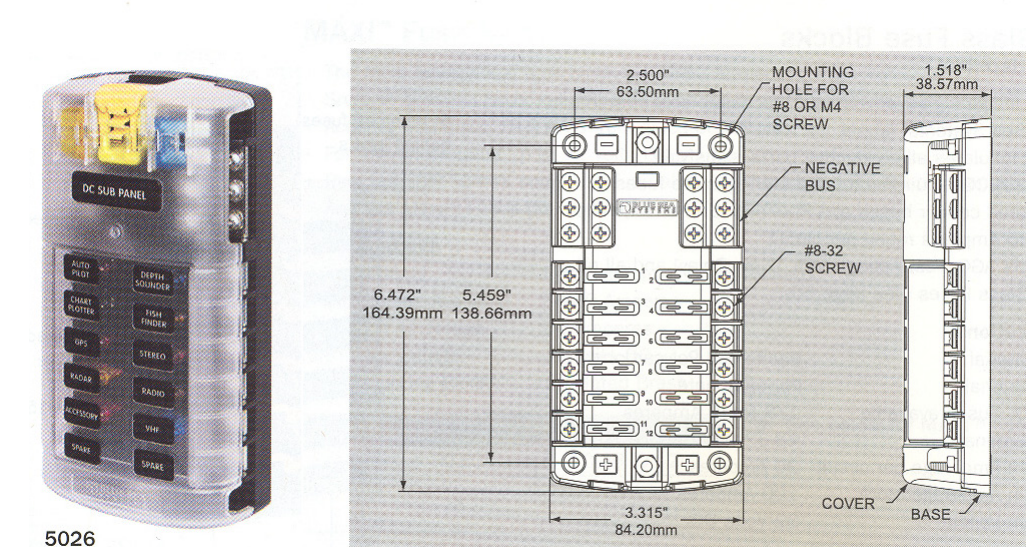
These screw terminal fuse blocks have tin-plated copper buses and fuse clips to give 30 amperes rating per circuit. Accepts ATO and ATC fast acting blade fuses. The clear insulating cover with label recess covers and protects conductive components. Has an easy to open, push button latch and storage for spare fuses. Comes with 20 small format write-on circuit labels. Two styles available.

5025 6 Circuit with Negative Bus



5025

5026 12 Circuit with Negative Bus



5026

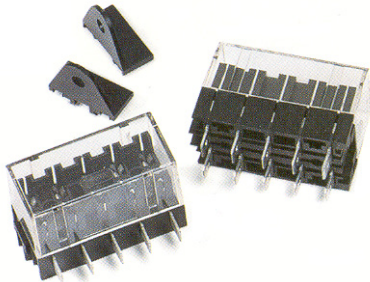


Ordering & Customer Service

1-619.278.1302

Circuit Protection

ATO Fuse Block with Quick Connect Terminals



Use with ATO fuses up to 15 amps. Available in 5 pole unit with removable clear protective cover. Available in side or bottom positioned 1/4" terminal configurations.

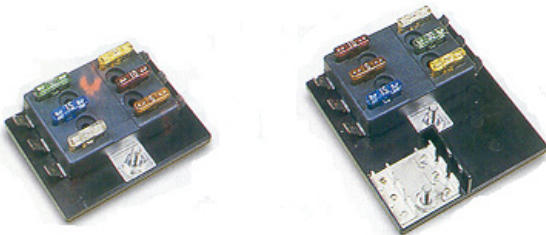
1/4" Q.C. side

FB-350417

1/4" Q.C. bottom

FB-350418

ATO/ATC Fuse Panels



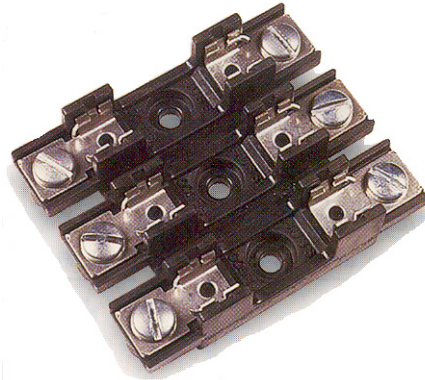
No ground terminals.

With ground terminals

Lightweight rugged fuse panels for simplification of wiring in buses, vans, boats etc. Suggested for accessory use only. Uses the standard ATO/ATC fuses or blade type circuit breakers. Each fused circuit has a 1/4" push-on terminal and is rated for 20 amps maximum. The input lead fits on a #10-32 stud. Maximum amperage for all circuits is 100.

Circuits	No ground terminals	With ground terminals
6	FP-46050	FP-46060
8	FP-46051	FP-46061
10	FP-46052	FP-46062
12	FP-46053	FP-46063

Break Apart Fuse Blocks



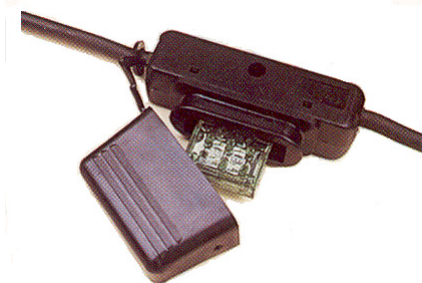
Break apart fuse holders are a low cost way to fuse your product. Available with #6 screw terminals and supplied in 12 pole configuration. Rated for 300V. UL recognized under components program and CSA listed.

FB-47065

For AGC type fuse 1/4" dia. by 1 1/4" long maximum of 30 amps and 300V with #6 screw terminal.

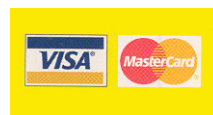
Mounting holes .146 dia. on 5/8" spacing.

Maxi Fuse Holders



MAH1

Use with MAXI Fuse up to 60 amps, 32V. Supplied with two 6" wire leads of 6 gauge black wire. Includes protective cover for harsh environment and mounting hole for easy firewall installation.



Circuit Protection

Circuit Breakers

Thermal type circuit breakers offer an economical means of limiting overload currents. Unlike a fuse the breaker resets, therefore no replacements are required. Various sizes, configurations and styles meet many application requirements. Breakers are manufactured in four different reset methods as described below:

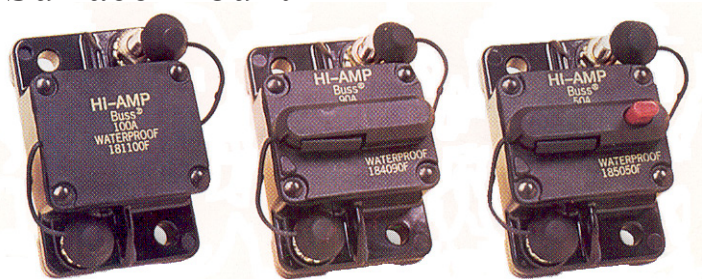
- Type I** (automatic reset) Breaker keeps cycling on and off until the overload is removed.
- Type II** (modified reset or non-cycling) Breaker doesn't reset until the overload is removed or power is turned off.
- Type III** (manual reset) Breaker must be manually reset, trip indication shown on body.
- Type III** (switchable) Similar to manual reset with a manual trip.

Hi-Amp Circuit Breakers

Three styles of surface mount are available with 50 to 150 amp ratings; automatic reset, manual reset, and switchable with a manual trip feature. The panel mount is only available in automatic reset. The manual and switchable designs feature a unique reset mechanism to provide visual indication of a tripped condition.

These high-amp circuit breakers are typically used for auxiliary and accessory circuits on trucks, buses, recreational vehicles, marine and construction equipment. Single-pole thermal type breakers are rated up to 30 Vdc maximum. Operating temperature of -25°F to 180°F.

Surface Mount



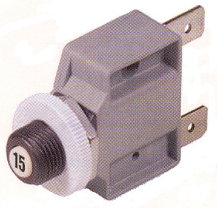
Automatic Reset Manual Reset Switchable with Manual Trip Push Button

Surface Mount			
Amps	Auto Reset	Manual Reset	Manual Trip
50	HB-46930	HB-46920	HB-46980
60	HB-46931	HB-46921	HB-46981
80	HB-46933	HB-46923	HB-46983
100	HB-46935	HB-46925	HB-46985
120	HB-46937	HB-46927	HB-46987
150	HB-46939	HB-46929	HB-46989

Panel Mount Circuit Breakers

Manual reset, panel circuit breakers for up to 32Vdc and 250Vac applications are a convenient means for protecting circuits. Mounting is a 7/16 -28 bushing, 1/2" long. White button, knurled nut, 1/4" push on terminals for 10 through 30 amp units. (*The 40 amp fuse has #10 -32 threaded holes for mounting.)

Amps	No.
10	PM-46481
15	PM-46482
20	PM-46483
30	PM-46484
40	PM-46485*

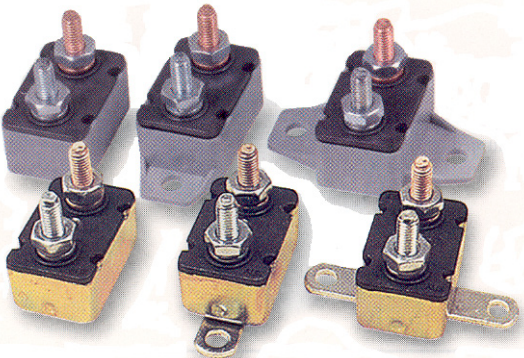


Circuit Protection

Circuit Breakers

Standard Automotive Type I

Automatic reset circuit breakers for many 12Vdc applications are available in a metal housing, with #10 -32 stud terminals. These circuit breakers are available in three mounting configurations and seven amperage ratings.



No mounting bracket

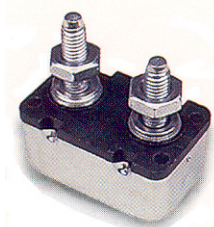
In-line mounting bracket

Right angle mounting bracket

Amps	No Bracket	In-line Bracket	Right-angle Bracket
10	CB1-46410	CB1-46510	CB1-46310
15	CB1-46415	CB1-46515	CB1-46315
20	CB1-46420	CB1-46520	CB1-46320
25	CB1-46425	CB1-46525	CB1-46325
30	CB1-46430	CB1-46530	CB1-46330
40	CB1-46440	CB1-46540	CB1-46340
50	CB1-46450	CB1-46550	CB1-46350

Non-cycling Type II

For applications where the unit resets only when the power is removed. Conforms to SAE spec J553 Type II. For 12Vdc only.



Amps	No.
6	CB2-46806
8	CB2-46808
10	CB2-46810
15	CB2-46815
20	CB2-46820
25	CB2-46825
30	CB2-46830
40	CB2-46840

Circuit Breaker Brackets



Six gang shown

Mounting brackets for circuit breakers without a bracket. For use with metal circuit breakers only.	Gangs	No.
	2	46462
	3	46463
	4	46464
	6	46466
	8	46468

Circuit Breaker Buss Bars



Four gang shown

Buss bar assemblies for circuit breakers. Gang the breaker for your particular circuit application. 2 through 8 gang. Brass tin plated.	Gangs	No.
	2	46562
	3	46563
	4	46564
	6	46566
	8	46568

Manual Reset Type III

Manual reset breakers are rated up to a maximum of 24 Vdc applications where the breaker has to be manually reset with the push of a button. These circuit breakers are available in two mounting configurations with #10 -32 terminals.

No mounting bracket



Reset Button

Right angle mounting bracket

Amps	No Bracket	Right Angle Bracket
10	CB3-46475	CB3-46375
15	CB3-46470	CB3-46370
20	CB3-46471	CB3-46371
25	CB3-46472	CB3-46372
30	CB3-46473	CB3-46373
40	CB3-46476	CB3-46376
50	CB3-46474	CB3-46374

Ordering & Customer Service
1-619.278.1302

Circuit Protection

Circuit Breakers

ATO/ATC Blade Type Circuit Breakers

Blade mount circuit breakers are available in automatic and manual reset configurations. Standard 1/4" blade mounting matches standard blade mount fuses. Automatic reset for 12Vdc, manual reset for up to 24Vdc. Maxi size case. SAE spec J553 approved.

These breakers are rated to 14Vdc maximum for the Type I and 24Vdc maximum for the Type III. Type I has a gold cover and the Type III has a silver cover. Both types have the amp rating on them. ATO/ATC size case. Conforms to SAE spec J553.

ATC blade size breakers are available with amperage ratings of 10, 15, 20, 25 and 30 with a maximum of 14Vdc on Type I and 24Vdc on Type III. Type I has a gray housing and Type III has a gray housing with a gold cover.

Auto Reset Type I



Amps	No.
10	46642
15	46643
20	46644
25	46645
30	46646

Auto Reset Type I



Amps	No.
10	46771
15	46772
20	46773
25	46774
30	46775

Auto Reset Type I



Amps	No.
10	46751
15	46752
20	46753
25	46754
30	46755

Manual Reset Type III



Amps	No.
10	46652
15	46653
20	46654
25	46655
30	46656

Manual Reset Type III



Amps	No.
10	46781
15	46782
20	46783
25	46784
30	46785

Manual Reset Type III



Amps	No.
10	46741
15	46742
20	46743
25	46744
30	46745

Manual Reset Blade Type III

These low-profile circuit breakers are rated from 5 to 30 amps, 28 Vdc. Color -coded and marked to show amperage.

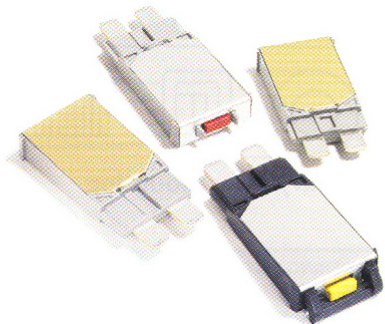
Conforms to SAE spec J553 and J1284.



Amps	No.
5	46791
6	46792
7.5	46793
10	46794
15	46795
20	46796
25	46797
30	46798

Push to Trip Blade Manual Reset Type III

These blade mount circuit breakers are rated 5 to 30 amps, 14Vdc. Amp rating is listed on the silver cover. Conforms to SAE spec J553. For use with ATO/ATC fuse blocks.



Amps	No.
5	46841
7.5	46842
10	46843
15	46844
20	46845
25	46846
30	46847

Circuit Protection

Mini Circuit Breakers

Mini size breakers are designed to fit in place of a mini fuse. These circuit breakers have a gray plastic housing with a gold cover marked with capacity data.

Mini size breakers are designed to fit in place of a mini fuse. Available in amperage ratings of 10, 15, 20 and 25 with a maximum of 14Vdc.

Automatic Reset Type I



Amps	No.
10	46761
15	46762
20	46763
25	46764

Non-cycling Type II



Amps	No.
10	46861
15	46862
20	46863
25	46864

Maxi Circuit Breakers

These circuit breakers are interchangeable with Maxi automotive fuses. These breakers are rated to 24Vdc maximum. Maxi size case. Conforms to SAE spec J553 Type I or Type III.

Auto Reset Type I



Amps	No.
20	46673
30	46675
40	46677
50	46678

Manual Reset Type III



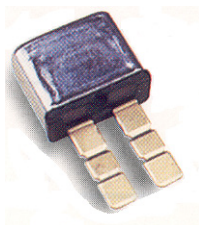
Amps	No.
20	46663
30	46665
40	46667
50	46668

Specialty Non-cycling Type II

Use in place of ATO/ATC type fuses. The blades can be snapped off to fit different lengths. These breakers remain open until the trouble on the line is corrected or the power is turned off.

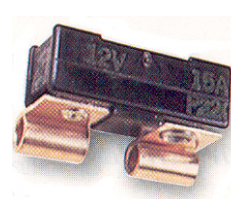
This breaker will fit in holders which accommodate 1/4" diameter by 1-1/4" long glass fuses. These breakers remain open until the trouble is corrected or the power is turned off.

Blade Type



Amps	No.
10	46610
15	46615
20	46620
25	46625
30	46630

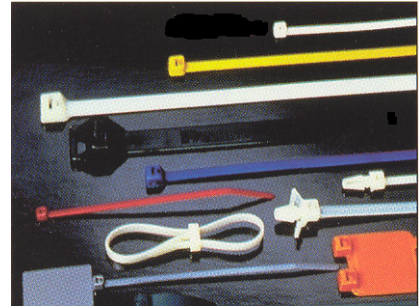
Glass Fuse Type



Amps	No.
10	46710
15	46715
20	46720
30	46730
40	46740

Cable Ties

A cable tie is a band or length of strap, manufactured from a class of polymeric materials know as polyamides (Nylon 6/6). The width, length and head area employ ratcheting mechanisms which allow for locking as necessary for “bundling” items together. The nylon cable tie is a weather resistant grade, enduring additional ultraviolet (UV) light. UV Stabilized Nylon 6/6 is used in continuous or extended exposure to outdoor use.



Standard Ties

Length	Type	Strength	Width	Bundle Size	No.
4"	Natural	18 lbs.	.08	1/16-7/8	AP-04-18
4"	Black	18 lbs.	.08	1/16-7/8	AP-04-18-0
8"	Natural	18 lbs.	.10	1/16-2 3/16	AP-08-18
8"	Black	18 lbs.	.10	1-16-2 3/16	AP-08-18-0
6"	Natural	40 lbs.	.14	1/16-1 7/16	AP-06-40
6"	Black	40 lbs.	.14	1/16-1 7/16	AP-06-40-0
7"	Natural	50 lbs.	.18	1/16-1 7/8	AP-08-50
7"	Black	50 lbs.	.18	1/16-1 7/8	AP-08-50-0
11"	Natural	50 lbs.	.18	1/16-3 1/16	AP-11-50
11"	Black	50 lbs.	.18	1/16-3 1/16	AP-11-50-0
14"	Natural	50 lbs.	.18	1/16-4 1/8	AP-14-50
14"	Black	50 lbs.	.18	1/16-4 1/8	AP-14-50-0

Heavy Duty Ties

Length	Type	Strength	Width	Bundle Size	No.
8"	Natural	120 lbs.	.30	3/16-2 1/16	AP-08-120
8"	Black	120 lbs.	.30	3/16-2 1/16	AP-08-120-0
14"	Natural	120 lbs.	.30	3/16-2 1/16	AP-14-120
14"	Black	120 lbs.	.30	3/16-2 1/16	AP-14-120-0

Extra Heavy Duty Ties

Length	Type	Strength	Width	Bundle Size	No.
24"	Natural	175 lbs.	.340	3/16-7 3/16	AP-24-175
24"	Black	175 lbs.	.340	3/16-7 3/16	AP-24-175-0
33"	Natural	175 lbs.	.340	3/16-9 3/4	AP-33-175
33"	Black	175 lbs.	.340	3/16-9 3/5	AP-33-175-0
36"	Natural	175 lbs.	.340	3/16-11	AP-36-175
36"	Black	175 lbs.	.340	3/16-11	AP-36-175-0
48"	Natural	175 lbs.	.340	3/16-15	AP-48-175
48"	Black	175 lbs.	.340	3/16-15	AP-48-175-0

Cable Ties

Releasable Ties



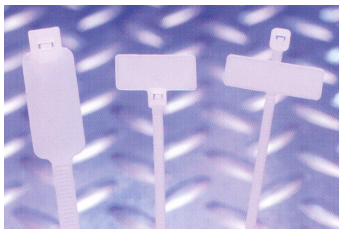
Use for prototype work, where wires will be added, or when a tie is needed for a temporary application. White and black nylon ties available. Releasable ties come in 5½", 6½", 8½", 10" lengths and 40 and 50 tensile strength. Available in 100 count bags.

Mounting Hole Cable Ties



Mounting hole cable ties come in a variety of screw sizes, from #4 through 1/4". Available in natural or black, 4" through 14" in length, 18, 30, 50 and 120 tensile strength. Available in 100 count bags.

Identification and Flag Ties



Identification and flag ties combine the ease of using a cable tie for the identification of your products. They come in three different styles, 4", 8" and 14" lengths, 18 and 50 tensile strengths and natural color. Available in 100 count bags.

Stainless Steel Ties



One piece stainless steel ties are manufactured from 304 stainless and incorporate a locking ball design for quick installation. Rounded edges and a smooth surface result in low insertion forces. They are non-magnetic, ultra-violet resistant and fireproof. Available in .18 and .31 widths, 7.9" through 33" in length, 100 and 250 tensile strengths. Available in 100 piece bags.

Low Smoke Halar Ties



Halar ties are for areas that require low smoke density if burning occurs. They are red/burgundy in color and NEC approved for use in plenum spaces. They come in two lengths, 4" and 8", 18 and 50 tensile strength. In packages of 100.

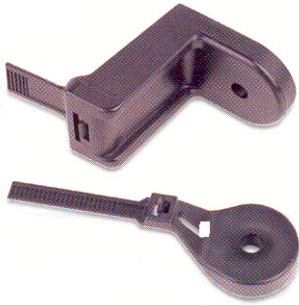
Cable Ties

Dual Clamp Ties



These clamp ties are made to provide space between cables and hoses and keep them from rubbing against each other and deteriorating. Used in many car, truck and trailer applications where high tensile strength and flexibility is needed. Comes in 13" and 19" lengths, 150 tensile strength. Available black only.

Heavy Duty Stud Mount Ties



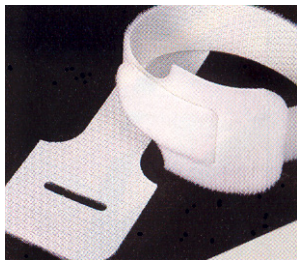
These releasable heavy duty mount ties are perfect for wire harnesses and hydraulic hoses. These can be mounted in most places with a standard fastener. Available in black only.

Button Head Ties



Manufactured from black, high impact Nylon 6/6, the button head tie is a two-piece tie providing for parallel entry and exit through the head. The strap contains serrations on both sides and the head has two opposed pawls covered by a spherical dome top. This design allows the strap to be directed clockwise or counter-clockwise prior to insertion into the head, enabling bi-directional looping.

Grip Ties



The grip tie is a low profile, one piece fastening device. Constructed of polyethylene hook and nylon loop material, laminated back to back, the grip tie features quick release for repetitive access to cable and wire. It can be opened and closed numerous times without failure. The grip tie is reusable, adjustable, releasable, and easy to install. Comes in black or white, is 9" or 13" long. Tensile strength ranges to 40 to lbs.

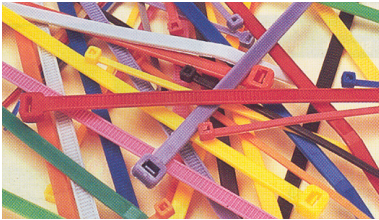
Buckle Ties



Handy, easy to use and release ties are available for temporary applications where continuous changes are anticipated. Both loop and buckle styles are offered. Comes in 12" and 18" lengths, and 50 lbs tensile strength.

Cable Ties

Colored Cable Ties



These nylon ties come in a variety of twelve colors, both standard and neon. They can be used for identification and marking or to match product colors.

Available in the 4" or 7½" long sizes, in packages of 100.

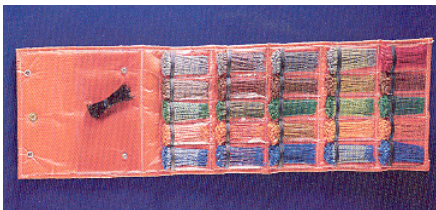
Colored Cable Tie Kits

Colored tie kits contain 1000 ties, 100 each of the following colors: black, brown, red, orange, yellow, green, blue, violet, gray and white. Come in both 4" and 7½" lengths.

Kit with 4" ties **21509**
Kit with 7½" ties **21529**

No.	Color	Length (in)	Width	Tensile
A-04-18-1	brown	4	0.100	18 lbs.
A-04-18-2	red	4	0.100	18 lbs.
A-04-18-3	orange	4	0.100	18 lbs.
A-04-18-4	yellow	4	0.100	18 lbs.
A-04-18-5	green	4	0.100	18 lbs.
A-04-18-6	blue	4	0.100	18 lbs.
A-04-18-7	purple	4	0.100	18 lbs.
A-04-18-8	gray	4	0.100	18 lbs.
A-04-18-11	neon green	4	0.100	18 lbs.
A-04-18-12	neon pink	4	0.100	18 lbs.
A-04-18-13	neon yellow	4	0.100	18 lbs.
A-04-18-14	neon orange	4	0.100	18 lbs.
A-07-50-1	brown	7½	0.187	50 lbs.
A-07-50-2	red	7½	0.187	50 lbs.
A-07-50-3	orange	7½	0.187	50 lbs.
A-07-50-4	yellow	7½	0.187	50 lbs.
A-07-50-5	green	7½	0.187	50 lbs.
A-07-50-6	blue	7½	0.187	50 lbs.
A-07-50-7	purple	7½	0.187	50 lbs.
A-07-50-8	gray	7½	0.187	50 lbs.
A-07-50-11	neon green	7½	0.187	50 lbs.
A-07-50-12	neon pink	7½	0.187	50 lbs.
A-07-50-13	neon yellow	7½	0.187	50 lbs.
A-07-50-14	neon orange	7½	0.187	50 lbs.
1=Brown		5=Green	11=Neon Green	
2=Red		6=Blue	12=Neon Pink	
3=Orange		7=Purple	13=Neon Yellow	
4=Yellow		8=Grey	14=Neon Orange	

Striped Ties



Striped ties, primarily designed for the telecommunications market, can also be used as identification marking to match product to colors.

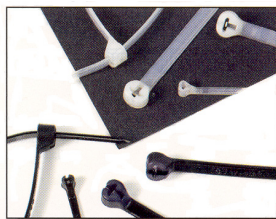
Total of 1,300 cable ties. 1,200 striped cable ties - 50 each of 24 color combinations. 100 solid color ties - 50 each of red and black.

Ties are 4" long, and rated at 18 lbs. tensile strength.

Thomas & Betts Cable Ties

Ty-Rap® Cable Ties

Premium Cable Tie Line



The Ty-Rap® has a stainless steel insert (with the grip of steel) molded in the head for an infinitely adjustable tie, with no notches. These have less stress in the tie body, therefore, there is less chance of breakage.

Cable Ties

Screw and Adhesive Mount Bases

Mounting Bases



4 Way Base

White	Black	Mounting	Size - In.	Max. Tie Width
21241	21244	Adhesive mount & #4 screw	3/4 x 3/4 x 5/32	.140
21242	21245	Adhesive mount & #8 screw	1-1/8 x 1 -1/8 x 3/16	.180
21243	21246	Adhesive mount & #8 screw	1-1/2 x 1-1/2 x 1/4	.350

Push Mount Base



21253

Mounts in a 1/4" hole in material to 7/64" thick. Accepts maximum tie width of .190

Screw Mount Base



21250

Accepts #8 screw, 3/8 x 5/8 x 1/4, accepts maximum tie width of .190.

21251

Accepts #10 screw, 5/8 x 7/8 x 3/8, accepts maximum tie width of .310

Cable Tie Tools



100-410

An easy to use economy tool for most standard size ties. Adjustable tension and cutoff with one stroke.



100-411

Lightweight economically priced tool for tensioning and cutoff of most standard size ties.



100-412

Heavy duty tool for any size tie. Especially useful on the heavy duty and extra-heavy duty ties.



100-414

A high quality, state of the art cable tool designed with an internal low friction mechanism to reduce hand effort, with a one inch stroke to reduce the number of trigger cycles. Adjustable tension knob. Only weighs 9½ ounces. For 18 through 50 pound tensile strength ties.



100-416

Similar to the 414 tool, but handles ties from 18 through 250 pound tensile strengths. Handle holds replacement blade supplies.



San Diego, California

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Velcro



(Hook & Loop) *Reclosable Fasteners*

3M™ reclosable fastening systems replaces conventional fastening methods to add greater convenience and easier accessibility, while saving steps and costs in the production process. Fast and easy open-and-close action makes these products ideal for dozens of applications where hook, latches, snaps, zippers, dials, screws, bolts and other fastening methods once prevailed.

Standard Hook and Loop



Pressure sensitive hook and loop comes in two woven strips with general purpose adhesive backing. Stiff hooks on one strip are pressed together with pliable loops from the second strip. Available in bulk rolls of either hook, loop or mini-packs that contain both parts.

Bulk Rolls

No.	Type	Color	Size
92000	hook	black	1"x50 yds.
92001	loop	black	1"x50 yds.

Mini-Packs

No.	Type	Color	Size
92004	hook & loop	black	1"x 4.9 yds.
92005	hook & loop	white	1"x 4.9 yds.

DualLock™



DualLock™ products come in two types (Type 170 and Type 400) of plastic strips with general purpose pressure sensitive backing or non-adhesive rounds. The most universal combination is the Type 170 to Type 400. For flexible surfaces, Type 400 may be mated to itself. For high-strength fastening, the loop type, No. 92001, may be mated with the Type 170.

Bulk Rolls

No.	Type	Color	Size
92002	170	black	1"x 50 yds.
92003	400	black	1"x 50 yds.

Mini-Packs

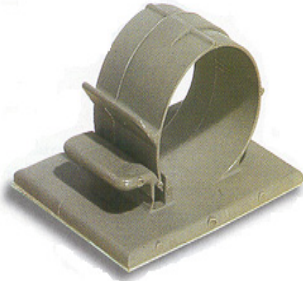
No.	Type	Color	Size
92006	170 & 400	black	1"x 4.9 yds.

Clamps & Clips

Adhesive Backed Clamps

Three styles of adhesive backed clamps are available for a variety of applications. The 1/32' thick adhesive tape is designed to stick securely to clean and smooth surfaces.

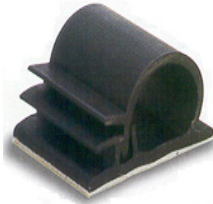
**Snap closed,
easily opened**



Injection molded flame resistant nylon clamps snap closed, but are easily opened. Gray color.

No.	Maximum Wire Bundle	Base Width	Base Length	Overall Height
25320	3/16	0.735	0.620	0.420
25321	1/4	1.000	0.855	0.515
25322	3/8	1.000	0.980	0.635
25323	1/2	0.990	1.215	0.781
25324	3/4	1.165	1.468	1.110

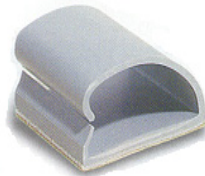
**Securely
snaps closed**



Extruded PVC copolymer flame resistant material. Quick lock/release feature. This black clamp is designed to hold securely.

No.	Maximum Wire Bundle	Base Width	Base Length	Overall Height
25384	3/16	1.000	0.750	0.370
25385	1/4	1.000	1.000	0.410
25386	3/8	1.000	1.000	0.520
25387	1/2	1.000	1.250	0.690
25388	5/8	1.250	1.250	0.780
25389	3/4	1.500	1.500	0.920
25390	3/16	0.500	0.750	0.370
25391	1/4	0.500	1.000	0.410
25392	3/8	0.500	1.000	0.520
25394	5/8	0.625	1.250	0.780

Self Closing



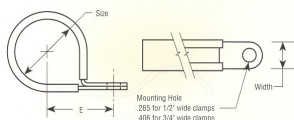
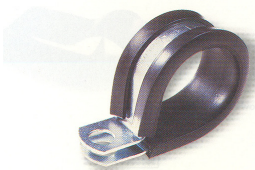
Rugged flame resistant nylon. Self closing to help keep tension on the wire bundle. Gray color.

No.	Maximum Wire Bundle	Base Width	Base Length	Overall Height
25327	1/4	0.500	0.500	0.210
25328	1/2	0.750	0.750	0.400
25329	3/4	1.000	1.130	0.580
25330	1	1.250	1.500	0.750

Clamps & Clips

Metal Cable Clamps

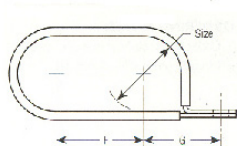
Partially Cushioned - Plated Steel, Stainless Steel & Aluminum



Cushioned, heavy-duty metal cable clamps with both partial and complete full-box cushions are offered to meet your application needs. A variety of materials, sizes, and styles in plated steel, stainless steel and aluminum can be used in heavy-duty clamping applications to hold hydraulic hoses, wire harnesses, and cables. The black durable cushion helps to cut vibration while protecting the product. Clamps are shipped in the open position for ease of assembly.

1/2" Wide Clamps					3/4" Wide Clamps	
Size	E	Plated Steel	Stainless Steel	Aluminum	E	Plated Steel
1/4	0.529	25104	25604	25804	0.639	25704
3/8	0.592	25106	25606	25806	0.702	25706
1/2	0.654	25108	25608	25808	0.764	25708
5/8	0.780	25110	25610	25810	0.827	25710
3/4	0.842	25112	25612	25812	0.889	25712
7/8	0.889	25114	25614	25814	0.952	25714
1	0.951	25116	25616	25816	1.014	25716
1 1/8	1.030	25118	25618	25818	1.097	25718
1 1/4	1.092	25120	25620	25820	1.159	25720
1 1/2	1.217	25124	25624	25824	1.284	25724
1 3/4	1.342	25128	25628	25828	1.409	25728
2	1.475	25132	25632	25832	1.534	25732
2 1/2	1.750	25140	25640	25840	1.784	25740
3	2.000	25148	25648	25848	2.034	25748

2 - Tube Cushioned Cable Clamps



Heavy-duty 2 - tube black cushioned cable clamps are offered in four sizes, plated steel, 3/4" wide. Used for holding two wire assemblies or tubing. Shipped in open position for ease of assembly. Mounting hole is 0.406" in diameter.

Size	Plated Steel	F	G
1/2	25160	0.500	0.764
3/4	25161	0.750	0.889
1	25162	1.000	1.014
1 1/4	25163	1.125	1.159

Clamps & Clips

Metal Cable Clamps

Full Cushioned Cable Clamps

Plated steel cable clamps are fully cushioned and available in the 1/2" width clamp only. The durable black rubber will help to protect your product by holding hoses, harnesses and cables out of harms way.



Size	E	Plated Steel
1/4	0.529	25204
3/8	0.592	25206
1/2	0.654	25208
5/8	0.780	25210
3/4	0.842	25212
7/8	0.889	25214
1	0.951	25216
1 1/8	1.030	25218
1 1/4	1.092	25220
1 1/2	1.217	25224
1 3/4	1.342	25228
2	1.475	25232

Heavy Duty Metal Cable Clamps

Heavy-duty metal cable clamps manufactured from corrosion resistant steel are used to hold heavy cable assemblies, hoses and other typical applications. These clamps are 1/2" wide with a mounting hole of 0.204".



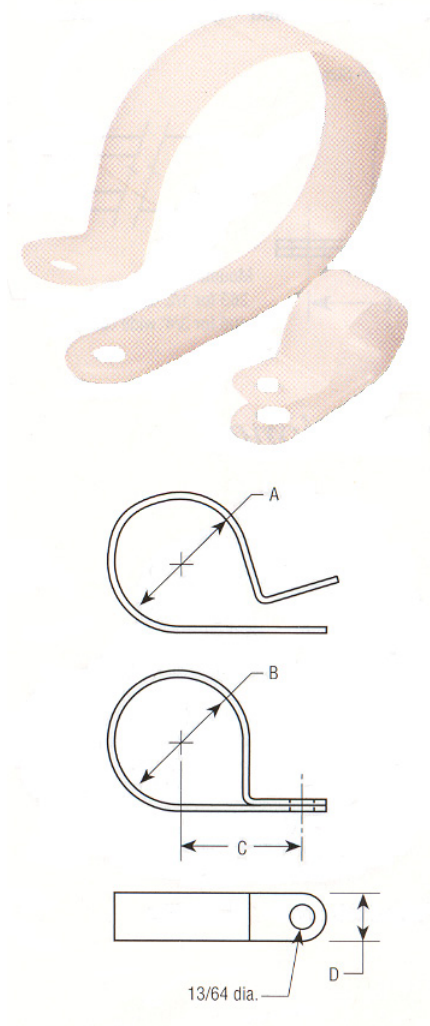
Size	No.
1/4	25400
5/16	25401
3/8	25402
1/2	25403
5/8	25404
3/4	25405
7/8	25406
1	25407



Clamps & Clips

Nylon Cable Clamps

Secure cable, tubing, wires, fiber optics, etc. with these high quality nylon cable clamps. Molded in the open position for easy assembly with all inside edges beveled to prevent abrasion.



White	Black	Size	A	B	C	D
25000	25050	1/8	0.125	0.115	0.325	3/8
25001	25051	3/16	0.187	0.172	0.378	3/8
25002	25052	1/4	0.250	0.234	0.409	3/8
25003	25053	5/16	0.312	0.279	0.441	3/8
25004	25054	3/8	0.375	0.359	0.471	3/8
25005	25055	7/16	0.437	0.422	0.519	3/8
25006	25056	1/2	0.500	0.484	0.550	3/8
25007	25057	1/8	0.125	0.115	0.360	1/2
25008	25058	3/16	0.187	0.172	0.423	1/2
25009	25059	1/4	0.250	0.234	0.457	1/2
25010	25060	5/16	0.312	0.297	0.498	1/2
25011	25061	3/8	0.375	0.359	0.529	1/2
25012	25062	7/16	0.437	0.422	0.560	1/2
25013	25063	1/2	0.500	0.484	0.592	1/2
25014	25064	9/16	0.563	0.547	0.623	1/2
25015	25065	5/8	0.625	0.609	0.654	1/2
25016	25066	11/16	0.687	0.672	0.752	1/2
25017	25067	3/4	0.750	0.734	0.783	1/2
25018	25068	13/16	0.812	0.797	0.814	1/2
25019	25069	7/8	0.875	0.859	0.845	1/2
25020	25070	1	1.000	0.984	0.908	1/2
25021	25071	1-1/8	1.125	1.102	0.970	1/2
25022	25072	1-3/16	1.187	1.164	1.002	1/2
25023	25073	1-1/4	1.250	1.227	1.062	1/2
25024	25074	1-3/8	1.375	1.352	1.125	1/2
25025	25075	1-1/2	1.500	1.477	1.187	1/2

Metal Chassis Clamps



Made from heat-treated spring steel with a black corrosion resistant finish. Chassis clamps snap in place and securely hold wires, cables and hoses.

Large	Medium	Small
25313	25312	25311

Clamps & Clips

Hose Clamps

Standard Hose Clamps



This general-purpose hose clamp is available in two materials. The standard style is a stainless steel band and housing with a plated steel screw. The stainless steel style is all stainless, including the screw, and is used in high corrosive areas. The micro clamps are 5/16 inch wide while the larger sizes are 1/2 inch wide.

Standard	Stainless	Size	Nominal Range Min. to Max.
HC-28001	HC-28201	Micro 5	7/16 to 11/16
HC-28003	HC-28203	Micro 8	7/16 to 1
HC-28006	HC-28206	6	3/8 to 7/8
HC-28008	HC-28208	8	7/16 to 1
HC-28010	HC-28210	10	9/16 to 1-1/16
HC-28012	HC-28212	12	9/16 to 1-1/4
HC-28016	HC-28216	16	11/16 to 1-1/2
HC-28020	HC-28220	20	3/4 to 1-3/4
HC-28024	HC-28224	24	1-1/16 to 2
HC-28028	HC-28224	28	1-5/16 to 2-1/4
HC-28032	HC-28232	32	1-9/16 to 2-1/2
HC-28036	HC-28236	36	1-13/16 to 2-3/4
HC-28040	HC-28240	40	2-1/16 to 3
HC-28044	HC-28244	44	2-5/16 to 3-1/4
HC-28048	HC-28248	48	2-9/16 to 3-1/2
HC-28056	HC-28256	56	3-1/16 to 4
HC-28064	HC-28264	64	2-1/2 to 4-1/2

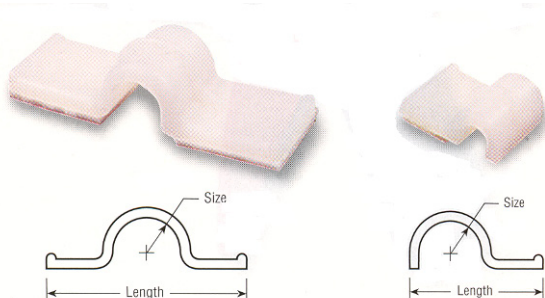
High Strength Hose Clamps



High strength hose clamps are 5/8" wide. Delivering up to twice the clamping strength of standard hose clamps. Use in demanding applications. All stainless steel construction. Manufactured with extra notches in the band for an extended range with each clamp.

No.	Extended Range Min. to Max.
HC-28100	1-1/4 to 2-5/8
HC-28101	2-1/8 to 4-1/8
HC-28102	4 to 6-1/8
HC-28103	6-1/8 to 9-1/8

Adhesive Backed Cable Clamps

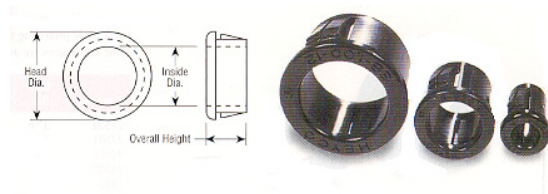


Adhesive backed clamps are designed for holding wire and cable to any smooth flat surface. Molded out of white nylon, with a high strength polyurethane foam tape for quick adhesion.

Size	Width	Single	Length	Double	Length
1/8	3/8	25341	0.493	25361	0.760
1/4	1/2	25342	0.865	25362	1.380
3/8	5/8	25343	1.000	25363	1.505
1/2	3/4	25344	1.125	25364	1.600

Protection Products

Snap bushings easily snap into place. Used to eliminate sharp edges and protect wires passing through holes..



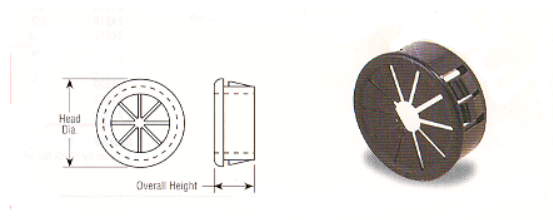
Snap Bushings

No.	Mounting hole dia.	Inside dia.	Head dia.	Overall height	Panel thickness
24100	0.250	1/8	0.312	0.312	.062
24101	0.375	1/4	0.468	0.406	.125
24102	0.500	3/8	0.578	0.406	.125
24103	0.625	1/2	0.718	0.406	.125
24104	0.750	5/8	0.843	0.406	.125
24106*	0.875	11/16	0.953	0.453	.125
24105	1.000	3/4	1.125	0.453	.125
24107	1.250	15/16	1.359	0.453	.125
24108	1.375	1.000	1.468	0.453	.125
24109	1.500	1-5/16	1.609	0.453	.125
24110	1.750	1-3/8	1.875	0.453	.125
24111	2.000	1-5/8	2.125	0.453	.125

* Fits standard 1/2" electrical knockout.

Universal Bushings

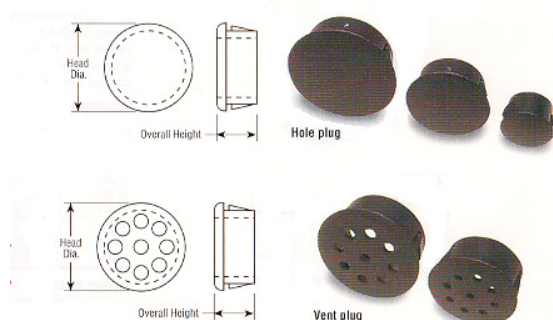
These black nylon bushings have flexible shutters to accommodate a variety of cable and hose sizes .



No.	Mounting hole dia.	Inside dia.	Head dia.	Overall height	Panel thickness
24200	0.625	7/16	0.719	0.406	.125
24201	0.750	1/2	0.859	0.391	.125
24502	0.812	1/2	0.891	0.391	.125
24203	0.875	9/16	0.938	0.453	.125
24204	1.000	3/4	1.063	0.453	.125
24205	1.093	13/16	1.156	0.453	.125

Locking Hole and Vent Plugs

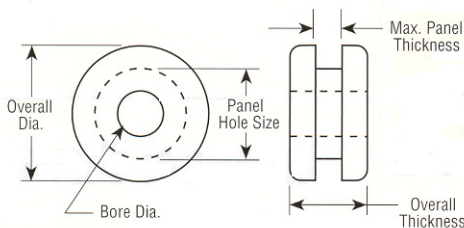
Black nylon hole plugs and vent plugs are used to close holes in panels. Available in solid or with vent holes.



Type	No.	Mounting hole dia.	Head dia.	Overall dia.	Panel thickness
Solid Plug	24401	0.250	0.312	0.312	0.062
	24403	0.375	0.468	0.406	0.125
	24405	0.500	0.578	0.406	0.125
	24407	0.625	0.718	0.406	0.125
	24409	0.750	0.922	0.406	0.125
	24411	0.875	1.016	0.453	0.125
	24412	1.000	1.023	0.453	0.125
Vent Plug	24425	0.875	1.016	0.453	0.125
	24426	1.000	1.203	0.453	0.125

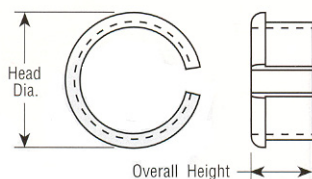
Rubber Grommets

Buna S rubber grommets are designed to allow passage through a metal plate or panel while protecting your wire, cable or hose from cutting and abrasion. Black color.



No.	Bore dia.	Panel Hole size	Panel thickness	Overall dia.	Overall thickness
24500	3/16	5/16	1/16	1/2	1/4
24501	7/16	9/16	1/16	3/4	1/4
24502	1/8	1/4	1/16	11/32	3/16
24503	1/8	3/8	3/32	1/2	5/16
24504	3/16	9/32	3/32	7/16	7/32
24523	3/16	5/16	1/8	7/16	1/4
24524	3/16	5/16	3/16	7/16	5/16
24505	1/4	7/16	1/16	5/8	3/16
24506	1/4	3/8	1/16	9/16	9/32
24507	1/4	3/8	3/32	1/2	1/4
24508	5/16	9/16	1/16	13/16	5/16
24509	5/16	7/16	1/16	5/8	9/32
24510	5/16	7/16	3/32	5/8	5/16
24511	3/8	5/8	1/16	7/8	5/16
24512	3/8	1/2	1/16	5/8	1/4
24513	7/16	11/16	1/16	15/16	5/16
24514	1/2	13/16	1/16	1-1/16	5/16
24515	1/2	1-1/4	1/16	1-1/2	1/4
24516	1/2	3/4	3/32	7/8	11/32
24517	9/16	13/16	1/16	1-1/16	5/16
24518	5/8	7/8	1/16	1-1/8	5/16
24519	5/8	1-1/4	1/16	1-1/2	1/4
54520	3/4	1-1/16	1/16	1-3/8	3/8
24521	3/4	1-7/16	1/16	1-13/16	3/8
24522	7/8	1-1/4	1/16	1-5/8	7/16

Open / Closed Bushings



Black nylon bushings can be used where cable or tubes are already installed. Simply squeeze the bushing together to snap into the hole. These bushings also allow for connections for other parts of harnesses too large to fit through the inside diameter of a standard bushing. Snaps securely in panels to 1/8" thick.

No.	Mounting hole dia.	Inside dia.	Head dia.	Overall height	Panel thickness
24300	0.375	0.266	0.422	0.406	.125
24301	0.500	0.313	0.563	0.406	.125
24302	0.562	0.391	0.641	0.406	.125
24303	0.625	0.453	0.688	0.406	.125
24304	0.750	0.547	0.797	0.406	.125
24305	0.875	0.672	0.922	0.406	.125
24306	1.000	0.797	1.063	0.406	.125

Tape Products

Electrical Tape

3M Super 88



3M-88

Scotch™ brand Super 88 heavy duty plastic tape is particularly suited for cold weather applications. 3/4" by 66', 8.5 mil. roll. Remains flexible in cold shops and outdoor applications. Rated 0° to 221°F, UL listed, CSA certified.

3M Super 33+



3M-33

An excellent tape for all jobs, 7 mil., 3/4" by 66', 600V roll and good to 221°F. Resistant to flame, abrasion, moisture, alkalines, solvents, oil and many acids. UL listed, CSA certified.

3M 700



3M-700

Scotch™ brand 700 tape is a moderately priced, 7 mil. 3/4" by 66' tape for holding, protecting and insulating. UL listed, good to 176°F..

3M 1700



3M-1700

3M brand competitively priced PVC 7 mil. tape. UL listed and CSA certified to 176°F. 3/4" by 60' roll.



3M 35 Vinyl Tape

A 7 mil. flame retardant and weather resistant tape. Available in nine colors, 3/4" by 66' roll.

Color	No.
brown	3M-35-BR
red	3M-35-RD
orange	3M-35-OR
yellow	3M-35-YL
green	3M-35-GR
blue	3M-35-BL
violet	3M-35-VL
gray	3M-35-GR
white	3M-35-WH



3M Scotch™ 2242 Linerless Splicing Compound (Rubber Tape)

Scotch™ 2242 is an all-purpose rubber tape. Use for all-voltage splicing, insulating bus bars, jacketing and insulating. 3/4" by 15' roll.



3M-27

3M Scotch™ 27 Glass Cloth Electrical Tape

Scotch™ 27 is a 7 mil. tape with thermosetting pressure-sensitive adhesive which performs at Class B temperatures up to 266°F. Provides heat stable insulation for hot-spot applications such as furnace and oven controls. 1/2" x 66' roll.



20965 Self Fusing Tape

This silicone rubber tape with self bonding properties is used to insulate and protect harnesses, splices, motor leads, etc. Continuous operating temperature from -76°F to 392°F. 1" wide by .020 thick x 12 yards long.

Tape Products

Reflective Tapes

3M Scotchlite™



3M Scotchlite™ reflective tape is designed to mark sides and rear of trailers and trucks for high visibility. It meets all requirements of NHSTA and is DOT-2 certified. This highly retro-reflective material has an aggressive pressure sensitive adhesive for easy application. Offered in kits with all required items for complete trailer marking or large rolls for economically marking a variety of trailers. The rolls come in either an economically priced film with 3M's three year guarantee or the standard film with 3M's seven year guarantee..

981-32ES

Trailer Marking Rolls

Rolls for all trailers. Includes one 2"x150' roll of alternating 11" long red and 7" long white tape.

Trailer Marking Kits

981-K4 Kit for trailers up to 28' long

981-K3 Kit for trailers up to 48' long

981-K2 Kit for trailers up to 53' long

981-K1 Kit for trailers up to 57' long

Kits include pre-cut strips: 2"x18" alternating red and white; 2" x 12" white corner strips; one 2" x 90" bumper to door and one 1-1/2" x 90" under ride. Kit also has complete instructions and an application squeegee.

School Bus Reflective Tape



6281

3M Scotchlite™ High Intensity Grade Reflective Sheeting

Optimal for use to improve school bus safety. All Scotchlite™ products exceed industry brightness standards. The yellow color blends with paint colors and is very colorfast.

2" x 150' Roll of yellow.

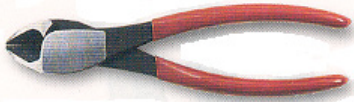
Choosing the right materials

Recommended material requirements for non-continuous side patterns:

Vehicle Length	Number of 18" Strips per Vehicle	Space between Strips
28 feet	20	17-3/8"
42 feet	30	16-3/4"
45 feet	32	16-3/4"
48 feet	34	16-7/8"
53 feet	38	16-3/8"

Tools

Cutters



100-433 Cutter

Diagonal cutter forged from high quality alloy steel. Red vinyl cushioned grips on this 7-1/4" long tool.



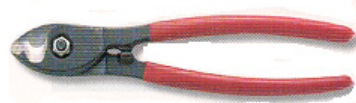
100-437 Battery Cable Cutter

Designed to cut battery cable to 2/0 gauge. 9" long, forged steel with insulated grips.



100-465 Wire Cutter

High quality precision hardened steel blades. Spring loaded, comfortable handles. Cuts up to 1/2" stranded wire.



100-469 Cable Cutter

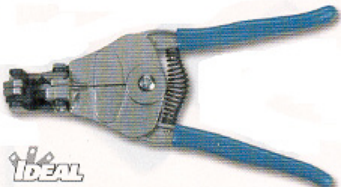
Cuts copper and aluminum cable up to 1 gauge.



100-438 Heavy Duty

Heavy duty battery cable cutter cuts to 250mm copper cable. 22" long with removable blades which can be sharpened.

Wire Strippers



100-444 Wire stripper

Precision super high quality wire stripper with automatic delayed return spring. Will strip 22 thru 10 gauge wire without crushing, nicking or damaging strands.



100-430 Wire stripper-Crimper

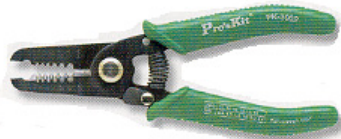
Strips 26 thru 10 gauge wire in one action with return spring action. Designed not to nick or damage copper wire. Includes a wire cutter and crimper.



100-459

Self Adjusting Wire Stripper and Cutter

For fast, safe, precision stripping and cutting 22 thru 10 gauge copper wire. Has a closed-loop cam mechanism to reduce operator fatigue.



100-467 Wire Stripper

This precision stripper strips 20 to 10 gauge wire and is economically priced. Includes soft grip handles and return spring action.



100-439

Heavy Duty Wire Stripper-Crimper

Heavy duty construction version of the #430, with an adjustable wire strip length gauge. Strips 26 through 10 gauge and crimps 22 through 10 gauge insulated and 22 through 4 gauge non-insulated terminals. Includes wire cutter and ignition terminal crimper.



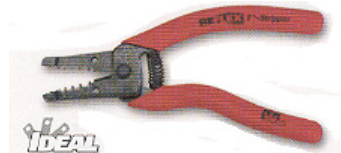
100-436 Economy Cable Stripper

Strips cable to 4/0 gauge. Easy to use, simply line up blade and spin stripper

Circuit Tester

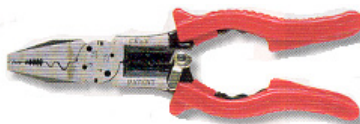
100-446

Checks 6 and 12 volt circuits. Connect clip to ground and the internal light bulb lights when the sharp pointed probe makes contact. 5 ft. insulated wire.



100-448 Wirestripper

Ergonomically designed handles for maximum comfort and reduced wrist fatigue. For stranded wire 16 thru 8 gauge.



100-468 8" Pilers

Also cuts and strips 18 to 10 gauge.

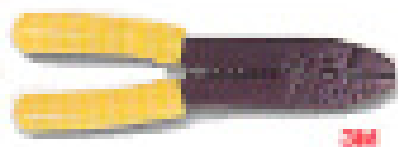


Economical Crimpers



100-466

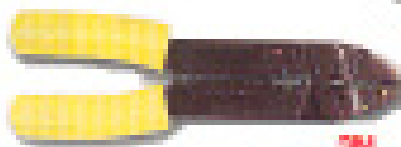
Economically priced all-in-one Crimper
Crimps, strips and cuts 22 thru 10 gauge wire..



100-403 Economically priced Crimper

Crimps and strips 22 thru 10 gauge. Wire cutter cut-off dies for mild steel and non-ferrous screws. Crimps both standard insulated and non-insulated terminals, also crimps 7 and 8 mm ignition parts.

Heavy Duty Crimpers



100-404 Heavy Duty Crimper

Crimps 22 thru 6 gauge and strips 22 thru 10 gauge wire. Cutter for screw sizes 4-40, 6-32, 8-32 and 10-32. Crimps both standard insulated and non-insulated terminals, also crimps flag terminals.



100-434 Crimper

Crimps 22 thru 10 gauge. Ratchet operation for a complete crimp of both insulated and non-insulated terminals.



100-457 Plier Type Crimper For Insulated and Non-insulated Terminals

Heavy duty plier-type crimper for general duty hand crimping, 22 thru 10 gauge wire.



Thomas & Betts

100-458 Crimper

Economically priced tool for crimping both insulated and non-insulated terminals 22 thru 10 gauge. Wire cutter, bolt cutter and wire stripper. Handy crimp indicator gauge and return spring with latch.

Ergonomic Crimpers



100-463 Comfort Grip Crimper

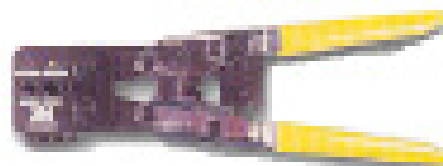
Features an easy to crimp operation for less fatigue of operator's hands. Crimps insulated terminals 22 thru 10 gauge. Color code terminal dies and soft handles. Ratchet mechanism to assure complete crimps.



100-409 Crimper

AMP PRO-CRIMPER II hand tool requires dramatically less hand force than standard crimpers to produce high quality crimps. Ratchet construction assures a complete crimp cycle every time. For insulated 22-18, 16-14 and 12-10 gauge terminals, has three color coded terminal slots.

Specialty Crimpers



100-405 Crimper

Double crimps both barrel and insulation grip simultaneously. Ideal for nylon insulated with extra sleeve. Crimps insulated terminals only in gauges 22 thru 10.



100-495 Fully Insulated Flag Crimper

Crimps fully insulated flag terminals with one crimp. Ratchet operation to assure a



100-HT-11

Economically priced U-Barrel Crimper

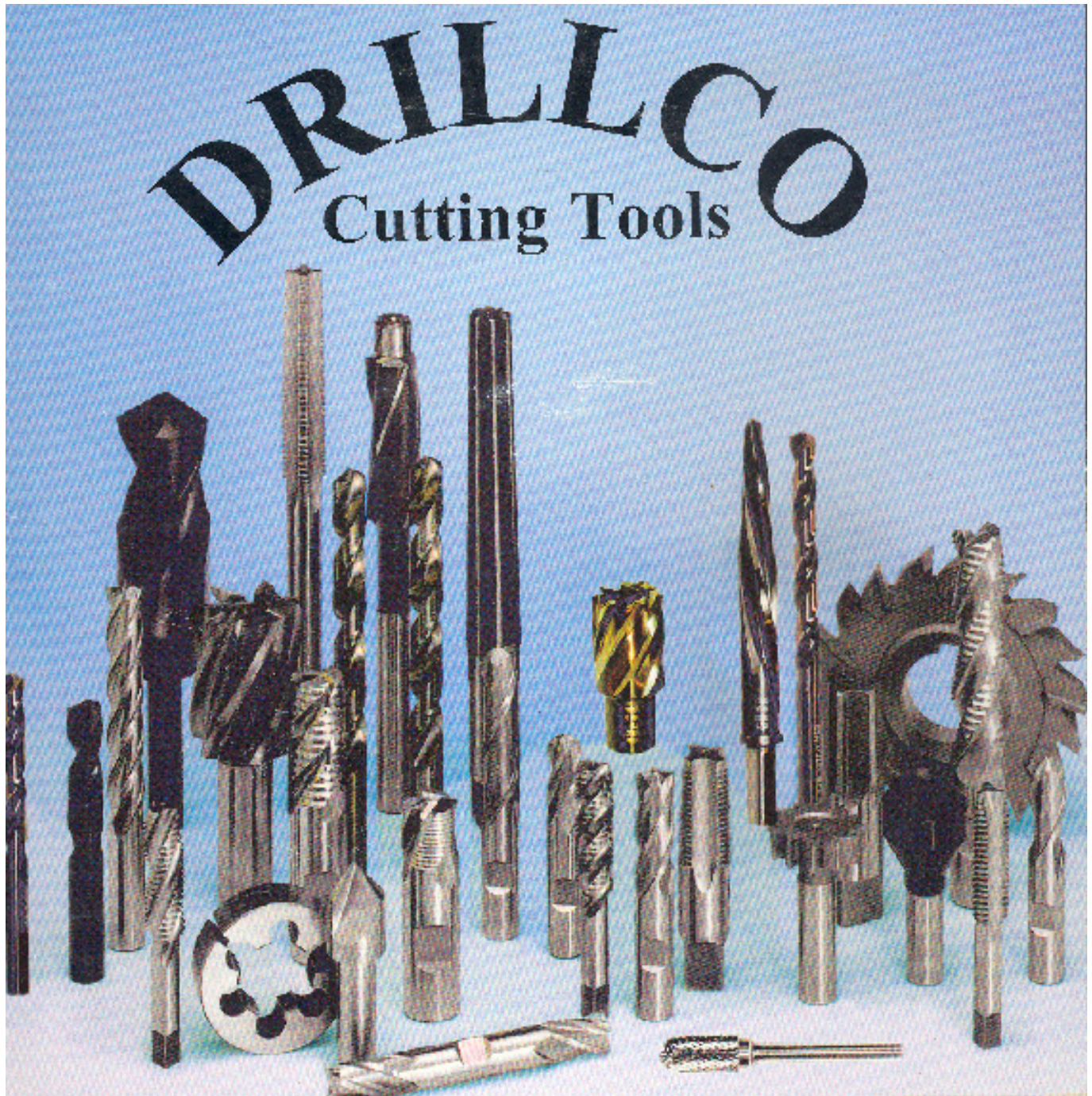
Crimps U-barrel terminals from 24 thru 14 gauge.



100-456 Plier Type Crimper for Non-Insulated Terminals

Heavy duty plier type crimper for general duty hand crimping of non-insulated terminals 22 thru 10 gauge.

Tools



All special cutting tools available. Ask for a catalogue.



Ordering & Customer Service

1-619.278.1302

*Made in the USA**Series 350N**135° Split Point*

Manufactured from a premium grade of M-7N molybdenum high-speed steel. The **Nitro** Heavy Duty 135° Split Point drill with a Nitride surface treatment, that gives a hard, protective layer to the drill. This will increase hardness without increasing brittleness which is measurably harder than high speed steel. Body and clearance are bronze and black surface treated for maximum lubricity. Recommended for use in stainless steel and other hard metal drilling.

Sizes	Flute Length (in)	Overall Length (in)	Part No.
* 1/16	7/8	1 7/8	350N104
* 5/64	1	2	350N105
* 3/32	1 1/4	2 1/4	350N106
* 7/64	1 5/16	2 3/8	350N107
* 1/8	1 7/16	2 1/2	350N108
* 9/64	1 9/16	2 5/8	350N109
* 5/32	1 11/16	2 3/4	350N110
* 11/64	1 13/16	2 7/8	350N111
3/16	1 7/8	3	350N112
13/64	1 15/16	3 1/8	350N113
7/32	2	3 1/4	350N114
15/64	2 1/16	3 3/8	350N115
1/4	2 3/32	3 1/2	350N116
17/64	2 1/8	3 5/8	350N117
9/32	2 1/4	3 3/4	350N118

Sizes	Flute Length (in)	Overall Length (in)	Part No.
19/64	2 3/8	3 7/8	350N119
5/16	2 1/2	4	350N120
21/64	2 9/16	4 1/16	350N121
11/32	2 5/8	4 1/8	350N122
23/64	2 11/16	4 3/16	350N123
3/8	2 11/16	4 1/4	350N124
23/64	2 3/4	4 5/16	350N125
13/32	2 13/16	4 3/8	350N126
27/64	2 7/8	4 7/16	350N127
7/16	2 15/16	4 1/2	350N128
29/64	3	4 5/8	350N129
15/32	3 1/8	4 3/4	350N130
31/64	3 1/4	4 7/8	350N131
1/2	3 3/8	5	350N132
			350N133

*Does not have three flats.

*High speed M-7N steel**Heavy Duty**Bronze & Black Finish*

- The self-starting 135° split point minimizes walking and quickly bites into hard material.
 - 3 flats on most shanks give positive, fast-grip chucking.
- The point and land are bronze surface treated for maximum lubricity.
 - Especially designed for portable drilling.

Tools

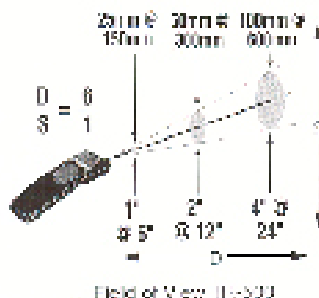
Ask for an Auveco catalogue



*Auveco:
Body Hardware & Specialty Fasteners...
“Since 1916”*

3M™ Infrared Thermometer

IR-500



The **IR-500** is pocket-sized which makes it convenient to carry during daily maintenance checks. With a 6:1 distance to spot ratio, it is best used within 4 feet of the object and has a temperature range of 0° to 500°F.

The one button operation of the **IR-500**, offers the ultimate in ease of use for fast, accurate temperature measurement. With single-point laser sighting, the point-and-shoot operation and back-lit LCD display make it user friendly, with minimal training required for use. The unit is lightweight yet durable enough to withstand daily use.

Storage Products

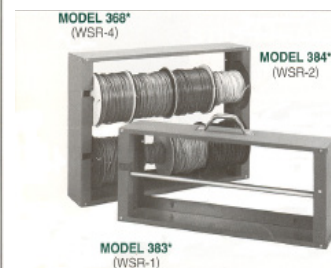
Durham Manufacturing

Large Racks for Drawers



Durham's Large Racks (LR) for Large Scoop Compartment Boxes are produced using high quality prime cold rolled steel and are finished in rust and acid resistant baked enamel. All parts, including cradles which support scoop boxes, and coated slides and tracks, are tooled for quality and uniformity. A center panel on each cradle supports boxes and special stops prevent units from being accidentally pulled from the rack. Racks are reinforced for strength and support loaded boxes in the open position without tilting.

Wire Spool Racks



Durham's Heavy Duty Wire Spool Racks include models with one, two, and four plated 5/8" diameter steel rods for the convenient storing and dispensing of wire. All models are shipped knocked down and easily assembled.

MODEL 368

Four rack model holds spools up to 10" in diameter. 26-1/8" wide, 37-1/8" tall, 6" deep, weighs 25 lbs.

MODEL 384

Two rack model is ideal for countertop use. 26-1/8" wide, 17-1/8" tall, 6" deep and weighs 11 lbs.

MODEL 383

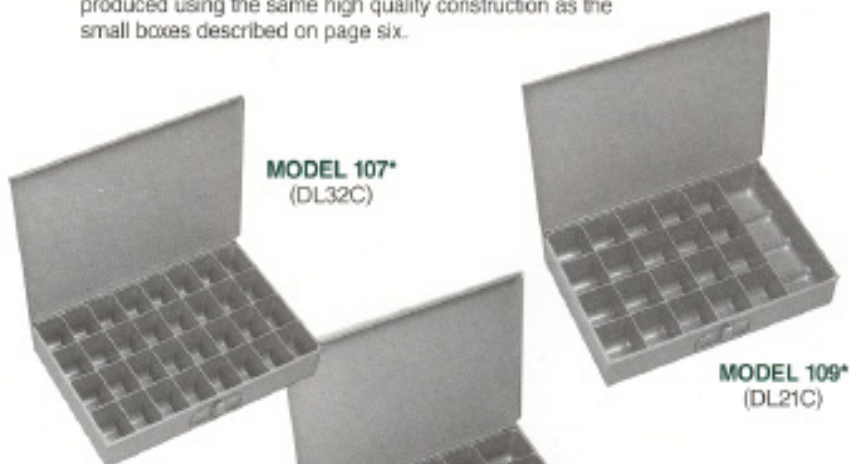
Has a handle, is 26-1/8" wide, 10-3/8" tall, 6" deep and weighs 9 lbs.

Durham Manufacturing

LARGE SCOOP COMPARTMENT BOXES

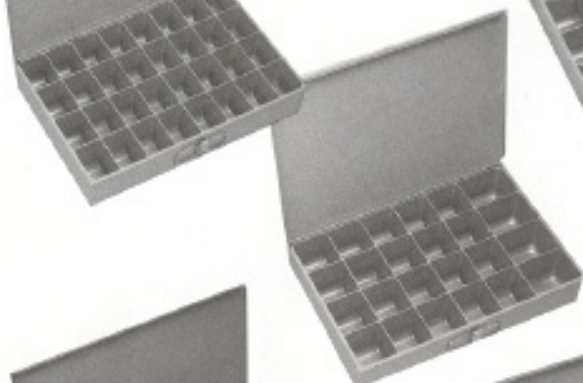
18"W x 3"H x 12"D

Durham Large Scoop Compartment Boxes (DL) are produced using the same high quality construction as the small boxes described on page six.



MODEL 107*
(DL32C)

MODEL 109*
(DL21C)



MODEL 102*
(DL24C)

MODEL 111*
(DL20C)



MODEL 113*
(DL16C)



MODEL 115*
(DL12C)



MODEL 125*
(DL6HC)



MODEL 117*
(DL6VC)

Adjustable Series. Durham Scoop Compartment Boxes with adjustable dividers offer the opportunity to customize the number, size, and shape of compartments.



MODEL 119* (ADLC) Adjustable Drawer with catch and nine straight dividers.



NEW MODEL 099* (ADLHC) Horizontal Adjustable Compartment Box with twelve dividers.



MODEL 131* (EXLC) Expando-Box with moveable dividers.

Wire and cable carrying capacities

Cable gauge	Light circuit cable (Continuous duty)	Battery cable (Intermittent)	Welding cable (Up to 50 feet)
18	3 amperes		
16	6 amperes		
14	15 amperes		
12	20 amperes		
10	25 amperes		
8	35 amperes		
6	50 amperes	90 amperes	60 amperes
4		125 amperes	150 amperes
2		150 amperes	200 amperes
1		200 amperes	250 amperes
1/0		225 amperes	300 amperes
2/0		275 amperes	400 amperes
3/0		325 amperes	
4/0		400 amperes	

Recommended cable gauges

Ampere load	To 10 ft.	To 20 ft.	To 30 ft.	To 40 ft.
3	18 awg.	16 awg.	14 awg.	12 awg.
6	16 awg.	14 awg.	12 awg.	10 awg.
15	14 awg.	12 awg.	10 awg.	8 awg.
20	12 awg.	10 awg.	8 awg.	6 awg.
25	10 awg.	8 awg.	6 awg.	4 awg.

Voltage drop

Cable gauge	Cable load	Voltage @ 25 ft.	Voltage @ 50 ft.
16	6	11.34	10.69
12	20	11.14	10.31
8	35	11.41	10.83
2	125	11.48	10.93
2/0	225	11.51	11.02

Recommended A.T.A. color coding

White	Ground return to towing vehicle
Black	ICC required marker and clearance ramp
Yellow	Left hand directional signal
Red	Stop lamp
Green	Right hand directional signal
Brown	Tail lamp, 3 bar marker lamps and clearance or marker lamps other than ICC required
Blue	Auxiliary circuits

Conductivity and resistance of metals

Element	Electrical Conductivity	Resistance in Micro-ohms
Aluminum	64.9%	2.83
Cadmium	22.7%	7.60
Copper	101.0%	1.72
Gold	71.2%	2.44
Iron	17.6%	10.00
Lead	8.4%	22.00
Nickel	25.2%	7.80
Silver	106.0%	1.59
Tin	15.0%	11.50
Zinc	29.1%	5.80

Wire gauge conversion

American wire gauge	Circular mil area
26 - 24	230 - 451
26 - 22	230 - 700
24 - 20	451 - 1200
22 - 18	639 - 1909
18 - 14	1909 - 4208
14 - 12	2409 - 4208
12 - 10	3830 - 6695
8	6088 - 10550
6	22880 - 26813
4	38910 - 42613
2	60090 - 66832
1/0	81807 - 105800
2/0	124900 - 133800
3/0	157600 - 168000
4/0	198700 - 212200

For Your Information



San Diego, California

DECIMAL EQUIVALENT CHART

Fractions	Decimals	Millimeters
1/64	.0156	0.3969
1/32.....2/64	.0313	0.7937
3/64	.0469	1.1906
1/16.....4/64	.0625	1.5875
5/64	.0781	1.9844
3/32.....6/64	.0934	2.3812
7/64	.1094	2.7781
1/8.....8/64	.1250	3.1750
9/64	.1406	3.5719
5/32.....10/64	.1563	3.9687
11/64	.1719	4.3656
3/16.....12/64	.1875	4.7625
13/64	.2031	5.1594
7/32.....14/64	.2188	5.5662
15/64	.2344	5.9531
1/4.....16/64	.2500	6.3500
17/64	.2656	6.7469
9/32.....18/64	.2813	7.1437
19/64	.2969	7.5406
5/16.....20/64	.3125	7.9375
21/64	.3281	8.3344
11/32.....22/64	.3438	8.7312
23/64	.3594	9.1281
3/8.....24/64	.3750	9.5250
25/64	.3906	9.9219
13/32.....26/64	.4063	10.3187
27/64	.4219	10.7156
7/16.....28/64	.4375	11.1125
29/64	.4531	11.5094
15/32.....30/64	.4688	11.9062
31/64	.4844	12.3031
1/2.....32/64	.5000	12.7000

DECIMAL EQUIVALENT CHART

Fractions	Decimals	Millimeters
3/64	.5156	13.0969
17/32.....34/64	.5313	13.4937
35/64	.5469	13.8906
9/16.....34/64	.5625	14.2875
37/64	.5781	14.6844
19/32.....38/64	.5938	15.0812
39/64	.6094	15.4781
5/8.....40/64	.6250	15.8750
41/64	.6406	16.2719
21/32.....42/64	.6563	16.6687
43/64	.6719	17.0656
11/16.....44/64	.6875	17.4625
45/64	.7031	17.8594
23/32.....46/64	.7188	18.2562
47/64	.7344	18.6531
3/4.....48/64	.7500	19.0500
49/64	.7656	19.4469
25/32.....50/64	.7813	19.8437
51/64	.7969	20.2406
13/16.....52/64	.8125	20.6375
53/64	.8281	21.0344
27/32.....54/64	.8438	21.4312
55/64	.8594	21.8281
7/8.....56/64	.8750	22.2250
57/64	.8906	22.6219
29/32.....58/64	.9063	23.0187
59/64	.9219	23.4156
15/16.....60/64	.9375	23.8125
61/64	.9531	24.2094
31/32.....62/64	.9688	24.6062
63/64	.9844	25.0031
1.....64/64	1.0000	25.4001

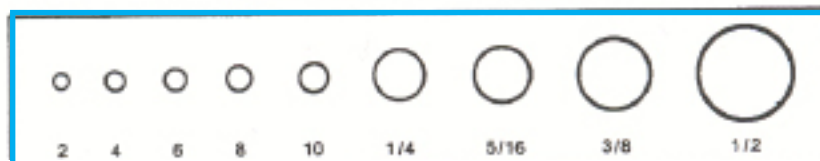
STUD SIZE EQUIVALENTS

Stud Size	Diameter Inches	Diameter mm
#0	.065	1.68
#2	.093	2.36
#4	.119	3.02
#6	.148	3.76
#8	.178	4.52
#10	.198	5.03
1/4"	.265	6.73

STUD SIZE EQUIVALENTS

Stud Size	Diameter Inches	Diameter mm
5/16"	.326	8.28
3/8"	.390	9.91
7/16"	.454	11.53
1/2"	.518	13.16
5/8"	.656	16.66
3/4"	.779	19.79

ACTUAL SIZE STUD GAUGE





San Diego, California

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