

# AMP Sealed Connectors

Catalog 65481  
Revised 01-00

**AMP**



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Dimensioning:  
Dimensions are in millimeters and  
inches. Values in brackets are U.S.  
equivalents.

Metric symbols used are:

m (meter)  
mm<sup>2</sup> (square millimeter)  
cm (centimeter)  
N (newton)  
kg (kilogram)  
c (Celsius)

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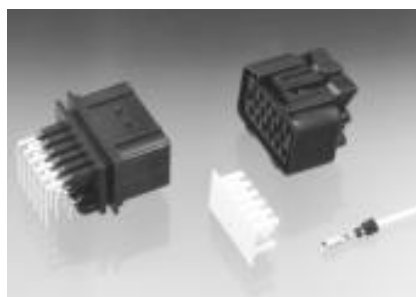
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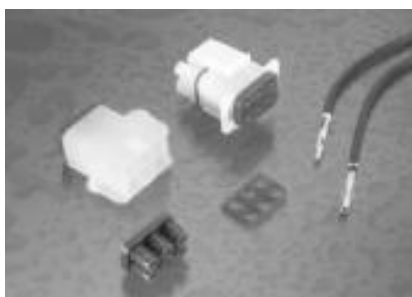
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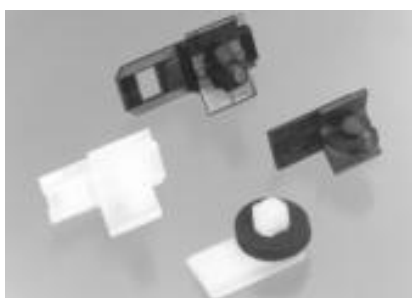


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#### Mounting Clips For:

- Econoseal J Series[Mark II+] Connectors
- Econoseal III, .250 Series Connectors
- .187 Series Connectors

(Includes Panel Cut-Out Requirements)



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## Econoseal J Series [Mark II(+)] . . . Sealed Connectors

### Contacts

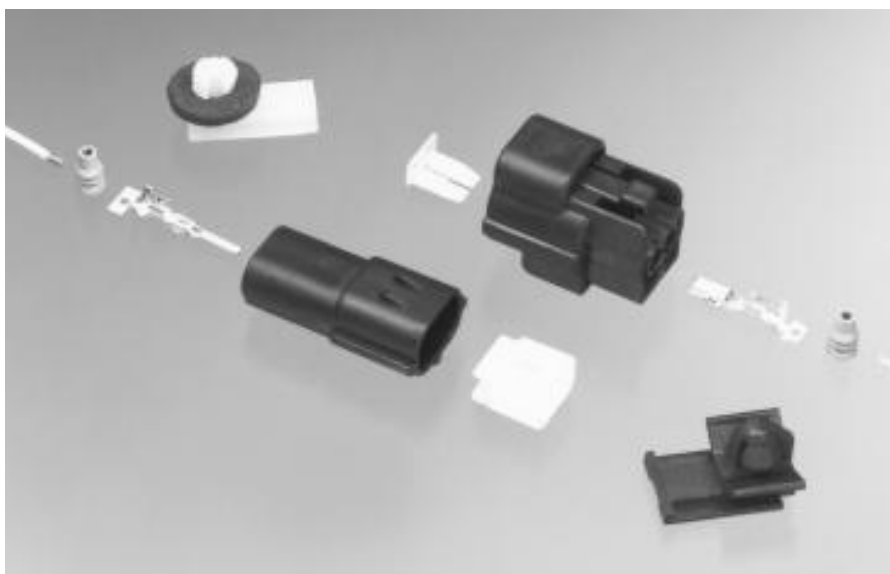
- 070 series tab contacts. 1.8 mm [.071 in.] wide x 0.64 mm [.025 in.] thick
- Receptacle contacts are available in brass or phosphor bronze with pre-tin or gold plating.
- Tab contacts are available in pre-tin or gold plated brass.
- Lanceless design to reduce tangling.
- Wire range 0.20 - 1.25 mm<sup>2</sup> [#24 - #16 AWG]

### Wire Seals and Cavity Plugs

- Made from NBR material.
- Wire seal and contact crimped simultaneously.
- For wire insulation diameters of 1.4 - 2.6 mm [.055 - .102 in.]

### Connector Housings

- Housings and lock plates made from PBT material.
- Connectors available in 1, 2, 3, 4, 6, 8, 10, and 12 position versions.
- Utilize a loose piece secondary lock (sold separately).
- Cavity plugs are available to seal unused contact cavities.
- An audible click helps insure proper connector mating.
- Protected locking lever.
- Recognized under the Component Program of Underwriters Laboratories Inc. File No. E28476.



AMP Econoseal J Series Mark II(+) Connectors have been developed for use in automobile engine compartments and other applications where waterproof protection and rugged construction are required.

Waterproof protection is achieved by means of a wire seal which is inserted onto the wire and crimped simultaneously with the insulation support of the contact. Plug housings include a factory installed NBR interface seal. Cavity plugs are available to seal contact positions on the connector which are not used.

The wire seals and cavity plugs incorporate a beveled, 3 ridge design, with the front two ridges being slightly smaller than the rear ridge to reduce

insertion into the connector housing. Another important feature allows trapped air to escape when the internal connector pressure becomes excessive due to changes in temperature or atmospheric pressure.

The MarkII(+) connector incorporates a secondary lock plate which when inserted into the connector housing will detect partially mated contacts. The lock plate also increases contact retention and prevents contact damage during mating or unmating of the connector. [One lock plate is required for each connector housing. Lock plates are sold separately.](#)

Sealing surfaces of the MarkII(+) connector are located inside of the connector housing thus reducing the possibility of damage to the seal during handling.

### Product Performance

#### Temperature Rating

-30 to 105<sup>o</sup> C (including temperature rise due to applied current.)

#### Contact Termination Resistance

3 mΩ (Max. (Initial)  
10 mΩ (Max. (Final)

#### Dielectric Strength

1.0 kVAC between adjacent contacts.

#### Current Guidelines

See page 13 of the product specification for information.

### Product Documentation

#### Product Specification

108-5262

#### Application Specification

114-5082

#### Customer Manual

CM-325J

#### Sample Kit

889458

## Econoseal J Series [Mark II+] (Continued)

### Connector Housings and Double Lock Plates



Double lock plates are sold separately. One lock plate is required for each connector housing. Plug housings include a factory assembled, black, NBR interface seal.

Positions	Plug Connector Utilizes Receptacle Contacts		Cap Connector Utilizes Tab Contacts	
	Housing Black Polyester	Lock Plate Yellow Polyester	Housing Black Polyester	Lock Plate Yellow Polyester
1	174877-2	174878-7	174879-2	174880-7
2	174352-2	174353-7	174354-2	174355-7
3	174357-2	174358-7	174359-2	174360-7
4	174257-2	174258-7	174259-2	174260-7
6	174262-2	174263-7	174264-2	174265-7
8	174982-2	174983-7	174984-2	174985-7
10	174655-2	174656-7	174657-2	174658-7
12	174661-2	174662-7	174663-2	174664-7

### 070 Series Tab Contacts



- Manufactured from 0.32 [.013] thick material.
- Tab contact area measures 1.8 [.071] wide x 0.64 [.025] thick.
- Uncrimped contact length = 20.4 [.803]

Wire Range mm <sup>2</sup> / AWG	Wire Ins. Dia. mm / Inches	Material & Finish	Tab Part Number	
			Strip	Loose Piece
0.20 - 0.50 [24 - 20]	1.4 - 2.4 [.055 - .094]	Brass Pre-Tin	171631-1	173600-1
		Brass Select Gold	171631-2	—
0.50 - 1.25 [20 - 16]	2.0 - 2.6 [.079 - .102]	Brass Pre-Tin	171661-1	173706-1
		Brass Select Gold	171661-2	—

### 070 Series Receptacle Contacts



- Manufactured from 0.3 [.012] thick material.
- Uncrimped contact length = 16.5 [.650]

Wire Range mm <sup>2</sup> / AWG	Wire Ins. Dia. mm / Inches	Material & Finish	Rec Part Number	
			Strip	Loose Piece
0.20 - 0.50 [24 - 20]	1.4 - 2.4 [.055 - .094]	Brass Pre-Tin	171630-1	171699-1
		Phos. Bronze Select Gold	171630-5	—
0.50 - 1.25 [20 - 16]	2.0 - 2.6 [.079 - .102]	Brass Pre-Tin	171662-1	173707-1
		Phos. Bronze Pre-Tin	171662-4	—
		Phos. Bronze Select Gold	171662-5	—



## Econoseal J Series [Mark II+] (Continued)

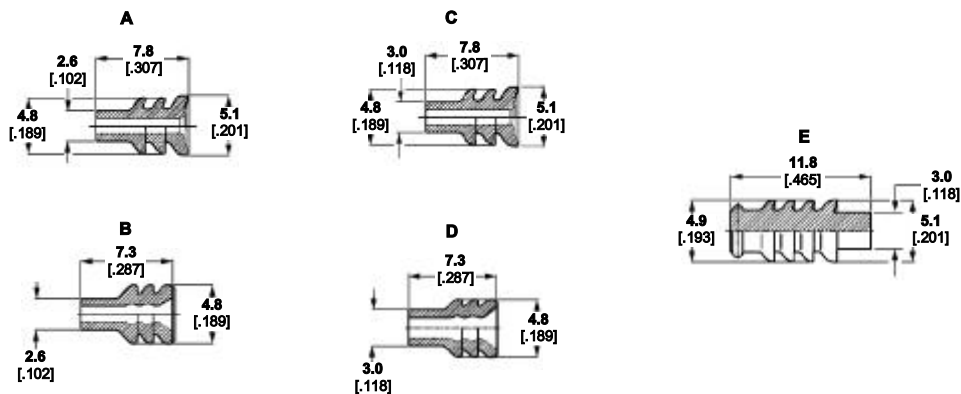
### Wire Seals and Cavity Plugs

One wire seal is required for each contact.  
Cavity plugs are used to seal unused connector cavities.



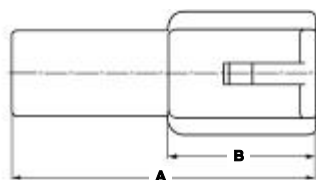
Description	Wire Range mm <sup>2</sup> /AWG	Wire Ins. Dia. mm/Inches	Material & (Color)	Style	Wire Seal Part Number	Use With Contact Part Number
Wire Seals	0.2-0.5 [24-20]	1.4-2.4 [.055-.094]	NBR (Black)	A	172748-1	171631-1 171631-2 173600-1 171630-1
		1.4-2.1 [.055-.083]		B	178210-1	171630-5 171699-1
	0.50-1.25 [20-16]	2.0-2.6 [.079-.102]	NBR (Gray)	C	172888-2	171661-1 171661-2 173706-1 171662-1
		2.0-2.6 [.079-.102]		D	176886-2	171662-4 171662-5 173707-1
Cavity Plug	—	—	NBR (Black)	E	172748-1	—
			NBR (Gray)		172748-2	

### Wire Seals and Cavity Plugs . . . Dimensional Data

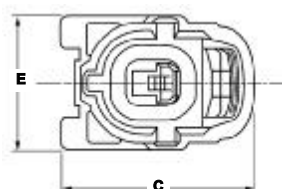
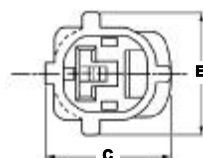


## Econoseal J Series [Mark II+] (Continued)

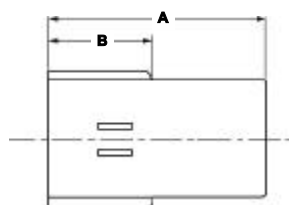
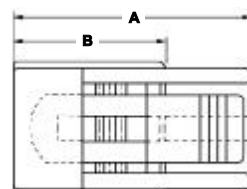
### Dimensional Data



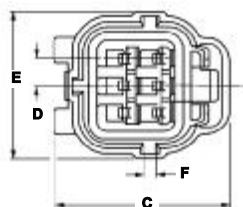
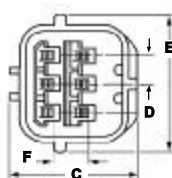
**Figure #1**  
**CAP HOUSING**  
Single Row Configuration



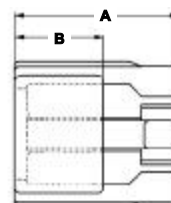
**Figure #2**  
**PLUG HOUSING**  
Single Row Configuration



**Figure #3**  
**CAP HOUSING**  
Double Row Configuration



**Figure #4**  
**PLUG HOUSING**  
Double Row Configuration



Position Housing Type	Part Number	Figure	Rows Single/ Double	Dim. "A"		Dim. "B"		Dim. "C"		Dim. "D"		Dim. "E"		Dim. "F"	
				mm	In.	mm	In.	mm	In.	mm	In.	mm	In.	mm	In.
1 / Cap	174879-2	1	1	32.5	[1.28]	15.7	[.618]	14.2	[.559]	—	—	13.5	[.531]	—	—
1 / Plug	174877-2	2	1	27.6	[1.09]	17.5	[.689]	22.0	[.866]	—	—	15.8	[.622]	—	—
2 / Cap	174354-2	1	1	32.5	[1.28]	15.7	[.618]	14.05	[.553]	4.8	[.189]	18.3	[.720]	—	—
2 / Plug	174352-2	2	1	27.6	[1.09]	17.5	[.689]	22.8	[.898]	4.8	[.189]	20.6	[.811]	—	—
3 / Cap	174359-2	1	1	32.5	[1.28]	15.7	[.618]	13.9	[.547]	4.8	[.189]	23.1	[.909]	—	—
3 / Plug	174357-2	2	1	27.6	[1.09]	17.5	[.689]	22.8	[.898]	4.8	[.189]	25.4	[1.00]	—	—
4 / Cap	174259-2	3	2	35.5	[1.40]	18.2	[.717]	20.6	[.811]	4.8	[.189]	18.3	[.720]	5.6	[.220]
4 / Plug	174257-2	4	2	27.6	[1.09]	21.5	[.846]	29.3	[1.15]	4.8	[.189]	20.6	[.811]	5.6	[.220]
6 / Cap	174264-2	3	2	35.5	[1.40]	18.2	[.717]	20.6	[.811]	4.8	[.189]	23.1	[.909]	5.6	[.220]
6 / Plug	174262-2	4	2	27.6	[1.09]	21.5	[.846]	29.3	[1.15]	4.8	[.189]	25.4	[1.00]	5.6	[.220]
8 / Cap	174984-2	3	2	36.5	[1.44]	19.7	[.776]	30.7	[1.21]	4.8	[.189]	27.9	[1.10]	5.6	[.220]
8 / Plug	174982-2	4	2	27.6	[1.09]	21.5	[.846]	33.2	[1.31]	4.8	[.189]	31.0	[1.22]	5.6	[.220]
10 / Cap	174657-2	3	2	36.5	[1.44]	19.7	[.776]	30.7	[1.21]	4.8	[.189]	32.7	[1.29]	5.6	[.220]
10 / Plug	174655-2	4	2	27.6	[1.09]	21.5	[.846]	33.2	[1.31]	4.8	[.189]	35.8	[1.41]	5.6	[.220]
12 / Cap	174663-2	3	2	36.5	[1.44]	19.7	[.776]	26.85	[1.06]	4.8	[.189]	37.5	[1.48]	5.6	[.220]
12 / Plug	174661-2	4	2	27.6	[1.09]	21.5	[.846]	33.2	[1.31]	4.8	[.189]	40.6	[1.60]	5.6	[.220]

## Econoseal III ... 070 Series, Wire To Board Connectors

### Contacts

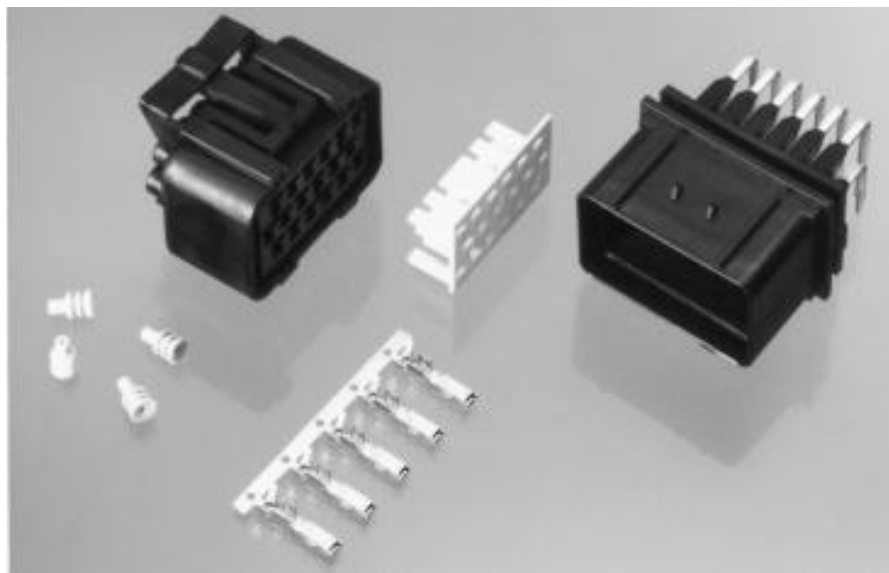
- 070 series tab contacts 1.8 mm [.071 in.] wide x 0.64 mm [.025 in.] thick.
- Receptacle contacts are gold plated, phosphor bronze.
- Header contacts are made from brass, selectively plated with tin lead and gold.
- Lanceless contact design to reduce tangling.
- Wire range 0.5 - 1.25 mm<sup>2</sup> [#20 - #16 AWG].  
See Note 1

### Wire Seals and Cavity Plugs

- Produced from silicon rubber.
- Wire seals and contacts crimped simultaneously.
- For insulation diameters 1.6 - 2.4 mm [.063 - .094 in.]

### Connector Housings

- Horizontal header configuration with sealed receptacle housings.
- Headers are made from 13% glass filled nylon. Receptacle housings and double lock plates are produced from unfilled nylon.
- Available in 18 and 36 position versions.
- The receptacle housing requires a loose piece secondary lock (sold separately).
- Cavity plugs available to seal unused cavities.
- Protected locking lever.



Similar in design to the Econoseal J Series [Mark II+] connectors, the Econoseal III connectors utilize 070 series contacts for sealed wire to board applications.

The horizontal header includes factory loaded contacts with gold over nickel plating at the separable interface and tin lead plating at the board end. Gaskets for sealing around the outside of the header are not included.

Standard 070 receptacle contacts are used in the plug connector. Receptacle contacts are gold plated at the separable interface and tin plated in the wire crimp area. Every plug connector includes a factory installed interface seal.

Each plug connector requires a loose piece secondary lock plate be installed after the receptacle contacts are inserted into the connector housing. The lock plate

helps to detect partially mated contacts, increases contact retention, and helps prevent contact damage during mating or unmating of the connector. [Lock plates are sold separately.](#)

All sealed surfaces are located inside of the connector housing to reduce the possibility of damage during handling.

#### Note 1

2.0 mm<sup>2</sup> [#14 AWG] wires with thin wall insulation of 2.4 - 2.7 mm [.094 - .106 in.] can also be terminated. Applicators for this wire size are made to order. Call the Tooling Assistance Center at 1-800-722-1111 for more Information.

### Product Performance

#### Temperature Rating

100° C maximum operating temperature including temperature rise due to current load.

#### Current Guidelines

See page 9 of the product specification for information.

### Product Documentation

#### Product Specification

108-3114

#### Application Specification

114-3040

**Econoseal III ... 070 Series, Wire To Board Connectors** (Continued)**070 Series, Wire To Board,  
Connector Housings, Headers  
and Lock Plates**

One lock plate is required for each plug connector housing. Double lock plates are sold separately. Lock plates are not required for the PCB Header. Plug housings include a factory assembled, silicon interface ring.

Positions	Plug Connectors Receptacle Contact 175104-2 Required		Printed Circuit Board Header
	Housing Black Nylon	Lock Plate White Nylon	Housing, Black Nylon, Glass Filled
18	344106-1	344107-1	344103-1
36	344111-1	344112-1	344108-1

Header contacts are brass with selective gold plating at the separable interface and tin lead plating at the PCB interface.

**070 Receptacle Contacts**

Receptacle contacts are manufactured from 0.3 mm [.012 in.] thick material. Uncrimped contact length is 16.5 mm [.650 in.]

Wire Range mm <sup>2</sup> / AWG	Wire Ins. Dia. mm / Inches	Material & Finish	Receptacle Part Number	
			Strip	Loose Piece
0.5-1.25 [20-16]	1.6-2.4 [.063-.094]	Phos. Bronze Selective Gold	175104-2	—

175104-2 can also be applied to 2.0 mm<sup>2</sup> [#14 AWG] wires with thin wall insulation in the range of 2.4-2.7 mm [.094-.106]. Applicators for terminating 2.0 mm<sup>2</sup> [#14 AWG] wire are made to order. Call the Tooling Assistance Center at 1-800-722-1111 for more information.

**Wire Seals & Cavity Plugs**

(One wire seal required per contact.)

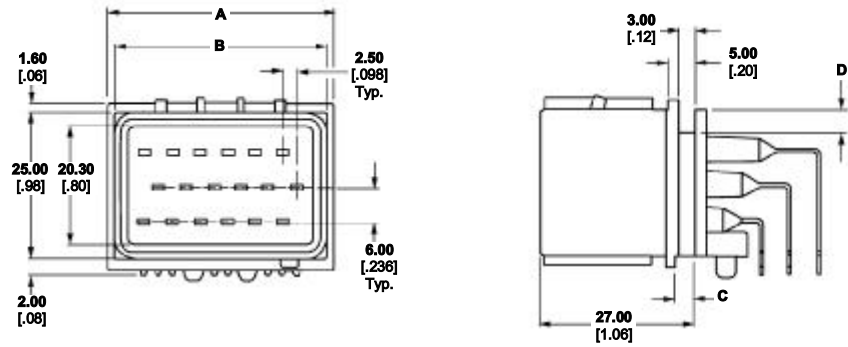


All wire seals and cavity plugs are manufactured from silicon rubber.

Description	Wire Range mm <sup>2</sup> / AWG	Wire Ins. Dia. Inches / mm	Color	Part Number
Wire	0.5-1.25 [20-16]	1.6-2.4 [.063-.094]	Green	347874-1
Cavity Plug	—	—	Gray	348461-1

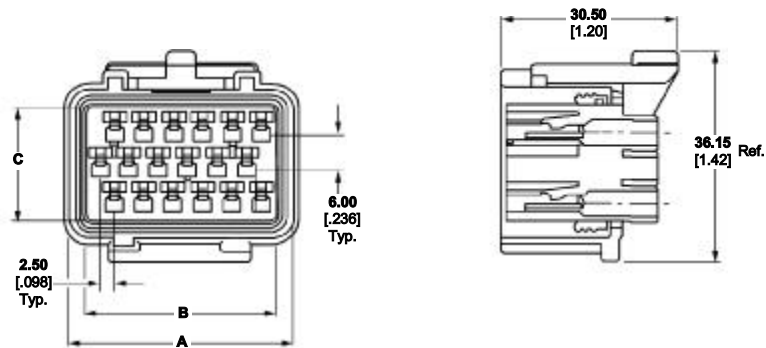
For 2.0 mm<sup>2</sup> [#14 AWG] wire with a 2.4 mm [.094] insulation diameter, use wire seal 347874-1. For 2 mm<sup>2</sup> [#14 AWG] wire with insulation diameters between 2.5-2.7 mm [.098-.106] wire seal 347875-1 should be used.

## Econoseal III ... 070 Series, Wire To Board Connectors ... (Continued) Header Dimensions



Part Number	Positions	Dim. "A"		Dim. "B"		Dim. "C"		Dim. "D"	
		mm	[In.]	mm	[In.]	mm	[In.]	mm	[In.]
344103-1	18	41.00	[1.61]	37.90	[1.49]	3.25	[0.13]	4.00	[0.16]
344108-1	36	70.80	[2.79]	67.88	[2.67]	3.50	[0.14]	3.90	[0.15]

## Econoseal III ... 070 Series, Wire To Board Connectors ... Plug Housing Dimensions



Part Number	Positions	Dim. "A"		Dim. "B"		Dim. "C"	
		mm	[In.]	mm	[In.]	mm	[In.]
344106-1	18	40.80	[1.61]	32.50	[1.28]	19.70	[0.78]
344111-1	36	70.80	[2.79]	62.20	[2.45]	19.50	[0.77]



## Econoseal III ... 250 Series, Wire To Wire Connectors

### Contacts

- .250 Series FASTON contacts.
- Tab and receptacle contacts are made from pre-tin plated brass.
- Wire range 0.5 - 3.0 mm<sup>2</sup> [#20 - #12] AWG.
- Lanceless contact design to reduce tangling.

### Wire Seals And Cavity Plugs

- Made from silicon rubber.
- Wire seals and contacts crimped simultaneously
- For wire insulation diameters of 1.6 - 3.4 mm [0.063 - 0.134 in.]

### Connector Housings

- Housings and double lock plates are made from nylon.
- Available in 2, 4, or 8 position versions.
- Each connector housing requires a loose piece secondary lock (sold separately).
- Audible click helps insure proper mating.
- Protected locking lever



A high current version of the Econoseal J Series [Mark II+] connector, this Econoseal III product family incorporates many of the basic housing and secondary lock plate features found in the Econoseal J Series [Mark II+] connector, with the current carrying capacity of the 250 Series FASTON contact family.

Waterproof protection is achieved via a silicon rubber wire seal which is inserted onto the wire and crimped simultaneously with the insulation support of the contact. Plug (receptacle) housings include a factory installed silicon rubber interface seal. Cavity plugs are available to seal contact positions

on the connector which are not used.

**Each connector housing requires the use of a secondary lock plate which is sold separately.**

The lock plate is inserted into the connector housing after the contacts have been loaded. The secondary lock helps to detect partially mated contacts, increases contact retention, and helps prevent contact damage during contact mating and unmating.

All sealed surfaces are located inside the connector housings to help prevent possible damage during handling.

### Product Performance

#### Temperature Rating

100° C maximum operating temperature (including temperature rise due to applied current).

#### Current Guidelines

See page 10 of the product specification for information.

### Product Documentation

#### Product Specification

108-3069

#### Application Specification

114-3036

#### Sample Kit

1242020

## Econoseal III . . . .250 Series Wire To Wire Connectors (Continued)

### .250 Series Wire To Wire Connector Housings and Lock Plates



Double lock plates are sold separately. One lock plate is required for each connector housing. Plug housings include a factory assembled, silicon seal ring.

Positions	Plug Connector Utilizes Receptacle Contacts		Cap Connector Utilizes Tab Contacts	
	Housing Black Nylon	Lock Plate White Nylon	Housing Black Nylon	Lock Plate White Nylon
2	344081-1	344089-1	344075-1	344090-1
4	344080-1	344087-1	344074-1	344088-1
8	344079-1	344085-1	344073-1	344086-1

### .250 Series Tab Contacts



Tab thickness is 0.81 [.032]. Uncrimped contact length is approximately 24.70 [0.972] not including the cut-off tab.

Wire Range mm <sup>2</sup> / AWG	Wire Ins. Dia. mm / Inches	Material & Finish	Tab Part Number	
			Strip	Loose Piece
0.5-1.5 [20-16]	1.6-2.4 [.063-.094]	Brass Pre-Tin	344069-1	344991-1
2.0-3.0 [14-12]	2.6-3.4 [.102-.134]		344008-1	344989-1

### .250 Series Receptacle Contacts



Receptacle contacts are manufactured from 0.32 [.013] thick material. Uncrimped contact length is approximately 19.7 [0.776] not including the cut-off tab.

Wire Range mm <sup>2</sup> / AWG	Wire Ins. Dia. mm / Inches	Material & Finish	Receptacle Part Number	
			Strip	Loose Piece
0.5-1.5 [20-16]	1.6-2.4 [.063-.094]	Brass Pre-Tin	344070-1	344995-1
2.0-3.0 [14-12]	2.6-3.4 [.102-.134]		344009-1	344993-1

### Wire Seals & Cavity Plugs (One wire seal required per contact.)

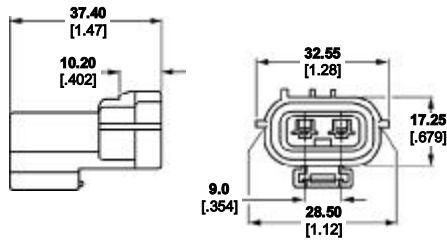


All wire seals and cavity plugs are manufactured from silicon rubber.

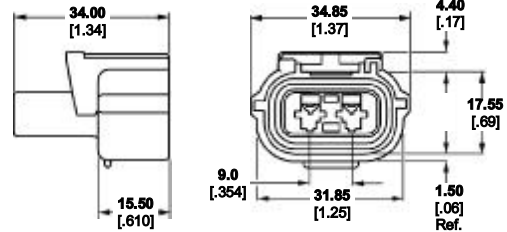
Description	Wire Range mm <sup>2</sup> / AWG	Wire Ins. Dia. Inches / mm	Color	Part Number
Wire Seals	0.5-1.50 [20-16]	1.6-2.4 [.063-.094]	Orange	347707-1
	2.0-3.0 [14-12]	2.6-3.4 [.102-.134]	Yellow	347713-1
Cavity Plug	—	—	Gray	348462-1

## Dimensional Data

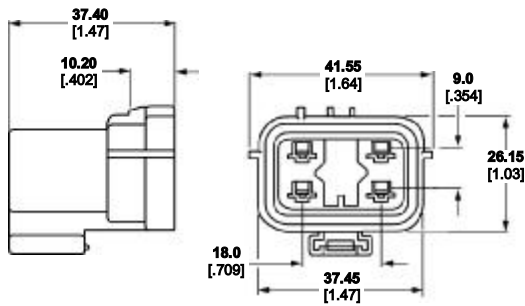
## Econoseal III . . . .250 Series Wire To Wire Connectors (Continued)



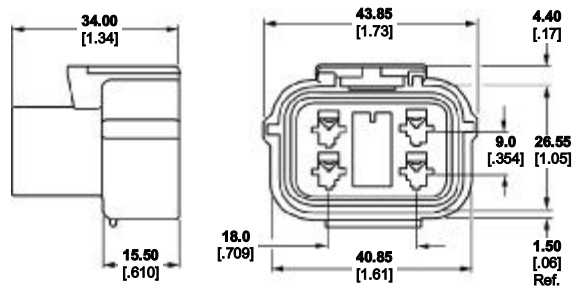
2 Position Tab Housing 344075-1



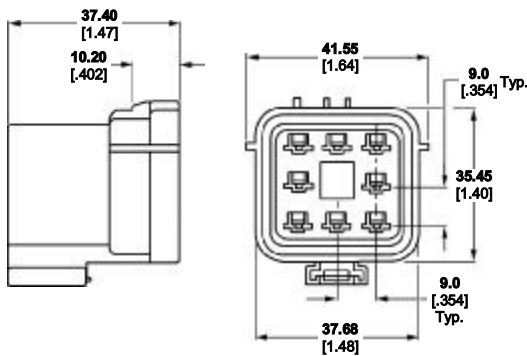
2 Position Receptacle Housing 344081-1



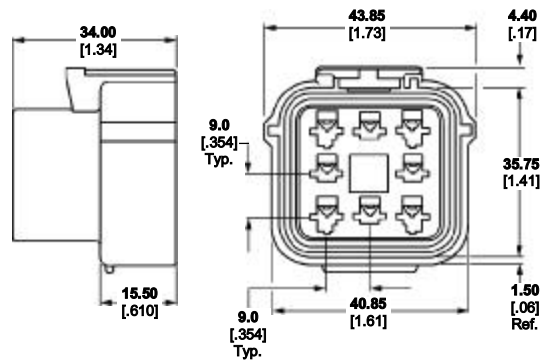
4 Position Tab Housing 344074-1



4 Position Receptacle Housing 344080-1



8 Position Tab Housing 344073-1



8 Position Receptacle Housing 344079-1

## Superseal 1.5 Series . . . Wire To Wire Connectors . . . 6 mm Centers

### Contacts

- 1.5 mm [.060 in.] wide tab contacts.
- Receptacle contacts are made from pre-tin plated phosphor bronze.
- Tab contacts are made from pre-tin plated brass.
- Lanceless contact design to reduce contact tangling.
- Wire range 0.3 - 2.0mm<sup>2</sup> [#22 - #14 AWG]

### Wire Seals

- Silicon rubber material.
- For insulation diameters of 1.4 - 3.3 mm [.055 - .130 in.].
- Loose piece wire seals are crimped simultaneously with the contacts.

### Connector Housings

- Housings and secondary locks produced from glass filled, 66 nylon.
- Single row connector configuration.
- Integral (factory installed) secondary locks.
- Resistant to ozone, salts, gasoline, diesel fuel, brake fluid, anti-freeze/coolant, transmission gear lubricant, and motor oil.
- Available in 1, 2, 3, 4, 5, and 6 position versions.

Designed for the automotive industry, Superseal connectors meet the sealing requirements outlined in IEC 529 and DIN 40050 I.P 6.7 specifications.

The cap and plug connector housings incorporate pre-assembled secondary locks to help insure correct and complete contact insertion into the housing and helps prevent the contacts from backing out during mating. The secondary lock cannot be closed if the contacts are not correctly inserted into the connector housing.

Cavity plugs are available for sealing unused connector cavities.

The double spring contact design (main spring and auxiliary anti-over-stress spring) insure low insertion and high contact forces.

Additional protective caps are available for the 2, 3,

and 5 position connectors.

### Insertion and Extraction Tools

#### Contact Extraction Tool

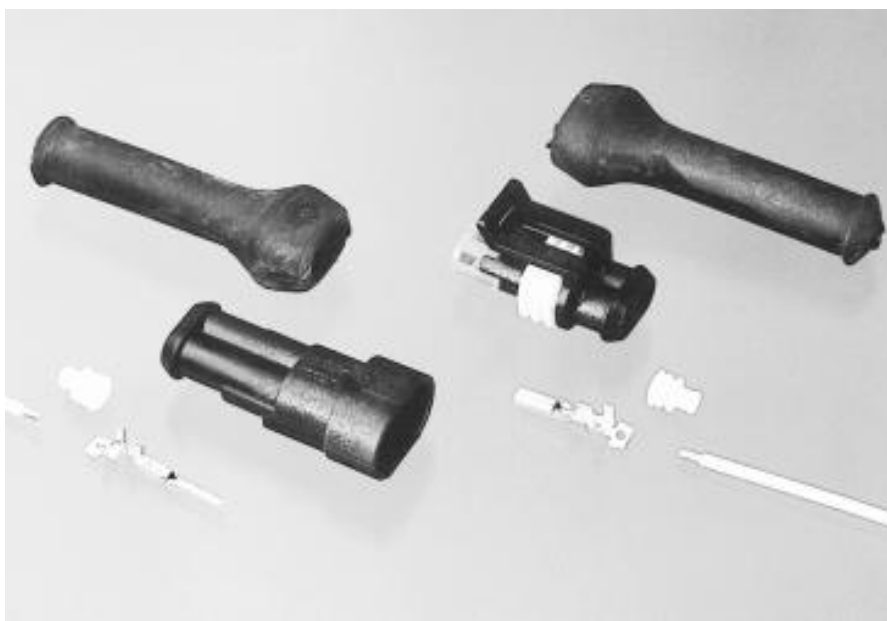
P/N 784980-1

#### Extraction Tool For Secondary Lock Of Cap Housing

P/N 785084-1

#### Secondary Lock Insertion Tools For Cap Housings

- For 1 and 2 position housings P/N 785061-1
- For 3 - 6 position housings P/N 785061-2



### Product Performance

#### Temperature Rating

-40°C to +125°C  
(including temperature rise due to current load).

#### Current Termination Resistance

3 mΩ (10mA test current).

#### Dielectric Strength

1.5 kVAC between adjacent contacts.

### Product Documentation

#### Product Specification

108-20090

#### Application Specification

114-20045

#### Customer Manual

412-20000

#### Sample Kit

889457

## Superseal 1.5 Series . . . Wire To Wire Connectors . . . 6 mm Centers (Continued)

### Connector Housings



Secondary locks are factory installed on all connector housings. Plug connectors include a factory installed interface seal. Connector housings and secondary locks are made from glass filled nylon.

Positions	Plug Connector Utilizes Receptacle Contacts	Cap Connector Utilizes Tab Contacts
1	282079-2	282103-1
2	282080-1	282104-1
3	282087-1	282105-1
4	282088-1	282106-1
5	282089-1	282107-1
6	282090-1	282108-1

### Tab Contacts



Tab contacts are 1.5 [.059] wide by 0.8 [.032] thick. Uncrimped contact length is approximately 22.7 [.894]

Wire Range mm <sup>2</sup> / AWG	Wire Ins. Dia. mm / Inches	Material & Finish	Tab Part Number	
			Strip	Loose Piece
0.3-0.5 [22-20]	1.4-1.7 [.055-.067]	Pre-Tin Plated Brass	282404-1	183036-1
0.5-1.5 [20-16]	1.8-3.3 [.071-.130]		282109-1	183024-1
1.5-2.5 [16-14]	1.8-3.3 [.071-.130]		282465-1	—

### Receptacle Contacts



Receptacle contacts are manufactured from 0.3 [0.12] thick material, Uncrimped contact length is approximately 16.5 [.650]

Wire Range mm <sup>2</sup> / AWG	Wire Ins. Dia. mm / Inches	Material & Finish	Rec. Part Number	
			Strip	Loose Piece
0.3-0.5 [22-20]	1.4-1.7 [.055-.067]	Pre-Tin Plated Phos. Bronze	282403-1	183035-1
0.5-1.5 [20-16]	1.8-3.3 [.071-.130]		282110-1	183025-1
1.5-2.5 [16-14]	1.8-3.3 [.071-.130]		282466-1	—



## Superseal 1.5 Series . . . Wire To Wire Connectors . . . 6 mm Centers (Continued)

### Wire Seals and Cavity Plugs



Wire seals and cavity plugs are manufactured from silicon rubber. One wire seal is required per contact.

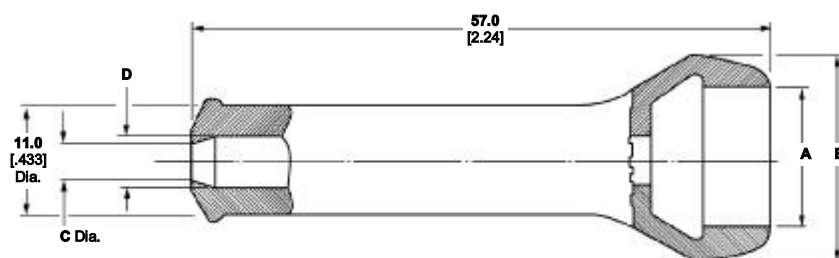
Description	Part Number	Wire Insulation Diameter mm/inches.			Seal Color
		Contact Part No. 282403-1 282404-1	Contact Part No. 282110-1 282109-1	Contact Part No. 282466-1 282465-1	
		Wire Size 0.3-0.5 mm <sup>2</sup> [22-20 AWG]	Wire Size 0.5-1.5 mm <sup>2</sup> [20-16 AWG]	Wire Size 1.5-2.5 mm <sup>2</sup> [16-14 AWG]	
Wire Seal	281934-2	—	1.8-2.4 [.071-.094]	1.8-2.4 [.071-.094]	Yellow
	281934-3	—	2.6-3.3 [.102-.130]	2.6-3.3 [.102-.130]	Red
	281934-4	1.4-1.7 [.055-.067]	—	—	Green
Cavity Plug	282081-1	—	—	—	Red

### Rubber Boots



Connector Housing Part No.	Description	Positions	Rubber Boot	Color
282080-1	Plug housing	2	880810-1	Black
282104-1	Cap Housing			
282087-1	Plug housing	3	880811-2	
282105-1	Cap Housing			
282089-1	Plug housing	5	880814-1	
282107-1	Cap Housing			

### Rubber Boots . . . Dimensional Data

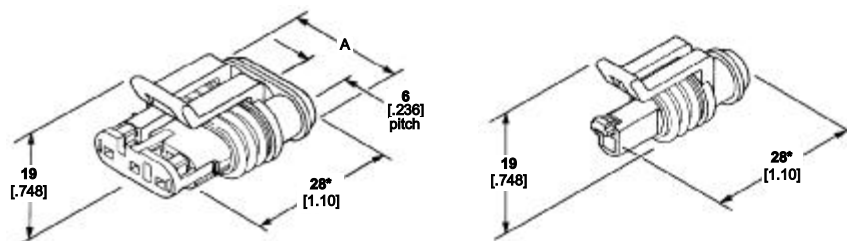


Boot Part Number	Number of Wires	Dimension "A"		Dimension "B"		Dimension "C"		Dimension "D"	
		mm	In.	mm	In.	mm	In.	mm	In.
880810-1	2	12.5	[.492]	20.5	[.807]	4.6	[0.18]	5.0	[0.20]
880811-2	3	17.5	[.689]	25.5	[1.004]	4.6	[0.18]	5.0	[0.20]
880814-1	5	27.5	[1.083]	35.0	[1.378]	6.5	[0.26]	7.0	[0.28]

## Super Seal 1.5 Series . . . Wire To Wire Connectors . . . Dimension Data (Continued)

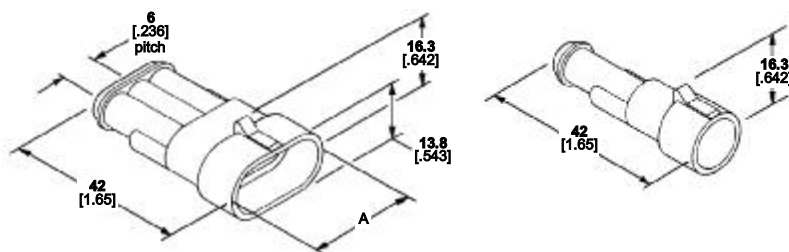
### Plug Connectors

Positions	Part Number	Dimension "A"	
		mm	In.
1	282079-2	9.3	[.366]
2	282080-1	15.3	[.602]
3	282087-1	21.3	[.839]
4	282088-1	27.3	[1.07]
5	282089-1	33.3	[1.31]
6	282090-1	39.3	[1.55]

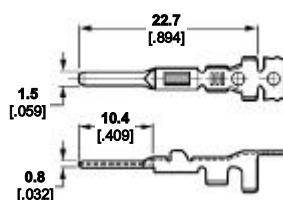


### Cap Housing

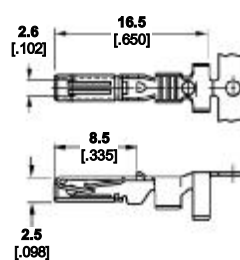
Positions	Part Number	Dimension "A"	
		mm	In.
1	282103-1	13.8	[.543]
2	282104-1	19.8	[.780]
	282105-1	25.8	[1.02]
4	282106-1	31.8	[1.25]
5	282107-1	37.8	[1.49]
6	282108-1	43.8	[1.72]



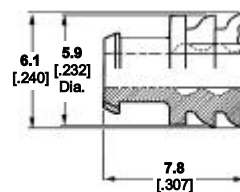
### Tab Contacts



### Receptacle Contacts



### Wire Seal



## Mini MULTILOCK Wire to Wire Connector

### Contacts

- 0.8 mm [.031 in.] wide tab contacts.
- Tab contacts are made from pre-tin plated brass.
- Receptacle contacts are made from pre-tin plated phosphor bronze.
- Lanceless contact design to eliminate tangling.
- Wire range 0.3 - 0.5 mm<sup>2</sup> [#22 - #20 AWG].

### Wire Seals

- A poke through (matte) wire seal design
- For insulation diameters 1.4 - 1.7 mm [.055 - .067 in.].
- Seal material is NBR.

### Connector Housings

- Connector housings produced from green, glass filled PBT.
- Currently available only as a seven position connector.
- Cavity plugs are available to seal unused connector cavities.
- Easy inspection for improperly inserted contacts



AMP Mini MULTILOCK is among the worlds smallest waterproof connector systems. Originally designed for use with the rotary driving circuits of automobile door mirror units, they are suitable for most applications requiring small, water resistant connectors.

Assembly is simplified with the use of snap in crimp contacts and poke through wire seals. All seals are pre-loaded into the connector housings.

The connector housings are designed to prevent incorrect contact insertion. When contacts are properly inserted into the connector housing they produce an audible click to indicate the contact has been oriented correctly and completely inserted.

Cavity plugs are available to seal unused connector cavities for applications in which not all seven connector circuits are required.

All seals and sealing surfaces are located inside of the connector housing to help eliminate possible damage during handling.

### Product Performance

#### Temperature Rating

-40° to 105° C. (including temperature rise due to current load).

#### Termination Resistance

10 mΩ (Initial)  
20 mΩ (Final)

#### Dielectric Withstanding Voltage

1.0 KVAC for one minute.

#### Current Guidelines

See page 11 of product specification 108-5426 for information.

### Product Documentation

#### Product Specification

108-5426

#### Application Specification

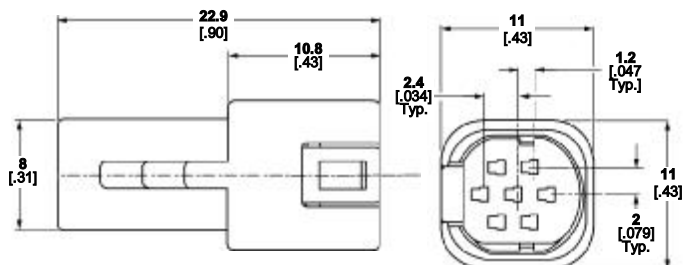
114-5193

#### Customer Manual

412-5653

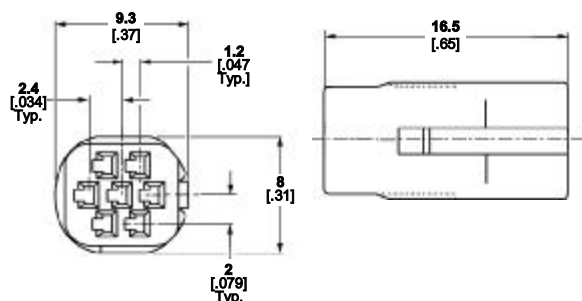
## Mini MULTILOCK Connectors (Continued)

### Seven Position Cap Housing . . . Use With Tab Contact 917309-1



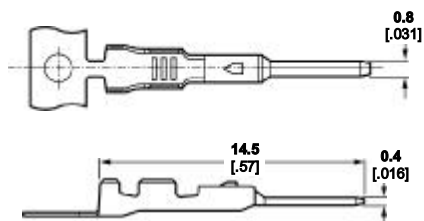
Part Number	Material	Color
917319-4	Glass Filled PBT	Green

### Seven Position Plug Housing . . . Use With Receptacle Contact 917308-1



Part Number	Material	Color
917318-4	Glass Filled PBT	Green

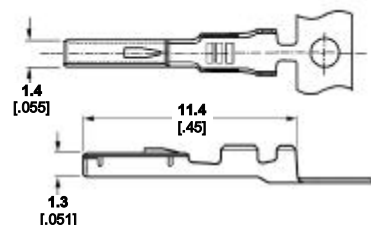
### Tab Contact (available in strip form only) . . . Use With Cap Housing 917319-4



Tab contacts are manufactured from 0.2 [.008] thick material

Part Number	Wire Range mm <sup>2</sup> /AWG	Wire Ins. Dia. mm/Inches	Material & Finish
917309-1	0.3-0.5 [#22-20]	1.4-1.7 [.055-.067]	Brass Pre-Tin Plated

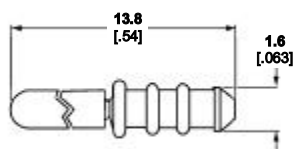
### Receptacle Contact (available in strip form only) . . . Use With Plug Housing 917318-4



Receptacle contacts are manufactured from 0.2 [.008] thick material.

Part Number	Wire Range mm <sup>2</sup> /AWG	Wire Ins. Dia. mm/Inches	Material & Finish
917308-1	0.3-0.5 [#22-20]	1.4-1.7 [.055-.067]	Phosphor Bronze Pre-Tin Plated

### Cavity Plug



Part Number	Material	Color
316390-7	PBT	Yellow

## Two Position .187 Series Sealed Connector

### Contacts

- .187 Series contacts  
4.8 mm [.187 in.] tab  
contact width
- Tab and receptacle contacts  
are manufactured from  
pre-tin plated brass
- Lanceless contact design to  
reduce contact tangling
- Wire range 0.5 - 3.0 mm<sup>2</sup>  
[#20 - #12 AWG]

### Wire Seals

- Seals are produced from  
NBR material
- Loose piece seals are  
applied to the wire simul-  
taneously with the contact
- For wire insulation  
diameters of 1.8 - 3.8 mm  
[.071 - .150 in.]

### Connector Housings

- Produced from PBT  
material
- Protected locking lever
- Integral secondary locking  
mechanism



The AMP .187 Series Sealed Connector was originally developed for use in automotive engine compartments (specifically the cooling fan). This connector is suitable for use in most applications requiring a robust connector design along with waterproof protection.

Waterproof protection is provided by individual wire seals which are inserted over the wire prior to crimping the contact. The wire seal is crimped simultaneously with the insulation support of the contact.

The plug housing includes a factory installed interface seal for sealing against the cap housing.

Connector housings incorporate pre-assembled secondary locks to increase contact retention and reduce the possibility of contact damage during mating or unmating.

All sealing surfaces are located inside of the connector housing to help eliminate the possibility of damage during handling.

### Product Performance

#### Temperature Rating

Temperature range -30° to 105° C.  
(including rise due to current load).

#### Termination Resistance

3 mΩ (Initial)  
10 mΩ (Final)

#### Dielectric Withstanding Voltage

1.0 kVAC between adjacent contacts.

#### Current Guidelines

See page 3 of product specification  
108-5294 for information.

### Product Documentation

#### Product Specification

108-5294

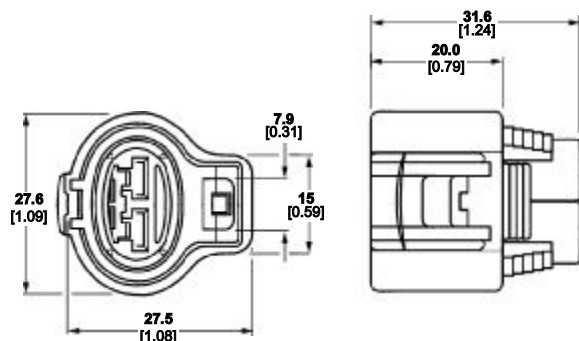
#### Application Specification

114-5126



## Two Position .187 Series Sealed Connector (Continued)

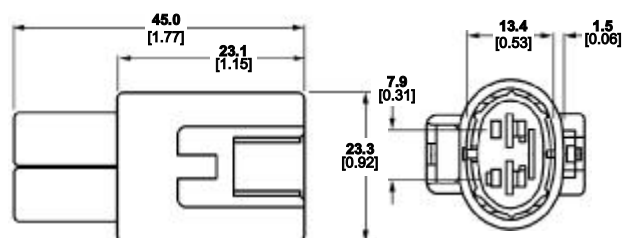
### Plug Housing . . . Use With Receptacle Contacts



Includes factory installed silicon rubber interface seal.

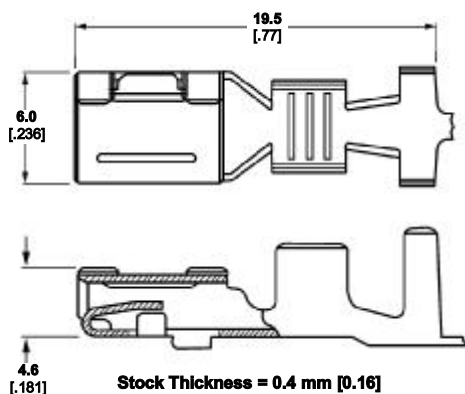
Part Number	Material	Color
6-176146-6	PBT	Light Gray

### Cap Housing . . . Use With Tab Contacts



Part Number	Material	Color
6-176143-6	PBT	Light Gray

### Receptacle Contact (available in strip form only) . . . Use With Plug Housing

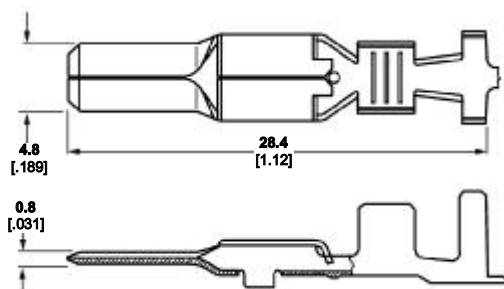


Receptacle contacts are manufactured from 0.40 [.016] thick material.

Part Number	Wire Range mm <sup>2</sup> /AWG	Wire Ins. Dia. mm/inches	Material & Finish
175090-1	0.5-1.25 [20-16]	2.0-2.7 [.079-.106]	Pre-Tin Plated Brass
175091-1	2.0-3.0 [14-12]	2.9-3.8 [.114-.150]	

## Two Position .187 Series Sealed Connector (Continued)

**Tab Contact (available in strip form only) . . . Use With Cap Housing**

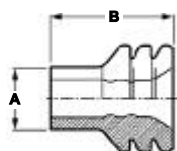


Stock Thickness = 0.4 [0.16]

Tab contacts are manufactured from 0.4 [.016] thick material.

Part Number	Wire Range mm <sup>2</sup> /AWG	Wire Ins. Dia. mm/inches	Material & Finish
175087-1	0.5-1.25 [20-16]	2.0-2.7 [.079-.106]	Pre-Tin Plated Brass
175088-1	2.0-3.0 [14-12]	2.9-3.8 [.114-.150]	

### Wire Seals



Wire Range mm <sup>2</sup> /AWG	Wire Insulation Diameter mm/inches	Material & (Color)	Dim. "A" mm/inches	Dim. "B" mm/inches	Use With Contact	Part Number
0.5-1.25 [20-16]	2.0-2.7 [.079-.106]	NBR Gray	7.9 [.311]	9.1 [.358]	175087-1 or 175090-1	85024-1
2.0-3.0 [14-12]	2.9-3.8 [.114-.150]	NBR Black	7.9 [.311]	9.0 [.354]	175088-1 or 175091-1	85011-1

**Superseal Connectors . . . For Wire To Device Applications . . . 3.5 mm Centers****Contacts**

- Receptacle contacts are pre-tin plated phosphor bronze.
- Designed to mate with 1.5 mm [.059 in.] wide x 0.8 mm [.031 in.] thick tab contacts.
- Lanceless contact design to reduce contact tangling.
- Wire range 0.5 - 1.0 mm<sup>2</sup> [#20 - #18] AWG.

**Wire Seals**

- Silicon rubber material.
- For insulation diameters of 1.4 - 2.1 mm [.055 - .083 in.].
- Loose piece wire seals are crimped simultaneously with the contacts.

**Connector Housings**

- Available only as a plug connector. The tab contact must be molded into the customer's device. Interface requirements can be provided upon request.
- Housings and secondary locks produced from glass filled, 66 nylon.
- Single row connector configuration.
- Integral (factory installed) secondary locks.
- Available in 2, 3, and 4, position versions.



These connectors were originally designed to mate with a Packard, Metri-Pack™ 150 Series interface for fuel injection applications. Similar in design to the Superseal 1.5 Series product family, this connector offers the same basic features except the contacts are located on a 3.5 [0.138] centerline instead of the 6.0 [.236] pitch found used on the 1.5 Series Connector.

Currently available only in a plug connector version, this connector requires the tab contacts be molded into the mating device. Interface requirements can be provided for the mating connection.

Waterproof protection is provided by individual wire seals which are inserted over the wire then crimped simultaneously with the insulation barrel of the receptacle contact.

The connector housing incorporates a pre-assembled secondary lock to help insure correct and complete contact insertion into the housing and helps prevent contact back out during connector mating.

**Product Performance****Temperature Rating**

-30° to 105° C. (including temperature rise due to current load).

**Contact Termination Resistance**

3 mΩ Max (Initial)

**Dielectric Withstanding Voltage**

1.0 kVAC between adjacent contacts.

**Current Guidelines**

See page 4 of product specification 108-37021.

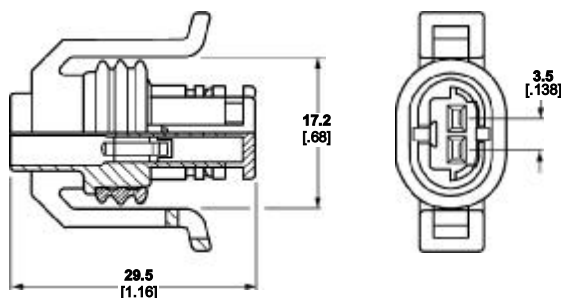
**Product Documentation****Product Specification**

108-37021

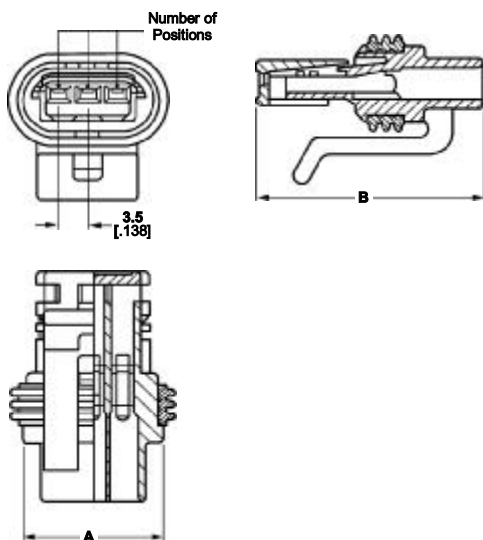
## Superseal Connectors ... For Wire To Device Applications ... 3.5 mm Centers (Continued)

### Connector Housings

Connector housings and secondary lock plates are made from glass filled, 66 nylon. Housings are black with yellow lock plates. The factory installed interface seal is a yellow silicon rubber.



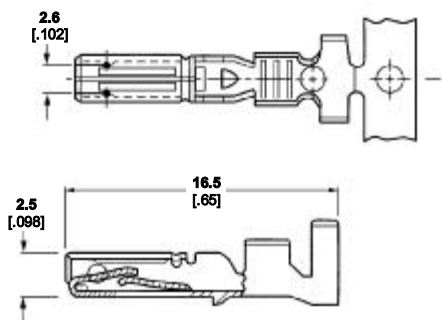
**Two Position Connector**  
**Part Number 444040-2**



Part Number	Positions	Dim. "A" mm/inches	Dim. "B" mm/inches	Dim "C" mm/inches
444043-1	3	17.2 [.68]	29.5 [1.16]	9.3 [.35]
444046-1	4	20.7 [.81]	30.1 [1.19]	9.3 [.37]

## Superseal Connectors ... For Wire To Device Applications ... 3.5 mm Centers (Continued)

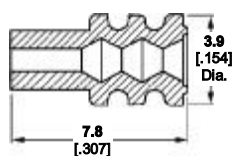
### Receptacle Contact (available in strip form only)



Receptacle contacts are manufactured from 0.3 [.012] thick material.

Part Number	Wire Range mm <sup>2</sup> /AWG	Wire Ins. Dia. mm/inches	Material & Finish
282438-1	0.5-1.0 [20-18]	1.4-2.1 [.055-.083]	Pre-Tin Plated Phosphor Bronze

### Wire Seal



Part Number	Wire Range mm <sup>2</sup> /AWG	Wire Ins. Dia. mm/inches	Material & Finish
963530-1	0.5-1.0 [20-18]	1.4-2.1 [.055-.083]	Silicon Rubber



## Sealed Micro-Quadlock-System (MQS) Connectors . . . For Wire To Device Applications

### Contacts

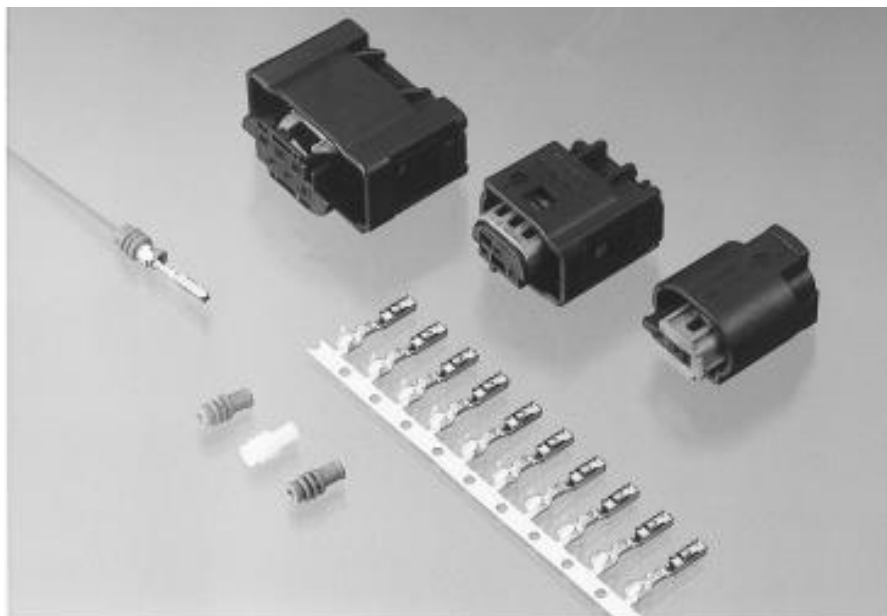
- Mates with a .63 mm [.025 in.] square post.
- Receptacle contacts are available with tin or gold plating.
- Rugged two piece construction with stainless steel jacket allows use of optimized CuNiSi contact material.
- Incorporates four points of contact with the post.
- Wire range 0.20 - 0.75 mm<sup>2</sup> [#24 - #18] AWG.

### Wire Seals

- Made from silicon rubber material.
- Wire seal is crimped simultaneously with the receptacle contact.
- For wire insulation diameters of 0.9 - 1.9 mm [.035 - .075 in.]

### Connector Housings

- Currently available in 2, 3, 4, and 6 position versions. Designs are available for 8 and 12 position versions.
- Cavity plugs are available for unused connector cavities.
- Circuit entries are completely closed.
- Includes a pre-assembled lock plate and peripheral seal.



AMP Micro-Quadlock-System Sealed Connectors have been developed for use in automobile engine compartments including direct mounting to on-engine devices. They offer one of the most compact packages available today with capability for waterproofing and resistance to conditions of extreme vibration.

Waterproofing is achieved with individual wire seals that can be automatically applied during the crimping process. Interfacial sealing is achieved by radial sealing of a multiple ridge design.

Vibration resistance is achieved with a four beam, four contact point system.

A high primary terminal locking force, for such a small size system, is achieved by the use of a stainless steel metal locking lance. The stainless steel jacket also helps to prevent damage to the small contacts and allows selection of a more optimal

material for electro-mechanical performance of the contact beams. Secondary locking is provided by a pre-assembled plastic device.

While only the 2, 3, 4, and 6 position versions are currently available for general sale, other customer specific designs are available (8 and 12) for the needs of specific OEM customers and the possible release of new parts for general sales. Designs also exist in many cases for free hanging wire mating components.

Information is available to assist vendors in developing appropriate mating interfaces when the AMP mating part is specified

### Product Performance

#### Temperature Rating

-40<sup>o</sup> to 120<sup>o</sup> C. for tin plating.  
-40<sup>o</sup> to 140<sup>o</sup> C. for gold plating.

#### Contact Termination Resistance

3 mΩ (Initial)

#### Contact Retention in Housing

60N Minimum, primary and secondary separately.

#### Current Guidelines

0.5 mm<sup>2</sup> wire  
5 Amps Maximum  
0.75 mm<sup>2</sup> wire  
7.5 Amps Maximum

### Product Documentation

#### Product Specification

108-18272  
108-18030

#### Application Specification

114-18025

#### Chart Drawings

116-18000-200 (Receptacles)  
116-18000-201 (Pins)

## Sealed Micro-Quadlock-System (MQS) Connectors . . . For Wire To Device Applications (Continued)

### Plug Housings



Connector housings are made from PBT material with a silicon rubber interface seal

Positions	Keying Option	Housing Color	Part Number
2	A	Black	1-967644-1
	B	Gray	2-967644-1
3	A	Black	1-967642-1
	B	Gray	2-967642-1
4	A	Black	1-967640-1
	B	Gray	2-967640-1
6	A	Black	1-967616-1
	B	Gray	2-967616-1
8	A or B	See Note	
12	A or B	See Note	

**Note:** Part numbers for the 8 and 12 position versions are not yet released, contact AMP Incorporated for current product status.

### Receptacle Contacts and Wire Seals



Contacts available in strip form only. Wire seals and cavity plugs are made from silicon rubber.

Wire Range mm <sup>2</sup> / AWG	Insulation Diameter mm/Inches	Wire Seal Part Number	Contact Finish	Contact Part Number
0.2-0.5 [#24-20]	0.9-1.4 [.035-.055]	967067-2	Pre- Tin	962885-X
	1.4-1.9 [.055-.075]	967067-1	Gold	962885-X
0.75 [#18]	1.4-1.9 [.055-.075]	967067-1	Pre- Tin	965906-X

Use cavity plug part number 967056-1 to seal empty circuit cavities.

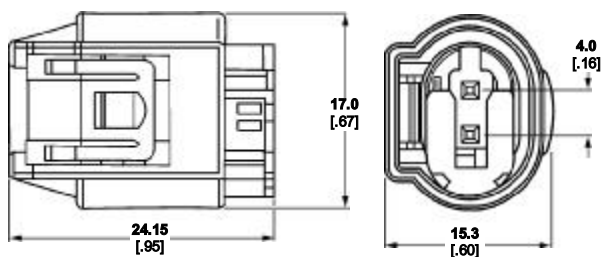
X = -1 for tin  
X = -5 for gold

**Note:** All terminal part numbers are located on one table drawing, please order 116-18000-200 when ordering customer drawings.

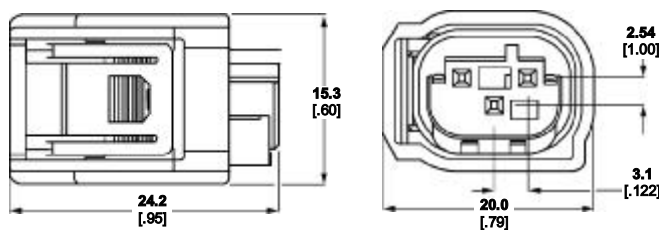
## Sealed Micro-Quadlock-System (MQS) Connectors . . . For Wire To Device Applications (Continued)

### Dimensional Data

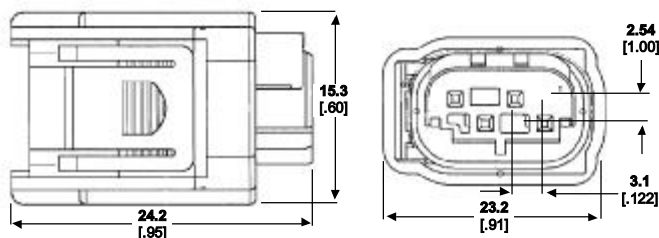
#### 2 Position Plug Housings



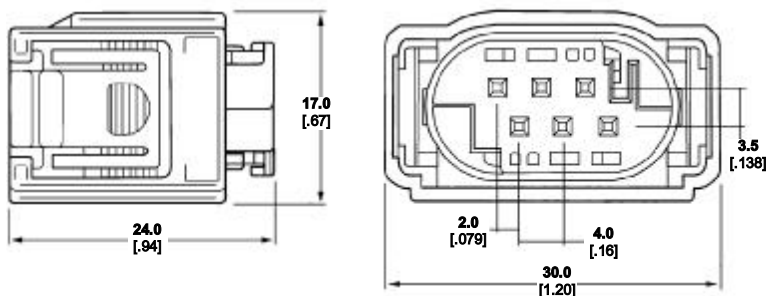
#### 3 Position Plug Housings



#### 4 Position Plug Housings



#### 6 Position Plug Housings



## Sealed Circular Connectors . . . 2.5mm and 1.5mm Systems

### Contacts

- Available in 1.5 mm [.059 in.] and 2.5 mm [.098 in.] pin diameters.
- Available with either tin, silver or gold plating.
- Rugged two piece construction with stainless steel jacket allows the use of optimized (CuNiSi) contact material.
- Six points of contact (2.5 mm System) and five points of contact (1.5 mm System)
- 2.5 mm System wire range 0.2 - 2.5 mm<sup>2</sup> [#24 - #14] AWG.
- 1.5 mm System wire range 0.2 - 2.5 mm<sup>2</sup> [#24 - #14] AWG.

### Wire Seals

- Made from silicon rubber material.
- Wire seal is crimped simultaneously with the contact.
- 2.5 mm System accommodates insulation diameters of 1.2 - 3.0 mm [.047 - .118 in.].
- 1.5 mm System accommodates insulation diameters of 1.2 - 3.0 mm [.047 - .118 in.].

### Connector Housings

- Made from glass filled PBT material.
- 2.5 mm System will mate to customer interfaces made per DIN 72585.
- Pre-assembled interface and panel mounting seal.
- The 2.5 mm System is available in 4 position or in 2 and 3 positions with blocked cavities. Four keying options are available per position size.
- The 1.5 mm System is available only in a 7 position version.



AMP in conjunction with major European truck manufacturers has developed a standard system of circular sealed connectors to meet the demand for superior performance under environments of extreme vibration, physical shock and temperature change. Typical applications include magnetic valves, sensors for ABS and powertrain management (including direct engine mounting) and lighting.

The 2.5 mm System uses a standard outer shell which can be supplied in either 2 or 3 position versions with the extra cavities blocked or in a 4 position version. Each position size is available with four different keying options that are designated by color code. The 1.5 mm System uses the same outer shell but is available only in a 7 position version.

The shell standardization allows the use of the same

back shells for all parts. Back shells are available in 90° and 180° wire exit versions with the options for mounting 8.5 mm or 10 mm convoluted tubing or the use of our adjustable strain relief feature on the free wire version.

The housings are available as free hanging male and female connectors or for mating to a customer supplied pin interface according to DIN 72585, Part 1 (ISO 15170 pending). The free hanging pin housing is also suitable for through panel mounting and is supplied with a pre-assembled seal for panel sealing. The actual mounting is achieved with the use of a separately available locking ring.

Terminal construction is of a two piece design to allow optimization of electrical and mechanical performance. An outer stainless steel jacket provide protection against handling damage.

### Product Performance

#### Temperature Rating

For tin plating -40° to 130° C  
For silver plating -40° to 140° C  
For gold plating -40° to 150° C

#### Dielectric Strength

1.0 KVAC between adjacent contact or to shell

#### Contact Termination Resistance

5 mΩ Max. (Initial)  
10 mΩ Max. (Final)

#### Current Guidelines (Map Wire Size)

2.5 mm . . . 30 amps Max.  
1.5 mm . . . 25 amps Max.  
(Using the maximum wire size at 23° C)

### Product Documentation

#### Product Specification

108-18621  
108-18027, DIN 72585 (2.5 mm)  
108-18028 (1.5 mm)

#### Application Specification

114-18255  
114-18020 (2.5 mm)  
114-18040 (1.5 mm)

## Sealed Circular Connectors . . . 2.5mm and 1.5mm Systems (Continued)

### Connector Housings



2.5 mm housings require 2.5 mm contacts. 1.5 mm housings require 1.5 mm contacts. Use cavity plug part number 828922-1 to seal unused connector cavities.

Connector Type	Positions	Pin Housing Part Number	Socket Housing Part Number
2.5 mm	2	1-967402-3	1-967325-3
	3	1-967402-2	1-967325-2
	4	1-967402-1	1-967325-1
1.5 mm	7	967447-1	967650-1

Keyed versions of the 2.5 mm housings are available, call AMP Incorporated for additional information

### Accessories



Description	Part Number
Mounting Ring for Pin Housing	965687-1
Right Angle Cover with Universal Clamp	965576-1
Straight Cover with Universal Clamp	965784-1
Right Angle Cover for NW 8.5 mm Diameter Corrugated Tubing	965577-1
Right Angle Cover for NW 10 mm Diameter Corrugated Tubing	965783-1
Straight Cover for NW 8.5 mm Diameter Corrugated Tubing	965785-1
Straight Cover for NW 10 mm Diameter Corrugated Tubing	965786-1

### Tools



Description	Part Number
Extraction Tool for 1.5 mm Contacts	518082-1
Spare Tube for 1.5 mm Contacts	548551-1
Extraction Tool for 2.5 mm Contacts	872070-1
Spare Tube for 2.5 mm Contacts	872992-1
Terminal Mounting Tool (for 0.2-1.0 mm <sup>2</sup> )	965702-1

## Sealed Circular Connectors . . . 2.5mm and 1.5mm Systems (Continued)

All contacts listed below are tin plated. Please refer to the customer drawing for additional plating options or call 1-800-522-6752 for more information.

### 2.5 mm Socket Contacts and Wire Seals



Wire Size		Insulation Diameter		Contact Part Number		Wire Seal
mm <sup>2</sup>	AWG	mm	In.	On Strip	Loose Piece	
0.2-0.4	24-22	1.2-2.1	.047-.083	929973-1	962980-1	828920-1
0.5-1.0	20-18	1.2-2.1	.047-.083	929974-1	962981-1	828920-1
>1.0-2.5	16-14	2.2-3.0	.087-.118	929975-1	962982-1	828921-1

### 2.5 mm Pin Contacts and Wire Seals



Wire Size		Insulation Diameter		Contact Part Number		Wire Seal
mm <sup>2</sup>	AWG	mm	In.	On Strip	Loose Piece	
0.2-0.4	24-22	1.2-2.1	.047-.083	929966-1	962970-1	828920-1
0.5-1.0	20-18	1.2-2.1	.047-.083	929967-1	962971-1	828920-1
>1.0-2.5	16-14	2.2-3.0	.087-.118	929968-1	962972-1	828921-1

### 1.5 mm Socket Contacts and Wire Seals



Wire Size		Insulation Diameter		Contact Part Number		Wire Seal
mm <sup>2</sup>	AWG	mm	In.	On Strip	Loose Piece	
0.2-0.4	24-22	1.2-2.1	.047-.083	929988-1	962997-1	828904-1
0.5-1.0	20-18	1.2-2.1	.047-.083	929989-1	962998-1	828904-1
>1.0-2.5	16-14	2.2-3.0	.087-.118	929990-1	962999-1	828905-1

### 1.5 mm Pin Contacts and Wire Seals

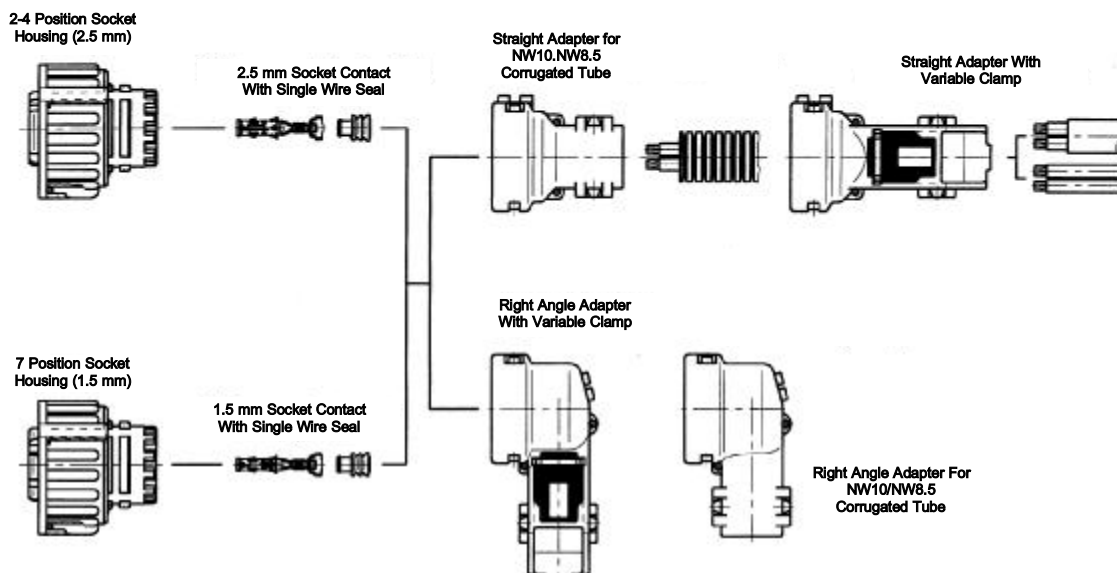


Wire Size		Insulation Diameter		Contact Part Number		Wire Seal
mm <sup>2</sup>	AWG	mm	In.	On Strip	Loose Piece	
0.2-0.4	24-22	1.2-2.1	.047-.083	929982-1	962991-1	828904-1
0.5-1.0	20-18	1.2-2.1	.047-.083	929983-1	962992-1	828904-1
>1.0-2.5	16-14	2.2-3.0	.087-.118	929984-1	962993-1	828905-1

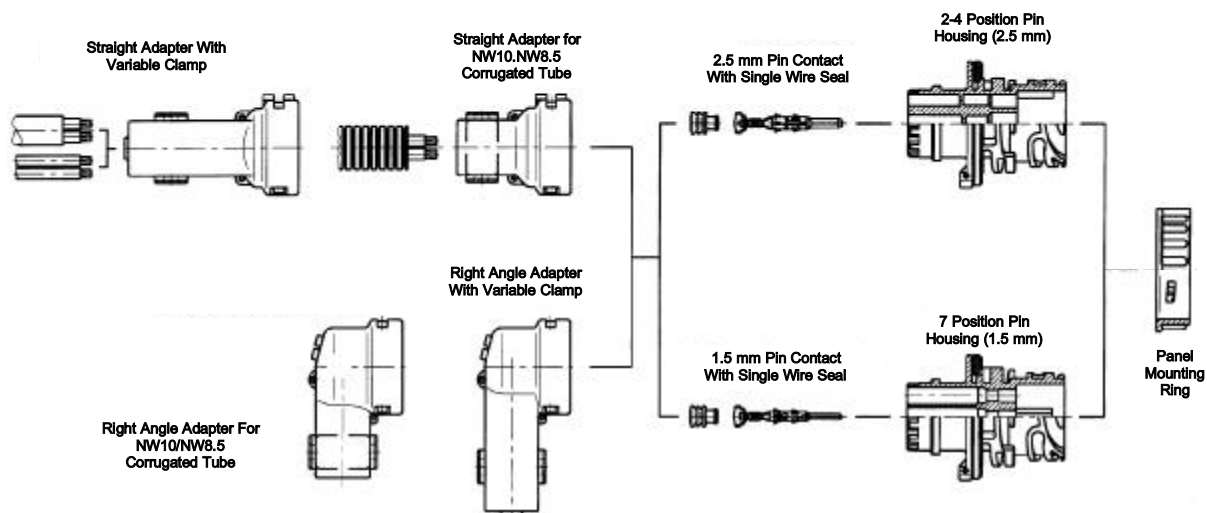


## Sealed Circular Connectors . . . 2.5mm and 1.5mm Systems (Continued)

### Socket Connector Assembly



### Pin Connector Assembly



## Sealed Circular Plastic Connectors

### Product Facts

- Economical environmentally sealed connector designed for industrial applications
- Meets major Industrial Standards
- High strength, impact resistant thermoplastic housing, rated UL 94V-0
- Contains wire entry, peripheral, and full interfacial seals
- AMP POWERBAND precision formed power contact (Series 5 and 6)
- Type III+ precision formed signal/low current contacts (Series 6)
- Other configurations in Series 1 can be made available, contact your local AMP Sales Engineer or AMP



Sealed CPC connectors are the latest additions to the growing family of AMP Circular Plastic Connectors. Sealed CPC connectors were developed as part of the Series 5 and 6 product line, specifically to meet the increasing demand for an economical environmentally sealed connector.

Sealed CPC connectors are designed to meet the requirements of UL, CSA, and VDE for environmentally sealed connectors used in industrial applications.

In addition, sealed CPC connectors are designed to meet the latest SAE and ASAE requirements as outlined in the standards listed here.

Sealed CPC connectors incorporated the latest technology in thermoplastic design and use the new AMP POWERBAND precision formed high current contact.

Illustrated above are the Series 5 (power) and Series 6 (power/signal mix) sealed

connector configurations. Other sizes are available in a Series 1 (signal/low current) configuration. Contact your local AMP Sales Engineer, or call AMP for the latest design information.

### Industry Standards:

**Sealed CPC connectors meet or are currently being tested to—**

- SAE— J2030
- ASAE— EP455
- IP— 65, 66, 67
- UL— 498
- NEMA— Class 4

### Performance Characteristics:

**Operating Temperature Range—**  
-50°C - 125°C

**Voltage Rating—**  
Series 5 600 V (AC or DC)  
Series 6 250 V (AC or DC)

**Power Contact**  
.125 POWERBAND 45 amps,  
single contact rating at 30°C T-Rise  
**Type III+ Contacts —**  
13 amps., single contact  
rating at 30°C T-Rise

**Flammability Rating—**  
UL 94V-0 rated

**Sealing Capability—**  
Per IP 66 and IP 67

**Housing Material—**  
High strength, impact  
resistant thermoplastic

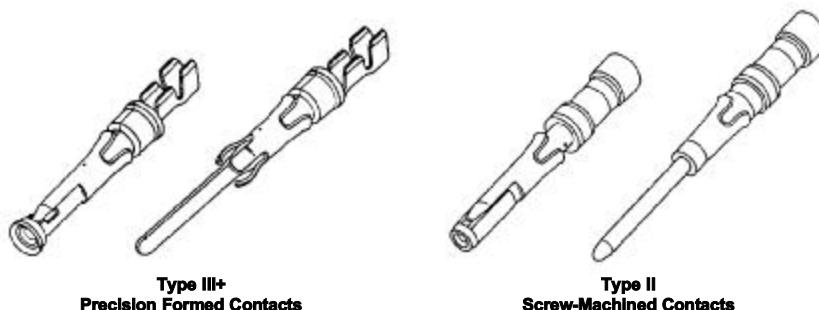
**Fluid Resistance—**  
Diesel fuel, gear and engine fuel,  
gasoline, anti-freeze, hydraulic fluid,  
water

## Sealed Circular Plastic Connectors (Continued)

### Multimate Size 16 Contact

Precision formed signal/low current

(Pin Diameter—1.57 [.062], test current 13 amps. max.)



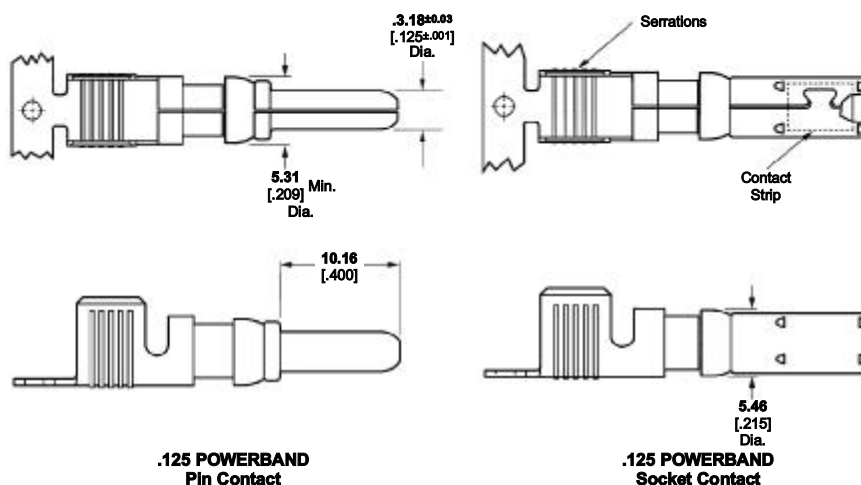
### .125 POWERBAND Contact

Precision formed high current

(Pin Diameter—3.175 [.125], test current 45 amps. max.)

#### Material and Finish:

**Contacts**—Copper with beryllium copper spring



AWG	Finish	Pin Length	Strip		Loose Piece	
			Pin	Socket	Pin	Socket
12-14	A	Standard	213845-2	213847-2	213845-4	213847-4
	B		213845-1	213847-1	213845-3	213847-3
8-10	A	Standard	213841-2	213843-2	213841-4	213843-4
	B		213841-1	213843-1	213841-3	213843-3

**A Finish:** Post plated 0.00076 [.000030] in mating area with 0.000127 [.000005] min. gold on remainder of contact, all over 0.00254 [.000100] min. nickel

**B Finish:** Post plated 0.00508 [.000200] silver in mating area with 0.000127 [.000005] min. gold on remainder of contact, all over 0.00254 [.000100] min. nickel

#### Extraction Tool Part No. 318813-1

Specifically designed for AMP CPC Connectors, Series 5 and 6, the new .125 POWERBAND contact offers the performance of a MIL-Spec screw machine Size 8 contact with the

economy of a stamped and form, strip-feed contact. Strip-feed contacts offer maximum production capabilities using standard AMP bench-mount, semi-automatic termination

equipment. For low volume, prototype or maintenance and repair requirements, the .125 POWERBAND contact is available in loose piece form.

## Sealed Circular Plastic Connectors Series 5

### CPC Connectors, Series 5 Sealed – Reverse Sex



Listed part numbers are for connectors only, contacts must be ordered separately.

#### Material:

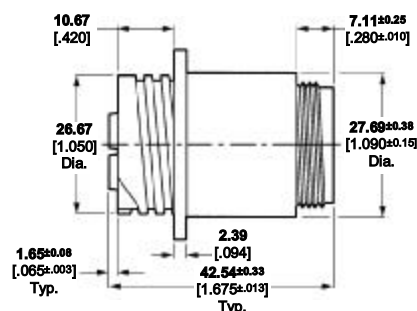
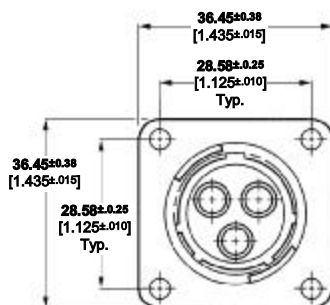
**Housing**—Nylon, glass-filled UL rated 94V-0, black

#### Related Product Data:

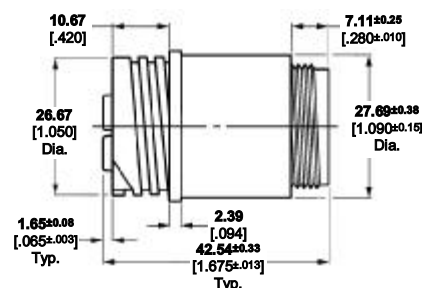
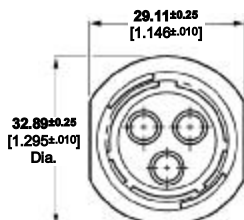
**Contacts**—Page 44

**Application Tooling**—Pages 69-75

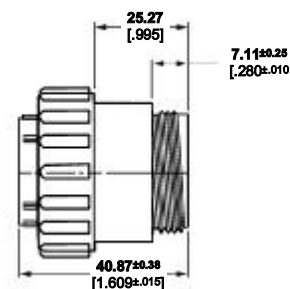
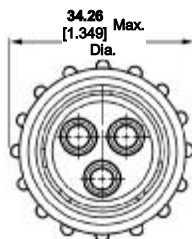
### Square Flange Receptacle (Uses Flange Seal Part No. 81665-2)



### Free-Hanging Receptacle



### Plug (With Full Interfacial Seal)



### Wire Entry Seals\*

\*Cable clamp kit 213902-1 required. (Similar to 206322-1. See page 46 for dimensional detail of cable clamp) or cable clamp kit 213904-1. (Similar to 206070-1. See page 46 for dimensional detail of cable clamp).

Arrangement	Square Flange Receptacle	Free-Hanging Receptacle	Plug
17-3 - Connector	213889-2	213890-2	213905-1
17-3 - Wire Entry Seal Kit	213899-1	213899-1	213899-1
23-7 Connector	—	—	—

Kit includes (1) Silicon Wire Entry Seal and (1) Pressure Plate.  
\*Wire entry seals require cable clamp kits.

### Replacement Coupling Rings

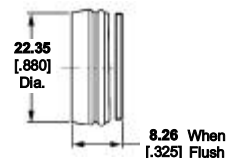
17-3	213810-1
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Rear View  
Receptacles



Rear View  
Plugs



Side View  
Plugs/Receptacles

Note: Minimum insulation diameter is 3.96 [0.156]; Maximum insulation diameter is 6.60 [0.260].

## Sealed Circular Plastic Connectors, Series 6

### CPC Connectors, Series 6 Sealed – Reverse Sex



Listed part numbers are for connectors only, contacts must be ordered separately.

#### Material:

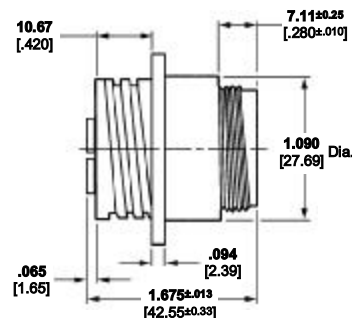
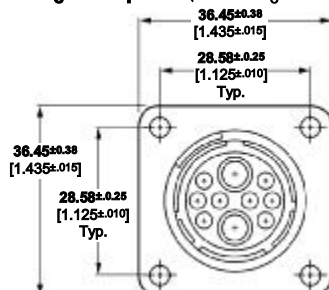
**Housing**—Nylon, glass-filled UL rated 94V-0, black

#### Related Product Data:

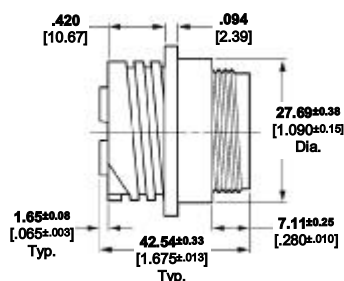
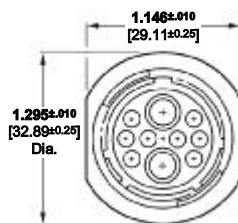
**Contacts**—Page 44

**Application Tooling**—Pages 69-75

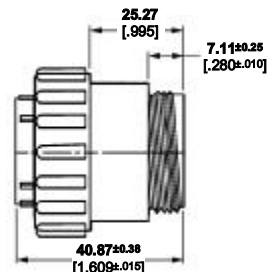
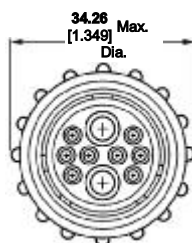
### Square Flange Receptacle (Uses Flange Seal Part No. 81665-2)



### Free-Hanging Receptacle



### Plug (With Full Interfacial Seal)



Arrangement	Square Flange Receptacle	Free-Hanging Receptacle	Plug
17-10 Connector	213893-2	213894-2	213906-1
17-10 Wire Entry Seal Kit	213900-1	213900-1	213900-1

Kit includes (1) Silicon Wire Entry Seal and (1) Pressure Plate.

\*Wire entry seals require cable clamp kits.

### Wire Entry Seal\*

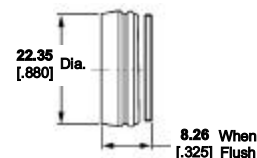
\*Cable clamp kit 213902-1 required. (Similar to 206322-1. See page 46 for dimensional detail of cable clamp) or cable clamp kit 213904-1. (Similar to 206070-1. See page 46 for dimensional detail of cable clamp).



Rear View  
Receptacles



Rear View  
Plugs



Side View  
Plugs/Receptacles

### Replacement Coupling Rings

17-10	213810-1
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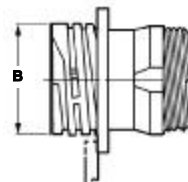
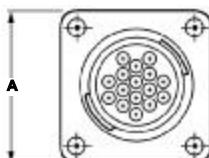
**Note:** Minimum insulation diameter is 3.96 [0.156]; maximum insulation diameter is 6.60 [0.260] for power contacts. Minimum insulation diameter is 1.50 [0.060]; maximum insulation diameter is 3.30 [0.130] for signal contacts.

## Sealed Circular Plastic Connectors, Special Series 1

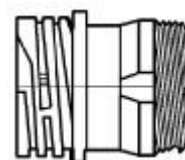
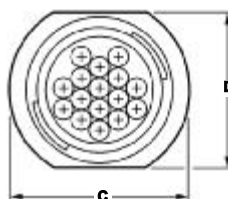
### Sealed CPC Receptacles, Special Series I with Pre-Installed. Bonded Peripheral Seal



### Square Flange Receptacle (Uses Flange Seal Part No. 81665-2)



### Free-Hanging Receptacle



Listed part numbers are for connectors only, contacts must be ordered separately.

#### Material and Finish:

**Housing**—Thermoplastic, UL 94V-0 rated, black

**Seal**—Elastomer, gray

#### Related Product Data:

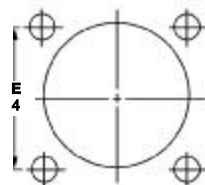
**Contacts**—Page 44

**Contact Arrangement**—Page 45

**Accessories**—Pages 38-50

**Performance Characteristics**—Page 44

**Application Tooling**—Pages 69-75



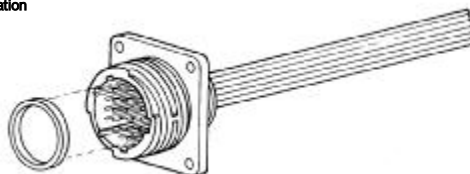
Recommended Panel Cutout

Shell Size	Dimension E
11	21.44 .844
13	24.61 .969
17	28.58 1.125
23	36.53 1.438

Shell Size	Dimensions		Contact Arrangement	Sex	Square Flange Part No.	Dimensions		Free-Hanging Part No.	Mates with Plug Part No.
	A	B				C	D		
11	28.58	15.42	11-4	Std.	206061-2	23.75	20.75	206153-2 206430-4	206060-1 206429-1
	1.125	.607		Rev.	206430-3	.935	.817		
13	32.54	20.62	13-9	Std.	206705-3	27.23	22.20	206705-4	206708-1
	1.281	.812		Rev.	206705-4	1.072	.874		
17	36.45	26.67	17-16	Std.	206036-4	33.27	29.49	206036-5 206043-5	206037-1 206044-1
	1.435	1.050	17-14	Rev.	206043-4	1.310	1.161		
23	44.45 1.750	36.53 1.438	23-24	Std.	206838-3	44.02 1.733	38.23 1.505	206838-4	206837-1
			23-37	Std.	206151-3			206151-4	206150-1
				Rev.	206306-3			206306-4	206305-1

**Notes:** 1. For detailed performance data on peripheral seals, refer to AMP Product Specification No. 108-10024.  
2. Receptacle mates with Series 1 plugs found on page 10.

Seal shown outside of connector for illustration purposes only.



Receptacles with pre-installed, bonded peripheral seals are recommended for use in sealing/splash-proof applications, or where connectors will be subjected to vibration.



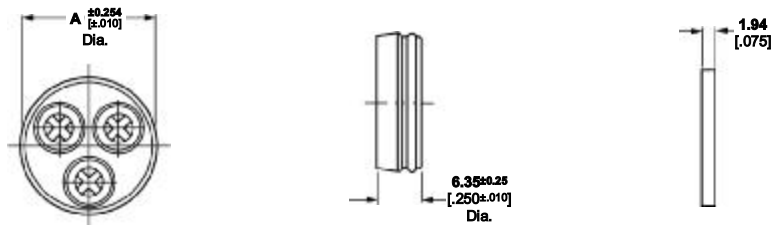
## Circular Plastic Connector Sealing Accessories

### Wire Entry Seal Kits for Plug and Receptacle Housings

#### Material and Finish:

**Seal**—Elastomer, red iron oxide

**Pressure Plate**—Nylon, black



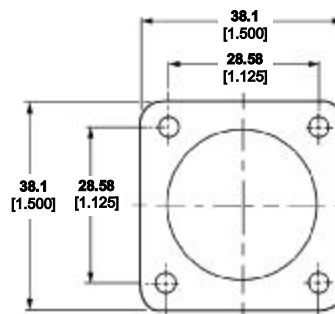
Arrangement No.	Insulation Dia. Range	Dimension A	Kit for Pins	Kit for Sockets
13-9	1.91-3.18 .075-.125	17.30 .681	213926-1	213925-1
17-3	4.52-6.73 .178-.265	20.07 .790	213899-1	213899-1
17-10	4.52-6.73 .178-.265 1.91-3.18 .075-.125	20.07 .790	213900-1	213900-1
17-14	1.91-3.18 .075-.125	20.07 .790	213919-2	213919-1
17-16	1.91-3.18 .075-.125	20.07 .790	213920-2	213920-1

**Notes:** 1. Kits include one Gang Seal and one pressure plate marked for cavity identification.  
2. Arrangement No. 17-10 Insulation Range 4.52-6.73 [.178-.265] for two-holes, 1.95-3.18 [.075-.125] for eight holes.

### Flange Seal

**Material:** Neoprene, black

Shell Size	Part No.
11	81665-3
13	81665-4
17	81665-2
23	81665-5



## Circular Plastic Connector Sealing Accessories (Continued)

### Sealing Caps – for Receptacles only

Sealing caps are used to protect exposed contacts of unmated receptacles.

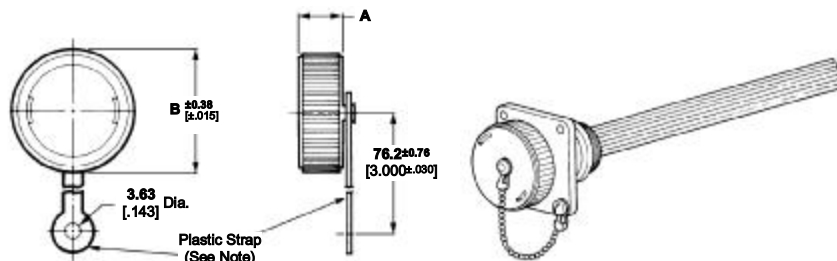
#### Material and Finish:

**Cap**—Thermoplastic, heat stabilized, fire resistant, self-extinguishing, 94V-1 rated, black

**Sealing Gasket**—Neoprene, black

**Bead Chain**—Steel, nickel plated

**Bead Chain Coupling**—Brass, plated nickel



Shell Size	Series	Dimensions		Plastic Strap Part No.	Metal Bead Chain Part No.
		A	B		
11	1 & 2	9.14 .360	23.55 .927	206903-1	208800-1
13	1	9.14 .360	26.80 1.055	211870-1	213485-1
17	1,2,& 3	9.14 .360	32.89 1.295	207445-1	208652-1
23	1, 3, & 4 2	11.68 .460	43.89 1.728	207446-1	208680-1
				207446-2	208680-2

### Cable Entry Seals Heat Shrinkable Sealing Boots

Cable entry seals are used with jacketed cable to provide an environmentally sealed wire-to-connector system. They can be used with either plugs or receptacles.



Shell Size	Dimensions		Expanded Wall Thickness	Sealing Range (Dia.)	Max. Recovered Wall Thickness	Part No.
	A	B				
11	63.50 2.500	15.88 .625	2.03 .080 Ref.	6.60- 15.25 .260- .600	25.91 1.20 Ref.	54010-1
13	63.50 2.500	19.68 .775	2.03 .080 Ref.	7.62 - 18.42 .300 - .725	25.91 1.20 Ref.	54123-1
17	63.50 2.500	24.76 .975	2.03 .080 Ref.	10.16 - 22.22 .400 - .875	25.91 1.20 Ref.	54011-1
23	76.20 3.000	31.75 1.250	2.03 .080 Ref.	13.97 - 31.75 .550 - 1.250	25.91 1.20 Ref.	54012-1

### Thick Wall Boots

#### Material:

**Internal Sleeve**—Nylon

**Outer Tubing**—Polyolefin

### Thin Wall Boots

#### Material:

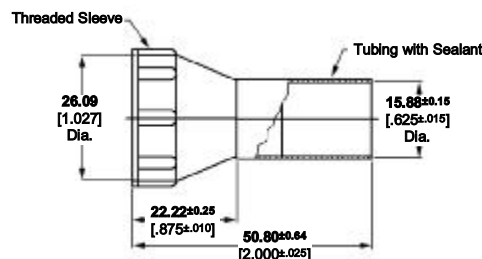
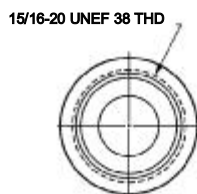
**Inter Sleeve**—Nylon

**Outer Tubing**—Polyolefin

**Expanded Wall Thickness**—  
0.51 [.020]

**Max. Recovered Wall Thickness**—  
10.16 [.400]

**Sealing Range**—6.35 [.250]-  
12.70 [.500]



Shell Size 17  
Part No. 213933-1

## Circular Plastic Connector Sealing Accessories (Continued)

### Jacketed Cable Seals (for Shell Size 23)

A jacketed cable seal kit provides an environmentally sealed connection for jacketed cable.

#### Material:

**Peripheral Seal**—Grey elastomer

**Collar**—Aluminum

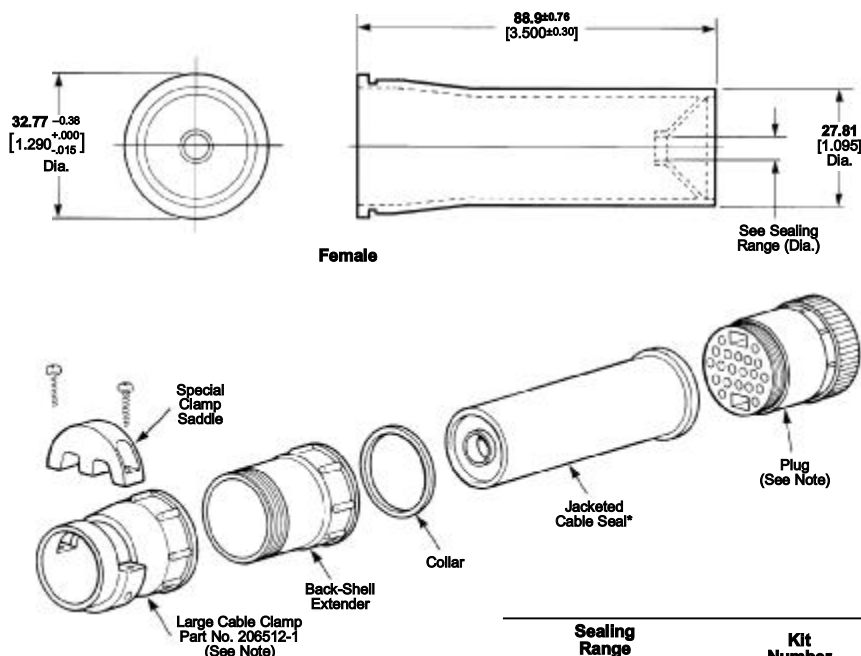
**Jacketed Cable Seal**—Black rubber

**Back-Shell Extender**—Black glass-filled thermoplastic

**Special Clamp Saddle**—Black thermoplastic

**Note:** Jacketed cable seals must be used with large cable clamps and can be used on plugs or receptacles. Large cable clamps are to be ordered separately (see page 46). Each jacketed cable seal kit includes:

- Peripheral Seal—to be discarded if kit is used on plug. Additional seals may be purchased
- Collar—provides bearing surface for back-shell extender
- Jacketed Cable Seal
- Back-Shell Extender
- Special Clamp Saddle—to be used in lieu of clamping insert supplied with large cable clamp



\*Jacketed cable seal is pressed flush against rear connector face when back-shell extender is threaded onto rear of connector.

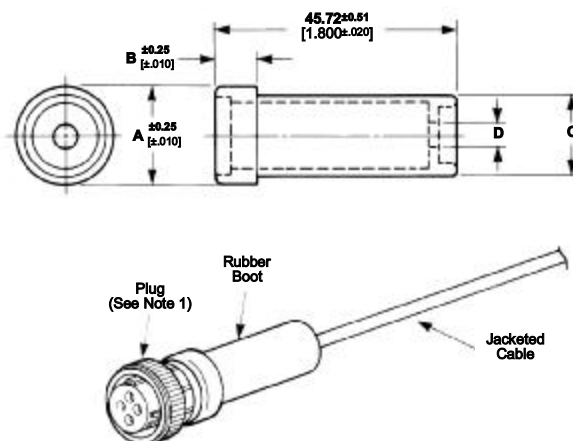
Sealing Range (Dia.)	Kit Number
7.62-11.43 .300-.450	207052-1
11.43-15.24 .450-.600	207052-2
15.24-22.22 .600-.875	207052-3

### Rubber Boots

Rubber boots are used with jacketed cable to provide splash-proof connections for Series 1 and Series 3 connectors.

#### Material:

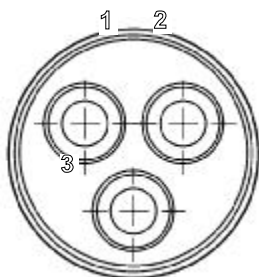
Black neoprene



Shell Size	Cable Dia. Sealing Range	Dimensions				Part No.
		A	B	C	D	
11	5.56-11.13 .219-.438	19.05 .750	7.62 .300	15.24 .600	4.32 .170	206304-1

- Notes:** 1. Rubber boots are recommended for use with jacketed cable and can be used on plugs or receptacles, except Series 2 connectors.  
2. For detailed performance data on rubber boots, refer to AMP Product Specification No. 108-10024.

## Connector Series and Types



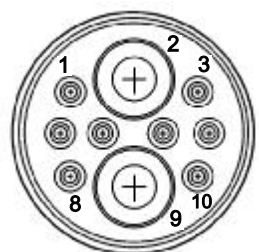
### Series 5—Power Contacts .125 POWERBAND

Series 5 connectors combine the revolutionary performance of the new AMP POWERBAND, high current contact in configurations similar to the Series 3 connectors. AMP POWERBAND contacts offer the electrical

performance of the best Mil Spec Size 8 screw-machined contacts with the economy and productivity of strip-fed, precision formed contacts.

Series 5 connectors are environmentally sealable to meet IEC IP 65, IP 66 and

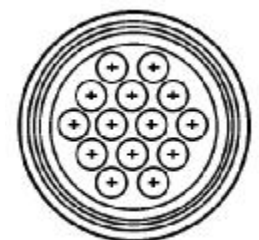
IP 67 specifications. Rated at 600 VAC or VDC, 45 amperes maximum in a single contact, the connectors are available in free-hanging and panel-mount applications—**two connector configuration containing 3- and 7- .125**



### Series 6—Combination, Size 16 and .125 POWERBAND Contacts

Series 6 combines the high current and environmental sealing capability of Series 5, POWERBAND contacts, and the reliability of signal carrying, low current Type III+ contacts. This

combination of power and signal contacts is offered in **one connector configuration containing 2- .125 POWERBAND contacts and 8-Type III+ signal pin**



### MIL-C 5015 Style—Size 16 Contacts

This new addition to the AMP Circular Plastic Connector Line is specifically designed to be **intermateable with Metal-Shell size 20-14 and 18-10, MIL-C 5015 Style connector systems**. The high impact resistant plastic housing offers the

advantages of light weight and lower cost than existing metal-shell connectors. In addition the connector design prevents mismatching when used with other insert arrangements. As part of the AMP Multimate family of connectors, the MIL-C 5015

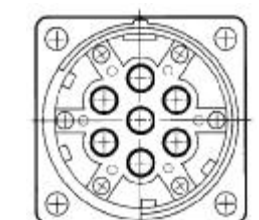
style connector offers the economies of crimp Type III+ pin and socket contacts in reel-mounted, strip-form for high volume automatic machine termination, as well as in loose piece-form for low volume, prototype or maintenance and repair.



### Metal-Shell, Circular Plastic Connectors

Metal-Shell CPC connectors consist of a black thermoplastic insert in a nickel-plated, zinc alloy shell.

These connectors are currently available in **shell sizes 14, 22 and 28, and in two basic configurations consisting of plugs and**



### Power IV Connectors

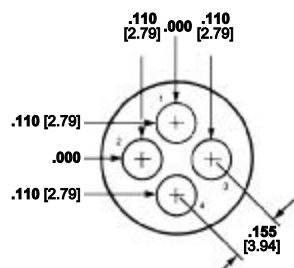
**A 7-position, high current circular plastic connector available in standard and reverse sex pin and receptacle housings** designed to meet UL, CSA, and VDE requirements. Fully loaded the connector is capable of carrying up to 56

amps, max. per circuit, at 600 VAC using 4 AWG [21mm<sup>2</sup>] wire. High impact resistant UL 94V-0 rated material used in housings offer excellent cost savings when compared to similar metal-shell circular connectors. Pin contacts are

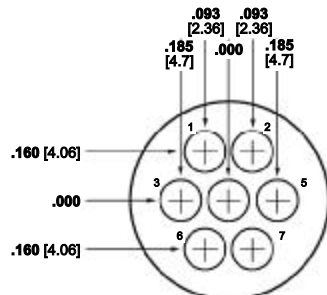
bronze, and socket contacts are beryllium copper, all plated silver over nickel, **available in sizes that will accept 4, 6, 8 and 10 AWG [21, 14, 8 and 6mm<sup>2</sup>] wire.**

## Contact Arrangements, Series 1

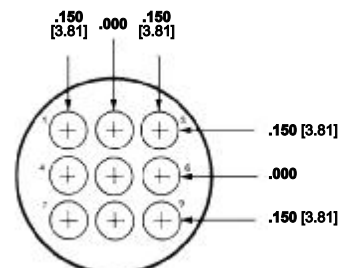
### Shell Sizes 11 and 13



**Arrangement 11-4**  
Max. Wire Ins. Dia. = .100 [2.54]

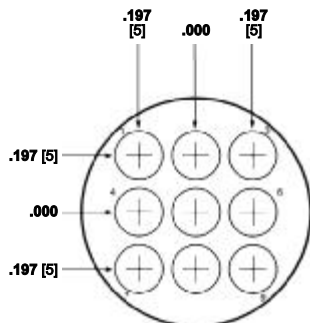


**Arrangement 13-7**  
Max. Wire Ins. Dia. = .100 [2.54]

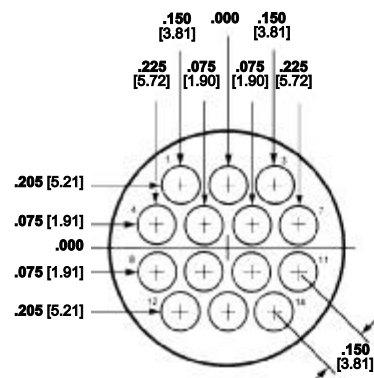


**Arrangement 13-9**  
Max. Wire Ins. Dia. = .100 [2.54]

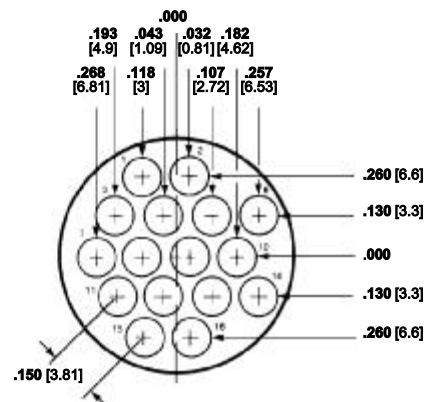
### Shell Size 17



**Arrangement 17-9**  
Max. Wire Ins. Dia. = .150 [3.81]

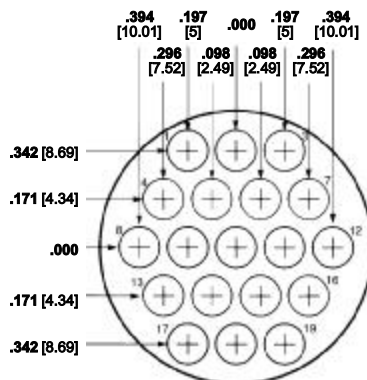


**Arrangement 17-14**  
Max. Wire Ins. Dia. = .100 [2.54]

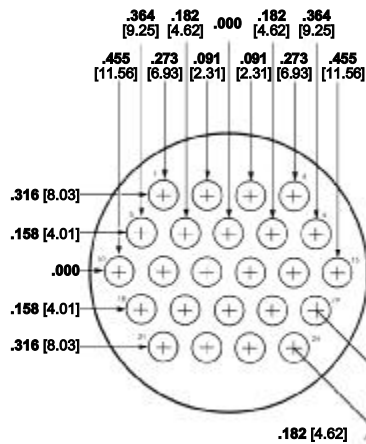


**Arrangement 17-16**  
Max. Wire Ins. Dia. = .100 [2.54]

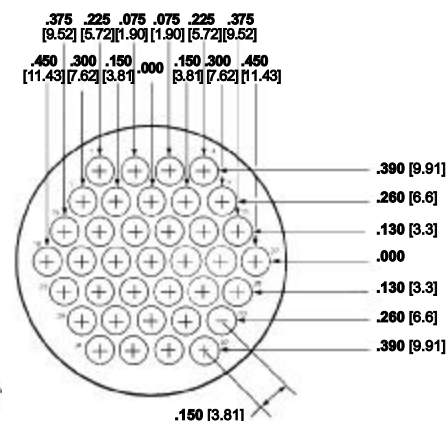
### Shell Size 23



**Arrangement 23-19**  
Max. Wire Ins. Dia. = .150 [3.81]



**Arrangement 23-24**  
Max. Wire Ins. Dia. = .150 [3.81]



**Arrangement 23-37**  
Max. Wire Ins. Dia. = .100 [2.54]

Note: Contact arrangements shown are for pin mating face (plug or receptacle). Socket mating face is mirror image.



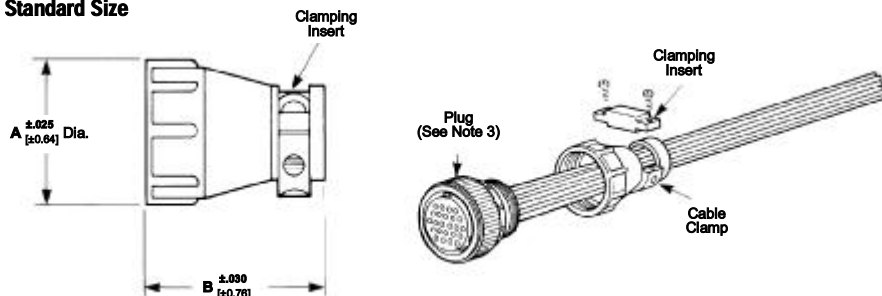
## Circular Plastic Connector Accessories Cable Clamps

Cable clamps provide strain relief and can be used on all series receptacles and plugs.

### Material:

Black thermoplastic heat-stabilized, fire-resistant, self-extinguishing, 94V-1 rated

### Standard Size



Shell Size	Dimensions		Cable O.D. (Max.)	Thread Size	Part No.	
	A	B			Individually Packaged	Bulk Packaged*
11	.825 20.96	1.250 31.75	.329 8.36	5/8-24 UNEF-2B	206062-3	206062-4** (400)
13	.950 24.13	1.400 35.56	.453 11.51	3/4-20 UNEF-2B	206966-1	206966-2** (200)
17	1.125 28.58	1.400 35.56	.453 11.51	15/16-20 UNEF-2B	206070-1	206070-3** (200)
23	1.600 40.64	1.555 39.5	.703 17.86	1-3/8-18 UNEF-2B	206138-1	206138-2** (100)

- \*Numbers in parentheses specify, in multiples, the minimum quantity of parts that can be ordered.  
 \*\*Packaging includes two screws: shell sizes 11-17; screw length .500 [12.7]; shell size 23, screw length .625 [15.88].  
 Notes: 1. Clamping areas adjustable by inverting or changing clamping inserts. The quantity of inserts supplied with each assembly is as follows: for size 11 cable clamps, one insert; for all other cable clamps, two inserts.  
 2. Components for all cable clamps are packaged unassembled. This includes the cable clamp, two screws and the clamping inserts.  
 3. Cable clamps can be threaded directly onto plugs or receptacles, or onto back-shell extenders (page 38).  
 4. Replacement screws are available in the following sizes: 3/8 in. [9.52]—19024-1, 1/2 in. [12.7]—19024-2, 5/8 in. [15.88]—19024-3, 1 in. [25.4]—19024-4, 3/4 in. [19.05]—19024-5.  
 5. Cable clamp inserts not sold separately.

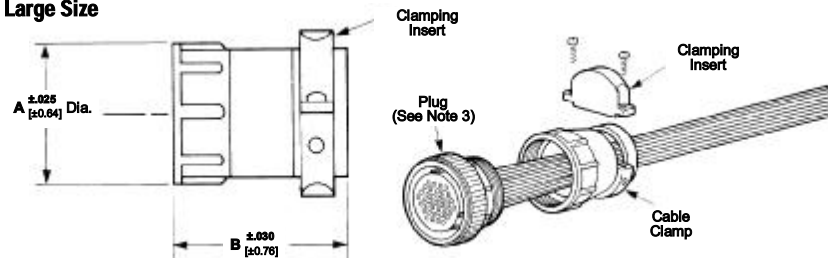


The clamping area can be adjusted by reversing the clamping insert as shown below.



For additional information concerning cable clamps, refer to Instruction Sheet IS 7582.

### Large Size



Shell Size	Dimensions		Cable O.D. (Max.)	Thread Size	Part No.	
	A	B			Individually Packaged	Bulk Packaged*
11	.850 21.59	1.450 36.83	.453 11.51	5/8-24 UNEF-2B	206358-1	206358-2** (200)
13	1.131 28.73	1.655 42.04	.703 17.86	3/4-20 UNEF-2B	207008-1	207008-2** (100)
17	1.131 28.73	1.655 42.04	.703 17.86	15/16-20 UNEF-2B	206322-1	206322-2** (100)
23	1.600 40.64	1.655 42.04	1.125 28.58	1-3/8-18 UNEF-2B	206512-1	206512-2** (75)

- \*Numbers in parentheses specify, in multiples, the minimum quantity of parts that can be ordered.  
 \*\*Packaging includes two screws: shell size 11; screw length .500 [12.7]; shell sizes 13-23, screw length .625 [15.88].  
 Notes: 1. Clamping areas adjustable by inverting or changing clamping inserts. The quantity of inserts supplied with each assembly is as follows: for size 23 cable clamps, four inserts; for all other cable clamps, two inserts.  
 2. Components for all cable clamps are packaged unassembled. This includes the cable clamp, two screws and the clamping inserts.  
 3. Cable clamps can be threaded directly onto plugs or receptacles, or onto back-shell extenders (page 38).  
 4. Replacement screws are available in the following sizes: 3/8 in. [9.52]—19024-1, 1/2 in. [12.7]—19024-2, 5/8 in. [15.88]—19024-3, 1 in. [25.4]—19024-4, 3/4 in. [19.05]—19024-5.  
 5. Cable clamp inserts not sold separately.

## Circular Plastic Connector Accessories

### Self-Centering (for Shell Size 23)

The self-centering cable clamp is used in applications where strain relief protection is required and the cable or wire bundle is large and/or stiff.

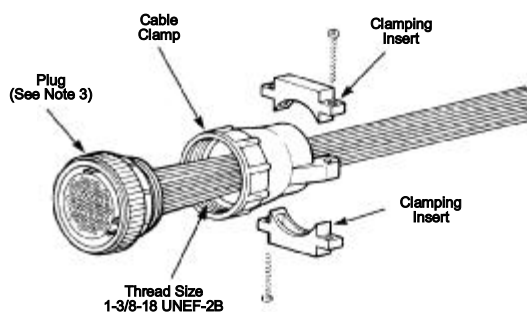
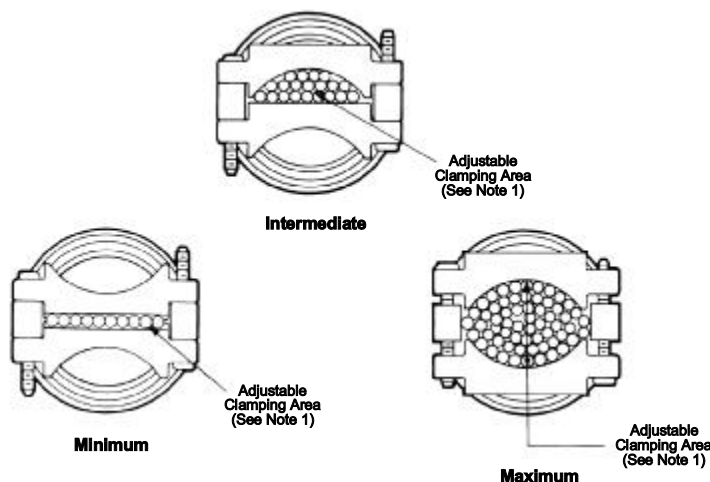
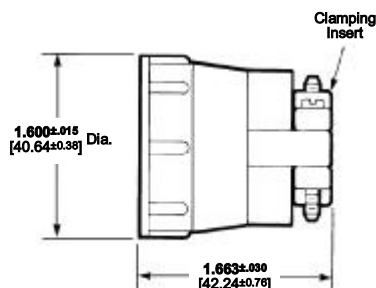
#### Material:

Black thermoplastic

#### Part Numbers

207774-1 (individually packaged)

207774-2 (bulk packaged)



- Notes:**
1. Clamping area is adjustable by inverting clamping inserts; maximum cable diameter is 1.125 [28.58].
  2. Components for cable clamp are packaged unassembled. This includes the cable clamp, two screws (1.00 [25.4]) and the clamping inserts.
  3. Cable clamp can be threaded directly onto plugs or receptacles, or onto back-shell extenders (page 38).



## Circular Plastic Connector Accessories (Continued)

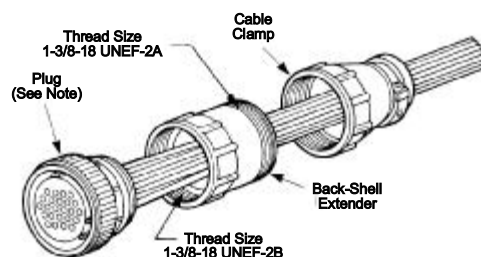
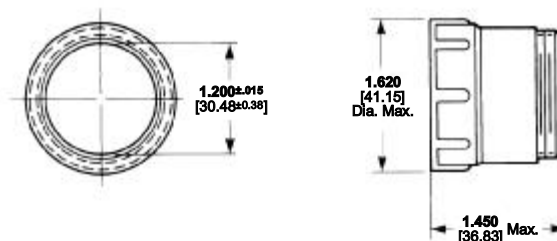
### Back-Shell Extender (for Shell Size 23)

A back-shell extender is used with a cable clamp in applications where added length and/or additional wire breakout are required.

#### Material:

Black glass-filled thermoplastic

Part No. 207055-1



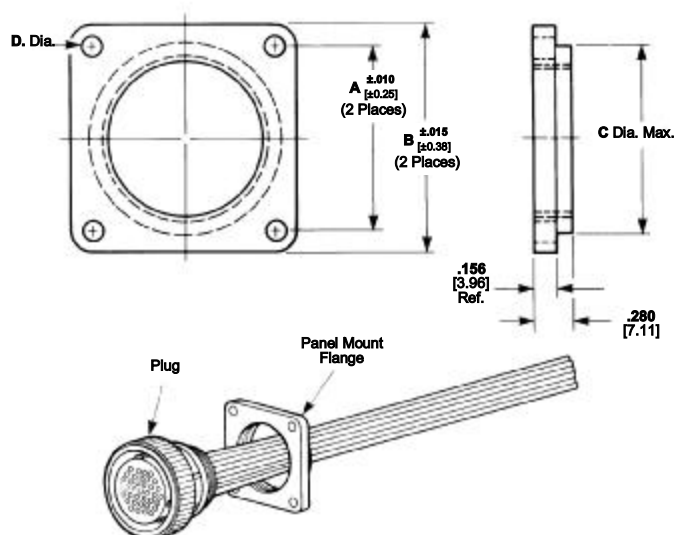
**Note:** Back-shell extenders can be threaded directly onto plugs or receptacles and will accept cable clamps of the appropriate size (pages 46 and 47).

### Panel Mount Flanges (for Plugs only)

A panel mount flange is used in applications that require the plug half of a connector to be panel mounted.

#### Material:

Black thermoplastic

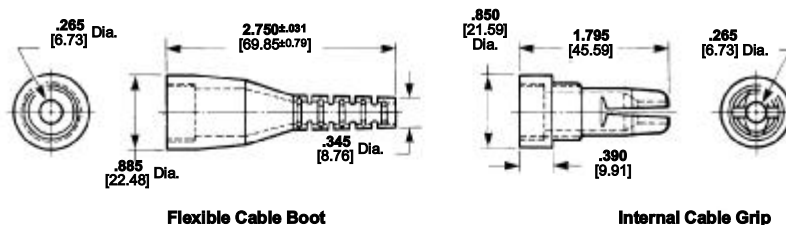


Shell Size	Dimensions				Part No.
	A	B	C	D	
11	.844 21.44	1.125 28.58	.750 19.05	.125 3.18	207299-1
13	.969 24.61	1.280 32.51	.875 22.22	.125 3.18	207299-2
17	1.125 28.58	1.435 36.45	1.110 28.19	.150 3.81	207299-3
23	1.438 36.53	1.750 44.45	1.510 38.35	.150 3.81	207299-4

## Circular Plastic Connector Accessories (Continued)

### Flexible Cable Boot and Internal Cable Grip (for Shell Size 11)

Flexible cable boots, with internal cable grip installed, provide strain relief capabilities for jacketed cable in applications where aesthetic appearance is essential. They can be threaded onto plugs or receptacles.



#### Material:

Black thermoplastic

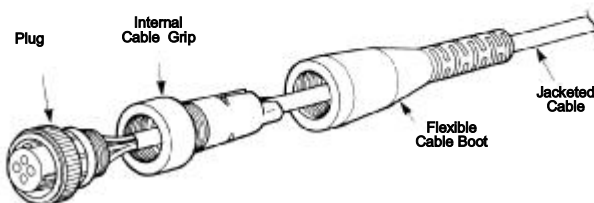
#### Cable Range:

.150-.250 [3.81-6.35]

#### Part Numbers

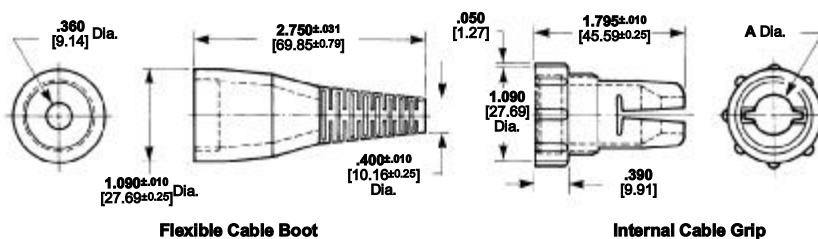
**207489-1** (Cable Boot)

**207490-1** (Cable Grip)



### Flexible Cable Boot and Internal Cable Grip (for Shell Size 17)

Flexible cable boots, with internal cable grip installed, provide strain relief capabilities for jacketed cable in applications where aesthetic appearance is essential. They can be threaded onto plugs or receptacles.



#### Material:

Black thermoplastic

#### Part Numbers

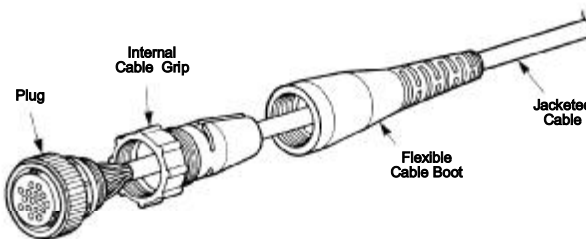
**207241-1** (Cable Boot)

**207387-1** (Cable Grip)

A Dia. = .325 [8.26] for cable range of .200-.250 [5.08-6.35]

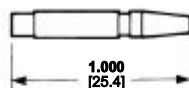
**207387-2** (Cable Grip)

A Dia. = .385 [9.78] for cable range of .250-.350 [6.35-8.89]

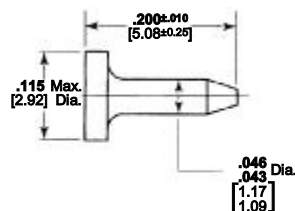


## Circular Plastic Connector Keying Plugs

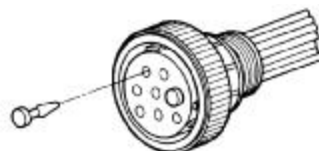
Keying plugs are used to provide keying capabilities for all connector series. Keying plugs are used in socket cavities of standard sex plugs and reverse sex receptacles, except when used with sealing caps.



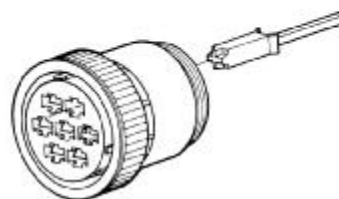
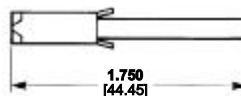
**Series 1 and Series 4 Keying Plug**  
(for Types III+ and Subminiature COAXICON)  
**Part No. 200821-1**



**Part No. 206509-1**



**Series 2 Keying Plug**  
(for Size 20 DM and 20 DF Contacts)

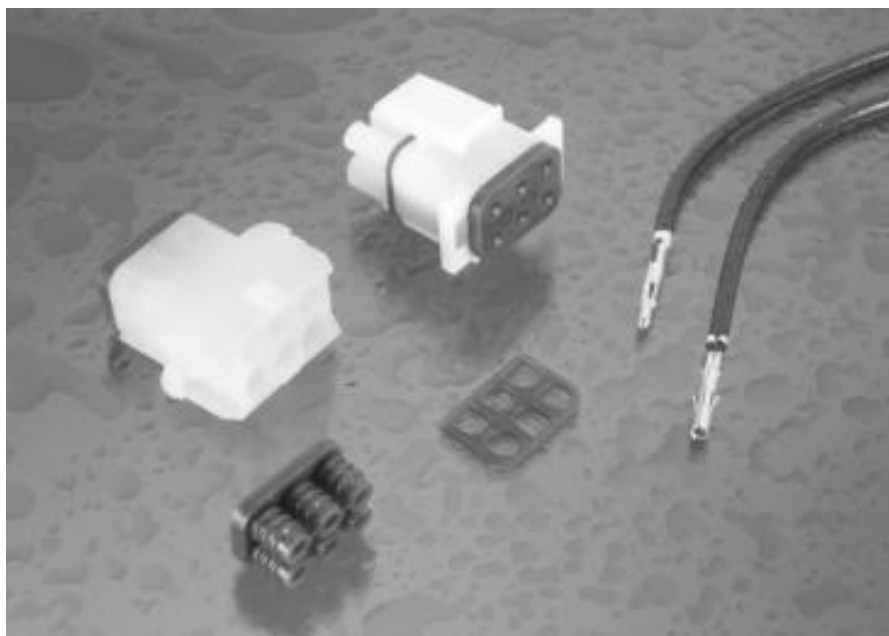


**Series 3 and Series 4 Keying Plugs**  
(for Type XII Contacts)  
**Part Nos. 206508-1 (Socket Cavities)**  
**207597-1 (Pin Cavities)**

## Splash Proof/Sealed Universal MATE-N-LOK Connectors

### Product Facts

- Pins and sockets can be intermixed in the same housing
- Positive polarization
- Rear cavity identification
- Contacts completely enclosed in housings
- Positive locking housings
- Insulation capability of .060 - .130 mm [1.52 - 3.30 in.]
- Removable, crimp snap-in contacts
- Low contact mating force
- Contacts accept .05 - 5.0 mm<sup>2</sup> [#24 - #22] AWG wire sizes
- Contacts available with pre-tin or gold plating
- Dual locking lances provide optimum contact stability
- Panel mount or free hanging
- Mate with Universal MATE-N-LOK II Housings
- Available in UL 94V-0 flame retardant material. Meets the material requirements of table 25.1 of U.L. Standard 1410 (television receivers and video products)
- Not for interrupting current
- Harness to PC Board capability using pin or socket headers
- Pin and socket headers are available in both vertical and right angle style
- Solderability—headers meet MIL-STD 202 Method 208
- Contacts are on 6.35 mm [.250 in.] centerline spacing
- Recognized under the Component Program of Underwriters Laboratories, Inc. File No. E28476
- Certified by Canadian Standards Association File No. LR 7189
- Passed test by VDE under their Registration Number 5618/Continuous Surveillance



### Performance Characteristics

The Universal MATE-N-LOK Connector performance characteristics are based on the hanging and panel mount connectors, loaded with contacts crimped on stranded wire.

**Dielectric Withstanding Voltage**  
5.0 KVAC or 10.0 KVDC between adjacent circuits

**Insulation Resistance**  
1000 megohms minimum initial between adjacent circuits

**Voltage Rating**  
600V AC or DC

**Connector Mating**  
Solid Pin—3.0 lb. max. per circuit  
Split Pin—1.5 lb. max per circuit

**Connector Unmating**  
Solid Pin—.7 lb. min. per circuit  
Split Pin—.5 lb. min per circuit

**Contact Insertion Force**  
5.0 lb. max. per contact

**Contact Retention**  
15 lb. min. per contact

**Durability**  
50 cycles, mating and unmating

### Technical Documents

#### Product Specifications

- 108-1031 Universal MATE-N-LOK Connectors
- 108-1053 Universal MATE-N-LOK PC Board Headers
- 108-1031-1 Splash Proof Seal, Universal MATE-N-LOK Connectors

#### Application Specification

- 114-1010 Universal MATE-N-LOK Contacts

#### Instruction Sheet

- 408-7714 Plug, Cap, Headers, Pin, Socket and Accessories
- 408-3392 Universal MATE-N-LOK Splash Proof Seals

## Splash Proof/Sealed Universal MATE-N-LOK Connectors (Continued)

### Performance Characteristics (Continued)

**Maximum Current** Maximum current rating of Universal MATE-N-LOK connectors is limited by the maximum operating temperature of the housings which is 125°C including the temperature rise of the contacts which is a maximum of 30°C. There are several variables which have a direct effect on this maximum current-carrying capability for a given connector and must be considered for each application. These variables are:

**Wire Size** Large diameter wire will carry more current since it has less internal resistance to current flow and thus generates less heat. Longer wire lengths also enhance current carrying capabilities since the wire conducts heat away from the connector

**Connector Size** In general, the more circuits in a connector, the less current can be carried.

**Ambient Temperature** The higher the ambient temperature, the less current can be carried in any given connector.

**Printed Wiring Board Conductor Size** The finished trace conductor width and thickness should be maximized to allow for the greatest current carrying capacity and heat dissipation.

Universal MATE-N-LOK connectors also will withstand the following tests:

**Vibration** 10-55-10 cycles per minute at .06 inch total excursion

**Physical Shock** 18 drops, 50 g sawtooth at 10 milliseconds

**Housing Panel Retention** 75 lb min.

**Housing Lock Strength** 30 lb. min.

**Thermal Shock** -55°C to +85°C

**Temperature-Humidity Cycling** 25°C to 65°C at 95 RH

**Corrosion** 48 hr. at 5% salt concentration

### Related Product Data

#### Product Specifications

106-1031 Universal MATE-N-LOK Connectors

108-1053 Universal MATE-N-LOK Headers

### Current Rating Verification for 30°C Maximum Temperature Rise 100% Energized

#### Wire-to-Wire UMNL Calculated Current Table

Number of Circuits	Wire Gauge									
	10	12	14	16	18	20	22	24	26	30
2	19.00	18.00	17.00	14.50	13.00	10.00	8.00	6.50	5.50	3.50
3	17.50	16.50	15.50	13.00	12.00	9.00	7.50	6.00	5.00	3.00
4	16.50	15.50	15.00	12.50	11.00	8.50	7.00	5.50	4.50	3.00
6	15.00	14.00	13.00	11.00	9.50	7.850	6.00	5.00	4.00	2.50
9	13.50	12.50	11.50	9.50	8.50	6.50	5.50	4.50	3.50	2.00
12	12.50	12.00	11.00	9.00	8.00	6.00	5.00	4.00	3.00	2.00
15	12.00	11.50	10.00	8.50	7.50	6.00	4.50	4.00	3.00	2.00

Values are based on initial Temperature Rise versus Current Testing and are intended to be a guide in the selection of a connector family. All applications should be tested by the end user. The values listed are per circuit for fully loaded housings being 100% energized. **Note:** All combinations were not tested, and this chart contains interpolated and extrapolated values.

#### Minimum Wire Lengths for T-Rise vs. Current Testing

AWG	Min. Length (in.)
24	129.5 [5.1]
20	198.1 [7.8]
18	238.8 [9.4]
16	287.0 [11.3]
14	348 [13.7]

**Notes:** If wire lengths used are less than those listed above, the current carrying ability of the system will be reduced due to less heat being conducted away from the connector. The customer should fully test all applications

### Wire-to-Board

Due to the vast differences in trace geometry and printed circuit board configurations, we are unable to provide a separate current carrying chart for our printed circuit board header products. However, the above Wire-to-Wire charts may be used as a guideline for headers if the trace width and thickness is equal to the listed wire gauge. For vertical headers, only 75% of the Wire-to-Wire value should be used. The chart values are only a tool for connector selection and will require the customer to fully test their application.

### Termination Resistance/Contact Crimp Tensile Force

Wire Size		Termination Resistance		Contact Crimp Tensile Force	
AWG	mm <sup>2</sup>	Test Current (Amps)	Resistance Milliohms (Max. Init.)	Force (Min.) lbs.	N
24	.2	1.5	3.50	8	36
22	.3	3	3.50	14	62
20	.5	4.5	3.00	14	62
18	.8	6	3.00	30	133
16	1.2	8	2.75	45	200
14	2.0	10	2.75	50	222

**Notes:** This is the total resistance between wire crimps of a mated pin and socket.

## Splash Proof/Sealed Universal MATE-N-LOK Connectors (Continued)

### Connector Seals

#### Product Facts

- Economical splash proof/immersible sealed connector system
- No design changes to existing Universal MATE-N-LOK product
- Existing applications utilizing Universal MATE-N-LOK connectors can be upgraded to a splash proof system
- Utilizes two wire seals and one interface seal
- Wire AWG range is .5 - 2.0 mm [#20 - #14] with insulation diameter range 1.52 - 3.30 mm [.060 - .130 in.]
- 2.79 - 3.30 mm [.110 - .130 in.] insulation diameter passed European IP sealing level #5/7 (swirling dust/immersion to 1 meter for 30 minutes)
- 1.52 - 2.79 mm [.060 - .110 in.] insulation diameter passed European IP sealing level #5/6 (swirling dust/heavy seas)
- Universal MATE-N-LOK II keying plug can be used to seal unused circuits
- Primary application is for wire-to-wire, wire-to-board application must use a closed bottom header

#### Material:

Silicone rubber, blue color

#### Technical Documents:

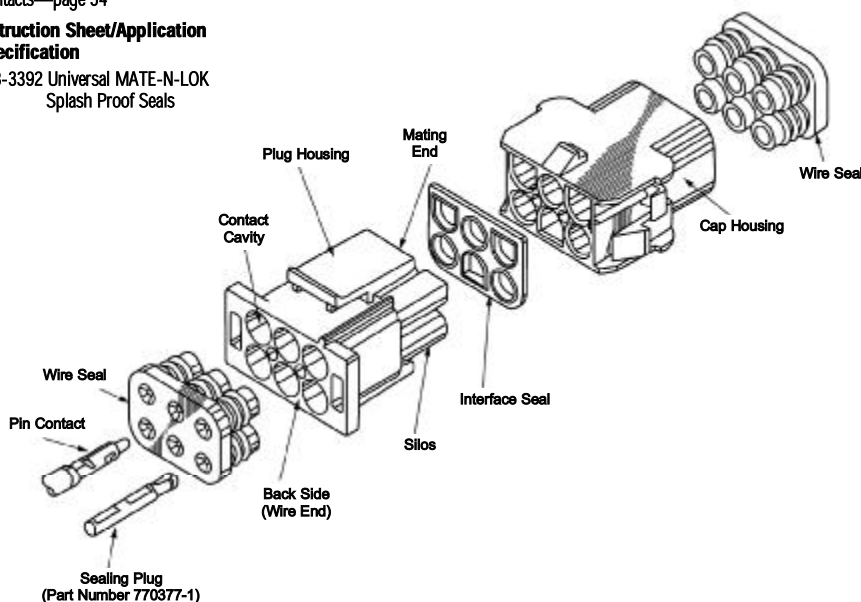
##### Product Specification

108-1031-1 Splash Proof Seal,  
Universal MATE-N-LOK  
Connectors

Contacts—page 54

##### Instruction Sheet/Application Specification

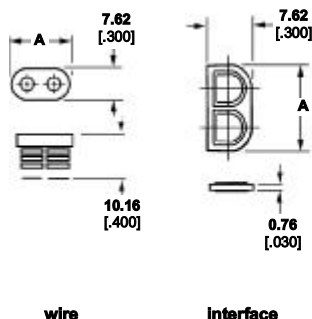
408-3392 Universal MATE-N-LOK  
Splash Proof Seals



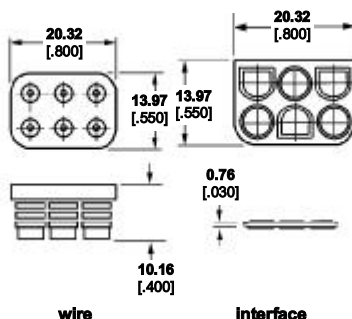
Number of Circuits	A Dim.	Interface Seal Part Numbers	Wire Seal Part Number
2	14.0 [.550]	794269-1	794270-1
3	20.3 [.800]	794271-1	794272-1
4	26.7 [1.050]	794273-1	794274-1
6	—	794275-1	794276-1
9	20.3 [.800]	794277-1	794278-1
12	26.7 [1.050]	794279-1	794280-1
15	26.7 [1.300]	794281-1	794282-1

Note: One interface seal and two wire seals required per mated assembly.

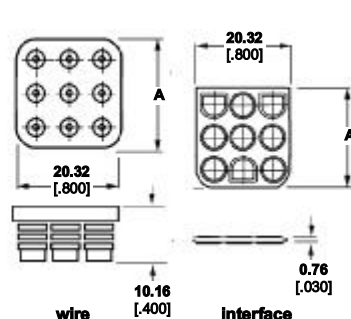
#### 2, 3, 4 Circuit, In-Line



#### 6 Circuit, Matrix



#### 9, 12, and 15 Circuit, Matrix





## Splash Proof/Sealed Universal MATE-N-LOK Connectors (Continued)

### Contacts Used With Splash Proof Seals

Solid pin diameter 2.13 [.084]

Split pin diameter 2.18 [.086]

Stock thickness .305 [.012] unless  
otherwise specified

These contacts can be used in either  
Universal MATE-N-LOK Plug or Cap  
housings only

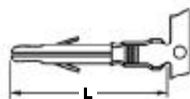
### Related Product Data:

#### Product Specification

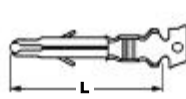
108-1031 Universal MATE-N-LOK  
Connectors

#### Application Specification

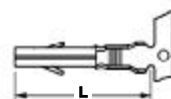
114-1010 Universal MATE-N-LOK  
Contacts



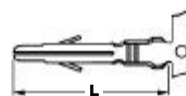
Solid Pin



Split Pin



Solid Socket



Grounding Pin

2.54 [.100] longer than standard pin  
(Mate first, break last, not for interrupting current)

Wire Size Range AWG/mm <sup>2</sup>	Ins. Dia. Range	L Dim.		Material & Finish	Style	Contact Part Numbers				HDM Applicator Part No.	Hand Tool Part No.		
		Pin	Socket			Pin		Socket					
						Strip Form	Loose Form	Strip Form	Loose Form				
.2-.8 24-18	1.52-2.54 .060-.100	20.06 .790	19.30 .760	Brass, Pre-tin	Solid	350561-1	350690-1	350851-1 350570-14	350689-14	466320-13 466320-23 466320-43	90300-2		
				Brass, Gold <sup>1</sup>		350561-2	350690-2	350851-2 350570-24	640347-2 350689-24				
				Brass, Select Gold <sup>2</sup>		350561-7	350690-7	350851-7 350570-74	350689-74				
				Phos. Brz., Pre-tin		350561-3	350690-3	350570-34	350689-34				
				Phos. Brz., Select Gold <sup>2</sup>		—	—	350570-64	—				
.2-.8 24-18	1.52-2.54 .060-.100	20.06 .790	—	Brass, Pre-tin	Split	350699-1	350706-1	—	—	466320-13 466320-23 466320-43	90300-2		
				Brass, Gold <sup>1</sup>		350699-2	350706-2	—	—				
				Brass, Select Gold <sup>2</sup>		350699-7	350706-7	—	—				
.2-.8 24-18	1.52-3.30 .060-.130	22.60 .890	—	Brass, Pre-tin	Ground	770210-1	—	—	—	567216-23 567216-33	—		
.5-2.0 20-14	1.52-3.30 .060-.130	20.06 .790	19.30 .760	Brass, Pre-tin	Solid	350218-1	350547-1	350536-1	350550-1	687763-13 687763-23 687763-63	90296-2		
				Brass, Gold <sup>1</sup>		350218-2	350547-2	350536-2	350550-2				
				Brass, Select Gold <sup>2</sup>		350218-7	350547-7	350536-7	350550-7				
				Phos. Brz., Pre-tin		350218-3	350547-3	350536-3	350550-3				
				Phos. Brz., Select Gold <sup>2</sup>	Split	350218-6	350547-6	350536-6	350550-6			—	—
				Brass, Pre-tin		350687-1	350705-1						
				Brass, Gold <sup>1</sup>		350687-2	350705-2						
				Brass, Select Gold <sup>2</sup>		350687-7	350705-7						
		22.60 .890	—	Brass, Pre-tin	Ground	350684-1	350669-1	—	—				

<sup>1</sup>Gold Finish—Plated with 0.000762 [.000030] min. gold in mating area and inside wire barrel over 0.00127 [.000050] min. nickel underplate on entire contact.

<sup>2</sup>Select Gold Finish—Plated with 0.000762 [.000030] min. gold in mating area and inside wire barrel over 0.00127 [.000050] min. nickel underplate on entire contact.

<sup>3</sup>HDM Applicator part number ending in -1, is used on AMPOMATOR CLS Machine with T or G Terminators, -2 is used on AMP-O-ELECTRIC Model K Machine, -4 & -6 are used on AMP-O-ELECTRIC Model G Machine. See pages 72-73 for further information.

<sup>4</sup>Socket Contact—0.254 [.010] stock thickness

#### Notes:

1. AMP recommends split pins be used in housings having 6, 8, 12 and 15 circuits to reduce mating force.

2. Phosphor bronze material contacts are available for use in high temperature/humidity cycling applications, consult AMP.

### UMNL II Keying Plug/ Splash Proof Sealing Plug

#### Related Product Data:

Housings—page 55

Instruction Sheets

408-3392

3.30  
[.130]

23.88  
[.940]

Part Number 770377-1  
UL 94V-0 Nylon material

Seal Latch Tool  
Part No. 794381-1  
IS 408-3392

Contact Extraction Tool  
Part No. 318851-1  
IS 408-4370

Contact Insertion Tool (For  
inserting contacts applied to  
small diameter wire)  
Part No. 91002-1  
IS 408-7347



## Splash Proof/Sealed Universal MATE-N-LOK Connectors (Continued)

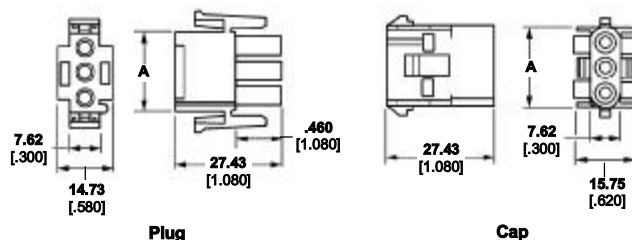
### Housings

#### Free Hanging or Panel Mount

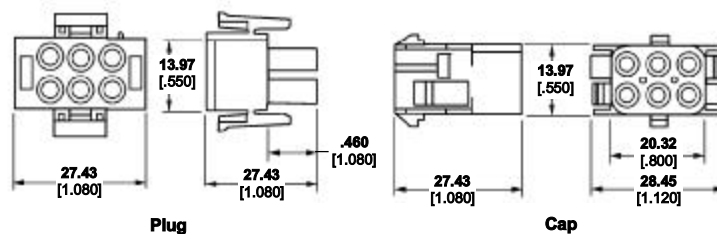
.250 [6.35] Centerline spacing

Plugs and caps can accept pin or socket contacts

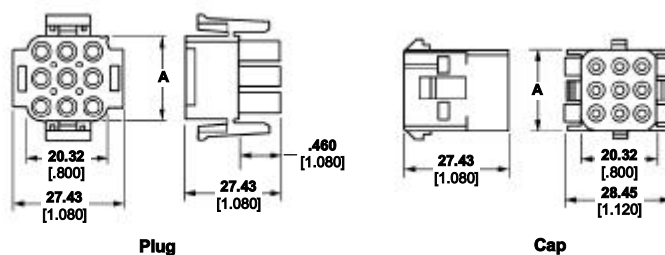
#### 2, 3, 4, 5, 6, 8 and 10 Circuit, In-Line



#### 6 Circuit, Matrix



#### 9, 12 and 15 Circuit, Matrix



Number of Circuits	A Dim.	Housing Part Numbers			
		UL 94V-2 Nylon, Natural Color		UL 94V-0 Nylon	
		Plug	Cap	Plug	Cap
2	13.97 .550	1-480698-0 <sup>1</sup>	1-480699-0 <sup>1</sup>	350777-1 <sup>1</sup>	350778-1 <sup>1</sup>
3	20.32 .800	1-480700-0 <sup>1</sup>	1-480701-0 <sup>1</sup>	350766-1 <sup>1</sup>	350767-1 <sup>1</sup>
4	26.67 1.050	1-480702-0 <sup>1</sup>	1-480703-0 <sup>1</sup>	350779-1 <sup>1</sup>	350780-1 <sup>1</sup>
6	—	1-480704-0	1-480705-0	350715-1	350781-1
9	20.32 .800	1-480706-0	1-480707-0	350720-1	350782-1
12	26.67 1.050	1-480708-0	1-480709-0	350735-1	350783-1
15	33.02 1.300	1-480710-0	1-480711-0	350736-1	350784-1

<sup>1</sup>In-Line style.

## SSC (Sealed Sensor Connector) System

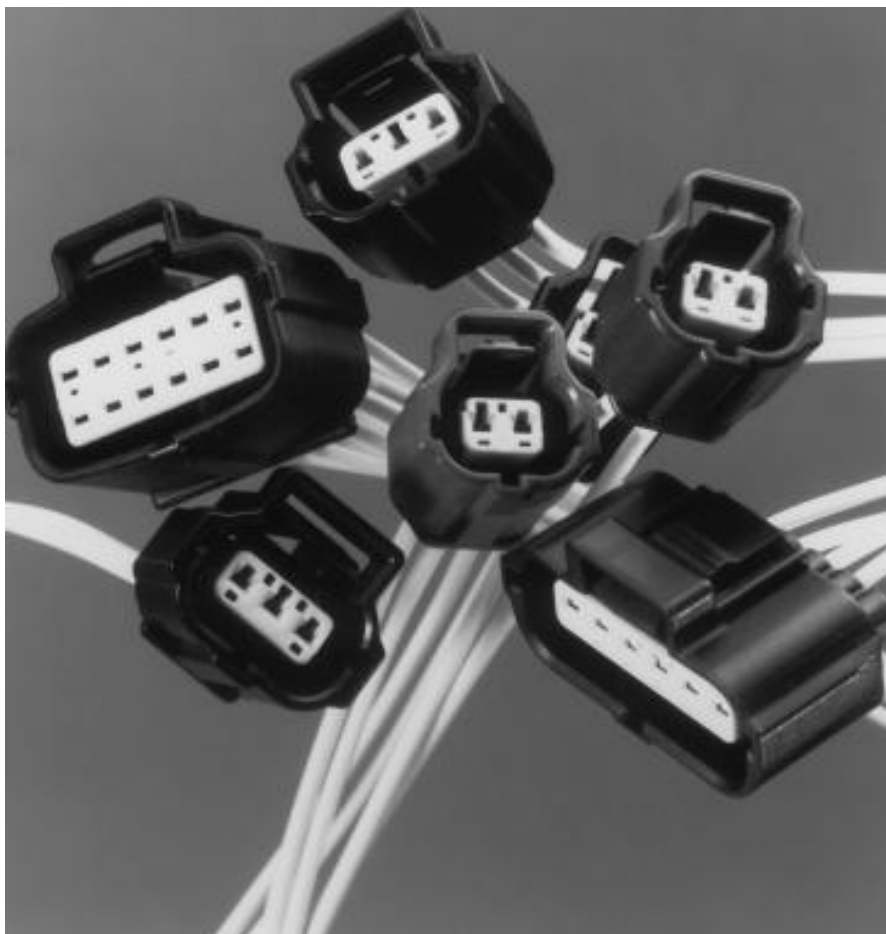
### Features

- Robust housing, glass filled PBT for high temperature applications
- Terminal Position Assurance (TPA) to assure proper position of contact in housing
- Damage protected internal silicone seal interface
- Industry common .070 series receptacle and tab available in gold or tin plate
- High density 5mm centerline spacing
- Audible "Click" during mating
- Multiple positions available
- Multiple keying and housing colors available

### Technical Documents:

**Product Specification:**  
108-1790

**Application Specification:**  
114-8004



The AMP SSC System has been developed to meet the severe requirements of the automotive under hood environment.

However, the system's waterproof and high temperature capabilities make it ideal for many different severe environmental applications.

Both the wire seal and the connector seal ring are made of high temperature silicone and have 3 sealing ridges on their external circumferences for effective sealing and ease of assembly and connector mating.

Wire sealing is achieved by means of an individual wire seal which is inserted on the

wire and crimped in the insulation support of the contact simultaneously with the contact. Interfacial sealing is achieved with a pre-assembled seal ring located in the plug assembly.

Another important feature of the plug assembly is the yellow double-lock plate. This preassembled plate is shipped in the "open" position and once closed provides additional retention of the contact in the housing as well as helping to detect contacts which are not fully seated.

Also, when mating, the AMP SSC Housing provides an audible "click" to indicate proper connector mating. For applications where more than

one connector is required, various keying and colors are available.

The contact used in the system is an industry standard .070 tab and receptacle and comes in tin or gold platings.

### Performance Specifications:

#### Resistance:

3 mΩ max. (initial)  
10 mΩ max. (final)

#### Insulation Resistance:

100 mΩ max. (initial)

#### Dielectric Strength:

1.0 K Vac

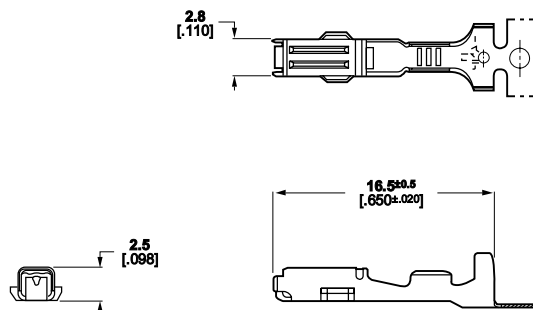
#### Sealing:

7 Psi initial  
4 Psi after heat age  
Conforms to IEC 529 I.P. 65/67 standard

#### Temperature Range:

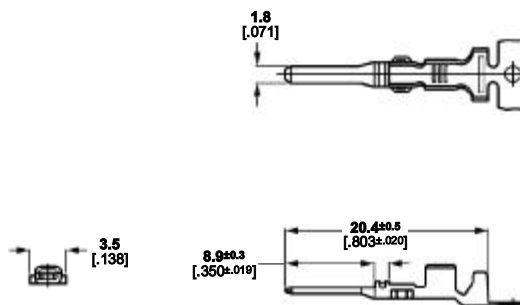
## SSC (Sealed Sensor Connector) System (Continued)

### Receptacles



Wire Range		Wire Ins. Dia.	Material and Finish	Part Number	Tooling	
AWG	mm <sup>2</sup>				Applicator	Hand Tool
20-14	0.50-1.25	1.2-2.7	Phos. Bro./Pre-tin Phos. Bro./Select Gold	184030-3 184030-1	680144-2	755262-1
22-18	0.50-1.00	1.2-2.1	Phos. Bro./Select Gold Phos. Bro./Pre-tin	184095-1 184095-2	680143-2 680143-2	—

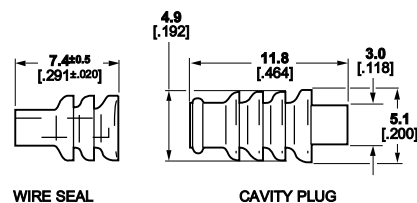
### Tabs



Wire Range		Wire Ins. Dia.	Material and Finish	Part Number	Tooling	
AWG	mm <sup>2</sup>				Applicator	Hand Tool
20-16	0.50-1.25	2.0-2.6	Brass/Pre-tin Brass/Select Gold	171661-1 171661-2	567266-2	755241-1

### Wire Seal (Crimp with Contact) and

### Cavity Plug (for Unloaded Cavity)



Description	Wire Insulation Diameter	Material (color)	Part Number
Wire Seal	1.2-1.7	Silicone (blue)	184139-1
	1.6-2.1	Silicone (orange)	184140-1
	2.2-2.7	Silicone (purple)	184141-1
Cavity Plug	—	NBR (black)	172748-1
		NBR (grey)	172748-2

## SSC (Sealed Sensor Connector) System (Continued)

### Plug Assemblies

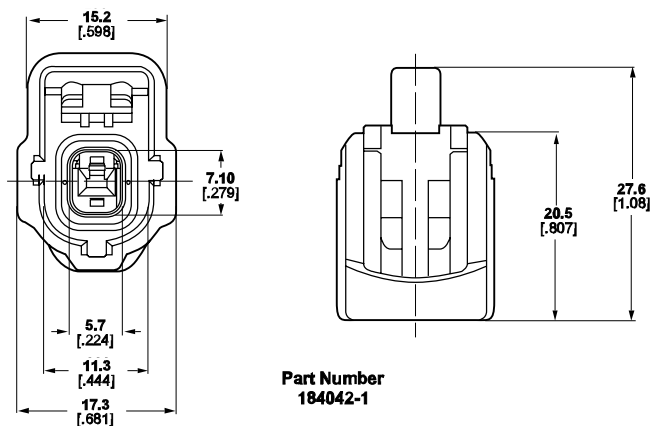
#### Material and Finish:

**Housing**—Glass-filled PBT

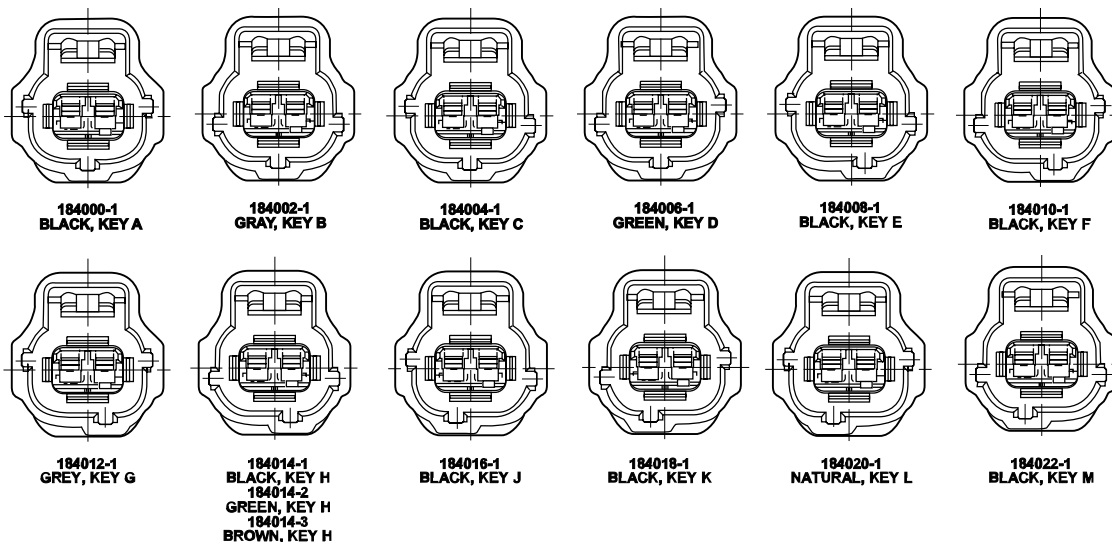
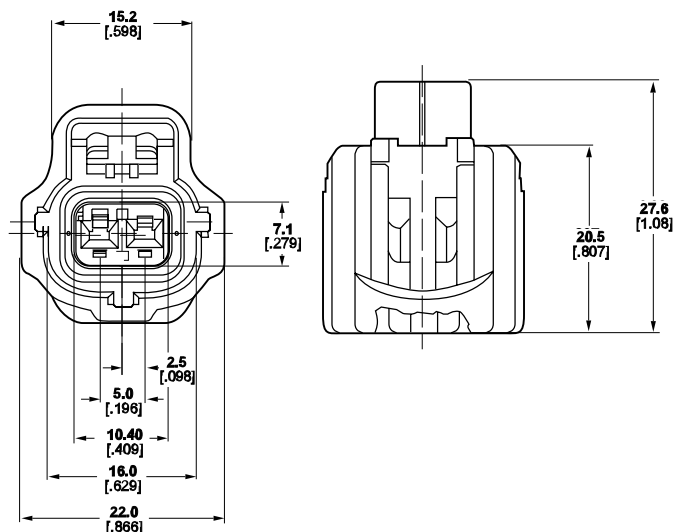
**Seal Ring**—Silicone

**Double-Lock Plate**—PBT, yellow

#### One Position



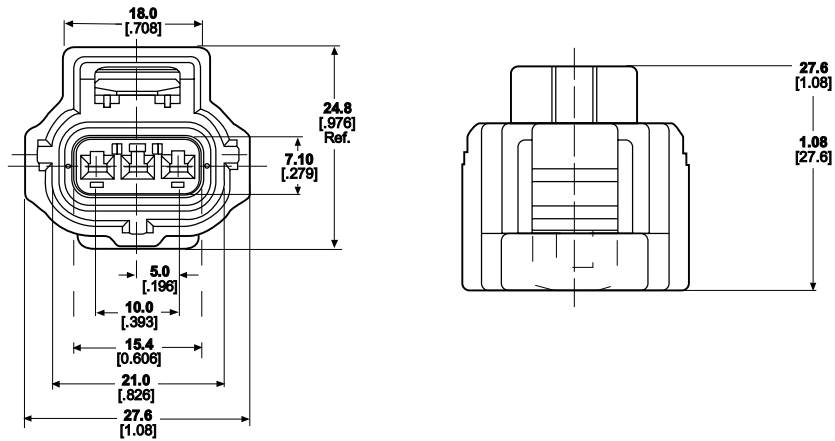
#### Two Position



## SSC (Sealed Sensor Connector) System (Continued)

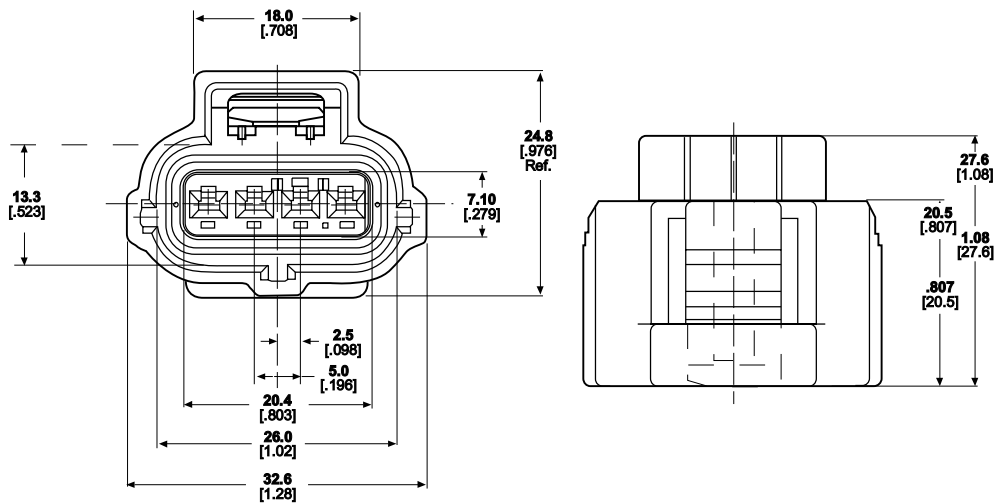
### Plug Assemblies (Continued)

#### Three Position



Part Number 184032-1  
Black

#### Four Position

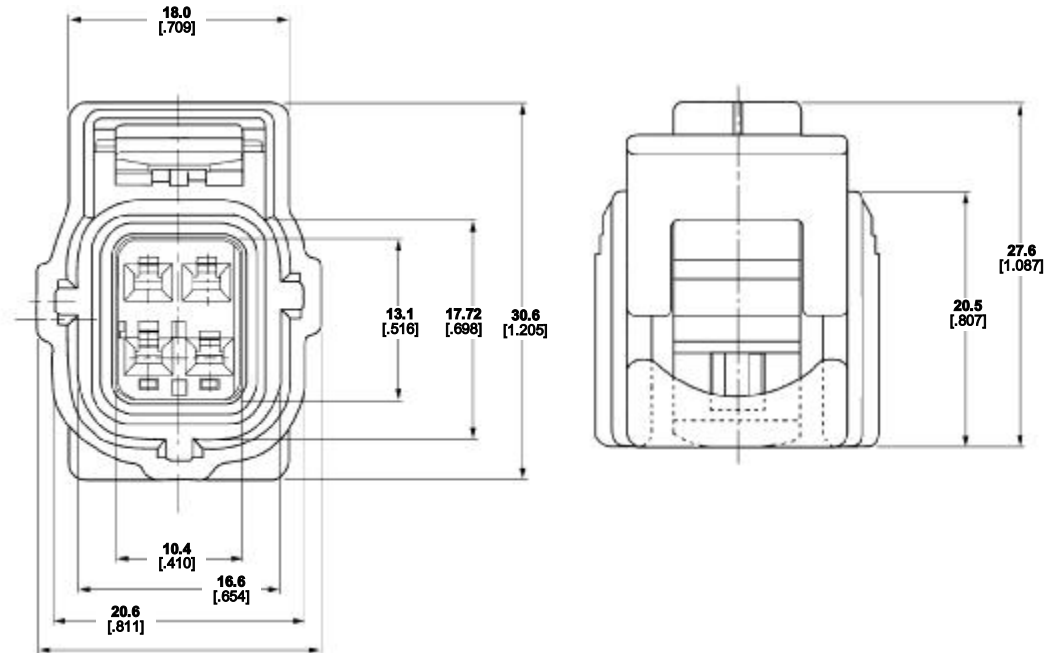


Part Number 184046-1  
Black

## SSC (Sealed Sensor Connector) System (Continued)

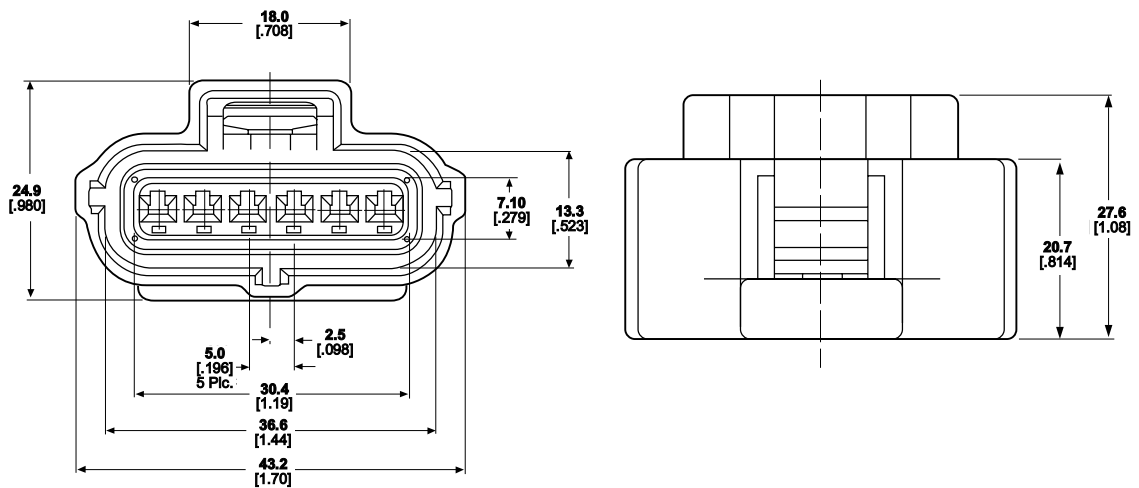
### Plug Assemblies (Continued)

#### Four Position 2x2



Part Number 184248-1  
Black

#### Six Position



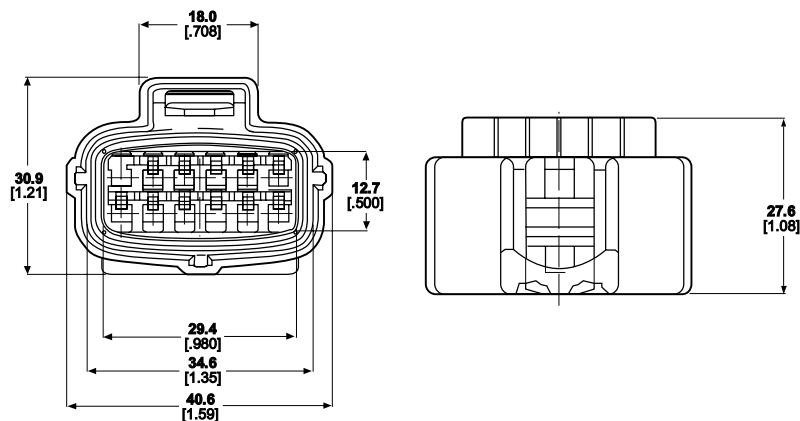
Part Number 184060-1  
Black



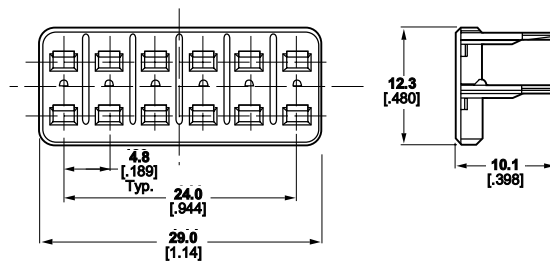
## SSC (Sealed Sensor Connector) System (Continued)

### Plug Assemblies (Continued)

#### Twelve Position



Part Number—See chart page 55 for possible combinations



Part Number 184058-1  
Double-Lock Plate (Yellow)

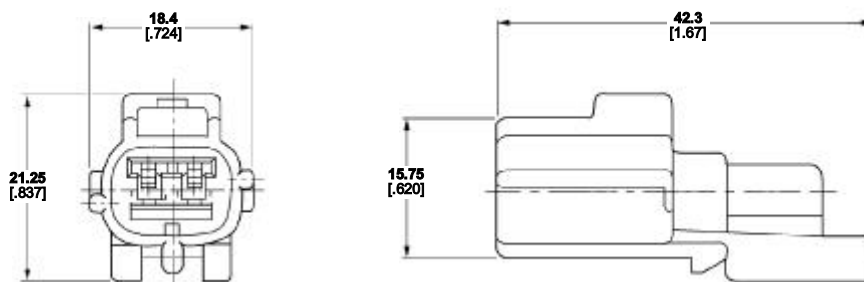
### CAP Housings and Lock Plates

#### Material:

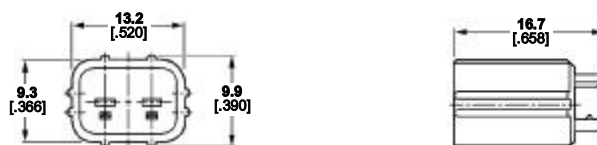
Housing—Glass-filled PBT

Lock Plate—PBT, yellow

#### Two Position



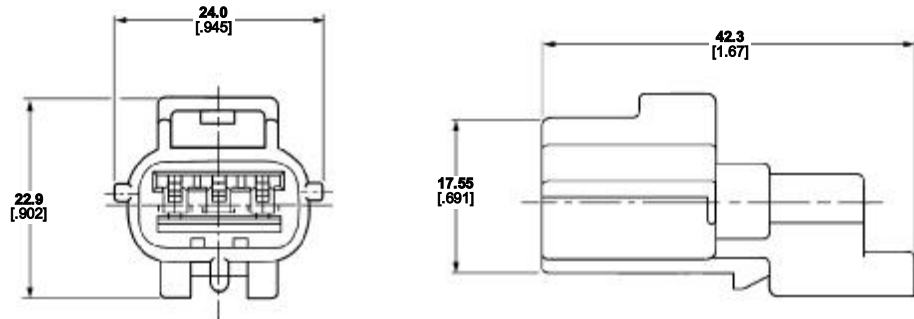
CAP Housing Part Number—See chart on page 55 for possible combinations



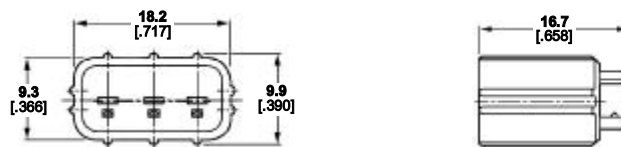
Lock Plate Part Number 184175-1

## SSC (Sealed Sensor Connector) System (Continued)

### Three Position



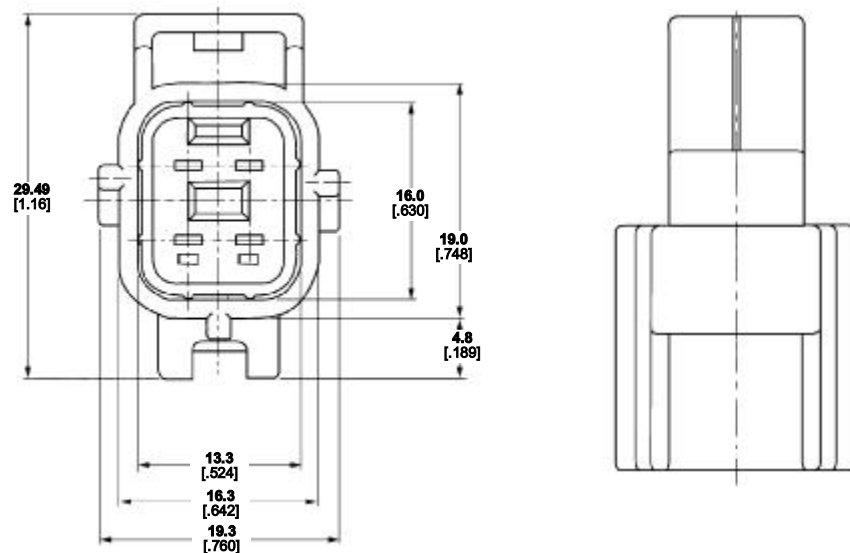
CAP Housing Part Number—See chart on page 55 for possible combinations



Lock Plate Part Number 184196-1

**Note:** CAP housings with circuits blocked for END CAP applications are available—contact product engineering.

### Four Position 2x2



Part Number 184246-1  
Black

**SSC (Sealed Sensor Connector) System** (Continued)**Connector Part Number List**

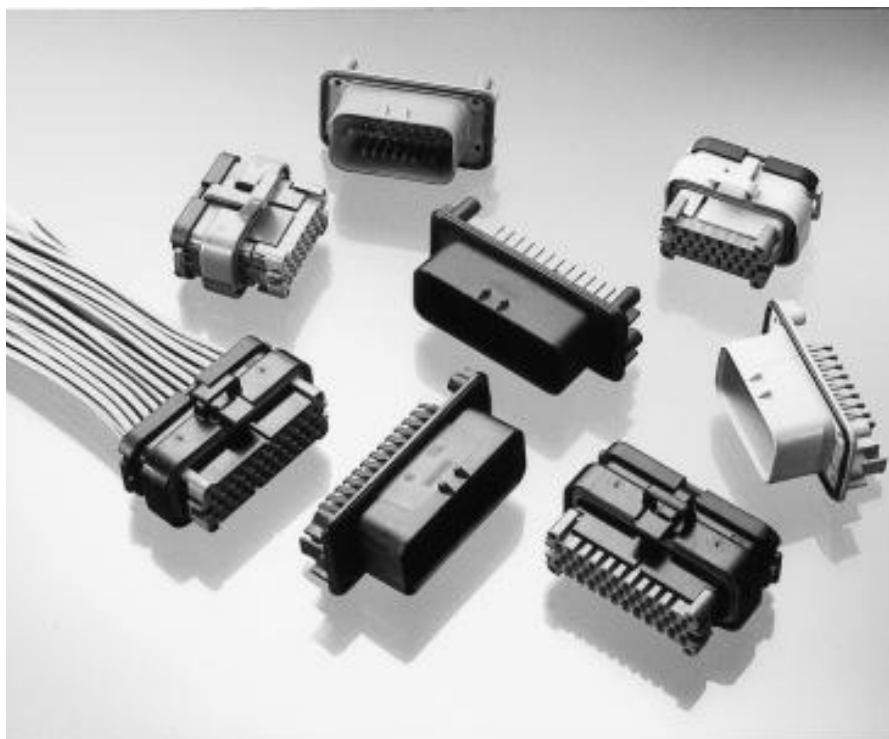
No. of Positions	Type	Keying	Color	Additional Notes	Part Numbers
1	Plug Assembly	A	Black		184042-1
1	Plug Assembly	A	Natural		184042-2
1	Plug Assembly	B	Black		184240-1
2	Plug Assembly	A	Black		184000-1
2	Plug Assembly	B	Gray		184002-1
2	Plug Assembly	C	Black		184004-1
2	Plug Assembly	D	Green		184006-1
2	Plug Assembly	D	Gray		184006-2
2	Plug Assembly	E	Black		184008-1
2	Plug Assembly	F	Black		184010-1
2	Plug Assembly	G	Gray		184012-1
2	Plug Assembly	H	Black		184014-1
2	Plug Assembly	H	Green		184014-2
2	Plug Assembly	H	Brown		184014-3
2	Plug Assembly	J	Black		184016-1
2	Plug Assembly	K	Black		184018-1
2	Plug Assembly	L	Natural		184020-1
2	Plug Assembly	M	Black		184022-1
2	Plug Assembly	H	Brown	Circuit #2 Blocked	184116-1
2	Cap Housing	A	Black		184163-1
2	Cap Housing	B	Black		184164-1
2	Cap Housing	C	Black		184165-1
2	Cap Housing	D	Black		184166-1
2	Lock Plate for Cap	—	Yellow	Required with all 2 pos. Cap Housings	184175-1
2	Plug Assembly	J	Black	High Temp Material for 150 C Rating	184207-1
3	Plug Assembly	A	Black		184032-1
3	Plug Assembly	B	Black		184034-1
3	Plug Assembly	C	Black		184036-1
3	Plug Assembly	D	Black		184038-1
3	Plug Assembly	A	Black	Circuit #2 Blocked	184292-1
3	Cap Housing	A	Black		184192-1
3	Cap Housing	B	Black		184193-1
3	Cap Housing	C	Black		184194-1
3	Cap Housing	D	Black		184195-1
3	Lock Plate for Cap	—	Yellow	Required with all 3 pos. Cap Housings	184196-1
4	Plug Assembly	A	Black		184046-1
4	Plug Assembly	B	Black		184048-1
4	Plug Assembly	C	Black		184050-1
4	Plug Assembly	D	Black		184052-1
6	Plug Assembly	A	Black	Circuits #1 and #6 Blocked	184026-1
6	Plug Assembly	A	Black		184060-1
6	Plug Assembly	B	Black		184124-1
6	Plug Assembly	C	Black		184126-1
6	Plug Assembly	D	Black		184128-1
2x2	Plug Assembly	A	Black		184248-1
2x2	Plug Assembly	A	Black	Circuit #2 Blocked	184282-1
2x2	Cap Assembly	A	Black		184246-1
12	Housing and Seal	A	Black	Circuit #6 Blocked	184056-1
12	Double Lock Plate	—	Yellow		184058-1
12	Housing and Seal	A	Black	Circuit #1 Blocked	184097-1
12	Housing and Seal	A	Black	Circuits #1, #7 and #8 Blocked	184099-1
12	Housing and Seal	A	Black		184115-1
12	Plug Assembly	A	Black	Circuits #1, #2, #3, #6, #7 and #8 Blocked	184286-1
12	Plug Assembly	A	Black	Circuits #1, #7, #8, #9 and #11 Blocked	184291-1

\*Note: Assembly includes; Housing, Housing Seal and Double Lock Plate.

## AMPSEAL Automotive Plug Connector and Header Assembly

### Product Facts

- Sealing of interface, wires, and panel provides for environmental integrity
- Secondary contact locking and lanceless contacts ensure positive contact seating, without backout
- High-temperature materials available to withstand surface mount applications
- Lanceless receptacle contacts reduce tangling during storage and handling
- Integral latches firmly hold mated connector halves together without additional hardware
- Contacts accept 20 to 16 AWG wire with insulation diameter of 1.7 - 2.7 mm [.067 - .106 in.]
- Designed to comply to ISO-8092-2 Test Standard
- Mechanical and color keying
- Available in 8 position, 14 position, 23 position and 35 position right angle or vertical headers
- Temperature range  
Gold pins +125°C  
Tin lead +105°C  
-40°C
- Available in tin-lead or gold
- Current rating up to 17 amps
- Recognized under the Component Program of Underwriters Laboratories Inc., File No. E28476



AMPSEAL automotive connectors provide rugged reliability, easy use, and superior environmental sealing. They are available in cable plugs and pc board-mounting headers that are designed to stand up to high-temperature underhood applications.

The preassembled plug connector features built-in contact sealing to eliminate individual wire-sealing grommets, while an integral interfacial seal protects mated connectors. All circuits are sealed by a diaphragm in the rubber wire seal. When the connector is assembled, the diaphragm is pierced as the contact passes through it. Unused circuit cavities remain sealed.

The housing uses a two-piece contact-holding design that provides secondary locking which protects against contact backout. After contacts are inserted into the housing, the housing snaps shut to firmly position all contacts.

The connectors use a three-row contact grid on 4-mm centerlines. Plastic pins can be used to plug empty cavities in applications requiring selective loading.

The pc board-mounting connector is designed to be flange mounted.

Available with or without a formed in place flange seal.

### Material and Finish:

**Housing**—UL94V-0 rated thermoplastic

**Contacts**—

**Receptacles**—Copper nickel alloy

**Pins**—Copper zinc alloy

**Seals**—Silicone rubber

**Header Gasket**—Silicone rubber

**Seal Plug**—Nylon

### Performance Specifications:

**Product Specification**

108-1329

**Application Specification**

114-16016

**AMPSEAL Automotive Plug Connector and Header Assembly** (Continued)**Connector Part Number List**

No. of Positions	Type	Color	Additional Notes	Part Numbers
8	Plug Assembly	Black		776286-1
8	Plug Assembly	Natural		776286-2
8	Plug Assembly	Gray		776286-4
8	Plug Assembly	Blue		776286-5
8	Right Angle Header	Black	Without Seal, Tin Pins	776279-1
8	Right Angle Header	Natural	Without Seal, Tin Pins	776279-2
8	Right Angle Header	Black	Without Seal, Gold Pins	1-776279-1
8	Right Angle Header	Natural	Without Seal, Gold Pins	1-776279-2
8	Right Angle Header	Black	With Seal, Tin Pins	776280-1
8	Right Angle Header	Natural	With Seal, Tin Pins	776280-2
8	Right Angle Header	Black	With Seal, Gold Pins	1-776280-1
8	Right Angle Header	Natural	With Seal, Gold Pins	1-776280-2
8	Vertical Header	Black	Without Seal, Tin Pins	776275-1
8	Vertical Header	Natural	Without Seal, Tin Pins	776275-2
8	Vertical Header	Black	Without Seal, Gold Pins	1-776275-1
8	Vertical Header	Natural	Without Seal, Gold Pins	1-776275-2
8	Vertical Header	Black	With Seal, Tin Pins	776276-1
8	Vertical Header	Natural	With Seal, Tin Pins	776276-2
8	Vertical Header	Black	With Seal, Gold Pins	1-776276-1
8	Vertical Header	Natural	With Seal, Gold Pins	1-776276-2
14	Plug Assembly	Black		776273-1
14	Plug Assembly	Natural		776273-2
14	Plug Assembly	Gray		776273-4
14	Plug Assembly	Blue		776273-5
14	Right Angle Header	Black	Without Seal, Tin Pins	776266-1
14	Right Angle Header	Natural	Without Seal, Tin Pins	776266-2
14	Right Angle Header	Gray	Without Seal, Tin Pins	776266-4
14	Right Angle Header	Blue	Without Seal, Tin Pins	776266-5
14	Right Angle Header	Black	Without Seal, Gold Pins	1-776266-1
14	Right Angle Header	Natural	Without Seal, Gold Pins	1-776266-2
14	Right Angle Header	Gray	Without Seal, Gold Pins	1-776266-4
14	Right Angle Header	Blue	Without Seal, Gold Pins	1-776266-5
14	Right Angle Header	Black	With Seal, Tin Pins	776267-1
14	Right Angle Header	Natural	With Seal, Tin Pins	776267-2
14	Right Angle Header	Gray	With Seal, Tin Pins	776267-4
14	Right Angle Header	Blue	With Seal, Tin Pins	776267-5
14	Right Angle Header	Black	With Seal, Gold Pins	1-776267-1
14	Right Angle Header	Natural	With Seal, Gold Pins	1-776267-2
14	Right Angle Header	Gray	With Seal, Gold Pins	1-776267-4
14	Right Angle Header	Blue	With Seal, Gold Pins	1-776267-5
14	Vertical Header	Black	Without Seal, Tin Pins	776261-1
14	Vertical Header	Natural	Without Seal, Tin Pins	776261-2
14	Vertical Header	Gray	Without Seal, Tin Pins	776261-4
14	Vertical Header	Blue	Without Seal, Tin Pins	776261-5
14	Vertical Header	Black	Without Seal, Gold Pins	1-776261-1
14	Vertical Header	Natural	Without Seal, Gold Pins	1-776261-2
14	Vertical Header	Gray	Without Seal, Gold Pins	1-776261-4
14	Vertical Header	Blue	Without Seal, Gold Pins	1-776261-5
14	Vertical Header	Black	With Seal, Tin Pins	776262-1
14	Vertical Header	Natural	With Seal, Tin Pins	776262-2
14	Vertical Header	Gray	With Seal, Tin Pins	776262-4
14	Vertical Header	Blue	With Seal, Tin Pins	776262-5
14	Vertical Header	Black	With Seal, Gold Pins	1-776262-1
14	Vertical Header	Natural	With Seal, Gold Pins	1-776262-2
14	Vertical Header	Gray	With Seal, Gold Pins	1-776262-4
14	Vertical Header	Blue	With Seal, Gold Pins	1-776262-5
23	Plug Assembly	Black		770680-1
23	Plug Assembly	Natural		770680-2
23	Plug Assembly	Gray		770680-4
23	Plug Assembly	Blue		770680-5

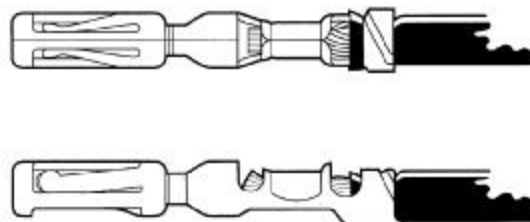
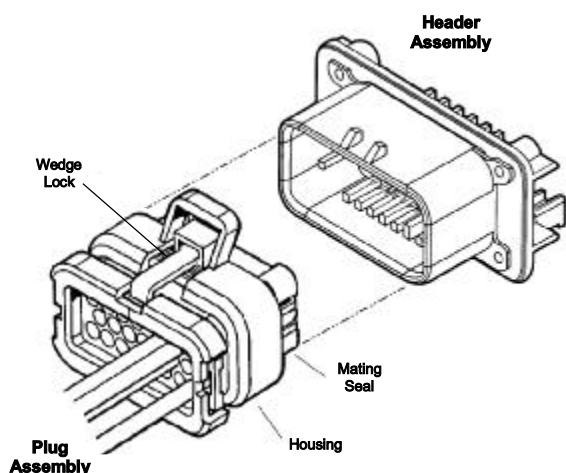
**AMPSEAL Automotive Plug Connector and Header Assembly** (Continued)**Connector Part Number List** (Continued)

No. of Positions	Type	Color	Additional Notes	Part Numbers
23	Right Angle Header	Black	With Flange Seal, Tin Pins	776087-1
23	Right Angle Header	Natural	With Flange Seal, Tin Pins	776087-2
23	Right Angle Header	Gray	With Flange Seal, Tin Pins	776087-4
23	Right Angle Header	Blue	With Flange Seal, Tin Pins	776087-5
23	Right Angle Header	Black	With Flange Seal, Gold Pins	1-776087-1
23	Right Angle Header	Natural	With Flange Seal, Gold Pins	1-776087-2
23	Right Angle Header	Gray	With Flange Seal, Gold Pins	1-776087-4
23	Right Angle Header	Blue	With Flange Seal, Gold Pins	1-776087-5
23	Right Angle Header	Black	Without Flange Seal, Tin Pins	770669-1
23	Right Angle Header	Natural	Without Flange Seal, Tin Pins	770669-2
23	Right Angle Header	Gray	Without Flange Seal, Tin Pins	770669-4
23	Right Angle Header	Blue	Without Flange Seal, Tin Pins	770669-5
23	Right Angle Header	Black	Without Flange Seal, Gold Pins	1-770669-1
23	Right Angle Header	Natural	Without Flange Seal, Gold Pins	1-770669-2
23	Right Angle Header	Gray	Without Flange Seal, Gold Pins	1-770669-4
23	Right Angle Header	Blue	Without Flange Seal, Gold Pins	1-770669-5
23	Vertical Header	Black	Without Flange Seal, Tin Pins	776200-1
23	Vertical Header	Natural	Without Flange Seal, Tin Pins	776200-2
23	Vertical Header	Gray	Without Flange Seal, Tin Pins	776200-4
23	Vertical Header	Blue	Without Flange Seal, Tin Pins	776200-5
23	Vertical Header	Black	Without Flange Seal, Gold Pins	1-776200-1
23	Vertical Header	Natural	Without Flange Seal, Gold Pins	1-776200-2
23	Vertical Header	Gray	Without Flange Seal, Gold Pins	1-776200-4
23	Vertical Header	Blue	Without Flange Seal, Gold Pins	1-776200-5
23	Vertical Header	Black	With Flange Seal, Tin Pins	776228-1
23	Vertical Header	Natural	With Flange Seal, Tin Pins	776228-2
23	Vertical Header	Gray	With Flange Seal, Tin Pins	776228-4
23	Vertical Header	Blue	With Flange Seal, Tin Pins	776228-5
23	Vertical Header	Black	With Flange Seal, Gold Pins	1-776228-1
23	Vertical Header	Natural	With Flange Seal, Gold Pins	1-776228-2
23	Vertical Header	Gray	With Flange Seal, Gold Pins	1-776228-4
23	Vertical Header	Blue	With Flange Seal, Gold Pins	1-776228-5
35	Plug Assembly	Black		776164-1
35	Plug Assembly	Natural		776164-2
35	Plug Assembly	Gray		776164-4
35	Plug Assembly	Blue		776164-5
35	Right Angle Header	Black	Without Flange Seal, Gold Pins	1-776180-1
35	Right Angle Header	Natural	Without Flange Seal, Gold Pins	1-776180-2
35	Right Angle Header	Gray	Without Flange Seal, Gold Pins	1-776180-4
35	Right Angle Header	Blue	Without Flange Seal, Gold Pins	1-776180-5
35	Right Angle Header	Black	With Flange Seal, Gold Pins	1-776163-1
35	Right Angle Header	Natural	With Flange Seal, Gold Pins	1-776163-2
35	Right Angle Header	Gray	With Flange Seal, Gold Pins	1-776163-4
35	Right Angle Header	Blue	With Flange Seal, Gold Pins	1-776163-5
35	Vertical Header	Black	Without Flange Seal, Tin Pins	776230-1
35	Vertical Header	Natural	Without Flange Seal, Tin Pins	776230-2
35	Vertical Header	Gray	Without Flange Seal, Tin Pins	776230-4
35	Vertical Header	Blue	Without Flange Seal, Tin Pins	776230-5
35	Vertical Header	Black	Without Flange Seal, Gold Pins	1-776230-1
35	Vertical Header	Natural	Without Flange Seal, Gold Pins	1-776230-2
35	Vertical Header	Gray	Without Flange Seal, Gold Pins	1-776230-4
35	Vertical Header	Blue	Without Flange Seal, Gold Pins	1-776230-5
35	Vertical Header	Black	With Flange Seal, Tin Pins	776231-1
35	Vertical Header	Natural	With Flange Seal, Tin Pins	776231-2
35	Vertical Header	Gray	With Flange Seal, Tin Pins	776231-4
35	Vertical Header	Blue	With Flange Seal, Tin Pins	776231-5
35	Vertical Header	Black	With Flange Seal, Gold Pins	1-776231-1
35	Vertical Header	Natural	With Flange Seal, Gold Pins	1-776231-2
35	Vertical Header	Gray	With Flange Seal, Gold Pins	1-776231-4
35	Vertical Header	Blue	With Flange Seal, Gold Pins	1-776231-5



## AMPSEAL Automotive Plug Connector and Header Assembly (Continued)

### Contacts



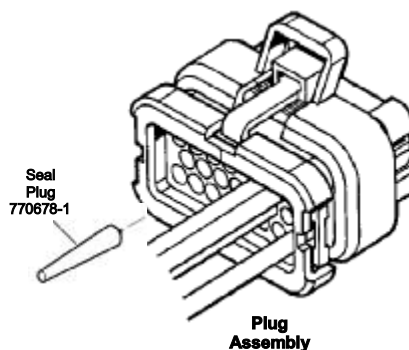
Type	Additional Notes	Part Numbers
Socket Contact	Tin	770520-1
Socket Contact	Gold	770520-3
Socket Contact	Tin, Loose Piece	770854-1
Socket Contact	Gold, Loose Piece	770854-3
Wire Seal Plug		770678-1

Wire		Applicator Part No.**	Hand Tool Part No.
Size (AWG)	Ins. Dia. Range		
20	1.7-2.7 .067-.106	567333-2	58440-1
18	1.7-2.7 .067-.106	567333-2	58440-1
16	1.7-2.7 .067-.106	567333-2	58440-1

\*\*Dash 1 is used in "T" Terminator with automatic equipment. Dash 2 is used in the AMP-O-LECTRIC Model "K" Machine 565435-5.  
Refer to Applicator Instruction Sheet AI 8040 for applicator information.

### Seal Plug

All circuits are sealed by a diaphragm in the rubber wire seal. During plug connector assembly, the diaphragm is pierced as the contact passes through it. Unused circuit cavities, unless accidentally perforated, will remain sealed. AMPSEAL Automotive Seal Plug **770678-1** is designed to keep out contaminants if diaphragm is pierced.



## Mounting Clips

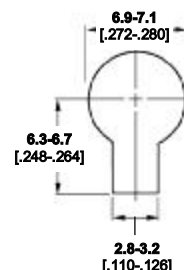
Panel cut-out dimensions are for reference only, see current AMP customer drawing for details.

### For Econoseal J Series Mark II+ Connectors . . . Type 1



Part Number	Material and Color	Panel Thickness
85000-1	Nylon, Black	0.7-1.6 [0.028-.063]

#### Panel Cut-Out Dimensions



### For Econoseal J Series Mark II+ Connectors . . . Type 2



Part Number	Material and Color	Panel Thickness
626897-1	Nylon, Natural	0.56-5.10 [.022-.201]

#### Panel Cut-Out Dimensions



### For Econoseal III, .250 Series Wire To Wire Connectors



Part Number	Material and Color	Panel Thickness
345485-1	Nylon, Black	0.8-1.6 [.031-.063]

#### Panel Cut-Out Dimensions

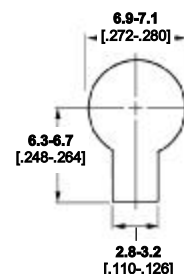


### For .187 Series Sealed Connectors



Part Number	Material and Color	Panel Thickness
85003-2	Nylon, Black	2.5 [.098]

#### Panel Cut-Out Dimensions



## Application Tooling

Applicators for Strip Mounted Contacts . . . List is in numerical order by contact part number.

Contact		Applicator Part Number			
Description	Strip Mounted Part Number	AMP-O-ELECTRIC Model "K" Bench Machine	AMP-O-ELECTRIC Model "G" Bench Machine	AMPOMATOR CLS IV+ and Komax Lead-Making Machines	AMP-O-MATIC Stripper-Crimper Machine
Econoseal J Series Mark II+ Receptacle	171630 (-1 and -5)	567458-2	—	—	—
Econoseal J Series Mark II+ Tab	171631 (-1 and -2)	567376-2	—	—	—
Econoseal J Series Mark II+ Tab	171661 (-1 and -2)	567266-2	567266-3	—	—
Econoseal J Series Mark II+ Receptacle	171662 (-1, -2, & -5)	567317-2	567317-3	567317-1	567932-1
.187 Series Sealed Tab	175087-1	<b>Applicators made to order.</b> Call the TECHNICAL SUPPORT CENTER for information			
.187 Series Sealed Tab	175088-1				
.187 Series Sealed Receptacle	175090-1				
.187 Series Sealed Receptacle	175091-1				
Econoseal III .250 Series Receptacle	175104-2	567317-2	567317-3	567317-1	567932-1
AMP SUPERSEAL 1.5 SERIES Tab	282109-1	567464-2	567464-3	—	—
AMP SUPERSEAL 1.5 SERIES Receptacle	282110-1	567465-2	—	—	—
AMP SUPERSEAL 1.5 SERIES Receptacle	282403-1	680295-2	680295-3	680295-1	—
AMP SUPERSEAL 1.5 SERIES Tab	282404-1	—	680155-3	680155-1	—
Superseal (3.5 mm Centers) Receptacle	282438-1	<b>Applicators made to order.</b> Call the TECHNICAL SUPPORT CENTER for information			
AMP SUPERSEAL 1.5 SERIES Tab	282465-1				
AMP SUPERSEAL 1.5 SERIES Receptacle	282466-1	680419-2	680419-3	680419-1	—
Econoseal III .250 Series Tab	344008-1	680007-2	—	680070-1	—
Econoseal III .250 Series Receptacle	344009-1	680010-2	680010-1	680010-1	—
Econoseal III .250 Series Tab	344069-1	680072-2	—	—	—
Econoseal III .250 Series Receptacle	344070-1	680369-2	680369-1	680369-1	—
Mini MULTILOCK Receptacle	917308-1	<b>Applicators made to order.</b> Call the TECHNICAL SUPPORT CENTER for information			
Mini MULTILOCK Tab	917309-1				
Sealed Circular Connector (2.5 mm) Pin	929966-1	—	—	—	—
Sealed Circular Connector (2.5 mm) Pin	929967-1	680320-2	680320-3	680320-1	—
Sealed Circular Connector (2.5 mm) Pin	929968-1	680321-2	—	680321-1	—
Sealed Circular Connector (2.5 mm) Socket	929973-1	<b>Applicators made to order.</b> Call the TECHNICAL SUPPORT CENTER for information			
Sealed Circular Connector (2.5 mm) Socket	929974-1				
Sealed Circular Connector (2.5 mm) Socket	929975-1	680321-2	680321-3	680321-1	—
Sealed Circular Connector (1.5 mm) Pin	929982-1	<b>Applicators made to order.</b> Call the TECHNICAL SUPPORT CENTER for information			
Sealed Circular Connector (1.5 mm) Pin	929983-1				
Sealed Circular Connector (1.5 mm) Pin	929984-1	680321-2	680321-3	680321-1	—
Sealed Circular Connector (1.5 mm) Socket	929988-1	<b>Applicators made to order.</b> Call the TECHNICAL SUPPORT CENTER for information			
Sealed Circular Connector (1.5 mm) Socket	929989-1				
Sealed Circular Connector (1.5 mm) Socket	929990-1	680321-2	680321-3	680321-1	—
Sealed Circular Connector (2.5 mm) Pin	962800-1	<b>Applicators made to order.</b> Call the TECHNICAL SUPPORT CENTER for information			
Sealed Circular Connector (2.5 mm) Socket	962801-1				
Sealed MQS Receptacle	962885-1	680060-2	680055-3	680060-1	—
Sealed MQS Receptacle	962885-5	680060-2	680055-3	680060-1	—
Sealed MQS Receptacle	965906-1	680093-2	—	—	—

\*The Model "K" has been superseded by the Model "G".

### Related Tooling Data

#### Descriptions and Specifications

Applicators—Page 71  
Bench Machines—Pages 71, 72  
CQM—Page 72  
Lead Makers—Page 73  
Wire Strippers—Page 74

**FOR APPLICATION TOOLING ASSISTANCE CALL 1-800-522-6752**

**Application Tooling** (Continued)**Hand Tools for Loose Piece Contacts . . . List is in numerical order by contact part number.**

Contact			Hand Tool	
Description	Loose Piece Part Number	Strip Mounted Part Number (For Reference)	Part Number With Die Set	Description
Econoseal J Series Mark II+ (Note 2)	173600-1	171631-1	753890-1	CERTI-CRIMP Straight Action Hand Tool
	171699-1	171630-1		
	173706-1	171661-1	755241-1	CERTI-CRIMP
	173707-1	171662-1	755262-1	Double Action Hand Tool
AMP SUPERSEAL 1.5 SERIES (Note 3)	183036-1	282404-1	—	PRO-CRIMPER II Hand Tool and Die Set (Die Set Part Number 58583-2 also available separately.)
	183024-1	282109-1	58583-1	
	183035-1	282403-1	—	
	183025-1	282110-1	58583-1	
Econoseal III .250 Series (Note 4)	344991-1	344069-1	525316-3	CERTI-CRIMP Hand Tool With Die Set
	344989-1	344008-1	525316-1	
	344995-1	344070-1	525316-4	
	344993-1	344009-1	525316-1	
Sealed Circular Connectors	(Note 1)	929967-1 (Note 1)	58606-1	PRO-CRIMPER II Hand Tool and Die Set (Die Set Part Number 58606-2 also available separately.)
Sealed Circular Plastic Connectors (Note 5)	213845-3,-4	213845-1,-2	Hand Tool 69710-1 Requires Die Set 356612-1	CERTI-CRIMP "C" Head Hand Tool
	213847-3,-4	213847-1,-2		
	213841-3,-4	213841-1,-2	Hand Tool 69710-1 Requires Die Set 356611-1	
	213843-3,-4	213843-1,-2		
Splash Proof/Sealed Universal MATE-N-LOK Connectors (Note 6)	350690-1,-2,-3,-7	350561-1,-2,-3,-7	90300-2 or 90548-1	CERTI-CRIMP Straight Action Hand Tool or PRO-CRIMPER II Hand Tool and Die Set (Die Set Part Number 90548-2 also available separately.)
	350706-1,-2,-7	350689-1,-2,-3,-7		
	640347-2	350851-1,-2,-7		
	350689-1,-3,-7	350570-3,-6	—	CERTI-CRIMP Straight Action Hand Tool or PRO-CRIMPER II Hand Tool and Die Set (Die Set Part Number 90546-2 also available separately.)
	—	770210-1		
	350547-1,-2,-3,-6,-7	350218-1,-2,-3,-6,-7		
	350705-1,-2,-7	350687-1,-2,-7		
	350669-1	350684-1		
	350550-1,-2,-3,-6,-7	350356-1,-2,-3,-6,-7		

**Notes:**

1. A loose piece part number is not currently available. This hand tool is designed to crimp the strip mounted product after removal from the carrier.
2. These hand tools are not designed to crimp strip mounted product. Loose piece insulation support barrels are different than those of strip mounted product. Wire barrel designs of the 173706-1 and 173707-1 also differ from the strip mounted product.
3. This hand tool will also crimp the strip mounted product after removal from the carrier.
4. These hand tools are not designed to crimp strip mounted product. The loose piece wire and insulation support barrels are different than those of the strip mounted product.
5. For strip mounted contacts, use Extraction Tool **Part Number 318813-1**.
6. For loose piece contacts (except 350669-1) and strip mounted contacts (except 350684-1 and 350356-□), use Extraction Tool **Part Number 318851-1**. For strip mounted contacts (except 350356-□, 350684-1 and 350689-□), use Insertion Tool **Part Number 455830-1**.

**Related Tooling Data****Descriptions and Specifications**

Hand Tools—Pages 74, 75  
Wire Strippers—Page 74  
626 Pneumatic Tool System—  
Page 74

**FOR APPLICATION TOOLING ASSISTANCE CALL 1-800-522-6752**

## Application Tooling (Continued)

### Side-Feed Heavy-Duty Miniature Applicators (coded HDM)



Interchangeable applicators for crimping products reeled side-by-side on single or dual carrier strips (primarily closed-barrel terminals and open-barrel contacts). Similar design as the end-feed version. All side-feed applicators include a wire stop to help correctly position the wire end in the crimping target area.

For more information, request Instruction Sheet **408-8040**.

### Stripper-Crimper Applicators (coded SCA)



Interchangeable applicators for crimping products in AMP-O-MATIC Stripper-Crimper Machines. Consist of separate ram and lower tooling assemblies. Similar dial-in settings for different wire sizes and insulation diameters as HDM applicators. Available with sensors for use with the Crimp Quality Monitor.

For more information, request Catalog **65004 (AMP-O-MATIC Stripper-Crimper Machines)**, Catalog **82275 [Crimp Quality Monitor (CQM)]**.

### AMP-O-MATIC Stripper-Crimper Machines, 854040-3, -4



Semiautomatic bench crimping machines that also strip the wire, and are therefore used for terminating jacketed cable. Feature manual precision adjustment of crimp height, keyed strip blades for faster, more accurate setups, and an efficient scrap removal system. All adjustments can be made from the front of the machines without special tools. Available with crimp quality monitoring.

#### Specifications

**Width**—14 [355]

**Depth**—18 [457]

**Height**—33 [838] without reel

**Weight**—150 lb [68 kg]

**Electrical**—120 VAC, 50 or 60 Hz, .5 A

**Air**—80-100 psi [5.52-6.90 bar], 3.5 scfm [0.00165 m<sup>3</sup>/s]

**Wire Range**—32-14 AWG [0.03-2 mm<sup>2</sup>]

For more information, request Catalog **65004**, Video **198075**, Catalog **82275 [Crimp Quality Monitor (CQM)]**, Video **198094**.

## Application Tooling (Continued)

**AMP-O-LECTRIC Model "G"  
Terminating Machines,  
354500-1, -9, -11**

Semiautomatic bench machines for crimping reeled terminals and contacts, featuring a quiet and reliable direct motor drive, microprocessor controls for ease of setup and operation, and guarding and lighting designed for operator convenience and safety. All models are equipped with either manual or automatic precision adjustment of crimp height. Machine-mounted sensors are available for crimp quality monitoring using conventional miniature-style applicators.

**Specifications**

**Width**—18.7-25.3 [475-643] depending on applicator type

**Depth**—21.5-28.1 [546-713] depending on applicator type

**Height**—20 [508]

**Weight**—240 lb [110 kg]

**Electrical**—120 or 220 VAC, 50 or 60 Hz; 310 VA

**Air**—90-110 psi [6.21-7.59 bar], 6 scfm [0.00282 m<sup>3</sup>/s] when required with air-feed applicators

**Wire Range**—26-10 AWG [0.12-6 mm<sup>2</sup>] solid or stranded, depending on product applied

For more information, request Catalog **65828**, Video **198116**, Catalog **82275 [Crimp Quality Monitor (CQM)]**, Video **198094**.

**Crimp Quality Monitor  
(CQM)**

The unique system provides 100% on-the-fly crimp inspection. It measures the crimp height of each termination, and evaluates the quality of each crimp. If a crimp is questionable, the monitor alerts the operator with both visual and audible alarms. It also provides ports for printing and networking. When used with AMP-O-LECTRIC Model "G" Termination Machines, the monitor is mounted to the machine. When used with AMPOMATOR CLS IV Lead Making Machines, it is integrated into the machine's operating system.

Fully-automatic machines that measure, cut, strip and terminate single leads. Microprocessor-controlled, and programmed and operated using an easy-to-follow, menu-driven touchscreen. Features include direct-drive terminating units with precision crimp height adjustment, fully programmable setups, wire runout and splice detection, and motorized pre-feed with wire straightener. Crimp quality monitoring is also available.

**Specifications**

**Width**—8.5 [216]

**Depth**—9 [229]

**Height**—4.5 [114]

**Electrical**—120 VAC, 50 or 60 Hz, or 200 VAC, 50 or 60 Hz

For more information, request Catalog **82275**.

**AMPOMATOR CLS IV+  
Lead-Making Machines,  
356500-1, -2****Specifications**

**Width**—159 [4 040]

**Depth**—68 [1 730]

**Height**—86 [2 185] with 24 [610] dia. reel

**Weight**—2 000 lb [907 kg]

**Electrical**—220 VAC, 50 or 60 Hz, single phase, 25 A, with neutral and ground

**Air**—90 psi [6.21 bar], 15 scfm [0.0071 m<sup>3</sup>/s] sustained

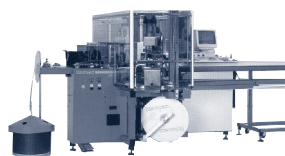
**Wire Range**—26-10 AWG [0.12-6 mm<sup>2</sup>] stranded, 26-16 AWG [0.12-1.4 mm<sup>2</sup>] solid

**Lead Lengths**—3-90 [76.2-2 285], 90-1 000 [2 285-25 400] with long lead conveyors

For more information, request Catalog **124324**, Video **198142 (NTSC)**, **199609 (PAL)**.



## Application Tooling (Continued)

**Komax 411 alpha  
Lead-Making Machine**

Designed with flexibility and expandability in mind, the Komax 411-S alpha can accommodate up to three processing stations. In the standard version, stations 2 and 3 are equipped with a crimping press. Station 1 can be with a seal applicator. Optional equipment is available for other processes such as tinning, marking, and intermediate stripping. Other features include fast terminal reel exchange, graphic user interface, and good/bad sorting.

**Specifications**

**Width**—147 [3 722] with wire deposition 2 meter; 225 [5 722] with wire deposition 4 meter

**Depth**—63 [1 610]

**Height**—106 [2 700] with cover open; 75 [1 900] with cover closed

**Weight**—2 293 lb [1 040 kg] with two crimp terminators

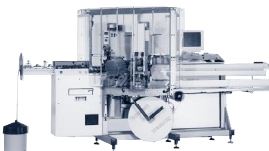
**Electrical**—208-460 VAC, 50-60 Hz, three phase, 20 kVA

**Air**—72-87 psi [5-6 bar], 4.6 scfm [8 m<sup>3</sup>/h]

**Wire Range**—24-12 AWG [0.22-4 mm<sup>2</sup>], optional up to 10 AWG [6 mm<sup>2</sup>]

**Lead Lengths**—2.4-394 [60-10 000], optional from 1.18 [30]

For more information, request Catalog **1307790**

**Komax 433-S alpha  
Lead-Making Machine**

The 433-S alpha offers maximum flexibility for applying seals to one or both ends of the wire with the corresponding terminal. When equipped with the mci 711 crimp terminator and mci 761 seal applicator, the fully-automated 433-S alpha forms a highly compact system with optimum accessibility. Dynamic servo-drives provide fine travel settings on all motor axes and the wire straightening unit with quick-release lock and automatic lead-in feature reduces wire changeover time. The TopWin software provides for fast, simple data input.

**Specifications**

**Width**—151 [3 823]

**Depth**—67 [1 698]

**Height**—114 [2 900] with cover open; 79 [2 000] with cover closed

**Weight**—2 381 lb [1 080 kg] with two mci 711 or two mci 761

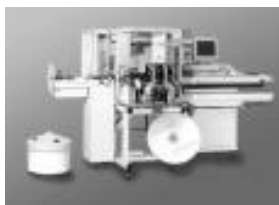
**Electrical**—208-480 VAC, 50-60 Hz, three phase, 10 kVA

**Air**—72-87 psi [5-6 bar]

**Wire Range**—24-10 AWG [0.20-6 mm<sup>2</sup>]

**Lead Lengths**—2.4-2 559 [60-65 000]

For more information, request Catalog **1307801**

**Komax gamma 333 PC  
Lead-Making Machine**

This fully-automatic, PC-controlled leadmaker can be equipped with up to three processing stations enabling the crimping of both ends of the wire, double-crimp connections with three different contacts, single-ended seal applications, tinning or ink-jet marking. Features include ultra-short conversion times, easy-to-use graphic-based TopWin interface with multiple-language capability, crimp force analyzer with statistical analysis, seal monitoring, and integrated

**Specifications**

**Width**—124 [3 137]

**Depth**—54 [1 377]

**Height**—105 [2 670] with cover open; 71 [1 790] with cover closed

**Weight**—1 852 lb [840 kg] with two crimp modules

**Electrical**—208-480 VAC, 50-60 Hz, three phase, 6 kVA

**Air**—72-87 psi [5-6 bar], 3.8 scfm [6.5 m<sup>3</sup>/h]

**Wire Range**—26-10 AWG [0.12-6 mm<sup>2</sup>]

**Lead Lengths**—2.36-393 [60-10 000]

For more information, request Catalog **1307823**.

## Application Tooling (Continued)

**Automatic Cut and Strip Machine, 1214316-1**

Fully electric, microprocessor-controlled bench machine for processing wire and round and flat cable. Features LED display prompts for easy-to-follow setups and operation, automatic wire loading and unloading, and universal V-type blades. Prefeeder, 1214317-1, and wire stacker, 1214318-1, available for unattended operation. Process 5 200 wires per hour (22 AWG [0.3 mm<sup>2</sup>], 4 [100] length, partial strip

**Specifications**

**Width**—14.6 [370]  
**Depth**—16.1 [410]  
**Height**—10.8 [275]  
**Weight**—48.6 lb [23 kg]  
**Electrical**—120 or 220 VAC, 50 or 60 Hz, 160 VA  
**Wire Range**—32-10 AWG [0.05-6 mm<sup>2</sup>] stranded, 32-16 AWG [0.05-1.5 mm<sup>2</sup>] solid  
**Wire Lengths**—,04 [1.0]-3 280 ft [1 000 m]  
**Strip Lengths**—up to 1.77 [45]  
 For more information, request Catalog **1307238**.

**Semiautomatic Wire Stripper Machine, 1214315-1**

Compact, lightweight, air-powered bench machine for stripping wires up to 14 AWG [1.65 mm<sup>2</sup>], and cable up to .13 [3.2] OD. Features automatic sensor activation and universal V-type blades for processing varying wire sizes without changing blades. Full or partial stripping. Approximately .3 sec. machine cycle time for longest strip length.

**Specifications**

**Width**—2.5 [60]  
**Depth**—9.0 [220]  
**Height**—6.5 [160]  
**Weight**—5.3 lb [2.4 kg]  
**Air**—75-105 psi [5.17-7.24 bar], .01 ft<sup>3</sup> [0.0028 m<sup>3</sup>]/operation  
**Wire Range**—32-14 AWG [0.05-1.65 mm<sup>2</sup>]  
**Strip Lengths**—,06-.79 [1.5-20]  
 For more information, request Catalog **1307238**.

**626 Pneumatic Tool System**

Lightweight, air-operated modular tooling system. Accepts a wide variety of interchangeable heads for crimping various types of contacts, terminals and splices onto wires ranging 6-26 AWG [13-0.12 mm<sup>2</sup>], plus coaxial and fiber optic cable. Available with either hand- or foot-actuation switch. Optional ratchet control available to provide complete crimp cycle.

**Specifications**

**Outside Diameter**—1.83 [46.5]  
**Length**—11.6-12.9 [295-327]  
**Grip Span**—2.19 [55.6] over button/handle  
**Weight**—2.3-3.3 lb [1.0-1.5 kg]  
**Air**—90-100 psi [6.21-6.89 bar], 11.14 in<sup>3</sup> [0.0018 m<sup>3</sup>]  
**Cycle Time**—0.7-0.8 sec (16-14 AWG [1.3-2 mm<sup>2</sup>] PIDG Terminals)  
 For more information, request Catalog **124208**.

## Application Tooling (Continued)

### CERTI-CRIMP "C" Head Straight Action Hand Tool (SAHT), 69710-1



Premium grade hand tool. Features ratchet control to provide complete crimp cycle. The interchangeable die sets close in a straight line to minimize contact or terminal rotation during crimping. When applicable, user-assist features, such as a contact or terminal locator and a wire stop, are built into the die set. Approximate weight 1.9 lb [0.86 kg].

For more information, request Catalog **65780**, Instruction Sheet **408-2095**.

### PRO-CRIMPER II Hand Tool, 354940-1



Commercial grade hand tool for crimping various products. Features ratchet control to provide complete crimp cycle. Accepts both pinned- and shouldered-style die sets. Locators are provided with pinned-style die sets for proper contact and wire positioning, and to help minimize contact rotation and bending during crimping. Approximate weight 1.3 lb [0.60 kg].

For more information, request Catalog **82276**, Instruction Sheet **408-9930**.

### CERTI-CRIMP Double Action Hand Tools (DAHT)



Premium grade hand tools. Feature ratchet control to provide complete crimp cycle. Die sets close in an arc-like path. When applicable, user assist features, such as a contact or terminal locator and a wire stop are included. Approximate weight 1.2 lb [0.54 kg].

For more information, request Catalog **65780**.

### CERTI-CRIMP Straight Action Hand Tools (SAHT)



Premium grade hand tools. Feature ratchet control to provide complete crimp cycle. Die sets close in a straight line. Include a contact locator and wire stop, plus an insulation crimp adjustment lever, when applicable. Approximate weight 1.3 lb [0.59 kg].

For more information, request Catalog **65780**.

**Note:** This index lists all cataloged parts by base no. only. Complete part nos. (with prefixes and/or suffixes) are shown on the page(s) indicated.

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## Engineering Notes



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Fax: + 0222-277-97-333  
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**Belgium** – Kessel-Lo  
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Fax: + 32-16-352-352

**Bulgaria** – Sofia  
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Fax: + 359-2-971-2153

**Czech Republic** – Kurim  
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Fax: + 420-5-41-162-223

**Denmark** – Viby  
Phone: + 45-86-295-055  
Fax: + 45-86-295-133

**Egypt** – Cairo  
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Fax: + 20-2-419-23-34

**Estonia** – Haabneeme  
Phone: + 372-6205-900  
Fax: + 372-6205-980

**Finland** – Helsinki  
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Fax: + 358-9-512-34250

**France** – Cergy-Pontoise Cedex  
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Fax: + 49-6251-133-600

Langen  
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Fax: + 49-6103-709-223

**Great Britain** – London  
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Fax: + 44-181-954-6234

**Greece** – Athens  
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Fax: + 30-1-9370-655

**Holland** – 's-Hertogenbosch  
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Fax: + 36-1-350-8634

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Fax: + 353-1-820-9790

**Israel** – Tel Aviv  
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Fax: + 972-3-648-4041

**Italy** – Torino  
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Fax: + 39-011-4031-116

**Lithuania** – Vilnius  
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Fax: + 370-2-231-403

**Norway** – Nesbru  
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Fax: + 48-22-672-47-88

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Phone: + 34-93-291-0330  
Fax: + 34-93-201-7879

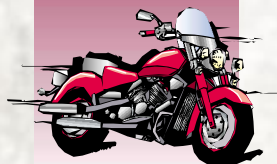
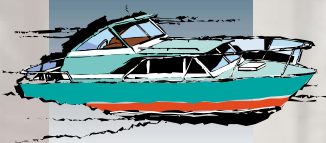
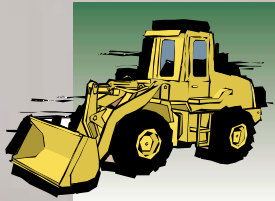
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**Switzerland** – Steinach  
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**Ukraine** – Kiev  
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