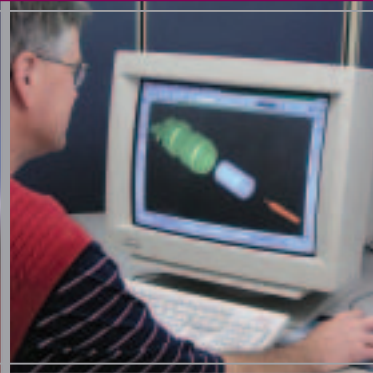


**JOHNSON®**

***RF/Microwave Connectors  
& Cable Assemblies***



***Emerson Network Power  
Connectivity Solutions***



  
**EMERSON™**  
Network Power



## Connectivity Solutions

To our valued customers:

For over 80 years, Johnson Components and Cambridge Products have been providing our electronics distributor and OEM customers with cost-effective, high-quality solutions for connectivity. This catalog combines the product lines of Johnson Components and Cambridge Products under the Johnson product line of *Emerson Network Power Connectivity Solutions*. In addition to combining these product lines, we have also combined several of our interconnect businesses under the name *Emerson Network Power Connectivity Solutions*. We believe this name not only reflects our traditional industry focus, but also better communicates the additional resources that we can supply as part of Emerson Network Power.

Although our name is changing, our commitment to product quality and to excellent service to our customers will not. Our combined connectivity product line will continue to focus on the wireless, test/measurement, instrumentation, OEM and installer markets for data networks, telecommunications, satellite, security, telemetry and CATV.

This catalog offers our customers new products such as the SMK (2.92mm) range of 40 GHz connectors and non-magnetic connectors for the medical industry as well as extensive enhancements to our existing product portfolio. It continues to provide comprehensive data on our range of coaxial connectors, cable assemblies, hardware, tools and test products to support your design and application needs and those of your customers.

*Emerson Network Power Connectivity Solutions* is a global player with manufacturing, sales and engineering presence in China, the United Kingdom and the United States to meet our customers' requirements around the world. Our goal is to continue to expand our product offerings and capabilities to continue meeting your changing needs.

Thank you for allowing us the opportunity to serve you.

Best Regards,

A handwritten signature in black ink that reads "Brian G. Mason".

Brian G. Mason  
President  
Emerson Network Power  
Connectivity Solutions



## MMCX Connectors - 50 Ohm

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# MMCX - 50 Ohm Connectors

## Specifications

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

### ELECTRICAL RATINGS

**Impedance:** 50 ohms

**Frequency Range:** Connectors ..... 0-6 GHz  
 Dummy loads ..... 0-1 GHz

VSWR: (f = GHz)	Straight		Right Angle
	Cabled Connectors	Cabled Connectors	Cabled Connectors
.047 dia flexible	1.20	1.14 + .07f	
RG-178, RG-316, RG-316 DS	1.20	1.25	
.086 Semi-Rigid	1.15	1.15	
Uncabled receptacles, dummy loads	N/A		

### Working Voltage:

Connectors ..... 170 VRMS at sea level†  
 Dummy loads ..... N/A

### Dielectric Withstanding Voltage:

Connectors ..... 500 VRMS at sea level†  
 Dummy loads ..... N/A

**Insulation Resistance:** 1000 megohms min

**Contact Resistance:** (milliohms maximum)

	Initial	After Environmental
Center contact (straight cabled connectors and uncabled receptacles)	5.0	8.0
Center contact (right angle cabled connectors)	5.0	15.0
Outer contact (all connectors)	1.0	1.5
Braid to body	1.5	N/A

**Corona Level:** Connectors ..... 190 volts min at 70,000 feet†  
 Dummy loads ..... N/A

### Insertion Loss: (dB max tested at 1 GHz)

Straight cabled connectors ..... 0.1  
 Right angle cabled connectors ..... 0.2  
 Uncabled receptacles, dummy loads ..... N/A

### RF Leakage: (dB minimum, tested at 2.5 GHz)

Flexible cable connectors ..... -60 dB  
 .086 Semi-Rigid ..... -70 dB  
 Dummy loads ..... N/A

### RF High Potential Withstanding Voltage:

(400 VRMS at 4 and 7 MHz)†

**Power Rating (Dummy Load):** 0.5 watt @ +25°C, derated to 0.25 watt @ +125°C

†Avoid user injury due to misapplication.

See safety advisory definitions inside front cover.

### MECHANICAL RATINGS

**Engagement Design:** Series MMCX

**Engagement/Disengagement Force:**

8 lbs. max axial engagement  
 1.4 lbs. min axial disengagement

**Contact Retention:** 2.0 lbs. minimum axial force

Cable Retention:	Axial Force* (lbs.)	Torque (in-oz)
Connectors for .047 flexible	3.5	N/A
Connectors for RG-178	7.0	N/A
Connectors for RG-316	20.0	N/A
Connectors for RG-316 DS	25.0	N/A
Connectors for .086 Semi-Rigid	30.0	16

\*Or cable breaking strength whichever is less.

**Durability:** ..... 500 cycles minimum

### ENVIRONMENTAL RATINGS

(Meets or exceeds the applicable paragraph of MIL-C-39012)

**Operating Temperature:** Connectors ..... -65°C to +165°C  
 Dummy loads ..... -65°C to +125°C

**Thermal Shock:** Connectors: MIL-STD-202, Method 107, Condition C, except -55°C to +155°C (N/A dummy loads)

**Corrosion:** MIL-STD-202, Method 101, Condition B (N/A dummy loads)

**Shock:** MIL-STD-202, Method 213, Condition B (N/A dummy loads)

**Vibration:** MIL-STD-202, Method 204, Condition D (N/A dummy loads)

**Moisture Resistance:** MIL-STD-202, Method 106 (N/A dummy loads)

### MATERIAL SPECIFICATIONS

**Bodies:** Brass per QQ-B-626, gold plated\* per MIL-G-45204 .00001" min.

**Contacts:** Beryllium copper per QQ-C-530, gold plated\* per MIL-G-45204 .00003" min.

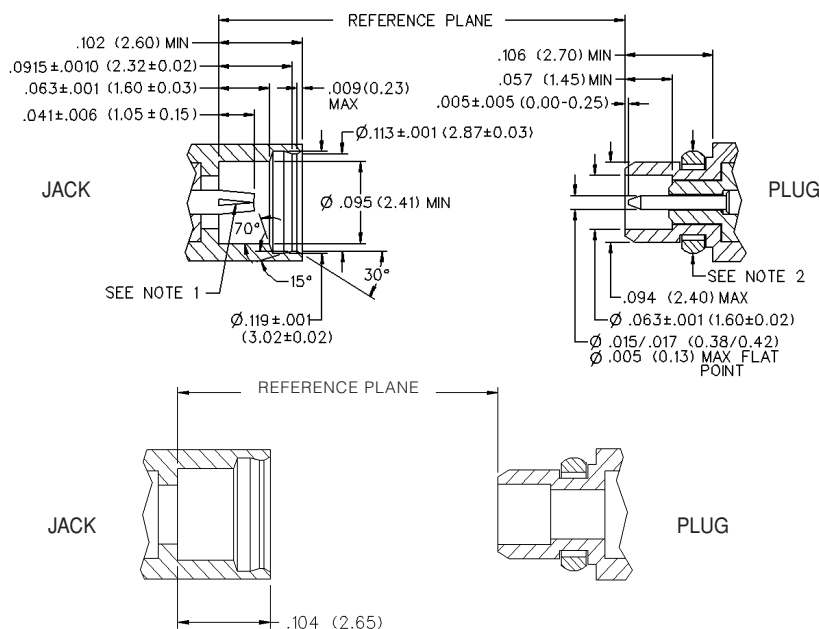
**Interface Spring:** Beryllium copper per QQ-C-530, gold plated\* per MIL-G-45204 .00003" min.

**Insulators:** PTFE fluorocarbon per ASTM D 1710 and ASTM D 1457

**Crimp Sleeves:** Copper per WW-T-799 or brass per QQ-B-626, gold plated per MIL-G-45204 .00001" min.

**Mounting Hardware:** Brass per QQ-B-626 or QQ-B-613, gold plated per MIL-G-45204 .00001" min.

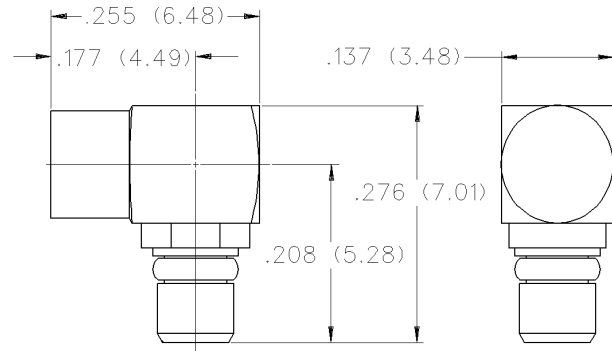
\*All gold plated parts include a .00005" min nickel barrier layer.



### Mating Engagement for MMCX Series

1. ID of contact to meet VSWR mating characteristics and connector durability when mated with a dia .016 +/- .001 male contact.
2. Must meet the force to engage and disengage when mated with mating part.

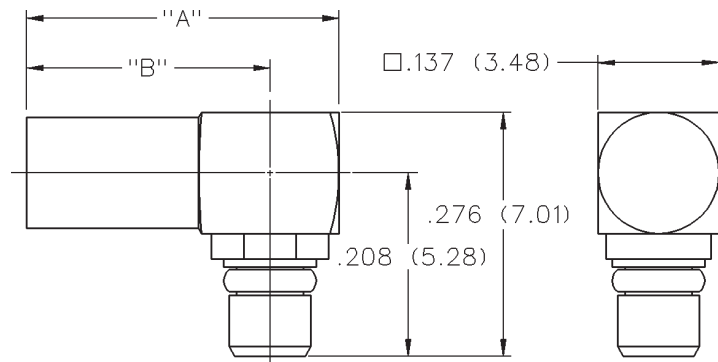
## Right Angle Solder Type Plug - Captivated Contact



CABLE TYPE	PART NO.
.086 Semi-Rigid	135-3693-101

Assembly instructions page 207.

## Right Angle Crimp Type Plug - Captivated Contact



CABLE TYPE	PART NO.	"A"	"B"	TERMINATION
.047" Diameter Flexible Huber K01152-07 Axon P512479A Astrolab 32018 DS	135-3436-101	.354 (8.99)	.276 (6.98)	Crimp Insert
RG-178/U, 196	135-3402-101	.354 (8.99)	.276 (6.98)	Crimp Insert
RG-178/U, 196	135-3402-111	.412 (10.46)	.334 (8.48)	Crimp Sleeve
RG-316/U, 188, 187 179, 161, 174	135-3403-101	.412 (10.46)	.334 (8.48)	Crimp Sleeve
RG-316 DS, RG-188 DS	135-3404-101	.412 (10.46)	.334 (8.48)	Crimp Sleeve

Assembly instructions pages 208 and 209.

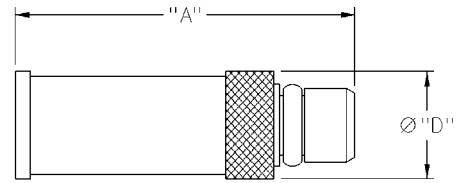
# MMCX - 50 Ohm Connectors

For Flexible Cable

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



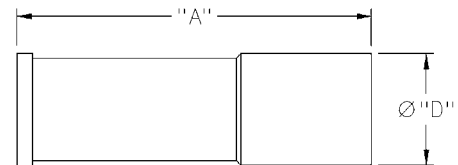
## Straight Crimp Type Plug - Solder or Crimp Captivated Contact



Assembly instructions pages 210 and 211.

CABLE TYPE	PART NO.	"A"	"D"	TERMINATION
.047" Diameter Flexible Huber K01152-07 Axon P512479A Astrolab 32018 DS	135-3436-001	.462 (11.73)	.137 (3.48)	Crimp Insert
RG-178/U, 196	135-3402-001	.462 (11.73)	.137 (3.48)	Crimp Insert
RG-316/U, 188, 161, 174	135-3403-001	.509 (12.93)	.173 (4.39)	Crimp Sleeve
RG-316 DS, 188 DS, 187 DS	135-3404-001	.509 (12.93)	.173 (4.39)	Crimp Sleeve
RG-179/U, 187	135-3433-001	.509 (12.93)	.173 (4.39)	Crimp Sleeve

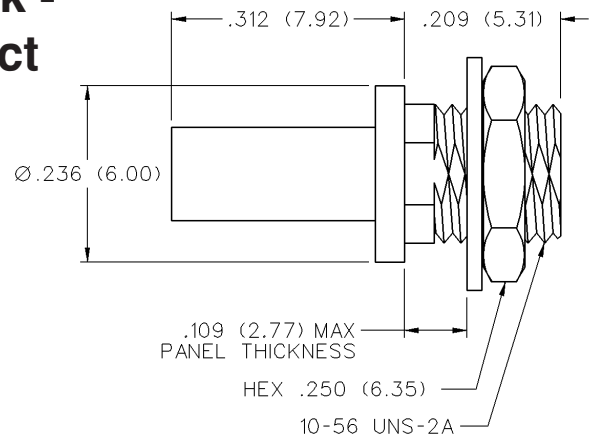
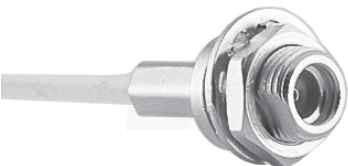
## Straight Crimp Type Jack - Solder or Crimp Captivated Contact



Assembly instructions pages 212 and 213.

CABLE TYPE	PART NO.	"A"	"D"	TERMINATION
.047" Diameter Flexible Huber K01152-07 Axon P512479A Astrolab 32018 DS	135-3336-001	.462 (11.73)	.137 (3.48)	Crimp Insert
RG-178/U, 196	135-3302-001	.462 (11.73)	.137 (3.48)	Crimp Insert
RG-316/U, 188, 161, 174	135-3303-001	.545 (13.84)	.173 (4.39)	Crimp Sleeve
RG-316 DS, 188 DS, 187 DS	135-3304-001	.545 (13.84)	.173 (4.39)	Crimp Sleeve
RG-179/U, 187	135-3333-001	.545 (13.84)	.173 (4.39)	Crimp Sleeve

## Straight Crimp Type Bulkhead Jack - Solder or Crimp Captivated Contact



CABLE TYPE	PART NO.	TERMINATION
.047" Diameter Flexible Huber K01152-07 Axon P512479A Astrolab 32018 DS	135-3336-401	Crimp Insert
RG-178/U, 196	135-3302-401	Crimp Insert

Assembly instructions page 213.

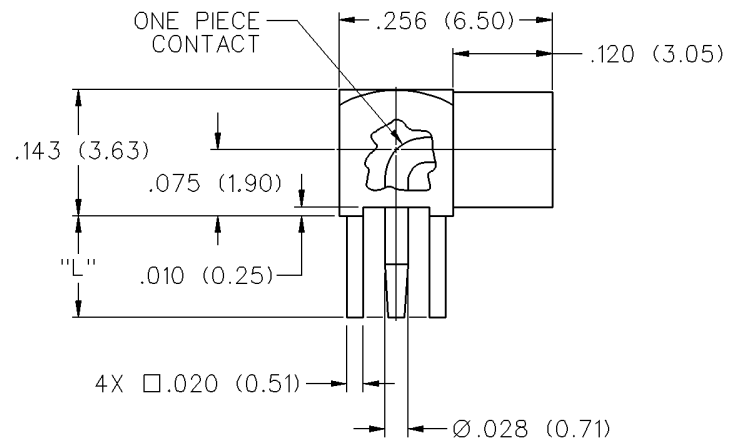
Mounting Hole layout fig. 5 page 201.

## Right Angle Jack Receptacle



"L"	PART NO.
.115 (2.92)	135-3701-301
.068 (1.73)	135-3701-311

Mounting Hole layout figure 14 page 202.

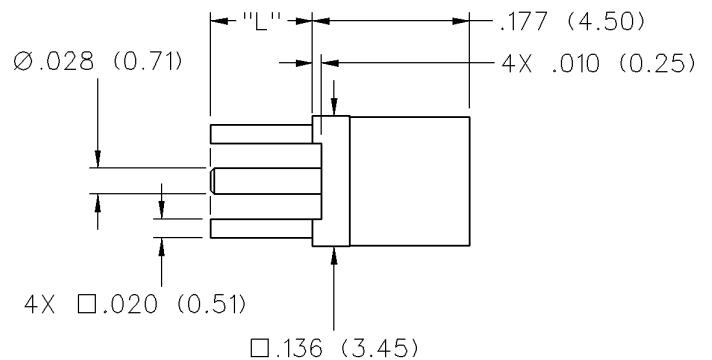


## Straight Mount Jack Receptacle



"L"	PART NO.
.115 (2.92)	135-3701-201
.068 (1.73)	135-3701-211

Mounting Hole layout figure 14 page 202.

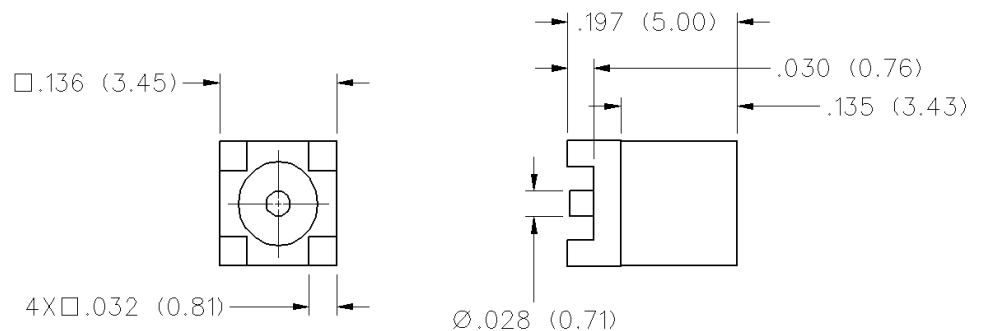


## Straight Jack Receptacle - Surface Mount



PART NO.	PACKAGING
135-3711-201	Stock
135-3711-202	Tape and Reel 1500 pcs/reel

Recommended Land Pattern figure 17 page 202.



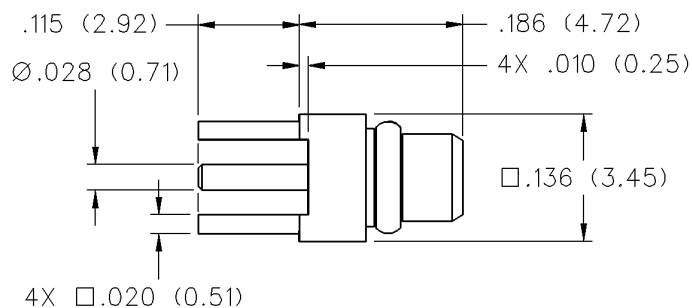
# MMCX - 50 Ohm Connectors

PC Mount and Termination

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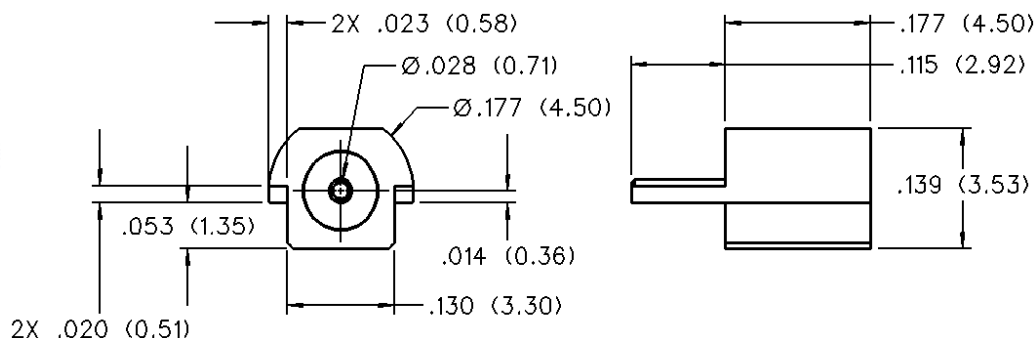
## Straight Plug Receptacle



PART NO.
135-3801-201

Mounting Hole layout figure 14 page 202.

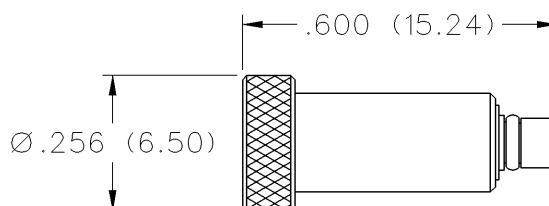
## End Launch Jack Receptacle - Surface Mount



PART NO.	PACKAGING
135-3711-801	Stock
135-3711-802	Tape and Reel 1000pcs/reel

Recommended Land Pattern and Board Notch figure 16 page 202.

## Plug Dummy Load



FREQ. RANGE	PART NO.	PLATING	RESISTANCE
0-1 GHZ	135-3801-811	Gold	50 Ohms



## MCX Connectors - 50 Ohm

Bulkhead and Panel Mount .....	18
Flexible Cable .....	12
In-Series Adapters and Terminations .....	19
PC Mount .....	14
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## MCX Non-Magnetic Connectors - 50 Ohm

PC Mount .....	31
Specifications .....	30

## MCX Reverse Polarity - 50 Ohm

Flexible Cable .....	21
PC Mount .....	22
Specifications .....	20

## MCX Connectors - 75 Ohm

Between-Series Adapters .....	28
Flexible Cable .....	24
In-Series Matched Adapters and Terminations .....	27
PC Mount .....	25
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# MCX - 50 Ohm Connectors

## Specifications

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

### ELECTRICAL RATINGS

**Impedance:** 50 Ohms

**Frequency Range:** Connectors ..... 0-6 GHz  
 Dummy loads ..... 0-1 GHz

**VSWR:** (f = GHz)

	Straight Cabled Connectors	Right Angle Cabled Connectors
RG-178 cable	1.17 + .04f	1.07 + .06f
RG-316 and .086 Semi-Rigid cable	1.13 + .04f	1.07 + .04f

Adapters ..... 1.13 + .04f  
 Uncabled receptacles, Dummy loads ..... N/A

**Working Voltage:** (VRMS maximum)†

Connectors for Cable Type	Sea Level	70K Feet
RG-178	250	65
RG-316, .086 Semi-Rigid uncabled uncabled receptacles, adapters	335	85
Dummy loads		N/A

**Dielectric Withstanding Voltage:** (VRMS minimum at sea level)†

Connectors for RG-178	750
Connectors for RG-316, .086 Semi-Rigid, uncabled receptacles, adapters	1000
Dummy loads	N/A

**Corona Level:** (Volts minimum at 70,000 feet)†

Connectors for RG-178	190
Connectors for RG-316, .086 Semi-Rigid uncabled receptacles, adapters	250
Dummy loads	N/A

**Insertion Loss:** (dB maximum, tested at 1 GHz)

Straight cable connectors and adapters	0.1 dB
Right angle cable connectors	0.2 dB
Uncabled receptacles, dummy loads	N/A

**Insulation Resistance:** 10,000 megohms minimum

**Contact Resistance:** (milliohms maximum)

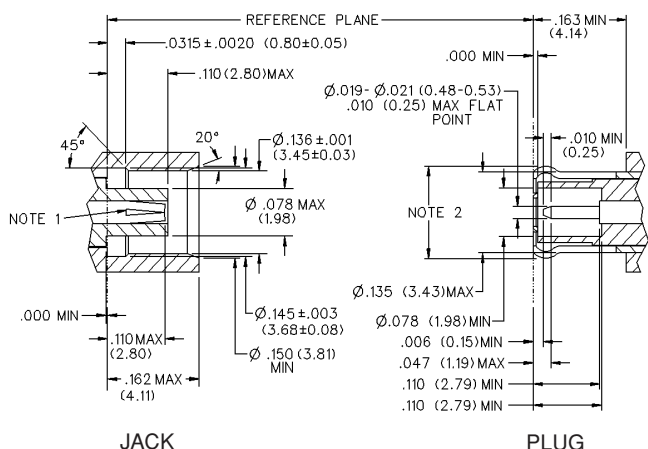
	Initial	After Environmental
Center contact (straight cabled connectors, uncabled receptacles and adapters)	5.0	8.0
Center contact (right angle cabled connectors)	5.0	15.0
Outer contact	1.0	1.5
Braid to body (gold plated connectors)	1.0	N/A
Braid to body (nickel plated connectors)	2.5	N/A

**RF Leakage:** (dB typical tested at 2.5 GHz)

Cable connectors	-55 dB
Uncabled receptacles and adapters, dummy loads	N/A

†Avoid user injury due to misapplication. See safety advisory definitions on page 2.  
 \*\* All gold plated parts include a .00005" min. nickel underplate barrier layer.

### Mating Engagement for MCX Series Compatible with CECC 22220



**RF High Potential Withstanding Voltage:** (VRMS minimum, tested at 4 and 7 MHz)†

Connectors for RG178	500
Connectors for RG316 and adapters	700
.086 Semi-Rigid	670
Uncabled receptacles	600
Dummy loads	N/A

**Power Rating (Dummy Load):** 0.5 watt @ +25°C, derated to 0.25 watt @ +125°C

### MECHANICAL RATINGS

**Engagement Design:** Compatible with CECC 22220, Series MCX

**Engagement Force:** 5.6 pounds maximum axial force

**Disengagement Force:** 8 pounds maximum axial force, 1 pound min.

**Contact Retention:** 2.3 pounds min. axial force (captivated contacts)  
 1 inch-ounce min. torque (uncabled receptacles)

**Cable Retention:**

	Axial Force* (lbs)	Torque (in-oz)
Connectors for RG178	10	N/A
Connectors for RG316	20	N/A
Connectors for RG316DS	25	N/A
Connectors for .086 Semi-Rigid	30	16

\* or cable breaking strength whichever is less.

**Durability:** ..... 500 cycles minimum

### ENVIRONMENTAL RATINGS

(Meets or exceeds the applicable paragraph of MIL-C-39012)

**Operating Temperature:** Connectors ..... -65°C to +165°C  
 Dummy loads ..... -65°C to +125°C

**Thermal Shock:** MIL-STD-202, Method 107, Condition F

(N/A dummy loads)

**Corrosion:** MIL-STD-202, Method 101, Condition B (N/A dummy loads)

**Shock:** MIL-STD-202, Method 213, Condition B (N/A dummy loads)

**Vibration:** MIL-STD-202, Method 204, Condition B (N/A dummy loads)

**Moisture Resistance:** MIL-STD-202, Method 106 (N/A dummy loads)

### MATERIAL SPECIFICATIONS

**Bodies:** Brass per QQ-B-626 or zinc per ASTM B86-71, gold plated\*\* per MIL-G-45204 .00001" min or nickel plated per QQ-N-290 or bright tin plated

**Contacts:** Male - brass per QQ-B-626, gold plated per MIL-G-45204 .00003" min.

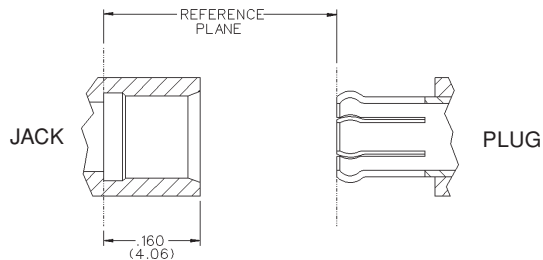
Female - beryllium copper per QQ-C-530, gold plated per MIL-G-45204 .00003" min.

**Insulators:** PTFE fluorocarbon per ASTM D 1710 and ASTM D 1457

**Expansion Caps:** Brass per QQ-B-613, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

**Crimp Sleeves:** Copper per WW-T-799, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

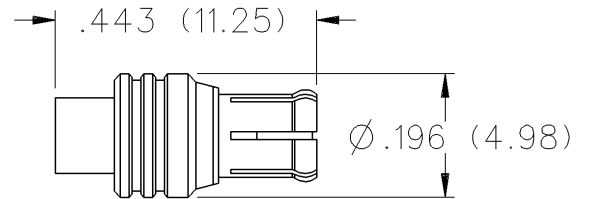
**Mounting Hardware:** Brass (nuts) per QQ-B-626 or phosphor bronze (lockwashers) QQ-B-750, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290



### NOTES

- ID of contact to meet VSWR mating characteristics and connector durability when mated with a dia. .019-.021 (0.48-0.53) male contact.
- Must meet the force to engage and disengage when mated with mating part.

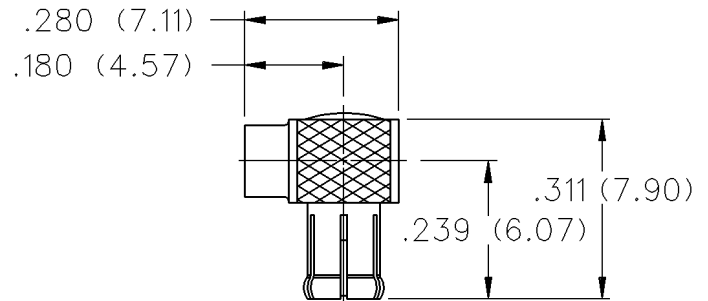
## Straight Solder Type Plug



CABLE TYPE	GOLD PLATED	NICKEL PLATED
.086 Semi-Rigid	133-3693-001	133-3693-006

Assembly instructions page 214.

## Right Angle Solder Type Plug - Captivated Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED
.086 Semi-Rigid	133-3693-101	133-3693-106

Assembly instructions page 215.

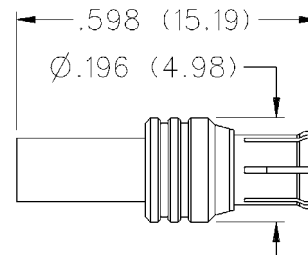
# MCX - 50 Ohm Connectors

For Flexible Cable

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



## Straight Crimp Type Plug - Solder or Crimp Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED	CAPTIVATED CONTACT
RG-178/U, 196	133-3402-001	133-3402-006	NO
RG-188/U, 316, 161, 174	133-3403-001	133-3403-006	YES
RG-188 DS, RG-316 DS	133-3404-001	133-3404-006	YES
RG-179/U, 187	133-3433-001	133-3433-006	YES

Assembly instructions page 216.  
See page 190 for Cable Assembly tools.  
Four and six connector ganged plugs available, see page 198.

## Right Angle Crimp Type Plug - Captivated Contact

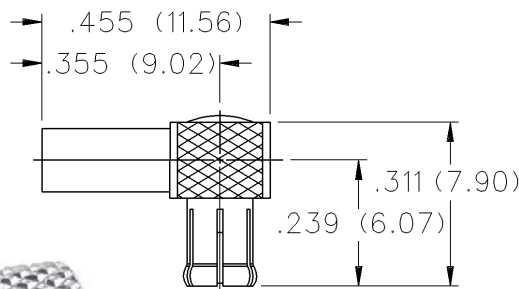


FIG. 1

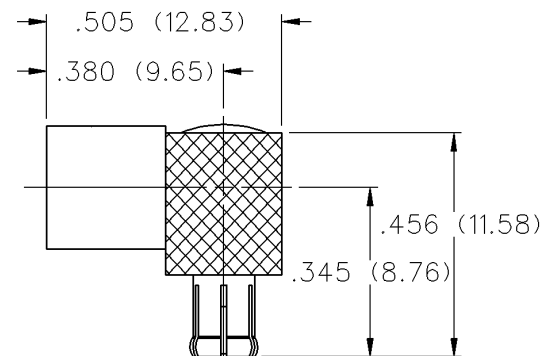
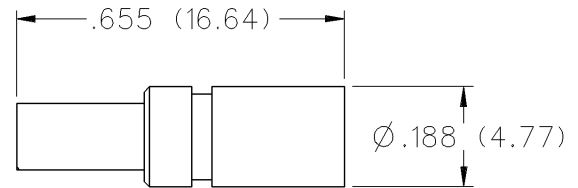


FIG. 2

CABLE TYPE	GOLD PLATED	NICKEL PLATED	FIG.
RG-178/U, 196	133-3402-101	133-3402-106	1
RG-188/U, 316, 161, 174	133-3403-101	133-3403-106	1
RG-188 DS, RG-316 DS	133-3404-101	133-3404-106	1
RG-58/U, 303, 141	133-3407-101	133-3407-106	2
RG-179/U, 187	133-3433-101	133-3433-106	1

Assembly instructions page 218.  
See page 190 for Cable Assembly tools.

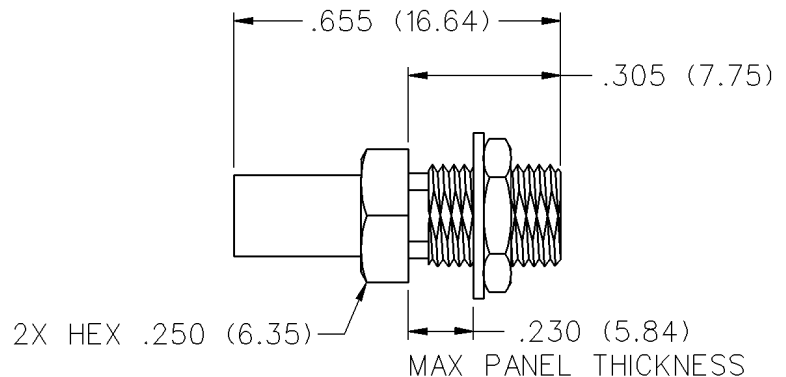
## Straight Crimp Type Jack - Solder or Crimp Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED	CAPTIVATED CONTACT
RG-178/U, 196	133-3302-001	133-3302-006	NO
RG-188/U, 316, 161, 174, 179, 187	133-3303-001	133-3303-006	YES
RG-188 DS, RG-316 DS	133-3304-001	133-3304-006	YES

Assembly instructions page 216.  
See page 190 for Cable Assembly tools.

## Straight Crimp Type Bulkhead Jack - Solder or Crimp Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED	CAPTIVATED CONTACT
RG-178/U, 196	133-3302-401	133-3302-406	NO
RG-188/U, 316, 161, 174, 179, 187	133-3303-401	133-3303-406	YES
RG-188 DS, RG-316 DS	133-3304-401	133-3304-406	YES

Assembly instructions page 216.  
Mounting hole layout figure 5 page 201  
See page 190 for Cable Assembly tools.

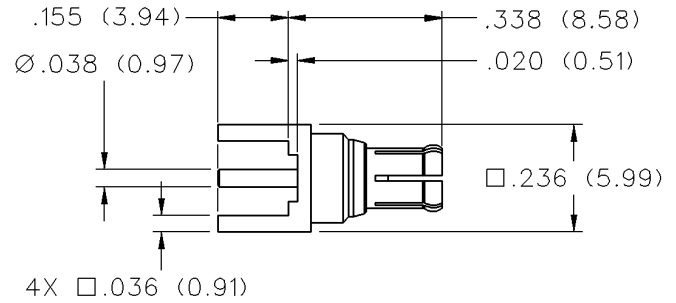
# MCX - 50 Ohm Connectors

PC Mount

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



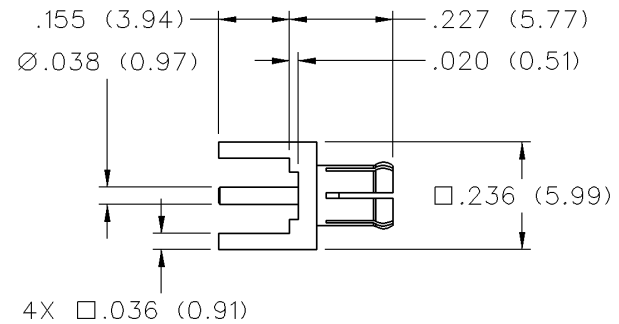
## Straight Plug Receptacle



GOLD PLATED	NICKEL PLATED
133-3801-201	133-3801-206

Mounting hole layout figure 4 page 201.

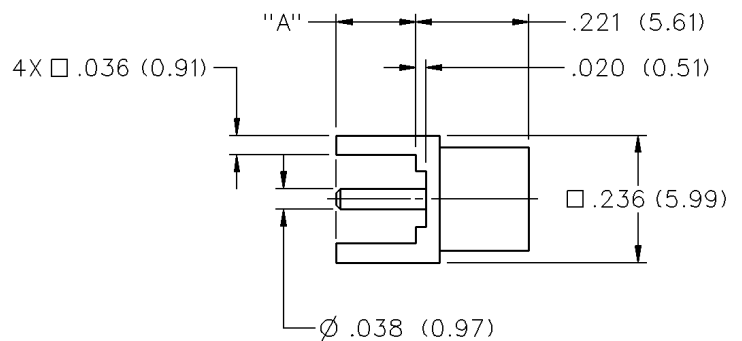
## Straight Plug Receptacle - Low Profile



GOLD PLATED	NICKEL PLATED
133-3801-211	133-3801-216

Mounting hole layout figure 4 page 201.

## Straight Jack Receptacle

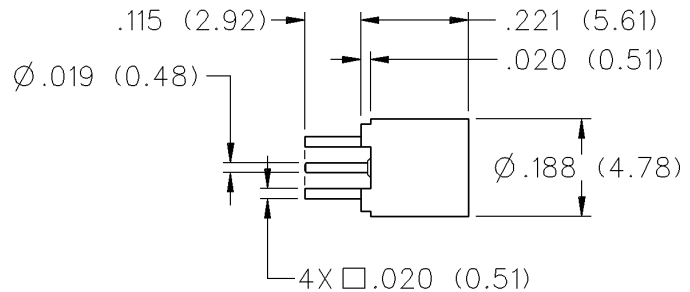


GOLD PLATED	NICKEL PLATED	DIMENSION "A"
133-3701-201	133-3701-206	.155 (3.94)
133-3701-211	133-3701-216	.110 (2.79)
133-3701-221	133-3701-226	.068 (1.73)

Mounting hole layout figure 4 page 201.

Four and six connector ganged receptacles available. See page 198.

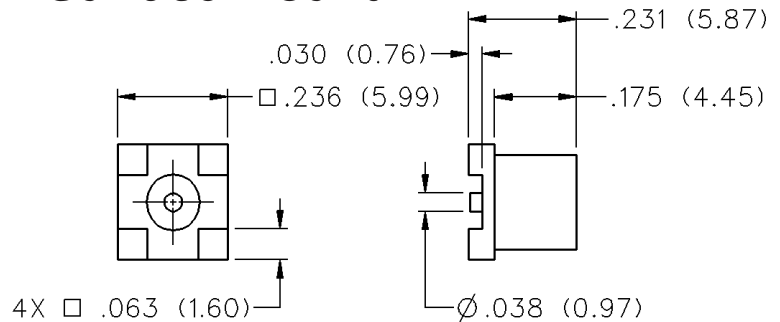
## Straight Jack Receptacle - .100" Layout



GOLD PLATED	NICKEL PLATED
133-3701-231	133-3701-236

Mounting hole layout figure 14 page 202.

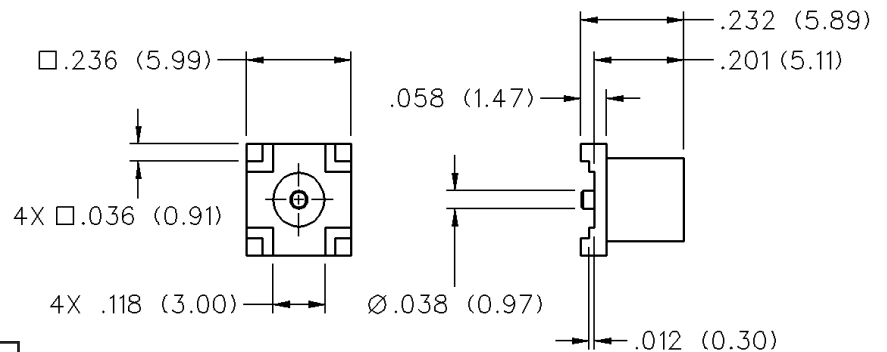
## Straight Jack Receptacle - Surface Mount



GOLD PLATED	PACKAGING
133-3711-201	Stock
133-3711-202	Tape and Reel 750 pcs/reel

Recommended Land Pattern figure 15 page 202.  
Tape and Reel .472 (12.0) component pitch X .630 (16.0) wide.

## Straight Jack Receptacle - Surface Mount



GOLD PLATED	PACKAGING
133-3711-211	Stock
133-3711-212	Tape and Reel 750 pcs/reel

Recommended Land Pattern figure 15 page 202.  
Tape and Reel .472 (12.0) component pitch X .630 (16.0) wide.

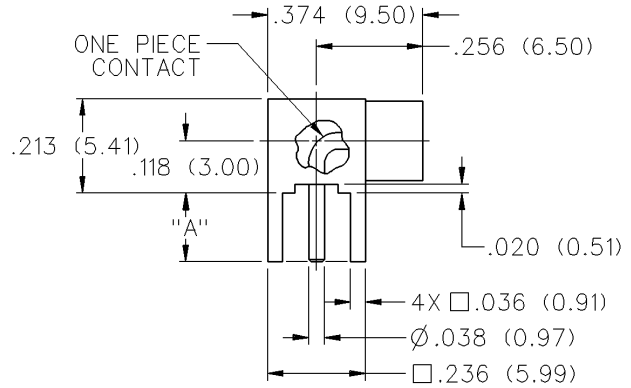
# MCX - 50 Ohm Connectors

PC Mount

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



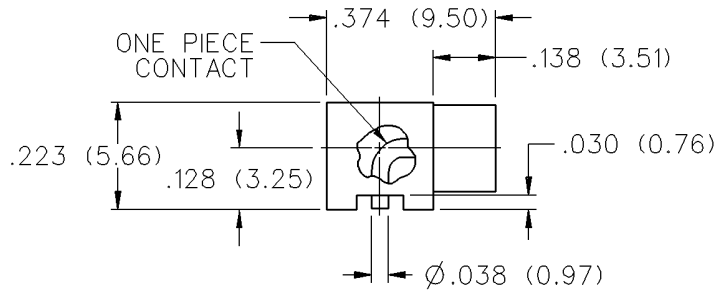
## Right Angle Jack Receptacle



GOLD PLATED	NICKEL PLATED	"A"
133-3701-301	133-3701-306	.155 (3.94)
133-3701-311	133-3701-316	.110 (2.79)
133-3701-321	133-3701-326	.068 (1.73)

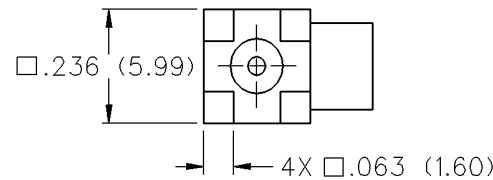
Mounting hole layout figure 4 page 201.

## Right Angle Jack Receptacle - Surface Mount

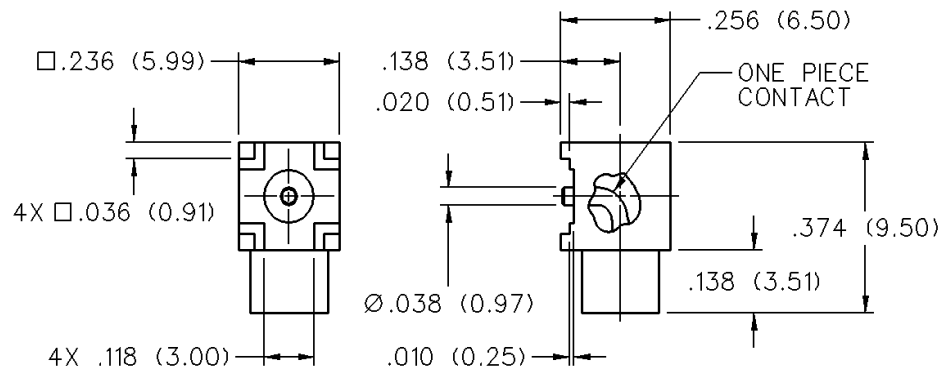


GOLD PLATED	PACKAGING
133-3711-301	Stock
133-3711-302	Tape and Reel 750 pcs/reel

Recommended Land Pattern figure 15 page 202.  
Tape and Reel .472 (12.0) component pitch X .945 (24.0) wide.



## Right Angle Jack Receptacle - Surface Mount

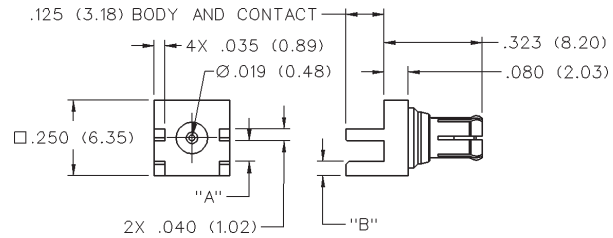
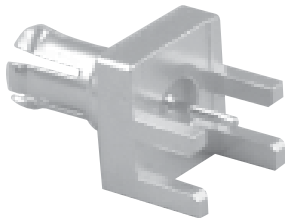


GOLD PLATED	PACKAGING
133-3711-311	Stock
133-3711-312	Tape and Reel 750 pcs/reel

Recommended Land Pattern figure 15 page 202.  
Tape and Reel .472 (12.0) component pitch X .945 (24.0) wide.

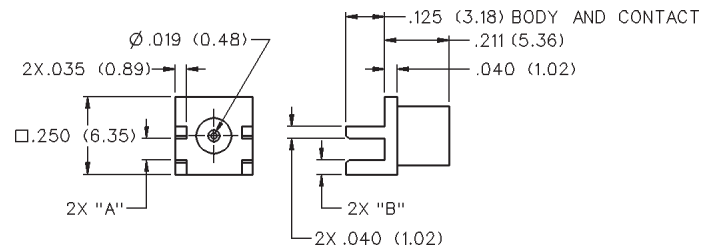


## End Launch Plug Receptacle



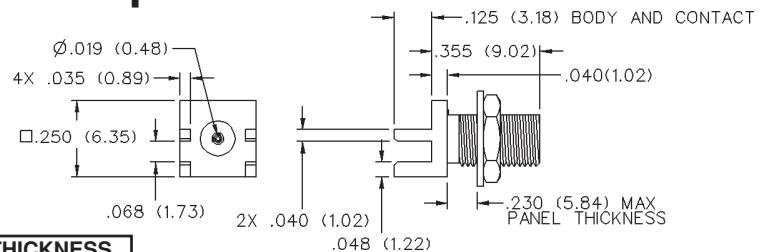
GOLD PLATED	NICKEL PLATED	BOARD THICKNESS	"A"	"B"
133-3801-841	133-3801-846	.062 (1.57)	.068 (1.73)	.048 (1.22)
133-3801-851	133-3801-856	.042 (1.07)	.048 (1.22)	.068 (1.73)

## End Launch Jack Receptacle - Round Contact



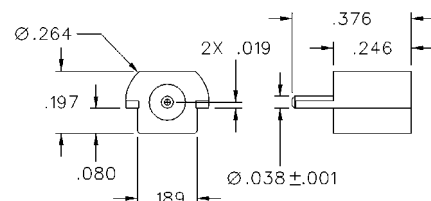
GOLD PLATED	NICKEL PLATED	BOARD THICKNESS	"A"	"B"
133-3701-801	133-3701-806	.062 (1.57)	.068 (1.73)	.048 (1.22)
133-3701-811	133-3701-816	.042 (1.07)	.048 (1.22)	.068 (1.73)

## End Launch Bulkhead Jack Receptacle - Round Contact



GOLD PLATED	NICKEL PLATED	BOARD THICKNESS
133-3701-821	133-3701-826	.062 (1.57)

## Surface Mount End Launch Jack Receptacle



GOLD PLATED	PACKAGING OPTIONS
133-3711-801	Stock
133-3711-802	Tape and Reel 1000 pcs/reel

Recommended Land Pattern figure 23 page 203.

# MCX - 50 Ohm Connectors

Bulkhead and Panel Mount

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



## Front Mount Bulkhead Jack Receptacle

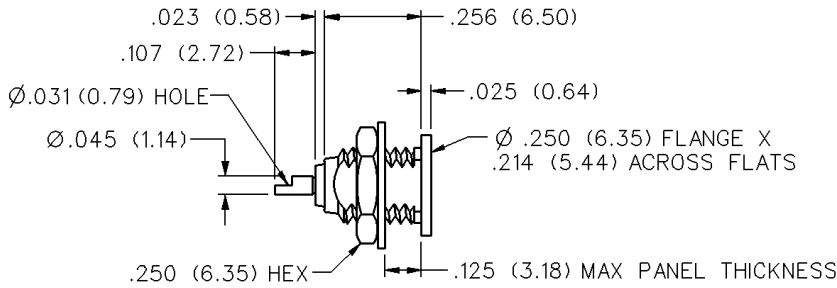


FIG. 1



GOLD PLATED	NICKEL PLATED	MOUNTING STYLE	FIG.
133-3701-401	133-3701-406	D Flat Threaded	1
133-3701-411	133-3701-416	Press Fit Knurl	2

D Flat Threaded mounting hole layout figure 5 page 201.  
Press Fit Knurl mounting hole layout figure 12 page 201.

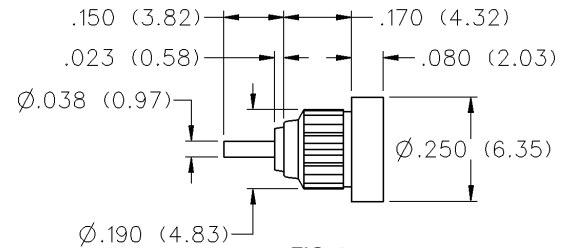
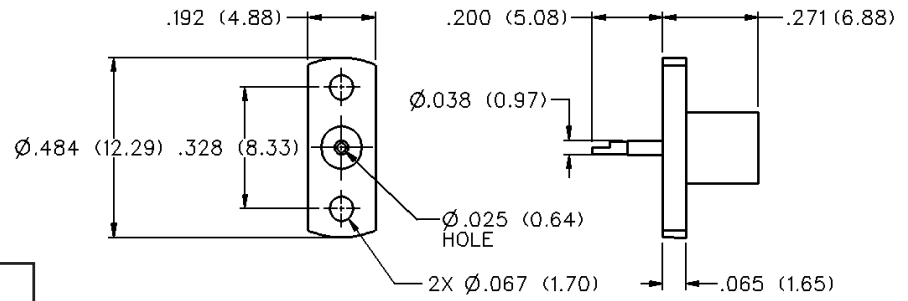


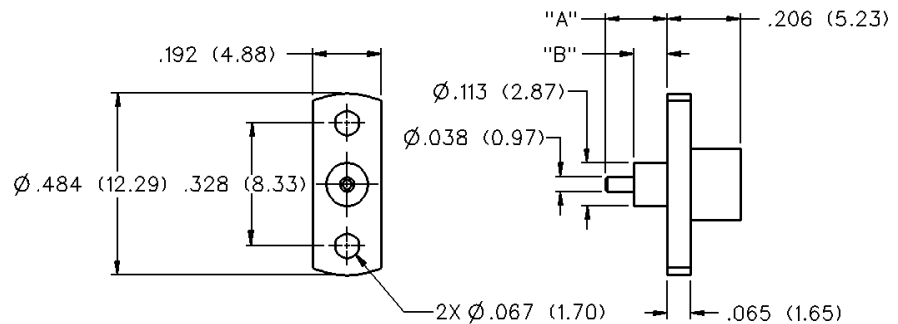
FIG. 2

## 2-Hole Flange Mount Jack Receptacle - Flush Dielectric



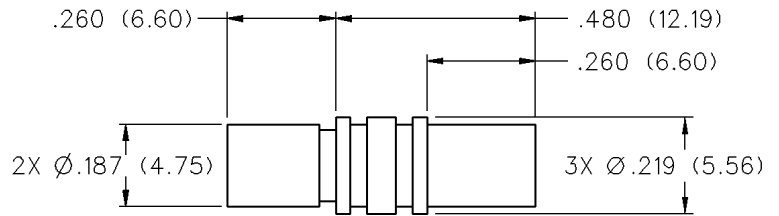
GOLD PLATED	NICKEL PLATED
133-3701-601	133-3701-606

## 2-Hole Flange Mount Jack Receptacle - Extended Dielectric



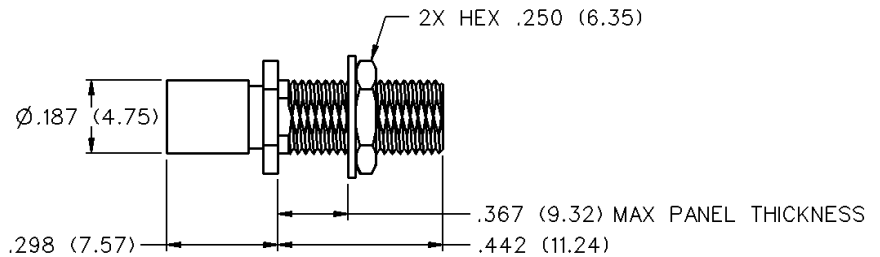
GOLD PLATED	NICKEL PLATED	"A"	"B"
133-3701-611	133-3701-616	.170 (4.32)	.092 (2.34)
133-3701-621	133-3701-626	.300 (7.62)	.200 (5.08)

## Jack to Jack Adapter



GOLD PLATED	NICKEL PLATED
133-3901-801	133-3901-806

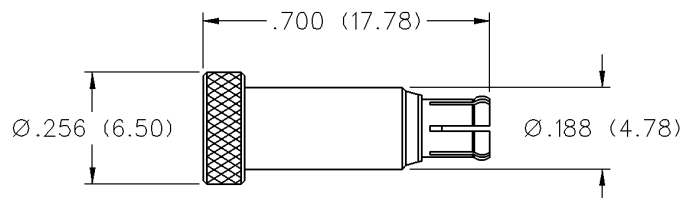
## Jack to Bulkhead Jack Adapter



GOLD PLATED	NICKEL PLATED
133-3901-401	133-3901-406

Mounting hole layout figure 5 page 201.

## Plug Dummy Load



FREQ. RANGE	GOLD PLATED	NICKEL PLATED	RESISTANCE
0-1 GHz	133-3801-801	133-3801-806	50 Ohm
0-1 GHz	133-3801-821	133-3801-826	75 Ohm

# MCX Reverse Polarity - 50 Ohm

## Specifications

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

### ELECTRICAL RATINGS

**Impedance:** 50 Ohms

**Frequency Range:** 0-6 GHz

**VSWR:** (f = GHz)

	Straight Cabled Connectors	Right Angle Cabled Connectors
RG-178 cable .....	1.17 + .04f	1.07 + .06f
RG-316 cable .....	1.13 + .04f	1.07 + .04f
Uncabled receptacles .....	N/A	

**Working Voltage:** (VRMS maximum)<sup>†</sup>

Connectors for Cable Type	Sea Level	70K Feet
RG-178 .....	250	65
RG-316 uncabled receptacles .....	335	85

**Dielectric Withstanding Voltage:** (VRMS minimum at sea level)<sup>†</sup>

Connectors for RG-178 .....	750
Connectors for RG-316 uncabled receptacles .....	1000

**Corona Level:** (Volts minimum at 70,000 feet)<sup>†</sup>

Connectors for RG-178 .....	190
Connectors for RG-316 uncabled receptacles .....	250

**Insertion Loss:** (dB maximum, tested at 1 GHz)

Straight cable connectors .....	0.1 dB
Right angle cable connectors .....	0.2 dB
Uncabled receptacles .....	N/A

**Insulation Resistance:** 10000 megohms minimum

Contact Resistance: (milliohms maximum)	After	
	Initial	Environmental
Center contact (straight cabled connectors, uncabled receptacles) .....	5.0	8.0
Center contact (right angle cabled connectors) ....	5.0	15.0
Outer contact .....	1.0	1.5
Braid to body (gold plated connectors) .....	1.0	N/A
Braid to body (nickel plated connectors) .....	2.5	N/A

**RF Leakage:** (dB typical tested at 2.5 GHz)

Cable connectors .....	-55 dB
Uncabled receptacles .....	N/A

**RF High Potential Withstanding Voltage:** (VRMS minimum, tested at 4 and 7 MHz)<sup>†</sup>

Connectors for RG-178 .....	500
Connectors for RG-316 .....	700
Uncabled receptacles .....	600

### MECHANICAL RATINGS

**Engagement Force:** 5.6 pounds maximum axial force

**Disengagement Force:** 8 pounds maximum axial force, 1.0 pound min.

**Contact Retention:** 2.3 lbs. min. axial force (captivated contacts)  
1 inch-ounce min. torque (uncabled receptacles)

Cable Retention:	Axial Force* (lbs)	Torque (in-oz)
Connectors for RG-178	10	N/A
Connectors for RG-316	20	N/A
Connectors for RG-316DS	25	N/A

\* or cable breaking strength whichever is less.

**Durability:** ..... 500 cycles minimum

### ENVIRONMENTAL RATINGS

(Meets or exceeds the applicable paragraph of MIL-C-39012)

**Temperature Range:** - 65°C to + 165°C

**Thermal Shock:** MIL-STD-202, Method 107, Condition F

**Corrosion:** MIL-STD-202, Method 101, Condition B

**Shock:** MIL-STD-202, Method 213, Condition B

**Vibration:** MIL-STD-202, Method 204, Condition B

**Moisture Resistance:** MIL-STD-202, Method 106

### MATERIAL SPECIFICATIONS

**Bodies:** Brass per QQ-B-626 or zinc per ASTM B86-71, gold plated\*\* per MIL-G-45204 .00001" min or nickel plated per QQ-N-290

**Contacts:** Male - brass per QQ-B-626, gold plated per MIL-G-45204 .00003" min.

Female - beryllium copper per QQ-C-530, gold plated per MIL-G-45204 .00003" min.

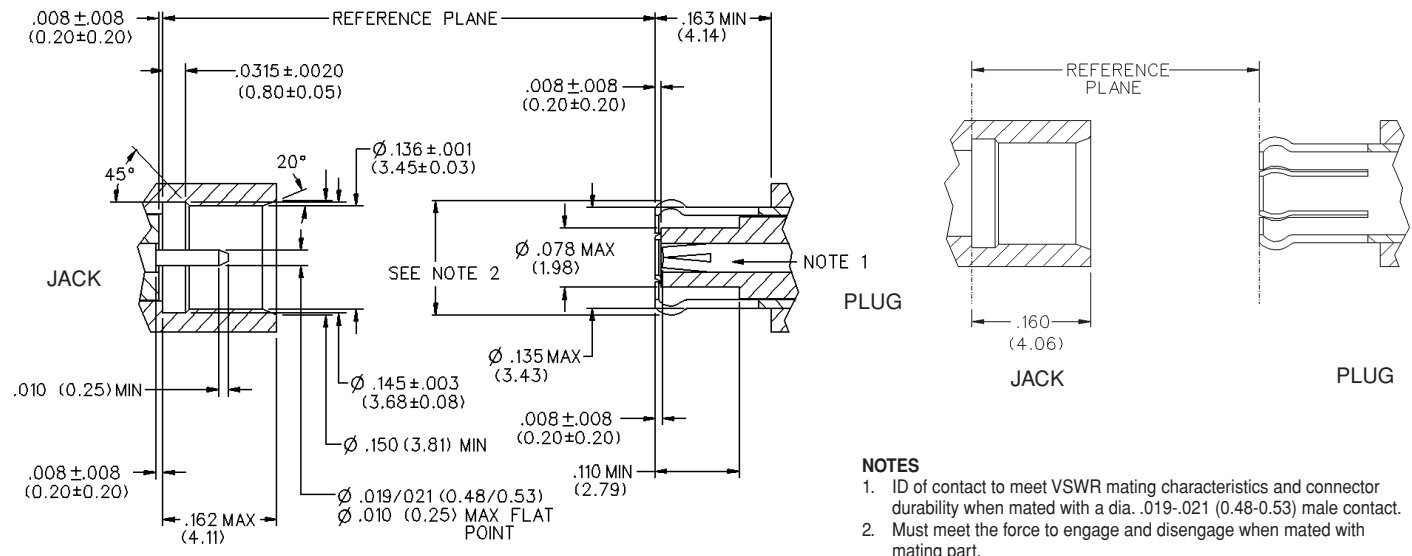
**Insulators:** PTFE fluorocarbon per ASTM D 1710 and ASTM D 1457

**Expansion Caps:** Brass per QQ-B-613, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

**Crimp Sleeves:** Copper per WW-T-799, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

**Mounting Hardware:** Brass (nuts) per QQ-B-626 or phosphor bronze (lockwashers) QQ-B-750, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

### Mating Engagement for MCX Reverse Polarity Series

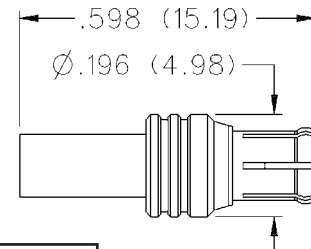


<sup>†</sup>Avoid user injury due to misapplication.

See safety advisory definitions inside front cover.

\*\* All gold plated parts include a .00005" min. nickel underplate barrier layer.

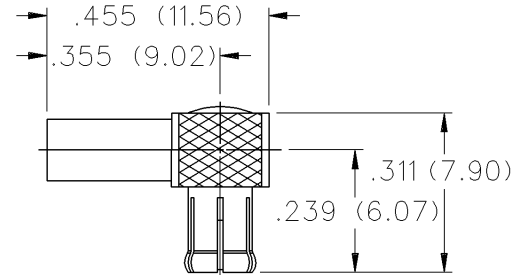
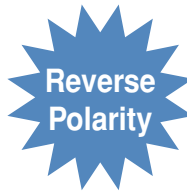
## Straight Crimp Type Plug - Solder or Crimp Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED	CAPTIVATED CONTACT
RG-178/U, 196	133-5402-001	133-5402-006	No
RG-316/U, 188, 161, 174	133-5403-001	133-5403-006	Yes
RG-316 DS, 188 DS	133-5404-001	133-5404-006	Yes

Assembly instructions page 216.

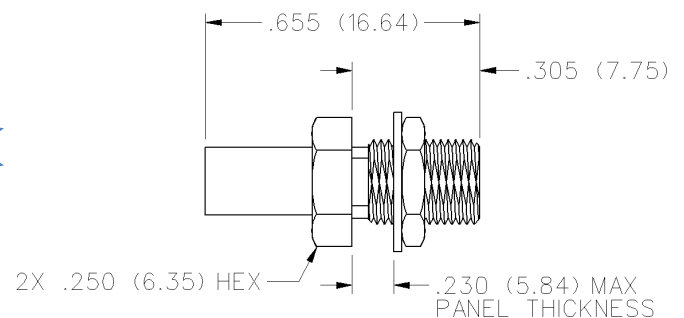
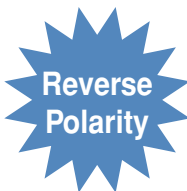
## Right Angle Crimp Type Plug - Captivated Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED
RG-178/U, 196	133-5402-101	133-5402-106
RG-316/U, 188, 161, 174	133-5403-101	133-5403-106
RG-316 DS, 188 DS	133-5404-101	133-5404-106

Assembly instructions page 218.

## Bulkhead Jack Receptacle - Solder or Crimp Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED	CAPTIVATED CONTACT
RG-178/U, 196	133-5302-401	133-5302-406	No
RG-316/U, 188, 161, 174	133-5303-401	133-5303-406	Yes
RG-316 DS, 188 DS	133-5304-401	133-5304-406	Yes

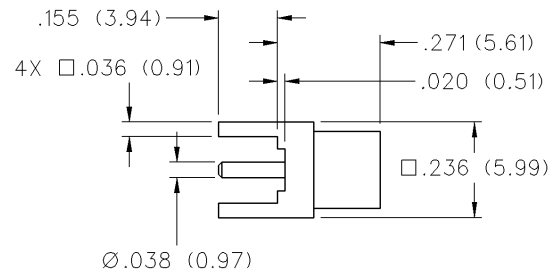
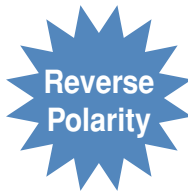
Mounting Hole layout figure 5 page 201. Assembly instructions page 216.

# MCX Reverse Polarity - 50 Ohm

PC Mount

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

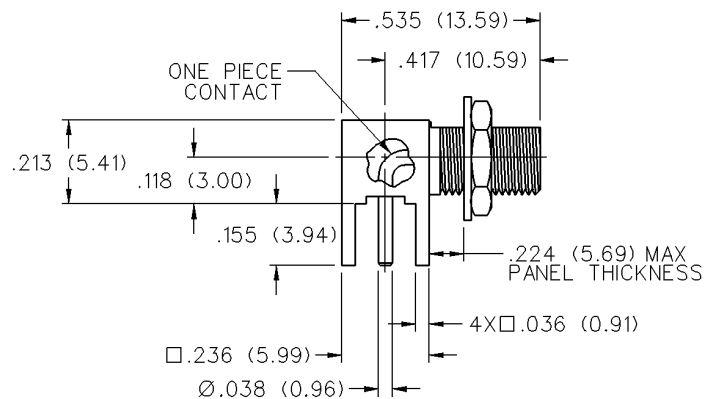
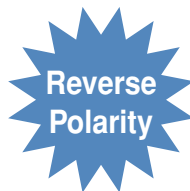
## Straight Jack Receptacle



GOLD PLATED	NICKEL PLATED
133-5701-201	133-5701-206

Mounting Hole layout figure 4 page 201.

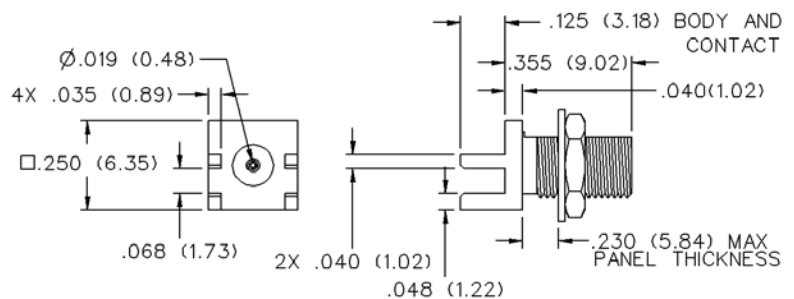
## Right Angle Bulkhead Jack Receptacle



GOLD PLATED	NICKEL PLATED
133-5701-501	133-5701-506

Mounting Hole layout figures 4 and 5 page 201.

## End Launch Bulkhead Jack Receptacle - Round Contact



GOLD PLATED	NICKEL PLATED	BOARD THICKNESS
133-5701-801	133-5701-806	.062 (1.57)

### ELECTRICAL RATINGS

**Impedance:** 75 Ohms

**Frequency Range:** 0-6 GHz

**VSWR:** (f = GHz)

	Straight Cabled Connectors	Right Angle Cabled Connectors
RG-179 cable .....	1.13 + .04f	1.07 + .04f
In-series adapters .....	1.07 + .03f	
Between-series adapters, loads ...	1.05 + .01f	
Matching pad .....	1.05 + .05f	
Uncabled receptacles .....		N/A

**Working Voltage:** (VRMS maximum)†

Connectors for Cable Type	Sea Level	70K Feet
RG-179 .....	335	85
Uncabled receptacles, adapters .....	335	85
Loads, matching pad .....	N/A	

**Dielectric Withstanding Voltage:** (VRMS minimum at sea level)†

Connectors for RG-179 .....	1000
Uncabled receptacles, adapters .....	1000
Loads, matching pad .....	N/A

**Corona Level:** (Volts minimum at 70,000 feet)†

Connectors for RG-179 .....	250
Uncabled receptacles, adapters .....	250
Loads, matching pad .....	N/A

**Insertion Loss:** (dB maximum, tested at 1 GHz)

Straight cable connectors .....	0.1 dB
Right angle cable connectors .....	0.2 dB
Uncabled receptacles, adapters, matching pad .....	N/A

**Insulation Resistance:** 10,000 megohms minimum

**Contact Resistance:** (milliohms maximum)

	Initial	After Environmental
Center contact (straight cabled connectors, uncabled receptacles) .....	5.0	8.0
Center contact (right angle cabled connectors, adapters) .....	10.0	15.0
Center contact (loads, matching pads) .....	N/A	
Outer contact .....	1.0	1.5
Braid to body (gold plated connectors) .....	1.0	N/A

**RF Leakage:** (dB typical tested at 2.5 GHz)

Cable connectors .....	-55 dB typical
Uncabled receptacles, adapters, loads, matching pads .....	N/A

**RF High Potential Withstanding Voltage:**

(VRMS minimum, tested at 4 and 7 MHz)†

Connectors for RG-179 .....	700
Uncabled receptacles, adapters .....	600
Loads, matching pad .....	N/A

**Power Rating:** (Loads and matching pad only) 1.0 watt at +25°C derated linearly to 0.5 watt at +125°C

### MECHANICAL RATINGS

**Engagement Design:** Compatible with CECC 22220, Series MCX 50 Ohm

**Engagement Force:** 5.6 pounds maximum axial force

**Disengagement Force:** 8 pounds maximum axial force, 1 pound min.

**Contact Retention:** 2.3 pounds min. axial force (captivated contacts) 1 inch-ounce min. torque (uncabled receptacles)

Cable Retention:	Axial Force* (lbs)	Torque (in-oz)
Connectors for RG-179	20	N/A
Connectors for RG179 DS	25	N/A

\*or cable breaking strength whichever is less

**Durability:** 500 cycles minimum

### ENVIRONMENTAL RATINGS

(Meets or exceeds the applicable paragraph of MIL-C-39012)

**Temperature Range:** All connectors: - 65°C to + 165°C

Loads and matching pads: - 65°C to + 125°C

**Thermal Shock:** MIL-STD-202, Method 107, Condition F

**Temperature Coefficient:** Loads and matching pad: +/- 300ppm/°C

**Corrosion:** MIL-STD-202, Method 101, Condition B

**Shock:** MIL-STD-202, Method 213, Condition B

**Vibration:** MIL-STD-202, Method 204, Condition B

**Moisture Resistance:** MIL-STD-202, Method 106

### MATERIAL SPECIFICATIONS

**Bodies:** Brass per QQ-B-626, gold plated\*\* per MIL-G-45204 .00001" min. Interface spring - beryllium copper per QQ-C-530, gold plated per MIL-G-45204 .00003" min.

**Contacts:** Male - brass per QQ-B-626 or beryllium copper per QQ-C-530, gold plated per MIL-G-45204 .00003" min. Female - beryllium copper per QQ-C-530, gold plated per MIL-G-45204 .00003" min.

**Insulators:** PTFE fluorocarbon per ASTM D 1710 and ASTM D 1457

**Expansion Caps:** Brass per QQ-B-613, gold plated per MIL-G-45204 .00001" min.

**Crimp Sleeves:** Copper per WW-T-799, gold plated per MIL-G-45204 .00001" min.

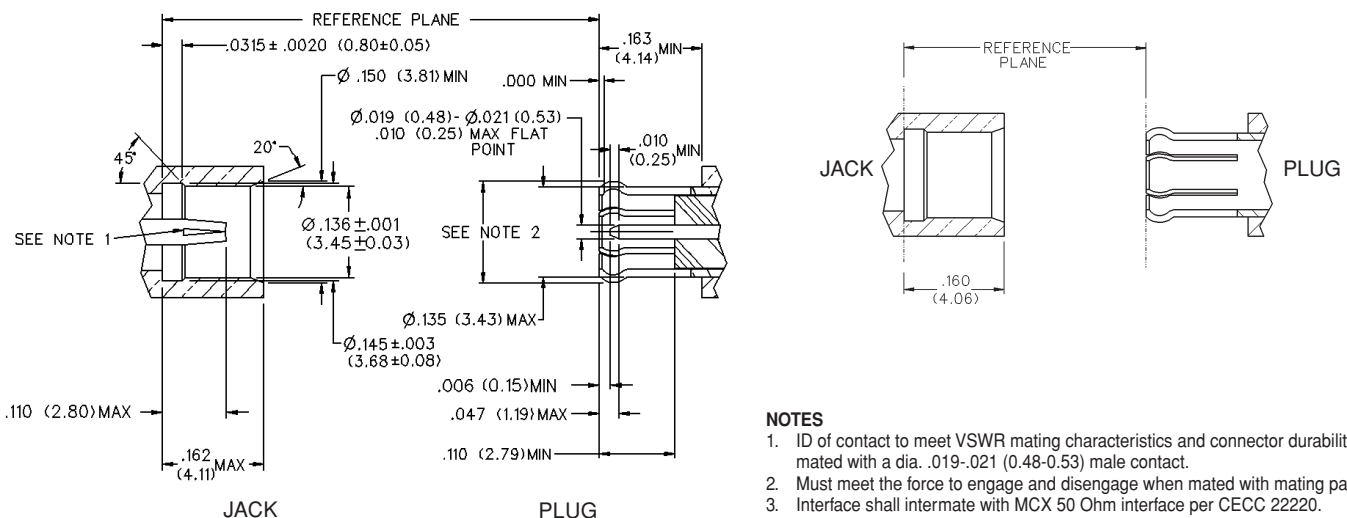
**Mounting Hardware:** Brass (nuts) per QQ-B-626 or phosphor bronze (lockwashers) QQ-B-750, gold plated per MIL-G-45204 .00001" min.

†Avoid user injury due to misapplication.

See safety advisory definitions inside front cover.

\*\* All gold plated parts include a .00005" min. nickel underplate barrier layer.

### Mating Engagement for 75 Ohm MCX Series (Intermutable with CECC 22220 50 Ohm MCX)



### NOTES

1. ID of contact to meet VSWR mating characteristics and connector durability when mated with a dia. .019-.021 (0.48-0.53) male contact.
2. Must meet the force to engage and disengage when mated with mating part.
3. Interface shall intermate with MCX 50 Ohm interface per CECC 22220.

# MCX - 75 Ohm Connectors

For Flexible Cable

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

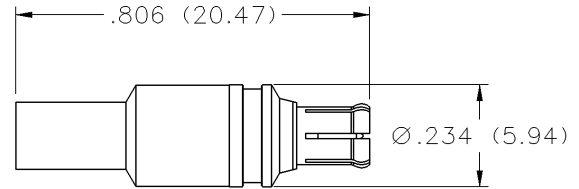


## Straight Crimp Type Plug - Solder or Crimp Captivated Contact



CABLE TYPE	GOLD PLATED
RG-179	133-8433-001
RG-179 DS	133-8434-001
Belden 735A	133-8445-001

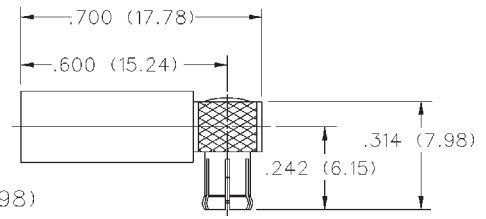
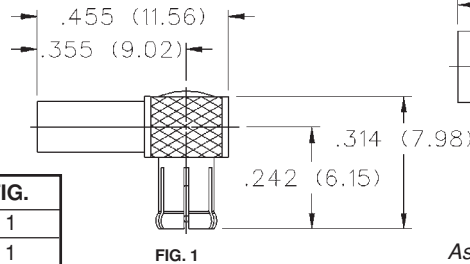
Assembly instructions page 217.  
See page 190 for Cable Assembly Tools.



## Right Angle Crimp Type Plug - Captivated Contact



CABLE TYPE	GOLD PLATED	FIG.
RG-179	133-8433-101	1
RG-179 DS	133-8434-101	1
Belden 735A	133-8445-101	2



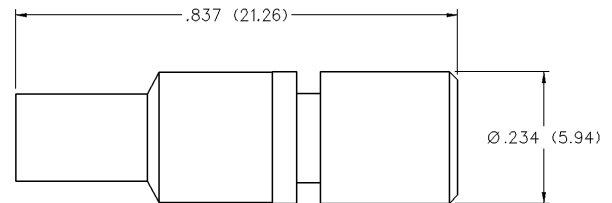
Assembly instructions page 219.  
See page 190 for Cable Assembly Tools.

## Straight Crimp Type Jack - Solder or Crimp Captivated Contact



CABLE TYPE	GOLD PLATED
RG-179	133-8333-001
RG-179DS	133-8334-001

Assembly instructions page 217.  
See page 190 for Cable Assembly Tools.

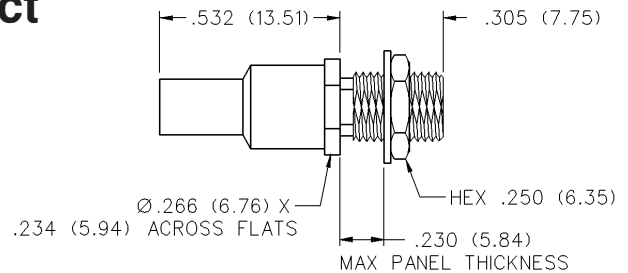


## Straight Crimp Type Bulkhead Jack - Solder or Crimp Captivated Contact



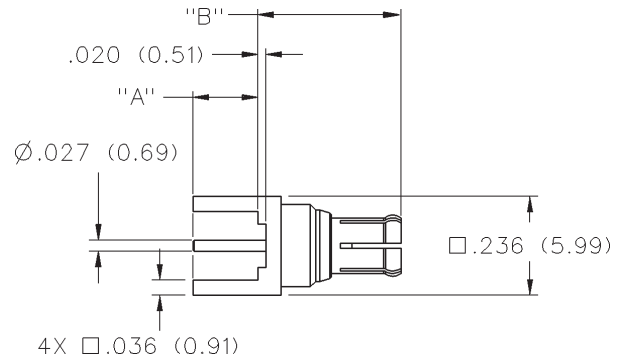
CABLE TYPE	GOLD PLATED
RG-179	133-8333-401
RG-179 DS	133-8334-401

Assembly instructions page 217.  
See page 190 for Cable Assembly Tools.  
Mounting hole layout figure 5 page 201.





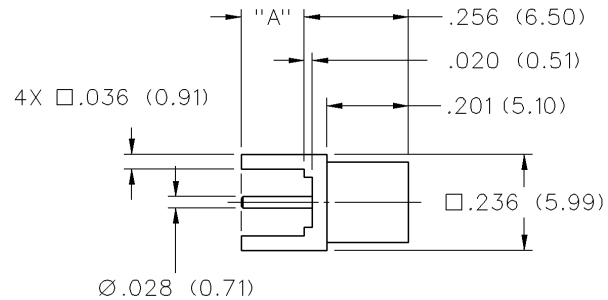
## Straight Plug Receptacle



GOLD PLATED	"A"	"B"
133-8801-201	.155 (3.80)	.343 (8.71)
133-8801-211	.110 (2.70)	.343 (8.71)
133-8801-221	.155 (3.80)	.510 (12.95)

Mounting hole layout figure 22 page 203.

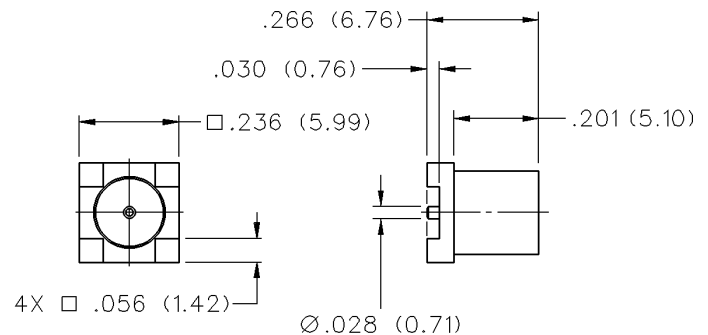
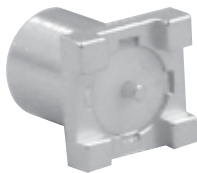
## Straight Jack Receptacle



GOLD PLATED	"A"
133-8701-201	.155 (3.80)
133-8701-211	.100 (2.54)

Mounting hole layout figure 22 page 203.

## Surface Mount Jack Receptacle



GOLD PLATED	PACKAGING
133-8711-201	Bulk Packs
133-8711-202	Tape and Reel 750 pcs/reel

Recommended Land Pattern figure 13 page 202.

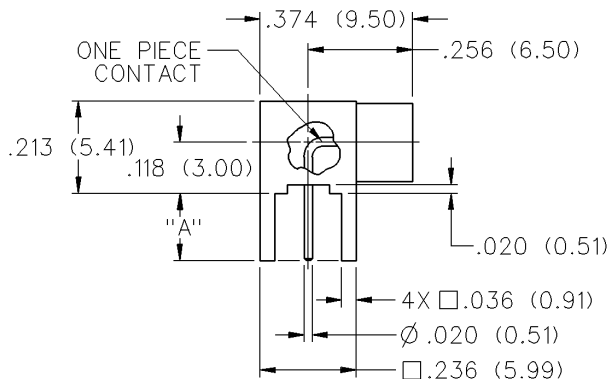
# MCX - 75 Ohm Connectors

PC Mount

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



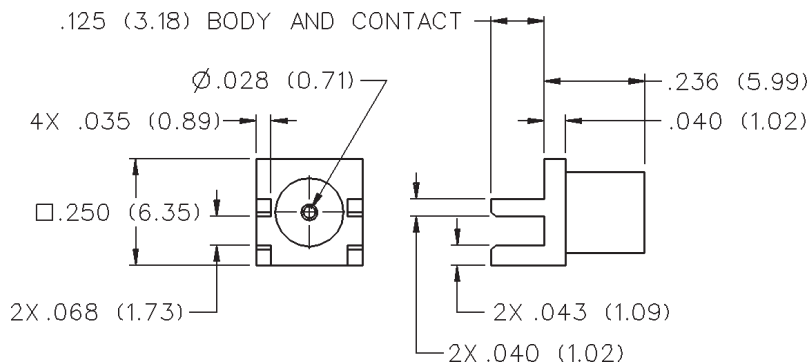
## Right Angle Jack Receptacle



GOLD PLATED	"A"
133-8701-301	.155 (3.80)
133-8701-311	.110 (2.70)

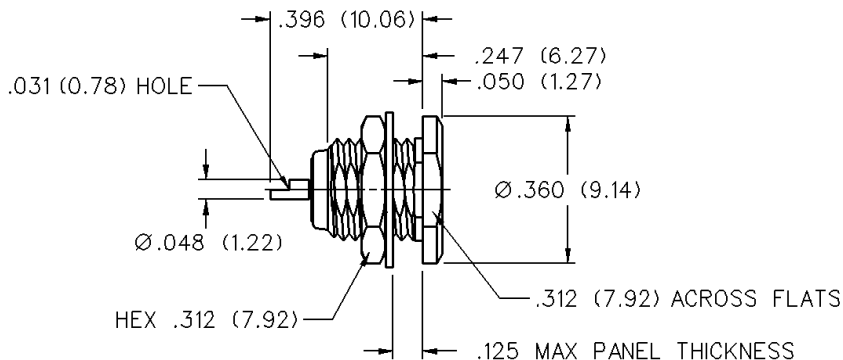
Mounting hole layout figure 3 page 201.

## End Launch Jack Receptacle



GOLD PLATED
133-8701-801

## Bulkhead Jack Receptacle



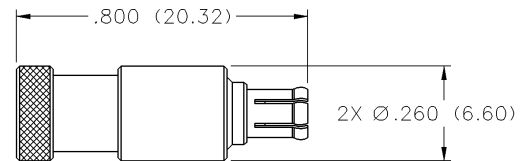
GOLD PLATED
133-8701-401

Mounting hole layout figure 1 page 201.

## Plug Precision Load



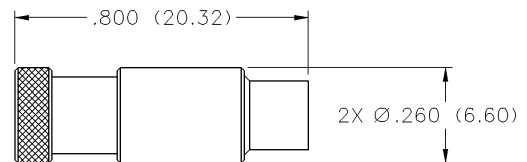
<b>VSWR &amp; FREQ. RANGE</b>	<b>GOLD PLATED</b>
1.05 + .01f (GHz) 0-6 GHz	133-8801-831



## Jack Precision Load



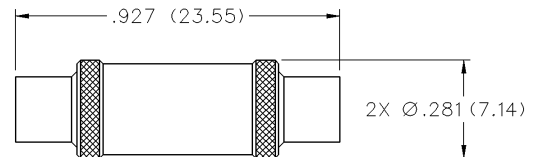
<b>VSWR &amp; FREQ. RANGE</b>	<b>GOLD PLATED</b>
1.05 + .01f (GHz) 0-6 GHz	133-8701-831



## Jack to Jack Adapter



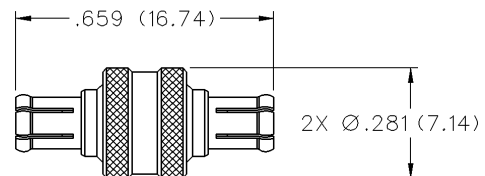
<b>GOLD PLATED</b>
133-8901-801



## Plug to Plug Adapter



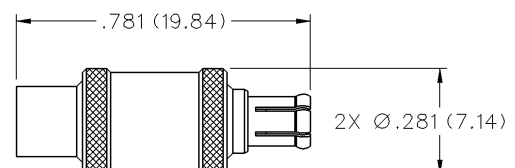
<b>GOLD PLATED</b>
133-8901-811



## Jack to Plug Adapter



<b>GOLD PLATED</b>
133-8901-821



# MCX - 75 Ohm Connectors

Between-Series Adapters

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

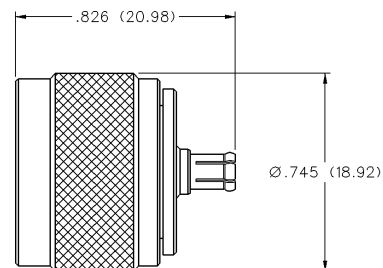


## 75 Ohm Type N Plug to 75 Ohm MCX Plug Adapter



<b>STAINLESS STEEL PASSIVATED</b>
134-1068-001

*Mating Engagement for  
75 Ohm N Series see page 113.*

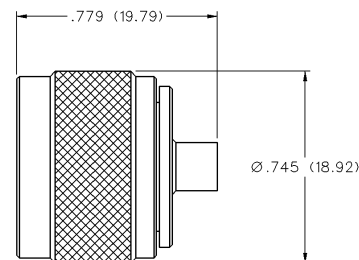


## 75 Ohm Type N Plug to 75 Ohm MCX Jack Adapter



<b>STAINLESS STEEL PASSIVATED</b>
134-1068-011

*Mating Engagement for  
75 Ohm N Series see page 113.*

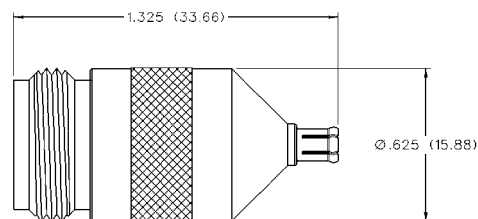


## 75 Ohm Type N Jack to 75 Ohm MCX Plug Adapter



<b>STAINLESS STEEL PASSIVATED</b>
134-1068-021

*Mating Engagement for  
75 Ohm N Series see page 113.*

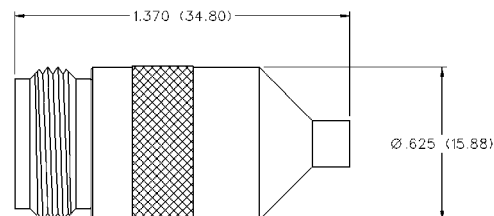


## 75 Ohm Type N Jack to 75 Ohm MCX Jack Adapter



<b>STAINLESS STEEL PASSIVATED</b>
134-1068-031

*Mating Engagement for  
75 Ohm N Series see page 113.*





## Non-Magnetic Connectors

The Johnson line of coaxial connectors utilizes innovative materials and is designed to provide Mil-Spec performance at a commercial price. Now we offer our non-magnetic connectors as a catalog and distributor item.

We have provided custom non-magnetic connectors to the Magnetic Resonance (MR) industry for years. Connector design is derived from many years of working with the MR companies.

The materials and finishes of our connectors meet the stringent limits of image and magnetic field distortion in an MR environment. The connector electrical performance exceeds the frequency requirements of the Receive/Transmit RF Coils in MR equipment.

Copper alloys of the body and contact parts are designed to provide unity, permeability and control magnetic susceptibility. Gold finishes are altered to eliminate magnetic barrier layers and provide excellent corrosion resistance and wear characteristics.

We continue to work with our customers to develop new solutions as the MR industry transitions to high field solutions and improved image resolution at greater physical depths.

# MCX Non-Magnetic RF Connectors

For Flexible Cable

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



## ELECTRICAL RATINGS

**Impedance:** 50 Ohms

**Frequency Range:** 0-6 GHz

**VSWR:** (f = GHz)

	Straight Cabled Connectors	Right Angle Cabled Connectors
RG-316 cable	1.13 + .04f	1.07 + .04f
Uncabled receptacles	N/A	

**Working Voltage:** (VRMS maximum)\*

Connectors for Cable Type	Sea Level	70K Feet
RG-316	335	85

**Dielectric Withstanding Voltage:** (VRMS minimum at sea level)

Connectors for RG-316, uncabled receptacles	1000
---	------

**Corona Level:** (Volts minimum at 70,000 feet)

Connectors for RG-316, uncabled receptacles	250
---	-----

**Insertion Loss:** (dB maximum, tested at 1 GHz)

Straight cable connectors	0.1 dB
Right angle cable connectors	0.2 dB
Uncabled receptacles	N/A

**Insulation Resistance:** 10,000 megohms minimum

**Contact Resistance:** (milliohms maximum)

	Initial	After Environmental
Center contact (straight cabled connectors, uncabled receptacles)	5.0	8.0
Center contact (right angle cabled connectors)	5.0	15.0
Outer contact	1.0	1.5
Braid to body	1.0	N/A

\*Avoid user injury due to misapplication.

See safety advisory definitions inside front cover.

**RF Leakage:** (dB typical tested at 2.5 GHz)

Cable connectors	-55
Uncabled receptacles	N/A

**RF High Potential Withstanding Voltage:**

(VRMS minimum, tested at 4 and 7 MHz)

Cabled connectors	700
Uncabled receptacles	600

## MECHANICAL RATINGS

**Engagement Design:** Compatible with CECC 22220, Series MCX

**Engagement Force:** 5.6 pounds maximum axial force

**Disengagement Force:** 8 pounds maximum axial force, 1 pound min.

**Contact Retention:** 2.3 pounds min. axial force (captivated contacts)  
1 inch-ounce min. torque (uncabled receptacles)

**Cable Retention:**

	Axial Force* (lbs)	Torque (in-oz)
Connectors for RG316	20	N/A
Connectors for RG316 DS	25	N/A

\* or cable breaking strength whichever is less.

**Durability:** 500 cycles minimum

## ENVIRONMENTAL RATINGS

(Meets or exceeds the applicable paragraph of MIL-PRF-39012)

**Temperature Range:** - 65°C to + 165°C

**Thermal Shock:** MIL-STD-202, Method 107, Condition F

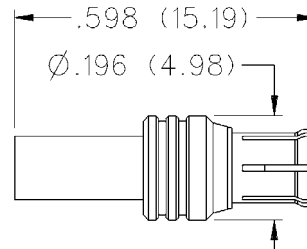
**Corrosion:** MIL-STD-202, Method 101, Condition B

**Shock:** MIL-STD-202, Method 213, Condition B

**Vibration:** MIL-STD-202, Method 204, Condition B

**Moisture Resistance:** MIL-STD-202, Method 106

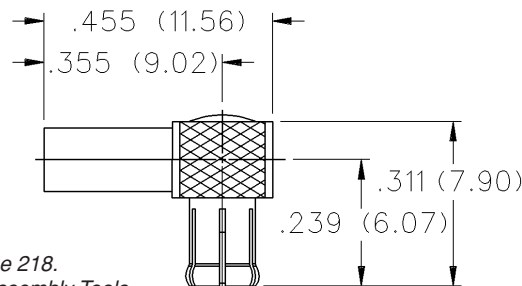
## Straight Crimp Type Plug - Solder or Crimp Contact - Captivated Contact



CABLE TYPE	GOLD PLATED
RG-316/U, 188, 174	133-9403-001
RG-316 DS, 188 DS	133-9404-001

Assembly Instructions page 216.  
See page 190 for Cable Assembly Tools.

## Right Angle Crimp Type Plug - Captivated Contact



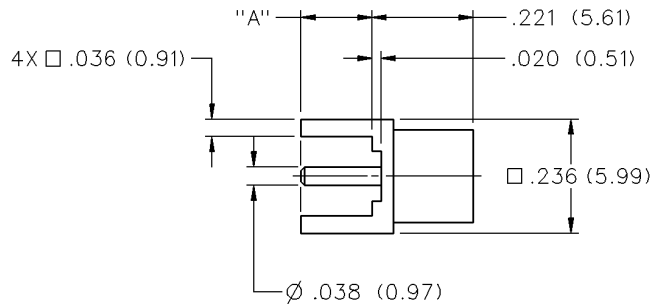
CABLE TYPE	GOLD PLATED
RG-316/U, 188, 174	133-9403-101
RG-316 DS, 188 DS	133-9404-101

Assembly Instructions page 218.  
See page 190 for Cable Assembly Tools.

## Straight Jack Receptacle



GOLD PLATED	"A"
133-9701-201	.155 (3.94)
133-9701-211	.110 (2.79)

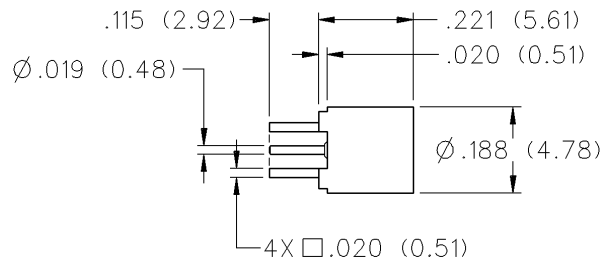


Mounting hole layout figure 4 page 201.

## Straight Jack Receptacle - .100" Layout



GOLD PLATED
133-9701-231

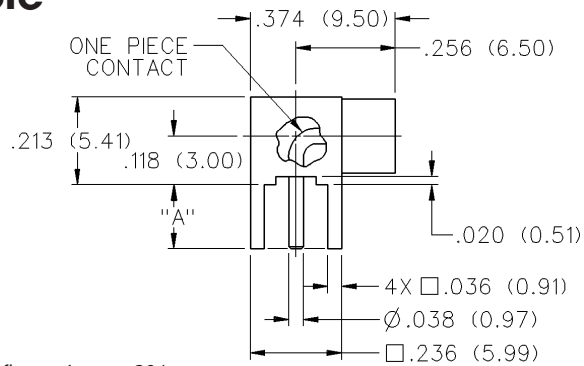


Mounting hole layout figure 14 page 202.

## Right Angle Jack Receptacle

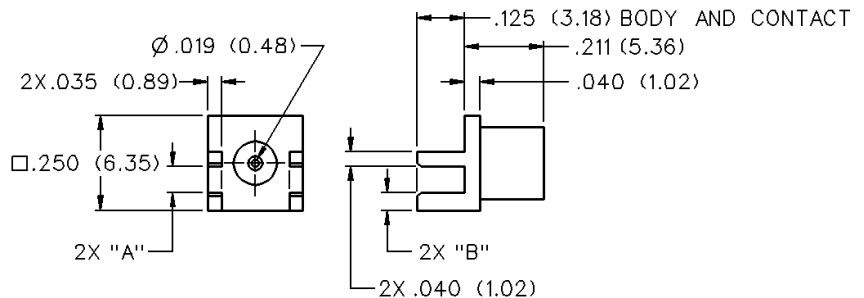


GOLD PLATED	"A"
133-9701-301	.155 (3.94)
133-9701-311	.110 (2.79)



Mounting hole layout figure 4 page 201.

## End Launch Jack Receptacle - Round Contact



GOLD PLATED	BOARD THICKNESS	"A"	"B"
133-9701-801	.062 (1.57)	.068 (1.73)	.048 (1.22)

## SMK (2.92 mm) Connectors - 50 Ohm

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## Johnson SMK (2.92mm) Connectors

The Johnson SMK Connector provides an excellent solution for demanding applications requiring high frequency transmission. Although similar to the SMA interface, a smaller internal body diameter (2.92mm) and air dielectric provide a higher cutoff frequency and other key advantages:

- Precision manufacturing allows superior electrical performance to 40 GHz.
- Female contacts have a unique three-slot construction, which enhances connectivity by creating a more rugged connector while reducing the chance of intermittent connections.
- Precise assembly tooling assures excellent, repeatable contact and support bead location on cabled connectors.
- Connector mating interface per MIL-STD-348
- Mating interface control provides consistent electrical performance.
- The plug connector VSWR is 1.20 Max to 40 GHz and a 12 inch SMK plug to plug cable assembly performs better than 1.35 VSWR to 40 GHz.
- The Field Replaceable Jacks are teamed with a high quality hermetic seal feed thru for use in sealed circuit modules.
- The SMK plug interface employs more precise dimensions than an SMA and uses a shorter snub nose male pin such that the connector bodies align before the contacts engage.



### MATERIAL SPECIFICATIONS

**Bodies:** Stainless steel per QQ-B-626, gold plated\* per MIL-G-45204 .00005" min. or passivated per MIL-F-14072 B (EL) 300

#### Contacts:

Female - beryllium copper per QQ-C-530, gold plated per MIL-G-45204 .00005" min.

**Contact Support Beads:** PTFE fluorocarbon per ASTM D 1710 and ASTM D 1457 or modified PPE resin

**Seal Rings:** Silicone rubber per ZZ-R-765

\* All gold plated parts include a .00005" min. nickel underplate barrier layer.

### MECHANICAL RATINGS

**Engagement Design:** MIL-STD-348, Series SMK (2.92mm)

**Engagement/Disengagement Force:** 2 inch-pounds maximum

**Mating Torque:** 7 to 10 inch-pounds

**Coupling Proof Torque:** 15 inch-pounds minimum

**Coupling Nut Retention:** 60 pounds minimum

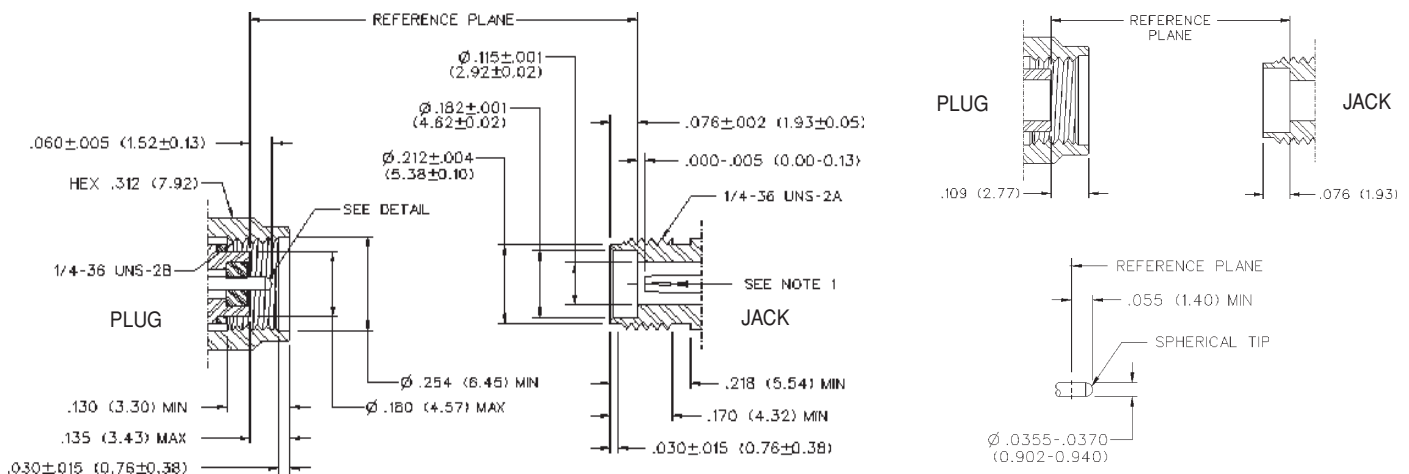
**Contact Retention:** 6 lbs. minimum axial force (captivated contacts)

Cable Retention:	Axial Force* (lbs)	Torque (in-oz)
.086 Semi-Rigid	30	16
.141 Semi-Rigid	60	55

\*Or cable breaking strength whichever is less.

**Durability:** 500 cycles minimum

### Mating Engagement for SMK (2.92mm) Series



#### Notes:

1. ID of contact shall meet VSWR and connectivity requirements when mated with dia. .0355-.0365 male pin.

# SMK - 50 Ohm Connectors

(2.92mm)

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



## ELECTRICAL RATINGS

**Impedance:** 50 ohms

**Frequency Range:** 0-40 GHz

**VSWR:** (f = GHz)

Semi-Rigid straight cabled connectors and adapters ..... 1.20 Max

Field replaceable (see typical return loss graph) ..... N/A

**Working Voltage:** (VRMS maximum)

**Connectors for Cable Type**

	Sea Level	70K Feet
.086 Semi-Rigid and field replaceable	335	85
.141 Semi-Rigid and adapters	500	125

.141 Semi-Rigid and adapters ..... 500 125

**Dielectric Withstanding Voltage:** (VRMS minimum at sea level)

.086 Semi-Rigid and field replaceable ..... 1000

.141 Semi-Rigid and adapters ..... 1500

**Corona Level:** (Volts minimum at 70,000 feet)

.086 Semi-Rigid and field replaceable ..... 250

.141 Semi-Rigid and adapters ..... 375

**Insertion Loss:** (dB maximum)

Adapters .....  $0.06\sqrt{f}$  (GHz), tested at 6 GHz

Straight Semi-Rigid cable connectors .....  $0.03\sqrt{f}$  (GHz), tested at 10 GHz

**Insulation Resistance:** 5000 megohms minimum

**Contact Resistance:** (milliohms maximum) Initial After Environmental

Center contact straight cabled connectors ... 3.0\* 4.0

Center contact adapters ..... 4.0 6.0

Field replaceable connectors ..... 6.0 8.0

Outer contact (all connectors) ..... 2.0 N/A

Body to cable (gold plated connectors) ..... 0.5 N/A

Body to cable (passivated connectors) ..... 5.0 N/A

**RF Leakage:** (dB minimum, tested at 2.5 GHz) ..... -90dB

**RF High Potential Withstanding Voltage:**

(VRMS minimum, tested at 4 and 7 MHz)=

.086 Semi-Rigid and field replaceable ..... 670

.141 Semi-Rigid and adapters ..... 1000

## ENVIRONMENTAL RATINGS

(Meets or exceeds the applicable paragraph of MIL-C-39012)

**Temperature Range:** - 65°C to + 165°C

**Thermal Shock:** MIL-STD-202, Method 107, Condition B

**Corrosion:** MIL-STD-202, Method 101, Condition B

**Shock:** MIL-STD-202, Method 213, Condition I

**Vibration:** MIL-STD-202, Method 204, Condition D

**Moisture Resistance:** MIL-STD-202, Method 106

## FIELD REPLACEABLE APPLICATION NOTES

These field replaceable connectors are easy to install and replace. The hermetic seal is mounted into the circuit module wall and the connector can be removed and replaced without destroying the hermeticity of the circuit housing.

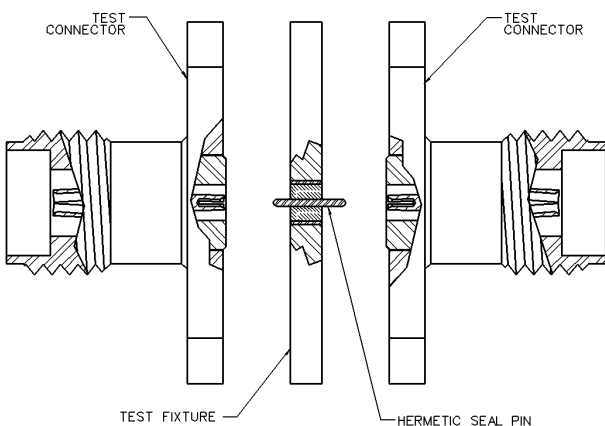
The field replaceable connector creates a transition from microstrip circuitry to a coaxial transmission line. The SMK (2.92mm) seal pin diameter is .012 (.030) to minimize the capacitive effects on the circuit trace. For optimum electrical performance, the transition from the hermetic seal to the microstrip trace must be properly compensated which involves adjusting the microstrip trace width to minimize any impedance discontinuities found in the transition area.

The plot shown below is representative of the typical return loss of a Johnson field replaceable SMK connector. To produce the data shown below, a test fixture is created using the Johnson SMK hermetic seal. The fixture consists of a suitably thick spacer plate with the hermetic seal mounted flush to both surfaces. Two connectors are mounted back to back around the fixture and the VSWR of this test assembly is measured. The calculated return loss trace shown is equivalent to the square root of the measured VSWR of the test assembly. Since the connectors tested are of identical design, it can be stated with fair accuracy that the calculated data shown represents the response of a single field replaceable connector and its transition to the hermetic seal.

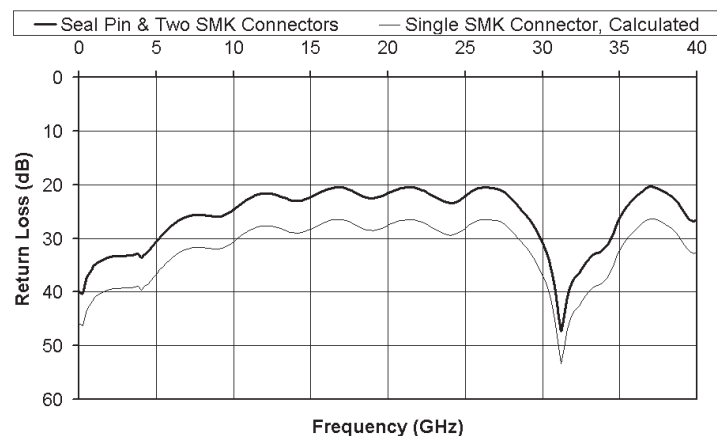
Although we do not publish a VSWR specification for field replaceable connectors, typical connector return loss can be expected to be better than 20 dB through 40 GHz. A VSWR specification is not stated because an industry standard method for testing field replaceable connectors does not exist. The actual performance of the connector is dependent upon the following:

1. For optimum electrical performance, we recommend the use of our standard 142-1000-033 hermetic seal with a pin diameter of .0120 (0.305) +/- .0005 (0.013).
2. It is recommended that the hermetic seal be mounted flush with the circuit housing. Tolerance variations between the hermetic seal and machined housing do not always guarantee an optimum transition to the connector. Some manufacturers recommend an additional counterbore in the circuit housing to accommodate a solder washer during installation of the seal. We do not recommend this type of installation because, if the counterbore is not completely filled with solder, electrical discontinuities may be created.
3. The transition between the hermetic seal pin and the microstrip trace will effect electrical performance, as stated above. Several different methods of hermetic seal mounting and seal pin to microstrip trace attachment are used in the industry.

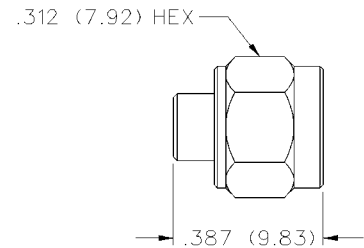
## FIELD REPLACEABLE TEST ASSEMBLY



## TYPICAL RETURN LOSS



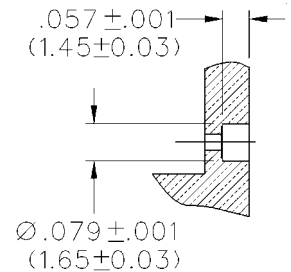
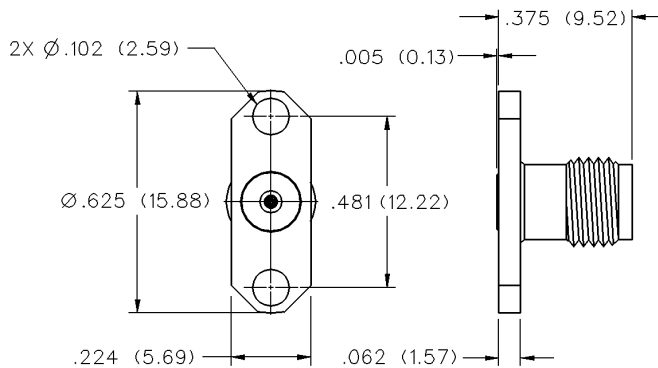
## Straight Solder Type Plug - with Contact, Slide-On Nut



CABLE TYPE	GOLD PLATED	PASSIVATED*
.086 Semi-Rigid	145-0693-001	145-0693-002
.141 Semi-Rigid	145-0694-001	145-0694-002

Assembly instructions see page 220.  
See page 193 for Cable Assembly Tools.  
\* Passivated coupling nut, gold plated body.

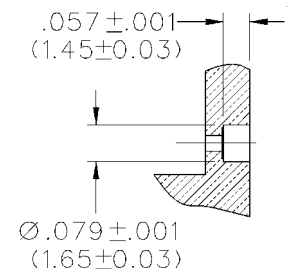
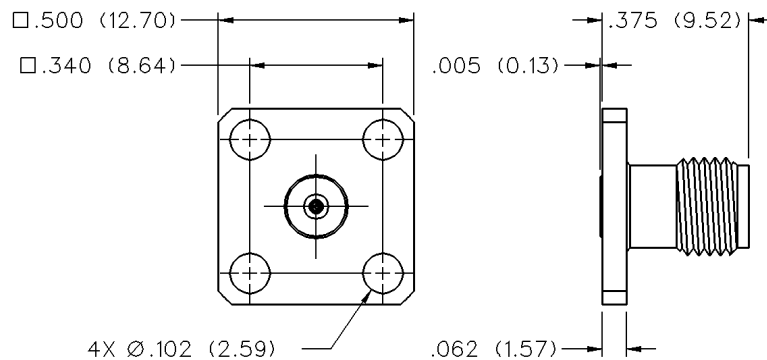
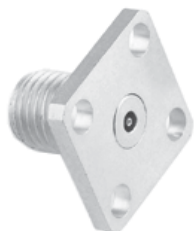
## 2-Hole Flange Mount Jack Receptacle



Mounting Hole Layout

GOLD PLATED	PASSIVATED	ACCEPTS PIN SIZE
145-0701-601	145-0701-602	.0120 +/- .0005 (0.305 +/- .013)

## 4-Hole Flange Mount Jack Receptacle



Mounting Hole Layout

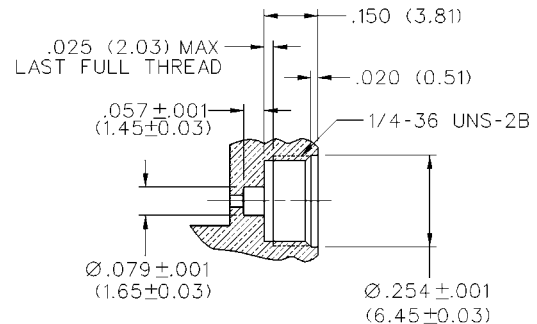
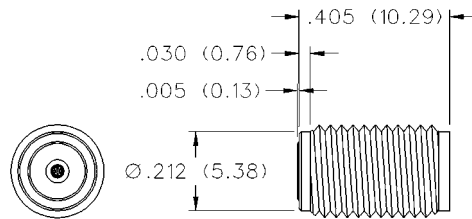
GOLD PLATED	PASSIVATED	ACCEPTS PIN SIZE
145-0701-611	145-0701-612	.0120 +/- .0005 (0.305 +/- .013)

# SMK - 50 Ohm Connectors

(2.92mm)

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

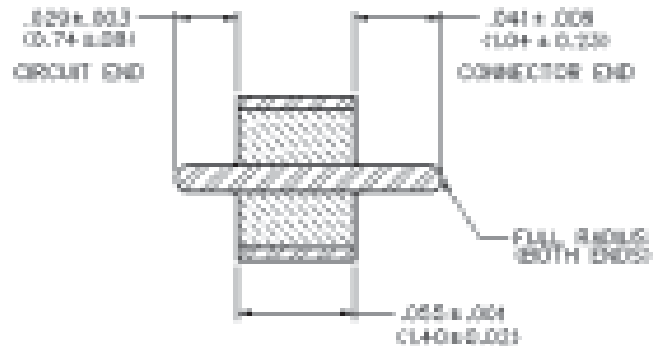
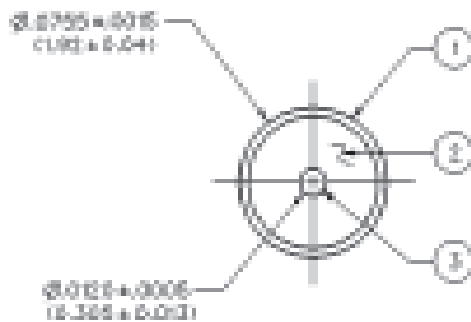
## Jack Receptacle - Thread Mount Field Replaceable



Mounting Hole Layout

GOLD PLATED	PASSIVATED	ACCEPTS PIN SIZE
145-0701-001	145-0701-002	.0120 +/- .0005 (0.305 +/- 0.013)

## Hermetic Seal Feedthru



PART NO.	ITEM 1 OUTER RING	ITEM 2 INSULATOR	ITEM 3 PIN
142-1000-033	Kovar Gold pl .00005 min. over Nickel pl .00005 min.	Glass Corning 7070 or equivalent	Kovar Gold pl .00005 min. over Nickel pl .00005 min.

### Notes:

1. The hermetic seal should be mounted as flush as possible with the housing. Excessive recession will create a high impedance air gap between connection and housing which degrades electrical performance.
2. The use of an additional counterbore to accommodate a solder ring for seal mounting is not recommended. A slight chamfer may be used if care is taken to completely fill the area with solder - **avoid air gaps.**

### Electrical:

Impedance: 50 Ohms  
 Frequency Range: DC to 40 GHz  
 VSWR: Dependent upon application  
 Working Voltage: 250 VRMS max at sea level  
 Dielectric Withstanding Voltage: 500 VRMS min. at sea level  
 Insulation Resistance: 5000 Megohm min.  
 Insertion Loss: 0.2 dB max at 40 GHz

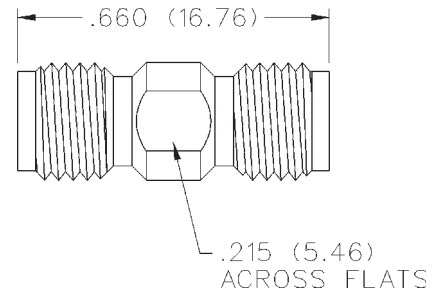
### Environmental:

Hermeticity:  $1 \times 10^{-8}$  cc/sec at one atmosphere  
 Solderability: MIL-STD-202, Method 209  
 Operating Temperature: -55° C to +165° C

## Jack to Jack In-Series Adapter



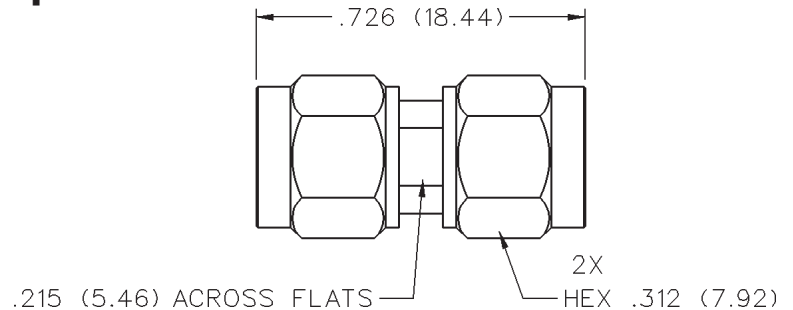
<b>GOLD PLATED</b>
145-0901-801



## Plug to Plug In-Series Adapter



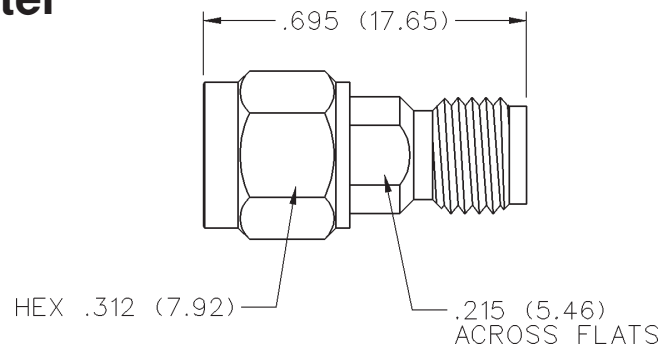
<b>GOLD PLATED</b>
145-0901-811



## Plug to Jack In-Series Adapter



<b>GOLD PLATED</b>
145-0901-821



# SMA - 50 Ohm Connectors

## Specifications

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



## ELECTRICAL RATINGS

**Impedance:** 50 Ohms

### Frequency Range:

Dummy loads .....	0-2 GHz
Flexible cable connectors .....	0-12.4 GHz
Uncabled receptacles, RA Semi-Rigid and adapters .....	0-18.0 GHz
Straight Semi-Rigid cable connectors and field replaceable connectors .....	0-26.5 GHz

**VSWR:** (f = GHz)

	Straight Cabled Connectors	Right Angle Cabled Connectors
RG-178 cable .....	1.20 + .025f	1.20 + .03f
RG-316, LMR-100 cable .....	1.15 + .02f	1.15 + .03f
RG-58, LMR-195 cable .....	1.15 + .01f	1.15 + .02f
RG-142 cable .....	1.15 + .01f	1.15 + .02f
LMR-200, LMR-240 cable .....	1.10 + .03f	1.10 + .06f
.086 Semi-Rigid .....	1.07 + .008f	1.18 + .015f
.141 Semi-Rigid (w/contact) .....	1.05 + .008f	1.15 + .015f
.141 Semi-Rigid (w/o contact) ....	1.035 + .005f	
Jack-bulkhead jack adapter and plug-plug adapter .....	1.05 + .01f	
Jack-jack adapter and plug-jack adapter .....	1.05 + .005f	
Uncabled receptacles, dummy loads .....	N/A	
Field replaceable (see page xx) .....	N/A	

**Working Voltage:** (VRMS maximum)<sup>†</sup>

	Sea Level	70K Feet
Connectors for Cable Type		
RG-178 .....	170	45
RG-316; LMR-100, 195, 200 .....	250	65
RG-58, RG-142, LMR-240, .086 Semi-Rigid, uncabled receptacles, .141 Semi-Rigid w/o contact ..	335	85
.141 Semi-Rigid with contact and adapters .....	500	125
Dummy loads .....	N/A	

### Connectors for Cable Type

	Sea Level	70K Feet
RG-178 .....	170	45
RG-316; LMR-100, 195, 200 .....	250	65
RG-58, RG-142, LMR-240, .086 Semi-Rigid, uncabled receptacles, .141 Semi-Rigid w/o contact ..	335	85
.141 Semi-Rigid with contact and adapters .....	500	125
Dummy loads .....	N/A	

### Dielectric Withstanding Voltage:

 (VRMS minimum at sea level)<sup>†</sup>

Connectors for RG-178 .....	500
Connectors for RG-316; LMR-100, 195, 200 .....	750
Connectors for RG-58, RG-142, LMR-240, .086 Semi-Rigid, field replaceable, uncabled receptacles .....	1000
Connectors for .141 Semi-Rigid with contact and adapters .....	1500
Connectors for .141 Semi-Rigid w/o contact, dummy loads .....	N/A

### Corona Level:

 (Volts minimum at 70,000 feet)<sup>†</sup>

Connectors for RG-178 .....	125
Connectors for RG-316; LMR-100, 195, 200 .....	190
Connectors for RG-58, RG-142, LMR-240, .086 Semi-Rigid, uncabled receptacles, .141 Semi-Rigid w/o contact .....	250
Connectors for .141 Semi-Rigid with contact and adapters .....	375
Dummy loads .....	N/A

### Insertion Loss:

 (dB maximum)

Straight flexible cable connectors and adapters .....	$0.06\sqrt{f}$ (GHz), tested at 6 GHz
Right angle flexible cable connectors .....	$0.15\sqrt{f}$ (GHz), tested at 6 GHz
Straight Semi-Rigid cable connectors with contact .....	$0.03\sqrt{f}$ (GHz), tested at 10 GHz
Right angle Semi-Rigid cable connectors .....	$0.05\sqrt{f}$ (GHz), tested at 10 GHz
Straight Semi-Rigid cable connectors w/o contact .....	$0.03\sqrt{f}$ (GHz), tested at 16 GHz
Straight low loss flexible cable connectors .....	$0.06\sqrt{f}$ (GHz), tested at 1 GHz
Right Angle low loss flexible cable connectors .....	$0.15\sqrt{f}$ (GHz), tested at 1 GHz
Uncabled receptacles, field replaceable, dummy loads .....	N/A

### Insulation Resistance:

 5000 megohms minimum

### Contact Resistance:

 (milliohms maximum)

	Initial	After Environmental
Center contact (straight cabled connectors and uncabled receptacles) .....	3.0*	4.0*
Center contact (right angle cabled connectors and adapters) .....	4.0	6.0
Field replaceable connectors .....	6.0	8.0
Outer contact (all connectors) .....	2.0	N/A
Braid to body (gold plated connectors) .....	0.5	N/A
Braid to body (nickel plated connectors) .....	5.0	N/A

\*N/A where the cable center conductor is used as a contact

### RF Leakage:

 (dB minimum, tested at 2.5 GHz)

Flexible cable connectors, adapters and .141 Semi-Rigid connectors w/o contact .....	-60 dB
Field replaceable w/o EMI gasket .....	-70 dB
.086 Semi-Rigid connectors and .141 Semi-Rigid connectors with contact, and field replaceable with EMI Gasket .....	-90 dB
Two-way adapters .....	-90 dB
Uncabled receptacles, dummy loads .....	N/A

### RF High Potential Withstanding Voltage:

(VRMS minimum, tested at 4 and 7 MHz)<sup>†</sup>

Connectors for RG-178 .....	335
Connectors for RG-316; LMR-100, 195, 200 .....	500
Connectors for RG-58, RG-142, LMR-240, .086 Semi-Rigid, .141 Semi-Rigid cable w/o contact, uncabled receptacles .....	670
Connectors for .141 Semi-Rigid with contact and adapters ....	1000

**Power Rating (Dummy Load):** 0.5 watt @ + 25°C, derated to 0.25 watt @ +125°C

## MECHANICAL RATINGS

**Engagement Design:** MIL-C-39012, Series SMA

**Engagement/Disengagement Force:** 2 inch-pounds maximum

**Mating Torque:** 7 to 10 inch-pounds

**Bulkhead Mounting Nut Torque:** 15 inch-pounds

**Coupling Proof Torque:** 15 inch-pounds minimum

**Coupling Nut Retention:** 60 pounds minimum

### Contact Retention:

6 lbs. minimum axial force (captivated contacts)

4 inch-ounce minimum torque (uncabled receptacles)

### Cable Retention:

	Axial Force* (lbs)	Torque (in-oz)
Connectors for RG-178 .....	10	N/A
Connectors for RG-316, LMR-100 .....	20	N/A
Connectors for LMR-195, 200 .....	30	N/A
Connectors for RG-58, LMR-240 .....	40	N/A
Connectors for RG-142 .....	45	N/A
Connectors for .086 Semi-Rigid .....	30	16
Connectors for .141 Semi-Rigid .....	60	55

\*Or cable breaking strength whichever is less.

### Durability:

 500 cycles minimum

100 cycles minimum for .141 Semi-Rigid connectors w/o contact

## ENVIRONMENTAL RATINGS

 (Meets or exceeds the applicable paragraph of MIL-C-39012)

**Temperature Range:** - 65°C to + 165°C

**Thermal Shock:** MIL-STD-202, Method 107, Condition B

**Corrosion:** MIL-STD-202, Method 101, Condition B

**Shock:** MIL-STD-202, Method 213, Condition I

**Vibration:** MIL-STD-202, Method 204, Condition D

**Moisture Resistance:** MIL-STD-202, Method 106

<sup>†</sup>Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

## MATERIAL SPECIFICATIONS

**Bodies:** Brass per QQ-B-626, gold plated\* per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

**Contacts:** Male - brass per QQ-B-626, gold plated per MIL-G-45204 .00003" min.

Female - beryllium copper per QQ-C-530, gold plated per MIL-G-45204 .00003" min.

**Nut Retention Spring:** Beryllium copper per QQ-C-533. Unplated

**Insulators:** PTFE fluorocarbon per ASTM D 1710 and ASTM D 1457 or Tefzel per ASTM D 3159 or PFA 340 per ASTM D 3307

**Expansion Caps:** Brass per QQ-B-613, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

**Crimp Sleeves:** Copper per WW-T-799 or brass per QQ-B-613, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

**Mounting Hardware:** Brass per QQ-B-626 or QQ-B-613, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

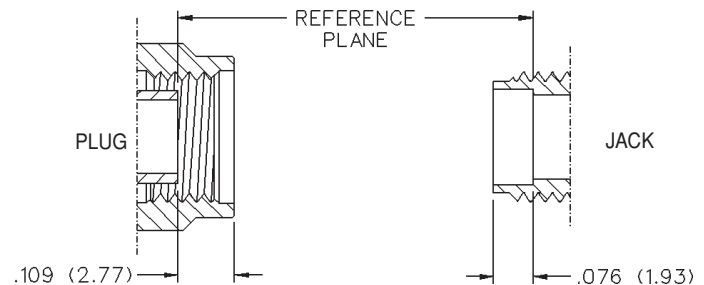
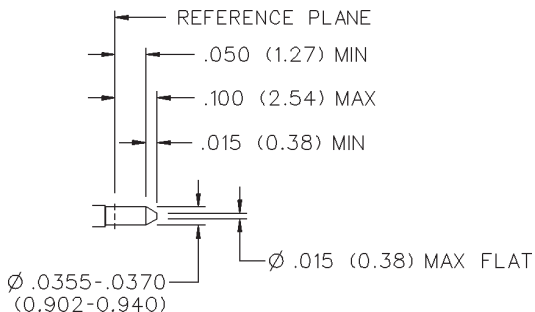
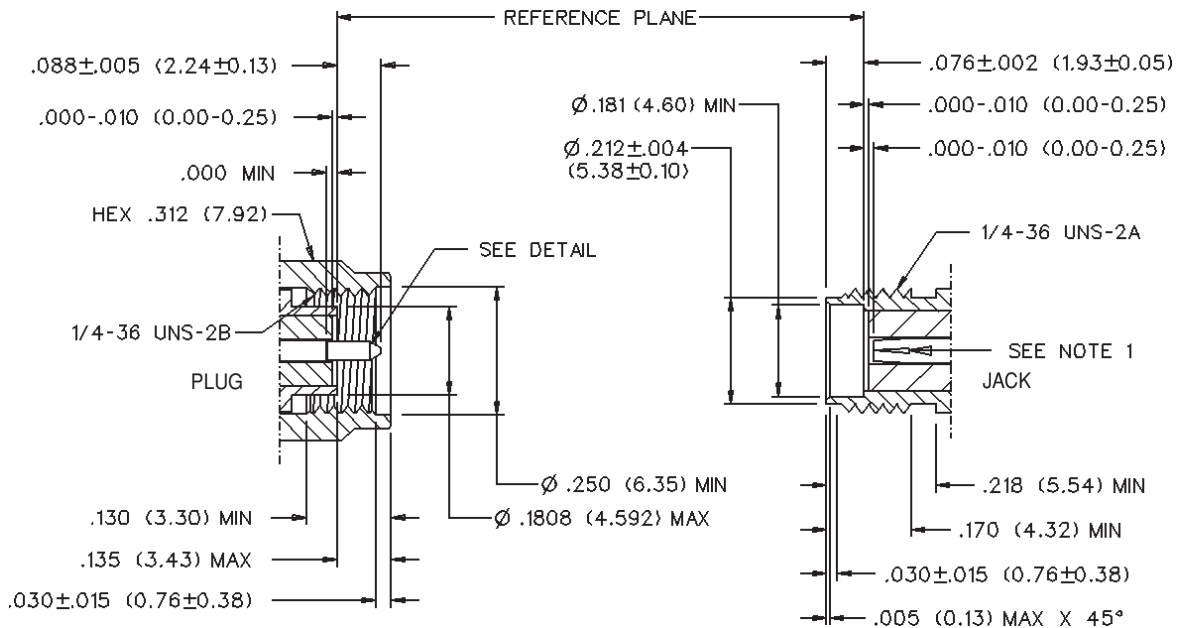
**Seal Rings:** Silicone rubber per ZZ-R-765

**EMI Gaskets:** Conductive silicone rubber per MIL-G-83528, Type M

\* All gold plated parts include a .00005" min. nickel underplate barrier layer.

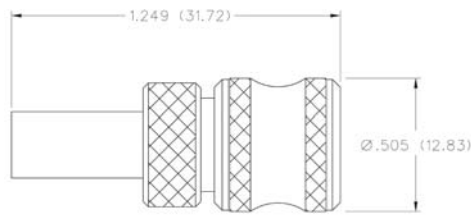
## Mating Engagement for SMA Series

1. ID TO MEET VSWR, CONTACT RESISTANCE AND INSERTION WITHDRAWAL FORCES WHEN MATED WITH A DIA .0355-.0370 PIN.



### NOTES

1. ID of contact to meet VSWR, contact resistance and insertion withdrawal forces when mated with dia .0355-.0370 male pin.

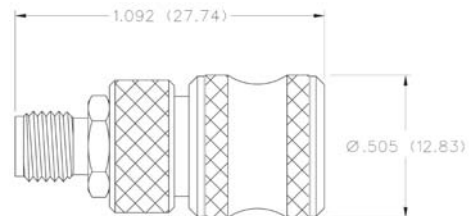
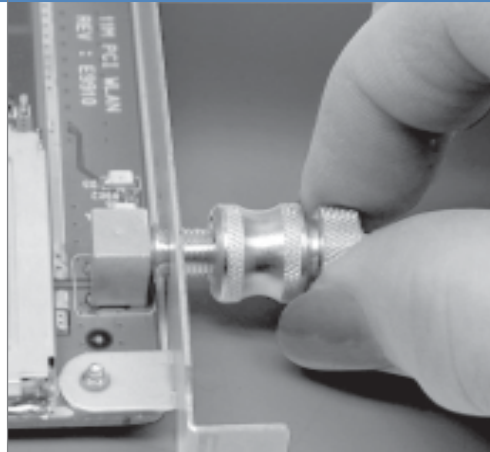


The Johnson SMA **Quick-Connect** Plug quickly mates to a standard, threaded SMA Jack receptacle allowing rapid test connections to devices utilizing SMA threaded jacks.

SMA electrical performance is not compromised because the connector retains all the benefits of a threaded coaxial coupling. The final connection is a solid metal to metal coupling not relying on spring forces to maintain the coupling. This results in a more reliable connection with less signal leakage and a lower VSWR than most push-on connectors.

Full Mil-C-39012 electrical compatibility is obtained with a push and twist motion. The knurled thumbnut requires only one half to one full turn to create a solid electromechanical connection. Rapid disconnect is accomplished with a twist and pull motion.

The SMA **Quick-Connect** Plug Adapter converts a standard SMA Plug test cable into a **Quick-Connect** cable. This makes the testing process more efficient by reducing the time and effort required to connect and disconnect the test cable.



## SMA Quick-Connect Product Family

PLUGS		
CABLE TYPE	VSWR & FREQ. RANGE	GOLD PLATED*
RG-161/U, 174, 188, 316	1.15 +.02f (GHz) 0-12.4 GHz	142-1403-001
RG-188 DS, RG-316 DS	1.15 +.02f (GHz) 0-12.4 GHz	142-1404-001
RG-58/U, 141, 303	1.15 +.01f (GHz) 0-12.4 GHz	142-1407-001
RG-55/U, 142, 223, 400	1.15 +.01f (GHz) 0-12.4 GHz	142-1408-001

ADAPTER	
VSWR & FREQ. RANGE	GOLD PLATED*
1.05 +.005f (GHz) 0-18 GHz	142-1901-821

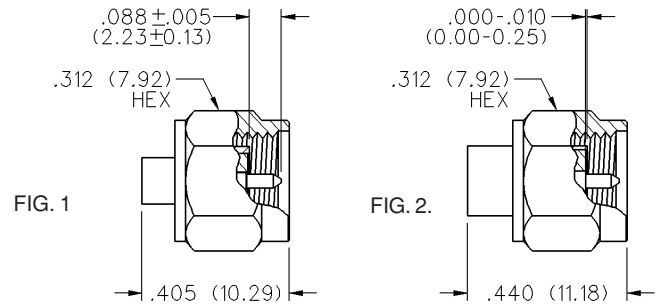
\*Nickel plated coupling hardware, gold plated body

Assembly instructions page 229.

See page 190 for Cable Assembly Tools.



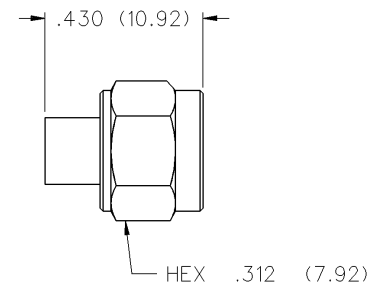
## Straight Solder Type Plug - with Contact, Captive Nut Thin Wall Connector Interface for .141 Cable



CABLE TYPE	VSWR & FREQ. RANGE	GOLD PLATED	NICKEL PLATED	FIG.
.086 Semi-Rigid	1.07 + .008f (0-18 GHz) 1.35 Max (18-26.5 GHz)	142-0693-001	142-0693-006	1
.141 Semi-Rigid	1.05+.008f (0-26.5 GHz)	142-0694-001*	142-0694-006*	2

Assembly instructions page 222. \*Mating torque 8 inch-pounds maximum, coupling proof torque 8 in-lb max.

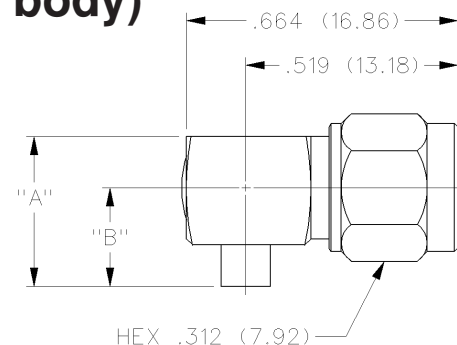
## Straight Solder Type Plug - without Contact, Thread-on Nut



CABLE TYPE	VSWR & FREQ. RANGE	GOLD PLATED	NICKEL PLATED
.141 Semi-Rigid	1.035 + .005f (0-26.5 GHz)	142-0694-011	142-0694-016

Assembly instructions page 223. Center conductor of cable serves as contact.

## Right Angle Solder Type Plug (1-piece body)



CABLE TYPE	VSWR & FREQ. RANGE	GOLD PLATED	NICKEL PLATED	"A"	"B"
.086 Semi-Rigid	1.18 +.015f (0-12.4 GHz) 1.15 +.04f (12.4-18 GHz)	142-0693-101	142-0693-106	.336 (8.53)	.253 (6.43)
.141 Semi-Rigid	1.15 +.015f (0-12.4 GHz) 1.15 +.04f (12.4-18 GHz)	142-0694-101	142-0694-106	.462 (11.73)	.306 (7.77)

Assembly instructions page 221.

# SMA - 50 Ohm Connectors

For Semi-Rigid Cable

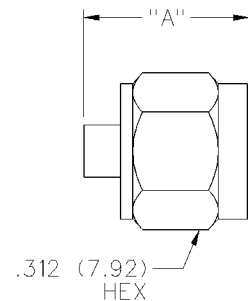
INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

## Straight Solder Type Plug - with Contact, Thread-on Nut



Assembly instructions page 226.

CABLE TYPE	VSWR & FREQ. RANGE	GOLD PLATED	NICKEL PLATED	"A"
.086 Semi-Rigid	1.07 + .008f (0-18 GHz) 1.35 Max (18-26.5 GHz)	142-0693-051	142-0693-056	.405 (10.29)
.141 Semi-Rigid	1.05+.008f (GHz) 0-26.5 GHz	142-0694-051	142-0694-056	.438 (11.13)



## Straight Solder Type Plug - Short Profile - without Contact, Captive Nut

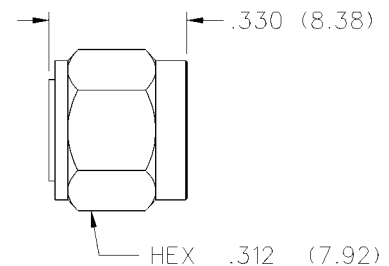


CABLE TYPE	VSWR & FREQ. RANGE	GOLD PLATED	NICKEL PLATED
.141 Semi-Rigid	1.035 + .005f (GHz) 0-26.5 GHz	142-0694-031	142-0694-036

Assembly instructions page 225.

Center conductor of cable serves as contact.

See page 192 for coupling nut assembly tool.



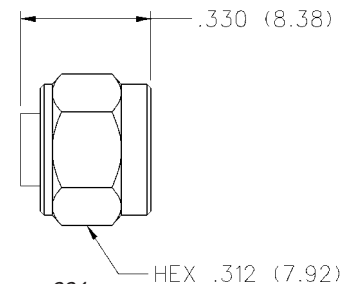
## Straight Solder Type Plug - without Contact, Slide-on Nut



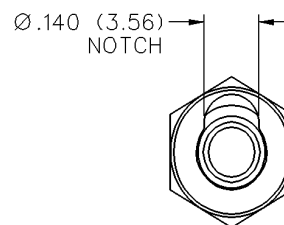
CABLE TYPE	VSWR & FREQ. RANGE	GOLD PLATED	NICKEL PLATED
.141 Semi-Rigid	1.035 + .005f (GHz) 0-26.5 GHz	142-0694-021	142-0694-026

Assembly instructions page 224.

Center conductor of cable serves as contact.



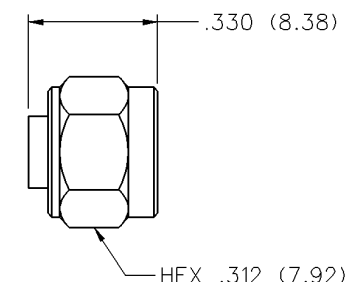
## Straight Solder Type Plug - without Contact, Slide-on Notched Nut



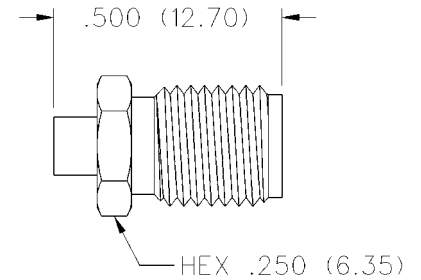
CABLE TYPE	VSWR & FREQ. RANGE	GOLD PLATED	NICKEL PLATED
.141 Semi-Rigid	1.035 + .005f (GHz) 0-26.5 GHz	142-0694-041	142-0694-046

Assembly instructions page 224.

Center conductor of cable serves as contact.



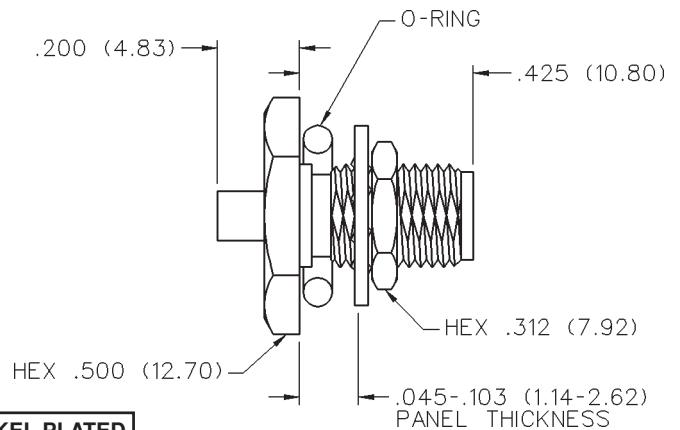
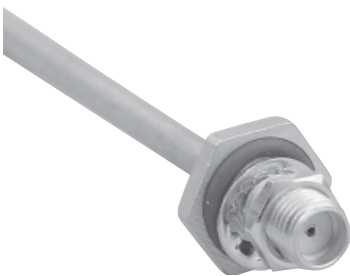
## Straight Solder Type Jack



CABLE TYPE	VSWR & FREQ. RANGE	GOLD PLATED	NICKEL PLATED
.086 Semi-Rigid	0-18 GHz: 1.07 + .008f (GHz) 26.5 GHz: 1.35 Max	142-0593-001	142-0593-006
.141 Semi-Rigid	0-26.5 GHz: 1.05+.008f (GHz)	142-0594-001	142-0594-006

Assembly instructions page 222.

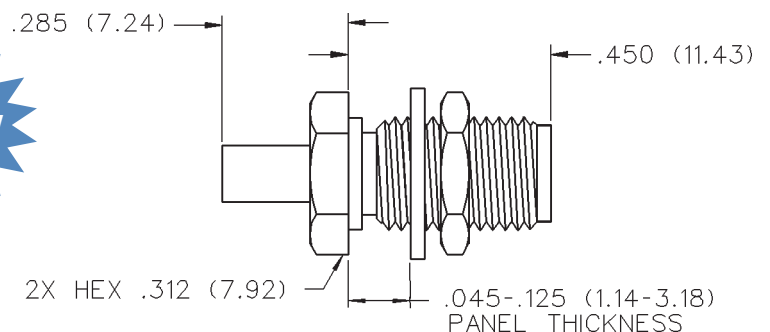
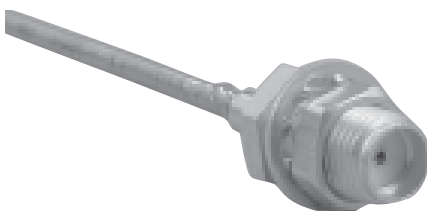
## Straight Solder Type Bulkhead Jack with O-Ring



CABLE TYPE	VSWR & FREQ. RANGE	GOLD PLATED	NICKEL PLATED
.086 Semi-Rigid	0-18 GHz: 1.07 + .008f (GHz) 26.5 GHz: 1.35 Max	142-0593-401	142-0593-406
.141 Semi-Rigid	0-26.5 GHz: 1.05+.008f (GHz)	142-0594-401	142-0594-406

Assembly Instructions page 222.  
Mounting hole layout figure 1 page 201.

## Straight Solder Type Bulkhead Jack



CABLE TYPE	VSWR & FREQ. RANGE	GOLD PLATED
.086 Semi-Rigid	0-18 GHz: 1.20 + .025f (GHz)	142-0593-411

Assembly Instructions page 222.  
Mounting hole layout figure 1 page 201.

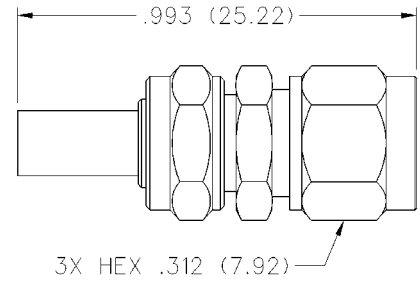
# SMA - 50 Ohm Connectors

For Flexible Cable

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



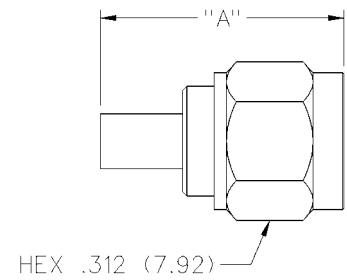
## Straight Crimp Type Plug - Captivated Contact



CABLE TYPE	VSWR & FREQ. RANGE	GOLD PLATED	NICKEL PLATED
RG-161/U, 174,188, 316	1.15 + .02f (GHz) 0-12.4 GHz	142-0403-001	142-0403-006

Assembly instructions page 231.  
See page 190 for Cable Assembly Tools.

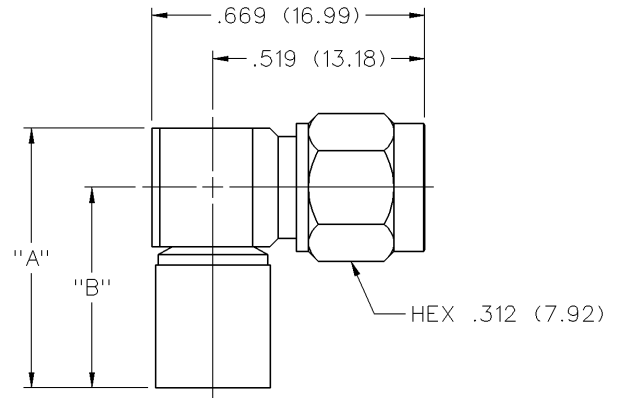
## Straight Crimp Type Plug (3-piece) - Solder or Crimp Captivated Contact



CABLE TYPE	VSWR & FREQ. RANGE	GOLD PLATED	NICKEL PLATED	"A"
RG-178/U, 196	1.20 + .025f (GHz) 0-12.4 GHz	142-0402-011	142-0402-016	.591 (15.01)
RG-161/U, 174,188, 316, LMR-100, HPF-100, RF-100	1.15 + .02f (GHz) 0-12.4 GHz	142-0403-011	142-0403-016	.706 (17.93)
RG-188 DS, RG-316 DS	1.15 + .02f (GHz) 0-12.4 GHz	142-0404-011	142-0404-016	.706 (17.93)
RG-58/U, 141, 303, LMR-195, HPF-195, RF-195	1.15 + .01f (GHz) 0-12.4 GHz	142-0407-011	142-0407-016	.706 (17.93)
RG-55/U, 142, 223, 400	1.15 + .01f (GHz) 0-12.4 GHz	142-0408-011	142-0408-016	.706 (17.93)
RG-179/U, 187	N/A	142-0433-011	142-0433-016	.706 (17.93)
LMR-200, HPF-200, RF-200	1.10 + .03f (GHz) 0-12.4 GHz	142-0439-001	142-0439-006	.844 (21.44)
LMR-240, HPF-240, RF-240	1.10 + .03f (GHz) 0-12.4 GHz	142-0435-001	142-0435-006	.844 (21.44)

Assembly instructions: RG-178 page 228.  
LMR 195, 200 and 240, see page 230.  
Other cable groups, see page 229.  
See page 190 for Cable Assembly Tools.

## Right Angle Crimp Type Plug - Captivated Contact



CABLE TYPE	VSWR & FREQ. RANGE	GOLD PLATED	NICKEL PLATED	"A"	"B"
RG-178/U, 196	1.20 + .03f (GHz) 0-12.4 GHz	142-0402-101	142-0402-106	.611 (15.52)	.470 (11.94)
R-161/U, 174,188, 316	1.15 + .03f (GHz) 0-12.4 GHz	142-0403-101	142-0403-106	.611 (15.52)	.470 (11.94)
RG-188 DS, RG-316 DS	1.15 + .03f (GHz) 0-12.4 GHz	142-0404-101	142-0404-106	.611 (15.52)	.470 (11.94)
RG-58/U, 141, 303	1.15 + .02f (GHz) 0-12.4 GHz	142-0407-101	142-0407-106	.611 (15.52)	.470 (11.94)
RG-55/U, 142, 223, 400	1.15 + .02f (GHz) 0-12.4 GHz	142-0408-101	142-0408-106	.611 (15.52)	.470 (11.94)
RG-179/U, 187	N/A	142-0433-101	142-0433-106	.611 (15.52)	.470 (11.94)
LMR-100, HPF-100, RF-100	1.15 + .03f (GHz) 0-12.4 GHz	142-0403-101	142-0403-106	.611 (15.52)	.470 (11.94)
LMR-195, HPF-195, RF-195	1.15 + .02f (GHz) 0-12.4 GHz	142-0407-101	142-0407-106	.611 (15.52)	.470 (11.94)
LMR-200, HPF-200, RF-200	1.10 + .06f (GHz) 0-12.4 GHz	142-0439-101	142-0439-106	.611 (15.52)	.470 (11.94)
LMR-240, HPF-240, RF-240	1.10 + .06f (GHz) 0-12.4 GHz	142-0435-101	142-0435-106	.635 (16.13)	.490 (12.45)

Assembly instructions: LMR 195, 200 and 240 page 233.

Other cable groups, see page 232.

See page 190 for Cable Assembly Tools.

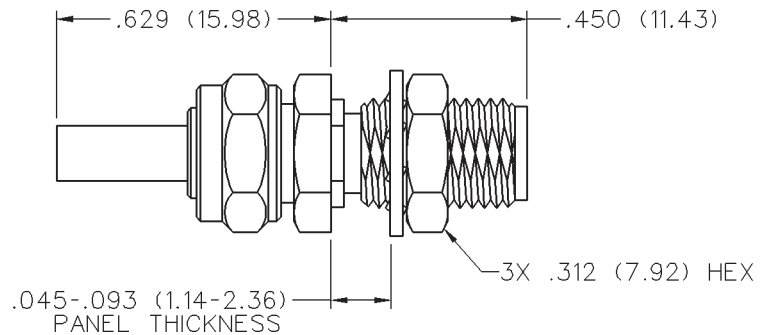
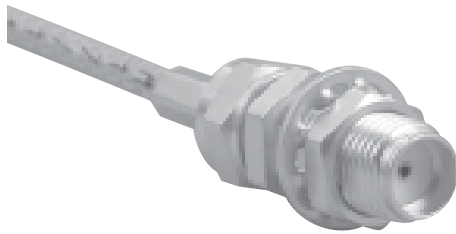
# SMA - 50 Ohm Connectors

For Flexible Cable

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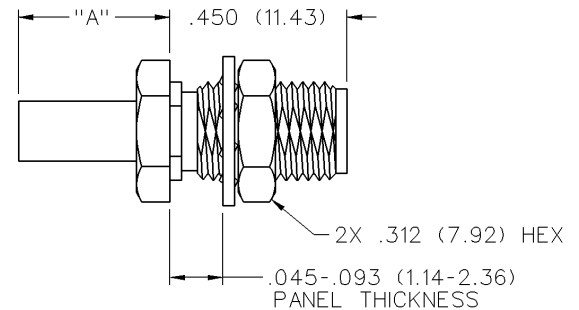
## Straight Crimp Type Bulkhead Jack - Captivated Contact



CABLE TYPE	VSWR & FREQ. RANGE	GOLD PLATED	NICKEL PLATED
RG-178/U, 196	1.20 + .025f (GHz) 0-12.4 GHz	142-0302-401	142-0302-406
RG-161/U, 174,188, 316	1.15 + .02f (GHz) 0-12.4 GHz	142-0303-401	142-0303-406
RG-188 DS, RG-316 DS	1.15 + .02f (GHz) 0-12.4 GHz	142-0304-401	142-0304-406
RG-58/U, 141, 303	1.15 + .01f (GHz) 0-12.4 GHz	142-0307-401	142-0307-406
RG-55/U, 142, 223, 400	1.15 + .01f (GHz) 0-12.4 GHz	142-0308-401	142-0308-406

Assembly instructions page 231.  
Mounting Hole layout figure 1 page 201.  
See page 190 for Cable Assembly Tools.

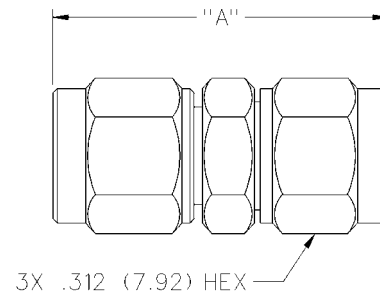
## Straight Crimp Type Bulkhead Jack (3-piece) - Solder or Crimp Captivated Contact



CABLE TYPE	VSWR & FREQ. RANGE	GOLD PLATED	NICKEL PLATED	"A"
RG-178/U, 196	1.20 + .025f (GHz) 0-12.4 GHz	142-0302-431	142-0302-436	.285 (7.24)
RG-161/U, 174, 188, 316, LMR-100, HPF-100, RF-100	1.15 + .02f (GHz) 0-12.4 GHz	142-0303-411	142-0303-416	.385 (9.78)
RG-188 DS, RG-316 DS	1.15 + .02f (GHz) 0-12.4 GHz	142-0304-411	142-0304-416	.385 (9.78)
RG-58/U, 141, 303, LMR-195, HPF-195, RF-195	1.15 + .01f (GHz) 0-12.4 GHz	142-0307-411	142-0307-416	.385 (9.78)
RG-55/U, 142, 223, 400	1.15 + .01f (GHz) 0-12.4 GHz	142-0308-411	142-0308-416	.385 (9.78)
RG-179/U, 187	N/A	142-0333-411	142-0333-416	.385 (9.78)
LMR-200, HPF-200, RF-200	1.10 + .03f (GHz) 0-12.4 GHz	142-0339-401	142-0339-406	.545 (13.84)
LMR-240, HPF-240, RF-240	1.10 + .03f (GHz) 0-12.4 GHz	142-0335-401	142-0335-406	.545 (13.84)

RG-178 cable group assembly instructions page 228. LMR cables, see page 230. Other cable sizes page 229. Mounting hole layout figure 1 page 201. See page 190 for Cable Assembly Tools.

## Straight Clamp Type Plug - Captivated Contact



CABLE TYPE	VSWR & FREQ. RANGE	GOLD PLATED	NICKEL PLATED	"A"
RG-178/U, 196	1.20 + .025f (GHz) 0-12.4 GHz	142-0202-011	142-0202-016	.816 (20.73)
RG-161/U, 174, 188, 316	1.15 + .02f (GHz) 0-12.4 GHz	142-0203-011	142-0203-016	.816 (20.73)
RG-58/U, 141, 303, 55, 142, 223, 400	1.15 + .01f (GHz) 0-12.4 GHz	142-0207-011	142-0207-016	.895 (22.73)

Assembly instructions page 234.

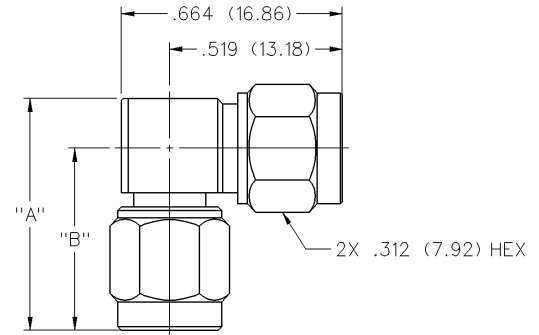
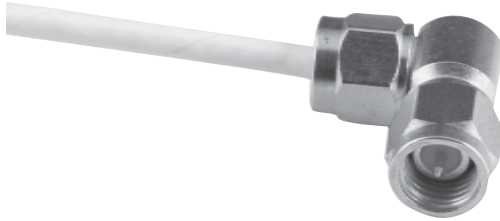
# SMA - 50 Ohm Connectors

For Flexible Cable

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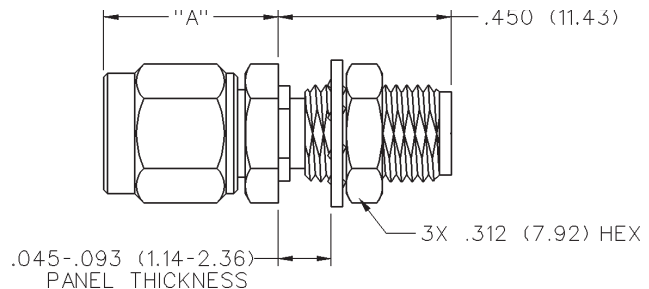
## Right Angle Clamp Type Plug - Captivated Contact



CABLE TYPE	VSWR & FREQ. RANGE	GOLD PLATED	NICKEL PLATED	"A"	"B"
RG-178/U, 196	1.20 + .03f (GHz) 0-12.4 GHz	142-0202-101	142-0202-106	.569 (14.45)	.428 (10.81)
RG-161/U, 174, 188, 316	1.15 + .03f (GHz) 0-12.4 GHz	142-0203-101	142-0203-106	.574 (14.58)	.433 (11.00)
RG-58/U, 141, 303, 55, 142, 223, 400	1.15 + .02f (GHz) 0-12.4 GHz	142-0207-101	142-0207-106	.686 (17.42)	.545 (13.84)

Assembly instructions page 235.

## Straight Clamp Type Bulkhead Jack - Captivated Contact

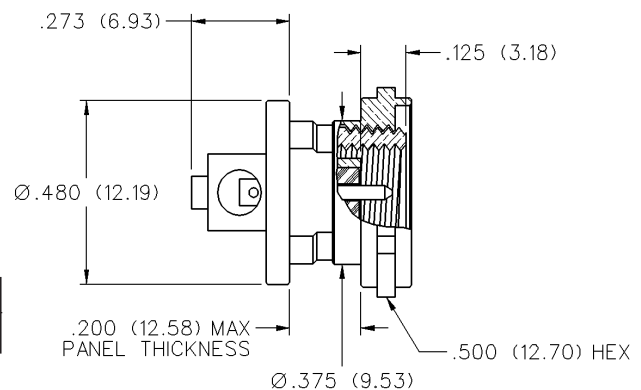


CABLE TYPE	VSWR & FREQ. RANGE	GOLD PLATED	NICKEL PLATED	"A"
RG-178/U, 196	1.20 + .025f (GHz) 0-12.4 GHz	142-0102-401	142-0102-406	.452 (11.48)
RG-161/U, 174, 188, 316	1.15 + .02f (GHz) 0-12.4 GHz	142-0103-401	142-0103-406	.487 (12.37)
RG-58/U, 141, 303, 55, 142, 223, 400	1.15 + .01f (GHz) 0-12.4 GHz	142-0107-401	142-0107-406	.531 (13.49)

Assembly instructions page 234.

Mounting hole layout figure 1 page 201.

## Rear Mount Bulkhead Plug - Antenna Connector



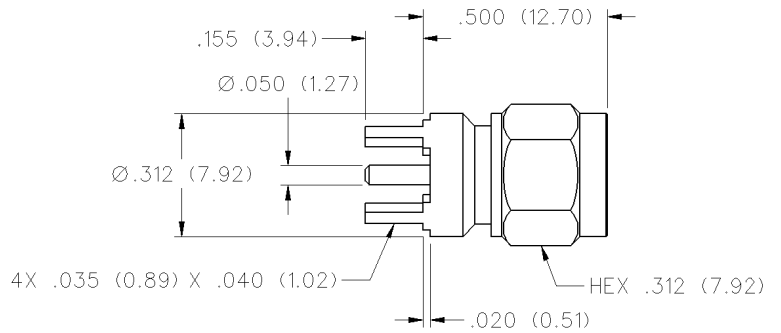
CABLETYPE	VSWR & FREQ. RANGE	GOLD PLATED*
RG-178/U, .047 Semi-Rigid	VSWR: N/A 0-4 GHz	142-0801-421*

\* With Nickel mounting nut. Assembly instructions page 227.

Mounting hole layout figure 8 page 201. Mates with SMA Jack Antenna Interface.



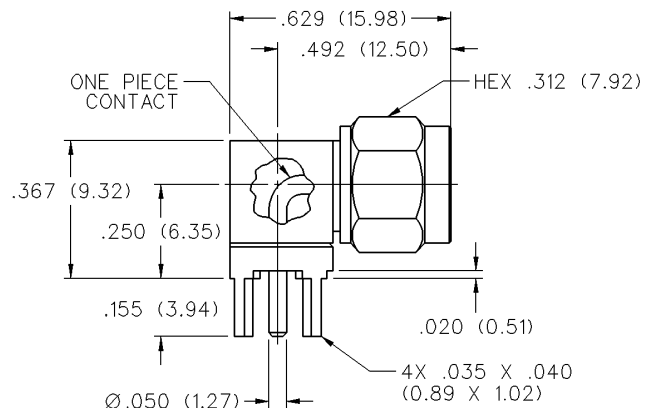
## Straight Plug Receptacle



FREQ. RANGE	GOLD PLATED	NICKEL PLATED
0-18 GHz	142-0801-201	142-0801-206

Mounting hole layout figure 2 page 201.

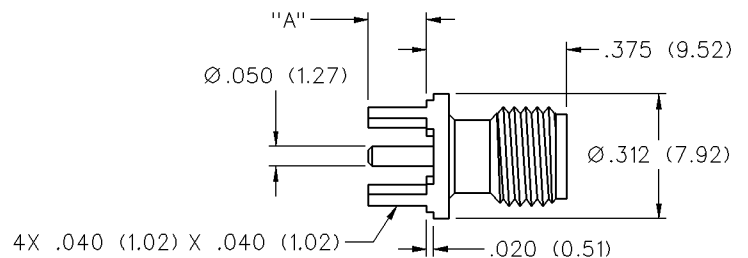
## Right Angle Plug Receptacle



FREQ. RANGE	GOLD PLATED	NICKEL PLATED
0-18 GHz	142-0801-301	142-0801-306

Mounting hole layout figure 2 page 201.

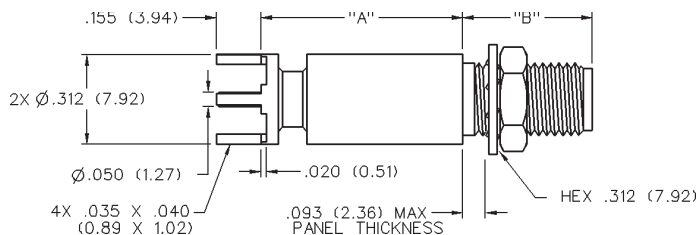
## Straight Jack Receptacle



FREQ. RANGE	GOLD PLATED	NICKEL PLATED	IR COMPATIBLE	"A"
0-18 GHz	142-0701-201	142-0701-206		.155 (3.94)
	142-0701-231	142-0701-236	142-0701-235*	.110 (2.79)

\* Tin/Lead solder dipped legs for IR Reflow Compatibility. Mounting hole layout figure 2 page 201.

## Straight Bulkhead Jack Receptacle



FREQ. RANGE	GOLD PLATED	NICKEL PLATED	"A"	"B"
0-18 GHz	142-0701-421	142-0701-426	.700 (17.78)	.450 (11.43)
0-18 GHz	142-0701-491	142-0701-496	.065 (1.65)	.755 (19.18)



Mounting hole layout figure 2 page 201.

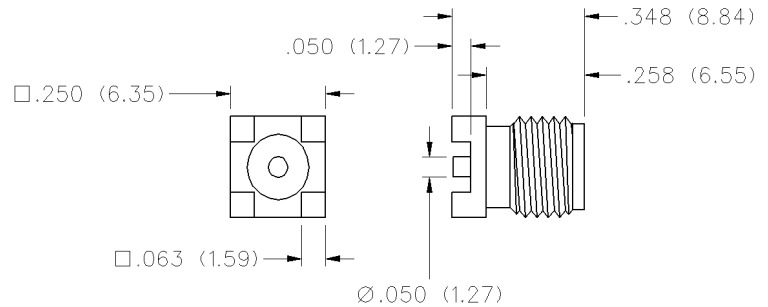
# SMA - 50 Ohm Connectors

PC Mount

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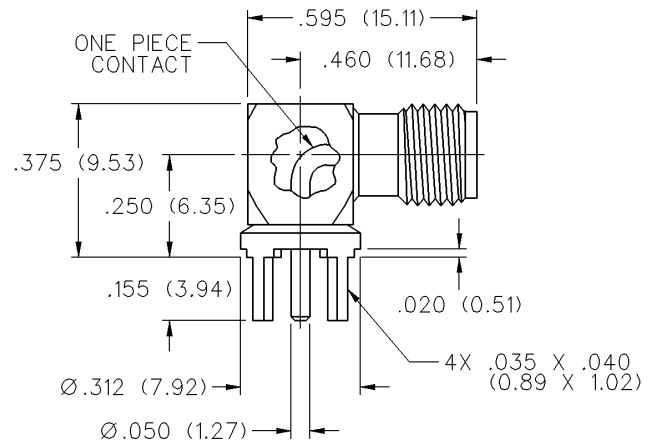
## Straight Jack Receptacle - Surface Mount



FREQ. RANGE	GOLD PLATED	PACKAGING
0-18 GHz	142-0711-201	Stock
	142-0711-202	Tape and Reel 500 pcs/reel

Recommended Land Pattern figure 9 page 201.

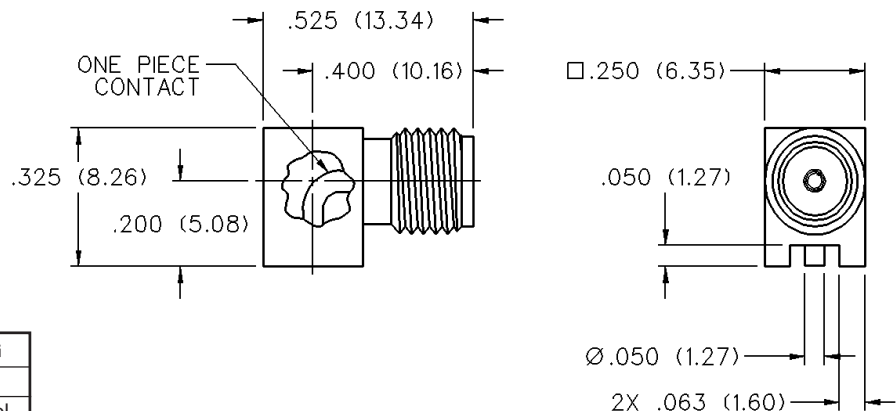
## Right Angle Jack Receptacle



FREQ. RANGE	GOLD PLATED	NICKEL PLATED
0-18 GHz	142-0701-301	142-0701-306

Mounting hole layout figure 2 page 201.

## Right Angle Jack Receptacle - Surface Mount



FREQ. RANGE	GOLD PLATED	PACKAGING
0-18 GHz	142-0711-301	Stock
	142-0711-302	Tape and Reel 425 pcs/reel

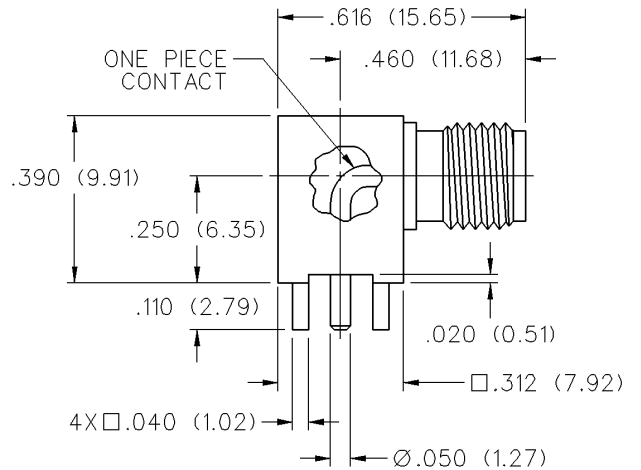
Recommended Land Pattern figure 9 page 201.

## Right Angle Jack Receptacle - Moisture Seal\*

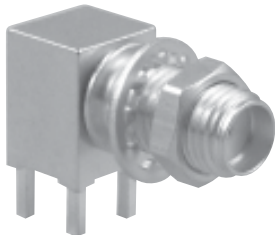


FREQ. RANGE	NICKEL BODY, GOLD INTERFACE IR COMPATIBLE*
0-18 GHz	142-0701-335*

\* Tin/Lead solder dipped legs and Moisture Sealed for IR Reflow Compatibility.  
Mounting hole layout figure 2 page 201.

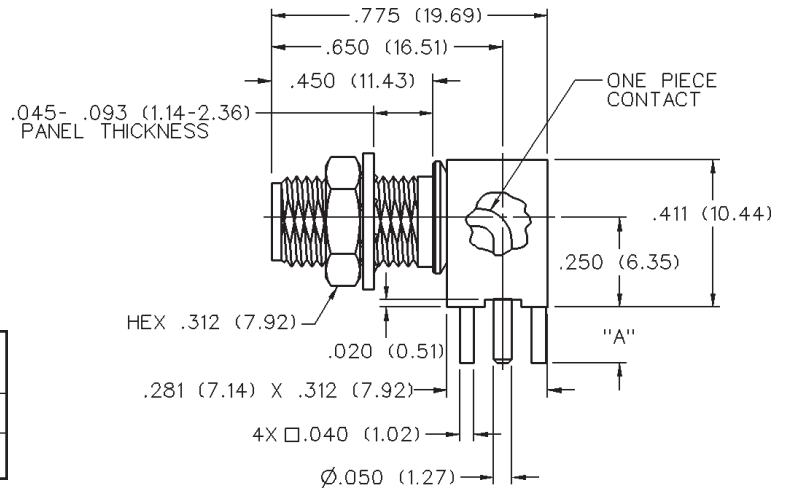


## Right Angle Bulkhead Jack Receptacle



FREQ. RANGE	GOLD PLATED	NICKEL PLATED	"A"
0-18 GHz	142-0701-501	142-0701-506	.155 (3.94)
	142-0701-551	142-0701-556	.110 (2.79)

Mounting hole layout figures 1 and 2 page 201.



# SMA - 50 Ohm Connectors

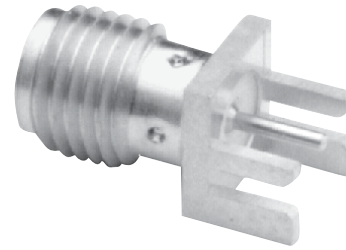
End Launch Connectors - A Johnson Original

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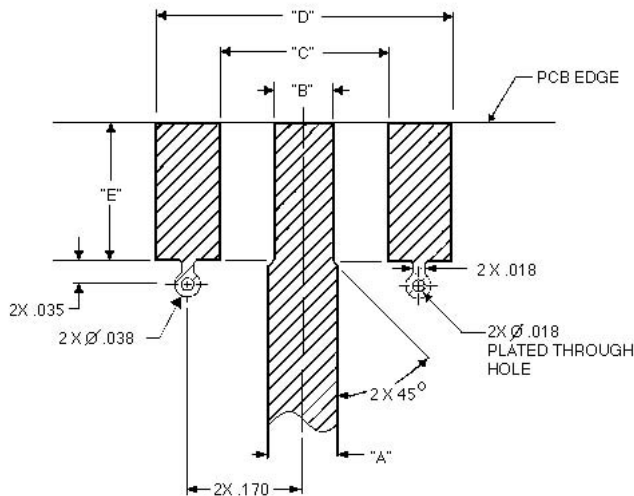


The **End Launch** connector is attached to the circuit board by inserting the board edge between the legs and soldering the legs and center conductor to pads on the board. For optimum high frequency performance, the connector to circuit board transition must be adjusted for low VSWR. To compensate for the transition from coax to microstrip, trace widths "A" and "B" must be adjusted based on circuit board thickness. When properly adjusted, this technique yields a low VSWR over a wide bandwidth.

The tabulated dimensions "A", "B", "C", "D", and "E" were determined experimentally to achieve low VSWR (typically less than 1.5 up to 18 GHz). The circuit board used for these tests was double-sided FR 4 with 1 oz. copper on



both sides. The copper was left on the bottom of the board to create a ground plane for the 50 Ohm microstrip structure. While not all inclusive, these dimensions are given as reference information for selected **SMA End Launch** connectors. Further adjustments may be necessary depending upon the application. All dimensions are in inches.



PART NO.	BASE WIDTH	BOARD THICK	"A"	"B"	"C"	"D"	"E"
142-0701-801/806	.375	.062	.103	.090	.250	.440	.200
142-0701-851/861	.375	.062	.103	.090	.250	.440	.200
142-0701-871/876	.375	.062	.103	.090	.250	.440	.200
142-0711-821/826	.250	.062	.103	.070	.170	.380	.165
142-0711-871/876	.375	.047	.083	.075	.250	.440	.200
142-0711-881/886	.375	.047	.083	.075	.250	.440	.200
142-0701-881/886	.375	.031	.050	.045	.250	.440	.200

Tabulated Dimensions "A", "B", "C" and "D" are symmetrical about the center line

## Surface Mount Versions Available!

### SMA End Launch Specifications

#### ELECTRICAL RATINGS

**Impedance:** 50 Ohms  
**Frequency Range:** 0-18 GHz  
**VSWR:** Dependent upon application  
**Working Voltage** (VRMS max.): 335 @ Sea Level, 85 @ 70K Feet  
**Dielectric Withstanding Voltage** (VRMS min. at sea level): 1000  
**Corona Level** (Volts min. at 70,000 feet): 250  
**Insulation Resistance:** 5000 megohms min  
**Contact Resistance** (milliohms max.): 3.0 Initial, 4.0 after environmental  
**RF High Potential Withstanding Voltage** (VRMS min. tested at 4 and 7 MHz): 670

#### MECHANICAL RATINGS

**Engagement Design:** MIL-C-39012, Series SMA  
**Engagement/Disengagement Force:** 2 inch-pounds max.  
**Mating Torque:** 7 to 10 inch-pounds  
**Coupling Proof Torque:** 15 inch-pounds min.  
**Coupling Nut Retention:** 60 pounds min.  
**Contact Retention Force:** 6 lbs min. axial force, 4 inch-ounce min. torque  
**Durability:** 500 cycles min.

#### ENVIRONMENTAL RATINGS

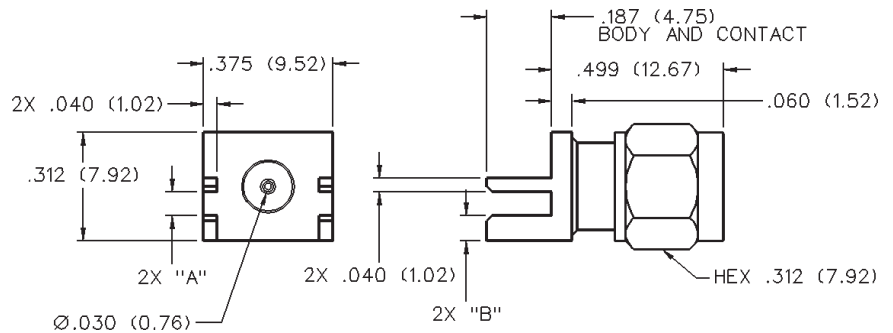
(Meets or exceeds the applicable paragraph of MIL-C-39012)  
**Temperature Range:** -65° to + 165° C  
**Thermal Shock:** MIL-STD-202, Method 107, Condition B  
**Corrosion:** MIL-STD-202, Method 101, Condition B  
**Shock:** MIL-STD-303, Method 213, Condition I  
**Vibration:** MIL-STD-202, Method 204, Condition D  
**Moisture Resistance:** MIL-STD-202, Method 106

#### MATERIAL SPECIFICATIONS

**Bodies:** Brass per QQ-B-626, gold plated\* per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290  
**Contacts:**  
 Male - brass per QQ-B-626, gold plated per MIL-G-45204 .00003" min.  
 Female - beryllium copper per QQ-C-530, gold plated per MIL-G-45204 .00003" min.  
**Nut Retention Spring:** Beryllium copper per QQ-C-533. Unplated  
**Insulators:** PTFE fluorocarbon per ASTM D 1710 and ASTM D 1457  
**Mounting Hardware:** Brass per QQ-B-626 or QQ-B-613, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

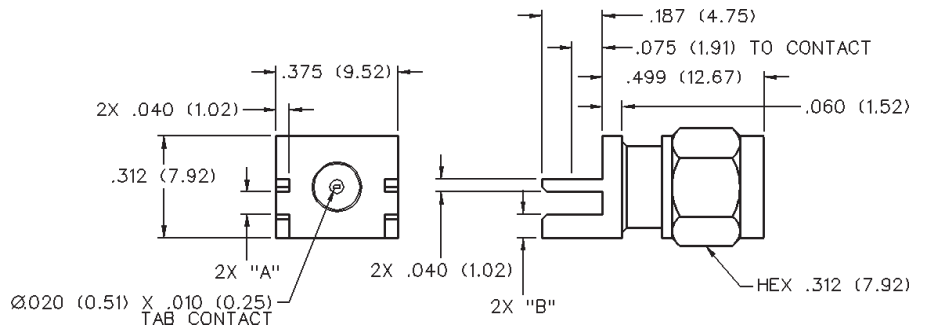
\*All gold plated parts include a .00005" min. nickel underplate barrier layer.

## End Launch Plug Receptacle - Round Contact



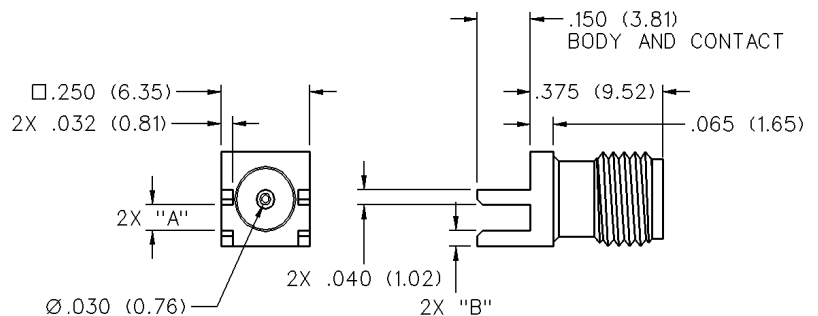
FREQ. RANGE	GOLD PLATED	NICKEL PLATED	BOARD THICKNESS	"A"	"B"
0-18 GHz	142-0801-801	142-0801-806	.062 (1.57)	.068 (1.73)	.073 (1.85)
	142-0801-821	142-0801-826	.042 (1.07)	.048 (1.22)	.093 (2.36)

## End Launch Plug Receptacle - Tab Contact



FREQ. RANGE	GOLD PLATED	NICKEL PLATED	BOARD THICKNESS	"A"	"B"
0-18 GHz	142-0801-811	142-0801-816	.062 (1.57)	.068 (1.73)	.083 (2.11)
	142-0801-831	142-0801-836	.042 (1.07)	.048 (1.22)	.103 (2.62)

## End Launch Jack Receptacle - Round Contact



FREQ. RANGE	GOLD PLATED	NICKEL PLATED	BOARD THICKNESS	"A"	"B"
0-18 GHz	142-0711-821	142-0711-826	.062 (1.57)	.068 (1.73)	.042 (1.07)
	142-0711-841	142-0711-846	.042 (1.07)	.048 (1.22)	.062 (1.57)
	142-0721-861	142-0721-866	.031 (0.79)	.037 (0.94)	.083 (2.11)

*Coupling proof torque  
8 inch-pounds  
maximum without  
support wrench.*

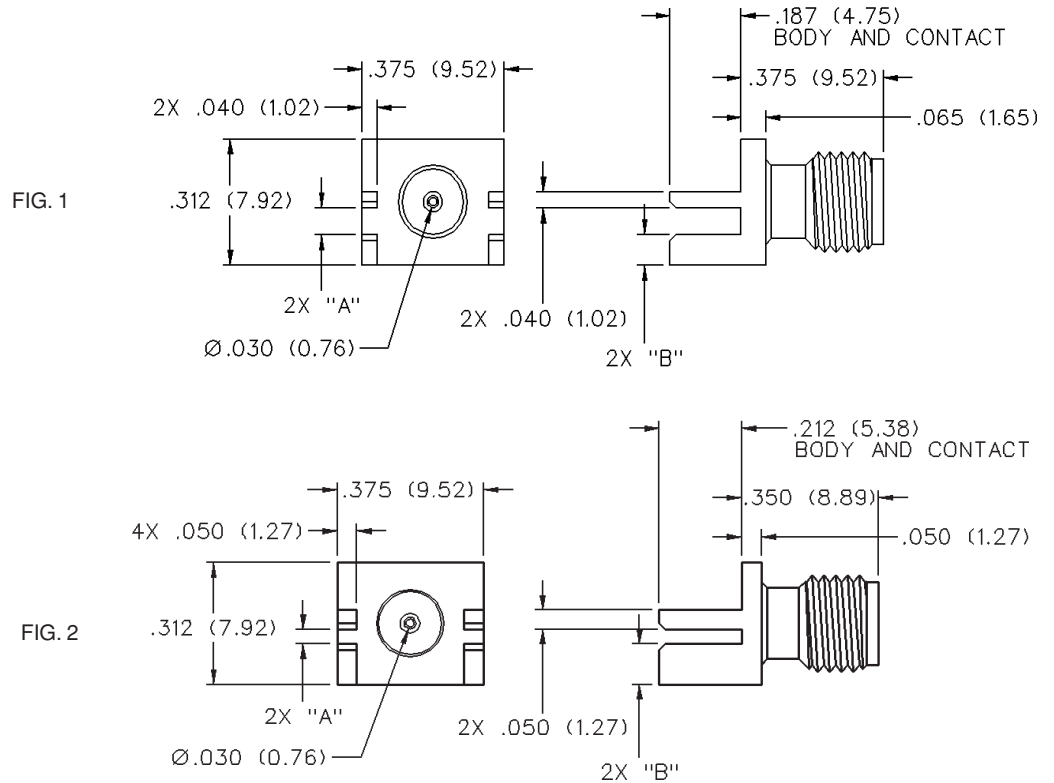
# SMA - 50 Ohm Connectors

PC Mount

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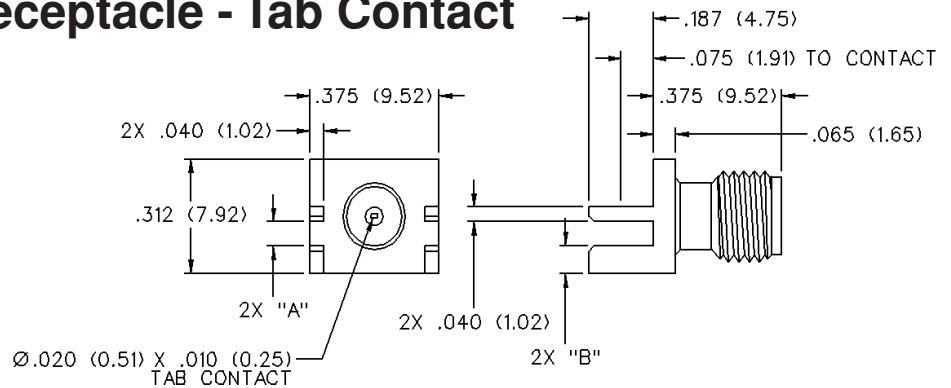
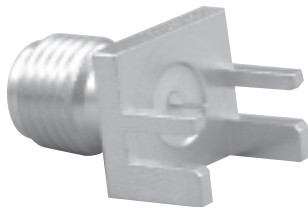


## End Launch Jack Receptacle - Round Contact



FREQ. RANGE	GOLD PLATED	NICKEL PLATED	BOARD THICKNESS	"A"	"B"	FIGURE
0-18 GHz	142-0701-801	142-0701-806	.062 (1.57)	.068 (1.73)	.073 (1.85)	1
	142-0701-831	142-0701-836	.042 (1.07)	.048 (1.22)	.093 (2.36)	1
	142-0701-881	142-0701-886	.031 (0.79)	.037 (0.94)	.104 (2.64)	2
	142-0711-871	142-0711-876	.047 (1.19)	.053 (1.35)	.088 (2.24)	1

## End Launch Jack Receptacle - Tab Contact



FREQ. RANGE	GOLD PLATED	NICKEL PLATED	BOARD THICKNESS	"A"	"B"
0-18 GHz	142-0701-851	142-0701-856	.062 (1.57)	.068 (1.73)	.083 (2.11)
	142-0701-841	142-0701-846	.042 (1.07)	.048 (1.22)	.103 (2.62)
	142-0711-881	142-0711-886	.047 (1.19)	.053 (1.35)	.098 (2.24)

## End Launch Bulkhead Jack Receptacle - Round Contact

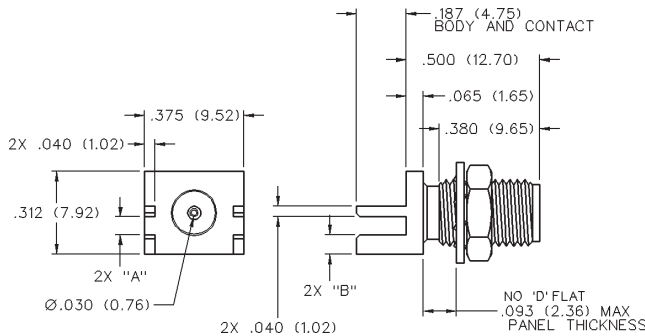
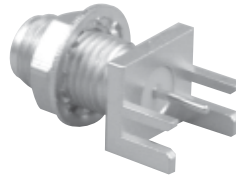


FIG. 1

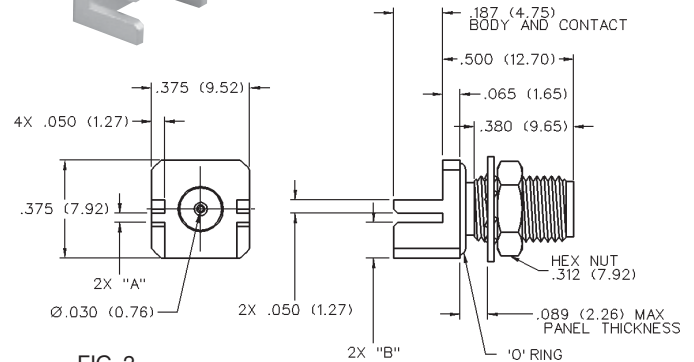
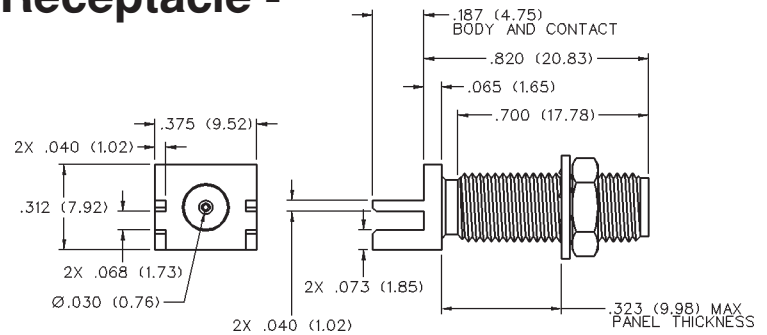
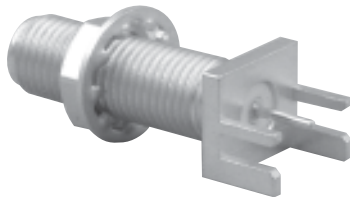


FIG. 2

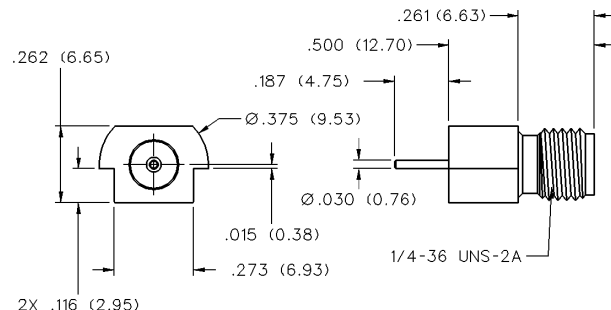
FREQ. RANGE	GOLD PLATED	NICKEL PLATED	BOARD THICKNESS	"A"	"B"	"O" RING	FIG.
0-18 GHz	142-0701-871	142-0701-876	.062 (1.57)	.068 (1.73)	.073 (1.85)	No	1
	142-0721-871	142-0721-876	.062 (1.57)	.068 (1.73)	.073 (1.85)	No	1
	142-0721-841	142-0721-846	.069 (1.75)	.075 (1.91)	.066 (1.68)	No	1
	142-0731-861	142-0731-866	.031 (0.79)	.037 (0.94)	.135 (3.43)	Yes	2

## End Launch Bulkhead Jack Receptacle - Round Contact



FREQ. RANGE	GOLD PLATED	NICKEL PLATED	BOARD THICKNESS
0-18 GHz	142-0711-811	142-0711-816	.062 (1.57)

## End Launch Jack Receptacle - Surface Mount



FREQ. RANGE	GOLD PLATED	PACKAGING
0-18 GHz	142-0721-881	Stock
	142-0721-882	Tape and Reel 475 pcs/reel

Recommended land pattern figure 35 page 204.

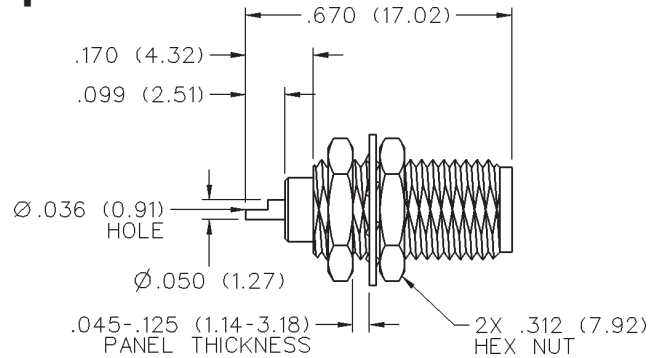
# SMA - 50 Ohm Connectors

Bulkhead Mount

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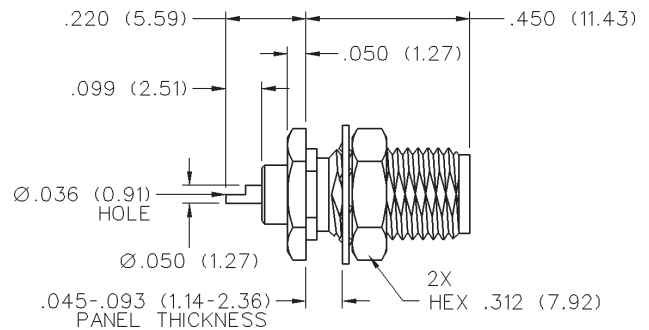
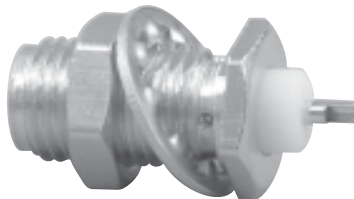
## Front Mount Bulkhead Jack Receptacle



FREQ. RANGE	GOLD PLATED	NICKEL PLATED
0-18 GHz	142-0701-411	142-0701-416

Mounting hole layout figure 1 page 201.

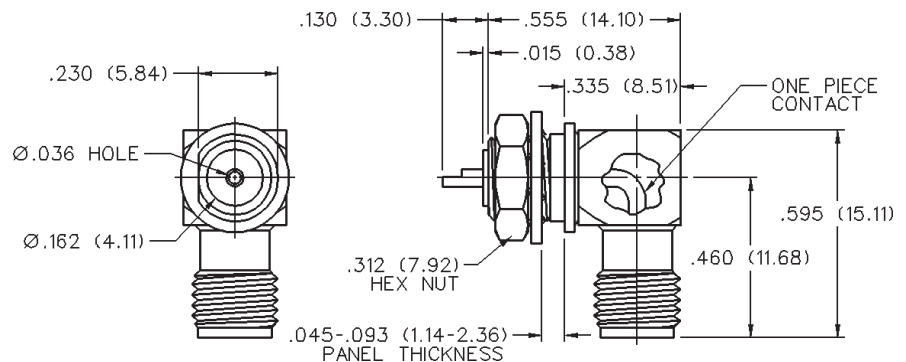
## Rear Mount Bulkhead Jack Receptacle



FREQ. RANGE	GOLD PLATED	NICKEL PLATED
0-18 GHz	142-0701-401	142-0701-406

Mounting hole layout figure 1 page 201.

## Right Angle Bulkhead Mount Jack Receptacle

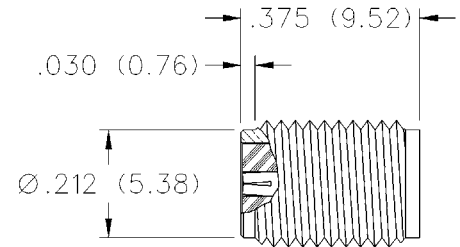


FREQ. RANGE	GOLD PLATED	NICKEL PLATED
0-18 GHz	142-0701-531	142-0701-536

Mounting hole layout figure 1 page 201.



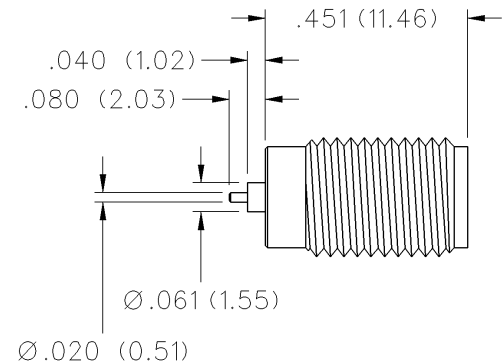
## Jack Receptacle - Thread Mount Field Replaceable



GOLD PLATED	NICKEL PLATED	ACCEPTS PIN SIZE
142-1731-001	142-1731-006	.020 (0.51)
142-1731-011	142-1731-016	.036 (0.91)

Mounting hole layout figure 21 page 203.

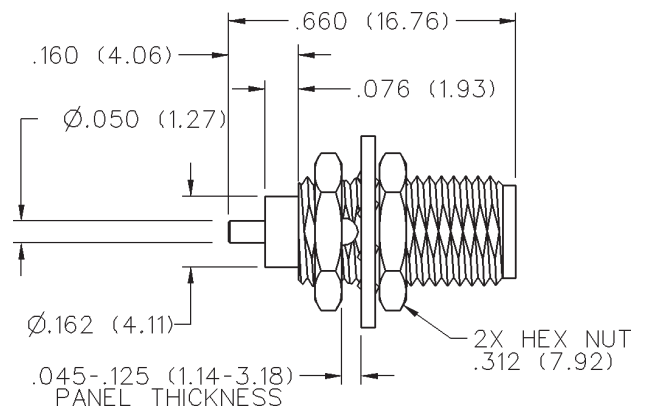
## Jack Receptacle - Thread Mount Extended Dielectric (Non-hermetic)



GOLD PLATED	NICKEL PLATED
142-1731-021	142-1731-026

Mounting hole layout figure 20 page 202.

## Jack Receptacle - Thread Mount with Hardware Extended Dielectric Bulkhead



GOLD PLATED	NICKEL PLATED
142-1731-031	142-1731-036

Mounting hole layout figure 1 page 201.

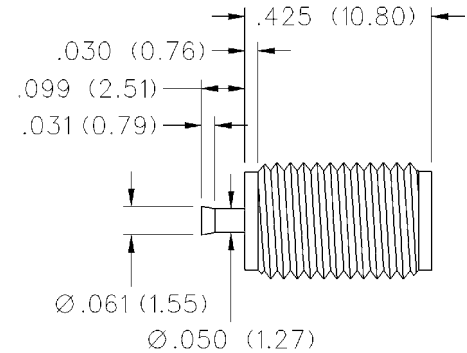
# SMA - 50 Ohm Connectors

Spark Plugs

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



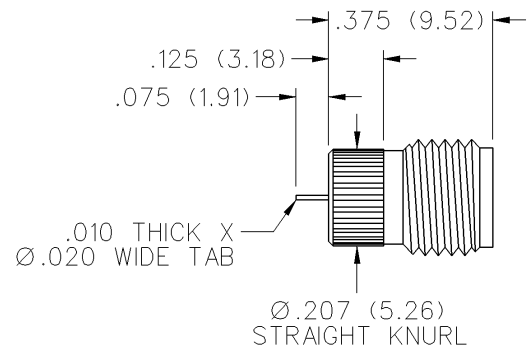
## Jack Receptacle - Thread Mount Nail Head Contact



GOLD PLATED	NICKEL PLATED
142-1731-041	142-1731-046

Mounting hole layout figure 21 page 203.

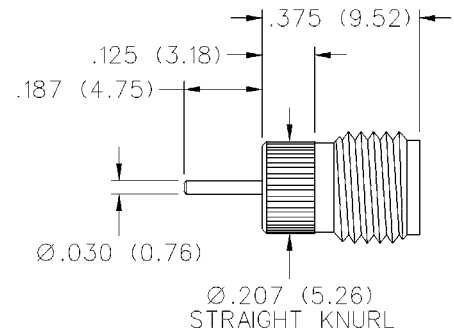
## Jack Receptacle - Knurl Mount\* Tab Contact



GOLD PLATED	NICKEL PLATED
142-1721-001	142-1721-006

\* Not intended for use in materials harder than Rockwell B82  
 Assembly tool 140-0000-954 page 192.  
 Mounting hole layout figure 19 page 202.

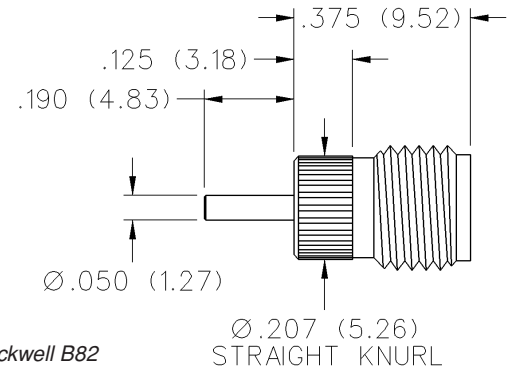
## Jack Receptacle - Knurl Mount\* Round Contact



GOLD PLATED	NICKEL PLATED
142-1721-011	142-1721-016

\* Not intended for use in materials harder than Rockwell B82  
 Assembly tool 140-0000-954 page 192.  
 Mounting hole layout figure 19 page 202.

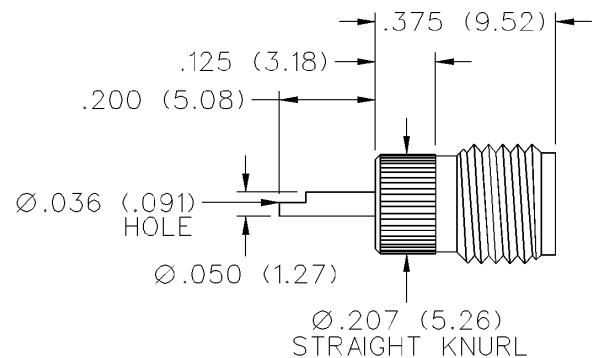
## Jack Receptacle - Knurl Mount\* Round Contact



GOLD PLATED	NICKEL PLATED
142-1721-021	142-1721-026

\* Not intended for use in materials harder than Rockwell B82  
 Assembly tool 140-0000-954 page 192.  
 Mounting hole layout figure 19 page 202.

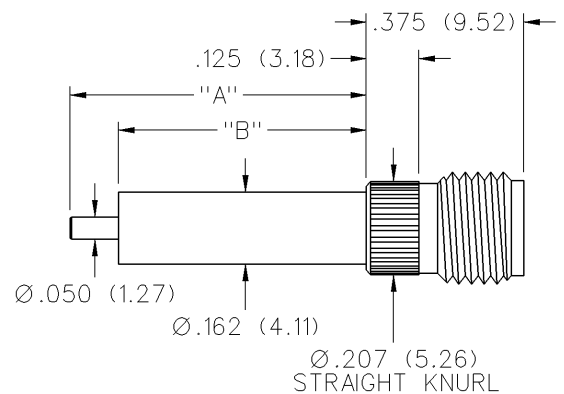
## Jack Receptacle - Knurl Mount\* Solder Cup Contact



GOLD PLATED	NICKEL PLATED
142-0701-481	142-0701-486

\* Not intended for use in materials harder than Rockwell B82  
 Assembly tool 140-0000-954 page 192.  
 Mounting hole layout figure 19 page 202.

## Jack Receptacle - Knurl Mount\* Extended Dielectric



GOLD PLATED	NICKEL PLATED	"A"	"B"
142-1721-031	142-1721-036	.190 (4.83)	.095 (2.41)
142-1721-041	142-1721-046	.240 (6.10)	.180 (4.57)
142-1721-051	142-1721-056	.705 (17.91)	.590 (14.99)

\* Not intended for use in materials harder than Rockwell B82  
 Assembly tool 140-0000-954 page 192.  
 Mounting hole layout figure 19 page 202.

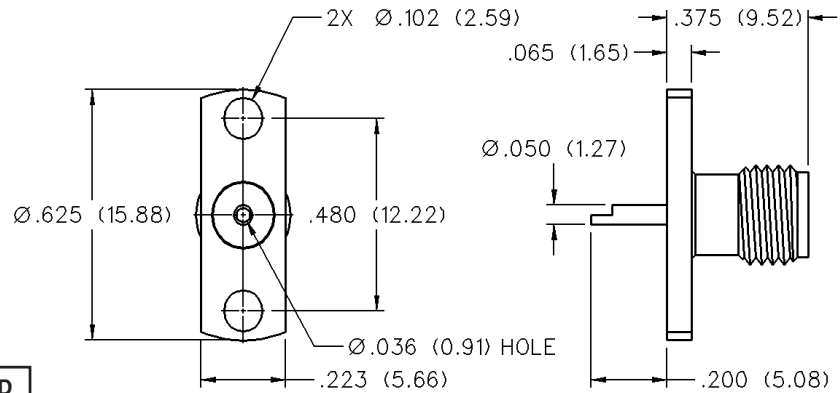
# SMA - 50 Ohm Connectors

Panel Mount

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

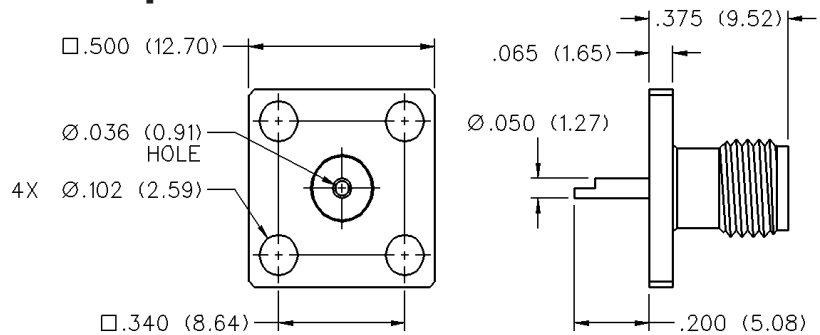


## 2-Hole Flange Mount Jack Receptacle - Flush Dielectric



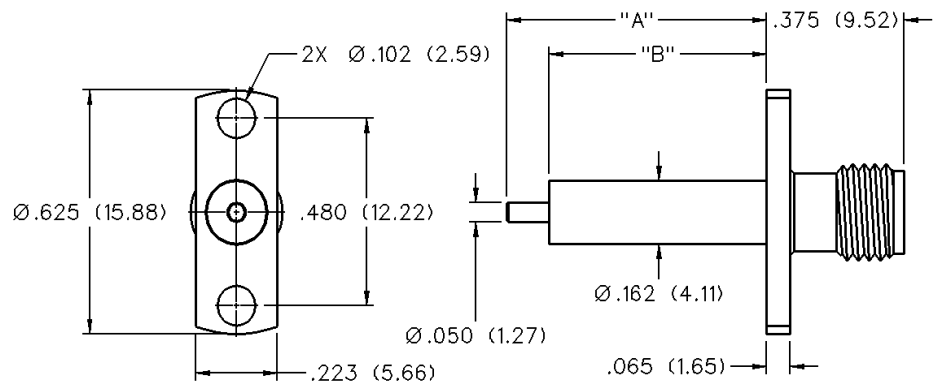
FREQ. RANGE	GOLD PLATED	NICKEL PLATED
0-18 GHz	142-0701-621	142-0701-626

## 4-Hole Flange Mount Jack Receptacle - Flush Dielectric



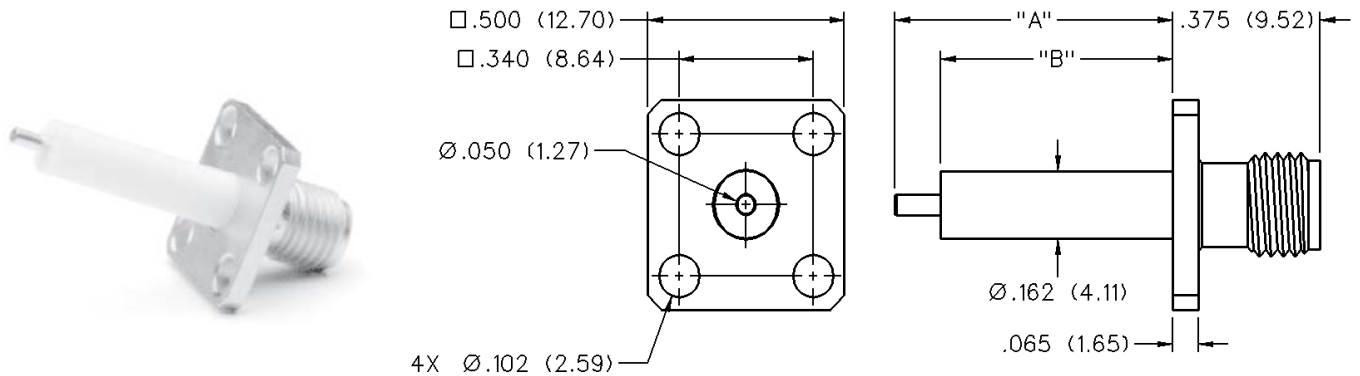
FREQ. RANGE	GOLD PLATED	NICKEL PLATED
0-18 GHz	142-0701-631	142-0701-636

## 2-Hole Flange Mount Jack Receptacle - Extended Dielectric



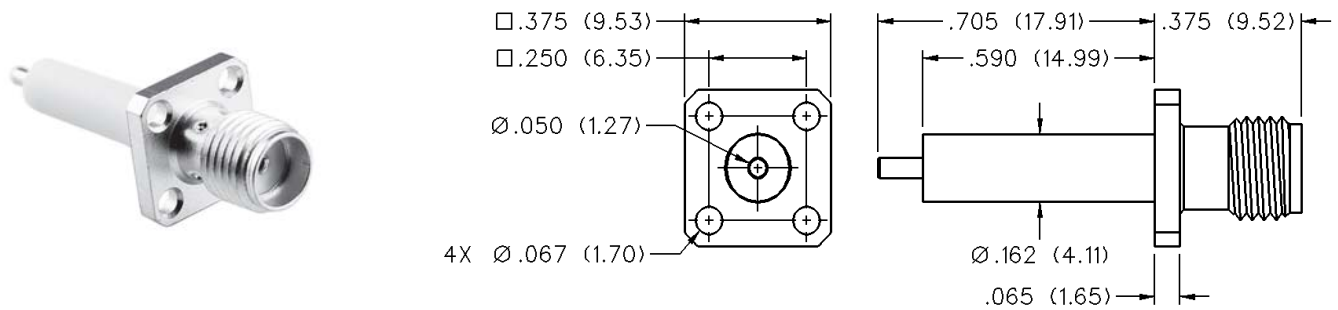
VSWR & FREQ. RANGE	GOLD PLATED	NICKEL PLATED	"A"	"B"
VSWR: 1.15 + .02 f (GHz) 0-18 GHz	142-1701-131	142-1701-136	.705 (17.91)	.590 (14.99)
	142-1701-031	142-1701-036	.240 (6.10)	.180 (4.57)

## 4-Hole Flange Mount Jack Receptacle - Extended Dielectric



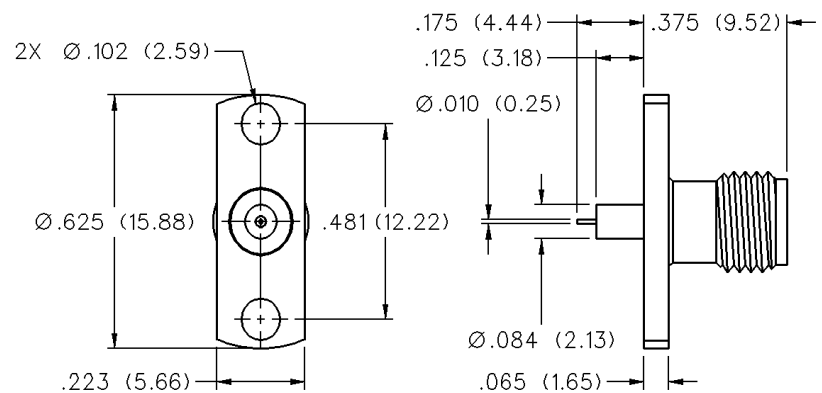
VSWR & FREQ. RANGE	GOLD PLATED	NICKEL PLATED	"A"	"B"
VSWR: 1.15 + .02 f (GHz) 0-18 GHz	142-1701-121	142-1701-126	.705 (17.91)	.590 (14.99)
	142-1701-041	142-1701-046	.190 (4.83)	.095 (2.41)

## 4-Hole Flange Mount Jack Receptacle - Extended Dielectric



VSWR & FREQ. RANGE	GOLD PLATED	NICKEL PLATED
VSWR: 1.15 + .02 f (GHz) 0-18 GHz	142-1701-011	142-1701-016

## 2-Hole Flange Mount Jack Receptacle - Extended Dielectric



GOLD PLATED	NICKEL PLATED
142-1701-201	142-1701-206

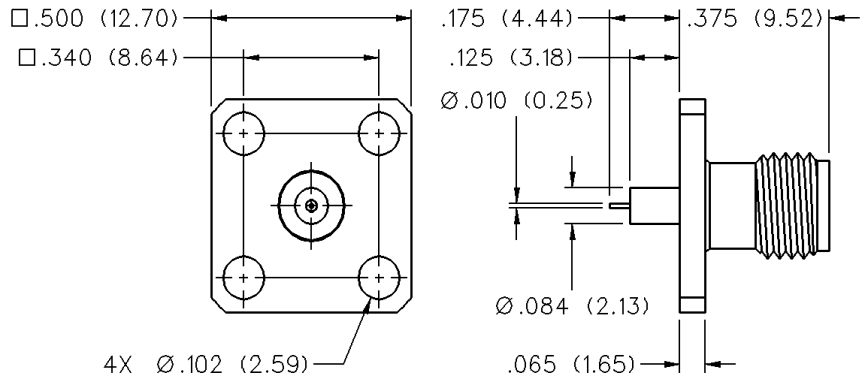
# SMA - 50 Ohm Connectors

Panel Mount

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

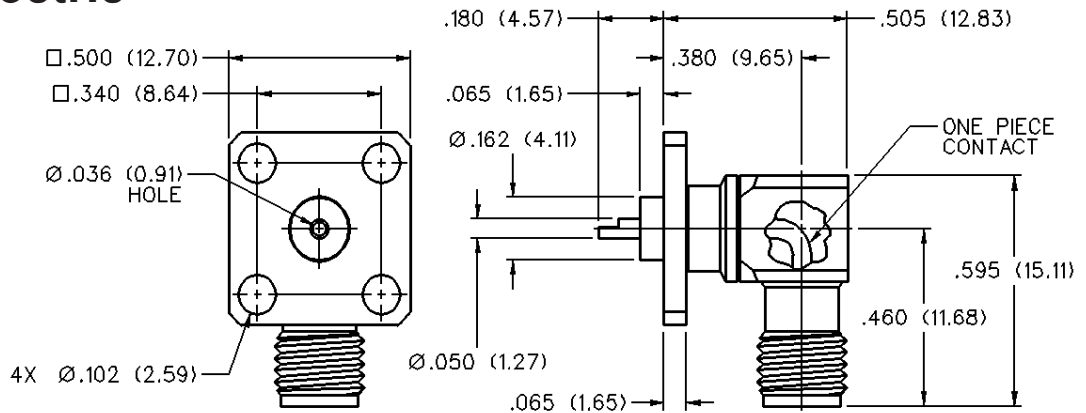


## 4-Hole Flange Mount Jack Receptacle - Extended Dielectric



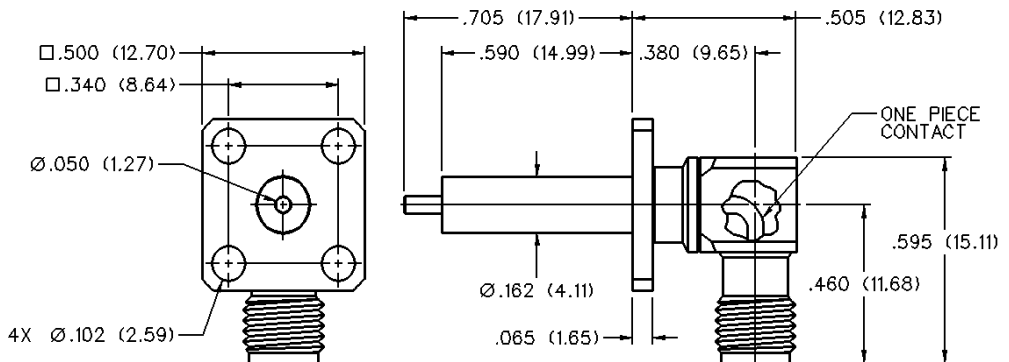
GOLD PLATED	NICKEL PLATED
142-1701-191	142-1701-196

## 4-Hole Right Angle Flange Mount Jack Receptacle - Extended Dielectric



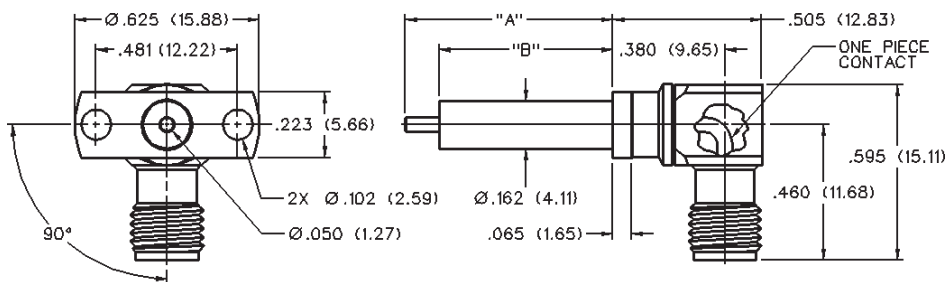
GOLD PLATED	NICKEL PLATED
142-0701-701	142-0701-706

## 4-Hole Right Angle Flange Mount Jack Receptacle - Extended Dielectric



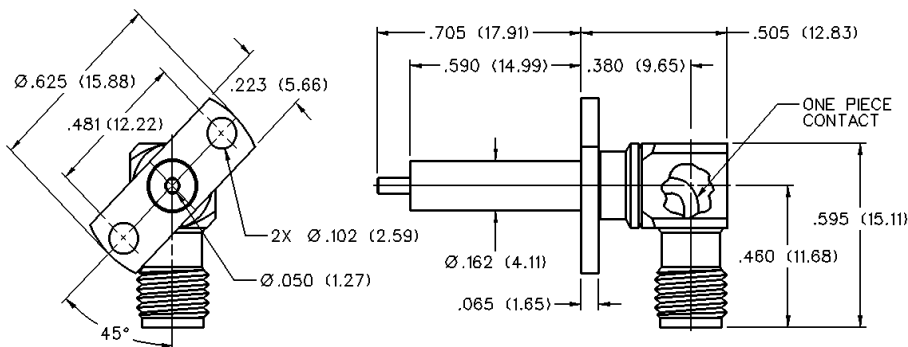
GOLD PLATED	NICKEL PLATED
142-1711-001	142-1711-006

## 2-Hole Right Angle Flange Mount Jack Receptacle - Extended Dielectric 90° Orientation



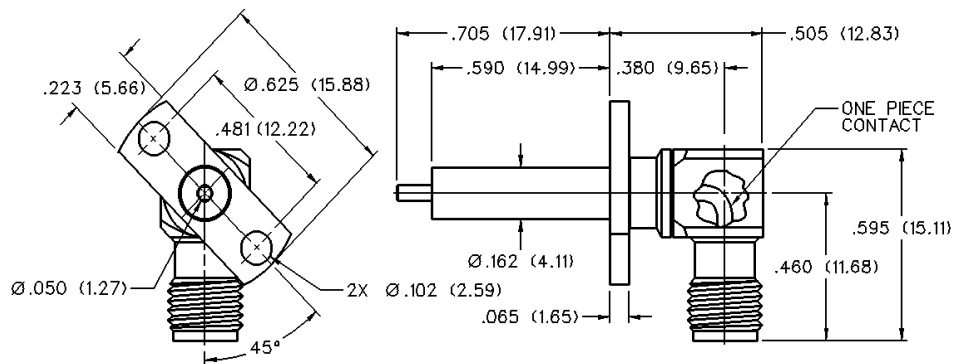
GOLD PLATED	NICKEL PLATED	"A"	"B"
142-1711-011	142-1711-016	.705	.590
142-1711-061	142-1711-066	.195	.130

## 2-Hole Right Angle Flange Mount Jack Receptacle - Extended Dielectric +45° Orientation



GOLD PLATED	NICKEL PLATED
142-1711-021	142-1711-026

## 2-Hole Right Angle Flange Mount Jack Receptacle - Extended Dielectric -45° Orientation



GOLD PLATED	NICKEL PLATED
142-1711-031	142-1711-036

# SMA - 50 Ohm Connectors

Field Replaceable - Application Notes

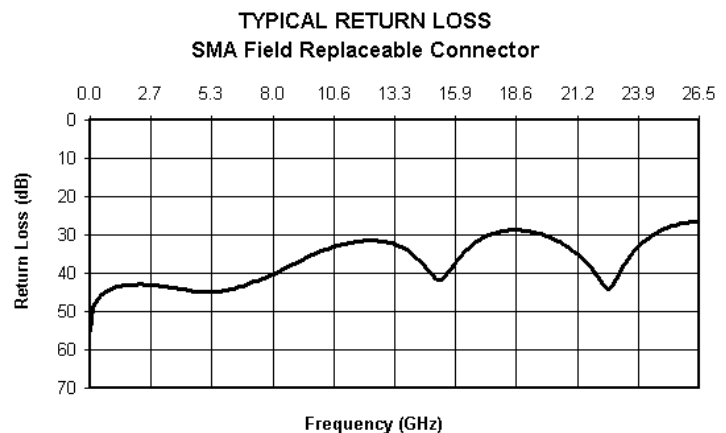
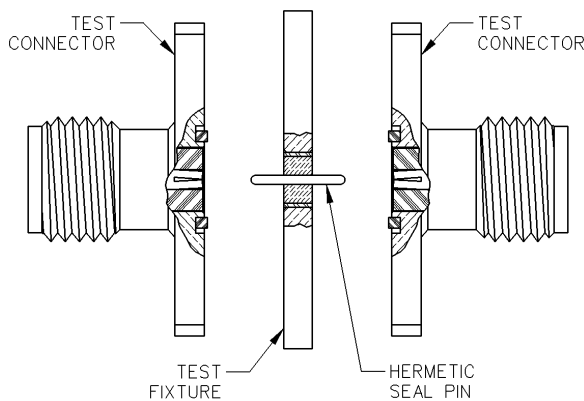
INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



The field replaceable style of connector is known by many names in the industry, such as MIC launcher, hermetic seal launcher, spark plug launcher, etc. Some types, such as those known as “spark plugs,” have the hermetic seal incorporated into the connector. These types require special welding to install and can not be replaced without destroying the hermeticity of the circuit housing. True field replaceable connectors, such as the Johnson line, are easy to install and replace. Because the hermetic seal is not incorporated into the connector design, the connector can be removed and replaced without destroying the hermetic seal or the hermeticity of the circuit housing.

All of the above-mentioned connector types perform the same basic function—creating a transition from microstrip circuitry to a coaxial transmission line. Whenever possible, the hermetic seal pin diameter should be chosen as close as possible to the microstrip trace width. For optimum electrical performance, the transition from the hermetic seal to the microstrip trace must be properly compensated which involves adjusting the microstrip trace width to minimize any impedance discontinuities found in the transition area.

The plot shown below is representative of the typical return loss of a Johnson SMA field replaceable connector. To produce the data shown below, a test fixture is created using the appropriate Johnson hermetic seal. The fixture consists of a suitably thick spacer plate with the hermetic seal mounted flush to both surfaces. Two connectors are mounted back to back around the fixture and the VSWR of this test assembly is measured. The return loss data shown is equivalent to the square root of the measured VSWR of the test assembly. Since the connectors tested are of identical design, it can be stated with fair accuracy that the data shown represents the response of a single field replaceable connector and its transition to the hermetic seal.



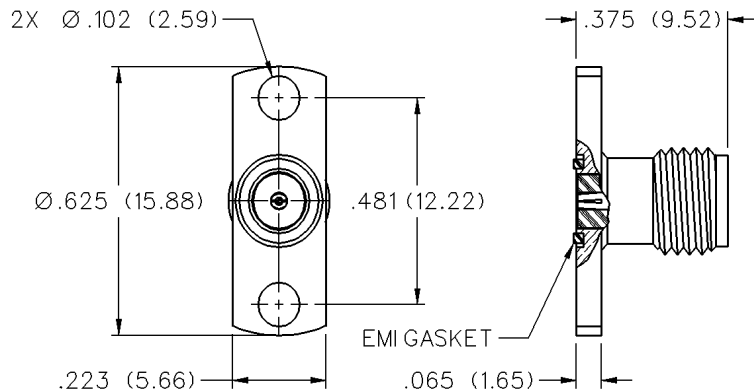
Although we do not publish a VSWR specification for field replaceable connectors, typical connector VSWR can be expected to be better than  $1.1 + .01f$  (f in GHz). A VSWR specification is not stated because an industry standard method for testing field replaceable connectors does not exist. The actual performance of the connector is dependent upon the application for the following reasons:

1. The choice of hermetic seal to be used by the customer is not specified by the connector manufacturer. Hermetic seals produced by different manufacturers will not have the same electrical characteristics. For optimum electrical performance, we recommend the use of our standard 142-1000-001, 002, 003 and 004 hermetic seals for pin diameters of .012 (0.30), .015 (0.38), .018 (0.46) and .020 (0.51). Custom hermetic seal configurations can be quoted.
2. It is recommended that the hermetic seal be mounted flush with the circuit housing. Tolerance variations between the hermetic seal and machined housing do not always guarantee an optimum transition to the connector. Some manufacturers recommend an additional counterbore in the circuit housing to accommodate a solder washer during installation of the seal. We do not recommend this type of installation because, if the counterbore is not completely filled with solder, electrical discontinuities may be created.
3. As stated above, the transition between the hermetic seal pin and the microstrip trace will affect electrical performance. Several different methods of hermetic seal mounting and seal pin to microstrip trace attachment are used in the industry. We cannot recommend one method over the other as this is dependent upon the customer's application.

As always, quotes for non-standard field replaceable connectors and/or hermetic seals are welcome.

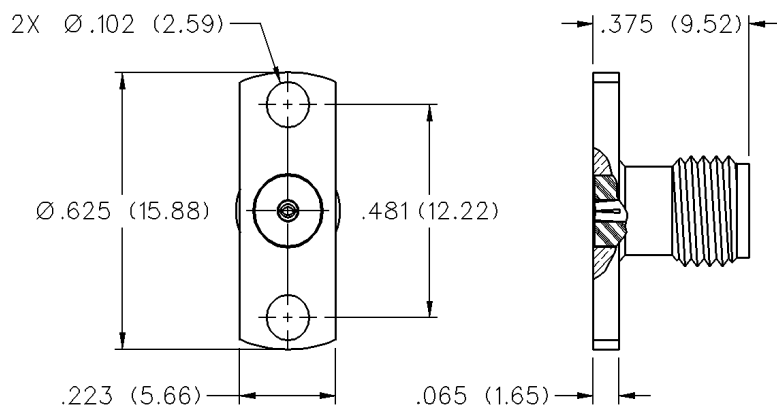


## 2-Hole Flange Mount Jack Receptacle - with EMI Gasket



ACCEPTS PIN SIZE	FREQUENCY RANGE	GOLD PLATED	NICKEL PLATED
.012 (0.30)	0-26.5 GHz	142-1701-601	142-1701-606
.015 (0.38)	0-26.5 GHz	142-1701-611	142-1701-616
.018 (0.46)	0-26.5 GHz	142-1701-621	142-1701-626

## 2-Hole Flange Mount Jack Receptacle - without EMI Gasket



ACCEPTS PIN SIZE	FREQUENCY RANGE	GOLD PLATED	NICKEL PLATED
.020 (0.51)	0-26.5 GHz	142-1701-631	142-1701-636
.036 (0.91)	0-26.5 GHz	142-1701-641	142-1701-646

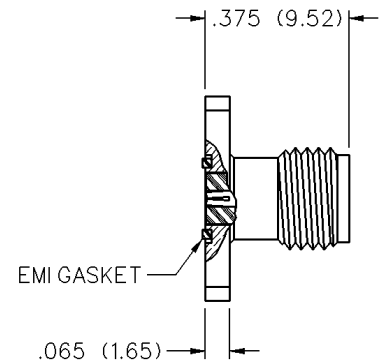
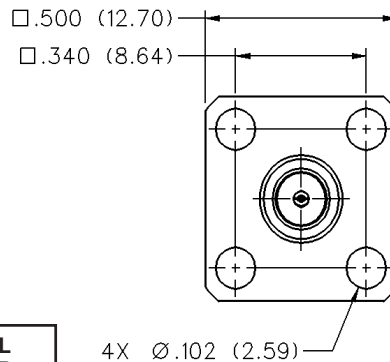
# SMA - 50 Ohm Connectors

Field Replaceable

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

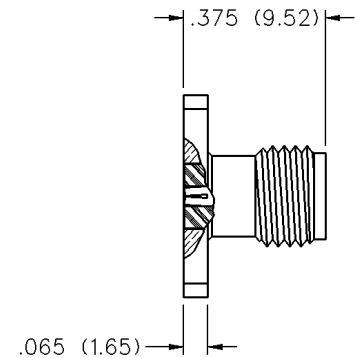
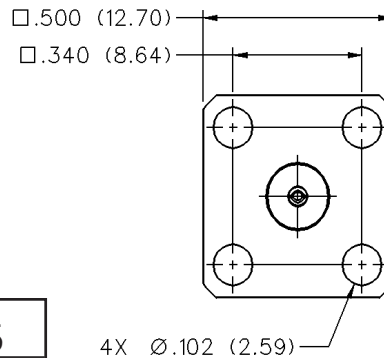


## 4-Hole Flange Mount Jack Receptacle - with EMI Gasket



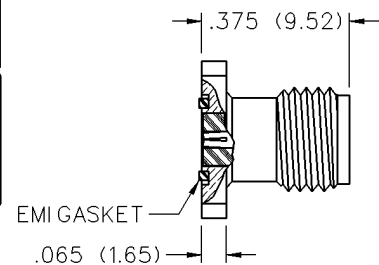
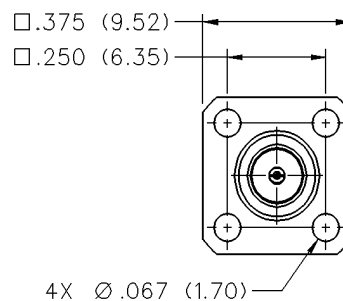
ACCEPTS PIN SIZE	FREQUENCY RANGE	GOLD PLATED	NICKEL PLATED
.012 (0.30)	0-26.5 GHz	142-1701-501	142-1701-506
.015 (0.38)	0-26.5 GHz	142-1701-511	142-1701-516
.018 (0.46)	0-26.5 GHz	142-1701-521	142-1701-526

## 4-Hole Flange Mount Jack Receptacle - without EMI Gasket



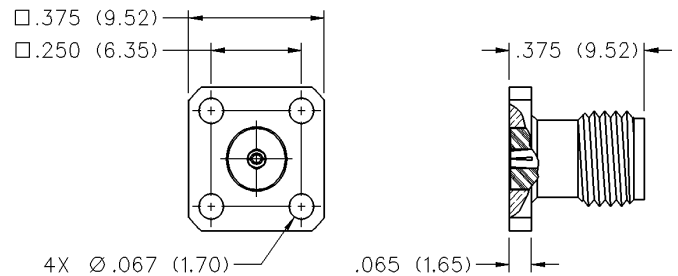
ACCEPTS PIN SIZE	FREQUENCY RANGE	GOLD PLATED	NICKEL PLATED
.020 (0.51)	0-26.5 GHz	142-1701-531	142-1701-536
.036 (0.91)	0-26.5 GHz	142-1701-541	142-1701-546

## 4-Hole Flange Mount Jack Receptacle - with EMI Gasket



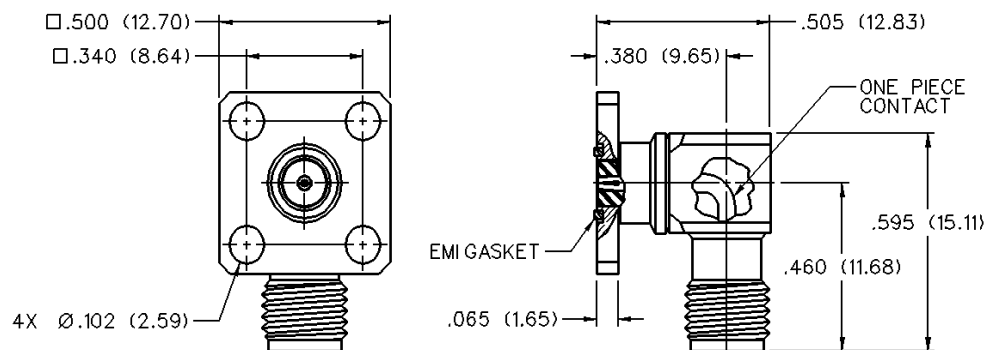
ACCEPTS PIN SIZE	FREQUENCY RANGE	GOLD PLATED	NICKEL PLATED
.012 (0.30)	0-26.5 GHz	142-1701-551	142-1701-556
.015 (0.38)	0-26.5 GHz	142-1701-561	142-1701-566
.018 (0.46)	0-26.5 GHz	142-1701-571	142-1701-576

## 4-Hole Flange Mount Jack Receptacle - without EMI Gasket



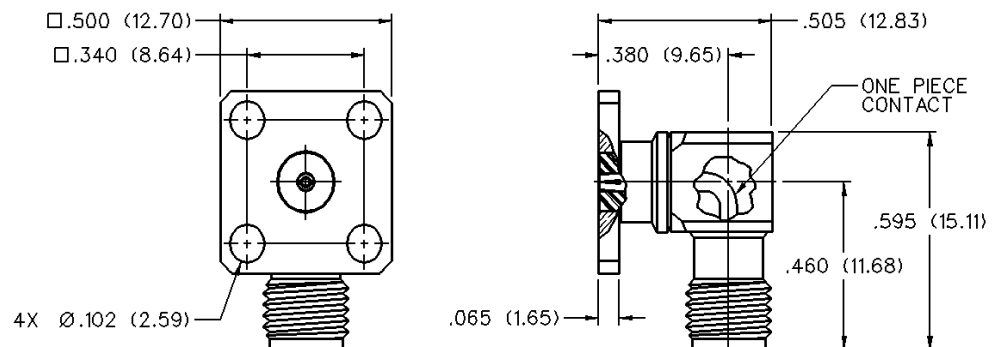
ACCEPTS PIN SIZE	FREQUENCY RANGE	GOLD PLATED	NICKEL PLATED
.020 (0.51)	0-26.5 GHz	142-1701-581	142-1701-586
.036 (0.91)	0-26.5 GHz	142-1701-591	142-1701-596

## 4-Hole Right Angle Flange Mount Jack Receptacle - with EMI Gasket



ACCEPTS PIN SIZE	FREQUENCY RANGE	GOLD PLATED	NICKEL PLATED
.015 (0.38)	0-26.5 GHz	142-1711-511	142-1711-516
.018 (0.46)	0-26.5 GHz	142-1711-521	142-1711-526

## 4-Hole Right Angle Flange Mount Jack Receptacle without EMI Gasket



ACCEPTS PIN SIZE	FREQUENCY RANGE	GOLD PLATED	NICKEL PLATED
.020 (0.51)	0-26.5 GHz	142-1711-531	142-1711-536

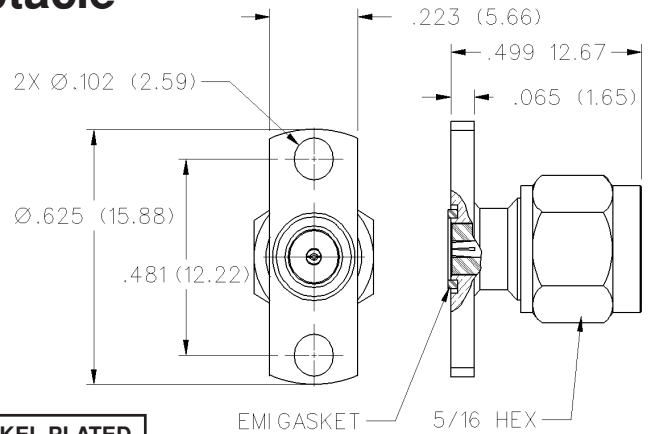
# SMA - 50 Ohm Connectors

Field Replaceable

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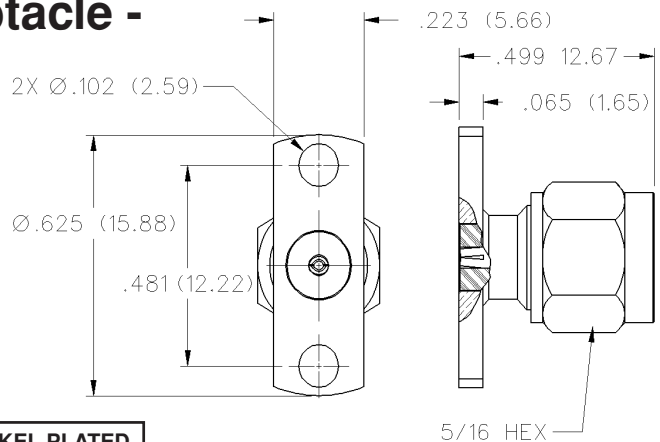


## 2-Hole Flange Mount Plug Receptacle - with EMI Gasket



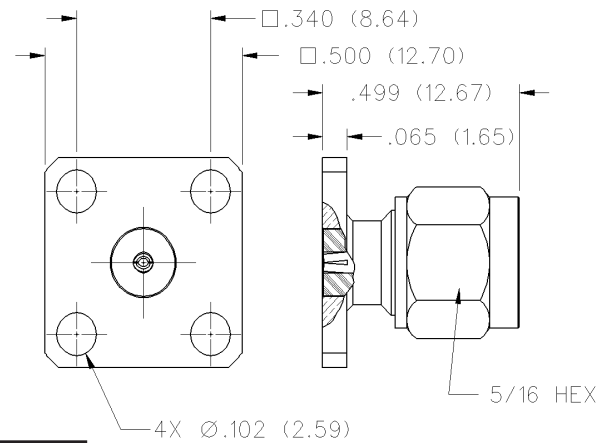
ACCEPTS PIN SIZE	FREQUENCY RANGE	GOLD PLATED	NICKEL PLATED
.012 (0.30)	0-26.5 GHz	142-1801-601	142-1801-606
.015 (0.38)	0-26.5 GHz	142-1801-611	142-1801-616
.018 (0.46)	0-26.5 GHz	142-1801-621	142-1801-626

## 2-Hole Flange Mount Plug Receptacle - without EMI Gasket



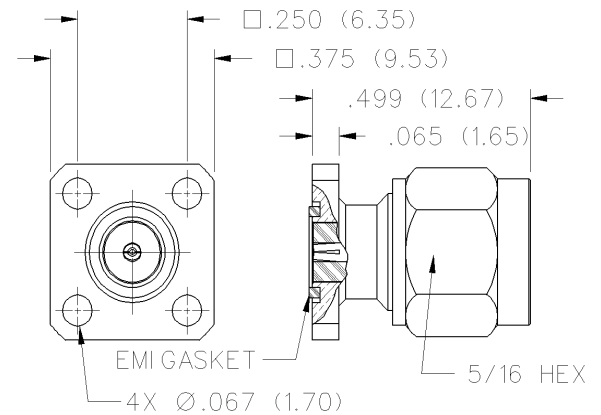
ACCEPTS PIN SIZE	FREQUENCY RANGE	GOLD PLATED	NICKEL PLATED
.020 (0.51)	0-26.5 GHz	142-1801-631	142-1801-636
.036 (0.91)	0-26.5 GHz	142-1801-641	142-1801-646

## 4-Hole Flange Mount Plug Receptacle - without EMI Gasket



ACCEPTS PIN SIZE	FREQUENCY RANGE	GOLD PLATED	NICKEL PLATED
.020 (0.51)	0-26.5 GHz	142-1801-531	142-1801-536
.036 (0.91)	0-26.5 GHz	142-1801-541	142-1801-546

## 4-Hole Flange Mount Plug Receptacle - with EMI Gasket



ACCEPTS PIN SIZE	FREQUENCY RANGE	GOLD PLATED	NICKEL PLATED
.012 (0.30)	0-26.5 GHz	142-1801-551	142-1801-556
.015 (0.38)	0-26.5 GHz	142-1801-561	142-1801-566
.018 (0.46)	0-26.5 GHz	142-1801-571	142-1801-576

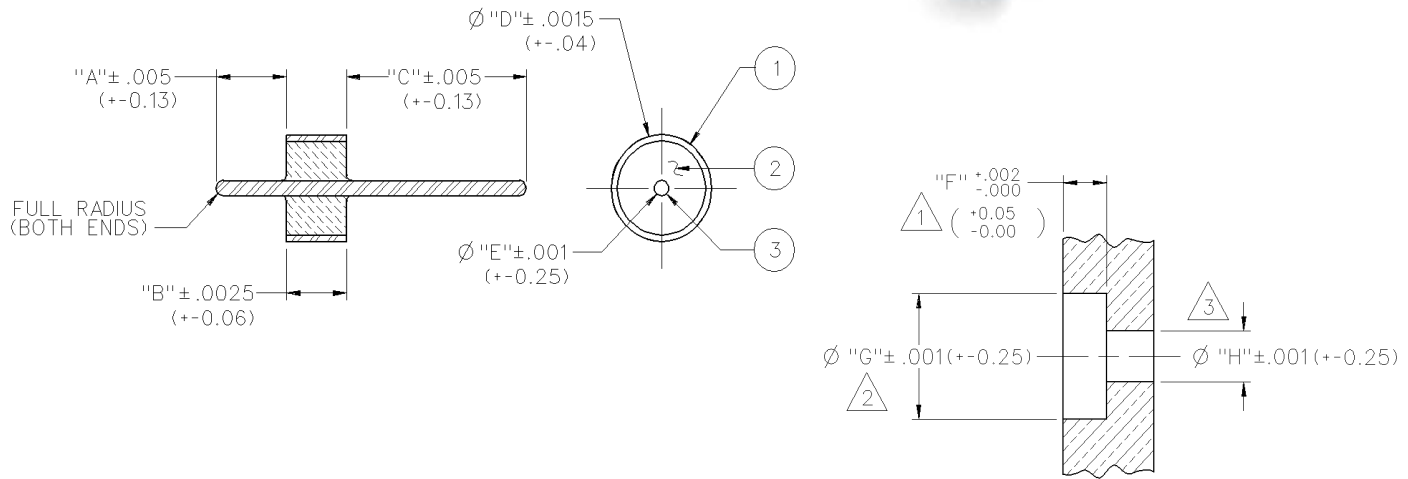
# SMA - 50 Ohm Connectors

Field Replaceable

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



## Hermetic Seal Feedthrough



Recommended Mounting Hole Detail

PART NO.	ITEM 1 OUTER RING	ITEM 2 INSULATOR	ITEM 3 PIN	"A"	"B"	"C"	"D"	"E"
142-1000-001	Kovar Gold pl .00005 min over Nickel pl .000005 min.	Glass Corning 7052 or equivalent	Kovar Gold pl .00005 min over Nickel pl .000005 min	.070 (1.78)	.0625 (1.59)	.180 (4.57)	.0985 (2.50)	.012 (.30)
142-1000-002	Kovar Gold pl .00005 min over Nickel pl .000005 min.	Glass Corning 7070 or equivalent	Kovar Gold pl .00005 min over Nickel pl .000005 min	.072 (1.83)	.0625 (1.59)	.180 (4.57)	.0985 (2.50)	.015 (.38)
142-1000-003	Kovar Gold pl .00005 min over Nickel pl .000005 min.	Glass Corning 7070 or equivalent	Kovar Gold pl .00005 min over Nickel pl .000005 min	.072 (1.83)	.0600 (1.52)	.180 (4.57)	.1100 (2.79)	.018 (.46)
142-1000-004	Kovar Gold pl .00005 min over Nickel pl .000005 min.	Glass Corning 7052 or equivalent	Kovar Gold pl .00005 min over Nickel pl .000005 min	.070 (1.78)	.0600 (1.52)	.203 (5.16)	.1580 (4.01)	.020 (.51)

### Mounting Hole Dimensions

PART NO.	PIN DIAMETER	"F"	"G"	AIR	TEFLON
				"H"	"H"
142-1000-001	.012 (0.30)	.063 (1.60)	.102 (2.59)	.028 (0.71)	.039 (0.99)
142-1000-002	.015 (0.38)	.063 (1.60)	.102 (2.59)	.035 (0.89)	.049 (1.24)
142-1000-003	.018 (0.46)	.060 (1.52)	.114 (2.90)	.042 (1.07)	.059 (1.50)
142-1000-004	.020 (0.51)	.060 (1.52)	.162 (4.11)	.046 (1.17)	.065 (1.65)

#### Notes:

- 1. The hermetic seal should be mounted as flush as possible with the housing. Excessive recession will create a high impedance air gap which degrades electrical performance.
- 2. The use of an additional counterbore to accommodate a solder ring for seal mounting is not recommended. A slight chamfer may be used if care is taken to completely fill the area with solder—**avoid air gaps**.
- 3. Dimensions shown are given to achieve 50 Ohms with either air or a teflon insulator. A teflon insulator may be helpful in supporting small pin diameters.

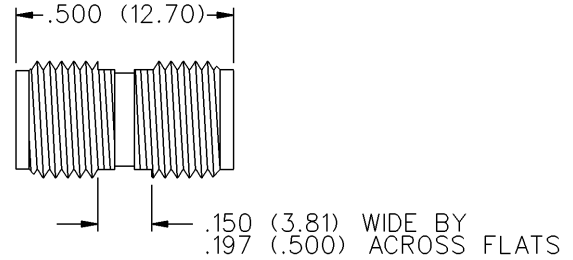
#### Electrical:

Impedance: 50 Ohms  
 Frequency Range: DC to 26.5 GHz  
 VSWR: Dependent upon application  
 Working Voltage: 250 VRMS max at sea level  
 Dielectric Withstanding Voltage: 500 VRMS min at sea level  
 Insulation Resistance: 5000 Megohm min  
 Insertion Loss: .015F dB max (F in GHz)

#### Environmental:

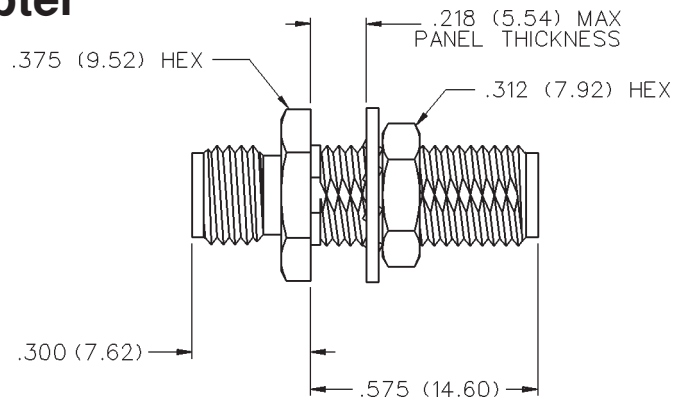
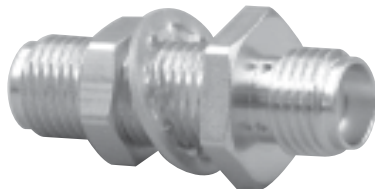
Hermeticity:  $1 \times 10^{-8}$  cc/sec at one atmosphere  
 Solderability: MIL-STD-202, Method 209  
 Operating Temperature: -55° C to +165° C

## Jack to Jack Adapter



VSWR & FREQ. RANGE	GOLD PLATED	NICKEL PLATED
1.05 + .005f (GHz) 0-18 GHz	142-0901-801	142-0901-806

## Jack to Bulkhead Jack Adapter



VSWR & FREQ. RANGE	GOLD PLATED	NICKEL PLATED
1.05 + .01f (GHz) 0-18 GHz	142-0901-401	142-0901-406

Mounting Hole layout figure 1 page 201.

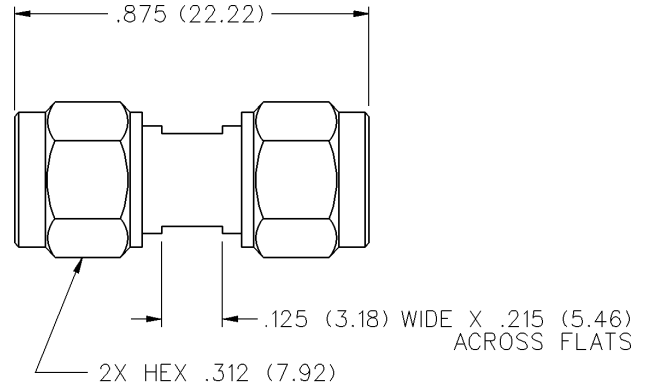
# SMA - 50 Ohm Connectors

In-Series Adapters

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

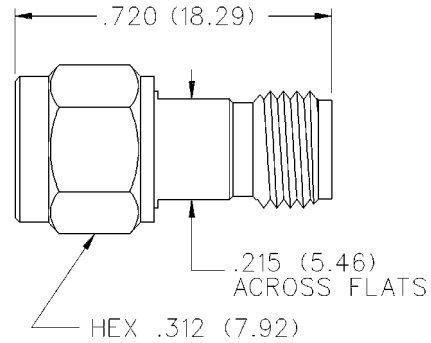


## Plug to Plug Adapter



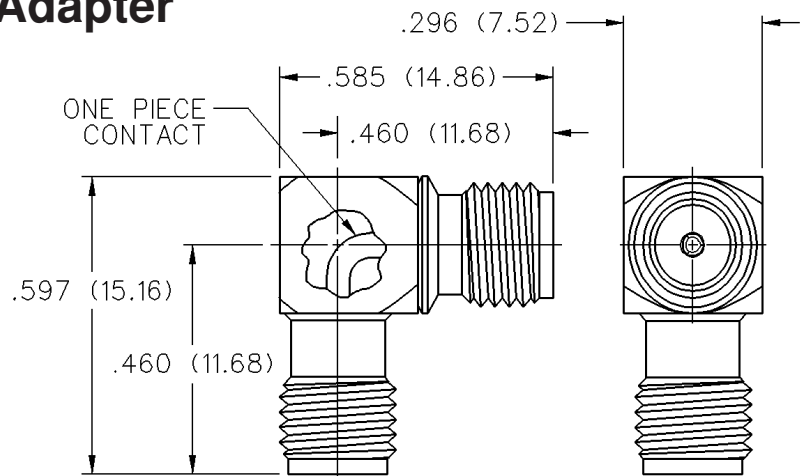
VSWR & FREQ. RANGE	GOLD PLATED	NICKEL PLATED
1.05 + .01f (GHz) 0-18 GHz	142-0901-811	142-0901-816

## Plug to Jack Adapter



VSWR & FREQ. RANGE	GOLD PLATED	NICKEL PLATED
1.05 + .005f (GHz) 0-18 GHz	142-0901-821	142-0901-826

## Right Angle Jack to Jack Adapter



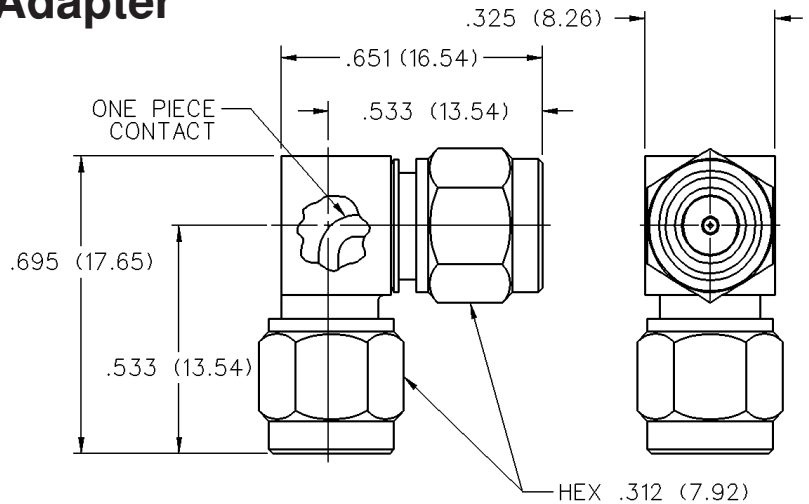
VSWR & FREQ. RANGE	GOLD PLATED
1.035 +.02f (GHz) 0-18 GHz	142-0901-921



## Right Angle Plug to Plug Adapter



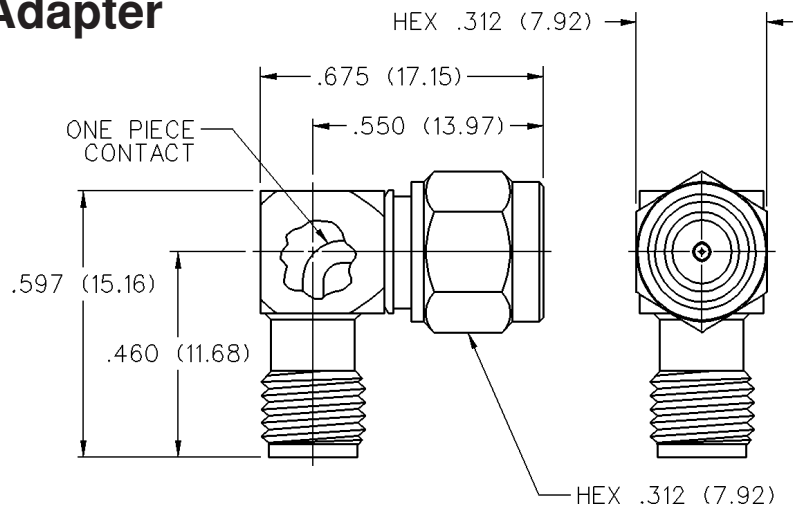
<b>VSWR &amp; FREQ. RANGE</b>	<b>GOLD PLATED</b>
1.035 +.02f (GHz) 0-14 GHz	142-0901-931



## Right Angle Jack to Plug Adapter



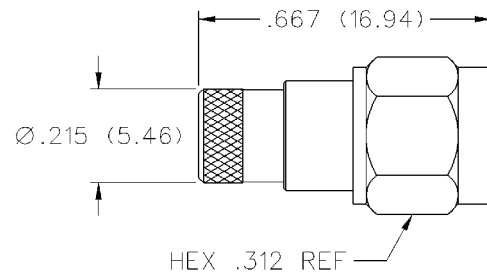
<b>VSWR &amp; FREQ. RANGE</b>	<b>GOLD PLATED</b>
1.035 +.02f (GHz) 0-18 GHz	142-0901-941



## Dummy Load Plug



FREQ. RANGE	GOLD PLATED	NICKEL PLATED	RESISTANCE
0-2 GHz	142-0801-861	142-0801-866	50 Ohm



# SMA Reverse Polarity - 50 Ohm

## Specifications

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

### ELECTRICAL RATINGS

**Impedance:** 50 ohms

**Frequency Range:**

Flexible cable connectors	0-12.4 GHz
Uncabled receptacles	0-18.0 GHz

**VSWR:** (f = GHz)

	Straight Cabled Connectors	Right Angle Cabled Connectors
RG-316, LMR-100 cable	1.15 + .02f	1.15 + .03f
RG-58, LMR-195 cable	1.17 + .025f	1.17 + .06f
RG-142 cable	1.17 + .02f	1.15 + .03f
LMR-200, LMR-240 cable	1.10 + .03f	1.10 + .06f
Uncabled receptacles	N/A	

**Working Voltage:** (VRMS maximum)<sup>†</sup>

Connectors for Cable Type	Sea Level	70K Feet
RG-316; LMR-100, 195, 200	250	65
RG-58, RG-142, LMR-240, uncabled receptacles	335	85

**Dielectric Withstanding Voltage:** (VRMS minimum at sea level)<sup>†</sup>

Connectors for RG-316; LMR-100, 195, 200	750
Connectors for RG-58, RG-142, LMR-240, uncabled receptacles	1000

**Corona Level:** (Volts minimum at 70,000 feet)<sup>†</sup>

Connectors for RG-316, LMR-100, 195, 200	190
Connectors for RG-58, RG-142, LMR-240, uncabled receptacles	250

**Insertion Loss:** (dB maximum)

Straight flexible cable connectors	$.06\sqrt{f}$ (GHz), tested at 6 GHz
Right angle flexible cable connectors	$0.15\sqrt{f}$ (GHz), tested at 6 GHz
Low loss flexible straight cable connectors	$0.06\sqrt{f}$ (GHz), tested at 1 GHz
Low loss flexible right angle cable connectors	$0.15\sqrt{f}$ (GHz), tested at 1 GHz
Uncabled receptacles, field replaceable	N/A

**Insulation Resistance:** 5000 megohms minimum

**Contact Resistance:** (milliohms maximum)

	Initial	After Environmental
Center contact (straight cabled connectors and uncabled receptacles)	3.0*	4.0*
Center contact (right angle cabled connectors)	4.0	6.0
Outer contact (all connectors)	2.0	N/A
Braid to body (gold plated connectors)	0.5	N/A
Braid to body (nickel plated connectors)	5.0	N/A

**RF Leakage:** (dB minimum, tested at 2.5 GHz)

Flexible cable connectors	-60 dB
Uncabled receptacles and adapters	N/A

\*All gold-plated parts include a .00005" min. nickel barrier layer.

**RF High Potential Withstanding Voltage:**

(VRMS minimum, tested at 4 and 7 MHz)<sup>†</sup>

Connectors for RG-316; LMR-100, 195, 200	500
Connectors for RG-58, RG-142, LMR-240, uncabled receptacles	670

### MECHANICAL RATINGS

**Engagement Design:** MIL-C-39012, Series SMA

**Engagement/Disengagement Force:** 2 inch-pounds maximum

**Mating Torque:** 7 to 10 inch-pounds

**Bulkhead Mounting Nut Torque:** 15 inch-pounds

**Coupling Proof Torque:** 15 inch-pounds minimum

**Coupling Nut Retention:** 60 pounds minimum

**Contact Retention:**

6 lbs. minimum axial force (captivated contacts)

4 inch-ounce minimum torque (uncabled receptacles)

**Cable Retention:**

	Axial Force* (lbs)	Torque (in-oz)
Connectors for RG-316, LMR-100	20	N/A
Connectors for LMR195, 200	30	N/A
Connectors for RG-58, LMR-240	40	N/A
Connectors for RG-142	45	N/A

\*Or cable breaking strength whichever is less.

**Durability:** 500 cycles minimum

**ENVIRONMENTAL RATINGS** (Meets or exceeds the applicable paragraph of MIL-C-39012)

**Temperature Range:** - 65°C to + 165°C

**Thermal Shock:** MIL-STD-202, Method 107, Condition B

**Corrosion:** MIL-STD-202, Method 101, Condition B

**Shock:** MIL-STD-202, Method 213, Condition I

**Vibration:** MIL-STD-202, Method 204, Condition D

**Moisture Resistance:** MIL-STD-202, Method 106

### MATERIAL SPECIFICATIONS

**Bodies:** Brass per QQ-B-626, gold plated\* per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

**Contacts:** Male - brass per QQ-B-626, gold plated per MIL-G-45204 .00003" min.

Female - beryllium copper per QQ-C-530, gold plated per MIL-G-45204 .00003" min.

**Nut Retention Spring:** Beryllium copper per QQ-C-533. Unplated

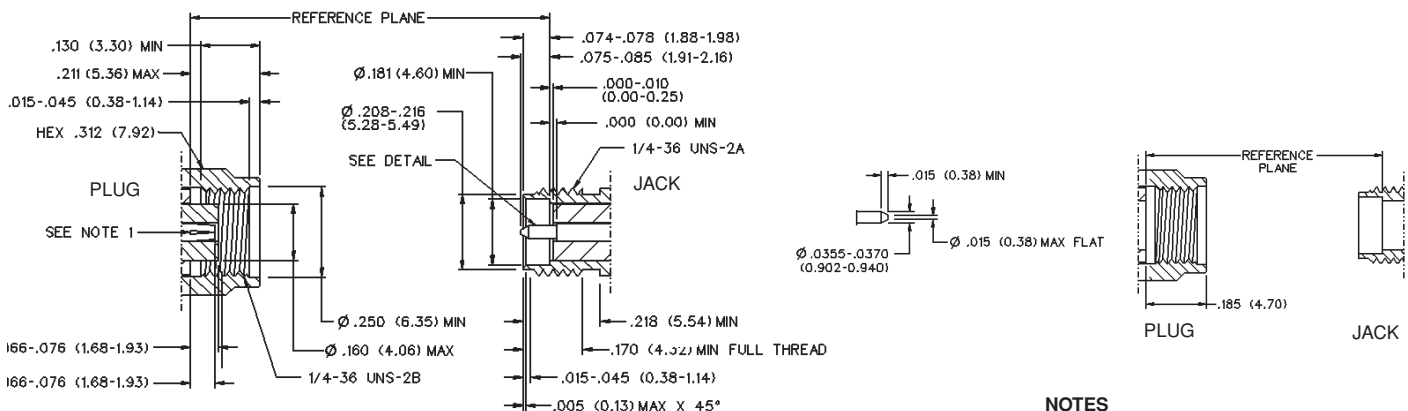
**Insulators:** PTFE fluorocarbon per ASTM D 1710 and ASTM D 1457 or Tefzel per ASTM D 3159

**Expansion Caps:** Brass per QQ-B-613, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

**Crimp Sleeves:** Copper per WW-T-799 or brass per QQ-B-613, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

**Mounting Hardware:** Brass per QQ-B-626 or QQ-B-613, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

### Mating Engagement for SMA Reverse Polarity Series



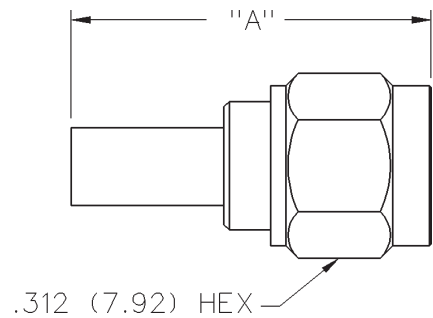
#### NOTES

1. ID of contact to meet VSWR, contact resistance and insertion withdrawal forces when mated with dia .0355-.0370 male pin.

<sup>†</sup>Avoid user injury due to misapplication.

See safety advisory definitions inside front cover.

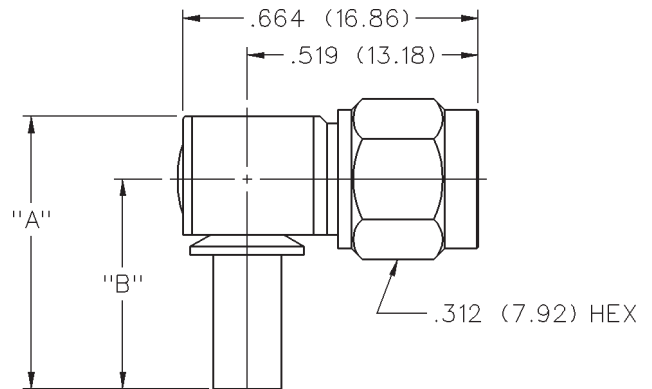
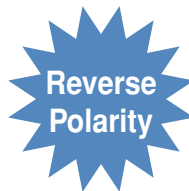
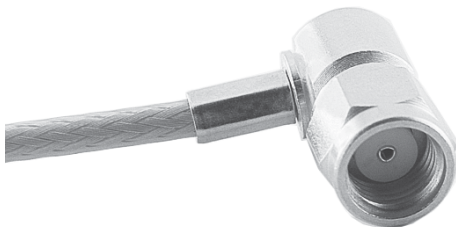
## Straight Crimp Type Plug - Solder or Crimp Captivated Contact



CABLE TYPE	VSWR & FREQ. RANGE	GOLD PLATED	NICKEL PLATED	"A"
RG-316/U, 188, 174, 161 LMR-100, HPF-100, RF-100	1.15 + .02f (GHz) 0-12.4 GHz	142-4403-001	142-4403-006	.706 (17.93)
RG-316 DS, 188 DS,	1.15 + .02f (GHz) 0-12.4 GHz	142-4404-001	142-4404-006	.706 (17.93)
RG-58/U, 141, 303, LMR-195, HPF-195, RF-195	1.17 + .025f (GHz) 0-12.4 GHz	142-4407-001	142-4407-006	.706 (17.93)
RG-142/U, 55, 223, 400	1.17 + .02f (GHz) 0-12.4 GHz	142-4408-001	142-4408-006	.706 (17.93)
LMR-200, HPF-200, RF-200	1.10 + .03f (GHz) 0-12.4 GHz	142-4439-001	142-4439-006	.844 (21.44)
LMR-240, HPF-240, RF-240	1.10 + .03f (GHz) 0-12.4 GHz	142-4435-001	142-4435-006	.844 (21.44)

Assembly instructions: LMR 195, 200 and 240 page 230.  
All other cables page 229. See page 190 for Cable Assembly Tools.

## Right Angle Crimp Type Plug - Captivated Contact



CABLE TYPE	VSWR & FREQ. RANGE	GOLD PLATED	NICKEL PLATED	"A"	"B"
RG-316/U, 188, 174, 161, LMR-100, HPF-100, RF-100	1.15 + .03f (GHz) 0-12.4 GHz	142-4403-101	142-4403-106	.611 (15.52)	.470 (11.94)
RG-316 DS, 188 DS	1.15 + .03f (GHz) 0-12.4 GHz	142-4404-101	142-4404-106	.611 (15.52)	.470 (11.94)
RG-58/U, 141, 303, LMR-195, HPF-195, RF-195	1.17 + .06f (GHz) 0-12.4 GHz	142-4407-101	142-4407-106	.611 (15.52)	.470 (11.94)
RG-142/U, 55, 223, 400	1.15 + .03f (GHz) 0-12.4 GHz	142-4408-101	142-4408-106	.611 (15.52)	.470 (11.94)
LMR-200, HPF-200, RF-200	1.10 + .06f (GHz) 0-12.4 GHz	142-4439-101	142-4439-106	.611 (15.52)	.470 (11.94)
LMR-240, HPF-240, RF-240	1.10 + .06f (GHz) 0-12.4 GHz	142-4435-101	142-4435-106	.635 (16.13)	.490 (12.45)

Assembly instructions: LMR 195, 200 and 240 page 233.  
All other cables page 232. See page 190 for Cable Assembly Tools.

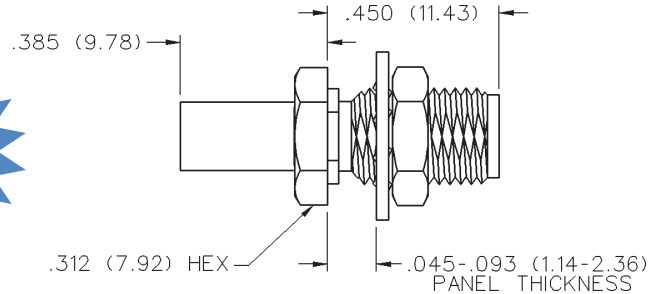
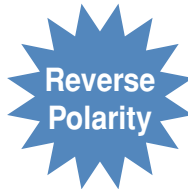
# SMA Reverse Polarity - 50 Ohm

For Flexible Cable

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



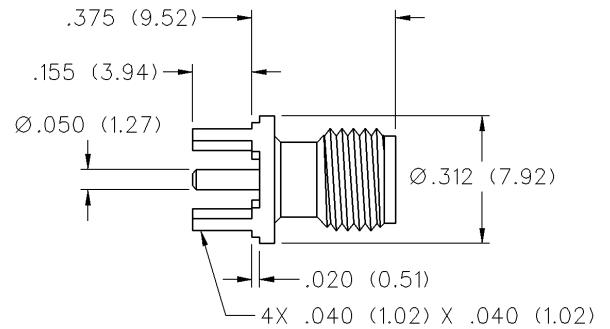
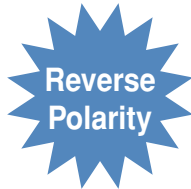
## Straight Crimp Type Bulkhead Jack - Captivated Contact



CABLETYPE	GOLD PLATED	NICKEL PLATED
RG-316/U, 188, 174, 161	142-4303-401	142-4303-406
RG-316 DS, 188 DS	142-4304-401	142-4304-406
RG-58/U, 141, 303	142-4307-401	142-4307-406
RG-142/U, 55, 223, 400	142-4308-401	142-4308-406

Assembly instructions page 229.  
See page 190 for Cable Assembly Tools.  
Mounting hole layout figure 1 page 201.

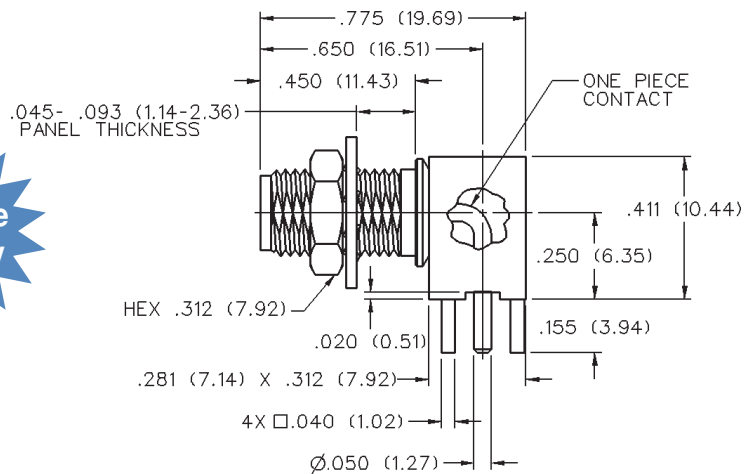
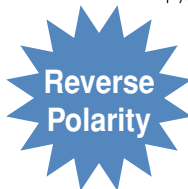
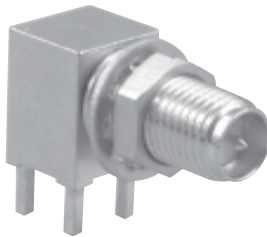
## Straight Jack Receptacle



GOLD PLATED	NICKEL PLATED
142-4701-201	142-4701-206

Mounting hole layout figure 2 page 201.

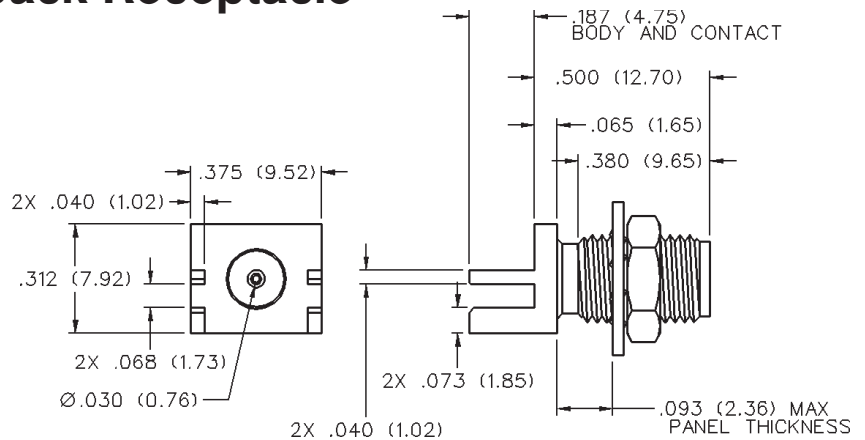
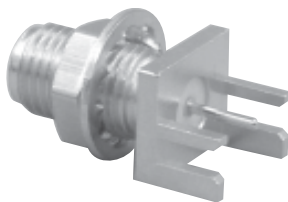
## Right Angle Bulkhead Jack Receptacle



GOLD PLATED	NICKEL PLATED
142-4701-501	142-4701-506

Mounting hole layout figures 1 and 2 page 201.

## End Launch Bulkhead Jack Receptacle



GOLD PLATED	NICKEL PLATED	BOARD THICKNESS
142-4701-801	142-4701-806	.062 (1.57)

# SMA Reverse Thread - 50 Ohm

## Specifications

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

### ELECTRICAL RATINGS

**Impedance:** 50 ohms

**Frequency Range:**

Flexible cable connectors .....	0-12.4 GHz
Uncabled receptacles .....	0-18.0 GHz

**VSWR:** (f = GHz)

	Straight Cabled Connectors	Right Angle Cabled Connectors
RG-316, LMR-100 cable .....	1.15 + .02f	1.15 + .03f
RG-58, LMR-195 cable .....	1.15 + .01f	1.15 + .02f
RG-142 cable .....	1.15 + .01f	1.15 + .02f
LMR-200, LMR-240 cable .....	1.10 + .03f	1.10 + .06f
Uncabled receptacles .....	N/A	

**Working Voltage:** (VRMS maximum)<sup>†</sup>

Connectors for Cable Type	Sea Level	70K Feet
RG-316; LMR-100, 195, 200 .....	250	65
RG-58, RG-142, LMR-240, uncabled receptacles .....	335	8

**Dielectric Withstanding Voltage:** (VRMS minimum at sea level)<sup>†</sup>

Connectors for RG-316; LMR-100, 195, 200 .....	750
Connectors for RG-58, RG-142, LMR-240, uncabled receptacles ...	1000

**Corona Level:** (Volts minimum at 70,000 feet)<sup>†</sup>

Connectors for RG-316, LMR-100, 195, 200 .....	190
Connectors for RG-58, RG-142, LMR-240, uncabled receptacles ...	250

**Insertion Loss:** (dB maximum)

Straight flexible cable connectors .....		$0.06\sqrt{f}$ (GHz), tested at 6 GHz
Right angle flexible cable connectors .....		$0.15\sqrt{f}$ (GHz), tested at 6 GHz
Low loss flexible straight cable connectors .....		$0.06\sqrt{f}$ (GHz), tested at 1 GHz
Low loss flexible right angle cable connectors .....		$0.15\sqrt{f}$ (GHz), tested at 1 GHz
Uncabled receptacles, field replaceable .....		N/A

**Insulation Resistance:** 5000 megohms minimum

**Contact Resistance:** (milliohms maximum)

	Initial	After Environmental
Center contact (straight cabled connectors and uncabled receptacles) .....	3.0*	4.0*
Center contact (right angle cabled connectors) .....	4.0	6.0
Outer contact (all connectors) .....	2.0	N/A
Braid to body (gold plated connectors) .....	0.5	N/A
Braid to body (nickel plated connectors) .....	5.0	N/A

**RF Leakage:** (dB minimum, tested at 2.5 GHz)

Flexible cable connectors .....	-60 dB
Uncabled receptacles and adapters .....	N/A

\*All gold-plated parts include a .00005" min. nickel barrier layer.

<sup>†</sup>Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

**RF High Potential Withstanding Voltage:** (VRMS minimum, tested at 4 and 7 MHz)<sup>†</sup>

Connectors for RG-316; LMR-100, 195, 200 .....	500
Connectors for RG-58, RG-142, LMR-240, uncabled receptacles .....	670

### MECHANICAL RATINGS

**Engagement Design:** mil-c-39012, Series SMA

**Engagement/Disengagement Force:** 2 inch-pounds maximum

**Mating Torque:** 7 to 10 inch-pounds

**Bulkhead Mounting Nut Torque:** 15 inch-pounds

**Coupling Proof Torque:** 15 inch-pounds minimum

**Coupling Nut Retention:** 60 pounds minimum

**Contact Retention:**

6 lbs. minimum axial force (captivated contacts)
4 inch-ounce minimum torque (uncabled receptacles)

Cable Retention:	Axial Force* (lbs)	Torque (in-oz)
Connectors for RG-316, LMR-100	20	N/A
Connectors for LMR-195, 200	30	N/A
Connectors for RG-58; LMR-240	40	N/A
Connectors for RG-142	45	N/A

\*Or cable breaking strength whichever is less.

**Durability:** 500 cycles minimum

### ENVIRONMENTAL RATINGS

(Meets or exceeds the applicable paragraph of MIL-C-39012)

**Temperature Range:** - 65°C to + 165°C

**Thermal Shock:** MIL-STD-202, Method 107, Condition B

**Corrosion:** MIL-STD-202, Method 101, Condition B

**Shock:** MIL-STD-202, Method 213, Condition I

**Vibration:** MIL-STD-202, Method 204, Condition D

**Moisture Resistance:** MIL-STD-202, Method 106

### MATERIAL SPECIFICATIONS

**Bodies:** Brass per QQ-B-626, gold plated\* per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

**Contacts:** Male - brass per QQ-B-626, gold plated per MIL-G-45204 .00003" min.

Female - beryllium copper per QQ-C-530, gold plated per MIL-G-45204 .00003" min.

**Nut Retention Spring:** Beryllium copper per QQ-C-533. Unplated

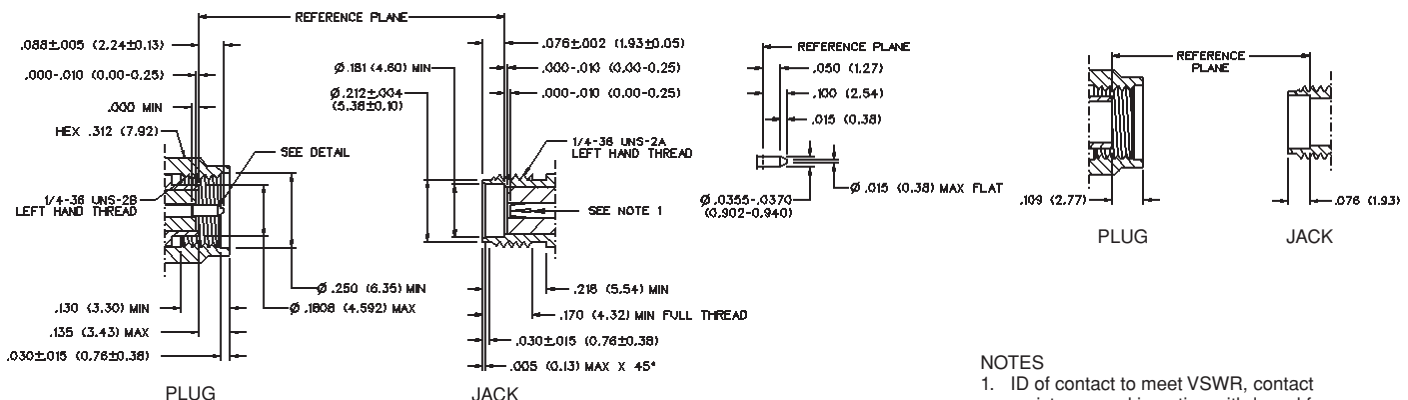
**Insulators:** PTFE fluorocarbon per ASTM D 1710 and ASTM D 1457 or Tefzel per ASTM D 3159

**Expansion Caps:** Brass per QQ-B-613, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

**Crimp Sleeves:** Copper per WW-T-799 or brass per QQ-B-613, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

**Mounting Hardware:** Brass per QQ-B-626 or QQ-B-613, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

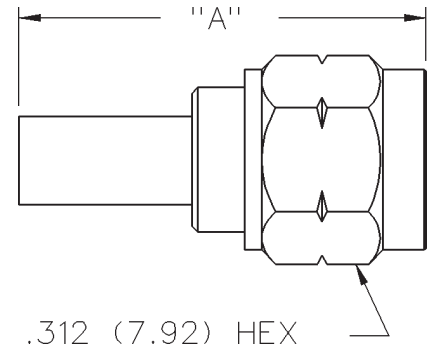
### Mating Engagement for SMA Reverse Thread Series



#### NOTES

- ID of contact to meet VSWR, contact resistance and insertion withdrawal forces when mated with dia .0355-.0370 male pin.

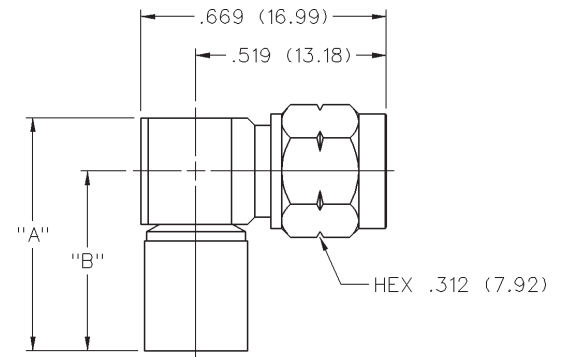
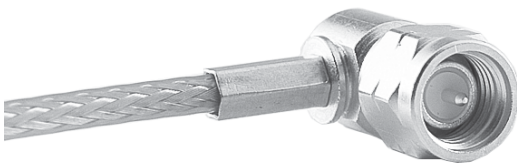
## Straight Crimp Type Plug - Solder or Crimp Captivated Contact



CABLE TYPE	VSWR & FREQ. RANGE	GOLD PLATED	NICKEL PLATED	"A"
RG-316/U, 188, 174, 161 LMR-100, HPF-100, RF-100	1.15 + .02f (GHz) 0-12.4 GHz	142-5403-001	142-5403-006	.706 (17.93)
RG-316 DS, 188 DS,	1.15 + .02f (GHz) 0-12.4 GHz	142-5404-001	142-5404-006	.706 (17.93)
RG-58/U, 141, 303, LMR-195, HPF-195, RF-195	1.15 + .01f (GHz) 0-12.4 GHz	142-5407-001	142-5407-006	.706 (17.93)
RG-142/U, 55, 223, 400	1.15 + .01f (GHz) 0-12.4 GHz	142-5408-001	142-5408-006	.706 (17.93)
LMR-200, HPF-200, RF-200	1.10 + .03f (GHz) 0-12.4 GHz	142-5439-001	142-5439-006	.844 (21.44)
LMR-240, HPF-240, RF-240	1.10 + .03f (GHz) 0-12.4 GHz	142-5435-001	142-5435-006	.844 (21.44)

Assembly instructions: LMR 195, 200 and 240 page 230.  
All other cables page 229. See page 190 for Cable Assembly Tools.

## Right Angle Crimp Type Plug - Captivated Contact



CABLE TYPE	VSWR & FREQ. RANGE	GOLD PLATED	NICKEL PLATED	"A"	"B"
RG-316/U, 188, 174, 161 LMR-100, HPF-100, RF-100	1.15 + .03f (GHz) 0-12.4 GHz	142-5403-101	142-5403-106	.611 (15.52)	.470 (11.94)
RG-316 DS, 188 DS,	1.15 + .03f (GHz) 0-12.4 GHz	142-5404-101	142-5404-106	.611 (15.52)	.470 (11.94)
RG-58/U, 141, 303, LMR-195, HPF-195, RF-195	1.15 + .02f (GHz) 0-12.4 GHz	142-5407-101	142-5407-106	.611 (15.52)	.470 (11.94)
RG-142/U, 55, 223, 400	1.15 + .02f (GHz) 0-12.4 GHz	142-5408-101	142-5408-106	.611 (15.52)	.470 (11.94)
LMR-200, HPF-200, RF-200	1.10 + .06f (GHz) 0-12.4 GHz	142-5439-101	142-5439-106	.611 (15.52)	.470 (11.94)
LMR-240, HPF-240, RF-240	1.10 + .06f (GHz) 0-12.4 GHz	142-5435-101	142-5435-106	.635 (16.13)	.490 (12.45)

Assembly instructions: LMR 195, 200 and 240 page 233.  
All other cables page 232. See page 190 for Cable Assembly Tools.

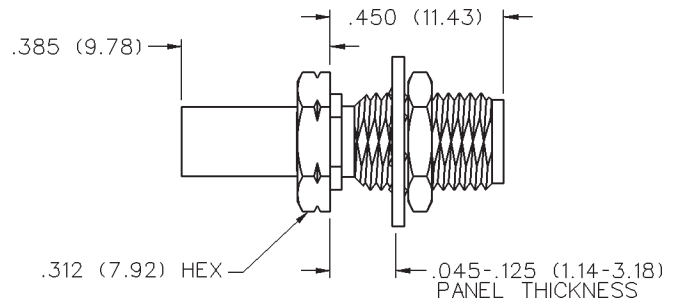
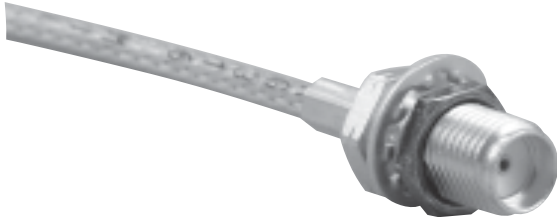
# SMA Reverse Thread - 50 Ohm

For Flexible Cable

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



## Straight Crimp Type Bulkhead Jack - Solder or Crimp Captivated Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED
RG-316/U, 188, 174, 161	142-5303-401	142-5303-406
RG-316 DS, 188 DS	142-5304-401	142-5304-406
RG-58/U, 141, 303	142-5307-401	142-5307-406
RG-142/U, 55, 223, 400	142-5308-401	142-5308-406

Assembly instructions page 229.  
See page 190 for Cable Assembly Tools.  
Mounting hole layout figure 1 page 201.

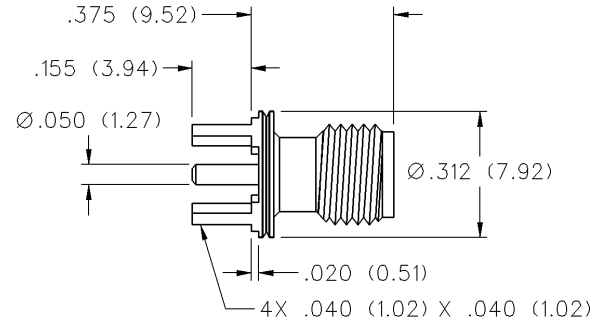


## Straight Jack Receptacle

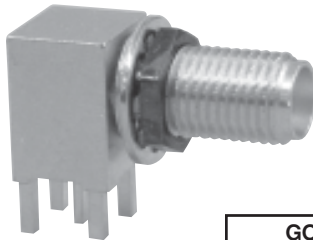


GOLD PLATED	NICKEL PLATED
142-5701-201	142-5701-206

Mounting hole layout figure 2 page 201.

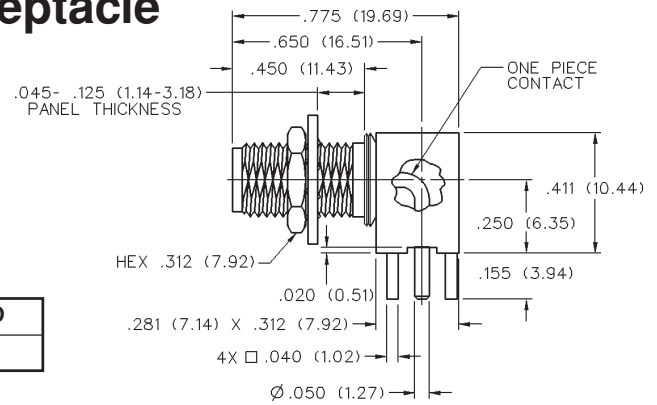


## Right Angle Bulkhead Jack Receptacle

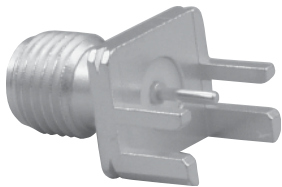


GOLD PLATED	NICKEL PLATED
142-5701-501	142-5701-506

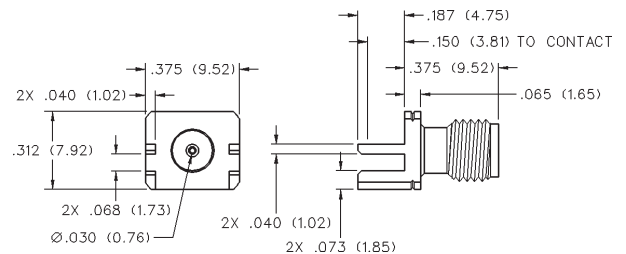
Mounting hole layout figures 1 and 2 page 201.



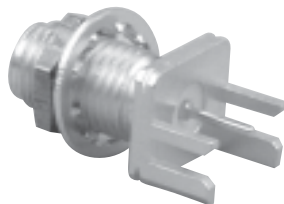
## End Launch Jack Receptacle - Round Contact



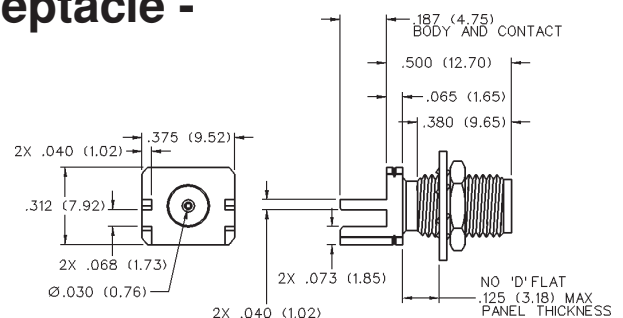
FREQUENCY RANGE	GOLD PLATED	NICKEL PLATED	BOARD THICKNESS
0-18 GHz	142-5701-801	142-5701-806	.062 (1.57)



## End Launch Bulkhead Jack Receptacle - Round Contact

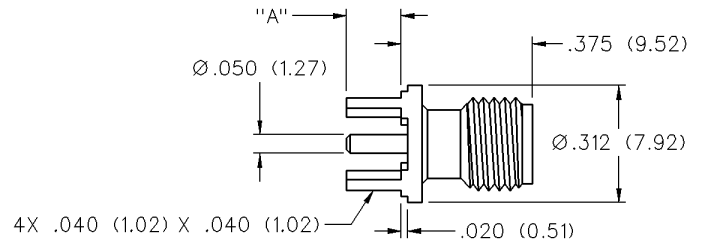


GOLD PLATED	NICKEL PLATED	BOARD THICKNESS
142-5701-811	142-5701-816	.062 (1.57)





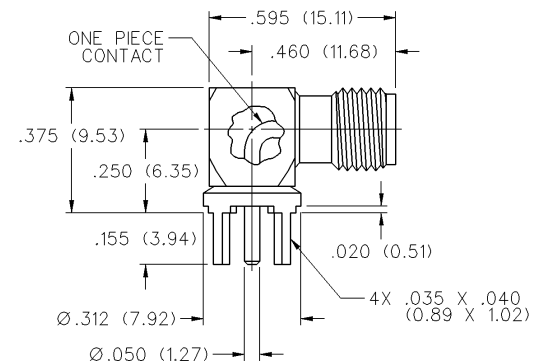
## Straight Jack Receptacle



FREQUENCY RANGE	GOLD PLATED	"A"
0-18 GHz	142-9701-201	.155 (3.94)
0-18 GHz	142-9701-211	.110 (2.79)

Mounting hole layout figure 2 page 201.

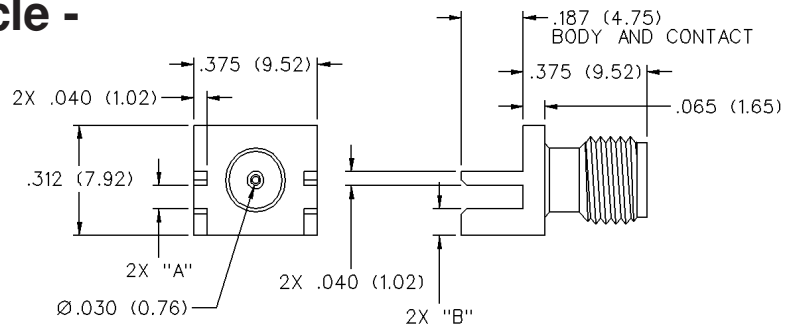
## Right Angle Jack Receptacle



FREQUENCY RANGE	GOLD PLATED
0-18 GHz	142-9701-301

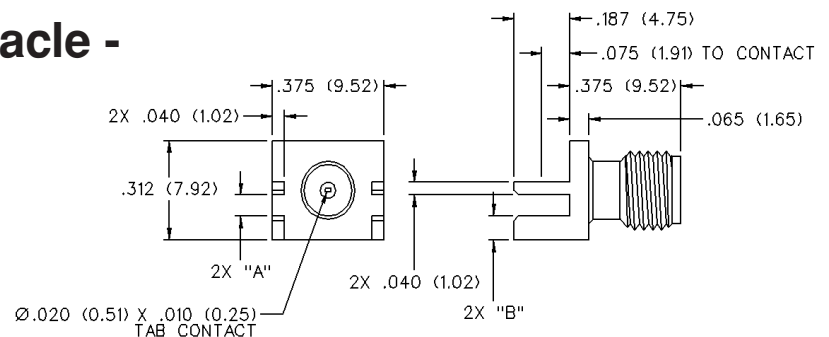
Mounting hole layout figure 2 page 201.

## End Launch Jack Receptacle - Round Contact



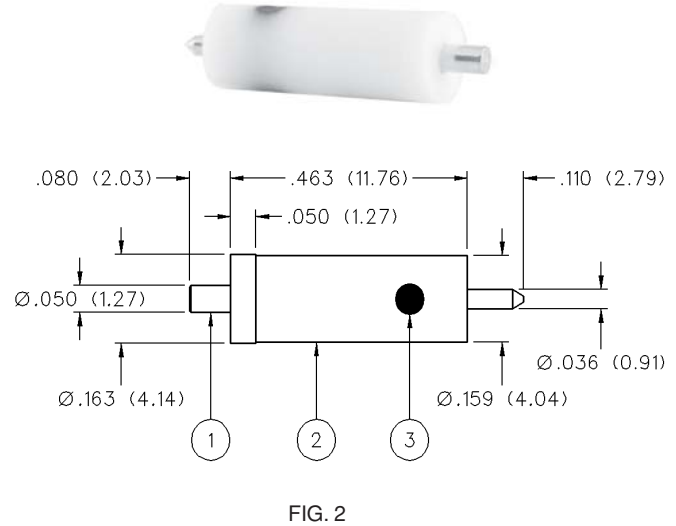
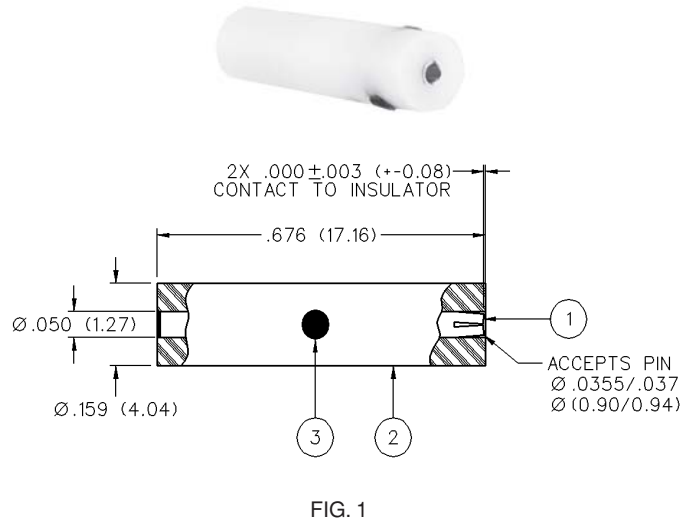
FREQUENCY RANGE	GOLD PLATED	BOARD THICKNESS	"A"	"B"
0-18 GHz	142-9701-801	.062 (1.57)	.068 (1.73)	.073 (1.85)

## End Launch Jack Receptacle - Tab Contact



FREQUENCY RANGE	GOLD PLATED	BOARD THICKNESS	"A"	"B"
0-18 GHz	142-9701-811	.062 (1.57)	.068 (1.73)	.083 (2.11)

## Epoxy Staked Feedthrough



PART NO.	ITEM 1 CONTACT	ITEM 2 INSULATOR	ITEM 3 STAKE	FIGURE
142-1000-012	Beryllium Copper Gold pl .00005 min over Nickel pl .000005 min over Copper pl .00005 min	Teflon	Epoxy	1
142-1000-018	Brass Gold pl .00005 min over Nickel pl .000005 min over Copper pl .00005 min	Teflon	Epoxy	2

### Specifications:

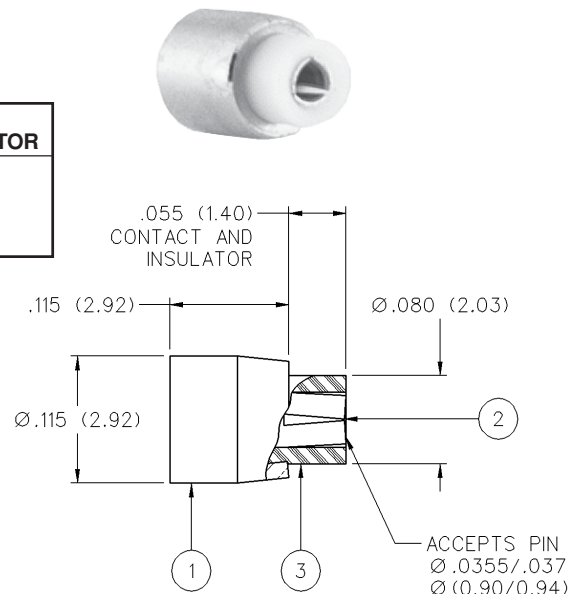
Impedance: 50 Ohms Nominal  
 Frequency Range: DC to 26.5 GHz  
 VSWR: Dependent upon application  
 Working Voltage: 335 VRMS max at sea level  
 Dielectric Withstanding Voltage: 1000 VRMS min at sea level  
 Insulation Resistance: 5000 Megohm min  
 Contact to Insulator Retention: 6 lb. min  
 Operating Temperature: -55° C to + 165° C

## PC Board Feedthrough

PART NO.	ITEM 1 CONTACT (END CAP)	ITEM 2 CONTACT (CENTER)	ITEM 3 INSULATOR
142-1000-022	Brass Gold pl .00001 min over Nickel pl .000005 min over Copper pl .00005 min	Beryllium Copper Gold pl .00005 min over Nickel pl .000005 min over Copper pl .00005 min	Teflon

### Application:

Lower frequency feedthrough.  
 Solder end cap to one side of PC board.  
 Contact passes through board and is isolated from board by Teflon™ insulator.



## SMB Connectors - 50 Ohm Connectors

Bulkhead Mount and Panel Mount .....	98
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# SMB - 50 Ohm Connectors

## Specifications

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

### ELECTRICAL RATINGS

**Impedance:** 50 Ohms

**Frequency Range:** Connectors ..... 0-4 GHz  
 Dummy loads ..... 0-1 GHz

**VSWR:** (f = GHz)

	Straight Cabled	Right Angle Cabled
RG-178 cable .....	1.30 + .04f	1.45 + .06f
RG-316, RG-58, and .086 Semi-Rigid cable .....	1.25 + .04f	1.35 + .04f
Adapters .....	1.20 + .04f	

Uncabled receptacles, dummy loads ..... N/A

### Working Voltage: (VRMS maximum)<sup>†</sup>

Connectors for Cable Type	Sea Level	70K Feet
RG-178 .....	250	60
RG-316, RG-58, .086 Semi-Rigid uncabled receptacles, adapters .....	335	85
Dummy loads .....		N/A

### Dielectric Withstanding Voltage: (VRMS minimum at sea level)<sup>†</sup>

Connectors for RG-178 .....	750
Connectors for RG-316, RG-58, .086 Semi-Rigid, uncabled receptacles, adapters .....	1000
Dummy loads .....	N/A

### Corona Level: (Volts minimum at 70,000 feet)<sup>†</sup>

Connectors for RG-178 .....	185
Connectors for RG-316, RG-58, .086 Semi-Rigid .....	250
Uncabled receptacles, adapters, dummy loads .....	N/A

### Insertion Loss: (dB maximum, tested at 1.5 GHz)

Straight cable connectors .....	0.30 dB
Right angle cable connectors .....	0.60 dB
Uncabled receptacles, adapters and dummy loads .....	N/A

### Insulation Resistance: 1000 megohms minimum

Contact Resistance: (milliohms maximum)	Initial	After Environmental
Center contact (straight cabled connectors and uncabled receptacles) .....	6.0	8.0
Center contact (right angle cabled connectors and adapters) .....	12.0	16.0
Outer contact (gold plated connectors) .....	1.0	1.5
Outer contact (nickel plated connectors) .....	2.5	3.5
Braid to body (gold plated connectors) .....	1.0	N/A
Braid to body (nickel plated connectors) .....	2.5	N/A

### RF Leakage: (dB minimum tested at 2.5 GHz)

Cable connectors .....	-55 dB
Uncabled receptacles, adapters and dummy loads .....	N/A

### RF High Potential Withstanding Voltage:

(VRMS minimum, tested at 4 and 7 MHz)<sup>†</sup>

Connectors for RG-178 .....	500
Connectors for RG-316, RG-58 .....	700
Uncabled receptacles and adapters .....	600
Dummy loads .....	N/A

**Power Rating (Dummy Load):** 0.5 watt @ +25°C, derated to 0.25 watt @ +125° C

### MECHANICAL RATINGS

**Engagement Design:** mil-c-39012, Series SMB

**Engagement/Disengagement Force:** 2 pounds min to 14 pounds maximum axial force

**Contact Retention:** 4 lbs. min axial force (captivated contacts)  
 1 inch-ounce min torque (uncabled receptacles)

Cable Retention:	Axial Force* (lbs)	Torque (in-oz)
Connectors for RG-178 .....	10	N/A
Connectors for RG-316 .....	20	N/A
Connectors for RG-58 .....	40	16
Connectors for .086 Semi-Rigid .....	30	16

\* or cable breaking strength whichever is less.

**Durability:** 500 cycles minimum

### ENVIRONMENTAL RATINGS

(Meets or exceeds the applicable paragraph of MIL-C-39012)

**Temperature Range:** Connectors ..... -65°C to +165°C  
 Dummy loads ..... -65°C to +125°C

**Thermal Shock:** MIL-STD-202, Method 107, Condition B (N/A dummy loads)

**Corrosion:** MIL-STD-202, Method 101, Condition B (N/A dummy loads)

**Shock:** MIL-STD-202, Method 213, Condition B (N/A dummy loads)

**Vibration:** MIL-STD-202, Method 204, Condition B (N/A dummy loads)

### MATERIAL SPECIFICATIONS

**Bodies:** Brass per QQ-B-626 or zinc per ASTM B86-71, gold plated\*\* per MIL-G-45204 .00001 min or nickel plated per QQ-N-290

**Contacts:** Male - brass per QQ-B-626, gold plated per MIL-G-45204 .00003" min.

Female - beryllium copper per QQ-C-530, gold plated per MIL-G-45204 .00003" min.

**Insulators:** PTFE fluorocarbon per ASTM D 1710 and ASTM D 1457 OR Teflon PFA 340

**Expansion Caps:** Brass per QQ-B-613, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

**Crimp Sleeves:** Copper per WW-T-799, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

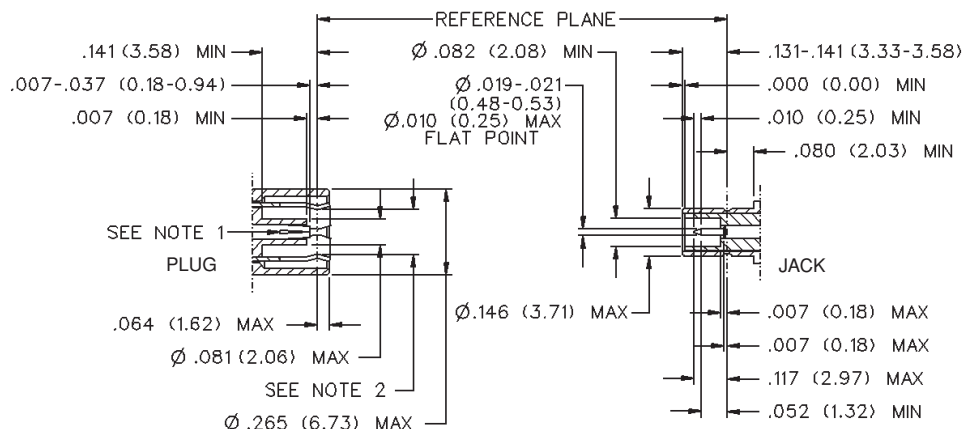
**Mounting Hardware:** Brass (nuts) per QQ-B-626 or phosphor bronze (lockwashers) QQ-B-750, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

**Cover Rings:** Phosphor Bronze per QQ-B-750, gold plated per MIL-G-45204 .00001 min. or nickel plated per QQ-N-290.

<sup>†</sup>Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

\*\* All gold plated parts include a .00005" min. nickel underplate barrier layer.

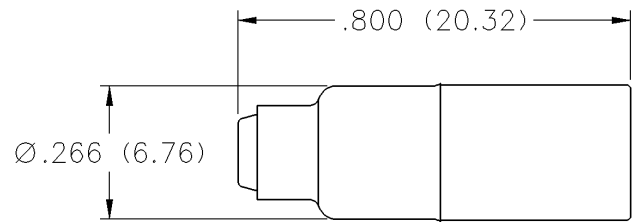
### Mating Engagement for SMB Series



### Notes

1. ID of contact to meet VSWR mating characteristics and connector durability when mated with a dia .019 /0.53 male contact.
2. Must meet the force to engage and disengage when mated with mating part.

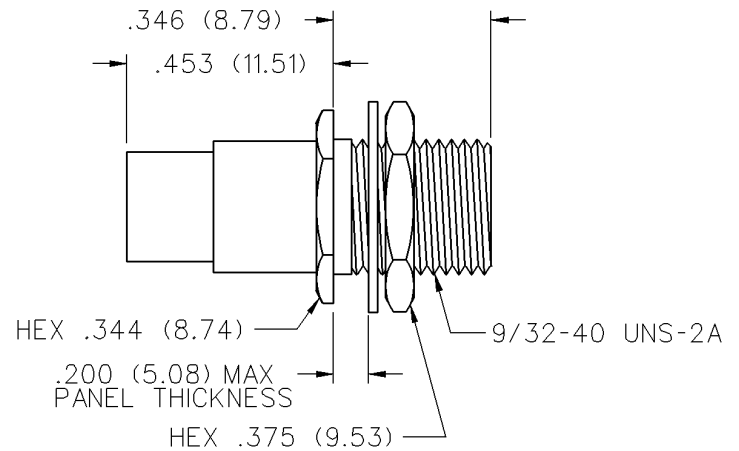
## Straight Solder Type Plug - Captivated Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED
.086 Semi-Rigid	131-3693-001	131-3693-016

Assembly instructions page 237.

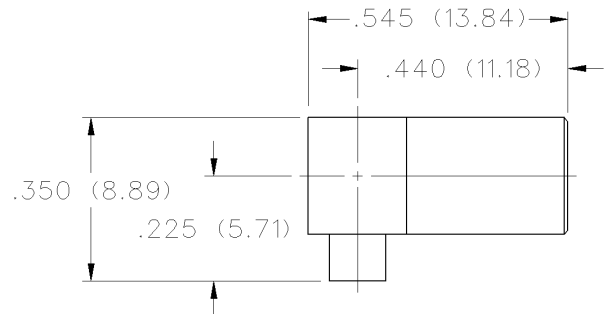
## Straight Solder Type Bulkhead Plug - Captivated Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED
.141 Semi-Rigid	131-3694-401	131-3694-406

Assembly instructions page 237.  
Mounting hole Dia. .290 (7.05).

## Right Angle Solder Type Plug - Captivated Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED
.086 Semi-Rigid	131-3693-101	131-3693-116

Assembly instructions page 238.

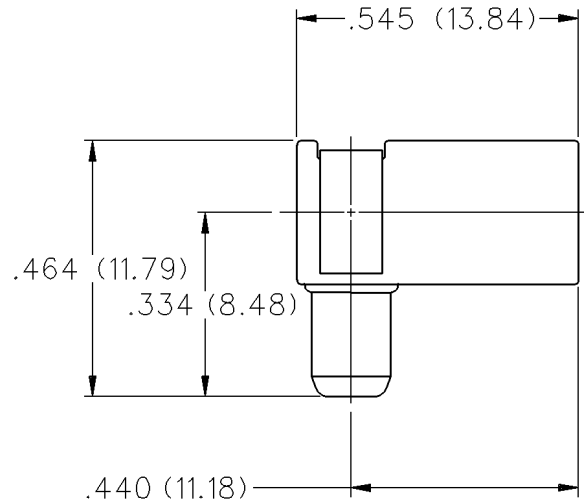
# SMB - 50 Ohm Connectors

For Semi-Rigid Cable

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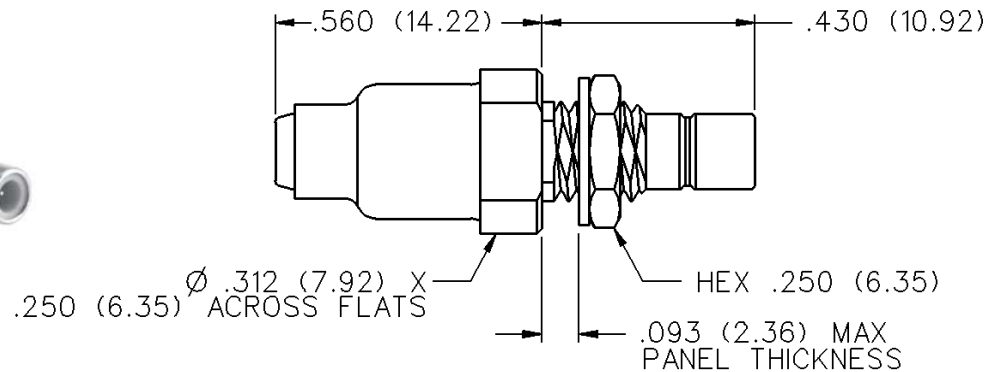
## Right Angle Solder Type Plug - Die Cast - Captivated Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED
.086 Semi-Rigid	131-1693-101	131-1693-116

Assembly instructions page 238.

## Straight Bulkhead Solder Type Jack - Captivated Contact



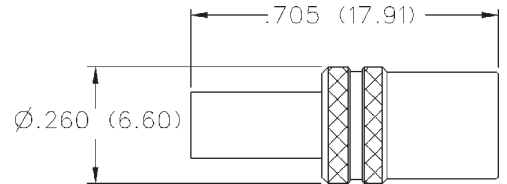
CABLE TYPE	GOLD PLATED	NICKEL PLATED
.086 Semi-Rigid	131-3593-401	131-3593-406

Assembly instructions page 237.

Mounting hole layout figure 5 page 201.



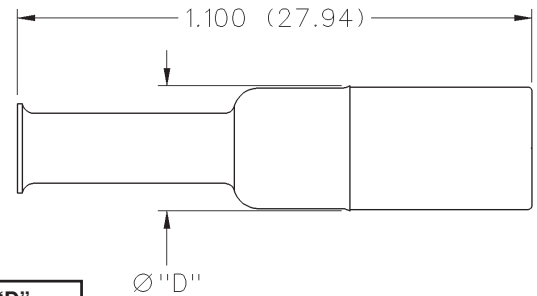
## Straight Crimp Type Plug (3-Piece) - Solder or Crimp Captivated Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED
RG-161/U, 174, 179, 187, 188, 316	131-3403-021	131-3403-026
RG-316 DS, 188 DS, 179 DS, 187 DS	131-3404-021	131-3404-026
RG-58/U, 141, 303	131-3407-021	131-3407-026

Assembly instructions page 236.  
See page 190 for Cable Assembly Tools.

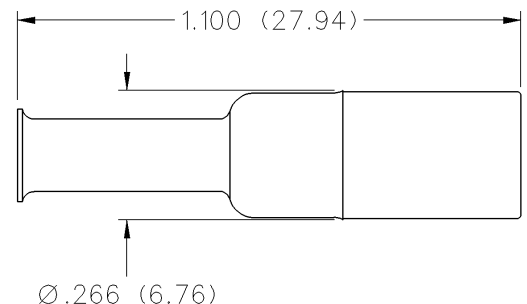
## Straight Crimp Type Plug - Solder or Crimp Captivated Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED	CRIMP CONTACT	"D"
RG-178/U, 196	131-3402-001	131-3402-016	No	.266 (6.76)
RG-161/U, 174, 179, 187, 188, 316	131-3403-001	131-3403-016	Yes	.266 (6.76)
RG-316 DS, 188 DS, 179 DS, 187 DS	131-3404-001	131-3404-016	Yes	.266 (6.76)
RG-58/U, 141, 303	131-3407-001	131-3407-006	Yes	.270 (6.86)

Assembly instructions page 239.  
See page 190 for Cable Assembly Tools.

## Straight Crimp Type Plug - Die Cast - Solder or Crimp Captivated Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED
RG-161/U, 174, 179, 187, 188, 316	131-1403-001	131-1403-016
RG-316 DS, 188 DS, 179 DS, 187 DS	131-1404-001	131-1404-016

Assembly instructions page 239.  
See page 190 for Cable Assembly Tools.

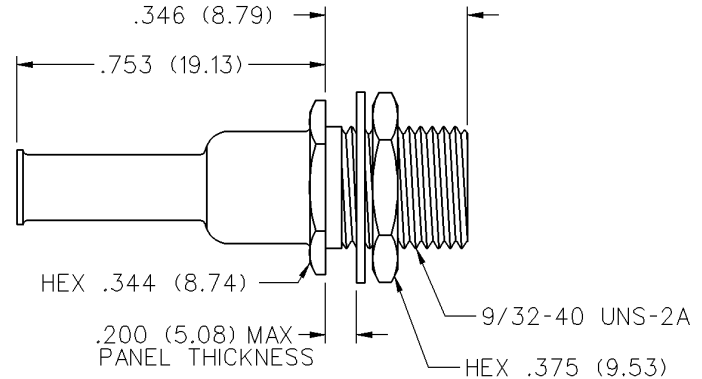
# SMB - 50 Ohm Connectors

For Flexible Cable

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



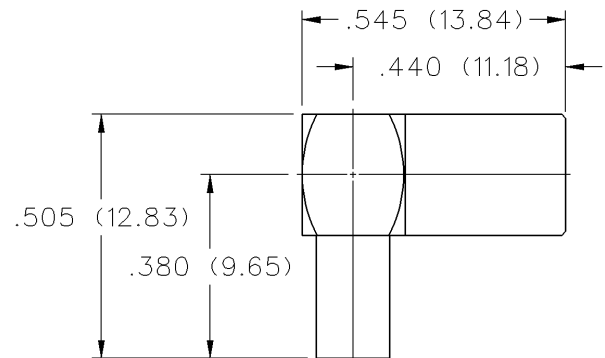
## Straight Crimp Type Bulkhead Plug - Solder or Crimp Captivated Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED
RG-161/U, 174, 179, 187, 188, 316	131-3403-401	131-3403-406
RG-316 DS, 188 DS, 179 DS, 187 DS	131-3404-401	131-3404-406

Assembly instructions page 239.  
See page 190 for Cable Assembly Tools.  
Mounting hole Dia. .290 (7.05).

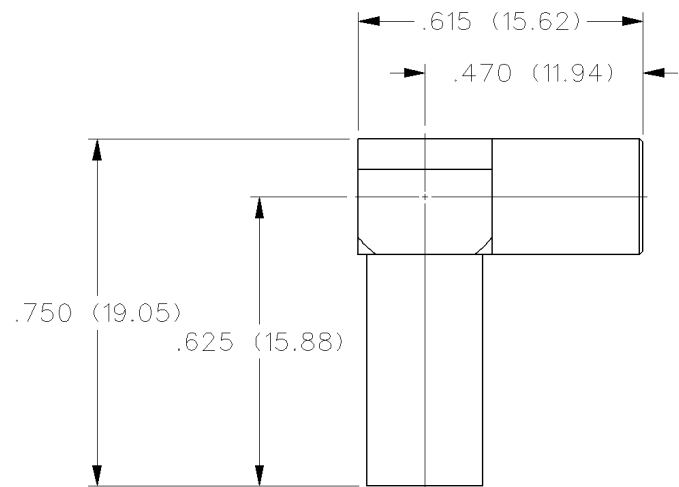
## Right Angle Crimp Type Plug - Captivated Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED
RG-178/U, 196	131-3402-101	131-3402-116
RG-161/U, 174, 179, 187, 188, 316	131-3403-101	131-3403-116
RG-316 DS, 188 DS, 179 DS, 187 DS	131-3404-101	131-3404-116

Assembly instructions page 240.  
See page 190 for Cable Assembly Tools.

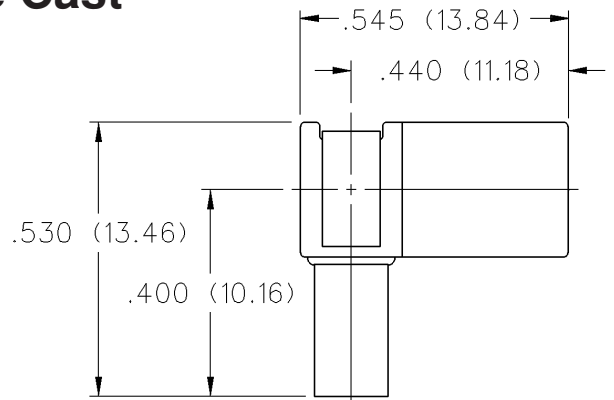
## Right Angle Crimp Type Plug - Captivated Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED
RG-58/U, 141, 303	131-3407-101	131-3407-106

Assembly instructions page 240.  
See page 190 for Cable Assembly Tools.

## Right Angle Crimp Type Plug - Die Cast - Captivated Contact

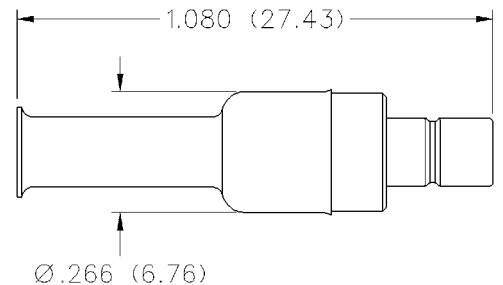


CABLE TYPE	GOLD PLATED	NICKEL PLATED
RG-178/U, 196	131-1402-101	131-1402-116
RG-161/U, 174, 179, 187, 188, 316	131-1403-101	131-1403-116
RG-316 DS, 188 DS, 179 DS, 187 DS	131-1404-101	131-1404-116

Assembly instructions page 240.

See page 190 for Cable Assembly Tools.

## Straight Crimp Type Jack - Solder or Crimp Captivated Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED	CRIMPABLE CONTACT
RG-178/U, 196	131-3302-001	131-3302-006	No
RG-161/U, 174, 179, 187, 188, 316	131-3303-001	131-3303-006	Yes

Assembly instructions page 239.

See page 190 for Cable Assembly Tools.

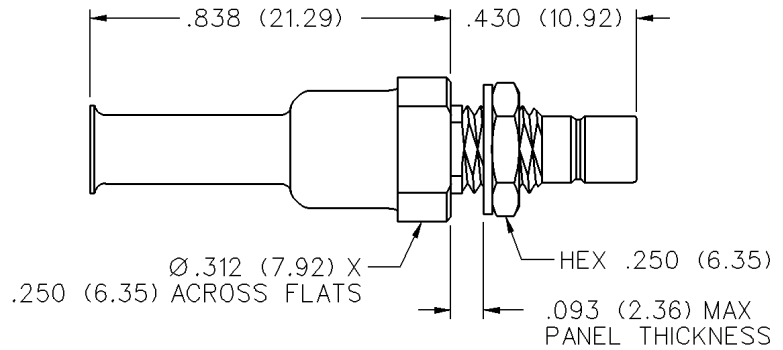
# SMB - 50 Ohm Connectors

For Flexible Cable

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



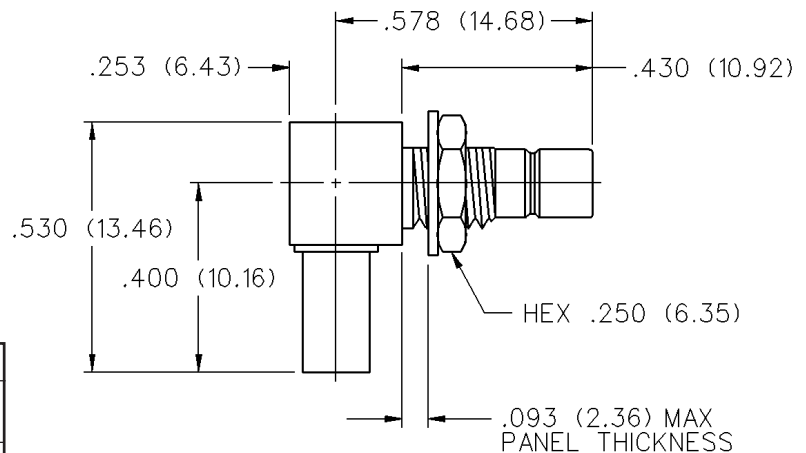
## Straight Crimp Type Bulkhead Jack - Solder or Crimp Captivated Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED
RG-161/U, 174, 179, 187, 188, 316	131-3303-401	131-3303-406
RG-316 DS, 188 DS, 179 DS, 187 DS	131-3304-401	131-3304-406

Assembly instructions page 239.  
Mounting hole layout figure 5 page 201.  
See page 190 for Cable Assembly Tools.

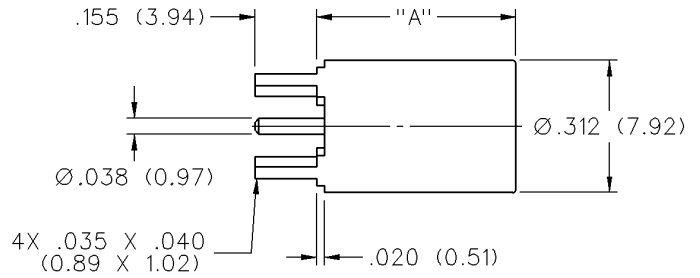
## Right Angle Crimp Type Bulkhead Jack - Captivated Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED
RG-161/U, 174, 179, 187, 188, 316	131-3303-501	131-3303-506
RG-316 DS, 188 DS, 179 DS, 187 DS	131-3304-501	131-3304-506

Assembly instructions page 240.  
Mounting hole layout figure 5 page 201.  
See page 190 for Cable Assembly Tools.

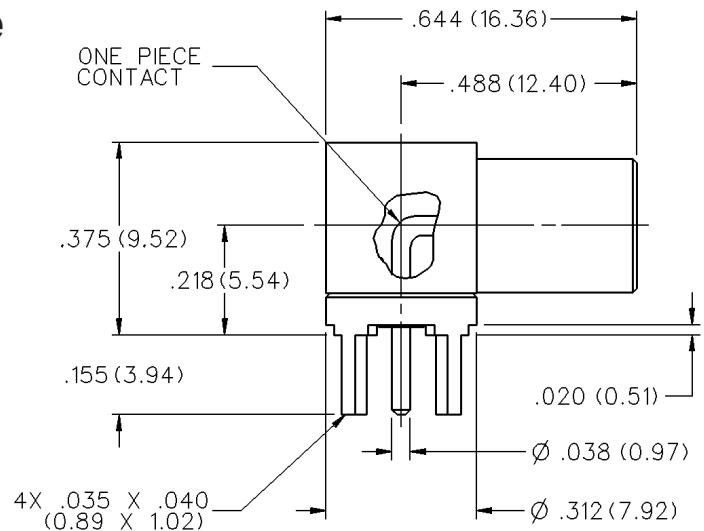
## Straight Plug Receptacle



GOLD PLATED	NICKEL PLATED	"A"
131-3801-201	131-3801-216	.395 (10.03)
131-3801-231	131-3801-236	.500 (12.70)

Mounting hole layout figure 4 page 201.

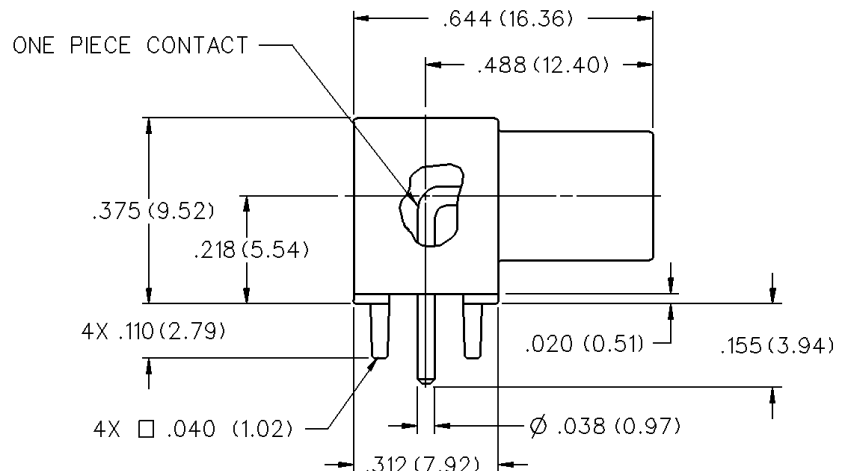
## Right Angle Plug Receptacle



GOLD PLATED	NICKEL PLATED
131-3801-301	131-3801-316

Mounting hole layout figure 4 page 201.

## Right Angle Plug Receptacle - Die Cast



GOLD PLATED	NICKEL PLATED
131-1801-371	131-1801-376

Mounting hole layout figure 4 page 201.

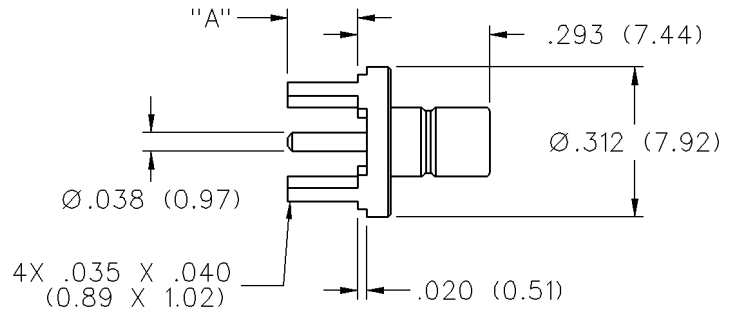
# SMB - 50 Ohm Connectors

PC Mount

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



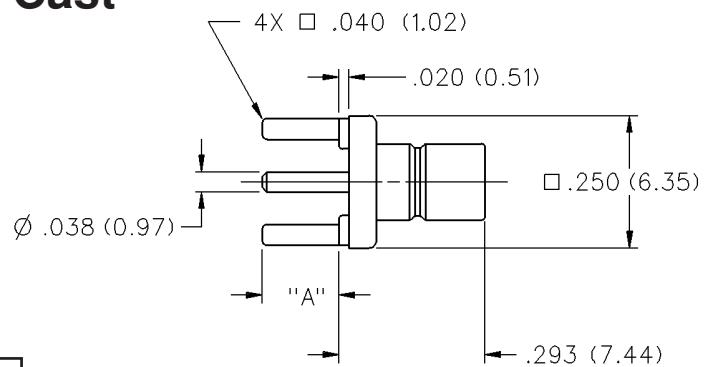
## Straight Jack Receptacle



GOLD PLATED	NICKEL PLATED	IR COMPATIBLE*	"A"
131-3701-201	131-3701-206		.155 (3.94)
131-3701-211	131-3701-216	131-3701-215*	.110 (2.79)

\* Tin/Lead solder dipped legs for IR Reflow Compatibility. Mounting hole layout figure 4 page 201.

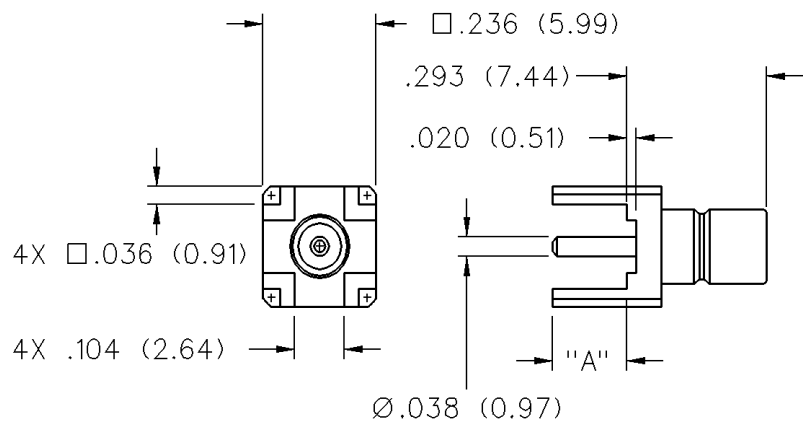
## Straight Jack Receptacle - Die Cast



GOLD PLATED	NICKEL PLATED	IR COMPATIBLE*	"A"
131-1701-201	131-1701-206		.155 (3.94)
131-1701-211	131-1701-216	131-1701-215*	.095 (2.41)

\* Tin/Lead solder dipped legs for IR Reflow Compatibility. Mounting hole layout figure 4 page 201.

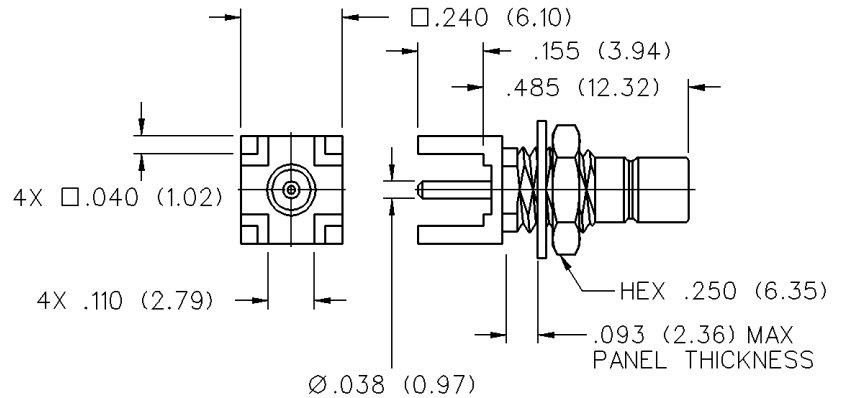
## Straight Jack Receptacle



GOLD PLATED	NICKEL PLATED	IR COMPATIBLE*	"A"
131-3701-261	131-3701-266		.155 (3.94)
131-3701-271	131-3701-276	131-3701-275	.095 (2.41)

\* Tin/Lead solder dipped legs for IR Reflow Compatibility. Mounting hole layout figure 4 page 201.

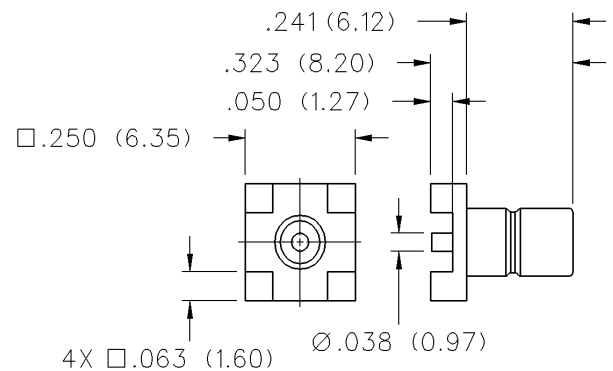
## Straight Bulkhead Jack Receptacle



GOLD PLATED	NICKEL PLATED
131-3701-231	131-3701-236

Mounting hole layout figures 4 and 5 page 201.

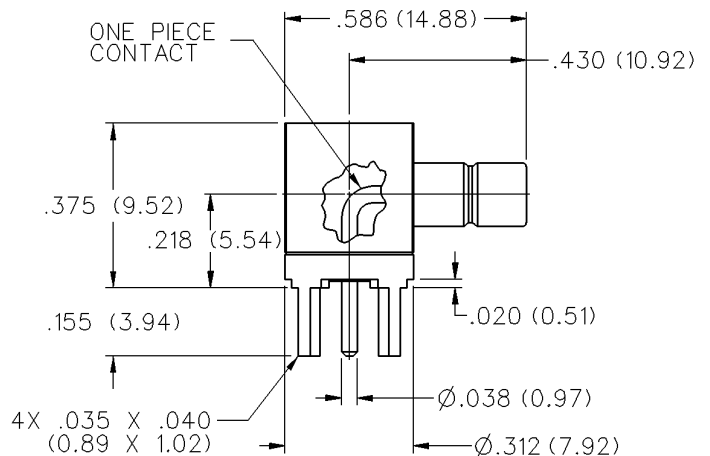
## Straight Jack Receptacle - Surface Mount



GOLD PLATED
131-3711-201

Recommended Land Pattern figure 9 page 201.

## Right Angle Jack Receptacle



GOLD PLATED	NICKEL PLATED
131-3701-301	131-3701-306

Mounting hole layout figure 4 page 201.

# SMB - 50 Ohm Connectors

PC Mount

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

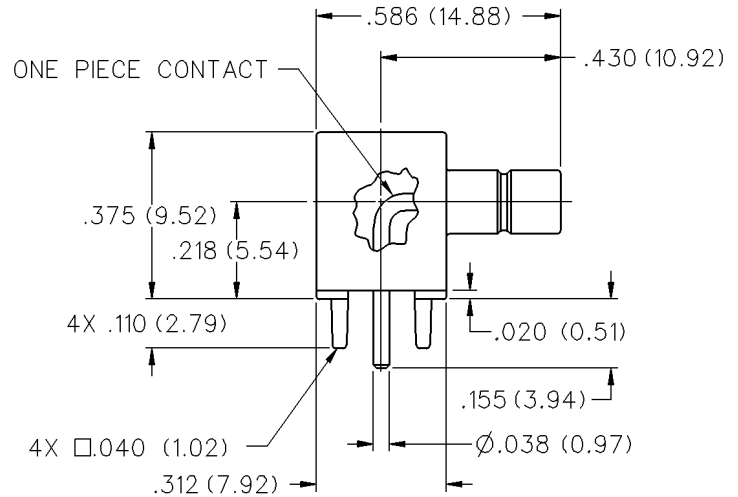


## Right Angle Jack Receptacle - Die Cast

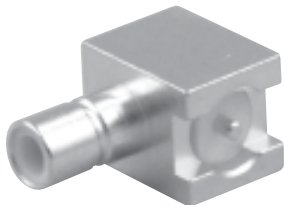


GOLD PLATED	NICKEL PLATED
131-1701-371	131-1701-376

Mounting hole layout figure 4 page 201.

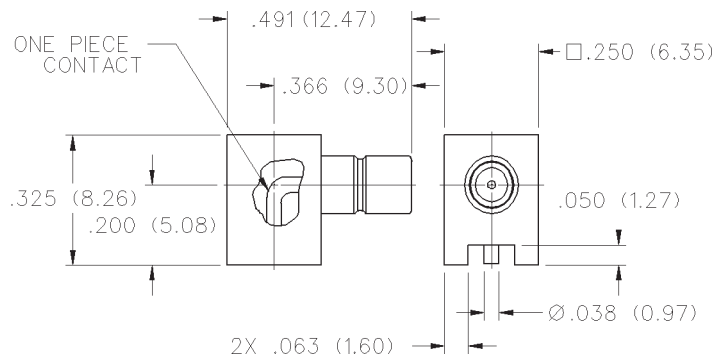


## Right Angle Surface Mount Jack Receptacle



GOLD PLATED STANDARD PACKAGING	GOLD PLATED TAPE AND REEL
131-3711-301	131-3711-302 425 pcs/reel

Mounting hole layout figure 9 page 201.

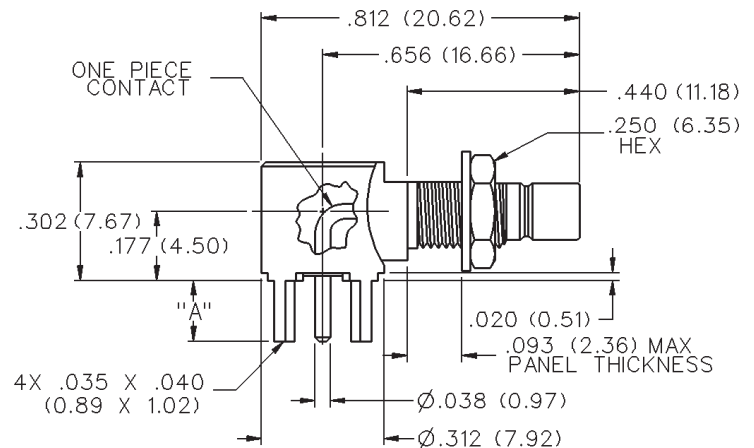


## Right Angle Bulkhead Jack Receptacle



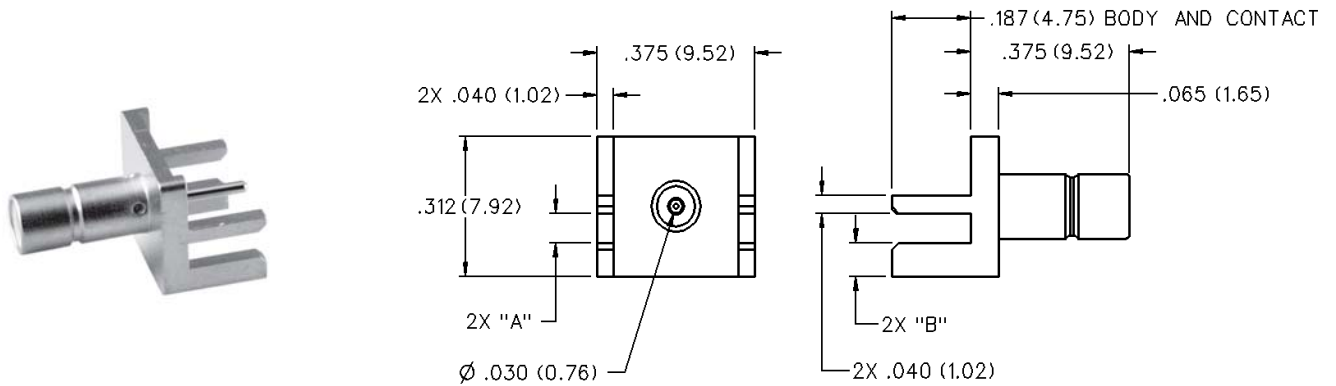
GOLD PLATED	NICKEL PLATED	"A"
131-3701-501	131-3701-506	.083 (2.11)
131-3701-511	131-3701-516	.110 (2.79)
131-3701-341	131-3701-346	.155 (3.94)

Mounting hole layout figures 4 and 5 page 201.



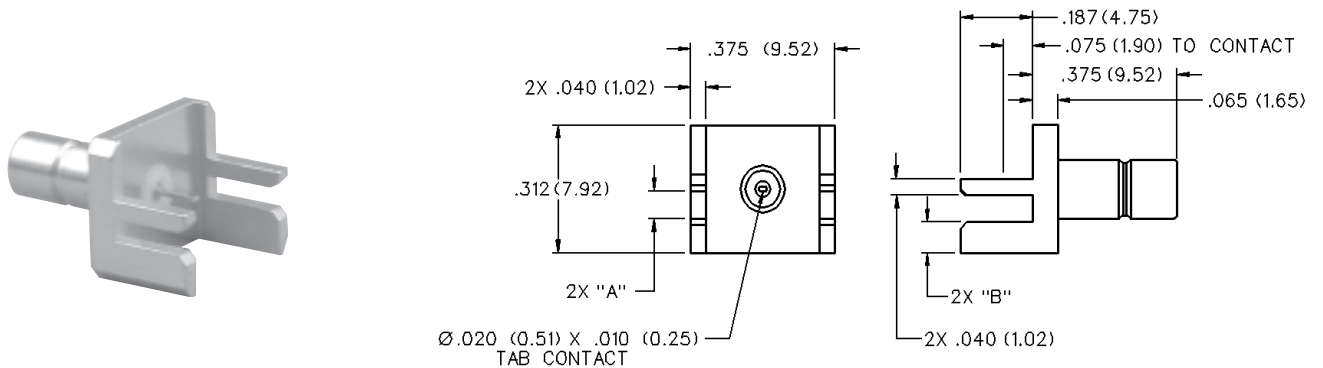


## End Launch Jack Receptacle - Round Contact



GOLD PLATED	NICKEL PLATED	BOARD THICKNESS	"A"	"B"
131-3701-801	131-3701-806	.062 (1.57)	.068 (1.73)	.073 (1.85)
131-3701-821	131-3701-826	.042 (1.07)	.048 (1.22)	.093 (2.36)

## End Launch Jack Receptacle - Tab Contact



GOLD PLATED	NICKEL PLATED	BOARD THICKNESS	"A"	"B"
131-3701-811	131-3701-816	.062 (1.57)	.068 (1.73)	.083 (2.11)
131-3701-831	131-3701-836	.042 (1.07)	.048 (1.22)	.103 (2.62)

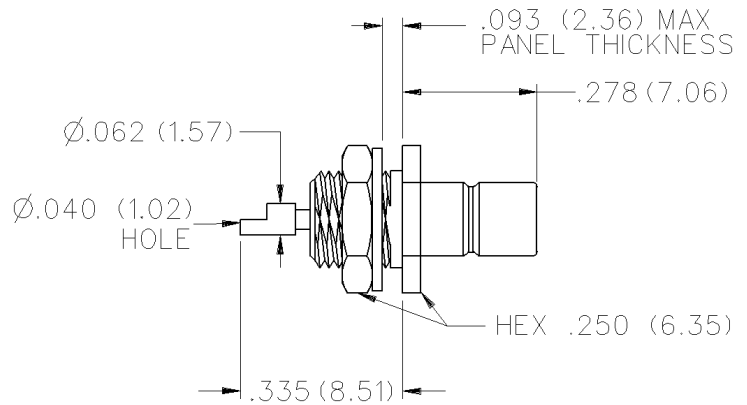
# SMB - 50 Ohm Connectors

Bulkhead and Panel Mount

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



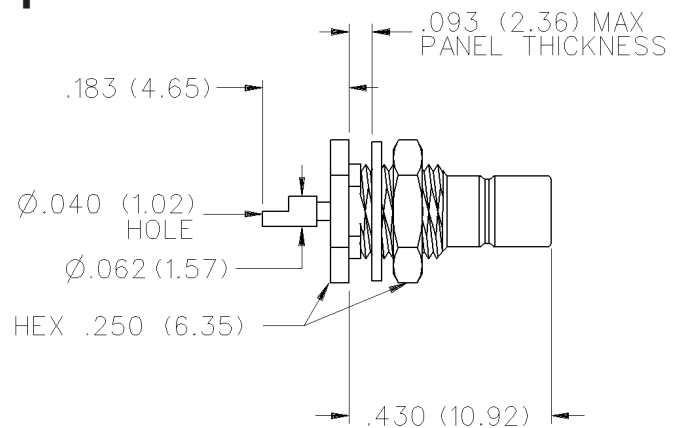
## Front Mount Bulkhead Jack Receptacle



GOLD PLATED	NICKEL PLATED
131-3701-411	131-3701-416

Mounting hole layout figure 5 page 201.

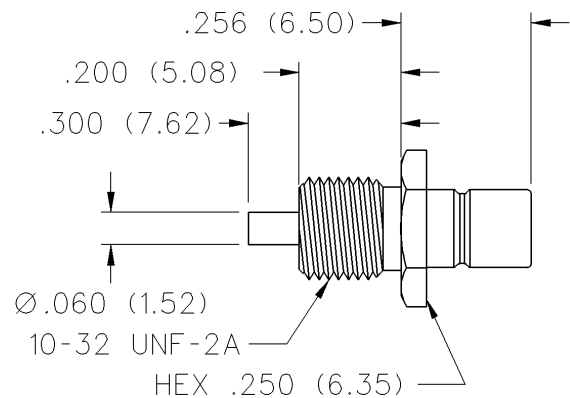
## Rear Mount Bulkhead Jack Receptacle



GOLD PLATED	NICKEL PLATED
131-3701-401	131-3701-406

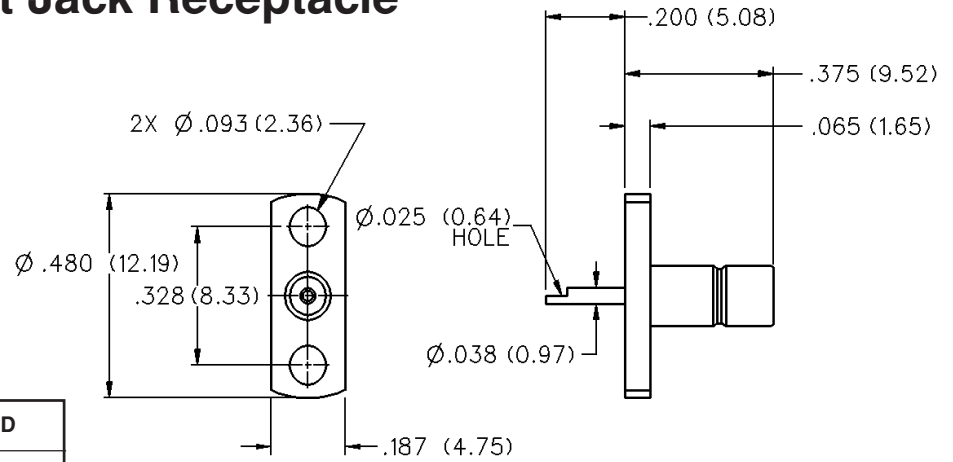
Mounting hole layout figure 5 page 201.

## Round Contact Jack Receptacle - Thread Mount Ruggedized Interface



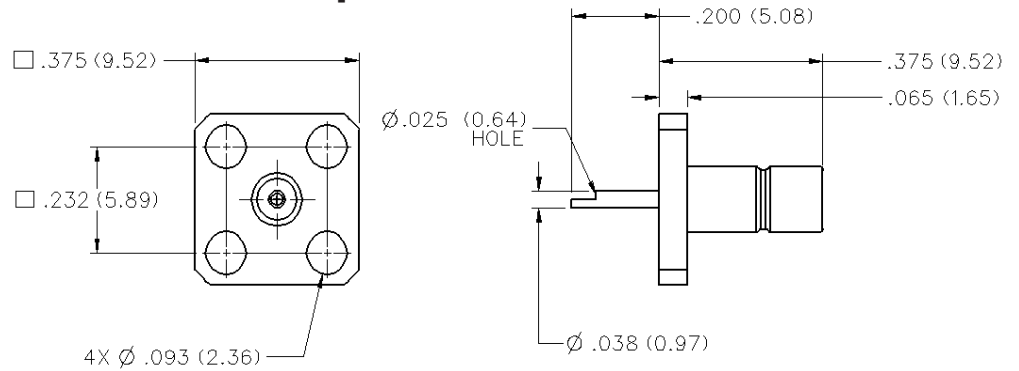
GOLD PLATED	NICKEL PLATED
131-3701-441	131-3701-446

## 2-Hole Flange Mount Jack Receptacle



GOLD PLATED	NICKEL PLATED
131-3701-621	131-3701-626

## 4-Hole Flange Mount Jack Receptacle



GOLD PLATED	NICKEL PLATED
131-3701-631	131-3701-636

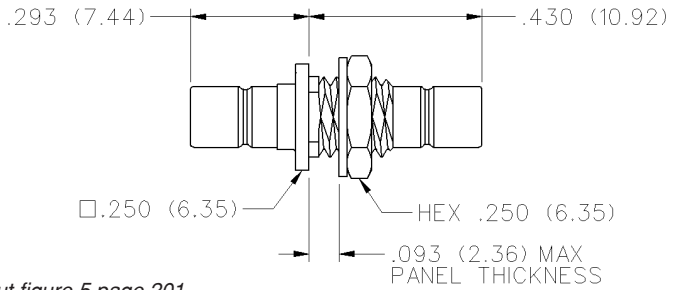
# SMB - 50 Ohm Connectors

In-Series Adapters and Terminations

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



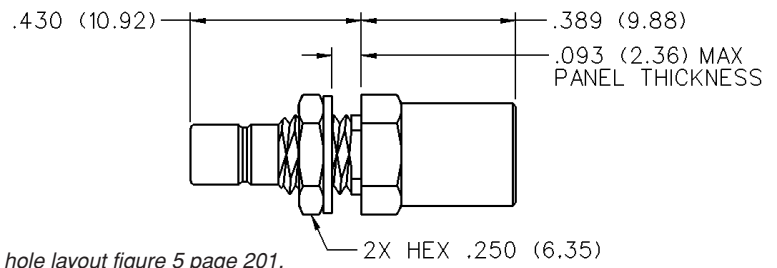
## Jack to Bulkhead Jack Adapter



GOLD PLATED	NICKEL PLATED
131-3901-401	131-3901-406

Mounting hole layout figure 5 page 201.

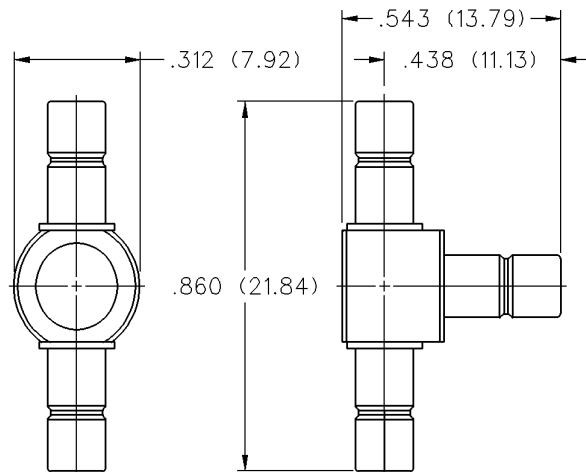
## Plug to Bulkhead Jack Adapter



GOLD PLATED	NICKEL PLATED
131-3901-411	131-3901-416

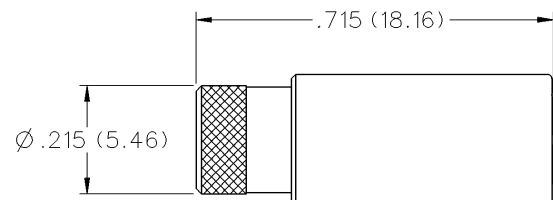
Mounting hole layout figure 5 page 201.

## Jack to Jack to Jack Adapter



GOLD PLATED	NICKEL PLATED
131-3901-901	131-3901-906

## Plug Dummy Load - 50 Ohm and 75 Ohm



FREQ. RANGE	GOLD PLATED	NICKEL	RESISTANCE
0-1 GHz	131-3801-811	131-3801-816	50 Ohm
0-1 GHz	131-3801-821	131-3801-826	75 Ohm

For precision 75 Ohm termination see Mini-75 Ohm SMB section page 110.

### ELECTRICAL RATINGS

**Impedance:** 50 Ohms

**Frequency Range:** 0-4 GHz

**VSWR:** (f = GHz)

	Straight Cabled	Right Angle Cabled
RG-316	1.25 + .04f	1.35 + .04f
Uncabled receptacles	N/A	

**Working Voltage:** (VRMS maximum)<sup>†</sup>

Connectors for Cable Type	Sea Level	70K Feet
RG-316, uncabled connectors	335	85

**Dielectric Withstanding Voltage:** (VRMS minimum at sea level)<sup>†</sup>

Connectors for RG-316, uncabled receptacles ..... 1000

**Corona Level:** (Volts minimum at 70,000 feet)<sup>†</sup>

Connectors for RG-316	250
Uncabled receptacles	N/A

**Insertion Loss:** (dB maximum, tested at 1.5 GHz)

Straight cable connectors	0.30 dB
Right angle cable connectors	0.60 dB
Uncabled receptacles	N/A

**Insulation Resistance:** 1000 megohms minimum

**Contact Resistance:** (milliohms maximum)

	Initial	After Environmental
Center contact (straight cabled connectors and uncabled receptacles)	6.0	8.0
Center contact (right angle cabled connectors)	12.0	16.0
Outer contact (gold plated connectors)	1.0	1.5
Braid to body (gold plated connectors)	1.0	N/A

<sup>†</sup>Avoid user injury due to misapplication.  
See safety advisory definitions inside front cover.  
See *Non-Magnetic materials* page 29.

**RF Leakage:** (dB minimum tested at 2.5 GHz)

Cable connectors	-55 dB
Uncabled receptacles	N/A

**RF High Potential Withstanding Voltage:**

(VRMS minimum, tested at 4 and 7 MHz)<sup>†</sup>

Connectors for RG-316	700
Uncabled receptacles	600

**Power Rating (Dummy Load):** 0.5 watt @ +25°C, derated to 0.25 watt @ +125°C

### MECHANICAL RATINGS

**Engagement Design:** MIL-STD-348, Series SMB

**Engagement/Disengagement Force:** 2 pounds min to 14 pounds maximum axial force

**Contact Retention:** 4 lbs. min axial force (captivated contacts)

1 inch-ounce min torque (uncabled receptacles)

**Cable Retention:**

Connectors for RG-316

Axial Force* (lbs)	Torque (in-oz)
20	N/A

\*or cable breaking strength whichever is less.

**Durability:** 500 cycles minimum

### ENVIRONMENTAL RATINGS

(Meets or exceeds the applicable paragraph of MIL-PRF-39012)

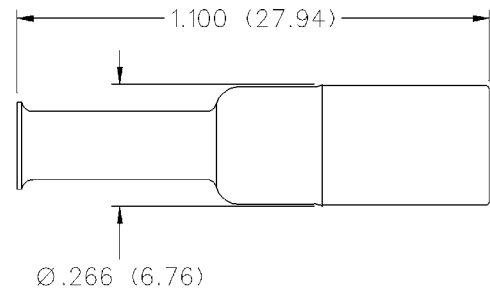
**Temperature Range:** -65°C to +165°C

**Thermal Shock:** MIL-STD-202, Method 107, Condition B

**Corrosion:** MIL-STD-202, Method 101, Condition B

**Shock:** MIL-STD-202, Method 213, Condition B

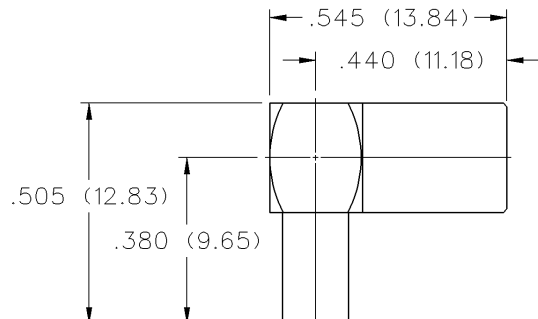
## Straight Crimp Type Plug - Solder or Crimp Captivated Contact



CABLE TYPE	GOLD PLATED
RG-316/U, 188, 174, 179, 187	131-9403-001
RG-316 DS, 188 DS, 179 DS, 187 DS	131-9404-001

Assembly instructions page 239.  
See page 190 for Cable Assembly Tools.

## Right Angle Crimp Type Plug - Captivated Contact



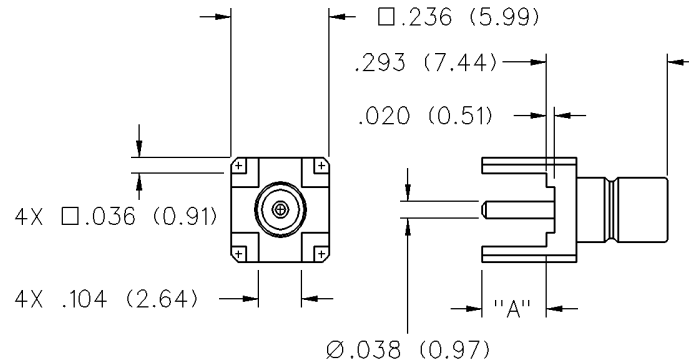
CABLE TYPE	GOLD PLATED
RG-316/U, 188, 174, 179, 187	131-9403-101
RG-316 DS, 188 DS, 179 DS, 187 DS	131-9404-101

Assembly instructions page 240.  
See page 190 for Cable Assembly Tools.

PC Mount

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

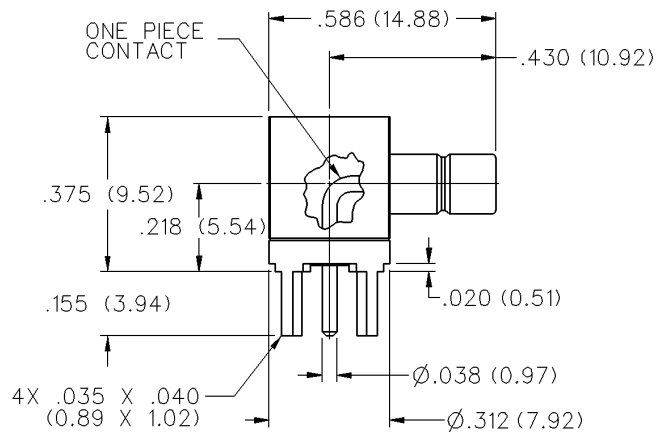
## Straight Jack Receptacle



GOLD PLATED	"A"
131-9701-201	.155 (3.94)
131-9701-211	.095 (2.41)

Mounting hole layout figure 4 page 201.

## Right Angle Jack Receptacle



GOLD PLATED
131-9701-301

Mounting hole layout figure 4 page 201.

**SMB Connectors - Mini-75 Ohm**

Between-Series Adapters .....	112
Flexible Cable .....	105
In-Series Matched Adapters .....	111
PC Mount .....	107
PC Mount and Panel Mount .....	109
Standards (Calibration) Kit .....	114
Specifications .....	104
Terminations .....	110

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Cable Assembly .....	199
Cable Information .....	200
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Mounting Hole Layouts .....	201
Numerical Index .....	289
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# Mini-75 Ohm SMB Connectors

## Specifications

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

### ELECTRICAL RATINGS

**Impedance:** 75 Ohms

**Frequency Range:** 0-2 GHz

**VSWR:** f = GHz

RG-179, RG-59, Belden 735A cable:

Straight cabled connectors .....	1.25 + .04f
Right angle cabled connectors .....	1.35 + .04f
Adapters .....	1.20 + .04f
Type N Adapters .....	1.05 + .01f
Matching pad 50 Ohm/75 Ohm .....	1.05 + .1f
Loads .....	1.05 + .01f
Uncabled receptacles, opens, shorts .....	N/A

**Working Voltage:** (VRMS maximum)<sup>†</sup>

Connectors for Cable Type	Sea Level	70K Feet
RG-179, RG-59, Belden 735A, uncabled receptacles, adapters .....	335	85
Open, shorts, loads, matching pad .....	N/A	N/A

**Dielectric Withstanding Voltage:** (VRMS minimum at sea level)<sup>†</sup>

Connectors for RG-179, RG-59, Belden 735A, uncabled receptacles, adapters .....	1000
Open, shorts, loads, matching pad .....	N/A

**Corona Level:** (Volts minimum at 70,000 feet)<sup>†</sup>

Connectors for RG-179, RG-59, Belden 735A .....	250
---	-----

Uncabled receptacles, adapters, open, shorts, loads, matching pad: N/A

**Electrical Length:** Open ± 1.5° (± 5.2° relative to short)

Short ± 1.5° (± 5.2° relative to open)

Adapters ± 5.2° (N/A for Jack-Bulkhead Jack and N Types)

**Insertion Loss:** (dB maximum, tested at 1.5 GHz)

Straight cable connectors .....	0.30 dB
Right angle cable connectors .....	0.60 dB
Matching pad .....	6 dB nominal
Uncabled receptacles, adapters, opens, shorts, loads .....	N/A

**Insulation Resistance:** 1000 megohms minimum

**Contact Resistance:** (milliohms maximum)

	Initial	After Environmental
Center contact (straight cabled connectors, uncabled receptacles, opens, shorts, loads) .....	6.0	8.0
Center contact (right angle cabled connectors and adapters) .....	12.0	16.0
Outer contact (gold plated connectors) .....	1.0	1.5
Outer contact (nickel plated connectors) .....	2.5	3.5
Braid to body (gold plated connectors) .....	1.0	N/A
Braid to body (nickel plated connectors) .....	2.5	N/A

**RF Leakage:** (dB minimum tested at 2.0 GHz)

Cable connectors .....	-55 dB
Uncabled receptacles, adapters opens, shorts, loads, matching pad...N/A	

**RF High Potential Withstanding Voltage:** (VRMS minimum, tested at 4 and 7 MHz)<sup>†</sup>

Connectors for RG-179, RG-59, Belden 735A .....	700
Uncabled receptacles and adapters .....	600
Opens, shorts, loads, matching pad .....	N/A

**Power Rating:** (Loads and matching pad only) 1.0 watt at +25°C derated linearly to .5 watt at +125°C

### MECHANICAL RATINGS

**Engagement Design:** MIL-PRF-39012, Series SMB

**Engagement/Disengagement Force:** 2 pounds minimum to

14 pounds maximum axial force

**Contact Retention:** 4 lbs. minimum axial force (captivated contacts)

1 inch-ounce minimum torque (uncabled receptacles)

**Cable Retention:**

	Axial Force* (lbs)	Torque (in-oz)
Connectors for RG-179, Belden 735A	20	N/A
Connectors for RG-59	40	N/A

\* or cable breaking strength whichever is less.

**Durability:** 500 cycles minimum

### ENVIRONMENTAL RATINGS

(Meets or exceeds the applicable paragraph of MIL-C-39012)

**Temperature Range:** - 65°C to +165°C -- Connectors and adapters

- 65°C to +125°C -- Loads, matching pad

20°C to 26°C -- Opens, shorts

**Thermal Shock:** MIL-STD-202, Method 107, Condition B

(N/A opens, shorts, loads, matching pad)

**Corrosion:** MIL-STD-202, Method 101, Condition B

(N/A opens, shorts, loads, matching pad)

**Shock:** MIL-STD-210, Method 213, Condition B

(N/A opens, shorts, loads, matching pad)

**Vibration:** MIL-STD-202, Method 204, Condition B

(N/A opens, shorts, loads, matching pad)

**Temperature Coefficient:** (Loads only) ± 300 ppm/°C

### MATERIAL SPECIFICATIONS

**Bodies:** Brass per QQ-B-626, gold plated\*\* per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

N type adapters stainless steel per QQ-S-763, passivated per MIL-F-14072

**Contacts:** Male & Female - beryllium copper per QQ-C-530, gold plated per MIL-G-45204 .00003" min.

**Insulators:** PTFE fluorocarbon per ASTM D 1710 and ASTM D 1457

**Expansion Caps:** Brass per QQ-B-613, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

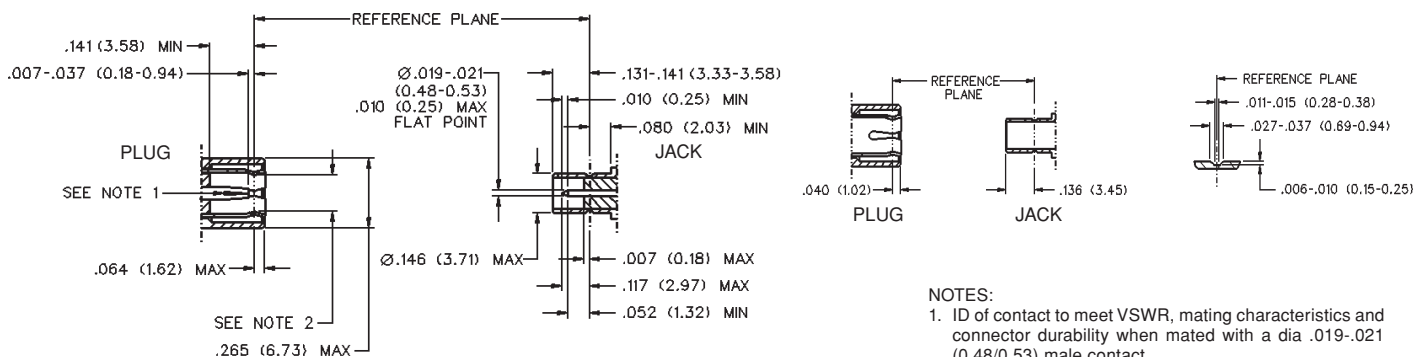
**Crimp Sleeves:** Copper per WW-T-799, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

**Mounting Hardware:** Brass (nuts) per QQ-B-626 or phosphor bronze (lockwashers) QQ-B-750, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

\*\* All gold plated parts include a .00005" min. nickel underplate barrier layer.

† Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

## Mating Engagement for Mini-75 Ohm SMB Series (Intermutable with Standard 50 Ohm SMB)

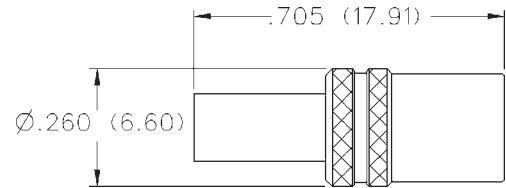


#### NOTES:

1. ID of contact to meet VSWR, mating characteristics and connector durability when mated with a dia .019-.021 (0.48/0.53) male contact.
2. Must meet the force to engage and disengage when mated with mating part.



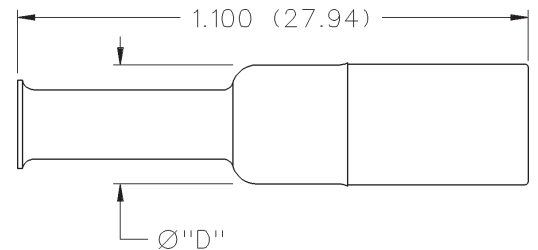
## Straight Crimp Type Plug (3-Piece) - Captivated Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED
RG-179, RG-187	131-8433-001	131-8433-006
RG-179 DS RG-187 DS	131-8434-001	131-8434-006
Belden 735A	131-8445-011	131-8445-016

Assembly instructions page 236.  
See page 190 for Cable Assembly Tools.

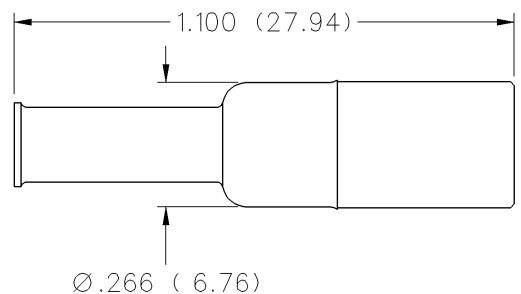
## Straight Crimp Type Plug - Solder or Crimp Captivated Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED	"D"
RG-179, 187	131-8403-001	131-8403-006	.266 (6.76)
RG-179 DS RG-187 DS	131-8404-001	131-8404-006	.266 (6.76)
Belden 735A	131-8445-001	131-8445-006	.266 (6.76)
RG-59	131-8409-001	131-8409-006	.312 (7.92)

Assembly instructions page 239.  
See page 190 for Cable Assembly Tools.

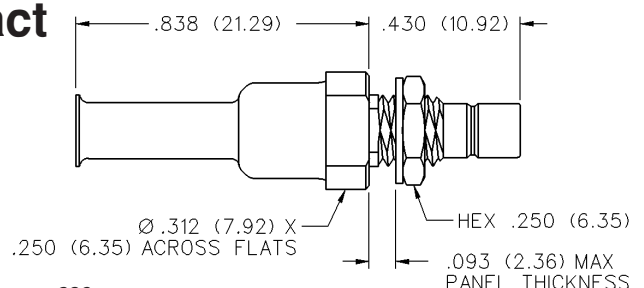
## Straight Crimp Type Plug - Die Cast - Solder or Crimp Captivated Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED
RG-179, 187	131-8403-011	131-8403-016
RG-179 DS RG-187 DS	131-8404-011	131-8404-016

Assembly instructions page 239.  
See page 190 for Cable Assembly Tools.

## Straight Crimp Type Bulkhead Jack - Solder or Crimp Captivated Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED
RG-179, 187	131-8303-401	131-8303-406
RG-179 DS RG-187 DS	131-8304-401	131-8304-406

Assembly instructions page 239.  
Mounting hole layout figure 5 page 201.  
See page 190 for Cable Assembly Tools.

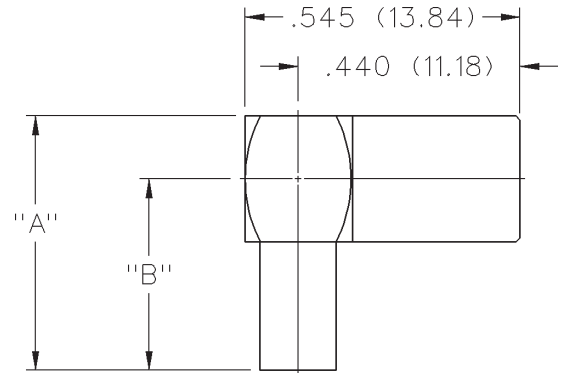
# Mini-75 Ohm SMB Connectors

For Flexible Cable

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



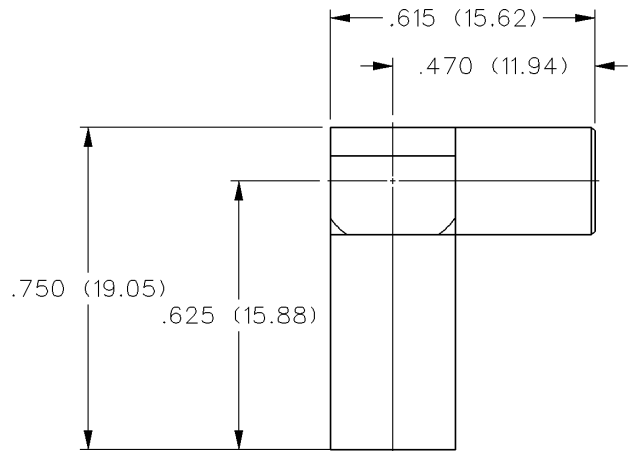
## Right Angle Crimp Type Plug - Captivated Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED	"A"	"B"
RG-179, 187	131-8403-101	131-8403-106	.505 (12.83)	.380 (9.65)
RG-179 DS RG-187 DS	131-8404-101	131-8404-106	.505 (12.83)	.380 (9.65)
Belden 735A	131-8445-101	131-8445-106	.750 (19.05)	.625 (15.88)

Assembly instructions page 240.  
See page 190 for Cable Assembly Tools.

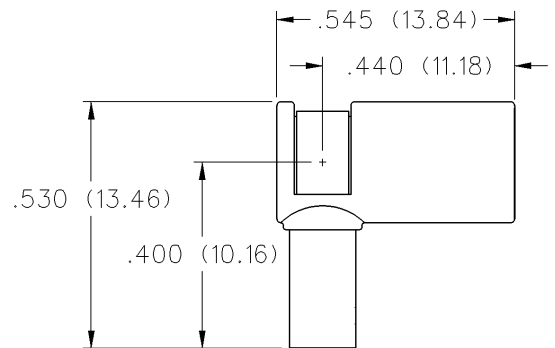
## Right Angle Crimp Type Plug - Captivated Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED
RG-59	131-8409-101	131-8409-106

Assembly instructions page 240.  
See page 190 for Cable Assembly Tools.

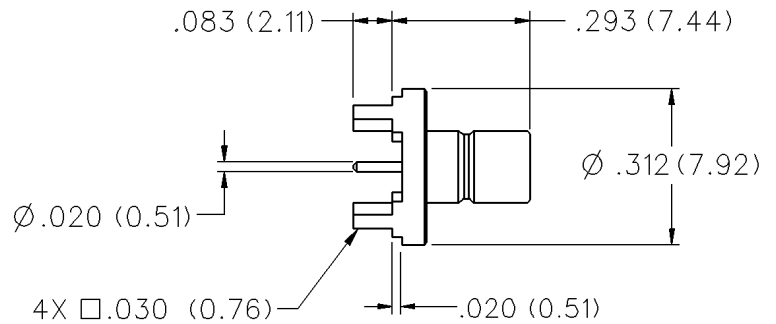
## Right Angle Crimp Type Plug - Captivated Contact - Die Cast



CABLE TYPE	GOLD PLATED	NICKEL PLATED
RG-179, 187	131-8403-111	131-8403-116
RG-179 DS RG-187 DS	131-8404-111	131-8404-116

Assembly instructions page 240.  
See page 190 for Cable Assembly Tools.

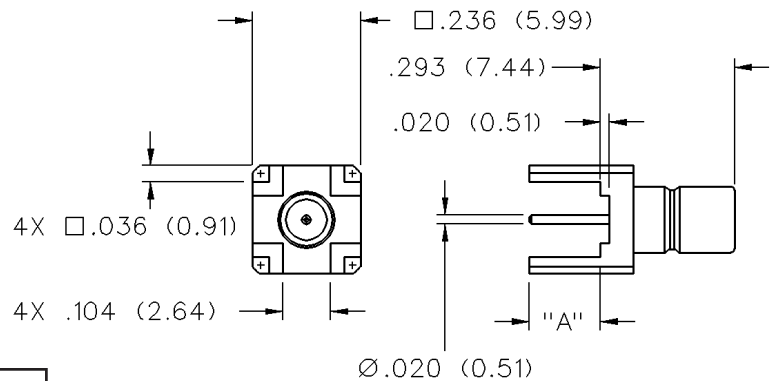
## Straight Jack Receptacle



GOLD PLATED	NICKEL PLATED
131-8701-201	131-8701-206

Mounting hole layout figure 7 page 201.

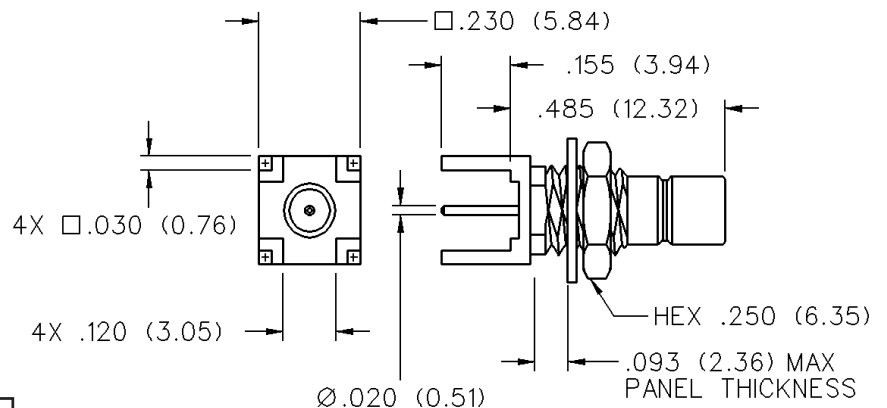
## Straight Jack Receptacle



GOLD PLATED	NICKEL PLATED	"A"
131-8701-251	131-8701-256	.155 (3.94)
131-8701-261	131-8701-266	.095 (2.41)

Mounting hole layout figure 7 page 201.

## Straight Bulkhead Jack Receptacle



GOLD PLATED	NICKEL PLATED
131-8701-211	131-8701-216

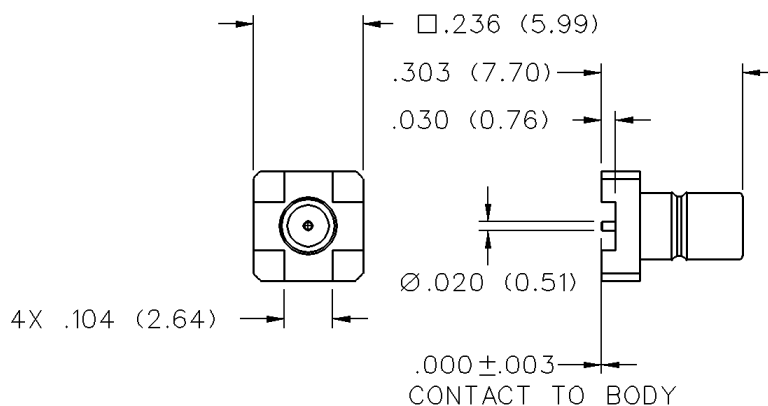
Mounting hole layout figures 5 and 7 page 201.

# Mini-75 Ohm SMB Connectors

PC Mount

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

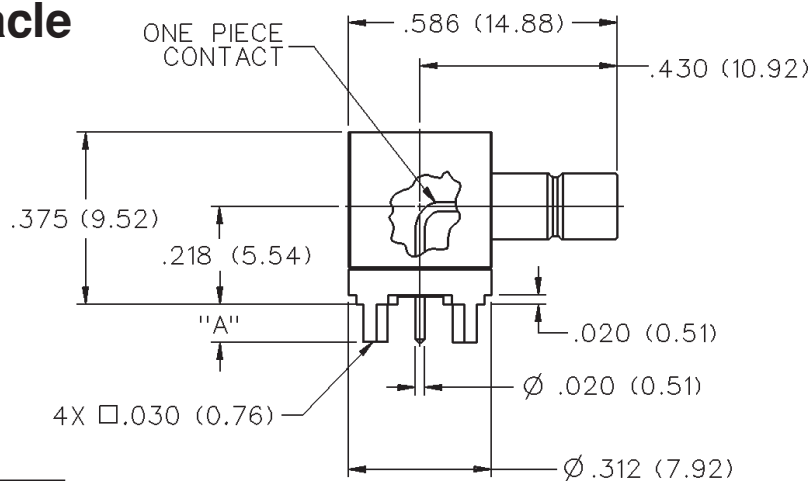
## Straight Jack Receptacle - Surface Mount



GOLD PLATED	"PACKAGING"
131-8711-201	Stock
131-8711-202	Tape and Reel 750 pcs/reel

Recommended land pattern figure 13 page 202.

## Right Angle Jack Receptacle



GOLD PLATED	NICKEL PLATED	"A"
131-8701-301	131-8701-306	.083
131-8701-311	131-8701-316	.125

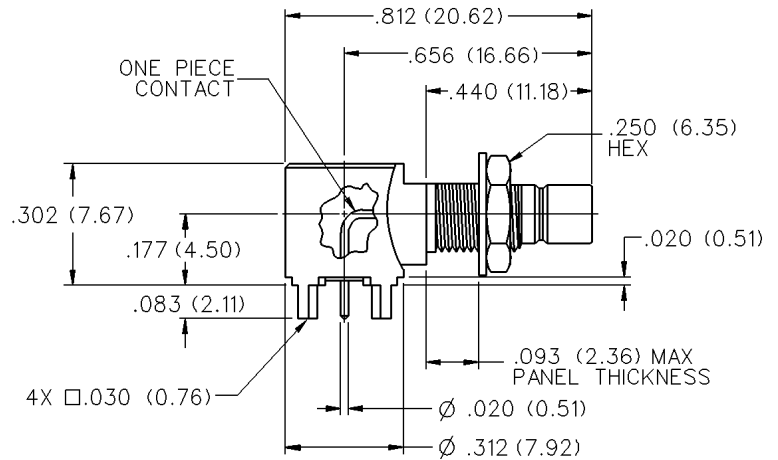
Mounting hole layout figure 7 page 201.

## Right Angle Bulkhead Jack Receptacle

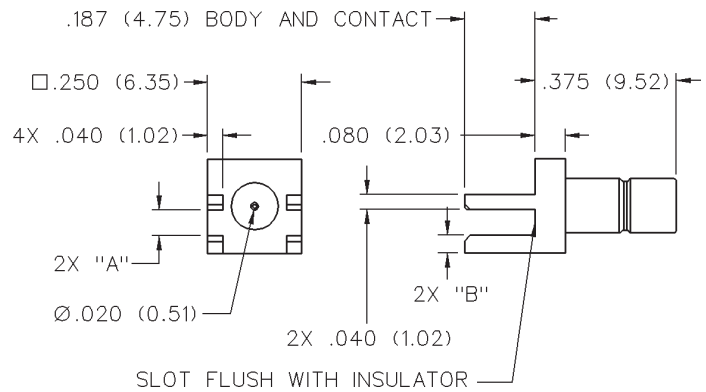
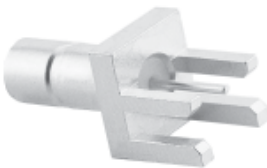


GOLD PLATED	NICKEL PLATED
131-8701-501	131-8701-506

Mounting hole layout figures 5 and 7 page 201.



## End Launch Jack Receptacle

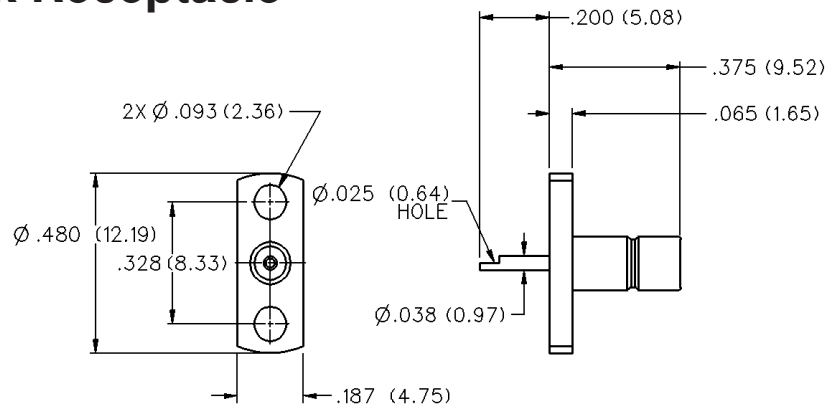


NICKEL PLATED	GOLD PLATED	BOARD THICKNESS	"A"	"B"
131-8701-846	131-8701-841	.062 (1.57)	.068 (1.73)	.047 (1.19)

## 2-Hole Flange Mount Jack Receptacle



GOLD PLATED	NICKEL PLATED
131-8701-601	131-8701-606

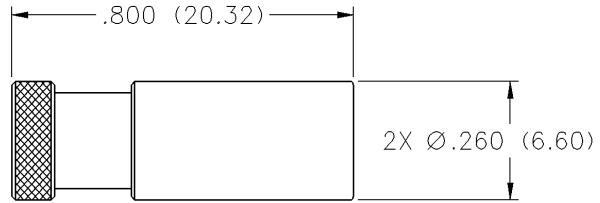


# Mini-75 Ohm SMB Connectors

Terminations

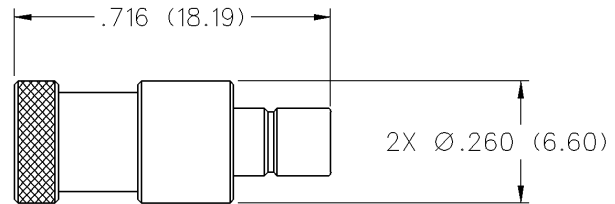
INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

## Plug Precision Load



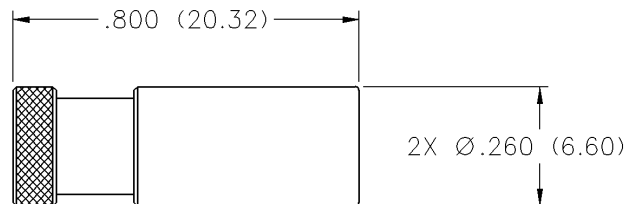
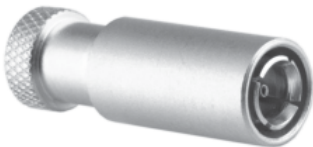
VSWR & FREQ. RANGE	GOLD PLATED
1.05 + .01f (GHz) 0-2GHz	131-8801-801

## Jack Precision Load



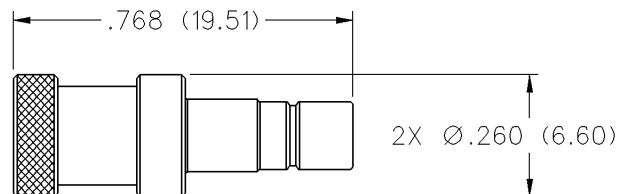
VSWR & FREQ. RANGE	GOLD PLATED
1.05 + .01f (GHz) 0-2GHz	131-8701-801

## Matched Plug Open and Short



TERMINATION	GOLD PLATED
OPEN	131-8801-821
SHORT	131-8801-811

## Matched Jack Open and Short

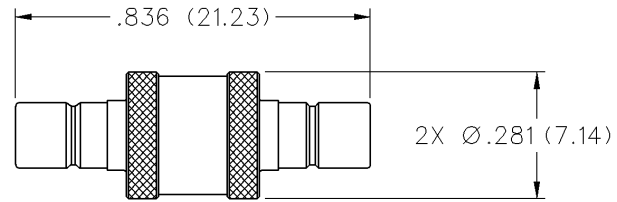


TERMINATION	GOLD PLATED
OPEN	131-8701-821
SHORT	131-8701-811

## Jack to Jack Adapter



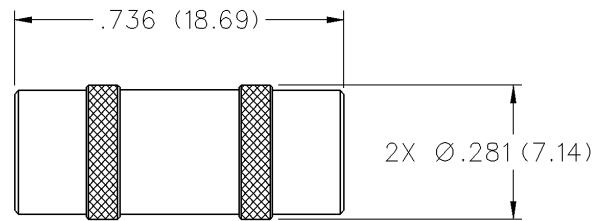
<b>GOLD PLATED</b>
131-8901-801



## Plug to Plug Adapter



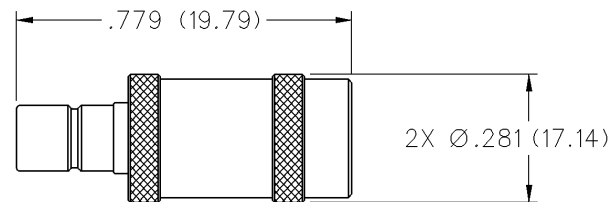
<b>GOLD PLATED</b>
131-8901-811



## Jack to Plug Adapter



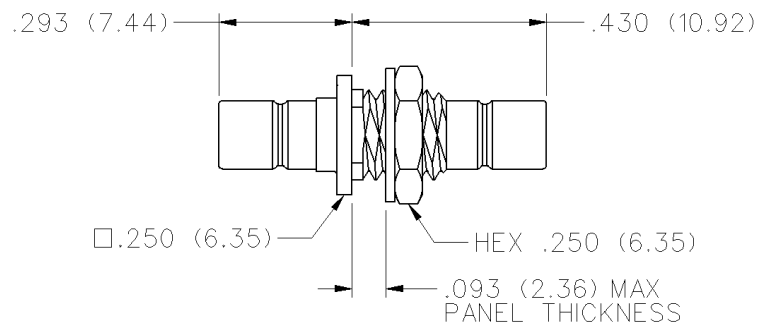
<b>GOLD PLATED</b>
131-8901-821



## Jack to Bulkhead Jack\* Adapter



<b>GOLD PLATED</b>	<b>NICKEL PLATED</b>
131-8901-401	131-8901-406



Mounting hole layout figure 5 page 201.

\* Electrical length not matched to other adapters shown.

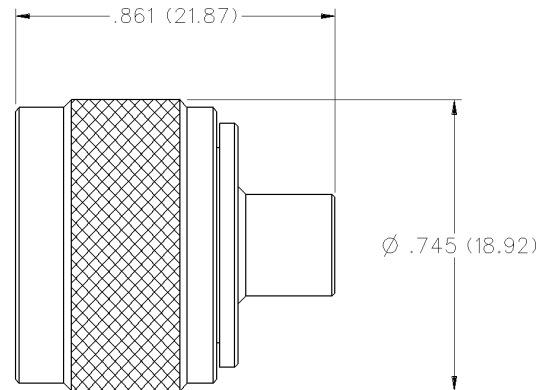
# Mini-75 Ohm SMB Connectors

Between-Series Adapters

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



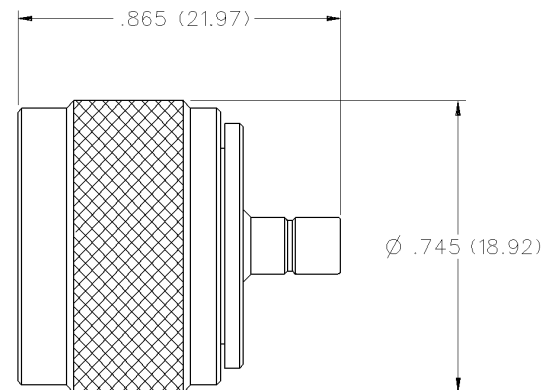
## 75 Ohm Type N Plug to Mini-75 Ohm SMB Plug Adapter



STAINLESS STEEL PASSIVATED

134-1069-001

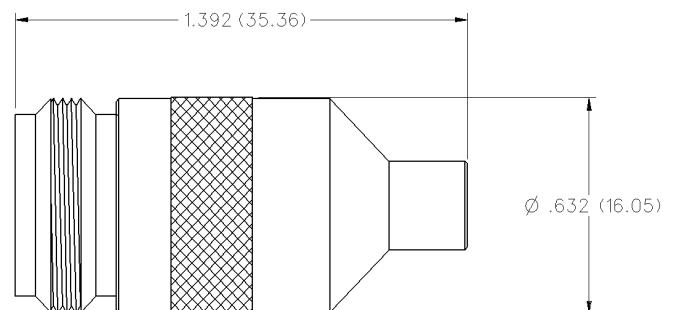
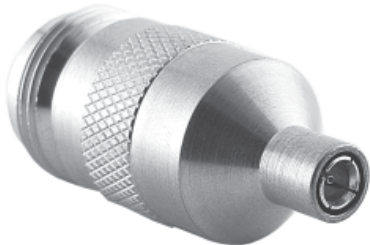
## 75 Ohm Type N Plug to Mini-75 Ohm SMB Jack Adapter



STAINLESS STEEL PASSIVATED

134-1069-011

## 75 Ohm Type N Jack to Mini-75 Ohm SMB Plug Adapter



STAINLESS STEEL PASSIVATED

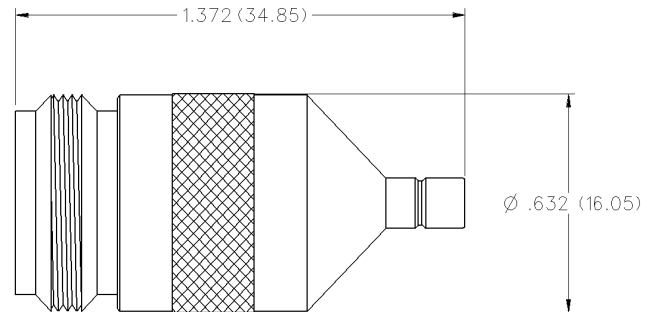
134-1069-021



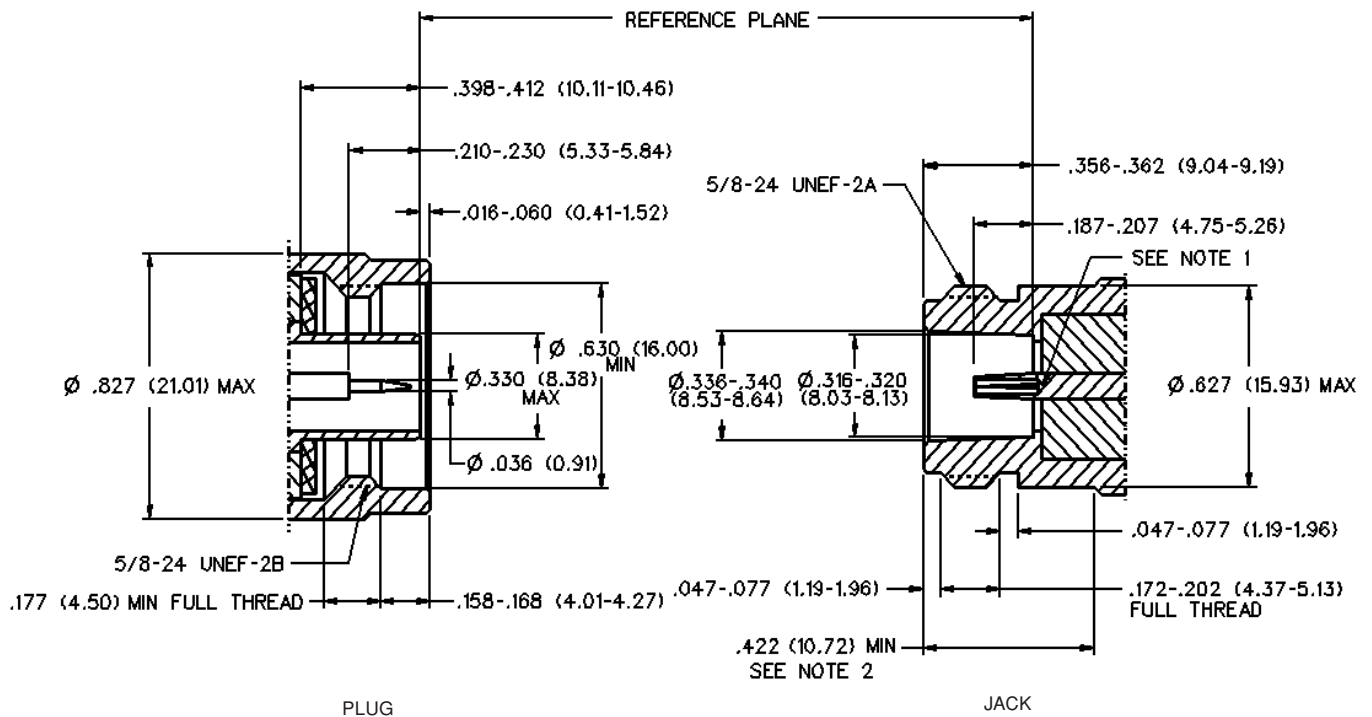
## 75 Ohm Type N Jack to Mini-75 Ohm SMB Jack Adapter



STAINLESS STEEL PASSIVATED
134-1069-031



### Mating Engagement for 75 Ohm "N" Series



**NOTES:**

1. ID of contact to meet VSWR, mating characteristics and connector durability when mated with a dia .036/.037 (0.91/0.94) male contact.
2. Clearance for mating connector coupling nut.

# Mini-75 Ohm SMB Connectors

Standards Kit

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## Mini-75 Ohm SMB Standards\* (Calibration) Kit



The Mini-75 Ohm Standards Kit contains precision terminations and adapters necessary for calibrating scalar and vector network analyzers from DC to 2 GHz. Kit includes standards definition data sheet.

PART NUMBER
131-8000-001

CONTENTS	PART NUMBER
Load, 75 Ohm SMB Jack	131-8701-801
Short, 75 Ohm SMB Jack	131-8701-811
Open, 75 Ohm SMB Jack	131-8701-821
Load, 75 Ohm SMB Plug	131-8801-801
Short, 75 Ohm SMB Plug	131-8801-811
Open, 75 Ohm SMB Plug	131-8801-821
Adapter, 75 Ohm SMB Jack to 75 Ohm SMB Jack	131-8901-801
Adapter, 75 Ohm SMB Plug to 75 Ohm SMB Plug	131-8901-811
Adapter, 75 Ohm SMB Plug to 75 Ohm SMB Jack	131-8901-821
Adapter, 75 Ohm Type N Plug to 75 Ohm SMB Plug	134-1069-001
Adapter, 75 Ohm Type N Plug to 75 Ohm SMB Jack	134-1069-011
Adapter, 75 Ohm Type N Jack to 75 Ohm SMB Plug	134-1069-021
Adapter, 75 Ohm Type N Jack to 75 Ohm SMB Jack	134-1069-031

### Compatibility

The Johnson Mini-75 Ohm SMB series is a “true” 75 Ohm impedance connector line. These connectors mechanically intermate with MIL-C-39012 50 Ohm SMB connectors.

### \* Conformity Data

Kit is certified to meet Johnson performance specifications. Performance data is available upon request. Kit is not National Institute of Standards (NIST) traceable.

## SMC Connectors - 50 Ohm

PC Mount .....	119
Semi-Rigid and Flexible Cable .....	117
Specifications .....	116

## Other Information

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Cable Assembly .....	199
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Capabilities .....	198
Mounting Hole Layouts .....	201
Numerical Index .....	289
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Competitor Cross Reference .....	281

# SMC - 50 Ohm Connectors

## Specifications

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

### ELECTRICAL RATINGS

**Impedance:** 50 Ohms

**Frequency Range:** 0-10 GHz

VSWR: (f = GHz)	Straight Cabled	Right Angle Cabled
RG-178 cable	1.25 + .04f	1.40 + .06f
RG-316 and .086 Semi-Rigid cable	1.20 + .04f	1.30 + .04f
Uncabled receptacles	N/A	
Adapters	1.20 + .04f	

**Working Voltage:** (VRMS maximum)<sup>†</sup>

Connectors for Cable Type	Sea Level	70K Feet
RG-178	250	60
RG-316, .086 Semi-Rigid uncabled receptacles, adapters	335	85

**Dielectric Withstanding Voltage:** (VRMS minimum at sea level)<sup>†</sup>

Connectors for RG-178	750
Connectors for RG-316, .086 Semi-Rigid uncabled receptacles, adapters	1000

**Corona Level:** (Volts minimum at 70,000 feet)<sup>†</sup>

Connectors for RG-178	185
Connectors for RG-316, .086 Semi-Rigid	250
Uncabled receptacles and adapters	N/A

**Insertion Loss:** (dB maximum, tested at 4 GHz)

Straight cable connectors	0.25 dB
Right angle cable connectors	0.50 dB
Uncabled receptacles and adapters	N/A

**Insulation Resistance:** 1000 megohms minimum

**Contact Resistance:** (milliohms maximum)

	Initial	After Environmental
Center contact (straight cabled connectors and uncabled receptacles)	6.0	8.0
Center contact (right angle cabled connectors and adapters)	12.0	16.0
Outer contact (gold plated connectors)	1.0	N/A
Outer contact (nickel plated connectors)	2.5	N/A
Braid to body (gold plated connectors)	1.0	N/A
Braid to body (nickel plated connectors)	2.5	N/A

**RF Leakage:** (dB minimum tested at 2.5 GHz)

Cable connectors	-55 dB
Uncabled receptacles and adapters	N/A

\*\* All gold plated parts include a .00005" min. nickel underplate barrier layer.

† Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

**RF High Potential Withstanding Voltage:** (VRMS minimum, tested at 4 and 7 MHz)<sup>†</sup>

Connectors for RG-178	500
Connectors for RG-316	700
Uncabled receptacles and adapters	600

### MECHANICAL RATINGS

**Engagement Design:** MIL-PRF-39012, Series SMC

**Engagement/Disengagement Force:** 16 inch-ounce maximum torque

**Mating Torque:** 35 to 50 inch-ounce

**Coupling Proof Torque:** 100 inch-ounce minimum

**Coupling Nut Retention:** 35 pounds minimum

**Contact Retention:** 4 lbs. minimum axial force (captivated contacts)

1 inch-ounce minimum torque (uncabled receptacles)

Cable Retention:	Axial Force* (lbs)	Torque (in-oz)
Connectors for RG-178	10	N/A
Connectors for RG-316	20	N/A
Connectors for .086 Semi-Rigid	30	16

\* or cable breaking strength whichever is less

**Durability:** 500 cycles minimum

### ENVIRONMENTAL RATINGS

(Meets or exceeds the applicable paragraph of MIL-C-39012)

**Temperature Range:** - 65°C to + 165°C

**Thermal Shock:** MIL-STD-202, Method 107, Condition B

**Corrosion:** MIL-STD-202, Method 101, Condition B

**Shock:** MIL-STD-210, Method 213, Condition C

**Vibration:** MIL-STD-202, Method 204, Condition D

### MATERIAL SPECIFICATIONS

**Bodies:** Brass per QQ-B-626, gold plated\*\* per MIL-G-45204 .00001" min or nickel plated per QQ-N-290

**Contacts:** Male - brass per QQ-B-626, gold plated per MIL-G-45204 .00003" min.

Female - beryllium copper per QQ-C-530, gold plated per MIL-G-45204 .00003" min.

**Nut Retention Spring:** Beryllium copper per QQ-C-533, unplated

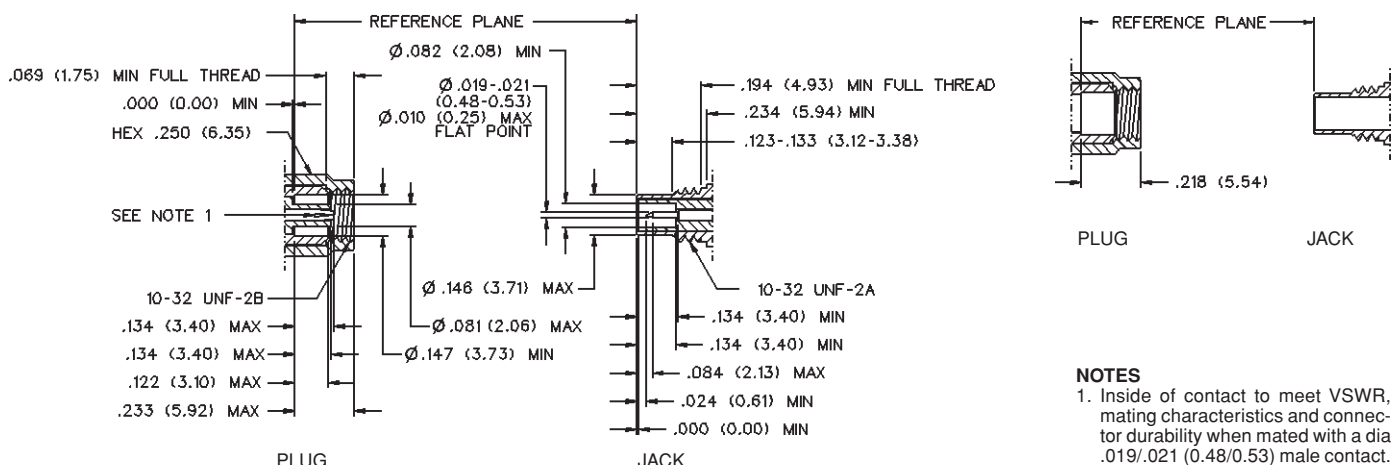
**Insulators:** PTFE fluorocarbon per ASTM D 1710 and ASTM D 1457

**Expansion Caps:** Brass per QQ-B-613, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

**Crimp Sleeves:** Copper per WW-T-799, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

**Mounting Hardware:** Brass (nuts) per QQ-B-626 or phosphor bronze (lockwashers) per QQ-B-750, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

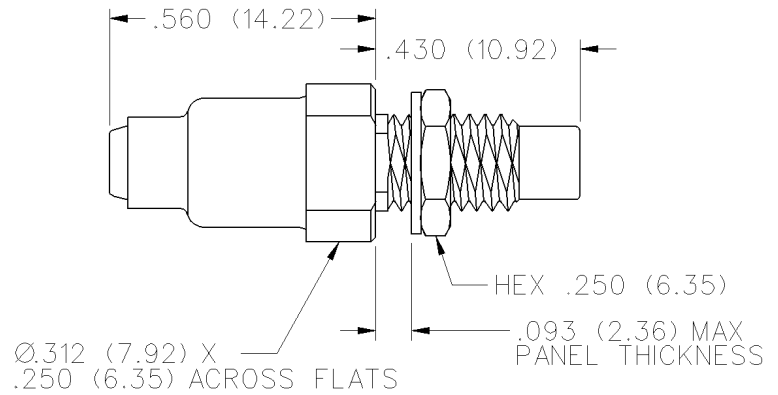
### Mating Engagement for SMC Series



#### NOTES

1. Inside of contact to meet VSWR, mating characteristics and connector durability when mated with a dia .019/.021 (0.48/0.53) male contact.

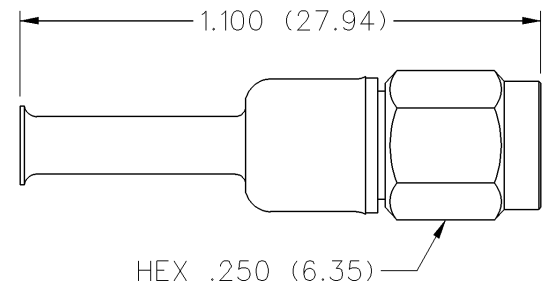
## Straight Solder Type Bulkhead Jack - Captivated Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED
.086 Semi-Rigid	131-6593-401	131-6593-406

Assembly instructions page 237.  
Mounting hole layout figure 5 page 201.

## Straight Crimp Type Plug - Captivated Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED
RG-161/U, 174, 188, 316	131-6403-001	131-6403-006
RG-316 DS, 188 DS	131-6404-001	131-6404-006
RG-179/U, 187	131-6433-001	131-6433-006

Assembly instructions page 239.  
See page 190 for Cable Assembly Tools.

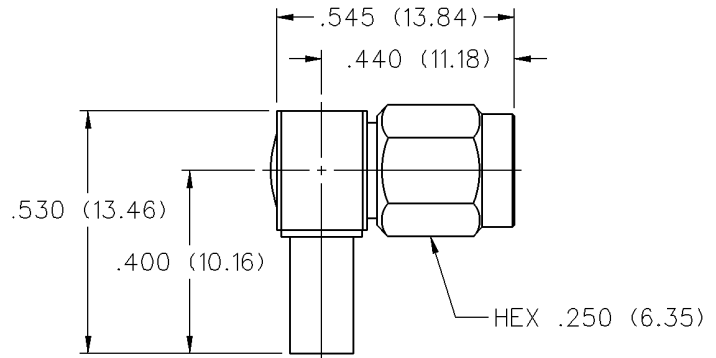
# SMC - 50 Ohm Connectors

For Flexible Cable

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



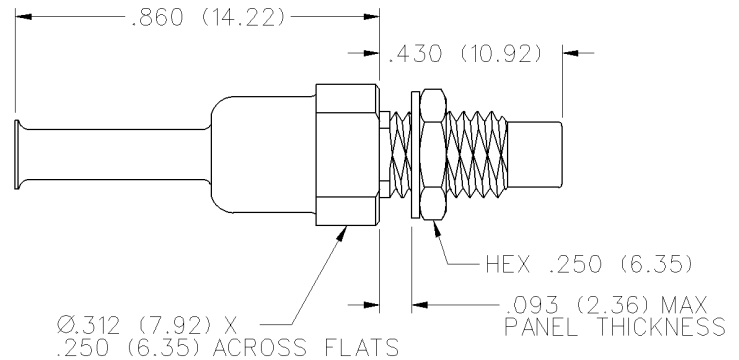
## Right Angle Crimp Type Plug - Captivated Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED
RG-161/U, 174, 188, 316	131-6403-101	131-6403-106
RG-316 DS, 188 DS	131-6404-101	131-6404-106
RG-179/U, 187	131-6433-101	131-6433-106

Assembly instructions page 240.  
See page 190 for Cable Assembly Tools.

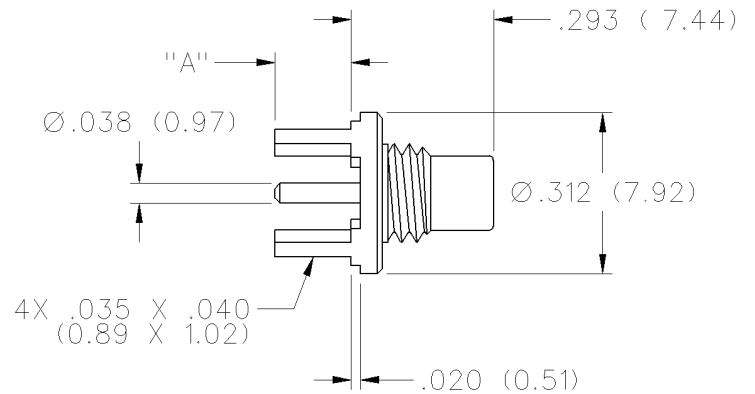
## Straight Crimp Type Bulkhead Jack - Captivated Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED
RG-161/U, 174, 188, 316	131-6303-401	131-6303-406
RG-316 DS, 188 DS	131-6304-401	131-6304-406
RG-179/U, 187	131-6333-401	131-6333-406

Assembly instructions page 239.  
See page 190 for Cable Assembly Tools.  
Mounting hole layout figure 5 page 201.

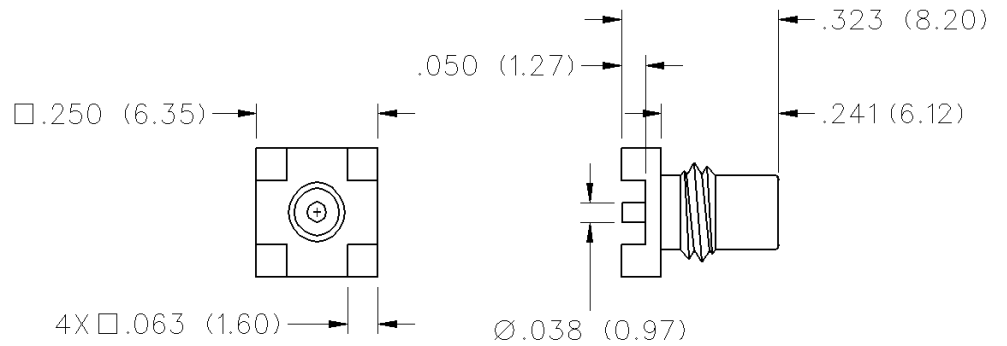
## Straight Jack Receptacle



GOLD PLATED	NICKEL PLATED	IR COMPATIBLE*	"A"
131-6701-201	131-6701-206		.155 (3.94)
131-6701-211	131-6701-216	131-6701-215*	.110 (2.79)

\*Tin/Lead Solder dipped legs for IR Reflow Compatibility. Mounting hole layout figure 4 page 201.

## Straight Jack Receptacle - Surface Mount



<b>GOLD PLATED</b>
131-6711-201

Recommended Land Pattern figure 9 page 201.

# SMC - 50 Ohm Connectors

PC Mount

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

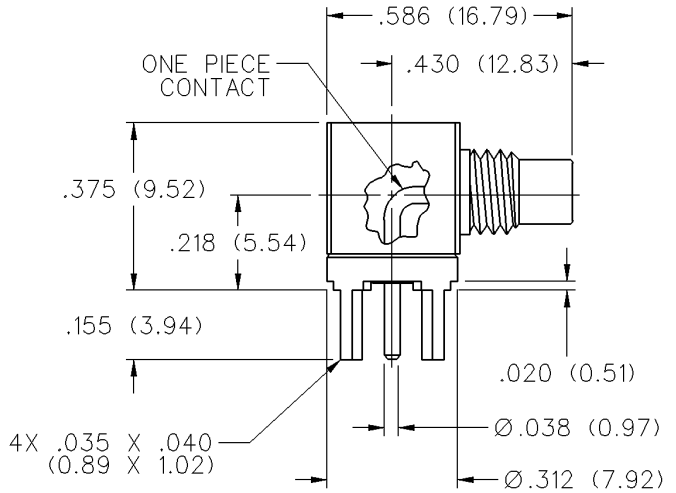


## Right Angle Jack Receptacle

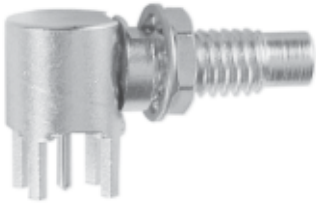


<b>GOLD PLATED</b>
131-6701-301

Mounting hole layout figure 4 page 201.

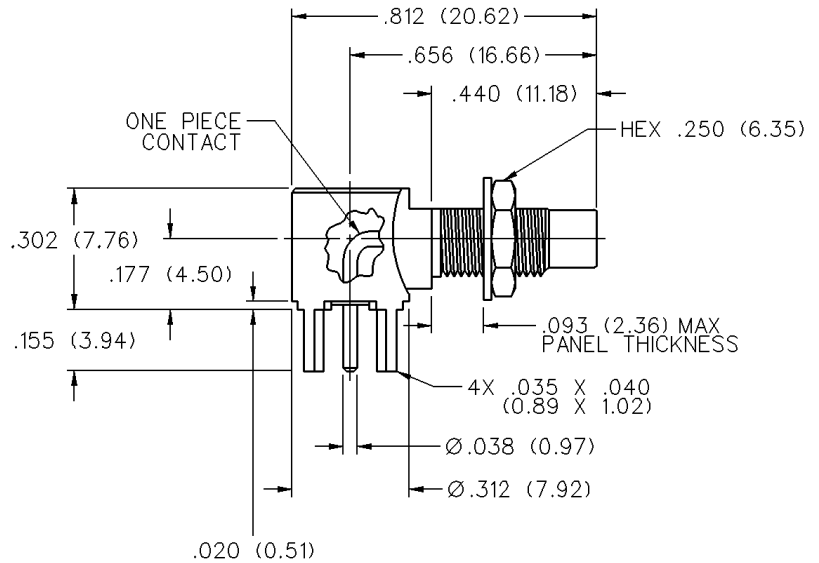


## Right Angle Bulkhead Jack Receptacle



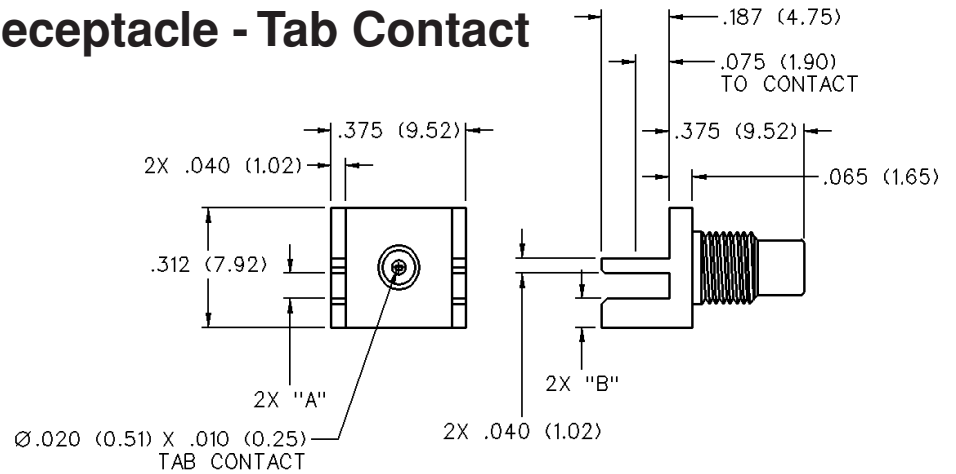
<b>GOLD PLATED</b>	<b>NICKEL PLATED</b>
131-6701-341	131-6701-346

Mounting hole layout figures 4 and 5 page 201.



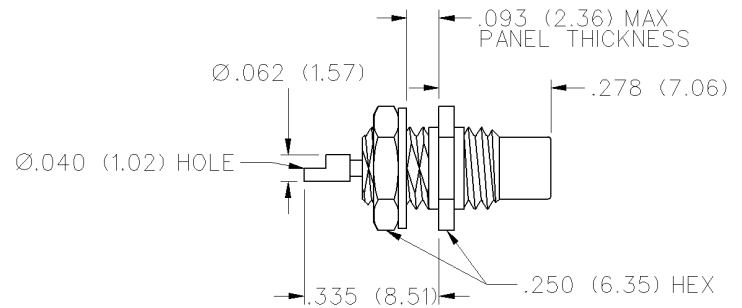


## End Launch Jack Receptacle - Tab Contact



GOLD PLATED	NICKEL PLATED	BOARD THICKNESS	"A"	"B"
131-6701-831	131-6701-836	.062 (1.57)	.068 (1.73)	.083 (2.11)

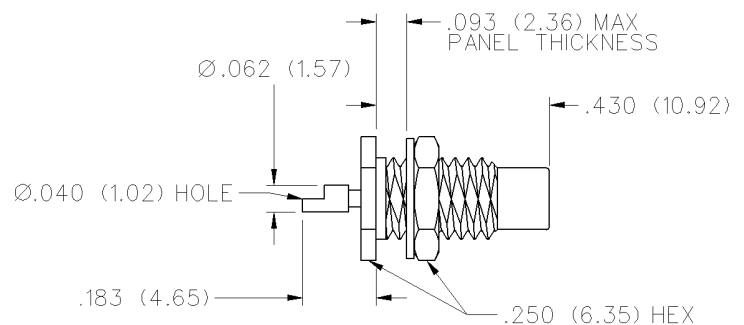
## Front Mount Bulkhead Jack Receptacle



GOLD PLATED	NICKEL PLATED
131-6701-411	131-6701-416

Mounting hole layout figure 5 page 201.

## Rear Mount Bulkhead Jack Receptacle



GOLD PLATED	NICKEL PLATED
131-6701-401	131-6701-406

Mounting hole layout figure 5 page 201.

## Shielded Cable Termination

End Launch Mount .....	124
PC Mount .....	123

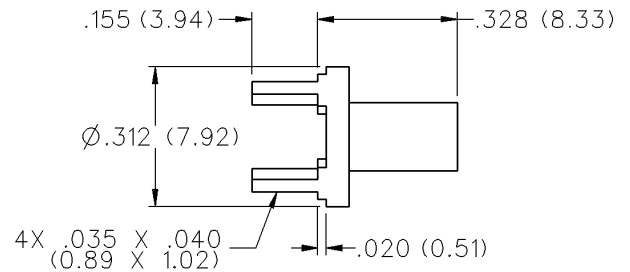
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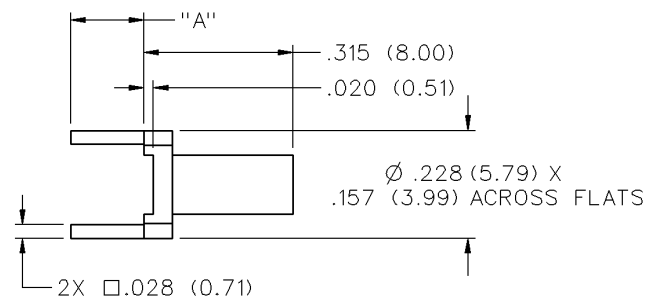
## Flexible Cable - Straight Crimp Type



CABLE TYPE	GOLD PLATED	NICKEL PLATED
RG-161/U, 174, 179, 187, 188, 316	142-0003-201	142-0003-206
RG-316 DS, RG-188 DS	142-0004-201	142-0004-206

Assembly instructions page 242.  
Mounting hole layout figure 3 page 201.

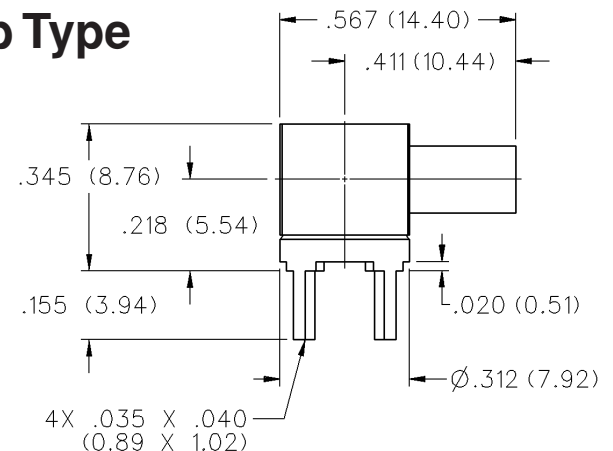
## Flexible Cable - Straight Crimp Type



CABLE TYPE	GOLD PLATED	NICKEL PLATED	"A"
RG-178/U, 196	142-0002-221	142-0002-226	.110 (2.79)
RG-316/U, 188, 174, 161, 179, 187	142-0003-231	142-0003-236	.155 (3.94)
	142-0003-241	142-0003-246	.110 (2.79)
RG-316 DS, 188 DS	142-0004-211	142-0004-216	.155 (3.94)
	142-0004-221	142-0004-226	.110 (2.79)

Assembly instructions page 242.  
Mounting hole layout figure 16 page 202.

## Flexible Cable - Right Angle Crimp Type



CABLE TYPE	GOLD PLATED	NICKEL PLATED
RG-161/U, 174, 179, 187, 188, 316	142-0003-301	142-0003-306
RG-316 DS, 188 DS	142-0004-301	142-0004-306

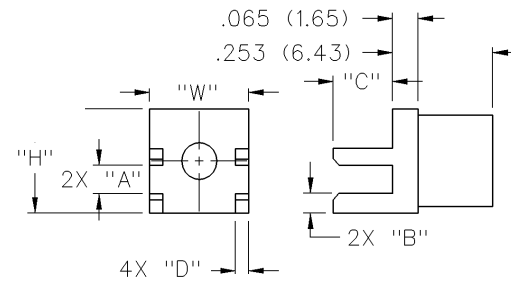
Assembly instructions page 243.  
Mounting hole layout figure 3 page 201.

# Shielded Cable Termination

End Launch Mount

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

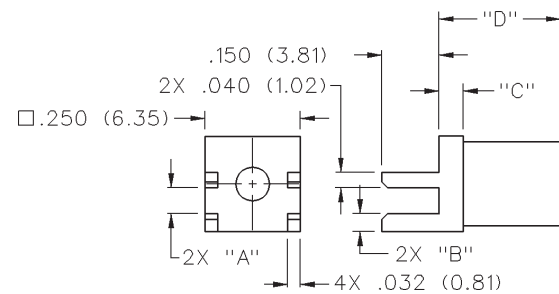
## Semi-Rigid - Straight End Launch



CABLE TYPE	GOLD PLATED	BOARD THICKNESS	"A"	"B"	"C"	"D"	"H"	"W"
.086 Semi-Rigid	142-0093-801	0.062 (1.57)	0.068 (1.73)	0.046 (1.42)	0.150 (3.81)	0.032 (0.81)	0.250 (6.35)	0.250 (6.35)
.141 Semi-Rigid	142-0094-801	0.062 (1.57)	0.068 (1.73)	0.070 (1.78)	0.187 (4.77)	0.040 (1.02)	0.312 (7.92)	0.375 (9.52)
.250 Semi-Rigid	142-0096-801	0.062 (1.57)	0.068 (1.73)	0.053 (1.35)	0.187 (4.77)	0.050 (1.27)	0.312 (7.92)	0.375 (9.52)

Assembly instructions page 245. Cable Assembly Tools page 190.

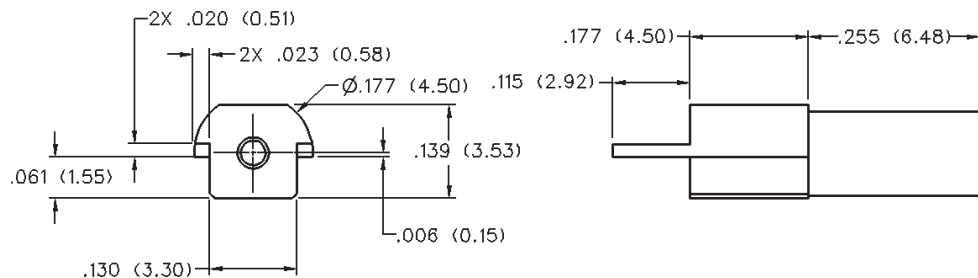
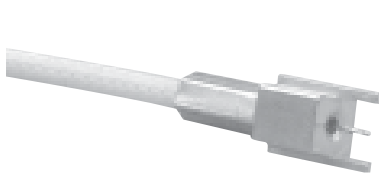
## Flexible Cable - Straight Crimp Type End Launch



CABLE TYPE	GOLD PLATED	BOARD THICKNESS	"A"	"B"	"C"	"D"
RG-316/U, 188, 174, 161, 179, 187	142-0003-801	0.062 (1.57)	0.068 (1.73)	0.046 (1.02)	0.055 (1.40)	0.310 (7.87)
RG-316 DS, 188 DS, 179 DS, 187 DS	142-0004-801	0.062 (1.57)	0.068 (1.73)	0.046 (1.02)	0.065 (1.65)	0.320 (8.13)
RG-58/U, 141, 303	142-0007-801	0.062 (1.57)	0.068 (1.73)	0.037 (1.65)	0.065 (1.65)	0.320 (8.13)
RG-142/U, 55, 223, 400	142-0008-801	0.062 (1.57)	0.068 (1.73)	0.037 (1.65)	0.065 (1.65)	0.320 (8.13)
RG-178/U, 196	142-0002-811	0.047 (1.19)	0.053 (1.35)	0.065 (1.65)	0.065 (1.65)	0.320 (8.13)
RG-316/U, 188, 174, 161, 179, 187	142-0003-811	0.047 (1.19)	0.053 (1.35)	0.061 (1.55)	0.065 (1.65)	0.320 (8.13)
RG-316 DS, 188 DS, 179 DS, 187 DS	142-0004-811	0.047 (1.19)	0.053 (1.35)	0.061 (1.55)	0.065 (1.65)	0.320 (8.13)
RG-58/U, 141, 303	142-0007-811	0.047 (1.19)	0.053 (1.35)	0.052 (1.32)	0.065 (1.65)	0.320 (8.13)
RG-142/U, 55, 223, 400	142-0008-811	0.047 (1.19)	0.053 (1.35)	0.052 (1.32)	0.065 (1.65)	0.320 (8.13)

Assembly instructions page 244. Cable Assembly Tools page 190.

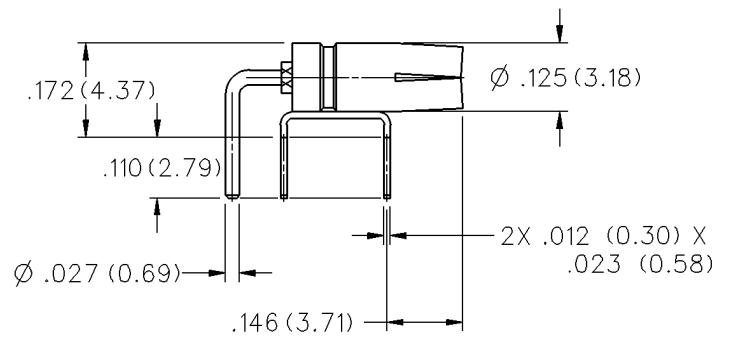
## Flexible Cable - Straight Crimp Type Surface Mount End Launch



CABLE TYPE	GOLD PLATED
RG-178/U, 196	142-0002-821

Recommended land pattern figure 14 page 202.  
Assembly Instructions page 245.

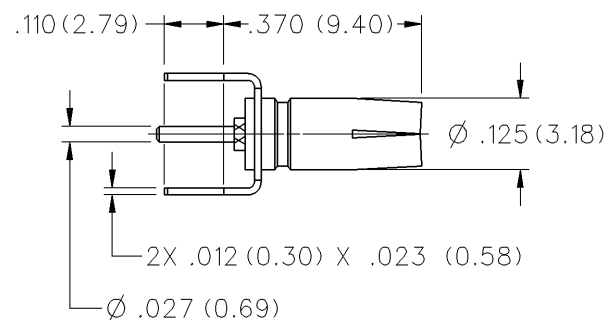
## Horizontal



TIN PLATED	GOLD PLATED
129-0701-301	129-0701-302

Mounting hole layout figure 18 page 202.

## Vertical



TIN PLATED	GOLD PLATED
129-0701-201	129-0701-202

Mounting hole layout figure 17 page 202.

### ELECTRICAL RATINGS

- Impedance:** 29 ohms
- Frequency Range:** 0 - 2 GHz
- Working Voltage:** 300 VRMS<sup>†</sup>
- Dielectric Withstanding Voltage:** 2000 VDC<sup>†</sup>
- Contact Resistance:** Center Contact: 6 milliohms  
Outer conductor: 2.5 milliohms

### MECHANICAL RATINGS

- Insertion Force:** Inner conductor: 32 oz. max. 2 oz. min.  
Outer conductor: 48 oz. max. 6 oz. min.
- Durability:** 250 cycles

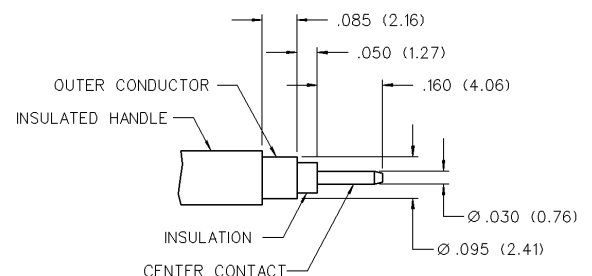
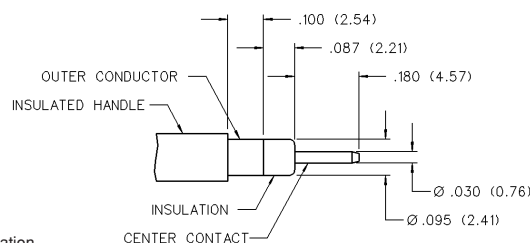
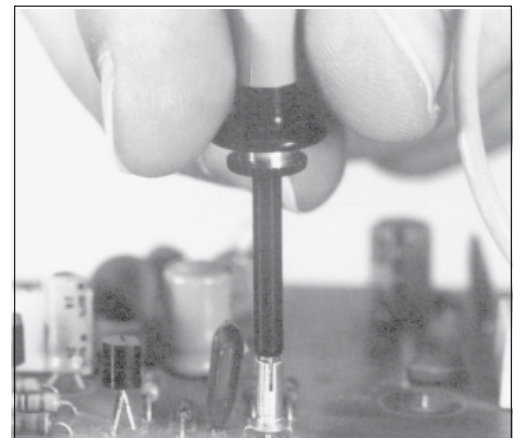
### ENVIRONMENTAL RATINGS

- Temperature Range:** -65° C to + 85° C
- Corrosion:** Salt spray, 24 hours
- Shock:** Method 213, Test Condition B, MIL-STD-202
- Vibration:** Method 204, Test Condition B, MIL-STD-202

### MATERIAL SPECIFICATIONS

- Contact:** Beryllium copper per QQ-C-533/530
- Insulator Material:** TFE Fluorocarbon per L-P-403
- Finish:** Center Contact and Body: Bright Tin or Gold

### SHIELDED TEST JACK INTERFACE - TYPICAL PROBE TYPE



<sup>†</sup>Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

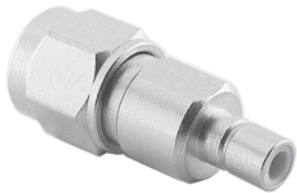
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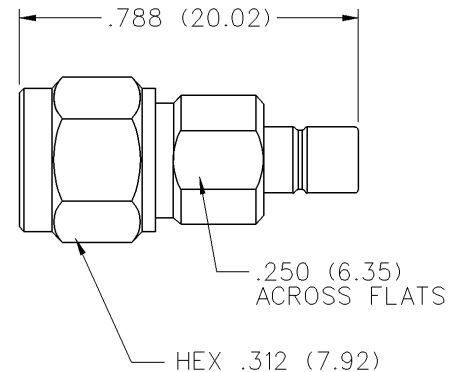
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## SMA Plug to SMB Jack Adapter



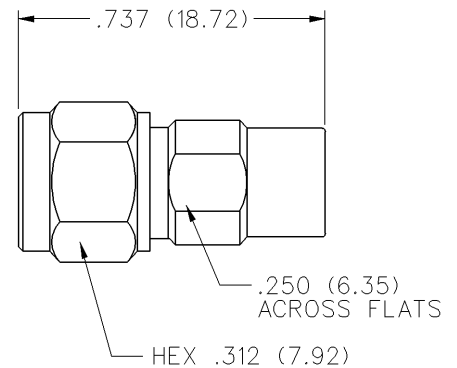
VSWR & FREQUENCY RANGE	GOLD PLATED
1.05 + .01f (GHz) 0-4 GHz	134-1012-011



## SMA Plug to SMB Plug Adapter



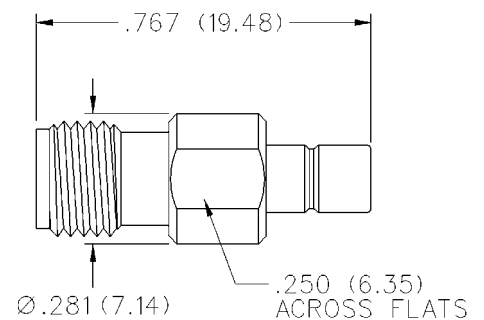
VSWR & FREQUENCY RANGE	GOLD PLATED
1.05 + .01f (GHz) 0-4 GHz	134-1012-021



## SMA Jack to SMB Jack Adapter



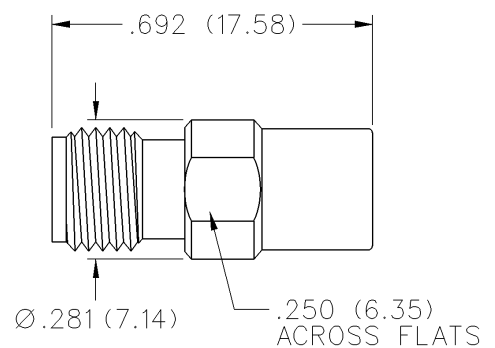
VSWR & FREQUENCY RANGE	GOLD PLATED
1.05 + .01f (GHz) 0-4 GHz	134-1012-031



## SMA Jack to SMB Plug Adapter



VSWR & FREQUENCY RANGE	GOLD PLATED
1.05 + .01f (GHz) 0-4 GHz	134-1012-041



# Between-Series Adapters

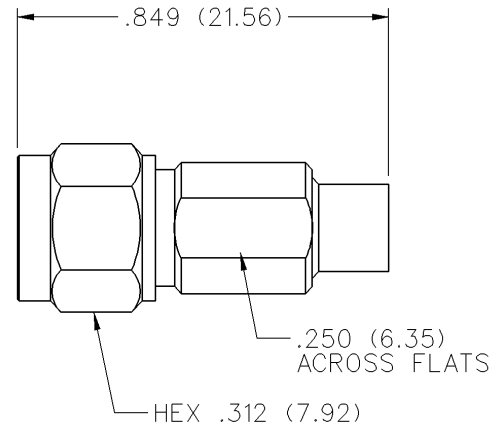
SMA to MCX

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

## SMA Plug to MCX Jack Adapter



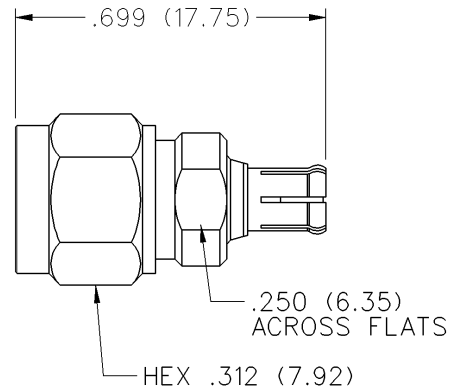
VSWR & FREQUENCY RANGE	GOLD PLATED
1.03 + .03f (GHz) 0-6 GHz	134-1018-001



## SMA Plug to MCX Plug Adapter



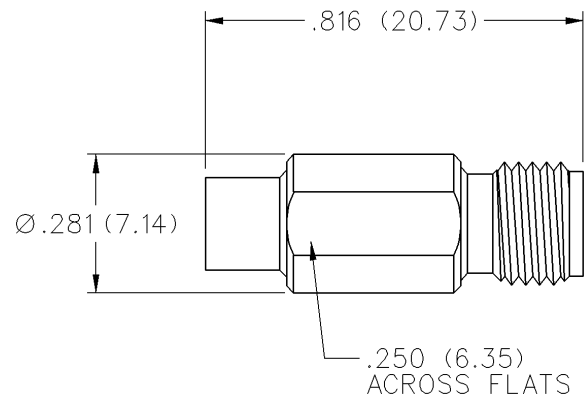
VSWR & FREQUENCY RANGE	GOLD PLATED
1.03 + .03f (GHz) 0-6 GHz	134-1018-011



## SMA Jack to MCX Jack Adapter



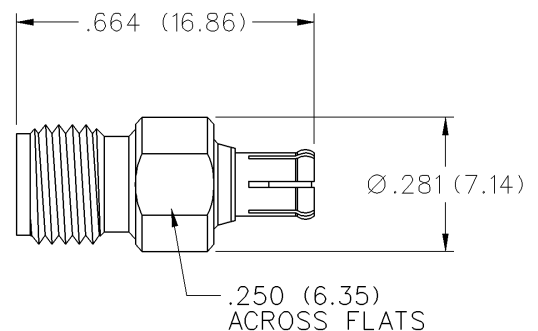
VSWR & FREQUENCY RANGE	GOLD PLATED
1.03 + .03f (GHz) 0-6 GHz	134-1018-021



## SMA Jack to MCX Plug Adapter

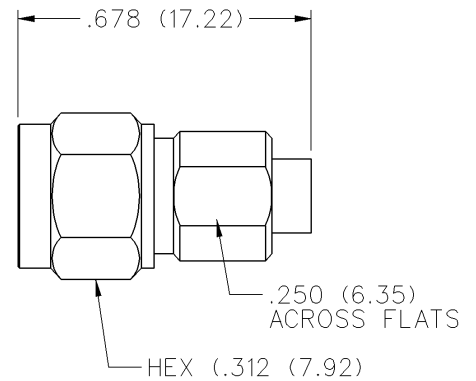


VSWR & FREQUENCY RANGE	GOLD PLATED
1.03 + .03f (GHz) 0-6 GHz	134-1018-031



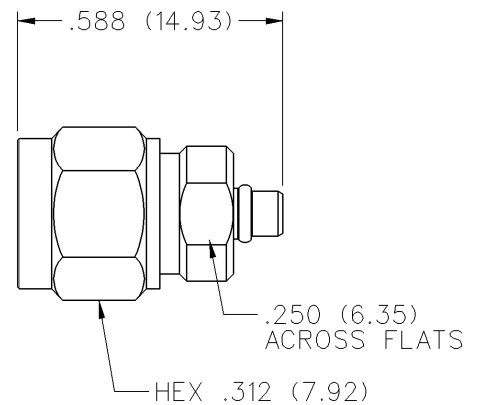


## SMA Plug to MMCX Jack Adapter



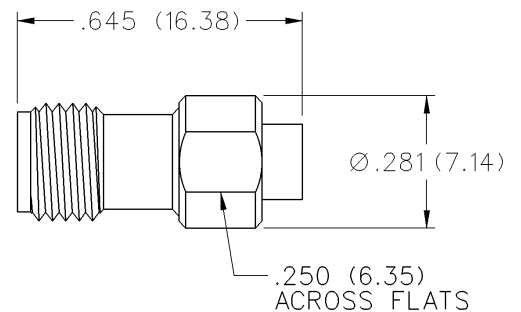
VSWR & FREQUENCY RANGE	GOLD PLATED
1.05 + .05f (GHz) 0-6 GHz	134-1019-151

## SMA Plug to MMCX Plug Adapter



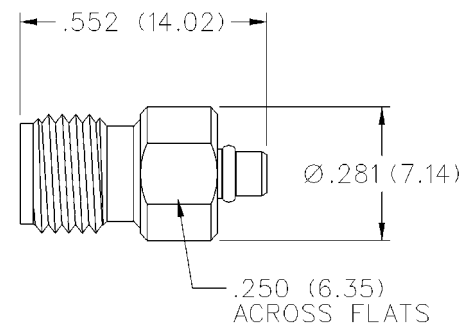
VSWR & FREQUENCY RANGE	GOLD PLATED
1.05 + .05f (GHz) 0-6 GHz	134-1019-161

## SMA Jack to MMCX Jack Adapter



VSWR & FREQUENCY RANGE	GOLD PLATED
1.05 + .05f (GHz) 0-6 GHz	134-1019-171

## SMA Jack to MMCX Plug Adapter



VSWR & FREQUENCY RANGE	GOLD PLATED
1.05 + .05f (GHz) 0-6 GHz	134-1019-181

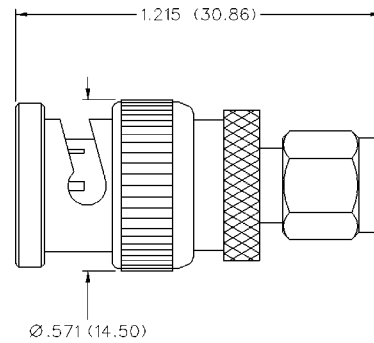
# Between-Series Adapters

BNC to SMA

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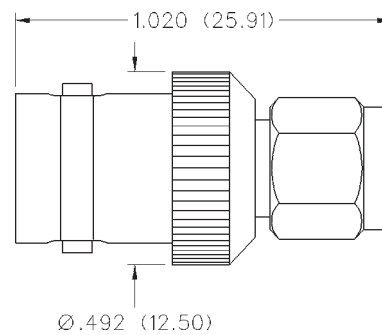
## BNC Plug to SMA Plug Adapter

<b>PART NO.</b>
CP-AD582



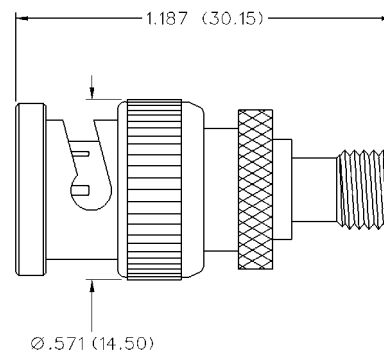
## BNC Jack to SMA Plug Adapter

<b>PART NO.</b>
CP-AD508



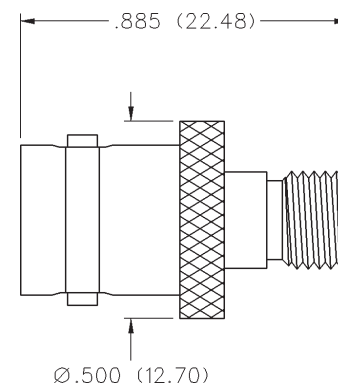
## BNC Plug to SMA Jack Adapter

<b>PART NO.</b>
CP-AD583



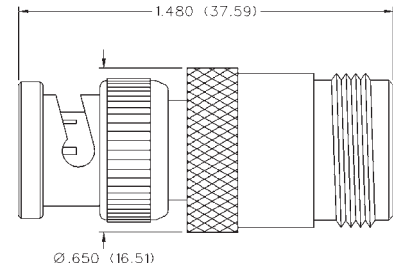
## BNC Jack to SMA Jack Adapter

<b>PART NO.</b>
CP-AD507



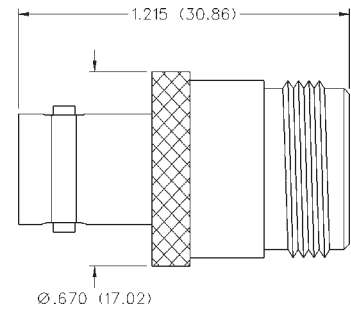
## BNC Plug to N Jack Adapter

**PART NO.**  
CP-AD807



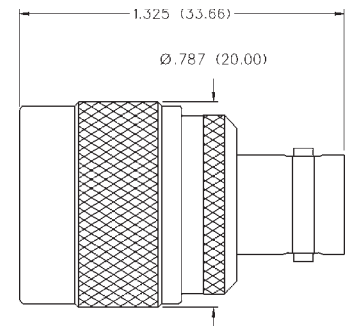
## BNC Jack to N Jack Adapter

**PART NO.**  
CP-AD806



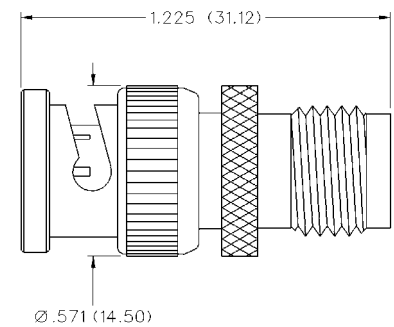
## BNC Jack to N Plug Adapter

**PART NO.**  
CP-AD809



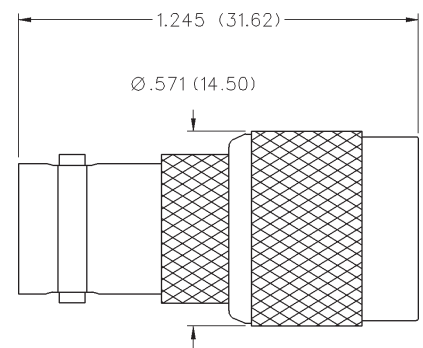
## BNC Plug to TNC Jack Adapter

**PART NO.**  
CP-AD314



## BNC Jack to TNC Plug Adapter

**PART NO.**  
CP-AD300



# Between-Series Adapters

BNC to F, RCA and UHF

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

## BNC to F

### BNC Jack to F Plug Adapter



CP-AD502

### BNC Plug to F Jack Adapter



CP-AD516

## BNC to RCA

### BNC Jack to RCA Plug Adapter



CP-AD501

### BNC 50 Ohm Plug to RCA Jack Adapter



CP-AD515

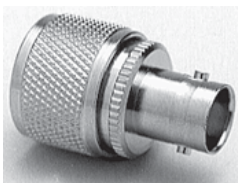
### BNC 75 Ohm Plug to RCA Jack Adapter



CP-AD517

## BNC to UHF

### BNC Jack to UHF Plug Adapter



CP-AD500

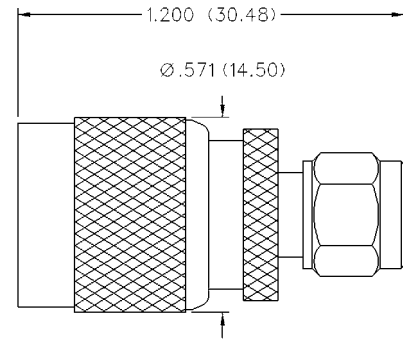
### BNC Plug to UHF Jack Adapter



CP-AD512

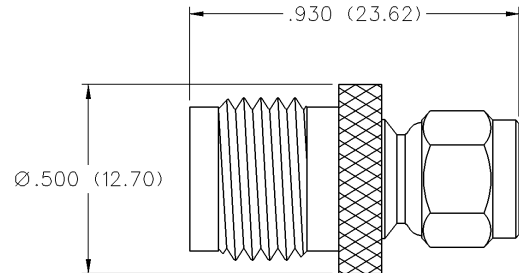
## TNC Plug to SMA Plug Adapter

<b>PART NO.</b>
CP-AD311



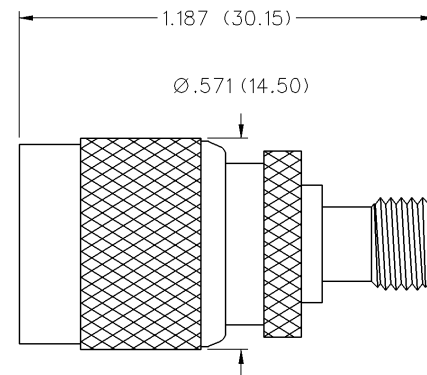
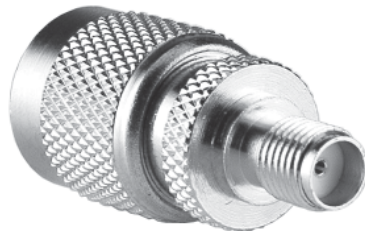
## TNC Jack to SMA Plug Adapter

<b>PART NO.</b>
CP-AD312



## TNC Plug to SMA Jack Adapter

<b>PART NO.</b>
CP-AD313



# Between-Series Adapters

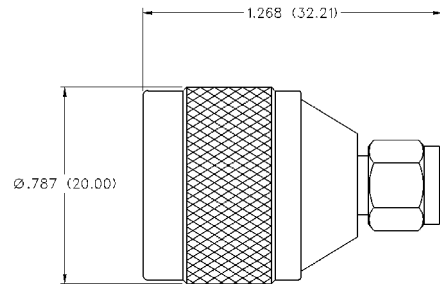
N to SMA and UHF

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



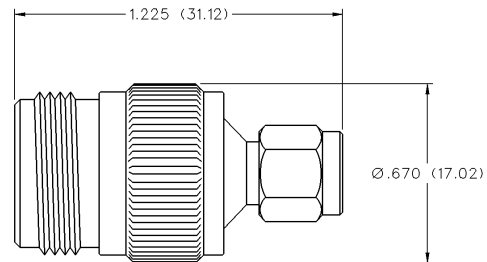
## N Plug to SMA Plug Adapter

PART NO.  
CP-AD817



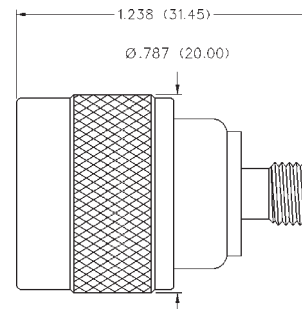
## N Jack to SMA Plug Adapter

PART NO.  
CP-AD818



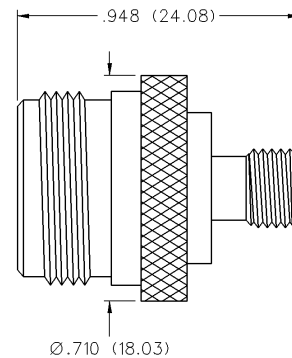
## N Plug to SMA Jack Adapter

PART NO.  
CP-AD810



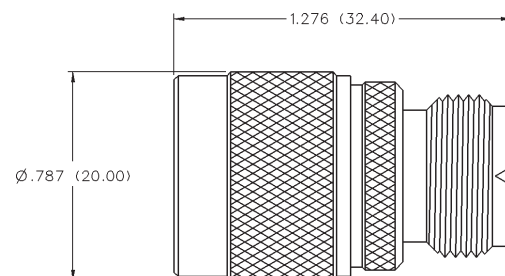
## N Jack to SMA Jack Adapter

PART NO.  
CP-AD819



## N Plug to UHF Jack Adapter

PART NO.  
CP-AD808



## F to RCA

### F Jack to RCA Plug Adapter



CP-AD103

## F to UHF

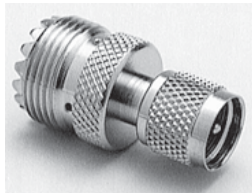
### F Jack to UHF Plug Adapter



CP-AD218

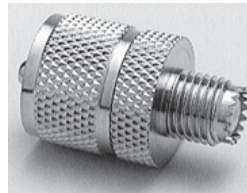
## UHF to Mini-UHF

### UHF Jack to Mini-UHF Plug Adapter



CP-AD214

### UHF Plug to Mini-UHF Jack Adapter



CP-AD219

## **BNC Connectors - 50 Ohm**

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## **BNC Connectors - 75 Ohm Commercial** .....

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## **BNC Connectors - True 75 Ohm** .....

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The BNC series connector is a commercial quality product that intermates with all standard double bayonet stud BNC designs. All contacts are captivated for ruggedness. The 50 Ohm and 75 Ohm interfaces are intermateable and provide quick, reliable connections for instrumentation, medical and LAN applications.

## Specifications\*

### 50 Ohm BNC

#### Electrical Characteristics

Impedance: 50 Ohm nominal

Frequency range: 0-4 GHz

Working voltage: 500 volts RMS at sea level

Dielectric withstanding voltage: 1500 volts RMS at sea level

Corona level: 375 volts minimum at 70,000 feet

Contact resistance: Outer - 0.2 milliohms maximum

Center - 2.1 milliohms maximum

Insulation resistance: 5000 megohms minimum

#### Environmental Characteristics

Recommended temperature range: -55°C to +85°C

Moisture resistance: MIL-STD-202

#### Mechanical Characteristics

Durability: 500 cycles

Force to engage/disengage: 3 lbs. maximum

Cable retention: 20 lbs., RG-58 C/U cable

#### Materials

Body: Zinc or brass

Contact: Brass, Beryllium copper or phosphor bronze

Spring Washer: Beryllium copper

Crimp sleeve: Brass

Insulator: Delrin® or TPX Polymethylpentene

Plating: Body - Nickel (except where noted)

Crimp sleeve - Nickel

Contact - Gold

\* These values are typical and may not apply to all connectors.

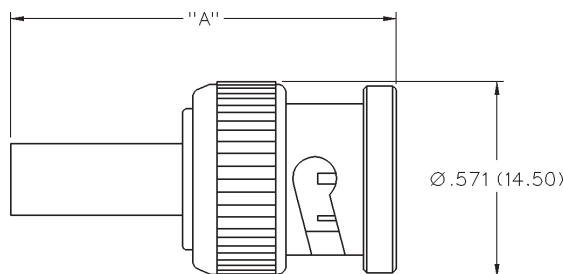
# BNC Connectors - 50 Ohm Commercial

For Flexible Cable

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



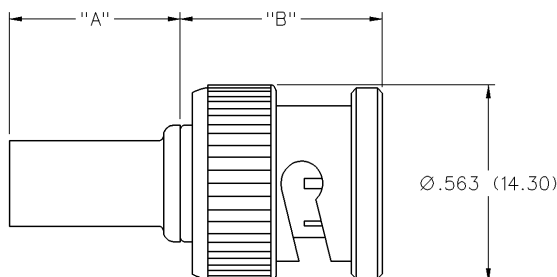
## Straight Crimp Type Plug - Solder or Crimp Contact - 3 and 4 Piece



PART NO.	CABLE TYPE	"A"	CONTACT I.D.	BODY I.D.	SLEEVE I.D.	TERMINATION	PIECES
CPMC-88-19	RG-174, 188, 316	1.142 (29.00)	.0245 (0.62)	.093 (2.36)	.178 (4.52)	Crimp Sleeve	3
CPM-88-19	RG-174, 188, 316	0.932 (23.67)	.0245 (0.62)	.167 (4.24)	.118 (3.00)	Crimp Insert	4
CPM-88-19 A/S	RG-174, 188, 316	1.272 (32.31)	.0245 (0.42)	.167 (4.24)	.118 (3.00)	Extended Crimp Insert	4
CPM-88-20	RG-179, 187	0.932 (23.67)	.0165 (0.42)	.167 (4.24)	.118 (3.00)	Crimp Insert	4

Assembly instructions pages 246 and 247.

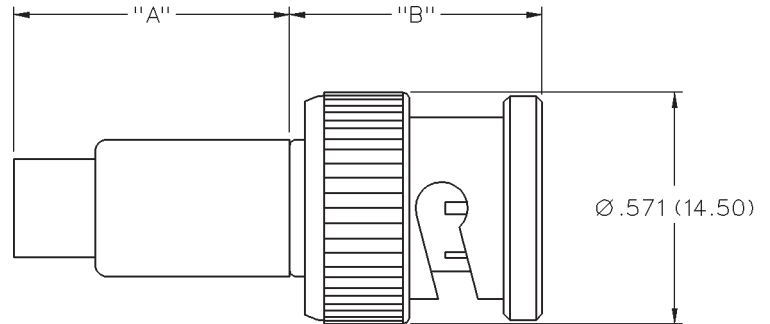
## Straight Crimp Type Plug - Solder or Crimp Contact - 3 Piece



PART NO.	CABLE TYPE	"A"	"B"	CONTACT I.D.	BODY I.D.	SLEEVE I.D.
CPMC-88-1	RG-58, 141	.520 (13.20)	.595 (15.11)	.044 (1.12)	.126 (3.20)	.206 (5.23)
CPMC-88-2	RG-59, 62	.520 (13.20)	.595 (15.11)	.034 (0.86)	.173 (4.39)	.261 (6.63)
CPMC-88-3	BELDEN 8281	.600 (15.24)	.645 (16.38)	.034 (0.86)	.208 (5.28)	.344 (8.74)
CPMC-88-5	RG-6	.500 (12.70)	.645 (16.38)	.044 (1.12)	.208 (5.28)	.280 (7.11)
CPMC-88-10	RG-59 PLENUM, 62 PLENUM	.520 (13.20)	.595 (15.11)	.0325 (0.83)	.141 (3.58)	.206 (5.23)
CPMC-88-11	RG-58 PLENUM; RG-303	.541 (13.74)	.595 (15.11)	.044 (1.12)	.126 (3.20)	.192 (4.88)
CPMC-88-13	RG-142, 223, 400, 55	.520 (13.20)	.595 (15.11)	.044 (1.12)	.126 (3.20)	.220 (5.59)
CPMC-88-14	RG-180, 34M, 195	.520 (13.20)	.595 (15.11)	.0165 (0.42)	.107 (2.72)	.175 (4.45)
CPMC-88-17	RG-8X (MINI 8)	.520 (13.20)	.595 (15.11)	.065 (1.65)	.173 (4.39)	.261 (6.63)
CPMC-88-18	BELDEN 8218, MINI 75	.520 (13.20)	.595 (15.11)	.0245 (0.62)	.107 (2.72)	.175 (4.45)
CPMC-88-21	RG-58, RG-59 PLENUM	1.238 (31.45)	1.143 (29.03)	.034 (0.86)	.172 (4.37)	.213 (5.41)
CPMC-88-26	RG-11, BELDEN 1523A	.709 (18.00)	.763 (19.38)	.067 (1.70)	.291 (7.90)	.417 (10.60)

Assembly instructions page 246.

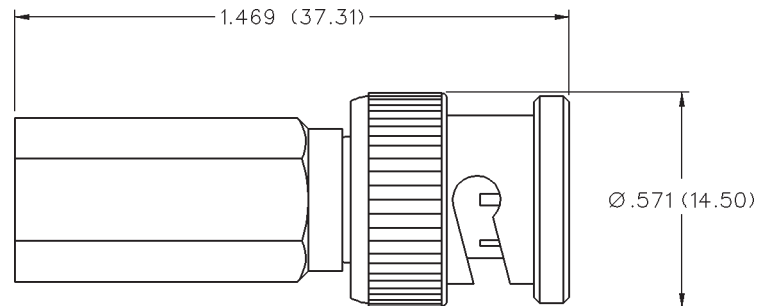
## Straight Crimp Type Plug - Push-On Body - 2 Piece



PART NO.	CABLE TYPE	CABLE CENTER CONDUCTOR	"A"	"B"	WIRE GAUGE	WIRE DECIMAL	JACKET O.D.
CP-88-1	RG-58	SOLID	.684 (17.37)	.605 (15.37)	22-18	.025 (.064)-.043 (1.09)	.195 (4.95)-.210 (5.33)
CP-88-2	RG-59, 62, RG-6 PLENUM, GENESIS 5352	SOLID	.673 (17.09)	.605 (15.37)	22-18	.025 (.064)-.043 (1.09)	.220(5.59)-.250 (6.35)
CP-88-3	BELDEN 8281, RG-6 QUAD	SOLID	.819 (20.80)	.540 (13.72)	22-18	.025 (.064)-.043 (1.09)	.272 (6.91)-.307 (7.80)
CP-88-4	RG-MATV-59	SOLID	.677 (17.20)	.605 (15.37)	22-18	.025 (.064)-.043 (1.09)	.242 (6.15)-.251 (6.38)
CP-88-5	RG-6	SOLID	.684 (17.37)	.605 (15.37)	22-18	.025 (.064)-.043 (1.09)	.265 (6.73)-.280 (7.11)
CP-88-10	RG-59, 62 PLENUM	SOLID	.680 (17.27)	.605 (15.37)	22-18	.025 (.064)-.043 (1.09)	.195 (4.95)-.210 (5.33)
CP-SW88-2	RG-59, 62, RG-6TFE	STRANDED	.673 (17.09)	.605 (15.37)	22-18	.025 (.064)-.043 (1.09)	.220 (5.59)-.250 (6.35)
CP-SW88-10	RG-59AU PLENUM	STRANDED	.673 (17.09)	.605 (15.37)	22-18	.025 (.064)-.043 (1.09)	.195 (4.95)-.210 (5.33)

Assembly instructions page 250.

## Straight Twist-On Plug - Field Installable - 1 Piece



PART NO.	CABLE TYPE	CABLE CENTER CONDUCTOR	WIRE GAUGE	WIRE DECIMAL	JACKET O.D.
CPFI-UG88-1	RG-58	SOLID	22-18	.025 (.064)-.043 (1.09)	.185 (4.70)-.205 (5.21)
CPFI-UG88-2	RG-59, 62	SOLID	22-18	.025 (.064)-.043 (1.09)	.220 (5.59)-.250 (6.35)
CPFI-UG88-3	BELDEN 8281, RG-6 QUAD	SOLID	22-18	.025 (.064)-.043 (1.09)	.272 (6.91)-.307 (7.80)
CPFI-UG88-4	RG-MATV-59	SOLID	22-18	.025 (.064)-.043 (1.09)	.220 (5.59)-.250 (6.35)
CPFI-UG88-5	RG-6 PLENUM	SOLID	22-18	.025 (.064)-.043 (1.09)	.270 (6.86)-.280 (7.11)
CPFI-UG88-10	RG-59 PLENUM, 62 PLENUM	SOLID	22-18	.025 (.064)-.043 (1.09)	.185 (4.70)-.205 (5.21)

Assembly instructions page 251.

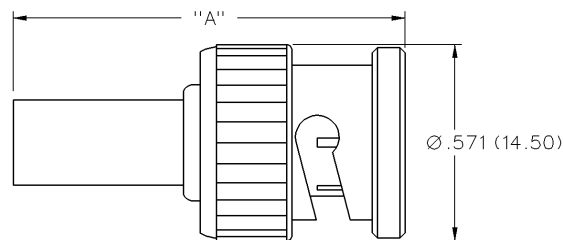
# BNC Connectors - 50 Ohm Commercial

For Flexible Cable

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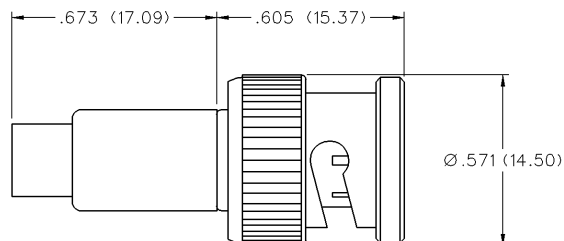
## Straight Crimp Plug - Two Ferrules - 3 Piece



PART NO.	CABLE TYPE	"A"		CONTACT I.D.	BODY I.D.	SLEEVE I.D.	
CPMC-88-21	RG-58, RG-59 PLENUM	1.238 (31.45)	1.143 (29.03)	.034 (0.86)	.172 (4.37)	.213 (5.41)	.261 (6.63)

Assembly instructions page 248.

## Straight Crimp Plug - Two Ferrules, Push-On Body - 2 Piece



PART NO.	CABLE TYPE
CP-SW88-21	RG-58, RG-59 PLENUM

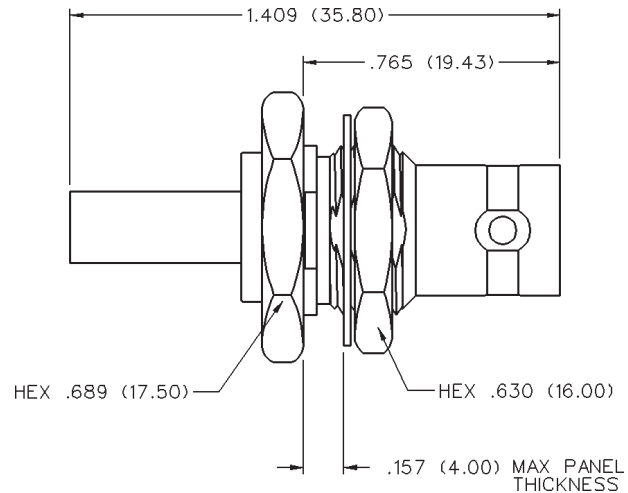
Assembly instructions page 250.

## Straight Crimp Type, Rear Mount Bulkhead Jack - Solder or Crimp Contact - 3 Piece



PART NO.	CABLE TYPE
CP-89-19BM1	RG-174, 188, 316

Assembly instructions page 249.  
 Mounting hole layout figure 24 page 203.  
 Tapered crimp sleeve as shown in photo.

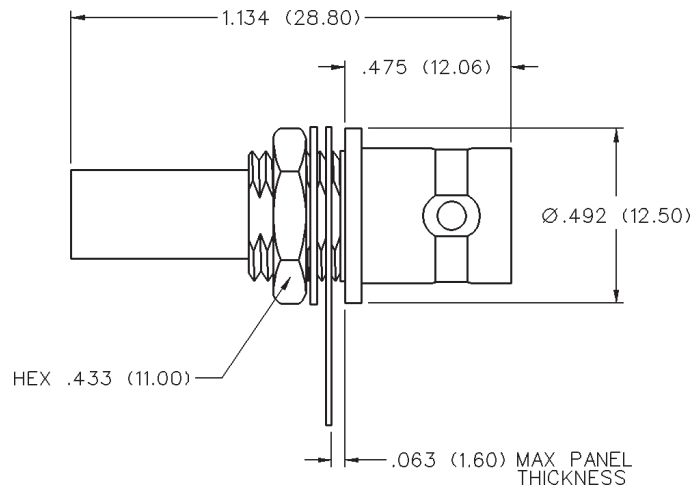


## Straight Crimp Type, Front Mount Bulkhead Jack - Lug Terminal, Solder or Crimp Contact - 3 Piece



PART NO.	CABLE TYPE
CP-89-27BM2	RG-178, 196

Assembly instructions page 249.  
 Mounting hole layout figure 25 page 203.



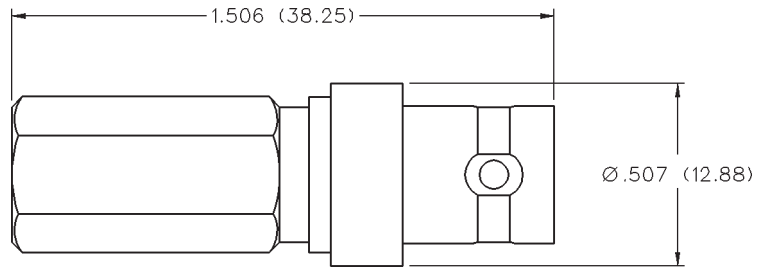
# BNC Connectors - 50 Ohm Commercial

For Flexible Cable

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

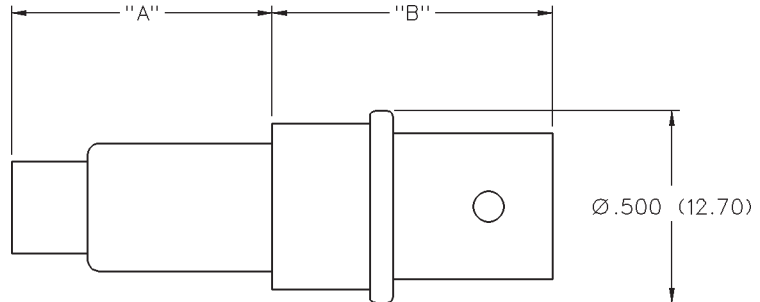


## Straight Twist-On Jack - Field Installable - 1 Piece



PART NO.	CABLE TYPE	CABLE CENTER CONDUCTOR	WIRE GAUGE	WIRE DECIMAL	JACKET O.D.
CPFI-UG89-2	RG-59, 62	SOLID	22	.025 (0.64)	.220 (5.59)-.250 (6.35)

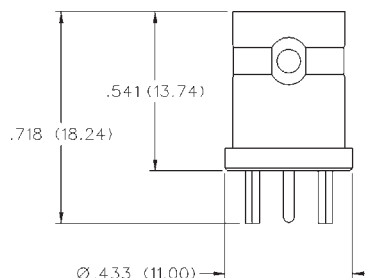
## Straight Crimp Type Jack - Push-On Body - 2 Piece



PART NO.	CABLE TYPE	CABLE CENTER CONDUCTOR	"A"	"B"	WIRE GAUGE	WIRE DECIMAL	JACKET O.D.
CP-89-1	RG-58	SOLID	.680 (17.27)	.668 (16.97)	20	.032 (0.81)	.195 (4.95)-.210 (5.33)
CP-89-2	RG-59, 62	SOLID	.673 (17.09)	.675 (17.15)	22	.025 (0.64)	.220 (5.59)-.250 (6.35)

Assembly instructions page 250.

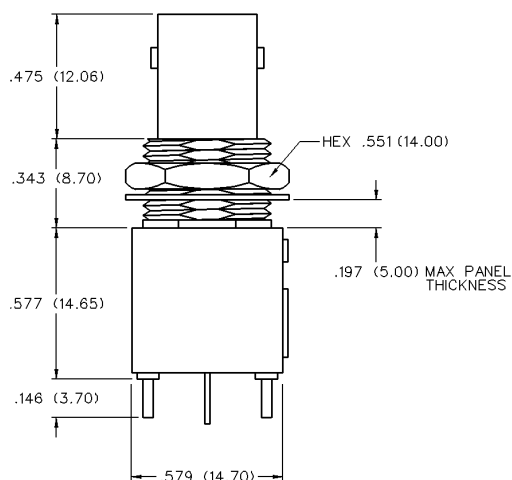
## Straight Jack Receptacle



PART NO.	NOTES
CP-BNCPC-001	Silver plated body

Mounting hole layout figure 26 page 203.

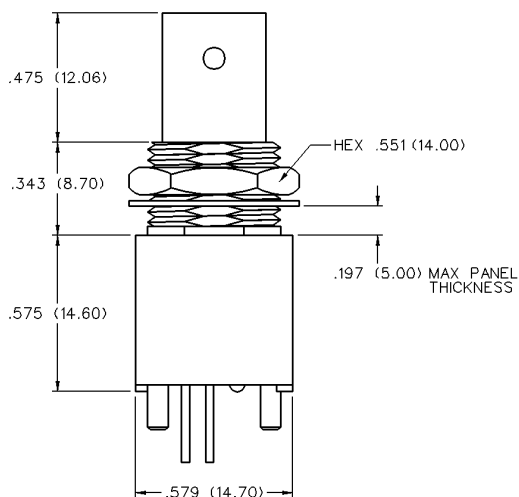
## Straight Bulkhead Jack Receptacle - Shielded



PART NO.
CP-BNCPC-005

Mounting hole layout figures 24 and 27 page 203.

## Straight Bulkhead Jack Receptacle - Isolated



PART NO.
CP-BNCPC-007

Mounting hole layout figures 24 and 27 page 203.

PC Mount

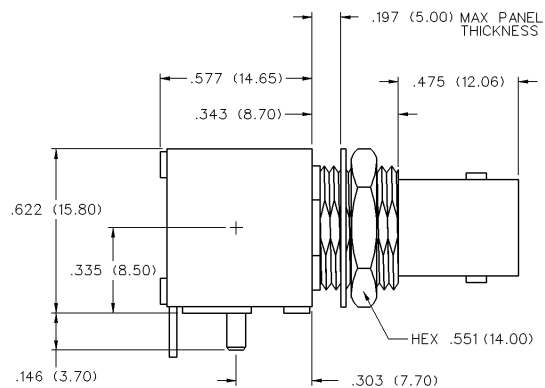
INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

## Right Angle Bulkhead Jack Receptacle - Shielded



PART NO.
CP-BNCPC-009

Mounting hole layout figures 24 and 28 page 203.

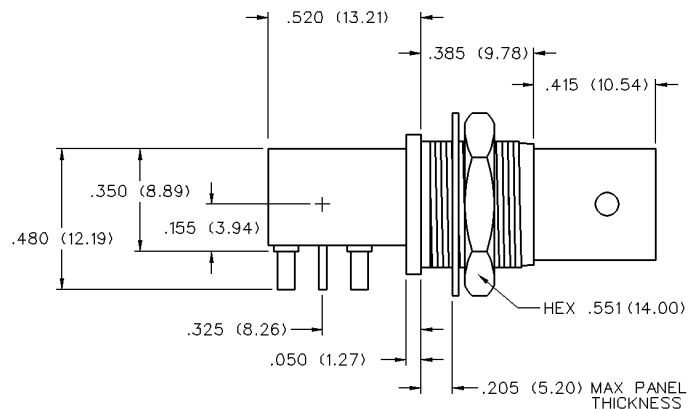


## Right Angle Bulkhead Jack Receptacle - Shielded, Extra Low Profile



PART NO.	NOTES
CP-BNCPC-013	Tin plated body

Mounting hole layout figures 24 and 29 pages 203 and 204.

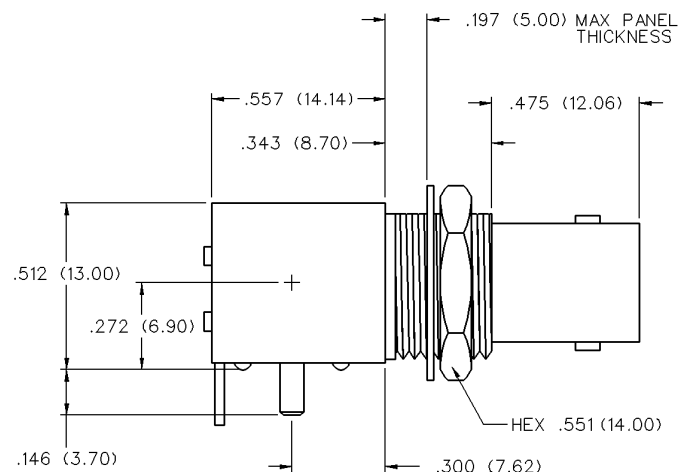


## Right Angle Bulkhead Jack Receptacle - Isolated, Low Profile



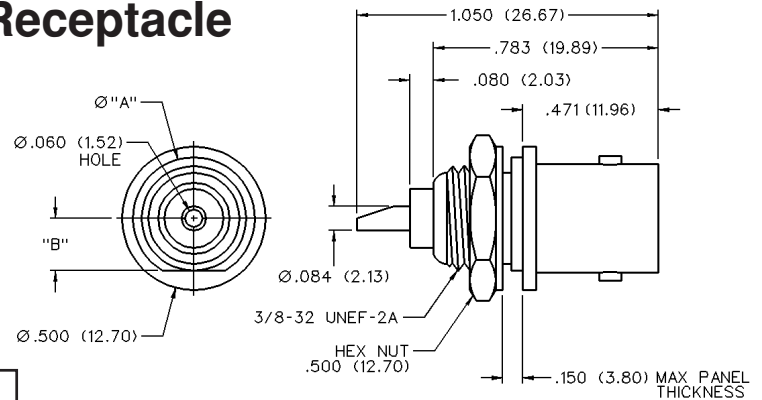
PART NO.	NOTES
CP-BNCPC-017	With mounting posts

Mounting hole layout figures 24 and 28 page 203.





## Front Mount Bulkhead Jack Receptacle

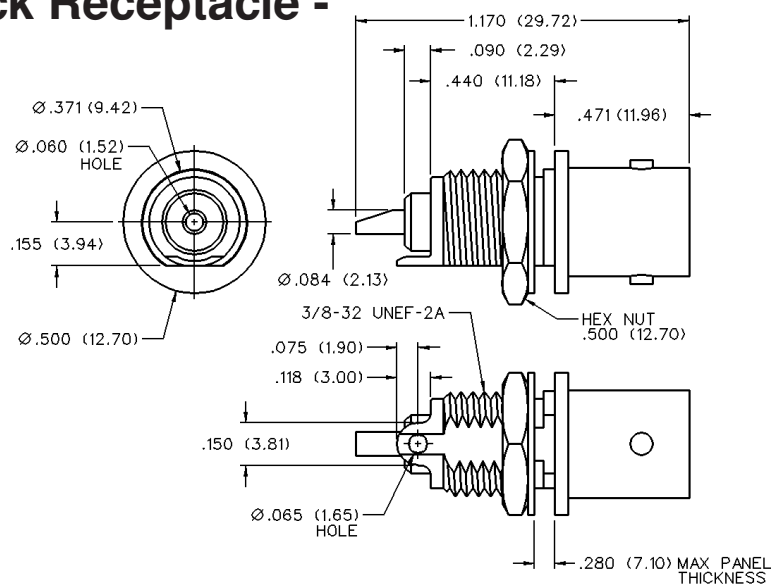


PART NO.	"A"	"B"	NOTES
CP-625U	.425 (10.80)	.183 (4.65)	w/o solder lug
CP-1094-U	.371 (9.42)	.155 (3.94)	w/o solder lug

Mounting hole layout for part number CP-625U figure 30 page 204.

Mounting hole layout for part number CP-1094-U figure 25 page 203.

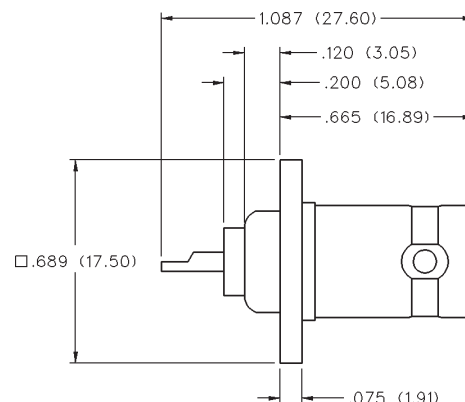
## Front Mount Bulkhead Jack Receptacle - with Solder Tab



PART NO.
CP-1094-AST

Mounting hole layout figure 25 page 203.

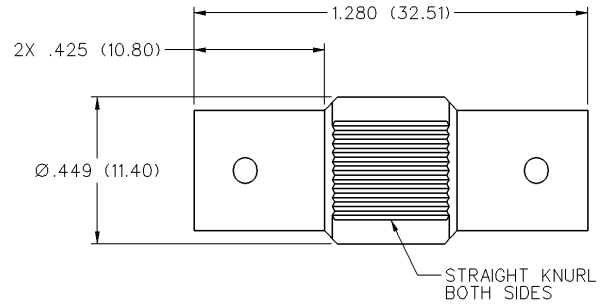
## Flange Mount Jack Receptacle



PART NO.	NOTES
CP-AD519	.126 (3.20) dia. mounting holes

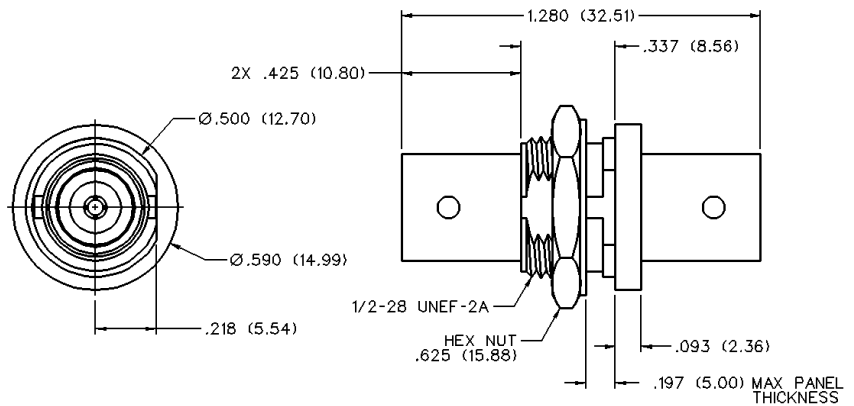
Mounting hole layout figure 31 page 204.

## Jack to Jack Adapter



PART NO.
CP-AD555

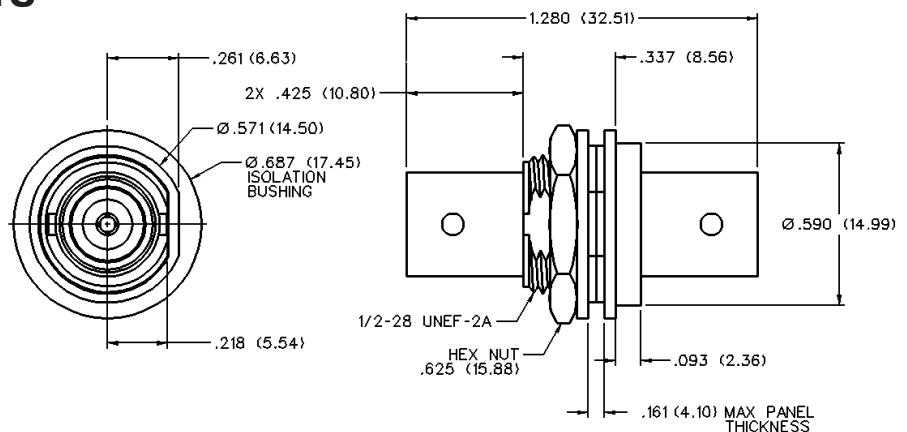
## Bulkhead Jack to Jack Adapter



PART NO.	NOTES
CP-AD556M	w/lock washer

Mounting hole layout figure 24 page 203.

## Bulkhead Jack to Jack Adapter - With Isolation Washers



PART NO.	NOTES
CP-AD558	w/lock washer
CP-AD521	Dual Chassis Mount

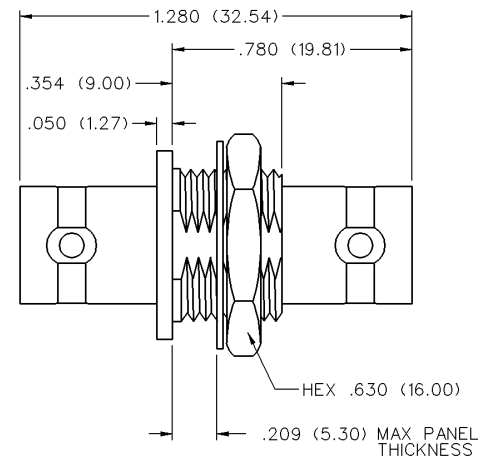
Mounting hole layout figure 32 page 204.

## Bulkhead Jack to Jack Adapter - Isolated

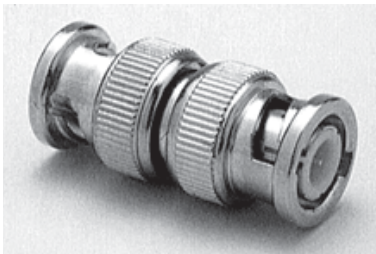


<b>PART NO.</b>
CP-AD580

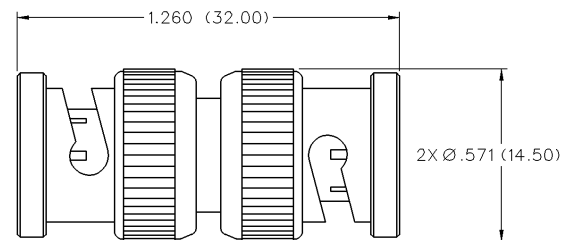
Mounting hole layout figure 24 page 203.



## Plug to Plug Adapter



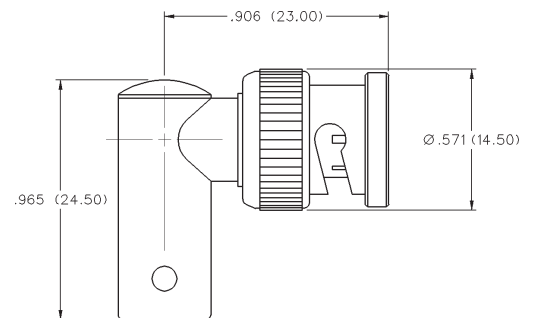
<b>PART NO.</b>
CP-AD511



## Jack to Plug Right Angle Adapter



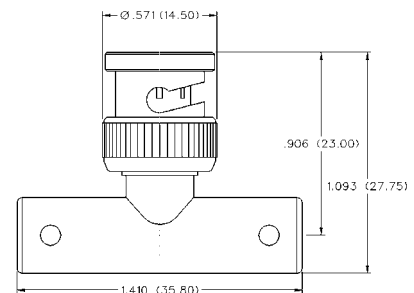
<b>PART NO.</b>
CP-AD503



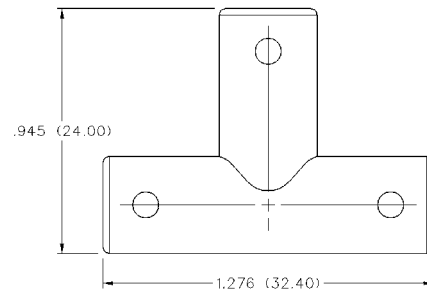
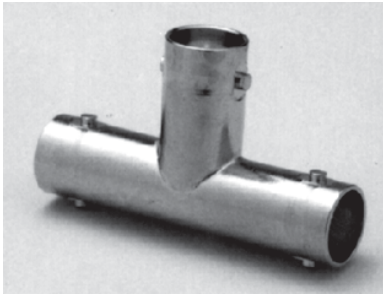
## Jack to Jack to Plug T Adapter



<b>PART NO.</b>
CP-AD505

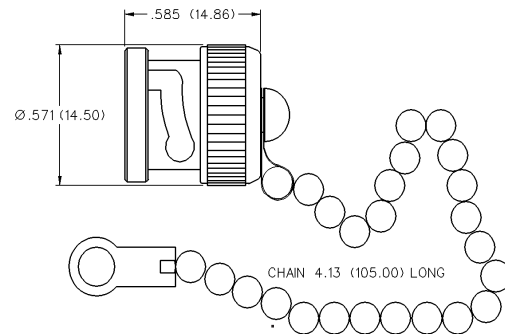


## Jack to Jack to Jack T Adapter



<b>PART NO.</b>
CP-AD506

## Dust Cap with Chain



<b>PART NO.</b>
CP-BNC-CAP-1

## BNC Connectors - 75 Ohm Commercial

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## True 75 Ohm BNC

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The BNC series connector is a commercial quality product that intermates with all standard double bayonet stud BNC designs. All contacts are captivated for ruggedness. The 50 Ohm and 75 Ohm interfaces are intermateable and provide quick, reliable connections for instrumentation, medical and LAN applications.

## Specifications\*

### 75 Ohm BNC

#### Electrical Characteristics

Impedance: 75 Ohm nominal

Frequency range: 0-2 GHz

Working voltage: 500 volts RMS at sea level

Dielectric withstanding voltage: 1500 volts RMS at sea level

Corona level: 375 volts minimum at 70,000 feet

Contact resistance: Outer - 0.2 milliohms maximum

Center - 2.1 milliohms maximum

Insulation resistance: 5000 megohms minimum

#### Environmental Characteristics

Recommended temperature range: -55°C to +85°C

Moisture resistance: MIL-STD-202

#### Mechanical Characteristics

Durability: 500 cycles

Force to engage/disengage: 3 lbs. maximum

Cable retention: 20 lbs., RG-58 C/U cable

#### Materials

Body: Zinc or brass

Contact: Brass or Beryllium copper

Spring Washer: Beryllium copper

Crimp sleeve: Brass

Insulator: TPX

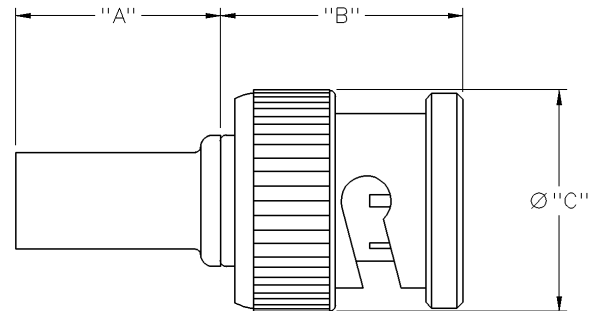
Plating: Body - Nickel (except where noted)

Crimp sleeve - Nickel

Contact - Nickel/Gold

\* These values are typical and may not apply to all connectors.

## Straight Crimp Type Plug - Solder or Crimp Contact - 3 Piece

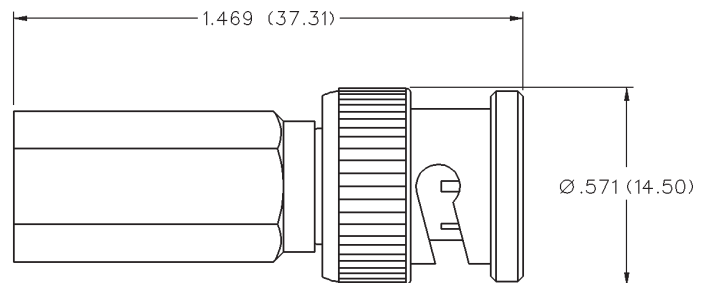


PART NO.	CABLE TYPE	"A"	"B"	"C"
CPMC-78-2	RG-59, 62	.520 (13.20)	.595 (15.11)	.563 (14.30)
CPMC-78-3	BELDEN 8281, 9141, 9231	.600 (15.24)	.645 (16.38)	.563 (14.30)
CPMC-78-5	BELDEN RG-6	.500 (12.70)	.645 (16.38)	.571 (14.50)
CPMC-78-10	RG-TFE-59, TFE-62	.520 (13.20)	.595 (15.11)	.563 (14.30)
CPMC-78-18	BELDEN 8218, 1855A, MINI 75	.520 (13.20)	.595 (15.11)	.571 (14.50)
CPMC-78-20*	RG-179, 187	.495 (12.57)	.633 (16.08)	.571 (14.50)

Assembly instructions page 246.

\* Denotes tapered crimp sleeve.

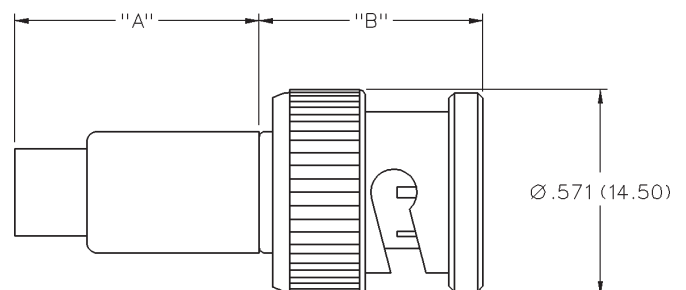
## Straight Twist-On Plug - Field Installable - 1 Piece



PART NO.	CABLE TYPE
CPFI-UG78-2	RG-59, 62
CPFI-UG78-5	RG-6

Assembly instructions page 251.

## Straight Crimp Type Plug - Push-On Body - 2 Piece



PART NO.	CABLE TYPE	"A"	"B"	WIRE GAUGE	SLEEVE I.D.
CP-78-2	RG-59, 62	.673 (17.09)	.605 (15.37)	22-18	.333 (8.46) / .255 (6.48)
CP-78-5	RG-6 QUAD .275 (6.98) MAX	.684 (17.37)	.605 (15.37)	22-18	.333 (8.46) / .284 (7.21)
CP-78-10	RG-59 PLENUM, RG-62 PLENUM	.600 (15.24)	.605 (15.37)	22-18	.333 (8.46) / .216 (5.49)

Assembly instructions page 250.

# BNC Connectors - 75 Ohm Commercial

For Flexible Cable

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

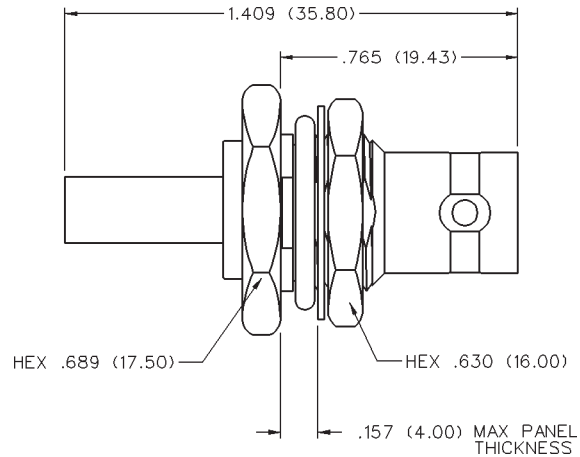


## Straight Crimp Type, Rear Mount Bulkhead Jack with O'Ring - Solder or Crimp Contact - 3 Piece



PART NO.	CABLE TYPE
CP-79-20BM1	RG-179, 187

Assembly instructions on page 249.  
Mounting hole layout figure 24 page 203.  
Tapered crimp sleeve as shown in photo.

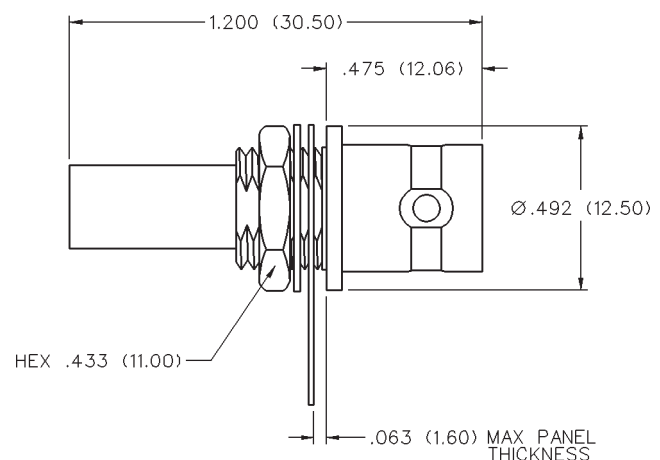


## Straight Crimp Type, Front Mount Bulkhead Jack - Lug Terminal, Solder or Crimp Contact - 3 Piece



PART NO.	CABLE TYPE
CP-79-20BM2	RG-179, 187

Assembly instructions on page 249.  
Mounting hole layout figure 25 page 203.  
Tapered crimp sleeve as shown in photo.



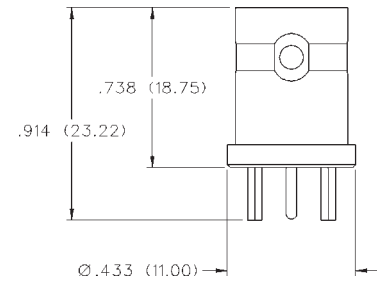


## Straight Jack Receptacle



PART NO.	NOTES
CP-BNCPC-004	Tin plated body

Mounting hole layout figure 26 page 203.

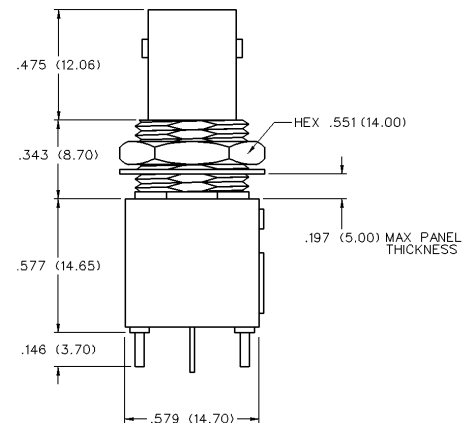


## Straight Bulkhead Jack Receptacle - Shielded



PART NO.
CP-BNCPC-006

Mounting hole layout figures 24 and 27 page 203.

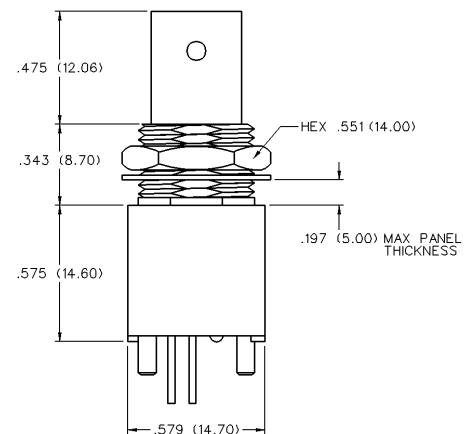


## Straight Bulkhead Jack Receptacle - Isolated



PART NO.
CP-BNCPC-008

Mounting hole layout figures 24 and 27 page 203.

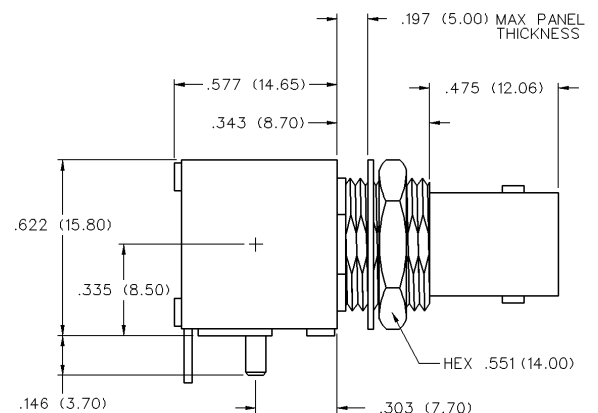


## Right Angle Bulkhead Jack Receptacle - Shielded



PART NO.
CP-BNCPC-010

Mounting hole layout figures 24 and 28 page 203.



PC Mount

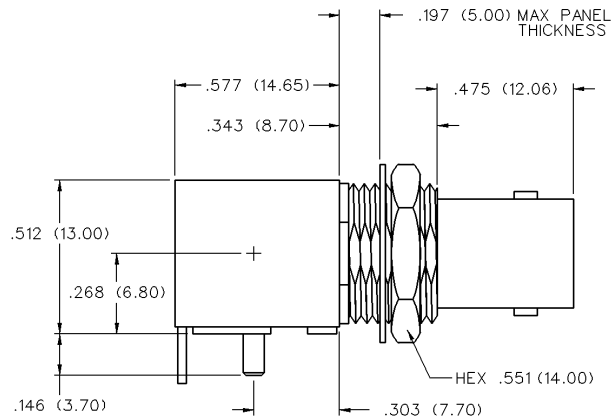
INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

## Right Angle Bulkhead Jack Receptacle - Shielded, Low Profile



<b>PART NO.</b>
CP-BNCPC-012

Mounting hole layout figures 24 and 28 page 203.

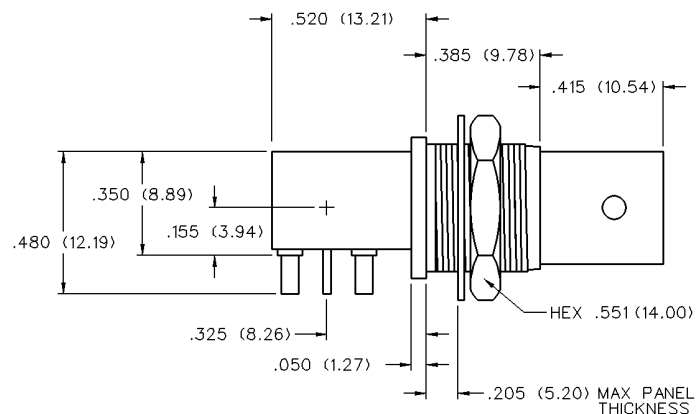


## Right Angle Bulkhead Jack Receptacle - Shielded, Extra Low Profile



PART NO.	NOTES
CP-BNCPC-014	Tin plated body

Mounting hole layout figures 24 and 29 pages 203 and 204.

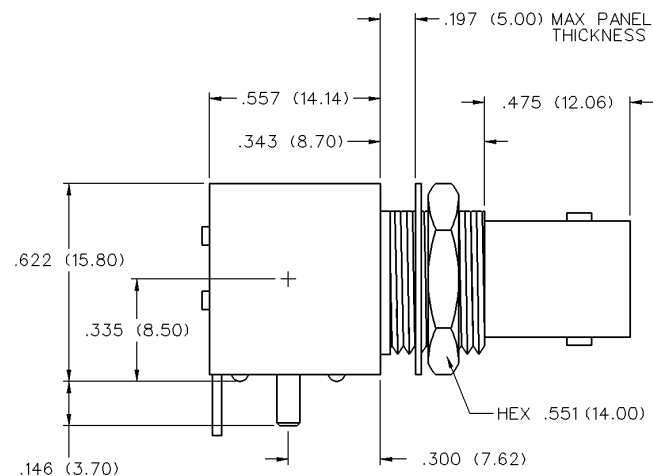


## Right Angle Bulkhead Jack Receptacle - Isolated



PART NO.	NOTES
CP-BNCPC-016	With mounting posts

Mounting hole layout figures 24 and 28 page 203.

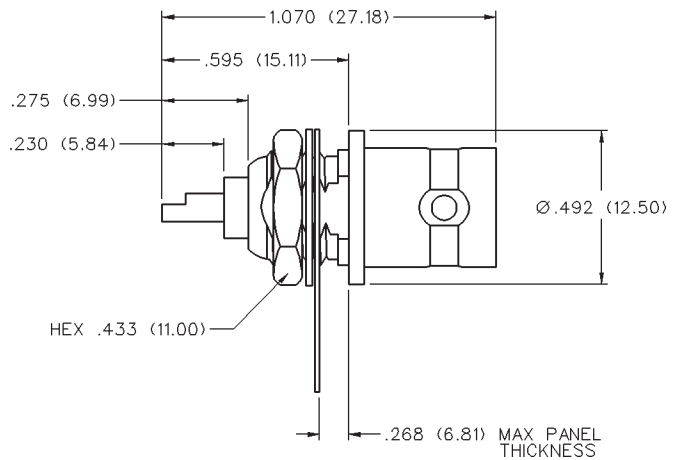


## Front Mount Bulkhead Jack Receptacle with Lug Terminal



<b>PART NO.</b>
CP-BNC-BM-001

Mounting hole layout figure 25 page 203.

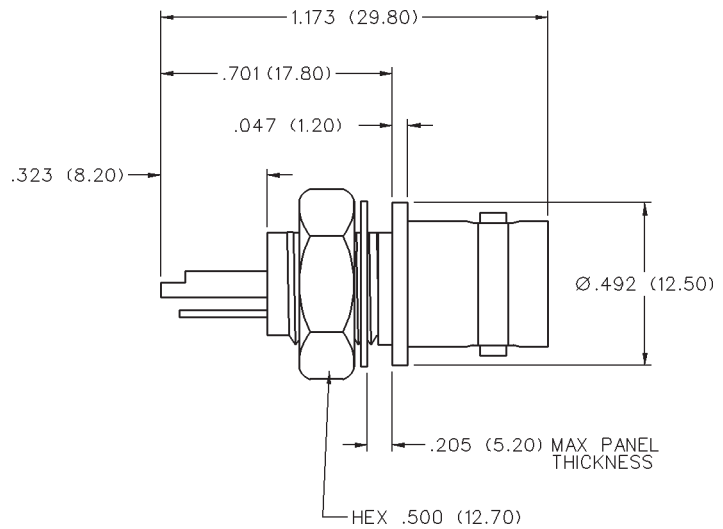


## Front Mount Bulkhead Jack Receptacle - Isolated

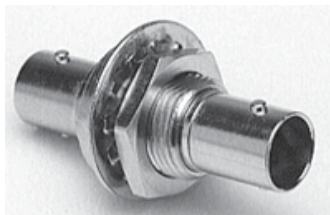


<b>PART NO.</b>
CP-AD520

Mounting hole layout figure 25 page 203.

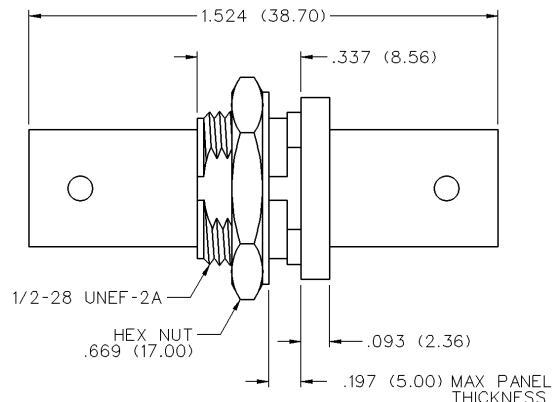


## Bulkhead Jack to Jack Adapter - Dual Chassis Mount



<b>PART NO.</b>
CP-AD557

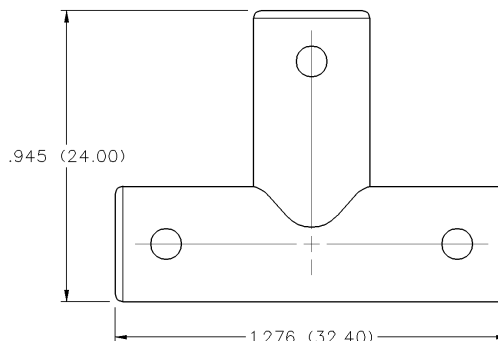
Mounting hole layout figure 24 page 203.



## Jack to Jack to Jack T Adapter



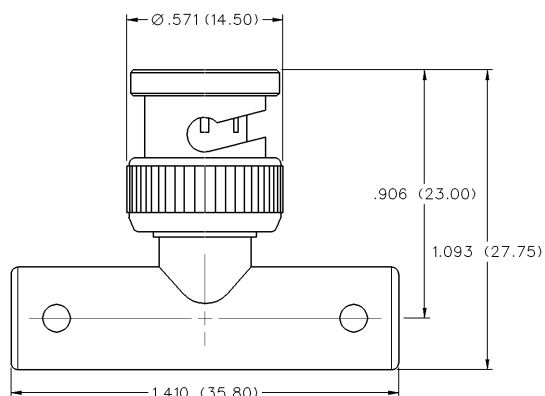
<b>PART NO.</b>
CP-AD584



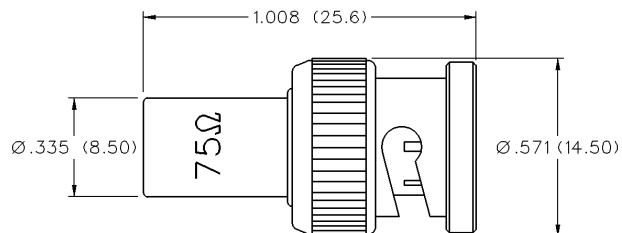
## Jack to Jack to Plug T Adapter



<b>PART NO.</b>
CP-AD705



## Terminations



PART NO.	CODING	RESISTANCE	POWER
CP-88T-75	Purple	75 Ohm $\pm$ 1%	1/2 Watt

# True 75 Ohm BNC

## Specifications

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

### Electrical Characteristics

Impedance: 75 Ohm  
Frequency range: 0-3 GHz  
VSWR: 1.10 + .03 F (F in GHz) BNC Cabled Plugs  
1.03 + .02 F (F in GHz) BNC Adapters  
Working voltage: 500 VRMS at sea level  
Dielectric withstanding voltage: 1500 VRMS at sea level  
Insulation resistance: 5000 megohms minimum  
Contact resistance:

Outer - Nickel plated initial 2.5 milliohm max,  
after environmental 3.5 milliohm max  
Center - Initial 3 milliohm max,  
after environmental 4 milliohm max  
Braid to Body - 2.5 milliohm max (nickel plated), after  
environmental not applicable

Corona level: 375 volts minimum at 70,000 feet  
RF High Potential Withstanding Voltage: 700 VRMS at 4  
and 7 MHz

### Environmental Characteristics

(Meets or exceeds the applicable paragraph of MIL-C-39012)  
Thermal shock: MIL-STD-202, Method 107  
Operating temperature: -65° C to +165° C  
Corrosion: MIL-STD-202, Method 101, Condition B  
Shock: MIL-STD-202, Method 213, Condition B  
Vibration: MIL-STD-202, Method 204, Condition B  
Moisture resistance: MIL-STD-202, Method 106

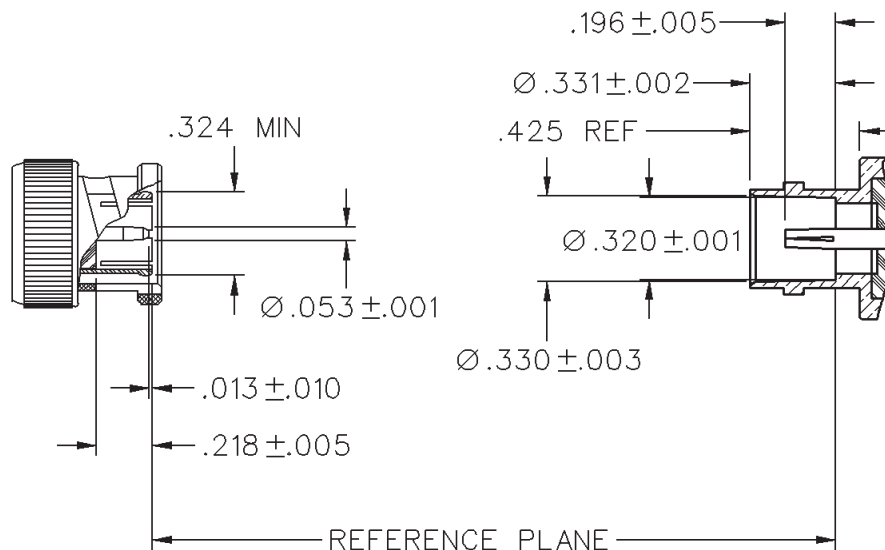
### Mechanical Characteristics

Durability: 500 cycles min  
Force to engage/disengage: 5 lbs. max, after durability 5  
lbs max; 1 lb. min.  
Coupling nut retention: 100 lbs. min  
Contact retention: 6 lbs. min axial force

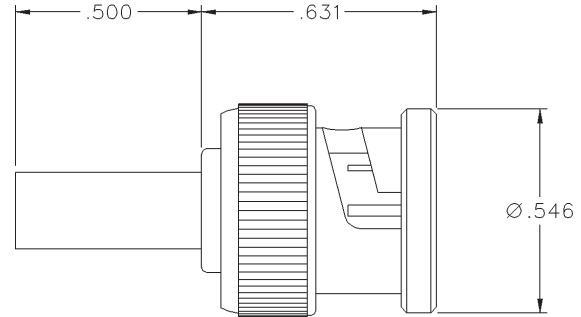
### Material Specifications

Body: Brass, nickel plated .0001 min over copper plated  
.00005 min  
Contact: Brass, gold plated .00005 min over nickel plated  
.00005 min over copper plated .00005 min  
Crimp Sleeve: Copper, nickel plate .0001 min over copper  
plated .00005 min  
Nut: Zinc, nickel plated over copper plated  
Insulator: Teflon  
Spring Washer: Beryllium Copper (unplated)  
Flat Washer: Steel, nickel plated  
Gasket: Silicone rubber

True 75 Ohm BNC Plug and Jack Mating Engagement



## Straight Cabled Plug - 3 Piece - Solder or Crimp Captivated Contact



PART NO.	CABLE TYPE	CONTACT I.D.	BODY I.D.	SLEEVE I.D.
CPMC-68-2	RG-59, 140, 302, Belden 9209A, 8279, 8241, 8263, Commscope 5563, Gepco VJ59U	.028 (0.71)	.152 (3.86)	.252 (6.40)
CPMC-68-3	Belden 8281, 9231, 9141, 728A, Commscope 7501, VP618VC	.036 (0.91)	.203 (5.16)	.330 (8.38)
CPMC-68-5	RG-6, Belden 8215	.033 (0.84)	.191 (4.85)	.355 (9.01)
CPMC-68-10	Belden 82108, 89108, Coleman 99969	.036 (0.91)	.149 (3.78)	.234 (5.94)
CPMC-68-18	Belden 8218	.021 (0.53)	.105 (3.81)	.180 (4.57)
CPMC-68-20	RG-179, 187, Belden 1520A	.016 (0.53)	.067 (1.70)	.128 (3.25)
CPMC-68-33	Belden 735A, Commscope 735, Helix/Hitemp 735, BT3002, TZC75024	.021 (0.53)	.082 (2.08)	.160 (4.06)
CPMC-68-34	Belden 1855A, 720A, Commscope 7538, Gepco VDM 230, VDM 250, Mini-75	.028 (0.71)	.105 (3.81)	.180 (4.57)
CPMC-68-35	Belden 1505A, 734A, Commscope 5565, Gepco VPM2000	.036 (0.91)	.152 (3.86)	.252 (6.40)
CPMC-68-36	Belden 1695A, 633938, Gepco VSD 2001TS, Commscope 2277V	.044 (1.12)	.176 (4.47)	.265 (6.73)
CPMC-68-45	Belden 1694A, 9248, 1152, Commscope 5765, 2227K, Gepco VSD 2001, RG-6 Quad .275 (6.98) Max O.D.	.044 (1.12)	.187 (4.75)	.290 (7.37)
CPMC-68-50	Belden 1506A, 82259, 89259, Gepco VPM2000TK, VPM2000TS	.036 (0.91)	.138 (3.51)	.234 (5.94)

Assembly instructions page 252.

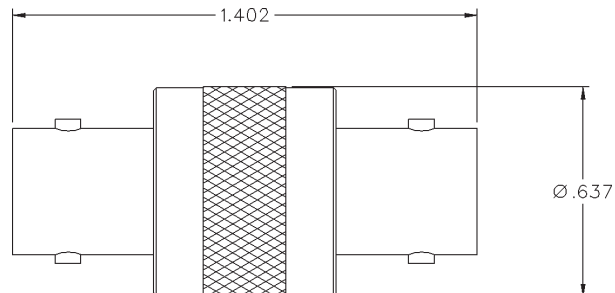
# BNC Connectors - True 75 Ohm

In-Series Adapters

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

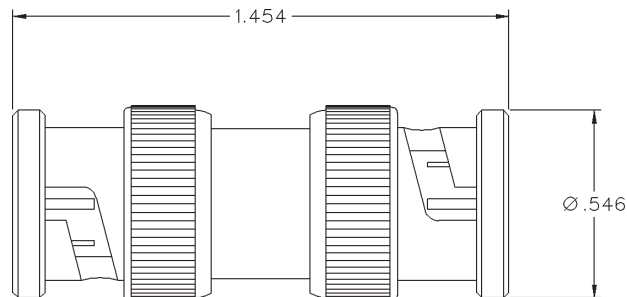


## Jack to Jack Adapter



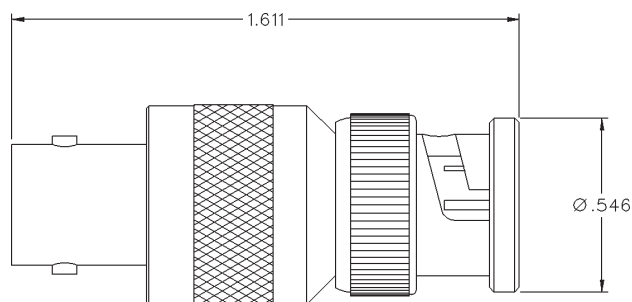
<b>PART NO.</b>
CP-AD587

## Plug to Plug Adapter



<b>PART NO.</b>
CP-AD585

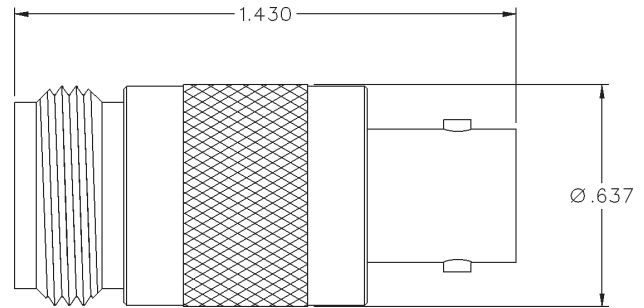
## Jack to Plug Adapter



<b>PART NO.</b>
CP-AD586

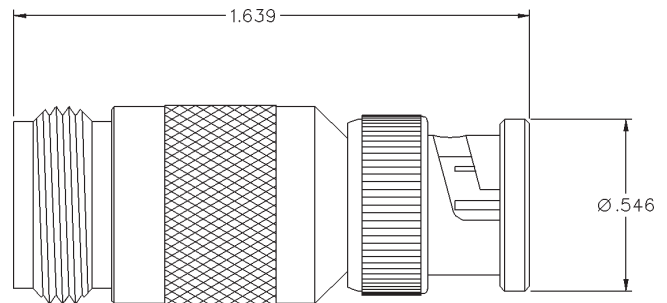


## BNC Jack to N Jack Adapter



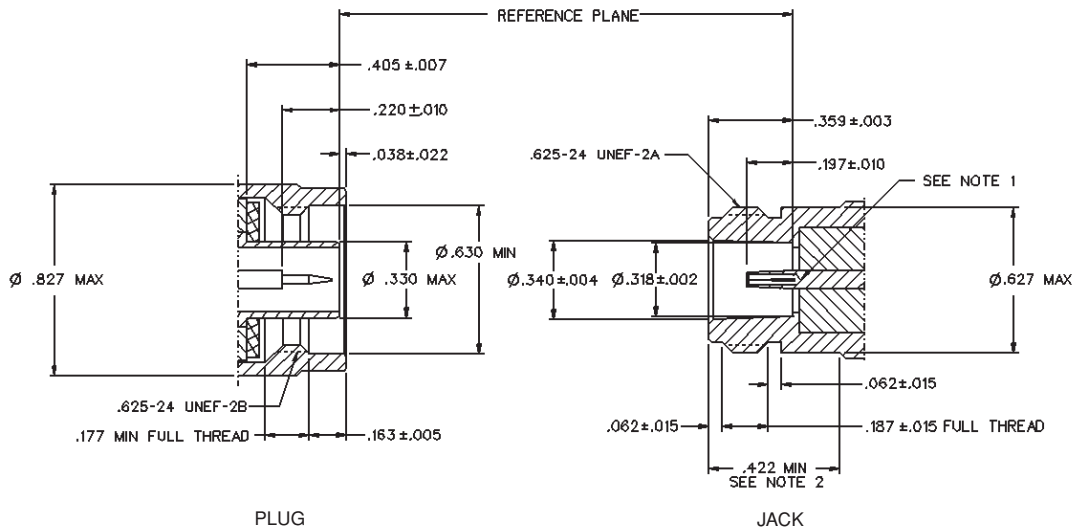
<b>PART NO.</b>
CP-AD822

## BNC Plug to N Jack Adapter



<b>PART NO.</b>
CP-AD821

### Mating Engagement for 75 Ohm N Series



**NOTES:**

1. ID to meet VSWR and contact resistance when mated with .035/.037 dia pin.
2. Clearance for mating connector coupling nut.
3. 75 Ohm N series connectors are not compatible with 50 Ohm N series connectors.

## Cable Boots and Strain Reliefs



Figure 1



Figure 2



Figure 3

PART NO.	CABLE TYPE	COLOR	PACKAGING	FIGURE
25-7958 BK	RG-58, 141	BLACK	100 pcs/bag	1
25-7959 BK	RG-59, 62	BLACK	100 pcs/bag	1
25-B58	RG-58, 141	BLACK	100 pcs/bag	2
25-B174	RG-174	BLACK	100 pcs/bag	3

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The TNC connector is a threaded version of the BNC mating interface. All contacts are captivated for ruggedness. The TNC is a commercial quality connector that provides additional coupling retention for shock and vibration applications. The TNC connector intermates with all standard 50 Ohm TNC connectors.

## Specifications\*

### Electrical Characteristics

Impedance: 50 Ohm nominal (except where noted)  
Frequency range: 0-11 GHz  
Working voltage: 500 volts RMS at sea level  
Dielectric withstanding voltage: 1500 volts RMS at sea level  
Corona level: 375 volts minimum at 70,000 feet  
Contact resistance: Outer - 0.2 milliohms maximum  
Center - 2.1 milliohms maximum  
Insulation resistance: 5000 megohms minimum

### Environmental Characteristics

Recommended temperature range: -55°C to +85°C  
Moisture Resistance: MIL-STD-202

### Mechanical Characteristics

Durability: 500 cycles  
Cable retention: 20 lbs., RG-58 C/U cable

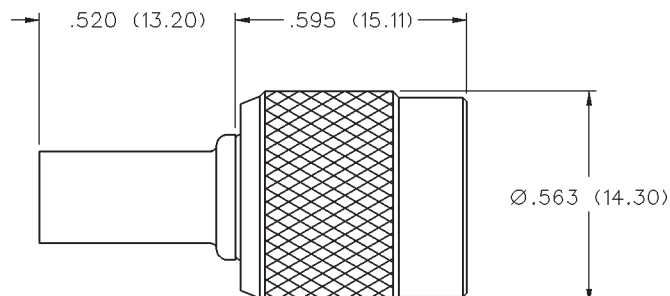
### Materials

Body and coupling nut: Zinc or brass  
Contact: Beryllium copper, phosphor bronze or brass  
Crimp Sleeve: Brass  
Insulator: Teflon®, TPX or Delrin®  
Hardware: Brass  
Plating: Body - Nickel  
Crimp sleeve - Nickel  
Hardware - Nickel  
Contact - Gold

\* These values are typical and may not apply to all connectors.

Delrin® and Teflon® are registered trademarks of Dupont Corporation.

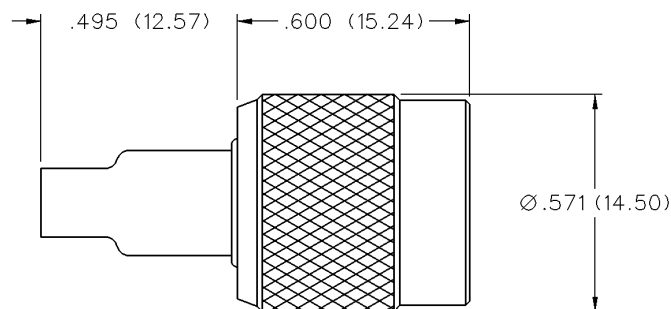
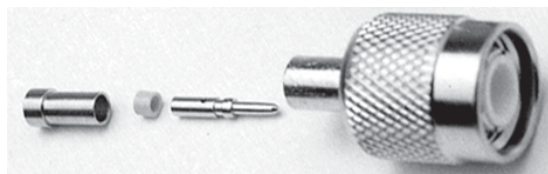
## Straight Crimp Type Plug - Solder or Crimp Contact - 3 Piece



PART NO.	CABLE TYPE	CONTACT I.D.	BODY I.D.	SLEEVE I.D.
CPMC-TNC-1	RG-58, 141	.044 (1.12)	.126 (3.20)	.206 (5.23)
CPMC-TNC-2	RG-59, 62	.034 (0.86)	.173 (4.39)	.261 (6.63)
CPMC-TNC-13	RG-142, 223, 400, 55	.044 (1.12)	.126 (3.20)	.220 (5.59)
CPMC-TNC-16	Proflex RG-450	.055 (1.40)	.173 (4.39)	.261 (6.63)
CPMC-TNC-17	RG-8X (MINI 8), LMR 240	.065 (1.65)	.173 (4.39)	.261 (6.63)

Assembly instructions page 253.

## Straight Crimp Type Plug - Solder or Crimp Contact - 4 Piece



PART NO.	CABLE TYPE	CONTACT I.D.	BODY I.D.	SLEEVE I.D.	TERMINATION
CPM-TNC-19	RG-174, 188, 316	.0245 (0.62)	.167 (4.24)	.118 (3.00)	Crimp Insert
CPM-TNC-20	RG-179, 187	.0165 (0.42)	.167 (4.24)	.118 (3.00)	Crimp Insert

Assembly instructions page 247.

# TNC Connectors

For Flexible Cable and In-Series Adapters  
 INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

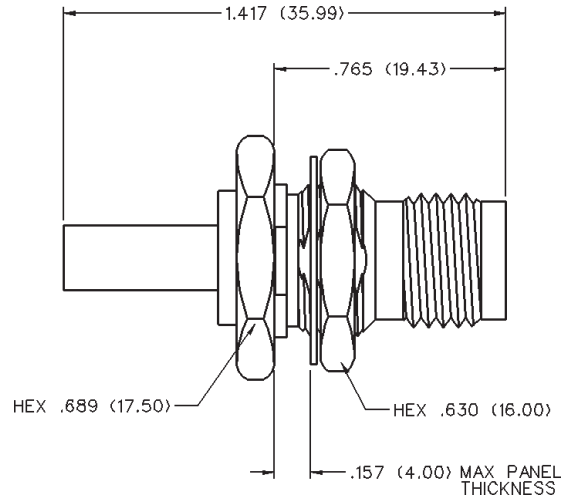


## Straight Crimp Type, Rear Mount Bulkhead Jack - Solder or Crimp Contact - 3 Piece



PART NO.	CABLE TYPE
CP-TNC-89-19-BM	RG-174, 188, 316

Assembly instructions page 253.  
 Mounting hole layout figure 24 page 203.

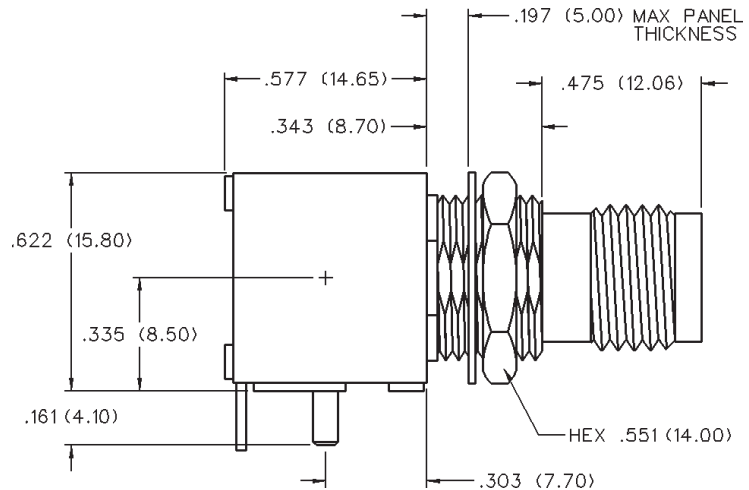


## Right Angle Bulkhead Jack Receptacle - Shielded



PART NO.
CPM-TNC-PC-002

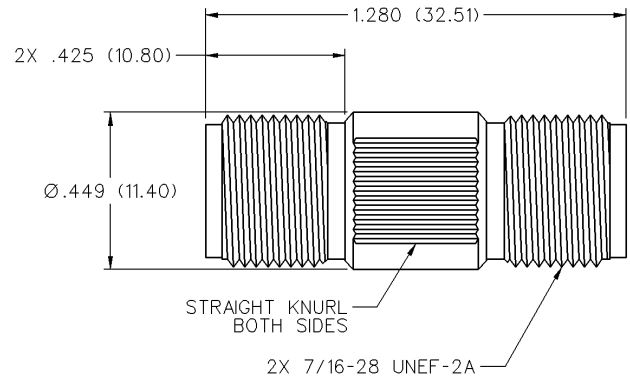
Mounting hole layout figures 24 and 28 page 203.



## Jack to Jack Adapter



**PART NO.**  
CP-AD355

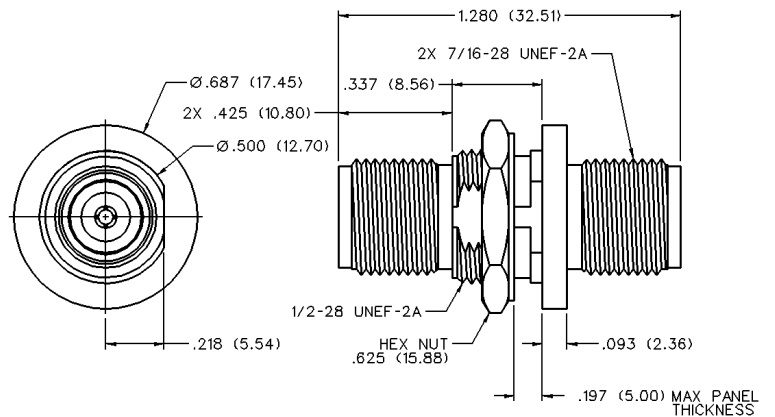


## Jack to Bulkhead Jack Adapter



**PART NO.**  
CP-AD356

Mounting hole layout figure 24 page 203.



# RF Adapter Kit

Specifications

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

## RF Adapter Kit



<b>PART NO.</b>
142-0000-005

PART NO.	DESCRIPTION	QTY.	PART NO.	DESCRIPTION	QTY.
142-0901-401	SMA Jack to Bkhd. Jack, Gold Pl.	4	CP-AD515	BNC Plug to RCA Jack	3
142-0901-801	SMA Jack to Jack, Gold Pl.	2	CP-AD555	BNC Jack to Jack	3
142-0901-811	SMA Plug to Plug, Gold Pl.	4	CP-AD556M	BNC Jack to Bkhd. Jack	2
142-0901-821	SMA Plug to Jack, Gold Pl.	4	CP-AD582	SMA Plug to BNC Plug	3
142-0901-921	RA SMA Jack to Jack, Gold Pl.	2	CP-AD583	SMA Jack to BNC Plug	3
142-0901-931	RA SMA Plug to Plug, Gold Pl.	2	CP-AD800	N Plug to Plug	2
142-0901-941	RA SMA Plug to Jack, Gold Pl.	4	CP-AD356	TNC Jack to Bkhd. Jack	3
142-0901-861	SMA Dummy Load Plug, Gold Pl.	2	CP-AD809	N Plug to BNC Jack	2
CP-AD503	BNC RA BNC Plug to Jack	2	CP-AD810	N Plug to SMA Jack	2
CP-AD505	BNC Jack to Plug to Jack (T)	2	CP-AD817	N Plug to SMA Plug	2
CP-AD506	BNC Jack to Jack to Jack (T)	2	CP-AD818	N Jack to SMA Plug	2
CP-AD507	SMA Jack to BNC Jack	3	CP-AD819	N Jack to SMA Jack	2
CP-AD508	SMA Plug to BNC Jack	3	CP-AD850	N Jack to Jack	2
CP-AD511	BNC Plug to Plug	3	CP-AD851	N Jack to Bkhd. Jack	2

**TOTAL: 72 Adapters**



The N connector employs a large diameter threaded interface for excellent strength and reliability. This commercial quality connector handles high power applications such as antenna feeds for radios and cell sites. Termination options include crimp and clamp styles for rugged service.

## Specifications\*

### Electrical Characteristics

Impedance: 50 Ohm nominal

Frequency range: 0-11 GHz

Working voltage: 500 volts RMS at sea level

Dielectric withstanding voltage: 1500 volts RMS at sea level

Corona level: 375 volts minimum at 70,000 feet

Contact resistance: Outer - 0.2 milliohms maximum

Center - 2.1 milliohms maximum

Insulation resistance: 5000 megohms minimum

### Environmental Characteristics

Recommended temperature range: -55°C to + 85°C

Moisture Resistance: MIL-STD-202

### Mechanical Characteristics

Durability: 500 cycles

Cable retention: 20 lbs., RG-58 C/U cable

### Materials

Body and coupling nut: Brass

Contact: Brass, phosphor bronze or beryllium copper

Crimp sleeve: Brass

Insulator: Teflon® or Delrin®

Hardware: Brass

Plating: Body - Nickel

Crimp sleeve - Nickel

Hardware - Nickel

Contact - Gold

\* These values are typical and may not apply to all connectors.

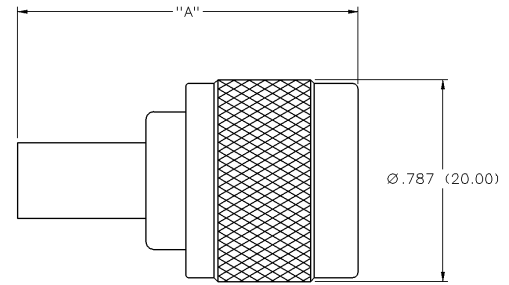
Delrin® and Teflon® are registered trademarks of Dupont Corporation.

# N Connectors

For Flexible Cable and Bulkhead Mount

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

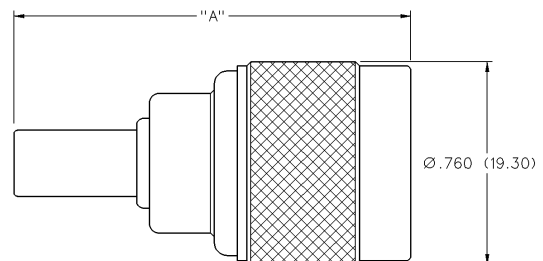
## Straight Crimp Type Plug - Solder or Crimp Contact



PART NO.	CABLE TYPE	"A"	CONTACT I.D.	BODY I.D.	SLEEVE I.D.
CPN-68-1	RG-58; BELDEN 9907	1.330 (33.78)	.042 (1.07)	.125 (3.18)	.212 (5.38)
CPN-68-8	RG-8, 213	1.385 (35.18)	.093 (2.36)	.293 (7.44)	.430 (10.92)
CPN-68-13	RG-142, 223, 400	1.330 (33.78)	.042 (1.07)	.127 (3.23)	.223 (5.66)

Assembly instructions page 254.

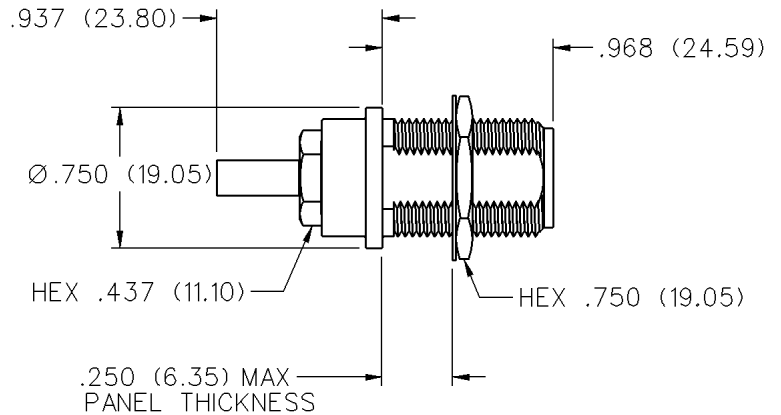
## Straight Crimp Type Plug - 120 Second Termination - 3 Piece



PART NO.	CABLE TYPE	"A"	CONTACT I.D.	BODY I.D.	SLEEVE I.D.
CPN-1	RG-58	1.450 (36.83)	.044 (1.12)	.125 (3.18)	.206 (5.23)
CPN-2	RG-59, 62	1.450 (36.83)	.0325 (0.83)	.173 (4.39)	.261 (6.63)
CPN-8	RG-8 Types	1.550 (39.37)	.089 (2.26)	.300 (7.62)	.420 (10.67)
CPN-8/110	RG-8, 213, LMR 400	1.550 (39.37)	.110 (2.79)	.300 (7.62)	.420 (10.67)
CPN-16	PROFLEX RG-450	1.455 (36.96)	.055 (1.40)	.173 (4.39)	.261 (6.63)
CPN-17	RG8X (MINI 8)	1.455 (36.96)	.065 (1.65)	.173 (4.39)	.261 (6.63)
CPN-142T	RG-142 TFE	1.455 (36.96)	.044 (1.12)	.125 (3.18)	.220 (5.59)

Assembly instructions page 255.

## Straight Crimp Type Bulkhead Jack - Diecast Body



PART NO.	CABLE TYPE
134-0303-406	RG-161/U, 174,188, 316
134-0304-406	RG-188 DS, RG-316 DS
134-0307-406	RG-58/U, 141, 303
134-0308-406	RG-55/U, 142, 223, 400

Assembly instructions page 241.  
Mounting hole layout figure 11 page 201.  
N connector plug also available.

### ELECTRICAL RATINGS

**Impedance:** 50 Ohms

**Frequency Range:** 0-11 GHz

VSWR: (f = GHz)	Typical VSWR	Frequency Range (GHz)
RG-316 cable .....	1.20	0-2
	1.50	2-11
RG-58 cable .....	1.30	0-5
	1.70	5-11
RG-142 cable .....	1.20	0-5
	1.50	5-11

**Working Voltage:** (VRMS maximum)†

Connectors for Cable Type	Sea Level	70K Feet
RG-316 .....	335	85
RG-58 .....	500	125
RG-142 .....	500	125

**Dielectric Withstanding Voltage:** (VRMS minimum at sea level)†

RG-316 .....	1000
RG-58 .....	1500
RG-142 .....	1500

**Insulation Resistance:** 5000 megohms minimum

**Contact Resistance:** (milliohms maximum)

	Initial	After Environmental
Center contact .....	3.0	4.0
Outer contact .....	2.0	N/A
Braid to body .....	5.0	N/A

\*\* All gold plated parts include a .00005" min. nickel underplate barrier layer.

† Avoid user injury due to misapplication.

See safety advisory definitions inside front cover.

### MECHANICAL RATINGS

**Engagement Design:** MIL-STD-348, series N

**Engagement Force/Disengagement Force:** 6 inch-pounds maximum

**Mating Torque:** 6 to 10 inch-pounds

**Cable Retention:** Axial Force (lbs)\*

RG-316 .....	20
RG-58 .....	40
RG-142 .....	45

\* Or cable breaking strength whichever is less.

**Durability:** 500 cycles minimum

### ENVIRONMENTAL RATINGS

(Meets or exceeds the applicable paragraph of MIL-C-39012)

**Temperature Range:** - 65°C to + 165°C

**Thermal Shock:** MIL-STD-202, Method 107, Condition B

**Corrosion:** MIL-STD-202, Method 101, Condition B

**Shock:** MIL-STD-202, Method 213, Condition I

**Vibration:** MIL-STD-202, Method 204, Condition B

**Moisture Resistance:** MIL-STD-202, Method 106

### MATERIAL SPECIFICATIONS

**Bodies:** Main body - zinc per ASTM B86-71, nickel plated per QQ-N-290

Rear body - brass per QQ-B-626, nickel plated per QQ-N-290

**Contacts:** Beryllium copper per QQ-C-530, gold plated\*\* per MIL-G-45204, .00001" min.

**Insulators:** PTFE fluorocarbon per ASTM D 1710 and ASTM D 1457

**Crimp Sleeves:** Copper per WW-T-799, nickel plated per QQ-N-290

**Mounting Hardware:**

Nut - brass per QQ-B-626, nickel plated per QQ-N-290

Lockwasher - steel per QQ-S-700, zinc plated per QQ-Z-325

# N Connectors

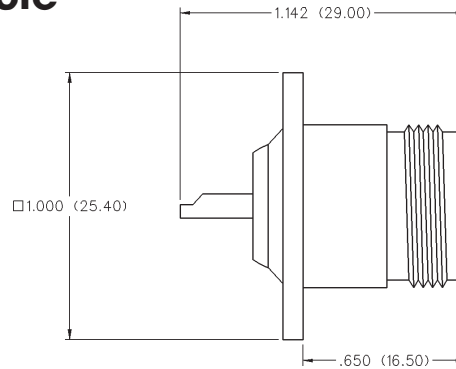
Panel Mount and In-Series Adapters

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



## Flange Mount Jack Receptacle

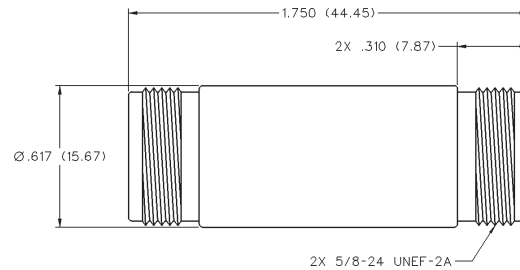
**PART NO.**  
CP-AD801



Mounting hole layout figure 34 page 204.

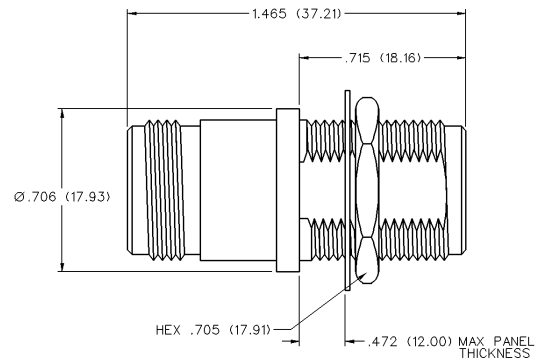
## Jack to Jack Adapter

**PART NO.**  
CP-AD850



## Jack to Bulkhead Jack Adapter

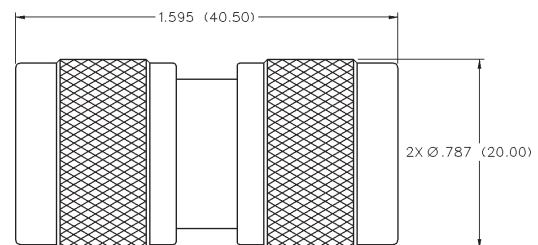
**PART NO.**  
CP-AD851



Mounting hole layout figure 33 page 204.

## Plug to Plug Adapter

**PART NO.**  
CP-AD800



The F Connector provides economical distribution of audio/video TV signals. The F Plug Connector typically employs the center conductor of the cable as the male contact for quick assembly in the field.

### Specifications\*

#### F Series

##### Electrical Characteristics

Impedance: 75 Ohms

Frequency range: 0-750 MHz

Working voltage: 500 VRMS max at sea level

Dielectric withstanding voltage: 1500 VRMS max at sea level

Insulation resistance: 5000 megohms

##### Environmental Characteristics

Temperature range: -55°C to +85°C

Moisture resistance: MIL-STD-202

##### Mechanical Characteristics

Durability: 100 cycles

Cable retention: 20 lbs.

\* These values are typical and may not apply to all connectors.

# F Series Connectors

For Flexible Cable

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

## F Series Connectors For RG-59

**Straight Crimp Plug**  
w/separate 1/4" crimp ring



CPF-59 -1/4

<b>Crimp Tool</b>	<b>Hex Size</b>
24-7710	.255 (6.48)

**Straight Crimp Plug**  
w/separate 1/2" crimp ring



CPF-59 -1/2

<b>Crimp Tool</b>	<b>Hex Size</b>
24-7710	.255 (6.48)

**Straight Crimp Plug**  
for standard RG-59 cable



CPF-59-ALM

<b>Crimp Tool</b>	<b>Hex Size</b>
24-7710	.322 (8.18)

**Straight Crimp Plug**  
compression F RG-59 dual  
Tri/Shield



CPF-59-CP

<b>Compression Tool</b>
24-7713P

## F Series Connectors For RG-6

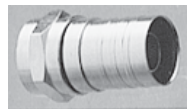
**Straight Crimp Plug**  
for RG-6



CPF-56-ALM

<b>Crimp Tool</b>	<b>Hex Size</b>
24-7710	.322 (8.18)

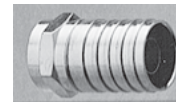
**Straight Crimp Plug**  
for Tri-Shield



CPF-56-ALX

<b>Crimp Tool</b>	<b>Hex Size</b>
24-7710	.322 (8.18)

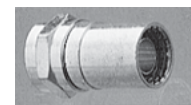
**Straight Crimp Plug**  
for RG-6 Quad Shield



CPF-56-ALS

<b>Crimp Tool</b>	<b>Hex Size</b>
24-7712P	.359 (9.12)

**Straight Crimp Plug**  
for Teflon/Plenum RG-6



CPF-56-P

<b>Crimp Tool</b>	<b>Hex Size</b>
24-7710	.322 (8.18)

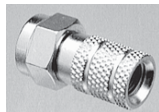
**Straight Crimp Plug**  
.324 dia., chrome plated/  
interior gasket for water proofing



CPF-56-ALMWP

<b>Crimp Tool</b>	<b>Hex Size</b>
24-7710	.322 (8.18)

**Straight Plug**  
twist on (no crimp)



CPF-56

**Straight Crimp Plug**  
compression F RG-6  
Dual/Tri/Shield



CPF-56-CP

<b>Compression Tool</b>
24-7713P

## F Series Connector For RG-11

**Straight Crimp Plug**  
for standard RG-11



CPF-11-ALM

<b>Crimp Tool</b>	<b>Hex Size</b>
24-7711P	.448 (11.38)

## F Series Connectors F Straight and Right Angle PC Mount Connectors

**Side Edge Mount**  
PCB Jack



CPF-61-SE

Board Thickness .062 (1.57)

**Vertical Mount**  
PCB Jack



CPF-61-PC

**Right Angle Mount**  
PCB Bulkhead Jack



CPF-61-SR

## F Plug Termination

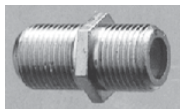
**Plug Termination**  
75 Ohm "F",  
1/2 watt 5% terminator



CPF-59-T

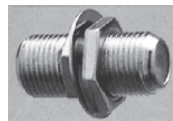
## F In-Series Adapters

**Jack to Jack Adapter**  
3/4" inline splice



CPF-81

**Jack to Jack Adapter**  
3/4" w/ nut and washer



CPF-81-NW

**Jack to Jack Adapter**  
1" inline splice



CPF-81-L

**Nut and Washer**  
For use with all F Bulkhead  
mounts/splices



CPF-NW

The UHF connectors are low cost, general purpose units designed for low frequency system applications. These commercial quality connectors are equipped with threaded coupling interfaces for secure and reliable connections. The standard UHF and Mini-UHF connectors are not intermateable.

### Specifications\*

#### Standard UHF

##### Electrical Characteristics

Impedance: Non-constant

Frequency range: 0-500 MHz

Working voltage: 500 volts RMS at sea level

Dielectric withstanding voltage: 1500 volts RMS at sea level

Insulation resistance: 5000 megohms minimum

##### Environmental Characteristics

Recommended temperature range: -55°C to +85°C

##### Mechanical Characteristics

Durability: 500 cycles

Cable retention: 20 lbs., RG-58 C/U cable

##### Materials

Body and coupling nut: Zinc or Brass

Contact: Beryllium copper or Brass

Crimp Sleeve: Brass

Insulator: Delrin®

Plating: Body - Nickel

Crimp sleeve - Nickel

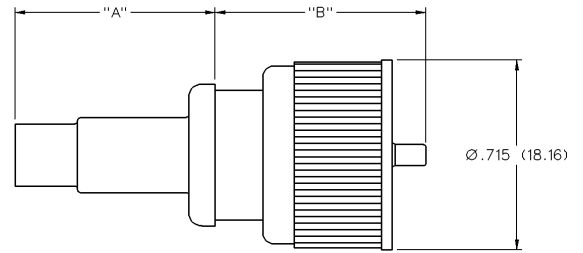
Contact - Gold or Nickel

\* These values are typical and may not apply to all connectors.

Delrin® is a registered trademark of Dupont Corporation.



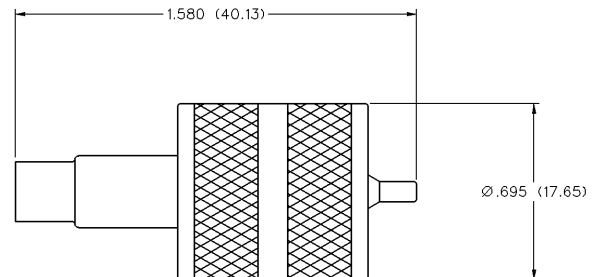
## Straight Crimp Type Plug - Crimp Contact



PART NO.	CABLE TYPE	"A"	"B"	WIRE GAUGE	WIRE DECIMAL	JACKET O.D.
CPL-259-1	RG-58	.754 (19.15)	.810 (20.57)	20	.0325 (0.83)	.185 (4.70)-.205 (5.21)
CPL-259-2	RG-59, 62	.688 (17.48)	.810 (20.57)	22	.0253 (0.64)	.220 (5.59)-.250 (6.35)
CPL-259-7	RG-58 COPHASE	.700 (17.78)	.832 (21.13)	2/20	2/.032 (0.81)	2/.185 (4.70)-.205 (5.21)
CPL-259-8	RG-8	.694 (17.63)	.820 (20.83)	13	.085 (2.16)	.400 (10.16)-.410 (10.41)
CPL-259-9	RG-59 COPHASE	.700 (17.78)	.856 (21.74)	2/22	2/.025 (0.64)	2/.220 (5.59)
CPL-259-10*	RG-59 PLENUM	.696 (17.68)	.710 (18.03)	20	.0325 (0.83)	.205 (5.21)-.220 (5.59)
CPL-259-17	RG-8X (MINI 8)	.696 (17.68)	.710 (18.03)	16	.0504 (1.28)	.220 (5.59)-.250 (6.35)

Assembly instructions page 256. \*1-Piece

## Straight Crimp Type Plug - Crimp Contact, Double Nut



PART NO.	CABLE TYPE	WIRE GAUGE	WIRE DECIMAL	JACKET O.D.
CPL-259-18	RG-58	20	.0325 (0.88)	.185 (4.70)-.205 (5.21)

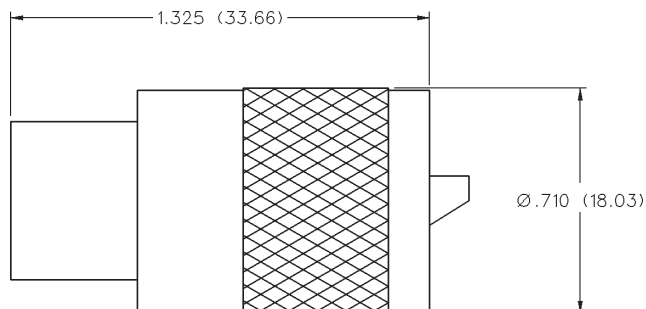
Assembly instructions page 256.

# UHF Connectors

For Flexible Cable, Bulkhead and Adapters  
 INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

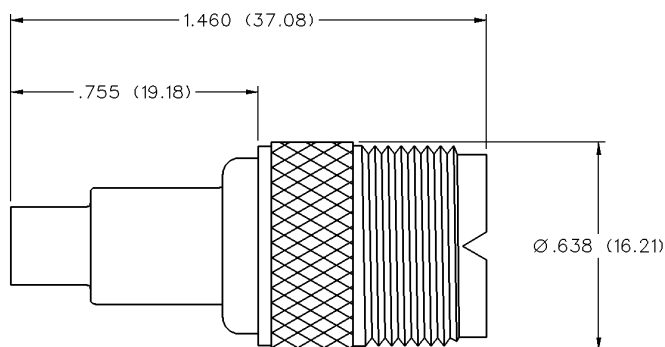


## Straight Solder Type Plug



PART NO.	CABLE TYPE	DESCRIPTION
CP-AD250	RG-8, 213	Standard, PL-259

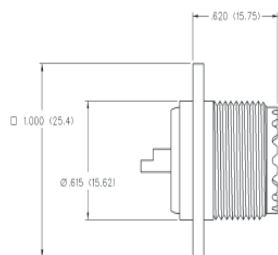
## Straight Crimp Type Jack to Center - Conductor Twist-On - 2 Piece



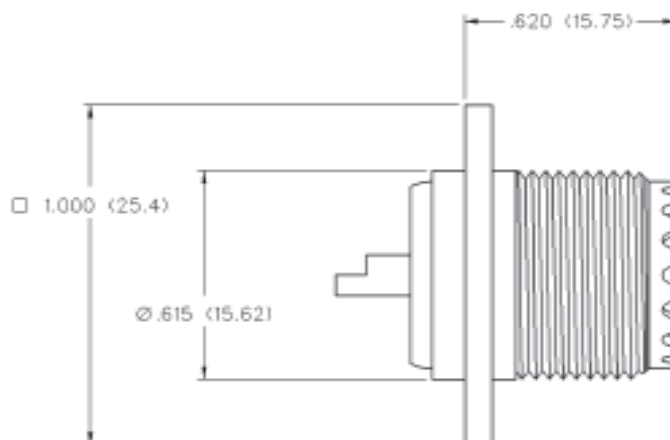
PART NO.	CABLE TYPE	WIRE GAUGE	WIRE DECIMAL	JACKET O.D.
CPF-249-1	RG-58	20	.0325 (0.83)	.185 (4.70)-.205 (5.21)

Assembly instructions page 257.

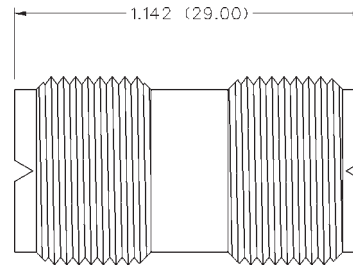
## 4-Hole Flange Mount Jack



PART NO.
CP-AD206

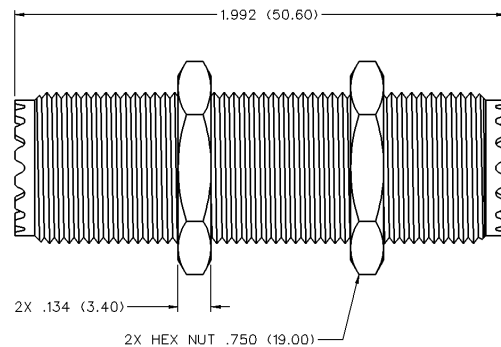


## Jack to Jack Adapter



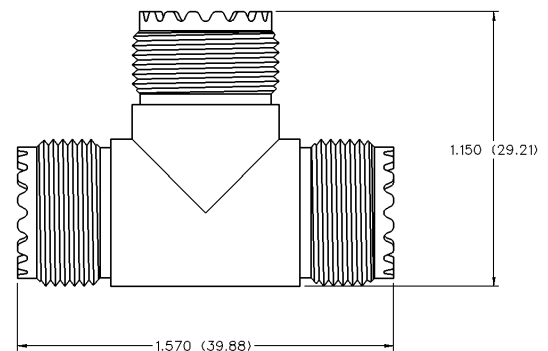
<b>PART NO.</b>
CP-AD204

## Bulkhead Jack to Bulkhead Jack Adapter



<b>PART NO.</b>
CP-AD207

## Jack to Jack to Jack T Adapter



<b>PART NO.</b>
CP-AD210

Mini-UHF connectors are low cost, general purpose units designed for low frequency system applications. These commercial quality connectors are equipped with threaded coupling interfaces for secure and reliable connections. The standard UHF and Mini-UHF connectors are not intermateable.

### Specifications\*

#### Mini-UHF

##### Electrical Characteristics

Impedance: Non-constant

Frequency range: 0-2 GHz

Working voltage: 500 volts RMS at sea level

Dielectric withstanding voltage: 1500 volts RMS at sea level

Insulation resistance: 5000 megohms minimum

##### Environmental Characteristics

Recommended temperature range: -55°C to +85°C

##### Mechanical Characteristics

Durability: 500 cycles

Cable retention: 20 lbs., RG-58 C/U cable

##### Materials

Body and coupling nut: Zinc or Brass

Contact: Brass

Crimp Sleeve: Brass

Insulator: TPX Polymethylpetene

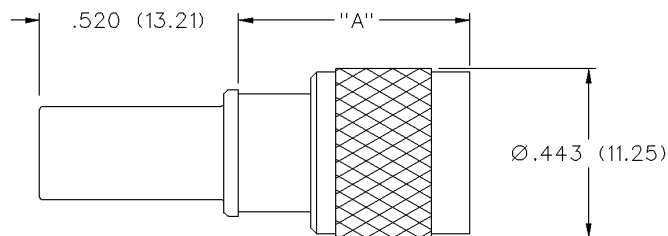
Plating: Body - Nickel

Crimp sleeve - Nickel

Contact - Gold or Nickel

\* These values are typical and may not apply to all connectors.

## Straight Crimp Type Plug - Solder or Crimp Contact



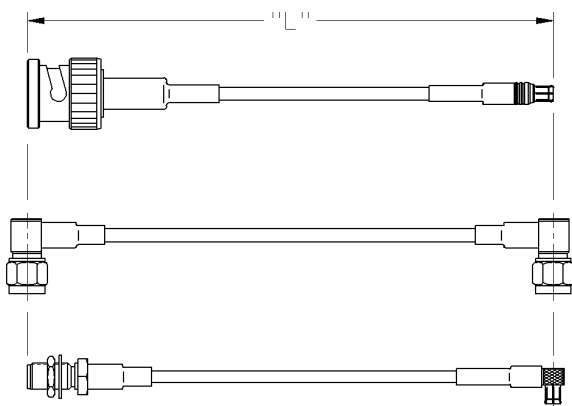
PART NO.	CABLE TYPE	"A"	CONTACT I.D.	BODY I.D.	SLEEVE I.D.
MINI-UHF-1	RG-58	.610 (15.49)	.044 (1.12)	.126 (3.20)	.206 (5.23)
MINI-UHF-1B	RG-58 Black UV Coating	.613 (15.57)	.044 (1.12)	.126 (3.20)	.206 (5.23)
MINI-UHF-2	RG-59, 62	.613 (15.57)	.034 (0.86)	.173 (4.39)	.261 (6.63)
MINI-UHF-16	PROFLEX RG-450	.610 (15.49)	.055 (1.40)	.173 (4.39)	.261 (6.63)
MINI-UHF-17	RG-8X (MINI 8)	.600 (15.24)	.065 (1.65)	.173 (4.39)	.261 (6.63)

Assembly instructions page 258.

## Electrical Ratings

Electrical ratings of a cable assembly are determined by the limiting connector type and cable size.

Connector	Cable	Connector Impedance (Ohms)	Frequency (GHz)	Dielectric Withstanding Voltage (VRMS)	Working Voltage (VRMS)
MCX	RG-178	50	6	750 VRMS	250 VRMS
	RG-316	50	6	1000 VRMS	335 VRMS
	RG-316 DS	50	6	1000 VRMS	335 VRMS
MCX 75 Ohm	RG-179	75	6	1000 VRMS	335 VRMS
	BELDEN 735A	75	6	1000 VRMS	335 VRMS
SMA	RG-178	50	12.4	500 VRMS	170 VRMS
	RG-316	50	12.4	750 VRMS	250 VRMS
	RG-316 DS	50	12.4	750 VRMS	250 VRMS
	RG-58	50	12.4	1000 VRMS	335 VRMS
	RG-142	50	12.4	1000 VRMS	335 VRMS
SMB	RG-178	50	4	750 VRMS	250 VRMS
	RG-316	50	4	1000 VRMS	335 VRMS
SMB Mini 75 Ohm	RG-179	75	2	1000 VRMS	335 VRMS
	RG-179 DS	75	2	1000 VRMS	335 VRMS
	BELDEN 735A	75	2	1000 VRMS	335 VRMS
BNC	RG-58	50	4	1500 VRMS	500 VRMS
	BELDEN 8218	50	4	1500 VRMS	500 VRMS
	RG-59	50	4	1500 VRMS	500 VRMS
	RG-59 PLENUM	50	4	1500 VRMS	500 VRMS
BNC True 75 Ohm	BELDEN 8218	75	3	1500 VRMS	500 VRMS
	RG-59	75	3	1500 VRMS	500 VRMS
	BELDEN 8281	75	3	1500 VRMS	500 VRMS
	COMMSCOPE 735	75	3	1500 VRMS	500 VRMS
	BELDEN 735A	75	3	1500 VRMS	500 VRMS
	BELDEN 734A	75	3	1500 VRMS	500 VRMS
	BELDEN 1694A	75	3	1500 VRMS	500 VRMS
N	RG-58	50	11	1500 VRMS	500 VRMS
	RG-142	50	11	1500 VRMS	500 VRMS
	RG-8	50	11	1500 VRMS	500 VRMS
	RG-213	50	11	1500 VRMS	500 VRMS



Cable length is measured to the end of straight connectors and the vertical centroid of right angle connectors.

## MCX Straight Plug to MCX Straight Plug



Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0014-006	RG-178	6"	133-3402-001	133-3402-001
415-0014-012	RG-178	12"	133-3402-001	133-3402-001
415-0014-018	RG-178	18"	133-3402-001	133-3402-001
415-0014-024	RG-178	24"	133-3402-001	133-3402-001
415-0014-030	RG-178	30"	133-3402-001	133-3402-001
415-0014-036	RG-178	36"	133-3402-001	133-3402-001
415-0018-006	RG-316	6"	133-3403-001	133-3403-001
415-0018-012	RG-316	12"	133-3403-001	133-3403-001
415-0018-018	RG-316	18"	133-3403-001	133-3403-001

Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0018-024	RG-316	24"	133-3403-001	133-3403-001
415-0018-030	RG-316	30"	133-3403-001	133-3403-001
415-0018-036	RG-316	36"	133-3403-001	133-3403-001
415-0020-006	RG-316-DS	6"	133-3404-001	133-3404-001
415-0020-012	RG-316-DS	12"	133-3404-001	133-3404-001
415-0020-018	RG-316-DS	18"	133-3404-001	133-3404-001
415-0020-024	RG-316-DS	24"	133-3404-001	133-3404-001
415-0020-030	RG-316-DS	30"	133-3404-001	133-3404-001
415-0020-036	RG-316-DS	36"	133-3404-001	133-3404-001

## MCX Straight Plug to MCX Straight Bulkhead Jack



Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0016-006	RG-316	6"	133-3403-001	133-3303-401
415-0016-012	RG-316	12"	133-3403-001	133-3303-401
415-0016-018	RG-316	18"	133-3403-001	133-3303-401

Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0016-024	RG-316	24"	133-3403-001	133-3303-401
415-0016-030	RG-316	30"	133-3403-001	133-3303-401
415-0016-036	RG-316	36"	133-3403-001	133-3303-401

## MCX Straight Plug to MCX Right Angle Plug



Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0017-006	RG-316	6"	133-3403-001	133-3403-101
415-0017-012	RG-316	12"	133-3403-001	133-3403-101
415-0017-018	RG-316	18"	133-3403-001	133-3403-101

Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0017-030	RG-316	30"	133-3403-001	133-3403-101
415-0017-036	RG-316	36"	133-3403-001	133-3403-101

## MCX Right Angle Plug to MCX Right Angle Plug



Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0015-006	RG-178	6"	133-3402-101	133-3402-101
415-0015-012	RG-178	12"	133-3402-101	133-3402-101
415-0015-018	RG-178	18"	133-3402-101	133-3402-101
415-0015-024	RG-178	24"	133-3402-101	133-3402-101
415-0015-030	RG-178	30"	133-3402-101	133-3402-101
415-0015-036	RG-178	36"	133-3402-101	133-3402-101
415-0019-006	RG-316	6"	133-3403-101	133-3403-101
415-0019-012	RG-316	12"	133-3403-101	133-3403-101
415-0019-018	RG-316	18"	133-3403-101	133-3403-101

Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0019-024	RG-316	24"	133-3403-101	133-3403-101
415-0019-030	RG-316	30"	133-3403-101	133-3403-101
415-0019-036	RG-316	36"	133-3403-101	133-3403-101
415-0021-006	RG-316-DS	6"	133-3404-101	133-3404-101
415-0021-012	RG-316-DS	12"	133-3404-101	133-3404-101
415-0021-018	RG-316-DS	18"	133-3404-101	133-3404-101
415-0021-024	RG-316-DS	24"	133-3404-101	133-3404-101
415-0021-030	RG-316-DS	30"	133-3404-101	133-3404-101
415-0021-036	RG-316-DS	36"	133-3404-101	133-3404-101

## MCX 75 Ohm Straight Plug to MCX 75 Ohm Straight Plug



Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0022-006	RG-179	6"	133-8433-001	133-8433-001
415-0022-012	RG-179	12"	133-8433-001	133-8433-001
415-0022-018	RG-179	18"	133-8433-001	133-8433-001
415-0022-024	RG-179	24"	133-8433-001	133-8433-001
415-0022-030	RG-179	30"	133-8433-001	133-8433-001
415-0022-036	RG-179	36"	133-8433-001	133-8433-001

Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0023-006	Belden 735 A	6"	133-8445-001	133-8445-001
415-0023-012	Belden 735 A	12"	133-8445-001	133-8445-001
415-0023-018	Belden 735 A	18"	133-8445-001	133-8445-001
415-0023-024	Belden 735 A	24"	133-8445-001	133-8445-001
415-0023-030	Belden 735 A	30"	133-8445-001	133-8445-001
415-0023-036	Belden 735 A	36"	133-8445-001	133-8445-001

## MCX 75 Ohm Right Angle Plug to MCX 75 Ohm Right Angle Plug



Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0024-006	Belden 735 A	6"	133-8445-101	133-8445-101
415-0024-012	Belden 735 A	12"	133-8445-101	133-8445-101
415-0024-018	Belden 735 A	18"	133-8445-101	133-8445-101

Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0024-024	Belden 735 A	24"	133-8445-101	133-8445-101
415-0024-030	Belden 735 A	30"	133-8445-101	133-8445-101
415-0024-036	Belden 735 A	36"	133-8445-101	133-8445-101

## SMA Straight Plug to SMA Straight Plug



Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0025-006	RG-178	6"	142-0402-011	142-0402-011
415-0025-012	RG-178	12"	142-0402-011	142-0402-011
415-0025-018	RG-178	18"	142-0402-011	142-0402-011
415-0025-024	RG-178	24"	142-0402-011	142-0402-011
415-0025-036	RG-178	36"	142-0402-011	142-0402-011
415-0025-048	RG-178	48"	142-0402-011	142-0402-011
415-0029-006	RG-316	6"	142-0403-011	142-0403-011
415-0029-012	RG-316	12"	142-0403-011	142-0403-011
415-0029-018	RG-316	18"	142-0403-011	142-0403-011
415-0029-024	RG-316	24"	142-0403-011	142-0403-011
415-0029-036	RG-316	36"	142-0403-011	142-0403-011
415-0029-048	RG-316	48"	142-0403-011	142-0403-011
415-0033-006	RG-316 DS	6"	142-0404-011	142-0404-011
415-0033-012	RG-316 DS	12"	142-0404-011	142-0404-011

Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0033-018	RG-316 DS	18"	142-0404-011	142-0404-011
415-0033-024	RG-316 DS	24"	142-0404-011	142-0404-011
415-0033-036	RG-316 DS	36"	142-0404-011	142-0404-011
415-0033-048	RG-316 DS	48"	142-0404-011	142-0404-011
415-0038-012	RG-58	12"	142-0407-011	142-0407-011
415-0038-024	RG-58	24"	142-0407-011	142-0407-011
415-0038-036	RG-58	36"	142-0407-011	142-0407-011
415-0038-048	RG-58	48"	142-0407-011	142-0407-011
415-0038-060	RG-58	60"	142-0407-011	142-0407-011
415-0043-012	RG-142	12"	142-0408-011	142-0408-011
415-0043-024	RG-142	24"	142-0408-011	142-0408-011
415-0043-036	RG-142	36"	142-0408-011	142-0408-011
415-0043-048	RG-142	48"	142-0408-011	142-0408-011
415-0043-060	RG-142	60"	142-0408-011	142-0408-011

## SMA Straight Plug to SMA Straight Bulkhead Jack



Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0031-006	RG-316	6"	142-0403-011	142-0303-411
415-0031-012	RG-316	12"	142-0403-011	142-0303-411
415-0031-018	RG-316	18"	142-0403-011	142-0303-411
415-0031-024	RG-316	24"	142-0403-011	142-0303-411
415-0031-036	RG-316	36"	142-0403-011	142-0303-411
415-0031-048	RG-316	48"	142-0403-011	142-0303-411
415-0035-006	RG-316 DS	6"	142-0404-011	142-0304-411
415-0035-012	RG-316 DS	12"	142-0404-011	142-0304-411
415-0035-018	RG-316 DS	18"	142-0404-011	142-0304-411
415-0035-024	RG-316 DS	24"	142-0404-011	142-0304-411
415-0035-036	RG-316 DS	36"	142-0404-011	142-0304-411

Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0035-048	RG-316 DS	48"	142-0404-011	142-0304-411
415-0040-012	RG-58	12"	142-0407-011	142-0307-411
415-0040-024	RG-58	24"	142-0407-011	142-0307-411
415-0040-036	RG-58	36"	142-0407-011	142-0307-411
415-0040-048	RG-58	48"	142-0407-011	142-0307-411
415-0040-060	RG-58	60"	142-0407-011	142-0307-411
415-0045-012	RG-142	12"	142-0408-011	142-0308-411
415-0045-024	RG-142	24"	142-0408-011	142-0308-411
415-0045-036	RG-142	36"	142-0408-011	142-0308-411
415-0045-048	RG-142	48"	142-0408-011	142-0308-411
415-0045-060	RG-142	60"	142-0408-011	142-0308-411

## SMA Straight Plug to SMA Right Angle Plug



Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0026-006	RG-178	6"	142-0402-011	142-0402-101
415-0026-012	RG-178	12"	142-0402-011	142-0402-101
415-0026-018	RG-178	18"	142-0402-011	142-0402-101
415-0026-024	RG-178	24"	142-0402-011	142-0402-101
415-0026-036	RG-178	36"	142-0402-011	142-0402-101
415-0026-048	RG-178	48"	142-0402-011	142-0402-101
415-0030-006	RG-316	6"	142-0403-011	142-0403-101
415-0030-012	RG-316	12"	142-0403-011	142-0403-101
415-0030-018	RG-316	18"	142-0403-011	142-0403-101
415-0030-024	RG-316	24"	142-0403-011	142-0403-101
415-0030-036	RG-316	36"	142-0403-011	142-0403-101
415-0030-048	RG-316	48"	142-0403-011	142-0403-101
415-0034-006	RG-316 DS	6"	142-0404-011	142-0404-101
415-0034-012	RG-316 DS	12"	142-0404-011	142-0404-101

Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0034-018	RG-316 DS	18"	142-0404-011	142-0404-101
415-0034-024	RG-316 DS	24"	142-0404-011	142-0404-101
415-0034-036	RG-316 DS	36"	142-0404-011	142-0404-101
415-0034-048	RG-316 DS	48"	142-0404-011	142-0404-101
415-0039-012	RG-58	12"	142-0407-011	142-0407-101
415-0039-024	RG-58	24"	142-0407-011	142-0407-101
415-0039-036	RG-58	36"	142-0407-011	142-0407-101
415-0039-048	RG-58	48"	142-0407-011	142-0407-101
415-0039-060	RG-58	60"	142-0407-011	142-0407-101
415-0044-012	RG-142	12"	142-0408-011	142-0408-101
415-0044-024	RG-142	24"	142-0408-011	142-0408-101
415-0044-036	RG-142	36"	142-0408-011	142-0408-101
415-0044-048	RG-142	48"	142-0408-011	142-0408-101
415-0044-060	RG-142	60"	142-0408-011	142-0408-101



## SMA Right Angle Plug to SMA Right Angle Plug



Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0027-006	RG-178	6"	142-0402-101	142-0402-101
415-0027-012	RG-178	12"	142-0402-101	142-0402-101
415-0027-018	RG-178	18"	142-0402-101	142-0402-101
415-0027-024	RG-178	24"	142-0402-101	142-0402-101
415-0027-036	RG-178	36"	142-0402-101	142-0402-101
415-0027-048	RG-178	48"	142-0402-101	142-0402-101
415-0032-006	RG-316	6"	142-0403-101	142-0403-101
415-0032-012	RG-316	12"	142-0403-101	142-0403-101
415-0032-018	RG-316	18"	142-0403-101	142-0403-101
415-0032-024	RG-316	24"	142-0403-101	142-0403-101
415-0032-036	RG-316	36"	142-0403-101	142-0403-101
415-0032-048	RG-316	48"	142-0403-101	142-0403-101
415-0036-006	RG-316 DS	6"	142-0404-101	142-0404-101
415-0036-012	RG-316 DS	12"	142-0404-101	142-0404-101

Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0036-018	RG-316 DS	18"	142-0404-101	142-0404-101
415-0036-024	RG-316 DS	24"	142-0404-101	142-0404-101
415-0036-036	RG-316 DS	36"	142-0404-101	142-0404-101
415-0036-048	RG-316 DS	48"	142-0404-101	142-0404-101
415-0041-012	RG-58	12"	142-0407-101	142-0407-101
415-0041-024	RG-58	24"	142-0407-101	142-0407-101
415-0041-036	RG-58	36"	142-0407-101	142-0407-101
415-0041-048	RG-58	48"	142-0407-101	142-0407-101
415-0041-060	RG-58	60"	142-0407-101	142-0407-101
415-0046-012	RG-142	12"	142-0408-101	142-0408-101
415-0046-024	RG-142	24"	142-0408-101	142-0408-101
415-0046-036	RG-142	36"	142-0408-101	142-0408-101
415-0046-048	RG-142	48"	142-0408-101	142-0408-101
415-0046-060	RG-142	60"	142-0408-101	142-0408-101

## SMB Straight Plug to SMB Straight Plug



Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0003-006	RG-316	6"	131-1403-001	131-1403-001
415-0003-012	RG-316	12"	131-1403-001	131-1403-001
415-0003-018	RG-316	18"	131-1403-001	131-1403-001

Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0003-024	RG-316	24"	131-1403-001	131-1403-001
415-0003-030	RG-316	30"	131-1403-001	131-1403-001
415-0003-036	RG-316	36"	131-1403-001	131-1403-001

## SMB Straight Plug to SMB Right Angle Plug



Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0002-006	RG-316	6"	131-1403-001	131-1403-101
415-0002-012	RG-316	12"	131-1403-001	131-1403-101
415-0002-018	RG-316	18"	131-1403-001	131-1403-101
415-0002-024	RG-316	24"	131-1403-001	131-1403-101
415-0002-030	RG-316	30"	131-1403-001	131-1403-101
415-0002-036	RG-316	36"	131-1403-001	131-1403-101
415-0005-006	RG-316 DS	6"	131-1404-001	131-1404-101
415-0005-012	RG-316 DS	12"	131-1404-001	131-1404-101
415-0005-018	RG-316 DS	18"	131-1404-001	131-1404-101

Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0005-024	RG-316 DS	24"	131-1404-001	131-1404-101
415-0005-030	RG-316 DS	30"	131-1404-001	131-1404-101
415-0005-036	RG-316 DS	36"	131-1404-001	131-1404-101
415-0007-006	RG-178	6"	131-3402-001	131-1402-101
415-0007-012	RG-178	12"	131-3402-001	131-1402-101
415-0007-018	RG-178	18"	131-3402-001	131-1402-101
415-0007-024	RG-178	24"	131-3402-001	131-1402-101
415-0007-030	RG-178	30"	131-3402-001	131-1402-101
415-0007-036	RG-178	36"	131-3402-001	131-1402-101

## SMB Right Angle Plug to SMB Right Angle Plug



Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0001-006	RG-178	6"	131-1402-101	131-1402-101
415-0001-012	RG-178	12"	131-1402-101	131-1402-101
415-0001-018	RG-178	18"	131-1402-101	131-1402-101
415-0001-024	RG-178	24"	131-1402-101	131-1402-101
415-0001-030	RG-178	30"	131-1402-101	131-1402-101
415-0001-036	RG-178	36"	131-1402-101	131-1402-101
415-0004-006	RG-316	6"	131-1403-101	131-1403-101
415-0004-012	RG-316	12"	131-1403-101	131-1403-101
415-0004-018	RG-316	18"	131-1403-101	131-1403-101

Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0004-024	RG-316	24"	131-1403-101	131-1403-101
415-0004-030	RG-316	30"	131-1403-101	131-1403-101
415-0004-036	RG-316	36"	131-1403-101	131-1403-101
415-0006-006	RG-316 DS	6"	131-1404-101	131-1404-101
415-0006-012	RG-316 DS	12"	131-1404-101	131-1404-101
415-0006-018	RG-316 DS	18"	131-1404-101	131-1404-101
415-0006-024	RG-316 DS	24"	131-1404-101	131-1404-101
415-0006-030	RG-316 DS	30"	131-1404-101	131-1404-101
415-0006-036	RG-316 DS	36"	131-1404-101	131-1404-101

## SMB Mini-75 Ohm Straight Plug to SMB Mini-75 Ohm Straight Plug



Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0008-006	RG-179	6"	131-8403-011	131-8403-011
415-0008-012	RG-179	12"	131-8403-011	131-8403-011
415-0008-018	RG-179	18"	131-8403-011	131-8403-011
415-0008-024	RG-179	24"	131-8403-011	131-8403-011
415-0008-030	RG-179	30"	131-8403-011	131-8403-011
415-0008-036	RG-179	36"	131-8403-011	131-8403-011
415-0010-006	RG-179 DS	6"	131-8404-011	131-8404-011
415-0010-012	RG-179 DS	12"	131-8404-011	131-8404-011
415-0010-018	RG-179 DS	18"	131-8404-011	131-8404-011

Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0010-024	RG-179 DS	24"	131-8404-011	131-8404-011
415-0010-030	RG-179 DS	30"	131-8404-011	131-8404-011
415-0010-036	RG-179 DS	36"	131-8404-011	131-8404-011
415-0012-006	Belden 735 A	6"	131-8445-001	131-8445-001
415-0012-012	Belden 735 A	12"	131-8445-001	131-8445-001
415-0012-018	Belden 735 A	18"	131-8445-001	131-8445-001
415-0012-024	Belden 735 A	24"	131-8445-001	131-8445-001
415-0012-030	Belden 735 A	30"	131-8445-001	131-8445-001
415-0012-036	Belden 735 A	36"	131-8445-001	131-8445-001

## SMB Mini-75 Ohm Right Angle Plug to SMB Mini-75 Ohm Right Angle Plug



Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0009-006	RG-179	6"	131-8403-111	131-8403-111
415-0009-012	RG-179	12"	131-8403-111	131-8403-111
415-0009-018	RG-179	18"	131-8403-111	131-8403-111
415-0009-024	RG-179	24"	131-8403-111	131-8403-111
415-0009-030	RG-179	30"	131-8403-111	131-8403-111
415-0009-036	RG-179	36"	131-8403-111	131-8403-111
415-0011-006	RG-179 DS	6"	131-8404-111	131-8404-111
415-0011-012	RG-179 DS	12"	131-8404-111	131-8404-111
415-0011-018	RG-179 DS	18"	131-8404-111	131-8404-111

Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0011-024	RG-179 DS	24"	131-8404-111	131-8404-111
415-0011-030	RG-179 DS	30"	131-8404-111	131-8404-111
415-0011-036	RG-179 DS	36"	131-8404-111	131-8404-111
415-0013-006	Belden 735 A	6"	131-8445-101	131-8445-101
415-0013-012	Belden 735 A	12"	131-8445-101	131-8445-101
415-0013-018	Belden 735 A	18"	131-8445-101	131-8445-101
415-0013-024	Belden 735 A	24"	131-8445-101	131-8445-101
415-0013-030	Belden 735 A	30"	131-8445-101	131-8445-101
415-0013-036	Belden 735 A	36"	131-8445-101	131-8445-101

## N Straight Plug to N Straight Plug



Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0058-012	RG-58	12"	CPN-1	CPN-1
415-0058-024	RG-58	24"	CPN-1	CPN-1
415-0058-036	RG-58	36"	CPN-1	CPN-1
415-0058-048	RG-58	48"	CPN-1	CPN-1
415-0058-060	RG-58	60"	CPN-1	CPN-1
415-0060-012	RG-142	12"	CPN-142T	CPN-142T
415-0060-024	RG-142	24"	CPN-142T	CPN-142T
415-0060-036	RG-142	36"	CPN-142T	CPN-142T
415-0060-048	RG-142	48"	CPN-142T	CPN-142T
415-0060-060	RG-142	60"	CPN-142T	CPN-142T

Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0062-012	RG-8	12"	CPN-8	CPN-8
415-0062-024	RG-8	24"	CPN-8	CPN-8
415-0062-036	RG-8	36"	CPN-8	CPN-8
415-0062-048	RG-8	48"	CPN-8	CPN-8
415-0062-060	RG-8	60"	CPN-8	CPN-8
415-0063-012	RG-213	12"	CPN-8	CPN-8
415-0063-024	RG-213	24"	CPN-8	CPN-8
415-0063-036	RG-213	36"	CPN-8	CPN-8
415-0063-048	RG-213	48"	CPN-8	CPN-8
415-0063-060	RG-213	60"	CPN-8	CPN-8

## BNC Straight Plug to BNC Straight Plug



With Boot

Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0054-012	RG-58	12"	CPMC-88-1	CPMC-88-1
415-0054-024	RG-58	24"	CPMC-88-1	CPMC-88-1
415-0054-036	RG-58	36"	CPMC-88-1	CPMC-88-1
415-0054-048	RG-58	48"	CPMC-88-1	CPMC-88-1
415-0054-060	RG-58	60"	CPMC-88-1	CPMC-88-1
415-0055-012	RG-59 TFE	12"	CPMC-88-10	CPMC-88-10
415-0055-024	RG-59 TFE	24"	CPMC-88-10	CPMC-88-10
415-0055-036	RG-59 TFE	36"	CPMC-88-10	CPMC-88-10
415-0055-048	RG-59 TFE	48"	CPMC-88-10	CPMC-88-10
415-0055-060	RG-59 TFE	60"	CPMC-88-10	CPMC-88-10
415-0057-012	RG-59	12"	CPMC-88-2	CPMC-88-2
415-0057-024	RG-59	24"	CPMC-88-2	CPMC-88-2
415-0057-036	RG-59	36"	CPMC-88-2	CPMC-88-2
415-0057-048	RG-59	48"	CPMC-88-2	CPMC-88-2
415-0057-060	RG-59	60"	CPMC-88-2	CPMC-88-2

With Heat Shrink

Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0056-012	Belden 8218	12"	CPMC-88-18	CPMC-88-18
415-0056-024	Belden 8218	24"	CPMC-88-18	CPMC-88-18
415-0056-036	Belden 8218	36"	CPMC-88-18	CPMC-88-18
415-0056-048	Belden 8218	48"	CPMC-88-18	CPMC-88-18
415-0056-060	Belden 8218	60"	CPMC-88-18	CPMC-88-18

## BNC True 75 Ohm Straight Plug to BNC True 75 Ohm Straight Plug

With Boot

Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0048-012	RG-59	12"	CPMC-68-2	CPMC-68-2
415-0048-024	RG-59	24"	CPMC-68-2	CPMC-68-2
415-0048-036	RG-59	36"	CPMC-68-2	CPMC-68-2
415-0048-048	RG-59	48"	CPMC-68-2	CPMC-68-2
415-0048-060	RG-59	60"	CPMC-68-2	CPMC-68-2
415-0052-012	Belden 734 A	12"	CPMC-68-35	CPMC-68-35
415-0052-024	Belden 734 A	24"	CPMC-68-35	CPMC-68-35
415-0052-036	Belden 734 A	36"	CPMC-68-35	CPMC-68-35
415-0052-048	Belden 734 A	48"	CPMC-68-35	CPMC-68-35
415-0052-060	Belden 734 A	60"	CPMC-68-35	CPMC-68-35

With Heat Shrink

Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0047-012	Belden 8218	12"	CPMC-68-18	CPMC-68-18
415-0047-024	Belden 8218	24"	CPMC-68-18	CPMC-68-18
415-0047-036	Belden 8218	36"	CPMC-68-18	CPMC-68-18
415-0047-048	Belden 8218	48"	CPMC-68-18	CPMC-68-18
415-0047-060	Belden 8218	60"	CPMC-68-18	CPMC-68-18
415-0049-012	Belden 8281	12"	CPMC-68-3	CPMC-68-3
415-0049-024	Belden 8281	24"	CPMC-68-3	CPMC-68-3
415-0049-036	Belden 8281	36"	CPMC-68-3	CPMC-68-3
415-0049-048	Belden 8281	48"	CPMC-68-3	CPMC-68-3
415-0049-060	Belden 8281	60"	CPMC-68-3	CPMC-68-3
415-0050-012	COMSCOPE 735	12"	CPMC-68-33	CPMC-68-33
415-0050-024	COMSCOPE 735	24"	CPMC-68-33	CPMC-68-33
415-0050-036	COMSCOPE 735	36"	CPMC-68-33	CPMC-68-33
415-0050-048	COMSCOPE 735	48"	CPMC-68-33	CPMC-68-33
415-0050-060	COMSCOPE 735	60"	CPMC-68-33	CPMC-68-33
415-0051-012	Belden 735 A	12"	CPMC-68-33	CPMC-68-33
415-0051-024	Belden 735 A	24"	CPMC-68-33	CPMC-68-33
415-0051-036	Belden 735 A	36"	CPMC-68-33	CPMC-68-33
415-0051-048	Belden 735 A	48"	CPMC-68-33	CPMC-68-33
415-0051-060	Belden 735 A	60"	CPMC-68-33	CPMC-68-33
415-0053-012	Belden 1694A	12"	CPMC-68-45	CPMC-68-45
415-0053-024	Belden 1694A	24"	CPMC-68-45	CPMC-68-45
415-0053-036	Belden 1694A	36"	CPMC-68-45	CPMC-68-45
415-0053-048	Belden 1694A	48"	CPMC-68-45	CPMC-68-45
415-0053-060	Belden 1694A	60"	CPMC-68-45	CPMC-68-45

## SMA Straight Plug to N Straight Plug



Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0059-012	RG-58	12"	142-0407-011	CPN-1
415-0059-024	RG-58	24"	142-0407-011	CPN-1
415-0059-036	RG-58	36"	142-0407-011	CPN-1
415-0059-048	RG-58	48"	142-0407-011	CPN-1
415-0059-060	RG-58	60"	142-0407-011	CPN-1

Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0061-012	RG-142	12"	142-0408-011	CPN-142T
415-0061-024	RG-142	24"	142-0408-011	CPN-142T
415-0061-036	RG-142	36"	142-0408-011	CPN-142T
415-0061-048	RG-142	48"	142-0408-011	CPN-142T
415-0061-060	RG-142	60"	142-0408-011	CPN-142T

## SMA Straight Plug to BNC Straight Plug



Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0028-006	RG-316	6"	142-0403-011	CPM-88-19
415-0028-012	RG-316	12"	142-0403-011	CPM-88-19
415-0028-018	RG-316	18"	142-0403-011	CPM-88-19
415-0028-024	RG-316	24"	142-0403-011	CPM-88-19
415-0028-036	RG-316	36"	142-0403-011	CPM-88-19
415-0028-048	RG-316	48"	142-0403-011	CPM-88-19
415-0037-012	RG-58	12"	142-0407-011	CPMC-88-1
415-0037-024	RG-58	24"	142-0407-011	CPMC-88-1

Part No.	Cable Type	Cable Length	Connector A	Connector B
415-0037-036	RG-58	36"	142-0407-011	CPMC-88-1
415-0037-048	RG-58	48"	142-0407-011	CPMC-88-1
415-0037-060	RG-58	60"	142-0407-011	CPMC-88-1
415-0042-012	RG-142	12"	142-0408-011	CPMC-88-13
415-0042-024	RG-142	24"	142-0408-011	CPMC-88-13
415-0042-036	RG-142	36"	142-0408-011	CPMC-88-13
415-0042-048	RG-142	48"	142-0408-011	CPMC-88-13
415-0042-060	RG-142	60"	142-0408-011	CPMC-88-13

**If you don't see the cable assembly you require, we can design and manufacture one to meet your unique specifications!**



- Voltage/Continuity Test Fixture
- Interface location gauging
- VSWR Quality Assurance Scalar Analyzer
- VSWR/TDR Engineering Vector Analyzer
- CNC Hardline Bender (Semi-Rigid cables)
- Tested to customer specifications
- Flexible cable
- Conformable cable
- Semi-Rigid cable
- 0 to 40 GHz
- 50 and 75 Ohms
- Controlled impedance
- Prototype available in 2 weeks

**Call 800-247-8256 to discuss your needs with a Customer Service Representative**

## Assembly Tools

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## Hand Crimp Tool

Precision Astro Tool hand crimping tool makes cable assembly fast and easy. Crimping tool features interchangeable steel dies. Ratchet action of tool controls crimping operation for precise uniform ferrule crimps.



CONNECTOR TYPE	CABLE TYPE	PREFERRED DIE SET	CRIMP DIMENSIONS
MCX SMA SMB SMC	RG-178/U RG-196/U	141-0000-901	Hex = .105 (2.67) Width = .325 (8.26)
MCX SMA SMB SMC 75 Ohm SMB	RG-161/U, RG-174/U RG-179/U, RG-187/U RG-188/U, RG-316/U LMR-100	141-0000-902	Hex = .128 (3.25) Width = .400 (10.16)
	RG-188 DS, RG-316 DS RG-179 DS, RG-187 DS, BELDEN 735A	141-0000-905	Hex = .151 (3.83) Width = .400 (10.16)
MCX SMA SMB	RG-58/U RG-141/U RG-303/U RG-55/U RG-142/U RG-223/U RG-400/U LMR-195 LMR-200	141-0000-903	Hex = .213 (5.41) Width = .375 (9.52)
SMA 75 Ohm SMB	LMR-240, RG-59	141-0000-925	Hex = .255 (6.48) Width = .400 (10.16)
N Type	RG-316/U, 316 DS	141-0000-927	Hex = .160 (4.06) Width = .400 (10.16)

\*Economy Hand Crimp Tool also available with four hex sizes in one tool page 191.

## Ordering Information for Crimping Tool

PART NO.	DESCRIPTION	ASTRO TOOL P/N
144-0000-900	Frame Only	620175
141-0000-901	Single Hex Die	620932
141-0000-902	Single Hex Die	620419
141-0000-903	Single Hex Die	620676
141-0000-905	Single Hex Die	630055
141-0000-925	Single Hex Die	620938
141-0000-927	Single Hex Die	620297

## Crimp Dies for Contacts

use with 144-0000-900

CONNECTOR TYPE	PREFERRED DIE SET	CRIMP STYLE
SMB Cross Hole Style Body 50 Ohm Only	141-0000-911	Double Diamond
Mini 75 Ohm SMB, MCX 75 Ohm Cross Hole Style Body	141-0000-924	Double Diamond

## Economy Hand Crimp Tool

Hand crimp tool and die set includes all hex sizes necessary for subminiature connector applications. Ratchet tool action insures a complete crimp every time.



PART NO.	DESCRIPTION	HEX	WIDTH	CONNECTOR TYPE
140-0000-952	Hand Crimp Tool Frame Only			
140-0000-953	Die for .047" dia. flexible cable; RG-178, RG-316, RG-316 DS and Contact Crimp w/stop	.105 (2.67)	.250 (6.35)	MMCX*, MCX
		.128 (3.25)	.250 (6.35)	
		.151 (3.83)	.250 (6.35)	
		Diamond Crimp for .038 (0.96) Dia. Contact		
140-0000-951	Die for RG-178, 316, 316 DS, 58, 142, LMR-100, LMR-195, LMR-200	.105 (2.67)	.390 (9.91)	MCX, SMB, SMC, SMA, 75 OHM SMB
		.128 (3.25)	.390 (9.91)	
		.151 (3.83)	.390 (9.91)	
		.213 (5.41)	.390 (9.91)	
140-0000-955	Die for RG-179, 179 DS, 735A, RG-59, LMR-240	.128 (3.25)	.390 (9.91)	75 Ohm MCX, SMA Mini-75 Ohm SMB
		.151 (3.83)	.390 (9.91)	
		.178 (4.52)	.390 (9.91)	
		.255 (6.48)	.390 (9.91)	

\*Use 140-0000-951 for MMCX straight cabled bulkhead jack body crimp.

## 3-Piece SMA - Contact Hand Crimp Tool

Quick and secure crimp assembly of SMA contacts to all cable sizes used by the 3-piece SMA connector line is possible. The crimp tool is used in conjunction with 141-0000-907 turret positioner which positions the crimp location on the contact with no user setup required. Set the selector to the appropriate crimp size, insert contact and cable into tool and squeeze handles of tool. A complete and accurate crimp is obtained every time, with no partial crimp. A ratchet insures a complete cycle of the tool. Automated tooling information is available on request.



PART NO.	DESCRIPTION	ASTRO TOOL PART NO.	MILITARY PART NO.
144-0000-910	Frame Only	615708	M22520/1-01
141-0000-907	Positioner	650027	N/A

## 3-Piece SMB, MCX - Contact Hand Crimp Tool

The micro contact crimp tool provides an accurate eight indent crimp on small diameter contacts used in the 3-Piece SMB and MCX connectors. This crimp tool is used with the 140-0000-971 Variable Positioner. Set the crimp size in the adjustment window and position the variable locator to obtain an accurate repeatable crimp on the contact.



PART NO.	DESCRIPTION	ASTRO TOOL PART NO.
140-0000-970	Frame Only	612118-1
140-0000-971	Positioner	N/A

## MMCX Assembly/Decoupling Tool

This tool will assemble the end cap to a standard right angle MMCX plug connector in the field. Simply insert connector and cap into tool cavity, then turn handle to swage the cap into place. The slotted end of the tool can be used to disengage a right angle MMCX plug from a mating receptacle.



PART NO.

141-0000-910

## MCX Right Angle Plug Assembly Tool

This quick and easy to use tool will press the end cap onto standard right angle MCX plug connectors. Simply insert the connector and cap into the staking nest and a light squeeze of the handles will swage the cap into place.

The jaw tips are shaped to grip a right angle MCX plug body for insertion or disengagement to a mating receptacle. The jaws are hardened steel and the handles are cushioned to minimize stress to the user. For use with all cable groups except RG-58.



PART NO.

141-0000-908

## “C” Spring Compression Tool

For assembly of SMA Coupling Nut



PART NO.

141-0000-904

## SMA Knurl Mount Assembly Tool

The Knurl Mount SMA Spark Plug Connectors can be pressed into position using this thread-on fixture designed for low volume lab use.



PART NO.

140-0000-954

## SMB Plug Removal Tool

Reaches in to disengage SMB connectors in high density packaging applications.



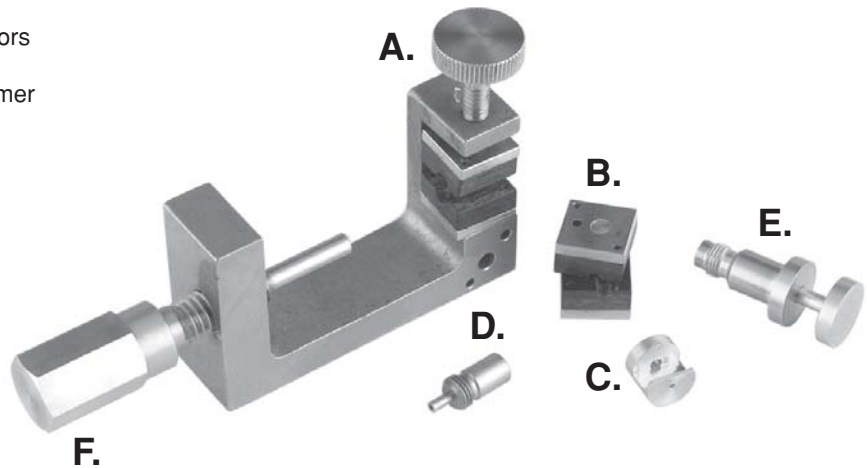
PART NO.

140-0000-956



## SMK (2.92mm) Tools

Accurate assembly of the SMK cabled connectors is obtained with the tools listed below. Industry standard devices are used if possible for customer convenience and tool compatibility.



ITEM	PART NO.	DESCRIPTION
A	140-0000-962	Semi-Rigid Cable Vise (does not include inserts (B) or Vise Stop (F))
B	140-0000-964 140-0000-965	Cable Clamp Inserts, .086 Semi-Rigid Cable Clamp Inserts, .141 Semi-Rigid
C	140-0000-960 140-0000-961	Contact Soldering Tool, .086 Plug Contact Soldering Tool, .141 Plug
D	140-0000-958 140-0000-959	Body Soldering Tool, .086 Plug Body Soldering Tool, .141 Plug
E	140-0000-957	Bead Assembly Tool, Semi-Rigid Plugs, All Cables
F	140-0000-968	Vise Stop, (2.92mm)

## Self-Adjusting Blades (Replaceable Cassette)



- 2-step Cable Stripper
- w/replacement cassettes
- for RG-6, 58, 59 and 62

PART NO.	DESCRIPTION
24-7732P	Tool
99-7732B	Replacement Cassette



- 3-step Cable Stripper
- w/replacement cassettes
- for RG-6, 58, 59 and 62

PART NO.	DESCRIPTION
24-7733P	Tool
99-7733B	Replacement Cassette

## Blade Series (w/adjustable blades) Two Step Cut



### Universal Coax Stripper

- Adjustable blades for RG-6, 58, 59 and 62
- w/switchable V-block
- does 2 cuts in 1 motion

PART NO.	DESCRIPTION
24-7734P	Tool
99-7734	Replacement Blades (set of 2)



### Coax Stripper for Standard and Teflon

- Adjustable blades for RG-58, 59 and 62
- does 2 cuts in 1 motion

PART NO.	DESCRIPTION
24-7735P	Tool
99-7735	Replacement Blades (set of 2)



### Coax Stripper for Standard and Teflon

- Adjustable blades for RG-6, 58, 8281
- does 2 cuts in 1 motion

PART NO.	DESCRIPTION
24-7736P	Tool
99-7735	Replacement Blades (set of 2)

## Three Step Cut



### Coax Stripper for RG-58, 59, 62

- adjustable blades
- does 3 cuts in 1 motion

PART NO.	DESCRIPTION
24-7737P	Tool
99-7737	Replacement Blades (set of 3)



### Coax Stripper for RG-59, RG-6, 8821

- does 3 cuts in 1 motion

PART NO.	DESCRIPTION
24-7738P	Tool
99-7737	Replacement Blades (set of 3)



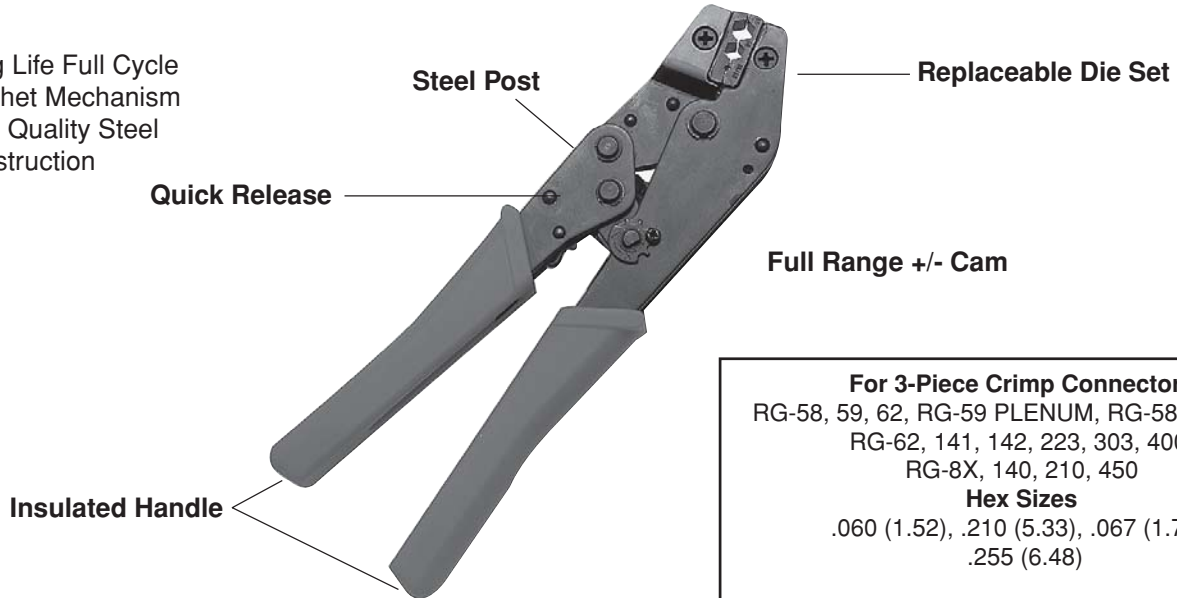
### Coax Stripper for RG-8, 11, 213

- does 3 cuts in 1 motion

PART NO.	DESCRIPTION
24-7739P	Tool
99-7739	Replacement Blades (set of 3)

## Prestige™ Ratchet Crimp Tools Adjustable Standard Series

- Long Life Full Cycle Ratchet Mechanism
- High Quality Steel Construction



Full Range +/- Cam

**For 3-Piece Crimp Connectors**  
 RG-58, 59, 62, RG-59 PLENUM, RG-58 PLENUM,  
 RG-62, 141, 142, 223, 303, 400,  
 RG-8X, 140, 210, 450  
**Hex Sizes**  
 .060 (1.52), .210 (5.33), .067 (1.70),  
 .255 (6.48)

PART NO.	DESCRIPTION
24-8860P	Tool
99-8860	Replacement Die

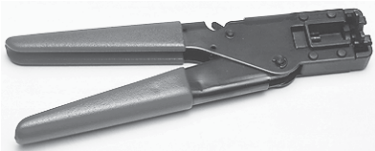
## Prestige™ Universal Crimp Tool

- Adjustable Crimp Force
- With five hex sizes in one tool!
- Crimps 2 and 3 Piece Connectors



CRIMP HEX	CABLE
.068 (1.73)	Center Conductor 16 to 22 AWG
.100 (2.54)	Center Conductor 10 to 13 AWG
.213 (5.41)	RG-55, 58, 141, 142, 223, 203, 400, RG-59TFE
.255 (6.48)	RG-59, 62, 140, 210, Belden 8279
.324 (8.23)	RG-6, 142, 212, 222, Belden 8281, 9231, 9144

PART NO.
24-9960P



## Compression Crimp Tool

For "F" (CATV) type weatherproof compression connectors (RG-59 and RG-6 single, Tri/Quad series)

<b>PART NO.</b>
-----------------

24-7713P
----------



## "F" Ratchet Crimp Tool

9" inch ratchet crimp tool for RG-59, RG-6, RG-Quad

.255, .324, .354 Hex size

(for F Series CATV connectors)

<b>PART NO.</b>
-----------------

24-8866P
----------



Deluxe Crimp Tool for RG-6, 59  
.322, .255 Hex Size

<b>PART NO.</b>
-----------------

24-7710P
----------



Deluxe Crimp Tool for RG-6, 11, 213  
.448, .322, .100 Hex Size  
(for F series connectors)

<b>PART NO.</b>
-----------------

24-7711P
----------



Deluxe Crimp Tool for RG-6, 11, UHF-8  
.406, .359, .102 Hex Size  
(for BNC, N and UHF connectors)

<b>PART NO.</b>
-----------------

24-7712P
----------

## Boxed "F" Series Crimp Tool with Connectors



Deluxe Crimp Tool for RG-6, 59

comes with 10 pieces 25-7032

connectors w/1/2" crimp ring

.322, .255 Hex Size

<b>PART NO.</b>
-----------------

24-7710P
----------

PART NO.	CABLE SIZE	DESCRIPTION	HEX SIZE	REPLACEMENT DIE
24-302P	BELDEN 8281	2 pc. BNC & TNC	.350, .288	99-DC-3
24-310	RG-8	UHF	.405, .110	99-U-8
24-312	RG-58, 59, 8x, 450	N	.255, .210, .100	99-N-1
24-313	RG-8	N	.429, .100, .080	99-N-8
24-318P	BELDEN 8281	3 pc. BNC & TNC	.310, .065	99-MC-3
24-321P	RG-6	2 pc. BNC & TNC	.385, .320	99-DC-5



- Full cycle ratchet mechanism
- Quick release safety
- Perform both electrical and mechanical crimp
- High quality steel
- Each tool comes complete with crimp die
- Full range +/- Cam adjustment

## Precision Ergo Hand Crimp Tool with Dieset

PART NO.	DESCRIPTION	HEX SIZE	HEX WIDTH
24-9961P (Replacement dieset 99-9961)	Pressmaster K Hand crimp tool frame with dieset	.324 (8.22) .264 (6.71) .213 (5.41)	.475 (12.06) .475 (12.06) .394 (10.00)
24-9962P (Replacement dieset 99-9962)	Pressmaster K Hand crimp tool frame with dieset	.350 (8.89) .288 (5.41) .042 (1.07)	.475 (12.06) .475 (12.06) .080 (2.03)
24-9963P (Replacement dieset 99-9963)	Pressmaster K Hand crimp tool frame with dieset	.255 (6.48) .178 (4.52) .128 (3.25)	.475 (12.06) .475 (12.06) .475 (12.06)



- Longer handles for leverage
- Padded and contoured to fit in hand
- Precision ground die sets
- 50,000 cycle lifespan frame

### Standard Series

- Full cycle ratchet mechanism
- Quick release safety
- Perform both electrical and mechanical crimp
- High quality steel
- Each tool comes complete with crimp die



PART NO.	CABLE SIZE	DESCRIPTION	HEX SIZE	REPLACEMENT DIE
24-8789P	RG-58, 59, 62, 58TFE, 59TFE, 62TFE	Crimps BNC-TNC 2 & 3 piece connectors w/ standard crimp rings	.257, .210, .060	99-8789
24-8856P	RG-6, 8, 59, 62	Crimps BNC-TNC 3-piece connectors w/standard crimp ring	.390, .275, .065	99-8856
24-8857P	RG-58/U, 58AU, 174, 139, 185, 188, 316	Crimps BNC-TNC 3-piece connectors w/ standard crimp rings	.235, .128, .065, .042	99-8857
24-8858P	RG-58, 58AU, 59Teflon, 62 Teflon	Crimps BNC-TNC 2 & 3 piece connectors connectors also crimps 1/2"ring F connector	.325, .215, .065	99-8858
24-8859P	RG-59, 62, Belden 8281	Crimps BNC-TNC 2 & 3 piece connectors w/ standard & dual crimp rings	.325, .258, .065	99-8859
24-9858P	RG-58, 59TFE	Crimps BNC-TNC 2-piece connectors	.320, .211	99-9858
24-9958P	RG-58, 58TFE, 59TFE, 141, 142, 223, 400, 303, 55, BELDEN 9907, RG-141	Crimps 3-piece BNC-TNC connectors and Mini-UHF connectors	.213, .067	99-9958
24-9859P	RG-59, 62,	Crimps BNC-TNC 2-piece connectors	.320, .250	99-9859
24-9912P	RG-122, 180, 34M, RG-195, 8218, 174, 188, 179, 187, 316 BELDEN 89907	Crimps 3-piece BNC-TNC connectors	.184, .066	99-9912
24-9959P	RG-59, 62, 450 Proflex, RG-8x	Crimps 3-piece BNC-TNC connectors and Mini-UHF connectors	.255, .065	99-9959

## We have what you are looking for ... and if we don't, we'll design and manufacture it!!!



SMA Jack to Slide-on  
SMB Mated Adapters

Emerson Network Power Connectivity Solutions prides itself in meeting our customers' needs by providing them with customized solutions. We have configured our technical staff and equipped our model shop and QA lab to meet the quick-turn demands of new product development. Prototypes, samples, and short-run quantities are delivered expediently and to print. Your new product development life cycle will be greatly enhanced with us as a partner on your design team.



SMA Bulkhead Jack  
Receptacle



SMB Vertical  
PC Plug

We have an extensive log of special variations of MMCX, MCX, 75 Ohm MCX, SMK, SMA, SMB, Mini-75 Ohm SMB, SMC, BNC, TNC and N connectors. Special cable sizes, cable assemblies, PC board terminations, adapters, antenna connectors, multi-packs, calibration terminations and hardware products give us a large pool of design experience to assist you with custom development. See page 259 for more information on our custom hardware products.



SMB Bulkhead Jack Receptacle

Our sales representatives will review your product application and initiate the quotation process, and our sales and engineering staff will assist you in defining the performance and cost parameters required by your end product. Providing details such as dimensional limitations, frequency, and VSWR performance to our field sales representative will speed the process.

After you have chosen us as your supplier, we can provide samples and a short run quantity prior to production of your custom product. We look forward to providing your special electronic components in the future.



MCX straight cabled Plug 6 position with  
MCX vertical PC mount Jack 6 position

**We do it all...**  
Virtually any RF coaxial connector or RF cable assembly; from the engineering, prototyping and tooling stages, to complete production and testing.

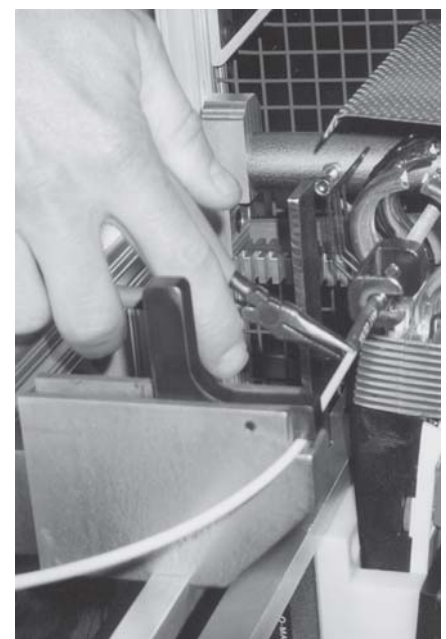
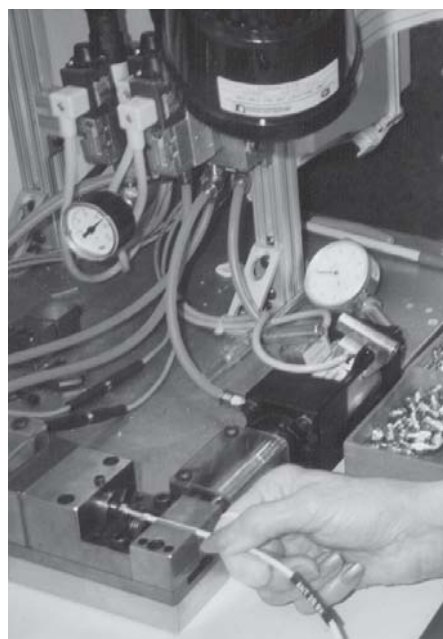
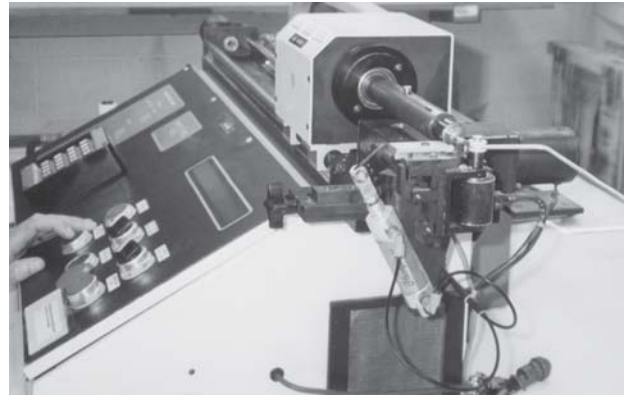
With over 75 years of experience, Emerson Network Power Connectivity Solutions is your interconnect solution for cable assembly design, high quality production and on-time delivery. Our Johnson line of precision cable assemblies includes standard RF coaxial cable assemblies such as flexible, conformable and semi-rigid types for 50 or 75 ohm systems from 0 to 40 GHz. We can work with almost any connector, including our complete line of Johnson connectors including SMK, SMA, SMB, SMC, BNC, TNC, N, F, UHF, Mini-UHF, MCX and MMCX connectors. Cable assemblies manufactured with our RF connectors assure you controlled impedance throughout the cable length. Our skilled personnel adhere to rigorous quality assurance procedures, giving you the cables you need, on time, without hassles.

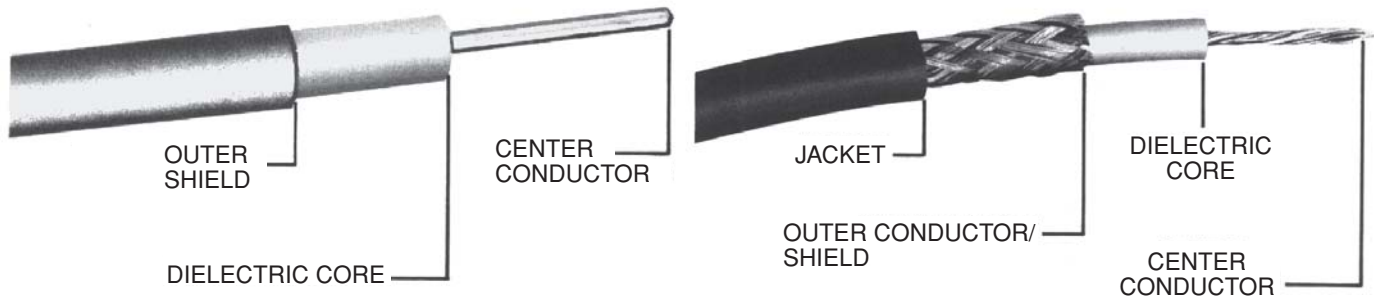
**Backed by test data shipped with the product!** Our assemblies are delivered completely tested to customer specifications and carry our complete customer satisfaction

guarantee. By having us make your cable assemblies, you save the cost of training personnel; discarding damaged parts; cable testing; and replacing faulty inventory. You save on overhead, manufacturing and equipment costs and you receive proven cost effective cable assemblies on time and to your specifications.

We are an industry leader in the RF coaxial connector and electronic hardware market...you can rely on Emerson Network Power Connectivity Solutions for all your assembly needs.

**We're responsive, reliable and ready to work with you.**





Semi-Rigid Cable Dimensions				
CABLE	CENTER CONDUCTOR O.D.	O.D. DIELECTRIC	O.D. SHIELD	IMPEDANCE
RG-405/U	.0201 (0.51)	.0658 (1.67)	.086 (2.18)	50
RG-402/U	.0359 (0.91)	.1175 (2.98)	.141 (3.58)	50

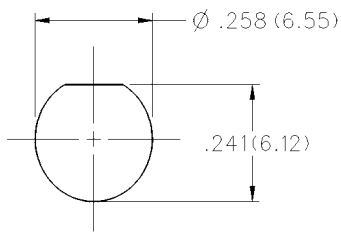
RF Flexible Cable Dimensions					
CABLE	CENTER CONDUCTOR	O.D. DIELECTRIC	O.D. SHIELD	O.D. JACKET	IMPEDANCE
.047 dia.	.007 (0.19)	.020 (0.52)	.035 (0.90)	.047 (1.20)	50
RG-178B/U	.012 (.030)	.034 (0.86)	.054 (1.37)	.071 (1.80)	50
RG-196A/U	.012 (.030)	.034 (0.86)	.054 (1.37)	.071 (1.80)	50
RG-174/U	.019 (0.48)	.060 (1.52)	.080 (2.03)	.110 (2.79)	50
RG-179B/U	.012 (.030)	.063 (1.60)	.084 (2.13)	.110 (2.79)	75
RG-187A/U	.012 (.030)	.060 (1.52)	.084 (2.13)	.110 (2.79)	75
RG-188A/U	.020 (0.51)	.060 (1.52)	.081 (2.036)	.110 (2.79)	50
RG-316/U	.020 (0.51)	.060 (1.52)	.081 (2.06)	.110 (2.79)	50
RG-316 DS	.020 (0.51)	.060 (1.52)	(DS) .100 (2.54)	.120 (3.05)	50
RG-179 DS	.012 (.030)	.063 (1.60)	(DS) .103 (2.62)	.120 (3.05)	75
RG-187 DS	.012 (.030)	.060 (1.52)	(DS) .100 (2.54)	.120 (3.05)	75
RG-188 DS	.020 (0.51)	.060 (1.52)	(DS) .100 (2.54)	.120 (3.05)	50
RG-141A/U	.039 (0.99)	.116 (2.95)	.146 (3.71)	.190 (4.83)	50
RG-303/U	.039 (0.96)	.116 (2.95)	.146 (3.71)	.190 (4.83)	50
RG-400/U	.038 (0.96)	.116 (2.95)	(DS) .171 (4.34)	.195 (4.85)	50
RG-142B/U	.039 (0.99)	.116 (2.95)	(DS) .171 (4.34)	.195 (4.95)	50
RG-58C/U	.038 (0.96)	.116 (2.95)	.150 (3.81)	.195 (4.95)	50
RG-55B/U	.032 (0.81)	.116 (2.95)	(DS) .176 (4.47)	.206 (5.23)	53.5
RG-223/U	.032 (0.81)	.116 (2.95)	(DS) .176 (4.47)	.206 (5.23)	53.5
LMR-100	.022 (.056)	.062 (1.57)	.085 (2.16)	.105 (2.67)	50
LMR-195	.037 (0.94)	.110 (2.79)	.139 (3.53)	.195 (4.95)	50
LMR-200	.044 (1.12)	.116 (2.95)	.144 (3.66)	.195 (4.95)	50
LMR-240	.056 (1.42)	.150 (3.81)	.178 (4.52)	.240 (6.10)	50
735A	.016 (0.41)	.077 (1.96)	.101 (2.57)	.128 (3.25)	75
RG-59	.0226 (0.57)	.146 (3.71)	.191 (4.85)	.242 (6.15)	75

(DS = Double Braid)

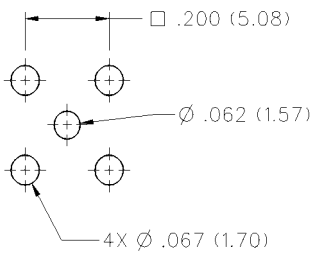


## Recommended Mounting Hole Dimensions

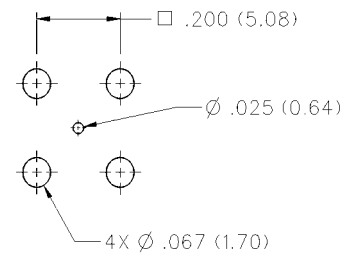
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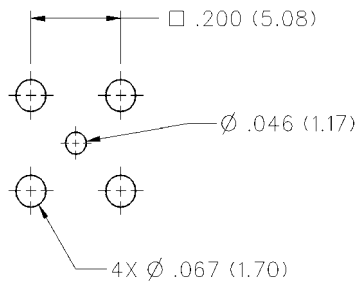
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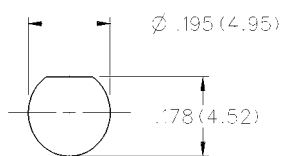
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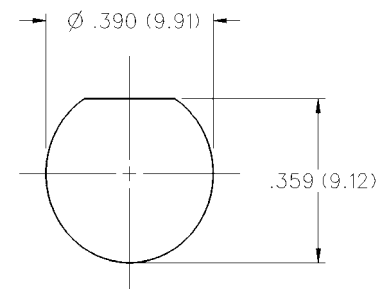
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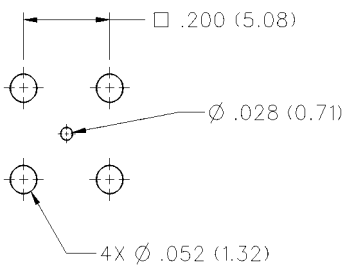
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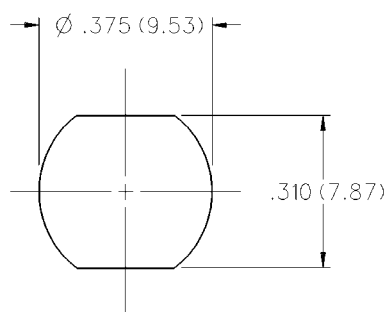
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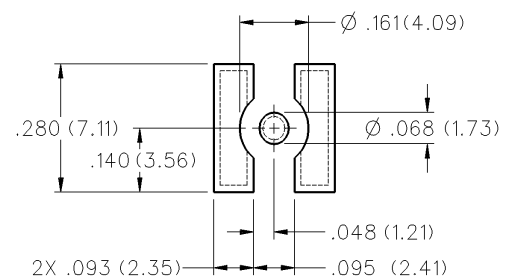
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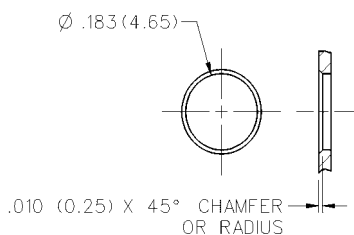
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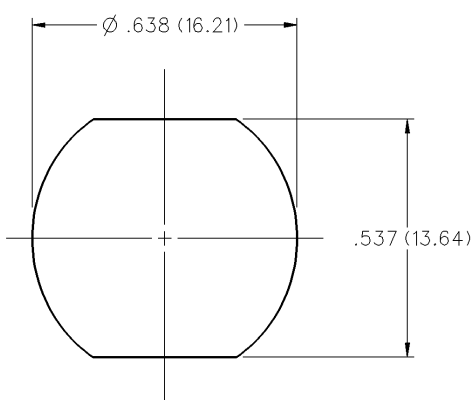
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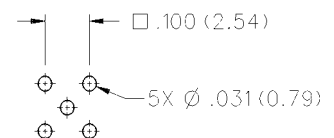
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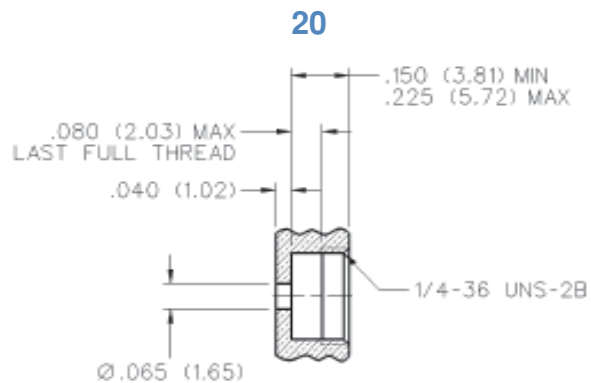
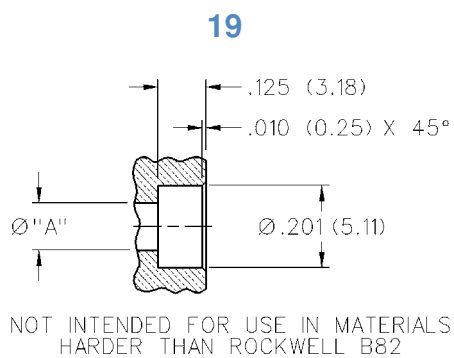
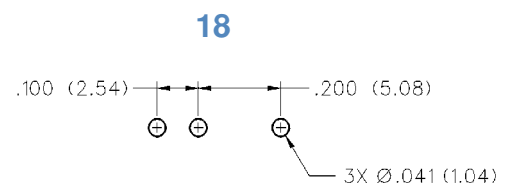
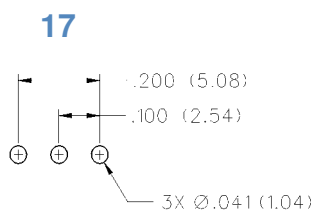
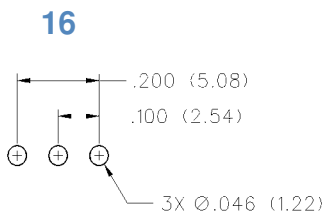
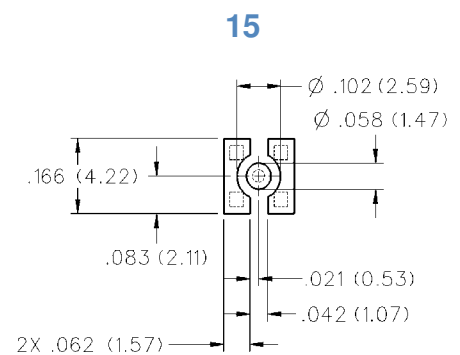
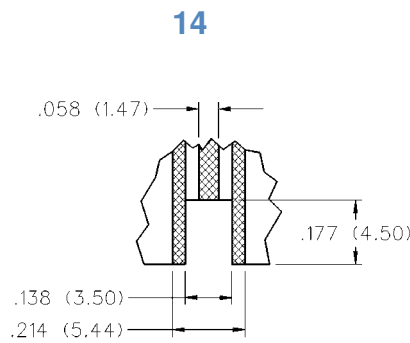
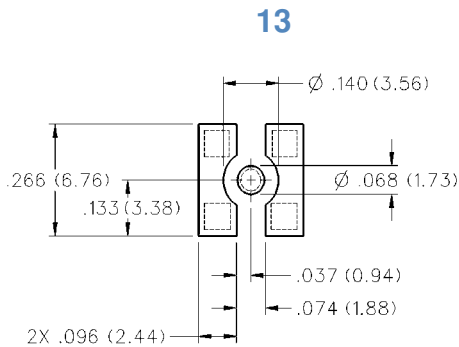
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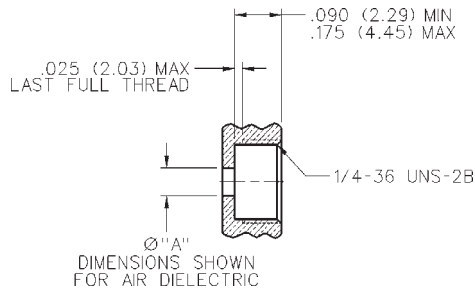
## Recommended Mounting Hole Dimensions



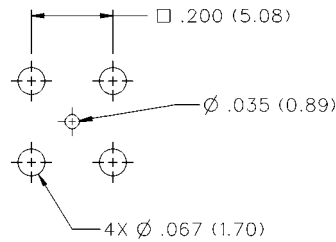
PART NO.	"A"
142-0701-481/486	.116 (2.95)
142-1721-001/026	.116 (2.95)
142-1721-031/056	.162 (4.11)
142-1721-011/016	.069 (1.75)
142-1721-021/026	.116 (2.95)

## Recommended Mounting Hole Dimensions

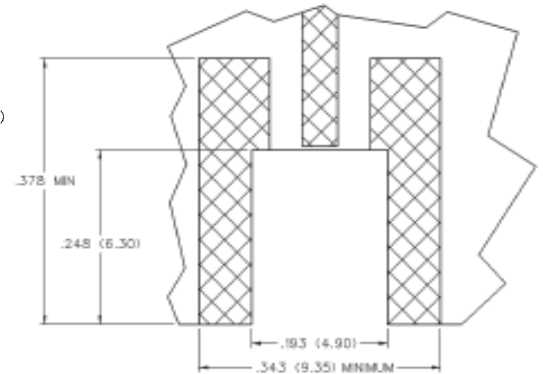
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22

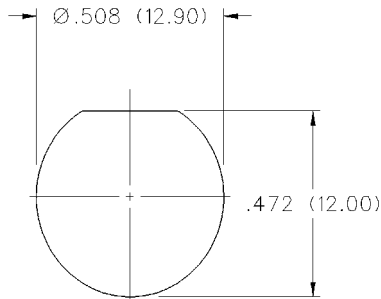


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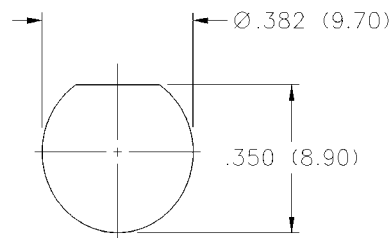


PART NO.	"A"
142-1731-001/006	.046 (1.17)
142-1731-011/016	.083 (2.11)
142-1731-041/046	.116 (2.95)

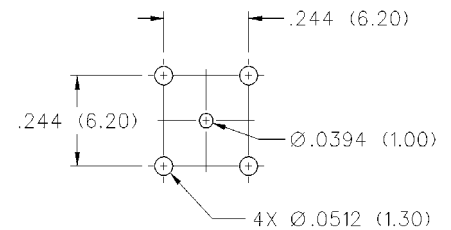
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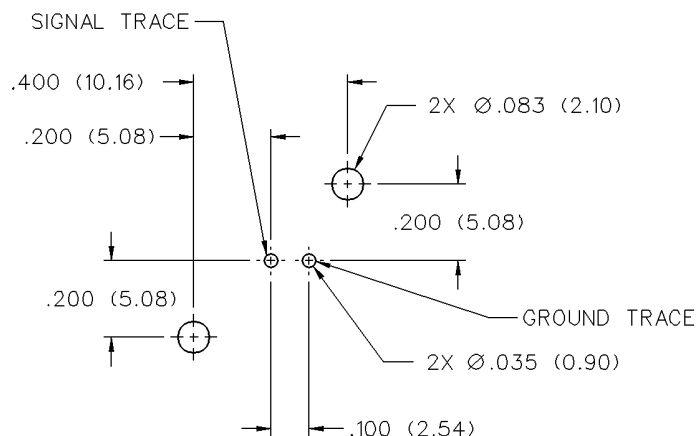
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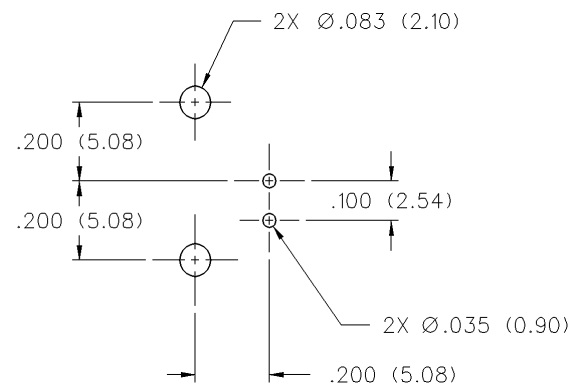
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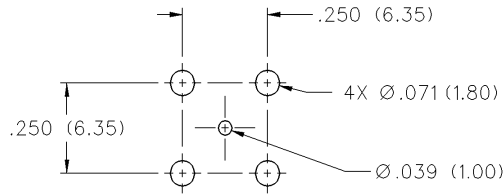


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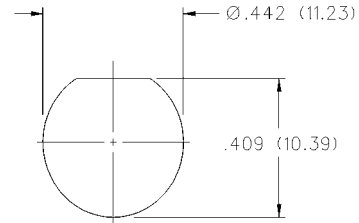


## Recommended Mounting Hole Dimensions

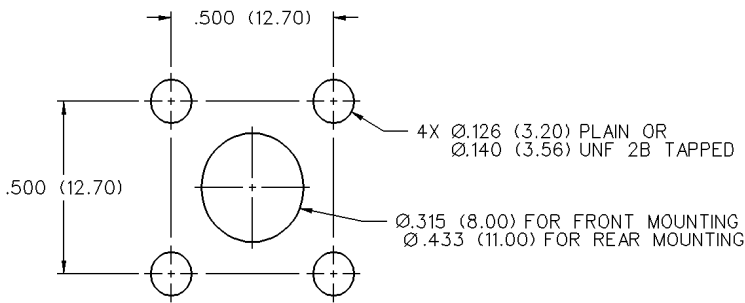
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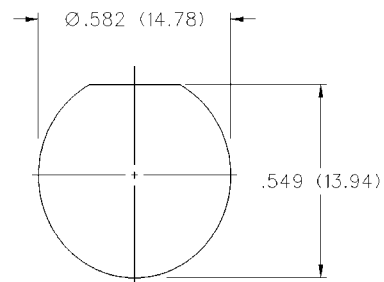
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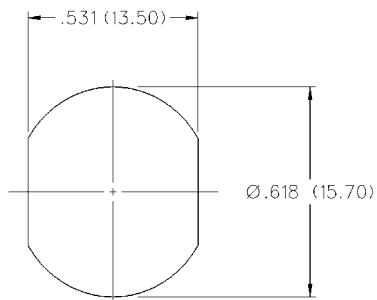
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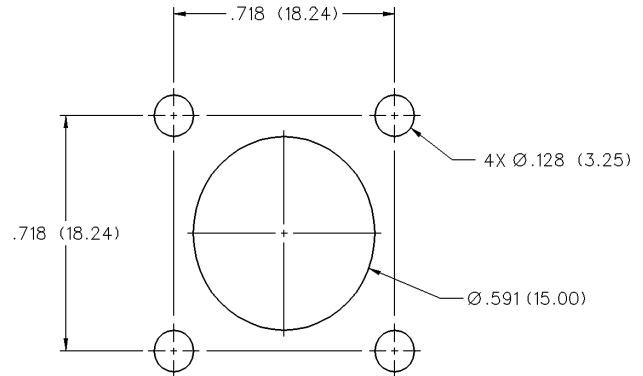
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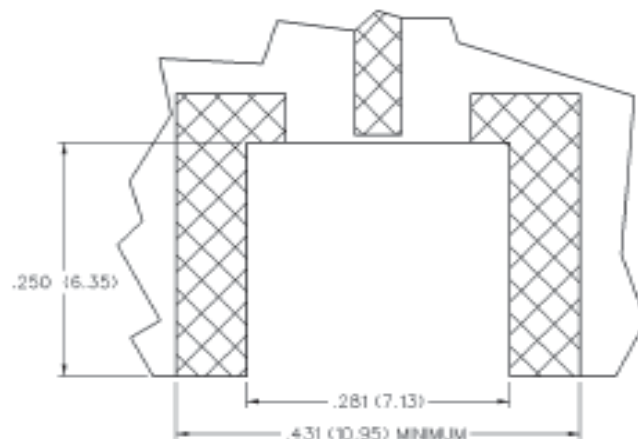
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**34**



**35**



131-1402-101 ..... 240	131-6404-001 ..... 239	133-3404-001 ..... 216	135-3436-001 ..... 210
131-1402-116 ..... 240	131-6404-006 ..... 239	133-3404-006 ..... 216	135-3436-101 ..... 208
131-1403-001 ..... 240	131-6404-101 ..... 240	133-3404-101 ..... 218	135-3693-101 ..... 207
131-1403-016 ..... 239	131-6404-106 ..... 240	133-3404-106 ..... 218	140-0000-957 ..... 220
131-1403-101 ..... 240	131-6433-001 ..... 239	133-3407-101 ..... 218	140-0000-958 ..... 220
131-1403-116 ..... 240	131-6433-006 ..... 239	133-3407-106 ..... 218	140-0000-960 ..... 220
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131-1404-116 ..... 240	131-6593-406 ..... 237	133-3433-106 ..... 218	142-0002-226 ..... 242
131-1693-101 ..... 238	131-8303-401 ..... 239	133-3693-001 ..... 214	142-0002-811 ..... 244
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131-3302-006 ..... 237	131-8304-406 ..... 239	133-3693-106 ..... 215	142-0003-206 ..... 242
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131-3303-406 ..... 239	131-8403-016 ..... 239	133-5303-406 ..... 216	142-0003-246 ..... 242
131-3303-501 ..... 240	131-8403-101 ..... 240	133-5304-401 ..... 216	142-0003-301 ..... 243
131-3303-506 ..... 240	131-8403-106 ..... 240	133-5304-406 ..... 216	142-0003-306 ..... 243
131-3304-401 ..... 239	131-8403-111 ..... 240	133-5402-001 ..... 216	142-0003-801 ..... 244
131-3304-406 ..... 239	131-8403-116 ..... 240	133-5402-006 ..... 216	142-0003-811 ..... 244
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131-3402-001 ..... 239	131-8404-011 ..... 239	133-5403-001 ..... 216	142-0004-211 ..... 242
131-3402-016 ..... 239	131-8404-016 ..... 239	133-5403-006 ..... 216	142-0004-216 ..... 242
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131-3403-401 ..... 239	131-8409-106 ..... 240	133-8333-401 ..... 217	142-0007-811 ..... 244
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131-3593-406 ..... 237	133-3302-406 ..... 216	134-0307-406 ..... 241	142-0202-011 ..... 234
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131-6303-406 ..... 239	133-3304-406 ..... 216	135-3336-401 ..... 213	142-0207-011 ..... 234
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131-6304-406 ..... 239	133-3402-006 ..... 216	135-3402-101 ..... 208	142-0207-101 ..... 235
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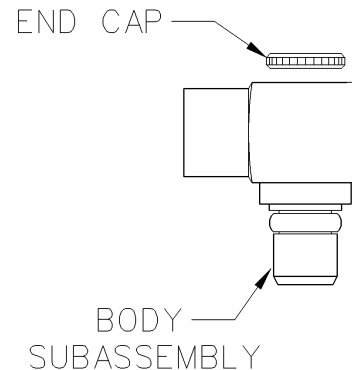
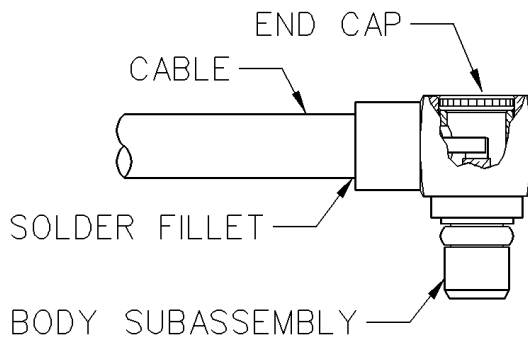
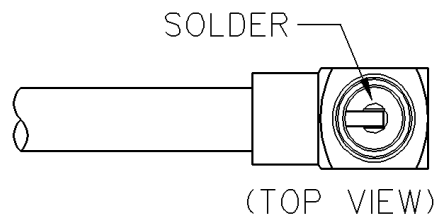
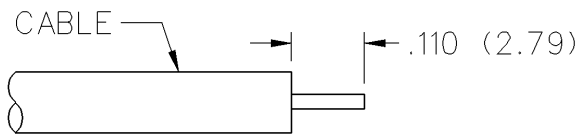
# Assembly Instructions

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

142-0302-436	228	142-0439-106	233	142-4439-006	230	CPFI-UG88-5	251
142-0303-011	229	142-0593-001	222	142-4439-101	233	CPFI-UG88-10	251
142-0303-016	229	142-0593-006	222	142-4439-106	233	CPFI-UG89-2	251
142-0303-401	231	142-0593-401	222	142-5303-401	229	CPL-259-1	256
142-0303-406	231	142-0593-406	222	142-5303-406	229	CPL-259-2	256
142-0303-411	229	142-0593-411/416	222	142-5304-401	229	CPL-259-7	256
142-0303-416	229	142-0594-001	222	142-5304-406	229	CPL-259-8	256
142-0304-011	229	142-0594-006	222	142-5307-401	229	CPL-259-9	256
142-0304-016	229	142-0594-401	222	142-5307-406	229	CPL-259-10	256
142-0304-401	231	142-0594-406	222	142-5308-401	229	CPL-259-17	256
142-0304-406	231	142-0693-001	222	142-5308-406	229	CPL-259-18	256
142-0304-411	229	142-0693-006	222	142-5403-001	229	CPM-88-19	247
142-0304-416	229	142-0693-051	226	142-5403-006	229	CPM-88-19A/S	247
142-0307-011	229	142-0693-056	226	142-5403-101	232	CPM-88-20	247
142-0307-016	229	142-0693-101	221	142-5403-106	232	CPM-TNC-19	247
142-0307-401	231	142-0693-106	221	142-5404-001	229	CPM-TNC-20	247
142-0307-406	231	142-0694-001	222	142-5404-006	232	CPMC-68-2	252
142-0307-411	229	142-0694-006	222	142-5404-101	232	CPMC-68-3	252
142-0307-416	229	142-0694-011	223	142-5404-106	232	CPMC-68-5	252
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142-0308-016	229	142-0694-021	224	142-5407-006	229	CPMC-68-18	252
142-0308-401	231	142-0694-026	224	142-5407-101	232	CPMC-68-20	252
142-0308-406	231	142-0694-031	225	142-5407-106	232	CPMC-68-33	252
142-0308-411	229	142-0694-036	225	142-5408-001	229	CPMC-68-34	252
142-0308-416	229	142-0694-041	224	142-5408-006	229	CPMC-68-35	252
142-0333-011	229	142-0694-046	224	142-5408-101	233	CPMC-68-36	252
142-0333-016	229	142-0694-051	226	142-5408-106	233	CPMC-68-45	252
142-0333-411	229	142-0694-056	226	142-5435-001	230	CPMC-68-50	252
142-0333-416	229	142-0694-101	221	142-5435-006	230	CPMC-78-2	246
142-0335-401	230	142-0694-106	221	142-5435-101	233	CPMC-78-5	246
142-0335-406	230	142-0801-421	227	142-5435-106	233	CPMC-78-10	246
142-0339-401	230	142-1403-001/006	229	142-5439-001	230	CPMC-78-18	246
142-0339-406	230	142-1404-001/006	229	142-5439-006	230	CPMC-88-1	246
142-0402-011	228	142-1404-001/006	229	142-5439-101	233	CPMC-88-2	246
142-0402-016	228	142-1407-001/006	229	142-5439-106	233	CPMC-88-3	246
142-0402-101	232	142-1408-001/006	229	142-9403-101	232	CPMC-88-5	246
142-0402-106	232	142-4303-401	229	142-9404-101	232	CPMC-88-10	246
142-0403-001	231	142-4303-406	229	142-9407-101	232	CPMC-88-11	246
142-0403-006	231	142-4304-401	229	CP-78-2	250	CPMC-88-13	246
142-0403-011	229	142-4304-406	229	CP-78-5	250	CPMC-88-14	246
142-0403-016	229	142-4307-401	229	CP-78-10	250	CPMC-88-17	246
142-0403-101	232	142-4307-406	229	CP-79-20BM1	249	CPMC-88-18	246
142-0403-106	232	142-4308-401	229	CP-79-20BM2	249	CPMC-88-19	246
142-0404-011	229	142-4308-406	229	CP-TNC-89-19-BM	253	CPMC-88-21	248
142-0404-016	229	142-4403-001	229	CP-88-1	250	CPMC-88-26	246
142-0404-101	232	142-4403-006	229	CP-88-2	250	CPMC-TNC-1	253
142-0404-106	232	142-4403-101	232	CP-88-3	250	CPMC-TNC-2	253
142-0407-011	229	142-4403-106	232	CP-88-4	250	CPMC-TNC-13	253
142-0407-016	229	142-4404-001	229	CP-88-5	250	CPMC-TNC-16	253
142-0407-101	232	142-4404-006	229	CP-88-10	250	CPMC-TNC-17	253
142-0407-106	232	142-4404-101	232	CP-89-1	250	CPN-1	255
142-0408-011	229	142-4404-106	232	CP-89-2	250	CPN-2	255
142-0408-016	229	142-4407-001	230	CP-89-19BM1	249	CPN-8	255
142-0408-101	232	142-4407-006	229	CP-89-27BM2	249	CPN-8/110	255
142-0433-011	229	142-4407-101	232	CP-SW88-2	250	CPN-16	255
142-0433-016	229	142-4407-106	232	CP-SW88-10	250	CPN-17	255
142-0433-101	232	142-4408-001	229	CP-SW88-21	250	CPN-142T	255
142-0433-106	232	142-4408-006	229	CP-SW88-23	250	CPN-68-1	254
142-0435-001	230	142-4408-101	232	CPF-249-1	257	CPN-68-8	254
142-0435-006	230	142-4408-106	232	CPFI-UG78-2	251	CPN-68-13	254
142-0435-101	233	142-4435-001	230	CPFI-UG78-5	251	MINI-UHF-1	258
142-0435-106	233	142-4435-006	230	CPFI-UG88-1	251	MINI-UHF-1B	258
142-0439-001	230	142-4435-101	231	CPFI-UG88-2	251	MINI-UHF-2	258
142-0439-006	230	142-4435-106	231	CPFI-UG88-3	251	MINI-UHF-16	258
142-0439-101	233	142-4439-001	230	CPFI-UG88-4	251	MINI-UHF-17	258

## MMCX Right Angle Plug for .086 (2.18) Semi-Rigid Cable

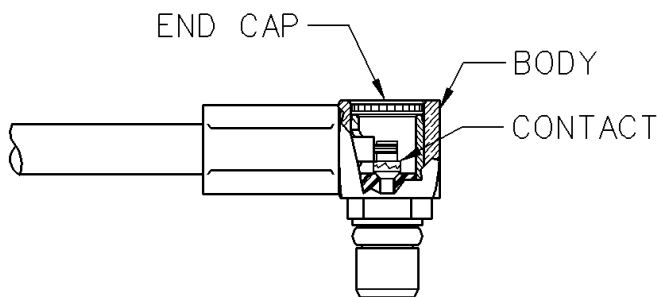
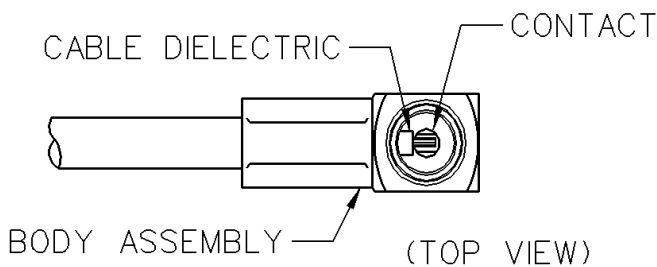
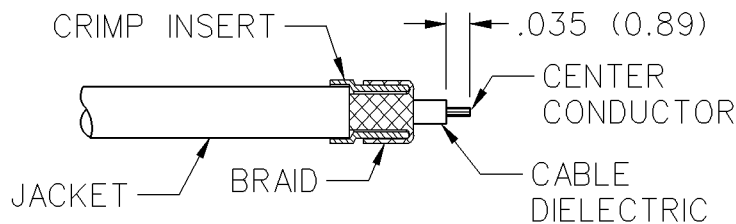
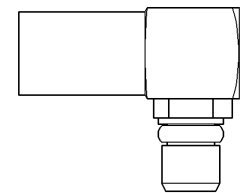
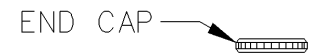
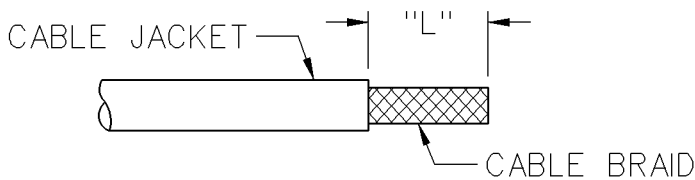
CABLE GROUP	PART NO.
RG-405/U (.086 Semi-Rigid)	135-3693-101



1. Identify piece parts. (2 piece parts)
2. Strip cable to dimensions shown. Do not nick center conductor.
3. Insert cable into body making certain that jacket bottoms on the connector body. Fixture cable and assembly to prevent movement during soldering.
4. Solder center conductor to contact as shown. Use a minimum amount of solder for a good joint.
5. Solder body to cable as shown. Use a minimum amount of heat to minimize cable insulation movement.
6. Press end cap into body access port using .156 (3.96) diameter flat punch or Johnson assembly tool 141-0000-910.

## MMCX Right Angle Plug for .047 (1.20) Diameter and RG-178 Size Flexible Cable with Crimp Insert

CABLE GROUP	PART NO.	"L"	CRIMP HEX
.047 Flexible	135-3436-101	.140 (3.56)	.105 (2.67)
RG-178/U, 196	135-3402-101	.188 (4.78)	.105 (2.67)

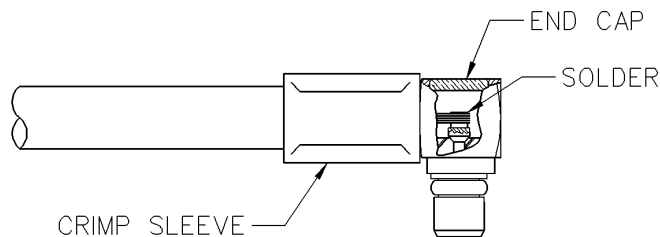
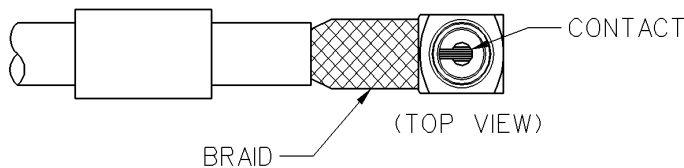
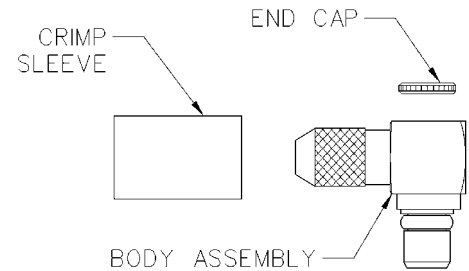
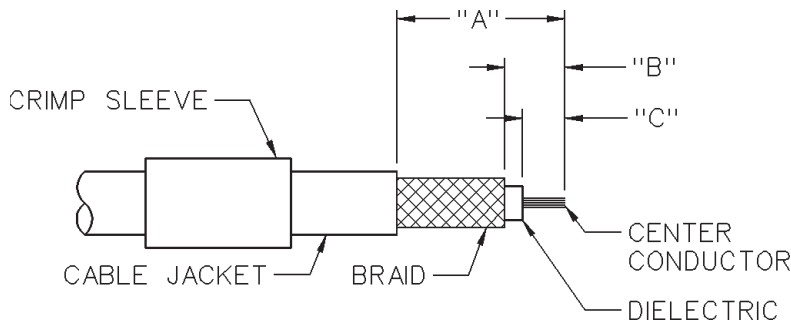


1. Identify piece parts. (3 piece parts)
2. Strip cable jacket to dimensions shown. Do not nick braid or center conductor during strip operations.
3. Slide crimp insert over braid and against jacket. Fold braid around crimp insert as shown. Strip cable dielectric to dimension shown. Tin center conductor.
4. Slide body assembly over cable and crimp insert, then seat firmly so cable dielectric butts against contact as shown. Crimp body using recommended crimp hex. Maintain forward pressure on cable while crimping.
5. Solder contact to center conductor through rear access port. Use a minimum amount of solder for a full fillet joint.
6. Press end cap into access port using .156 (3.96) diameter flat punch or Johnson assembly tool 141-0000-910.



## MMCX Right Angle Plug for RG-178, RG-316, RG-316 DS and RG-179 Size Flexible Cable

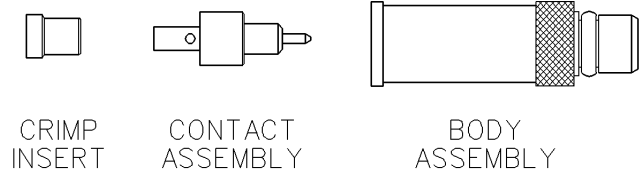
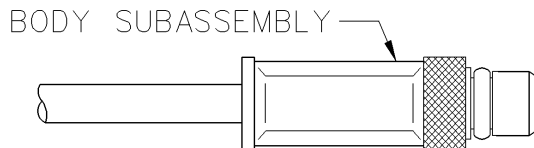
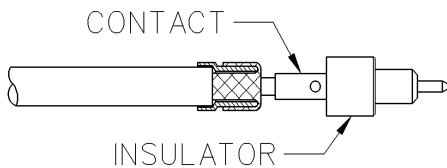
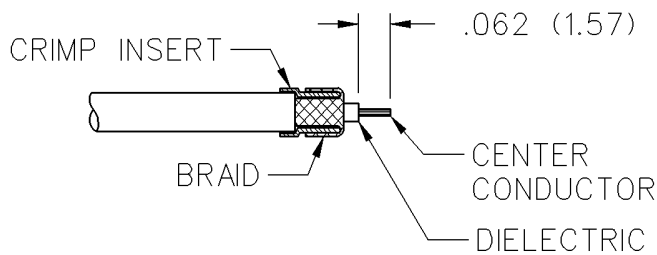
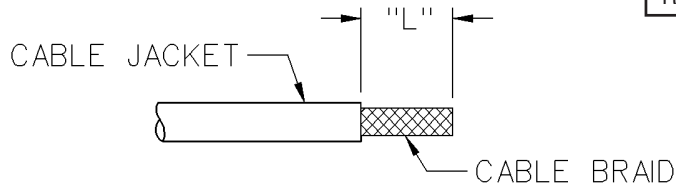
CABLE GROUP	PART NO.	CRIMP HEX	"A"	"B"	"C"
RG-178, 196	135-3402-111	.105 (2.67)	.310	.100	.035
RG-316/U, 188, 187, 179	135-3403-101	.128 (3.25)	.295	.105	.075
RG-316 DS, 188 DS	135-3404-101	.151 (3.83)	.295	.105	.075



1. Identify piece parts. (3 piece parts)
2. Strip cable jacket to dimensions shown. Do not nick braid or center conductor during strip operations. Tin center conductor. Slide crimp sleeve onto cable jacket.
3. Flair braid and assemble crimp stem of body subassembly under braid onto cable making certain that the cable center conductor enters contact slot as shown. Arrange braid uniformly around crimp stem. Slide crimp sleeve over braid and crimp securely using recommended crimp hex.
4. Solder center conductor to contact through rear access port. Use a minimum amount of solder for a full fillet joint.
5. Press end cap into body access port using .156 (3.96) diameter flat punch or Johnson assembly tool 141-0000-910.

## MMCX Straight Plug for .047 (1.19) Diameter and RG-178 Size Flexible Cable

CABLE GROUP	PART NO.	"L"	CRIMP HEX
.047 Flexible	135-3436-001	.135 (3.43)	.105 (2.67) x .250 (6.35) W
RG-178/U, 196	135-3402-001	.184 (4.67)	.105 (2.67) x .250 (6.35) W



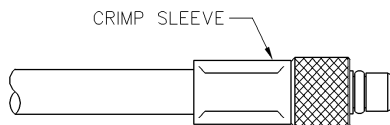
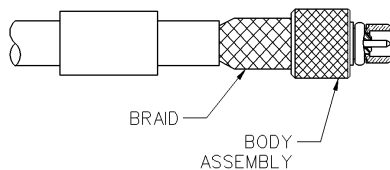
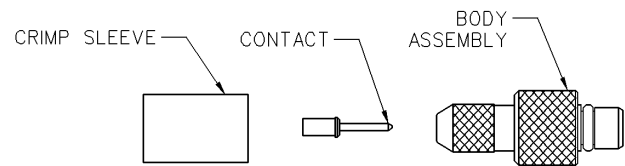
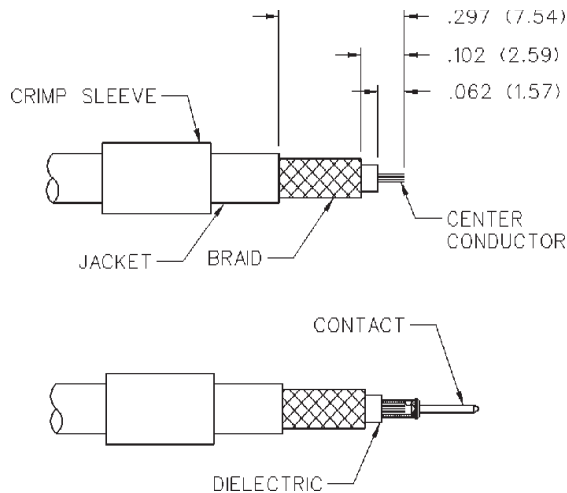
1. Identify piece parts. (3 piece parts)
2. Strip cable jacket to dimensions shown. Do not nick braid or center conductor during strip operations.
3. Slide crimp insert over braid and against jacket, fold braid around crimp insert as shown. Strip dielectric to dimension shown. Tin center conductor if contact is to be soldered attached. Do not tin center conductor if contact is to be crimp attached.
4. Assemble contact assembly onto cable as shown.
 

**Solder attachment:** Solder contact to center conductor. Care should be taken that excess solder is not applied.

**Crimp attachment:** Crimp contact to center conductor using Johnson hand tool 140-0000-952 and die set 140-0000-953. Crimp location should be centered between end of contact and cross-hole. Crimp attachment to solid center conductor cables is not recommended.
5. Slide body assembly over contact and crimp insert, then seat firmly as shown. Crimp body using recommended crimp die hex. Maintain forward pressure on cable while crimping.

## MMCX Straight Plug for RG-316, RG-179 and RG-316 DS Size Flexible Cable

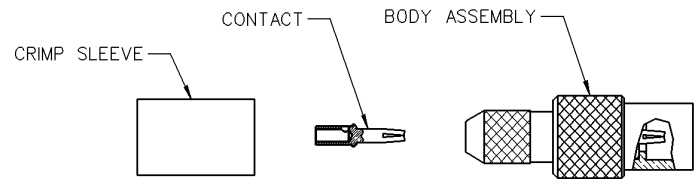
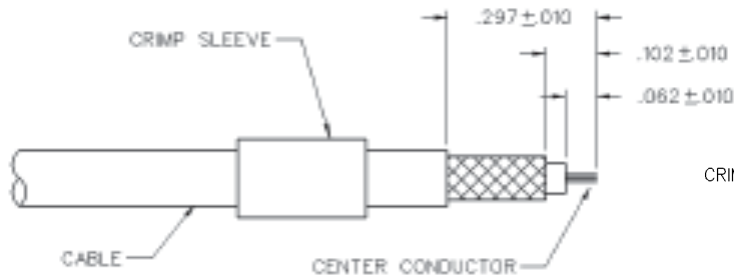
CABLE GROUP	PART NO.	CRIMP HEX
RG-316/U, 188, 161, 174	135-3403-001	.128 (3.25)
RG-316 DS, 188 DS, 187 DS	135-3404-001	.151 (3.83)
RG-179/U, 187	135-3433-001	.128 (3.25)



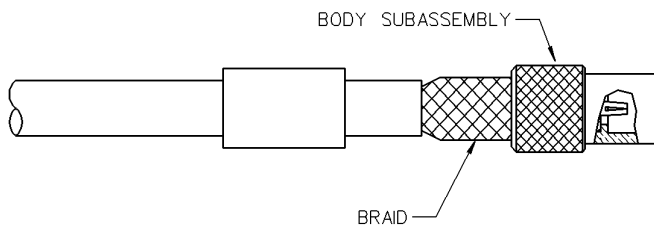
1. Identify connector parts. (3 piece parts)
2. Strip cable jacket to dimensions shown. Do not nick braid or center conductor during strip operations. Tin center conductor if contact will be solder attached. Do not tin center conductor if contact is to be crimp attached. Slide crimp sleeve onto cable jacket.
3. Assemble contact onto cable as shown.
  - Solder attachment:** Solder contact to center conductor. Care should be taken that excess solder is not applied.
  - Crimp attachment:** Crimp contact to center conductor using Johnson hand tool 140-0000-952 and die set 140-0000-953. Crimp location should be centered between end of contact and cross-hole. Crimp attachment to solid center conductor cables is not recommended.
4. Slide body assembly over contact and under braid, then seat firmly onto contact as shown. The body assembly will "snap" over the contact barb. The cable may have to be held in a soft jawed clamping fixture. Slide crimp sleeve forward and crimp using recommended crimp die hex.

## MMCX Straight Jack for RG-316, RG-316 DS and RG-179 Size Flexible Cable

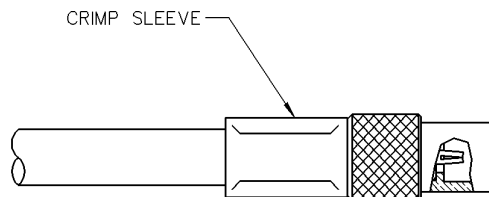
CABLE GROUP	PART NO.	CRIMP HEX
RG-316/U, 188, 161, 174	135-3303-001	.128 (3.25)
RG-316 DS, 188 DS, 187 DS	135-3304-001	.151 (3.83)
RG-179/U, 187	135-3333-001	.128 (3.25)



1. Identify connector parts. (3 piece parts)
2. Strip cable jacket to dimensions shown. Do not nick braid or center conductor during strip operations. Tin center conductor if contact will be solder attached. Do not tin center conductor if contact is to be crimp attached. Slide crimp sleeve onto cable jacket.



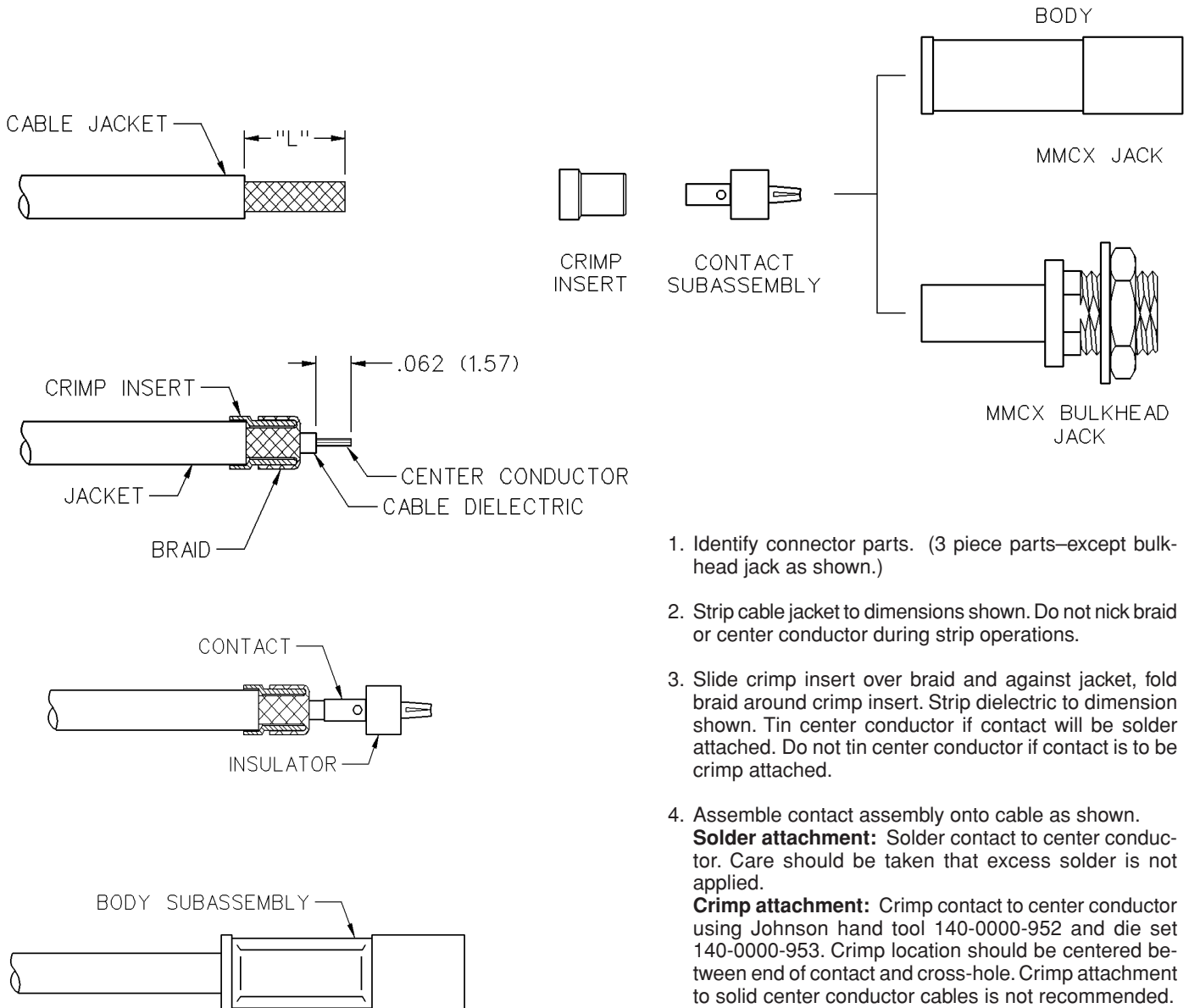
3. Assemble contact onto cable.  
**Solder attachment:** Solder contact to center conductor. Care should be taken that excess solder is not applied.  
**Crimp attachment:** Crimp contact to center conductor using Johnson hand tool 140-0000-952 and die set 140-0000-953. Crimp location should be centered between end of contact and cross-hole. Crimp attachment to solid center conductor cables is not recommended.



4. Slide body assembly over contact and under braid, then seat firmly onto contact. The body assembly will "snap" over the contact barb. The cable may have to be held in a soft jawed clamping fixture. Slide crimp sleeve forward and crimp using recommended crimp die hex.

## MMCX Straight Jack for .047 Diameter and RG-178 Size Flexible Cable

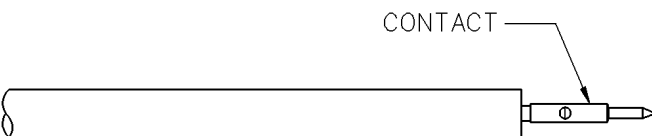
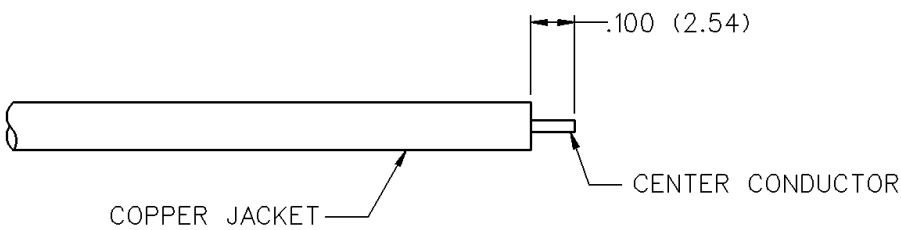
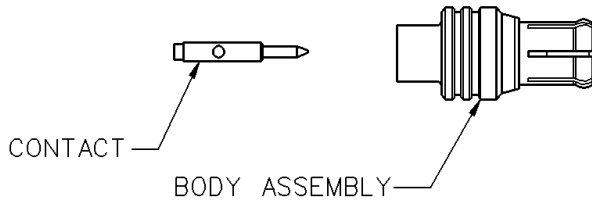
CABLE GROUP	PART NO.	"L"	CRIMP HEX
.047 Flexible	135-3336-001	.135 (3.43)	.105 (2.67) x .250 (6.35) W
	135-3336-401	.135 (3.43)	.105 (2.67) x .250 (6.35) W
RG-178/U, 196	135-3302-001	.185 (4.67)	.105 (2.67) x .250 (6.35) W
	135-3302-401	.185 (4.67)	.105 (2.67) x .250 (6.35) W



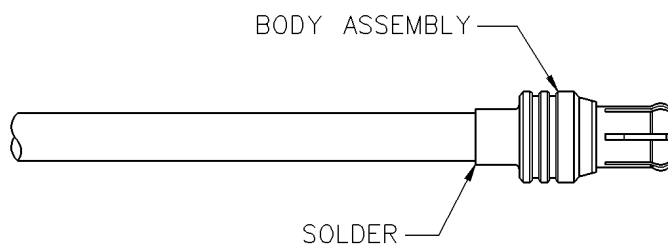
1. Identify connector parts. (3 piece parts—except bulk-head jack as shown.)
2. Strip cable jacket to dimensions shown. Do not nick braid or center conductor during strip operations.
3. Slide crimp insert over braid and against jacket, fold braid around crimp insert. Strip dielectric to dimension shown. Tin center conductor if contact will be solder attached. Do not tin center conductor if contact is to be crimp attached.
4. Assemble contact assembly onto cable as shown.
  - Solder attachment:** Solder contact to center conductor. Care should be taken that excess solder is not applied.
  - Crimp attachment:** Crimp contact to center conductor using Johnson hand tool 140-0000-952 and die set 140-0000-953. Crimp location should be centered between end of contact and cross-hole. Crimp attachment to solid center conductor cables is not recommended.
5. Slide body assembly over contact and crimp insert, then seat firmly onto contact. Crimp body using recommended crimp hex. Bulkhead jack requires 140-000-951 die set. Maintain forward pressure on cable while crimping.

## MCX Solder Type Straight Plug for Semi-Rigid Cable

CABLE TYPE	PART NO.
RG-405/U	133-3693-001
(.086 Semi-Rigid)	133-3693-006

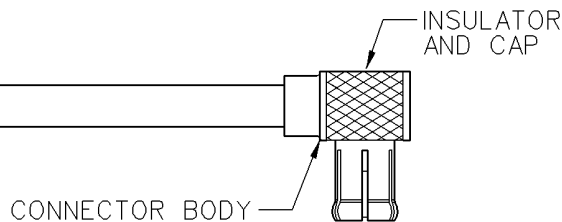
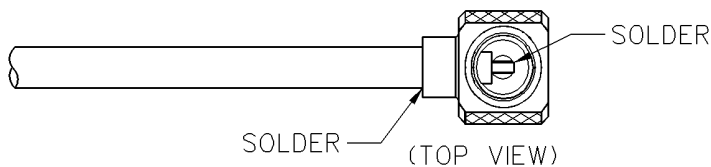
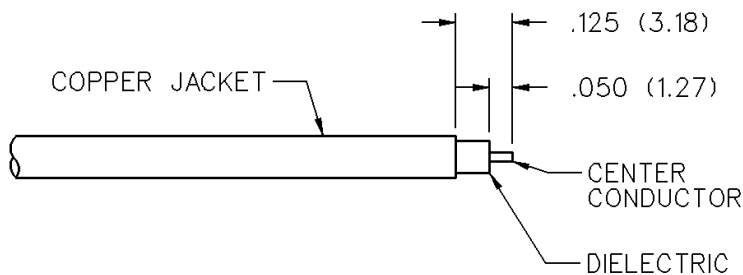
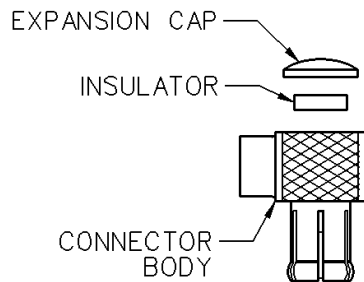


1. Identify connector parts. (2 piece parts)
2. Strip cable to dimensions shown. Do not nick center conductor.
3. Place center contact on center conductor making sure contact bottoms against cable insulation. Solder center conductor to center contact through solder hole. Solder **must not** be allowed to run on outside of contact. Use a minimum amount of solder for a good joint. **.020 (0.51) diameter solder is recommended.** Trim excess insulation.
4. Insert contact and cable into body assembly making sure cable is bottomed against insulator in body. Solder body to cable. Use a minimum amount of heat to minimize cable insulation movement.



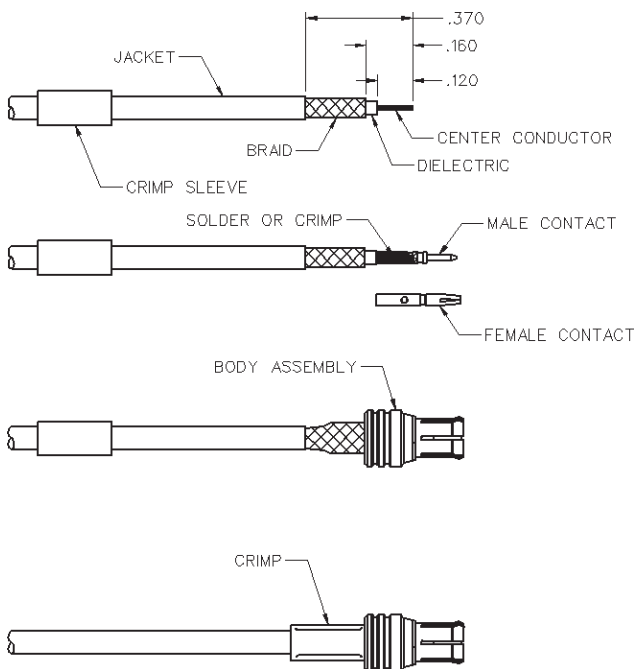
## MCX Solder Type Right Angle Plug for Semi-Rigid Cable

CABLE GROUP	PART NO.
RG-405/U	133-3693-101
(.086 Semi-Rigid)	133-3693-106

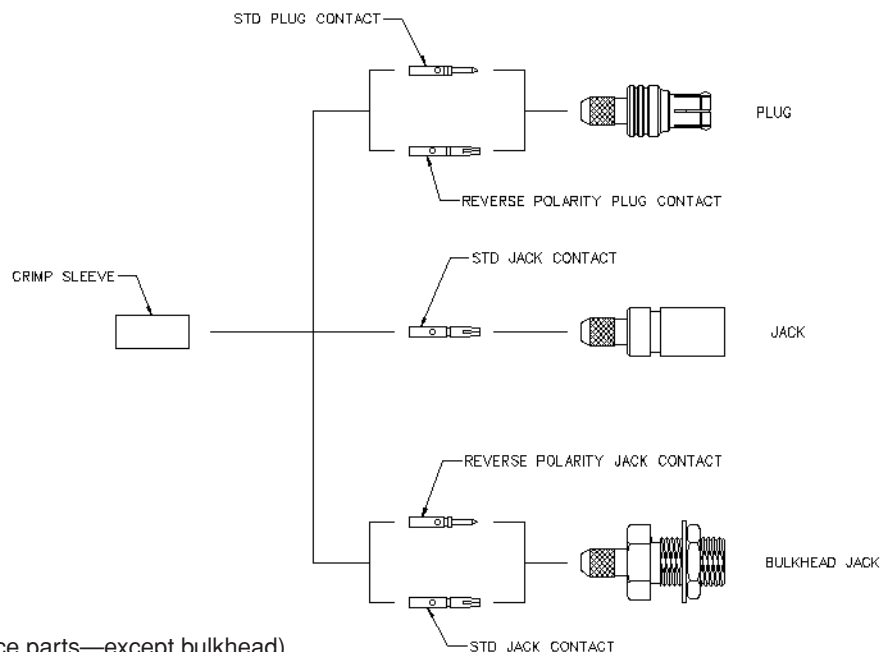


1. Identify connector parts. (3 piece parts)
2. Strip cable to dimensions shown. Do not nick center conductor.
3. Insert cable into body making sure cable insulation bottoms on center contact. Solder center conductor to contact through the rear access port. Use a minimum amount of solder for a good joint. **.020 (0.51) diameter solder is recommended.**
4. Solder body to cable. Use a minimum amount of heat to minimize cable insulation movement. Assemble insulator then place expansion cap in access port and seat with a .156 (3.96) diameter punch or hand tool 141-0000-908.

## MCX Crimp Type Straight Connectors for Flexible Cable



CABLE GROUP	PART NO.	CRIMP HEX
RG-178/U, 196	133-3302-001/006	.105 (2.67)
	133-3302-401/406	.105 (2.67)
RG-316/U, 161, 174, 188	133-3303-001/006	.128 (3.25)
	133-3303-401/406	.128 (3.25)
RG-316 DS, 188 DS	133-3304-001/006	.151 (3.83)
	133-3304-401/406	.151 (3.83)
RG-178/U, 196	133-3402-001/006	.105 (2.67)
RG-316/U, 161, 174, 188	133-3403-001/006	.128 (3.25)
RG-316 DS, 188 DS	133-3404-001/006	.151 (3.83)
RG-179/U, 187	133-3433-001/006	.128 (3.25)
RG-178/U, 196	133-5302-401/406	.105 (2.67)
RG-316/U, 161, 174, 188	133-5303-401/406	.128 (3.25)
RG-316 DS, 188 DS	133-5304-401/406	.151 (3.83)
RG-178/U, 196	133-5402-001/006	.105 (2.67)
RG-316/U, 161, 174, 188	133-5403-001/006	.128 (3.25)
RG-316 DS, 188 DS	133-5404-001/006	.151 (3.83)
RG-316/U, 188, 174	133-9403-001	.128 (3.25)
RG-316 DS, 188 DS	133-9404-001	.151 (3.83)

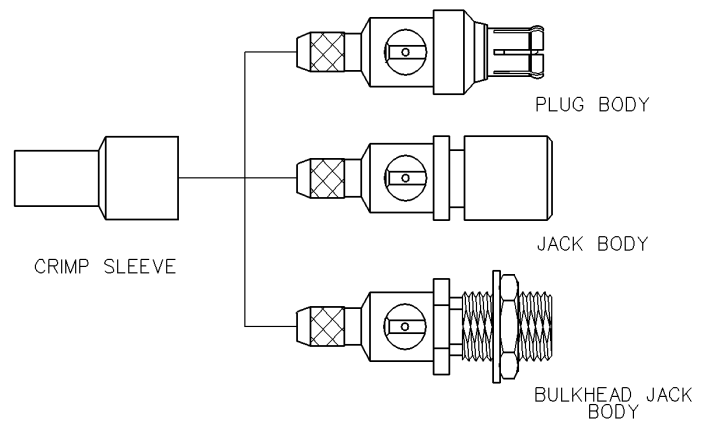
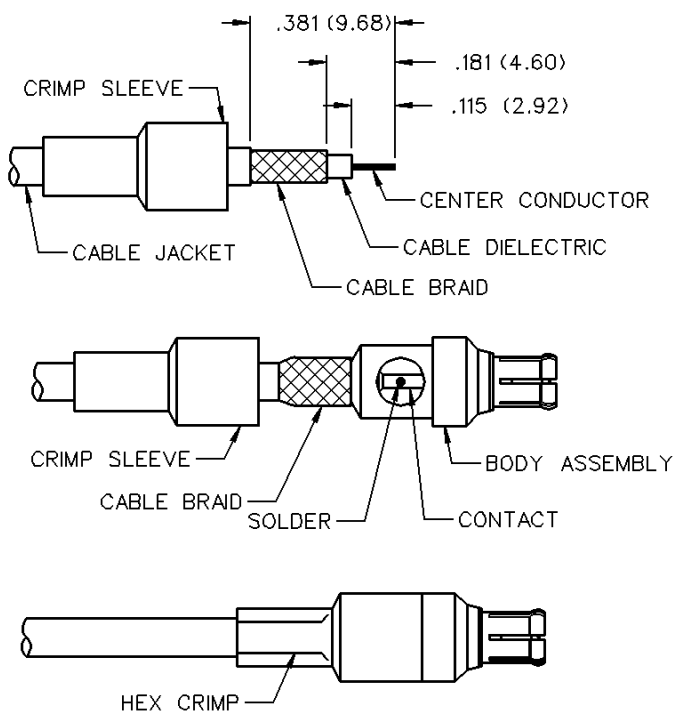


1. Identify connector parts. (3 piece parts—except bulkhead)
2. Strip cable to dimensions shown. Do not nick braid or center conductor. Tin center conductor if contact is to be solder attached. Do not tin center conductor if contact is to be crimp attached. Slide heat shrink (as applicable) and crimp sleeve onto jacket of cable.
3. Assemble contact onto cable as shown.  
**Solder attachment.** Solder contact to center conductor through solder hole using .020 (0.51) diameter solder. Use a minimum of solder for a good joint.  
**Crimp attachment.** Crimp contact to center conductor using a miniature 8 indent tool 140-0000-970 with positioner 140-0000-971. Crimp location should be centered between end of contact and cross hole. Crimp attachment to solid center conductor cable is not recommended.
4. Flair braid and slide body assembly over contact and under braid. Then seat body assembly firmly onto contact. (RG-178 is non-captivated, RG-316 incorporates snap-fit captivation.) The cable may have to be held in a clamping fixture. Arrange braid uniformly around crimp stem. Slide crimp sleeve forward and crimp using recommended crimp tool. Slide heat shrink forward and shrink (as applicable).



## MCX Crimp Type Straight Connectors for Flexible Cable - 75 Ohm

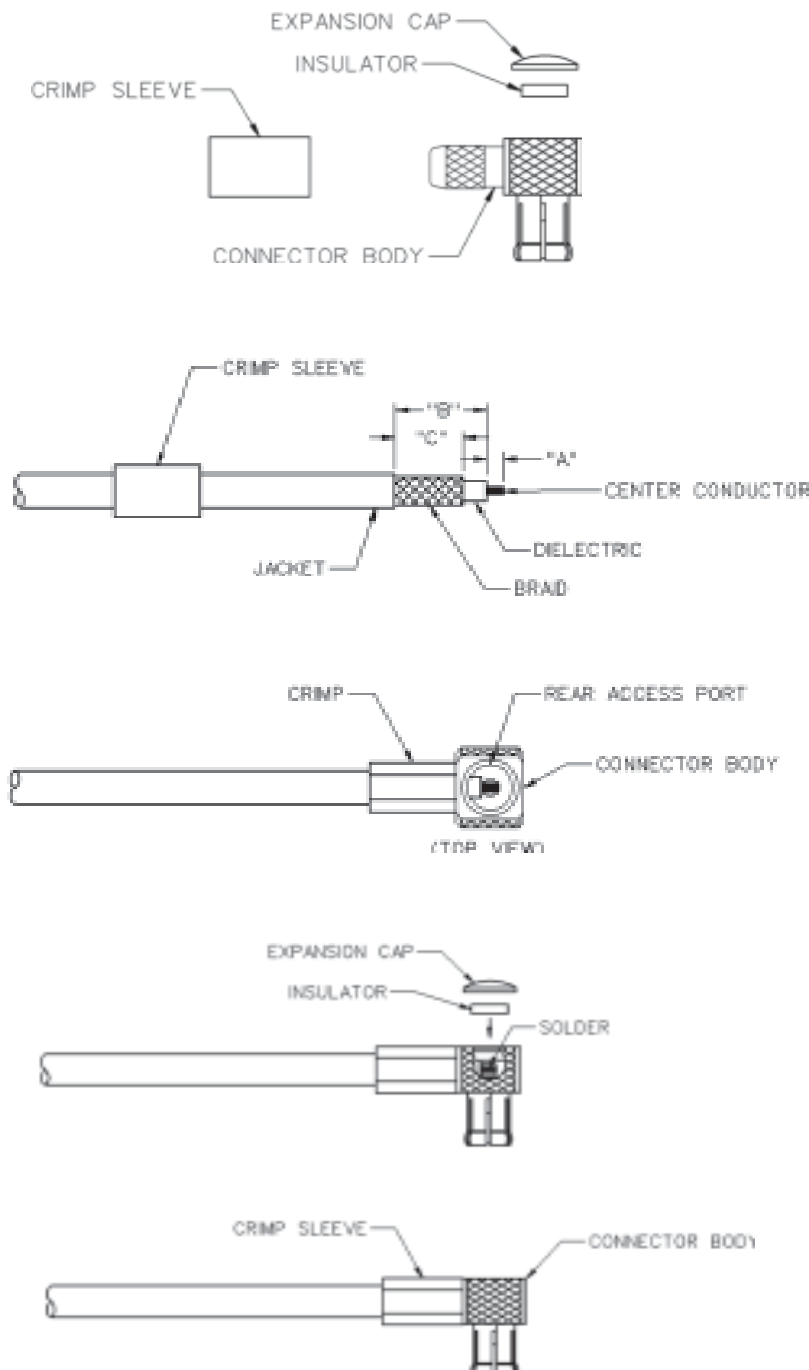
CABLE GROUP	PART NO.	CRIMP HEX
RG-179	133-8433-001	.128 (3.25)
RG-179 DS	133-8434-001	.151 (3.83)
RG-179	133-8333-001	.128 (3.25)
RG-179 DS	133-8334-001	.151 (3.83)
RG-179	133-8333-401	.128 (3.25)
RG-179 DS	133-8334-401	.151 (3.83)
BELDEN 735A	133-8445-001	.151 (3.83)



1. Identify connector parts. (2 piece parts—except bulkhead)
2. Strip cable to dimensions shown. Do not nick braid or center conductor. A wire stripper of correct size is recommended for this step. Twist stranded center conductor into tight bundle and tin (optional). Slide crimp sleeve onto cable as shown.
3. Flare braid and slide cable into body making certain that the cable dielectric bottoms against center contact.  
**Solder:** Solder center conductor to contact through the side access ports and hole in center contact. Use a minimum amount of solder for a full fillet joint. **.015 (0.38) diameter solder is recommended.**  
**Crimp:** Crimp Contact Attachment: Crimp contact using 141-0000-924 die set in 144-0000-900 tool frame.
4. Arrange braid uniformly around crimp stem. Slide crimp sleeve over braid and access ports. Crimp securely using recommended hex size and crimp tool.

## MCX Crimp Type Right Angle Plugs for Flexible Cable - 50 Ohm

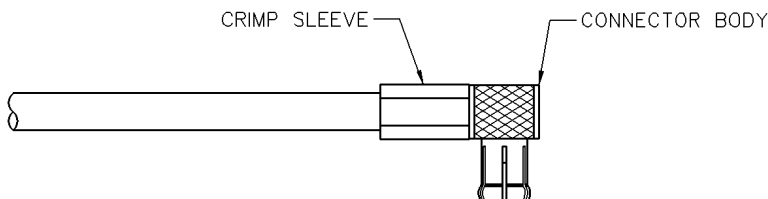
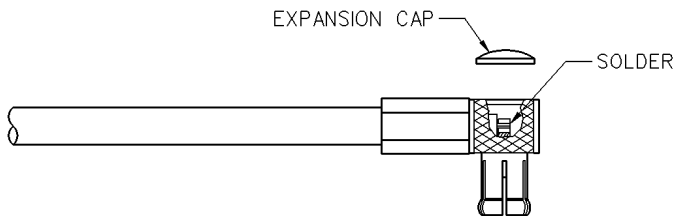
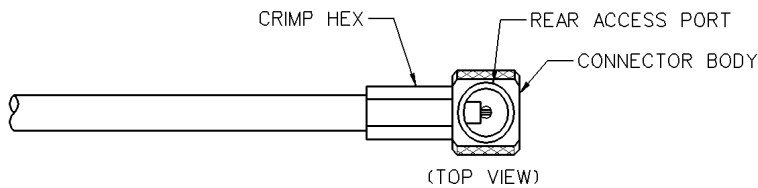
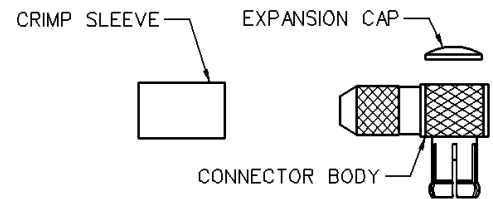
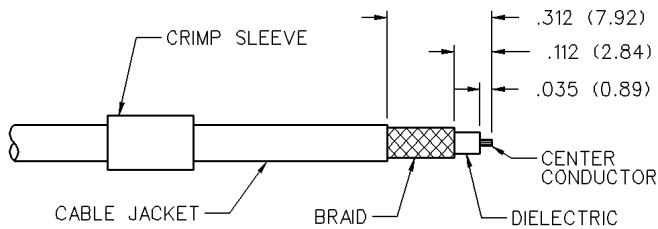
CABLE GROUP	PART NO.	"A"	"B"	"C"	CRIMP HEX
RG-178/U, 196	133-3402-101/106	.050 (1.27)	.270 (6.86)	.200 (5.08)	.105 (2.67)
RG-188/U, 316, 161, 174	133-3403-101/106	.050 (1.27)	.270 (6.86)	.200 (5.08)	.128 (3.25)
RG-316 DS, 188 DS	133-3404-101/106	.050 (1.27)	.270 (6.86)	.200 (5.08)	.151 (3.83)
RG-179/U, 187	133-3433-101/106	.050 (1.27)	.270 (6.86)	.200 (5.08)	.128 (3.25)
RG-178/U, 196	133-5402-101/106	.050 (1.27)	.270 (6.86)	.200 (5.08)	.105 (2.67)
RG-188/U, 316, 161, 174	133-5403-101/106	.050 (1.27)	.270 (6.86)	.200 (5.08)	.128 (3.25)
RG-316 DS, 188 DS	133-5404-101/106	.050 (1.27)	.270 (6.86)	.200 (5.08)	.151 (3.83)
RG-58/U, 303, 141	133-3407-101/106	.067(1.70)	.295 (7.49)	.210 (5.33)	.213 (5.41)
RG-316/U, 188, 174	133-9403-101	.050 (1.27)	.270 (6.86)	.200 (5.08)	.128 (3.25)
RG-316 DS, 188 DS	133-9404-101	.050 (1.27)	.270 (6.86)	.200 (5.08)	.151 (3.83)



1. Identify connector parts. (4 piece parts except RG-58)
2. Strip cable to dimensions shown. Do not nick braid or center conductor. A wire stripper of correct size is recommended for this step. Twist stranded center conductor into tight bundle and tin (optional). Slide crimp sleeve onto cable shown.
3. Flair braid and slide cable into body making certain that the cable insulation bottoms on center contact. Arrange braid uniformly around crimp stem. Slide crimp sleeve over braid and crimp securely using recommended crimp tool.
4. Solder center conductor to contact through rear access port. Use a minimum amount of solder for a full fillet joint. **.020 (0.51) diameter solder is recommended.**
5. Assemble insulator, if applicable; then place expansion cap in access port and seat with .156 (3.96) diameter flat punch or MCX hand assembly tool 141-0000-908. Shrink heat shrink tubing over crimp sleeve if applicable.

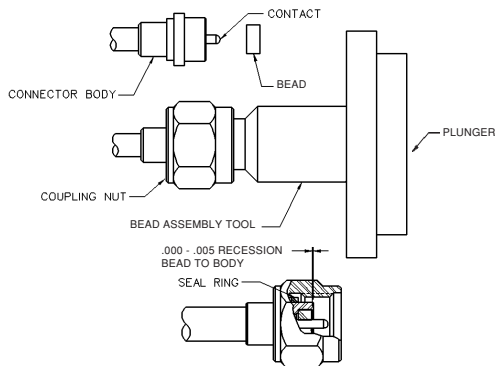
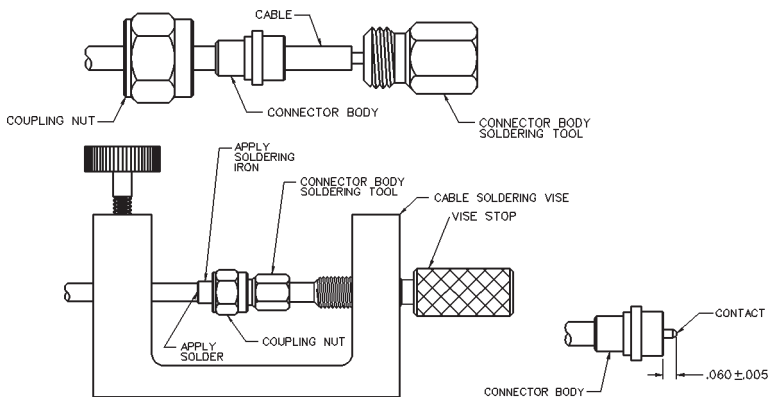
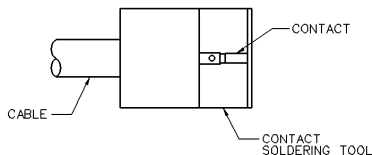
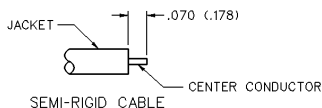
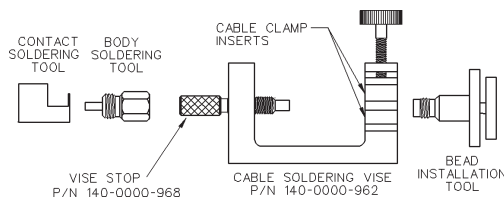
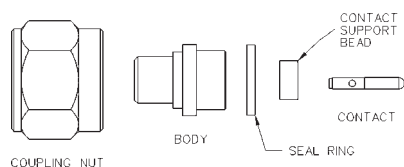
## MCX Crimp Type Right Angle Plugs for Flexible Cable - 75 Ohm

CABLE TYPE	PART NO.	CRIMP HEX
RG-179	133-8433-101	.128 (3.25)
RG-179 DS	133-8434-101	.151 (3.83)
BELDEN 735A	133-8445-101	.151 (3.83)



1. Identify connector parts (3-piece parts).
2. Strip cable to dimensions shown. Do not nick braid or center conductor. A wire stripper of correct size is recommended for this step. Twist stranded center conductor into tight bundle and tin (optional). Slide crimp sleeve onto cable as shown.
3. Flair braid and slide cable into body making certain that the cable dielectric bottoms on center contact. Arrange braid uniformly around crimp stem. Slide crimp sleeve over braid and crimp securely using recommended crimp tool.
4. Solder center conductor to contact through rear access port. Use a minimum amount of solder for a full fillet joint. **.020 (0.51) diameter solder is recommended.**
5. Place expansion cap in access port and seat with .156 (3.96) diameter flat punch or MCX hand assembly tool 141-0000-908. Shrink heat shrink tubing over crimp sleeve if applicable.

## SMK Solder Type Straight Plugs for Semi-Rigid Cable

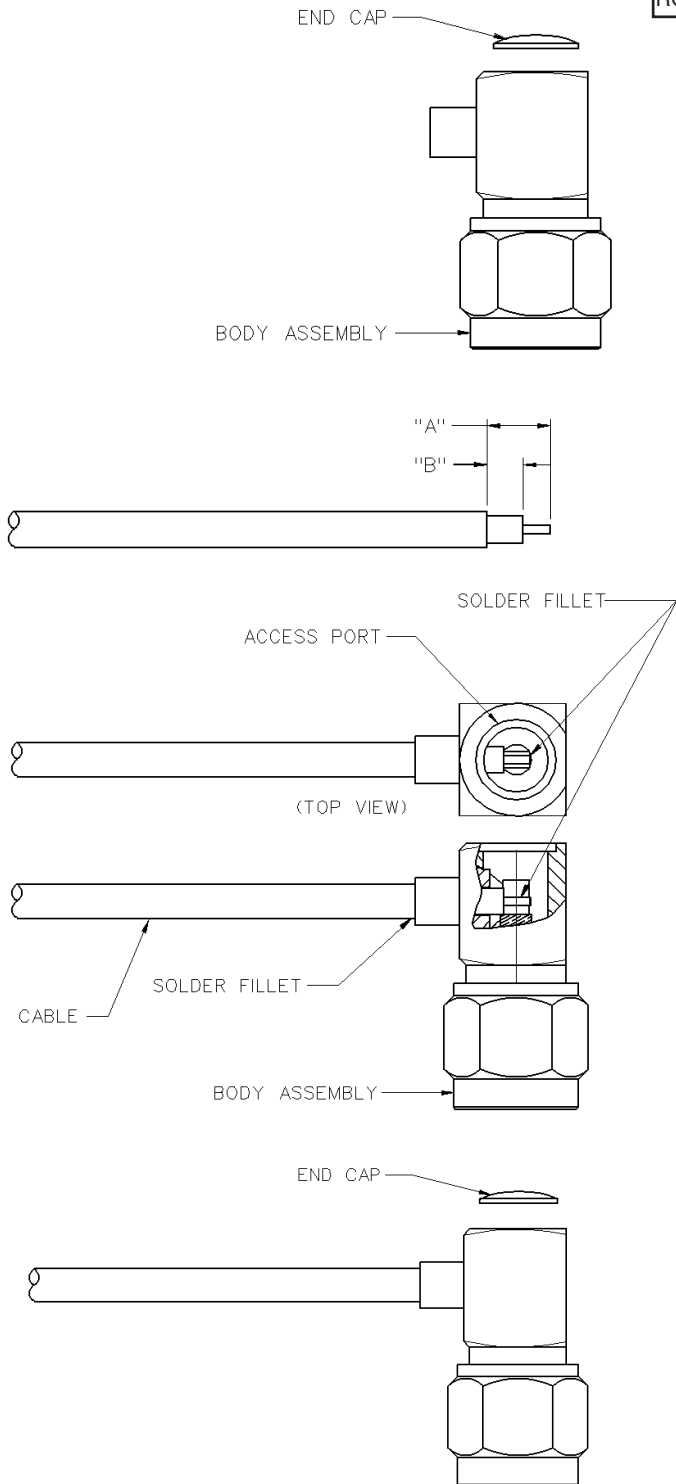


1. Identify connector parts (5 piece parts) and tools (5 tools.)
2. Strip cable jacket and dielectric to dimension shown.
3. Place center contact onto center conductor. Slide contact soldering tool onto contact. Clamp the cable contact and tool into cable soldering vise and solder contact to center conductor. **High temperature** solder, such as 95/5 Sn/Ag is recommended so that contact solder joint remains stable during body soldering operation. Solder paste is recommended for the contact solder joint to minimize excess solder. The assembled contact dimension should be as shown.
4. Remove excess solder from contact with a sharp blade and clean contact. Check for presence of excess solder by sliding body soldering tool over the contact. Remove soldering tool.
5. Place connector nut and body on cable. Place connector body soldering tool over contact and thread the coupling nut and connector body firmly to the tool. Place cable subassembly into cable soldering vise. Clamp cable and soldering tool securely to insure the cable dielectric expansion will not disturb the cable in the vise during soldering. Place hot soldering iron on the connector body sleeve and apply solder from the opposite side. A **low temp** solder, such as 60/40 Sn/Pb is recommended for the body solder joint. Allow the soldered joint to cool and remove from fixture. Check contact location to the body. The best electrical results are achieved when the contact location is within a tolerance of .060 +/- .001.
6. Place bead onto neck portion of the tool. Thread Bead Assembly tool firmly into the coupling nut. Push the tool's plunger between your thumb and fingers to assemble the bead. Check bead location. Assemble seal ring onto body.

TOOL	145-0693-001/002 (for .086 Semi-Rigid)	145-0694-001/002 (for .141 Semi-Rigid)
Semi-Rigid Cable Vise	140-0000-962	140-0000-962
Vise Stop	140-0000-968	140-0000-968
Bead Assy. Tool	140-0000-957	140-0000-957
Contact Soldering Tool	140-0000-960	140-0000-961
Body Soldering Tool	140-0000-958	140-0000-959
Cable Clamp Insert	140-0000-964	140-0000-965

## SMA Right Angle Solder Type Plug for Semi-Rigid Cable

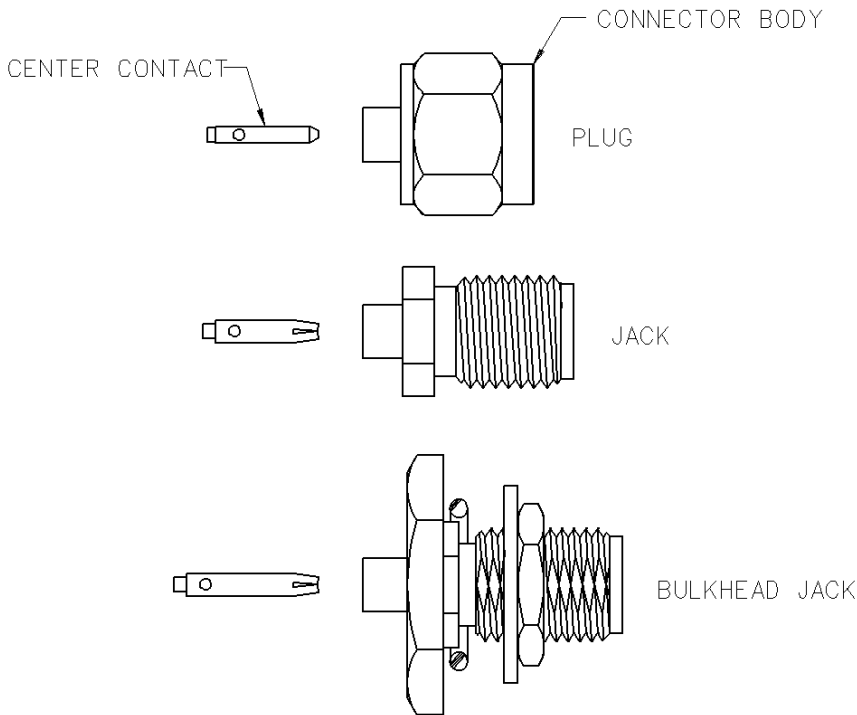
CABLE GROUP	PART NO.	"A"	"B"
RG-405/U (.086 Semi-Rigid)	142-0693-101/106	.145 (3.68)	.075 (1.90)
RG-402/U (.141 Semi-Rigid)	142-0694-101/106	.170 (4.32)	.105 (2.67)



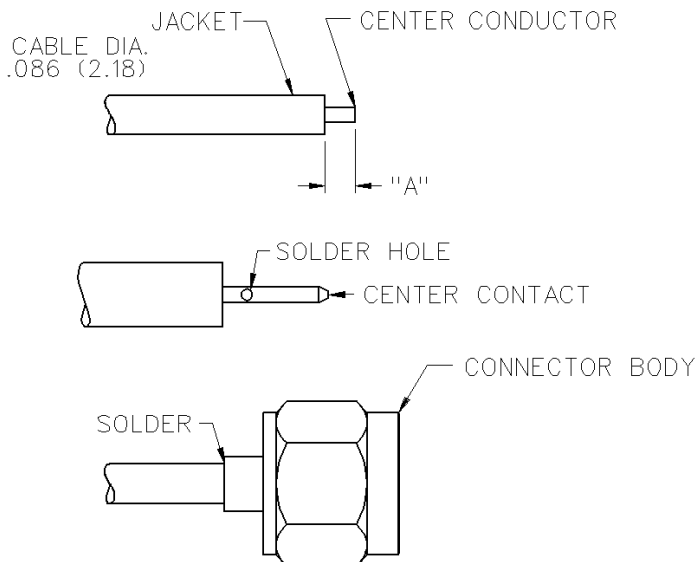
1. Identify connector parts. (2 piece parts)
2. Strip cable to dimensions shown. Do not nick center conductor during strip operations.
3. Insert cable into body making certain that the cable jacket is butted against internal body shoulder and cable dielectric is started into cross hole. Solder center conductor to contact using 60/40 tin/lead solder as shown. Use a minimum amount of solder for a good joint.
4. Solder body to cable using 60/40 tin/lead solder as shown. Use a minimum of heat to minimize cable dielectric growth. Any growth of cable dielectric shall be flush with contact.
5. Press end cap into body access port using .187 (4.75) dia. flat punch.

## SMA Solder Type Straight Jacks, Straight Plugs, and Straight Bulkhead Jacks for Semi-Rigid Cable

CABLE GROUP	PART NO.	"A"
RG-405/U (.086 Semi-Rigid)	142-0593-001/006	.070 (1.78)
	142-0593-401/406	
	142-0593-411/416	
	142-0693-001/006	
RG-402/U (.141 Semi-Rigid)	142-0594-001/006	.085 (2.16)
	142-0594-401/406	
	142-0694-001/006	

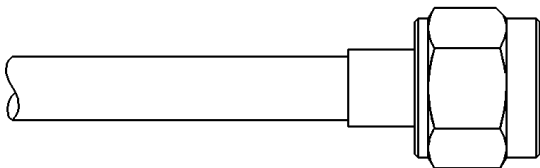
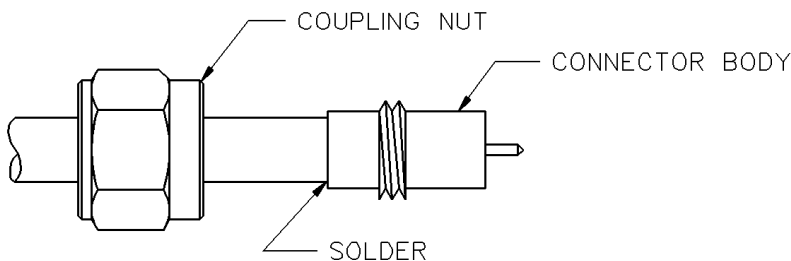
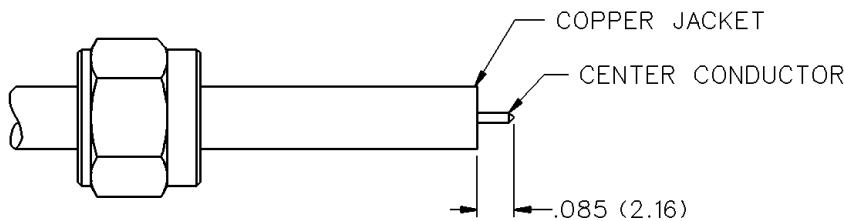
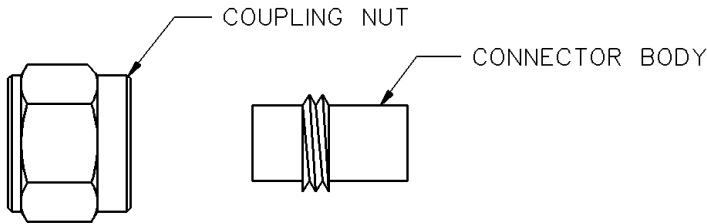


1. Identify connector parts. (2 piece parts)
2. Strip cable to dimensions shown. Do not nick center conductor.
3. Place center contact on center conductor making sure contact bottoms against cable insulation. Solder center conductor to center contact through solder hole. Solder **must not** be allowed to run on outside of contact. Use a minimum amount of solder for a good joint. **.020 (0.51) diameter solder is recommended.** Trim excess insulation.
4. Insert contact and cable into body assembly making sure cable is bottomed against insulator in body. Solder body to cable. Use a minimum amount of heat to minimize cable insulation movement.



## SMA Solder Type Straight Plugs for Semi-Rigid Cable

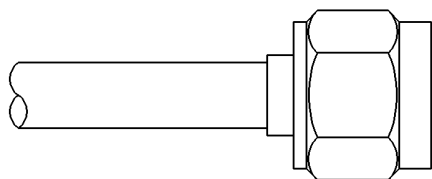
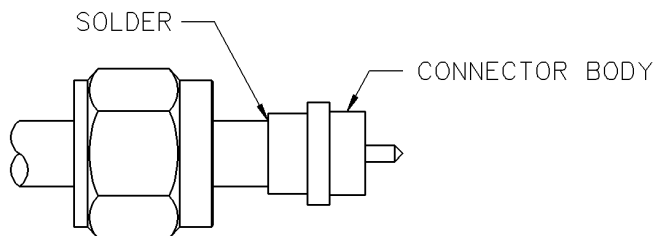
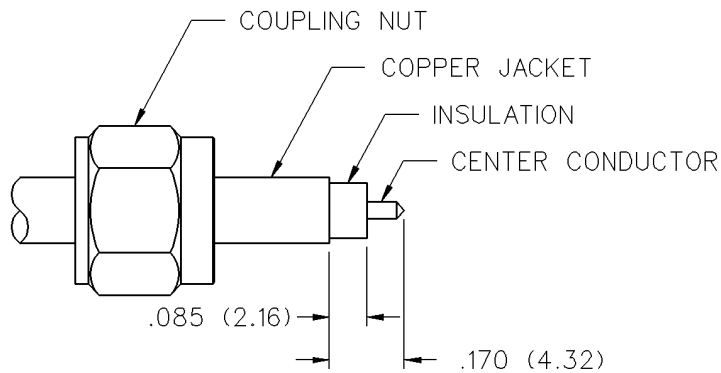
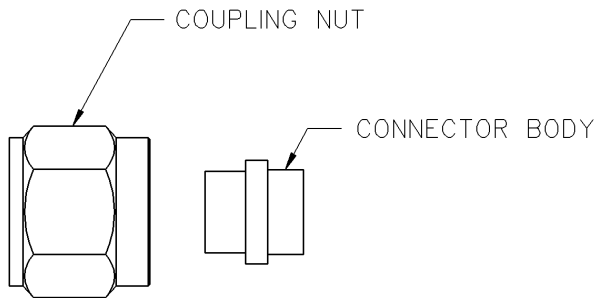
CABLE GROUP	PART NO.
RG-402/U	142-0694-011
(.141 Semi-Rigid)	142-0694-016



1. Identify connector parts. (2 piece parts)
2. Strip cable to dimensions shown. Do not nick center conductor. Bevel the cable center conductor per contact detail of SMA interface on page 24. Slide coupling nut onto cable as shown.
3. Insert cable into body making sure cable jacket is flush with front of body. Solder body to cable. Use a minimum amount of heat to minimize cable insulation movement. Trim expanded insulation flush with front of body or fixture body and cable during soldering to prevent cable insulation expansion.
4. Thread coupling nut over body.

## SMA Solder Type Straight Plugs for Semi-Rigid Cable

CABLE GROUP	PART NO.
RG-402/U (.141 Semi-Rigid)	142-0694-021
	142-0694-026
	142-0694-041
	142-0694-046

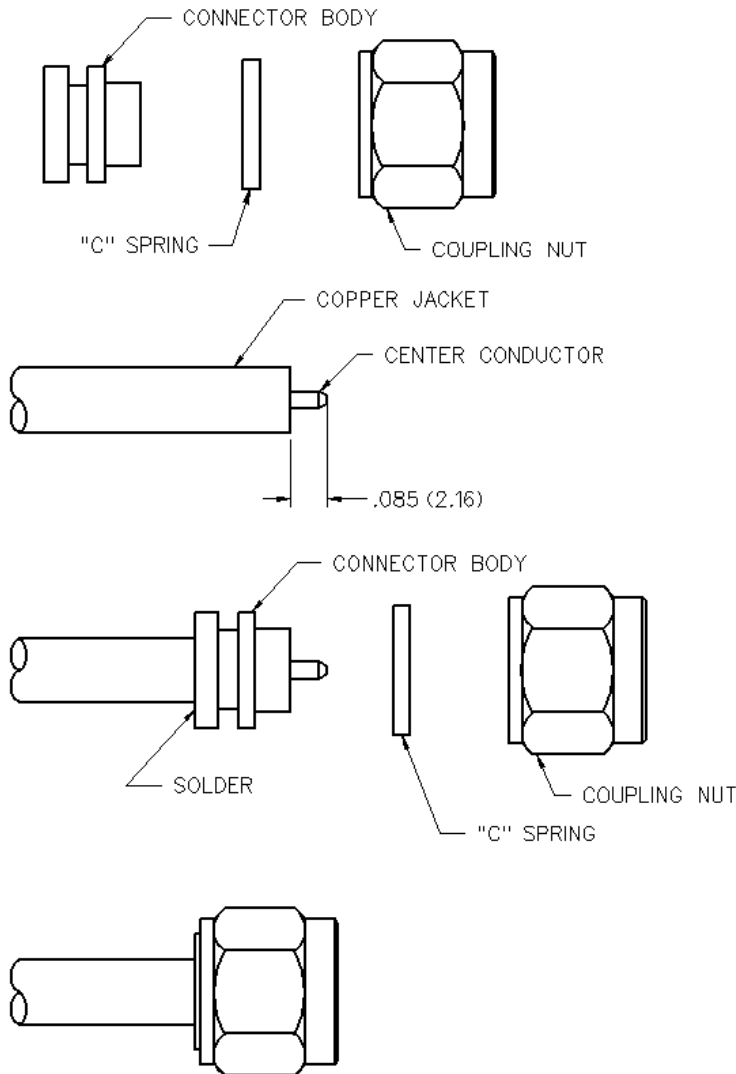


1. Identify connector parts. (2 piece parts)
2. Strip cable to dimensions shown. Do not nick center conductor. Bevel the cable center conductor per contact detail of SMA interface on page 24. Slide coupling nut onto cable as shown.
3. Insert cable into body making sure cable jacket is bottomed against shoulder inside of body. Solder body to cable. Use a minimum amount of heat to minimize cable insulation movement. Trim expanded insulation flush with front of body or fixture body and cable during soldering to prevent insulation expansion.
4. Thread coupling nut over body.



## SMA Solder Type Straight Plugs for Semi-Rigid Cable

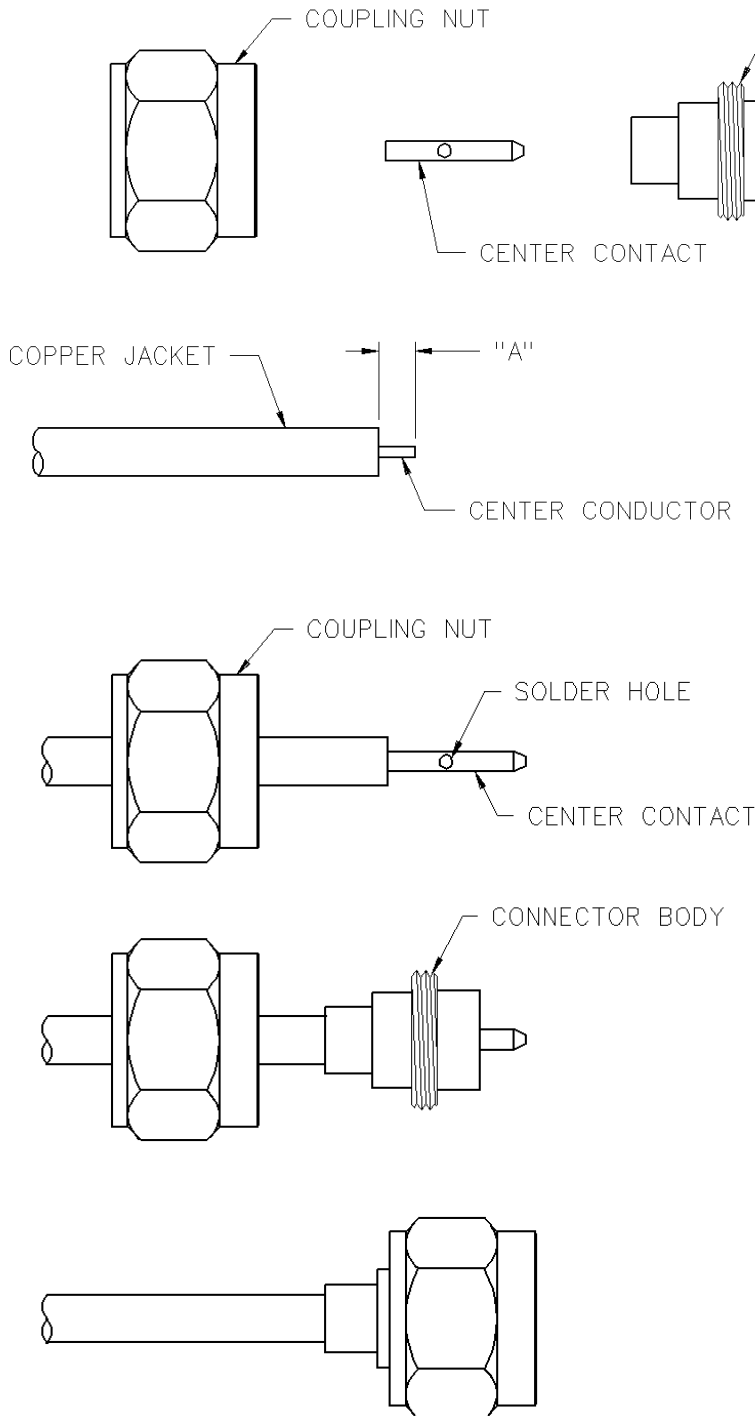
CABLE GROUP	PART NO.
RG-402/U	142-0694-031
(.141 Semi-Rigid)	142-0694-036



1. Identify connector parts. (3 piece parts)
2. Strip cable to dimensions shown. Do not nick center conductor. Bevel the cable center conductor per contact detail of SMA interface on page 24.
3. Insert cable into body making sure cable jacket is flush with front of body. Solder body to cable. Use a minimum amount of heat to minimize cable insulation movement. Trim expanded cable insulation flush with front of body or fixture body and cable during soldering to prevent insulation expansion.
4. Snap "C" spring onto connector body groove. Compress "C" spring using 141-0000-904 compression tool. Install coupling nut onto connector body. Nut should spin freely.

## SMA Solder Type Straight Plugs for Semi-Rigid Cable

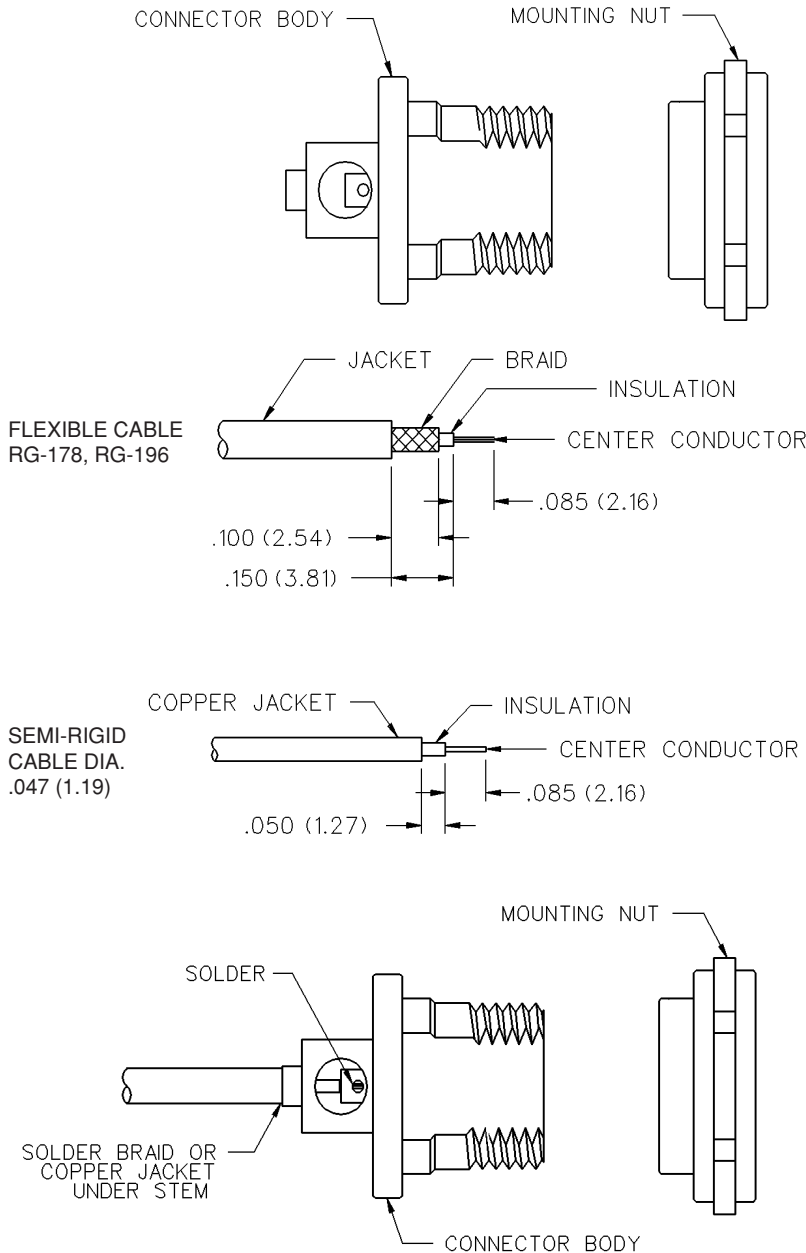
CABLE GROUP	PART NO.	"A"
RG-405/U (.086 Semi-Rigid)	142-0693-051	.070 (1.78)
	142-0693-056	.070 (1.78)
RG-402/U (.141 Semi-Rigid)	142-0694-051	.085 (2.16)
	142-0694-056	.085 (2.16)



1. Identify connector parts. (3 piece parts)
2. Strip cable to dimensions shown. Do not nick center conductor. Slide coupling nut onto cable as shown.
3. Place center contact on center conductor making sure contact bottoms against cable insulation. Solder center conductor to center contact through solder hole. Solder **must not** be allowed to run on outside of contact. Use a minimum amount of solder for a good joint. **.020 (0.51) diameter solder is recommended.** Trim excess insulation.
4. Insert contact and cable into body making sure cable is bottomed against insulator in body. Solder body to cable. Use a minimum amount of heat to minimize cable insulation movement.
5. Thread coupling nut over body.

## SMA Solder Type Antenna Connector Plug for Flexible or Semi-Rigid Cable

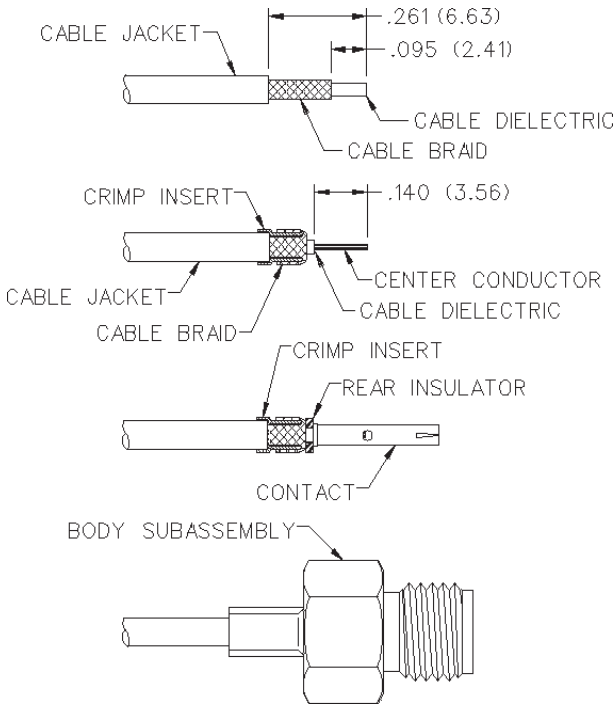
CABLE GROUP	PART NO.
RG-178/U, .047 Semi-Rigid	142-0801-421



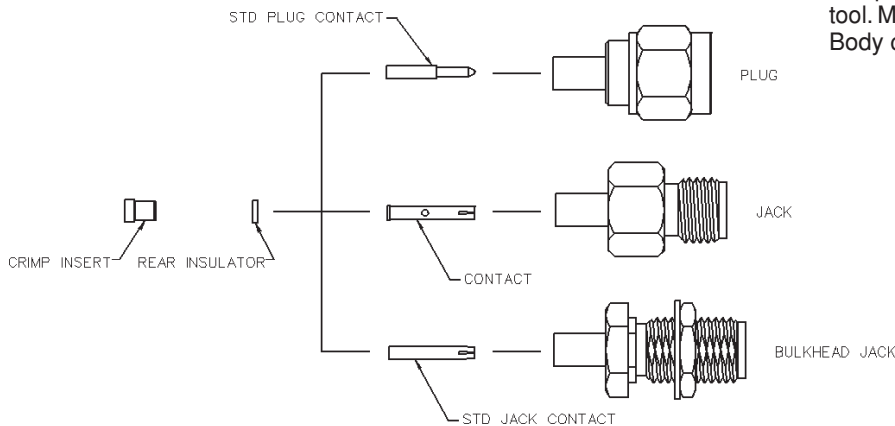
1. Identify connector parts. (2 piece parts)
2. Strip cable to dimensions shown. Do not nick center conductor or braid on flexible cable.
3. **Flexible Cable Attachment:** Twist stranded center conductor into tight bundle and tin (optional). Slide cable into body, making sure cable insulation bottoms on center contact and braid fits inside stem. Solder center conductor to contact through the side access ports. Use a minimum amount of solder for a good joint. **.020 (0.51) diameter solder is recommended.** Solder braid to body. Use a minimum amount of solder to completely join the braid to the body. **Semi-Rigid Cable Attachments:** Slide cable into body making certain cable insulation bottoms on center contact. Solder center conductor to contact through the side access ports. Use a minimum amount of solder for a good joint. **.020 (0.51) diameter solder is recommended.** Solder body to cable jacket. Use a minimum amount of heat to minimize cable insulation movement.

## SMA 3-Piece Plug, Jack and Bulkhead Jack for RG-178 Flexible Cable

CABLE GROUP	PART NO.	CRIMP HEX
RG-178/U, 196	142-0402-011	.105 (2.67)
	142-0402-016	.105 (2.67)
	142-0302-011	.105 (2.67)
	142-0302-016	.105 (2.67)
	142-0302-431	.105 (2.67)
	142-0302-436	.105 (2.67)



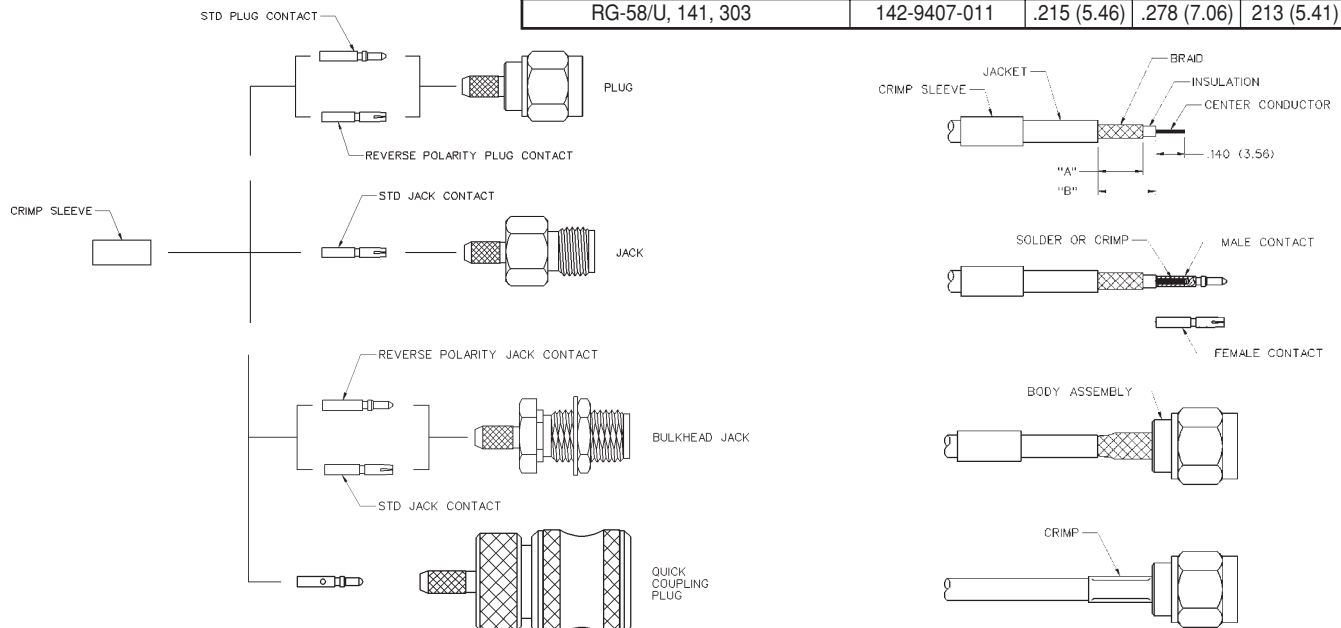
1. Identify piece parts. (4 piece parts plus nut and washer for bulkhead.)
2. Strip cable jacket and braid to dimensions shown. Do not nick braid during strip operations.
3. Slide crimp insert over braid and against jacket. Fold braid around crimp insert as shown. Strip dielectric to dimension shown. If cable is being manually stripped the rear insulator can be assembled and used as a guide. Do not nick center conductor during strip operation. Tin center conductor if contact is to be solder attached. Do not tin center conductor if contact is to be crimp attached.
4. Assemble rear insulator over cable dielectric and contact over center conductor as shown.  
**Solder attachment:** Solder contact to center conductor using 60/40 tin/lead solder. Care should be taken that excess solder is not applied.  
**Crimp attachment:** Crimp contact to center conductor using production tooling or hand tool 144-0000-910, setting #2 with positioner 141-0000-907. Crimp location should be centered between end of contact and x-hole. Crimp attachment to solid center conductor cables is not recommended.
5. Slide body assembly over contact, rear insulator and crimp insert. Crimp body using recommended crimp tool. Maintain forward pressure on cable while crimping. Body crimp die hex: .105 (2.67) hex



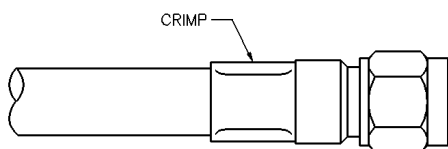
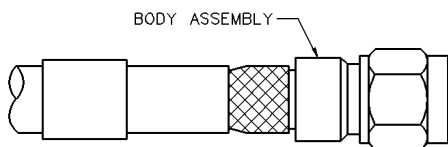
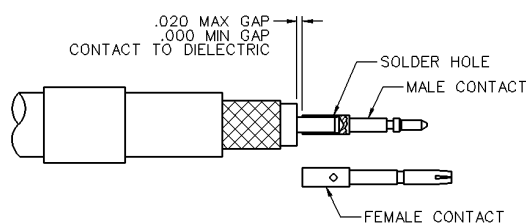
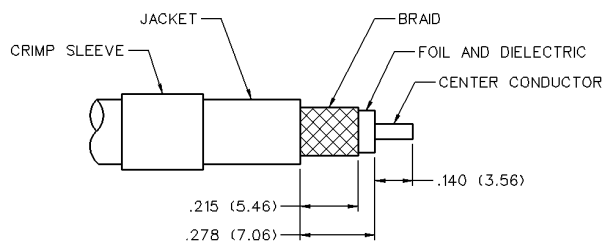
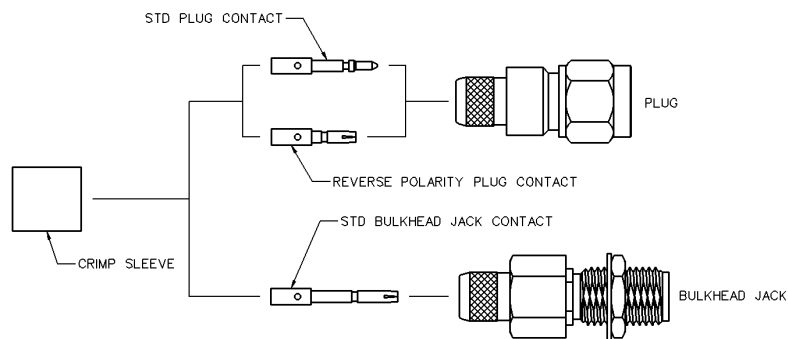
## SMA Type Straight Plugs, Straight Jacks, and Straight Bulkhead Jacks for Flexible Cable - Crimp or Solder Contacts

- Identify connector parts. (3 piece parts—except bulkhead)
- Strip cable to dimensions shown. Do not nick braid or center conductor. Tin center conductor if contact will be solder attached. Do not tin center conductor if contact is to be crimp attached. When stripping LMR-100 low loss cable, remove foil back to where cable jacket is stripped. A wire stripper of correct size is recommended for this step. Slide heat shrink (as applicable) and crimp sleeve onto jacket of cable.
- Assemble contact onto cable as shown.  
**Solder Attachment:** Solder contact to center conductor through solder hole using .020 (0.51) diameter solder. Use a minimum amount of solder for a good joint.  
**Crimp Attachment:** Crimp contact to center conductor using Johnson Hand Tool 144-0000-910, setting #2, with positioner 141-0000-907. Crimp location should be centered between end of contact and X-hole. Crimp attachment to solid center conductor cables is not recommended.
- Flare braid and slide body assembly over contact and under braid. Then seat body assembly firmly onto contact. The cable may have to be held in a clamping fixture. Arrange braid uniformly around crimp stem. Slide crimp sleeve forward and crimp using recommended crimp tool. Slide heat shrink forward and shrink (as applicable).

CABLE GROUP	PART NO.	"A"	"B"	CRIMP HEX
RG-316/U, 161, 174, 188; LMR-100	142-0303-011/016	.215 (5.46)	.278 (7.06)	.128 (3.25)
	142-0303-411/416	.215 (5.46)	.278 (7.06)	.128 (3.25)
RG-316 DS, 188 DS	142-0304-011/016	.215 (5.46)	.278 (7.06)	.151 (3.83)
	142-0304-411/416	.215 (5.46)	.278 (7.06)	.151 (3.83)
RG-58/U, 141, 303	142-0307-011/016	.215 (5.46)	.278 (7.06)	.213 (5.41)
	142-0307-411/416	.215 (5.46)	.278 (7.06)	.213 (5.41)
RG-55/U, 142, 223, 400	142-0308-011/016	.215 (5.46)	.278 (7.06)	.213 (5.41)
	142-0308-411/416	.215 (5.46)	.278 (7.06)	.213 (5.41)
RG-179/U, 187	142-0333-011/016	.215 (5.46)	.278 (7.06)	.128 (3.25)
	142-0333-411/416	.215 (5.46)	.278 (7.06)	.128 (3.25)
RG-316/U, 161, 174, 188; LMR-100	142-0403-011/016	.215 (5.46)	.278 (7.06)	.128 (3.25)
RG-316 DS, 188 DS	142-0404-011/016	.215 (5.46)	.278 (7.06)	.151 (3.83)
RG-58/U, 141, 303	142-0407-011/016	.215 (5.46)	.278 (7.06)	.213 (5.41)
RG-55/U, 142, 223, 400	142-0408-011/016	.215 (5.46)	.278 (7.06)	.213 (5.41)
RG-179/U, 187	142-0433-011/016	.215 (5.46)	.278 (7.06)	.128 (3.25)
RG-316/U, 161, 174, 188; LMR-100	142-1403-001/006	.280 (7.11)	.715 (18.16)	.128 (3.25)
RG-316 DS, 188 DS	142-1404-001/006	.280 (7.11)	.715 (18.16)	.151 (3.83)
RG-58/U, 141, 303	142-1407-001/006	.280 (7.11)	.715 (18.16)	.213 (5.41)
RG-55/U, 142, 223, 400	142-1408-001/006	.280 (7.11)	.715 (18.16)	.213 (5.41)
RG-316/U, 161, 174, 188; LMR-100	142-4303-401/406	.215 (5.46)	.278 (7.06)	.128 (3.25)
RG-316 DS, 188 DS	142-4304-401/406	.215 (5.46)	.278 (7.06)	.151 (3.83)
RG-58/U, 141, 303	142-4307-401/406	.215 (5.46)	.278 (7.06)	.213 (5.41)
RG-55/u, 142, 223, 400	142-4308-401/406	.215 (5.46)	.278 (7.06)	.213 (5.41)
RG-316/U, 161, 174, 188; LMR-100	142-4403-001/006	.215 (5.46)	.278 (7.06)	.128 (3.25)
RG-316 DS, 188 DS	142-4404-001/006	.215 (5.46)	.278 (7.06)	.151 (3.83)
RG-58/U, 141, 303	142-4407-001/006	.215 (5.46)	.278 (7.06)	.213 (5.41)
RG-55/U, 142, 223, 400	142-4408-001/006	.215 (5.46)	.278 (7.06)	.213 (5.41)
RG-316/U, 161, 174, 188; LMR-100	142-5303-401/406	.215 (5.46)	.278 (7.06)	.128 (3.25)
RG-316 DS, 188 DS	142-5304-401/406	.215 (5.46)	.278 (7.06)	.151 (3.83)
RG-58/U, 141, 303	142-5307-401/406	.215 (5.46)	.278 (7.06)	.213 (5.41)
RG-55/U, 142, 223, 400	142-5308-401/406	.215 (5.46)	.278 (7.06)	.213 (5.41)
RG-316/U, 161, 174, 188; LMR-100	142-5403-001/006	.215 (5.46)	.278 (7.06)	.128 (3.25)
RG-316 DS, 18 DS	142-5404-001/006	.215 (5.46)	.278 (7.06)	.151 (3.83)
RG-58/U, 141, 303	142-5407-001/006	.215 (5.46)	.278 (7.06)	.213 (5.41)
RG-55/U, 142, 223, 400	142-5408-001/006	.215 (5.46)	.278 (7.06)	.213 (5.41)
RG-316/U, 161, 174, 188; LMR-100	142-9403-011	.215 (5.46)	.278 (7.06)	.128 (3.25)
RG-316 DS, 188 DS	142-9404-011	.215 (5.46)	.278 (7.06)	.151 (3.83)
RG-58/U, 141, 303	142-9407-011	.215 (5.46)	.278 (7.06)	.213 (5.41)



## Straight SMA Low Loss Diameter .195, .200 and .240 Straight Type Plugs

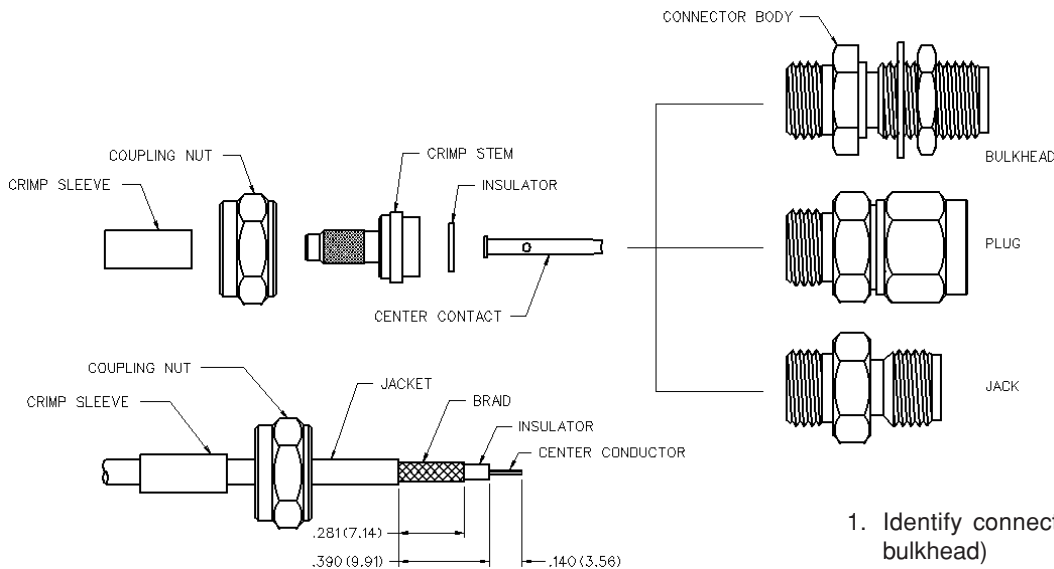


CABLE GROUP	PART NO.	CRIMP HEX
LMR-195	142-0307-411	.213 (5.41)
	142-0307-416	.213 (5.41)
LMR-240	142-0335-401	.255 (6.48)
	142-0335-406	.255 (6.48)
LMR-200	142-0339-401	.213 (5.41)
	142-0339-406	.213 (5.41)
LMR-195	142-0407-011	.213 (5.41)
	142-0407-016	.213 (5.41)
LMR-240	142-0435-001	.255 (6.48)
	142-0435-006	.255 (6.48)
LMR-200	142-0439-001	.213 (5.41)
	142-0439-006	.213 (5.41)
LMR-240	142-4435-001	.255 (6.48)
	142-4435-006	.255 (6.48)
LMR-200	142-4439-001	.213 (5.41)
	142-4439-006	.213 (5.41)
LMR-195	142-4407-001	.213 (5.41)
	142-4407-006	.213 (5.41)
LMR-240	142-5435-001	.255 (6.48)
	142-5435-006	.255 (6.48)
LMR-200	142-5439-001	.213 (5.41)
	142-5439-006	.213 (5.41)
LMR-195	142-5407-001	.213 (5.41)
	142-5407-006	.213 (5.41)

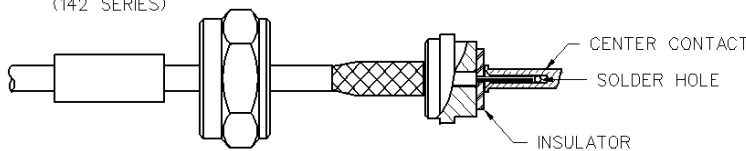
1. Identify connector parts. (3 piece parts—except bulkhead)
2. Strip cable to dimensions shown. Do not nick braid, foil or center conductor. Cut foil flush with dielectric, do not remove foil. Make sure that dielectric is clean and free from all particles. Tin center conductor, keeping solder amount to a minimum. Slide crimp sleeve onto jacket of cable.
3. Assemble contact onto cable as shown. Position contact such that a gap of no more than .020 (0.51) is kept between dielectric and contact. Solder contact to center conductor through solder hole using .020 (0.51) Diameter solder. Use a minimum amount of solder for a good joint. Do not allow contact to move into dielectric during soldering process.
4. Flare braid and slide body assembly over contact, foil and dielectric, then under braid. Seat body assembly firmly onto contact. Arrange braid uniformly around crimp stem. Slide crimp sleeve forward and crimp using Johnson hand crimp tool 141-0000-913 and recommended crimp die hex.

## SMA Crimp Type Straight Plugs, Straight Jacks, and Straight Bulkhead Jacks for Flexible Cable

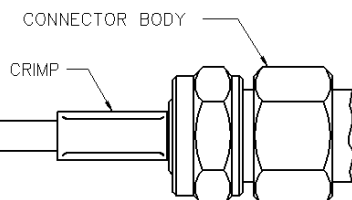
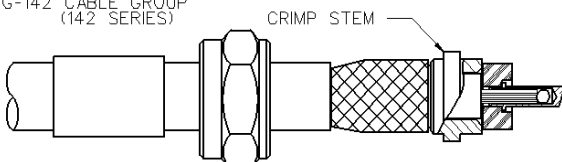
CABLE GROUP	PART NO.	CRIMP HEX
RG-178/U, 196	142-0302-401	.105 (2.67)
	142-0302-406	.105 (2.67)
RG-316/U, 161, 174, 188	142-0303-401	.128 (3.25)
	142-0303-406	.128 (3.25)
RG-316 DS, 188 DS	142-0304-401	.151 (3.83)
	142-0304-406	.151 (3.83)
RG-58/U, 141, 303	142-0307-401	.213 (5.41)
	142-0307-406	.213 (5.41)
RG-55/U, 142, 223, 400	142-0308-401	.213 (5.41)
	142-0308-406	.213 (5.41)
RG-316/U, 161, 174, 188	142-0403-001	.128 (3.25)
	142-0403-006	.128 (3.25)



RG-178, RG-316 CABLE GROUP  
(142 SERIES)

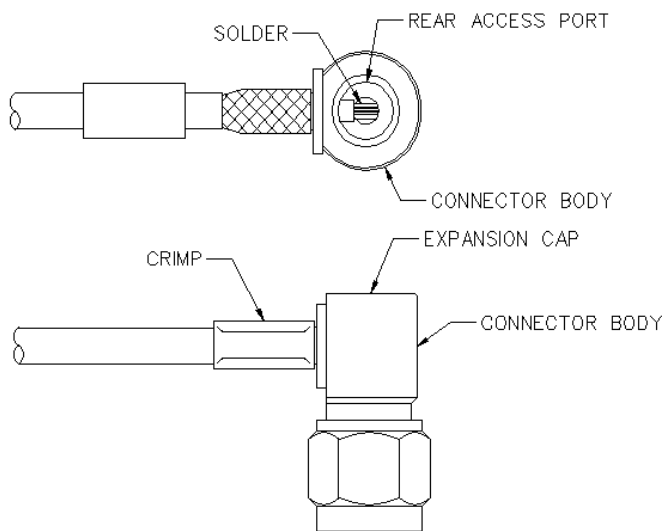
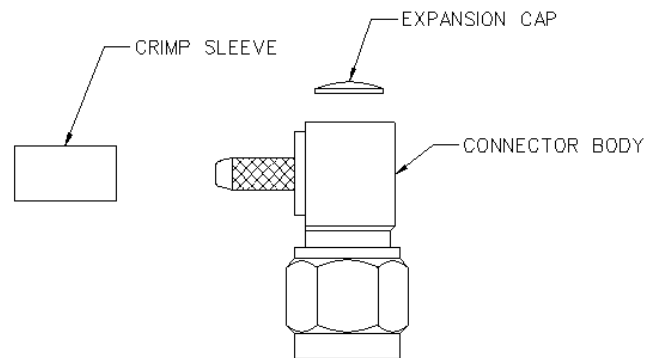
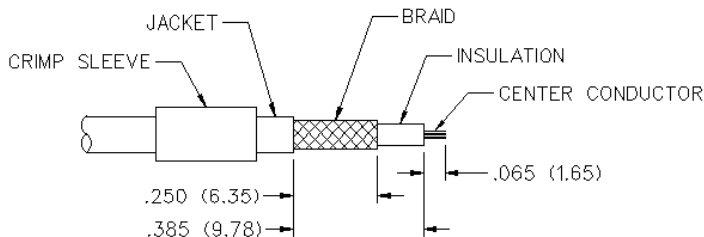


RG-58, RG-142 CABLE GROUP  
(142 SERIES)



1. Identify connector parts. (6 piece parts—except bulkhead)
2. Strip cable to dimensions shown. Do not nick braid or center conductor. A wire stripper of correct size is recommended for this step. Twist stranded center conductor into tight bundle and tin (optional). Slide crimp sleeve, nut and heat shrink tubing (as applicable) onto cable as shown.
3. Flare braid and slide cable into crimp stem. Place rear insulator and center contact over center conductor and position as shown for different cable sizes. Solder center conductor to contact through the solder hole. Solder **must not** be allowed to gather and run on outside of contact. Use a minimum amount of solder for a good joint. **.020 (0.51) diameter solder is recommended.**
4. Arrange braid uniformly around crimp stem. Slide crimp sleeve over braid and crimp securely using recommended crimp tool. Slide center contact assembly into connector body. Thread coupling nut onto body and tighten to 10 in.-lb. torque. Slide heat shrink forward and shrink (as applicable).

## SMA Crimp Type Right Angle Plugs for Flexible Cable

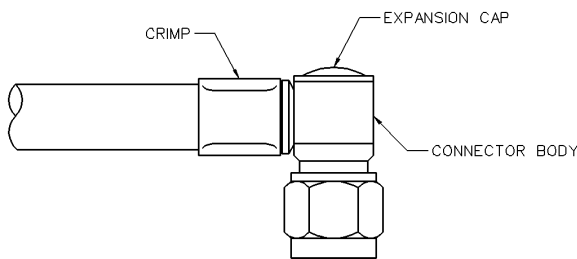
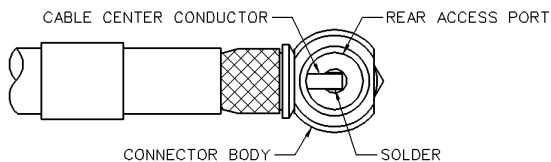
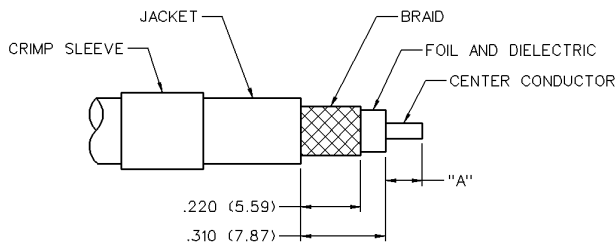
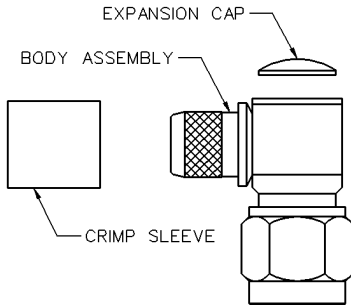


1. Identify connector parts. (3 piece parts)
2. Strip cable to dimensions shown. Do not nick braid or center conductor. When stripping LMR-100 low loss cable, remove foil back to where cable jacket is stripped. A wire stripper of correct size is recommended for this step. Twist stranded center conductor into tight bundle and tin (optional). Slide crimp sleeve onto cable as shown.
3. Flare braid and slide cable into body making certain that the cable insulation bottoms on center contact. Solder center conductor to contact through the rear access port. Use a minimum amount of solder for a full fillet joint. **.020 (0.51) diameter solder is recommended.**
4. Arrange braid uniformly around crimp stem. Slide crimp sleeve over braid and crimp securely using recommended crimp tool. Place expansion cap in access port and seat with .187 (4.75) diameter flat punch. Shrink heat shrink tubing over crimp sleeve if applicable.

CABLE GROUP	PART NO.	CRIMP HEX
RG-178/U, 196	142-0402-101	.105 (2.67)
	142-0402-106	.105 (2.67)
RG-316/U, 161, 174, 188; LMR-100	142-0403-101	.128 (3.25)
	142-0403-106	.128 (3.25)
RG-316 DS, 188 DS	142-0404-101	.151 (3.83)
	142-0404-106	.151 (3.83)
RG-58/U, 141, 303	142-0407-101	.213 (5.41)
	142-0407-106	.213 (5.41)
RG-55/U, 142, 223, 400	142-0408-101	.213 (5.41)
	142-0408-106	.213 (5.41)
RG-179/U, 187	142-0433-101	.128 (3.25)
	142-0433-106	.128 (3.25)
RG-316/U, 161, 174, 188; LMR-100	142-4403-101	.128 (3.25)
	142-4403-106	.128 (3.25)
RG-316 DS, 188 DS	142-4404-101	.151 (3.83)
	142-4404-106	.151 (3.83)
RG-58/U, 141, 303	142-4407-101	.213 (5.41)
	142-4407-106	.213 (5.41)
RG-55/U, 142, 223, 400	142-4408-101	.213 (5.41)
	142-4408-106	.213 (5.41)
RG-316/U, 161, 174, 188; LMR-100	142-5403-101	.128 (3.25)
	142-5403-106	.128 (3.25)
RG-316 DS, 188 DS	142-5404-101	.151 (3.83)
	142-5404-106	.151 (3.83)
RG-58/U, 141, 303	142-5407-101	.213 (5.41)
	142-5407-106	.213 (5.41)
RG-55/U, 142, 223, 400	142-5408-101	.213 (5.41)
	142-5408-106	.213 (5.41)
RG-316/U, 188, 174	142-9403-101	.128 (3.25)
RG-316 DS, 188 DS	142-9404-101	.151 (3.83)
RG-58/U, 141	142-9407-101	.213 (5.41)



## Right Angle SMA Low Loss Diameter .195, .200 and .240



CABLE GROUP	PART NO.	CRIMP HEX
LMR-195	142-0407-101	.213 (5.41)
	142-0407-106	.213 (5.41)
LMR-200	142-4439-101	.213 (5.41)
	142-4439-106	.213 (5.41)
LMR-240	142-0435-101	.255 (6.48)
	142-0435-106	.255 (6.48)
LMR-195	142-5407-101	.213 (5.41)
	142-5407-106	.213 (5.41)
LMR-200	142-0439-101	.213 (5.41)
	142-0439-106	.213 (5.41)
LMR-240	142-5435-101	.255 (6.48)
	142-5435-106	.255 (6.48)
LMR-195	142-4407-101	.213 (5.41)
	142-4407-106	.213 (5.41)
LMR-200	142-5439-101	.213 (5.41)
	142-5439-106	.213 (5.41)
LMR-240	142-4435-101	.255 (6.48)
	142-4435-106	.255 (6.48)

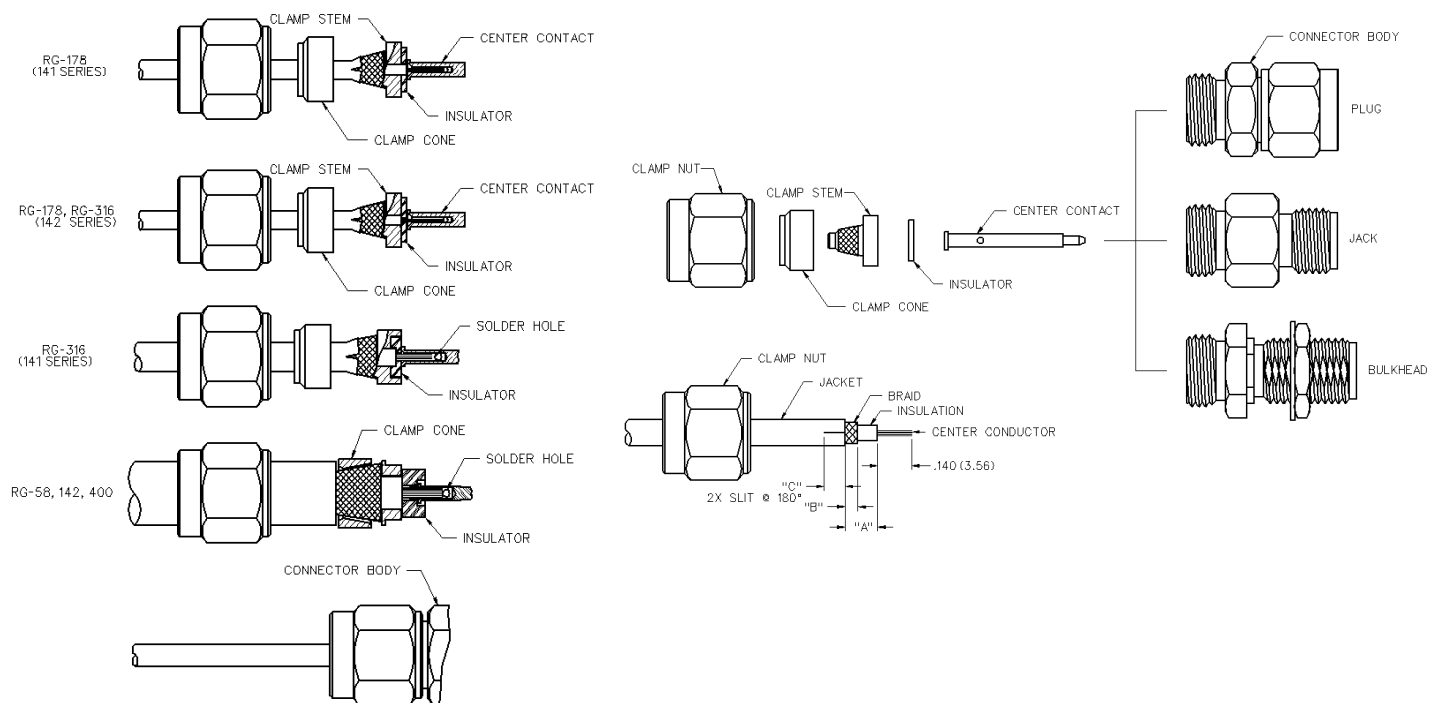
1. Identify connector parts. (3 piece parts)
2. Strip cable to dimensions shown. Do not nick braid, foil or center conductor. Cut foil flush with dielectric, do not remove foil. Make sure that dielectric is clean and free from all particles. Tin center conductor, keeping solder amount to a minimum. Slide crimp sleeve onto jacket of cable.
3. Flare braid and slide body assembly over foil and dielectric, then under braid. Make sure cable center conductor is contained within connector contact, but do not allow foil and dielectric to enter body access port. Solder center conductor to contact through the rear access port. Use a minimum amount of solder for a full fillet joint. .020 (0.51) Diameter solder is recommended.
4. Arrange braid uniformly around crimp stem. Slide crimp sleeve forward and crimp using Johnson hand crimp tool 141-0000-913 and recommended crimp die hex. Place expansion cap in access port and seat with recommended Diameter flat punch.

LOW LOSS DIA.	"A"	CRIMP DIE HEX	FLAT PUNCH DIA.
0.195	.110 (2.79)	.213 (5.41) hex	.187 (4.75)
0.200	.110 (2.79)	.213 (5.41) hex	.187 (4.75)
0.240	.135 (3.43)	.255 (6.48) hex	.242 (6.15)

## SMA Clamp Type Straight Plugs, Straight Jacks, and Straight Bulkhead Jacks for Flexible Cable

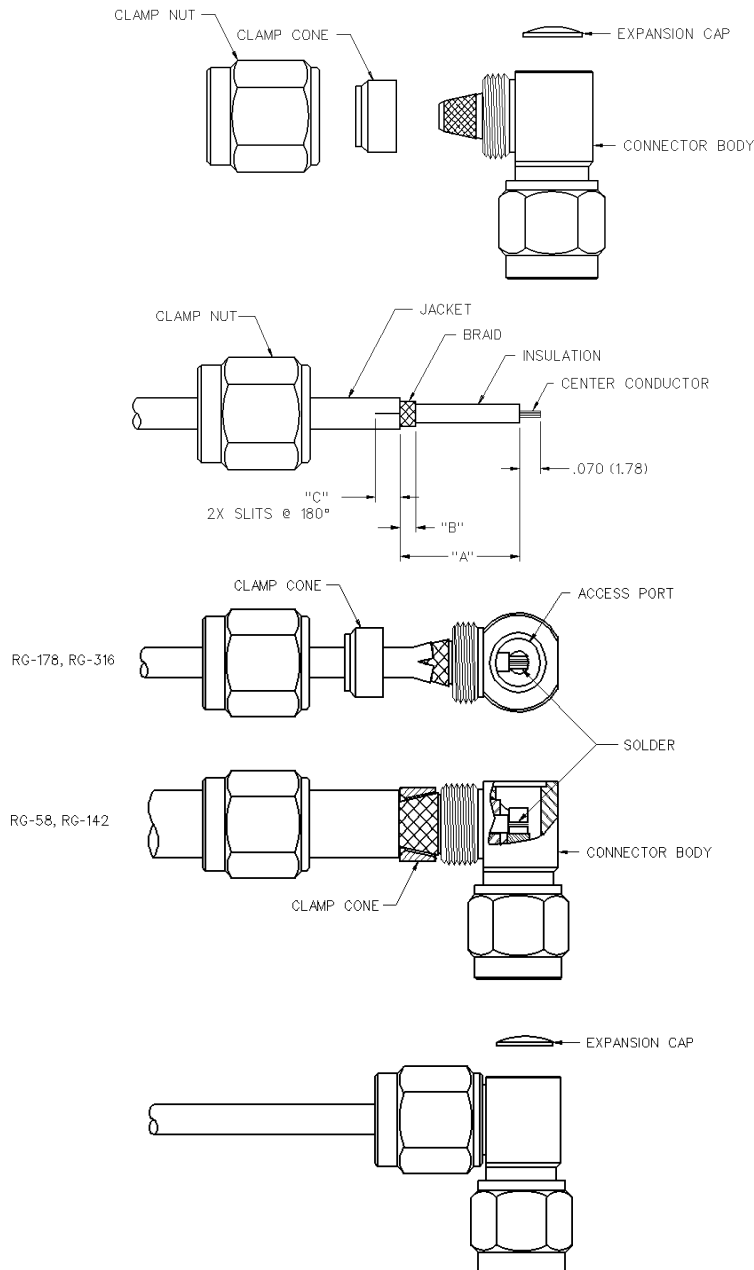
1. Identify connector parts. (6 piece parts—except bulkhead)
2. Strip cable to dimensions shown. Do not nick braid or center conductor. A wire stripper of correct size is recommended for this step. Twist stranded center conductor into tight bundle and tin (optional). Slide clamp nut and clamp cone onto cable as shown. Clamp cone must be oriented as shown for each size of cable. The RG-58/142 clamp cone slides over braid and against jacket.
3. Flare braid and slide cable into clamp stem. Place rear insulator and center contact over center conductor and position as shown for different cable sizes. Solder center conductor to contact through the solder hole. Solder **must not** be allowed to gather and run on outside of contact. Use a minimum amount of solder for a good joint. **.020 (0.51) diameter solder is recommended.**
4. Arrange braid uniformly around clamp stem. Slide center contact assembly into body. Slide clamp nut against clamp cone and braid and tighten to 10 in.-lb. torque.

CABLE GROUP	PART NO.	"A"	"B"	"C"
RG-178/U, 196	142-0202-011/016	.133 (3.38)	.053 (1.35)	.085 (2.16)
RG-161/U, 174, 188, 316	142-0203-011/016	.133 (3.38)	.053 (1.35)	.085 (2.16)
RG-58/U, 141, 303	142-0207-011/016	.225 (5.72)	.145 (3.68)	NONE
RG-142, 223, 55, 400	142-0207-011/016	.285 (7.24)	.165 (4.19)	NONE
RG-178/U, 196	142-0102-401/406	.133 (3.38)	.053 (1.35)	.085 (2.16)
RG-161/U, 174, 188, 316	142-0103-401/406	.133 (3.38)	.053 (1.35)	.085 (2.16)
RG-58/U, 141, 303	142-0107-401/406	.225 (5.72)	.145 (3.68)	NONE
RG-142, 223, 55, 400	142-0107-401/406	.285 (7.24)	.165 (4.19)	NONE



## SMA Clamp Type Right Angle Plugs for Flexible Cable

CABLE GROUP	PART NO.	"A"	"B"	"C"
RG-178/U, 196	142-0202-101	.280 (7.11)	.053 (1.35)	.085 (2.16)
	142-0202-106	.280 (7.11)	.053 (1.35)	.085 (2.16)
RG-316/U, 161, 174, 188	142-0203-101	.280 (7.11)	.053 (1.35)	.085 (2.16)
	142-0203-106	.280 (7.11)	.053 (1.35)	.085 (2.16)
RG-58/U, 141, 303	142-0207-101	.395 (10.03)	.160 (4.06)	None
	142-0207-106	.395 (10.03)	.160 (4.06)	None
RG-55/U, 142, 233, 400	142-0207-101	.420 (10.67)	.180 (4.57)	None
	142-0207-106	.420 (10.67)	.180 (4.57)	None



1. Identify connector parts. (4 piece parts)

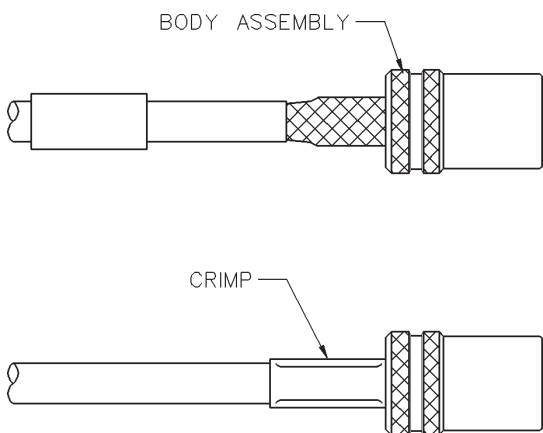
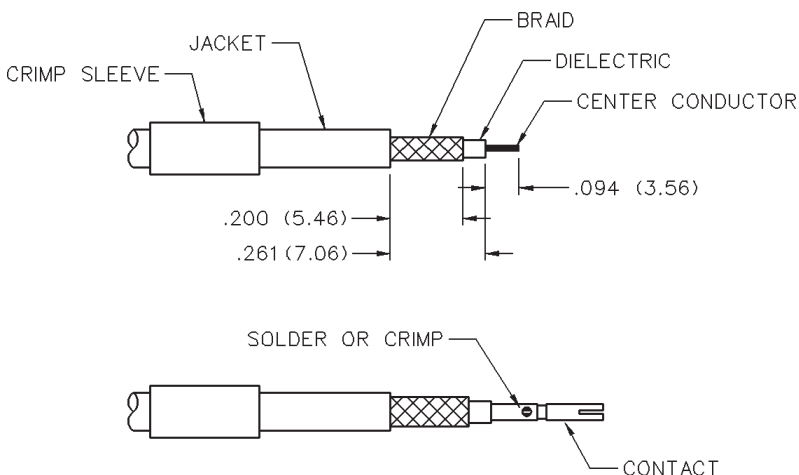
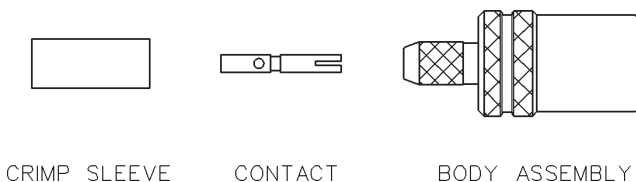
2. Strip cable to dimensions shown. Do not nick braid or center conductor. A wire stripper of correct size is recommended for this step. Twist stranded center conductor into tight bundle and tin (optional). Slide clamp nut and clamp cone onto cable as shown. Clamp cone must be oriented as shown for each size of cable. The RG-58/142 clamp cone slides over braid and against jacket.

3. Flare braid and slide cable into body making certain that the cable insulation bottoms on center contact. Stepped down diameter of stem must slide under braid and jacket. Arrange braid uniformly around crimp stem. Slide clamp nut against clamp cone and braid and tighten to 10 in.-lb. torque.

4. Solder center conductor to contact through the rear access port. Use a minimum amount of solder for a full fillet joint. **.020 (0.51) diameter solder is recommended.** Place expansion cap in access port and seat with .187 (4.75) diameter flat punch.

## SMB 3-Piece Straight Plugs

CABLE GROUP	PART NO.	CRIMP HEX
RG-316/U, 161, 174, 179, 187, 188	131-3403-021/026	.128 (3.25)
RG-316 DS, 188 DS, 179 DS	131-3404-021/026	.151 (3.83)
RG-58/U, 141, 303	131-3407-011/016	.213 (5.41)
RG-179/U, 187	131-8433-001/006	.128 (3.25)
RG-179 DS, 187 DS	131-8434-001/006	.151 (3.83)
Belden 735A	131-8445-011/016	.178 (4.52)



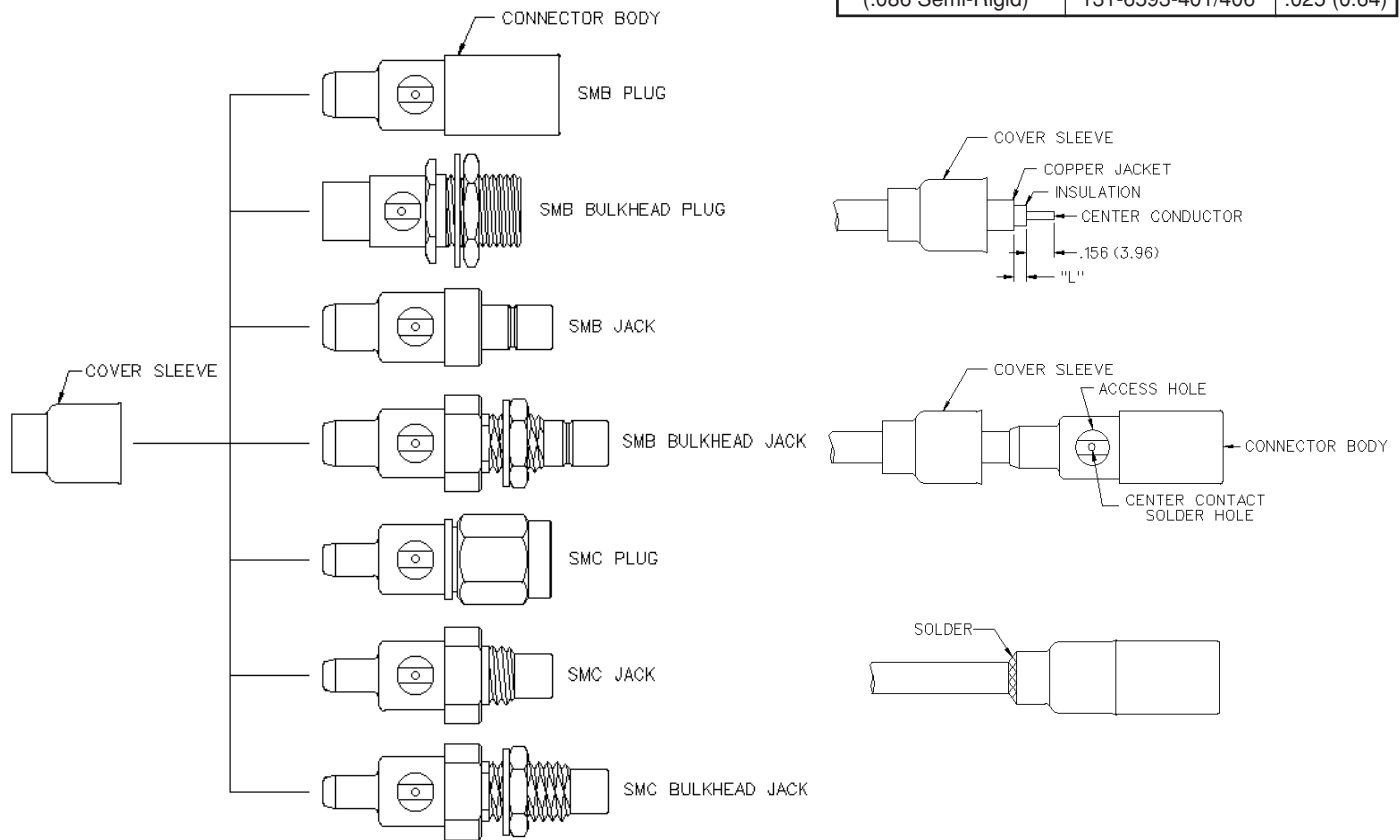
1. Identify connector parts. (3 piece parts): Crimp sleeve, body assembly and contact
2. Strip cable to dimensions shown. Do not nick braid or center conductor. Tin center conductor if contact will be solder attached. Do not tin center conductor if contact is to be crimp attached. Slide heat shrink (as applicable) and crimp sleeve onto jacket of cable.
3. Assemble contact onto cable as shown.
 

**Solder Attachment:** Solder contact to center conductor through solder hole using .015 (0.38) diameter solder. Use a minimum amount of solder for a good joint.

**Crimp Attachment:** A miniature 8 indent crimp tool 140-0000-970 is recommended. Crimp location should be centered between end of contact and X-hole using positioner 140-0000-971. Crimp attachment to solid center conductor cables is not recommended.
4. Flare braid and slide body assembly over contact and under braid. Then seat body assembly firmly onto contact. The cable may have to be held in a clamping fixture. Arrange braid uniformly around crimp stem. Slide crimp sleeve forward and crimp using recommended crimp tool. Slide heat shrink forward and shrink (as applicable).

## SMB/SMC Solder Type Straight Plugs and Jacks for Semi-Rigid Cable

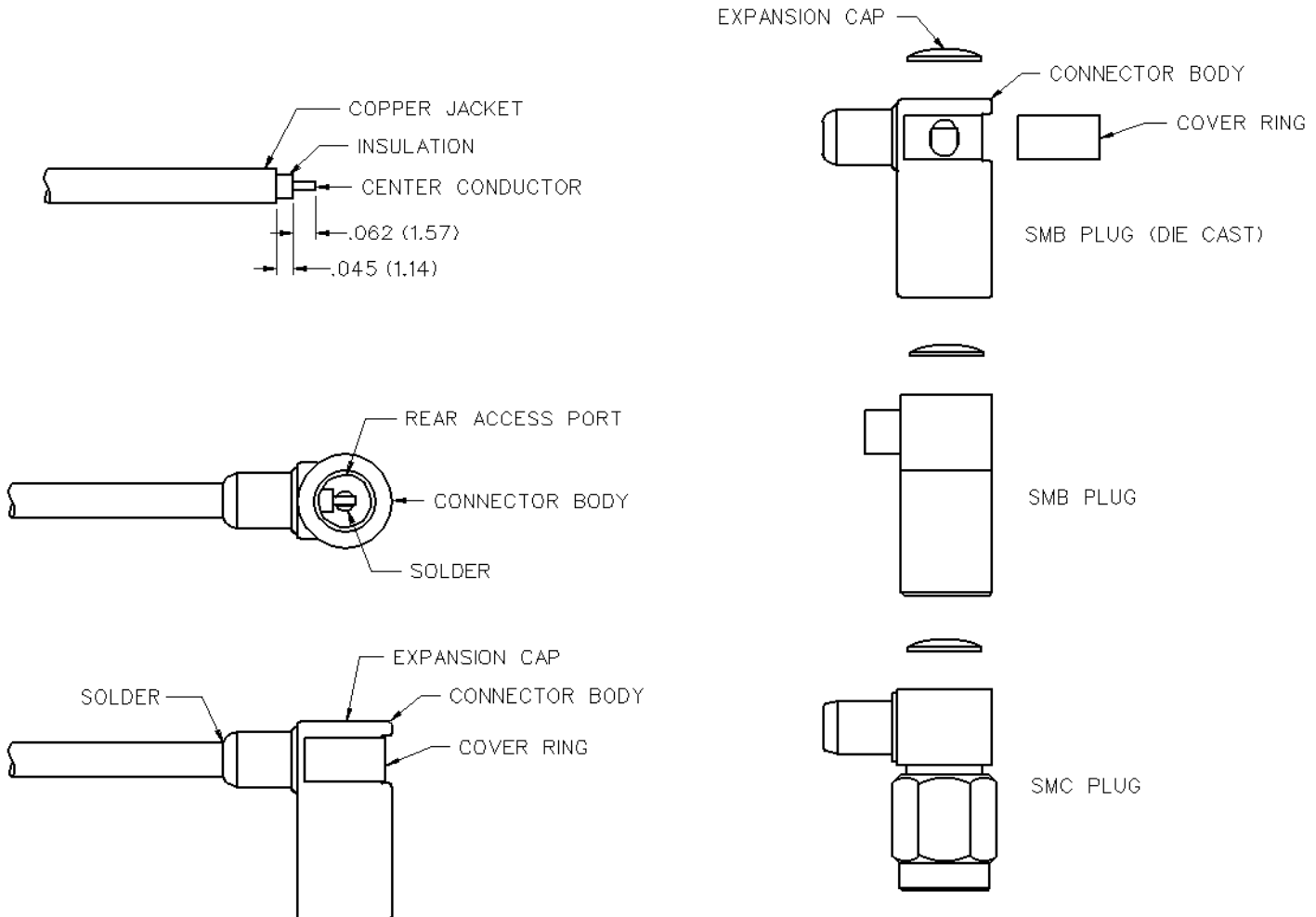
CABLE GROUP	PART NO.	"L"
RG-405/U (.086 Semi-Rigid)	131-3593-401/406 131-3693-001/016	.025 (0.64) .025 (0.64)
RG-402/U (.141 Semi-Rigid)	131-3694-401/406	.050 (1.27)
RG-405/U (.086 Semi-Rigid)	131-6593-401/406	.025 (0.64)



1. Identify connector parts. (2 piece parts—except bulkhead)
2. Strip cable to dimensions shown. Do not nick center conductor. Slide cover sleeve onto cable as shown.
3. Insert cable into body making certain that the cable insulation bottoms on center contact. Solder center conductor to contact through the side access ports and hole in center contact. Use a minimum amount of solder for a good joint. **.020 (0.51) diameter solder is recommended.**
4. Slide cover sleeve over access ports and solder body to cable and cover sleeve to body. Use a minimum amount of heat to minimize cable insulation movement.

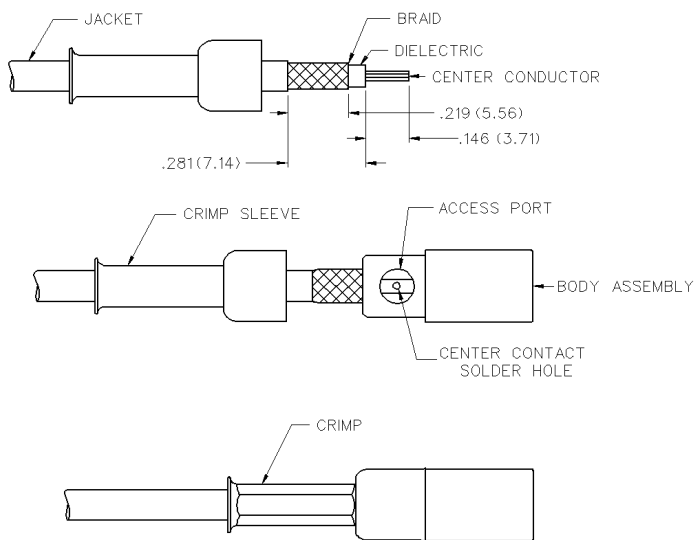
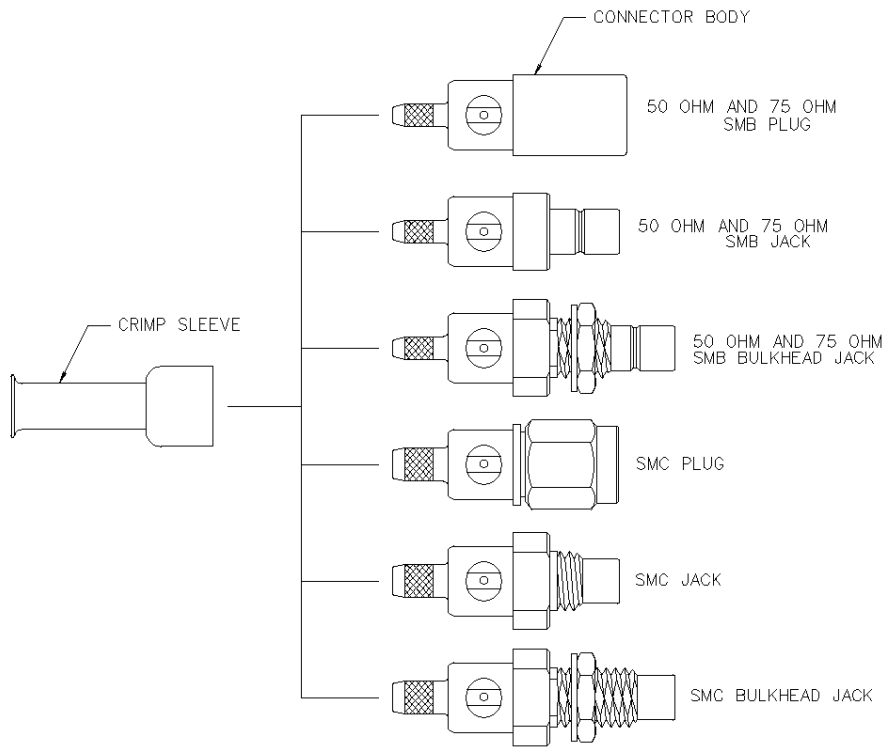
## SMB/SMC Solder Type Right Angle Plugs for Semi-Rigid Cable

CABLE GROUP	PART NO.
RG-405/U (.086 Semi-Rigid)	131-1693-101
	131-1693-116
	131-3693-101
	131-3693-116



1. Identify connector parts. (2 piece parts - except diecast)
2. Strip cable to dimensions shown. Do not nick center conductor.
3. Insert cable into body making certain that the cable insulation bottoms on center contact. Solder center conductor to contact through the rear and side access ports. Use a minimum amount of solder for a good joint. **.020 (0.51) diameter solder is recommended.**
4. Solder body to cable. Use a minimum amount of heat to minimize cable insulation movement. Place expansion cap in access port and set with  $.125 (3.17)$  diameter punch. Snap cover ring over side access port.

## SMB/SMC/Mini-75 Ohm SMB (2-Piece) Crimp Type Straight Plugs, Jacks and Bulkhead Jacks for Flexible Cable



CABLE GROUP	PART NO.	CRIMP HEX
RG-316/U, 161, 174, 179, 187, 188	131-1403-001/016	.128 (3.25)
RG-316 DS, 188 DS, 179 DS	131-1404-001/016	.151 (3.83)
RG-178/U, 196	131-3302-001/006	.105 (2.67)
RG-316/U, 161, 174, 179, 187, 188	131-3303-001/006 131-3303-401/406	.128 (3.25) .128 (3.25)
RG-179 DS, 187 DS, 188 DS, 316 DS	131-3304-401/406	.151 (3.83)
RG-178/U, 196	131-3402-001/016	.105 (2.67)
RG-316/U, 161, 174, 179, 187, 188	131-3403-001/016 131-3403-401/406	.128 (3.25) .128 (3.25)
RG-179 DS, 187 DS, 188 DS, 316 DS	131-3404-401/406 131-3404-001/016	.128 (3.25) .151 (3.83)
RG-58/U, 141, 303	131-3407-001/006	.213 (5.41)
RG-316/U, 161, 174, 188	131-6303-401/406	.128 (3.25)
RG-316 DS, 188 DS	131-6304-401/406	.151 (3.83)
RG-179/U, 187	131-6333-401/406	.128 (3.25)
RG-316/U, 161, 174, 188	131-6403-001/006	.128 (3.25)
RG-316 DS, 188 DS	131-6404-001/006	.151 (3.83)
RG-179/U, 187	131-6433-001/006	.128 (3.25)
RG-179/U, 187, 316, 161, 174, 188	131-8303-401/406	.128 (3.25)
RG-179 DS, 187 DS, 188DS, 316DS	131-8304-401/406	.151 (3.83)
RG-179/U, 187, 316, 161, 174, 188	131-8403-001/006 131-8403-011/016	.128 (3.25) .128 (3.25)
RG-179 DS, 187 DS, 188 DS, 316 DS	131-8404-001/006 131-8404-011/016	.151 (3.83) .151 (3.83)
RG-59	131-8409-001/006	.255 (6.48)
BELDEN 735A	131-8445-001/006	.178 (4.52)
RG-316/U, 188, 174, 179, 187	131-9403-001	.128 (3.25)
RG-316 DS, 188 DS, 179 DS, 187 DS	131-9404-001	.151 (3.83)

1. Identify connector parts. (2 piece parts—except bulkhead)
2. Strip cable to dimensions shown. Do not nick braid or center conductor. A wire stripper of correct size is recommended for this step. Twist stranded center conductor into tight bundle and tin. Slide crimp sleeve onto cable as shown.
3. Flare braid and slide cable into body making certain that the cable dielectric bottoms against center contact.
 

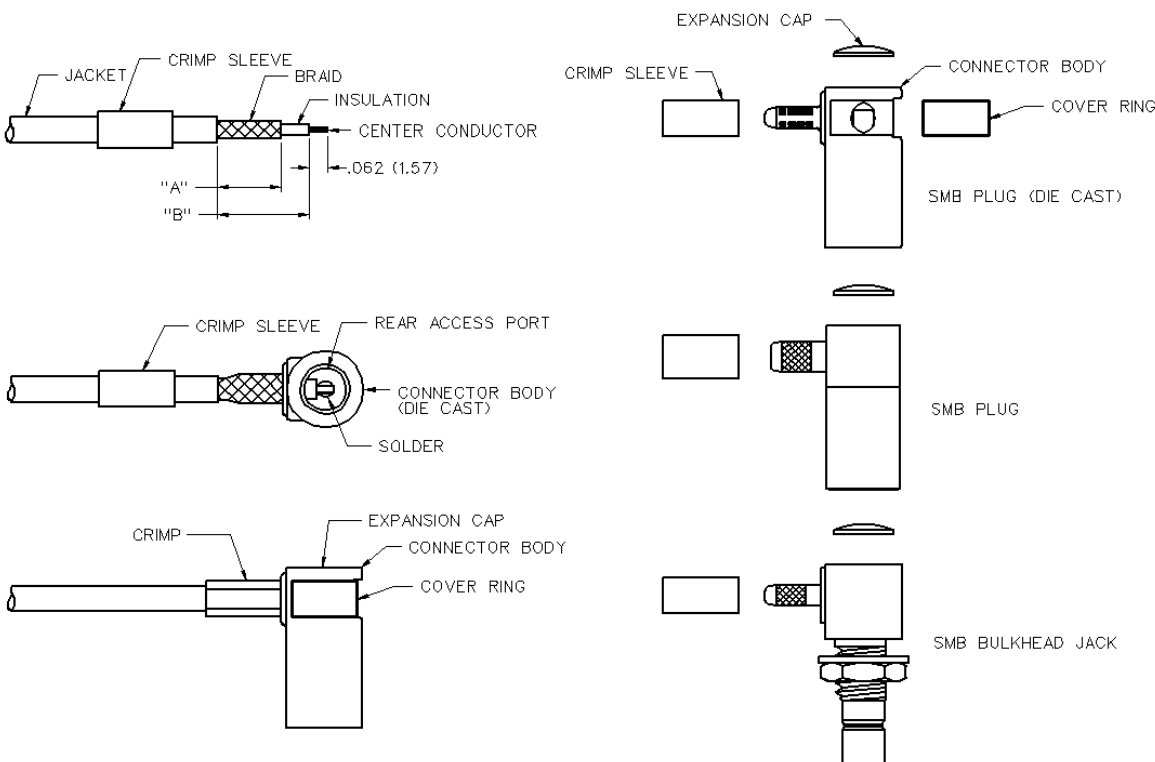
**Solder Attachment:** Solder center conductor to contact through the side access ports and hole in center contact. Use a minimum amount of solder for a full fillet joint. **.020 (0.51) diameter solder is recommended.**

**Crimp Attachment:** Crimp applicable 50 Ohm connector contacts with 141-0000-911 dieset in 144-0000-900 tool frame. Crimp 75 Ohm connector contacts with 141-0000-924 dieset in 144-0000-900 tool frame. Crimp attachment to solid center conductor cables is not recommended.

## SMB/SMC/Mini-75 Ohm SMB Crimp Type Right Angle Plugs and Right Angle Bulkhead Jacks for Flexible Cable

1. Identify connector parts. (4 piece parts: crimp sleeve, body assembly, expansion cap and covering ring. Die cast body only.)
2. Strip cable to dimensions shown. Do not nick braid or center conductor. A wire stripper of correct size is recommended for this step. Twist stranded center conductor into tight bundle and tin (optional). Slide crimp sleeve onto cable as shown.
3. Flare braid and slide cable into body assembly making certain that the cable insulation bottoms on center contact. Arrange braid uniformly around crimp stem of body assembly. Slide crimp sleeve over braid and crimp securely using recommended crimp tool.
4. Solder center conductor to contact through the rear and side access ports. Use a minimum amount of solder for a good joint. **.020 (0.51) diameter solder is recommended.** Place expansion cap in access port and seat with a .125 (3.17) diameter flat punch. Snap cover ring over side access port if applicable.

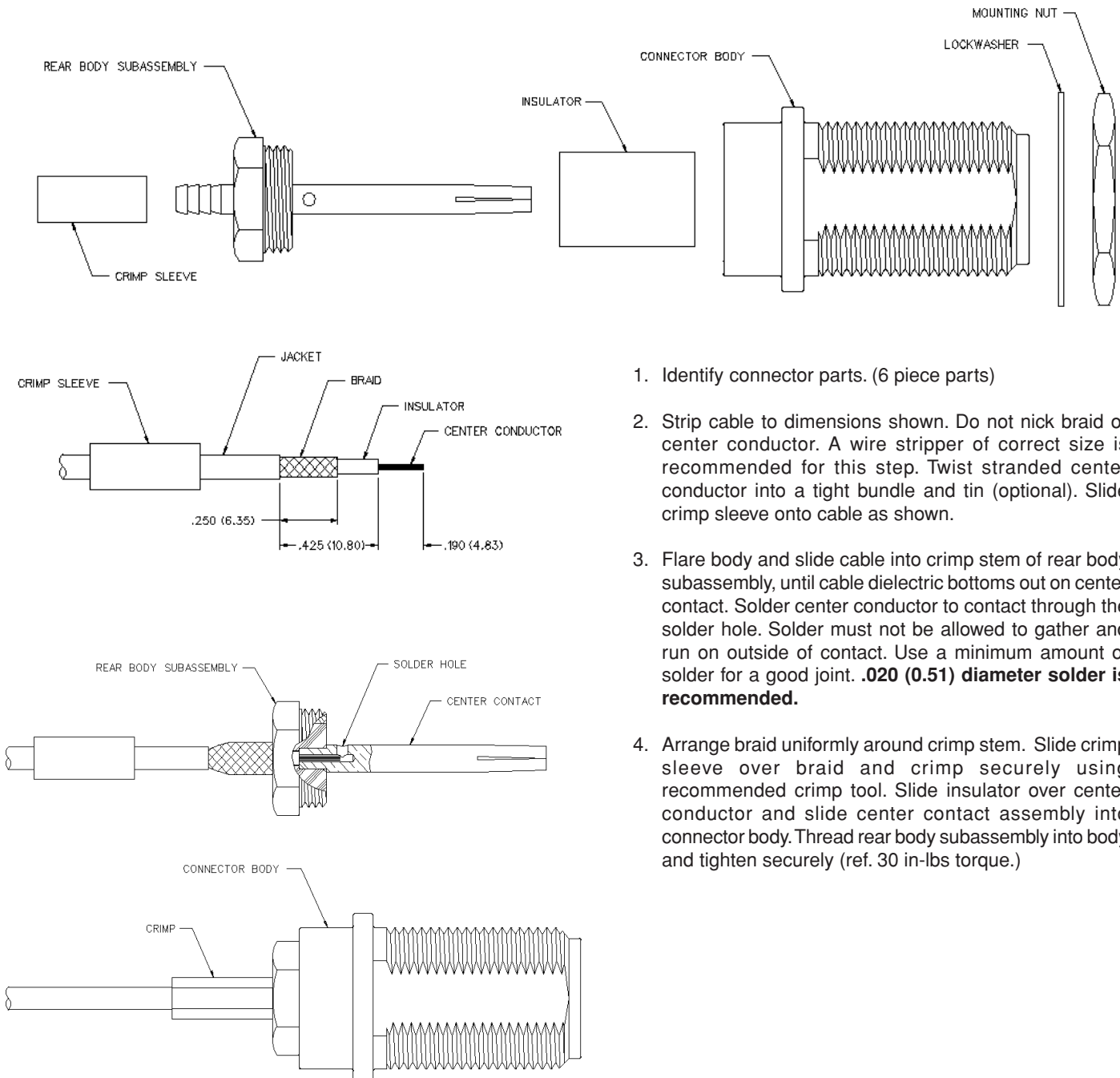
CABLE GROUP	PART NO.	"A"	"B"	CRIMP HEX
RG-178/U, 196	131-1402-101/116	.219 (5.56)	.312 (7.92)	.105 (2.67)
RG-316/U, 161, 174, 179, 187, 188	131-1403-101/116	.219 (5.56)	.312 (7.92)	.128 (3.25)
RG-179 DS, 187 DS, 188DS, 316 DS	131-1404-101/116	.219 (5.56)	.312 (7.92)	.151 (3.83)
RG-316/U, 161, 174, 179, 187, 188	131-3303-501/506	.219 (5.56)	.312 (7.92)	.128 (3.25)
RG-179 DS, 187 DS, 188 DS, 316 DS	131-3304-501/506	.219 (5.56)	.312 (7.92)	.151 (3.83)
RG-178/U, 196	131-3402-101/116	.177 (4.50)	.289 (7.34)	.105 (2.67)
RG-316/U, 161, 174, 179, 187, 188	131-3403-101/116	.177 (4.50)	.289 (7.34)	.128 (3.25)
RG-179 DS, 187 DS, 188 DS, 316 DS	131-3404-101/116	.177 (4.50)	.289 (7.34)	.151 (3.83)
RG-58/U, 141, 303	131-3407-101/106	.219 (5.56)	.289 (7.34)	.213 (5.41)
RG-316/U, 161, 174, 188 316 DS, 188 DS	131-6403-101/106	.219 (5.56)	.312 (7.92)	.128 (3.25)
	131-6404-101/106	.219 (5.56)	.312 (7.92)	.151 (3.83)
RG-179/U, 187	131-6433-101/106	.219 (5.56)	.312 (7.92)	.151 (3.83)
RG-179/U, 187, 316, 161, 174, 188	131-8403-101/106	.177 (4.50)	.289 (7.34)	.128 (3.25)
	131-8403-111/116	.219 (5.56)	.312 (7.92)	.128 (3.25)
RG-179 DS, 187 DS 316 DS, 188 DS	131-8404-101/106	.177 (4.50)	.289 (7.34)	.151 (3.83)
	131-8404-111/116	.219 (5.56)	.312 (7.92)	.151 (3.83)
RG-59	131-8409-101/106	.219 (5.56)	.289 (7.34)	.255 (6.48)
BELDEN 735A	131-8445-101/106	.177 (4.50)	.289 (7.34)	.178 (4.52)
RG-316/U, 188, 174 179, 187	131-9403-101/116	.177 (4.50)	.289 (7.34)	.128 (3.25)
RG-316 DS, 188 DS 179 DS, 187 DS	131-9404-101/116	.177 (4.50)	.289 (7.34)	.151 (3.83)





## N Crimp Type Bulkhead Jack for Flexible Cable

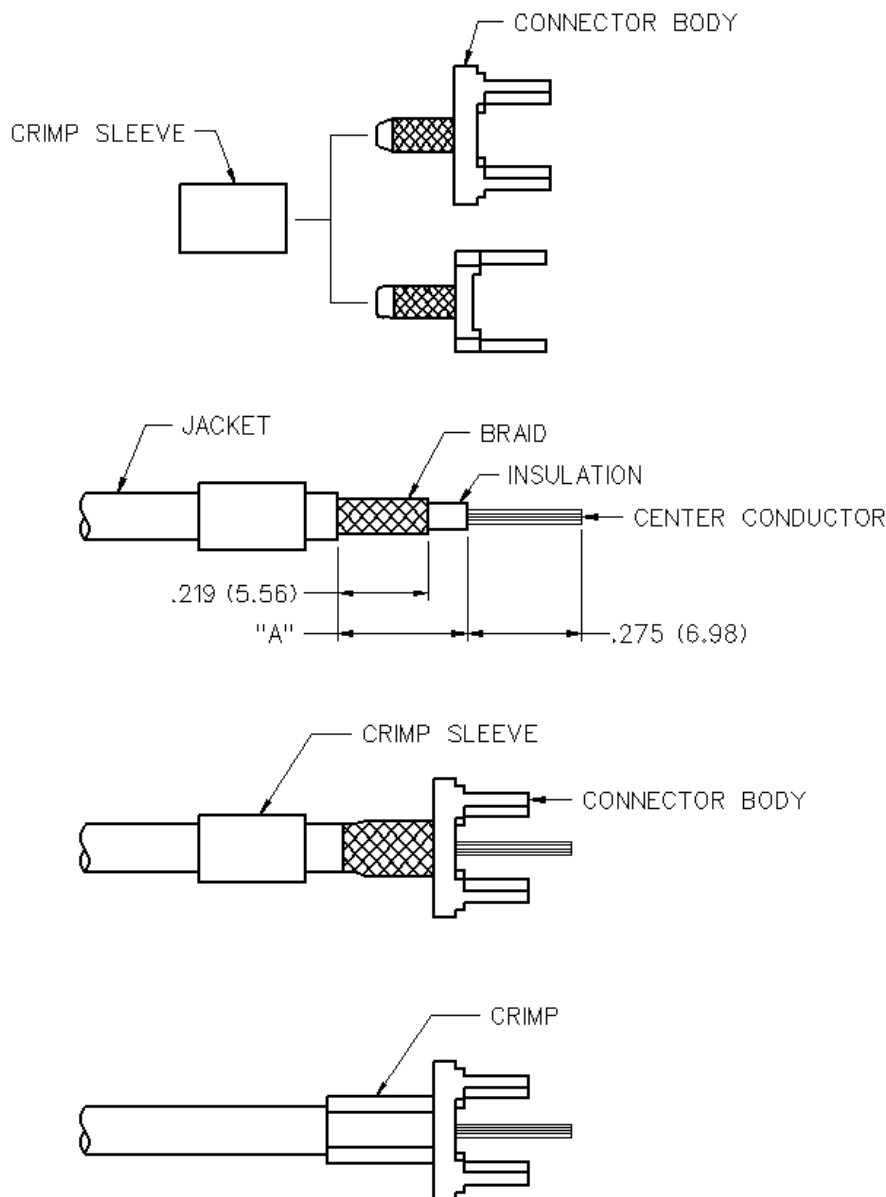
CABLE GROUP	PART NO.	CRIMP HEX
RG-316/U, 161, 174, 188	134-0303-406	.160 (4.06)
RG-316 DS, 188 DS	134-0304-406	.160 (4.06)
RG-58/U, 141, 303	134-0307-406	.213 (5.41)
RG-55/U, 142, 223, 400	134-0308-406	.213 (5.41)



1. Identify connector parts. (6 piece parts)
2. Strip cable to dimensions shown. Do not nick braid or center conductor. A wire stripper of correct size is recommended for this step. Twist stranded center conductor into a tight bundle and tin (optional). Slide crimp sleeve onto cable as shown.
3. Flare body and slide cable into crimp stem of rear body subassembly, until cable dielectric bottoms out on center contact. Solder center conductor to contact through the solder hole. Solder must not be allowed to gather and run on outside of contact. Use a minimum amount of solder for a good joint. **.020 (0.51) diameter solder is recommended.**
4. Arrange braid uniformly around crimp stem. Slide crimp sleeve over braid and crimp securely using recommended crimp tool. Slide insulator over center conductor and slide center contact assembly into connector body. Thread rear body subassembly into body and tighten securely (ref. 30 in-lbs torque.)

## Crimp Type Straight Cable Termination for Flexible Cable

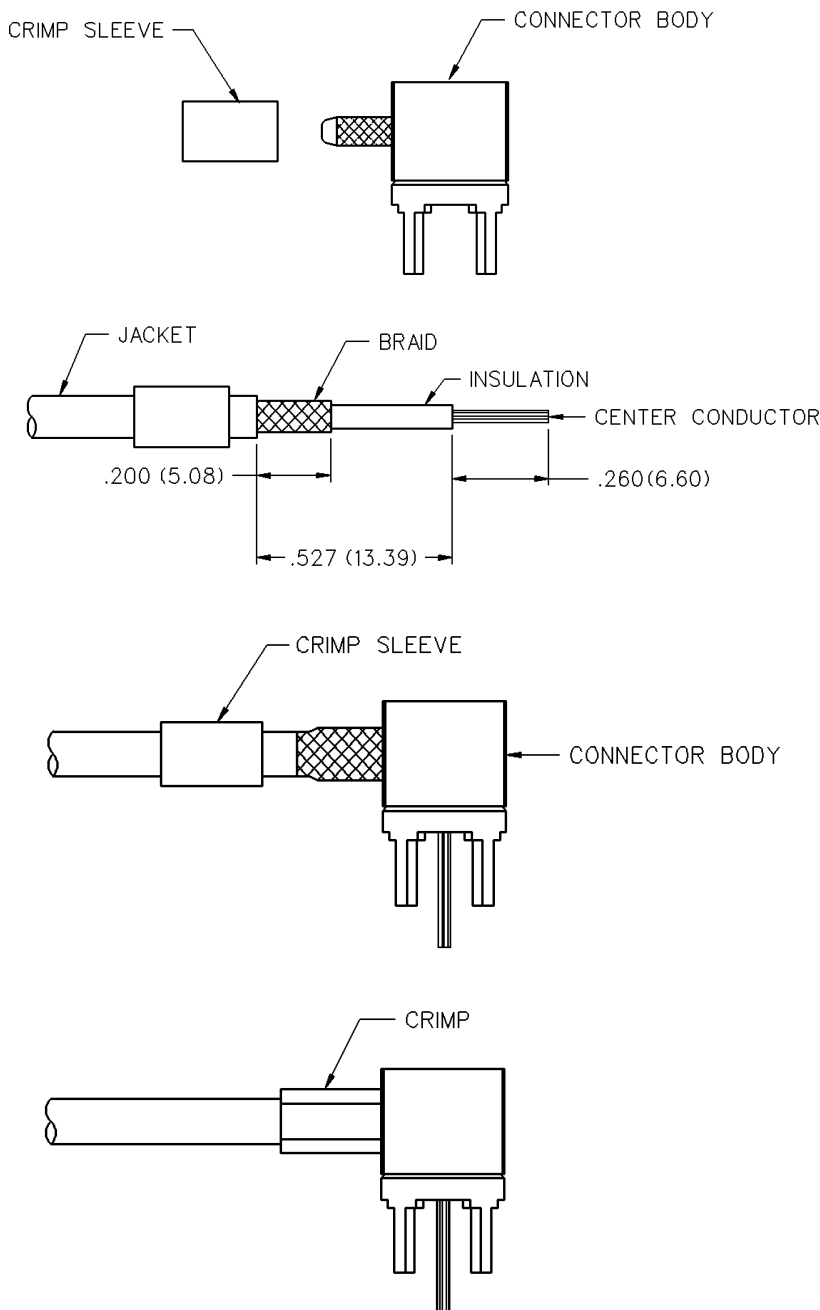
CABLE GROUP	PART NO.	"A"	CRIMP HEX
RG-178/U, 196	142-0002-221/226	.259 (6.58)	.105 (2.67)
RG-316/U, 161, 174 179, 187, 188	142-0003-201/206	.312 (7.92)	.128 (3.25)
	142-0003-231/236	.259 (6.58)	.128 (3.25)
	142-0003-241/246	.259 (6.58)	.128 (3.25)
RG-316 DS, 188 DS	142-0004-201/206	.312 (7.92)	.151 (3.83)
	142-0004-211/216	.259 (6.58)	.151 (3.83)
	142-0004-221/226	.259 (6.58)	.151 (3.83)



1. Identify connector parts. (2 piece parts)
2. Strip cable to dimensions shown. Do not nick braid or center conductor. A wire stripper of correct size is recommended for this step. Twist stranded center conductor into tight bundle and tin. Slide crimp sleeve onto cable as shown.
3. Flare braid and slide cable into body making certain that the cable insulation is flush with bottom of connector.
4. Arrange braid uniformly around crimp stem. Slide crimp sleeve over braid and crimp securely using recommended crimp tool.

## Crimp Type Right Angle Cable Termination for Flexible Cable

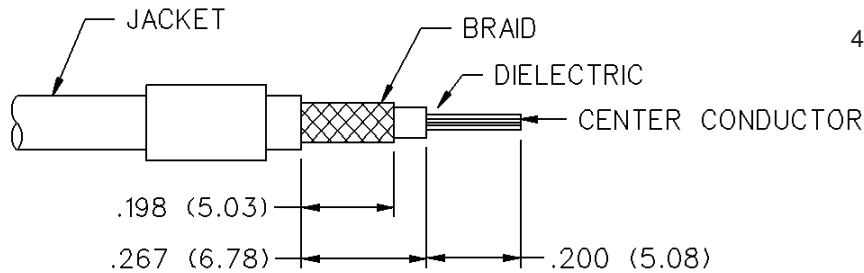
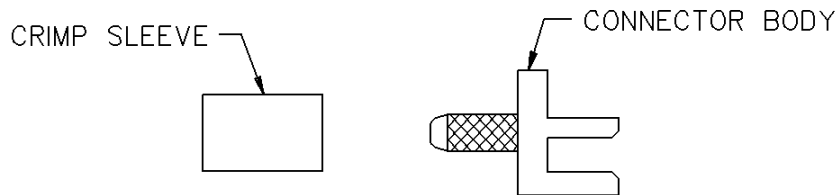
CABLE GROUP	PART NO.	CRIMP HEX
RG-316/U, 161, 174 179, 187, 188	142-0003-301/306	.128 (3.25)
RG-316 DS, 188 DS	142-0004-301/306	.151 (3.83)



1. Identify connector parts. (2 piece parts)
2. Strip cable to dimensions shown. Do not nick braid or center conductor. A wire stripper of correct size is recommended for this step. Twist stranded center conductor into tight bundle and tin. Slide crimp sleeve onto cable as shown.
3. Flare braid and slide cable into body making certain that the cable insulation is flush with bottom of connector body.
4. Arrange braid uniformly around crimp stem. Slide crimp sleeve over braid and crimp securely using recommended crimp tool.

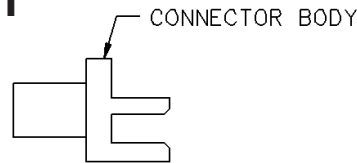
## Crimp Type Straight Cable Termination for End Launch

CABLE GROUP	PART NO.	CRIMP HEX
RG-178/U, 196	142-0002-811	.105 (2.67)
RG-316/U, 161, 174 179, 187, 188	142-0003-801	.128 (3.25)
	142-0003-811	.128 (3.25)
RG-316 DS, 188 DS, 179 DS, 187 DS	142-0004-801	.151 (3.84)
	142-0004-811	.151 (3.84)
RG-58/U, 141, 303	142-0007-801	.213 (5.41)
	142-0007-811	.213 (5.41)
RG-142/U, 55, 223, 400	142-0008-801	.213 (5.41)
	142-0008-811	.213 (5.41)

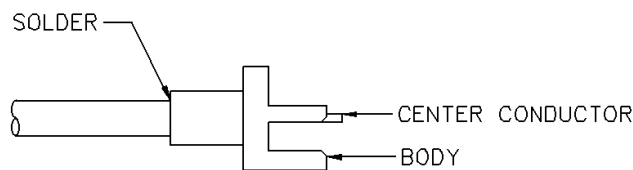
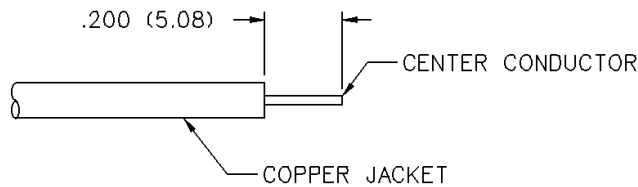


1. Identify connector parts. (2 piece parts)
2. Strip cable to dimensions shown. Do not nick braid or center conductor. A wire stripper of correct size is recommended for this step. Twist stranded center conductor into tight bundle and tin. Slide crimp sleeve onto cable as shown.
3. Flare braid and slide cable into body making certain that the cable insulation is flush with bottom of connector body.
4. Arrange braid uniformly around crimp stem. Slide crimp sleeve over braid and crimp securely using recommended crimp tool.

## Solder Type Straight Cable Termination for End Launch

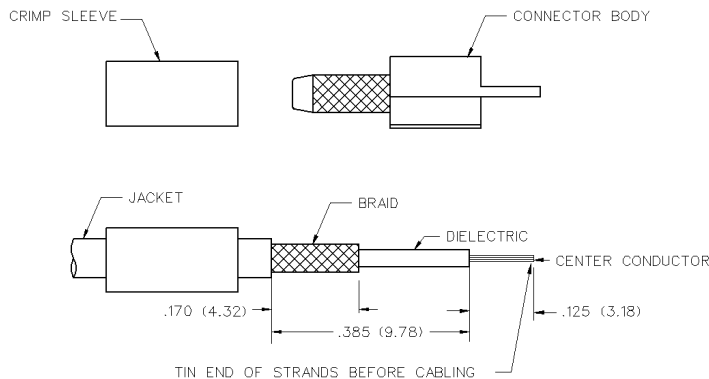


CABLE GROUP	PART NO.
RG-405/U (.086 Semi-Rigid)	142-0093-801/806
RG-402/U (.141 Semi-Rigid)	142-0094-801/806
.250 Semi-Rigid	142-0096-801/806

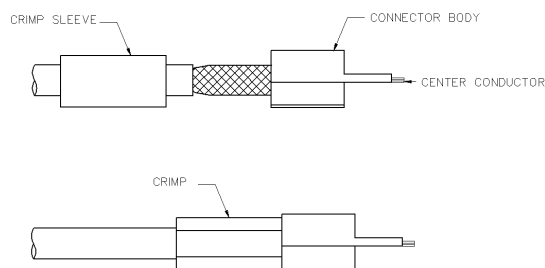


1. Identify connector parts. (1 piece part)
2. Strip cable to dimensions shown. Do not nick braid or center conductor.
3. Insert cable into body making sure cable is bottomed against shoulder body. Solder body to cable. Use a minimum amount of heat to minimize cable dielectric movement.

## Solder Type Straight Cable Termination for End Launch Surface Mount



CABLE GROUP	PART NO.	CRIMP HEX
RG-178/U, 196	142-0002-821	.105 (2.67)



1. Identify connector parts (2-piece parts).
2. Strip cable to dimensions shown. Do not nick braid or center conductor. A wire stripper of correct size is recommended for this step. Twist stranded center conductor into tight bundle and tine. Slide crimp sleeve onto cable as shown.
3. Flare braid and slide cable into body making certain that the cable dielectric is flush with the end of the connector body.
4. Arrange braid uniformly around crimp sleeve. Slide crimp sleeve over braid and crimp securely using recommended crimp tool.

## BNC Straight 3-Piece Crimp Type Plugs for Flexible Cable

PART NO.	CABLE	STRIP DIMENSIONS			CRIMP SLEEVE HEX	CONTACT CRIMP HEX	RECOMMENDED CRIMP TOOL
		"A"	"B"	"C"			
CPMC-78-2	RG-59	.315 (8.00)	.248 (6.30)	.157 (4.00)	.255 (6.48)	.065 (1.65)	24-9959P
CPMC-78-5	BELDEN RG-6	.315 (8.00)	.248 (6.30)	.118 (3.00)	.288 (7.32)	.065 (1.65)	24-302P/24-318P
CPMC-78-10	RG-59 PLENUM	.315 (8.00)	.248 (6.30)	.157 (4.00)	.213 (5.41)	.067 (1.70)	24-9958P
CPMC-78-18	BELDEN 8218, 1855A	.315 (8.00)	.248 (6.30)	.157 (4.00)	.184 (4.67)	.066 (1.68)	24-9912P
CPMC-88-1	RG-58	.315 (8.00)	.098 (2.50)	.157 (4.00)	.213 (5.41)	.067 (1.70)	24-9958P
CPMC-88-2	RG-59	.315 (8.00)	.118 (3.00)	.157 (4.00)	.258 (6.55)	.065 (1.65)	24-8859P
CPMC-88-3	BELDEN 8281	.315 (8.00)	.118 (3.00)	.157 (4.00)	.310 (7.87)	.065 (1.65)	24-318P
CPMC-88-5	RG-6	.315 (8.00)	.118 (3.00)	.157 (4.00)	.275 (6.98)	.065 (1.65)	24-8856P
CPMC-88-10	RG-59 PLENUM	.315 (8.00)	.118 (3.00)	.157 (4.00)	.213 (5.41)	.067 (1.70)	24-9958P
CPMC-88-11	RG-58 PLENUM	.344 (8.75)	.147 (3.75)	.157 (4.00)	.213 (5.41)	.067 (1.70)	24-9958P
CPMC-88-13	RG-55, 142	.315 (8.00)	.118 (3.00)	.157 (4.00)	.213 (5.41)	.067 (1.70)	24-9958P
CPMC-88-14	RG-180, 34M, 195	.315 (8.00)	.118 (3.00)	.157 (4.00)	.184 (4.67)	.066 (1.68)	24-9912P
CPMC-88-17	RG-8X (MINI 8 )	.315 (8.00)	.118 (3.00)	.157 (4.00)	.255 (6.48)	.065 (1.65)	24-9959P
CPMC-88-18	BELDEN 8218	.315 (8.00)	.118 (3.00)	.157 (4.00)	.184 (4.67)	.066 (1.68)	24-9912P
CPMC-88-19	RG-174, 188, 316	.344 (8.75)	.118 (3.00)	.157 (4.00)	.184 (4.67)	.066 (1.68)	24-9912P
CPMC-88-26	RG-11	.300 (7.62)	.240 (6.10)	.365 (9.27)	.405 (10.29)	.080 (2.03)	24-310/24-313

1. Identify connector parts. (3 piece parts)

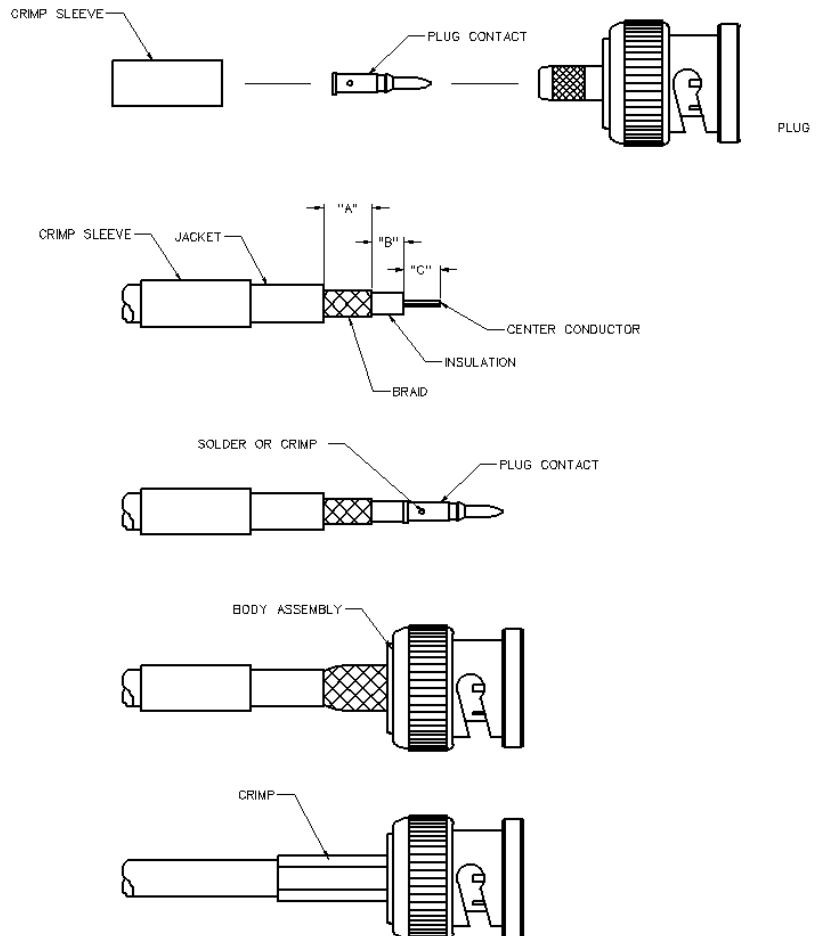
2. Strip cable to dimensions shown. Do not nick braid or center conductor. Tin center conductor if contact will be solder attached. Do not tin center conductor if contact is to be crimp attached. A wire stripper of correct size is recommended for this step. Slide heat shrink (as applicable) and crimp sleeve onto jacket of cable.

3. Assemble contact onto cable as shown.

**Solder Attachment:** Solder contact to center conductor through hole using a minimum amount of solder for a good joint.

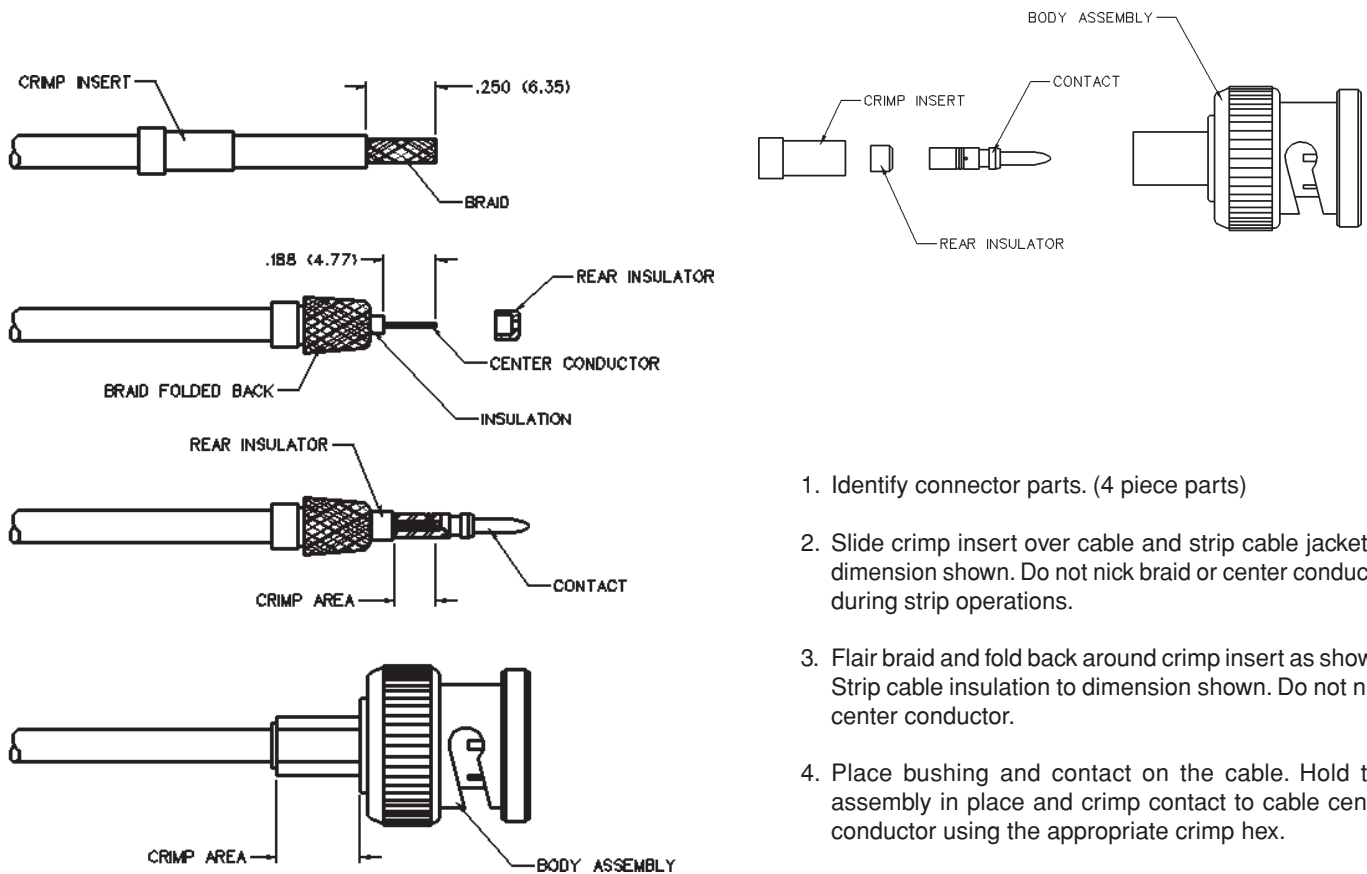
**Crimp Attachment (where applicable):** Crimp contact to center conductor using recommended crimp hex.

4. Flare braid and slide body assembly over contact and under braid. Then seat body assembly firmly onto contact. The cable may have to be held in a clamping fixture. Arrange braid uniformly around crimp stem. Slide crimp sleeve forward and crimp using recommended crimp hex. Slide heat shrink forward and shrink (as applicable).



## BNC, TNC Straight Crimp Type Plugs with Crimp Insert for Flexible Cable

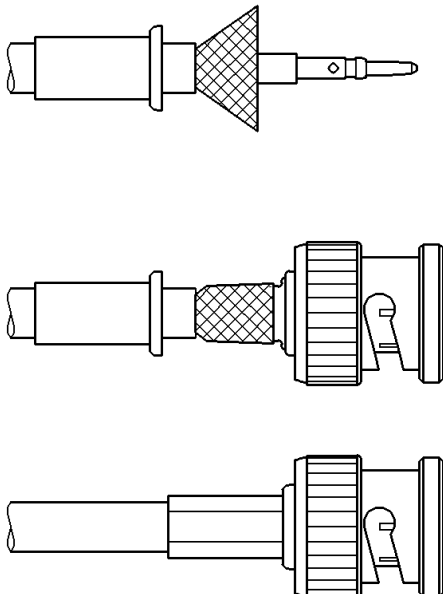
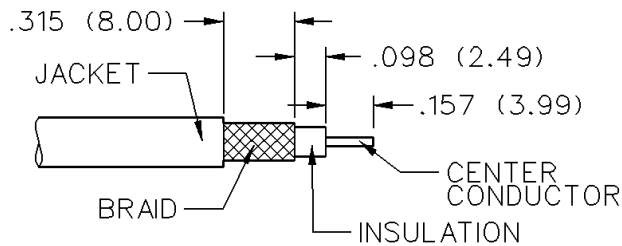
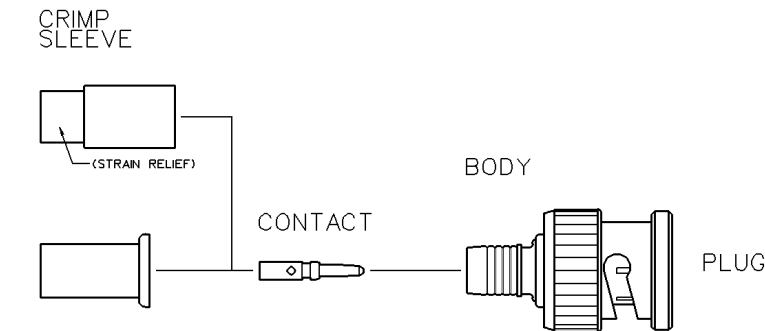
PART NO.	BODY CABLE	CONTACT STEM HEX	CRIMP HEX	RECOMMENDED CRIMP TOOL
CPM-88-19	RG-174, 188, 316	0.184 (4.67)	.066 (1.68)	24-9912P
CPM-88-19A/S	RG-174, 316	0.184 (4.67)	.066 (1.68)	24-9912P
CPM-88-20	RG-179, 187	0.184 (4.67)	.066 (1.68)	24-9912P
CPM-TNC-19	RG-174, 188, 316	0.184 (4.67)	.066 (1.68)	24-9912P
CPM-TNC-20	RG-179, 187	0.184 (4.67)	.066 (1.68)	24-9912P



1. Identify connector parts. (4 piece parts)
2. Slide crimp insert over cable and strip cable jacket to dimension shown. Do not nick braid or center conductor during strip operations.
3. Flair braid and fold back around crimp insert as shown. Strip cable insulation to dimension shown. Do not nick center conductor.
4. Place bushing and contact on the cable. Hold the assembly in place and crimp contact to cable center conductor using the appropriate crimp hex.
5. Slide body assembly over contact and other connector parts until a slight snap is felt, indicating the contact is in place. Crimp the body assembly in the location shown using the appropriate crimp hex.

## BNC Straight Crimp Type Plugs for Flexible Cable

PART NO.	CABLE	CRIMP SLEEVE HEX	STRAIN RELIEF CRIMP HEX	RECOMMENDED CRIMP TOOL
CPMC-88-21	RG-58, RG-59 PLENUM	.235 (5.97), .250 (6.35)	.210 (5.33)	24-8857P/24-9859P

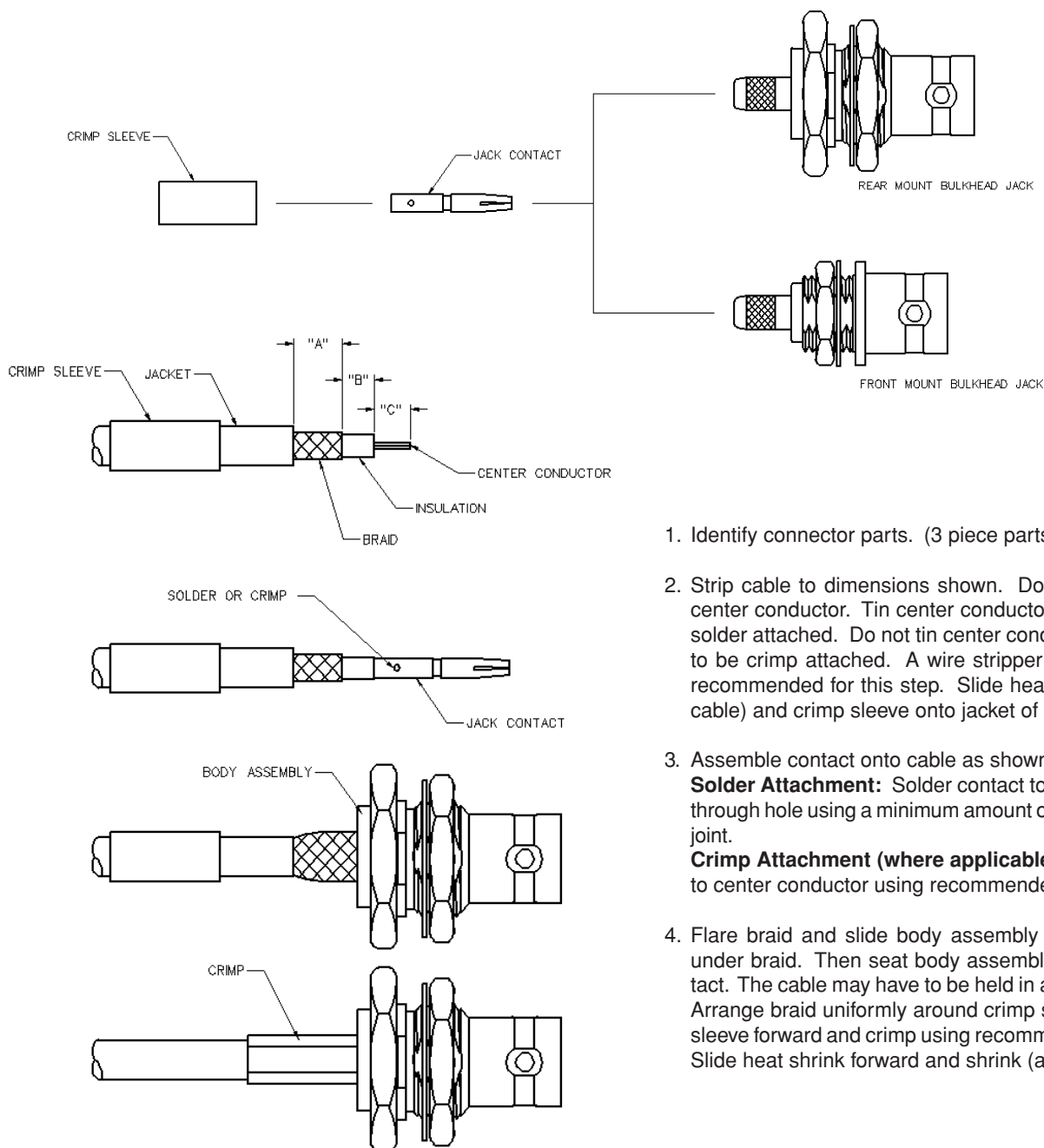


1. Identify connector parts. (3 piece parts)
2. Trim the cable to the dimensions shown. Take care not to nick the center conductor or the braid.
3. Slide the crimp sleeve onto the cable, narrow end first. Solder the contact to the center conductor using the minimum amount necessary for a good joint, make sure that the contact is flush with the insulation of the cable. Flare the braid.
4. Slide the body over the contact and under the braid. Then seat the body firmly onto the contact.
5. Arrange the braid uniformly around the crimp stem of the body. Slide the crimp sleeve forward and crimp using the recommended crimp hex.



## BNC Straight Crimp Type Bulkhead Jacks for Flexible Cable

PART NO.	CABLE	STRIP DIMENSIONS			CRIMP SLEEVE HEX	CONTACT CRIMP HEX	RECOMMENDED CRIMP TOOL
		"A"	"B"	"C"			
CP-79-20BM1	RG-179	.315 (8.00)	.197 (5.00)	.138 (3.50)	.184 (4.67)	.066 (1.69)	24-9912P
CP-79-20BM2	RG-179	.315 (8.00)	.157 (4.00)	.118 (3.00)	.184 (4.67)	.066 (1.69)	24-9912P
CP-89-19BM1	RG-174, 316	.315 (8.00)	.197 (5.00)	.138 (3.50)	.184 (4.67)	.066 (1.69)	24-9912P
CP-89-27BM2	RG-178, 196	.226 (5.75)	.106 (2.70)	.118 (3.00)	.128 (3.25)	None (solder Only)	94-9963P



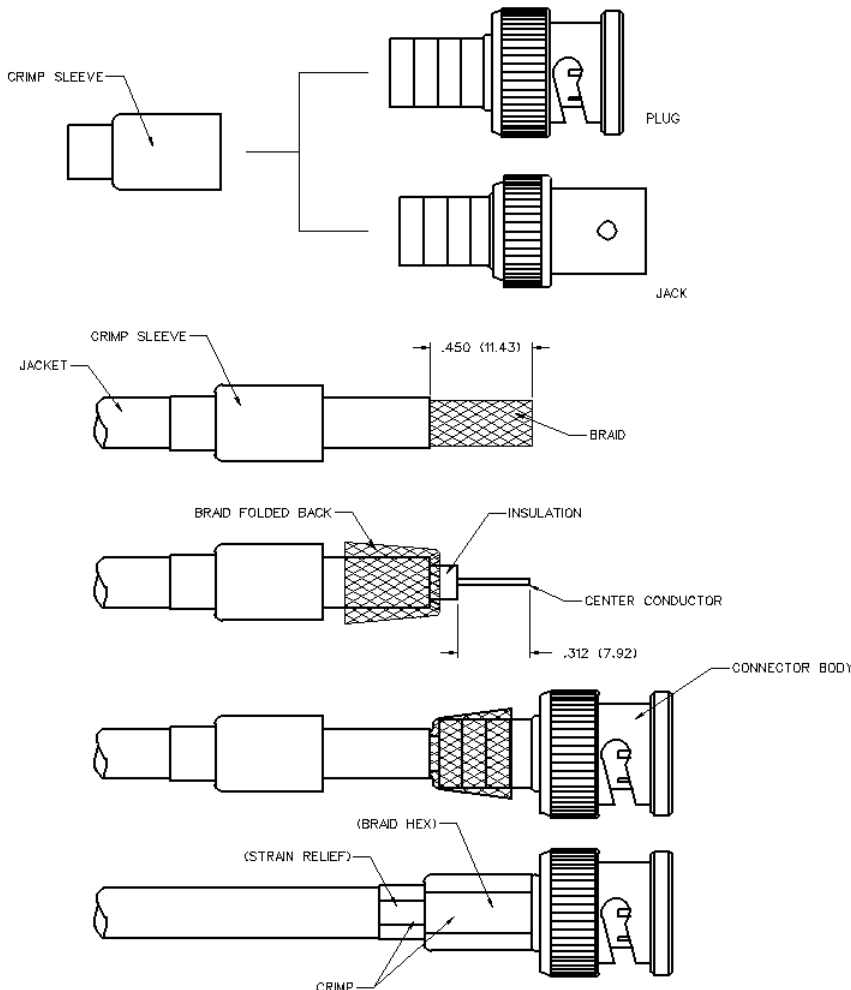
1. Identify connector parts. (3 piece parts)
2. Strip cable to dimensions shown. Do not nick braid or center conductor. Tin center conductor if contact will be solder attached. Do not tin center conductor if contact is to be crimp attached. A wire stripper of correct size is recommended for this step. Slide heat shrink (as applicable) and crimp sleeve onto jacket of cable.
3. Assemble contact onto cable as shown.
 

**Solder Attachment:** Solder contact to center conductor through hole using a minimum amount of solder for a good joint.

**Crimp Attachment (where applicable):** Crimp contact to center conductor using recommended crimp hex.
4. Flare braid and slide body assembly over contact and under braid. Then seat body assembly firmly onto contact. The cable may have to be held in a clamping fixture. Arrange braid uniformly around crimp stem. Slide crimp sleeve forward and crimp using recommended crimp hex. Slide heat shrink forward and shrink (as applicable).

## BNC Straight 2-Piece Crimp Type Plugs and Jacks for Flexible Cable

PART NO.	CABLE	CRIMP (BRAID HEX)	CRIMP (STRAIN RELIEF)	RECOMMENDED CRIMP TOOL
CP-78-2	RG-59, 62	.320 (8.13)	.250 (6.35)	24-9859P
CP-78-5	RG-6	.320 (8.13)	.275 (6.99)	24-321P/24-8856P
CP-78-10	RG-59 PLENUM, RG-62	.320 (8.13)	.211 (5.36)	24-9858P
CP-88-1	RG-58	.320 (8.13)	.211 (5.36)	24-9858P
CP-88-2	RG-59, 62	.320 (8.13)	.250 (6.35)	24-9859P
CP-88-3	BELDEN 8281	.350 (8.89)	.288 (7.32)	24-302P
CP-88-4	RG-MATV-59	.320 (8.13)	.250 (6.35)	24-9859P
CP-88-5	RG-6	.320 (8.13)	.275 (6.90)	24-321P/24-8856P
CP-88-10	RG-59 PLENUM, 62	.320 (8.13)	.211 (5.36)	24-9858P
CP-89-1	RG-58	.320 (8.13)	.211 (5.36)	24-9858P
CP-89-2	RG-59, 62	.320 (8.13)	.250 (6.35)	24-9859P
CP-SW88-2	RG-59, 62, RG-6 PLENUM	.320 (8.13)	.250 (6.35)	24-9859P
CP-SW88-10	RG-59AU PLENUM	.320 (8.13)	.211 (5.36)	24-9858P
CP-SW88-21	RG-58, RG-59 PLENUM	.320 (8.13)	.211 (5.36)	24-9858P
CP-SW88-21	RG-59	.320 (8.13)	.250 (6.35)	24-9859P



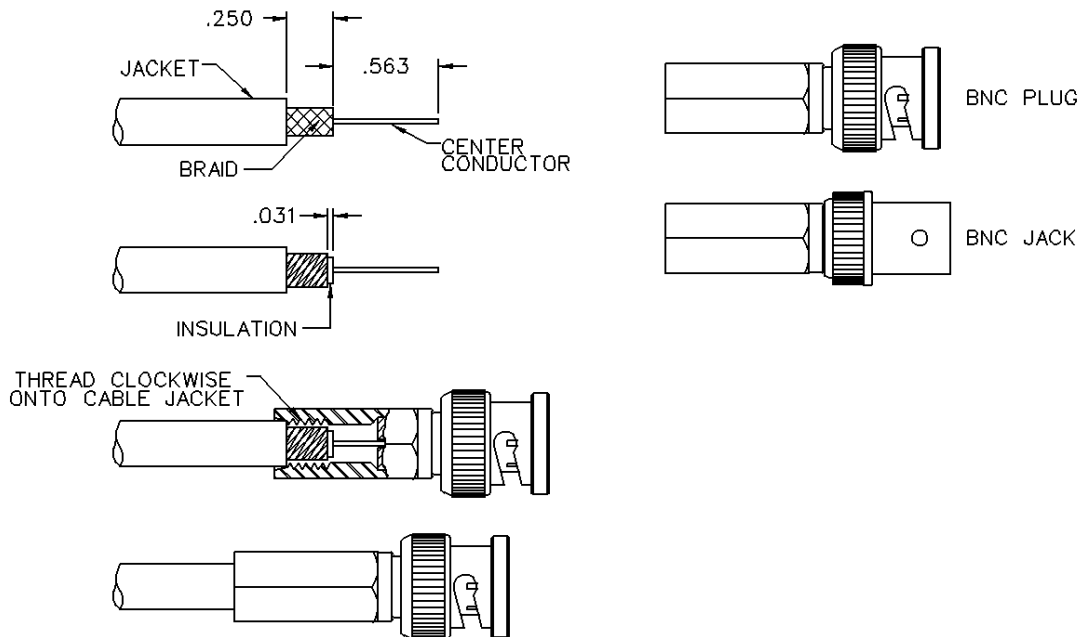
1. Identify connector parts. (2 piece parts)
2. Slide crimp sleeve over cable and strip cable jacket to dimension shown. Do not nick braid or center conductor during strip operations.
3. Flair braid and fold back. Strip cable insulation to dimension shown. Do not nick center conductor. Cables with stranded center conductors should be tinned for rigidity.
4. Insert center conductor into the guide hole found in the rear of the connector body. Push or twist the body onto the center conductor until the cable insulation butts up to the body.
5. Arrange braid uniformly around crimp stem. Slide crimp sleeve over braid and crimp securely using recommended crimp tool.

## BNC Twist-on Plugs and Jacks Field Installable

PART NO.	CABLE TYPE	WIRE GAUGE	WIRE DECIMAL	JACKET O.D.
CPFI-UG78-2	RG-59, 62	22	.025 (0.64)	.220 (5.59)-.250 (6.35)
CPFI-UG78-5	RG-6	18	.040 (1.02)	.270 (6.86)-.280 (6.35)
CPFI-UG88-1	RG-58	20	.032 (0.81)	.185 (4.07)-.205 (5.21)
CPFI-UG88-2	RG-59, 62	22	.025 (0.64)	.220 (5.59)-.250 (6.35)
CPFI-UG88-3	BELDEN 8281	20	.032 (0.81)	.272 (6.91)-.307 (7.80)
CPFI-UG88-4	RG-MATV-59	20	.032 (0.81)	.220 (5.59)-.250 (6.35)
CPFI-UG88-5	RG-6	18	.040 (1.02)	.270 (6.86)-.280 (7.11)
CPFI-UG88-10	RG-TFE-59, 62	22	.025 (0.64)	.185 (4.07)-.205 (5.21)
CPFI-UG89-2	RG-59, 62	22	.025 (0.64)	.220 (5.59)-.250 (6.35)

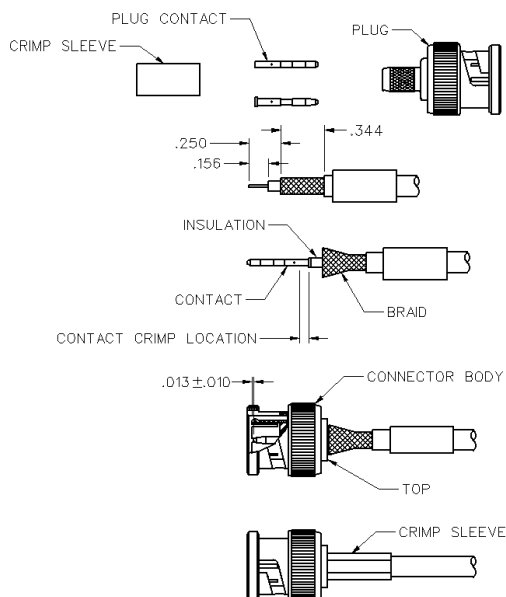
### CABLE ASSEMBLY CAUTIONS:

- Series are designed for solid center conductor wire. RG-58 cable will need the center conductor tin dipped (ONLY if it is not a solid center conductor). This is necessary to provide extra support for step 5.
  - RG-MATV-59 cable will require caution when using the fingernail to rotate the braids on cable types that include aluminum foil for the outer conductor. DO NOT tear or rip the foil conductor to the 1/32" as suggested by step 3.
  - RG-62 cable includes trimming the filament to 9/16" as well. Make sure that the filament does not unravel so that it protrudes past this dimension.
- Identify connector parts. (1 piece)
  - Trim cable as shown. Taking care not to nick the center conductor or outer braid.
  - Use the fingernail to rotate the outer braids clockwise such that 1/32" of the insulation is bared. Then in the same direction rub the stray braids flat. (Stray or loose braids can cause shorts.)
  - Gently insert the center conductor down the back end of the connector, feeding it into the guide hole. (If the center conductor is not in place, approximately 1/8" of the center conductor—the part closest to the dielectric—will still be viewable.)
  - Firmly push the cable home (a slight clockwise twist may help with insertion). Then screw the connector on the cable in a clockwise direction until it is snugly attached to the jacket.



## BNC 75 Ohm Straight Cabled Plugs

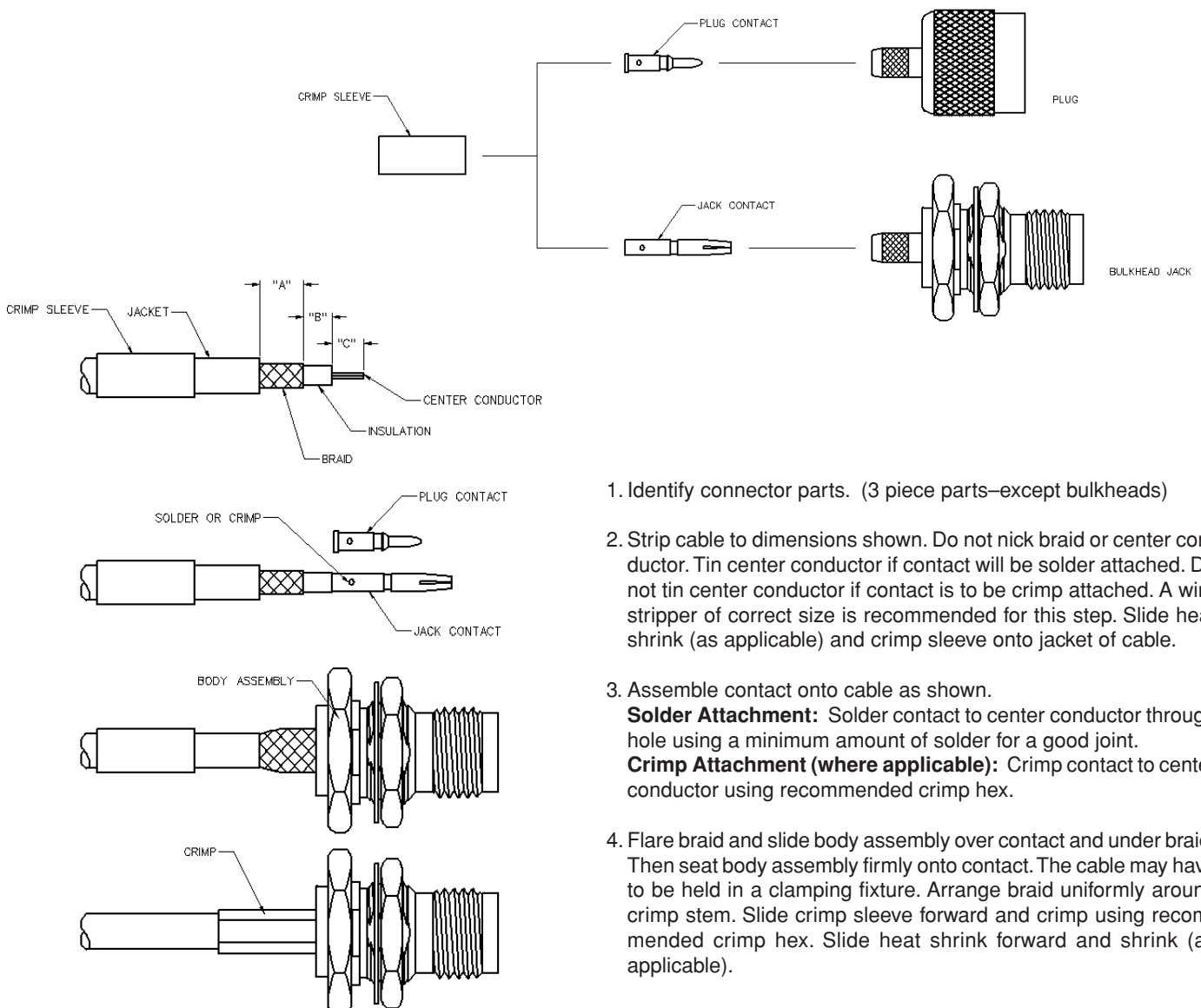
PART NO.	CABLE TYPE	CRIMP SLEEVE HEX	CONTACT CRIMP HEX	RECOMMENDED CRIMP TOOL
CPMC-68-2	RG-59, 140, 302, Belden 9209A, 8279, 8241, 8263, Commscope 5563, Gepco VJ59U	.255 (6.48)	.042 (1.07)	24-9963P
CPMC-68-3	Belden 8281, 9231, 9141, 728A, Commscope 7501, VP618PVC	.324 (8.23)	.042 (1.07)	24-9961P 24-8857P
CPMC-68-5	RG-6, Belden 8215	.350 (8.89)	.042 (1.07)	24-9962P
CPMC-68-10	Belden 82108, 89108, Coleman 99969	.255 (6.48)	.042 (1.07)	24-9963P
CPMC-68-18	Belden 8218	.178 (4.52)	.042 (1.07)	24-9963P
CPMC-68-20	RG-179, 187, Belden 1520A	.128 (3.25)	.042 (1.07)	24-9963P
CPMC-68-33	Belden 735A, Commscope 735, Helex/Hitemp 735, BT3002, TZC75024	.178 (4.52)	.042 (1.07)	24-9963P
CPMC-68-34	Belden 1855A, 720A, Commscope 7538, Gepco VDM 230, VDM 250, Mini-75	.178 (4.52)	.042 (1.07)	24-9963P
CPMC-68-35	Belden 1505A, 734A, Commscope 5565, Gepco VPM2000	.255 (6.48)	.042 (1.07)	24-9963P
CPMC-68-36	Belden 1695A, Gepco VSD2001TS	.264 (6.71)	.042 (1.07)	24-9961P 24-8857P
CPMC-68-45	Belden 1694A, 9248, Commscope 5765, Gepco VSD2001, Coleman 96061	.288 (7.32)	.042 (1.07)	24-9962P
CPMC-68-50	Belden 1506A, 82259, 89259, Gepco VPM2000TK, VPM2000TS	.255 (6.48)	.042 (1.07)	24-9963P



1. Identify connector parts. (3 piece parts)
2. Slide crimp sleeve over the cable as shown.
3. Strip cable per dimensions given and loosen braid.
4. Place contact over cable center conductor and position against insulation.
5. Crimp (.042 crimp hex) or solder contact. If crimping the contact, crimp the contact as close as possible to the cable insulation as shown.
6. Push the cable with the attached contact into the connector body until contact is captured by internal rib within connector body. Contact location shall be per dimension shown. Slide crimp sleeve over braid until it rests against top of connector body. Finish assembly by crimping with appropriate crimp hex die as indicated for each connector by the table.

## TNC Straight Crimp Type Plugs and Bulkhead Jacks for Flexible Cable

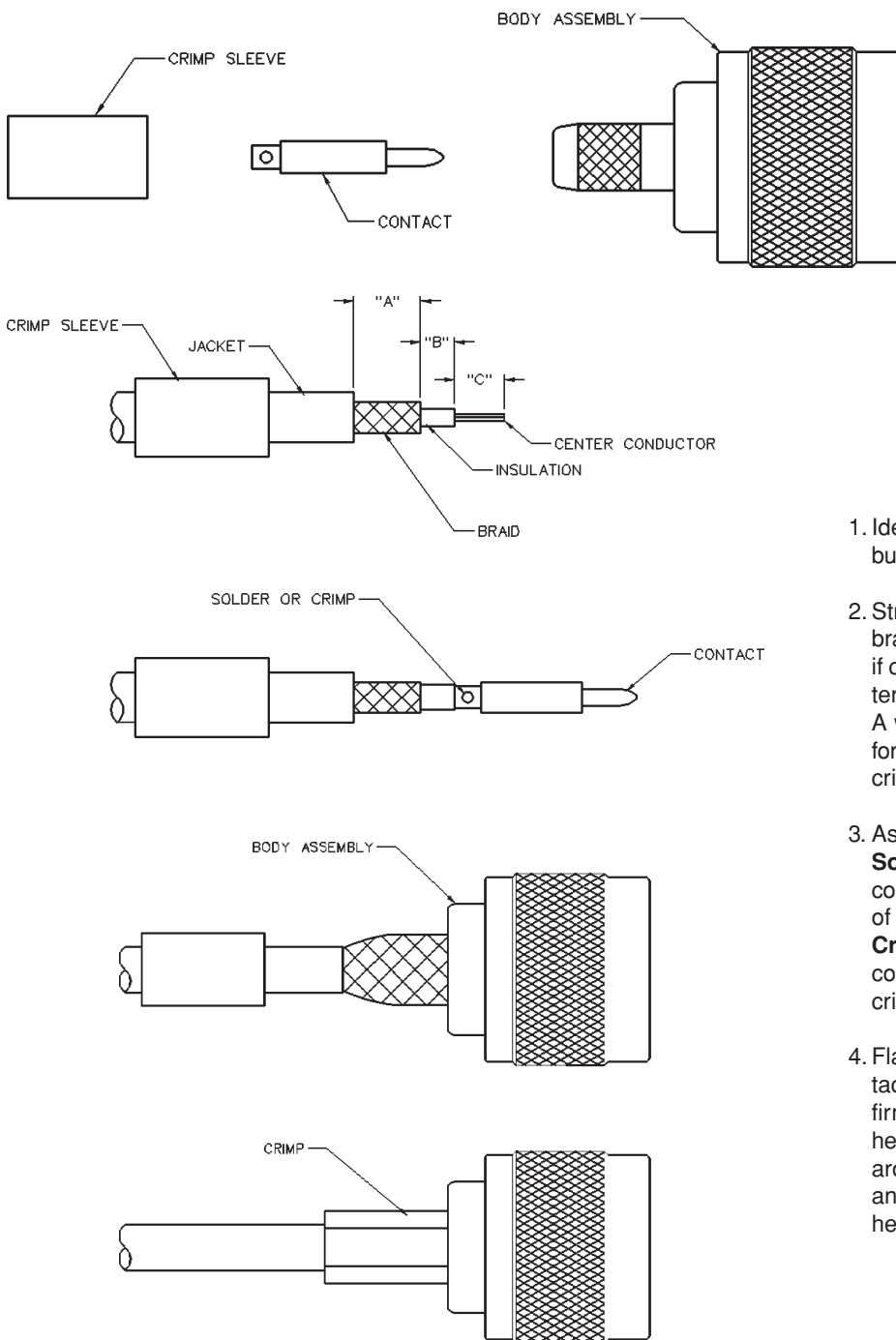
PART NO.	CABLE	STRIP DIMENSIONS			CRIMP SLEEVE HEX	CONTACT CRIMP HEX	RECOMMENDED CRIMP TOOL
		"A"	"B"	"C"			
CP-TNC-89-19-BM	RG-174, 316	.335 (8.51)	.197 (5.00)	.118 (3.00)	.184 (4.67)	.066 (1.69)	24-9912P
CPMC-TNC-1	RG-58	.315 (8.00)	.118 (3.00)	.157 (4.00)	.213 (5.41)	.067 (1.70)	24-9958P
CPMC-TNC-2	RG-59	.315 (8.00)	.118 (3.00)	.157 (4.00)	.255 (6.48)	.066 (1.68)	24-9959P
CPMC-TNC-13	RG-55, 142	.315 (8.00)	.118 (3.00)	.157 (4.00)	.213 (5.41)	.067 (1.70)	24-9958P
CPMC-TNC-16	Proflex RG-450	.315 (8.00)	.118 (3.00)	.157 (4.00)	.255 (6.48)	.066 (1.68)	24-9959P
CPMC-TNC-17	RG-8X	.315 (8.00)	.118 (3.00)	.157 (4.00)	.255 (6.48)	.066 (1.68)	24-9959P



1. Identify connector parts. (3 piece parts—except bulkheads)
2. Strip cable to dimensions shown. Do not nick braid or center conductor. Tin center conductor if contact will be solder attached. Do not tin center conductor if contact is to be crimp attached. A wire stripper of correct size is recommended for this step. Slide heat shrink (as applicable) and crimp sleeve onto jacket of cable.
3. Assemble contact onto cable as shown.
  - Solder Attachment:** Solder contact to center conductor through hole using a minimum amount of solder for a good joint.
  - Crimp Attachment (where applicable):** Crimp contact to center conductor using recommended crimp hex.
4. Flare braid and slide body assembly over contact and under braid. Then seat body assembly firmly onto contact. The cable may have to be held in a clamping fixture. Arrange braid uniformly around crimp stem. Slide crimp sleeve forward and crimp using recommended crimp hex. Slide heat shrink forward and shrink (as applicable).

## N Straight Crimp Type Plugs for Flexible Cable

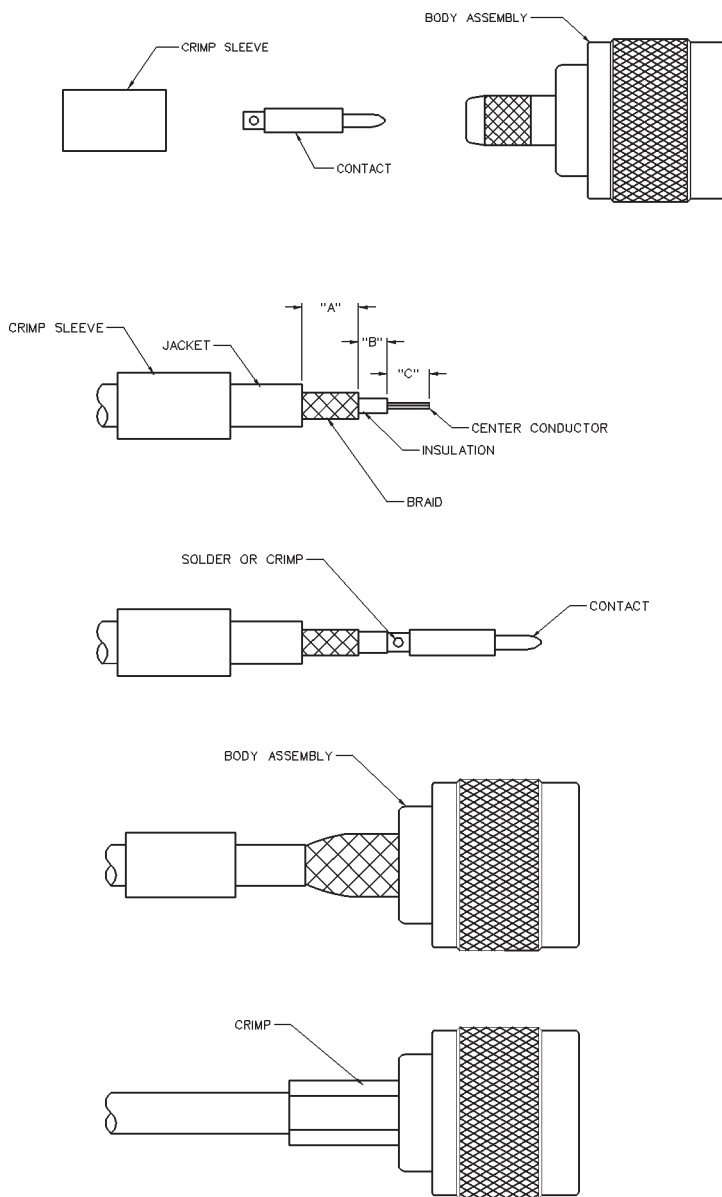
PART NO.	CABLE	STRIP DIMENSIONS			CRIMP SLEEVE HEX	CONTACT CRIMP HEX	RECOMMENDED CRIMP TOOL
		"A"	"B"	"C"			
CPN-68-1	RG-58	.335 (8.50)	.079 (2.00)	.157 (4.00)	.215 (5.46)	.065 (1.65)	24-8858P
CPN-68-13	RG-142	.335 (8.50)	.079 (2.00)	.157 (4.00)	.215 (5.46)	.065 (1.65)	24-8858P
CPN-68-8	RG-8, 213	.354 (9.00)	.138 (3.50)	.157 (4.00)	.429 (10.90)	.100 (2.54)	24-313



1. Identify connector parts. (3 piece parts—except bulkheads)
2. Strip cable to dimensions shown. Do not nick braid or center conductor. Tin center conductor if contact will be solder attached. Do not tin center conductor if contact is to be crimp attached. A wire stripper of correct size is recommended for this step. Slide heat shrink (as applicable) and crimp sleeve onto jacket of cable.
3. Assemble contact onto cable as shown.
  - Solder Attachment:** Solder contact to center conductor through hole using a minimum amount of solder for a good joint.
  - Crimp Attachment (where applicable):** Crimp contact to center conductor using recommended crimp hex.
4. Flare braid and slide body assembly over contact and under braid. Then seat body assembly firmly onto contact. The cable may have to be held in a clamping fixture. Arrange braid uniformly around crimp stem. Slide crimp sleeve forward and crimp using recommended crimp hex. Slide heat shrink forward and shrink (as applicable).

## N Crimp-Crimp Plugs for Flexible Cable

PART NO.	CABLE TYPE	WIRE GAUGE	WIRE DECIMAL	JACKET O.D.	HEX SIZE	CONTACT CRIMP HEX	RECOMMENDED CRIMP TOOL
CPN-1	RG-58	18	.043 (1.09)	.185 (4.07)-.205 (5.21)	.213 (5.41)	.100 (2.54)	24-312
CPN-2	RG-59	22	.0253 (6.43)	.220 (5.59)-.250 (6.35)	.255 (6.48)	.100 (2.54)	24-312
CPN-8	RG-8, 213	13	.072 (1.83)	.400 (10.16)-.410 (10.44)	.406 (10.31)	.102 (2.59)	24-7712P
CPN-8/110*	RG-58 LOW LOSS, 213	10	.110 (2.80)	.400 (10.16)-.410 (10.44)	.406 (10.31)	.102 (2.59)	24-7712P
CPN-16	Proflex RG-450	18	.056 (1.42)	.220 (5.59)-.250 (6.35)	.255 (6.48)	.100 (2.54)	24-312
CPN-17	RG-8X	16	.065 (1.65)	.220 (5.59)-.250 (6.35)	.255 (6.48)	.100 (2.54)	24-312
CPN-142T	RG-142TFE	20	.034 (0.86)	.200 (5.08)-.220 (5.59)	.213 (5.41)	.100 (2.54)	24-312

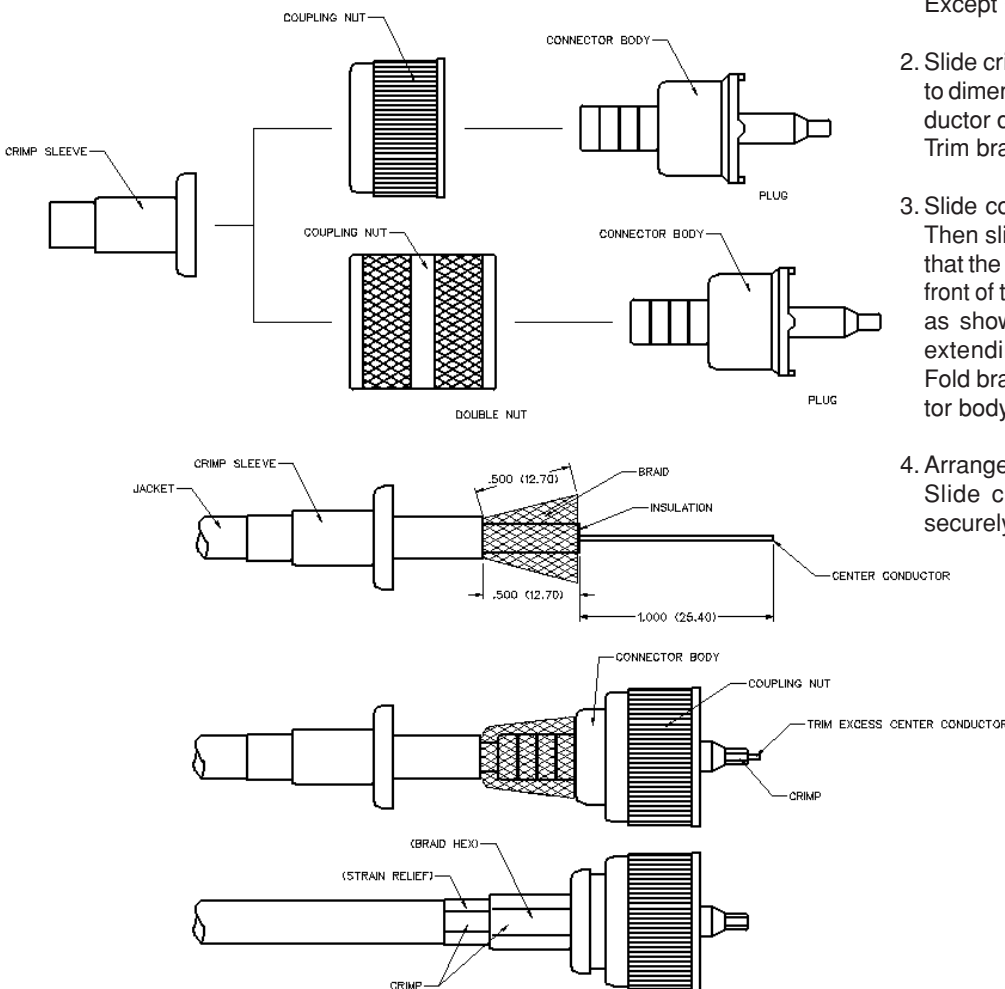


1. Identify connector parts. (3 piece parts)
2. Strip cable to dimensions shown. Do not nick braid or center conductor. Slide the crimp sleeve onto the jacket; crimp narrow end first.
3. Crimp and solder the contact onto the center conductor using the recommended crimp hex or the minimum amount of solder for a good joint. Note: Contacts may need to be pre-fit onto the center conductor and soldered through the hole.
4. Flare the braid and slide the connector body over the contact and under the braid. Then seat the body FIRMLY onto the contact; the cable may need to be held in a clamping fixture. Arrange the braid uniformly around the crimp stem, then slide the crimp sleeve forward to the body and crimp the sleeve using the recommended crimp hex.

\* **Cable Assembly Notes:** The contact of the CPN-8/110 Connector fits RG-8 cable types with a center conductor diameter up to .110".

## Standard UHF Straight Crimp Type Plugs for Flexible Cable

PART NO.	CABLE	WIRE GAUGE	WIRE DECIMAL	JACKET O.D.	CRIMP (BRAID HEX)	CRIMP (STRAIN RELIEF)	CONTACT CRIMP HEX	RECOMMENDED CRIMP TOOL
CPL-259-1	RG-58	20	.0325	.185 (4.07)-.205 (5.21)	.255 (6.48)	.213 (5.41)	.068 (1.73)	24-9960P
CPL-259-2	RG-59, 62	22	.0253	.220 (5.59)-.250 (6.35)	.255 (6.48)	NONE	.065 (1.65)	24-9960P
CPL-259-7	RG-58 COPHASE	2/20	2/.032	2/.185 (4.07)-.205 (5.21)	.255 (6.48)	NONE	NONE	24-9960P
CPL-259-8	RG-8	13	.085	.400 (10.06)-.410 (10.41)	.405 (10.29)	NONE	.110 (2.79)	24-310
CPL-259-9	RG-59 COPHASE	2/20	0/.025	2/.220 (5.59)	.448 (11.44)	NONE	NONE	24-7711P
CPL-259-10	RG-59 PLENUM, RG-62	22	.025	.185 (4.07)-.205 (5.21)	.235 (5.97)	NONE	.065 (1.65)	24-8857P
CPL-259-17	RG-8X	16	.0504	.220 (5.59)-.250 (6.35)	.255 (6.48)	NONE	NONE	24-9960P
CPL-259-18	RG-58	20	.0325	.185 (4.07)-.205 (5.21)	.255 (6.48)	.213 (5.41)	.068 (1.73)	24-9960P



1. Identify connector parts. (3 piece parts)  
Except CPL-259-10 (1 piece)

2. Slide crimp sleeve over cable and strip cable to dimensions shown. Do not nick center conductor during strip operations. (CPL-259-10: Trim braid and insulation to .300 (7.62)).

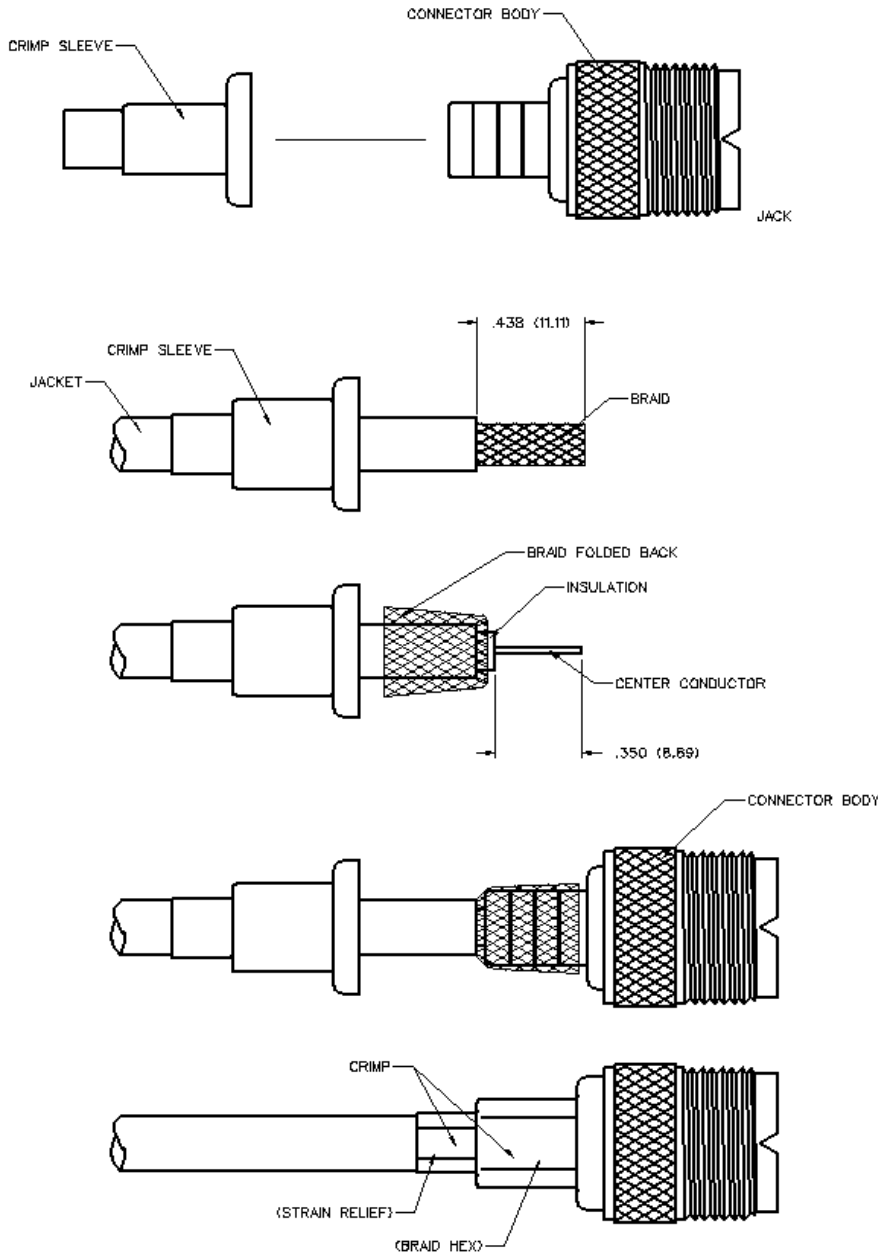
3. Slide coupling nut onto the connector body. Then slide the connector body over cable so that the center conductor extends through the front of the contact. Crimp or solder the contact as shown. Trim away the center conductor extending past the contact. (CPL-259-10: Fold braid onto jacket before sliding connector body onto cable).

4. Arrange braid uniformly around crimp stem. Slide crimp sleeve over braid and crimp securely using recommended crimp tool.



## Standard UHF Straight 2-Piece Crimp Type Jack for Flexible Cable

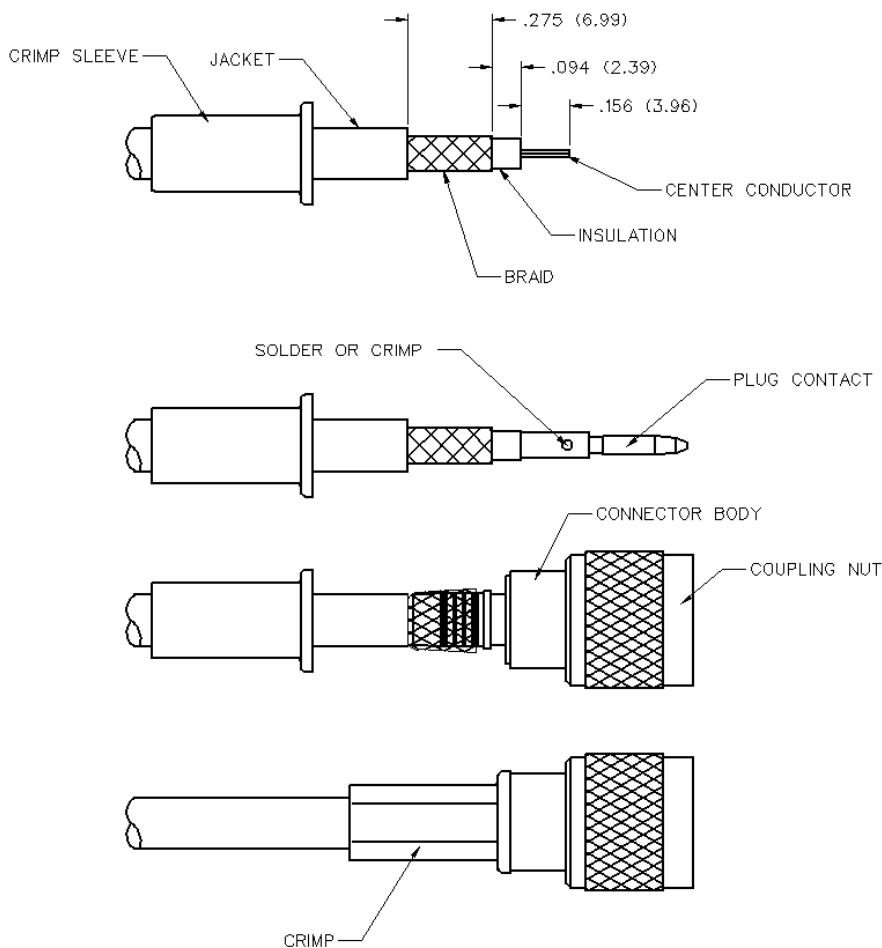
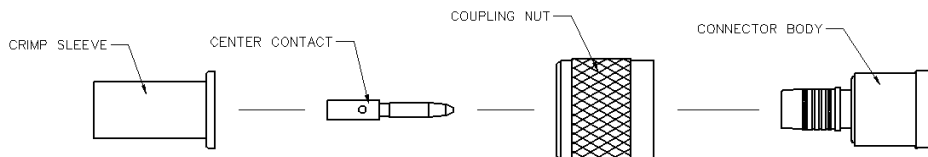
PART NO.	CABLE	WIRE GAUGE	WIRE DECIMAL	JACKET O.D.	CRIMP (BRAID HEX)	CRIMP (STRAIN RELIEF)	RECOMMENDED CRIMP TOOL
CPF-249-1	RG-58	20	.325 (0.83)	.185 (4.70)-.205 (5.21)	.320 (8.13)	.211 (5.36)	24-9858P



1. Identify connector parts. (2 piece parts)
2. Slide crimp sleeve over cable and strip cable jacket to dimension shown. Do not nick braid or center conductor during strip operations.
3. Flair braid and fold back. Strip cable insulation to dimension shown. Do not nick center conductor.
4. Insert center conductor into the guide hole found in the rear of the connector body. Twist the body onto the center conductor until the cable insulation butts up to the body.
5. Arrange braid uniformly around crimp stem. Slide crimp sleeve over braid and crimp securely using recommended crimp tool.

## Mini-UHF Straight Crimp Type Plugs for Flexible Cable

PART NO.	CABLE	CONTACT I.D.	BODY I.D.	FERRULE I.D.	CRIMP (BRAID HEX)	CONTACT CRIMP HEX	RECOMMENDED CRIMP TOOL
MINI-UHF-1	RG-58	.044 (1.11)	.126 (3.20)	.206 (5.23)	.210 (5.33)	.060 (1.52)	24-8860P
MINI-UHF-1B	RG-58 Black	.044 (1.11)	.126 (3.20)	.206 (5.23)	.210 (5.33)	.060 (1.52)	24-8860P
MINI-UHF-2	RG-59, 62	.034 (0.86)	.173 (4.40)	.261 (6.63)	.255 (6.48)	.060 (1.52)	24-8860P
MINI-UHF-16	RG-450, Proflex	.055 (1.40)	.173 (4.40)	.261 (6.63)	.255 (6.48)	.060 (1.52)	24-8860P
MINI-UHF-17	RG-8X	.065 (1.65)	.173 (4.40)	.261 (6.63)	.255 (6.48)	.060 (1.52)	24-8860P



1. Identify connector parts. (4 piece parts)

2. Slide heat shrink (as applicable) and crimp sleeve onto jacket of cable. Strip cable to dimensions shown. Do not nick braid or center conductor. Tin center conductor if contact will be solder attached. Do not tin center conductor if contact is to be crimp attached. A wire stripper of correct size is recommended for this step.

3. Assemble contact onto cable as shown.  
**Solder Attachment:** Solder contact to center conductor through hole using a minimum amount of solder for a good joint.  
**Crimp Attachment (where applicable):** Crimp contact to center conductor using recommended crimp tool.

4. Slide coupling nut onto the connector body.

5. Flare braid and slide body assembly over contact and under braid as shown. Then seat body assembly firmly onto contact until a gentle snap is felt indicating the contact is in place. The cable may have to be held in a clamping fixture. Arrange braid uniformly around crimp stem. Slide crimp sleeve forward and crimp using recommended crimp tool. Slide heat shrink forward and shrink (as applicable).

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Emerson Network Power Connectivity Solutions can meet your hardware specifications for design, delivery, and quality. Our network of distributors delivers products promptly from our comprehensive product line and helps fulfill your prototype needs. As a manufacturer, we can custom design and deliver any hardware you need.

**Ordering Information:** For a numerical index of the complete electronic hardware product line, refer to page 289.

Each product listing in this section includes detailed drawings and part numbering information. Material, mechanical, electrical and environmental specifications are listed for each item.

**To Order:** When the part numbers you require have been identified, call us at 1-800-247-8256, ext. 6281. We will identify your local distributor who can very likely fill your order from inventory.

**Specials:** For non-standard items, special applications or design engineering needs, call 1-800-247-8256, ext. 6281. Our experienced design engineering staff can customize any part or design a new part to meet your requirements. Complete model shop facilities are available for your prototyping needs.

# Horizontal Test Jacks

Application • Test Points

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



## Insulated Miniature

### SPECIFICATIONS

**Contact:** Copper aluminum alloy\*

**Finish:** Silver

**Body:** Nylon 6/6 per ASTM D4066

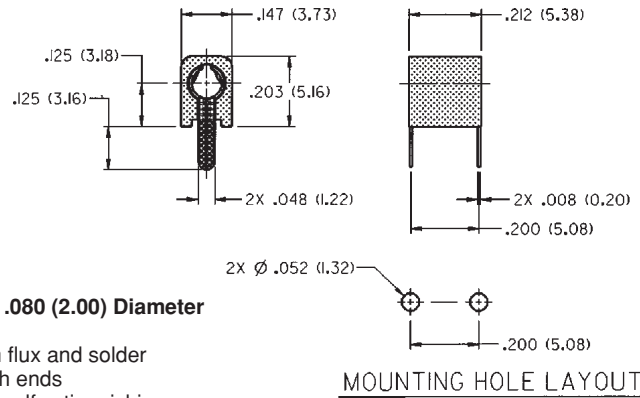
### RATINGS

**Current:** 5 amps

**Breakdown Voltage:** 2100 VRMS minimum †

**Contact Resistance:** 0.010 ohms maximum

**Adjacent Jack C:** 1 pF maximum at 1 MHz



For Standard Tip Plug: .080 (2.00) Diameter

### FEATURES:

- Contact protected from flux and solder
- Probe access from both ends
- Nylon UL approved for self extinguishing

\*A new material development that, for this application, meets or exceeds beryllium copper.

SILVER PLATING			
PART NO.	COLOR	PART NO.	COLOR
105-1101-001	White	105-1107-001	Yellow
105-1102-001	Red	105-1110-001	Blue
105-1103-001	Black		
105-1104-001	Green		

## Insulated Standard

### SPECIFICATIONS

**Contact:** Copper aluminum alloy\*

**Finish:** Gold or Silver

**Body:** Nylon 6/6 per ASTM D4066

### RATINGS

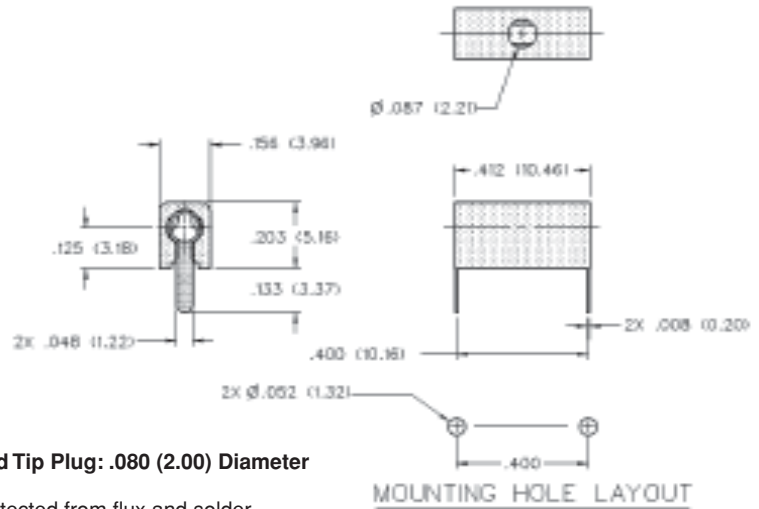
**Current:** 5 amps

**Breakdown Voltage:** 2100 VRMS minimum †

**Contact Resistance:** Gold: 0.005 ohms maximum

Silver: 0.010 ohms maximum

**Adjacent Jack C:** 1 pF maximum at 1 MHz



For Standard Tip Plug: .080 (2.00) Diameter

### FEATURES:

- Contact protected from flux and solder
- Probe access from both ends or top
- Nylon UL approved for self extinguishing

\*A new material development that, for this application, meets or exceeds beryllium copper.

GOLD PLATING			
PART NO.	COLOR	PART NO.	COLOR
105-0751-150	White	105-0753-150	Black
105-0752-150	Red	105-0757-150	Yellow
SILVER PLATING			
PART NO.	COLOR	PART NO.	COLOR
105-0751-001	White	105-0757-001	Yellow
105-0752-001	Red	105-0758-001	Brown
105-0753-001	Black	105-0760-001	Blue
105-0754-001	Green	105-0762-001	Violet
105-0756-001	Orange	105-0763-001	Gray

## Insulated Ruggedized: Military Type

### SPECIFICATIONS

**Contact:** Copper aluminum alloy\*

**Finish:** Gold or Silver

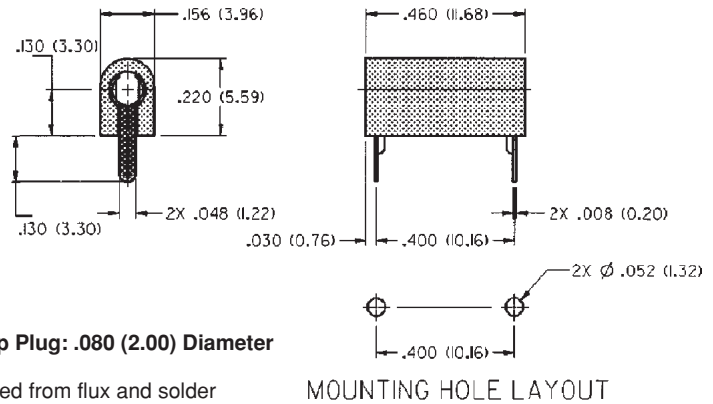
**Body:** Nylon 6/6 per ASTM D4066

### RATINGS

**Current:** 5 amps

**Breakdown Voltage:** 2500 VRMS minimum †

**Contact Resistance:** Gold: 0.005 ohms maximum



For Standard Tip Plug: .080 (2.00) Diameter

### FEATURES:

- Contact protected from flux and solder
- Probe access from both ends
- Nylon UL approved for self extinguishing
- For Military or Industrial Applications

\*A new material development that, for this application, meets or exceeds beryllium copper.

GOLD PLATING			
Part No. to mil-spec, part no. cross reference			
PART NO.	COLOR	MIL-C-39024/11	
105-2201-105	White	-01	
105-2202-105	Red	-02	
105-2203-105	Black	-03	
105-2204-105	Green	-05	
105-2207-105	Yellow	-08	
SILVER PLATING			
PART NO.	COLOR	PART NO.	COLOR
105-2201-101	White	105-2204-101	Green
105-2202-101	Red	105-2207-101	Yellow
105-2203-101	Black		

†Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

## Insulated: Machined Contact

### SPECIFICATIONS:

**Contact:** Beryllium copper per QQ-C-530

**Finish:** Silver

**Body:** Nylon 6/6 per ASTM D4066

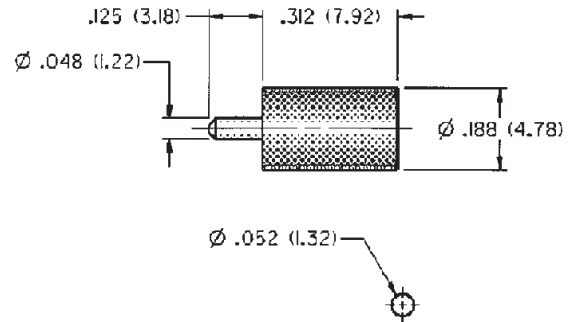
### RATINGS

**Current:** 5 amps

**Breakdown Voltage:** 3500 VRMS minimum†

**Contact Resistance:** 0.010 ohms maximum

**Adjacent Jack C:** 1 pF maximum at 1 MHz



MOUNTING HOLE LAYOUT

SILVER PLATING			
PART NO.	COLOR	PART NO.	COLOR
105-0851-001	White	105-0856-001	Orange
105-0852-001	Red	105-0857-001	Yellow
105-0853-001	Black	105-0858-001	Brown
105-0854-001	Green	105-0860-001	Blue

**For Standard Tip Plug: .080 (2.00) Diameter**

### FEATURES:

- Contact protected from flux and solder
- Nylon UL approved for self extinguishing

## Insulated: Formed Contact

### SPECIFICATIONS:

**Contact:** Beryllium copper per QQ-C-533

**Finish:** Gold or Silver

**Body:** Nylon 6/6 per ASTM D4066

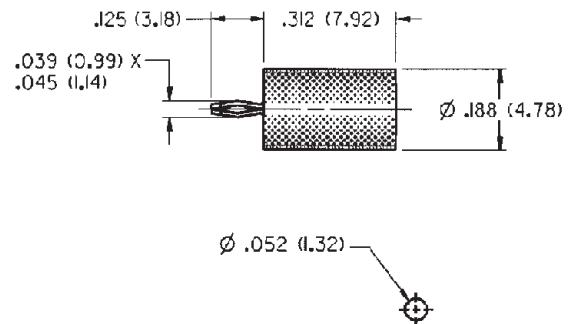
### RATINGS

**Current:** 5 amps

**Breakdown Voltage:** 3500 VRMS minimum†

**Contact Resistance:** Silver: 0.010 ohms maximum

**Adjacent Jack C:** 1 pF maximum at 1 MHz



MOUNTING HOLE LAYOUT

SILVER PLATING	
PART NO.	COLOR
105-2201-201	White
105-2202-201	Red
105-2203-201	Black
105-2204-201	Green
105-2207-201	Yellow

**For Standard Tip Plug: .080 (2.00) Diameter**

### FEATURES:

- Spring loaded lead to hold in board
- Contact protected from flux and solder
- Nylon UL approved for self extinguishing

†Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

# Tip Jacks

Application • Connection to test equipment • Power supplies • Electrical instruments  
 INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



## Insulated Standard: Rib-Loc® Type



### SPECIFICATIONS

**Contact:** Brass body per QQ-B-626D with wrap around beryllium copper spring per QQ-C-553

**Finish:** Silver

**Body:** Nylon 6/6 per ASTM D4066

**Panel Thickness:** Up to .375 (9.05)

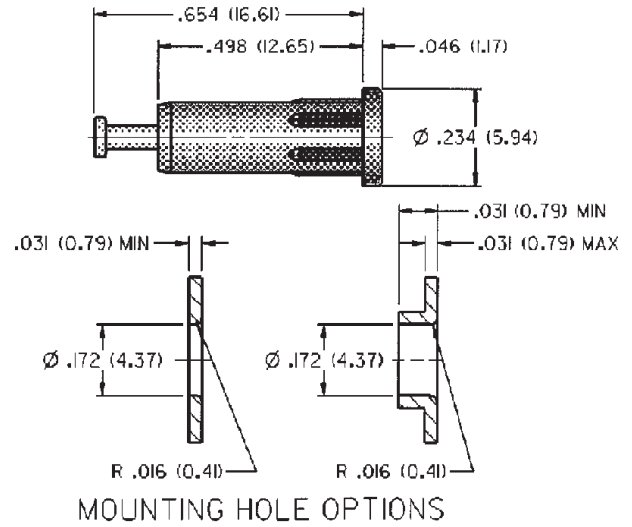
### RATINGS

**Current:** 5 amps

**Breakdown Voltage:** 3500 VRMS minimum\*

**Contact Resistance:** 0.005 ohms maximum

**Adjacent Jack C:** 1 pF nominal



SILVER PLATING			
PART NO.	COLOR	PART NO.	COLOR
105-1041-001	White	105-1044-001	Green
105-1042-001	Red	105-1047-001	Yellow
105-1043-001	Black	105-1050-001	Blue

For Standard Tip Plug: .080 (2.00) Diameter

### FEATURES:

- Machined contact with turret terminal
- Installs by pressing into mounting hole, no mounting hardware required
- Closed entry blocks access or probes greater than .085 (2.16)
- Nylon UL approved for self extinguishing

\*Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

## Insulated Metal Clad: Military Type



### SPECIFICATIONS

**Contact:** Brass per QQ-B-626D with wrap around beryllium copper spring per QQ-C-533

**Finish:** Gold

**Body:** Nylon 6/6 per ASTM D4066

**Threaded Brass Jacket:** Per QQ-B-626D, nickel plated

**Hardware:** Nickel plated washer and nut (unassembled)

**Panel Thickness:** Up to .218 (5.45)

### RATINGS

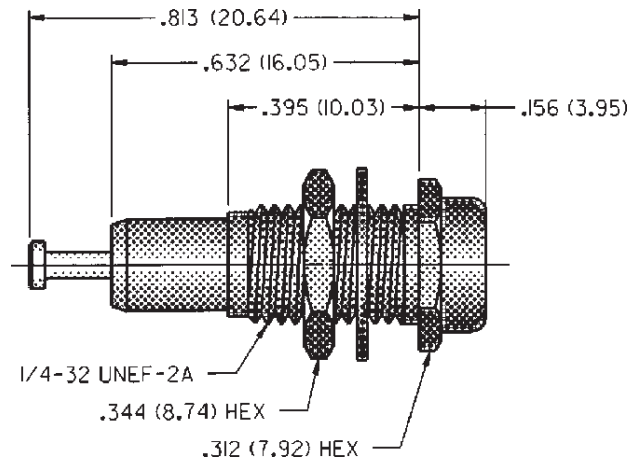
**Current:** 10 amps

**Breakdown Voltage:** 5700 VRMS minimum\*

**Contact Resistance:** 0.004 ohms maximum

**Contact-To-Panel C:** 2 pF nominal

Manufactured to meet MIL-C-39024/10



GOLD PLATING		
Part No. to MIL-spec. Part No. Cross Reference		
PART NO.	COLOR	MIL-C-39024/10
105-0201-200	White	-01
105-0202-200	Red	-02
105-0203-200	Black	-03
105-0204-200	Green	-05
105-0210-200	Blue	-07

For Standard Tip Plug: .080 (2.00) Diameter

### FEATURES:

- Machined contact with turret terminal
- For military or industrial applications
- Closed entry blocks access of probes greater than .085 (2.16)
- Nylon UL approved for self extinguishing

\*Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

## Insulated Metal Clad: Standard Type

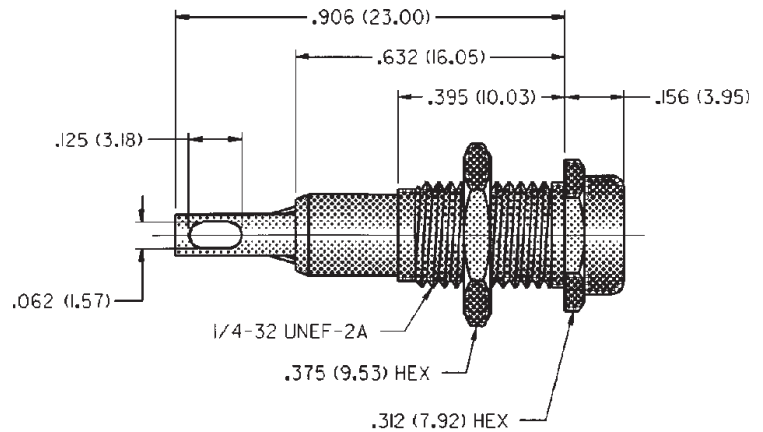


### SPECIFICATIONS

**Contact:** Phosphor bronze per QQ-B-750  
**Finish:** Silver  
**Body:** Nylon 6/6 per ASTM D4066  
**Threaded Brass Jacket:** Per QQ-B-626D, nickel plated  
**Panel Thickness:** Up to .281 (7.10)

### RATINGS

**Current:** 10 amps  
**Breakdown Voltage:** 5700 VRMS minimum†  
**Contact Resistance:** 0.010 ohms maximum  
**Contact-To-Panel C:** 2 pF nominal



SILVER PLATING	
PART NO.	COLOR
105-0251-001	White
105-0252-001	Red
105-0253-001	Black

For Standard Tip Plug: .080 (2.00) Diameter

### FEATURES:

- Formed contact with slotted terminal
- Nylon UL approved for self extinguishing

†Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

## Insulated Deluxe

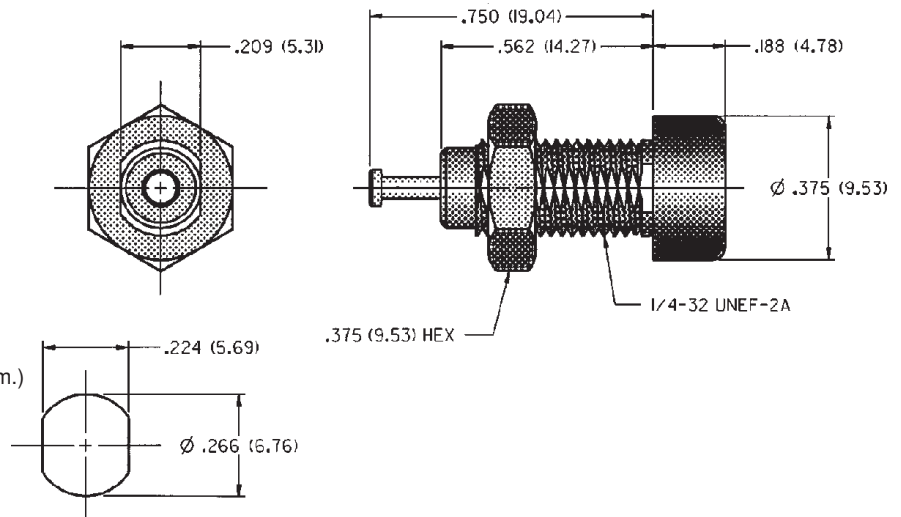


### SPECIFICATIONS

**Contact:** Brass per QQ-B-626D with wrap around beryllium copper spring per QQ-C-533  
**Finish:** Silver  
**Body:** Nylon 6/6 per ASTM D4066  
**Hardware:** Nickel plated nut (unassembled)  
**Body Thread Stripping Torque:** 0.4 lb. in (4.5 kg. cm.)  
**Panel Thickness:** Up to .437 (11.10)

### RATINGS

**Current:** 10 amps  
**Breakdown Voltage:** 5700 VRMS minimum†  
**Contact Resistance:** 0.010 ohms maximum  
**Contact-To-Panel C:** 2 pF nominal



MOUNTING HOLE LAYOUT

SILVER PLATING			
PART NO.	COLOR	PART NO.	COLOR
105-0601-001	White	105-0604-001	Green
105-0602-001	Red	105-0607-001	Yellow
105-0603-001	Black	105-0610-001	Blue

For Standard Tip Plug: .080 (2.00) Diameter

### FEATURES:

- Machined contact with turret terminal
- Hex socket head .188 (4.77) for ease in mounting
- Closed entry blocks access of probes greater than .085 (2.16)
- Nylon UL approved for self extinguishing

†Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

# Tip Jacks

Application • Connection to test equipment • Power supplies • Electrical instruments

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



## Insulated Standard



### SPECIFICATIONS:

**Contact:** Phosphor bronze per QQ-B-750

**Finish:** Bright tin

**Body:** Nylon 6/6 per ASTM D4066

**Hardware:** Nickel plated nut (unassembled)

**Body Thread Stripping Torque:** 4.0 lb. in.  
(4.5 kg. cm.)

**Panel Thickness:** Up to .437 (11.10)

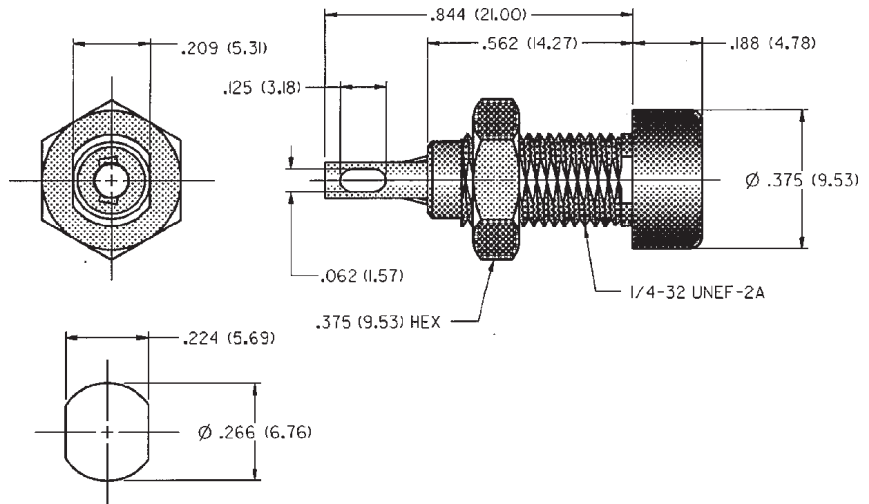
### RATINGS

**Current:** 10 amps

**Breakdown Voltage:** 5700 VRMS minimum†

**Contact Resistance:** 0.010 ohms maximum

**Contact-To-Panel C:** 2 pF nominal



MOUNTING HOLE LAYOUT

BRIGHT TIN PLATING			
PART NO.	COLOR	PART NO.	COLOR
105-0801-001	White	105-0804-001	Green
105-0802-001	Red	105-0807-001	Yellow
105-0803-001	Black	105-0810-001	Blue

### For Standard Tip Plug: .080 (2.00) Diameter FEATURES:

- Formed contact with slotted terminal
- Hex socket head .188 (4.77) for ease in mounting
- Nylon UL approved for self extinguishing

†Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

## Insulated Tip Jack and Sleeve Assembly



### SPECIFICATIONS

**Contact:** Brass per QQ-B-626D with wrap around beryllium copper spring per QQ-C-533

**Finish:** Silver

**Body:** Nylon 6/6 per ASTM D4066

**Hardware:** Nylon handle (assembled)

**Body Thread Stripping Torque:** 4.0 lb. in.  
(4.5 kg. cm.)

**Panel Thickness:** Up to .125 (3.20)

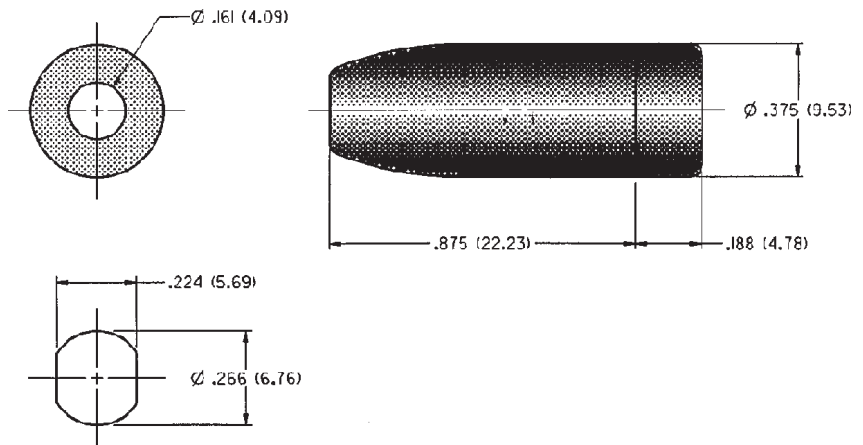
### RATINGS

**Current:** 10 amps

**Breakdown Voltage:** 5700 VRMS minimum†

**Contact Resistance:** 0.010 ohms maximum

**Contact-To-Panel C:** 2 pF nominal



MOUNTING HOLE LAYOUT

SILVER PLATING	
PART NO.	COLOR
105-0701-001	White
105-0702-001	Red
105-0703-001	Black

### For Standard Tip Plug: .080 (2.00) Diameter FEATURES:

- Machined contact with turret terminal
- Includes deluxe tip jack 105-060X-001
- For panel or line applications
- Hex socket head .188 (4.77) for ease in mounting
- Nylon UL approved for self extinguishing

†Avoid user injury due to misapplication. See safety advisory definitions inside front cover.



## .060 (1.50) Shrouded Tip Plug

### SPECIFICATIONS

**Contact and Nut:** Brass per QQ-B-626D

**Finish:** Gold or silver

**Body:** Nylon 6/6 per ASTM D4066

**Hardware:** Nickel plated nut (unassembled)

**Body Thread Stripping Torque:** 6 in. lb. (7 kg.cm.)

**Panel Thickness:** Up to .343 (8.80)

### RATINGS

**Current:** 7 amps

**Breakdown Voltage:** 3500 VRMS minimum†

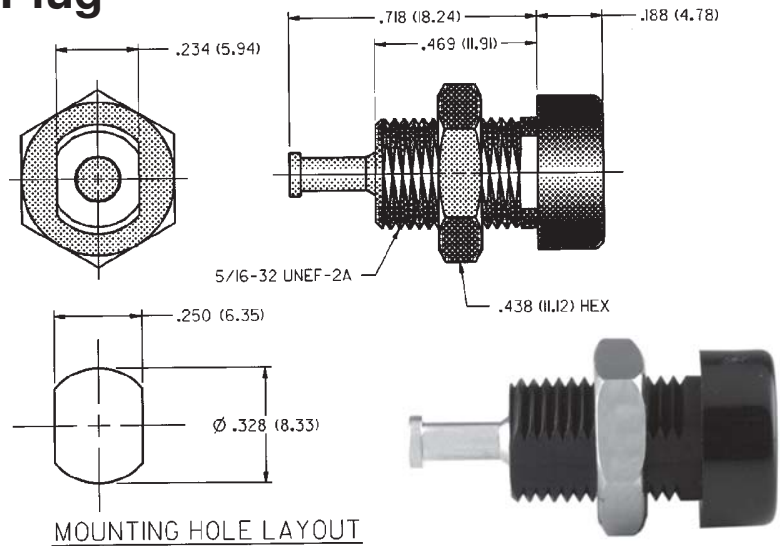
**Contact Resistance:** 0.010 ohms maximum

GOLD PLATING			
PART NO.	COLOR	PART NO.	COLOR
105-1301-002	White	105-1304-002	Green
105-1302-002	Red	105-1307-002	Yellow
105-1303-002	Black	105-1310-002	Blue

For Standard Tip Jack: .060 (1.50) Diameter

### FEATURES:

- Keyed mounting with double flats
- Shrouded
- Nylon UL approved for self extinguishing



†Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

## .080 (2.00) Insulated Standard: Small Handle (Solder or Crimp)

### SPECIFICATIONS

**Contact:** Brass per QQ-B-626D

**Finish:** Nickel

**Insulated Handle:** Nylon 6/6 per ASTM D4066

### RATINGS

**Current:** 10 amps

**Breakdown Voltage:** 3500 VRMS minimum†

**Contact Resistance:** 0.010 ohms maximum

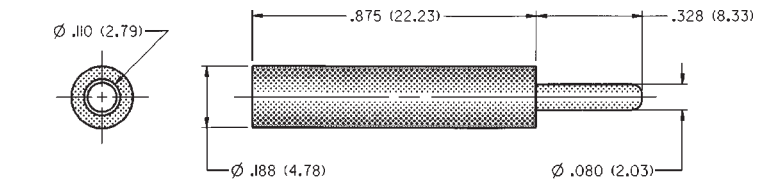
NICKEL PLATING	
SOLDER TYPE UP TO 16 GAUGE	CRIMP TYPE 16 GAUGE
PART NO.	COLOR
105-0771-001	White
105-0772-001	Red
105-0773-001	Black

For Standard Test Jack: .080 (2.00) Diameter

### FEATURES:

- Solder or crimp type connection
- Accepts wire sizes up to 16 gauge
- Nylon UL approved for self extinguishing
- Designed for use with horizontal and vertical test jacks only

See page xxx for crimp tool.



†Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

## .080 (2.00) Insulated: Solderless Type

### SPECIFICATIONS

**Contact:** Brass per QQ-B-626D

**Finish:** Nickel

**Insulated Handle:** Nylon 6/6 per ASTM D4066

### RATINGS

**Current:** 10 amps

**Breakdown Voltage:** 3500 VRMS minimum†

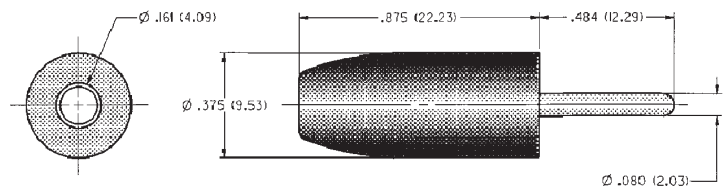
**Contact Resistance:** 0.010 ohms maximum

NICKEL PLATING			
PART NO.	COLOR	PART NO.	COLOR
105-0301-001	White	105-0304-001	Green
105-0302-001	Red	105-0310-001	Blue
105-0303-001	Black		

For Standard Tip Jack: .080 (2.00) Diameter

### FEATURES:

- Recessed head to reduce shock hazard
- Accepts wire sizes up to 16 gauge
- Nylon UL approved for self extinguishing



†Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

## Uninsulated Rivet Panel Mount:

### Turret Terminal

#### SPECIFICATIONS

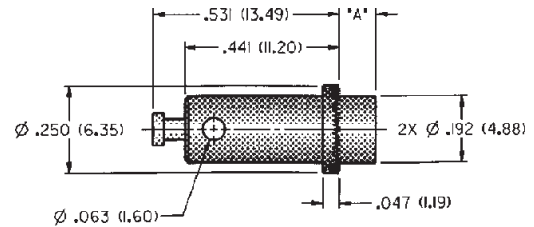
**Jack Body:** Brass per QQ-B-626D

**Finish:** Nickel

#### RATINGS

**Current:** 15 amps

**Contact Resistance:** 0.010 ohms maximum



NICKEL PLATING		
PART NO.	PANEL THICKNESS	"A"
108-2300-501	.063 (1.6)	.105 (2.67)

**For Standard Banana Plug: .175 (4.44) Across Flats**

#### FEATURES:

- Nickel plated brass body with cross hole
- Low cost, easy mounting banana jack

## Uninsulated Standard Type:

### Pierced Lug Terminal

#### SPECIFICATIONS

**Jack Body:** Brass per QQ-B-626D

**Finish:** Nickel

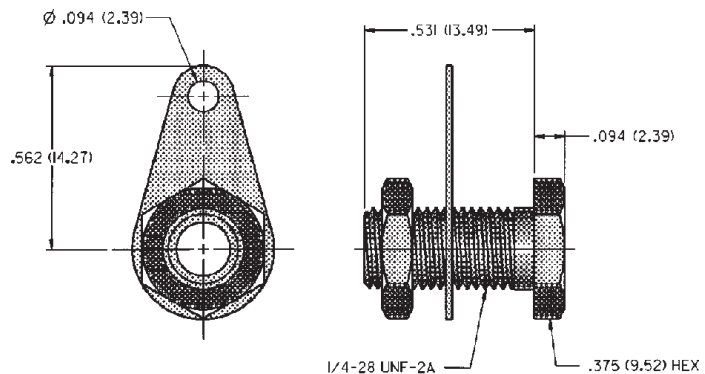
**Hardware:** Nickel plated nut; stamped tin plated solder terminal (unassembled)

**Panel Thickness:** Up to .375 (9.50)

#### RATINGS

**Current:** 15 amps

**Contact Resistance:** 0.010 ohms maximum



NICKEL PLATING	
PART NO.	
108-0740-001	

**For Standard Banana Plug: .175 (4.44) Across Flats**

#### FEATURES:

- Accepts up to 12 gauge wire
- Hex head for faster installation
- For higher current designs

## Uninsulated Standard Type:

### Slotted Lug Terminal

#### SPECIFICATIONS

**Jack Body:** Brass per QQ-B-626D

**Finish:** Nickel

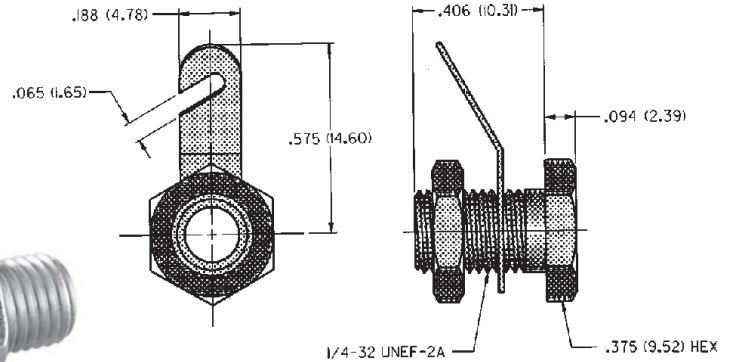
**Hardware:** Nickel plated nut; stamped tin plated solder terminal (unassembled)

**Panel Thickness:** Up to .250 (6.35)

#### RATINGS

**Current:** 15 amps

**Contact Resistance:** 0.010 ohms maximum



NICKEL PLATING	
PART NO.	
108-0740-102	

**For Standard Banana Plug: .175 (4.44) Across Flats**

#### FEATURES:

- Accepts up to 12 gauge wire
- Hex head for faster installation
- For higher current designs

## Insulated Rib-Loc® Solder Terminal

#### SPECIFICATIONS

**Contact:** Formed brass per QQ-B-626D

**Finish:** Bright tin

**Body:** Nylon 6/6 per ASTM D4066

**Panel Thickness:** Up to .250 (6.35)

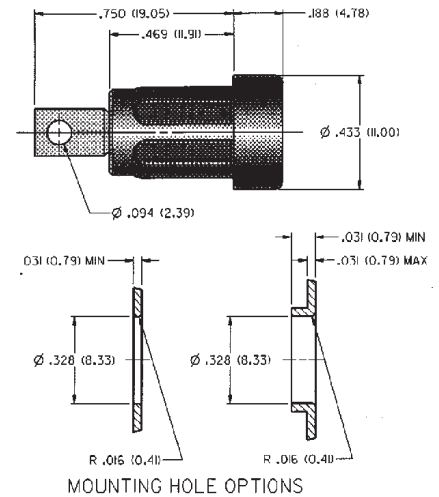
#### RATINGS

**Current:** 15 amps

**Breakdown Voltage:** 7000 VRMS minimum†

**Contact Resistance:** 0.010 ohms maximum

**Contact-To-Panel C:** 2.4 pF nominal



BRIGHT TIN PLATING			
PART NO.	COLOR	PART NO.	COLOR
108-2301-801	White	108-2304-801	Green
108-2302-801	Red	108-2307-801	Yellow
108-2303-801	Black	108-2310-801	Blue

**For Standard Banana Plug: .175 (4.44) Across Flats**

#### FEATURES:

- Requires no mounting hardware
- Accepts up to 16 gauge wire
- Nylon UL approved for self extinguishing

†Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

## Insulated Turret Terminal

#### SPECIFICATIONS

**Contact:** Machined brass per QQ-B-626D

**Finish:** Silver

**Body:** Nylon 6/6 per ASTM D4066

**Hardware:** Nickel plated nut (unassembled)

**Body Thread Stripping Torque:** 6.0 lb. in. (7kg. cm.)

**Panel Thickness:** Up to .343 (8.80)

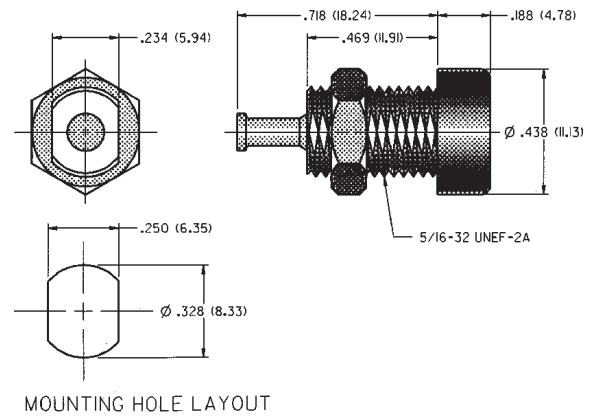
#### RATINGS

**Current:** 15 amps

**Breakdown Voltage:** 7000 VRMS minimum†

**Contact Resistance:** 0.010 ohms maximum

**Contact-To-Panel:** 2.4 pF nominal



SLIVER PLATING			
PART NO.	COLOR	PART NO.	COLOR
108-2302-621	Red	108-2303-621	Black

**For Standard Banana Plug: .175 (4.44) Across Flats**

#### FEATURES:

- Keyed mounting with double flats
- Nylon UL approved for self extinguishing

†Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

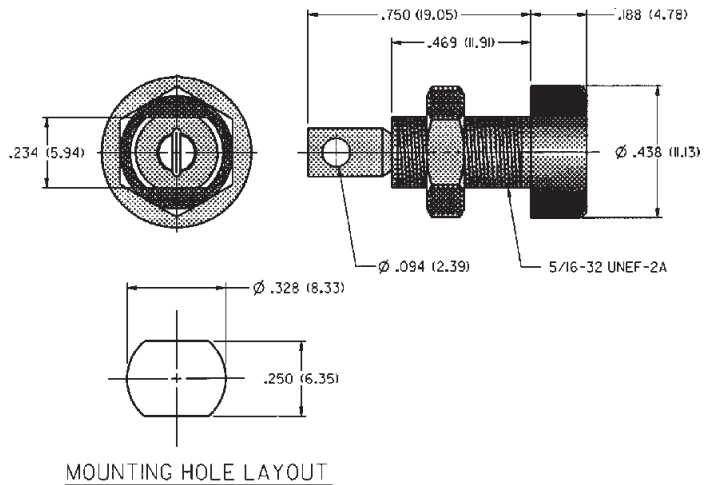
## Insulated Solder Terminal

### SPECIFICATIONS

**Contact:** Formed brass per QQ-B-626D  
**Finish:** Bright tin  
**Body:** Nylon 6/6 per ASTM D4066  
**Hardware:** Nickel plated nut (unassembled)  
**Body Thread Stripping Torque:** 6.0 lb. in. (7kg. cm.)  
**Panel Thickness:** Up to .343 (8.80)

### RATINGS

**Current:** 15 amps  
**Breakdown Voltage:** 7000 VRMS minimum†  
**Contact Resistance:** 0.010 ohms maximum  
**Contact-To-Panel:** 2.4 pF nominal



BRIGHT TIN PLATING			
PART NO.	COLOR	PART NO.	COLOR
108-0901-001	White	108-0907-001	Yellow
108-0902-001	Red	108-0908-001	Brown
108-0903-001	Black	108-0910-001	Blue
108-0904-001	Green	108-0912-001	Violet
108-0906-001	Orange	108-0913-001	Gray

### For Standard Banana Plug: .175 (4.44) Across Flats

- FEATURES:**
- Keyed mounting with double flats
  - Accepts up to 16 gauge wire
  - Nylon UL approved for self extinguishing

†Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

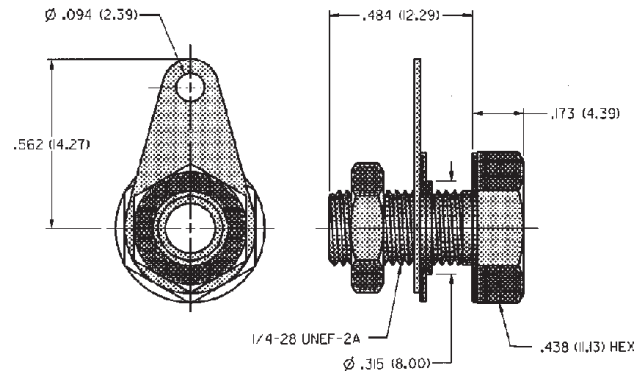
## Insulated Pierced Lug Terminal

### SPECIFICATIONS

**Contact:** Brass per QQ-B-626D  
**Finish:** Nickel  
**Hex Head:** Molded phenolic  
**Hardware:** Nickel plated nut, fiber insulating washer and stamped tin plated solder terminal (unassembled)  
**Panel Thickness:** Up to .281 (7.15)

### RATINGS

**Current:** 15 amps  
**Breakdown Voltage:** 1500 VRMS minimum†  
**Contact Resistance:** 0.010 ohms maximum  
**Contact-To-Panel:** 2.4 pF nominal



NICKEL PLATING	
PART NO.	COLOR
108-0745-001	Red
108-0745-002	Black

### For Standard Banana Plug: .175 (4.44) Across Flats

- FEATURES:**
- Withstands extreme temperatures and abuse
  - Stamped tin plated solder terminal with hole for up to 12 gauge wire
  - Integrally molded hex head for fast installation

†Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

## Uninsulated Rivet Type

### SPECIFICATIONS

**Plug Body:** Brass per QQ-B-626D

**Plug Spring:** Beryllium copper per QQ-C-533

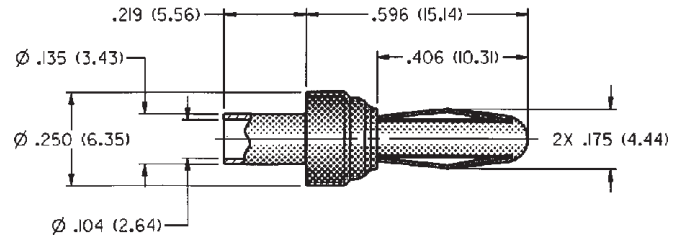
**Finish:** Silver

**Panel Thickness:** Up to .156 (4.00)

### RATINGS

**Current:** 15 amps

**Contact Resistance:** 0.010 ohms maximum



<b>SILVER PLATING</b>
<b>PART NO.</b>
108-0754-001

**For Standard Banana Jack: .166 (4.23) Diameter**

### FEATURES:

- Shorter spring adapts to standard jack or special size jack
- Ideal for limited space applications

## Uninsulated Panel Mount Threaded Stud

### SPECIFICATIONS

**Plug Body:** Brass per QQ-B-626D

**Plug Spring:** Nickel silver per QQ-C-585

**Finish:** Nickel

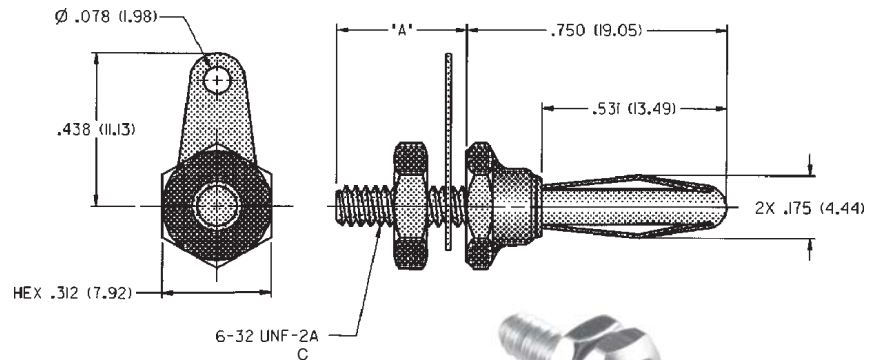
**Panel Thickness:** Up to .25 (6.35) .625 (16.00)

**Hardware:** Nickel plated nut, stamped tin plated solder terminal (unassembled)

### RATINGS

**Current:** 15 amps

**Contact Resistance:** 0.010 ohms maximum



NICKEL PLATING	
PART NO.	STUD LENGTH "A"
108-0750-001	.375 (9.50)
108-0750-002	.750 (19.05)

**For Standard Banana Jack: .166 (4.23) Diameter**

### FEATURES:

- Two stud lengths adapt to different panel sizes
- Pierced hole for up to 14 gauge wire

## Uninsulated Panel Mount Screw Type, Nickel Silver Spring

### SPECIFICATIONS

**Plug Body:** Brass per QQ-B-626D

**Plug Spring:** Nickel silver per QQ-C-585

**Finish:** Silver

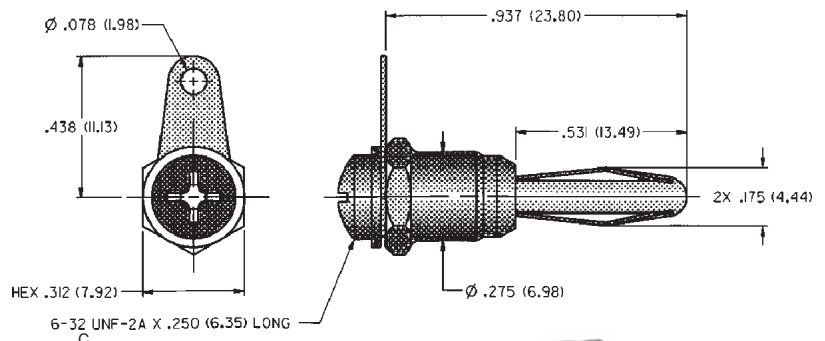
**Panel Thickness:** Up to .125 (3.20)

**Hardware:** Nickel plated screw, stamped tin plated solder terminal (unassembled)

### RATINGS

**Current:** 15 amps

**Contact Resistance:** 0.010 ohms maximum



<b>NICKEL PLATING</b>
<b>PART NO.</b>
108-0753-001

**For Standard Banana Jack: .166 (4.23) Diameter**

### FEATURES:

- Rugged screw type
- Stamped tin plated solder terminal with hole for up to 14 gauge wire

# Banana Plugs

Application • Test Equipment • Power Supplies  
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## Uninsulated Panel Mount Screw Type Beryllium Copper Spring

### SPECIFICATIONS

**Plug Body:** Brass per QQ-B-626D

**Plug Spring:** Beryllium copper per QQ-C-533

**Finish:** Nickel

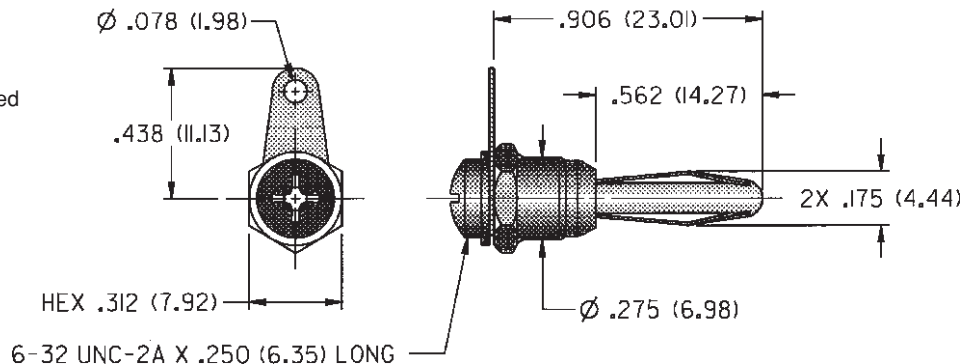
**Panel Thickness:** Up to .156 (4.00)

**Hardware:** Nickel plated nut, stamped tin plated solder terminal (unassembled)

### RATINGS

**Current:** 15 amps

**Contact Resistance:** 0.010 ohms maximum



<b>NICKEL PLATING</b>
<b>PART NO.</b>
108-0753-102

**For Standard Banana Jack: .166 (4.23) Diameter**

### FEATURES:

- Rugged screw type
- Stamped tin plated solder terminal with hole for up to 14 gauge wire

## Insulated Solderless Tapered Handle

### SPECIFICATIONS

**Plug Body:** Brass per QQ-B-626D

**Plug Spring:** Nickel silver per QQ-C-533

**Finish:** Nickel

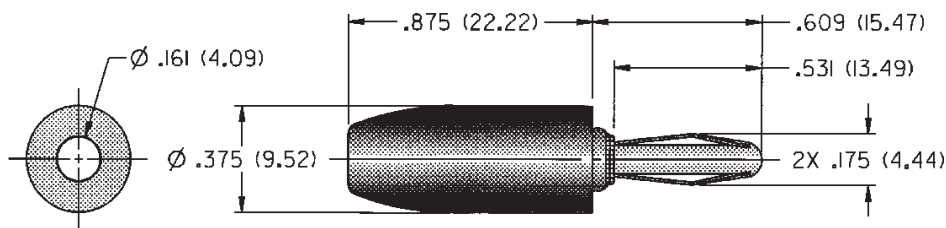
**Insulated Handle:** Nylon 6/6 per ASTM D4066

### RATINGS

**Current:** 15 amps

**Breakdown Voltage:** 3500 VRMS minimum†

**Contact Resistance:** 0.010 ohms maximum



NICKEL PLATING			
PART NO.	COLOR	PART NO.	COLOR
108-0301-001	White	108-0307-001	Yellow
108-0302-001	Red	108-0308-001	Brown
108-0303-001	Black	108-0310-001	Blue
108-0304-001	Green	108-0312-001	Violet
108-0306-001	Orange	108-0313-001	Gray

**For Standard Banana Jack: .166 (4.23) Diameter**

### FEATURES:

- Fast solderless connection of up to 16 gauge wire
- Recessed plug body to limit shock hazard
- Nylon UL approved for self extinguishing

†Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

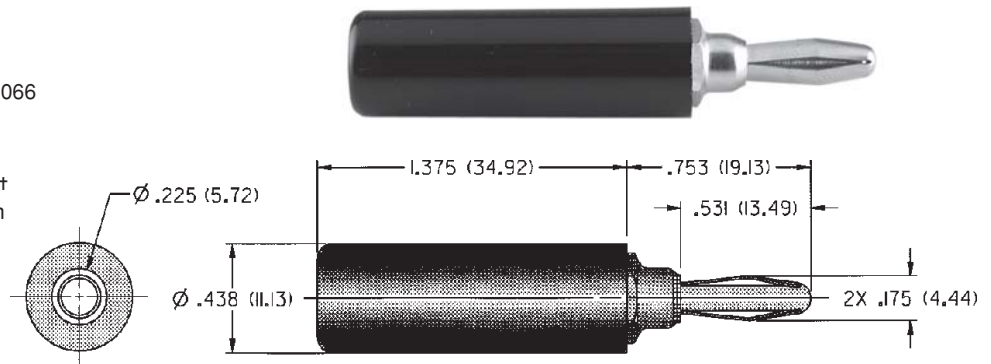
## Insulated Hex Body Solder Type Long Handle

### SPECIFICATIONS

**Plug Body:** Brass per QQ-B-626D  
**Plug Spring:** Nickel silver per QQ-C-585  
**Finish:** Nickel  
**Insulated Handle:** Nylon 6/6 per ASTM D4066

### RATINGS

**Current:** 15 amps  
**Breakdown Voltage:** 3500 VRMS minimum†  
**Contact Resistance:** 0.010 ohms maximum



NICKEL PLATING	
PART NO.	COLOR
108-0752-001	Black
108-0752-002	Red

**For Standard Banana Jack: .166 (4.23) Diameter**  
**FEATURES:**

- Solder type terminal uses up to 16 gauge wire
- Nylon UL approved for self extinguishing

†Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

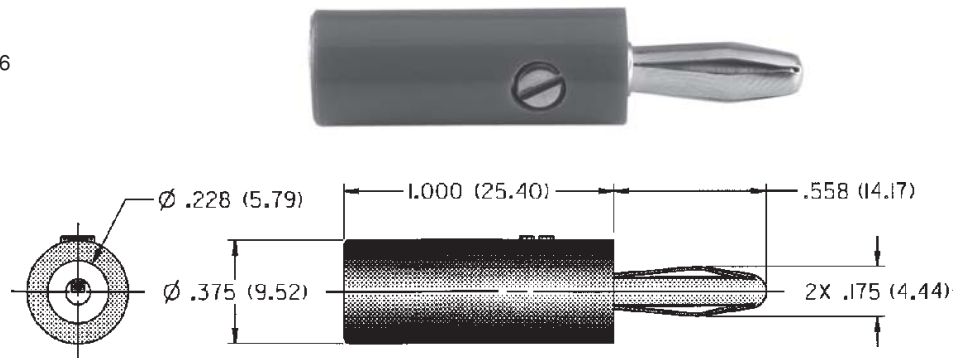
## Insulated Side Set Screw Solderless

### SPECIFICATIONS

**Plug Body:** Brass per QQ-B-626D  
**Plug Spring:** Nickel silver per QQ-C-585  
**Finish:** Nickel  
**Insulated Handle:** Nylon 6/6 per ASTM D4066

### RATINGS

**Current:** 15 amps  
**Breakdown Voltage:** 35 VRMS minimum†  
**Contact Resistance:** 0.010 ohms maximum



NICKEL PLATING			
PART NO.	COLOR	PART NO.	COLOR
108-1702-101	Red	108-1703-101	Black

**For Standard Banana Jack: .166 (4.23) Diameter**  
**For Low Voltage (50 WVDC) Applications**

### FEATURES:

- Fast solderless connection of up to 16 gauge wire
- Set screw for dependable connections with low voltage
- Nylon UL approved for self extinguishing

†Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

# Banana Plugs

Application • Test Equipment • Power Supplies  
 INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



## Insulated Hex Body Solder Stud

### SPECIFICATIONS

**Plug Body:** Brass per QQ-B-626D

**Plug Spring:** Nickel silver per QQ-C-585

**Finish:** Nickel

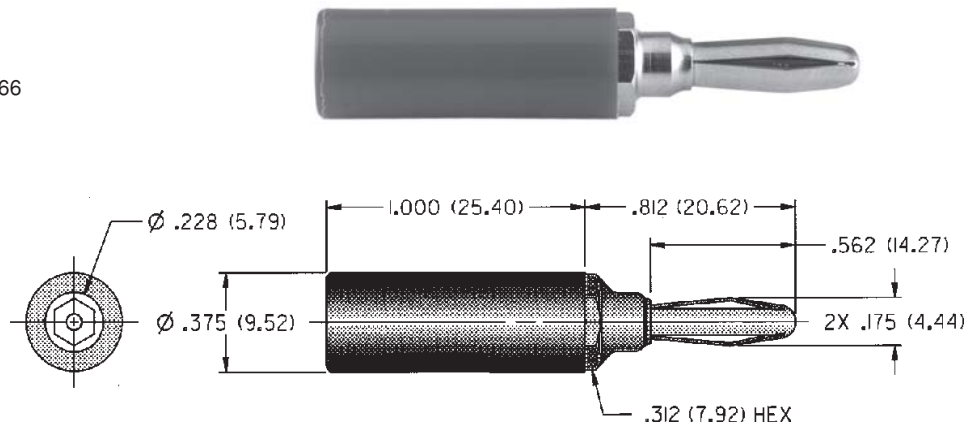
**Insulated Handle:** Nylon 6/6 per ASTM D4066

### RATINGS

**Current:** 15 amps

**Breakdown Voltage:** 3500 VRMS minimum\*

**Contact Resistance:** 0.010 ohms maximum



NICKEL PLATING			
PART NO.	COLOR	PART NO.	COLOR
108-1762-101	Red	108-1763-101	Black

**For Standard Banana Jack: .166 (4.23) Diameter**

### FEATURES:

- Wire can be soldered to threaded stud
- Solder stud accepts up to 16 gauge wire
- Nylon UL approved for self extinguishing

\*Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

## Insulated Round Body Solder Stud

### SPECIFICATIONS

**Plug Body:** Brass per QQ-B-626D

**Plug Spring:** Nickel silver per QQ-C-585

**Finish:** Nickel

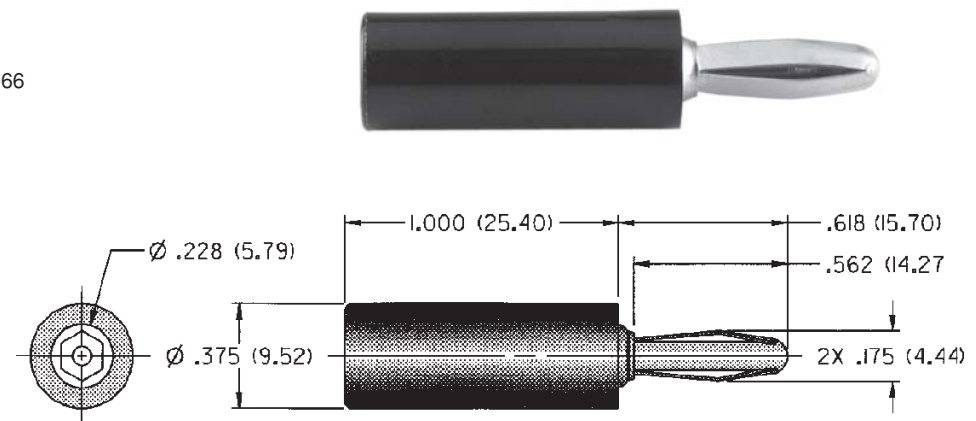
**Insulated Handle:** Nylon 6/6 per ASTM D4066

### RATINGS

**Current:** 15 amps

**Breakdown Voltage:** 3500 VRMS minimum\*

**Contact Resistance:** 0.010 ohms maximum



NICKEL PLATING			
PART NO.	COLOR	PART NO.	COLOR
108-1722-101	Red	108-1723-101	Black

**For Standard Banana Jack: .166 (4.23) Diameter**

### FEATURES:

- Wire can be soldered to threaded stud
- Solder stud accepts up to 16 gauge wire
- Nylon UL approved for self extinguishing

\*Avoid user injury due to misapplication. See safety advisory definitions inside front cover.



## Insulated Round Body Solderless

### SPECIFICATIONS

**Plug Body:** Brass per QQ-B-626D

**Plug Spring:** Nickel silver per QQ-C-585

**Finish:** Nickel

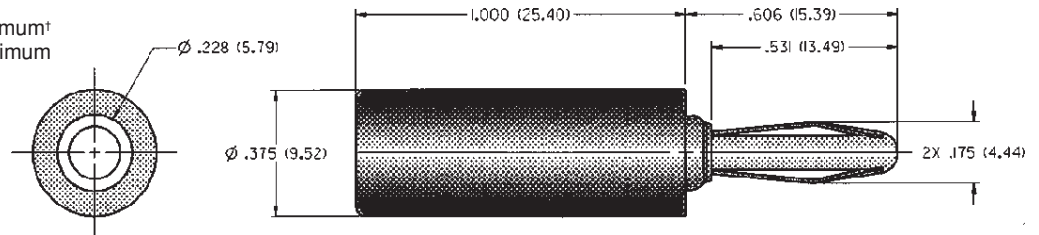
**Insulated Handle:** Nylon 6/6 per ASTM D4066

### RATINGS

**Current:** 15 amps

**Breakdown Voltage:** 3500 VRMS minimum†

**Contact Resistance:** 0.010 ohms maximum



NICKEL PLATING			
PART NO.	COLOR	PART NO.	COLOR
108-1722-103	Red	108-1723-103	Black

**For Standard Banana Jack: .166 (4.23) Diameter**

### FEATURES:

- Wire locked in place by screwing down handle
- Accepts up to 16 gauge wire
- Nylon UL approved for self extinguishing

†Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

## Insulated Stacking Single Type

### SPECIFICATIONS

**Plug Body:** Brass per QQ-B-626D

**Plug Spring:** Nickel silver per QQ-C-585

**Finish:** Nickel

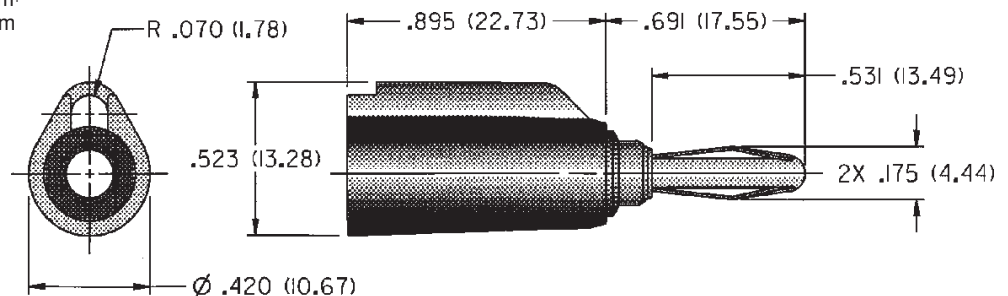
**Insulated Handle:** Nylon 6/6 per ASTM D4066

### RATINGS

**Current:** 15 amps

**Breakdown Voltage:** 3500 VRMS minimum†

**Contact Resistance:** 0.010 Ohm maximum



NICKEL PLATING			
PART NO.	COLOR	PART NO.	COLOR
108-1081-001	White	108-1083-001	Black
108-1082-001	Red	108-1087-001	Yellow

**For Standard Banana Jack: .166 (4.23) Diameter**

### FEATURES:

- Built in strain relief for long life
- Solder stud accepts up to 16 gauge wire
- Accepts standard banana plug from rear
- Nylon UL approved for self extinguishing

For assembly tools see page 277.

†Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

# Banana Plugs

Application • Test Equipment • Power Supplies  
 INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST



## Insulated Stacking Dual Type

### SPECIFICATIONS

**Plug Body:** Brass per QQ-B-626D

**Plug Spring:** Nickel silver per QQ-C-586

**Finish:** Nickel

**Insulated Handle:** Nylon 6/6 per ASTM D4066

### RATINGS

**Current:** 15 amps

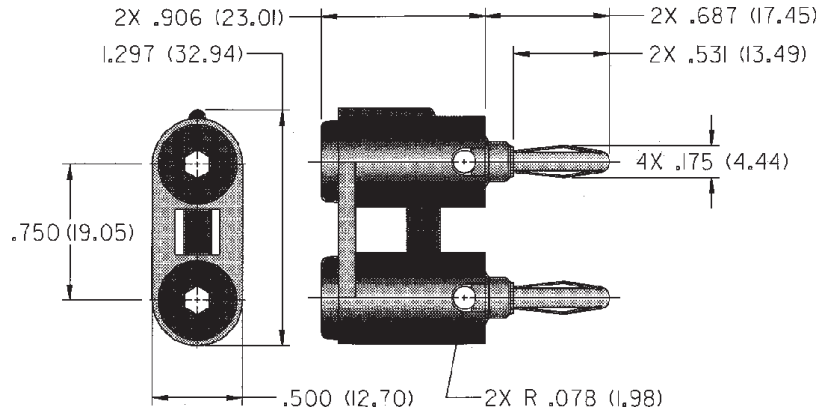
**Breakdown Voltage:** 3500 VRMS minimum\*

**Contact Resistance:** 0.010 ohms maximum

**For Standard Banana Jack:** .166 (4.23) Diameter

### FEATURES:

- Accepts standard banana plug from rear
- Built-in strain relief for long life
- Nylon UL approved for self extinguishing



NICKEL PLATING	
SET SCREW (Accepts wire sizes up to 14 gauge)	
PART NO.	COLOR
108-0252-001	Red
108-0253-001	Black

\*Avoid user injury due to misapplication. See safety advisory definitions inside front cover.



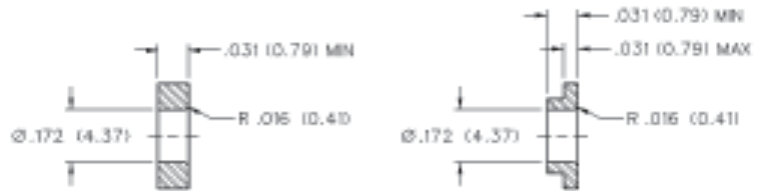
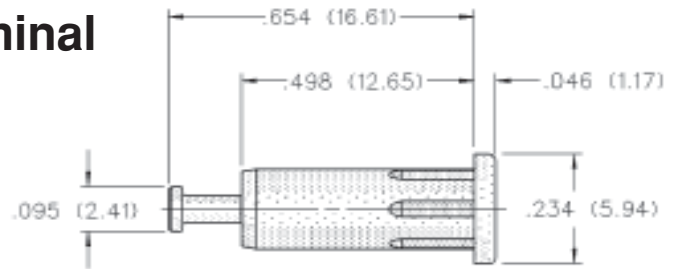
## Insulated Rib-Loc® Turret Terminal

### SPECIFICATIONS

**Contact:** Brass per QQ-B-626D  
**Finish:** Silver  
**Insulated Handle:** Nylon 6/6 per ASTM D4066  
**Panel Thickness:** Up to .313 (80)

### RATINGS

**Current:** 10 amps  
**Breakdown Voltage:** 3500 VRMS minimum†  
**Contact Resistance:** 0.010 ohms maximum  
**Contact-To-Panel C:** 2.4 pF nominal



Mounting Hole Options

SILVER PLATING			
PART NO.	COLOR	PART NO.	COLOR
108-1102-001	Red	108-1103-001	Black

**For Miniature Banana Plug: .120 (3.00) Across Flats**

### FEATURES:

- Hardwareless Rib-Loc® mounting design
- Nylon UL approved for self extinguishing

†Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

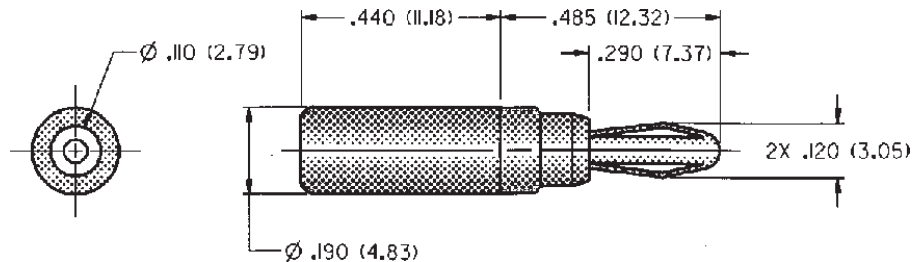
## Insulated Solder Type

### SPECIFICATIONS

**Plug Body:** Brass per QQ-B-626D  
**Plug Spring:** Beryllium copper per QQ-C-533  
**Finish:** Nickel  
**Insulated Handle:** Nylon 6/6 per ASTM D4066

### RATINGS

**Current:** 10 amps  
**Breakdown Voltage:** 3500 VRMS minimum†  
**Contact Resistance:** 0.010 ohms maximum



NICKEL PLATING			
PART NO.	COLOR	PART NO.	COLOR
108-1002-001	Red	108-1003-001	Black

**For Miniature Banana Jack: .104 (2.64) Diameter**

### FEATURES:

- Small size for limited space
- Solder terminal accepts up to 18 gauge wire
- Nylon UL approved for self extinguishing

†Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

# Binding Posts

Application • Audio circuitry • RF circuitry  
 INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

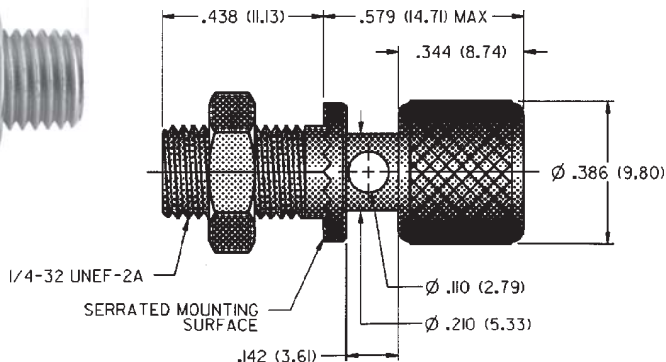


## Uninsulated With Knurled Thumb - Nut-Grounded Type

### SPECIFICATIONS

**Stud:** Brass per QQ-B-626D  
**Finish:** Nickel  
**Hardware:** Nickel plated nut (unassembled)  
**Panel Thickness:** Up to .281 (7.15)  
**RATINGS**  
**Current:** 15 amps

NICKEL PLATING	
PART NO.	
111-2223-001	



For Standard Banana Plug: .175 (4.44) Across Flats

### FEATURES:

- Nickel plated stud with serrated mounting surface prevents turning
- Captive thumb nut .110 (2.79) diameter cross-hole accommodates up to 10 gauge wire

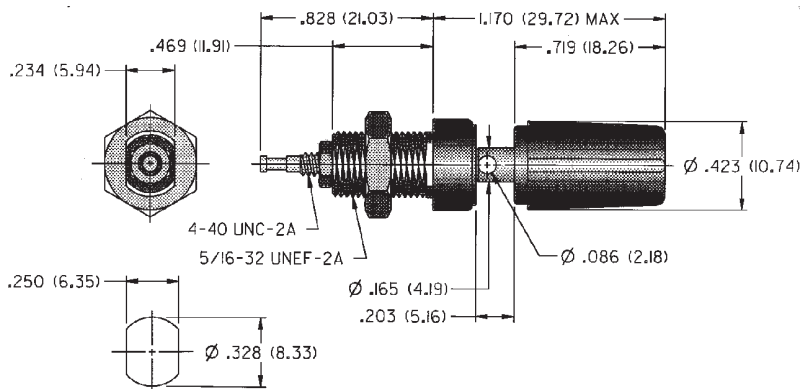
## Insulated Standard

### SPECIFICATIONS

**Stud:** Brass per QQ-B-626D  
**Finish:** Silver  
**Insulating Material:** Nylon 6/6 per ASTM D4066  
**Hardware:** Nickel plated nut (unassembled)  
**Body Thread Stripping Torque:** 6.0 lb. in. (7.0 kg cm)  
**Panel Thickness:** Up to .281 (7.15)

### RATINGS

**Current:** 15 amps  
**Contact Resistance:** 0.010 ohms maximum  
**Breakdown Voltage:** 5700 VRMS minimum\*  
**Stud-to-Panel:** 3.3 pF nominal



SILVER PLATING			
PART NO.	COLOR	PART NO.	COLOR
111-0101-001	White	111-0104-001	Green
111-0102-001	Red	111-0107-001	Yellow
111-0103-001	Black	111-0110-001	Blue

For Standard Banana Plug: .175 (4.44) Dia.

### FEATURES:

- Turret terminal
- Captive thumb nut
- Insulated body is flatted to prevent turning
- Nylon UL approved for self-extinguishing



\*Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

## Insulated Standard With - Thumb Nut-Grounded Type

### SPECIFICATIONS

**Stud:** Brass per QQ-B-626D  
**Finish:** Nickel  
**Insulating Material:** Nylon 6/6 per ASTM D4066  
**Hardware:** Nickel plated nut (unassembled)  
**Panel Thickness:** Up to .313 (7.95)

### RATINGS

**Current:** 15 amps

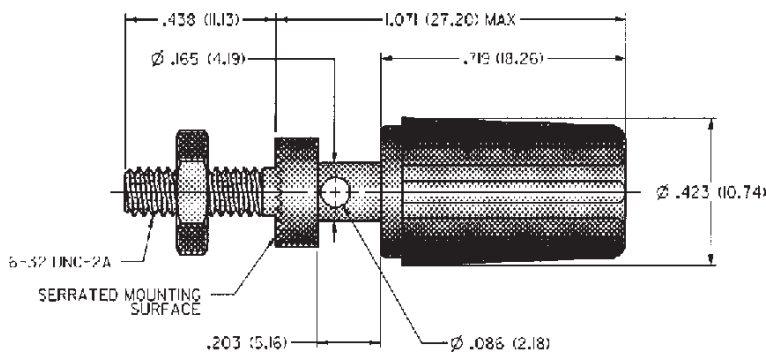
NICKEL PLATING			
PART NO.	COLOR	PART NO.	COLOR
111-0702-001	Red	111-0703-001	Black

For Standard Banana Plug: .175 (4.44) Across Flats

### FEATURES:

- Serrated mounting surface prevents turning
- Captivated thumb nut
- .086 (2.18) accommodates up to 12 gauge wire
- Nylon UL approved for self-extinguishing

\*Avoid user injury due to misapplication. See safety advisory definitions inside front cover.



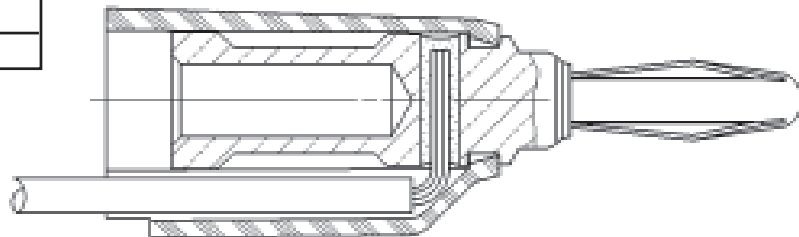
## Assembly Tools and Fixtures (108-108X-001 Series)

### For Standard Stacking Banana Plugs: .175 (4.44) Across Flats

Quick and easy assembly of standard banana plug .175 (4.44) diameter is possible with the assembly tool and fixtures shown here. Strip wire jacket back 3/4" and feed wire through cross hole of metal contact. Fold stripped wire against metal plug body and slide insulated handle over banana plug body and wires. Insert contact wire into housing. Place into fixture. Push tip of tool into rear of contact. Snap contact into place. Handle of tool is curved to fit hand comfortably. Fixture and tip of tool made from tool steel.



<b>FIXTURE PART NO.</b>
251-0111-003
<b>TOOL PART NO.</b>
251-0115-002



## Crimp Tool (105-077X-XXX Series)

### For Insulated Standard Small Handle Tip Plugs: .080 (2.00) Diameter and .060 (1.50) Tip Jacks

Quick and easy assembly of standard small handle tip plug .080 (2.00) diameter and .060 (1.50) tip jack is possible with the assembly tool shown. Set the selector to the appropriate wire size, strip wire to .180, insert wire and tip plug in tool, squeeze handles of the tool. A complete and accurate crimp is obtained each and every time, with no partial crimps. A ratchet insures a complete cycle of the tool.



<b>TOOL PART NO.</b>
144-0000-910
<b>ASTRO TOOL PART NO.</b>
615708
<b>MILITARY PART NO.</b>
M22520/1-01

### Tube Sockets

Power Type .....	279
Wafer Type .....	279
Septar Type .....	280

Johnson sockets are designed to provide secure retention of the tube and positive, low-resistance contact between the tube pins and socket contacts for our customers who use tubes for lack of a reliable high power RF semi-conductor.

**Ordering Information:** For a numerical index of the complete electronic hardware product line, refer to page 289.

Each product listing in this section includes mechanical drawings and part numbering information. Material, mechanical and electrical specifications are listed for each item.

**To Order:** When you have determined the part number for the tube socket you require, contact one of our distributors for the socket you need. If you don't know the name of your local distributor or if you have special requirements, call 1-800-247-8256.

## Power Type

### Power Tube Socket

#### SPECIFICATIONS

**Housing:** Brass per QQ-B-626D .0001" nickel plated

**Insulator:** Glass base silicone

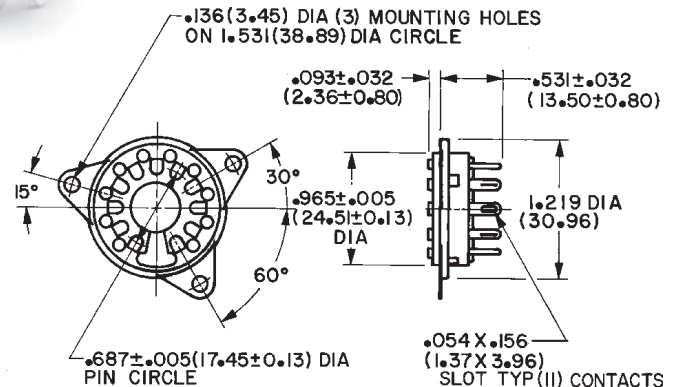
**Contacts:** Beryllium copper (heat treated)  
per QQ-C-533, .0001" silver plated

#### FEATURES:

- Raised pads for excellent base pin cooling
- For tubes such as RCA 8072, 8121 and 8122

#### Description:

For ultra high frequency tubes. Also suitable for use with CRT tubes 1EP1 and 1EP11 with E.I.A. base no. E11-22. Base material has low dielectric constant which results in low pin-to-pin and shunt capacity. Continuous heat resistance to 500° F. Mounting lugs provide low inductance grounding. Three point mounting stability. Eleven pin configuration.



PART NO.
124-0311-100 (Industrial Grade)

## Wafer Type

### Giant: 5-Pin Configuration

#### SPECIFICATIONS

**Base:** L-423 steatite, DC-200 treated

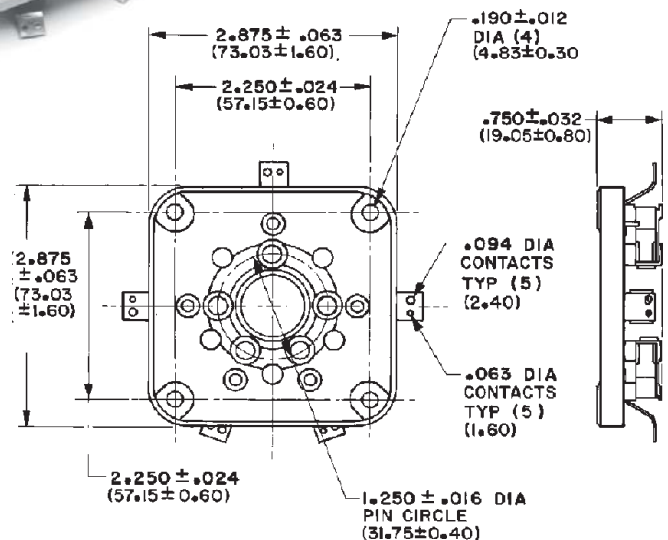
**Contacts:** Brass per QQ-B-626D, with steel springs  
per QQ-S-777, .0001" nickel plated

#### FEATURES:

- Ventilating holes to provide tube seal cooling
- Sub-panel mounting possible with countersunk rivets and bossed mounting holes

#### Description:

Heavy duty steatite insulate wafer type socket. For tubes such as 4-125A, 4-250A, and RK-48 with E.I.A. base no. A5-19. Standard five pin configuration.



PART NO.
122-0275-001 (Commercial Grade)

## Septar Type

### 7-Pin Configuration

**SPECIFICATIONS**

**Base:** L-423 steatite, DC-200 treated

**Shell:** Aluminum per QQ-A-200/8, iridated

**Contacts:** Phosphor bronze per QQ-B-750, with beryllium copper springs per QQ-C-533, .0005" silver plated



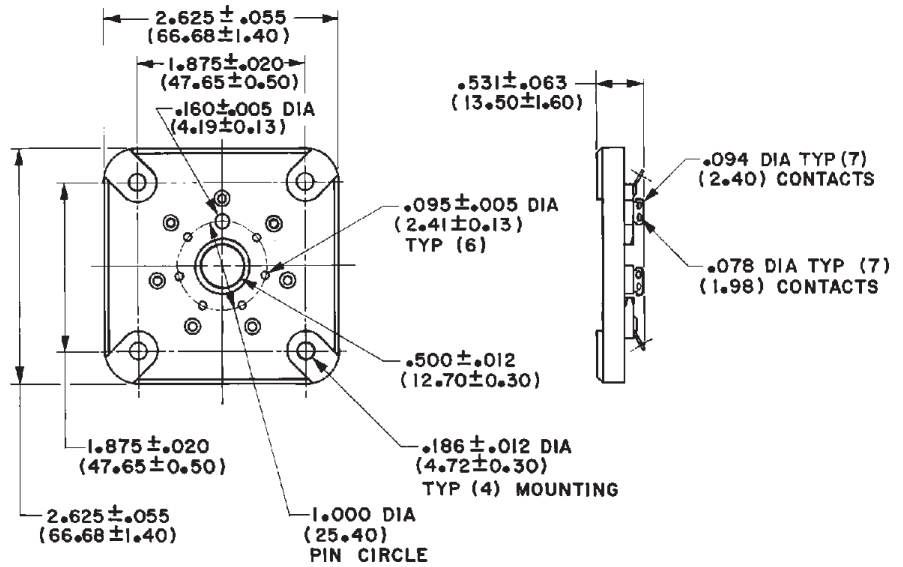
**FEATURES:**

- Securely holds tube
- Positive, low resistance contact between tube pins and socket contacts

**Description:**

Designed for 7-pin tubes with E.I.A. base no. E7-2 such as the 7094.

PART NO.
122-0247-202 (Military Grade)





# Competitor Cross Reference

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

ADC	EMERSON	AEP	EMERSON	AEP	EMERSON	AMP	EMERSON	AMP	EMERSON
BNC-1	CPMC-68-35	2010-1511-000	131-1701-371	9043-1523-002	142-0402-101	222165-2	CP-AD503	228216-1	131-3701-416
BNC-2	CPMC-68-2	2010-1511-000	131-3701-301	9043-1523-003	142-0403-101	222319-1	CP-AD512	228226-1	CP-AD556
BNC-3	CPMC-68-33	2010-7511-000	131-1701-376	9043-1523-006	142-0407-101	222321-1	CP-AD809	228509-9	CP-625U
BNC-4	CPMC-68-3	2010-7511-000	131-3701-306	9044-9513-000	142-1701-606	222428-1	CPFI-UG89-2	3-227079-0	CPMC-88-5
BNC-6	CPMC-68-10	2018-1511-001	131-3701-801	9044-9513-001	142-1701-616	222506-2	CPMC-TNC-2	3-227079-1	CPMC-88-5
BNC-6	CPMC-68-50	2018-7511-001	131-3701-806	9045-9513-000	142-1701-506	222506-4	CPMC-TNC-13	3-227079-2	CPMC-88-5
BNC-7	CPMC-68-18	2019-1511-000	131-3701-411	9045-9513-001	142-1701-516	225395-1	CPMC-88-1	3-227079-7	CPMC-88-14
BNC-8	CPMC-68-45	2019-7511-000	131-3701-416	9046-9513-000	142-1801-606	225395-2	CPMC-88-2	3-227086-6	CPN-1
BNC-10	CPMC-68-36	2025-1511-000	131-3801-201	9046-9513-001	142-1801-616	225395-5	CPMC-88-1	329517	CP-AD503
BNC-13	CPMC-68-34	2025-7511-000	131-3801-216	9048-9513-000	142-1701-626	225395-6	CPMC-88-13	329518	CP-AD505
		2042-1511-000	131-1801-371	9049-9513-000	142-1701-526	225395-7	CPM-88-19	330024	CP-AD556
<b>AEP</b>	<b>EMERSON</b>	2042-1511-000	131-3801-301	9050-9513-000	142-1801-626	225395-8	CPM-88-20	331350	CPMC-88-2
204	131-3701-401	2042-7511-000	131-1801-376	9074-9513-000	142-1701-576	225395-9	CPMC-88-14	4-227079-1	CPMC-88-1
209	131-1701-201	2042-7511-000	131-3801-316	9076-1113-000	142-1701-011	225532-1	142-0407-016	4-227079-3	CPMC-88-1
209	131-3701-201	2105-1521-002	131-1402-101	9076-9113-000	142-1701-016	225532-9	142-0407-016	4-227079-9	CPMC-88-10
210	131-1701-371	2105-1521-002	131-3402-101	9079-9513-000	142-1701-556	225542-1	142-0307-016	4-331350-0	CPMC-88-3
210	131-3701-301	2105-1521-003	131-1403-101	9079-9513-001	142-1701-566	225608-9	142-0307-416	413592-2	CP-AD505
219	131-3701-411	2105-1521-003	131-3403-101	9101-1573-003	142-0403-001	225609-1	142-0407-101	413592-9	CP-AD505
222	131-3901-401	2105-7521-002	131-1402-116	9130-1573-002	142-0302-401	225609-4	142-0403-101	413771-3	CP-89-19-BM1
225	131-3801-201	2105-7521-002	131-3402-116	9130-1573-003	142-0303-401	225661-2	CPN-1	414160-7	CPN-68-13
242	131-1801-371	2105-7521-003	131-1403-116	9130-1573-006	142-0307-401	225886-4	CPMC-88-26	414160-9	CPN-68-1
242	131-3801-301	2105-7521-003	131-3403-116	9201-1553-002	142-0202-011	226279-1	CPL-259-1	414168-3	CP-TNC-89-19-BM
1-104	131-6701-401	2110-1511-000	131-3701-341	9201-1553-003	142-0203-011	226279-2	CPL-259-8	414265-1	CPFI-UG88-1
1-109	131-6701-201	2110-7511-000	131-3701-346	9201-1553-006	142-0207-011	226279-3	CPL-259-2	414265-3	CPFI-UG89-2
1-110	131-6701-301	218/063	131-3701-801	9230-1553-002	142-0102-401	226600-1	MINI-UHF-1	414265-4	CPFI-UG88-10
1-119	131-6701-411	2484-1511-000	131-3701-631	9230-1553-003	142-0103-401	227000-5	CPMC-TNC-1	414265-5	CPFI-UG88-3
1-302/188	131-6403-001	2484-7511-000	131-3701-636	9243-1553-002	142-0202-101	227000-7	CPMC-TNC-2	414311-1	CP-AD506
1-303/188	131-6303-401	401/188	131-3303-001	9243-1553-003	142-0203-101	227079-1	CPMC-88-1	414414-1	CP-AD555
1-305/188	131-6403-101	401/196	131-3302-001	9243-1553-006	142-0207-101	227079-2	CPMC-88-13	414459-1	CP-BNC-PC-016
1002-1571-003	131-6403-001	402/188	131-1403-001	9301-1063-109	142-0694-021	227079-3	CPMC-88-2	414580-2	CPFI-UG88-1
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1003-1571-003	131-6303-401	402/196	131-3402-001	9304-9113-013	142-1701-196	227079-7	CPMC-88-2	414580-5	CPFI-UG88-10
1003-7571-003	131-6303-406	405/188	131-1403-101	9308-1113-001	142-1701-201	227079-9	CPMC-88-1	414586-1	CPMC-88-1
1004-1511-000	131-6701-401	405/188	131-3403-101	9308-9113-001	142-1701-206	227632-1	131-6701-406	414586-5	CPMC-88-1
1004-7511-000	131-6701-406	405/196	131-1402-101	9401-1083-010	142-0693-001	227633-1	131-6701-416	414666-1	CP-AD503
1009-1511-000	131-6701-201	405/196	131-3402-101	9401-1083-109	142-0694-001	227677-1	CP-BNC-PC-009	51751-1	131-6303-401
1009-7511-000	131-6701-206	5222-1501-000	131-3901-401	9402-1083-009	142-0594-001	227726-3	CP-AD520	51751-3	131-6303-401
1010-1511-000	131-6701-301	5222-7501-000	131-3901-406	9402-1083-010	142-0593-001	227754-1	CP-1094-U	51753-1	131-6403-101
1019-1511-000	131-6701-411	5909-1103-000	142-0901-401	9404-1113-000	142-0701-631	227754-2	CP-1094-U	51753-4	131-6403-101
1019-7511-000	131-6701-416	5917-1103-000	142-0901-801	9408-1113-000	142-0701-621	227754-3	CP-1094-U	5-227079-8	CPMC-88-3
1105-1521-003	131-6403-101	5918-1103-000	142-0901-811	9412-1113-000	142-0701-401	227945-2	CP-AD850	5-331350-3	CPMC-88-2
1105-7521-003	131-6403-106	9001-1023-001	142-0408-011	9413-1113-000	142-0701-411	227945-5	CP-AD850	5801-7985-63	133-3693-001
1110-1511-000	131-6701-341	9001-1023-003	142-0403-011	9424-1513-000	142-0701-701	227839-1	CP-TNC-PC-002	5818-5002-10	142-0003-236
1110-7511-000	131-6701-346	9001-1023-006	142-0407-011	9424-9513-000	142-0701-706	228226-3	CP-AD556	5818-5003-10	142-0003-246
2001-1571-002	131-3302-001	9001-1023-019	142-0404-011	9453-1083-009	142-0594-401	227984-1	CPFI-UG88-2	5818-5005-10	142-0002-226
2001-1571-003	131-3303-001	9001-9023-001	142-0408-016	9453-1083-010	142-0593-401	228026-2	131-6402-006	5831-5002-10	133-3402-006
2001-7571-002	131-3302-006	9001-9023-003	142-0403-016	9504-9113-009	142-1701-546	228026-3	131-6403-006	5831-5003-10	133-3403-006
2001-7571-003	131-3303-006	9001-9023-006	142-0407-016	9504-9113-031	142-1701-536	228028-1	131-6303-406	5837-5002-10	133-3402-106
2002-1541-010	131-3693-001	9001-9023-019	142-0404-016	9508-9113-001	142-1701-646	228028-3	131-6303-406	5837-5003-10	133-3403-106
2002-1571-002	131-3402-001	9002-1023-003	142-0303-011	9508-9113-002	142-1701-636	228030-1	131-6403-106	5837-5010-63	133-3403-101
2002-1571-003	131-1403-001	9002-1023-006	142-0307-011	9576-9113-001	142-1701-586	228030-2	131-6402-106	5862-5002-10	133-3701-216
2002-1571-003	131-3403-001	9002-1023-019	142-0304-011	9576-9113-003	142-1701-596	228030-3	131-6403-106	5862-5003-10	133-3701-206
2002-7541-010	131-3693-016	9002-9023-001	142-0308-016	9609-1513-000	142-0701-531	228212-1	131-1701-206	5862-5004-10	133-3701-226
2003-1541-010	131-3593-401	9002-9023-003	142-0303-016	9609-9513-000	142-0701-536	228212-1	131-3701-206	5863-0000-10	133-3801-201
2003-7541-010	131-3593-406	9002-9023-006	142-0307-016	9649-1113-000	142-0801-201	228213-1	131-1403-016	5864-5001-10	133-3701-306
2004-1511-000	131-3701-401	9002-9023-019	142-0304-016	9650-1113-000	142-0701-201	228213-1	131-3403-016	5864-5002-10	133-3701-326
2004-7511-000	131-3701-406	9030-1023-001	142-0308-411			228213-2	131-3402-016	5864-5003-10	133-3701-316
2005-1541-010	131-1693-101	9030-1023-003	142-0303-411	<b>AMP</b>	<b>SEE TYCO/AMP</b>	228213-3	131-1403-016	6-227079-0	CPMC-88-13
2005-1541-010	131-3693-101	9030-1023-006	142-0307-411			228213-3	131-3403-016	6-227079-1	CPMC-88-13
2005-7541-010	131-3693-116	9030-1023-019	142-0304-411	<b>AMP</b>	<b>EMERSON</b>	228214-1	131-1403-116	6-227079-2	CPMC-88-13
2009-1511-000	131-1701-201	9030-9023-001	142-0308-416	221984-1	CPFI-UG88-2	228214-1	131-3403-116	6-227079-5	CPMC-88-5
2009-1511-000	131-3701-201	9030-9023-003	142-0303-416	221984-5	CPFI-UG88-3	228214-2	131-1402-116	6-227079-7	CPMC-88-11
2009-7511-000	131-1701-206	9030-9023-006	142-0307-416	221984-7	CPFI-UG88-1	228214-2	131-3402-116	BNC58HPC	CPMC-88-1
2009-7511-000	131-3701-206	9030-9023-019	142-0304-416	221988-1	CP-AD506	228215-1	131-3701-406	BNC58J	CP-89-1

# Competitor Cross Reference

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

AMP	EMERSON	AMPHENOL	EMERSON	AMPHENOL	EMERSON	AMPHENOL	EMERSON	AMPHENOL	EMERSON
BNC58PC	CPMC-88-1	31-221	CP-1094U	31-70235	CPMC-68-3	901-168	CP-AD311	901-B2501-519	CP-AD507
BNC58PP	CPMC-88-11	31-221-RFX	CP-1094U	31-70236	CPMC-68-18	901-191	142-0901-401	901-B2501-520	CP-AD508
BNC58PTV	CPFI-UG-88-1	31-2218	CP-AD511	31-70237	CPMC-68-35	901-255	142-0102-401	903-284-52S	131-6403-001
BNC59HPC	CPMC-88-2	31-2221	CP-1094U	31-70238	CPMC-68-33	901-256	142-0103-401	903-285P-51S	131-1403-001
BNC59J	CP-89-2	31-2242-RFX	CPM-TNC-19	31-71008	CPMC-78-2	901-276	142-0901-821	903-285P-51S	131-3403-001
BNC59JTW	CPFI-UG89-2	31-2315-RFX	CPM-TNC-19	31-71008-2000	CPMC-78-10	901-281	142-0202-011	903-287P-51S	131-3402-001
BNC59P	CPMC-88-2	31-2318-RFX	CP-TNC-89-19-BM	31-71008-RFX	CPMC-78-2	901-292	CP-AD817	903-288P-52A	131-6403-101
BNC59PC	CPMC-88-2	31-236	CP-1094U	31-71013	CPMC-68-20	901-293	CP-AD818	903-289P-51A	131-1403-101
BNC59PC75	CPMC-78-2	31-2367-RFX	CPMC-TNC-1	31-71032	CPMC-78-3	901-294	CP-AD810	903-289P-51A	131-3403-101
BNC59PP	CPMC-88-10	31-2368-RFX	CPMC-TNC-1	31-71042-RFX	CP-BNCPC-012	901-295	CP-AD819	903-291P-51A	131-1402-101
BNC59PPC	CPMC-88-10	31-2373	CPMC-TNC-13	31-71043-RFX	CP-BNCPC-010	901-302	142-0901-801	903-291P-51A	131-3402-101
BNC59PTW	CPFI-UG88-2	31-242	CPM-88-20	31-71047-10-RFX	CP-BNCPC-016	901-303	142-0901-811	903-305J-51R	131-3701-401
BNC59PTWP	CPFI-UG88-10	31-242-RFX	CPM-88-20	31-71058-RFX	CP-BNCPC-008	901-367	142-0202-101	903-373J-51A	131-1701-371
BNC8281HPS	CPMC-88-3	31-245-RFX	CP-79-20-BM1	31-8	CP-AD505	901-9183-1	142-0694-031	903-373J-51A	131-3701-301
BNCBHS	CP-AD556	31-28	CP-AD500	31-830	CP-AD809	901-9201-2A	142-0693-001	903-376J-51A	131-3701-341
BNCILS	CP-AD555	31-315	CPM-88-19	31-9	CP-AD503	901-9202-1A	142-0594-001	903-402J-51R	131-3701-411
BNCISJ	CP-AD520	31-315-RFX	CPM-88-19	31-9-RFX	CP-AD503	901-9202-2A	142-0593-001	903-407J-51R	131-3701-421
BNCCTC	CP-AD505	31-318-RFX	CP-89-19-BM1	36650-3RFX1	CPMC-88-11	901-9207-1	142-0694-021	903-408J-52R	131-6701-411
F59PIC	CPF-59-1/4	31-320	CPMC-88-1	36650-RFX	CPMC-88-11	901-9210-1	142-0594-401	903-419J-52A	131-6701-341
NP8C	CP-N-1	31-320-1006	CPMC-88-11	37-71008-RFX	CPMC-78-2	901-9210-2	142-0593-401	903-420J-52P	131-6701-201
TNC58P	CPMC-TNC-1	31-320-RFX	CPMC-88-1	68175-1004	CPMC-88-2	901-9215	142-0701-631	903-422J-51A	131-3303-501
TNC58PC	CPMC-TNC-1	31-321	CPMC-88-2	68175-1005	CPMC-88-2	901-9220	142-0701-411	903-550P-51SX	131-1403-001
TNC59P	CPMC-TNC-2	31-321-1 RFX1	CPMC-88-2	68175-11-RFX	CPMC-88-10	901-9221-1A	142-0694-101	903-551P-52SX	131-6403-001
TNC59PC	CPMC-TNC-2	31-321-1000	CPMC-88-3	68175-5-RFX	CPMC-88-2	901-9221-2A	142-0693-101	903-552J-51SX	131-3303-001
TNCBHS	CP-AD356	31-321-RFX1	CPMC-88-2	68175-5RFX1	CPMC-88-2	901-9244-2	142-0701-621	903-555J-52SX	131-6303-401
TNCILS	CP-AD355	31-3220	CP-AD521	79100-NRFX	CP-AD356	901-9511-1	142-0408-011	903-556P-51AX	131-3403-101
		31-323	CPMC-88-14	81-115	MINI-UHF-1	901-9511-12SF	142-0404-016	903-557P-52AX	131-6403-101
		31-325	CPMC-88-18	81-115-RFX	MINI-UHF-1	901-9511-12SFC	142-0404-016	903-558P-51AX	131-1403-101
<b>AMPHENOL</b>	<b>EMERSON</b>	31-326	CPMC-88-13	82-100	CP-AD800	901-9511-1S	142-0408-016	903-561P-51PX	131-3801-201
27-10	131-6303-401	31-326-RFX	CPMC-88-3	82-100-RFX	CP-AD800	901-9511-1SFC	142-0408-016	903-564J-52PX	131-6701-201
27-101	131-6701-401	31-4791	CP-AD355	82-101	CP-AD850	901-9511-3	142-0403-011	903-565P-51A	131-3801-301
27-175	131-1801-371	31-4791-RFX	CP-AD355	82-101-RFX	CP-AD850	901-9511-3SF	142-0403-016	903-566P-52A	131-6801-301
27-175	131-3801-301	31-4803	CP-AD521	82-24	CP-AD801	901-9511-3SFC	142-0403-016	903-567J-51A	131-3701-301
27-2	131-3303-001	31-4803-RFX	CP-AD580	82-36	CP-AD803	901-9531-3	142-0403-101	903-568J-52A	131-6701-301
27-31	131-3302-001	31-5136	CPFI-UG88-2	82-4352-1	CPN-8	901-9867-RFX	142-0693-001	903-569J-51RX	131-3701-411
27-5	131-3901-401	31-5136-RFX	CPFI-UG88-2	82-4426-11-RFX	CPN-8	901-9868-RFX	142-0694-001	903-570J-52RX	131-6701-411
27-5050	131-3693-001	31-5137	CPFI-UG88-1	82-5375	CPN-1	901-9876-RFX	142-0407-011	903-571J-51RX	131-3701-401
27-5052	131-1693-101	31-5137-RFX	CPFI-UG88-1	82-5375-RFX	CPN-1	901-9877-RFX	142-0403-011	903-572J-52RX	131-6701-401
27-5052	131-3693-101	31-5138	CPFI-UG89-2	82-5380	CPN-2	901-9879-RFX	142-0303-411	908-21103	135-3801-201
27-845	131-6303-401	31-5141	CPMC-88-18	82-61	CPN-8	901-9880-RFX	142-0407-101	908-22100	135-3711-801
27-849	131-3303-001	31-5151	CPFI-UG88-3	82-64	CP-AD803	901-9881-RFX	142-0403-101	908-24100	135-3701-301
2900	CP-AD512	31-5156	CPMC-88-2	82-97-RFX	CP-AD801	901-9889-RFX	142-0701-411	908-41200	135-3402-001
2925	CP-AD512	31-5157	CPMC-TNC-2	83-15P-15-RFX	CP-AD250	901-9890-RFX	142-0701-401	908-41300	135-3403-001
5575	CP-1094U	31-5369-RFX	CPFI-UG88-10	83-1F	CP-AD207	901-9891-RFX	142-1701-131	908-41500	135-3404-001
12025	CP-AD500	31-5493-RFX	CP-BNCPC-007	83-1J	CP-AD204	901-9892-RFX	142-0701-631	908-42300	135-3303-001
17450	CP-AD506	31-5556-RFX	CP-88-2	83-1J-RFX	CP-AD204	901-9893-RFX	142-0701-621	908-43200	135-3402-101
34525	CPN-2	31-5557-RFX	CP-88-1	83-1R	CP-AD206	901-9894-RFX	142-0801-301	908-43300	135-3403-101
36650	CPMC-88-14	31-5558-RFX	CPMC-88-5	83-1R-RFX	CP-AD206	901-9895-RFX	142-0801-201	908-43400	135-3693-101
36875	CPMC-88-13	31-5560-RFX	CP-88-10	83-58FCP-RFX	CPL-259-1	901-9940-RFX	142-0694-011	908-43500	135-3404-101
68175	CPMC-88-2	31-5633	CP-BNCPC-005	83-58SCP	CPL-259-1	901-9943-RFX	142-0593-001	BNC-AAPJ	CP-AD503
79100	CP-AD356	31-5640-RFX	CP-BNCPC-009	83-58SCP-RFX	CPL-259-1	901-9944-RFX	142-0594-001	BNC-AS-JJ	CP-AD555
79675	CP-AD300	31-5888-RFX	CP-TNC-PC-002	83-59DCP	CPL-259-2	901-9945-RFX	142-0593-401	BNC-PC2C-P5962	CP-88-10
31-10	CP-AD520	31-5893-RFX	CP-AD355	83-59DCP-RFX	CPL-259-2	901-9946-RFX	142-0594-401	BNC-PS2C-58	CP-88-1
31-10-75-RFX	CP-AD520	31-5900	CPMC-88-21	83-85P	CPL-259-8	901-9951-RFX	142-0693-101	BNC-PS2C-5962	CP-88-2
31-10-RFX	CP-AD520	31-5912-RFX	CPMC-88-19	83-85P-RFX	CPL-259-8	901-9952-RFX	142-0694-101	BNC-PS3C-174	CPM-88-19
31-203	CP-AD519	31-5913-RFX	CPMC-78-20	901-164	CP-AD582	901-9953-RFX	142-0307-011	BNC-PS3C-P5962	CPMC-88-10
31-203-RFX	CP-AD519	31-5976-50-RFX	CP-BNCPC-001	901-165	CP-AD583	901-9954-RFX	142-0303-011	BNC-PS3C-PL58	CPMC-88-11
31-208	CP-AD505	31-5980-RFX	CP-AD558	901-166	CP-AD508	901-9955-RFX	142-0307-411	BNC-TJJPJ	CP-AD505
31-208RFX	CP-AD505	31-6-RFX	CP-BNC-CAP-1	901-130	142-0207-101	901-9978-RFX	142-1701-511	TNC-A5-JJ	CP-AD355
31-217	CP-AD807	31-70008	CPMC-68-2	901-140	142-0203-101	901-9979-RFX	142-1701-611	TNC-PS3C-58	CPMC-TNC-1
31-218	CP-AD511	31-70008	CPMC-78-2	901-143-6RFX	142-0701-301	901-9984-RFX	142-0901-811	TNC-PS3C-5962	CPMC-TNC-2
31-218-RFX	CP-AD511	31-70036	CP-AD705	901-144-8RFX	142-0701-201	901-9985-RFX	142-0901-801		
31-219	CP-AD555	901-149	CPMC-78-3	901-155	142-0403-001	901-9986-RFX	142-0901-401		
31-219RFX	CP-AD555	31-70234	CPMC-68-45			901-9987-RFX	142-0901-821		
31-2208	CP-AD505							<b>ANRITSU</b>	<b>EMERSON</b>
								K100B	142-1000-033

# Competitor Cross Reference

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

ANRITSU	EMERSON	BERG	EMERSON	CABLEWAVE	EMERSON	CDI/TENSOLITE	EMERSON	CDI TENSOLITE	EMERSON
K101M-85	145-0693-002	<b>BERG</b>	<b>EMERSON</b>	700218	131-3801-301	5607-4CC-SF	142-1801-556	5980-1CC-SF	142-1701-546
K102F	145-0701-002	32AS100-1	131-3901-401	700306	131-6403-001	5607-5CC	142-1801-561	5980-2CC	142-1701-531
K103F	145-0701-602	32J102-1	131-3303-001	700311	131-6303-401	5607-5CC-SF	142-1801-566	5980-2CC-SF	142-1701-536
K104F	145-0701-612	32JR104-1	131-3701-401	700326	131-6403-101	5607-6CC	142-1801-571	5980-4CC	142-1701-501
<b>AUTOMATIC</b>	<b>EMERSON</b>	32JR107-1	131-3701-201	700400	131-3303-001	5607-6CC-SF	142-1801-576	5980-4CC-SF	142-1701-506
3301-640-919	142-0403-001	32JR110-1	131-3701-411	700401	131-3302-001	5608-2CC	142-1801-531	5980-5CC	142-1701-511
3301-940-801	142-0202-011	32JR111-1	131-3701-301	700405	131-1403-001	5608-2CC-SF	142-1801-536	5980-5CC-SF	142-1701-516
3301-940-819	142-0203-011	32JR122-1	131-3701-341	700405	131-3403-001	5663-2CC	142-1701-631	5980-6CC	142-1701-521
3301-940-888	142-0207-011	32JR189-1	131-3711-201	700406	131-3402-001	5663-2CC-SF	142-1701-636	5980-6CC-SF	142-1701-526
3302-640-901	142-0402-101	32P100-1	131-1403-001	700425	131-1403-101	5663-4CC	142-1701-601	5981-1CC	142-1701-641
3302-640-980	142-0407-101	32P100-6	131-3402-001	700425	131-3403-101	5663-4CC-SF	142-1701-606	5981-1CC-SF	142-1701-646
3302-940-801	142-0202-101	32P111-1	131-1403-101	700426	131-1402-101	5663-5CC	142-1701-611	5981-2CC	142-1701-631
3302-940-819	142-0203-101	32P111-13	131-1402-101	700426	131-3402-101	5663-5CC-SF	142-1701-616	5981-2CC-SF	142-1701-636
3302-940-888	142-0207-101	32PR103-1	131-3801-201	700466	131-3693-001	5663-6CC	142-1701-621	5981-4CC	142-1701-601
3307-640-901	142-0302-401	32PR104-1	131-3801-301	700473	131-1693-101	5663-6CC-SF	142-1701-626	5981-4CC-SF	142-1701-606
3307-640-919	142-0303-401	37JR101-1	131-6701-411	700473	131-3693-101	5664-2CC	142-1801-631	5981-5CC	142-1701-611
3307-940-801	142-0102-401	37JR104-2	131-6701-201			5664-2CC-SF	142-1801-636	5981-5CC-SF	142-1701-616
3307-940-819	142-0103-401	37JR108-1	131-6701-401	<b>CDI/TENSOLITE</b>	<b>EMERSON</b>	5664-4CC	142-1801-601	5981-6CC	142-1701-621
E-3301-042-104	142-0694-001	37JR110-1	131-6701-301	201-1CC	145-0694-001	5664-4CC-SF	142-1801-606	5981-6CC-SF	142-1701-626
E-3301-044-104	142-0694-031	37JS102-1	131-6303-401	201-1CCSF	145-0694-002	5664-5CC	142-1801-611	5982-1CC	142-1801-541
E-3301-044-124	142-0693-001	37P104-1	131-6403-101	201-2CC	145-0693-001	5664-5CC-SF	142-1801-616	5982-1CC-SF	142-1801-546
E-3302-045-919	142-0403-101	37P106-1	131-6403-001	201-2CCSF	145-0693-002	5664-6CC	142-1801-621	5982-2CC	142-1801-531
E-3306-942-104	142-0594-001	37T100-1	142-0003-301	204CC	145-0701-001	5664-6CC-SF	142-1801-626	5982-2CC-SF	142-1801-536
E-3306-942-124	142-0593-001	39JR128-5	142-0701-301	223CC	145-0901-811	5665-2CC	142-1701-531	5983-1CC	142-1801-641
E-3307-962-104	142-0594-401	39JR359-1	142-0701-201	224CC	145-0901-801	5665-2CC-SF	142-1701-536	5983-1CC-SF	142-1801-646
E-3307-962-124	142-0593-401	39JR363-1	142-0701-876	225CC	145-0901-821	5665-4CC	142-1701-501	5983-2CC	142-1801-631
E-3337-945-000	142-0701-401	39JR364-1	142-0701-506	230CC	145-0701-611	5665-4CC-SF	142-1701-506	5983-2CC-SF	142-1801-636
E-3341-000-000	142-0701-631	39JR364-2	142-0701-501	230CCSF	145-0701-612	5665-5CC	142-1701-511	5983-4CC	142-1801-601
E-3341-960-100	142-0701-621	69JR100-2	135-3701-201	231CC	145-0701-601	5665-5CC-SF	142-1701-516	5983-4CC-SF	142-1801-606
E-3352-960-000	142-0901-811	69JR101-2	135-3701-301	231CCSF	145-0701-602	5665-6CC	142-1701-521	5983-5CC	142-1801-611
E-3353-000-000	142-0901-821	69JR103-2	135-3711-801	240CCSF	145-0701-002	5665-6CC-SF	142-1701-526	5983-5CC-SF	142-1801-616
E-3356-000-000	142-0901-801	69P101-2	135-3801-201	5602-2CC	142-1701-631	5666-2CC	142-1801-531	5983-6CC	142-1801-621
E-3357-040-000	142-0901-401	69P103-4	135-3404-001	5602-2CC-SF	142-1701-636	5666-2CC-SF	142-1801-536	5983-6CC-SF	142-1801-626
H-4601-004-919	131-6403-001	69P103-6	135-3403-001	5602-4CC	142-1701-601	5850-1CC	142-0693-101	<b>COAXIM</b>	<b>EMERSON</b>
H-4602-045-919	131-6403-101	69P104-3	135-3403-101	5602-4CC-SF	142-1701-606	5850-2CC	142-0694-101	3130-12-1	142-1701-601
H-4607-004-919	131-6303-401	69P104-4	135-3404-101	5602-5CC	142-1701-611	5937-2CC	142-1701-581	3130-12-9	142-1701-606
H-4632-000-000	131-6701-411	69P104-6	135-3402-101	5602-5CC-SF	142-1701-616	5937-2CC-SF	142-1701-586	3130-15-1	142-1701-611
H-4637-000-000	131-6701-401	<b>BIRNBACH</b>	<b>EMERSON</b>	5602-6CC	142-1701-621	5937-4CC	142-1701-551	3130-15-9	142-1701-616
H-4695-000-000	131-6701-201	400	108-0750-001	5602-6CC-SF	142-1701-626	5937-4CC-SF	142-1701-556	3130-18-1	142-1701-621
H-4697-000-000	131-6701-301	401	108-0753-001	5603-2CC	142-1701-581	5937-5CC	142-1701-561	3130-18-9	142-1701-626
H-6491-000-703	131-3701-631	406	108-0745-101	5603-2CC-SF	142-1701-586	5937-5CC-SF	142-1701-566	3130-20-1	142-1701-631
H-6901-004-919	131-1403-001	414	108-0750-002	5603-4CC	142-1701-551	5937-6CC	142-1701-571	3130-20-9	142-1701-636
H-6901-004-919	131-3403-001	1160	108-030X-001	5603-4CC-SF	142-1701-556	5937-6CC-SF	142-1701-576	3130-26-1	142-1701-641
H-6901-045-125	131-3693-001	1164	108-030X-001	5603-5CC	142-1701-561	5938-4CC	142-1801-551	3130-36-9	142-1701-646
H-6902-040-125	131-1693-101	1169	108-030X-001	5603-5CC-SF	142-1701-566	5938-4CC-SF	142-1801-556	12/1/31	142-1701-501
H-6902-040-125	131-3693-101	400A	108-0750-001	5603-6CC	142-1701-571	5938-5CC	142-1801-561	12/9/31	142-1701-506
H-6902-045-901	131-1402-101	<b>CABLEWAVE</b>	<b>EMERSON</b>	5603-6CC-SF	142-1701-576	5938-5CC-SF	142-1801-566	3131-15-1	142-1701-511
H-6902-045-919	131-1403-101	700012	131-6701-401	5604-2CC	142-1701-531	5938-6CC	142-1801-571	3131-15-9	142-1701-516
H-6902-045-919	131-3403-101	700013	131-6701-401	5604-2CC-SF	142-1701-536	5938-6CC-SF	142-1801-576	3131-18-1	142-1701-521
H-6906-004-901	131-3302-001	700015	131-6701-411	5604-4CC	142-1701-501	5941-2CC	142-1701-581	3131-18-9	142-1701-526
H-6906-004-919	131-3303-001	700016	131-6701-411	5604-4CC-SF	142-1701-506	5941-2CC-SF	142-1701-586	3131-20-1	142-1701-531
H-6907-045-125	131-3593-401	700053	131-6701-201	5604-5CC	142-1701-511	5941-4CC	142-1701-551	3131-20-9	142-1701-536
H-6932-000-000	131-3701-411	700056	131-6701-301	5604-5CC-SF	142-1701-516	5941-4CC-SF	142-1701-556	3131-36-1	142-1701-541
H-6937-000-000	131-3701-401	700166	131-3701-411	5604-6CC	142-1701-521	5941-5CC	142-1701-561	3131-36-9	142-1701-546
H-6957-000-000	131-3901-401	700169	131-3701-401	5604-6CC-SF	142-1701-526	5941-5CC-SF	142-1701-566	3131K-12-1	142-1701-551
H-6991-000-000	131-3801-201	700178	131-3593-401	5606-2CC	142-1801-631	5941-6CC	142-1701-571	3131K-12-9	142-1701-556
H-6993-000-000	131-1801-371	700188	131-3901-401	5606-2CC-SF	142-1801-636	5941-6CC-SF	142-1701-576	3131K-15-1	142-1701-561
H-6995-000-000	131-1701-201	700209	131-1701-201	5606-4CC	142-1801-601	5942-4CC	142-1801-551	3131K-15-9	142-1701-566
H-6995-000-000	131-3701-201	700209	131-3701-201	5606-4CC-SF	142-1801-606	5942-4CC-SF	142-1801-556	3131K-18-1	142-1701-571
H-6997-000-000	131-1701-371	700213	131-3801-201	5606-5CC	142-1801-611	5942-5CC	142-1801-561	3131K-18-9	142-1701-576
H-6997-000-000	131-3701-301	700214	131-1701-371	5606-5CC-SF	142-1801-616	5942-5CC-SF	142-1801-566	3131K-20-1	142-1701-581
S1333-2704-308	142-0701-411	700214	131-3701-301	5606-6CC	142-1801-621	5942-6CC	142-1801-571	3131K-20-9	142-1701-586
		700214	131-3701-301	5606-6CC-SF	142-1801-626	5942-6CC-SF	142-1801-576	3310-20-1	142-1801-531
		700218	131-1801-371	5607-4CC	142-1801-551	5980-1CC	142-1701-541		

# Competitor Cross Reference

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

COAXIM	EMERSON	CONCORD	EMERSON	DYNAWAVE	EMERSON	HH SMITH	EMERSON	HH SMITH	EMERSON
3310-20-9 .....	142-1801-536	09-9126-1-04413 ...	108-0906-001	9952-0081-6220 .....	142-1701-636	1508-105 .....	108-0910-001	455-102 .....	108-0302-001
3310-36-1 .....	142-1801-541	09-9126-1-04414 ...	108-0907-001	9952-0081-6236 .....	142-1701-646	1508-106 .....	108-0906-001	455-103 .....	108-0303-001
3310-36-9 .....	142-1801-546	09-9126-1-04415 ...	108-0904-001	9952-0781-6215 .....	142-1701-606	1508-107 .....	108-0907-001	455-104 .....	108-0304-001
3310K-12-1 .....	142-1801-551	09-9126-1-04416 ...	108-0910-001	9952-0781-6215 .....	142-1701-616	1508-108 .....	108-0908-001	455-105 .....	108-0310-001
3310K-12-9 .....	142-1801-556	09-9126-1-04417 ...	108-0912-001	9952-0781-6220 .....	142-1701-626	1508-112 .....	108-0912-001	455-106 .....	108-0306-001
3310K-15-1 .....	142-1801-561	09-9126-1-04418 ...	108-0913-001	9952-0781-6220 .....	142-1701-636	1508-113 .....	108-0913-001	455-107 .....	108-0307-001
3310K-15-9 .....	142-1801-566	09-9126-1-04419 ...	108-0901-001	9954-0081-6215 .....	142-1701-506	1509-101 .....	108-0901-001	455-108 .....	108-0308-001
3310K-18-1 .....	142-1801-571	09-9201-1-0310 .....	105-2203-105	9954-0081-6215 .....	142-1701-516	1509-102 .....	108-0902-001	455-112 .....	108-0312-001
3310K-18-9 .....	142-1801-576	09-9201-1-0312 .....	105-2202-105	9954-0081-6217 .....	142-1701-556	1509-103 .....	108-0903-001	455-113 .....	108-0313-001
12/11/11 .....	142-1801-601	09-9201-1-0314 .....	105-2207-105	9954-0081-6217 .....	142-1701-566	1509-104 .....	108-0904-001	456-101 .....	108-0301-001
12/9/11 .....	142-1801-606	09-9201-1-0315 .....	105-2204-105	9954-0081-6220 .....	142-1701-526	1509-105 .....	108-0910-001	456-102 .....	108-0302-001
3311-15-1 .....	142-1801-611	09-9201-1-0319 .....	105-2201-105	9954-0081-6220 .....	142-1701-536	1509-106 .....	108-0906-001	456-103 .....	108-0303-001
3311-15-9 .....	142-1801-616	09-9221-1-0110 .....	105-0853-001	9954-0081-6227 .....	142-1701-576	1509-107 .....	108-0907-001	456-104 .....	108-0304-001
3311-18-1 .....	142-1801-621	09-9221-1-0111 .....	105-0858-001	9954-0081-6227 .....	142-1701-586	1509-108 .....	108-0908-001	456-105 .....	108-0310-001
3311-18-9 .....	142-1801-626	09-9221-1-0112 .....	105-0852-001	9954-0081-6236 .....	142-1701-586	1509-112 .....	108-0912-001	456-106 .....	108-0306-001
3311-20-1 .....	142-1801-631	09-9221-1-0113 .....	105-0856-001	9954-0781-6215 .....	142-1701-506	1509-113 .....	108-0913-001	456-107 .....	108-0307-001
3311-20-9 .....	142-1801-636	09-9221-1-0114 .....	105-0857-001	9954-0781-6215 .....	142-1701-516	1513-102 .....	105-0702-001	456-108 .....	108-0308-001
3311-36-1 .....	142-1801-641	09-9221-1-0115 .....	105-0854-001	9954-0781-6217 .....	142-1701-556	1513-103 .....	105-0703-001	456-112 .....	108-0312-001
3311-36-9 .....	142-1801-646	09-9221-1-0116 .....	105-0860-001	9954-0781-6217 .....	142-1701-566	1598-10X .....	105-104X-001	456-113 .....	108-0313-001
		09-9221-1-0119 .....	105-0851-001	9954-0781-6220 .....	142-1701-526	1675-10X .....	108-025X-001	457-10X .....	108-030X-001
		21-9205-1-0110 .....	105-0753-001	9954-0781-6220 .....	142-1701-536	1677-102 .....	108-0252-001	458-10X .....	108-030X-001
		21-9205-1-0111 .....	105-0758-001	9954-0781-6227 .....	142-1701-576	1677-103 .....	108-0253-001	476-10X .....	108-030X-001
		21-9205-1-0112 .....	105-0752-001	9954-0781-6227 .....	142-1701-586	204-102 .....	108-1702-101	477-10X .....	108-030X-001
		21-9205-1-0113 .....	105-0756-001			204-103 .....	108-1703-101	478-10X .....	108-030X-001
		21-9205-1-0114 .....	105-0757-001	<b>HH SMITH .....</b>	<b>EMERSON</b>	205-102 .....	108-0745-101	479-10X .....	108-030X-001
		21-9205-1-0115 .....	105-0754-001	100 .....	108-0753-001	205-103 .....	108-0745-102	491-101 .....	105-0301-001
		21-9205-1-0116 .....	105-0760-001	101 .....	108-0740-102	210-102 .....	108-0252-001	491-102 .....	105-0302-001
		21-9205-1-0117 .....	105-0762-001	102 .....	108-0750-001	210-103 .....	108-0253-001	491-103 .....	105-0303-001
		21-9205-1-0118 .....	105-0763-001	109 .....	108-0740-001	211-102 .....	108-1722-101	491-104 .....	105-0304-001
		21-9205-1-0119 .....	105-0751-001	121 .....	108-0754-001	211-103 .....	108-1723-101	491-105 .....	105-0310-001
		21-9205-1-0310 .....	105-0753-150	190 .....	108-0753-102	212-102 .....	108-1762-101	492-101 .....	105-0301-001
		21-9205-1-0312 .....	105-0752-150	431 .....	108-0750-001	212-103 .....	108-1763-101	492-102 .....	105-0302-001
		21-9205-1-0314 .....	105-0757-150	433 .....	108-0750-002	219-10X .....	108-0745-10X	492-103 .....	105-0303-001
		21-9205-1-0319 .....	105-0751-150	443 .....	108-0750-001	232-10X .....	108-176X-101	492-104 .....	105-0304-001
		25-2573-1-0210 .....	108-0253-001	445 .....	108-0750-002	242-10X .....	108-176X-101	492-105 .....	105-0310-001
		25-2573-1-0212 .....	108-0252-001	2079 .....	108-2300-501	244-102 .....	105-0772-001		
		BP105B .....	111-0103-001	1463-101 .....	111-0101-001	244-103 .....	105-0773-001	<b>HUBER-SUHNER .....</b>	<b>EMERSON</b>
		BP106R .....	111-0102-001	1463-102 .....	111-0102-001	254-10X .....	108-170X-101	11MCX-50-2-10 .....	133-3403-001
		TJ103R .....	105-0202-200	1463-103 .....	111-0103-001	261-10X .....	108-172X-101	11MCX-50-1-10 .....	133-3402-001
		TJ105BL .....	105-0203-200	1463-104 .....	111-0104-001	262-10X .....	108-176X-101	11MCX-50-2-3 .....	133-3693-001
		TJ106GN .....	105-0204-200	1463-105 .....	111-0110-001	268-102 .....	108-1002-001	11MMCX-50-1-1 .....	135-3402-001
		TJ107MB .....	105-0210-200	1463-107 .....	111-0107-001	268-103 .....	108-1003-001	11MMCX-50-1-2 .....	135-3436-001
		TJ108W .....	105-0201-200	1464-101 .....	111-0101-001	271-10X .....	108-172X-101	11SMA-50-2-42 .....	142-0403-011
				1464-102 .....	111-0102-001	281-10X .....	108-172X-101	11SMA-50-2-65 .....	142-0693-001
		<b>DYNAWAVE .....</b>	<b>EMERSON</b>	1464-103 .....	111-0103-001	325-101 .....	105-2201-105	11SMA-50-3-42 .....	142-0694-031
		9852-0081-6215 .....	142-1801-606	1464-104 .....	111-0104-001	325-102 .....	105-2202-105	11SMA-50-3-64 .....	142-0694-011
		9852-0081-6215 .....	142-1801-616	1464-105 .....	111-0110-001	325-103 .....	105-2203-105	11SMA-50-3-65 .....	142-0694-001
		9852-0081-6220 .....	142-1801-626	1464-107 .....	111-0107-001	325-104 .....	105-2204-105	11SMB-50-2-13 .....	131-3693-001
		9852-0081-6220 .....	142-1801-636	1483-102 .....	111-0702-001	325-107 .....	105-2207-105	11SMB-50-1-10 .....	131-3402-001
		9852-0781-6215 .....	142-1801-606	1483-103 .....	111-0703-001	3502-101 .....	105-0251-001	11SMC-50-10/111 .....	131-6403-001
		9852-0781-6215 .....	142-1801-616	1498-102 .....	108-2302-621	3502-102 .....	105-0252-001	16MCX-50-1-5 .....	133-3402-101
		9852-0781-6220 .....	142-1801-626	1498-103 .....	108-2303-621	3502-103 .....	105-0253-001	16MCX-50-2-5/111 .....	133-3403-101
		9852-0781-6220 .....	142-1801-636	1499-102 .....	108-2302-621	359-101 .....	105-2201-101	16MCX-50-2-5/133 .....	133-3403-106
		9854-0081-6217 .....	142-1801-556	1499-103 .....	108-2303-621	359-102 .....	105-2202-101	16MCX-50-2-3 .....	133-3693-101
		9854-0081-6217 .....	142-1801-566	1501-101 .....	105-0201-200	359-103 .....	105-2203-101	16MMCX-50-1-1 .....	135-3402-101
		9854-0081-6220 .....	142-1801-536	1501-102 .....	105-0202-200	359-104 .....	105-2204-101	16MMCX-50-1-2 .....	135-3436-101
		9854-0081-6227 .....	142-1801-576	1501-103 .....	105-0203-200	359-107 .....	105-2207-101	16MMCX-50-2-1 .....	135-3693-101
		9854-0781-6217 .....	142-1801-556	1501-104 .....	105-0204-200	398-101 .....	108-2301-801	16MMCX-50-2-4 .....	135-3403-101
		9854-0781-6217 .....	142-1801-566	1501-105 .....	105-0210-200	398-102 .....	108-2302-801	16MMCX-50-2-6 .....	135-3404-101
		9854-0781-6220 .....	142-1801-536	1502-10X .....	105-025X-001	398-103 .....	108-2303-801	16SMA-50-2-45 .....	142-0403-101
		9854-0781-6227 .....	142-1801-576	1508-101 .....	108-0901-001	398-104 .....	108-2304-801	16SMA-50-2-3 .....	142-0693-101
		9952-0081-6215 .....	142-1701-606	1508-102 .....	108-0902-001	398-105 .....	108-2310-801	16SMA-50-2-3 .....	142-0694-101
		9952-0081-6215 .....	142-1701-616	1508-103 .....	108-0903-001	398-107 .....	108-2307-801	16SMB-50-1-20 .....	131-1402-101
		9952-0081-6220 .....	142-1701-626	1508-104 .....	108-0904-001	455-101 .....	108-0301-001	16SMB-50-2-20 .....	131-1403-101

# Competitor Cross Reference

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

HUBER-SUHNER	EMERSON	KEYSTONE	EMERSON	KEYSTONE	EMERSON	KINGS	EMERSON	KINGS	EMERSON
16SMC-50-2-20	131-6403-101	6018	105-0801-001	6094	108-0745-002	KA-59-230	CPMC-TNC-13	KC-59-616-MO6	CPMC-88-3
21MCX-50-1-10	133-3302-001	6019	105-0802-001	6095	108-0740-102	KA-59-231	CPMC-TNC-1	KC-59-632-MO6	CPMC-88-1
21MCX-50-2-10	133-3303-001	6020	105-0803-001	7004	111-0102-001	KA-59-232	CPMC-TNC-2	KC-59-655-MO6	CPMC-88-14
21MMCX-50-1-1	135-3302-001	6021	105-0804-001	7005	111-0103-001	KA-59-263	CPMC-TNC-2	KC-59-78	CPMC-88-1
21MMCX-50-1-2	135-3303-001	6022	105-0807-001	7006	111-0702-001	KA-59-265	CPMC-TNC-1	KC-59-79	CPMC-88-1
22MCX-50-0-2	133-3701-401	6023	105-0810-001	7007	111-0703-001	KA-59-287	CPMC-TNC-1	KC-59-80	CPMC-88-13
22SMA-50-0-44	142-0701-401	6024	105-0251-001	552-4	108-0754-001	KA-59-292	CPMC-TNC-13	KC-59-95	CPMC-88-19
22SMB-50-0-11	131-3701-421	6025	105-0252-001	6074-1	108-0750-001	KA-59-385-MO6	CPMC-TNC-2	KC-59-98	CPMC-88-1
22SMB-50-0-2	131-3701-411	6026	105-0253-001	6074-2	108-0750-002	KA-59-406-MO6	CPMC-TNC-1	KC-79-106	CP-1094-U
22SMB-50-0-3	131-3701-401	6030	105-0601-001	872-1	142-0594-401	KA-59-44	CPMC-TNC-1	KC-79-106	CP-1094-U
22SMC-50-0-2	131-6701-411	6031	105-0602-001	872-11	142-0302-401	KA-59-45	CPMC-TNC-13	KC-79-109	CP-AD519
22SMC-50-0-3	131-6701-401	6032	105-0603-001	872-12	142-0303-401	KA-59-46	CPMC-TNC-2	KC-79-121	CP-1094-U
23SMA-50-0-41	142-0701-621	6033	105-0604-001	872-8	142-0593-401	KA-59-57	CPMC-TNC-13	KC-79-123	CP-AD519
23SMA-50-0-44	142-0701-631	6034	105-0607-001	873-4	142-0594-001	KA-59-69	CPM-TNC-19	KC-79-131	CP-1094-U
23SMA-50-0-120	142-1701-201	6035	105-0610-001	873-9	142-0593-001	KA-59-86	CPMC-TNC-13	KC-79-132	CP-AD519
23SMA-50-0-122	142-1701-191	6036	105-0851-001	874-1	142-0701-401	KA-59-94	CPMC-TNC-2	KC-79-35	CP-1094-U
23SMA-50-0-170	142-1701-206	6037	105-0852-001	874-5	142-0701-411	KA-91-01	CP-AD355	KC-79-46	CP-1094-U
23SMA-50-0-172	142-1701-196	6038	105-0853-001	875-10-M09	142-0693-001	KA-91-05	CP-AD306	KC-99-20	CP-AD506
24MCX-50-1-10	133-3302-401	6039	105-0857-001	875-13	142-0403-001	KA-91-09	CP-AD355	KC-99-30	CP-AD555
24MCX-50-1-10	133-3303-401	6040	105-0854-001	875-4-M09	142-0694-031	KA-91-18	CP-AD300	KC-99-31	CP-AD505
24SMA-50-2-41	142-0593-401	6041	105-0860-001	875-8-M09	142-0694-001	KA-99-114-MO6	CP-AD356	KC-99-32	CP-AD511
24SMA-50-3-41	142-0594-401	6042	105-2201-201	876-1	142-0407-101	KA-99-59	CP-AD300	KC-99-33	CP-AD556
24SMC-50-2-10C/111	131-6303-401	6043	105-2202-201	876-6	142-0403-101	KA-99-62	CP-AD355	KC-99-34	CP-AD500
27SMA-50-0-1	142-0701-531	6044	105-2203-201	877-1	142-0701-631	KC-59-104	CPMC-88-13	KC-99-35	CP-AD503
27SMA-50-0-51	142-0701-536	6045	105-2207-201	877-2	142-0701-621	KC-59-107	CPMC-88-12	KC-99-37	CP-AD506
28SMA-50-0-1	142-0701-701	6046	105-2204-201	877-21	142-0701-301	KC-59-115	CPMC-88-13	KC-99-40	CP-AD521
28SMA-50-0-51	142-0701-706	6048	105-1101-001	879-13	142-0901-401	KC-59-116	CPMC-88-13	KC-99-42	CP-AD500
31MCX-50-0-1	133-3901-801	6049	105-1102-001	879-2-M09	142-0901-811	KC-59-123	CPMC-88-1	KC-99-44	CP-AD555
34SMB-50-0-2	131-3901-401	6050	105-1103-001	879-3	142-0901-801	KC-59-128	CPMC-88-2	KC-99-52	CP-AD505
81MCX-50-0-1	133-3801-201	6051	105-1107-001			KC-59-152	CPMC-88-19	KC-99-54	CP-AD521
81MMCX-50-0-1	135-3801-201	6052	105-1104-001	<b>KINGS</b>	<b>EMERSON</b>	KC-59-162	CPMC-88-13	KC-99-56	CP-AD511
81SMB-50-0-1/111	131-3801-201	6053	105-1110-001	1209-1-15-MA9	CP-AD810	KC-59-167	CPMC-88-13	KC-99-64	CP-AD505
82MCX-50-0-1/111	133-3701-201	6054	105-0751-001	1209-10	CP-AD803	KC-59-180	CPMC-88-3	KC-99-95-MO6	CP-AD556
82MCX-50-0-1/133	133-3701-206	6055	105-0752-001	1209-13	CP-AD850	KC-59-181	CPMC-88-3	KN-59-132	CPN-8
82MCX-50-0-10	133-3701-231	6056	105-0753-001	1209-18	CP-AD807	KC-59-223	CPMC-88-18	KN-59-204-MO6	CPN-1
82MCX-50-0-2	133-3701-201	6057	105-0757-001	1209-7	CP-AD809	KC-59-279	CPMC-88-13	KN-59-207	CP-AD802
82MMCX-50-0-1	135-3701-201	6058	105-0754-001	2025-36-9	CPMC-78-2	KC-59-290	CPMC-88-1	KN-59-273-MO6	CPN-2
82SMA-50-0-41	142-0701-201	6059	105-0760-001	2025-37-9	CPMC-78-3	KC-59-291	CPMC-88-1	KN-99-35	CP-AD809
82SMB-50-0-1/111	131-1701-201	6060	105-2201-105	2025-44-9	CPMC-68-33	KC-59-293	CPMC-88-1	KN-99-36	CP-AD809
82SMC-50-0-1	131-6701-201	6061	105-2202-105	2025-51-9	CPMC-78-2	KC-59-294	CPMC-88-2	KN-99-44	CP-AD800
83MCX-0-2-5	142-0003-231	6062	105-2203-105	2025-59-9	CPMC-78-2	KC-59-300	CPMC-88-3	KN-99-46	CP-AD807
83SMC-0-2-2	142-0003-201	6063	105-2207-105	2025-6-9-MO6	CPMC-78-2	KC-59-303	CPMC-88-13	KN-99-50	CP-AD850
84SMB-50-0-1	131-1801-371	6064	105-2204-105	2025-7-9	CPMC-78-3	KC-59-306	CPMC-88-18	KN-99-69	CP-AD803
85 MCX-50-0-1	133-3701-301	6066	105-2201-101	2029-16-5	CP-AD705	KC-59-307	CPMC-88-18	KU-59-22	CP-AD250
85MMCX-50-0-1	135-3701-301	6067	105-2202-101	2029-16-9	CP-AD705	KC-59-346	CPMC-88-13	KU-59-35	CPL-259-2
85SMA-50-0-44	142-0701-301	6068	105-2203-101	2029-17-9	CP-AD557	KC-59-347	CPMC-88-1	KU-59-48	CPL-259-8
85SMB-50-0-1	131-1701-371	6069	105-2207-101	2029-3-5	CP-AD705	KC-59-348	CPMC-88-1	KU-59-53	CPL-259-1
85SMC-50-0-1/111	131-6701-301	6070	105-2204-101	2065-1-9	CPMC-68-2	KC-59-362	CPMC-88-19	KU-99-08	CP-AD250
86SMC-50-2-2	142-0003-301	6072	108-0753-001	2065-2-9	CPMC-68-35	KC-59-397	CPMC-88-2	PL-259	CP-AD250
		6076	108-1002-001	2065-3-9	CPMC-68-50	KC-59-399	CPMC-88-13	UG-224/U	CP-AD207
		6077	108-1003-001	2065-5-9	CPMC-68-20	KC-59-400	CPMC-88-1	UG-57 B/U	CP-AD800
		6078	108-0302-001	2065-6-9	CPMC-68-3	KC-59-414	CPMC-88-1	UG-914/U	CP-AD555
		6079	108-0303-001	2065-7-9	CPMC-68-2	KC-59-414-MO6	CPMC-88-1		
		6080	108-1762-101	2065-10-9	CPMC-68-36	KC-59-415	CPMC-88-12	<b>MA/COM</b>	<b>SEE TYCO/AMP</b>
		6081	108-1763-101	2065-10-9	CPMC-68-45	KC-59-416	CPMC-88-14	<b>MOLEX</b>	<b>EMERSON</b>
		6082	108-1762-101	2065-11-9	CPMC-68-34	KC-59-416-MO6	CPMC-88-14	73301-1812	142-0694-001
		6083	108-1763-101	759-1	CP-AD555	KC-59-417	CPMC-88-13	73301-1912	142-0693-001
		6084	108-1702-101	759-3	CP-AD505	KC-59-417-MO6	CPMC-88-13	73303-1812	142-0594-001
		6085	108-1703-101	759-4	CP-AD503	KC-59-421	CPMC-88-1	73303-1912	142-0593-001
		6088	108-0252-001	759-5	CP-AD511	KC-59-422	CPMC-88-13	73304-1812	142-0594-001
		6089	108-0253-001	879-11-15-MA9	CP-AD507	KC-59-423	CPMC-88-1	73304-1912	142-0593-401
		6091	108-0902-001	KA-59-5-15-MA9	CP-AD508	KC-59-465	CPMC-88-2	73312-1212	142-0403-001
		6092	108-0903-001	KA-59-103	CPMC-TNC-1	KC-59-482	CPMC-88-2	73313-1122	142-0407-101
		6093	108-0745-001	KA-59-225	CPMC-TNC-1	KC-59-61	CPMC-88-1		

# Competitor Cross Reference

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

MOLEX	EMERSON	PHOENIX	EMERSON	RADIALL	EMERSON	RADIALL	EMERSON	RETCONN	EMERSON
73313-1222	142-0403-101	09-2800-0670	131-1403-101	<b>RADIALL</b>	<b>EMERSON</b>	R114554	131-3701-401	351-075-0002N	142-0701-416
73314-1112	142-0207-011	09-2800-2670	131-1404-101	R112075	131-6403-001	R114566	131-3701-421	351-875-0360H	142-0302-401
73314-1212	142-0203-011	09-3450-00	131-1701-371	R112186	131-6403-101	R114665	131-1701-371	351-875-0360N	142-0302-406
73315-1122	142-0207-101	0909-1180-00	131-3901-401	R112307	131-6303-401	R114720	131-3901-401	351-875-0630H	142-0303-401
73315-1222	142-0203-101	10-0800-0670	131-6403-001	R112426	131-6701-201	R125052	142-0693-001	351-875-0630N	142-0303-406
73324-1212	142-0303-401	10-0800-2670	131-6404-001	R112553	131-6701-411	R125054	142-0694-031	351-875-1161H	142-0308-401
73327-1212	142-0103-401	10-1080-00	131-6701-401	R112554	131-6701-401	R125055	142-0694-001	351-875-1161N	142-0308-406
73333-5002	142-0701-631	10-1080-01	131-6701-411	R112665	131-6701-301	R125072	142-0403-011	351-900-0630H	142-0303-011
73334-5002	142-0701-621	10-1450-00	131-6701-201	R113053	133-3693-001	R125072001	142-0403-016	351-900-0630N	142-0303-016
73352-5002	142-0701-401	10-2800-0670	131-6403-101	R113053020	133-3693-006	R125072008	142-0404-011	351-900-0631H	142-0304-011
73355-5002	142-0901-811	10-2800-2670	131-6404-101	R113081	133-3402-001	R125073	142-0403-001	351-900-0631N	142-0304-016
73356-5002	142-0901-821	10-3450-0	131-6701-301	R113081020	133-3402-006	R125075	142-0407-011	351-900-1160H	142-0307-011
73357-5002	142-0901-801	13-0200-0860	133-3693-001	R113082	133-3403-001	R125075001	142-0407-016	351-900-1160N	142-0307-016
73359-5002	142-0901-401	13-0450-00	133-3801-201	R113082020	133-3403-006	R125076	142-0408-011	351-900-1161H	142-0308-011
73446-1212	133-3403-001	13-0900-0400	133-3402-001	R113083	133-3404-001	R125076001	142-0408-016	351-900-1161N	142-0308-016
73446-1412	133-3402-001	13-0900-0670	133-3403-001	R113083020	133-3404-006	R125091	142-0203-011	351-975-0630H	142-0303-411
73447-1212	133-3403-101	13-0900-2670	133-3404-001	R113153	133-3693-101	R125172	142-0403-101	351-975-0630N	142-0303-416
73447-1412	133-3402-101	13-1450-00	131-3701-201	R113153020	133-3693-106	R125175	142-0407-101	351-975-0631H	142-0304-411
73448-1922	133-3693-101	13-1900-0400	133-3302-001	R113181	133-3402-101	R125222	142-0593-001	351-975-0631N	142-0304-416
73452-1212	133-3303-001	13-1900-0670	133-3303-001	R113181020	133-3402-106	R125225	142-0594-001	351-975-1160H	142-0307-411
73453-5002	133-3701-301	13-1900-2670	133-3304-001	R113182	133-3403-101	R125237001	142-0307-016	351-975-1160N	142-0307-416
73454-5002	133-3701-231	13-2200-0860	133-3693-101	R113182020	133-3403-106	R125238	142-0308-011	351-975-1161H	142-0308-411
73455-5002	133-3701-201	13-2800-0400	133-3402-101	R113183	133-3404-101	R125238001	142-0308-016	351-975-1161N	142-0308-416
73457-5002	133-3701-401	13-2800-0670	133-3403-101	R11318320	133-3404-106	R125325	142-0594-401	352-060-0040H	142-0801-301
73301-1812	142-0694-001	13-2800-2670	133-3404-101	R113236	133-3302-001	R125326	142-0593-401	352-060-0040N	142-0801-306
73301-1912	142-0693-001	13-3450-00	131-3701-301	R113236020	133-3302-006	R125403	142-0701-631	352-700-0360H	142-0202-101
73303-1812	142-0594-001	20-1265-1410G	142-0594-401	R113240	133-3303-001	R125553	142-0701-401	352-700-0360N	142-0202-106
73303-1912	142-0593-001	20-1464-00G	142-0701-411	R113240020	133-3303-006	R125560	142-0701-411	352-700-0630H	142-0203-101
73304-1812	142-0594-401	20-1565-0400G	142-0102-401	R113241	133-3304-001	R125680	142-0701-301	352-700-0630N	142-0203-106
73304-1912	142-0593-401	20-1565-0670G	142-0103-401	R113241020	133-3304-006	R125703	142-0901-811	352-700-1161H	142-0207-101
73312-1212	142-0403-001	20-1865-0402G	142-0302-401	R113280280100	142-0003-231	R125704	142-0901-821	352-700-1161N	142-0207-106
73313-1122	142-0407-101	20-1865-672G	142-0303-401	R113280280120	142-0003-236	R125705	142-0901-801	352-900-0630H	142-0403-101
73313-1222	142-0403-101	20-2200-0860G	142-0693-101	R113306	133-3302-401	R125720	142-0901-401	352-900-0630N	142-0403-106
73314-1112	142-0207-011	20-2200-1410G	142-0694-101	R113306020	133-3302-406			352-900-0631H	142-0404-101
73314-1212	142-0203-011	20-2450-00G	142-0801-301	R113310	133-3303-401	<b>RETCONN</b>	<b>EMERSON</b>	352-900-0631N	142-0404-106
73315-1122	142-0207-101	20-2500-0400G	142-0202-101	R113310020	133-3303-406	350-060-0040H	142-0801-201	352-900-1160H	142-0407-101
73315-1222	142-0203-101	20-2500-0670G	142-0203-101	R113311	133-3304-001	350-060-0040N	142-0801-206	352-900-1160N	142-0407-106
73324-1212	142-0303-401	20-2500-1200G	142-0207-101	R113311020	133-3304-406	350-700-0360H	142-0202-011	352-900-1161H	142-0408-101
73327-1212	142-0103-401	20-2800-0400G	142-0402-101	R113426	133-3701-201	350-700-0360N	142-0202-016	352-900-1161N	142-0408-106
73333-5002	142-0701-631	20-2800-0670G	142-0403-101	R113426020	133-3701-206	350-700-0630H	142-0203-011	353-060-0040H	142-0701-301
73334-5002	142-0701-621	20-2800-1200G	142-0407-101	R113427	133-3701-231	350-700-0630N	142-0203-016	353-060-0040N	142-0701-306
73352-5002	142-0701-401	20-3450-00G	142-0701-301	R113427020	133-3701-236	350-700-1161H	142-0207-011	450-060-0046H	133-3801-201
73352-5002	142-0901-811	20-3450-65G	142-0701-501	R113553	133-3701-401	350-700-1161N	142-0207-016	450-060-0046N	133-3801-206
73355-5002	142-0901-811	2020-0000-00G	142-0901-811	R113553020	133-3701-406	350-800-0630H	142-0403-001	450-500-0850H	133-3693-001
73357-5002	142-0901-801	2020-0100-00G	142-0901-821	R113665	133-3701-301	350-800-0630N	142-0403-006	450-500-0850N	133-3693-006
73359-5002	142-0901-401	2020-1100-00G	142-0901-801	R113665020	133-3701-306	350-900-0630H	142-0403-011	450-900-0360H	133-3402-001
73446-1212	133-3403-001	2020-1165-00G	142-0901-401	R113704	133-3901-801	350-900-0630N	142-0403-016	450-900-0360N	133-3402-006
73446-1412	133-3402-001	32-2800-0400	135-3402-101	R113704020	133-3901-806	350-900-0631H	142-0404-011	450-900-0630H	133-3403-001
73447-1212	133-3403-101	32-2800-0670	135-3403-101	R114-237	131-3302-001	350-900-0631N	142-0404-016	450-900-0630N	133-3403-006
73447-1412	133-3402-101	32-2800-2670	135-3404-101	R114053	131-3693-001	350-900-1160H	142-0407-011	450-900-0631H	133-3404-001
73448-1922	133-3693-101	33-0900-0400	135-3402-001	R114073134	131-3402-001	350-900-1160N	142-0407-016	450-900-0631N	133-3404-006
73452-1212	133-3303-001	33-0900-0670	135-3403-001	R114073134	131-3402-001	350-900-1161H	142-0408-011	451-060-0046H	133-3701-201
73453-5002	133-3701-301	33-0900-2670	135-3404-001	R114075134	131-3403-001	350-900-1161N	142-0408-016	451-060-0046N	133-3701-206
73454-5002	133-3701-231	33-1442-00	135-3701-201	R114075134	131-3403-001	351-060-0040H	142-1701-201	451-061-0040H	133-3711-201
73455-5002	133-3701-201	33-1486-00	135-3711-801	R114082	131-1403-001	351-060-0040N	142-1701-206	451-451-0000H	133-3901-801
73457-5002	133-3701-401	33-2200-086	135-3693-101	R114169	131-1693-101	351-065-0000H	142-0701-631	451-451-0000N	133-3901-806
<b>PHOENIX</b>	<b>EMERSON</b>	<b>POMONA</b>	<b>EMERSON</b>	R114183	131-1402-101	351-065-0000N	142-0701-636	451-900-0360H	133-3302-001
09-0450-00	131-3801-201	3259	108-0754-001	R114186	131-1402-101	351-066-0000H	142-0701-621	451-900-0360N	133-3302-006
09-0800-677	131-1403-001	3263	108-0750-001	R114222	131-3593-401	351-066-0000N	142-0701-626	451-900-0630H	133-3303-001
09-1080-00	131-3701-401	4511	108-0750-002	R114237	131-3302-001	351-066-0040H	142-1701-131	451-900-0630N	133-3303-006
09-1080-01	131-3701-411	1581-0	108-2303-621	R114238	131-3303-001	351-066-0040N	142-1701-136	451-900-0631H	133-3304-001
09-1450-04	131-3701-201	1581-2	108-2302-621	R114239	131-3303-001	351-075-0001H	142-0701-401	451-900-0631N	133-3304-006
09-2800-0400	131-1402-101			R114426	131-1701-201	351-075-0001N	142-0701-406	451-980-0360H	133-3302-401
				R114553	131-3701-411	351-075-0002H	142-0701-411	451-980-0360N	133-3302-406

# Competitor Cross Reference

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

RETCONN	EMERSON	SEAELECTRO	EMERSON	SEAELECTRO	EMERSON	SV MICROWAVE	EMERSON	SV MICROWAVE	EMERSON
451-980-0630H	..... 133-3303-401	<b>SEAELECTRO</b> .....	<b>EMERSON</b>	55-607-9173-31	..... 142-0694-001	<b>SV MICROWAVE</b> .....	<b>EMERSON</b>	2960-6268	..... 142-1711-021
451-980-0630N	..... 133-3303-406	50-024-0000	..... 131-6403-001	55-608-2002-31	..... 142-0593-001	066-15-000	..... 142-1000-033	2960-6274	..... 142-1711-031
451-980-0631H	..... 133-3304-401	50-027-0000	..... 131-6303-401	55-608-2003-31	..... 142-0594-001	2902-6001	..... 142-0694-031	2960-6613	..... 142-1711-531
451-980-0631N	..... 133-3304-406	50-043-0000	..... 131-6701-401	55-608-9182-31	..... 142-0593-001	2902-6005	..... 142-0694-001	2960-6701	..... 142-1711-521
452-500-0850H	..... 133-3693-101	50-045-0000	..... 131-6701-411	55-608-9183-31	..... 142-0594-001	2902-6012	..... 142-0694-001	2960-6703	..... 142-1711-511
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		55-607-9172-31	..... 142-0693-001			2960-6025	..... 142-1711-001	SF2960-6274	..... 142-1711-036

# Competitor Cross Reference

INCHES (MILLIMETERS) • CUSTOMER DRAWINGS AVAILABLE ON REQUEST

SV MICROWAVE	EMERSON	TROMPETER	EMERSON	TYCO/AMP	EMERSON	TYCO/AMP	EMERSON	TYCO/AMP	EMERSON
SF2960-6613	142-1711-536	1-221128-2	CPMC-88-3	2051-1350-00	142-1801-601	2082-5133-00	142-0901-821	5801-7985-63	133-3693-001
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211-03SF	142-1801-536	1-226208-3	CPL-259-18	2051-3356-00	142-1801-621	221117-2	142-0403-016	5818-5005-10	142-0002-226
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		2004-7941-00	142-0594-401	2054-0000-02	142-0701-706	5062-0000-09	131-6701-201		
<b>TROMPETER</b> .....	<b>EMERSON</b>	2004-7985-00	142-0593-401	2054-1201-00	142-1711-001	5064-0000-09	131-6701-301		
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