

# SMA Series Subminiature RF Connectors

ONLINE  
CATALOG

Screw-on mating

Frequency range DC-18 GHz

High performance

Rugged construction



**APPLIED ENGINEERING PRODUCTS**

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# SMA Subminiature Connectors

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# SMA Connectors

AEP SMA connectors are available with gold-plated bodies, or with passivated or nickel-plated bodies for greater economy. The coupling nuts of plug connectors are passivated in all cases.

Our unique mechanical captivation method (see page 5) greatly reduces RF leakage by eliminating epoxy fill holes in the connector body.

## Specifications (MIL-PRF-39012 as applicable)

### Materials:

**Body components:** Stainless steel per ASTM-A-582, type 303.

**Contacts:** Beryllium copper per ASTM-B-196, Condition HT.

**Insulators:** Teflon TFE per ASTM-D-1710.

**Gaskets:** Silicone rubber per ZZ-R-765, Class 2B, grade 65-75.

### Finish:

**Center contacts:** Gold plated per current revision of MIL-PRF-39012\*

**Other metal parts:** Gold plated, passivated, or nickel plated to meet current MIL-PRF-39012 corrosion requirements.\*

### Electrical:

#### VSWR Straight cable plugs and jacks:

Cable	VSWR	Frequency
RG-178	$1.20 + (.025 \times F[\text{GHz}])$	DC-12.4 GHz
RG-316	$1.15 + (.020 \times F[\text{GHz}])$	DC-12.4 GHz
RG-142	$1.15 + (.010 \times F[\text{GHz}])$	DC-12.4 GHz
RG-402 <sup>(1)</sup>	$1.05 + (.008 \times F[\text{GHz}])$	DC-18 GHz
RG-402 <sup>(2)</sup>	$1.05 + (.010 \times F[\text{GHz}])$	DC-18 GHz
RG-405 <sup>(1)</sup>	$1.07 + (.008 \times F[\text{GHz}])$	DC-18 GHz
RG-405 <sup>(2)</sup>	$1.07 + (.010 \times F[\text{GHz}])$	DC-18 GHz

<sup>(1)</sup> Non-captive contact. <sup>(2)</sup> Captive contact.

VSWR specifications not applicable to non-cabled connectors.

**Impedance:** 50Ω.

**Frequency range:** DC-8, 12.4, or 18 GHz (varies with cable type).

**Insulation Resistance:** 5,000 megohms minimum.

\*These specifications change periodically with updates to MIL-PRF-39012 requirements. Contact factory for latest specifications.

### Electrical (continued):

**Voltage Rating:** 250VRMS @ sea level (RG-178 cable); 335VRMS @ sea level (RG-316 cable).

**Dielectric Withstanding Voltage:** Per MIL-STD-202, Method 301.

**Contact Resistance:** 3 milliohms maximum.

**RF highpot:** 335-675 VRMS @ 5-7.5 MHz (varies with cable type).

**RF leakage:** -60 dB min @ 2-3 GHz.

**Insertion loss:** .44 dB max to 6 GHz.

### Mechanical:

**Force to engage/disengage:** 2 pounds max.

**Force to engage/disengage (female contacts):**

(After 5 insertions of .375" diameter pin, .040" min depth)

Insertion force for .037 min diameter pin, 2 pounds max.

Withdrawal force for .0355" max diameter pin, 1 ounce min.

**Contact retention:** 6 pounds min axial force (captive types).

**Durability:** 500 mating cycles.

### Environmental (MIL-STD-202):

**Temperature range:** -65° C to +165° C.

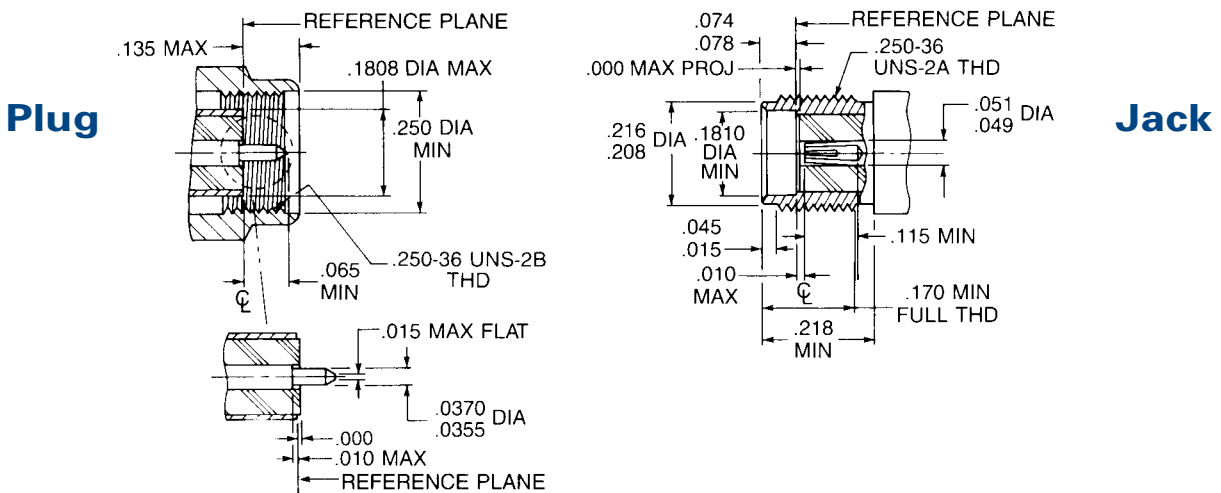
**Corrosion:** Method 101, condition B, 5% salt solution.

**Vibration (Method 204):** Condition B.

**Mechanical shock (Method 213):** Condition B.

**Thermal shock (Method 107):** Condition B.

## Interface Dimensions



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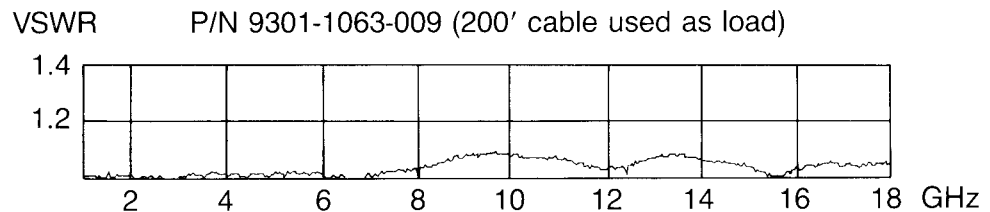
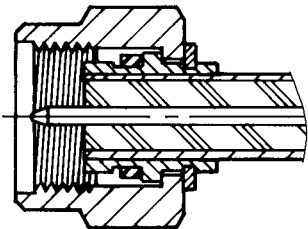
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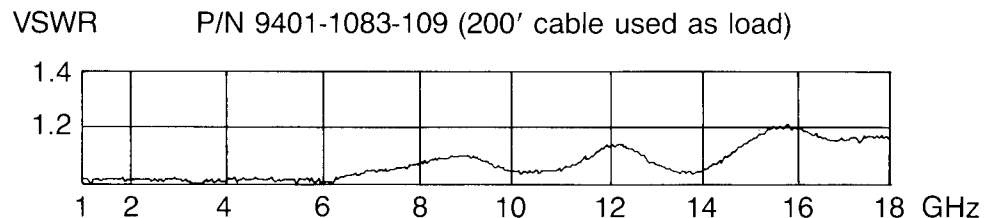
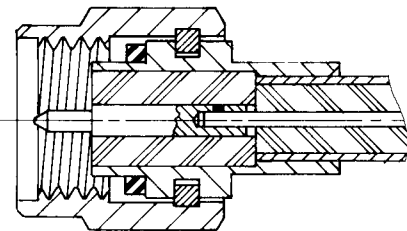
# SMA Cable Attachment Methods

## Semi-Rigid Cable

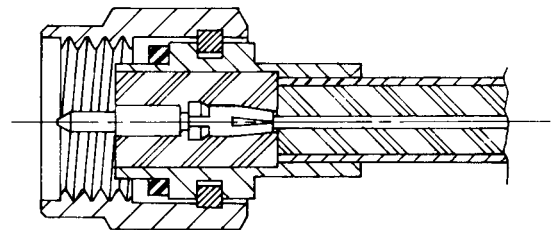
**Direct Solder (cable center conductor used as contact):** This type of cable attachment ensures the best possible electrical performance because there are no discontinuities introduced by contact geometry changes. It is best used in applications **not** requiring frequent mating and unmating, because the pointed center conductor and exposed cable jacket will shed metal chips when mated with SMA female connectors.



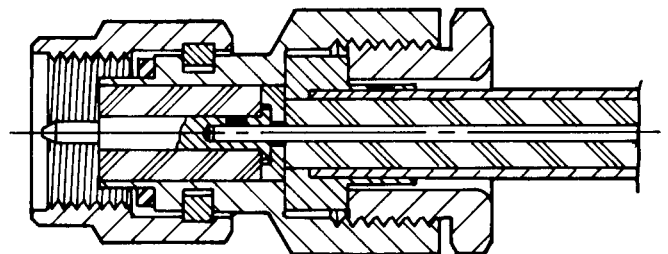
**Direct Solder (with contact and insulator):** Although this cable attachment exhibits higher VSWR than types without contacts, it provides an outer conductor that does not have the copper cable jacket exposed to mating forces. This, along with the beryllium-copper contact, ensures clean interfaces through many mating cycles.



**Direct Solder (with captive contact):** These connectors have electrical performance similar to types with non-captive contacts, but with faster and easier cable assembly. The cable is simply stripped and inserted into the connector, and the cable jacket soldered to the connector. The proper contact gap is automatically maintained, and no contact soldering is required.



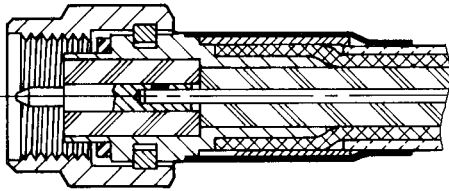
**Solder-clamp:** This attachment is most useful for right angle plugs and bulkhead jacks. After the connector is assembled to the cable jacket, it can be repositioned relative to the cable by loosening the clamp nut. Electrical performance is similar to direct-solder plugs with contacts.



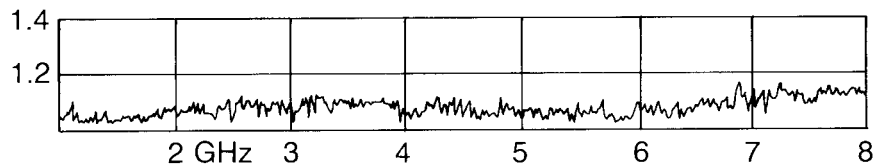
# SMA Cable Attachment Methods

## Flexible Cable

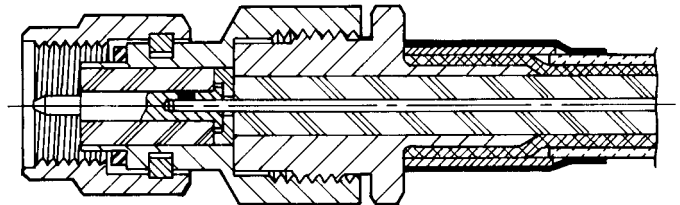
**Crimp (non-captive contact):** This attachment method provides the best possible electrical performance, and the fastest assembly. **Solder type** connectors for flexible cable have the same construction, but add a hole in the side of the crimp sleeve for soldering the cable braid to the connector. We do **not** recommend the use of solder type connectors with flexible cable—the heat from soldering may damage the cable dielectric.



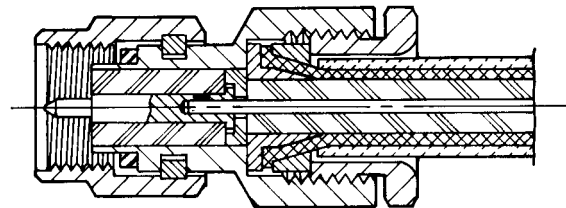
VSWR P/N 9001-1023-001 (200' RG-223 used as load)



**Crimp (captive contact):** This attachment method mechanically captivates the center contact to eliminate movement during cable flexure or thermal stress.

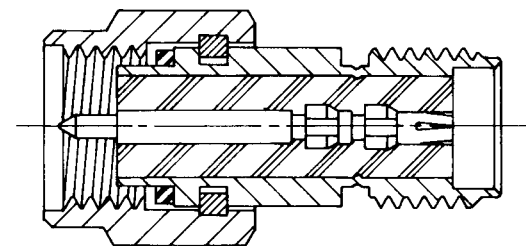


**Clamp (captive contact):** These connectors can be assembled without special tooling, and are field replaceable.

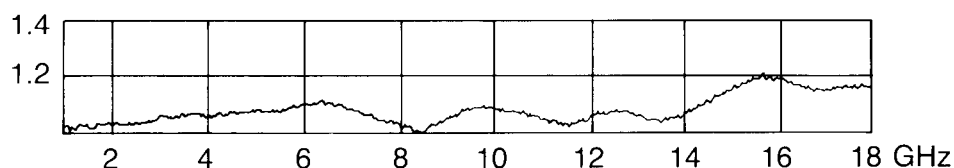


## SMA Captivation

All AEP SMA receptacles and adapters use our unique mechanical captivation for contacts and insulators. This method provides retention strength to meet MIL-PRF-39012 requirements, and eliminates RF leakage from epoxy fill holes. The contact barbs and body staking are designed and located to provide electrical performance that equals or exceeds epoxy-captivated types.



VSWR P/N 5916-1103-603 terminated with 9301-1063-009 on 200' .141 semi-rigid.



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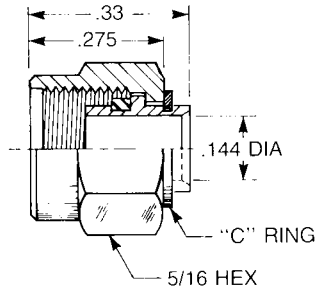
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# SMA Cable Plugs for Semi-Rigid Cable

Click on part number to go directly to cable assembly instructions

## Straight Plugs



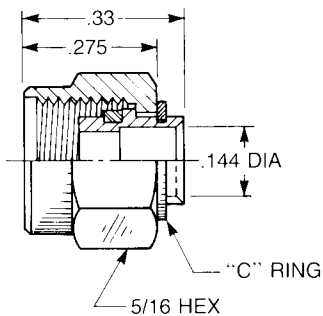
- Direct solder attachment
- Retractable coupling nut
- Cable center conductor used as contact

For .141" semi-rigid:

**9301-1063-009** (Gold plated)

**9301-7063-009** (Nickel plated)

QPL version available (M39012/92)



- Direct solder attachment
- Retractable coupling nut
- Cable center conductor used as contact
- Stepped body for use in applications requiring frequent mating and unmating

For .141" semi rigid:

**9301-1063-109** (Gold plated)

**9301-7063-109** (Nickel plated)

- Direct solder attachment
- Provided with contact and insulator
- Noncaptive contact

For .085" semi-rigid (A = .089):

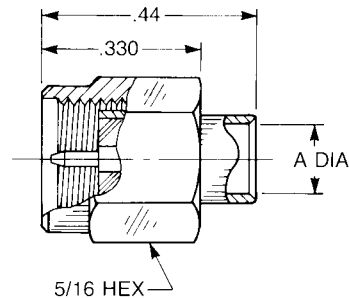
**9401-1083-010** (Gold plated)

**9401-7083-010** (Nickel plated)

For .141" semi-rigid (A = .144):

**9401-1083-109** (Gold plated)

**9401-7083-109** (Nickel plated)



- Direct solder attachment
- Provided with contact and insulator
- Captive contact for one-step cable assembly

For .085" semi-rigid (A = .089):

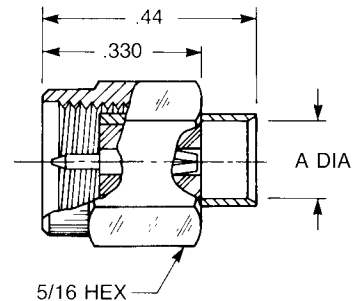
**9401-1583-010** (Gold plated)

**9401-7583-010** (Nickel plated)

For .141" semi-rigid (A = .144):

**9401-1583-109** (Gold plated)

**9401-7583-109** (Nickel plated)



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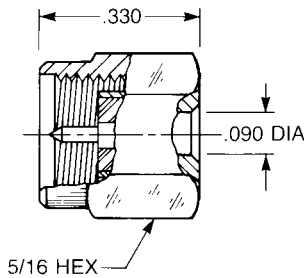
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# SMA Cable Plugs for Semi-Rigid Cable

Click on part number to go directly to cable assembly instructions

## Straight Plugs



- Direct solder attachment
- Provided with contact and insulator
- Noncaptive contact
- Short body length allows very tight cable bend in dense packaging applications

For .085" semi-rigid:

**9401-1083-210** (Gold plated)

**9401-7083-210** (Nickel plated)

- Solder-clamp attachment
- Captive contact

For .085" semi-rigid:

**9501-1593-010** (Gold plated)

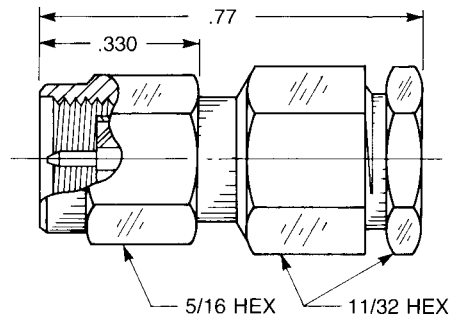
**9501-9593-010** (Passivated)

For .141" semi-rigid:

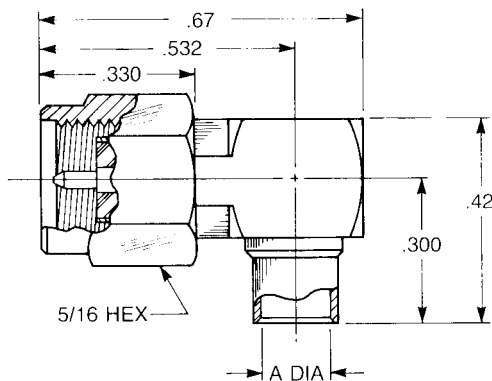
**9501-1593-009** (Gold plated)

**9501-9593-009** (Passivated)

QPL version available (M39012/79)



## Right Angle Plugs



- Direct solder attachment

For .085" semi-rigid (A = .089):

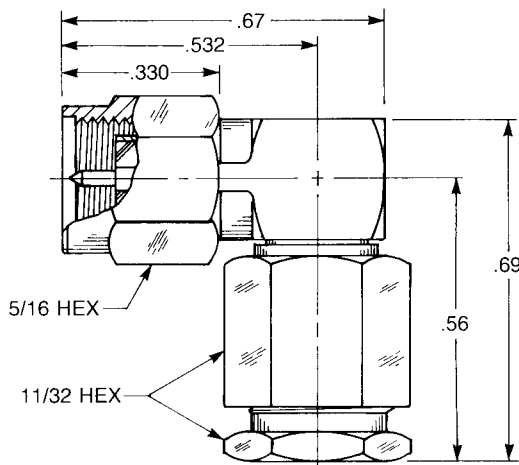
**9443-1563-010** (Gold plated)

**9443-7563-010** (Nickel plated)

For .141" semi-rigid (A = .144):

**9443-1563-009** (Gold plated)

**9443-7563-009** (Nickel plated)



- Solder-clamp attachment

For .085" semi-rigid:

**9543-1593-010** (Gold plated)

**9543-9593-010** (Passivated)

For .141" semi-rigid:

**9543-1593-009** (Gold plated)

**9543-9593-009** (Passivated)



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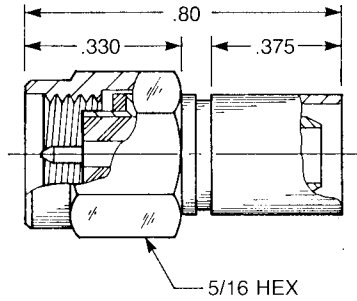
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# SMA Cable Plugs for Flexible Cable

Click on part number to go directly to cable assembly instructions

## Straight Plugs



### Straight Plug

- Noncaptive contact

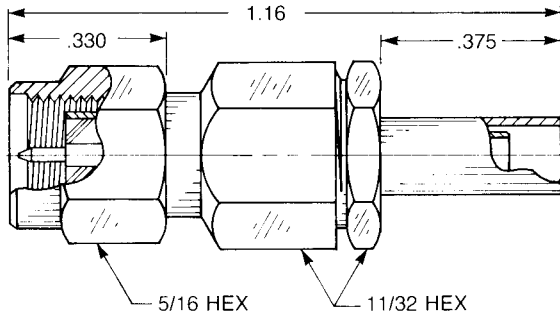
Crimp type:

**9001-1023-0XX** (Gold plated)

**9001-9023-0XX** (Passivated)

Solder type:

**9001-1033-0XX** (Gold plated)



### Straight Plug

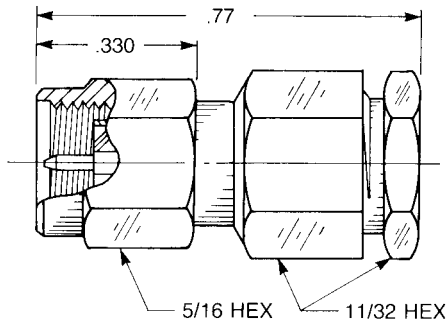
- Captive contact

Crimp type:

**9101-1573-0XX** (Gold plated)

**9101-9573-0XX** (Passivated)

QPL version available (M39012/55)



### Straight Plug

- Captive contact

Clamp type:

**9201-1553-0XX** (Gold plated)

**9201-9553-0XX** (Passivated)

QPL version available (M39012/55)

Substitute the appropriate cable group number for "XX" when ordering:

GROUP	CABLE TYPES	GROUP	CABLE TYPES	GROUP	CABLE TYPES
01	RG142, RG223, M17/60, M17/84, M17/158	04	RG180, RG195, M17/95	06	RG58, RG141, RG303, M17/111, M17/155
02	RG178, RG196, M17/93, M17/169	05	RG178DS, RG196DS	19	RG174DS, RG316DS, M17/151, M17/152, Times RD-316
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/189				



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# SMA Cable Plugs for Flexible Cable

Click on part number to go directly to cable assembly instructions

## Right Angle Plugs

### Right Angle Plug

- Captive contact

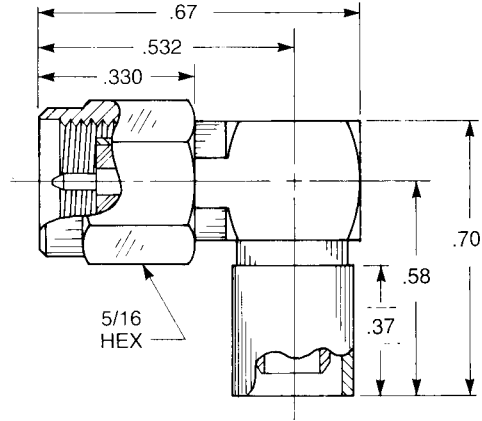
Crimp type:

**9043-1523-0XX** (Gold plated)

**9043-9523-0XX** (Passivated)

Solder type:

**9043-1533-0XX** (Gold plated)



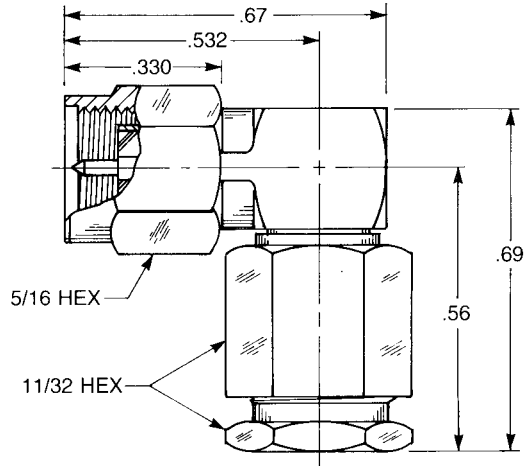
### Right Angle Plug

- Captive contact

Clamp type:

**9243-1553-0XX** (Gold plated)

**9243-9553-0XX** (Passivated)



Substitute the appropriate cable group number for "XX" when ordering:

GROUP	CABLE TYPES	GROUP	CABLE TYPES	GROUP	CABLE TYPES
01	RG142, RG223, M17/60, M17/84, M17/158	04	RG180, RG195, M17/95	06	RG58, RG141, RG303, M17/111, M17/155
02	RG178, RG196, M17/93, M17/169	05	RG178DS, RG196DS	19	RG174DS, RG316DS, M17/151, M17/152, Times RD-316
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/189				



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# SMA Cable Jacks for Semi-Rigid Cable

Click on part number to go directly to cable assembly instructions

## Straight Jacks

### Straight Jack

- Direct solder attachment
- Noncaptive contact

For .085" semi-rigid (A = .089):

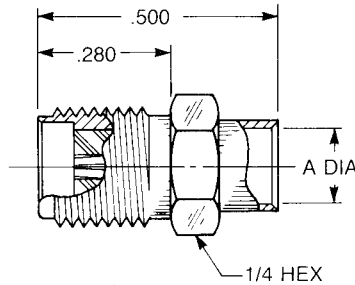
**9402-1083-010** (Gold plated)

**9402-7083-010** (Nickel plated)

For .141" semi rigid (A = .144):

**9402-1083-009** (Gold plated)

**9402-7083-009** (Nickel plated)



### Straight Jack

- Direct solder attachment
- Captive contact for one-step cable assembly

For .085" semi-rigid (A = .089):

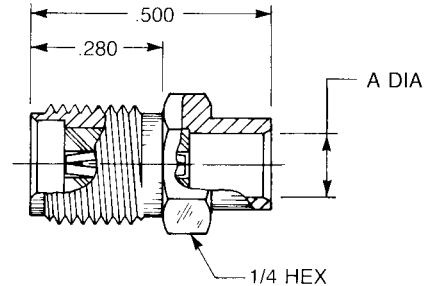
**9402-1583-010** (Gold plated)

**9402-7583-010** (Nickel plated)

For .141" semi-rigid (A = .144):

**9402-1583-009** (Gold plated)

**9402-7583-009** (Nickel plated)



### Straight Jack

- Solder-clamp attachment
- Captive contact

For .085" semi-rigid:

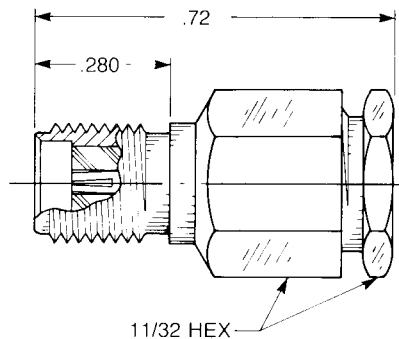
**9502-1593-010** (Gold plated)

**9502-9593-010** (Passivated)

For .141" semi-rigid:

**9502-1593-009** (Gold plated)

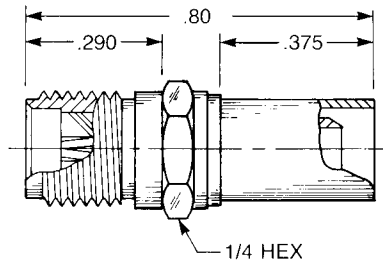
**9502-9593-009** (Passivated)



# SMA Cable Jacks for Flexible Cable

Click on part number to go directly to cable assembly instructions

## Straight Jacks



### Straight Jack

- Noncaptive contact

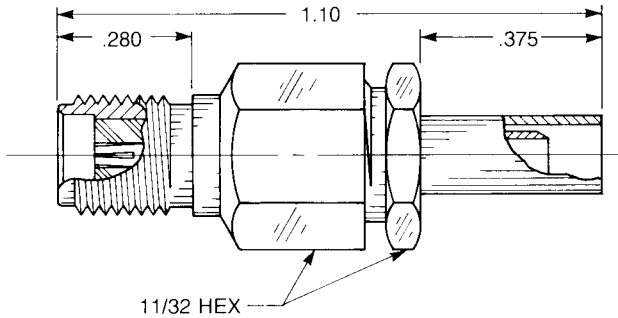
Crimp type:

**9002-1023-0XX** (Gold plated)

**9002-9023-0XX** (Passivated)

Solder type:

**9002-1033-0XX** (Gold plated)



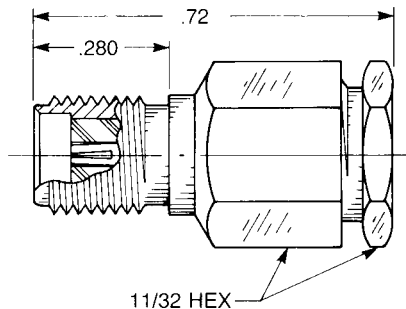
### Straight Jack

- Captive contact

Crimp type:

**9102-1573-0XX** (Gold plated)

**9102-9573-0XX** (Passivated)



### Straight Jack

- Captive contact

Clamp type:

**9202-1553-0XX** (Gold plated)

**9202-9553-0XX** (Passivated)

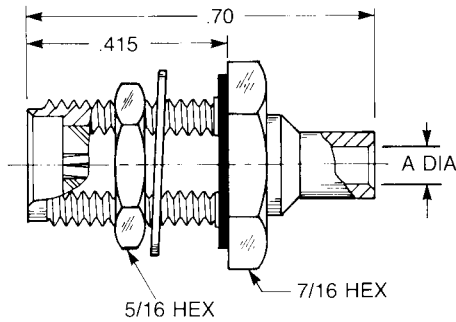
Substitute the appropriate cable group number for "XX" when ordering:

GROUP	CABLE TYPES	GROUP	CABLE TYPES	GROUP	CABLE TYPES
01	RG142, RG223, M17/60, M17/84, M17/158	04	RG180, RG195, M17/95	06	RG58, RG141, RG303, M17/111, M17/155
02	RG178, RG196, M17/93, M17/169	05	RG178DS, RG196DS	19	RG174DS, RG316DS, M17/151, M17/152, Times RD-316
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/189				

# SMA Bulkhead Jacks for Semi-Rigid Cable

Click on part number to go directly to cable assembly instructions

## Straight Jacks



- Direct solder attachment
- With mounting gasket
- Noncaptive contact

For .085" semi-rigid (A = .089)

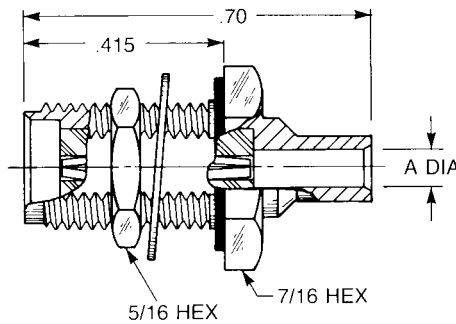
**9453-1083-010** (Gold plated)

**9453-7083-010** (Nickel plated)

For .141" semi-rigid (A = .144):

**9453-1083-009** (Gold plated)

**9453-7083-009** (Nickel plated)



- Direct solder attachment
- With mounting gasket
- Captive contact for one-step cable assembly

For .085" semi-rigid (A = .089):

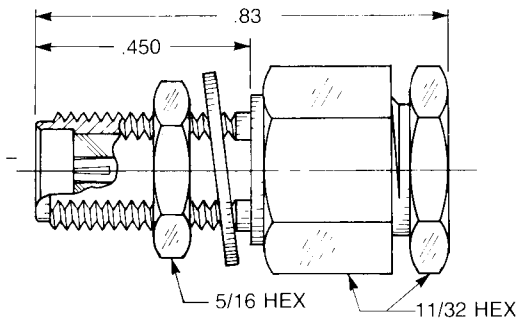
**9453-1583-010** (Gold plated)

**9453-7583-010** (Nickel plated)

For .141" semi-rigid (A = .144):

**9453-1583-009** (Gold plated)

**9453-7583-009** (Nickel plated)



- Solder-clamp attachment
- Captive contact

For .085" semi-rigid:

**9530-1593-010** (Gold plated)

**9530-9593-010** (Passivated)

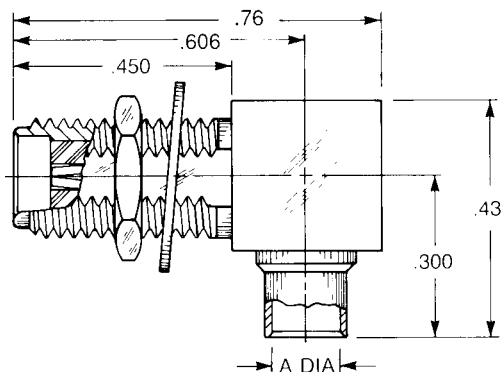
For .141" semi-rigid:

**9530-1593-009** (Gold plated)

**9530-9593-009** (Passivated)

QPL version available (M39012/83)

## Right Angle Jack



- Direct solder attachment

For .085" semi-rigid (A = .089):

**9613-1563-010** (Gold plated)

**9613-7563-010** (Nickel plated)

For .141" semi-rigid (A = .144):

**9613-1563-009** (Gold plated)

**9613-7563-009** (Nickel plated)



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# SMA Bulkhead Jacks for Flexible Cable

Click on part number to go directly to cable assembly instructions

## Straight Jacks

### Straight Bulkhead Jack

- Noncaptive contact

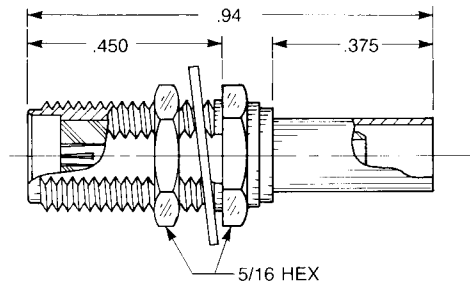
Crimp type:

9030-1023-0XX (Gold plated)

9030-9023-0XX (Passivated)

Solder type:

9030-1033-0XX (Gold plated)



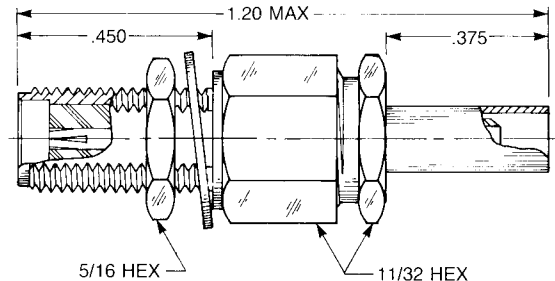
### Straight Bulkhead Jack

- Captive contact

Crimp type:

9130-1573-0XX (Gold plated)

9130-9573-0XX (Passivated)



### Straight Bulkhead Jack

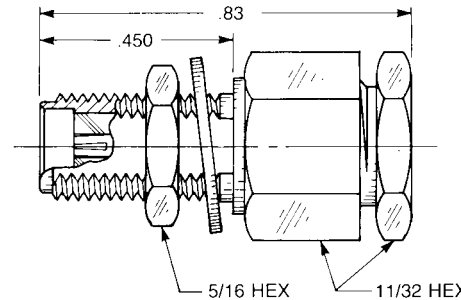
- Captive contact

Clamp type:

9230-1553-0XX (Gold plated)

9230-9553-0XX (Passivated)

QPL version available (M39012/59)



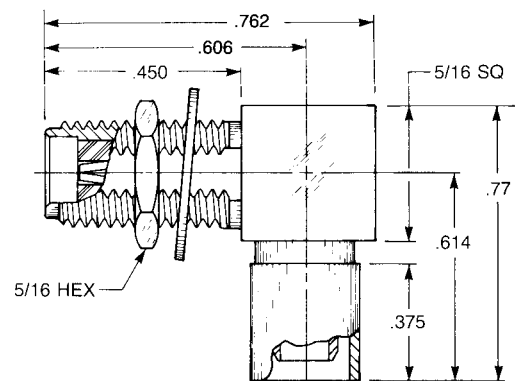
## Right Angle Jack

### Right Angle Bulkhead Jack

Crimp type:

9613-1523-0XX (Gold plated)

9613-9523-0XX (Passivated)



Substitute the appropriate cable group number for "XX" when ordering:

GROUP	CABLE TYPES	GROUP	CABLE TYPES	GROUP	CABLE TYPES
01	RG142, RG223, M17/60, M17/84, M17/158	04	RG180, RG195, M17/95	06	RG58, RG141, RG303, M17/111, M17/155
02	RG178, RG196, M17/93, M17/169	05	RG178DS, RG196DS	19	RG174DS, RG316DS, M17/151, M17/152, Times RD-316
03	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/189				



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# SMA Panel Jacks for Semi-Rigid Cable

Click on part number to go directly to cable assembly instructions

## Straight Jacks

- Direct solder attachment
- Square flange
- Noncaptive contact

For .085" semi-rigid (A = .089):

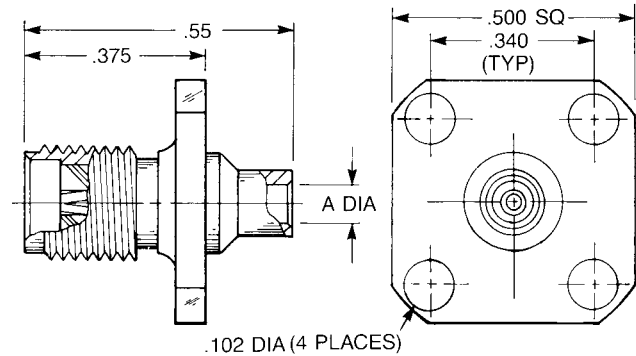
**9431-1083-010** (Gold plated)

**9431-7083-010** (Nickel plated)

For .141" semi-rigid (A = .144):

**9431-1083-009** (Gold plated)

**9431-7083-009** (Nickel plated)



- Direct solder attachment
- Square flange
- Captive contact for one-step cable assembly

For .085" semi-rigid (A = .089):

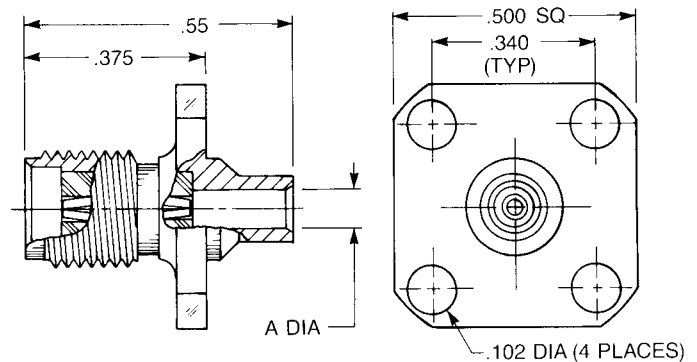
**9431-1583-010** (Gold plated)

**9431-7583-010** (Nickel plated)

For .141" semi-rigid (A = .144):

**9431-1583-009** (Gold plated)

**9431-7583-009** (Nickel plated)



- Direct solder attachment
- 2-hole flange
- Noncaptive contact

For .085" semi-rigid (A = .089):

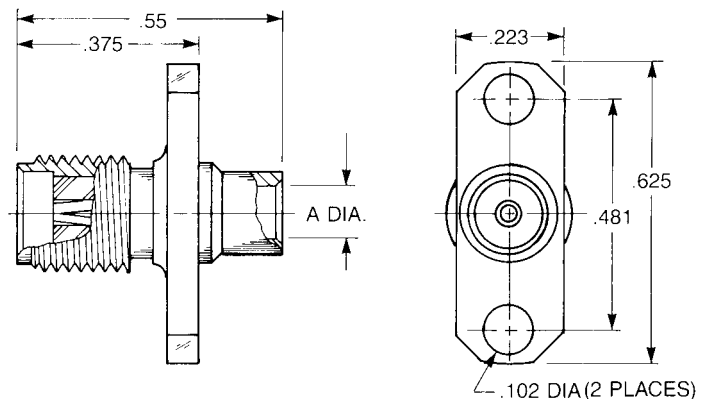
**9441-1083-010** (Gold plated)

**9441-7083-010** (Nickel plated)

For .141" semi-rigid (A = .144):

**9441-1083-009** (Gold plated)

**9441-7083-009** (Nickel plated)



- Direct solder attachment
- 2-hole flange
- Captive contact for one-step cable assembly

For .085" semi-rigid (A = .089):

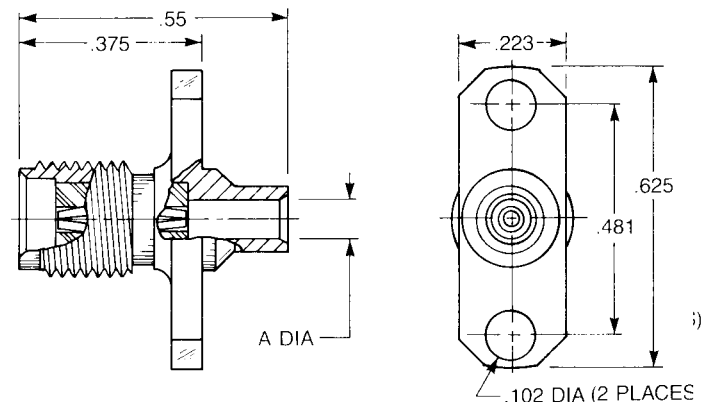
**9441-1583-010** (Gold plated)

**9441-7583-010** (Nickel plated)

For .141" semi-rigid (A = .144):

**9441-1583-009** (Gold plated)

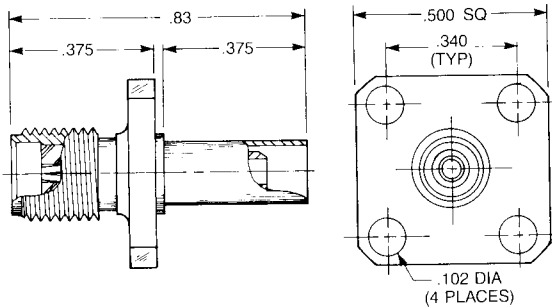
**9441-7583-009** (Nickel plated)



# SMA Panel Jacks for Flexible Cable

Click on part number to go directly to cable assembly instructions

## Straight Jacks



### Straight Panel Jack

- Noncaptive contact
- Square flange

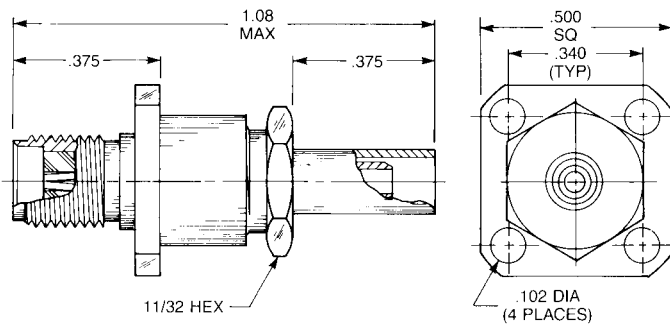
Crimp type:

**9031-1023-0XX** (Gold plated)

**9031-9023-0XX** (Passivated)

Solder type:

**9031-1033-0XX** (Gold plated)



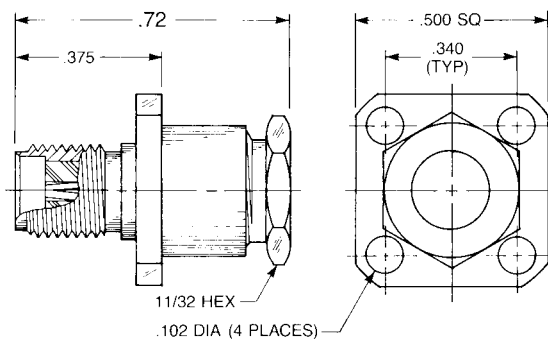
### Straight Panel Jack

- Captive contact
- Square flange

Crimp type:

**9131-1573-0XX** (Gold plated)

**9131-9573-0XX** (Passivated)



### Straight Panel Jack

- Captive contact
- Square flange

Clamp type:

**9231-1553-0XX** (Gold plated)

**9231-9553-0XX** (Passivated)

Substitute the appropriate cable group number for "XX" when ordering:

GROUP	CABLE TYPES	GROUP	CABLE TYPES	GROUP	CABLE TYPES
<b>01</b>	RG142, RG223, M17/60, M17/84, M17/158	<b>04</b>	RG180, RG195, M17/95	<b>06</b>	RG58, RG141, RG303, M17/111, M17/155
<b>02</b>	RG178, RG196, M17/93, M17/169	<b>05</b>	RG178DS, RG196DS	<b>19</b>	RG174DS, RG316DS, M17/151, M17/152, Times RD-316
<b>03</b>	RG174, RG179, RG316, M17/113, M17/119, M17/172, M17/189				



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# SMA Straight Panel Jack Receptacles

## Extended Contact and Insulator

- Extended contact and insulator
- 1/2" square flange

Captive contact:

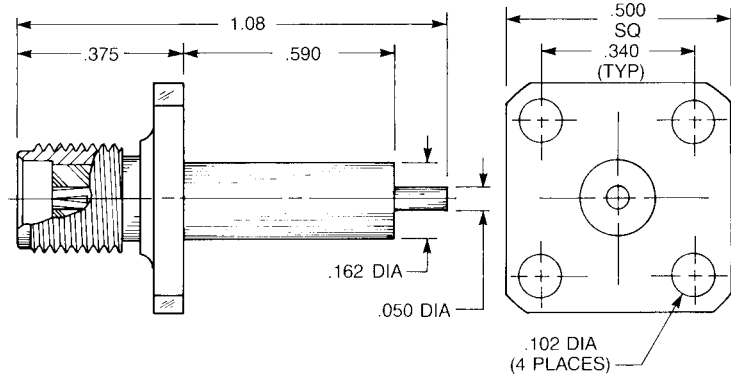
**9004-1113-000** (Gold plated)

**9004-9113-000** (Passivated)

Noncaptive contact:

**9004-1213-000** (Gold plated)

**9004-9213-000** (Passivated)



- Extended contact and insulator
- 2-hole flange

Captive contact:

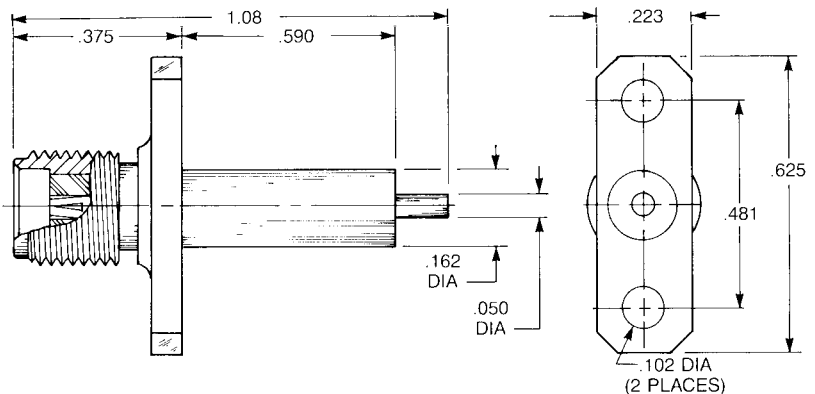
**9008-1113-000** (Gold plated)

**9008-9113-000** (Passivated)

Noncaptive contact:

**9008-1213-000** (Gold plated)

**9008-9213-000** (Passivated)



- Extended contact and insulator
- 3/8" square flange

Captive contact:

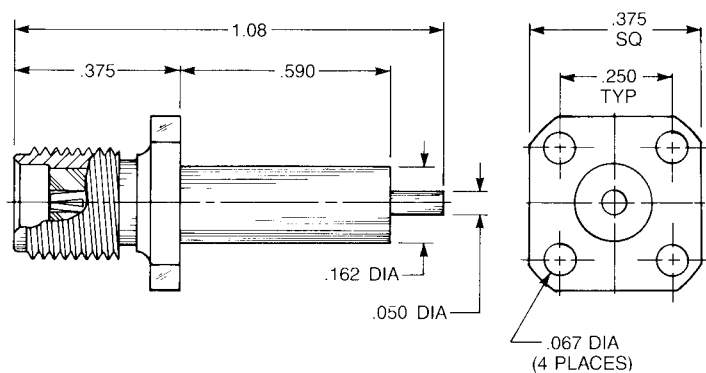
**9076-1113-000** (Gold plated)

**9076-9113-000** (Passivated)

Noncaptive contact:

**9076-1213-000** (Gold plated)

**9076-9213-000** (Passivated)



- Extended contact and insulator
- Rectangular flange

Captive contact:

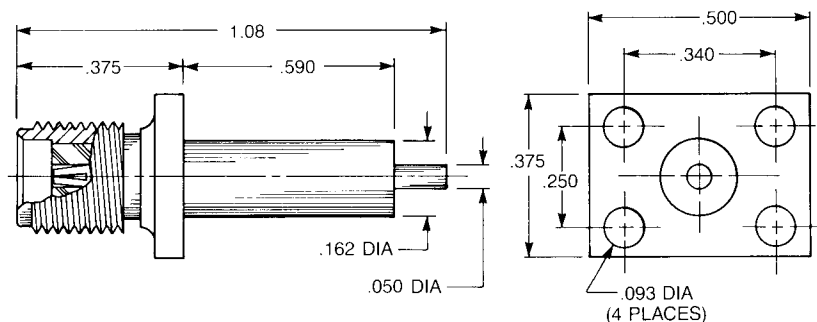
**9007-1113-000** (Gold plated)

**9007-9113-000** (Passivated)

Noncaptive contact:

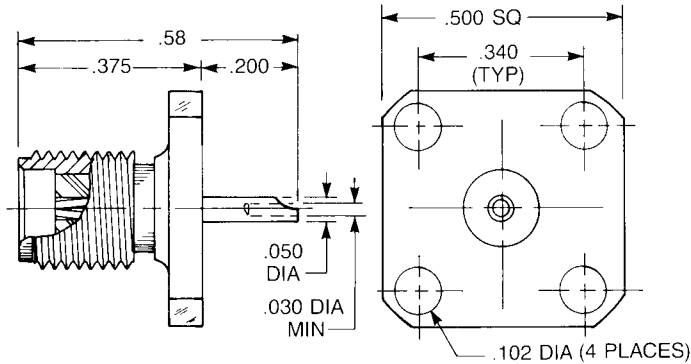
**9007-1213-000** (Gold plated)

**9007-9213-000** (Passivated)



# SMA Straight Panel Jack Receptacles

## Solder Pot Contact



### Straight Panel Jack Receptacle

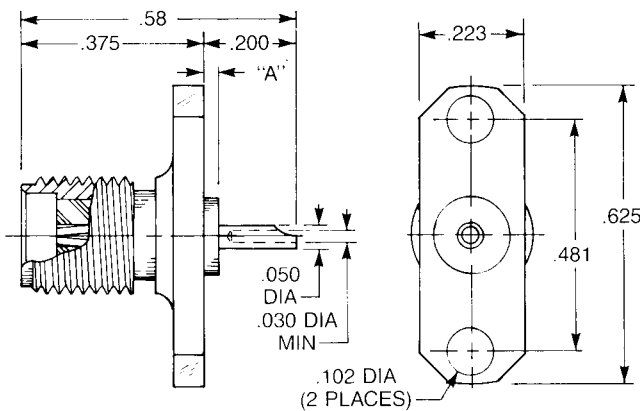
- Solder pot contact
- 1/2" square flange

Captive contact:

**9404-1113-000** (Gold plated)

**9404-9113-000** (Passivated)

QPL version available (M39012/60)



### Straight Panel Jack Receptacle

- Solder pot contact
- 2-hole flange

Captive contact (A = .030):

**9408-1113-000** (Gold plated)

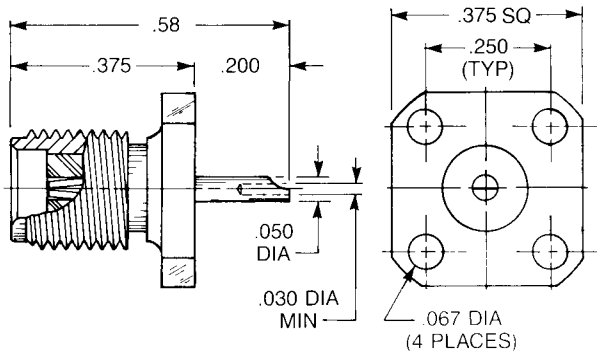
**9408-9113-000** (Passivated)

Captive contact (A = .000):

**9408-1113-002** (Gold plated)

**9408-9113-002** (Passivated)

QPL version available (M39012/60)



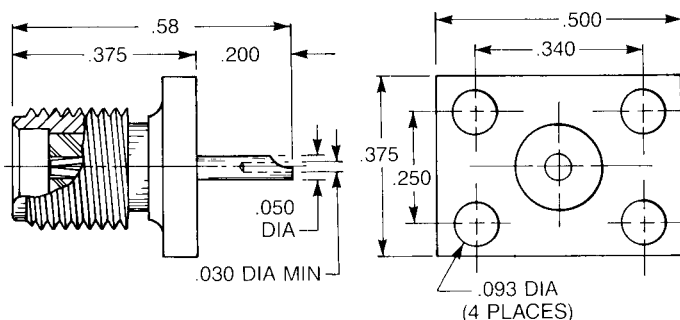
### Straight Panel Jack Receptacle

- Solder pot contact
- 3/8" square flange

Captive contact:

**9476-1113-000** (Gold plated)

**9476-9113-000** (Passivated)



### Straight Panel Jack Receptacle

- Solder pot contact
- Rectangular flange

Captive contact:

**9407-1113-000** (Gold plated)

**9407-9113-000** (Passivated)

# SMA Straight Panel Jack Receptacles

## Tab Contact

### Straight Panel Jack Receptacle

- Tab contact
- 1/2" square flange

Captive contact:

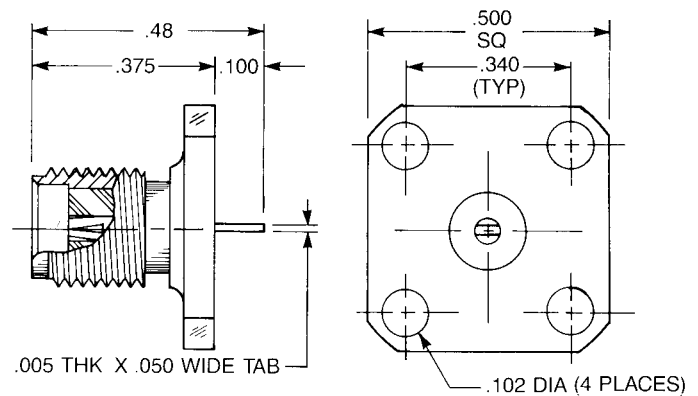
9104-1113-000 (Gold plated)

9104-9113-000 (Passivated)

Noncaptive contact:

9104-1213-000 (Gold plated)

9104-9213-000 (Passivated)



### Straight Panel Jack Receptacle

- Tab contact
- 2-hole flange

Captive contact:

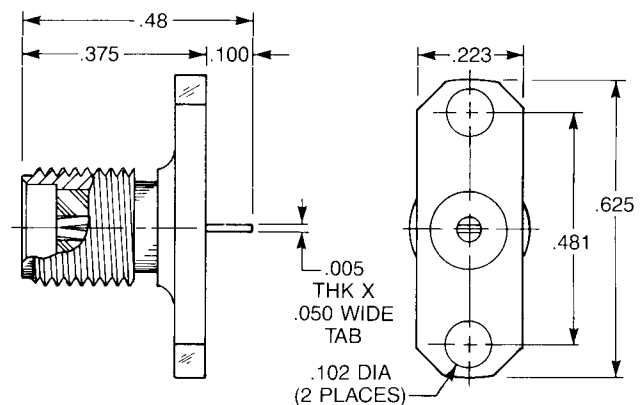
9108-1113-000 (Gold plated)

9108-9113-000 (Passivated)

Noncaptive contact:

9108-1213-000 (Gold plated)

9108-9213-000 (Passivated)



### Straight Panel Jack Receptacle

- Tab contact
- 3/8" square flange

Captive contact:

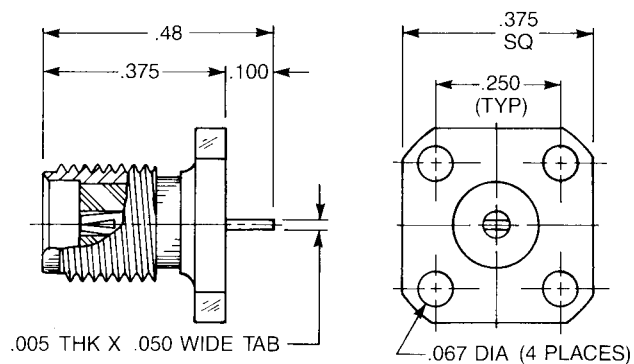
9176-1113-000 (Gold plated)

9176-9113-000 (Passivated)

Noncaptive contact:

9176-1213-000 (Gold plated)

9176-9213-000 (Passivated)



### Straight Panel Jack Receptacle

- Tab contact
- Rectangular flange

Captive contact:

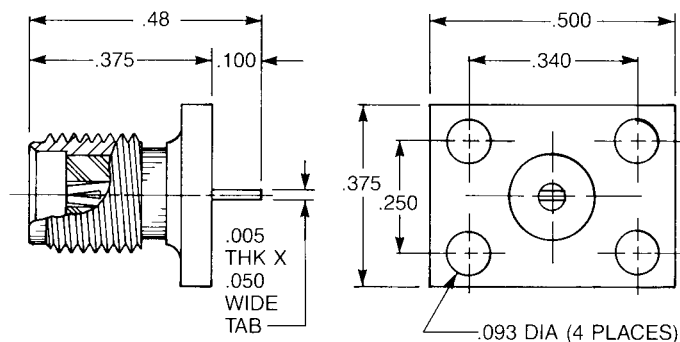
9107-1113-000 (Gold plated)

9107-9113-000 (Passivated)

Noncaptive contact:

9107-1213-000 (Gold plated)

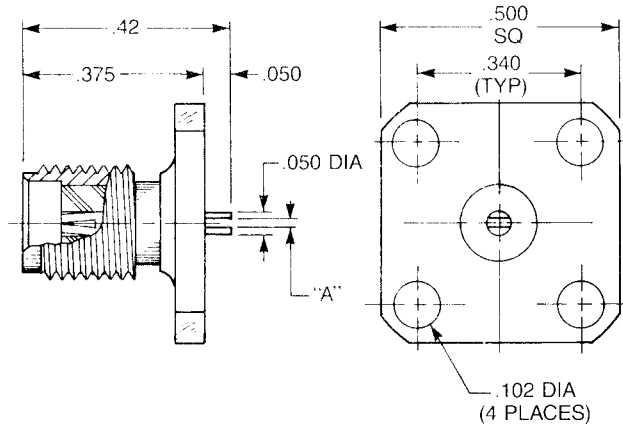
9107-9213-000 (Passivated)





# SMA Straight Panel Jack Receptacles

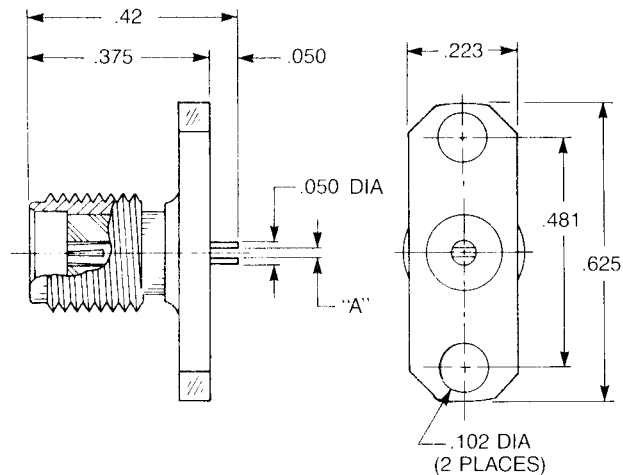
## Slotted Contact



### Straight Panel Jack Receptacle

- Slotted contact
- 1/2" square flange

Dim. A	Captive contact:	
.012	<b>9204-1113-002</b>	(Gold plated)
	<b>9204-9113-002</b>	(Passivated)
.018	<b>9204-1113-001</b>	(Gold plated)
	<b>9204-9113-001</b>	(Passivated)
.025	<b>9204-1113-003</b>	(Gold plated)
	<b>9204-9113-003</b>	(Passivated)
	Noncaptive contact:	
.012	<b>9204-1213-002</b>	(Gold plated)
	<b>9204-9213-002</b>	(Passivated)
.018	<b>9204-1213-001</b>	(Gold plated)
	<b>9204-9213-001</b>	(Passivated)
.025	<b>9204-1213-003</b>	(Gold plated)
	<b>9204-9213-003</b>	(Passivated)



### Straight Panel Jack Receptacle

- Slotted contact
- 2-hole flange

Dim. A	Captive contact:	
.012	<b>9208-1113-000</b>	(Gold plated)
	<b>9208-9113-000</b>	(Passivated)
.018	<b>9208-1113-001</b>	(Gold plated)
	<b>9208-9113-001</b>	(Passivated)
.025	<b>9208-1113-002</b>	(Gold plated)
	<b>9208-9113-002</b>	(Passivated)
	Noncaptive contact:	
.012	<b>9208-1213-000</b>	(Gold plated)
	<b>9208-9213-000</b>	(Passivated)
.018	<b>9208-1213-001</b>	(Gold plated)
	<b>9208-9213-001</b>	(Passivated)
.025	<b>9208-1213-002</b>	(Gold plated)
	<b>9208-9213-002</b>	(Passivated)

# SMA Right Angle Panel Jack Receptacles

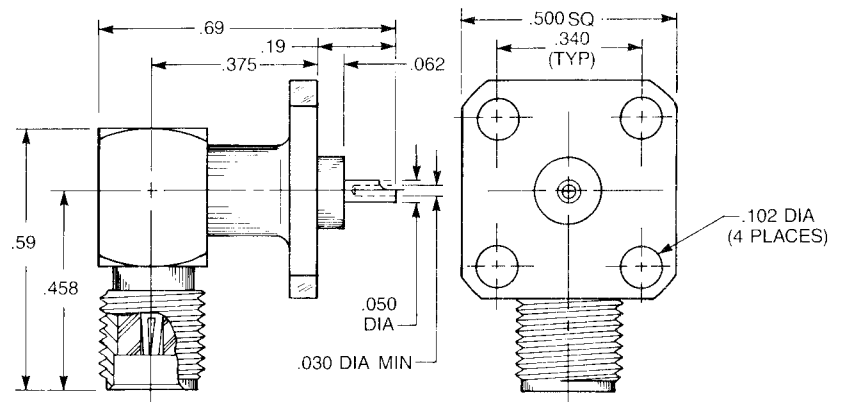
## Solder Pot Contact

### Right Angle Panel Jack Receptacle

- Solder pot contact
- 1/2" square flange

9424-1513-000 (Gold plated)

9424-9513-000 (Passivated)

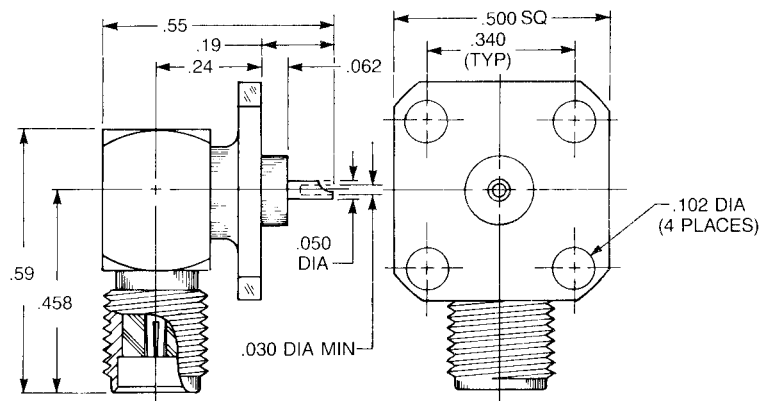


### Low Profile Right Angle Panel Jack Receptacle

- Solder pot contact
- 1/2" square flange

9425-1513-000 (Gold plated)

9425-9513-000 (Passivated)



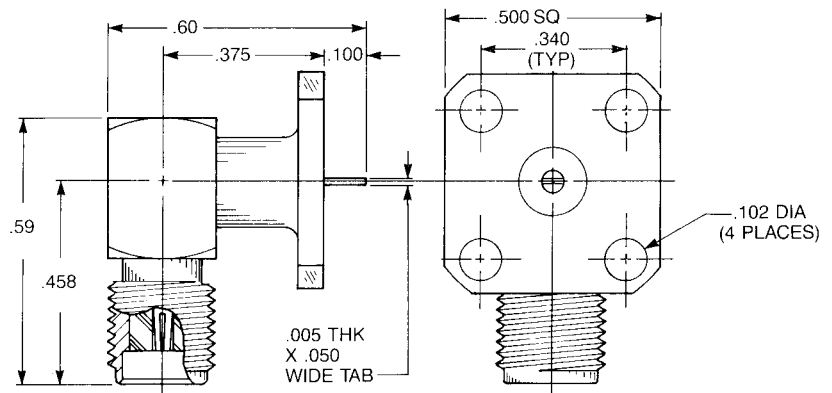
## Tab Contact

### Right Angle Panel Jack Receptacle

- Tab contact
- 1/2" hole flange

9124-1513-000 (Gold plated)

9124-9513-000 (Passivated)

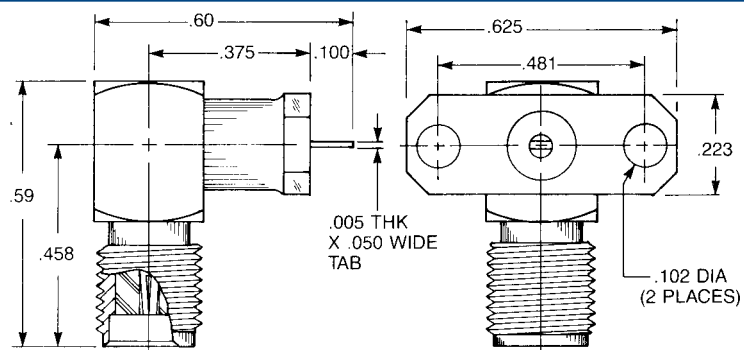


### Right Angle Panel Jack Receptacle

- Tab contact
- 2-hole flange

9126-1513-000 (Gold plated)

9126-9513-000 (Passivated)

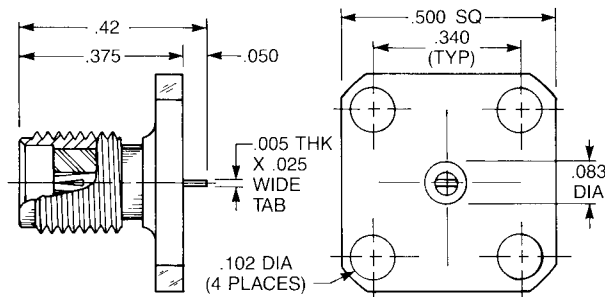


# SMA Receptacles for .025" Microstrip

Standard SMA receptacles with tab contacts have the tab milled from a .050" diameter round contact. This .050" diameter is flush with the rear insulator of the connector. When these connectors are used with .025" thick microstrip, a capacitive coupling can be introduced because of the close proximity of the microstrip ground plane to the outer diameter of the contact.

These receptacles eliminate the coupling by reducing the contact rear diameter to .025". The insulator diameter at the rear of the connector is reduced to .083" to maintain 50Ω impedance.

## Tab Contact



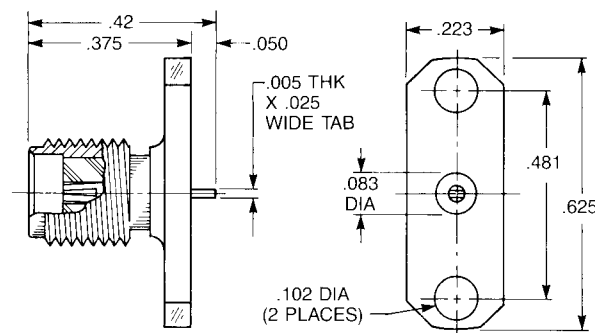
### Straight Jack Receptacle

- 1/2" square flange

Captive contact:

**9114-1113-000** (Gold plated)

**9114-9113-000** (Passivated)



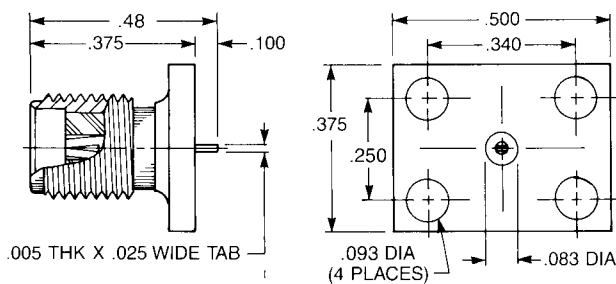
### Straight Jack Receptacle

- 2-hole flange

Captive contact:

**9118-1113-000** (Gold plated)

**9118-9113-000** (Passivated)



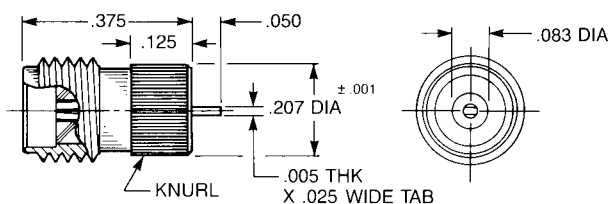
### Straight Jack Receptacle

- Rectangular flange

Captive contact:

**9117-1113-000** (Gold plated)

**9117-9113-000** (Passivated)



### Straight Jack Receptacle

- Knurl mount

Captive contact:

**9163-1113-000** (Gold plated)

**9163-9113-000** (Passivated)



# SMA Receptacles for .010" Microstrip

These connectors have .010" diameter contact extensions for good electrical transition to narrow microstrip lines. The reduced-diameter insulators are extended beyond the flange to maintain 50Ω impedance through the microstrip package wall. All have captive contacts.

## Round Contact

### Straight Jack Receptacle

- 1/2" square flange

A = .057:

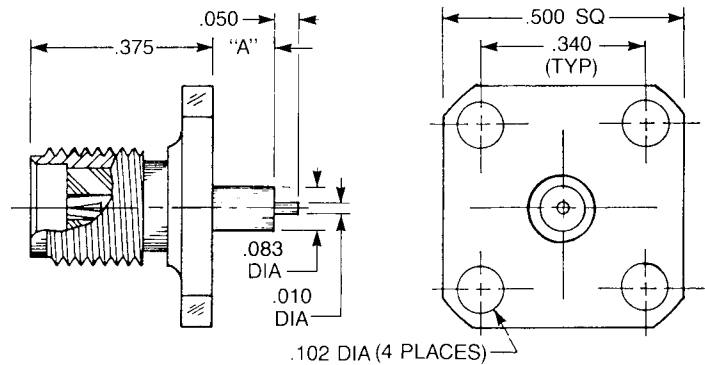
9304-1113-014 (Gold plated)

9304-9113-014 (Passivated)

A = .125

9304-1113-013 (Gold plated)

9304-9113-013 (Passivated)



### Straight Jack Receptacle

- 2-hole flange

A = .057:

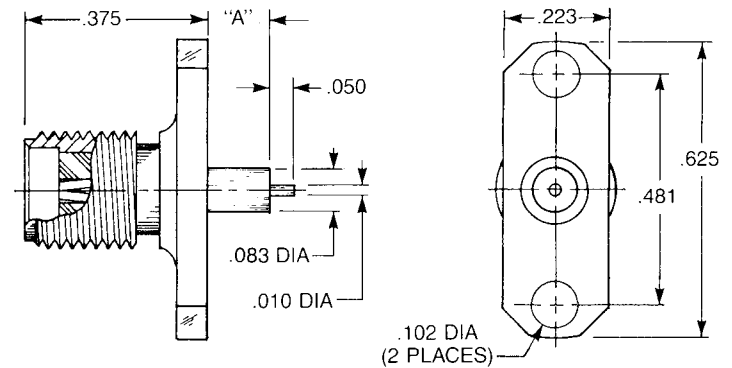
9308-1113-003 (Gold plated)

9308-9113-003 (Passivated)

A = .125:

9308-1113-001 (Gold plated)

9308-9113-001 (Passivated)



### Straight Jack Receptacle

- 3/8" square flange

A = .057:

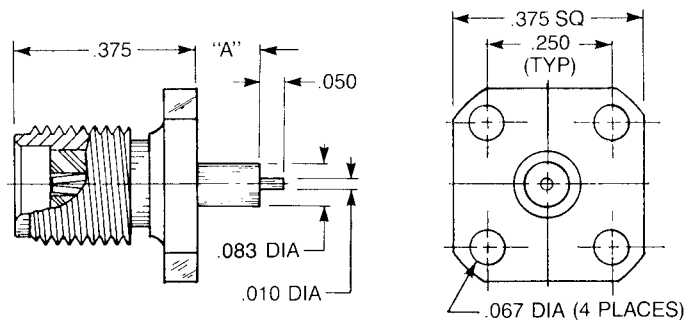
9376-1113-002 (Gold plated)

9376-9113-002 (Passivated)

A = .125:

9376-1113-001 (Gold plated)

9376-9113-001 (Passivated)



### Straight Jack Receptacle

- Rectangular flange

A = .057:

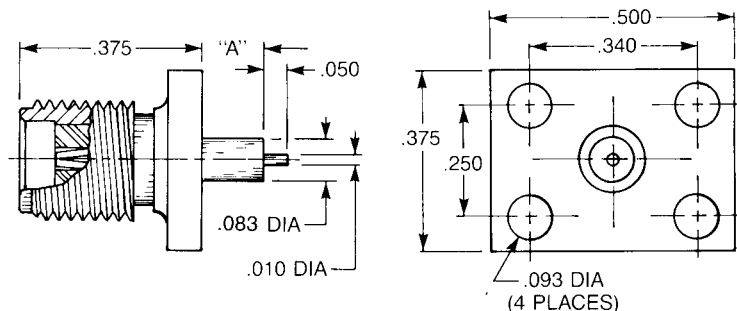
9307-1113-002 (Gold plated)

9307-9113-002 (Passivated)

A = .125:

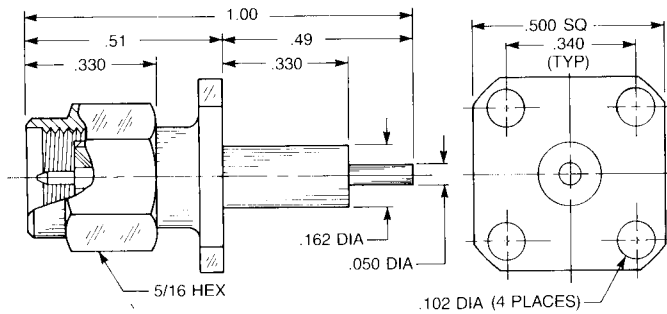
9307-1113-001 (Gold plated)

9307-9113-001 (Passivated)



# SMA Panel Plug Receptacles

## Straight—Extended Contact and Insulator



### Straight Panel Plug Receptacle

- Extended contact and insulator
- 1/2" square flange

Captive contact:

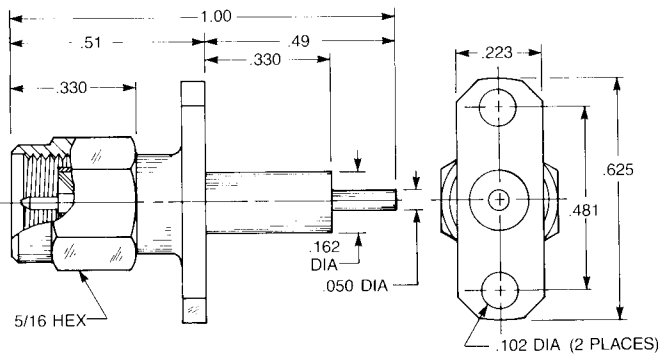
**9009-1113-000** (Gold plated)

**9009-9113-000** (Passivated)

Noncaptive contact:

**9009-1213-000** (Gold plated)

**9009-9213-000** (Passivated)



### Straight Panel Plug Receptacle

- Extended contact and insulator
- 2-hole flange

Captive contact:

**9055-1113-000** (Gold plated)

**9055-9113-000** (Passivated)

Noncaptive contact:

**9055-1213-000** (Gold plated)

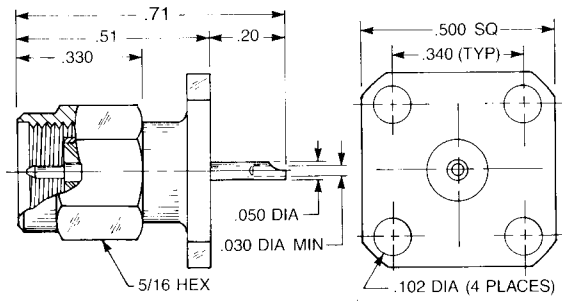
**9055-9213-000** (Passivated)





# SMA Panel Plug Receptacles

## Straight—Solder Pot Contact



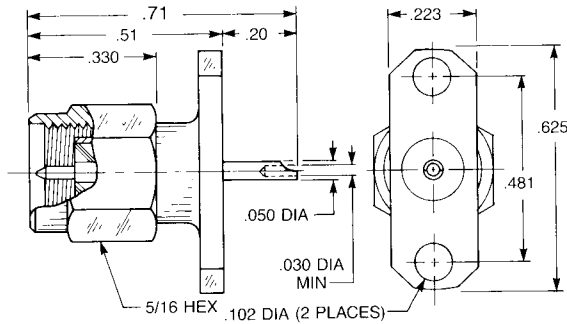
### Straight Panel Plug Receptacle

- Solder pot contact
- 1/2" square flange

Captive contact:

9409-1113-000 (Gold plated)

9409-9113-000 (Passivated)



### Straight Panel Plug Receptacle

- Solder pot contact
- 2-hole flange

Captive contact:

9455-1113-000 (Gold plated)

9455-9113-000 (Passivated)

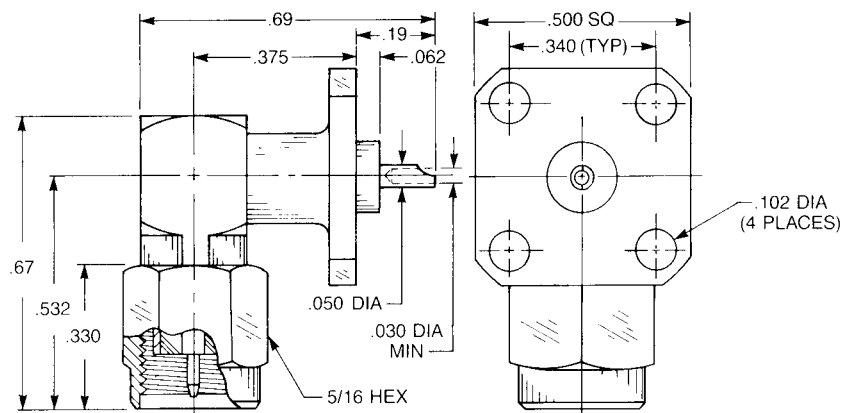
## Right Angle—Solder Pot Contact

### Right Angle Panel Plug Receptacle

- Solder pot contact
- 1/2" square flange

9454-1513-000 (Gold plated)

9454-9513-000 (Passivated)



# SMA Panel Plug Receptacles

## Straight—Tab Contact

### Straight Panel Plug Receptacle

- Tab contact
- 1/2" square flange

Captive contact:

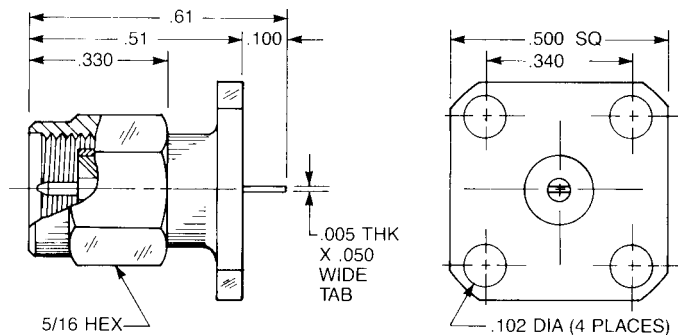
9109-1113-000 (Gold plated)

9109-9113-000 (Passivated)

Noncaptive contact:

9109-1213-000 (Gold plated)

9109-9213-000 (Passivated)



### Straight Panel Plug Receptacle

- Tab contact
- 2-hole flange

Captive contact:

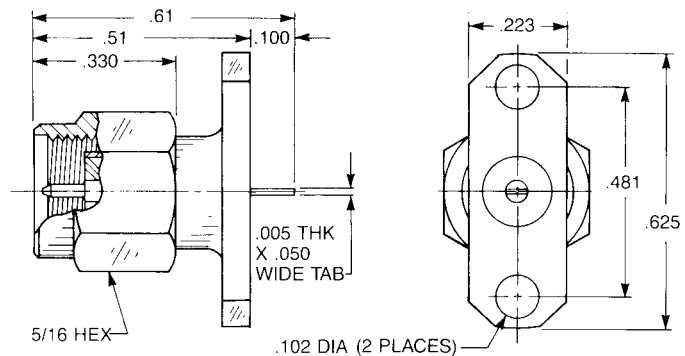
9155-1113-000 (Gold plated)

9155-9113-000 (Passivated)

Noncaptive contact:

9155-1213-000 (Gold plated)

9155-9213-000 (Passivated)



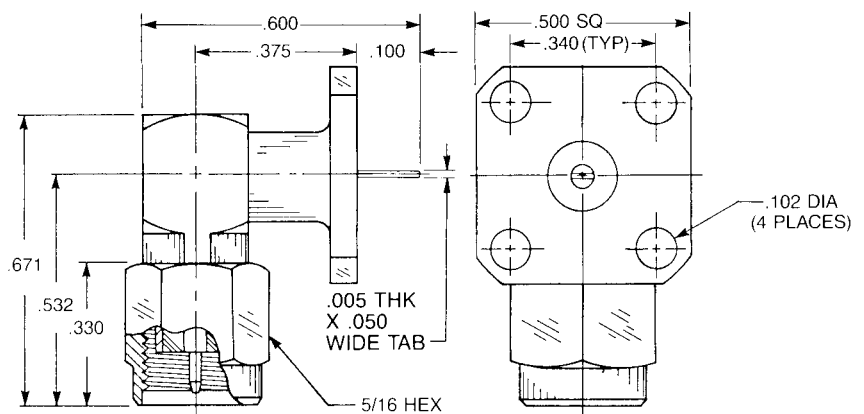
## Right Angle—Tab Contact

### Right Angle Panel Plug Receptacle

- Tab contact
- 1/2" square flange

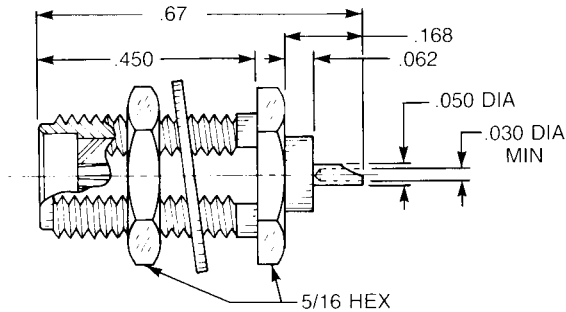
9154-1513-000 (Gold plated)

9154-9513-000 (Passivated)



# SMA Bulkhead Jack Receptacles

## Straight—Solder Pot Contact



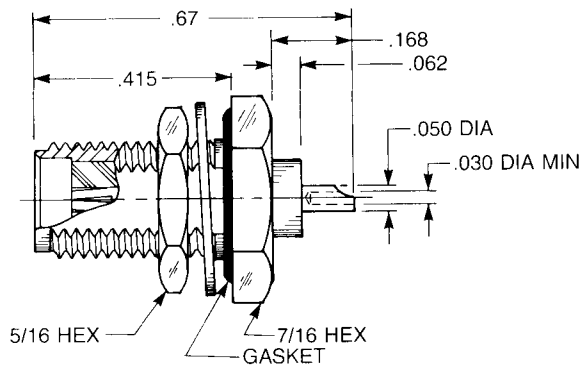
### Straight Bulkhead Jack Receptacle

- Solder pot contact
- Rear mount

Captive contact:

9412-1113-000 (Gold plated)

9412-9113-000 (Passivated)



### Straight Bulkhead Jack Receptacle

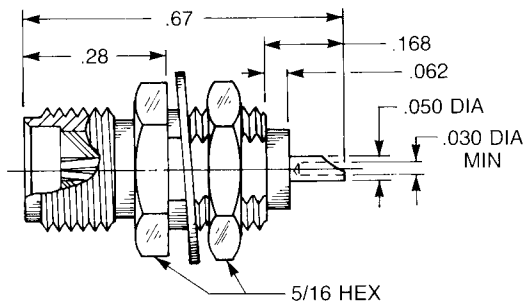
- Solder pot contact
- Rear mount
- With mounting gasket

Captive contact:

9432-1113-000 (Gold plated)

9432-9113-000 (Passivated)

QPL version available (M39012/61)



### Straight Bulkhead Jack Receptacle

- Solder pot contact
- Front mount

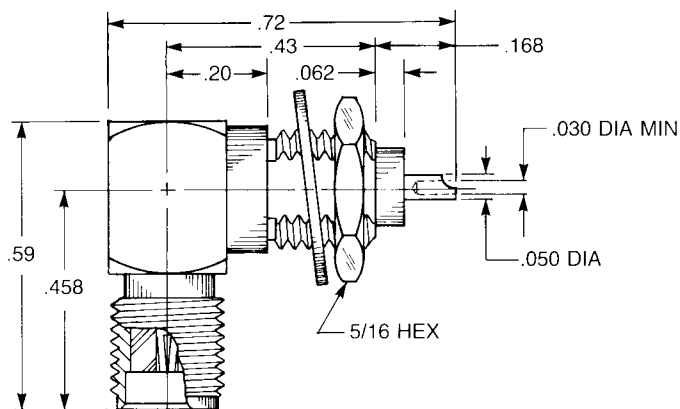
Captive contact:

9422-1113-000 (Gold plated)

9422-9113-000 (Passivated)

QPL version available (M39012/61)

## Right Angle—Solder Pot Contact



### Right Angle Bulkhead Jack Receptacle

- Solder pot contact
- Front mount

Captive contact:

9609-1513-000 (Gold plated)

9609-9513-000 (Passivated)

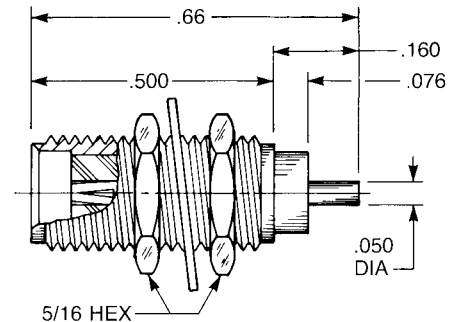


# SMA Bulkhead Jack Receptacles

## Straight—Extended Contact and Insulator

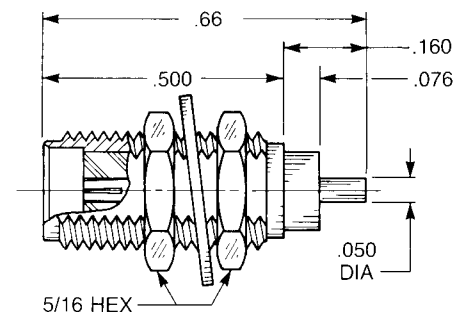
### Straight Bulkhead Jack Receptacle

- Post contact
  - Round body
  - Provided with two mounting nuts and one lockwasher
- Captive contact:  
9013-1113-000 (Gold plated)  
9013-9113-000 (Passivated)



### Straight Bulkhead Jack Receptacle

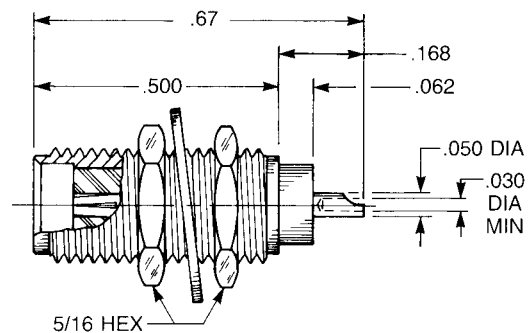
- Post contact
  - D-flatted body
  - Provided with two mounting nuts and one lockwasher
- Captive contact:  
9056-1113-000 (Gold plated)  
9056-9113-000 (Passivated)



## Straight—Solder Pot Contact

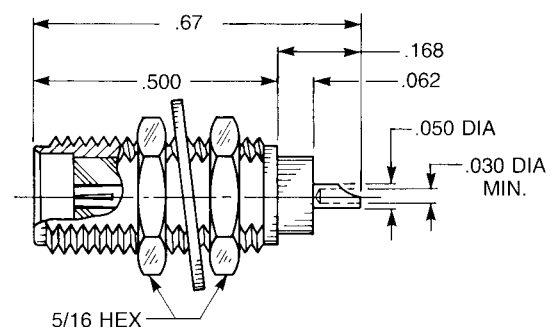
### Straight Bulkhead Jack Receptacle

- Solder pot contact
  - Round body
  - Provided with two mounting nuts and one lockwasher
- Captive contact:  
9413-1113-000 (Gold plated)  
9413-9113-000 (Passivated)



### Straight Bulkhead Jack Receptacle

- Solder pot contact
  - D-flatted body
  - Provided with two mounting nuts and one lockwasher
- Captive contact:  
9456-1113-002 (Gold plated)  
9456-9113-002 (Passivated)

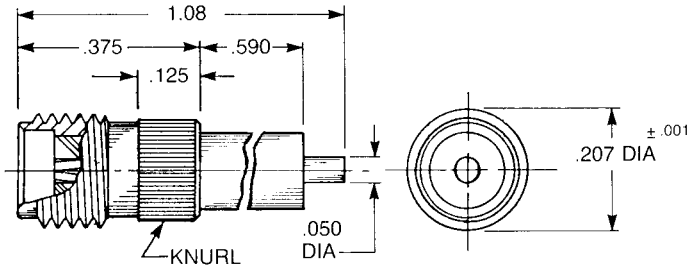


# SMA Knurl Mount Receptacles

These knurl mount receptacles can provide an economical alternative to flange mounted connectors, and are especially useful in dense packaging applications.

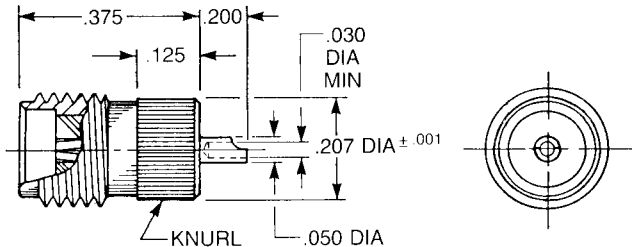
They should be used in panels at least .100" thick.

## Straight Jack—Extended Contact and Insulator



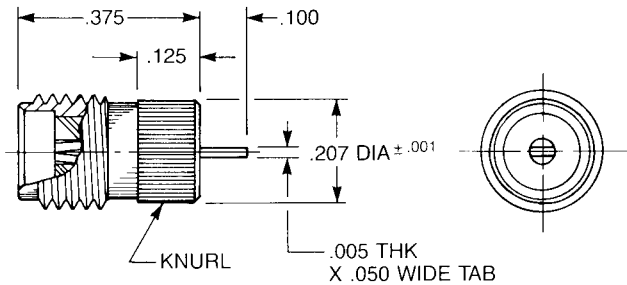
- Extended contact and insulator
- Captive contact:  
**9033-1113-000** (Gold plated)  
**9033-9113-000** (Passivated)
- Noncaptive contact:  
**9033-1213-000** (Gold plated)  
**9033-9213-000** (Passivated)

## Straight Jack—Solder Pot Contact



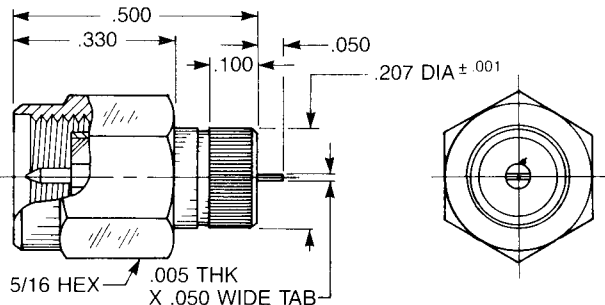
- Solder pot contact
- Captive contact:  
**9433-1113-000** (Gold plated)  
**9433-9113-000** (Passivated)

## Straight Jack—Tab Contact



- Tab contact
- Captive contact:  
**9133-1113-000** (Gold plated)  
**9133-9113-000** (Passivated)
- Noncaptive contact:  
**9133-1213-000** (Gold plated)  
**9133-9213-000** (Passivated)

## Straight Plug—Tab Contact



- Tab contact
- Captive contact:  
**9139-1113-000** (Gold plated)  
**9139-9113-000** (Passivated)
- Noncaptive contact:  
**9139-1213-000** (Gold plated)  
**9139-9213-000** (Passivated)

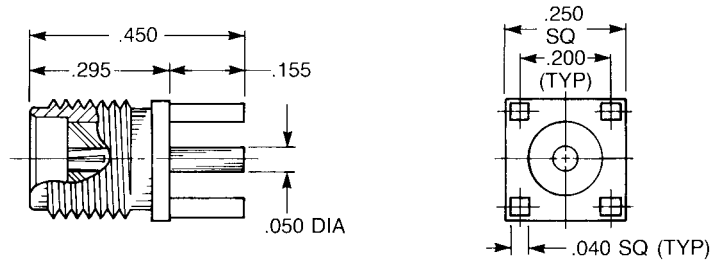


# SMA P.C. Board Receptacles

## Straight Jack

### Straight Jack Receptacle

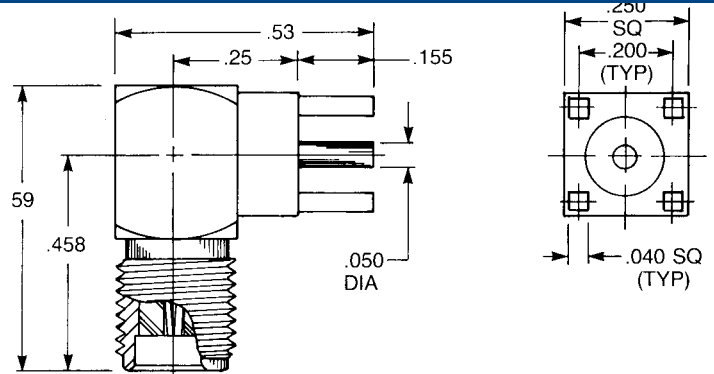
9650-1113-000 (Gold plated)



## Right Angle Jack

### Right Angle Jack Receptacle

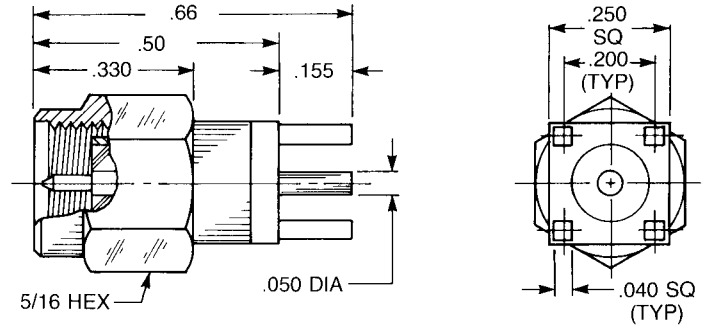
9647-1513-000 (Gold plated)



## Straight Plug

### Straight Plug Receptacle

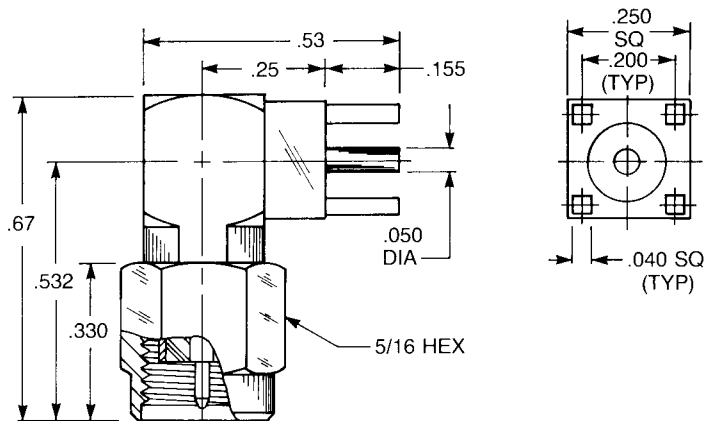
9649-1113-000 (Gold plated)



## Right Angle Plug

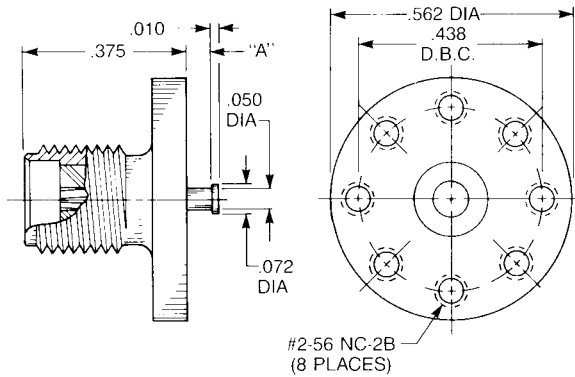
### Right Angle Plug Receptacle

9646-1513-000 (Gold plated)



# SMA Stripline Receptacles

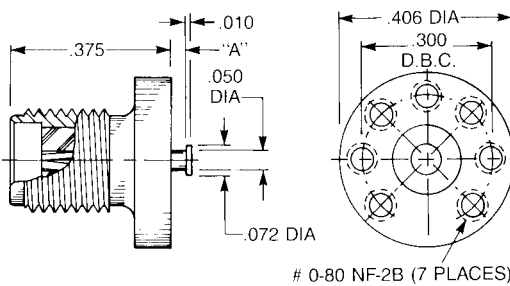
## Straight Jacks



- Standard flange
- Noncaptive contact

Dim. A

.031	<b>9003-1213-001</b>	(Gold plated)
	<b>9003-9213-001</b>	(Passivated)
.063	<b>9003-1213-002</b>	(Gold plated)
	<b>9003-9213-002</b>	(Passivated)
.125	<b>9003-1213-003</b>	(Gold plated)
	<b>9003-9213-003</b>	(Passivated)

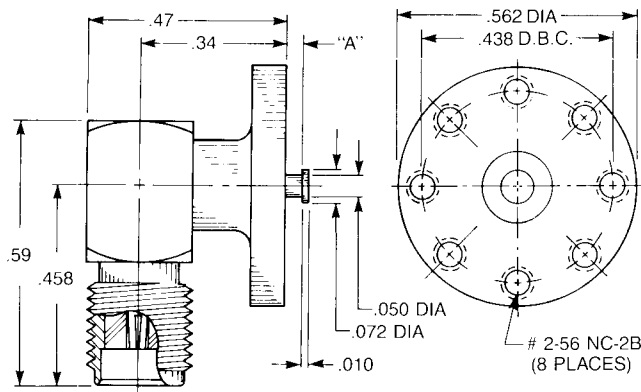


- Small diameter flange
- Noncaptive contact

Dim. A

.031	<b>9610-1213-001</b>	(Gold plated)
	<b>9610-9213-001</b>	(Passivated)
.063	<b>9610-1213-002</b>	(Gold plated)
	<b>9610-9213-002</b>	(Passivated)
.125	<b>9610-1213-003</b>	(Gold plated)
	<b>9610-9213-003</b>	(Passivated)

## Right Angle Jack

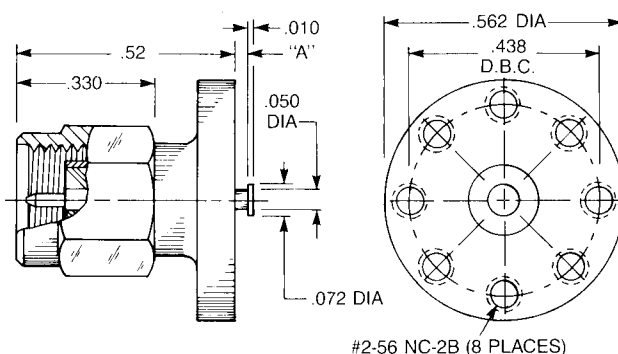


- Standard flange
- Noncaptive rear contact

Dim. A

.031	<b>9035-1513-001</b>	(Gold plated)
	<b>9035-9513-001</b>	(Passivated)
.063	<b>9035-1513-002</b>	(Gold plated)
	<b>9035-9513-002</b>	(Passivated)
.125	<b>9035-1513-003</b>	(Gold plated)
	<b>9035-9513-003</b>	(Passivated)

## Straight Plug



- Standard flange
- Noncaptive contact

Dim. A

.031	<b>9034-1213-001</b>	(Gold plated)
	<b>9034-9213-001</b>	(Passivated)
.063	<b>9034-1213-002</b>	(Gold plated)
	<b>9034-9213-002</b>	(Passivated)
.125	<b>9034-1213-003</b>	(Gold plated)
	<b>9034-9213-003</b>	(Passivated)



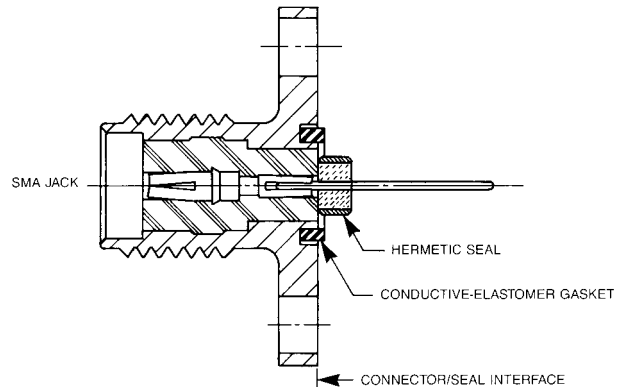
# SMA Hermetic Seal Launchers

AEP SMA hermetic seal launchers are designed to fit hermetic seals with .012" to .036" pin diameters. Connectors for use with .012—.018" pins feature an internal body structure that compensates electrically for the stepdown in diameter from the connector interface to the seal outer diameter, as shown in the illustration. These units also incorporate a conductive-elastomer EMI gasket to prevent RF leakage at the interface between the connector flange and the MIC package.

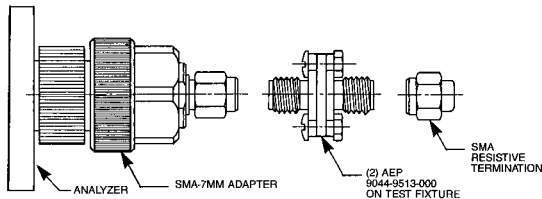
Connectors for seals with .020" or .036" pin diameters have straight-through body geometry, and do not use EMI gaskets.

Passivated stainless steel body finish is standard for this series; gold-plated bodies are available as an option.

## Connector / seal design—connectors for use with .012—.018" diameter pins



## Electrical Performance Data



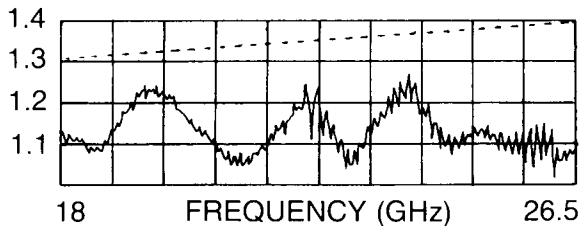
**Test setup:** Two connectors (P/N 9044-9513-000) mounted back-to-back on fixture incorporating hermetic seal (P/N 920-55). Precision SMA plug termination used as load.

The VSWR plot below is for the connector/fixture combination; data for a single connector can be extrapolated by taking the square root of the reading at a given frequency. Insertion loss readings should be divided by two to obtain performance for a single connector.

Electrical performance in actual use may vary based on the characteristics of the pin-to-line transition.

### VSWR

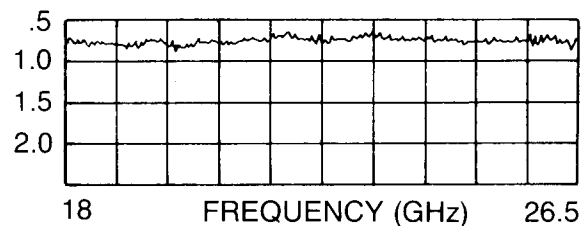
HP 8510



Dotted line =  $VSWR (1.05 + .005F [GHz])^2$   
 Max. VSWR DC-18 GHz: 1.23: 1 @ 13.93 GHz  
 Max. VSWR DC-26.5 GHz: 1.28: 1 @ 23.74 GHz

### Insertion loss (dB)

HP 8510



See next page for hermetic seal specifications and mounting dimensions.

# Hermetic Seal Specifications

## Materials:

**All metal parts:** Kovar.

**Glass:** Corning glass as noted:

P/N	Glass type
920-55	7052
920-56	7070
920-69	7052
920-82	7070
920-92	7052

## Finish:

**All metal parts:** Gold plated per MIL-G-45204 type II, grade C, class 1, over nickel per MIL-C-26074, class 1, over copper per MIL-C-14550.

## Hermeticity:

Greater than  $1 \times 10^{-8}$  cc/second @ 1 atmosphere.

## Solderability:

Per MIL-Std-202, Method 209.

## Meniscus:

.005" max.

## Pin concentricity:

.003" T.I.R.

## Temperature range:

-65–250° C.

## Impedance:

$50 \pm 1\Omega$ .

## Frequency range:

DC-26 GHz.

## Insertion loss:

.1 dB max. to 12.4 GHz;  
.2 dB max. to 18 GHz;  
.25 dB max. to 26 GHz.

## VSWR:

Dependent on application.

## Voltage rating:

335 VRMS max. @ sea level.

## Current:

500 mA.

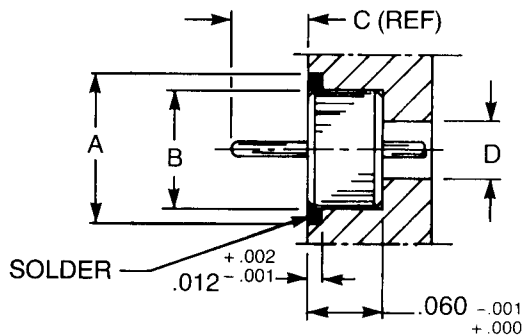
## Dielectric Withstanding Voltage:

1000 VRMS @ sea level.

## Insulation resistance:

100K megohms (@25° C)

## Mounting Dimensions



P/N	A ( $\pm .001$ )	B ( $\pm .001$ )	C
920-55	.127	.102	.070
920-56	.140	.115	.070
920-69	.188	.163	.060
920-82	.127	.102	.070
920-92	.188	.163	.075

## Notes:

- 1) Front of seal and solder should be flush to .005" above mounting surface.
- 2) Diameters ("D") in chart are for 50 $\Omega$  impedance; Teflon dielectric diameters are for applications which use a support insulator for the hermetic seal pin (user option).

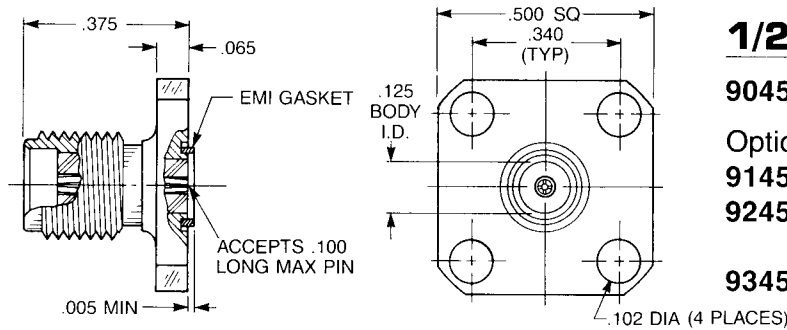
Pin Diameter	"D" (Air dielectric)	"D" (Teflon dielectric)
.012	.028	.040
.015	.035	.050
.018	.041	.059
.020	.046	.066



# SMA Hermetic Seal Launchers

For hermetic seals with .012" diameter pins

## Straight Jacks



### 1/2" Square Flange

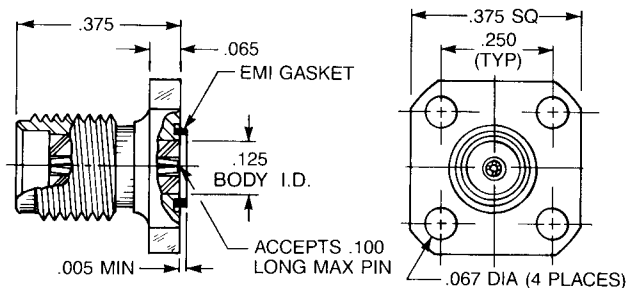
9045-9513-000

Optional packaging:

9145-9513-000 (Includes 920-55)

9245-9513-000 (Includes 920-55 and 907-111-1)

9345-9513-000 (Includes 907-111-1)



### 3/8" Square Flange

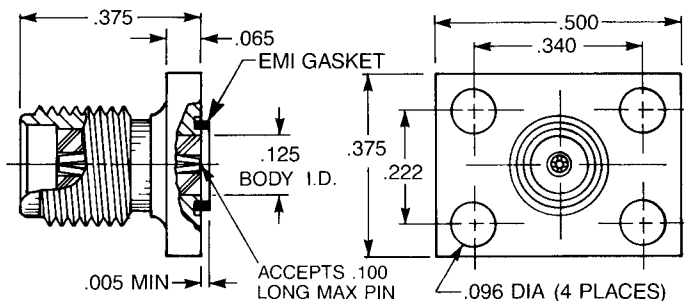
9079-9513-000

Optional packaging:

9179-9513-000 (Includes 920-55)

9279-9513-000 (Includes 920-55 and 907-111-1)

9379-9513-000 (Includes 907-111-1)



### Rectangular Flange

9062-9513-000

Optional packaging:

9162-9513-000 (Includes 920-55)

9262-9513-000 (Includes 920-55 and 907-111-1)

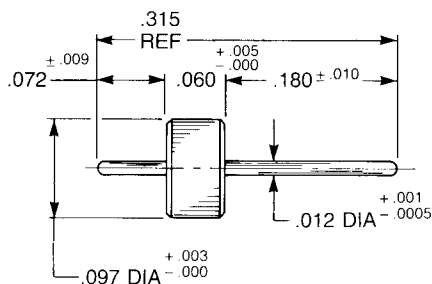
9362-9513-000 (Includes 907-111-1)

These units accept hermetic seal pin diameters .011-.015"

## Hermetic Seal and Accessory Contact

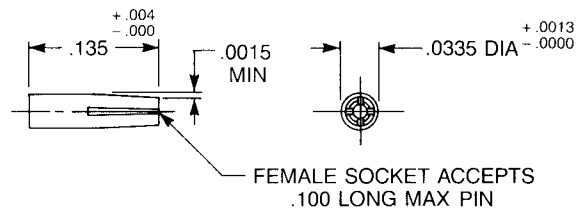
### Solder-In Hermetic Seal

P/N 920-55



### Accessory Contact

P/N 907-111-1



Material: Beryllium copper

Finish: Gold per MIL-G-45204, type II, class I, grade C, over .0001 copper per MIL-C-14550



APPLIED ENGINEERING PRODUCTS

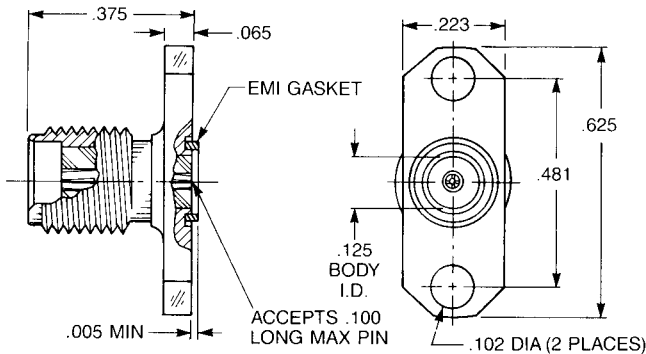
(203) 776-2813 • FAX (203) 776-8294

www.aepconnectors.com • aepsales@aepconnectors.com

# SMA Hermetic Seal Launchers

For hermetic seals with .012" diameter pins

## Straight Jacks



### 2-Hole Flange

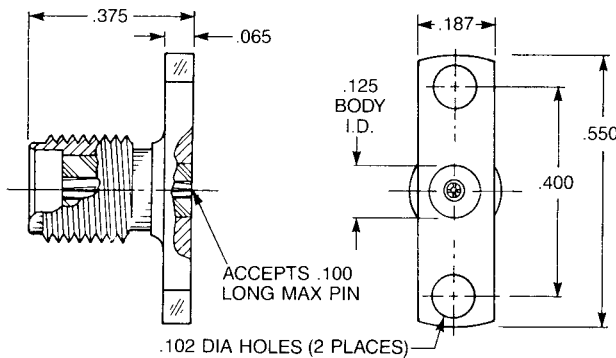
9044-9513-000

Optional packaging:

9144-9513-000 (Includes 920-55)

9244-9513-000 (Includes 920-55 and 907-111-1)

9344-9513-000 (Includes 907-111-1)



### Narrow 2-Hole Flange

No EMI gasket

9080-9513-000

Optional packaging:

9180-9513-000 (Includes 920-55)

9280-9513-000 (Includes 920-55 and 907-111-1)

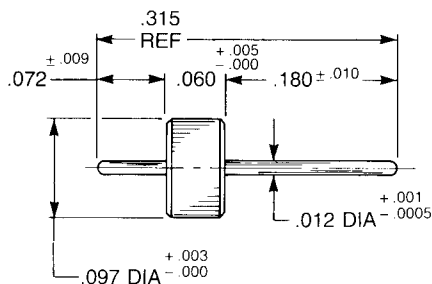
9380-9513-000 (Includes 907-111-1)

These units accept hermetic seal pin diameters .011-.015"

## Hermetic Seal and Accessory Contact

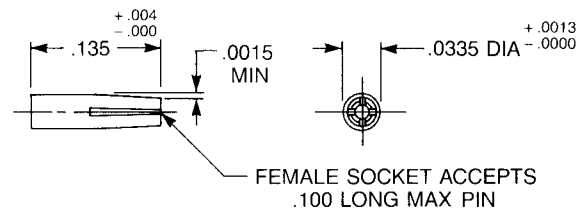
### Solder-In Hermetic Seal

P/N 920-55



### Accessory Contact

P/N 907-111-1



Material: Beryllium copper

Finish: Gold per MIL-G-45204, type II, class I, grade C, over .0001 copper per MIL-C-14550

# SMA Hermetic Seal Launchers

For hermetic seals with .012" diameter pins

## Straight Plugs

### 1/2" Square Flange

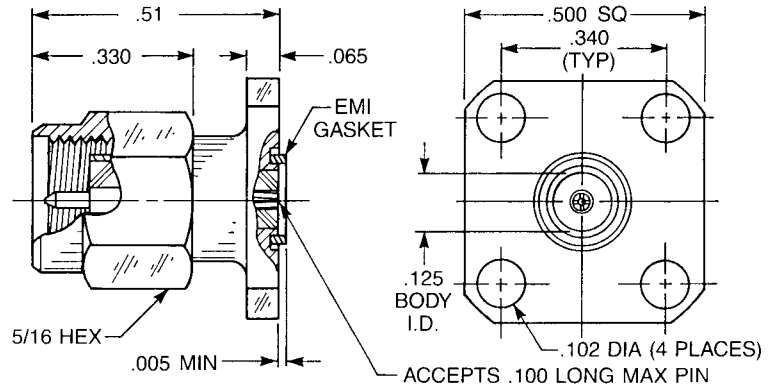
9047-9513-000

Optional packaging:

9147-9513-000 (Includes 920-55)

9247-9513-000 (Includes 920-55 and 907-111-1)

9347-9513-000 (Includes 907-111-1)



### 2-Hole Flange

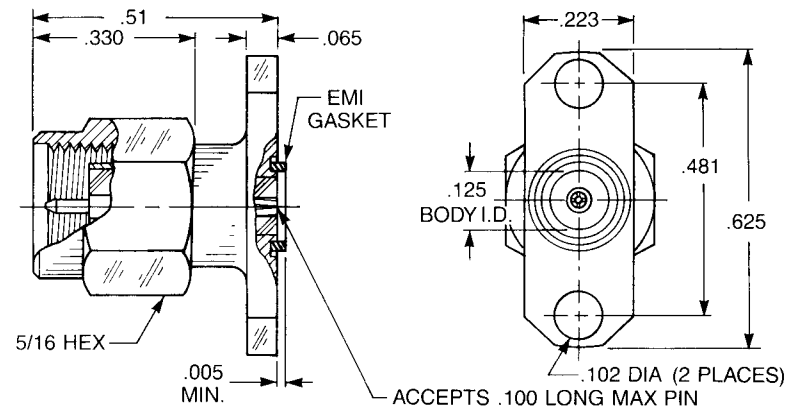
9046-9513-000

Optional packaging:

9146-9513-000 (Includes 920-55)

9246-9513-000 (Includes 920-55 and 907-111-1)

9346-9513-000 (Includes 907-111-11)

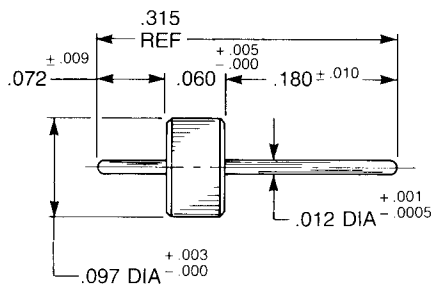


These units accept hermetic seal pin diameters .011-.015"

## Hermetic Seal and Accessory Contact

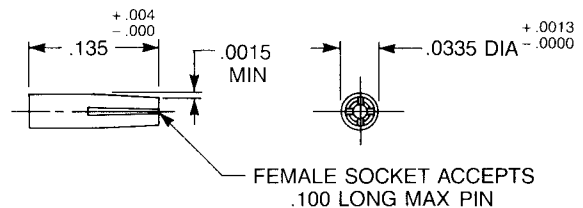
### Solder-In Hermetic Seal

P/N 920-55



### Accessory Contact

P/N 907-111-1



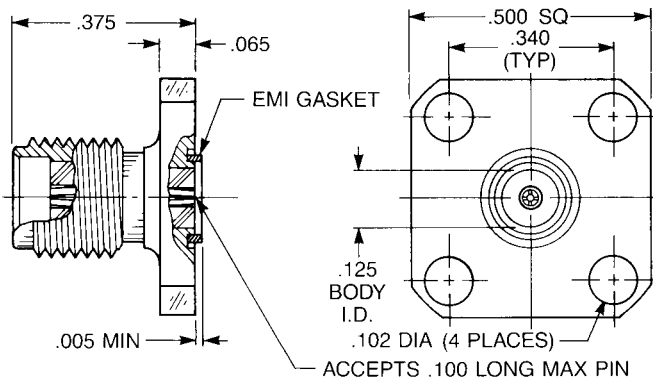
Material: Beryllium copper

Finish: Gold per MIL-G-45204, type II, class I, grade C, over .0001 copper per MIL-C-14550

# SMA Hermetic Seal Launchers

## For hermetic seals with .015" diameter pins

### Straight Jacks



### 1/2" Square Flange

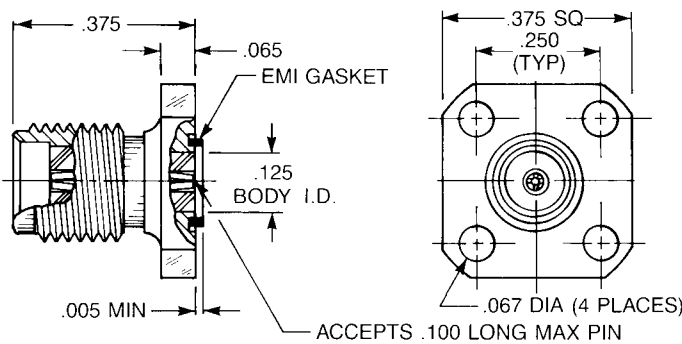
9045-9513-001

Optional packaging:

9145-9513-001 (Includes 920-82)

9245-9513-001 (Includes 920-82 and 907-111-5)

9345-9513-001 (Includes 907-111-5)



### 3/8" Square Flange

9079-9513-001

Optional packaging:

9179-9513-001 (Includes 920-82)

9279-9513-001 (Includes 920-82 and 907-111-5)

9379-9513-001 (Includes 907-111-5)

### Rectangular Flange

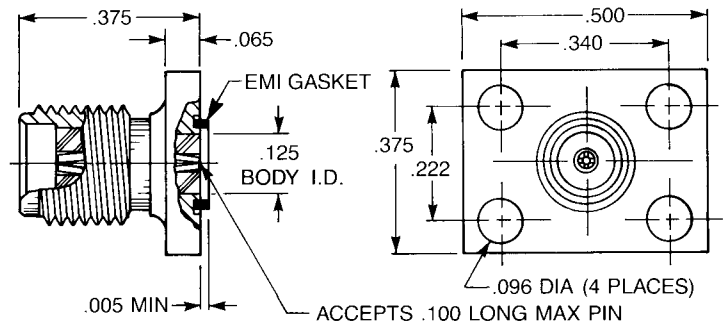
9062-9513-001

Optional packaging:

9162-9513-001 (Includes 920-82)

9262-9513-001 (Includes 920-82 and 907-111-5)

9362-9513-001 (Includes 907-111-5)

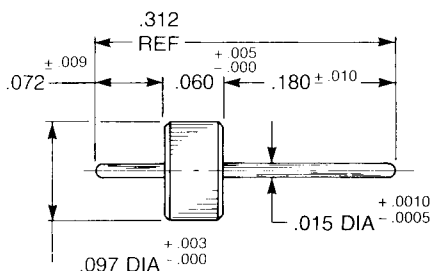


These units accept hermetic seal pin diameters .014-.016"

### Hermetic Seal and Accessory Contact

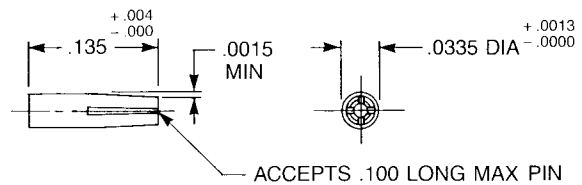
#### Solder-In Hermetic Seal

P/N 920-82



#### Accessory Contact

P/N 907-111-5



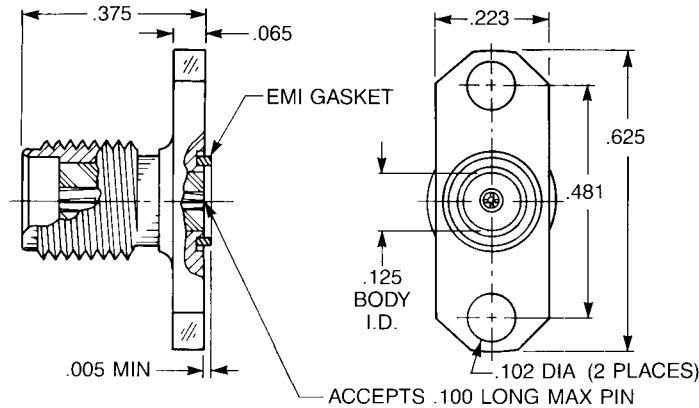
Material: Beryllium copper.

Finish: Gold per MIL-G-45204, type II, class 1, grade C, over .0001 copper per MIL-C-14450.

# SMA Hermetic Seal Launchers

For hermetic seals with .015" diameter pins

## Straight Jacks



### 2-Hole Flange

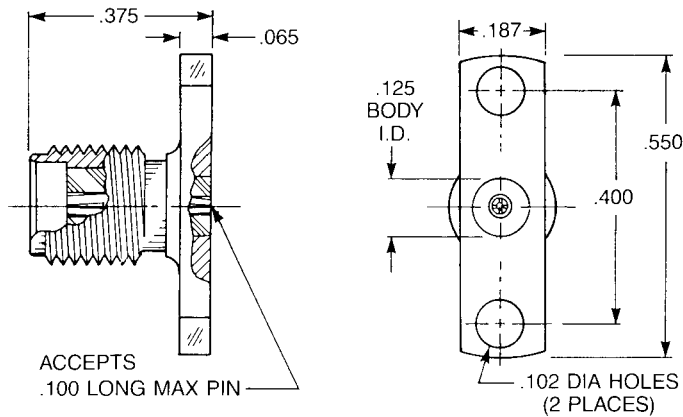
9044-9513-001

Optional packaging:

9144-9513-001 (Includes 920-82)

9244-9513-001 (Includes 920-82 and 907-111-5)

9344-9513-001 (Includes 907-111-5)



### Narrow 2-Hole Flange

No EMI gasket

9080-9513-001

Optional packaging:

9180-9513-001 (Includes 920-82)

9280-9513-001 (Includes 920-82 and 907-111-5)

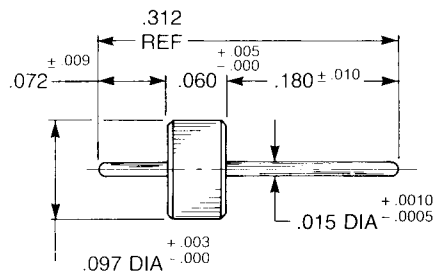
9380-9513-001 (Includes 907-111-5)

These units accept hermetic seal pin diameters .014-.016"

## Hermetic Seal and Accessory Contact

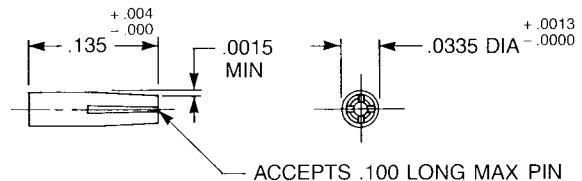
### Solder-In Hermetic Seal

P/N 920-82



### Accessory Contact

P/N 907-111-5



Material: Beryllium copper.

Finish: Gold per MIL-G-45204, type II, class 1, grade C, over .0001 copper per MIL-C-14450.



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# SMA Hermetic Seal Launchers

For hermetic seals with .015" diameter pins

## Straight Plugs

### 1/2" Square Flange

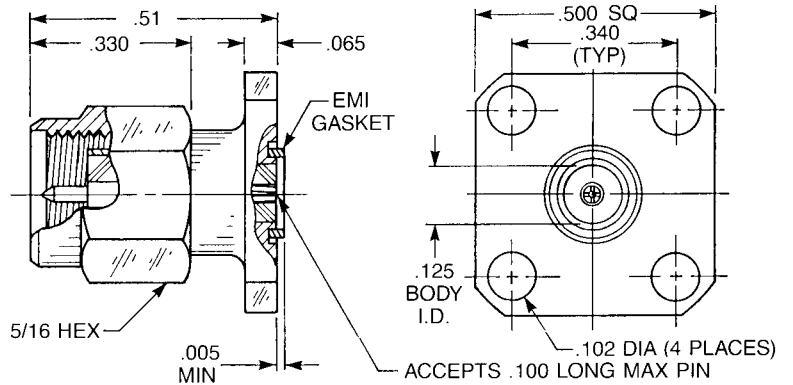
9047-9513-001

Optional packaging:

9147-9513-001 (Includes 920-82)

9247-9513-001 (Includes 920-82 and 907-111-5)

9347-9513-001 (Includes 907-111-5)



### 2-Hole Flange

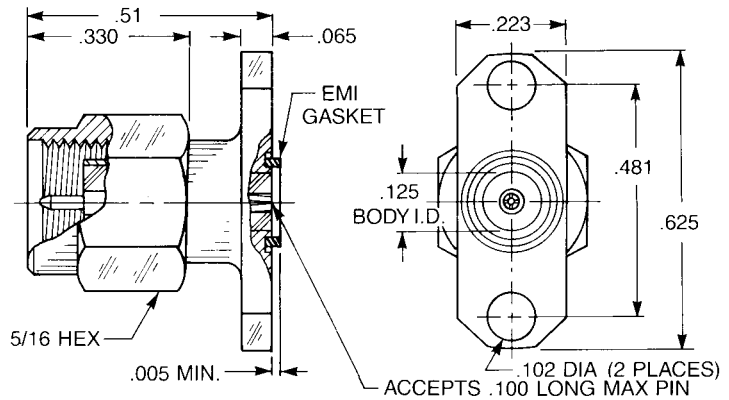
9046-9513-001

Optional packaging:

9146-9513-001 (Includes 920-82)

9246-9513-001 (Includes 920-82 and 907-111-5)

9346-9513-001 (Includes 907-111-5)

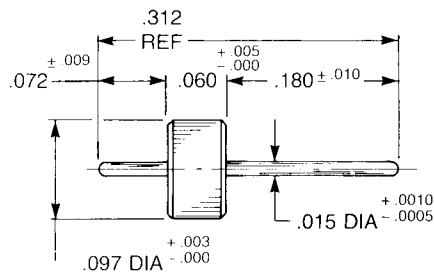


These units accept hermetic seal pin diameters .014-.016"

## Hermetic Seal and Accessory Contact

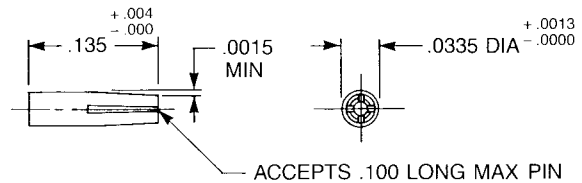
### Solder-In Hermetic Seal

P/N 920-82



### Accessory Contact

P/N 907-111-5



Material: Beryllium copper.

Finish: Gold per MIL-G-45204, type II, class 1, grade C, over .0001 copper per MIL-C-14450.



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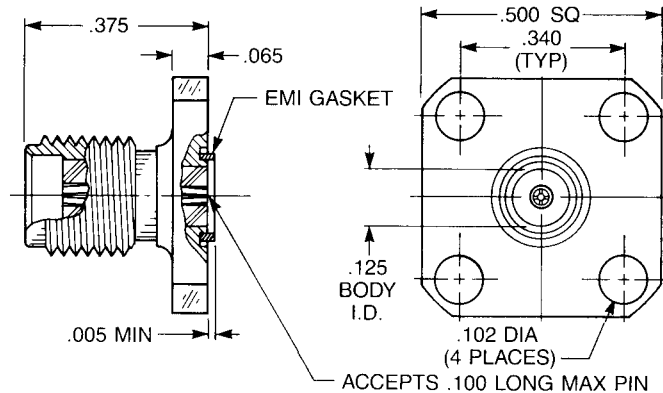
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# SMA Hermetic Seal Launchers

For hermetic seals with .018" diameter pins

## Straight Jacks



### 1/2" Square Flange

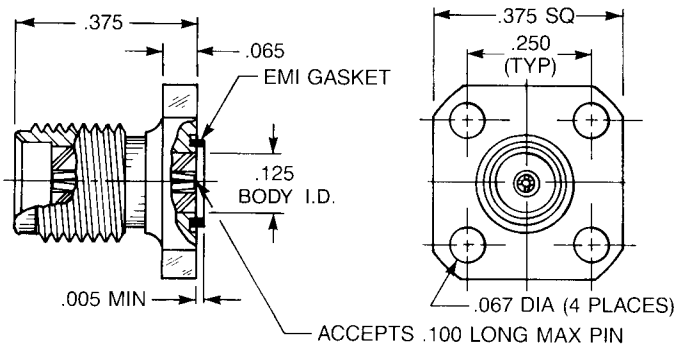
9049-9513-000

Optional packaging:

9149-9513-000 (Includes 920-56)

9249-9513-000 (Includes 920-56 and 907-111-2)

9349-9513-000 (Includes 907-111-2)



### 3/8" Square Flange

9074-9513-000

Optional packaging:

9174-9513-000 (Includes 920-56)

9274-9513-000 (Includes 920-56 and 907-111-2)

9374-9513-000 (Includes 907-111-2)

### Rectangular Flange

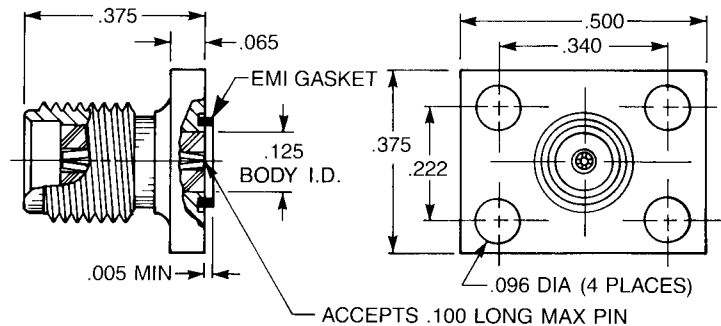
9068-9513-000

Optional packaging:

9168-9513-000 (Includes 920-56)

9268-9513-000 (Includes 920-56 and 907-111-2)

9368-9513-000 (Includes 907-111-2)

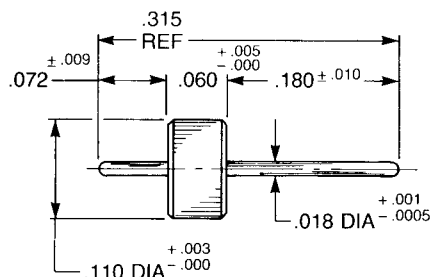


These units accept hermetic seal pin diameters .016-.020"

## Hermetic Seal and Accessory Contact

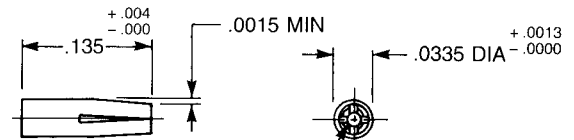
### Solder-In Hermetic Seal

P/N 920-56



### Accessory Contact

P/N 907-111-2



ACCEPTS .100 LONG MAX PIN

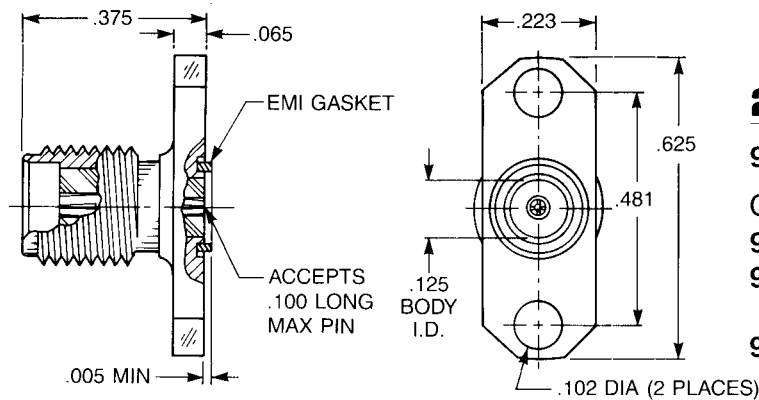
Material: Beryllium copper

Finish: Gold per MIL-G-45204, type II, class 1, grade C over .0001 copper per MIL-C-14450

# SMA Hermetic Seal Launchers

For hermetic seals with .018" diameter pins

## Straight Jacks



### 2-Hole Flange

9048-9513-000

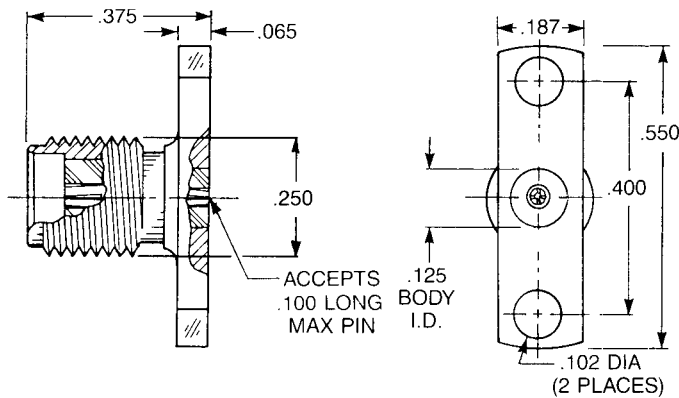
Optional packaging:

9148-9513-000 (Includes 920-56)

9248-9513-000 (Includes 920-56

and 907-111-2)

9348-9513-000 (Includes 907-111-2)



### Narrow 2-Hole Flange

No EMI gasket

9081-9513-000

Optional packaging:

9181-9513-000 (Includes 920-56)

9281-9513-000 (Includes 920-56

and 907-111-2)

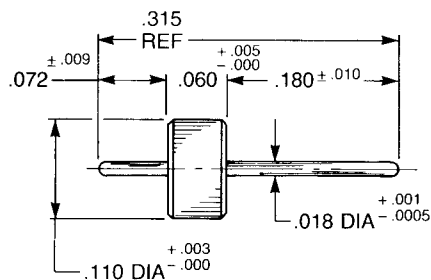
9381-9513-000 (Includes 907-111-2)

These units accept hermetic seal pin diameters .016-.020"

## Hermetic Seal and Accessory Contact

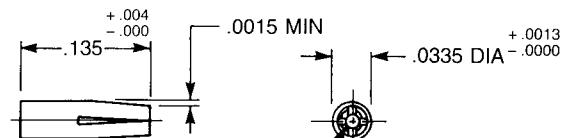
### Solder-In Hermetic Seal

P/N 920-56



### Accessory Contact

P/N 907-111-2



ACCEPTS .100 LONG MAX PIN

Material: Beryllium copper

Finish: Gold per MIL-G-45204, type II, class 1,  
grade C over .0001 copper per MIL-C-14450

# SMA Hermetic Seal Launchers

For hermetic seals with .018" diameter pins

## Straight Plugs

### 1/2" Square Flange

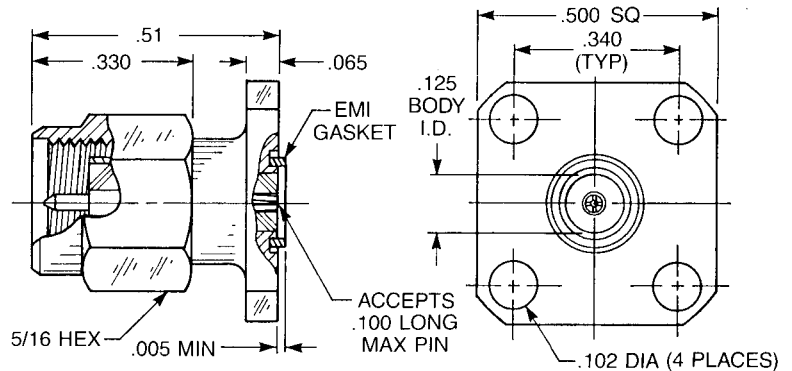
9051-9513-000

Optional packaging:

9151-9513-000 (Includes 920-56)

9251-9513-000 (Includes 920-56 and 907-111-2)

9351-9513-000 (Includes 907-111-2)



### 2-Hole Flange

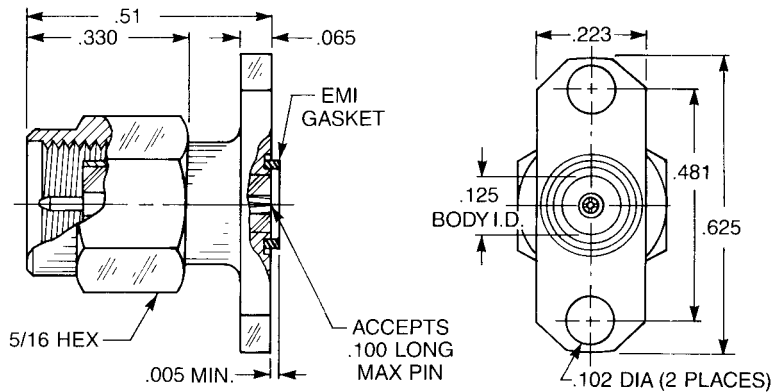
9050-9513-000

Optional packaging:

9150-9513-000 (Includes 920-56)

9250-9513-000 (Includes 920-56 and 907-111-2)

9350-9513-000 (Includes 907-111-2)

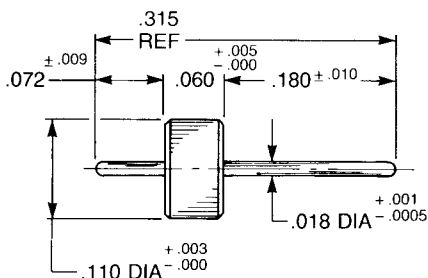


These units accept hermetic seal pin diameters .016-.020"

## Hermetic Seal and Accessory Contact

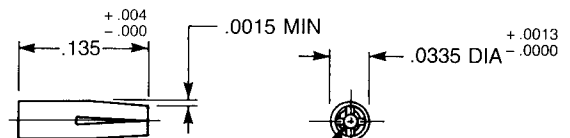
### Solder-In Hermetic Seal

P/N 920-56



### Accessory Contact

P/N 907-111-2



ACCEPTS .100 LONG MAX PIN

Material: Beryllium copper

Finish: Gold per MIL-G-45204, type II, class 1, grade C over .0001 copper per MIL-C-14450



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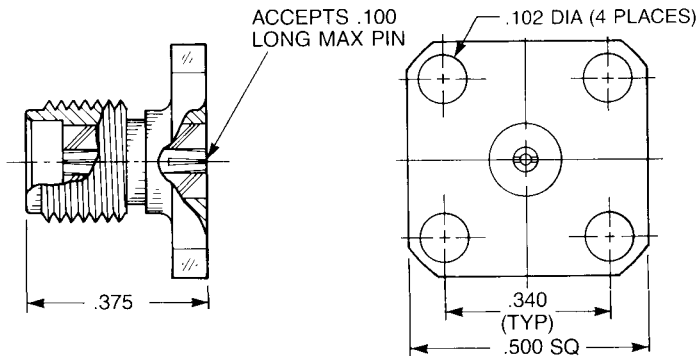
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# SMA Hermetic Seal Launchers

For hermetic seals with .020" diameter pins

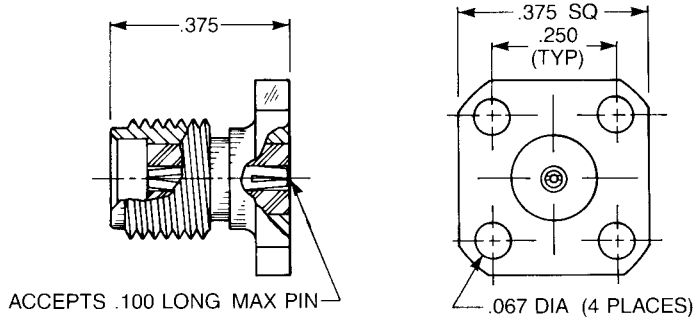
## Straight Jacks



### Straight Jack 1/2" Square Flange

9504-9113-031

9504-9113-034 (Includes 920-69)



### Straight Jack 3/8" Square Flange

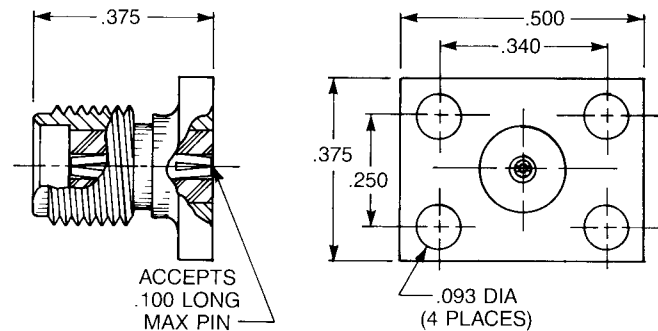
9576-9113-001

9576-9113-002 (Includes 920-69)

### Straight Jack Rectangular Flange

9507-9113-003

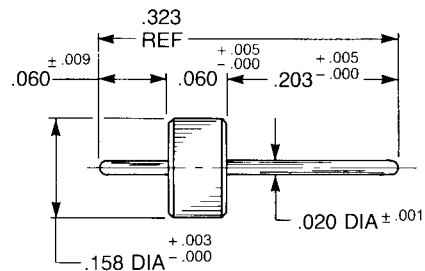
9507-9113-004 (Includes 920-69)



## Hermetic Seal and Accessory Contact

### Solder-In Hermetic Seal

P/N 920-69



APPLIED ENGINEERING PRODUCTS

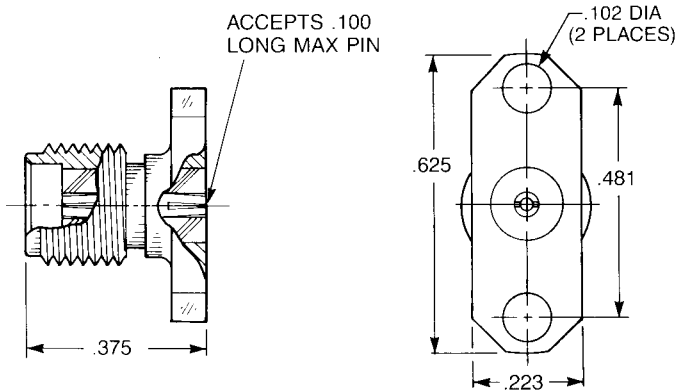
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# SMA Hermetic Seal Launchers

For hermetic seals with .020" diameter pins

## Straight Jacks



### Straight Jack 2-Hole Flange

9508-9113-002

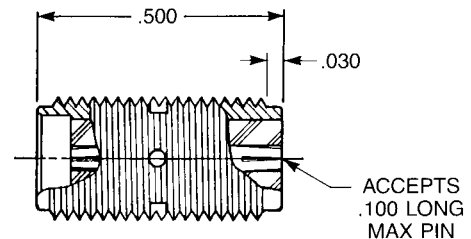
9508-9113-003 (Includes 920-69)

### Straight Jack Screw-In Mounting

9513-9113-009

9513-9113-012 (Includes 920-69)

These connectors require a minimum package wall thickness of .250" for proper retention

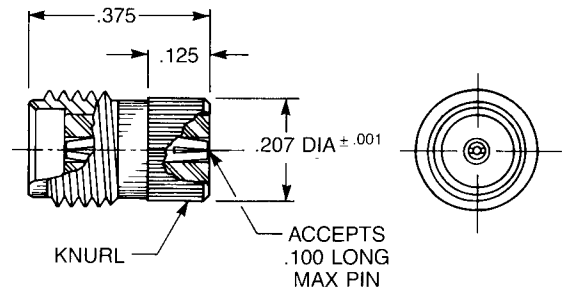


### Straight Jack Knurl Mount

9533-9113-003

9533-9113-002 (Includes 920-69)

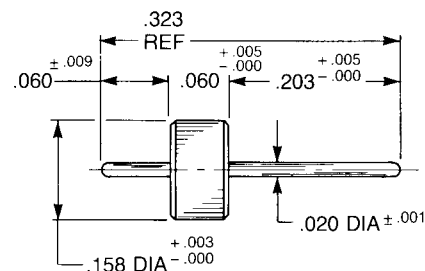
These connectors require a minimum package wall thickness of .235" for proper retention



## Hermetic Seal and Accessory Contact

### Solder-In Hermetic Seal

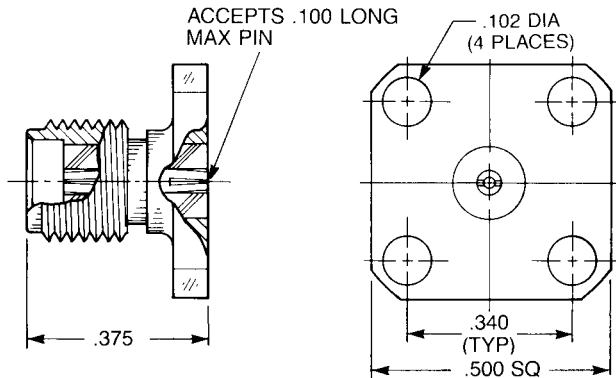
P/N 920-69



# SMA Hermetic Seal Launchers

For hermetic seals with .036" diameter pins

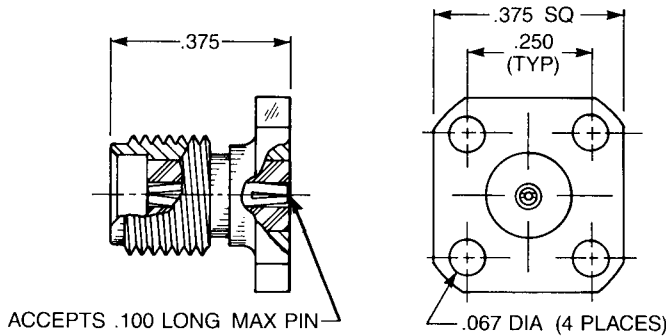
## Straight Jacks



### Straight Jack 1/2" Square Flange

9504-9113-009

9504-9113-035 (Includes 920-92)



### Straight Jack 3/8" Square Flange

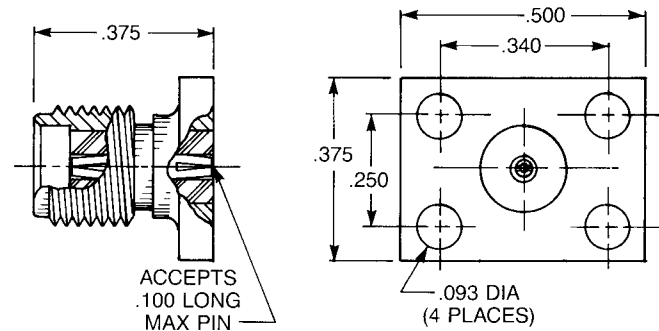
9576-9113-003

9576-9113-004 (Includes 920-92)

### Straight Jack Rectangular Flange

9507-9113-005

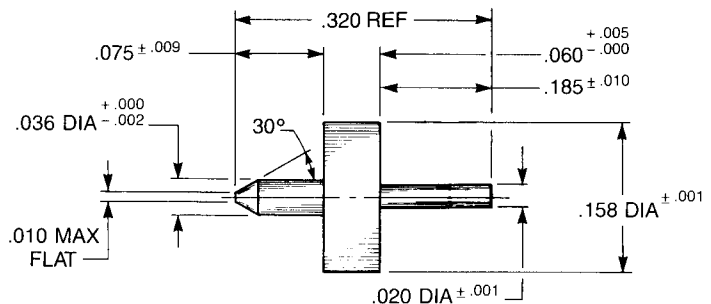
9507-9113-006 (Includes 920-92)



## Hermetic Seal and Accessory Contact

### Solder-In Hermetic Seal

P/N 920-92

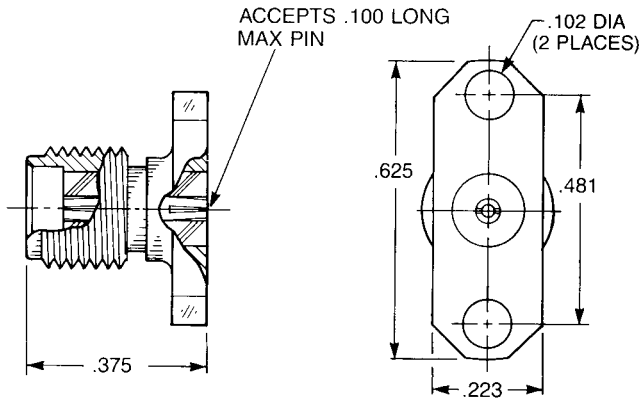




# SMA Hermetic Seal Launchers

For hermetic seals with .036" diameter pins

## Straight Jacks



### Straight Jack 2-Hole Flange

9508-9113-001

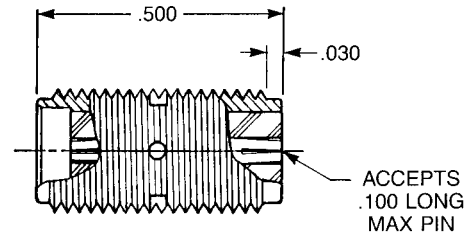
9508-9113-011 (Includes 920-92)

### Straight Jack Screw-In Mounting

9513-9113-008

9513-9113-013 (Includes 920-92)

These connectors require a minimum package wall thickness of .250" for proper retention

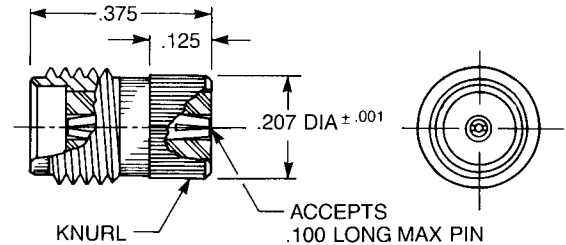


### Straight Jack Knurl Mount

9533-9113-001

9533-9113-004 (Includes 920-92)

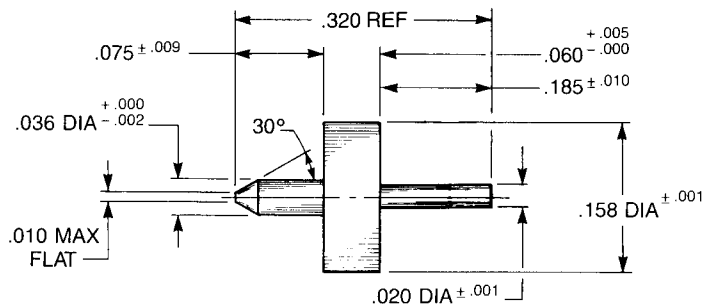
These connectors require a minimum package wall thickness of .235" for proper retention.



## Hermetic Seal and Accessory Contact

### Solder-In Hermetic Seal

P/N 920-92



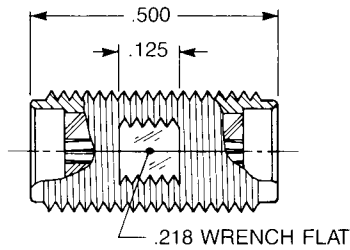
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# SMA Adapters

## Straight Adapters



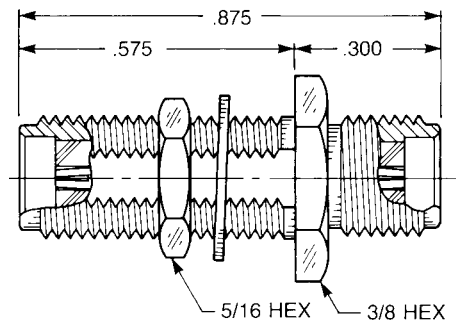
### **Straight Jack To Jack Adapter**

- Connects two plugs

Captive contact:

5917-1103-000 (Gold plated)

5917-9103-000 (Passivated)



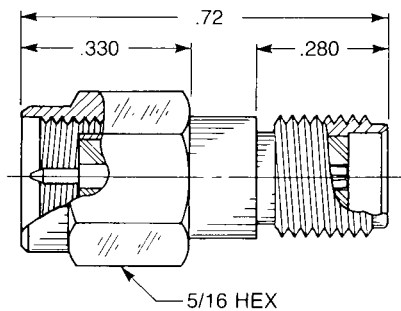
### **Straight Bulkhead Mounted Jack To Jack Adapter**

- Connects two plugs

Captive contact:

5909-1103-000 (Gold plated)

5909-9103-000 (Passivated)



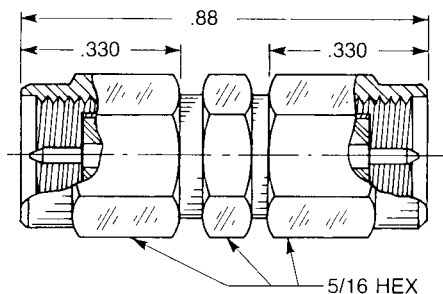
### **Straight Jack To Plug Adapter**

- Prevents damage to equipment-mounted jacks during frequent mating and unmating

Captive contact:

5916-1103-603 (Gold plated)

5916-9103-603 (Passivated)



### **Straight Plug To Plug Adapter**

- Connects two jacks

Captive contact:

5918-1103-000 (Gold plated)

5918-9103-000 (Passivated)



# SMA Adapters

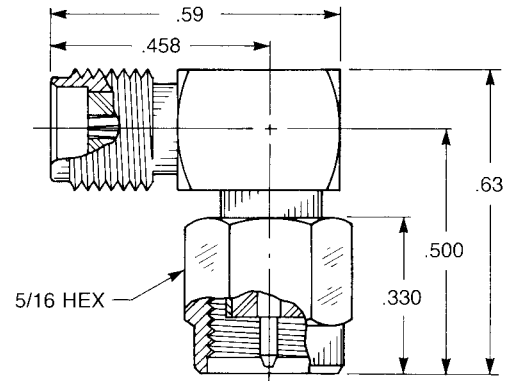
## Right Angle Adapters

### Right Angle Jack To Plug Adapter

- Connects one jack and one plug

5919-1503-000 (Gold plated)

5919-9503-000 (Passivated)

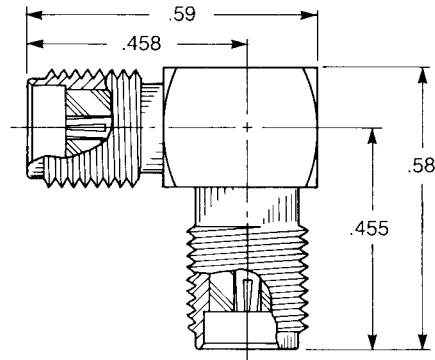


### Right Angle Jack To Jack Adapter

- Connects two plugs

5919-1503-003 (Gold plated)

5919-9503-003 (Passivated)

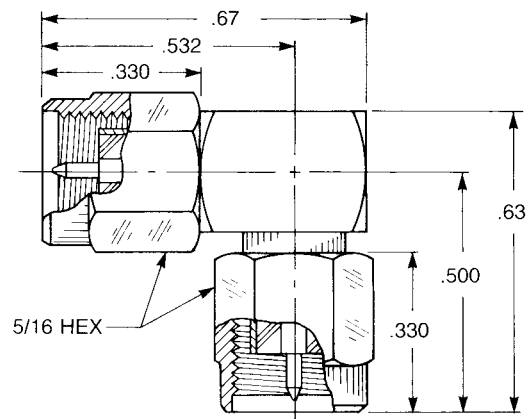


### Right Angle Plug To Plug Adapter

- Connects two jacks

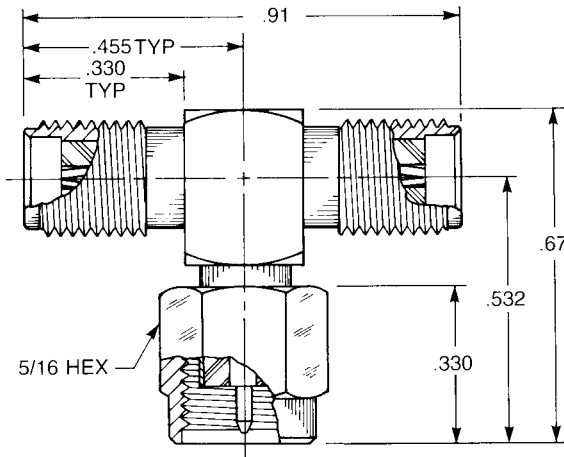
5919-1503-001 (Gold plated)

5919-9503-001 (Passivated)



# SMA Adapters

## Tee Adapters

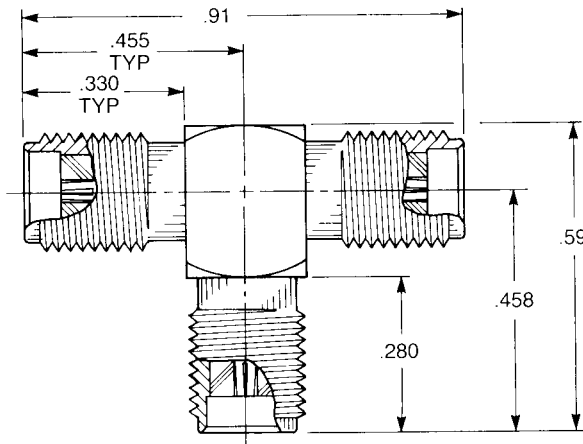


### Tee Adapter (Unmatched Power Divider) Jack To Plug To Jack

- Connects two plugs and one jack

5905-1503-000 (Gold plated)

5905-9503-000 (Passivated)



### Tee Adapter (Unmatched Power Divider) Jack To Jack To Jack

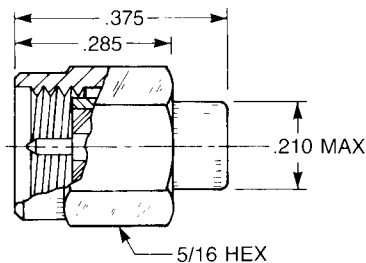
- Connects three plugs

5903-1503-000 (Gold plated)

5903-9503-000 (Passivated)

# SMA Terminations

## Plug Termination

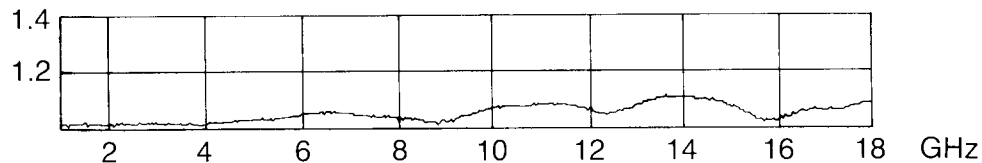


### Plug Resistive Termination (Dummy Load)

- VSWR 1.15: 1 max. to 18 GHz.
- Maximum average power: 1 watt
- Peak power: 1.5 watts

9620-9003-151 (Passivated)

VSWR



APPLIED ENGINEERING PRODUCTS

(203) 776-2813 • FAX (203) 776-8294

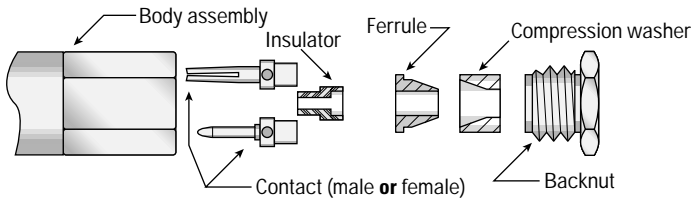
www.aepconnectors.com • aepsales@aepconnectors.com

# Cable Assembly Instructions

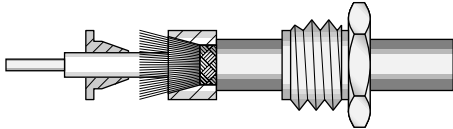
## Clamp type connectors for flexible cable

### Straight Connectors—Flexible Cable

#### Parts list

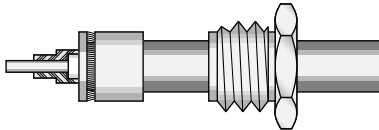


**1**



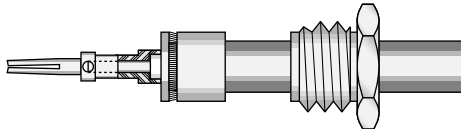
- Trim cable per trim code below; tin end of center conductor.
- Slide backnut onto cable. Slide compression washer onto cable in the orientation shown until it stops against cable jacket.
- Flare cable braid by rotating dielectric and slide ferrule under braid.

**2**



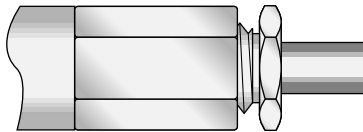
- Press ferrule against compression washer.
- Trim excess braid flush with outer diameter of compression washer and ferrule.
- Assemble insulator over cable center conductor and dielectric.

**3**



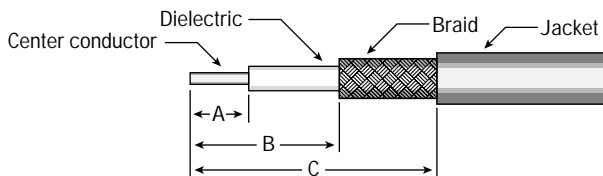
- Assemble contact onto cable center conductor.
- Solder contact to center conductor by heating rear of contact (do not feed additional solder through inspection hole in contact).

**4**



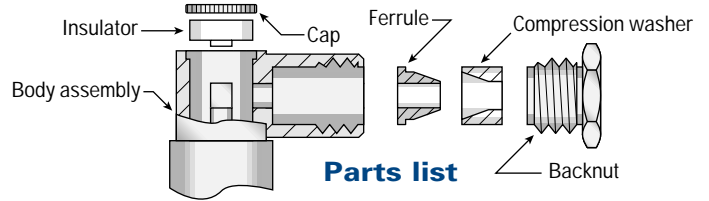
- Insert cable assembly into body assembly. Tighten to 140–150 inch-ounces torque. (Hold cable/hardware assembly stationary and rotate body when tightening.)

### Cable Trim Dimensions

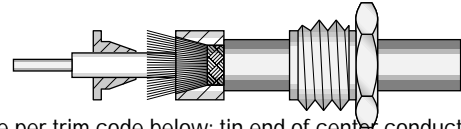


CONNECTOR TYPE	A	B	C
STRAIGHT CONNECTORS	.100	.100	.230
RIGHT ANGLE CONNECTORS	.100	.275	.400

### Right Angle Connectors—Flexible Cable

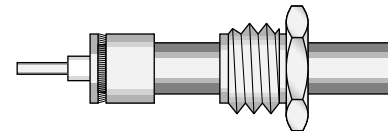


**1**



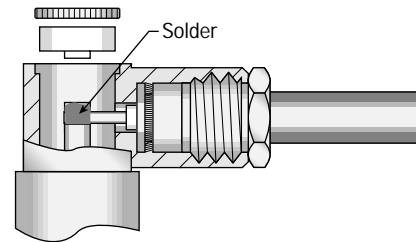
- Trim cable per trim code below; tin end of center conductor.
- Slide backnut onto cable. Slide compression washer onto cable in the orientation shown until it stops against cable jacket.
- Flare cable braid by rotating dielectric and slide ferrule under braid.

**2**



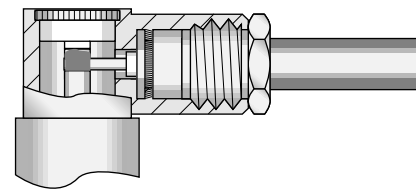
- Press ferrule against compression washer.
- Trim excess braid flush with outer diameter of compression washer and ferrule.
- Assemble insulator over cable center conductor and dielectric.

**3**



- Insert cable assembly into body assembly. Tighten to 140–150 inch-ounces torque. (Hold cable/hardware assembly stationary and rotate body when tightening.)
- Solder center conductor into notch in rear of contact with .025–.032" diameter chisel-tip soldering iron.
- Solder should cover center conductor, but not extend over top of notch in contact, or exceed contact diameter.

**4**



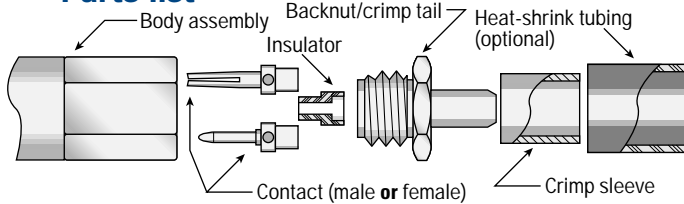
- Place insulator in body cavity, and press cap into place. Properly assembled cap will be slightly below end of body assembly.

# Cable Assembly Instructions

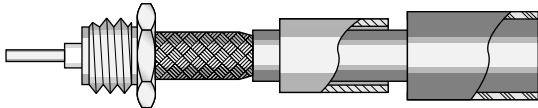
## Crimp type connectors for flexible cable

### Straight Connectors—Captive Contact

#### Parts list

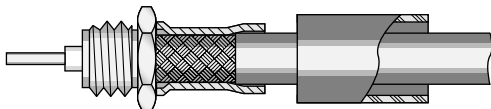


**1**



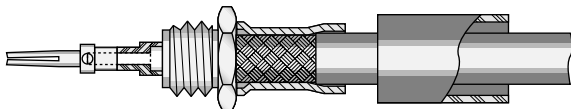
- Trim cable per trim code below; tin end of center conductor.
- Slide heat-shrink tubing and crimp sleeve over cable.
- Flare cable braid by rotating dielectric and slide cable into crimp tail.

**2**



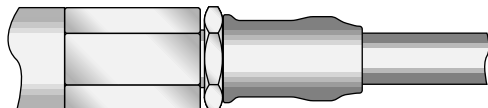
- Position cable so braid touches rear of back nut.
- Slide crimp sleeve forward to touch rear of back nut.
- Crimp braid with appropriate die size from chart below.

**3**



- Assemble insulator and contact onto cable dielectric and center conductor.
- Solder contact to center conductor by heating rear of contact (do not feed additional solder through inspection hole in contact).

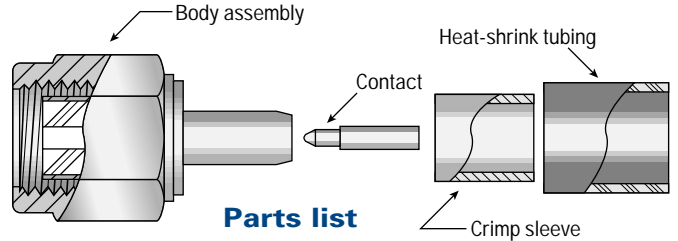
**4**



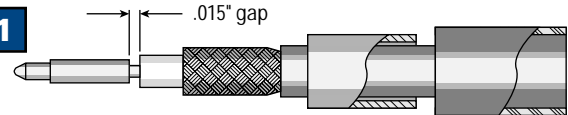
- Insert cable assembly into body assembly. Tighten to 140–150 inch-ounces torque. (Hold cable/hardware assembly stationary and rotate body when tightening.)
- Slide shrink tubing over crimp sleeve and shrink to fit.

### Straight Connectors—Non-captive Contact

#### Parts list

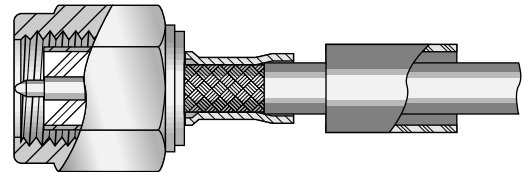


**1**



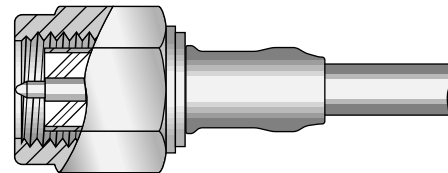
- Trim cable per trim code below; tin end of center conductor.
- Slide heat-shrink tubing and crimp sleeve over cable.
- Assemble contact onto center conductor, shim to maintain .015" gap between rear of contact and cable dielectric.
- Solder contact to center conductor by heating rear of contact (do not feed additional solder through inspection hole in contact).

**2**



- Flare cable braid by rotating dielectric and slide cable into tail of body assembly.
- Position cable so braid touches rear step of body assembly.
- Slide crimp sleeve forward to touch rear of body assembly.
- Crimp braid with appropriate die size from chart below.

**3**

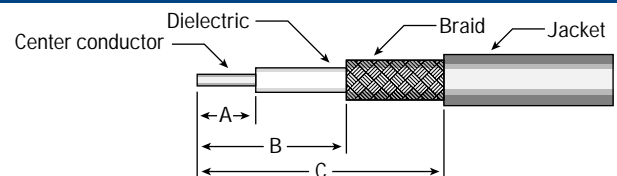


- Slide shrink tubing over crimp sleeve and shrink to fit.

### Crimp Die Sizes

CABLE GROUP	HEX DIE SIZE
01	.213
02	.128
03	.128
04	.156
05	.128
06	.213
19	.156

### Cable Trim Dimensions

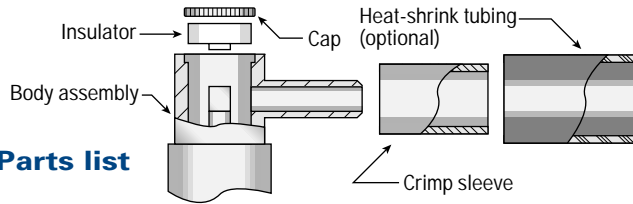


CONNECTOR TYPE	A	B	C
Captive contact	.100	.470	.720
Non-captive contact	.100	.160	.390

# Cable Assembly Instructions

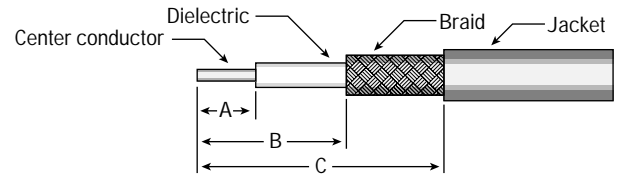
## Crimp type connectors for flexible cable

### Right Angle Connectors—Flexible Cable



#### Parts list

### Cable Trim Dimensions

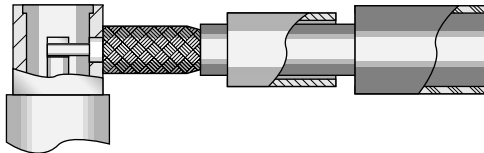


CONNECTOR TYPE	A	B	C
RIGHT ANGLE CONNECTORS	.100	.230	.500

### Crimp Die Sizes

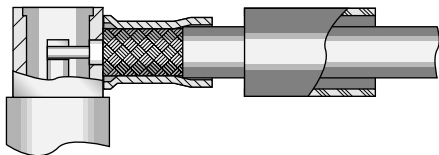
CABLE GROUP	HEX DIE SIZE
01	.213
02	.128
03	.128
04	.156
05	.128
06	.213
19	.156

1



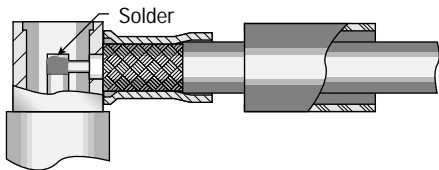
- Trim cable per trim code below; tin end of center conductor.
- Slide heat-shrink tubing and crimp sleeve over cable.
- Flare cable braid by rotating dielectric and slide cable into crimp tail.

2



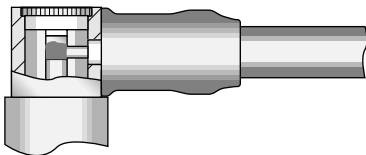
- Position cable so braid touches rear of body assembly.
- Slide crimp sleeve forward to touch rear of body assembly.
- Crimp braid with appropriate die size from chart below.

3



- Solder center conductor into notch in rear of contact with .025–.032" diameter chisel-tip soldering iron.
- Solder should cover center conductor, but not extend over top of notch in contact, or exceed contact diameter.

4



- Place insulator in body cavity, and press cap into place. Properly assembled cap will be slightly below end of body assembly.
- Slide shrink tubing over crimp sleeve and shrink to fit.

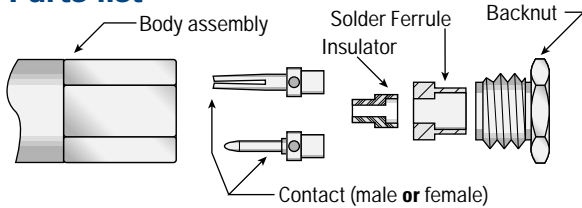


# Cable Assembly Instructions

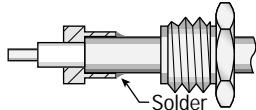
## Solder-clamp connectors for semi-rigid cable

### Straight Connectors—Semi-Rigid Cable

#### Parts list

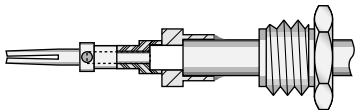


**1**



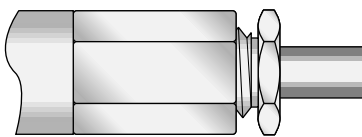
- Trim cable per trim code below; tin end of center conductor.
- Slide backnut over cable. Slide solder ferrule over cable until it stops against cable jacket.
- Solder cable jacket to ferrule.

**2**



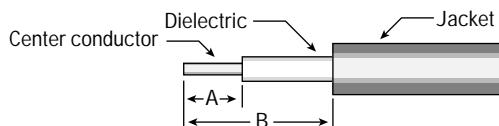
- Assemble insulator and contact onto cable dielectric and center conductor. If insulator is not flush against solder ferrule due to dielectric extrusion, retrim dielectric.
- Solder contact to center conductor by heating rear of contact (do not feed additional solder through inspection hole in contact).

**3**



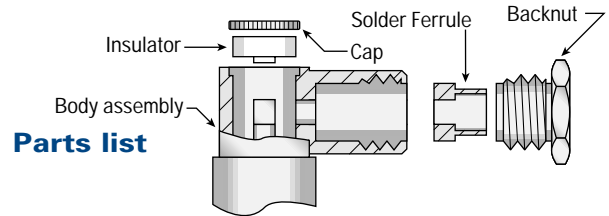
- Insert cable assembly into body assembly. Tighten to 90–100 inch-ounces torque. (Hold cable/hardware assembly stationary and rotate body when tightening.)

### Cable Trim Dimensions

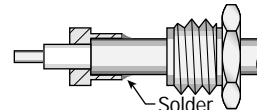


CONNECTOR TYPE	A	B
Straight connectors	.100	.135
Right angle connectors— <b>.085"</b> cable	.080	.170
Right angle connectors— <b>.141"</b> cable	.125	.290

### Right Angle Connectors—Semi-Rigid Cable

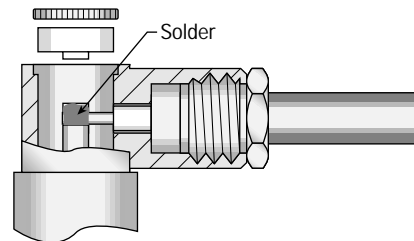


**1**



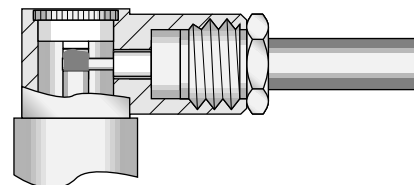
- Trim cable per trim code below; tin end of center conductor.
- Slide backnut over cable. Slide solder ferrule over cable until it stops against cable jacket.
- Solder cable jacket to ferrule.

**2**



- Insert cable assembly into body assembly. Tighten to 90–100 inch-ounces torque. (Hold cable/hardware assembly stationary and rotate body when tightening.)
- Solder center conductor into notch in rear of contact with .025–.032" diameter chisel-tip soldering iron.
- Solder should cover center conductor, but not extend over top of notch in contact, or exceed contact diameter.

**3**



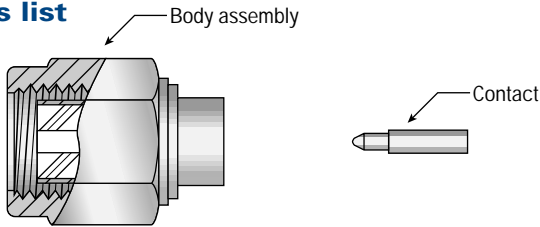
- Place insulator in body cavity, and press cap into place. Properly assembled cap will be slightly below end of body assembly.

# Cable Assembly Instructions

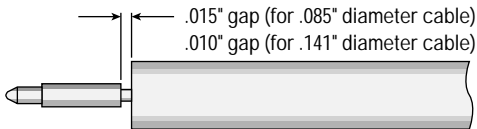
## Direct solder connectors for semi-rigid cable

### Straight Connectors—Non-captive Contact

#### Parts list

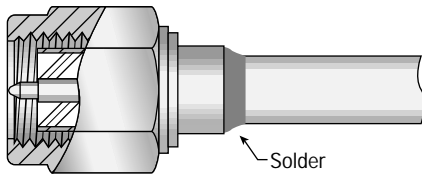


**1**



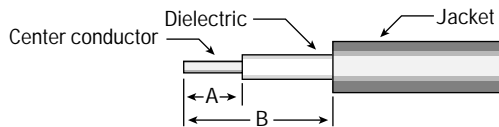
- Trim cable per trim code below; tin end of center conductor.
- Shim to maintain proper gap between rear of contact and cable dielectric.
- Solder contact to center conductor by heating rear of contact (do not feed additional solder through inspection hole in contact).

**2**



- Slide cable into connector until it stops.
- Solder cable jacket to connector body.

### Cable Trim Dimensions

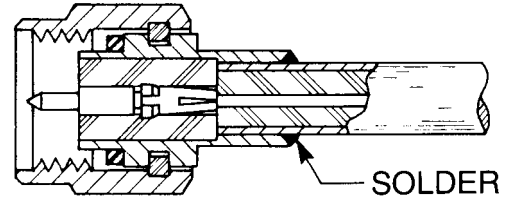


CONNECTOR TYPE	A	B
Straight connectors	.090	.090
Right angle connectors	.080	.170

### Straight Connectors—Captive Contact

**1**

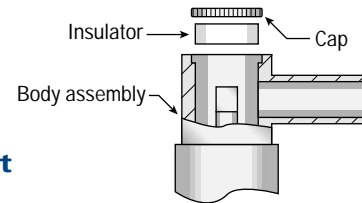
- Trim cable per trim code below; chamfer end of center conductor 70–90°.



**2**

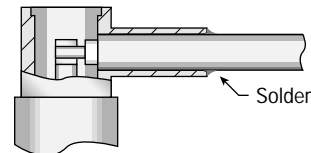
- Insert cable into body assembly until it stops.
- Solder cable jacket to connector body.

### Right Angle Connectors



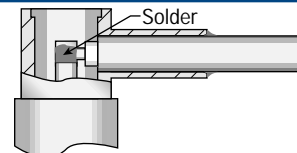
#### Parts list

**1**



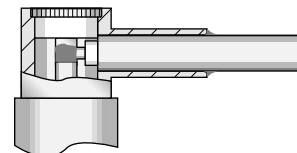
- Trim cable per trim code below; tin end of center conductor.
- Insert trimmed cable into body until jacket bottoms on step inside body and center conductor is in contact slot.
- Solder cable jacket to body assembly.

**2**



- Solder center conductor into notch in rear of contact with .025–.032" diameter chisel-tip soldering iron.
- Solder should cover center conductor, but not extend over top of notch in contact, or exceed contact diameter.

**3**



- Place insulator in body cavity, and press cap into place. Properly assembled cap will be slightly below end of body assembly.

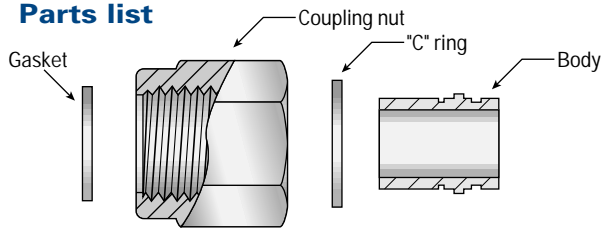


# Cable Assembly Instructions

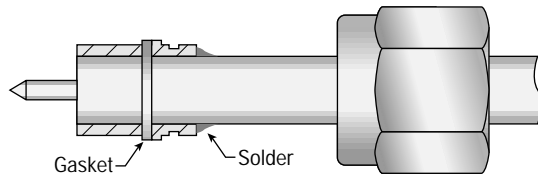
## Direct solder connectors for semi-rigid cable

### P/N 9301-1063-009

#### Parts list

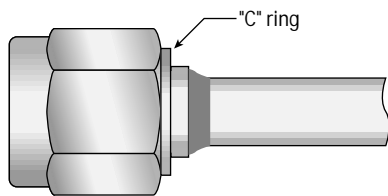


**1**



- Trim cable per trim code below; point end of center conductor to 45° as shown.
- Slide backnut over cable. Slide body over cable until trimmed end of cable is flush with front of body.
- Solder cable jacket to body. Retrim cable dielectric flush with body if it has extruded due to heat from soldering.
- Assemble gasket into groove on body.

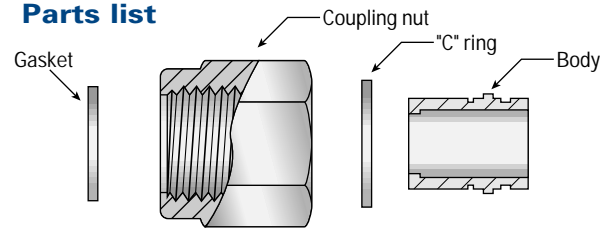
**2**



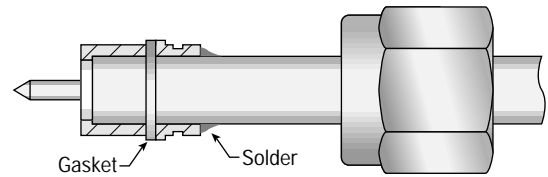
- Slide coupling nut forward until it stops and assemble "C" ring into groove.

### P/N 9301-1063-109

#### Parts list

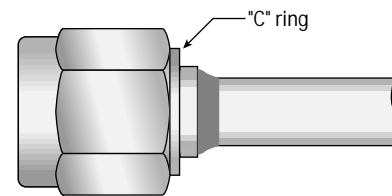


**1**



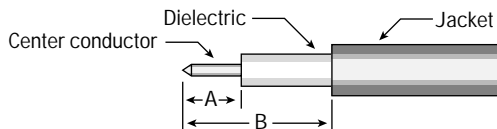
- Trim cable per trim code below; point end of center conductor to 45° as shown.
- Slide backnut over cable. Slide body over cable until trimmed end of cable jacket stops against step in body.
- Solder cable jacket to body. Retrim cable dielectric flush with body if it has extruded due to heat from soldering.
- Assemble gasket into groove on body.

**2**



- Slide coupling nut forward until it stops and assemble "C" ring into groove.

### Cable Trim Dimensions

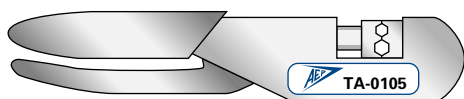


CONNECTOR TYPE	A	B
9301-1063-009	.090	.090
9301-1063-109	.090	.180



# Assembly Tooling

## Crimp tools



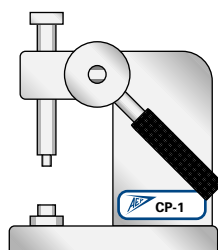
DESCRIPTION	AEP P/N
Crimp tool with .128" and .213" hex dies	TA-0007
Crimp tool with .156" hex die	TA-0071
Crimp tool with .105" and .128" hex dies	TA-0105
Crimp tool with .255" and .068" hex dies	TA-0190
Crimp tool with .255" hex die	TA-0234

## Torque Wrench



DESCRIPTION	AEP P/N
Torque wrench with 5/16" jaw for SMA coupling nuts; 8 inch-pounds torque	TA-0397

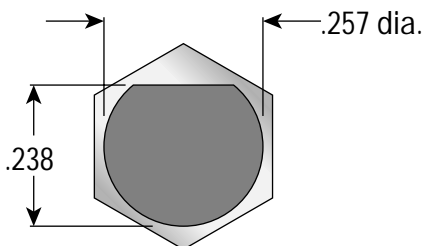
## Capping Press



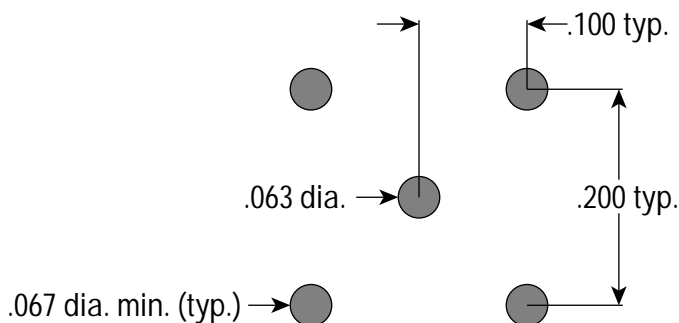
DESCRIPTION	AEP P/N
Capping tool (arbor press) with base for SMA right angle plugs	Contact Factory
Capping tool (arbor press) with base for SMA right angle jacks	Contact Factory

# Mounting Dimensions

## Bulkhead Receptacles



## P.C. Board Receptacles



# Index by Part Number

<b>P/N</b>	<b>Page</b>	<b>P/N</b>	<b>Page</b>	<b>P/N</b>	<b>Page</b>
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5903-9503-000	48	9031-1033-0XX	15	9102-9573-0XX	11
5905-1503-000	48	9031-9023-0XX	15	9104-1113-000	18
5905-9503-000	48	9033-1113-000	28	9104-1213-000	18
5909-1103-000	46	9033-1213-000	28	9104-9113-000	18
5909-9103-000	46	9033-9113-000	28	9104-9213-000	18
5916-1103-603	46	9033-9213-000	28	9107-1113-000	18
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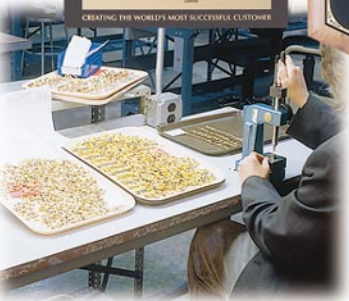


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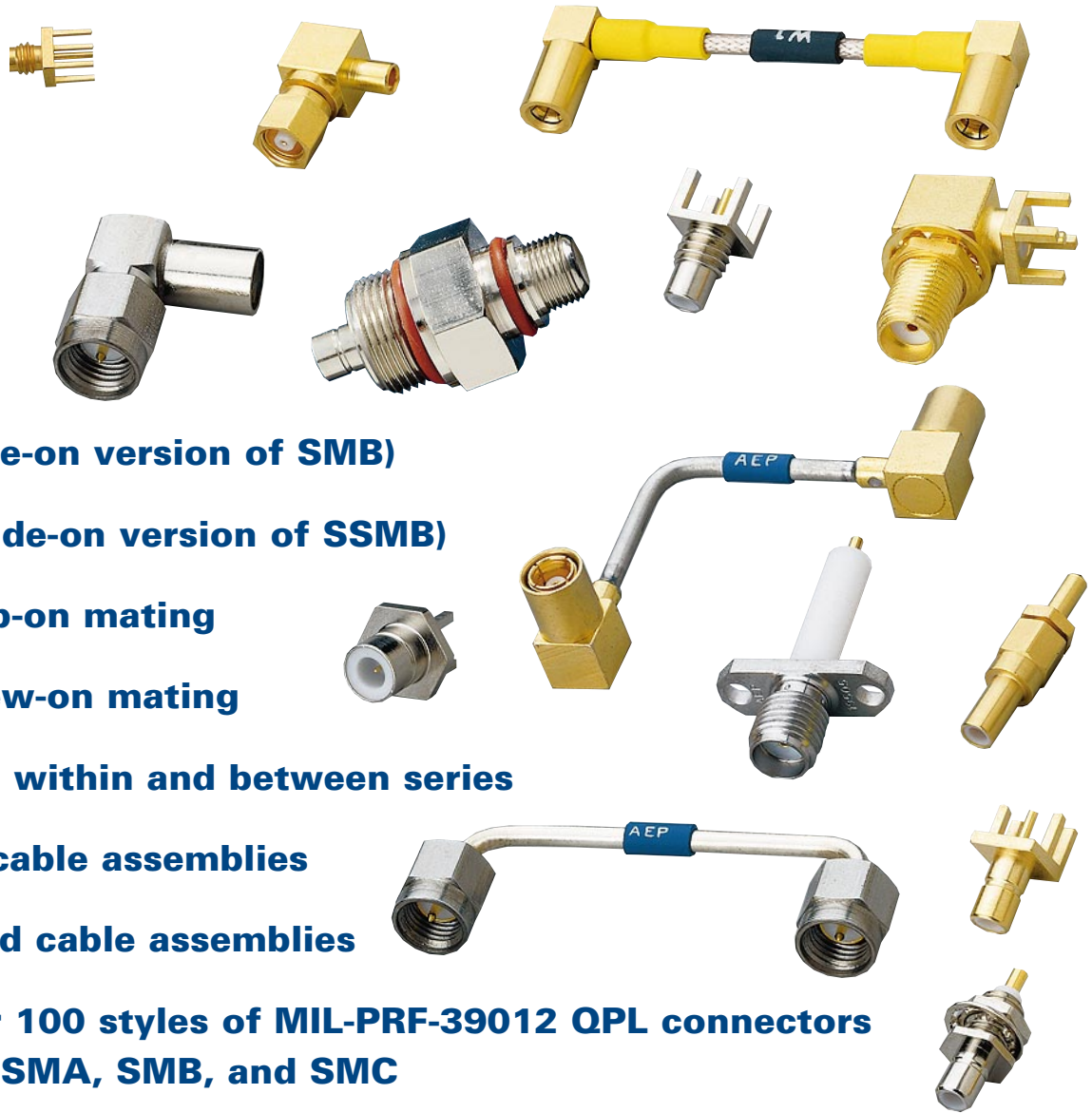
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