Type SMP Connectors

Product Catalog

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JOHNSON® a cinch connectivity solutions brand

Cinch Connectivity Solutions
299 Johnson Avenue SW, Suite 100
Waseca, MN 56093 USA

+1 507.833.8822
cinchconnectivity.com

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doc rev number

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INTRODUCTION

SMP Blind-Mate Connectors

Johnson® line of **SMP Blind-Mate Connectors** offers our customers a Micro-Miniature, Slide-On/Snap-On Interconnect System that aid's in the design ofhigh-density packaging as well as axial and radial misalignment issues.

The **SMP** Interface offers superior performance up to 40 GHz and is compatible with all SMP and **GPO**® Connectors. They offer high electrical reliability where extreme shock and vibration condition's are experienced.

Applications (Military and Commercial)

- Phased Arrays
- Active Antennas
- Satellites
- Communication
- Airborne Radar
- Shipborne Radar Equipment
- Ground Radar
- Hi-Density Modular Packaging
- Axial/Radial Misalignment Solutions

Markets

- Aerospace
- Broadband
- Instrumentation
- Telecom
- Defense
- Microwave

TransmissionOptions

- Box-to-Box
- Cable-to-Board
- Board-to-Board
- Cable-to-Panel-to-Board

*GPO® is a registeredtrademark of Corning Gilbert.

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INTRODUCTION

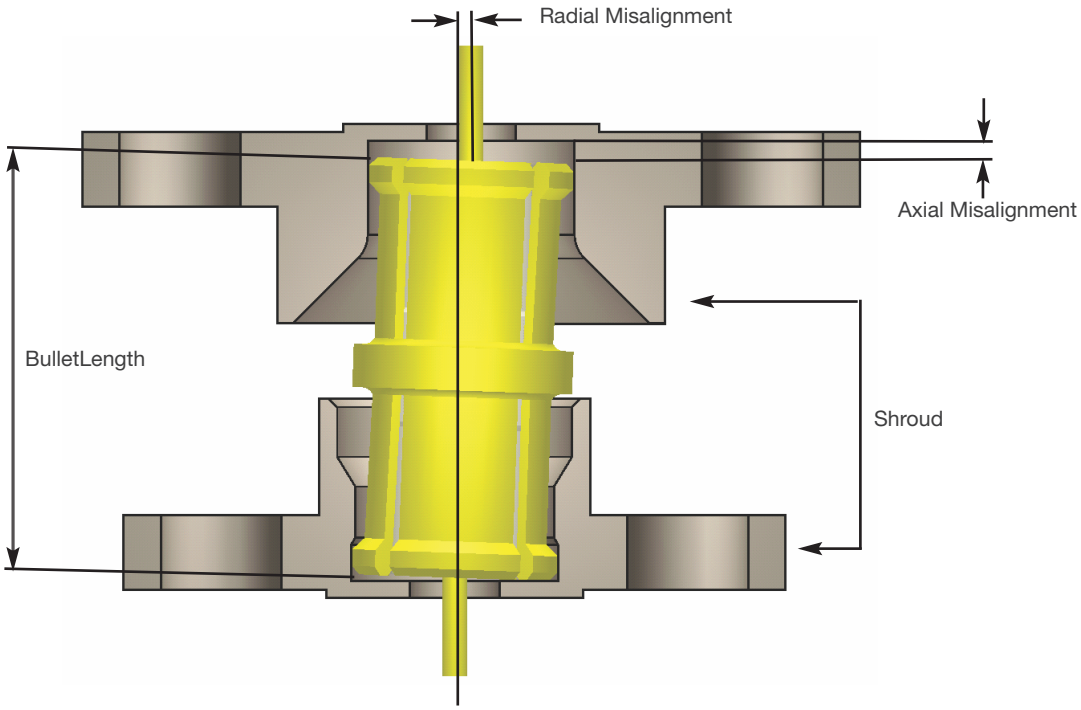
Description

One of the key benefits of the SMP connector interface is its use in high frequency blind-mate applications. The design of the SMP bullet and shroud system allows for both axial and radial misalignment. The basic system is comprised of an inner “bullet” adapter, and two outer receptacles called “shrouds”. The bullet provides a flexible link between the shroud connections.

In blind-mate applications, one shroud connector will be typically specified as a snap-on interface and the other as a slide-on. This ensures that the bullet adapter remains fixed in the same shroud connector when the connection is disengaged.

The two snap-on interfaces Full Detent (FD) andLimited Detent (LD) each have different engage and disengage coupling forces. TheLD is typically selected as the snap-on interface in PCB mount or blind-mate applications, while the FD is mainly used for cabled connections where higher retention forces are required.

The two slide-on interfaces Smooth Bore (SM) and Catcher’s Mit (CM) allow for reduced connection forces as compared to the snap-on versions. The push-on interface creates a sliding connection that does not physically locate the mating reference planes, allowing for axial and radial misalignment. Both the SM and CM have the same engage/disengage forces; however the CM is typically specified as the shroud configuration in blind-mate applications as its generous lead-in chamfer helps capture and guide the bullet into place.



SPECIFICATIONS

ELECTRICAL SPECIFICATIONS

Impedance: 50 Ohms

Frequency Range:

Bullet Adapter (.254 length), Semi-Rigid Straight Cabled Connectors ..... 0-40 GHz
All other In-Series Adapters, Semi-Rigid Right Angle Cabled Connectors,
Field Replaceable Connectors, EndLaunch Connectors, Hermetic Feedthroughs ..... 0-18 GHz
PC Mount Connectors..... 0-12 GHz

VSWR: (maximum)

Bullet Adapter (.254 length).....	0-18 GHz 1.10	18-23 GHz 1.15	23-26.5 GHz 1.30	26.5-40 GHz 1.70
Semi-Rigid Straight Cabled Connectors.....	0-18 GHz 20	18-26.5 GHz 1.35	26.5-40 GHz 1.70	
All other In-Series Adapters	0-4 GHz 1.10	4-12 GHz 1.15	12-18 GHz 1.20	
Semi-Rigid Right Angle Cabled Connectors.....	0-18 GHz 1.20			
Field Replaceable Connectors (typical, measured back to back with seal pin.....	0-18 GHz			
Un-cabled Connectors (dependant on application).....	Not Applicable 1.15			

Insertion Loss: (dB maximum, tested at 10 GHz)

In-Series Adapters, Field Replaceable Connectors	0.10 √ F (GHz)
Semi-Rigid Cabled Connectors	0.12 √ F (GHz)
All other Un-cabled Connector	Not Applicable

Working Voltage: 335 Vrms maximum at sea level, 65 Vrms maximum at 70,000 feet
Dielectric Withstanding: Voltage: 500 Vrms minimum at sea level
RF High Potential Withstanding Voltage: 325 Vrms minimum at sea level, tested at 4 and 7 MHz
Corona Level: 190 Vrms minimum at 70,000 feet

Contact Resistance: (milliohms maximum initial, not applicable after environmental testing)

Center Contact (Connectors and Adapters)	6.0
Outer Contact (Connectors and Adapters)	2.0
Cable Shield to Body (Semi-Rigid Cabled Connectors Only)	0.5

Insulation Resistance: 5000 megohms minimum

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

Cabled and Field Replaceable Connectors	-80
In-Series Adapters	-65
All other Un-cabled Connectors	Not Applicable

SPECIFICATIONS

MECHANICAL SPECIFICATIONS

Interface Design: MIL-STD-348A, Series SMP

Engagement Force: (pounds maximum, mated pair)

- Full Detent (FD)..... 15.0
- Limited Detent (LD) 10.0
- Smooth Bore and Catcher's Mit (SM and CM)..... 2.0

Disengagement Force: (pounds minimum, mated pair)

- Full Detent (FD)..... 5.0
- Limited Detent (LD) 2.0
- Smooth Bore and Catcher's Mit (SM and CM)..... 0.5

Mated Radial Misalignment: (inches maximum allowed, female adapters only)

- Between Centerlines of Mating Planes (FD,LD, SM) 010
- Between Centerlines of Mating Planes (CM only)..... 020

Mated Axial Misalignment: .010 inches maximum allowed between mating planes (female adapters only)

Durability: (mating cycles minimum)

- Full Detent (all female connectors and adapters)..... 100
- Limited Detent (female adapters only) 500
- Smooth Bore and Catcher's Mit (female adapters only) 1000

Contact Retention: 1.5 pounds minimum axial force (captivated contacts only)

Cable Retention: (minimum)

	Axial Force* (lbs)	Torque (in-oz)
Cabled Connectors for RG-405 (.086 Semi-Rigid)	30	16.0
Cabled Connectors for M17/151 (.047 Semi-Rigid)	20	N/A

*Or cable breaking strength, whichever is less

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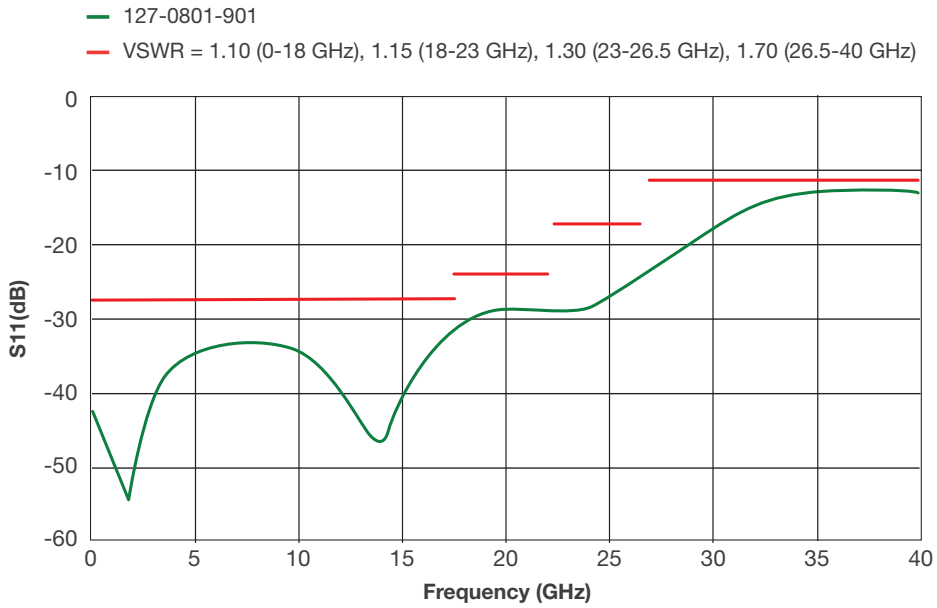
TypicalMeasured Return Loss
Bullet Adapter 127-0901-801



SPECIFICATIONS

ENVIRONMENTAL SPECIFICATIONS

(Meets or Exceeds the Applicable Paragraph of MIL-PRF-39012)

Operating Temperature: -65°C to +165°C

Thermal Shock: MIL-STD-202, Method 107, Condition B (except high temp +165°C or max high temp of cable)

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

Shock (specified pulse): MIL-STD-202, Method 213, Condition I

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

Moisture Resistance: MIL-STD-202, Method 106 (except step 7b omitted)

MATERIAL SPECIFICATIONS

Spring Finger (female) and End Launch (male) Bodies: Beryllium Copper per ASTM B196, Gold* plated per MIL-DTL-45204 (.00005" min)

Hermetic Seal Bodies (male): Kovar Alloy per ASTM F15, Gold* plated per MIL-DTL-45204 (.00005" min)

All other Shroud Bodies (male): Stainless Steel, Type 303, per ASTM A582, Passivated per MIL-DTL-14072 (EL 300)

Connector and Adapter Contacts (male and female): Beryllium Copper per ASTM B196, Gold* plated per MIL-DTL-45204 (.00005" min)

Hermetic Seal Center Pins: Kovar Alloy per ASTM F15, Gold* plated per MIL-DTL-45204 (.00005" min)

EMI/Anti-Rock Rings: Beryllium Copper per ASTM B196, Gold* plated per MIL-DTL-45204 (.00003" min)

PC Mount Legs: Brass per ASTM B16, Gold* plated per MIL-DTL-45204 (.00003" min)

Connector and Adapter Insulators: PTFE per ASTM D1710

Hermetic Seal Glass: Corning 7070

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

MOUNTING HOLES

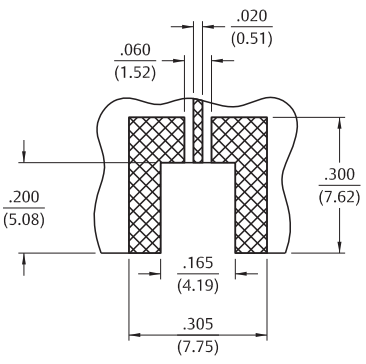


Fig 1

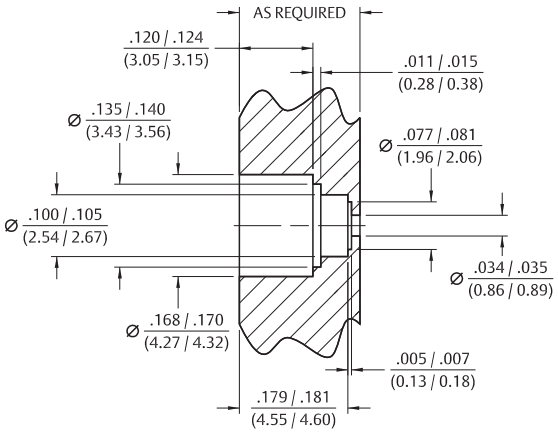


Fig 2

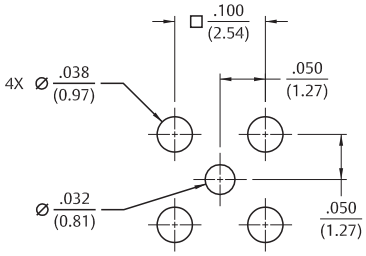
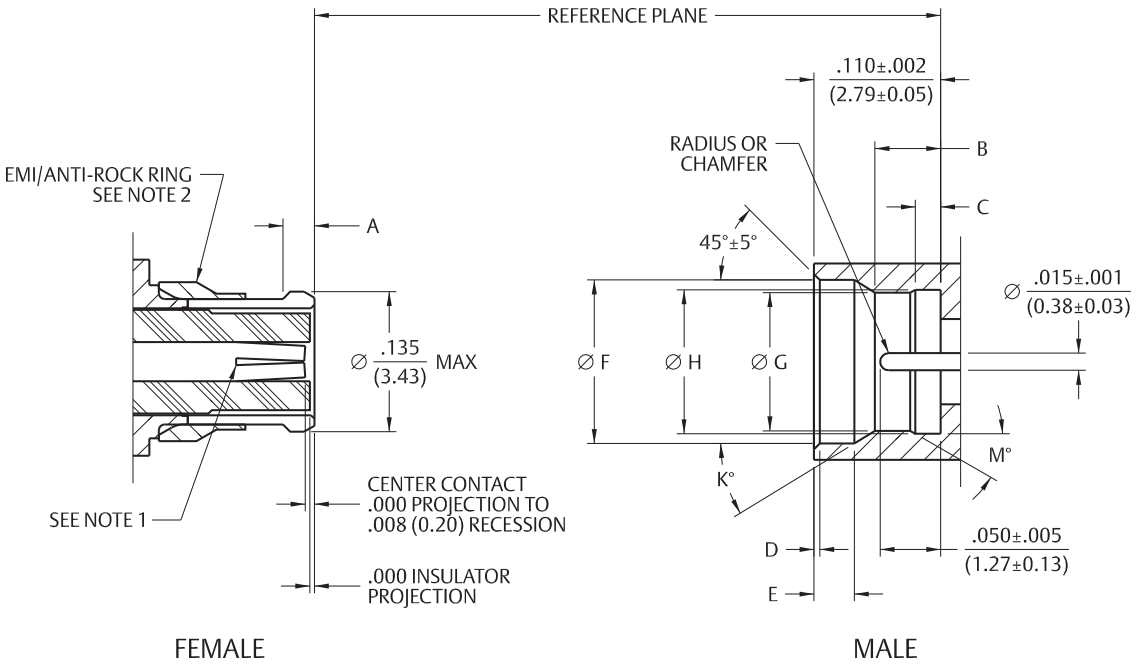


Fig 3

This pattern is for reference only. Pattern will vary depending on board type and specific electrical and mechanical requirements.

Mating Engagement for SMP Series perMIL-STD-348A



Notes:

1. Socket to accept mating pin Ø.015±.001 (0.38±0.03).
2. EMI/Anti-Rock Ring configuration optional, used on cabled connectors only. Shall not prevent proper mating engagement.
3. All dimensions shown in inches. Metric equivalents (rounded to nearest 0.01mm) are given for general information only.

SMP Female Connector Interface

Dimension	Cabled		Uncabled	
	Minimum	Maximum	Minimum	Maximum
A	.025 (0.64)	.035 (0.89)	.018 (0.46)	.025 (0.64)

SMP Male Connector Interface

Dimension	Full Detent		Limited Detent		Smooth Bore		Catcher's Mit	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
B	.051 (1.30)	.057 (1.45)	.054 (1.37)	.060 (1.52)	.059 (1.50)	.065 (1.65)	N/A	N/A
C	.0205 (0.52)	.0235 (0.60)	.0205 (0.52)	.0235 (0.60)	N/A	N/A	N/A	N/A
D	.003 (0.08)	.008 (0.20)	.003 (0.08)	.008 (0.20)	.003 (0.08)	.008 (0.20)	.043 (1.09)	.047 (1.19)
E	.033 (0.84)	.037 (0.94)	.033 (0.84)	.037 (0.94)	.033 (0.84)	.037 (0.94)	N/A	N/A
F	.139 (3.53)	.145 (3.68)	.139 (3.53)	.145 (3.68)	.139 (3.53)	.145 (3.68)	.123 (3.12)	.127 (3.23)
G	.114 (2.90)	.118 (3.00)	.118 (3.00)	.122 (3.10)	.123 (3.12)	.127 (3.23)	N/A	N/A
H	.124 (3.15)	.126 (3.20)	.124 (3.15)	.126 (3.20)	N/A	N/A	N/A	N/A
K	35° REF	35° REF	35° REF	35° REF	35° REF	35° REF	N/A	N/A
M	30° REF	30° REF	30° REF	30° REF	N/A	N/A	N/A	N/A

APPLICATION

Straight Solder Type Cabled Female

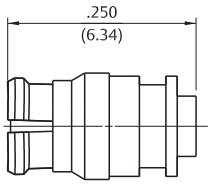


Fig 1

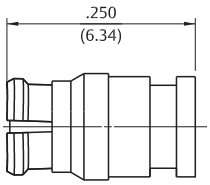
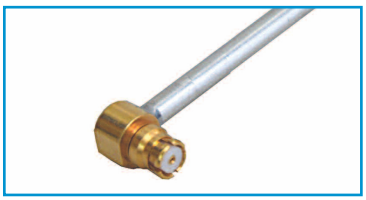


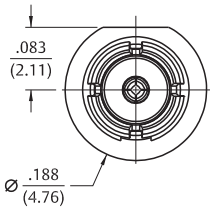
Fig 2

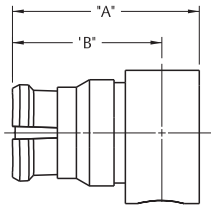
Cable Type	VSWR & Freq. Range*	Gold Plated	Figure
M17/151, .047 Semi-Rigid	1.20 Max 0-18 GHz, 1.35 Max 18-26.5 GHz, 1.70 Max 26.5-40 GHz	127-0692-001	1
RG-405, .086 Semi-Rigid	1.20 Max 0-18 GHz, 1.35 Max 18-26.5 GHz, 1.70 Max 26.5-40 GHz	127-0693-001	2

* Specifications dependant on cable ratings

Right Angle Solder Type Cabled Female

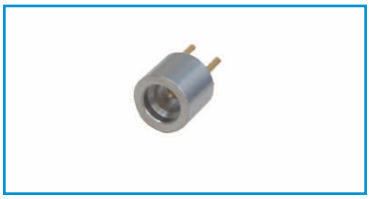


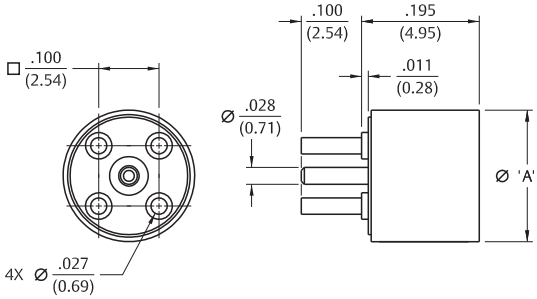




Cable Type	VSWR & Freq. Range	Gold Plated	"A"	"B"
M17/151, .047 Semi-Rigid	1.20 Max 0-18 GHz	127-0692-101	.248 (6.30)	.197 (5.00)
RG-405, .086 Semi-Rigid	1.20 Max 0-18 GHz	127-0693-101	.271 (6.88)	.209 (5.31)

Straight PCMountMale Receptacle





Interface	Freq. Range	Passivated*	"A"
Full Detent	0-12 GHz	127-0701-201	.218 (5.54)
Limited Detent	0-12 GHz	127-1701-201	.218 (5.54)
Smooth Bore	0-12 GHz	127-2701-201	.218 (5.54)
Catcher's Mit	0-12 GHz	127-3701-201	.234 (5.94)

* Base and legs Gold plated brass

Mounting hole layout figure 3 on page 7.

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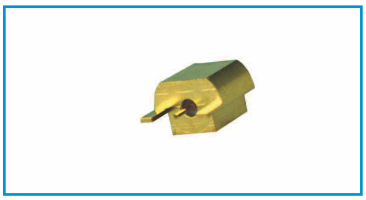
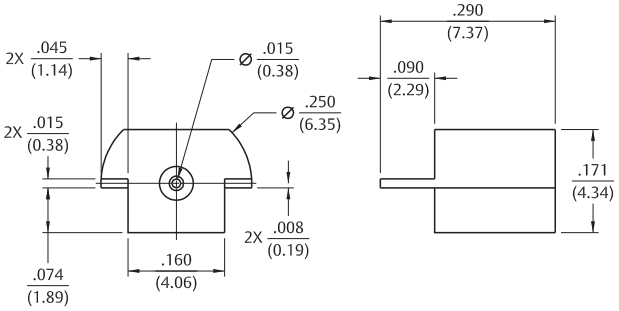
APPLICATION

End Launch Male Receptacle – Surface Mount

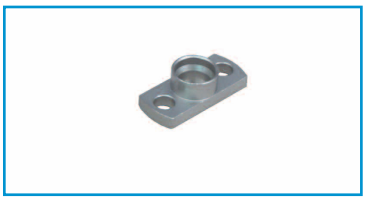


Interface	Freq. Range	Gold Plated	Figure
Full Detent	0-18 GHz	127-0701-801	Stock
Full Detent	0-18 GHz	127-0701-802	Tape and Reel -1000 pieces
Limited Detent	0-18 GHz	127-1701-801	Stock
Limited Detent	0-18 GHz	127-1701-802	Tape and Reel -1000 pieces
Smooth Bore	0-18 GHz	127-2701-801	Stock
Smooth Bore	0-18 GHz	127-2701-802	Tape and Reel -1000 pieces

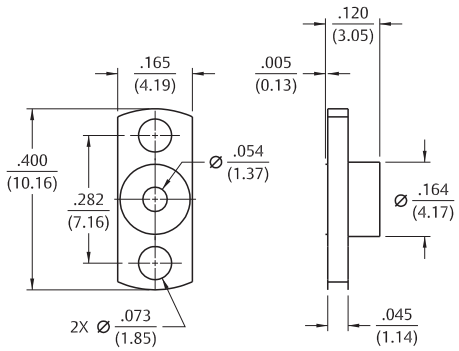


Mounting hole layout figure 1 on page 7.

2-Hole Flange Mount Male Shroud - Without Contact

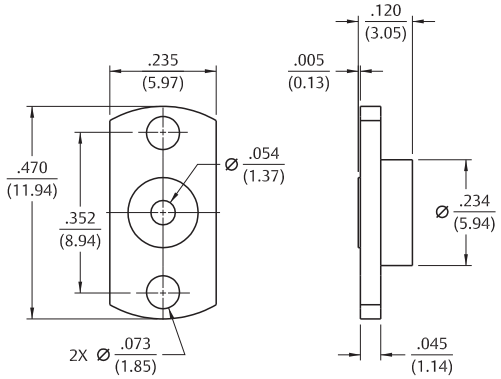


Interface	Passivated
Full Detent	127-0701-602
Limited Detent	127-1701-602
Smooth Bore	127-2701-602



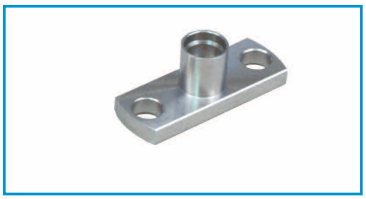
2-Hole Flange Mount Male Catcher's Mit Shroud - Without Contact

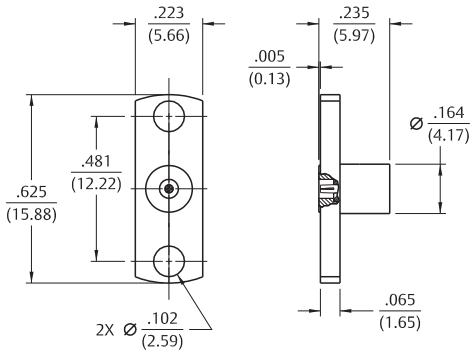
Interface	Passivated
Catcher's Mit	127-3701-602



APPLICATION

2-Hole Flange Mount Male Field Replaceable

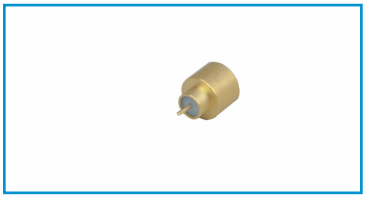


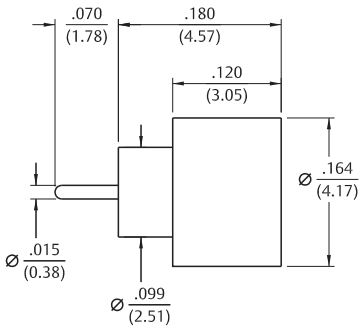


Interface	VSWR & Freq. Range*	Passivated	Accepts Pin Size
Full Detent	1.15 Typical 0-18 GHz	127-0701-612	.012 (.030)
Limited Detent	1.15 Typical 0-18 GHz	127-1701-612	.012 (.030)
Smooth Bore	1.15 Typical 0-18 GHz	127-2701-612	.012 (.030)

* Two connectorsmated back to back with hermetic seal fixture

Hermetic Seal Male

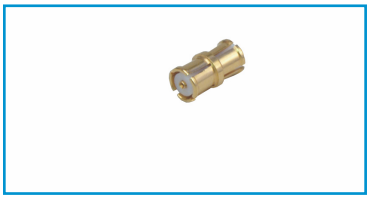


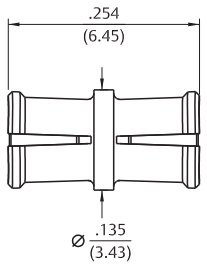


Interface	Freq. Range	Gold plated
Full Detent	0-18 GHz	127-0701-601
Limited Detent	0-18 GHz	127-1701-601
Smooth Bore	0-18 GHz	127-2701-601

Mounting hole layout figure 2 on page 7.

Female to Female Bullet Adapter





VSWR & Freq. Range	Gold plated
1.10 Max 0-18 GHz, 1.15 Max 18-23 GHz, 1.30 Max 23-26.5 GHz, 1.70 Max 26.5-40 GHz	127-0901-801

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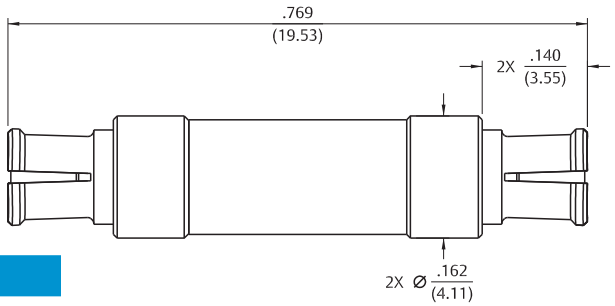
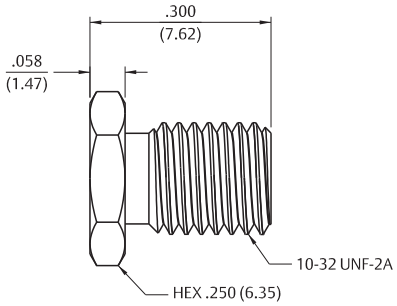
APPLICATION

Female to Female Adapter



VSWR & Freq. Range	Gold plated
1.10 Max 0-4 GHz, 1.15 Max 4-12 GHz, 1.20 Max 12-18 GHz	127-0901-811

Male to Male Catcher's Mit Adapter

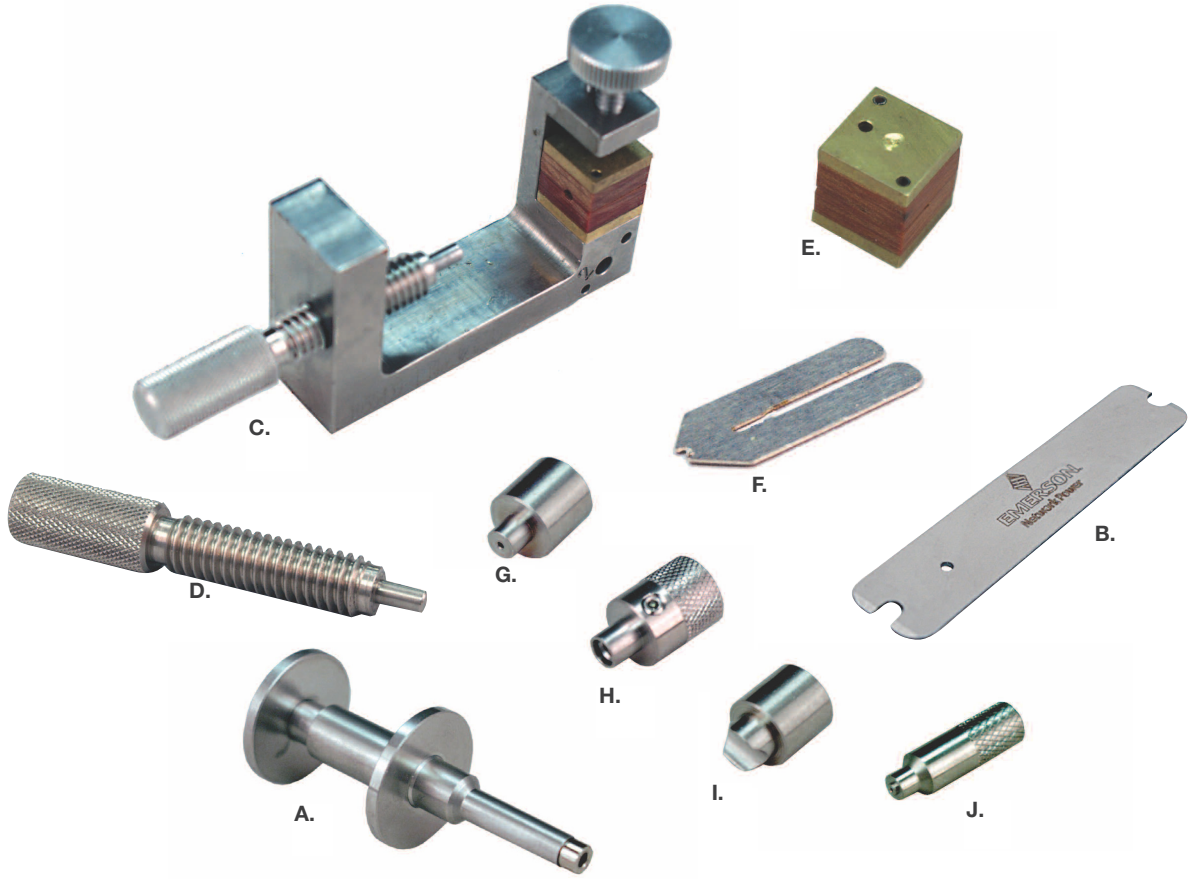


Interface	VSWR & Freq. Range	Passivated
Full Detent	1.10 Max 0-4 GHz, 1.15 Max 4-12 GHz, 1.20 Max 12-18 GHz	127-0901-821
Limited Detent	1.10 Max 0-4 GHz, 1.15 Max 4-12 GHz, 1.20 Max 12-18 GHz	127-1901-822
Smooth Bore	1.10 Max 0-4 GHz, 1.15 Max 4-12 GHz, 1.20 Max 12-18 GHz	127-2901-821

ASSEMBLY TOOLS

SMP Customer Tooling

Accurate assembly of the Semi-Rigid Cabled Connectors is obtained with the tools listed below. Industry standard devices are used if possiblefor customer convenience and tool compatibility.



Item	Description	Park Number
A	SMP Bullet Extraction Tool	127-0000-900
B	SMP Cabled Connector Removal Tool	127-0000-901
C	Soldering Vise (does not include clamp inserts or stop screw)	140-0000-962
D	Stop Screw for Soldering Vise	140-0000-981
E	Semi-Rigid Cable Clamp Inserts for .086” OD Cable Semi-Rigid Cable Clamp Inserts for .047” OD Cable	140-0000-964 140-0000-997
F	Solder Shim for .086” OD Cable	140-0000-984
G	SMP Center Contact Holder	127-0000-902
H	SMP Interface Locator Tool	127-0000-903
I	SMP Right Angle Body Holder	127-0000-904
J	SMP FD Shroud Centering Tool SMP LD Shroud Centering Tool SMP SB Shroud Centering Tool	127-0000-905 127-0000-906 127-0000-907

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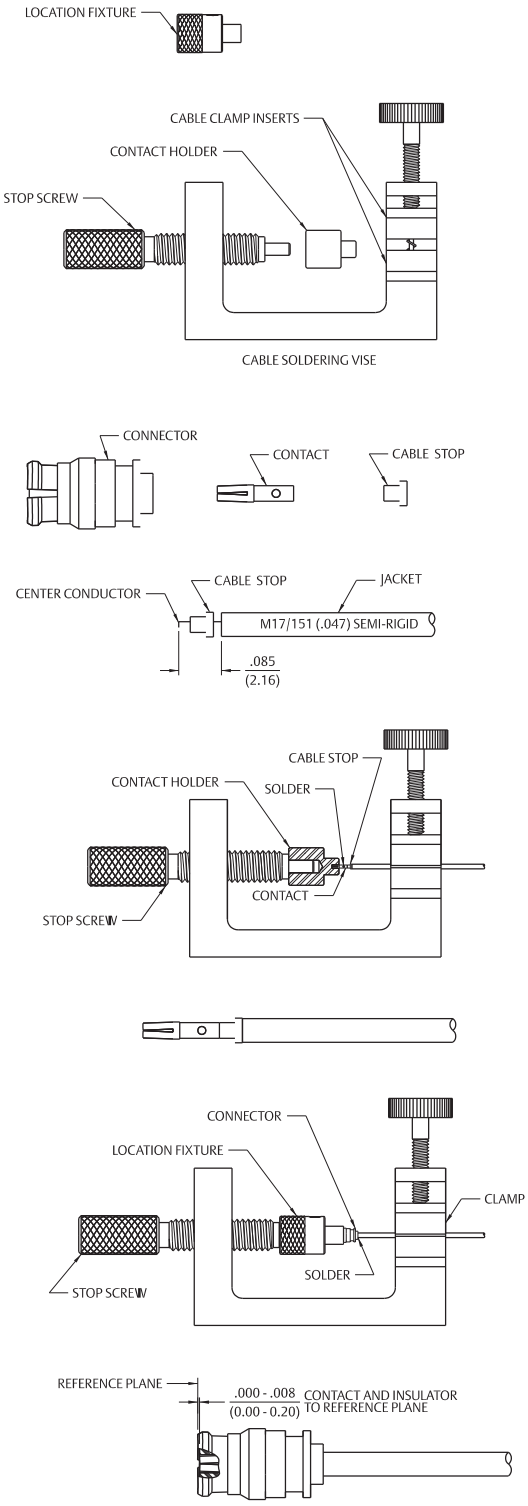
ASSEMBLY INSTRUCTIONS

SMP Straight Female Solder Style for .047 OD Semi-Rigid Cable

1. Identify tools (5 piece parts) and connector parts (3 piece parts).
2. Strip cable jacket and dielectric to dimension shown. Do not nick center conductor. Clean all debrisfrom prepared cable.
3. Insert center conductor into cable stop as shown and place contact onto center conductor.
4. Insert contact into contact holderfixture and clamp cable in vise. Tighten stop screw until light pressure is applied between con-tact, cable stop and cable jacket.
5. Solder contact to center conductor through solder hole using .016 (0.41) diameterflux core solder wire or solder paste. Use a minimum amount of solder and heatfor a good joint. Do not allow heat to build upfor a long period of time as cable stop may melt.
6. After solder joint has cooled, remove cablefrom vise. Remove any excess solderfrom contact with a sharp blade and clean all debrisfrom contact and cable.
7. Insert contact into connector assembly, making sure cable stop bottoms out against internal shoulder of connector body. Insert connector assembly into interface locationfixture and clamp cable in vise. Make sure connector assembly isfully engaged within locationfixture. Tighten stop screw until light pressure is applied between connector assembly and cable stop.
8. Solder end of connector body to cable jacket, using a minimum amount of solder and heatfor afullfillet joint. Allow assembly to cool before removing connectorfrom vise and locationfixture. Best results are obtained when contact location isflush to .004 (0.10) recessedfrom reference plane. Interface locationfixture is pre-set atfactory, but can be adjusted to control location.

Cable Group	Part Number
MIL-C-17/151, .047 Semi-Rigid	127-0692-101

Tool	Part Number
Cable Vise	140-0000-962
Stop Screw	140-0000-981
Clamp Inserts	140-0000-997
Contact Holder	127-0000-902
Interface Location Fixture	127-0000-903



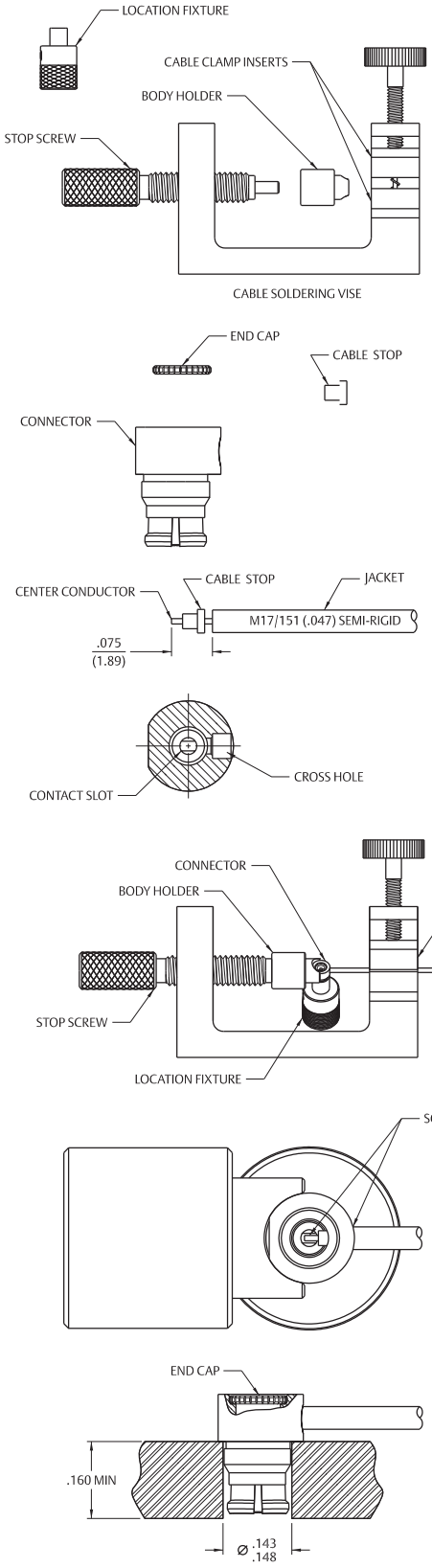
ASSEMBLY INSTRUCTIONS

SMP Right Angle Female Solder Style for .047 OD Semi-Rigid Cable

1. Identify tools (5 piece parts) and connector parts (3 piece parts).
2. Strip cable jacket and dielectric to dimension shown. Do not nick center conductor. Clean all debrisfrom prepared cable.
3. Insert center conductor into cable stop as shown. Make sure slot in connector contact is aligned with cross hole in body as shown. Insert cable into cross hole in connector body, making sure cable stop bottoms out against internal shoulder of connector body.
4. Insert connector assembly into interface locationfixture and clamp cable in vise using body holderfixture as shown. Tighten stop screw until light pressure is applied between connector body, cable stop and cable jacket.
5. Solder contact to center conductor through rear access port in connector body using a minimum amount of solder and heatfor a good joint.
6. After center conductor solder joint has cooled, solder connector body to cable jacket, using a minimum amount of solder and heat for afullfillet joint. Take care so that solder does notflow onto anti-rock ring or into rear access port. Allow assembly to cool before removing connectorfrom vise and locationfixture.
7. Using afixture plate as shown, press end cap into rear access port using a .156 (3.96) diameterflat punch untilfully seated within body counter bore.
8. Best results are obtained when contact location isflush to .004 (0.10) recessedfrom reference plane. Interface locationfixture is pre-set atfactory, but can be adjusted to control location.

Cable Group	Part Number
MIL-C-17/151, .047 Semi-Rigid	127-0692-101

Tool	Part Number
Cable Vise	140-0000-962
Stop Screw	140-0000-981
Clamp Inserts	140-0000-997
Body Holder	127-0000-904
Interface Location Fixture	127-0000-903



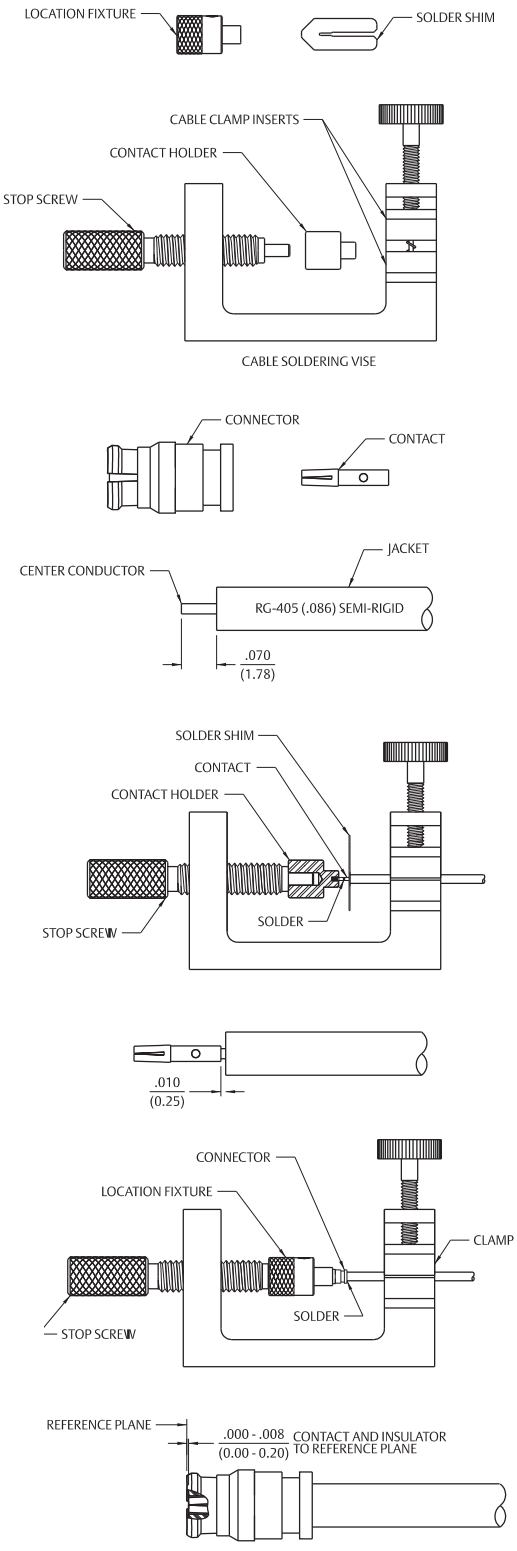
ASSEMBLY INSTRUCTIONS

SMP Straight Female Solder Style for .086 OD Semi-Rigid Cable

1. Identify tools (6 piece parts) and connector parts (2 piece parts).
2. Strip cable jacket and dielectric to dimension shown. Do not nick center conductor. Clean all debrisfrom prepared cable.
3. Place contact onto center conductor, insert solder shim between cable jacket and contact.
4. Insert contact into contact holderfixture and clamp cable in vise. Tighten stop screw until light pressure is applied between con-tact, solder shim and cable jacket.
5. Solder contact to center conductor through solder hole using .016 (0.41) diameterflux core solder wire or solder paste. Use a minimum amount of solder and heatfor a good joint. Do not allow heat to build upfor a long period of time as cable dielectric will expand.
6. After solder joint has cooled, remove solder shim and cablefrom vise. Remove any excess solderfrom contact with a sharp blade and clean all debrisfrom contact and cable.
7. Insert contact into connector assembly, making sure cable jacket bottoms out against internal shoulder of connector body. Insert connector assembly into interface locationfixture and clamp cable in vise. Make sure connector assembly isfully en-gaged within locationfixture. Tighten stop screw until light pres-sure is applied between connector assembly and cable jacket.
8. 8. Solder end of connector body to cable jacket, using a minimum amount of solder and heatfor afullfillet joint. Allow assembly to cool before removing connectorfrom vise and locationfixture. Best results are obtained when contact location isflush to .004 (0.10) recessedfrom reference plane. Interface locationfixture is pre-set atfactory, but can be adjusted to control location.

Cable Group	Part Number
RG-405, .086 Semi-Rigid	127-0693-001

Tool	Part Number
Cable Vise	140-0000-962
Stop Screw	140-0000-981
Clamp Inserts	140-0000-964
Solder Shim	140-0000-984
Contact Holder	127-0000-902
Interface Location Fixture	127-0000-903



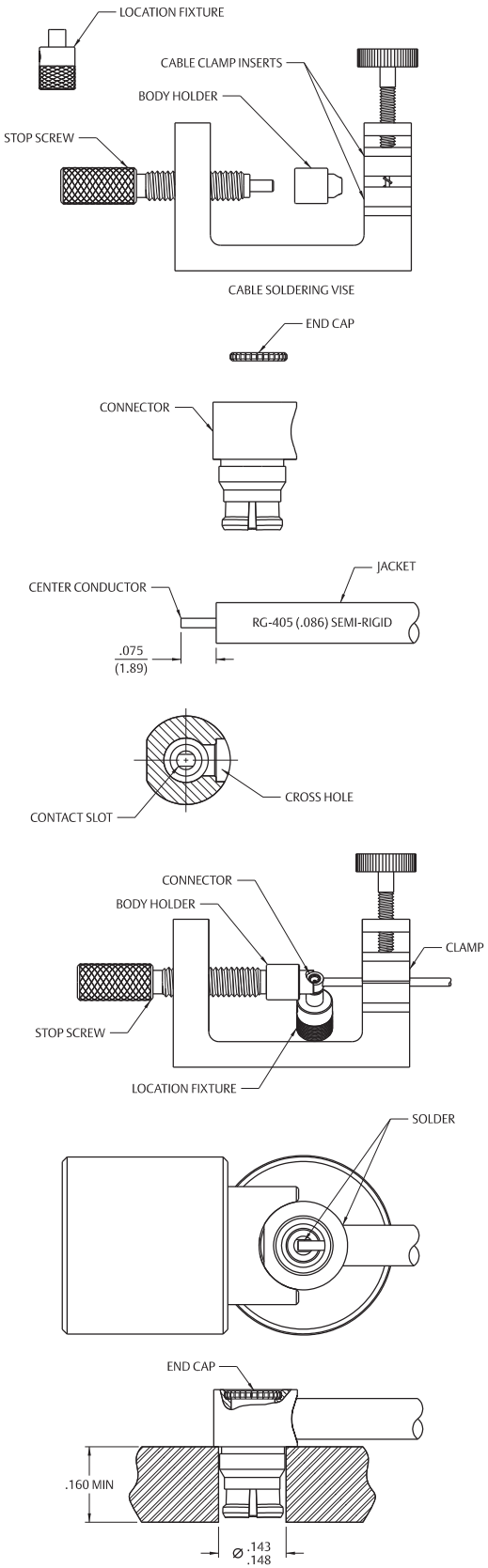
ASSEMBLY INSTRUCTIONS

SMP Right Angle Female Solder Style for .086 OD Semi-Rigid Cable

1. Identify tools (5 piece parts) and connector parts (2 piece parts).
2. Strip cable jacket and dielectric to dimension shown. Do not nick center conductor. Clean all debrisfrom prepared cable.
3. Make sure slot in connector contact is aligned with cross hole in body as shown. Insert cable into cross hole in connector body, making sure cable jacket bottoms out against internal shoulder of connector body.
4. Insert connector assembly into interface locationfixture and clamp cable in vise using body holderfixture as shown. Tighten stop screw until light pressure is applied between connector body and cable jacket.
5. Solder contact to center conductor through rear access port in connector body using a minimum amount of solder and heatfor a good joint. Do not allow solder to build up along exposed center conductor.
6. After center conductor solder joint has cooled, solder connector body to cable jacket, using a minimum amount of solder and heat for afullfillet joint. Take care so that solder does notflow onto anti-rock ring or into rear access port. Allow assembly to cool before removing connectorfrom vise and locationfixture.
7. Using afixture plate as shown, press end cap into rear access port using a .156 (3.96) diameterflat punch untilfully seated within body counter bore.
8. Best results are obtained when contact location isflush to .004 (0.10) recessedfrom reference plane. Interface locationfixture is pre-set atfactory, but can be adjusted to control location.

Cable Group	Part Number
RG-405, .086 Semi-Rigid	127-0693-101

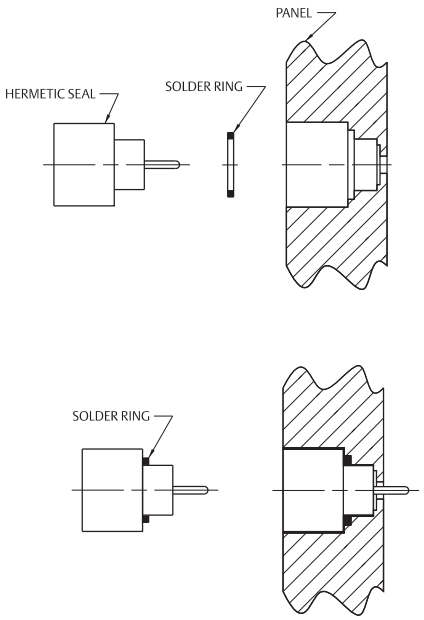
Tool	Part Number
Cable Vise	140-0000-962
Stop Screw	140-0000-981
Clamp Inserts	140-0000-964
Body Holder	127-0000-904
Interface Location Fixture	127-0000-903



ASSEMBLY INSTRUCTIONS

SMP Hermetic Seal Installation

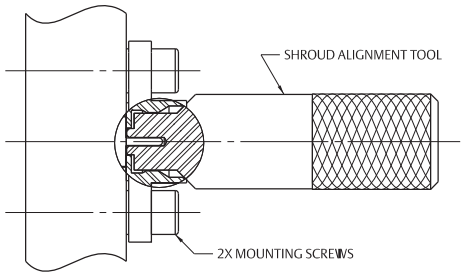
1. Prepare housing panel perfigure 2 as shown on page 7.
2. Install solder ring on hermetic seal as shown. Recommended ring size is .103 (2.62) ID x .128 (3.25) OD x .015 (0.38) Thick.
3. Solder in place as shown.



Interface	Part Number
Full Detent	127-0711-601
Limited Detent	127-1711-601
Smooth Bore	127-2711-601

SMP Shroud Installation

1. Install appropriate assembly tool into shroud as shown.
2. While holding tool in place, alignflange mount with mounting holes in panel. Installfasteners and torque to 6-8 in/lbs.



Shroud Part Number	Tool Part Number
127-0701-602	127-0000-905
127-1701-602	127-0000-906
127-2701-602	127-0000-905
127-3701-602	127-0000-905

COMPETITOR CROSS REFERENCE

Description	Johnson	Tensolite	Corning Gilbert	Micro-Mode	SV Microwave	AEP	Rosenberger
Straight FemaleM17/151 (.047 SR) Cabled	127-0692-001	P651-1CC	A014-B11-01	MMSP-6120	1203-4000	7500-1582-011	19K101-270E4
Straight Female RG 405 (.086 SR) Cabled	127-0693-001	P651-2CC	A014-D11-01	MMSP-2508	1204-4000	7500-1562-010	19K101-271E4
Right Angle FemaleM17/151 (.047 SR) Cabled	127-0692-101	P652-1CC	A015-B11-01	MMSP-6968	1213-4006	7501-1562-011	19K202-270E4
Right Angle Female RG 405 (.086 SR) Cabled	127-0693-101	P652-2CC	A015-D11-01	MMSP-2598	1214-4001	7501-1562-010	19K202-271E4
Field Replaceable .012 Socket 2 Hole Flange Male FD	127-0701-612	P836-4CCF			SF1250-6000		
Field Replaceable .012 Socket 2 Hole Flange Male LD	127-1701-612	P836-5CCF					
Field Replaceable .012 Socket 2 Hole Flange Male SB	127-2701-612	P836-6CCF					
Adapter Bullet Female/Female .254	127-0901-801	P650-1CC	A1A1-0001-01	MMSP-2500	1290-4004	5280-1502-000	19K101-K00E4
Adapter Female/Female .769	127-0901-811	P617-1CC		MMSP-3829	1290-4007	5280-1502-001	19K115-K00E4
Adapter Male CM/Male FD	127-0901-822	P912-1CCSF	A3A6-0539-01				
Adapter Male CM/Male LD	127-1901-822	P912-2CCSF					
Adapter Male CM/Male SB	127-2901-822	P912-3CCSF			SF1293-6004		
Shroud 2 Hole Flange .165 Wide x .400 High FD	127-0701-602	P670-3SF	A001-A23-04	MMSP-2514	SF1254-6006		
Shroud 2 Hole Flange .165 Wide x .400 High LD	127-1701-602	P672-3SF	A001-A24-04	MMSP-6095	SF1254-6007		
Shroud 2 Hole Flange .165 Wide x .400 High SB	127-2701-602	P673-3SF	A001-A25-04	MMSP-6067	SF1254-6008		
Shroud 2 Hole Flange .235 Wide x .470 High CM	127-3701-602	P671-1SF					
PCMount Straight .218 OD .100 Legs Male FD	127-0701-201	P654-5CC	A008-L33-01	MMSP-7448	SF1287-6001		
PCMount Straight .218 OD .100 Legs Male LD	127-1701-201	P654-6CC	A008-L34-01	MMSP-7449			
PCMount Straight .218 OD .100 Legs Male SB	127-2701-201	P654-7CC	A008-L35-01				
PCMount Straight .235 OD .100 LegsMale CM	127-3701-201	P654-8CC					
End Launch SurfaceMountMale FD	127-0701-801	P606-1CC	A010-L13-02	MMSP-7457			
End Launch SurfaceMountMale LD	127-1701-801	P606-2CC	A010-L14-02	MMSP-3805			19S202-40ME4
End Launch SurfaceMountMale SB	127-2 701-801	P606-3CC	A010-L15-02	MMSP-7347			
Hermetic Feedthrough ShroudMale FD	127-0711-601	P840-9CC	A007-L43-01-70	MMSP-2771			
Hermetic Feedthrough ShroudMale LD	127-1711-601	P794-2CC	A007-L44-01-70	MMSP-2875			
Hermetic Feedthrough ShroudMale SB	127-2711-601		A007-L45-01-70	MMSP-2979			

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