

THE SSMP (Sub-Sub-Miniature-Push-On) is a 1.7 mm connector, using solid dielectric interface. The connector is 70% of the size of the SMP and therefore allows even higher density packaging. It is designed to permit the female connector to incline freely in direction while the mechanical and electrical connection remains maintained. The male connector is available in **smooth bore** for easy connection and disconnection, with **limited detent**, characterized by a certain insertion and withdrawal force, and with **full detent**, needing high insertion force and a substantial withdrawal force, usually requiring a tool for disconnection. The full detented **SSMP** connection is suitable for mobile applications, extreme shock and vibration requirements. **SSMP** connectors are offered for applications to 18.0 GHz and 26.5 GHz, precision designs are even operating to 65 GHz.

SSMP (Sub-Sub-Miniature-Push-On) connectors are specifically used for packaging and interconnecting low power microwave modules, drawers and racks in state-of-the-art systems that do not allow longer system down time, and are built on a modular basis. **SSMP** push-on connectors allow replacement of faulty microwave modules within seconds. A typical method of interlocking modules is using lock screws.

SSMP (Sub-Sub-Miniature-Push-On) connectors are also available as cable connectors for smaller standard **semi-rigid** cables of diameters 0.047", **low density semi-rigid** cables, **flexible** cables and **low density flexible** cables. The availability of **SSMP** connectors allows easy interconnection of microwave power components. Standard units are available as straight or mitred right angled connectors, in bulkhead or panel mount or flanged designs for solder or compression clamp attachment.

SSMP (Sub-Sub-Miniature-Push-On) connectors can be obtained hermetically sealed for pressing or threading into the component housing,

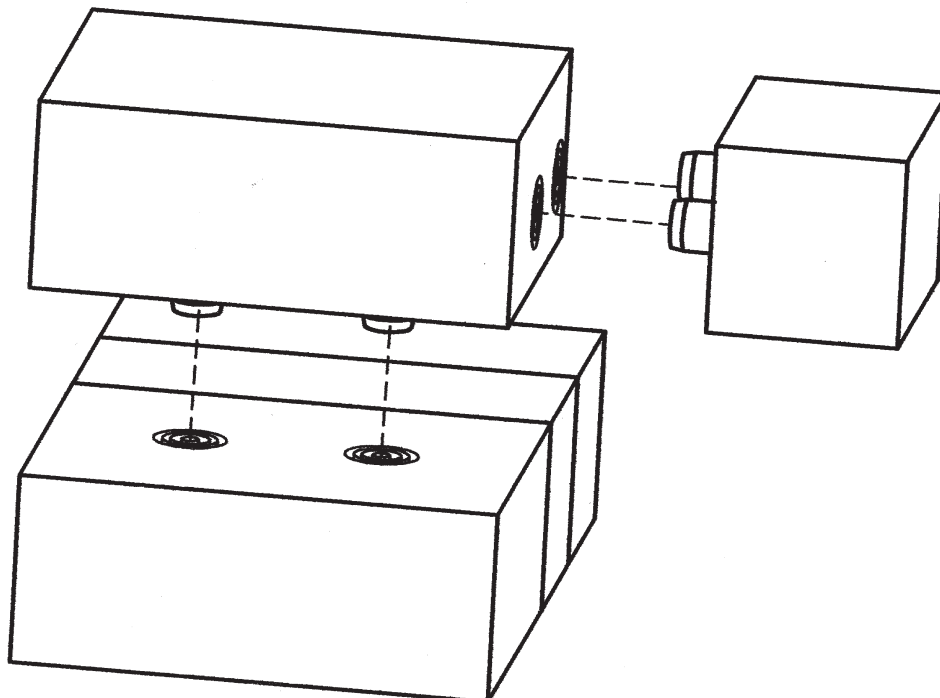
SSMP (Sub-Sub-Miniature-Push-On) connectors are available as circuit board connectors, in a variety of straight, mitred right angle and flange mount designs.

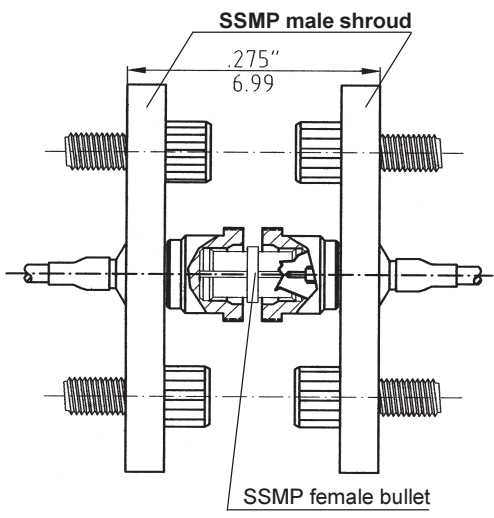
Some test equipment may not be supplied with **SSMP** test port connectors. Therefore an adequate number of between series instrument grade adapters to other important connector series are available.

Spectrum Elektrotechnik GmbH is a very innovative company, offering special services in engineering in order to meet the customer's needs to perfection.

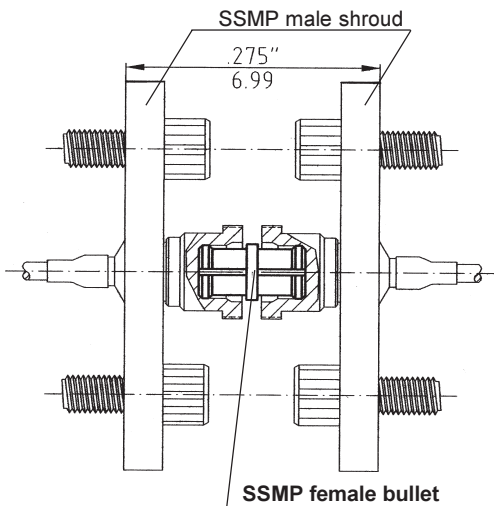
When using blind mate connectors in an application, careful consideration has to be given to choosing the right connector series, the appropriate connector model within that series, and the correct mounting features. Spectrum Elektrotechnik GmbH does offer besides the **SSMP** series, also **SMP**, **BMA**, **SBX**, and **SBY** blind mate connectors, and all those series are shown in "The '99 Handbook Quick Connections". Having all these different Push-On Series available allows the customer for easy identification of the best suitable connect or connectors for his system. A system also may use several or all of the blind mate connectors offered. Important parameters for identifying the proper connector and its series are:

- * **POWER REQUIREMENT**
- * **OPERATING FREQUENCY**
- * **RIGID OR FLOAT MOUNT CONNECTORS**
- * **CONNECTOR-TO-CONNECTOR FIXED TOLERANCES**
- * **CONNECTOR-TO-CONNECTOR FLOAT TOLERANCES**
- * **MATING FORCES**
- * **FLOAT MOUNT SPRING LOADING**
- * **CONNECTOR PACKAGING DENSITY IN MULTIPLE CONNECTOR ARRAYS**
- * **PANEL DEFLECTION**

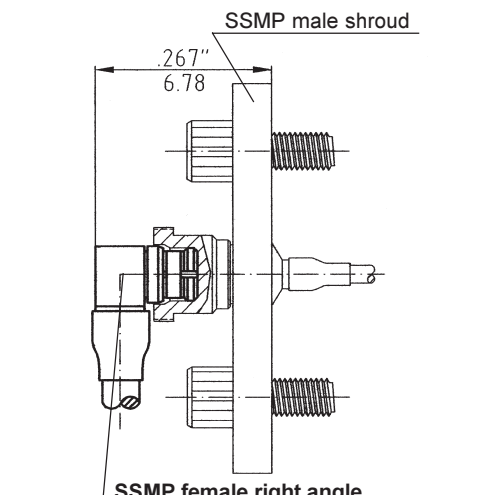




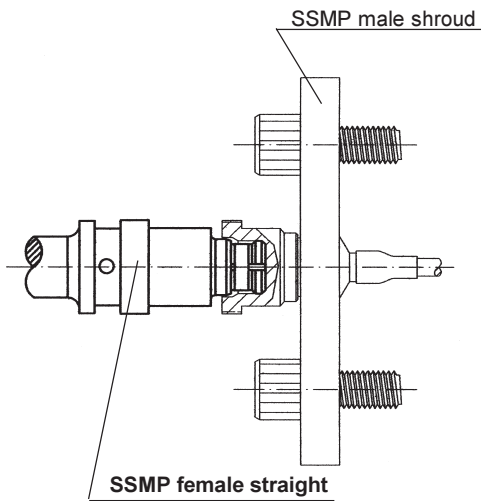
SHROUDS:
The male flange mount SSMP connector is called the “shroud”. It is mounted to modules and connects at the other end to cable or stripline, etc. Inserting the “bullet” between two shrouds provides a typical module to module separation of 0.193 inches (4.9 mm). The “shrouds” are made of passivated stainless steel and surround a center conductor of 0.011 inches (0.27 mm). Shrouds are available full detent, limited detent, or with smooth bore. For specifications, or further details please refer to the SSMP specifications on the following pages of this section.



BULLETS:
The SSMP female/female adapter is called the “bullet”. It mates with the SSMP male connector. Inserting the “bullet” between two male flange mount connectors, the “shrouds”, provides a typical module to module separation of 0.193 inches (4.9 mm). Shorter or longer versions of “bullets” are available, or can be designed upon customer request. The outer and center conductors of the “bullets” are made from beryllium copper, heat treated and gold plated. For specifications, or further details please refer to the SSMP specifications on the following pages of this section.

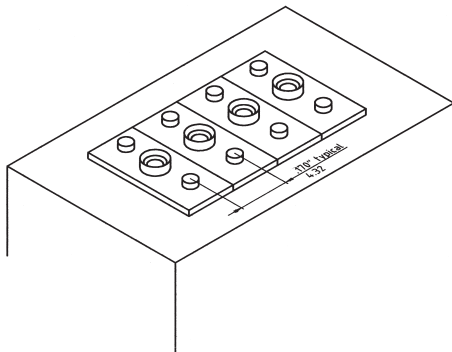


RIGHT ANGLE CONNECTORS:
SSMP **female right angle connectors** are available for semi rigid cable and for flexible cable as well. They are usually connecting to modules, e.g. mating with the SSMP flange mount male connector, the shroud. The right angle connectors are needed for limited space requirements. Very short right angle connectors with lowest profile were developed for even tighter space requirements. For the mating shroud it has to be decided carefully, whether full detent, limited detent or smooth bore should be used. This depends mainly on the application. A test cable being connected/disconnected many times will prefer smooth bore, while the use in mobile equipment may require full detent.



STRAIGHT CONNECTORS:

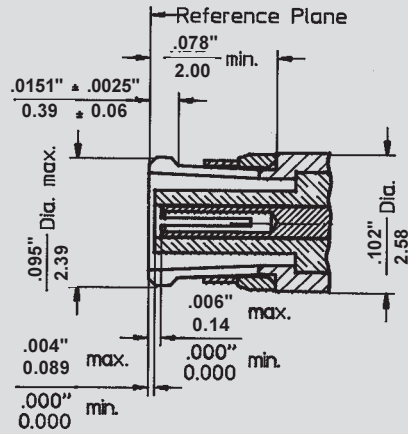
SSMP **female straight connectors** are available for semi rigid cable and for flexible cable as well. They are usually connecting to modules, e.g. mating with the SSMP flange mount male connector, the shroud. A variety of mating shrouds are available. It has to be decided carefully, whether a shroud with full detent, limited detent or smooth bore should be used. It depends mainly on the application. A test cable being connected/disconnected many times will prefer smooth bore, while the use in mobile equipment may require full detent.



DENSE PACKAGING:

The SSMP miniature high performance interconnect system reduces space requirements. It allows for dense packaging with connector spacing as close as 0.120 inches (3.0 mm).

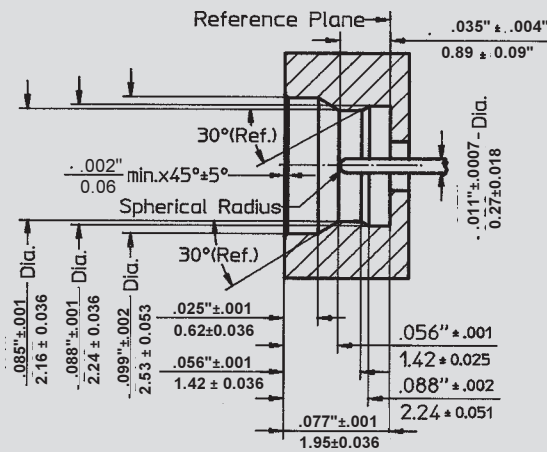
SSMP Female



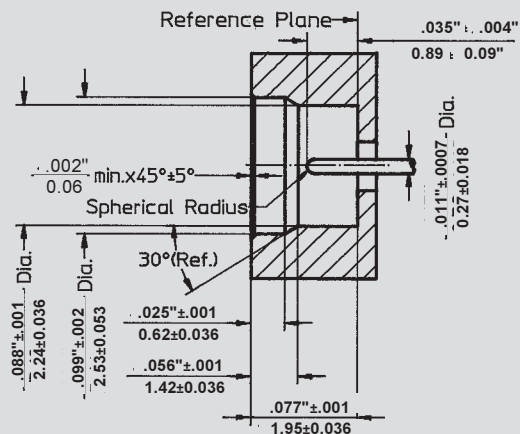
Dimensions shown are inches over millimeters.

Frequency: DC - 40.0 GHz min.

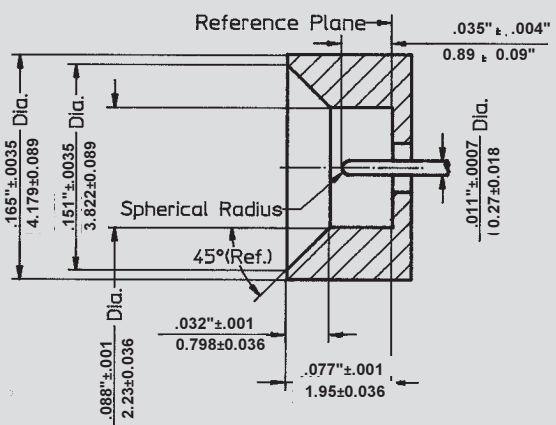
SSMP Male detent



SSMP Male smooth bore



SSMP Male



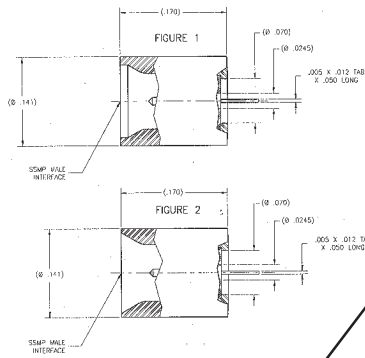
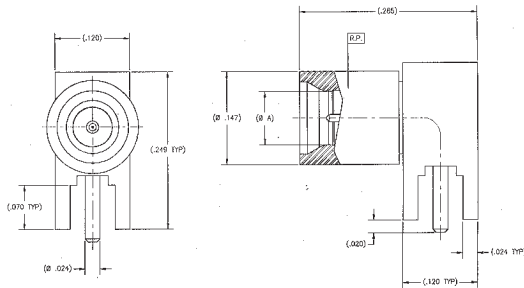
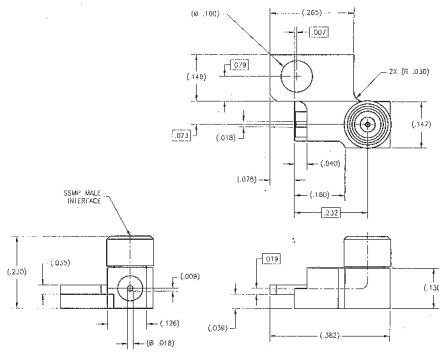
The specifications below are general specifications for all SMP connectors. Specific Data for VSWR, Insertion loss, R.F. leakage etc., are available from the factory upon request. Specifications in the following table are recommended for any procurement documents or drawings. In the event of any conflict between these specifications and General Specifications DESC 94007 and DESC 94008, these specifications shall govern. These specifications are subject to change according to the latest revision.

REQUIREMENT	GENERAL SPECIFICATIONS
GENERAL	
Standard Materials	STEEL corrosion resistant 1.4305 per DIN 17440 (QQ-S-764, class 303 or ASTM-A-582-80). ALUMINUM AlMg4.5Mn per DIN 1725, AlMgSi0.5 per DIN 1725, AlMgSi1 per DIN 1725 (6061-T6 per QQ-A-225/8). BRASS CuZn39Pb3 per DIN 17660 (QQ-B-626, half hard). COPPER BERYLLIUM 33-25 CuBe2Pb H per DIN 17666 (QQ-C-530). TFE Fluorocarbon per DIN 52900 (MIL-P-19468 and L-P403). SILICONE RUBBER per DIN 3771 (MIL-R-5847 and ZZ-R-765, Class II B,) Grade 50 - 75. BORRIUM NITRIDE Dielectric for high power applications per inhouse specification.
Finish for COPPER BERYLLIUM	Center Contacts shall be gold plated to a minimum thickness of .00005 inch (1.27 µm) in accordance with ASTM B 488, Type 3, Code C. Outer conductors shall be gold plated to a thickness of .00003 inch (0.8 µm) per ASTM B 488, Type 3, Code C, or silver plated to a thickness of .0001 inch (2.5 µm) per QQ-S-365.
STAINLESS STEEL	Shall be passivated per ASTM A 967 or gold plated to a thickness of .00003 inch (0.8 µm) per ASTM B 488, Type 3, Code C.
ALUMINUM	Conductive Parts shall have an iridited finish per MIL-C-5541.
BRASS	Other parts, such as Coupling Nuts and Back-Bodies shall be anodized per MIL-A-8625. Gold plated to a thickness of .00003 inch (0.8 µm) min. per ASTM B 488, Type II, Grade C, or nicle plated to a thickness of .0002 inch (5µm) per QQ-N-290, grade E, or silver plated to a thickness of .0001 inch (2.5 µm) per QQ-S-365.
VARIOUS	Imoloy .0001 inch (2.5 µm) min. plating, consisting of 55% Copper / 20% Zinc / 25% Tin (on special request).
Design	The design shall be such that the outline dimensions in this catalog are met. In addition, the assembled connector shall meet the interface dimensions.
ELECTRICAL	
Frequency Range	DC - 40.0 GHz min.
Insulation Resistance	The insulation resistance shall not be less than 5.000 megohms.
Voltage Standing Wave Ratio (VSWR)	1.5 : 1 max. to 40.0 GHz.
Contact Resistance	The center contact resistance drop is 6.0 milliohms max.
Dielectric Withstanding Voltage	The magnitude of the test voltage shall be 500 volts rms at sea level.
RF High Potential Withstanding Voltage	The RF high potential withstanding voltage is 325 volts rms at 5 MHz. Leakage is not applicable.
RF Leakage	RF Leakage is not applicable.
Insertion Loss	(.10 SQT(f(GHz))) dB
MECHANICAL	
Connector Durability	The connector is to be tested and its mating connector shall be subjected to 100 insertions min.. Withdrawal cycles /minute are not applicable. The connector shall show no evidence of mechanical failure and the connector shall meet the mating characteristic requirements.
Cable Retention Force	20 pounds (88.9 N) min.
Coupling Nut Retention Force	Not applicable.
Force to Engage and Disengage Longitudinal Force max.	The torque required to engage shall not exceed 15 lbs. (66.7 N). The disengage torque shall not exceed 2 lbs. (8.9 N) min. (full detent).
Mating Characteristics	Not applicable.
Recommended Mating Torque	Recommended Mating Torque is not applicable.
ENVIRONMENTAL	
Corrosion (Salt Spray)	Specification MIL-STD-202, Method 101, Test Condition B. The salt solution shall be 5%.
Vibration	Specification MIL-STD-202, Method 204, Test Condition D.
Shock	Specification MIL-STD-202, Method 213, Test Condition I.
Thermal Shock	Specification MIL-STD-202, Method 107, Test Condition B, rating -65 °C to +165 °C.
Moisture Resistance	Specification MIL-STD-202, Method 106. Step 7b (vibration) shall be omitted. Insulation resistance shall be 200 megohms min. within 5 minutes of removal from humidity.
Corona Level	The connector shall not exhibit breakdown (corona) when the applied voltage is 190 volts rms and the altitude is 70,000 feet.

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SSMP Connectors

SSMP is a fast growing family. Many connectors have been designed and manufactured already. But in order not to delay further the publication of this Handbook, it has been decided not to include the details on SSMP connectors. However, data sheets are available on request. Please contact our sales department.



SSMP Cal Kits?

You need an SSMP Cal Kit? We are currently considering funding for an in house program. Your interest will help to speed up the development process.

