

COAXIAL CONNECTORS

NON MAGNETIC CONNECTORS for medical applications



RADIAL 
The next connexion

COMPANY Profile

Founded in 1952 in France, Radiall started as a family owned company making coaxial plugs. Today, Radiall is an international and global manufacturer of interconnect components including **RF coaxial connectors and cable assemblies, antennas, fiber optic components, microwave components, and multipin connectors** for the Automotive, Civil Aviation, Defense, Industrial, Medical, Space and Telecommunications.



QSE (Quality Safety Environment) POLICY

Radiall maintains a quality management system conforming to international standards, including for environmental protection. Our customers' recognition for the quality of our products and the sustainability of our company, demonstrates the efficiency of our quality system.



CERTIFICATIONS

Certified ISO 9001 since 1994, Radiall has a pro-active policy in terms of conforming to international standards. Today, all Radiall sites are certified to **ISO 9001:2000** and some

dedicated activities are AS9100 or TS 16949. Our process approach gives us the tool for continuous improvement in all our activities.



A major step in our environment policy was the **ISO 14001** certification in 2001 of the Voreppe plant. Radiall complies with European directives such as **RoHS** for hazardous substance restrictions and **EuP** for environmentally friendly designs for energy-using products.

Some Radiall product lines are on **MIL, ESA/SCC** Qualified Product Lists.

Radiall is consequently proud to be recognized by leading industrial customers for the quality of its service and products.



A WORLDWIDE ENGINEERING & MANUFACTURING CAPABILITY

With expertise centers and manufacturing locations in 3 continents. Radiall offers its customers, through 12 industrial sites, the proximity they need to obtain the best quality of service and delivery performance. Our facilities feature state of the art equipment for the many technologies involved in the design, manufacturing and assembly of interconnect products. Manufacturing plants based in **China, India, Tunisia** and **Mexico** give the opportunity to offer Radiall quality at competitive prices.

Technical information and sales contacts are available on: www.radiall.com

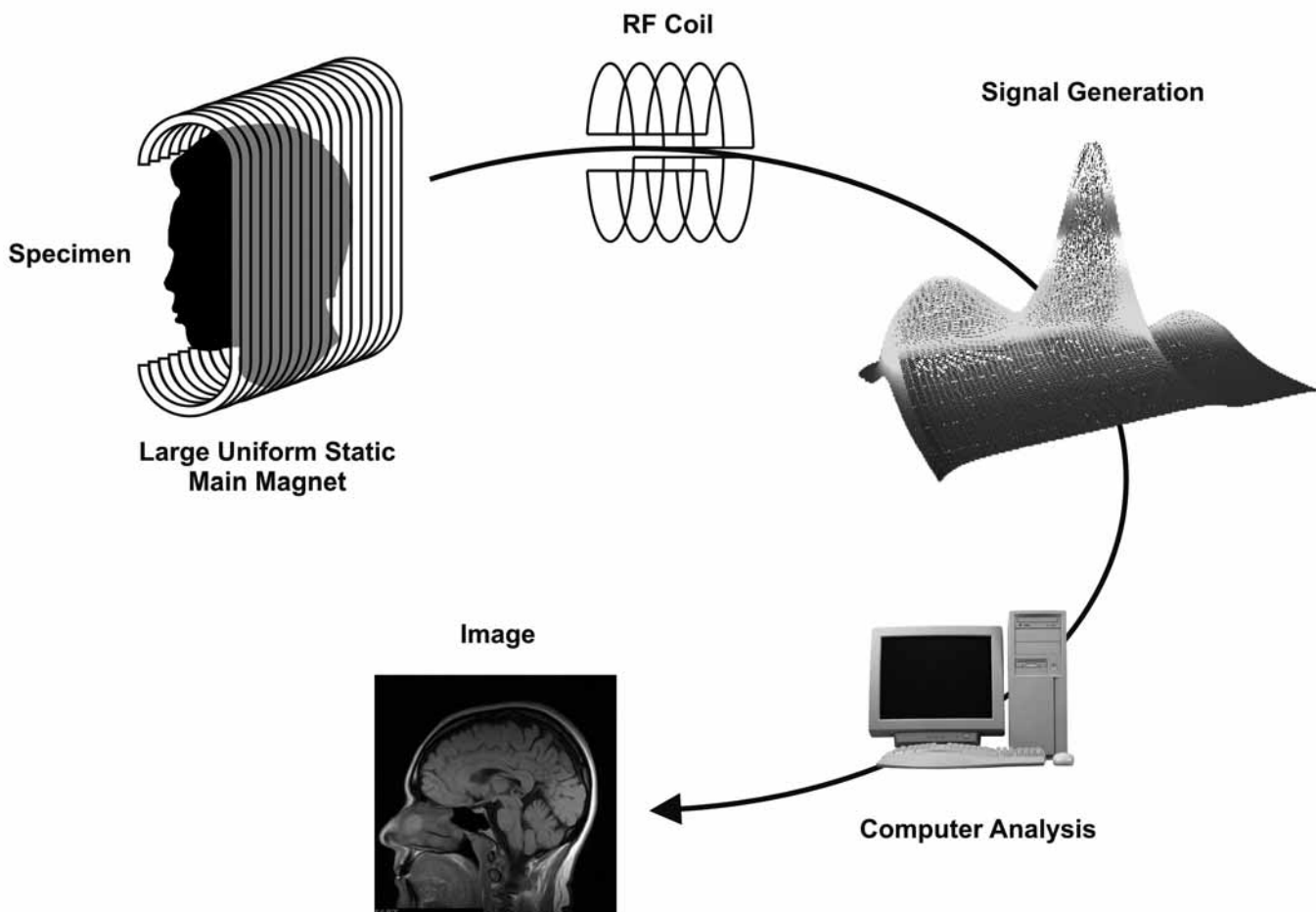
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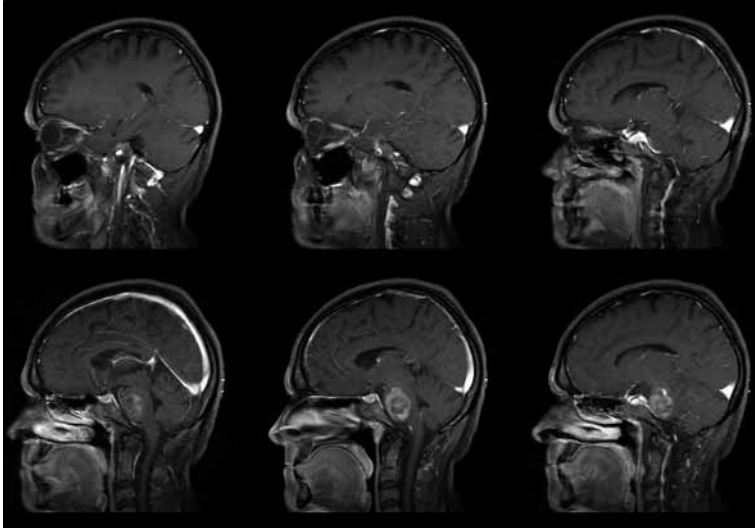
Non magnetic coaxial connectors are used primarily inside MRI medical equipment. **Magnetic Resonance Imaging** is an advanced imaging technique that is able to produce high resolution cross-sectional images of the inside of the human body by exploiting Radio Frequency (RF) pulses. MRI produces images are the visual equivalent of a slice of anatomy. Although MRI has been available for the last two decades, it has seen tremendous improvements over the past years with continued advances in technology, a small part of which is due to coaxial non magnetic connectors.

MRI medical equipment consist of :

- a large magnet or electro-magnet to create an intense and homogenous magnetic field (0.3 - 7 Tesla) that surrounds the patient,
- "gradient coils" to position into the space the area under analysis,
- two high frequency coils, one transmitting the excitation impulsions (RF pulse of 20 up to 300 MHz) of the atomic nucleus contained in the area under analysis, and the other receiving a signal that constitute the image after treatment,
- a computer.

The process is illustrated below :





Examples of MRI brain images

The quality of the picture depends above all on the homogeneity of the magnetic field and on the signal to noise ratio. So, to avoid any interference in the field homogeneity, coaxial connectors and cables located in the magnetic field to connect the coils should be transparent relative to the field, that means their μ_r relative permittivity should be equal to 1.

Disturbing Magnetization :

With standard connectors, when an external magnetic field H_{ext} is applied, a magnetization M appears inside the material of the connector. This M magnetization generates a ΔH disturbing field, that disturbs the flux lines of the H_{ext} magnetic field. Thus the quality of the picture is poor and many corrections have to be made.

The ΔH disturbing field generated by the connector depends on :

- The distance between the connector and the point where it is calculated;
- The connector dimensions : as the connector is larger, ΔH increase;
- The magnetic susceptibility χ of the material of the connector.

In practice, under a H_{ext} external magnetic field, the material will get a M magnetization equal to approximately :

$$M = \chi \cdot H_{\text{ext}}$$

The weaker the susceptibility χ is, the closer to 1 the relative permittivity μ_r of the material is, the more the material is transparent and the less it affects the magnetic field. So are diamagnetic (brass, gold, silver, etc) or paramagnetic (aluminum, palladium, etc) materials with susceptibility χ around -10^{-2} to -10^{-9} .

The connector made of such material will be transparent relative to the external magnetic field.

On the contrary, the greater the susceptibility χ is, the more magnetic the material is. So are super paramagnetic or ferromagnetic (steel, nickel etc) materials.

The connector made of such material will distort the flux lines of the magnetic field.

Non magnetic connectors provide MRI equipment with electromagnetic immunity :

There are so-called "non magnetic" coaxial connectors that are made of diamagnetic materials and plating. This type of RF connector offers superior "non magnetic" properties when located inside the magnetic field. The field distortion they generate is so small that it meets the extreme requirements of the MRI type of applications.

The MRI images spatial resolution is optimized, adjacent image details can be captured. There are fewer corrections to bring to the image.

Performance of Radial non magnetic RF connectors :

Radial connectors are chosen to be implemented in these coils because they are manufactured with materials specifically chosen for their non-magnetic qualities (with μ_r relative permittivity close to 1), each raw material rod being selected based on a direct measurement with a vibrant magnetometer.

Table of distortion comparison

	Distorsion at 10 mm $\Delta H/H_{ext}$ with $B_0=1.5T$	Magnetic susceptibility χ
Radial non magnetic connector	$< 5.10^{-7}$	10^{-5}
Standard non magnetic connector	10^{-5}	10^{-3}
Brass/Nickel connector	10^{-4}	10^{-2}

The $\Delta H/H_{ext}$ relative distortion of a magnetic field of **1,5 T**, generated by a Radial non magnetic connectors is only **5.10^{-7}** maximum, at a distance of 10 mm from the surface of the connector.

Additionally, they meet the electrical, mechanical, and durability characteristics required in a medical environment.

Center contacts are gold plated over a copper underplate and bodies are plated with **BBR**, diamagnetic alloy of copper-stain-zinc or with **GBR**, diamagnetic alloy of copper-stain-zinc with a gold strike. We could propose several in house high quality surface plating like **BBR**, **GBR** or **NPGR** (Gold plated over a non magnetic Nickel Phosphorus). To get more information about these three types of surface plating, please do not hesitate to contact us.

Manufacturing a Radial non magnetic connector involves a special production process, led in an appropriate environment where tools are allocated and where all precautions are taken to avoid any contact with ferromagnetic materials during the screw machining and cleaning process. Their manufacture is directed by a Quality Assurance Plan whose documented rules are strictly applied throughout the production line. This Quality Assurance procedure (PAQ-C007A) guarantees the high level of non magnetism and reproducibility for all our non magnetic connectors.

This technology is applicable in almost all our coaxial connector series and is already available for SMB, MMCX, SMA and MCX series, as well as coaxial cable terminations.

Non magnetic RF connectors for space applications :

The medical market is not the only one to use non magnetic connectors. They are also used in specific space environments, mainly for satellites involved in scientific missions. In this type of environment, the compliance with ESA/SCC specifications is essential to become supplier.

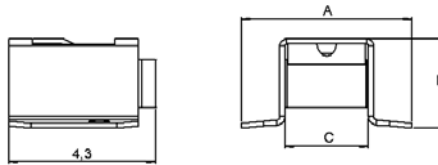
Radial has a range of SMA products, fully ESA qualified, that meets the residual magnetism required by the ESCC 3402 generic specification and the ESCC 3402/001- 002 & 003 detail specifications, connectors are made in Beryllium copper, Gold plated, and Copper underplated.

The sanction is "under a magnetic field of 200 Gauss", the unwired connectors shall be placed 3 mm from the meter probe tip and the maximum allowable value shall not exceed 20 gammas (1 gamma = 10^{-5} Gauss).

Advantages of Radial non magnetic connectors :

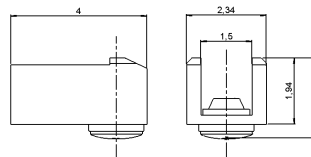
Radial non magnetic connectors provide the 'electromagnetic immunity' to MRI equipment necessary to ensure that vital patient readings are not affected by outside magnetic distortions. Our strictly controlled production process guarantees an extraordinarily consistent level of non magnetism.

SMT RECEPTACLES



UMP Type	Part number	Dimensions (mm)			Packaging	Reel dimension	Assembly instructions	Finish
		A	B	C				
H2	R107 003 087	3.6	2	2.05	reel of 100	180	M06	tin
	R107 003 097				reel of 4000	330		
H2.6	R107 103 087	5	2.6	2.45	reel of 3300	180		
	R107 103 097				reel of 100			
H3	R107 303 097	5.5	3	2.95	reel of 100	330		
	R107 303 197				reel of 2800			

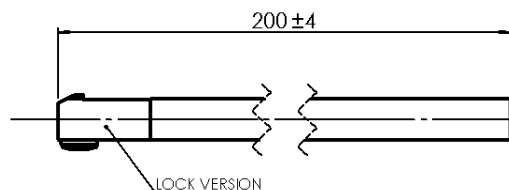
RIGHT ANGLE PLUG SOLDER TYPE FOR FLEXIBLE CABLE (lock connection)



Cable group	UMP Type	Part number	Assembly instructions	Packaging	Finish
2/50 S	H2.6	R107 101 297	M05	1000 pieces	GBR

For H2 type, plugs are ONLY available as part of a pigtail or as part of a cable assembly.

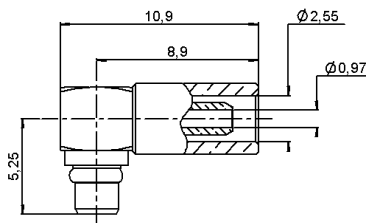
PIGTAIL



Cable group	UMP Type	Part number	Composition	Length (mm)
1/50 S	H2	R284F0625004	R107 001 097/C291 050 066	200
2/50 S	H2.6	R284F0625005	R107 101 297/C291 140 087	
2.6/50 S	H3	R284F0723001	R107 301 297/C291 170 079	

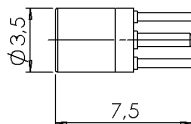
Standard packaging : 100 pieces. For unit packaging, add "W" after the P/N.

RIGHT ANGLE PLUG CRIMP TYPE FOR FLEXIBLE CABLE



Cable group	Part number	Captive center contact	Assembly instructions	Finish
2/50 S	R110 170 117	yes	M01	BBR

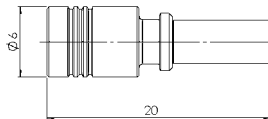
STRAIGHT PCB RECEPTACLE



Part number	Captive center contact	PCB pattern	Finish
R110 426 097	yes	P01	GBR

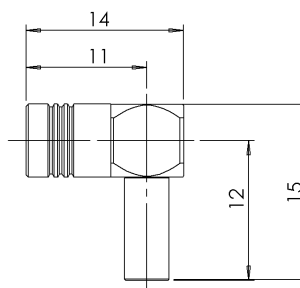
Standard packaging : 100 pieces. For unit packaging, add "W" after the P/N.

STRAIGHT PLUG FULL CRIMP TYPE FOR FLEXIBLE CABLE



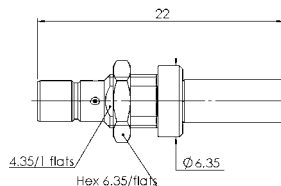
Cable group	Part number	Captive center contact	Assembly instructions	Finish
2.6/50+75 S	R114 082 097	yes	M02	BBR

RIGHT ANGLE PLUG CRIMP TYPE FOR FLEXIBLE CABLE



Cable group	Part number	Captive center contact	Assembly instructions	Finish
2.6/50+75 S	R114 186 097	yes	M01	BBR

STRAIGHT BULKHEAD JACK CRIMP TYPE FOR FLEXIBLE CABLE



Cable group	Part number	Captive center contact	Assembly instructions	Panel drilling	Finish
2.6/50+75 S	R114 313 097	yes	M02	P02	BBR

Standard packaging : 100 pieces. For unit packaging, add "W" after the P/N.

PCB RECEPTACLES

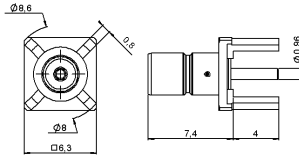


Fig. 1

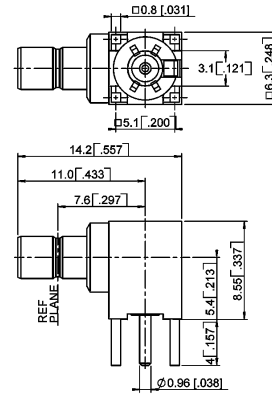
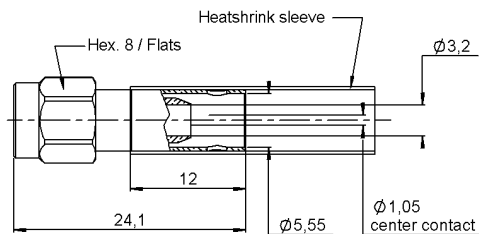


Fig. 2

Part number	Fig	Captive center contact	PCB pattern	Finish	Note
R114 426 097	1	yes	P03	GBR	straight
R114 665 097	2				right angle

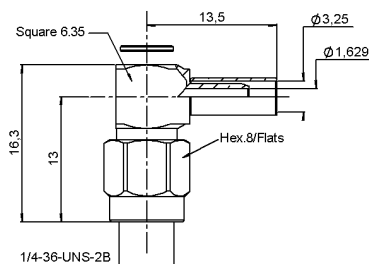
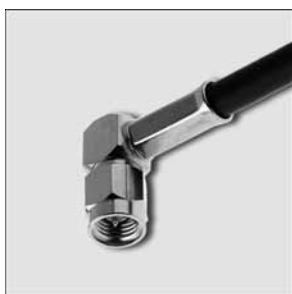
Standard packaging : 100 pieces. For unit packaging, add "W" after the P/N.

STRAIGHT PLUG CRIMP TYPE FOR FLEXIBLE CABLE



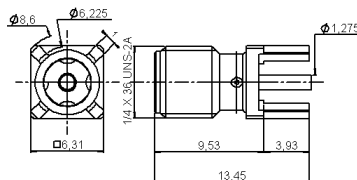
Cable group	Part number	Captive center contact	Assembly instructions	Finish
5/50 S	R125 075 097	yes	M02	BBR

RIGHT ANGLE PLUG CRIMP TYPE FOR FLEXIBLE CABLE



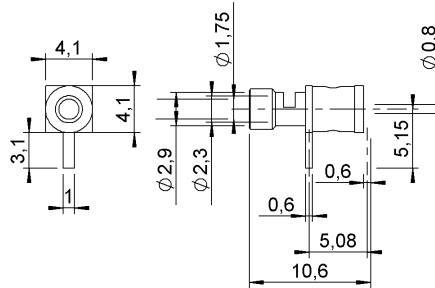
Cable group	Part number	Captive center contact	Assembly instructions	Finish
2.6/50 S	R125 172 167	yes	M01	BBR

STRAIGHT PCB RECEPTACLE



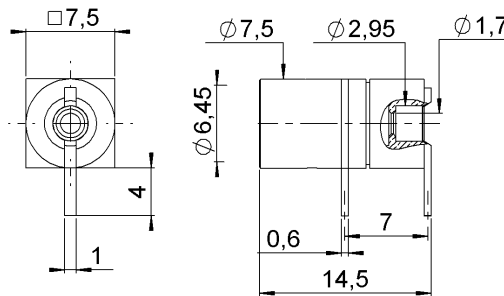
Part number	Captive center contact	PCB pattern	Finish
R125 426 067	yes	P04	BBR

RIGHT ANGLE TERMINAL SOLDER TYPE FOR FLEXIBLE CABLE



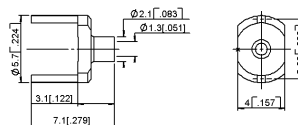
Cable group	Part number	Assembly instructions	PCB pattern	Finish
2.6/50+75 S	R280 220 007	M03	P05	GBR

RIGHT ANGLE TERMINAL SOLDER TYPE FOR SEMI-RIGID CABLE



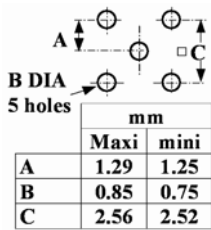
Cable group	Part number	Assembly instructions	PCB pattern	Finish
.250"	R280 226 007	M04	P06	GBR

STRAIGHT TERMINAL SOLDER TYPE FOR SEMI-RIGID CABLE

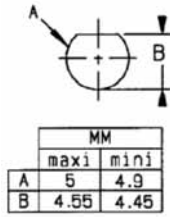


Cable group	Part number	Assembly instructions	PCB pattern	Finish
.047"	R280 287 097	M07	P07	GBR

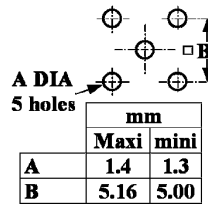
P01



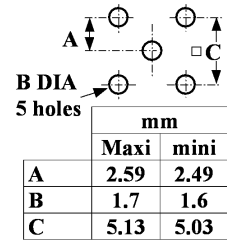
P02



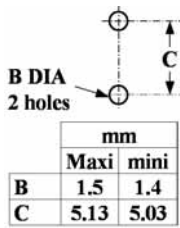
P03



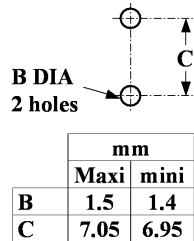
P04



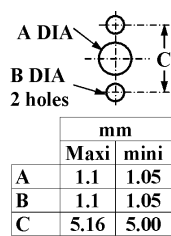
P05



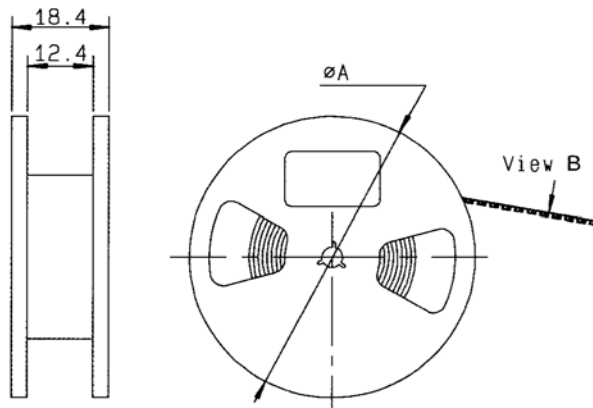
P06



P07



RECEPTACLE PACKAGING



ACCORDING TO IEC 286-3 STANDARD

MATERIALS

Reel : polyester

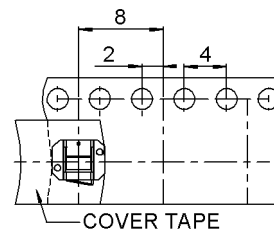
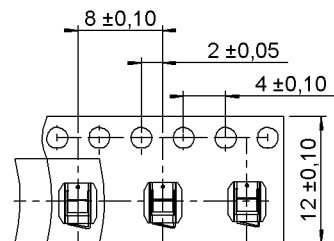
Carrier tape : antistatic PETG (polyester)

Cover tape : polyester

PRECAUTION FOR USE

Automated pick and place machines use standard tooling to peel the antistatic film off. Sometimes the "A" dimension of this tool is shorter than the overall "B" width between the two legs of the receptacle. There is thus a risk for the two legs being deformed while they pass through the tool during the suction operation. The user must then widen the "A" dimension of the peeling tool.

VIEW B



Part number	A dia.	UMP type
R107 003 087	180	H2
R107 003 097	330	
R107 103 087	180	H2.6
R107 103 097		
R107 303 097	330	H3
R107 303 197		

EXTRACTION TOOL (for UMP)



Photo 1



Photo 2

Part Number	Photo	Note	To disconnect
R282 867 020	1	axial disconnection	H2
R282 867 030	2	lateral disconnection	H2.6 & H3

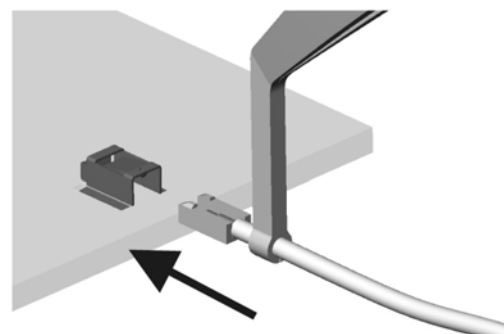
The 2 disconnection tools allows axial and lateral disconnections depending on the occupied space on the PCB. Please see extraction procedure on page 24.

INSERTION TOOL (for UMP)

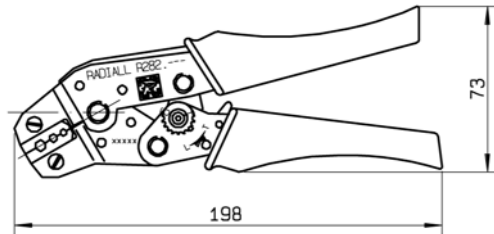





Part Number
R282 203 020

This optional tool allows you a more precise connection in a limited space.
Please see manual connection on page 24.

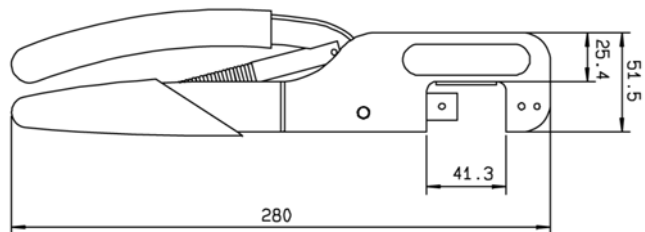


CRIMP TOOL (DIES INCLUDED)





Part number	Cable group	Color of handles			
R282 211 000	1/50+75 - 2/50/S+75 - 2.6/50/S+75	Red	4.52	3.25	2.67
R282 223 000	4/50+75 - 5/50 - 6/75+93	Orange	6.48	5.41	1.73

MIL CRIMP TOOL (M22520/5.01) R282 293 000 (DIES NOT INCLUDED)

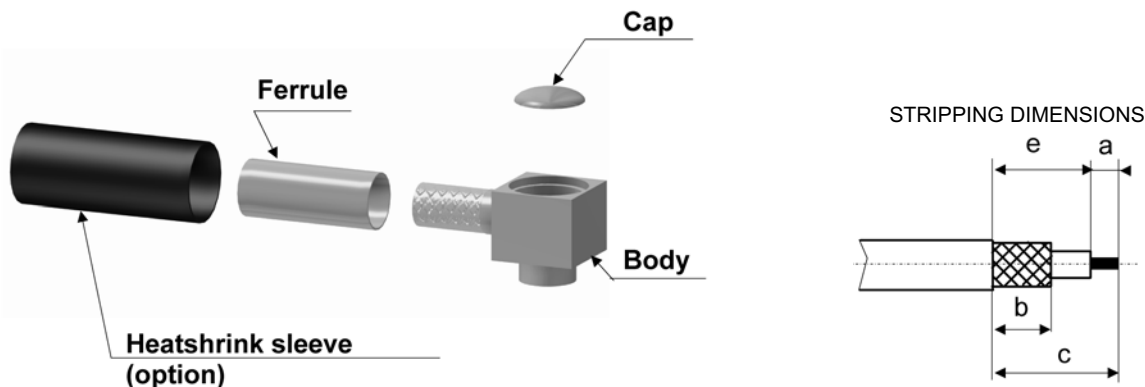


DIES



Part number	Cable group		
R282 235 003	2/50/S+D - 2.6/50+75/S	3.25	2.67
R282 235 011	5/50/S - 5/50/D	5.41	1.73

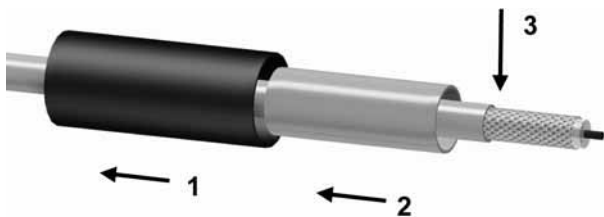
M01



Part Number	Stripping length (mm)				Hex.	Ferrule	
	a	b	c	e		Standard crimp tool dies included	MIL standard R282 293 000 (M22520/5-01)+dies
R110 170 117	1.4	6.35	9	7.6	3.25	R282 211 000	R282 235 003
R114 186 097	1.5	5.4	9.6	8.1			
R125 172 167	2.8	7	12.8	10			

1

Slide the heatshrink sleeve onto the cable (option).
Slide the ferrule onto the cable.
Strip the cable.



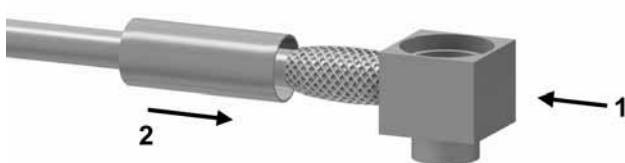
2

Fan the braid.



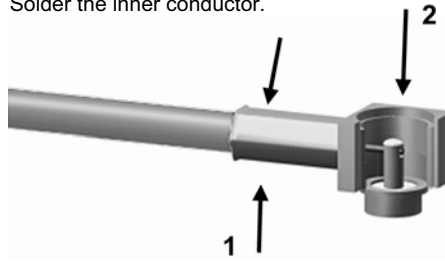
3

Push the connector body under the braid.
Slide the ferrule over the braid.



4

Crimp the ferrule with crimping tool (see table).
Solder the inner conductor.



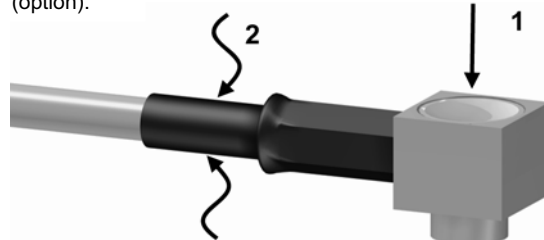
5

Place the cap into the body

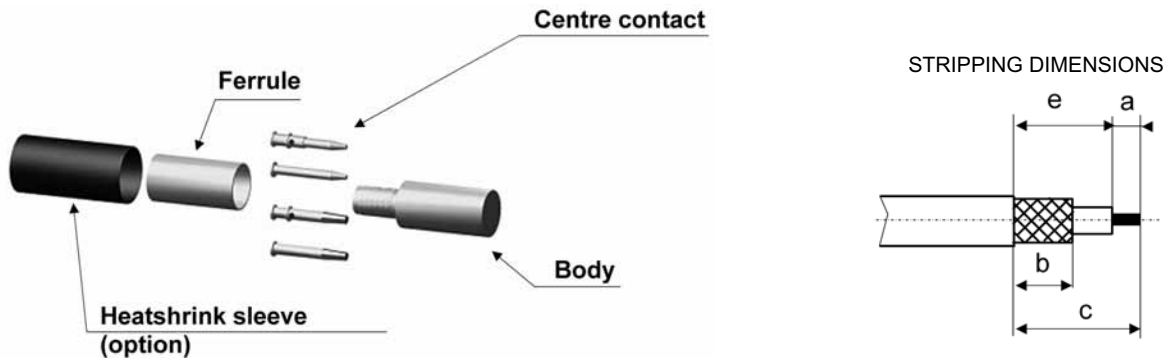


6

Press on the cap flush or slightly below the surface of the body assembly.
Slide the sleeve over the ferrule and heatshrink it in place (option).

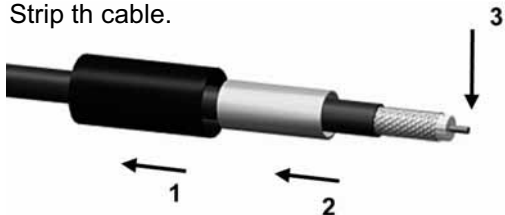


M02



Part number	Stripping length (mm)				Ferrule			Center contact
	a	b	c	e	Hex	Standard crimp tool dies included	MIL standard R282 293 000 (M22520/5-01)+dies	
R114 082 097	2.5	5.4	11	8.5	3.25	R282 211 000	R282 235 003	Crimp tool R282 281 000 + positioner R282 983 000 select N°3 for cable 2.6/50 and N°1 for cable 2.6/75
R114 313 097		5.5						
R125 075 097	3.5	7	13.5	10	5.41	R282 223 000	R282 235 011	

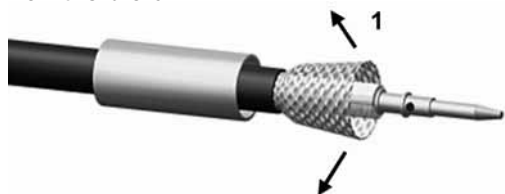
1
Slide the heatshrink sleeve onto the cable (option).
Slide the ferrule onto the cable.
Strip the cable.



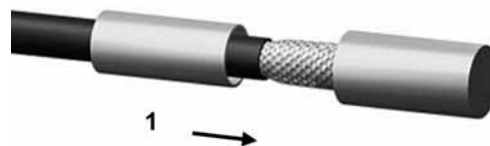
2
Slide the center contact on until it bottoms against the cable dielectric.
Solder or crimp the center contact.
Clean solder area.



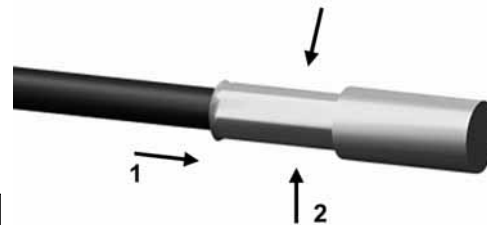
3
Fan the braid.



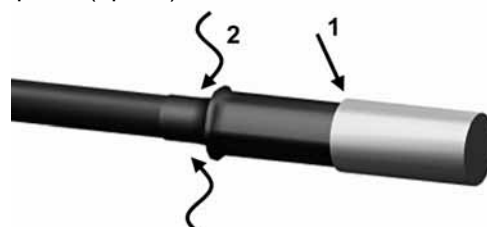
4
Slide the cable into the body until it bottoms against the insulator.



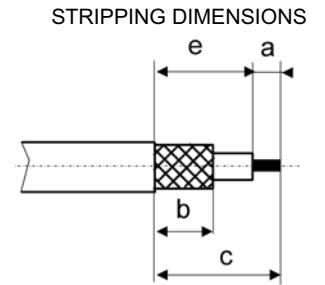
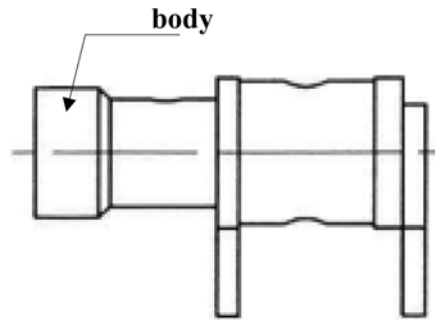
5
Slide the ferrule over the braid.
Crimp the ferrule with crimping tool.



6
Cut the excess of braid if necessary.
Slide the sleeve over the ferrule and heatshrink it in place (option)



M03



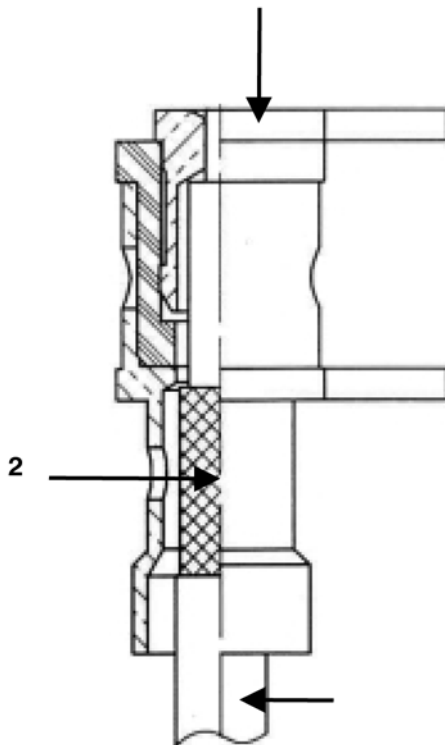
Part number	Stripping length (mm)			
	a	b	c	e
R280 220 007	3	3	9.5	3.5

1

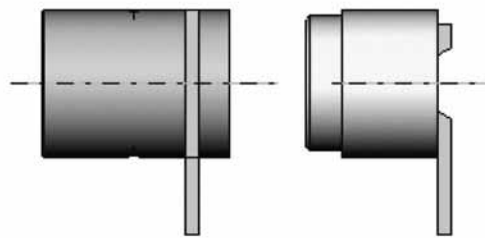
Strip the cable.

2

Introduce cable into the connector body until contact with it.
Solder braid.
Solder cable core.



M04



STRIPPING DIMENSIONS



Part number	Stripping length (mm)
R280 226 007	5.1

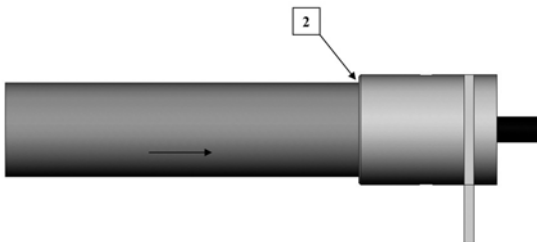
1

Before soldering, the end of the semi-rigid cable must be pre-heated to the same temperature as the soldering iron and excess dielectric must be cut.

Strip the cable.

2

Insert the cable into the connector body until it bottoms.
Solder the cable to the body.



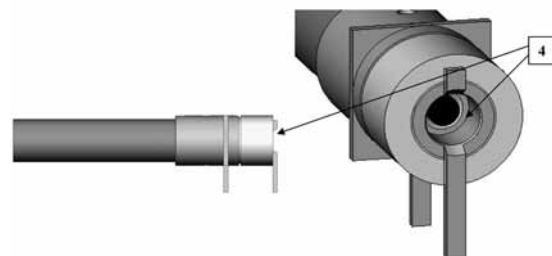
3

Insert the cable inner conductor into the insulator and the center contact until the insulator bottoms against the cable dielectric. Take care of the alignment between the legs.

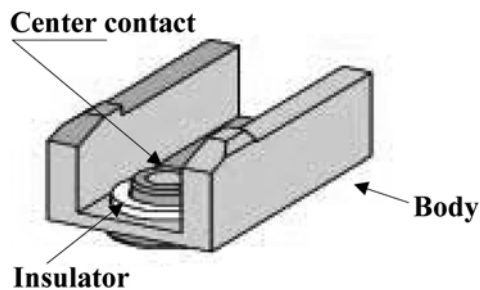


4

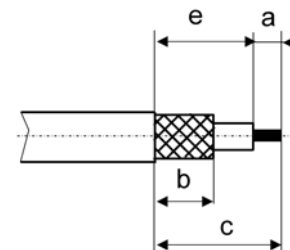
Solder cable core to the center contact 4.



M05



STRIPPING DIMENSIONS



Part number	Stripping length (mm)			
	a	b	c	e
R107 101 297	1.2	1.5	3.5	2.3

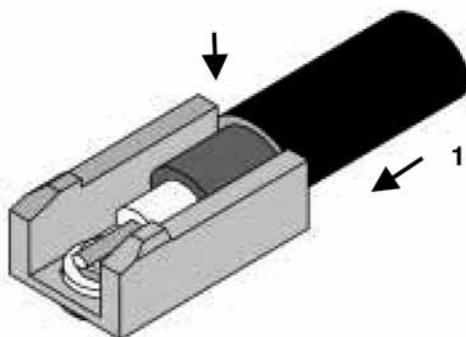
1

Strip the cable in accordance with instructions.



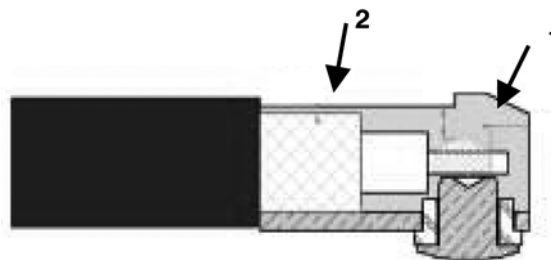
2

Put the cable on the connector.
Push the cable outer jacket against body.



3

Braze the cable inner conductor on the center contact.
Braze the outer conductor on the body.



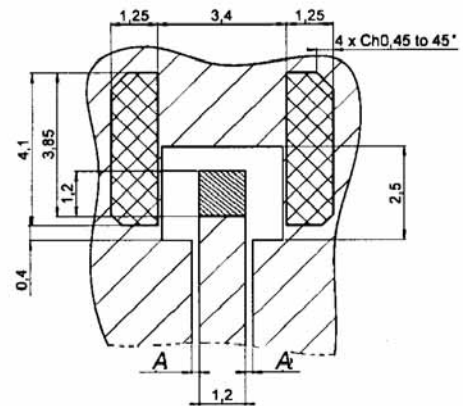
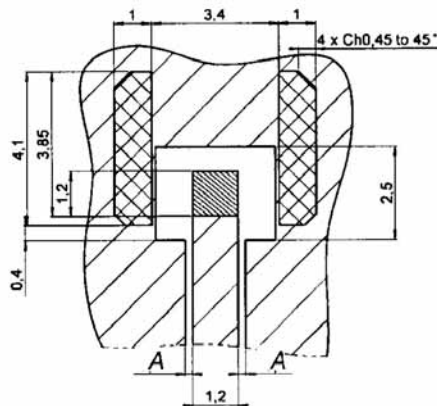
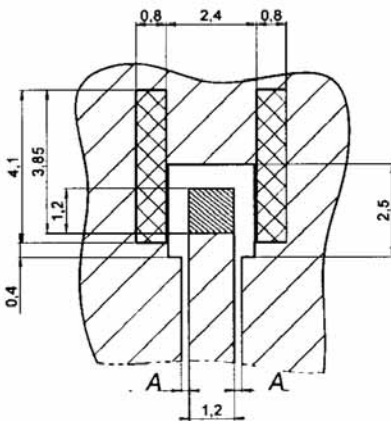
M06

Part number for H2 type receptacle
R107 003 087 R107 003 097

Part number for H2.6 type receptacle
R107 103 087 R107 103 097

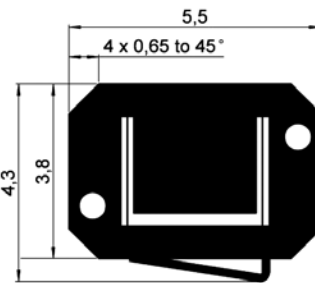
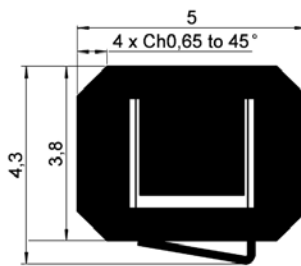
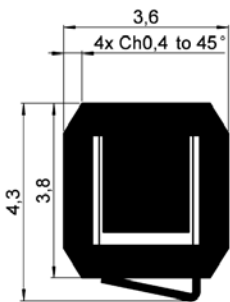
Part number for H3 type receptacle
R107 303 097 R107 303 197

SOLDERING PATTERN AND VIDEO SHADOWS



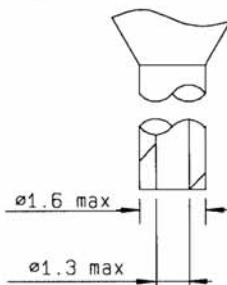
- 18 µm Cu min + 7 to 9 µm SN
- 18 µm Cu min + 7 to 9 µm SN
- Ground + varnish

PCB thickness (mm)	Coplanar ligne A (mm)
0.8	0.183
1.0	0.190
1.2	0.195
1.6	0.20

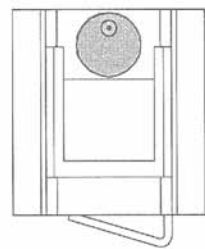


SUCTION PROCEDURE

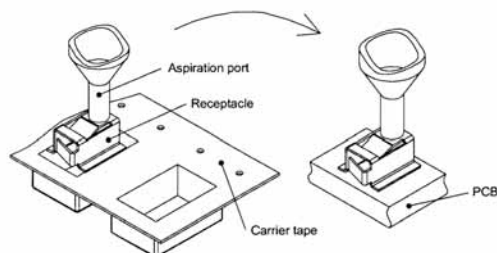
Aspiration port



Receptacle



Aspiration area



M06

SOLDER PROCEDURE

1

Deposit solder paste 'Sn Ag4 Cu0.5' on mounting zone by screen printing application. We recommend a low residue flux.

We advise a thickness of 150 micron mm (5.850 micro inch). Verify that the edges of the zone are clean.

2

Placement of the cover on the mounting zone with an automatic machine of 'pick and place' type. A video camera is recommended for positioning of the component. Adhesive agents must not be used on the cover.

3

This process of soldering has been tested with convection oven. Below please find, the typical profile to use.

4

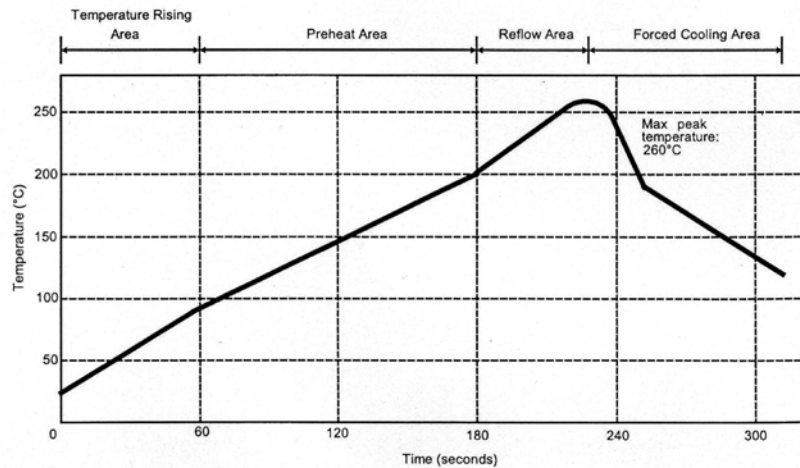
The cleaning of printed circuit boards is not obliged.

5

Verification of solder joints and position of the component by visual inspection.

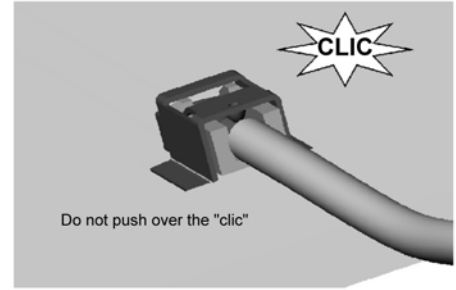
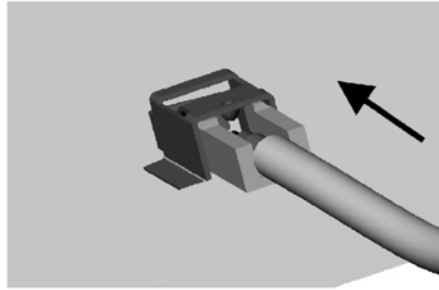
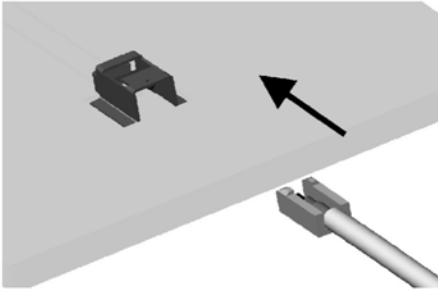
NOTE: THE UMP RECEPTACLE AND THE UMP PLUG MUST NOT BE MATED BEFORE COMPLETION OF THIS PROCEDURE

TEMPERATURE PROFILE

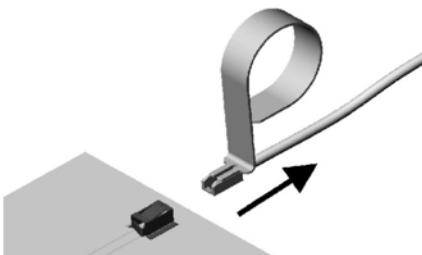
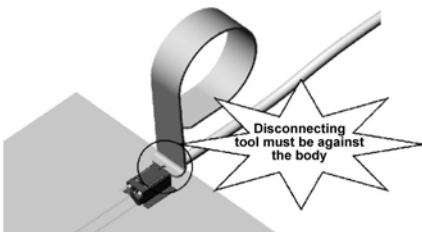
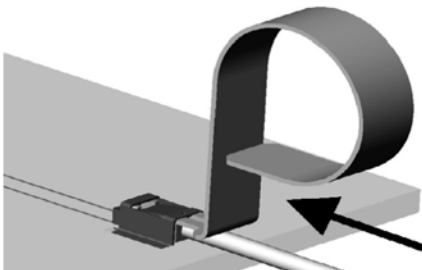
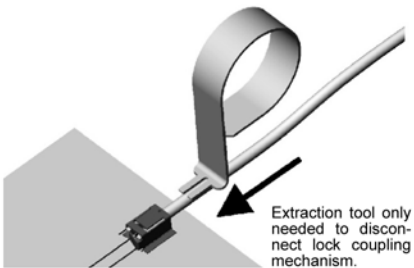


Parameter	Value	Unit
Temperature rising Area	1 - 4	°C/sec
Max Peak Temperature	260	°C
Max dwell time @260°C	10	sec
Min dwell time @235°C	20	sec
Max dwell time @235°C	60	sec
Temperature drop in cooling Area	-1 to -4	°C/sec
Max dwell time above 100°C	420	sec

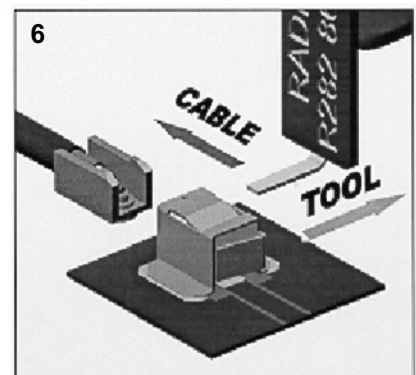
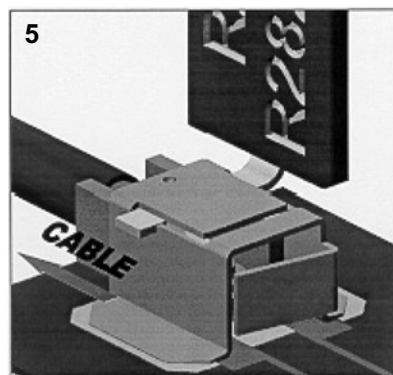
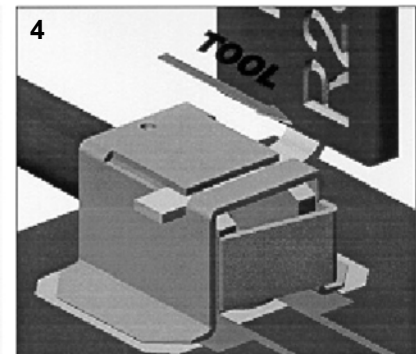
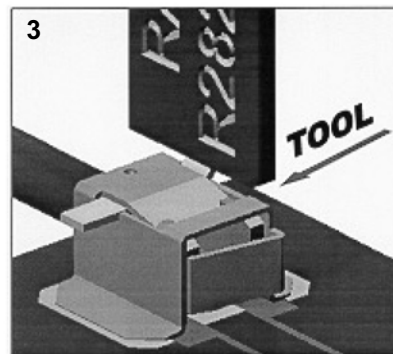
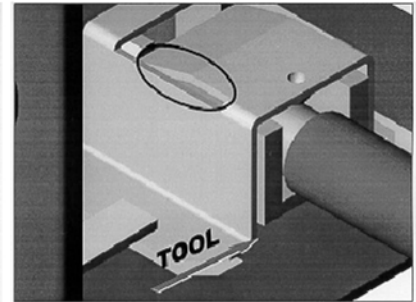
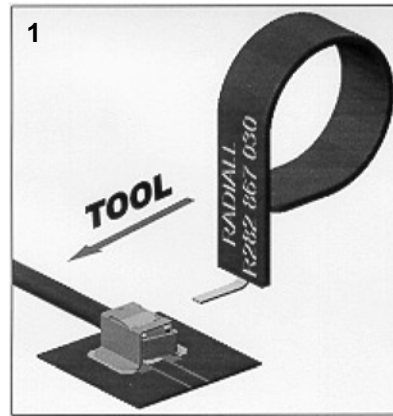
Manual connection



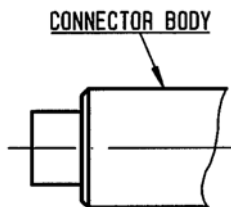
Axial disconnection Tool R282 867 020



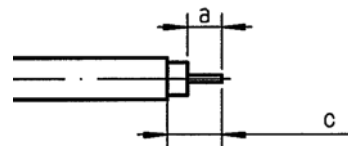
Lateral disconnection Tool R282 867 030



M07



STRIPPING DIMENSIONS



Part number	Stripping length (mm)		assembly jig	positionner
	a	c		
R280 287 097	4	5	R282 740 020	R282 863 000

1

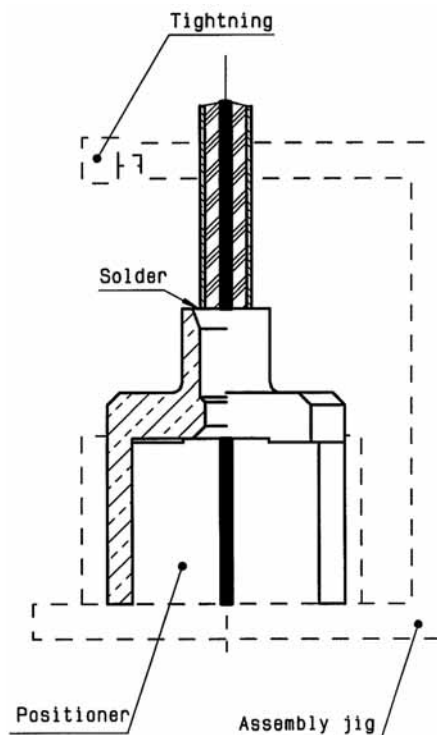
Strip the cable.

2

Introduce the cable into the connector body until contact with the body shoulder.
Place the sub assembly into the assembly jig with positionner and tighten it.

3

Solder the body on the cable.
Let the assembly cool down before removing it from the jig.
Clean solder.



Part Number	designation	Pages
R107 003 087	UMP Series – H2 SMT receptacles (reel 100 pieces)	7
R107 003 097	UMP Series – H2 SMT receptacles (reel 4000 pieces)	7
R107 101 297	UMP Series – H2.6 Right angle plug solder type for 2/50/S flexible cable	7
R107 103 087	UMP Series – H2.6 SMT receptacles (reel 3300 pieces)	7
R107 103 097	UMP Series – H2.6 SMT receptacles (reel 100 pieces)	7
R107 303 097	UMP Series – H3 SMT receptacles (reel 100 pieces)	7
R107 303 197	UMP Series – H3 SMT receptacles (reel 2800 pieces)	7
R110 170 117	MMCX Series – Right angle plug solder type for 2/50/S flexible cable	8
R110 426 097	MMCX Series – Straight PCB receptacle	8
R114 082 097	SMB Series – Straight plug full crimp type for 2.6/50+75/S flexible cable	9
R114 186 097	SMB Series – Right angle plug crimp type for 2.6/50+75/S flexible cable	9
R114 313 097	SMB Series – Straight bulkhead jack crimp type for 2.5/50+75/S flexible cable	9
R114 426 097	SMB Series – Straight PCB receptacle	10
R114 665 097	SMB Series – Right angle PCB receptacle	10
R125 075 097	SMA Series – Straight plug crimp type for 5/50/S flexible cable	11
R125 172 167	SMA Series – Right angle plug for 2.6/50/S flexible cable	11
R125 426 067	SMA Series – Straight PCB receptacle	11
R280 220 007	Right angle terminal solder type for 2.6/50+75/S flexible cable	12
R280 226 007	Right angle terminal solder type for .250 semi-rigid cable	12
R280 287 097	Straight PCB terminal solder type for .047 semi-rigid cable	12
R284F0625004	UMP Series – H2 Pigtail with 1/50/S flexible cable	7
R284F0625005	UMP Series – H2.6 Pigtail with 2/50/S flexible cable	7
R284F0723001	UMP Series – H3 Pigtail with 2.6/50/S flexible cable	7
R282 203 020	Insertion tool for UMP	15
R282 211 000	Crimp tool	16
R282 223 000	Crimp tool	16
R282 235 003	dies	16
R282 235 011	dies	16
R282 293 000	MIL crimp tool	16
R282 867 020	Extraction tool for UMP H2	15
R282 867 030	Extraction tool for UMP H2.6 & H3	15

A global range

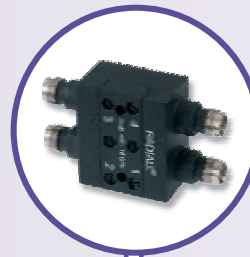
To meet your needs



ANTENNAS

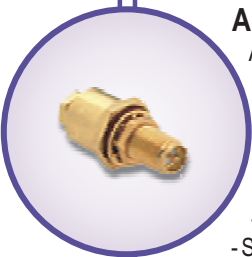
RADIALL develops and produces antennas for frequencies from 27 MHz to 6 GHz.

- Technologies used: wire, patch, printed, wire-plate, PIFA
- Numerous types of antennas: single pole, dipole, network, passive or active (with LNA), adaptable and intelligent, outdoor or integrated.



MICROWAVE COMPONENTS

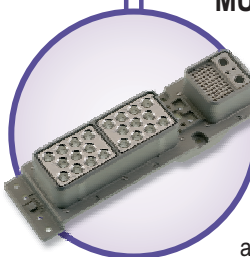
Wide range of coaxial terminations and attenuators using standard interfaces (SMA, QMA, N, QN...) from low (1W) to high power (100W) and new cable load solution, chip terminations up to 18 GHz, hybrid or directional SMT couplers up to connectorized couplers, lightning protectors, detectors, rotary joints, phase shifters, DC Blocks...



AEP CONNECTORS

AEP, a Radiall US subsidiary, design RF connectors for the demanding requirements of military field radio and avionics systems:

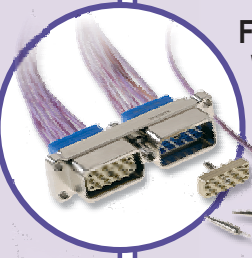
- Coaxial waterproof connectors with a unique system of sealing.
- MIL-PRF-39012 QPL connectors
- SSMB and SSMC superior connectors
- SLB Self Aligning connector system.



MULTIPIN CONNECTORS

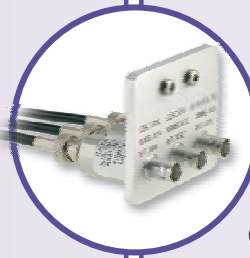
The range includes rack and panel connectors (Arinc 404 & MIL-C-81659B DSX, Arinc 600 NSX & SW280WS1 BPX, EN3682/MIL-C-83527 MPX JN1123 TCX), modular connector (EPX A & B), compatible with a large variety of contacts : signal, power, RF, data bus, fiber optic, quadax and twinax.

A range of wire to wire and wire to board is also available: B & MCSR duty connectors, M, MM, MB, MBC rectangular miniature series, MMC.



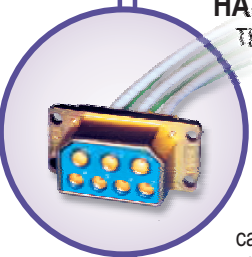
FIBER OPTIC CONNECTORS

Wide range of interconnect solutions, including standard connector interfaces for multimode and singlemode fiber (LC, SC, FC, ST...) as well as connectors and termini contacts (MIL-T-29504, ARINC 801) for harsh environment applications (aeronautic, military, naval, medical, railway...). Great flexibility for custom design.



MICROWAVE SUB-SYSTEMS

We design Filters, Duplexers, Splitters and Combiners, Switching matrix, interconnection racks and enclosures, Custom assemblies, ... Our expertise includes Microwave passive systems design, Mechanical integration to customer environment, Thermal management, Cabling, wiring, harnessing, ...



HARNESSES

The combination of design and manufacturing of RF and microwave cables as well as multipin connectors (EPX, ARINC 404 and 600) allows Radiall to be a specialist of harnesses for on-board (aeronautic, navy...) or land (railways, removed antenna...) equipment or communications systems. All types of contacts can be used and mixed such as signal, power, RF, quadax, fiber optic...



RF & MICROWAVE CABLE ASSEMBLIES

RG, Eco-Friendly, Handformable, Semi-rigid, SHF Ultra-low loss (General Interconnect, Outdoor, Airframe phase matching large choice of interfaces, Lightweight), ...

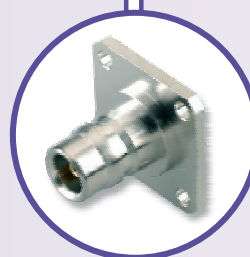


RF & MICROWAVE SWITCHES

Wide range of coaxial switching products for commercial, military and instrumentation applications. Available with a large choice of interfaces (SMA, QMA, N, ...), from DC to 40 GHz.

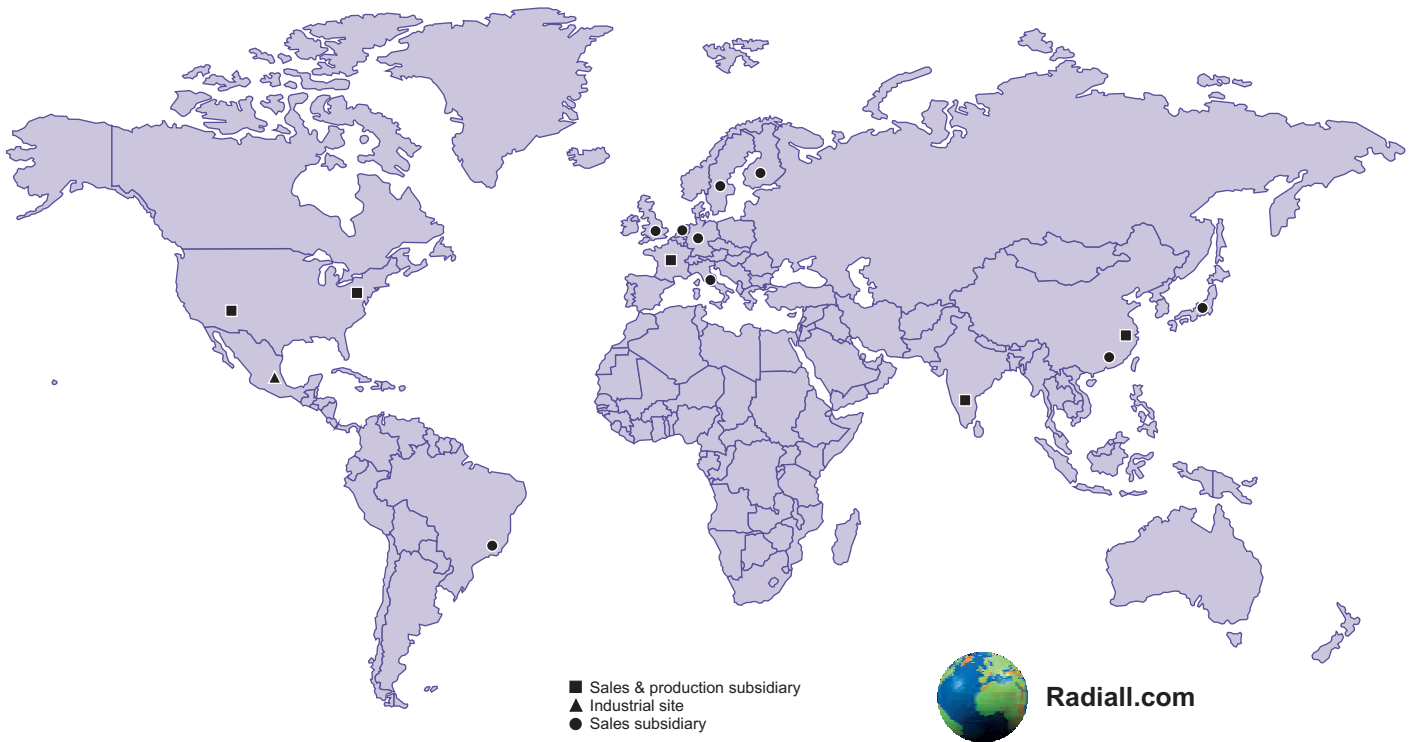
Main products:

- Standard RAMSES series.
- PLATINUM series with high repeatability (0.03dB) on insertion loss during 10 million actuations.
- Subminiature SPnT up to 26.5 GHz.
- SMT high power micro-SPDT.



RF COAXIAL CONNECTORS

The widest range of coaxial connectors in the world from microminiature (UMP) to standard connectors (7/16) covering the frequency range of DC to 65 GHz mixing standardized and custom interfaces (UMP, IMP, MMS, MMT, QMA, QN, MMBX).



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France	Portugal	Switzerland	

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RADIALL 
 The next connexion

Printed in France

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