



HIGH FREQUENCY CONNECTORS: N 18 GHZ TNC 18 GHZ/SMA 2.9/2.4 MM

R163/R143/R127/R327

Section 10 Table of Contents

N 18 GHZ

Introduction.....	10-4 to 10-5
Interface.....	10-6
Characteristics	10-7
Plugs and Jacks.....	10-8
Adapters.....	10-8

TNC 18 GHZ

Interface.....	10-9
Characteristics	10-10
Plugs	10-11
Jacks	10-11 to 10-12
Receptacles.....	10-12
Adapters.....	10-13
Caps.....	10-13

SMA 2.9

Introduction.....	10-14
Interface.....	10-15
Characteristics	10-16
Plugs	10-17
Jacks and Receptacles	10-17 to 10-18
Glass Bead	10-18
In Series Adapters.....	10-18
Between Series Adapters.....	10-19
Panel Drilling	10-19

2.4 MM

Interface.....	10-20
Characteristics	10-21
Plugs, Jacks and Receptacles	10-22 to 10-23
Glass Bead	10-23
In Series Adapters.....	10-24
Panel Drilling	10-24

N 18 GHz

INTRODUCTION

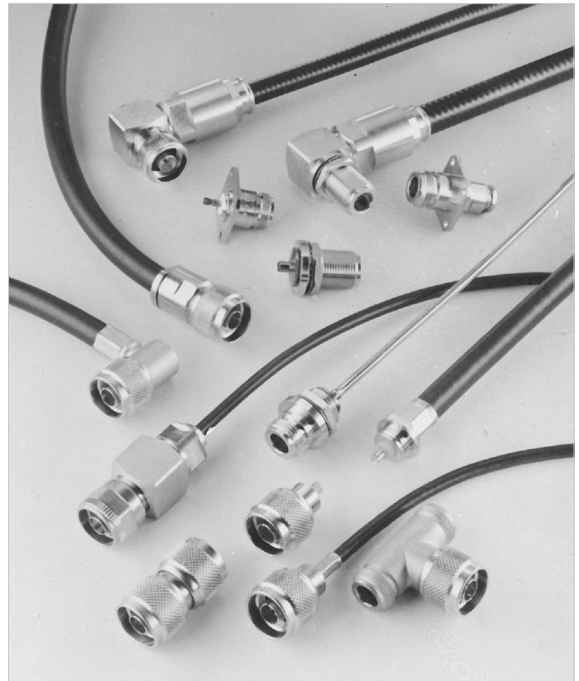
N 18 connectors are 50 ohm precision N Type connectors designed to perform through 18 GHz. N connectors are a popular medium sized option commonly used in microwave and RF applications that require high power handling and good electrical performance. Radiall Type N connector interfaces utilizes a PTFE (Teflon) dielectric. The male connectors are provided with a 19 mm (3/4 in.) hex coupling nut so they can be properly torqued. Connector bodies are made from stainless steel, and contacts are made from gold plated and heat treated beryllium copper contacts to insure long life and reliability.

Radiall offers N connectors for semi-rigid and low loss flexible cables, receptacles and precision adapters.

Connectors for low loss flexible cables and TestPro cables are not detailed in this section. They are available in our cable assembly offer.

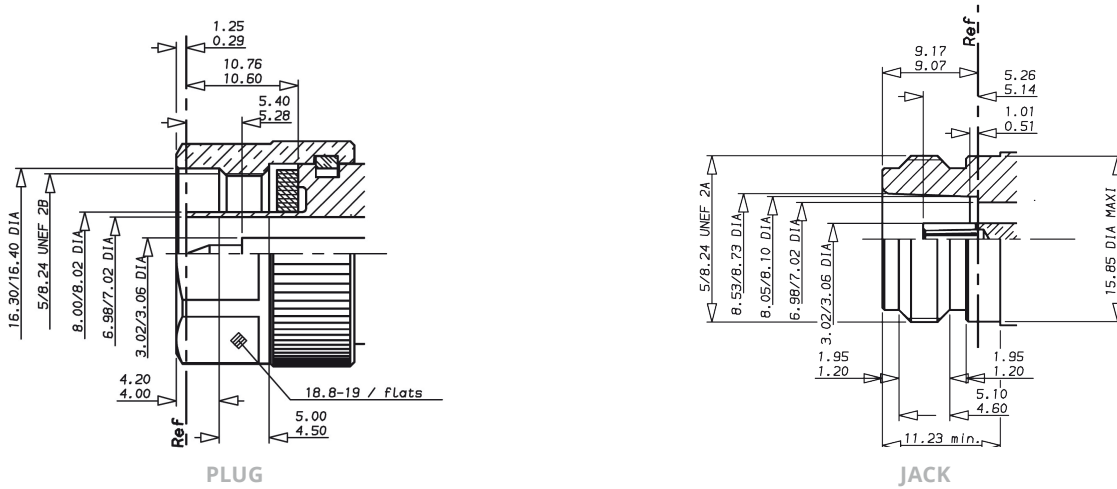
TYPE N 18 DESIGN FEATURES

- Excellent performance up to 18 GHz
- Low VSWR and insertion loss
- Highly robust construction for reliability
- Superior interface environmental seal
- High power capability



N 18 GHz

INTERFACE



IMPORTANT: the 50Ω and the 75Ω connectors are NOT INTERMATEABLE, results in the interface destruction.

MM	INCH
0.29	.0114
1.25	.049
3.02	.1189
3.06	.1204
4.00	.157
4.20	.165
4.50	.177
5.00	.197
5.28	.208
5.40	.2126
6.98	.2748
7.02	.2764
8.00	.315
8.02	.316
10.60	.417
10.76	.423
16.30	.642
16.40	.646
18.80	.740
19.00	.748

MM	INCH
0.51	.020
1.01	.0397
1.20	.0472
1.95	.0767
3.02	.1189
3.06	.1204
4.60	.1811
5.10	.201
5.14	.202
5.26	.207
6.98	.2748
7.02	.2764
8.05	.317
8.10	.319
8.53	.336
8.73	.3437
9.07	.357
9.17	.361
11.23	.442
15.85	.624

Notes

Mating dimensions are MIL-C-39012 nominal with tighter tolerances and solid outer contact.

N 18 GHz

CHARACTERISTICS

TEST / CHARACTERISTICS	VALUES / REMARKS
------------------------	------------------

ELECTRICAL CHARACTERISTICS

Impedance	50Ω	
Frequency Range	DC - 18 GHz	
Typical V.S.W.R. • Straight Connector • Right Angle Connector	With SHF Cables 1.10 at 18 GHz 1.15 at 18 GHz	
Insertion Loss	< 0.1 √F (GHz) dB	
RF Leakage	- 90 dB (2 to 3 GHz)	
Insulation Resistance	5000 MΩ min	
Contact Resistance • Outer Contact • Inner Contact	After Environment Test 2 mΩ max N.A.	Initial 1.5 mΩ max 2 mΩ max
Peak Power (At Sea Level)	5000 W	
Average Power (At Sea Level, 25 °C)	2000 W at 0.1 GHz 600 W at 1 GHz 150 W at 10 GHz	
	.085" Semi-Rigid Cable	.141" Semi-Rigid Cable
Dielectric Withstanding Voltage • At Sea Level • At 70000 feet	1000 Vrms 250 Vrms	1500 Vrms 375 Vrms
Voltage Rating • At Sea Level • At 70000 feet	335 Vrms 85 Vrms	500 Vrms 125 Vrms
RF High Potential Withstanding Voltage	670 Vrms	1000 Vrms
Corona Level	250 Vrms	375 Vrms

MECHANICAL CHARACTERISTICS

Durability	500 Matings	
Cable Retention Force	136 N (31 lbf)	272 N (61 lbf)
Recommended Coupling Torque	160 Ncm (14 lbf.in)	
Contact Captivation	27 Ncm (6 lbf) min	

ENVIRONMENTAL CHARACTERISTICS

Temperature Range	Standard Connectors - 65 °C + 165 °C	Connectors for Semi-Rigid Cable - 40 °C + 125 °C
Vibration	MIL-STD-1344 Method 2005 Condition 4	
Shock	MIL-STD-1344 Method 2004 Condition G	
Thermal Shock	MIL-STD-1344 Method 1003 Condition A	
Corrosion (Salt Mist)	MIL-STD-1344 Method 1001 Condition B	
High Temperature Test	CECC 22000/4.7.2	
Damp Heat	CECC 22000/4.6.6	
Low Pressure Immersion	EN2591 AECMA TestC14	
Resistance to Fluids Contamination	EN2591 AECMA TestC15	

MATERIALS

Body	Stainless Steel
Center Contact	Beryllium Copper and Brass
Coupling Nut	Brass
Insulator	PTFE or Polyetherimid Resin
Gasket	Fluorosilicon or Fluorocarbon

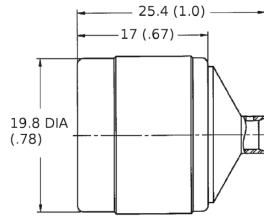
PLATING

Body	Passivated
Center Contact	Gold
Coupling Nut	Nickel

N 18 GHz

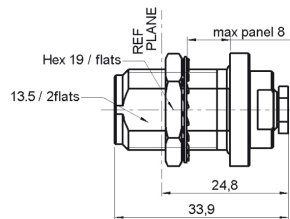
PLUGS, JACKS AND ADAPTERS

STRAIGHT PLUGS FOR SEMI-RIGID CABLES ^[1]



CABLE GROUP	CABLE GROUP DIA.	PART NUMBER	CAPTIVE CENTER CONTACT	MATERIAL	NOTE
RG402	.141"	4000-1563-009	Yes	Stainless Steel	Direct Solder
RG405	.085"	4000-1563-010			

BULKHEAD STRAIGHT JACKS, FOR SEMI-RIGID CABLES (PANEL SEALED)



CABLE GROUP	CABLE GROUP DIA.	PART NUMBER	CAPTIVE CENTER CONTACT	PANEL DRILLING	MATERIAL	NOTE
RG405	.085"	4501-9543-010	Yes	P14	Stainless Steel	Solder Clamp / Rear Mount
RG402	.141"	4501-9543-009				
		R163 337 001				

IN SERIES ADAPTERS ^[2]



FIG. 1

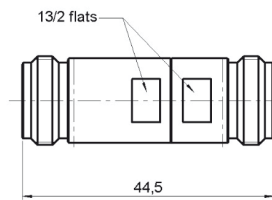


FIG. 2

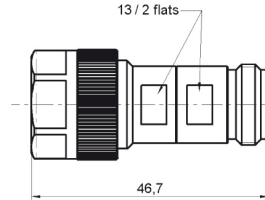


FIG. 3

PART NUMBER	FIG.	DIMENSION (MM)	NOTE
R163 703 001	1	53.5 (2.106)	Male - Male
R163 705 001	2	44.5 (1.752)	Female - Female
R163 708 001	3	46.7 (1.838)	Male - Female

Notes

- N18 GHz plugs for SHF high frequency flexible cable are available as cable assemblies only. Consult us for standard N18 GHz cable assembly part numbers.
- 7mm air line adapters also available upon request.

TNC 18 GHz

INTRODUCTION

TNC 18 connectors are 50 ohm precision TNC Type connectors designed to perform through 18 GHz. TNC connectors are a popular medium sized option commonly used in microwave and RF applications that require average power handling and good electrical performance. Radiall TNC connector interfaces utilizes a PTFE (Teflon) dielectric. The male connectors are provided with a 14 mm (9/16 in.) hex coupling nut so they can be properly torqued. Connector bodies are made from stainless steel, and contacts are made from gold plated and heat treated beryllium copper contacts to insure long life and reliability.

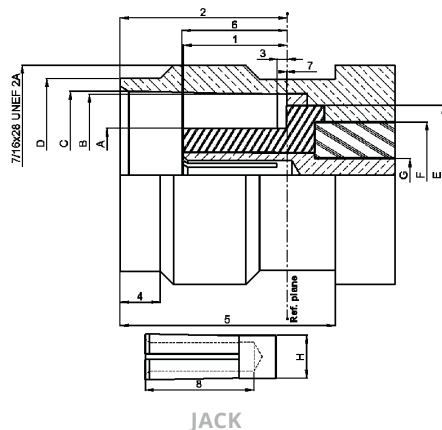
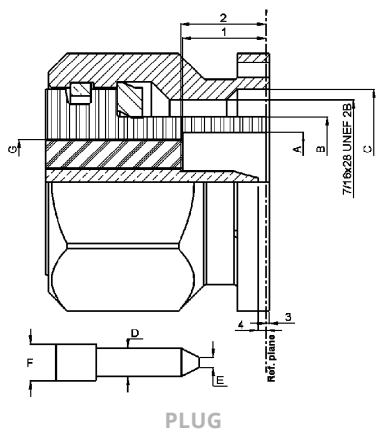
Radiall offers TNC connectors for semi-rigid and low loss flexible cables, receptacles and precision adapters.

Connectors for low loss flexible cables and TestPro cables are not detailed in this section. They are available in our cable assembly offer.

TNC 18 DESIGN FEATURES

- Excellent performance up to 18 GHz
- Low VSWR and insertion loss
- Rugged construction for reliability
- Superior interface environmental seal
- Medium power capability

INTERFACE



LETTER	MM		INCH	
	MIN	MAX	MIN	MAX
A	6.18	6.22	0.243	0.245
B	8.03	8.09	0.316	0.319
C	11.40	11.60	0.449	0.457
D	1.34	1.36	0.053	0.054
E	0.35	0.65	0.014	0.026
F	1.62	1.66	0.064	0.065
G	5.28	5.32	0.208	0.210
1	5.28	5.38	0.208	0.212
2	5.35	5.50	0.211	0.217
3	-0.30	0.55	-0.012	0.022
4	0.35	0.90	0.014	0.065

LETTER	MM		INCH	
	MIN	MAX	MIN	MAX
A	4.68	4.72	0.184	0.186
B	8.10	8.15	0.319	0.321
C	8.32	8.46	0.328	0.333
D	9.61	9.68	0.379	0.381
E	6.93	6.98	0.273	0.275
F	5.28	5.32	0.208	0.210
G	1.62	1.66	0.064	0.065
H	2.14	2.18	0.084	0.086
1	4.98	5.23	0.196	0.206
2	8.36	8.46	0.329	0.333
3	0.48	1.02	0.019	0.040
4	1.80	2.20	0.071	0.087
5	10.60	11.00	0.417	0.432
6	5.18	5.28	0.204	0.208
7	-0.10	0.05	0.004	0.002
8	5.20	5.70	0.204	0.224

TNC 18 GHz

CHARACTERISTICS

TEST / CHARACTERISTICS	MIL-C-39012 A	VALUES / REMARKS
------------------------	---------------	------------------

ELECTRICAL CHARACTERISTICS

Impedance	-	50Ω	
Frequency Range	-	DC - 18 GHz	
V.S.W.R.	3-14	Semi-Rigid Cable: 1.17 max	
		Flexible Cable: 1.35 at 12.4 GHz	In Series Adapter: 1.35 max
Insertion loss	3-27	0.18 dB max at 9 GHz	
RF Leakage	3-26	-60 dB min from 2 to 3 GHz	
Insulation Resistance	3-11	5000 MΩ min	
Contact Resistance	3-16	Initial	After Proof
• Center Contact (mΩ)	-	1.5	2
• Outer Contact (mΩ)	-	0.2	-
Working Voltage	-	At sea level: 500 V rms	at 70000 ft (21000 m): 125 V rms
Dielectric Withstanding Voltage	3-17	At sea level: 1500 V rms	at 70000 ft (21000 m): 375 V rms
RF Withstanding Voltage	3-23	At sea level: 1000 V rms (5 MHz sine wave)	

MECHANICAL CHARACTERISTICS

Durability	3-15	500 Matings
Mating / Unmating	-	Axial Force: Not Applicable Torque: 1.96 inch pounds (22.6 N.cm)
Recommended Mating Torque	-	22.98 inch pounds (265 N.cm)
Proof Torque	-	29.40 inch pounds (339 N.cm)
Coupling Mechanism Retention Force	3-25	100 Lbf (44.5 daN)
Cabling Retention Force	3-24	51 Lbf (227 N min) (cable dia. .189 (4.8) to .228 (5.8)) 76.4 Lbf (340 N min) (cable dia. .250 (6.35) and above)
Center Contact Retention	-	Axial: 6.06 Lbf (27 N)

ENVIRONMENTAL CHARACTERISTICS

Temperature Range	-	-65 °C / + 165 °C
• Standard Models	-	-65 °C / +100 °C
• Hermetic Sealed Models	-	-65 °C / +105 °C
• Models for Semi-Rigid Cables	-	-65 °C / +105 °C
Combined Climate Tests		
Thermal Shock	3-20	MIL-STD-202, Method 107, Condition B
High Temperature Endurance	-	MIL-STD-202, Method 108
Corrosion (Salt Spray)	3-13	MIL-STD-202, Method 101, Condition B
Vibrations	3-18	MIL-STD-202, Method 204, Condition B
Shocks	3-19	MIL-STD-202, Method 213, Condition G
Moisture Resistance	3-21	MIL-STD-202, Method 106
Low Pressure	3-22	Not Applicable
Hermetic Seal	-	Applied Vacuum 10 ⁻⁶ mm of Hg (Torrs) Leakage Rate < 10 ⁻⁶ atm/cm ³ /s
Leakage	-	Pressure 3.5 bars; Duration 2 mn; Temperature 15 °C to 25 °C

MATERIALS

Body	-	Stainless Steel
Center Socket Contact	-	Brass Bronze
• Male	-	
• Female	-	
Ferrules	-	Brass
Insulators	-	PTFE Teflon
Gaskets	-	Silicone Elastomer

PLATING

Body	-	Passivated
Center Contacts	-	Gold Plated

TNC 18 GHz

PLUGS AND JACKS
STRAIGHT PLUGS CRIMP TYPE FOR FLEXIBLE CABLE

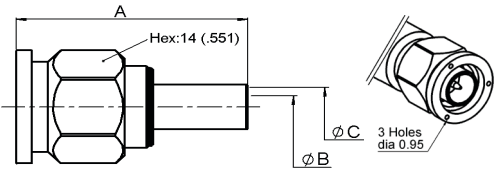


FIG. 1

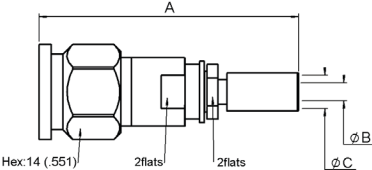
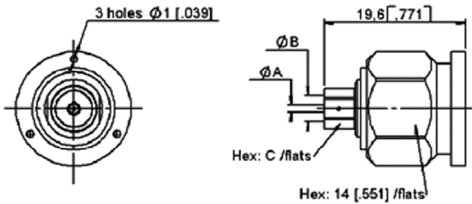


FIG. 2

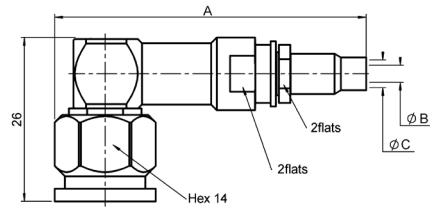
CABLE GROUP	CABLE GROUP DIA.	PART NUMBER	FIG.	DIMENSIONS MM (INCH)			NOTE
				A	B	C	
RG142 / RG223 / RG400	5/50/D	R143 082 700	1	30 (1.181)	3.2 (.126)	5.5 (.218)	Incl. Heatshrink Tube
		R143 097 700	2	43.5 (1.713)	3 (.118)	5.5 (.218)	
-	3.85/50/S	R143 088 101		47 (1.85)	3 (.118)	4.2 (.165)	
-	4.13/50/S	R143 093 700		43.5 (1.71)	2.7 (.106)	4.5 (.177)	
-	8.07/50/S	R143 092 790	1	49.7 (1.957)	6.3 (.248)	8.4 (.331)	
RG214 / RG225	11/50/D	R143 089 700		35 (1.38)	7.5 (.295)	11 (.433)	-

STRAIGHT PLUGS SOLDER TYPE FOR SEMI-RIGID CABLE



CABLE GROUP	CABLE GROUP DIA.	PART NUMBER	DIMENSIONS MM (INCH)		
			A	B	C
RG402	.141"	R143 051 700	1 (.039)	3.65 (.144)	5 (.197)
RG401	.250"	R143 054 700	1.7 (.067)	6.45 (.254)	8 (.315)

RIGHT ANGLE PLUGS CRIMP TYPE FOR FLEXIBLE CABLE

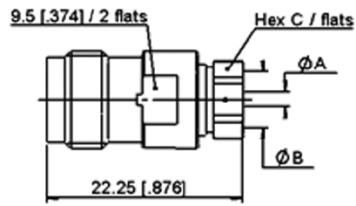


CABLE GROUP	CABLE GROUP DIA.	PART NUMBER	DIMENSIONS MM (INCH)			NOTE
			A	B	C	
-	3.85/50/S	R143 188 101	54.2 (2.13)	3 (.118)	4.2 (.165)	Incl. Heatshrink Tube
-	4.13/50	R143 191 700	50 (1.97)	2.7 (.106)	4.5 (.177)	

Notes
Standard packaging = unit
All dimensions are given in mm (inch)

TNC 18 GHz

STRAIGHT JACK SOLDER TYPE FOR SEMI-RIGID CABLE



CABLE GROUP	CABLE GROUP DIA.	PART NUMBER	DIMENSIONS MM (INCH)		
			A	B	C
RG402	.141"	R143 227 700	1 (.039)	3.65 (.143)	5 (.197)

STRAIGHT SQUARE FLANGE JACK CRIMP TYPE FOR FLEXIBLE CABLE

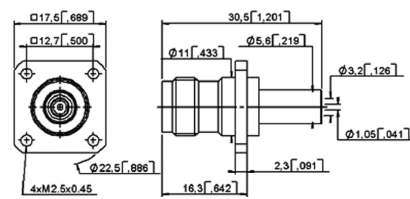


FIG. 1

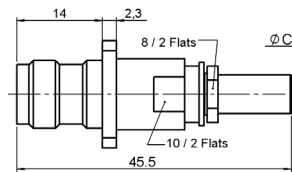
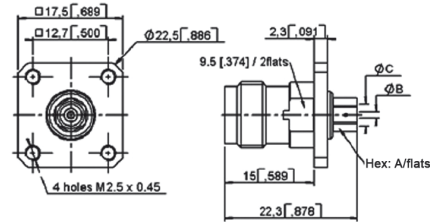


FIG. 2

CABLE GROUP	CABLE GROUP DIA.	PART NUMBER	FIG.	C	PANEL DRILLING	NOTE
-	4.13/50	R143 295 700	2	4.4 (.173)	P01	Ind. Heatshrink Tube
RG142 / RG223 / RG400	5/50/D	R143 292 700	1	5.6 (.219)		
		R143 297 700	2			

STRAIGHT SQUARE FLANGE JACKS SOLDER TYPE FOR SEMI-RIGID CABLE



CABLE GROUP	CABLE GROUP DIA.	PART NUMBER	DIMENSIONS MM (INCH)			PANEL DRILLING
			A	B	C	
RG405	.085"	R143 272 700	4 (.157)	0.6 (.024)	2.25 (.089)	P12
RG402	.141"	R143 273 700	5 (.197)	1 (.039)	3.65 (.144)	
RG401	.250"	R143 274 700	8 (.315)	-	6.45 (.254)	

TNC 18 GHz

JACKS AND RECEPTACLES
STRAIGHT BULKHEAD JACK PANEL SEALED

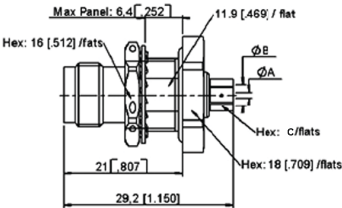


FIG. 1

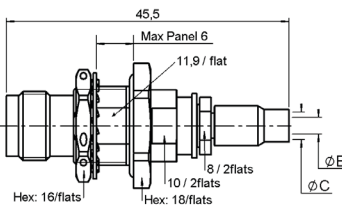
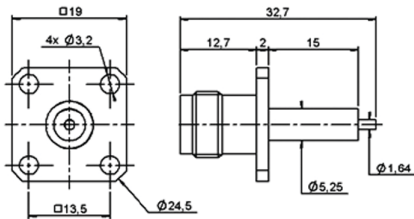


FIG. 2

CABLE GROUP	CABLE GROUP DIA.	PART NUMBER	FIG.	DIMENSIONS MM (INCH)		PANEL DRILLING	TYPE
				A	B		
RG402	.141"	R143 321 700	1	3.65 (.144)	5 (.197)	P09	Solder
RG401	.250"	R143 322 700		6.45	8		Crimp
-	4.13/50	R143 340 700	2	2.7	4.5		

SQUARE FLANGE STRAIGHT FEMALE RECEPTACLE (EXTENDED DIELECTRIC)



PART NUMBER	CAPTIVE CENTER CONTACT	PANEL DRILLING
R143 412 700	Yes	P13

TNC 18 GHz

ADAPTERS AND CAPS
IN SERIES ADAPTERS

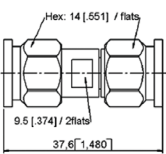


FIG. 1

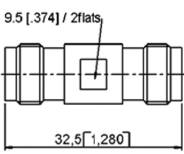


FIG. 2

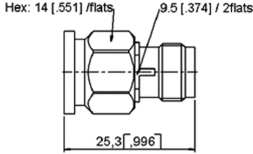


FIG. 3

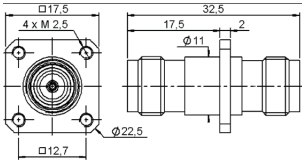


FIG. 4

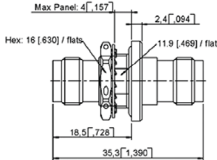
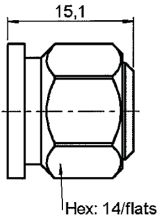
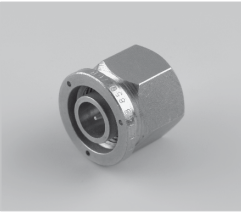


FIG. 5

PART NUMBER	FIG.	CAPTIVE CENTER CONTACT	PANEL DRILLING	NOTE
R143 703 700	1	Yes	-	Male - Male
R143 704 700	2		-	Female - Female
R143 705 700	3		-	Male - Female
R143 710 700	4		P16	Square Flange Female - Female
R143 730 700	5		P09	Bulkhead Panel Sealed Female - Female

CAPS



PART NUMBER	NOTE
R143 850 700	Male Short Circuit

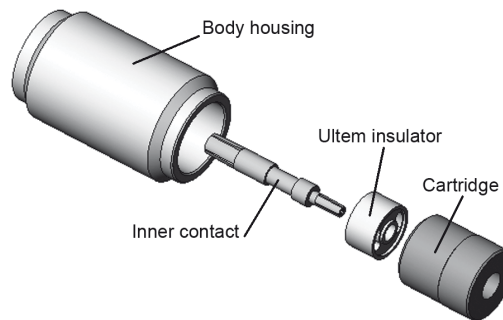
SMA 2.9

INTRODUCTION

SMA 2.9 series is compatible with K® series, 2.92 mm, SMA and SMA 3.5 series, and has a shortened male center contact, ensuring a non destructive mating. Radiall offers four product variations for SMA 2.9 to meet all your needs with two different designs. The standard design is using our “ULTEM” insulator technology and is qualified up to 40 GHz. The high frequency design is using our “KAPTON” insulator technology and is qualified up to 46 GHz. All versions feature the same electrical high performance and are available in a variety of configurations.

SMA 2.9 FOR GENERAL USE, “ULTEM” TECHNOLOGY, DC-40 GHZ

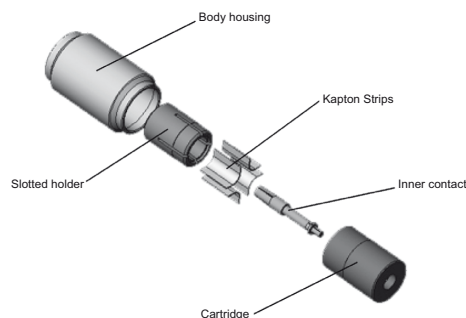
This robust design is suitable for most applications. The ULTEM insulator provides a high ingress protection level against chemicals, fluids or dust and is well suited for high frequency aerospace and military equipment.



3D VIEW OF SMA 2.9 “ULTEM” DESIGN

SMA 2.9 FOR TEST LABORATORY USE, “KAPTON” TECHNOLOGY, DC-46 GHZ

The KAPTON insulator design is excellent for high frequency measurements in test laboratories. KAPTON is also very stable with temperature. Radiall SMA 2.9 adapters using KAPTON are specified DC-46 GHz and operate within a large temperature range - 65 °C/+200 °C.



3D VIEW OF SMA 2.9 “KAPTON” DESIGN

SMA 2.9 FOR SPACE APPLICATIONS

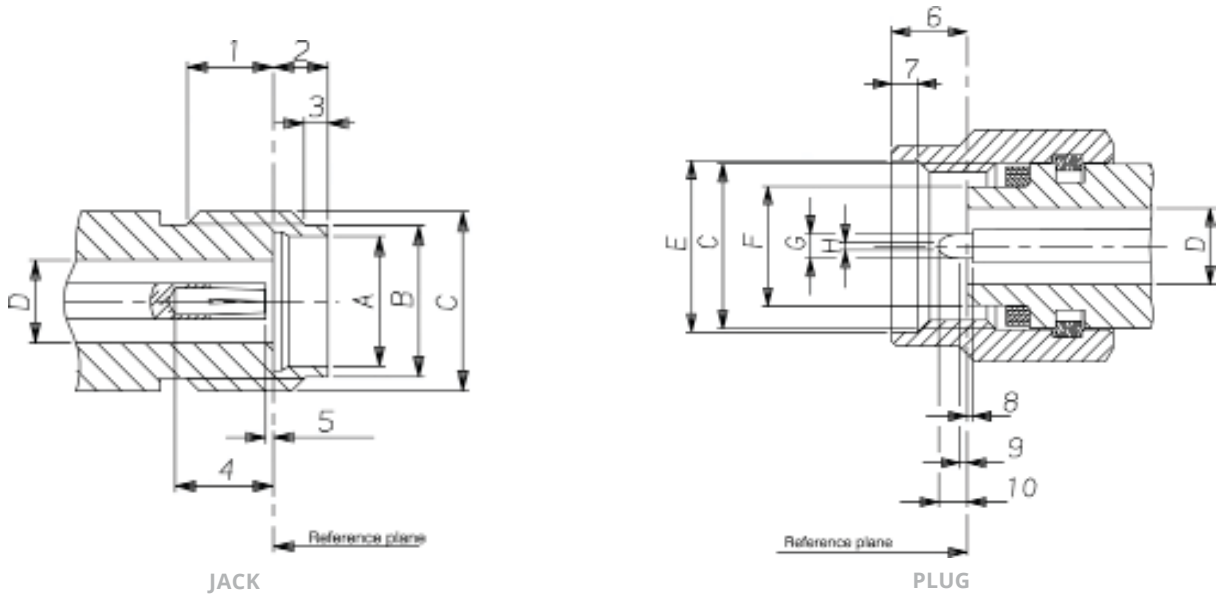
Radiall is a certified manufacturer of connectors for space applications according to ESA specifications. A range of space qualified SMA 2.9 connectors using the ULTEM insulator technology is available. Please consult us.

SMA 2.9 FOR HARSH ENVIRONMENTS

Radiall also offers a range of cable assemblies equipped with specific connectors for applications in harsh environment. The connectors are made of high grade stainless steel 316L ultra resistant to corrosion and wear. Please consult us.

SMA 2.9

INTERFACE



LETTER OR FIGURE	MM		INCH	
	MIN	MAX	MIN	MAX
1	2.87	3.27	.113	.129
2	1.88	1.98	.074	.078
3	0.65	0.95	.026	.037
4	2.40	2.68	.094	.105
5	-	0.08	-	.003
A	4.60	4.63	.181	.182
B	5.30	5.35	.209	.211
C	1/4 - 36 UNS 2A			
D	2.90	2.94	.114	.116

LETTER OR FIGURE	MM		INCH	
	MIN	MAX	MIN	MAX
6	2.63	3.25	.103	.128
7	0.90	1.10	.35	.043
8	-	0.08	-	.003
9	0.49	0.78	.019	.031
10	1.22	1.40	.048	.055
C	1/4 - 36 UNS 2B			
D	2.90	2.94	.114	.116
E	6.60	6.70	.260	.264
F	4.55	4.58	.179	.180
G	0.92	0.94	.036	.037
H	0.20	0.34	.008	.013

SMA 2.9

CHARACTERISTICS

TEST / CHARACTERISTICS	VALUES / REMARKS	
	ULTEM TECHNOLOGY	KAPTON TECHNOLOGY

ELECTRICAL CHARACTERISTICS

Impedance	50Ω	
Frequency Range	DC - 40 GHz	DC - 46 GHz
V.S.W.R.	< 1.05 + 0.005 F (GHz)	
Insertion Loss	0.03 √ F (GHz)	
RF Leakage	- 90 dB max	
Insulation Resistance	≥ 5000 MΩ	
Contact Resistance	≤ 2 mΩ	
• Outer Contact	Straight ≤ 3 mΩ	
• Inner Contact	Hermetic ≤ 7 mΩ	
Voltage Rating	350 V(RMS)	
Dielectric Withstanding Voltage	750 V(RMS)	

MECHANICAL CHARACTERISTICS

Mechanical Endurance	500 Matings	
Force to Engage and Disengage	≤ 23 N cm (2 in/lbs)	
Mating Torque	80 to 115 N cm (7 to 10 in/lbs)	
Coupling Nut Retention Force	≤ 272 N (61 lbf)	
Cable Retention Force		
• .085"	135 N (30 lbf)	
• .141"	270 N (60 lbf)	
Contact Captivation	28N (6.3 lbf)	

ENVIRONMENTAL CHARACTERISTICS

Temperature Range	-65 °C / + 165 °C	-65 °C / +200 °C
Thermal Shock	MIL STD 202, Method 107, Condition B	
High Temperature Test	MIL STD 202, Method 108	
Corrosion (Salt Spray)	MIL STD 202, Method 101, Condition B, 5 %	
Vibration	MIL STD 202, Method 204, Condition D, 20g	
Shock	MIL STD 202, Method 213, Condition I, 100g	
Moisture Resistance	MIL STD 202, Method 106	

MATERIALS AND PLATING

	Material	Plating
Bodies	Stainless Steel	Passivated
Center Contacts	Beryllium Copper	Gold Plated
Gasket	Silicone Rubber	-
Insulators	Ultem (Ultem Technology) Kapton (Kapton Technology)	-

Notes

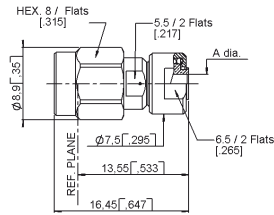
Packaging: unit

All dimensions are given in mm (inch)

SMA 2.9

PLUGS

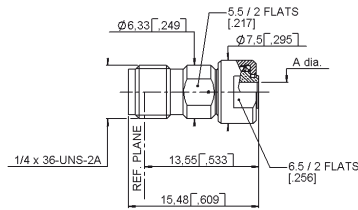
STRAIGHT PLUGS, SOLDER TYPE FOR MICROPOROUS SEMI-RIGID CABLES



CABLE GROUP	CABLE GROUP DIA.	PART NUMBER	INSULATOR	DIMENSION A (MM)	CAPTIVE CENTER CONTACT	FREQUENCY RANGE
RG405	.085" Microporous	R127 800 001	ULTEM	2.25	Yes	DC - 40 GHz
RG402	.141" Microporous	R127 800 101		3.66		
RG405	.085" Microporous	R127 052 001	KAPTON	2.2		DC - 46 GHz
-	.116" Microporous	R127 055 001		3.0		

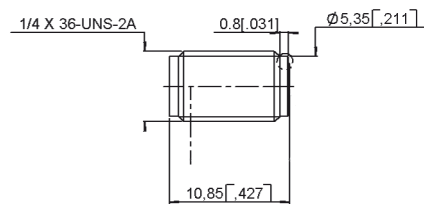
JACKS AND RECEPTACLES

STRAIGHT JACK SOLDER TYPE FOR MICROPOROUS SEMI-RIGID CABLES



CABLE GROUP	CABLE GROUP DIA.	PART NUMBER	INSULATOR	DIMENSION A (MM)	CAPTIVE CENTER CONTACT	FREQUENCY RANGE
RG405	.085" Microporous	R127 820 001	ULTEM	2.25	Yes	DC - 40 GHz

UNIVERSAL SCREW-ON FEMALE RECEPTACLES



PART NUMBER	INSULATOR	FREQUENCY RANGE	USED WITH GLASS BEAD	FOR PIN DIAMETER
R127 841 001	ULTEM	DC - 40 GHz	R280 760 040	0.3 (.012)
R127 601 001	KAPTON	DC - 46 GHz		
R127 601 421			R280 760 000 Included	

SMA 2.9

FLANGE FEMALE RECEPTACLES

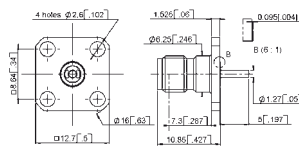


FIG. 1

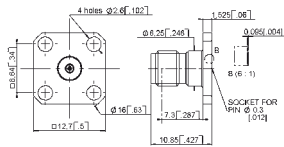


FIG. 2

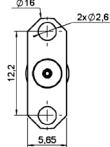


FIG. 3

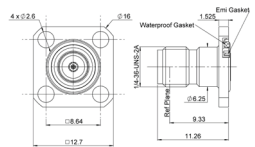
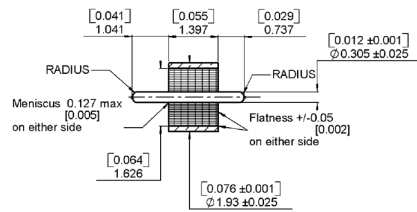


FIG. 4

PART NUMBER	FIG.	INSULATOR	CAPTIVE CENTER CONTACT	PANEL DRILLING	USED WITH GLASS BEAD	NOTE
R127 840 021	1	ULTEM	Yes	P02	N/A	With Cylindrical Center Contact
R127 842 001	2			KAPTON	P01	R280 760 040
R127 631 001		-			-	
R127 632 001	3			-	-	Accept Pin Dia 0.3 (.012) Panel Leakage IP67
R127 842 101	4	PEEK		P01	-	

GLASS BEAD AND IN SERIES ADAPTERS

GLASS BEAD



PART NUMBER	PACKAGING
R280 760 040	100

IN SERIES ADAPTERS

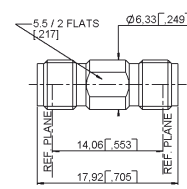


FIG. 1

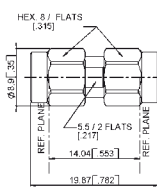


FIG. 2

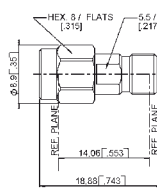


FIG. 3

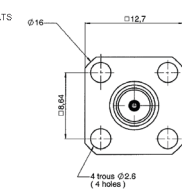


FIG. 4

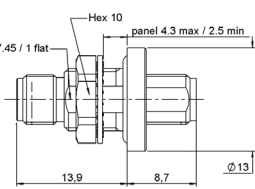


FIG. 5

PART NUMBER	FIG.	INSULATOR	NOTE	FREQUENCY RANGE
R127 703 001	2	KAPTON	Male- Male	DC - 46 GHz
R127 704 001	3		Female- Male	
R127 705 001	1		Female- Female	
R127 712 001	4		Female - Female - 4 Hole Flange	
R127 732 100	5		Female - Female - Bulkhead Panel Sealed	
R127 753 000	5		Female - Female - Bulkhead Hermetic	
R127 870 001	1	ULTEM	Female- Female	DC - 40 GHz
R127 872 001	3		Female- Male	
R127 871 001	2		Male- Male	

SMA 2.9

BETWEEN SERIES ADAPTERS

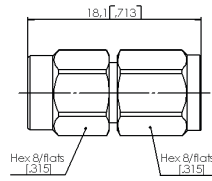
BETWEEN SERIES ADAPTERS ^[1]

FIG. 1

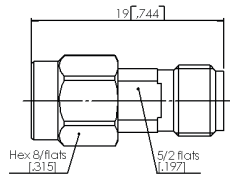


FIG. 2

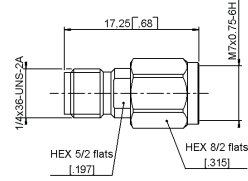


FIG. 3

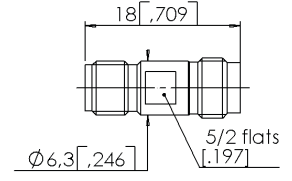
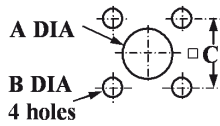


FIG. 4

PART NUMBER	FIG.	INSULATOR	NOTE	FREQUENCY RANGE
R191 970 061	1	KAPTON	SMA 2.9 Male - SMA 2.4 Male	DC - 46 GHz
R191 970 071	2		SMA 2.9 Male - SMA 2.4 Female	
R191 970 081	3		SMA 2.9 Female - SMA 2.4 Male	
R191 970 091	4		SMA 2.9 Female - SMA 2.4 Female	

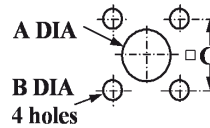
PANEL DRILLING

P01



	mm		inch	
	maxi	mini	maxi	mini
A	1.63	1.60	.064	.063
B	2.70	2.60	.106	.102
C	8.69	8.59	.342	.338

P02



	mm		inch	
	maxi	mini	maxi	mini
A	2.95	2.91	.116	.115
B	2.7	2.6	.106	.102
C	8.69	8.59	.342	.338

Notes

1. These adapters are still using the previous technology (4 kapton strips) allowing to reach 46 GHz within a temperature range of - 65 °C/+ 200 °C.

2.4 MM

INTRODUCTION

2.4 mm connectors are 50 ohm precision connectors designed for use to 50 GHz. The design eliminates the fragility of the SMA and 2.92 mm connectors by increasing the outer wall thickness and strengthening the female fingers. The outer conductor measures 2.4 mm and the robust wall of the connector body is designed to engage before the center conductor, assuring a rugged, repeatable mating interface. The male connectors are provided with a 8 mm (5/16 in.) hex coupling nut so they can be properly torqued.

2.4 mm connectors are mechanically compatible with 1.85 mm connectors. They cannot mate with SMA, 3.5-mm and 2.92-mm without the use of precision adapters.

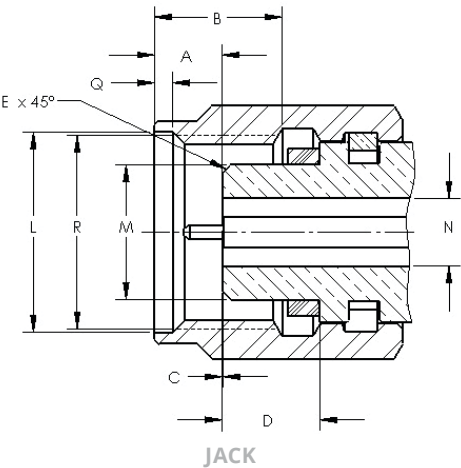
Radiall offers 2.4 mm connectors for semi-rigid and low loss flexible cables, receptacles, and precision adapters.

Connectors for low loss flexible cables and TestPro cables are not detailed in this section. They are available in our cable assembly offer.

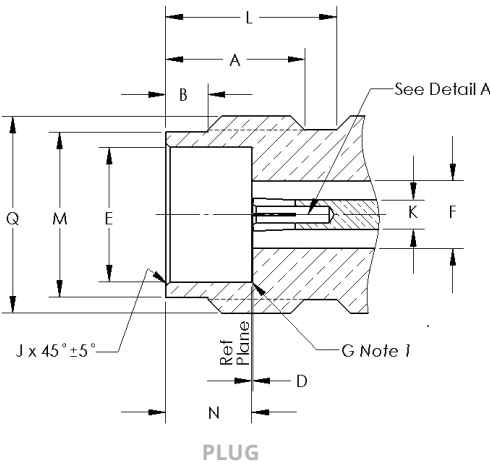
2.4 MM DESIGN FEATURES

- Excellent performance up to 50 GHz
- Low VSWR and insertion loss
- Rugged construction for reliability
- Mechanically compatible with 1.85 mm connector series

INTERFACE



LETTER	MM		INCH
	MIN	MAX	MIN
A	1.8500	2.4500	0.0728
B	4.3400	4.6600	0.1709
C	0.0000	0.0760	0.0000
D	3.3800	3.4800	0.1331
L	7.0100	7.1100	0.2760
M	4.7250	4.7500	0.1860
N	2.3875	2.4125	0.0940
Q	0.5100	0.7700	0.0201
R	M7x0.75-6H		



LETTER	MM		INCH
	MIN	MAX	MIN
A	4.8000	5.0600	0.1890
B	1.3700	1.6300	0.0539
D	0.0000	0.0760	0.0000
E	4.7700	4.7950	0.1878
F	2.3875	2.4125	0.0940
K	1.0290	1.0540	0.0405
L	6.0000	-	0.2362
M	5.7900	5.8900	0.2280
N	3.0000	3.1000	0.1181
Q	M7x0.75-6G		

2.4 MM

CHARACTERISTICS

TEST / CHARACTERISTICS	VALUES / REMARKS
------------------------	------------------

ELECTRICAL CHARACTERISTICS

Impedance	50Ω
Frequency Range	DC - 50 GHz
V.S.W.R.	< 1.05 + 0.003 F (GHz)
Insertion Loss	0.04 √ F (GHz)
RF Leakage	- 100 dB max
Insulation Resistance	<= 1400Veff
• Contact Resistance	> 5000 mΩ
Contact Resistance	< 0.8 mΩ
• Outer Conductor	< 4 mΩ
• Inner Conductor	
Voltage Rating	250 V(RMS)
Dielectric Withstanding Voltage	500 V(RMS)

MECHANICAL CHARACTERISTICS

Mechanical Endurance	500 Matings
Force to Engage and Disengage	< 23 N cm
Mating Torque	90 N cm
Coupling Nut Retention Force	< 272 N
Cable Retention Force	
• Outer Conductor	130 N
• Inner Conductor	
Contact Captivation	27N

ENVIRONMENTAL CHARACTERISTICS

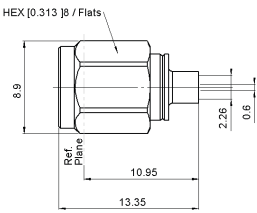
Temperature Range	-65 °C / + 165 °C
Thermal Shock	MIL STD 202, Method 107, Condition B, -65 °C / + 165 °C
High Temperature Test	MIL STD 202, Method 108, Condition D, 1000 H at 150 °C
Corrosion (Salt Spray)	MIL STD 202, Method 101, Condition B, 48 H / 35 °C / 5 %
Vibration	MIL STD 202, Method 204, Condition H, 30g RMS
Shock	MIL STD 202, Method 213, Condition I, 100g
Moisture Resistance	MIL STD 202, Method 106, 80% / 100% 25 °C / 65 °C 10 Cycles

MATERIALS AND PLATING

	Material	Plating
Bodies	Beryllium Copper	Cu2.5 Au0.8
Outer Contact (Body Insert)	Brass	Cu2.5 Au0.8
Center Contacts	Beryllium Copper	Ni2 Au1.3
Coupling Nut	Stainless Steel	Passivated
Gaskets	Silicone Rubber	-
Insulators	PEEK	-

2.4 MM

PLUGS, JACKS AND RECEPTACLES
STRAIGHT PLUGS, SOLDER TYPE FOR SEMI-RIGID CABLES



CABLE GROUP	CABLE GROUP DIA.	PART NUMBER	CAPTIVE CENTER CONTACT
RG405	.085"	R327 052 000	Yes
RG405	.085" Microporous	R327 052 202	

STRAIGHT JACKS, SOLDER TYPE FOR SEMI-RIGID CABLES

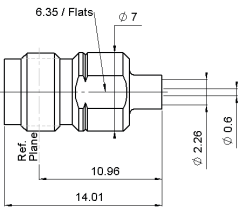


FIG. 1

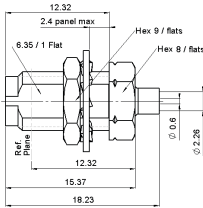
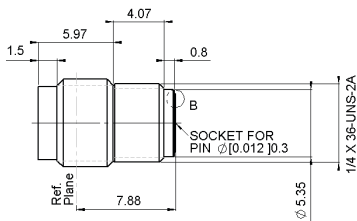
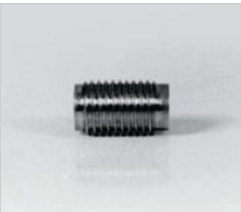


FIG. 2

CABLE GROUP	CABLE GROUP DIA.	FIG.	PART NUMBER	CAPTIVE CENTER CONTACT
RG405	.085"	1	R327 222 000	Yes
	.085" Microporous		R327 222 200	
	.085"	2	R327 316 000	
	.085" Microporous		R327 316 010	

UNIVERSAL SCREW-ON FEMALE RECEPTACLES



PART NUMBER	USING WITH GLASS BEAD	FOR PIN DIAMETER
R327 556 000	R280 760 040	0.3 (0.12)

2.4 MM

FLANGE RECEPTACLES

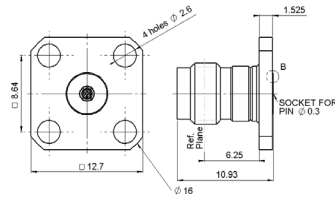


FIG. 1

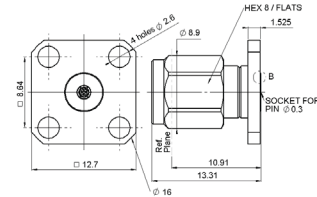


FIG. 2

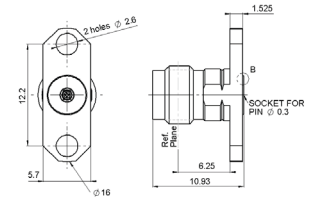
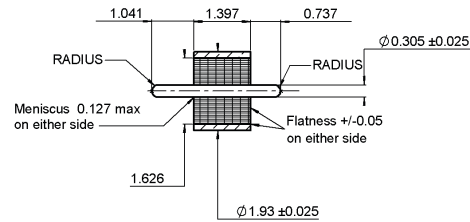


FIG. 3

PART NUMBER	FIG.	CAPTIVE CENTER CONTACT	PANEL DRILLING	USE WITH GLASS BEAD	FOR PIN DIAMETER
R327 430 000	1	Yes	P01	R280 760 040	0.3 (0.12)
R327 411 000	2		P02		
R327 465 000	3				

GLASS BEAD



PART NUMBER	PACKAGING
R280 760 040	100

2.4 MM

IN SERIES ADAPTERS AND PANEL DRILLING

IN SERIES ADAPTERS

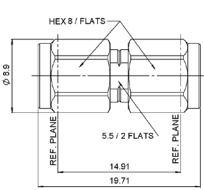


FIG. 1

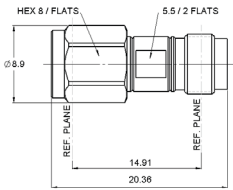


FIG. 2

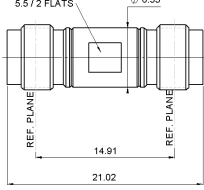


FIG. 3

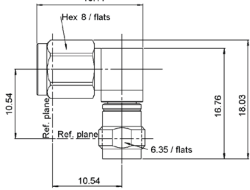
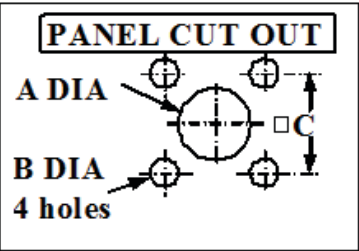


FIG. 4

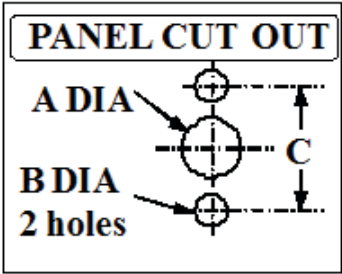
PART NUMBER	FIG.	FOR PIN DIAMETER
R327 703 000	1	Male / Male
R327 704 000	2	Male / Female
R327 705 000	3	Female / Female
R327 771 000	4	Male / Female Right Angle

PANEL DRILLING

P01



P02



LETTER	MM		INCH	
	MIN	MAX	MIN	MAX
A	1.63	1.60	0.064	0.063
B	2.70	2.60	0.106	0.102
C	8.69	8.59	0.342	0.338