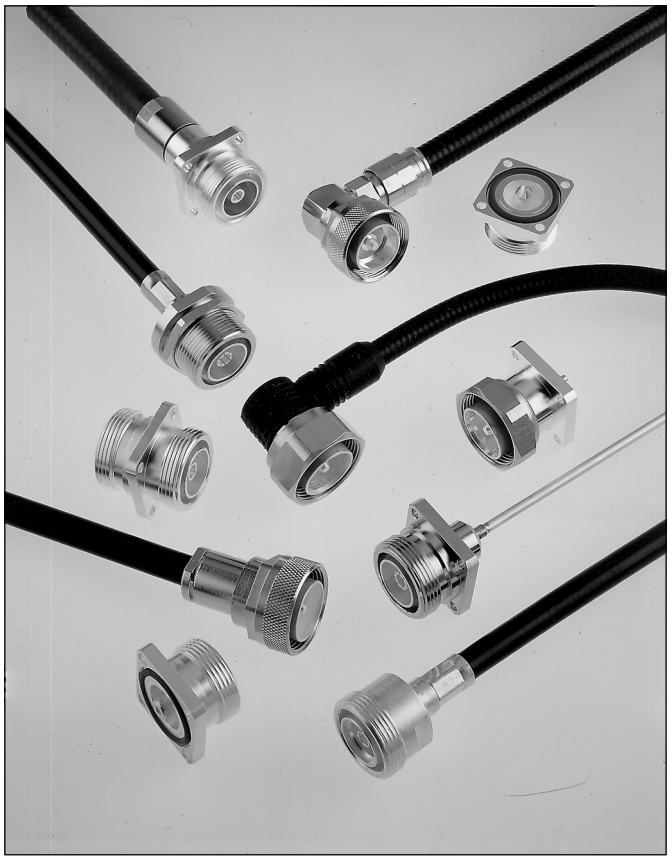
7/16

GENERAL



50 Ω	DC - 7.5 GHz

GENERAL

- Standard coaxial connectors
- Screw–on coupling
- High power rating
- Excellent RF performance

APPLICABLE STANDARDS

- IEC 169-4
- DIN 47223
- CECC 22 190

APPLICATIONS

- Mobile communication infrastructure networks : combiner, diplexer, filter...
- Jumper and feeder cables assemblies
- RLL (Radio Local Loop) base station
- Radio links
- Indoor and outdoor applications

INTRODUCTION

The new Radiall 7/16 series has been developed using the latest advances in connector design.
These connectors are easy-to-use, highly reliable, innovative and are designed to meet the needs of Telecommunications market. The complete series features the following characteristics :

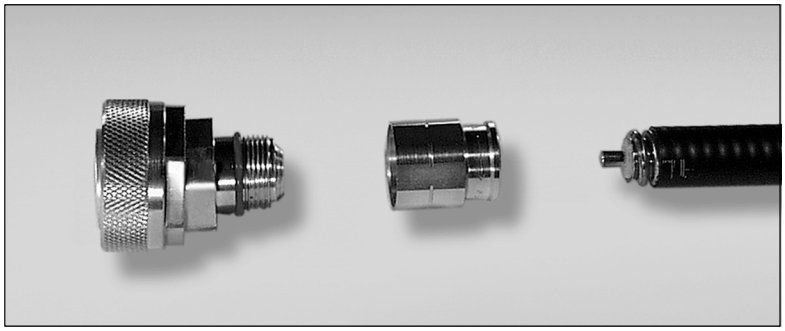
- extensive range, with optimized component part design
- upgraded cross-knurled coupling nut allowing better manual tightening

More than 35 new models : receptacles, cable connectors and adapters (including Push-on * interface)...

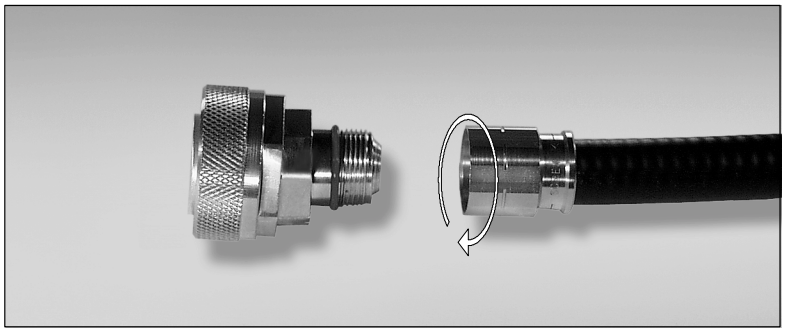
EASY FIT connectors

We have developed EASY FIT connectors for 1/4", 3/8", 1/2" spiraled cables and for 7/8" annealed cable with 2 piece parts for easy and quick outdoor installation.

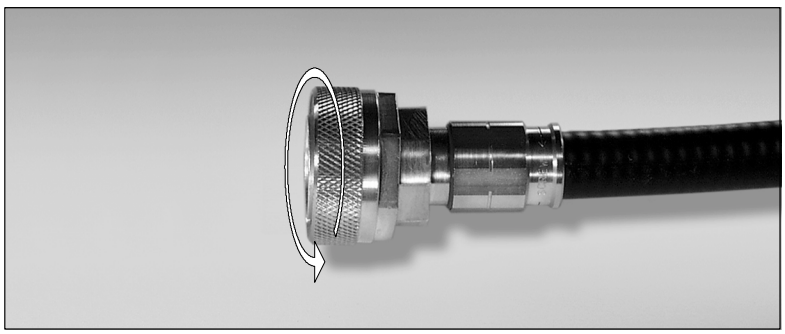
Only 3 assembly steps :



***1**- Strip your cable using Radiall's stripping tool*



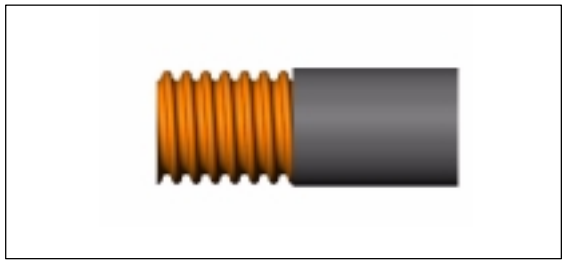
***2**- Screw the clamp nut onto your cable.*



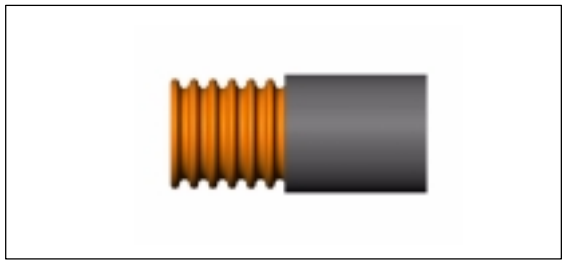
***3**- Screw the body onto the clamp nut using Radiall's torque wrench (see page 43).*

Our standard EASY FIT 7/16 connectors for corrugated cables have been specially designed to fit both HELIAX® coaxial cables and CELLFLEX® cables.

We can also develop custom 7/16 connectors to be assembled on your specific corrugated cable. We offer connectors for spiraled and annealed cables. The difference between both corrugated cable types stands in the conformability, as shown here below.



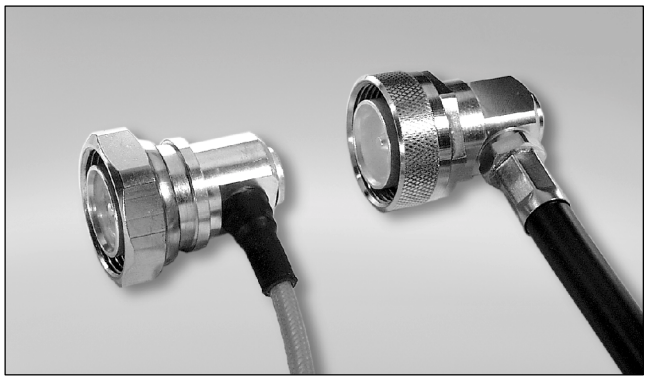
Spiraled cable = Superflexible cable



Annealed cable = Flexible cable

High performance range

- Frequency range : DC - 7.5 GHz
- 2 types of coupling nut :
  - cross-knurled and 6 flats 27mm wide *coupling nut (3000 N.cm)*
  - new 6 flats coupling nut (32 mm wide), allowing high *coupling torque (3500 N.cm)*, thanks to torque wrench.
- Intermodulation performance : 2 levels
  - 125 dBm cable assemblies (see page 28-30)
  - 110 dBm connectors and cable assemblies



2 types of coupling nut

RADIALL has developed its intermodulation measurement equipment following the IEC 46 D/292/NP standard proposal. It is aimed at third order IMP measurements through the reflection method.

The range of this test set-up is -132 dBm (-175 dBc) under 2 x 20 W.

- High performance non magnetic material (brass) and plating (silver) with anti tarnishing finish (strike of BBR).
- Non slotted outer contact on standard products

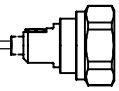
The new Radiall 7/16 series benefits from a complete easy-to-use range of tooling.

Custom models

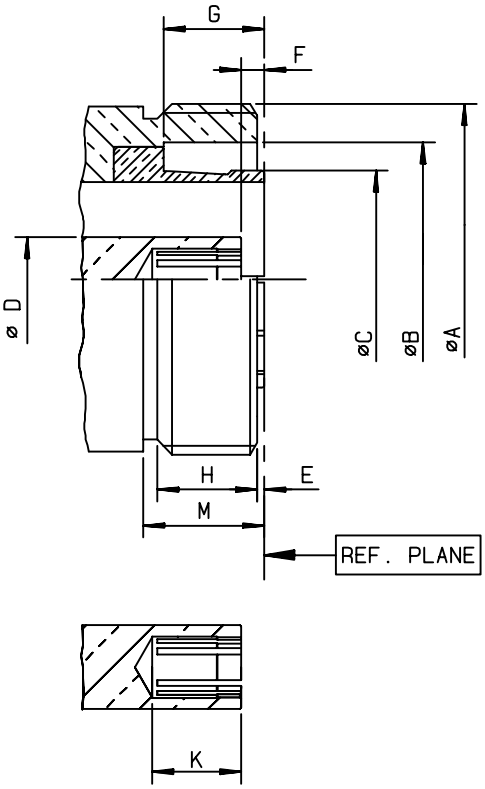
Designed to fulfil customer requirements according to the 7/16 series standard. Radiall fully masterizes the complete designing of custom connectors.

Radiall also offers a complete range of RF & MICROWAVE PASSIVE COMPONENTS : TERMINATIONS, ATTENUATORS, LIGHTNING PROTECTORS, etc all designed around the 7/16 series interface.(see page 31-36)

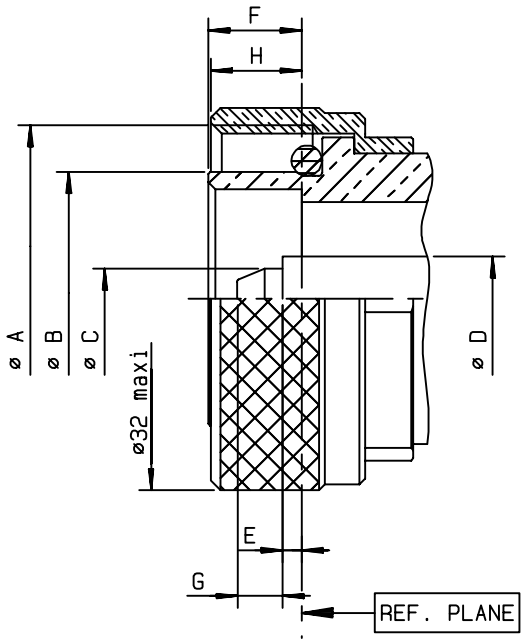
For further details, please read our :
INTERMODULATION APPLICATION GUIDE ***D1 032 DE*** - BBR PLATING APPLICATION GUIDE ***D1 030 DE.***



JACK



PLUG



JACK

LETTER	mm		inch	
	min.	max.	min.	max.
A DIA	M29 x 1.5		M29 x 1.5	
B DIA	22.5	22.7	.885	.893
C DIA	17.9	17.96	.704	.707
D DIA	6.95	7	.273	.275
E	0.5	0.7	.019	.027
F	1.77	2.07	.069	.081
G	8.2	8.4	.322	.33
H	8.25	8.75	.324	.344
K	7.25	7.55	.285	.297

PLUG

LETTER	mm		inch	
	min.	max.	min.	max.
A DIA	M29 x 1.5		M29 x 1.5	
B DIA	20.8	21	.818	.826
C DIA	4.97	5.03	.195	.198
D DIA	6.95	7	.273	.275
E	1.47	1.77	.057	.069
F	7.4	7.8	.291	.307
G	3.6	4	.141	.157
H	7.3	7.8	.287	.307

All dimensions are given in mm.

CHARACTERISTICS

TEST/CHARACTERISTICS	STANDARD REFERENCE	VALUES/REMARKS

ELECTRICAL CHARACTERISTICS

Impedance		50 Ω			
Frequency range		DC - 7.5 GHz			
V.S.W.R. (typ.)		1 GHz	2.5 GHz	5 GHz	7.5 GHz
Straight models :		**1.10 max from DC to 3 GHz - 1.20 max from 3 to 7.5 GHz**			
RG213-RG214-RG393		1.04	1.06	1.08	1.10
.141"		1.04	1.07	1.08	1.20
.250"		1.03	1.05	1.11	1.13
1/2" spiraled		1.02	1.04	1.05	1.05
3/8" spiraled		1.03	1.03	1.12	1.20
1/4" spiraled		1.01	1.02	1.09	1.17
Right angle models		**1.15 max from DC to 3 GHz**			
RG213-RG214-RG393		1.02	1.04	1.12	1.50
1/2" spiraled		1.04	1.04	1.14	1.60
3/8" spiraled		1.05	1.08	1.12	1.80
1/4" spiraled		1.02	1.06	1.13	1.60
Intermodulation product (IMP_3)					
Connectors		- 110 dBm typ. (- 153 dBc typ / 20 W)			
Home made cable assemblies		- 125 dBm typ. (- 168 dBc typ. / 20W)			
Insertion loss (dB) *straight connectors and right-angle connectors*	MIL	$0.05\sqrt{F(GHz)}$			
RF Leakage	CECC	130 dB at 1 GHz			
Insulation resistance	CECC	10000 MΩ min			
Contact resistance *center contact*	CECC	< 0.4 mΩ			
outer contact		$\leqslant 1.5$ mΩ			
Working voltage in VRMS *at sea level*	CECC	2700			
Dielectric withstanding voltage in VRMS					
at sea level	CECC	4000			
(at 70, 000 feet)		350			

MECHANICAL CHARACTERISTICS

Durability	CECC	500 matings
Force to engage and disengage	CECC	15 N
Recommended coupling nut torque		
Hex. coupling nut		3500 Ncm (with torque wrench R 282 303 500)
Hex. + cross knurl coupling nut		3000 Ncm (with torque wrench R 282 303 520)
Proof torque	CECC	3500 Ncm
Coupling nut retention force	CECC	1000 N
Cable retention force *cable 5/50*	CECC	250 N
cable 10/50		250 N
cable 1/4"		200 N
cable 3/8"		250 N
cable 1/2"		350 N
cable 7/8"		500 N
Center contact retention force	CECC	200 N

ENVIRONMENTAL CHARACTERISTICS

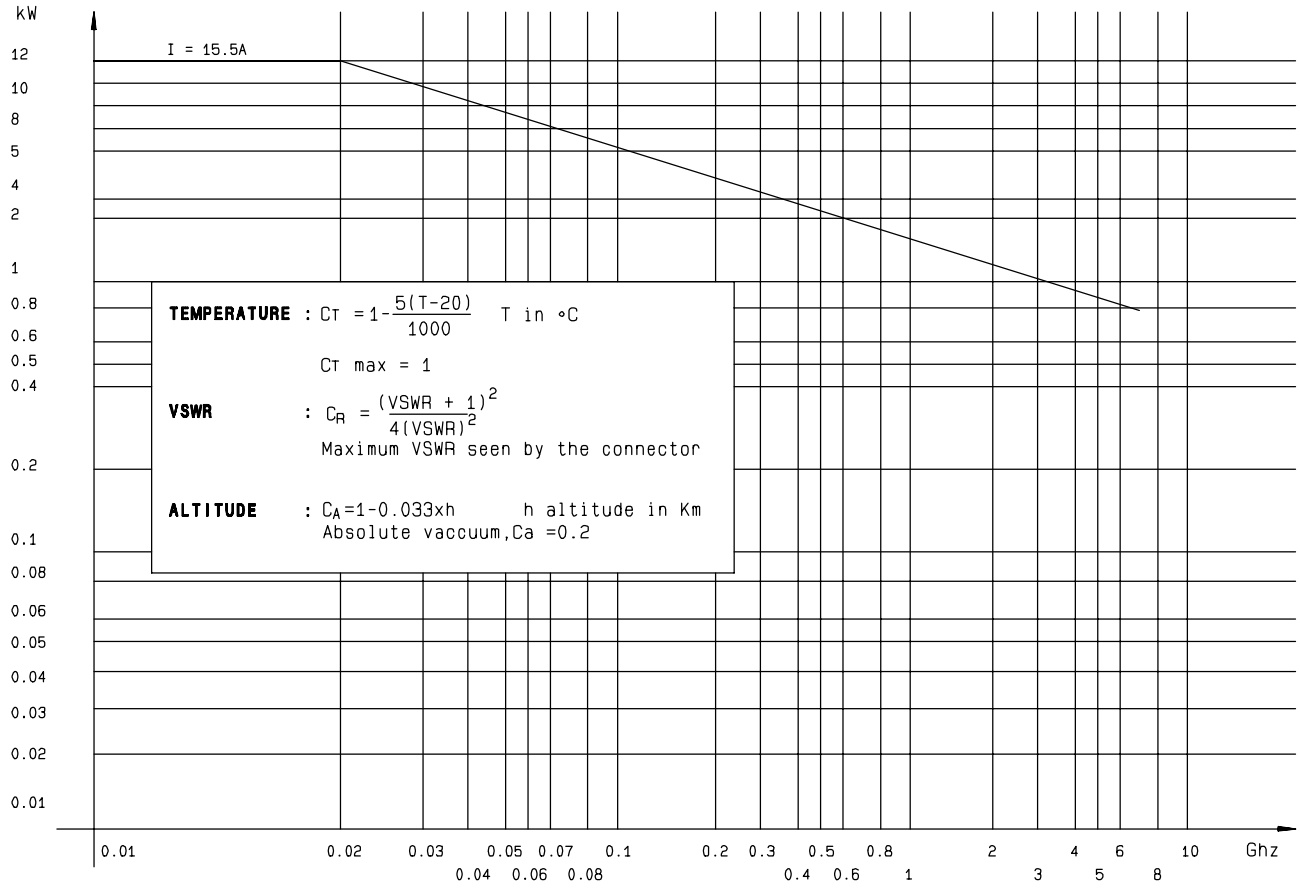
Temperature range *flexible cables*	CECC	- 55°C + 155°C
semi-rigid cables		- 55°C + 105°C
corrugated cables		- 55°C + 155°C
Thermo cycling test	CECC	- 55°C / + 155°C / 56 days
Rapid change of temperature	IEC	- 55°C / + 155°C / 5 cycles
Hight temperature test	CECC	1000 hours / 155°C
Corrosion salt spray	IEC	48 hours / Na Cl 5% / 35°C
Vibration	CECC	98 m/s^2 - 10 Hz at 500 Hz
Moisture resistance *clamp type*	IEC 529	IP67
crimp type		IP65 (with heatshrink sleeve)
home made cable assemblies		IP68 (overmolding)
Hermetic test	CECC	5 Pa. cm^3/s
Leakage	CECC	1 cm^3/h max

7/16

CHARACTERISTICS

TEST/CHARACTERISTICS	STANDARD REFERENCE	VALUES/REMARKS
MATERIALS		
Bodies		Brass
Nut		Brass
Center contact *male* *female*		Brass Beryllium copper
Insulator		PTFE
Gasket		Silicon rubber
PLATINGS		
Bodies		Silver + BBR
Coupling nut		BBR
Center and outer contacts		Silver

POWER RANGE



Some connectors may feature different performance depending on the application they have been designed for, or according to the applicable cable.