

Connectors

Overview



CELLFLEX

	7-16 DIN	N	7/8" EIA	1-5/8" EIA	BNC	SMA	TNC	UHF	4.1-9.5
SCF14-50	•	•			•	•	•	•	
SCF38-50	•	•							
SCF12-50	•	•	•				•	•	•
UCF78-50A	•	•		•					
UCF114-50A	•	•	•	•					
LCF14-50	•	•					•		
LCF38-50	•	•	•				•		
LCF12-50	•	•	•					•	•
LCF58-50	•	•							
LCF78-50A	•	•	•	•					
LCF5114-50A	•	•	•	•					
LCF158-50A	•	•	•	•					
LCF214-50A	•			•					

RG Type Cables

	N
RGC-8	•
RGC-213	•

HELIFLEX

	7-16 DIN	N	7/8" EIA	1-5/8" EIA	3 1/8" EIA	4 1/2" EIA	6 1/8" EIA	100-230	SPLICE
HCA38-50	•	•	•						
HCA12-50	•	•							
HCA58-50	•	•	•						
HCA78-50	•	•	•						•
HCA118-50	•	•	•	•					
HCA158-50	•	•	•	•	•				•
HCA214-50		•	•	•	•				•
HCA300-50					•				•
HCA318-50				•	•				•
HCA418-50						•	•		•
HCA500-50						•	•		•
HCA618-50							•		•
HCA800-50								•	•
HCA900-50								•	•

Introduction

CELLFLEX®

Premium is Our Standard

Connectors for CELLFLEX® foam dielectric cables feature a self-flaring design for low VSWR and easy installation. Contacts are silver or gold plated (ss, sg). The connector design has been optimized to ensure superior intermodulation performance as well as premium low VSWR. Therefore, connectors from RFS are always premium quality.

- Resilient contacts: CuBe, tempered spring bronze
- Insulation: PTFE/FEP/PE/cross-linked polystyrene
- Center and outer conductor parts: Copper alloy, silver-plated
- Other metal parts: Copper alloy, nickel-plated
- Gaskets: Silicone rubber

Traditional Connectors

These connectors use a proven and reliable collet-style attachment and offer outstanding electrical performance paired with rugged mechanical features. For available types and plating, see the connector selection guide.

Their trimming dimensions vary from both CAF and RAPID FIT™, so they can be installed using a different preparation tool (which is recommended), or simple hand tools.

RAPID FIT™ Connectors

RFS's RAPID FIT connectors are renowned for performance, ease of installation and ruggedness.

Installation time and associated costs are greatly reduced because it is no longer necessary to disassemble the connector before installation. The potential loss of smaller parts during installation has been eliminated. The connector can be easily unmounted and reused if required. O-ring or Plast 2000* sealing ensures excellent water tightness.

A special trimming tool is recommended and available from RFS for trimming the cable. The use of the trimming tool enhances the speed and quality of the installation.

RAPID FIT™ connectors are available for:

- SCF38 • SCF12 • UCF78A • UCF114A
- LCF12 • LCF58 • LCF78A • LCFS114A
- LCF158 • LCF214A

For LCF78-50A and UCF78-50A, RFS is now introducing the RAPID FIT 2™ connector line to

continue to meet the demanding requirements of the world's markets. This connector is initially available in the 7/8" size only but will be extended to other sizes as required.

RGFLEX™

A variety of connectors for RGFLEX cables are available to meet most customers needs.

HELIFLEX®

All connectors for HELIFLEX® cables are characterized by excellent gas tightness and extremely low losses. HELIFLEX® connectors can be installed with basic hand tools, but the use of dedicated installation tools further facilitates ease of assembly and improves performance.

Premium Connectors

HELIFLEX® premium connectors have excellent electrical values and provide outstanding performance for the most demanding applications. The connector design provides maximum sealing integrity and gas tightness. For even higher performance needs, tunable connectors are available to optimize the VSWR according to the operating frequency band.

RAPID FIT™ Connectors

RAPID FIT™ connectors use a simple technique for easy installation. RAPID FIT™ connectors are a single-piece design that quickly terminate to the cable. After cutting the jacket to the required length the connector is screwed onto the cable and tightened. It is not necessary to flare the outer conductor, so a flanging tool is not required for RAPID FIT™ connectors.



* Plast 2000 is a trademark of Spinner GmbH

Connectors

Introduction

Connector Series 7-16

The 7-16 connector is the most rugged RF connection meeting all requirements even under severe environmental conditions.

Connector Series N

The N connector is one of the most common RF connector types. N type connectors from RFS will be delivered with a non-slotted outer conductor contact sleeve and a special gasket. Due to a special design of the coupling nut (without spring ring) N connectors can be tightened with increased torque. This increases the contact pressure.

Connector Series EIA

To join two cables with EIA connectors, two identical socket connectors are installed on one end of the cables to be joined, and a coupling element is required to make the connection of the center conductor. The coupling element must be ordered separately.

Connectors are available in sizes matching the nominal cable size. EIA connectors provide optimal power handling for the complete transmission line system.

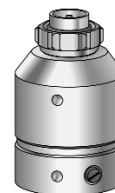
Connectors Series 100-230

This special design is exclusive for 8" and 9" diameter HELIFLEX® cables and are optimized for high-power, low-frequency applications. They are designed to be welded onto the inner and outer conductors to provide years of trouble-free operation. The coupling interface is comparable to EIA-type flanges and uses coupling elements for inter-connection between identical connectors.

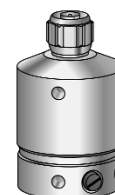
TNC connectors are identical to BNC connectors except for the coupling nut. The electrical performance of TNC connectors is superior to BNC connectors. RFS connectors are torque-tightened with a torque of 4 Nm.

The rugged design of the 4.1 - 9.5 connector series is suitable for outdoor installation. The performance is superior to the N connector series with dimensions comparable to the N connectors.

4 - 11 connectors are designed for extremely adverse mechanical and environmental conditions. The three-nosed bayonet coupling guarantees a safe contact even under severe vibration and shock conditions.



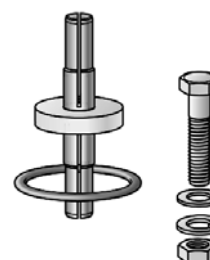
Connector 7-16 male, P2000



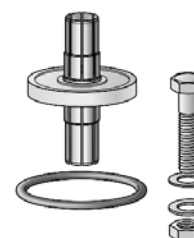
Connector N-male, P2000



Connector 1-5/8" EIA, P2000



Coupling Element for 7/8" EIA



Coupling Element for 1-5/8" EIA

Reliable Sealing

At RFS, we think in sub-systems rather than just in single products. One good example that demonstrates our philosophy is the way in which we deal with the sealing of CELLFLEX® and HELIFLEX® connectors.

There are several solutions for the water-proofing of CELLFLEX® and HELIFLEX® connectors. Instead of relying on additional weatherproofing kits only, our connectors are perfectly sealed against environmental threats by using specially designed O-rings or gasket seals, or by injecting Plast 2000 between the cable and connector interface.

When discussing water-resistance one needs to differentiate two cases. The first case is transversal, where humidity enters from outside the coaxial system; the second case is longitudinal where humidity enters from inside, for instance through a damaged antenna.

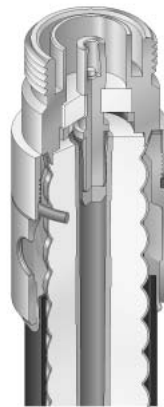
The connection between two connectors provides a water-tight seal by inserting an O-ring in the interface. All components in the connector assembly are protected against water-ingress by the installation of O-rings that are factory assembled. Water-proofing of the coupling nut against the cable jacket and outer conductor is achieved by several methods.

One method is the injection of a specially designed sealing compound known as Plast 2000. Plast 2000 is designed to cure upon contact with the air and retains its flexibility after setting. It is injected after the connectors are attached.

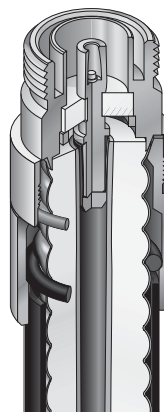
Another method is the use of specially designed O-rings or gasket seals that seal against the outer conductor. For severe environmental conditions additional sealing against the jacket can be achieved by a heat-shrink sleeve with thermoplastic adhesive or a cold shrink sleeve.

Also used are specially designed O-rings or gasket seals that seal against the corrugation valleys of the outer conductor and connector inner surfaces. These seals have a greater surface area to keep water out of the backshell entrance, and do not rely on the surface quality of a single corrugation ridge.

Longitudinal watertightness for our connectors is achieved by properly designed dielectric beads. In this way water penetration along the cable axis is blocked from entering the cable. One exception would be EIA gas-pass connectors for HELIFLEX® cables.



Sealing with Plast 2000



Sealing with O-ring



Sealing with Gasket

Connectors

Reliable Sealing

Plast 2000

Plast 2000 has a very good adhesion to the metallic parts of the connector and to the cable. The curing process depends on the humidity and temperature of the air. Under normal conditions the sealing against moisture is effective in a short time.

Plast 2000 is supplied in tubes of 20 ccm and 70 ccm contents. The 20 ccm tube can be screwed directly into a port of the coupling nut. If large quantities of connectors are to be sealed with Plast 2000 we recommend an injection gun.

RFS professional sealing concepts give reliable protection, up to IP 68 level, such ensuring performance under any climatic conditions.

Profile Gasket/Heat Shrink Tube

Superflexible cables are sealed with heat shrink tubes or specially designed sealing glands. SCF12-50 and SCF38-50 type connectors use a specially designed sealing gland that seals the connector to the outer conductor of the cable and the jacket. SCF14-50 type connectors use heat shrink with an adhesive that bonds itself to the connector backshell and cable outer conductor and jacket. These concepts again prevent moisture advancement into the connector even in the event that the cable jacket should be damaged.

O-ring Seals

In addition to the standard O-ring seals found in N and 7-16 DIN connector interfaces and between the front and rear connector body halves, O-ring seals can be successfully used to waterproof cable entry points of the connector, too. Silicon O-rings are easy-to-use and provide years of reliable service, surviving all varieties of environmental conditions. Threaded gasket seals are used for helically corrugated cables like SCF and HCA cables, and provide a water-seal around complex corrugation profiles. The RFS design places the O-ring in the corrugation valley of the cable, and then seals against the inner wall of the connector backshell. O-ring lubricant is included with the connector to facilitate simple installation.



Plast 2000 Sealing Compound



Sealing with heat
shrinking tube



Sealing with profile
gasket

CELLFLEX	Cable type	Plast content (approximately)
	UCF78-50A	7 cm ³ (cc) (0.24 US fluid ounces)
	UCF114-50A	15 cm ³ (cc) (0.51 US fluid ounces)
	LCF12-50	4 cm ³ (cc) (0.14 US fluid ounces)
	LCF58-50	6 cm ³ (cc) (0.20 US fluid ounces)
	LCF78-50A	7 cm ³ (cc) (0.24 US fluid ounces)
	LCF114-50A	15 cm ³ (cc) (0.51 US fluid ounces)
	LCF158-50A	20 cm ³ (cc) (0.68 US fluid ounces)
	LCF214-50A	28 cm ³ (cc) (0.95 US fluid ounces)
HELIFLEX		
	HCA38-50	5 cm ³ (cc) (0.17 US fluid ounces)
	HCA58-50	5 cm ³ (cc) (0.17 US fluid ounces)
	HCA78-50	5 cm ³ (cc) (0.17 US fluid ounces)
	HCA118-50	10 cm ³ (cc) (0.34 US fluid ounces)
	HCA158-50	20 cm ³ (cc) (0.68 US fluid ounces)
	HCA295-50	40 cm ³ (cc) (1.36 US fluid ounces)
	HCA318-50	70 cm ³ (cc) (2.37 US fluid ounces)
	HCA418-50	120 cm ³ (cc) (4.06 US fluid ounces)
	HCA500-50	250 cm ³ (cc) (8.45 US fluid ounces)
	HCA618-50	300 cm ³ (cc) (10.10 US fluid ounces)
	HCA800-50	900 cm ³ (cc) (30.40 US fluid ounces)